



New York City Public Schools Equipment Energy Use Evaluation Phase II Report

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Executive Summary

Statement of Problem

The NYC School Construction Authority (SCA) builds more than 10 new schools or additions every year. Under Local Law 31 of 2016, these projects must be designed to achieve a source energy use intensity (EUI) of no more than 70 kBtu/sf/year. Starting in 2030, this target will be reduced to 38 kBtu/sf/year. Under Local Law 97 of 2019, the SCA is also charged with helping the City of New York to reduce the greenhouse gas (GSG) emissions from City government operations 50% by 2030. Most of these emissions come from energy use in City-owned buildings, including schools.

The SCA has responded to these and other mandates by significantly improving its energy performance requirements for the construction of new schools and additions, also known as capacity projects. As SCA design standards for building envelopes, MEP equipment, lighting, and even elevators have improved, non-regulated equipment has constituted an increasing share of the energy consumption of new schools. This study investigates opportunities to reduce the energy consumption of the kitchen, instructional, and building services equipment installed in SCA capacity projects.

Review of Phase I Study

EME Consulting Engineering Group, LLC (EME) was contracted in Fiscal Year 2020 by the NYC SCA to evaluate equipment energy use in typical schools associated with plug loads (Phase I Study). The goal of this evaluation was to catalog existing receptacle powered miscellaneous equipment and identify alternatives that reduce non-regulated loads.

EME Group focused its evaluation on three schools (existing or in construction): HS “C” in Queens, a PS in Queens, and an IS in Staten Island. In brief, the tasks associated with this evaluation were as follows:

- Review SCA and Department of Education (DOE) existing drawings and specifications to document existing equipment standards and develop equipment inventories.
- Identify energy efficient alternatives for equipment, identify vendors, and develop incremental costs for alternative equipment use. Research methods for load management, including timers, advanced power strips, and virtual servers.
- Create energy models of each school with DOE2.2/eQuest to simulate energy use of all procured non-regulated equipment as existing case as well as with alternative equipment.
- Quantify the impact on annual energy consumption, energy costs, first/implementation costs, and carbon emissions if alternative equipment is used in each school.

The Phase I Study identified the following strategies to reduce plug load energy consumption: (1) replacement products for non-regulated equipment, (2) outlet timers, (3) smart/advanced power strips, and (4) server virtualization. The study presented annualized estimated energy consumption and energy cost savings from use of energy efficient alternative equipment and plug load management strategies. Based on the results of this evaluation, the study found that use of an updated, alternative equipment standard could:

- Reduce carbon emissions associated with each site modeled by **7-18 tons** or **2-8%**,
- Reduce the source energy use intensity (EUI) at each site modeled by **3-9%**,
- Reduce annual energy consumption and cost at each site modeled by **11-17%** and **3-10%**, respectively,
- Reduce installed non-regulated equipment wattage at each site modeled **18-35%**, and
- Reduce equipment purchase costs.

The Phase I Study further recommended that the use of alternative non-regulated equipment selections be subject to a pilot study and, assuming performance as predicted by the study, be incorporated into existing equipment specifications and purchasing standards. The recommendations of the Phase I Study are re-evaluated in the Technology Description section of this Phase II report.

Objectives of Phase II Study

SCA initiated a second phase of the Equipment Energy Use Evaluation study in order to meet the latest SCA and DOE standards, including the switch to all-electric kitchens in SCA capacity projects; to represent the most up-to-date products; to provide more detailed information about recommended alternatives; to ensure that recommended alternatives were available from at least three vendors; and to vet these findings with key stakeholders in preparation for pilot demonstrations and standards updates.

Task 1: Review SCA Follow-up Items

SCA conducted internal stakeholder meetings to review the results and recommendations of the Phase I Report. EME conducted a review of meeting minutes and, together with SCA, proposed action items based on the recommendations from these meetings.

Task 2: Review Equipment in Current SCA Specifications

EME reviewed SCA's current standard specifications against those used in the initial Phase I report, identified differences between the equipment in the Phase I report and current specifications, and separated and presented the equipment based on type, function and procurement structure. Kitchen equipment types were updated based on SCA's new electric-based equipment standard. EME also reviewed changes to the NYC Energy Conservation Code and identified existing and proposed equipment that did not comply.

Task 3: Detail Advantages/Disadvantages of Equipment

EME evaluated advantages and disadvantages of typical equipment listed in the SCA specifications as well as recommended alternatives. This analysis included energy use, operational impacts, and first cost. EME then calculated the impact of the equipment savings on the overall building energy load, using existing Green Schools Guide (GSG) energy models. EME conducted research on the potential cost implications of the recommended alternatives.

Task 4: Identify Minimum of Three Manufacturers per Item

EME updated recommendations to include a minimum of three product manufacturers for the equipment alternatives wherever possible. Where this was not possible, EME provided information on the contributing technical or market limitations. EME compared costs, energy implications, and general market availability and reputation between manufacturers.

Task 5: Coordinate with Agency Departments to Implement Recommendations

EME initiated meetings and working sessions with applicable department teams, partner agencies, and consultants to review proposed recommendations, understand potential hurdles and identified solutions to advance the recommendations. These included:

- SCA Technical Support Services (TSS)
- SCA Furniture and Equipment (F&E)
- DOE Division of Instructional and Information Technology (DIIT)
- DOE Division of School Facilities (DSF)
- DOE Office of Nutritional and Food Services (Food Services)
- SCA kitchen consultant Romano Gatland

EME reviewed and compiled typical department purchasing standards based on staff interviews to identify equipment parameters and key product specifications.

Research Approach

The list of equipment evaluated in the Phase I Study was updated for the Phase II Study to reflect the latest SCA Standard Specifications and our current understanding of equipment requirements and use based on input from SCA TSS, SCA F&E, DOE DSF, DOE Food Services, DOE DIIT, and SCA kitchen consultant Romano-Gatland.

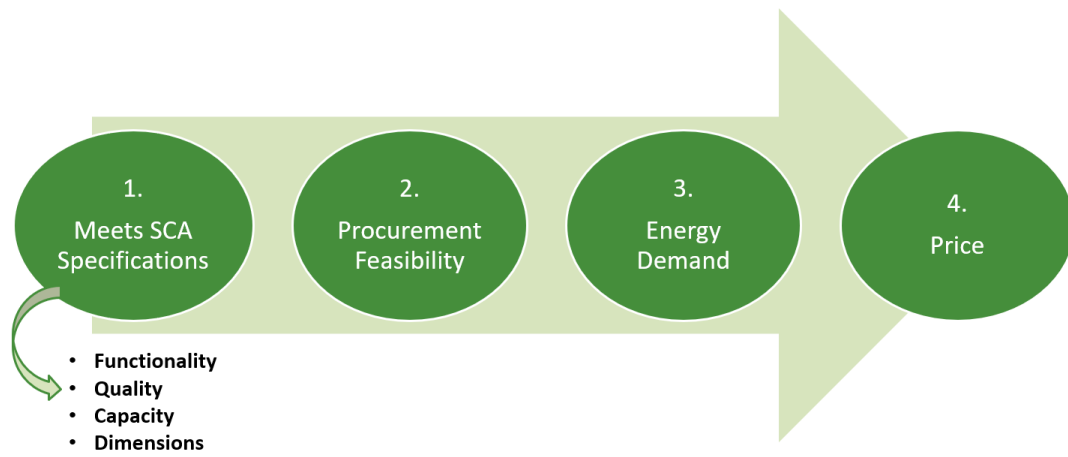
Equipment was researched using the manufacturers and parameters identified in the SCA Standard Specifications, cut-sheets from submittals for actual SCA capacity projects, EPA EnergyStar Certified equipment lists, direct outreach to manufacturers, and general internet searches. EPA EnergyStar was found to not be a good match at this time since its equipment lists did not include many of the recent models evaluated for this study. Kitchen equipment was also researched using AutoQuotes (AQ), a proprietary, comprehensive database of commercial kitchen equipment available in the U.S.

Where currently specified equipment has since been discontinued, the successor to the discontinued model or the most similar model available from the same manufacturer was used as the “current” model for this study, serving as the baseline for comparison with the proposed alternatives.

While the study sought to identify alternative models from at least three manufacturers, some of these alternatives were deemed more suitable than others. Recommendations for the most suitable alternative were based on the following factors, in order of prioritization: (1) alignment with SCA specifications such as functionality, quality, capacity, and dimensions; (2) procurement feasibility; (3) energy demand; and (4) price. Due to this prioritization, the “proposed” alternative utilized in the energy models is not always the most energy efficient alternative, but it is more efficient than the current standard and most closely matches the current SCA Standard Specifications.

The case studies evaluated in the Phase I Study were changed in order to better represent typical SCA capacity projects and take advantage of newer and more complete data.

- To better represent a small PreK-5 school, the PS in Queens used in the Phase I Study, a 77,000sf addition serving 793 students (including the existing school building) that was completed in 2019, was replaced by PS “A” in Brooklyn, a 60,000sf new school for 406 students that will be completed in 2025. Using PS “A” in Brooklyn also allowed the study to include equipment specific to warming kitchens.
- To better represent a mid-sized intermediate school, the IS/HS in Staten Island used in the Phase I Study, a 100,000sf new school for 452 District 75 students that was completed in 2018, was replaced by IS “B” in Queens, an 88,000sf new school for 876 students that was completed in 2019. Using IS “B” in Queens also allowed the study to include spaces more typical of general education intermediate schools, such as science labs, that were absent from the IS/HS in Staten Island used in the Phase I Study.
- To represent a large high school, the study continued to use HS “C” in Queens, a 110,000sf new school for 1,009 students that was completed in 2017. Because the servery design for HS “C” in Queens was updated during design, using this school allowed the study to compare the previous kitchen servery standard with the new “Cafeteria Enhanced Experience” servery standard. Equipment quantities in HS “C” in Queens were also updated to better match the furniture and equipment schedules.



Prioritization of Selection Factors for Potential Alternatives

Findings of Phase II Study

Of the 52 equipment types investigated within the scope of this study, proposed alternatives offering improved energy efficiency were identified for 36 equipment types. Given that kitchen equipment is typically more energy intensive than building services and instructional equipment, it was determined that replacing kitchen equipment with energy-saving alternatives represents the greatest opportunity for building-wide energy savings.

Based on the results of this evaluation, the study found that use of an updated, alternative equipment standard for kitchens could result in whole-building annual energy savings of 3.9% to 5.2% per school and annual GHG emissions savings of 4.9 to 10.8 MTCO₂e/yr per school. Considering only the equipment included in the scope of this study, the use of alternative equipment could result in isolated annual energy savings of 35.5% to 40.8% per school. The greatest energy savings come from (1) mobile heated cabinets, (2) mobile cold food counters, and (3) reach-in refrigerators with double doors.

In recent years, SCA has shifted towards installing “grab and go” serveries in IS and HS buildings, which require more merchandisers in the place of standard hot and cold food counters. It should be noted that merchandisers have similar energy demand to hot and cold food counters but have much larger annual energy use because they lose more energy to the ambient air.

Correspondingly, the study found that use of an updated, alternative equipment standard for building services and instructional equipment could result in whole-building annual energy savings of 0.14% to 1.6% per school and annual GHG emissions savings of 0.4 to 2.5 MTCO₂e/yr per school. Considering only the equipment included in the scope of this study, the use of alternative equipment could result in isolated annual energy savings of 26.0% to 38.4% per school. With network infrastructure and networked equipment excluded, the greatest energy savings come from (1) interactive monitors, (2) alternative science lab equipment, and (3) electric water coolers (drinking fountains).

Considering the collective impact of an updated, alternative standard for kitchen, building services, and instructional equipment, the study found that whole-building source EUI savings of up to 3.9 kBtu/sf/yr per school and GHG emissions savings of up to 11.2 MTCO₂e/yr per school is possible. It should be noted that total annual savings for instructional and building services equipment comprises less than one fifth of the savings calculated for kitchen equipment.

Technology Description and Applications

Replacement Products for Non-Regulated Equipment

The Phase II Study herein evaluates equipment under three general categories: kitchen equipment, building services equipment, and instructional equipment. The equipment types investigated for this study are included below.

KITCHEN APPLIANCES	
Can Opener	Range with Oven
Combination Oven, Double	Reach-In Freezer, Double
Drink Dispenser	Reach-In Freezer, Single
Food Processor	Reach-In Refrigerator, Double
Food Slicer	Reach-In Refrigerator, Single
Hot Food Slide	Sink Agitator
Merchandiser Heated	Sink Heater
Merchandiser Refrigerated	Steamer, Double
Milk Cooler	Therm and Hold Oven, Double
Mobile Cold Food Counter	Walk-In Cooler Refrigeration Unit
Mobile Heated Cabinet, Double	Walk-In Freezer Refrigeration Unit
Mobile Hot Food Counter	Water Filter

BUILDING SERVICES	INSTRUCTIONAL
Compactor	Lab Drying Oven
Display Monitor	Lab Explosion-Proof Freezer
Drinking Fountain	Lab Explosion-Proof Refrigerator
Drinking Fountain - Bi-Level	Lab Fume Hood
Drinking Fountain - Bottle Filler	Lab Ice Maker
Electric Scoreboard	Lab Mobile Plant Study Center
Microwave	Lab Sterilizer
Refrigerator – Full-Size	Monitor - Interactive
Refrigerator - Medical	Monitor - Whiteboard
Time Recorder	Projector
Workshop Drill Press	
Workshop Tool Grinder	

Considerations regarding relevant selection criteria and data sources used in the process of identifying replacement products are described below.

Electric Service Capacity and Voltage

The recommendations provided by this study may necessitate further study regarding changes in electric service requirements for SCA capacity projects, particularly when considered in conjunction with all-electric HVAC systems. Some of the alternative models identified in this equipment energy study are available in both 120V and 480V versions, with the latter sometimes (but not always) providing lower energy demand. If the SCA does move forward with 480V service for capacity projects, it should factor in the potential benefits of connecting some kitchen and custodial workshop equipment to this service.

Concurrently and unrelated to this equipment energy study, an SCA feasibility study on the complete electrification of HVAC systems at a HS in Queens prompted consideration of whether providing 480V service to the proposed HVAC equipment might be beneficial. The “Large High School Electrification Study” by OLA Consulting Engineers found that providing 480V service could eliminate the need for one of the two 3000 Amp services that would be required if using 120V service, and eliminate the need for a separate transformer room altogether. However, this option was not considered further for this study due to spatial and cost impacts including the need to add a network protector room.

Refrigerant Types

As of May 11, 2015, the US Environmental Protection Agency (EPA) enacted its Significant New Alternatives Policy (SNAP) program, which dictates that class I and class II refrigerants used in the foodservice industry must be closely regulated. This includes hydrofluorocarbons (HFCs) such as R-134 which are used in commercial refrigeration equipment and other building equipment such as air conditioners. For the purposes of this study, equipment models which utilize natural refrigerants are considered preferential to those which utilize HFCs.

Refrigeration Controllers

Smart refrigeration controllers, also known as “evaporator efficiency controllers” or “demand defrost controllers”, are already included in the SCA Standard Specifications as an energy conservation feature for freezers. Smart refrigeration controllers control the defrost cycle of the evaporator coil in the freezer so that it only defrosts when necessary, as opposed to operating on a timer. Because these controllers are already being installed in SCA capacity projects, any energy savings associated with the use of this technology are not considered in the scope of this study.

Condenser Technology

New equipment from manufacturer Turbo Air, including the proposed alternative for the double-door reach-in refrigerator, utilizes a patented self-cleaning condenser which uses a fine mesh filter to catch dust. The mesh is cleaned by a rotating brush that automatically moves up and down 2-3 times a day to remove the dust. For the purposes of this study, equipment models which include self-cleaning condenser technology are considered preferential to those without.

New equipment from manufacturer Traulsen, including models in the current SCA Standard Specifications, features a coating on the condenser coils that protects them from moisture and contaminants that could cause corrosion and pitting, reducing the need for preventative maintenance. For the purposes of this study, equipment models which include coated coils are considered preferential to those without.

Additional Equipment in School Spaces

Under Local Law 33 of 2018, owners of certain large buildings, including schools, are required to publicly display Building Energy Efficiency Ratings. In response to this legislation, DOE DSF initiated a study of 10 existing high-EUI schools to investigate key drivers of high energy use. As part of this effort, EME conducted site visits and completed plug load inventories at these schools. During the site visits, EME personnel noted non-standard equipment in classrooms, such as mini-fridges, microwaves, extra laptops, and small electric cooking appliances.

While such non-standard equipment is outside of the scope of this study, it can be assumed to increase classroom energy demand by up to 5%. One potential way to limit the impact of this additional equipment would be for DOE and SCA to develop standards for such equipment and, where appropriate, incorporate some of this equipment into the furniture plans of capacity projects as owner-purchased and owner-installed items.

Cost Data Sources

In general, cost information from sources other than recent SCA capacity project estimates and submittals should be considered highly provisional as they are contingent on numerous factors beyond the scope of this study including ongoing discontinuation of equipment models, add-on option and customization requirements, dealer relationships, volume discounts, and supply chain and inflation impacts that changed rapidly during the course of this study.

The estimated cost for each type of equipment was determined using the following resources, in order of preference: (1) recent SCA capacity project cost estimates and submittals, (2) AutoQuotes (AQ), (3) manufacturer websites, and (4) retailer websites. In cases where cost information was unavailable via online sources, a quote was obtained directly from the relevant manufacturer.

AQ is a comprehensive database of factory list prices for common kitchen equipment. Kitchen equipment is purchased from manufacturers by contractors/dealers who receive a discount of 30%-70% depending on the relationship between the contractor/dealer and the manufacturer, the purchase quantity, promotional incentives, and other factors.

In several cases, equipment models included in the SCA specifications have since been discontinued. In such cases it was difficult to determine a reliable cost estimate because a design change may render an older model obsolete, causing a sharp decline in its remaining value. For discontinued equipment, a cost estimate was provided if the original list price could be determined; otherwise a functionally equivalent, updated model from the same manufacturer was included as the “base case” for comparison to the proposed alternatives.

Where possible, cost sources are provided in the comparison tables for each type of equipment, with full website link addresses for online sources provided in Appendix C.

Costs are for equipment only and do not include installation costs or service contracts. However, none of the recommended alternatives appeared to have installation requirements that differed significantly from those of the currently specified products.

Technology Description and Applications from Phase I Study

Outlet Timers

Outlet timers are commonly used to address wasted energy from equipment left on during off-hours or equipment that has a significant stand-by power draw. These devices are commonly available commercially from manufacturers such as Honeywell, Leviton, and Woods. The most common equipment controlled by timers tend to be task lighting, computer monitors, cell phone/laptop chargers, personal space comfort equipment like fans and heaters, A/V equipment, and pantry appliances (i.e. coffee makers).

Outlet timers have evolved from older analog models such as residential models used to manage lighting when a home is vacant. Modern outlet times are digital, come in single or duplex models, have ground prongs, and support 24/7 programmable scheduling. While some models support occupancy sensing, time of day scheduling is more common due to its simplicity and immunity to false-positive occupancy readings. ASHRAE 90.1-2019 accepts either time-of-day scheduling or occupancy-based models to satisfy the requirements of *Section 8.4.2. – Automatic Receptacle Control*.

The Phase I Study indicated that the use of simple outlet timers on most non-regulated equipment could have a significant effect on reducing stand-by power consumption during periods when the schools are closed.

Smart/Advanced Power Strips

Smart or advanced power strips (referred to APS here) function to de-energize equipment or to automatically transition to a low-power state. APS are commonly found in office applications, or in other situations where there is a large amount of non-regulated equipment, and this equipment is related in task/use in some way (e.g. computers, monitors, printers, and other peripherals). These devices are commonly available commercially from manufacturers such as APC, Tripp Lite, GE, and Belkin. The Phase I Study indicated that the use of APS (and occupancy sensing) would not save more energy than standard outlet timers. This may have been due to limitations on how to model their use.

Server Virtualization

Traditional server architecture, even in smaller IT closet applications, tends to centralize like tasks (email, storage, etc.) on one server. The use of one server per task results in low utilization rates, which is the ratio of available computing power to the amount of useful work being done. Studies have found typical utilization rates to be between 12% - 18%. While utilization is low, power use by the server equipment remains high, near 60-90% of peak draw, representing a significant quantity of wasted energy.

“Virtualization” of a server allows a single physical server called a “host” to run multiple different workloads simultaneously through the use of a software simulation of a server coupled with an operating system. Host servers run at higher utilization rates, resulting in energy savings because fewer

physical servers are required to perform the same tasks as a traditional configuration; on average, a virtual host machine can perform the work of six (6) separate physical servers.

Additional energy savings can result from reduced energy consumption by power distribution units and uninterruptable power systems, as well as reduced HVAC requirements due to reduced waste heat. Costs include the cost of the physical host server, cost of virtualization software/operating system, and 3rd party server administration, cloud services, and support. Companies like Amazon Web Services (AWS), VMWare, Microsoft/Azure, and IBM all offer physical equipment, hosting, and management of virtualized servers.

Reconsideration of Phase I Study Energy Savings

According to DIIT, the potential applications of APS and outlet timers are limited because some equipment (i.e. computers, laptop charging stations) cannot simply be powered down during unoccupied periods; for example, some of this equipment must be on during school off-hours to allow for the downloading of updates from DIIT. Some or most of this equipment also automatically switches to sleep or standby mode when idle, reducing the usefulness of outlet timers and APS.

The Phase I Study indicated that server virtualization represented the largest potential reduction in non-regulated plug load power consumption. However, communication with DIIT during the Phase II Study revealed that DOE schools already use both onsite server virtualization (in which software allows a single server to perform the work of multiple servers) and offsite server virtualization (in which DIIT data centers and the cloud perform the work of onsite servers).

According to DIIT, server virtualization at NYC schools has increased over time, and is expected to keep increasing. For example, DIIT noted that previously, wireless access points needed to be connected to an onsite LAN controller; then the controllers were moved offsite to data centers; now the controller function is provided by the cloud, and DIIT standards no longer include a physical controller.

For these reasons, the energy savings from outlet timers, advanced power strips, and server virtualization projected by the Phase I study were not carried over into the Phase II study.

Equipment Exclusions

Networked Equipment Exclusions

At the direction of SCA, the following networked equipment was excluded from this study's investigation of potential energy-saving alternatives due to the complex and continually changing nature of DOE DIIT's standards for such equipment, including factors such as interoperability, security, and integration of legacy systems. DOE DIIT has its own equipment standards but is willing to comment on potential alternatives suggested by future studies. DOE DIIT is committed to exploring opportunities for using fewer pieces of equipment to perform more functions in order to maximize energy efficiency.

In new SCA capacity projects, typical networked equipment components, approximate quantities per school, and maximum power demand per device, are as follows, based on DIIT Standards Version 6.2:

- Core Network Infrastructure (located in MDF and IDF rooms)
 - Servers (1-2), 750W
 - Routers (1), 650W
 - Core Switches (0-2), 200W
 - Access Switches (2-50), 200W
 - Technician's Computer (1), 50-150W
- Peripherals
 - WiFi Access Points (20-50), 30W
 - Office Desktops with Monitors (20-40)
 - Classroom Desktops with Monitors (15-70)
 - Classroom Laptops (20-70)
 - Printers (25-35)
 - Photocopiers/Scanners (2-6)
- Voice Network
 - Switches, 500W
 - Controllers, 220W
 - Telephones (30-70)
 - Fax Machines (2-6)
- IPDVS (Internet Protocol Digital Video Surveillance) Network
 - Server (1, located in MDF), 550W
 - Technician's Computer (1), 50-150W
 - Desktop (1, located in Lobby), 250W
 - Main Viewing Station Monitors (2, located in Lobby), 30W
 - Cameras (25-70), 5-10W

MDF and IDF Room Cooling

Of all the internal heat gains created by electrical equipment in SCA schools, cooling for IDF and MDF rooms represents the most significant proportion by a considerable margin. However, like the networked equipment itself, DIIT cooling systems were determined to be outside the scope of this study because they are subject to DIIT standards.

DIIT cooling system sizing is based on the following cooling capacity requirements in the DIIT standards: 7,000 Btu for IDF (100 sf), 24,000 Btu for medium MDFs (150 sf), and 34,000 Btu for large MDFs (>200 sf). Because DIIT is not able to survey each school to more precisely calculate actual MDF and IDF cooling needs, the above described “cookie-cutter approach” to cooling system sizing is necessary. Most new SCA schools have one medium MDF and one to three IDFs; the number depends on the layout as well as the size of the school, as the length of the wiring connecting networked equipment to MDFs or IDFs is restricted. Large MDFs are relatively uncommon.

Per DIIT, the cooling capacity requirements in the standards are based on a “worst case scenario” to accommodate equipment running at full capacity, the installation of additional equipment over time, and, to a lesser degree, the effect of nearby heat sources such as boiler rooms (not an issue for new schools, and rarely an issue in existing schools, according to DIIT). DIIT also noted that in some existing schools, MDF/IDF rooms are located in spaces with poor air circulation, resulting in increased cooling loads. DIIT noted that cooling capacity does not equal cooling energy use, so in reality these cooling systems operate at far below their capacity.

Additional study is necessary to determine whether MDF and IDF cooling requirements may be lowered for new buildings. This study the use of temporary energy submetering devices and data loggers to monitor MDF and IDF room temperatures in a subset of new SCA schools.

DIIT has also expressed an interest in working with SCA to locate air source heat pump (ASHP) service hot water heaters (SHWH) in alcoves or closets adjacent to MDFs and connected by louvers, which would make use of the “free cooling” provided by the heat pumps. As this strategy was determined to be outside the scope of this study, further investigation is recommended.

Sound System Equipment Exclusions

At the direction of SCA, the following sound system equipment was excluded from this study’s investigation of potential energy-saving alternatives due to the complex requirements for such equipment, including factors such as interoperability and dependency on specific space types.

Each school is equipped with a custom IP-based school-wide sound, intercom and teacher activated security system (sound system) with the following functions:

- Public Address system for general announcements
- Two-way communication system between two stations and between station and any speaker, including each speaker in the corridor
- Privacy system to prevent eavesdropping through classroom speaker
- Tone generation for emergency call from classrooms to central station

Typical sound system components and quantities are as follows:

Central Sound & Clock System Control (components in rack)

- Administrative Control Station (1), 250W

- Master Clock (1), 20W
- Mixer/PreAmp (1), 40W
- Program Amp (2), 250W
- CD/Bluetooth Player (1), 30W
- AM/FM Tuner (1), 18W

Auditorium/Gymnasium/Multi-Purpose, Dance (components in standard rack)

- Mixer/PreAmp (1), 40W
- Program Amp (1-2 typical), 430W
- DVD/CD/Bluetooth/MP3 Player (1), 30W
- AM/FM Tuner (1), 18W
- Suspended/Pendant "Spheredome" Speakers (1 per ~500 sf), 100W
- All Environment Speakers (2 typical, single mounts), 15W
- Projector (1), 384W

Cafeteria, Exercise (components in tilt-out wall rack)

- Program Amp with Mixer/PreAmp (1), 250W
- Audio Frequency Induction Loop System Driver for Hearing Impaired (1), 200W
- DVD/CD/Bluetooth/MP3 Player (1), 30W
- AM/FM Tuner (1), 18W
- Ceiling Mounted Speakers (1 per ~250 sf), 8W
- Display Monitor/Scrolling Display (1), 180W

Corridor (typically 1 set of double clocks/speakers per ~50 feet of corridor)

- Horn Type Speakers (in double face mounts), 16W
- Display Monitor/Scrolling Display (1, in/near Lobby only), 180W
- Security Display Monitor (2, in Lobby only)

Main Office, Kitchen (per room)

- Time Recorder (1), 30W

Kitchen, Server, Can Wash, Refuse & Recycling (per room)

- All Environment Speakers (1, 2-3 in Kitchen only), 15W

All Other Regularly Occupied Spaces and Locker Rooms (per room)

- Clock/Speaker (1), 8W

All Multi-Occupant Restrooms (per room)

- Ceiling Mounted Speaker (1), 8W

All Storage, Mechanical/Electrical, and Single-Occupant Toilets (per room)

- Flush (Wall) Mounted Speaker (1), 8W

Exterior

- All Environment Speakers (2-4 typical), 15W

Considering the custom nature of school sound systems and internal compatibility issues, it was deemed to be outside the scope of this study to seek energy-saving alternatives for each individual piece of sound system equipment. However, SCA MEP consultant Shenoy Engineers provided a list of general energy-saving initiatives which may help reduce energy consumption associated with school sounds systems:

1. Amplifier Rating: Shenoy notes that it is critical not to overload amplifiers beyond their ratings, as this causes inefficient operation. Typical SCA specifications require a 250W RMS amplifier to feed the speakers from the main sound rack (and add additional 250W amplifiers as required based on the total number of speakers on the system). For school applications, Shenoy recommends that each amplifier be rated at 1.6 times the continuous power rating of the speakers connected to it.
2. Active PFC amplifiers: Shenoy notes that using an active PFC power amplifier could result in better efficiency since the amplifier would pull less reactive power. Active PFC amplifiers would use high frequency switching power electronics to force the current to follow the voltage. This would increase the acceptable voltage range and result in more efficient operation.
3. Wireless PA system: Shenoy notes that using a wireless public address system would reduce the amount of wiring required to connect speakers to amplifiers. Such a system would consist of three basic components: wireless speakers, a transmitter to communicate with the wireless speaker, and a head end unit with software for programming capability. Transmitters typically have a range of 1 mile and are therefore adequate to cover a school building. Speakers could be powered locally through POE (Power Over Ethernet) adapters or 120V receptacles, instead of connecting back to the main sound rack.

We can assume the potential energy savings from such initiatives to be modest.

Additional Exclusions

The following equipment was not included in the final evaluation, but their SCA specifications were analyzed.

No longer in SCA standard specifications for capacity projects:

- Gas Bunsen burners
- Gas kitchen equipment (Convection Oven, Range, Steamer, Tilt Skillet / Braising Pan)
- Convection Oven (function replaced by Combination Oven and Steamer; see further information in individual equipment reports)
- Tilt Skillet / Braising Pan (function replaced by Combination Oven and Steamer; see further information in individual equipment reports)

Not provided as part of SCA capacity projects:

- Electric Water Bottle Cooler (Staff Lunch Room): SCA Standard Specification 14400 (Plumbing Fixtures) lists this equipment but provides no information about it, even for projects where this equipment is shown in the drawings. School principals may choose to include this equipment in

their buildings. This equipment could potentially be considered for future elimination, as it comes with an ongoing requirement to purchase plastic 5- or 10-gallon water bottles which must be delivered by truck to each school, and replacing it with electric water coolers or bottle fillers (refrigerated drinking fountains).

- Vending Machines: These are not installed as part of SCA capacity projects; they are added later, at the discretion of each individual school, through contracts with vending machine providers.

Not included due to assumption that annual operation is minimal:

- Cafeteria equipment: Cash Register / Point of Service
- Classroom equipment: Motorized Window Shades
- Medical Suite equipment: Magnifying Light
- Gym/Gymnasium equipment:
 - Electronic Shot Clock
 - Motorized Telescoping System for Bleachers
 - Motorized Winch for Backboard
- Theatrical equipment:
 - Theatrical Lighting Fixtures
 - A/V and Lighting Control Panels
 - Motorized Projection Screen
 - Motorized Curtain
 - Loud Bell for Telephone

Not included due to relatively infrequent specification:

- Specialty Classroom Equipment:
 - Kiln (Art Room)
 - Cooking Equipment (Culinary Arts Classroom)
 - Humidifier (Music Room Storage)
 - Miter Saw, Portable Drill (Robotics Lab)
 - Studio Camera, Studio Monitors (TV/Video Production Studio)
- Physical Therapy Devices: Treadmill, Games, Sensory Media, Non-Interactive Monitor

Equipment Data and Manufacturers

The following pages describe the existing SCA standards for kitchen, building services, and instructional equipment as well as potential energy-saving alternatives. For each type of equipment, the following information is provided:

- Typical location and quantity per school
- Selection considerations, taken from either the latest SCA standard specifications or, in the absence of such specification, from the equipment make and model typically installed in capacity projects
- Explanation of recent changes to the SCA standard specifications or planning considerations for the equipment type, if any
- Manufacturer, model, price, capacity, and peak energy demand of all models listed in the SCA standard specifications, including identification of the most energy-efficient SCA standard model currently available and an indication of whether the model has been discontinued
- Manufacturer, model, price, capacity, and peak energy demand of up to three potential energy-saving alternatives
- If three energy-saving alternatives could not be found, an explanation and a list of the manufacturers researched
- Pros and cons of the alternatives compared to the most energy-efficient SCA standard model currently available, addressing parameters such as capacity, exterior dimensions, refrigerant type, waste heat generation, functions and features
- Table with side-by-side comparison of key characteristics of the most energy-efficient SCA standard model currently available (or the replacement for any discontinued model) and the potential alternatives, including the peak energy demand savings
- Recommendations for the most suitable alternative based on the following prioritization: (1) alignment with SCA specifications such as functionality, quality, capacity, and dimensions, (2) procurement feasibility, (3) energy demand, and (4) price. Due to this prioritization, the “proposed” alternative is not always the most energy efficient, but it is more efficient than the current standard and most closely matches the SCA Standard Specifications.
- Recommendations and considerations for potential changes to the SCA standard specifications
- Current SCA specification language

Equipment types are listed alphabetically within each category.

This study found that for the following items, SCA already specifies the most efficient model (i.e., a more efficient alternative that meets SCA/DOE requirements could not be found). Additional information can be found in Appendix A.

- Kitchen: Can Opener (173W)
- Kitchen: Combination Oven (31,800W)¹
- Kitchen: Mixer (690W)
- Kitchen: Power Washer (1,380W)

¹ Energy models and comparison tables developed for this study compare the new standard combination oven model with the previously specified standard model, resulting in energy demand savings of 4%.

- Kitchen: Sink Agitator / Pot Washer (560W)
- Kitchen: Sink Heater (9000W)
- Kitchen: Water Filter (10W)
- Building: Clock (0.84W)
- Building: Compactor (1,080W)
- Building: Electric Water Cooler with Bottle Filler (260W)
- Building: Electric Scoreboard (104W)
- Building: Microwave (1,450W)
- Instructional: Interactive Whiteboard (114W)
- Instructional: Lab Drying Oven (1,050W)
- Instructional: Lab Electric Bunsen Burner (60W)
- Instructional: Lab Explosion-Proof Freezer (127W)

Kitchen Equipment

Convection Oven

Kitchen Equipment – Large



Garland MCO-GS-20
Current SCA Spec (Gas)



Duke E102-E
Proposed Alternative (Electric)

Freestanding; typically found in **2 sets of double stacked units per school** (existing schools only). There is no current SCA standard specification for an electric model (see note below). Critical characteristics for currently installed models include:

- 12 oven racks per double stack
- 150° F - 500° F temperature range
- Direct spark ignition with 100% safety shutoff
- Multispeed fan
- Safety door system
- Double stack size: 38"x44"x71"

Note: Combination ovens have replaced convection ovens and tilt skillets in SCA capacity projects. The SCA specifications no longer include convection ovens. However, if an existing school is unable to accommodate a combination oven, the school may prefer to replace their existing gas convection ovens with more efficient electric alternatives.

The most energy-efficient currently available SCA standard is the double stack **Garland MCO-GS-20** or equal, with a combined maximum demand of **12,000 BTU/Hr.** Other models in the SCA specifications for schools constructed prior to 2019 include:

- **Blodgett DFG-100**

Potential electric alternatives identified for this study include:

- **Duke E102-E**, 10 Racks, 39"x40"x72", **68,259 BTU/Hr**
- **Blodgett Zeph-200-E**, 10 Racks, 39"x48"x71", **75,085 BTU/Hr**
- **Vulcan VC44ED**, 10 Racks, 41"x42"x70", **85,324 BTU/Hr**

Pros: The most energy-efficient electric alternative offers energy demand **savings of 51,741 BTU/Hr or 43%** per double stacked unit compared to the most energy-efficient gas model currently installed.

- All alternatives are all-electric.
- All alternatives have lower HP fans than the gas model.

Cons:

- All alternatives have 17% less capacity than the current model.

CONVECTION OVEN				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Garland	Duke	Blodgett	Vulcan
Model	MCO-GS-20	E102-E	Zeph-200-E	VC44ED
Fuel Source	Natural Gas	Electric	Electric	Electric
Size (Ext)	38x42x71	39x40x72	39x48x71	41x42x70
Capacity	(12) Full Sheet Pans	(10) Full Sheet Pans	(10) Full Sheet Pans	(10) Full Sheet Pans
Temp	150F - 500F	200F - 500F	200F - 500F	150F - 500F
HP	3/4	1/2	1/2	1/2
Volts	N/A	240	208	480
Btu/hr (*Equiv.)	120,000	*68,259	*75,085	*85,324
Gas Equiv. Savings	-	51,741	44,915	34,676
Gas Equiv. Savings %		43%	37%	29%
Watts	N/A	20,000	22,000	25,000
CO2e (MT)	0.8	0.7	0.8	0.9
Savings vs Gas	-	0.1	0.002	-0.1
Savings vs Gas %	-	9%	0.3%	-13%
Cost Difference	-	39%	-11%	86%
Source	AQ	AQ	AQ	AQ

Recommendations: Newly constructed schools are no longer procuring this item for their kitchens. Instead, an electric combination oven is being used to fulfill the role of the convection oven and tilt skillets. However, if an existing school needs to replace its gas convection ovens with new electric convection ovens, all alternatives appear to be suitable replacements.

Food Services Comments: Food Services noted that Duke was removed from SCA standard specifications due to gas leaks caused by faulty pilot lights. Because Food Services found Duke's customer service to be unresponsive to this problem, Duke equipment such as Alternative 1 may not be considered suitable.

SCA Current Specifications
Section 11400a

CONVECTION OVEN (GAS)

1. Provide gas-fired double deck convection oven (bake oven) of the model number indicated on the Equipment Schedule and the unit shall comply with the Gas Heated Equipment General Requirement. Unit shall accept 18" x 26" standard full-size bake pans. Doors to open and close simultaneously with one handle. Electrical cord with plug to match receptacle for each deck.
2. Features: Porcelain on steel oven side linings, door linings and rear fan cover. 5 racks/10 rack positions. Two multipane (glass) window doors with swing and door gaskets; Doors shall have dual pane thermal glass windows with cool to touch door handle (s) and simultaneous operation. Interior oven lights in each deck. Stainless steel front panel including doors; stainless steel adjustable legs; stainless steel drip pan in each oven cavity.
3. Electronic spark ignition, including automatic pilot system with 100% safety shut off. Temperature shall be controlled by individual adjustable thermostats with graduations for a temperature range of 200°F. to 500°F. and an off position. Oven shall have 60 minute electrical timer with a continuous sounding buzzer. Each motor with thermal overload protection. Electric interlock system shall be provided to shut off blower motor and gas supply to the oven burners when the oven doors are opened during operation. Gas supply to oven shall shut off if electricity goes off.
4. Provide interlock oven ignition with hood exhaust fan so oven cannot be operated without hood exhaust being in operation. Bake oven shall be provided with rear gas connection with manual shut-off gas valve and factory installed A.G.A. approved adjustable gas pressure regulator.
5. Gas Requirements: 120,000 - 140,000 BTU/HR (tot.) (Natural gas)
Electrical Requirements: 115V, 60 HZ, 1 ph (total - fans)

Manufacturer: Subject to compliance with specifications:

Garland MCO-GS-20
Blodgett DFG-100

Drink Dispenser

aka Water Jet

Kitchen Equipment – Small



Crathco D15-3
Current SCA Spec



JD-1
AdCraft JD-1
Proposed Alternative

Found in all kitchen serveries;* mounted on a mobile utility counter or mobile refrigerated counter; directly accessed by students. Typical quantities are **1 unit per school** although some schools have 2 units.

Critical specifications include:

- 5 gallon capacity
- Refrigeration to 35F – 41F
- Continuous rotary system
- Stainless steel construction
- Removable polycarbonate bowl
- Size: 11"x16"x28"

*Note: New standards for “grab and go” serveries in IS and HS buildings have replaced Drink Dispensers with space in additional Refrigerated Merchandisers.

The most energy-efficient currently available SCA standard is the **Crathco (aka Grindmaster-Cecilware) D15-3** or equal, with a maximum demand of **340 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **Narvon D5G1**, 5 gallons, **260 W**
- **AdCraft JD-1**, 3 gallons, **278 W**
- **Omega OSD10**, 3 gallons, **300 W**

Pros: The most energy-efficient alternative offers energy demand **savings up to 80 W or 24%** per unit compared to the most energy-efficient current SCA standard. It appears to meet all SCA specifications and offer all of the same features as the current SCA standard.

- The most energy-efficient alternative uses R-448A refrigerant, which has slightly lower global warming potential (GWP) than the refrigerant used in the current SCA standard.

Cons:

- Very little information is available about Narvon, the manufacturer of alternative 1.
- Alternatives 2 and 3 have 40% less capacity than the current SCA standard.

DRINK DISPENSER				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Crathco	Narvon	Adcraft	Omega
Model	D15-3	DSG1	JD-1	OSD10
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	11x16x28	9x17x29	11x17x24	9x15x24
Capacity	5 Gallons	5 Gallons	3 Gallons	3 Gallon
Temp	34F - 41F	35F - 50F	35F - 46F	-
Refrigerant	R-134A	R-448A	R-134A	-
Volts	120	120	110	120
Amps	3.0	-	2.5	-
HP	1/6	-	-	1/3
Watts	340	260	278	300
Savings	-	80.0	62.0	40.0
Savings %	-	24%	18%	12%
CO2e (MT)	0.024	0.018	0.02	0.021
Savings	-	0.006	0.004	0.003
Savings %	-	24%	18%	12%
EnergyStar	N	N	N	N
Cost Difference	-	-39%	24%	-1%
Source	SCA Cost Estimate	AQ	AQ	AQ

Recommendations: Alternative 2 appears to be the most suitable replacement for the current SCA standard, but it offers less capacity.

SCA Current Specifications
Section 11400

Water Dispenser (Jet)

1. Provide a cold water dispenser where shown on the Drawings. Unit can be placed on a mobile utility counter located on the Serving Line. Stainless steel unit including the side panel and drain tray; super-strong virtually unbreakable polycarbonate 5- gallon bowl and cover; unique evaporator and high efficiency pump cools faster and more efficiently for faster start-ups; two-piece stainless steel, dripless pouring valve shall be sanitary and easy to use and maintain. Refrigeration: 1/6hp. UL, NSF Listed.
2. Electrical: 120 volts, 60HZ. Provide one (1) heavy-duty three conductor (one grounding) line cord with plug to match each receptacle.

Manufacturer: Subject to compliance with regulations:

Crathco D15-3

Food Processor

Kitchen Equipment – Small



Waring Commercial WFP16SCD
Current SCA Spec



Primo PVC-500
Proposed Alternative

Found in all kitchens; freestanding. Typically in quantities of **1 per school**. Critical specifications include:

- 4 quart sealed batch bowl
- Heavy duty, die-cast housing
- Unbreakable clear polycarbonate feed tube and batch bowl
- Continuous-feed chute for large volume slicing
- 920 lb/min
- Size: 16"x22"x22"

The most energy-efficient currently available SCA standard is the **Waring Commercial WFP16SCD** or equal, with a maximum demand of **672 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **Primo PVC-500, 10"x25"x20", 550 W**
- **Bake Max BMVC001, 20"x9"x23", 550 W**
- **Robot Coupe R2B, 17"x11"x9", 600 W**

Pros: The most energy-efficient alternative offers energy demand **savings up to 122 W or 18%** per unit compared to the most energy-efficient current SCA standard. It appears to meet most SCA specifications and offer most of the same features as the current SCA standard.

Cons: Alternatives 1 and 2 do not include a clear batch bowl which is used to make pureed products, and only offer slicing/dicing/shredding capability. All alternatives do not come with sealed batch bowls. According to SCA kitchen consultant Romano-Gatland, DOE Food Services may find the lack of a sealed batch bowl unacceptable.

FOOD PROCESSOR				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Waring	Primo	Bake Max	Robot Coupe
Model	WFP16SCD	PVC-500	BMVC001	R2B
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	16x22x22	10x25x20	20x9x23	17x11x9
Capacity	4 Quarts	-	-	-
Volts	120	110	110	120
Amps	5.6	5.0	5.0	5.0
Motor HP	2	3/4	3/4	1
Btu/hr	2,294	1,877	1,877	
Watts	672	550	550	600
Savings	-	122.0	122.0	72.0
Savings %	-	18%	18%	11%
CO2e (MT)	0.341	0.279	0.279	0.305
Savings	-	0.062	0.062	0.037
Co2e % Savings	-	18%	18%	11%
EnergyStar	N	N	N	N
Cost Difference	-	-20%	-24%	-47%
Source	Web	Web	AQ	AQ

Recommendations: If a sealed, clear batch bowl is not a necessity, Alternatives 1 and 2 appear to be suitable replacements for the current SCA standard. Otherwise, Alternative 3 appears to offer the same features as the current SCA standard.

Food Services Comments: Food Services noted that Alternatives 1 and 2 do not include clear batch bowls which are useful for observing the consistency of salsa and other pureed products during preparation. As such, Alternatives 1 and 2 may not be considered suitable models.

SCA Current Specifications
Section 11400

FOOD PROCESSOR

- A. Electric operated 4-quart batch bowl and continuous feed food processor located on the table with a convenience outlet rated for the unit. ETL-listed and NSF approved. Provide with standard finish, features, accessories and the additional specified requirements.
- B. Serrated "S" Blade; rugged unbreakable clear polycarbonate feed tube and batch bowl with cover; motor with temperature controlled circuit breaker to protect against motor burnout; built-in safety switches.
- C. Electrical Requirement: 120VAC, 60HZ, Nema 5-15P cord
- D. Provide Smallwares as specified in the Smallwares Schedule.

Manufacturer: Subject to compliance with specifications:

Waring Commercial Product Division Model WFP16SCD

Food Slicer

Kitchen Equipment – Small



Bizerba GSP HD STD-90
Current SCA Spec



Vollrath SLM300P
Proposed Alternative

Found in all kitchens; mounted on a utility worktable. Typically in quantities of **1 per school**. Critical specifications include:

- 13" blade
- Variable speed 1/2 horsepower automatic drive system
- Adjustable blade shut-off settings
- Size: 32"x36"x25"

The most energy-efficient currently available SCA standard is the **Bizerba GSP HD STD-90** or equal, with a maximum demand of **312 W**. Other models in the current SCA specification include:

- **Hobart HS9, 672 W**
- **Globe 4975N, 805 W**

Potential alternatives identified for this study include:

- **Vollrath SLM300P, 26"x24"x21", 300 W**

It was unusually difficult to find more energy-efficient models than the current SCA standard while also meeting SCA specification requirements. Manufacturers investigated for alternatives include Avantco, Univex, Hobart, Globe, and Bizerba.

Pros: The most energy-efficient alternative offers energy demand **savings up to 12 W or 4%** per unit compared to the most energy-efficient current SCA standard. It has generally identical specifications to the current SCA standard and offers the same features.

Cons: None

FOOD SLICER		
	CURRENT	ALTERNATIVE 1
Manufacturer	Bizerba	Vollrath
Model	GSP HD STD-90	SLM300P
Size (Ext)	32x36x25	26x24x21
Motor HP	-	2/5
Volts	120	120
Amps	2.6	2.5
Watts	312	300
Savings	-	12.0
Savings %	-	4%
CO2e (MT)	0.1584	0.1523
Savings	-	0.006
Savings %	-	4%
EnergyStar	N	N
Cost Difference	-	-77%
Source	AQ	AQ

Recommendations: The alternative appears to be a suitable replacement for the current SCA standard.

Food Services Comments: Food Services noted that Alternative 1 may not meet its quality standards, although it was not clear whether this was due to known quality issues or to a supposition based on the model's apparent low price. As such, Alternative 1 may not be considered a suitable model unless the quality and longevity of the model can be verified.

SCA Current Specifications
Section 11400

SLICER

- A. Unit shall be a 13" automatic angle feed slicer with tubular food chute mounted on the slicer table as per manufacturer's written instructions. Provide with standard finish, features, equipment and the additional specified requirements: removable blade sharpeners; permanent ring guard; stainless steel knife; adjustable thickness regulator; food chutes. NSF and UL listed.
- B. Knife Motor: ½ HP, totally enclosed, with permanently lubricated ball bearings and thermally-protected.
- C. Electrical: 115V, 60 cycle, 1 phase. Provide with 6' cord and plug to match receptacle. The switch shall be moisture protected which is illuminated when the unit is on. Push button on-off switches with indicator light; emergency shut-off and restart lockout, as well as automatic blade shut-off following interval of inactivity as determined by the manufacturer; automatic shutoff if carriage is blocked.
- D. Interlock System: Carriage shall be in home position to start. In the event of a power loss, slicer shall be restarted for operation to continue. Gauge plate shall be closed before carriage can be removed. When carriage is removed, gauge plate cannot be opened.
- E. Tubular Food Chute: 18-gage, 300 series stainless steel. Chute shall attach to slicer carriage easily, without tools. Attachment and use of chute shall not compromise any safety features of the slicer.
- F. Unit shall be provided with a lift lever that facilitates raising and tilting the slicer for easy cleaning underneath the slicer.
- G. Warranty shall include replacement coverage for the knife.

Manufacturer: Subject to compliance with specifications:

Globe Food Equipment Co. Model# SG13A with vegetable hopper
(tubular food chute)

Hobart Corp. Model# HS9 with tubular food chute

BIZERBA Model# GSP-HD STD-90 with tubular food chute

Globe Food Equipment Co. Model# SG13A shall also be provided
with stainless steel knife

Hobart Corp. Model# HS9 shall also be provided with stainless
steel knife

BIZERBA Model# STD-90 shall also be provided with stainless
steel blade/knife

Hot Food Slide

aka COMPACT HOT FOOD MERCHANDISER
Kitchen Equipment – Small



Model GR2SDS-30D with
Hatco Glo-Ray GR2SDH-30D
Current SCA Spec



Adcraft HFD-85
Proposed Alternative

Found in all kitchens, countertop (sits on Mobile Heated Counter or Mobile Utility Counter), directly accessed by students. Typical quantities are **1 per servery** station (schools typically have 1 to 3 stations),* IS/HS and HS only. Critical specifications include:

- Two shelves
- Rear access opening
- Thermostatically controlled heated base
- Pre-focused infrared top heat
- Tempered glass sides
- Shatterproof display lighting
- 37"x27"x29"

*Note: New standards for “grab and go” serveries in IS and HS buildings may require more Hot Food Slides.

The best-performing SCA standard that is currently available is the **Hatco Glo-Ray GR2SDF-30D** or equal, with a maximum demand of **2,040 W**. There are no other models in the current SCA specification.

Potential alternatives identified for this study include:

- **Adcraft HFD-85**, (2) Shelves, 32x28x28, **1,160 W**
- **Global Solutions GS1300-24**, (2) Shelves, 21x25x21, **1,500 W**
- **Nemco 6480-36**, (2) Shelves, 36x20x26, **1,800 W**

The market appears to be dominated by two companies, Hatco and Nemco. The alternatives from Nemco and Equipex meet all SCA specifications and offer all of the same features as the current SCA standard.

Pros: The best-performing alternative offers energy demand **savings of 880 W or 43%** per unit compared to the best-performing current SCA standard. The other alternatives offer advantages including:

- Precise temperature control.
- Humidification function and control.

Cons:

- All of the alternatives are have smaller footprints and therefore smaller shelves, and less capacity, than the current SCA standard.

HOT FOOD SLIDE				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Hatco	Adcraft	Global Solutions	Nemco
Model	GR2SDS-36D	HFD-85	GS1300-24	6480
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	37x27x29	32x28x28	21x25x21	36x20x26
Capacity	(2) 36" Shelves	(2) Shelves	(2) Shelves	(2) Shelves
Temp	-	86F - 194F	150F	-
Volts	120/208	120	120	120
Amps	8.5	10.0	12.5	-
Watts	2,040	1,160	1,500	1,800
Savings	-	880.0	540.0	240.0
Savings %	-	43%	26%	12%
CO2e (MT)	0.64	0.36	0.47	0.56
Savings	-	0.28	0.17	0.08
Savings %	-	43%	26%	12%
EnergyStar	N/A	N/A	N/A	N/A
Cost Difference	-	-53%	-53%	-33%
Source	AQ	Web	Web	Web

Recommendations: Alternative 1 appears to be the most suitable replacement for the current SCA standard, and provides nearly the same capacity.

SCA Current Specifications
Section 11400

Hot Food Slide

1. Designer Horizontal Display Warmer
2. Free-standing electrically heated unit with two (2) shelves and twelve (12) rods. Unit shall consist of a thermostatically controlled heated base, infrared heat from above, full view tempered glass sides, designer color inset panels, and incandescent display lights.
3. Unit to be further provided with the following:
 - 5" Sneeze guard on both upper and lower shelves
 - 9" Display sign holder

Manufacturer: Subject to compliance with specifications:

Hatco GR2SDH-30D

Merchandiser Heated

aka HEATED DISPLAY CASE

Kitchen Equipment – Large



Husmann IM-X-05-X4-H208
Current SCA Spec



Alto-Shaam HSM-48/5S
Proposed Alternative

Found in intermediate and high schools; freestanding; directly accessed by students. Typical quantity is a **single unit per school**.* Critical specifications include:

- Capacity (4) 64"x19" angled shelves (34 sf)
- Maintains a temperature of 175°F
- Internal humidifying system to keep food fresh longer
- Thermometer regularly checks internal product temperatures
- Rear access sliding doors
- Illuminated display
- Size: 68"x33"x58"

*Note: New standards for "grab and go" serveries in IS and HS buildings may require more Merchandisers. Heated Merchandisers inherently use more energy than Hot Food Counters because heating energy is constantly lost to the ambient air.

The most energy-efficient currently available SCA standard is the **Husmann IM-05-I4-H208**, now called the **IM-X-05-X4-H208**, or equal, with a maximum demand of **4,160 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

This study was informed that the Husmann model is no longer being used by SCA and has been replaced by the **Federal HSSM460** merchandiser, which is not listed in the latest SCA specification. Also, according to the Federal website, this merchandiser model will soon be discontinued.

Potential alternatives identified for this study include:

- **Atlantic Food Bars WR4822T-F-AS** (custom prices only), (4) 45"x18.5" shelves, **3,072 W**
- **Fri-Jado MD 40-3**, (3) 36"x19" shelves, **3,500 W**
- **Alto-Shaam HSM-48/5S**, (5) 45"x20.5" shelves, **4,000 W**

There are relatively few manufacturers of freestanding heated merchandisers. Manufacturers investigated included Alto-Shaam, Atlantic Food Bars, Equipex, Fri-Jado, Hatco, and Vollrath.

Pros: The most energy-efficient alternative offers energy demand **savings up to 1,088 W or 26%** per unit compared to the most energy-efficient current SCA standard.

- Heat can be turned on/off for individual shelves of Alternative 1.
- Alternatives 2 and 3 have generally identical specifications to the current SCA standard.

Cons:

- Atlantic Food Bars and Fri-Jado appear to be relatively small-volume manufacturers.
- The most energy-efficient alternative is from a manufacturer that focuses on custom models. Detailed specifications for the alternative were not available.
- Alternatives 1 and 2 provide less display capacity than the current SCA standard.

MERCHANDISER HEATED				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Husmann	Atlantic Food Bars	Fri-Jado	Alto-Shaam
Model	IM-05-X4-H	WR4822T-F-AS	MD 40-3	HSM-48/5S
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	68x32x58	50x23x72	40x32x57	48x28x80
Capacity	4 Shelves	4 Shelves	3 Shelves	5 Shelves
Temp	175F	-	150F	-
Volts	208	120	208	208
Amps	20.0	25.6	-	19.0
Watts	4,160	3,072	3,500	4,000
Savings	-	1,088	660	160
Savings %	-	26%	16%	4%
CO2e (MT)	1.3	1.0	1.1	1.3
Savings	-	0.3	0.2	0.1
Savings %	-	26%	16%	4%
EnergyStar	N	N	N	N
Cost Difference	-	Custom Only	-	103%
Source	AQ	-	-	Web - Dealer

Recommendations: All alternatives appear to be suitable replacements for the current SCA standard. However, alternative 3 provides the closest match in terms of capacity and specifications.

SCA Current Specifications
Section 11400

Heated Merchandiser

1. Multi-deck heated inline module
2. Unit to be further provided with the following:
 - Rear-load two way glass mirror rear sliding doors with rear controls
 - Solid back
 - Lights below each shelf
 - Display sign holders for each shelf
 - Solid mirror ends
 - Exterior color to be as selected by the Architect of Record
 - Bodywork with impact bumper
 - Black rear cover
 - 5° down tilt shelves
 - Shelf signs with sign gripper channel clip

Manufacturer: Subject to compliance with specifications:
Hussmann IM-05-I4-H

Merchandiser Refrigerated

aka REFRIGERATED DISPLAY CASE

Kitchen Equipment – Large



Federal RSSM-460SC
Current SCA Spec



Avantco BVAC-46HC
Proposed Alternative

Found in intermediate and high schools; freestanding; directly accessed by students. Typical quantity is a **single unit per school**.^{*} Critical specifications include:

- Capacity: 45"x20.5" display deck plus (2) 45"x15" shelves (15.7 sf)
- Front air intake and rear air discharge
- Electronic temperature control with on demand defrost
- Stainless steel display deck and shelves
- Rear access sliding doors
- LED lighting
- Size: 48"x36"x61"

^{*}Note: New standards for "grab and go" serveries in IS and HS buildings may require more Merchandisers. Refrigerated Merchandisers inherently use more energy than Cold Food Counters because cooling energy is constantly lost to the ambient air. While merchandisers may be available with roll-down curtains to help reduce this loss during off-hours, this option was not readily discernable from manufacturer data.

The current most energy-efficient currently available SCA standard is the **Federal RSSM-460SC** or equal, with a maximum demand of **2,200 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **Turbo Air TOM-W-50SB-UF-N**, 51"x34"x58", **794 W**
- **Avantco BVAC-46HC**, 46"x26"x82", **950 W**
- **True TDM-R-77-GE/GE**, 78"x39"x50", **1,380 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 1,407 W or 64%** per unit compared to the current SCA standard. It has similar specifications to the current SCA standard and offers many of the same features.

- All alternatives use R-290 refrigerant, which has lower global warming potential (GWP) than the refrigerant used by the current SCA standard.
- Alternative 1 has a “self-cleaning” compressor.

Cons:

- Alternative 1 has a different configuration than the current SCA standard, and its upper shelves are not accessible from the rear and may be too high for lower grade students to reach.
- Alternative 2 is much taller and Alternative 3 is much wider than the current SCA standard.

MERCHANDISER REFRIGERATED				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Federal	Turbo Air	Avantco	True
Model	RSSM-460SC	TOM-W-50SB-UF-N	189BVAC46HC	TDM-R-77-GE/GE
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	48x36x61	51x34x58	46x26x82	78x39x50
Capacity	12.1 CF	8.5 CF	13.2 CF	26 sf
Temp	38F-40F	-	33F-40F	33F-41F
Refrigerant	R449	R290	R290	R290
HP	-	0.75	1.25	0.5
Volts	208	115	110	115
Amps	-	6.9	-	12.0
Rejected Heat (Btu/hr)	7,500	-	3,242	-
Watts	2,200	794	950	1,380
Savings	-	1,406.5	1,250.0	820.0
Savings %	-	64%	57%	37%
CO ₂ e (MT)	0.7	0.2	0.3	0.4
Savings	-	0.4	0.4	0.3
Savings %	-	64%	57%	37%
EnergyStar	N	N	N	N
Cost Difference	-	43%	-65%	-4%
Source	AQ	AQ	Web	AQ

Recommendations: All alternatives appear to be suitable replacements for the current SCA standard. However, Alternative 2 provides the closest match in terms of capacity and specifications.

Food Services Comments: Food Services noted that Alternative 2 may not meet its quality standards, although it was not clear whether this was due to known quality issues or to a supposition based on the

model's apparent low price. As such, Alternative 2 may not be considered a suitable model unless the quality and longevity of the model can be verified.

SCA Current Specifications

Section 11400

Mobile Refrigerated Merchandiser

1. Specialty Display High Profile Self-Serve Refrigerated Merchandiser

(1) Self contained refrigeration unit with condensate evaporator, energy saving night curtain, top lights, two tiers of adjustable black metal shelves, stainless steel display deck, tempered glass ends.

(2) Unit to be further provided with the following:

- Reflective end glass panels
- Stainless steel top
- Stainless steel interior
- Two (2) tier stainless steel adjustable 5-degree slanted shelves with front product lip
- 4" diameter locking casters
- Top LED light on ceiling
- LED light below top shelf
- Lights below shelves
- Laminated exterior to be selected by the Architect of Record
- Rear access sliding doors
- Condensate evaporator
- Energy saving night curtain
- Cord & plug

Manufacturer: Subject to compliance with specifications:

Federal Industries RSSM-460SC

Milk Cooler

Kitchen Equipment – Large



True TMC-34-HC
Current SCA Spec



Beverage-Air SM34HC-S
Proposed Alternative

Found in all serveries;* freestanding; directly accessed by students. Typical quantities are **1 per servery** station (schools typically have 1 to 3 stations). Critical specifications include:

- (8) 13"x13"x11" milk crate capacity
- Hermetically sealed air-cooled condensing unit
- R-290 refrigerant (formerly R-134A)
- 33F-38F temperature
- Digital thermometer
- Combination drop front/flip-top door
- Stainless steel construction
- Insulated with zero-ODP and zero-GWP polyurethane foam
- 34"W x 22"D x 42"H (27"H with drop front door)

*Note: New standards for "grab and go" serveries in IS and HS buildings have replaced Milk Coolers with space in additional Refrigerated Merchandisers.

The most energy-efficient currently available SCA standard is the **True Manufacturing TMC-34-HC** or equal, with a maximum demand of **311 W**. Other models in the current SCA specification or recently installed include:

- **Nor-Lake AR082SSS/0, 380 W**
- **Beverage-Air SMF34Y-1-S (discontinued), 483 W**

Potential alternatives identified for this study include:

- **Beverage-Air SM34HC**, (8) crates, 34x31x41, 1/3 HP, **253 W**
- **Avantco 178MC49HC**, (12) crates, 49x31x42, 1/5 HP, **262 W**
- **Motak MMC34-X**, (8) crates, 34x31x40, 1/5 HP, **262 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 58 W or 19%** per unit compared to the most energy-efficient current SCA standard. It meets all SCA specifications and offers all of the same features as the current SCA standard.

Cons: Alternatives 2 and 3 have powder-coated steel exteriors instead of stainless steel exteriors.

MILK COOLER				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	True	Beverage-Air	Avantco	Motak
Model	TMC-34-S-SS-HC	SM34HC	MC34HC	MMC34-X
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	34x35x37	34x31x42	34x31x42	34x31x40
Capacity	8 Milk Crates	8 Milk Crates	8 Milk Crates	8 Milk Crates
Temp	33F-38F	38 F	33F-40F	33F-38F
Refrigerant	R290	R290	R290	R290
HP	1/5	1/3	1/5	1/5
Volts	115	115	115	115
Amps	2.7	2.2	2.3	2.3
Watts	310.5	253.0	262.2	262.2
Savings	-	57.5	48.3	48.3
Savings %	-	19%	16%	16%
CO2e (MT)	0.135	0.110	0.114	0.114
Savings	-	0.025	0.021	0.021
Savings %	-	19%	16%	16%
EnergyStar	N	N	N	N
Max Idle W	N/A	N/A	N/A	N/A
Cost Difference	-	37%	-33%	-43%
Source	SCA Cost Estimate	AQ	Web	Web

Recommendations:

- All alternatives appear to be suitable replacements for the current SCA standard.
- It is recommended that the SCA specification language for this piece of equipment be updated. The current language specifies a model (**Beverage-Air SMF34Y-1-S**) which has been discontinued by the manufacturer.

SCA Current Specifications
Section 11400

MILK CHEST

Refrigerated Milk Storage Cabinet (Commercial Type for Racked Container Storage)

1. The cabinet shall be provided with easily readable thermometer mounted integral to cabinet walls.
2. The cabinet shall be mechanically refrigerated with hermetically sealed condensing unit and cooling coil or plate coil cooling unit.
3. Both exterior shell and inner lining shall be of stainless steel construction. The cabinet shall be supported on an angle frame base with channels or gussets for caster supports. The interior bottom shall slope 1" toward cabinet back to prevent carton from tipping during self-service. Opening shall be provided in the back for ventilation and for access to the refrigeration unit.
4. The cabinet shall be equipped with a top "Upper Door" and "Drop Down" front door full width of the cabinet. Door shall be provided with bumper guards and a locking mechanism with two brass master keys and tags. All cabinets shall be keyed alike. Provide keys with C.P. brass ring and tag, stamped "NYC DOE" and "PIC" for Pupils Serving unit.
5. Condensing Unit: Fully hermetically sealed, air-cooled type: self-contained with cabinet.
6. Cooling Unit: Cooling coils or plates. Cooling coils shall be secured to cabinet.
7. Electric Requirements: 1/3 H.P., 120 volts, single phase, 60 HZ. Six feet min. of 3 wire cord and ground plug to match receptacle.
8. Two swivel and two rigid casters with ball-bearing wheels with polyurethane tires (and ball-bearing swivel).
9. The height of the cabinet front with door open shall not exceed 27" from floor to facilitate self-service by small students.

10. Provide flexible drain hose with length to extend distance to floor drain.
11. Provide the following additional options: wrap around and corner bumpers and bumper guards on the inside and outside of the doors at the corners and next to the lock. If the manufacturer does not install the bumpers on the unit, the Kitchen Equipment Contractor shall supply and install all the required bumpers and bumper guards as specified.

Manufacturer: Subject to compliance with specifications:

Beverage-Air	SMF34Y-1-S (SS)
NOR-LAKE	AR082SSS/0
True Food Service Equipment, Inc.	TMC-34-SSS

Mobile Heated Cabinet

Kitchen Equipment – Large



Wittco Foodservice 1826-15-SCHNY
Current SCA Spec



Delfield GAH1-SH
Proposed Alternative

Found in all kitchens and/or serveries; freestanding. Typical quantities are **2 or more double stacked units per school**. Critical specifications per double stack include:

- 30 full size (18"x26") sheet pan capacity
- Temperature can be held at 190° F
- Fully insulated with 2" of insulation in side walls and top
- Blower motor for gentle and even temperature distribution
- Thermostatically controlled heater with switch
- Aluminum body
- Size: 27"x33"x65"

Note: The sheet pan capacity listed by manufacturers may be misleading, as it depends on the vertical spacing of the pans. According to SCA kitchen consultant Romano-Gatland, minimum 3" spacing is typically required.

The most energy-efficient currently available SCA standard is the **Wittco Foodservice 1826-15-SCHNY** or equal, with a combined maximum demand of **1,500 W**. Other models in the current SCA specification or recently installed include:

- **Cres Cor H-135-UA-11, 1,500 W**
- **Cres Cor H-135-UA-17-NY, 1,500 W**
- **Carter-Hoffman PH-1825, 1,650 W**
- **Carter Hoffman HL3-18, 1,750 W**
- **Food Warming Equipment Co. TS-1826-18-SCA**
- **Winston Industries HL4522-AL-SCA**

Potential alternatives identified for this study include:

- **Cambro UPCH-1600**, 24 sheet pans, 21"x26"x42", **230 W**
- **Delfield GAH1-SH**, 30 sheet pans, 22"x27"x56", **368 W**
- **Cambro PCUHH2**, 32 sheet pan, 21"x27"x50", **1,012 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 1,270 W or 85%** per double stacked unit compared to the most energy-efficient SCA standard. All alternatives have generally identical specifications to the current SCA standard, although specific heat ranges, heights, capacities, and exterior materials may differ.

- Alternative 1 has a 3 minute recovery time, better than the current SCA standard.

Cons:

- Alternatives 1 and 3 have polyethylene exteriors and aluminum interiors. According to SCA kitchen consultant Romano-Gatland, DOE Food Services may find this unacceptable.
- Alternative 1 has a 20% less capacity than the current SCA standard, although this is difficult to verify without knowing the pan spacing.
- Alternative 1 has a 20 minute longer preheat time than the current SCA standard.

MOBILE HEATED CABINET				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Wittco Foodservice	Cambro	Delfield	Cambro
Model	1826-15-SCHNY	UPCH-1600	GAH1-SH	PCUHH2
Size (Ext)	27x33x65	29x34x54	28x33x80	28x34x66
Capacity	30 Sheet Pans	24 Sheet Pans	30 Sheet Pans	32 Sheet Pans
Temp	190F	165F	200F	165F
Volts	120	120	240	240
Amps	12.5	4.6	6.0	4.6
Watts	1500.0	230.0	368.0	1012.0
Savings	-	1,270.0	1,132.0	488.0
Savings %	-	85%	75%	33%
CO2e (MT)	0.04	0.01	0.01	0.03
Savings	-	0.03	0.03	0.01
Savings %	-	85%	75%	33%
EnergyStar	Y	Y	Y	Y
Max Idle W	N/A	10.0	294.0	200.2
Cost Difference	-	-69%	-22%	-45%
Source	Web	Web	Web	Web

Recommendations: All alternatives appear to be potential replacements for the current SCA standard. However, alternative 2 provides the closest match in terms of capacity and exterior materials.

SCA Current Specifications
Section 11400

HOT CABINET (ELECTRIC) - MOBILE

- A. The mobile heated cabinet shall be indicated in the Equipment Schedule complete with thermostatically controlled heating unit and 5" dia. Swivel casters with non-marking polyurethane tires (two wheels fitted with locking devices). Provide with wrap-around, corner or full perimeter bumpers. Unit shall accommodate eighteen (18) full size sheet pans (18" x 26") on 3" centers min. spacing aluminum angle slides. Provide additional slides if required.
- B. The entire body of the cabinet, including door, shall be fabricated of aluminum, and insulated with high-density fiberglass. No lock required.
- C. Unit shall be equipped with thermostatically controlled heater with switch, pilot light, and 3-wire heavy duty line cord with non-twist lock connector and grounding type plug to match receptacle. Cavity of unit shall not be obstructed with crossbar.
- D. Provide with side handle.
- E. Digital or Analog Thermometer: Mounted in the unit with the sensing bulb stationary inside the cabinet for more consistent readings during frequent cabinet opening.
- F. Provide Smallwares as specified in the Smallwares Schedule.
- G. Electrical Requirements: 120V, 60Hz, 1 ph, (Receptacle).

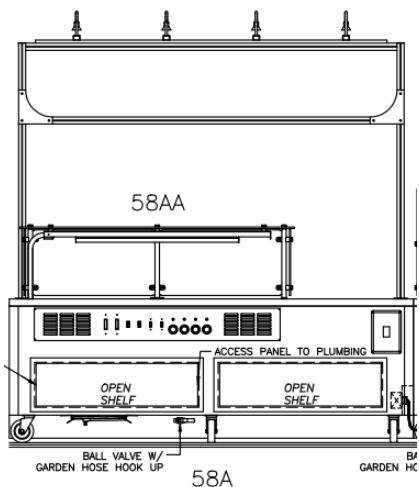
Manufacturer: Subject to compliance with specifications: Carter

Hoffmann Corp	Model PH-1825
Cres Cor	Model H-135-UA-17-NY
Food Warming Equipment Company, Inc/I	Model TS-1826-18-SCA
Wittco Foodservice Equipment	Model 1826-15-SCHNY
Winston Industries, LLC.	Model HL4522-AL-SCA

Winston Industries shall include bumper guard and transport options

Mobile Hot Food Counter

Kitchen Equipment – Large



Delfield Custom
Current SCA Spec



Vollrath 38710
Proposed Alternative

Found in all serveries;* freestanding but electrically connected to Mobile Refrigerated Counter; directly accessed by students. Typical quantities are **1 per servery station** (most schools have 1 to 3 stations). Critical specifications include:

- 4 electrically heated insulated hot wells with individual thermostatic controls
- Tempered glass full length protector case with top shelf and fluorescent lights
- Tray slide and 36" flat top adjacent to hot wells for placement of trays during serving
- Stainless steel construction
- Also provides power for Hot Food Slide (IS, IS/HS, and HS only)
- Size: 90"x43"x50" (variable, dependent on servery configuration)

*Note: New standards for "grab and go" serveries in IS and HS buildings have replaced most Hot Food Counters with Heated Merchandisers. One smaller, two-well Hot Food Counter without flat top is provided to these serveries in order to supply hot breakfast foods during the summer.

The most energy-efficient currently available SCA standard is a custom unit by **Delfield** (custom build) or equal, with a maximum demand of **4,576 W**. Other models in the current SCA specification include:

- **Duke Manufacturing** (custom build)
- **Vollrath** (custom build)

Potential alternatives identified for this study include:

- **Vollrath 38710**, 4 wells, 60"x24"x49", **2,800 W**
- **Eagle Group BPDHT4-208-3**, 4 wells, 64"x23"x53", **3,000 W**
- **Alluserv AHF4HIB**, 4 wells, 66"x33"x36", **4,300 W**

More energy-efficient alternative models are available with 120V power. However, according to DOE, this lower voltage is unable to achieve required temperatures within the very limited time available between the start of the kitchen staff workday and the beginning of the breakfast period.

Pros: The most energy-efficient alternative offers energy demand **savings of 1,776 W or 39%** per unit compared to the most energy-efficient current SCA standard. It meets most of the specifications and offers many of the same features as the current SCA standard.

- Alternative 1 offers tray slide and fluorescent lights as optional upgrades.
- Alternative 2 offers stainless steel construction, stainless steel skirts, tray slide, fluorescent lights, and undershelf as optional upgrades.
- Alternative 3 has standard stainless steel construction and offers protector guards and a duplex outlet as optional upgrades.

Cons:

- All alternatives require custom modifications to provide the flat top, daisy-chain electrical supply, upper shelves, and signage.
- Some alternatives require custom modifications to provide protector guards and convenience outlets.
- Alternative 1 has vinyl-clad 20-gauge steel construction; it is not clear whether stainless steel construction is available as an option.

MOBILE HOT FOOD COUNTER				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Delfield	Vollrath	Eagle Group	Alluserv
Model	Custom	38710	BPDHT4	AHF4HIB
Size (Ext)	90x43x89	64x23x53*	60x24x49*	66x33x36*
Capacity	4 Wells	4 Wells	4 Wells	4 Wells
Volts	208	208	208	208
Amps	22.0	7.2	17.5	20.7
Watts	4,576.0	2,800.0	3,000.0	4,300.0
Savings	-	1,776.0	1,576.0	276.0
Savings %	-	39%	34%	6%
CO2e (MT)	0.060	0.029	0.030	0.057
Savings	-	0.031	0.030	0.003
Savings %	-	51%	50%	6%
EnergyStar	N	N	N	N
Cost Difference	custom	**	**	**
Source	-	Web	Web	Web

* Height is without optional upper shelves, lighting, and protector guards.

** Prices depend upon optional upgrades or custom modifications required to meet SCA specifications.

Recommendations: All alternatives appear to be possible replacements for the current SCA standard, but would require custom modifications. Manufacturers should be contacted to determine which modifications are feasible and how they would impact cost and energy consumption.

SCA Current Specifications
Section 11400

MOBILE HOT FOOD COUNTER

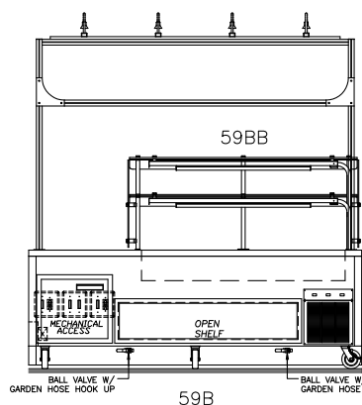
1. General construction shall comply with the General Paragraph. Counter shall be of the length, width and height to work surface as shown on the Drawings and indicated on the Equipment Schedule. Interior cabinet section to be provided with bottom shelves.
2. Unit to be further provided with the following:
 - Stainless Steel Fold-Down Tray Slide
 - Interlocking Device
 - Provide tempered glass full length protector case with top shelf, front panel, end panels, and fluorescent lights; constructed of 1" round stainless steel tubing with 3/8" tempered glass top shelf with fluorescent light under shelf, 1/4" tempered glass front full length and 1/4" tempered glass end panels, also full length. Unit shall be mounted to counter top with heavy-duty flange. Entire unit to have a polished stainless finish. Provide lamps and on/off switch for lights. On/off switch shall be located on apron of Operator's side of counter.
 - Electrical: "Daisy Chained" together with a single point connection located at the beginning of the Serving Line.
 - Electrical Service Panel with Plug at one end and Receptacle with overcurrent protection at the other end.
 - Four (4) electrically heated insulated hot wells. Dry/moist wells individually thermostatically controlled with an adjustable control switch and indicator light in the control panel as well as an on/off switch to power all of the hot wells either on/off. Each well shall be fitted with 1" I.P.S. chrome plated bronze drain line at bottom manifold into a single gate drain valve with hose hook-up. Provide drain with flexible hose. Hose length shall extend to floor drain. Each well shall accommodate one 12" x 20"x 6" pan.

Manufacturer: Subject to compliance with specifications:

Duke Manufacturing Co.
ShelleySteel/Delfield
Vollrath

Mobile Cold Food Counter / Salad Bar

Kitchen Equipment – Large



Delfield Custom
Current SCA Spec



Beverage Air SPE72HC-30-S
Proposed Alternative

Found in all serveries;* freestanding but electrically connected to Mobile Hot Food Counter; directly accessed by students. Typical quantities are **1 per servery station** (most schools have 1 to 3 stations). Critical specifications include:

- Mechanically cooled insulated 7" deep cold pan with space for (4) 12"x20" hotel pans
- Self-contained condensing unit with thermostat control
- Tempered glass full length protector case with two shelves and fluorescent lights
- Tray slide, drip trough with drain for Water Jet, and 36" flat top adjacent to cold pan
- Also provides power for the Milk Cooler and Water Jet Drink Dispenser
- Size: 90"x24"x89" (variable, dependent on servery configuration)

*Note: New standards for "grab and go" serveries in IS and HS buildings have replaced most Cold Food Counters with Refrigerated Merchandisers.

The most energy-efficient currently available SCA standard is the **Delfield** (custom build) or equal, with a maximum demand of **1,800 W**. The other models in the current SCA specification include:

- **Duke Manufacturing** (custom build)
- **Vollrath** (custom build)

Potential alternatives identified for this study include:

- **Delfield KCSC-96-EFP**, up to (6) hotel pans, 96"x30"x36", **2000 W**
- **Beverage Air SPE72HC-30-S**, up to (5) hotel pans, 73"x31"x37", **621 W**
- **Vollrath R3871860**, (4) hotel pans, 60"x40"x59", **936 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 1,248 W or 69%** per unit compared to the most energy-efficient current SCA standard. It meets most of the specifications and offers many of the same features as the current SCA standard.

- Alternative 1 is designed to accommodate (6) hotel pans; modified to accommodate (4) hotel pans, it will have the same capacity as the current SCA standard while providing a 24" flat top. Alternative 1 also offers tray slide, protector guard, upper shelves with lighting, daisy-chain electrical supply, and duplex convenience outlet as optional upgrades.
- Alternative 2 offers stainless steel exterior and tray slide as optional upgrades.
- Alternative 3 offers tray slide and fluorescent lights as optional upgrades.

Cons:

- All alternatives require custom modifications to provide the flat top and signage.
- Some alternatives require custom modifications to provide protector guards, daisy-chain electrical supply, upper shelves, and convenience outlets.
- According to SCA kitchen consultant Romano-Gatland, DOE Food Services previously rejected the Delfield KCSC-96-EFP because it did not maintain temperature well enough.
- Alternative 1 has a cold pan that is 6.25" deep; alternative 2 has a cold pan that is 6" deep. The current SCA standard is 7" deep.
- Alternative 1 has a molded fiberglass base with stainless steel countertop.
- Alternative 3 has vinyl-clad 20-gauge steel base with stainless steel countertop
- Alternative 3 uses R-513A refrigerant, which has a higher global warming potential (GWP) than the R-290 refrigerant used in alternatives 1 and 2.

MOBILE COLD FOOD COUNTER / SALAD BAR				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Delfield	Delfield	Beverage Air	Vollrath
Model	-	KCSC-96-EFP	SPE72HC-30-S	R38716
Size (Ext)	90x24x89	96x30x36*	73x31x37*	60x40x59*
Capacity	-	-	20.02 CF	-
Refrigerant	-	R290	R290	R513a
HP	1/4 HP	1/3 HP	1/3	1/3
Volts	120	115	115	120
Amps	15.0	4.8	5.4	7.8
Btu/hr	-	1,943	1,549	4,800
Watts	1800.0	552.0	621.0	936.0
Savings	-	1248.0	1179.0	864.0
Savings %	-	69%	66%	48%
CO2e (MT)	0.02	0.007	0.008	0.011
Savings	-	0.015	0.014	0.011
Savings %	-	69%	66%	48%
Cost Difference	custom	**	**	**
Source	-	Web	Web	Web

* Height is without optional upper shelves, lighting, and protector guards.

** Prices depend upon optional upgrades or custom modifications required to meet SCA specifications.

Recommendations: Alternatives 2 and 3 appear to be possible replacements for the current SCA standard but would require custom modifications. Manufacturers should be contacted to determine which modifications are feasible and how they would impact cost and energy consumption.

SCA Current Specifications
Section 11400

MOBILE SALAD COUNTER

1. General construction shall comply with the General Paragraph. Counter shall be of the length, width and height to work surface as shown on the Drawings and indicated on the Equipment Schedule. Interior cabinet section to be provided with bottom.

Unit to be further provided with the following:

- Stainless Steel Fold-Down Tray Slide
- Interlocking Device
- Provide double deck display case constructed of 1" round stainless steel tubing with 3/8" tempered glass top shelves with fluorescent lights under shelves, adjustable angle 1/4" tempered glass fronts, and adjustable 1/4" tempered glass end panels. Unit shall be mounted to counter top with heavy-duty flange. Entire unit to have a polished stainless finish. Provide lamps and on/off switch for lights. On/off switch to be located on apron of Operator's side of counter.
- Electrical: unit "Daisy Chained" together with a single point connection located at the beginning of the Serving Line.
- Electrical Service Panel with Plug at one end and Receptacle with overcurrent protection at the other end.
- Refrigerated Pan: NSF-7 certified; 7" deep mechanically cooled insulated cold pan. Fully self-contained condensing unit with a hermetically sealed compressor and thermostat control. The system shall be fully charged with CFC and HCFC free refrigerant and ready to operate. Provide with a 1" I.P.S. drain. Cold pan to accommodate four (4) 12"x20" hotel pans.
- Convenience outlet with overcurrent protection in base below the counter top for Milk chest

- Convenience outlet with overcurrent protection in base below the counter top for Water Jet.
- 9" X 4" X 1" deep integral drip trough located in front of Water Jet. The trough shall be constructed of 14-gage stainless steel with stainless steel removable sectional anti-splash grating, and 1" C.P. brass waste. Trough to be flush mounted with counter top.
- Drain lines from cold pan and drip trough shall be manifold at bottom into a single gate drain valve with hose hook-up. Provide drain with flexible hose. Hose length shall extend to floor drain.

Manufacturer: Subject to compliance with specifications:

Duke Manufacturing Co.
ShelleySteel/Delfield
Vollrath

Range with Oven

Kitchen Equipment – Large



Garland GME36-I14C
Current SCA Spec



Smeg SPR36UIMX
Proposed Alternative

Found in all kitchens; freestanding. Typically **1 per school**. Critical specifications include:

- (4) 3.5kW round burner elements (aka hobs)
- Stainless steel construction
- High-strength glass cooking surface
- Integrated air management system
- Cool to touch control knobs
- Integrated circuit breaker for both induction and oven
- Size: 36"x29"x34"

The most energy-efficient currently available SCA standard is the **Garland GME36-I14C** or equal, with a combined maximum demand of **19,100 W**. No other models have been listed in the specifications. The case study schools had either the current SCA standard or gas ranges with ovens.

Potential alternatives identified for this study include:

- **Smeg SPR36UIMX**, (5) 3kW hobs, 36" wide, **14,300**
- **Lang RI30C**, (4) 2.6kW hobs, 30" wide, **18,200 W**

It was difficult to find commercial-quality induction cooktops paired with convection ovens, and even more difficult to find pairings that included (4) round induction hobs; many models featured odd numbers of hobs combined with 12"x24" induction "hot top" areas or griddles.

Pros: The most energy-efficient alternative offers energy demand **savings of 6,800 W or 32%** per unit compared to the most energy-efficient current SCA standard. The alternative meets most SCA specifications and offers most of the same features as the current SCA standard.

Cons:

- All of the alternatives have lower-powered induction hobs than the current SCA standard.
- Based on its pricing, Alternative 1 may not be a heavy-duty model suitable for school kitchen use.

RANGE WITH OVEN				
	PREVIOUS (GAS)	CURRENT (ELECTRIC)	ALTERNATIVE 1	ALTERNATIVE 2
Manufacturer	Garland	Garland	Smeg	Lang
Model	MST44R	GME36-I14C	SPR36UIMX	R130C
Fuel Source	Natural Gas	Electric	Electric	Electric
Size (Ext)	34x38x34	36x36x29	36x25x32	31x29x36
Capacity	4 Burners	4 Hobs	5 Hobs	4 Hobs
Temp (Oven)	-		150F-500F	150F - 450F
Volts	-	120	208	208
Amps	-	66.4	68.8	87.5
Btu/hr (*Equiv.)	120,000		*48,805	*62,116
Gas Equiv. Savings	-		71,195	57,884
Gas Equiv. Savings %	-		59%	48%
CO2e (MT)	8.2		3.4	4.3
Savings vs Gas	-		4.8	3.9
Savings vs Gas %	-		59%	48%
Watts		21,100	14,300	18,200
Savings vs Elec		-	6,800.0	2,900.0
Savings vs Elec %		-	32%	14%
CO2e (MT)		5.0	3.4	4.3
Savings vs Elec		-	1.6	0.7
Savings vs Elec %		-	32%	14%
Cost Difference	-	96%	137%	-73%
Source	-	SCA Cost Estimate	AQ	Web

Recommendations: The alternatives are potential replacements for the current SCA standard, but none matches the exact specifications due to the different burner (hob) powers and configurations. Expanding the investigation to include “hot top” areas instead of or in addition to round hobs could provide more options as well as more flexibility in cooking. However, according to SCA kitchen consultant Romano-Gatland, DOE Food Services is unlikely to accept lower-powered hobs or different configurations.

Food Services Comments: Food Services noted that Alternative 2 may not meet its quality standards, although it was not clear whether this was due to known quality issues or to a supposition based on the model’s apparent low price. As such, Alternative 2 may not be considered a suitable model unless the quality and longevity of the model can be verified.

SCA Current Specifications
Section 11400

Induction Range with Convection Oven

1. Range shall comply with the Electric Cooking Equipment General Requirement.
2. Top Section: 1/4" thick Ceran glass cooking surface with four (4) individually controlled hobs rated at 3.5 kW each with automatic pan and boil dry protection. Oven Section: Stainless steel oven interior with chrome-plated, removable rack guides.
3. Provide with the following options:
 - a. Two (2) oven racks
4. Provide Pot Filler next to the range.

Manufacturer: Subject to compliance with specifications:

Garland Model GME36-I14C

Reach-In Freezer – Double

Kitchen Equipment – Large



Continental DL2F-SS-GD
Current SCA Spec



Everest ESF2
Proposed Alternative

Found in all kitchens; freestanding. Typical quantities are **2 or 3 per school**. * Critical specifications include:

- 50 CF capacity
- Automatic hot gas defrost
- Refrigeration system readily accessible
- Digital control system
- Solid, self-closing doors with cylinder locks
- Stainless steel construction
- Epoxy coated steel shelves
- Size: 53"x36"x88"

*Note: This quantity may be lower in schools equipped with double compressors for walk-in freezers.

The current most energy-efficient currently available SCA standard is the **Continental DL2F-SS-GD** or equal, with a maximum demand of **1,610 W**. Other models in the current specification or recently installed include:

- **Traulsen RHT232NUT-FHS**, 46 CF, **1,806 W**
- **Victory FS-2D-S1**
- **True Food STR2F-2S**

Potential alternatives identified for this study include:

- **Everest ESF2**, 48 CF, 50"x32"x81", **863 W**
- **Continental 2FEN**, 50 CF, 57"x34"x83", **1,035 W**
- **True STR2F-2S-HC**, 47 CF, 53"x34"x73", **1,081 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 748 W or 46%** per unit compared to the most energy-efficient current SCA standard. It meets all SCA specifications and offers all of the same features as the current SCA standard.

- All alternatives produce less ambient heat than the current SCA standard, which will help reduce kitchen space cooling energy costs.
- All alternatives use R-290 refrigerant, which has significantly lower global warming potential (GWP) than the R-404A refrigerant used in the current SCA standard. The use of R-404A has been phased out in the U.S.
- Alternatives 2 and 3 are EnergyStar rated.

Cons:

- Based on its pricing, Alternative 1 may not be a heavy-duty model suitable for school kitchen use.
- Alternatives 1 and 3 have slightly less capacity (4%-6%) than the current SCA standard.
- Alternative 2 is wider than the current SCA standard.

DOUBLE REACH-IN FREEZER				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Continental	Everest	Continental	True
Model	DL2F-SS-GD	ESF2	2FEN	STR2F-2S-HC
Size (Ext)	53x36x88	50x32x81	57x34x83	53x34x83
Capacity	50 CF	48 CF	50 CF	46.9 CF
Temp	-10F	-10F	-10F	-10F
Refrigerant	R-404A	R-290	R-290	R-290
HP	1	1	1/2	1 1/4
Volts	115	115	115	115
Amps	14.0	7.5	9.0	9.4
Heat Gain (Btu/hr)	4,325	2,840	2,560	3,689
Savings	-	1,485	1,765	636
Watts	1,610	863	1,035	1,081
Savings	-	747.5	575.0	529.0
Savings %	-	46%	36%	33%
CO2e (MT)	0.7	0.4	0.5	0.5
Savings	-	0.3	0.3	0.2
Savings %	-	46%	36%	33%
EnergyStar	N	N	Y	Y
Est. kWh/day	N/A	N/A	9.45	10.43
Cost Difference	-	-57%	-33%	43%
Source	Web	AQ	AQ	AQ

Recommendations: All alternatives appear to be suitable replacements for the current SCA standard. However, alternative 2 matches the specifications most closely.

Food Services Comments: Food Services noted that Alternative 1 may not meet its quality standards, although it was not clear whether this was due to known quality issues or to a supposition based on the model's apparent low price. As such, Alternative 1 may not be considered a suitable model unless the quality and longevity of the model can be verified.

SCA Current Specifications
Section 11400

FREEZER (REACH-IN TYPE)

All freezers shall be of a commercial type listed by UL and NSF to ensure the maximum in safety, performance and sanitation and constructed as specified in the Refrigerators & Freezers General Paragraph. One Section shall be wide-body and two sections narrow-body models. Refrigerating unit shall be equipped with hot gas Thermo bank type automatic defrost. A low temperature type gasket shall be installed on doors. Provide energy saving automatic non-electric condensate evaporator of the size recommended by the Manufacturer; no plumbing is required. Provide with adjustable epoxy coated or chrome-plated wire shelves. Unit shall be listed on the Equipment Schedule and located where shown on the Drawings. Full door with door locks (same combination as refrigerators).

Manufacturer: Subject to compliance with specifications:

Continental Refrigerator	DL2F-SS/SCA
Traulsen	RLT232NUT-FHS
True Food Service Equipment	STR2F-2S
Victory Refrigeration Co.	FS-2D-S1

Reach-In Freezer – Single

Kitchen Equipment – Large



Continental DL1F-SS-GD
Current SCA Spec



Everest ESF1
Proposed Alternative

Found in all kitchens; freestanding. Typically in quantities of **1-2 per school**. * Critical specifications include:

- 21 CF capacity
- Automatic hot gas defrost
- Refrigeration system readily accessible
- Digital control system
- Solid, self-closing doors with cylinder locks
- Stainless steel construction
- Epoxy coated steel shelves
- Size: 26"x36"x84"

*Note: This quantity may be lower in schools equipped with double compressors for walk-in freezers.

The most energy-efficient currently available SCA standard is the **Continental DL1F-SS-GD** or equal, with a maximum demand of **1,590 W**. Other models in the current specification include:

- **Traulsen RHT132NUT-FHS**, 22 CF, **1,890 W**
- **Victory FS-1D-S1-EW**
- **True Food STR1F-1S**

Potential alternatives identified for this study include:

- **Everest ESF1**, 23 CF, 30"x32"x80", **575 W**
- **True STR1F-2HS-HC**, 25 CF, 28"x36"x85", **690 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 150 W or 21%** per unit compared to the most energy-efficient current SCA standard. It meets all SCA specifications and offers all of the same features as the current SCA standard.

- All of the alternatives can refrigerate to lower temperatures than the current SCA standard.
- All of the alternatives provide more capacity than the current SCA standard.

Cons:

- Based on its pricing, Alternative 1 may not be a heavy-duty model suitable for school kitchen use.
- All of the alternatives are wider than the current SCA standard.

SINGLE REACH-IN FREEZER			
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2
Manufacturer	Continental	Everest	True
Model	DL1F-SS-GD	ESF1	STR1F-2HS-HC
Size (Ext)	26x36x84	30x32x80	28x36x85
Capacity	21 CF	23 CF	25 CF
Temp	0F	-10F	-10F
Refrigerant	R-404A	R-290	R-290
HP	1/3	1/2	1/2
Volts	115	115	115
Amps	6.3	5.0	6.0
Btu/hr	1,590	1,670	2,355
Watts	725	575	690
Savings	-	149.5	34.5
Savings %	-	21%	5%
CO2e (MT)	0.5	0.41	0.49
Savings	-	0.11	0.025
Savings %	-	21%	5%
EnergyStar	N	N	Y
Cost Difference	-	-74%	-44%
Source	Web	Web	AQ

Recommendations: All alternatives appear to be suitable replacements for the current SCA standard. However, alternative 2 matches the specifications most closely.

Food Services Comments: Food Services noted that Alternative 1 may not meet its quality standards, although it was not clear whether this was due to known quality issues or to a supposition based on the model's apparent low price. As such, Alternative 1 may not be considered a suitable model unless the quality and longevity of the model can be verified.

SCA Current Specifications
Section 11400

FREEZER (REACH-IN TYPE)

All freezers shall be of a commercial type listed by UL and NSF to ensure the maximum in safety, performance and sanitation and constructed as specified in the Refrigerators & Freezers General Paragraph. One Section shall be wide-body and two sections narrow-body models. Refrigerating unit shall be equipped with hot gas Thermo bank type automatic defrost. A low temperature type gasket shall be installed on doors. Provide energy saving automatic non-electric condensate evaporator of the size recommended by the Manufacturer; no plumbing is required. Provide with adjustable epoxy coated or chrome-plated wire shelves. Unit shall be listed on the Equipment Schedule and located where shown on the Drawings. Full door with door locks (same combination as refrigerators).

Manufacturer: Subject to compliance with specifications:

Continental Refrigerator	DL1FE-SS/SCA
Traulsen	RLT132WUT-FHS
True Food Service Equipment	STR1F-1S
Victory Refrigeration Co.	FS-1D-S1-EW

Reach-In Refrigerator – Double
Kitchen Equipment – Large



Continental DL2R-SS
Current SCA Spec



TurboAir M3R47-2-N
Proposed Alternative

Found in all kitchens; freestanding. Typical quantities are **3 or 4 per school**. * Critical specifications include:

- 50 CF capacity
- Refrigeration system is readily accessible
- Digital control system
- Solid, self-closing doors with cylinder locks
- Stainless steel construction
- Epoxy coated steel shelves
- Size: 52"x32"x83"

*Note: This quantity may be lower in schools equipped with double compressors for walk-in coolers.

The most energy-efficient currently available SCA standard is the **Continental DL2R-SS** or equal, with a maximum demand of **747 W**. Other models in the current SCA specification include:

- **Traulsen RHT232NUT-FHS**, 46 CF, **943 W**
- **True Food STR2R-2S**
- **Victory RS-2D-S1**

Potential alternatives identified for this study include:

- **TurboAir M3R47-2-N**, 42.3 CF, 52"x31"x78", **322 W**
- **Avantco 178SS2RHC**, 41.3 CF, 54"x32"x82", **437 W**
- **Everest ESR2**, 48 CF, 45"x25"x57", **518 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 425 W or 57%** per unit compared to the current SCA standard. It meets most SCA specifications and offers all of the same features as the current SCA standard.

- Alternative 1 offers additional features including self-cleaning condensers, rapid cooldown function, and open door alarm.
- All alternatives produce less ambient heat than the current SCA standard.
- All alternatives use R-290 refrigerant, which has significantly lower global warming potential (GWP) than the R-404A refrigerant used in the current SCA standard. The use of R-404A has been phased out in the U.S.
- All alternatives offer a wider temperature range than the current SCA standard.
- Alternatives 1 and 3 are EnergyStar rated.
- Alternative 1 has a “self-cleaning” compressor.

Cons:

- Based on its pricing, Alternative 3 may not be a heavy-duty model suitable for school kitchen use.
- Alternative 1 has approximately 15% less capacity than the current SCA standard. Alternative 3 has approximately 4% less capacity.

DOUBLE REACH-IN REFRIGERATOR				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Continental	TurboAir	Avantco	Everest
Model	DL2R-SS	M3R47-2-N	178SS2RHC	ESR2
Size (Ext)	52x32x83	52x31x78	54x32x82	50x32x80
Capacity	50 CF	42.3 CF	41.3 CF	48 CF
Temp	38F-40F	33F-38F	33F-40F	33F-54F
Refrigerant	R-134A	R-290	R-290	R-290
HP	1/3	1/3	1/4	1/4
Volts	115	115	115	115
Amps	6.5	2.8	3.8	4.5
Heat Gain (Btu/hr)	4,010	-	-	1,926
Watts	747.5	322.0	437.0	517.5
Savings	-	425.5	310.5	230.0
Savings %	-	57%	42%	31%
CO ₂ e (MT)	0.3	0.14	0.19	0.23
Savings	-	0.19	0.14	0.10
Savings %	-	57%	42%	31%
EnergyStar	N	Y	N	Y
Cost Difference	-	-3%	-100%	-58%
Source	Web	Manuf. Price List	-	AQ

Recommendations: All alternatives appear to be possible replacements for the current SCA standard.

Food Services Comments: Food Services noted that Alternative 3 may not meet its quality standards, although it was not clear whether this was due to known quality issues or to a supposition based on the model's apparent low price. As such, Alternative 3 may not be considered a suitable model unless the quality and longevity of the model can be verified.

SCA Current Specifications
Section 11400

REFRIGERATOR (REACH-IN TYPE)

All refrigerators shall be of a commercial type listed by UL and NSF to ensure the maximum in safety, performance and sanitation and constructed as specified in the Refrigerators & Freezers General Paragraph. One Section shall be wide-body and two sections narrow-body models. Provide with adjustable angle type tray slides. Unit shall be listed on the Equipment Schedule and located where shown on the Drawings. Full door with door locks.

Manufacturer: Subject to compliance with specifications:

Continental Refrigerator	DL2R-SS/SCA
Traulsen	RHT232NUT-FHS
True Food Service Equipment	STR2R-2S
Victory Refrigeration Co.	RS-2D-S1

Reach-In Refrigerator – Single

Kitchen Equipment – Large



Continental DL1R-S
Current SCA Spec



TurboAir M3R19-1N
Proposed Alternative

Found in all kitchens and freestanding; typically, in quantities of **2 or 3 per school**. * Critical specifications per stack include:

- 16 CF capacity
- Refrigeration system is readily accessible
- Digital control system
- Solid, self-closing doors with cylinder locks
- Stainless steel construction
- Epoxy coated steel shelves
- Size: 26"x29"x83"

*Note: This quantity may be lower in schools equipped with double compressors for walk-in coolers.

The most energy-efficient currently available SCA standard is the **Continental DL1R-S** or equal, with a maximum demand of **633 W**. Other models in the current SCA specification include:

- **Traulsen RHT132NUT-FHS**, 22 CF, **770 W**
- **True Food STR1R-1S**
- **Victory RS-1D-S1-EW**

Potential alternatives identified for this study include:

- **TurboAir M3R19-1-N**, 18.7 CF, 32"x31"x78", **288 W**
- **Avantco SS-1R-HC**, 20.6 CF, 29"x33"x83", **299 W**
- **Everest ESR1**, 23 CF, 30"x32"x80", **566 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 345 W or 55%** per unit compared to the most energy-efficient current SCA standard. It meets all SCA specifications and offers all of the same features as the current SCA standard.

- All alternatives provide more capacity than the current SCA standard.
- All alternatives offer a wider temperature range than the current SCA standard.
- Alternative 1 also has
 - R-290 refrigerant, which has lower global warming potential (GWP) than R-134A
 - Self-cleaning condenser
 - Rapid cooldown function
 - Open door alarm

Cons:

- All alternatives are wider than the current SCA standard.
- Based on its pricing, Alternative 3 may not be a heavy-duty model suitable for school kitchen use.

SINGLE REACH-IN REFRIGERATOR				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Continental	TurboAir	Avantco	Everest
Model	DL1R-S	M3R19-1-N	SS-1R-2-HC	ESR1
Size (Ext)	26x29x83	32x31x78	29x33x83	30x32x80
Capacity	16 CF	18.7 CF	20.6 CF	23 CF
Temp	38F-40F	33F-38F	33F-40F	33F-54F
Refrigerant	R-134A	R-290	R-290	R134a
HP	1/4	1/3	1/5	1/3
Volts	115	115	115	115
Amps	5.5	2.5	2.6	4.9
Heat Gain (Btu/hr)	1,940	-	-	2,555
Watts	632.5	287.5	299.0	565.8
Savings	-	345.0	333.5	66.7
Savings %	-	55%	53%	11%
CO ₂ e (MT)	0.28	0.13	0.13	0.25
Savings	-	0.15	0.15	0.03
Savings %	-	55%	53%	11%
EnergyStar	N	Y	N	Y
Cost Difference	-	-50%	-	-57%
Source	Web	Web	-	Web

Recommendations: All alternatives appear to be suitable replacements for the current SCA standard. However, Alternative 2 comes closest to matching the width of the current SCA standard.

SCA Current Specifications
Section 11400

REFRIGERATOR (REACH-IN TYPE)

All refrigerators shall be of a commercial type listed by UL and NSF to ensure the maximum in safety, performance and sanitation and constructed as specified in the Refrigerators & Freezers General Paragraph. One Section shall be wide-body and two sections narrow-body models. Provide with adjustable angle type tray slides. Unit shall be listed on the Equipment Schedule and located where shown on the Drawings. Full door with door locks.

Manufacturer: Subject to compliance with specifications:

Continental Refrigerator	DL1RE-SS/SCA
Traulsen	RHT132WUT-FHS
True Food Service Equipment	STR1R-1S
Victory Refrigeration Co.	RS-1D-S1-EW

Steamer

Kitchen Equipment – Large



Market Forge Altair II-10
Current SCA Spec



Sterling SP208-6-1-AF
Proposed Alternative

Found in all kitchens; freestanding; typical quantities are **1 or 2 double stacked units per school** (2 or 4 units total). Critical specifications per double stack include:

- 10 full size cafeteria pan (12"x20"x2.5", aka hotel pan) capacity
- 230°F – 235°F cooking temperature
- Boilerless convection steam
- Stainless steel interior and exterior
- Timer, water level indicator, and temperature probe with high temp shutoff
- 24"x31"x67"

The most energy-efficient currently available SCA standard is a double stack of electric **Market Forge Altair II-10** or equal, with a combined maximum demand of **19,600 W**. The case study schools had either the current SCA standard or gas steamers. Other models in the current SCA specification include:

- **Cleveland 22CET66-1, 21,450 W**

Potential alternatives identified for this study include:

- **Sterling SP208-6-1-AF**, 12 pans, 23x30x54, **12,460 W**
- **Accutemp E62083E150DBL**, 12 pans, 29"x37"x65", **15,000 W**
- **Groen XS-208-8-3**, 12 pans, 26"x22"x71", **16,000 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 7,140 W or 36%** per double stacked unit compared to the most energy-efficient current SCA standard.

- All alternatives provide greater capacity than the current SCA standard.
- All alternatives can be operated with unfiltered water (although filtered water is SCA standard).
- Alternative 2 offers digital controls.

Cons:

- Two of the alternatives are slightly wider than the current SCA standard.
- Due to source energy inefficiencies, the alternatives yield the same or higher CO2e emissions compared to the previous gas model.

STEAMER					
	PREVIOUS (GAS)	CURRENT (ELECTRIC)	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Cleveland	Market Forge	Sterling	Accutemp	Groen
Model	22CGT66-1	Altair II - 10	SP208-6-1-AF	E6-208-3E-150-DBL	XS-208-8-3
Fuel Source	Natural Gas	Electric	Electric	Electric	Electric
Size (Ext)	23x34x75	24x31x67	23x30x54	29x37x65	26x22x71
Capacity	(12) 2.5" Cafeteria Pans	(10) 2.5" Cafeteria Pans	(12) 2.5" Cafeteria Pans	(12) 2.5" Cafeteria Pans	(12) 2.5" Cafeteria Pans
Temp	212F	230F	-	212F	212F
Volts	N/A	208	208	208	208
Amps	N/A	38.5	30.0	42.0	28.5
Btu/hr (*Equiv.)	64,000		*42,526	*51,195	*54,608
Gas Equiv. Savings	-		21,474	12,805	9,392
Gas Equiv. Savings %	-		34%	20%	15%
CO2e (MT)	0.2		0.2	0.3	0.3
Savings vs Gas	-		0.0	-0.1	-0.1
Savings vs Gas %	-		0%	-50%	-50%
Watts		19,600	12,460	15,000	16,000
Savings vs Elec		-	7,140	4,600	3,600
Savings vs Elec %		-	36%	23%	18%
CO2e (MT)		0.3	0.2	0.3	0.3
Savings vs Elec		-	0.1	0.1	0.1
Savings vs Elec %		-	33%	21%	17%
EnergyStar		Y	Y	Y	Y
Cost Difference		-	-41%	-37%	-61%
Source		AQ	Web	Web	Web

Recommendations: All alternatives appear to be suitable replacements for the current SCA standard.

SCA Current Specifications
Section 11400

CONVECTION STEAMER

1. Provide electric double compartment boilerless convection steamer unit. Convection Steamer unit shall comply with the Heated Equipment General Requirement.
2. Stainless steel exterior and seamless interior cooking cavity. Each Convection Steamer compartment shall have a minimum capacity of six (6) 12" x 20" x 2½" deep standard hotel pans. Stainless steel doors with door gaskets. Stacking kit.
3. Unit shall be capable of producing steam without the use of a boiler (boilerless, boiler-free). Steam shall be produced by means of an atmospheric boilerless style heating system. Steam shall be circulated throughout the cooking chamber by means of a convection fan. Electric interlock system shall be provided to shut off fan motor and steam supply when the steamer doors are opened during operation.
4. 60-minute timer; water level sensing probes with automatic level controls; temperature probes with high temperature automatic safety shut-off.
5. Drains location: rear or front
6. The water supplied to the water reservoir used for the steam production shall be filtered.
7. Water supplied to convection steamer shall be provided with vacuum breaker and check valve downstream of vacuum breaker. All exposed piping shall be chrome plated.
8. Electrical Requirements: 240V/ 3 Phase /60Hz

Manufacturer: Subject to compliance with specifications:

Cleveland Model (2)22CET66.1
Market Forge Model Altair II-12

Therm and Hold Oven

aka RETHERM OVEN

Kitchen Equipment – Large



Winston Industries CAT522-HR
Current SCA Spec



Cres Cor 1000-CH-SS-2DX
Proposed Alternative

Found in warming kitchens only;* freestanding. Typical quantities are **2 to 3 sets of double stacked units per school** (4 to 6 units total). Critical specifications per stack include:

- 14 full size (18"x26") sheet pan capacity
- Controlled Vapor Technology (Cvap) with precise temperature and humidity control
- Computer control with 6 preprogrammed retherm cycles
- No calibration requirement
- Stainless steel interior and exterior
- 28"x35"x77" (double stack size)

*Warming kitchens are limited to schools with capacity of 400 or fewer students, and only where another nearby school has the kitchen capacity to provide meal preparation.

The most energy-efficient currently available SCA standard is a double stack of **Winston Industries CAT522-HR** or equal, with a capacity of 14 pans and a combined maximum demand of **11,215 W**. Other models in the current SCA specifications include:

- **Cres Cor RO-151-FWUA-18D**, 29"x35"x74", **12,000 W** (note: not Cvap)

Note: According to DOE Food Services, the Winston model is no longer being specified due to a change in price. Only the Cres Cor model is being specified.

Potential alternatives identified for this study include:

- **Winston Industries CHV5-05UV-ST**, 10 pans, 28"x35"x77", **4,992 W**
- **Cres Cor 1000-CH-SS-2DX**, 16 pans, 23"x33"x74", **6,000 W** (note: not Cvap)

Pros: The most energy-efficient alternative offers energy demand **savings of 6,223 W or 55%** per double stacked unit compared to the most energy-efficient current SCA standard. It meets all SCA standard specifications except for capacity.

- The second-most energy-efficient alternative has 14% more capacity than the current SCA standard and offers 47% energy demand savings.

Cons:

- The most energy-efficient alternative has 8% less capacity than the current SCA standard. A different model (Winston CHV5-14UV) has the same capacity as the current SCA standard and has two compartments, but it is not a stacked pair. It has a maximum energy demand of 8,130 W.
- Cres-Cor does not offer models with Cvap patented technology. However, as a Cres-Cor model is listed in the current SCA specifications, this does not appear to be disqualifying.

THERM AND HOLD CABINET			
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2
Manufacturer	Winston Industries	Winston Industries	Cres Cor
Model	CAT522-HR	CHV5-05UV-ST	1000-CH-AL-2DX
Fuel Source	Electric	Electric	Electric
Size (Ext)	28x35x77	28x35x77	23x33x74
Capacity	14 Pans	10 Pans	16 Pans
Temp	180 F	200 F	180 F
Volts	208	208	208
Amps	33.7	24.0	30.0
Watts	11,215	4,992	6,000
Savings	-	6223.0	5215.0
Savings %	-	55%	47%
CO2e (MT)	1.5	0.7	0.8
Savings	-	0.8	0.7
Savings %	-	55%	47%
Cost Difference	-	-30%	-50%
Source	Web	AQ	Web

Recommendations: Alternative 1 appears to be a possible replacement for the current SCA standard, but it has significantly less capacity. If a stacked pair is not required, a different model from the same manufacturer meets more of the specifications of the current SCA standard and still offers significant energy savings. Alternative 2 provides greater capacity but does not offer Cvap technology.

SCA Current Specifications
Section 11400

THERM & HOLD CABINET (ELECTRIC)

1. Used for reheating and serving precooked foods. Cabinet shall utilize Controlled Vapor Technology (Cvap) as a method and apparatus for reheating and holding hot foods, consisting of an air heater and water heater to establish ideal water vapor content that is in relation with the moistness characteristics for the food. Rethermalization ovens with precise temperature and humidity control are also acceptable.

2. Construction

a. Materials: stainless steel

b. Rack supports: adjustable, spaced 3.5" to receive fourteen (14) sheet pans (18" x 26") or twenty-eight (28) steam table pans (12" x 20" x 2½). Removable for easy cleaning.

c. Doors: Field reversible hinges shall allow door lift off to facilitate cleaning. Magnetic door latch.

d. Bumper Guard: Full perimeter bumper with heavy duty, non-marking 5" casters (2 locking, 2 non-locking)

e. Insulation: Full-perimeter high density 1½" UL and ASME approved fiberglass insulation.

f. Controller: Computerized processor or solid state digital control with six preprogrammed retherm cycles and one operator programmable open cycle for setting food temperature, food texture, and time. The cabinet shall automatically hold. The control shall never need calibration.

g. Ventilation: Allow 2" ventilation clearance on sides, back, and top of appliance. Provide with the specified casters.

h. Electrical: 12 kW, 208V, 3-Phase, 8-foot electrical cord to match receptacle (15-50P)

i. Specify left hand or right hand hinge as shown on the Drawings.

Manufacturer: Subject to compliance with specifications:

Winston Industries, LLC. (Cvap Therm & Hold Cabinet) Model CAT522-HR with bumper guard and transport options

CresCor Model RO-151-FWUA-18D 208V/3Phase with full perimeter bumpers

Walk-in Cooler and Freezer Refrigeration Units

Kitchen Equipment – Large



Kolpak
Installed at IS “B” in Queens



Master-Bilt
Proposed Alternative

Found in all kitchens; consists of an interior-located evaporator, and an exterior-located (remote) compressor. The current SCA standard requires two evaporators and two compressors per walk-in in order to provide redundancy and improve equipment longevity, with operation designed to alternate between the units. Typical quantities are **1 unit per school**. Critical specifications include:

- Freezer: -10°F temperature
- Cooler: 35°F temperature

Note: It is difficult to compare the actual energy consumption of walk-in refrigeration units due to manufacturer differences in matching cooling capacities to walk-in room sizes, and due to the alternating operation of the double compressors and evaporators. This study also found that for all case study buildings, the equipment models specified in bid documents were never the same as the equipment models actually installed.

In 2014, the U.S. Department of Energy established energy efficiency standards for walk-ins under 3,000sf in size, using a metric created by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) called Annual Walk-in Energy Factor (AWEF). AWEF is analogous to the SEER metric used for HVAC equipment. Compliance was required for equipment manufactured after 2020. The minimum AWEF (measured in Btu/W-hour) for dedicated outdoor condensers are as follows:

- Freezer condensers < 6,500 Btu/h: $2.73 + (0.00006522 \times \text{net capacity in Btu/h})$
- Freezer condensers $\geq 6,500$ Btu/h: 3.15
- Cooler condensers (any size): 7.60

However, remote air-cooled condensers such as those used for SCA walk-ins, which are placed on a roof that could be 50 feet or more away from the walk-ins (as opposed to condensers that are located inside or outside but are physically connected to the walk-in), are excluded from compliance. None of the major manufacturers researched in this study indicated that their remote air-cooled condensers comply with

AWEF requirements. At the time of this study, the Department of Energy was beginning the process of updating its standards for walk-ins. It is possible that future changes could establish AWEF requirements for remote air-cooled condensers, which would make it much easier for SCA to require and verify that its walk-ins meet a minimum level of energy efficiency.

This study briefly explored the potential for the application of heat pump refrigeration technology in walk-in cooling equipment but found no references to such applications in magazines, journals, ASHRAE, or regulatory documents. There are some references in the literature to the use of water-cooled compressors rather than air-cooled compressors, but water-cooled compressors are not an appropriate technology for SCA's walk-in refrigeration equipment.

The SCA's Appendix A Worksheet for energy modeling of capacity projects includes the following default assumptions for the walk-in evaporators (identified as "blower coil" in the Worksheet):

- Freezer Evaporator: 19.2A, 208V, 3,994 W
- Cooler Evaporator: 3.2A, 120V, 384 W

The SCA Worksheet also specifies loads for the walk-in box itself (1,200 W) and the flip-flop controller that manages the alternating operation of the double evaporators and condensers (1,800 W), but for the purposes of this study these are assumed to remain unchanged by the proposed alternatives.

According to the SCA Worksheet, the remote condensers for the walk-ins are "accounted for separately as HVAC conditioning load, not as separate piece of equipment." However, this has not been the case for any Green Schools Guide models completed by EME, nor is it described in any of the SCA's energy model guidance documents. For this reason, the Appendix A values cannot be used for comparison with the alternatives identified in this study.

Unlike the other kitchen equipment in this study, walk-in rooms are sized differently in different schools, with refrigeration units sized to match. For purposes of this study, the actual walk-in *freezer* equipment installed in IS "B" in Queens, including a freezer box with interior dimensions of 7.5'Wx12.5'Lx8.25'H or 773 CF, was used as a basis for comparison.

- Freezer Compressor: Kolpak ZF08K4E-TF5-248LZ, 208V, 9.6A, 11,400 BtuH, 2.5 HP, 1,996 W
- Freezer Evaporator: Kolpak EL36-142D-2EC-PR-8, 208V, 1.5A fan, 14.3A defrost, 3,286 W
- **Total Freezer Compressor + Evaporator:** 208V, 25.4A, 11,400 BtuH, **5,282 W**

Similarly, the actual walk-in *cooler* equipment installed in IS "B" in Queens, including a cooler box with interior dimensions of 7'W to 9.5'W (width varies)x12.5'Lx8.25'H or 875 CF, was used as a basis for comparison.

- Cooler Compressor: Kolpak ZB07KAE-TF5-68MZ, 208V, 5.2A, 14,200 Btu, 0.75 HP, 1,082 W
- Cooler Evaporator: Kolpak AM36-181D-1EC-PR-8, 115V, 2.4A, 276 W
- **Total Cooler Compressor + Evaporator:** 115/208V, 7.6A, 14,200 Btu, **1,358 W**

Refrigeration equipment manufacturers currently listed in the SCA specifications for walk-ins include:

- **Master-Bilt**
- **Omni Temp Refrigeration**
- **Refrigeration Design Technologies**

- **RDI Systems/Kolpak** (Kolpak uses **RDI Systems** refrigeration equipment)

Potential alternatives identified for this study, for a walk-in *freezer* of similar size (8.0'Wx12.0'Lx8.33'H or 800 CF), include the following for the total *freezer* compressor + evaporator:

- **Master-Bilt** CPF150JC-E-4-EV, 208V, 11.1A, 4,362 Btu, **2,309 W**
- **Nor-Lake** RCPF150JC-E-4-EV, 208V, 15.47A, 5,962 Btu, **3,218 W**

Potential alternatives identified for this study, for a walk-in *cooler* of similar size (8.0'Wx14.0'Lx8.33'H or 932 CF), include the following for the total *cooler* compressor + evaporator:

- **Master-Bilt** CPB100JC-E-4-EV, 208V, 7.5A, 6,885 Btu, **1,560 W**
- **Nor-Lake** RCPB075JC-S-4-EV, 208V, 7.7A, 6,250 Btu, **1,602 W**

Pros: The most energy-efficient alternative *freezer* compressor + evaporator offer energy demand **savings of 1,560 W or 33%** compared to the installed model. It meets all SCA standard specifications.

Pros: The most energy-efficient alternative *cooler* compressor + evaporator offer energy demand **savings of 3,827 W or 62%** compared to the installed model. It meets all SCA standard specifications.

- All alternatives use R-449A instead of R-448A refrigerant.

	WALK-IN FREEZER REFRIGERATION UNIT		
	INSTALLED	ALTERNATE 1	ALTERNATE 2
Manufacturer	Kolpak	Master Bilt	Nor-Lake
Model	ZF08K4E-TF5-248LZ EL36-142D-2EC-PR-8	CPF075JC-E-4-EV	RCPF150JC-E-4-EV
Size (Walk-In)	773 CF	800 CF	800 CF
Temp	-10F	-10F	-10F
Refrigerant	R448	R449a	R449a
Volts	208	208	208
Amps	25.4	11.1	15.5
Btu Cooling	11,400	4,362	5,962
Watts	5,282	2,309	3,218
Savings	-	3,827	2,918
Savings %	-	62%	48%
CO2e (MT)	3.8	1.6	2.3
Savings	-	2.7	2.1
Savings %	-	62%	48%
Source	-	Web	Web

WALK-IN COOLER REFRIGERATION UNIT			
	INSTALLED	ALTERNATIVE 1	ALTERNATIVE 2
Manufacturer	Kolpak	Master Bilt	Nor-Lake
Model	ZB07KAE-TF5-68MZ AM36-181D-1EC-PR-8	CPB050JC-S-0-EV	CPB050DC-A
Size (Walk-In)	875 CF	932 CF	932 CF
Temp	35F	35F to 38F	32F to -10F
Refrigerant	R448	R449a	R404a
Volts	115/208	115/208	115/208
Amps	7.6	9.3	14.3
Btu Cooling	14,200	6,885	6,250
Watts	1,358	1,560	1,602
Savings	-	761	719
Savings %	-	33%	31%
CO2e (MT)	0.6	0.7	0.7
Savings	-	0.3	0.3
Savings %	-	33%	31%
Source	-	Web	Web

Recommendations: Because specific walk-in box manufacturers may have exclusive relationships with specific compressor and evaporator manufacturers, it may not be possible to specify the alternative models identified by this study. Manufacturers should be contacted to determine how best to compare energy consumption characteristics, and individual projects should be scrutinized to ensure that the most energy efficient alternatives are being selected.

SCA Current Specifications
Section 11400

WALK-IN REFRIGERATION EQUIPMENT

A. General Requirements: Provide equipment complete with the standard accessories except as otherwise noted and with all the items listed on the Equipment Schedule. After building walls are erected, the Kitchen Equipment Contractor shall field measure walls and submit size to box manufacturer within one inch (1"+) plus or minus tolerance.

1. Location and shape as shown on the Drawings.

2. Equipment shall be quiet in operation and free from objectionable vibration. All parts requiring adjustments or lubrication shall be readily accessible.

B. Walk-in Box Construction

Manufacturer: Subject to compliance with the specifications:

American Panel Corp.
Artic Industries, Inc.
Bally Refrigerated Boxes
Kolpak Walk-Ins
Kysor Panel Systems Model Series 1
Nor-Lake, Inc
Penn Refrigeration Service Corp.
TAFCO, A TMP Company
Thermo-Kool/Mid-South Industries, Inc.
W.A. Brown & Son, Inc.
Thermalrite Walk-In Coolers and Freezers
Master-Bilt Refrigeration Solutions

C. Refrigeration Unit/Compressor Rack

1. General: Provide the unit refrigeration system with two compressors each walk-in box compartment for redundancy housed on the condensing unit with matching evaporators. The system shall be provided with an automatic transfer mechanism for each tandem set of compressors to invoke equal run time between compressors. Switching between compressors shall be accomplished by an electronic alternating timer, with system status indicator lights, automatic transfer fault protection and system re-act alarm with reset button. The timer shall assure that both systems

are exercised and tested to be functional. On a failure, the passive system will automatically come on line to maintain the required walk-in temperature. A failure mode alarm will also be activated and the backup system will now run continuously until the fault is cleared. All the controls functions and diagnostics shall be included on a controller electronic control system as specified herein.

A. Refrigeration System: Remote with preassembled condensing with a compressor rack consisting of two compressors, one compressor shall be used for redundancy and evaporator assemblies, easily replaceable and serviceable of the Manufacturer's recommended horsepower. System shall be fully automatic in operation.

1) Packaged refrigeration system shall be UL listed. Automatic outdoor air-cooled remote condensing unit with the compressor rack system shall be located on a pad outside of the building where shown on the Drawing. Roof mounted condensing unit shall be mounted on rail curbs set at a minimum of 24" above finished roof to facilitate roof replacement. Unit shall include outdoor weather housing, compressor and condenser systems, and electrical control panel, all housed within a single assembly; Evaporator assemblies consisting of individual or multiple evaporator coils shall be provided with all the required options and accessories inside the walk-in compartment. All of the component parts, options and accessories shall be provided, mounted, piped and wired, as required by the manufacturer.

2) System shall be provided with all labor material and equipment necessary to supply individual refrigeration systems listed on the Drawing Equipment Schedule. All work shall be done in a neat and workmanlike manner according to the highest industry standards and subject to the complete satisfaction of the Authority and/or NYC DOE (OSF). Refrigeration package shall be pre-engineered, factory assembled.

c. The Refrigeration System shall be designed to compensate for Walk-In Box door intermittent aggregate opening of 4 hours during 16hours of operation based on an ambient temperature of 100°F. Use of the Walk-in unit shall be considered heavy.

2. Outdoor Condensing Unit

- a. Frame and Housing: Outdoor weather shall include a welded, de-burred and cleaned structural steel base frame made of 3" members. Exterior housing and access doors shall be manufactured of a minimum of 16-gage galvanized steel, assembled and cleaned. Frame and housing shall be painted with a primer coat of epoxy-based paint and finished with a coat of polyurethane acrylic enamel.
- b. All compressors shall be manufactured to operate with the refrigerants specified herein. Each compressor system shall be filled with refrigerant compatible refrigeration oil by the manufacturer and shall include discharge and suction line vibration (or vibrasorbers) protection, dual pressure control(s), Sporlan "Catch-all" or approved equal dehydrator, liquid line filter drier, moisture indicating sight glass, and crankcase heater. Each of these systems shall also include a receiver tank capable of accepting the entire system refrigerant without exceeding 90% of its volumetric capacity. Each receiver shall be provided with a pressure relief vent and, at its inlet and outlet, a roto-lock insulation valve with a service port. Compressors shall use separate refrigerant circuit providing independent function of each system. Additionally, all compressor systems that will operate at suction temperature below 0° F shall include a suction line accumulator.
- c. The condenser circuit shall have its own condenser fan. Each condenser fan to cycle off when alternative condenser fan is energized.
- d. Control Panel: Exterior mounted, weather proof, electrical panel shall be manufactured of 14-gage galvanized steel which has been assembled, welded and deburred and cleaned. The control panel can also be mounted on the evaporator coils. Control panel shall include hinged access doors with a built-in fused disconnect switch inter-locked to shut off all system electrical power when the doors are opened; circuit breakers and contactors for each compressor; required defrost time clocks; and circuit breakers, start capacitors and fan cycle control thermostats for each of the condenser fan motors. A wiring diagram of the

refrigeration system shall be photo etched onto an anodized aluminum plate and permanently affixed to the inside of the refrigeration system. All internal wiring shall be held in place with fasteners and individually numbered. Provide a remote display panel with all the functions and diagnostics of the control panel mounted on each walk-in front wall as specified herein.

- i) The Rack System shall be provided with Automatic Transfer System for equal compressor run time. All compressors shall be provided with Crankcase Heater, Dual Pressure Control, Fan Cycling, Head Pressure Valve and Heated Receivers.
- ii) Automatic Transfer System comprised of Electronic Alternating Timer, Circuit Breakers, System Re-set Alarm Button, Automatic Transfer on Fault to the other compressors and condensers, Operating Lights Green (ON) and Red (In Alarm).
- iii) Engineering Diagram shall be provided with system. Information Plate shall be mounted inside the control panel or in the condensing unit housing showing the manufacturer's name and address, model number, serial number, electrical characteristics, including horsepower, voltage, current, cycles, and phase, the amount and type of refrigerant and factory test pressures. Sign showing cleaning instructions, safety procedures and hazard conditions shall also be provided. Plate or plates shall show UL, NSF, Factory Mutual, and the MEA number or Approved Agency Certification listed and/or label.

- e. Internal Refrigeration Piping shall be extended to one side of the refrigeration system in a neat and orderly manner. Each set of piping shall have a label permanently affixed identifying the system it will service. All internal refrigeration piping shall be refrigerant grade A.C.R. or type L copper tubing as per Section 15510: HVAC PIPING. All tubing shall be held in place with unistrut type channels and clamps, and protected with neoprene grommets. A minimum of 1/2" thick insulation shall cover all suction lines in accordance with Section 15512: PIPING INSULATION (HVAC).

3. Testing

- a. After circuiting, test the condenser for leaks at a minimum pressure of 500 lbs. per square inch/gauge

(psig). After final assembly, the entire system shall be tested for leaks at 300 psig and evacuated pressure test at 500 microns at the factory. The refrigeration system shall be shipped with a 25-psig charge of dry nitrogen.

- b. The system shall be leak checked, evacuated and charges with refrigerant in accordance with manufacturer recommendation and standards commercial refrigeration procedures. All components and systems shall be tested accordingly. Any defective piece of equipment or device shall be replaced or otherwise corrected and shall be re-tested until the equipment is in perfect working order.

4. Accessories

- a. Crankcase Heater
- b. Head pressure control
- c. Weather proof enclosures
- d. Fan cycle control for each fan motor

- 5. Evaporator Coils for Redundant Systems: Evaporator assemblies and parts associated with them shall be mounted inside of the walk-ins. Each evaporator coil shall include a matching thermostatic expansion valve, liquid line solenoid valve and thermostat; one evaporator for each compressor. If due to space constraint inside the walk-in compartment, one evaporator coil can be used to operate the two compressors. The evaporator coil shall have two independent circuits internally in the housing. If a refrigeration circuit has a problem, there shall be no cross contamination to the other circuit. Each circuit shall have its own separate electronic thermostat, solenoid valve and expansion valve pre-piped and pre-wired with two separate tubing stubs outs for field refrigeration connecting.

- A. Units shall be UL listed, forced-ventilation type integral defrosting, refrigerant distributor, single or multiple fans and motors, drip pan, deflectors, aluminum housing and all the necessary accessories. The expansion valve with strainer, heat exchanger and inlet and outlet connections shall also be contained within this housing. Provide drip pan and drain pans under uncovered refrigerant connections, and interconnect them with main drain pan. Provide drain lines from blower

coils and drain pans to floor drain. Unit coolers shall be equipped with mounting brackets. Evaporators more than 200 lbs. in weight each shall be hung on rods from building's structural framing not from walk-in units ceiling panels. The entire unit cooler-assembly shall be readily accessible for cleaning.

- b. Freezer defrost system shall be electric type with automatic cycling defrost timer system for the evaporator, which shall include terminals for connection of drain line heater wires that are provided by the Electrical Contractor that are wrapped over interior length of drain line from the condensate pan to prevent freezing of condensate during defrost. These heater wires shall energize only during the defrost cycle.
6. Controls: The temperature in each Walk-In unit shall be controlled by means of a thermostat wired to actuate solenoid valve in the liquid line, with the compressor operation controlled by the low-pressure cutout switch. Thermostats and low-pressure controls shall be adjusted to maintain the room temperature specified. Thermostat shall be self-contained remote bulb, liquid filled, reverse acting, adjustable with three-degree differential. Remote bulb positioned in inlet air to the evaporator.
7. All Systems shall include pump down cycle to provide additional protection against unwanted refrigerant flow.
8. Piping: Refrigerant piping connecting the condensing unit to the evaporator and condensate drain piping shall be Type L hard-drawn seamless copper tubing with silver brazed joints as per Section 15510: HVAC PIPING. All refrigerant lines shall be insulated in accordance with Section 15512: PIPING INSULATION (HVAC).
- A. All condensate drain lines inside Walk-In Freezers shall be similarly insulated with 1/2" insulation. All work shall be done in a workmanlike manner.
 - b. Condensate Drain outside the box: 3/4" copper with approved trap extend to the nearest floor drain.
9. Provide service valves, filter drier and automatic flow control valve. Each refrigerant system shall include a dehydrator, shut-off valve, vibration eliminators, liquid line solenoid, thermostatic expansion valve and all other

fittings and accessories, as required and as needed for the operation of each unit.

10. System factory charged with the required refrigerant

11. Work by Other Trades

a. Electrical

- 1) Electrical Contractor shall provide power for refrigeration package and connect control and defrost system as called for in the wiring diagram.
- 2) Electrical Contractor to provide drain line heat tracing on condensate drain line inside of Walk-In Freezer.
- 3) Electrical Contractor shall provide five-line color coded service from the time clock at the refrigeration package to low temperature blower coils in coolers for automatic defrost.
- 4) Electrical Contractor shall provide direct connection, in accordance with wiring diagram for medium temperature blower coils.
- 5) All electrical wiring and installation, in accordance with wiring diagram and local codes.
- 6) Electrical Contractor to provide wiring as required for alarm panel (reference rack manufacturer drawings).

b. Plumbing

Plumbing Contractor shall provide floor drain (s) directly adjacent to exterior of walk-in refrigerator or freezer. All plumbing installation shall be in accordance with local codes.

c. General Contractor

- 1) Provide all opening required through walls, floors, ceilings, and roof to run remote refrigeration lines to equipment evaporator coils.
- 2) General Contractor shall provide all curbing on roof for the installation of the Compressor Rack and all weather proofing of penetration through the roof.
- 3) Prepare the rooftop, wall, floor or ceiling opening for refrigeration lines.

12. Refrigeration System Approved Manufacturer and Model Number: Outdoor, Roof Top, Air Cooled, Remote

MFR: Omni Temp Refrigeration

MODEL NO: WK-AC-H-5-0-3 / WK-AC-H-4-0-3

MFR: Refrigeration Design Technologies
MODEL NO: NYC CHDSSXX

MFR: Master-Bilt Refrigeration Solutions
MODEL NO: MRS Series Modular Multi-Compressor System

MFR: RDI Systems
MODEL NO: MCX-XXX-XXX or RGX-X

MFR: Kolpak Refrigeration
MODEL NO: MCX-XXX-XXX or RGX-X

- D. Controller: Provide each walk-in refrigerator and/or freezer using the compressor rack refrigeration system with an electronic control system mounted to the evaporator coil or any other place accessible for service and approved by the Manufacturer and the Authority. The electronic controller shall control the two compressor system and one or more evaporator coils. The electronic controller board with a panel display and a remote display shall monitor, display and control the functions of the refrigeration system including each compressor and evaporator coil(s). Provide with data logging and means to diagnose problems from both panel interface. The electronic controller shall control the two compressor system and one or more evaporator coils. The electronic controller shall consist of the following factory-mounted parts: electronic controller board with two-digit LED and pushbuttons on the panel interface; solid state temperature sensors; pressure transducer; electric expansion valve if used as a control or thermostat reading if used as the control; 24V transformer; remote display panel; solenoid valve; external relay to control liquid line solenoid valve or compressor contactor. LED readout shall show the temperature, the operating compressor, the failed compressor, alarm conditions and shall have the capability to switch compressor. All panels shall be clearly marked in a permanent fashion designating whether unit is a refrigerator or a freezer. The remote display panel shall duplicate all the functions and diagnostics of the electronic controller and shall be mounted in front of each walk-in on the door panel. If Refrigerator and Freezer are installed back to back, both remote display panels shall be installed in front of the Refrigerator with a label for each.
- E. Information Plate: Each Walk-in shall have a plate or plates located in a readily accessible location showing the

manufacturer's name and address, model number, serial number, electrical characteristics, including horsepower, voltage, current, cycles, and phase, the amount and type of refrigerant and factory test pressures. Removal of manufacturer's plate or identification label is forbidden. Sign showing cleaning instructions, safety procedures and hazard conditions shall also be provided. Plate or plates shall show UL, NSF, Factory Mutual, and the MEA number or Approved Agency Certification listed and/or label.

Building Services Equipment

Display Monitor

Building Services Equipment



Alpha-American 9670 RGB
Current SCA Purchased Model



BenQ SL5502K
Proposed Alternative

Found in lobbies, cafeterias, and some gymnasiums. Typical quantities are **2-3 per school**. Critical specifications include:

- 50" LED display
- RGA and HDMI ports²

Note: The Display Monitor has replaced the Scrolling Display in the specifications. The most energy-efficient model recently purchased for an SCA school is a Scrolling Display model consists of a moving line of letters composed of individual LED lights; however, it is assumed that a TV monitor with the ability to display images of any kind is an acceptable alternative.

The energy consumption of the Display Monitor is highly dependent on the type of image being displayed, thus, typical power demand data as opposed to maximum power demand data is used for comparison purposes in this report.

The most energy-efficient purchased model is the **Alpha-American 9670 RGB** or equal, with a typical full-brightness demand of **65 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **BenQ SL5502K**, 55", **50 W** typical

Pros: The most energy-efficient alternative offers energy demand **savings of 15 W or 23%** per unit compared to the most energy-efficient purchased model. It meets all of the same specifications and has

² No information regarding "RGA" ports was found in reference to display technology.

all of the same features as the most energy-efficient purchased model. Alternative 1 is EnergyStar certified and available at a reduced cost compared to the most energy-efficient purchased model.

Cons:

- Alternative 1 does not provide the specified RGA port connection, but supports VGA, RJ45, Display, HDMI, and USB connections.
- Alternative 1 provides 72% less brightness than the most energy-efficient purchased model.
- SCA will be required to select a software product to be used in combination with Alternative 1 to produce display messages. The selected software product should be simple and user-friendly.

DISPLAY MONITOR		
MODEL	CURRENT	ALTERNATIVE 1
Manuf	Alpha-American	BenQ
Model	9670 RGB	SL5502K
Size (Ext)	70x11x4	49x28x3
Screen Size	71"	55"
Brightness	1,800 Nits	500 Nits
Volts	120	115
Watts	65	50
Savings	-	15
Savings (%)	-	23%
EnergyStar	N	Y
Cost Difference	-	-81%
Source	Dealer Quote	Web

Recommendations:

- Alternative 1 is recommended as a more energy-efficient display monitor than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.
- NYC school stakeholders may wish to consider whether the RGA port specification is flexible enough to facilitate consideration of a more energy-efficient model.

Section 16771

LED MONITOR FOR DISPLAYING SCHOOL INFORMATION

- A. Monitor for displaying school information box shall be 50" LED with RGA and HDMI ports.
- B. Provide heavy duty mounting system.
- C. Provide finished vandal proof case

Electric Water Cooler

aka REFRIGERATED DRINKING FOUNTAIN

Building Services Equipment



Elkay EZS8L
Current SCA Purchased Model



Halsey Taylor HVRGRN8
Proposed Alternative

Found in corridors and classrooms, directly accessed by students. Typical quantities are one fixture per 100 persons; total approximately **3-4 per school**. Single bubbler electric water coolers are not currently included in standard SCA specifications; however, it is assumed that general specifications for double bubbler electric water coolers will apply to single bubbler electric water coolers, including:

- Water cooler shall be constructed using 18-gage, type 304 stainless steel with a satin finish
- Refrigerant system shall use a refrigerant which contains no CFC's or HCFC's, an internally spring mounted hermetically sealed compressor with overload protection, fan cooled condenser, and all motors permanently lubricated
- Minimum chilling capacity of 7.0 GPH of 50 F drinking water

Note: Electric water cooler is the industry term for a refrigerated water fountain. The SCA Design Requirements appear to call for water fountains in PS buildings and electric water coolers in IS and HS buildings, but this guidance is not followed consistently. For example, an existing IS in Brooklyn has one standing drinking fountain and one wheelchair-accessible electric water cooler with bottle filler on each floor.

The most energy-efficient model recently purchased for an SCA school is the **Elkay EZS8L**, with a maximum demand of **370 W**. No other models have been purchased for the case study schools.

Potential alternatives identified for this study include:

- **Halsey Taylor HVRGRN8**, 21x21x27, **260 W**
- **Elkay LVRCGRN8F**, 19x19x21, **260 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 110 W or 30%** per unit compared to the most energy-efficient model recently purchased for an SCA school. It meets all of the specifications and has all of the same features as the bi-level electric water cooler.

Cons: The most energy-efficient model recently purchased for an SCA school and all alternatives utilize R134a refrigerant. R134a refrigerant is a hydrofluorocarbon (HFC) refrigerant associated with high global warming potential, and is currently being phased out by the Environmental Protection Agency (EPA) for specific end uses.

ELECTRIC WATER COOLER			
MODEL	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2
Manuf	Elkay	Halsey Taylor	Elkay
Model	EZS8L	HVRGRN8	LVRGCRN8F
Size (Ext)	19x19x20	21x21x27	19x19x21
Capacity	8GPH	8 GPH	8 GPH
Temp	50F	50F	50F
Refrigerant	R-134a	R-134a	R-134a
Volts	115	115	115
Amps	5	5	5
Watts	370	260	260
Savings	-	110	110
Savings (%)	-	30%	30%
EnergyStar	N/A	N/A	N/A
Cost Difference	-	50%	67%
Source	Web	Web	Web

Recommendations:

- Alternative 1 is recommended as a more energy-efficient electric water cooler than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.
- NYC school stakeholders may wish to consider incorporating refrigeration requirements for electric water coolers into specifications.

SCA Current Specifications
Section 15440

ELECTRIC WATER COOLER BARRIER-FREE

- A. Electric water cooler shall be a double bubbler unit meeting ANSI A117.1 and ADA. Water cooler shall be constructed using 18-gage, type 304 stainless steel with a satin finish. The nonbarrier-free section shall be designed to provide an enclosure for the cooling unit. The cooling unit enclosure shall be provided with sufficient opening for heat dissipation. The barrier-free station shall be 6" below the nonbarrier-free station. All seams shall be welded and ground smooth. Interior of unit shall be coated with a fire and moisture resistant sound deadening material. Unit shall have two (2) strainer, valve and regulator assembly. Each valve shall feed water to its respective bubbler. Each receptor shall have a grid drain with a 1¼" close elbow. The waste from each receptor shall be combined in order to have a single waste connection. All waterways shall be constructed using copper tubing and have brazed lead-free joints. Barrier-free station shall be provided with a bottom plate secured with vandal resistant screws. Front louver of cooler enclosure shall be removable and shall be secured to the enclosure with vandal resistant screws. Bubblers shall be vandal resistant, chrome plated brass, shielded anti-squirt angle stream with integral receptor shank for vandal resistant mounting using locknut and washer. All bubblers shall meet the requirements of the federally mandated "Reduction of Lead in Drinking Water Act". Regardless of model numbers indicated herein, provide equivalent models that meet the requirements of the act.
- B. Inlet water shall be filtered by a strainer with a removable stainless steel screen. Cooler shall be capable of delivering minimum of 7 gallons per hour at 50°F, based on 80°F inlet water temperature and 90°F room temperature. Cooler coils shall be made from pure copper. Refrigerant system shall use a refrigerant which contains no CFC's or HCFC's, an internally spring mounted hermetically sealed compressor with overload protection, fan cooled condenser, and all motors permanently lubricated. Compressor motor shall be single phase (115V), 60 hertz and of the manufacturer recommended horsepower. Cooler unit shall be provided with a 3-wire cord set for plugging into a receptacle. Cooling unit shall come with a 5 years limited warranty.

- C. Cooler shall be supported by a floor mounted carrier with acid resistant coated, hanger support plate and valve plate securely fastened to carrier upright: J. R. Smith Figure 849-M31 or Wade 620-M36-AM27.
- D. Cooler trap shall meet New York City Building Code requirements, shall be chrome plated cast brass and be 1¼" inlet by 1½" outlet by Eljer 804-1125, McGuire 201C, EBC TN140, Kohler K-8995-CP or Zurn Z8716B-PC.
- E. Cold water stop shall be chrome plated cast brass 1/2" IPS angle stop as specified in the Stops Article.
- F. Cooler shall be Elkay ERFVVR28C, Acorn Aqua A152408B-VR, Halsey Taylor HRFSEVR-Q-VR or Oasis M8SCPM-VR.

Electric Water Cooler – Bi-Level

aka BI-LEVEL REFRIGERATED DRINKING FOUNTAIN
Building Services Equipment



Elkay EZSTL8LC
Current SCA Purchased Model



Elkay VRGCGRNTL8C
Proposed Alternative

Found in corridors and classrooms, directly accessed by students. Typical quantities are one fixture per 100 persons; total approximately **3-4 per school**. Critical specifications include:

- Water cooler shall be constructed using 18-gage, type 304 stainless steel with a satin finish
- Refrigerant system shall use a refrigerant which contains no CFC's or HCFC's, an internally spring mounted hermetically sealed compressor with overload protection, fan cooled condenser, and all motors permanently lubricated
- Minimum chilling capacity of 7.0 GPH of 50 F drinking water

The most energy-efficient model recently purchased for an SCA school is the **Elkay EZSTL8LC** or equal, with a maximum demand of **370 W**. Other models in the current SCA specification or recently installed include:

- **Halsey Taylor HRFSER-Q**, 39x19x41, **370 W**
- **Oasis International M8SCPM**, 40x19x41, **380 W**
- **Acorn Aqua A152408B**, 40x19x40, **390 W**
- **Elkay ERFPVR28C**, 39x19x41, **370 W**

Potential alternatives identified for this study include:

- **Elkay VRGCGRNTL8C**, 37x19x27, **260 W**
- **Elkay EZSTLG8**, 36x19x26, **360 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 110 W or 30%** per unit compared to the most energy-efficient purchased model. It meets all of the same specifications and has all of the same features as the most energy-efficient purchased model.

Cons: The most energy-efficient purchased model and all alternatives utilize R134a refrigerant. R134a refrigerant is a hydrofluorocarbon (HFC) refrigerant associated with high global warming potential, and is currently being phased out by the Environmental Protection Agency (EPA) for specific end uses. Alternative 1 is 52% more expensive than the **Elkay EZSTL8LC** model currently purchased by SCA.

ELECTRIC WATER COOLER – BI-LEVEL			
MODEL	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2
Manuf	Elkay	Elkay	Elkay
Model	EZSTL8LC	VRGCGRNTL8C	EZSTLG8
Size (Ext)	37x19x26	37x19x27	36x19x26
Capacity	8GPH	8 GPH	4 GPH
Temp	50F	50F	50F
Refrigerant	R-134a	R-134a	R-134a
Volts	115	115	115
Amps	5	2.8	3.2
Watts	370	260	360
Savings	-	110	10
Savings (%)	-	30%	3%
EnergyStar	N/A	N/A	N/A
Cost Difference	-	52%	19%
Source	Web	Web	Web

Recommendations: Alternative 1 is recommended as a more energy-efficient bi-level electric water cooler than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.

SCA Current Specifications
Section 15440

ELECTRIC WATER COOLER BARRIER-FREE

- A. Electric water cooler shall be a double bubbler unit meeting ANSI A117.1 and ADA. Water cooler shall be constructed using 18-gage, type 304 stainless steel with a satin finish. The nonbarrier-free section shall be designed to provide an enclosure for the cooling unit. The cooling unit enclosure shall be provided with sufficient opening for heat dissipation. The barrier-free station shall be 6" below the nonbarrier-free station. All seams shall be welded and ground smooth. Interior of unit shall be coated with a fire and moisture resistant sound deadening material. Unit shall have two (2) strainer, valve and regulator assembly. Each valve shall feed water to its respective bubbler. Each receptor shall have a grid drain with a 1½" close elbow. The waste from each receptor shall be combined in order to have a single waste connection. All waterways shall be constructed using copper tubing and have brazed lead-free joints. Barrier-free station shall be provided with a bottom plate secured with vandal resistant screws. Front louver of cooler enclosure shall be removable and shall be secured to the enclosure with vandal resistant screws. Bubblers shall be vandal resistant, chrome plated brass, shielded anti-squirt angle stream with integral receptor shank for vandal resistant mounting using locknut and washer. All bubblers shall meet the requirements of the federally mandated "Reduction of Lead in Drinking Water Act". Regardless of model numbers indicated herein, provide equivalent models that meet the requirements of the act.
- B. Inlet water shall be filtered by a strainer with a removable stainless steel screen. Cooler shall be capable of delivering minimum of 7 gallons per hour at 50°F, based on 80°F inlet water temperature and 90°F room temperature. Cooler coils shall be made from pure copper. Refrigerant system shall use a refrigerant which contains no CFC's or HCFC's, an internally spring mounted hermetically sealed compressor with overload protection, fan cooled condenser, and all motors permanently lubricated. Compressor motor shall be single phase (115V), 60 hertz and of the manufacturer recommended horsepower. Cooler unit shall be provided with a 3-wire cord set for plugging into a receptacle. Cooling unit shall come with a 5 years limited warranty.

- C. Cooler shall be supported by a floor mounted carrier with acid resistant coated, hanger support plate and valve plate securely fastened to carrier upright: J. R. Smith Figure 849-M31 or Wade 620-M36-AM27.
- D. Cooler trap shall meet New York City Building Code requirements, shall be chrome plated cast brass and be 1¼" inlet by 1½" outlet by Eljer 804-1125, McGuire 201C, EBC TN140, Kohler K-8995-CP or Zurn Z8716B-PC.
- E. Cold water stop shall be chrome plated cast brass 1/2" IPS angle stop as specified in the Stops Article.
- F. Cooler shall be Elkay ERFVVR28C, Acorn Aqua A152408B-VR, Halsey Taylor HRFSEVR-Q-VR or Oasis M8SCPM-VR.

Refrigerator – Full-Size

Building Services Equipment

Full-size refrigerators are found in some staff lounges (although the Under-Counter Refrigerator appears to be more common) and medical suites (in place of Medical Refrigerators). Typical quantities are **1-2 per school** except where Under-Counter Refrigerators are used instead. Critical specifications include:

- Single door with freezer compartment and automatic defrost
- 120 volts, 60 Hz, single phase

Note: The SCA specifications describe two different types of full-size refrigerators in two configurations: (1) single door with freezer compartment and (2) refrigerator-freezer with two side by side doors. A refrigerator with a single door and freezer compartment was selected for this study because it appears to be the most common configuration.

No specific manufacturers or models are identified in the current SCA specifications for this piece of equipment. Conversations with DOE DSF indicated that full-size refrigerators are currently selected by contractors on an ad-hoc basis for each individual project. In order to estimate potential energy savings, it is assumed that SCA projects currently purchase an “average” EnergyStar rated full-size refrigerator, which could be replaced by a “best performing” EnergyStar rated full-size refrigerator. Based on a review of the EnergyStar Product Finder tool, the average energy consumption for a full-size (~18 cu ft) refrigerator is approximately **62 W**. The best performing full-size refrigerators consume approximately **41 W**. As such, for the purposes of this study, an energy savings of **21 W** for each full-size refrigerator is assumed. It should be noted that EnergyStar provides equipment energy use in terms of KWh/year; an annualized value with the assumption that the refrigerator is running 24 hours a day year-round is used for comparison purposes in this report, as opposed to maximum power demand data.

Recommendations:

- NYC school stakeholders may wish to consider updating/clarifying the SCA specification for the full-size refrigerator to reflect a best performing EnergyStar rated model.

SCA Current Specifications

Section: 11450

Refrigerator

1. Refrigerator: single door with freezer compartment and automatic defrost. Unit shall be of the size and model indicated on the Equipment Schedule.
2. Motor shall be of the manufacturer's recommended HP, 120 volts, 60 Hz, single phase. Provide six (6) ft three conductor (one grounding) line cord with plug to match receptacle.

Refrigerator-Freezer Combination

1. Refrigerator-freezer with two side by side doors, automatic defrost and mounted on four (4) casters, two with brakes; separate temperature controls; interior light in each compartment. Unit shall be the size and model on the Equipment Schedule.
2. Motor shall be of the manufacturer's recommended HP, 120 volts, 60 Hz, single phase. Provide six (6) ft three conductor (one grounding) line cord with plug to match receptacle.

Refrigerator – Medical

Building Services Equipment



LabRep Co. CliniCool LHP-2-UR-PH
Current SCA Purchased Model



AccuCold ARG1PV
Proposed Alternative

Found in medical suites to store student medications administered by the school nurse. Typical quantities are **1 per school** except where a Full-Size Refrigerator in the medical suite is used for this function instead. Medical refrigerators are not currently included in the standard SCA specifications; however, critical specifications of recently purchased models include:

- Minimum 1 CF interior capacity
- Minimum two adjustable interior shelves
- Adjustable temperature range 36 F – 46 F
- Solid door
- Dimensions: 29"Hx18"Wx20"D

The most energy-efficient model recently purchased for an SCA school is the **LabRep Co. CliniCool LHP-2-UR-PH** or equal, with a maximum demand of **104 W**. Other models in the current SCA specifications or recently installed include:

- **LHP-3-UR-PH, 104 W**

Potential alternatives identified for this study include:

- **AccuCold ARG1PV, 69 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 35 W or 34%** per unit compared to the most energy-efficient purchased model. It has almost all of the same features as the most energy-efficient purchased model, although the **AccuCold ARG1PV** features a glass door as opposed to a solid door.

Cons: None.

REFRIGERATOR - MEDICAL		
MODEL	CURRENT	ALTERNATIVE 1
Manuf	LabRep Co.	AccuCold
Model	CliniCool LHP-2-UR-PH	ARG1PV
Size (Ext)	14x9x16	22x18x20
Temperature	36 - 46 F	36 - 46 F
Refrigerant	R600a	R600a
Volts	115	115
Amps	0.9	0.6
Watts	115	115
Savings	-	35.0
Savings (%)	-	34%
EnergyStar	Yes	No
Cost Difference	-	-46%
Source	Web - Dealer	Web

Recommendations: Alternative 1 is recommended as a more energy-efficient medical refrigerator than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.

No SCA Specifications available.

Refrigerator – Under-Counter

Building Services Equipment

Under-counter refrigerators are found in staff lounges. Typical quantities are **1-2 per school** except where full-size refrigerators are used instead. Critical specifications include:

- Single door, freezer compartment, and automatic defrost
- 120 volts, 60 Hz, single phase

No specific manufacturers or models are identified in the current SCA specifications for this piece of equipment. Conversations with DOE DSF indicated that under-counter refrigerators are currently selected by contractors on an ad-hoc basis for each individual project. In order to estimate potential energy savings, it is assumed that SCA projects currently purchase an “average” EnergyStar rated under-counter refrigerator, which could be replaced by a “best performing” EnergyStar rated under-counter refrigerator. Based on a review of the EnergyStar Product Finder tool, the average energy consumption for a under-counter (~4.5 cu ft) refrigerator is approximately **37 W**. The best performing under-counter refrigerators consume approximately **23 W**. As such, for the purposes of this study, an energy savings of **15 W** for each under-counter refrigerator is assumed. It should be noted that EnergyStar provides equipment energy use in terms of KWh/year; an annualized value with the assumption that the refrigerator is running 24 hours a day year-round is used for comparison purposes in this report, as opposed to maximum power demand data.

Recommendations: NYC school stakeholders may wish to consider updating/clarifying the SCA specification for the under-counter refrigerator to reflect a best performing EnergyStar rated model.

SCA Current Specifications

Section: 11450

Refrigerator, Undercounter

1. Refrigerator, under the counter single door, freezer compartment, and automatic defrost. Unit shall be of the size and model indicated on the Equipment Schedule.
2. When refrigerator is installed free standing or with sides exposed, provide proper plastic laminate work top and side closure panels.
3. Motor shall be of the manufacturer's recommended HP, 120 volts, 60 Hz, single phase. Provide six (6) ft three conductor (one grounding) line cord with plug to match receptacle.

Time Recorder

Building Services Equipment



Amano EX-9000
Current SCA Standard



Amano BX-1500
Proposed Alternative

Found in kitchens, general offices, and (sometimes) custodian's offices; networked with the school-wide clock and PA system. Typical quantities are **2-3 per school**. Critical specifications include:

- 120 Volt AC, 60 Hz source
- Accommodate weekly, bi-weekly or semi-monthly pay periods
- Automatic adjustment of daylight saving time, short months, leap year
- Choice of printing format: day or date; AM/PM; regular minute, 10th or 100th
- Auto ribbon reverse
- Adjustable card pocket
- Built-in lithium battery backup for clock and program data
- Quartz clock accuracy

The most energy-efficient currently available SCA standard is the **Amano EX-9000** (discontinued) or equal, with a maximum demand of **30 W**. Given that the currently specified model has been discontinued, the following model from the same manufacturer has been identified as the closest currently available model:

- **Amano EX-3500N, 8x9x5, 30 W**

Other models in the current SCA specifications or recently installed include:

- **Simplex STR TR-S5000, 59 W**

Potential alternatives identified for this study include:

- **Amano BX-1500, 8x9x4, 8 W**
- **Amano MJR-7000, 14x10x8, 13 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 22 W or 73%** per unit compared to the most energy-efficient current SCA standard. It meets almost all SCA specifications and offers all of the same features as the current SCA standard.

Cons: It could not be readily confirmed that the alternative models have auto ribbon reverse and adjustable card pocket. The Amano MJR-7000 offers additional functionality that likely exceeds the needs of SCA and costs 44% more than the current SCA standard.

TIME RECORDER				
MODEL	CURRENT (DISCONTINUED)	CLOSEST REPLACEMENT	ALTERNATIVE 1	ALTERNATIVE 2
Manuf	Amano	Amano	Amano	Amano
Model	EX-9000	EX-3500N	BX-1500	MJR-7000
Size (Ext)	13x11x7	8x9x5	8x9x4	14x10x8
Volts	120	120	120	120
Watts	30	30	8	13
Savings	-	0	22	17
Savings (%)	-	0%	73%	57%
EnergyStar	N/A	N/A	N/A	N/A
Cost Difference	-	-50%	-64%	44%
Source	Web - Dealer	Web - Dealer	Web - Dealer	Web - Dealer

Recommendations:

- It is recommended that the SCA specification language for this piece of equipment be updated. The current language specifies a model (**Amano EX-9000**) which has been discontinued by the manufacturer.
- Alternative 1 is recommended as a more energy-efficient time recorder than the current SCA standard. Samples should be obtained for real-world testing in DOE schools.

SCA Current Specifications

Section 16791

TIME CARD RECORDER

- A. Time Card Recorder shall operate on 120 volt AC, 60 Hz source.
- B. Time card recorder shall have the following features:
 - 1. Accommodate weekly, bi-weekly or semi-monthly pay periods.
 - 2. Automatic adjustment of daylight saving time, short months, leap year.
 - 3. Choice of printing format: day or date; AM/PM; regular minute, 10th or 100th.
 - 4. Auto ribbon reverse.
 - 5. Adjustable card pocket.
 - 6. Built-in lithium battery backup for clock and program data.
 - 7. Quartz clock accuracy.
- C. Time card recorder shall be mounted at 48" A.F.F.
- D. Provide two (2) metal card racks for each time card recorder installed. Each metal rack shall accommodate 100 cards for the time card recorder installed in the General Office and 25 cards for the one in the Kitchen. One Rack shall be marked "IN" and the other "OUT". Each rack shall consist of one or more units, with the required number of individual metal slots to accommodate the total number of cards specified. Each unit on the rack shall be approximately 32½" high x 4¾" wide and shall hold 25 cards. Before installation, submit for approval dimensional drawings in quadruplicate.
- E. Cards shall be of the monthly type; 15 days on one side, 16 days on the other. A sample card shall be submitted for approval. Furnish and deliver 3000 cards to the Authority's Representative.
- F. Time card recorders shall be Amano/Cincinnati Model EX9000 or approved equal of Simplex modified to conform to the above.

Workshop Drill Press

Building Services Equipment



Jet JDP-15B
Current SCA Purchased Model



Dayton 54ZW29
Proposed Alternative

Found in all custodial workshops, not directly accessed by students. Typical quantities are **1 per school**.

Critical specifications include:

- Speed range of 317 to 3550 RPM
- Motor for drill press shall be at least 1/2 horsepower
- Three phase, 208 V, 60 Hz
- Spindle travel not less than 4-1/2"
- Distance from center of chuck to face of column not less than 7"
- Distance from chuck to base approximately 17"
- Machine ground cast iron table not less than 10" D x 14" W
- Ground steel column 3" minimum outside diameter

The most energy-efficient model recently purchased for an SCA school is the **Jet JDP-15B** or equal, with a maximum demand of **560 W**. Other models in the current SCA specification or recently installed include:

- **Delta 15-224** (discontinued)

It should be noted that although a three phase, 208 V model is specified, the most energy-efficient purchased model, along with the identified alternatives, employ a single phase motor and operate at approximately 115 V.

Potential alternatives identified for this study include:

- **Dayton 54ZW29**, 15", 1/2 HP, **373 W**
- **Dake TB-16**, 16", 1/2 HP, **373 W**
- **Raleigh DP-4016B**, 16", 1/2 HP, **373 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 187 W or 33%** per unit compared to the most energy-efficient purchased model. It meets almost all of the specifications and has all of the same features as the most energy-efficient purchased model, although spindle travel distance, column diameter, and table area differ nominally.

Cons:

- All alternatives have lower horsepower than the most energy-efficient purchased model, although they do meet SCA specifications.
- All alternatives have and a maximum spindle speed range below the specified 3550 RPM.

WORKSHOP DRILL PRESS				
MODEL	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manuf	Jet	Dayton	Dake	Raleigh
Model	JDP-15B	54ZW29	TB-16	DP-4016B
Spindle Speed	210 - 3500 RPM	138 - 3476 RPM	240 - 3400 RPM	250 - 2900 RPM
Swing	15"	15"	16"	16"
Motor Phase	single phase	single phase	single phase	single phase
HP	0.75	0.5	0.5	0.5
Volts	115	120	110	110
Watts	560	373	373	373
Savings	-	187.2	187.2	187.2
Savings (%)	-	33%	33%	33%
EnergyStar	N/A	N/A	N/A	N/A
Cost Difference	-	17%	8%	25%
Source	Web	Web	Web – Dealer	Web

Recommendations:

- Alternative 1 is recommended as a more energy-efficient drill press than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.
- NYC school stakeholders may wish to consider whether the drill press dimensions specifications are flexible enough to facilitate consideration of a more energy-efficient model.
- It is recommended that the SCA specification language for this piece of equipment be updated. The current language specifies a model (**Delta 15-224**) which has been discontinued by the manufacturer.

SCA Current Specifications
Section 11500
DRILL PRESS - 15", BENCH TYPE

- A. Drill press shall be a motor driven, bench type, slow speed, standard tilting table, ball bearing, free floating 1/2" Jacobs chuck spindle. Spindle travel not less than 4-1/2", distance from center of chuck to face of column not less than 7", distance from chuck to base approximately 17", machine ground cast iron table not less than 10" D x 14" W, and ground steel column 3" minimum outside diameter. Drill press shall be complete, adjusted, and be ready to operate, and furnished with motor, necessary step pulleys for a speed range of 317 to 3550 R.P.M., V-belts, column collar under head, calibrated depth stop, spring return mechanism, and feed wheel. Spindle shall be equipped with a 0-1/2" Jacobs key type drill press chuck.
- B. Provide in place on drill press the following additional equipment: one (1) belt guard of approved design, guard shall be hinged or easily removable for shifting belts, and shall completely cover the belts and entire driving mechanism, one (1) rubber collar of sufficient length around base of column that should the table accidentally drop it will be stopped six inches above base; one (1) table support collar. Also furnish one (1) drill press vise, with drill press, No. 1035 of Wilton Corp.; Palmgren No. 14 by Chicago Tool and Engineering Co.
- C. Motor for drill press shall be at least 1/2 horsepower with TEFC enclosure, designed to operate on three phase, 208 Volts, 60 Hz A.C. (Solid Connection).
- D. Provide on table a float-lock vise No. 15-8 with corner attachment as made by American Machine and Foundry Co.
- E. Provide in convenient location on drill press a magnetic starter wired with approved materials to motor.
- F. Furnish a safety type self-ejecting chuck key, as made by the Miracle Instrument Co. in lieu of the standard key.
- G. Drill press shall be Model No. 15-224 with Model No. 49-009 motor of Delta International Machinery

Corporation, Pittsburgh, Pennsylvania; Model No. 1651
of Clausing, Kalamazoo, Michigan.

Workshop Tool Grinder

Building Services Equipment



Baldor 7308
Current SCA Standard



Dayton 2LKR5
Proposed Alternative

Found in all custodial workshops, not directly accessed by students. Typical quantities are **1 per school**. Critical specifications include:

- Fully enclosed ball bearing motor
- One medium and one fine carborundum grinding wheel
- Two adjustable tool rests and two illuminated safety eye shields
- 1/2 horsepower engine
- 1725 RPM
- Three phase, 208 V, 60 Hz
- 7-inch wheel diameter

The most energy-efficient currently available SCA standard is the **Baldor 7308** or equal, with a maximum demand of **345 W**. Other models in the current SCA specification or recently installed include:

- **Tough-Works TDS-G200VLDB** (discontinued), **559 W**

Potential alternatives identified for this study include:

- **Dayton 2LKR5**, 3450 RPM maximum, 19x15x10, 1/4 HP, **186 W**
- **Baldor 7312D**, 3600/1800 RPM, 22x11x10, 0.3 / 0.5 HP, **224 W / 373 W**
- **Dayton LKR6**, 3450 RPM maximum, 19x15x10, 1/3 HP, **249 W**

All alternatives have generally identical specifications to the current SCA standard, with the following exceptions:

- The Dayton 2LKR5 and Dayton 2LKR6 models have a 6-inch wheel diameter as opposed to the specified 7-inch wheel diameter

Pros:

- The most energy-efficient alternative offers energy demand **savings of 159 W or 46%** per unit compared to the most energy-efficient current SCA standard. It meets almost all of the SCA specifications and offers all of the same features as the current SCA standard.
- All alternatives exceed the required specified RPM.
- Alternative 2 offers the option to run the motor at either 0.5 or 0.3 HP. The performance indicated in the table below assumes the motor will be operated at 0.3 HP.

Cons:

- Some alternatives have 6" grinder wheels as opposed to the specified 7" wheels.
- All alternatives have less horsepower than that specified, but it is not clear that this impacts performance.
- All alternatives have a single-phase motor as opposed to the specified three-phase motor. Single-phase motors are known to be marginally less efficient than three-phase motors.
- The Baldor 7312D operates on 115 volts as opposed to the specified 208 volts.

WORKSHOP TOOL GRINDER				
MODEL	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manuf	Baldor	Dayton	Baldor	Dayton
Model	7308	2LKR5	7312D	2LKR6
Size (Ext)	21x11x10	19x15x10	22x11x10	19x15x10
Capacity	1500/1800 RPM	3450 max	3600/1800 RPM	3450 max
Wheel Size	7"	6"	7"	6"
Motor Phase	three phase	single phase	single phase	single phase
HP	0.5	0.25	0.5 / 0.3	0.33
Volts	208-230/460	120/240	115	115/230
Amps	1.5-1.4/0.7	3/1.5	5/3.6	3.5/1.75
Watts	345	186	224	249
Savings	-	159	121	96
Savings (%)	-	46%	35%	28%
EnergyStar	N/A	N/A	N/A	N/A
Cost Difference	-	-78%	60%	-82%
Source	Web	Web	Web	Web

Recommendations:

- Alternative 1 is recommended as a more energy-efficient tool grinder than the current SCA standard. Samples should be obtained for real-world testing in DOE schools.
- NYC school stakeholders may wish to consider whether the 1/2 horsepower engine tool grinder specification is flexible enough to facilitate consideration of a more energy-efficient model.

SCA Current Specifications

Section 11500

TOOL GRINDER - BENCH TYPE, TWO ADJUSTABLE RESTS

- A. Grinder shall be fully enclosed ball bearing motor, one (1) medium and one (1) fine carborundum grinding wheel, each wheel 7" dia. X 1" face, 5/8" bore, fully enclosed safety wheel guards, two (2) adjustable tool rests and two (2) illuminated safety eye shields, complete with holders, safety glass, 120 volt light bulbs, etc. Grinder shall be complete, adjusted and be ready for operation.
- B. Motor for grinder shall be fully enclosed, 1/2 horsepower, 1725 R.P.M., designed to operate on three phase, 208 volts, 60 Hz A.C. (Solid Connection).
- C. Provide in convenient location on grinder a magnetic starter wired with approved materials to motor. The illuminated safety eye shields shall be wired to the motor circuit so that the lights will automatically go on when motor is started. Omit toggle switch and blank-off the opening with a steel plate. Plate shall be painted with enamel to match the grinder.
- D. Provide on each safety wheel guard a dust collector bag which is easily removable for cleaning.
- E. Tool Grinder including two (2) adjustable tool rests shall be Model 7308 of Baldor, Columbus, Mississippi.

Illuminated safety eye shields shall be Baldor Model GA9.

Instructional Equipment

Interactive Monitor

Instructional Equipment



Promethean AB6T78
Current SCA Standard



Prowise PW.1.17075.X001
Proposed Alternative

Found in most instructional spaces, used as a primary educational tool by teachers. Typical quantities are **1 per classroom** or approximately **20-40 per school**. Interactive monitors are not currently included in standard SCA specifications, but a cut-sheet for the current SCA standard model is included in the Reference Materials section on the SCA website. Critical specifications of this model include:

- Supports Windows/Mac/Linux Operating Systems
- 78" Monitor Size
- 30 ms Response Time
- Dimensions: 67"Lx51"Wx6"H

Note: Interactive monitors are standard in all new standalone schools. Interactive whiteboards are installed instead of interactive monitors in some new additions where whiteboard technology is used throughout the existing school building.

The most energy-efficient currently available SCA standard is the **Promethean AB6T78** (discontinued) or equal, with a maximum demand of **300 W**. No other models have been purchased for the case study schools. There is no SCA specification for this piece of equipment, but the cutsheet can be found in the Reference Materials section of the SCA Website.

Potential alternatives identified for this study include:

- **Prowise PW.1.17075.X001**, 68x42x4, 75" Monitor, **139 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 161 W or 54%** per unit compared to the most energy-efficient current SCA standard. It meets almost all of the specifications and has all of the same features as the current SCA standard. Alternate 1 supports Android in addition to Windows/Mac/Linux operating systems and has an 8 ms response time, which is 73% faster than the current model.

Cons: The size (diagonal measure) of Alternative 1 is 3" less than the current SCA standard.

INTERACTIVE MONITOR		
MODEL	CURRENT	ALTERNATIVE 1
Manuf	Promethean	Prowise
Model	AB6T78	PW.1.17075.X001
Size (Ext)	67x51x6	68x42x4
Monitor Size	78"	75"
Operating System	Windows/Mac/Linux	Windows/Mac/Linux/ Android
Resolution	32768x32768	3840x2160
Response Time	30 ms	8 ms
Watts	300	139
Savings	-	161
Savings %	-	54%
EnergyStar	-	Yes
Cost Difference	-	19%
Source	Web	Web

Recommendations:

- Alternative 1 is recommended as a more energy-efficient interactive monitor than the current SCA standard. Samples should be obtained for real-world testing in DOE schools.
- NYC school stakeholders may wish to consider creating an SCA specification for the interactive monitor.

No SCA Specifications available.

Lab Explosion-Proof Refrigerator

Instructional Equipment



Thermo Scientific 20EREETSA
Current SCA Purchased Model



Liebherr LRBFS20W1HC
Proposed Alternative

Found in high school and middle school science labs; freestanding. Typical quantities are **1 per science lab** (schools typically have 1 to 3 science labs). Critical specifications include:

- Minimum 20.7 CF interior volume
- Operating Temperature: +2°C to + 10°C. Manual defrost
- One door with key lock
- 120V
- Meets NFPA safety standards
- Approved for Class 1 C and D group applications

Note: The SCA specifications describe two different types of lab explosion-proof refrigerators in two sizes: 20.7+ CF and 4.0+ CF. A minimum **20.7 CF full-size model** was selected for this study because it appears to be the most common type installed in new schools.

The most energy-efficient model recently purchased for an SCA school is the **Thermo Scientific 20EREETSA** (discontinued) or equal, with a maximum demand of **575 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years. Given that the currently specified model has been discontinued, the following model from the same manufacturer has been identified as the closest currently available model:

- **Thermo Scientific, 23 CF, 37x28x79, 1-8°C, 1,553 W**

Potential alternatives identified for this study include:

- **Liebherr LRBFS20W1HC, 20 CF, 30x29x65, 1-15°C, 345 W**
- **American BioTech Supply ABT-HC-FRP-20, 20 CF, 31x29x75, 1-10°C, 345 W**
- **So-Low DHH4-20SDFMS, 20 CF, 31x29x75, 1-10°C, 345 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 230 W or 40%** per unit compared to the most energy-efficient purchased model. It meets almost all of the SCA specifications and offers all of the same features as the most energy-efficient purchased model. All alternatives use eco-friendly natural refrigerants (R290 and R600a) as opposed to the most energy-efficient purchased model which uses R134a, a hydrofluorocarbon (HFC) known to contribute to ozone depletion.

Cons: The alternatives each have a 20 CF interior volume, as opposed to the specified 20.7 CF interior volume which is exceed by the currently specified model and its replacement.

LAB EXPLOSION-PROOF REFRIGERATOR					
MODEL	CURRENT (DISCONTINUED)	CLOSEST REPLACEMENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manuf	Thermo Scientific	Thermo Scientific	Liebherr	American BioTech Supply	So-Low
Model	20EREETSA	RFMS2305A	LRBFS20W1HC	ABT-HC-FRP-20	DHH4-20SDFMS
Size (Ext)	33x34x74	37x28x79	30x29x65	31x29x75	31x29x75
Capacity	20.9 CF	23 CF	20 CF	20 CF	20 CF
Temp	1-12C	1-8C	1-15C	1 - 10C	1 - 10C
Refrigerant	R134a	R134a	R290	R600a	R600a
Volts	115	115	115	115	115
Amps	5	13.5	3	3	3
Watts	575	1,553	345	345	345
Savings	-	-	230	230	230
Savings (%)	-	-	40%	40%	40%
EnergyStar	N	N	N	N	N
Cost Difference	-	-	-64%	-62%	-62%
Source	Web	Web	Web	Web	Dealer Quote

Recommendations:

- Alternative 1 is recommended as a more energy-efficient explosion-proof refrigerator than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.
- It is recommended that the SCA specification language for this piece of equipment be updated. The current language specifies a model (**Thermo Scientific 20EREETSA**) which has been discontinued by the manufacturer.

SCA Current Specifications
Section 11600
Explosion-Proof Refrigerator (LMRF1)

Hard-wired, full height or undercounter models. Cannot be mounted on countertop.

1. Full-height model

- a) Capacity: Minimum 20.7 ft³ interior volume
- b) Operating Temperature: +2°C to + 10°C. Manual defrost.
- c) One door with key lock
- d) 120V. Meets NFPA safety standards. Approved for Class 1 C and D group applications.
- e) Provide 2-year warranty on refrigerator and a five-year warranty on the compressor from date of substantial completion.

2. Under counter model

- a) Capacity: minimum 4.0 cubic feet. Maximum height 34".
- b) Operating Temperature: +0°C to +9°C. Manual defrost.
- c) One door with key lock
- d) 120V. Meets NFPA safety standards. Approved for Class 1 C and D group applications.
- e) Provide 2-year warranty on refrigerator and a five-year warranty on the compressor from date of substantial completion.

Lab Fume Hood

Instructional Equipment



Erlab Captair Flex XLS 392
Current SCA Standard



Air Science USE PURAIR10-XT
Proposed Alternative

Found in high school and middle school science labs; countertop or cart mounted. Typical quantities are **1 per science lab** (schools typically have 1 to 3 science labs). Critical specifications include:

- Face velocity at least 100 fpm
- One (1) main filter and one (1) secondary filter
- Pressurized chamber between primary and back up filters for analytical sampling
- Tempered or laminated glass enclosure on all four sides
- Fiberglass work surface
- Zinc-steel alloy body construction with acid resistant epoxy-polyester coating
- Interior mounted light
- 120 v/60 Hz operation

Note: The SCA specifications describe two different types of lab fume hoods: a portable ductless fume hood and a fixed/ducted fume hood in two sizes. A **portable ductless model** (which can be mounted on a counter or on a fixed or adjustable wheeled base) was selected for this study because it appears to be the most common type installed in new schools. High schools with college-level chemistry or biology classes may require fixed, ducted lab fume hoods instead of ductless.

The most energy-efficient currently available SCA standard is the **Erlab Captair Flex XLS 392** or equal, with a maximum demand of **108 W**. Other models in the current SCA specification or recently installed include:

- **Air Science USE PURAIR10** (discontinued)

The Air Science USE PURAIR10 has been discontinued and replaced by the PURAIR10-XT, a slightly taller model which replaces the previous version's AC blower and fluorescent lighting with an energy-efficient EC blower and LED lighting. The PURAIR10-XT is not included in SCA specifications and is thus considered an alternative model for the purposes of this study.

Potential alternatives identified for this study include:

- **Air Science USE PURAIR10-XT, 30x28x53, 37 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 71 W or 66%** per unit compared to the current SCA standard. It meets all of the SCA specifications and offers all of the same features as the current SCA standard.

Cons: None.

LAB FUME HOOD		
MODEL	CURRENT	ALTERNATIVE 1
Manuf	Erlab	Air Science USE
Model	Captair Flex XLS 392	PURAIR10-XT
Size (Ext)	40x27x41	30x28x53
Face Velocity	79 fpm to 118 fpm	100 fpm
Volts	220	120
Watts	105	37
Savings	-	68
Savings (%)	-	65%
EnergyStar	N/A	N/A
Cost Difference	-	-43%
Source	Dealer Quote	Web

Recommendations: Alternative 1 is recommended as a more energy-efficient laboratory fume hood than the current SCA standard. Samples should be obtained for real-world testing in DOE schools.

SCA Current Specifications
Section 11600³
Lab Fume Hood (Portable/Ductless)

1. Portable type ductless fume hood with top mounted exhaust fan(s) shall contain at least one (1) Main filter and one (1) secondary filter. Unit shall also include a pressurized chamber for the analytical sampling of air located between the primary and back up filter(s). The manufacturer shall provide a listing of chemicals with tested filter retention capacities. Face velocity shall be at least 100 fpm.
2. Unit shall be provided with a tempered or laminated glass enclosure on all four sides. The front door shall be folding type and allow complete access to the interior working space. The work surface shall be fiberglass. The structure shall be constructed of zinc-steel alloy coated with an acid resistant epoxy-polyester coating. Unit shall include an interior mounted light, a heavy-duty three-wire cord designed for 120 v/60 Hz operation.
3. Unit shall be provided with a rolling cart containing four heavy-duty casters, two of which shall be lockable.
 - a. Non-adjustable base stand shall be provided with a 1" thick solid epoxy work surface. Work surface shall be between 34" and 38" high.
 - b. Adjustable manual hydraulic lift base stand shall be provided with non-marking polyurethane casters and a 1" thick solid epoxy work surface. Hydraulic lift legs shall be adjustable from 21.5" to 33.5"; Labconco model #3782000.
4. Event Timer shall count in seconds up to eight hours.
5. Monitoring Systems
 - a. Digital display of airflow.

³ Refer to SCA Specifications Section 11600 for full fume hood specifications.

- b. Audible and visual alarms for low airflow and hydrocarbon breakthrough.
 - c. Filter saturation alarms to correspond to the solvents used and their exposure limit levels.
 - d. A vapor sensor that adjusts the blower speeds a display of the filter type and the correct application for the filter.
 - e. Time tracking device to monitor the amount of time the filter has been in use.
6. Manufacturers and model numbers;
- a. Mystaire/Misonix Incorporated, Model AU30-S.
 - b. Labconco Corporation Paramount Filtered Enclosure No. 6963302 with standard LCD message center
 - c. Captair Flex XLS 392
7. Provide Filters
- a. Pre-Filters: Mystaire/Misonix FE-3013 or equal by Captair, or Labconco. Electrostatically charged filters to prevent dust particles from clogging carbon filters. Provide package of six (6) filters.
 - b. Main Filter (4" thick, upstream of exhaust fan): Mystaire/Misonix AU-3816 or equal by Captair, or Labconco.
 - c. Secondary Filter (downstream of exhaust fan): Misonix AU-5717 or equal by Captair, or Labconco.
 - d. Provide one (1) extra package of pre-filter, four (4) extra main filters and four (4) extra secondary filters for each portable/ductless fume hood.
8. Provide service fittings, fixtures, and accessories.

Lab Ice Maker

Instructional Equipment



Scotsman CU1526A
Current SCA Standard



Manitowoc URF-0140A
Proposed Alternative

Found in some but not all science labs; freestanding. Typical quantities are **1 per science lab** (schools typically have 1 to 3 science labs). Critical specifications include:

- Air cooled unit
- Ice production capacity: 110 lbs in 24 hours at 90°F air and 70°F water
- Storage capacity: 80 lbs
- Cube size: medium
- 115V, 60 Hz, three prong plug, UL listed
- Finish: Manufacturer's standard stainless steel with plastic sliding door
- Dimensions: 26" wide x 28" deep x 39" high

The most energy-efficient currently available SCA standard is the **Scotsman CU1526A** (discontinued) or equal, with a maximum demand of **1,323 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years. Given that the currently specified model has been discontinued, the following model from the same manufacturer has been identified as the closest currently available model:

- **Scotsman UC2024MA**, 22.4 Gal/100lb of ice, 24"x29"x39", **1,725 W**

Potential alternatives identified for this study include:

- **Manitowoc URF-0140A**, 16.7 Gal/100lb of ice, 26"x28.5"x32.5", **575 W**
- **Ice-O-Matic ICEU220W**, 37.1 Gal/100lb of ice, 24.54"x26.27"x39", **1,024 W**

Pros: The most energy-efficient alternatives offers energy demand **savings of 748 W, or 57%**, per unit compared to the most energy-efficient current SCA standard. It meets all of the specifications and has all of the same features as the current SCA standard. Alternative 1 rejects 20% less heat compared to the current SCA standard. This helps reduce space cooling loads. Alternative 1 uses 7% less potable water compared to the current SCA standard.

Cons: Alternative 2 is larger and rejects 59% more heat compared to the current SCA standard. Additionally, Alternative 2 uses 106% more potable water compared to the current SCA standard.

LAB ICE MAKER				
MODEL	CURRENT	CLOSEST REPLACEMENT	ALTERNATIVE 1	ALTERNATIVE 2
Manuf	Scotsman	Scotsman	Manitowoc	Ice-O-Matic
Model	CU1526A	UC2024MA	URF-0140A	ICEU22OW
Size (Ext)	27x28x33	24x29x39	26x29x33	25x27x39
Production Capacity	150 lbs/day	230 lbs/day	137 lbs/day	251 lbs/day
Storage Capacity	80 lb	80 lb	90 lb	70 lb
Refrigerant	R-404a	R-134A	R-404a	R-404a
Volts	115	115	115	115
Amps	11.5	15.0	5.0	8.9
Btu/hr	2,700	3,900	2,150	4,288
Watts	1,323	1,725	575	1024
Savings	-	-	748	299
Savings %	-	-	57%	23%
EnergyStar	Y	Y	N	N
Cost Difference	-	138%	92%	131%
Source	Web	Web - Dealer	AQ	AQ

Recommendations:

- Alternative 1 is recommended as a more energy-efficient ice maker than the current SCA standard. Samples should be obtained for real-world testing in DOE schools
- It is recommended that the SCA specification language for this piece of equipment be updated. The current language specifies a model (**Scotsman CU1526A**) which has been discontinued by the manufacturer.

Section 11600
Ice Maker (LMIM1)

F. Scotsman Model CU1526 or equal by Manitowoc:

G. Cube ice maker; AHRI certified in accordance with AHRI standard 820. Air cooled unit with ice production capacity 110 lbs. in 24 hours at 90°F air and 70°F water; 80 lbs. storage. Cube size medium. 115V, 60 Hz, three prong plug, UL listed.

H. Size: 26" wide x 28" deep x 39" high.

I. Finish: Manufacturer's standard stainless steel. w/plastic sliding door.

Lab Mobile Plant Study Center

Instructional Equipment



Grower's Supply B3B-PKG2
Current SCA Purchased Model



Gardener's Supply Company LED SunLite 3-Tier
Garden
Proposed Alternative

Found in high school and middle school science labs, freestanding, directly accessed by students. Typical quantities are **1 per science lab** (schools typically have 1 to 3 science labs). Critical specifications include:

- Two aluminum plant shelves secured to steel pedestal
- Light fixtures with programmable timer
- Dimensions: 56" wide x 28" deep x 71" high overall (21.8 sf shelf area)

The most energy-efficient model recently purchased for an SCA school is the **Grower's Supply B3B-PKG2** or equal, with a maximum demand of **240 W**. Other models in the current SCA specification or recently installed include:

- **Sheldon 31120 Porta-Plant Study Center, 320 W**

Potential alternatives identified for this study include:

- **Gardener's Supply Company LED SunLite 3-Tier Garden, 3 shelves, 69x51x15, 120 W**
- **Johnny's Selected Seeds, 3 shelves, 74x27x23, 120 W**
- **Rise Gardens, 3 shelves, 67x36x16, 200 W**

Pros: The most energy-efficient alternative offers energy demand **savings of 120 W or 50%** per unit compared to the most energy-efficient purchased model. It meets almost all of the SCA specifications and offers nearly all of the same features as the most energy-efficient purchased model. Alternatives 1 and 3 use LED bulbs as opposed to fluorescent bulbs used in existing SCA purchased models.

Cons:

- Alternatives 1 and 2 do not include a programmable timer; however, the most energy-efficient purchased model does not have this feature.
- All alternatives have lower total shelf area than the most energy-efficient purchased model. However, the most energy-efficient purchased model has more shelves than required by the current SCA specification.
- All alternatives have exterior materials which differ from the specifications; however this is not expected to impact performance.

LAB MOBILE PLANT STUDY CENTER				
MODEL	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manuf	Grower's Supply	Gardeners Supply Company	Johnny's Selected Seeds	Rise Gardens
Model	B3B-PKG2	LED SunLite 3-Tier Garden	7296 Compact Seedling Light Cart	Triple Family Garden
Bulb Type	Gro-Lux Wide Spectrum T8 Fluorescent	LED	Fluorescent T12	LED
Size (Ext)	74x53x20	69x51x15	74x27x23	67x36x16
Capacity	3 shelves	3 shelves	3 shelves	3 shelves
Shelf Area	22.1 sf	15.9 sf	12.9 sf	12.0 sf
Volts	120	120	120	120
Watts	240	120	120	200
Savings	-	120	120	40
Savings (%)	-	50%	50%	17%
EnergyStar	N/A	N/A	N/A	N/A
Cost Difference	-	15%	-23%	36%
Source	Web	Web - Dealer	Web - Dealer	Web - Dealer

Recommendations:

- Alternative 1 is recommended as a more energy-efficient mobile plant study center than the most energy-efficient purchased model. Samples should be obtained for real-world testing in DOE schools.
- NYC school stakeholders may wish to consider whether the exact dimensions specified for the mobile plant study center are flexible enough to facilitate consideration of a more energy-efficient model.

SCA Current Specifications
Section 11600

Porta-plant Study Center (LMPP1)

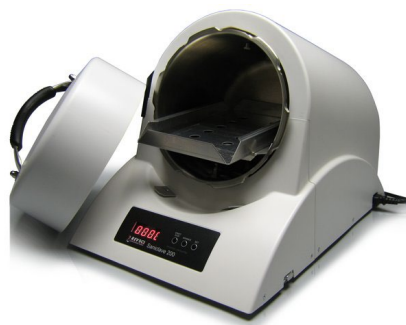
1. 56" wide x 28" deep x 71" high overall.
2. Two aluminum plant shelves secured to steel pedestal.
3. Light fixtures with programmable timer.

Lab Sterilizer

Instructional Equipment



All American 25X
Current SCA Standard



Revolutionary Science RS-SC-200L
Proposed Alternative

Found in high school science labs; freestanding. Typical quantities are **1 per science laboratory** (schools typically have 2 to 3 science laboratories). Critical specifications include:

- 25-quart liquid capacity
- 250°F sterilization cycle
- 15 lb. pressure

The most energy-efficient current SCA standard is the **All American 25X** or equal, with a capacity of 25 quarts and a maximum demand of **1,050 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **Revolutionary Science**, 10.6-quart, **700 W**

It was unusually difficult to find more energy-efficient models than the current SCA standard while also meeting SCA specification requirements. Manufacturers investigated for alternatives included Yamato, Midmark, WestTune, LINEA, SONZ, and Tong Shuo. The following limitations were encountered:

- Many manufacturers do not offer a mid-size (approximately 25-quart) sterilizer model.
- Most 25-quart models have significantly higher electric demand than that of the current SCA standard.

Pros: The most energy-efficient alternative offers energy demand **savings of 350 W or 33%** per unit compared to the most energy-efficient current SCA standard. It meets almost all of the specifications and has all of the same features as the current SCA standard, with the exception of interior capacity.

Cons: Compared to the current SCA standard, the most energy-efficient alternative provides 57.6% less capacity, which may limit its usefulness and/or require it to be used more frequently.

LAB STERILIZER		
MODEL	CURRENT	ALTERNATIVE 1
Manuf.	All American	Revolutionary Science
Model	25X	RS-SC-200L
Size (Ext)	17x13x13	16x13.5x21
Capacity	25 qt / 23.6 L	10.6 qt / 10 L
Temperature	250 F	250 F
Pressure	17 - 21 psi	15 psi
Volts	120	120
Amps	9	-
Watts	1,050	700
Savings	-	350
Savings %	-	33%
EnergyStar	N/A	N/A
Cost Difference	-	102%
Source	Web	Web - Dealer

Recommendations: It is recommended that SCA order sample model/s for visual inspection and onsite testing before purchasing alternative models. If Alternative 1 fulfills the same requirements as the current SCA standard despite its smaller volume, it should be considered as a replacement for the current SCA standard.

SCA Current Specifications
Section 11600

Sterilizer (LMST1)

1. Wisconsin Aluminum Foundry. Mfg. No. 25X-120V. Electric Autoclave, with support base #2180.
2. 25-quart liquid capacity.
3. 250°F with 15 lb. pressure

Projector

Instructional Equipment



Epson G6770WUNL WUXGA 3LCD
Current SCA Standard



Panasonic PT-JW130
Proposed Alternative

Found in gymatoriums and multi-purpose rooms, not directly accessed by students. Typical quantities are **1 per school**. Critical specifications include:

- Emit minimum 6000 ANSI lumens in standard mode and 4800 ANSI lumens in economy mode
- 1024 x 768 pixels native, up to UXGA (1600 x 1200) using intelligent pixel blending technology
- Support the following video formats: NTSC at 540 lines, NTSC4.43, HDTV: 1080i, 720p, 576p, 480i (with optional cable), 480p Y/Cb/Cr 800 TV line component (with optional cable)
- 10-bit 3D video encoder
- Native contrast ratio at least 700:1
- Numerous lenses for optimizing throw distances to a variety of screen sizes
- Automated 3D reform keystone correction of ± 35 degrees horizontal and ± 40 degrees vertical
- Wireless communication utilizing IEEE802.11b
- Ability to mount in Floor/Front, Floor/Rear, Ceiling/Front, and Ceiling/Rear configurations
- Fan noise no more than 45dB in the standard mode and 40 dB in eco-mode

The most energy-efficient model recently purchased for an SCA school is the **Epson G6770WUNL WUXGA 3LCD** (discontinued) or equal, with a maximum demand of **528 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years. Given that the currently specified model has been discontinued, the following model from the same manufacturer has been identified as the closest currently available model:

- **EPSON EB-PU1006W WUXGA 3LCD**, 22x18x7, 1280x800 resolution, **384 W**

Potential alternatives identified for this study include:

- **Panasonic PT-JW130**, 17x14x13, 1280x800 resolution, **125 W**
- **Optoma ML105AT**, 5x5x2, 1280x800 resolution, **170 W**

Pros:

- The most energy-efficient alternative offers energy demand **savings of 403 W or 76%** per unit compared to the most energy-efficient purchased model. It meets almost all of the SCA specifications and offers nearly all of the same features as the most energy-efficient purchased model.

- Both alternatives and the closest replacement for the most energy-efficient purchased model have a lamp life of 20,000 hours, as opposed to 4,000 hours for the most energy-efficient purchased model.

Cons:

- The alternatives emit 1000 ANSI lumens in standard mode as opposed to the specified 6000 ANSI lumens. This discrepancy is key to the energy savings achieved by the alternative models.
- The alternatives have lower resolution than the most energy-efficient purchased model, although they do meet SCA specifications.
- The alternatives do not come equipped with a 10-bit 3D video encoder.
- The alternatives do not come equipped with multiple lenses, but offer zoom capabilities to support multiple screen sizes.
- The following specifications could not be confirmed for the most energy-efficient purchased model or the proposed alternative models: Faroudja DCDi 3:2 and 2:2 pull down correction; Sweet Vision technology.

PROJECTOR				
MODEL	CURRENT (DISCONTINUED)	CLOSEST REPLACEMENT	ALTERNATIVE 1	ALTERNATIVE 2
Manuf	Epson	Epson	Panasonic	Optoma
Model	G6770WUNL WUXGA 3LCD	EB-PU1006W WUXGA 3LCD	PT-JW130	ML105AT
Size (Ext)	20x16x6	22x18x7	17x14x13	5x5x2
Resolution	1920x1200	1920x1200	1280x800	1280x800
Watts	528	384	125	170
Savings	-	144	403	358
Savings (%)	-	27%	76%	68%
EnergyStar	N/A	N/A	N/A	N/A
Cost Difference	-	-	-57%	-87%
Source	Web	Web	Web	Web

Recommendations: It is recommended that SCA order sample model/s for visual inspection and onsite testing before purchasing alternative models. The potential alternative models will need to be approved by a lighting consultant prior to installation.

SCA Current Specifications
Section 16771
Projectors

b) Ceiling Mounted Front Projector

The front projector shall have the following minimum salient specifications:

Light Output: In the standard operating mode, the projector will be rated by the manufacturer to emit at least 6000 ANSI lumens in a dual lamp standard mode. In addition the projector will have an Eco-mode mode of at least 4800 ANSI lumens as a means of extending lamp life and saving on electrical power. An optional extended life lamp set will be available providing 3000 ANSI lumens in a super-eco mode.

Resolution: 1024 x 768 pixels native, up to UXGA (1600 x 1200) using intelligent pixel blending technology to enhance non- native resolutions from computer data signals. This feature is key for seamless instructional presentations as it automatically locks onto signals and displays optimized images in seconds, with no downtime. Projector will be able to simultaneously represent 16.7 million colors. Projector will also support the following video formats: NTSC at 540 lines, NTSC4.43, HDTV: 1080i, 720p, 576p, 480i (with optional cable), 480p Y/Cb/Cr 800 TV line component (with optional cable).

The projector shall employ Video enhancement technology that provides improved color uniformity, depth and accuracy similar to Vortex Technology Plus. Faroudja DCDi 3:2 and 2:2 pull down correction will be employed for film like reproduction to provide smooth video rendition. In addition, the projector will employ Sweet Vision technology to enhance digital contrast from interlaced images to create vibrant colors and film like images. A 10-bit 3D video encoder will be an integral part of the projector to provide black level expansion (further contrast and color expansion while reducing video noise). Native contrast ratio will be at least 700:1.

Lamp Life: Expected life: 3000 hours Eco-Mode; 2000 hours in standard mode, 4500 hours optional extended life lamp.

Lens: The projector will have numerous lenses available for optimizing throw distances to a variety of screen sizes. The supplied lens will be specifically recommended by the on the projector screen used at the specific distance of the projector from the screen. It is important that the available lenses provide the ability to completely fill (without extending past the edges) a 12' wide screen at all distances up to at least 70 feet, and a 14' wide screen at distances up to at least 95 feet. The projector/lens pair will provide an acceptable lighting level at a crisp and consistent focus on the full screen at the installed distance. The lens will be of the power zoom/power focus type and be easily controlled by the user.

Keystone Correction: The projector will provide for automated 3D reform keystone correction of ± 35 degrees horizontal and ± 40 degrees vertical to allow crisp, undistorted images to be displayed if projector is at an angle to the screen.

Inputs:

Computer: (1) RGB (mini D-Sub 15-pin);

Video: (5) BNC, (1) DVI-D, (1) S-Video (mini DIN 4-Pin), (1) RCA;

Audio: (2) mini audio, (3 pair) L/R RCA;

Network: (1) RJ-45 10/100 Ethernet port

PC Card Reader Slot: (2) PCMCIA type II. This slot will be suitable for both a wireless 802.11B NIC currently offered by the manufacturer of the projector or a memory card.

(1) USB Type A port, (1) Remote (mini), (1) PC Control

Outputs:

Video: (1) monitor output (mini D-Sub 15-pin),

Audio: (1) Stereo Mini Audio (variable audio output)

A stereo mini jack will be available as a screen trigger control.

Automatic Maintenance notification: If connected to a network, projector will be able to automatically

generate an E-mail notification when maintenance is required.

External Controls: RS232 (AMX/Crestron compatibility), IR, USB, Network (LAN) will be available for external control

Wired and Wireless LAN: Integrated RJ45 for 10/100 megabit Ethernet wired connectivity will be standard. Remote diagnostics will be available if network is implemented to check the status of projectors connected to your wired LAN.

Capability will be standard to allow the use of the projector as a network communication tool for remote or offsite distance learning participation. Information may be sent over the network to projectors or PC's. Software shall be included to allow the image being sent to one projector to be simultaneously shown on a number of other projectors of the same type on a remote basis. The capability must be currently available to send information from one computer to one projector, broadcast from one computer to several projectors or send information to projectors and other computers. Switch from one presenter to another. Simply press the "speaker's button" on the computer and the next presenter is ready to go.

The capability will be standard for an automatic e-mail notification by the projector to a designated address when maintenance is required.

Wireless Connectivity (while not utilized for this installation, this potential will be reserved for future utilization): Wireless communication utilizing IEEE802.11b must be currently available for implementation by utilizing a PCMCIA network interface card directly offered by the projector manufacturer (NIC card is not part of this procurement).

Multi-level Security Features: Attach a security cable to physically lock down the projector into an integrated security slot. Password protection will be standard to restrict access to menu system, custom logo stored in projector memory, and/or restrict unauthorized use of projector. The projector will

have the ability to use a PCMCIA card device as security key. If this function is activated, unauthorized users cannot operate the projector when the PCMCIA card is not present.

Included Accessories: User manual, wired/wireless addressable remote control, power cable, remote cable, registration card, and CD Rom. Two additional extra lamps will be supplied for the projector as part of the project as spare parts.

Physical: Projector and lens will weigh less than 50 pounds. It will be capable of being mounted and oriented in the following configurations to accommodate various room configurations: Floor/Front, Floor/Rear, Ceiling/Front, Ceiling/Rear. As the projector will typically be mounted inverted, the image must be able to be "rationalized" to the proper orientation. The audible fan noise will be minimal and not interfere with the teaching or presenting taking place in the auditorium. The fan noise produced by the projector will be no more than 45dB when used in the standard mode and 40 dB in eco-mode.

Power Consumption: Projector will draw no more than 8 amperes during use, and less than 1 Watt in standby mode

Projector will be rated for full duty cycle at any operational temperature between 32°F to 95°F/0° to 35°C, Humidity: 20-80% non-condensing.

Relevant Technology Studies and Resources

NYCSCA Local Law 31 Feasibility Study Phase 2 Report

In 2018, the SCA completed a Local Law 31 Feasibility Study (LL31 Feasibility Study), with the aim to determine how the SCA can construct schools in compliance with the aggressive energy reduction targets of NYC Local Law 31 of 2016. During Phase 1 of the LL31 Feasibility Study, it was determined that plug loads are a limiting factor in the effort to achieve LL31 compliance. Plug loads represented a large portion of the Base Case source EUI, approximately 19.3 kBtu/sf/yr or 17%.

The Base Case eQuest model for an elementary school in Queens incorporated NYC SCA standard plug loads using a combination of Equipment Power Density (W/sf) metrics in some spaces and estimated classroom/office equipment inventories in other spaces. The Base Case energy model uses plug loads and schedules per the SCA Standards. The standards include a mix of equipment and usage assumptions, mostly based on the 2009 ASHRAE Fundamentals Handbook with modifications by the SCA.

The accounting effort identified all equipment in the proposed school, and key assumptions about the equipment and how it is used. Each piece of equipment was assigned three variables:

- Realistic Wattage: Using NYC SCA specifications, specific equipment was identified and wattages defined based on manufacturer cut-sheets or other third-party references. ENERGY STAR data was used to derive peak wattages and power draw.
- Diversity Factor: While a school may have a fairly consistent building occupancy schedule, it is unlikely that all equipment is in full use while the building is occupied. Diversity factors take into account the likelihood any type of equipment will be on during the school day.
- Usage Schedule: An hourly usage profile is essential to get an accurate result of the energy use pattern over the day. This, along with diversity factor, dictates the peak power draw for the building at any hour of the day. The usage schedule largely depends on occupant behavior as well as equipment capabilities. A study by Moorefield et al. (2011) was used to create a usage profile for each piece of equipment, which captured the energy usage of high efficiency equipment capable of stepping down energy usage based on operation modes (active, standby, idle, or sleep).

The selected modeling approach used the following references for the above variables:

- Wattage: actual equipment data based on equipment models that fit NYC school requirements. Energy Star rated fixtures were identified. Assumptions for the main pieces of equipment included:
 - Desktop: Acer- Veriton M4650G
 - Monitor: ASUS VN248
 - Laptop: Acer- N16P9
 - Printer: Xerox- Printer
 - Copier: Xerox- Workcentre
 - Whiteboard: Promethean ActivBoard Touch
 - Diversity Factor: ASHRAE Fundamentals Handbook (2009)
 - Usage Schedules: NYC SCA Standards, plug load schedules by space type
- Diversity Factor: based on EnergyStar rated power draw

- Usage Schedules: usage schedules concept from the Moorefield et al. study were modified to align better with NYC SCA standard schedules, and blended in anticipated active / standby / idle / and sleep modes for ENERGY STAR rated equipment.

Recommendations and proposed energy conservation measures (ECMs) were also made to update assumptions including equipment wattages, schedules for equipment use, and diversity factors for equipment utilization. Overall, the recommendations were estimated to yield a 29.5% reduction in plug load Source EUI. These results were used to adjust the Base Case energy model, and to inform energy reduction strategies in future SCA efforts.

The study also recommended six broad energy conservation measures (ECMs) to implement controls or alternative technologies in order to reduce plug loads beyond the Base Case.

Plug Load ECM-1: Replace Classroom Desktops + Monitors with Laptops

This ECM explores possibility of switching Desktops and monitors to laptops.

- Desktops are expected to consume 71 kWh/year and monitors are expected to consume 21 kWh/ year.
- Laptops are expected to consume 22 kWh/year.
- A total of 92 kWh/year will be reduced to 21 kWh/year with this measure.
- A plug load reduction of 6% is achievable with this measure.

Plug Load ECM-2: Replace Classroom & Office Desktops + Monitors with Thin Clients (rejected by SCA)

ECM-2 similar to ECM1 explores replacing Desktops and Monitors with integrated thin clients. The integrated thin client selected for the analysis is an ASUS A3421.

- A total of 92 kWh/ year will be reduced to 33 kwh/year with this measure.
- A plug load reduction of 5% is achievable with this measure.

It should be noted that ECM-2 was rejected by SCA.

Plug Load ECM-3: Replace 216 Shared Laptops with Ultrabooks (Tablets)

ECM-3 explores using more efficient equipment than the Acer- N16P9 notebook model. Ultrabooks are expected to be more efficient than notebooks. Dell Latitude 3380 is an ultrabook that has a lower energy consumption than the current model.

- This measure is estimated to save 3% in plug load energy savings.

Plug Load ECM-4: Multifunction Printer / Copier / Fax

ECM-4 is a replacement of individual equipment in preference for ENERGY STAR rated multifunction equipment, which is expected to reduce redundant standby loads for equipment that could potentially be combined into single function. Two such spaces are identified where equipment could be combined.

- The energy savings impact for this measure is 0.34% in plug load energy.

Plug Load ECM-5: Copiers and Classroom Laptops on Shut-off Timers

Current design of the elementary school in Queens includes most of office type equipment on shut off timers except for the copiers and Laptops.

- Energy savings impact is 2.1% is achievable in plug loads.

It should be noted that ECM-5 was deemed not suitable for New York City schools.

Plug Load ECM-6: Replace MDF-IDF Servers with ENERGY STAR Equipment

The current project assumes the MDF/IDF loads in line with the energy consumption of an existing PS in Queens. However, on closer look at the Data end use for the PS in Queens, it seems like the plug load use doesn't vary from weekend to weekday (except for 1 Sunday that the load falls by 4%). While researching for energy efficiency of servers, it was observed that ENERGY STAR equipment is capable of reducing the power based on load. Further, an ENERGY STAR rated server saves as much as 30% in energy consumption when compared to older server technology. Since the load for the PS in Queens doesn't vary, it is possible that the servers are not ENERGY STAR rated and there a scope for energy savings of 30% in server end use.

- Total plug load energy savings for this measure is 2.4%.

Review of the plug load accounting matrix in the LL31 Feasibility Study revealed that due to their quantity, desktops, monitors, and laptops were the highest energy users in the plug load category.

NYC DOE DIIT School Standards for Technology Innovation, Version 6.3

The NYC DOE DIIT School Standards for Technology Innovation (DIIT Standards) describes the DIIT standard network technologies deployed at NYCDOE schools. It reflects many criteria of the design and planning process for school technology at the NYCDOE. The most important is the ability of the hardware to perform the tasks that are required for instructional and administrative tasks.

Other important considerations include: equipment management effectiveness, the flexibility of network solution services across a diverse set of school types and the expected resiliency of the overall school network environment. DIIT Standards are updated up to two times per year. The Networked Equipment Exclusions section of this report provides additional information regarding the DIIT Standards in relation to other studies and published materials.

NYCSCA Food Service Space Requirements

The following drawings and schedules from the NYCSCA Food Service Space Requirements were referenced for this report:

- SCA Standard 3K Warming Pantry Equipment Quantities
- SCA Standard K2 Kitchen Equipment Quantities
- SCA Standard K3 Servery Equipment Quantities
- SCA Standard K4 Warming Kitchen Equipment Quantities
- SCA Standard K1 Kitchen Space Requirements
- Cafeteria Experience Upgrade Equipment Specifications

NYCSCA Design Requirements

The following sections from the NYCSCA Design Requirements were referenced for this report:

- 1.3.1.2 Planning Guidelines for New Schools and Additions

- 1.3.1.10 Compliance with NYC Energy Conservation Code (NYCECC), LL 86/05, LL 31/16, LL 32/16, LEED for Schools and NYC Green Schools Guide, Energy Modeling Studies, and CIP Project Energy Saving Calculations
- 1.3.6.1 Kitchen
- 1.3.6.5 Walk-In Refrigerators and Freezers
- 1.3.6.7 Cash Registers (Kitchens)
- 5.8.1 Interactive Whiteboards
- 6.2.22 Kitchen Ventilation
- 6.2.28 HVAC Design Requirements for Special Spaces
- 7.1.3 Receptacles
- 7.1.4 Kitchen Electrical Requirements
- 7.1.6 Miscellaneous Power Distribution Drawing Requirements
- 7.2.2 Stage and Platform Lighting for Primary and Intermediate Schools
- 7.3.3 Main Telecommunications Room and Intermediate Telecommunications Closet
- 7.3.4 Telephone System
- 7.3.8 Sound Intercommunication and Teacher Activated Security System
- 7.3.9 Clock System

NYCSCA Standard Specifications

The following sections from the NYCSCA Standard Specifications were referenced for this report:

- Section 11172 Waste Handling Equipment
- Section 11400 Food Service Equipment
- Section 11400A Food Service Equipment (Gas)
- Section 11401 Food Service Equipment for Warming Kitchen/Pantry
- Section 11450 Domestic Type Equipment
- Section 11480 Gymnasium Equipment
- Section 11500 Shop Equipment
- Section 11600 Laboratory Equipment
- Section 15440 Plumbing Fixtures
- Section 16502 LED Interior Building Lighting
- Section 16770 Sound, Intercom and Teacher Activated Security System
- Section 16771 Projection and Interactive Whiteboard Systems
- Section 16775 Audio Frequency Induction Loop System (AFILS)
- Section 16776 IP-Based Sound, Intercom and Teacher Activated Security System
- Section 16791 Self-Corrective Clock System

NYCSCA Input Summary Guide for eQuest Energy Models

The NYCSCA Input Summary Guide for eQuest Energy Models was used to inform Watts/sf allowances and usage schedules for individual pace types used as inputs for the energy models developed as part of this study. The usage schedule for kitchen equipment was derived from Appendix A of the NYCSCA Input Summary Guide for eQuest Energy Models. Additional information regarding eQuest energy modeling is provided in the Energy Model Discussion and Results section of this report.

Technology Implications and Impacts

Building Code and Regulatory Compliance Implications

As noted in the Phase I study, most of the equipment considered for this evaluation are not addressed by any building code or regulations, although the following general requirements do exist:

New York City Electrical Code

Electrical connections must comply with the 2011 New York City Electrical Code (consisting of the most current National Electrical Code and NYC specific amendments per Local Law 39 of 2011), as well as ANSI/NFPA 70.

Local Law 154 of 2021

Local Law 154 of 2021 requires new construction projects to utilize all-electric power starting in 2024. The goal of this law is to phase out fossil fuels and transition the City's energy use to an increasingly low-carbon electric grid. Discussions leading up to this legislation helped precipitate the SCA's switch to all-electric kitchens. As such, no gas-powered equipment was considered as part of this study.

Local Law 111 of 2021

Local Law 111 of 2021 requires that any government purchased or leased desktop computer, desktop-derived server, laptop, electronic notebook, computer tablet, or other such similar computer product must meet applicable Electronic Product Environmental Assessment Tool (EPEAT) standards, or another standard that is similar and no less restrictive. As such, any computer product purchased by the SCA will be required to comply with applicable EPEAT standards and meet environmental performance criteria including: materials selection, supply chain greenhouse gas emissions reduction, design for circularity and product longevity, energy conservation, end-of-life management and corporate performance.

Local Law 97 of 2019

Local Law 97 of 2019 requires large (over 25,000 square feet) existing buildings in New York City reduce their emissions by 40% by 2030 and 80% by 2050. This legislation set the stage for Local Law 154 of 2021 and other efforts to electrify New York City buildings.

Local Law 31 of 2016

Local Law 31 of 2019 requires city-funded capital projects to significantly reduce energy consumption and established stringent source EUI limits. This law's 2030 source EUI target (38 kBtu/sf/yr for all new public buildings, a 46% decrease from the current target of 70 kBtu/sf/yr for schools) predicated the SCA's LL31 Feasibility Study which identified kitchen equipment energy use as the biggest obstacle to compliance in 2030.

Disposal of Existing Electronics and Batteries

Disposal of electronics and batteries must comply with Section 27-2611 of the Electronic Equipment Recycling and Reuse Act.

Impacts to Operations and Maintenance

EME Group gleaned the following critical operations and maintenance considerations for SCA kitchens over the course of multiple meetings with DOE Food Services:

- New kitchens and serveries must be able to accommodate the entire school population, under the assumption that 1 serving line can process 500 students over 3 meal periods, at a speed of less than 10 seconds per student (all students must be served within the first third of the meal period, to allow them time to eat).
- Every school has a different dining schedule which is determined by the principal; some schools have 3 lunch periods, some have 8.
- Poorly ventilated kitchen spaces can cause compressors to overwork. Approximately one third of kitchen equipment gets preventative maintenance once every six months. Maintenance vendors are instructed to inspect compressors and clean coils.
- The average lifecycle for refrigeration equipment is 7 years. If equipment is well-maintained with adequate ventilation to prevent overheating, lifecycle can increase.
- Daisy-chained hot food counters are connected to a 60A circuit. The voltage cannot be reduced as the hot counter must reach full temperature within 15-20 minutes so that breakfast can start as early as 7:30am. Daisy-chained counters with 30A circuits were tested, but took too long to heat up.
- In some existing schools it may not be possible to replace existing gas tilt skillets and convection ovens, which are no longer included in the specifications for capacity projects, with new electric combi ovens because there is no cold-water service or floor drain nearby.
- In existing schools, gas tilt skillets and convection ovens may be replaced with electric versions if the existing equipment is frequently used and code-compliant vent hood and fire protection are already in place; otherwise the gas-fired equipment may need to be replaced in kind in order to avoid triggering code requirements.
- In some existing schools, gas steamers are replaced with portable electric steamers which can be moved to a sink and filled with a hose, but this entails extra work for the kitchen staff.

No major operations and maintenance concerns were identified for building services and instructional equipment.

Frequently Asked Questions/Pros and Cons

Which product specifications were utilized in this report?

The most current SCA specifications and design standards available at the time of this study on the SCA website (nycsca.org) were utilized for this report. Specific product specifications and their respective issue or last revision date are provided below.

Specification Section Number	Specification Name
Section 11172	Waste Handling Equipment
Section 11400	Food Service Equipment
Section 11400A	Food Service Equipment (Gas)
Section 11401	Food Service Equipment for Warming Kitchen/Pantry
Section 11450	Domestic Type Equipment
Section 11480	Gymnasium Equipment
Section 11500	Shop Equipment
Section 11600	Laboratory Equipment
Section 15440	Plumbing Fixtures
Section 16502	LED Interior Building Lighting
Section 16770	Sound, Intercom and Teacher Activated Security System
Section 16771	Projection and Interactive Whiteboard Systems
Section 16775	Audio Frequency Induction Loop System (AFILS)
Section 16776	IP-Based Sound, Intercom and Teacher Activated Security System
Section 16791	Self-Corrective Clock System

Is gas-fired equipment included in this study?

Per SCA's instruction, gas-fired equipment is not included in the energy modeling portion of evaluation as it is no longer an SCA standard. Electric versions of previously purchased gas-fired equipment are evaluated instead. However, previous gas-fired SCA standard models for the combination oven, convection oven, range with oven, and steamer are included in the respective individual equipment reports for comparison purposes.

Which case-study schools were studied for this report?

EME Group focused its evaluation on three schools (existing or in construction): PS "A" in Brooklyn, IS "B" in Queens, and HS "C" in Queens. Additional information regarding the selection of case study schools is provided in the Research Approach section of this report.

Common advantages of recommended alternatives:

- Electrification of kitchen equipment has removed health hazards of gas combustion including NG leaks and particulate matter
- Electrification of kitchen equipment, together with electrification of service hot water heating (already SCA standard) and HVAC systems (ongoing), will allow complete elimination of costly,

space-intensive, and potentially hazardous gas infrastructure from capacity projects – particularly important as available gas capacity shrinks in some areas due to lack of new investment in citywide gas distribution infrastructure

- Reduced internal gains equates to reduced cooling costs, which is particularly important as SCA envelope thermal performance improvements are implemented
- Energy demand savings ranging from 4% to 85%
- Several alternatives use refrigerants with lower global warming potential than the refrigerant used in the current SCA standard

Common disadvantages of recommended alternatives:

Several alternatives provide reduced capacity or do not meet certain configuration or materials requirements compared to the SCA standard. While equipment may differ in properties from the standard, changes do not appear to affect the function of the product and may not drive the selection decision.

Energy Model Discussion and Results

An energy model was created for each of the case study schools to see the overall building energy effects of replacing plug load equipment in the schools with more efficient alternatives. It should be noted that the SCA energy modeling guidelines and supporting documentation are continuously updated for clarity and accuracy.

Current SCA Input Guidelines for Energy Modeling of Kitchens

Two main documents are used to model a school kitchen in eQuest. These are the *eQuest How-to Guide for Energy Models* - Appendix A and the *eQuest Input Summary for Energy Models*. According to the SCA *eQuest How-to Guide for Energy Models*, Appendix A should be used to model school kitchens and serveries, walls, chillers, and domestic hot water. Appendix A is an excel file that uses site specific information to provide valid inputs into eQuest.

The *eQuest Input Summary for Energy Models* provides the user with viable schedules, source, and equipment powers to use as inputs for the schools eQuest model. These inputs are based on the school student population. There are five different schedules that the document provides for the model. These schedules are based on populations of 400-500 students, 500-700 students, 700-900 students, 900-1,000 students, and greater than 1,000 students.

Equipment Loads

The kitchen equipment load is the total power consumption of the kitchen that is not used for cooking. This would include the energy consumption of equipment such as refrigerators, freezers, merchandisers, can openers, etc. The power ratings for each piece of equipment and the equipment quantities are input into the Appendix A excel sheet. These are used to acquire the total kitchen equipment load as well as the kitchen power density. The kitchen equipment power density is the total kitchen power consumption divided by the kitchen square footage.

Source Loads

The kitchen source load is the total power consumption of the kitchen that is used for cooking. This would include the energy consumption of equipment such as the tilt skillet, range with oven, steamer, combination oven, etc. The power ratings for each piece of equipment and the equipment quantities are input into the Appendix A excel sheet. This is used to acquire the total kitchen source load.

Appendix A Values

Appendix A uses the individual equipment quantities, equipment loads, and source loads to provide an output of the total kitchen equipment load, the kitchen equipment density load, and the source load.

The equipment load is output in watts. The equipment density is output in watts per square foot. Finally, the source load is output in BTU/HR. These Appendix A values are then used as inputs in eQuest.

Kitchen Ventilation

Current SCA guidelines, found in *eQuest Summary for Energy Models*, specify that the AHU return and kitchen exhaust fans should be modeled as scheduled fan energy. The kitchen exhaust fan is modeled using the same schedule as the kitchen exhaust hood (since they are connected) and the cafeteria return fan is modeled using a complementary return schedule which excludes the operating hours of the exhaust fan. Kitchens have demand control ventilation in non-cooking mode. For kitchen exhaust systems without hoods (warming kitchens), the return fan is modeled at the system level, like a standard return fan. No additional fan power is directly modeled at the electric meter.

Kitchen Equipment Schedules

Current SCA guidelines, found in *eQuest Summary for Energy Models*, provide each space with a daily, weekly, and annual schedule for each space type. The daily schedule lists what fraction of the maximum power of that space is being used each hour. The weekly schedule lists which daily schedules are used for each day of the week. Yearly schedules list which weekly schedules are used for each week of the year. The guideline provides different schedules for schools of with the following student population size: 400-500 students, 500-700 students, 700-900 students, 900-1,000 students, and greater than 1,000 students. All schools within these population limits will have the same kitchen schedule. The table below shows the SCA guideline hourly usage factors for the kitchen space in schools with various student populations.

400-500 Student Population School Day Kitchen Equipment Schedule																									
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt	
Initial	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.10	0.26	0.26	0.10	0.11	0.12	0.09	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
Source	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

500-700 Student Population School Day Kitchen Equipment Schedule																									
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt	
Initial	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.10	0.22	0.22	0.10	0.11	0.11	0.08	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
Source	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

700-900 Student Population School Day Kitchen Equipment Schedule																									
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt	
Initial	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.11	0.26	0.26	0.11	0.12	0.12	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	
Source	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

900-1000 Student Population School Day Kitchen Equipment Schedule																									
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt	
Initial	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.12	0.29	0.29	0.12	0.13	0.13	0.11	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
Source	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

1000+ Student Population School Day Kitchen Equipment Schedule																									
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt	
Initial	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.10	0.26	0.26	0.11	0.12	0.11	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	
Source	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Kitchen Energy Modeling Methodology

Energy models for the case study schools, PS “A” in Brooklyn, IS “B” in Queens, and HS “C” in Queens, were used to model the overall building energy effects of replacing current SCA-specified kitchen equipment with the proposed alternative equipment identified in this study. Two models were compared to analyze the impact of replacing SCA standard kitchen equipment with the proposed alternative equipment. The first model, the “Base Case Model”, shows the energy consumption of the school using current SCA guidelines found in *eQuest Summary for Energy Models*. The second model, the “Alternative Model”, aggregates the equipment savings that would result from replacing current kitchen equipment with the best alternatives found in this study. To simulate the energy consumption of the kitchen, eQuest requires the maximum energy consumption of the kitchen as well as hourly, weekly, and yearly schedules as inputs.

The LL31 Feasibility Study was used to acquire usage factors, diversity factors, and hours of daily operation for each major piece of kitchen equipment. A usage factor is a fraction that represents how often the equipment is run every hour. A diversity factor is a fraction that represents the number of modules of the equipment run on average. If the equipment consists of only one module, then the diversity factor is one. Multiplying these two factors together will yield a total usage factor that shows what fraction of the peak equipment energy consumption is used in one hour. The table below shows the usage factors and diversity factors for the major kitchen equipment acquired from the LL31 Feasibility Study.

Description	Usage Factor	Diversity Factor	Total Usage Factor
Can Opener	1.00	0.3	0.30
Combi Oven	0.10	1.0	0.10
Food Processor	1.00	1.0	1.00
Food Slicer	1.00	1.0	1.00
Mobile Cold Food Counter	0.08	0.3	0.024
Mobile Heated Cabinet	0.18	0.3	0.054
Mobile Hot Food Counter	0.08	0.3	0.024
Power Washer	0.49	1.0	0.49
Range with Oven	0.54	1.0	0.54
Reach-In Freezer	0.41	1.0	0.41
Reach-in Refrigerator	0.25	1.0	0.25
Sink Agitator	1.00	1.0	1.00
Sink Heater	0.10	1.0	0.10
Steamer	0.04	1.0	0.04
Walk-In Freezer (-10F)	0.41	1.0	0.41
Walk-In Refrigerator (+35F)	0.25	1.0	0.25

EME used the information acquired from its research and the LL31 Feasibility Study to create an hourly schedule for each of the case study schools. To acquire the hourly schedule, the equipment used at each hour of the day was identified. Using the individual equipment usage factors, an average overall kitchen usage factor can be calculated and used as an eQuest model input.

This SCA guideline bases the kitchen schedule exclusively on student population size. The guideline provides different schedules for schools of a student body population size of 400-500 students, 500-700 students, 700-900 students, 900-1,000 students, and greater than 1,000 students. All schools within these population limits will have the same kitchen schedule.

By contrast, the approach used in this study looks at each school individually and creates a unique kitchen schedule by looking at the site-specific kitchen equipment in the targeted school and its equipment quantities. The tables below show the daily equipment and source schedules that were used in the models for the case study schools using SCA-specified equipment (“initial” in the schedules below) and the alternative equipment found in this study (“proposed”).

PS "A" Hourly Schedule - Student Population: 406																								
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt
SCA	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.100	0.260	0.260	0.100	0.110	0.120	0.090	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060
Initial	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.070	0.254	0.254	0.254	0.257	0.257	0.254	0.091	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043
New	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.093	0.258	0.258	0.258	0.262	0.262	0.258	0.121	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043
SCA Source	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Initial Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.040	0.040	0.040	0.040	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.040	0.040	0.040	0.040	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

IS "B" Hourly Schedule - Student Population: 876																								
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt
SCA	0.080	0.080	0.080	0.080	0.080	0.080	0.090	0.110	0.260	0.260	0.110	0.120	0.120	0.100	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
Initial	0.147	0.147	0.147	0.147	0.147	0.147	0.147	0.177	0.206	0.206	0.206	0.230	0.230	0.206	0.206	0.147	0.147	0.147	0.147	0.147	0.147	0.147	0.147	0.147
New	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.181	0.214	0.214	0.214	0.256	0.256	0.214	0.214	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.128
SCA Source	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Initial Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.176	0.176	0.176	0.176	0.176	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.161	0.161	0.161	0.161	0.161	0.161	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

HS "C" Hourly Schedule - Student Population: 1,009																								
Hr	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mdnt
SCA	0.080	0.080	0.080	0.080	0.080	0.080	0.090	0.100	0.260	0.260	0.110	0.120	0.110	0.090	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
Initial	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.196	0.218	0.218	0.218	0.232	0.232	0.218	0.218	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.169
New	0.165	0.165	0.165	0.165	0.165	0.165	0.165	0.214	0.243	0.243	0.243	0.268	0.268	0.243	0.243	0.165	0.165	0.165	0.165	0.165	0.165	0.165	0.165	0.165
SCA Source	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.220	0.220	0.220	0.220	0.220	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Initial Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.165	0.165	0.165	0.181	0.181	0.165	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.147	0.147	0.147	0.147	0.147	0.147	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Kitchen Equipment Summary and Comparison

The following summary tables present the current SCA standard kitchen equipment alongside the proposed alternative equipment identified as part of this study. An overall one-to-one comparison for each equipment type is provided, in addition to summary tables for each of the case study schools: PS “A” in Brooklyn, IS “B” in Queens, and HS “C” in Queens.

For each case study school, equipment quantities were determined based on 100% Construction Drawings, and two scenarios were considered: the “current standard” scenario, which assumes that each piece of installed equipment is the current most efficient SCA standard model, and the “alternative” scenario, which assumes that each piece of installed equipment is the proposed alternative model identified as part of this study. The resultant total annual energy use (in KWh) and GHG emissions (in MT CO₂e) for the two scenarios, along with total energy savings, are presented below.

1:1 COMPARISON

		CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		Manufacturer	Model #	Size	Capacity	Wattage	Manufacturer	Model #	Size	Capacity	Wattage	
KITCHEN APPLIANCES	Can Opener	Edlund	270 NSF	7x12x10	200 cans per day	173	Edlund	270 NSF	7x12x10	200 cans per day	173	0%
	Combination Oven, Double	Alto Shaam	CTP7-20E	45x47x75	(16) Full Sheet Pans	33,000	Convotherm	C4eT 6.20 ES-N	44x39x66	(14) Full Sheet Pans	31,800	4%
	Drink Dispenser	Crathco	D15-3	11x16x28	5 Gallons	340	Adcraft	JD-1	11x17x24	3 Gallons	278	18%
	Food Mixer	Globe	SP20	24x24x45	20 Quarts	690	Globe	SP20	24x24x45	20 Quarts	690	0%
	Food Processor	Waring	WFP16SCD	16x22x22	4 Quarts	672	Primo	PVC-500	10x25x20	N/A	550	18%
	Food Slicer	Bizerba	GSP HD STD-90	32x36x25	--	312	Vollrath	SLM300P	26x24x21	--	300	4%
	Hot Food Slide	Hatco	GR2SDS-36D	37x27x29	(2) 36" Shelves	2,040	Adcraft	HFD-85	32x28x28	(2) shelves	1,160	43%
	Merchandise Heated	Hussmann	IM-05-X4-H	68x32x58	34 SF Shelves	4,160	Alto-Shaam	HSM-48/5S	48x28x80	32 SF Shelves	4,000	4%
	Merchandise Refrigerated	Federal	RSSM-460SC	48x36x61	15.7 CF	2,200	Avantco	BVAC-46HC	46x26x82	13.2 CF	950	57%
	Milk Cooler	True	TMC-34-S-SS-HC	34x35x37	8 Milk Crates	311	Beverage-Air	SM34HC	34x31x42	8 Milk Crates	253	19%
	Mobile Cold Food Counter	Delfield	Custom	90x24x89	(4) Hotel Pans	1,800	Beverage Air	SPE72HC-30-S	73x31x37	(4) Hotel Pans	621	66%
	Mobile Heated Cabinet, Double	Wittco Foodservice	1826-15-SCHNY	27x33x65	(30) Full Sheet Pans	1,500	Delfield	GAH1-SH	28x33x80	(30) Full Sheet Pans	368	75%
	Mobile Hot Food Counter	Delfield	Custom	90x43x89	(4) Hotel Pans	4,576	Vollrath	38710	60x24x49	(4) Hotel Pans	2,100	54%
	Range with Oven	Garland	GME36-I14C	36x29x34	(4) 3.5kW Hobs	21,100	Smeg	SPR36UIMX	36x25x36	(5) 3kW Hobs	14,300	32%
	Reach-In Freezer, Double	Continental	DL2F-SS-GD	53x36x88	50 CF	1,610	Everest	ESF2	50x32x81	48 CF	863	46%
	Reach-In Freezer, Single	Continental	DL1F-SS-GD	26x36x84	21 CF	725	Everest	ESF1	30x22x80	R-450	575	21%
	Reach-In Refrigerator, Double	Continental	DL2R-SS	52x32x83	50 CF	748	TurboAir	M3R47-2-N	52x31x78	42.3 CF	322	57%
	Reach-In Refrigerator, Single	Continental	DL1R-S	26x29x83	16 CF	633	TurboAir	M3R19-1-N	32x31x78	18.7 CF	288	55%
	Sink Agitator	Kewanee	K-99	14x11x19	--	560	Kewanee	K-99	14x11x19	--	560	0%
	Sink Heater	Hatco	3CS2	7x18x10	(3) 21x25 Sinks	9,000	Hatco	3CS2	7x18x10	(3) 21x25 Sinks	9,000	0%
	Steamer, Double	Market Forge	Altair II - 10	24x31x67	(10) Hotel Pans	19,600	Sterling	SP208-6-1-AF	23x30x54	(12) Hotel Pans	12,460	36%
	Therm and Hold Oven, Double	Winston Industries	CAT522-HR	28x35x77	(14) Full Sheet Pans	11,215	Cres Cor	1000-CH-AL-2DX	23x33x74	(16) Full Sheet Pans	6,000	47%
	Walk-In Cooler	N/A	N/A	--	8' x 10' x 8.5' Walk-In	2,321	Master Bilt	CPB100JC-E-4-EV	--	8' x 10' x 8.5' Walk-In	1,560	33%
	Walk-In Freezer	N/A	N/A	--	8' x 10' x 8.5' Walk-In	6,136	Master Bilt	CPF200JC-E-4-EV	--	8' x 10' x 8.5' Walk-In	2,309	62%
	Water Filter	Antunes	VZN-421H-T5	31x9x39	100 psi	10	Antunes	VZN-421H-T5	31x9x39	100 psi	10	0%

Small PS Comparison (PS "A" in Brooklyn)

59,439 GSF 406 students			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		#	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	% kW
KITCHEN APPLIANCES	Steamer, Double	1	Market Forge	Altair II - 10	19,600	1,181	0.34	Sterling	SP208-6-1-AF	12,460	751	0.22	36%
	Therm and Hold Oven, Double	3	Winston Industries	CAT522-HR	11,215	15,201	4.39	Cres Cor	1000-CH-AL-2DX	6,000	8,132	2.35	47%
	Sink Heater	1	Hatco	3CS2	9,000	1,807	0.52	Hatco	3CS2	9,000	1,807	0.52	0%
	Mobile Hot Food Counter	1	Delfield	Custom	4,576	193	0.06	Vollrath	38710	2,100	89	0.03	54%
	Mobile Cold Food Counter	1	Delfield	Custom	1,800	76	0.02	Beverage Air	SPE72HC-30-S	621	26	0.01	66%
	Reach-In Freezer, Double	3	Continental	DL2F-SS-GD	1,610	7,274	2.10	Everest	ESF2	863	3,897	1.13	46%
	Mobile Heated Cabinet, Double	2	Wittco Foodservice	1826-15-SCHNY	1,500	285	0.08	Delfield	GAH1-SH	368	70	0.02	75%
	Reach-In Refrigerator, Double	3	Continental	DL2R-SS	748	3,377	0.98	TurboAir	M3R47-2-N	322	1,455	0.42	57%
	Sink Agitator	1	Kewanee	K-99	560	1,124	0.42	Kewanee	K-99	560	1,124	0.42	0%
	Food Processor	1	Waring	WFP16SCD	672	1,181	0.34	Primo	PVC-500	550	966	0.28	18%
	Drink Dispenser	1	Crathco	D15-3	340	84	0.02	Adcraft	JD-1	278	68	0.02	18%
	Food Slicer	1	Bizerba	GSP HD STD-90	312	548	0.34	Vollrath	SLM300P	300	527	0.15	4%
	Milk Cooler	1	True	TMC-34-S-SS-HC	311	468	0.17	Beverage-Air	SM34HC	253	381	0.17	19%
	Can Opener	1	Edlund	270 NSF	173	312	0.09	Edlund	270 NSF	173	312	0.09	0%
	Water Filter	1	Antunes	VZN-421H-T5	10	2	0.001	Antunes	VZN-421H-T5	10	2	0.001	0%
	TOTALS					81,071	33,112	9.87			48,594	19,608	5.81
								ISOLATED ENERGY SAVINGS (% kW, % kWh)			40.8%		
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)			41.1%		

Medium IS Comparison (IS “B” in Queens)

76,151 GSF			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
725 students		#	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	% kW
KITCHEN APPLIANCES	Combination Oven, Double	2	Alto Shaam	CTP7-20E	33,000	9,940	2.96	Convotherm	C4eT 6.20 ES-N	31,800	9,578	2.77	4%
	Range with Oven	1	Garland	GME36-I14C	21,100	17,159	4.49	Smeg	SPR36UIMX	14,300	11,629	3.36	32%
	Steamer, Double	1	Market Forge	Altair II - 10	19,600	1,181	0.34	Sterling	SP208-6-1-AF	12,460	751	0.22	36%
	Sink Heater	1	Hatco	3CS2	9,000	1,807	0.52	Hatco	3CS2	9,000	1,807	0.52	0%
	Walk-In Freezer	1	N/A	N/A	6,136	15,155	3.40	Master Bilt	CPF200JC-E-4-EV	2,309	5,703	1.65	62%
	Mobile Hot Food Counter	2	Delfield	Custom	4,576	386	0.11	Vollrath	38710	2,100	177	0.05	54%
	Walk-In Cooler	1	N/A	N/A	2,321	3,495	0.52	Master Bilt	CPB100JC-E-4-EV	1,560	2,349	0.68	33%
	Mobile Cold Food Counter	2	Delfield	Custom	1,800	152	0.04	Beverage Air	SPE72HC-30-S	621	52	0.02	66%
	Reach-In Freezer, Double	4	Continental	DL2F-SS-GD	1,610	9,699	2.80	Everest	ESF2	863	5,196	1.50	46%
	Mobile Heated Cabinet, Double	4	Wittco Foodservice	1826-15-SCHNY	1,500	569	0.16	Delfield	GAH1-SH	368	140	0.04	75%
	Reach-In Refrigerator, Double	5	Continental	DL2R-SS	748	5,629	1.63	TurboAir	M3R47-2-N	322	2,425	0.70	57%
	Sink Agitator	2	Kewanee	K-99	560	2,249	0.60	Kewanee	K-99	560	2,249	0.84	0%
	Food Mixer	1	Globe	SP20	690	170	0.05	Globe	SP20	690	170	0.05	0%
	Food Processor	1	Waring	WFP16SCD	672	1,181	0.34	Primo	PVC-500	550	966	0.28	18%
	Drink Dispenser	2	Crathco	D15-3	340	167	0.05	Adcraft	JD-1	278	137	0.04	18%
	Food Slicer	1	Bizerba	GSP HD STD-90	312	548	0.34	Vollrath	SLM300P	300	527	0.15	4%
	Milk Cooler	2	True	TMC-34-S-SS-HC	311	935	0.27	Beverage-Air	SM34HC	253	762	0.22	19%
	Can Opener	1	Edlund	270 NSF	173	312	0.09	Edlund	270 NSF	173	312	0.09	0%
	Water Filter	1	Antunes	VZN-421H-T5	10	2	0.001	Antunes	VZN-421H-T5	10	2	0.001	0%
	TOTALS					157,364	70,736	18.72			119,098	44,932	13.17
								ISOLATED ENERGY SAVINGS (% kW, % kWh)			36.5%		
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)			29.7%		

Large HS Comparison (HS “C” in Queens)

110,142 GSF 1,009 students			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		#	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	% kW
KITCHEN APPLIANCES	Combination Oven, Double	2	Alto Shaam	CTP7-20E	33,000	9,940	2.96	Convotherm	C4eT 6.20 ES-N	31,800	9,578	2.77	4%
	Range with Oven	1	Garland	GME36-I14C	21,100	17,159	4.49	Smeg	SPR36UIMX	14,300	11,629	3.36	32%
	Steamer, Double	2	Market Forge	Altair II - 10	19,600	2,361	0.68	Sterling	SP208-6-1-AF	12,460	1,501	0.43	36%
	Sink Heater	1	Hatco	3CS2	9,000	1,807	0.52	Hatco	3CS2	9,000	1,807	0.52	0%
	Walk-In Freezer	1	N/A	N/A	6,136	15,155	3.40	Master Bilt	CPF200JC-E-4-EV	2,309	5,703	1.65	62%
	Mobile Hot Food Counter	1	Delfield	Custom	4,576	193	0.06	Vollrath	38710	2,100	89	0.03	54%
	Merchandise Heated	2	Husmann	IM-05-X4-H	4,160	9,022	2.61	Alto-Shaam	HSM-48/5S	4,000	8,675	2.51	4%
	Walk-In Cooler	1	N/A	N/A	2,321	3,495	0.52	Master Bilt	CPB100JC-E-4-EV	1,560	2,349	0.68	33%
	Merchandise Refrigerated	4	Federal	RSSM-460SC	2,200	9,542	2.76	Avantco	BVAC-46HC	950	4,120	1.19	57%
	Hot Food Slide	2	Hatco	GR2SDS-36D	2,040	4,424	1.28	Adcraft	HFD-85	1,160	2,516	0.72	43%
	Mobile Cold Food Counter	1	Delfield	Custom	1,800	76	0.02	Beverage Air	SPE72HC-30-S	621	26	0.01	66%
	Reach-In Freezer, Double	3	Continental	DL2F-SS-GD	1,610	7,274	2.10	Everest	ESF2	863	3,897	1.13	46%
	Mobile Heated Cabinet, Double	4	Wittco Foodservice	1826-15-SCHNY	1,500	569	0.16	Delfield	GAH1-SH	368	140	0.04	75%
	Reach-In Refrigerator, Double	3	Continental	DL2R-SS	748	3,377	0.98	TurboAir	M3R47-2-N	322	1,455	0.42	57%
	Reach-In Freezer, Single	1	Continental	DL1F-SS-GD	725	1,789	0.52	Everest	ESF1	575	1,420	0.41	21%
	Sink Agitator	1	Kewanee	K-99	560	1,124	0.30	Kewanee	K-99	560	1,124	0.42	0%
	Food Processor	1	Waring	WFP16SCD	672	1,181	0.34	Primo	PVC-500	550	966	0.28	18%
	Reach-In Refrigerator, Single	3	Continental	DL1R-S	633	2,858	0.83	TurboAir	M3R19-1-N	288	1,299	0.38	55%
	Drink Dispenser	1	Crathco	D15-3	340	84	0.02	Adcraft	JD-1	278	68	0.02	18%
	Food Slicer	1	Bizerba	GSP HD STD-90	312	548	0.34	Vollrath	SLM300P	300	527	0.15	4%
	Can Opener	1	Edlund	270 NSF	173	312	0.09	Edlund	270 NSF	173	312	0.09	0%
	Water Filter	1	Antunes	VZN-421H-T5	10	2	0.001	Antunes	VZN-421H-T5	10	2	0.001	0%
	TOTALS				189,094	92,293	24.98			140,854	59,204	17.19	
							ISOLATED ENERGY SAVINGS (% kW, % kWh)			35.9%			
							ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)			31.2%			

Building and Instructional Equipment Energy Modeling Methodology

Energy models for the case study schools PS “A” in Brooklyn, IS “B” in Queens, and HS “C” in Queens were used to model the overall building energy effects of replacing current SCA-specified building services and instructional equipment with the proposed alternative equipment recommended by this study. The equipment quantities for each school were identified based on furniture schedules where available or estimated based on SCA Design Requirements.

Two models were compared to analyze the impact of replacing SCA standard building services and instructional equipment with the proposed alternative equipment. The first model, the “Base Case Model”, calculates the energy consumption of the school using current SCA guidelines found in *eQuest Input Summary Guide for Energy Models*. The Base Case Model uses SCA-provided equipment power densities (in W/sf) and default space schedules, which is assumed to represent the most energy-efficient equipment currently specified by SCA.

The second model, the “Alternative Model”, aggregates the equipment savings for each space type that would result from replacing the equipment currently specified for that space with the alternatives recommended by this study. Using this “subtractive approach”, the total savings per space type was calculated and the resultant lower equipment power densities were applied to the model.

Current SCA Building and Instructional Equipment Loads

The table below presents the equipment usage schedule and equipment power density for each space type as defined in the SCA guidelines found in *eQuest Input Summary Guide for Energy Models*. The values in the following table were used as inputs to the Base Case Model.

Space Type	Equipment Schedule	Equipment Power Density (W/sf)
Classroom (1st-12th grade+)	CLASS-EQP-YR	1.52
Classroom (Pre-K & kindergarden)	PREK-EQP-YR	0.06
Office	OFFICE-EQP-YR	0.51
Lobby + Corridor	LOBBY-EQP-YR	0.1
Storage	STORAGE-EQP-YR	1.81
Library (Reading Area)	LIB-EQP-YR	0.5
Music Classroom	MUSIC-EQP-YR	0.29
IDF/MDF	DATA-EQP-YR	26.5
Conference Room	LOUNGE-EQP-YR	1.96
Gymnasium (multiuse assembly)	GYM-EQP-YR	0.25
Cafeteria	CAFÉ-EQP-YR	0.25
Nurse's Office	NURSE-EQP-YR	9.07
Laboratory	SCI-LAB-EQP-YR	6.23
Workshop	SHOP-EQP-YR	7.42
Staff lunch/ lounge	LOUNGE-EQP-YR	1.96
Resource Center/ Workroom	OFFICE-EQP-YR	0.51

Alternative Building and Instructional Equipment Loads

The tables below present the area and equipment power density for each space type in each Case Study school. The values in the following tables were used as inputs to the Alternative Model for each Case Study school. The same equipment usage schedules used in the Base Case Model and defined in the SCA guidelines found in *eQuest Input Summary Guide for Energy Models* are used in the Alternative Model for each Case Study school.

Small PS Building or Addition (PS "C" in Brooklyn)

Space Type	Space Type Area (sf)	"Alternative Case" Equipment Power Density	Equipment Power Density % Decrease
Classroom (1st-12th grade+)	10,087	1.47	3%
Classroom (Pre-K & kindergarten)	4,823	0.03	56%
Office	3,529	0.50	1%
Lobby + Corridor	10,923	0.10	1%
Storage	3,554	1.81	-
Library (Reading Area)	763	0.29	42%
Music Classroom	703	0.06	79%
IDF/MDF	465	26.50	-
Conference Room	419	1.96	-
Gymnasium (multiuse assembly)	4,201	0.15	38%
Cafeteria	1,991	0.17	32%
Nurse's Office	580	9.03	-
Laboratory	0	-	-
Workshop	534	6.77	9%
Staff lunch/ lounge	490	1.11	43%
Resource Center/ Workroom	480	0.17	66%

Medium IS Building or Addition (IS "B" in Queens)

Space Type	Space Type Area (sf)	"Alternative Case" Equipment Power Density	Equipment Power Density % Decrease
Classroom (1st-12th grade+)	25,454	1.45	4%
Classroom (Pre-K & kindergarten)	0	-	-
Office	1,812	0.50	1%
Lobby + Corridor	12,257	0.05	36%
Storage	4,667	1.81	-
Library (Reading Area)	2,116	0.42	12%
Music Classroom	1,290	0.17	57%
IDF/MDF	845	26.50	-
Conference Room	7,400	1.96	-
Gymnasium (multiuse assembly)	6,732	0.25	-
Cafeteria	3,954	0.18	22%
Nurse's Office	464	9.02	3%
Laboratory	2,564	6.07	6%
Workshop	938	7.05	8%
Staff lunch/ lounge	767	1.94	5%
Resource Center/ Workroom	724	0.29	71%

Large HS Building or Addition (HS "C" in Queens)

Space Type	Space Type Area (sf)	"Alternative Case" Equipment Power Density	Equipment Power Density % Decrease
Classroom (1st-12th grade+)	33,482	1.46	4%
Classroom (Pre-K & kindergarden)	0	-	-
Office	5,234	0.51	1%
Lobby + Corridor	18,917	0.06	36%
Storage	3,900	1.81	-
Library (Reading Area)	2,788	0.44	12%
Music Classroom	968	0.12	57%
IDF/MDF	2,501	26.50	-
Conference Room	398	1.96	-
Gymnasium (multiuse assembly)	9,258	0.25	-
Cafeteria	5,300	0.20	22%
Nurse's Office	91	8.83	3%
Laboratory	1,003	5.88	6%
Workshop	571	6.81	8%
Staff lunch/ lounge	402	1.87	5%
Resource Center/ Workroom	444	0.15	71%

Building Services and Instructional Equipment Summary and Comparison

The following summary tables present the current SCA standard building and instructional equipment alongside the proposed alternative equipment identified as part of this study. An overall one-to-one comparison for each equipment type is provided, in addition to summary tables for each of the case study schools.

For each case study school, equipment quantities were determined based on 100% Construction Drawings, and two scenarios were considered: the “current standard” scenario, which assumes that each piece of installed equipment is the current most efficient SCA standard model, and the “alternative” scenario, which assumes that each piece of installed equipment is the alternative model recommended by this study. The resultant total annual energy use (in kWh) and GHG emissions (in MT CO₂e) for the two scenarios, along with total energy savings, are presented below.

In order to determine the annual energy use and GHG emissions for building and instructional equipment, it was necessary to estimate the effective full load hours (EFLH) of operation for each piece of equipment. The DOE Division of School Facilities (DSF) provided an estimated frequency and duration of operation for each equipment category, which was used to extrapolate the EFLH for most equipment based on a 251-day school year. In certain cases, it was appropriate to apply a usage factor to account for sub-peak equipment energy consumption. Where available, usage factors were acquired from the LL31 Feasibility Study. The resultant EFLH values and sources are shown in the following table.

Equipment	Frequency/Duration of Operation	Usage Factor	EFLH	Source
Clock	24 hrs/day	1	8,760	DSF Consultation
Compactor	0 hrs/day	1	95	LL31 Study SCA Consultation
Electric Water Coolers	4 hrs/day	1	1,004	DSF Consultation
Electric Scoreboard	5 hrs/week	1	179	DSF Consultation
Lab Drying Oven	5 hrs/ week	1	179	DSF Consultation
Lab Electric Bunsen Burner / Heater	5 hrs/week	1	179	DSF Consultation
Lab Explosion-Proof Freezer	24 hrs/day	0.41	2,470	DSF Consultation + LL31 Usage Factor
Lab Explosion-Proof Refrigerator	24 hrs/day	0.25	1,506	DSF Consultation + LL31 Usage Factor
Lab Fume Hood	5 hrs/month	1	42	DSF Consultation
Lab Ice Maker	24 hrs/day	0.25	1,506	DSF Consultation + assumed Usage Factor
Lab Mobile Plant Study Center	5 hrs/week	1	179	DSF Consultation
Lab Sterilizer	5 hrs/week	1	179	DSF Consultation
Microwave	2 hrs/day	1	502	DSF Consultation
Interactive Monitor	6 hrs/day	1	1,506	DSF Consultation
Interactive Whiteboard	4 hrs/day	1	1,004	DSF Consultation
Refrigerator - Full-Size and Under Counter	24 hrs/day	0.25	1,506	DSF Consultation + LL31 Usage Factor
Refrigerator - Medical	24 hrs/day	0.25	1,506	DSF Consultation + LL31 Usage Factor
Projector	4 hrs/week	1	143	DSF Consultation
Display Monitor	24 hrs/day	0.5	3,012	DSF Consultation + assumed Usage Factor
Time Recorder	24 hrs/day	1	171	LL31 Study SCA Consultation
Workshop Drill Press	1 hrs/month	1	8	DSF Consultation
Workshop Tool Grinder	1 hrs/month	1	8	DSF Consultation

1:1 COMPARISON

		CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		Manufacturer	Model #	Size	Capacity	Wattage	Manufacturer	Model #	Size	Capacity	Wattage	
BUILDING AND INSTRUCTIONAL EQUIPMENT	Clock	Bogen Engineering Systems	V4.1	12" diameter	--	0.84	Bogen Engineering Systems	V4.1	12" diameter	--	0.84	0%
	Compactor	Compactors Inc.	Trashpacker 4500SS	29x28x78	6 cu ft	1,080	Compactors Inc.	Trashpacker 4500SS	29x28x78	6 cu ft	1,080	0%
	Display Monitor	Alpha-American	Alpha 9670 RGB	70x11x4	1800 Nits	65	BenQ	SL5502K	49x28x3	500 nits	50	23%
	Electric Water Cooler	Elkay	EZS8L	19x19x20	8GPH	370	Hasley Taylor	HVRGRN8	21x21x27	8 GPH	260	30%
	Electric Water Cooler - Bi-Level	Elkay	EZSTL8LC	37x19x26	8 GPH	370	Elkay	VRGCGRNTL8C	37x19x27	8 GPH	260	30%
	Electric Water Cooler - Bottle Filler	Hasley Taylor	HTHB-HAC8WF	18x19x52	8 GPH	260	Hasley Taylor	HTHB-HAC8WF	18x19x52	8 GPH	260	0%
	Electric Scoreboard	NEVCO	2770	8'x6'	--	104	NEVCO	2770	8'x6'	--	104	0%
	Microwave	Cuisinart	CMW-100	21x18x12	1 CF	1,450	Cuisinart	CMW-100	1 CF	1 CF	1,450	0%
	Refrigerator - Medical	LabRep Co.	CliniCool LHP-2-UR-PH	14x9x16	1 CF	104	AccuCold	ARG1PV	22x18x20	1 CF	69	34%
	Time Recorder	Amano	EX-9000	13x11x7	--	30	Amano	BX-1500	8x9x4	--	8	73%
	Workshop Drill Press	Jet	JDP-15B	15"	210 - 3500 RPM	560	Dayton	54ZW29	15"	210 - 3500 RPM	373	33%
	Workshop Tool Grinder	Baldor	7308	21x11x10	1500/1800 RPM	345	Dayton	2LKR5	19x15x10	3450 max	186	46%
	Monitor - Interactive	Promethean	AB6T78	78"	32768x32768	300	Prowise	PW.1.17075.X001	75"	3840x2160	139	54%
	Monitor - Whiteboard	SMART Board	MX275-V2	69x42x5	75"	114	SMART Board	MX275-V2	69x42x5	75"	114	0%
	Lab Drying Oven	Binder	ED 56	23x25x23	2 cu ft	1,050	Binder	ED 56	23x25x23	2 cu ft	1,050	0%
	Lab Electric Bunsen Burner	Lab-Aids	Control Point Heater	--	150C	60	Lab-Aids	Control Point Heater	--	150C	60	0%
	Lab Explosion-Proof Freezer	Thermo Scientific	05EFEETSA	34x22x31	5 cf	127	Thermo Scientific	05EFEETSA	34x22x31	5 cf	127	0%
	Lab Explosion-Proof Refrigerator	Thermo Scientific	20EREETSA	33x34x74	20.9 cf	575	Liebherr	LRBF520W1HC	30x29x65	20 cf	345	40%
	Lab Fume Hood	Erlab	Captair Flex XLS 392	40x27x41	--	105	Air Science USE	PURAIR10-XT	30x28x53	--	37	65%
	Lab Ice Maker	Scotsman	CU1526A	27x28x33	150 lbs/day	1,323	Manitowoc	URF-0140A	26x29x33	137 lbs/day	575	57%
	Lab Mobile Plant Study Center	Grower's Supply	B3B-PKG2	74x53x20	2 shelves	240	Gardeners Supply Company	LED SunLite 3-Tier Garden	69x51x15	3 shelves	120	50%
	Lab Sterilizer	All American	25X	17x13x13	25 qt / 23.6 L	1050	Revolutionary Science	RS-SC-200L	16x13.5x21	10.6 qt / 10 L	700	33%
	Projector	Epson	G6770WUNL WUXGA 3LCD	20x16x6	1920x1200	528	Panasonic	PT-JW130	17x14x13	1280x800	125	76%

Small PS Comparison (PS "A" in Brooklyn)

59,439 GSF		#	CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
406 students			Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	% kW
BUILDING AND INSTRUCTIONAL EQUIPMENT	Clock	42	Bogen Engineering Systems	V4.1	1	309	0.089	Bogen Engineering Systems	V4.1	1	309	0.089	0%
	Compactor	1	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	0%
	Electric Water Cooler	5	Elkay	EZS8L	370	1,857	0.537	Hasley Taylor	HVRGRN8	260	1,305	0.377	30%
	Electric Water Cooler - Bi-Level	4	Elkay	EZSTL8LC	370	1,486	0.429	Elkay	VRGCGRNTL8C	260	1,044	0.302	30%
	Electric Water Cooler - Bottle Filler	6	Hasley Taylor	HTHB-HAC8WF	260	1,566	0.453	Hasley Taylor	HTHB-HAC8WF	260	1,566	0.453	0%
	Microwave	1	Cuisinart	CMW-100	1,450	728	0.210	Cuisinart	CMW-100	1,450	728	0.210	0%
	Refrigerator - Medical	1	LabRep Co.	CliniCool LHP-2-UR-PH	104	157	0.045	AccuCold	ARG1PV	69	104	0.030	34%
	Time Recorder	2	Amano	EX-9000	30	10	0.003	Amano	BX-1500	8	3	0.001	73%
	Workshop Drill Press	1	Jet	JDP-15B	560	4	0.001	Dayton	54ZW29	373	3	0.001	33%
	Workshop Tool Grinder	1	Baldor	7308	345	3	0.001	Dayton	2LKR5	186	1	0.000	46%
	Monitor - Interactive	9	Promethean	AB6T78	300	2,487	0.719	Prowise	PW.1.17075.X001	139	1,152	0.333	54%
	Projector	2	Epson	G6770WUNL WUXGA 3LCD	528	151	0.044	Panasonic	PT-JW130	125	36	0.010	76%
	TOTALS					12,280	10,385	3.00			8,611	7,878	2.28
								ISOLATED ENERGY SAVINGS (% kW, % kWh)					24.1%
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)					24.1%

Medium IS Comparison (IS “B” in Queens)

76,151 GSF 725 students			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		#	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	% kW
BUILDING AND INSTRUCTIONAL EQUIPMENT	Clock	71	Bogen Engineering Systems	V4.1	1	522	0.151	Bogen Engineering Systems	V4.1	1	522	0.151	0%
	Compactor	1	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	0%
	Electric Water Cooler	2	Elkay	EZS8L	370	743	0.215	Hasley Taylor	HVRGRN8	260	522	0.151	30%
	Electric Water Cooler - Bi-Level	6	Elkay	EZSTL8LC	370	2,229	0.644	Elkay	VRGCGRNTL8C	260	1,566	0.453	30%
	Electric Scoreboard	1	NEVCO	2770	104	19	0.005	NEVCO	2770	104	19	0.005	0%
	Microwave	1	Cuisinart	CMW-100	1,450	728	0.210	Cuisinart	CMW-100	1,450	728	0.210	0%
	Refrigerator - Under Counter	1	Varies	-	37	56	0.016	Varies	-	23	35	0.010	38%
	Refrigerator - Medical	1	LabRep Co.	CliniCool LHP-2-UR-PH	104	157	0.045	AccuCold	ARG1PV	69	104	0.030	34%
	Time Recorder	1	Amano	EX-9000	30	5	0.001	Amano	BX-1500	8	1	0.000	73%
	Workshop Drill Press	1	Jet	JDP-15B	560	4	0.001	Dayton	54ZW29	373	3	0.001	33%
	Workshop Tool Grinder	1	Baldor	7308	345	3	0.001	Dayton	2LKR5	186	1	0.000	46%
	Monitor - Interactive	34	Promethean	AB6T78	300	9,394	2.715	Prowise	PW.1.17075.X001	139	4,353	1.258	54%
	Lab Drying Oven	1	Binder	ED 56	1,050	188	0.054	Binder	ED 56	1,050	188	0.054	0%
	Lab Electric Bunsen Burner	3	Lab-Aids	Control Point Heater	60	32	0.009	Lab-Aids	Control Point Heater	60	32	0.009	0%
	Lab Explosion-Proof Refrigerator	2	Thermo Scientific	20EREETSA	575	1,732	0.500	Liebherr	LRBFS20W1HC	345	1,039	0.300	40%
	Lab Fume Hood	4	Erlab	Captair Flex XLS 392	105	18	0.005	Air Science USE	PURAIR10-XT	37	6	0.002	65%
	Lab Mobile Plant Study Center	1	Grower's Supply	B3B-PKG2	240	43	0.012	Gardeners Supply Company	LED SunLite 3-Tier Garden	120	21	0.006	50%
	Lab Sterilizer	1	All American	25X	1,050	188	0.054	Revolutionary Science	RS-SC-200L	700	125	0.036	33%
	TOTALS				21,020	17,687	5.11			13,047	10,893	3.15	
								ISOLATED ENERGY SAVINGS (% kW, % kWh)					
							ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)						38.4%

Large HS Comparison (HS “C” in Queens)

110,142 GSF 1,009 students			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS	
		#	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	% kW	
BUILDING AND INSTRUCTIONAL EQUIPMENT	Clock	111	Bogen Engineering Systems	V4.1	1	817	0.236	Bogen Engineering Systems	V4.1	1	817	0.236	0%	
	Compactor	1	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	0%	
	Electric Water Cooler	4	Elkay	EZS8L	370	1,486	0.429	Hasley Taylor	HVRGRN8	260	1,044	0.302	30%	
	Electric Water Cooler - Bi-Level	3	Elkay	EZSTL8LC	370	1,114	0.322	Elkay	VRGCGRNTL8C	260	783	0.226	30%	
	Electric Water Cooler - Bottle Filler	2	Hasley Taylor	HTHB-HAC8WF	260	522	0.151	Hasley Taylor	HTHB-HAC8WF	260	522	0.151	0%	
	Electric Scoreboard	1	NEVCO	2770	104	19	0.005	NEVCO	2770	104	19	0.005	0%	
	Microwave	1	Cuisinart	CMW-100	1,450	728	0.210	Cuisinart	CMW-100	1,450	728	0.210	0%	
	Refrigerator - Medical	1	LabRep Co.	CliniCool LHP-2-UR-PH	104	157	0.045	AccuCold	ARG1PV	69	104	0.030	34%	
	Time Recorder	2	Amano	EX-9000	30	10	0.003	Amano	BX-1500	8	3	0.001	73%	
	Workshop Drill Press	1	Jet	JDP-15B	560	4	0.001	Dayton	54ZW29	373	3	0.001	33%	
	Workshop Tool Grinder	1	Baldor	7308	345	3	0.001	Dayton	2LKR5	186	1	0.000	46%	
	Monitor - Interactive	36	Promethean	AB6T78	300	9,947	2.874	Prowise	PW.1.17075.X001	139	4,609	1.332	54%	
	Lab Drying Oven	2	Binder	ED 56	1,050	376	0.109	Binder	ED 56	1,050	376	0.109	0%	
	Lab Electric Bunsen Burner	39	Lab-Aids	Control Point Heater	60	419	0.121	Lab-Aids	Control Point Heater	60	419	0.121	0%	
	Lab Explosion-Proof Freezer	1	Thermo Scientific	05EFEETSA	127	312	0.090	Thermo Scientific	05EFEETSA	127	312	0.090	0%	
	Lab Explosion-Proof Refrigerator	2	Thermo Scientific	20EREETSA	575	1,732	0.500	Liebherr	LRBFS20W1HC	345	1,039	0.300	40%	
	Lab Fume Hood	7	Erlab	Captair Flex XLS 392	105	31	0.009	Air Science USE	PURAIR10-XT	37	11	0.003	65%	
	Lab Ice Maker	2	Scotsman	CU1526A	1,323	3,983	1.151	Manitowoc	URF-0140A	575	1,732	0.500	57%	
	Lab Mobile Plant Study Center	2	Grower's Supply	B3B-PKG2	240	86	0.025	Gardeners Supply Company	LED SunLite 3-Tier Garden	120	43	0.012	50%	
	Lab Sterilizer	2	All American	25X	1,050	376	0.109	Revolutionary Science	RS-SC-200L	700	251	0.072	33%	
Projector	1	Epson	G6770WUNL WUXGA 3LCD	528	76	0.022	Panasonic	PT-JW130	125	18	0.005	76%		
TOTALS					29,911	23,824	6.88			19,146	14,460	4.18		
								ISOLATED ENERGY SAVINGS (% kW, % kWh)						39.3%
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)						39.3%

Energy Model Results

Energy Model Output Tables

Energy models for the case study schools PS “A” in Brooklyn, IS “B” in Queens, and HS “C” in Queens were used to model the overall building energy effects of replacing current SCA-specified building services, instructional, and kitchen equipment with the proposed alternative equipment identified in this study. The following output tables present the results of three eQuest model runs representing each case study school under three distinct “Alternative Model” scenarios:

- A. Current SCA standard kitchen equipment is replaced with proposed alternatives;
- B. Current SCA standard building services and instructional equipment is replaced with proposed alternatives; and
- C. Current SCA standard building services, instructional, and kitchen equipment is replaced with proposed alternatives.

The three Alternative Model runs were further compared to the existing energy model for each case study school, i.e. the “Base Case Model” which shows the energy consumption of the school using current SCA guidelines found in *eQuest Summary for Energy Models*, and percent savings were calculated for each energy use category.

The tables also include several additional parameters including GHG emissions, peak energy demand, site energy, source energy, and source EUI. The tables below do not show the results of Scenario B because the building-wide impacts of the alternative building services and instructional equipment alone was relatively insignificant. Complete tables are provided in Appendix G.

PS "A" in Brooklyn Energy Model Output

	Energy Savings			
	Current SCA Standard All Equipment	Proposed Alternatives Kitchen Equipment Only		Proposed Alternatives All Equipment
	kWh	kWh	Savings	kWh Savings
Interior Lighting	46,988	46,988	0.00%	46,988 0.00%
Misc Equipment	90,401	90,401	0.00%	87,895 2.77%
Misc Kitchen	36,655	20,168	44.98%	20,168 44.98%
Misc Source	1,176	747	36.48%	747 36.48%
Heating	85,247	85,401	-0.18%	86,039 -0.93%
Cooling	65,852	65,785	0.10%	65,545 0.47%
Pumps	3,475	3,474	0.03%	3,476 -0.03%
Ventilation	68,815	68,814	0.00%	68,778 0.05%
DHW	27,349	27,349	0.00%	27,349 0.00%
Exterior Lighting	3,507	3,507	0.00%	3,507 0.00%
TOTAL CONSUMPTION	429,465	412,634	3.92%	410,492 4.42%
Total Equipment	128,232	111,316	13.2%	108,810 15.1%
Sum of Peak Monthly kW	3,330	3,265	1.9%	3,260 2.1%
Source EUI (kBtu/sf/yr)	65.0	62.0	4.6%	61.7 5.1%
GHG Emissions (MT CO2e/yr)	124	119	3.9%	119 4.4%

IS "B" in Queens Energy Model Output

	Energy Savings									
	Current SCA Standard All Equipment		Proposed Alternatives Kitchen Equipment Only				Proposed Alternatives All Equipment			
	kWh	therms	kWh	Savings	therms	Savings	kWh	Savings	therms	Savings
Interior Lighting	63,183		63,183	0.00%			63,183	0.00%		
Misc Equipment	212,263		212,263	0.00%			204,553	3.63%		
Misc Kitchen	55,533		29,089	47.62%			29,089	47.62%		
Misc Source	28,273		25,553	9.62%			25,553	9.62%		
Heating	189	1,473	190	-0.53%	1,570	-6.59%	190	-0.53%	1,624	-10.25%
Cooling	104,915		104,865	0.05%			104,386	0.50%		
Pumps	12,318		12,326	-0.06%			12,345	-0.22%		
Ventilation	83,712		83,713	0.00%			83,098	0.73%		
DHW		4,057			4,057	0.00%			4,057	0.00%
Exterior Lighting	3,680		3,680	0.00%			3,680	0.00%		
TOTAL CONSUMPTION	564,066	5,530	534,862	5.2%	5,627	-1.8%	526,077	6.7%	5,681	-2.7%
Total Equipment	296,069		266,905	9.9%			259,195	12.5%		
Sum of Peak Monthly kW	3,041		2,937		3.4%		2,887		5.0%	
Source EUI (kBtu/sf/yr)	67.5		64.5		4.4%		63.6		5.8%	
GHG Emissions (MT CO2e/yr)	163		155		5.2%		152		6.7%	

HS "C" in Queens Energy Model Output

	Energy Savings									
	Current SCA Standard All Equipment		Proposed Alternatives Kitchen Equipment Only				Proposed Alternatives All Equipment			
	kWh	therms	kWh	Savings	therms	Savings	kWh	Savings	therms	Savings
Interior Lighting	123,848		123,848	0.00%			123,848	0.00%		
Misc Equipment	186,497		186,497	0.00%			185,210	0.69%		
Misc Kitchen	69,839		42,905	38.57%			42,905	38.57%		
Misc Source	30,440		22,756	25.24%			22,756	25.24%		
Heating	7,064	10,317	7,109	-0.64%	10,318	-0.01%	7,112	-0.68%	10,334	-0.16%
Cooling	237,957		236,033	0.81%			235,935	0.85%		
Pumps	25,388		25,256	0.52%			25,252	0.54%		
Ventilation	218,196		217,532	0.30%			217,498	0.32%		
DHW		2,877			2,877	0.00%			2,877	0.00%
Exterior Lighting	0		0				0			
TOTAL CONSUMPTION	899,229	13,194	861,936	4.1%	13,195	-0.01%	860,516	4.3%	13,211	-0.13%
Total Equipment	286,776		252,158	12.1%			250,871	12.5%		
Sum of Peak Monthly kW	3,996		3,879		2.9%		3,872		3.1%	
Source EUI (kBtu/sf/yr)	82.9		79.9		3.6%		79.8		3.7%	
GHG Emissions (MT CO2e/yr)	260		249		4.1%		249		4.3%	

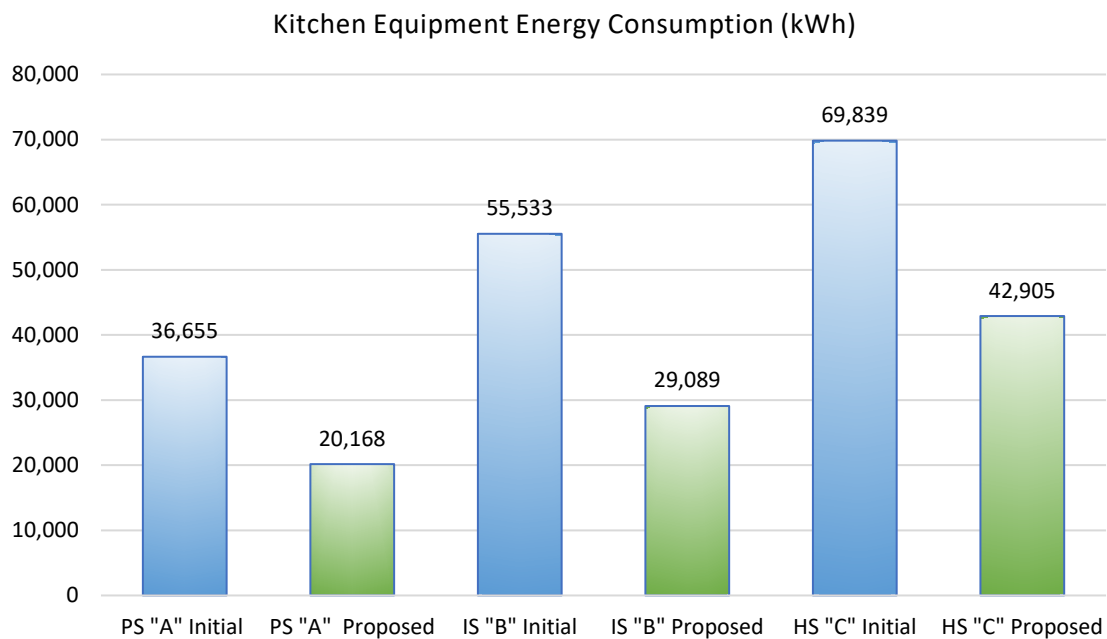
Annual Kitchen Energy Use

All energy models following SCA's *eQuest How-to Guide for Energy Models* are required to separately track cooking equipment and non-cooking equipment in kitchens. These categories are referred to as source loads and equipment loads, respectively.

Total kitchen energy use generally ranges from 5-15% of total building energy use. Kitchen source loads and equipment loads generally range from 0.2-5% and 5-10% of total building energy use, respectively. While kitchens only comprise roughly 7% of total building energy use on average, they are the most energy-intensive spaces in a school, which is why they have a much higher EUI than other spaces.

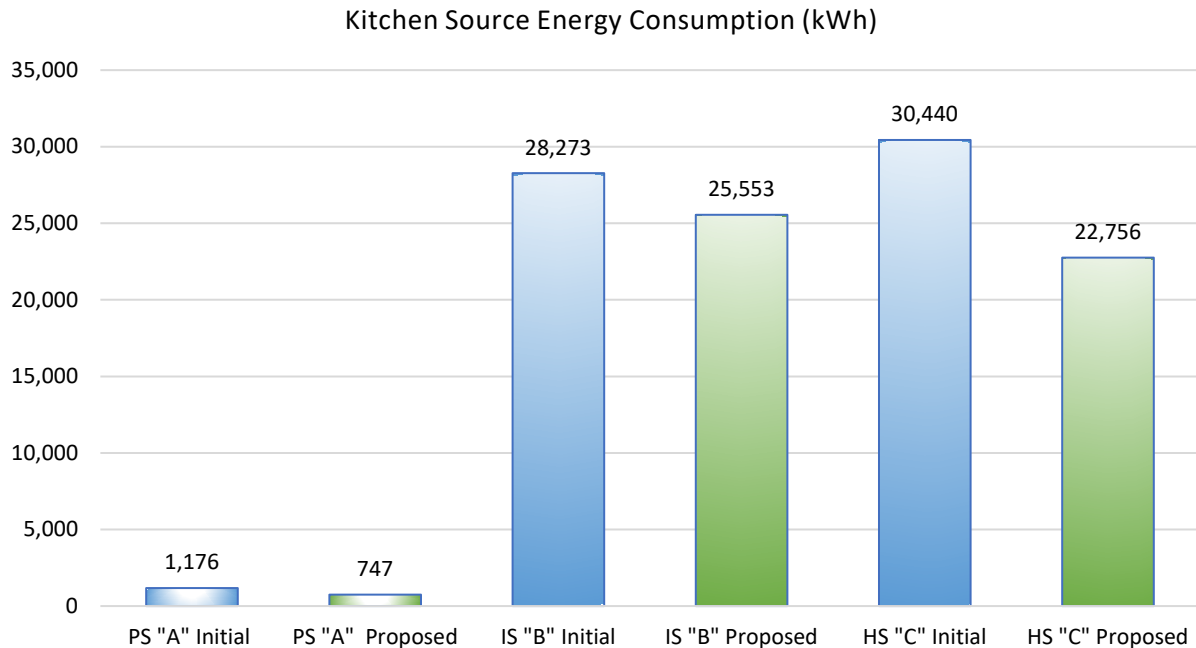
Annual Kitchen Equipment Energy Use

The total energy consumption of kitchen equipment not used for cooking decreased by 45% in PS "A" in Brooklyn, 48% in IS "B" in Queens, and 39% in HS "C" in Queens. The following graph shows the initial and proposed kitchen equipment energy use for these three schools.



Annual Kitchen Source Energy Use

The total energy consumption of kitchen cooking equipment decreased by 36% in PS "A" in Brooklyn, 10% in IS "B" in Queens, and 25% in HS "C" in Queens. The following graph shows the initial and proposed kitchen source energy use for these three schools. In all three case study schools, kitchen source energy savings were lower than kitchen equipment energy savings.

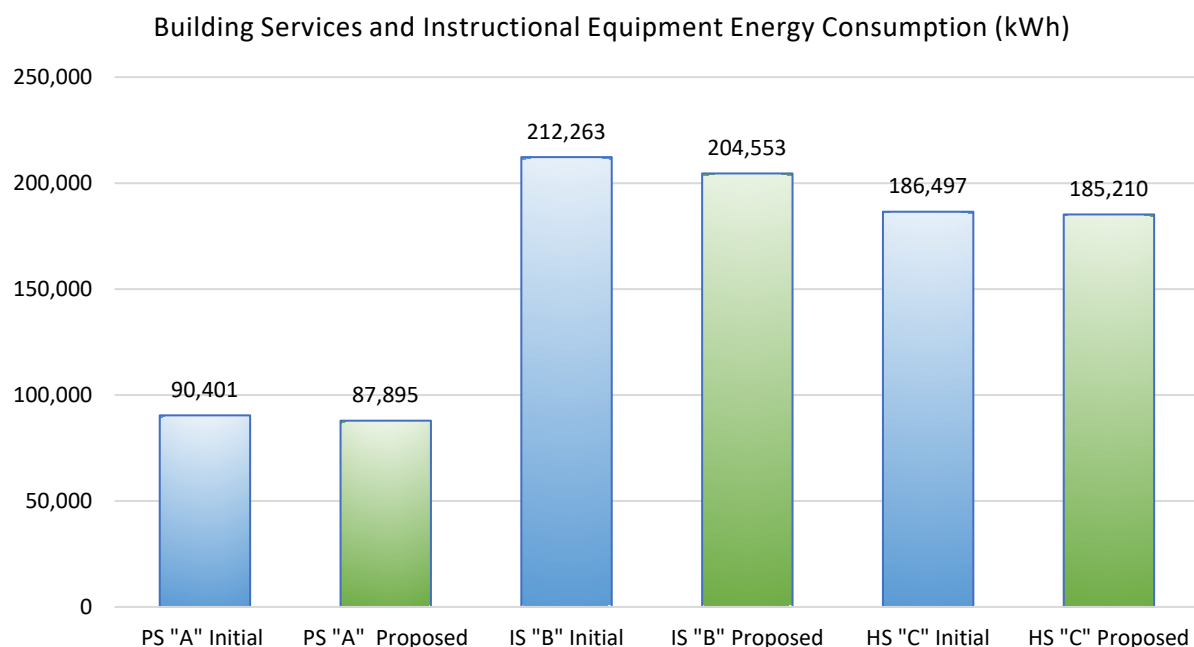


The source energy consumption in IS “B” in Queens and HS “C” in Queens is significantly higher than the source energy consumption in PS “A” in Brooklyn, which has only a warming kitchen. IS “B” in Queens and HS “C” in Queens have significantly more cooking equipment including the energy-consuming combi ovens, which PS “A” in Brooklyn does not have.

Annual Building Services and Instructional Equipment Energy Use

The total building services and instructional equipment energy consumption decreased by 2.8% in PS “A” in Brooklyn, 3.6% in IS “B” in Queens, and 0.7% in HS “C” in Queens. The following graph shows the initial and proposed non-kitchen equipment energy use for these three schools.

In general, the energy savings for building services and instructional equipment were far lower than those for kitchen equipment. However, it should be noted that the building services and instructional equipment category encompasses networked equipment and sound system equipment which are excluded from the scope of this study. The potential energy savings for this category are higher than the figures suggested by this study.



Building-Wide Heating and Cooling Load

The heating and cooling load were not significantly affected by the kitchen, building services, and instructional equipment changes. The heating penalty and cooling savings from the initial to the proposed models is less than one percent for PS “A” in Brooklyn and HS “C” in Queens. These values are negligible and are within the margin of error for the purposes of this study.

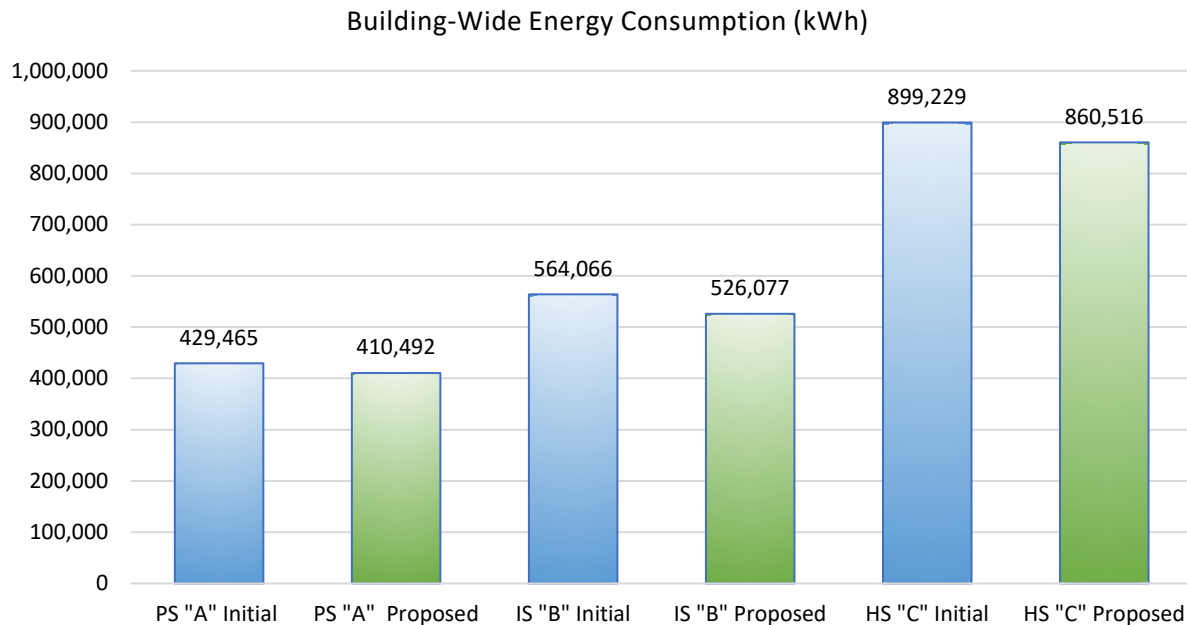
The heating penalty for IS “B” in Queens was significantly higher, at 6.59% for proposed alternative kitchen equipment and 10.25% for all proposed alternative equipment. It is assumed that the anomalous heating penalty can be attributed to the fact that an earlier SCA energy modeling protocol was used to develop the model for IS “B” in Queens. The current (as of 2021) SCA energy modeling protocol used for PS “A” in Brooklyn and HS “C” in Queens provides a more accurate estimate of heating and cooling loads, and the actual heating penalty for IS “B” in Queens is likely to be significantly lower than predicted by the model.

Building-Wide Ventilation

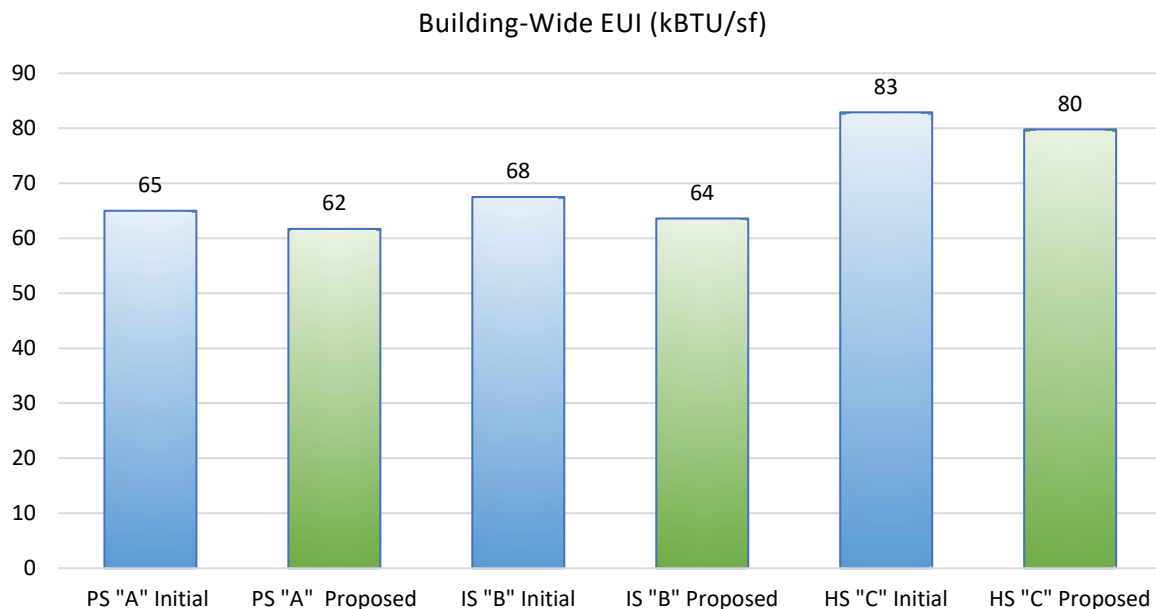
There was no significant impact on ventilation due to kitchen, building services, and instructional equipment changes. The ventilation savings to the proposed models is less than one percent for all schools considered in this study. These values are negligible and are within the margin of error for the purposes of this study.

Annual Building-Wide Energy Use and EUI

The building-wide total energy consumption from the initial to proposed models decreased by 4% in PS “A” in Brooklyn, 7% in IS “B” in Queens, and 4% in HS “C” in Queens. The following graph shows the total energy consumption of these three schools.

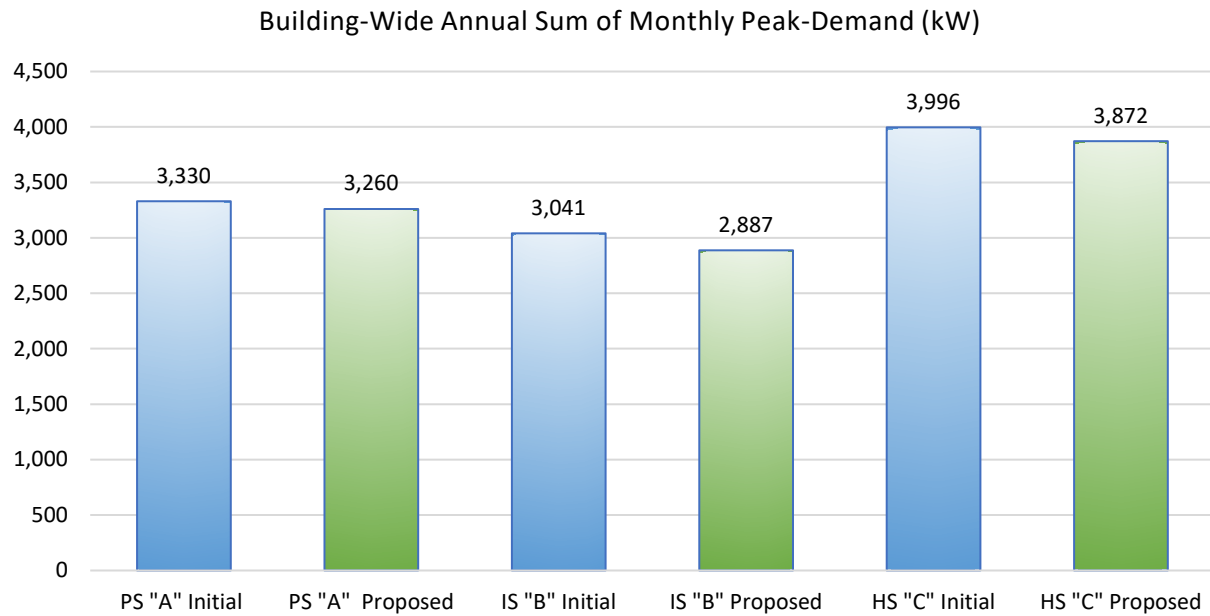


The building-wide source EUI for each school decreased by 3.3 kBTU/sf/yr in PS “A” in Brooklyn, 3.9 in IS “B” in Queens , and 3.1 in HS “C” in Queens when comparing the initial model to the proposed. The source EUI for each school is shown below.



Annual Building-Wide Peak Demand

The annual sum of building-wide peak monthly energy demand from the initial to proposed models decreased by 2.1% in PS “A” in Brooklyn, 5.0% in IS “B” in Queens, and 3.1% in HS “C” in Queens. The following graph shows the building-wide annual peak monthly energy demand of these three schools.



Appendix A. Other Equipment Investigated

The following pages describe the existing SCA standards for kitchen, building services, and instructional equipment for which the SCA already specifies the most efficient model (i.e., a more efficient alternative that meets SCA/DOE requirements could not be found). For each type of equipment, the following information is provided:

- Typical location and quantity per school
- Key parameters, taken from either the latest SCA standard specifications or, in the absence of such specification, from the equipment make and model typically installed in capacity projects
- Explanation of recent changes to the SCA standard specifications or planning considerations for the equipment type, if any
- Manufacturer, model, price, capacity, and peak energy demand of all models listed in the SCA standard specifications, including identification of the most energy-efficient SCA standard model currently available and an indication of whether the model has been discontinued
- Table with key characteristics of the most energy-efficient SCA standard model currently available (or the replacement for any discontinued model), including the peak energy demand savings
- Recommendations and considerations for potential changes to the SCA standard specifications

Equipment types are listed alphabetically within each category.

Kitchen Equipment

Can Opener

Kitchen Equipment – Small



Edlund 270 NSF
Current SCA Spec

Found in all kitchens and freestanding, typically a **single unit per school**. Critical specifications include:

- Electric
- Easy glide bar mounting
- 200 cans per day
- Size: 7"x12"x10"

The most energy-efficient currently available SCA standard is the **Edlund 270 NSF** or equal, with a maximum demand of **173 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **No energy saving alternates were found**

CAN OPENER	
	CURRENT
Manufacturer	Edlund
Model	270 NSF
Fuel Source	Electric
Size (Ext)	7x12x10
Capacity	200 cans per day
Volts	115
Amps	1.5
Btu/hr	589
Watts	173
CO2e (MT)	0.09
EnergyStar	N

Recommendations: The current SCA model appears to be the most efficient available.

SCA Current Specifications
Section 11400

ELECTRIC CAN OPENER

- A. Heavy duty electric can opener mounted on the table with the electric outlet rated for the unit. Stainless steel housing; single handle operation; removable and replaceable stainless steel blade and gears. Provide with manufacturers standard finishes and features, and the additional specified requirements. UL listed; NSF Certified.
- B. Electrical Requirement: 115V, 60HZ, 1.2 amps, single phase with 3 wire grounding cord and plug to match receptacle.
- C. Provide Smallwares as specified in the Smallwares Schedule.

Manufacturer: Subject to compliance with specifications:

Edlund Company

Model No. 270

Combination Oven

Kitchen Equipment – Large



Alto Shaam Combitherm CTP7-20E
Previous SCA Spec



Convotherm C4eT 6.20 ES
Current SCA Spec

Found in all kitchens, freestanding. Typical quantities are **2 sets of double stacked units per school** (single units shown above). Critical specifications include:

- Boilerless steam injection
- Minimum 10 full size (18"x26") sheet pan capacity (total for double stack)
- Three operating modes: steam, convection, combination
- Multipane glass window doors
- Multispeed fan
- Humidity control with multiple settings
- Automated cleaning cycle
- Digital controls with touchscreen display
- USB port, HAACP data recording

Note: Electric combi ovens have replaced gas and electric convection ovens as well as gas and electric tilt skillets in SCA capacity projects. The SCA specifications no longer include convection ovens or tilt skillets.

The most energy-efficient currently available SCA standard is a double stack of electric **Convotherm C4eT 6.20 ES**, with a combined maximum demand of **31,800 W**. Other models in the current SCA specification include:

- **Alto Shaam Combitherm CTP7-20E, 33,000 W**
- **Angelo Po FX82E3T, 39,600 W**
- **Blodgett BLCT-62E, 42,000 W**
- **Blodgett BX-14E, 38,000 W**
- **Electrolux 269371 (discontinued), 42,000 W**

Potential alternatives identified for this study include:

- **No energy saving alternatives were identified.**

Until recently, the Alto Shaam Combitherm CTP7-20E was the most energy-efficient model included in the SCA specifications, but during the course of research for this study, SCA released a new specification which includes the Convotherm C4eT 6.20 ES. As such, the energy saving associated with replacing the Alto Shaam Combitherm CTP7-20E with the “new standard” Convotherm C4eT 6.20 ES are included in the energy modeling results discussed later in this report because the Convotherm C4eT 6.20 ES has not been specified for previous projects.

It was difficult to find more energy-efficient models than the current SCA standard while also meeting SCA specification requirements. Manufacturers investigated included AccuTemp, Alto-Shaam, Angelo-Po, Convotherm, EKA, Electrolux, Henny Penny, Lainox, MKN, Rational, Retigo, and Unox. The following limitations were encountered:

- Some manufacturers only offer combi ovens with boilers, which require softened water and more maintenance than boilerless models.
- Some manufacturers only offer combi ovens that accommodate half-size sheet pans.
- Most models that accommodate full size sheet pans have capacities of 6, 10, or 20 pans. Few models have a capacity of 8 full size pans per oven.
- Most models that accommodate 6 full size pans per oven have electric demand higher than that of the current SCA standard model which accommodates 7 full size pans.

Pros: The most energy-efficient electric current SCA standard offers energy demand **savings of 55,068 BTU/Hr or 34%** per double stacked unit compared to the most energy-efficient gas model currently installed.

- The current SCA standard is all-electric.

Cons: The most efficient SCA specified model has capacity to accommodate 14 sheet pans, as opposed to the 16 pan capacity of the previously specified model.

COMBINATION OVEN			
	PREVIOUS (GAS)	PREVIOUS (ELECTRIC)	NEW STANDARD
Manufacturer	Blodgett	Alto Shaam	Convotherm
Model	BLCT-62-62G	CTP7-20E	C4eT 6.20 ES-N
Fuel Source	Natural Gas	Electric	Electric
Size (Ext)	44x38x70	45x47x75	44x39x66
Capacity	(20) Full Sheet Pans	(16) Full Sheet Pans	(14) Full Sheet Pans
Temp	575F	85F - 575F	86F - 482F
Volts	115	208	208
Amps	18.0	45.7	44.1
Heat Gain (Btu/hr)	-	2,610	6,200
Btu/hr (*Equiv.)	163,600	*112,628	*108,532
Gas Equiv. Savings	-	-	55,068
Gas Equiv. Savings %	-	-	34%
Watts	-	33,000	31,800
Savings	-	-	1,200
Savings %	-	-	4%
CO2e (MT)	1.30	1.44	1.38
Savings	-	-	-0.08
Savings %	-	-	-16%
EnergyStar	N	Y	Y

Recommendations: The current SCA model appears to be the most efficient available.

The table below shows the energy and carbon impacts of replacing an existing school's gas convection oven and gas tilt skillet with an electric combination oven. A school that pursues this upgrade will be up to date with the standards of newly constructed SCA schools.

CONVECTION OVEN/TILT SKILLET vs COMBI OVEN			
	CURRENT	CURRENT	ALTERNATIVE 1
	CONVECTION OVEN	TILT SKILLET	COMBI OVEN
Manufacturer	Garland	Groen	Convotherm
Model	MCO-GS-20	VG30	C4eT 6.20 ES-N
Fuel Source	Natural Gas	Natural Gas	Electric
Size (Ext)	29x24x24	36x36x70	44x39x66
Capacity	(12) Full Sheet Pans	12" Pan	(14) Full Sheet Pans
Temp	150F	50F-450F	86F-482F
HP	3/4	N/A	-
Volts	N/A	N/A	208
Amps	N/A	N/A	44.1
Energy Input (Btu/hr)	120,000	90,000	108,532
Gas Equiv. Savings	-	-	101,468
Gas Equiv. Savings %	-	-	48%
Watts	N/A	N/A	31,800
CO2e (MT)	0.8	0.2	1.1
CO2e Savings	-	-	-0.1
CO2e % Savings	-	-	-10%
Source	AQ	Web	Web

SCA Current Specifications
Section 11400

Combi Oven (Combination Oven/Steamer Unit)

1. Provide electric double deck boilerless combination oven/steamer unit (Combi Oven). Combi Oven unit shall comply with the Heated Equipment General Requirement.
2. Stainless steel exterior and seamless stainless steel interior cooking cavity. Each Combi Oven deck shall have a minimum capacity of six (6) 18" x 26" standard full-size sheet pans. Double thermo glazed doors with cool to touch door handle. Interior lights in each deck. Stainless steel legs. Stacking kit.
3. Unit shall be capable of cooking utilizing hot air, steam, or a combination of both hot air and steam simultaneously. Unit shall be capable of producing steam without the use of a boiler (boilerless, boiler-free). Steam shall be produced by means of water injection onto the heating element. Heat and humidity shall be circulated throughout the cooking cavity by an auto reversing fan with multiple speeds. Electric interlock system shall be provided to shut off blower motor and power supply to the oven when the oven doors are opened during operation.
4. Temperature, humidity level, and unit functions shall be controlled from a touchscreen display control panel located on the front of the unit. User interface shall have display icons that are easy to use and identify. Control features shall include multiple cooking modes, temperature control, humidity level control, cool down, automatic cleaning function, recipe programming with multiple steps, troubleshooting, and alert notifications. Controls shall be provided with a USB port for data and recipe transfer. Provide HACCP data recording and access capabilities.
5. Built-in fully automatic cleaning system with multiple modes. External spray hose for manual cleaning.
6. External core temperature probe with multiple measuring points shall be provided for each deck for food product temperature readings during the cooking process.
7. The water supplied to the unit for the steam production function shall be filtered.

8. Water supplied to combi oven shall be provided with vacuum breaker and check valve downstream of vacuum breaker. All exposed piping shall be chrome plated.
9. Electrical Requirements: 208V, 60HZ, 3ph 58 A.
Circuit Breaker required.

Manufacturer: Subject to compliance with specifications:

Angelo Po	Model FX82E3T/FX82E3T
Alto-Shaam	Model CTP7-20E/CTP7-20E
Blodgett	Model BLCT-62-62E
Convotherm	Model C4eT6.20ES/C4eT6.20ES
Electrolux	Model 266371/266371

Food Mixer

Kitchen Equipment – Small



Globe SP20
Current SCA Spec

Note: The study was informed that new schools are no longer using this item.

Found in most kitchens; freestanding, bolted to a utility work table or dedicated mixer table. Typically a **single unit per school**. Critical specifications include:

- 20 quart capacity
- Gear driven, permanently lubricated transmission
- Heat treated hardened steel construction
- Thermal overload protection
- Hand-crank or hand-lever bowl lift with safety interlock
- Heavy duty stainless steel wire bowl guard with safety interlock
- 15-minute timer
- Size: 19"x20"x35"

The most energy-efficient currently available SCA standard is a **Globe SP20** or equal, with a maximum demand of **690 W**. Other models in the specifications include:

- **Blakeslee B20-CA**, 20 quarts, **1,176 W**
- **Hobart HL200**, 20 quarts, **1,200 W**
- **Univex SRM20**, 20 quarts, **1,219 W**
- **Varimixer W20A**, 20 quarts, **1,380 W**

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

FOOD MIXER	
	CURRENT
Manufacturer	Globe
Model	SP20
Fuel Source	Electricity
Size (Ext)	19x20x35
Motor HP	1/2
Volts	115
Amps	6.0
Watts	690
Savings	-
CO2e (MT)	0.1
EnergyStar	N

Recommendations: The current SCA model appears to be the most efficient available.

SCA Current Specifications

Section 11400

Mixer, Table Type - 20 Quarts

1. The mixers shall be complete with all the listed accessories and installed on the mixer table. Mixers shall be secured to table top with stainless steel bolts or screws as per manufacturer's written instructions.
2. Heavy-duty planetary mixers with standard finish, equipment and the additional specified requirements. Transmission: gear driven; permanently lubricated.
3. Heavy-duty stainless steel wire bowl guard. Front portion of guard shall rotate easily to add ingredients and to install or remove agitator. Front portion shall also be easily removable with quick disconnects for cleaning in sink. Rear portion of guard can be cleaned in position. Guard shall be in closed position before mixer will operate. Safety interlock prevents operation when guard and bowl are out of position.
4. Bowl Lift: Hand lever or hand crank operated shall raise or lower the bowl as well as automatically locking in place at the

top and bottom positions; self-locking in top and bottom position.

5. Safety Interlocks: The bowl guard and bowl lift lever or crank shall be interlocked. The mixer shall automatically shut down when the guard is opened or the bowl is lowered.
6. Provide Smallwares as specified in the Smallwares Schedule.
7. Electric Requirements: 1 HP with load protection and magnetic starter switch, 120 volt, single phase. Provide a six (6) ft. heavy duty 3-wire line cord with plug to match receptacle.
8. Controls: "Start-Stop" push buttons and 15-minute timer.

Manufacturer: Subject to compliance with specifications:

Hobart	Model HL200
Blakeslee	Model B20-CA
Varimixer	Model W20A
Univex	Model SRM20
Globe Food Equipment Co.	Model SP20

Globe Food Equipment Co. Model SP20 shall be provided with removable bowl guard.

Power Washer

Kitchen Equipment – Large



Sage Systems SM-06-01-07R-75
Current SCA Spec

Note: The study was informed that new schools are no longer using this item.

Found in all kitchens; freestanding. Typically a **single unit per school**. Critical specifications include:

- 2.9 GPM capacity
- Stainless steel cart, handle, and structure
- Commercial electric motor with manual reset thermal overload protection
- High pressure hose with ergonomic spray gun
- Size: 23"x31"x40"

The most energy-efficient currently available SCA standard is the **Sage Systems SM-06-01-07R-75** or equal, with a maximum demand of **1,380 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

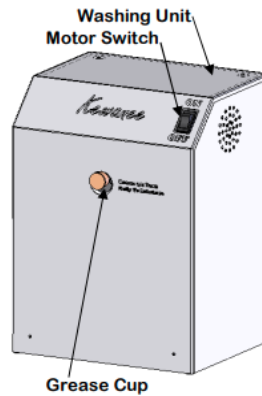
POWER WASHER	
	CURRENT
Manufacturer	Sage Systems
Model	SM-06-01-07R-75
Fuel Source	Electric
Size (Ext)	23x31x40
Capacity	2.9 GPM
Max Pressure (psi)	600 psi
HP	1.5
Volts	115
Amps	12.0
Btu/hr	-
Watts	1,380.0
CO2e (MT)	0.1
EnergyStar	N

Recommendations: The current SCA model appears to be the most efficient available.

Sink Agitator

aka Pot Washer

Kitchen Equipment – Small



Kewanee K-99
Current SCA Spec

Found in all kitchens; mounted to pot wash sink, located next to one of three adjacent pot wash sinks. Typically a **single unit per school**. Critical specifications include:

- 400 GPM capacity
- Impeller is composed of non-corrosive nickel-steel alloy
- Bearings are permanently sealed and do not require lubrication
- Size: 14"x11"19"

The model currently purchased for SCA capacity projects is a **Kewanee K-99 (560 W)**, which recently replaced the **Wells PW-106 (720 W)**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

SINK AGITATOR	
	CURRENT
Manufacturer	Kewanee
Model	K-99
Fuel Source	Electric
Size (Ext)	14x11x19
Motor HP	1/4
Volts	110
Amps	5.1
Watts	560
CO2e (MT)	0.3
EnergyStar	N

Recommendations: The current SCA model appears to be the most efficient available.

SCA Current Specifications
Section 11400

SINK AGITATOR - WASHER

- A. Sink Agitator-Washing: Commercial fabrication heavy-duty Hydro-Surge Washer designed for easy installation into the side of the 36" compartment (wash/soak) 16" depth pot sink where shown on the Drawings Details. All bearing shall be permanently sealed. Unit shall require no lubrication. No plumbing connection required.
- B. Circulates water at 400 gallons per minute. Pump enclosure and removable intake screen shall be stainless steel. Motor shall be equipped with an automatic overload protector to help prevent burnout. Power-on shall be activated by a toggle switch located on the motor easily accessible to the operator.
- C. Electrical: 120 Volt, 60HZ, single phase, 1/4 horsepower, direct-connected pump motor and impeller. Unit shall be supplied with a 15 amp, 6 ft, 120-volt cord, NEMA 5-15P.

Manufacturer: Subject to compliance with specifications:

Kewanee Company, LLC.

Model K-99

Sink Heater

Kitchen Equipment – Small



Hatco 3CS2
Current SCA Spec

Found in all kitchens, located beneath one of three adjacent pot wash sinks. Typically a **single unit per school**. Critical specifications include:

- Boosts 140F hot water supply to 180F for sanitizing pot wash sinks
- Minimum 2,000W per square foot (2.2W per square cm) of sink area
- Heating elements are positioned to reduce sediment and lime buildup
- Special electronic controller is used to maintain setpoint
- Stainless steel construction
- Size: 7"x18"x10"

The current SCA standard is a **Hatco 3CS2** or equal, with a maximum demand of **9,000 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

All other commercial sink heaters with the capacity to produce 180F water for three typical 21"x25" SCA pot wash sinks had an electric demand of 9,000 W or greater. The only other competitor in this market is Hubbell, which makes a 9,000 W, 43.0 Amp model.

SINK HEATER	
	CURRENT
Manufacturer	Hatco
Model	3CS2
Fuel Source	Electricity
Size (Ext)	7x18x10
Capacity	sink area 21x25
Volts	208
Amps	25.0
Watts	9,000
CO2e (MT)	0.5
EnergyStar	N

Recommendations: The current SCA model appears to be the most efficient available.

SCA Current Specifications
Section 11400

SANITIZING SINK HEATER

- A. Electric heater to maintain the final sanitizing rinse temperature in the third compartment sink where shown on the Drawings Details; complete with all internal plumbing and wiring ready for external installation to the bottom of sink. N.S.F. and U.L. approvals.
- B. The heater tank shall be of stainless steel construction and dual reservoir design; one reservoir to contain a permanently submerged heating element, the other to trap and collect soil which can be emptied easily by a convenient drain.
- C. The heater shall be equipped with a low water cut-off, on-off reset switch and indicator lights or gauge to signal operating conditions.
- D. Provide unit with all stainless steel front, body and base and a rinse temperature monitor and light that indicates when water reaches the sanitizing temperature.
- E. Provide drain line to floor sink. Coordinate installation with Plumbing Contractor
- F. Sanitizing heater shall be 208 volts, 3 phase, 60 cycle.

Manufacturer: Subject to compliance with specifications.

Hatco

Model 3CS2-9B

Water Filter

Kitchen Equipment – Small



Antunes VZN-421H-T5
Current SCA Spec

Found in all kitchens, wall-mounted, typically a **single unit per school**. Critical specifications include:

- 0.2 micron filtration
- 100 psig maximum operating pressure
- 100F maximum operating temperature
- 12-month cartridge replacements
- Size: 31"x9"x39"

The most energy-efficient currently available SCA standard is the **Antunes VZN-421H-T5** or equal, with a maximum demand of **10 W**. Other models in the current SCA specification include:

- **Everpure EV9437-40**

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

SCA Current Specifications
Section 11400

WATER FILTER

- A. Provide high capacity water filter which allows for 12-month estimated cartridge replacements.
- B. Water filter shall be capable of removing particles as small as 0.2 microns.
- C. Water filter shall be provided with a self-cleaning, hollow fiber ultrafilter with backflush tank that can be flushed backward and forward to remove built-up particle contaminants.
- D. Filter cartridges for taste, odor, and lime scale reduction shall be provided downstream of ultrafilter to allow for 12-month estimated cartridge replacements.

Manufacturer: Subject to compliance with specifications:

Antunes
Everpure

Model VZN-421H-T5
Model EV9437-40

Building Services Equipment

Clock

Building Services Equipment



Bogen Engineering Systems V4.1
Current SCA Purchased Model

Found in all spaces, in both single-faced and double-faced configurations. Typical quantities are 1 per regularly occupied space such as a classroom, office, or work room (incorporated into a speaker housing), 2 per 100 linear feet of corridor (incorporated into a double-faced housing), and 1-2 per public assembly space; total approximately **40-100 per school**. Critical specifications include:

- PoE IP device
- Receive power and data over CAT5/6 cable from a PoE network switch
- Hour and minute hands shall be finished in black; the sweep second hand shall be in red
- The clock housing shall be fabricated from metal
- Full 12" white dial with 11/4" high black Arabic numerals and a shatterproof crystal face

The most energy-efficient models recently purchased for an SCA school currently available are the **Bogen Engineering Systems V4.1**, and the **Sapling SAM V3**, both with a maximum demand of **0.84 W per clock**. Other models in the current SCA specification or recently installed include:

- **Sapling SAP V6**, 12" dia., **3.36 W per clock**

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

It was unusually difficult to find more energy-efficient models than the most energy-efficient purchased model. Manufacturers investigated for alternatives included Sapling, Global, and Simplex. All models investigated that meet the current SCA specifications have higher electric demand than 0.84 W, the electric demand of the most energy-efficient purchased model.

CLOCK	
MODEL	CURRENT
Manuf	Bogen Engineering Systems
Model	V4.1
Size (Ext)	12" diameter
Volts	24
Amps	0.035
Watts	0.84
Savings	-
Savings (%)	-
EnergyStar	N/A

Recommendations:

- The most energy-efficient purchased model appears to be the most energy-efficient analog clock currently available that meets SCA specifications.

SCA Current Specifications
Section 16791

A. Single-faced Analog Clocks

1. Analog secondary clocks shall be PoE IP devices. They shall receive power and data over CAT5/6 cable from a PoE network switch.
2. The secondary clocks shall have a full 12" white dial with 1¹/₄" high black Arabic numerals and a shatterproof crystal face. Hour and minute hands shall be finished in black; the sweep second hand shall be in red. The clock housing shall be fabricated from metal. Clocks with plastic cases shall not be acceptable.
3. Secondary analog clock shall be Telcor 3461 or approved equal. Provide all brackets, backboxes and other mounting hardware as required.
4. All brackets shall be galvanized steel or extruded aluminum. Plastic brackets are not acceptable.
5. For 16" clock, use Telecor 3463 or approved equal.

B. Double-faced Analog Clocks

1. Double-faced clocks shall consist of two 12" clocks facing in opposite directions. Double-faced analog clocks shall be similar to the single-faced clocks specified above, except double-faced. The clock case shall be fabricated from metal. Clocks with plastic cases shall not be acceptable.
2. Double-faced clock shall be Telecor 3464 or approved equal. Provide all brackets, backboxes and other mounting hardware as required.

C. Mounting of Clocks

1. Clock wiring shall terminate in approved RJ45 connectors, grounded per the manufacturer's recommendations.
2. Clocks shall be mounted at heights 2" below finished ceiling to a maximum elevation of 10'-0". Under no circumstances corridor double-face clocks shall be mounted below 8'-0". Where lighting fixtures in a room are lower than 8'-6", clocks shall be mounted with their centerline approximately 9" below the bottom of the lighting fixtures

Compactor

Building Services Equipment



Compactors Inc. Trashpacker 4500SS
Current SCA Standard

Found in refuse and recycling rooms. Typical quantities are **1 per school**. Critical specifications include:

- The front doors, the compaction chamber, and the cabinet shall be stainless steel
- The cycle time shall be between 18 and 22 seconds total for compression and retraction
- The cube shall have two sections
- A key operated selector switch shall be provided to prevent unauthorized use
- The control pushbuttons shall be clearly marked with START, EMERGENCY and STOP
- The compactor shall be equipped with an integral UV lamp to sanitize the air within the compaction chamber
- Compactor shall have baling capability
- Compactor shall be fitted with safety features to shut the machine down when the door is opened
- The compactor shall be able to fit through a doorway 32"x 82"

Note: The SCA specifications describe three different types of compactors in three sizes: 3.3 CF, 6 CF, and 9 CF. The **vertical compactor with a capacity of 6 CF** was selected for this study because it appears to be the most common size installed in new schools.

The most energy-efficient currently available SCA standard 6 CF vertical compactor is the **Compactors Inc. Trashpacker 4500SS** or equal, with a maximum demand of **1,080 W**. Other models in the current SCA specification or recently installed include:

- **Harmony Enterprises Inc. 450SS**, 6 CF, **2,300 W**
- **Global Trash Solutions GTS 2000**, 6 CF, **1,334 W**

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

It was unusually difficult to find more energy-efficient models than the current SCA standard while also meeting SCA spec requirements. Multiple manufacturers offer comparable models; however, no models using less than 1,080 Watts were found. Manufacturers investigated for alternatives included Global, All-City Metal, and Harmony.

COMPACTOR	
MODEL	CURRENT
Manuf	Compactors Inc.
Model	Trashpacker 4500SS
Size (Ext)	29x28x78
Capacity	6 CF
Max. Compaction Force	13,500 lbs
HP	0.5
Volts	120
Amps	9
Watts	1,080
Savings	-
Savings (%)	-
EnergyStar	N/A

Recommendations:

- The current SCA standard appears to be the most energy-efficient 6 CF trash compactor currently available that meets SCA specifications.

SCA Current Specifications
Section 11172

VERTICAL TRASH COMPACTOR AND CUBE LIFT

- A. Provide the hydraulic electric trash compactor with all the required ancillary equipment. The front doors, the compaction chamber and the cabinet shall be stainless steel. The outer stainless steel shall be 18 gauge (minimum) and the inner material shall be 16 gauge (minimum) stainless steel. The hydraulic system shall be electrically powered and driven by a motor driving a two-stage hydraulic pump capable of delivering the compaction force required. The compactor shall provide with a line cord with NEMA plug (20 amps). The plug shall to be compatible with a standard 3-prong female-grounded outlet.
1. The cycle time shall be between 18 and 22 seconds total for compression and retraction.
 2. The cube shall have two sections; the upper section shall be fabricated with a stainless steel edge protector. The cube shall be fabricated of molded high-density polyethylene (HDPE) plastic. The lower section shall form the base of the cube and shall be made of molded high-density polyethylene (HDPE) plastic.
 3. Key Operated Switch: A key operated selector switch shall be provided to prevent unauthorized use. The switch shall control the movement of the compaction platen.
 4. The control pushbuttons shall be clearly marked with START, EMERGENCY and STOP. Indicator lights shall be provided with RED signaling FULL, GREEN signaling PACKING.
 5. Air Sanitizer and Odor Control: The compactor shall be equipped with an integral UV lamp to sanitize the air within the compaction chamber. This system shall operate automatically and shall not require an operator or attendant.
 6. Compactor shall have baling capability.

7. Compactor shall be fitted with safety features to shut the machine down when the door is opened, to prevent the unit from operating if the unit is overstuffed or if the door is not closed.
8. Portability: The compactor shall be capable of being easily moved from one location to another if desired. The compactor shall be able to fit through a doorway 32"x 82". Two casters shall be equipped with suitable locking cams to prevent the compactor from moving when in operation.
9. All operations are to take place from the front of the machine the loading of material, compacting, ejection of compacted bags or bales as well as tying finished bags or bales.
10. Provide limit switch to prevent loading of bags to more than 55 pounds.
11. Compactor shall be:
 - a) For 3.3 cu. ft. cube capacity:

Chicago Trashpacker:	Model TA3000SS
Harmony Enterprises:	Model 300SS
 - b) For 6.0 cu. ft. cube capacity:

Chicago Trashpacker:	Model TA4500SS
Harmony Enterprises:	Model 450SS
 - c) For 9.0 cu. ft. cube capacity:

Chicago Trashpacker:	Model TA7000SS
Harmony Enterprises:	Model 700SS

B. Materials

1. Stainless Steel: Type 302/304, with manufacturer's standard directional polish or satin finish on exposed surfaces for vertical trash compactors.
2. Casters: Caster manufacturer's heavy-duty steel casters with ball-bearing swivels and either phenolic resin or rubber tired wheels; of grade and size recommended by manufacturer.

C. Fabrication

1. General: Fabricate compactors with manufacturer's standard joints and seams, with exposed edges smoothed and eased. Reinforce with structural steel members sized and spaced to withstand impacts and pressures of normal operations, and sufficient strength to prevent excessive long-term development of waves or valleys. Fabricate with replaceable parts at points of normal wear.
2. Electrical Work: Provide materials, devices, and controls of type and quality recommended by NEMA for applications indicated. Refer to Division 16 sections for power characteristics and services to equipment units including disconnect switches.

Electric Water Cooler with Bottle Filler

aka REFRIGERATED DRINKING FOUNTAIN AND BOTTLE FILLER
Building Services Equipment



Halsey Taylor HTHB-HAC8WF
Current SCA Standard

Found in corridors, directly accessed by students. Typical quantities are one fixture per 100 persons; total approximately **2-3 per school**. Critical specifications include:

- Fountain shall be made from type 300 stainless steel with a satin finish
- Bottle Filler shall be sensor-actuated with auto shut-off timer and bottle counter
- Bottle Filler shall provide 1.1 to 1.5 GPM with laminar flow
- All bubblers shall meet the requirements of the federally mandated “Reduction of Lead in Drinking Water Act”

The most energy-efficient currently available SCA standard is the **Halsey Taylor HTHB-HAC8WF** or equal, with a maximum demand of **260 W**. Other models in the current SCA specification or recently installed include:

- **Elkay LZS8WSLP, 370 W**

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

It was unusually difficult to find more energy-efficient models than the current SCA standard while also meeting SCA specification requirements. Many manufacturers offer comparable models; however, no models using less than 260 Watts were found. Manufacturers investigated for alternatives included Elkay, Halsey Taylor, Oasis.

ELECTRIC WATER COOLER WITH BOTTLE FILLER	
MODEL	CURRENT
Manuf	Halsey Taylor
Model	HTHB-HAC8WF
Size (Ext)	18x19x53
Capacity	8 GPH
Temp	50F
Refrigerant	R-134a
HP	
Volts	115
Amps	-
Watts	260
Savings	-
Savings (%)	-
EnergyStar	N/A

Recommendations:

- The current SCA standard appears to be the most energy-efficient electric water cooler with bottle filler currently available that meets SCA specifications.

SCA Current Specifications

Section 15440

DRINKING FOUNTAIN, WALL MOUNTED, SINGLE BUBBLER BARRIER-FREE WITH BOTTLE FILLING STATION

- A. Single bubbler wall mounted drinking fountain with bottle filling station shall be designed to meet the clearances required by ANSI A117.1 and ADA. Fountain shall be made from type 300 stainless steel with a satin finish. All seams shall be welded and ground smooth. Unit shall have stainless steel basin with anti-splash ridge and removable drain strainer. All waterways shall be constructed of copper. Unit shall be furnished with a bottom plate secured with vandal resistant screws. Furnish a screwdriver for removing bottom plate screws. Bubbler shall be chrome plated with non-removable anti-squirt feature and integral hood. Automatic stream height regulator shall be located inside unit to prevent tampering. Includes self-closing, light touch front and side pushbar actuation. Unit shall include filter certified to NSF/ANSI for lead reduction with visual monitor to indicate when replacement is necessary. Bottle Filler shall be sensor-actuated with auto shut-off timer and bottle counter, shall provide 1.1 to 1.5 GPM with laminar flow for minimal splash and shall include anti-microbial protected plastic components. Unit shall be lead-free design which meets Safe Drinking Water Act and is certified to NSF/ANSI 61. Unit shall be Halsey Taylor HTHB-HACD, Elkay LMABFDWSSK or Acorn Aqua All1400B-VRB-BF2S-WF1 modified with copper tubing. All bubblers shall meet the requirements of the federally mandated "Reduction of Lead in Drinking Water Act". Regardless of model numbers indicated herein, provide equivalent models that meet the requirements of the act.
- C. Provide Josam Co., J. R. Smith Figure 824-M31 or Wade 420-M36 floor mounted chair carrier. Floor mounted hanger plate carrier using rectangular high-strength steel uprights welded to base plates.
- D. Drinking fountain trap shall meet New York City Building Code requirements, shall be chrome plated cast brass: 1¼" inlet by 1½" outlet by Eljer 804-1125, McGuire 201C, EBC TN140, Kohler K-8995-CP or Zurn Z8716B-PC.
- E. Cold water stop shall be chrome plated cast brass 1/2" IPS angle stop as specified in the Stops Article.

Electric Scoreboard

Building Services Equipment



Nevco 2770
Current SCA Standard

Found in gymnasiums. Typical quantities are **1 per school**. Critical specifications include:

- 20 amp, 120 volt, 60 hertz
- Grounded AC circuit connected to on/off switch and circuit breaker

The most energy-efficient currently available SCA standard is the **Nevco 2770** or equal, with a maximum demand of **104 W**. Other models in the current SCA specification or recently installed include:

- **Daktronics BB2103-12**, 6'x8'x6', **210 W**

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

It was unusually difficult to find more energy-efficient models than the current SCA standard while also meeting SCA spec requirements. Multiple manufacturers offer comparable models; however, no models using less than 104 Watts of comparable size were found. Manufacturers investigated for alternatives included Nevco, Electroc-Mech, and Varsity Scoreboards.

ELECTRIC SCOREBOARD	
MODEL	CURRENT
Manuf	Nevco
Model	2770
Size (Ext)	8'x6'
Volts	120
Amps	0.86
Watts	104
Savings	-
Savings (%)	-
EnergyStar	N/A

Recommendations:

- The current SCA standard appears to be the most energy-efficient electric scoreboard currently available that meets SCA specifications.

SCA Current Specifications
Section 11480

SCOREBOARD AND SHOTCLOCK/GAME TIMER

- A. Provide Scoreboard: Model 2770 as manufactured Nevco or Model BB2103-12 as manufactured by Daktronics. Color as selected by the Architect. Size: 8'-0" x 6'-0" x 6" to 8" deep.
 1. Provide wireless scoreboard controller with keyboard.
 2. All conduit, wiring, junction boxes and components shall be furnished and installed under Div. 16 - Electrical.
 - a. Power requirements for scoreboard: (1) 20 amp. 120 volt 60 hertz grounded AC circuit connected to on/off switch and circuit breaker.
 - b. Power requirements for keyboard: (1) 20 amp. 120 volt 60 hertz grounded AC circuit in a standard duplex outlet.

Microwave

Building Services Equipment



Cuisinart CMW-100
Current SCA Purchased Model

Found in corridors, directly accessed by students. Typical quantities are **1-2 per school**. Critical specifications include:

- 1100W Output Power
- Capacity: 1.5 CF
- Oven interior is nonporous, easy-to-sanitize stainless steel
- Dimensions: 21"x18"x12"

The most energy-efficient model recently purchased for an SCA school that is currently available is the **Cuisinart CMW-100** or equal, with a maximum demand of **1,450 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **No energy saving alternates were found**

It should be noted the currently installed most efficient microwave model (**Cuisinart CMW-100**) does not meet certain requirements of the current SCA specifications. The Cuisinart CMW-100 is a 1 CF/1000 W model, as opposed to the specified 1.5 CF/1100 W model. Given that the SCA specifications do not identify a manufacturer or model for this equipment type, the Cuisinart CMW-100 was taken to be the most energy-efficient purchased model, and microwave models with the same technical specifications were pursued as alternatives. It was unusually difficult to find more energy-efficient models than the most energy-efficient purchased model for this equipment type. Many manufacturers offer comparable models; however, no models using less than 1,450 Watts were found. Manufacturers investigated for alternatives included LG, GE, Frigidaire, Whirlpool, and Summit.

MICROWAVE	
MODEL	CURRENT
Manuf	Cuisinart
Model	CMW-100
Size (Ext)	21x18x12
Capacity	1 CF
Volts	120
Watts	1,450
Savings	-
Savings %	-
EnergyStar	N/A

Recommendations:

- The most energy-efficient purchased model appears to be the most energy-efficient microwave currently available that meets SCA specifications.

SCA Current Specifications

Section: 11450

Microwave Oven

1. Microwave Oven shall be the model indicated on the Equipment Schedule; countertop; Capacity: 1.5 cu. ft; Features: Digital control panel with timer display and turntable; Door: Counter-balanced, removable with observation window
2. Electric requirements shall be 120 volts, 60 Hz, single phase; Electrical Power: 1100W. Provide six (6) ft three conductor (one grounding) line cord with plug to match receptacle.

Instructional Equipment

Interactive Whiteboard

Instructional Equipment



SMART Board MX275-V2 with iQ
Current SCA Standard

Found in most instructional spaces, used as a primary educational tool by teachers. Typical quantities are **1 per classroom** or approximately **20-40 per school**. Interactive whiteboards are not currently included in standard SCA specifications, but a cut-sheet for the current SCA standard model is included in the Reference Materials section on the SCA website. Critical specifications of this model include:

- Supports Windows/Mac/Android Operating Systems
- 75" Monitor Size
- Dimensions: 67"x51"x6"

Note: Interactive whiteboards are installed in some new additions where whiteboard technology is installed throughout the existing school building. Interactive whiteboards are not installed in new standalone schools.

The model described in the SCA Design Requirements is the **SMART Board MX275-V2 with iQ**, with a maximum demand of **114 W**. No other models have been purchased for the case study schools.

Potential alternatives identified for this study include:

- **None**

It was unusually difficult to find more energy-efficient models than the **SMART Board MX275-V2 with iQ** while also meeting SCA Design Requirements. All SMART Board models were assessed for functionality

and power consumption and it was determined that the current SCA standard is the most efficient model with the necessary functionality.

INTERACTIVE WHITEBOARD	
MODEL	CURRENT
Manuf	SMART Board
Model	MX275-V2
Size (Ext)	69x42x5
Monitor Size	75"
Operating System	SMART Software
Resolution	4k Ultra HD
Response Time	8 ms
Volts	120/240
Watts	114
Savings	-
Savings %	-
EnergyStar	Y

Recommendations:

- The current SCA standard appears to be the most energy-efficient interactive whiteboard currently available that meets SCA specifications
- NYC school stakeholders may wish to consider creating an SCA specification for the interactive whiteboard.

No SCA Specifications available.

Lab Drying Oven

Instructional Equipment



Binder ED 56
Current SCA Standard

Found in middle school and high school science labs; freestanding, floor-mounted. Typical quantities are **1 per science lab** (schools typically have 1 to 3 science labs). Critical specifications include:

- Minimum 2.0 CF interior volume
- Maximum Temperature to 300°C
- 1200W UL listed
- Stainless Steel or Corrosion-resistant aluminized steel interior with 2 shelves
- Outside dimensions not to exceed: 25" wide x 23" deep x 28" high

Note: The SCA specifications describe four different types of lab drying ovens in four sizes and multiple configurations including floor mounted/table-top and natural convection/fan-driven vented drying ovens. A floor mounted, natural convection drying oven with a capacity of **2 CF** was selected for this study because it appears to be the most common type installed in new schools.

The most energy-efficient current SCA standard is the **Binder ED 56** or equal, with a capacity of 2.0 CF and a maximum demand of **1,050 W**. Other models in the current SCA specification or recently installed include:

- **Quincy Lab 30 GC**, 2.0 CF, 232°C, **1,200 W**
- **Thermo Scientific Gravity Convection Oven - 51028112**, 2.3 CF, 250°C, **1,730 W**

It was unusually difficult to find more energy-efficient models than the Binder ED 56 while also meeting SCA spec requirements. Manufacturers investigated for alternatives included Thermo Scientific, Quincy Lab, Memmert, Being, StableTemp, and Yamato. All models investigated that accommodate a minimum 2.0 CF capacity have higher electric demand than the Binder ED 56.

LAB DRYING OVEN	
MODEL	CURRENT
Manuf.	Binder
Model	ED 56
Size (Ext)	23x25x23
Capacity	2.0 CF
Temperature	5 - 300 C
Volts	120 / 230
Watts	1,050
Savings	-
Savings %	-
EnergyStar	UL Listed ⁴

Recommendations:

- The current SCA standard appears to be the most energy-efficient drying oven currently available that meets SCA specifications.
- NYC school stakeholders may wish to consider whether the 2 CF volume requirement specification is flexible enough to facilitate consideration of a more energy-efficient model.

⁴ The UL certification only applies to the 120 V configuration for this model, not the 230 V configuration.

SCA Current Specifications
Section 11600

Drying Oven

1. Middle School Floor Mount Application (LMD01):

Natural convection drying oven that does not require venting. Maximum temperature set to 100°C. Minimum 4" clearance required on all sides.

Binder Manufacturer Model ED-56 or Quincy Lab 30 GC

- a. Outside dimensions not to exceed: 25.0" wide x 23" deep x 26" high.
- b. Capacity: min 2.0 ft³ interior volume
- c. Maximum Temperature to 300°C.
- d. Stainless steel or Corrosion-resistant aluminized steel interior and 2 stainless steel interior shelves.
- e. 115/120V, 1200W
- f. One (1) year manufacturer's warranty on parts and labor.

2. Middle School Table-Top Application (LMD01):

Gravity convection drying oven that does not require venting. Maximum temperature set to 100°C. Clearances required: minimum 4" clearance on sides and 18" at top.

Quincy Lab 20 GC or Thermo Scientific, Precision Compact Oven, Model No. PR305225G.

- a. Outside dimensions not to exceed: 19"W X 23"H X 14"D
- b. Capacity: Minimum 1.00 ft³ interior volume
- c. Corrosion-resistant aluminized steel interior with two shelves.

- d. Weight: maximum 55 lbs
- e. 120 V, 460-750 Watts
- f. One (1) year manufacturer's warranty on parts and labor.

3. High School Floor Mount Application (LMD02)

Gravity convection drying oven that does not requiring venting. Clearances required: minimum 4" clearance on sides and 18" at top. Cannot be located under counter.

Binder Manufacturer Floor Model ED-56, Thermo Scientific Gravity Convection Oven - Model Number 51028112 or Quincy Lab 30 GC

- a. Outside dimensions not to exceed: 25" wide x 23" deep x 28" high.
- b. Capacity: 1.9-2.3 ft³ interior volume
- c. Maximum Temperature to 300°C.
- d. Stainless Steel or Corrosion-resistant aluminized steel interior with 2 stainless steel interior shelves
- e. 115/120V, 1200W UL listed.
- f. One (1) year manufacturer's warranty on parts and labor.

4. High School Floor Mount Application (LMD02)
Mechanical Fan-driven Convection drying oven that requires venting to outside of building. Not designed for under counter application. Must be vented to building's exterior through a stainless steel hood 24" above top of drying oven. Overall size of Hood shall be 12" larger than each of the width and depth of the drying oven unit. Requires additional spacing on all sides for waste heat dissipation. Provide required minimum clearances as per manufacturer's recommendations.

Sheldon Manufacturing Inc. Model, Shel-Lab, No. SMO3 or Quincy Lab Inc., Model No. 40 AFE.

- a. Outside dimensions not to exceed: 27" Wide X 29"D X 35H".
- b. Capacity: 2.86-3.0 ft³ interior volume
- c. Temperature Range: 20°C - 232°C minimum.
- d. Stainless Steel or Corrosion-resistant aluminized steel interior with 2 shelves.
- e. 110 - 220 Volts, 50/60 HZ, 1500 Watts
- f. One (1) year manufacturer's warranty on parts and labor.

Lab Electric Bunsen Burner / Heater

Instructional Equipment



Electrothermal BA6101
Former SCA Purchased Model



Lab-Aids Control Point Heater
(Lab-Master Safety Package #NAC-M-TSP)
Current SCA Purchased Model

Found in middle school and high school science labs; directly accessed by students. Typical quantities are **approximately 1-2 per science lab** (schools typically have 1 to 3 science labs).

Note: Many existing school labs still have gas Bunsen burners. A small number of recently constructed school labs have electric Bunsen burners, which were included in the standard SCA specifications at that time. New school labs are supplied with a lab equipment package that includes a control point heater which serves a function similar to that of a Bunsen burner. Control point heaters are much safer, do not use fossil fuel, and consume significantly less energy than either gas or electric Bunsen burners, but lack some Bunsen burner capabilities. It is possible that some high schools with college-level chemistry or biology classes may require Bunsen burners instead of control point heaters.

Bunsen burners/laboratory electric heaters are not currently included in standard SCA specifications. The most energy-efficient model purchased for a case study school is the Lab-Aids Control Point Heater, included in the **Teacher Lab-Master Safety Package #NAC-M-TSP**, with a maximum demand of **60 W**. The **Electrothermal BA6101, 430 W** electric Bunsen burner model used in NYC schools is also included here as a formerly purchased model for completeness.

Potential alternatives identified for this study include:

- **No energy saving alternates were found**

It was unusually difficult to find more energy-efficient models than the most energy-efficient purchased model. Because the control point heater is purchased as part of the Lab-Aids Teacher Lab-Master Safety Package, it is not advisable to find an alternative for any single component. The market for electric (no-

flame) Bunsen burners is very limited. The only comparable product to the Electrothermal BA6101 found was the 3B Scientific Electric Burner LAB2 which consumes 500 W, 17% more than the Electrothermal model.

LAB BUNSEN BURNER		
MODEL	FORMER	CURRENT
Manuf.	Electrothermal	Lab-Aids
Model	BA6101	Control Point Heater (Teacher Lab-Master Safety Package #NAC-M-TSP)
Fuel Source	Electric (No Gas)	Electric (No Gas)
Temp	800C	150C
Volts	110	110
Amps	-	3.3
Watts	430	60
Savings	-	-
Savings %	-	-
EnergyStar	N/A	N/A

Recommendations:

- NYC school stakeholders may wish to consider creating an SCA specification which includes the control point heater as well as Bunsen burners where required for specialized high schools. Language similar to that used in the Lab Fume Hood specification may be used.

No SCA Specifications available.

Lab Explosion-Proof Freezer

Instructional Equipment



Thermo Scientific 05EFEETSA
Current SCA Purchased Model

Found in high school and middle school science labs; freestanding; floor-mounted. Typical quantities are **1 per science lab** (schools typically have 1 to 3 science labs). Critical specifications include:

- Temperature Range: -30°C to -15°C.
- Capacity: Minimum 5 CF interior volume
- 115V, 60 Hz, 1.6 Amps
- EnergyStar and Underwriters Laboratory approved
- Three fixed shelves, wire basket at floor level, reversible door
- Dimensions (exterior): 22"W x 24"D x 34"H

The most energy-efficient model recently purchased for an SCA school is the **Thermo Scientific 05EFEETSA**, with a combined maximum demand of **127 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- **No energy saving alternatives were found**

It was unusually difficult to find more energy-efficient models than the most energy-efficient purchased model while also meeting SCA spec requirements. Many manufacturers offer comparable models which draw 1.2 amps as opposed to the 1.1 amp most energy-efficient purchased model. No models using less than 1.1 amps, or less than 127 W were found. Manufacturers investigated for alternatives included Liebherr, American BioTech Supply, So-Low, Global Industrial, Norlake Scientific, GMI Inc., and BSI.

LAB FREEZER	
MODEL	CURRENT
Manuf.	Thermo Scientific
Model	05EFEETSA
Refrigerant	R134a
Size (Ext)	
Capacity	5 CF
Temp	-20 to -12 C
Volts	115
Amps	1.1
Heat Gain (Btu/hr)	
Watts	127
Savings	-
Savings %	-
EnergyStar	UL Approved

Recommendations:

- The most energy-efficient purchased model appears to be the most energy-efficient explosion-proof freezer currently available that meets SCA specifications.

SCA Current Specifications

Section 11600

Explosion-Proof Freezer (LMRF2)

Hard-wired, floor mount models. Cannot be mounted on countertop

1. Temperature Range: -30°C to -15°C.
2. Capacity: Minimum 5 ft³ interior volume
3. Exterior Dimensions: 22"W x 24"D x 34"H
4. 115V 60 Hz, 1.6 Amps Energy Star Underwriter Laboratory Approved
5. Three fixed Shelves, Wire Basket at Floor Level
Reversible door R. or L. hinged.
6. Provide 2-year warranty on freezer and a five-year warranty on the compressor.

Appendix B. Equipment Cutsheets

Can Opener Cutsheets



Submittal Sheet

01/06/2020

ITEM# 27 - CAN OPENER (1 EA REQ'D)

Edlund 270/115V

Can Opener, electric, for heavy volume, 2-speed motor, knife and gear assemblies that are removable for cleaning, recommended for up to 200 cans per day, cULus, CE, NSF certified, 115v/60/1-ph, 1.5 amp

ACCESSORIES

Mfr	Qty	Model	Spec
Edlund	1		3 year limited warranty, standard
Edlund	1	A279	Shield, for 270 only
Edlund	1	KT2700	270 Replacement Parts Kit, includes: (1) G041, (1) K045 and (1) R090 (6 kits per case)

ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1				1.5				

Q429 / C000015503 / LLW#104738

Edlund Model 270 NSF Electric Can Opener

The only NSF Certified electric can opener available, the Edlund 270 Electric Can Opener is designed for high volume operators who open different sized cans.



- Heavy duty stainless steel construction.

Q429 / C000015503 / LLW#104738

- Two-speed motor for opening large or small cans, fast.
- Removable knife holder and knife require no tools.

- Gear and shield prevent splash-back from entering interior. Also removes without tools.
- Slot machine style lever requires minimum effort, eliminates fatigue.

- Sealed base
- NSF Certified
- Made in U.S.A.

Our 270 electric is a real eye opener.



Opens most sizes and shapes of cans. Precisely weighted and balanced, the 270 lifts even the heaviest #10 can to the knife for easy opening.



The 270 C's easy-glide slide bar mounting allows all cans larger than #10's to be opened easily. Ideal for most international can sizes.

The 270 Electric Can Opener is our flagship.

Demand for higher volume opening requirements led to the creation of the 270 electric opener. It's designed to meet the needs of commercial and non-commercial operators alike.

SPECIFICATIONS:

- 1.5 Amp, 1.2 Amp 60 Hz
- 0.8 Amp, 0.6 Amp 50 - 60 Hz

UNIT DIMENSIONS:

- 270 – 6 $\frac{3}{4}$ " x 11 $\frac{1}{2}$ " x 10" (17.2 cm x 29.2 cm x 25.4 cm)
- 270 C – 9 $\frac{3}{4}$ " x 9 $\frac{3}{4}$ " x 26 $\frac{1}{4}$ " (27.8 cm x 27.8 cm x 66.7 cm)

SHIPPING DIMENSIONS:

- 270 – 13 $\frac{3}{4}$ " x 10 $\frac{5}{8}$ " x 11 $\frac{3}{8}$ " (34.9 cm x 26.9 cm x 28.9 cm)
- 270 C – 13 $\frac{3}{4}$ " x 13" x 32 $\frac{1}{2}$ " (34.9 cm x 33.0 cm x 82.6 cm)

SHIPPING WEIGHT:

- 270 – 20 lbs. (9 kg)
- 270 C – 30 lbs. (13.6 kg)

CUBE:

- 270 – 44 cubic feet (.03 cubic meters)
- 270 C – 3.33 cubic feet (.01 cubic meters)

RECOMMENDED USAGE:

- 100-200 cans per day.



Q429 / C000015503 / LLW#104738 Edlund Company, Inc., 159 Industrial Parkway, Burlington, VT 05401, USA 800-772-2126 www.edlundco.com

WARRANTY INFORMATION: THE EDLUND COMPANY WARRANTS THESE PRODUCTS TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF PURCHASE. THE COMPANY'S OBLIGATION UNDER THIS WARRANTY IS LIMITED TO REPAIRING OR REPLACING WITHOUT CHARGE ANY PART OR PARTS FOUND TO BE DEFECTIVE UNDER NORMAL USE. IT IS THE RESPONSIBILITY OF THE PURCHASER TO RETURN THE ENTIRE UNIT TO THE FACTORY, TRANSPORTATION CHARGES PREPAID. THIS WARRANTY DOES NOT COVER PARTS THAT MUST BE REPLACED UNDER NORMAL USE, INCLUDING KNIVES AND DRIVE GEARS ON CAN OPENERS. NO OTHER WARRANTY, WRITTEN OR VERBAL, IS AUTHORIZED BY THE COMPANY. WARRANTY INFORMATION OUTSIDE THE UNITED STATES MAY VARY, CONSULT YOUR DISTRIBUTOR.

09/09 EDL-5106

Electric Can Openers



USDA accepted

**270 3 YEAR WARRANTY!**

TWO SPEED ELECTRIC CAN OPENERS

ALL EDLUND ELECTRIC CAN OPENERS ARE MADE IN THE U.S.A.

The only NSF Certified electric can opener for heavy volume operators.

Now with 3 year warranty. Equipped with 2 speed motor and featuring knife and gear assemblies that can be removed without tools for easy cleaning. The slower second speed helps prevent spillage while opening smaller cans.

Model Number	Description	Product Code	Case Cube Ft3/M3	Master Case	Case Weight lbs./kgs
270	NSF Certified Electric Can Opener 115 Volt	27000	1/.03	1	19/8.6
270	NSF Certified Electric Can Opener 230 Volt (for U.S. specifications only)	27200	1/.03	1	19/8.6

Models available with permanent mounting bracket to prevent theft.

Model Number	Description	Product Code	Case Cube Ft3/M3	Master Case	Case Weight lbs./kgs
270B	NSF Certified Electric Can Opener with security lock-down bracket 115 Volt	27010	1/.03	1	20/9
270B	NSF Certified Electric Can Opener with security lock-down bracket 230 Volt (for U.S. specifications only)	27300	1/.03	1	20/9



270 Continental! with gas shock slide bar mounting is safer and easier to use. Easily adjusts for multiple international can sizes. CE Certified.

Model Number	Description	Product Code	Case Cube Ft3/M3	Master Case	Case Weight lbs./kgs
270C	Electric Can Opener with gas shock Slide Bar 115 Volt	27400	3.3/.1	1	32/14.4
270C	Electric Can Opener with gas shock Slide Bar 230 Volt (for U.S. specifications only)	27500	3.3/.1	1	32/14.4

270C**203**

The #203 Electric Can Opener has been a reliable workhorse for over 30 years. Especially suited for schools and hospitals or operations that open more than one size of cans. The slower second speed for smaller cans prevents spilling of liquids.

Model Number	Description	Product Code	Case Cube Ft3/M3	Master Case	Case Weight lbs./kgs
203	Electric Can Opener 115 Volt 2 speeds	23100	1.1/.03	3	42/18.9
203	Electric Can Opener 230 Volt 2 speeds (for U.S. specifications only)	23200	1.1/.03	3	42/18.9

SINGLE SPEED ELECTRIC CAN OPENERS

Model Number	Description	Product Code	Case Cube Ft3/M3	Master Case	Case Weight lbs./kgs
266	Electric Can Opener 115 Volt	26100	1.1/.03	3	42/18.9
266	Electric Can Opener 230 Volt (for U.S. specifications only)	26200	1.1/.03	3	42/18.9

**266**

CLEANING TOOLS

Model Number	Description	Product Code	Case Cube Ft3/M3	Master Case	Case Weight lbs./kgs
ST-93	New Rustproof Can Opener Cleaning Tool – with stainless steel bristles and stainless scraper. Recommended for maintaining proper sanitation on all can openers.	38500		1	.5/.2

**ST-93**

Q429 / C000015509 / LLW#104738

Combination Oven Cutsheets

Combi oven

C4eT 6.20 ES-N

Convotherm maxx pro
easyTouch

6.20
7 slide rails

Electric
Injection/Spritzer
Right-hinged door



Key Features

- Advanced Closed System+ (ACS+) with extra functions:
 - Crisp&Tasty - 5 moisture-removal settings
 - BakePro - 5 levels of traditional baking
 - HumidityPro - 5 humidity settings
 - Controllable fan - 5 speed settings
- easyTouch 10" TFT high-resolution glass touch display (capacitive)
- ConvoClean+ fully automatic cleaning system with eco, regular and express modes - with optional single-dose dispensing
- HygieniCare
- WiFi and Ethernet port (LAN)
- TriColor indicator ring - indicates the current operating status
- Steam generated by injecting water into the cooking chamber
- LED illumination for cooking chamber
- Triple-glazed right-hinged unit door
- UL KNLZ listed for ventless operation, local codes prevail as in NFPA 96-1994 & UL 710B

Standard features

- Cooking methods:
 - Steam (86-266°F) with guaranteed steam saturation
 - Combi-steam (86-482°F) with automatic humidity adjustment
 - Hot air (86-482°F) with optimized heat transfer
- easyTouch user interface controls:
 - 10" TFT high-resolution glass touch display (capacitive)
 - Smooth-action, quick-reacting scrolling function
- Climate Management
 - Advanced Closed System+ (ACS+), HumidityPro, Crisp&Tasty
- Quality Management
 - Airflow Management, BakePro, multi-point core temperature probe, preheat and cool-down function
- Production Management
 - Automatic cooking with Press&Go with up to 399 profiles
 - Integrated cookbook with 7 different categories
 - TrayTimer - load management for different products simultaneously
 - TrayView - load management for automatic cooking of different products using Press&Go
 - Favorites management
 - HACCP data storage
 - USB port
 - ecoCooking - energy saving function
 - LT cooking (low-temperature cooking) / Delta-T cooking
 - Cook&Hold - cooking and keeping food warm in a single process
 - Auto Start
 - Rethermalization+: versatile multi-mode rethermalization function

Standard features

- Cleaning Management:
 - ConvoClean+: Fully automatic cleaning system
 - Quick access to individually created and stored cleaning profiles
 - Cleaning Scheduler
- HygieniCare:
 - Hygienic Steam Function
 - Hygienic handles
 - SteamDisinfect
- Design:
 - Triple-glazed right-hinged unit door with safety lock, sure-shut function, venting position, and LEDs for illuminating the cooking chamber
 - Steam generated by injecting water into the cooking chamber
 - Adjustable feet with adjustment range between 4 inches and 5 inches
 - Multi-point core temperature probe
 - Integrated recoil hand shower

Commercial combination oven with integral systems for limiting the emissions of grease-laden air. This product conforms to the ventless operation recommendations set forth by NFPA96 & UL 710B using EPA202 test method.



Convotherm maxx pro easyTouch

- 6.20
- 7 slide rails
- Electric
- Injection/Spritzer
- Right-hinged door



Key Features

- Advanced Closed System+ (ACS+) with extra functions:
 - Crisp&Tasty - 5 moisture-removal settings
 - BakePro - 5 levels of traditional baking
 - HumidityPro - 5 humidity settings
 - Controllable fan - 5 speed settings
- easyTouch 10" TFT high-resolution glass touch display (capacitive)
- ConvoClean+ fully automatic cleaning system with eco, regular and express modes – with optional single-dose dispensing
- HygieniCare
- WiFi and Ethernet port (LAN)
- TriColor indicator ring – indicates the current operating status
- Steam generated by injecting water into the cooking chamber
- LED illumination for cooking chamber
- Triple-glazed right-hinged unit door
- UL KNLZ listed for ventless operation, local codes prevail as in NFPA 96-1994 & UL 710B

Options

- Triple-glazed disappearing door – more space and added safety (see page 3)
- Quality Management:
 - ConvoSmoke – built in food-smoking (HotSmoke)
 - ConvoGrill with grease management function
- Steam and vapor removal – built-in condenser
- Corrections package
- Available in various voltages
- Sous-vide probe, external connection
- Core temperature probe, external connection (internal core probe standard)

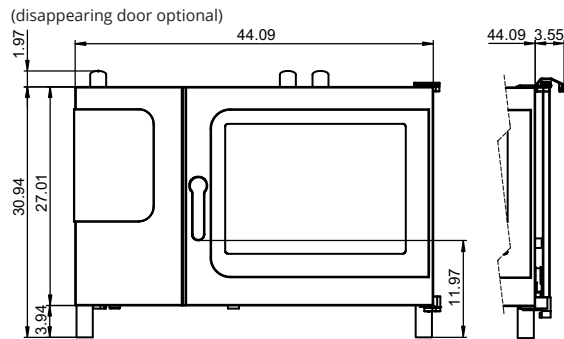
Accessories

- WiFi and ethernet (LAN) enabled to connect to network solution from Welbilt for updating and monitoring appliances from anywhere
- Signal Tower
- Racks
- Banquet system (optionally as a package or individually): Plate rack, mobile shelf rack, transport trolley, thermal cover
- Stacking stands
- Equipment stands in various sizes and designs

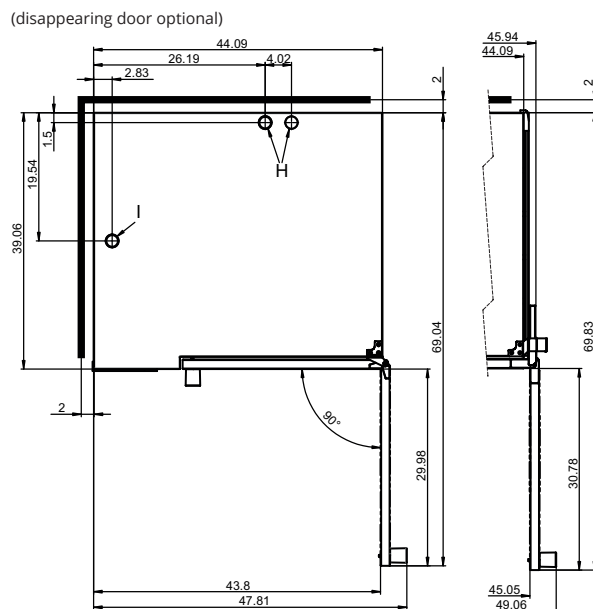
Accessories and services by partners

- ConvoVent 4 condensation hood by Halton
- Cleaning chemicals for the fully automatic ConvoClean+ cleaning system (multiple-dose and single-dose dispensing)
- Water filtration and reverse osmosis systems and replacement filters
- Installation services available - details in AutoQuotes - availability may vary by region
- Cooking, baking, and roasting cookware

Front view



View from above with wall clearances



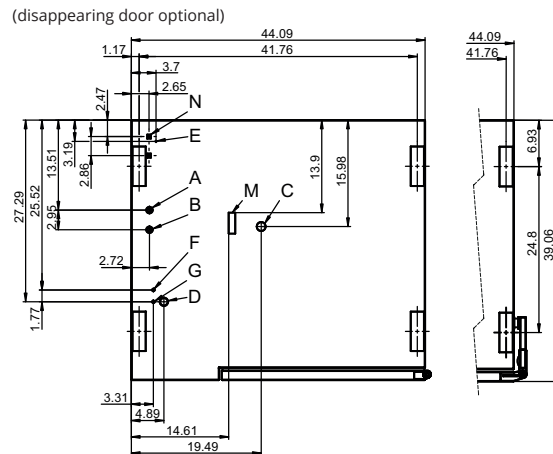
Installation requirements

Max. absolute appliance inclination during operation*	max. 2° (3.5%)
Clearance from heat sources	min. 20 "
Recommended clearance for servicing on the left side of the unit	min. 20 "

* Adjustable appliance feet as standard.

The combi oven must be easily accessible on three sides in order to ensure accessibility for cleaning. Alternatively, use a 6" foot, available upon request.

Connection points, bottom of unit



- A Water connection (for water injection)
- B Water connection (for cleaning, recoil hand shower)
- C Drain connection (2" I. D.)
- D Electrical connection
- E Equipotential bonding
- F Rinse-aid connection
- G Cleaning-agent connection
- H Air vent (2" I. D.)
- I Dry air intake 2"
- M Safety overflow 3.2" x 1"
- N Ethernet connection RJ45

Dimensions and weights

Dimensions including packaging	
Width x height x depth	53.7" x 41.3" x 45.7"

Weight	
Net weight without options* / accessories	309 lbs
Packaging weight	77 lbs

Safety clearances**	
Rear	2 "
Right (right-hinged door)	2 "
Right (disappearing door pushed back)	5 "
Left (see installation requirements)	2 "
Top***	20"

* Max. weight of options: 33 lbs.

** Required for the unit to work properly.

*** Depends on the type of exhaust system and the ceiling's characteristics.

Loading capacity

Max. number of food containers

[Unit has 7 slide rails; rail spacing 2.68" max.]

Steam table pans (12"x20"x1")	14
Steam table pans (12"x20"x2.5")	12
Wire shelves, full size (20"x26")	7
Sheet pans, full size (18"x26")*	6
Sheet pans, half size (13"x18")*	12
Frying baskets, half size (12"x20")	14
Plates (optional plate rack)	27

Max. loading weight

Per combi oven 132 lbs

Per shelf level 33 lbs

* Wire shelves required.

Electrical supply

208V 3PH 60Hz / 240V 3PH 60Hz *

Rated power consumption	15.9 / 21.0 kW
Rated current	44.1 / 50.6 A
Power supply wire gauge	6 AWG
Conductor insulation rating	194°F / 90 °C

440V 3PH 60Hz / 480V 3PH 60Hz *

Rated power consumption	16.3 / 19.3 kW
Rated current	21.4 / 23.3 A
Power supply wire gauge	8 AWG
Conductor insulation rating	194°F / 90 °C

When using the ConvoSmoke option, the only available voltage options are:

208V 3PH 60Hz *

Rated power consumption	15.9 kW
Rated current	44.1 A
Power supply wire gauge	6 AWG
Conductor insulation rating	194°F / 90 °C

240V 3PH 60Hz *

Rated power consumption	21.0 kW
Rated current	50.6 A
Power supply wire gauge	6 AWG
Conductor insulation rating	194°F / 90 °C

* Prepared for connection to an energy optimizing system.

Convection Oven Cutsheets



Master Gas Convection Oven

Project _____
 Item _____
 Quantity _____
 CSI Section 11400
 Approved _____
 Date _____

Models

- MCO-GS-10-S
- MCO-GS-20-S
- MCO-GD-10-S
- MCO-GD-20-S



Model MCO-GS-10-S

Standard Features

- Master 200 Solid State Digital control with 150°F (66°C) to 500° (260°C) temperature range and digital timer
- Direct spark with 100% safety shut off
- 2-speed fan control (high & low) with .6 HP fan motor
- Total of 60,000 BTU (17.6 kW) loading per oven cavity
- Natural or propane gas
- Stainless steel front, sides, top, and legs
- 60/40 dependent door design with double pane thermal window in both doors and interior lighting
- Full Length, stainless steel positive door closure
- Patented "Safety Door System"
- Porcelain enameled oven interior with coved corners
- 24" cooking cavity height w/6 chrome plated oven racks on \ 13-position rack guides
- Double deck models available, suffix -20-S
- Deep depth models available prefix MCO-GD
- 1 year limited parts & labor warranty (Canada only)

- 2 year limited part & 1 year labor warranty (USA only)
- 2 year limited part & labor warranty (USA Kindergarten to grade 12 schools only)
- 5 year limited door warranty, excluding window (USA & Canada only)

Options & Accessories

- 80,000 BTU (23.4kW) burner package (natural gas)
- Stainless steel solid door or doors (specify) - No Charge
- Extra oven racks
- Swivel casters, (4) w/front brakes
- 4 Low profile casters, w/front brakes (double ovens only)
- Stainless steel open base with rack guides and shelf
- Direct connect vent
- Back enclosure (stainless steel)
- 3/4" gas flex hose & quick disconnect
- 208 or 240 volt, single phase motor (please specify)
- 50 cycle components
- Maximum security package available contact factory for details

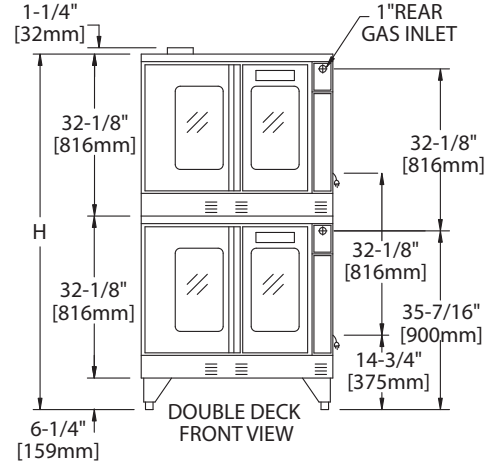
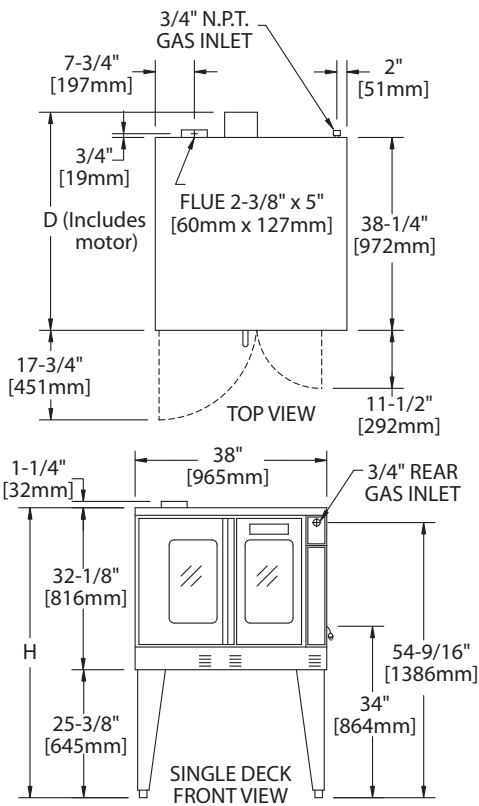
Specifications

Garland Master Full-Size Standard Depth, prefix MCO-GS or Deep Depth, prefix MCO-GD, gas convection oven. 60,000 BTU (17.6 kW)/cavity, .6 HP fan motor with two speed fan control. Electronic spark ignition. Natural or propane gas. Master 200 solid state control with digital timer. Porcelain enameled oven interior with coved corners. Six (6) oven racks and 13-position rack guides.

All model interiors are 29" (736mm) W by 24" (610mm) H, depth is 24" (610mm) for standard depth and 28" (711mm) for deep depth. Stainless steel front, sides, top, and legs. 60/40 dependent door design with double pane thermal window in both doors and interior lighting. Models with suffix -20-S are double deck units. Specify voltage if other than 115 volt, 60 Hz, 1 phase. UL, CUL Gas-Fired and NSF Listed.



Master Gas Convection Oven



INSTALLATION NOTE:

Combustible Wall Clearances:

Sides: 1" (25mm) Back: 3" (76mm)

***Note:** Installations beside units with high heat sources it is recommended to leave 6" (152mm) on the right side of oven. Refer to the installation manual for more details.

Combustible Wall Clearances:

Crated: 47" (1194mm) Uncrated: 32 1/2" (826mm)

Manifold Operating Pressure:

Natural: 4.5" WC (11 mbar) Propane: 10" WC (25 mbar) Max 13.8" WC @ 70°F

Note: Data applies only to North America

PLEASE NOTE:

Standard electrical specifications include motor requirements. (120V units) 115V, .6 HP, 2-speed motor; 1140 and 1725 rpm, 60Hz. (240V units) 200-240V, .6 HP, 2-speed motor; 1140 and 1725 rpm, 60 Hz. A 6 ft. line cord is provided for each 120V deck with a (NEMA #5-15P) plug.

Gas Input Ratings shown here are for installations up to 2,000 ft. (610m) above sea level. Specify altitudes over 2,000 ft. Please specify gas type when ordering.

SINGLE-DECK MODELS	INT. DIMENSIONS: In mm			EXT. DIMENSIONS: In mm			SHIP WT.	SHIP DIM.
	W	H	D	W	H *	D	lbs/kg	cubic Ft.
Standard Depth	29 (736)	24 (610)	24 (610)	38 (965)	57-1/2 (1461)	41-1/4(1048)	515/230	64
Deep Depth	29 (736)	24 (610)	28 (711)	38 (965)	57-1/2 (1461)	44-1/2(1130)	545/245	64

DOUBLE-DECK MODELS	INT. DIMENSIONS: In mm			EXT. DIMENSIONS In mm			SHIP WT.	SHIP DIM.
	W	H	D	W	H *	D	2@lbs/kg	Cubic Ft.
Standard Depth	29 (736)	24 (610)	24 (610)	38 (965)	70-1/2 (1791)	41-1/4(1048)	1030/465	128
Deep Depth	29 (736)	24 (610)	28 (711)	38 (965)	70-1/2 (1791)	44-1/2(1130)	1090/490	128

*Height with or without standard casters. Height with low profile casters (double deck) is 68-1/2" (1740mm).

MODELS	INPUT RATINGS, NAT & PRO			ELECTRICAL SPECIFICATIONS	
	BTU/hr	kW Eqiv.	Gas inlet	120V/1Ph.	240V/1Ph.
Single Deck	60,000	17.6	(1)@3/4" NPT	(1)@9.8A	(1)@5.2A
Double Deck	120,000	35.2	(1)@1" NPT	(2)@9.8A	(2)@5.2A

Welbilt reserves the right to make changes to the design or specifications without prior notice.

Garland Commercial Ranges Ltd.
1177 Kamato Road,
Mississauga, Ontario
L4W 1X4 CANADA

General Inquires 1-905-624-0260
USA Sales, Parts and Service 1-800-424-2411
Canadian Sales 1-888-442-7526
Canada or USA Parts/Service 1-800-427-6668

www.garland-group.com
6823
10/18



Your Solutions Partner

Specifications

F.O.B St. Louis, Missouri 63102



E102-E
(Shown w/optional casters)

OPTIONS:

- ☐ Casters
- ☐ High Voltage (440/480)
- ☐ 2-speed fan

AGENCY LISTINGS:



DUKE MANUFACTURING CO.

2305 N. Broadway
St. Louis, MO 63102

800.735.3853 Toll Free
314-231-1130 In Missouri
314.231.5074 Fax
www.dukemfg.com

SS-DM-00099-CO-22

Approval Stamp(s):

PRODUCT INFORMATION:

PROJECT: _____

ITEM: _____

QUANTITY: _____

MODEL:

Duke Convection Ovens - "E" Series Double Section - Electric

☐ **E102-E** Double section, standard depth

STANDARD FEATURES:

- 5 racks
- Porcelain interior finish
- 50/50 independent stainless steel doors
- Double pane glass both doors
- 8" angular stainless legs/adjustable feet

OVEN SECTION:

- Stainless steel front
- Painted sides and top
- 1-1/2" insulation on bottom, sides and back
- 3" insulation on top
- Interior lights

OVEN CONTROLS:

- ☐ Power off/cook switch
- ☐ Dial type thermostat - 200° - 500°F
- ☐ 1-hour dial timer, electric buzzer

SHORT FORM SPECIFICATIONS:

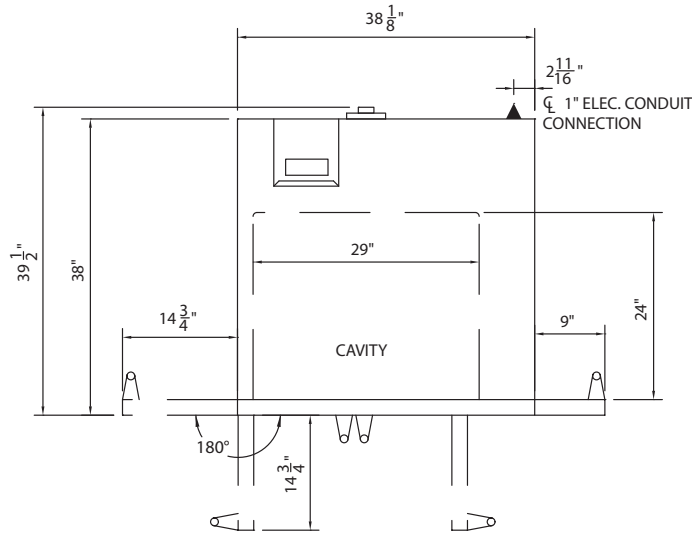
Duke Convection Ovens - "E" Series - Electric - Double Section.

Unit shall have stainless steel exterior front, painted sides and top. Bottom, back and sides, to be fully insulated with 1-1/2" thick board type insulation, top to have 3" thick insulation. Interior shall be porcelain enameled interior, with 7/8" radius, coved corners. Each section to include five oven racks. Each oven section shall be heated with 11 KW electric heating elements that encircle the blower wheel for even heat distribution. Fuse protected against overload. Unit to be completely front serviceable. Controls shall be: Power off/cook switch, dial type thermostat to operate from 200° - 500°F, and a 1-hour dial timer with electric buzzer. Doors shall be 50/50 independent stainless steel, insulated, and hinged on 5/8" solid stainless steel shafts with oil impregnated bronze bushings for each door. Double pane glass in both doors standard. Door to have roller style latch and catch mechanism. Legs shall be angular 8" high stainless steel, with adjustable feet. Units shall have the following options: 2-speed fan & casters. Limited 1 year warranty on parts and labor .

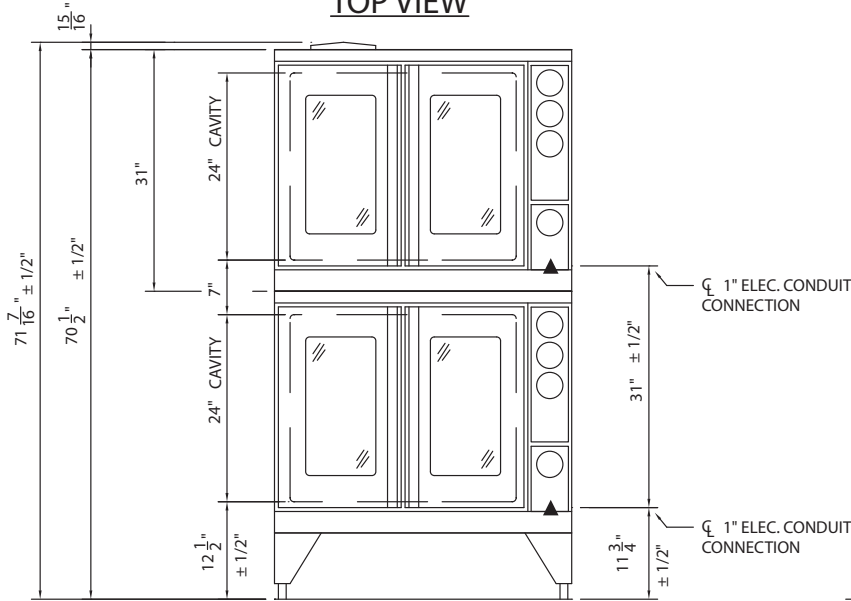
DUKE CONVECTION OVENS "E" SERIES - ELECTRIC - DOUBLE SECTION

□ **E102-E** Double section, standard depth

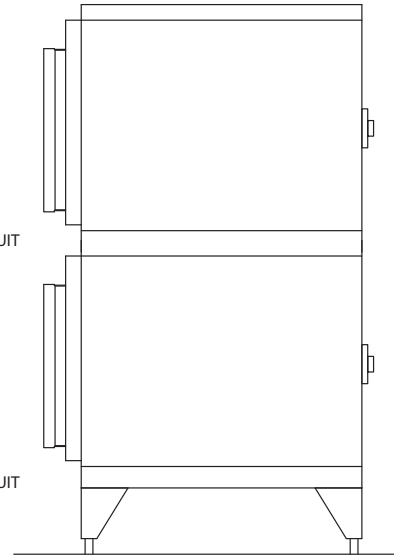
Electrical Specifications - Per Section				
	208V Amps	240V Amps	480V Amps	KW
1 Phase	52.8	45.8	n/a	10.0
3 Phase	30.5	26.5	13.3	10.0
▲ - Electronic connection point				



TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

DIMENSIONS:

FREIGHT CLASS: 85

Model	Depth front view		Width		Height top view		Cube ft. crated	Weight	
	in	cm	in.	cm	in.	cm		lbs	kg
E102-E	39-1/2	100.3	38	96.5	70-1/2	179.1	69.7	1020	464.0



DUKE MANUFACTURING CO.

2305 N. Broadway
St. Louis, MO 63102

800.735.3853 Toll Free
314.231.1130 In Missouri
314.231.5074 Fax
www.dukemfg.com

Specification subject to change

04/14
Printed in U.S.A.
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MODEL ZEPHAIRE-200-E

Full-Size Bakery Depth
Electric Convection Oven
(Formerly called Zephair E Plus)



OPTIONS AND ACCESSORIES

(AT ADDITIONAL CHARGE)

- **Legs/casters/stands:**
 - ☐ 6" (152mm) seismic legs
 - ☐ 6" (152mm) casters
 - ☐ 4" (102mm) low profile casters (double only)
 - ☐ 25" (635mm) stainless steel open stand with rack guides
 - ☐ 29" fully welded stand
- ☐ Extra oven racks
- ☐ SSD - solid state digital control with LED display, Cook & Hold and Pulse Plus®
- ☐ Vent connector
- ☐ 480 VAC, 3 phase
- ☐ Extended warranty

OPTIONS AND ACCESSORIES

(AT NO CHARGE)

- ☐ Solid stainless steel doors
- ☐ SSI-M - solid state infinite control w/manual timer

PROPOSED ALTERNATIVE 2

Project _____

Item No. _____

Quantity _____

Extra depth baking compartment- accepts five 18" x 26" standard full-size baking pans in left-to-right or front-to-back positions.

All data is shown per oven section, unless otherwise indicated.

Refer to operator manual specification chart for listed model name.

EXTERIOR CONSTRUCTION

- Full angle-iron frame
- Stainless steel front, top, and sides
- Dual pane thermal glass windows encased in stainless steel door frames
- Powder coated door handle with simultaneous door operation
- Triple-mounted pressure lock door design with turnbuckle assembly
- Removable front control panel
- Solid mineral fiber insulation at top, back, sides and bottom

INTERIOR CONSTRUCTION

- Double-sided porcelainized baking compartment liner (14 gauge)
- Aluminized blower wheel
- Five chrome-plated racks, eleven rack positions with a minimum of 1-5/8" (41mm) spacing

OPERATION

- Three tubular heaters
- Solid state thermostat with temperature control range of 200°F (93°C) to 500°F (260°C)
- Two speed fan motor
- 1/2 horsepower blower motor with automatic thermal overload protection
- Control area cooling fan
- Interior oven lights

STANDARD FEATURES

- SSI-D - solid state infinite control w/digital timer
- 25" (635mm) adjustable stainless steel legs (for single units)
- 6" (152mm) adjustable stainless steel legs (for double sections)
- Two year parts and labor warranty*
- Three year limited oven door warranty*

■ * For all international markets, contact your local distributor.



BLODGETT OVEN COMPANY

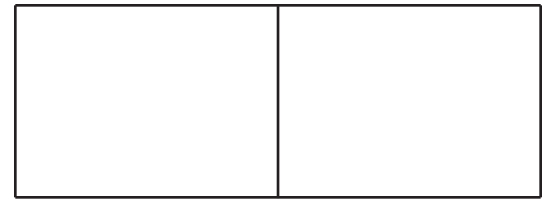
www.blodgett.com

42 Allen Martin Drive, Essex Junction, VT 05452 • Phone: (802) 658-6600 • Fax: (802) 864-0183

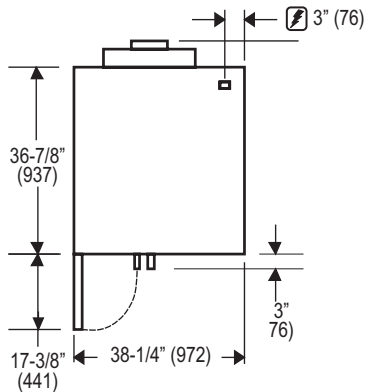
ZEPHAIRE-200-E



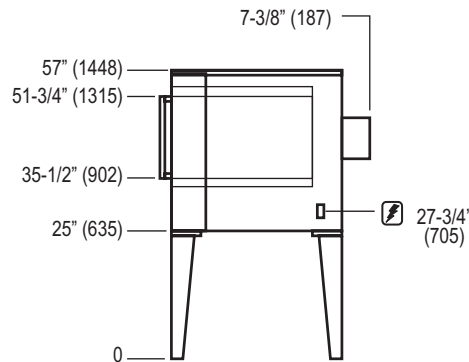
MODEL ZEPHAIRE-200-E



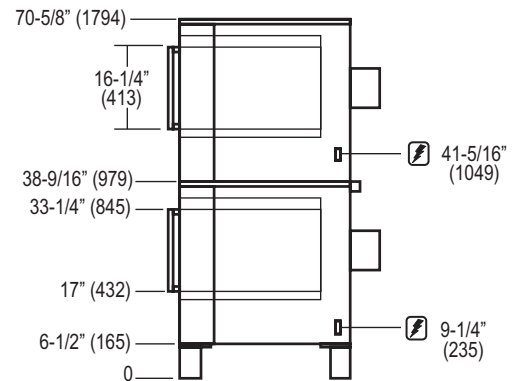
APPROVAL/STAMP



TOP VIEW



SINGLE



DOUBLE

Dimensions are in inches (mm)

SHORT FORM SPECIFICATIONS

Provide Blodgett full-size convection oven model ZEPHAIRE-200-E, (single/double) compartment. Each compartment shall have porcelainized steel liner and shall accept five 18" x 26" standard full-size bake pans in left-to-right or front-to-back positions. Doors shall have dual pane thermal glass windows with single powder coated handle and simultaneous operation. Unit shall be electrically heated with three tubular heaters. Air in baking chamber distributed by single inlet blower wheel powered by a two-speed, 1/2 HP motor with thermal overload protection. Each chamber shall be fitted with five chrome-plated removable racks. Control panel shall be recessed with Cook/Cool Down mode selector, solid state manual infinite thermostat (200 - 500°F), and digital timer. Provide options and accessories as indicated.

DIMENSIONS:

Floor space: 38-1/4" (972mm) W x 36-7/8" (936mm) L
Product clearance: 1/2" from combustible and non-combustible construction.
Interior: 29" (737mm) W x 20" (508mm) H x 28-1/4" (718mm) D
If oven is on casters:
Single Add 4-1/2" (114mm) to all height dimensions
Double Dimensions do not change
Double Low Profile Subtract 2-1/2" (64mm) from all dimensions

POWER SUPPLY:

208 VAC	60 Hz.	1 phase	11KW	51/0/51 Amperes,
208 VAC	60 Hz.	3 phase	11KW	31/29/29 Amperes,
220/240 VAC	60 Hz.	1 phase	11KW	44/0/44 Amperes,
220/240 VAC	60 Hz.	3 phase	11KW	26/24/24 Amperes,
440 VAC	60 Hz.	3 phase	11KW	15/14/14 Amperes,
480 VAC	60 Hz.	3 phase	11KW	14/13/13 Amperes,

1/2 HP, 2 speed motor, 1120 & 1710 rpm (60 Hz)
(50 Hz. ovens for 400/230, 380Y/220 VAC or 415Y/240 VAC (4 wire) 3 phase are available)

MAXIMUM INPUT:

Single	11KW
Double	22Kw (11KW each section)

MINIMUM ENTRY CLEARANCE:

Uncrated	32-1/16" (814mm)
Crated	37-1/2" (953mm)

SHIPPING INFORMATION:

Approx. Weight:

Single:	545 lbs. (247 kg)
Double:	1060 lbs. (481 kg)

Crate sizes:

37-1/2" (952mm) x 43-1/2" (1105mm) x 51-3/4" (1315mm)

NOTE: The company reserves the right to make substitutions of components without prior notice

BLODGETT OVEN COMPANY

www.blodgett.com

42 Allen Martin Drive, Essex Junction, VT 05452 • Phone: (802) 658-6600 • Fax: (802) 864-0183

O V E N S

VULCAN

VC44E SERIES DOUBLE DECK ELECTRIC CONVECTION OVENS



Model VC44ED
Shown with optional casters



SPECIFICATIONS

Double section, electric convection oven, Vulcan-Hart Model No. (VC44ED) (VC44EC). Stainless steel front, sides, top and legs. Independently operated stainless steel doors with double pane windows. Non-sag insulation applied to the top, rear, sides, bottom and doors. Porcelain enamel on steel oven interiors measure 29"w x 22 $\frac{1}{8}$ "d x 20"h. Two interior oven lights per section. Five nickel plated oven racks per section measure 28 $\frac{1}{4}$ " x 20 $\frac{1}{2}$ ". Eleven position nickel plated rack guides with positive rack stops per section. Each section heated by electric solid sheath elements rated at 12 KW. Furnished with a two speed $\frac{1}{2}$ H.P. oven blower-motor per section. Oven cool switch for rapid cool down. 208 or 240 volt, 60 Hz, 1 or 3 phase.

Exterior Dimensions:

40 $\frac{1}{4}$ "w x 41 $\frac{1}{8}$ "d (includes motor & door handles) 37 $\frac{3}{4}$ "d (includes motor only) x 70"h on 8" legs.

NSF listed. UL listed. UL listed to Canadian safety standards.

- ☐ **VC44ED** Solid state temperature controls adjust from 150° to 500°F. 60 minute timer with audible alarm.
- ☐ **VC44EC** Computer controls with digital time and temperature readouts. 99-hour timer with audible alarm. Roast and Hold cycle. One hundred programmable menu selections. Shelf I.D. programming.

STANDARD FEATURES

- Stainless steel front, sides, top and legs.
- Independently operated stainless steel doors with double pane windows.
- 25 total KW.
- $\frac{1}{2}$ H.P. two speed oven blower-motor.
- Moisture vent damper control.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interiors.
- Five nickel plated oven racks with eleven rack positions per section.
- One year limited parts and labor warranty.

OPTIONS

- ☐ Complete prison package.
 - ☐ Security screws only.
- ☐ Casters.
- ☐ Simultaneous chain driven doors.
- ☐ 480V/60 Hz/1 or 3 phase.
- ☐ Second year extended limited parts and labor warranty.

ACCESSORIES

- ☐ Stainless steel rear motor enclosure.
- ☐ Extra oven rack(s).
- ☐ Rack hanger(s).
- ☐ Stainless steel drip pan.
- ☐ Down draft flue diverter for direct vent connection.

VULCAN

a division of ITW Food Equipment Group LLC

P.O. Box 696 ■ Louisville, KY 40201 ■ Toll-free: 1-800-814-2028 ■ Local: 502-778-2791 ■ Quote & Order Fax: 1-800-444-0602



VC44E SERIES

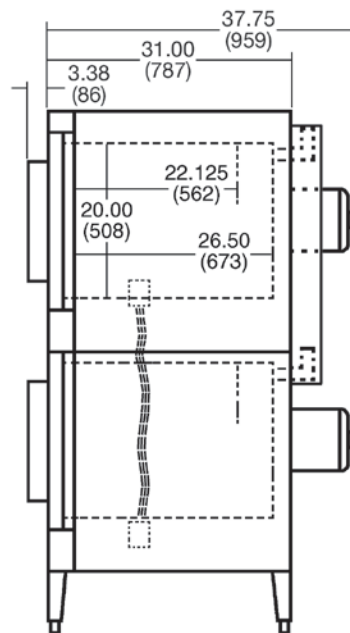
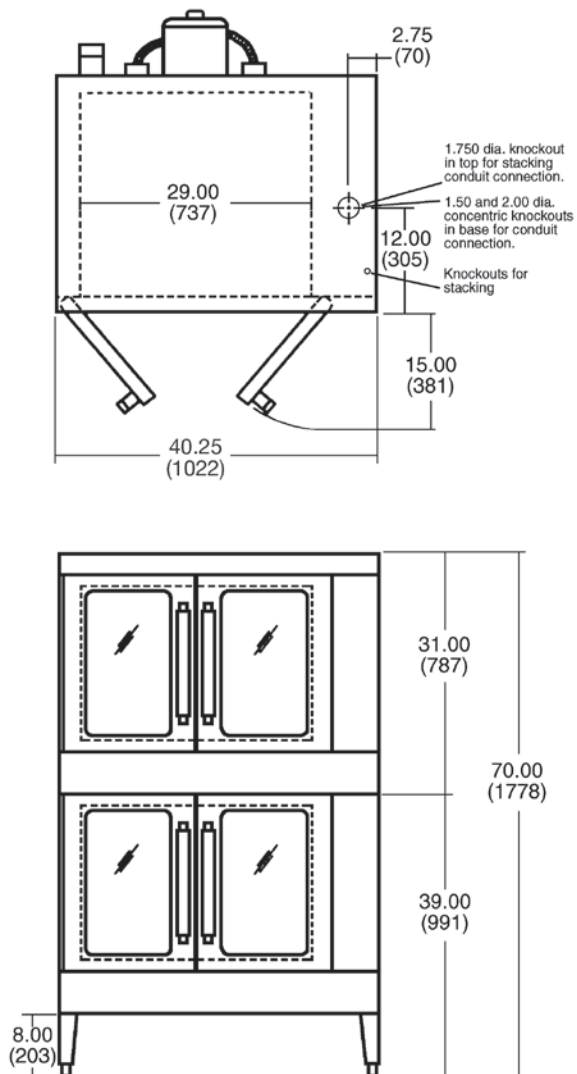
DOUBLE DECK ELECTRIC CONVECTION OVENS

OPTIONAL VOLTAGES

- ☐ 480 volt, 60 Hz, 3 phase.
- ☐ 220/380 volt, 50 Hz, 1 phase, 3 wire.
- ☐ 220/380 volt, 50 Hz, 3 phase, 4 wire.
- ☐ 240/415 volt, 50 Hz, 3 phase, 4 wire.

CLEARANCES

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE			NOMINAL AMPS PER LINE WIRE									1 PHASE		WEIGHT			
					3 PHASE											WITH SKIDS & PACKAGING		WITHOUT SKIDS & PACKAGING	
					208 VOLT			240 VOLT			480 VOLT								
		X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z	X	Y	Z	208V	240V	LBS.	KG	LBS.	KG
VC44E	25	8	8	9	70	66	70	66	58	66	28	30	30	120	104	880	400	778	352



a division of ITW Food Equipment Group LLC

P.O. Box 696 ■ Louisville, KY 40201 ■ Toll-free: 1-800-814-2028 ■ Local: 502-778-2791 ■ Quote & Order Fax: 1-800-444-0602

NOTE: In line with its policy to continually improve its products, Vulcan reserves the right to change materials and specifications without notice.

Drink Dispenser Cutsheets

CLASSIC BUBBLERS™ SINGLE BOWL

Project	Date	Models	Item#	Quantity
		D15-3, D15-4, D155-3, D155-4, D156-3, D156-4		



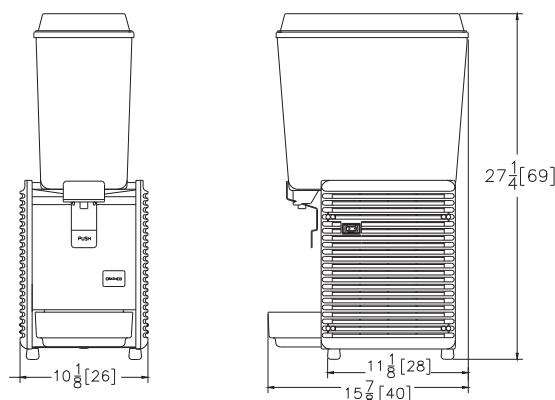
model D15-3

Features

- Pre-mix dispenser with large 5 gallon (18.9 L) bowl with easy to read measuring marks.
- Two-piece, stainless steel, dripless pouring valve is sanitary and easy to use and maintain.
- Better design and more stainless steel allow easier cleaning and less maintenance.
- Unique evaporator and high efficiency pump cools faster and more efficiently for quick start-up.
- Superior engineering allows full beverage cooling right down to the last drink.
- 1/6 hp refrigeration.
- Super-strong, virtually unbreakable polycarbonate bowls and covers give lasting durability.
- Agitators are included with each unit for fresh juices, coffees, or teas.
- Cup height 8.25" (20.5 cm).

Models & Dimensions

Classic Bubblers™ Single Bowl



model D15 represented
measurements in inches [cm]

Specifications

Model	Description	Electrical	Product Dimensions (H x W X D)	Ship Dimensions (H x W X D)	Ship Weight
D15-3 Base: (5619) Bowl: (5111)	Stainless steel side panels and drip tray UL, NSF, CUL Certification	120V / 340W / 3A 1 Ph	27.25" x 10 1/8" x 15 7/8" (69 cm x 26 cm x 40 cm)	Base: 15.5" x 13.5" x 13.5" (39 cm x 34 cm x 34 cm) Bowl: 8.5" x 14" x 15.5" (22 cm x 36 cm x 39 cm)	Total: 46 lbs (20.4 kg) Base: 37 lbs (16.8 kg) Bowl: 9 lbs (4.1 kg)
D15-4 Base: (5620) Bowl: (5121)	Plastic side panels and drip tray UL, NSF, CUL Certification	120V / 340W / 3A 1 Ph	27.25" x 10 1/8" x 15 7/8" (69 cm x 26 cm x 40 cm)	Base: 15.5" x 13.5" x 13.5" (39 cm x 34 cm x 34 cm) Bowl: 8.5" x 14" x 15.5" (22 cm x 36 cm x 39 cm)	Total: 46 lbs (20.4 kg) Base: 37 lbs (16.8 kg) Bowl: 9 lbs (4.1 kg)
D155*	NSF, CE Certification	230V / 50Hz / 2A	27.25" x 10 1/8" x 15 7/8" (69 cm x 26 cm x 40 cm)	Base: 15.5" x 13.5" x 13.5" (39 cm x 34 cm x 34 cm) Bowl: 8.5" x 14" x 15.5" (22 cm x 36 cm x 39 cm)	Total: 46 lbs (20.4 kg) Base: 37 lbs (16.8 kg) Bowl: 9 lbs (4.1 kg)
D156**	NSF, CE Certification	230V / 60Hz / 2A	27.25" x 10 1/8" x 15 7/8" (69 cm x 26 cm x 40 cm)	Base: 15.5" x 13.5" x 13.5" (39 cm x 34 cm x 34 cm) Bowl: 8.5" x 14" x 15.5" (22 cm x 36 cm x 39 cm)	Total: 46 lbs (20.4 kg) Base: 37 lbs (16.8 kg) Bowl: 9 lbs (4.1 kg)

* (D155-3) = Stainless steel side panels and drip tray (D155-4) = Plastic side panels and drip tray

** (D156-3) = Stainless steel side panels and drip tray (D156-4) = Plastic side panels and drip tray

Refrigerant: 134A

Options

Valve Cap (2039) - Improves sealing of valve when using pulpy product

Valve Locking Box (2502) - Secures the valve from dispensing during off-hours - not to be used with non-contact handle

Liquid Auto Fill (90295) - Ensures proper product and mixing consistency, eliminates need for frequent manual mixing

Shipboard Kit (5925) - Makes unit safer for installation aboard marine vessel; only available for use with agitator

Milk Fat Impellers (1161M Lg Blue or 1008M Sm Red) - Use with milk-based products, and/or products with heavy pulp

Condensation Cover (3657) - Direct and conceal condensation in high humidity or outdoor locations

Security Kit (2509) - Use with D15 models



GMCW™ 4003 Collins Lane, Louisville, KY 40245 USA

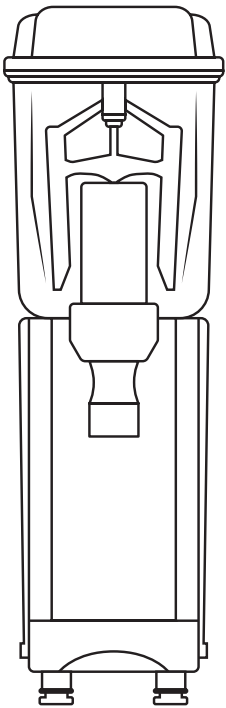
Tel: +1.502.425.4776 / 800.695.4500 (USA & Canada only) • Fax: +1.502.425.4664 • www.gmcw.com • Email: info@gmcw.com

USER MANUAL

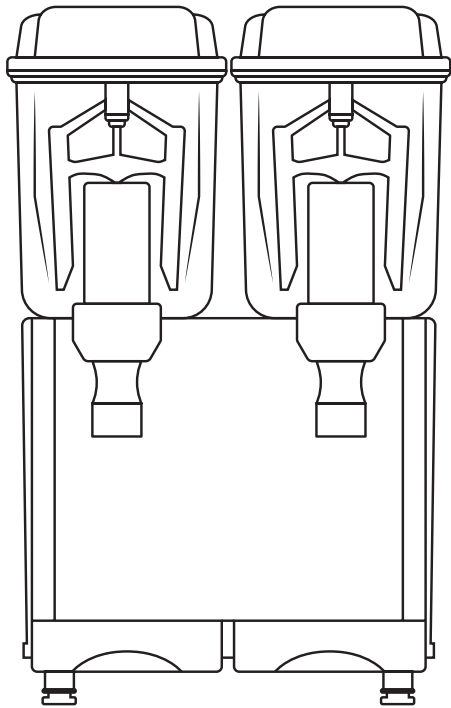
PROPOSED ALTERNATIVE 1



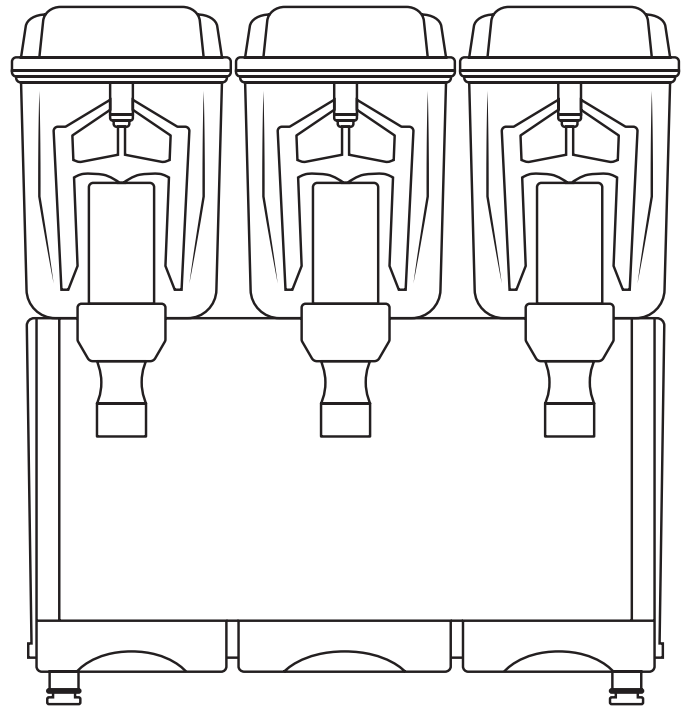
5 GALLON BOWL REFRIGERATED BEVERAGE DISPENSERS



#378D5G1
SINGLE BOWL



#378D5G2
DOUBLE BOWL



#378D5G3
TRIPLE BOWL

#378D5G4
FOUR BOWLS

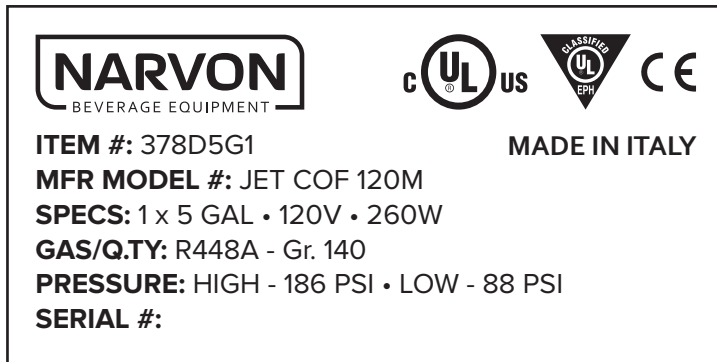
FEATURES & CONTROLS

TECHNICAL FEATURES

	D5G1	D5G2	D5G3	D5G4
Bowls	1	2	3	4
Capacity	1 x 5 Gal	2 x 5 Gal	3 x 5 Gal	4 x 5 Gal
Gas	R134a			
Width	8.2 in	16.3 in	24.2 in	31.5 in
Depth	16.9 in			
Height	28.9 in			
Weight	45 lb	70 lb	95 lb	132 lb.
Power	260W	550W	710W	1100W
Voltage	120V			

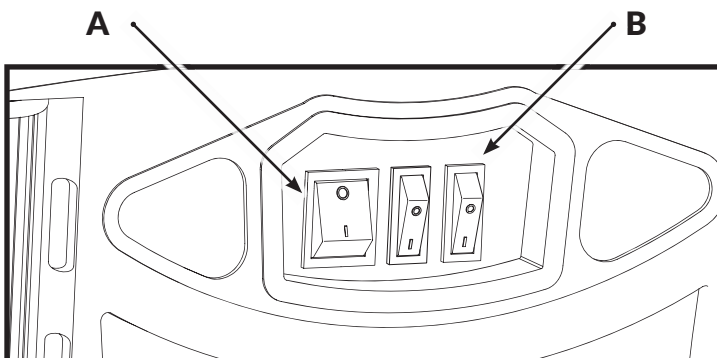
SERIAL PLATE

The technical features of the machine are reported on the serial plate attached on the frame.



MAIN CONTROLS

Positioned on the right side of the machine.



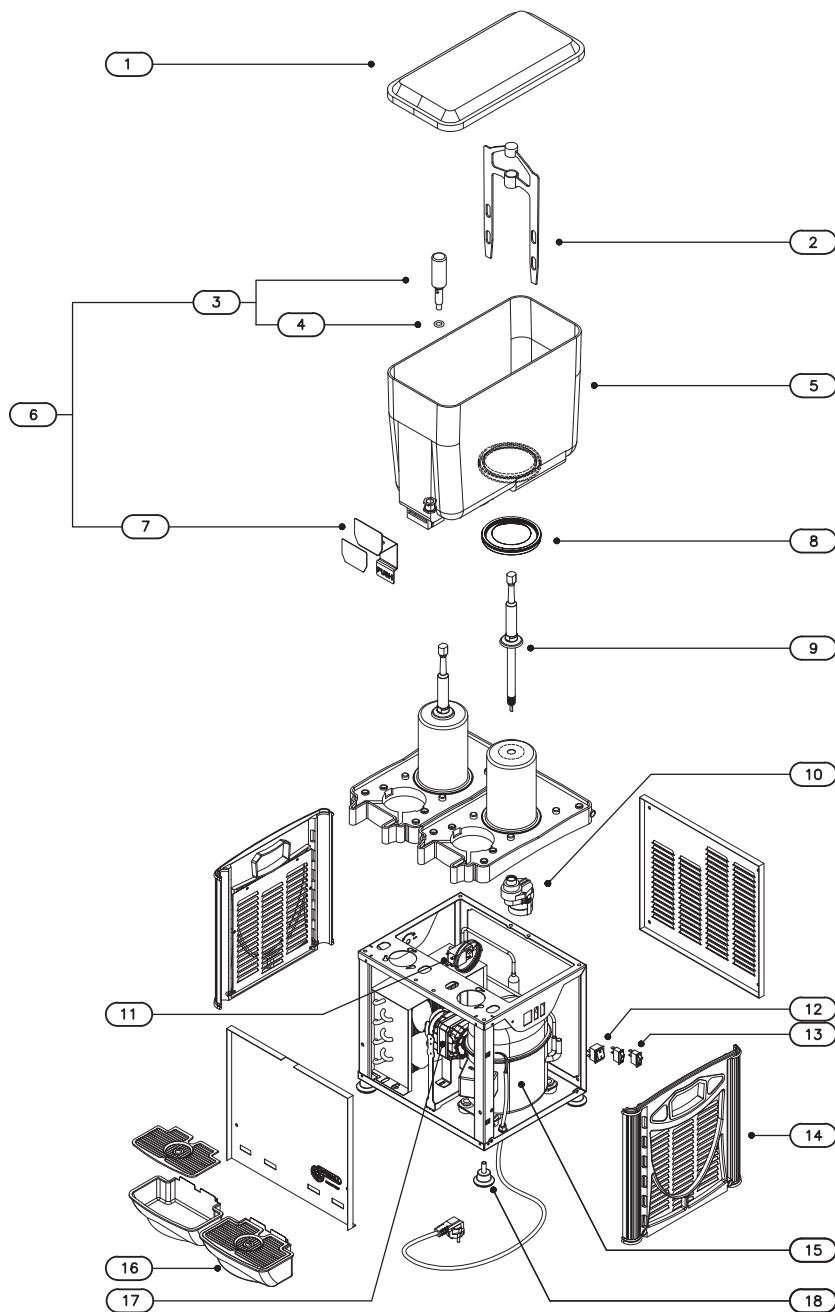
A - Main Power Switch

O: Machine is OFF
I: Machine is ON

B - Mixing System Switch(es) - One for Each Bowl

O: Mixer is OFF
I: Mixer is ON

PARTS DIAGRAM - D5G1/2/3



NO.	CODE	DESCRIPTION
1	169	Lid
2	180	Mixer Paddle
3	226	S/S Piston
4	153	O-R for Stainless Steel Tap
5	161	Bowl
6	215	Stainless Steel Tap Assembly
7	369	Push Lever
8	151	Bowl Gasket
9	184	Mixer Guiding Shaft
10	297	Gearbox 110V
	298	Gearbox 220V
11	64	Thermostat
12	57	Red Switch
13	56	Black Switch
14	0193,00	Side Panel Grey
	0193,01	Side Panel Red
	0193,02	Side Panel Blue
15	85	Compressor 220V
	86	Compressor 110V
	0067,02	Compressor 220V
	0067,03	Compressor 110V
	82	Compressor 220V/50
	83	Compressor 220V/60
	84	Compressor 110V
16	666	Drip Tray
17	182	Fan Motor 220V
	68	Fan Motor 110V
	833	Fan Motor 220V
	834	Fan Motor 110V
	835	Fan Motor 220V
	836	Fan Motor 110V
18	150	Rubber Leg

PROPOSED ALTERNATIVE 2

Specifications

Description

Always keep those refreshingly cold beverages flowing with Adcraft's new cold beverage dispensers. Their crystal clear 3 gallon polycarbonate bowl is great for merchandising juice, iced tea, lemonade and more. The manual temperature control is adjustable from 35°F - 46°F and keeps the beverages pouring at the ideal serving temperatures. This dispenser is constructed with a stainless steel dispenser valve, handle and cooling cylinder. Stainless steel base and drip tray makes clean up easy. Separate on/off switches for power and stirring paddle gives you full control of the operation of the unit. 110V/60Hz. 6' long power cord with a NEMA 5-15P plug. This unit is CE Certified and backed by Adcraft's 1 year replace or repair warranty.

Construction

- Clear 3 gallon polycarbonate bowls with lid
- Stainless steel base and drip tray
- Durable stainless steel dispenser valve, handle and cooling cylinder
- Non-slip feet for stability

Cooling System

- Refrigeration system uses R-134A refrigerant
- Adjustable manual thermostat ranges from 35°F - 46°F for ideal serving temperatures
- Stainless steel cooling cylinder and plastic paddle keeps the beverages cold and constantly mixed and ready to serve

Electrical

- Separate on/off switch for power and operation gives you complete control of the unit's operation
- 110V/60Hz electrical connection
- 6' power cord with NEMA 5-15 plug

Certifications/Approvals



Separate on/off power switches for each bowl gives you full control of operation



Manual temperature dial

Models:

☐ JD-1

☐ JD-2



JD-1



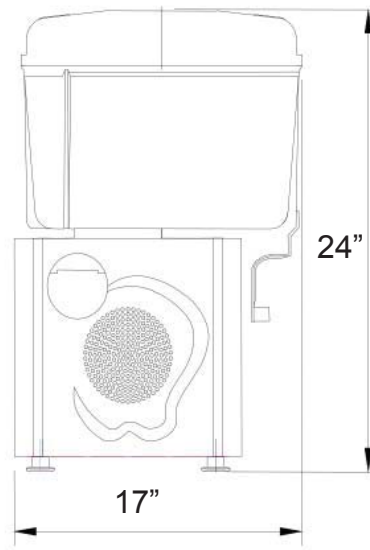
JD-2

Warranty: This product is protected by Admiral Craft Equipment Corporation's 1 year limited warranty. Should your product fail under normal use it will be repaired or replaced up to one year from date of purchase.





Cold Beverage Dispensers - JD-1 and JD-2

Plan View



Specifications

Item Number	Description	Per Bowl Capacity	Volts	Wattage	Amps	NEMA Plug
JD-1	Cold Beverage Dispenser -1 Bowl	3 Gallons	110V	278W	2.5	5-15P 
JD-2	Cold Beverage Dispenser -2 Bowl	3 Gallons	110V	300W	2.7	5-15P 

Item Number	Item Dimensions	Temperature Range	Refrigerant
JD-1	9"W x 17"D x 24"H	35°F - 46°F	R-134A
JD-2	17"W x 17"D x 24"H	35°F - 46°F	R-134A

Shipping Info

Item Number	Box Dimensions	Gross Weight	Net Weight
JD-1	14"W x 21.5"D x 28.75"H	48.5 lbs	44 lbs
JD-2	21.5"W x 21.5"D x 28.75"H	69.5 lbs	64 lbs

For more information about this or any of our other products go to www.admiralcraft.com. This item is listed on AutoQuotes. For full explanation of warranty coverage on this product please refer to warranty page located in the owner's manual and warranty section at www.admiralcraft.com. Specifications subject to change without notice. Please confirm at time of order.



Project Name:

Location:

Item:

Qty.:

Model:

Model **OSD10/20/30**

Commercial Drink Dispenser

PROPOSED ALTERNATIVE 3



Model **OSD10/20/30** Commercial Drink Dispensers

Omega Model OSD High Performance Drink Dispensers represent the ideal way to present drink products to your customer. Compactly designed with space saving in mind, our drink dispensers provide the highest level of performance in the smallest amount of space. A continuously circulating rotary system keeps the product fresh and perfectly consistent each and every time. They are built to withstand

daily use in fast-paced environments using durable materials like stainless steel and high-impact plastics. Add in the ease of use and short time required for cleaning and maintenance, and there is little doubt that this machine is a winner.

FEATURE LIST

	OSD10	OSD20	OSD30
Model:	OSD10	OSD20	OSD30
Capacity:	1 3-Gallon Bowl	2 3-Gallon Bowls	3 3-Gallon Bowls
Power:	300 Watts	420 Watts	500 Watts
Voltage:	120/60/1 220/50/1 220/60/1	120/60/1 220/50-60/1	120/60/1 220/50/1 220/60/1
Shipping Weight:	42 LB / 19 KG	69 LB / 31 KG	86 LB / 39 KG
Dimensions:	8" W x 17" D x 24"H 203mm W x 432mm D x 610mm H	16" W x 17" D x 24"H 203mm W x 432mm D x 610mm H	24" W x 17" D x 24"H 203mm W x 432mm D x 610mm H



Specifications subject to change without notice.

Approvals: ETL, ETL Sanitation



OMEGA

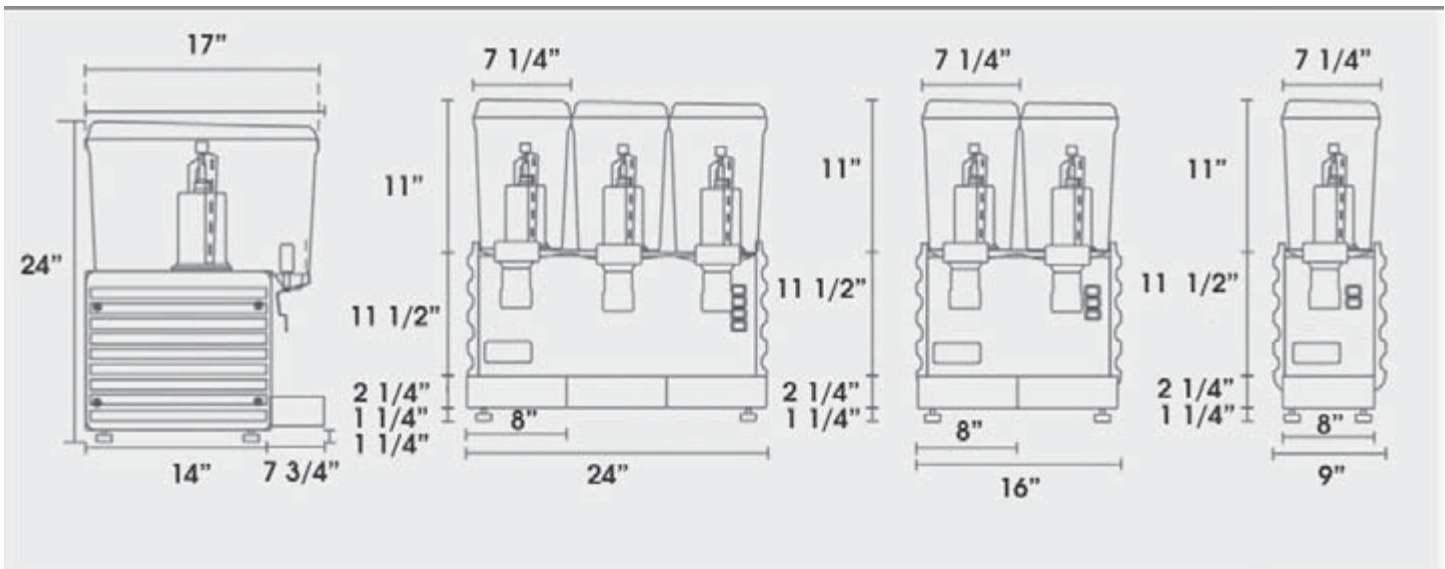
3355 Enterprise Ave • Suite 160 • Ft. Lauderdale, FL 33331
Tel: 954.202.7419 • Fax: 954.202.7337 • www.omega-juicers.com
Omega's continuing commitment to quality products may mean a change in specification or pricing without notice.



Model OSD10/20/30

PLAN VIEW

Commercial Drink Dispenser



Omega Model OSD High Performance Drink Dispensers represent the ideal way to present drink products to your customer. Compactly designed with space saving in mind, our drink dispensers provide the highest level of performance in the smallest amount of space. A continuously circulating rotary system keeps the product fresh and perfectly consistent each and every time. They are built to withstand

daily use in fast-paced environments using durable materials like stainless steel and high-impact plastics. Add in the ease of use and short time required for cleaning and maintenance, and there is little doubt that this machine is a winner.

- Continuous Rotary System for Product Consistency
- Durable Clear Polycarbonate 3 Gallon Bowls
- Stainless Steel Cooling Cylinder, Frame, and Front Panel
- Removable Drip Trays for Easy Cleaning
- Compact Design Saves Counter Space
- Easy Push Button Control System
- No-drip Stainless Steel Dispensing Mechanism
- Engineered for long-life with little maintenance



OMEGA
3355 Enterprise Ave • Suite 160 • Ft. Lauderdale, FL 33331
Tel: 954.202.7419 • Fax: 954.202.7337 • www.omega-juicers.com
Omega's continuing commitment to quality products may mean a change in specification or pricing without notice.

Food Mixer Cutsheets



Submittal Sheet

01/06/2020

ITEM# 74 - PLANETARY MIXER (1 EA REQ'D)

Globe SP20

Planetary Mixer, bench model, 20 qt. (19 liter) capacity, 3-speed (fixed), #12 hub, includes: stainless steel removable bowl guard with built-in ingredient chute, 20 qt. stainless steel bowl, aluminum spiral dough hook, stainless steel wire whip & aluminum flat beater, interlocked bowl lift, gear-driven motor, front-mounted touchpad controls with 60-minute digital timer & last batch recall, non-slip rubber feet, cast iron body, enamel gray finish, 1/2 HP, 115v/60/1-ph, 6.0 amps, cord, NEMA 5-15P, NSF, cETLus

ACCESSORIES

Mfr	Qty	Model	Spec
Globe	1		2 year parts & labor warranty (1 year parts only warranty on agitator and hub accessories, no labor provided) (excludes wear items), standard

ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1	Cord & Plug		5-15P	6.0		1/2		

[Q429](#) / [C000015503](#) / [LLW#104738](#)

Project Name: _____ AIA#: _____

Model #: _____ Location: _____

SIS#: _____ Item #: _____ Quantity: _____



20 Quart Planetary Bench Mixer

*The Perfect Mix of Value,
Performance & Durability*

*Features front mounted touch pad control
panel with 60-minute digital timer!*



Model

☐ SP20

Standard Features

- Powerful 1/2 HP custom built motor
- Gear-driven, high-torque transmission
- Heat-treated hardened steel alloy gears & shafts
- Three fixed speeds
- Permanently lubricated transmission
- Thermal overload protection
- Front-mounted touch pad controls with 60-minute digital timer and last-batch recall
- Removable stainless steel, interlocking bowl guard with built-in fully welded ingredient chute
- Interlocked bowl lift
- Rigid cast iron body
- Industry standard #12 attachment hub
- NSF approved enamel gray paint
- 6-foot cord and ground plug

Standard Accessories/Attachments

- 20 qt. stainless steel bowl (#304 series)
- Aluminum flat beater
- Stainless steel wire whip
- Aluminum spiral dough hook
- Non-slip rubber feet

Warranty

- Two years parts and labor

Optional Accessories/Attachments

- Seismic flange kit
- Polycarbonate splash shield insert
- Slicer/shredder/grater for #12 hub
- Meat grinder for #12 hub
- Meat tenderizer for #12 hub
- Strip cutter for #12 hub
- Stainless steel flat beater
- Stainless steel spiral dough hook
- 10 qt. adapter kit
- 12 qt. adapter kit
- Mixer table with undershelf
- Extended warranty

To select options, see complete list on back

Q429 / C000015503 / LLW#104738 Approved by: _____ Date: _____

2153 Dryden Rd., Dayton, OH 45439 | 937-299-5493 | 800-347-5423 | Fax: 937-299-4147 | www.globefoodequip.com

GLOBE FOOD EQUIPMENT COMPANY

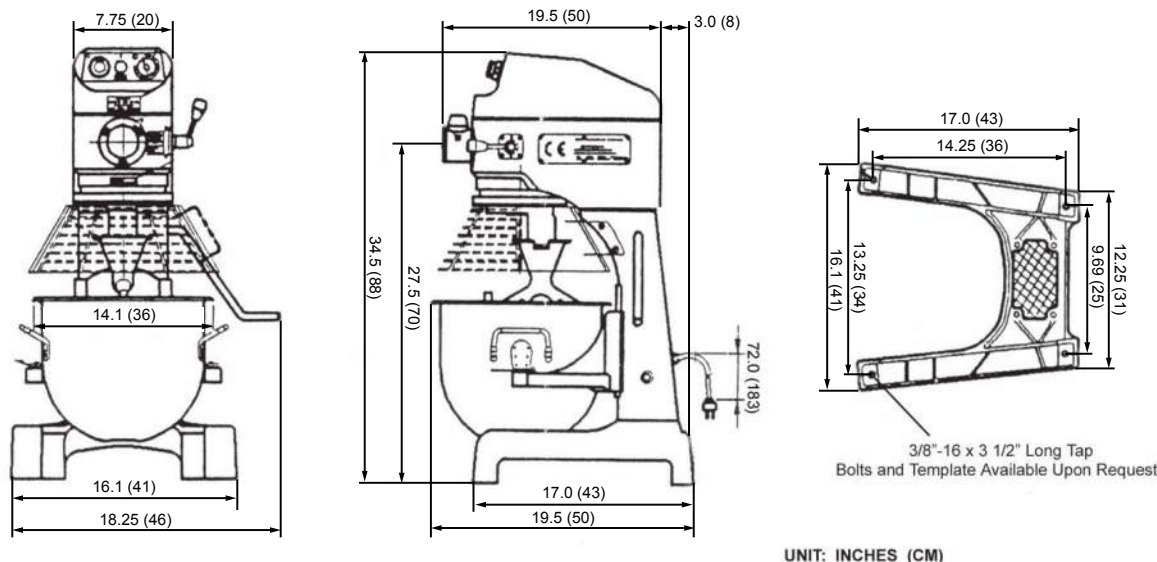
Globe® 20 Quart Planetary Bench Mixer

SP20



20 Quart Planetary Bench Mixer

SP20



UNIT: INCHES (CM)

Drawings available through KCL at www.kclcad.com.

SPECIFICATIONS

Model	Motor	Volts	Amps	Transmission Type	Capacity	Controls	Agitator Speeds (RPMs)			Attachment Speeds (RPMs)		
							1st	2nd	3rd	1st	2nd	3rd
SP20	1/2 HP	115/60/1	6	Gear	20 qt 19 liter	Front-mounted digital controls & timer	104	194	353	59	110	201

Cord & Plug: Attached 6-foot flexible 3-wire cord with molded plug fits a grounded receptacle. NEMA 5-15P

DIMENSIONS | SHIPPING INFORMATION

Carton reinforced for shipping. The weight and dimensions of this reinforced carton are included below and may vary from shipment to shipment.
This product ships on a pallet. Freight class 85.

Model	Base Foot Print	Overall Dimensions	Net Wt	Shipping Dimensions	Shipping Wt
SP20	16" W x 17" D (41 cm x 43 cm)	18.25" W x 19.5" D x 34.5" H (46 cm x 50 cm x 88 cm)	199 lbs (80 kg)	32" W x 40" D x 48" H (81 cm x 102 cm x 122 cm)	270 lbs (122 kg)

Mixer is constructed of a rigid cast iron body with front-mounted controls and a digital 60-minute timer with last-batch recall. Mixer has a 1/2 HP custom built motor with overload protection and gear-driven, high torque permanently lubricated transmission consisting of heat-treated hardened steel alloy gears and shafts. Mixer comes with 20 qt. stainless steel bowl, aluminum flat beater, stainless steel wire whip, aluminum dough hook and non-slip rubber feet. Interlocked, removable stainless steel bowl guard with fully welded on ingredient chute. Mixer has #12 attachment hub and interlocked bowl lift. Mixer is NSF and ETL listed. Two-year parts and labor warranty.

OPTIONAL MIXER ACCESSORIES AND HUB ATTACHMENTS

MIXER:

- ☐ **XXSEISMIC KIT-SM** Seismic kit
- ☐ **XXBGSHIELD-20** Bowl guard shield
- ☐ **XXBOWL-20** 20 qt. stainless steel (S/S) bowl
- ☐ **XXBEAT-20** Alum. flat beater
- ☐ **XXBEAT-20SS** S/S flat beater
- ☐ **XXHOOK-20** Alum. dough hook
- ☐ **XXHOOK-20SS** S/S dough hook
- ☐ **XXJHOOK-20** Alum. J dough hook
- ☐ **XXWHIP-20** S/S wire whip
- ☐ **XXHDWHIP20-4** Heavy-duty 2.8 mm S/S wire whip
- ☐ **XXAWHIP-20** S/S Aileron (wing) whip
- ☐ **XXSCRIP-20** scraper with mounting kit
- ☐ **XXACC10-20** Adapter kit - 10 qt bowl, hook, beater and whip

- ☐ **XXACC12-20** Adapter kit - 12 qt bowl, hook, beater and whip
- ☐ **XXPASTRY-20** Alum. pastry knife
- ☐ **XTable** S/S countertop mixer table with under shelf (30" W x 24" D x 24" H)

HUB:

- ☐ **XVSGH** 9" Slicer/Shredder/Grater housing only (no plates included-must select from plates listed on this sheet)
- ☐ **XASP** Adjustable slicing plate (for vegetables only)
- ☐ **XPH** Plate holder - *only 1 required
- ☐ **L00670** Meat Tenderizer attachment
- ☐ **L00783** Strip Cutter attachment
- Shredding Plates:**
- ☐ **XSP332*** 3/32" (2.3 mm)

- ☐ **XSP316*** 3/16" (4.7 mm)
- ☐ **XSP14*** 1/4" (6.3 mm)
- ☐ **XSP516*** 5/16" (7.9 mm)
- ☐ **XSP12*** 1/2" (12.7 mm)
- ☐ **XGP*** Grating plate
- ☐ **XMCA-SS** Meat grinder assembly (Polished stainless steel cylinder, worm gear, ring, and s/s pan. Includes knife, 3/16" plate, and pusher.)
- ☐ **XXCK** Chopper knife for XMCA-SS

Chopper Plate Sizes Available:

- ☐ **CP02-12** 1/16" (2 mm)
- ☐ **CP04-12** 5/32" (4 mm)
- ☐ **CP05-12** 3/16" (5 mm)
- ☐ **CP06-12** 1/4" (6 mm)
- ☐ **CP08-12** 5/16" (8 mm)

- ☐ **CP10-12** 3/8" (10 mm)
- ☐ **CP12-12** 1/2" (12 mm)
- ☐ **CP14-12** 9/16" (14 mm)
- ☐ **CP16-12** 5/8" (16 mm)
- ☐ **CP18-12** 11/16" (18 mm)
- ☐ **CP00-12** Stuffing plate
- ☐ **XST12** 1/2" Stuffing tube (mutton)
- ☐ **XST34** 3/4" Stuffing tube (pork)
- ☐ **FACTORY INSTALLED OPTION:**
XXCORR-20 Correctional package, includes tamper resistant external fasteners.
- ☐ **EXTENDED WARRANTY**
SP-XD1020 Extended warranty for SP20 mixer, extends factory warranty to 3 years. **Available only at time of purchase.**

Q429 / C000015503 / LLW#104738

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Food Processor Cutsheets

CURRENT SCA SPECIFICATION

sam tell companies

Submittal Sheet

01/06/2020

ITEM# 28 - FOOD PROCESSOR, BENCHTOP / COUNTERTOP (1 EA REQ'D)

Waring WFP16SCD

Combination Continuous-Feed/Batch Bowl Processor, 4 qt. batch bowl & feed operation, LiquiLock™ seal system, on, off & pulse push buttons, feed chute & chute cover, safety interlock, thermal protection, includes: WFP16S13 dicing assembly, WFP16S1 sealed S-blade, WFP16S10 adjustable slicing disc, WFP16S12 reversible shredding disc & WFP16S11 sealed whipping disc, heavy-duty die cast housing, 5' cord, 2 HP motor, 120V/60/1-ph, ETLus, cETLus, ETL-Sanitation

ACCESSORIES

Mfr	Qty	Model	Spec
Waring	1		5 year motor, 2 year parts & labor warranty, standard
Waring	1	WFP16S12A	Reversible Shredding Disc, for WFP16S & WFP16SCD models
Waring	1	WFP16S16	Grating Disc, reversible, 3mm on one side / 7mm on reverse side, stainless steel, for WFP16S & WFP16SCD models
Waring	1	WFP16S24	Julienne Disc, 8mm, for use with WFP16S, WFP16SCD
Waring	1	WFP16S2	Sealed Batch Bowl, 4 quart, for WFP16S & WFP16SCD models
Waring	1	WFP16S4	Continuous Feed Chute, for WFP16SCD model
Waring	1	WFP16S6	Large Pusher, for WFP16S & WFP16SCD models
Waring	1	WFP16S7	Small Pusher, for WFP16S & WFP16SCD models
Waring	1	WFP16S8	Slinger for Continuous Feed Chute, for WFP16S & WFP16SCD models
Waring	1	WFP16S9A	Disc Stem, for WFP16S & WFP16SCD models

ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	120	60	1	Cord & Plug		5-15P	5.6		2		

Q429 / C000015503 / LLW#104738

WARING COMMERCIAL



Sealed and Locked S-Blade
Locks into place and seals
liquids in the bowl



Sealed Whipping Disc
Quickly whips creams
and butters



Dicing Assembly
Rapidly dices large volumes

4-QUART FOOD PROCESSORS



WFP16S -
Batch Bowl



WFP16SCD -
Dicing/Continuous
Feed Chute and Batch Bowl

Over 20 Processing Options in One Machine!

- 4-quart sealed batch bowl processes soups, sauces, dressings and more
 - 2 peak HP commercial motor
 - Heavy-duty, die-cast housing
 - Continuous-feed chute for large volume slicing, dicing and shredding (WFP16SCD)
 - Best warranty in the industry!
- Limited 5 Year Motor, 2 Year Parts & Labor Warranty

Q429 / 0000016503 / LLW#104738



WFP16S/WFP16SCD



4-QUART FOOD PROCESSORS



ITEM	ELECTRICAL	LISTINGS	OUT OF BOX WEIGHT	OUT OF BOX DIMENSIONS	CORD LENGTH	WARRANTY
WFP16S	120 VAC, 60Hz	ETLus, ETL Sanitation	18.25 lbs.	14" x 9" x 19"	5 Feet	Limited 5 Year Motor, 2 Year Parts & Labor
WFP16SCND	120 VAC, 60Hz	cETLus, ETL Sanitation	18.25 lbs.	14" x 9" x 19"	5 Feet	Limited 5 Year Motor, 2 Year Parts & Labor
WFP16SCD	120 VAC, 60Hz	ETLus, ETL Sanitation	22.8 lbs.	14" x 15" x 18"	5 Feet	Limited 5 Year Motor, 2 Year Parts & Labor
WFP16SCDC	120 VAC, 60Hz	cETLus, ETL Sanitation	22.8 lbs.	14" x 15" x 18"	5 Feet	Limited 5 Year Motor, 2 Year Parts & Labor

ORDERING INFO INFORMATION	#STD. PKG.	GIFTBOX WEIGHT	CUBIC FEET	BOX DIMENSIONS	UPC	CASE PKG.	MC WEIGHT	MC DIMENSIONS	MBC
WFP16S	1	27.45	2.34	12.25" x 15.25" x 21.625"	040072022487	1	27.45	15.75" x 12.75" x 22.5"	10040072022484
WFP16SCND	1	27.45	2.34	12.25" x 15.25" x 21.625"	040072020124	1	27.45	15.75" x 12.75" x 22.5"	10040072020121
WFP16SCD	1	35.5	4.13	15.25" x 21.625" x 21.625"	040072023262	1	35.5	22.125" x 15.75" x 22.375"	10040072023269
WFP16SCDC	1	35.5	4.13	15.25" x 21.625" x 21.625"	040072025457	1	35.5	22.125" x 15.75" x 22.375"	10040072025454

AVAILABLE ACCESSORIES:

CATALOG #	DESCRIPTION	STANDARD WITH/OPTIONAL	STD. PKG.	UPC CODE
WFP16S1	Sealed S-Blade	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072023965
WFP16S2	Sealed 4-Quart Batch Bowl	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072023972
WFP16S3	Sealed Bowl Cover	WFP16S, WFP16SCD	1	040072023958
WFP16S3K	Sealed Bowl Cover	WFP16SCND, WFP16SCDC	1	040072030888
WFP16S4	Continuous-Feed Chute	WFP16SCD, WFP16SCDC	1	040072023941
WFP16S5	Continuous-Feed Chute Cover	WFP16SCD	1	040072023934
WFP16S5K	Continuous-Feed Chute Cover	WFP16SCDC	1	040072030895
WFP16S6	Large Pusher	WFP16S, WFP16SCD	1	040072023989
WFP16S6K	Large Pusher	WFP16SCND, WFP16SCDC	1	040072030871
WFP16S7	Small Pusher	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072023996
WFP16S8	Slinger for Continuous-Feed Chute	WFP16SCD, WFP16SCDC	1	040072024009
WFP16S9	Disc Stem	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072024016
WFP16S10	Adjustable Slicing Disc	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072024061
WFP16S11	Sealed Whipping Disc	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072024078
WFP16S12	Reversible Shredding Disc	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072024085
WFP16S13	Dicing Assembly	WFP16SCD, WFP16SCDC	1	040072024023
WFP16S16	Grating Disc	Optional	1	040072024054
WFP16S3A	Removable Seal Batch Bowl Cover	WFP16S, WFP16SCD	1	040072069130
WFP16S28	Batch Bowl Removable Seal for use with WFP16S3A	WFP16SCDC	1	040072068829
WFP16S9A	New Disc Stem	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072069147
WFP16S12A	New Reversible Shredding Disc	WFP16S, WFP16SCND, WFP16SCD, WFP16SCDC	1	040072069154
WFP16S18	Continuous-Feed Chute, Cover, Slinger, Dicing Assembly	Optional	1	040072069260
WFP16S19	Punch Tool 8mm	Optional	1	040072069222
WFP16S20	Punch Tool 10mm	Optional	1	040072069215
WFP16S21	Punch Tool 12mm	Optional	1	040072069208
WFP16S22	Julienne Disc 4mm	Optional	1	040072068768
WFP16S23	Julienne Disc 6.5mm	Optional	1	040072068775
WFP16S24	Julienne Disc 8mm	Optional	1	040072068782
WFP16S25	8mm Dicing/Slicing Disc & Punch Tool	Optional	1	040072068799
WFP16S26	10mm Dicing/Slicing Disc & Punch Tool	Optional	1	040072068805
WFP16S27	12mm Dicing/Slicing Disc & Punch Tool	Optional	1	040072068812

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Waring Commercial

314 Ella T. Grasso Avenue, Torrington, CT 06790

Tel. 800-492-7464 • Fax 860-496-9008

16WC019824



@waringcommercial

waringcommercialproducts.com

4-Quart LiquiLock® Seal System Combination Bowl Cutter Mixer and Continuous-Feed Food Processor with Dicing

WFP16SCD

More Product, Less Time, No Mess. Sealed from bottom to top, our LiquiLock® Seal System allows you to process more product in less time with no mess.



- Continuous-feed chute for large-volume processing
- 4-quart sealed cutter mixer bowl processes soups, sauces, dressings and more with ease
- 2 HP* commercial motor
- Heavy-duty die-cast housing
- Over 20 processing options in one machine!
- Unique batch bowl processing; shred, grate and slice directly in the batch bowl with the included disc stem

120V, 60 Hz, 5-15P ⓘ

ETL, ETL Sanitation

Best warranty in the industry!**

Limited Five-Year Motor and Two-Year Parts and Labor



OPTIONAL ACCESSORIES

Dicing Kits

WFP16S25 – 8mm – 5/16"

WFP16S27 – 12mm – 15/32"

Punch Tools

WFP16S19 for cleaning 8mm

WFP16S20 for cleaning 10mm

WFP16S21 for cleaning 12mm

Julienne Discs

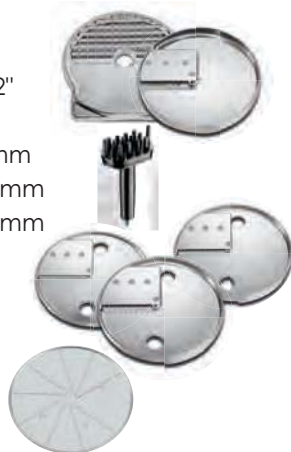
WFP16S22 – 4mm – 5/32"

WFP16S23 – 6.5mm – 1/4"

WFP16S24 – 8mm – 5/16"

Grating Disc

WFP16S16



Standard accessories included with WFP16SCD



10mm-3/8"
Dicing Kit
WFP16S26



Patented
Sealed & Locked
S-Blade
WFP16S1



Sealed & Locked,
Stainless Steel
Whipping Disc
WFP16S11



Patented
Adjustable 16 Cut
Slicing Stainless
Steel Disc (1-6mm)
WFP16S10



Reversible
Shredding Stainless
Steel Disc – Two Blades
in One, Fine Shred and
Coarse Shred
WFP16S12A

Q429 / C000015503 / LLW#104738

* Peak input **See page 30

PREP

31

PROPOSED ALTERNATIVE 1



PVC-500 FOOD PROCESSOR

- Designed for slicing, grating and shredding on all types of vegetables, fruits and cheese
- Machine shuts off if cover is opened
- Cover is completely removable allowing for easy cleaning and changing of discs
- Comes with 5 blades
- Easy to operate
- Durable design
- Anodized aluminum
- High power motor
- No volt safety release

5 blades included

Additional blades available



GRATING 7MM



GRATING 4MM



GRATING 3MM



SLICING 4MM



SLICING 2MM



514-737-9701 786-600-4687
TOLL FREE: 888-275-4538 TOLL FREE: 844-218-8477

5659 ROYALMOUNT AVE, MONTREAL, QC, CANADA H4P2P9
12000 BISCAYNE BLVD, SUITE #108, MIAMI, FL, USA 33181
MVPGROUPCORP.COM SALES@MVPGROUPCORP.COM

PROJECT NAME: _____

LOCATION: _____

ITEM: _____

QTY: _____

MODEL: _____



MODEL	PVC-500
POWER	0.75 HP / 0.56 kW
AMPERAGE	5
WATTS	550
ELECTRICAL	110V/60/1
DISC SPEED	270 RPM
HOPPER OPENING	5.11" x 2.16"
WEIGHT (NET/GROSS)	50.6 lbs / 55 lbs
DIMENSIONS (DWH)	19" x 9" x 19.70"
PACKAGING DIMENSIONS	22" x 12" x 23"



Intertek



Intertek



NEMA-5-15P



**Warranty: One year parts & labor, carry in
exclusive of wear items**

Specifications subject to change without notice

"PRIMO" is a registered trademark of MVP Group Corp.

Printed May 2018









PVC-500

FOOD PROCESSOR

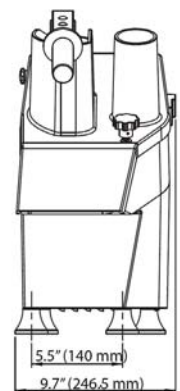
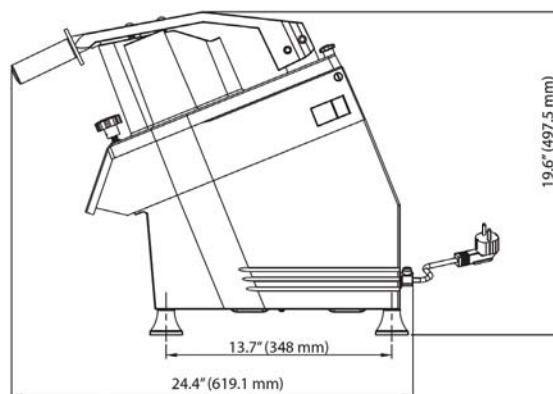
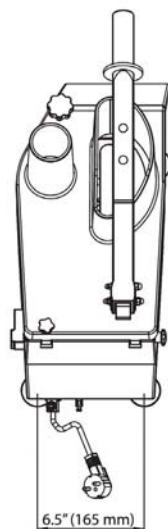


Accessories – Sold Separately

DICING	GRID CUT	SLICING	JULIENNE	SLICING	SLICING
					
D20 20x20x10mm	T10* 10x10mm	H10* 10x10mm	HU10* 10x10mm	H-14* 14mm	E5* 5mm
D12 12x12x10mm	T8* 8x8mm	H8* 8x8mm	HU8* 8x8mm	*Work alone	E2* 2mm
D10* 10x10x10mm	T6* 6x8mm	*Can work with other blades	HU4* 4x4mm		E1* 1mm
D8* 8x8x8mm	*Can work with other blades		HU2.5* 2.5x2.5mm	*Work alone	

*Can work with other blades

*Work alone



MVP
GROUP

514-737-9701 786-600-4687
TOLL FREE: 888-275-4538 TOLL FREE: 844-218-8477

5659 ROYALMOUNT AVE, MONTREAL, QC, CANADA H4P2P9
12000 BISCAYNE BLVD, SUITE #108, MIAMI, FL, USA 33181
MVPGROUPCORP.COM SALES@MVPGROUPCORP.COM

Warranty: One year parts & labor, carry in exclusive of wear items

Specifications subject to change without notice

"PRIMO" is a registered trademark of MVP Group Corp.
Printed May 2018



www.BakeMax.com

PROPOSED ALTERNATIVE 2

Project: _____

Item: _____

Qty: _____ Date: _____

BakeMax BMVC001 Vegetable Cutter



The BakeMax® Vegetable Cutter is a countertop machine for slicing, grating and shredding fruits & vegetables. With its robust design and stainless steel construction, makes it a great choice for Restaurants, Delis, Cafes and more. This food processor comes with 2 knives: 2.5mm and 4.5mm and 3 shredding discs: 3mm, 4mm and 7mm.

Features:

- 3/4 HP motor offering 270 RPM
- Stainless steel construction & design meets all safety standards
- Includes 2 knives: 2.5mm and 4.5mm and 3 shredding discs: 3mm, 4mm and 7mm.
- Electrical: 110v / 5amps / 550watts / 60Hz / Nema 5-15P
- Dimensions (WDH): 20" x 9" x 22.44"
- Net Weight: 51 lb
- 1 year limited warranty



Shipping Specification:

- Packaged Dimensions (WDH): 23" x 12" x 23"
- Packaged Weight: 60 lb





Includes 2.5 & 4.5mm Slicing Discs and 3, 4, & 7mm Shredding Discs
Additional Discs Available Upon Request (Slicing, Dicing, Grating & Shredded)

** Due to continuous product improvement, specifications are subject to change without notice.

BakeMax® / Titan Ventures International Inc.

Warehouses:

170 Millennium Blvd, Moncton, NB, E1E2G8 
1605 Crescent Cr Carrollton, TX, Dallas, TX 75006 

Toll Free: 1-800-565-BAKE (2253)

Phone: 506-858-8990

Fax: 506- 859-6929

Email: Sales@BakeMax.com

R 2 B



D

Number of meals per service

10 to 20

Quantity per batch
in cutter function

Up to 2.2 lbs

A

SALES FEATURES

The R 2 B Bowl Cutter Mixer is ideal for grinding, mincing and kneading, as well as for making mousses, emulsions and smooth stuffings. It effortlessly performs even the lengthiest task in just a few minutes, consistently producing a flawless end product.

B

TECHNICAL FEATURES

R 2 B Bowl Cutter Mixer. Single phase 120/60/1. Power 1HP. Speed: 1725 rpm. 2.9 L cutter bowl in composite material and smooth bowl-base blade assembly. 10 to 20 meals.

Select your options at the back page, **F** part.

C

TECHNICAL DATA

Output power	1 HP
Electrical data	120V/60/1 - 7 Amp
Speed	1725 rpm
Dimensions (WxDxH)	16 9/16" x 11" x 8 11/16"
Rate of recyclability	95%
Net weight	25 lbs
Nema #	5-15P
Reference	R 2 B 120V/60/1

E

PRODUCT FEATURES / BENEFITS

MOTOR BASE

- Direct drive induction motor (no belt) for intensive use.
- Power 1HP
- Stainless steel motor shaft.
- Motor base made from heavy-duty composite material.
- Manual reset.
- **Speed:** 1725 rpm.
- **Pulse** button for better cut precision.

CUTTER FUNCTION

- 2.9 L cutter bowl with handle for better grip
- Bowl-base high resistance smooth blade assembly for homogeneous processing even for small amounts
- Central lid opening for adding liquid or solid ingredients during processing
- High heat- and shock-resistant see-through lid to monitor processing from start to finish
- All parts are dishwasher-safe and can easily be removed for cleaning

ACCESSORIES INCLUDED

- Cutter attachment: lid, bowl, and high resistance stainless steel smooth blade assembly with removable cap.

STANDARDS

ETL electrical and sanitation Listed/ cETL (Canada)



R 2 B

F OPTIONAL ACCESSORIES

- Coarse serrated blade assembly for kneading and grinding, ref 27138
- Fine serrated blade assembly for chopping herbs and spices, ref 27061
- Cuisine Kit ref 27393



Coarse-serrated

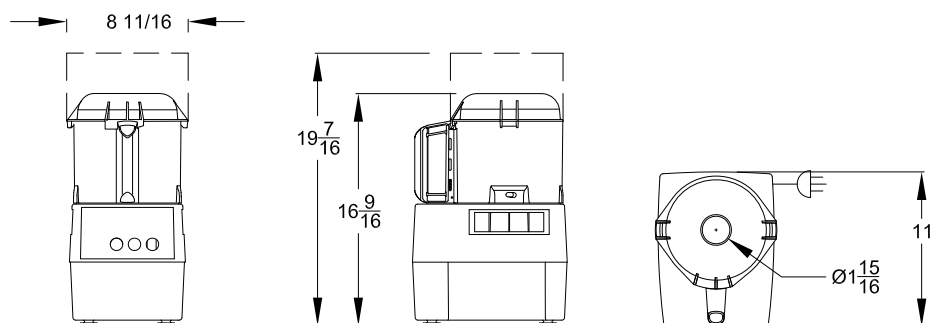


Fine-serrated

G

ELECTRICAL DATA

120V/60/1 - delivered with cord and plug



Food Slicer Cutsheets



Submittal Sheet

01/06/2020

ITEM# 30 - MEAT SLICER (1 EA REQ'D)

Bizerba GSP HD STD-90

Automatic Heavy Duty Safety Slicer, 13" blade, product fence, 3-speeds, 3-strokes, servo assist, 8-safety interlocks, seamless anodized aluminum construction, high carriage 25° incline towards operator, 40° gravity feed, thumb guard 3.5" W, remote sharpener with spring-loaded dial, slice thickness 0-0.94", VFD-motor, 120v/60/1-ph, 2.6 amps, 0.24kW, cord with NEMA 5-15P, ETL-Sanitation, UL-157 gaskets & seals, cETLus, DGUV safety tested

ACCESSORIES

Mfr	Qty	Model	Spec
Bizerba	1	STANDARD WARRANTY	1 year parts, labor, & travel time during normal Bizerba working hours within the (50) US, standard
Bizerba	1	INSTALLATION	Installation, Start-up & Training (IST) included with purchase, count on us for a proper IST, it includes labor & travel time during normal & local Bizerba working hours within the (50) United States, please contact Bizerba for scheduling your IST, toll-free 1-800-229-3115 or email: us.service@bizerba.com, standard
Bizerba	1	GSP H-HD-VC-1	Vegetable Chute, 7" dia. X 12" L with stomper GSP H & HD series ONLY
Bizerba	1	GSP BLADE-13	Bizerba Genuine Replacement Blade, 13" diameter, (4) hole, 60-62 Rockwell hardness at the edge, for use with GSP Series, SE8 & SE12/A400 RA models

ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	120	60	1	Cord & Plug		5-15P	2.6	.24			

Q429 / C000015503 / LLW#104738



BIZERBA

Food Service

Bizerba GSP series slicers are certified to the NSF/ANSI Standard 8-2017

Safety is our top-priority ...

... GSP HD STD-90 series – automatic safety slicer ...

GSP HD Standard Safety Features - 90mm wide Thumb Guard

- Variable 3-Speed, automatic drive system
- 3 Stroke Lengths, easily adapts to changing menu
- Energy Efficiency: Emotion intelligent motor control, motor adapts its performance to the resistance of the product, 255 r.p.m.
- High Yield: Operating time, designed for permanent operation
- High Yield: Unique carriage-shifting design allows for the smallest end pieces, increased product yield
- High Yield: Food fence holds product in place during automatic slicing, included
- High Yield: Widest product carriage for increased capacity
- High Yield: heavy-duty, 3 lb. blade knife cover
- High Yield: Debris deflector, permanently mounted, included
- High Yield: Precision machined pencil-point-groves on gauge plate, blade cover and carriage to reduce friction, better looking product
- Interlock: No-volt release
- Interlock: Shut off in slice thickness knob
- Interlock: Adjustable blade shut off settings: 15, 30, 45 seconds or off
- Interlock: Carriage and gauge plate lock during the cleaning process
- Interlock: Forced start with slice thickness knob below zero
- Operator Safety: 3.5"W (90mm) x 9.13"H x 2.6"D thumb guard wall for maximum protection
- Operator Safety: 360° blade enclosure, no top gaps
- Operator Safety: Zero blade exposure during the cleaning process
- Operator Safety: Front mounted controls
- Operator Safety: Rear mounted lift arm with largest and easiest to use remnant holder with 306 holding points, removable for cleaning, dishwasher safe
- Operator Safety: The ability to adjust both the speed and the stroke of the carriage "on-the-fly" will speed up your operation
- Operator Safety: Servo-motor provides assistance to operator by decreasing slicing effort, reduces operator fatigue during manual slicing mode
- Operator Safety: Low profile carriage for easy loading of heavy product
- Operator Safety: Side lift arm for easy cleaning under slicer
- Food Safety: One piece anodized aluminum construction
- Food Safety: Non-removable carriage system for faster cleaning and sanitizing
- Food Safety: Double-sided seal between blade knife and housing, no gap for food to collect, better hygiene
- Food Safety: UL157 dairy grade seals and gaskets used to seal against water and food debris, no silicone used under seals, better hygiene
- Food Safety: Liquid and debris diversion from all control surfaces
- Food Safety: Remote blade sharpener does not collect food debris during operation and is dishwasher safe for improved safety and hygiene
- Food Safety: One piece carriage with seamless thumb guard for highest hygiene standards, no slotted-screw heads on thumb guard
- One Year Warranty: On-site, labor and parts



Emotion
Efficient in energy ...



BIM | CAD | MOBILE

Best blade in the industry

The unique design of our blade produces clean and consistent slices. The hardness results in a long lasting sharp edge. The life of the blade is dramatically longer than the competition. Our standard blade is the hardest, thinnest, largest, straightest blade in the industry.

- 13" diameter, chromium coated hard alloy
- 60-62 Rockwell hardness at the edge
- Accurate slicing on meats and even the most demanding cheese products over a wide temperature range



Q429 / C000015503 / LLW#104738

Model #: GSP HD STD-90 | Stock #: 913004009

C.S.I. Division 11 | Section 4000

Project Name: _____ AIA # _____

Location: _____ SIS # _____

Item Number: _____

Quantity: _____

BIZERBA**Food Service****Emotion[®] Technology -
Variable Frequency Drive Motor**

- 120 V, specialized data available on request
- 60 Hz | 1-phase AC current
- Frequency of nominal current 2.6 A
- Power consumption 0.240 kW
- Energy savings up to 60%
- Idle-running requires 45% less energy
- Stand-by mode 0.0 kW energy usage
- Cutting performance adapts to cutting resistance of the product
- Less heating of machine, cooler food-zone surface

Blade diameter

- 13" (330 mm)

Blade speed

- 255 r.p.m.

Max. produce size

- Round: 7.95" (202 mm)
- Height: 4.96" (126 mm)
- Width: 11.42" (290 mm)

Strokes per minute

- Full: 30-40-50
- Mid: 35-48-58
- Short: 60-68-75

Slice thickness

- 0-0.94" (0-24 mm), infinitely variable

Thumb-guard rear wall

- 3.5"W x 9.13"H x 2.6"D (90 x 235 x 67 mm)

Gravity-feed slicing carriage

- 40° inclined gravity feed

H - Carriage inclination

- Carriage inclined 25° towards operator
- Carriage height positioned towards center of blade

Noise control drive system

- 61 dB level - a 20% reduction in decibel pollution

Installation area

- (L x W) 20.94" x 17.48" (532 x 444 mm)

External dimensions

- (L x W x H) 28.5" x 22.48" x 24.67"
724 x 571 x 627 mm

Operating area

- (L x W) 31.73" x 35.39" (806 x 899 mm)
- Recommended Above Floor Tabletop Height 31.5" (800mm)

Food Safety - Ingress Protection type

- IP Solids level 3 | Liquids level 3

Weight of machine

- 122 lbs, 55 kg

Shipping Details & Dimensions

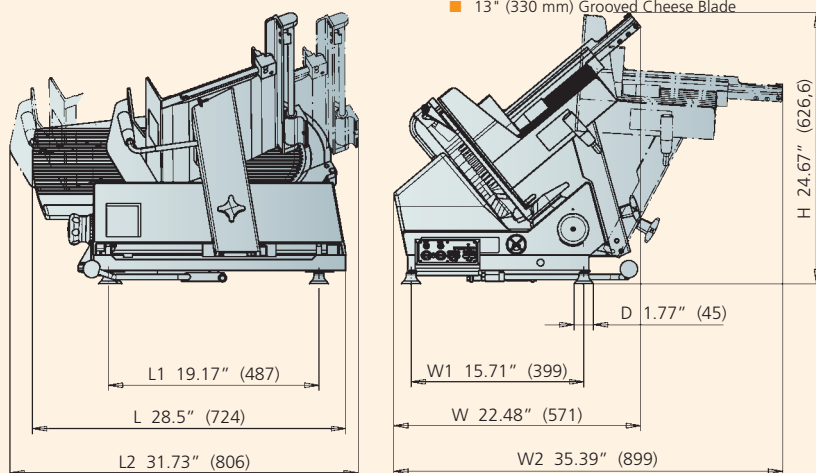
- Total Shipping Dimensions (L x W x H):
32.5" x 27.8" x 32" (826 x 706 x 813 mm)
- Total Shipping Weight: 150 lbs, 68 kg
- Cubic: Ft. 16.89, 0.48 m
- Density: 8.88 lb/cubic ft, 142.6 kg/cubic m

Additional equipment

- Vegetable chute 7" dia x 12"L (178 x 350 mm),
3 lb (1.36 kg) easy-gliding stompers
- 2"H (51 mm) Product fence
- Equipment Stand
- Extended Warranty
- 13" (330 mm) Grooved Cheese Blade



Remote sharpener, better food safety

**Warranty**

The GSP HD Safety Slicer carries a one-year, on-site parts and labor warranty against any flaws in materials and workmanship. This period begins with the date of purchase and, provided the unit is used properly in accordance with our instructions, is in full effect for one year from that date. Any work to be performed under this warranty must be performed between the hours of 8:00 a.m. and 4:30 p.m. local time, Monday to Friday. Bizerba will not pay over-time charges for work performed other than during normal business hours. Accessories have a 30-day replacement or repair warranty for the period beginning on the date of purchase. Damages incurred in transit or from installation error, accident, alteration or misuse are not covered. Transit damages should be reported to the carrier immediately. Bizerba shall not be liable for any consequential, compensatory, incidental, or special damages. All warranty work must be performed by a factory authorized Bizerba Representative.

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www.bizerba.com.mx

Q429 / C000015503 / LLW#201739

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BIZERBA**Food Service**

... Bizerba Original Accessories –
sophisticated solutions of the highest quality ...

Accessory for B 100 Bread Slicer**BZ-56-2 Work Table Equipment Table**

Rolling working table, front edge rolled-down, back and side edges rolled-up, retractable casters for optimum cleanability. Provides excellent stability and correct working height for using the bread slicer.

**Accessory for GSP HD Safety Slicer Series (Only)****GSP HD-F2PP-1****Product Fence with Special Remnant Holder**

Two 2" high adjustable fences and adapter to remnant holder allows dual pusher to control slice of round soft foods such as 4x5 tomatoes, peppers, oranges, etc.

**Accessory for GSP H & HD Safety Slicer Series****GSP H-HD-VC-1****Vegetable Chute & Stomper**

Handles hard to slice products quickly and safely. The extra heavy stomper allows easy feed for products such as lettuce, cabbage, celery and pepperoni.



Q429 / C000015503 / LLW#104738

Model #: _____ | Stock #: _____

C.S.I. Division 11 | Section 400

Project Name: _____ AIA # _____

Location: _____ SIS # _____

Item Number: _____

Quantity: _____

BIZERBA■ **Food Service****Accessory for A 400 & vs 12 D-V Slicer Series****168990 - Shaving Attachment**

Piles very thin sliced products into sandwich portions.

**Accessory for S 111 Plus Strip Cutter Tenderizer****FT-1 Top Mounted Feed Tray**

This tray is convenient for holding products being fed into the machine.

**Accessory for all machines****H1 Lubrication Oil****BIZ H1 CAN****BIZ H1 CASE**

Convenient 12 oz. spray can keep machines running properly. NSF & USDA approved. Available in 1-can and 1- case of 12.

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 contacto@bizerba.com.mx
 www.bizerba.com.mx

Q429 / C000015503 / LLW#104738



Outperform every day.™

Project:

Item Number:

Quantity:

Medium-Duty Electric Slicers

The Vollrath Company, L.L.C.

MEDIUM-DUTY ELECTRIC SLICERS



40950



40951

Medium-Duty Electric Slicers

DESCRIPTION

The Vollrath Medium-Duty Electric Slicers are available with either a 10" or 12" blade. They are ideal for slicing meats in medium-volume operations and small restaurants.

ITEMS

Item No.	Model No.	Description
40950	SLM250/S	10" Medium-Duty Slicer, 25°
40951	SLM300P/S	12" Medium-Duty Slicer, 25°

FEATURES

- QuanTanium® coated non-stick plate increases glide performance and reduces clean-up time
- Built-in sharpener
- 25 degree gravity feed maximizes productivity by reducing operator fatigue and discomfort
- Safety hand guard mounted to the carriage
- Safety cover under the motor
- Hard coated anodized aluminum body
- Non-marking, non-skid rubber feet
- Belt driven. Durable, long-wearing belt provides reliable service.
- Slice adjustment knob for precise and consistent slice thickness
- Removable carriage for easy cleaning
- 6'4" (1.9 m) cord with plug

40950

- 1/3 peak HP motor
- 10" blade
- Space-saving design with small footprint
- Easy to carry for catering needs

40951

- 2/5 peak HP motor
- 12" blade
- Permanent blade rim guard for safety
- Great cutting capacity within a compact footprint

ACCESSORIES

- ☐ 40898 - 10" safe blade removal tool, fits 40950
- ☐ 40893 - 12" safe blade removal tool, fits 40951
- ☐ 40899 - Carriage handle for Quebec, fits 40950 and 40951

Warranty

1 year on parts, 1 year on labor and 5 years on the belt.
See Vollrath.com for full warranty details.

Agency Listings



Certified to
NSF/ANSI 8

Due to continued product improvement, please consult
www.vollrath.com for current product specifications.

Approvals

Date



Outperform every day.™

www.vollrath.com

The Vollrath Company, L.L.C.

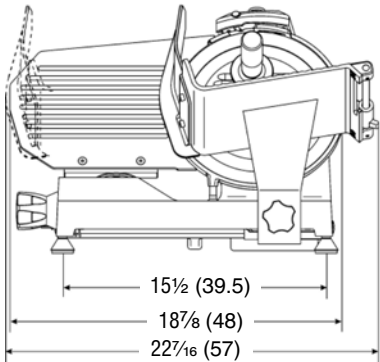
1236 North 18th Street
Sheboygan, WI 53081-3201 U.S.A.
Main Tel: 800.624.2051 or 920.457.4851
Main Fax: 800.752.5620 or 920.459.6573
Customer Service: 800.628.0830
Canada Customer Service: 800.695.8560

Technical Services
techservicereps@vollrathco.com
Induction Products: 800.825.6036
Countertop Warming Products:
800.354.1970
All Other Products: 800.628.0832

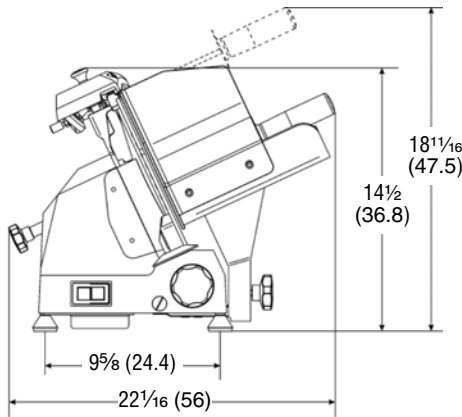
MEDIUM-DUTY ELECTRIC SLICERS

DIMENSIONS (Shown in inches (cm))

40950

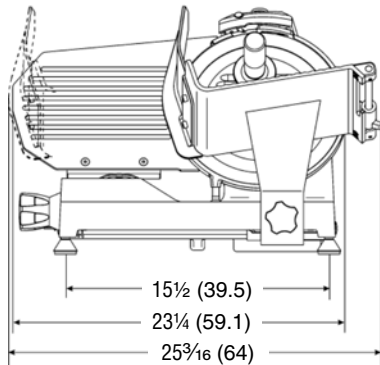


Side View

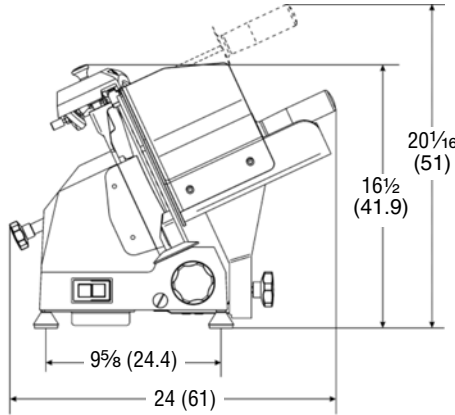


Front View

40951



Side View

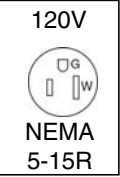


Front View

SPECIFICATIONS

Item	Description	Peak HP	Voltage	Amps	Hertz	Weight Lbs (Kg)	Plug
40950	10" Medium-Duty Slicer, 25°	1/3	120	2.5	60	35 (16)	NEMA
40951	12" Medium-Duty Slicer, 25°	2/5		1.8		45 (20)	5-15P

Receptacle



Outperform every day.™

www.vollrath.com

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Technical Services
techservicereps@vollrathco.com
 Induction Products: 800.825.6036
 Countertop Warming Products:
 800.354.1970
 All Other Products: 800.628.0832

Hot Food Slide Cutsheets



GLO-RAY® DESIGNER MERCHANDISING WARMERS

Models GR2SDH-24, -30, -36, -42, -48, -54, -60
GR2SDS-24, -30, -36, -42, -48, -54, -60

GR2SDH-24D, -30D, -36D, -42D, -48D, -54D, -60D
GR2SDS-24D, -30D, -36D, -42D, -48D, -54D, -60D

Designed to hold hot wrapped food at optimum serving temperatures without affecting quality, the Hatco Glo-Ray® Designer Merchandising Warmers are the perfect displays to showcase hot fast foods and boost impulse sales.

Combining state-of-the-art design with performance, these warmers place the focus on the product while holding hot food safely at proper serving temperatures. The modern design is perfect for front of the house use. Designer powdercoated inset panels blend these units with the décor while providing a durable, easy-to-clean surface.

Glo-Ray Designer Merchandising Warmers have prefocused infrared top heat and a thermostatically-controlled, hardcoated heated base to extend the holding times of most food. All models are made of aluminum with tempered glass end panels. Shatter-resistant incandescent lights illuminate the food holding area.

FLEXIBILITY

This warmer offers the convenience of self-serve and the efficiency of kitchen-to-server holding.

Available with slant or horizontal shelves, the Glo-Ray Designer Merchandising Warmers are offered in both single and dual shelf models. The Designer series warmers come standard with black inset panels and black end caps. Choose from six other color options to blend the warmer with any décor. Non-standard colors are non-returnable.

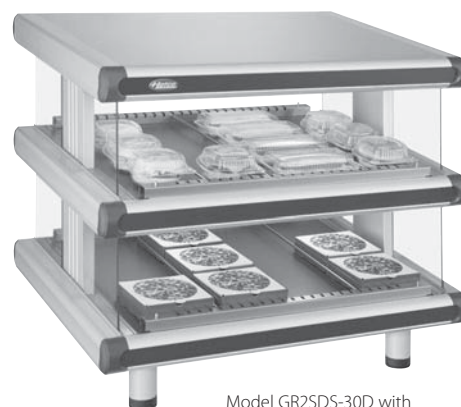
QUALITY

The following features assure the finest performance for years to come:

- All models have prefocused infrared top heat directing heat to the outer edges of the holding surface where heat loss is the greatest.
- These warmers feature a thermostatically-controlled, hardcoated heated base, Designer color inset panels, 4" (102 mm) Designer legs, and a cord and plug set.
- Available in heated surface widths from 23.88" to 59.88" (606 to 1521 mm) with overall widths of 30.25" to 66.25" (768 to 1683 mm).
- Shatter-resistant incandescent lights enhance product display while safeguarding food products from bulb breakage.
- An optional Indicating Temperature Control enhances accurate control of temperature.



Model GR2SDH-30 with
Designer color inset panels



Model GR2SDS-30D with
Designer color inset panels



Divider Rods

Model Width	Divider Rods Provided	Average Chute Width
30.25" (768 mm)	5 Rods per Shelf	3.73" (95 mm)
36.25" (921 mm)	6 Rods per Shelf	4.02" (102 mm)
42.25" (1073 mm)	7 Rods per Shelf	4.23" (107 mm)
48.25" (1226 mm)	8 Rods per Shelf	4.40" (111 mm)
54.25" (1378 mm)	9 Rods per Shelf	4.54" (115 mm)
60.25" (1530 mm)	10 Rods per Shelf	4.65" (118 mm)
66.25" (1683 mm)	12 Rods per Shelf	4.36" (110 mm)



ANSI/NSF 4

ONE YEAR ON-SITE PARTS AND LABOR WARRANTY,
PLUS ONE ADDITIONAL YEAR PARTS-ONLY
WARRANTY ON ALL GLO-RAY METAL SHEATHED
HEATING ELEMENTS.

HATCO CORPORATION P.O. Box 340500 Milwaukee, WI 53234-0500 U.S.A.
(800) 558-0607 • (414) 671-6350 • Fax (800) 543-7521 • Int'l. Fax (414) 671-3976
www.hatcocorp.com • E-mail: equipsales@hatcocorp.com

Form No. GR2SD Spec Sheet

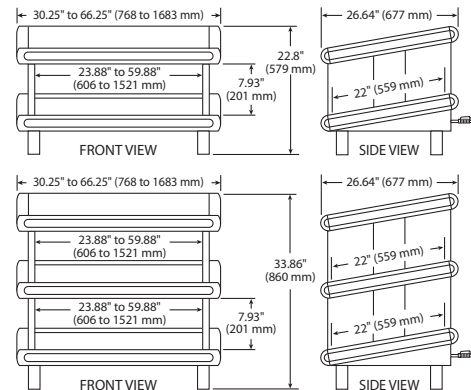
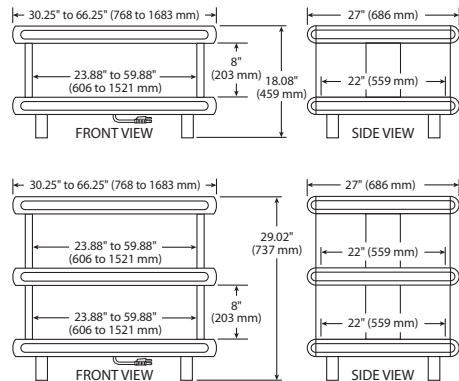
Printed in U.S.A.
October 2012



GLO-RAY® DESIGNER MERCHANDISING WARMERS

Models GR2SDH-24, -30, -36, -42, -48, -54, -60
GR2SDS-24, -30, -36, -42, -48, -54, -60

GR2SDH-24D, -30D, -36D, -42D, -48D, -54D, -60D
GR2SDS-24D, -30D, -36D, -42D, -48D, -54D, -60D



SPECIFICATIONS

Horizontal Models

	Model*	Watts	Amps	Width	Shipping Weight
Single Shelf	GR2SDH-24	820	6.6	30.25" (768 mm)	87 lbs. (40 kg)
	GR2SDH-30	1020	8.5	36.25" (921 mm)	120 lbs. (55 kg)
	GR2SDH-36	1220	10.2	42.25" (1073 mm)	129 lbs. (59 kg)
	GR2SDH-42	1490	12.4	8.25" (1226 mm)	138 lbs. (63 kg)
	GR2SDH-48	1690	14.1	54.25" (1378 mm)	160 lbs. (73 kg)
	GR2SDH-54	1890	15.8	60.25" (1530 mm)	172 lbs. (78 kg)
Dual Shelf	GR2SDH-60	2210	18.4	66.25" (1683 mm)	187 lbs. (85 kg)
	GR2SDH-24D	1640	13.7	30.25" (768 mm)	150 lbs. (68 kg)
	GR2SDH-30D	2040	8.5	36.25" (921 mm)	178 lbs. (81 kg)
	GR2SDH-36D	2440	10.2	42.25" (1073 mm)	198 lbs. (90 kg)
	GR2SDH-42D	2980	12.4	48.25" (1226 mm)	218 lbs. (99 kg)
	GR2SDH-48D	3380	14.1	54.25" (1378 mm)	238 lbs. (108 kg)
	GR2SDH-54D	3780	15.8	60.25" (1530 mm)	258 lbs. (117 kg)
	GR2SDH-60D	4420	18.4	66.25" (1683 mm)	280 lbs. (127 kg)

Slant Models

	Model*	Watts	Amps	Width	Shipping Weight
Single Shelf	GR2SDS-24	820	6.6	30.25" (768 mm)	104 lbs. (47 kg)
	GR2SDS-30	1020	8.5	36.25" (921 mm)	116 lbs. (53 kg)
	GR2SDS-36	1220	10.2	42.25" (1073 mm)	136 lbs. (62 kg)
	GR2SDS-42	1490	12.4	48.25" (1226 mm)	155 lbs. (70 kg)
	GR2SDS-48	1690	14.1	54.25" (1378 mm)	164 lbs. (74 kg)
	GR2SDS-54	1890	15.8	60.25" (1530 mm)	182 lbs. (83 kg)
Dual Shelf	GR2SDS-60	2210	18.4	66.25" (1683 mm)	202 lbs. (92 kg)
	GR2SDS-24D	1640	13.7	30.25" (768 mm)	162 lbs. (74 kg)
	GR2SDS-30D	2040	8.5	36.25" (921 mm)	174 lbs. (79 kg)
	GR2SDS-36D	2440	10.2	42.25" (1073 mm)	190 lbs. (86 kg)
	GR2SDS-42D	2980	12.4	48.25" (1226 mm)	218 lbs. (99 kg)
	GR2SDS-48D	3380	14.1	54.25" (1378 mm)	240 lbs. (109 kg)
	GR2SDS-54D	3780	15.8	60.25" (1530 mm)	260 lbs. (118 kg)
	GR2SDS-60D	4420	18.4	66.25" (1683 mm)	296 lbs. (135 kg)

* NSF requires units over 36" (914 mm) in width or weighing more than 80 lbs. (36 kg) to be either sealed, or raised on the installation surface with the 4" (102 mm) legs included.

OPTIONS (NOT FOR RETROFIT)

- ☐ Unit and Inset Panel Designer Colors: Warm Red, Black, Gray Granite, White Granite, Navy Blue, Hunter Green, Antique Copper, non-standard colors are non-returnable on unit
- ☐ Dark Gray Corner Caps (Black is standard)
- ☐ 5" (127 mm) Sneeze Guard (Customer side only on slant models)
- ☐ Plexi-Glass Flip-up Doors
- ☐ Front Glass in lieu of channel dividers and divider rods

PRODUCT SPECS

Designer Merchandising Warmer

The Designer Merchandising Warmer shall be a Glo-Ray® Model ... as manufactured by the Hatco Corporation, Milwaukee, WI 53234 U.S.A.

The warmer shall be rated at ... watts, ... volts, and be ... inches (millimeters) in overall width. It shall consist of a thermostatically-controlled heated base, infrared heat from above, full-view tempered glass sides, Designer color inset panels, and incandescent display lights.

HATCO CORPORATION P.O. Box 340500 Milwaukee, WI 53234-0500 U.S.A. • (800) 558-0607 • (414) 671-6350
Fax (800) 543-7521 • Int'l. Fax (414) 671-3976 • www.hatcocorp.com • E-mail: equipsales@hatcocorp.com

DIMENSIONS

Horizontal Models (GR2SDH) –

Single: 30.25"- 66.25"W x 27"D* x 18.08"H (768-1683 x 686 x 459 mm).

Dual: 30.25"- 66.25"W x 27"D* x 29.02"H (768-1683 x 686 x 737 mm).

Slant Models (GR2SDS) –

Single: 30.25"- 66.25"W x 26.64"D* x 22.8"H (768-1683 x 677 x 579 mm).

Dual: 30.25"- 66.25"W x 26.64"D* x 33.86"H (768-1683 x 677 x 860 mm).

Heated Surface: 23.88"- 59.88"W x 22"D (606-1521 x 559 mm).

* Optional ITC: adds 1.83" (47 mm) to model depth.

VOLTAGE

GR2SDH-24 to -48 & GR2SDS-24 to -48: 120 volts, single phase (uses NEMA 5-15P, models GR2SDH-42 to -48 & GR2SDS-42 to -48 uses NEMA 5-20P for Canada).

GR2SDH-54 & GR2SDS-54: 120 volts, single phase (uses NEMA 5-20P).

GR2SDH-60 & GR2SDS-60: 120 volts, single phase (uses NEMA 5-30P).

GR2SDH-24D & GR2SDS-24D: 120 volts, single phase (uses NEMA 5-15P, uses NEMA 5-20P for Canada).

GR2SDH-30D to -54D & GR2SDS-30D to -54D: 120/208 volts, or 120/240 volts, single phase, 4-wire (uses NEMA L14-20P).

GR2SDH-60D & GR2SDS-60D: 120/208 volts or 120/240 volts, single phase, 4-wire (uses NEMA L14-30P).

Export voltages available.

CORD LOCATION

Back center of base on control side.

PLUG CONFIGURATIONS

NEMA 5-15P	NEMA 5-20P	NEMA 5-30P	NEMA L14-20P
NEMA L14-30P	CEE 7/7 Schuko	BS-1363	

- ☐ Indicating Temperature Control (ITC)
- ☐ Halogen Bulbs in lieu of Standard Display Lights
- ☐ Customer Side Front Glass (in lieu of Sneeze Guards or Flip-up Doors) (Cannot have channel dividers or divider rods)

ACCESSORIES

- ☐ Additional Stainless Steel Divider Rods
- ☐ Flip-up Control Cover
- ☐ Display Sign Holder (Signs not included)

The infrared heating element shall be tubular metal sheathed and the warmer shall have a 6' (1829 mm) cord with plug attached.

Accessories shall include additional stainless steel dividers rods, flip-up doors, display sign holder, and control covers.

One year on-site parts and labor warranty, plus one additional year parts-only warranty on all Glo-Ray metal sheathed heating elements, with 24/7 service (U.S. and Canada only)

Safely and stylishly display
convenience foods with Admiral Craft's
HFD-85 • 85 Liter (3 Cu. Ft)

HOT FOOD DISPLAY

Safely and stylishly display hot wrapped foods such as pizzas, burgers and more with this 85 Liter Hot Food Display. This merchandiser utilizes 1160 watts of heating power to keep food at a safe, ready-to-serve temperature so your customers can quickly and conveniently grab something to eat. Independent heat and light controls on each shelf allow for specific display and holding conditions for different foods, giving increased marketing potential.

Built for durability, this merchandiser utilizes a stainless steel frame with tempered glass sides for maximum visibility. It also includes adjustable divider rods to quickly and easily separate your most popular foods for display.

- Stainless steel exterior
- Tempered glass sides
- Independent heat and light controls for each shelf
- Adjustable thermostat
- Adjustable divider rods for easy organization of food product
- Fixed rubber feet
- CE Certified



Call for more info:
1-800-223-7750



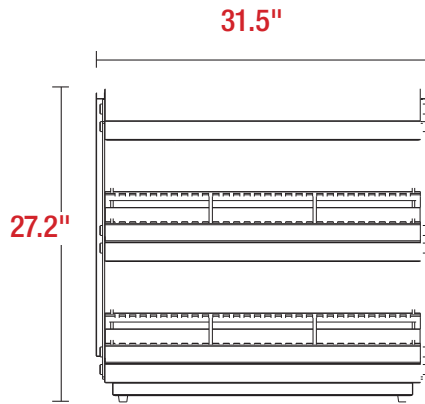
Admiral Craft
Equipment Corp.

800 Shames Drive, Westbury, NY 11590
PHONE 516-433-3535 | FAX 516-433-4453

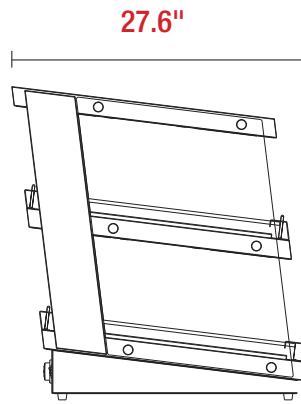
admiralcraft.com

HFD-85 • 85 Liter

HOT FOOD DISPLAY



Front View



Side View

MODEL NUMBER	HFD-85
Rated Input Power	1160W
Temperature Range	86°– 194°F
Capacity	85 Liters
Overall Dimensions (in)	31.5"L x 27.6"W x 27.2"H
Display Area	3 Cu. Ft.
Voltage/Hertz/Phase	120/60/1
Amps	10
Net Weight (lbs)	90.5 lbs
Gross Weight (lbs)	97 lbs
Shipping Dimensions (in)	34"L x 30.2"W x 29"H

For more information about this or any of our other products, go to admiralcraft.com. This item is listed on AutoQuotes. For full explanation of warranty coverage on this product, please refer to warranty page located in the owner's manual and warranty section at admiralcraft.com. Specifications subject to change without notice. Please confirm at time of order.



Admiral Craft
Equipment Corp.

800 Shames Drive, Westbury, NY 11590
PHONE 516-433-3535 | FAX 516-433-4453

admiralcraft.com

Proposed Alternative 2

AAA FILE NO.

heated shelf merchandiser

models : GS1300-16, GS1300-16-S &
GS1300-24, GS1300-24-S



FUNCTIONAL FEATURES

- Thermostatically controlled heated shelf and base plate
- Adjustable thermostat for precise temperature control
- Temperature range to above 150°F

CONSTRUCTION FEATURES

- Illuminated to showcase product on both heated surfaces
- Sturdy, durable stainless steel construction
- Slanted shelf/base units available that have the top shelf and base angled down 6-degrees in front

Model GS1300-16:

- (8) 3⁷/₈" aluminum product trays
- (2) grill racks
- (4) 2" x 16" display channels that allow you to slide in custom graphics (max. thickness: 0.025")

Model GS1300-16-S slanted shelf option also available. Unit includes the above mentioned aluminum product trays and grill racks, along with (2) custom graphics display channels.

Model GS1300-24:

- (8) 3⁷/₈" aluminum product trays
- (4) grill racks
- (2) 8" aluminum product trays
- (4) 2" x 24" display channels that allow you to slide in custom graphics (max. thickness: 0.025")

Model GS1300-24-S slanted shelf option also available. Unit includes the above mentioned aluminum product trays and grill racks, along with (2) custom graphics display channels.

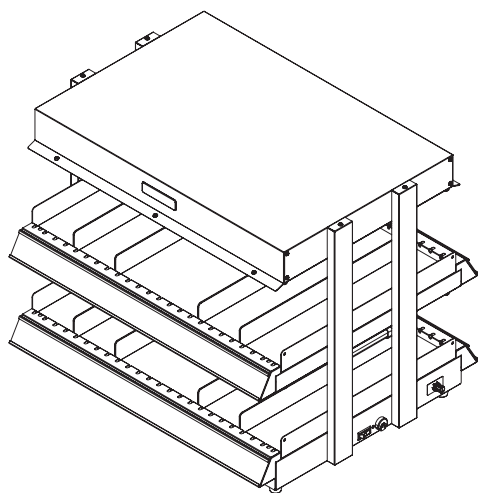


The perfect merchandiser for all your hot fast foods. Compact display unit is designed for maximum visibility and extended shelf life. Featuring product illumination for both shelves and an adjustable thermostat to keep your products at just the right serving temperature.



heated shelf merchandiser

models : GS1300-16, GS1300-16-S &
GS1300-24, GS1300-24-S



**SPECIFICATIONS MODEL
GS1300-16 & GS1300-16-S:**

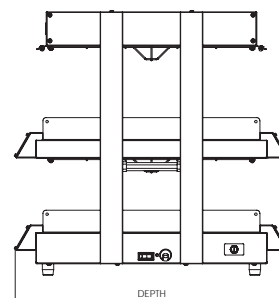
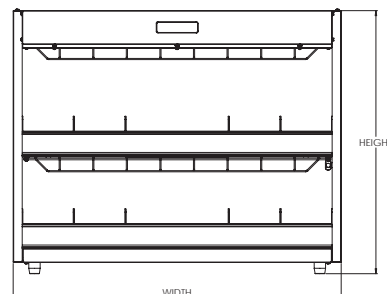
Width 18"
Depth 17"
Height 20.5"
Inside 17" x 16"
Shipping Dimensions 22" x 22" x 24"
Shipping Weight 47 lbs
Voltage 120
Wattage 1275
Amps 10.6

- Best when operated on an individual branch circuit
- 6-ft power cord length

**SPECIFICATIONS MODEL
GS1300-24 & GS1300-24-S:**

Width 21"
Depth 25"
Height 20.5"
Inside 17" x 24"
Shipping Dimensions 22" x 30" x 24"
Shipping Weight 66 lbs
Voltage 120
Wattage 1500
Amps 12.5

- Best when operated on an individual branch circuit
- 6-ft power cord length



nemco® | FOOD EQUIPMENT

**Model No.
6480 Series**

DUAL SHELF MERCHANDISER



6480-18S-B



6480-36S

The Dual Shelf Merchandiser Series is available with slanted or horizontal shelves. It's designed to hold pizza, sandwiches, snacks and other baked goods. The unit is capable of maintaining safe food temperatures for extended periods of time. The merchandiser is equipped with two thermostats so each shelf can operate independently. Each shelf is also heated from below with foil rope element and above with a strip heater and is illuminated with two - 40 watt shatter proof bulbs. There is approximately 6 7/8" between shelves.

Standard Features:

- Stainless steel exterior
- Tempered glass sides
- Independent heat & light controls for each shelf
- Adjustable thermostat
- Adjustable divider rods for easy organization of food product
- 2 1/2" adjustable feet (-24, -30, -36 models)
- 1/2" feet - 18 model
- One year parts and labor warranty
- cELTus and NSF Listed

Optional Accessories:

- Colors - Stainless Steel or Black powder coated finish
- 2 1/2" adjustable feet (-18 model)
- 4" Feet (All models)
- Additional divider rods
- Sign Kits - includes header, header bracket, menu cards and menu holder

Food Capacity (4" diameter sandwich)

	6480-18 Series	6480-24 Series	6480-30 Series	6480-36 Series
Dual Shelf	24	36	48	60

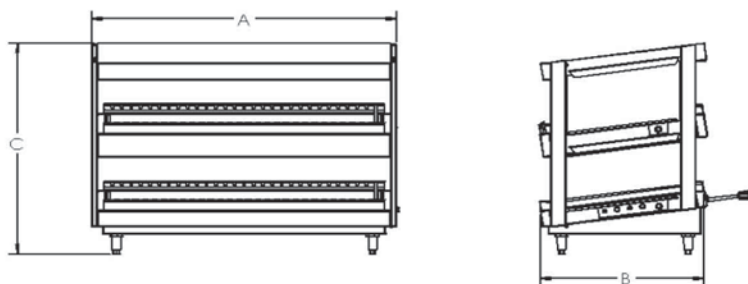


NEMCO Food Equipment, Ltd.
301 Meuse Argonne Ave.
Hicksville, OH 43526
Phone 419-542-7751
FAX 419-542-6690
www.nemcofoodequip.com

Dual Shelf Merchandiser - Series

Model No.

6480 Series



SPECIFICATIONS

Model No.	Width Inches/(cm) (A)	Depth Inches/(cm) (B)	Height Inches/(cm) (C)	Voltage	Rated Wattage	Nominal Amps	Plug Configuration	Unit Weight lbs./(Kg)**	Shipping Weight lbs./(Kg)**
Horizontal Models									
6480-18	18" (45.7)	19 1/2" (49.5)	21 7/8" (55.6)	120	860	7.2	NEMA 5-15P	65 (29.5)	90 (40.8)
6480-18-B	18" (45.7)	19 1/2" (49.5)	21 7/8" (55.6)	120	860	7.2	NEMA 5-15P	65 (29.5)	90 (40.8)
6480-24	24" (61.0)	19 1/2" (49.5)	24" (61.0)	120	1160	9.7	NEMA 5-15P	75 (34.0)	100 (45.4)
6480-24-B	24" (61.0)	19 1/2" (49.5)	24" (61.0)	120	1160	9.7	NEMA 5-15P	75 (34.0)	100 (45.4)
6480-30	30" (76.2)	19 1/2" (49.5)	24" (61.0)	120	1460	12.2	NEMA 5-15P	85 (38.6)	110 (49.9)
6480-30-B	30" (76.2)	19 1/2" (49.5)	24" (61.0)	120	1460	12.2	NEMA 5-15P	85 (38.6)	110 (49.9)
6480-36	36" (91.4)	19 1/2" (49.5)	24" (61.0)	120	1800	15.0	NEMA 5-15P	95 (43.1)	120 (54.4)
6480-36-B	36" (91.4)	19 1/2" (49.5)	24" (61.0)	120	1800	15.0	NEMA 5-15P	95 (43.1)	120 (54.4)
Slanted Models									
6480-18S	18" (45.7)	19 3/4" (50.2)	25 3/8" (64.5)	120	860	7.2	NEMA 5-15P	65 (29.5)	90 (40.8)
6480-18S-B	18" (45.7)	19 3/4" (50.2)	25 3/8" (64.5)	120	860	7.2	NEMA 5-15P	65 (29.5)	90 (40.8)
6480-24S	24" (61.0)	19 3/4" (50.2)	27 1/2" (64.9)	120	1160	9.7	NEMA 5-15P	75 (34.0)	100 (45.4)
6480-24S-B	24" (61.0)	19 3/4" (50.2)	27 1/2" (64.9)	120	1160	9.7	NEMA 5-15P	75 (34.0)	100 (45.4)
6480-30S	30" (76.2)	19 3/4" (50.2)	27 1/2" (64.9)	120	1460	12.2	NEMA 5-15P	85 (38.6)	110 (49.9)
6480-30S-B	30" (76.2)	19 3/4" (50.2)	27 1/2" (64.9)	120	1460	12.2	NEMA 5-15P	85 (38.6)	110 (49.9)
6480-36S	36" (91.4)	19 3/4" (50.2)	27 1/2" (64.9)	120	1800	15.0	NEMA 5-15P	95 (43.1)	120 (54.4)
6480-36S-B	36" (91.4)	19 3/4" (50.2)	27 1/2" (64.9)	120	1800	15.0	NEMA 5-15P	95 (43.1)	120 (54.4)

** Unit and Shipping weights are estimates

TYPICAL SPECIFICATIONS

NEMCO's Dual Shelf Merchandiser Series shall be constructed of 400 series stainless steel exterior, aluminum shelf and tempered glass sides. It shall have a foil rope element in each shelf and calrod heaters above each shelf. Each shelf shall have adjustable setting conduction type thermostats, so they can operate independently. 120 volts models shall have a cord and NEMA 5-15P plug. The Dual Shelf Merchandiser shall carry the approval of cETLus and will be listed with the National Sanitation Foundation.

nemco® | FOOD
EQUIPMENT

NEMCO Food Equipment, Ltd.
301 Meuse Argonne Ave.
Hicksville, OH 43526
Phone 419-542-7751
FAX 419-542-6690
www.nemcofoodequip.com



Merchandiser Heated Cutsheets

HUSSmann®/CHINO IM-04, IM-05 (ISLA) IM-H HOT MULTI-DECK DISPLAY	Installation & Operation Manual
	REV. 0314



HUSSmann®

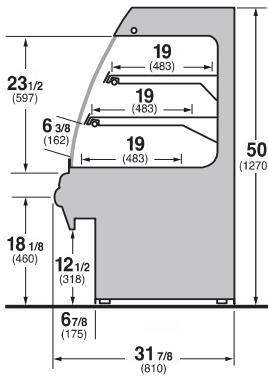
IM-04, IM-05 (ISLA)
IM-H HOT MULTI-DECK DISPLAY

3. Cut and Plan Views

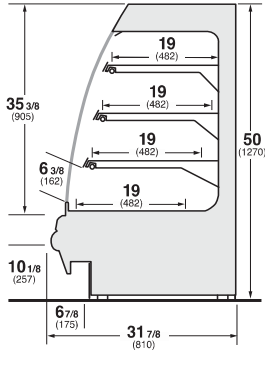


SELF SERVICE MULTI-DECK HOT CASE
 HUSSMANN - IM - 0(3, 4, 5) - (X*)(3, 4, 5, 6) - H (CHINO)

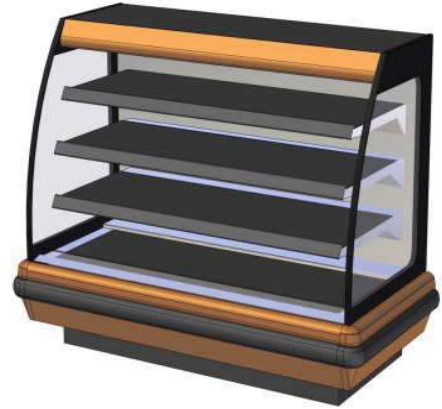
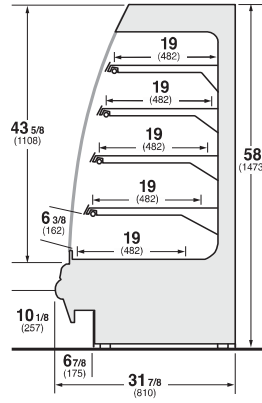
IM-03-H
Self service hot module



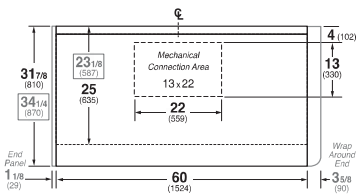
IM-04-H
Hot Multi-Deck



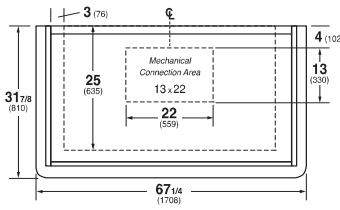
IM-05-H
Hot Multi-Deck



IM-C5-H Center Module / **IM-15-H** Q-Series Match



IM-E5-H End Module



ELECTRICAL DATA:

208 VOLT MODELS *	VOLTS	PH	HZ	TOTAL HOT LEVELS ***	WATTS	AMPS	WIRES **	CANOPY LIGHTS	SHELF LIGHTS	OPTIONAL LEDGE LIGHTS	TOTAL LIGHTS
								AMPS WATTS # ROWS	AMPS WATTS	AMPS WATTS	AMPS WATTS
IM-03-X3-H208	208	1	60	3	1789	8.6	4	0.19 21 2	0.38 42	N/A N/A	0.57 63
IM-03-X4-H208	208	1	60	3	2517	12.1	4	0.26 28 2	0.52 56	N/A N/A	0.78 84
IM-03-X5-H208	208	1	60	3	3224	15.5	4	0.32 35 2	0.52 56	N/A N/A	0.84 91
IM-03-X6-H208	208	1	60	3	3890	18.7	4	0.38 42 2	0.66 70	N/A N/A	1.04 112
IM-03-X8-H208	208	1	60	3	5013	24.1	4	0.52 56 2	0.76 84	N/A N/A	1.28 140
IM-04-X3-H208	208	1	60	4	2371	11.4	4	0.19 21 3	0.57 63	N/A N/A	0.76 84
IM-04-X4-H208	208	1	60	4	3328	16	4	0.26 28 3	0.78 84	N/A N/A	1.04 112
IM-04-X5-H208	208	1	60	4	4306	20.7	4	0.32 35 3	0.96 105	N/A N/A	1.28 140
IM-04-X6-H208	208	1	60	4	5200	25	4	0.38 42 3	1.14 126	N/A N/A	1.52 168
IM-04-X8-H208	208	1	60	4	6323	30.4	4	0.52 56 3	1.14 126	N/A N/A	1.66 182
IM-05-X3-H208	208	1	60	5	2954	14.2	4	0.19 21 4	0.76 84	N/A N/A	0.95 105
IM-05-X4-H208	208	1	60	5	4160	20	4	0.26 28 4	1.04 112	N/A N/A	1.30 140
IM-05-X5-H208	208	1	60	5	5366	25.8	4	0.32 35 4	1.28 140	N/A N/A	1.60 175
IM-05-X6-H208	208	1	60	5	6490	31.2	4	0.38 42 4	1.52 168	N/A N/A	1.90 210

240 VOLT MODELS *	VOLTS	PH	HZ	TOTAL HOT LEVELS ***	WATTS	AMPS	WIRES **	CANOPY LIGHTS	SHELF LIGHTS	OPTIONAL LEDGE LIGHTS	TOTAL LIGHTS
								AMPS WATTS # ROWS	AMPS WATTS	AMPS WATTS	AMPS WATTS
IM-03-X3-H240	240	1	60	3	1800	7.5	4	0.19 21 2	0.38 42	N/A N/A	0.57 63
IM-03-X4-H240	240	1	60	3	2528	10.5	4	0.26 28 2	0.52 56	N/A N/A	0.78 84
IM-03-X5-H240	240	1	60	3	3216	13.4	4	0.32 35 2	0.64 70	N/A N/A	0.96 105
IM-03-X6-H240	240	1	60	3	3888	16.2	4	0.38 42 2	0.76 84	N/A N/A	1.14 126
IM-04-X3-H240	240	1	60	4	2376	9.9	4	0.19 21 3	0.57 63	N/A N/A	0.76 84
IM-04-X4-H240	240	1	60	4	3336	13.9	4	0.26 28 3	0.78 84	N/A N/A	1.04 112
IM-04-X5-H240	240	1	60	4	4296	17.9	4	0.32 35 3	0.96 105	N/A N/A	1.28 140
IM-04-X6-H240	240	1	60	4	5208	21.7	4	0.38 42 3	1.14 126	N/A N/A	1.52 168
IM-05-X3-H240	240	1	60	5	2952	12.3	4	0.19 21 4	0.76 84	N/A N/A	0.95 105
IM-05-X4-H240	240	1	60	5	4176	17.4	4	0.26 28 4	1.04 112	N/A N/A	1.30 140
IM-05-X5-H240	240	1	60	5	5376	22.4	4	0.32 35 4	1.28 140	N/A N/A	1.60 175
IM-05-X6-H240	240	1	60	5	6480	27	4	0.38 42 4	1.52 168	N/A N/A	1.90 210

* X = C, E, I C = CENTER, E = END, I = INLINE

** INCLUDES GROUND WIRE

*** TOTAL HEATED LEVELS = # ROWS OF SHELVES + BOTTOM WARMING SURFACE

LEGEND			
N/A -		NOT AVAILABLE	
TBD -		TO BE DETERMINED	
SBO -		SUPPLIED BY OTHERS	
EXTERNAL END PANEL WIDTH KEY			
# OF END PNLS	END PNL WIDTH (IN.)	TOTAL ADDED LENGTH (IN.)	
1	1.125	1.125	
2	1.125	2.25	

MODULE NOMENCLATURE KEY:	
IM =	ISLA MODULE
*** 03 =	3 HEATED LEVELS 50" HIGH W/ +8" BASE
*** 04 =	4 HEATED LEVELS 50" HIGH
*** 05 =	5 HEATED LEVELS; 68" HIGH
* C, E, I =	CENTER, END or INLINE CASE
(#) =	(MODULE LENGTH IN FEET)
H =	HOT SELF SERVICE MULTIDECK
EXAMPLE	IM-04-E5-H = ISLA MODULE, 50" HIGH, END 5" WIDE, HOT SELF- SERVICE MULTI-DECK

OPTIONS/NOTES:

- NOTE: CASE WIDTH INCLUDES END PANELS WITH OPTIONAL INTERIOR END PANELS
- NOTE: CASES MUST BE GROUNDED
- NOTE: LED LIGHTS ARE NOT AVAILABLE ON HOT CASES AT THIS TIME.
- NOTE: FOR TOTAL ELECTRICAL LOADS ADD LIGHT AMPS HOT LEVEL AMPS.

WRT-N-F Series **PROPOSED ALTERNATIVE 1** – available in 26", 36", 48", 60", 72"

Wrangler Giant Flat 3-4-5 Level Narrow Hot Grab & Go Food Merchandiser



Standard Features

- Three-level hot merchandising offers much more merchandising in the same floor space
- Infinite controls on bottom and top heat for each level
- Brilliant interior LED lighting on all levels showcases your hot meals
- Stainless steel interior and slanted or flat stainless steel decks display food for optimal eye appeal
- Front mounted controls in base allow wall or end-cap installation
- Stainless steel body and heavy duty protective front bumper in colors of your choice
- Sign track on each level
- Industry's longest warranty – 2 years parts & labor
- Safety shields in front of lower shelves protect children

**GUARANTEED
TEMPERATURE
MAINTENANCE**

Options

- ☐ Heavy duty locking casters
- ☐ Entire body to be plastic laminate over steel in lieu of #4 stainless steel
- ☐ Rear sliding one-way mirror doors and rear controls
- ☐ "Clear view" ends
- ☐ Additional hot shelves – maximum of 2 additional

Atlantic HOT Food Bars is the ONLY company in the industry that will tailor ALL of our cases to ANY length, ANY width, ANY depth and ANY height to meet your stores' specific needs!



HOT
Atlantic Food Bars

Hot & Cold Food Equipment Specialists

888-MEAL-SOLUTIONS (888-632-5765)

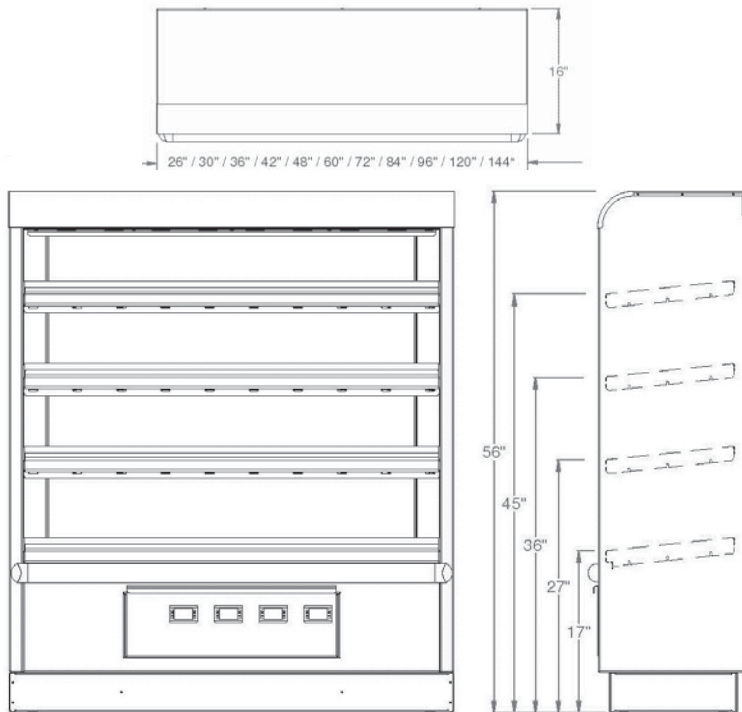
info@atlanticfoodbars.com www.atlanticfoodbars.com



WRT-N-F Series – available in 26", 36", 48", 60", 72"

Wrangler Flat Profile 3-4-5 Level Narrow Hot Grab & Go Food Display

Atlantic Food Bars WRT Series Wrangler Giant Multi-Level Packaged Hot Food Merchandiser is covered by our INDUSTRY'S LONGEST WARRANTY – 2 year parts and labor. Warranty does not cover glass breakage or heat lamps, or abuse / misuse by operator. In line with its policy to continually improve its products, Atlantic Food Bars reserves the rights to change materials and specifications without notice.



<i>IP Code</i>	<i>O.A. Dimensions L" x W" x H"</i>	<i>Voltage</i>
WR2618T-F WR2618T-F-AS WR2618T-F-AS-AS	26" x 18" x 58"	120/208
WR3618T-F WR3618T-F-AS WR3618T-F-AS-AS	36" x 18" x 58"	120/208
WR4818T-F WR4818T-F-AS WR4818T-F-AS-AS	48" x 18" x 58"	120/208
WR6018T-F WR6018T-F-AS WR6018T-F-AS-AS	60" x 18" x 58"	120/208
WR7218T-F WR7218T-F-AS WR7218T-F-AS-AS	72" x 18" x 58"	120/208



Hot
Atlantic Food Bars
Hot & Cold Food Equipment Specialists

888-MEAL-SOLUTIONS (888-632-5765)

info@atlanticfoodbars.com www.atlanticfoodbars.com



Options, accessories and features create the perfect merchandiser for YOUR food service operation!

ADDITIONAL 4th OR 5th HOT MERCHANDISING DECKS

Increase your merchandising impact in a small foot print - no additional floor space required to boost your selling capacity!



CLEAR VIEW END PANELS

Enhance product visibility from the sides - sell-through your offerings with more ways for your customers to find and see your food without obstruction. Sell more!



POPULAR SIZES FROM 2' TO 10' LONG - CAN BE BUILT IN ANY SIZE DESIRED



SLIDING REAR-VIEW MIRRORRED DOORS AND REAR CONTROLS FOR IN-LINE USE

Case is designed so sliding rear mirror doors can be added in the field as a retrofit, should store layout change, requiring this case to become in-line. One way mirror sliding rear doors allow employees to monitor stock levels - mirrored image attracts shoppers' attention to build impulse sales.



**Celebrating 70
Years in 2017!**

HOT
Atlantic Food Bars

Hot & Cold Food Equipment Specialists

888-MEAL-SOLUTIONS (888-632-5765)

info@atlanticfoodbars.com www.atlanticfoodbars.com



**Wrangler Flat 3-4-5-Level Narrow
Hot Grab & Go Food Merchandiser**

WRT-N-F Series

In-store impulse-generating merchandiser

Multi Deck 40 - 3 level



Selling hot food from a self serve merchandiser is a great way to increase your sales and margins. The Fri-Jado heated Multi Deck triggers your customers to pick up hot grab-and-go products in a quick and convenient way, anywhere in the store. And thanks to its upright design, it only uses limited floor space.

Hot air is blown from the front of the shelf and circulates within the shelf surface resulting in optimum air circulation around the hot product.

As the Multi Deck has limited height it can easily be installed as an aisle end or integrated in your deli department without blocking your customers' view. The large glass surface and lighting on each shelf draw extra attention to your products, boosting impulse sales.

Features MD 40 - 3

Top features

- Self serve heated Multi Deck display
- Attractive presentation that boosts impulse sales
- Patented Hot Blanket holding technology keeps products warm
- Customizable price strips
- Illuminated, customizable top banner
- Safety lighting on each level

Standard characteristics

- 40" wide - 3 level display
- Maintains products at a minimum temperature of 150°F for up to four hours
- Ideal for chicken, wraps, snacks, soups etc.
- Upright design saves space
- Total display capacity of 14.23 ft²
- Footprint of 8.60 ft²
- Shatter-resistant clear side glass for optimum safety and insulation
- Saves up to 20% on energy by air-curtain technology on each shelf
- Safe holding temperature for up to four hours
- Angled shelves provide optimum product visibility
- Cross-merchandising capabilities
- Front bumpers to protect from shopping carts
- Solid back as standard
- 98% recyclable (environmentally friendly)
- Plug-and-play

Accessories

- Customer-side temperature indicator
- Lower skirts (covering wheels)

Optional

- Doors at rear (pass through)
- Front doors



Optimum product visibility



Signage



Rear doors (optional)



Keeps hot food at 150°F

MD 40-3

1 Power cable, 10 ft.

Dimensions

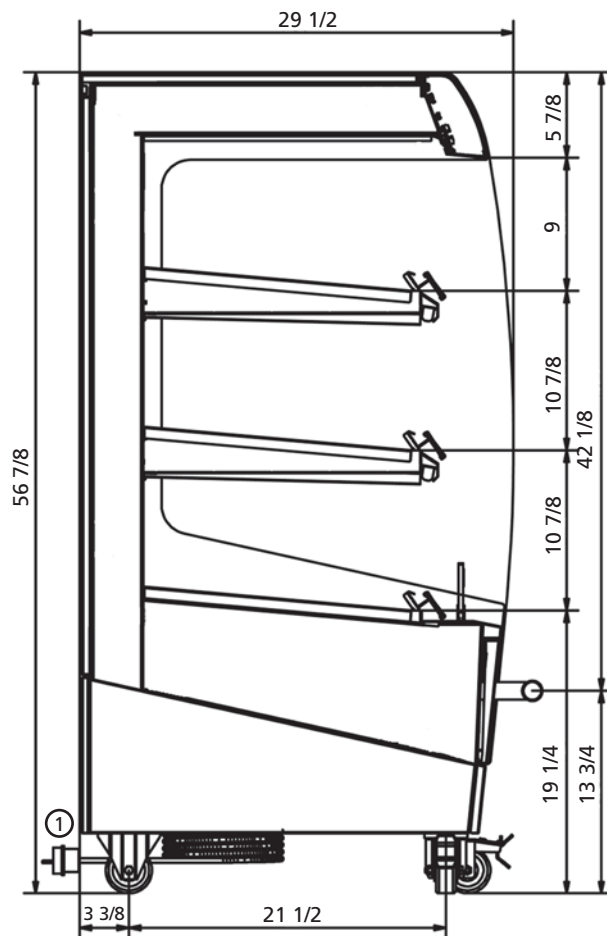
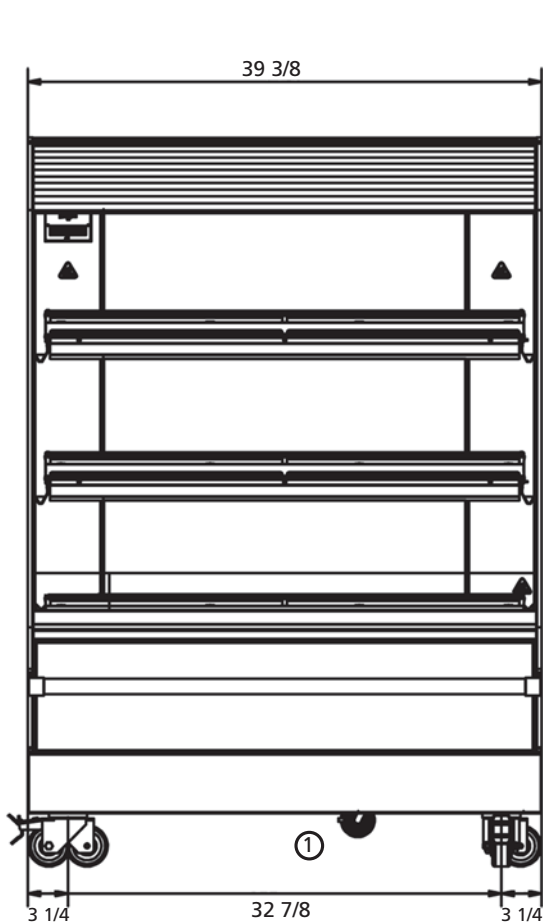
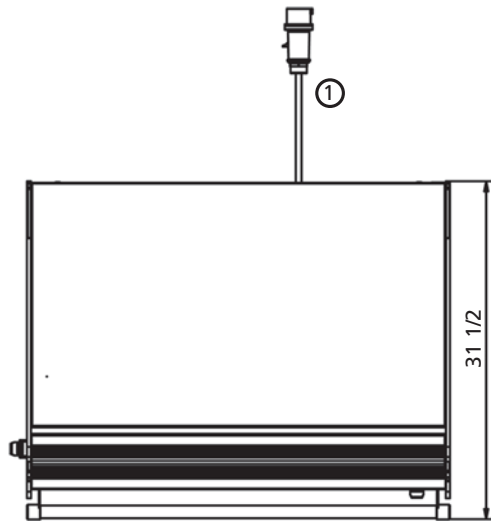
Width	39 3/8"
Depth	31 1/2"
Height	56 7/8"

Technical data

Net weight	441 lbs
Gross weight	518 lbs
Voltage	208 V
Frequency	60 Hz
Power	3.5 kW
Plug	NEMA 6-30P

Specifications and technical data are subject to amendment without notice.

These are basic drawings. For more detailed technical information, please refer to the installation manual at www.frijado.com.



PROPOSED ALTERNATIVE 3

HSM Series Heated Shelf Merchandiser

ALTO-SHAAM

Featuring exclusive Halo Heat® fanless technology, Alto-Shaam heated shelf merchandisers provide precise, even heating for the highest quality food and lowest cost of ownership.

The HSM holds a variety of grab-and-go products, including rotisserie chickens, pizza, sandwiches, and more. Improve store profits with hot, ready-to-eat meals. Convenient, fresh meals are displayed in an aesthetically pleasing, customizable merchandiser.

Experience better quality food with gentle, even and precise Halo Heat® fanless technology to keep food from drying out.

Flexibility to control individual shelf temperatures allows you to hold a variety of products at the proper temperature.

Boost impulse sales with LED-lighted shelves, backlit interchangeable graphics, and pricing rails.

Simple operation and easy cleaning keeps delis and grab-and-go areas operating smoothly.

Lowest cost of ownership on the market – cost savings of 50% compared to traditional models.

Easy-to-load shelves – pass-through option available for added convenience.

Made in the USA with a commitment to quality. Alto-Shaam is ISO 9001:2015-certified.



HSM-48/5S

Images include optional accessory signage panels

HSM-24/5S

Standard Features

- Adjustable thermostat with a heat-on indicator light
- Latched access panel on the front of the merchandiser
- Four (4) 3" (76mm) casters

Capacity



- 20** **HSM-24/5S:** Five (5) 20-7/8" (530mm) width shelves, four (4) chicken boats with dome cover per shelf.
- 30** **HSM-36/5S:** Five (5) 32-7/8" (835mm) width shelves, six (6) chicken boats with dome cover per shelf.
- 50** **HSM-48/5S:** Five (5) 44-7/8" (1140mm) width shelves, ten (10) chicken boats with dome cover per shelf.



- HSM-24/5S:** 80 lb (36 kg) 16 lb (7 kg) per shelf
- HSM-36/5S:** 120 lb (54 kg) 24 lb (11 kg) per shelf
- HSM-48/5S:** 200 lb (91 kg) 40 lb (18 kg) per shelf

Configurations (select one)

Model

- ☐ HSM-24/5S
- ☐ HSM-36/5S (not shown)
- ☐ HSM-48/5S

Electrical

- ☐ 208-240V, 1PH ☐ 230V, 1 PH

Style

- ☐ Reach-in ☐ Pass-through

Door Options

- ☐ None (reach-in models only)
- ☐ Rear slide (pass-through models only)
- ☐ Rear swing (pass-through models only)
- ☐ Front swing (reach-in and pass-through models)

Casters or Legs

- ☐ 3" (76mm) casters for floor standing application (Standard)
- ☐ 6" (152mm) feet for floor standing application (FE-27153)

Accessories (select all that apply)

Unit ships without graphics unless selected

- ☐ Signage panel, POP Display
- ☐ Signage panel, shelf – Rotisserie Chicken
- ☐ Signage panel, shelf – Hot Sandwiches
- ☐ Signage panel, shelf – Barbecue Ribs
- ☐ Signage panel, shelf – Hot & Tasty
- ☐ Signage panel, shelf – Grab & Go
- ☐ Signage panel, shelf – Hot & Fresh

qty

Shelf insert for magnetic signage panels

Magnetic signage panels to be provided by customer.

- HSM-24 - ☐ Stainless Steel (1027304) ☐ Black (PE-46057)
- HSM-36 - ☐ Stainless Steel (1027305) ☐ Black (PE-46058)
- HSM-48 - ☐ Stainless Steel (1027306) ☐ Black (PE-46059)

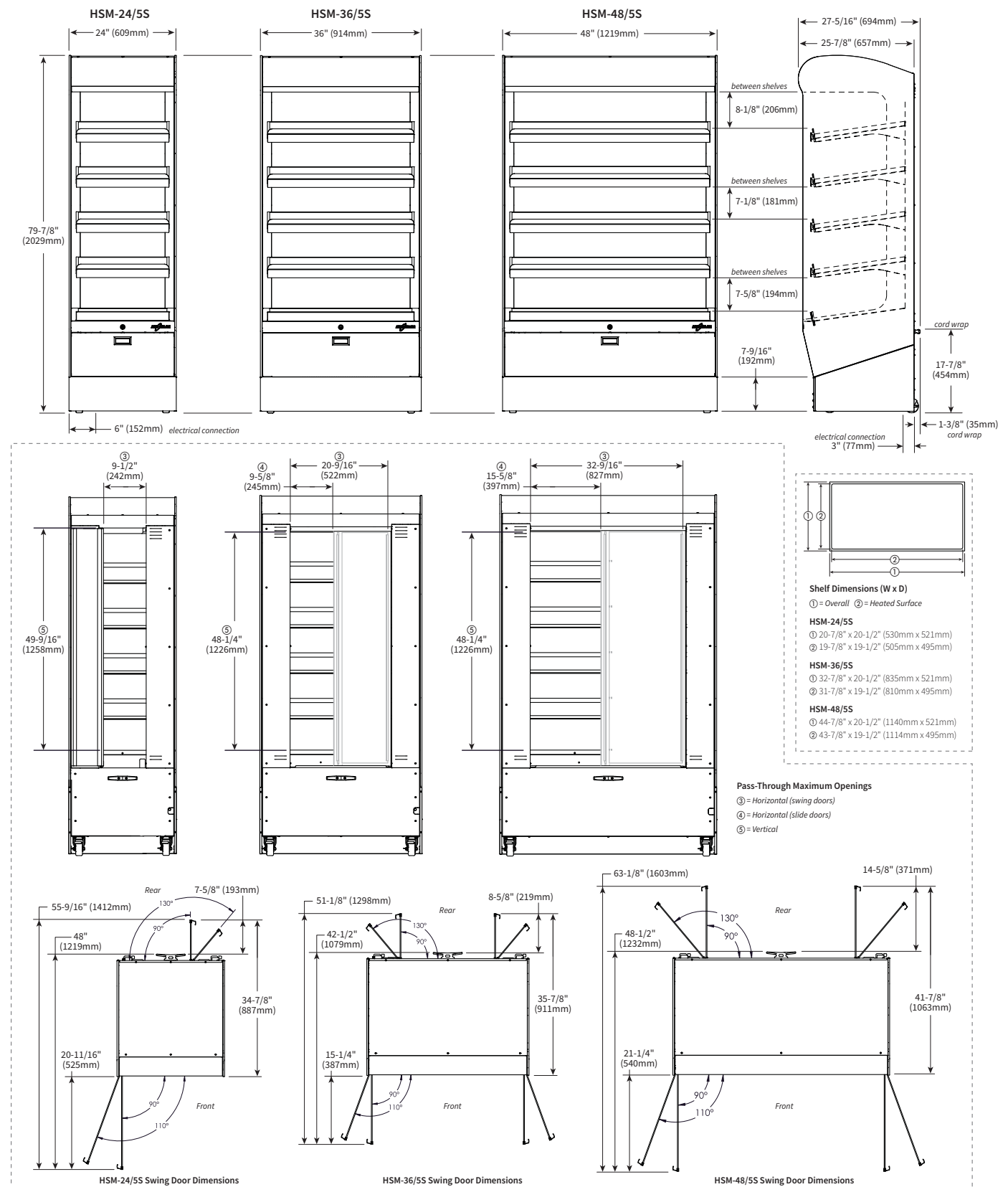
Wire shelf

- ☐ HSM-24 (SH-46066) ☐ HSM-36 (SH-46067) ☐ HSM-48 (SH-46068)

HSM Series Heated Shelf Merchandiser



Dimension Drawings



HSM Series Heated Shelf Merchandiser



Specifications



DIMENSIONS

Model

HSM-24/5S	79-7/8" x 24" x 27-5/16" (2029mm x 609mm x 694mm)
HSM-36/5S	79-7/8" x 36" x 27-5/16" (2029mm x 914mm x 694mm)
HSM-48/5S	79-7/8" x 48" x 27-5/16" (2029mm x 1219mm x 694mm)

Net Weight

406 lb (184 kg)
496 lb (225 kg)
563 lb (255 kg)

Ship Dimensions (L x W x H)*

HSM-24/5S	36" x 36" x 89" (914mm x 914mm x 2261mm)
HSM-36/5S	56" x 45" x 89" (1422mm x 1143mm x 2261mm)
HSM-48/5S	56" x 63" x 89" (1422mm x 1600mm x 2261mm)

Ship Weight*

550 lb (249 kg)
652 lb (296 kg)
772 lb (350 kg)

*Domestic ground shipping information. Contact factory for export weight and dimensions.



CHECK FIRST

- Merchandiser must be installed level.
- Merchandiser must not be installed in any area where it may be affected by steam, grease, dripping water, high temperatures, or any other severely adverse conditions.
- In order to maintain NSF standards, floor models must be equipped with casters or 6" (152mm) legs.



CLEARANCE

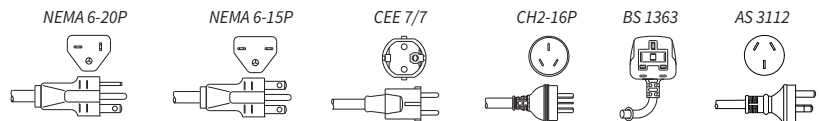
Rear: 4" (102mm)

Recommended: 18" (457mm) for service access. Charges in connection with inadequate service access are not covered under warranty.



ELECTRIC

	V	Ph	Hz	A	kW	Plug Configuration
HSM-24/5S	208 – 240	1	60	10.8 – 12.5	2.2 – 3.0	NEMA 6-15P (15A, 250V)
	230	1	50/60	11.5	2.9	CEE 7/7 CH2-16P BS 1363 AS 3112
HSM-36/5S	208 – 240	1	60	14.4 – 16.7	3.0 – 4.0	NEMA 6-20P (20A, 250V)
	230	1	50/60	15.0	3.5	cord, no plug
	380 - 415	3	50/60	7.2	3.8	no cord or plug
HSM-48/5S	208 – 240	1	60	19.0 – 21.9	4.0 – 5.3	cord, no plug
	230	1	50/60	20.0	4.6	cord, no plug



CONTACT US

W164 N9221 Water Street | Menomonee Falls, Wisconsin 53051 | U.S.A.
Phone: 262.251.3800 | 800.558.8744 U.S.A./Canada | Fax: 262.251.7067 | alto-shaam.com

Merchandiser Refrigerated Cutsheets

CURRENT SCA SPEC



The Signature of Quality

FEDERAL INDUSTRIES

A Standex Company

215 Federal Avenue Belleville
Wisconsin 53508-9201

Phone: 800-356-4206

Fax: 608-424-3234

Email: Geninfo@Federalind.com

Website: Federalind.com

Project Name: _____

Item #: _____

Model #: _____ Qty: _____

Approval: _____

AIA #

SIS #

Refrigerated Self-Serve High Profile Specialty Merchandiser – 60" H x 35" D

Designed with impulse sales in mind. Get maximum return from an attention-grabbing merchandiser and increase profits.



Model RSSM360SC Shown

OPTIONAL ACCESSORIES

- | | |
|--|---|
| <input type="checkbox"/> Special Exterior Laminate Finish | <input type="checkbox"/> Square End Profile |
| <input type="checkbox"/> White Interior (Including Shelving) | <input type="checkbox"/> Skirt with Casters or Legs |
| <input type="checkbox"/> Stainless Steel Exterior Finish | <input type="checkbox"/> Cord & Plug (Self-Contained Models Only) |
| <input type="checkbox"/> Stainless Steel Interior Back | <input type="checkbox"/> Joining Kit for Continuous Line-Ups |
| <input type="checkbox"/> Stainless Steel Shelves | <input type="checkbox"/> Condensate Evaporator Assembly (Field Install) (Separate 120V, 20A Circuit Required) (Remote Only) |
| <input type="checkbox"/> Reflective End Glass | <input type="checkbox"/> Remote Refrigeration with Condensate Pump (R449A Refrigerant) (EEV Included) |
| <input type="checkbox"/> Deli Meat Pegs | <input type="checkbox"/> Rear Air Inlet & Outlet (Front Knee Wall Application) |
| <input type="checkbox"/> Sliding or Hinged Rear Access Doors | |
| <input type="checkbox"/> Roll-up Security Cover (Square End Profile) | |
| <input type="checkbox"/> Removable Security Cover | |
| <input type="checkbox"/> 3rd Lighted (LED) Shelf | |
| <input type="checkbox"/> 2 1/2" (63.5 mm) or 4" (101.6mm) Casters (Self Contained Models Only) | |
| <input type="checkbox"/> Legs, 6", (152mm) | |

MODEL	DIMENSIONS (Includes End Panels)
<input type="checkbox"/> RSSM360SC	36 x 35.25 x 60.25 (in) 914 x 895 x 1530 (mm)
<input type="checkbox"/> RSSM460SC	47.25 x 35.25 x 60.25 (in) 1200 x 895 x 1530 (mm)
<input type="checkbox"/> RSSM560SC	59.25 x 35.25 x 60.25 (in) 1505 x 895 x 1530 (mm)
<input type="checkbox"/> RSSM660SC	71.25 x 35.25 x 60.25 (in) 1810 x 895 x 1530 (mm)

STANDARD FEATURES

Model Features

- Welded powder coated steel base fabrication
- Choice of six standard laminates on exterior
- Black metal front grill and galvanized steel back
- Silver trim
- Stainless steel display deck, glass and black interior ends, black interior back panel
- Moisture resistant end panel construction with field replaceable tempered thermo-pane glass
- Front air intake/ front and rear air discharge
- Energy saving night curtain
- Adjustable Leg Levelers
- Condenser Air Filter

Refrigeration

- Electronic temperature control with on demand defrost
- PTC Condensate heater provided for a totally self-contained system Refrigeration controls maintain 38°-40°F (3.3°-4.4°C) Note: Case temperature will vary if the air curtain is disrupted.
- Insulated with high-density urethane foam
- Thermometer
- R449a refrigerant

Shelving

- Two tiers of adjustable black metal shelves with price tag molding. Shelves can be flat or slanted downwards at 10°

Lighting

- 3500K LED top light
- DLC certified, IP 65 rated

Agency Approvals

- UL, C-UL and UL Sanitation listed to NSF-7, Type I conditions
- DOE 2017 compliant



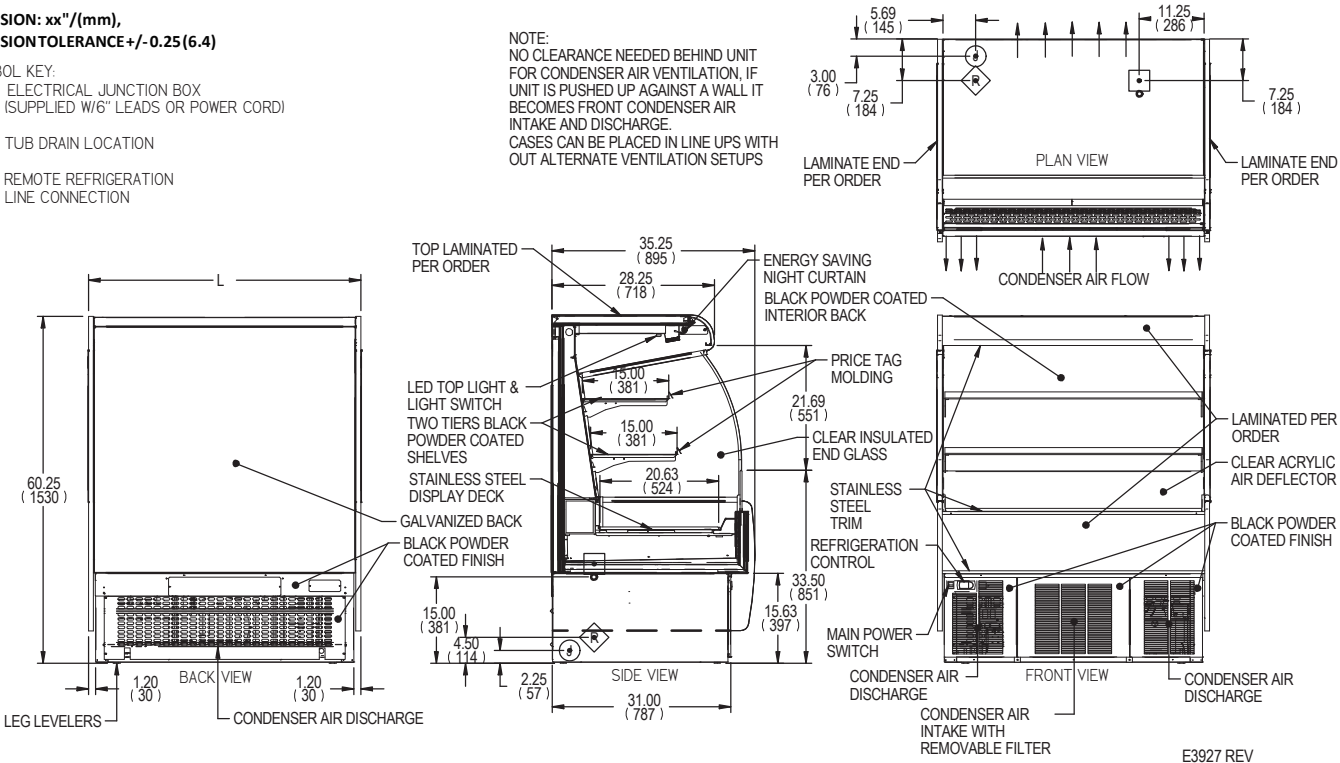
Note: Information is subject to change at any time. Visit www.federalind.com For the most current specs.

AIA #	<h1>Refrigerated Self-Serve High Profile Specialty Merchandiser – 60"H x 35"D</h1>
SIS #	
<h2>Product Specifications</h2>	

Intended Environment: Type I (Self Contained) - Designed to operate in maximum ambient conditions of 75°F (24°C) and 55% relative humidity. Type II (Remote) - Designed to operate in maximum ambient conditions of 80°F (24°C) and 55% relative humidity.		
Zone	Intended product to be displayed	Avg prod temp °F / °C
All	Packaged refrigerated products	38°F / (3.3°C)

DIMENSION: xx"/(mm),
 DIMENSION TOLERANCE +/- 0.25 (6.4)

SYMBOL KEY:
 (J) ELECTRICAL JUNCTION BOX
 (SUPPLIED W/6" LEADS OR POWER CORD)
 TUB DRAIN LOCATION
 (R) REMOTE REFRIGERATION
 LINE CONNECTION



MODEL	DIMENSIONS				TIERS	SHIPPING WHT		SELF CONTAINED		OPTIONAL NEMA PLUG	REMOTE		BTU @ 20° F
	L	D	H	UNITS		LBS	KILO	VOLTAGE	AMPS	CONFIG (SC)	VOLTAGE	AMPS	
RSSM360SC	36	35.25	60.25	in.	2	550	249	208-240/60/1	MAX FUSE 20	NEMA 6-20P	208-240/60/1	MAX FUSE 15	5400
	914	895	1530	mm.									
RSSM460SC	47.25	35.25	60.25	in.	2	650	295	208-240/60/1	MAX FUSE 20	NEMA 6-20P	208-240/60/1	MAX FUSE 15	7500
	1200	895	1530	mm.									
RSSM560SC	59.25	35.25	60.25	in.	2	800	363	208-240/60/1	MAX FUSE 30	NEMA 6-20P	208-240/60/1	MAX FUSE 15	9000
	1505	895	1530	mm.									
RSSM660SC	71.25	35.25	60.25	in.	2	900	408	208-240/60/1	MAX FUSE 30	NEMA 6-20P	208-240/60/1	MAX FUSE 15	10500
	1810	895	1530	mm.									

- Due to continuing engineering improvements, specifications are subject to change without notice.
- Case temperature will vary if the air curtain is disrupted.



REFRIGERATOR MANUFACTURER
Turbo air
 more durable, efficient, beautiful

4184 E. Conant St.
 Long Beach, CA 90808
 Tel. 310-900-1000
 Fax. 310-900-1077
www.turboairinc.com

Project :

Model # :

Item # :

Qty :

Available W/H :

Approval :

Combination Case

*European Straight Front Display Cases
 Open Display Merchandisers*

Patented Self-Cleaning Condenser



This product is equipped with a fine mesh filter to the front of the condenser to catch dust, and a rotating brush that moves up and down daily to remove excess buildup outward and away.



Model : TOM-W-50SB-UF-N

TWO FUNCTIONS IN ONE REFRIGERATOR

(Refrigerated Merchandiser + Refrigerated Top Display Case)

FEATURES & BENEFITS

Self-Cleaning Condenser

The accumulation of dust in the condenser can cause the failure or breakdown of refrigerators. Refrigerators run normally until they reach a certain level of accumulation. At some point, when they are over the limit, their performance drops quickly resulting in damage to, or disposal of the stored products inside. The Self-Cleaning Condenser device keeps the condenser clean and prevents system failure by automatically brushing daily.

Hydrocarbon refrigerants (R-290)

With innovative and eco-friendly technology, Turbo Air brings you hydrocarbon refrigerators designed to meet DOE's Energy Conservation Standards in 2017 and to use EPA's SNAP Program approved HC refrigerants. Hydrocarbon refrigerants do not deplete the ozone layer and have very low contribution to global warming (ODP-0, GWP-3).

Modern design

By integrating great contours with durable structures, our modern style product designs are user-friendly while maintaining the highest product visibility and aesthetics. Safety reinforced tempered glass front shield and side walls optimize the merchandiser's display effects of fresh salads, sandwiches, desserts and beverages. Its elegant contemporary euro design will enhance any store application.

Designed to enhance impulsive sales

Ideal for eye-catching displays and convenient access with fast service in high traffic area.

Stainless steel interior standard including back wall and deck pans

Stainless steel solid shelves standard

Standard back-guard improves airflow

Foamed with polyurethane, high-density cell insulation (CFC Free)

Perforated interior back wall and top for improved airflow

Front air intake and rear air discharge

NATURAL
Refrigerant

SP
SANITATION

SP
US

2 YEAR
WARRANTY

5 YEAR
WARRANTY
(U.S.A. only)

Model	CU./FT. (Top / Bottom)	HP	AMPS	Crated Weight (lbs.)	L x D x H (inches)
TOM-W-50SB-UF-N	5.6 / 8.5	3/4	6.9	639	50 7/8 x 34 x 56 1/2

Combination Case

European Straight Front Display Cases
Open Display Merchandisers

Model : TOM-W-50SB-UF-N

ELECTRICAL DATA	
Voltage	115/60/1
Plug Type	ⓘ NEMA 5-15P
Full Load Amperes	6.9
Compressor HP	3/4
Refrigerant	R-290
DIMENSIONAL DATA	
Net Capacity (Top / Bottom) (cu. ft.)	5.6 / 8.5
Ext. Length Overall (in.)	50 7/8 (1292mm)
Ext. Depth Overall (in.)	34 (864mm)
Ext. Height Overall (in.)	56 1/2 (1435mm)
Int. Dimensions (L x D x H) (Top) (in.)	47 5/8 x 13 x 15 3/4
Int. Dimensions (L x D x H) (Bottom) (in.)	47 5/8 x 24 x 13 7/8
# of Shelves	2
Shelf Size (in.)	46 1/2 x 11 5/8
	47 1/2 x 9 3/4 (Step)
Power Cord Length (in.)	59 1/8
Net Weight (lbs.)	496
Gross Weight (lbs.)	639

Design and specifications subject to change without notice.
Actual shipping weight may differ due to extra packing materials for product protection.

■ WARRANTY : 2 Year Parts and Labor Warranty Additional 3 Year Warranty on Compressor

■ STANDARD FEATURES

- Simple plug-in installation
- Patented self-contained system, no plumbing required
- Standard color comes in black only
- Solar powered digital thermometer
- Digital electronic thermostat with defrost control
- LED interior lighting

■ Recommended operating conditions

TOM models are designed to operate in an environment where temperature & humidity do not exceed 75°F and 55% respectively. Units should not be installed near HVAC vents, fans or doorways that will disrupt the air curtain and compromise the function of the cabinet. Air curtain models will run most efficiently when completely loaded with product. When used as a built-in, required clearance for the rear is 4" and the top is 5".

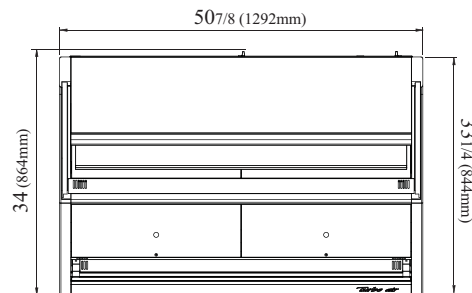
■ OPTIONAL ACCESSORIES

- 1.6" caster: CAS16WBT00 (non-brake)
- 4" caster, 1/2" diameter & 13 TPI: G8F6500101 (non-brake), G8F6500201 (w/ brake)
- 6" leveling seismic leg (1/2", 13 TPI): 30221M0700
- White color option available (please allow 8 weeks lead time)
- Price tag channel: PW500000ZK (46 1/4"L)
- * Night Cover (NCT) is not applicable to TOM-W models.

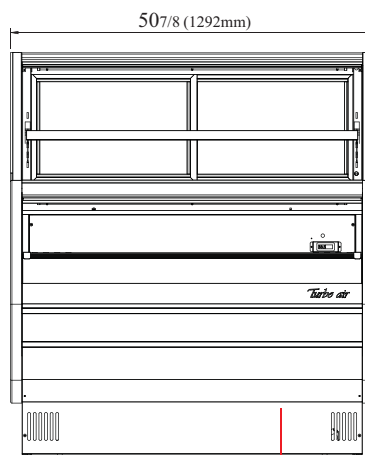
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PLAN VIEW

(unit : inch)

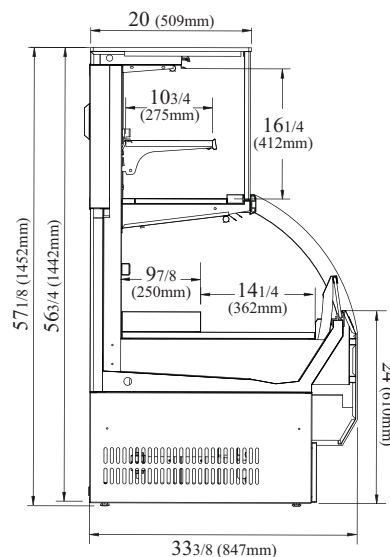


TOP VIEW



FRONT VIEW

Power Cord
(Back of the product)



SIDE VIEW



- Turbo Air : 800-627-0032
- GK : 800-500-3519
- Warranty : 800-381-7770
- AC : 888-900-1002

TURBO air

GERMAN KNIFE

RADIANCE

TURBO air

TEXAKING



www.AvantcoRefrigeration.com

PROPOSED ALTERNATIVE 2

PROJECT: _____

MODEL: _____

ITEM #: _____ QUANTITY: _____

APPROVAL: _____ DATE: _____

VAC Series Air Curtain Merchandisers

MODEL #189BVAC46HC

VAC SERIES - BLACK AIR CURTAIN MERCHANDISER

Display your grab and go items in style while keeping them chilled.

CABINET CONSTRUCTION

Durable black coated steel interior and exterior with partial glass sides.

REFRIGERATION SYSTEM

1 1/4 hp compressor uses R290 refrigerant. Operation requires a 110V electrical connection.

Drain pan heater helps evaporation of condensation, and an optional drain is included that can be utilized if the unit is producing excess condensation.

Maintains a temperature range from 33-40°F. Includes automatic defrost setting.

STORAGE

Includes (4) 42" x 11 1/2" coated steel shelves that accommodate 99lbs. each.

MODEL FEATURES

Partial glass sides for increased visibility. Intuitive, easy to read pre-programmed electronic controls.

Operates in an ambient temperature up to 75°F and 55% humidity. Foamed-in-place polyurethane insulation for temperature retention.

Backlit top panel with attractive graphic to capture customers' attention. Interior LED lighting to illuminate product. Energy-saving night cover included for off hours.

SPECIAL FEATURES

- Bright, energy efficient LED lighting illuminates the contents of the case.
- Top-mounted, illuminated lightbox attracts customer attention.
- Energy-saving night cover included for off hours.
- Each shelf comes with price tag strips for convenient product price labeling.
- Casters allow for unit to be easily moved for cleaning and maintenance.
- Internal condensate evaporator eliminates the need for drain connection. Optional drain located on the rear of unit to prevent overflow.
- Eco-friendly R290 hydrocarbon refrigerant.
- 110V, 1 1/4 hp.



WARRANTY

RESIDENTIAL: Avantco assumes no liability for parts or labor coverage for component failure, factory defect or any other damages for units installed in non-commercial foodservice or residential applications.



Parts & Labor



Compressor



05/2020 Intertek



VAC Series

Air Curtain Merchandisers



www.AvantcoRefrigeration.com

MODEL #189BVAC46HC

TECHNICAL DATA

Dimensions

Exterior Dimensions	45 $\frac{5}{8}$ "W x 25 $\frac{5}{8}$ "D x 81 $\frac{1}{2}$ "H
Interior Dimensions	42"W x 17 $\frac{3}{4}$ "D x 51 $\frac{3}{8}$ "H
Net Volume	13.2 cu. ft.
Net Weight	417 lb.
Gross Weight	445 lb.
Packaging Dimensions	47"W x 27 $\frac{1}{2}$ "D x 87"H

Cooling

Temperature Range	33°F - 40°F
Refrigerant	R290
Max. Ambient Temperature	75°F
Max. Humidity	55%
Defrosting	Automatic
Temperature Controller	Digital
Horsepower	1 1/4
BTU (BTU/hr)	3242

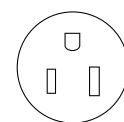
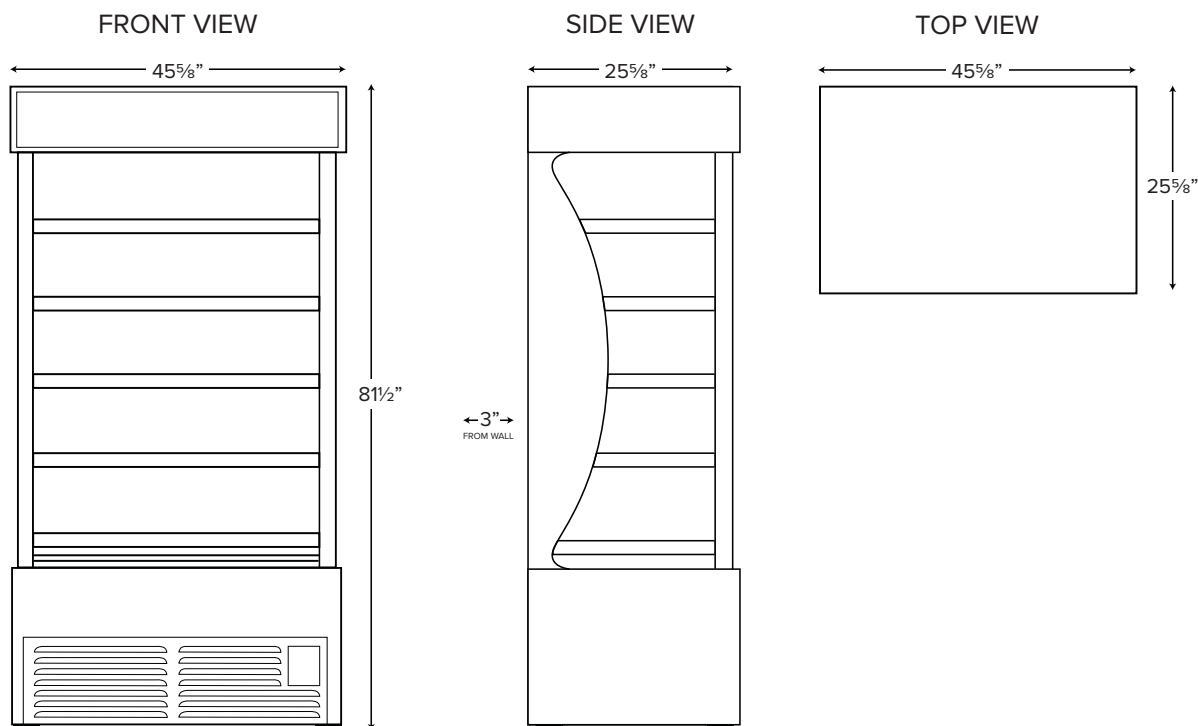
Construction

Exterior Material	Coated Steel
Interior Material	Coated Steel
Insulation Material	Foamed-In-Place Polyurethane
Shelves	(4) 42" x 11 $\frac{1}{2}$ "
Shelf Material	Coated Steel
Shelf Load Capacity	99 lb.

Electrical

Voltage	110
Amps	12.5
Hz	60
Phase	1
Plug Type	NEMA 5-15P
Electrical Cord Length	98"

PLAN VIEW



NEMA 5-15P

PROPOSED ALTERNATIVE 3

	TRUE MANUFACTURING CO., INC. 2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400 Fax (636)272-2408 • Toll Free (800)325-6152 • Intl Fax# (001)636-272-7546 Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com		PROJECT NAME		LOCATION	
			ITEM #		QTY	AIA #
			MODEL #		SIS #	
Models	TDM-R-77-GE/GE-B-W	TDM-R-77-GE/GE-W-W	TDM-R-77-GE/GE-S-W	TDM-R-77-GE/GE-S-S		
True Display Merchandiser		Curved Glass, Glass End Refrigerator				



TDM-R-77-GE/GE-B-W



TDM-R-77-GE/GE-W-W



TDM-R-77-GE/GE-S-S



TDM-R-77-GE/GE-B-B (optional black interior)

FEATURES

- ▶ True's refrigerated display merchandisers combine efficient, high volume merchandising and exceptional refrigeration with an elegant curved glass front for sophisticated presentation of high end desserts and pastries.
- ▶ Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydro carbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- ▶ High capacity, factory balanced refrigeration system. Standard temperature range maintains cabinet temperatures of 33°F to 41°F (.5°C to 5°C), ideally suited for refrigerated bakery and cold deli products.
- ▶ Cabinet is NSF/ANSI Standard 7 compliant to hold open food product.
- ▶ Two (2) rear sliding glass doors for back access.
- ▶ Exterior - powder coated FDA black rounded front and back, black aluminum aesthetic side and front panels. Color options available (upcharge may apply) - white or stainless. Curved glass front and side glass panels.
- ▶ Interior - powder coated FDA white over CRS material. Color options available (upcharge may apply) - black or stainless.
- ▶ Three (3) tiered levels of adjustable wire cantilever shelves that match cabinet interior color. Chrome plated wire shelves standard on stainless units.
- ▶ Front glass swings Up for easy cleaning access.
- ▶ LED interior lighting provides more even lighting throughout the cabinet. Safety shielded.

STANDARD OPTIONS

Exterior Color	Black, White, or Stainless Steel
Interior Color	Black, White, or Stainless Steel
Glass End (GE)	Clear Glass Interior/Clear Glass Exterior with Black Trim
Mirrored End (ME)	Mirrored Glass Interior/Black Glass Exterior
Solid Mirrored End (SM)	Mirrored Glass Interior/Solid Metal Exterior - must indicate finish on SM Black, White, or Stainless
Shelving	White, Black, Chrome, or Mezzanine






ROUGH-IN DATA

Specifications subject to change without notice.
Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).

Model	Doors	Shelves	Cabinet Dimensions (inches) (mm)			HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.) (total m)	Crated Weight White/Black Model (lbs.) (kg)	Crated Weight Stainless Model (lbs.) (kg)
			W	D	H							
TDM-R-77-GE/GE-Δ/Δ	2	3	77 1/4 1963	39 991	49 3/8 1248	1/2 1/2	115/60/1 230-240/50/1	12.0 3.6	5-15P ▲	8 2.44	785 356	TBD TBD

Δ Represents Exterior/Interior (B-black, W-White, S-Stainless)

▲ Plug type varies by country.

    			APPROVALS:		AVAILABLE AT:	
8/18			Printed in U.S.A.			

Models:	
TDM-R-77-GE/GE-B/W	TDM-R-77-GE/GE-W-W
TDM-R-77-GE/GE-S-W	TDM-R-77-GE/GE-S-S

True Display Merchandiser: Curved Glass, Glass End Refrigerator



STANDARD FEATURES

DESIGN

- True's refrigerated display case combines efficient, high volume merchandising and exceptional refrigeration with an elegant curved glass front for sophisticated presentation of high end deli, desserts and pastries.
- Designed to provide an attractive companion to our TDM-DC "dry case" display merchandiser. Please note: If units are banked together, because of side panel, a 1/2" gap will remain between units.

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- Exclusive reversing condenser fan motors. Fan motors reverse during defrost off cycles to help keep condenser coil free from dirt, dust and debris. Keeping coils clean optimizes the unit's performance providing colder holding temperatures and increased energy efficiency. Regularly scheduled thorough cleaning of coils still recommended.
- High capacity, factory balanced refrigeration system that has two (2) temperature range options. Standard temperature range maintains cabinet temperatures of 33°F to 41°F (.5°C to 5°C), ideally suited for refrigerated bakery and cold deli products. Optional temperature range maintains cabinet temperatures of 42°F to 65°F (5.5°C to 18.3°C), ideally suited for chocolate & wine options.
- Pull Out Condensing unit slides out for easy cleaning and maintenance.

CABINET CONSTRUCTION

- Exterior - powder coated FDA black rounded front and back, black aluminum aesthetic side and front panels. Color options available (upcharge may apply) - white or stainless.

- Curved glass front and side glass panels.
- Interior - powder coated FDA white over CRS material. Color options available (upcharge may apply) - black or stainless.
- Insulation - entire cabinet structure is foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Welded, heavy duty steel frame rail, black powder coated for corrosion protection.
- Frame rail fitted with leg levelers.

CURVED FRONT DISPLAY GLASS

- Curved glass front and side panels are single pane tempered glass. Front glass opens from closed to fully open to provide extra large viewing area to maximize product presentation while allowing full frontal access.

REAR DOORS

- Two (2) rear sliding glass doors for back access.
- Each door fitted with 12" (305 mm) long aluminum handle.
- Sliding doors ride on stainless steel V-channel with stainless steel bearings. Doors fit within plastic channel frame.

SHELVING

- Three (3) adjustable heavy duty PVC coated wire shelves standard.
- Each shelf supports a maximum weight of 150 lbs. (69 kg).

PAN CAPACITY

- Cabinet holds eight (8) 18"L x 26"D (458 mm x 661 mm) display pans and twelve (12) 12"L x 18"D (305 mm x 458 mm) display pans. Pans supplied by others.

LIGHTING

- LED interior lighting, two (2) clips underneath shelf to keep wires in place. Safety shielded.

MODEL FEATURES

- Evaporator is epoxy coated to eliminate the potential of corrosion.
- Front glass swings Up for easy cleaning access.
- Pull out condensing unit slides out for easy cleaning and maintenance.
- Electronic temperature control.
- NSF/ANSI Standard 7 compliant for open food product. Tested and certified for performance at NSF Type II: 80°F (27°C) and 55% relative humidity.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.



115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES

Upcharge and lead times may apply.

- ☐ 230 - 240V / 50 Hz.
- ☐ White exterior
- ☐ Stainless steel exterior
- ☐ Custom exterior colors (contact factory for details)
- ☐ Black interior
- ☐ Stainless steel interior
- ☐ Mirrored interior ends with black glass exterior (ME)
- ☐ Mirrored interior ends with Solid metal exterior (SM)
- ☐ Black wire shelves
- ☐ Chrome plated wire shelves
- ☐ Stainless mezzanine shelves

TDM MODEL NUMBER NOMENCLATURE SYSTEM

True Display
Merchandiser

Size: (36, 48, 59, 77)

END TYPE

COLOR

Left Position / Right Position

Exterior / Interior

TDM - R - 77 - GE / GE - B - W

Type:

R - Refrigerator
DZ - Dual Zone
DC - Dry Case
CW - Chocolate/Wine

Side Type:

GE - Glass End
ME - Mirrored End
SM - Solid Mirrored End

Color:

B - Black
W - White
S - Stainless Steel

End Types
Pictured Below



GE

(Stainless Exterior)



ME

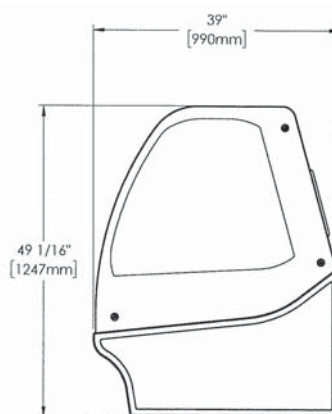
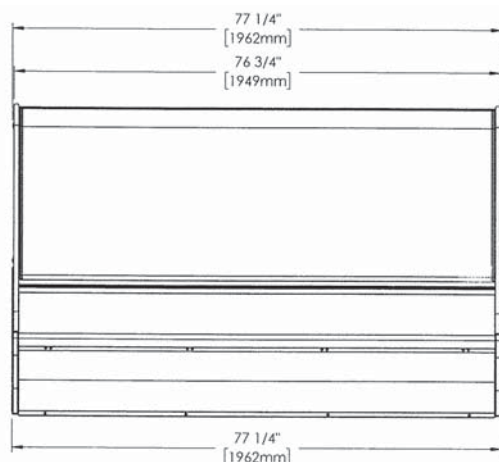
(Stainless Exterior)



SM

(Stainless Exterior)

PLAN VIEW



WARRANTY

Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO
THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO
CHANGE WITHOUT NOTICE



Elevation	Right	Plan	3D	Back

TRUE MANUFACTURING CO., INC.

2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400 • Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax# (001)636-272-7546 • www.truefmfg.com

Milk Cooler Cutsheets

True TRUE MANUFACTURING CO., INC.
U.S.A. FOODSERVICE DIVISION
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400
Fax (636)272-2408 • Toll Free (800)325-6152 • Intl Fax# (001)636-272-7546
Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com

Project Name: _____		A/A #
Location: _____		SIS #
Item #: _____	Qty: _____	
Model #: _____		

Model:

TMC-34-S-SS-HC

Milk Coolers:

Stainless Steel Exterior/Stainless Steel Interior with Hydrocarbon Refrigerant



TMC-34-S-SS-HC

- ▶ True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, and lower utility costs in an attractive, durable school milk cooler.
- ▶ Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydro carbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- ▶ High capacity, factory balanced, forced-air refrigeration system maintains milk temperatures of 33°F to 38°F (.5°C to 3.3°C). Colder holding temperatures provide better tasting milk, increased sales and less product waste.
- ▶ Exterior - all stainless steel exterior front, sides, back and top.
- ▶ All stainless steel self-service doors feature convenient drop front and "hold-open" flip-up top. Standard with door locks.
- ▶ Interior - Stainless steel walls and reinforced floor.
- ▶ Standard with heavy duty floor racks and convenient clean out drain.
- ▶ Designed to hold Eight 13"L x 13"D x 11 1/8"H (331 mm x 296 mm) milk crates.
- ▶ Entire cabinet structure is foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

ROUGH-IN DATA

Specifications subject to change without notice.
Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).

Model	Doors	Capacity		Cabinet Dimensions (inches) (mm)			HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.) (total m)	Crated Weight (lbs.) (kg)
		Crates	Floor Racks	L**	D†	H*						
TMC-34-S-SS-HC	2	8	2	34 864	33 839	41 1/8 1058	1/5 N/A	115/60/1	2.7 N/A	5-15P	9 2.74	345 157

** Width does not include 1/8" (4 mm) each side for lid pins.

† Depth does not include 1" (26 mm) for front bumpers. Depth does not include 1" (26 mm) for rear bumpers.

* Height does not include 5 1/8" (130 mm) for castors.



APPROVALS:

AVAILABLE AT:

6/18-A

Printed in U.S.A.

Model:

TMC-34-S-SS-HC

Milk Coolers:

*Stainless Steel Exterior/Stainless Steel Interior
with Hydrocarbon Refrigerant*

true®

STANDARD FEATURES

DESIGN

- True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, and lower utility costs in an attractive, durable school milk cooler.

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains cabinet temperatures of 33°F to 38°F (.5°C to 3.3°C) provide better tasting milk, increased sales and less product waste.
- State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
- Condensing unit accessed from behind back grill, slides out for easy cleaning and maintenance.

CABINET CONSTRUCTION

- Exterior - all stainless steel front, sides, back and top.
- Interior - Stainless steel walls and reinforced floor. Standard with heavy duty floor racks.
- Insulation - entire cabinet structure is foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Welded, heavy duty steel frame rail, black powder coated for corrosion protection.
- Frame rail fitted with four (4) easy roll, 4" (102 mm) diameter swivel castors (front castors lock in place).
- Designed to hold Eight 13"L x 13"D x 11 1/8"H (331 mm x 331 mm x 296 mm) milk crates.

DOORS

- All stainless steel self-service doors feature convenient drop front and "hold-open" flip-up top. Door support bumpers standard.
- Door locks standard.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

MODEL FEATURES

- Exterior digital temperature display.

- Evaporator is epoxy coated to eliminate the potential of corrosion.
- Convenient clean out drain with 1/2" (13 mm) NPT-PVC drain plug.
- Wide gaskets.
- This unit is Energy Star 3.0 Rated and meets Department of Energy 2017 standards.
- Listed under NSF/ANSI Standard 7 for the storage and/or display of packaged or bottled product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.



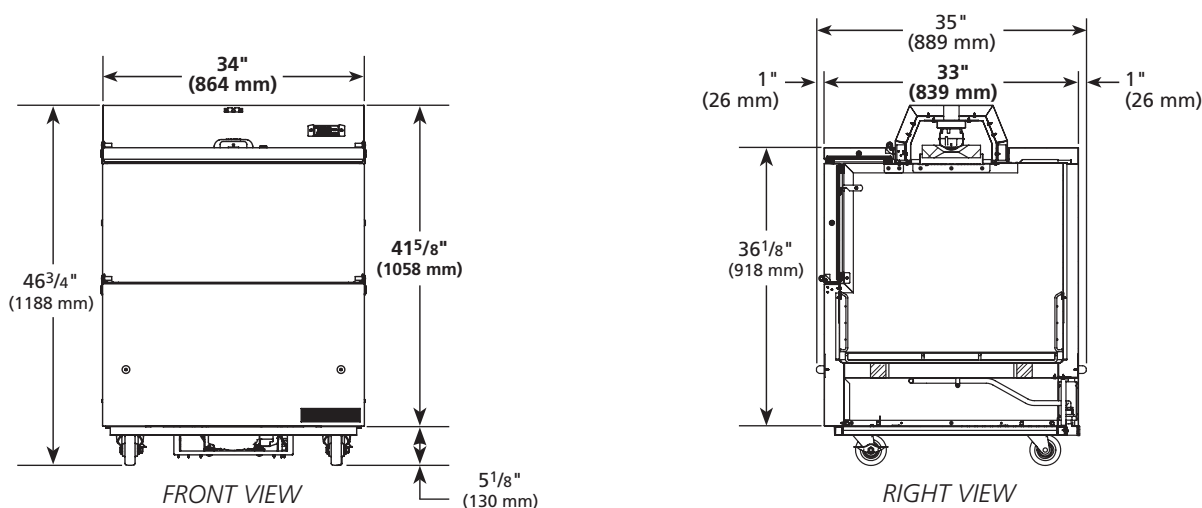
115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES

Upcharge and lead times may apply.

- ☐ 6" (153 mm) standard legs (mounting plates required).
- ☐ 6" (153 mm) seismic/flanged legs (mounting plates required).
- ☐ Corner bumpers.

PLAN VIEW



WARRANTY

Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



Model	Elevation	Right	Plan	3D	Back
TMC-34-S-SS-HC	TFQ065E	TFQ0605	TFQ065P	TFQ0653	

TRUE MANUFACTURING CO., INC.

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BEVERAGE-AIR

PROPOSED ALTERNATIVE 1

Project: _____	AIA# _____
Item: _____	
Location: _____	SIS# _____
Approved: _____	

SM SCHOOL MILK COOLERS

SM34HC Single Access, Cold Wall
Hydrocarbon Series

MODELS:
SM34HC-S
SM34HC-W



SM34HC-S



SM34HC-W

3 Year Parts/Labor Warranty
Additional 2 Year Compressor Warranty

CABINET CONSTRUCTION

- SS units: Stainless steel exterior and interior
- White units: White coated steel exterior and interior is galvanized steel with stainless steel floor for maximum milk crate support.
- Lids, doors, adjustable hinges and door latches made from stainless steel are standard on all units
- Full electronic Control
- Heavy-duty epoxy coated steel wire floor racks standard
- Floor drain is centrally located for easy cleaning, connecting to drain hose with hose adapter
- Flexible compression door gaskets ensure tight seal
- Self-latching doors/lids with safety bumpers
- Exterior thermometer
- Cylinder lock
- 4" Heavy-duty plate casters (2 with locks)
- Maintains continuous milk temperature between 36° - 38°F

OPTIONS & ACCESSORIES

- ☐ Wrap around & corner bumpers
- ☐ Graphics

REFRIGERATION SYSTEM

- Refrigeration system uses R290 refrigerant to comply with all environmental concerns
- Automatic, non-electric defrost
- Epoxy coated evaporator coil

SM34HC Single Access, Cold Wall : School Milk Series



3779 Champion Blvd., Winston-Salem, NC 27105
1-888-845-9800 Fax: 1-336-245-6453
Beverage-Air.com sales@bevair.com



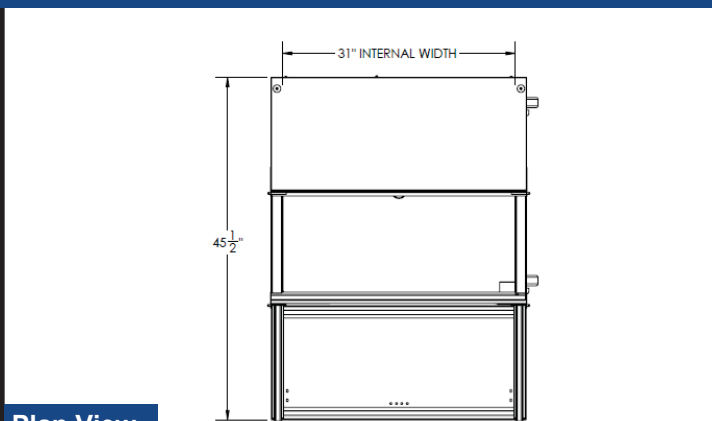
BEVERAGE-AIR

MODEL	SM34HC-S	SM34HC-W
EXTERNAL DIMENSIONAL DATA		
Width Overall	34"	34"
Depth Overall	30 5/8"	30 5/8"
Height Overall with Casters	41 1/8"	41 1/8"
Number of Lids/Doors	Single Access	Single Access
INTERNAL DIMENSIONAL DATA		
NET Capacity (cubic ft.)	12.73	12.73
Internal Width Overall (in)	31"	31"
Internal Depth Overall (in)	27"	27"
Internal Height Overall (in)	25 3/4"	25 3/4"
CASE CAPACITIES		
13" x 13" x 11"	8	8
19" x 13" x 11"	4	4
ELECTRICAL DATA		
Full Load Amperes 115/60/1	2.2	2.2
REFRIGERATION DATA		
Horsepower	1/3	1/3
Capacity BTU	1224	1224
WEIGHT DATA		
Gross Weight (Crated lbs)	277 lbs	277 lbs
Height - Crated	47"	47"
Width - Crated	37"	37"
Depth - Crated	34"	34"

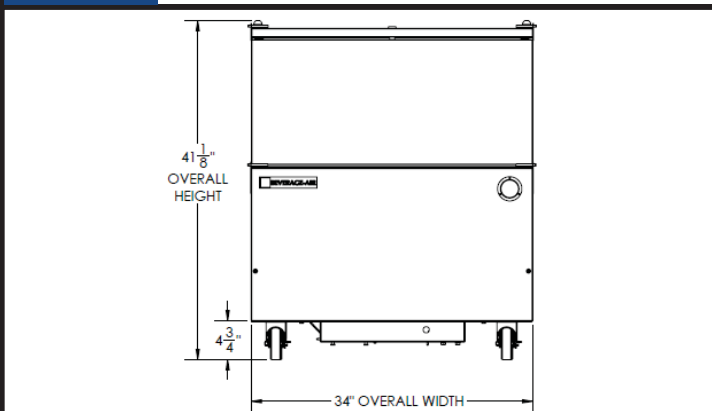
SM Series—School Milk Cooler

Models: SM34HC-S, SM34HC-W

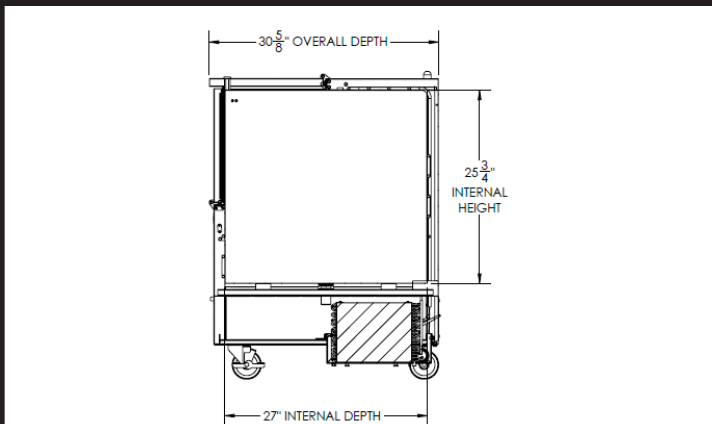
Model Views



Plan View



Elevation View



Side View

ELECTRICAL CONNECTION

Units pre-wired at factory and include 8' long cord and plug set.



an Ali Group Company



3779 Champion Blvd., Winston-Salem, NC 27105
1-888-845-9800 Fax: 1-336-245-6453
Beverage-Air.com sales@bevair.com

MC Series School Milk Coolers

MODEL #178MC34HC

MC SERIES - SCHOOL MILK COOLERS

Provide quick and easy access to milk, juice, and iced tea.

CABINET CONSTRUCTION

Heavy duty construction includes corrosion-resistant 304 stainless steel interior. Exterior features peel and chip-resistant, powder-coated cold rolled steel that is durable and permanent.

Foamed-in-place CFC- and HCFC-free polyurethane insulation enhances the structural strength of the cabinet and helps increase energy efficiency.

One-piece grill is easily removed for cleaning and servicing.

Stainless steel fold down door and flip-top lid provide easy access for fast and convenient service.

REFRIGERATION SYSTEM

Environmentally-safe R290 refrigerant. Cold wall refrigeration system helps maintain interior temperatures between 33 and 40 degrees Fahrenheit.

SHELVING

Interior houses up to 8 milk crates for holding efficiency.

MODEL FEATURES

Copper evaporator coil eliminates the potential of corrosion.

Easy to read digital controls with auto defrost feature.

PROPOSED ALTERNATIVE 2

REFRIGERATION
AVANTCO

www.AvantcoRefrigeration.com

SPECIAL FEATURES

- Holds up to 8 milk crates
- Fold down door with flip-top lid for easy access to contents
- White powder coated steel exterior with corrosion-resistant 304 stainless steel interior
- Environmentally-friendly R290 refrigerant
- 33-40 degrees Fahrenheit temperature range
- Cold wall refrigeration system
- Digital thermostat read-out and auto defrost function
- 115V, 1/5 hp



WARRANTY

RESIDENTIAL: Avantco assumes no liability for parts or labor coverage for component failure, factory defect or any other damages for units installed in non-commercial foodservice or residential applications.



Parts & Labor



Compressor



MC Series School Milk Coolers

MODELS #178MC34HC



www.AvantcoRefrigeration.com

TECHNICAL DATA

Dimensions

Exterior Dimensions	34"W x 30 $\frac{5}{8}$ "D x 41 $\frac{3}{8}$ "H
Interior Dimensions	30 $\frac{7}{8}$ "W x 27"D x 25 $\frac{3}{4}$ "H
Product Capacity	(8) Crates
Net Volume	12.4 cu. ft.
Net Weight	198 lb.
Gross Weight	231 lb.
Packaging Dimensions	35 $\frac{1}{4}$ "W x 31 $\frac{1}{4}$ "D x 45 $\frac{1}{4}$ "H

Cooling

Temperature Range	33°F - 40°F
Refrigerant	R290
Max. Ambient Temperature	90°F
Defrosting	Automatic
Temperature Controller	Digital
Horsepower	1/5

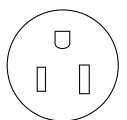
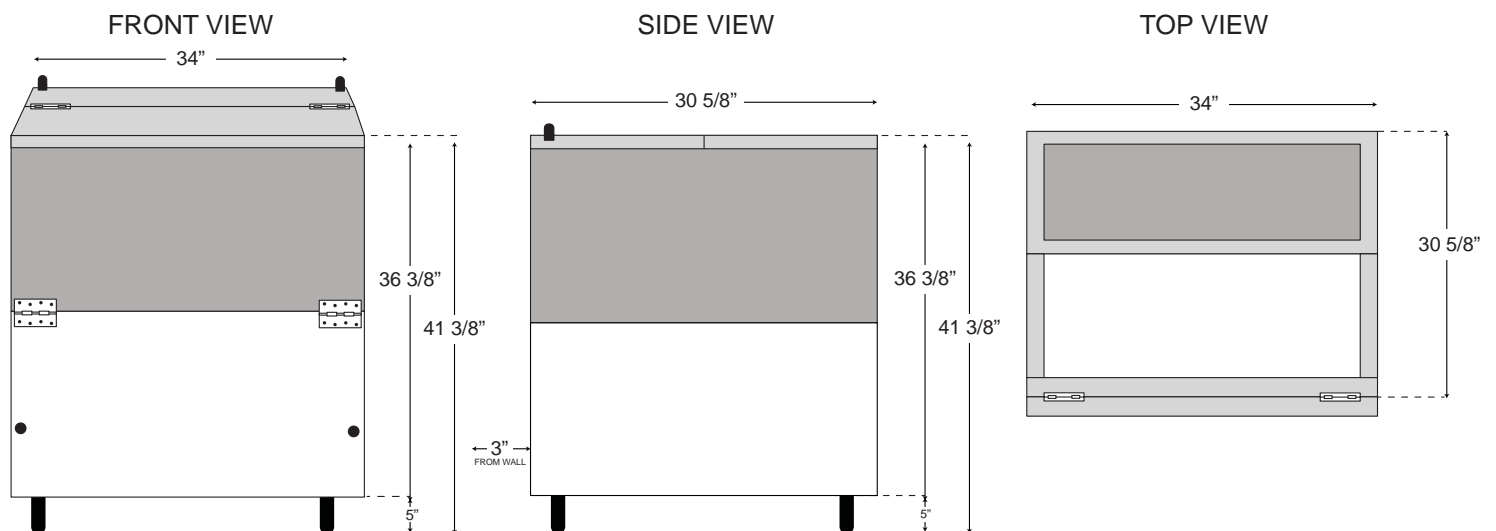
Construction

Exterior Material	White Coated Steel
Interior Material	Type 304 Stainless Steel
Insulation Material	Foamed-in-Place Polyurethane

Electrical

Voltage	115
Amps	2.28
Hz	60
Phase	1
Plug Type	NEMA 5-15P
Electrical Cord Length	96"

PLAN VIEW



NEMA 5-15P

MOTAK

Milk Cooler

Model #: MMC34-X

Product Details

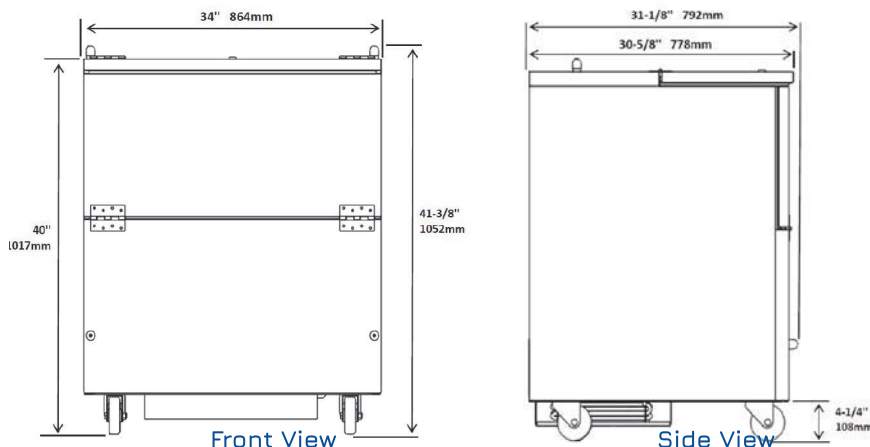
- Eco-friendly R290 refrigerant
- White-coated steel exterior with stainless steel lid and door with lock and latch
- Interior is NSF-approved stainless
- Electronic control system makes it easy to adjust temperature set point and defrost frequency
- Temperature range: 33-38°F
- CFC- and HCFC-free, foamed-in-place polyurethane
- Condenser coil is easy to access for cleaning and service
- Factory-installed 4-inch swivel casters
- Bottom floor drain is centrally located for easy cleaning, connection to drain how with hose adapter

Not suitable for installation in non-commercial or residential applications.

Specifications

Model	Doors	Capacity (Cases)		Cabinet Dims (in)			HP	Voltage	Amp	NEMA Plug	Cord Length (ft)	Ship Weight (lbs)
		13" x 13" 11"	19" x 13" 11"	Width	Depth	Height						
MMC34-X	2	8	4	34"	30.625"	40"	1/5	115/60/1	2.28	5-15P	10 ft.	220 lbs.

Plan View



MOTAK reserves the right to make changes to the design or specifications without prior notice.

PROPOSED ALTERNATIVE 3



Warranty

2 years parts & labor and additional 3 years on compressor

Certifications



Mobile Heated Cabinet Cutsheets



UL Listed to Canadian safety standards
Classified by UL to NSF Std. #4

Specifications

Wittco 1826 Pass Through Series heated holding and transport cabinets. Blower motor for gentle and even temperature distribution. Complete with 5" heavy duty casters (2 swivel with brakes and 2 rigid), simple knob actuated electronic control for holding at temperatures up to 190°F (88°C). Adjustable trays slides hold 18"x26"x1" sheet pans, 12"x20"x2 1/2" steam table pans, or a combination of both on 1 1/2" centers. Lip-load racking holds 18"x26"x1" on 1 1/2" centers. Shelving will handle a variety of pan sizes. Cabinet interior and exterior are both constructed out of 20 gauge stainless steel. Recessed side-mounted handles, magnetic action door latch, and full insulation; 2" in side walls and 2" in top. Integrated steel frame for maximum strength. Lifetime warranty on heating elements. Complete with side mounted cord and plug: NEMA 5-15 for 120 volts and NEMA 6-15 for 208-240 volts. 120 volts, 1,500 watts, 12.5 amps.

CURRENT SCA SPEC

1826 Pass Through Series

Holding & Transport Cabinets

1826-7-PT-1E1AN

1826-13-PT-1E1AN

1826-15-PT-1E1AN

1826-18-PT-1E1AN

See table on reverse for capacities

Standard Features

- Capacity with adjustable tray slides
18"x26"x1 1/2" sheet pans
12"x20"x2 1/2" steam table pans
Or a combination of both on 3" centers
See table on reverse for capacities
- Capacity with lip-load racking
1826-7-PT Fifteen 18"x26"x1" sheet pans
1826-15-PT Thirty 18"x26"x1" sheet pans
- Capacity with shelves
1826-7-PT Comes with 3 adjustable shelves
1826-15-PT Comes with 6 adjustable shelves
- Blower motor for gentle and even temperature distribution
- 5" Heavy duty casters (2 with swivel with brakes and 2 rigid)
- Recessed side mounted handles
- Simple knob actuated electronic control for holding at temperatures up to 190°F (88°C)
- Interior and exterior are both constructed out of 20 gauge stainless steel
- Fully insulated with 2" in side walls and 2" in top
- Integrated steel frame for maximum strength
- Magnetic action door latch
- Lifetime warranty on heating elements
- Complete with side-mounted cord and plug: NEMA 5-15 for 120 volts and NEMA 6-15 for 208-240 volts
- 120 volts, 1,500 watts, 12.5 amps

Options

- Full perimeter bumper
- 208/240 volts
- Left hand hinged door
- Additional universal tray slides

Wittco Foodservice Equipment 7737 N 81st Street Milwaukee, WI 53223 USA

414-434-4713

FAX 414-354-2821

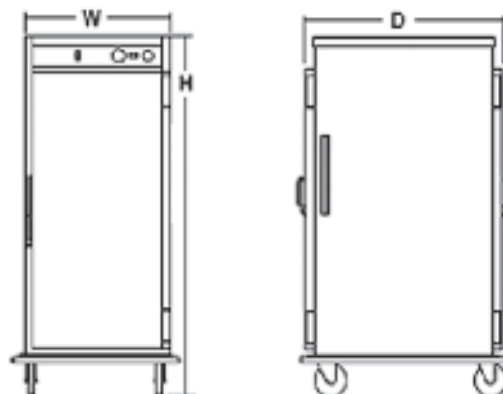
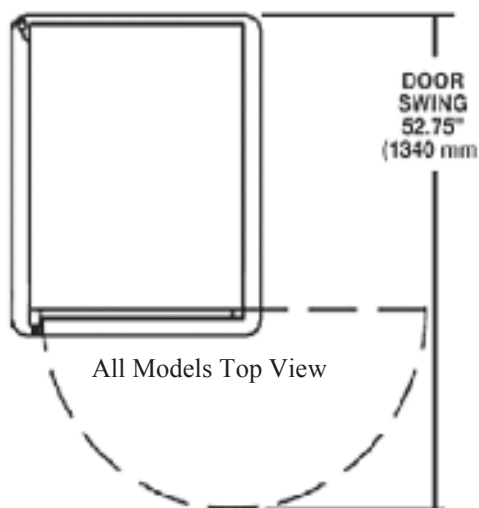
1826 Pass Through Series Holding & Transport Cabinets

1826-7-PT-1E1AN

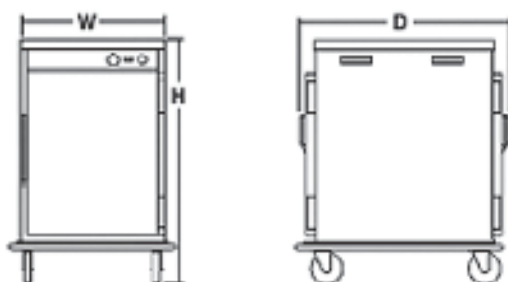
1826-13-PT-1E1AN

1826-15-PT-1E1AN

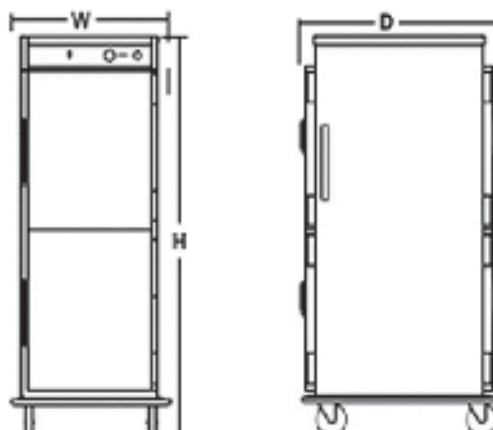
Drawings shown with optional bumper
Which adds 3½" to width of the unit.



1826-13-PT Front & Side View



1826-7-PT Front & Side View



1826-15-PT & 1826-18-PT Front & Side View

Model		12"x20"x2½" Pans	18"x26" Sheet Pans	Exterior Dimensions	Volts	Watts	Amps	Shipping Weight
1826-7-PT	Adjustable Tray Slides	14	7	27¼"W x 35"D x 39"H	120	1,500	12.5	198 lbs
	Lip-Load Racking	NA	15					
	Adjustable Shelves	Unit comes with 3 shelves						
1826-13-PT	Adjustable Tray Slides	26	13	27¼"W x 35"D x 59¾"H				270 lbs
1826-15-PT	Adjustable Tray Slides	30	15	27¼"W x 35"D x 65¼"H				297 lbs
	Lip-Load Racking	NA	30					
	Adjustable Shelves	Unit comes with 6 shelves						
1826-18-PT	Adjustable Tray Slides	36	18	27¼"W x 35"D x 73½"H				337 lbs

Note: In line with its policy to continually improve its products, Wittco Foodservice Equipment

Wittco Foodservice Equipment 7737 N 81st Street Milwaukee, WI 53223 USA

414-434-4713

FAX 414-354-2821

Plug Into Performance

The UPCH1600
is the heated, portable
food transporter that
can accommodate
720 servings!

New!

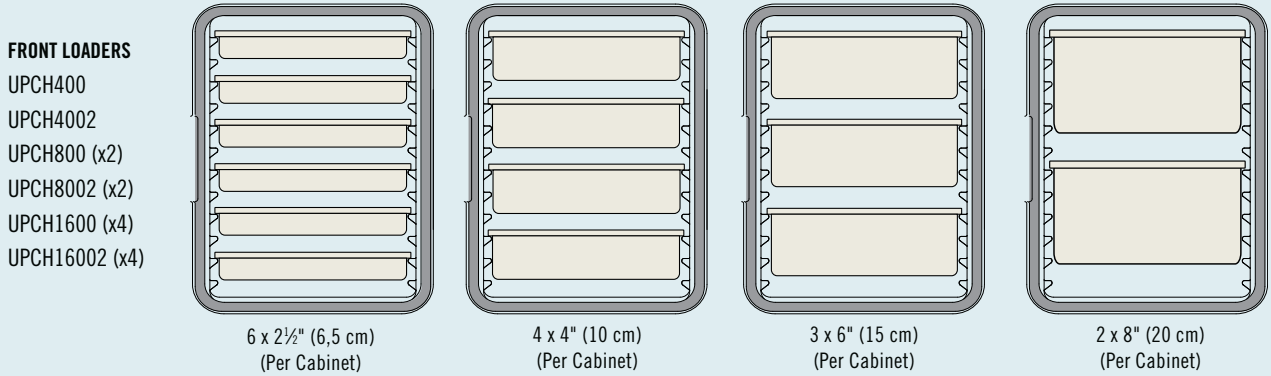
- Perfect for large volume off-premise and satellite feeding
- Holds up to 24 full-size food pans
- Vertical vents constantly circulate heat from front to back for consistent temperature

CAMBRO
TRUSTED FOR GENERATIONS™

PROPOSED ALTERNATIVE 1

www.cambro.com

UPCH-Series Capacity Guide



Food Pan Portion Guide

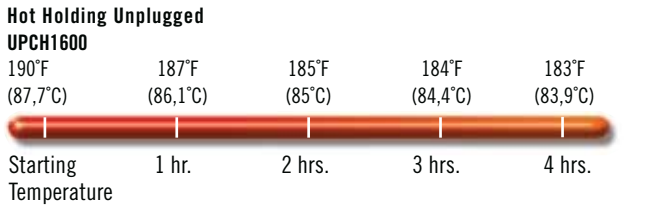
GN ⅓ Food Pan

Depth:	8" (20 cm)	6" (15 cm)	4" (10 cm)	2½" (6,5 cm)
Serving Portions Per Pan: (1 cup or 240 mL)	80	60	40	30



MODEL	110V MODELS	220V MODELS
Electrical Specifications		
Required Voltage	100 - 125 VAC	200 - 230 VAC
Maximum Amp.	4.6a	2.3a
Watts	529w	506w
Hertz	50/60	50/60
Plug Types	5-15P to C15RA	CEE7/7 to C15RA
Alternate Plug / Connector types (for special locations)	JIS8303 to C15RA (Japan)	BS1363 to C15RA (UK & Ireland+more)
Power Cord Length	9 feet	2,7m

Capacity		
2½" (6,5 cm) Deep Food Pan	24	24
4" (10 cm) Deep Food Pan	16	16
6" (15 cm) Deep Food Pan	12	12
8" (20 cm) Deep Food Pan	8	8



HOT HOLDING	150°F - 165°F (65°C - 74°C)
WARM UP TIME (from ambient to temperature)	to 150°F (65°C) in 45 Minutes from 76°F (24,4°C)
RECOVERY TIME* (time to recover to temperature after door is held open for 30 seconds)	3 Minutes
TRANSPORT TIME* (after reaching temperature, amount of time unit can be held passively/ unplugged until contents reach 148°F (65°C).)	4+ Hours

*Based on test with 6 each, 6" (15 cm) deep H-pans with Griplids® filled with approx. 15 qts. (14,2 L) of 190°F (87,7°C) water.
(Temperatures are of the water not the air in the cart)



Ultra Camcart® H-Series

CODE	DESCRIPTION	EXTERIOR DIMENSIONS W x D x H	COMPARTMENT DIMENSIONS W x D x H	CASE LB. (CUBE) CASE KG. (M³)
UPCH400	Heated Ultra Pan Carrier®, 110V	18 1/8" x 26 3/8" x 24 7/8"	13 1/8" x 21" x 19 1/8"	45 (7.96)
UPCH4002	Heated Ultra Pan Carrier, 220V	46 x 67 x 63 cm	33,5 x 53,3 x 48,6 cm	20,45 (0,225)
UPCH800	Heated Ultra Camcart, 110V	20 1/2" x 27 1/8" x 54"	13" x 21 1/2" x 19 1/8"	102 (19.89)
UPCH8002	Heated Ultra Camcart, 220V	52 x 69 x 137,2 cm	33 x 54,5 x 48,5 cm	43,36 (0,563)
UPCH1600	Heated Ultra Camcart, 110V	28 3/4" x 33 3/8" x 54 1/8"	21" x 26 1/8" x 21"	194 (33.2)
UPCH16002	Heated Ultra Camcart, 220V	73 x 84,7 x 137,5 cm	53,5 x 66,5 x 53,5 cm	88,2 (0,942)
UPCHT1600	Ultra Camcart with Heated Top Door Only, 110V	28 3/4" x 33 3/8" x 54 1/8"	21" x 26 1/8" x 21"	180 (33.2)
UPCHT16002	Ultra Camcart with Heated Top Door Only, 220V	73 x 84,7 x 137,5 cm	53,5 x 66,5 x 53,5 cm	81,9 (0,942)
UPCHTD1600*	Heated UPCH1600 Replacement/UPC1600 Retrofit Top Door, 110V	26 5/16" x 4 1/4" x 21"		25.4 (1.67)
UPCHTD16002*	Heated UPCH1600 Replacement/UPC1600 Retrofit Top Door, 220V	66,8 x 10,8 x 53,3 cm		11,5 (0,047)
UPCHBD1600*	Heated UPCH1600 Replacement/UPC1600 Retrofit Bottom Door, 110V	26 5/16" x 4 1/4" x 21 1/8"		25.4 (1.67)
UPCHBD16002*	Heated UPCH1600 Replacement/UPC1600 Retrofit Bottom Door, 220V	66,8 x 10,8 x 53,7 cm		11,5 (0,047)
UPCHTR1600	Heated Ultra Camcart, Tamper Resistant, 110V	28 3/4" x 33 3/8" x 54 1/8"		197 (33.2)
UPCHTR16002	Heated Ultra Camcart, Tamper Resistant, 220V	73 x 84,7 x 137,5 cm		89,5 (0,942)

Case Pack: 1. *NOTE: UPCH1600 top and UPCH1600 bottom replacement/retrofit doors are not interchangeable.

UPCH1600 Casters: 6" (15,2 cm)- 2 fixed, 2 swivel, 1 with brake.

UPCH800 Casters: 5" (12,7 cm)- 2 fixed, 2 swivel, 1 with brake.



Granite Gray (191)



Granite Green (192)



Slate Blue (401)



Dark Brown (131)



Black (110)

CAMBRO
TRUSTED FOR GENERATIONS™

© Cambro Manufacturing Company 5801 Skylab Road, Huntington Beach, California 92647-2056

Cambro USA

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Customer Service: 800 833 3003

N. Ireland & UK

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Fax: 08450 280 34 11

Cambro European Logistics

Tel: 31 168 707 210

Fax: 31 168 707 211

LIT1001 Prices subject to change without prior notification. Printed in USA 01/10.

D120906 UPCH1600 SS

The UPCH-Series:

When you need a hot holding cabinet and a portable insulated transporter, there is no need to compromise. The UPCH-Series family of hot-holding food transporters offers unequalled durability and unmatched performance. No matter the number of people you need to feed or the temperature of the location, there is a UPCH model that will surpass your expectations.

- Gentle, 150° to 165°F (65° to 74°C) non-radiant heat will not cook food and maintains food moisture.
- Holds a wide variety of foods such as pasta, bone-in fried chicken, and double-crust pies.
- 45-minute preheat time from room temperature.
- Three minute recovery after the door is opened and closed.
- Models with top heated door only offer unique versatility with an electric hot holding cabinet on top and passive hot or cold food holding on the bottom.
- Heated door kits also sold separately to retrofit UPC400, UPC800 and UPC1600.

The UPCH1600 is perfect for:

Large events.

Applications that require frequent opening and closing.

Locations that demand durability.

Customers who demand consistent performance.

Those looking for a durable and reliable alternative to expensive metal cabinets.



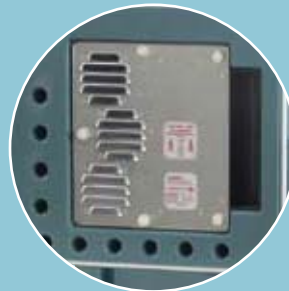
Energy Star

The entire line of UPCH models are Energy Star approved so you can be sure that your UPCH is maximizing its energy use.



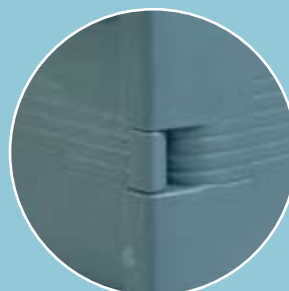
Power On and Heat On Indicators

Communicate the Power and Heating status of the UPCH1600 unit. Know instantly when the compartment has reached target temperature.



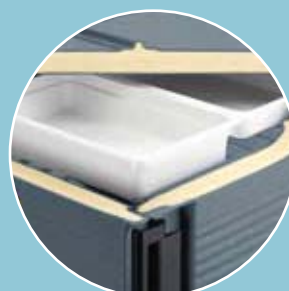
Vertical Vents

Consistent heating throughout the unit is generated by vertical vents that constantly circulate heat from front to back of the cabinet.



Tough Exterior

All UPCH units are made of tough, polyethylene with polyurethane foam insulation to keep heat in while keeping the exterior cool to the touch.



Insulation

CFC-free, foamed-in place polyurethane foam insulation will hold temperature above 148°F (65°C) for over 4 hours when used unplugged.

Project _____
 Item _____
 Quantity _____
 CSI Section 11400
 Approved _____
 Date _____

GAH Reach-Ins

Specification Line® Reach-In Heated w/Solid Doors

Models

- ☐ GAH1-S ☐ GAH2-S
☐ GAH1-SH ☐ GAH2-SH



GAH1P-SH

Standard Features

- easyTouch Control with remote monitoring capability
- Digital exterior temperature display with high/low temp visual alarms
- Removable side louver
- Accommodates full size sheet pans
- Stainless steel interior door liner
- 40 watt incandescent light
- Smart door hinge that auto closes up to 90° and stays open past 90°
- Patented, lifetime warranty integral door handle
- Energy efficient door gasket – removable without tools
- Door locks
- 5" locking casters shipped loose for field installation
- 10' cord and plug attached
- Stainless steel exterior front, sides & interior
- Field rehingable doors - full height doors only
- Stainless steel pilaster with shelf clips
- 3 shelves per section
- Chrome standard
- 208V / 60C / 1 P Standard
- Three year parts and labor warranty and an additional 2 year compressor parts warranty.

Options & Accessories

- 6" Stainless steel feet
- 6" Casters (all locking)
- 6" Stainless Steel flanged feet
- Additional chrome shelves
- Stainless steel shelves
- Stainless steel back
- Tray/Pan Slides – various
- Utility base
- Kick plate
- Laminate – front, ends, shroud
- Heat shield end – max temp 400 degrees
- Trim strips
- Foot Pedal Door Opener

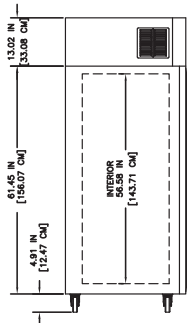
Specifications

Heating system: Cabinets are designed to maintain temperatures between 120°F and 200°F. Heating elements are located behind the vertical ducts. The design of the heater, which is full length of the vertical duct, allows for optimal air flow and energy efficiency. Fan motor is mounted outside of the heated compartment. System is controlled using an electronic temperature control.

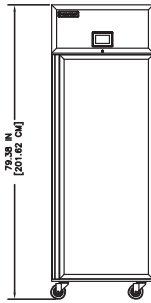
Units are completely insulated with high density foamed in place environmentally friendly, Kyoto Protocol Compliant, Non ODP (Ozone Depletion Potential), Non GWP (Global Warming Potential) polyurethane.



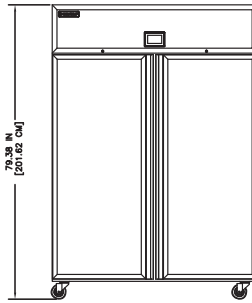
GAH Reach-Ins



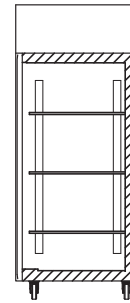
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END VIEW



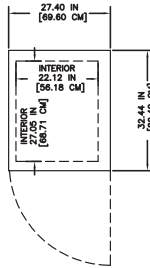
GAH1-S



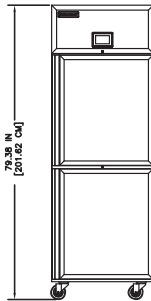
GAH2-S



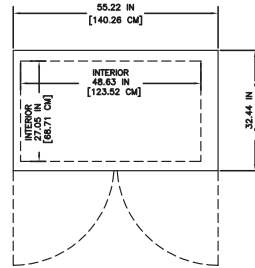
SECTION
VIEW



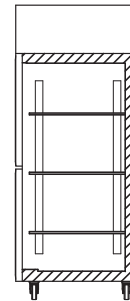
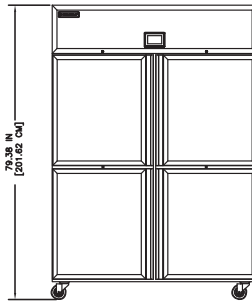
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END VIEW



GAH1-SH



GAH2-SH



SECTION
VIEW

Specifications							
Model	V/Hz/Ph	Amps	Volume Cu. Ft.	SHELF CAPACITY SQ. FT.	No. of Shelves	Ship Weight	Nema Plug
GAH1-S GAH1-SH	208-240/60/1	6	21	11.5	3	331	6-20P
GAG2-S GAH2-SH	208-240/60/1	10.5	46	25.5	6	630	6-20P

Welbilt reserves the right to make changes to the design or specifications without prior notice.

The One-of-a-Kind Pro Cart Ultra™

The Most Adaptable Insulated Holding and Transport Carts on the Market

The Pro Cart Ultra is the ultimate food transport cart that can hold all your hot and cold menu items in the same cart, at the same time—without a compressor! It even holds food safely while unplugged up to 4 hours.

The Pro Cart Ultra Comes Configured Just How You Want it

1. Choose the tall, two compartment model, or the low, single-compartment model.
2. Specify electric hot, electric cold or non-electric (passive) holding in each compartment.
3. Universal rails fit food pans, sheet pans and more.



Capacity per Compartment



TYPE OF CONTAINER	STANDARD CAPACITY	STANDARD CAPACITY RAIL SPACING	MAXIMUM CAPACITY	MAXIMUM CAPACITY RAIL SPACING
18" x 26" (45,7 x 66 CM) FULL SIZE SHEET PANS	8	3" (7,6 cm)	16*	1.5" (3,8 cm)
13" x 18" (33 x 45,7 CM) HALF SIZE SHEET PANS	16	3" (7,6 cm)	32*	1.5" (3,8 cm)
GN 1/1 HOTEL PANS (2½" / 6,5 CM DEEP)	16	3" (7,6 cm)	16	3" (7,6 cm)
GN 1/1 HOTEL PANS (4" / 10 CM DEEP)	10	4.5" (11,4 cm)	10	4.5" (11,4 cm)
23.6" x 15.7" (60 x 40 CM) EURO BAKING SHEETS	8	3" (7,6 cm)	16*	1.5" (3,8 cm)
21½" x 13¼" x 2½" (33 x 45,7 CM) BASKETS	16	3" (7,6 cm)	16	3" (7,6 cm)
PIZZA BOXES 16" x 16" x 2" (40,6 x 40,6 x 5,1 CM)	8	3" (7,6 cm)	8	3" (7,6 cm)

Standard rails: 8 rails / cart *Additional rails required.

Electric



Polyethylene Exterior: Keeps food moist naturally and remains cool to the touch during operation, unlike metal cabinets.



Gasket-free Door: For easy cleaning and fewer replacement parts. Door opens full 270°.



5" x 8" Menu Pocket: Allows for easy product ID with either an index card or by writing directly onto smooth surface with a grease pencil.



Standard 6" x 2" Heavy Duty Casters: Two non-marking, high-performance, swivel casters with brakes in the front and two rigid casters in the back for smooth positioning and navigation.



Electric Models Only



Cord Keeper: Safely and securely stores detachable 9' power cord.

COLD

Digital controller allows cold to be set from 32.5° to 40°F.

THERMOELECTRIC COOLING COOLS DOWN TO 32.5°F

without a compressor for the ultimate in cold mobility and food safety on the go. Note: Operate in 90°F or less ambient temperature for best results.

Pre-chill time: 90 minutes to 40°F. (Tested at 73°F ambient.)

Recovery time: 10 minutes after door open for 30 seconds.

HOT

Keeps food safely between 150° to 165°F with convenient, pre-set, gentle, non-radiant heat.

ENERGY-SAVING HEATER LESS THAN 5 AMPS

Gentle, non-radiant heat circulates consistently from front to back of the cabinet.

Pre-heat time: 45 minutes.

Recovery time: 3 minutes after door open for 30 seconds.



Change is Good!

All Pro Cart Ultra™ models feature non-electric (passive), active hot or active cold modules that can easily be removed and replaced with a different module to support menu or operational changes—a great way to stretch budget dollars with a single piece of equipment.

Just 5 Minutes to Change Module

1. Seasonal menus
2. Menu changes
3. Additional budget availability
4. Different location or facility
5. New trends



Interior with Cold module



Exterior back with Cold module



Interior with Hot module



Exterior back with Hot module



Powerful Performance, Low Power Consumption

- ✓ Energy efficient, active modules draw less than 5 amps each.
- ✓ Cold module uses environmentally friendly, thermoelectric technology.
- ✓ Plugs into a standard outlet.



Electrical Specifications (Per Compartment)



	HOT 110V	HOT 220V	COLD
REQUIRED VOLTAGE	100-125 VAC	200-230 VAC	100-230 VAC
MAXIMUM AMP	4.6a	2.3a	3.26a, 1.42a
WATTS / HEATER OR COOLER	529w	506w	326.6w
HERTZ	50/60	50/60	50/60
PHASE	Single	Single	Single
ALTERNATE PLUG TYPES AVAILABLE FOR THESE COUNTRIES	US, Canada, Mexico, China Europe, UK, Ireland, Australia, South Africa, Japan		
POWER CORD LENGTH	9 ft. / 2,7		

* If country is not listed, please call Cambro Customer Service for details.

Pro Cart Ultra™ Model Specifications

	CODE	DESCRIPTION	UNIT WEIGHT
TALL PROFILE 	Both Compartments Passive (Non-electric)		
	PCUPP	Both compartments non-electric / passive	235.2 lbs.
	Both Compartments Hot		
	PCUHH	110V standard USA / CAN power cord 5-15P	267.5
	PCUHH2	220V USA / CAN power cord 6-15P	268.4
	Both Compartments Cold		
	PCUCC	110V standard USA / CAN power cord 5-15P	278.4
	PCUCC2	220V USA / CAN power cord 6-15P	283.8
	Combination Hot & Cold		
	PCUHC	Top compartment hot, bottom cold. 110V standard USA / CAN power cord 5-15P	271
	PCUCH	Top compartment cold, bottom hot. 110V standard USA / CAN power cord 5-15P	271
	PCUHC2	Top compartment hot, bottom cold. 220V standard USA / CAN power cord 6-15P	271.4
	PCUCH2	Top compartment cold, bottom hot. 220V standard USA / CAN power cord 6-15P	271.4
	Combination Passive & Hot or Cold		
	PCUPH	Top compartment passive, bottom hot. 110V standard USA / CAN power cord 5-15P	255.3
	PCUPC	Top compartment passive, bottom cold. 110V standard USA / CAN power cord 5-15P	260.8
	PCUPH2	Top compartment passive, bottom hot. 220V standard USA / CAN power cord 6-15P	255.8
	PCUPC2	Top compartment passive, bottom cold. 220V standard USA / CAN power cord 6-15P	263.5
LOW PROFILE 	PCULP	Non-electric / passive	140
	PCULH	Hot Cart, 110V standard USA / CAN power cord 5-15P	151
	PCULC	Cold Cart, 110V standard USA / CAN power cord 5-15P	156
	PCULH2	Hot Cart, 220V standard USA / CAN power cord 6-15P	151
	PCULC2	Cold Cart, 220V standard USA / CAN power cord 6-15P	156

Color: Charcoal Gray (615). **Standard Railing Includes:** 8 pairs of stainless steel Universal rails/compartments.
Includes Standard Casters: 6" x 2" heavy duty swivel with brake in front, rigid in back.

Unit Dimensions

UNIT	EXTERIOR DIM. W x D x H	COMPARTMENT DIM. W x D x H
Tall Profile		
COLD	28" x 36½" x 66"	21½" x 26¼" x 25½"
HOT / PASSIVE	28" x 35¾" x 66"	21½" x 27" x 25½"
Low Profile		
COLD	28" x 36½" x 40"	21½" x 26¼" x 25½"
HOT / PASSIVE	28" x 35¾" x 40"	21½" x 27" x 25½"

Optional Accessories

CODE	DESCRIPTION
PCMH / PCMH2	Hot module unit 110V / 220V
PCMC / PCMC2	Cold module unit 110V / 220V
SSR1	1 Pair of Rails
SSR8	8 Pairs of Rails

Color: (000). PCMH / PCMH2 and PCMC / PCMC2 Color: Charcoal Gray (615).



Passive and/or
Hot Models

Security Package (SP)

Specially designed for operations where safety and security are a top priority. To order add SP after the product code.

- ✓ Tamper resistant fasteners secure side column panels to the cart.
- ✓ Cross locking rods behind column panels lock 5 rails in place.
- ✓ Each compartment holds ten 4" deep hotel pans.
- ✓ Passive and electrical modules and cord strap keepers are secured in place with tamper resistant fasteners.
- ✓ Non removable doors. Lockable hasp secures both doors at once. (Lock not included).
- ✓ Heavy duty casters mounted with tamper resistant fasteners.

Mobile Hot Food Counter Cutsheets



Navillus Contracting
633 3rd Avenue, 17th Floor
New York, New York 10017
Phone: (212) 750-1808

Submittal #11400-4.0 11400 - Food Service Equipment



Project: 2716-00 - IS429Q
38-04 48th St
Sunnyside, New York 11104

Delfield Serving Counters

SPEC SECTION:	11400 - Food Service Equipment	SUBMITTAL MANAGER:	Yajurved Mangukia (Navillus Contracting)
STATUS:	Open	DATE CREATED:	01/16/2020
ISSUE DATE:	01/16/2020	REVISION:	0
RESPONSIBLE CONTRACTOR:	Sam Tell Companies	RECEIVED FROM:	Barnett Jeremy
RECEIVED DATE:	01/14/2020	SUBMIT BY:	01/16/2020
FINAL DUE DATE:	02/2/2020	LOCATION:	IS 429Q
SUB JOB:		COST CODE:	
LEAD TIME:		TYPE:	Shop Drawing
APPROVERS:	Plan Desk (NYC SCA), Jerry Moy (NYC SCA)		
BALL IN COURT:	Plan Desk (NYC SCA)		
DISTRIBUTION:			
DESCRIPTION:			
ATTACHMENTS:	004 - Delfield Serving Counters.pdf		

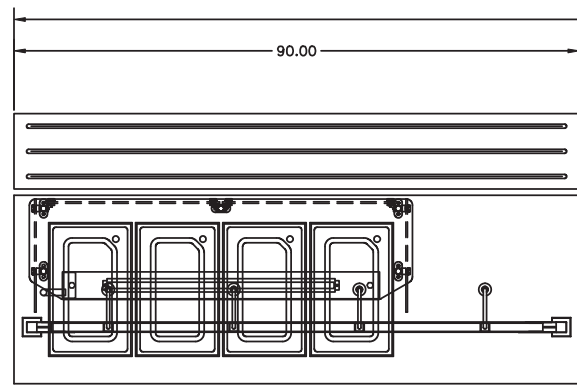
SUBMITTAL WORKFLOW

NAME	SUBMITTER/ APPROVER	SENT DATE	DUE DATE	RETURNED DATE	RESPONSE	ATTACHMENTS	COMMENTS
Plan Desk	Approver		1/19/2020		Pending		
Jerry Moy	Approver		2/2/2020		Pending		

		30-30 Thomson Avenue Long Island City, NY 11101-3045
Architect / Engineer SCA - Architecture & Engineering	General Contractor Navillus Tile, d/b/a Navillus Contr	
Project IS429Q01	Contract No. C000015503	
MCN Make Corrections Noted	Submittal No. 11400-004	
	Review Cycle 001	
	Reviewed By Signature Jerry Moy 03/10/2020	
Submittal Reviewed As: <input checked="" type="checkbox"/> Per Spec / Basis of Design <input type="checkbox"/> "Or Equal Substitution" / Non-Basis of Design <input type="checkbox"/> "Alternate Substitution"		
<small>CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. SHOP DRAWING APPROVAL IS ONLY FOR GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, SELECTING FABRICATION, PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATING THE WORK WITH THAT OF ALL OTHER TRADES AND PERFORMING THE WORK IN A SAFE AND SATISFACTORY MANNER.</small>		

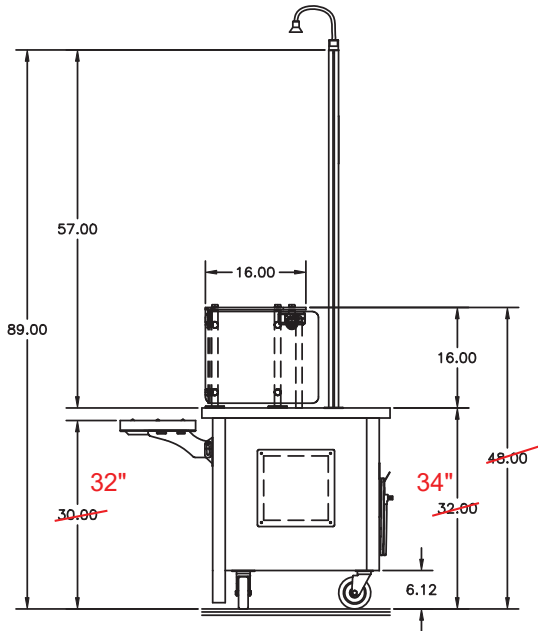
BY

DATE

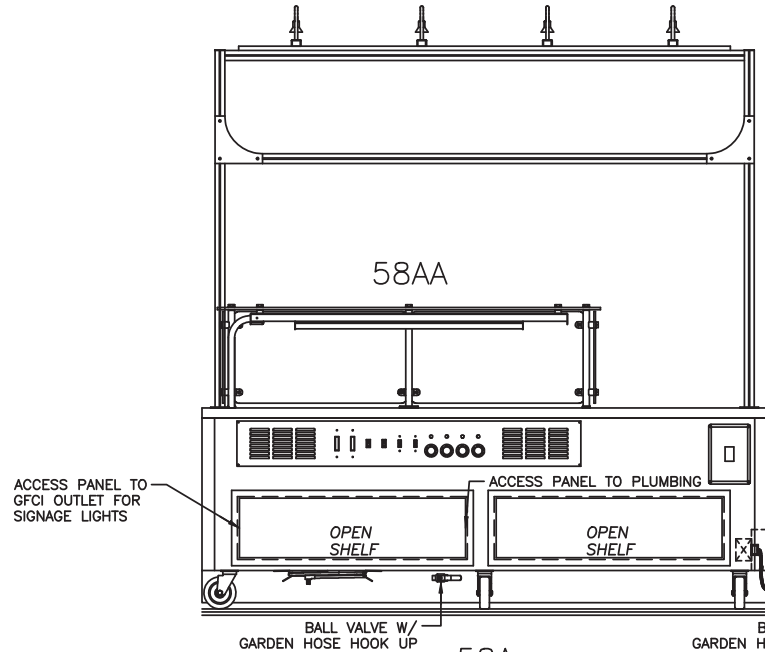


58A

SKU NO. 000-CCA100RGN	
MODEL NO. DCFSG	ITEM NO. 58AA
-SINGLE TIER, SINGLE SERVICE COUNTER PROTECTOR	
-FULL GLASS FRONT	
-SUPPORTS WITH S/S FINISH AND CHROME MOUNTING HARDWARE	
-0.38 TEMPERED GLASS TOP	
-0.25 TEMPERED GLASS FRONT AND ENDS	
-(1) 36.00 FLUORESCENT LIGHT (120V-0.29A)	

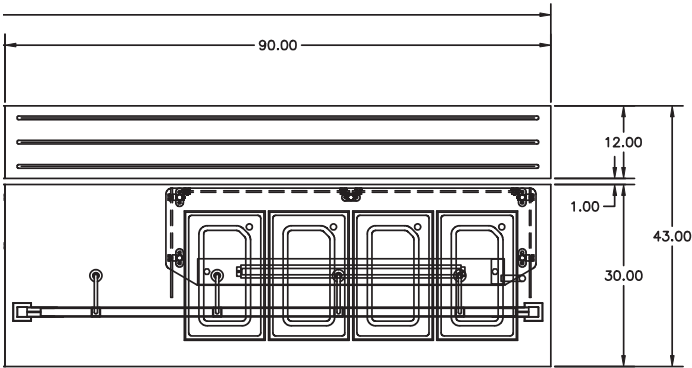


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ITEM #58A ONLY



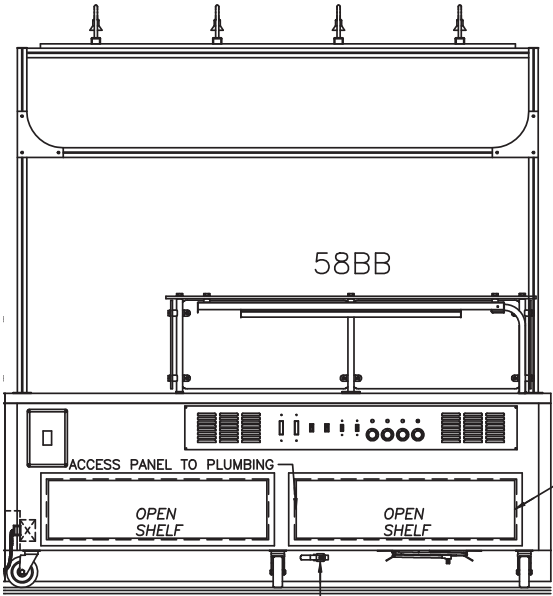
58A

SKU NO. 000-40010DRG5	
MODEL NO. SH-4-NU	ITEM NO. 58A
-HEATED SERVING COUNTER	
-ELECTRIC (WET OR DRY) HOT FOOD TABLE WITH DRAINS AND MANIFOLD 208/230V-60C-1PH-22.0A	
-14GA S/S CONSTRUCTED ROLLED "V" TRAY SLIDE	
-MOUNTED ON FOLD-DOWN BRACKETS	
-PROVIDE 72" LONG FLEX HOSE WITH GARDEN HOSE HOOK-UP	
-PROVIDE EXTENDED SIDES ON REAR	
-PROVIDE WITH REMOVABLE PLASTIC LAMINATED PANELS	
-FIXED HEIGHT ALUMINUM OVERSTRUCTURE WITH VERTICAL SIGNAGE BOARD	
-FIXED ALUMINUM SUPPORTS IN BASE	
-GRAPHICS BY OTHERS	
-POWDERCOAT SIGNAGE BOARD 430 STAINLESS FOR MAGNETIC SIGNAGE BY OTHERS	
-POWDERCOAT FINISH BLACK	
-(4) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH MOUNTED IN BASE FOR SIGNAGE	
-NEMA NO. 5-15 PLUG WITH 9FT CORD 120V-60-1PH-1.68A	
-(1) 120-208/230V-20A SINGLE RECEPTACLE, NEMA #14-30R	
-PIGGYBACK FROM UNIT AT RIGHT	
-NEMA NO. 14-60 PLUG W/ 9FT CORD 120/208-230V-60C-1PH-42A	



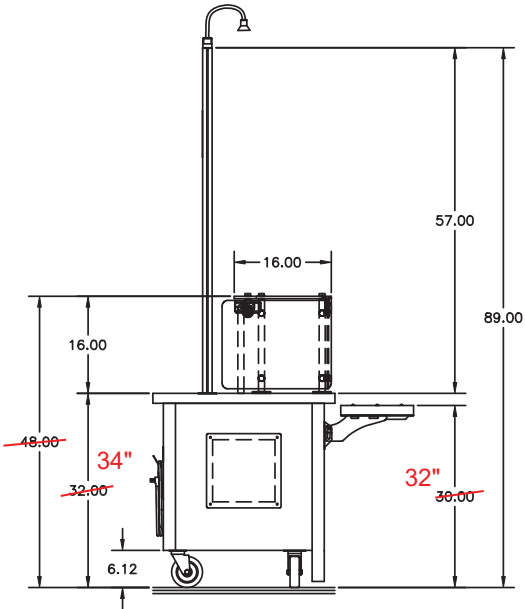
58B

SKU NO. 000-CCA10DRGR	
MODEL NO. DCFSG	ITEM NO. 58BB
-SINGLE TIER, SINGLE SERVICE COUNTER PROTECTOR	
-FULL GLASS FRONT	
-SUPPORTS WITH S/S FINISH AND CHROME MOUNTING HARDWARE	
-0.38 TEMPERED GLASS TOP	
-0.25 TEMPERED GLASS FRONT AND ENDS	
-(1) 36.00 FLUORESCENT LIGHT (120V-0.29A)	



HOOK UP

58B



END ELEVATION
ITEM #58B ONLY

SKU NO. 000-40010DRGL	
MODEL NO. SH-4-NU	ITEM NO. 58B
MODEL: DCDF	
-HEATED SERVING COUNTER	
-ELECTRIC (WET OR DRY) HOT FOOD TABLE WITH DRAINS AND MANIFOLD 208/230V-60C-1PH-22.0A	
-14GA S/S CONSTRUCTED ROLLED "V" TRAY SLIDE	
-MOUNTED ON FOLD-DOWN BRACKETS	
-PROVIDE 72" LONG FLEX HOSE WITH GARDEN HOSE HOOK-UP	
-PROVIDE EXTENDED SIDES ON REAR	
-PROVIDE WITH REMOVABLE PLASTIC LAMINATED PANELS	
-FIXED HEIGHT ALUMINUM OVERSTRUCTURE WITH VERTICAL SIGNAGE BOARD	
-FIXED ALUMINUM SUPPORTS IN BASE	
-GRAPHICS BY OTHERS	
-POWDERCOAT SIGNAGE BOARD	
430 STAINLESS FOR MAGNETIC SIGNAGE BY OTHERS	
-POWDERCOAT FINISH BLACK	
-(4) FLEXIBLE GOOSENECK LIGHTS (120V-0.42A EA.)	
-(1) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH MOUNTED IN BASE FOR SIGNAGE	
-NEMA NO. 5-15 PLUG WITH 9FT CORD 120V-60-1PH-1.68A	
-(1) 120-208/230V-20A SINGLE RECEPTACLE, NEMA #14-30R	
-PIGGYBACK FROM UNIT AT LEFT	
-NEMA NO. 14-60 PLUG W/ 9FT CORD 120/208-230V-60C-1PH-42A	



Outperform every day.™

Project:

Item Number:

Quantity:

Affordable Portable™ Hot Food Stations

The Vollrath Company, L.L.C.

AFFORDABLE PORTABLE™ HOT FOOD STATIONS



Affordable Portable™ Four Well Hot Food Station
with Buffet Breath Guard

DESCRIPTION & FEATURES

- Constructed of vinyl-clad, 20-gauge carbon steel.
- Each well supplied with 120V, 525W exposed heating element.
- High-density glass fiber insulation.
- Infinite control rotary knob.
- Standard buffet or NSF2 cafeteria style acrylic breath guard.
- Available in seven versatile colors.
- Countertops are manufactured from 20-gauge stainless steel.
- Two locking casters.
- Spillage pans required. Order separately.
- 8 ft. cord with plug.
- **Affordable Portable™ orders cannot be canceled or returned.**

Lighting Option

- Factory-installed option
- Requires Buffet breath guard
- 120V
- Bulbs not included

WARRANTY

All models shown come with Vollrath's standard warranty against defects in materials and workmanship. For full warranty details, please refer to www.Vollrath.com.

ITEMS

Description	Black	Walnut Woodgrain	Cherry Woodgrain	Granite	White	American Natural	Brushed Aluminum
3 Well Standard Buffet Breath Guard Hot Food Station – 120V							
Solid Base ¹	38707	38935	38767	38727	38727W	38727N	38727A
Solid Base w/ Lights ²	3870746	3893546	3876746	3872746	3872746W	3872746N	3872746A
Open Storage Base ¹	38708	38936	38768	38728	38728W	38728N	38728A
Open Storage w/ Lights ²	3870846	3893646	3876846	3872846	3872846W	3872846N	3872846A
Storage Base w/ Door ¹	38709	38937	38769	38729	38729W	38729N	38729A
Storage w/ Door, w/Lights ²	3870946	3893746	3876946	3872946	3872946W	3872946N	3872946A
3 Well NSF2 Cafeteria Breath Guard Hot Food Station – 120V							
Solid Base ¹	39707	39935	39767	39727	39727W	39727N	39727A
Open Storage Base ¹	39708	39936	39768	39728	39728W	39728N	39728A
Storage Base w/ Door ¹	39709	39937	39769	39729	39729W	39729N	39729A
4 Well Standard Buffet Breath Guard Hot Food Station – 120V							
Solid Base ¹	38710	38945	38770	38730	38730W	38730N	38730A
Solid Base w/ Lights ²	3871060	3894560	3877060	3873060	3873060W	3873060N	3873060A
Open Storage Base ¹	38711	38946	38771	38731	38731W	38731N	38731A
Open Storage w/ Lights ²	3871160	3894660	3877160	3873160	3873160W	3873160N	3873160A
Storage Base w/ Door ¹	38712	38947	38772	38732	38732W	38732N	38732A
Storage w/ Door, w/ Lights ²	3871260	3894760	3877260	3873260	3873260W	3873260N	3873260A
4 Well NSF2 Cafeteria Breath Guard Hot Food Station – 120V							
Solid Base ¹	39710	39945	39770	39730	39730W	39730N	39730A
Open Storage Base ¹	39711	39948	39771	39731	39731W	39731N	39731A
Storage Base w/ Door ¹	39712	39947	39772	39732	39732W	39732N	39732A

① For 208-240V without lights, add 2 to the item number.
 ② For 120/208 and 120/240V with lights, add 4 to the item number.
 Due to continued product improvement, please consult www.vollrath.com for current product specifications.

Approvals

Date



Outperform every day.™

www.vollrath.com

The Vollrath Company, L.L.C.

1236 North 18th Street
 Sheboygan, WI 53081-3201 U.S.A.
 Main Tel: 800.624.2051 or 920.457.4851
 Main Fax: 800.752.5620 or 920.459.6573
 Customer Service: 800.628.0830
 Canada Customer Service: 800.695.8560

Technical Services
techservicereps@vollrathco.com
 Induction Products: 800.825.6036
 Countertop Warming Products: 800.354.1970
 All Other Products: 800.628.0832

AFFORDABLE PORTABLE™ HOT FOOD STATIONS**ACCESSORIES AND ADD-ONS****Tray Slides**

- ☐ 39924 Fits 24" (61 cm)
- ☐ 39946 Fits 46" (117 cm)
- ☐ 39960 Fits 60" (152 cm)



- 300 Series stainless steel
- Fold-down mounting brackets
- 11" (27.9) tray area
- 11½" (29.2) depth
- Adds 5½" (14 cm) to depth in folded position
- Add NF in front of the item number for non-folding mode

Cutting Boards

- ☐ 39824 Fits 24" (61 cm)
- ☐ 39846 Fits 46" (117 cm)
- ☐ 39860 Fits 60" (152 cm)



- Polyethylene
- Fold-down mounting brackets
- 7" (17.8 cm) depth
- Add 4" (10.2 cm) to depth in folded position

Infrared Lamp Bulbs

- ☐ 72242 White, 250W, 1 Dozen
- ☐ 72241 Red, 250W, 1 Dozen

Plate Rests

- ☐ 38992 Fits 24" (61 cm)
- ☐ 38993 Fits 46" (117 cm)
- ☐ 38994 Fits 60" (152 cm)



- Stainless steel
- Fold-down mounting brackets
- 7" (17.8 cm) depth
- Adds 4½" (11.4 cm) to depth in folded position
- Add NF in front of the item number for non-folding model

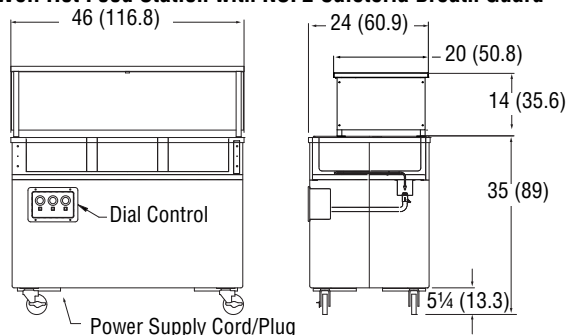
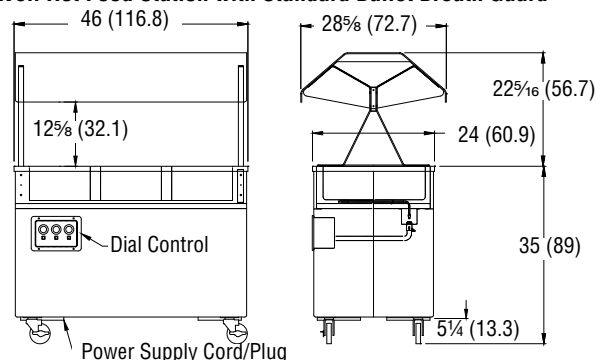
ELECTRICAL SPECIFICATIONS

Description	Volts	Hz	Amps	Watts per Well	Electrical Service (A)	NEMA Plug	
3-Well	120	60	13.1	525	20	5-20P	
4-Well			17.5	525	30	5-30P	
3-Well	208-240		8.8	700	15	6-15P	
4-Well			11.7	700	15	6-15P	
3-Well with Lights*	120		19.4	525	30	5-30P	
4-Well with Lights*			25.8	525	50	5-50P	
3-Well with Lights*	120/208-240		13	700	20	14-20P	
4-Well with Lights*			15.9	700	20	14-20P	

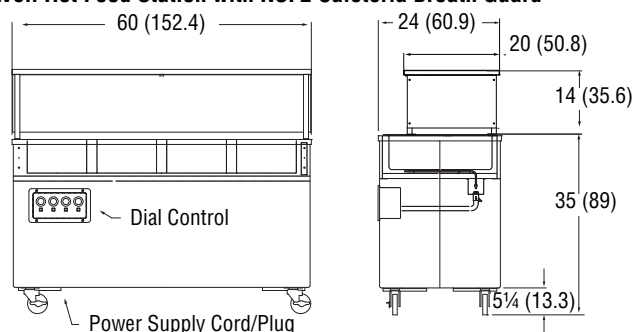
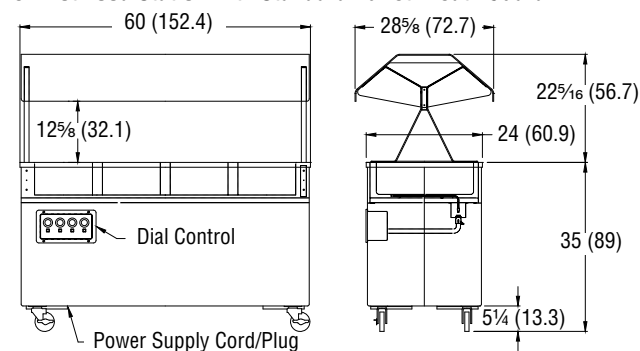
*Incandescent lamps (250W maximum per fixture)

RECEPTACLE CONFIGURATIONS

120V NEMA 5-20R	120V NEMA 5-30R	208-240V NEMA 6-15R	120V NEMA 5-50R	120-240V NEMA 14-20R
--------------------------------------	--------------------------------------	--	--------------------------------------	---

DIMENSIONS (Shown in inches (cm))**3 Well Hot Food Station with NSF2 Cafeteria Breath Guard****3 Well Hot Food Station with Standard Buffet Breath Guard**

3 Well Storage Opening: 24 x 23 x 16½ (61 x 58 x 42)

4 Well Hot Food Station with NSF2 Cafeteria Breath Guard**4 Well Hot Food Station with Standard Buffet Breath Guard**

4 Well Storage Opening: 36 x 23 x 16½ (91.52/7/17 x 58 x 42)



Outperform every day.™

www.vollrath.com

The Vollrath Company, L.L.C.

1236 North 18th Street
 Sheboygan, WI 53081-3201 U.S.A.
 Main Tel: 800.624.2051 or 920.457.4851
 Main Fax: 800.752.5620 or 920.459.6573
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Technical Services
techservicereps@vollrathco.com
 Induction Products: 800.825.6036
 Countertop Warming Products: 800.354.1970
 All Other Products: 800.628.0832



Profit from the Eagle Advantage®

Specification Sheet

Short Form Specifications

Eagle Deluxe Service Mates Buffet Hot Food Table, model _____. Polished stainless steel top with black vinyl on steel body. Individual heat wells with recessed controls, 500 watts (at 120 volts) or 750 watts (at 208 or 240 volts) per well. Clear polycarbonate sneeze guard. Portable units feature black vinyl base and 4" swivel casters, two with brakes. Tabletop units feature adjustable feet for mounting onto tabletop.

Eagle Deluxe Service Mates Buffet Cold Pan Unit, model _____. Polished stainless steel insulated ice cold pan, 6" deep with black vinyl on steel body. Clear polycarbonate sneeze guard. Portable units feature black vinyl base and 4" swivel casters, two with brakes. Tabletop units feature adjustable feet for mounting onto tabletop.



*portable buffet
hot food table*



tabletop buffet cold pan table

Options / Accessories (see back page of EG30.16B)

- | | |
|--|---|
| <input type="checkbox"/> Fluorescent lights | <input type="checkbox"/> Infrared bullet lamps |
| <input type="checkbox"/> Vinyl skirts* | <input type="checkbox"/> Wood trimmed sneeze guards |
| <input type="checkbox"/> Stainless steel skirts* | <input type="checkbox"/> Stainless steel liners |
| <input type="checkbox"/> Tray shelves | <input type="checkbox"/> Stainless steel body upgrade |
| <input type="checkbox"/> Undershelf* | <input type="checkbox"/> 1000W heaters (for 240V units) |

* For portable units

EAGLE GROUP

100 Industrial Boulevard, Clayton, DE 19938-8903 USA

Phone: 302-653-3000 • Fax: 302-653-2065

www.eaglegrp.com

Foodservice Division: Phone 800-441-8440

MHC/Retail Display Divisions: Phone 800-637-5100

For custom configuration or fabrication needs, contact our SpecFAB® Division.

Phone: 302-653-3000 • Fax: 302-653-2065 • e-mail: quotes@eaglegrp.com

Item No.: _____
Project No.: _____
S.I.S. No.: _____

Deluxe Service Mates— Buffet Hot Food and Cold Pan Units

MODELS:

- | | | | |
|--------------------------------------|--------------------------------------|-------------------------------------|---------------------------------|
| <input type="checkbox"/> BPDHT2-120 | <input type="checkbox"/> BPDHT4-120 | <input type="checkbox"/> CDHT3-120 | <input type="checkbox"/> BPCP-2 |
| <input type="checkbox"/> BPDHT2-208* | <input type="checkbox"/> BPDHT4-208* | <input type="checkbox"/> CDHT3-208* | <input type="checkbox"/> BPCP-3 |
| <input type="checkbox"/> BPDHT2-240* | <input type="checkbox"/> BPDHT4-240* | <input type="checkbox"/> CDHT3-240* | <input type="checkbox"/> BPCP-4 |
| <input type="checkbox"/> BPDHT3-120 | <input type="checkbox"/> CDHT2-120 | <input type="checkbox"/> CDHT4-120 | <input type="checkbox"/> CCP-2 |
| <input type="checkbox"/> BPDHT3-208* | <input type="checkbox"/> CDHT2-208* | <input type="checkbox"/> CDHT4-208* | <input type="checkbox"/> CCP-3 |
| <input type="checkbox"/> BPDHT3-240* | <input type="checkbox"/> CDHT2-240* | <input type="checkbox"/> CDHT4-240* | <input type="checkbox"/> CCP-4 |

* Available in three-phase. To order, add suffix "-3". Example: BPDHT3-240-3

Portable Buffet Hot Food Tables

- Clear polycarbonate sneeze guard.
- Polished 22 gauge type 430 stainless steel top.
- Black vinyl-clad 22 gauge steel body.
- Black vinyl-clad 18 gauge steel base.
- Individual heat wells with separate controls.
- 4" (102mm) swivel casters, two with brake.
- 22 $\frac{5}{16}$ " (573mm) front-to-back**, 52 $\frac{3}{4}$ " (1340mm) height.

Tabletop Buffet Hot Food Tables

- Clear polycarbonate sneeze guard.
- Polished 22 gauge type 430 stainless steel top.
- Black vinyl-clad 22 gauge steel body.
- Individual control for each well.
- Adjustable feet for mounting on tabletop.
- 22 $\frac{5}{16}$ " (573mm) front-to-back**, 34 $\frac{7}{8}$ " (880mm) height.

Portable Buffet Cold Food Tables

- Clear polycarbonate sneeze guard.
- Polished 20 gauge type 304 stainless steel insulated ice type cold pan.
- Black vinyl-clad 22 gauge steel body.
- Black vinyl-clad 18 gauge steel base.
- 4" (102mm) swivel casters, two with brake.
- 22 $\frac{5}{16}$ " (573mm) front-to-back**, 52 $\frac{3}{4}$ " (1340mm) height.

Tabletop Buffet Cold Food Tables

- Clear polycarbonate sneeze guard.
- Polished 20 gauge type 304 stainless steel insulated ice type cold pan.
- Black vinyl-clad 22 gauge steel body.
- Adjustable feet for mounting on tabletop.
- 22 $\frac{5}{16}$ " (573mm) front-to-back**, 34 $\frac{7}{8}$ " (880mm) height.

** Unit width only—does not include sneeze guard.

Certifications / Approvals (Buffet Hot Food Tables)



New York MEA 376-84

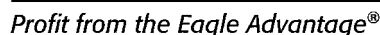
AUTOQUOTES



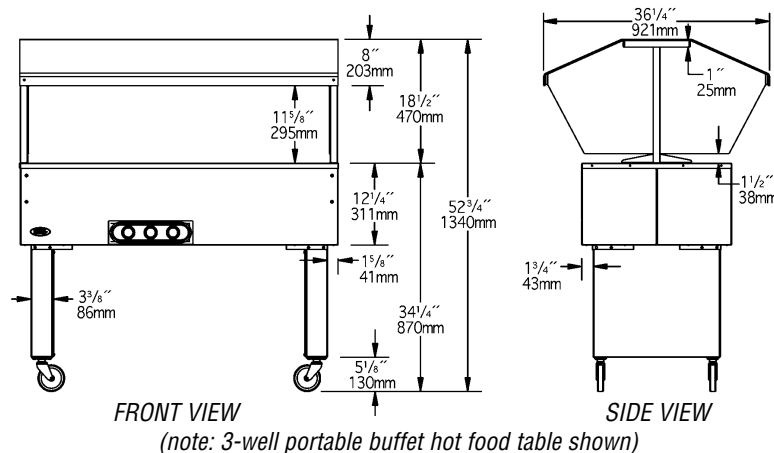
EG30.16A Rev. 12/15

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Item No.: _____
Project No.: _____
S.I.S. No.: _____



See charts below for applicable NEMA plug.

				
15A 120V	15A 240V	20A 240V	30A 120V	20A 3Ø 240V
furnished with NEMA 5-15 plug	furnished with NEMA 6-15 plug	furnished with NEMA 6-20 plug	furnished with NEMA 5-30 plug	furnished with NEMA 15-20 plug

weight			weight			# of top openings	length		watts	volts	amps	NEMA plug
model #	lbs.	kg	model #	lbs.	kg		in.	mm				
<i>BPDHT2-120</i>	212	96.2	<i>CDHT2-120</i>	149	67.6	2	33"	838	1000W	120V	8.3A	5-15P
<i>BPDHT2-208</i>	212	96.2	<i>CDHT2-208</i>	149	67.6	2	33"	838	1500W	208V	7.2A	6-15P
<i>BPDHT2-240</i>	212	96.2	<i>CDHT2-240</i>	149	67.6	2	33"	838	1500W	240V	6.25A	6-15P
<i>BPDHT3-120</i>	264	119.8	<i>CDHT3-120</i>	189	85.7	3	48"	1219	1500W	120V	12.5A	5-15P
<i>BPDHT3-208</i>	264	119.8	<i>CDHT3-208</i>	189	85.7	3	48"	1219	2250W	208V	10.8A	6-15P
<i>BPDHT3-240</i>	264	119.8	<i>CDHT3-240</i>	189	85.7	3	48"	1219	2250W	240V	9.38A	6-15P
<i>BPDHT4-120</i>	312	141.5	<i>CDHT4-120</i>	234	106.1	4	63½"	1613	2000W	120V	16.6A	5-30P
<i>BPDHT4-208</i>	312	141.5	<i>CDHT4-208</i>	234	106.1	4	63½"	1613	3000W	208V	14.4A	6-20P
<i>BPDHT4-240</i>	312	141.5	<i>CDHT4-240</i>	234	106.1	4	63½"	1613	3000W	240V	12.5A	6-20P

weight			weight			# of top openings	length		watts	volts	amps	NEMA plug
model #	lbs.	kg	model #	lbs.	kg		in.	mm				
<i>BPDHT2-208-3</i>	212	96.2	<i>CDHT2-208-3</i>	149	67.6	2	33"	838	1500W	208V	6.3A	15-20P
<i>BPDHT2-240-3</i>	212	96.2	<i>CDHT2-240-3</i>	149	67.6	2	33"	838	1500W	240V	5.4A	15-20P
<i>BPDHT3-208-3</i>	264	119.8	<i>CDHT3-208-3</i>	189	85.7	3	48"	1219	2250W	208V	6.3A	15-20P
<i>BPDHT3-240-3</i>	264	119.8	<i>CDHT3-240-3</i>	189	85.7	3	48"	1219	2250W	240V	5.4A	15-20P
<i>BPDHT4-208-3</i>	312	141.5	<i>CDHT4-208-3</i>	234	106.1	4	63½"	1613	3000W	208V	9.5A	15-20P
<i>BPDHT4-240-3</i>	312	141.5	<i>CDHT4-240-3</i>	234	106.1	4	63½"	1613	3000W	240V	8.3A	15-20P

weight		height		model #	weight		height		model #	length	
lbs.	kg	in.	mm		lbs.	kg	in.	mm		in.	mm
167	75.8	52 $\frac{5}{8}$ "	1337	<i>BPCP-2</i>	137	62.1	34 $\frac{5}{8}$ "	880	<i>CCP-2</i>	33"	838
203	92.1	52 $\frac{5}{8}$ "	1337	<i>BPCP-3</i>	157	71.2	34 $\frac{5}{8}$ "	880	<i>CCP-3</i>	48"	1219
240	108.9	52 $\frac{5}{8}$ "	1337	<i>BPCP-4</i>	188	85.3	34 $\frac{5}{8}$ "	880	<i>CCP-4</i>	63 $\frac{1}{2}$ "	1613

Spec sheets available for viewing, printing or downloading from our online literature library at www.eaglegrp.com

Although every attempt has been made to ensure the accuracy of the information provided, we cannot be held responsible for typographical or printing errors. Information and specifications are subject to change without notice. Please confirm at time of order.



Evolution Series

Hot Food Counter with Heat in Base

Model Numbers:

**AHF2HIB, AHF3HIB, AHF4HIB,
AHF5HIB, AHF6HIB**

With Alluserv you are not just buying a product. You are receiving our team's service commitment to get the most value from your investment in our products. We will provide you with:

- A team of knowledgeable experts with over 100 years of combined experience to help you understand and receive the most from your product throughout its service life
- Detailed instructions and specification on cleaning and application to best maintain your equipment
- A national service network and service manuals for our extensive product offering.



HOT FOOD COUNTER WITH HEAT IN BASE

APPLICATION

The Evolution Series counters can support any tray line layout and are versatile enough to use in any format. Whatever your needs are Alluserv can help furnish them.

CONSTRUCTION

The hot food counter with heat-in-base is constructed of heavy-duty gauge stainless steel and has heavy-duty gauge stainless steel counter tops as standard. The front panels will be easily removable and replaceable allowing front service access. The counter will contain the hot wells in 240 or 208 volt single phase electric. The body will be reinforced with galvanized steel channel supports.

COUNTER TOP

The top will be 32" wide and made-up of a heavy gauge stainless steel with square turndown on all sides and corners fully welded, ground and polished.

CASTERS

The unit is mounted on 5" ball bearing, swivel type caster with brakes on all wheels. The casters will be mounted through two stainless steel channels for extra rigidity.

HEAT IN BASE UNIT

The heat-in-base units have a 5 pan capacity per compartment. The one door units are heated by a 350 watt silicone heater pad and the two door units are heated by a 550 watt silicone pad. The units are individually controlled.

Options

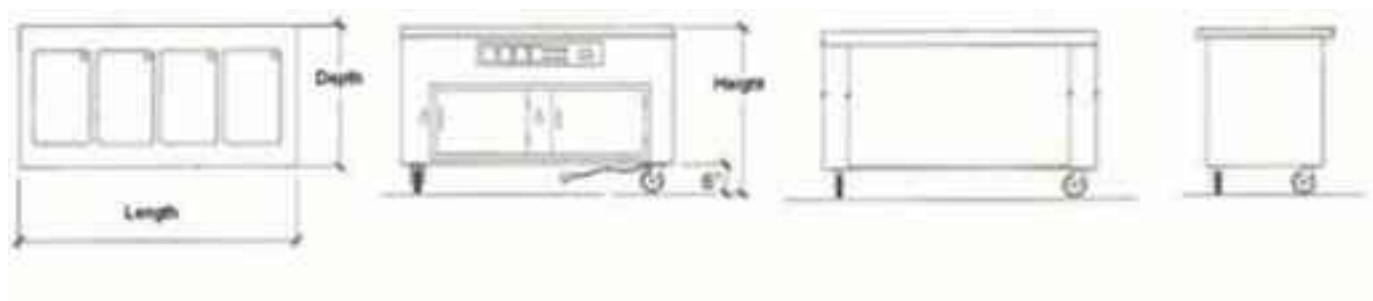
- Protector guards
- Infra-red heat lamp with lights
- Drop down work shelf
- Flush mounted duplex outlet
- Stainless steel legs in lieu of casters

Warranty

- Two years parts and one year labor

Evolution Series

Hot Food Counter with Heat in Base



DIMENSIONS

MODEL	OVERALL SIZE			HEAT IN BASE DESCRIPTION	SINGLE PHASE ELECTRIC				APPROX. WEIGHT
	L	D	H		VOLTS	WATT	AMPS	NEMA	
AHF2HIB	38"	32-1/2"	36"	One 1 door unit	208 240	2150 2750	10.3 11.5	6-15P	395 LBS.
AHF3HIB	52"	32-1/2"	36"	One 2 door unit	208 240	3250 4150	15.6 17.3	6-30P	500 LBS.
AHF4HIB	66"	32-1/2"	36"	Two 1 door units	208 240	4300 5500	20.7 22.9	6-30P	580 LBS.
AHF5HIB	80"	32-1/2"	36"	One 1 door unit one 2 door unit	208 240	5400 6900	26 28.8	6-50P	675 LBS.
AHF6HIB	94"	32-1/2"	36"	Two 2 door units	208 240	6500 8300	31.3 34.6	6-50P	755 LBS.

*Numbers based on base units only, options may affect amperage.



901 West 14th Street | Suite 200 | Washington, MO | 63090 | toll free 888-892-2213 | fax 636-239-8435 | alluserv.com

Mobile Cold Food Counter / Salad Counter Cutsheets



CURRENT SCA SPECIFICATION

Submittal #11400-4.0 11400 - Food Service Equipment

Navillus Contracting
633 3rd Avenue, 17th Floor
New York, New York 10017
Phone: (212) 750-1808



Project: 2716-00 - IS429Q
38-04 48th St
Sunnyside, New York 11104

Delfield Serving Counters

SPEC SECTION:	11400 - Food Service Equipment	SUBMITTAL MANAGER:	Yajurved Mangukia (Navillus Contracting)
STATUS:	Open	DATE CREATED:	01/16/2020
ISSUE DATE:	01/16/2020	REVISION:	0
RESPONSIBLE CONTRACTOR:	Sam Tell Companies	RECEIVED FROM:	Barnett Jeremy
RECEIVED DATE:	01/14/2020	SUBMIT BY:	01/16/2020
FINAL DUE DATE:	02/2/2020	LOCATION:	IS 429Q
SUB JOB:		COST CODE:	
LEAD TIME:		TYPE:	Shop Drawing
APPROVERS:	Plan Desk (NYC SCA), Jerry Moy (NYC SCA)		
BALL IN COURT:	Plan Desk (NYC SCA)		
DISTRIBUTION:			
DESCRIPTION:			
ATTACHMENTS:	004 - Delfield Serving Counters.pdf		

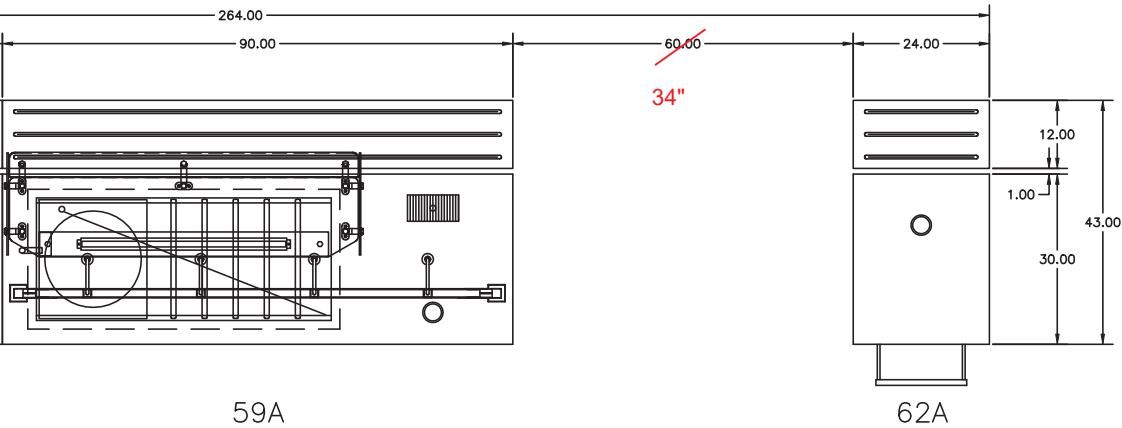
SUBMITTAL WORKFLOW

NAME	SUBMITTER/ APPROVER	SENT DATE	DUE DATE	RETURNED DATE	RESPONSE	ATTACHMENTS	COMMENTS
Plan Desk	Approver		1/19/2020		Pending		
Jerry Moy	Approver		2/2/2020		Pending		

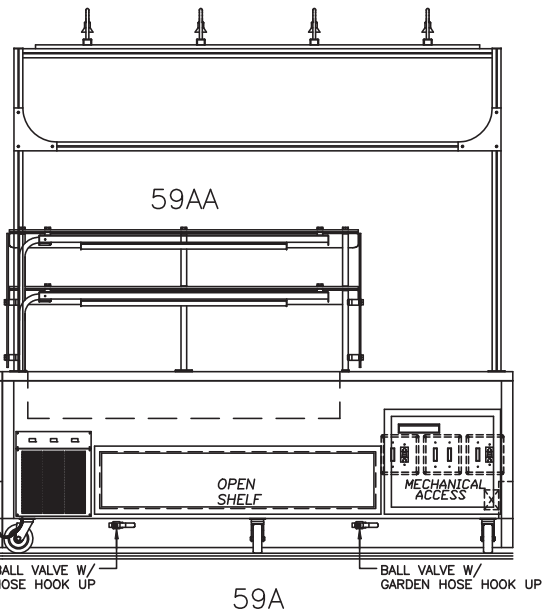
		30-30 Thomson Avenue Long Island City, NY 11101-3045
Architect / Engineer SCA - Architecture & Engineering	General Contractor Navillus Tile, d/b/a Navillus Contr	
Project IS429Q01	Contract No. C000015503	
MCN Make Corrections Noted	Submittal No. 11400-004	
	Review Cycle 001	
	Reviewed By Signature Jerry Moy 03/10/2020	
Submittal Reviewed As: <input checked="" type="checkbox"/> Per Spec / Basis of Design <input type="checkbox"/> "Or Equal Substitution" / Non-Basis of Design <input type="checkbox"/> "Alternate Substitution"		
<small>CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. SHOP DRAWING APPROVAL IS ONLY FOR GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, SELECTING FABRICATION, PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATING THE WORK WITH THAT OF ALL OTHER TRADES AND PERFORMING THE WORK IN A SAFE AND SATISFACTORY MANNER.</small>		

BY

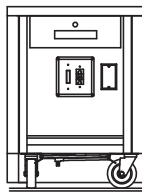
DATE



SKU NO. 000-CCA100RGO	
MODEL NO. DCFSH	ITEM NO. 59AA
-DOUBLE TIER, SINGLE SERVICE FIXED SNEEZEGUARD FOOD SHIELD	
-TOP TIER FIXED SNEEZEGUARD FRONT	
-BOTTOM TIER FIXED SNEEZEGUARD FRONT	
-SUPPORTS WITH S/S FINISH AND CHROME MOUNTING HARDWARE	
-0.38 TEMPERED GLASS TOP	
-0.25 TEMPERED GLASS FRONT AND ENDS	
-(2) 36.00 FLUORESCENT LIGHT (120V-0.29A EACH)	

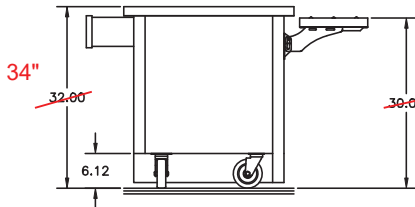


SKU NO. 000-40010DRGB	
MODEL NO. SCSC-60-BP	ITEM NO. 59A
-COLD PAN SERVING COUNTER	
-52.00 BY 21.62 BY 7.00 MECH. COOLED COLD PAN WITH DRAIN	
115V-60C-1PH-3.7A-1/4HP	
-4" DEEP PANS BY OTHERS	
-14GA S/S CONSTRUCTED ROLLED "V" TRAY SLIDE	
-MOUNTED ON FOLD-DOWN BRACKETS	
-(2) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH 10.0A BREAKER	
-(1) FDR MILK COOLER BY OTHERS	
-(1) FDR BEVERAGE COUNTER	
-MECHANICAL ACCESS	
-3.00 DIA. HOLE WITH BLACK GROMMET	
-PROVIDE (2) 72" LONG FLEX HOSE WITH GARDEN HOSE HOOK-UP	
-PROVIDE EXTENDED SIDES ON REAR AND RIGHT END	
-PROVIDE WITH REMOVABLE PLASTIC LAMINATED PANELS	
-PROVIDE S/S ADAPTOR PLATE WITH 17" DIAMETER CUTOUT FOR SALAD BOWL	
-PROVIDE (5) ADAPTOR BARS	
-9.00 X 4.50 URN TROUGH WITH S/S DRAIN (1.00" I.P.S. DRAIN)	
MODEL: DCOF	
-FIXED HEIGHT ALUMINUM OVERSTRUCTURE WITH VERTICAL SIGNAGE BOARD	
-FIXED ALUMINUM SUPPORTS IN BASE	
-GRAPHICS BY OTHERS	
-POWDERCOAT SIGNAGE BOARD	
430 STAINLESS FOR MAGNETIC SIGNAGE BY OTHERS	
-POWDERCOAT FINISH BLACK	
-(4) FLEXIBLE GOOSENECK LIGHTS (120V-0.42A EA)	
-(1) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH MOUNTED IN BASE FOR SIGNAGE	
-NEMA NO. 5-15 PLUG WITH 9FT CORD 120V-60-1PH-1.68A	
-(1) 120V-10A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R	
-PIGGYBACK FROM UNIT 62A	
-NEMA NO. 14-30 PLUG W/ 3FT CORD 120-208/230V-60C-1PH-20A	
-TO PIGGYBACK INTO UNIT AT LEFT	

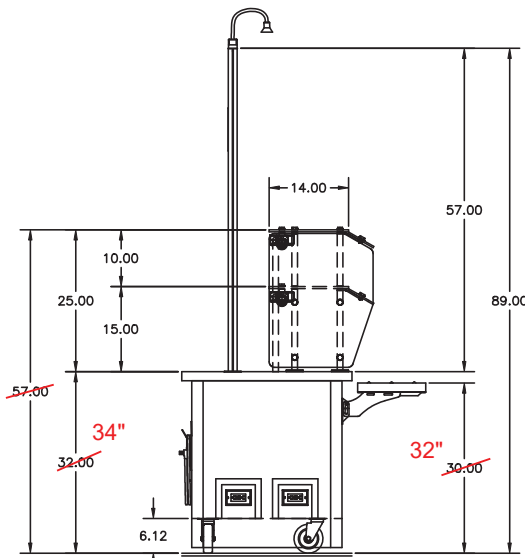


62A

SKU NO. 000-40010DRGA	
MODEL NO. SCS-30	ITEM NO. 62A
-CASHIER COUNTER	
-3 IN. DIAMETER HOLE WITH GROMMET IN TOP	
-S/S SHELF AND LOCKING DRAWER	
-14GA S/S CONSTRUCTED ROLLED "V" TRAY SLIDE	
-MOUNTED ON FOLD-DOWN BRACKETS	
-(1) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH 10.0A BREAKER	
-PROVIDE WITH EMPTY POS BOX	
-PROVIDE EXTENDED SIDES ON REAR AND LEFT END	
-PROVIDE WITH REMOVABLE PLASTIC LAMINATED PANELS	
-NEMA NO. 5-15 PLUG W/ 9FT CORD 120V-60C-1PH-10A	
-TO PIGGYBACK INTO UNIT 59A	



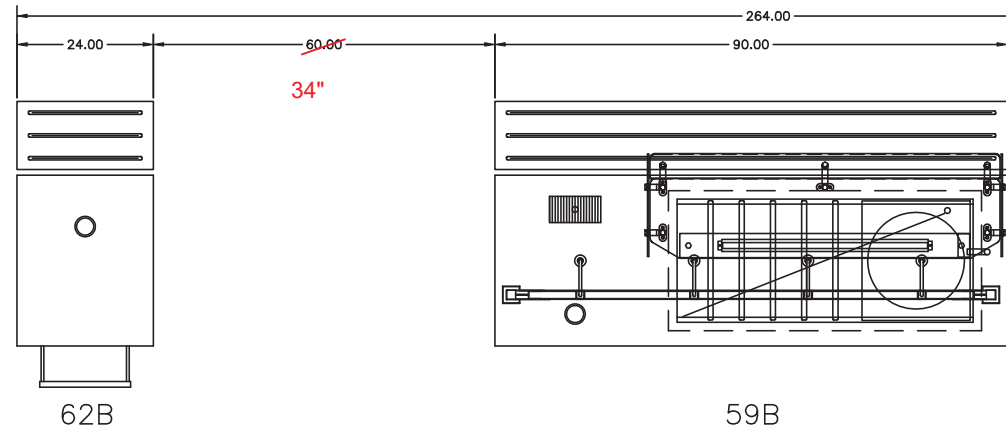
END ELEVATION
ITEM #62A ONLY



END ELEVATION
ITEM #59A ONLY

*Comply with spec section 11400, 4.09.

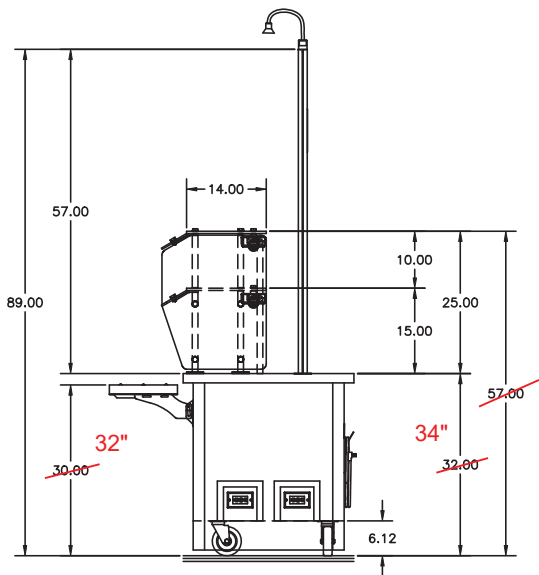
PIGGY BACK FLOW



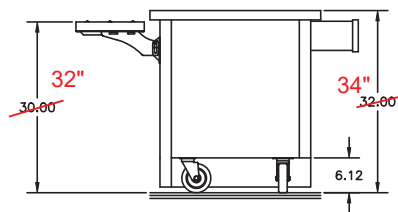
62B

59B

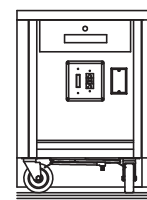
SKU NO. 000-CCA10DRGQ	
MODEL NO. DCFSH	ITEM NO. 59BB
-DOUBLE TIER, SINGLE SERVICE FIXED SNEEZEGUARD FOOD SHIELD	
-TOP TIER FIXED SNEEZEGUARD FRONT	
-BOTTOM TIER FIXED SNEEZEGUARD FRONT	
-SUPPORTS WITH S/S FINISH AND CHROME MOUNTING HARDWARE	
-0.38 TEMPERED GLASS TOP	
-0.25 TEMPERED GLASS FRONT AND ENDS	
-(2) 36.00 FLUORESCENT LIGHT (120V-0.29A EACH)	



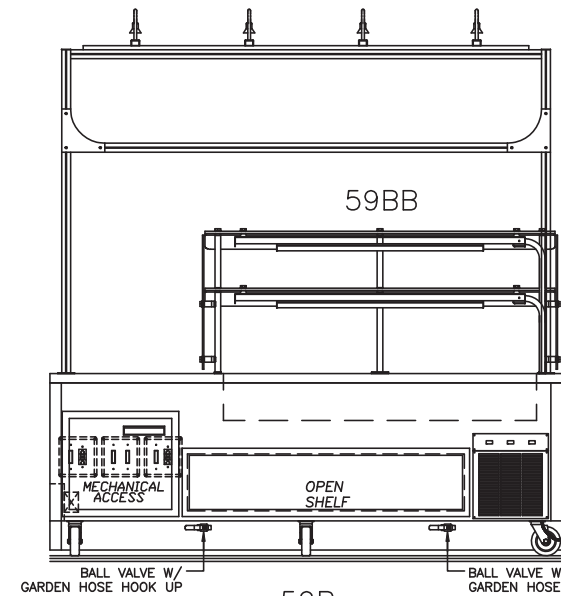
END ELEVATION
ITEM #59B ONLY



END ELEVATION
ITEM #62B ONLY



62B



59B

SKU NO. 000-40010DRGP	
MODEL NO. SCS-30	ITEM NO. 62B
-CASHIER COUNTER	
-3 IN. DIAMETER HOLE WITH GROMMET IN TOP	
-S/S SHELF AND LOCKING DRAWER	
-14GA S/S CONSTRUCTED ROLLED "V" TRAY SLIDE	
-MOUNTED ON FOLD-DOWN BRACKETS	
-(1) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH 10.0A BREAKER	
-PROVIDE WITH EMPTY PDS BOX	
-PROVIDE EXTENDED SIDES ON REAR AND RIGHT END	
-PROVIDE WITH REMOVABLE PLASTIC LAMINATED PANELS	
-NEMA NO. 5-15 PLUG W/ 9FT CORD 120V-60C-1PH-10A	
-TO PIGGYBACK INTO UNIT 59B	

SKU NO. 000-40010DRGJ	
MODEL NO. SCSC-60-BP	ITEM NO. 59B
-COLD PAN SERVING COUNTER	
-32.00 BY 21.62 BY 7.00 MECH. COOLED COLD PAN WITH DRAIN 115V-60C-1PH3.7A-1/4HP	
-4" DEEP PANS BY OTHERS	
-14GA S/S CONSTRUCTED ROLLED "V" TRAY SLIDE	
-MOUNTED ON FOLD-DOWN BRACKETS	
-(2) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH 10.0A BREAKER	
-(1) FOR MILK COOLER BY OTHERS	
-(1) FOR BEVERAGE COUNTER	
-MECHANICAL ACCESS	
-3.00 DIA. HOLE WITH BLACK GROMMET	
-PROVIDE (2) 72" LONG FLEX HOSE WITH GARDEN HOSE HOOK-UP	
-PROVIDE EXTENDED SIDES ON REAR AND LEFT END	
-PROVIDE WITH REMOVABLE PLASTIC LAMINATED PANELS	
-PROVIDE S/S ADAPTOR PLATE WITH 17" DIAMETER CUTOUT FOR SALAD BOWL	
-PROVIDE (5) ADAPTOR BARS	
-9.00 X 4.50 URN TROUGH WITH S/S DRAIN (1.00" I.P.S. DRAIN)	
MODEL: DDCF	
-FIXED HEIGHT ALUMINUM OVERSTRUCTURE WITH VERTICAL SIGNAGE BOARD	
-FIXED ALUMINUM SUPPORTS IN BASE	
-GRAPHICS BY OTHERS	
-POWDERCOAT SIGNAGE BOARD 430 STAINLESS FOR MAGNETIC SIGNAGE BY OTHERS	
-POWDERCOAT FINISH BLACK	
-(4) FLEXIBLE GOOSENECK LIGHTS (120V-0.42A EA)	
-(1) 120V-15A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R WITH MOUNTED IN BASE FOR SIGNAGE	
-NEMA NO. 5-15 PLUG WITH 9FT CORD 120V-60-1PH-1.68A	
-(1) 120V-10A DUPLEX (GFCI) RECEPTACLE, NEMA #5-15R	
-PIGGYBACK FROM UNIT 62B	
-NEMA NO. 14-30 PLUG W/ 3FT CORD 120-208/230V-60C-1PH-20A	
-TO PIGGYBACK INTO UNIT AT RIGHT	

PROPOSED ALTERNATIVE 1



KCSC-EFP

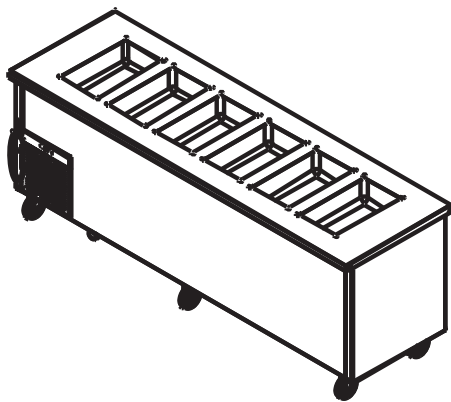
Mobile Self-Contained
LiquiTec® Cold Pan Serving Counters

Project _____
Item _____
Quantity _____
CSI Section 11400
Approved _____
Date _____

KCSC-EFP

Models

- KCSC-36-EFP Two 12" x 20" pan openings, 36" in length serving counter
- KCSC-50-EFP Three 12" x 20" pan openings, 50" in length serving counter
- KCSC-60-EFP Four 12" x 20" pan openings, 60" in length serving counter
- KCSC-74-EFP Five 12" x 20" pan openings, 74" in length serving counter
- KCSC-96-EFP Six 12" x 20" pan openings, 96" in length serving counter



KCSC-EFP

Standard Features

- One piece, molded fiberglass pylon (base), fully rounded corners, permanent color
- All corners and center sides reinforced with galvanized bracing, laminated into the fiberglass
- Fire Code rating on fiberglass, laminate, canopy materials
- 14-gauge tops
- 5" diameter polyurethane swivel casters for easy cleaning
- Electronic temperature control
- Caster mounting plates laminated into base
- Enclosed bases for sanitation
- A maximum 10' long cord and plug are supplied standard
- Unit has on/off switch mounted on the exterior
- The LiquiTec cold pan has two – six die stamped openings with depressed edges in each well, holding one 12" x 20" pan (pans supplied by others)
- Cold pan is fully insulated with foamed in place environmentally friendly, Kyoto Protocol Compliant, Non ODP (Ozone Depletion Potential), Non GWP (Global Warming Potential) polyurethane insulation
- 1 year parts and labor warranty

Options & Accessories

- Counter heights available from 28" to 36" in 2" increments
- Tray slides and work shelves
- Line-up interlock device
- Food shields
- Stainless steel overshell
- Fluorescent light fixtures*
- Incandescent light fixtures*
- Open understorage with shelf
- 120V/60Hz/1Ph, 10 amp convenience outlet with breaker*
- Stainless steel end drop shelf
- Molded fiberglass trim strips
- 6" (15.2cm) high adjustable stainless steel legs
- Adjustable height casters
- Decal packages
- Inclusion of these options will alter the electrical specifications of unit

Specifications

Exterior Body is seamless, one-piece molded fiberglass, having perfectly smooth exterior surface with all corners fully rounded. The fiberglass reinforced polyester (F.R.P.) is molded with permanent color. Stress points are internally reinforced.

Exterior top is constructed of 14-gauge stainless steel, welded, ground and polished into one integral unit.

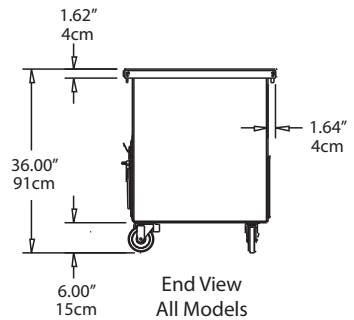
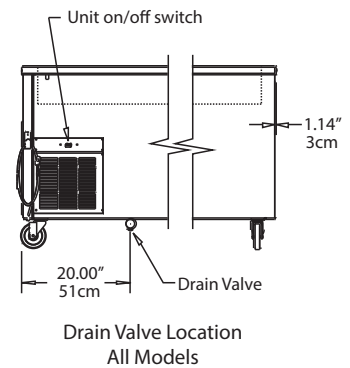
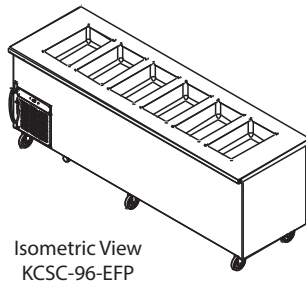
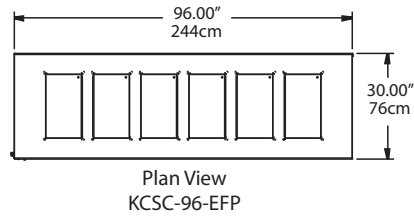
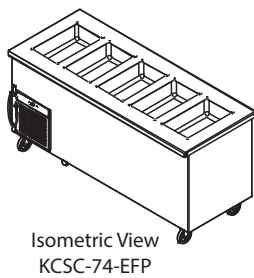
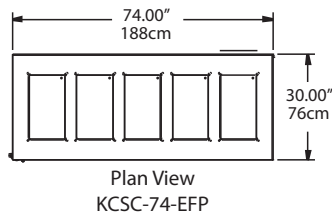
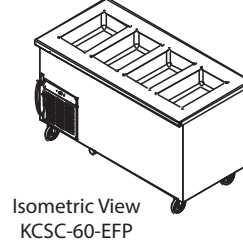
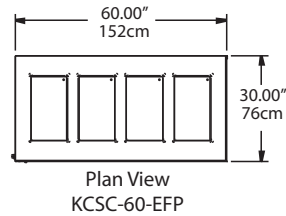
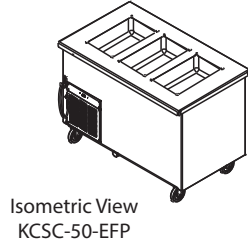
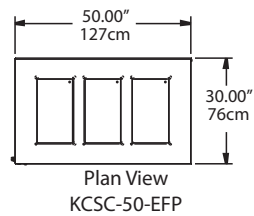
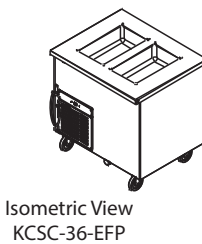
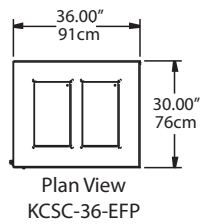
The LiquiTec cold pan has 2-6 die stamped 19.87" x 11.87" (50.5cm x 30.2cm) openings with depressed edges. Formed well below each opening is 6.25" (15.9cm) deep with .5" drain mainfold to gate valve. Each well, flush with the top, for flush mount pans to accommodate 12" x 20" (30.5cm x 50.8cm) pans 4" (7.6cm) or 6" (15.2cm) deep, supplied by others. Product temperatures of 33°F (1°C) to 41°F (5°C) are maintained at 86°F (30°C) ambient room temperature, meeting NSF7 requirements. The cold pan is separated from the exterior top by a thermal break. Copper

refrigeration tubing is attached to the sides of every well. Eutectic fluid is used as the heat transfer medium. Cold pan is fully insulated with foamed in place environmentally friendly, Kyoto Protocol Compliant, Non ODP (Ozone Depletion Potential), Non GWP (Global Warming Potential) polyurethane insulation.

Refrigeration system uses R290 refrigerant and has a self-contained 115 volt, 60 Hertz, single phase hermetically sealed condensing unit with Electronic temperature control. Unit is wired with a 3-wire, grounded, maximum 10' (3m) cord and plug. Unit has an on/off switch mounted on the exterior.

Casters: Unit is mounted on 5" (12.7cm) diameter swivel casters with non-marring polyurethane tires and plate brakes. Overall height of caster assembly is 6.12" (15.5cm).





Specifications								
Model	V/Hz/Ph	Amp	H.P.	BTU Load @ 86F	BTU System Capacity @ 86F	Nema Plug	Ship Weight	"DOE kWh/d (base only)"
KCSC-36-BP	115/60/1	2.4	1/5	405	883	5-15P	350lbs/159kg	n/a
KCSC-50-BP	115/60/1	2.4	1/5	608	1020	5-15P	425lbs/193kg	n/a
KCSC-60-BP	115/60/1	3.7	1/4	810	1356	5-15P	500lbs/227kg	n/a
KCSC-74-BP	115/60/1	3.7	1/4	1013	1489	5-15P	575lbs/261kg	n/a
KCSC-96-BP	115/60/1	4.8	1/3	1215	1943	5-15P	650lbs/295kg	n/a

Welbilt reserves the right to make changes to the design or specifications without prior notice.



BEVERAGE-AIR®

PROPOSED ALTERNATIVE 2

Project: _____	AIA# _____
Item: _____	
Location: _____	SIS# _____
Approved: _____	

FOOD PREPARATION TABLES

MODEL:
SPE72HC-30-S

SPE72HC Salad Bar
Hydrocarbon Series

SPE72HC SALAD BAR



(shown with optional sneeze guard)



(optional tray slide)

3 Year Parts/Labor Warranty

Additional 4 Year Compressor Warranty

CABINET CONSTRUCTION

- Stainless steel front, sides, top, doors and grille (galvanized back & bottom)
- Interior liner is made of corrosion resistant aluminum
- Lift-off lids standard
- Heavy-duty aluminum pan liner, easy to clean and prevents spills from falling into cabinet while also ensuring coldest air flows across bottom of pans
- Accommodates up to 6" deep food service pans, 4" deep 1/3 size polycarbonate pans are included
- Locking divider bars
- Self-closing doors with 120° stay-open feature, on cartridge style hinges
- Easy door removal for service and cleaning
- Field-reversible doors with snap-in door gaskets
- 6" Casters, 2 with brakes
- Two epoxy-coated steel wire shelves per door section

OPTIONS & ACCESSORIES

- Stainless steel exterior with finished back
- Stainless steel interior
- Sneeze guard
- Foldable tray slides
- Door locks
- 3" casters or 6" legs
- Low profile casters
- Shelf dividers
- Pan Supports
- Digital thermometer

REFRIGERATION SYSTEM

- Uses environmentally friendly, energy efficient R290 refrigerant, and meets all regulatory requirements for CARB, SNAP, DOE & more
- Adaptive defrost
- Epoxy coated evaporator coil
- Enhanced airflow maintains temperature between 36° to 38°F



Please verify qualifying units by visiting:
www.energystar.gov/cfs

3779 Champion Blvd., Winston-Salem, NC 27105
1-888-845-9800 Fax: 1-336-245-6453
Beverage-Air.com Sales@bevair.com

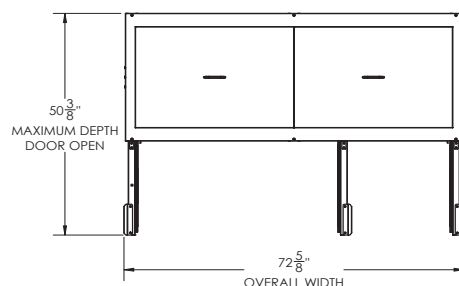


BEVERAGE-AIR®

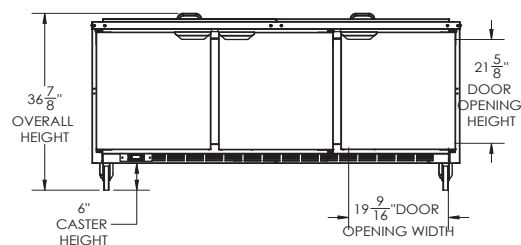
MODEL	SPE72HC-30-S
EXTERNAL DIMENSIONAL DATA	
Width Overall	72 $\frac{5}{8}$ "
Depth Overall	30 $\frac{1}{8}$ "
Height Overall with Casters	36 $\frac{7}{8}$ "
Number of Doors	2
Depth with Door Open Extended	50 $\frac{3}{8}$ "
Door Opening (in)	19 $\frac{9}{16}$ " x 21 $\frac{5}{8}$ "
Number of Shelves	6
Tray Slide Depth	10 $\frac{1}{16}$ "
INTERNAL DIMENSIONAL DATA	
NET Capacity (cubic ft.)	20.02
ELECTRICAL DATA	
Full Load Amperes	5.4
REFRIGERATION DATA	
Horsepower	1/3
Capacity (BTU/Hr)	1549
SHIPPING DATA	
Gross Weight - Crated	446 lbs
Height - Crated	48"
Width - Crated	72"
Depth - Crated	38"

Salad Bar Model: SPE72HC-30-S

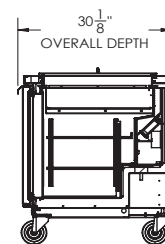
Model Views



PLAN VIEW



ELEVATION VIEW



SIDE VIEW

*ELECTRICAL CONNECTION



115/60/1
NEMA 5-15P

Unit pre-wired at
factory and include 8'
long cord and plug set.



3779 Champion Blvd., Winston-Salem, NC 27105 1-888-845-9800 Fax: 1-336-245-6453 Beverage-Air.com Sales@bevair.com

an Ali Group Company



The Spirit of Excellence



Project:

Item Number:

Quantity:

Affordable Portable™ Refrigerated Cold Food Stations

The Vollrath Company, L.L.C.

AFFORDABLE PORTABLE™ REFRIGERATED COLD FOOD STATIONS



DESCRIPTION & FEATURES

- Constructed of vinyl-clad, 20-gauge carbon steel.
- Uses R513A, a non-flammable low Global Warming Potential (GWP) refrigerant
- Foamed-in-place polyurethane foam insulation.
- 1 (2.54 cm) drain makes clean-up easy.
- NSF2 buffet or NSF2 cafeteria style acrylic breath guard.
- Available in seven versatile colors.
- 18 gauge 300 Series stainless steel work surface.
- 8 ft. power cord.
- Locking casters.
- **Affordable Portable™ orders cannot be canceled or returned.**

Lighting Option

- Factory-installed option
- Requires Buffet breath guard
- 120V
- Bulbs not included

Affordable Portable™ Refrigerated Cold Food Station
Shown with NSF2 Buffet Breath Guard

WARRANTY

All models shown come with Vollrath's standard warranty against defects in materials and workmanship. For full warranty details, please refer to www.Vollrath.com.

ITEMS

Description	Black	Walnut Woodgrain	Cherry Woodgrain	Granite	White	American Natural	Brushed Aluminum
3 Pan (46") NSF2 Buffet Breath Guard Cold Food Station – 120V							
Solid Base	R38713	R38950	R38773	R38733	R38733W	R38733N	R38733A
Solid Base w/ Lights	R3871346	R3895046	R3877346	R3873346	R3873346W	R3873346N	R3873346A
Open Storage Base	R38714	R38951	R38774	R38734	R38734W	R38734N	R38734A
Open Storage w/ Lights	R3871446	R3895146	R3877446	R3873446	R3873446W	R3873446N	R3873446A
Storage Base w/ Door	R38715	R38952	R38775	R38735	R38735W	R38735N	R38735A
Storage w/ Door, w/ Lights	R3871546	R3895246	R3877546	R3873546	R3873546W	R3873546N	R3873546A
3 Pan (46") NSF2 Cafeteria Breath Guard Cold Food Station – 120V							
Solid Base	R39713	R39950	R39773	R39733	R39733W	R39733N	R39733A
Open Storage Base	R39714	R39951	R39774	R39734	R39734W	R39734N	R39734A
Storage Base w/ Door	R39715	R39952	R39775	R39735	R39735W	R39735N	R39735A
4 Pan (60") NSF2 Buffet Breath Guard Cold Food Station – 120V							
Solid Base	R38716	R38960	R38776	R38736	R38736W	R38736N	R38736A
Solid Base w/ Lights	R3871660	R3896060	R3877660	R3873660	R3873660W	R3873660N	R3873660A
Open Storage Base	R38717	R38961	R38777	R38737	R38737W	R38737N	R38737A
Open Storage w/ Lights	R3871760	R3896160	R3877760	R3873760	R3873760W	R3873760N	R3873760A
Storage Base w/ Door	R38718	R38962	R38778	R38738	R38738W	R38738N	R38738A
Storage w/ Door, w/ Lights	R3871860	R3896260	R3877860	R3873860	R3873860W	R3873860N	R3873860A
4 Pan (60") NSF2 Cafeteria Breath Guard Cold Food Station – 120V							
Solid Base	R39716	R39959	R39776	R39736	R39736W	R39736N	R39736A
Open Storage Base	R39717	R39961	R39777	R39737	R39737W	R39737N	R39737A
Storage Base w/ Door	R39718	R39962	R39778	R39738	R39738W	R39738N	R39738A

Approvals	Date

Due to continued product improvement, please consult www.vollrath.com for current product specifications.



www.vollrath.com

The Vollrath Company, L.L.C.
1236 North 18th Street
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Main Tel: 800.624.2051 or 920.457.4851
Main Fax: 800.752.5620 or 920.459.6573
Customer Service: 800.628.0830
Canada Customer Service: 800.695.8560

Technical Services
techservices@vollrathco.com
Induction Products: 800.825.6036
Countertop Warming Products: 800.354.1970
All Other Products: 800.628.0832

AFFORDABLE PORTABLE™ REFRIGERATED COLD FOOD STATIONS

ACCESSORIES AND ADD-ONS

Tray Slides

- ☐ 39924 Fits 24" (61 cm)
- ☐ 39946 Fits 46" (117 cm)
- ☐ 39960 Fits 60" (152 cm)
- 300 Series stainless steel
- Fold-down mounting brackets
- 11" (27.9) tray area
- 11½" (29.2) depth
- Adds 5½" (14 cm) to depth in folded position
- Add NF in front of the item number for non-folding mode



Cutting Boards

- ☐ 39824 Fits 24" (61 cm)
- ☐ 39846 Fits 46" (117 cm)
- ☐ 39860 Fits 60" (152 cm)
- Polyethylene
- Fold-down mounting brackets
- 7" (17.8 cm) depth
- Add 4" (10.2 cm) to depth in folded position




Plate Rests

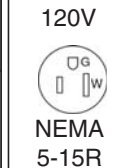
- ☐ 38992 Fits 24" (61 cm)
- ☐ 38993 Fits 46" (117 cm)
- ☐ 38994 Fits 60" (152 cm)
- Stainless steel
- Fold-down mounting brackets
- 7" (17.8 cm) depth
- Adds 4½" (11.4 cm) to depth in folded position
- Add NF in front of the item number for non-folding model



SPECIFICATIONS

Description	HP	Peak Heat of Rejection BTUH	Volts	Hz	Amps	Refrig. Charge	NEMA Plug	120V  NEMA 5-15R
3 Pan	1/5	2800	120	60	3.5	7 oz.	5-15P	
3 Pan w/ Lights*					4.1			
4 Pan	1/3	4800			7.8			
4 Pan w/ Lights*					9			

*Incandescent lamps (40W maximum per fixture)

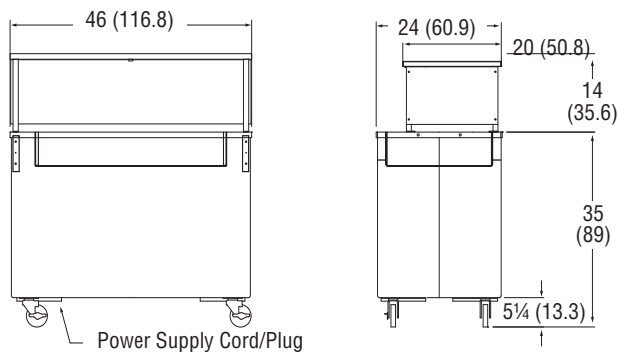


Infrared Lamp Bulbs

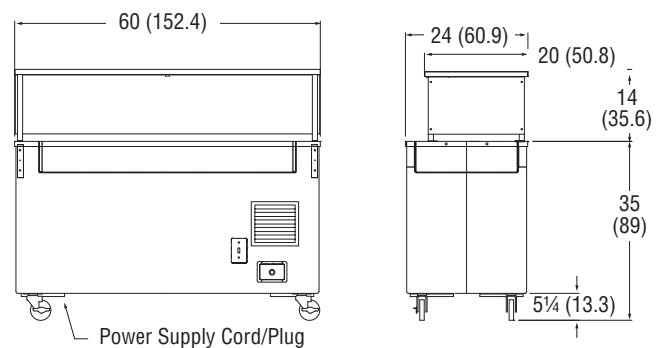
- ☐ 72242 White, 250W, 1 Dozen
- ☐ 72241 Red, 250W, 1 Dozen

DIMENSIONS (Shown in inches (cm))

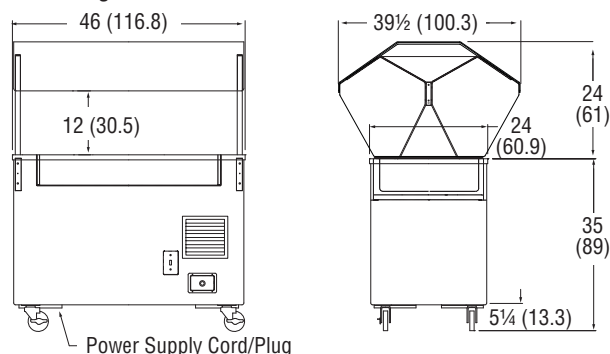
3 Pan Refrigerated Cold Station with NSF2 Cafeteria Breath Guard



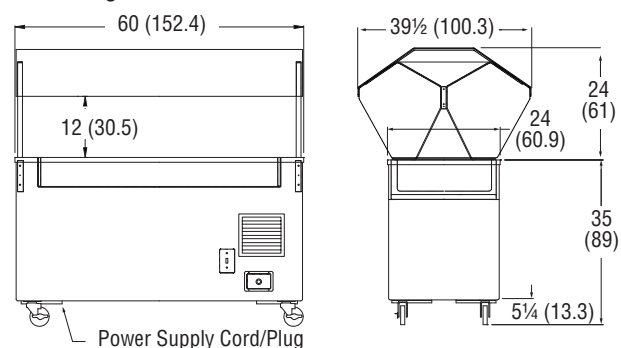
4 Pan Refrigerated Cold Station with NSF2 Cafeteria Breath Guard



3 Pan Refrigerated Cold Station with NSF2 Buffet Breath Guard



4 Pan Refrigerated Cold Station with NSF2 Buffet Breath Guard



3 Well Storage Opening: 24 x 23 x 16½ (61 x 58 x 42)

4 Well Storage Opening: 36 x 23 x 16½ (91.59/29/19 x 58 x 42)



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techservicereps@vollrathco.com
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All Other Products: 800.628.0832

Power Washer Cutsheets



Item: _____

Project: _____

Product: Sage Mobile

Model: SM- _____ - _____ - _____

06	0	1	03	N
08	1	2	05	R
10	2	3	07	
	3		10	

1. Pick a Pressure

06 = 600 psi (41 bar) maximum

08 = 800 psi (55 bar) maximum

10 = 1000 psi (69 bar) maximum

2. Pick a Chemical Injection Method

0 = Soap and Sanitize, Gravity fed (solenoid)

1 = Soap and Sanitize, Pump fed (peristaltic)

2 = Soap only, Gravity fed (solenoid)

3 = Soap only, Pump fed (peristaltic)

3. Pick a Power Supply

1 = 115 Volt, 60 Hertz

2 = 230 Volt, 50 Hertz

3 = 230 Volt, 60 Hertz

4. Pick a Hose Length

03 = 30 feet (9.1 meters)

05 = 50 feet (15.2 meters)

07 = 75 feet (22.9 meters)

10 = 100 feet (30.5 meters)

5. Optional Suffixes

N = No other options

R = Stainless Manual Hose Reel (up to 75' of hose)

Construction:

Stainless steel cart, handle, structure, and hardware.

Full locking commercial front casters.

Stainless Float tank with 1" air gap to prevent backflow.

Leeson commercial electric motor with manual reset thermal overload protection.

35 foot (10.7m) power cord with GFCI and plug.

6 foot (1.8m) water inlet hose, with 3/4" garden hose thread.

Cat Triplex plunger pump.

Vacuum formed ABS cover.

All fluid handling components are brass, stainless, or high pressure hose.

Light 5/16" dia Spray hose, bright yellow, non-marking, with flex guards and 1/4" brass Quick Disconnect sockets at each end.

Ergonomic spray gun with stainless wand, heat insulating grip, and adjustable nozzle for low/high pressure and steam/spray.

Features:

Fully certified and listed as a pressure washer for commercial indoor use.

In-line water filter protects machine from debris.

Adjustable Unloader valve allows the unit to idle and recirculate when the spray gun is closed.

Pressure Relief Valve maintains a safe maximum pressure.

Thermal Relief Valve prevents recirculated water from overheating while idling by discharging 100ml of heated water and replacing it with cool water. Discharge occurs at 165°F.

AutoChem Feature:

Automatically switch from chemical To rinse at spray gun, by switching The nozzle from low to high pressure.

Note: Chemicals are ONLY applied at low pressure (about 1/10 of machine maximum rated pressure).

Options:

Solenoid Valve

Opens on demand to allow siphon action of pump to pull chemical into system with gravity's help at adjustable mix ratio.

Peristaltic Pump

Pulls chemicals against gravity or over longer distances. Meters chemicals to specific, adjustable mix ratios. (230 Volt machines use a diaphragm pump with similar features).

Manual Hose Reel

Stainless Steel reel for installation at machine or remote station Holds up to 75 feet of hose. Keeps work site neat and organized.

Specifications

06 Models

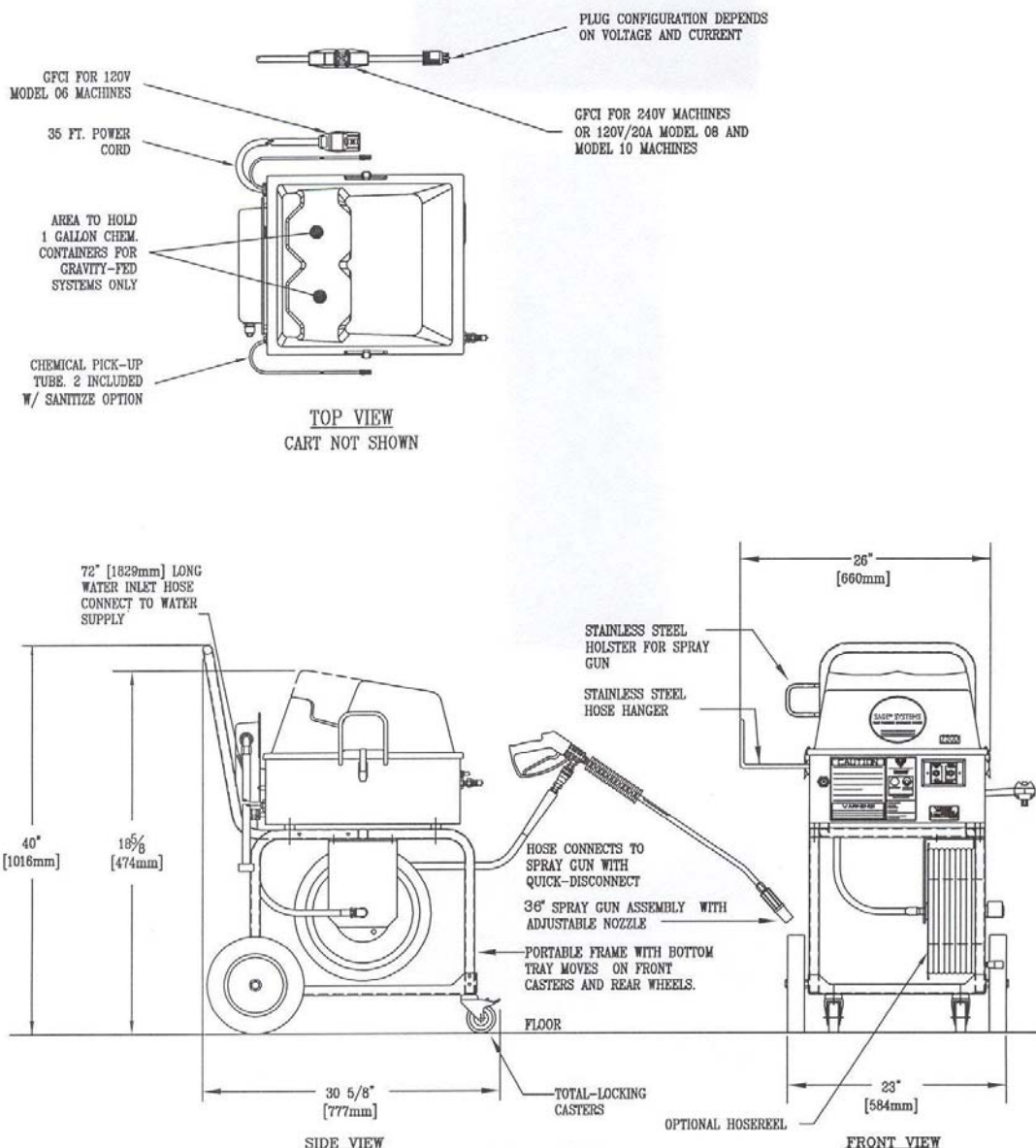
600 PSI (41 bar)
2.9 gpm (11.0 lpm)
1.5 HP motor
12 AMPS @ 115 Volts

08 Models

800 PSI (55 bar)
2.9 gpm (11.0 lpm)
2.0 HP motor
15 AMPS @ 115 Volts

10 Models

1000 PSI (69 bar)
2.9 gpm (11.0 lpm)
2.0 HP motor
18 AMPS @ 115 Volts



Master Distributors

USA & Canada

Market Equipment & Repair
7300 Quimby St. Paramount, CA 90733. USA
Tel: +1 562 529 5494 Fax: +1 562 529 5310
Email: nick@marketequipmentrepair.com
Web: www.marketequipmentrepair.com

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Email: sagesales@sagesanitizingsystems.com
Web: www.sagesanitizingsystems.com

Sage™ Systems

HIGH PRESSURE SANITIZING SYSTEMS

Worldwide Manufacturing Facility

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Master Distributors

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Web: www.dsusa.net

South Asia and Pacific Rim

D & S Exports Pure Support SDN BHD
29-6 Block F2, Jalan PJU 1/42A, Dataran Prima,
47301 Petaling Jaya, Selangor Darul Ehsan, MALAYSIA
Tel: 603 7880 5758 Fax: 603 7880 5760
Email: puresup@dsusa.net
Web: www.dsusa.net

Range with Oven Cutsheets

Master Series Electric Induction Range

Project _____
 Item _____
 Quantity _____
 CSI Section 11400
 Approved _____
 Date _____

Models

- GME36-i14C
- GME36-i20C
- GME36-i14S
- GME36-i20S



(Induction Range with
optional casters shown.)

Standard Features

- All stainless steel chassis, with stainless steel front and sides with a 5kW electric convection oven (C) or storage base (S).
- Four (4) 3.5kW or 5kW induction hobs for range top
- 6" (152mm) adjustable legs
- Seamless design, easy-to-clean Ceran® glass cook-tops and stainless steel exterior
- Unique integrated air management system allows for reliable operation
- Flush back for easy installation and cleaning
- Easy to grip and cool-to-the-touch control knobs
- Integrated circuit breaker, for both induction and oven, provides electric circuit protection
- Easy access panel for regular maintenance
- Two (2) years limited parts and labor warranty (USA & Canada)
- Garland Induction Cook-Top:
 - Large cooking glass surface 28.5" x 28.5"
 - Ceran® glass 6mm thick
 - The revolutionary RTCSmp induction technology monitors continuously the state of the energy supply and temperatures of the electronic components, all in real-

time. This continuous control yields high performance and efficient cooking.

- Automatic Pan Detection and Boil Dry Protection
- Simple operation control with 360° rotation, power levels from 1 to 12
- Garland Convection Oven:
 - Oven cavity is stainless steel and fully insulated
 - Flat convection motor allows for flush mount at the back
 - Backward inclined fan blade allows for efficient air flow and quiet operation
 - Chrome plated, removable rack guides with one (3) oven rack
 - Heat resistant, cool-to-the-touch oven door handle
 - Off-Cook-Cool, 3-position convection fan control

Optional Features

- Set of four (4) Polyurethane (non-markings) swivel casters with front brakes. Casters 5" or 6" high, non-height adjustable. NOTE: Range supplied with casters must be installed with an approved restraining device.
- Deck fasteners, set of four(4)

Cook Faster, Smarter & Safer

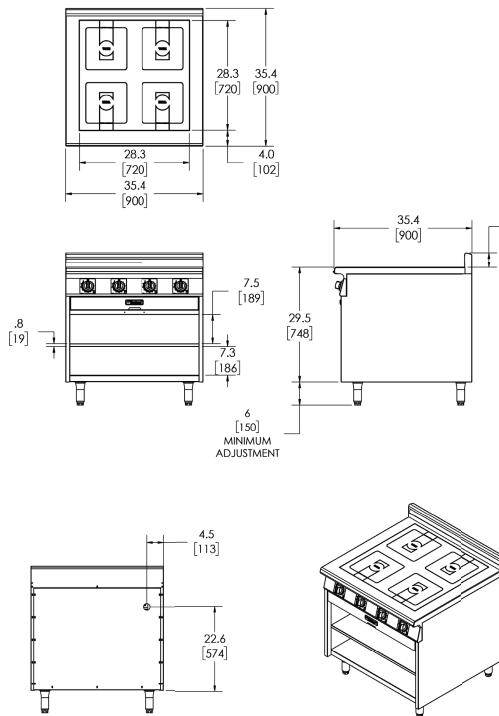
- Cook Faster and Energy Efficient—Garland Induction RTCSmp Built-In Quad Cook-Tops with Boil Dry Protection and Automatic Pan Detection.
- Reliable, durable and functional—Garland's well-crafted convection oven base.
- NOW ALL IN ONE—Smart Engineering Design to incorporate Garland Induction with Garland's convection oven.

Note INDUCTION COOKING PAN:

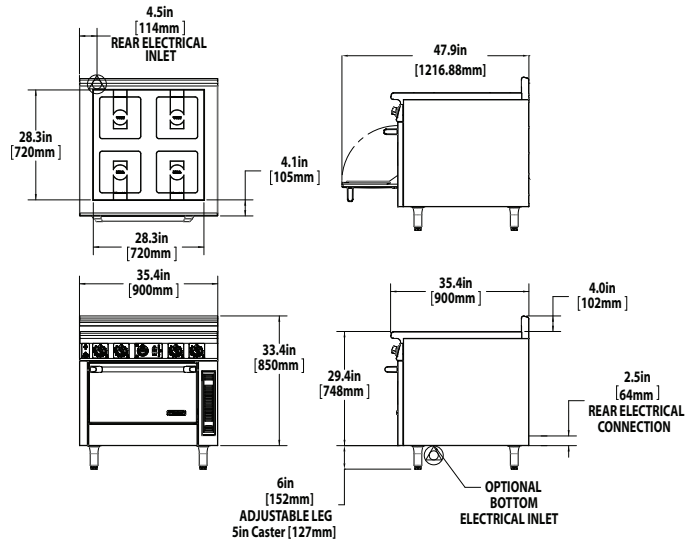
Induction cooking equipment requires "Induction Ready" pans to operate. Please consult your equipment supplier or visit www.garland-group.com for a list of our pan selection in our price list.

Master Series Electric Induction Range

GME36 with Storage Base



GME36 with Convection Oven Base



Garland/U.S. Range products are not approved or authorized for home or residential use, but are intended for commercial applications only. Garland / U.S. Range will not provide service, warranty, maintenance or support of any kind other than in commercial applications.

Electrical Loading										
Model*	Voltage	Total kW	Loading Per Phase (kW)				Amperage (A)			
			X-Y	X-Z	Y-Z	Z-N	1 Phase	X	Y	Z
GME36-i14C 3.5kW	120/208	Induction 4 x 3.5kW Oven 5.1kW Appliance Total 21.1kW	10.4	5.3	5.3	0.1	not available	66.4	66.4	44.3
GME36-i20C 5kW	120/208	Induction 4 x 5kW Oven 5.1kW Appliance Total 26.8kW	12.3	7.2	7.2	0.1	not available	82.2	82.2	60.3
GME36-i14S 3.5kW	208	Induction 4 x 3.5kW Appliance Total 14kW	5.3	5.3	5.3		not available	44.0	44.0	44.0
GME36-i20S 5kW	208	Induction 4 x 5kW Appliance Total 20kW	7.2	7.2	7.2		not available	60.0	60.0	60.0

* C - Convection Oven base; S - Storage base.

Ship Weight and Dimension		
	Ship Weight	Ship Dim
GME36-i14/20C	440 lbs (200kg)	53 cu ft (45" x 45" x 45")
GME36-i14/20S	340 lbs (155kg)	53 cu ft (45" x 45" x 45")

Welbilt reserves the right to make changes to the design or specifications without prior notice.

Garland Commercial Ranges Ltd.
1177 Kamato Road,
Mississauga, Ontario
L4W 1X4 CANADA

General Inquires 1-905-624-0260
USA Sales 1-800-424-2411
Canadian Sales 1-888-442-7526
US/Canada KitchenCare Parts & Service
1-844-724-2273

www.garland-group.com

6772-8/18



SPR36UIMX

Range, 36", Professional, Stainless steel, Cooktop type: Induction, Main oven: Thermo-ventilated



TYPE

Product family: Range • Range size: 36" • Cooktop type: Induction • Main oven: Thermo-ventilated • EAN code: 8017709308971

AESTHETIC

Color: Stainless steel • Design: Flush mounted • Series: Professional • Material: Stainless steel • Control panel finish: Stainless steel • Cooktop color: Black enamel • Handle: Robust knurled handle • Controls color: Stainless steel • Display: Touch • Handle color: Brushed stainless steel • Control knobs: Pro-style control knobs • No. of controls: 7

PROGRAMS / FUNCTIONS

Traditional cooking functions: Static, Fan-assisted, True European convection, Small grill, Large grill, Large grill + Fan, Convection bottom, Pizza • Cleaning functions: VaporClean • Other functions: Defrost by time

SECONDARY OVEN FUNCTIONS

COOKTOP OPTIONS

Multizone Option: Yes

MAIN OVEN OPTIONS

Minimum Temperature: 150 °F • Maximum temperature: 500 °F

COOKTOP TECHNICAL FEATURES

Cooking zones: 5 • Cooking zones with Booster: 5 • Zone 1 - Position: Front-left • Zone 2 - Position: Rear-left • Zone 3 - Position: Center • Zone 4 - Position: Rear-right • Zone 5 - Position: Front-right • Zone 1 - Type: Induction - Multizone • Zone 2 - Type: Induction - Multi-zone • Zone 3 - Type: Induction - single • Zone 4 - Type: Induction - Multizone • Zone 5 - Type: Induction - Multizone • Zone 1 - Power: 3 kW • Zone 2 - Power: 3 kW • Zone 3 - Power: 3.7 kW • Zone 4 - Power: 3 kW • Zone 5 - Power: 3 kW • Automatic switch-off in case of over-heating: Yes • Automatic pan detection: Yes • Selected zone indicator: Yes • Residual heat indicator: Yes

MAIN OVEN TECHNICAL FEATURES

Cavity material: EverClean enamel • No. of shelves: 5 • Shelves type: Metal racks • No. of lights: 2 • Light type: Halogen • Light Power: 40 W • Fan number: 2 • Time setting: Minute minder • Full-glass inner door: Yes • Removable inner door: Yes • Total no. of door glasses: 3 • Cooling system: Tangential • Grill type: Electric • Grill power: 1700 W • Large grill - Power: 2900 W • Bottom heating element - Power: 1700 W • Upper heating element - Power: 1200 W • Circular heating element - Power: 1550 W • Soft Close system: Yes

SECONDARY OVEN - TECHNICAL SPECIFICATIONS

THIRD OVEN - TECHNICAL SPECIFICATIONS

PERFORMANCE / ENERGY LABEL

ELECTRICAL CONNECTION

Electrical connection rating: 240 W • Voltage: 208/240 V • Frequency: 60 Hz • Power cord length: 47 1/4 "

GAS CONNECTION

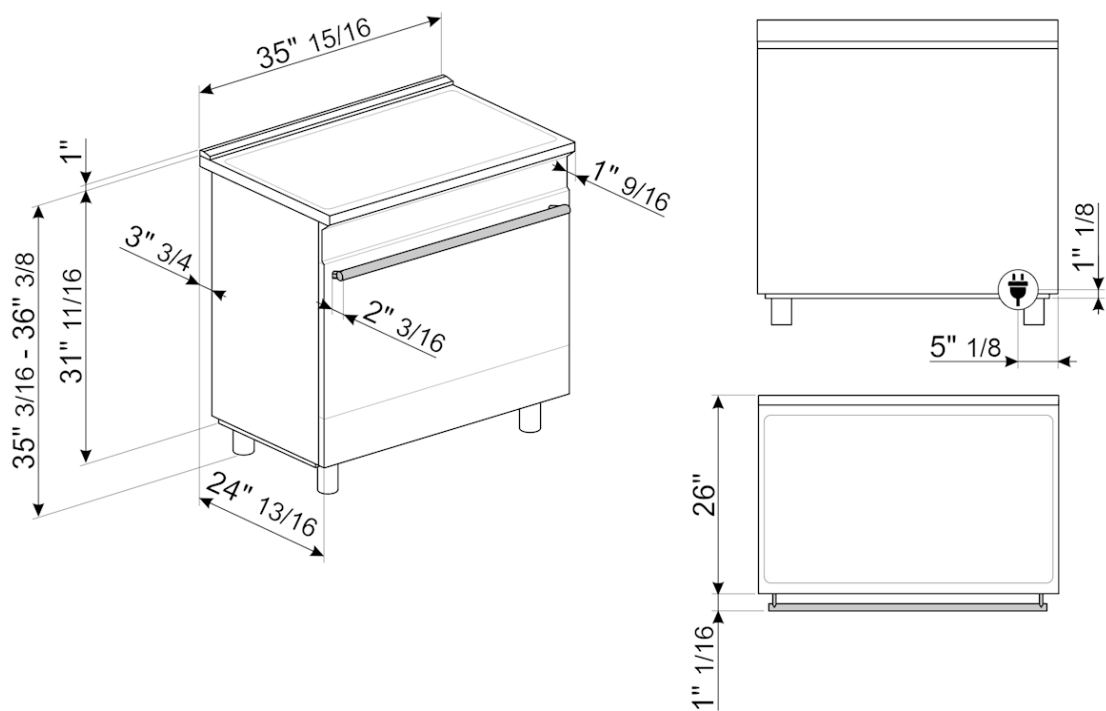
LOGISTIC INFORMATION

Width: 35 3/4 " • Height: 35 7/16 " • Depth: 25 3/16 " • Net weight: 210 lbs

NO LONGER IN USE

ACCESSORIES INCLUDED FOR MAIN OVEN AND COOKTOP

Meat Probe: 1 Oven grid with back-stop, tray support: 2



Model Numbers

IR-10-E IR-10-E-XB
IR-10-E-CC IR-6-G24T-E
IR-4-G36T-E



9" (229 mm) sealed round plate elements with easy to clean flat surface.



5 KW element provides even heating throughout the oven cavity.



Splatter screen protects the element from spills.



Large 5" (127 mm) stainless steel landing ledge for convenient plating.



Durable cast aluminum with a Valox™ heat protection grip.



IR-10-E shown with optional casters

ROUND PLATE ELEMENTS - 2 KW round plate elements with easy-to-clean flat surface.

- Provides a solid flat surface for fast, even heating.
- Plates are 9" (229) diameter for maximum pan contact.
- Solid top prevents spills from entering unit making clean-up easy.
- Infinite heat controls for maximum cooking flexibility.

GRIDDLE TOP - Thick highly polished 3/4" (19 mm) steel plate with thermostat controls.

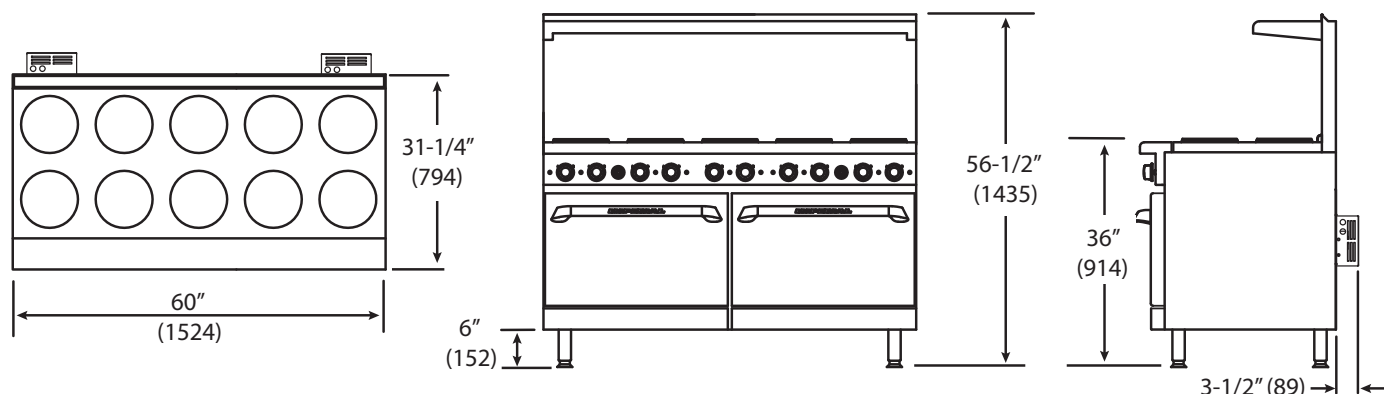
- 21" (533 mm) plate depth.
- Even heating elements across the griddle section provide consistent temperature across the plate.
- 4" (102 mm) wide grease trough and removable grease can for easy cleaning.
- Large griddle grease can is removable for easy cleaning.

STANDARD OVEN - High performance 5.3 KW element provides even heating throughout the oven interior.

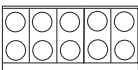


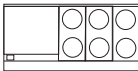
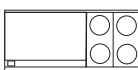
- Unique baffle above the element distributes heat flow to provide even cooking temperatures. Splatter screen protects the element from spills.
- Chef depth standard oven interior accommodates standard 18" x 26" (457 x 660 mm) sheet pans front-to-back and side-by side.
- Oven is 26½" w x 26" d x 14" h (673 x 660 x 356 mm).
- Heavy duty thermostat with temperature range from 150°F to 500°F (65°C to 260°C).
- Porcelainized sides, rear, deck and door lining.
- Stamped inner door liner provides extra strength while optimizing heat retention.
- One chrome oven rack is included.

CONVECTION OVEN - 5.3 KW convection oven with 1/4 hp blower motor cooks products quickly and evenly with less shrinkage.

- Convection oven interior dimensions 26-1/2" w x 22-1/2" d x 14" h (673 x 572 x 356 mm).
- Three position switch for cooking or cool down. Fan shuts off automatically when door is open.
- Porcelainized sides, rear, deck and door lining for easy cleaning.
- Three chrome oven racks included.



60" ELECTRIC RANGES

TOP	MODEL	NUMBER OF PLATES	GRIDDLE WIDTH	SHIP WEIGHT (KW) LBS
	IR-10-E	10	N/A	(444) 980
	IR-10-E-XB	10	N/A	(425) 940
	IR-10-E-CC	10	N/A	(493) 1090
	IR-6-G24T-E	6	24" (610 mm)	(480) 1060
	IR-4-G36T-E	4	36" (914 mm)	(491) 1085

Measurements in () are metric equivalents

NOTES

- "XB" specifies (1) Standard Oven and (1) Open Cabinet Base
- "CC" specifies (2) Convection Ovens
- "G" specifies Griddle Top
- "T" specifies Thermostat Controls

EXTERIOR

- Stainless steel front, sides, backguard, shelf, landing ledge and kick plate
- Welded and polished stainless steel seams
- Large 5" (127 mm) stainless steel landing ledge
- Control knobs are durable cast aluminum with a heat protection grip
- 6" (152 mm) heavy duty legs with adjustable feet
- One year parts and labor warranty

DIMENSIONS

60" w x 31-1/4" d x 36" h*
(1524 x 794 x 914 mm)

* to cooktop

CRATED DIMENSIONS

62-1/2" w x 39" d x 35" h
(1588 x 991 x 889 mm)

CLEARANCE REQUIREMENTS

For use only on non-combustible floors. Legs or casters are required for non-combustible floors; or 2" (51 mm) overhang is required when curb mounted. Provide 0" clearance from non-combustible surfaces and 6" (152 mm) from combustible surfaces.

60" WIDE RANGES ELECTRICAL REQUIREMENTS

Model	Total KW	Volts	Ph	Amps	J-Box "A"	Amps	J-Box "B"
IR-10-E	30.6	208	1	74	74		
	30.6	208	3	43	43		
	30.6	240	1	64	64		
	30.6	240	3	37	37		
	30.6	480	3	19	19		
IR-10-E-XB	25.3	208	1	49	74		
	25.3	208	3	43	38		
	25.3	240	1	42	64		
	25.3	240	3	37	33		
	25.3	480	3	19	17		
IR-10-E-CC	33.6	208	1	81	81		
	33.6	208	3	47	47		
	33.6	240	1	70	70		
	33.6	240	3	41	41		
	33.6	480	3	21	21		
IR-6-G24T-E	25.3	208	1	84	55		
	25.3	208	3	51	32		
	25.3	240	1	72	47		
	25.3	240	3	44	27		
	25.3	480	3	22	14		
IR-4-G36T-E	25.3	208	1	64	69		
	25.3	208	3	38	42		
	25.3	240	1	56	60		
	25.3	240	3	33	36		
	25.3	480	3	17	18		

- Available in 208 and 240 volts, 1 and 3 phase.
- Please indicate at time of order

OPTIONS AND ACCESSORIES

- 6" (152 mm) stainless steel stub back, in lieu of standard backguard
- 11" (279 mm) stainless steel stub back, in lieu of standard backguard
- Reinforcement channels for mounting cheesemelter or salamander
- Extra oven racks
- Chrome griddle top
- 6" (152 mm) casters
- 480 volts, 3 phase





Lang
Wave

Item No. _____
Project _____
Quantity _____

30" Electric Induction Top Range with Convection Oven Base

Model: RI30C Series



Model RI30C-PTA Shown

SHORT/BID SPECIFICATION

Range shall be a **LANG Manufacturing Model RI30** ____ [Specify one]:

_APA: Accu-Plus Control

_PTA: Platinum Control

A 30" wide heavy duty electric heated unit with five half size pan capacity convection oven base and 18.2 kW total power input; all stainless steel exterior; fully insulated oven with stainless steel interior, heavy duty door hinged left, with double pane viewing window and five chrome plated oven rack standard; with individual cook-top component controls; 4 ea. 8" diameter induction burner.

STANDARD PRODUCT WARRANTY

- Two year, parts & labor
- Lifetime warranty on oven door mechanism

CONSTRUCTION FEATURES

- 6mm glass induction top thickness for added durability
- One piece heavy duty 430 Series stainless steel exterior, with attractive No. 4 finish
- Cooking compartment is 430 Series stainless steel
- 2" insulation on six sides of cooking compartment
- Heavy duty compartment door, with large double pane tempered glass window
- Powerful blower centered on side of compartment
- Nine position oven rack slide supports
- Five chrome-plated oven racks provided
- 4" swivel casters standard
- 2-3/4" wide full width front grease trough
- Grease drain in trough with full width & depth spillage drawers

PERFORMANCE FEATURES

- Compact 30" wide range incorporates half-size convection oven with five 13 X 18" pan capacity
- No flames or hot coils contribute to safer, cleaner cooking
- Induction cooking results in a cooler kitchen
- Controlled heating allows for precise, consistent cooking
- 150° to 450° F oven operating temperature range
- Solid state oven temperature control accurate to 4° F
- Two speed fan with fan pulse capability
- Door interlock switch cuts power to fan
- Choice of cook top configurations, to include:
 - 4 ea. 8" diameter induction burner

CONTROLS [For Oven] CHOICE OF:

□ Accu-Plus™ Control [-APA]

- Simple knob-set time and temperature controls
- 1-hour timer with non-stop buzzer
- Pulse-fan switch
- HIGH-LOW speed fan switch
- Power-ON switch

□ Platinum Control [-PTA]

- Solid state, icon driven, one-touch programmable controls
- Up to 99 product programs, with multiple baking tiers
- Time, temperature, heat loss and adjustable shelf compensation
- Cook-n-Hold programming
- 2-speed fan & variable-rate pulse-fan control



Sheet No. LSP-ID1 (rev. 02/12)

30" Electric Induction Top Range with Convection Oven Base

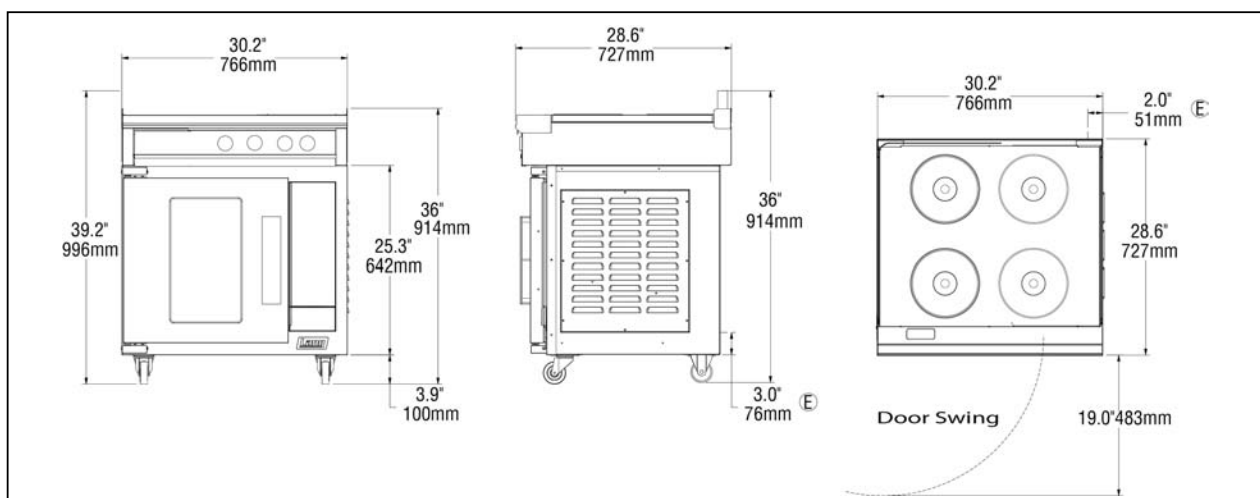
Model: RI30 Series

INSTALLATION REQUIREMENTS

- Unit is shipped in one piece
- Ⓔ Single 208/240V, 1/ 3-Phase
- Installation under approved vent hood required. Consult local codes.
[Power connection from bottom. See below]

OPTIONS & ACCESSORIES

- ❑ Extra wire pan rack [Five provided as std.]



[Front View/Elevation]

[Right Side View]

[Top View/Plan]

Model	Height x Width x Depth (With standard 4" casters)	Clearance from combustible surface	Weight		Freight Class
			Actual	Shipping	
RI30_	36" x 30.2" x 30" 914mm x 766mm x 762mm	Sides: 3" Back: 3"	362* lbs. 165 kg	412* lbs. 187 kg	85

Model	Ⓔ Electrical Requirements			
	Voltage	Total KW	Phase	Amps/Line
RI30_	208V/60Hz	18.2	1/3	87.5/54
	240V/60Hz	18.2	1/3	75.8/47

CAD SYMBOLS & PRICING



Due to continuous improvements, specifications subject to change without notice.



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Reach-In Freezer – Double Cutsheets

DESIGNER LINE DISPLAY FREEZER

Model: DL2F-GD

2-Section Display Reach-In Freezer with Hinged Glass Doors

DL2F-GD - Stainless steel front, aluminum end panels and interior
DL2F-SA-GD - Stainless steel exterior, aluminum interior
DL2F-SS-GD - Stainless steel exterior and interior
Designed to maintain NSF-7 temperatures in 100°F ambient.



Options and Accessories

(upcharge and lead times may apply)

Stainless steel case back	Remote models
Additional epoxy-coated steel shelves	Shallow depth
Chrome or stainless steel shelves	Half glass doors
Pan slide assemblies	Pass-thru (consult factory)
Rehinging of doors (consult factory)	Solid doors (full or half)
Expansion valve system	Increased refrigeration systems
Casters	Special electrical req. (consult factory)
Dial thermometer	

Consult factory for other model configurations, options and accessories.

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 Phone: 215-244-1400
 Fax: 215-244-9579

539 Dunksferry Road
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www.continentalrefrigerator.com

Project Name:

Model Specified:

Location:

Item No:

Quantity:

AIA #:

SIS #:

Standard Model Features

REFRIGERATION SYSTEM

Environmentally-safe R-404A refrigerant

Self contained, performance-rated "plug" refrigeration system

Refrigeration system is readily accessible on top of cabinet, separate from the "food zone" to increase storage capacity

Automatic, hot gas condensate evaporator

CABINET ARCHITECTURE

3" non-CFC polyurethane foam insulation

Chrome-plated handles

Cam-action, lift-off hinges

Self-closing doors

Magnetic snap-in door gaskets

Cylinder lock in door

Heavy-duty, epoxy-coated steel shelves

Double-pane, tempered hinged glass doors

Adjustable 6" stainless steel legs

MODEL FEATURES

LED interior lighting

External digital thermometer

Energy saving switch for door heaters

Automatic electric defrost

Unique air duct system for optimum air flow

Cabinet upper side panels and refrigeration "plug" system can be removed and reinstalled at job site

APPROVAL:

Model Specifications

DIMENSIONAL DATA

Net Capacity (cu. ft.)	50 (1416 cu l)
Width, Overall (in.)	52 (1321 mm)
Depth, Overall (incl. handles) (in.)	35 3/8 (899 mm)
Depth [less doors] (in.)	32 (813 mm)
Depth [doors open 90°] (in.)	55 1/2 (1410 mm)
Clear Door Width (in.)	19 3/8 (492 mm)
Clear Door Height (in.)	58 5/8 (1489 mm)
Height, Overall (incl. 6" legs) (in.)	88 1/4 (2242 mm)
No. of Doors	2
No. of Shelves	8
Shelf Area (sq. ft.)	47.6 (4.4 sq m)
Tray Slide Capacity	24 ea.

REFRIGERANT DATA

Condensing Unit Size (H.P.)	1
Capacity (BTU/Hr)*	4325

ELECTRICAL DATA

Voltage (int'l)	115/208-230/60/1 (220/50/1)
Feed Wires (incl. ground)	4
Total Amps (int'l)	14.0 (11.6)
Defrost Amps (int'l)	9.6 (4.8)
10 ft. Cord/Plug (int'l)	No (No)

SHIPPING DATA

Height - Crated (in.)	85 1/2 (2172 mm)
Width - Crated (in.)	64 (1626 mm)
Depth - Crated (in.)	42 (1067 mm)
Volume - Crated (cu. ft.)	133 (3766 cu l)
Weight Std - Crated (lbs.)	580 (263 kg)
Weight SS - Crated (lbs.)	660 (299 kg)
Weight Std - Uncrated (lbs.)	420 (191 kg)
Weight SS - Uncrated (lbs.)	500 (227 kg)

* Rating @ -15°F evaporator, 90°F ambient
Figures in parentheses reflect metric equivalents rounded to the nearest whole unit.

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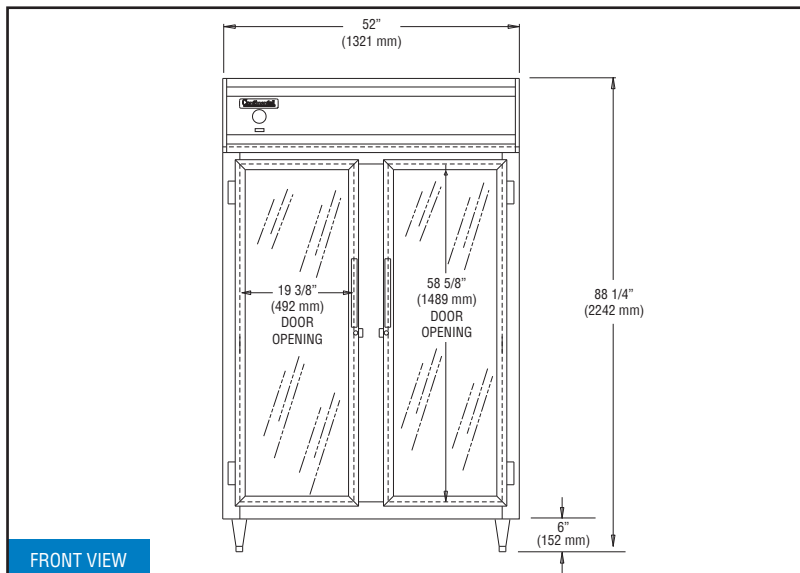
Due to our continued efforts in developing innovative products, specifications subject to change without notice.



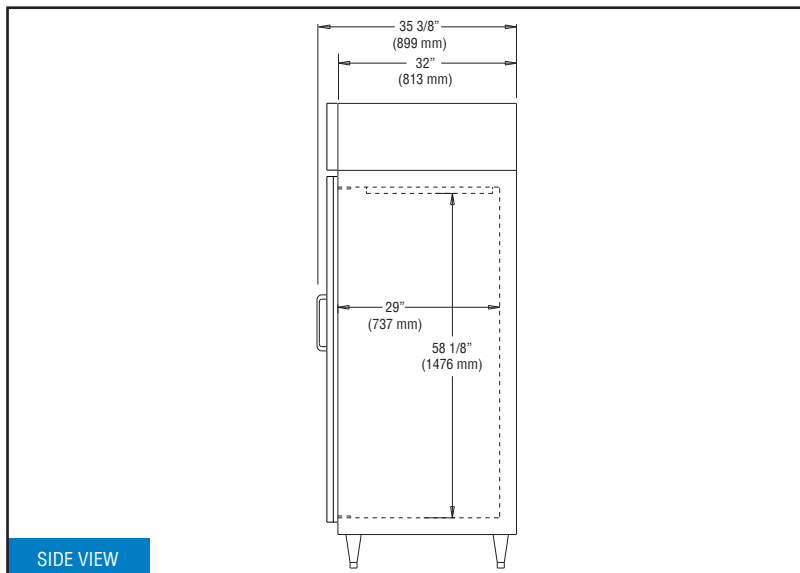
MADE IN THE U.S.A.

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Model Plan Views



FRONT VIEW



SIDE VIEW

IMPORTANT NOTE: If the cabinet is located directly against a wall and/or under a low ceiling, a minimum clearance of 12" is required.

REFRIGERATION SYSTEM

A "performance rated", air-cooled, hermetically sealed, capillary-type refrigeration system is installed on the top of each freezer. Plasticized fin coil and air circulation fans are contained within a concealed "plug"-type insulated housing, readily accessible on top of the cabinet and separate from the food zone to increase food storage capacity. The entire "plug" system is fully charged with environmentally safe R-404A refrigerant and mounted on a sturdy steel, rail-type base which can be easily removed if refrigerator conversion is desired. Freezers are designed to maintain 0°F (-18° Centigrade) while operating with an unrestricted air supply in a maximum ambient temperature of 100°F. All condensate water is evaporated by an automatic, non-electric, corrosion-resistant condensate evaporator. A strict quality-assurance team inspects all materials and components to certify that each model conforms to the most exacting standards. All models are factory performance-tested for a minimum of 16 hours prior to crating.

INSULATION

All cabinet walls, top and bottom have high density, foamed-in-place, non-CFC polyurethane insulation.

SHELVING

Shelves are designed for heavy-duty use with .306" diameter frame and brace members and .140" diameter fill wires spaced 3/4" apart. Shelves are welded steel and epoxy-coated for a durable, long, rust-free service life. Adjustments are in 1 inch increments and a wide door opening allows the use of a variety of optional pan and tray slide types.

CABINET CONSTRUCTION

All materials are of top quality, assembled to conform with strict quality-assurance requirements. The cabinet front is constructed of heavy-gauge polished stainless steel for durability. All cabinet joints and seams are sealed vapor-tight. Case is of all metal, welded construction and internally supported and braced for a rigid unit construction. Cabinet design eliminated overlapping panels with raw edges. Cabinet body is insulated with non-CFC, foamed-in-place polyurethane foam with an average thickness of 3 inches to ensure increased energy efficiency. Full-length louvered air grille located above the doors allows equal air circulation to the condensing unit. Easily removable, low-wattage, anti-sweat door heaters concealed by a non-metallic, non-conductive, high-impact thermal breaker strip eliminate condensate build-up on the cabinet front. Automatic interior lighting is activated by an easily accessible interior switch. Cabinets are equipped with 6 inch adjustable stainless steel legs.

DOOR CONSTRUCTION

Hinged glass door: double-pane, tempered glass is encased by a heated, heavy-duty aluminum extruded frame. Replaceable, snap-in door gaskets are self-adjusting, heavy-duty, magnetic type. Door handles and hinges are chrome-plated and non-corrosive. Doors are provided with built-in, cylinder locks which are keyed alike. Hinges are cam-action, lift-off type featuring positive safety stop at 120 degrees.

UPRIGHT REACH-IN FREEZER TOP MOUNT CONDENSING UNIT

Project Name: _____

Project Location: _____

Model #: _____ Quantity: _____

Available Warehouse: _____

ES Series

Model: ESF2



**Operating temperature
range is -10°F ~ 54°F**



**5 YEAR Compressor
3 YEAR Parts & Labor**



Please visit our website for updated Energy Efficiency information

Refrigeration System

- Top mounted, self-contained and fully detachable condensing unit uses environmentally friendly R404A* refrigerant with zero (0) Ozone Depletion Potential (ODP) and EPA compliant R290 refrigerant with zero (0) Ozone Depletion Potential (ODP) and three (3) Global Warming Potential (GWP). R290 condensing units are replaceable and require no on-site brazing. *Ask about alternative refrigerant.
- PSC evaporator fan motors for R404A models. Electronically commutated (ECM) fan motors for R290 models.
- Airflow guard ensures optimal circulation of cold air. R290 models include full-length air duct system.
- Time-initiated and temperature-terminated auto defrost heater.
- Large capacity, corrosion-resistant condenser and evaporator coils.
- Self-maintaining, energy-efficient condensate drain pan requires no external drains or electric heaters.
- High performance condenser fan motors ensure efficient compressor ventilation. R290 models use auto-reverse condenser fan motors which also support condenser coil cleaning. Refer to owner's manual for full maintenance instructions.
- Pressure relief devices allow smooth access to cabinet interior when re-opening doors.
- Pre-wired and ready to plug, 115V/60Hz/1Ph, NEMA 5-20P.

Cabinet Construction

- Heavy duty stainless steel interior / exterior with rounded corners for a hazard-free workspace.
- Open spaced interior with no walls between compartments.
- Galvanized steel top, bottom and rear.
- 2.5" thick high density polyurethane insulation.
- Four 5" swivel casters with locks on front set.

Lighting

- Energy efficient silicone coated and shatter-proof LED lighting provides bright, high color illumination with low heat output.

Doors

- Heavy duty stainless steel interior / exterior.
- 2.5" thick high density polyurethane insulation.
- Frame heaters prevent exterior moisture build up.
- Self-closing with adjustable torsion system for a positive seal.
- Snap-in magnetic door gasket make cleaning and replacement an easy process.
- High strength, recessed door handles.
- Pre-installed door locks keep your items safe from theft.
- Field reversible.

Shelving

- Three epoxy coated, steel wire shelves per section.
- Height adjustable stainless steel clips.

Temperature Control

- Multi-function digital controller with easy to read LED display.
- Factory preset temperature, -4°F. Temperature setting range from -10°F to 54°F.
- R290 models include audible overheat protection alarm for compressor and condenser coil.

Options

- Additional shelving.
- 3" swivel casters with locks.
- 3.5" – 6" height-adjustable and interchangeable legs.
- Left hinged door.

Ref/ Frz/Dual	Doors	Capacity Cu. Ft.	Shelves	Refrigerant	HP	Power V-Hz-Ph	Amps	Crated Weight	Exterior Dimensions		
									L	D	H*
FRZ	2	48	6	R-290	1	115-60-1	7.5	450 lbs (204kg)	49.625" (1260mm)	31.625" (803mm)	74.25" (1886mm)

(†)Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C). (►) Product capacity is calculated based on standard industry figures. (✱) Reference plan view for clarification on caster/unit height. If dimensions and capacity are critical, please contact Everest Refrigeration. Blizzard R290 replacement is at the sole discretion of Everest Refrigeration. Specifications subject to change without notice.

UPRIGHT REACH-IN FREEZER

TOP MOUNT CONDENSING UNIT

ES Series

Model: ESF2

DIMENSIONAL DATA

External Dimensions	L	49.625" (1260mm)
	D	31.625" (803mm)
	H*	74.25" (1886mm)
Crated Weight		450 lbs. (204kg)
Doors/Drawers/Lids		2
Max Weight Support (LBS)		-

STORAGE DATA

Net Capacity Cu. Ft. ▶	48
Shelves	6
Barrels	-
20 oz. Bottles	-
12 oz. Bottles	-
12 oz. Cans	-
8" Mugs	-
# of Pans (Top)	-
# of Pans (Drawer)	-
Dividers	-
Trays	-

ELECTRICAL DATA

Voltage	115-60-1
Full Load Amperage	7.5A
Feed Wires with Ground	3
Cord Length	9ft
NEMA Plug Type	Ⓜ NEMA 5-20P

REFRIGERATION DATA

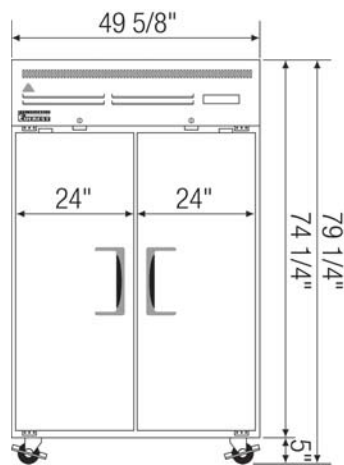
Compressor Mounting	Top
Refrigerant	R-290
Compressor HP	1
BTU/HR †	2840

KEY

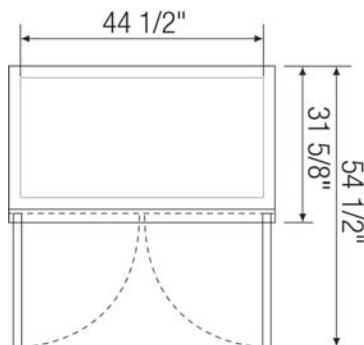
D	Door	R	Refrigerator
L	Lid	REF	Refrigerator
H	Half Door	F	Freezer
FD	Full Door	FRZ	Freezer
SD	Solid Door	DUAL	REF/FRZ Combo
GD	Glass Door	DR	Drawer

	Elevation	Right	Plan	3D	Back
					

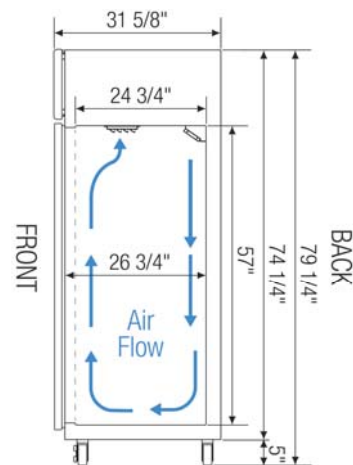
PLAN VIEW



FRONT



TOP



SIDE

ACCESSORIES & OPTIONS

Part Number	Description
Additional Shelving	Contact Everest Refrigeration for more information.
AJL03-00	Interchangeable Leg for Caster
CASA3-01	3" Overall Height Caster Assembly - (2) Front (2) Rear
Left Hinged Door	Contact Everest Refrigeration for more information.

(†)Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C). (▶) Product capacity is calculated based on standard industry figures. (※) Reference plan view for clarification on caster/unit height. If dimensions and capacity are critical, please contact Everest Refrigeration. Blizard R290 replacement is at the sole discretion of Everest Refrigeration. Specifications subject to change without notice.

REACH-IN FREEZER (0°F)

Model: 2FEN

Natural Refrigerant R-290 Model

2-Section Extra-Wide Reach-In Freezer



ENERGY STAR® Qualified Commercial Freezer

2FEN - Stainless steel front, aluminum end panels and interior

2FENSA - Stainless steel exterior, aluminum interior

2FENSS - Stainless steel exterior and interior



Options and Accessories

(upcharge and lead times may apply)

Stainless steel case back	Custom laminates
Add'l epoxy-coated steel shelves	Special electrical req. (consult factory)
Chrome or stainless steel shelves	Correctional Facility Options
Heavy-duty pilaster strips	• One way security screws
Rehinging of doors (consult factory)	• Locking hasp (lock not included)
Pan slide assemblies	• Stainless steel mesh cover
Adjustable legs	• Coverless hinges

Consult factory for other model configurations, options and accessories.

Project Name:

Model Specified:

Location:

Item No:

Quantity:

AIA #:

SIS #:

Standard Model Features

REFRIGERATION SYSTEM

Self contained, performance-rated refrigeration system

Natural, environmentally-safe, high-efficiency R-290 refrigerant¹

Automatic, electric condensate evaporator

Expansion valve system

Standard operating temperature is 0 to -5°F and can be adjusted to operate as low as -10°F in a 90°F ambient.

CABINET ARCHITECTURE

3" non-CFC polyurethane foam insulation

Smooth, polished chrome workflow door handles

Cam action, lift off hinges

Self-closing doors

Magnetic snap-in door gaskets

Cylinder lock in each door

Heavy-duty, epoxy-coated steel shelves

Heavy-duty pilaster strips

5" casters

MODEL FEATURES

LED interior lighting

Electronic controller w/digital display & hi-low alarm

Automatic electric defrost

¹ R-290 refrigerant meets all federal and state regulatory requirements.

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APPROVAL:

Model Specifications

DIMENSIONAL DATA

Net Capacity (cu. ft.)	50 (1416 cu l)
Width, Overall (in.)	57 (1448 mm)
Depth, Overall (in.) (incl. handles)	35 3/8 (899 mm)
Depth (in.) (less doors)	32 (813 mm)
Depth (in.) (doors open 90°)	58 (1473 mm)
Clear Door Width (in.)	21 7/8 (556 mm)
Clear Door Height (in.)	58 5/8 (1489 mm)
Height, Overall (in.) (incl. 5" casters)	82 1/4 (2096 mm)
No. of Doors	2
No. of Shelves	6
Shelf Area (sq. ft.)	40.8 (3.8 sq m)
Tray Slide Capacity (per section)	24

REFRIGERANT DATA

Condensing Unit Size (H.P.)	1/2
Capacity (BTU/Hr)*	2470

ELECTRICAL DATA

Voltage (int'l)	115/60/1 (220/50/1)
Feed Wires (incl. ground)	3
Total Amps (int'l)	9.0 (7.6)
Defrost Amps (int'l)	6.5 (3.3)
10 ft. Cord/Plug [attached] (int'l)	Yes (No)

SHIPPING DATA

Height - Crated (in.)	85 1/2 (2172 mm)
Width - Crated (in.)	64 (1626 mm)
Depth - Crated (in.)	42 (1067 mm)
Volume - Crated (cu. ft.)	133 (3766 cu l)
Weight Std - Crated (lbs.)	595 (270 kg)
Weight SS - Crated (lbs.)	675 (306 kg)

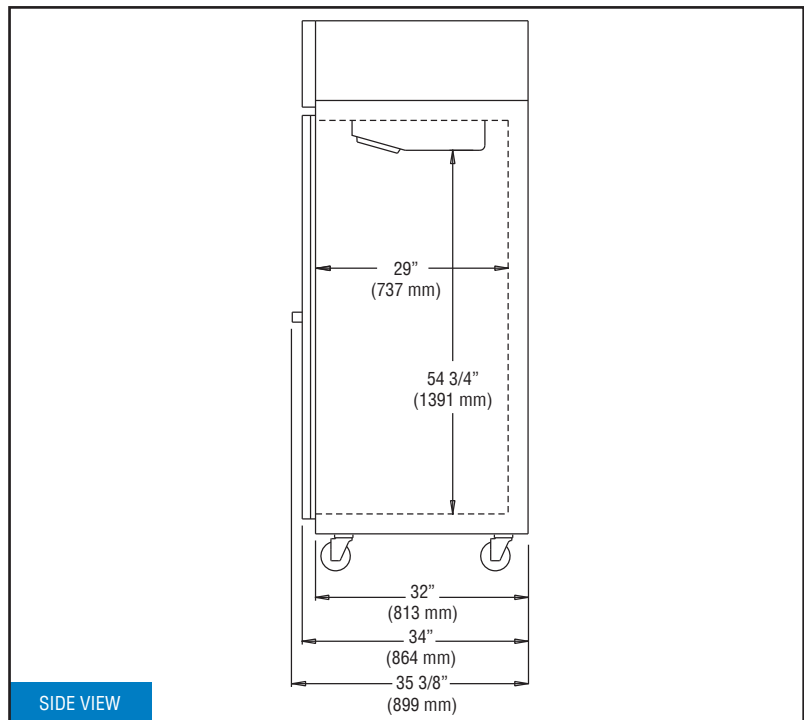
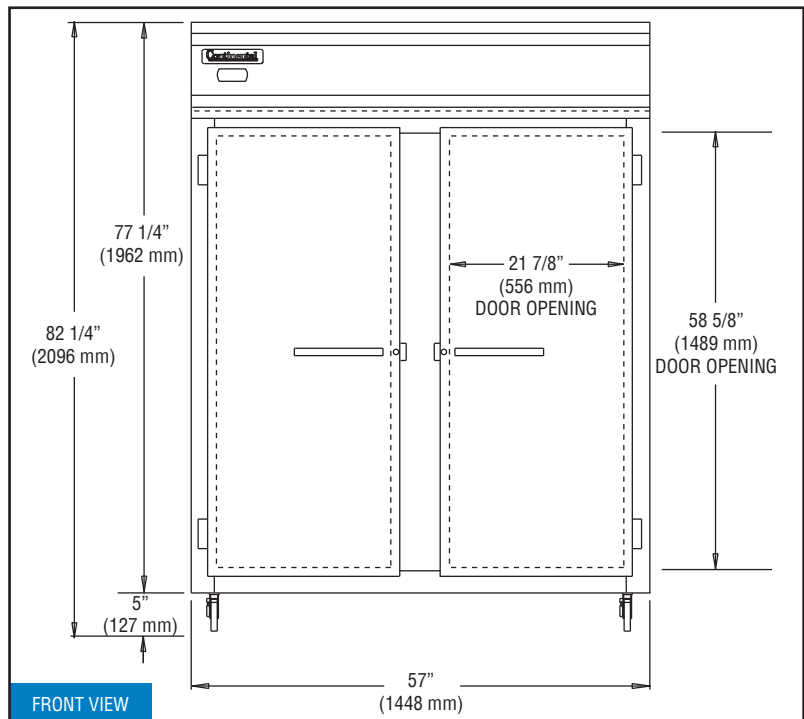
* Rating @ -15°F evaporator, 90°F ambient

Figures in parentheses reflect metric equivalents rounded to the nearest whole unit.



Equipped with one NEMA-5-15P Plug
(varies by country)

Model Plan Views



IMPORTANT NOTE: If the cabinet is located directly against a wall and/or under a low ceiling, a minimum clearance of 12" is required on top and 3" on sides and rear.

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PROPOSED ALTERNATE 3



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PROJECT NAME	LOCATION		AIA #
ITEM #	QTY	MODEL #	SIS #

SPEC SERIES®

REACH-IN SOLID SWING DOOR FREEZERS WITH HYDROCARBON REFRIGERANT

models	STR2F-2S-HC	STA2F-2S-HC	STG2F-2S-HC
--------	-------------	-------------	-------------



STR2F-2S-HC

Exterior	Stainless steel door, front & sides.
Interior	Stainless steel side walls, back, floor, door liner, & ceiling.
Shelving	(1) Interior kit option included per full section, factory installed.

STA2F-2S-HC

Exterior	Stainless steel door, front & sides.
Interior	Aluminum side walls & back. Stainless steel floor & ceiling.
Shelving	(3) Heavy duty, chrome plated, wire shelves per section.

STG2F-2S-HC

Exterior	Stainless steel door & front, with matching aluminum sides.
Interior	Aluminum side walls & back. Stainless steel floor & ceiling.
Shelving	(3) Heavy duty, PVC coated, wire shelves per section.

SPECIFICATIONS

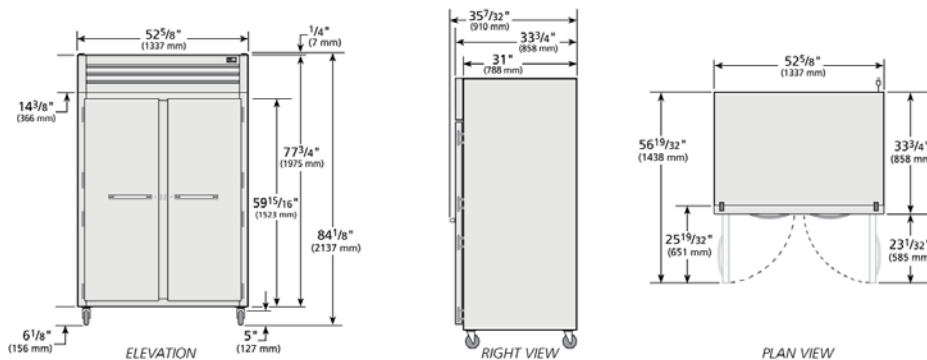
Dimensions	in.	mm.
Length	52 $\frac{5}{8}$	1337
Depth	33 $\frac{3}{4}$	858
Height	77 $\frac{3}{4}$	1975
Electrical	U.S.	International
Horsepower	1 $\frac{1}{4}$	N/A
Amps	9.4	N/A
Voltage	115/60/1	
NEMA	5-15P	
Cord Length	9 ft.	2.74 M.



115/60/1
NEMA-5-15R

* Height does not include 6 $\frac{3}{8}$ " (156 mm) for castors or 6" (153 mm) for optional legs. Height does not include $\frac{1}{4}$ " (7mm) for system mechanical components.
† Depth does not include 1 $\frac{1}{2}$ for door handle.

plan view



Specifications subject to change without notice.
Chart dimensions are rounded up to the nearest $\frac{1}{8}$ " (millimeters rounded up to the next whole number).



PROJECT NAME	LOCATION	AIA #
ITEM #	QTY	MODEL #
		SIS #

SPEC SERIES®

REACH-IN SOLID SWING DOOR FREEZERS WITH HYDROCARBON REFRIGERANT

models	STR2F-2S-HC	STA2F-2S-HC	STG2F-2S-HC
--------	-------------	-------------	-------------



standard features

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains -10°F (-23.3°C) temperatures. Ideal for both frozen foods and ice cream.
- State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
- Top mounted refrigeration system with evaporator positioned out of food zone to maximize capacity.
- Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.
- Automatic evaporator fan motor delay during defrost cycle.

CABINET CONSTRUCTION

- Insulation - entire cabinet structure and solid door are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- 5" (127 mm) diameter plate castors - locks provided on front set.

DOORS

- Lifetime guaranteed bolt style door locks standard.
- Lifetime guaranteed heavy duty all metal working door handles.
- Positive seal self-closing door with 120° stay open feature. Lifetime guaranteed external cam lift door hinges, four (4) per door section.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

SHELVING

- One (1) factory installed interior kit option. Four (4) different interior kits available (see Kit Options). Pilasters and tray slides are factory installed at no charge.

LIGHTING

- LED interior lighting, safety shielded.

MODEL FEATURES

- Exterior digital temperature display, available with either °F or °C.
- Evaporator epoxy coated to eliminate the potential of corrosion
- Curb mounting ready.
- NSF/ANSI Standard 7 compliant for open food product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.

OPTIONAL FEATURES/ ACCESSORIES

(upcharge & lead times may apply)

- 6" (153 mm) standard legs.
- 6" (153 mm) seismic/flanged legs.
- 6" (153 mm) stainless steel legs.

- Field reversible hinge.
- Additional shelves.
- Stainless back. (STR, STA, STG)
- Security package.

SHELVING KIT OPTIONS

- STR series kits factory installed at no charge. STA & STG series kits field installed, upcharge applies, lead times may apply.
- Kit #1: Nine (9) sets of #1 type tray slides and pilasters (field installed), bottom support of one (1) 18"L x 26"D (458 mm x 661 mm) pan or two (2) 14"L x 18"D (356 mm x 458 mm) pans.
- Kit #2: One (1) set half-section #2 steel rod tray slides and pilasters (field installed), rim support of one (1) 18"L x 26"D (458 mm x 661 mm) pan.
- Kit #3: Six (6) sets of universal type tray slides and pilasters (field installed), bottom support of one (1) 18"L x 26"D (458 mm x 661 mm) pan, two (2) 14"L x 18"D (356 mm x 458 mm) pans or two (2) 12"L x 20"D (305 mm x 508 mm) pans.
- Kit #4: Three (3) chrome shelves 26 5/16"L x 21 5/16"D (669 mm x 548 mm). Optional wall mounted shelf support pilasters (field installed) with four (4) shelf clips per shelf available; adjustable on 1/2" (13 mm) increments (must order at time of cabinet order).
- Additional kit option components available individually.

WARRANTY

Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



Model	Elevation	Right	Plan	3D	Back
ST()2F-2S-HC					

Reach-In Freezer – Single Cutsheets

DESIGNER LINE FREEZER

Model: DL1F**1-Section Reach-In Freezer (0°F)
with Solid Door**

DL1F - Stainless steel front, aluminum end panels and interior
DL1F-SA - Stainless steel exterior, aluminum interior
DL1F-SS - Stainless steel exterior and interior
Designed to maintain NSF-7 temperatures in 100°F ambient.


Designer Line
Options and Accessories

(upcharge and lead times may apply)

Stainless steel case back	Shallow depth
Add'l epoxy-coated steel shelves	Hinged glass door
Chrome or stainless steel shelves	Increased refrigeration systems
Pan slide assemblies	Special electrical req. (consult factory)
Expansion valve system	Correctional Facility Options
Castors	• One way security screws
Custom laminates	• Locking hasp (lock not included)
Half doors	• Stainless steel mesh cover
Pass-Thru	• Coverless hinges

Consult factory for other model configurations, options and accessories.

Continental[®]
Refrigerator

Toll-Free: 800-523-7138
 Phone: 215-244-1400
 Fax: 215-244-9579

539 Dunksferry Road
 Bensalem, PA 19020
www.continentalrefrigerator.com

Project Name:

Model Specified:

Location:

Item No:

Quantity:

AIA #:

SIS #:

Standard Model Features**REFRIGERATION SYSTEM**

Environmentally-safe R-404A refrigerant

Self contained, performance-rated "plug" refrigeration system

Refrigeration system is readily accessible on top of cabinet, separate from the "food zone"

Automatic, hot gas condensate evaporator

CABINET ARCHITECTURE

3" non-CFC polyurethane foam insulation

Smooth, polished chrome workflow door handle

Cam action, lift off hinges

Self-closing door

Magnetic snap-in door gasket

Cylinder lock in door

Heavy-duty, epoxy-coated steel shelves

Adjustable 6" stainless steel legs

MODEL FEATURES

LED interior lighting

Electronic controller w/digital display & hi-low alarm

Top and side air distribution ducts

Cabinet upper side panels and refrigeration "plug" system can be removed and reinstalled at job site

Automatic electric defrost

Rehinging of door (in the field)

APPROVAL:

Model Specifications

DIMENSIONAL DATA

Net Capacity (cu. ft.)	21 (595 cu l)
Width, Overall (in.)	26 (660 mm)
Depth, Overall (in.) (incl. handle)	35 3/8 (899 mm)
Depth [less door] (in.)	32 (813 mm)
Depth [door open 90°] (in.)	55 1/2 (1410 mm)
Clear Door Width (in.)	19 3/8 (492 mm)
Clear Door Height (in.)	58 5/8 (1489 mm)
Height, Overall (in.) (incl. 6" legs)	83 1/4 (2115 mm)
No. of Doors	1
No. of Shelves	3
Shelf Area (sq. ft.)	20.4 (1.9 sq m)
Tray Slide Capacity	24 ea.

REFRIGERANT DATA

Condensing Unit Size (H.P.)	1/3
Capacity (BTU/Hr)*	1590

ELECTRICAL DATA

Voltage (int'l)	115/60/1 (220/50/1)
Feed Wires (incl. ground)	3
Total Amps (int'l)	6.3 (3.8)
Defrost Amps (int'l)	4.3 (2.2)
10 ft. Cord/Plug [attached] (int'l)	Yes (No)

SHIPPING DATA

Height - Crated (in.)	85 1/2 (2172 mm)
Width - Crated (in.)	31 5/8 (803 mm)
Depth - Crated (in.)	42 (1067 mm)
Volume - Crated (cu. ft.)	65 (1841 cu l)
Weight Std - Crated (lbs.)	335 (152 kg)
Weight SS - Crated (lbs.)	395 (179 kg)
Weight Std - Uncrated (lbs.)	235 (107 kg)
Weight SS - Uncrated (lbs.)	295 (134 kg)

* Rating @ -15°F evaporator, 90°F ambient

Figures in parentheses reflect metric equivalents rounded to the nearest whole unit.



Equipped with one NEMA-5-15P Plug
(varies by country)

Continental
Refrigerator

Toll-Free: 800-523-7138
Phone: 215-244-1400
Fax: 215-244-9579

539 Dunksferry Road
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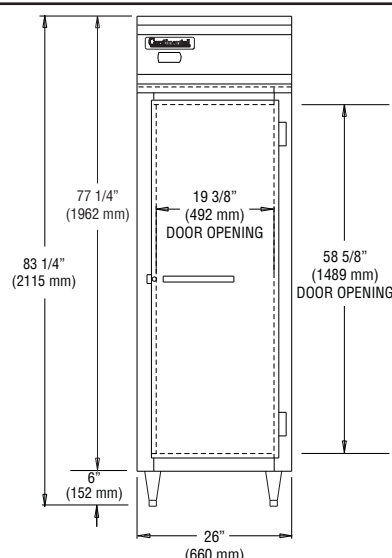
Due to our continued efforts in developing innovative products, specifications subject to change without notice.



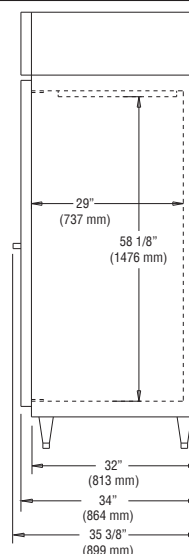
MADE IN THE U.S.A.

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Model Plan Views



FRONT VIEW



SIDE VIEW

IMPORTANT NOTE: If the cabinet is located directly against a wall and/or under a low ceiling, a minimum clearance of 12\"

REFRIGERATION SYSTEM

A "performance rated", air-cooled, hermetically sealed, capillary-type refrigeration system is installed on the top of each refrigerator. Plasticized fin coil and air circulation fans are contained within a concealed "plug"-type insulated housing, readily accessible on top of the cabinet and separate from the food zone to increase food storage capacity. The entire "plug" system is fully charged with environmentally safe R-404A refrigerant and mounted on a sturdy steel, rail-type base which can be easily removed if refrigerator conversion is desired. Freezers are designed to maintain 0°F (-18° Centigrade) while operating with an unrestricted air supply in a maximum ambient temperature of 100°F. All condensate water is evaporated by an automatic, non-electric, corrosion-resistant condensate evaporator. A strict quality-assurance team inspects all materials and components to certify that each model conforms to the most exacting standards. All models are factory performance-tested for a minimum of 12 hours prior to crating.

INSULATION

All cabinet walls, top and bottom have high density, foamed-in-place, non-CFC polyurethane insulation.

SHELVING

Shelves are designed for heavy-duty use with .306" diameter frame and brace members and .140" diameter fill wires spaced 3/4" apart. Shelves are welded steel and epoxy-coated for a durable, long, rust-free service life. Adjustments are in 1 inch increments and a wide door opening allows the use of a variety of optional pan and tray slide types.

CABINET CONSTRUCTION

All materials are of top quality, assembled to conform with strict quality-assurance requirements. The cabinet front is constructed of heavy-gauge polished stainless steel for durability. All cabinet joints and seams are sealed vapor-tight. Case is of all metal, welded construction and internally supported and braced for a rigid unit construction. Cabinet design eliminated overlapping panels with raw edges. Cabinet body is insulated with non-CFC, foamed-in-place polyurethane foam with an average thickness of 3 inches to ensure increased energy efficiency. Full-length louvered air grille located above the doors allows equal air circulation to the condensing unit. Easily removable, low-wattage, anti-sweat door heaters concealed by a non-metallic, non-conductive, high-impact thermal breaker strip eliminate condensate build-up on the cabinet front. Cabinets are equipped with 6 inch adjustable stainless steel legs.

DOOR CONSTRUCTION

Solid hinged door shell is constructed of heavy-gauge stainless steel and is internally braced and urethane-foam-insulated for rigidity. Door corners are welded construction and polished. Replaceable snap-in door gasket is self-adjusting, heavy-duty, magnetic type. Door handle and hinges are chrome-plated and non-corrosive. Door is provided with a built-in cylinder lock. Hinges are cam action, lift-off type featuring positive safety stop at 120 degrees.

UPRIGHT REACH-IN FREEZER TOP MOUNT CONDENSING UNIT

Project Name: _____

Project Location: _____

Model #: _____ Quantity: _____

Available Warehouse: _____

ES Series

Model: ESF1



**Operating temperature
range is -10°F ~ 54°F**



**5 YEAR Compressor
3 YEAR Parts & Labor**



Please visit our website for updated Energy Efficiency information

Refrigeration System

- Top mounted, self-contained and fully detachable condensing unit uses environmentally friendly R404A* refrigerant with zero (0) Ozone Depletion Potential (ODP) and EPA compliant R290 refrigerant with zero (0) Ozone Depletion Potential (ODP) and three (3) Global Warming Potential (GWP). R290 condensing units are replaceable and require no on-site brazing. *Ask about alternative refrigerant.
- PSC evaporator fan motors for R404A models. Electronically commutated (ECM) fan motors for R290 models.
- Airflow guard ensures optimal circulation of cold air. R290 models include full-length air duct system.
- Time-initiated and temperature-terminated auto defrost heater.
- Large capacity, corrosion-resistant condenser and evaporator coils.
- Self-maintaining, energy-efficient condensate drain pan requires no external drains or electric heaters.
- High performance condenser fan motors ensure efficient compressor ventilation. R290 models use auto-reverse condenser fan motors which also support condenser coil cleaning. Refer to owner's manual for full maintenance instructions.
- Pressure relief devices allow smooth access to cabinet interior when re-opening doors.
- Pre-wired and ready to plug, 115V/60Hz/1Ph, NEMA 5-15P.

Cabinet Construction

- Heavy duty stainless steel interior / exterior with rounded corners for a hazard-free workspace.
- Open spaced interior with no walls between compartments.
- Galvanized steel top, bottom and rear.
- 2.5" thick high density polyurethane insulation.
- Four 5" swivel casters with locks on front set and two front leg stabilizers.

Lighting

- Energy efficient silicone coated and shatter-proof LED lighting provides bright, high color illumination with low heat output.

Doors

- Heavy duty stainless steel interior / exterior.
- 2.5" thick high density polyurethane insulation.
- Frame heaters prevent exterior moisture build up.
- Self-closing with adjustable torsion system for a positive seal.
- Snap-in magnetic door gasket make cleaning and replacement an easy process.
- High strength, recessed door handles.
- Pre-installed door locks keep your items safe from theft.
- Field reversible.

Shelving

- Three epoxy coated, steel wire shelves per section.
- Height adjustable stainless steel clips.

Temperature Control

- Multi-function digital controller with easy to read LED display.
- Factory preset temperature, -4°F. Temperature setting range from -10°F to 54°F.
- R290 models include audible overheat protection alarm for compressor and condenser coil.

Options

- Additional shelving.
- 3" swivel casters with locks.
- 3.5" – 6" height-adjustable and interchangeable legs.
- Left hinged door.

Ref/ Frz/Dual	Doors	Capacity Cu. Ft.	Shelves	Refrigerant	HP	Power V-Hz-Ph	Amps	Crated Weight	Exterior Dimensions		
									L	D	H*
FRZ	1	23	3	R-290	1/2	115-60-1	5	312 lbs (141kg)	29.25" (743mm)	31.625" (803mm)	74.25" (1886mm)

(†)Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C). (►) Product capacity is calculated based on standard industry figures. (✱) Reference plan view for clarification on caster/unit height. If dimensions and capacity are critical, please contact Everest Refrigeration. Blizzard R290 replacement is at the sole discretion of Everest Refrigeration. Specifications subject to change without notice.

UPRIGHT REACH-IN FREEZER

TOP MOUNT CONDENSING UNIT

ES Series

Model: ESF1


DIMENSIONAL DATA

External Dimensions	L	29.25" (743mm)
	D	31.625" (803mm)
	H*	74.25" (1886mm)
Crated Weight		312 lbs. (141kg)
Doors/Drawers/Lids		1
Max Weight Support (LBS)		-

STORAGE DATA

Net Capacity Cu. Ft. ►	23
Shelves	3
Barrels	-
20 oz. Bottles	-
12 oz. Bottles	-
12 oz. Cans	-
8" Mugs	-
# of Pans (Top)	-
# of Pans (Drawer)	-
Dividers	-
Trays	-

ELECTRICAL DATA

Voltage	115-60-1
Full Load Amperage	5A
Feed Wires with Ground	3
Cord Length	9ft
NEMA Plug Type	 NEMA 5-15P

REFRIGERATION DATA

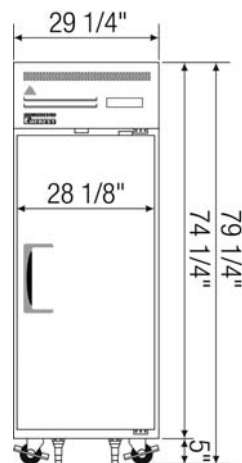
Compressor Mounting	Top
Refrigerant	R-290
Compressor HP	1/2
BTU/HR †	1670

KEY

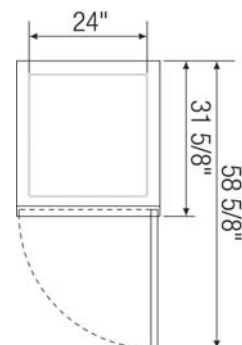
D	Door	R	Refrigerator
L	Lid	REF	Refrigerator
H	Half Door	F	Freezer
FD	Full Door	FRZ	Freezer
SD	Solid Door	DUAL	REF/FRZ Combo
GD	Glass Door	DR	Drawer

	Elevation	Right	Plan	3D	Back

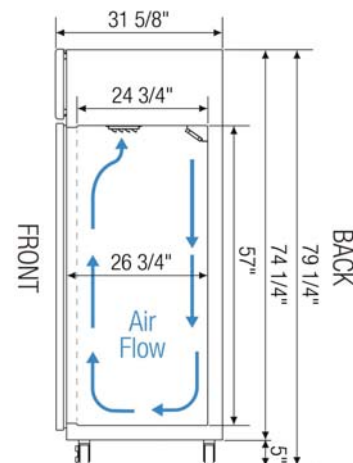
PLAN VIEW



FRONT



TOP



SIDE

ACCESSORIES & OPTIONS

Part Number	Description
Additional Shelving	Contact Everest Refrigeration for more information.
AJL03-00	Interchangeable Leg for Caster
CASA3-01	3" Overall Height Caster Assembly - (2) Front (2) Rear
Left Hinged Door	Contact Everest Refrigeration for more information.

(†)Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C). (►) Product capacity is calculated based on standard industry figures. (✱) Reference plan view for clarification on caster/unit height. If dimensions and capacity are critical, please contact Everest Refrigeration. Blizard R290 replacement is at the sole discretion of Everest Refrigeration. Specifications subject to change without notice.



PROJECT NAME	LOCATION		AIA #
ITEM #	QTY	MODEL #	SIS #

SPEC SERIES®

REACH-IN SOLID HALF SWING DOOR FREEZER WITH HYDROCARBON REFRIGERANT

models	STR1F-2HS-HC	STA1F-2HS-HC	STG1F-2HS-HC
--------	--------------	--------------	--------------



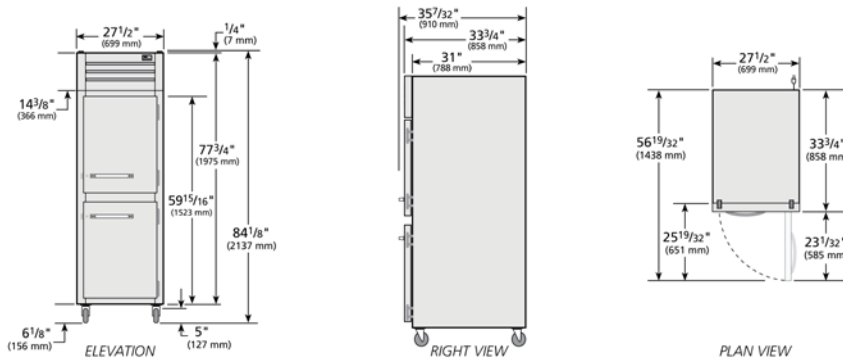
STR1F-2HS-HC	
Exterior	Stainless steel door, front & sides.
Interior	Stainless steel side walls, back, floor, door liner, & ceiling.
Shelving	(1) Interior kit option included per full section, factory installed.

STA1F-2HS-HC	
Exterior	Stainless steel door, front & sides.
Interior	Aluminum side walls & back. Stainless steel floor & ceiling.
Shelving	(3) Heavy duty, chrome plated, wire shelves per section.

STG1F-2HS-HC	
Exterior	Stainless steel door & front, with matching aluminum sides.
Interior	Aluminum side walls & back. Stainless steel floor & ceiling.
Shelving	(3) Heavy duty, PVC coated, wire shelves per section.

SPECIFICATIONS		
Dimensions	in.	mm.
Width	27½	699
Depth	33¾	858
Height	77¾	1975
Electrical	U.S.	International
Horsepower	½	N/A
Amps	6.0	N/A
Voltage	115/60/1	
NEMA	5-15P	
Cord Length	9 ft.	2.74 M.
115/60/1 NEMA-5-15R		
* Height does not include 6⅞" (156 mm) for castors or 6" (153 mm) for optional legs. Height does not include ¼" (7mm) for system mechanical components. † Depth does not include 1½ for door handle.		

plan view



Specifications subject to change without notice.
 Chart dimensions are rounded up to the nearest ⅛" (millimeters rounded up to the next whole number).



PROJECT NAME	LOCATION	AIA #
ITEM #	QTY	MODEL #
		SIS #

SPEC SERIES®

REACH-IN SOLID HALF SWING DOOR FREEZER WITH HYDROCARBON REFRIGERANT

models	STR1F-2HS-HC	STA1F-2HS-HC	STG1F-2HS-HC
--------	--------------	--------------	--------------



standard features

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains -10°F (-23.3°C) temperatures. Ideal for both frozen foods and ice cream.
- State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
- Top mounted refrigeration system with evaporator positioned out of food zone to maximize capacity.
- Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.
- Automatic evaporator fan motor delay during defrost cycle.

CABINET CONSTRUCTION

- Insulation - entire cabinet structure and solid door are foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

- 5" (127 mm) diameter plate castors - locks provided on front set.

DOORS

- Lifetime guaranteed bolt style door locks standard.
- Lifetime guaranteed heavy duty all metal working door handles.
- Positive seal self-closing doors with 120° stay open feature. Lifetime guaranteed external cam lift door hinges, four (4) per door section.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

LIGHTING

- LED interior lighting, safety shielded.

MODEL FEATURES

- Exterior digital temperature display, available with either °F or °C.
- Evaporator epoxy coated to eliminate the potential of corrosion
- Curb mounting ready.
- NSF/ANSI Standard 7 compliant for open food product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.

OPTIONAL FEATURES/ ACCESSORIES

(upcharge & lead times may apply)

- 6" (153 mm) standard legs.
- 6" (153 mm) seismic/flanged legs.
- 6" (153 mm) stainless steel legs.
- Field reversible hinge.

- Additional shelves.
- Stainless back. (STR, STA, STG)
- Security package.

SHELVING KIT OPTIONS

- STR series kits factory installed at no charge. STA & STG series kits field installed, upcharge applies, lead times may apply.
- Kit #1: Nine (9) sets of #1 type tray slides and pilasters (field installed), bottom support of one (1) 18"L x 26"D (458 mm x 661 mm) pan or two (2) 14"L x 18"D (356 mm x 458 mm) pans.
- Kit #2: One (1) set half-section #2 steel rod tray slides and pilasters (field installed), rim support of one (1) 18"L x 26"D (458 mm x 661 mm) pan.
- Kit #3: Six (6) sets of universal type tray slides and pilasters (field installed), bottom support of one (1) 18"L x 26"D (458 mm x 661 mm) pan, two (2) 14"L x 18"D (356 mm x 458 mm) pans or two (2) 12"L x 20"D (305 mm x 508 mm) pans.
- Kit #4: Three (3) chrome shelves 26 5/16"L x 21 1/16"D (669 mm x 548 mm). Optional wall mounted shelf support pilasters (field installed) with four (4) shelf clips per shelf available; adjustable on 1/2" (13 mm) increments (must order at time of cabinet order).
- Additional kit option components available individually.

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



Model	Elevation	Right	Plan	3D	Back
ST()1F-2HS-HC					

Reach-In Refrigerator – Double Cutsheets

DESIGNER LINE REFRIGERATOR

Model: DL2R

2-Section Reach-In Refrigerator

DL2R - Stainless steel front, aluminum end panels and interior
DL2R-SA - Stainless steel exterior, aluminum interior
DL2R-SS - Stainless steel exterior and interior
Designed to maintain NSF-7 temperatures in 100°F ambient.


Designer line

Options and Accessories

(upcharge and lead times may apply)

Stainless steel case back	Half doors
Additional epoxy-coated steel shelves	Pass-Thru
Chrome or stainless steel shelves	Shallow depth
Pan slide assemblies	Hinged glass doors
Rehinging of doors (consult factory)	Increased refrigeration systems
Expansion valve system	Special electrical req. (consult factory)
Wine display	Correctional Facility Options
Casters	• One way security screws
Dial thermometer	• Locking hasp (lock not included)
Remote models	• Stainless steel mesh cover
Custom laminates	• Coverless hinges

Consult factory for other model configurations, options and accessories.

Continental
Refrigerator

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 Phone: 215-244-1400
 Fax: 215-244-9579

539 Dunksferry Road
 Bensalem, PA 19020
www.continentalrefrigerator.com

Project Name:

Model Specified:

Location:

Item No:

Quantity:

AIA #:

SIS #:

Standard Model Features

REFRIGERATION SYSTEM

Environmentally-safe R-134a refrigerant

Self contained, performance-rated "plug" refrigeration system

Refrigeration system is readily accessible on top of cabinet, separate from the "food zone"

Automatic, hot gas condensate evaporator

CABINET ARCHITECTURE

3" non-CFC polyurethane foam insulation

Chrome-plated flow line handles

Cam action, lift off hinges

Self-closing doors

Magnetic snap-in door gaskets

Cylinder lock in door

Heavy-duty, epoxy-coated steel shelves

Adjustable 6" stainless steel legs

MODEL FEATURES

LED interior lighting

External digital thermometer

Energy saving switch for door heaters

Top and side air distribution ducts

Cabinet upper side panels and refrigeration "plug" system can be removed and reinstalled at job site

APPROVAL:

Model Specifications

DIMENSIONAL DATA

Net Capacity (cu. ft.)	50 (1416 cu l)
Width, Overall (in.)	52 (1321 mm)
Depth, Overall (incl. handles) (in.)	35 3/8 (899 mm)
Depth [less doors] (in.)	32 (813 mm)
Depth [doors open 90°] (in.)	55 1/2 (1410 mm)
Clear Door Width (in.)	19 3/8 (492 mm)
Clear Door Height (in.)	58 5/8 (1489 mm)
Height, Overall (incl. 6" legs) (in.)	83 1/4 (2115 mm)
No. of Doors	2
No. of Shelves	6
Shelf Area (sq. ft.)	40.8 (3.8 sq m)
Tray Slide Capacity	24 ea.

REFRIGERANT DATA

Condensing Unit Size (H.P.)	1/3
Capacity (BTU/Hr)*	2560

ELECTRICAL DATA

Voltage (int'l)	115/60/1 (220/50/1)
Feed Wires (incl. ground)	3
Total Amps (int'l)	6.5 (4.9)
10 ft. Cord/Plug [attached] (int'l)	Yes (No)

SHIPPING DATA

Height - Crated (in.)	85 1/2 (2172 mm)
Width - Crated (in.)	64 (1626 mm)
Depth - Crated (in.)	42 (1067 mm)
Volume - Crated (cu. ft.)	133 (3766 cu l)
Weight Std - Crated (lbs.)	535 (243 kg)
Weight SS - Crated (lbs.)	615 (279 kg)
Weight Std - Uncrated (lbs.)	365 (166 kg)
Weight SS - Uncrated (lbs.)	445 (202 kg)

* Rating @ +25°F evaporator, 90°F ambient

Figures in parentheses reflect metric equivalents rounded to the nearest whole unit.



Equipped with one NEMA-5-15P Plug
(varies by country)

Continental
Refrigerator

Toll-Free: 800-523-7138
Phone: 215-244-1400
Fax: 215-244-9579

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www.continentalrefrigerator.com

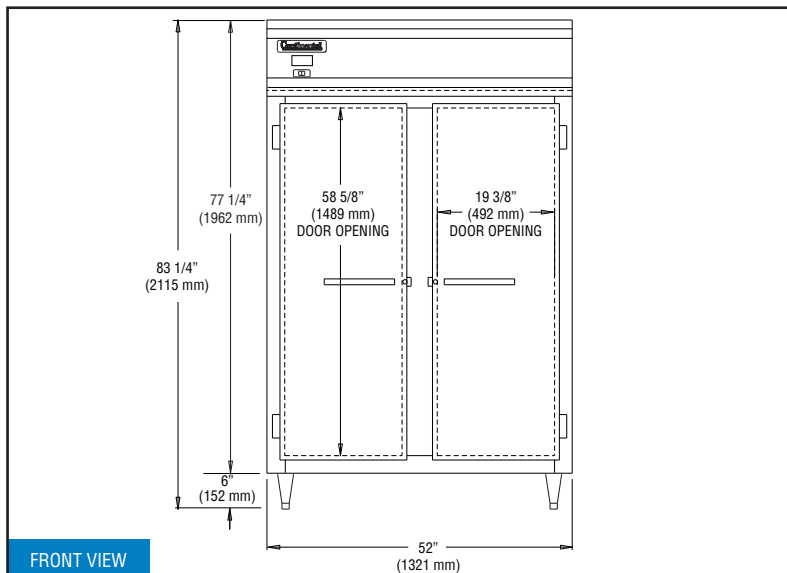
Due to our continued efforts in developing innovative products, specifications subject to change without notice.



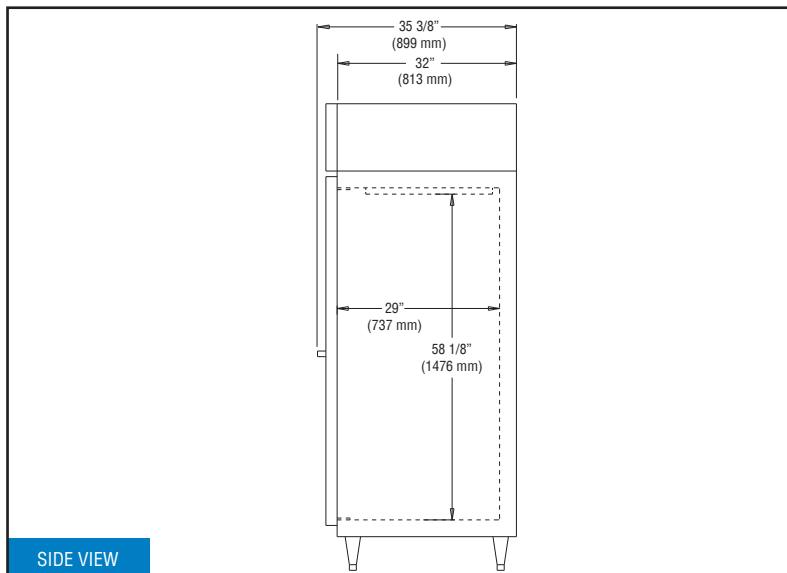
MADE IN THE U.S.A.

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Model Plan Views



FRONT VIEW



SIDE VIEW

IMPORTANT NOTE: If the cabinet is located directly against a wall and/or under a low ceiling, a minimum clearance of 12" is required.

REFRIGERATION SYSTEM

A "performance rated", air-cooled, hermetically sealed, capillary-type refrigeration system is installed on the top of each refrigerator. Plasticized fin coil and air circulation fans are contained within a concealed "plug"-type insulated housing, readily accessible on top of the cabinet and separate from the food zone to increase food storage capacity. The entire "plug" system is fully charged with environmentally safe R-134a refrigerant and mounted on a sturdy steel, rail-type base which can be easily removed if freezer conversion is desired. Refrigerators are designed to maintain 38°F-40°F (3°-5° Centigrade) while operating with an unrestricted air supply in a maximum ambient temperature of 100°F. All condensate water is evaporated by an automatic, non-electric, corrosion-resistant condensate evaporator. A strict quality-assurance team inspects all materials and components to certify that each model conforms to the most exacting standards. All models are factory performance-tested for a minimum of 16 hours prior to crating.

INSULATION

All cabinet walls, top and bottom have high density, foamed-in-place, non-CFC polyurethane insulation.

SHELVING

Shelves are designed for heavy-duty use with .306" diameter frame and brace members and .140" diameter fill wires spaced 3/4" apart. Shelves are welded steel and epoxy-coated for a durable, long, rust-free service life. Adjustments are in 1 inch increments and a wide door opening allows the use of a variety of optional pan and tray slide types.

CABINET CONSTRUCTION

All materials are of top quality, assembled to conform with strict quality-assurance requirements. The cabinet front is constructed of heavy-gauge polished stainless steel for durability. All cabinet joints and seams are sealed vapor-tight. Case is of all metal, welded construction and internally supported and braced for a rigid unit construction. Cabinet design eliminated overlapping panels with raw edges. Cabinet body is insulated with non-CFC, foamed-in-place polyurethane foam with an average thickness of 3 inches to ensure increased energy efficiency. Full-length louvered air grille located above the doors allows equal air circulation to the condensing unit. Easily removable, low-wattage, anti-sweat door heaters concealed by a non-metallic, non-conductive, high-impact thermal breaker strip eliminate condensate build-up on the cabinet front. Automatic interior lighting is activated by an easily accessible interior switch. Cabinets are equipped with 6 inch adjustable stainless steel legs.

DOOR CONSTRUCTION

Solid hinged door shells are constructed of heavy-gauge stainless steel and are internally braced and urethane-foam-insulated for rigidity. Door corners are welded construction and polished. Replaceable snap-in door gaskets are self-adjusting, heavy-duty, magnetic type. Door handles and hinges are chrome-plated and non-corrosive. Doors are provided with built-in cylinder locks which are keyed alike. Hinges are cam action, lift-off type featuring positive safety stop at 120 degrees.

DL2R (10/8/14)

PROPOSED ALTERNATIVE 1

REFRIGERATOR MANUFACTURER
Turbo air
 more durable, efficient, beautiful

4184 E. Conant St.
 Long Beach, CA 90808
 Tel. 310-900-1000
 Fax. 310-900-1077
www.turboairinc.com

Project:
 Model #:
 Item #:
 Available W/H: Qty:
 Approval:
 AIA #: SIS #:
 CSI Section 11400

Solid Door Refrigerator

Reach-In Top Mount
 M3 Series

FEATURES & BENEFITS

Self-Cleaning Condenser

The accumulation of dust in the condenser can cause the failure or breakdown of refrigerators. Refrigerators run normally until they reach a certain level of accumulation. At some point, when they are over the limit, their performance drops quickly resulting in damage to, or disposal of the stored products inside. The Self-Cleaning Condenser device keeps the condenser clean and prevents system failure by automatically brushing daily.

Digital temperature control & monitor system

- Keep food products safe by maintaining constant temperatures.
- Alarms that sound when doors are not sealed shut; protect against food spoilage that originates from cold air leaks.
- Early warning alarm program detects issues before malfunction occurs.
- Digital display allows for easy monitoring.
- Programs interpret the condition of refrigeration systems by self-diagnosis.
- Rapid cool-down function (Turbo cooling).
- Automatic evaporator fan motor delays.

Hydrocarbon refrigerants (R-290)

With innovative and eco-friendly technology, Turbo Air brings you hydrocarbon refrigerators designed to meet DOE's Energy Conservation Standards in 2017 and to use EPA's SNAP Program approved HC refrigerants. Hydrocarbon refrigerants do not deplete the ozone layer and have very low contribution to global warming (ODP-0, GWP-3).

Hot gas condensate system

Through Turbo Air's creative innovation, the condensate system surfaces have been specially treated to resist corrosion. This not only increases efficiency without the risk of refrigerant leakage from corrosion, but also thoroughly prevents the overflow of condensate water.

Stainless steel exterior

The Turbo Air M3 refrigerator model boasts a stainless steel exterior (galvanized steel top, bottom and back) and AL interior with stainless steel floor. It guarantees the utmost in cleanliness and long product life. Sharp corners and edges have been rounded to reduce the risk of injury. The M3 adds a touch of style to the most refined setting.

Door pressure release device

Pressure relief doors are designed to eliminate vacuum pressure and allow easy, instant door opening.

LED interior lighting

Adjustable, heavy duty, PE (polyethylene) coated wire shelves

High-density polyurethane insulation

The entire cabinet structure and solid doors are foamed-in-place using high density, CFC free polyurethane insulation.

Top mount compressor

Model : M3R47-2-N
M3R47-2-N-AL(-AR)



Patented Self-Cleaning Condenser



This product is equipped with a fine mesh filter to the front of the condenser to catch dust, and a rotating brush that moves up and down daily to remove excess buildup outward and away.

Refrigerator holds 33°F ~ 38°F for the best in food preservation

- M3R47-2-N: Left hinged + Right hinged
- M3R47-2-N-AL: All left hinged
- M3R47-2-N-AR: All right hinged

NATURAL Refrigerant




ENERGY STAR®
 Qualified
 (Standard hinged only)

Model	Swing Door	CU./FT.	#of Shelves	HP	AMPS	Crated Weight (lbs.)	L x D* x H† (inches)
M3R47-2-N(-AR)(-AL)	2	42.3	6	1/3	2.8	401	51 3/4 x 30 3/4 x 78

Solid Door Refrigerator

Reach-In Top Mount
M3 Series

Model : M3R47-2-N(-AL)(-AR)

ELECTRICAL DATA	
Voltage	115/60/1
Plug Type	 NEMA 5-15P
Full Load Amperes	2.8
Compressor HP	1/3
Feed Wires with Ground	3
Cord Length (ft.)	9
Refrigerant	R-290
DIMENSIONAL DATA	
# of Doors	2
# of Racks Accepted	2
Net Capacity (cu. ft.)	42.3
Ext. Length Overall (in.)	51 3/4 (1314mm)
Ext. Depth Overall (in.)*	30 3/4 (780mm)
Ext. Height Overall (in.)†	78 (1981mm)
Int. Length Overall (in.)	47 3/4 (1213mm)
Int. Depth Overall (in.)	26 1/2 (675mm)
Int. Height Overall (in.)	54 1/2 (1378mm)
# of Shelves	6
Shelf Size (L x D) (in.)	23 x 23 1/2
Gross Weight (lbs.)	401

Design and specifications subject to change without notice.

Actual shipping weight may differ due to extra packing materials for product protection.

* Depth does not include 2" for rear condensate enclosure.

† Height does not include 5" for caster height.

■ WARRANTY : 3 Year Parts and Labor Warranty Additional 2 Year Warranty on Compressor

■ STANDARD FEATURES

- Anti-corrosion coated evaporator
- Self-contained system
- Standard 4" dia. swivel casters with locks on the front set
- Door locks standard
- Magnetic door gaskets
- Solid and sturdy grille design

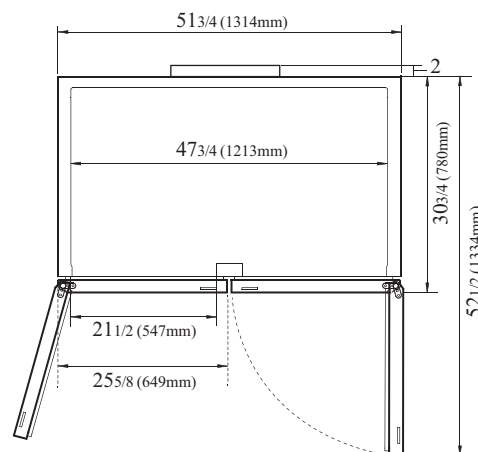
■ OPTIONAL ACCESSORIES

- 5" caster, 1/2" diameter & 13 TPI: M726500100 (non-brake), M726500200 (w/ brake)
- 6" stainless steel leg: 30221M0600
- Additional PE coated wire shelf: G8F1800101
- Half door bun tray rack: TSP-2224 (each holds up to six 18"L x 26"D sheet pans)
- Full door bun tray rack: TSP-2250 (each holds up to fifteen 18"L x 26"D sheet pans)

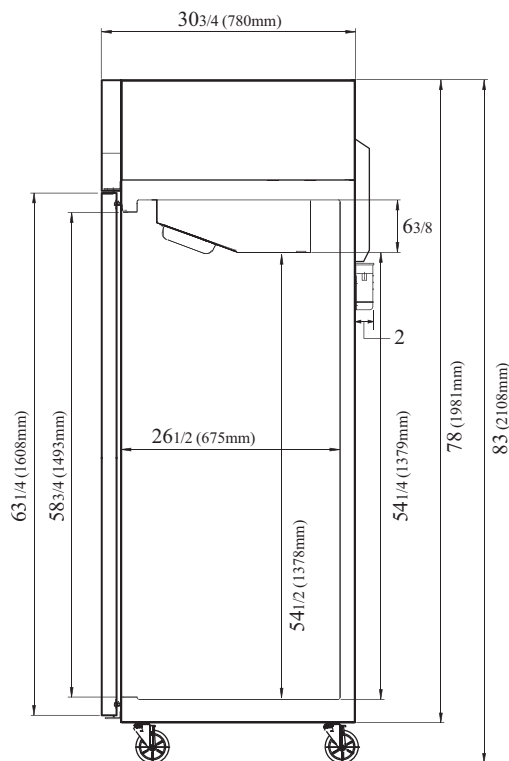
Ver.20210212

PLAN VIEW

(unit : inch)



TOP VIEW



SIDE VIEW



- Turbo Air : 800-627-0032 ■ GK : 800-500-3519
- Warranty : 800-381-7770 ■ AC : 888-900-1002



Continued product development may necessitate specification changes without notice.



SS Series

Solid Door Reach-In Refrigerators & Freezers

MODEL #178SS2RHC

CABINET CONSTRUCTION

Heavy duty all-stainless steel construction includes corrosion-resistant 304 stainless steel interior and durable 430 stainless steel exterior.

Foamed-in-place CFC- and HCFC-free polyurethane insulation enhances the structural integrity of the cabinet and helps increase energy efficiency.

Removable one-piece grill simplifies cleaning and servicing.

Stainless steel solid doors have stay-open feature beyond 90° for easy loading, but will self-close under 90° to save energy. Each door is outfitted with an easy-to-grasp full length handle

REFRIGERATION SYSTEM

Environmentally-safe R290 refrigerant. Bottom-mounted condensing unit positioned for easy maintenance.

"No stoop" lower shelf raises product to a higher level for easy access.

SHELVING

6 gray epoxy-coated steel shelves included. Each accommodates up to 120 lb.

MODEL FEATURES

Preprogrammed digital controls feature auto-defrost function.

Shelf rails accommodate full size food pans for storage flexibility. Optional bun pan rails accommodate full size bun pans.

Interior back panel separates shelf and back wall to promote proper airflow.

PROPOSED ALTERNATIVE 2

PROJECT: _____

MODEL: _____ SERIAL#: _____

ITEM #: _____ QUANTITY: _____

APPROVAL: _____ DATE: _____

SS SERIES REACH-IN REFRIGERATOR

Keep ingredients within a safe temperature range in a sleek, durable, and easy-to-clean environment

SPECIAL FEATURES

- Self-closing doors with convenient stay-open feature
- Easy-to-clean 430 series stainless steel exterior
- Corrosion-resistant 304 series stainless steel interior
- Temperature range of 33-40°F
- 6 shelves included; versatile shelf slide design also accepts full size food pans
- Environmentally-safe R290 refrigerant
- Digital temperature controller with automatic defrost function
- 115V; 1/4 HP
- ETL Safety & Sanitation Listed



WARRANTY

RESIDENTIAL: Avantco assumes no liability for parts or labor coverage for component failure, factory defect or any other damages for units installed in non-commercial foodservice or residential applications.



Parts & Labor



Compressor



★ Conforms to UL & NSF-7 Standards





SS Series Solid Door Reach-In Refrigerators & Freezers

MODEL #178SS2RHC

TECHNICAL DATA

Dimensions

Exterior Dimensions	54"W x 32¼"D x 82½"H
Interior Dimensions	49⅜"W x 27⅞"D x 60¼"H
Net Volume	41.3 cu. ft.
Net Weight	448 lb.
Gross Weight	530 lb.
Packaging Dimensions	56¼"W x 34¾"D x 85½"H

Construction

Exterior Material	430 Stainless Steel
Interior Material	304 Stainless Steel
Insulation Material	Foamed-In-Place Polyurethane
Shelf Size	(6) 20⅞"W x 25⅜"D
Shelf Material	Epoxy-Coated Steel
Shelf Load Capacity	120 lb.

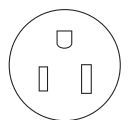
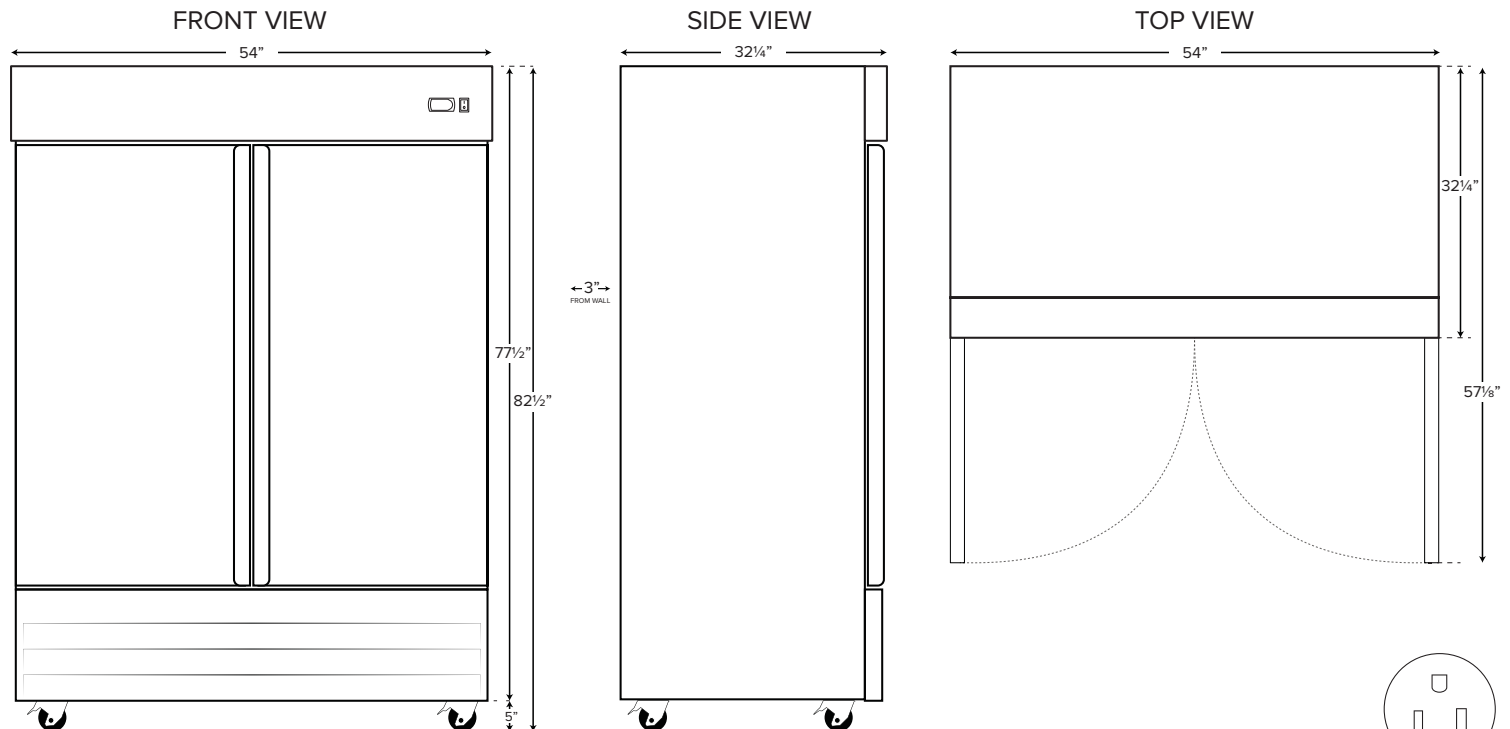
Cooling

Temperature Range	33°F - 40°F
Refrigerant	R290
Max. Ambient Temperature	100°F
Defrosting	Automatic
Temperature Controller	Digital
Horsepower	1/4

Electrical

Voltage	115
Amps	3.8
Hz	60
Phase	1
Plug Type	NEMA 5-15P
Electrical Cord Length	96"

PLAN VIEW



NEMA 5-15P

UPRIGHT REACH-IN REFRIGERATOR TOP MOUNT CONDENSING UNIT

Project Name: _____

Project Location: _____

Model #: _____ Quantity: _____

Available Warehouse: _____

ES Series

Model: ESR2



Refrigeration System

- Top mounted, self-contained and fully detachable Blizzard R290 condensing unit uses environmentally friendly, EPA-compliant R290 refrigerant with zero (0) Ozone Depletion Potential (ODP) and three (3) Global Warming Potential (GWP). Blizzard R290 is easily replaceable and requires no on-site brazing.
- Electronically commutated (ECM) fan motors achieve rapid cooling with less energy consumption.
- Full-length air duct system and airflow guard ensure optimal circulation of cold air.
- Time-initiated and temperature-terminated auto defrost cycle for seamless operation.
- Large capacity, corrosion-resistant condenser and evaporator coils.
- Self-maintaining, energy-efficient condensate drain pan requires no external drains or electric heaters.
- High performance, auto-reverse condenser fan motor supports compressor ventilation and condenser coil cleaning. Refer to owner's manual for full maintenance instructions.
- Pressure relief devices allow smooth access to cabinet interior when reopening doors.
- Pre-wired and ready to plug, 115V/60Hz/1Ph, NEMA 5-15P.

Cabinet Construction

- Heavy duty stainless steel interior / exterior with rounded corners for a hazard-free workspace.
- Open spaced interior with no walls between compartments.
- Galvanized steel top, bottom and rear.
- 2.5" thick high density polyurethane insulation.
- Four 5" swivel casters with locks on front set.

Lighting

- Energy efficient silicone coated and shatter-proof LED lighting provides bright, high color illumination with low heat output.

Doors

- Heavy duty stainless steel interior / exterior.
- 2.5" thick high density polyurethane insulation.
- Frame heaters prevent exterior moisture build up.
- Self-closing with adjustable torsion system for a positive seal.
- Snap-in magnetic door gasket make cleaning and replacement an easy process.
- High strength, recessed door handles.
- Pre-installed door locks keep your items safe from theft.
- Field reversible.

Shelving

- Three epoxy coated, steel wire shelves per section.
- Height adjustable stainless steel clips.

Temperature Control

- Multi-function digital controller with easy to read LED display.
- Factory preset temperature, 35°F. Temperature setting range from 33°F to 54°F.
- Audible overheat protection alarm for compressor and condenser coil.

Options

- Additional shelving.
- 3" swivel casters with locks.
- 3.5" – 6" height-adjustable and interchangeable legs.
- Left hinged door.

 **Operating temperature range is 33°F ~ 54°F**



**5 YEAR Compressor
3 YEAR Parts & Labor**



Please visit our website for updated Energy Efficiency information

Ref/ Frz/Dual	Doors	Capacity Cu. Ft.	Shelves	Refrigerant	HP	Power V-Hz-Ph	Amps	Crated Weight	Exterior Dimensions		
									L	D	H*
REF	2	48	6	R-290	1/4+	115-60-1	3.8	401 lbs (182kg)	49.625" (1260mm)	31.625" (803mm)	74.25" (1886mm)

(†)Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C). (►) Product capacity is calculated based on standard industry figures. (✱) Reference plan view for clarification on caster/unit height. If dimensions and capacity are critical, please contact Everest Refrigeration. Blizzard R290 replacement is at the sole discretion of Everest Refrigeration. Specifications subject to change without notice.

UPRIGHT REACH-IN REFRIGERATOR

TOP MOUNT CONDENSING UNIT

ES Series

Model: ESR2


DIMENSIONAL DATA

External Dimensions	L	49.625" (1260mm)
	D	31.625" (803mm)
	H*	74.25" (1886mm)
Crated Weight		401 lbs. (182kg)
Doors/Drawers/Lids		2
Max Weight Support (LBS)		-

STORAGE DATA

Net Capacity Cu. Ft. ►	48
Shelves	6
Barrels	-
20 oz. Bottles	-
12 oz. Bottles	-
12 oz. Cans	-
8" Mugs	-
# of Pans (Top)	-
# of Pans (Drawer)	-
Dividers	-
Trays	-

ELECTRICAL DATA

Voltage	115-60-1
Full Load Amperage	3.8A
Feed Wires with Ground	3
Cord Length	9ft
NEMA Plug Type	 NEMA 5-15P

REFRIGERATION DATA

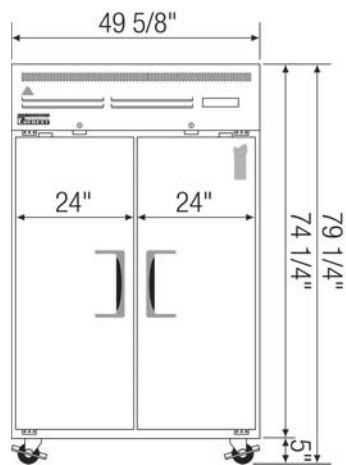
Compressor Mounting	Top
Refrigerant	R-290
Compressor HP	1/4+
BTU/HR †	1926

KEY

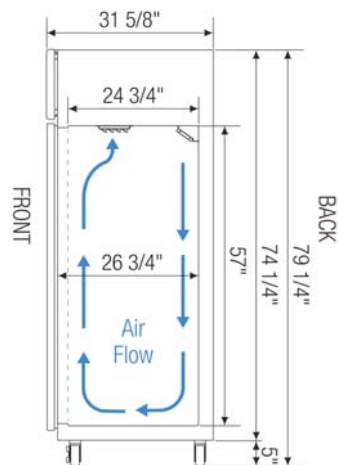
D	Door	R	Refrigerator
L	Lid	REF	Refrigerator
H	Half Door	F	Freezer
FD	Full Door	FRZ	Freezer
SD	Solid Door	DUAL	REF/FRZ Combo
GD	Glass Door	DR	Drawer

	Elevation	Right	Plan	3D	Back
					

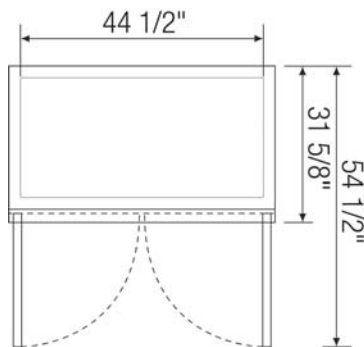
PLAN VIEW



FRONT



SIDE



TOP

ACCESSORIES & OPTIONS

Part Number	Description
Additional Shelving	Contact Everest Refrigeration for more information.
AJL03-00	Interchangeable Leg for Caster
CASA3-01	3" Overall Height Caster Assembly - (2) Front (2) Rear
Left Hinged Door	Contact Everest Refrigeration for more information.

(†) Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C). (►) Product capacity is calculated based on standard industry figures. (✱) Reference plan view for clarification on caster/unit height. If dimensions and capacity are critical, please contact Everest Refrigeration. Blizard R290 replacement is at the sole discretion of Everest Refrigeration. Specifications subject to change without notice.

Reach-In Refrigerator – Single Cutsheets

CURRENT SCA SPECIFICATION

DESIGNER LINE REFRIGERATOR

Model: **DL1RS**

1-Section Reach-In Refrigerator Shallow Depth

DL1RS - Stainless steel front, aluminum end panels and interior
DL1RS-SA - Stainless steel exterior, aluminum interior
DL1RS-SS - Stainless steel exterior and interior
Designed to maintain NSF-7 temperatures in 100°F ambient.



Options and Accessories

(upcharge and lead times may apply)

Stainless steel case back	Pass-Thru
Additional epoxy-coated steel shelves	Standard depth
Chrome or stainless steel shelves	Hinged glass door
Rehinging of door (consult factory)	Increased refrigeration systems
Expansion valve system	Special electrical req. (consult factory)
Wine display	Correctional Facility Options
Casters	• One way security screws
Dial thermometer	• Locking hasp (lock not included)
Remote models	• Stainless steel mesh cover
Custom laminates	• Coverless hinges
Half doors	

Consult factory for other model configurations, options and accessories.

Continental
Refrigerator

Toll-Free: 800-523-7138
Phone: 215-244-1400
Fax: 215-244-9579

539 Dunksferry Road
Bensalem, PA 19020
www.continentalrefrigerator.com

Project Name:

Model Specified:

Location:

Item No:

Quantity:

AIA #:

SIS #:

Standard Model Features

REFRIGERATION SYSTEM

Environmentally-safe R-134a refrigerant

Self contained, performance-rated “plug” refrigeration system

Refrigeration system is readily accessible on top of cabinet, separate from the “food zone”

Automatic, hot gas condensate evaporator

CABINET ARCHITECTURE

3” non-CFC polyurethane foam insulation

Chrome-plated flow line handle

Cam action, lift off hinges

Self-closing door

Magnetic snap-in door gasket

Cylinder lock in door

Heavy-duty, epoxy-coated steel shelves

Adjustable 6” stainless steel legs

MODEL FEATURES

LED interior lighting

External digital thermometer

Energy saving switch for door heater

Top and side air distribution ducts

Cabinet upper side panels and refrigeration “plug” system can be removed and reinstalled at job site

APPROVAL:

Model Specifications

DIMENSIONAL DATA

Net Capacity (cu. ft.)	16 (453 cu l)
Width, Overall (in.)	26 (660 mm)
Depth, Overall (incl. handle) (in.)	29 1/4 (743 mm)
Depth [less door] (in.)	25 7/8 (657 mm)
Depth [door open 90°] (in.)	49 1/2 (1257 mm)
Clear Door Width (in.)	19 3/8 (492 mm)
Clear Door Height (in.)	58 5/8 (1489 mm)
Height, Overall (incl. 6" legs) (in.)	83 1/4 (2115 mm)
No. of Doors	1
No. of Shelves	3
Shelf Area (sq. ft.)	20.4 (1.9 sq m)

REFRIGERANT DATA

Condensing Unit Size (H.P.)	1/4
Capacity (BTU/Hr)*	1940

ELECTRICAL DATA

Voltage (int'l)	115/60/1 (220/50/1)
Feed Wires (incl. ground)	3
Total Amps (int'l)	5.5 (3.5)
10 ft. Cord/Plug [attached] (int'l)	Yes (No)

SHIPPING DATA

Height - Crated (in.)	85 1/2 (2172 mm)
Width - Crated (in.)	31 5/8 (803 mm)
Depth - Crated (in.)	42 (1067 mm)
Volume - Crated (cu. ft.)	65 (1841 cu l)
Weight Std - Crated (lbs.)	300 (136 kg)
Weight SS - Crated (lbs.)	380 (172 kg)
Weight Std - Uncrated (lbs.)	220 (100 kg)
Weight SS - Uncrated (lbs.)	280 (127 kg)

* Rating @ +25°F evaporator, 90°F ambient

Figures in parentheses reflect metric equivalents rounded to the nearest whole unit.



Equipped with one NEMA-5-15P Plug
(varies by country)

Continental
Refrigerator

Toll-Free: 800-523-7138
Phone: 215-244-1400
Fax: 215-244-9579

539 Dunkserry Road
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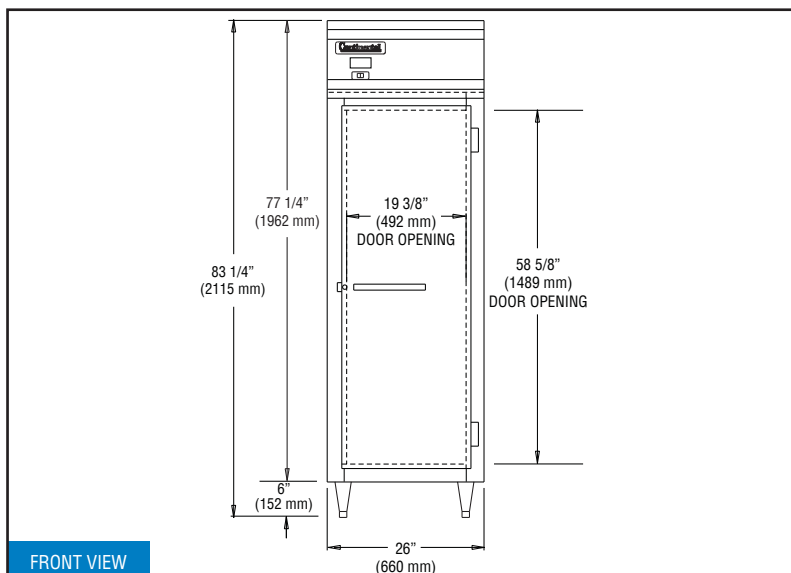
Due to our continued efforts in developing innovative products, specifications subject to change without notice.



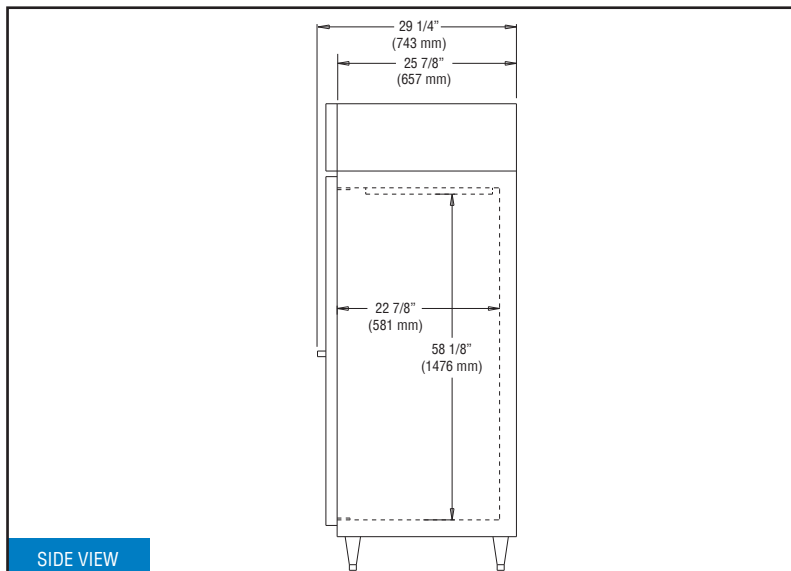
MADE IN THE U.S.A.

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Model Plan Views



FRONT VIEW



SIDE VIEW

IMPORTANT NOTE: If the cabinet is located directly against a wall and/or under a low ceiling, a minimum clearance of 12" is required.

REFRIGERATION SYSTEM

A "performance rated", air-cooled, hermetically sealed, capillary-type refrigeration system is installed on the top of each refrigerator. Plasticized fin coil and air circulation fans are contained within a concealed "plug"-type insulated housing, readily accessible on top of the cabinet and separate from the food zone to increase food storage capacity. The entire "plug" system is fully charged with environmentally safe R-134a refrigerant and mounted on a sturdy steel, rail-type base which can be easily removed if freezer conversion is desired. Refrigerators are designed to maintain 38°F-40°F (3°-5° Centigrade) while operating with an unrestricted air supply in a maximum ambient temperature of 100°F. All condensate water is evaporated by an automatic, non-electric, corrosion-resistant condensate evaporator. A strict quality-assurance team inspects all materials and components to certify that each model conforms to the most exacting standards. All models are factory performance-tested for a minimum of 16 hours prior to crating.

INSULATION

All cabinet walls, top and bottom have high density, foamed-in-place, non-CFC polyurethane insulation.

SHELVING

Shelves are designed for heavy-duty use with .306" diameter frame and brace members and .140" diameter fill wires spaced 3/4" apart. Shelves are welded steel and epoxy-coated for a durable, long, rust-free service life. Adjustments are in 1 inch increments and a wide door opening allows the use of a variety of optional pan and tray slide types.

CABINET CONSTRUCTION

All materials are of top quality, assembled to conform with strict quality-assurance requirements. The cabinet front is constructed of heavy-gauge polished stainless steel for durability. All cabinet joints and seams are sealed vapor-tight. Case is of all metal, welded construction and internally supported and braced for a rigid unit construction. Cabinet design eliminated overlapping panels with raw edges. Cabinet body is insulated with non-CFC, foamed-in-place polyurethane foam with an average thickness of 3 inches to ensure increased energy efficiency. Full-length louvered air grille located above the doors allows equal air circulation to the condensing unit. Easily removable, low-wattage, anti-sweat door heaters concealed by a non-metallic, non-conductive, high-impact thermal breaker strip eliminate condensate build-up on the cabinet front. Automatic interior lighting is activated by an easily accessible interior switch. Cabinets are equipped with 6 inch adjustable stainless steel legs.

DOOR CONSTRUCTION

Solid hinged door shells are constructed of heavy-gauge stainless steel and are internally braced and urethane-foam-insulated for rigidity. Door corners are welded construction and polished. Replaceable snap-in door gaskets are self-adjusting, heavy-duty, magnetic type. Door handles and hinges are chrome-plated and non-corrosive. Doors are provided with built-in cylinder locks which are keyed alike. Hinges are cam action, lift-off type featuring positive safety stop at 120 degrees.

DL1RS (10/8/14)

PROPOSED ALTERNATIVE 1

REFRIGERATOR MANUFACTURER Turbo air more durable, efficient, beautiful	4184 E. Conant St. Long Beach, CA 90808 Tel. 310-900-1000 Fax. 310-900-1077 www.turboairinc.com	
	Project:	
	Model #:	
	Item #:	
	Available W/H:	Qty:
	Approval:	
	ALA #:	SIS #:
	CSI Section 11400	

Solid Door Refrigerator

Reach-In Top Mount
M3 Series

Model : M3R19-1-N

FEATURES & BENEFITS

Self-Cleaning Condenser

The accumulation of dust in the condenser can cause the failure or breakdown of refrigerators. Refrigerators run normally until they reach a certain level of accumulation. At some point, when they are over the limit, their performance drops quickly resulting in damage to, or disposal of the stored products inside. The Self-Cleaning Condenser device keeps the condenser clean and prevents system failure by automatically brushing the condenser daily.

Digital temperature control & monitor system

- Keep food products safe by maintaining constant temperatures.
- Alarms that sound when doors are not sealed shut; protect against food spoilage that originates from cold air leaks.
- Early warning alarm program detects issues before malfunction occurs.
- Digital display allows for easy monitoring.
- Programs interpret the condition of refrigeration systems by self-diagnosis.
- Rapid cool-down function (Turbo cooling).
- Automatic evaporator fan motor delays.

Hydrocarbon refrigerants (R-290)

With innovative and eco-friendly technology, Turbo Air brings you hydrocarbon refrigerators designed to meet DOE's Energy Conservation Standards in 2017 and to use EPA's SNAP Program approved HC refrigerants. Hydrocarbon refrigerants do not deplete the ozone layer and have very low contribution to global warming (ODP-0, GWP-3).

Hot gas condensate system

Through Turbo Air's creative innovation, the condensate system surfaces have been specially treated to resist corrosion. This not only increases efficiency without the risk of refrigerant leakage from corrosion, but also thoroughly prevents the overflow of condensate water.

Stainless steel exterior

The Turbo Air M3 refrigerator model boasts a stainless steel exterior (galvanized steel top, bottom and back) and AL interior with stainless steel floor. It guarantees the utmost in cleanliness and long product life. Sharp corners and edges have been rounded to reduce the risk of injury. The M3 adds a touch of style to the most refined setting.

Door pressure release device

Pressure relief doors are designed to eliminate vacuum pressure and allow easy, instant door opening.

Field reversible door hinge

LED interior lighting

Adjustable, heavy duty, PE (polyethylene) coated wire shelves

High-density polyurethane insulation

The entire cabinet structure and solid doors are foamed-in-place using high density, CFC free polyurethane insulation.

Top mount compressor



Refrigerator holds 33°F ~ 38°F for the best in food preservation

Patented Self-Cleaning Condenser



This product is equipped with a fine mesh filter to the front of the condenser to catch dust, and a rotating brush that moves up and down daily to remove excess buildup outward and away.

NATURAL
Refrigerant

CEC
ISO9001:2008

ETL
Intertek

ETL
Intertek

3 YEAR
WARRANTY

ENERGY STAR
Qualified


ENERGY STAR®
Qualified

Model	Swing Door	CU./FT.	#of Shelves	HP	AMPS	Crated Weight (lbs.)	L x D* x H† (inches)
M3R19-1-N	1	18.7	3	1/4	2.5	194	25 1/4 x 31 1/2 x 72 1/8

Solid Door Refrigerator

Reach-In Top Mount
M3 Series

Model : M3R19-1-N

ELECTRICAL DATA	
Voltage	115/60/1
Plug Type	 NEMA 5-15P
Full Load Amperes	2.5
Compressor HP	1/4
Feed Wires with Ground	3
Cord Length (ft.)	9
Refrigerant	R-290
DIMENSIONAL DATA	
# of Doors	1
# of Racks Accepted	-
Net Capacity (cu. ft.)	18.7
Ext. Length Overall (in.)	25 1/4 (640mm)
Ext. Depth Overall (in.) *	31 1/2 (800mm)
Ext. Height Overall (in.) †	72 1/8 (1831mm)
Int. Length Overall (in.)	21 5/8 (550mm)
Int. Depth Overall (in.)	27 3/8 (694mm)
Int. Height Overall (in.)	58 1/4 (1478mm)
# of Shelves	3
Shelf Size (L x D) (in.)	20 1/2 x 23 3/4
Gross Weight (lbs.)	194

Design and specifications subject to change without notice.

Actual shipping weight may differ due to extra packing materials for product protection.

* Depth does not include 2" for rear condensate enclosure.

† Height does not include 5" for caster height.

■ **WARRANTY :** 3 Year Parts and Labor Warranty
Additional 2 Year Warranty on Compressor

■ STANDARD FEATURES

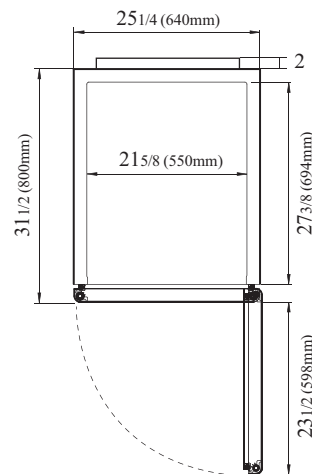
- Anti-corrosion coated evaporator
- Self-contained system
- Standard 4" dia. swivel casters with locks on the front set
- Door locks standard
- Magnetic door gaskets
- Solid and sturdy grille design

■ OPTIONAL ACCESSORIES

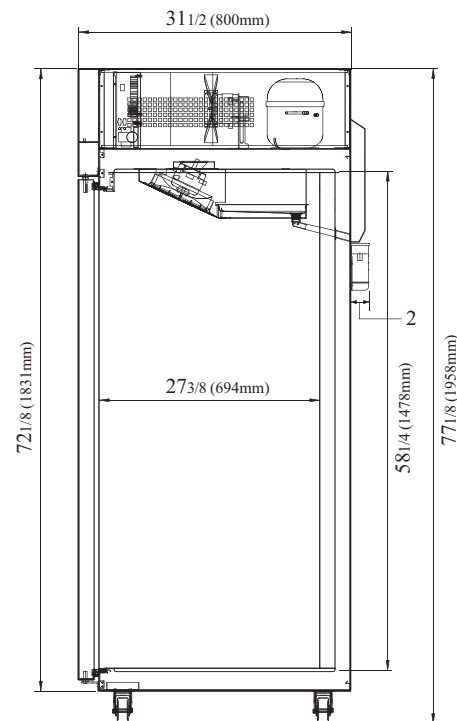
- 5" caster, 1/2" diameter & 13 TPI: M726500100 (non-brake), M726500200 (w/ brake)
- 6" stainless steel leg: 30221M0600
- Additional PE coated wire shelf: K1F9000103

PLAN VIEW

(unit : inch)



TOP VIEW



SIDE VIEW

Ver.20210105

NATURAL
Refrigerant



ENERGY STAR®
Qualified

■ Turbo Air : 800-627-0032 ■ GK : 800-500-3519
■ Warranty : 800-381-7770 ■ AC : 888-900-1002

REFRIGERATOR MANUFACTURER
Turbo air

GERMAN
KNIFE

RADIANCE

REFRIGERATION SYSTEM
Turbo air

Texaking

Continued product development may necessitate specification changes without notice.



SS Series

Half Door Reach-In Refrigerators & Freezers

MODEL #178SS1R2HC

PROPOSED ALTERNATIVE 2

PROJECT: _____
MODEL: _____ SERIAL#: _____
ITEM #: _____ QUANTITY: _____
APPROVAL: _____ DATE: _____

CABINET CONSTRUCTION

Heavy duty all-stainless steel construction includes corrosion-resistant 304 stainless steel interior and durable 430 stainless steel exterior.

Foamed-in-place CFC- and HCFC-free polyurethane insulation enhances the structural integrity of the cabinet and helps increase energy efficiency.

Removable one-piece grill simplifies cleaning and servicing.

Stainless steel solid half doors have stay-open feature beyond 90 degrees for easy loading, but will self-close under 90 degrees to save energy. Half door design releases minimal cold air when a door is opened.

REFRIGERATION SYSTEM

Environmentally-safe R290 refrigerant. Bottom-mounted condensing unit positioned for easy maintenance.

"No stoop" lower shelf raises product to a higher level for easy access.

SHELVING

3 epoxy-coated steel shelves included. Each accommodates up to 120 lb.

MODEL FEATURES

Preprogrammed digital controls features auto-defrost feature.

Shelf rails accommodate full size food pans for storage flexibility.

Optional bun pan rails accommodate full size bun pans.

Interior back panel separates shelf and back wall to promote proper airflow.

SS SERIES REACH-IN REFRIGERATOR

Keep ingredients within a safe temperature range in a sleek, durable, and easy-to-clean environment. Save energy and freshness by opening only half of the refrigerated space.

SPECIAL FEATURES

- 2 half-doors for easy access
- Self-closing doors with convenient stay-open feature
- Easy-to-clean 430 series stainless steel exterior
- Corrosion-resistant 304 series stainless steel interior
- Temperature range of 33-40°F
- 3 shelves included; versatile shelf slide design also accepts full size food pans
- Environmentally-safe R290 refrigerant
- Digital temperature controller with automatic defrost function
- 115V; 1/5 hp
- ETL Safety & Sanitation Listed



WARRANTY

RESIDENTIAL: Avantco assumes no liability for parts or labor coverage for component failure, factory defect or any other damages for units installed in non-commercial foodservice or residential applications.



★ Conforms to UL & NSF-7 Standards





SS Series

Half Door Reach-In Refrigerators & Freezers

MODEL #178SS1R2HC

TECHNICAL DATA

Dimensions

Exterior Dimensions	29"W x 32¼"D x 82½"H
Interior Dimensions	24⅜"W x 27⅞"D x 60¼"H
Net Volume	20.6 cu. ft.
Net Weight	282 lb.
Gross Weight	321 lb.
Packaging Dimensions	30¼"W x 34"D x 84½"H

Construction

Exterior Material	430 Stainless Steel
Interior Material	304 Stainless Steel
Insulation Material	Foamed-In-Place Polyurethane
Shelf Size	(3) 20⅞"W x 25⅜"D
Shelf Material	Epoxy-Coated Steel
Shelf Load Capacity	120 lb.

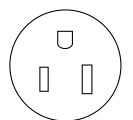
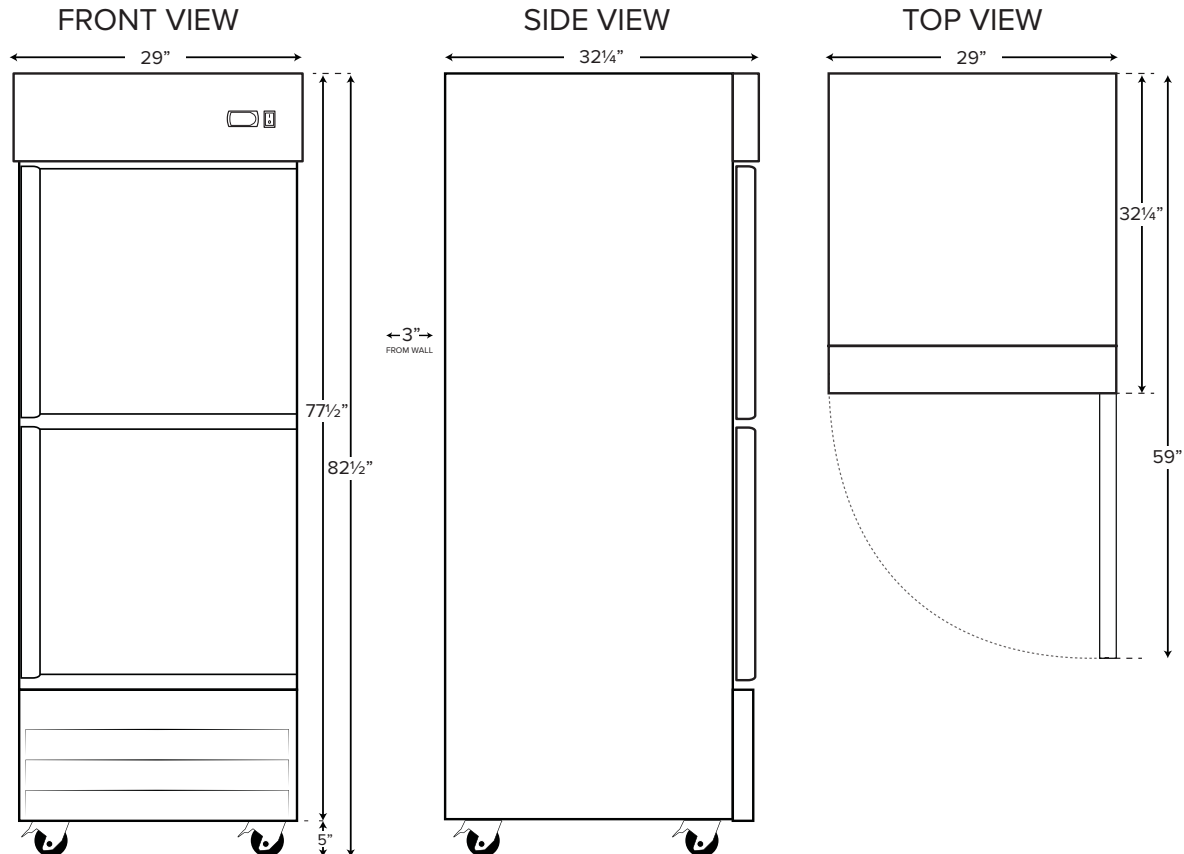
Cooling

Temperature Range	33°F - 40°F
Refrigerant	R290
Max. Ambient Temperature	100°F
Defrosting	Automatic
Temperature Controller	Digital
Horsepower	1/5

Electrical

Voltage	115
Amps	2.6
Hz	60
Phase	1
Plug Type	NEMA 5-15P
Electrical Cord Length	96"

PLAN VIEW



NEMA 5-15P

UPRIGHT REACH-IN REFRIGERATORS Top Mounted Condensing Unit

ES – Series • ESR1 • ESRH2 • ESR2 • ESRH4 • ESWR2 • ESR3



▲ ESR1



▲ ESRH2



▲ ESR2



▲ ESRH4



▲ ESWR2



▲ ESR3

Cabinet Construction

Heavy duty stainless steel interior and exterior, with galvanized steel finished top, bottom and back wall of exterior. ABS evaporator drain covers. 2.5" thick high density foamed-in-place polyurethane insulation. Four 4" diameter casters (front casters with brakes). Door heater installed around inside cabinet frame to prevent moisture build-up.

Refrigeration System

- Self-contained condensing unit located at top of cabinet for high performance
- Oversized condenser and evaporator coils quickly achieve and maintain desired temperature
- Forced-air cooling with multiple evaporator fan motors provide balanced airflow throughout cabinet to ensure faster temperature drop
- Environmentally friendly CFC free R-134A refrigerant
- Adjustable, time-initiated defrost cycle of 3 to 12 hours with 350 watt defrost heater, both time and temperature terminated for fail-safe operation
- Automatic evaporator fan motor delay after defrost cycle
- Copper tube and aluminum fin evaporator with anti-corrosive coating
- Exterior anodized aluminum drain pan for self sufficient condensation removal
- Pressure relief ports for rapid re-entry
- Interior airflow backguard to ensure proper air circulation
- Pre-wired and ready to plug, 115V/60Hz/1Ph, NEMA 5-15P

Lighting

- Shielded incandescent interior lighting

Doors

- Heavy duty stainless steel interior and exterior
- 2.5" thick high density foamed-in-place polyurethane insulation
- Rounded corners for a comfortable and hazard-free work space
- Heavy duty adjustable torsion spring self-closing door system
- One piece snap-in magnetic door gaskets for easy replacement
- Heavy duty recessed door handles for a flat surface
- Door locks
- Field reversible doors

Shelving

- Three epoxy coated wire shelves per section
- Stainless steel pilasters and shelf clips

Temperature Control

- Factory preset temperature, 35°F
- Temperature setting range from 33°F to 54°F
- Easy to read digital temperature display
- Easy to program push-button temperature control
- Microchip digital control and monitoring system with a variety of functions to monitor and maintain optimum temperature



5 YEAR Compressor
3 YEAR Parts & Labor

Dimensions

ABS Legs

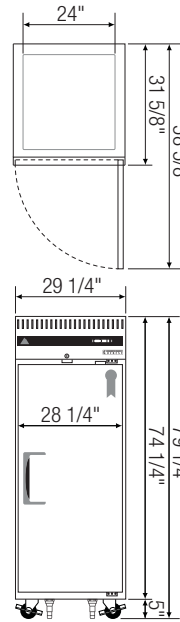
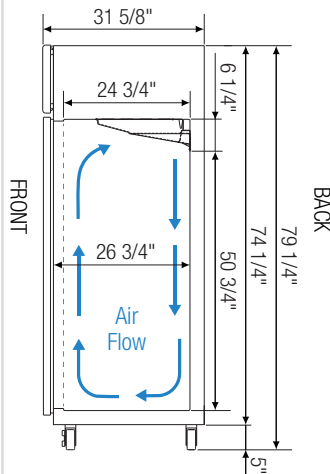


Two additional front adjustable stainless steel clad ABS legs for model ESR1 and ESRH2 to provide extra stability when opening and closing doors, and one additional leg for ESR3 for weight support.

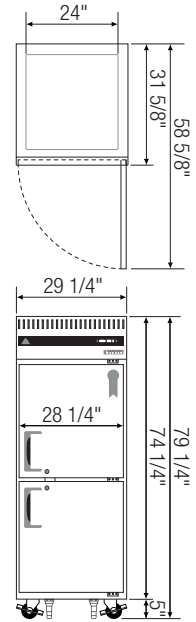


Equipped with 9 ft long NEMA 5-15P plug.

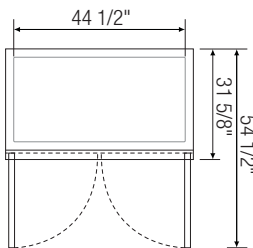
Side View



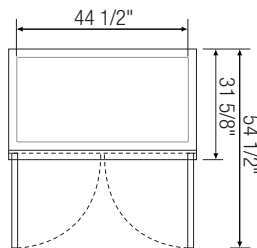
▲ ESR1



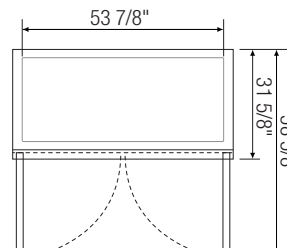
▲ ESRH2



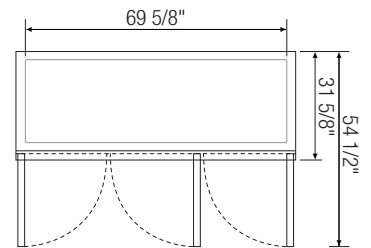
▲ ESR2



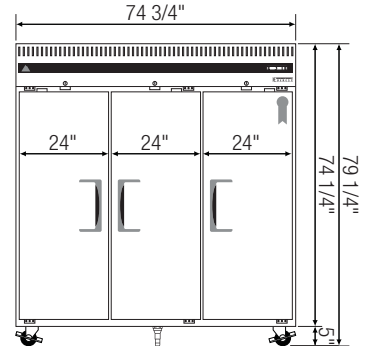
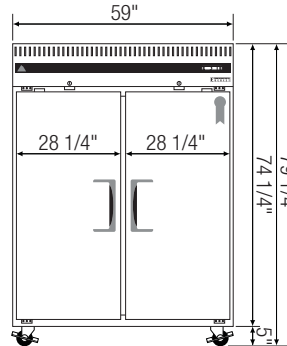
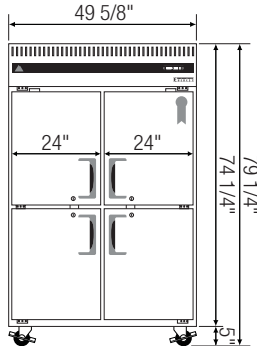
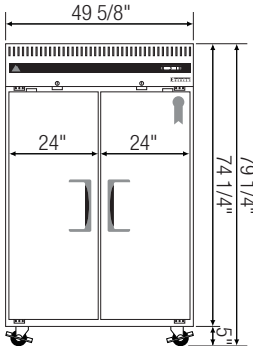
▲ ESRH4



▲ ESWR2



▲ ESR3



Model	Ref/ Frz/ Dual	# of Doors	Capacity (Cu.Ft.)	HP	BTU/HR [†]	Refrigerant	# of Shelves	Power (V-Hz-Ph)	Amps	Crated Weight (LBS)	Exterior Dimensions (Inches)		
											L	D	H*
ESR1	Ref	1	23	1/3	2,555	R-134A	3	115-60-1	4.92	297	29 1/4	31 5/8	74 1/4
ESRH2	Ref	2 (H)	23	1/3	2,555	R-134A	3	115-60-1	4.92	299	29 1/4	31 5/8	74 1/4
ESR2	Ref	2	48	1/3	2,555	R-134A	6	115-60-1	5.25	401	49 5/8	31 5/8	74 1/4
ESRH4	Ref	4 (H)	48	1/3	2,555	R-134A	6	115-60-1	5.25	398	49 5/8	31 5/8	74 1/4
ESWR2	Ref	2	55	1/3	2,555	R-134A	6	115-60-1	5.25	444	59	31 5/8	74 1/4
ESR3	Ref	3	71	1/3 x 2	2,555 x 2	R-134A	9	115-60-1	11.12	615	74 3/4	31 5/8	74 1/4

* : Height does not include 5" for casters.

† : Based on evaporating temperature of 23°F (-5°C) & condensing temperature of 131°F (55°C).

Ref = Refrigerator | (H) = Half Door

Specifications subject to change without notice.

Product dimensions are for general purposes and not absolute value. Product capacity(▶) is calculated based on standard industry figures. Slight variations may exist. If dimensions and capacity are critical, please contact Everest Refrigeration.



Please visit our website for updated Energy Efficiency information.

Sink Agitator Cutsheets

CURRENT SCA SPECIFICATION

PW-106 HYDRO-SURGE WASHING UNIT

PW-106 HYDRO-SURGE WASHING UNIT



Wells PW-106 Hydro-Surge Washing Unit makes clean up in the kitchen easier with its 1/3 h.p. motor that circulates 500 gallons of water per minute. It also simplifies the cleaning of vegetables, fruit and seafood, all without the need for plumbing connections.

Specifications

Dimensions:	Inches	MM
Overall Motor Length	11 1/2	290
Water Circulation:	500 gallons per minute	
Motor Horsepower:	1/3 hp	
Weights:	Lbs.	KG
Installed	41	19
Shipping	37	17

Features

- Cleans soiled pots and pans with a **powerful "figure 8" pattern water flow** for maximum cleaning with minimal effort.
- Circulates water at **500 gallons per minute** with a motor speed of **1725 R.P.M.**
- Pump housing and removable intake screen are **stainless steel**.
- Impeller is composed of **non-corrosive nickel-steel alloy**.
- All bearings are permanently sealed and **do not require lubrication**.
- Motor is equipped with an **automatic overload protector** to help prevent burnout.
- Power-on is activated by a **toggle switch** located on the motor.
- The PW-106 Hydro-Surge Washing Unit is **Underwriters Laboratories, Inc. LISTED**.
- A **one-year warranty** against defects covers parts and labor.

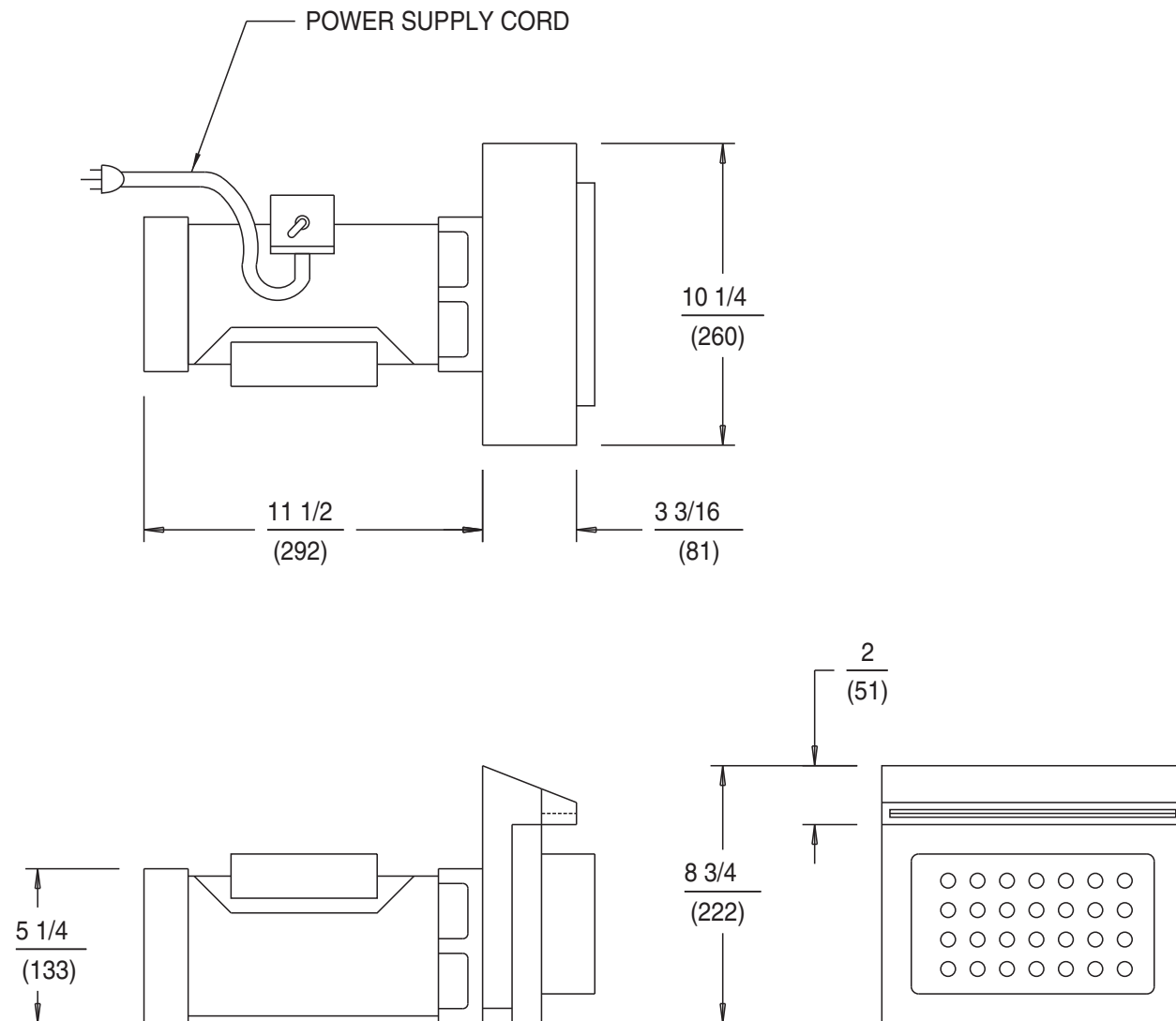




LISTED
E27255

**MODEL
PW-106
HYDRO-SURGE WASHING UNIT**

DIMENSIONS: $\frac{\text{INCH}}{(\text{MM})}$



PW-106 ELECTRICAL SPECIFICATIONS:

MODEL	VOLTS	MOTOR H/P	AMPS	POWER SUPPLY CORD
PW-106	120	1/3	6.0	NEMA 5-15P

NOTE: Specifications are subject to change without notice.

WELLS MANUFACTURING COMPANY
2 ERIK CIRCLE, PO BOX 280, VERDI, NV 89439 U.S.A.
USA PHONE: (775) 689-5700 • FAX: (775) 689-5972
FOR ORDERS ONLY: (888) 356-5362 • FAX: (800) 356-5142
www.wells-mfg.com
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08/02 • REV(H) • PART NO. 37102



WELLS

Sink Heater Cutsheets



CURRENT SCA SPECIFICATION

Project _____

Item # _____

Quantity _____

3CS2 Hydro-Heater Sanitizing Sink Heaters

Models: 3CS2-3, -4, -6

3CS2-3B, -4B, -6B, -9B

The patented Hatco 3CS2 Hydro-Heater Sanitizing Sink Heater maintains a continuous supply of sanitizing rinse water at 180° F (82° C). Designed to fit under the center of the sink, the 3CS2 is perfect for 3- or 4-compartment sinks, pot and pan sinks and bar sinks.

Standard features

- Uses a combination of "free-flow" technology and advanced electronic controls for circulation of hot water by natural convection in a sanitizing sink
- Heating elements are wrapped around the outside of the flow tube, reducing sediment and lime buildup on the element, resulting in longer life
- A special electronic controller maintains the setpoint temperature ensuring a responsive and efficient operation
- All models include a stainless steel front, powdercoated body, low-water cut-off system, convenient drain outlet and clean-out caps



3CS2-3
Patented with optional
auto-fill solenoid

Options (available at time of purchase only)

- ☐ All Stainless Steel Body and Base
- ☐ Auto-fill Solenoid
- ☐ Remote Mounted Control
- ☐ Security Package (Torx® Screws and Control Cover)

Accessories

- ☐ Flush Kit (Flush Hose, Cleaning Brush, Stopper and Adapter)

For operation, location and safety information,
please refer to the Installation & Operating Manual.



ANSI/NSF 4

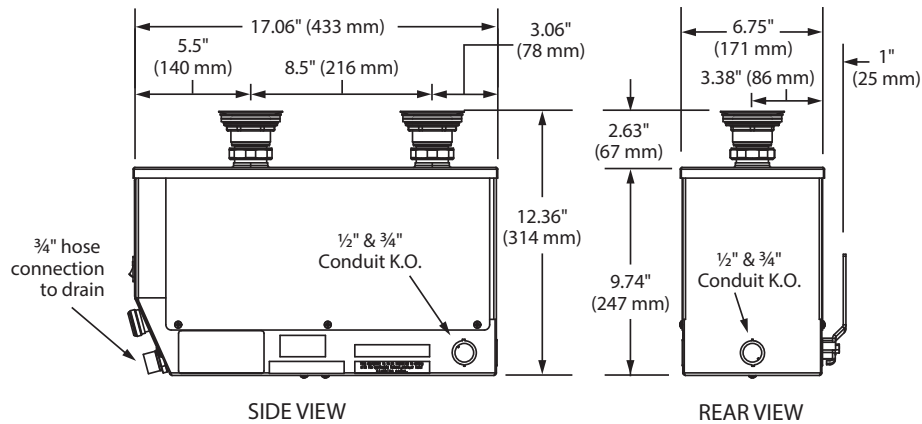


HATCO CORPORATION | P.O. Box 340500 Milwaukee, WI 53234-0500 U.S.A.
(800) 558-0607 | (414) 671-6350 | www.hatcocorp.com | support@hatcocorp.com



3CS2 Hydro-Heater Sanitizing Sink Heaters

Models: 3CS2-3, -4, -6, 3CS2-3B, -4B, -6B, -9B



SPECIFICATIONS

3CS2 Hydro-Heater Sanitizing Sink Heaters

Model	Dimensions (Width x Depth x Height)	Sink Area	Voltage 50/60Hz	kW	Phase	Amps	Wiring Sizing AWG†	Fuse or Circuit Breaker†	Ship Weight*
3CS2-3	7.75" x 17.06" x 12.36" (196 x 433 x 314 mm)	15" (381 mm) Sq. or less	208	3.0	Single	14.4	12	20	31 lbs. (14 kg)
3CS2-4		16-18" (406-457 mm) Sq.	208	4.0		19.2	10	30	
			240			16.7			
3CS2-6		19-21" (483-533 mm) Sq.	208	6.0		28.8	8	40	
3CS2-3B		15" (381 mm) Sq. or less	208	3.0	Three (Bal.)	8.4	14	15	35 lbs. (16 kg)
			240			7.3			
3CS2-4B		16-18" (406-457 mm) Sq.	208	4.0		11.2	14	20	
			240			9.6		15	
3CS2-6B		19-21" (483-533 mm) Sq.	208	6.0		16.7	12	30	
			240			14.5		20	
3CS2-9B	21-25" (533-635 mm) Sq.	208	9.0			25	10	40	

[‡] Wire size is based on THHN copper wire for branch circuit protection at 0.91 derate factor. Circuit breakers and fused disconnects are to be mounted remote and wired by contractor. Sizes are based on the 2002 NEC table 310-16. Conduit size based on conductors plus ground wire sizing.

[†] Based upon THHN wire rated 90°C.

* Shipping weight includes packaging.

WATER QUALITY REQUIREMENTS

Incoming water in excess of 3.0 grains of hardness per gallon (GPG) (.75 grains of hardness per liter) must be treated and softened before being supplied to water heater(s). Water containing over 3.0 GPG (.75 GPL) will decrease the efficiency and reduce the operating life of the unit.

Note: Product failure caused by liming or sediment buildup is not covered under warranty.

SIZING INFORMATION

For a Sink Heater: MINIMUM 2000 WATTS (2.2 WATTS PER SQUARE CM) PER SQUARE FOOT of vessel top.

3CS2 Sink Heaters are sized based on 140°F supply water with a 30 minute preheat period to reach the sanitizing temperature. Sink Heaters are mounted in the center of the third compartment sink with standard plumbing fittings provided. Two 2" diameter holes are required for these fittings and a full size template is provided to locate holes in the sink. The 3CS2 Sink Heater is easily attached to the plumbing fittings with self-contained unions.

PRODUCT SPECS

3CS2 Hydro-Heater Sanitizing Sink Heaters

The electric heater shall be a Hydro-Heater model manufactured by the Hatco Corporation, Milwaukee, WI 53234 U.S.A.

The electric heater to maintain the final sanitizing rinse in a third compartment sink shall be rated at ... kW, ... volts, ... phase. The heater shall be complete with all internal plumbing and wiring ready for external installation to the bottom of sink.

The sink heater shall be equipped with an On/Off switch, a low-water cut-off, and a digital temperature display. The heater shall consist of powdercoated black hammertone front and body (or optional stainless steel body and base).

Warranty consists of 24/7 parts and service assistance (U.S. and Canada only).

HATCO CORPORATION | P.O. Box 340500 Milwaukee, WI 53234-0500 U.S.A.
(800) 558-0607 | (414) 671-6350 | www.hatcocorp.com | support@hatcocorp.com

Steamer Cutsheets

E

ALTAIR II DOUBLE ELECTRIC BOILERLESS CONVECTION STEAMER

JOB NAME: _____

ITEM NO.: _____

NO. REQUIRED: _____

MODELS

- ☐ **Altair II - 8** - two Altair II-4 (four pan) steamers
- ☐ **Altair II - 10** - one Altair II-4 (four pan) and one Altair II-6 (six pan) steamer
- ☐ **Altair II - 12** - two Altair II-6 (six pan) steamers

DESCRIPTION

Altair II is a Market Forge convection/circulating boilerless steam oven with automatic water-fill, featuring internally preheated water for fast recovery, clean water reservoir system, and rear drain. Altair II models are efficiently heated by electrical elements external to the water reservoir. Four-pan steamers have 8 kW; six-pan steamers have 9.8 kW per compartment.

COOKING COMPARTMENT

Operation occurs from steam generated in the cooking compartment. The steamer cavity has a convection fan that increases steam velocity and provides efficient steam distribution throughout the cavity. Cooking compartment is constructed of cast aluminum with a food-grade non-stick hard anodized finish. The cooking compartment acts as a heat sink, allowing for heat retention, quick recovery, and reduced energy consumption.

STANDARD FEATURES

Controls:

- 4-Position cooking mode selector: OFF and 3 mode steaming - soft poach, traditional steam, high heat steam: or can be set to custom specifications up to 230°F (110°C)
- Pulls out for easy service access
- Clean Probe Indicator Light
- Heating Indicator Light
- 60-Minute Timer

Construction:

- 304 Stainless, #4 Finish (Cabinet)
- 356 Aluminum Cast Cooking Compartment with Hard-Anodized Finish

Other:

- Manual Front Drain Valve
- Internally Preheated Incoming Water for Quick Recovery
- Clean Water Reservoir System Keeps Food Out of the Water
- Condensate Trough Plumbed to Drain at Rear
- Redundant Safety Systems
- One-Year Parts and Service

Doors: The door is insulated. Safety shut-offs are provided by a hidden magnetic door switch, low water/high limit heat switch, temperature probe, water sensing probe and water-fill timer.



Altair II - 8

Altair II - 10

Altair II - 12

SHIPPING WEIGHT

- ☐ Altair II - 8 - 450 lbs (204 kg)
- ☐ Altair II - 10 - 475 (215 kg)
- ☐ Altair II - 12 - 500 (227 kg)

OPTIONS & ACCESSORIES

(at additional charge)

■ Pans & Covers

- ☐ 12" x 20" pan cover
- ☐ 12" x 20" x 1" solid pan
- ☐ 12" x 20" x 1" perforated pan
- ☐ 12" x 20" x 2-1/2" solid pan
- ☐ 12" x 20" x 2-1/2" perforated pan
- ☐ 12" x 20" x 4" solid pan
- ☐ 12" x 20" x 4" perforated pan
- ☐ 12" x 20" x 6" solid pan
- ☐ 12" x 20" x 6" perforated pan

■ Stands, Racks & Casters

- ☐ MSS - Mobile stand w/slide out shelf and under shelf
- ☐ SSS - Stationary stand w/slide out shelf and under shelf
- ☐ STSS - 12" tall stationary stand (Altair II-8 only)
- ☐ STSM - 16-5/8" tall mobile stand (Altair II-8 only)
- ☐ Pan rack assembly for MSS and SSS
- ☐ Set of 4 casters, 2 with brakes
- ☐ Prison package, includes lockable stainless steel hinged control cover, tamper proof screws, (2) 4" adjustable front flanged feet
- ☐ Heat and water side shield
- ☐ Water hose kit - 60" line with quick disconnect

FOOD SERVICE EQUIPMENT
Electric Boilerless Steamer



Tel: (802) 658-6600 • Fax: (802) 864-0183 • www.marketforge.com

ELECTRICAL CHARACTERISTICS

ELECTRICAL (4 PAN STEAMER) 60 Hz			
Voltage	pH	kW	Amps
208	1	8	38.5
240	1	8	33.3
208	3	8	22.2
240	3	8	19.3
480	3	8	9.6

ELECTRICAL (6 PAN STEAMER) 60 Hz			
Voltage	pH	kW	Amps
208	1	9.8	47.1
240	1	9.8	40.8
208	3	9.8	27.2
240	3	9.8	23.6
480	3	9.8	11.8

CAPACITY

Pans	Altair II-8	Altair II-10	Altair II-12
12" x 20" x 2.5"	8	10	12
12" x 20" x 4"	4	6	8
12" x 20" x 6"	2	3	4

WATER SUPPLY & DRAIN

Good quality water feed is the responsibility of the owner. Water quality must be within the following general guidelines.

TDS: 40-125 ppm Hardness: 35-100 ppm pH: 7.0 - 8.5
 Silica: <13 ppm Chlorides: <25 ppm Chlorine: <0.2 ppm
 Chloramine: <0.2 ppm

The best defense against poor water quality is a water treatment system designed to meet your water quality conditions.

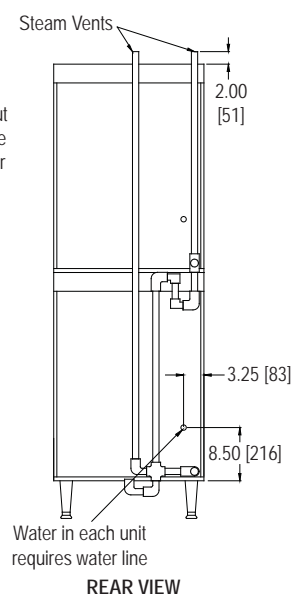
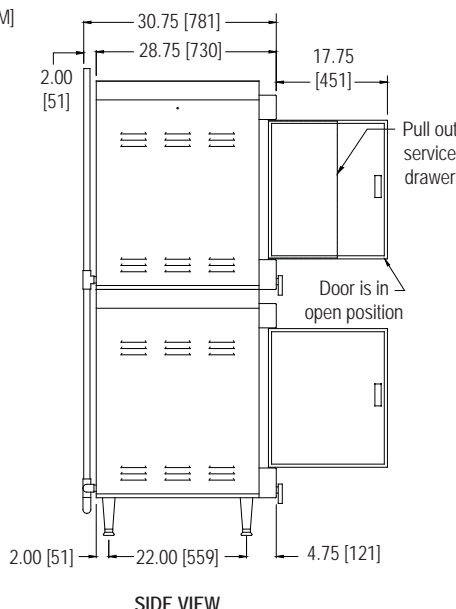
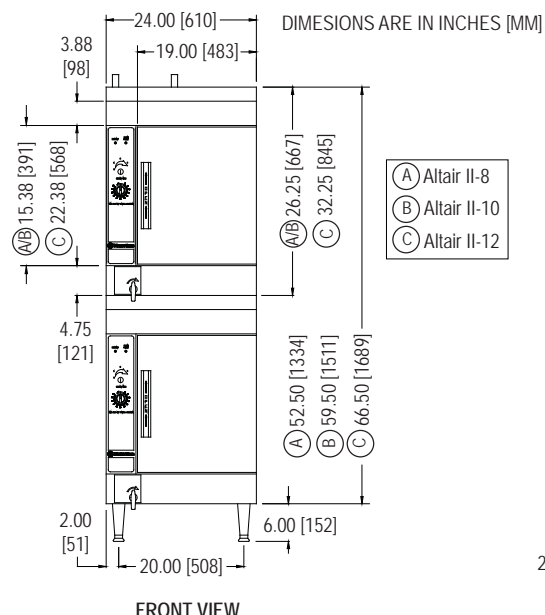
Pressure: 25(min)-50(max) PSI

Connections: Trough drain: 1/2 MNTP Drain out: 1" FNPT Water: 3/4" male garden hose
 Appliance to be installed with backflow protection according to federal, state or local codes.

The drain piping must consist of temperature resistant material, greater than 160°F, and be of adequate diameter not to cause flow restriction. Improper materials may deform and cause restrictions, thus affecting performance.

NOTES

- Each single compartment has a separate rear exiting drain plumbed directly into the stacked steamers main drain/vent line.
- 4" clearance left mandatory, right and rear is recommended.
- Location near a floor drain is recommended.
- Refer to electrical characteristics chart for voltage requirements of each steamer.
- Each compartment requires separate electrical & water connection.



The manufacturer reserves the right to modify materials and specifications without notice.

PROPOSED ALTERNATIVE 1



Project _____
Item# _____
FCSI Section _____
Quantity _____
Date _____

STANDARD FEATURES

- Cooking capacity for up to six 12"x20"x2.5" deep steam table pans.
- 304 Stainless Steel interior and exterior construction.
- Mirrored and #4 brushed interior finish.
- Steam flow directed over each pan from both left and right side of cooking chamber for more even cooking.
- NSF Approved Hold Mode with adjustable thermostat.
- Heavy duty refrigeration style door handle with magnetic latch.
- 60 minute timer with continuous cook and hold mode features.
- UL Listed, NSF Certified and exceeds Energy Star® performance levels.
- Electric heating element not exposed to water and requires no scheduled de-liming.
- Controls include options for both batch and à la carte cooking modes.
- Bullet feet, 6 foot cord and plug set included.
- One year Parts and Labor Warranty included.

STERLING STEAMER

**6-PAN HIGH EFFICIENCY
BOILERLESS CONVECTION STEAMER**



OPTIONS

- ☐ Automatic water fill controls; fills when main power is turned ON. Low and High Water probes located inside cooking chamber maintain water level during cooking, eliminating the need to manually maintain water level. Additional High Water Indicating Light and Buzzer included with this option.
- ☐ Extended Parts and Labor Warranty up to 5 years.

ACCESSORIES (SOLD SEPERATELY)

- ☐ Single unit stand with standard adjustable bullet feet.
- ☐ Single unit stand with casters.
- ☐ Double unit stand with standard adjustable bullet feet.
- ☐ Double unit stand with casters
- ☐ 4" drain pan (standard 4" steam table pan).
- ☐ Drain kit (for auto-fill units only).

SPECIFICATIONS

Single compartment connectionless steamer with capacity for 6 full size 2.5 inch or 4 full size 4 inch steam table pans. Requires no water or drain connection. Controls include adjustable hold thermostat with thermometer, 60 minute manual timer with settings for timed or continuous cook and a 2 position switch for batch or à la carte cooking. Dual steam impingement system for directing convection steam evenly over each pan from both sides. Mirror finish interior sides. Heavy duty 14 gauge cooking compartment and exterior door. Electric heating element mounted underneath chamber and not exposed to mineral or lime buildup. Four inch adjustable legs included. Power required, 208 or 240VAC, 60Hz, 1 or 3 phase.

Exterior Dimensions:

23"w x 30"d x 30"h.

UL Listed, NSF Certified and exceeds ENERGY STAR® performance levels.

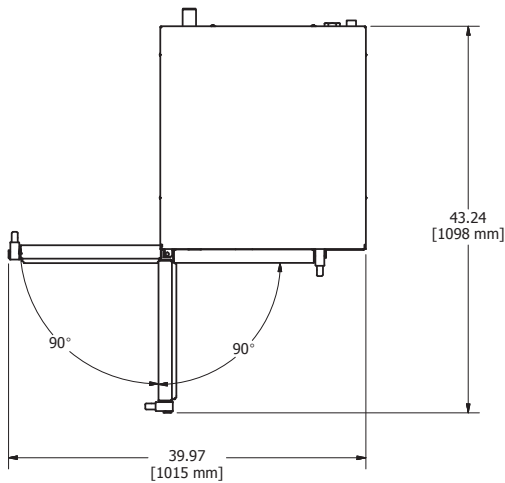


SM5D - SS623

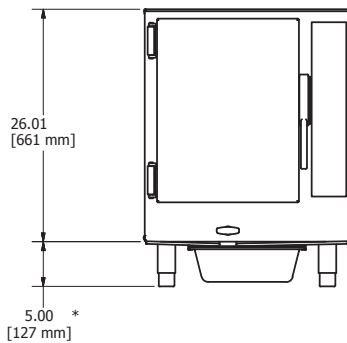
Page 1 of 3

STERLING STEAMER

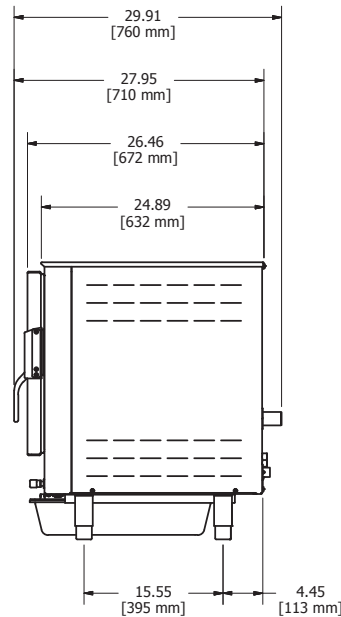
6-PAN HIGH EFFICIENCY BOILERLESS CONVECTION STEAMER



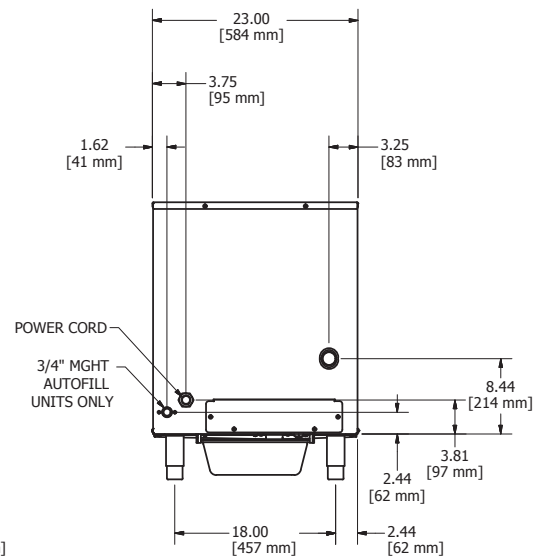
TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW



REAR VIEW

* Legs adjust from 4" - 6" (102 - 152mm)

Model Number	Volt/Hz/Phase	kW	NEMA Plug	Amps
Sterling Steamer Counter Top, 208V, Electric				
SP208-6-1-AF	208/60/1	6.23	L6-30P	29.95
SP208-10-1-AF	208/60/1	10.0	6-50P	48.08
SP208-10-3-AF	208/60/3	10.0	L15-30P	27.76
SP208-14-3-AF	208/60/3	14.4	15-50P	39.97
Sterling Steamer Counter Top, 240V, Electric				
SP240-6-1-AF	240/60/1	6.23	L6-30P	25.96
SP240-10-1-AF	240/60/1	10.0	6-50P	41.67
SP240-10-3-AF	240/60/3	10.0	L15-30P	24.06
SP240-14-3-AF	240/60/3	14.4	15-50P	34.64

Model Number	Volt/Hz/Phase	kW	NEMA Plug	Amps
Sterling Steamer Counter Top, 208V, Electric				
SP208-6-1-MF	208/60/1	6.23	L6-30P	29.95
SP208-10-1-MF	208/60/1	10.0	6-50P	48.08
SP208-10-3-MF	208/60/3	10.0	L15-30P	27.76
SP208-14-3-MF	208/60/3	14.4	15-50P	39.97
Sterling Steamer Counter Top, 240V, Electric				
SP240-6-1-MF	240/60/1	6.23	L6-30P	25.96
SP240-10-1-MF	240/60/1	10.0	6-50P	41.67
SP240-10-3-MF	240/60/3	10.0	L15-30P	24.06
SP240-14-3-MF	240/60/3	14.4	15-50P	34.64

WATER SUPPLY

Feed water for reservoir: 10 - 60 PSI, 32 - 175 ° F, 3/4" MGHT, Use NSF approved hose.

EQUIPMENT CLEARANCE

3" - Left, 3" - Right and 4" - Rear.

CAPACITY

Compartment holds: six 12"x 20"x 2.5" or four 12"x 20"x 4" Steam Table Pans.

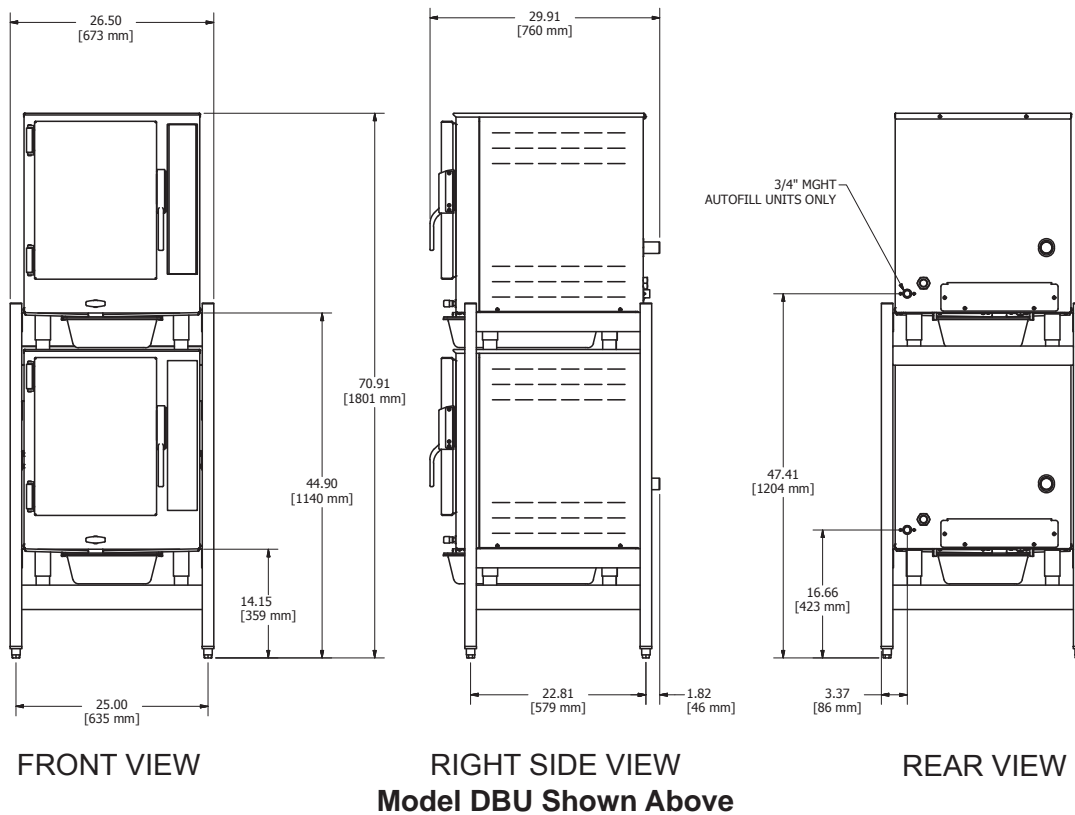
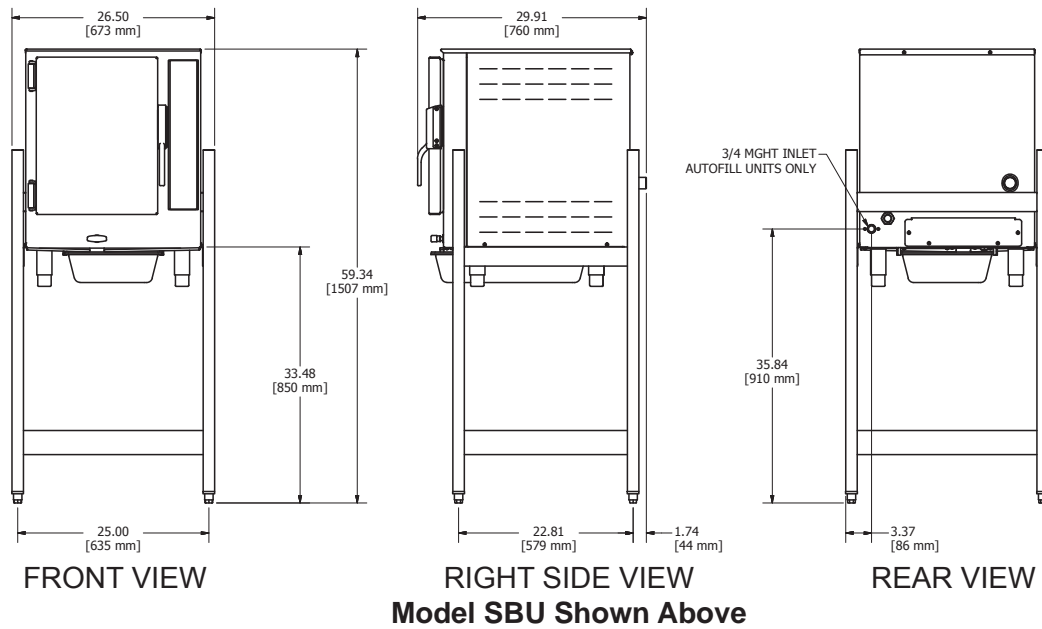
NOTE:

- It is the responsibility of the owner and installer to comply with local codes for installation.
- This appliance is manufactured for commercial installation only and is not intended for household use.



SMSD - SS623

Page 2 of 3



Note: Dimensions do not change for variations in Model Numbers. Bullet Feet and Flanged feet have a 1" adjustment.

Model Number	Steamer Capacity	Style
<i>Sterling Steamer Stand Selector</i>		
SCA	One	5" Caster
SBU	One	Adjustable Bullet Foot
SFL	One	Adjustable Flange Foot

Model Number	Steamer Capacity	Style
<i>Sterling Steamer Stand Selector</i>		
DCA	Two	5" Caster
DBU	Two	Adjustable Bullet Foot
DFL	Two	Adjustable Flange Foot



PROPOSED ALTERNATIVE 2



E6 DBL CONNECTED EVOLUTION™

2 Double Stacked, Stand-Mounted 6 Pan,
Electric Boilerless Convection Steamers

Project: _____ Location: _____ Item #: _____ Quantity: _____

Standard Features

- Fast cook times with patent-pending Steam Vector Technology, which utilizes no moving parts
- Cook mode and Variable Hold Temperature mode
- Easy-to-use digital controls, with digital temperature display
- Independent digital electronic timer with programmable preset
- Simple water and drain connections
- No water filtration or treatment required
- No warranty exclusions for water quality
- Uses less than 1.5 gallons of water per hour
- Front-mounted drain valve
- No scheduled de-liming or maintenance
- Door can be opened at any time during cooking cycle
- Cast aluminum heating element is not exposed to water
- Multiple kW heat inputs available for all cooking needs
- Steamer cavity constructed of reinforced 14 ga. 304 stainless steel
- Easy-to-clean control panel
- Automatic altitude compensation
- Dishwasher-safe one-piece wire pan racks
- Dishwasher-safe SVT steam collector and distributor panels
- Dishwasher-safe front-mounted condensate tray
- English and Spanish operating instructions on door
- Simplified service access panel
- Low water, high water and overtemp indicator lights
- (2) 5' power cords and plugs included, separate receptacle needed for each unit
- One year parts and labor warranty
- Lifetime Service & Support Guarantee
- UL LISTED Safety Certification (UL 197)
- UL EPH Sanitation Certification (NSF 4)

Optional Features

- Bullet Feet
- Stainless steel, ergo-lowl support stand available with casters, bullet feet or flanged feet
- Perforated cooking shelf

Safety, Sanitation & Environmental



- EPA 202 Evaluated / NFPA 96 4.1.1.2 Compliant



Pan Capacities

Pan Size	Qty.
#200 full size (12x20x2.5")	12
#400 full size (12x20x4")	8

Short Spec

Evolution steamer is AccuTemp Products' connected, boilerless steam cooker that utilizes AccuTemp's Patent Pending Steam Vector Technology for faster cook times, improved energy efficiency, better pan to pan uniformity, and less water consumption. Steam Vector Technology requires no moving parts inside the cooking chamber. Steam to be produced inside the cooking cavity with no heating element exposed to water. Easily connects to water and drain line. Uses less than 1.5 gallons of water per hour. Unit to include low water, high water, overtemp warning lights and auto shut off feature. Evolution to include heavy duty, field reversible door. Standard digital controls with independent timer. No water quality exclusions to warranty and no water filtration or treatment required. Unit to be UL Safety and Sanitation Certified, and Energy Star qualified. Built in USA. Steamers to be mounted on a stainless steel stand.

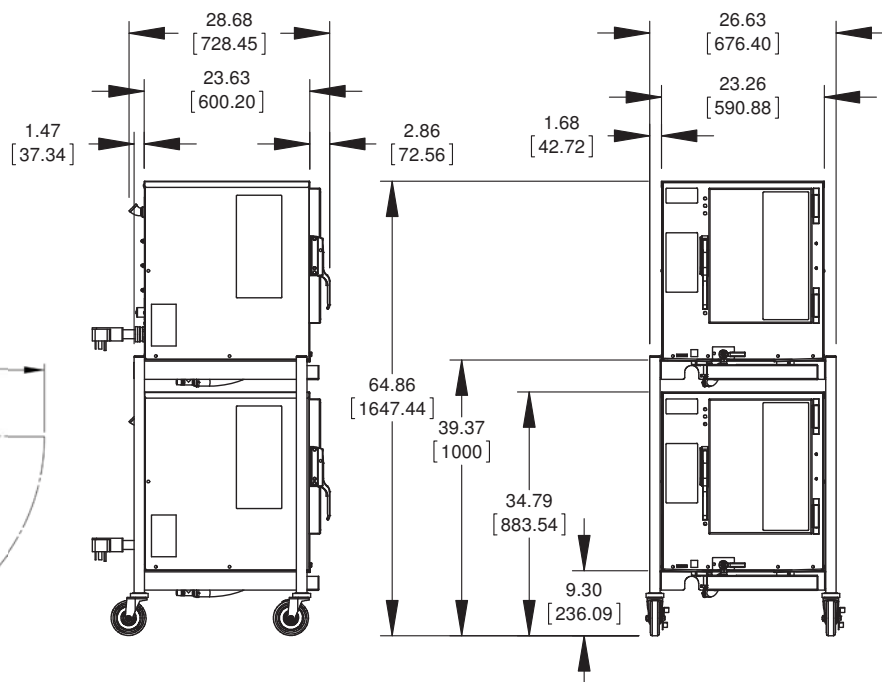
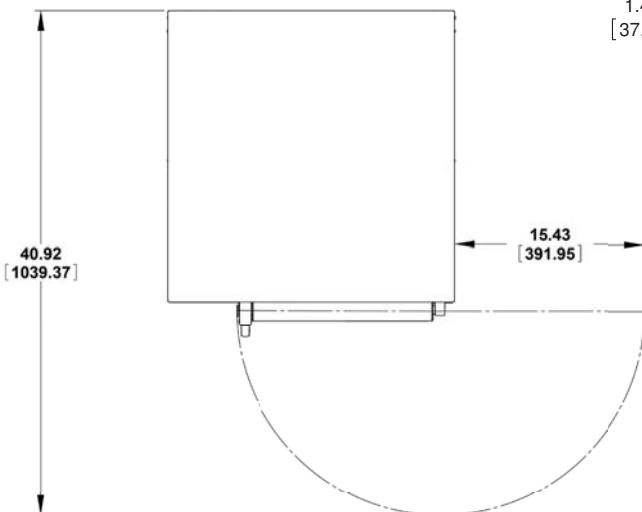
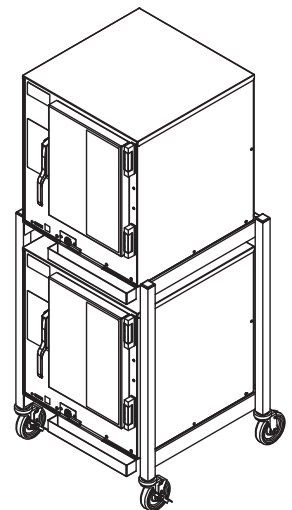
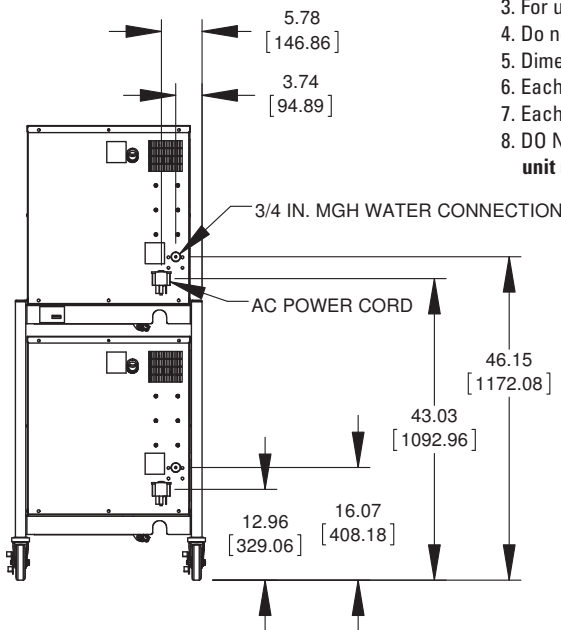


E6 Evolution™ double stacked unit

Steamer Model "E" Specifications per cavity • DBL = TWO CAVITIES													
Model #	E62081E060 DBL	E62083E100 DBL	E62083E120 DBL	E62083E150 DBL	E62301E070 DBL	E62401E060 DBL	E62403E110 DBL	E62403E130 DBL	E64005E110 DBL	E64803E140 DBL			
Volts AC	208	208	208	208	230	240	208	240	240	380	400	415	440
Phase	1	3	3	3	1	1	3	3	3	3			
Amps	29	28	33	42	32	25	22	26	32	14	14	15	16
Breaker Size	30 amp	30 amp	50 amp	50 amp	50 amp	30 amp	30 amp	50 amp	20 amp	20 amp			
Watts (kW)	6	10	12	15	7	6	8	11	13	9	10	11	12
NEMA Plug	L6-30P	L15-30P	15-50P	15-50P	IEC 60309-2 220/250V	L6-30P	L15-30P	15-50P	IEC 60309-2 220/380-240/415V	L16-20P			

Notes:

1. Allow 3" between fryer, ranges, and other hot surfaces.
2. (2) 5' power cords supplied with single or 3 phase, separate receptacle needed for each unit.
3. For use on individual branch circuits only.
4. Do not connect to a circuit operating at more than 150V to ground.
5. Dimensions outside brackets are inches, in brackets are millimeters.
6. Each unit equipped with 3/4" male garden hose connector
7. Each unit equipped with 3/4" barbed drain line connector
8. DO NOT plumb a single drain line between the 2 units. **Each unit must have a separate drain line.**





INTEK STEAMER

ELECTRIC MODEL XS

The Intek XS connectionless countertop steamer unit has a pan capacity of 6 pans (2.5" deep 12" x 20") or 4 pans (4" deep 12" x 20"). Unit must be capable of producing steam at 212°F with no water or drain connection required. Unit is to have inverted convection fan technology and includes a 1 year parts and labor warranty. NSF listed as both steamer and holding cabinet. UL listed.

PROJECT NAME:

LOCATION:

ITEM NO:

QTY:

MODEL NO:

AIA NO:

SIS NO:

AVAILABLE MODELS:

- ☐ XS-208-8-1 (208V, 8kW, 1-Phase)
- ☐ XS-208-8-3 (208V, 8kW, 3-Phase)
- ☐ XS-208-12-3 (208V, 12kW, 3-Phase)
- ☐ XS-240-8-1 (240V, 8kW, 1-Phase)
- ☐ XS-240-8-3 (240V, 8kW, 3-Phase)
- ☐ XS-240-12-3 (240V, 12kW, 3-Phase)
- ☐ XS-480-12-3 (480V, 12kW, 3-Phase)

STANDARD FEATURES:

- Produces steam at 212°F with no water or drain connection
- Inverted flow forced convection technology
- Magnetic door switch turns off convection fan when door is open
- 60 minute electro-mechanical timer, 2 position ON/OFF selector switch, indicator lights for COOK, STANDBY, HEAT and LOW WATER
- Low water warning system with automatic shutdown control

CONSTRUCTION:

- 14 gauge reinforced stainless steel cavity
- Two panel door with rugged 14 gauge stainless steel outer door
- Heavy refrigeration style door handle with magnetic latch
- Stainless steel wire racks positioned to support 1", 2.5", 4", or 6" deep pans
- Front mounted water reservoir manual drain line

OPERATION:

- Inverted flow convection fan in cooking chamber
- NSF approved holding cabinet
- Open door while cooking
- Heating element external to compartment and not exposed to water
- 3 gallon capacity water reservoir

ORIGIN OF MANUFACTURE:

Designed and manufactured in the United States.

6 pan capacity stainless steel pressureless, connectionless steamer. Tabletop, self-contained, electric heated. (Model XS shown)



OPTIONS/ACCESSORIES:

- ☐ Stand w/Bullet Feet for Single or Double Stack
- ☐ Casters for Stand
- ☐ Flanged Feet for Stand
- ☐ Door Hinged Left
- ☐ Correction Package
- ☐ Trivet

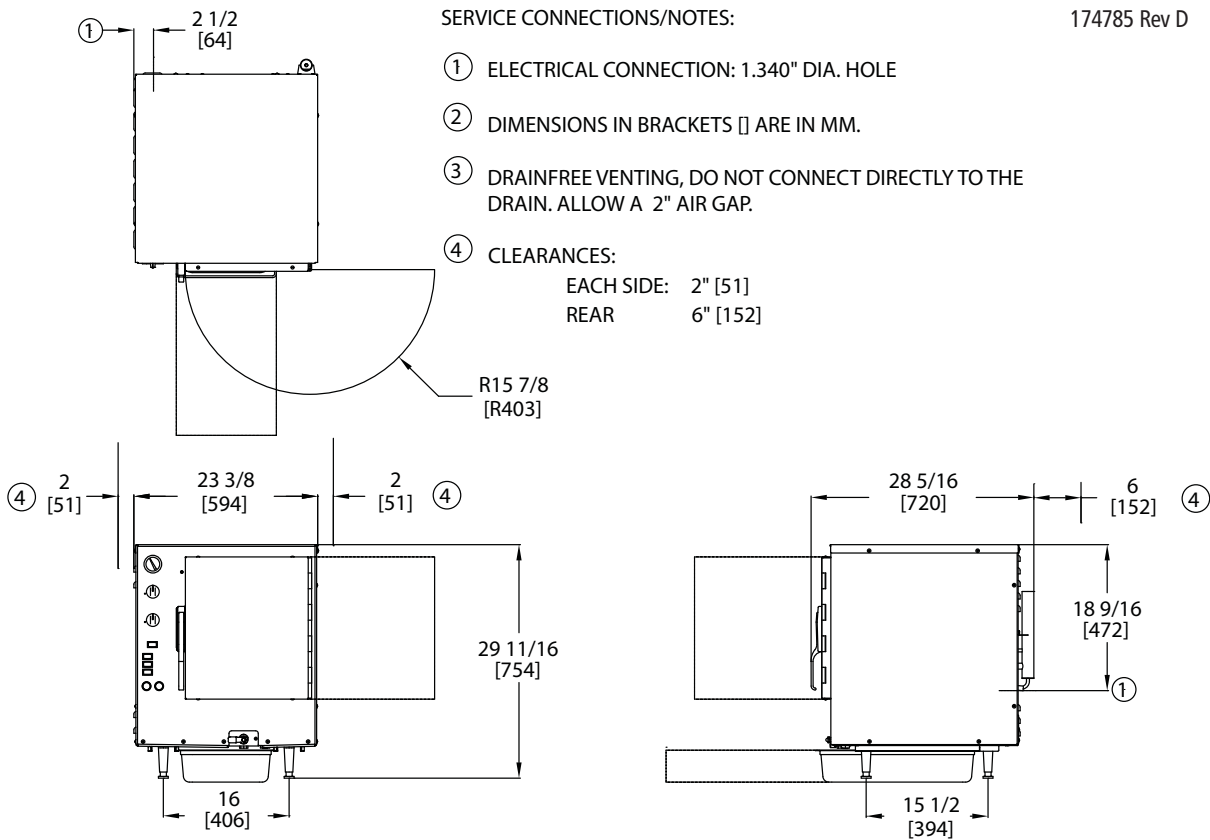


174785 Rev D



SERVICE CONNECTIONS/NOTES:

- ① ELECTRICAL CONNECTION: 1.340" DIA. HOLE
- ② DIMENSIONS IN BRACKETS [] ARE IN MM.
- ③ DRAINFREE VENTING, DO NOT CONNECT DIRECTLY TO THE DRAIN. ALLOW A 2" AIR GAP.
- ④ CLEARANCES:
EACH SIDE: 2" [51]
REAR 6" [152]

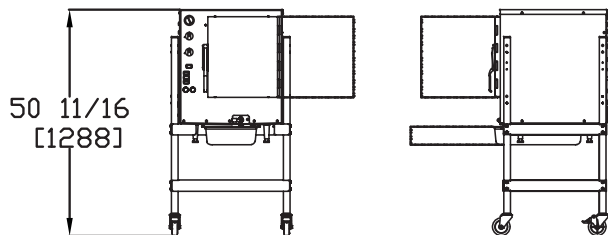
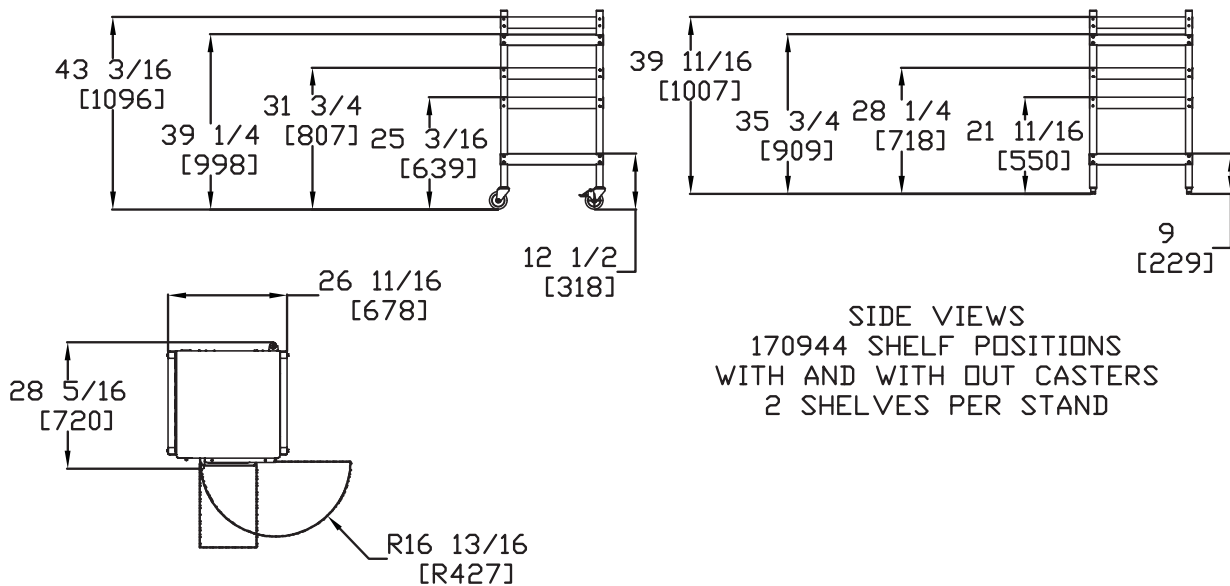


MODEL	NO. OF PANS	VOLTAGE	PHASE	KW MAX	AMP MAX	NEMA CONNECTOR NO.	CORD LENGTH FT [M]
XS-208-8-1	6	208	1	8	38.5	6-50P	7.5 (2.29)
XS-208-8-3	6	208	3	8	22	L15-30P (3PH)	8 (2.44)
XS-208-12-3	6	208	3	12	33.6	15-50P (3PH)	8 (2.44)
XS-240-8-1	6	240	1	8	33.4	6-50P	9 (2.74)
XS-240-8-3	6	240	3	8	19.4	L15-30P (3PH)	8 (2.44)
XS-240-12-3	6	240	3	12	29.1	L15-30P (3PH)	8 (2.44)
XS-480-12-3	6	480	3	12	14.6	L16-20P (3PH)	8 (2.44)

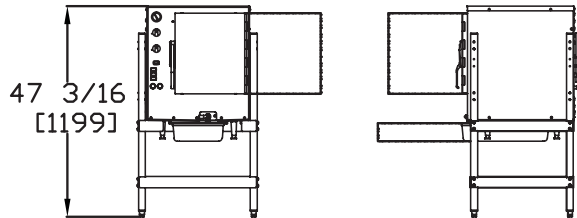
170944 STAND DIMENSIONS IN, [MM]			
CONFIGURATION	WIDTH	DEPTH	HEIGHT
WITH BULLET FEET	26 11/16 [678]	23 [584]	41 3/16 [1046]
WITH CASTORS	26 11/16 [678]	23 [584]	44 5/8 [1132]



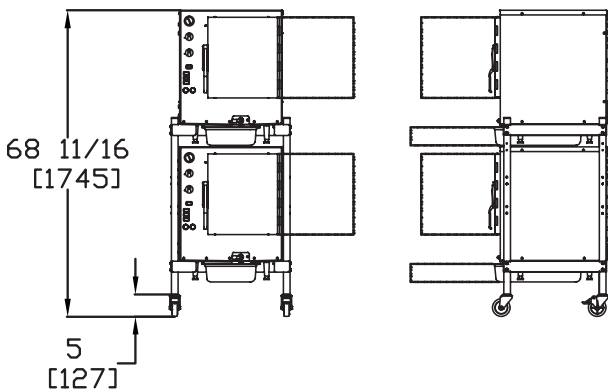
174786 Rev A



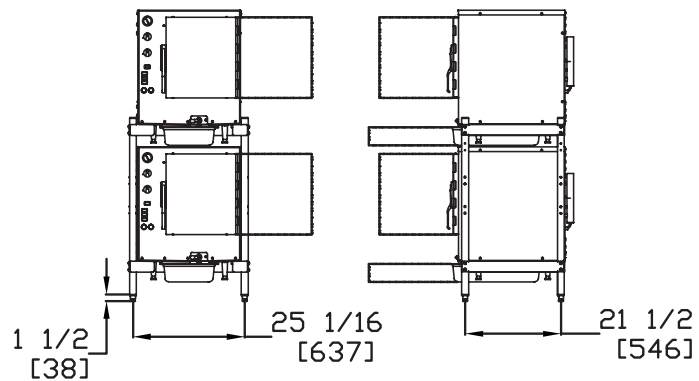
SINGLE XS ON 170944 STAND
LOWEST SHELF WITH CASTORS



SINGLE XS ON 170944 STAND
LOWEST SHELF WITHOUT CASTORS



DOUBLE XS ON 170944 STAND
WITH CASTORS



DOUBLE XS ON 170944 STAND
WITHOUT CASTORS

Therm and Hold Oven Cutsheets



CURRENT SCA SPECIFICATION CAT SERIES

CVap® Retherm Oven Owner's Manual

Series Includes:

CAT507

CAT509

CAT522

CAT529

CAT529-BD

CAT529-BDR



Cvap® Retherm Oven

receiving your cabinet

Shipping Damage

Examine equipment thoroughly for shipping damage before, during and after unloading. All Winston products are carefully inspected and verified to be in good condition before leaving our factory. The carrier delivering your cabinet has assumed responsibility for its safe arrival. If you notice any damage (obvious or hidden), a claim must be made to the carrier.

Obvious Loss or Damage

Please note any obvious loss or damage on the freight bill or express receipt, and have the carrier's agent sign to acknowledge the claim. The carrier will supply the necessary forms. If you do not obtain and complete the forms before the carrier's agent departs, the carrier might refuse your damage claim.

Concealed Loss or Damage

Sometimes loss or damage is not obvious until the product has been unpacked. If you notice damage that was concealed by packaging or crating, contact the carrier in writing to notify them of the damage. The carrier should agree to inspect the damage within 15 days. Please retain all packing materials. The carrier will supply an inspection report and the required claim forms.

Physical

Casters are non-marking; back casters are non-locking, front are locking.

Water Supply

In order to operate properly, the evaporator in this cabinet must be filled with clean, potable water. Hardware is included to connect the cabinet to a copper line in your facility's water system. If your facility has plastic or galvanized pipes, contact a licensed plumber to connect the water supply. Equipment should be installed to comply with applicable federal, state, or local plumbing codes.

Units with automatic water fill systems are to be installed with adequate backflow protection to comply with federal, state, and local codes.

As water evaporates, any minerals in the water will deposit on the surface of the evaporator. These mineral deposits will inhibit the transfer of heat. Deposits can also degrade and damage stainless steel. The best way to avoid mineral deposits is to clean the unit daily. It is also advisable to contact your water utility for advice on minimizing deposit buildup. Experience has shown that leaks will occur by failing to clean and rinse the evaporator daily. **Leaking evaporators are not covered under warranty.**

Model	Height with 3" Caster (IN/MM)	Width (IN/MM)	Depth (IN/MM)	Weight (LBS/KG)
CAT507	36.2/919	27.6/701	34.5/876	215/98
CAT509	41.2/1046	27.6/701	34.5/876	235/107
CAT522	76.1/1933 (5" casters)	27.6/701	34.5/876	410/187
CAT529	76.1/1933 (5" casters)	35.5/902	34.5/876	450/203
CAT529-BD	78.7/1998 (5" casters)	35.5/902	34.5/876	560/252
CAT529-BDR	78.7/1998 (5" casters)	35.5/902	34.5/876	560/252

CVap[®] Retherm Oven

electrical

The equipment is shipped from the factory with a 84" (2134mm) (minimum) power cord and plug. Refer to the table below to determine the correct electrical outlet. It may

be necessary to hire a licensed electrician to install the correct outlet or wiring. Winston does not recommend hard wiring the equipment direct.

Below is electrical information for various models of Winston's CVap[®] therm & hold cabinet.

Model	Volts	Hertz	PH	Amps	Watts	Circuit Amps	Plug Type
CAT507	208	60	1	36.8	7655	50	US/CAN 6-50P
	208	60	3	23.7	7655	30	US/CAN 15-30P
	240	60	1	31.9	7655	50	US/CAN 6-50P
	International						
	230*	50	1	33.3	7655	N/A	N/A
CAT509	208	60	1	36.8	7655	50	US/CAN 6-50P
	208	60	3	23.7	7655	30	US/CAN 15-30P
	240	60	1	31.9	7655	50	US/CAN 6-50P
	International						
	230	50	1	33.3	7655	N/A	N/A
CAT522	208	60	3	33.7	11215	50	US/CAN 15-50P
	240	60	3	29.2	11212	50	US/CAN 15-50P
	Not available for the international market at this time.						
CAT529	208	60	3	33.7	11215	50	15-50P
	240	60	3	29.2	11215	50	15-50P
	Not available for the international market at this time.						
CAT529-BD & BDR	208	60	3	33.7	11215	50	15-50P
	240	60	3	29.2	11215	50	15-50P
	Not available for the international market at this time.						



CVAP® COOK/HOLD CABINETS

CHV5

CHV5 SERIES

CHV5-04HP | CHV5-04UV | CHV5-05UV | CHV5-05UV-ST | CHV5-14UV

CVap Cook and Hold Cabinet: Includes C-Touch Control, HACCP Temperature Downloads, and Convection Cooking.

SHORT FORM SPECS

Shall Be Winston CVap Cook and Hold, model _____. Unit to utilize a C-Touch control with processor, that utilizes calibration-free thermistors to adjust evaporator and air temperatures in 1°F increments. Features must include a minimum of eight programmable channels which are lockable, USB HACCP download for temperature monitoring and convection fan.

CONFIGURATIONS

Countertop: Shallow depth to allow placement on standard 30" countertop. Also can be fitted with 1" wheels for under counter use.

Half-Sized: Easily mobile versions, allowing operator to see over cabinet when transporting. Most half sized units are also stackable for increased versatility. Some versions available for under counter use with 1" wheels.

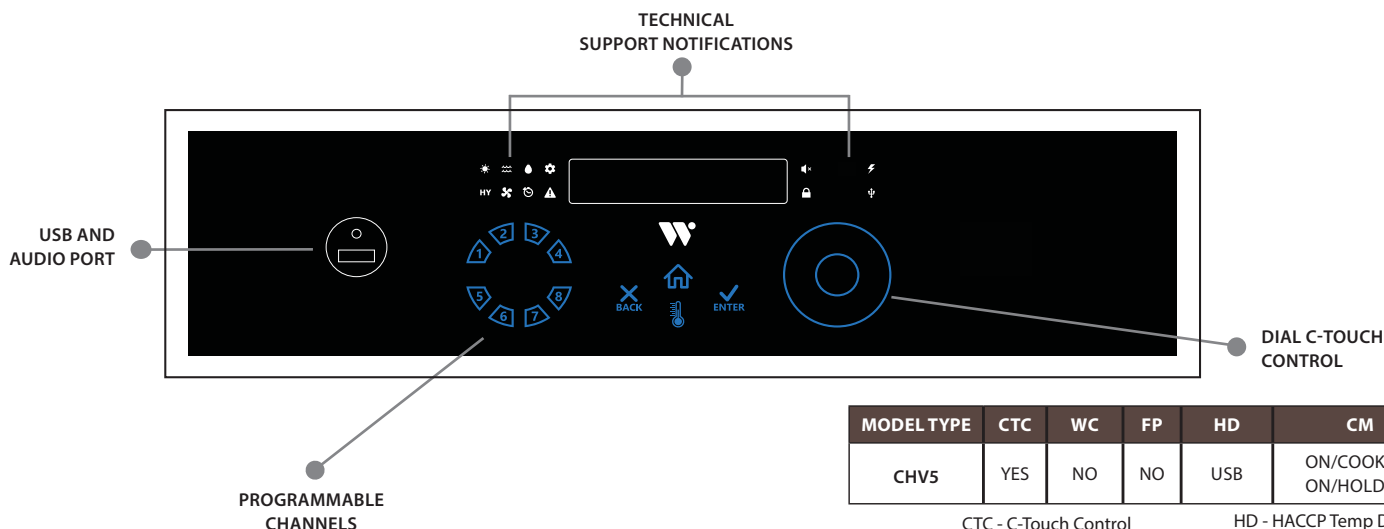
Full-Sized: Provides maximum capacity for high volume operators.

CVAP ADVANTAGE

The CVap CHV is essentially a Cook and Hold on steroids. It can do the traditional "low and slow" cooking...with more control and insane yields. It also has the versatility to bake, braise, poach or low-temp steam, and it can be used in sous vide mode for increased precision. We've got volumes of science and data to back us up, but only so much space here. So, if you want to learn more, go to our website, www.winstonfoodservice.com and geek out with us.



Model Shown: CHV5-05UV Stacked



MODEL TYPE	CTC	WC	FP	HD	CM	AP
CHV5	YES	NO	NO	USB	ON/COOKING ON/HOLDING	YES

CTC - C-Touch Control
WC - Wireless Connectivity
FP - Food Probe Ready

HD - HACCP Temp Download
CM - Convection Mode
AP - Audio



WINSTON FOODSERVICE

2345 Carton Drive | Louisville, KY 40299 USA | winstonfoodservice.com | 800.234.5286 | +1.502.495.5400

Specifications subject to change without notice.



CVAP® COOK/HOLD CABINETS

CHV5

Cabinet Specifications

CHV5-04HP | CHV5-04UV | CHV5-05UV | CHV5-05UV-ST | CHV5-14UV

MODEL NUMBER DESCRIPTIONS

EQUIPMENT TYPES

HO = HOLDING
CH = COOK/HOLD
RT = RETHERM
UB = UNIVERSAL BIN

SERIES

PAN CONFIGURATION

PAN CONFIGURATIONS

HP = HALF PAN
SP = SHEET PAN
UV = UNIVERSAL

C H V 5 - 0 4 H P

EQUIPMENT TYPE

TECHNOLOGY

PAN CAPACITY

MODEL #	CAPACITY*			EXTERIOR DIMENSIONS**				ELECTRICAL						SHIP WEIGHT LBS(KG)
	SHEET PAN (18" x 26")	HALF SHEET PAN (18" x 13")	HOTEL PAN (12" x 20" x 2.5")	STANDARD CASTER SIZE	HEIGHT IN.(MM)	DEPTH IN.(MM)	WIDTH IN.(MM)	VOLTS	PHASE	WATTS	AMPS	NEMA***	INT'L	
CHV5-04HP	N/A	4	4	3"	36.54(928)	26.45(672)	20(508)	208	1	2814	13.53	6-20P	Call Factory	160(73)
								240	1	2808	11.7	6-20P	Call Factory	
CHV5-04UV	4	8	8	3"	35.91(912)	34.23(869)	27.70(704)	208	1	4992	24	6-30P	Call Factory	198(90)
								240	1	5220	21.75	6-30P	Call Factory	
CHV5-05UV	5	10	10	3"	39.41(1001)	34.23(869)	27.70(704)	208	1	4992	24	6-30P	Call Factory	250(113)
								208	3	4992	14.7	15-20P	Call Factory	
CHV5-05UV-ST (Stacked Pair) ****	10(2 x 5)	20(2 x 10)	20(2 x 10)	3"	76.82(1950)	34.23(869)	27.70(704)	208	1	4992	24	6-30P	Call Factory	500(226)
								208	3	4992	14.7	15-20P	Call Factory	
CHV5-14UV	14	28	28	5"	75.66(1922)	34.23(869)	27.70(704)	208	1	8130	39.1	6-50P	Call Factory	420(190)
								208	3	8130	23.7	15-30P	Call Factory	
								240	1	8130	33.86	6-50P	Call Factory	

*Capacity- Determined by 3.5" (89mm) adjustable spacing, with a load limit of 65lb (29.25kg) per rack. | **Exterior Dimensions- Cabinet height is calculated with standard caster size. If 3" caster is standard, subtract 2.48" (63mm) for 1.5" wheels, add 2.31" (59mm) for 5" casters, subtract .25" (6mm) for 4" legs, and add 1.63" (41mm) for 6" legs. If 5" caster is standard, subtract 2.31" (59mm) for 3" casters, and subtract .69" (18mm) for 6" legs. | ***NEMA- Supplied with 84" (2134mm) (minimum) power cord and plug. The input average of current did not exceed the allowable amperage for the circuit listed. | **** Stacked units require two outlets. Wattage listed is per unit.

CONTROL: C-Touch control with vapor and air temperatures to be adjusted in 1°F increments. Processor controlled calibration-free thermistors, accurate within +/- 2°F. Control allows for eight programmable (and lockable) channels, accommodates software updates via USB.

MATERIALS: To be commercial and institutional grade stainless steel interior and exterior.

DOORS: Insulated field-reversible door with magnetic handles. Full-sized units to include two dutch doors. Doors may be specified with windows, pass-through, or a combination of both.

WATER FILL: Includes auto water fill, using a 1/4" National Pipe Thread (NPT). May be used as manual fill, which includes low water detection. Low mineral potable water recommended, otherwise use deionizer/demineralizer to minimize corrosion damage.

INSTALLATION REQUIREMENTS: Units to be installed with 2" (51mm) clearance on sides and may not be installed within proximity to anything emitting heat that would allow the exterior of the Winston cabinet to exceed surface temperatures of >200°F. Refer to owner's manual for specific installation requirements. Generally, this equipment is not required to be installed under Type 1 or Type 2 Hoods; however, check local health and fire codes for requirements specific to the location.

INDUSTRY COMPLIANT: Equipment complies with domestic and most international requirements; such as UL, C-UL, UL Sanitation, CE, MEA, EPA202, and others.

WARRANTY: Limited one-year warranty (excludes gaskets, lamps/lights, hoses, power cord, glass panels, and evaporator). Warranty disclaimer for improper cleaning, installation, and/or maintenance. Ask for complete warranty disclosure.

SPECIFY THE FOLLOWING WHEN ORDERING:

Standard (No additional cost):

1. Voltage and Phasing Preference:
208V or 240V, three or single phase
2. Hinge Preference: Left or right hinge
3. Casters: See table above for standard caster size, additional options include 1.5" wheels (04 models only), 3" caster, 5" caster, 4" legs (04 models only), and 6" legs.

Optional (Additional cost):

- Locking Door**
- Pass Through
- Extended Warranty
- Bumper Guard Base***
- Reinforced Top****
- Glass Door
- Pass Through - Glass
- Cord Wrap
- Transport Package***

** Quantity of 1 for reach in. Quantity of 2 for pass through
Customer to provide padlock(s). (per door)

*** Not available for 04-HP models.

**** Available for 04UV & 05UV only.

Accessories & Supplies (Additional cost):

- PS2206-4 Wire rack-chrome (4-pack)
- PS2206-5 Wire rack-chrome (5-pack)
- PS2938-4 Wire rack-stainless steel (4-pack)
- PS2980-2 Wire rail (2-pack)
- PS2935-2 Wire rail - 04HP (2-pack)
- PS2429 External water filter for auto water fill
- PS2696 Mobile water removal system
- PS3171 Leg and shelf kit for 04UV and 05UV
- PS3174 Stacking kit for 04UV and 05UV
- PS3167 Drain kit for stacked pair
- AC1008 Cover, Rear Fan

FOR WINSTON SERVICE PARTS, ACCESSORIES, AND SUPPLIES ONLINE!
foodservice.winstonind.com/parts-supplies



WINSTON FOODSERVICE

2345 Carton Drive | Louisville, KY 40299 USA | winstonfoodservice.com | 800.234.5286 | +1.502.495.5400

Specifications subject to change without notice.

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doc20171205wlp1rev19 | wp 01.17.22



JOB: _____

ITEM NO: _____

COOK-N-HOLD LOW TEMPERATURE RADIANT OVEN 1000-CH-2D Series

FEATURES AND BENEFITS:

- Ovens with two separate compartments and lower profile with two easy to see controls permit menu flexibility. Fully insulated Cook-N-Hold gentle radiant oven designed for flavorful results by slow cooking.
- Slow cooking means 15% to 20% less shrinkage.
- Efficient 6000 Watt power unit allows for reheating of prepared meals or bulk items. Maximum temperature 325° (163°C). Easy to read thermometer.
- Two individual standard solid state electronic controls with large, clean, easy-to-read and operate LED digital display to ensure holding at precise food temperatures.
- Factory installed cord and plug at no additional charge.
- Cook and hold over 240 lbs. (108 kg.) of meat in just 5 sq. ft. of floor space.
- Non-venting oven, permitted by most local codes, provides easy, inexpensive installation.
- Fully insulated, stainless steel interior for ease of cleaning; stainless steel or aluminum exterior.
- Oven is operable on either 208 or 240 Volt circuits at the flip of a switch.
- Smooth interior coved corners prevent food particle/grease buildup.
- Field reversible insulated doors prevent temperature loss. Silicone door gaskets for proper seal. High temperature ceramic magnetic latches for "easy open" and security during transport.
- Safety conscious anti-microbial latches protect against spreading germs. Standard with right hand hinging; left hand hinging available upon request.
- Removable stainless steel pan slides hold sixteen (16) 18" x 26" pans on 3" centers. Supplied with 3 wire grids per compartment.
- Heavy duty 5" casters, two swivel with brakes, two rigid. Provides mobility when fully loaded.

POWER UNIT OPTIONS:

6000 Watts, 208/240 Volts, 1 Phase, 60 Hz.

6000 Watts, 208/240 Volts, 3 Phase, 60 Hz.

Deluxe Models (-DX) have 18 factory or field programmed cook & hold cycles. Each programmed menu can be customized for exact time and temperature needs. Probe cooking includes one 6" meat temperature probe and port.



Silver indicates our
2-Year Parts / 1-Year Labor
Warranty with Lifetime on heating
elements (excludes labor)



5925 Heisley Road • Mentor, OH 44060-1833
Phone: 877/CRESCOR • Fax: 440/350-7267
www.crescor.com



1000-CH-SS-2DE

Standard (-DE)



All Ovens come standard
with easy-to-read and
operate LED digital controls.

Deluxe (-DX)



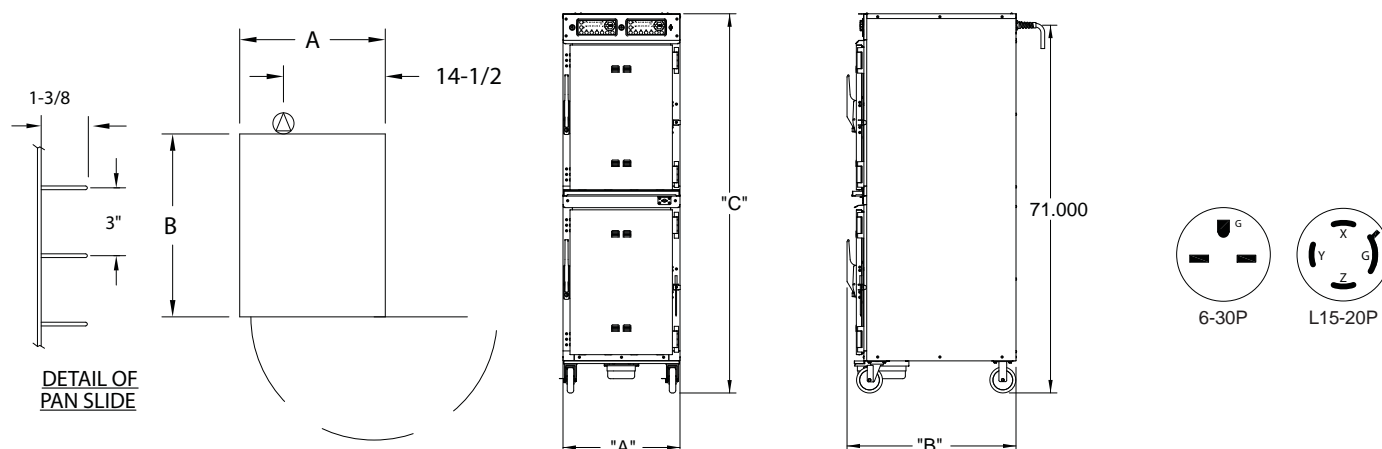
Deluxe Controls are available
with 18 programmable menus
and 6" meat probe.

ACCESSORIES and OPTIONS (Available at extra cost):

- ☐ Deluxe version with 18 programmable menus and 6" meat probe (or optional 3" food probe).
- ☐ Additional Probes
- ☐ Tempered Glass Door Window
- ☐ Key Lock Latches
- ☐ Extra Wire Grids
- ☐ Perimeter Bumper
- ☐ Corner Bumpers
- ☐ Various Caster Options

See page E-10 for accessory details.

1000-CH-2D Series



CRES COR MODEL NO.	PAN			DIM "A"	DIM "B"	DIM "C"	INSIDE DIMENSIONS				WEIGHT ACT.
	CAP	SIZE		WIDTH	DEPTH	HEIGHT	WIDTH	DEPTH	HEIGHT		
1000-CH-AL-2DE	16	18 X 26	IN	22-5/8	32-3/4	73-1/4	18-3/16	27	26-3/4	LBS	375
1000-CH-AL-2DX											
1000-CH-SS-2DE		460 X 660	MM	575	835	1860	465	690	680	KG	170
1000-CH-SS-2DX											

*Inside dimensions for each compartment.

(-DE) models are standard models, (-DX) are upgraded deluxe models. See accessory sheet E-10 for more information.

CABINETS:

- 1000-CH-SS-D Body: 22 ga. stainless steel outer body.
- 1000-CH-AL-D Body: .063 aluminum outer body.
- Inner body & top: 18 ga. stainless steel.
- Reinforcements: Internal framework of 18 ga. stainless steel.
- Insulation: Fiberglass, thermal conductivity (K factor) is .23 at 75°F, 1-1/2" in walls, 1" in doors.
- Drip pan: 18 ga. stainless steel with drain; removable.
- Casters: 5" dia., modulus tires, 1-1/4 wide, load cap. 250 lbs. each, temp. range -45°/+180°F. Delrin bearings. Front swivel casters equipped with brakes; rigid casters on rear.

DOORS:

- Field reversible.
- Formed 20 ga. stainless steel.
- Latches: Anti-microbial chrome plated zinc with composite handle, ceramic magnetic type; mounted inboard.
- Hinges (4): Heavy duty chrome plated zinc; mounted inboard.
- Gaskets: Perimeter type, silicone.
- Adjustable vents.

PAN SLIDES (removable):

- 18 ga. stainless steel angles, 1 x 1-3/8; riveted on 3" centers.
- Grids: Stainless steel, 18 x 26; supplied with (3) grids per compartment.

CLEARANCE REQUIREMENTS:

- 3" (76mm) at the back, 2" (51mm) at the top, 1" (25mm) at both sides.

POWER REQUIREMENTS:

- 6000/5300 Watts, 208/240 Volts, 60 Hz., 1 phase, 30 Amp. Service 29 Amps at 208 Volts, 25 Amps at 240 Volts.
- 6000/5300 Watts, 208/240 Volts, 60 Hz., 3 phase, 20 Amp. Service 16 Amps at 208 Volts, 14 Amps at 240 Volts.



5925 Heisley Road • Mentor, OH 44060-1833

Phone: 877/CRESCOR • Fax: 440/350-7267

www.crescor.com

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ELECTRICAL COMPARTMENTS:

- Control panels: Formed stainless steel; black front.
- Thermostats (cook/hold): Solid state digital display control, 140°F (60°C) to 325°F (163°C).
- Switches: ON-OFF push button type.
- Power Cord: Permanent, 6 ft. 10/3 ga. with right angle plug.
- Three (3) heater circuits each compartment
- Thermometers: Digital display.
- Voltage selector switch: Change to 208 or 240 Volt; on back of oven.

INSTALLATION REQUIREMENTS:

- This model complies with section 59 of UL710B for emissions of grease laden air, and according to UL is not required to be placed under a ventilation hood. Check local requirements before installation.

SHORT FORM SPECIFICATIONS

Cres Cor Insulated Radiant Oven Model 1000-CH-____-2D____; Solid state electronic controlled times and temperatures. Outer body of 22 ga. stainless steel for the 1000-CH-SS Series and .063 aluminum for the 1000-CH-AL Series. Inner body, top and frame of 18 ga. stainless steel. Fiberglass insulation 1-1/2" in walls; 1" in door. Stainless steel internal frame; coved corners. Anti-microbial chrome plated latches. Separate thermometer for each compartment. Six (6) heated inner walls. Removable pan supports for (16 or 8) 18" x 26" pans spaced on 3" centers. Casters 5" modulus casters (2) swivel, (2) rigid, Delrin bearings. Load capacity 250 lbs. each. 6000 Watts, 208/240 Volts, 60 Hz., ____ Phase. 2-Year Parts / 1-Year Labor warranty. Lifetime on heating elements (excluding labor). Provide the following accessories: _____. CSA-US, CSA-C, CSA to NSF4 listed.

In line with its policy to continually improve its products, CRES COR reserves the right to change materials and specifications without notice.

Litho in U.S.A.

Walk-In Freezer Cutsheets



QS SERIES

Walk-In Coolers & Freezers With Self-Contained Refrigeration Systems



Equipped
 with
SELF-CONTAINED
Capsule Pak™
 refrigeration
 systems

FEATURES

- Cooler or freezer models
- Sizes from 4' x 6' to 10' x 14'
- Three heights: 6'7" & 7'7" with floor; 7'4" floorless
- Indoor or outdoor models
- Two temperatures: +35°F, -10°F
- Ceiling mount Capsule Pak refrigeration system (ordered separately)
- Air-cooled condensing unit
- Electronic controller
- 26 gauge corrosion resistant stucco embossed coated steel on all surfaces except interior floor
- Smooth aluminum interior floor (on models with floor)
- Floorless models supplied with NSF listed vinyl sealers
- Full 4" thick panels foamed-in-place with EPA-compliant polyurethane insulation
- 26" wide, self-closing door
- Heavy duty adjustable cam-lift hinges
- Spring actuated door closer
- Deadbolt locking handle with independent key/padlock feature and inside safety release
- Magnetic gasket
- Digital thermometer and light switch
- Floor double sweep gasket
- Perimeter door heater wire
- High output low profile LED light positioned above the door to prevent interference with shelving or product
- UL, C-UL listing on complete Capsule Pak refrigeration systems*
- NSF, UL flame spread 25 or less on all foam cores; UL and CSA electrical listing on door sections**
- City of Houston listed
- California State listed
- CN UL flame spread listed
- DOE compliant
- Oregon State listed
- USDA accepted
- 15 year panel warranty
- 18 months parts & labor warranty

- **INDOOR MODELS:**
 - Hot gas condensate vaporizer
- **OUTDOOR MODELS:**
 - White membrane roof and trim
 - -20°F ambient controls

OPTIONS

(Most options available two weeks from receipt of order. Please contact us for specific questions)

- Heights: 8'7" with floor, 8'4" without floor
- U-shaped shelving system
- Floor tread plate kit
- Exterior ramp
- Door hood (outdoor models)
- Heater kit for outdoor use with medium temp applications where ambient conditions may go below 32°F
- Leak detector/alarm (may be a requirement in some areas)
- Electric vaporizer (indoor models only)
- Five year compressor warranty

* C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.
 ** UL Sanitation is Underwriters Laboratories Sanitation Mark which indicates that UL has tested the equipment to applicable NSF Standards.

DOOR

Door sections are factory tested to assure proper fit, performance and alignment. All doors feature a stepped profile design that serves as a barrier to air flow which results in an energy efficient door system. Door sections are 4" thick, metal clad and foamed-in-place with EPA-compliant polyurethane insulation.

Each QS Series walk-in compartment is equipped with a 26" wide door opening. The height of the door opening varies with the series of walk-in ordered. The Standard Series (6'7" high) has a 66" high door opening and the 74 and 77 Series walk-ins have a 78" high door opening. The door is self-closing, flush mounted, infitting and constructed to incorporate heavy duty, molded ABS breaker which is permanently foamed-in-place.

Doors are available with right or left side hinges and include two field adjustable cam-lift hinges with locking set screw, top hinge spring loaded, spring actuated door closer, NL 9800 deadbolt locking handle with independent key/padlock feature and inside safety release. The doors are pre-hung in a four foot wide frame panel which is equipped with replaceable perimeter heater wire, magnetic stainless steel trim, digital thermometer, vapor proof LED light fixture and switch with exterior pilot indicator light.

The door section is completely pre-wired within concealed conduit inside the door frame panel. 120/60/1 electrical is field wired to a junction box which is surface mounted next to the interior frame above the vapor proof LED light fixture.

Hinges and door handle are mounted to 1/2" synthetic insulated tapping plates. Each door section is complete with a fiberglass reinforced plastic heated threshold.

DOOR OPENING SIZE		
W	H	MODEL
26"	66"	STD Series
26"	78"	74 Series
26"	78"	77 Series



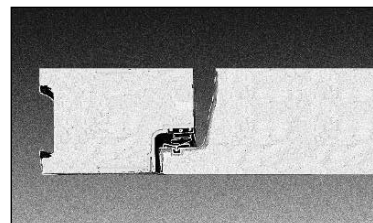
Deadbolt-locking handle



Spring actuated door closer



LED light fixture



Doors feature a stepped profile design



Digital thermometer/light switch

These doors are designed and certified for use in walk-in cooler applications.

DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
QS26X66	2.37	13.40	120/60/1	100.80	0.84
QS26X78	2.49	15.80	120/60/1	106.07	0.88

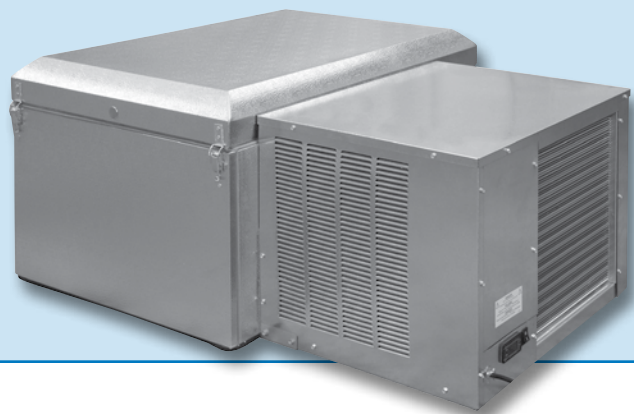
These doors are designed and certified for use in walk-in freezer applications.

DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
QS26X66	6.68	13.40	120/60/1	196.07	1.63
QS26X78	7.01	15.80	120/60/1	207.07	1.73

STANDARD CAPSULE PAK™ REFRIGERATION SYSTEMS

SELF-CONTAINED ONE-PIECE MODELS

A condensing unit and evaporator coil contained in a single housing ready to mount on top of your Master-Bilt walk-in.



OUTDOOR
MODEL



INDOOR
MODEL

The evaporator coil is flush mounted in the walk-in ceiling panel for maximum interior storage space. The standard electronic controller system provides increased reliability, connectivity and food safety. Installation costs are also greatly reduced because there's no piping or other components requiring field installation. All models are factory assembled, wired, charged, tested and fully equipped for fast and easy insertion into a factory prepared walk-in ceiling opening.

FEATURES

- Available for coolers or freezers
- Two temperatures: +35°F and -10°F
- Indoor and outdoor ceiling mount models
- Air cooled condensing unit
- Scroll™ compressors on most models
- Automatic condensate evaporator (indoor models only)
- Electronic controller system
- Electronic control provided for automatic defrost on both coolers and freezers
- All models feature standard cord and plug eliminating the need for field connection
- UL and C-UL electrical listing on complete Capsule Pak refrigeration systems*
- AWEF compliant
- -20°F ambient controls (outdoor models)
- 18 months parts and labor warranty

OPTIONS

(Most options are available two weeks from receipt of order. Please contact us for specific questions)

- Heater kit for outdoor use with medium temp applications where ambient conditions may go below 32°F
- Electric vaporizer (indoor models only)
- 5 year compressor warranty

* C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.



QS SERIES

WALK-IN COOLERS & FREEZERS WITH SELF-CONTAINED REFRIGERATION SYSTEMS

CAPSULE PAK™ REFRIGERATION SYSTEM SPECIFICATIONS

Capsule Pak refrigeration systems consist of a single assembly pre-charged condensing unit and evaporator coil factory assembled, wired, tested and ready for insertion into a factory prepared walk-in ceiling opening.

The Capsule Pak system has a flush coil which keeps all components outside the walk-in storage area, allowing more storage inside. Ceiling mount models are available indoor or outdoor installations. Models are available for interior compartment design temperatures of +35°F and -10°F. Installation is fast and easy with no plumbing required on indoor units.

The evaporator section is designed to be located entirely outside the walk-in with no intrusions into the refrigerated space. The evaporator enclosure is constructed utilizing foamed-in-place polyurethane insulation and equipped with a removable, gasketed access cover. Capsule Pak models use high efficiency EC evaporator fan motors to circulate air throughout the walk-in.

All indoor Capsule Pak models are equipped with either a discharge gas condensate vaporizer or an optional electric condensate vaporizer. All outdoor Capsule Pak models are equipped with low ambient controls consisting of crankcase heater and flooded condenser head pressure control.

All standard ceiling mount Capsule Pak refrigeration systems are UL and C-UL listed and AWEF compliant. Note: Allow minimum of 4" clearance above and 24" on each side of the Capsule Pak system for installation. Consideration should be given to accessibility for service and free condenser air flow. Consult factory with installation questions.



Self-contained Capsule Pak systems are conveniently located on top of the walk-in to maximize available floor space. Available in indoor and outdoor models for single walk-in compartments.

STANDARD ELECTRONIC CONTROLLER ON SELF-CONTAINED CAPSULE PAK SYSTEMS



- More precise and reliable temperature control compared to all-mechanical systems
- Patented design saves up to 27% more energy than an all-mechanical system
- Demand Defrost technology initiates defrosts only as needed for further energy savings
- Online data for instant notification of error codes and settings

QS SERIES MODEL	SELF-CONTAINED ONE-PIECE CEILING MOUNT			
	-10°F		+38°F to +35°F	
	MODEL	BTUH*	MODEL	BTUH*
7' 7" HIGH WITH FLOOR				
QS7746	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
QS7748	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
QS7756	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
QS7766	CPF100JC-S-4-EV	3500	CPB050JC-S-O-EV	4400
QS7768	CPF100JC-S-4-EV	3500	CPB075JC-S-4-EV	6366
QS77610	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77612	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77614	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS7788	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77810	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77812	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS77814	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
QS771010	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS771012	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
QS771014	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
7' 7" HIGH WITH FLOOR OUTDOOR				
QOD7746	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
QOD7756	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
QOD7766	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
QOD7768	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
QOD77610	CPF100JC-E-4-EV	3210	CPB075JC-E-4-EV	5802
QOD77612	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
QOD77614	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD7788	CPF150JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
QOD77810	CPF150JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
QOD77812	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD77814	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD771010	CPF200JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
QOD771012	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD771014	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
8'4" HIGH LESS FLOOR				
QS8466	N/A	N/A	CPB050JC-S-O-EV	4400
QS8468	N/A	N/A	CPB075JC-S-4-EV	6366
QS84610	N/A	N/A	CPB075JC-S-4-EV	6366
QS84612	N/A	N/A	CPB075JC-S-4-EV	6366
QS84614	N/A	N/A	CPB100JC-S-4-EV	7300
QS8488	N/A	N/A	CPB075JC-S-4-EV	6366
QS84810	N/A	N/A	CPB075JC-S-4-EV	6366
QS84812	N/A	N/A	CPB100JC-S-4-EV	7300
QS84814	N/A	N/A	CPB100JC-S-4-EV	7300
8'7" HIGH WITH FLOOR				
QS8766	CPF100JC-S-4-EV	3500	CPB050JC-S-O-EV	4400
QS8768	CPF100JC-S-4-EV	3500	CPB075JC-S-4-EV	6366
QS87610	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87612	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87614	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS8788	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87810	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87812	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
QS87814	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
8'7" HIGH WITH FLOOR OUTDOOR				
QOD8766	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
QOD8768	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
QOD87610	CPF150JC-E-4-EV	4362	CPB075JC-E-4-EV	5802
QOD87612	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
QOD87614	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD8788	CPF150JC-E-4-EV	4362	CPB075JC-E-4-EV	5802
QOD87810	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
QOD87812	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD87814	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884

*BTUH calculated using 16 hour design runtimes on coolers and 20 hour design runtimes on freezers

**Contact factory for information.

CAPSULE PAK™ SYSTEM ELECTRICAL DATA

INDOOR REFRIGERATION SYSTEMS (CORD AND PLUG CONNECTED)

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	NEMA PLUG	AWEF
CPB050JC-S-0-EV	R-449A	115/60/1	9.3	N/A	5-15P	5.61
CPB075JC-S-4-EV	R-449A	208-230/60/1	5.5	N/A	6-15P	5.61
CPB100JC-S-4-EV	R-449A	208-230/60/1	7.5	N/A	6-15P	5.61
CPF060JC-S-4-EV	R-449A	208-230/60/1	8.0	5.7	6-15P	1.99
CPF075JC-S-4-EV	R-449A	208-230/60/1	8.5	5.7	6-15P	2.08
CPF100JC-S-4-EV	R-449A	208-230/60/1	9.6	5.7	6-15P	2.11
CPF150JC-S-4-EV	R-449A	208-230/60/1	11.1	8.7	6-15P	2.22
CPF200JC-S-4-EV	R-449A	208-230/60/1	15.7	8.7	6-20P	2.43

OUTDOOR REFRIGERATION SYSTEMS (CORD AND PLUG CONNECTED)

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	NEMA PLUG	AWEF
CPB050JC-E-0-EV	R-449A	115/60/1	9.3	N/A	5-15P	7.60
CPB075JC-E-4-EV	R-449A	208-230/60/1	5.5	N/A	6-15P	7.60
CPB100JC-E-4-EV	R-449A	208-230/60/1	7.5	N/A	6-15P	7.60
CPF060JC-E-4-EV	R-449A	208-230/60/1	8.0	5.7	6-15P	2.89
CPF075JC-E-4-EV	R-449A	208-230/60/1	8.5	5.7	6-15P	2.92
CPF100JC-E-4-EV	R-449A	208-230/60/1	9.6	5.7	6-15P	2.95
CPF150JC-E-4-EV	R-449A	208-230/60/1	11.1	8.7	6-20P	3.03
CPF200JC-E-4-EV	R-449A	208-230/60/1	15.7	8.7	6-20P	3.15

Note:

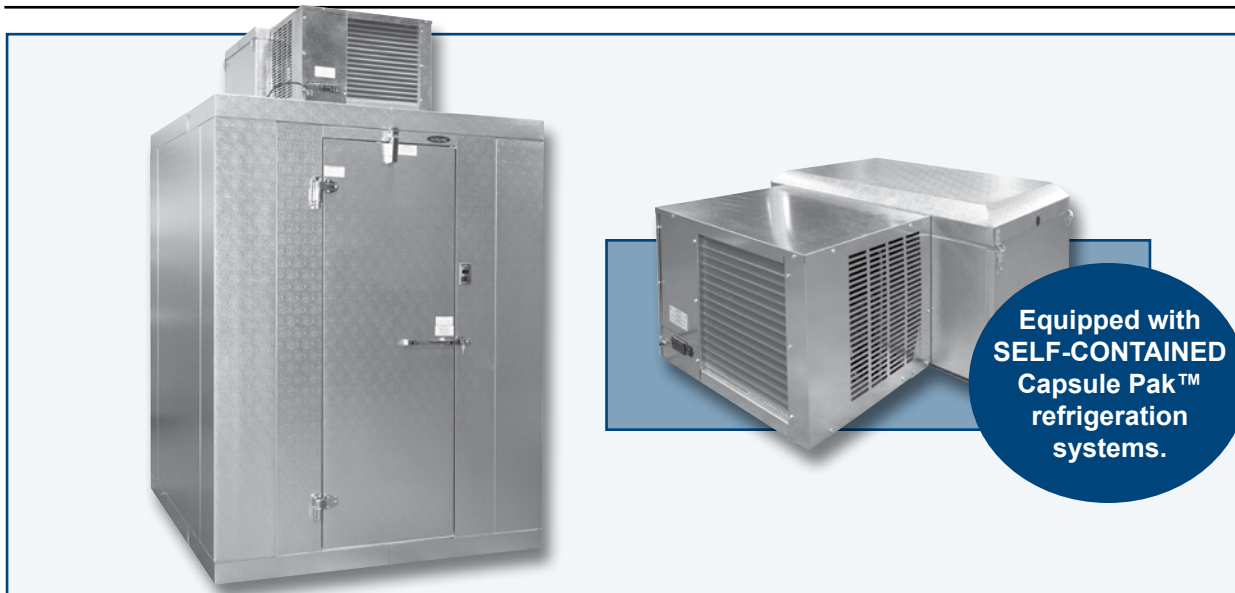
- Consult factory for application specifics, pricing and ship date availabilities.
- All self-contained Capsule Pak systems require a single power supply.



NOR-LAKE, INCORPORATED
727 Second Street
Hudson, Wisconsin 54016

800-955-5253
715-386-2323
866-961-5253 Parts
800-388-5253 Service
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KOLD LOCKER™ WALK-INS



KOLD LOCKER™ WALK-INS

STANDARD FEATURES

- Cooler or freezer models
- Sizes from 4' x 6' to 10' x 14'
- Three heights: 6'7" & 7'7" with floor; 7'4" floorless
- Indoor or outdoor models
- Two temperatures: +35°F, -10°F
- Ceiling mount Capsule Pak refrigeration system (ordered separately)
- Air-cooled condensing unit
- Electronic control provided for automatic defrost on both coolers and freezers
- 26 gauge corrosion resistant stucco embossed coated steel on all surfaces except interior floor
- Smooth aluminum interior floor (on models with floor)
- Floorless models supplied with NSF listed vinyl sealers
- Full 4" thick panels foamed-in-place with EPA-compliant polyurethane insulation
- 26" wide, self-closing door
- Heavy duty adjustable cam-lift hinges
- Spring actuated door closer
- Deadbolt locking handle with independent key/padlock feature and inside safety release
- Magnetic gasket
- Digital thermometer and light switch
- Floor double sweep gasket
- Perimeter door heater wire
- High output low profile LED light positioned above the door to prevent interference with shelving or product
- UL, C-UL listing on complete Capsule Pak refrigeration systems**
- NSF, UL flame spread 25 or less on all foam cores; UL and CSA electrical listing on door sections ***
- City of Houston listed
- California State listed

- CN UL flame spread listed
- DOE compliant
- Oregon State listed
- USDA accepted
- 15 year panel warranty
- 18 months parts & labor warranty

INDOOR MODELS:

- Hot gas condensate vaporizer

OUTDOOR MODELS:

- White membrane roof and trim
- -20°F ambient controls

OPTIONAL FEATURES**

(Most options are available two weeks from receipt of order.
Please contact us for specific questions)

- Heights: 8'7" with floor, 8'4" without floor
- U-shaped shelving system
- Floor tread plate kit
- Exterior ramp
- Door hood (outdoor models)
- Heater kit for outdoor use with medium temp applications where ambient conditions may go below 32°F
- Leak detector/alarm (may be a requirement in some areas)
- Electric vaporizer (indoor models only)
- Automatic condensate vaporizer
- Five year compressor warranty

* Some models ship in 5 or 10 days

** C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.

**** UL Sanitation is Underwriters Laboratories Sanitation Mark which indicates that UL has tested the equipment to applicable NSF Standards.

DOOR

Door sections manufactured at Nor-Lake are factory tested to assure proper fit, performance and alignment. All doors feature a stepped profile design that serves as a barrier to air flow which results in an energy efficient door system. Door sections are 4" thick, metal clad and foamed-in-place with EPA-compliant polyurethane insulation.

Each Kold Locker™ walk-in compartment is equipped with a 26" wide door opening. The height of the door opening varies with the series of Kold Locker™ walk-in ordered. The Standard Series (6'7" high) has a 66" high door opening and the 74 and 77 Series Kold Locker™ walk-ins have a 78" high door opening. The door is self-closing, flush mounted, infitting and constructed to incorporate heavy duty, molded ABS breaker which is permanently foamed-in-place.

Doors are available with right or left side hinges and include two field adjustable cam-lift hinges with locking set screw, top hinge spring loaded, spring actuated door closer, NL 9800 deadbolt locking handle with independent key/padlock feature and inside safety release. The doors are pre-hung in a four foot wide frame panel which is equipped with replaceable perimeter heater wire, magnetic stainless steel trim, digital thermometer, vapor proof LED light fixture and switch with exterior pilot indicator light.

The door section is completely pre-wired within concealed conduit inside the door frame panel. 120/60/1 electrical is field wired to a junction box which is surface mounted next to the interior frame above the vapor proof LED light fixture.

Hinges and door handle are mounted to 1/2" synthetic insulated tapping plates. Each door section is complete with a fiberglass reinforced plastic heated threshold.

DOOR OPENING SIZE		
W	H	MODEL
26"	66"	STD Series
26"	78"	74 Series
26"	78"	77 Series

These doors are designed and certified for use in walk-in cooler applications.

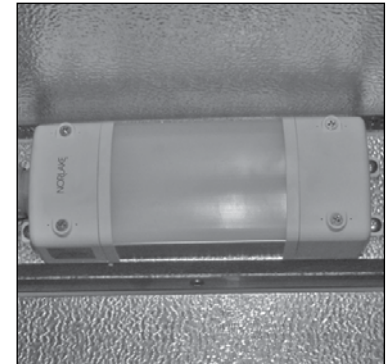
DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
KL26X66	2.37	13.40	120/60/1	100.80	0.84
KL26X78	2.49	15.80	120/60/1	106.07	0.88



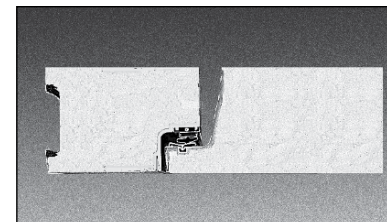
Deadbolt-locking handle



Spring actuated door closer



LED Light Fixture



Doors feature a stepped profile design



Digital Thermometer/ Light Switch

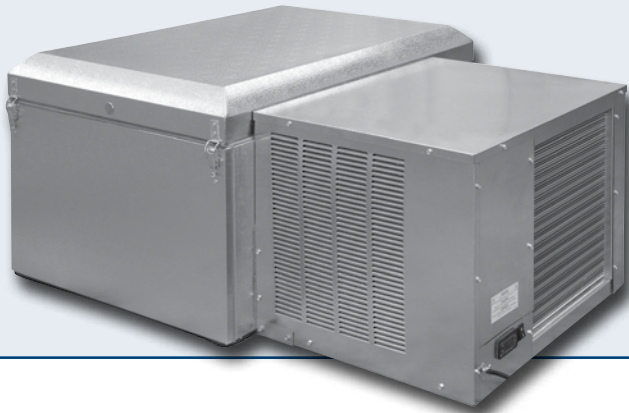
These doors are designed and certified for use in walk-in freezer applications.

DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
KL26X66	6.68	13.40	120/60/1	196.07	1.63
KL26X78	7.01	15.80	120/60/1	207.07	1.73

STANDARD CAPSULE PAK™ REFRIGERATION SYSTEMS

SELF-CONTAINED ONE-PIECE MODELS

A condensing unit and evaporator coil contained in a single housing ready to mount on top of your Nor-Lake walk-in.



OUTDOOR
MODEL



INDOOR
MODEL

The evaporator coil is flush mounted in the walk-in ceiling panel for maximum interior storage space. The standard electronic controller system provides increased reliability, connectivity and food safety. Installation costs are also greatly reduced because there's no piping or other components requiring field installation. All models are factory assembled, wired, charged, tested and fully equipped for fast and easy insertion into a factory prepared walk-in ceiling opening.

STANDARD FEATURES

- Available for coolers or freezers
- Two temperatures: +35°F and -10°F
- Indoor and outdoor ceiling mount models
- Air cooled condensing unit
- Scroll™ compressors on most models
- Automatic condensate evaporator (indoor models only)
- Electronic controller system
- Electronic control provided for automatic defrost on both coolers and freezers
- All models feature standard cord and plug eliminating the need for field connection
- UL and C-UL electrical listing on complete Capsule Pak refrigeration systems*
- AWEF compliant
- -20°F ambient controls (outdoor models)
- 18 months parts and labor warranty

OPTIONAL FEATURES

(Most options are available two weeks from receipt of order.
Please contact us for specific questions)

- Heater kit for outdoor use with medium temp applications where ambient conditions may go below 32°F
- 5 year compressor warranty

* C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.

KOLD LOCKER™ WALK-INS

CAPSULE PAK™ REFRIGERATION SYSTEM SPECIFICATION

Capsule Pak refrigeration systems consist of a single assembly pre-charged condensing unit and evaporator coil factory assembled, wired, tested and ready for insertion into a factory prepared walk-in ceiling opening.

The Capsule Pak system has a flush coil which keeps all components outside the walk-in storage area, allowing more storage inside. Ceiling mount models are available indoor or outdoor installations. Models are available for interior compartment design temperatures of +35°F and -10°F. Installation is fast and easy with no plumbing required on indoor units.

The evaporator section is designed to be located entirely outside the walk-in with no intrusions into the refrigerated space. The evaporator enclosure is constructed utilizing foamed-in-place polyurethane insulation and equipped with a removable, gasketed access cover. Capsule Pak models use high efficiency EC evaporator fan motors to circulate air throughout the walk-in.

All indoor Capsule Pak models are equipped with either a discharge gas condensate vaporizer or an optional electric condensate vaporizer. All outdoor Capsule Pak models are equipped with low ambient controls consisting of crankcase heater and flooded condenser head pressure control.

All standard ceiling mount Capsule Pak refrigeration systems are UL and C-UL listed and AWEF compliant. Note: Allow minimum of 4" clearance above and 24" on each side of the Capsule Pak system for installation. Consideration should be given to accessibility for service and free condenser air flow. Consult factory with installation questions.



SELF-CONTAINED CAPSULE PAK SYSTEMS

Self-contained Capsule Pak systems are conveniently located on top of the walk-in to maximize available floor space. Available in indoor and outdoor models for single or dual walk-in compartments.

STANDARD ELECTRONIC CONTROLLER ON SELF-CONTAINED CAPSULE PAK SYSTEMS



- More precise and reliable temperature control compared to all-mechanical systems
- Patented design saves up to 27% more energy than an all-mechanical system
- Demand Defrost technology initiates defrosts only as needed for further energy savings
- Online data for instant notification of error codes and settings

MATCHING CAPSULE PAK™ REFRIGERATION SYSTEMS

KOLD LOCKER™ MODEL	SELF-CONTAINED ONE-PIECE CEILING MOUNT			
	-10°F		+38°F to +35°F	
	MODEL	BTUH*	MODEL	BTUH*
7' 7" HIGH WITH FLOOR				
KL7746	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
KL7748	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
KL7756	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
KL7766	CPF100JC-S-4-EV	3500	CPB050JC-S-O-EV	4400
KL7768	CPF100JC-S-4-EV	3500	CPB075JC-S-4-EV	6366
KL77610	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL77612	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL77614	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
KL7788	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL77810	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL77812	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
KL77814	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
KL771010	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
KL771012	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
KL771014	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
7' 7" HIGH WITH FLOOR OUTDOOR				
KOD7746	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
KOD7756	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
KOD7766	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
KOD7768	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
KOD77610	CPF100JC-E-4-EV	3210	CPB075JC-E-4-EV	5802
KOD77612	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
KOD77614	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
KOD7788	CPF150JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
KOD77810	CPF150JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
KOD77812	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
KOD77814	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
KOD771010	CPF200JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
KOD771012	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
KOD771014	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
8'4" HIGH LESS FLOOR				
KL8466	N/A	N/A	CPB050JC-S-O-EV	4400
KL8468	N/A	N/A	CPB075JC-S-4-EV	6366
KL84610	N/A	N/A	CPB075JC-S-4-EV	6366
KL84612	N/A	N/A	CPB075JC-S-4-EV	6366
KL84614	N/A	N/A	CPB100JC-S-4-EV	7300
KL8488	N/A	N/A	CPB075JC-S-4-EV	6366
KL84810	N/A	N/A	CPB075JC-S-4-EV	6366
KL84812	N/A	N/A	CPB100JC-S-4-EV	7300
KL84814	N/A	N/A	CPB100JC-S-4-EV	7300
8'7" HIGH WITH FLOOR				
KL8766	CPF100JC-S-4-EV	3500	CPB050JC-S-O-EV	4400
KL8768	CPF100JC-S-4-EV	3500	CPB075JC-S-4-EV	6366
KL87610	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL87612	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL87614	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
KL8788	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL87810	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
KL87812	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
KL87814	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
8'7" HIGH WITH FLOOR OUTDOOR				
KOD8766	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
KOD8768	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
KOD87610	CPF150JC-E-4-EV	4362	CPB075JC-E-4-EV	5802
KOD87612	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
KOD87614	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
KOD8788	CPF150JC-E-4-EV	4362	CPB075JC-E-4-EV	5802
KOD87810	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
KOD87812	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
KOD87814	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884

*BTUH calculated using 16 hour design runtimes on coolers and 20 hour design runtimes on freezers

**Contact factory for information.

CAPSULE PAK™ ELECTRICAL DATA

Indoor Refrigeration Systems (Cord And Plug Connected)

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	NEMA PLUG	AWEF
CPB050JC-S-0-EV	R-449A	115/60/1	9.3	N/A	5-15P	5.61
CPB075JC-S-4-EV	R-449A	208-230/60/1	5.5	N/A	6-15P	5.61
CPB100JC-S-4-EV	R-449A	208-230/60/1	7.5	N/A	6-15P	5.61
CPF060JC-S-4-EV	R-449A	208-230/60/1	8.0	5.7	6-15P	1.99
CPF075JC-S-4-EV	R-449A	208-230/60/1	8.5	5.7	6-15P	2.08
CPF100JC-S-4-EV	R-449A	208-230/60/1	9.6	5.7	6-15P	2.11
CPF150JC-S-4-EV	R-449A	208-230/60/1	11.1	8.7	6-15P	2.22
CPF200JC-S-4-EV	R-449A	208-230/60/1	15.7	8.7	6-20P	2.43

Outdoor Refrigeration Systems (Cord And Plug Connected)

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	NEMA PLUG	AWEF
CPB050JC-E-0-EV	R-449A	115/60/1	9.3	N/A	5-15P	7.60
CPB075JC-E-4-EV	R-449A	208-230/60/1	5.5	N/A	6-15P	7.60
CPB100JC-E-4-EV	R-449A	208-230/60/1	7.5	N/A	6-15P	7.60
CPF060JC-E-4-EV	R-449A	208-230/60/1	8.0	5.7	6-15P	2.89
CPF075JC-E-4-EV	R-449A	208-230/60/1	8.5	5.7	6-15P	2.92
CPF100JC-E-4-EV	R-449A	208-230/60/1	9.6	5.7	6-15P	2.95
CPF150JC-E-4-EV	R-449A	208-230/60/1	11.1	8.7	6-20P	3.03
CPF200JC-E-4-EV	R-449A	208-230/60/1	15.7	8.7	6-20P	3.15

Note:

- Consult factory for application specifics, pricing and ship date availabilities.
- All self-contained Capsule Pak systems require a single power supply.

Walk-In Cooler Cutsheets



QS SERIES

Walk-In Coolers & Freezers With Self-Contained Refrigeration Systems



**Equipped
 with
 SELF-CONTAINED
 Capsule Pak™
 refrigeration
 systems**

FEATURES

- Cooler or freezer models
- Sizes from 4' x 6' to 10' x 14'
- Three heights: 6'7" & 7'7" with floor; 7'4" floorless
- Indoor or outdoor models
- Two temperatures: +35°F, -10°F
- Ceiling mount Capsule Pak refrigeration system (ordered separately)
- Air-cooled condensing unit
- Electronic controller
- 26 gauge corrosion resistant stucco embossed coated steel on all surfaces except interior floor
- Smooth aluminum interior floor (on models with floor)
- Floorless models supplied with NSF listed vinyl sealers
- Full 4" thick panels foamed-in-place with EPA-compliant polyurethane insulation
- 26" wide, self-closing door
- Heavy duty adjustable cam-lift hinges
- Spring actuated door closer
- Deadbolt locking handle with independent key/padlock feature and inside safety release
- Magnetic gasket
- Digital thermometer and light switch
- Floor double sweep gasket
- Perimeter door heater wire
- High output low profile LED light positioned above the door to prevent interference with shelving or product
- UL, C-UL listing on complete Capsule Pak refrigeration systems*
- NSF, UL flame spread 25 or less on all foam cores; UL and CSA electrical listing on door sections**
- City of Houston listed
- California State listed
- CN UL flame spread listed
- DOE compliant
- Oregon State listed
- USDA accepted
- 15 year panel warranty
- 18 months parts & labor warranty

- **INDOOR MODELS:**
 - Hot gas condensate vaporizer
- **OUTDOOR MODELS:**
 - White membrane roof and trim
 - -20°F ambient controls

OPTIONS

(Most options available two weeks from receipt of order. Please contact us for specific questions)

- Heights: 8'7" with floor, 8'4" without floor
- U-shaped shelving system
- Floor tread plate kit
- Exterior ramp
- Door hood (outdoor models)
- Heater kit for outdoor use with medium temp applications where ambient conditions may go below 32°F
- Leak detector/alarm (may be a requirement in some areas)
- Electric vaporizer (indoor models only)
- Five year compressor warranty

* C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.
 ** UL Sanitation is Underwriters Laboratories Sanitation Mark which indicates that UL has tested the equipment to applicable NSF Standards.

DOOR

Door sections are factory tested to assure proper fit, performance and alignment. All doors feature a stepped profile design that serves as a barrier to air flow which results in an energy efficient door system. Door sections are 4" thick, metal clad and foamed-in-place with EPA-compliant polyurethane insulation.

Each QS Series walk-in compartment is equipped with a 26" wide door opening. The height of the door opening varies with the series of walk-in ordered. The Standard Series (6'7" high) has a 66" high door opening and the 74 and 77 Series walk-ins have a 78" high door opening. The door is self-closing, flush mounted, infitting and constructed to incorporate heavy duty, molded ABS breaker which is permanently foamed-in-place.

Doors are available with right or left side hinges and include two field adjustable cam-lift hinges with locking set screw, top hinge spring loaded, spring actuated door closer, NL 9800 deadbolt locking handle with independent key/padlock feature and inside safety release. The doors are pre-hung in a four foot wide frame panel which is equipped with replaceable perimeter heater wire, magnetic stainless steel trim, digital thermometer, vapor proof LED light fixture and switch with exterior pilot indicator light.

The door section is completely pre-wired within concealed conduit inside the door frame panel. 120/60/1 electrical is field wired to a junction box which is surface mounted next to the interior frame above the vapor proof LED light fixture.

Hinges and door handle are mounted to 1/2" synthetic insulated tapping plates. Each door section is complete with a fiberglass reinforced plastic heated threshold.

DOOR OPENING SIZE		
W	H	MODEL
26"	66"	STD Series
26"	78"	74 Series
26"	78"	77 Series



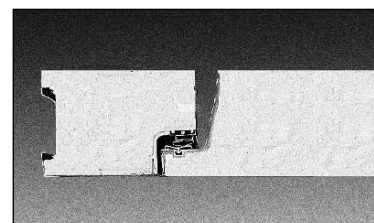
Deadbolt-locking handle



Spring actuated door closer



LED light fixture



Doors feature a stepped profile design



Digital thermometer/light switch

These doors are designed and certified for use in walk-in cooler applications.

DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
QS26X66	2.37	13.40	120/60/1	100.80	0.84
QS26X78	2.49	15.80	120/60/1	106.07	0.88

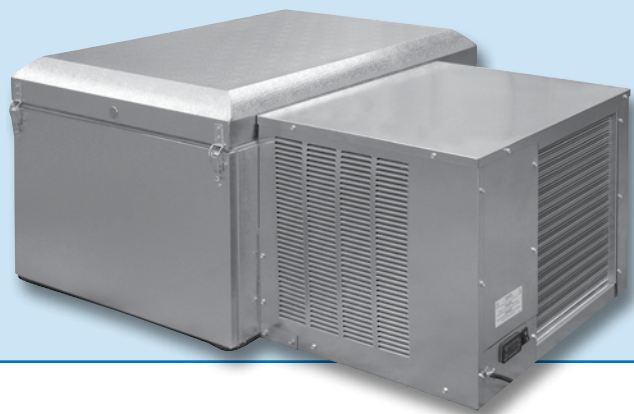
These doors are designed and certified for use in walk-in freezer applications.

DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
QS26X66	6.68	13.40	120/60/1	196.07	1.63
QS26X78	7.01	15.80	120/60/1	207.07	1.73

STANDARD CAPSULE PAK™ REFRIGERATION SYSTEMS

SELF-CONTAINED ONE-PIECE MODELS

A condensing unit and evaporator coil contained in a single housing ready to mount on top of your Master-Bilt walk-in.



OUTDOOR
MODEL



INDOOR
MODEL

The evaporator coil is flush mounted in the walk-in ceiling panel for maximum interior storage space. The standard electronic controller system provides increased reliability, connectivity and food safety. Installation costs are also greatly reduced because there's no piping or other components requiring field installation. All models are factory assembled, wired, charged, tested and fully equipped for fast and easy insertion into a factory prepared walk-in ceiling opening.

FEATURES

- Available for coolers or freezers
- Two temperatures: +35°F and -10°F
- Indoor and outdoor ceiling mount models
- Air cooled condensing unit
- Scroll™ compressors on most models
- Automatic condensate evaporator (indoor models only)
- Electronic controller system
- Electronic control provided for automatic defrost on both coolers and freezers
- All models feature standard cord and plug eliminating the need for field connection
- UL and C-UL electrical listing on complete Capsule Pak refrigeration systems*
- AWEF compliant
- -20°F ambient controls (outdoor models)
- 18 months parts and labor warranty

OPTIONS

(Most options are available two weeks from receipt of order. Please contact us for specific questions)

- Heater kit for outdoor use with medium temp applications where ambient conditions may go below 32°F
- Electric vaporizer (indoor models only)
- 5 year compressor warranty

* C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.



QS SERIES

WALK-IN COOLERS & FREEZERS WITH SELF-CONTAINED REFRIGERATION SYSTEMS

CAPSULE PAK™ REFRIGERATION SYSTEM SPECIFICATIONS

Capsule Pak refrigeration systems consist of a single assembly pre-charged condensing unit and evaporator coil factory assembled, wired, tested and ready for insertion into a factory prepared walk-in ceiling opening.

The Capsule Pak system has a flush coil which keeps all components outside the walk-in storage area, allowing more storage inside. Ceiling mount models are available indoor or outdoor installations. Models are available for interior compartment design temperatures of +35°F and -10°F. Installation is fast and easy with no plumbing required on indoor units.

The evaporator section is designed to be located entirely outside the walk-in with no intrusions into the refrigerated space. The evaporator enclosure is constructed utilizing foamed-in-place polyurethane insulation and equipped with a removable, gasketed access cover. Capsule Pak models use high efficiency EC evaporator fan motors to circulate air throughout the walk-in.

All indoor Capsule Pak models are equipped with either a discharge gas condensate vaporizer or an optional electric condensate vaporizer. All outdoor Capsule Pak models are equipped with low ambient controls consisting of crankcase heater and flooded condenser head pressure control.

All standard ceiling mount Capsule Pak refrigeration systems are UL and C-UL listed and AWEF compliant. Note: Allow minimum of 4" clearance above and 24" on each side of the Capsule Pak system for installation. Consideration should be given to accessibility for service and free condenser air flow. Consult factory with installation questions.



Self-contained Capsule Pak systems are conveniently located on top of the walk-in to maximize available floor space. Available in indoor and outdoor models for single walk-in compartments.

STANDARD ELECTRONIC CONTROLLER ON SELF-CONTAINED CAPSULE PAK SYSTEMS



- More precise and reliable temperature control compared to all-mechanical systems
- Patented design saves up to 27% more energy than an all-mechanical system
- Demand Defrost technology initiates defrosts only as needed for further energy savings
- Online data for instant notification of error codes and settings

QS SERIES MODEL	SELF-CONTAINED ONE-PIECE CEILING MOUNT			
	-10°F		+38°F to +35°F	
	MODEL	BTUH*	MODEL	BTUH*
7' 7" HIGH WITH FLOOR				
QS7746	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
QS7748	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
QS7756	CPF075JC-S-4-EV	3130	CPB050JC-S-O-EV	4400
QS7766	CPF100JC-S-4-EV	3500	CPB050JC-S-O-EV	4400
QS7768	CPF100JC-S-4-EV	3500	CPB075JC-S-4-EV	6366
QS77610	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77612	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77614	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS7788	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77810	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS77812	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS77814	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
QS771010	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS771012	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
QS771014	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
7' 7" HIGH WITH FLOOR OUTDOOR				
QOD7746	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
QOD7756	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
QOD7766	CPF075JC-E-4-EV	2875	CPB050JC-E-O-EV	4115
QOD7768	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
QOD77610	CPF100JC-E-4-EV	3210	CPB075JC-E-4-EV	5802
QOD77612	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
QOD77614	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD7788	CPF150JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
QOD77810	CPF150JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
QOD77812	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD77814	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD771010	CPF200JC-E-4-EV	6350	CPB075JC-E-4-EV	5802
QOD771012	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD771014	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
8'4" HIGH LESS FLOOR				
QS8466	N/A	N/A	CPB050JC-S-O-EV	4400
QS8468	N/A	N/A	CPB075JC-S-4-EV	6366
QS84610	N/A	N/A	CPB075JC-S-4-EV	6366
QS84612	N/A	N/A	CPB075JC-S-4-EV	6366
QS84614	N/A	N/A	CPB100JC-S-4-EV	7300
QS8488	N/A	N/A	CPB075JC-S-4-EV	6366
QS84810	N/A	N/A	CPB075JC-S-4-EV	6366
QS84812	N/A	N/A	CPB100JC-S-4-EV	7300
QS84814	N/A	N/A	CPB100JC-S-4-EV	7300
8'7" HIGH WITH FLOOR				
QS8766	CPF100JC-S-4-EV	3500	CPB050JC-S-O-EV	4400
QS8768	CPF100JC-S-4-EV	3500	CPB075JC-S-4-EV	6366
QS87610	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87612	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87614	CPF200JC-S-4-EV	6725	CPB075JC-S-4-EV	6366
QS8788	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87810	CPF150JC-S-4-EV	4509	CPB075JC-S-4-EV	6366
QS87812	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
QS87814	CPF200JC-S-4-EV	6725	CPB100JC-S-4-EV	7300
8'7" HIGH WITH FLOOR OUTDOOR				
QOD8766	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
QOD8768	CPF100JC-E-4-EV	3210	CPB050JC-E-O-EV	4115
QOD87610	CPF150JC-E-4-EV	4362	CPB075JC-E-4-EV	5802
QOD87612	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
QOD87614	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD8788	CPF150JC-E-4-EV	4362	CPB075JC-E-4-EV	5802
QOD87810	CPF150JC-E-4-EV	4362	CPB100JC-E-4-EV	6884
QOD87812	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884
QOD87814	CPF200JC-E-4-EV	6350	CPB100JC-E-4-EV	6884

*BTUH calculated using 16 hour design runtimes on coolers and 20 hour design runtimes on freezers

**Contact factory for information.

CAPSULE PAK™ SYSTEM ELECTRICAL DATA

INDOOR REFRIGERATION SYSTEMS (CORD AND PLUG CONNECTED)

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	NEMA PLUG	AWEF
CPB050JC-S-0-EV	R-449A	115/60/1	9.3	N/A	5-15P	5.61
CPB075JC-S-4-EV	R-449A	208-230/60/1	5.5	N/A	6-15P	5.61
CPB100JC-S-4-EV	R-449A	208-230/60/1	7.5	N/A	6-15P	5.61
CPF060JC-S-4-EV	R-449A	208-230/60/1	8.0	5.7	6-15P	1.99
CPF075JC-S-4-EV	R-449A	208-230/60/1	8.5	5.7	6-15P	2.08
CPF100JC-S-4-EV	R-449A	208-230/60/1	9.6	5.7	6-15P	2.11
CPF150JC-S-4-EV	R-449A	208-230/60/1	11.1	8.7	6-15P	2.22
CPF200JC-S-4-EV	R-449A	208-230/60/1	15.7	8.7	6-20P	2.43

OUTDOOR REFRIGERATION SYSTEMS (CORD AND PLUG CONNECTED)

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	NEMA PLUG	AWEF
CPB050JC-E-0-EV	R-449A	115/60/1	9.3	N/A	5-15P	7.60
CPB075JC-E-4-EV	R-449A	208-230/60/1	5.5	N/A	6-15P	7.60
CPB100JC-E-4-EV	R-449A	208-230/60/1	7.5	N/A	6-15P	7.60
CPF060JC-E-4-EV	R-449A	208-230/60/1	8.0	5.7	6-15P	2.89
CPF075JC-E-4-EV	R-449A	208-230/60/1	8.5	5.7	6-15P	2.92
CPF100JC-E-4-EV	R-449A	208-230/60/1	9.6	5.7	6-15P	2.95
CPF150JC-E-4-EV	R-449A	208-230/60/1	11.1	8.7	6-20P	3.03
CPF200JC-E-4-EV	R-449A	208-230/60/1	15.7	8.7	6-20P	3.15

Note:

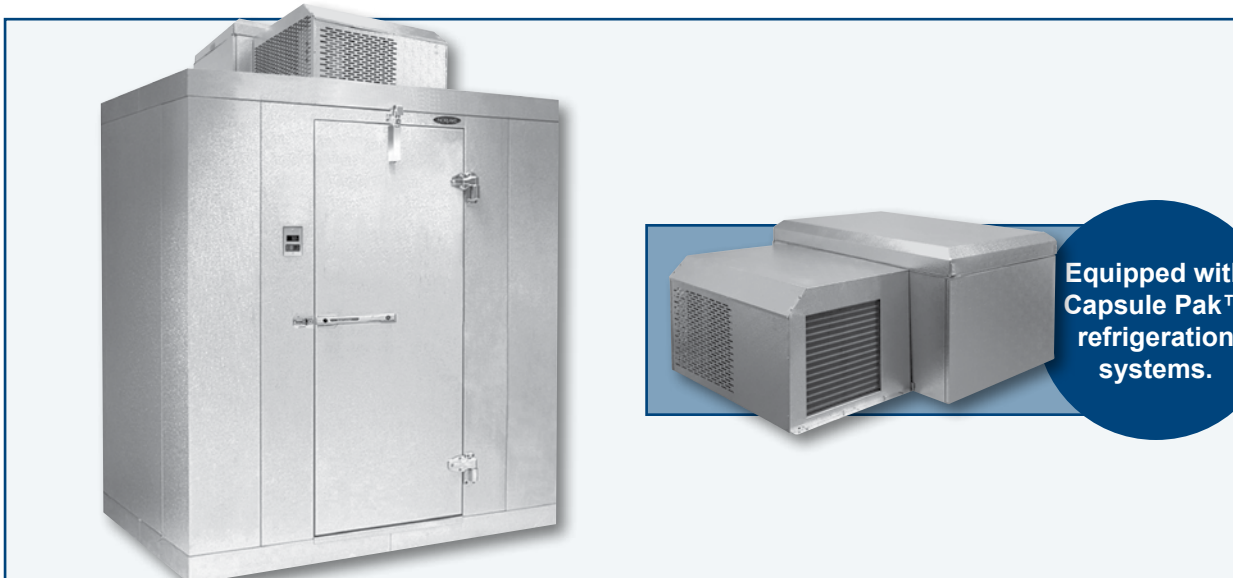
- Consult factory for application specifics, pricing and ship date availabilities.
- All self-contained Capsule Pak systems require a single power supply.



NOR-LAKE, INCORPORATED
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Hudson, Wisconsin 54016

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715-386-2323
866-961-5253 Parts
800-388-5253 Service
715-386-6149 FAX
www.norlake.com

KOLD LOCKER™ WALK-INS



Equipped with
Capsule Pak™
refrigeration
systems.

Standard Model Coolers and Freezers In Stock for SAME DAY SHIPMENT

STANDARD FEATURES

- STANDARD MODELS SHIP THE SAME DAY*
- Cooler or freezer models
- Sizes from 4' x 6' to 10' x 14'
- Three heights: 6'7" & 7'7" with floor; 7'4" floorless
- Indoor or outdoor models
- Two temperatures: +35°F, -10°F
- Capsule Pak™ refrigeration system (ceiling or wall mount) (ordered separately)
- Air-cooled condensing unit (wall mount – 10 day ship)
- Automatic condensate vaporizer. No drain line required on indoor units.**
- Time clock or electronic control provided for automatic defrost on both coolers and freezers
- 26 gauge corrosion resistant stucco embossed coated steel on all surfaces except interior floor
- Smooth aluminum interior floor (on models with floor)
- Floorless models supplied with NSF listed vinyl sealers
- Full 4" thick panels foamed-in-place with EPA-compliant polyurethane insulation
- 26" wide, self-closing door
- Heavy duty adjustable cam-lift hinges
- Spring actuated door closer
- Deadbolt locking handle with independent key/padlock feature and inside safety release
- Magnetic gasket
- Digital thermometer and light switch
- Floor double sweep gasket
- Perimeter door heater wire
- High output low profile LED light positioned above the door to prevent interference with shelving or product
- UL, C-UL listing on complete Capsule Pak™ refrigeration systems (see page 11 for listed components)***
- NSF, UL flame spread 25 or less on all foam cores; UL and CSA electrical listing on door sections ****
- City of Houston listed

- California State listed
- CN UL flame spread listed
- DOE compliant
- Oregon State listed
- USDA accepted
- 15 year panel warranty
- 18 months parts & labor warranty

INDOOR MODELS:

- Hot gas condensate vaporizer available on many models

OUTDOOR MODELS:

- White membrane roof and trim
- Refrigeration hood
- -20°F ambient controls

OPTIONAL FEATURES**

(Most options are available two weeks from receipt of order.
Please contact us for specific questions)

- Heights: 8'7" with floor, 8'4" without floor
- U-shaped shelving system
- Floor tread plate kit
- Exterior ramp
- Condensing unit air deflector kit
- Door hood (outdoor models)
- Heater kit for outdoor use where ambient conditions may go below 32°F
- Leak detector/alarm (may be a requirement in some areas)
- Electric vaporizer
- Five year compressor warranty

* Some models ship in 5 or 10 days

** Vaporizer will be field wired to the unit cooler for first half of 2020. Afterward, it will be included with no wiring required.

*** C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.

**** UL Sanitation is Underwriters Laboratories Sanitation Mark which indicates that UL has tested the equipment to applicable NSF Standards.

KOLD LOCKER™ WALK-INS

DOOR

Door sections manufactured at Nor-Lake are factory tested to assure proper fit, performance and alignment. All doors feature a stepped profile design that serves as a barrier to air flow which results in an energy efficient door system. Door sections are 4" thick, metal clad and foamed-in-place with EPA-compliant polyurethane insulation.

Each Kold Locker™ walk-in compartment is equipped with a 26" wide door opening. The height of the door opening varies with the series of Kold Locker™ walk-in ordered. The Standard Series (6'7" high) has a 66" high door opening and the 74 and 77 Series Kold Locker™ walk-ins have a 78" high door opening. The door is self-closing, flush mounted, infitting and constructed to incorporate heavy duty, molded ABS breaker which is permanently foamed-in-place.

Doors are available with right or left side hinges and include two field adjustable cam-lift hinges with locking set screw, top hinge spring loaded, spring actuated door closer, NL 9800 deadbolt locking handle with independent key/padlock feature and inside safety release. The doors are pre-hung in a four foot wide frame panel which is equipped with replaceable perimeter heater wire, magnetic stainless steel trim, digital thermometer, vapor proof LED light fixture and switch with exterior pilot indicator light.

The door section is completely pre-wired within concealed conduit inside the door frame panel. 120/60/1 electrical is field wired to a junction box which is surface mounted next to the interior frame above the vapor proof LED light fixture.

Hinges and door handle are mounted to 1/2" synthetic insulated tapping plates. Each door section is complete with a fiberglass reinforced plastic heated threshold.

DOOR OPENING SIZE		
W	H	MODEL
26"	66"	STD Series
26"	78"	74 Series
26"	78"	77 Series

These doors are designed and certified for use in walk-in cooler applications.

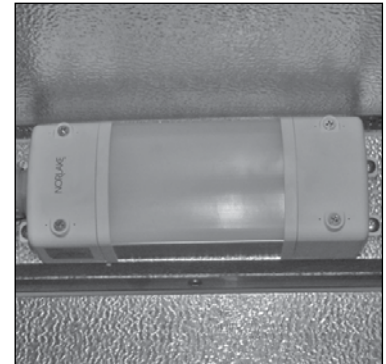
DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
KL26X66	2.37	13.40	120/60/1	100.80	0.84
KL26X78	2.49	15.80	120/60/1	106.07	0.88



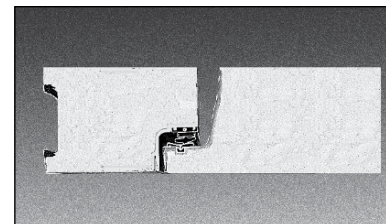
Deadbolt-locking handle



Spring actuated door closer



LED Light Fixture



Doors feature a stepped profile design

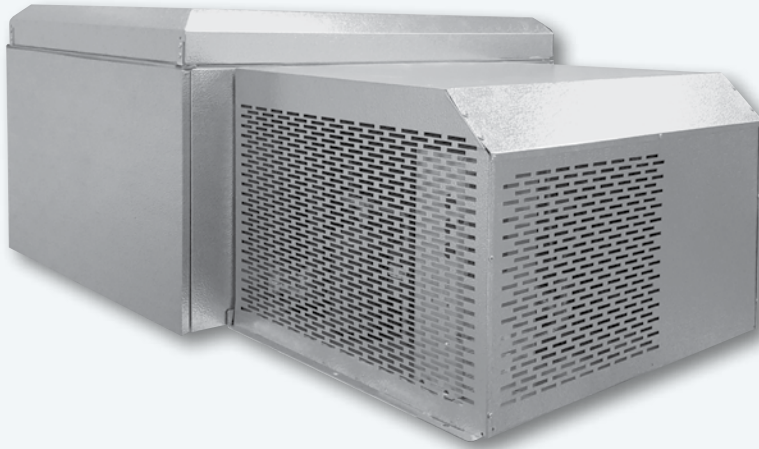


Digital Thermometer/ Light Switch

These doors are designed and certified for use in walk-in freezer applications.

DOOR MODEL NUMBER	ENERGY CONSUMPTION (KWH/DAY)	DOOR SURFACE AREA (SQ. FT.)	ELECTRICAL	WATTS	AMPS
KL26X66	6.68	13.40	120/60/1	196.07	1.63
KL26X78	7.01	15.80	120/60/1	207.07	1.73

STANDARD CAPSULE PAK™ REFRIGERATION SYSTEMS



INDOOR CEILING MOUNT
(OUTDOOR CEILING MOUNT MODELS ALSO AVAILABLE)



WALL MOUNT

Capsule Pak™ refrigeration systems are an ideal solution for simple and rapid installation. Each system consists of a condensing unit and evaporator coil. All models are factory assembled, wired, charged, tested and fully equipped for fast and easy insertion into a factory prepared walk-in opening. Condensing unit and evaporator sections are shipped separately and joined in the field via quick-connect fittings. The evaporator coil is flush mounted in the walk-in panel for maximum interior storage space. The standard Enviro-Control™ electronic controller system provides increased reliability, connectivity and food safety. Installation costs are also greatly reduced because there's no piping or other components requiring field installation.

STANDARD FEATURES

- Available for coolers or freezers
- Indoor or outdoor models
- Two temperatures: +35°F and -10°F
- Ceiling or wall mount
- Air cooled condensing unit
- Scroll™ compressors on most models
- Enviro-Control™ electronic controller system
- Automatic condensate vaporizer (shipped loose), no drain lines required on indoor units*
- Time clock or electronic control provided for automatic defrost on both coolers and freezers
- UL and C-UL electrical listing on complete Capsule Pak™ refrigeration systems**
- AWEF compliant (ceiling mount only)
- -20°F ambient controls (outdoor models)
- 18 months parts and labor warranty

OPTIONAL FEATURES

(Most options are available two weeks from receipt of order.
Please contact us for specific questions)

- Condensing unit air deflector kit
- Heater kit for outdoor use where ambient conditions may go below 32°F
- Electric condensate vaporizer (indoor remote models)
- Pre-charged lines (remote models)
- Wiring harness (remote models)
- 5 year compressor warranty

* Vaporizer will be field wired to the unit cooler for first half of 2020. Afterward, it will be included with no wiring required.

** C-UL is Underwriters Laboratories Safety Certification Mark which indicates that UL has tested the equipment to applicable CSA Standards.

KOLD LOCKER™ WALK-INS

CAPSULE PAK™ REFRIGERATION SYSTEM SPECIFICATION

Capsule Pak™ refrigeration systems consist of a pre-charged quick-connect condensing unit and evaporator coil which are factory assembled, wired, charged, tested and fully equipped for insertion into a factory prepared walk-in opening. Condensing unit and evaporator sections are shipped separately and joined in the field via quick-connect fittings. The Capsule Pak™ system has a flush coil which keeps all components outside the walk-in storage area, allowing more storage inside. Models are available for wall or ceiling mounting for use on indoor or outdoor installations. Models are available for interior compartment design temperatures of +35°F and -10°F. Installation is fast and easy. No plumbing required on indoor units.

The Capsule Pak™ evaporator section is a factory assembled component of the complete Capsule Pak™ refrigeration system. The evaporator is designed to be located entirely outside the walk-in with no intrusions into the refrigerated space. The evaporator enclosure is constructed utilizing foamed-in-place polyurethane insulation and equipped with a removable, gasketed access cover. Capsule Pak™ models use high efficiency EC evaporator fan motors to circulate air throughout the walk-in.

All indoor Capsule Pak™ models are equipped with either a discharge gas condensate vaporizer or an optional electric condensate vaporizer. All outdoor Capsule Pak™ models are equipped with low ambient controls consisting of crankcase heater and flooded condenser head pressure control.

All standard Capsule Pak™ refrigeration systems are stocked for same day shipment.

All standard ceiling mount Capsule Pak™ refrigeration systems are UL and C-UL listed and AWEF compliant.

Note: Allow minimum of 4" clearance above and 25" on each side of the Capsule Pak™ system for installation. Consideration should be given to accessibility for service and free condenser air flow. Consult factory with installation questions.



CEILING MOUNT CAPSULE PAK™ SYSTEM

Ceiling Mount Capsule Pak™ systems are conveniently located on top of the walk-in to maximize available floor space. Available in indoor and outdoor models for single or dual walk-in compartments. Ceiling mount systems are available for same day shipment.



WALL MOUNT CAPSULE PAK™ SYSTEM

The Wall Mount Capsule Pak™ System provides easy access for service and installation where there is not enough room for a ceiling mounted application. Available in indoor models for single or dual walk-in compartments. Wall Mount Systems are available to ship in ten days and feature R-404A refrigerant.

MATCHING CAPSULE PAK™ REFRIGERATION SYSTEMS

KOLD LOCKER™ MODEL SYSTEM MOUNT	-10°F CEILING MOUNT		+38°F to +35°F CEILING MOUNT		+38°F to +35°F WALL MOUNT		-10°F WALL MOUNT	
	MODEL	BTUH*	MODEL	BTUH*	MODEL	BTUH*	MODEL	BTUH*
7' 7" HIGH WITH FLOOR								
KL7746	RCPF075JC-S-4-EV	2637	CPB050DC-A		CPB050DW	3251	N/A	N/A
KL7748	RCPF075JC-S-4-EV	2637	CPB050DC-A		N/A	N/A	N/A	N/A
KL7756	RCPF075JC-S-4-EV	2637	CPB050DC-A		CPB050DW	3251	CPF100DW	3960
KL7766	RCPF100JC-S-4-EV	3444	CPB050DC-A		CPB050DW	3251	CPF100DW	3960
KL7768	RCPF100JC-S-4-EV	3444	RCPB075JC-S-4-EV	6250	CPB050DW	3251	CPF100DW	3960
KL77610	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	CPB075DW	5709	N/A	N/A
KL77612	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL77614	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL7788	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	CPB075DW	5709	N/A	N/A
KL77810	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	CPB075DW	5709	N/A	N/A
KL77812	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL77814	RCPF150JC-S-4-EV	6120	RCPB100JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL771010	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL771012	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL771014	RCPF150JC-S-4-EV	6120	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
7' 7" HIGH WITH FLOOR OUTDOOR								
KOD7746	RCPF075JC-E-4-EV	2447	CPB050DC-A		N/A	N/A	N/A	N/A
KOD7756	RCPF100JC-E-4-EV	3220	CPB050DC-A		N/A	N/A	N/A	N/A
KOD7766	RCPF100JC-E-4-EV	3220	CPB050DC-A		N/A	N/A	N/A	N/A
KOD7768	RCPF100JC-E-4-EV	3220	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD77610	RCPF150JC-E-4-EV	5692	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD77612	RCPF150JC-E-4-EV	5692	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD77614	N/A	N/A	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD7788	RCPF150JC-E-4-EV	5692	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD77810	RCPF150JC-E-4-EV	5692	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD77812	RCPF150JC-E-4-EV	5692	RCPB100JC-E-4-EV	7890	N/A	N/A	N/A	N/A
KOD77814	RCPF150JC-E-4-EV	5692	RCPB100JC-E-4-EV	7890	N/A	N/A	N/A	N/A
KOD771010	RCPF150JC-E-4-EV	5692	RCPB075JC-E-4-EV	5812	N/A	N/A	N/A	N/A
KOD771012	RCPF150JC-E-4-EV	5692	RCPB100JC-E-4-EV	7890	N/A	N/A	N/A	N/A
KOD771014	RCPF150JC-E-4-EV	5692	RCPB100JC-E-4-EV	7890	N/A	N/A	N/A	N/A
8'4" HIGH LESS FLOOR								
KL8466	N/A	N/A	CPB050DC-A		N/A	N/A	N/A	N/A
KL8468	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL84610	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL84612	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL84614	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
KL8488	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL84810	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL84812	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
KL84814	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
8'7" HIGH WITH FLOOR								
KL8766	RCPF100JC-S-4-EV	3444	CPB050DC-A		N/A	N/A	N/A	N/A
KL8768	RCPF100JC-S-4-EV	3444	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL87610	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL87612	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL87614	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL8788	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL87810	RCPF150JC-S-4-EV	6120	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KL87812	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
KL87814	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
8'7" HIGH WITH FLOOR OUTDOOR								
KOD8766	RCPF100JC-E-4-EV	3220	CPB050DC-A		N/A	N/A	N/A	N/A
KOD8768	RCPF100JC-E-4-EV	3220	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KOD87610	RCPF150JC-E-4-EV	5692	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KOD87612	RCPF150JC-E-4-EV	5692	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KOD87614	N/A	N/A	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KOD8788	RCPF150JC-E-4-EV	5692	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KOD87810	RCPF150JC-E-4-EV	5692	RCPB075JC-S-4-EV	6250	N/A	N/A	N/A	N/A
KOD87812	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A
KOD87814	N/A	N/A	RCPB100JC-S-4-EV	8484	N/A	N/A	N/A	N/A

*BTUH calculated using 16 hour design runtimes on coolers and 20 hour design runtimes on freezers

CAPSULE PAK™ ELECTRICAL DATA

MODEL	REFRIGERANT	ELECTRICAL	TOTAL SYSTEM AMPS	TOTAL DEFROST AMPS	MCA	NEMA PLUG OR FUSE SIZE
CEILING MOUNT						
CPB050DC-A	R-404A	115/60/1	14.3	N/A	N/A	5-20P
RCPB075JC-S-4-EV	R-449A	208-230/60/1	7.7	N/A	8.85	15
RCPB075JC-E-4-EV	R-449A	208-230/60/1	7.87	N/A	9.37	15
RCPB100JC-S-4-EV	R-449A	208-230/60/1	9.7	N/A	11.7	15
RCPB100JC-E-4-EV	R-449A	208-230/60/1	8.17	N/A	9.75	15
RCPF060JC-S-4-EV	R-449A	208-230/60/1	7.4	8.69	8.98	15
RCPF060JC-E-4-EV	R-449A	208-230/60/1	7.62	8.69	9.15	15
RCPF075JC-S-4-EV	R-449A	208-230/60/1	7.45	8.69	8.98	15
RCPF075JC-E-4-EV	R-449A	208-230/60/1	7.62	8.69	9.15	15
RCPF100JC-S-4-EV	R-449A	208-230/60/1	9.1	8.69	10.95	15
RCPF100JC-E-4-EV	R-449A	208-230/60/1	9.27	8.69	10.04	15
RCPF150JC-S-4-EV	R-449A	208-230/60/1	15.3	8.69	17.79	25
RCPF150JC-E-4-EV	R-449A	208-230/60/1	15.47	8.69	18.87	25

Suffix "E" = outdoor models, suffix "S" = indoor models

WALL MOUNT						
CPB050DW	R-404A	115/60/1	11.2	N/A	N/A	5-20P*
CPB075DW	R-404A	208/230-60-1	8.7	N/A	N/A	6-15P*
CPF100DW	R-404A	208-230/60/1	11.4	7.1	14.9	20

*System comes with cord and plug

Note:

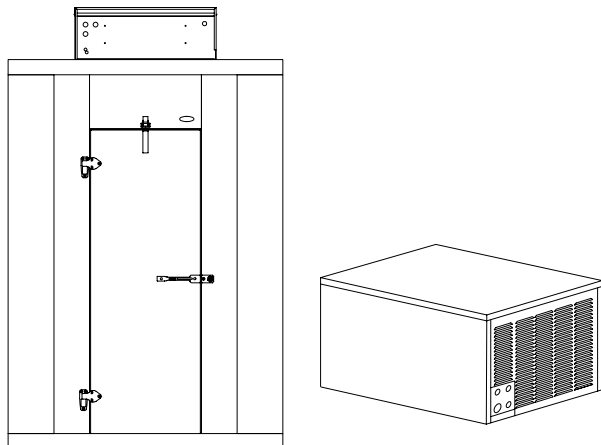
- Outdoor "E" systems include ambient controls and weather-proof hoods. Also available are optional pre-charged systems with quick connects for simple field connections to pre-charged line lengths of your choice.
- Wall mount systems, built prior to 2020, contain R-404A refrigerant.
- Consult factory for application specifics, pricing and ship date availabilities.
- All close-coupled Capsule Pak systems require one power supply and include an electrical harness to connect the condensing unit and evaporator sections.

CAPSULE PAK™ COMPONENT LISTING

UL SA12403 Sec 3	AWEF	UL File SA32066	Remote CP model
Cond. Unit Assy. P/N		Evap. Cowl Assy. P/N	
			CPB050DC-A
169379	5.61	169397	RCPB075JC-S-4-EV
169384	7.6	169398	RCPB075JC-E-4-EV
169377	5.61	169397	RCPB100JC-S-4-EV
169385	7.6	169398	RCPB100JC-E-4-EV
170249	N/A	169399	RCPF060JC-S-4-EV
169386	N/A	169400	RCPF060JC-E-4-EV
170249	N/A	169321	RCPF075JC-S-4-EV
169386	N/A	169401	RCPF075JC-E-4-EV
169380	N/A	169321	RCPF100JC-S-4-EV
169388	N/A	169401	RCPF100JC-E-4-EV
169381	N/A	169321	RCPF150JC-S-4-EV
169389	N/A	169401	RCPF150JC-E-4-EV

KOLD LOCKER™ WALK-INS

REMOTE CAPSULE PAK™ REFRIGERATION SYSTEMS (ALL SYSTEMS USE R-449A REFRIGERANT)



Outdoor "E" systems include ambient controls and weather-proof hoods with quick connects for simple field connections to pre-charged line lengths of your choice.

Consult factory for application specifics, pricing, and ship date availabilities.

MODEL NUMBER	REFRIG. OPENING SIZE	CONDENSING UNIT				
		VOLTAGE	COND. AMPS	MIN. CIRCUIT AMPS	MAX FUSE SIZE	AWEF

CEILING MOUNT 35°F COOLER SYSTEMS

RCPB075JC-E-4-EV	25 X 37.38	208-230/60/1	7.87	9.37	15	7.6
RCPB100JC-E-4-EV	25 X 37.38	208-230/60/1	8.17	9.75	15	7.6

CEILING MOUNT -10°F FREEZER SYSTEMS

RCPF060JC-E-4-EV	25 X 37.38	208-230/60/1	7.62	9.15	15	N/A
RCPF075JC-E-4-EV	25 X 37.38	208-230/60/1	7.62	9.15	15	N/A
RCPF100JC-E-4-EV	25 X 37.38	208-230/60/1	9.27	10.04	15	N/A
RCPF150JC-E-4-EV	25 X 37.38	208-230/60/1	15.47	18.87	30	N/A

EVAPORATOR UNIT				
VOLTAGE	DEFROST AMPS	EVAP AMPS	MIN. CIRCUIT AMPS	MAX FUSE SIZE

230/60/1	N/A	0.6	0.6	15
230/60/1	N/A	0.6	0.6	15

230/60/1	8.69	0.6	8.69	15
230/60/1	8.69	0.6	8.69	15
230/60/1	8.69	0.6	8.69	15
230/60/1	8.69	0.6	8.69	15

Optional Electric Condensate Vaporizer

Exclusive to Nor-Lake is the Electric Condensate Vaporizer for Remote Capsule Pak™ Systems. This UL and C-UL approved product requires no drain lines on indoor applications, which makes installation fast and easy and allows equipment to be operational in a shorter time frame.



Revision Date: 1/20
Part Number: 079297

Water Filter Cutsheets

CURRENT SCA SPEC



VZN T5

water filtration

owner's manual

original instructions

Manufacturing Numbers:

9700730 & 9700750



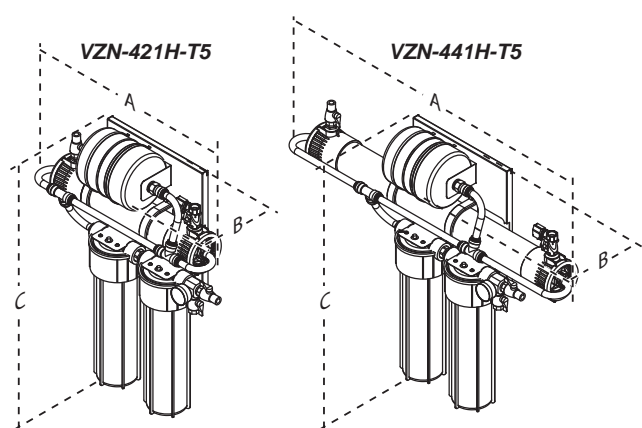
System Tested and Certified by NSF
International and WQA against NSF/ANSI
Standard 42 and 53 for the reduction of:

Standard No. 42: Aesthetic Effects
Nominal Particulate Reduction Class I
Standard No. 53: Health Effects
Cyst Reduction & Turbidity Reduction as
verified and substantiated by test data.

System Tested and Certified by WQA
against NSF/ANSI Standard 372
for lead-free compliance

SPECIFICATIONS

Dimensions



Model & Mfg. No.	Width (A)	Depth (B)	Height (C)
VZN-421H-T5 9700730	31" (79 cm)	9" (23 cm)	39" (99 cm)
VZN-441H-T5 9700750	50" (127 cm)	9" (23 cm)	39" (99 cm)

⚠ CAUTION ⚠

All electrical connections must be in accordance with local electrical codes and any other applicable codes.

A ground fault circuit interrupter (GFCI) must be installed on the circuit to this system.

When installed on metallic plumbing, a properly sized electrical bonding jumper must be installed across the inlet and outlet pipes serving this unit.

Electrical Ratings

Model & Mfg. No.	Volts	Watts	Amps	Hertz
VZN-421H-T5 9700730	100-240	10	.08	50/60
VZN-441H-T5 9700750	100-240	10	.08	50/60

NOTE: Includes plug adaptors for US, Europe, Australia, and UK.

Replacement Cartridges

Replacement	Part Number
VZN-421H-T5	L-420 Ultra Filter 7000411
VZN-441H-T5	L-440 Ultra Filter 7000412
VZN-421H-T5 VZN-441H-T5	Carbon Element 7000669

Electrical Cord & Plug Configurations

Kit Model Number	Description	Configuration
0012146	DC Power Supply 100 - 240 VAC Includes the 4 plug adaptors below	
	US NEMA 1-15 (2 pin) or NEMA 5-15 (3 Pin)	
	Euro CEE 7/16	
	AS/NZS 3112 AUS (2 Pin)	
	UK BS 1363	

PERFORMANCE DATA SHEET

Filter Cartridge Capacities

Maximum Operating Pressure	100 psig (690 kPa)
Maximum Operating Temperature	100°F (38°C)
Minimum Operating Temperature	40°F (4°C)
Maximum Trans Membrane Pressure	45 PSI (3.1 Bar)
pH Range	3-10
MWCO	100 kD
NSF/WQA Certified Rated Service Flow:	
VZN-421H-T5	7.9 gpm (30 l/m)
VZN-441H-T5	13 gpm (49 l/m)

Performance Claims for Percent Reduction

Substance	Influent Challenge Concentration	Reduction Requirement	Minimum % Reduction
cyst ¹	minimum 50,000/L	99.95%	99.95%
Turbidity	11 ± 1 NTU	≤ 0.5 NTU	99.1%
Particulate Class I Particles 0.5 to < 1µm	at least 10,000 particles /mL	≥ 85%	99.5%

¹based on the use of microspheres or *Cryptosporium parvum* oocysts



System Tested and Certified by NSF International and WQA against NSF/ANSI Standard 42 and 53 for the reduction of:

Standard No. 42: Aesthetic Effects
Nominal Particulate Reduction Class I
Standard No. 53: Health Effects
Cyst Reduction & Turbidity Reduction
as verified and substantiated by test data.

System Tested and Certified by WQA against NSF/ANSI Standard 372 for lead-free compliance

This system has been tested according to NSF/ANSI Standard 42 and 53 for reduction of the substances listed below. The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 42 or 53. While testing was performed under standard laboratory conditions, actual performance may vary.

NOTE: The NSF/WQA information provided applies to the Ultra Filter cartridge.

Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected waters that may contain filterable cysts.

Clock Cutsheets

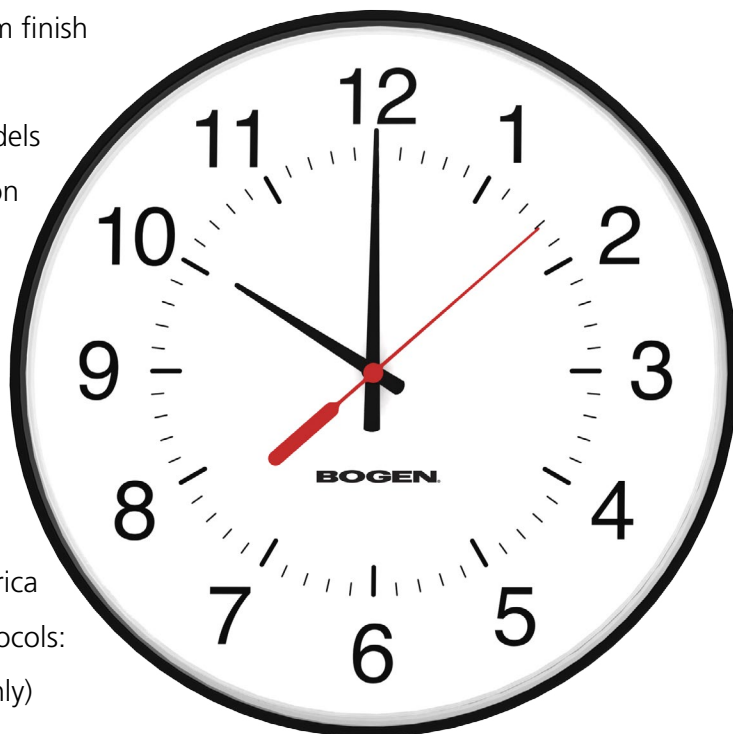
BCAM Series Wired Round Clock (V4.1)

Features:

- Available in 9" (22.8cm), 12" (30.4 cm), and 16" (40.6 cm) dial sizes
- Offered in a low-profile metal case or SlimLine ABS case
 - Optional Cherry Wood finish or Brushed Aluminium finish
- Multiple power options
 - Offered in 110VAC, 230VAC and 24VAC/VDC models
- Provided with mounting hardware for easy installation
- Hour, minute, and second hands
- Quick correction for time change (max. 5 minutes when used with digital communication protocol)
- Microprocessor based movement
- Side molded, polycarbonate crystal

Highlights:

- Designed and Produced in the United States of America
- Automatically recognizes many wired time data protocols:
 - 2-wire digital communication system (24V clock only)
 - 3-wire digital communication system
 - Sync-wire 59 minute correction
 - Various Sync-wire 58 minute correction formats
 - National Time/Rauland correction
- Correctly interprets time data protocols even if the **signal** wire polarity is switched.
- Built-in self-diagnostic mode:
 - Communication Protocol Verification
 - Time since the last synchronization signal was received
 - Hand position error detection
- Custom Color Cases available (minimum quantity 25)



BCAM Series Wired Round Clock (V4.1)

Specifications:

Case Material:

Steel or ABS.

Cherry wood finish or brushed aluminum finish for the SlimLine ABS case are also available.

Case Color:

Standard black finish (custom colors available)

Dial Face:

12 or 24 (military) hour standard

Specialty dials available

Dial Material:

Durable polystyrene

Crystal Material:

Shatter-proof, side-molded, transparent polycarbonate

Voltage Input:

7 - 28 VDC/VAC 50/60 Hz (24V model)

85 - 130 VAC 50/60 Hz (110V model)

180 - 260 VAC 50/60 Hz (230V model)

Average Current Consumption:

35 mA @ 24VDC/VAC

25 mA @ 110VAC

15 mA @ 230VAC

Hand tolerance:

Minute hand: +/- 1/4 minute

Second hand: +/- 1/2 second

Temperature range:

Operating: 32°F - 113°F (0°C - 45°C)

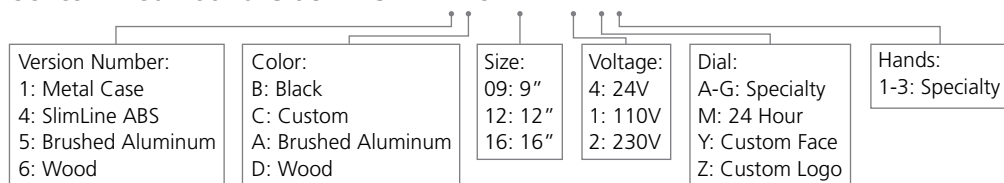
Shelf: 5°F - 167°F (-15°C - 75°C)

Compliance:

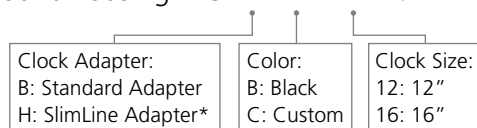
UL, cUL listed, CE Compliances: EMC, LVD

Ordering Information:

BCAM Series Wired Round Clock: BCAM-XXS-XXR-X-XX



Double Mount Housing: BCAX-4XD-XXR-0



Note: Purchasing double mounted round analog clocks will require two clocks using the clock part number and one double mount housing using the part number above.

*Note: SlimLine and Aluminum clocks use the SlimLine Adapter.

Examples:

BCAM-6DS-09R-4: Bogen Analog, Wired BCAM, 9" Round, 24V, Surface Wall Mount, Solid Cherry Wood Frame, Supports: 2-Wire Digital & Sync Wire Protocols

BCAM-5AS-12R-2: Bogen Analog, Wired SlimLine BCAM, 12" Round, 230 VAC, Surface Wall Mount, Brushed Aluminum Case, Supports: Sync Wire Protocols

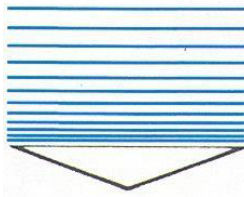
Specification sheets may change without prior notice

Compactor Cutsheets



COMPACTORS INC
RECYCLING AND WASTE MANAGEMENT SOLUTIONS

WASTE MANAGEMENT SYSTEMS



Models

3000SS, 4500SS, 7000SS

**One full year
limited warranty**



ABS

Certificate of
Design Assessment



Model 7000SS

Model 4500SS

Model 3000SS

Standard Features – Stainless Steel Cabinet & Compaction Chamber

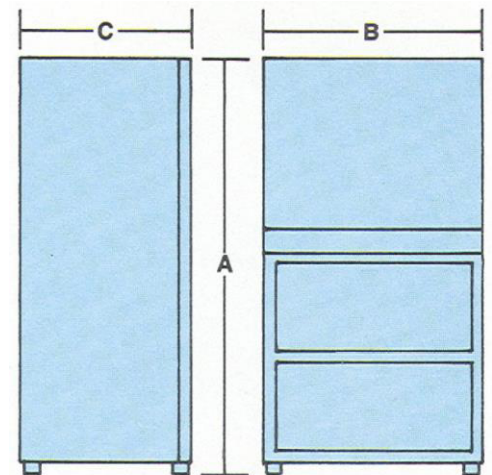
All stainless steel exterior
All stainless steel compaction chamber
Heavy duty welded construction
Push button controls
Multi-operational key switch
UL Listed Components

Compaction ratios up to 20:1
Reusable split trashcube
Safety interlock system
Heavy duty compaction plate
Modular electrical system
Baling capability

Two stage hydraulic pump
Trashcube ejector system
Odor control system
Bag dispenser
Full indicator, buzzer and light
Heavy duty deck legs

Specifications

	Series 3000SS	Series 4500SS	Series 7000SS
Height – A	71 ¼"	77 ¾"	80 ¼"
Width – B	22 ¼"	28 ¼"	40 ¼"
Depth – C	22 ¼"	28"	28"
Service Weight	520 lb.	790 lb.	1,215 lb.
Loading Chute Door Opening	15 ¼" x 18"	19" x 24"	20 ½" x 36"
Compaction Chamber Size	37 ½" x 18 ¾" x 18 ¼"	40 ½" x 24" x 24"	41 ¾" x 36" x 24"
Capacity	3.3 cu. ft. Ratios to 20:1	6 cu. ft. Ratios to 20:1	9 cu. ft. Ratios to 20:1
Cycle Time	11 – 15 seconds	18 – 22 seconds	20 – 25 seconds
Motor Size	½ hp	½ hp	1 hp
Electrical Requirements	120/240 VAC 9/4.5 amps	120/240 volts 9/4.5 amps	120/240 volts 14/7 amps
Max. Compaction Force	8,640 lb	13,500 lb.	24,000 lb.
Working Space	46" x 22"	54" x 30"	66" x 42"



COMPACTORS INC
RECYCLING AND WASTE MANAGEMENT SOLUTIONS

PO Box 3173
Hilton Head Island, SC 29928

800-423-4003

843-686-5503

843-686-3290 (fax)

www.CompactorsInc.com

Display Monitor Cutsheets

1-Line/5-Line RGB Indoor Full-Color Displays

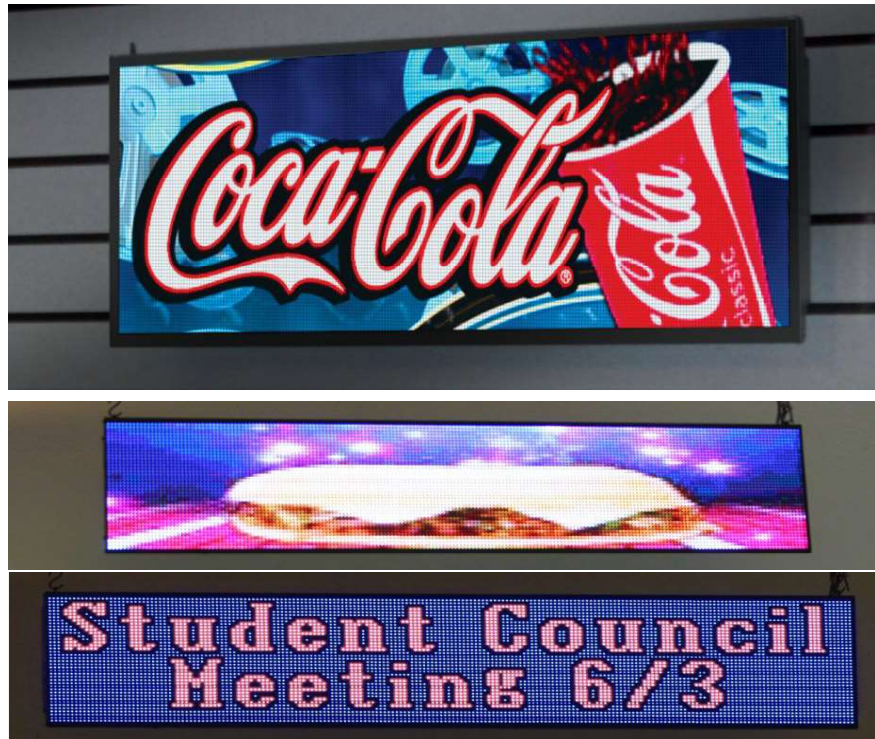


Alpha-American Programmable Signs

ALPHA 9000 RGB iSeries

ALPHA 9000 RGB iSeries

- Communicate powerful, vibrant messages with tight pitch, full color LED graphics and/or text
- Stream live feed information - news, sports info
- Engage audiences up to 100 feet away with bright attention grabbing messages
- Images and text appear vibrant, with outstanding contrast and no glare, even at extreme angles
- Up to 4X brighter than LED edge-lit TVs
- Intuitive messaging software included
- Built in Ethernet, RS232 and RS485 ports
- Easily mounts to wall or hang from ceiling
- Available in seven sizes: Two in 3.9mm pitch Five in 6.25mm pitch



Player Options: Player must be specified at time of order placement

	Ooh!Media Player	Alpha Player
Software Included	Ooh!Media and Quick Trigger	AlphaNet
File Capabilities	gifs, jpeg, bmp, png, avi, mpg & wmv	gifs, jpeg, bmp
Communication	Built in Ethernet	Built in Ethernet & RS232 & RS485 (multi-drop networking for up to 255 displays)
Brightness Control	Settings available in messaging software (Ooh!Media) and diagnostics	Settings available in messaging software (AlphaNet) and diagnostics
Character Set	Block (sans serif), decorative, (serif) upper / lower case, slim/wide, PLUS any Windows font	Block (sans serif), decorative, (serif), upper / lower case slim/wide
Message Capacity	Up to 2GB of message can be stored and displayed	80 different messages can be stored and displayed



"COMMUNICATING AT THE SPEED OF LIGHT"

800-223-4636 or 858-273-3036

ALPHA-AMERICAN.COM

1-Line/5-Line RGB Indoor Full-Color Displays



Alpha-American Programmable Signs

ALPHA 9000 RGB iSeries

The 9000 RGB iSeries is available in seven sizes. Each model offers exceptional energy efficiency, brightness, resolution, and viewing angle.

Models Available:

Available in 3.9mm or 6.25mm pitch RGB

3.9mm pitch RGB

	Alpha 9430 RGB	Alpha 9440 RGB
Case Dimensions (W x H x D)	29.8" x 10.7" x 3.2" 757mm x 272mm x 82mm	39.7" x 10.7" x 3.2" 1009mm x 272mm x 82mm
Approximate Weight	16 lbs. / 7.3kg	21 lbs. / 9.5kg
Display Array Matrix	192C x 64R	256C x 64R
Lines Characters/Lines	2 4 8 24 24 32	2 4 8 24 24 32
Adaptive North America PN	1773851031	1773851041

Brightness Full: 1200 Nits

Agency Approvals ETL/ETLc

6.25mm pitch RGB

	Alpha 9630 RGB	Alpha 9640 RGB	Alpha 9650 RGB	Alpha 9660 RGB	Alpha 9670 RGB
Case Dimensions (W x H x D)	29.8" x 10.7" x 3.2" 757mm x 272mm x 82mm	39.7" x 10.7" x 3.2" 1008mm x 272mm x 82mm	49.5" x 10.7" x 3.2" 1258mm x 272mm x 82mm	59.4" x 10.7" x 3.2" 1509mm x 272mm x 82mm	69.2" x 10.7" x 3.2" 1758mm x 272mm x 82mm
Approximate Weight	16 lbs. / 7.3kg	21 lbs. / 9.5kg	27 lbs. / 12.3kg	31 lbs. / 14.1kg	37 lbs. / 16.8kg
Display Array Matrix	120C x 40R	160C x 40R	200C x 40R	240C x 40R	280C x 40R
Lines Characters/Lines	2 3 5 15 13 20	2 3 5 20 17 26	2 3 5 6 25 25 34 40	2 3 5 6 30 30 40 48	2 3 5 6 35 35 47 56
Adaptive NA PN	1775851031	1775851041	1775851051	1775851061	1775851071
Adaptive Euro PN	1775861031	1775851041	1775851051	1775851061	1775851071
Adaptive UK PN	1775861031	1775851041	1775851051	1775851061	1775851071

Brightness Full: 1800 Nits

Agency Approvals ETL/ETLc & CE Listed

Specifications:

WiFi Option Available:	Wireless Ethernet adapter powered by USB port (1780230101)
USB Port:	Available for file updates when using Ooh!Media Software only
Colors / Graphics:	Signs are capable of displaying RGB graphics with 4,096 colors
Case Material:	Aluminum Extrusion
Mounting:	Hardware to accommodate wall and ceiling mount brackets included
Operating Temperature Range:	32° to 120°F (0° to 50°C)
Humidity Range:	0% - 95% non-condensing
Power / Power Cord:	Auto-sensing, switching power supply All units ship with a detachable line cord with a North American plug. Units are also available with detachable line cord for Europe or the UK.
Limited Warranty:	One-year parts and labor; depot repair
Manual:	Available online: http://support.adaptivedisplays.com/Documentation Alpha 9000i RGB Installation Manual - English (1770610201C) Alpha 9000i RGB Installation Manual - French (1770610203C)
Technical Support:	Phone support from Alpha-American Programmable Signs Support Team



"COMMUNICATING AT THE SPEED OF LIGHT"



800-223-4636 or 858-273-3036

ALPHA-AMERICAN.COM

PROPOSED ALTERNATIVE 1



Features

X-Sign Content Management Software

BenQ's integrated, exclusive X-Sign software provides content templates that are especially designed for long-and-narrow displays, making it easy for operators to quickly design and roll out new promotional material. The templates also let operators add images, videos, and scrolling text to their marketing materials. X-Sign's intuitive interface makes it easy for operators to monitor and manage all remote displays from a central, off-site location. It allows operators to push real time messages, to make instant price updates and broadcast YouTube live streaming across multiple displays. The software has QR Code Interaction and Analysis option. X-Sign allows operators to embed QR Codes that, when scanned, can offer customers the latest promotional information. X-Sign also offers QR Code analysis to let operators see when and where customers are interacting with content. This analysis can help operators quickly adjust their offers to match customer interest.

Performance

As the world's first PANTONE validated digital signage, BenQ SL5502K aims to provide users the most professional colour performance to fulfill their daily tasks, including design, display and other related display applications. An ultra-high definition resolution of 4K2K (3840 x 2160) offers the most exquisite image details and allows for flexible colour adjustment to display captivating images. SL5502K is built with better cooling techniques reaching a longer lifetime while running for 24 hours a day and delivers flawless display in portrait and landscape view.

Intuitive Design

A slim and lightweight design combines with a narrow bezel delivers a stylish outlook befitting of any in-store environment. It can easily be mounted or rearranged to suit diverse uses, which saves cost and manpower on signage installation, and eventually facilitates different display configurations in stores, offices, and other commercial establishments.

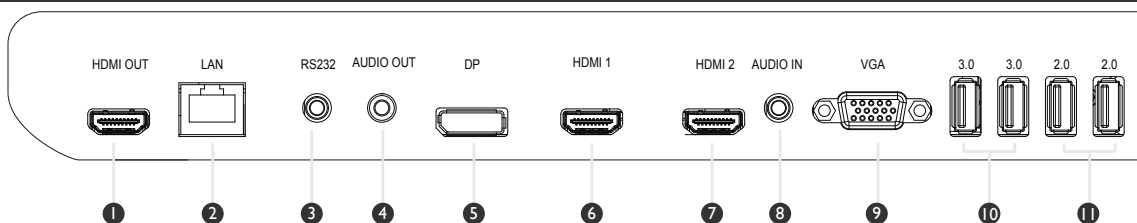
Hassle-free Display Management

With Device Management Solution operators can remotely control display on/off time or backlight via LAN. Over-the-Air Update allows to keep all display drivers up-to-date with easy firmware update. DMS Cloud gives operators control of all devices in the store and lets them install Android™ apps and distribute content via cloud server.

All-in-One, Clutter Free Solution

BenQ's Smart Signage Series is an all-in-one media solution with a built-in Android operating system. It allows users to work as soon as it's plugged in. Plug-and-play simplicity enables you to access and play multimedia files directly from a USB flash drive. Requires no PC connection or complicated cable setup.

Input and Output Terminals



- ① HDMI output
- ② LAN 10 / 100
- ③ RS232

- ④ Audio output
- ⑤ DP
- ⑥ HDMI 1

- ⑦ HDMI 2
- ⑧ Audio input
- ⑨ VGA

- ⑩ USB 3.0 x 2
- ⑪ USB 2.0 x 2

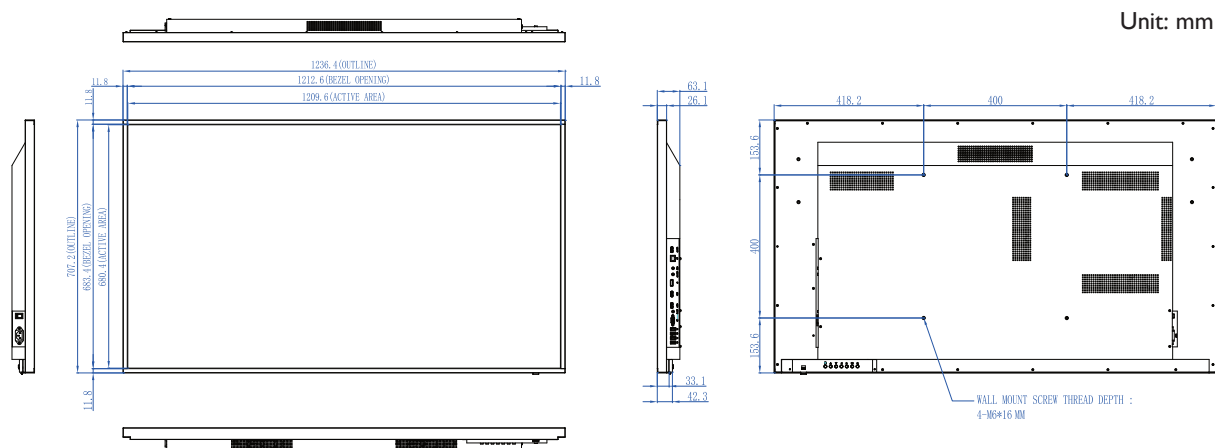
SL5502K
55" Smart Signage

BenQ

Specifications

Panel	Screen Size		55"
	Resolution		3840 × 2160
	Brightness (Typ.)		500 nits
	Contrast Ratio (Typ.)		1200 : 1
	Viewing Angle (H/V)		178 / 178
	Response Time (G-t-G)		8 ms
	Backlight Life (hrs)		50,000
	Panel Surface		Anti-Glare
	Operating Hours		24 / 7
	Orientation		Landscape / Portrait
Power	Type		Internal
	Power Supply		100V~240V, 50 Hz / 60 Hz
	Power Consumption	Maximum (W/h)	148W
		Typical (W/h)	85.6W
		Standby Mode (W/h)	<0.5W
		Off Mode (W/h)	0W
	AC Power Switch		Yes
	Wake up		HDMI / VGA / DP
Environment	Operation Temperature		0°C ~ 40°C
	Operating Humidity		20% ~ 80% RH non-condensing
Connectivity	Input	VGA	× 1
		HDMI	HDMI 2.0 × 2
		Display Port	DP 1.2 × 1
		Audio Input	× 1 (3.5 mm)
	Output	HDMI	HDMI 2.0 × 1
		Audio Output	× 1 (3.5 mm)
	USB		USB 3.0 × 2 / USB 2.0 × 2
	RS232		Yes
Audio	RJ45		Yes
	Remote Controller		Yes
	Internal Speaker		10W × 2
Mechanical	Dimensions (mm)	Screen	1236.4 × 707.2 × 63.1
		Package	1364 × 824 × 154
	Weight (kg)	Screen	26.4
		Package	31.4
	Bezel Width (mm)		11.8
	Wall Mounting (VESA) (Screw Type /Max. Length)		400 × 400 mm M6 × 14 mm

Dimension (mm)



Electric Water Cooler Cutsheets

PRODUCT SPECIFICATIONS

Elkay Cooler Wall Mount ADA Non-Filtered, 8 GPH Light Gray Granite. Chilling Capacity of 8.0 GPH (gallons per hour) of 50° F drinking water, based on 80° F inlet water and 90° F ambient, per ASHRAE 18 testing. Furnished with Flexi-Guard® Safety Bubbler. Electronic Front Bubbler Pushbar activation. Product shall be Wall Mount (On Wall), for Indoor applications, serving 1 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120. Unit shall be lead-free design which is certified to NSF/ANSI 61 & 372 (lead free) and meets Federal and State low-lead requirements.

Finish:	Light Gray Granite
Power:	115V/60Hz
Bubbler Style:	Flexi-Guard® Safety Bubbler
Activation by:	Electronic Front Bubbler Pushbar
Mounting Type:	Wall Mount (On Wall)
Chilling Option*:	8.0 GPH
Full Load Amps	5
Rated Watts:	370
Dimensions (L x W x H):	18-3/8" x 19" x 19-13/16"
Approx. Shipping Weight:	51 lbs.
Installation Location:	Indoor
No. of Stations Served:	1

*Based on 80° F inlet water & 90° F ambient air temp for 50° F chilled drinking water.

COOLING SYSTEM

- Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Continuous copper tubing with is fully insulated with EPS foam that meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R-134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Easily accessible enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.

NO IMAGE AVAILABLE

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Like your family, the Elkay family has values and traditions that endure. For almost a century, Elkay has been a family-owned and operated company, providing thousands of jobs that support our families and communities.



Included with Product: Water Cooler

PRODUCT COMPLIANCE

ADA & ICC A117.1
ASME A112.19.3/CSA B45.4
Buy American Act
CAN/CSA C22.2 No. 120
NSF/ANSI 61 & 372 (lead free)
UL 399



Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

[Installation Instructions \(PDF\)](#)

5 Year Limited Warranty on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

[Warranty \(PDF\)](#)

OPTIONAL ACCESSORIES

EW172 - Elkay WaterSentry VII Filter Kit (Coolers + Fountains)
MLP100 - Accessory - In Wall Carrier (Single) for single EZ, LZ, EMABF, LMABF, VRC, LVRC models
LKAPREZL - Elkay Cane Apron for EZ Gray
98501C - Elkay Bubbler - Stream Saver Flexi-Guard

PART: _____ QTY: _____

PROJECT: _____

CONTACT: _____

DATE: _____

NOTES: _____

APPROVAL: _____

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

PRODUCT SPECIFICATIONS

Halsey Taylor Wall Mount GreenSpec Vandal-Resistant ADA Cooler, Non-Filtered 8 GPH Stainless. Chilling Capacity of 8.0 GPH (gallons per hour) of 50° F drinking water, based on 80° F inlet water and 90° F ambient, per ASHRAE 18 testing. Features shall include Energy Savings, Vandal Resistant. Furnished with Vandal Resistant SmartFlow™ bubbler. Mechanical Front Bubbler Button activation. Product shall be Wall Mount (On Wall), for Indoor + Outdoor applications, serving 1 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120. Unit shall be lead-free design which is certified to NSF/ANSI 61 & 372 (lead free) and meets Federal and State low-lead requirements.

Order ID:	8253080083
Special Features:	Energy Savings, Vandal Resistant
Finish:	Stainless Steel
Power:	115V/60Hz
Bubbler Style:	Vandal Resistant SmartFlow™
Activation by:	Mechanical Front Bubbler Button
Mounting Type:	Wall Mount (On Wall)
Chilling Option*:	8.0 GPH
Full Load Amps	4.5
Rated Watts:	260
Dimensions (L x W x H):	20-3/8" x 20-3/16" x 26-5/16"
Approx. Shipping Weight:	59 lbs.
Installation Location:	Indoor + Outdoor
No. of Stations Served:	1
*Based on 80° F inlet water & 90° F ambient air temp for 50° F chilled drinking water.	

- Mechanically-Activated bubbler continues to supply water in event of service disruptions.
- Energy-Savings Feature - allowing for the refrigeration to be powered off when not in use.

COOLING SYSTEM

- Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Continuous copper tubing with is fully insulated with EPS foam that meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R-134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Easily accessible enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.



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Included with Product: Water Cooler

PRODUCT COMPLIANCE

ADA & ICC A117.1

ASME A112.19.3/CSA B45.4

Buy American Act

CAN/CSA C22.2 No. 120

GreenSpec®

NSF/ANSI 61 & 372 (lead free)

UL 399



Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

[Installation Instructions \(PDF\)](#)

5 Year Limited Warranty on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

[Warranty \(PDF\)](#)

OPTIONAL ACCESSORIES

HWF172 - WaterSentry VII Filter Kit (Coolers + Fountains)
MLP100 - Accessory - In Wall Carrier (Single) for single EZ, LZ, EMABF, LMABF, VRC, LVRC models
98324C - Accessory - Cane Apron for HAC, HVR, EMABF & VRC Models (Stainless)
HTRP2130 - Halsey Taylor Wall Bezel for HAC or HVR

PART: _____ QTY: _____

PROJECT: _____

CONTACT: _____

DATE: _____

NOTES: _____

APPROVAL: _____

In keeping with our policy of continuing product improvement, Halsey Taylor reserves the right to change product specifications without notice. Please visit Halseytaylor.com for the most current version of Halsey Taylor product specification sheets. This specification describes a Halsey Taylor product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

PRODUCT SPECIFICATIONS

Elkay Wall Mount High Efficiency Vandal Resistant ADA Cooler with Glass Filler Filtered Refrigerated Stainless. Chilling Capacity of 8.0 GPH (gallons per hour) of 50° F drinking water, based on 80° F inlet water and 90° F ambient, per ASHRAE 18 testing. Features shall include Energy Savings, Filtered, Glass Filler Included, Vandal Resistant. Furnished with Vandal Resistant StreamSaver™ bubbler. Mechanical Front Bubbler Button activation. Product shall be Wall Mount (On Wall), for Indoor applications, serving 1 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120. Unit shall be lead-free design which is certified to NSF/ANSI 61 & 372 (lead free) and meets Federal and State low-lead requirements.

Special Features:	Energy Savings, Filtered, Glass Filler Included, Vandal Resistant
Finish:	Stainless Steel
Power:	115V/60Hz
Bubbler Style:	Vandal Resistant StreamSaver™
Activation by:	Mechanical Front Bubbler Button
Mounting Type:	Wall Mount (On Wall)
Chilling Capacity*:	8.0 GPH
Full Load Amps	5
Rated Watts:	260
Dimensions (L x W x H):	18-1/16" x 18-5/8" x 20-5/8"
Approx. Shipping Weight:	62 lbs.
Installation Location:	Indoor
No. of Stations Served:	1
*Based on 80° F inlet water & 90° F ambient air temp for 50° F chilled drinking water.	

- Mechanically-Activated bubbler continues to supply water in event of service disruptions.
- Filter is certified to NSF 42 and 53 for lead, cyst, particulate, chlorine, taste and odor reduction. 1,500 gal. capacity.
- Energy-Savings Feature - allowing for the refrigeration to be powered off when not in use.

COOLING SYSTEM

- Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Continuous copper tubing with is fully insulated with EPS foam that meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R-134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Easily accessible enclosed adjustable thermostat is factory preset. Requires no

PART: _____ QTY: _____

PROJECT: _____

CONTACT: _____

DATE: _____

NOTES: _____

APPROVAL: _____



Included with Product: Water Cooler, Filter, LK1110 Glass Filler

Ships in one box.

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PRODUCT COMPLIANCE

ADA & ICC A117.1
ASME A112.19.3/CSA B45.4
Buy American Act
CAN/CSA C22.2 No. 120
GreenSpec®
NSF/ANSI 42, 53, 61, & 372 (lead free)
UL 399



Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

[Installation Instructions \(PDF\)](#)

5 Year Limited Warranty on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

[Warranty \(PDF\)](#)

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.



PROPOSED ALTERNATIVE 3

Technical Sheet

Compat On-A-Wall

- PLF4CM
- PCM

Suggested Specification

Model PLF4CM shall deliver 4.0 gph of 50°F water at 90°F ambient and 80° F inlet water, per ASHRAE 18 testing. Model PCM is a non-refrigerated drinking fountain and delivers ambient water. Cabinet finish shall be greystone powder coated paint on galvanized steel or brushed stainless steel. Shall use R-134a refrigerant. Shall comply with ANSI 117.1 and ADA. Shall be listed by Underwriters Laboratories to US and Canadian standards. Shall comply with NS/ANSI 61 and NSF/ANSI 372.

Models

- PLF4CM delivers 4.0 gph of chilled drinking water
- PCM is a non-refrigerated fountain

Standard Features

- Dial-A-Drink® bubbler
- Waterways are Lead-Free in materials & construction
- Stainless steel top
- Welded heavy-gauge steel frame
- High efficiency cooling system

Finishes

- Standard cabinet finish: Greystone powder coated paint on galvanized steel
- Optional finishes: Sandstone powder coated paint; Stainless steel (at additional cost)

Installation

- Prior to roughing consult with local, state and federal codes for proper mounting height
- Shipped with complete instructions and wall mounting bracket
- Removable side and front panels provide easy access for installation

Limited 5-Year Warranty

(Continental limits of the United States and Canada)

Five years on the sealed refrigeration system and most component parts. Detailed warranty certificate enclosed with each water cooler; sample available upon request.



Export Warranty

One year on components parts. Detailed warranty certificate enclosed with each drinking fountain; sample copy available upon request.

Certifications/Compliance

- Certified to UL 399 and CAN/CSA C22.2 No.120 (electric water coolers only)
- Product Certified to NSF/ANSI Standard 61-G & 372 and conforms with the lead content requirements for "lead free" plumbing as defined by California, Vermont, Maryland, and Louisiana state laws and the U.S. Safe Drinking Water Act.



WARNING:

Cancer and Reproductive Harm
www.P65Warnings.ca.gov



Model	50° F Drinking Water 90° F Ambient Air Temp*			Hot'N Cold™ Model	115 Volts, 60 HZ			Glass Filler Acc. Option	Cabinet Color Finish	Net Wt. Approx.
	Rated Capacity GPH	Base Rate GPH	Pre-Cooler		Compr. HP	Full Load Amps	Rated Watts			
PLF4CM	4.0	2.5	Yes	No	1/5	3.6	350	No	No	51 Lbs
PCM	Fountain Only							No	Yes	24 Lbs

*Industry standard rating condition 80° F inlet water temperature

Specifications subject to change without notice

Electric Water Cooler – Bi-Level Cutsheets

PRODUCT SPECIFICATIONS

Elkay Versatile Cooler Wall Mount Bi-Level ADA Non-Filtered, 8 GPH Light Gray Granite. Chilling Capacity of 8.0 GPH (gallons per hour) of 50° F drinking water, based on 80° F inlet water and 90° F ambient, per ASHRAE 18 testing. Furnished with Flexi-Guard[®] Safety Bubbler. Electronic Front Bubbler Pushbar activation. Product shall be Wall Mount (On Wall), for Indoor applications, serving 2 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120. Unit shall be lead-free design which is certified to NSF/ANSI 61 & 372 (lead free) and meets Federal and State low-lead requirements.

Finish:	Light Gray Granite
Power:	115V/60Hz
Bubbler Style:	Flexi-Guard [®] Safety Bubbler
Activation by:	Electronic Front Bubbler Pushbar
Mounting Type:	Wall Mount (On Wall)
Chilling Option*:	8.0 GPH
Full Load Amps	5
Rated Watts:	370
Dimensions (L x W x H):	36-3/4" x 19" x 25-5/16"
Approx. Shipping Weight:	72 lbs.
Installation Location:	Indoor
No. of Stations Served:	2

*Based on 80° F inlet water & 90° F ambient air temp for 50° F chilled drinking water.

COOLING SYSTEM

- Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Continuous copper tubing with is fully insulated with EPS foam that meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R-134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Easily accessible enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.



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Included with Product: Water Cooler

PRODUCT COMPLIANCE

ADA & ICC A117.1

ASME A112.19.3/CSA B45.4

Buy American Act

CAN/CSA C22.2 No. 120

NSF/ANSI 61 & 372 (lead free)

UL 399



Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

[Installation Instructions \(PDF\)](#)

5 Year Limited Warranty on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

[Warranty \(PDF\)](#)

OPTIONAL ACCESSORIES

EW172 - WaterSentry VII Filter Kit (Coolers + Fountains)
MLP200 - Accessory - In Wall Carrier (Bi-Level) for bi-level EZ, LZ, EMABF, LMABF, VRC, LVRC models
LKAPREZL - Elkay Cane Apron for EZ Gray
1000004539 - Accessory - Wall Plate (Hi-Lo Bi-Level) for EZ style bi-level models

PART: _____ QTY: _____

PROJECT: _____

CONTACT: _____

DATE: _____

NOTES: _____

APPROVAL: _____

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

PROPOSED ALTERNATIVE 1

ELKAY[®] SPECIFICATIONS



**GreenSpec[®] Listed, High Efficiency
Two Station Wall Mount Water Cooler
Vandal-Resistant, Barrier-Free Access
Model VRCGRNTL8C**

GENERAL

GreenSpec[®] Listed, energy and water efficient model. Self-contained, double wall hung electric, refrigerated water cooler. Vandal-resistant unit for use in high demand locations. Flow regulator provides constant stream from 20 to 105 psi water pressure. Rated for indoor and outdoor use.

ADA COMPLIANT

These Water Coolers comply with the requirements of A.D.A. (Americans with Disabilities Act) when properly installed. Also meets the guidelines for children's environments providing the floor to orifice height is 30" or less and proper clear floor space is provided for parallel approach. (Based on Architectural and Transportation Barriers Compliance Board final ruling.) Check Local and State Codes.

NO LEAD DESIGN

These Water Coolers are certified to be lead-free as defined by the Safe Drinking Water Act. Elkay Water Coolers are manufactured with a waterway system utilizing copper components and completely lead-free materials. These waterways have no lead because all lead materials, such as leaded brass, have been removed. All joints are brazed using silver solder only. No lead solder is permitted. A strainer with an easily cleanable screen is provided to allow trapping and convenient removal of waterborne particulate of 140 microns and larger prior to their entry into the water cooler.

CAPACITIES CHART

Model Number	Volt./ Hertz	Base Rate	**GPH of 50°F Drinking Water			Rated Watts	Full Load Amps	Filter/ Glass Filler	Ship. Wt. Lbs.
			Room Temperature °F						
			70°F (21°C)	80°F (27°C)	90°F (32°C)				
VRCGRNTL8C	1150V/ 60Hz	8.0	9.7	8.8	8.0	260	2.8	—	94
LVRGRNTL8FC	1150V/ 60Hz	8.0	9.7	8.8	8.0	260	2.8	Included	98

**Based on 80°F (27°C) inlet water temperature.

Rated watts shown are based on operational (run) time, in accordance with A.R.I. Standard 1010 conditions. Specific applications will determine the actual watts consumed per hour. Watts consumed will be based on number of people served per hour (usage), ambient temperatures, and inlet water temperature.

ENERGY-EFFICIENT COOLING SYSTEM

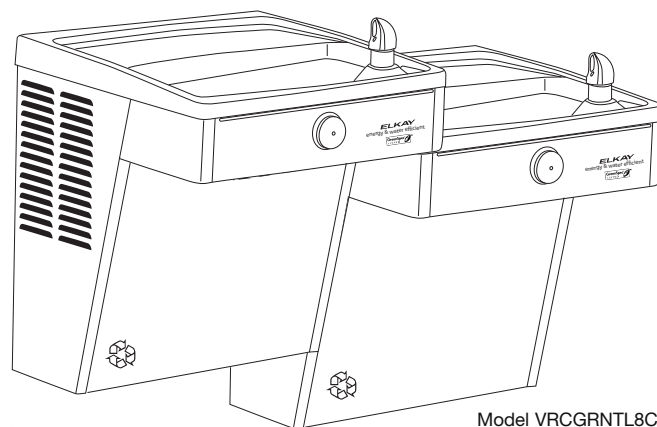
Motor Compressor: High-efficiency, hermetically sealed, reciprocating type, 115 Volt/60 Hz, single phase. Sealed-in lifetime oil supply. Equipped with electric cord and three prong molded rubber plug.

Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.

Cooling Unit: Combination tube-tank type. Designed for optimized heat transfer within the evaporator. Fully insulated.

Refrigerant Control: Refrigerant HFC-134a is controlled by accurately calibrated capillary tube for positively trouble-free operation.

Temperature Control: Enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements. Easily accessible.



Model VRCGRNTL8C

CONSTRUCTION

Frame: Galvanized structural steel chassis supports fountain top and cabinet panels.

Fountain Top: Series 300 one piece stainless steel top, polished to a uniform Elkay bright luster finish. Basin has embossed bubbler pad.

Bubbler: Water-efficient, heavy-duty, vandal-resistant bubbler in one-piece construction. Keyed into position to prevent rotation. Meets UL requirements and all sanitary codes.

Cabinet: Cabinet design allows for flush to wall mounting. No recess space is required. Includes bottom cover plate fastened with vandal-resistant screws.

Color Selection: Stainless steel furnished as standard.

Protected by Elkay's 5 Year Limited Warranty on the refrigeration system of the unit.

Elkay Pressure-Type Water Coolers are designed to operate on 20 psi (138 KPa) to 105 psi (724 KPa) supply line pressure. If inlet pressure is above 105 psi (724 KPa), a pressure regulator must be installed in the supply line. Any damage caused by reason of connecting this product to supply line pressures lower than 20 psi (138 KPa) or higher than 105 psi (724 KPa) is not covered by the warranty.

STANDARDS



Elkay Electric Air Cooled Water Coolers are listed by Underwriters Laboratories Inc. and comply with both Canadian and U.S. requirements.

These units comply with A.R.I. Standard 1010.

This cooler is certified by WQA to lead-free compliance including NSF/ANSI 61-ANNEX G, AB 1953.

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkayusa.com for most current version of Elkay product specification sheets.

This specification describes an Elkay product with design, quality and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

Elkay

elkay.com

2222 Camden Court
Oak Brook, IL 60523

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(Rev. 10/15) 12-57c

ELKA[®]

SPECIFICATIONS

PROPOSED ALTERNATIVE 2

GreenSpec[®] Listed Versatile Bi-Level Water Cooler Model EZSTLG8

RATED FOR INDOOR USE ONLY

PRODUCT SPECIFICATION

High-efficiency electric, refrigerated water cooler. Model EZSTLG8 shall deliver 8 GPH of 50°F drinking water at 90°F ambient and 80°F inlet water. Unit shall meet ADA guidelines. Unit shall be lead-free design which is certified to NSF/ANSI 61 and 372 and meets Federal and State low-lead requirements. Unit shall be certified to UL399 and CAN/CSA 22.2 No. 120. Unit shall be GreenSpec[®] Listed.

STANDARD FEATURES

- Energy efficiency performance exceeds average market performance by 35% per CSA 815-99
- Easy-Touch front and side pushbar controls
- Flexi-Guard[®] StreamerSaver[™] water conservation bubbler
- *Versatile cooler design allows units to be installed either left-hand high and right-hand low or left-low and right high
- Cooler panel finishes: Light Gray Granite Vinyl Clad Steel or Stainless Steel
- Rated for Indoor Use

COOLING SYSTEM

- High-efficiency Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Self-cleansing. Continuous copper tubing with stainless steel tank. Fully insulated with EPS foam which meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Easily accessible enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.



*Versatile cooler configuration as shipped







*Versatile cooler configuration alternate installation



CONSTRUCTION

- Stainless Steel basin with integral drain
- Galvanized structural steel cooler chassis provides structural integrity
- Cooler cabinet available as Light Gray Granite Vinyl Clad Steel or Stainless Steel (additional cost) construction
- Flexi-Guard[®] StreamSaver[™] Safety bubbler utilizes an infused anti-microbial pliable polyester elastomer to prevent accidental mouth injuries. Flexes on impact. Lower-flow water efficient water stream.

Warranty: 5 year limited warranty on the unit's refrigeration system. Electrical components and water system are warranted for 12 months from date of installation or 18 months from factory shipment, whichever date falls first.

CAPACITIES CHART									
Model	Voltage/ Hertz	Chilling** Capacity	F.L. Amps	Rated Watts	Approx. Ship Wt.	UL399 and CAN/CSA 22.2 No. 120 Certified	ADA COMPLIANT	ANSI/NSF 61 and 372 Certified	GreenSpec [®] Listed
EZSTLG8*C	115V / 60Hz	8 GPH	3.2	360	88 lbs	•	•	•	•

*Color code of (L) Light Gray Granite or (S) Stainless Steel cooler panels.

**Based on 80°F inlet water & 90°F ambient air temp for 50°F chilled drinking water.

This specification describes an Elkay product with design, quality and functional benefits to the user. When making a comparison of other producer's offerings, be certain these features are not overlooked.

In keeping with our policy of continuing product improvement, Elkay reserves the right to change specification without notice. Please visit elkay.com for the most current version.

2222 Camden Court
Oak Brook, IL 60523
630-572-3192
elkay.com

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SPEC00089 (06/2014)

Electric Water Cooler with Bottle Filler Cutsheets



Halsey Taylor®
Satisfying Thirsts Since 1912

CURRENT SCA STANDARD

Model HTHB-HAC8WF and HTHB-HACDWF
Filtered Single HAC Cooler with
Hydroboost® Bottle Filler

MODELS: HTHB-HAC8WF
HTHB-HACDWF

GENERAL

Complete water station including HydroBoost® bottle filling station and HAC water cooler. Self-contained, wall-mounted water cooler. Model HTHB-HAC8WF delivers chilled drinking water; model HTHB-HACDWF delivers non-refrigerated drinking water. Exclusive one-piece, chrome-plated two-stream Double Bubbler™ with non-removeable anti-squirt feature and integral hood. Automatic stream height regulator is located inside unit to prevent tampering. Includes self-closing, light touch front and side pushbar actuation with raised letters for the visually impaired. Type 300 series stainless steel top, with satin finish resists stains. Anti-splash ridge reduces splatter. Contoured to insure proper drainage.

HYDROBOOST® BOTTLE FILLING STATION

Sensor-activated enhanced with user interface graphics. Quick fill rate is 1.1 gallons per minute on refrigerated model and 1.5 gallon per minute on non-refrigerated model. Laminar flow provides a clean fill with minimal splash and easy maintenance. Equipped with an automatic 20-second shut-off timer.

SILVER ION ANTI-MICROBIAL PROTECTION

Key plastic components are integrated with silver ion anti-microbial protection to inhibit growth of mold and mildew.

GREEN COUNTER™

Visually displays count of plastic bottles saved from landfills. (Based on 20 oz. bottles for refrigerated models.)

DOUBLE BUBBLER™

Features an exclusive one-piece, chrome plated two-stream mound-building bubbler with non-removeable anti-squirt feature. It's integral hood insures a satisfying drink of water.

PUSH BAR ACTUATION MECHANISM

Self-closing light-touch push bars on front and sides with raised letters for the visually impaired.

AUTOMATIC STREAM HEIGHT REGULATOR

Self-closing assembly is located inside unit to prevent tampering. Unit resists corrosion and liming. A constant stream height is automatically maintained under line pressures that vary from 20 to 105 psi.

WATER INLET - 3/8" O.D. Tubing. **DRAIN OUTLET** - 1-1/4" tube outlet for 1-1/4" slip joint connection. **Trap and service stop not included.**

REFRIGERATION SYSTEM

Hermetically sealed, positive start compressor with lifetime lubrication and built-in overload protection, efficient capillary sizing, large capacity dryer-strainer and self-lubricated fan cools copper/ aluminum condenser. System uses R-134A refrigerant. Protected by Halsey Taylor's Limited 5 Year Warranty.

LEAD REDUCTION FILTER WITH FILTER LIFE INDICATOR

Equipped with the HWF3000 Watersentry® Plus Filter. Features Quick-Disconnect, 1/4 turn installation and automatic inlet shut-off valve that closes when filter is removed. High grade filter is made with activated carbon and patented ATS lead-removal media. Certified to NSF/ANSI 42 for Chlorine-Class 1, Particulate-Class 1 and Taste and Odor and NSF/ANSI 53 for Lead Reduction. Filter is rated for 3,000 gallon capacity. Green, yellow and red LEDs visually indicate when filter maintenance is required.

CAPACITIES CHART

Model No.	GPH Capacity Cooled to 50°F**				Base Rate Cap.	F.L. Amps	Shipping Weight lb.	Rated Watt Usage
	Ambient Air Temp							
	70°F	80°F	90°F†	100°F				
HTHB-HAC8WF*	9.7	8.8	8.0	7.2	8.0	3.8	89	260
HTHB-HACDWF*	-	-	-	-	-	1.0	85	120

NOTE: Continued product improvement makes specification sheets subject to change without notice.

* Finish indicator: PV for Platinum Vinyl and SS for Stainless Steel cooler panels.

** With projector service and tap water at 80°F

[†] UL 399 and ASHRAE (previously ARI 1010) compliant

HAC Cooler with Bottle Filler and Filter

*Rated for Indoor Use Only

Model HTHB-HAC8WF and HTHB-HACDWF



Cooler panels available in Platinum Vinyl or Stainless Steel. (additional cost)

SUGGESTED SPECIFICATION

Unit shall include a single water cooler with a bottle filling station. Model HTHB-HAC8WF shall deliver 8 gph of 50°F drinking water at 90°F ambient air and 80°F inlet water. Model HTHB-HACDWF unit shall deliver non-refrigerated drinking water. Lower unit shall have mechanically activated pushbar activation. Bottle filler shall include electronic sensor for no-touch activation with automatic 20-second shut-off timer. Shall include a Green Counter™ displaying the count of plastic bottles saved from the landfill. Shall include WaterSentry® Plus 3000-gallon capacity filter, certified to NSF/ANSI 42 for Chlorine-Class 1, Particulate-Class 1 and Taste and Odor and NSF/ANSI 53 for lead reduction, with LED visual filter monitor to indicate when filter maintenance is required. Bottle Filler shall provide 1.1-1.5 gpm with laminar flow to minimize splashing. Shall include anti-microbial protected plastic components to prevent mold and mildew. Cooler shall have stainless steel basin with anti-splash ridge and removeable drain strainer. Shall have front and side pushbar activation with raised letters. Shall comply with ADA guidelines for visual and motion disabilities. The manufacturer shall certify the unit to meet the requirements of NSF/ANSI 61 and 372, UL 399 and CAN/CSA 22.2 No 120.

Replacement Filters: Available as Singles and Multi-Packs.

Order part numbers:

- 55898C (single)
- 55898C_3PK (three pack)
- 55898C_12PK (twelve pack)
- 55898C_24PK (twenty-four pack)
- 55898C_48PK (forty-eight pack)



Electric Scoreboard Cutsheets



BASKETBALL

SCOREBOARDS

MODEL 2770

Size: 8' x 6' x 8" (2.44 x 1.83 x .20 meters)

Approximate hanging weight: 111 lbs. (50 kg)

Digit Size: 13"/9" **Digit Color:** High Intensity Red & Amber



OPTIONAL ELECTRONIC TEAM NAMES AVAILABLE

Advanced timing features ideal for Basketball/Volleyball/Wrestling Facilities.

- Energy-efficient LEDs reduce power consumption and operating expense.
- Ability to retrofit team name caption plates.
- Bright, long lasting LED lamp banks when ordered with rear-lit team names.
- Large, 4" Bonus, Double Bonus and Possession Indicator digits included.
- Durable and lightweight cabinet design.
- Universal—syncs with Nevco accessories.
- Extended advertising opportunities.
- Lighted time colon and decimal; automatically adjusts to 1/10th of a second.
- Built-in Power Factor Correction.
- Includes basketball, volleyball and wrestling caption plates.
- Soccer available with MPCX₂ and MPC7 series controls.
- Advantage Timer feature included with wrestling captions.



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 FAX: 618-664-0398 E-MAIL: INFO@NEVCO.COM

INTEGRATED DISPLAY AND SCORING SOLUTIONS



Model 2770 (Indoor) Basketball/Volleyball/Wrestling Scoreboard

SCOREBOARD/CONTROL OPERATING FEATURES

MODEL 2770	MPC WIRED	MPCW WIRELESS	MPCX ₂ WIRELESS
TIMING 13" High Intensity Red LED Digits	Bi-directional UP or DOWN count. Any number can be set between 0:00-99:59. 1/10th seconds display during final minute.	Bi-directional UP or DOWN count. Any number can be set between 0:00-99:59. 1/10th seconds display during final minute.	Bi-directional UP or DOWN count. Any number can be set between 0:00-99:59. 1/10th seconds display during final minute.
TEAM SCORES 13" High Intensity Amber LED Digits	Displays 0-199	Displays 0-199	Displays 0-199
PERIOD 9" High Intensity Amber LED Digits	Displays 0-9	Displays 0-9	Displays 0-9
NEXT POSSESSION (BASKETBALL) SERVE (VOLLEYBALL) ADVANTAGE (WRESTLING) High Intensity Amber LED	Displays arrow for each team.	Displays arrow for each team.	Displays arrow for each team.
BONUS/DOUBLE BONUS High Intensity Red LED	Displays the letter "B" for each team (BASKETBALL)	Displays the letter "B" for each team (BASKETBALL)	Displays the letter "B" for each team (BASKETBALL)
TIME OUTS LEFT 9" High Intensity Red LED Digits	Displays 0-9 for each team.	Displays 0-9 for each team.	Displays 0-9 for each team.
PLAYER/FOUL (BASKETBALL) GAME (VOLLEYBALL) WEIGHT (WRESTLING) 9" High Intensity Red LED Digits	BASKETBALL displays 0-99 for player number and 0-9 for personal fouls. VOLLEYBALL displays game number. WRESTLING can be used as advantage timer or display weight.	BASKETBALL displays 0-99 for player number and 0-9 for personal fouls. VOLLEYBALL displays game number. WRESTLING can be used as advantage timer or display weight.	BASKETBALL displays 0-99 for player number and 0-9 for personal fouls. VOLLEYBALL displays game number. WRESTLING can be used to display weight.
TEAM/FOULS (BASKETBALL) WON (VOLLEYBALL) MATCH (WRESTLING) 9" High Intensity Amber LED Digits	Displays 0-19 for each team.	Displays 0-19 for each team.	Displays 0-19 for each team.
TIME OF DAY	In place of displaying game time on the scoreboard, the "time out" time may be displayed or the "time of day". "Time of day" can still display after control turned off.	In place of displaying game time on the scoreboard, the "time out" time may be displayed or the "time of day". "Time of day" can still display after control turned off.	"Time of day" can display after control turned off.
HORN Two located in scoreboard	Sounds automatically at 0:00 for a minimum of two (2) seconds. May omit automatic horn. Can sound manually at any time.	Sounds automatically at 0:00 for a minimum of two (2) seconds. May omit automatic horn. Can sound manually at any time.	Sounds automatically at 0:00 for a minimum of two (2) seconds. May omit automatic horn. Can sound manually at any time.
JUNCTION BOXES	Two (2) 4"x2 1/8" with covers, furnished per scoreboard for installation.	N/A	N/A
CONTROL CABLE	One (1) length required of 2-WIRE (coaxial type) 1/4" diameter. Order length required.	N/A	N/A
SEGMENT TIMING	Supported.	Supported.	Requires MPCX ₂ segment timer control.

In addition to the standard 15 colors, Nevco can match any PMS color. Please contact your local Display and Scoring Consultant for pricing information.

#103 Cardinal Red	#73 Maroon	#102 Team Orange	#99 Golden Yellow	#142 Kelly Green	#74 Forest Green	#120 Teal Blue	#72 Electronic Blue	#140 Royal Blue	#121 Midnight Blue	#141 Navy Blue	#104 Medium Purple	#70 Desert Tan	#95 Silver Gray	#76 Print Black
-------------------------	---------------	------------------------	-------------------------	------------------------	------------------------	----------------------	---------------------------	-----------------------	--------------------------	----------------------	--------------------------	----------------------	-----------------------	-----------------------

AGENCY APPROVAL: UL/CUL listed, FCC, CE, INDUSTRY CANADA.

SCOREBOARD: Size 8'L x 6'H x 8"D (2.44 x 1.83 x .20 meters), constructed of aluminum. Hanging weight approximately 111 lbs. (61 kg).

CAPTIONS: HOME, GUESTS, FOULS, PLAYER, WON, GAME, MATCH, WEIGHT, T.O.L. and PERIOD, white 6" high. (HOME and GUESTS are omitted when ordered with ETNs.)

LED UNITS: Seven-bar segmented digits with protective aluminum cover.

POWER WITHOUT ETNS: 120 VAC, .61 Amps, 50/60 Hz. / 240 VAC, .31 Amps, 50/60 Hz. Requires earth ground.

POWER WITH REAR-LIT CAPTIONS: 120 VAC, .86 Amps, 50/60 Hz./ 240 VAC, .44 Amps, 50/60 Hz. Requires earth ground.

POWER WITH ETNS: 120 VAC, .83 Amps, 50/60 Hz / 240 VAC, .42 Amps, 50/60 Hz. Requires earth ground.

POWER WITH REAR-LIT CAPTIONS AND ETNS: 120 VAC, 1.01 Amps, 50/60 Hz / 240 VAC, .51 Amps, 50/60 Hz. Requires earth ground.

BUILT-IN LIGHTNING PROTECTION: All models feature optical isolation circuitry providing additional protection against lightning strikes.

GUARANTEE: TO VIEW OR RECEIVE THE MOST RECENT COPY OF OUR GUARANTEE, PLEASE VISIT: NEVCO.COM/WARRANTY-LIMITATION

U.S. SERVICE: 1-800-851-4040

INTERNATIONAL SERVICE: 1-618-664-0360

CANADA SERVICE: 1-800-461-8550



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Microwave Cutsheets

CURRENT SCA PURCHASED MODEL

Cuisinart® INSTRUCTION BOOKLET

Recipe
Booklet
Reverse Side



Cuisinart® Microwave Oven

CMW-100

For your safety and continued enjoyment of this product, always read the instruction book carefully before using.

IB-6798

be at least as great as the electrical rating of the appliance.

- The extension cord must be a grounding-type 3-wire cord.
- The longer cord should be arranged so that it will not drape over the countertop or tabletop where it can be pulled on by children or tripped over.

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INTRODUCTION

This is not your ordinary microwave oven. It has more – inside and out. Inside it's solid, nonporous, easy-to-sanitize stainless steel. Outside you'll find 25 preprogrammed control options. It performs all the standard reheating and defrosting microwave tasks with ease, setting time and temperature for specific items. But it is also large enough, and smart enough, to let you cook from scratch. Check out the recipes for cooking fish and rice, steaming vegetables, or roasting garlic. And don't miss the 2, 4 and 6 slice bacon buttons. Cook healthier, cook faster, cook easier... with the Cuisinart stainless steel microwave.

IMPORTANT SAFEGUARDS

To reduce the risk of fire, electric shock, injury to persons or exposure to excessive microwave oven energy when using your appliance, follow basic precautions, including the following:

1. The oven must be placed on a level surface.
2. The glass turntable and turntable assembly must be in the oven during cooking. Handle the glass turntable carefully and place cookware on it gently to avoid possible breakage.
3. Incorrect use of browning dish may cause the turntable to break. See "Materials you can use in a microwave oven," page 6.
4. Use only the correctly specified bag size when using the preset popcorn program.
5. The oven has several built-in safety switches to ensure that the power remains off when the door is open. Do not tamper with these switches.
6. Do not operate the microwave oven empty. Operating the oven with no food or food that is extremely low in moisture can cause fire, charring or sparking.
7. Do not cook bacon directly on the turntable. Excessive local heating of the turntable may cause the turntable to break.
8. Do not heat baby bottles or baby food in the microwave oven. Uneven heating/hotspots may occur and could cause injury.
9. Do not heat narrow-necked containers, such as syrup bottles.
10. Do not attempt to deep-fry in your microwave oven.
11. Do not attempt home canning in this microwave oven, as it is impossible to be sure all contents of the jar have reached boiling temperature.
12. Do not use this microwave oven for commercial purpose. This microwave oven is made for household use only.

13. To prevent delayed eruptive boiling of hot liquids and beverages or scalding yourself, stir liquid before placing the container in the oven and again halfway through cooking time. Let it stand in the oven for a short time and stir again before removing the container.
14. Failure to maintain the oven in a clean condition could lead to deterioration that could adversely affect the life of the appliance and possibly result in a hazardous situation.
15. Do not let cord hang over edge of table or counter.
16. When cleaning door and oven surfaces use only mild, nonabrasive soaps or detergents applied with a sponge or soft cloth.
17. Liquids, such as water, coffee, or tea can heat beyond the boiling point without appearing to be boiling. This is called delayed eruptive boiling. When the container is removed from the oven, there is a danger that very hot liquids could suddenly boiling over when the container is disturbed or a spoon or other utensil is inserted into the liquid.

SPECIFICATIONS

Model:	CMW-100
Rated Voltage:	120V~ 60Hz
Rated Input Power:	1450W
Rated Output Power:	1000W
Oven Capacity:	28L
Turntable Diameter:	12.40 inches
External Dimensions (WxHxD):	20.1x17.3x11.1 inches
Approximate Net Weight:	33.5 lbs.

CONTAINERS

CAUTION: Personal Injury Hazard

Tightly-closed containers could explode. Closed containers should be opened and plastic pouches should be pierced before cooking.

See the charts on pages 6 and 7 of materials you can use in microwave oven or to avoid using in your microwave oven. There may be certain non-metallic materials that are not safe to use for microwaving. If in doubt, you can test the material/container in question following the procedure below.

Material/Container Test:

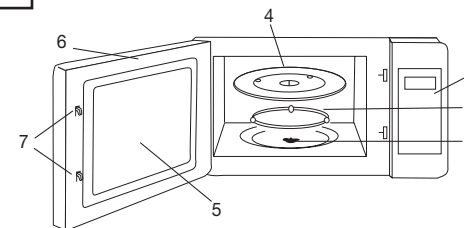
1. Fill a microwave-safe container with 1 cup of cold water (250ml) along with the material or container in question.
2. Cook on maximum power for 1 minute.
3. Carefully feel the material or container. If it is warm, do not use it for microwave cooking.
4. Do not exceed 1 minute cooking time.

SETTING UP YOUR OVEN

Parts and Accessories

Remove the oven and all contents from the carton and oven interior.

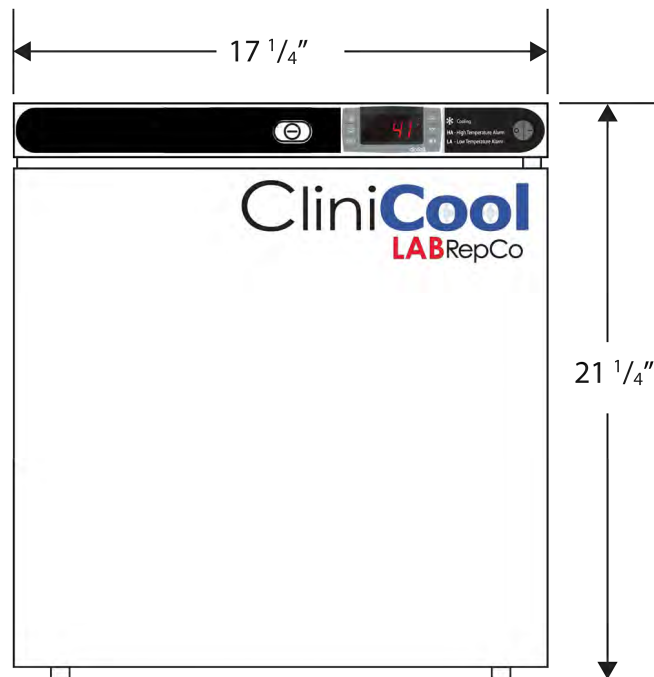
1. Control Panel
2. Turntable Shaft
3. Turntable Assembly
4. Glass Turntable
5. Observation Window
6. Door Assembly
7. Safety Interlock System



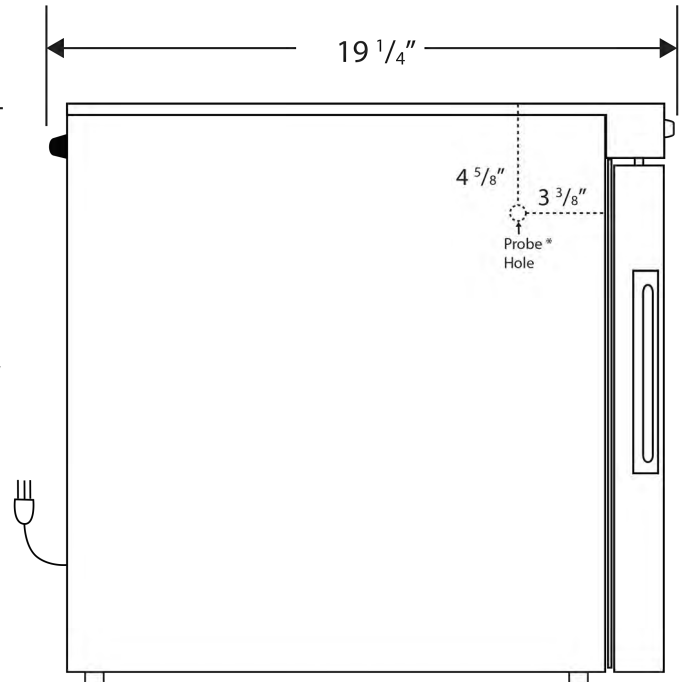
Refrigerator – Medical Cutsheets

CUTSHEET

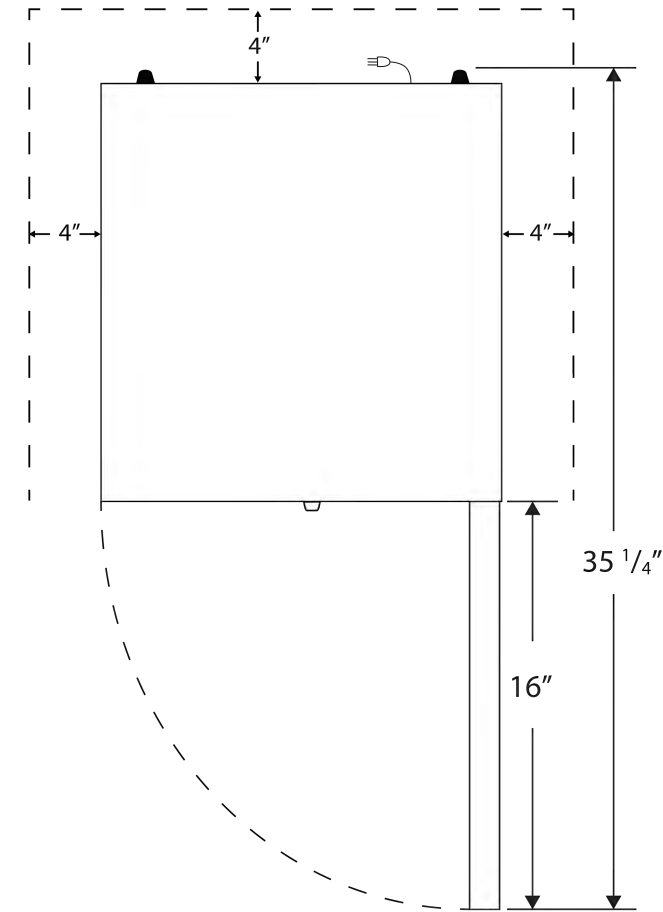
Front View



Side View



Top View



NOTE: Ventilation Requirements – Minimum 4" clearance on sides and back

115VAC/60Hz/1PH
NEMA-5-15P

Cu. Ft	Defrost	Door	Int Door	Shelves	W"	D"	H"	Refrigerant	H.P.	Amps	Weight
1	Cycle	1 Solid	0	2 Adj	17 1/4	19 1/4	21 1/4	R600a	1/8	.90	63 lbs.

PROPOSED ALTERNATIVE 1



ARG1PV



21.5" x 17.5" x 20" (H x W x D)

Performance series Pharma-Vac 1 cu.ft. compact glass door all-refrigerator for vaccine storage

Highlights:

Intelligent microprocessor digital temperature controller

Improved temperature accuracy with a separate temperature probe for continuous product readout to simulate stored product temperature

Additional sensor reads interior air temperature for superior temperature control

Product Features:

Purpose-built design	Designed and purpose-built for pharmacy, medication, and vaccine applications to support meeting CDC/VFC guidelines
+/-1°C Variation	The published temperature variation is derived from the maximum deviation of an NTC sensor in a 1 oz. vial located nearest the chamber geometric center during a 24 hour test period
Adjustable temperature	Intuitive controls let you adjust the interior temperature between +2 to +8°C
Temperature alarm	Visual and audible alarms alert if the interior temperature rises or falls out of set range
Remote alarm contacts	Electronic controller is equipped with a volt-free contact for alarm forwarding to an external remote system (contacts located in the external rear of the unit)
Automatic defrost with adjustable cycle defrost	Adjustable cycle defrost operation ensures the unit avoid temperature spikes and ice buildup
Access port	Includes a pre-installed 1/2" probe hole in the right interior wall to allow easier connection to user-provided monitoring equipment
Open door alarm	Alarm will sound if the door is left ajar for over 4 minutes (adjustable from 1-99 minutes)
Audible power failure alarm	Battery-powered alarm sounds if the power connection is interrupted

ARG1PV Specifications:

Overview	
Height of Cabinet	21.5" (55 cm)
Width	17.5" (44 cm)
Depth	20.0" (51 cm)
Capacity	1.0 cu.ft. (28 L)
Defrost Type	Automatic
Door	Glass
Cabinet	White
US Electrical Safety	ETL
Canadian Electrical Safety	ETL-C
Amps	0.6
Voltage/Frequency	115 V AC/60 Hz
Weight	63.0 lbs. (29 kg)
Shipping Weight	73.0 lbs. (33 kg)
Estimated Time to Ship	1 to 2 days
Parts & Labor Warranty	2 Years
Compressor Warranty	5 Years
Refrigerator Features	
Door Swing	RHD
Reversible	Yes
Shelf Type	Wire
Shelf Qty	3
Adjustable Shelves	Yes
Thermostat Type	Digital
Fan Type	Interior
Refrigerant Type	R600a
Refrigerant Amount	0.71oz.
Interior Light	Yes
Temperature Range	2 to 8°C



Time Recorder Cutsheets

CURRENT SCA STANDARD



EX-9000

USER MANUAL

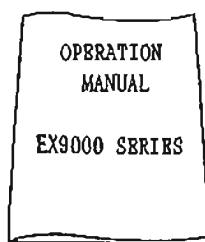


Accessory

After unpacking the package of EX9000 Series, please check all the accessories.

■ Instruction Manual

■ Key



Production Specification

Power source	:	100VAC, 120VAC, 220VAC, 240VAC \pm 10% (50 or 60Hz)
Power consumption	:	Ordinary 5W, Maximum 30W
Environmental conditions	:	Temperature : -10°C to 45°C Humidity : 10% to 90%RH (without dew condensation)
Outside dimensions	:	280(W) \times 180(D) \times 320(H)
Weight	:	3.5 kg
Clock system	:	Crystal oscillator, Accuracy \pm 3 seconds (20°C to 30°C) a week
Power compensation at the time of power failure	:	For 3 years of accumulated power failure time with lithium battery (All functions other than the inner clock stop.). Full power reserve When the battery is fully charged, the followings are compensated: 1) For less than 72 hours of clock motion, 2-color selection, shift of print column, time signal or melody. 2) 200 times of printing, but within 72 hours. When the unit is operating on the full power reserve, the attendance/leaving lamp goes on and off.

PROPOSED ALTERNATIVE 1

AMANO® T I M E S O L U T I O N S

BX-1500

Series

***Electronic
Time Recorder***



Engineered for value and simplicity, the Amano BX-1500 Series is an affordable electronic time recorder designed specifically for small businesses. It is the most affordable clock of its kind for easy, accurate log of employee punch times.

Electronic Time Recorder

BX-1500

Form 5502
 No. 23
 PAY ENDING 04/04
 NAME Samuel Smith
 W.T. _____
 F.I.C.A. _____
 STATE TAX _____
 DEDUCTIONS _____
 TOTAL \$ _____

Form 5625
 No. 8
 PAY PERIOD ENDING 3/14
 NAME Joseph Phelps
 O.T. HOURS RATE AMOUNT INCL. TAX
 HOURS RATE AMOUNT F.O.B.R.
 AMOUNT S.U.I.
 BONDS BALANCE DUE

(Left) 5502 time card
 (Right) 5625 time card

FEATURES

- Affordable ◀
- Easy, accurate, efficient ◀
- Simple programming and operation (set and forget) ◀
- Auto card feed/print ◀
- Large, easy to read analog clock face ◀
- Automatic Daylight Saving time adjustment ◀
- Perpetual calendar automatically adjusts for leap year ◀
- Print format includes day/date, 0-23 hours, AM/PM, minutes (10th or 100th) ◀
- Weekly, bi-weekly, semi-monthly and monthly pay periods ◀
- Battery back up memory (3 years) ◀
- Quartz accuracy ◀
- Surface detection function for correct printing position ◀
- High-quality dot matrix printer for clean, clear printing ◀

REPRESENTED BY:

SPECIFICATIONS

PRINTING

Dot Matrix

POWER SOURCE

110/120VAC or 220/240VAC $\pm 10\%$, 50/60Hz

POWER CONSUMPTION

Standby 2W, max 8W

AMBIENT TEMPERATURE

14°F to 104°F (-10°C to 40°C)

RELATIVE HUMIDITY

10-90% (non-condensing)

DIMENSIONS

7.50"W x 8.8"H x 4"D (190W x 224H x 104D mm)

WEIGHT

5.1 lbs (2.3 kg.)

ENVIRONMENT

Indoor use only, dust free, not in direct sunlight

TIME CARD

3.375" (86mm) wide, 0.244" spacing

MEMORY

Clock and programming data kept for 3 years without AC power

Specifications are approximate and are subject to change without notice.

AMANO®

140 Harrison Avenue, Roseland, NJ 07068-1239
 (800) 526-2559 www.amano.com

PROPOSED ALTERNATIVE 2

AMANO® T I M E S O L U T I O N S

MJR-7000

Series

***Computerized
Time Recorder***



Discover fast accurate payroll preparation with the MJR Series computerized time recorder. The MJR-7000 automatically calculates hours worked and separates regular and overtime hours, taking the "guess work" out of payroll processing.

Computerized Time Recorder

MJR-7000

DATE	DAY	NO	IN	CODE	OUT	CODE	HOURS WORKED	ACCUMULATED HOURS	OVERTIME
24	MO		9:00		5:30		8:00	8:00	
25	TU		9:05		12:00		3:00	11:00	
25	TU		12:33		6:00		8:15	16:00	0:15
26	WE		9:09		5:00		7:15	23:15	
27	TH		9:00		12:02		3:00	26:15	
27	TH		12:32		7:00		9:15	31:15	1:30
28	FR		9:00		5:50		8:15	39:15	1:45
29	SA		9:00H		2:00H		4:30	39:15	1:45
								4:30	

- 1 Prints date
- 2 Total daily hours
- 3 Rounded time
- 4 Holiday worked
- 5 Total regular hours
- 6 Accumulated overtime A
- 7 Accumulated overtime B

FEATURES

- ▶ Totals hours for up to 100 employees
- ▶ Calculates hours worked: separates regular and overtime
- ▶ Automatically adjusts for Daylight Saving Time
- ▶ Automatically advances year, month and day
- ▶ Programmable zones for late arrival or early departure
- ▶ Exception marks for easy identification of tardiness, overtime, etc.
- ▶ Automatic break deduction
- ▶ Easy data correction
- ▶ Concise, easy-to-read Attendance Report for current pay period
- ▶ Two sided printing for weekly pay period
- ▶ Built-in battery backup protects clock and program data up to 72 hours during power failure
- ▶ Lockout capability
- ▶ Rounds IN/OUT times
- ▶ Paid Breaks

SPECIFICATIONS

POWER SUPPLY

AC120V±10%, 50/60 Hz

TEMPERATURE

14°F ~ 113°F (-10°C ~ 45°C)

HUMIDITY

10% ~ 90% (no condensation)

DIMENSIONS

13-1/2"H x 9-1/2"W x 8"D (342mm x 241mm x 203mm)

WEIGHT

17.25 lbs.(7.8 kg)

Specifications are approximate and are subject to change without notice.

REPRESENTED BY:

AMANO®

140 Harrison Avenue, Roseland, NJ 07068-1239
(800) 526-2559 www.amano.com

Workshop Drill Press Cutsheets



15" BENCHTOP DRILL PRESS

716200

AVAILABLE MAY 2016 - the new JET JDP-15B, 15" Benchtop Drill Press. From a full 3-1/8" of spindle travel to the sturdy cast iron head with a poly v-belt drive system, this drill press is designed to perform. This drill press also features a one-handed belt-tensioning system and a large 12-1/2" x 17" work table.



FEATURES

- Spindle travels a full 3-1/8" with one revolution of the handle
- Large 12-1/2" x 17" precision ground work table features twin T-slot grooves and 4 table slots to accommodate any project
- One-handed belt tensioning allows for rapid speed changes
- Power switch features a safety key and large, paddle-style off button
- Integrated depth stop makes repetitive drilling quick and easy
- Xacta-X laser system easily identifies the drill center
- Long-lasting, built-in LED work light reduces shadows
- Table edge lip designed to make clamping easy
- Replaceable MDF table insert
- Large cast iron base provides stability
- Powered by an efficient 3/4HP, 1Ph, 115V TEFC motor and poly-v belt drive system
- CSA Certified



JET RED ASSURANCE 5-YEAR WARRANTY

JET warrants every product it sells. If one of our tools needs service or repair, one of our Authorized Service Centers located throughout the United States can give you quick service. In most cases, any of these JPW Industries Authorized Service Centers can authorize warranty repair, assist you in obtaining parts, or perform routine maintenance and major repair on your JET tools. For the name of an Authorized Service Center in your area call 1-800-274-6848.

STAND BEHIND YOUR WORK

550+ SERVICE CENTERS NATIONWIDE | INDUSTRY-LEADING WARRANTIES | EXPERT TECHNICAL SERVICE



15" BENCHTOP DRILL PRESS

716200

SPECIFICATIONS

Style (Type)	Benchtop
Swing (In.)	15
Spindle Travel (In.)	3-1/8
Number of Spindle Speeds	16
Spindle Taper	MT2/JT3
Spindle Speed Range (RPM)	210 - 3500
Spindle Distance to Table (Max.) (In.)	18-5/16
Spindle Distance to Base (In.)	26-3/4
Table Size (L x W) (In.)	12-1/2 x 17
Table Tilt (Deg.)	45 Left and Right
Chuck Size (In.)	5/8
Column Diameter (In.)	2-3/4
Base Size (In.)	18 x 11-3/8
Motor Power (HP)	3/4
Motor Phase (PH)	1
Motor Voltage (V)	115
Prewired Voltage (V)	115 only



STAND BEHIND YOUR WORK

550+ SERVICE CENTERS NATIONWIDE | INDUSTRY-LEADING WARRANTIES | EXPERT TECHNICAL SERVICE

Product Categories / Machining / Machinery / Drill Presses, Magnetic Drills & Mill Drills / Shop Drill Presses / Drill Presses for Metal / Benchtop Drill Presses for Metal / Bench Drill Press: Belt, Fixed Speed, 138 RPM – ...



DAYTON **GRAINGERCHOICE**

Bench Drill Press: Belt, Fixed Speed, 138 RPM – 3,476 RPM, 15 in Swing, 120/240V AC, 1/2 hp

Item #54ZW29 Mfr. Model #54ZW29
UNSPSC #27112703 Catalog Page #N/A

Country of Origin China. Country of Origin is subject to change.

Technical Specs

Item	Bench Drill Press	Number of Speeds	16
Primary Material Application	Metal, Wood	Chuck Size	5/8 in
Power Down Feed Included	No	Chuck Style	Keyed
Drill Press Type	Benchtop	Guard Included	No
Drill Press Application	Boring, Countersinking, Drilling, Reaming	Coolant System	No
Speed Control	Fixed	Quill Diameter	1 7/8 in
Speed Adjustment	Step Pulley	Drilling Capacity in Steel	1/2 in
Swing	15 in	Drive Type	Belt
Spindle-to-Column Distance	7 1/2 in	Radial Arm	No
Horsepower	1/2 hp	Phase	Single-Phase
Voltage	120/240V AC	Current	8.6/4.3 A
		Spindle Travel	5 in
		Power Source	Corded
		Application	Production Drill Press

This item requires special shipping, additional charges may apply.

Qty1

Add to Cart

☒ Ship

☐ Pickup

Temporarily unavailable for at least 30 days. Consider an alternate product

Ship to 11201 | Change

Shipping Weight 166 lbs
Ship Availability Terms


Add to List

Chat with an Agent

Spindle Taper	2MT
Base Width	10 1/2 in
Column Diameter	2 7/8 in
Downfeed Type	Manual
Drilling Capacity in Cast Iron	5/8 in
Includes	Chuck Key Holder, Chuck with Key, Depth Stop Gauge, LED Readout for Spindle Speeds, V-Belts
Maximum Overall Height	41 in
Maximum Spindle Speed	3,476 RPM
Maximum Spindle-to-Base Height	22 3/4 in
Maximum Spindle-to-Table Height	11 in

Base Length	18 in
Minimum Spindle Speed	138 RPM
Number of Spindle Speeds	16
Number of T-Slots	4
Overall Length	26 3/4 in
Speed Range	138 to 3,476 RPM
Table Length	11 1/2 in
Table Shape	Square
Table Slot	Yes
Table Slot Width	9/16 in
Table Tilt	45 Degrees
Table Width	11 1/2 in
Tilting Angle	45 Degrees
Tool Brand	Dayton

Compliance and Restrictions

 WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

 Chat with an Agent

PROPOSED ALTERNATIVE 2



DAKE DRILL PRESS

Model Numbers: TB16, SB16, SB25, & SB32

INSTRUCTIONAL MANUAL



Read and understand all instructions and responsibilities before operating. Failure to follow safety instructions and labels could result in serious injury.

Dake Corporation
1809 Industrial Park Dr
Grand Haven, MI 49417

Phone: 800.937.3253

www.dakecorp.com

SPECIFICATIONS

Model	TB-16	SB-16	SB-25	SB-32
Number	977100-1	977200-1	977300	977400-2
Voltage	120V	110V/220V	110V Single Phase, 220V 3-Phase	220V 3-Phase
Horsepower	1/2 HP	1/2 HP	2 HP	2 HP
Drill Type	Bench	Floor	Floor	Floor
Max. Drill Capacity	5/8"	5/8"	1"	1-1/4"
Spindle Taper	MT2	MT2	MT3	MT4
Spindle Travel	3-1/8"	3-1/8"	5"	5-1/4"
Max. Work Diameter	14-1/8"	14-1/8"	18"	18"
Speeds (Step Pulley)	9	9	9	9
Spindle Speed Range	240-3400 RPM	240-3400 RPM	270-2000 RPM	270-2290 RPM
Column Diameter	3-1/8"	3-1/8"	3-5/8"	4"
Table	11-3/4" x 11-3/4"	11-3/4" x 11-3/4"	13-3/4" x 13-3/4"	15-3/4" x 15-3/4"
Base	17-3/4" x 12-1/4"	19-5/8" x 12-1/2"	23-5/8" x 15"	23-5/8" x 15"
Spindle to Table	16-1/2"	28-1/2"	28-3/8"	26-1/8"
Spindle to Base	26-1/2"	49-1/4"	50"	50"
Overall Height	42-1/2"	64"	71"	71"
Weight	175 lbs.	230 lbs.	397 lbs.	483 lbs.

In the space provided record the serial number and model number of the machine. If contacting Dake this information must be provided to assist in identifying the specific machine.

Serial No.	
Model No.	
Date Purchased:	

Belt Driven Drill Presses – DP-4016B

SPECIFICATIONS – DP-4016B

Drilling Capacity	1"	25 mm
Chuck Size	B16 .03" – .625"	B16 1–16 mm
Column Diameter	2-3/4"	70 mm
Spindle Taper	MT-2	
Spindle Travel	4"	100 mm
Swing	16"	203 mm
Max. Distance Spindle to Table	9-3/4"	250 mm
Max. Distance Spindle to Base	19-5/8"	500 mm
No. of Spindle Speeds	5	
Spindle Speeds	250–2900 rpm	
Table Size	9" x 10-1/4"	245 x 285 mm
Base Size	20-1/2" x 13-1/4"	520 x 335 mm
Table Tilt	L or R 45°	
Table Height Adjust.	Yes	
Table Material	Cast Iron	
Head Stock Material	Cast Iron	
Machine Overall Dimension	10-3/4"x16-1/4"x41"	720x410x1040 mm
Motor HP	1/2 hp	
Power	110V, 60 Hz	

Specifications subject to change without notice.

- ◆ Benchtop drill press
- ◆ 1" capacity
- ◆ 16" swing
- ◆ 5 speeds
- ◆ 110V



Workshop Tool Grinder Cutsheets

CURRENT SCA STANDARD

BALDOR® • RELIANCE 

Product Information Packet

7308

.5HP,1500/1800RPM,3PH,50/60HZ,3420M,GRND

Part Detail							
Revision:	AP	Status:	PRD/A	Change #:		Proprietary:	No
Type:	AC	Elec. Spec:	G7WG0045	CD Diagram:	CD0005	Mfg Plant:	
Mech. Spec:	G7-0311	Layout:	G7LY0311	Poles:	04	Created Date:	
Base:	RG	Eff. Date:	12-15-2021	Leads:	9#18 SEE NOTES	Y	

Specs			
Nameplate Output:	.5		
Product Style:	GRINDER		

Nameplate NP0113

CAT.NO.	7308		
HP	.5	VOLTS	208-230/460
PHASE	3	AMPS	1.5-1.4/.7
HZ	50//60	RPM	1500//1800
SER.NO			
SPEC.	G7-311-45		

BENCH GRINDERS

Dayton's bench grinders are designed and built with high-quality motors for heavy duty use and long duty cycles. Our stated horsepower is actual sustained horsepower under 100% loads with less than 1% loss from stated RPMs at same 100% loads.

Designed to do more, a Dayton bench grinder provides you with 4 to 7 times longer duty cycles under load and 8 times less speed degradation than any other competitor.

Dayton's line up of industrial grade bench grinders provide smooth, quiet power for all grinding, cleaning, deburring, chamfering and sharpening jobs. Designed to handle heavy stock removal to finishing applications these powerful units are built for continuous, efficient use all day, every day.

- Extended wheel-to-wheel clearance which allows longer items to be ground easily
- Dynamically balanced rotors and sealed bearings to minimize vibration and ensure smooth running
- Large adjustable tool rests for safe, efficient tilt and angle grinding
- Adjustable safety eye shields and spark guards easily positioned with hurricane bolts
- Exclusive single port dust collection system, on selected models
- Maximum performance, accuracy and value
- 2LKR5 comes with wheel guards with no dust collection ports
- 2LKR6 comes with a grinder wheel and a wire wheel
- 12" model comes standard with pedestal floor stand
- Units fit Item # 4Z154 or Item # 16W007 tool stands



2LKT1



2LKT3



1FYX2
Stand included only
with the 12"

Item #	Wheel Diameter	Dust Collection	Face Wheel	Arbor Hole	Exhaust Port	Wheels C to C	Length	Height	HP	Voltage	Phase	Max RPM	Amps
2LKR5	6"	No	3/4"	1/2"	—	14-1/4"	18-1/2"	10"	1/4	120/240	1	3450	3/1.5
2LKR6	6"	No	3/4"	1/2"	—	14-1/4"	18-1/2"	10"	1/3	115/230	1	3450	3.5/1.75
2LKR7	6"	Yes	3/4"	1/2"	2-1/2"	14-7/8"	19-1/4"	10-1/2"	1/3	115	1	2000 - 3300, 3450	3.5
2LKR8	7"	Yes	1"	5/8"	2-1/2"	16-1/2"	21"	13"	1/2	120/240	1	3450	5.0/2.5
2LKR9	8"	Yes	1"	5/8"	2-1/2"	16-1/2"	21"	13"	3/4	120/240	1	3450	7.0/3.5
2LKT1	8"	Yes	1"	5/8"	2-1/2"	16-1/2"	21"	13"	3/4	220/440	3	3450	2.2/1.1
2LKT2	10"	Yes	1"	1"	2-1/2"	20"	24"	16"	1	115/230	1	1725	10.0/5.0
2LKT3	10"	Yes	1"	1"	2-1/2"	20"	24"	16"	1	220/440	3	1725	3.3/1.7
1FYX2	12"	Yes	2"	1-1/4"	2-1/2"	21-3/4"	23"	50-1/2"	2	220	1	1725	10.0

BALDOR® • RELIANCE 

Product Information Packet

7312D

.5/.3HP,3600/1800RPM,1PH,60HZ,3428LC

Part Detail							
Revision:	AB	Status:	PRD/A	Change #:		Proprietary:	No
Type:	AC	Elec. Spec:	G7WG0108	CD Diagram:	CD0354	Mfg Plant:	
Mech. Spec:	G7-0395	Layout:	G7LY0395	Poles:	02/04	Created Date:	
Base:	RG	Eff. Date:	12-15-2021	Leads:	6#18		

Specs			
Nameplate Output:	.5/.3		
Product Style:	GRINDER		

Nameplate NP3118			
CAT.NO.	7312D		
HP	.5/.3	VOLTS	115
PHASE	1	AMPS	5/3.6
HZ	60	RPM	3600/1800
SER.NO			
SPEC.	G7-0395-0108		

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- Maximum performance, accuracy and value
- 2LKR5 comes with wheel guards with no dust collection ports
- 2LKR6 comes with a grinder wheel and a wire wheel
- 12" model comes standard with pedestal floor stand
- Units fit Item # 4Z154 or Item # 16W007 tool stands



2LKT1



2LKT3



1FYX2

Stand included only with the 12"

Item #	Wheel Diameter	Dust Collection	Face Wheel	Arbor Hole	Exhaust Port	Wheels C to C	Length	Height	HP	Voltage	Phase	Max RPM	Amps
2LKR5	6"	No	3/4"	1/2"	—	14-1/4"	18-1/2"	10"	1/4	120/240	1	3450	3/1.5
2LKR6	6"	No	3/4"	1/2"	—	14-1/4"	18-1/2"	10"	1/3	115/230	1	3450	3.5/1.75
2LKR7	6"	Yes	3/4"	1/2"	2-1/2"	14-7/8"	19-1/4"	10-1/2"	1/3	115	1	2000 - 3300, 3450	3.5
2LKR8	7"	Yes	1"	5/8"	2-1/2"	16-1/2"	21"	13"	1/2	120/240	1	3450	5.0/2.5
2LKR9	8"	Yes	1"	5/8"	2-1/2"	16-1/2"	21"	13"	3/4	120/240	1	3450	7.0/3.5
2LKT1	8"	Yes	1"	5/8"	2-1/2"	16-1/2"	21"	13"	3/4	220/440	3	3450	2.2/1.1
2LKT2	10"	Yes	1"	1"	2-1/2"	20"	24"	16"	1	115/230	1	1725	10.0/5.0
2LKT3	10"	Yes	1"	1"	2-1/2"	20"	24"	16"	1	220/440	3	1725	3.3/1.7
1FYX2	12"	Yes	2"	1-1/4"	2-1/2"	21-3/4"	23"	50-1/2"	2	220	1	1725	10.0

Interactive Monitor Cutsheets



205 Westwood Ave, Long Branch, NJ 07740
Phone: 866-94 BOARDS (26273) / (732)-222-1511
Fax: (732)-222-7088 | E-mail: sales@touchboards.com



THIS DOCUMENT CONTAINS SPECIFICATIONS FOR

ActivBoard Touch Series

DESCRIPTION

The ActivBoard Touch interactive surfaces are available in 4:3 and 16:10 aspects (78" and 88" nominal sizes) and come with ActivInspire Professional Edition. Choose between a classic dual-touch surface for single or dual users, or the six-touch surface to support small team interactivity and collaboration.* The ActivBoard Touch is available with dry-erase or standard surfaces.

SYSTEM OVERVIEW

Installation

The installation of this product should be completed by a Promethean Certified Installer. Use of components not supplied by Promethean or not meeting minimum specifications may impact performance and affect warranty. Contact your Promethean partner or visit www.prometheankb.com for more information.

Warranty

For Promethean Warranty Terms and Conditions please visit: www.PrometheanWorld.com/ActivCare

Support

Online Support for all Promethean Products available from: www.PrometheanKB.com

UPGRADE AND ACCESSORY OPTIONS

Cable Wall Box

Connectivity box with inputs for 2 x fully wired VGA (to support VESA DDC) plus 3.5mm stereo jack audio inputs, USB-B input (for ActivBoard), S-Video, composite video plus auxiliary audio jack inputs, Cat 5e Ethernet input. Allows additional flexibility during installation, where the computer is located further away from the System

ActivSoundBar

The Promethean ActivSoundBar provides a powerful, high-quality stereo sound option for most classrooms and meeting rooms. Signal input is via a 3.5mm stereo jack or dual RCA sockets. Brackets are included to fix the ActivSoundBar to the top edge of the ActivBoard Touch.

SYSTEM REQUIREMENTS

Operating Systems

Windows XP SP2 and above (32 and 64-bit Vista, Windows 7, Windows 8 / 8.1); Mac OSX 10.6 - 10.8 (Snow Leopard / Lion / Mountain Lion); Linux Ubuntu 12.04

For system requirements for ActivInspire Professional, please see the ActivInspire Specification Sheet.



205 Westwood Ave, Long Branch, NJ 07740
Phone: 866-94 BOARDS (26273) / (732)-222-1511
Fax: (732)-222-7088 | E-mail: sales@touchboards.com

ACTIVBOARD GENERAL SPECIFICATIONS

Resolution	32768 x 32768
Tracking Rate	118 inches per second
Output Rate	83 coordinate pairs per second
Object Size Resolution	>8mm Diameter
Response Time (click/first click)	30ms
Response Time (continuous click/write)	12ms
Positioning Accuracy	<2mm
User Input	Touch or ergonomic pen (supplied)
Digitizing Technology	Infrared
Power Requirement	USB Powered
Connection to Computer	USB 2.0
Board Surface	Available with or without dry-erase surface
Operating Temperature	0°C to +50°C (32°F to +122°F)
Storage Temperature	-30°C to +60°C (-22°F to +140°F); humidity (non-condensing) 0% to 90%
Packed Contents List	ActivBoard, 2 Pens, 5m (16ft) USB cable, Wall Mounting Brackets, Stand Brackets (88" version only), Installation Guide. Guide, Access to ActivInspire via download from Promethean Planet (Also available on DVD at additional cost)

ACTIVBOARD SPECIFICATIONS BY MODEL

Model	ActivBoard Touch 4:3 Aspect	ActivBoard Touch 16:10 Aspect
ActivBoard Nominal Size	78"	88"
Promethean Stand Compatibility	Mount	Mount, Fixed, Adjustable, Mobile
Overall Dimensions	1685mm x 1292mm (66.3in x 50.9in)	2006mm x 1292mm (78.9in x 50.9in)
Active Area Dimensions	1585mm x 1189mm (62.4in x 46.8in)	1902mm x 1189mm (74.9in x 46.8in)
Active Area Diagonal	1981mm (78.02in)	2243mm (88.31in)
Board Weight	16.5kg (36.4lb)	19.6kg (43.2lb)
Packed Weight	24.0kg (52.9lb)	29.7kg (65.5lb)
Packed Dimensions	1830mm x 1400mm x 100mm (72in x 55.1in x 3.9in)	2148mm x 1422mm x 100mm (84.6in x 55.6in x 3.9in)

Prowise Touchscreen Ten

The Prowise Touchscreen Ten is our best screen yet. Enjoy guaranteed picture quality, Dolby Audio award-winning sound and our best writing experience ever. A high quality high-end touchscreen at the well-known Prowise price setting.

Available in 55", 65", 75", 86" and 98"

55": PW.1.17055.X001

65": PW.1.17065.X001

75": PW.1.17075.X001

86": PW.1.17086.X001

98": PW.1.17098.X001



Breathtaking image and sound quality

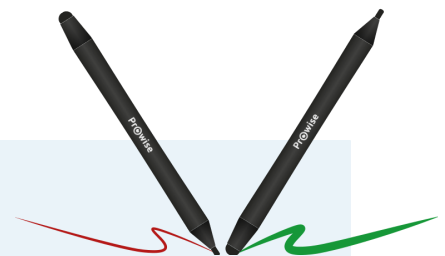
Enjoy the incredible razor-sharp 4K display and Dolby Audio certified sound on Android and the OPS module

- 4K/Ultra HD
- High quality IPS LED panel with an excellent 178° viewing angle
- Scratch resistant and Anti-Glare
- 95 watt 2.1 Dolby Audio Soundbar
- 6 x wide-area microphones
- The soundbar and microphones are fully integrated into the screen

Natural writing experience

The Prowise Touchscreen Ten immediately responds to the pen without delay

- 2 pens supplied
- 40 touch points
- 20 multi-writing points
- Windows Ink compatibility
- 2-colour recognition
- ProWrite Technology



Technical specifications

	55"	65"	75"	86"	98"
Display					
Bezel color	Brushed aluminium (black)				
Diagonal	55 inch	65 inch	75 inch	86 inch	98 inch
Panel type	Ultra HD LED – IPS				
Resolution	3840 x 2160 @ 60 Hz				
Glass plate	Nano-technology Anti-Glare				
Glass thickness	4 mm/0.157 inch				
Glass hardness	Mohs 7				
Aspect ratio	16:9				
Contrast ratio	1200:1 (typ.)				
Dynamic contrast ratio	5000:1				
Brightness	350 cd/m2	400 cd/m2	450 cd/m2	450 cd/m2	500 cd/m2
Colour depth	10 Bit (1.07B)				
Viewing angle	178°				
Panel refresh rate	60 Hz				
Response time	8ms				
Lifetime	50.000 hours				
Touch-Type					
Type	ProWrite Touch Technology				
Multi-Touch	Yes (40-Points)				
Multi-Writing	Yes (20-Points)				
Touch refresh rate	>110 Hz				
Minimal input size	2mm				
Touch precision	1mm				
Auto-Calibration	Yes				
Resistant to sunlight	Yes				
Supported OS	Windows 8.1/10/11 / Linux / Mac OS X / Android				
Pen-on-paper writing experience	Yes				
Audio					
Speakers	2.1 Sound (3 speakers)				
Front speaker power	2 x 15W (8Ω)				
Subwoofer	1 x 15W (8Ω)				
Max amplifier output	95W @8 Ohm				
Dolby Audio	Yes				

Technical specifications (continued)

	55"	65"	75"	86"	98"
General information					
Voltage	~ 100-240 V (50/60Hz)				
Nominal power consumption	80 W	110W	139W	189W	250W
Stand-by power consumption	≤ 0,5 Watt	≤ 0,5 Watt	≤ 0,5 Watt	≤ 0,5 Watt	≤ 0,5 Watt
Gross weight	45 kg / 99.2lb	63 kg / 138.89 lb	80 kg / 176.37 lb	101 kg / 222.67 lb	172 kg / 379.2 lb
Net weight	37 kg / 81.57lb	48 kg / 105.82 lb	63 kg / 138.89lb	81kg / 178.57lb	122kg / 269 lb
Dimensions of the screen (B x H x T)	1289 x 807.8 x 93.8 mm 50.75 x 31.8 x 3.69 inch	1511.5 x 934.5 x 89.5 mm 59.5 x 36.79 x 3.52inch	1722.5 x 1048.7 x 87.6 mm 67.81 x 41.28 x 3.45 inch	1967.84 x 1186.76 x 88mm 77.47 x 46.72 x 3.46inch	2237.85 x 1341.35 x 108.2 mm 88.11 x 52.8 x 4.25 inch
Dimensions of the packaging (B x H x T)	1420 x 910 x 240 mm 55.91 x 35.83 x 9.45 inch	1660 x 1045 x 240 mm 65.35 x 41.14 x 9.45 inch	1895 x 1160 x 240 mm 74.61 x 45.67 x 9.45 inch	2140 x 1310 x 240 mm 84.25 x 51.57 x 9.45 inch	2525 x 1752 x 435 mm 99.41 x 68.98 x 17.13 inch
VESA-Standard	VESA 400 x 400 mm	VESA 600 x 400 mm	VESA 800 x 400 mm	VESA 800 x 600 mm	VESA 800 x 600 mm
VESA-Mounting for external devices	VESA 100 x 100 mm	VESA 100 x 100 mm	VESA 100 x 100 mm	VESA 100 x 100 mm	VESA 100 x 100 mm
Blue Light Filter	Yes				
Certifications	CE: EMC + LVD / WEEE / RoHS / REACH / FCC-IC / RCM / CB / TÜV eye comfort certificate and Energy Star				
Warranty	5 years standard (extendable to 7 or 8 years)				
Environmental conditions					
Operation temperature	0 °C - 38 °C / 32 - 100 °F				
Storage temperature	-20 °C - 60 °C / -4 - 140 °F				
Storage humidity	10 % - 90 %				
Operation humidity	10 % - 90 %				

Interactive Whiteboard Cutsheets

SMART Board® MX (V2) series with iQ

SBID-MX255-V2

SBID-MX265-V2

SBID-MX275-V2

SBID-MX286-V2



Display

Screen sizes (diagonal)	55", 65", 75", 86"
Backlight	LED
Aspect ratio	16:9
Maximum display resolution	4K UHD (3840 × 2160)
Refresh rate	60 Hz
Lifespan	≥ 50,000 hours
Brightness (maximum)	55": ≥ 350 cd/m ² 65", 75", 86": ≥ 400 cd/m ²
Response time	≤ 8 ms
Viewing angle	178°
Glass	Fully heat-tempered anti-glare glass that resists smudges and fingerprints
Glass thickness	4 mm
Frame color	White
Convenience buttons	Power, home, volume, input select, screen shade, freeze frame
Sensors	Ambient light, infrared
Audio	2 integrated 15 W speakers

Interactive experience

Touch technology	HyPr Touch™ with Advanced IR
Touch features	Simultaneous Tool Differentiation™ Object Awareness™ Silktouch™
Frame rate	100 Hz
Accuracy	±1 mm (over 90% area)
Minimum object size	3 mm
Multitouch capabilities	20 – Windows® and Mac 10 – Chrome OS™
Tools included	Pens (×2)
Tool holders	Magnetic, frame-mounted

Software

iQ built-in Android™ experience	Included
SMART Notebook® basic	Included
SMART Ink® and SMART Product Drivers	Included
SMART Remote Management	Subscription for length of the included warranty
SMART Learning Suite	Bonus 1-year subscription

smarttech.com
smarttech.com/contact

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iQ built-in Android experience	
Operating system	Android version 8.0
Memory	4 GB DDR
Storage	32 GB
Digital whiteboard	✓
Web browser	✓
Screen sharing	✓
Other features	SMART Whiteboard Personalized home screen and settings Live input preview Interactive widgets Templates, graphic organizers, and manipulatives File and app libraries Google Drive™ and OneDrive™ access
Object Awareness supported	✓
Ability to run third-party applications	✓
Cloud storage access	✓
Languages supported	Chinese (simplified), Chinese (traditional), Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Romanian, Russian, Slovak, Slovenian, Spanish, Swedish, Ukrainian, Vietnamese, Welsh
Updates	Automatic over-the-air (OTA)

PC computing	
OPS support	✓
OPS-C support	✓
PC module power supported OPS	60 W
Optional computing modules	SMART OPS PC with Windows 10 Pro SMART Chromebox

Inputs	Front	Back
OPS PC accessory slot (60 W devices)	–	1
HDMI® 2.0 with HDCP 1.4 and HDCP 2.2 support	1	2
VGA video	–	1
Stereo 3.5 mm	–	1
RS-232 room control (DB-9 connector)	–	1
RJ45 Ethernet (passthrough)	–	2
USB 2.0 Type-A	2	1
USB 3.0 Type-A	–	1
USB 3.0 Type-B	1	3

Outputs	Front	Back
HDMI 2.0 with HDCP 2.2 support	–	1
Stereo 3.5 mm (variable)	–	1
Audio S/PDIF (fixed)	–	1
RS-232 room control (DB-9 connector)	–	1

Included cables and accessories	Qty
Country-specific power cable	1
16' 5" (5 m) USB cable	1
Pens	2
External dual-band 2.4 and 5 GHz antennae	2
Remote control	1
AAA batteries	2
Wall mount bracket kit	1
Illustrated installation instructions	1
Important information document	1

Connectivity

Wired	RJ45 (x2) 100baseT
Wi-Fi	IEEE 802.11 a/b/g/n/ac with 2 x 2 MIMO (both 2.4 and 5 GHz bands) supporting WEP, WPA, WPA2 PSK, and 802.1X EAP authentication protocols
Bluetooth	4.2 dual mode

Storage and operating requirements

Power requirements	100V to 240V AC, 50 Hz to 60 Hz
Operating temperature	5–35°C
Storage temperature	–20–60°C
Humidity	5–80% relative humidity, non-condensing

Power consumption

Typical	55": 98 W
	65": 103 W
	75": 151 W
	86": 167 W
Standby	< 0.5 W

Certification and compliance¹

US / Canada	UL, FCC, ISED, TSCA, CONEG Packaging, Proposition 65
EU / EEA / EFTA / UK	CE, UKCA, LVD, CB, EMCD, RED, REACH, RoHS, Battery, WEEE, Packaging, POP, Ecodesign
Australia / New Zealand	RCM
Performance standards	ENERGY STAR®, HDMI

Purchasing information

Order number: SBID-MX255-V2	SMART Board® MX055-V2 interactive display with iQ and SMART Learning Suite
Order number: SBID-MX265-V2	SMART Board MX065-V2 interactive display with iQ and SMART Learning Suite
Order number: SBID-MX275-V2	SMART Board MX075-V2 interactive display with iQ and SMART Learning Suite
Order number: SBID-MX286-V2	SMART Board MX086-V2 interactive display with iQ and SMART Learning Suite
Optional accessories	See smarttech.com/accessories

Warranty

SMART Assure warranty	Includes advanced hardware replacement and access to onsite support. Terms and conditions vary by region. Contact your local reseller or distributor for information and visit smarttech.com/warranty .
------------------------------	--

Cable requirements

HDMI	Certified premium high speed HDMI (18 Gbps) Maximum length: 7 m
USB 2.0	USB 2.0 certified Hi-Speed (480 Mbps) support Maximum length: 5 m
USB 3.0	USB 3.0 certified SuperSpeed (5 Gbps) support Maximum length: 3 m
More information	See smarttech.com/kb/171555

¹Product availability may vary by region.

This product has received additional certifications not listed here.

Lab Drying Oven Cutsheets

Model ED 56 | Drying and heating chambers Avantgarde.Line with natural convection

BENEFITS

- Uniform drying conditions thanks to APT.line™ technology
- Identical test conditions throughout the chamber interior independent of sample size and quantity
- Outstanding thermal insulation saves operation costs



Model 56



Model 56

MAIN FEATURES

- Temperature range: ambient temperature plus 15 °C to 300 °C
- High temperature accuracy thanks to APT.line™ technology
- Natural convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Stackable
- Class 2 independent temperature safety device (DIN 12880) with visual temperature alarm
- Ergonomic handle design
- USB port for recording data

ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
Model ED 56				
57	230 V 1~ 50/60 Hz	Standard	ED056-230V	9010-0333
	120 V 1~ 60 Hz	Standard	ED056UL-120V	9010-0334

TECHNICAL DATA

Description	ED056-230V	ED056UL-120V
Article Number	9010-0333	9010-0334
Performance Data Temperature		
Temperature range 15 °C above ambient temperature to [°C]	300	300
Temperature uniformity at 150 °C [± K]	2.5	2.5
Temperature fluctuation at 150 °C [± K]	0.4	0.4
Heating-up time to 150 °C [min]	45	45
Recovery time after 30 seconds door open at 150 °C [min]	25	25

Lab Experiment Burner / Heater Cutsheets

FORMER SCA PURCHASED MODEL



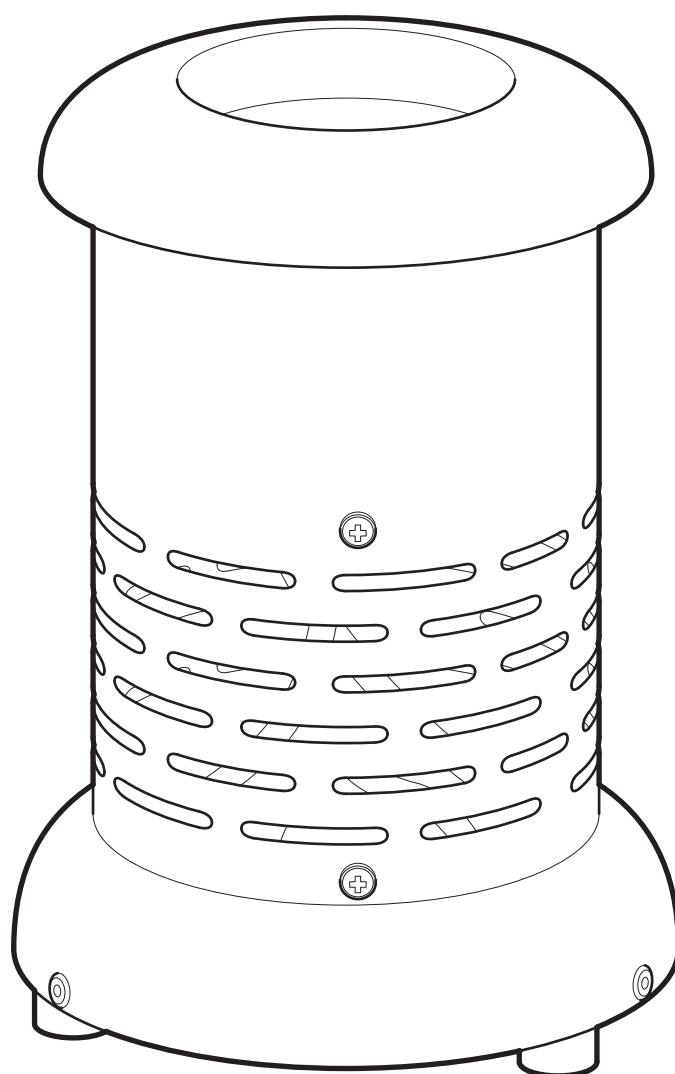
ELECTRIC BUNSEN

BA6101

BA6101/C

BA6101X1

BA6101/CX1



Instruction Manual

M6877 / Version 9.7

8. TECHNICAL SPECIFICATION.

8.1. Specification.

Mains Input Supply Voltage

BA6101 Mains Input Supply Voltage	230V AC at 50/60Hz.
BA6101/C Mains Input Supply	230V AC at 50/60Hz.
BA6101X1 Mains Input Supply	110V – 120V AC at 50/60Hz.
BA6101/CX1 Mains Input Supply	110V – 120V AC at 50/60Hz.

Mains Input Power Cord and Plug set

BA6101 , Mains Power Cord	IEC – C-14 plug (UK) and (Schuko). Replace only with equivalent cable. Lead set with moulded plug UK Plug
BA6101X1 Mains Power Cord	IEC – C-14 plug Replace only with equivalent cable. Lead set with moulded plug USA Plug

Power Consumption in Watts.

BA6101, BA6101/C Without controller (see controller Instruction Manual).	480W Max
BA6101X1, BA6101/CX1	430W Max

Replaceable Fuse Rating (Amps)

BA6101, BA6101/C.	F4A Radial Lead Quickblow.
BA6101X1, BA6101/CX1	F5A Radial Lead Quickblow.

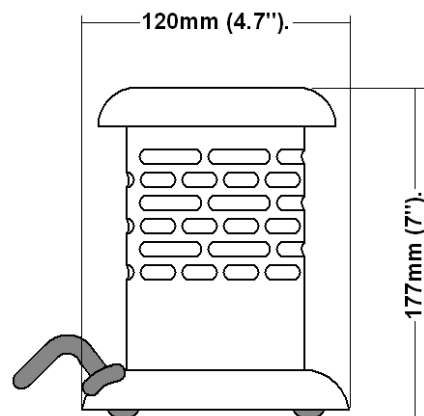
Maximum Operating Temperature	800°C
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Case Construction.	Stainless steel – Brushed finish.
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Heating Element Construction.	Resistance coiled wire and ceramic coned former.
--------------------------------------	--

8.2. The Ingress protection rating for this product range is IPX0.

8.3. Dimensions and Weight (unpacked).



Weight 0.5Kg (1.1lb).



Teacher Lab-Master Safety Package

#NAC-M-TSP

What are the benefits of using the Lab-Master Safety Package?

- Eliminates the high cost of maintaining gas lines, while still able to have a full-year of Chemistry content
- Focuses on a safer classroom, by eliminating flames, hot plates, and fume hoods
- Provides the needed equipment resources when lab classrooms are lacking utilities
- Provides a multi-student centered and station approach, since one package works for four students
- Allows the Teacher to use a controlled flame at the front demo station only, while the students can have a safer experience and the same outcome at their station
- Includes 58 Chemistry labs, core labs and extensions
- The unit is battery operated and can be moved around the classroom, or plugged in to be recharged

The Teacher Lab-Master Safety Package includes the following items:

- A *Natural Approach to Chemistry*, 2nd Edition Laboratory Investigations Manual
- A *Natural Approach to Chemistry*, 2nd Edition Online Teacher Portal, 7-year Access
- Teacher Lab-Master Safety package with custom plastic insert
- Lab-Master Users Manual
- Lab-Master Control Unit + data logger + spectrophotometer
- Lab-Master Control point heater
- Lab-Master Temperature Probe
- Lab-Master Voltage Probe
- Lab-Master Power Adapter and 6 ft power cable
- Lab-Master Desiccator
- Lab-Master Condenser
- 8 cuvettes
- 8 glass test tubes, 25x100mm
- Test tube insulator
- Cuvette and Test Tube Holder
- Extension ring
- Clamp, right angle

DOES NOT INCLUDE SD CARD REQUIRED FOR DATA STORAGE

More Info

The Lab-Master is a reliable, rugged, and easy to use data acquisition system that saves data to an SD card for easy communication with any computer.

It has a built-in 3-axis RGB spectrophotometer which allows students to measure pH and explore reaction dynamics and other aspects of chemistry.

It includes probes for measuring temperature and voltage (for electrochemistry), a temperature-controlled heating unit that quickly boils 20 mL of water in a test tube, safely, with no open flames.

It is easy to set up, has automatic probe recognition and calibration, and can display both graphs and numbers.

It is spill-resistant which makes it very durable for the science classroom.

SD CARD NOT INCLUDED

Lab Explosion-Proof Freezer Cutsheets

thermoscientific

PRODUCT SPECIFICATIONS

Cold Storage

Explosion-Proof Lab Refrigerators, Freezers and Combination Units

Designed to be used in areas where ignitable materials are normally present.

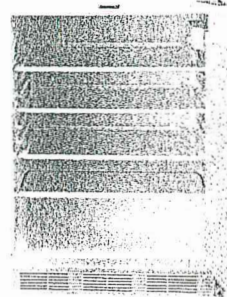
Thermo Scientific explosion-proof laboratory refrigerators, freezers and combinations units are particularly suited for safe storage in hazardous environments. Models are available from undercounter to full height freestanding.

Available in North America and select countries, consult your sales representative for availability.

- Sparkfree interior and exteriors reduce the risk of explosion
- All models are manual defrost
- Tough white exterior
- CFC- and HCFC-free refrigeration system and insulation
- Designed for use in CLASS I, GROUPS C & D & CLASS I, ZONE1, GROUP IIB
- Plug-free cords (units must be hardwired to wall)

Warranty: 13 months parts and labor

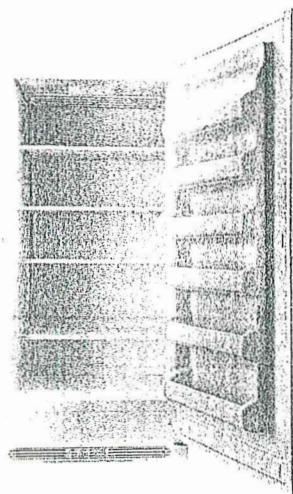
Certifications: CSA and or UL



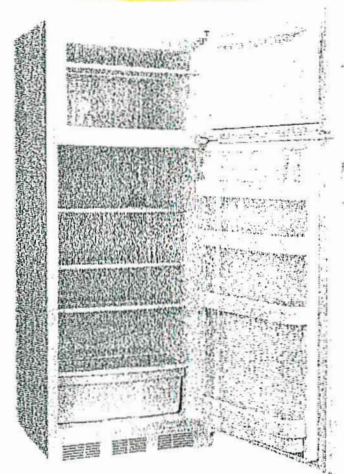
Model No: 05EREETSA
5.5 cu. ft. lab
explosion-proof refrigerator



Model No: 05EFEETSA
5.0 cu. ft. explosion-proof
freezer



Model No: 20EFEETSA
20.9 cu. ft. explosion-proof freezer



Model No: 10ECEETSA
10 cu. ft. explosion-proof
combination refrigerator/freezer

Spec 11600

ThermoFisher
SCIENTIFIC

Thermo Scientific Explosion-Proof Refrigerators (Temperature Range 1° to 12°C)

Model No.	Capacity	Interior Storage	Voltage	Exterior Dimensions: (H x W x D)	Interior Dimensions: (H x W x D)	Agency Listing	Shipping Weight
05EREETSA	5.5 cu. ft. (155.7 liters)	3 adjustable shelves, storage on bottom of unit	115V/60Hz	33.5" x 23.63" x 28.1" (85.1 x 60 x 71.37 cm)	27.75" x 20" x 17.5" (70.5 x 50.8 x 44.5 cm)	UL listed, meets NFPA 45 and 70	120 lbs. (54.5 kg)
20ERCETSA*	20.9 cu. ft. (591.82 liters)	4 fixed shelves	115V/60Hz	77.5" x 34" x 34.96" (196.9 x 86.3 x 88.8 cm)	57.8" x 27.8" x 23.8" (146.7 x 70.49 x 60.3 cm)	CSA	198 lbs. (89.8 kg)
20EREETSA	20.9 cu. ft. (591.82 liters)	4 fixed shelves, 6 fixed door shelves	115V/60Hz	77.5" x 34" x 34.96" (196.9 x 86.3 x 88.8 cm)	57.8" x 27.8" x 23.8" (146.7 x 70.49 x 60.3 cm)	CSA	198 lbs. (89.8 kg)

* Corrosion-resistant model, features stainless steel interior door and stainless steel shelves

Thermo Scientific Value Lab Freezers (Temperature Range -12° to -24°C)

Model No.	Capacity	Interior Storage	Voltage	Exterior Dimensions: (H x W x D)	Interior Dimensions: (H x W x D)	Agency Listing	Shipping Weight
05EFEETSA	5.0 cu. ft. (141.6 liters)	2 fixed interior, 1 bottom tray, 3 door shelves	115V/60Hz	33.13" x 21.38" x 30.25" (84.15 x 54.3 x 64.5 cm)	29.5" x 18.63" x 19" (74.9 x 47.32 x 48.2 cm)	UL listed, meets NFPA 45 and 70	95 lbs. (43.1 kg)
20EFEETSA	20.9 cu. ft. (591.82 liters)	4 fixed interior shelves, 1 wire basket, 6 door shelves	115V/60Hz	77.5" x 34" x 34.96" (196.9 x 86.3 x 88.8 cm)	57.8" x 27.8" x 23.8" (146.7 x 70.49 x 60.3 cm)	CSA	198 lbs. (89.8 kg)

Thermo Scientific Combination Lab Refrigerator/Freezers* (Temperature Range: 1° to 12°C [ref], -12° to -20°C [frz])

Model No.	Capacity	Interior Storage	Voltage	Exterior Dimensions: (H x W x D)	Interior Dimensions: (H x W x D)	Agency Listing	Shipping Weight
10ECEETSA	10.1 cu. ft. (286.0 liters)	3 adjustable interior, 1 fixed shelf, 1 drawer, v4 door shelves	115V/60Hz	59.75" x 23.63" x 28.6" (151.77 x 60 x 76.2 cm)	Ref: 38.25" x 19.75" x 18.25" (97.2 x 50.2 x 46.4 cm); Frz: 11.25" x 18" x 18.25" (28.6 x 45.7 x 46.4 cm)	UL listed, meets NFPA 45 and 70	150 lbs. (68 kg)

Spec
11600

In the United States:

For customer service, call 1-800-766-7000
To fax an order, use 1-800-926-1166
To order online: thermofisher.com

In Canada:

For customer service, call 1-800-234-7437
To fax an order, use 1-800-463-2996
To order online: thermofisher.ca

Find out more at thermofisher.com/furl

Thermo Fisher
SCIENTIFIC

Lab Explosion-Proof Refrigerator Cutsheets

Explosion-Proof Lab Refrigerators, Freezers and Combination Units

Designed to be used in areas where ignitable materials are normally present.

Thermo Scientific explosion-proof laboratory refrigerators, freezers and combinations units are particularly suited for safe storage in hazardous environments. Models are available from undercounter to full height freestanding.

Available in North America and select countries, consult your sales representative for availability.

- Sparkfree interior and exteriors reduce the risk of explosion
- All models are manual defrost
- Tough white exterior
- CFC- and HCFC-free refrigeration system and insulation
- Designed for use in CLASS I, GROUPS C & D & CLASS I, ZONE1, GROUP IIB
- Plug-free cords (units must be hardwired to wall)

Warranty: 13 months parts and labor

Certifications: CSA and or UL



Model No: 05EREETSA
5.5 cu. ft. lab
explosion-proof refrigerator



Model No: 05EFEETSA
5.0 cu. ft. explosion-proof
freezer



Model No: 20EFEETSA
20.9 cu. ft. explosion-proof freezer



Model No: 10ECEETSA
10 cu. ft. explosion-proof
combination refrigerator/freezer

Thermo Scientific Explosion-Proof Refrigerators (Temperature Range 1° to 12°C)

Model No.	Capacity	Interior Storage	Voltage	Exterior Dimensions: (H x W x D)	Interior Dimensions: (H x W x D)	Agency Listing	Shipping Weight
05EREETSA	5.5 cu. ft. (155.7 liters)	3 adjustable shelves, storage on bottom of unit	115V/60Hz	33.5" x 23.63" x 28.1" (85.1 x 60 x 71.37 cm)	27.75" x 20" x 17.5" (70.5 x 50.8 x 44.5 cm)	UL listed, meets NFPA 45 and 70	120 lbs. (54.5 kg)
20ERCETSA*	20.9 cu. ft. (591.82 liters)	4 fixed shelves	115V/60Hz	77.5" x 34" x 34.96" (196.9 x 86.3 x 88.8 cm)	57.8" x 27.8" x 23.8" (146.7 x 70.49 x 60.3 cm)	CSA	198 lbs. (89.8 kg)
20EREETSA	20.9 cu. ft. (591.82 liters)	4 fixed shelves, 6 fixed door shelves	115V/60Hz	77.5" x 34" x 34.96" (196.9 x 86.3 x 88.8 cm)	57.8" x 27.8" x 23.8" (146.7 x 70.49 x 60.3 cm)	CSA	198 lbs. (89.8 kg)

* Corrosion-resistant model, features stainless steel interior door and stainless steel shelves

Thermo Scientific Value Lab Freezers (Temperature Range -12° to -24°C)

Model No.	Capacity	Interior Storage	Voltage	Exterior Dimensions: (H x W x D)	Interior Dimensions: (H x W x D)	Agency Listing	Shipping Weight
05EFEETSA	5.0 cu. ft. (141.6 liters)	2 fixed interior, 3 door shelves	115V/60Hz	33.13" x 21.38" x 30.25" (84.15 x 54.3 x 64.5 cm)	29.5" x 18.63" x 19" (74.9 x 47.32 x 48.2 cm)	UL listed, meets NFPA 45 and 70	95 lbs. (43.1 kg)
20EFEETSA	20.9 cu. ft. (591.82 liters)	4 fixed interior shelves, 6 door shelves	115V/60Hz	77.5" x 34" x 34.96" (196.9 x 86.3 x 88.8 cm)	57.8" x 27.8" x 23.8" (146.7 x 70.49 x 60.3 cm)	CSA	198 lbs. (89.8 kg)

Thermo Scientific Combination Lab Refrigerator/Freezers (Temperature Range: 1° to 12°C [ref], -12° to -20°C [frz])

Model No.	Capacity	Interior Storage	Voltage	Exterior Dimensions: (H x W x D)	Interior Dimensions: (H x W x D)	Agency Listing	Shipping Weight
10ECEETSA	10.1 cu. ft. (286.0 liters)	3 adjustable shelves, 1 fixed shelf, 1 drawer, 4 door shelves	115V/60Hz	59.75" x 23.63" x 28.6" (151.77 x 60 x 76.2 cm)	Ref: 38.25" x 19.75" x 18.25" (97.2 x 50.2 x 46.4 cm); Frz: 11.25" x 18" x 18.25" (28.6 x 45.7 x 46.4 cm)	UL listed, meets NFPA 45 and 70	150 lbs. (68 kg)

In the United States:

For customer service, call 1-800-766-7000
 To fax an order, use 1-800-926-1166
 To order online: thermofisher.com

In Canada:

For customer service, call 1-800-234-7437
 To fax an order, use 1-800-463-2996
 To order online: thermofisher.ca

Find out more at thermofisher.com/cold

ThermoFisher
SCIENTIFIC

PROPOSED ALTERNATIVE 1

LRBFS20W1HC

MediLine



LIEBHERR

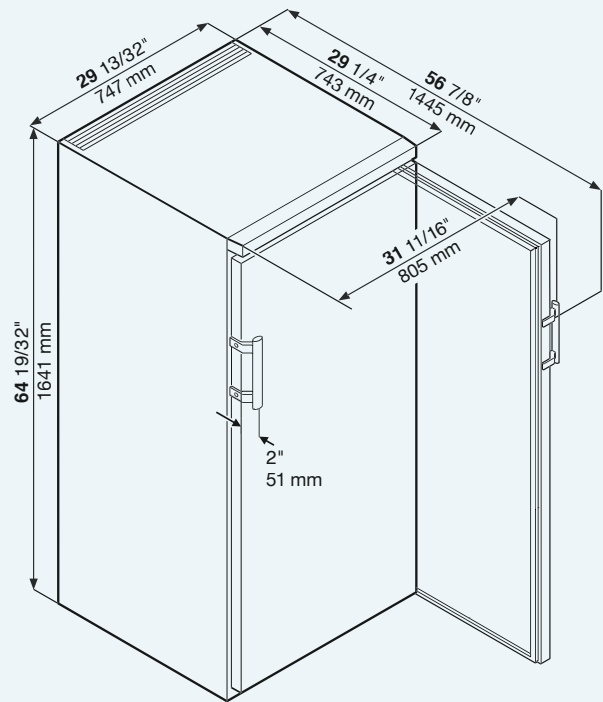
Quality, Design and Innovation

Laboratory Refrigerator with Analog Controls Suitable for Flammable Material Storage



Laboratory refrigerator with spark-free interior	
LRBFS20W1HC MediLine	
Total gross/net capacity l (cu.ft.)	567/533 (19.9/18.7)
Exterior dimensions in mm (w/d/h)	747/743/1641
in inches (w/d/h)	29 7/16"/29 5/16"/64 5/8"
Interior dimensions in mm (w/d/h)	600/560/1452
in inches (w/d/h)	23 5/8"/22 1/16"/57 3/16"
Energy consumption in 365 days *	380 kWh
Ambient temperature in °C (°F)	10°C to 35°C (50°F to 95°F)
Refrigerant	R290
Sound rating **	50 dB(A)
Connection rating	3.0 A
Frequency/voltage	60 Hz/115V~
Cooling system	forced-air
Defrost	automatic
Temperature range in °C (°F)	1°C to 15°C (34°F to 59°F)
External cabinet finish	steel/white
Door/lid material	steel
Internal liner material	commercial grade molded polystyrol
Type of control	analog control
Temperature display	external digital
Interior light	n/a
Adjustable shelves	5
Shelf material	glass
Shelf load weight in kg (lbs)	40 (88.2)
Usable shelf area in mm (inches)	600/550 (23 5/8"/21 11/16")
Handle	ergonomic slimline handle
Lock	recessed
Door hinges	right, reversible on site
Insulation in mm (inches)	32–52 (1 5/16"– 2 1/16")
Gross/net weight in kg (lbs)	88/82 (194/180.8)
Accessories	
Glass shelf	9293595
Additional lock barrels (up to 10)	upon request

Unit Dimensions



Interior is free from sources of ignition and meets the requirements for Class I, Division 2 for storage of flammable substances in closed containers. Product complies with the applicable requirements of NFPA 45 and NFPA 99.

* Measured unloaded at 26.6°C (80°F) ambient temperature with set point of 3.3°C (38°F).
** Noise level – sound power re 1pW – according to IEC 60704-2-14.

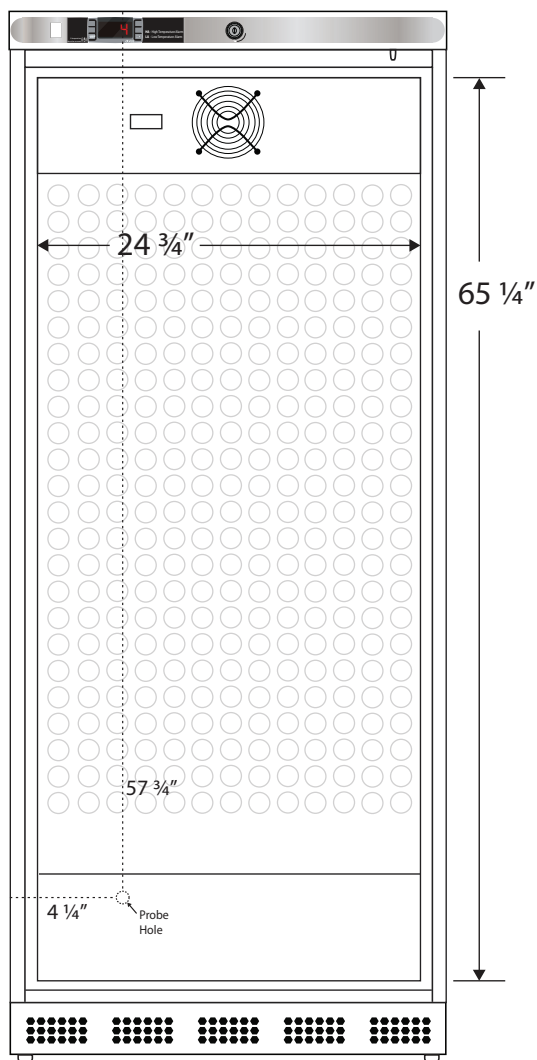
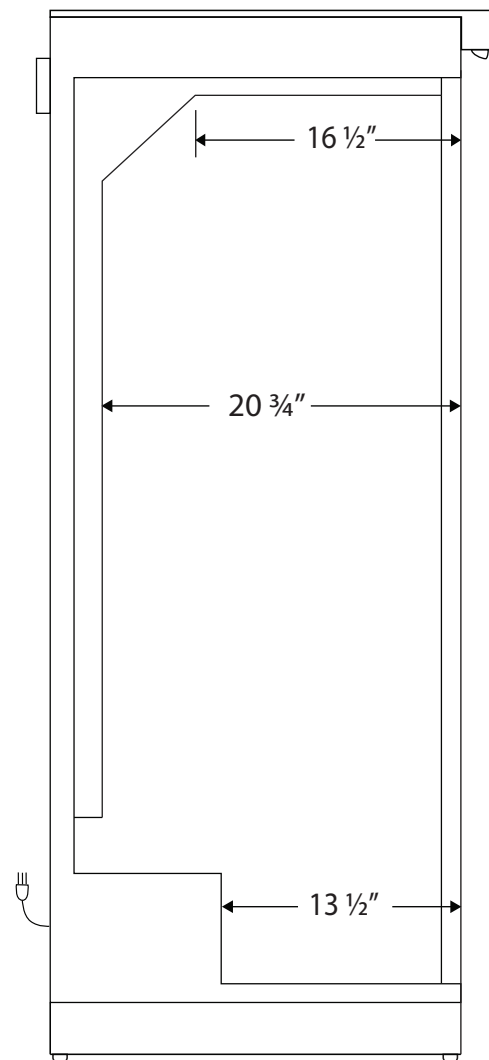
Subject to alterations.



American BioTech Supply

PROPOSED ALTERNATIVE 2

Interior
ABT-HC-FRP-20

CUTSHEET**Front View****Side View**

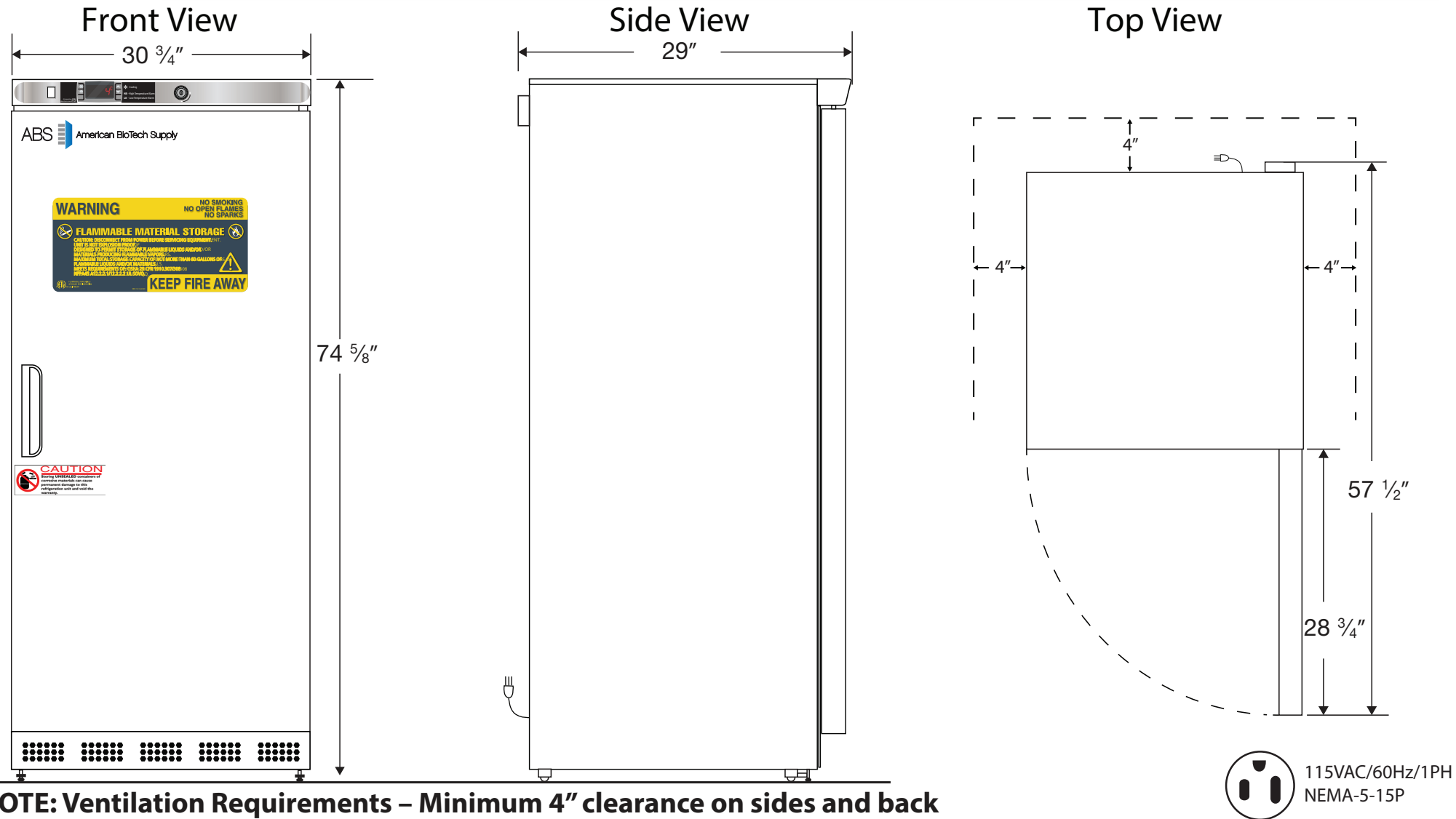
115VAC/60Hz/1PH
NEMA-5-15P

Cu. Ft	Defrost	Door	Int Door	Shelves	Interior Dim.			Refrigerant	H.P.	Amps	Weight
					W"	D"	H"				
20	Cycle	1 Solid	0	5 Adj.	24 3/4	20 3/4	65 1/4	R600a	1/4	3	230 lbs.

Note: Interior dimensions are estimates and subject to change without notice

Exterior ABT-HC-FRP-20

CUTSHEET



Cu. Ft	Defrost	Door	Int Door	Shelves	W"	D"	H"	Refrigerant	H.P.	Amps	Weight
20	Cycle	1 Solid	0	5 Adj.	30 3/4	29	74 5/8	R600a	1/4	3	230 lbs.

Product Name:	ABT-HC-FRP-20
Description:	<p>Standard Natural Refrigerant Flammable Storage Refrigerator</p> <p>20 Cu. Ft. capacity</p> <p>One solid swing door, right hinged, not reversible</p> <p>Microprocessor Temperature Controller</p> <p>Adjustable operating temperature range: 1°-10°C</p> <p>Digital Temperature Display and Alarm Module with battery back-up to support temperature monitoring and alarms</p> <p>Sample simulated digital temperature display; .1° Resolution</p> <p>Adjustable temperature display in Celsius or Fahrenheit</p> <p>Audible and visual high/low temperature alarms</p> <p>Sensor error alarm</p> <p>Power failure alarm</p> <p>Resettable 1-point Min/Max History</p> <p>Remote alarm contacts</p> <p>Alarm validation (audible, visual, and remote alarm)</p> <p>Alarm mute with ring back</p> <p>5 adjustable shelves</p> <p>Keyed door lock</p> <p>Magnetic door gasket for positive seal</p> <p>Heavy duty door handle</p> <p>Leveling legs</p> <p>One probe access port (3/8")</p> <p>White textured cabinet and door</p> <p>High density urethane foam cabinet and door insulation</p> <p>Natural, Hydrocarbon Refrigerant (R600a)</p> <p>Two year parts and labor warranty</p> <p>Exterior dimensions: 30 3/4" W x 29" D x 74 5/8"H</p> <p>Cycle defrost</p> <p>115V, 60 Hz, 3 Amps, 1/4 HP</p> <p>ETL listed</p> <p>Units meet NFPA guidelines 45 and 70</p> <p>Shipping weight: 260 lbs.</p>

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[FLAMMABLE MATERIAL STORAGE \(REFRIGERATORS\)](#)
[DHH4-20SDFMS](#)

DHH4-20SDFMS

Manufacturer: So-Low**Temperature Range:** 1°C to 10°C**Capacity:** 20 Cubic Ft. / 566 Liters**Dimensions:** ▼**Exterior w x d x h (inches):** 30.75" x 29" x 74.5"**Exterior w x d x h (cm):** 78 x 73 x 189**Interior w x d x h (inches):** 24.75" x 20.75" x 65.25"**Interior w x d x h (cm):** 63 x 53 x 166*Please call us for a quote. (513) 547-3916.*[Email](#)[Print](#)**THIS UNIT MEETS NFPA AND OSHA GUIDELINES 45, AND 70 FOR FLAMMABLE MATERIAL STORAGE IN GENERAL LAB WORK AREAS**

Features

Thermostat

Access Port
Compressor
Doors
Legs
Shelves
Insulation
Refrigerant
Air Circulation
Defrost
Voltage
Running Amps
Supply Plug
Shipping Weight
Approvals
Warranty (Domestic)

Microprocessor temperature controller
Remote alarm contacts
Power Failure alarm
Audible and visual high/low temperature alarms
Audible validation (audible, visual, and remote alarm)
Sample simulated digital temperature display
3/8" Access port
1/5 HP Compressor
Single Solid - Key Lock
Four Leveling
5 Adjustable
High Density Urethane Foam
R-600A
Fan
Cycle
115-60-1
3
5-15 NEMA
260 Lbs.
ETL Listed
Two year Parts and Labor.

Optional Accessories

Extra Shelf

Downloads

[Specification Data Sheet](#)

Scratch & Dent / Special Offers

Mini Vaccine Freezers -25°C to -45°C

Mini Freezers -40°C to -85°C

Lab Chest Freezers -25°C to -45°C

Low Temperature Freezers to -40°C

Ultra Low Freezers to -85°C

Large Capacity Freezers to -80°C

Laboratory Freezers - Solid & Glass

Refrigerator / Freezer Combination

Touchscreen Refrigerators

Refrigerators - Solid & Glass Doors

Undercounter Refrigerators / Freezers

FMS Refrigerators / Freezers

Explosion Proof Fridge / Freezers

LN2 Cryogenic Storage Systems

Laboratory Incubators

Laboratory Ovens

Waterbaths / Hotplates / Stirrers

Stability & Humidity Chambers

MiniFuges - Special Pricing

Stainless Steel Freezer Racks

Ultra Low Freezer Gloves

Special Design Cabinets

COVID-19 Products

Parts Request Form

Specifications subject to change without notice.

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Lab Fume Hood Cutsheets



Product datasheet

Captair 392 Smart

Ductless filtering fume hoods

Safer to operate

- Exclusive Erlab filtration technology combining activated carbon and HEPA/ULPA to adapt to the manipulation
- Meets AFNOR NFX 15 211/ANSI Z9.5-2012 filtration efficiency standard (class 1 and 2)
- Real time sensors to detect main filter saturation with solvents, acids or formaldehyde
- Safety filter in case of main filter saturation
- Air face velocity permanent monitoring
- Erlab Safety Program: application analysis and validation, usage framework certification, usage follow-up
- Connected device allowing reception of safety notifications and use status

Simpler to use

Real time status communication by light and sound pulses:

- Air face velocity decrease
- Main filter saturation
- Fan failure
- Excess scheduled working time

Flexibility

- Modular filtration column adapting to application changes
- Easy and fast relocation

Savings

- No ductwork cost
- Annual energy cost < 100 €
- Compared to an extraction fume cupboard, energy savings compensate filter replacement cost

Environment

- No chemical release into the atmosphere
- Low energy consumption



Ask for the highest level of filtration performances



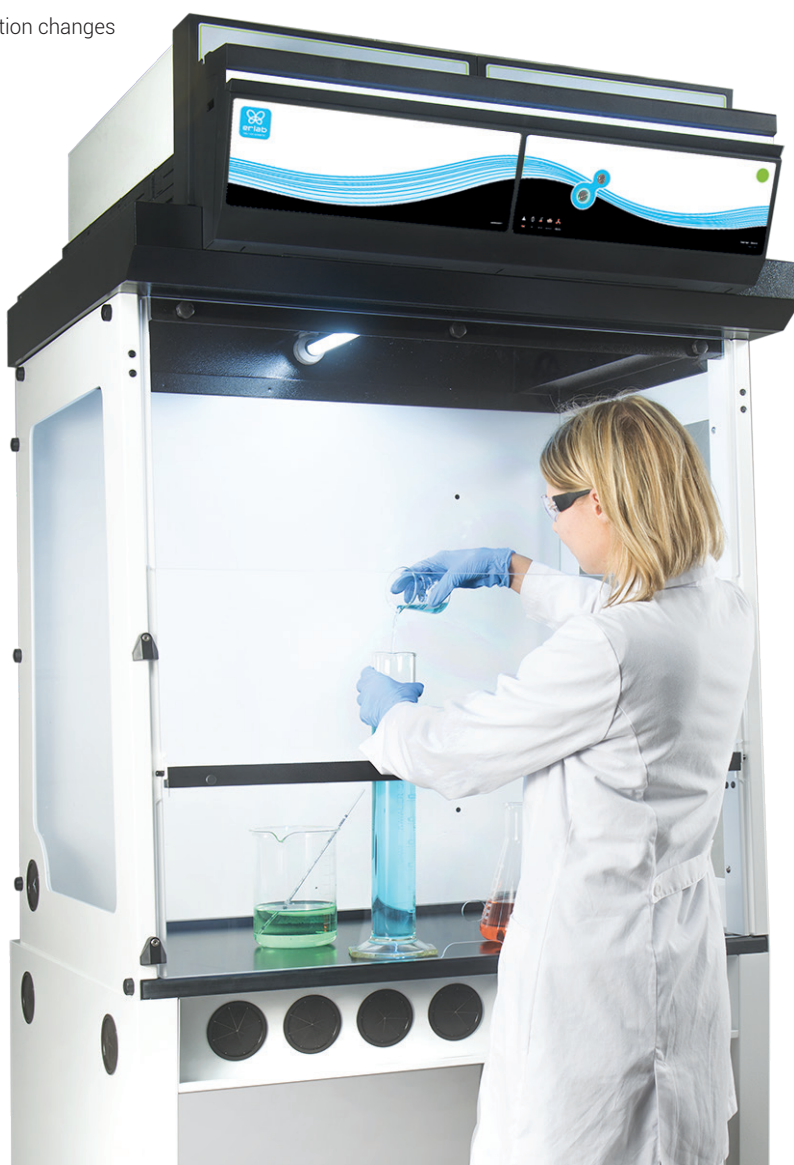
Powerful light guided communication



Connect your equipment and benefit from the remote access thanks to our mobile solutions


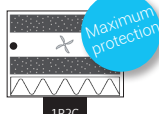
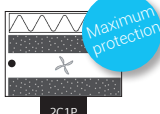
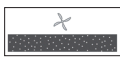
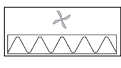
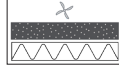
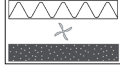


Download our eGuard application





Modular design of the filtration column allows to adapt to every protection needs

		Products handled / Applications			
		Liquid chemicals handlings	Powders handlings	Liquid chemicals and powders handlings	Liquid chemicals handlings in clean room
Customized filtration column	Class I according to the NF X 15-211	 2C	NA	 1P2C	 2C1P
	Class 2 according to the NF X 15-211	 1C	 1P	 1P1C	 1C1P

Available filters :



Carbon filtration for gases and vapours

AS:For organic vapours
BE+:Polyvalent for acid + organic vapours
F:For formaldehyde vapours
K:For ammonia vapours



Particulate filtration for powders

HEPA H14:99.995 % efficiency filtration of particles over 0.1 µm in size
ULPA U17:99.999995 % efficiency filtration of particles over 0.1 µm in size



• Molecode

Automatic alarm to detect filter saturation

Safety Standards	AFNOR NF X 15-211:2009: France - BS 7989: England DIN 12 927:Germany - EN 1822:1998 (HEPA H14 & ULPA U17 Filters) - CE Marking
Air Flow	440 m3/h - 135 CFM
Air Face Velocity	0.4 to 0.6 m/s - 79 fpm to 118 fpm
Voltage/Frequency	220 V / 50-60 Hz
Power consumption	105 W
Sash openings	Total openings or new reverse sash
Structure	Corrosion resistant electro-galvanized steel coated with anti-acid polymer
Side and front panels	Chemical resistant acrylic
Filtration module	Polypropylene

Equipment

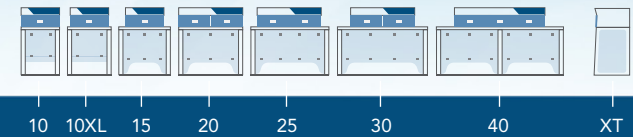
Communication interface	Simple communication by audible and light pulses: unit running time, air face velocity, automatic filter saturation detection, ventilation settings, fan failure alarm
Filtration technology	2 columns that can be configured to handle liquids, powders, or both
Carbon filtration for gases and vapours	Following filtration column configuration (see table above)
Particulate filtration for powders	Following filtration column configuration (see table above)
eGuard	APP for remote control to monitor the hood, change the settings, and deliver safety alerts immediately to your devices (mobile, tablet and PC)
Internal lighting	LED lighting > 650 Lux
Anemometer	Air face velocity alarm
Anemometer	Air face velocity indicator
Chemical Listing	List of approved chemicals

Accessories

Work Surfaces	Tempered glass / Trespa® Top LabPLUS / 304 L stainless steel
Molecode	Detection sensor for : Type S, for solvents / Type A, for acids / Type F, for formaldehyde
Benches	Mobile (Mobicap) or fixed (Benchcap)
Bench equipment	Technical gases outlets, water outlets, front control valves, sink, power sockets (Only compatible with Trespa® Top Lab plus worktop and fixed bench)
Particulate Pre-filter	Protects the main filter(s) from dust
Transparent Back Panel	Clear acrylic panel for easy viewing

PROPOSED ALTERNATIVE 1

Purair[®] ADVANCED



General Application Ductless Fume Hoods

- Premium Features and High Performance for Demanding Applications



59 watt¹ Purair model P20-XT
shown with optional velometer.



37–118 watt¹

The single EC blower motor assures lower cost of ownership in one of the world's most energy efficient ductless fume hoods.



"The World's Most Extensive Selection of Ductless Fume Hoods."



CONTENTS:

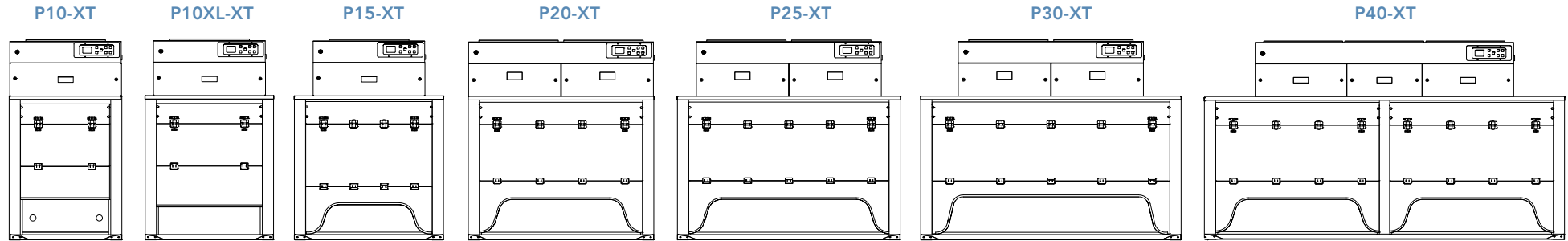
- Product Overview (p.2)
- Design Features (p.3)
- Performance & Selection (p.4)
- Filtration Technology (p.5)
- Specifications (p.7)
- Options & Accessories (p.9)

ADVANCED
Ductless Fume Hoods

10 • 10XL • 15 • 20 • 25 • 30 • 40

SPECIFICATIONS

7

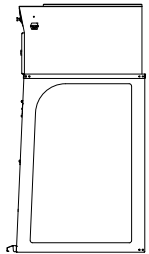


MODEL		DIMENSIONS			WEIGHT (LBS/KG)	
Metal	Polypropylene	Internal Height	External (W × D × H)	Shipping (W × D × H)	Net	Ship

Tall Models

P10-XT	P10-XT-PP	38" / 965 mm	30" × 27.375" × 53" / 762 × 695 × 1346 mm	50" × 40" × 42" / 1270 × 1016 × 1067 mm	111 / 50	175 / 79
P10XL-XT	P10XL-XT-PP	38" / 965 mm	34" × 27.375" × 53" / 864 × 695 × 1346 mm	40" × 40" × 42" / 1016 × 1016 × 1067 mm	141 / 64	225 / 102
P15-XT	P15-XT-PP	38" / 965 mm	39" × 27.375" × 53" / 991 × 695 × 1346 mm	40" × 50" × 42" / 1016 × 1270 × 1067 mm	143 / 65	250 / 113
P20-XT	P20-XT-PP	38" / 965 mm	49" × 27.375" × 53" / 1245 × 695 × 1346 mm	55" × 60" × 42" / 1397 × 1524 × 1067 mm	216 / 98	325 / 147
P25-XT	P25-XT-PP	38" / 965 mm	59" × 27.375" × 53" / 1499 × 695 × 1346 mm	40" × 67" × 42" / 1016 × 1702 × 1067 mm	235 / 106	350 / 159
P30-XT	P30-XT-PP	38" / 965 mm	69" × 27.375" × 53" / 1753 × 695 × 1346 mm	40" × 80" × 42" / 1016 × 2032 × 1067 mm	315 / 143	400 / 181
P40-XT	P40-XT-PP	38" / 965 mm	96" × 27.375" × 53" / 2438 × 695 × 1346 mm	40" × 108" × 42" / 1016 × 2743 × 1067 mm	427 / 193	550 / 249

Side View



Lab Ice Maker Cutsheets

Installation: Product Specifications

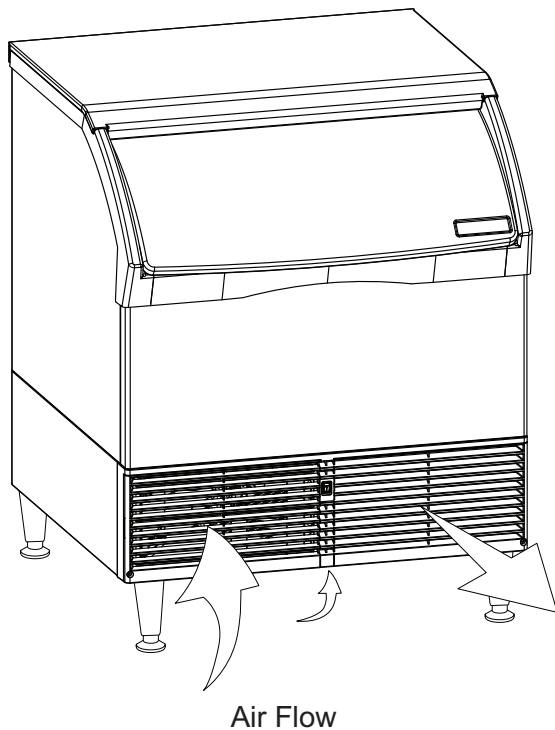
Location Limitations:

The product is designed to be installed indoors, in a controlled environment. Air cooled models discharge very warm air into the room. Water cooled models discharge warm water into the building's drain. Space needs to be provided for service access.

Space Limitations

Do not block air flow at the front.

Airflow is in the front left and out the front right. CU3030 also takes air in from below the cabinet.



Environmental Limitations

	Minimum	Maximum
Air temperature	50°F.	100°F.
Water temperature	40°F.	100°F.
Water pressure	20 psi	80 psi

Power supply – acceptable voltage ranges

	Minimum	Maximum
115 volt model	104 volts	126 volts
230 volt model	198 volts	253 volts

Warranty Information

The warranty statement for this product is provided separately from this manual. Refer to it for applicable coverage. In general warranty covers defects in material or workmanship. It does not cover maintenance, corrections to installations, or situations when the machine is operated in circumstances that exceed the limitations printed above.

Product Information

The product is a self contained cuber with bin. That type of machine is designed to be free standing can be built in under the counter.

PROPOSED ALTERNATIVE 1



NEO® 140/190 Undercounter Ice Machines

Models



U-140 / U-190

- Ranging from 137 lbs. (62 kg) to 190 lbs. (79 kg) daily ice production
 - Only 26" (66.04 cm) wide, 28.50" (72.4 cm) deep, and 38.50" (97.8 cm) high on 6" (15.24 cm) legs
 - Cabinet volume 3.037 ft³ (0.086 m³)
 - 90 lb. (40.0 Kg) ice storage capacity*
- * Application capacity based on: 90% volume x 33lbs/ft³ average density of ice.

NEO undercounter ice machines are designed to provide ice right where you need it – within reach. Improvements in **Performance, Intelligence and Convenience** make your ice machine easy to own and less expensive to operate.

Performance – NEO produces more ice than ever before while using less water and energy. The storage bin provides industry leading capacity.

Intelligence – NEO provides feedback with full bin and service indicators. Delay function allows you to pause your machine for slow periods or days when you're closed.

Convenience – NEO offers a forward-sliding storage bin for easy access to refrigeration components without having to move the entire ice machine. Smooth, sealed food-zone with removable water trough, distribution tube, and damper door for faster cleaning. AlphaSan added to key internal components.

Available **LuminIce® Growth Inhibitor** extends cleaning intervals by reducing yeast and bacteria growth keeping your ice machine cleaner, longer.



Specifications

BTU Per Hour:

U-140: 2,150 (average)
2,600 (peak)

U-190: 2,150 (average)
2,600 (peak)

Compressor:

Nominal rating: .42 HP

Operating Limits:

• Ambient Temperature Range:
40° to 110°F (4.4° to 43.3°C)

• Water Temperature Range:
45° to 90°F (4.4° to 32.2°C)

• Water Pressure Ice Maker Water In:
Min. 20 psi (137.9 kPa)
Max. 80 psi (551.1 kPa)

Ice Machine Electric

115/60/1. (208-230/60/1 and 230/50/1 available.) 115/60/1 ice machines are factory pre-wired with a 6' (180 cm) power cord and NEMA 5-15P-plug configuration. 208-230/60/1 ice machines are factory pre-wired with a 6' (180 cm) power cord only, no plug is supplied.

Total Amps:

U-140: 115/60/1: Air-cooled: 5 amps
208-230/60/1: Air-cooled: 2.5 amps

U-190: 115/60/1: Air-cooled: 6 amps
208-230/60/1: Air-cooled: 3 amps

Maximum fuse size:

Air-cooled: 15 amps
HACR-type circuit breakers can be used in place of fuses.

Ice Shape



Half Dice
3/8" x 1 1/8" x 7/8"
(.95 x 2.86 x 2.22 cm)



Dice
7/8" x 7/8" x 7/8"
(2.22 x 2.22 x 2.22 cm)



Regular
1 1/8" x 1 1/8" x 7/8"
(2.86 x 2.86 x 2.22 cm)



COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
= ISO 9001:2008 =

NEO® 140/190 Undercounter Ice Machines

PROPOSED ALTERNATIVE 2

ICEU220/225/226 - SELF CONTAINED CUBE ICE MAKER

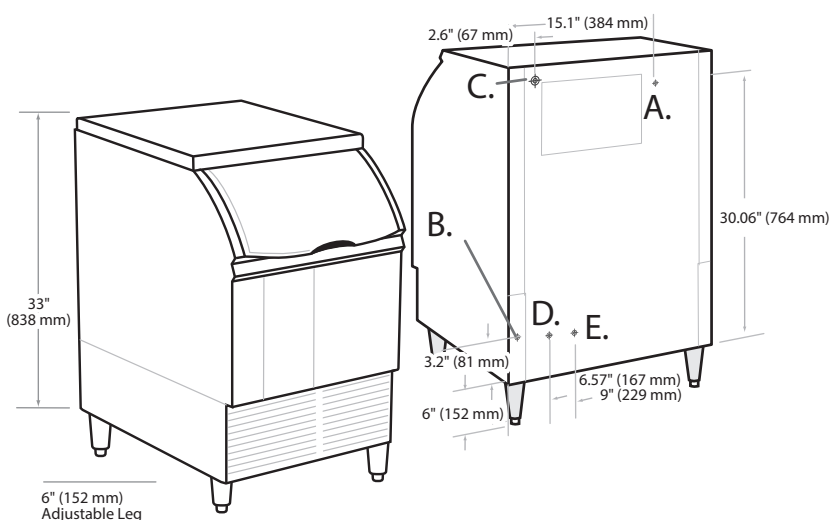
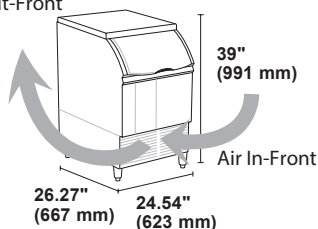
Ice-O-Matic®

Ice. Pure and Simple®

Air and Water Cooled

- A. Ice maker water in, 3/8" FPT.
- B. Bin and ice maker drain, 3/4" FPT.
- C. Hole for electrical connections, 7/8" (Cord on 115V).
- D. Condenser water in, 3/8" FPT (water cooled units only).
- E. Condenser water out, 1/2" FPT (water cooled units only).

Air Out-Front



Front & Rear View

Operating Requirements

MINIMUM		MAXIMUM	
		60 Hz	50 Hz
Ambient Temp. Range Air	50° F (10° C)	100° F (38° C)	110° F (43° C)
Water Temp.	40° F (4.4° C)		
Water Pressure	20 PSIG (1.4 BAR)	60 PSIG (4.1 BAR)	

Dimensions

ALL MODELS	
W x D x H (in.)	24.54 x 26.27 x 39
W x D x H (mm)	623 x 667 x 991

Specifications

Model Number	Cond. Unit	Ice Production per 24hrs		Water Usage gallons per 100 lbs of Ice 90°F air/70°F water		kWH Used per 100 lbs of ice @ 90°F air/70°F water	Voltage Characteristics	Min. Circuit Ampacity	Fuse Size	Approx. BTUs per hour**
		70°F air/50°F water lbs (kg)	90°F air/70°F water lbs (kg)	Potable	Condenser					
ICEU220A★	Air	238 (108)	175 (79)	25.0	-	8.80	115/60/1	11.6	15	4,609
ICEU220W*	Water	251 (114)	193 (88)	37.1	175	6.60		8.9		4,288
ICEU225A	Air	211 (96)	143 (65)	32.7	-	8.80	220-240/50/1	4.9	16	3,774
ICEU225W	Water	210 (95)	174 (79)	36.6	156	6.30		4.1		3,780
ICEU226A★	Air	241 (109)	168 (76)	25.0	-	9.20	208-230/60/1	6.0	15	4,321
ICEU226W	Water	232 (105)	174 (79)	36.6	179	6.59		4.4		4,263

**BTUH is calculated 0°F Evaporator, 100°F Condensing, and 33 PSIG.

NOTES:

Number of Wires:

3 (including ground)

Approx. Shipping Weight lbs (kg):

ICEU220A 160 (73) • ICEU220W 160 (73) • ICEU225A 160 (73) • ICEU225W 160 (73) • ICEU226A 160 (73) • ICEU226W 160 (73)

Refrigerant Type:

R404A

*Cordset included with 115V units.

★ENERGY STAR qualified machine. Please see our website www.iceomatic.com for the latest list of ENERGY STAR qualified machines and available rebates

Lab Mobile Plant Study Center Cutsheets

CURRENT SCA PURCHASED MODEL

CONFIRMED

SCA LMPP1 PORTA-PLANT STUDY CENTER

(SPEC 11600)

SCA item #30

This item occurs

2x's

(1) in Room 501
Farley Elev 15

(1) in Room 517
Farley Elev 41



Marvel Architects

REVIEWED BY: CK
JUNE 17/07 ENYFA
DATE: 06/09/2020
CUI No.: 11600-1323
SUBMISSION: 2

This review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Approval of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for dimensions and locations to be confirmed and correlated at the job site; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of his or her Work with that of all other trades; and for performing all work in a safe and satisfactory manner.

REVIEWED
<input checked="" type="checkbox"/> TISSUE AS CORRECTED
<input type="checkbox"/> REVISE AND RESUBMIT
<input type="checkbox"/> REJECTED

Full Size Brown Lite Cart 3 Shelf - 3 Tray with 3 - 2 lamp fixtures

Everything you need in one compact unit to display and grow your most prized blooms! Start seedlings for transplanting or grow fresh herbs!

- Includes (3) 48" - 2 lamp fixtures with spectrum bulbs
Stock #B3B-PKG2

Size: 74"h x 53"w x 20"d

- 3, 20" x 49" Sturdy Tan Fiberglass Trays
- 1" Square Brown tube frame with wheels
- 1 Programmable timer

Nurture your prize flowers and fresh herbs on this beautiful **Full Size Lite Cart**. With its heavy duty 1" square brown tube frame and 3 sturdy 20" x 49" **fiberglass trays**, it's very attractive and easy to use. This cart features 3" heavy duty wheels and 4 super sturdy shelves.

Includes 3 plant lite fixtures- PL42WS-S

- With two 40 Watt Wide Spectrum Lamps included on each fixture
- **Gro-Lux Wide Spectrum Lamps:** good for general growing & blooming.

GARDENER'S

SUPPLY COMPANY

LED 3-Tier SunLite® Garden

Our Vermont-made SunLite® Gardens employ the latest in lighting technology to give your plants the ideal quality and intensity of light for optimum growth. You can start plants from seed, grow herbs, houseplants, succulents and even orchids.

Our ultra-light fixtures have a slim profile to give plants plenty of headroom. They measure a full 14" wide to ensure even light coverage across each shelf. Inside, there are two LED bulbs that produce an abundance of brilliant, full-spectrum light. These bulbs use half the electricity of fluorescent bulbs and provide up to 50,000 hours of use.

Each fixture has its own pull chain for easy height adjustments, plus electronic ballasts to eliminate buzzing. This complete light garden includes frame and fixtures, LED bulbs, watertight trays and casters.

With the help of one other person, you can assemble your LED 3-Tier SunLite® Garden in about an hour. Put the Frame together first, then assemble the Lights and hang them in the frame.

Before you begin, identify and organize all the parts on a flat, clean surface and gather your tools. As you organize the parts, note that most pieces are labeled with a part number. Follow the illustrations closely to be sure the parts are oriented correctly as you put them together. Assembly begins on the next page.

Parts Included

Frame:	S1L Vertical Bars	2
	S1R Vertical Bars	2
	S2 Vertical Bars	2
	S3T Side Bars	2
	S3B Side Bars	2
	A3 Bars	3
	A4 Shelf Bars	6
	Poly Trays	3
Lights:	Light Fixture Hoods	3
	Ballasts with LED Bulbs	6
	6' Electrical Cords	3
Hardware:	Ball Chains	6
	Chain Connectors	12
	Large Split Rings	6
	Small Split Rings	6
	Chain Grips	6
	3/4" Bolts	2
	2" Bolts	28
	End Plugs	4
	Bolt Caps	8
	Casters	4
	Caster Inserts	4

Tools Required

Phillips screwdriver
 Hammer or rubber mallet
 Needle-nose pliers
 Twist tie, optional
Note: Assembly is easier with two people



SEEDLING LIGHT CARTS COMPARISON CHART



8-Tray Compact Seedling Light Cart

Compact

Part #	Trays	Shelves	Fixtures	Lamps/Fixture	Total Watts
7296	6	3	3	(2) T12	120
7297	6	3	3	(4) T12	240
7298	8	4	4	(2) T12	160
7299	8	4	4	(4) T12	320



16-Tray Full-Size Seedling Light Cart

Full Size

Part #	Trays	Shelves	Fixtures	Lamps/Fixture	Total Watts
7025	12	3	3	(4) T12	480
7294	12	3	3	(4) T8	384
7026	16	4	4	(4) T12	640
7295	16	4	4	(4) T8	512

5 1/2" HUMIDITY DOMES

Tall domes for Perma-Nest Trays. Tall, durable domes with adjustable vents for increased air flow. Great for grafting. Clear plastic. **Compatibility:** Use with Hard Plastic Perma-Nest trays only. 22" x 11" x 5.5".

7106 1 count.

7107 Pack of 4.

MORE ONLINE

Replacement bulbs and fixtures also available online at Johnnyseeds.com

PROPOSED ALTERNATIVE 3



★★★★☆ 4.6 75 Reviews

Triple Family Garden

Starter Bundle

\$1,079.00

DESCRIPTION

CAPACITY

WHAT YOU NEED?

WARRANTY

Triple Family Garden allows you to grow 36 plants at a time. Upgrades are available to expand your Garden to grow up to 108 plants. A Triple Family Garden will consume 200W, which is approximately equivalent to 96 kWh. Approximately 180W goes towards powering the LED Grow Lights.



Built-In Grow Lights



App-Enabled




Smart Watering System


FREE ADD-INS WORTH

\$270


Starter bundle has everything you need to start growing. Included with your family garden!




Seed pods



Nutrients Kit



Net Cups



Nursery



Lab Sterilizer Cutsheets

ALL AMERICAN

OPERATING INSTRUCTIONS

Model 25X Electric Pressure Steam Sterilizer



25x Shown with Optinal Base, M100,014

CAUTION! READ THESE IMPORTANT SAFEGUARDS!

FAILURE TO FOLLOW INSTRUCTIONS AND/OR IMPROPER USE MAY RESULT IN SCALDING, BODILY INJURIES OR EXPLOSION.

When using the pressure steam sterilizer, basic safety precautions should always be followed:

1. Read and understand instruction manual before operating unit.
2. Do not touch hot surfaces. Use handles and pot holders.
3. Close supervision is necessary when the sterilizer is used near children.
4. Extreme caution must be used when moving a sterilizer containing hot liquids.
5. Do not use the sterilizer for other than intended use.
6. Always check the pressure release devices for clogging before use.
7. This sterilizer operates under pressure. Improper use may result in scalding injury. Make certain unit is properly closed before operating. Read Operating Instructions.
8. Never loosen wing nuts until the steam pressure gauge registers zero and you have allowed any remaining pressure to escape by opening the control valve (lever in the vertical position).
9. Do not open the sterilizer until the unit has cooled and internal pressure has been reduced. Gauge should read zero at this time. Read Operating Instructions.
10. Never use the sterilizer for cooking or processing food.
11. Never place oil in or on this sterilizer.
12. Do not subject your sterilizer to sudden extreme temperature changes, as this will cause expansion or contraction which can crack a cast aluminum utensil. Do not move a sterilizer from a cold storage area directly onto a hot flame or element. Do not add cold water to a sterilizer which has boiled dry and is still hot. Do not cool the sterilizer suddenly by pouring cold water on it or wrapping cold wet towels around it.
13. Always operate sterilizers on surfaces that will not be damaged by heat. We recommend the use of our support base. See page 5, item 6.
14. As in all clinical laboratory settings, wear safety glasses when attending to your sterilizer.

SAVE THESE INSTRUCTIONS

25X SPECIFICATIONS



Shown with Optional Support Base*

Model 25x (25 qt/24 liter)

Model 25X-120: 120 Volt, 50/60 Hz 1050 watts/8.75 amps	
Model 25X-240: 240 Volt, 50/60 Hz 1050 watts/4.38 amps	
Gross Capacity	25 qt / 24 liter
Overall Height	16 ³ / ₄ " / 42.5cm
Bottom Height	12 ¹ / ₄ " / 31.2cm
Inside Diameter	12 ⁵ / ₈ " / 32.1cm
Unit Weight	26 lbs. / 11.8kg.
Inner Container No. 2156	
Height	8 ¹ / ₂ " / 21.6cm
Diameter	11 ¹ / ₈ " / 28.3cm
Circumference	35 ⁵ / ₈ " / 91.1cm
Capacity	14.5 qt / 13.7 liter
Volume	835in ³ / 13,688cm ³
Carton Dimensions	19 ¹ / ₂ " x 17 ¹ / ₂ " x 19"
	56.5cm x 44.5cm x 48.3cm
Shipping Weight	30 lb. / 13.6kg.
Unit Pack: 1	Cube: 3.75
Optional No. 2180 Support Base 2" / 5cm high	
Outside Diameter	12 ³ / ₄ " / 32.4cm
Inside Diameter	12 ³ / ₈ " / 31.4cm
Elevates Sterilizer Above Surface 1 ³ / ₈ " / 3.5cm	

OTHER ELECTRIC MODEL SPECIFICATIONS



Shown with Optional Support Base*

Model 50x (25 qt/24 liter)

Model 50X-120: 120 Volt, 50/60 Hz 1650 watts/13.75 amps	
Model 50X-240: 240 Volt, 50/60 Hz 1650 watts/6.88 amps	
Gross Capacity	25 qt/24 liter
Overall Height	16 ³ / ₄ " / 42.5cm
Bottom Height	12 ¹ / ₄ " / 31.2cm
Inside Diameter	12 ⁵ / ₈ " / 32.1cm
Unit Weight	29 lbs./13.2kg.
Inner Container No. 2156	
Height	8 ¹ / ₂ " / 21.6cm
Diameter	11 ¹ / ₈ " / 28.3cm
Circumference	35 ⁵ / ₈ " / 91.1cm
Capacity	14.5 qt/13.7 liter
Volume	835in ³ /13,688cm ³
Carton Dimensions	22 ¹ / ₄ " x 17 ¹ / ₂ " x 19"
	56.5cm x 44.5cm x 48.3cm
Shipping Weight	34 lb./15.4kg.
Unit Pack: 1	Cube: 4.28
Optional No. 2180 Support Base 2"/5cm high	
Outside Diameter	12 ³ / ₄ " / 32.4cm
Inside Diameter	12 ³ / ₈ " / 31.4cm
Elevates Sterilizer Above Surface 1 ³ / ₈ " / 3.5cm	



Shown with Optional Support Base*

Model 75x (41 qt/39 liter)

Model 75X-120: 120 Volt, 50/60 Hz 1650 watts/13.75 amps	
Model 75X-240: 240 Volt, 50/60 Hz 1650 watts/6.88 amps	
Gross Capacity	41 qt/39 liter
Overall Height	19"/48.3cm
Bottom Height	14 ¹ / ₄ " / 36.2cm
Inside Diameter	15 ¹ / ₄ " / 38.7cm
Unit Weight	45 lbs./20.4kg.
Inner Container No. 4156	
Height	10 ¹ / ₄ " / 26cm
Diameter	14"/35.6cm
Circumference	44 ⁵ / ₈ " / 113cm
Capacity	27.3 qt/25.8 liter
Volume	1578in ³ /25,856cm ³
Carton Dimensions	24" x 24" x 21"
	61cm x 61cm x 53.3cm
Shipping Weight	51 lb./23.1kg.
Unit Pack: 1	Cube: 7
Optional No. 4180 Support Base 3"/7.6cm high	
Outside Diameter	16 ¹ / ₄ " / 41.3cm
Inside Diameter	15"/38.1cm
Elevates Sterilizer Above Surface 2 ¹ / ₄ " / 5.7cm	

NON-ELECTRIC MODELS ARE ALSO AVAILABLE IN THREE SIZES:



Model 1915x (15 qt/14 liter)

Gross Capacity	15 qt/14 liter
Overall Height	12 ¹ / ₄ " / 31.2cm
Bottom Height	7 ³ / ₄ " / 19.7cm
Inside Diameter	12 ⁵ / ₈ " / 32.1cm
Unit Weight	15 lbs./6.8 kg.
Inner Container No. 2163	
Inside Depth	5 ³ / ₄ " / 14.6cm
Inside Diameter	11 ¹ / ₈ " / 28.3cm
Circumference	35 ⁵ / ₈ " / 91.1cm
Capacity	9.5 qt/9 liter
Volume	550in ³ /9029cm ³
Carton Dimensions	15 ¹ / ₂ " x 14 ¹ / ₂ " x 13 ¹ / ₂ "
	39.4cm x 36.8cm x 34.3cm
Shipping Weight	20 lb./9.1kg.
Unit Pack: 1	Cube: 1.76



Model 1925x (25 qt/24 liter)

Gross Capacity	25 qt/24 liter
Overall Height	16 ³ / ₄ " / 42.5cm
Bottom Height	12 ¹ / ₄ " / 31.2cm
Inside Diameter	12 ⁵ / ₈ " / 32.1cm
Unit Weight	18 ¹ / ₄ lbs./8.3kg
Inner Container No. 2162	
Inside Depth	10 ¹ / ₄ " / 26cm
Inside Diameter	11 ¹ / ₈ " / 28.3cm
Circumference	35 ⁵ / ₈ " / 91.1cm
Capacity	17.6 qt/16.6 liter
Volume	1016in ³ /16,655cm ³
Carton Dimensions	15 ¹ / ₂ " x 14 ¹ / ₂ " x 18 ¹ / ₂ "
	39.4cm x 36.8cm x 47cm
Shipping Weight	24 lb./10.9kg.
Unit Pack: 1	Cube: 2.41

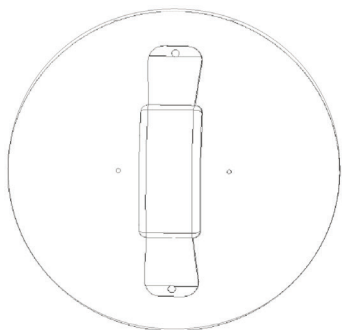


Model 1941x (41 qt/39 liter)

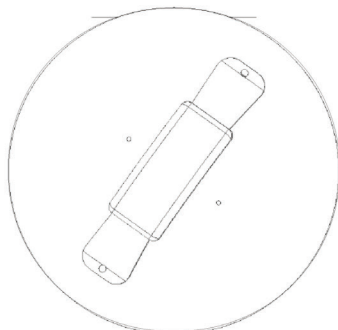
Gross Capacity	41 qt/39 liter
Overall Height	19"/48.3cm
Bottom Height	14 ¹ / ₄ " / 36.2cm
Inside Diameter	15 ¹ / ₄ " / 38.7cm
Unit Weight	33 lbs./15kg.
Inner Container No. 2164	
Inside Depth	10 ¹ / ₂ " / 26.7cm
Inside Diameter	14"/35.6cm
Circumference	44 ⁵ / ₈ " / 113cm
Capacity	27.9 qt/26.4 liter
Volume	1613in ³ /26,451cm ³
Carton Dimensions	19" x 19" x 20 ¹ / ₂ "
	48.3cm x 48.3cm x 52.1cm
Shipping Weight	41 lb./18.6kg.
Unit Pack: 1	Cube: 4.28

PROPOSED ALTERNATIVE 1

Saniclave Front-Loading Series

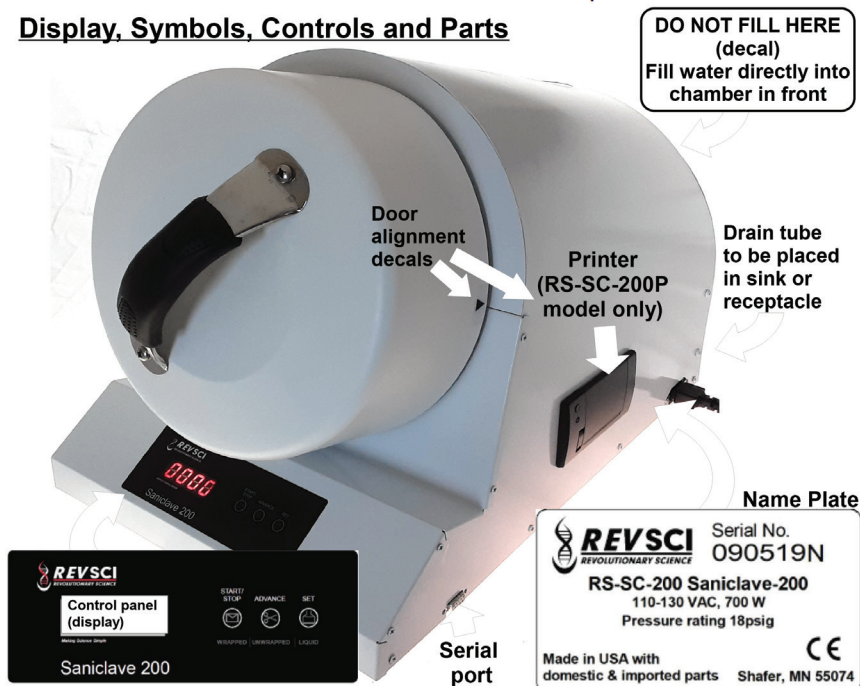


Open Door
Door handle vertical



Close Door
Rotate handle clockwise
until it stops

Display, Symbols, Controls and Parts



SPECIFICATIONS

Power requirements:	120 VAC, 700 watts, grounded outlet
Net weight:	20 lb.
Dimensions:	16 in. tall x 13.5 in. wide x 21 in. deep
Internal chamber dimensions:	9 in. diameter x 10.5 in. long
Pressure:	15-18 psi
Normal operating temperature:	121-124°C
Temperature lower tolerance:	121°C
Temperature upper tolerance:	124°C
Preheat time:	Automatic
Sterilization time:	30 minutes
Dry time:	30 minutes
Capacity:	10 Liters

PRODUCT SAFETY AND COMPLIANCE STANDARDS:

FDA Listing: RS-SC-200 is a 510k cleared product for medical use. K112811

FDA Registered: Revolutionary Science is an FDA Registered Company

CE / IEC Safety:

RS-SC-200 tested to and found to be compliant with IEC 61010A and associated safety standards.

ISO 9001: Revolutionary Science is an ISO Registered Company

IQ/OQ/PQ:

Revolutionary Science provides a range of compliance statements and IQ/OQ/PQ documents that will enable customers to successfully validate their products in accordance with regulations and standards. Contact Revolutionary Science for IQ/OQ/PQ documentation.

CONTACT US

REVOLUTIONARY SCIENCE
17319 Lake Blvd. Shafer, MN 55074 USA

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E-mail: support@revsci.com

Web site: www.revsci.com

Projector Cutsheets

PowerLite® Pro G6770WUNL WUXGA 3LCD Projector Without Lens

Item 1

Projectors

Large Venue



Product shown with lens. Lens sold separately.

The bright large-venue projector with Full HD support and HDBaseT™

3x Brighter Colors¹, and reliable performance — 3LCD, 3-chip technology

One measurement of brightness is not enough — look for both high color brightness and high white brightness. The PowerLite Pro G6770WUNL has:

Color Brightness: 6000 lumens²

White Brightness: 6000 lumens²

Widescreen, Full HD performance — WUXGA (1920 x 1200) resolution supports Full HD for presentations, videos, digital signage and more

Versatile connectivity — easily integrate with any system; supports the latest connectivity options, including HDBaseT, HDMI® and DisplayPort™

Seamless control protocol support — compatible with Crestron®, AMX®, Extron® XTP® and Control4® Simple Device Discovery Protocol (SDDP)

Six optional lenses with lens shift — including rear-, middle- and long-throw lenses for complete flexibility and easy exchange

Easy installation features — built-in Edge Blending, 360-degree installation flexibility and simple cloning functions

Advanced collaboration features — simultaneously project from multiple devices over the network with Multi-PC projection, or side-by-side from different sources with Split Screen³

Convenient remote management — remotely monitor and control the projector; includes scheduling function

Industry-leading service and support — long-life air filter and easy maintenance tools, plus peace-of-mind ownership with next-business-day replacement⁴



PowerLite® Pro G6770WUNL WUXGA 3LCD Projector Without Lens

Specifications

Projection System High-aperture Epson® 3LCD, 3-chip technology
Projection Method Front/rear/ceiling mount
Driving Method Poly-silicon TFT Active Matrix
Pixel Number 2,304,000 dots (1920 x 1200) x 3
Native Resolution 1920 x 1200 (WUXGA)
Resize 640 x 480, 800 x 600, 1280 x 1024, 1400 x 1050
Aspect Ratio Supports 4:3, 16:9, 16:10
Pixel Arrangement Cross stripe
Color Brightness² Color Light Output: 6000 lumens
White Brightness² White Light Output: 6000 lumens
Contrast Ratio (High Brightness, Dynamic Mode) 5000:1
Brightness Uniformity (typical) 90%
Color Reproduction Up to 1 billion colors
Size (projected distance) 50" – 300"
Lens Shift Vertical: ±67 percent Horizontal: ±30 percent
Keystone Correction Vertical: ±30 degrees Horizontal: ±30 degrees
Lamp Type 380 W UHE
Lamp Life⁵ (ECO Mode/Normal) Up to 4000/2500 hours

Projection Lens (Standard)

See website for information on optional lenses.

Type Manual focus/zoom
F-number 1.65 – 2.55
Focal Length 21.28 mm – 37.94 mm
Zoom Ratio Optical zoom 1 – 1.8
Throw Ratio Range 1.26 – 2.76

Other Features

Operating Temperature 32° to 113°F (0° to 45°C)
Power Supply Voltage 100 – 240 V ±10%, 50/60 Hz AC
Power Consumption
 528 W (Normal Mode)
 421 W (ECO Mode)
 3.3 W Standby (Communication on)
 0.41 W Standby (Communication off)
Fan Noise 39 dB (Normal Mode)
 max. 31 dB (ECO Mode)
Security Security cable hole, lens lock, Kensington® lock provision

Effective Scanning Frequency Range

Pixel Clock 13.5 MHz – 162 MHz (up to UXGA 60 Hz)
Horizontal 15 kHz – 92 kHz
Vertical 50 Hz – 85 Hz

Video I/O

Display Performance NTSC: 480 line, PAL: 576 line (depends on observation of the multi-burst pattern)
Input Signal NTSC/NTSC4.43/PAL/M-PAL/N-PAL/PAL60/SECAM/480i/576i/480p/576p/720p/1080i/1080p
Pixelworks® Video Chip 3D Y/C separation, noise reduction motion compensated Interlace-Progressive conversion (2 – 2, 3 – 2 film detection)

Interfaces

HDBaseT x 1
 HDMI x 1
 DisplayPort x 1
 Computer: D-sub 15 pin x 1
 Composite Video: RCA x 1
 Component Video: BNC x 1
 S-video x 1
 Audio-in: Mini stereo x 3
 Audio-in: RCA (L&R) x 1
 Audio Out x 1
 Network: RJ-45 x 1, 100 Mbps Serial: RS-232c
 Hardwire remote jack x 1
 Monitor Out: D-sub 15 pin x 1

Dimensions (W x D x H)

Excluding Feet, Lens 19.88" x 15.04" x 5.67"
 Weight 19.6 lb
Including Feet, Lens 19.88" x 15.94" x 6.73"
 Weight 21.5 lb

Remote Control

Features Power, source search selection, computer, video, A/V Mute, freeze, user ID, auto, aspect, color mode, number, page up and down, E-zoom, volume, help, menu, enter, esc and pointer functions

Operating Angle

Right/left: Front: ± 60 degrees Rear: ± 30 degrees Upper/lower: Front: ± 20 degrees Rear: +10 to +50 degrees

Operating Distance

49 ft

Eco Features

RoHS compliant
 Recyclable product⁶
 Epson America, Inc. is a SmartWaySM Transport Partner⁷

Support

The Epson ConnectionSM
 Pre-sales support U.S. and Canada 800-463-7766
 Internet website www.epson.com

Service Programs

Three-year limited warranty, Epson Road Service program, PrivateLine® dedicated toll-free support (U.S. and Canada only) and 90-day limited lamp warranty

What's in the Box

PowerLite Pro G6770WUNL projector, power cable, computer cable (VGA), projector remote control with batteries, user manual CD, EasyMP® software CD, Quick Setup Sheet and lens lock screw



Ordering Information

PowerLite Pro G6770WUNL	V11H699920
Genuine Epson lamp (ELPLP76)	V13H010L76
Replacement air filter (ELPAF43)	V13H134A43
Standard throw zoom	V12H004S06
Long-throw zoom	V12H004L06
Middle-throw 1 zoom	V12H004M04
Middle-throw 2 zoom	V12H004M05
Short-throw zoom	V12H004U01
Rear projector wide fixed	V12H004R03
Quick Wireless Connect key (ELPAP09)	V12H005M09
Replacement remote control	158279900
Advanced projector ceiling mount with precision gear	ELPMBPRG
Adjustable suspended ceiling channel kit	ELPMBP01
False ceiling plate kit	ELPMBP02
Structural round ceiling plate	ELPMBP03
Adjustable extension column (pipe) 8" – 11"	ELPMBBC01
Kensington security lock	ELPSL01
50" portable screen (4:3 aspect ratio)	ELPSC06
60" portable pop-up screen (4:3 aspect ratio)	ELPSC07
80" portable pop-up screen (4:3 aspect ratio)	ELPSC08
Duet™ portable projector screen (4:3/16:9 combination)	ELPSC80
Distribution amplifier	ELPDA01
HDBaseT Transmitter (ELPHD01)	V12H547020
Wireless LAN module (ELPA07)	V12H418P12

Item 3

Item 2

¹ Compared to leading 1-chip DLP business and education projectors based on NPD data, July 2011 through June 2012. Color brightness (color light output) measured in accordance with IDMS 15.4. Color brightness will vary depending on usage conditions. | ² Color brightness (color light output) and white brightness (white light output) will vary depending on usage conditions. Color light output measured in accordance with IDMS 15.4; white light output measured in accordance with ISO 21118. | ³ Consult your user manual for input combinations. | ⁴ Expedited shipping not available in all areas. Road Service orders must be in by 3 p.m. Eastern Time for Next-Business-Day delivery. | ⁵ Lamp life will vary depending upon mode selected, environmental conditions and usage. Lamp brightness decreases over time. | ⁶ For convenient and reasonable recycling options, visit www.epson.com/recycle | ⁷ SmartWay is an innovative partnership of the U.S. Environmental Protection Agency that reduces greenhouse gases and other air pollutants and improves fuel efficiency.

Better Products for a Better Future™
eco.epson.com



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Epson Canada Limited
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www.epson.ca

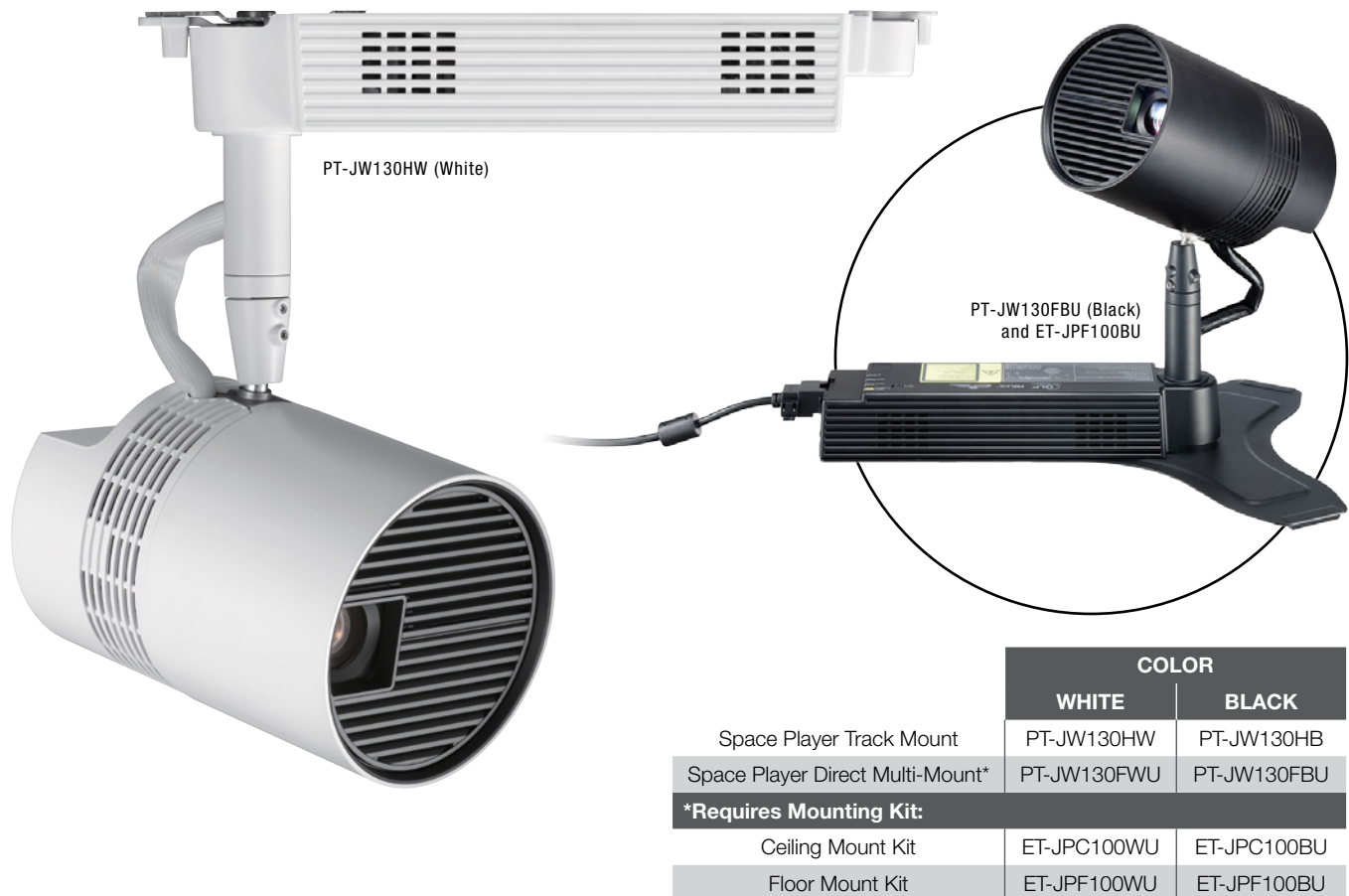
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Name

Email

Phone Number

Integrated Lighting and Projection Solution for Retail, Hospitality, and Exhibition



Integrated Projector and Lighting Function

Projection lighting presents and displays with creativity and originality. As well as spotlighting objects brightly, the PT-JW130 can project video or still images very clearly on or around the subject. This combination of illumination and projection is an effective way to attract attention in retail spaces, restaurants, and more.

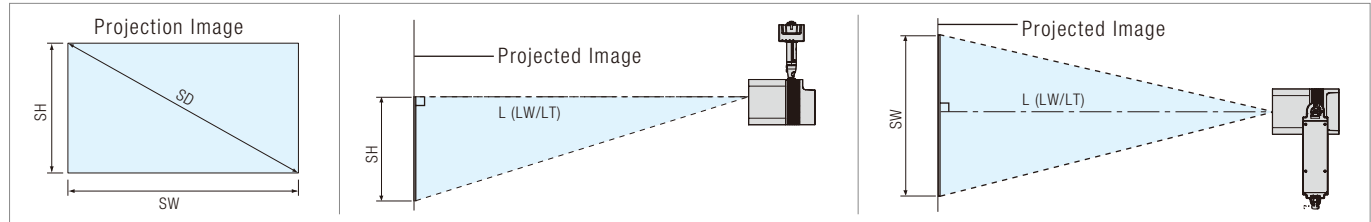
- Attractively illuminate food and project images of ingredients, menu information, or scenery in restaurants
- Illuminate artwork and exhibits; project associated information in galleries or museums
- Present products in natural-looking light and display product information and other promotional media

Flexible Installation and Portability

- Compact spotlight-type design harmonizes with most interior designs
- Simple track mount or direct multi-mount to floor or ceiling for easy installation, removal, and relocation
- Flexible and portable lighting design irradiates all directions below horizon (also compatible with Portrait Mode)
- Wide range of selectable video inputs including SD card, HDMI, wired and wireless LAN
- Lighting Mode for use as spotlight (operation with wireless remote controller)
- Full function remote control included.

Projection Image Size

Diagonal (SD)	Height (SH)	Width (SW)	Min. (LW)	Max. (LT)
30" (0.76)	15.9" (0.404)	25.4" (0.646)	37.4" (0.95)	82.7" (2.10)
40" (1.02)	21.2" (0.538)	33.9" (0.862)	50.4" (1.28)	110.6" (2.81)
50" (1.27)	26.5" (0.673)	42.4" (1.077)	63.4" (1.61)	138.6" (3.52)
60" (1.52)	31.2" (0.808)	50.9" (1.292)	76.4" (1.94)	116.5" (4.23)
70" (1.78)	37.1" (0.942)	59.4" (1.508)	89.4" (2.27)	194.5" (4.94)
80" (2.03)	42.4" (1.077)	67.8" (1.723)	102.4" (2.60)	22.4" (5.65)
90" (2.29)	47.7" (1.212)	76.3" (1.939)	115.3" (2.93)	250.4" (6.36)
100" (2.54)	53.0" (1.346)	84.8" (2.154)	128.3" (3.26)	278" (7.07)



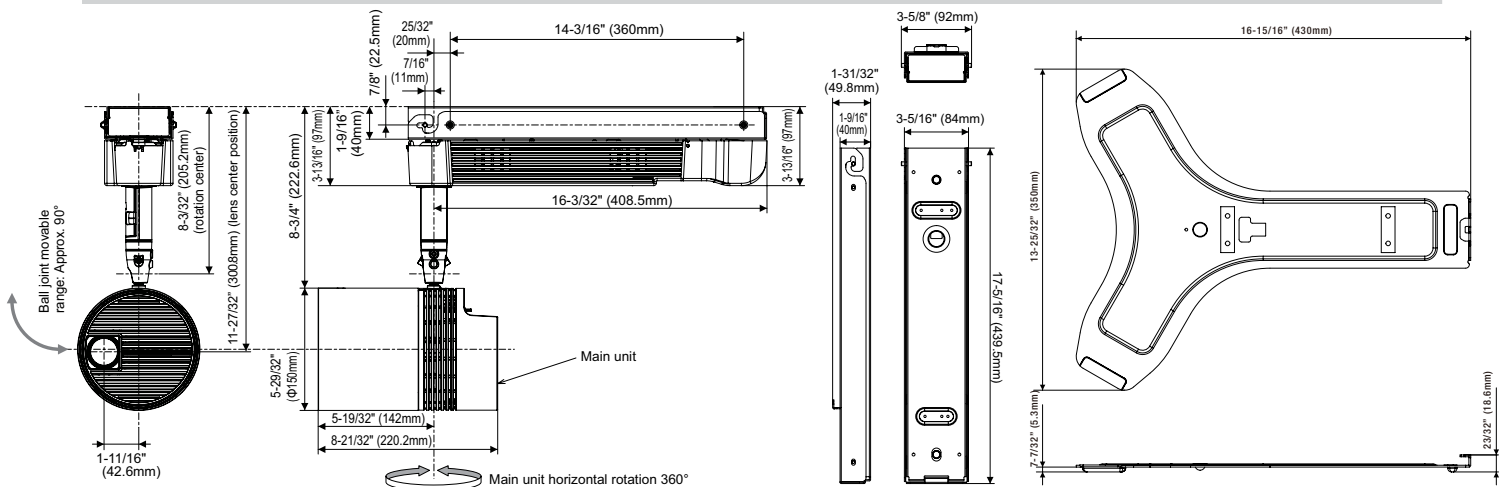
Specifications

PT-JW130	
Brightness ¹	1,000 lm
Power Supply ²	100–240 VAC 60Hz (for use with 120 V lighting track rail)
Light source	Laser diode
Light source life	20,000 hours (until brightness decreases to half of its original value)
Panel display method	DLP™ chip x 1
Pixels	1,039,680 pixels (WXGA equivalent)
Recommended resolution	1,280 x 800 pixels
Lens	Powered zoom (1.0x–2.2x), powered focus
Throw ratio	1.5-3.3 : 1 (approximate value of projection distance : longer screen side)
Irradiation area	Below horizon
Keystone correction range	Vertical: ±40° ³ , horizontal: ±40° ⁴ , 4-point: ±40°
Terminals	HDMI IN: HDMI 19-pin x 1 (compatible with HDCP) LAN: RJ-45 x 1 for network connection, 100Base-TX, 10Base-T, compatible with PLink™ (Class 1) Audio output: M3 (L, R) x 1
Memory card slot	SD card slot x 1 (compatible with SDHC up to 32 GB), supporting JPG, BMP, WMV, MPEG4 files
Wireless LAN	IEEE802.11a/b/g/n, compatible with Miracast™
Weight	7.0lbs (3.0 kg)
Power Consumption	125W

¹ Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards.

² Not suitable for use with dimming-controlled track systems. ³ With vertical correction only. ⁴ With horizontal correction only.

Dimensions



Panasonic

Weights and dimensions shown are approximate. Specifications and appearance are subject to change without notice. Product availability varies depending on region and country. This product may be subject to export control regulations. The projection distances and throw ratios in this leaflet are for use as guidelines only. For more detailed information, please consult the dealer from whom you are purchasing the product. DLP, DLP logo and DLP Medallion logo are trademarks or registered trademarks of Texas Instruments. The PLink trademark is an application trademark in Japan, the United States, and other countries and regions or registered trademarks. HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries. Wi-Fi® and Miracast™ are trademarks or registered trademarks of Wi-Fi Alliance. All other trademarks are the property of their respective trademark owners. © 2014 Panasonic Corporation. All rights reserved.



For more information about Panasonic projectors, please visit:
 Projector Global Web Site – panasonic.net/avc/projector
 Facebook – www.facebook.com/panasonicprojector
 YouTube – www.youtube.com/user/PanasonicProjector

PT-JW130PRE1







Short Throw LED Projector

ML1050ST+

Optoma

Powerful palm-sized projection with auto focus



-  Large and bright 1,000 lumen WXGA images from a few feet away
-  Auto focus lens for easy place and project
-  Project large 100-inch images anywhere
-  RGB LED light source with up to 30,000 hour life
-  PC-free USB and micro SD media player, image viewer and office document reader
-  Wireless presentations and images with HDCast Pro (requires optional WUSB adapter)



WXGA
1280x800



HDMI™
HIGH DEFINITION MULTIMEDIA INTERFACE

MHL

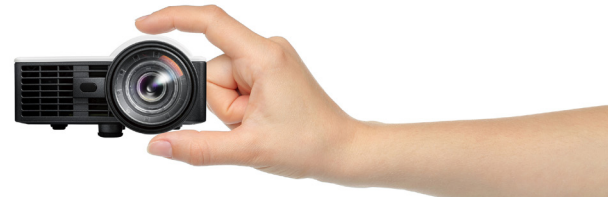
WIDESCREEN
16:10
ENHANCED



Project large, WXGA images from a few feet away with the 1,000 lumen short throw Optoma ML1050ST+. Its auto focus lens and palm-sized form factor make it easy to place and project images up to 135-inches anywhere.

The RGB LED light source provides up to 30,000 hours of life for years of reliable operation. A PC-free media player, image viewer and document reader display office documents, PDFs and images from micro SD cards and USB storage devices.

Optional HDCast Pro connectivity provides wireless screen mirroring with Android, Mac OS and Windows devices. An HDMI input with MHL 2.0 enables compatibility with notebooks, mobile devices and gaming consoles.



CONNECTIVITY (May require optional accessories)



Computers



Smart
Phones



Tablets



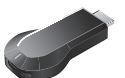
3D Blu-ray/DVD Players



Camcorders



Apple TV®



Chromecast™

SHORT THROW POCKET LED PROJECTOR - ML1050ST+

OPTICAL/TECHNICAL SPECIFICATIONS

Display Technology	Texas Instruments 0.45" WXGA DMD
Color Wheel	RGB LED
Native Resolution	WXGA (1280 x 800)
Maximum Resolution	WUXGA (1920 x 1200)
Brightness	1,000 ANSI lumens
Contrast Ratio	20,000:1
Displayable Colors	16 million
Keystone Correction	Auto, $\pm 40^\circ$ vertical
360 degree and Portrait mode operation	Yes
Light source life*	30,000/20,000 (ECO/Bright)
Lamp Life and Type*	RGB LED light source
Projection Method	Table top
Geometry	Auto focus, vertical keystone
Uniformity	90%
Offset	100% $\pm 5\%$
Aspect Ratio	16:10 (native), 16:9, 4:3 and auto compatible
Throw Ratio	0.8:1 $\pm 5\%$
Projection Distance	16" - 135"
Image Size	25" - 200"
Projection Lens	F= 1.9, F=8.02, auto focus lens
Digital Zoom	1.5x
Audio	1.5W speaker
Noise Level	28 dB
Battery	No
Remote Control	Card size remote
Operating Temperature	41–104°F (5–40°C), 85% max humidity
Power Supply	"Auto-ranging: AC100V–240V $\pm 10\%$, 50–60Hz, ~1.7A DC Output : 19V/3.42A , 65W"
Power Consumption	77 W, < 0.5W (standby)
High Altitude	Operating temp @ sea level to 10,000 feet = 23C (max); must manually switch to high altitude mode @ 5,000 feet & above (using OSD)

COMPATIBILITY SPECIFICATIONS

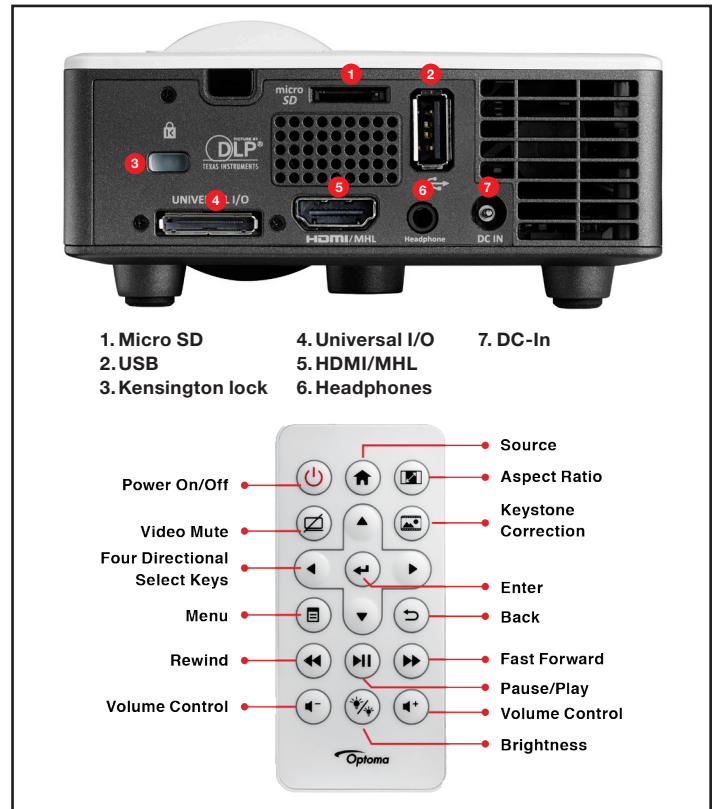
Computer Compatibility	VGA, SVGA, XGA, SXGA, WXGA, WXGA+, WXGA+, WSXGA+
Video Compatibility	480i, 576i, 480p, 576p, 720p, 1080i, 1080p
Vertical Scan Rate	24Hz to 120Hz
Horizontal Scan Rate	31 to 135 KHz
User Controls	Complete on-screen menu adjustment in 16 languages
I/O Connection Ports	1x HDMI (MHL 2.0), 1x I/O port (VGA & composite input), 1x USB, 1x micro SDXC slot, 1x headphone out
Loop Through (Audio)	Yes
Control	N/A

PHYSICAL SPECIFICATIONS

Security	Kensington® lock port, password (OSD)
Weight	14 oz.
Dimensions (W x H x D)	4.41" x 1.57" x 4.13"



*Light source life is dependent upon many variables, including brightness mode used, display mode used, daily usage (such as 24/7 operation), environmental conditions (such as extreme heat or cold) and more. Light source brightness can and will decrease over time. Maximum light source life cannot be achieved using Bright mode – must use ECO mode.



Warranty

1-year or 20,000 hour light source warranty (whichever comes first), 1-year limited parts and labor warranty on the projector

What's in the Box

ML1050+, I/O cable (VGA & composite input), carrying case, AC power cable, power adapter, remote control, batteries, quick start guide and CD user manual

Optional Accessories

Wi-Fi adapter, DLP Link 3D glasses and carrying case

Accessory Part Numbers

Wi-Fi adapter: WUSB	Remote: BR-ML75N
AC power adapter: BC-ML55PDX	AC power cord: BC-PUPNXY02
Universal to VGA/audio cable: BC-PK5AVGX	Carrying case: BK-ML70S
DLP Link 3D glasses: ZD302	

UPC 796435 44 296 5

Optoma.com

Optoma

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Appendix C. Equipment Tables

Can Opener		
	CURRENT	PROPOSED ALTERNATES
	X469	
Manuf #1	Edlund	
Model #1	270 NSF	
Fuel Soure	Electric	
Size (Ext)	7x12x10	
Capacity	200 cans per day	
Volts	115	
Amps	1.5	
Btu/hr	589	
Watts	173	
Co2e (MT)	0.09	
EnergyStar	N	
kWh	311.7	
Specs	Opens Most Can shapes/Sizes.	

Combination Oven						
	PREVIOUS (GAS)		CURRENT (ELECTRIC)		REJECTED	
	-	-	X469	-	ALTERNATE	ALTERNATE
Manuf #1	Angelo Po	Blodgett	Alto Shaam	Convotherm	EKA	EKA
Model #1	FX82G3T	BLCT-62-62G	CTP7-20E	C4eT 6.20 ES-N	MKFA 664 TS	MKFA 1664 TS
Fuel Source	Natural Gas	Natural Gas	Electric	Electric	Electric	Electric
Size (Ext)	47x43x74	44x38x70	45x47x75	44x39x66	34x41x77	37x41x75
Capacity	(16) 2.5" Pans	(20) 2.5" Pans	(16) Full Sheet Pans	(14) Full Sheet Pans	(12) Full Sheet Pans	(16) Full Sheet Pans
Temp	50F - 572F		85F - 575F	86F - 482F	86F - 518F	86F - 518F
Volts	208	115	208	208	208	208
Amps	7.8	9.0	45.7	44.1	45.0	83.0
Heat Gain (Btu/hr)			2,610	6,200	-	-
Energy Input (Btu/hr)	185,000	163,600	112,628	108,532	-	-
Watts	-	-	33,000	31,800	22,800	31,000
Electric Replacement Savings	-	-	-	1,200	10,200	2,000
Electric Replacement Savings %	-	-	-	4%	31%	6%
Gas Replacement Savings (Btu/hr)	-	-	-	55,068	-	-
Gas Replacement Savings %	-	-	-	34%	-	-
Co2e (MT)	1.5	1.31	1.44	1.38	-	-
Co2e Savings	-	-	-	0.1	-	-
Co2e % Savings	-	-	-	4%	-	-
EnergyStar	N	N	Y	Y	N	N
Max Idle W	N/A	N/A	-	-	-	-
kWh	N/A	N/A	4969.8	4789.1	3433.7	4668.6
Cost Difference	-	-	-	-	-22%	-26%
Source	Web	Web	SCA Cost Estimate	Web	Web	Web
Specs	Double stacked convection steam oven, humidity settings, integrated control panel	Double stacked convection steam oven, retherm capability, touchscreen control	Double stacked boilerless convection steam oven, retherm capability, 0-100% humidity control, five fan speeds, touchscreen control	Double stacked boilerless convection steam oven, retherm capability, 5 humidity settings, five fan speeds, automated cleaning, touchscreen control	Double stacked boiler convection steam oven, retherm capability, humidity control, five fan speeds, automated cleaning, touchscreen control	Single boiler convection steam oven, retherm capability, humidity control, five fan speeds, automated cleaning, touchscreen control
Pros	-	-	-	Boilerless	-	-
Cons	-	-	-	12.5% less capacity than current spec Analog controls	Not boilerless 25% less capacity than current spec	Not boilerless Single large unit - no option to use just half of oven More difficult to move/handle

Convection Oven							
	TILT SKILLET (ELEC)	TILT SKILLET (GAS)	CURRENT (GAS)	PREVIOUS (GAS)	PROPOSED ALTERNATES		
			Q575	R086	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
	Tilt Skillet	Tilt Skillet	Convection Oven	Convection Oven	Convection Oven	Convection Oven	Convection Oven
Manuf #1	Cleveland	Groen	Garland	Garland	Duke	Blodgett	Vulcan
Model #1	SEL30T1	VG30	MCO-GS-20	MCO-GS-20	E102-E	Zeph-200-E	VC44ED
Fuel Source	Electric	Natural Gas	Natural Gas	Natural Gas	Electric	Electric	Electric
Size (Ext)	38x43x71	36x36x70	29x24x24	29x24x24	39x40x72	39x48x71	41x42x70
Capacity	12" Pan	12" Pan	(12) Full Sheet Pans	(12) Full Sheet Pans	(10) Full Sheet Pans	(10) Full Sheet Pans	(10) Full Sheet Pans
Temp	140F-450F	50F-450F	150F	150F	200F - 500F	200F - 500F	150F - 500F
HP	-	N/A	3/4	3/4	-	1/2	1/2
Volts	208	N/A	N/A	N/A	240	208	480
Amps	57.7	N/A	N/A	N/A	-	-	-
Energy Input (Btu/hr)	40,956	90,000	120,000	120,000	68,259	75,085	85,324
Max Savings	-	-	-	-	51,741	44,915	34,676
Watts	12,000	N/A	N/A	N/A	20,000	22,000	25,000
Co2e (MT)	0.2	0.2	0.8	0.8	0.7	0.8	0.9
Co2e Savings	-	-	-	-	0.1	0.002	-0.1
Co2e % Savings	-	-	-	-	9%	0.3%	-13%
kWh	1445.8	N/A	N/A	N/A	2409.6	2650.6	3012.0
Cost Difference	-	-	-	-	39%	-11%	86%
Source	Web	Web	AQ	AQ	AQ	AQ	AQ
Specs	-	-	Digital Control. Spark Safety Shutoff. 2 speed fan control.	Digital Control. Spark Safety Shutoff. 2 speed fan control.	2 Speed Fan. Dial Thermostat. Electric Buzzer.	Three tubular heaters. Digital Control. 2 Speed Fan.	Digital Control. 2 Speed Fan.
Pros	-	-	-	-	Electric. Uses Less Energy.	Electric. Uses Less Energy.	Electric. Uses Less Energy.

Drink Dispenser				
	CURRENT	PROPOSED ALTERNATES		
	Q169	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Crathco	Narvon	Adcraft	Omega
Model #1	D15-3	DSG1	JD-1	OSD10
Fuel Soure	Electric	Electric	Electric	Electric
Size (Ext)	11x16x28	9x17x29	11x17x24	9x15x24
Capacity	5 Gallons	5 Gallons	3 Gallons	3 Gallon
Temp	-	35F-41F	35F-46F	-
Refrigerant	-	R-448A	R-134A	-
Volts	120	120	110	120
Amps	3.0	-	2.5	-
Watts	340	260	278	300
Savings	-	80.0	62.0	40.0
Savings %	-	24%	18%	12%
Co2e (MT)	0.02	0.02	0.02	0.02
Co2e Savings	-	0.006	0.004	0.003
Co2e % Savings	-	24%	18%	12%
EnergyStar	N	N	N	N
kWh	83.6	64.0	68.4	73.8
Cost Difference	-	-39%	24%	-1%
Source	SCA Cost Estimate	AQ	AQ	AQ
Pros	-	Lower Energy Consumption	Lower Energy Consumption	Lower Energy Consumption
Cons	-	Significantly lower capacity	Uses R134a which is being phased out	Lower capacity

Food Mixer					
		CURRENT	PROPOSED ALTERNATES		
	R086	Q429	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Hobart	Globe	Waring	Kitchen Monkey	Adcraft
Model #1	HL200	SP20	WSM20L	KMPM-20	PM-20
Fuel Source	Electricity	Electricity	Electricity	Electricity	Electricity
Size (Ext)	24x24x45	19x20x35	22x22x29	23x27x40	17x21x31
Motor HP	1/2	1/2	1 HP	1.5	1.5
Volts	240	115	120	120	120
Amps	5.0	6.0	14.0	-	-
Watts	1,200	690	1,100	1,100	1,100
Savings	-	-	-	-	-
Co2e (MT)	0.1	0.0	0.1	0.1	0.1
EnergyStar	N	N	N	N	N
kWh	295.2	169.7	270.6	270.6	270.6
Cost Difference	-	-	-38%	-60%	-60%
Source	AQ	AQ	AQ	Web	Web
Specs	Gear Transmission. Three Fixed Speeds Plus Stir Speed.	Permanently Lubricated Transmission. Thermal Overload Protection.	Gear, Permanently Lubricated Transmission. Designed for countertop use.	Direct Drive. Gear Transmission. Three mixing speeds.	Direct Drive. Gear Transmission. Three mixing speeds.
Pros	-	-	Smaller model than the R086 model	-	Smallest Model

Food Processor					
	CURRENT	PROPOSED ALTERNATES			REJECTED
	X469	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3	ALTERNATE
Manuf #1	Waring	Primo	Bake Max	Robot Coupe	Waring
Model #1	WFP16SCD	PVC-500	BMVC001	R2B	FP2200
Fuel Source	Electric	Electric	Electric	Electric	Electric
Size (Ext)	16x22x22	10x25x20	20x9x23	17x11x9	16x12x27
Capacity	920 lb per hour	-	-	-	1,400 lb per hour
Motor HP	2	3/4	3/4	1	3/4
Volts	120	110	110	120	120
Amps	5.6	5.0	5.0	5.0	5.6
Btu/hr	2,294	1,877	1,877	-	2,294
Watts	672	550	550	600	672
Savings	-	122.0	122.0	72.0	0.0
Savings %	-	18%	18%	11%	0%
Co2e (MT)	0.341	0.279	0.279	0.305	0.341
Co2e Savings	-	0.062	0.062	0.037	0.000
Co2e % Savings	-	18%	18%	11%	0%
EnergyStar	N	N	N	N	N
kWh	1180.7	966.4	966.4	1054.2	1180.7
Cost Difference	-	-20%	-24%	-47%	104%
Source	Web	Web	AQ	AQ	Web
Specs	Heavy Duty, die cast housing. Dices up to 920 lb of tomatoes per hour	-	-	-	Works with any disc or blade to slice, shred, grate, chop, mic, and julienne
Pros	-	-	Lower Energy Consumption	-	1,400 lb per hour
Cons	-	-	Larger piece of equipment than what is installed	-	-

Food Slicer							
	CURRENT				PROPOSED ALTERNATES		
	R086	Q575	Q169/X469	Q429	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Hobart	Globe	Hobart	Bizerba	Vollrath	Avantco	Univex
Model #1	2912	4975N	HS9	GSP HD STD-90	SLM300P	SL312	1000S
Fuel Soure	Electric	Electric	Electric	Electric	Electric	Electric	Electric
Size (Ext)	24x28x28	23x27x25	25x27x28	32x36x25	26x24x21	22x20x16	23x16x19
Motor HP	1/2	1/2	1/2		2/5	1/3	1/2
Volts	120	115	120	120	120	120	115
Amps	5.6	7.0	5.6	2.6	2.5	3.5	4.0
Watts	672	805	672	312	300	420	460
Savings	-	-	-	-	12.0	-	-
Savings %	-	-	-	-	4%	-	-
Co2e (MT)	0.34	0.41	0.34	0.1584	0.1523	0.21	0.23
Co2e Savings	-	-	-	-	0.006	-	-
Co2e % Savings	-	-	-	-	4%	-	-
EnergyStar	N	N	N	N	N	N	N
kWh	1180.7	1414.4	1180.7	548.2	527.1	737.9	808.2
Cost Difference	-	-	-	-	-77%	-91%	36%
Source	Web	Web	AQ	AQ	AQ	Web	AQ
Specs	No Volt Release. Heavy Guage Stainless Steel knife cover. Stainless Steel Carriage	No Volatage Release. Permanent knife blade ring guard.	No Volt Release. Zero knife exposure. Knife Shuts off after 30 sec of inactivity	No Volt Release. Variable 3 Speed sutomatic Drive Systems.	Adjustable slice thickness	Adjustable slice thickness from 1/16 to 1/2 "	3 speed. Unique Drip Tray fence redirects liquids away from controls and operator towards distinctive concave base casting for easy cleaning.
Pros	-	-	-	-	Lower Energy Energy Consumption. Smaller than the existing models.	Lower Energy Energy Consumption. Smaller than the existing models.	Lower Energy Consumption.

Hot Food Slide				
	CURRENT	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Hatco	Vollrath	Equipex	Nemco
Model #1	GR2SDS-36D	FMA7036	WD780S-3/1	6480-36
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	37x27x29	36x19x25	31x20x26	36x20x24
Capacity	(2) 36" Shelves	(3) 32" Shelves	(3) 28" Shelves	(2) 35" Shelves
Temp	-	85F-175F	68F-194F	-
Volts	120/208	120	120	120
Amps	8.5	12.0	15.0	15.0
Watts	2,040	1,440	1,750	1,800
Savings	-	600.0	290.0	240.0
Savings %	-	29%	14%	12%
Co2e (MT)	0.6	0.5	0.5	0.6
Co2e Savings	-	0.19	0.09	0.08
Co2e % Savings	-	29%	14%	12%
EnergyStar	N/A	N/A	N/A	N/A
kWh	2212.0	1561.4	1897.6	1951.8
Cost Difference	-	-53%	-53%	-33%
Source	AQ	AQ	AQ	AQ

Merchandise Heated				
	CURRENT	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Hussmann	Atlantic Food Bars	Fri-Jado	Alto-Shaam
Model #1	IM-05-X4-H	WR4822T-F-AS	MD 40-3	HSM-48/5S
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	68x32x58	50x23x72	40x32x57	48x28x80
Capacity	4 Shelves	4 Shelves	3 Shelves	5 Shelves
Temp	175F	-	-	-
Volts	208	120	208	208
Amps	20.0	25.6	-	19.0
Watts	4,160	3,072	3,500	4,000
Savings	-	1,088	660	160
Savings %	-	26%	16%	4%
Co2e (MT)	1.3	1.0	1.1	1.3
Co2e Savings	-	0.3	0.2	0.1
Co2e % Savings	-	26%	16%	4%
EnergyStar	N	N	N	N
kWh	4510.8	3331.0	3795.1	4337.3
Cost Difference	-	-	-	103%
Source	AQ	-	-	Web - Dealer
Specs	Digital Control. Food Should be preheated before placed.	-	-	-
Pros	-	Airflow Allows cabinet to recover temperature quickly after door is closed. Consumes Less Energy.	Consumes Less Energy	Consumes Less Energy
Cons	-	Smaller than the one currently installed	-	Smaller than the one currently installed

Merchandise Refrigerated					
	CURRENT	PROPOSED ALTERNATES			REJECTED
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3	ALTERNATE
Manuf #1	Federal	Turbo Air	Avantco	True	Advanced Gourmet
Model #1	RSSM-460SC	TOM-W-50SB-UF-N	189BVAC46HC	TDM-R-77	HGAGOPVT10E
Fuel Source	Electric	Electric	Electric	Electric	Electric
Size (Ext)	48x36x61	51x34x58	46x26x82	78x39x50	41x26x38
Capacity	-	8.5 CF	13.2 CF	-	-
Temp	38F-40F	-	33F-40F	-	39.2F
Refrigerant	R449	R290	R290	R290	R452
HP		0.75	1.25	0.5	-
Volts	208	115	110	115	120
Amps	-	6.9	-	12.0	5.9
Rejected Heat (Btu/hr)	7500	-	3242	-	2730
Watts	2,200	794	950	1,380	950
Savings	-	1406.5	1250.0	820.0	1250.0
Savings %	-	64%	57%	37%	57%
Co2e (MT)	0.7	0.2	0.3	0.4	0.3
Co2e Savings	-	0.4	0.4	0.3	0.4
Co2e % Savings	-	64%	57%	37%	57%
kWh	2385.5	860.4	1030.1	1496.4	1030.1
Cost Difference	-	43%	-65%	-4%	-28%
Source	AQ	AQ	Web	AQ	AQ
Specs, Pros and Cons	Electronic temperature control with on demand defrost. Insulated with high density urethane foam.	Electronic Control. High Density Cell Insulation. Pro: Uses R290 refrigerant which is non ozone depleting refrigerant	Electronic Control. Polyurethane Insulation. Pro: Uses R290 refrigerant which is non ozone depleting refrigerant	Electronic Control. Polyurethane Insulation. Pro: Uses R290 refrigerant which is non ozone depleting refrigerant	Refrigeration with forced air circulation on all display levels. Programmed automatic defrosts
		Con: Wider than the merchandiser currently in place	Con: Taller than the merchandiser currently in place	Con: Significantly wider than the merchandiser currently in place	Con:

Milk Cooler					
	CURRENT MODELS		PROPOSED ALTERNATES		
		CURRENT	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Nor-Lake	True	Beverage-Air	Avantco	Motak
Model #1	AR082SSS/0	TMC-34-S-SS-HC	SM34HC	MC34HC	MMC34-X
Fuel Source	Electric	Electric	Electric	Electric	Electric
Size (Ext)	38x36x43	34x35x37	34x31x42	34x31x42	34x31x40
Capacity	8 Milk Crates	8 Milk Crates	8 Milk Crates	8 Milk Crates	8 Milk Crates
Temp	38 F	33F-38F	38 F	33F-40F	33F-38F
Refrigerant	R134a	R290	R290	R290	R290
HP	1/5	1/5	1/3	1/5	1/5
Volts	115	115	115	115	115
Amps	3.3	2.7	2.2	2.3	2.3
Btu/hr	-	-	1,224	-	-
Watts	379.5	310.5	253.0	262.2	262.2
Savings	-	-	57.5	48.3	48.3
Savings %	-	-	19%	16%	16%
Co2e (MT)	0.165	0.135	0.110	0.114	0.114
Co2e Savings	-	-	0.025	0.021	0.021
Co2e % Savings	-	-	19%	16%	16%
EnergyStar	N	N	N	N	N
Max Idle W	N/A	N/A	N/A	N/A	N/A
kWh	571.5	467.6	381.0	394.9	394.9
Cost Difference	-	-	37%	-33%	-43%
Source	Web	SCA Cost Estimate	AQ	Web	Web
Specs	Stainless steel doors and interior, 2" polyurethane insulation	-	Stainless steel exterior and interior, full electronic control	-	-
Pros	-	-	Uses R290 refrigerant	Uses R290 refrigerant	Uses R290 refrigerant
Cons	-	-	-	Larger capacity than specified	-

Mobile Cold Food Counter - Salad Bar

	NEW CASE STUDIES	PROPOSED ALTERNATES		
	Q429	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Delfield	Delfield	Beverage Air	Vollrath
Model #1	-	KCSC-96-EFP	SPE72HC-30-S	R38716
Size (Ext)	90x24x89	96x30x36	73x31x37	60x40x59
Capacity	-		20.02 CF	
Refrigerant	-	R290	R290	R513a
HP	1/4 HP	1/3 HP	1/3	1/3
Volts	120	115	115	120
Amps	15.0	4.8	5.4	7.8
Btu/hr	-	1,943	1,549	4,800
Watts	1800.0	552.0	621.0	936.0
Savings	-	1248.0	1179.0	864.0
Savings %	-	69%	66%	48%
Co2e (MT)	0.02	0.007	0.008	0.011
Co2e Savings	-	0.015	0.014	0.011
Co2e % Savings	-	69%	66%	48%
kWh	75.9	23.3	26.2	39.5
Specs	-	One Piece molded fiberglass pylon. Fire Code rated Fiberglass. Cold pan is fully insulated with environmentally firendly foam	Stainless steel exterior. Door locks. Sneeze Guards	Vinyl Clad 20 guage carbon steel. Polyurethane foam insulation
Pros	-	Uses R290 refrigerant which is non ozone depleting refrigerant	Uses R290 refrigerant which is non ozone depleting refrigerant	Uses R513a refrigerant which is non ozone depleting refrigerant

Mobile Heated Cabinet				
	ORIGINAL CASE STUDIES	PROPOSED ALTERNATES		
	Q169/Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Wittco Foodservice	Cambro	Delfield	Cambro
Model #1	1826-15-SCHNY	UPCH-1600	GAH1-SH	PCUHH2
Model Name	-	Ultra Cam Cart	-	Pro Cart Ultra
Size (Ext)	27x33x65	29x34x54	28x33x80	28x34x66
Size (Int)		21x26x42	22x27x56	21x27x50
Capacity	30 Sheet Pans	24 Sheet Pans	30 Sheet Pans	32 Sheet Pans
Temp	190F	165F	200F	165F
Volts	120	120	240	240
Amps	12.5	4.6	6.0	4.6
Savings		7.9	6.5	7.9
Watts	1500.0	230.0	368.0	1012.0
Savings	-	1270.0	1132.0	488.0
Savings %	-	85%	75%	33%
Co2e (MT)	0.04	0.01	0.01	0.03
Co2e Savings	-	0.03	0.03	0.01
Co2e % Savings	-	85%	75%	33%
EnergyStar	Y	Y	Y	Y
Max Idle W	N/A	10.0	294.0	200.2
kWh	142.3	21.8	34.9	96.0
Cost Difference	-	-69%	-22%	-45%
Source	Web	Web	Web	Web
Specs	Pass Through heated holding and transport cabinet. Blower motor. 5 " heavy duty casters, knob actuated electronic control, temperatures up to 190F. Adjustable slides hold 18 " x26 " x 1 " sheet pans on 1-1/2" centers. 20 gauge stainless steel. Recessed side-mounted handles, magnetic action door latch, and full insulation; 2 " in side walls and 2 " in top. Integrated steel frame.	-	-	-
Pros	-	<ul style="list-style-type: none"> • 11"-17" shorter • 3 min. recovery time 	<ul style="list-style-type: none"> • Touch screen control • Same heating temperature 	<ul style="list-style-type: none"> • 1"-5" shorter • 3 min. recovery time
Cons	-	<ul style="list-style-type: none"> • 2"-4" wider • 20%-33% less capacity • Reduced heating temperature • 20 min. longer preheat (45 min.) 	<ul style="list-style-type: none"> • 1" wider • 9"-15" taller • 12%-17% less capacity • Most expensive • Must purchase extra shelves (only 3 included) 	<ul style="list-style-type: none"> • 1" wider • 6%-12% less capacity • Reduced heating temperature • 20 min. longer preheat (45 min.) • 120V version is less efficient

Mobile Hot Food Counter					
	NEW CASE STUDIES	PROPOSED ALTERNATES			REJECTED
	Q429	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3	ALTERNATE
Manuf #1	Delfield	Eagle Group	Vollrath	Alluserv	Randell
Model #1	Custom	BPDHT4	38710	AHF4HIB	3314
Size (Ext)	90x43x89	64x23x53	60x24x49	66x33x36	63x32x36
Capacity	4 Wells	4 Wells	4 Wells	4 Wells	4 Wells
Volts	208	208	120	208	208
Amps	22.0	7.2	17.5	20.7	28.8
Watts	4576.0	2000.0	2100.0	4300.0	6000.0
Savings	-	2576.0	2476.0	276.0	-1424.0
Savings %	-	56%	54%	6%	-
Co2e (MT)	0.06	0.02	0.03	0.05	-
Co2e Savings	-	0.031	0.030	0.003	-
Co2e % Savings	-	56%	54%	6%	-
EnergyStar	N	N	N	N	N
Max Idle W	N/A	N/A	N/A	N/A	N/A
kWh	193.0	84.3	88.6	181.3	253.0

Range with Oven									
	PREVIOUS	CURRENT	PROPOSED ALTERNATES			REJECTED			
	Q429	X469	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3	ALTERNATE	ALTERNATE	ALTERNATE	ALTERNATE
Manuf #1	Garland	Garland	Smeg	Imperial	Lang	Southbend	Lang	Smeg	Garland
Model #1	M44R	GME36-114C	SPR36UIIMX	IR-6-E-C	R130C	P26N	R130C	SPR36UIIMX	GME36-120C
Fuel Source	Natural Gas	Electric	Electric	Electric	Electric	Electric	Electric	Electric	Electric
Size (Ext)	27x29x14	36x36x29	36x25x32	36x31x36	31x29x36	36x38x36	31x29x36	36x25x32	36x36x30
Capacity	4 Burners	4 Burners	5 Burners	6 Burners	4 Burners	4 Burners	4 burners	5 Burners	4 Burners
Temp	-	-	150F-500F	-	150F - 450F	-	150F-450F	150F-500F	-
Volts	-	120	208	208	208	240	208	208	208
Amps	-	66.4	68.8	58.0	87.5	59.0	87.5	-	82.2
Energy Input (Btu/hr)	180,000	72,014	48,805	59,044	62,116	47,782	62,116	63,481	85,666
Watts	-	21,100	14,300	17,300	18,200	14,000	18,200	18,600	25,100
Electric Replacement Savings (W)	-	-	6800.0	3800.0	2900.0	7100.0	2900.0	2500.0	-4000.0
Electric Replacement Savings %	-	-	32%	18%	14%	34%	14%	12%	-
Gas Replacement Savings (Btu/hr)	-	-	71,195	60,956	57,884	72,218	57,884	56,519	-
Gas Replacement Savings %	-	-	59%	51%	48%	60%	48%	47%	-
Co2e (MT)	12.2	5.0	3.4	4.1	4.3	3.3	4.3	4.4	-
Co2e Savings - Electric	8.9	1.6	1.6	0.9	0.7	-	-	-	-
Co2e % Savings - Electric			32%	18%	14%	-	-	-	-
Co2e Savings - Gas			4.8	4.1	3.9	-	-	-	-
Co2e % Savings - Gas	73%	32%	59%	50%	48%	-	-	-	-
Cost Difference	-	-	96%	137%	-73%	-	-	-	-6%
Source	AQ	SCA Cost Estimate	AQ	Web	Web	-	-	-	Web
Specs	Stainless Steel Main back and front. Storage Base shelf is aluminized or stainless steel.	Stainless Steel front and sides. Easy to clean Ceran glass cook tops and stainless steel exterior.	Stainless steel construction. 12 in induction cook tops. Removable Dip tray	6mm glass induction top thickness for added durability. Blower centered on side of compartment. Solid State oven control.	-	-	-	-	Stainless Steel Chassis. Induction Range. Convection Oven
Pros	-	-	Lower Energy Consumption	Lower Energy Consumption	-	-	-	-	Lower Energy Consumption

Reach-In Freezer (Double)					
	ORIGINAL CASE STUDIES	NEW CASE STUDIES	PROPOSED ALTERNATES		
	Q169/R086/Q575	Q206/Q469/Q429	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Continental	Traulsen	Everest	Continental	True
Model #1	DL2F-SS-GD	RLT232NUT-FHS	ESF2	2FEN	STR2F-2S-HC
Size (Ext)	53x36x88	53x27x84	50x32x81	57x34x83	53x34x83
Size (Int)	-	-	45x25x57	-	-
Capacity	50 CF	46 CF	48 CF	50 CF	46.9 CF
Temp	-10F	-10F	-10F	-10F	-10F
Refrigerant	R-404A	R-448A	R-290	R-290	R-290
HP	1	3/4	1	1/2	1 1/4
Volts	115	115	115	115	115
Amps	14.0	15.7	7.5	9.0	9.4
Savings	-	-	8.2	6.7	6.3
Heat Gain (Btu/hr)	4,325	3,730	2,840	2,560	3,689
Savings	-	-	1,485	1,765	636
Watts	1,610	1,806	863	1,035	1,081
Savings	-	-	747.5	575.0	529.0
Savings %	-	-	46%	36%	33%
Co2e (MT)	0.7	0.8	0.4	0.5	0.5
Co2e Savings	-	-	0.3	0.3	0.2
Co2e % Savings	-	-	46%	36%	33%
EnergyStar	N	Y	N	Y	Y
Est. kWh/day	N/A	11.03	N/A	9.45	10.43
kWh	2424.7	2719.1	1298.9	1558.7	1628.0
Cost Difference	-	-	-57%	-33%	43%
Source	Web	SCA Cost Estimate	AQ	AQ	AQ
Specs	2-Section Display Reach-In	Reach-in, two-section, 46.0 cu. ft.,	-	-	-

Reach-In Freezer (Single)					
		CURRENT	PROPOSED ALTERNATES		
	Q206/Q469/Q429	Q169/R086/Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Traulsen	Continental	Admiral Craft	Everest	True
Model #1	RLT132NUT-FHS	DL1F-SS-GD	GRRF-1D	ESF1	STR1F-2HS-HC
Size (Ext)	35x27x83	26x36x84	29x32x83	30x32x80	28x36x85
Capacity	21.9 CF	21 CF	23 CF	23 CF	25 CF
Temp	34F-38F	0F	-7F	-10F	-10F
Refrigerant	R-450	R-404A	R-290	R-290	R-290
HP	1/3	1/3	1/5	1/2	1/2
Volts	115	115	115	115	115
Amps	6.7	6.3	2.6	5.0	6.0
Savings	-	-	-	1.7	0.7
Btu/hr	1890	1,590	-	1,670	2,355
Watts	771	725	299	575	690
Savings	-	-	425.5	149.5	34.5
Savings %	-	-	59%	21%	5%
Co2e (MT)	0.5	0.5	0.21	0.41	0.49
Co2e Savings	-	-	0.30	0.11	0.025
Co2e % Savings	-	-	59%	21%	5%
EnergyStar	Y	N	-	N	Y
Est. kWh/day	11.03	N/A	-	N/A	10.43
kWh	1903.0	1789.4	738.5	1420.2	1704.2
Cost Difference	-	-	-93%	-74%	-44%
Source	Web	Web	AQ	Web	AQ
Specs	Reach-in, one-section, 46.0 cu. ft., self contained refrigeration, stainless steel exterior and interior, standard depth, narrow full-height door or doors with Santoprene® EZ-Clean Gaskets, (3) adjustable wire shelves per section, INTELA-TRAUL™ microprocessor controls, 6" adjustable stainless steel legs, 5/8 HP, cULus, NSF, ENERGY STAR®	Digital Display Reach-In Freezer with Hinged Glass Doors, Self contained, performance-rated "plug" refrigeration system, Refrigeration system is readily accessible on top of cabinet, Automatic, hot gas condensate evaporator, 3" non-CFC polyurethane foam insulation, Self-closing doors, Adjustable 6" stainless steel legs, LED interior lighting, External digital thermometer, Energy saving switch for door heaters, Automatic electric defrost	-	-	-

Reach-In Refrigerator (Double)					
		CURRENT	PROPOSED ALTERNATES		
	Q206/Q469/Q429	Q169/R086/Q575/K322/M502/X468	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Traulsen	Continental	TurboAir	Avantco	Everest
Model #1	RHT232NUT-FHS	DL2R-SS	M3R47-2-N	178SS2RHC	ESR2
Size (Ext)	58x35x83	52x32x83	52x31x78	54x32x82	50x32x80
Size (Int)	-	-	-	-	45x25x57
Capacity	46 CF	50 CF	42.3 CF	41.3 CF	48 CF
Temp	34F-38F	38F-40F	33F-38F	33F-40F	33F-54F
Refrigerant	R-134A	R-134A	R-290	R-290	R-290
HP	5/8	1/3	1/3	1/4	1/4
Volts	115	115	115	115	115
Amps	8.2	6.5	2.8	3.8	4.5
Heat Gain (Btu/hr)	4,610	4,010	-	-	1,926
Watts	943.0	747.5	322.0	437.0	517.5
Savings	-	-	425.5	310.5	230.0
Savings %	-	-	57%	42%	31%
Co2e (MT)	0.41	0.3	0.14	0.19	0.23
Co2e Savings	-	-	0.19	0.14	0.10
Co2e % Savings	-	-	57%	42%	31%
EnergyStar	Y	N	Y	N	Y
Est. kWh/day	2.78	N/A	2.22	N/A	2.52
kWh	1420.2	1125.7	484.9	658.1	779.4
Cost Difference	-	-	-3%	-100%	-58%
Source	SCA Cost Estimate	Web	Manuf. Price List	-	AQ
Specs	Reach-in, two-section, 46.0 cu. ft., self contained refrigeration, stainless steel exterior and interior, standard depth, narrow full-height door or doors with Santoprene® EZ-Clean Gaskets, (3) adjustable wire shelves per section, INTELA-TRAUL™ microprocessor controls, 6" adjustable stainless steel legs, 5/8 HP, cULus, NSF, ENERGY STAR®	Reach-in, two-section, Self contained, performance-rated "plug" refrigeration system, Automatic hot gas condensate evaporator, 3" non-CFC polyurethane foam insulation, Self-closing doors, Adjustable 6" stainless steel legs, LED interior lighting, External digital thermometer, Energy saving switch for door heaters	-	-	-
Pros	-	-	<ul style="list-style-type: none"> • Self-cleaning condenser • Rapid cool-down • Door open alarm • Auto fan motor delay 	<ul style="list-style-type: none"> • Auto defrost 	-
Cons	-	-	<ul style="list-style-type: none"> • 15% less capacity 	<ul style="list-style-type: none"> • Bottom mounted condenser 	-

Reach-In Refrigerator (Single)					
		CURRENT	PROPOSED ALTERNATES		
	Q206/Q469/Q429	Q169/R086/Q575/K322/M502/X468	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Traulsen	Continental	TurboAir	Avantco	Everest
Model #1	RLT132NUT-HHS	DL1R-S	M3R19-1-N	SS-1R-2-HC	ESR1
Size (Ext)	35x27x83	26x29x83	32x31x78	29x33x83	30x32x80
Capacity	21.9 CF	16 CF	18.7 CF	20.6 CF	23 CF
Temp	34F-38F	38F-40F	33F-38F	33F-40F	33F-54F
Refrigerant	R-450	R-134A	R-290	R-290	R134a
HP	1/3	1/4	1/3	1/5	1/3
Volts	115	115	115	115	115
Amps	6.7	5.5	2.5	2.6	4.9
Heat Gain (Btu/hr)	2,240	1,940	-	-	2,555
Watts	770.5	632.5	287.5	299.0	565.8
Savings	-	-	345.0	333.5	66.7
Savings %	-	-	55%	53%	11%
Co2e (MT)	0.3	0.28	0.13	0.13	0.25
Co2e Savings	-	-	0.15	0.15	0.03
Co2e % Savings	-	-	55%	53%	11%
EnergyStar	Y	N	Y	N	Y
Est. kWh/day	2.78	N/A	2.22	N/A	2.52
kWh	1160.4	952.5	433.0	450.3	852.1
Cost Difference	-	-	-50%	-	-57%
Source	Web	Web	Web	-	Web
Specs	Reach-in, one-section, 46.0 cu. ft., self contained refrigeration, stainless steel exterior and interior, standard depth, narrow full-height door or doors with Santoprene® EZ-Clean Gaskets, (3) adjustable wire shelves per section, INTELA-TRAUL™ microprocessor controls, 6"	Reach-in, one-section, Self contained, performance-rated "plug" refrigeration system, Automatic hot gas condensate evaporator, 3" non-CFC polyurethane foam insulation, Self-closing doors, Adjustable 6" stainless steel legs, LED interior lighting, External digital thermometer, Energy saving	-	-	-
Pros	-	-	<ul style="list-style-type: none"> • Self-cleaning condenser • Rapid cool-down • Door open alarm • Auto fan motor delay 	• Auto defrost	-
Cons	-	-	• 15% less capacity	• Bottom mounted condenser	-

Sink Agitator			
	PREVIOUS	CURRENT	PROPOSED ALTERNATES
	X469		
Manuf #1	Wells	Kewanee	
Model #1	PW-106	K-99	
Fuel Soure	Electricity	Electricity	
Size (Ext)	12x11x9	14x11x19	
Motor HP	1/3	1/4	
Volts	120	110	
Amps	6.0	5.1	
Watts	720	560	
Co2e (MT)	0.4	0.3	
EnergyStar	N	N	
kWh	1445.8	1124.5	

Sink Heater		
	CURRENT	PROPOSED ALTERNATES
	X469	ALTERNATE 1
Manuf #1	Hatco	Hubbell
Model #1	3CS2	JSK
Fuel Soure	Electricity	Electricity
Size (Ext)	7x18x10	8x18x10
Capacity	sink area 21x25	sink area 21x25
Volts	208	208
Amps	25.0	43.0
Watts	9,000	9,000
Co2e (MT)	0.5	0.5
EnergyStar	N	-
kWh	1807.2	1807.2
Cost Difference	-	-25%
Source	AQ	AQ
Pros		Lower Price

Steamer							
	PREVIOUS (GAS)		CURRENT		PROPOSED ALTERNATES		
	Q575	R086	X469	Q169	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Cleveland	Cleveland	Cleveland	Market Forge	Sterling	Accutemp	Groen
Model #1	PGM-200-2	22CGT66-1	22CET66-1	Altair II - 10	SP208-6-1-AF	E62083E150DBL	XS-208-8-3
Fuel Source	Natural Gas	Natural Gas	Electric	Electric	Electric	Electric	Electric
Size (Ext)	36x37x74	23x34x75	22x27x68	24x31x67	23x30x54	29x37x65	26x22x71
Capacity	(16) 2.5"Pans	(12) 2.5" Cafeteria Pans	(12) 2.5" Cafeteria Pans	10 Pans	(12) 2.5" Cafeteria Pans	(12) 2.5" Cafeteria Pans	(12) 2.5" Cafeteria Pans
Temp	212F	212F	212F	230F	-	212F	212F
Volts	N/A	N/A	208	208	208	208	208
Amps	N/A	N/A	29.8	38.5	30.0	42.0	28.5
Energy Input (Btu/hr)	220,000	64,000	73,208	66,894	42,526	51,195	54,608
Savings (Btu/hr)	-	-	-	-	21,474	12,805	9,392
Watts	-	-	21,450	19,600	12,460	15,000	16,000
Savings	-	-	-	-	7,140	4,600	3,600
Savings %	-	-	-	-	36%	23%	18%
Co2e (MT)	1	0.20	0.4	0.3	0.22	0.3	0.3
Co2e Savings	-	-	-	-	0.1	0.1	0.1
Co2e % Savings	-	-	-	-	33%	21%	17%
EnergyStar	N	Y	Y	Y	Y	Y	Y
kWh	N/A	N/A	1292.1	1180.7	750.6	903.6	963.8
Cost Difference	-	-	-	-	-41%	-37%	-61%
Source	Web	AQ	AQ	AQ	Web	Web	Web
Specs	One timer per compartment. Mechanical Interlock prevents unlatching door while compartment is pressurized. Steam generator equipped with high-limit pressure safety switch and safety valve.	Automatic Water Level Controls. Steam and Fan shutoff control when compartment door is opened. Timed and Manual Bypass switch for constant steaming.	Automatic water level Controls, fills when main power switch is tuned on. 14 Gauge stainless steel compartment doors hinged on left. Integrated controls on right.	4 Steaming Modes. Manual front drain valve. Internally Preheated incoming water for quick recovery.	-	Steam cavity constructed of reinforced stainless steel. Easy to use digital controls. With digital temperature display.	-
Pros	-	-	-	-	-	Lower energy consumption	-

Therm and Hold Oven			
	CURRENT	PROPOSED ALTERNATES	
	K053	ALTERNATE 1	ALTERNATE 2
Manuf #1	Winston Industries	Winston Industries	Cres Cor
Model #1	CAT522-HR	CHV5-05UV-ST	1000-CH-AL-2DX
Fuel Source	Electric	Electric	Electric
Size (Ext)	28x35x77	28x35x77	23x33x74
Capacity	14 Pans	10 Pans	16 Pans
Temp	180 F	200 F	180 F
Volts	208	208	208
Amps	33.7	24.0	30.0
Watts	11,215	4,992	6,000
Savings	-	6223.0	5215.0
Savings %	-	55%	47%
Co2e (MT)	1.5	0.7	0.8
Co2e Savings	-	0.8	0.7
Co2e % Savings	-	55%	47%
kWh	5066.9	2255.4	2710.8
Cost Difference	-	-30%	-50%
Source	Web	AQ	Web

Walk-In Freezer					
		CURRENT		PROPOSED ALTERNATES	
	Q169/Q575	Q429 SPEC	Q429 ACTUAL	ALTERNATE 1	ALTERNATE 2
Manuf #1	Nor-Lake	Kolpak	-	Master Bilt	Nor-Lake
Model #1	-	MC2-68MZ	-	CPF075JC-E-4-EV	CPF075JC-E-4-EV
Size (Ext)	84x152x114	70x64x47	-	96x120x91	96x120x91
Temp	-10F	-10F	-	-10F	-10F
Refrigerant	-	R448	-	R449a	R449a
Volts	-	208	-	208	208
Amps	-	215.4	-	8.5	8.5
Watts	4763.0	6136.0	5282.0	2309.0	3218.0
Savings	-	-	854.0	3827.0	2918.0
Savings %	-	-	14%	62%	48%
Co2e (MT)	3.4	4.4	3.8	1.6	2.3
Co2e Savings	-	-	0.6	2.7	2.1
Co2e % Savings	-	-	14%	62%	48%
kWh	11763.8	15154.9	13045.7	5702.9	7947.9

Walk-In Cooler						
			CURRENT		PROPOSED	
	Q169	Q575	Q429 SPEC	Q429 ACTUAL	ALTERNATE 1	ALTERNATE 2
Manuf #1	Turbo Air	Turbo Air	Kolpak	-	Master Bilt	Nor-Lake
Model #1	-	-	MC2-68MZ	-	CPB050JC-S-0-EV	CPB050DC-A
Size (Ext)	118x153x114	90x152x114	96x120x102	-	96x120x91	96x120x91
Capacity	-	-	8,300 BTU	-	-	-
Temp	35F	35F	35F	-	35F to 38F	32F to -10F
Refrigerant	R448	-	R448	-	R449a	R404a
Volts	-	-	208	-	115	115
Amps	-	-	12.5	-	9.3	14.3
Watts	1200.0	2142.0	2,321	1358.0	1560.0	1602.0
Savings	-	-	-	784.0	761.0	719.0
Savings %	-	-	-	37%	33%	31%
Co2e (MT)	0.5	0.9	1.0	0.6	0.7	0.7
Co2e Savings	-	-	-	0.3	0.3	0.3
Co2e % Savings	-	-	-	37%	33%	31%
kWh	1807.2	3225.9	3495.4	2045.1	2349.4	2412.6

Drink Dispenser		
	CURRENT	PROPOSED ALTERNATES
	R086	ALTERNATE 1
Manuf #1	Antunes	Antunes
Model #1	VZN-421H-T5	VZN-521H-T5
Fuel Soure	Electric	Electric
Size (Ext)	31x9x39	31x9x39
Capacity	100 psi	100 psi
Volts	100	100
Amps	0.1	0.1
Watts	10	10
Co2e (MT)	0.001	0.001
kWh	2.5	2.5

Clock Single				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q469	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Bogen Engineering Systems			
Model #1	V4.1			
Fuel Source	Electric			
Size (Ext)	12" diameter			
Volts	24			
Amps	0.035			
Watts	0.84			
Savings	-			
Savings (%)	-			
Co2e (MT)	0.0021			
Co2e Savings	-			
KWh	7.4			

Compactor				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q469	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Compactors Inc.			
Model #1	Trashpacker 4500SS			
Size (Ext)	29x28x78			
Capacity	6 cu ft			
HP	0.5			
Volts	120			
Amps	9			
Savings	-			
Watts	1,080			
Co2e (MT)	0.4700			
Co2e Savings	-			
KWh	1626.5			

Display Monitor				
	CURRENT MODELS	PROPOSED ALTERNATES	REJECTED	
	Q131	ALTERNATE 1	ALTERNATE	ALTERNATE
Manuf #1	Alpha-American	BenQ	NEC	PLANAR
Model #1	Alpha 9670 RGB	SL5502K	E507Q	VM55MX-M2
Size (Ext)	70x11x4	49x28x3	50 in	55 in
Capacity	1800 Nits	500 nits	350 nits	500 nits
Signal	HDMI	VGA,RJ45,Other,Display,HDMI,USB	VGA,RS232,Other,HDMI,USB	VGA,HDMI,USB
Volts	120 V	115 V	100 V	-
Amps	-	-	1.7 A	-
Watts	65	50	150	-
Savings	-	15	-85	-
Savings %	-	23%	-131%	-
Co2e (MT)	0.0566	0.0435	0.1306	-
Co2e Savings	-	0.0131	-0.0740	-
KWh	195.8	150.6	451.8	-
EnergyStar	N	Y	Y	Y
Cost Difference	-	-81%	-88%	-
Source	Dealer Quote	https://www.touchboards.com/benq-sl5502k/?Source=googleshopping&gclid=CjwKCAjw7vuUBhBUEiwAEdu2pM52lC8y3QscKybzm7SoCF3oDAYoHd mmOVEpvp 1S5H9g5kax3DXoCp60QAvD BwE	https://www.staples.com/nec-50-monitor-for-digital-signage-me501/product IM18LP876?cid=PS:GS:SBD:PLA:Facilities:CTL&gclid=CjwKCAjw7vuUBhBUEiwAEdu2pGlnDf7I70AGpIp7cPaT3eqNOIYlvAm4bW0hydmbn73wVnOf lqsQBoCltgQAvD BwE	-

Drinking Fountain

	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Elkay	Hasley Taylor	Elkay	
Model #1	EZS8L	HVRGRN8	LVRCGRN8F	
Size (Ext)	19x19x20	21x21x27	19x19x21	
Capacity	8GPH	8 GPH	8 GPH	
Temp	50F	50F	50F	
Refrigerant	R-134a	R-134a	R-134a	
Volts	115	115	115	
Amps	5	5	5	
Watts	370	260	260	
Savings	-	110	110	
Savings %	-	30%	30%	
Co2e (MT)	0.1073	0.0754	0.0754	
Co2e Savings	-	0.0319	0.0319	
KWh	371.5	261.0	261.0	
Cost Difference	-	50%	67%	
Source	https://www.elkay.com/products/details/ezs8l	https://www.halseytaylor.com/products/details/8253080083	https://www.elkay.com/products/details/lvrcgrn8f	

Double Drinking Fountain - Bi-Level

	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Elkay	Elkay	Elkay	
Model #1	EZSTL8LC	VRGCGRNTL8C	EZSTLG8	
Size (Ext)	37x19x26	37x19x27	36x19x26	
Capacity	8 GPH	8 GPH	8 GPH	
Temp	50F	50F	50F	
Refrigerant	R-134a	R-134a	R-134a	
Volts	115	115	115	
Amps	5	2.8	3.2	
Watts	370	260	360	
Savings	-	110	10	
Savings %	-	30%	3%	
Co2e (MT)	0.1073	0.0754	0.1044	
Co2e Savings	-	0.0319	0.0029	
KWh	371.5	261.0	361.4	
EnergyStar	N/A	N/A	N/A	
Cost Difference	-	52%	19%	
Source	https://www.elkay.com/products/details/ezstl8lc	https://www.elkay.com/products/details/vrgcgrntl8c	https://www.elkay.com/products/details/ezstlg8	

Drinking Fountain with Bottle Filler

	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Halsey Taylor			
Model #1	HTHB-HAC8WF			
Size (Ext)	18x19x52			
Capacity	8 GPH			
Temp	50 F			
Refrigerant	R-134a			
Volts	115			
Amps	5			
Watts	260			
Savings	-			
Savings (%)	-			
Co2e (MT)	0.0754			
Co2e Savings	-			
KWh	261.0			

Electric Scoreboard				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	NEVCO			
Model #1	2770			
Size (Ext)	8'x6'			
Volts	120			
Amps	0.86			
Watts	104			
Savings	-			
Co2e (MT)	0.0054			
Co2e Savings	-			
KWh	18.6			
Cost	varies			
Source	https://nevco.com/product/model-2770/			

Microwave				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Cuisinart			
Model #1	CMW-100			
Size (Ext)	21x18x12			
Capacity	1 CF			
Volts	120			
Watts	1450			
Savings	-			
Co2e (MT)	0.2103			
Co2e Savings	-			
KWh	727.9			

Medical Refrigerator				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	LabRep Co.	AccuCold		
Model #1	CliniCool LHP-2-UR-PH	ARG1PV		
Size (Ext)	14x9x16	22x18x20		
Capacity	1 CF	1 CF		
Temp	36 - 46 F	36 - 46 F		
Refrigerant	R600a	600a		
HP	1/8			
Volts	115	115		
Amps	0.90	0.6		
Watts	104	69		
Savings	-	35.0		
Savings (%)	-	34%		
Co2e (MT)	0.0453	0.0300		
Co2e Savings	-	0.0152		
KWh	156.6	103.9		
EnergyStar	Yes	No		
Cost Difference	-	-46%		
Source	https://www.labrepc.com/product/clinicoola-silver-series-prime-1-cu-ft-free-standing-solid-door-undercounter-pharmacy-vaccine-refrigerator/	https://www.katom.com/162-ARG1PV.html		

Time Recorder - Card Rack					
	CURRENT MODEL	REPLACEMENT	PROPOSED ALTERNATES		
	Q575		ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Amano	Amano	Amano	Amano	
Model #1	EX-9000	EX-3500N	BX-1500	MJR-7000	
Size (Ext)	13x11x7	8x9x5	8x9x4	14x10x8	
Volts	120	120	120	120	
Watts	30	30	8	13	
Savings (W)	-	0	22	17	
Savings (%)	-	0%	73%	57%	
Co2e (MT)	0.0015	0.0015	0.0004	0.0006	
Co2e Savings	-	0.0000	0.0011	0.0008	
KWh	5.1	5.1	1.4	2.2	
Cost Difference	-	-50%	-64%	44%	
Source	Original Cut Sheets	https://amano.com/ex	https://amano.com/b	https://amano.com/m	

Workshop Drill Press				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q469	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Jet	Dayton	Dake	Raleigh
Model #1	JDP-15B	54ZW29	TB-16	DP-4016B
Spindle Speed	210 - 3500 RPM	138 - 3476 RPM	240 - 3400 RPM	250 - 2900 RPM
Motor Phase	single phase	single phase	single phase	single phase
Swing	15"	15"	16"	16"
HP	0.75	0.5	0.5	0.5
Volts	115	120	110	110
Watts	560	373	373	373
Savings (W)	-	187.2	187.2	187.2
Savings (%)	-	33%	33%	33%
Co2e (MT)	0.0013	0.0009	0.0009	0.0009
Co2e Savings	-	0.0004	0.0004	0.0004
KWh	4.5	3.0	3.0	3.0
Cost Difference	-	17%	8%	25%
Source	CM13 Submittals	https://www.grainger	https://www.dakecor	https://www.globalin

Tool Grinder

	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575 Alternative	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Baldor	Dayton	Baldor	Dayton
Model #1	7308	2LKR5	7312D	2LKR6
Size (Ext)	21x11x10	19x15x10	22x11(+)x10	19x15x10
Capacity	1500/1800 RPM	3450 max	3600/1800 RPM	3450 max
Wheel Size	7"	6"	7"	6"
HP	0.5	0.25	0.5 / 0.3	0.33
Volts	208-230/460	120/240	115	115/230
Amps	1.5-1.4/0.7	3/1.5	5/3.6	3.5/1.75
Watts	345	186	224	249
Savings (W)	-	159	121	96
Savings (%)	-	46%	35%	28%
Co2e (MT)	0.0008	0.0004	0.0005	0.0006
Co2e Savings	-	0.0004	0.0003	0.0002
KWh	2.8	1.5	1.8	2.0
Cost Difference	-	-78%	60%	-82%
Source	SCA Cost Estimate	https://www.grainger.	https://www.baldor.c	https://www.grainger.

Monitor Interactive			
	CURRENT MODELS	PROPOSED ALTERNATES	
	Q575	ALTERNATE 1	ALTERNATE 2
Manuf #1	Promethean	Prowise	SMART
Model #1	AB6T78	PW.1.17075.X001	IDGX75-1
Size (Ext)	67x51x6	68x42x4	-
Monitor Size	78"	75"	75"
Operating System	Windows/Mac/Linux	Windows/Mac/Linux/ Android	Windows/Mac/Linux/ Android
Resolution	32768x32768	3840x2160	3840x2160
Response Time	30 ms	8 ms	-
Watts	300	139	157
Savings	-	161	143
Savings %	-	54%	48%
Co2e (MT)	0.08	0.04	0.04
Co2e Savings	-	0.04	0.04
KWh	276.3	128.0	144.6
EnergyStar	-	-	Y
Cost Difference	-	19%	131%
Source	https://www.touchboards.com	Web	Web

Interactive Whiteboard	
	CURRENT MODELS
	Specifications
Manuf #1	SMART Board
Model #1	MX275-V2
Size (Ext)	69x42x5
Monitor Size	75"
Operating System	SMART Software
Resolution	4k Ultra HD
Response Time	8 ms
Watts	114
Savings	-
Savings %	-
Co2e (MT)	0.03
Co2e Savings	-
KWh	114.5
EnergyStar	Y
Max Idle W	-

Lab Drying Oven

	CURRENT MODELS	PROPOSED ALTERNATES		
	specifications	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Binder			
Model #1	ED 56			
Size (Ext)	23x25x23			
Capacity	2 cu ft			
Temp	5 - 300 C			
Volts	230			
Watts	1,050			
Savings (W)	-			
Savings (%)	-			
Co2e (MT)	0.05			
Co2e Savings	-			
KWh	188.0			

Lab Electric Bunsen Burner					
	CURRENT MODELS	CURRENT MODELS	PROPOSED ALTERNATES		
		Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Lab-Aids	Electrothermal			
Model #1	Control Point Heater	BA6101			
Package	(Teacher Lab-Master Safety Package #NAC- M-TSP)	n/a			
Fuel Source	Electric (No Gas)	Electric (No Gas)			
Capacity	-	F4A/F5A radial lead quickblow fuse			
Temp	150C	800C			
Volts	110	110			
Amps	3	-			
Watts	60	430			
Savings (%)	-	-			
Co2e (MT)	0.003	0.0222			
Co2e Savings	-	-0.02			
KWh	10.7	77.0			

Lab Explosion-Proof Freezer

	CURRENT MODELS	PROPOSED ALTERNATES		
	K599	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Thermo Scientific			
Model #1	05EFEETSA			
Size (Ext)	34x22x31			
Capacity	5 cf			
Temp	-20 to -12 C			
Refrigerant	R134a			
Volts	115			
Amps	1.1			
Watts	127			
Savings (W)	-			
Savings (%)	-			
Co2e (MT)	0.0903			
Co2e Savings	-			
KWh	312.5			
EnergyStar	UL Approved			
Source	CM13 Submittals			

Lab Explosion-Proof Refrigerator (Full Height)					
	CURRENT MODELS	REPLACEMENT		PROPOSED ALTERNATES	
	Q575		ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Thermo Scientific	Thermo Scientific	Liebherr	American BioTech Supply	So-Low
Model #1	20EREETSA	RFMS2305A	LRBFS20W1HC	ABT-HC-FRP-20	DHH4-20SDFMS
Size (Ext)	33x34x74	37x28x79	30x29x65	31x29x75	31x29x75
Size (Int)	24x28x58	29x24x58	25x23x58	25x21x66	25x21x66
Capacity	20.9 cf	23 cf	20 cf	20 cf	20 cf
Temp	1-12C	1-8C	1-15C	1 - 10C	1 - 10C
Refrigerant	R134a	R134a	R290	R600a	R600a
HP				1/4	1/5
Volts	115	115	115	115	115
Amps	5	13.5	3	3	3
Watts	575	1553	345	345	345
Savings (W)	-	-	230	230	230
Savings (%)	-	-	40%	40%	40%
Co2e (MT)	0.2502	0.6756	0.1501	0.1501	0.1501
Co2e Savings	-	-0.4254	0.1001	0.1001	0.1001
KWh	866.0	2338.1	519.6	519.6	519.6
Cost Difference	-	-	-64%	-62%	-62%
Source	CM13 Submittals	sher.com/order/catalog	https://www.thomass	https://americanbiote	https://www.so-

Lab Fume Hood

	CURRENT MODELS	PROPOSED ALTERNATES		
	Specifications	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Erlab	Air Science USE		
Model #1	Captair Flex XLS 392	PURAIR10-XT		
Size (Ext)	40x27x41	30x28x53		
Volts	220	120		
Amps	4	-		
Watts	105	37		
Savings (W)	-	68		
Savings (%)	-	65%		
Co2e (MT)	0.0013	0.0004		
Co2e Savings	-	0.0008		
KWh	4.4	1.6		
Cost Difference	-	-43%		
Source	Dealer Quote	https://www.airscienc		

Lab Icemaker					
	CURRENT MODELS	REPLACEMENT	PROPOSED ALTERNATES		
			ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Scotsman	Scotsman	Manitowoc	Ice-O-Matic	
Model #1	CU1526A	UC2024MA	URF-0140A	ICEU22OW	
Fuel Source	Electric	Electric	Electric	Electric	
Size (Ext)	27x28x33	24x29x39	26x29x33	25x27x39	
Production Capacity	150 lbs/day	230 lbs/day	137 lbs/day	251 lbs/day	
Storage Capacity	80 lb	80 lb	90 lb	70 lb	
Water Use	18 gal per 100lb	43 gal per 100 lb	16.7 gal per 100lb	37.1 gal per 100lb	
Refrigerant	R-404	R-134A	-	-	
Volts	115	115	115	115	
Amps	11.5	15.0	5.0	8.9	
Btu/hr	2,700	3,900	2,150	4,288	
Watts	1,323	1,725	575	1024	
Savings (W)	-	-	748	299	
Savings (%)	-	-	57%	23%	
Co2e (MT)	0.5755	0.7507	0.2502	0.4454	
Co2e Savings	-	-0.1752	0.3253	0.1301	
KWh	1991.7	2597.9	866.0	1541.4	
EnergyStar	Y	Y	N	N	
Cost Difference	-	138%	92%	131%	
Source			AQ	AQ	
Pros	-	-	Lower Heat Rejection. Lower potable water usage.	-	
Cons	-	-	-	Larger than the originally installed model. Uses more potable water. Higher heat rejection.	

Lab Mobile Plant Study Center

	CURRENT MODELS	PROPOSED ALTERNATES		
	K599	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	Grower's Supply	Gardeners Supply Company	Johnny's Selected Seeds	Rise Gardens
Model #1	B3B-PKG2	LED SunLite 3-Tier Garden	7296 Compact Seedling Light Cart	Triple Family Garden
Bulb Type	Gro-Lux Wide Spectrum T8 Fluorescent	LED	Fluorescent T12	LED
Size (Ext)	74x53x20	69x51x15	74x27x23	67x36x16
Capacity	2 shelves	3 shelves	3 shelves	3 shelves
Volts	120	120	120	120
Watts	240	120	120	200
Savings (W)	-	120	120	40
Savings (%)	-	50%	50%	17%
Co2e (MT)	0.0124	0.0062	0.0062	0.0103
Co2e Savings	-	0.0062	0.0062	0.0021
KWh	43.0	21.5	21.5	35.8
Cost Difference	-	15%	-23%	36%
Source	CM13 Submittals	https://www.gardene	https://www.johnnys	https://risegardens.co

Lab Sterilizer				
	CURRENT MODELS	PROPOSED ALTERNATES		
	Q575	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3
Manuf #1	All American	Revolutionary Science		
Model #1	25X	RS-SC-200L		
Size (Ext)	17x13x13	16x13.5x21		
Capacity	25 qt / 23.6 L	10.6 qt / 10 L		
Temp	250 F	250 F		
Pressure	17 - 21 psi	15 psi		
Volts	120	120		
Amps	9	-		
Watts	1050	700		
Savings (W)	-	350		
Savings (%)	-	33%		
Co2e (MT)	0.0543	0.0362		
Co2e Savings	-	0.0181		
KWh	188.0	125.3		
Cost Difference	-	102%		
Source	Original Cut Sheets	https://www.colepar		

Projector				
	CURRENT MODELS	REPLACEMENT	PROPOSED ALTERNATES	
	Q575		ALTERNATE 1	ALTERNATE 2
Manuf #1	Epson	Epson	Panasonic	Optoma
Model #1	G6770WUNL WUXGA 3LCD	EB-PU1006W WUXGA 3LCD	PT-JW130	ML105AT
Size (Ext)	20x16x6	22x18x7	17x14x13	5x5x2
Resolution	1920x1200	1920x1200	1280x800	1280x800
Volts	-	-	-	100
Amps	-	-	-	1.7
Watts	528	384	125	170
Savings	-	144	403	358
Savings (%)	-	27%	76%	68%
Co2e (MT)	0.0218	0.0159	0.0052	0.0070
Co2e Savings	-	0.0060	0.0167	0.0148
KWh	75.5	54.9	17.9	24.3
Cost Difference	-	-	-57%	-87%
Source	https://epson.com/Fo	https://epson.com/Fo	https://educate-	https://educate-

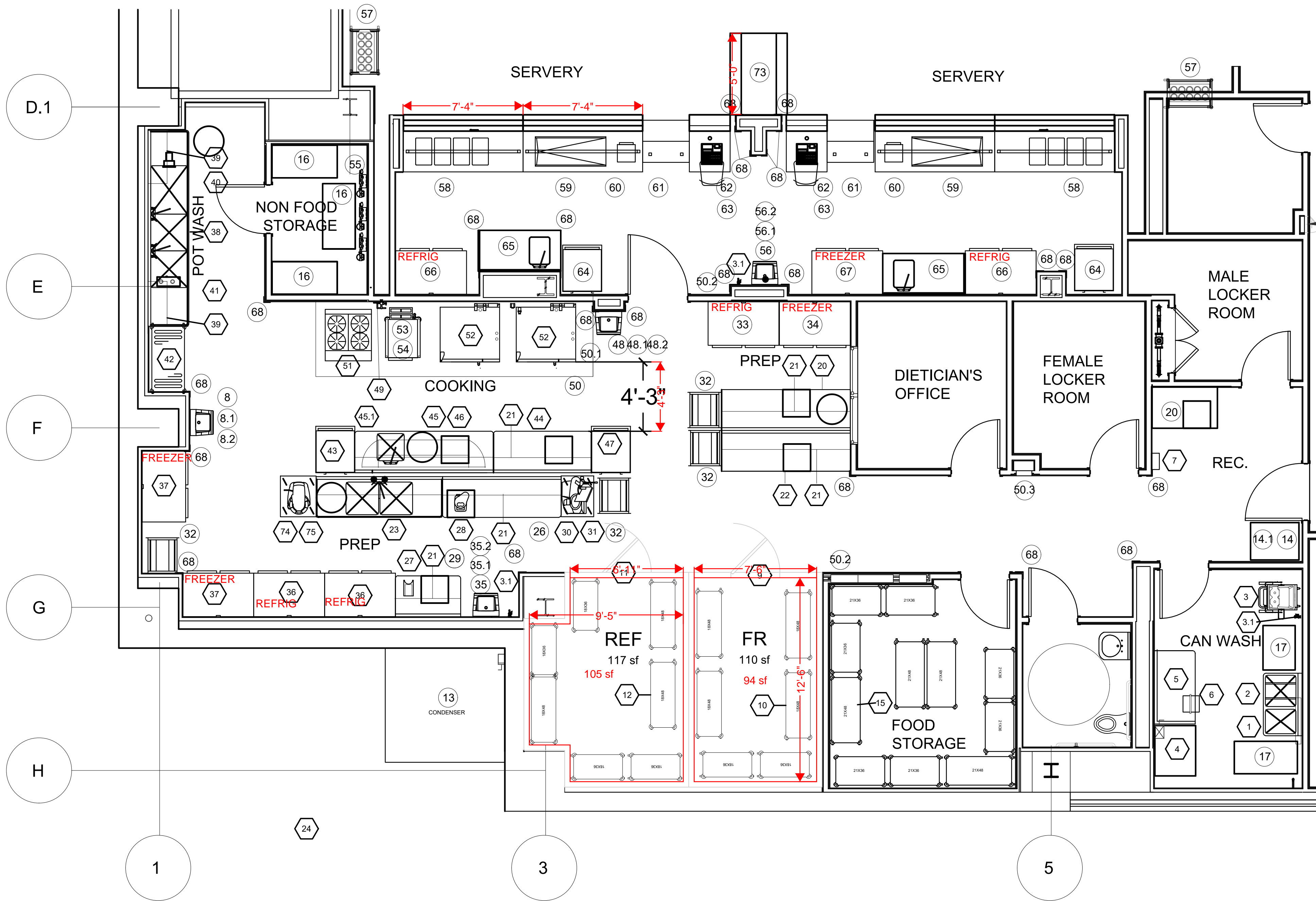
Appendix D. Case Study School Kitchen Drawings and Equipment Schedules

- PS “A” in Brooklyn Kitchen Plan and Schedule
- IS “B” in Queens Kitchen Plan and Schedule
- HS “C” in Queens Kitchen Plan and Schedule

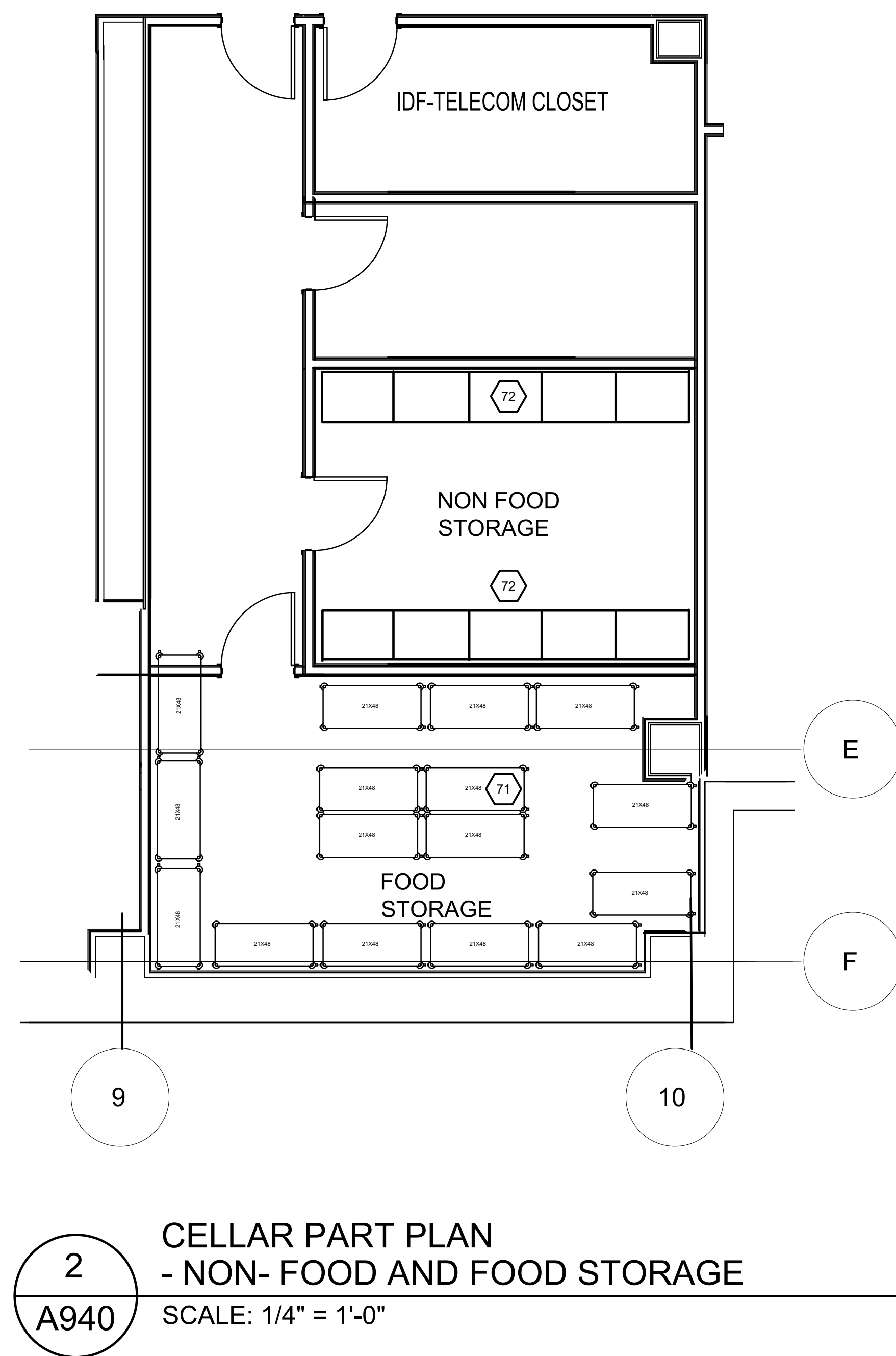


① **FOOD SERVICE**
SCALE: 1/4" = 1'-0"

Foodservice Schedule of Equipment																
Item Number	Qty.	Description	Water		Waste			HVAC		Electric Connection Type	Electrical					Type Comments
			Hot Water	Cold Water	Indirect	I.W. Type	Direct	Exhaust	Static		Conn Plug NEMA	Watts	FL Amps	Volts	Phase	
CW																
1	1	Mop Rack														
2	1	Can Wash / Mop Sink	1/2"	1/2"	2"	F.S.										Two (2) I.W.s
3	1	Hose Bib		1/2"												By Plumber; Section 15410
4	1	Mobile Detergent Storage Cabinet														
K																
1	1	Condensate Hood			1/2"	F.D.		2200 CFM	0.25 in-wg	E.O.			5.00 A	120 V	1	
2	1	Therm & Hold Cabinets			1/4"	F.D.				S.R.	15-50P	12000 W	33.70 A	208 V	3	
3	1	Therm & Hold Cabinets			1/4"	F.D.				S.R.	15-50P	12000 W	33.70 A	208 V	3	
4	1	Therm & Hold Cabinets			1/4"	F.D.				S.R.	15-50P	12000 W	33.70 A	208 V	3	
5	1	Mobile Steamer/Holder Unit								S.R.	15-50P	12000 W	33.60 A	208 V	3	
6	1	Work Table														
6.1	1	Food Processor								D.R.	5-15P		5.60 A	120 V	1	
6.2	1	Can Opener								D.R.	5-15P		1.20 A	115 V	1	
7	1	Slicer								D.R.	5-15P		5.60 A	120 V	1	
7.1	1	Mobile Slicer Stand														
8	1	Prep Table w/ Sink	1/2"	1/2"	2"	F.S.										
8.1	1	Stainless Steel Pipe Chase														
9	1	Cook's Table								D.R.	5-20P		15.00 A	120 V	1	
9.1	1	Utensil Rack														
10	1	Mobile Heated Holding Cabinet								D.R.	5-15P	1440 W	12.00 A	120 V	1	
11	1	Hand Sink	1/2"	1/2"			1 1/2"									By Pumber; Section 15440
11.1	1	Liquid Soap Dispenser														By G.C.; Section 10810
11.2	1	Paper Towel Dispenser														By G.C.; Section 10810
12	1	Hand Sink	1/2"	1/2"			1 1/2"									By Pumber; Section 15440
12.1	1	Liquid Soap Dispenser														By G.C.; Section 10810
12.2	1	Paper Towel Dispenser														By G.C.; Section 10810
13	1	Time Clock with Card Racks								D.R.	5-15P	30 W	0.25 A	120 V	1	By E.C.; Section 16791
14	1	Reach-In Refrigerator								D.R.	5-15P		8.20 A	120 V	1	
15	1	Reach-In Refrigerator								D.R.	5-15P		8.20 A	120 V	1	
16	1	Reach-In Refrigerator								D.R.	5-15P		7.00 A	120 V	1	
17	1	Reach-In Freezer								D.R.	5-20P		15.70 A	120 V	1	
18	1	Reach-In Freezer								D.R.	5-20P		15.70 A	120 V	1	
19	1	Reach-In Freezer								D.R.	5-20P		15.70 A	120 V	1	
20	7	Corner Guards														
PW																
1	1	Mobile Shelving Units														
2	1	Pot Wash Sink	3/4"	3/4"	2"	F.S.										Two (2) HW, Two (2) CW, Three(3) I.W.s
2.1	2	Slotted Wall Shelves														
2.2	1	Sink Agitator								D.R.	5-15P	720 W	6.00 A	120 V	1	
2.3	1	Sink Heater			3/4"	F.S.				E.O.		9000 W	25.00 A	208 V	3	
3	1	Mobile Shelving Units														
ST																
1	2	Mobile Shelving Units														
2	3	Dunnage Rack														
SV																
1	1	Hand Sink	1/2"	1/2"			1 1/2"									By Pumber; Section 15440
1.1	1	Liquid Soap Dispenser														By G.C.; Section 10810
1.2	1	Paper Towel Dispenser														By G.C.; Section 10810
2	1	Mobile Work Table														
3	1	Mobile Heated Holding Cabinet								D.R.	5-15P	1440 W	12.00 A	120 V	1	
4	1	Mobile Hot Food Counter			1"	F.D.				S.R.	14-50P	8362 W	40.20 A	208 V	1	
5	1	Mobile Salad Counter			1"	F.D.					14-20P	2850 W	13.70 A	208 V	1	Plugs into Item# S4
5.1	1	Water Dispenser									5-15P	360 W	3.00 A	120 V	1	Plugs into Item# S5
6	1	Milk Cooler									5-15P	324 W	2.70 A	120 V	1	Plugs into Item# S5
7	1	Mobile Cashier Counter								D.R.	5-15P	1200 W	10.00 A	120 V	1	(2) Data Cable Required
7.1	1	P.O.S.									5-15P		4.00 A	120 V	1	N.I.C.; By Owner; Plugs into Item# S7



1 KITCHEN LAYOUT @ 1st FLOOR
A940 SCALE: 1/4" = 1'-0"



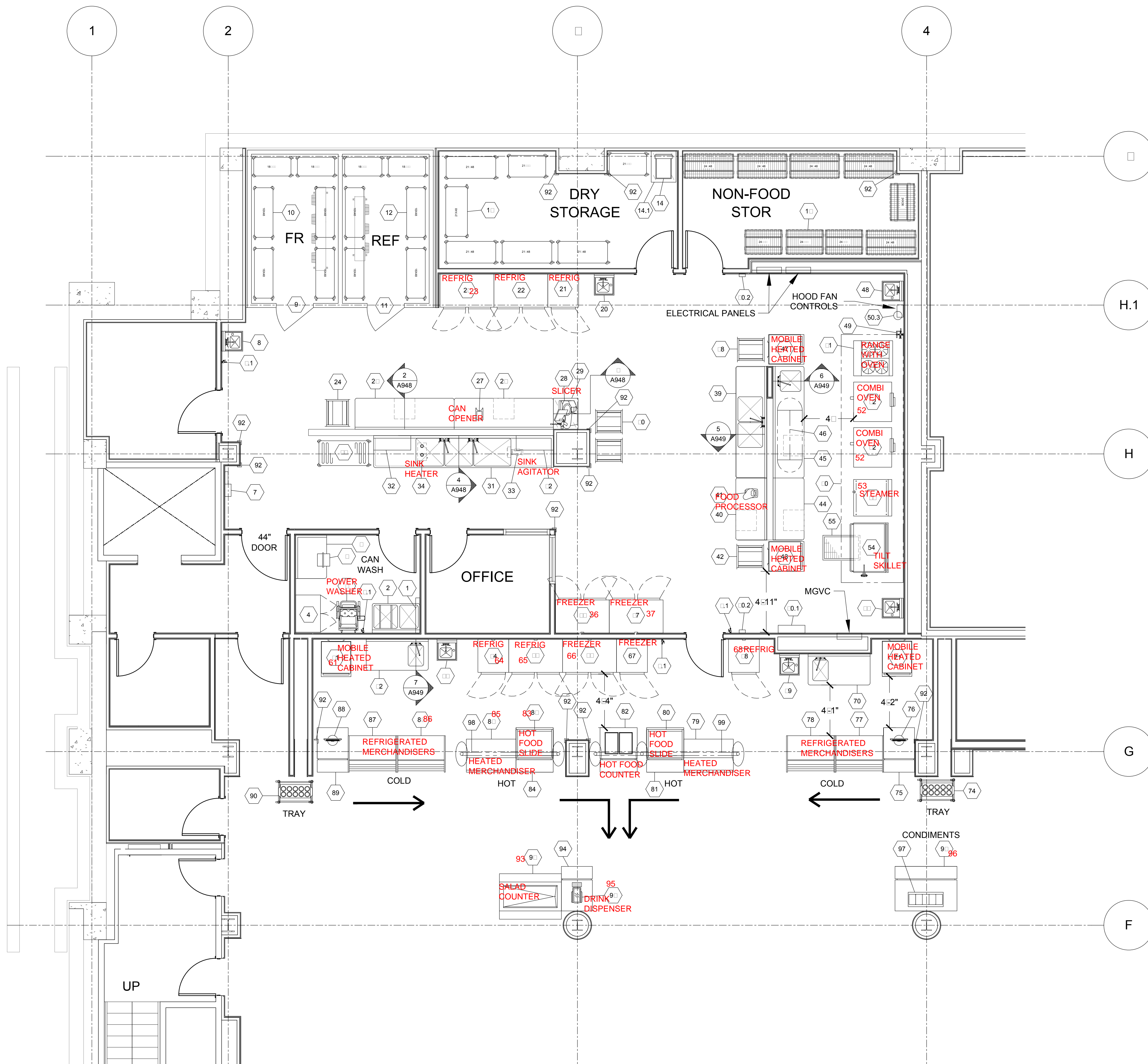
2 CELLAR PART PLAN
- NON- FOOD AND FOOD STORAGE
A940 SCALE: 1/4" = 1'-0"

SYMBOL & ABBREVIATION SCHEDULE				GENERAL NOTES	
PLUMBING — HEATING		ELECTRICAL		<p>THIS PLAN IS AN INSTRUMENT OF SERVICE PREPARED FOR THE CONVENIENCE OF THE ARCHITECT, MECHANICAL AND ELECTRICAL ENGINEERS AND BIDDERS. IT IS AS ACCURATE AS CAN BE DETERMINED AT THIS DATE. WE WILL NOT BE RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY DEVELOP BETWEEN LOCATIONS OF CONNECTIONS SHOWN AND ACTUAL LOCATIONS OF CONNECTIONS OF FIXTURES FURNISHED.</p> <p>WHERE POSSIBLE, AND FOR FIXTURES LOCATED IN FLOOR DEPRESSIONS OR DRIP PANS, ROUGHING FOR CONNECTIONS TO THE FIXTURES SHOULD COME OUT OF WALL OR PARTITION AT REAR. KITCHEN EQUIPMENT CONTRACTOR WILL FURNISH DIMENSIONED PLANS. CONNECTIONS SHOWN ARE APPROXIMATE LOCATIONS ON FIXTURES (EXCEPT WHERE OTHERWISE NOTED) AND ALLOWANCES MUST BE MADE FOR TRAPS, VALVES, SWITCHES OR OTHER CONNECTION REQUIREMENTS. LOCATIONS OF CONNECTIONS ON FIXTURES ARE MEASURED FROM FINISHED FLOORS, WALLS OR COLUMNS.</p> <p>NOTE: 120 VOLT CONVENIENCE OUTLETS NOT MOUNTED ON FOOD SERVICE EQUIPMENT ARE NOT SHOWN ON THIS SCHEDULE. (ELECTRICAL ENGINEER TO INDICATE CONVENIENCE OUTLETS REQUIRED BY CODE)</p>	
H.C.	● HOT WATER, COLD WATER	E.O.	■ ELECTRICAL CONNECTION		
	⊙ INTERPIPE / INTER-CONNECTION		□ JUNCTION BOX / INTER-CONNECTION		
G	● GAS	S.R.	⬢ SINGLE RECEPTACLE		
S	⊙ STEAM SUPPLY	D.R.	⬢ DUPLEX RECEPTACLE		
R	⊙ STEAM RETURN	C.O.	⬢ CONVENIENCE OUTLET		
W	⊙ WASTE	SW	⬢ SWITCH		
I.W.	○ INDIRECT WASTE		⬢ REMOTE MANUAL FIRE PULL		
F.D.	⬢ FLOOR DRAIN		⬢ ELECTRICAL LIGHT		
F.S	⬢ FLOOR SINK	kW	KILOWATT		
F.F.D.	⬢ FUNNEL FLOOR DRAIN	HP	MOTOR HORSEPOWER		
B.T.U.	BRITISH THERMAL UNIT	BHP	BOILER HORSEPOWER		
CONTRACTORS		MATERIALS			
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR	S/S	STAINLESS STEEL		
G.C.	GENERAL CONTRACTOR	GALV.	GALVANIZED IRON		
P.C.	PLUMBING CONTRACTOR	C.P.	CHROMIUM PLATED		
E.C.	ELECTRICAL CONTRACTOR	MISCELLANEOUS			
HVAC	HEATING & VENTILATION CONTRACTOR	A.F.F.	ABOVE FINISHED FLOOR		
N.I.C.	NOT IN CONTRACT	D.F.A.	DOWN FROM ABOVE		
		B.T.C.	BRANCH TO CONNECTION		

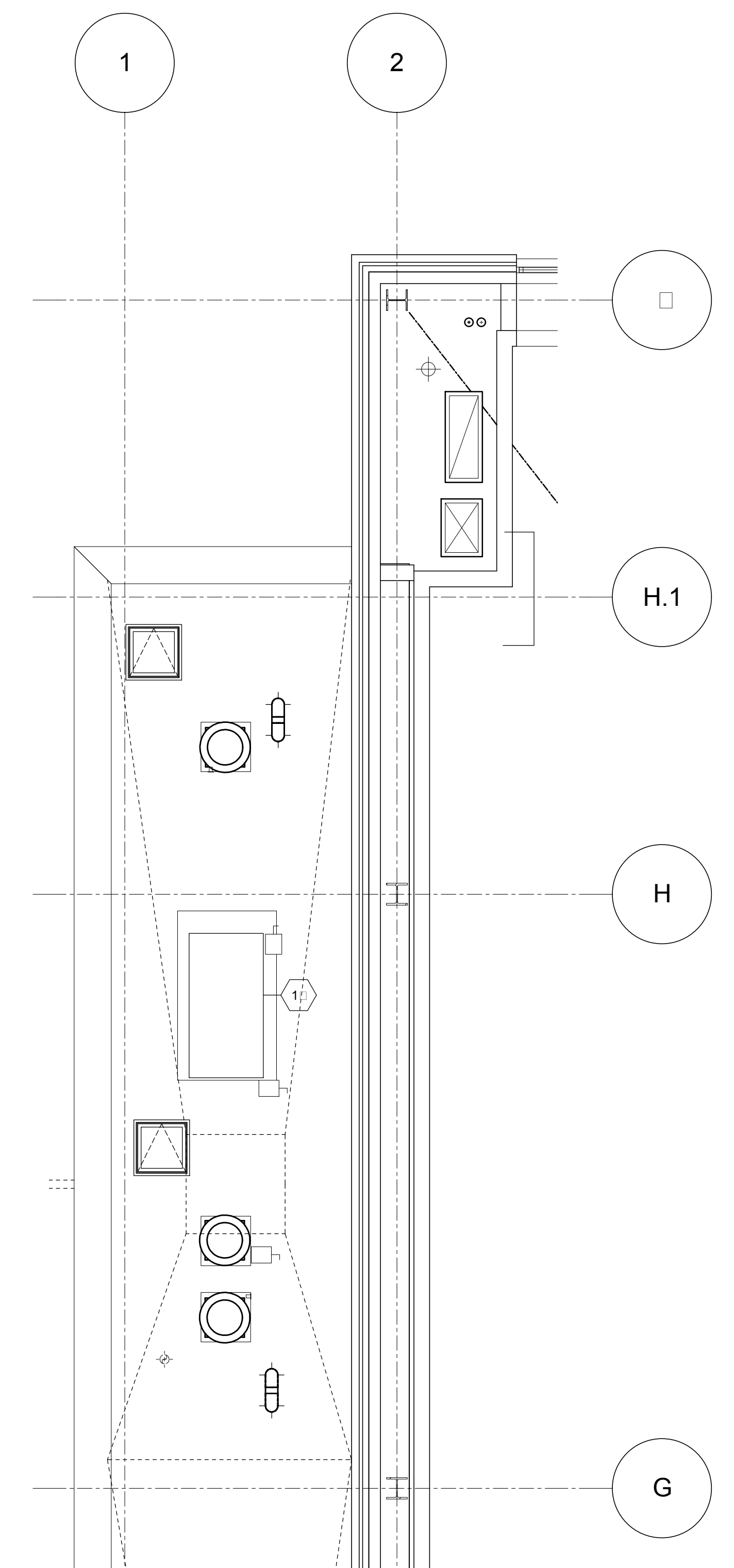
EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	HOT WATER SIZE (IN)	COLD WATER SIZE (IN)	DIRECT DRAIN SIZE (IN)	INDIR DRAIN SIZE (IN)	GAS SIZE (IN)	MBTUH	HVAC EXHAUST CFM	HVAC MAKE-UP CFM	HP	KW	AMPS	DIRECT PLUG	VOLTS	PHASE	EQUIPMENT REMARKS
1	1	MOP RACK															
2	1	CAN WASH/MOP SINK	2)1/2	2)1/2		2)2											I.W. TO F.S.
3	1	MOBILE POWER WASHER															
3.1	3	POWER WASH STATION		3/4							2		16.0	X	120	1	DEDICATED CIRCUIT
4	1	MOBILE DETERGENT STORAGE CABINET															
5	1	WORK TABLE											15.0	X	120	1	
6	1	CAN CRUSHER															
7	1	TIME CLOCK AND CARD RACK											15.0	X	120	1	BY E.C. UNDER DIVISION 16
8	1	HAND SINK	1/2	1/2	1-1/2												INCLUDED IN SECTION 15440 SPEC.
8.1	1	LIQUID SOAP DISPENSER															INCLUDED IN SECTION 10810 SPEC.
8.2	1	PAPER TOWEL DISPENSER															INCLUDED IN SECTION 10810 SPEC.
9	1	WALK-IN FREEZER (-10')											11.6	X	120	1	E.O. FOR LTS., VISION PORT, TEMP ALARM, DOOR HTR. & P.R.P.
9.1	2	BLOWER COIL				3/4							15.5	X	208	1	I.W. TO F.D.
9.2	2	CONDENSER									3		15.0	X	120/208	3	W/FILP FLOP
9.3	2	DRAIN LINE HEAT TRACE												X			BY E.C. UNDER DIVISION 16
10	LOT	MOBILE WALK-IN SHELIVING															
11	1	WALK-IN REFRIGERATOR (+35')											10.0	X	120	1	E.O. FOR LTS., VISION PORT & TEMP ALARM
11.1	2	BLOWER COIL				3/4							3.0	X	120	1	I.W. TO F.D.
11.2	2	CONDENSER									1		15.0	X	120/208	1	W/FLIP FLOP
12	LOT	MOBILE WALK-IN SHELIVING															
13	1	REFRIGERATION RACK SYSTEM											23.3	X	120/208	3	LOCATION TBD
14	1	RECEIVING SCALE															
14.1	1	MOBILE STAND															
15	LOT	MOBILE STORAGE SHELIVING															
16	LOT	DUNNAGE RACKS (DRY)															
17	LOT	DUNNAGE RACKS (WET)															
18	-	SPARE NUMBER															
19	-	SPARE NUMBER															
20	1	WORK TABLE											15.0	X	120	1	C.O.
20.1	1	WORK TABLE															
21	5	OVERSHELF															
22	1	WORK TABLE											15.0	X	120	1	C.O.
23	1	PREP TABLE W/ SINKS	3/4	3/4		2)2							15.0	X	120	1	I.W. TO F.S.
24	-	SPARE NUMBER															
24.1	-	SPARE NUMBER															
25	-	SPARE NUMBER															
26	1	WORK TABLE											15.0	X	120	1	C.O.
27	1	CAN OPENER											1.2	X	120	1	
28	1	FOOD PROCESSOR									1		15.0	X	120	1	
29	1	WORK TABLE											15.0	X	120	1	C.O.
30	1	SLICER											15.0	X	120	1	
31	1	MOBILE SLICER STAND															
32	4	MOBILE PAN RACKS															
33	1	REACH-IN REFRIGERATOR											8.2	X	120	1	
34	1	REACH-IN FREEZER											15.7	X	120	1	
35	1	HAND SINK	1/2	1/2	1-1/2												INCLUDED IN SECTION 15440 SPEC.
35.1	1	LIQUID SOAP DISPENSER															INCLUDED IN SECTION 10810 SPEC.
35.2	1	PAPER TOWEL DISPENSER															INCLUDED IN SECTION 10810 SPEC.
36	2	REACH-IN REFRIGERATOR											8.2	X	120	1	
37	2	REACH-IN FREEZER											15.7	X	120	1	
38	1	POT WASH SINK	2)3/4	2)3/4		3)2											I.W. TO F.S.
38.1	-	SPARE NUMBER															
39	2	SLOTTED OVERSHELVES											5.6	X	120	1	
40	1	SINK AGITATOR															
41	1	SINK HEATER				3/4						9.0		X	208	3	I.W. TO F.S.

[illegible]



1 CELLAR - FOOD SERVICE LAYOUT PLAN
 SCALE: 1/4" = 1'-0"



2 THIRD FLOOR - FOOD SERVICE LAYOUT PLAN
 SCALE: 1/4" = 1'-0"



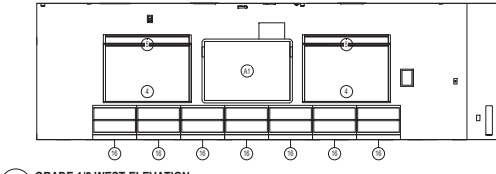
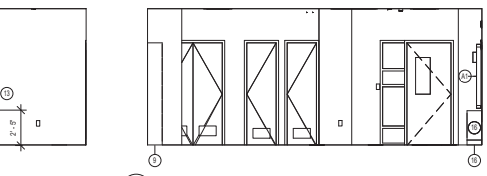
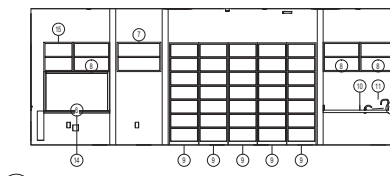
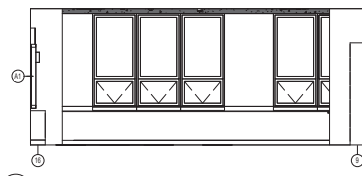
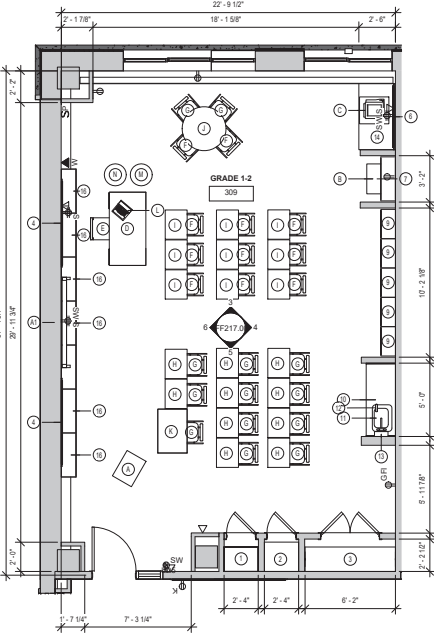
SYMBOL & ABBREVIATION SCHEDULE				GENERAL NOTES			
PLUMBING – HEATING		ELECTRICAL		<p>THIS PLAN IS AN INSTRUMENT OF SERVICE PREPARED FOR THE CONVENIENCE OF THE ARCHITECT, MECHANICAL AND ELECTRICAL ENGINEERS AND BIDDERS. IT IS AS ACCURATE AS CAN BE DETERMINED AT THIS DATE. WE WILL NOT BE RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY DEVELOP BETWEEN LOCATIONS OF CONNECTIONS SHOWN AND ACTUAL LOCATIONS OF CONNECTIONS OF FIXTURES FURNISHED.</p> <p>WHERE POSSIBLE, AND FOR FIXTURES LOCATED IN FLOOR DEPRESSIONS OR DRIP PANS, ROUGHING FOR CONNECTIONS TO THE FIXTURES SHOULD COME OUT OF WALL OR PARTITION AT REAR. KITCHEN EQUIPMENT CONTRACTOR WILL FURNISH DIMENSIONED PLANS. CONNECTIONS SHOWN ARE APPROXIMATE LOCATIONS ON FIXTURES (EXCEPT WHERE OTHERWISE NOTED) AND ALLOWANCES MUST BE MADE FOR TRAPS, VALVES, SWITCHES OR OTHER CONNECTION REQUIREMENTS. LOCATIONS OF CONNECTIONS ON FIXTURES ARE MEASURED FROM FINISHED FLOORS, WALLS OR COLUMNS.</p> <p>NOTE: 120 VOLT CONVENIENCE OUTLETS NOT MOUNTED ON FOOD SERVICE EQUIPMENT ARE NOT SHOWN ON THIS SCHEDULE. (ELECTRICAL ENGINEER TO INDICATE CONVENIENCE OUTLETS REQUIRED BY CODE)</p>			
H.C.	● HOT WATER, COLD WATER	E.O.	■ ELECTRIC CONNECTION				
○	INTERPIPE / INTER-CONNECTION	□	JUNCTION BOX / INTER-CONNECTION				
G	● GAS	S.R.	■ SINGLE RECEPTACLE				
S	● STEAM SUPPLY	D.R.	■ DUPLEX RECEPTACLE				
R	● STEAM RETURN	C.O.	■ CONVENIENCE OUTLET				
W	● WASTE	SW	■ SWITCH				
I.W.	○ INDIRECT WASTE	□	REMOTE MANUAL FIRE PULL				
F.D.	■ FLOOR DRAIN	◇	ELECTRIC LIGHT				
F.S.	■ FLOOR SINK	KW	KILOWATT				
F.F.D.	■ FUNNEL FLOOR DRAIN	HP	MOTOR HORSEPOWER				
B.T.U.	■ BRITISH THERMAL UNIT	BHP	BOILER HORSEPOWER				
CONTRACTORS		MATERIALS					
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR	S/S	STAINLESS STEEL				
G.C.	GENERAL CONTRACTOR	GALV.	GALVANIZED IRON				
P.C.	PLUMBING CONTRACTOR	C.P.	CHROMIUM PLATED				
E.C. ELECTRICAL CONTRACTOR		MISCELLANEOUS					
HVAC	HEATING & VENTILATION CONTRACTOR	A.F.F.	ABOVE FINISHED FLOOR				
N.I.C.	NOT IN CONTRACT	D.F.A.	DOWN FROM ABOVE				
		B.T.C.	BRANCH TO CONNECTION				

EQUIPMENT SCHEDULE																	
ITEM NO	QTY	EQUIPMENT CATEGORY	HOT WATER SIZE (IN)	COLD WATER SIZE (IN)	DIRECT DRAIN SIZE (IN)	INDIR DRAIN SIZE (IN)	GAS SIZE (IN)	MBTUH	HVAC EXHAUST CFM	HVAC MAKE-UP CFM	HP	KW	AMPS	DIRECT PLUG	VOLTS	PHASE	EQUIPMENT REMARKS
1	1	MOP RACK															
2	1	CAN WASH/MOP SINK	2)1/2	2)1/2		2)2											I.W. TO F.S.
3	1	MOBILE POWER WASHER															
3.1	4	POWER WASH STATION		1/2									12.0	X	120	1	
4	1	MOBILE DETERGENT STORAGE CABINET															
5	1	WORK TABLE (3'-6")															
6	1	CAN CRUSHER															
7	1	TIME CLOCK RECORDER W/ CARD RACKS											15.0	X	120	1	BY E.C.; SECTION 16791
8	1	HAND SINK	1/2	1/2	1-1/2												
8.1	1	LIQUID SOAP DISPENSER															LOCATED ABOVE HAND SINK
8.2	1	PAPER TOWEL DISPENSER															LOCATED ABOVE HAND SINK
9	1	WALK-IN FREEZER (-10')											10.0	X	120	1	E.O. FOR LTS., VISION PORT, TEMP ALARM, DOOR HTR. & P.R.P.
9.1	1	BLOWER COIL				3/4							11.9	X	208	1	I.W. TO F.D.
9.2	1	FLIP-FLOP CONTROLLER											15.0	X	120	1	
9.3	1	DRAIN LINE HEAT TRACE															BY E.C. UNDER DIVISION 16; POWERED BY ITEM# 9.1
10	LOT	MOBILE WALK-IN SHELVING															
11	1	WALK-IN REFRIGERATOR (+35')											10.0	X	120	1	E.O. FOR LTS., VISION PORT & TEMP ALARM
11.1	1	BLOWER COIL				3/4							1.8	X	120	1	I.W. TO F.D.
11.2	1	FLIP-FLOP CONTROLLER											15.0	X	120	1	
12	LOT	MOBILE WALK-IN SHELVING															
13	1	REFRIGERATION RACK SYSTEM											23.3	X	208	3	
14	1	RECEIVING SCALE															
14.1	1	MOBILE STAND															
15	LOT	MOBILE STORAGE SHELVING															
16	LOT	DUNNAGE RACKS (DRY)															
17	-	SPARE NUMBER															
18	-	SPARE NUMBER															
19	-	SPARE NUMBER															
20	1	HAND SINK	1/2	1/2	1-1/2												
20.1	1	LIQUID SOAP DISPENSER															LOCATED ABOVE HAND SINK
20.2	1	PAPER TOWEL DISPENSER															LOCATED ABOVE HAND SINK
21	1	REACH-IN REFRIGERATOR											7.0	X	120	1	
22	1	REACH-IN REFRIGERATOR											8.2	X	120	1	
23	1	REACH-IN REFRIGERATOR											8.2	X	120	1	
24	1	MOBILE PAN RACK															
25	1	WORK TABLE (8'-0")											15.0	2	120	1	C.O.
26	1	WORK TABLE (8'-0")											15.0	X	120	1	C.O.
27	1	CAN OPENER											1.2	X	120	1	
28	1	SLICER											6.0	X	120	1	
29	1	MOBILE SLICER STAND															
30	2	MOBILE PAN RACKS															
31	1	POT WASH SINK (14'-6")	2)3/4	2)3/4		3)2											I.W. TO F.S.
32	2	SLOTTED OVERSHELVES (3'-0")															
33	1	SINK AGITATOR											5.6	X	120	1	
34	1	SINK HEATER				3/4						9.0		X	208	3	I.W. TO F.S.
35	1	MOBILE POT RACKS															
36	1	REACH-IN FREEZER											15.7	X	120	1	
37	1	REACH-IN FREEZER											15.7	X	120	1	
38	1	MOBILE PAN RACKS															
39	1	PREP TABLE W/ SINKS (9'-0")	1/2	1/2		2											I.W. TO F.S.
40	1	WORK TABLE (5'-0")															
41	1	FOOD PROCESSOR											5.6	X	120	1	
42	1	MOBILE PAN RACKS															
43	1	MOBILE HEATED CABINET										1.5	12.0	X	120	1	
44	1	WORK TABLE (5'-0")											15.0	X	120	1	C.O.
45	1	COOK'S TABLE W/ SINK (9'-0")	1/2	1/2		2							15.0	X	120	1	I.W. TO F.S.; C.O.
46	1	UTENSIL RACK (6'-0")															
47	1	MOBILE HEATED CABINET										1.5	12.0	X	120	1	
48	1	HAND SINK	1/2	1/2	1-1/2												
48.1	1	LIQUID SOAP DISPENSER															LOCATED ABOVE HAND SINK
48.2	1	PAPER TOWEL DISPENSER															LOCATED ABOVE HAND SINK
49	1	POT FILLER		1/2													
50	1	VENTILATOR HOOD (20'-0" X 5'-0")							5000				10.0	X	120	1	
50.1	1	HOOD FIRE SUPPRESSION SYSTEM											15.0	X	120	1	DEDICATED CIRCUIT
50.2	2	MANUAL PULL STATIONS															
50.3	1	CLASS K FIRE EXTINGUISHER															
51	1	4-BURNER RANGE W/ OVEN					3/4	180					15.0	X	120	1	E.O. FOR SOLENOID VALVE
52	2	DBL. DECK CONVECTION OVENS					2)3/4	55					6.0	2	120	1	
53	1	STEAMER		2)1/4		1-1/2	3/4	200				0.1		X	120	1	I.W. TO F.S.
54	1	TILT SKILLET	1/2	1/2			3/4	130					1.8	X	120	1	
55	1	FLOOR TROUGH W/ GRATING (24" X 36")				3-1/2											WASTE IN DEPRESSION
56	1	HAND SINK	1/2	1/2	1-1/2												
56.1	1	LIQUID SOAP DISPENSER															LOCATED ABOVE HAND SINK
56.2	1	PAPER TOWEL DISPENSER															LOCATED ABOVE HAND SINK
57	-	SPARE NUMBER															
58	-	SPARE NUMBER															
59	-	SPARE NUMBER															
60	-	SPARE NUMBER															
61	1	MOBILE HEATED CABINET										1.5	12.0	X	120	1	
62	1	WORK TABLE W/ SINK (5'-0")	1/2	1/2		2											I.W. TO F.S.
63	1	HAND SINK	1/2	1/2	1-1/2												
63.1	1	LIQUID SOAP DISPENSER															LOCATED ABOVE HAND SINK
63.2	1	PAPER TOWEL DISPENSER															LOCATED ABOVE HAND SINK
64	1	REACH-IN REFRIGERATOR											7.0	X	120	1	
65	1	REACH-IN REFRIGERATOR											8.2	X	120	1	
66	1	REACH-IN FREEZER											15.7	X	120	1	
67	1	REACH-IN FREEZER											9.4	X	120	1	

EQUIPMENT SCHEDULE																	
ITEM NO	QTY	EQUIPMENT CATEGORY	HOT WATER SIZE (IN)	COLD WATER SIZE (IN)	DIRECT DRAIN SIZE (IN)	INDIR DRAIN SIZE (IN)	GAS SIZE (IN)	MBTUH	HVAC EXHAUST CFM	HVAC MAKE-UP CFM	HP	KW	AMPS	DIRECT PLUG	VOLTS	PHASE	EQUIPMENT REMARKS
68	1	REACH-IN REFRIGERATOR											7.0	X	120	1	
69	1	HAND SINK	1/2	1/2	1-1/2												
69.1	1	LIQUID SOAP DISPENSER															LOCATED ABOVE HAND SINK
69.2	1	PAPER TOWEL DISPENSER															LOCATED ABOVE HAND SINK
70	1	WORK TABLE W/ SINK (5'-0")	1/2	1/2		2											I.W. TO F.S.
71	1	MOBILE HEATED CABINET										1.5	12.0	X	120	1	
72	-	SPARE NUMBER															
73	-	SPARE NUMBER															
74	1	MOBILE TRAY&SILVERWARE DISPENSER															
75	1	MOBILE CASHIER COUNTER (2'-6")											36.0	X	120	1	NEMA 5-50P PLUG
76	1	P.O.S. UNIT											10.0	X	120	1	N.I.C.; BY OWNER; DATA CABLE REQ.; PLUGS INTO ITEM# 75
77	1	MOBILE REFRIGERATED MERCHANDISER											13.0	X	120/208	1	PLUGS INTO ITEM# 75
78	1	MOBILE REFRIGERATED MERCHANDISER											13.0	X	120/208	1	PLUGS INTO ITEM# 75
79	1	HEATED MERCHANDISER											21.0	X	208	1	PLUGS INTO ITEM# 81
80	1	HOT FOOD SLIDE										2.0	8.5	X	120/208	1	PLUGS INTO ITEM# 81
81	1	MOBILE UTILITY COUNTER (3'-0")												X	120/208	1	PLUGS INTO ITEM# 82
82	1	MOBILE HOT FOOD COUNTER (3'-0")				1							35.6	X	120/208	1	I.W. TO F.D.; NEMA 14-50P PLUG
83	1	HOT FOOD SLIDE										2.0	8.5	X	120/208	1	PLUGS INTO ITEM# 84
84	1	MOBILE UTILITY COUNTER (3'-0")											30.8	X	120/208	1	NEMA 14-50P PLUG
85	1	HEATED MERCHANDISER											21.0	X	208	1	PLUGS INTO ITEM# 84
86	1	MOBILE REFRIGERATED MERCHANDISER											13.0	X	120/208	1	PLUGS INTO ITEM# 89
87	1	MOBILE REFRIGERATED MERCHANDISER											13.0	X	120/208	1	PLUGS INTO ITEM# 89
88	1	P.O.S. UNIT											10.0	X	120	1	N.I.C.; BY OWNER; DATA CABLE REQ.; PLUGS INTO ITEM# 89
89	1	MOBILE CASHIER COUNTER (2'-6")											36.0	X	120	1	NEMA 5-50P PLUG
90	1	MOBILE TRAY&SILVERWARE DISPENSER															
91	-	SPARE NUMBER															
92	11	CORNER GUARDS															
93	1	SELF SERVE SALAD BAR											7.0	X	120	1	
94	1	MOBILE UTILITY COUNTER (2'-6")											10.0	X	120	1	
95	1	WATER DISPENSER											3.3	X	120	1	PLUGS INTO ITEM# 94
96	1	MOBILE UTILITY COUNTER (5'-0")															
97	1	CONDIMENT DISPENSER															
98	1	MENU BOARD															
99	1	MENU BOARD															

Appendix E. Case Study School Furniture Plans for Key Spaces

- PS “A” in Brooklyn Furniture Plan
- IS “B” in Queens Furniture Plan
- HS “C” in Queens Furniture Plan



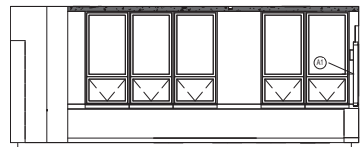
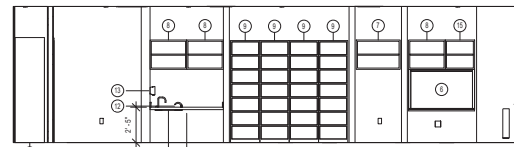
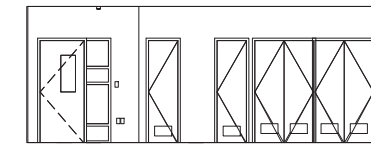
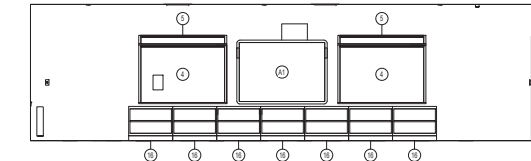
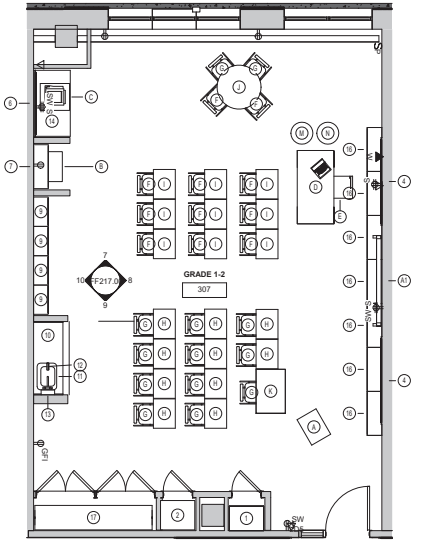
GRADE 1-2 CLASSROOM (307&309) - CPCI					
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC SECTION	QTY
1	CW550	STORAGE CLOSET W/ SHELVING	24" x 2'	056410	2
2	CW552	TEACHERS WARDROBE CLOSET	2' 4" x 2'	056410	2
3	CW553	STUDENTS WARDROBE CLOSET	2' 2" x 2' 2"	056410	1
4	CK047	MARKERBOARD	5' x 4'	101010	4
5	DB324	TACKBOARD	5' x 9' 2"	101010	4
6	DB102	DISPLAY BOARD	4' 8" x 2' 4"	101010	3
7	LC053	WALL HUNG SHELVES	36" x 24" x 24"	056410	2
8	LC010	WALL HUNG SHELVES	36" x 24" x 24"	056410	6
9	BS219	BOOKSHELF UNIT - 4 SHELVES	1' x 6' x 5'	056410	5
10	CTP01	COUNTERTOP SINK	55" x 24"	056410	2
11	SK114	SINK & DRINKING FOUNTAIN (BARRIER FREE)	19" x 16" x 4 1/2"	115440	2
12	LE055	LIQUID SOAP DISPENSER (COUNTERTOP MTD)	13" x 10"	115810	2
13	LE053	PAPER TOWEL DISPENSER, SURFACE MTD.	11" x 7" x 4"	115810	2
14	CTP01	COUNTERTOP COMPUTER	4' 4" x 36"	056410	2
15	LC011	WALL HUNG SHELVES	24" x 12" x 24"	056410	2
16	CW552	OPEN SHELF W/ LAMINATED TOP	36" x 24" x 28"	056410	14
17	CW553	STUDENTS WARDROBE CLOSET	2' 2" x 2' 2"	056410	1

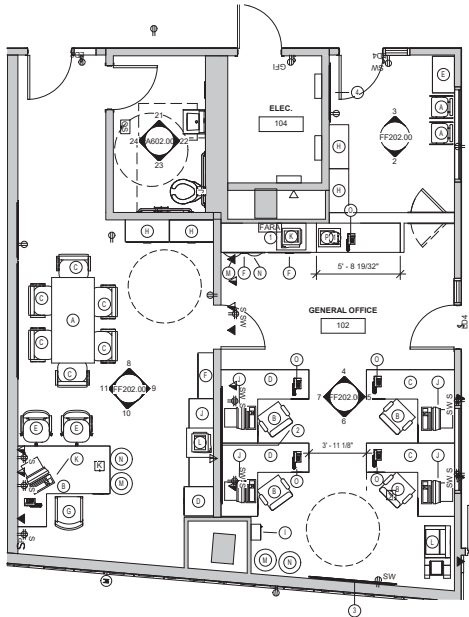
GRADE 1-2 CLASSROOM (307&309) - OPCI					
OWNER PROVIDED AND CONTRACTOR INSTALLED ITEMS					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC SECTION	QTY
A1	CK059	INTERACTIVE WHITEBOARD (IWB)	73 1/2" x 52"		1

GRADE 1/2 CLASSROOM (307&309) - OPOI					
OWNER PROVIDED AND INSTALLED ITEMS					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC SECTION	QTY
A	AF034	EASEL (OAK)			2
B	-	LAPTOP CHARGING CART	24 1/2" x 23 1/2" x 42"		2
C	CK020	PRINTER W/ SD			2
D	CK025	DOUBLE RESEAL DESK	60" x 36"		2
E	CH008	SIDE CHAIR, WOOD	18" x 20" x 24"		2
F	CH020A	CHAIR, STUDENT	15" x 20" x 18" S.H.		22
G	CH020B	CHAIR, STUDENT	18" x 21" x 18" S.H.		26
H	DR016	DESK, STUDENT	24" x 18" x 24"		20
I	DR018	DESK, STUDENT	24" x 18" x 24"		18
J	TB045	TABLE (ROUND)	36" DIA. ADJ. HT. 22-30"		2
K	TB033A	UTILITY TABLE (ADJ.)	36" x 24" x 22" x 30"		2
L	CK011	LAPTOP			100
M	UE001	RECYCLE CAN			2
N	UE005	GARBAGE CAN			2

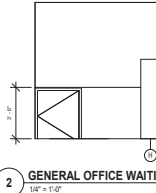
FURNITURE AND FIXTURE NOTES

1. FINAL QUANTITIES OF OWNER PROVIDED ITEMS SUBJECT TO FINAL OWNER APPROVAL.
2. FURNITURE AND FIXTURE LOCATIONS FROM THE DISABLED SHALL COMPLY WITH REQUIREMENTS FROM THE AMERICANS WITH DISABILITIES ACT (ADA) (ADA 2010), NYC BUILDING CODE CHAPTER 11, BC 1007, AND ICC A 117.1.
3. REFER TO A-130 PARTITION DRAWINGS FOR ROOM MEASUREMENTS

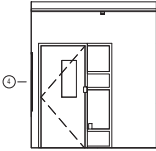




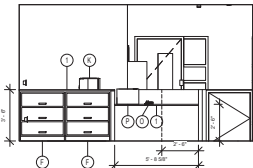
1 GENERAL OFFICE - WAITING ROOM NORTH ELEV
1/4" = 1'-0"



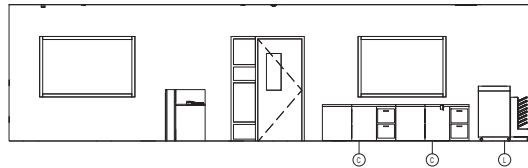
2 GENERAL OFFICE WAITING ROOM SOUTH ELEV
1/4" = 1'-0"



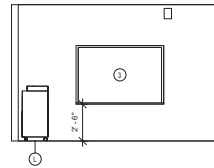
3 GENERAL OFFICE NORTH ELEV. 1
1/4" = 1'-0"



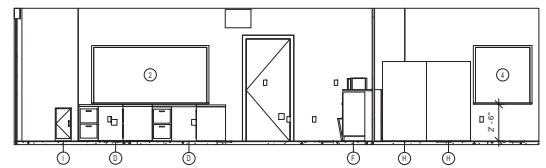
4 GENERAL OFFICE NORTH ELEV
1/4" = 1'-0"



5 GENERAL OFFICE EAST ELEV
1/4" = 1'-0"



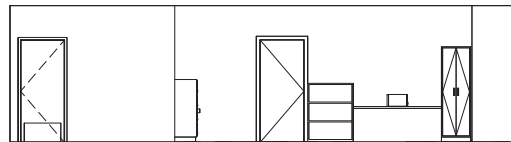
6 GENERAL OFFICE SOUTH ELEV
1/4" = 1'-0"



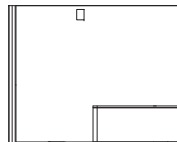
7 GENERAL OFFICE WEST ELEV
1/4" = 1'-0"



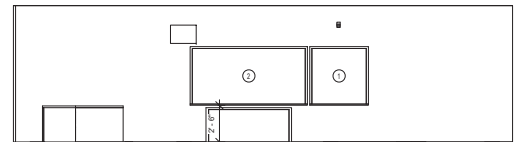
8 PRINCIPAL'S OFFICE NORTH ELEV
1/4" = 1'-0"



9 PRINCIPAL'S OFFICE EAST ELEV
1/4" = 1'-0"



10 PRINCIPAL'S OFFICE SOUTH ELEV
1/4" = 1'-0"



11 PRINCIPAL'S OFFICE WEST ELEV
1/4" = 1'-0"

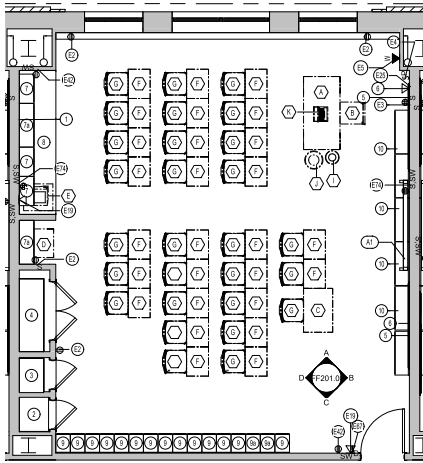
GENERAL OFFICE AND PRINCIPAL'S OFFICE - CPCI					
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC SECTION	QTY
GENERAL OFFICE					
1	CTP01	COUNTERTOP-SINK	60"x20"		2
2	DB01	TACKBOARD	6x4'	10/100	1
3	DB03	TACKBOARD	6x4'	10/100	1
4	DB07	DISPLAY BOARD	6x4'	10/100	1
PRINCIPAL'S OFFICE					
1	DB07	DISPLAY BOARD	6x4'	10/100	1
2	MB08	DRY MARKER BOARD	6x4'	10/100	1

GENERAL OFFICE AND PRINCIPAL'S OFFICE - OPCI					
OWNER PROVIDED AND CONTRACTOR INSTALLED ITEMS					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC SECTION	QTY

GENERAL OFFICE AND PRINCIPAL'S OFFICE - OPOI					
OWNER PROVIDED AND INSTALLED ITEMS					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC SECTION	QTY
GENERAL OFFICE					
A	CH008	CHAIR STUDENT	19"x21"x18" SH	B	5
B	CH030	CHAIR/COMPUTER TABLE	30 1/2" x 36 3/4" x 4 1/2" SH S.H.	A	4
C	DB029	DESK/LEFT PEDESTAL RT RETURN	36"x24"x36" 1/2"	2	
D	DB028	DESK/RIGHT PEDESTAL LT RETURN	36"x24"x36" 1/2"	2	
E	DB033A	UTILITY TABLE (ADJ)	36"x24"x27" 3/4"	1	
F	FL023	FILE 3 DRAWER LATERAL/LEGAL	36" x 18" x 40 1/8"	2	
H	CB105	CABINET/MAIL SORTING UNIT	70 1/4"x30 3/4"x78"	2	
I	CB006	KEY STORAGE CABINET	12"x7 7/8"x27"	1	
J	CN010	COMPUTER W/ SECURITY DEVICE	-	4	
K	CN020	PRINTER W/ SD	-	1	
L	PC008	PHOTOCOPIER/LOW - VOLUME	-	1	
M	UE009	GARBAGE CAN	-	1	
N	UE001	RECYCLE CAN	-	2	
O	TE011	TELEPHONE (DESK MTD)	-	5	
P	TE014	TELEPHONE FAX MACHINE W/ PLAIN PAPER	-	1	
PRINCIPAL'S OFFICE					
A	TB306	CONFERENCE TABLE (RECT TOP)	70"x39"x30 1/2"	1	
B	CH011	PRINCIPAL'S DESK W/ RETURN	-	1	
C	CH039A	CHARARM CHAIR	24"x22"x36" 3/8"	9	
D	CB009L	WARDROBE CABINET	24"x24"x78"	1	
E	CH046	CHAIR SWIVEL ARAMWOOD	24"x24"x18"	2	
F	LI005	LIBRARY SHELVING STARTER UNIT	37 3/8"x12 3/4"x42"	1	
G	CH012	CHAR/DECUITVE W/ ARMS	-	1	
H	FL024	FILE 4 DRAWER LATERAL	36" x 18" x 51 1/8"	2	
J	CR001	CHREDENZA/FULL STG WITH SERVING MOD.	72" x 20" x 29 1/2"	1	
K	CN010	COMPUTER W/ SECURITY DEVICE	-	1	
L	CN020	PRINTER W/ SD	-	1	
M	UE009	GARBAGE CAN	-	1	
N	UE001	RECYCLE CAN	-	1	
O	TE011	TELEPHONE (DESK MTD)	-	1	

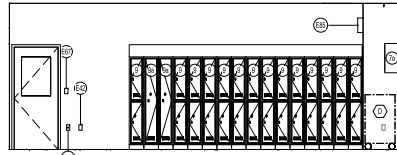
FURNITURE AND FIXTURE NOTES

1. FINAL QUANTITIES OF OWNER PROVIDED ITEMS SUBJECT TO FINAL OWNER APPROVAL.
2. FURNITURE AND FIXTURE LOCATIONS FOR THE DISABLED SHALL COMPLY WITH REQUIREMENTS FROM THE AMERICANS WITH DISABILITIES ACT (ADA) (ADA 2010), NYC BUILDING CODE CHAPTER 11, BC 1007, AND ICC A 117.1.
3. REFER TO A-130 PARTITION DRAWINGS FOR ROOM MEASUREMENTS.

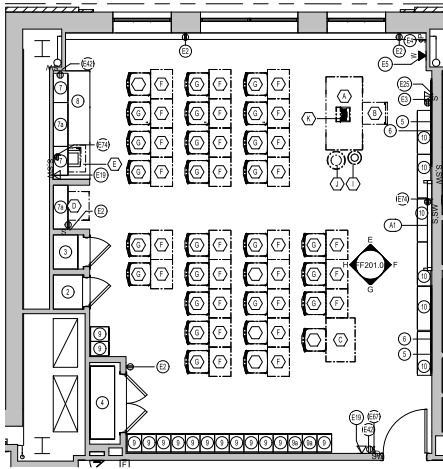
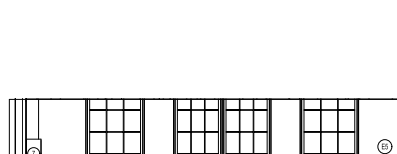


1 ROOM 209 CLASSROOM PLAN
1/4" = 1'-0"

A ELEVATION
1/4" = 1'-0"

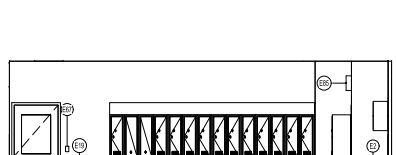


C ELEVATION
1/4" = 1'-0"

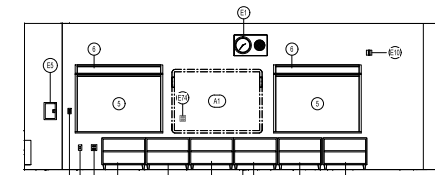


2 ROOM 211 CLASSROOM PLAN
1/4" = 1'-0"

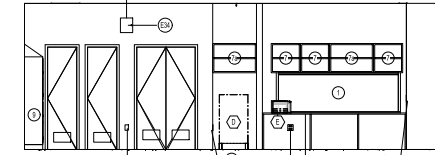
E ELEVATION
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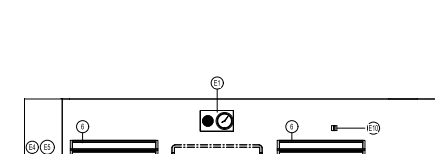
C ELEVATION
1/4" = 1'-0"



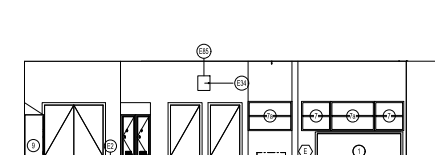
B ELEVATION
1/4" = 1'-0"



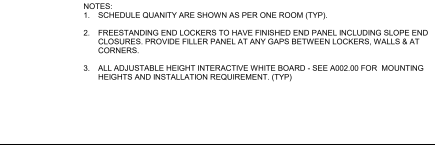
D ELEVATION
1/4" = 1'-0"



F ELEVATION
1/4" = 1'-0"



H ELEVATION
1/4" = 1'-0"



NOTES

- SCHEDULE QUANTITY ARE SHOWN AS PER ONE ROOM (TYP).
- FREESTANDING END LOCKERS TO HAVE FINISHED END PANEL INCLUDING SLOPE END CLOSURES. PROVIDE FILLER PANEL AT ANY GAPS BETWEEN LOCKERS, WALLS & AT CORNERS.
- ALL ADJUSTABLE HEIGHT INTERACTIVE WHITE BOARD - SEE A302.30 FOR MOUNTING HEIGHTS AND INSTALLATION REQUIREMENT. (TYP)

FURNITURE SCHEDULE_RM 209, 309 & 409

ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC. SECTION	QTY
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
1	DB14	DISPLAY BOARD	6' 6" x 2' 8"	16100	1
2	CW602	TEACHERS WARDROBE CLOSET	2' 6" x 2'	06410	1
3	CW600	STORAGE CLOSET - SHELVS	24" x 2'	06410	1
4	CW600	STORAGE CLOSET - SHELVS	6" x 2'	06410	1
5	CR047	CHALKBOARD	6' x 4'	10100	2
6	DB34	DISPLAY BOARD	6' x 6"	10100	2
7	UC011	WALL HUNG SHELVS	24" x 12" x 24"	06410	3
7a	UC011	WALL HUNG SHELVS	36" x 12" x 24"	06410	2
8	CTP11	COMPUTER COUNTERTOP	6' x 2' 6"	06410	1
9	FP12A	METAL LOCKER (TWO TIER)	12" x 15" x 72"	10050	14
9a	FP12	METAL LOCKER (ONE TIER)	12" x 15" x 72"	10050	2
10	CW600	OPEN SHELF W/ LAMINATED TOP	12" x 21" x 72"	10050	8
E1	CL001	COMBINATION ANALOG CLOCKSOUND SYSTEM SPEAKER	36" W/ 12" D 24" H	06410	8
E2	EL006	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED WITH SURGE SUPPRESSION	16700	1	16140
E3	EL039	QUADRI-PLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V SUBSCRIPT 'S' INDICATES WITH SURGE SUPPRESSION	16700	1	16140
E4	EL034	PHYSIOCAL-B-SWITCH FLUSH MOUNTED	16700	1	16700
E5	10502	TELEPHONE OUTLET FOR STANDARD WALL INSTRUMENT (WITH SINGLE JACK INSTALLED IN METAL LOCK BOX MOUNTED AT 4'-0" A.F.F.)	16700	1	16700
E10	EL083	FIRE SIGNAL STROKE	16700	1	16700
E19	EL038	DATA OUTLET WITH SINGLE JACK LABELLED 'DATA' MOUNTED AT 18" A.F.F.	16700	1	16700
E26	EL030	DUPLEX OUTLET LABELLED 'DATA & DATA'	16700	1	16700
E34	EL037	WIRELESS ACCESS POINT CABLE DROP	16700	1	16700
E38	EL029	DAYLIGHT HARVESTING SENSOR	16145	1	16145
E42	EL014	SWITCHED CONTROLLED DUPLEX OUTLET	16145	1	16145
E67	EL028	LOW VOLTAGE PUSH BUTTON SWITCH	16145	1	16145
E70	EL013	OCCUPANT SENSOR IN VACUANCY MODE (MANUAL ON) - AKA VACUANCY SENSOR - CEILING MOUNTED (V) INDICATES WITH SURGE SUPPRESSION	16145	1	16145
E74	EL040	SWITCHED CONTROLLED QUADRI-PLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V SUBSCRIPT 'S' INDICATES WITH SURGE SUPPRESSION	16140	2	16140
OWNER PROVIDED AND INSTALLED ITEMS					
A	DR020	DOUBLE PEDESTAL DESK	60" x 30"	1	1
B	CH006	SIDE CHAIR, WOOD	18" x 20" x 28" x 16" 18" S.H.	1	1
C	1B030A	UTILITY TABLE (ADJ)	36" x 24" x 22" 30"	1	1
D	LAPTOP CART			1	1
E	CN020	PRINTER W/ SD		1	1
F	DR019	DESK/STUDENT	24" x 18" x 30"	27	27
G	CH018	CHAIR W/ BOOKRACK	18" S.H.	28	28
I	JE145	WASTE RECEPTACLE	5 GALLON	1	1
J	JE000	GARBAGE CAN		1	1
K	CN011	LAPTOP		1	1
OWNER PROVIDED, CONTRACTOR INSTALLED ITEMS					
AT	CR059	INTERACTIVE WHITEBOARD (IWB)	75"	1	1
EB8	EL091	WIRELESS ACCESS POINT IN MEDIA ENCLOSURE	16700	1	16700

FURNITURE SCHEDULE_RM 211, 311 & 411

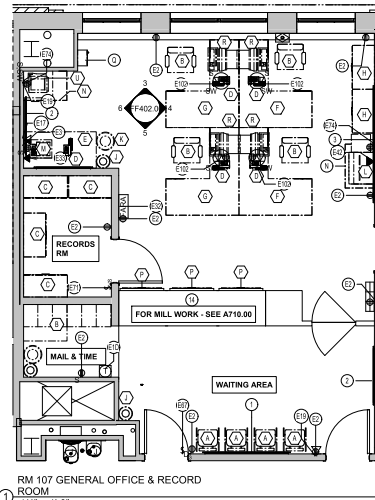
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC. SECTION	QTY
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
1	DB18	DISPLAY BOARD	6' x 2' 8"	16100	1
2	CW602	TEACHERS WARDROBE CLOSET	2' 6" x 2'	06410	1
3	CW600	STORAGE CLOSET - SHELVS	24" x 2'	06410	1
4	CW600	STORAGE CLOSET - SHELVS	6" x 2'	06410	1
5	CR047	CHALKBOARD	6' x 4'	10100	2
6	DB34	DISPLAY BOARD	6' x 6"	10100	2
7	UC011	WALL HUNG SHELVS	24" x 12" x 24"	06410	3
7a	UC011	WALL HUNG SHELVS	36" x 12" x 24"	06410	2
8	CTP11	COMPUTER COUNTERTOP	6' x 2' 6"	06410	1
9	FP12A	METAL LOCKER (TWO TIER)	12" x 15" x 72"	10050	14
9a	FP12	METAL LOCKER (ONE TIER)	12" x 15" x 72"	10050	2
10	CW600	OPEN SHELF W/ LAMINATED TOP	36" W/ 12" D 24" H	06410	8
E1	CL001	COMBINATION ANALOG CLOCKSOUND SYSTEM SPEAKER	16700	1	16700
E2	EL006	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED WITH SURGE SUPPRESSION	16700	1	16140
E3	EL039	QUADRI-PLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V SUBSCRIPT 'S' INDICATES WITH SURGE SUPPRESSION	16700	1	16140
E4	EL034	PHYSIOCAL-B-SWITCH FLUSH MOUNTED	16700	1	16700
E5	10502	TELEPHONE OUTLET FOR STANDARD WALL INSTRUMENT (WITH SINGLE JACK INSTALLED IN METAL LOCK BOX MOUNTED AT 4'-0" A.F.F.)	16700	1	16700
E10	EL083	FIRE SIGNAL STROKE	16700	1	16700
E19	EL038	DATA OUTLET WITH SINGLE JACK LABELLED 'DATA' MOUNTED AT 18" A.F.F.	16700	1	16700
E26	EL030	DUPLEX OUTLET LABELLED 'DATA & DATA'	16700	1	16700
E34	EL037	WIRELESS ACCESS POINT CABLE DROP	16700	1	16700
E38	EL029	DAYLIGHT HARVESTING SENSOR	16145	1	16145
E42	EL014	SWITCHED CONTROLLED DUPLEX OUTLET	16145	1	16145
E67	EL028	LOW VOLTAGE PUSH BUTTON SWITCH	16145	1	16145
E70	EL013	OCCUPANT SENSOR IN VACUANCY MODE (MANUAL ON) - AKA VACUANCY SENSOR - CEILING MOUNTED (V) INDICATES WITH SURGE SUPPRESSION	16145	1	16145
E74	EL040	SWITCHED CONTROLLED QUADRI-PLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V SUBSCRIPT 'S' INDICATES WITH SURGE SUPPRESSION	16140	2	16140
OWNER PROVIDED AND INSTALLED ITEMS					
A	DR020	DOUBLE PEDESTAL DESK	60" x 30"	1	1
B	CH006	SIDE CHAIR, WOOD	18" x 20" x 28" x 16" 18" S.H.	1	1
C	1B030A	UTILITY TABLE (ADJ)	36" x 24" x 22" 30"	1	1
D	LAPTOP CART			1	1
E	CN020	PRINTER W/ SD		1	1
F	DR019	DESK/STUDENT	24" x 18" x 30"	27	27
G	CH018	CHAIR W/ BOOKRACK	18" S.H.	28	28
I	JE145	WASTE RECEPTACLE	5 GALLON	1	1
J	JE000	GARBAGE CAN		1	1
K	CN011	LAPTOP		1	1
OWNER PROVIDED, CONTRACTOR INSTALLED ITEMS					
AT	CR059	INTERACTIVE WHITEBOARD (IWB)	75"	1	1
EB8	EL091	WIRELESS ACCESS POINT IN MEDIA ENCLOSURE	16700	1	16700

FURNITURE SCHEDULE_RM 107

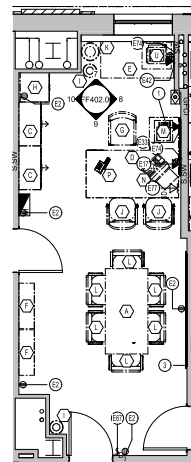
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC. SECTION	QTY
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
1	0806	DISPLAY BOARD	4x4	10100	1
2	0807	DISPLAY BOARD	4x4	10100	1
3	0821	DISPLAY BOARD	4x4	10100	1
14	CT001	COMBINATION ANALOG CLOCK/ROUND SYSTEM		08410	1
81	CL001	COMBINATION ANALOG CLOCK/ROUND SYSTEM		08410	1
82D	CL010	TIME RECORDER W/ CARD RACKS		16791	1
82	EL005	DUPLEX THREE WIRE GROUNDING RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED SAFETY TYPE		16140	9
83	EL009	QUADRIPLEX THREE WIRE GROUNDING RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED SAFETY TYPE		16140	1
810	EL063	FIRE SIGNAL STROBE		16720	1
819	EL006	DATA OUTLET WITH SINGLE JACK LABELED "DATA" MOUNTED AT 18" A.F.F.		16720	2
823	EL000	SHOCK DETECTOR		16720	1
823	EL114	FIRE ALARM REMOTE ANNUNCIATOR		16720	1
833	EL121	ADMINISTRATIVE CONTROL STATION OUTLET MOUNTED AT 18" A.F.F.		16770	1
838					
842	TE018	FAX OUTLET FOR STANDARD WALL INSTRUMENT		16720	2
844	EL044	INTRUSION ALARM PIRING SWITCH MOUNTED BEHIND PRINCIPAL'S DESK AT 3'0" A.F.F. AND UNDER FRONT DESK IN GENERAL OFFICE		16724	1
857	EL028	LOW VOLTAGE PUSH BUTTON SWITCH		16140	1
870	EL213	OCCUPANT SENSOR IN VACANCY MODE (MANUAL ON) AKA VACANCY SENSOR - CEILING MOUNTED (W/ INDICATES WALL MOUNTED)		16145	1
874	EL040	SWITCHED (CONTROLLED) QUADRIPLEX THREE WIRE GROUNDING RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED WITH SURGE SUPPRESSION		16140	2
8102	EL003	FLOOR FLUSH MOUNTED ONE-PIECE PRE-WIRED 1/2" BORE 81/16" Ø HOLE THROUGH W/ 20A DUPLEX RECEPTACLES & 20A DATA JACKS		16130	4
8708	EL044	VISUAL/AUDIBLE ANNUNCIATOR FOR THE HOLDING AREAS INTERCOM SYSTEM		16726	1

OWNER PROVIDED AND INSTALLED ITEMS					
A	CH008	CHAIR STUDENT	19"01"X19" SH		4
A	CH003	CHAIR/COMPUTER TABLE	20 1/2" X 26 3/4" X 16" SH SH		4
C	FL024	FILE 4 DRAWER LATERAL	36" X 18" X 51 1/8"		4
D	TE011	TELEPHONE (DESK MTD)			3
E	TE036	COMPUTER TABLE	60"X36"X28"		1
F	OK029	DESK/LEFT PEDESTAL, RT RETURN	60"X72"X28 1/2"		2
G	OK029	DESK/LEFT PEDESTAL, RT RETURN	60"X72"X28 1/2"		2
H	FL019	FILE 2 DRAWER LATERAL, WITH TOP	36" X 18" X 28"		2
J	UE045	WASTE RECEPTACLE	5 GALLON		3
K	UE030	GARBAGE CAN			1
L	PO011	CONSOL CONFERMED-VOL/LINE			1
M	TE014	TELEPHONE FAX MACHINE W/ PLAIN PAPER			1
N	TE058A	UTILITY TABLE JAGL	36"X24"X28 3/8"		2
P	FL025	FILE 3 DRAWER LATERAL W/ TOP	36" X 18" X 41 1/8" W/ TOP		3
Q	CH086	KEY STORAGE CABINET	15"X 7"X10"		1
R	CH010	COMPUTER W/ SECURITY DEVICE			4
U	CH020	PRINTER W/ SD			1

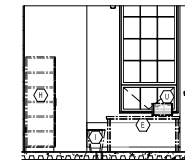
ITEM E10 (FLOOR FLUSH MOUNTED RECEPTACLE) HAS TO BE COORDINATE PRIOR TO SLAB POURING (TYP).



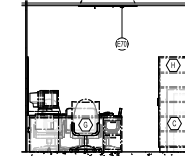
RM 107 GENERAL OFFICE & RECORD ROOM
1/4" = 1'-0"



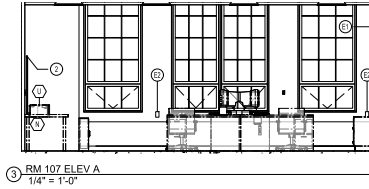
RM 105 PRINCIPAL'S OFFICE
1/4" = 1'-0"



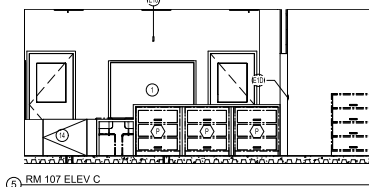
RM 105 ELEV A
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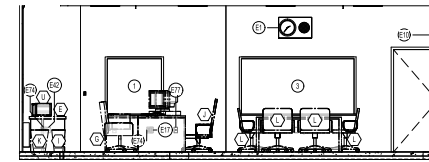
RM 105 ELEV C
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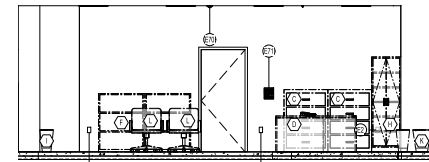
RM 107 ELEV A
1/4" = 1'-0"



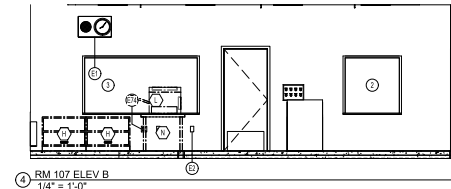
RM 107 ELEV C
1/4" = 1'-0"



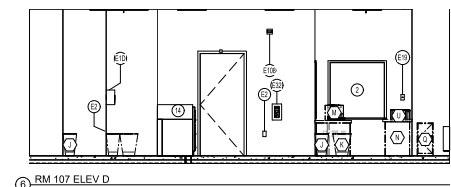
RM 105 ELEV B
1/4" = 1'-0"



RM 105 ELEV D
1/4" = 1'-0"



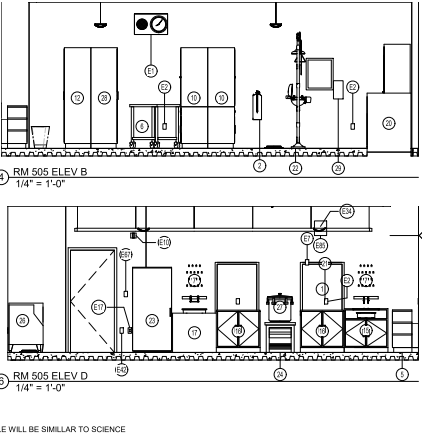
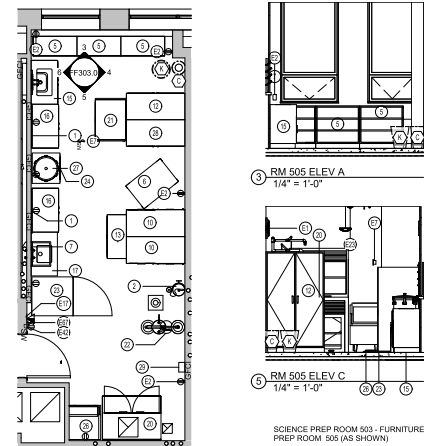
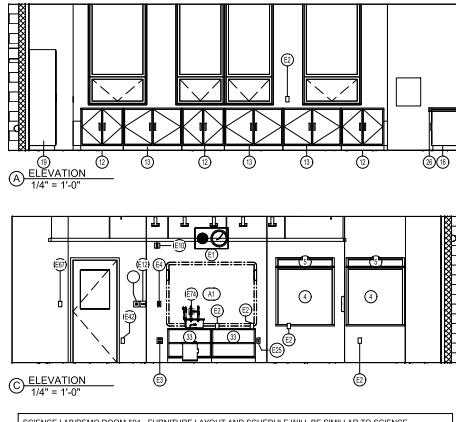
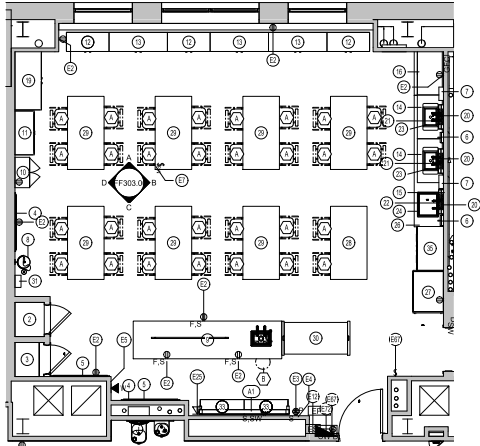
RM 107 ELEV B
1/4" = 1'-0"



RM 107 ELEV D
1/4" = 1'-0"

FURNITURE SCHEDULE_RM 105

ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC. SECTION	QTY
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
1	0807	DISPLAY BOARD	4x4	10100	1
1	ME008	WARNER/RECORD	8x4	10100	1
21	CL001	COMBINATION ANALOG CLOCK/ROUND SYSTEM		08410	1
82	EL005	DUPLEX THREE WIRE GROUNDING RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED SAFETY TYPE		16140	9
810	EL063	FIRE SIGNAL STROBE		16720	1
817	EL062	TELEPHONE OUTLET FOR STANDARD DESK INSTRUMENT W/ DUPLEX JACKS LABELED "VOICE & DATA"		16720	2
818	EL060	PASSIVE INFRARED DETECTOR WITH GUARD		16724	1
833	EL121	ADMINISTRATIVE CONTROL STATION OUTLET MOUNTED AT 18" A.F.F.		16770	1
838	EL000	SHOCK/INTRUSION DETECTOR		16720	1
842	TE018	FAX OUTLET FOR STANDARD WALL INSTRUMENT		16720	2
844	EL044	INTRUSION ALARM PIRING SWITCH MOUNTED BEHIND PRINCIPAL'S DESK AT 3'0" A.F.F. AND UNDER FRONT DESK IN GENERAL OFFICE		16724	1
857	EL028	LOW VOLTAGE PUSH BUTTON SWITCH		16140	1
870	EL213	OCCUPANT SENSOR IN VACANCY MODE (MANUAL ON) AKA VACANCY SENSOR - CEILING MOUNTED (W/ INDICATES WALL MOUNTED)		16145	1
871	EL011	MASTER STATION FOR FIRE RESCUE AREA INTERCOM SYSTEM		16726	1
874	EL040	SWITCHED (CONTROLLED) QUADRIPLEX THREE WIRE GROUNDING RECEPTACLE, 20A, 120V SUBSCRIPT 'K' INDICATED WITH SURGE SUPPRESSION		16140	2
877	EL077	DATA OUTLET FOR SCROLLING DISPLAY		16771	1
OWNER PROVIDED AND INSTALLED ITEMS					
A	FL036	CONFERENCE TABLE (RECT. TOP)	70"X 30"X 28 1/2"		1
B	FL028	FILE 5 DRAWER LATERAL, FLAT	36"X18"X42"		2
D	OKP1	PRINCIPAL'S DESK W/ RETURN			2
E	TE016	COMPUTER TABLE	60"X36"X28"		1
F	UE045	WASTE RECEPTACLE	5 GALLON		2
G	CH012	CHAIR/EXECUTIVE W/ ARMS	24"X24"X36" SH		2
H	CH009	WASTE/RECEPTACLE	24"X24"X36" SH		1
I	UE045	WASTE RECEPTACLE	5 GALLON		2
J	CH048	CHAIR SWIVEL ABRAMWOOD	24"X24"X36" SH		2
K	UE030	GARBAGE CAN			1
L	CH018A	CHAIRMAN CHAIR	24"X24"X36" SH		1
M	TE014	TELEPHONE FAX MACHINE W/ PLAIN PAPER			1
N	CH010	COMPUTER W/ SECURITY DEVICE			1
P	TE011	TELEPHONE (DESK MTD)			1
U	CH020	PRINTER W/ SD			1



2 RM 505 SCIENCE PREP
1/4" = 1'-0"

FURNITURE SCHEDULE_RM 507 & 501					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC. SECTION	QTY.
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
1	CW602	TEACHERS WARDROBE CLOSET	7' 4 1/2" x 2'	06410	1
3	CW600	STORAGE CLOSET - SHELVE	24" x 2'	06410	1
4	CK064	CHAIR/BURNER	44" x 4"	10700	3
5	UE003	DISPLAY BOARD	48" x 6"	10700	2
6	UE002	LIQUID SOAP DISPENSER COUNTERTOP MTD	11 7/8" x 4 1/2"	10810	2
7	UE003	PAPER TOWEL DISPENSER - SURFACE MTD	11 7/8" x 4 1/2"	10810	2
8	FE001	FIRE EXTINGUISHER	10 1/2" x 2 1/4" x 2 1/8"	11600	1
9	LT004B	TEACHERS DEMONSTRATION TABLE	25 1/2" x 2 1/4" x 2 1/8"	11600	1
10	CB000	SAFETY GOGGLE STORAGE UNIT - WALL MTD	25 1/2" x 2 1/4" x 2 1/8"	11600	1
11	SU013	MICROSCOPE STORAGE CABINET	36" x 15 3/4" x 15 3/4"	11600	1
12	BC066	BASE CABINET - SHALLOW DEPTH	36" x 34 3/4" x 15 3/4"	11600	3
13	BC069	BASE CABINET - SHALLOW DEPTH	48" x 34 3/4" x 15 3/4"	11600	3
14	BC019	SINK BASE CABINET - STANDARD DEPTH	36" x 15 3/4" x 27 3/4"	11600	2
15	BC016	SINK BASE CABINET (ADA)	36" x 21 1/4" x 32 1/4"	11600	1
16	BC015	BASE CABINET - STANDARD DEPTH	36" x 34 3/4" x 27 3/4"	11600	1
18	SU023	STORAGE CABINET	36" x 22" x 34"	11600	1
20	LMGR1	GLASSWARE DRYING RACK	27 1/2" x 30"	11600	3
21	SK001	WATER FAUCET - HOT & COLD	30 1/8" x 17 1/4" x 5"	11600	2
22	SK01A	WATER FAUCET - HOT & COLD (ADA)	30 1/8" x 17 1/4" x 5"	11600	1
23	SK010	DROP-IN SINKS	16 1/8" x 12 1/8" x 6"	11600	2
24	SK021	DROP-IN SINKS	30 1/8" x 17 1/4" x 5"	11600	1
26	CT002	EPOXY RESIN COUNTERTOP 1/4" W/ SPLASH	17'0" x 2"	11600	1
27	PH004	PORTABLE FUME HOOD DUCTLESS	33" x 25" x 48"	11600	2
28	LT014M	STUDENT LAB TABLE	60" x 30" x 30"	11600	1
29	LT01A	STUDENT LAB TABLE	60" x 30" x 30"	11600	7
30	LMPP1	MOBILE PLANT STUDY CENTER WITH LIGHT FIXTURE	36" x 28 1/2" x 17"	11600	1
31	FE021	FIRE BLANKET CABINET	12" x 10" x 4"	10822	1
33	CW401	OPEN SHELF W/ EPOXY RESIN TOP	36" x 12" x 28"	11600	1
38	SU028	STORAGE UNIT DISPLAY CABINET	36" x 27" x 34"	11600	2
41	C4001	COMBINATION ANALOG CLOCK/SOUND SYSTEM SPEAKERS	16" x 16"	10770	1
42	EL005	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V, SUBSCRIPT 'N' INDICATED SAFETY TYPE	16" x 16"	10740	7
44	EL004	PROXIMITY CALL B. SWITCH, FLUSH MOUNTED	16" x 16"	10770	1
45	TE002	TELEPHONE OUTLET FOR STANDARD WALL INSTRUMENT - WITH SINGLE JACK INSTALLED IN METAL LOCK BOX MOUNTED AT 4'-0" A.F.F.	16" x 16"	10725	1
46	EL003	FIRE SIGNAL STRIKE	16" x 16"	10720	1
47	EL009	DATA OUTLET WITH SINGLE JACK LABELED "DATA" MOUNTED AT 18" A.F.F.	16" x 16"	10727	1
48	EL003	DUPLEX OUTLET LABELED "DATA" & "DATA"	16" x 16"	10727	1
49	EL007	WIRELESS ACCESS POINT CABLE DROP	16" x 16"	10727	1
50	EL009	DAYLIGHT HARVESTING SENSOR	16" x 16"	10745	1
51	EL014	SWITCHED CONTROLLED DUPLEX OUTLET	16" x 16"	10740	1
52	EL009	LOW VOLTAGE PUSH BUTTON SWITCH	16" x 16"	10740	2
53	EL072	STAFF STATION FOR HOLDING AREA INTERCOM SYSTEM	16" x 16"	10728	1
54	EL040	SWITCHED CONTROLLED QUADRUPEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V, SUBSCRIPT 'S' INDICATED WITH SURGE SUPPRESSION	16" x 16"	10740	1
OWNER PROVIDED AND INSTALLED ITEMS					
A	CK002B	CHAIR STUDENT	16" x 21" x 18" SH	-	30
B	CK00A	CHAIR LAB STOOL	16" x 21" x 18" SH	-	1
C	EL011	ELECTRIC BURNER BURNER LAB MASTER UNITS (NOT SHOWN)	16" x 21" x 18" SH	-	1
OWNER PROVIDED CONTRACTOR INSTALLED ITEMS					
A1	CK009	INTERACTIVE WHITEBOARD (WIB)	70"	-	1
LB5	EL001	WIRELESS ACCESS POINT IN NEMA ENCLOSURE	16" x 16"	10780	1

SCHEDULE QUANTITY ARE SHOWN AS PER ONE ROOM (TYP). SEE THE KEY PLAN FOR ROOM LAYOUT.

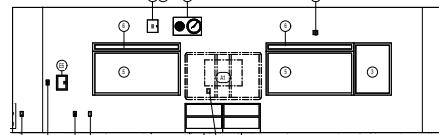
FURNITURE SCHEDULE_RM 505 & 503					
ITEM NO.	ITEM REF.	DESCRIPTION	SIZE	SPEC. SECTION	QTY.
CONTRACTOR PROVIDED AND INSTALLED ITEMS					
1	UE003	DISPLAY BOARD	24" x 3'-0"	10700	2
2	FE001	FIRE EXTINGUISHER	10 1/2" x 2 1/4" x 2 1/8"	11600	1
3	BC063	BASE CABINET - SHALLOW DEPTH	36" x 15 3/4" x 34 3/4"	11600	3
4	LM011	MOBILE LABORATORY CART	30" x 30" x 30"	11600	1
7	LMGR1	GLASSWARE DRYING RACK	27 1/2" x 30"	11600	2
10	SU028	STORAGE UNIT DISPLAY CABINET	48" x 27" x 34"	11600	2
12	SU038	CHART & PLAT STOCK STORAGE	36" x 22" x 15 3/4"	11600	1
13	SU013	MICROSCOPE STORAGE CABINET	36" x 15 3/4" x 15 3/4"	11600	1
15	BC016	SINK BASE CABINET - STANDARD DEPTH	36" x 15 3/4" x 27 3/4"	11600	1
16	BC015	BASE CABINET - STANDARD DEPTH	36" x 34 3/4" x 27 3/4"	11600	1
17	BC016	SINK BASE CABINET (ADA)	36" x 21 1/4" x 32 1/4"	11600	1
20	PH002	FUME HOOD DUCTED W/ ACID SPR CAS	48" x 36"	11600	1
21	PH004	PORTABLE FUME HOOD DUCTLESS	33" x 25" x 48"	11600	1
22	LSM1	OVERHEAD SHOWER & EYEWASH	12" x 30" x 10"	11600	1
23	LMPP1	EXPLOSION PROOF REFRIGERATOR	25" x 22" x 16"	11600	1
24	LM007	DRYING TUB	25" x 22" x 16"	11600	1
26	LM011	KENAMER	26" x 26" x 30"	11600	1
27	MS011	STILL/DRY	25" x 21" x 16"	11600	1
28	SU023	STORAGE CABINET	36" x 22" x 34"	11600	1
29	FE021	FIRE BLANKET CABINET	10 1/2" x 15"	10822	1
41	CL001	COMBINATION ANALOG CLOCK/SOUND SYSTEM SPEAKER	16" x 16"	10770	1
42	EL009	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 120V, SUBSCRIPT 'N' INDICATED SAFETY TYPE	16" x 16"	10740	9
43	EL003	FIRE SIGNAL STRIKE	16" x 16"	10720	1
45	EL002	TELEPHONE OUTLET FOR STANDARD WALL INSTRUMENT W/ DUPLEX JACKS LABELED "VOICE" & "DATA"	16" x 16"	10727	1
46	EL009	WIRELESS ACCESS POINT CABLE DROP	16" x 16"	10727	1
48	EL009	DAYLIGHT HARVESTING SENSOR	16" x 16"	10745	1
49	EL014	SWITCHED CONTROLLED DUPLEX OUTLET	16" x 16"	10740	1
50	EL009	LOW VOLTAGE PUSH BUTTON SWITCH	16" x 16"	10740	1
OWNER PROVIDED AND INSTALLED ITEMS					
A	EL011	ELECTRIC BURNER BURNER LAB MASTER UNITS (NOT SHOWN)	-	-	2
C	UE045	WASTE RECEPTACLE	15 GALLON	-	1
K	UE060	GARBAGE CAN	-	-	1
OWNER PROVIDED CONTRACTOR INSTALLED ITEMS					
LB5	EL001	WIRELESS ACCESS POINT IN NEMA ENCLOSURE	16" x 16"	10780	1

SCHEDULE QUANTITY ARE SHOWN AS PER ONE ROOM (TYP). SEE THE KEY PLAN FOR ROOM LAYOUT.

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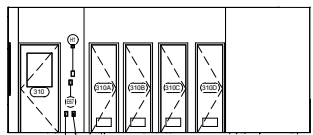
This architectural drawing shows a window unit with three vertical panes. To the left of the panes is a vertical element with a circular detail at the top and a series of horizontal lines below. To the right of the panes is another vertical element with a circular detail at the top. The entire unit is enclosed in a rectangular frame.

FF208.00 SCALE: 1/4" = 1'-0"

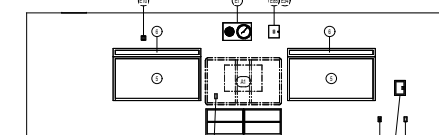


This elevation drawing shows the front facade of the building. On the left is a door with a small circular window above it. To the right of the door is a large window composed of four vertical panes. Below the window is a horizontal line, and below that is a small vertical line. The drawing is a simple line art representation.

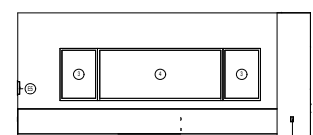
FF208.00 SCALE: 1/4" = 1'-0"



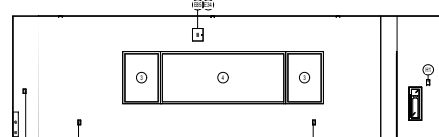
FF208.00 SCALE: 1/4" = 1'-0"



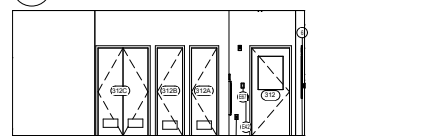
FF208.00 SCALE: 1/4" = 1'-0"



SCALE: 1/4" = 1'-0"



SCALE: 1/4" = 1'-0"



This architectural section drawing shows a building facade with four large, rectangular windows. Below the windows, a row of chairs is depicted, suggesting a seating area or a stage. The drawing is a black and white line art, typical of architectural plans.

FF208.00 SCALE: 1/4" = 1' 0"

421107741

FURNITURE SCHEDULE - RM 101				
SERIAL NO.	ITEM REF	DESCRIPTION	SIZE	QTY
CONTRACTOR PROVIDED AND INSTALLED ITEMS				
1	1-0000	WALLBOARD COVESET	W 4'x4'	36010
2	1-0002	CEILING AIR BOARD	W 4'x4'	10100
3	1-0003	CEILING AIR BOARD	W 4'x4'	10100
4	1-0007	DOORHOLD	W 4'x4'	10100
5	1-0008	CONTRACTOR SUPPLIED IN		36010
6	1-0009	DOORHOLD	W 4'x4'	10100
7	1-0010	DOORHOLD	W 4'x4'	10100
8	1-0011	DOORHOLD	W 4'x4'	10100
9	1-0012	DOORHOLD	W 4'x4'	10100
10	1-0013	DOORHOLD	W 4'x4'	10100
11	1-0014	DOORHOLD	W 4'x4'	10100
12	1-0015	DOORHOLD	W 4'x4'	10100
13	1-0016	DOORHOLD	W 4'x4'	10100
14	1-0017	DOORHOLD	W 4'x4'	10100
15	1-0018	DOORHOLD	W 4'x4'	10100
16	1-0019	DOORHOLD	W 4'x4'	10100
17	1-0020	DOORHOLD	W 4'x4'	10100
18	1-0021	DOORHOLD	W 4'x4'	10100
19	1-0022	DOORHOLD	W 4'x4'	10100
20	1-0023	DOORHOLD	W 4'x4'	10100
21	1-0024	DOORHOLD	W 4'x4'	10100
22	1-0025	DOORHOLD	W 4'x4'	10100
23	1-0026	DOORHOLD	W 4'x4'	10100
24	1-0027	DOORHOLD	W 4'x4'	10100
25	1-0028	DOORHOLD	W 4'x4'	10100
26	1-0029	DOORHOLD	W 4'x4'	10100
27	1-0030	DOORHOLD	W 4'x4'	10100
28	1-0031	DOORHOLD	W 4'x4'	10100
29	1-0032	DOORHOLD	W 4'x4'	10100
30	1-0033	DOORHOLD	W 4'x4'	10100
31	1-0034	DOORHOLD	W 4'x4'	10100
32	1-0035	DOORHOLD	W 4'x4'	10100
33	1-0036	DOORHOLD	W 4'x4'	10100
34	1-0037	DOORHOLD	W 4'x4'	10100
35	1-0038	DOORHOLD	W 4'x4'	10100
36	1-0039	DOORHOLD	W 4'x4'	10100
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39	1-0042	DOORHOLD	W 4'x4'	10100
40	1-0043	DOORHOLD	W 4'x4'	10100
41	1-0044	DOORHOLD	W 4'x4'	10100
42	1-0045	DOORHOLD	W 4'x4'	10100
43	1-0046	DOORHOLD	W 4'x4'	10100
44	1-0047	DOORHOLD	W 4'x4'	10100
45	1-0048	DOORHOLD	W 4'x4'	10100
46	1-0049	DOORHOLD	W 4'x4'	10100
47	1-0050	DOORHOLD	W 4'x4'	10100
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49	1-0052	DOORHOLD	W 4'x4'	10100
50	1-0053	DOORHOLD	W 4'x4'	10100
51	1-0054	DOORHOLD	W 4'x4'	10100
52	1-0055	DOORHOLD	W 4'x4'	10100
53	1-0056	DOORHOLD	W 4'x4'	10100
54	1-0057	DOORHOLD	W 4'x4'	10100
55	1-0058	DOORHOLD	W 4'x4'	10100
56	1-0059	DOORHOLD	W 4'x4'	10100
57	1-0060	DOORHOLD	W 4'x4'	10100
58	1-0061	DOORHOLD	W 4'x4'	10100
59	1-0062	DOORHOLD	W 4'x4'	10100
60	1-0063	DOORHOLD	W 4'x4'	10100
61	1-0064	DOORHOLD	W 4'x4'	10100
62	1-0065	DOORHOLD	W 4'x4'	10100
63	1-0066	DOORHOLD	W 4'x4'	10100
64	1-0067	DOORHOLD	W 4'x4'	10100
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66	1-0069	DOORHOLD	W 4'x4'	10100
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162	1-0165	DOORHOLD	W 4'x4'	10100
163	1-0166	DOORHOLD	W 4'x4'	10100
164	1-0167	DOORHOLD	W 4'x4'	10100
165	1-0168	DOORHOLD	W 4'x4'	10100
166	1-0169	DOORHOLD	W 4'x4'	10100
167	1-0170	DOORHOLD	W 4'x4'	10100
168	1-0171	DOORHOLD	W 4'x4'	10100
169	1-0172	DOORHOLD	W 4'x4'	10100
170	1-0173	DOORHOLD	W 4'x4'	10100
171	1-0174	DOORHOLD	W 4'x4'	10100
172	1-0175	DOORHOLD	W 4'x4'	10100
173	1-0176	DOORHOLD	W 4'x4'	10100
174	1-0177	DOORHOLD	W 4'x4'	10100
175	1-0178	DOORHOLD	W 4'x4'	10100
176	1-0179	DOORHOLD	W 4'x4'	10100
177	1-0180	DOORHOLD	W 4'x4'	10100
178	1-0181	DOORHOLD	W 4'x4'	10100
179	1-0182	DOORHOLD	W 4'x4'	10100
180	1-0183	DOORHOLD	W 4'x4'	10100
181	1-0184	DOORHOLD	W 4'x4'	10100
182	1-0185	DOORHOLD	W 4'x4'	10100
183	1-0186	DOORHOLD	W 4'x4'	10100
184	1-0187	DOORHOLD	W 4'x4'	10100
185	1-0188	DOORHOLD	W 4'x4'	10100
186	1-0189	DOORHOLD	W 4'x4'	10100
187	1-0190	DOORHOLD	W 4'x4'	10100
188	1-0191	DOORHOLD	W 4'x4'	10100
189	1-0192	DOORHOLD	W 4'x4'	10100
190	1-0193	DOORHOLD	W 4'x4'	10100
191	1-0194	DOORHOLD	W 4'x4'	10100
192	1-0195	DOORHOLD	W 4'x4'	10100
193	1-0196	DOORHOLD	W 4'x4'	10100
194	1-0197	DOORHOLD	W 4'x4'	10100
195	1-0198	DOORHOLD	W 4'x4'	10100
196	1-0199	DOORHOLD	W 4'x4'	10100
197	1-0200	DOORHOLD	W 4'x4'	10100
198	1-0201	DOORHOLD	W 4'x4'	10100
199	1-0202	DOORHOLD	W 4'x4'	10100
200	1-0203	DOORHOLD	W 4'x4'	10100
201	1-0204	DOORHOLD	W 4'x4'	10100
202	1-0205	DOORHOLD	W 4'x4'	10100
203	1-0206	DOORHOLD	W 4'x4'	10100
204	1-0207	DOORHOLD	W 4'x4'	10100
205	1-0208	DOORHOLD	W 4'x4'	10100
206	1-0209	DOORHOLD	W 4'x4'	10100
207	1-0210	DOORHOLD	W 4'x4'	10100
208	1-0211	DOORHOLD	W 4'x4'	10100
209	1-0212	DOORHOLD	W 4'x4'	10100
210	1-0213	DOORHOLD	W 4'x4'	10100
211	1-0214	DOORHOLD	W 4'x4'	10100
212	1-0215	DOORHOLD	W 4'x4'	10100
213	1-0216	DOORHOLD	W 4'x4'	10100
214	1-0217	DOORHOLD	W 4'x4'	10100
215	1-0218	DOORHOLD	W 4'x4'	10100
216	1-0219	DOORHOLD	W 4'x4'	10100
217	1-0220	DOORHOLD	W 4'x4'	10100
218	1-0221	DOORHOLD	W 4'x4'	10100
219	1-0222	DOORHOLD	W 4'x4'	10100
220	1-0223	DOORHOLD	W 4'x4'	10100
221	1-0224	DOORHOLD	W 4'x4'	10100
222	1-0225	DOORHOLD	W 4'x4'	10100
223	1-0226	DOORHOLD	W 4'x4'	10100
224	1-0227	DOORHOLD	W 4'x4'	10100
225	1-0228	DOORHOLD	W 4'x4'	10100
226	1-0229	DOORHOLD	W 4'x4'	10100
227	1-0230	DOORHOLD	W 4'x4'	10100
228	1-0231	DOORHOLD	W 4'x4'	10100
229	1-0232	DOORHOLD	W 4'x4'	10100
230	1-0233	DOORHOLD	W 4'x4'	10100
231	1-0234	DOORHOLD	W 4'x4'	10100
232	1-0235	DOORHOLD	W 4'x4'	10100
233	1-0236	DOORHOLD	W 4'x4'	10100
234	1-0237	DOORHOLD	W 4'x4'	10100
235				



A ELEVATION
FF324.00 SCALE: 1/4" = 1'-0"

B ELEVATION
FF324.00 SCALE: 1/4" = 1'-0"

The image displays two architectural drawings of the FF324.00 cabinet system. Drawing A is an elevation view showing a wall-mounted unit with a square cabinet on the left, two tall glass-fronted cabinets in the center, and a square cabinet on the right. Drawing B is another elevation view showing a wall-mounted unit with three tall glass-fronted cabinets on the left and two square cabinets on the right. Both drawings include numbered callouts (1-10) and dimension lines indicating the layout and components of the system.

D ELEVATION
VF324.00/ SCALE: 1/4" = 1'-0"

Architectural elevation drawing of the front facade of a building. The drawing shows a complex arrangement of windows, doors, and structural elements. Callouts include 1 through 14 for windows and doors, and 1 through 14 for structural elements. A dashed line indicates a break in the wall.

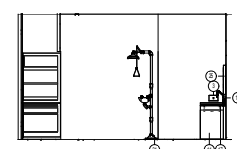
E ELEVATION
VF324.00/ SCALE: 1/4" = 1'-0"

Architectural elevation drawing of the side facade of a building. The drawing shows a large window, a door, and a small structure. Callouts include 1 through 14 for windows and doors, and 1 through 14 for structural elements. A dashed line indicates a break in the wall.

F ELEVATION
VF324.00/ SCALE: 1/4" = 1'-0"

Architectural elevation drawing of the rear facade of a building. The drawing shows a large window, a door, and a small structure. Callouts include 1 through 14 for windows and doors, and 1 through 14 for structural elements. A dashed line indicates a break in the wall.

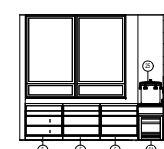
A ELEVATION
FF325.00 SCALE: 1/4" = 1'-0"



D ELEVATION

H ELEVATION
FF325.00 SCALE: 1/4" = 1'-0"

ELEVATION
FF325.00 SCALE: 1/4" = 1'-0"



L ELEVATION
E5325.00 SCALE: 1/4" = 1'-0"

Appendix F. Presentations

- Equipment Energy Use Evaluation Phase II Report SCA Stakeholder Presentation



New York City Public Schools Equipment Energy Use Evaluation Phase II Report

29 September 2022



EME GROUP
Engineers & Architects

In consultation with:

- DOE Division of Instructional and Information Technology (DIIT)
- DOE Office of Nutritional and Food Services
- DOE Division of School Facilities (DSF)
- Romano Gatland Food Service Consultants
- Shenoy Engineering (AV Consultant)
- SCA Furniture and Equipment (F&E)
- SCA Technical Support Services (TSS)

AGENDA

- Study Objectives and Overview
- Equipment Alternatives Studied
- Details of Select Equipment Alternatives
- Equipment Energy and GHG Savings
- Building-Wide Energy Model Results
- Next Steps

DRAFT REPORT

New York City Public Schools Equipment Energy Use Evaluation Phase II Report

Submitted to:



NYC School Construction Authority
30-30 Thomson Avenue
Long Island City, NY 11101

Prepared by:



EME Group
550 7th Avenue, 10th Floor
New York, NY 10018

September 23, 2022

STUDY OBJECTIVES



Task 1: Review SCA Follow-up Items from Phase I Study



Task 4: Identify Minimum of Three Manufacturers per Equipment alternative



Task 2: Update Equipment List to Match Current SCA Specifications



Task 5: Consult with Key Stakeholders



Task 3: Detail Advantages/ Disadvantages of Equipment Alternatives



Task 6: Revise and Issue Final Report to Incorporate Updates

REPORT OVERVIEW

The report is 184 pages (plus over 500 pages of appendices) and covers the following general topics:

1. Identification of equipment eligible for replacement

2. Individual equipment reports describing:

- Current SCA standard and specification
- Three more-efficient alternatives
- Recommendations

3. Consultations with stakeholders and SCA consultants

4. Case study energy modeling results showing building-wide effects of more efficient alternatives

- PS “A” in Brooklyn - small-sized PS
- IS “B” in Queens - medium-sized IS
- HS “C” in Queens - large-sized HS

Drink Dispenser
aka Water Jet
Kitchen Equipment – Small



Crathco D15-3
Current SCA Spec



JD-1
AdCraft JD-1
Proposed Alternative

Found in all kitchen serveries*, mounted on a mobile utility counter or mobile refrigerated counter; directly accessed by students. Typical quantities are **1 unit per school** although some schools have 2 units. Critical specifications include:

- 5 gallon capacity
- Refrigeration to 35F – 41F
- Continuous rotary system
- Stainless steel construction
- Removable polycarbonate bowl
- Size: 11”x16”x28”

*Note: New standards for “grab and go” serveries in IS and HS buildings have replaced Drink Dispensers with space in additional Refrigerated Merchandisers.

The most energy-efficient currently available SCA standard is the Crathco (aka Grindmaster-Cecilware) **D15-3** or equal, with a maximum demand of **340 W**. No other models have been listed in the specifications or purchased for the case study schools over the past several years.

Potential alternatives identified for this study include:

- Narvon D5G1, 5 gallons, **260 W**
- AdCraft JD-1, 3 gallons, **278 W**
- Omega OSD10, 3 gallons, **300 W**

Pros: The most energy-efficient alternative offers energy demand **savings up to 80 W or 24%** per unit compared to the most energy-efficient current SCA standard. It appears to meet all SCA specifications and offer all of the same features as the current SCA standard.

- The most energy-efficient alternative uses R-448A refrigerant, which has slightly lower global warming potential (GWP) than the refrigerant used in the current SCA standard.

Cons:

- Very little information is available about Narvon, the manufacturer of alternative 1.
- Alternatives 2 and 3 have 40% less capacity than the current SCA standard.

DRINK DISPENSER				
	CURRENT	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Manufacturer	Crathco	Narvon	Adcraft	Omega
Model	D15-3	D5G1	JD-1	OSD10
Fuel Source	Electric	Electric	Electric	Electric
Size (Ext)	11x16x28	9x17x29	11x17x24	9x15x24
Capacity	5 Gallons	5 Gallons	3 Gallons	3 Gallons
Temp	34F - 41F	35F - 50F	35F - 46F	-
Refrigerant	R-134A	R-448A	R-134A	-
Volts	120	120	110	120
Amps	3.0	-	2.5	-
HP	1/6	-	-	1/3
Watts	340	260	278	300
Savings	-	80.0	62.0	40.0
Savings %	-	24%	18%	12%
CO2e (MT)	0.024	0.018	0.02	0.021
Savings	-	0.006	0.004	0.003
Savings %	-	24%	18%	12%
EnergyStar	N	N	N	N
Cost Difference	-	-39%	24%	-1%
Source	X469 Cost Estimate	AQ	AQ	AQ

Recommendations: Alternative 2 appears to be the most suitable replacement for the current SCA standard, but it offers less capacity.

SCA Current Specifications
Section 11400

Water Dispenser (Jet)

1. Provide a cold water dispenser where shown on the Drawings. Unit can be placed on a mobile utility counter located on the Serving Line. Stainless steel unit including the side panel and drain tray; super-strong virtually unbreakable polycarbonate 5- gallon bowl and cover; unique evaporator and high efficiency pump cools faster and more efficiently for faster start-ups; two-piece stainless steel, dripless pouring valve shall be sanitary and easy to use and maintain. Refrigeration: 1/6hp. UL, NSF Listed.
2. Electrical: 120 volts, 60HZ. Provide one (1) heavy-duty three conductor (one grounding) line cord with plug to match each receptacle.

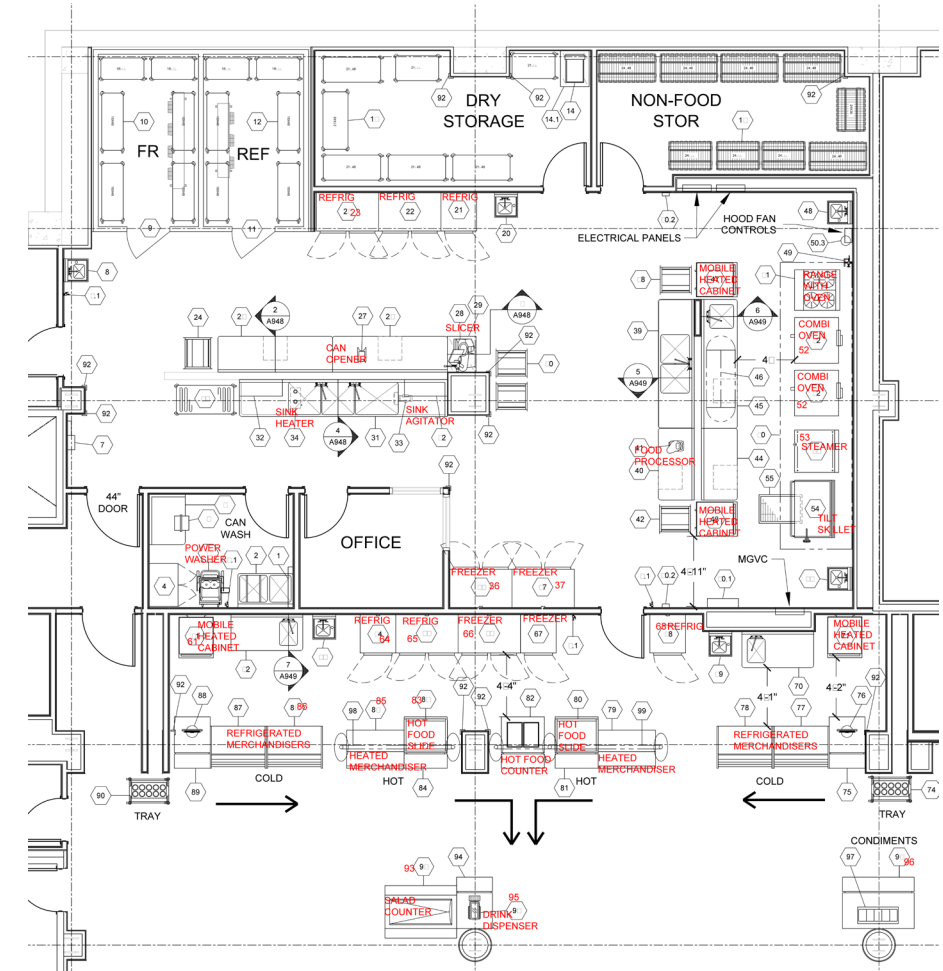
Manufacturer: Subject to compliance with regulations:

Crathco D15-3

REPORT OVERVIEW

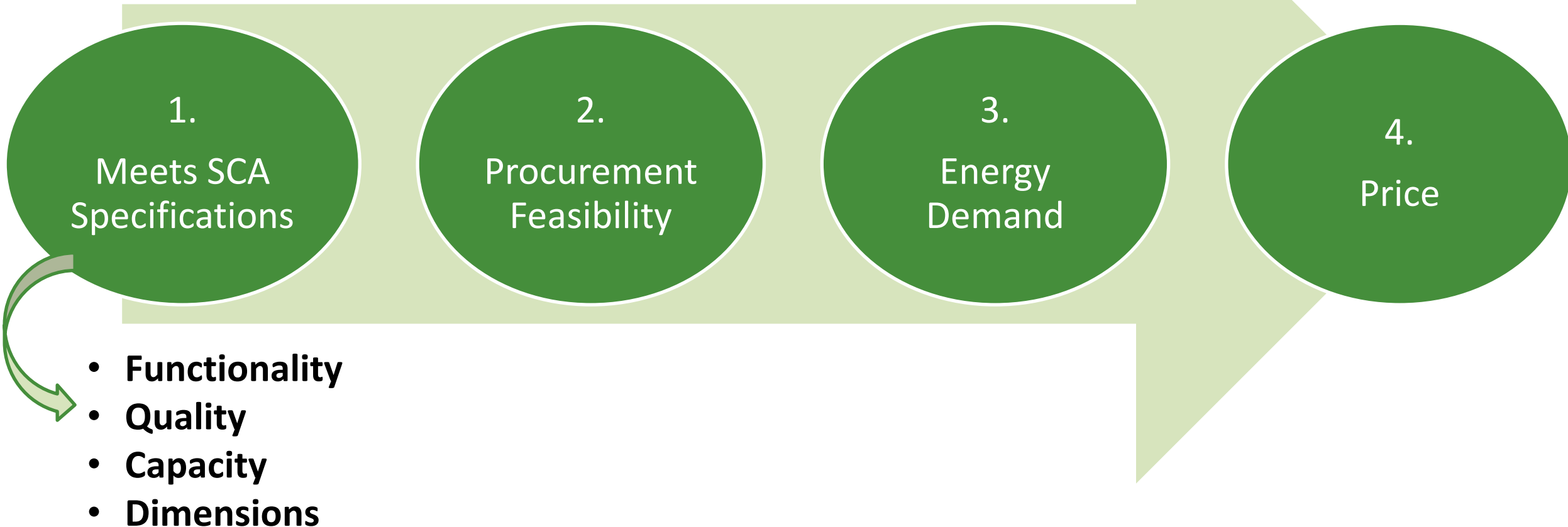
Appendices

- A. Reports on Other Equipment Studied
 - Includes SCA standard models that are already the most energy-efficient available in the market
- B. Equipment Cutsheets
 - Includes the most energy-efficient current SCA standard model and all suitable alternatives
- C. Equipment Tables
 - Includes expanded information on all individual equipment researched, including links to pricing sources
- D. Case Study School Kitchen Drawings and Equipment Schedules
- E. Case Study School Furniture Plans for Key Spaces
- F. Meeting Minutes



PRIORITIZATION OF SELECTION FACTORS

Due to this prioritization, the “proposed” alternative is not always the most energy efficient – but it is more efficient than the current standard



EQUIPMENT TYPES STUDIED

KITCHEN APPLIANCES	
Can Opener	Range with Oven*
Combination Oven, Double*	Reach-In Freezer, Double
Drink Dispenser	Reach-In Freezer, Single
Food Processor	Reach-In Refrigerator, Double
Food Slicer	Reach-In Refrigerator, Single
Hot Food Slide	Sink Agitator
Merchandiser Heated	Sink Heater
Merchandiser Refrigerated	Steamer, Double*
Milk Cooler	Therm and Hold Oven, Double
Mobile Cold Food Counter	Walk-In Cooler
Mobile Heated Cabinet, Double	Walk-In Freezer
Mobile Hot Food Counter	Water Filter

BUILDING SERVICES
Compactor
Display Monitor
Drinking Fountain
Drinking Fountain - Bi-Level
Drinking Fountain - Bottle Filler
Electric Scoreboard
Microwave
Refrigerator – Full-Size
Refrigerator - Medical
Time Recorder
Workshop Drill Press
Workshop Tool Grinder

INSTRUCTIONAL
Lab Drying Oven
Lab Explosion-Proof Freezer
Lab Explosion-Proof Refrigerator
Lab Fume Hood
Lab Ice Maker
Lab Mobile Plant Study Center
Lab Sterilizer
Monitor - Interactive
Monitor - Whiteboard
Projector

* Baseline models are all electric

EQUIPMENT TYPES STUDIED

Equipment for Which SCA Is Already Specifying the Most Energy-Efficient Model

- Can Opener
- Sink Agitator
- **Sink Heater**
- Water Filter
- **Combi Oven**
- **Compactor**
- Drinking Fountain with Bottle Filler
- Electric Scoreboard
- Microwave
- Lab Drying Oven
- Lab Explosion-Proof Freezer
- Monitor - Whiteboard





EQUIPMENT TYPES NOT INCLUDED

SCA Specifications Analyzed, But Not Included in Final Evaluation

Equipment Type	Examples	Reason for Exclusion
Network Infrastructure Networked Equipment MDF/IDF Cooling Systems	servers, routers computers, printers, copiers	Complex and continually changing DOE DIIT standards
PA/Sound Systems	speakers, amps, mixers, DVD players	Complex interoperability and dependency on space type
Outdated/Inapplicable	Bunsen burners, convection ovens, tilt skillets/ braising pans, mixers, power washers, vending machines, bottled water coolers	No longer specified for SCA Capacity Projects
Specialty Equipment	kilns, humidifiers, physical therapy devices	Not commonly specified for SCA Capacity Projects
Cafeteria Equipment Classroom Equipment Medical Suite Equipment Gym Equipment Theatrical Equipment	cash register / point of service motorized window shades magnifying light shot clock, motorized bleachers, window shades lighting, motorized curtains and projection screen	Infrequently operated / minimal impact on building energy use

KITCHEN EQUIPMENT

STEAMER, DOUBLE

Current SCA Spec	Proposed Alternative
	
Market Forge Altair II-10	Sterling SP208-6-1-AF
10 Cafeteria Pans	12 Cafeteria Pans
19,600 W	12,460 W
1,181 kWh/yr	751 kWh/yr
0.3 MTCO2e/yr	0.2 MTCO2e/yr

Location and Quantity

- All kitchens
- 1 double stacked unit per school

Selection Considerations:

- Proposed alternative has more capacity
- Proposed alternative can be operated with unfiltered water (filtered water is SCA design requirement)

36% Energy Demand Savings

0.1 MTCO2e Savings

KITCHEN EQUIPMENT

MOBILE HEATED CABINET

Current SCA Spec	Proposed Alternative
	
Wittco Foodservice 1826-15-SCHNY	Delfield GAH1-SH
30 Sheet Pans	30 Sheet Pans
1,500 W	368 W
142 kWh/yr	35 kWh/yr
0.04 MTCO ₂ e/yr	0.01 MTCO ₂ e/yr

Location and Quantity

- All kitchens and/or serveries
- 2 or more double stacked units per school

Selection Considerations:

- Proposed alternative has one compartment; current SCA standard has two, but both are set to same temperature
- Proposed alternative has faster temperature recovery time
- The most energy-efficient alternative (not shown) was rejected because it does not have an aluminum exterior

75% Energy Demand Savings

0.03 MTCO₂e Savings

Current SCA Spec	Proposed Alternative
	
Winston Industries CAT522-HR	Cres Cor 1000-CH-SS-2DX
14 Pans	16 Pans
11,215 W	6,000 W
5,067 kWh/yr	2,711 kWh/yr
1.5 MTCO ₂ e/yr	0.8 MTCO ₂ e/yr

Location and Quantity

- Warming kitchens only (schools with 400 or fewer students)
- 2 to 3 sets of double stacked units per school

Selection Considerations:



- Proposed alternative lacks “CVap patented technology” required in specifications, but so do some models listed in the specifications
- According to Romano Gatland, SCA is already switching to the proposed alternative due to cost savings

47% Energy Demand Savings

0.7 MTCO₂e Savings

KITCHEN EQUIPMENT

MERCHANDISER REFRIGERATED

Current SCA Spec	Proposed Alternative
	
Federal RSSM-460SC	Avantco BVAC-46HC
12.1 CF	13.2 CF
2,200 W	950 W
2,386 kWh/yr	1,030 kWh/yr
0.7 MTCO ₂ e/yr	0.3 MTCO ₂ e/yr

Location and Quantity

- IS and HS serveries
- 1 per school (under old standard)
- 1-3 per school (under new “grab and go” enhanced cafeteria experience standard)

Selection Considerations:

- Proposed alternative is 21 inches taller, so highest shelves may not be accessible to all students
- Proposed alternative offers wider temperature range

57% Energy Demand Savings

0.4 MTCO₂e Savings

REACH-IN REFRIGERATOR, DOUBLE

Current SCA Spec	Proposed Alternative
	
Continental DL2R-SS	TurboAir M3R47-2-N
50.0 CF	42.3 CF
747.5 W	322 W
1,126 kWh/yr	485 kWh/yr
0.3 MTCO ₂ e/yr	0.14 MTCO ₂ e/yr

Location and Quantity

- All kitchens
- 3 or 4 per school



Selection Considerations:

- Proposed alternative has 15% less capacity
- Proposed alternative has additional features including wider temperature range, self-cleaning condenser, rapid cooldown function, and open door alarm
- Proposed alternative produces less ambient heat – will reduce kitchen cooling load

57% Energy Demand Savings

0.16 MTCO₂e Savings

REACH-IN FREEZER, DOUBLE

Current SCA Spec	Proposed Alternative
	
Continental DL2F-SS-GD	Continental 2FEN
50 CF	50 CF
1,610 W	1,035 W
2,425 kWh/yr	1,299 kWh/yr
0.7 MTCO ₂ e/yr	0.5 MTCO ₂ e/yr

Location and Quantity



- All kitchens
- 2 or 3 per school

Selection Considerations:

- Proposed alternative is 4" wider than current SCA standard
- Proposed alternative produces less ambient heat – will reduce kitchen cooling load

36% Energy Demand Savings**0.3 MTCO₂e Savings**

WALK-IN FREEZER COMPRESSOR/EVAPORATOR

Current SCA Spec	Proposed Alternative
	
Kolpak MC2-68MZ	Master Bilt CPF075JC-E-4-EV
8'x10'x8.5' Walk-in	8'x10'x8.5' Walk-in
6,136 W	2,309 W
15,155 kWh/yr	5,703 kWh/yr
4.4 MTCO ₂ e/yr	1.6 MTCO ₂ e/yr

Location and Quantity

- All kitchens
- SCA requires 2 evaporators and compressors per walk-in
- 1 unit per school



Selection Considerations:

Difficult to compare actual energy consumption due to:

- manufacturer differences in matching cooling capacities to walk-in room sizes, and
- alternating (“flip-flop”) operation of doubled equipment

62% Energy Demand Savings**2.7 MTCO₂e Savings**

INSTRUCTIONAL EQUIPMENT INTERACTIVE MONITOR

Current SCA Spec	Proposed Alternative
	
Promethean AB6T78	Prowise PW.1.17075.X001
78" Screen	75" Screen
300 W	139 W
276 kWh/yr	128 kWh/yr
0.08 MTCO2e/yr	0.04 MTCO2e/yr

Location and Quantity

- Most instructional spaces
- 1 per classroom (approximately 12-40 per school)

Selection Considerations:



- Proposed alternative is 3" smaller (diagonal measure)
- Proposed alternative has 73% faster response time and supports Android input/output in addition to Windows, Mac, and Linux required by DOE

54% Energy Demand Savings

0.04 MTCO2e Savings

INSTRUCTIONAL EQUIPMENT

SCIENCE LAB ICE MAKER

Current SCA Spec	Proposed Alternative
	
Scotsman CU1526A	Manitowoc URF-0140A
150 lbs ice/day	137 lbs ice/day
1,323 W	575 W
2,534 kWh/yr	1,102 kWh/yr
0.7 MTCO ₂ e/yr	0.3 MTCO ₂ e/yr

Location and Quantity

- Some but not all science labs (IS and HS only)
- 1 per science lab (schools have 1 to 3 labs)

Selection Considerations:



- Current SCA spec model has been discontinued and replaced with a similar model
- Proposed alternative uses 7% less water and produces 20% less ambient heat – will reduce science lab cooling load

57% Energy Demand Savings

0.4 MTCO₂e Savings

BUILDING SERVICES EQUIPMENT

ELECTRIC WATER COOLER

Current SCA Spec	Proposed Alternative
	
Elkay EZS8L	Elkay VRGCGRNYL8C
8 gph at 50F	8 gph at 50F
370 W	260 W
371 kWh/yr	261 kWh/yr
0.107 MTCO ₂ e/yr	0.075 MTCO ₂ e/yr

Location and Quantity

- All schools
- 2 to 10 per school (depends on number of single-spout coolers and coolers with bottle fillers)

Selection Considerations:

- Proposed alternative is ADA compliant but lacks push bar
- Both current model and proposed alternative use R-134A refrigerant which is being phased out

30% Energy Demand Savings

0.03 MTCO₂e Savings

KITCHEN EQUIPMENT 1:1 COMPARISON

1:1 COMPARISON

		CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		Manufacturer	Model #	Size	Capacity	Wattage	Manufacturer	Model #	Size	Capacity	Wattage	
KITCHEN APPLIANCES	Can Opener	Edlund	270 NSF	7x12x10	200 cans per day	173	Edlund	270 NSF	7x12x10	200 cans per day	173	0%
	Combination Oven, Double	Alto Shaam	CTP7-20E	45x47x75	(16) Full Sheet Pans	33,000	Convotherm	C4eT 6.20 ES-N	44x39x66	(14) Full Sheet Pans	31,800	4%
	Drink Dispenser	Crathco	D15-3	11x16x28	5 Gallons	340	Adcraft	JD-1	11x17x24	3 Gallons	278	18%
	Food Mixer	Globe	SP20	24x24x45	20 Quarts	690	Globe	SP20	24x24x45	20 Quarts	690	0%
	Food Processor	Waring	WFP16SCD	16x22x22	4 Quarts	672	Primo	PVC-500	10x25x20	N/A	550	18%
	Food Slicer	Bizerba	GSP HD STD-90	32x36x25	--	312	Vollrath	SLM300P	26x24x21	--	300	4%
	Hot Food Slide	Hatco	GR2SDS-36D	37x27x29	(2) 36" Shelves	2,040	Adcraft	HFD-85	32x28x28	(2) shelves	1,160	43%
	Merchandise Heated	Hussmann	IM-05-X4-H	68x32x58	34 SF Shelves	4,160	Alto-Shaam	HSM-48/5S	48x28x80	32 SF Shelves	4,000	4%
	Merchandise Refrigerated	Federal	RSSM-460SC	48x36x61	15.7 CF	2,200	Avantco	BVAC-46HC	46x26x82	13.2 CF	950	57%
	Milk Cooler	True	TMC-34-S-SS-HC	34x35x37	8 Milk Crates	311	Beverage-Air	SM34HC	34x31x42	8 Milk Crates	253	19%
	Mobile Cold Food Counter	Delfield	Custom	90x24x89	(4) Hotel Pans	1,800	Beverage Air	SPE72HC-30-S	73x31x37	(4) Hotel Pans	621	66%
	Mobile Heated Cabinet, Double	Wittco Foodservice	1826-15-SCHNY	27x33x65	(30) Full Sheet Pans	1,500	Delfield	GAH1-SH	28x33x80	(30) Full Sheet Pans	368	75%
	Mobile Hot Food Counter	Delfield	Custom	90x43x89	(4) Hotel Pans	4,576	Vollrath	38710	60x24x49	(4) Hotel Pans	2,100	54%
	Range with Oven	Garland	GME36-I14C	36x29x34	(4) 3.5kW Hobs	21,100	Smeg	SPR36UIMX	36x25x36	(5) 3kW Hobs	14,300	32%
	Reach-In Freezer, Double	Continental	DL2F-SS-GD	53x36x88	50 CF	1,610	Everest	ESF2	50x32x81	48 CF	863	46%
	Reach-In Freezer, Single	Continental	DL1F-SS-GD	26x36x84	21 CF	725	Everest	ESF1	30x22x80	R-450	575	21%
	Reach-In Refrigerator, Double	Continental	DL2R-SS	52x32x83	50 CF	748	TurboAir	M3R47-2-N	52x31x78	42.3 CF	322	57%
	Reach-In Refrigerator, Single	Continental	DL1R-S	26x29x83	16 CF	633	TurboAir	M3R19-1-N	32x31x78	18.7 CF	288	55%
	Sink Agitator	Kewanee	K-99	14x11x19	--	560	Kewanee	K-99	14x11x19	--	560	0%
	Sink Heater	Hatco	3CS2	7x18x10	(3) 21x25 Sinks	9,000	Hatco	3CS2	7x18x10	(3) 21x25 Sinks	9,000	0%
	Steamer, Double	Market Forge	Altair II - 10	24x31x67	(10) Hotel Pans	19,600	Sterling	SP208-6-1-AF	23x30x54	(12) Hotel Pans	12,460	36%
	Therm and Hold Oven, Double	Winston Industries	CAT522-HR	28x35x77	(14) Full Sheet Pans	11,215	Cres Cor	1000-CH-AL-2DX	23x33x74	(16) Full Sheet Pans	6,000	47%
	Walk-In Cooler	N/A	N/A	--	8' x 10' x 8.5' Walk-In	2,321	Master Bilt	CPB100JC-E-4-EV	--	8' x 10' x 8.5' Walk-In	1,560	33%
	Walk-In Freezer	N/A	N/A	--	8' x 10' x 8.5' Walk-In	6,136	Master Bilt	CPF200JC-E-4-EV	--	8' x 10' x 8.5' Walk-In	2,309	62%
	Water Filter	Antunes	VZN-421H-T5	31x9x39	100 psi	10	Antunes	VZN-421H-T5	31x9x39	100 psi	10	0%

* Equipment in gray: SCA is already specifying the most energy-efficiency model

KITCHEN EQUIPMENT SUMMARY: PS “A” in Brooklyn

59,439 GSF			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS	
406 students		#	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	% kW	
KITCHEN APPLIANCES	Steamer, Double	1	Market Forge	Altair II - 10	19,600	1,181	0.34	Sterling	SP208-6-1-AF	12,460	751	0.22	36%	
	Therm and Hold Oven, Double	3	Winston Industries	CAT522-HR	11,215	15,201	4.39	Cres Cor	1000-CH-AL-2DX	6,000	8,132	2.35	47%	
	Sink Heater	1	Hatco	3CS2	9,000	1,807	0.52	Hatco	3CS2	9,000	1,807	0.52	0%	
	Mobile Hot Food Counter	1	Delfield	Custom	4,576	193	0.06	Vollrath	38710	2,100	89	0.03	54%	
	Mobile Cold Food Counter	1	Delfield	Custom	1,800	76	0.02	Beverage Air	SPE72HC-30-S	621	26	0.01	66%	
	Reach-In Freezer, Double	3	Continental	DL2F-SS-GD	1,610	7,274	2.10	Everest	ESF2	863	3,897	1.13	46%	
	Mobile Heated Cabinet, Double	2	Wittco Foodservice	1826-15-SCHNY	1,500	285	0.08	Delfield	GAH1-SH	368	70	0.02	75%	
	Reach-In Refrigerator, Double	3	Continental	DL2R-SS	748	3,377	0.98	TurboAir	M3R47-2-N	322	1,455	0.42	57%	
	Sink Agitator	1	Kewanee	K-99	560	1,124	0.42	Kewanee	K-99	560	1,124	0.42	0%	
	Food Processor	1	Waring	WFP16SCD	672	1,181	0.34	Primo	PVC-500	550	966	0.28	18%	
	Drink Dispenser	1	Crathco	D15-3	340	84	0.02	Adcraft	JD-1	278	68	0.02	18%	
	Food Slicer	1	Bizerba	GSP HD STD-90	312	548	0.34	Vollrath	SLM300P	300	527	0.15	4%	
	Milk Cooler	1	True	TMC-34-S-SS-HC	311	468	0.17	Beverage-Air	SM34HC	253	381	0.17	19%	
	Can Opener	1	Edlund	270 NSF	173	312	0.09	Edlund	270 NSF	173	312	0.09	0%	
	Water Filter	1	Antunes	VZN-421H-T5	10	2	0.001	Antunes	VZN-421H-T5	10	2	0.001	0%	
	TOTALS					81,071	33,112	9.87			48,594	19,608	5.81	
									ISOLATED ENERGY SAVINGS (% kW, % kWh)					40.8%
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)					41.1%	

KITCHEN EQUIPMENT SUMMARY: IS “B” in Queens

			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
		#	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	% kW
76,151 GSF													
725 students													
KITCHEN APPLIANCES	Combination Oven, Double	2	Alto Shaam	CTP7-20E	33,000	9,940	2.96	Convotherm	C4eT 6.20 ES-N	31,800	9,578	2.77	4%
	Range with Oven	1	Garland	GME36-I14C	21,100	17,159	4.49	Smeg	SPR36UIMX	14,300	11,629	3.36	32%
	Steamer, Double	1	Market Forge	Altair II - 10	19,600	1,181	0.34	Sterling	SP208-6-1-AF	12,460	751	0.22	36%
	Sink Heater	1	Hatco	3CS2	9,000	1,807	0.52	Hatco	3CS2	9,000	1,807	0.52	0%
	Walk-In Freezer	1	N/A	N/A	6,136	15,155	3.40	Master Bilt	CPF200JC-E-4-EV	2,309	5,703	1.65	62%
	Mobile Hot Food Counter	2	Delfield	Custom	4,576	386	0.11	Vollrath	38710	2,100	177	0.05	54%
	Walk-In Cooler	1	N/A	N/A	2,321	3,495	0.52	Master Bilt	CPB100JC-E-4-EV	1,560	2,349	0.68	33%
	Mobile Cold Food Counter	2	Delfield	Custom	1,800	152	0.04	Beverage Air	SPE72HC-30-S	621	52	0.02	66%
	Reach-In Freezer, Double	4	Continental	DL2F-SS-GD	1,610	9,699	2.80	Everest	ESF2	863	5,196	1.50	46%
	Mobile Heated Cabinet, Double	4	Wittco Foodservice	1826-15-SCHNY	1,500	569	0.16	Delfield	GAH1-SH	368	140	0.04	75%
	Reach-In Refrigerator, Double	5	Continental	DL2R-SS	748	5,629	1.63	TurboAir	M3R47-2-N	322	2,425	0.70	57%
	Sink Agitator	2	Kewanee	K-99	560	2,249	0.60	Kewanee	K-99	560	2,249	0.84	0%
	Food Mixer	1	Globe	SP20	690	170	0.05	Globe	SP20	690	170	0.05	0%
	Food Processor	1	Waring	WFP16SCD	672	1,181	0.34	Primo	PVC-500	550	966	0.28	18%
	Drink Dispenser	2	Crathco	D15-3	340	167	0.05	Adcraft	JD-1	278	137	0.04	18%
	Food Slicer	1	Bizerba	GSP HD STD-90	312	548	0.34	Vollrath	SLM300P	300	527	0.15	4%
	Milk Cooler	2	True	TMC-34-S-SS-HC	311	935	0.27	Beverage-Air	SM34HC	253	762	0.22	19%
	Can Opener	1	Edlund	270 NSF	173	312	0.09	Edlund	270 NSF	173	312	0.09	0%
	Water Filter	1	Antunes	VZN-421H-T5	10	2	0.001	Antunes	VZN-421H-T5	10	2	0.001	0%
	TOTALS					157,364	70,736	18.72			119,098	44,932	13.17
								ISOLATED ENERGY SAVINGS (% kW, % kWh)					36.5%
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)					29.7%

KITCHEN EQUIPMENT SUMMARY: HS “C” in Queens

110,142 GSF 1,009 students		#	CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS
			Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	Manufacturer	Model #	kW	KWh/yr	Co2e (MT)	% kW
KITCHEN APPLIANCES	Combination Oven, Double	2	Alto Shaam	CTP7-20E	33,000	9,940	2.96	Convotherm	C4eT 6.20 ES-N	31,800	9,578	2.77	4%
	Range with Oven	1	Garland	GME36-I14C	21,100	17,159	4.49	Smeg	SPR36UIMX	14,300	11,629	3.36	32%
	Steamer, Double	2	Market Forge	Altair II - 10	19,600	2,361	0.68	Sterling	SP208-6-1-AF	12,460	1,501	0.43	36%
	Sink Heater	1	Hatco	3CS2	9,000	1,807	0.52	Hatco	3CS2	9,000	1,807	0.52	0%
	Walk-In Freezer	1	N/A	N/A	6,136	15,155	3.40	Master Bilt	CPF200JC-E-4-EV	2,309	5,703	1.65	62%
	Mobile Hot Food Counter	1	Delfield	Custom	4,576	193	0.06	Vollrath	38710	2,100	89	0.03	54%
	Merchandise Heated	2	Husmann	IM-05-X4-H	4,160	9,022	2.61	Alto-Shaam	HSM-48/5S	4,000	8,675	2.51	4%
	Walk-In Cooler	1	N/A	N/A	2,321	3,495	0.52	Master Bilt	CPB100JC-E-4-EV	1,560	2,349	0.68	33%
	Merchandise Refrigerated	4	Federal	RSSM-460SC	2,200	9,542	2.76	Avantco	BVAC-46HC	950	4,120	1.19	57%
	Hot Food Slide	2	Hatco	GR2SDS-36D	2,040	4,424	1.28	Adcraft	HFD-85	1,160	2,516	0.72	43%
	Mobile Cold Food Counter	1	Delfield	Custom	1,800	76	0.02	Beverage Air	SPE72HC-30-S	621	26	0.01	66%
	Reach-In Freezer, Double	3	Continental	DL2F-SS-GD	1,610	7,274	2.10	Everest	ESF2	863	3,897	1.13	46%
	Mobile Heated Cabinet, Double	4	Wittco Foodservice	1826-15-SCHNY	1,500	569	0.16	Delfield	GAH1-SH	368	140	0.04	75%
	Reach-In Refrigerator, Double	3	Continental	DL2R-SS	748	3,377	0.98	TurboAir	M3R47-2-N	322	1,455	0.42	57%
	Reach-In Freezer, Single	1	Continental	DL1F-SS-GD	725	1,789	0.52	Everest	ESF1	575	1,420	0.41	21%
	Sink Agitator	1	Kewanee	K-99	560	1,124	0.30	Kewanee	K-99	560	1,124	0.42	0%
	Food Processor	1	Waring	WFP16SCD	672	1,181	0.34	Primo	PVC-500	550	966	0.28	18%
	Reach-In Refrigerator, Single	3	Continental	DL1R-S	633	2,858	0.83	TurboAir	M3R19-1-N	288	1,299	0.38	55%
	Drink Dispenser	1	Crathco	D15-3	340	84	0.02	Adcraft	JD-1	278	68	0.02	18%
	Food Slicer	1	Bizerba	GSP HD STD-90	312	548	0.34	Vollrath	SLM300P	300	527	0.15	4%
	Can Opener	1	Edlund	270 NSF	173	312	0.09	Edlund	270 NSF	173	312	0.09	0%
	Water Filter	1	Antunes	VZN-421H-T5	10	2	0.001	Antunes	VZN-421H-T5	10	2	0.001	0%
	TOTALS					189,094	92,293	24.98			140,854	59,204	17.19
								ISOLATED ENERGY SAVINGS (% kW, % kWh)					35.9%
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)					31.2%

ISOLATED KITCHEN EQUIPMENT RESULTS

- Annual energy savings and GHG emissions = Equivalent Full Load Hours (EFLH) x Wattage x Equipment Quantity
- EFLH based on usage factors, diversity factors, and daily hours of operation from LL31 Feasibility Study
- Annual energy savings of 35.5% to 40.8% per school
- Annual GHG emissions savings of 4.1 to 7.8 MTCO₂e per school
- Warming kitchen at PS “A” in Brooklyn has larger savings because it does not have combi ovens (the proposed alternative combi oven reduces energy demand by only 4%)
- Merchandisers have similar energy demand to hot and cold food counters but much larger annual energy use because they lose much more energy to the ambient air



BUILDING / INSTRUCTIONAL EQUIPMENT 1:1 COMPARISON

1:1 COMPARISON

		CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND
		Manufacturer	Model #	Size	Capacity	Wattage	Manufacturer	Model #	Size	Capacity	Wattage	SAVINGS
BUILDING AND INSTRUCTIONAL EQUIPMENT	Clock	Bogen Engineering Systems	V4.1	12" diameter	--	0.84	Bogen Engineering Systems	V4.1	12" diameter	--	0.84	0%
	Compactor	Compactors Inc.	Trashpacker 4500SS	29x28x78	6 cu ft	1,080	Compactors Inc.	Trashpacker 4500SS	29x28x78	6 cu ft	1,080	0%
	Display Monitor	Alpha-American	Alpha 9670 RGB	70x11x4	1800 Nits	65	BenQ	SL5502K	49x28x3	500 nits	50	23%
	Electric Water Cooler	Elkay	EZS8L	19x19x20	8GPH	370	Hasley Taylor	HVRGRN8	21x21x27	8 GPH	260	30%
	Electric Water Cooler - Bi-Level	Elkay	EZSTL8LC	37x19x26	8 GPH	370	Elkay	VRGCGRNTL8C	37x19x27	8 GPH	260	30%
	Electric Water Cooler - Bottle Filler	Halsey Taylor	HTHB-HAC8WF	18x19x52	8 GPH	260	Halsey Taylor	HTHB-HAC8WF	18x19x52	8 GPH	260	0%
	Electric Scoreboard	NEVCO	2770	8'x6'	--	104	NEVCO	2770	8'x6'	--	104	0%
	Microwave	Cuisinart	CMW-100	21x18x12	1 CF	1,450	Cuisinart	CMW-100	1 CF	1 CF	1,450	0%
	Refrigerator - Medical	LabRep Co.	CliniCool LHP-2-UR-PH	14x9x16	1 CF	104	AccuCold	ARG1PV	22x18x20	1 CF	69	34%
	Time Recorder	Amano	EX-9000	13x11x7	--	30	Amano	BX-1500	8x9x4	--	8	73%
	Workshop Drill Press	Jet	JDP-15B	15"	210 - 3500 RPM	560	Dayton	54ZW29	15"	210 - 3500 RPM	373	33%
	Workshop Tool Grinder	Baldor	7308	21x11x10	1500/1800 RPM	345	Dayton	2LKR5	19x15x10	3450 max	186	46%
	Monitor - Interactive	Promethean	AB6T78	78"	32768x32768	300	Prowise	PW.1.17075.X001	75"	3840x2160	139	54%
	Monitor - Whiteboard	SMART Board	MX275-V2	69x42x5	75"	114	SMART Board	MX275-V2	69x42x5	75"	114	0%
	Lab Drying Oven	Binder	ED 56	23x25x23	2 cu ft	1,050	Binder	ED 56	23x25x23	2 cu ft	1,050	0%
	Lab Electric Bunsen Burner	Lab-Aids	Control Point Heater	--	150C	60	Lab-Aids	Control Point Heater	--	150C	60	0%
	Lab Explosion-Proof Freezer	Thermo Scientific	05EFEETSA	34x22x31	5 cf	127	Thermo Scientific	05EFEETSA	34x22x31	5 cf	127	0%
	Lab Explosion-Proof Refrigerator	Thermo Scientific	20EREETSA	33x34x74	20.9 cf	575	Liebherr	LRBFS20W1HC	30x29x65	20 cf	345	40%
	Lab Fume Hood	Erlab	Captair Flex XLS 392	40x27x41	--	105	Air Science USE	PURAIR10-XT	30x28x53	--	37	65%
	Lab Ice Maker	Scotsman	CU1526A	27x28x33	150 lbs/day	1,323	Manitowoc	URF-0140A	26x29x33	137 lbs/day	575	57%
	Lab Mobile Plant Study Center	Grower's Supply	B3B-PKG2	74x53x20	2 shelves	240	Gardeners Supply Company	LED SunLite 3-Tier Garden	69x51x15	3 shelves	120	50%
	Lab Sterilizer	All American	25X	17x13x13	25 qt / 23.6 L	1050	Revolutionary Science	RS-SC-200L	16x13.5x21	10.6 qt / 10 L	700	33%
	Projector	Epson	G6770WUNL WUXGA 3LCD	20x16x6	1920x1200	528	Panasonic	PT-JW130	17x14x13	1280x800	125	76%

* Equipment in gray: SCA is already specifying the most energy-efficiency model

BUILDING / INSTRUCTIONAL EQUIPMENT SUMMARY: PS “A” in Brooklyn



59,439 GSF			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS			
406 students		#	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	% kW			
BUILDING AND INSTRUCTIONAL EQUIPMENT	Microwave	1	Cuisinart	CMW-100	1,450	728	0.210	Cuisinart	CMW-100	1,450	728	0.210	0%			
	Compactor	1	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	0%			
	Workshop Drill Press	1	Jet	JDP-15B	560	4	0.001	Dayton	54ZW29	373	3	0.001	33%			
	Projector	2	Epson	G6770WUNL WUXGA 3LCD	528	151	0.044	Panasonic	PT-JW130	125	36	0.010	76%			
	Electric Water Cooler	5	Elkay	EZS8L	370	1,857	0.537	Hasley Taylor	HVRGRN8	260	1,305	0.377	30%			
	Electric Water Cooler - Bi-Level	4	Elkay	EZSTL8LC	370	1,486	0.429	Elkay	VRGCGRNTL8C	260	1,044	0.302	30%			
	Workshop Tool Grinder	1	Baldor	7308	345	3	0.001	Dayton	2LKR5	186	1	0.000	46%			
	Monitor - Interactive	9	Promethean	AB6T78	300	2,487	0.719	Prowise	PW.1.17075.X001	139	1,152	0.333	54%			
	Electric Water Cooler - Bottle Filler	6	Halsey Taylor	HTHB-HAC8WF	260	1,566	0.453	Halsey Taylor	HTHB-HAC8WF	260	1,566	0.453	0%			
	Refrigerator - Medical	1	LabRep Co.	CliniCool LHP-2-UR-PH	104	157	0.045	AccuCold	ARG1PV	69	104	0.030	34%			
	Time Recorder	2	Amano	EX-9000	30	10	0.003	Amano	BX-1500	8	3	0.001	73%			
	Clock	42	Bogen Engineering Systems	V4.1	1	309	0.089	Bogen Engineering Systems	V4.1	1	309	0.089	0%			
	TOTALS			10,830				9,657	2.79	7,161				7,150	2.07	
									ISOLATED ENERGY SAVINGS (% kW, % kWh)				26.0%			
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)				26.0%				

BUILDING / INSTRUCTIONAL EQUIPMENT SUMMARY: IS “B” in Queens



76,151 GSF

725 students

76,151 GSF			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS	
725 students		#	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	% kW	
BUILDING AND INSTRUCTIONAL EQUIPMENT	Microwave	1	Cuisinart	CMW-100	1,450	728	0.210	Cuisinart	CMW-100	1,450	728	0.210	0%	
	Compactor	1	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	0%	
	Lab Drying Oven	1	Binder	ED 56	1,050	188	0.054	Binder	ED 56	1,050	188	0.054	0%	
	Lab Sterilizer	1	All American	25X	1,050	188	0.054	Revolutionary Science	RS-SC-200L	700	125	0.036	33%	
	Workshop Drill Press	1	Jet	JDP-15B	560	4	0.001	Dayton	54ZW29	373	3	0.001	33%	
	Electric Water Cooler	2	Elkay	EZS8L	370	743	0.215	Hasley Taylor	HVRGRN8	260	522	0.151	30%	
	Workshop Tool Grinder	1	Baldor	7308	345	3	0.001	Dayton	2LKR5	186	1	0.000	46%	
	Monitor - Interactive	34	Promethean	AB6T78	300	9,394	2.715	Prowise	PW.1.17075.X001	139	4,353	1.258	54%	
	Lab Mobile Plant Study Center	1	Grower's Supply	B3B-PKG2	240	43	0.012	Gardeners Supply Company	LED SunLite 3-Tier Garden	120	21	0.006	50%	
	Lab Fume Hood	4	Erlab	Captair Flex XLS 392	105	18	0.005	Air Science USE	PURAIR10-XT	37	6	0.002	65%	
	Electric Scoreboard	1	NEVCO	2770	104	19	0.005	NEVCO	2770	104	19	0.005	0%	
	Refrigerator - Medical	1	LabRep Co.	CliniCool LHP-2-UR-PH	104	157	0.045	AccuCold	ARG1PV	69	104	0.030	34%	
	Lab Electric Bunsen Burner	3	Lab-Aids	Control Point Heater	60	32	0.009	Lab-Aids	Control Point Heater	60	32	0.009	0%	
	Refrigerator - Under Counter	1	Varies	-	37	56	0.016	Varies	-	23	35	0.010	38%	
	Time Recorder	1	Amano	EX-9000	30	5	0.001	Amano	BX-1500	8	1	0.000	73%	
	Clock	71	Bogen Engineering Systems	V4.1	1	522	0.151	Bogen Engineering Systems	V4.1	1	522	0.151	0%	
	TOTALS					21,020	17,687	5.11			13,047	10,893	3.15	
									ISOLATED ENERGY SAVINGS (% kW, % kWh)					38.4%
									ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)					38.4%

BUILDING / INSTRUCTIONAL EQUIPMENT SUMMARY: HS "C" in Queens

110,142 GSF			CURRENT STANDARD					PROPOSED ALTERNATIVES					DEMAND SAVINGS	
1,009 students		#	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	Manufacturer	Model #	Wattage	KWh/yr	Co2e (MT)	% kW	
BUILDING AND INSTRUCTIONAL EQUIPMENT	Microwave	1	Cuisinart	CMW-100	1,450	728	0.210	Cuisinart	CMW-100	1,450	728	0.210	0%	
	Lab Ice Maker	2	Scotsman	CU1526A	1,323	3,983	1.151	Manitowoc	URF-0140A	575	1,732	0.500	57%	
	Compactor	1	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	Compactors Inc.	Trashpacker 4500SS	1,080	1,626	0.470	0%	
	Lab Drying Oven	2	Binder	ED 56	1,050	376	0.109	Binder	ED 56	1,050	376	0.109	0%	
	Lab Sterilizer	2	All American	25X	1,050	376	0.109	Revolutionary Science	RS-SC-200L	700	251	0.072	33%	
	Lab Explosion-Proof Refrigerator	2	Thermo Scientific	20EREETSA	575	1,732	0.500	Liebherr	LRBFS20W1HC	345	1,039	0.300	40%	
	Workshop Drill Press	1	Jet	JDP-15B	560	4	0.001	Dayton	54ZW29	373	3	0.001	33%	
	Projector	1	Epson	G6770WUNL WUXGA 3LCD	528	76	0.022	Panasonic	PT-JW130	125	18	0.005	76%	
	Electric Water Cooler	4	Elkay	EZS8L	370	1,486	0.429	Hasley Taylor	HVRGRN8	260	1,044	0.302	30%	
	Electric Water Cooler - Bi-Level	3	Elkay	EZSTL8LC	370	1,114	0.322	Elkay	VRGCGRNTL8C	260	783	0.226	30%	
	Workshop Tool Grinder	1	Baldor	7308	345	3	0.001	Dayton	2LKR5	186	1	0.000	46%	
	Monitor - Interactive	36	Promethean	AB6T78	300	9,947	2.874	Prowise	PW.1.17075.X001	139	4,609	1.332	54%	
	Electric Water Cooler - Bottle Filler	2	Halsey Taylor	HTHB-HAC8WF	260	522	0.151	Halsey Taylor	HTHB-HAC8WF	260	522	0.151	0%	
	Lab Mobile Plant Study Center	2	Grower's Supply	B3B-PKG2	240	86	0.025	Gardeners Supply Company	LED SunLite 3-Tier Garden	120	43	0.012	50%	
	Lab Explosion-Proof Freezer	1	Thermo Scientific	05EFEETSA	127	312	0.090	Thermo Scientific	05EFEETSA	127	312	0.090	0%	
	Lab Fume Hood	7	Erlab	Captair Flex XLS 392	105	31	0.009	Air Science USE	PURAIR10-XT	37	11	0.003	65%	
	Electric Scoreboard	1	NEVCO	2770	104	19	0.005	NEVCO	2770	104	19	0.005	0%	
	Refrigerator - Medical	1	LabRep Co.	CliniCool LHP-2-UR-PH	104	157	0.045	AccuCold	ARG1PV	69	104	0.030	34%	
	Lab Electric Bunsen Burner	39	Lab-Aids	Control Point Heater	60	419	0.121	Lab-Aids	Control Point Heater	60	419	0.121	0%	
	Time Recorder	2	Amano	EX-9000	30	10	0.003	Amano	BX-1500	8	3	0.001	73%	
	Clock	111	Bogen Engineering Systems	V4.1	1	817	0.236	Bogen Engineering Systems	V4.1	1	817	0.236	0%	
	TOTALS					25,816	19,113	5.52			16,546	12,000	3.47	
								ISOLATED ENERGY SAVINGS (% kW, % kWh)					37.2%	
								ISOLATED GHG EMISSIONS SAVINGS (% MTCO2e)					37.2%	

ISOLATED BUILDING / INSTRUCTIONAL EQUIPMENT RESULTS

- Annual energy savings and GHG emissions = Equivalent Full Load Hours (EFLH) x Wattage x Equipment Quantity
- EFLH based on usage factors, diversity factors, and daily hours of operation from LL31 Feasibility Study
- Annual energy savings of 26.0% to 38.4% per school
- Annual GHG emissions savings of 0.7 to 2.1 MTCO₂e per school
- With network infrastructure and networked equipment excluded, greatest energy savings come from:
 1. interactive monitors
 2. alternative science lab equipment
 3. electric water coolers (drinking fountains)
- Total annual savings for instructional and building services equipment \approx 1/4 of savings for kitchen equipment



BUILDING-WIDE ENERGY MODEL SAVINGS: PS K053

	Current SCA Standard All Equipment	Energy Savings		
		Proposed Alternatives Kitchen Equipment Only		Proposed Alternatives All Equipment
		kWh	Savings	kWh Savings
Interior Lighting	46,988	46,988	0.00%	46,988 0.00%
Misc Equipment	90,401	90,401	0.00%	87,895 2.77%
Misc Kitchen	36,655	20,168	44.98%	20,168 44.98%
Misc Source	1,176	747	36.48%	747 36.48%
Heating	85,247	85,401	-0.18%	86,039 -0.93%
Cooling	65,852	65,785	0.10%	65,545 0.47%
Pumps	3,475	3,474	0.03%	3,476 -0.03%
Ventilation	68,815	68,814	0.00%	68,778 0.05%
DHW	27,349	27,349	0.00%	27,349 0.00%
Exterior Lighting	3,507	3,507	0.00%	3,507 0.00%
TOTAL CONSUMPTION	429,465	412,634	3.92%	410,492 4.42%
Total Equipment	128,232	111,316	13.2%	108,810 15.1%
Annual Sum of Peak Monthly kW	3,330	3,265	1.9%	3,260 2.1%
Source EUI (kBtu/sf/yr)	65.0	62.0	4.6%	61.7 5.1%
GHG Emissions (MT CO2e/yr)	124	119	3.9%	119 4.4%

BUILDING-WIDE ENERGY MODEL RESULTS: IS Q429

	Current SCA Standard All Equipment		Energy Savings							
			Proposed Alternatives Kitchen Equipment Only				Proposed Alternatives All Equipment			
			kWh	therms	kWh	Savings	therms	Savings	kWh	Savings
Interior Lighting	63,183		63,183	0.00%			63,183	0.00%		
Misc Equipment	212,263		212,263	0.00%			204,553	3.63%		
Misc Kitchen	55,533		29,089	47.62%			29,089	47.62%		
Misc Source	28,273		25,553	9.62%			25,553	9.62%		
Heating	189	1,473	190	-0.53%	1,570	-6.59%	190	-0.53%	1,624	-10.25%
Cooling	104,915		104,865	0.05%			104,386	0.50%		
Pumps	12,318		12,326	-0.06%			12,345	-0.22%		
Ventilation	83,712		83,713	0.00%			83,098	0.73%		
DHW		4,057			4,057	0.00%			4,057	0.00%
Exterior Lighting	3,680		3,680	0.00%			3,680	0.00%		
TOTAL CONSUMPTION	564,066	5,530	534,862	5.2%	5,627	-1.8%	526,077	6.7%	5,681	-2.7%
Total Equipment	296,069		266,905	9.9%			259,195	12.5%		
Annual Sum of Peak Monthly kW	3,041		2,937		3.4%		2,887		5.0%	
Source EUI (kBtu/sf/yr)	67.5		64.5		4.4%		63.6		5.8%	
GHG Emissions (MT CO2e/yr)	163		155		5.2%		152		6.7%	

*The baseline energy model for this project used an older SCA modeling protocol with fewer standard inputs, which may be responsible for the relatively high heating energy penalty created by the alternative equipment.

BUILDING-WIDE ENERGY MODEL SAVINGS: HS Q575

	Current SCA Standard All Equipment		Energy Savings									
			Proposed Alternatives Kitchen Equipment Only				Proposed Alternatives All Equipment					
			kWh	therms	kWh	Savings	therms	Savings	kWh	Savings	therms	Savings
Interior Lighting	123,848		123,848	0.00%			123,848	0.00%				
Misc Equipment	186,497		186,497	0.00%			185,210	0.69%				
Misc Kitchen	69,839		42,905	38.57%			42,905	38.57%				
Misc Source	30,440		22,756	25.24%			22,756	25.24%				
Heating	7,064	10,317	7,109	-0.64%	10,318	-0.01%	7,112	-0.68%		10,334	-0.16%	
Cooling	237,957		236,033	0.81%			235,935	0.85%				
Pumps	25,388		25,256	0.52%			25,252	0.54%				
Ventilation	218,196		217,532	0.30%			217,498	0.32%				
DHW		2,877			2,877	0.00%				2,877	0.00%	
Exterior Lighting	0		0				0					
TOTAL CONSUMPTION	899,229	13,194	861,936	4.1%	13,195	-0.01%	860,516	4.3%		13,211	-0.13%	
Total Equipment	286,776		252,158	12.1%			250,871	12.5%				
Annual Sum of Peak Monthly kW	3,996		3,879		2.9%		3,872			3.1%		
Source EUI (kBtu/sf/yr)	82.9		79.9		3.6%		79.8			3.7%		
GHG Emissions (MT CO2e/yr)	260		249		4.1%		249			4.3%		

BUILDING-WIDE ENERGY MODEL RESULTS

- Equipment energy savings from building-wide energy models agree with isolated savings calculations
- Source EUI savings of up to 3.9 kBtu/sf/yr per school
- Annual GHG emissions savings of up to 11 MTCO₂e/yr per school
- Kitchen non-cooking equipment energy savings > kitchen cooking equipment (kitchen “source”) savings because more energy-efficient alternatives were easier to find
- Total annual savings for instructional and building services equipment < 1/5 of savings for kitchen equipment
- Minimal impacts to energy use for heating*, cooling, ventilation, pumps (*high heating energy penalty for IS “B” in Queens is likely due to older modeling protocol)



Appendix G. Energy Model Output Tables

	PS "A" in Brooklyn				% Total			% Savings		
	Initial	Proposed Kitchen	Proposed Non-Kitchen	Proposed Kitchen + Non-Kitchen	Proposed Kitchen	Proposed Non-Kitchen	Proposed Kitchen + Non-Kitchen	Proposed Kitchen	Proposed Non-Kitchen	Proposed Kitchen + Non-Kitchen
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
Interior Lighting	46,988	46,988	46,988	46,988	11.4%	11.0%	11.4%	0.00%	0.00%	0.00%
Misc	90,401	90,401	87,895	87,895	21.9%	20.6%	21.4%	0.00%	2.77%	2.77%
Misc Kitchen	36,655	20,168	36,655	20,168	4.9%	8.6%	4.9%	44.98%	0.00%	44.98%
Misc Source	1,176	747	1,176	747	0.2%	0.3%	0.2%	36.48%	0.00%	36.48%
Heat	85,247	85,401	85,663	86,039	20.7%	20.1%	21.0%	-0.18%	-0.49%	-0.93%
Cool	65,852	65,785	65,614	65,545	15.9%	15.4%	16.0%	0.10%	0.36%	0.47%
Pumps	3,475	3,474	3,475	3,476	0.8%	0.8%	0.8%	0.03%	0.00%	-0.03%
Vent	68,815	68,814	68,776	68,778	16.7%	16.1%	16.8%	0.00%	0.06%	0.05%
DHW	27,349	27,349	27,349	27,349	6.6%	6.4%	6.7%	0.00%	0.00%	0.00%
Exterior Lighting	3,507	3,507	3,507	3,507	0.8%	0.8%	0.9%	0.00%	0.00%	0.00%
TOTAL	429,465	412,634	427,098	410,492	100.0%	100.0%	100.0%	3.92%	0.55%	4.42%
Total Equipment	128,232	111,316	125,726	108,810	26.98%	29.44%	26.51%			
Peak kW	493.81	492.76	494.50	493.50				0.21%	-0.14%	0.06%
Peak Sum	3,329.99	3,265.48	3,324.72	3,260.11				1.94%	0.16%	2.10%
MBTU Site	1,465.75	1,408.31	1,457.67	1,401.00				3.9%	0.6%	4.4%
MBTU Srce	3,814.61	3,642.17	3,783.91	3,623.42				4.5%	0.8%	5.0%
EUI Srce	65.00	62.00	64.60	61.70				4.6%	0.6%	5.1%

	IS "B" in Queens								% Total						% Savings					
	Initial		Proposed Kitchen		Proposed Non-Kitchen		Proposed Kitchen + Non-Kitchen		Proposed Kitchen		Proposed Non-Kitchen		Proposed Kitchen + Non-Kitchen		Proposed Kitchen		Proposed Non-Kitchen		Proposed Kitchen + Non-Kitchen	
	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm
Interior Lighting	123,848		123,848		123,848		123,848		14.4%		13.8%		14.4%		0.00%		0.00%		0.00%	
Misc	186,497		186,497		185,210		185,210		21.6%		20.6%		21.5%		0.00%		0.69%		0.69%	
Misc Kitchen	69,839		42,905		69,839		42,905		5.0%		7.8%		5.0%		38.57%		0.00%		38.57%	
Misc Source	30,440		22,756		30,440		22,756		2.6%		3.4%		2.6%		25.24%		0.00%		25.24%	
Heat	7,064	10,317	7,109	10,318	7,067	10,332	7,112	10,334	0.8%	78.2%	0.8%	78.2%	0.8%	78.2%	-0.64%	-0.01%	-0.04%	-0.15%	-0.68%	-0.16%
Cool	237,957		236,033		237,973		235,935		27.4%		26.5%		27.4%		0.81%		-0.01%		0.85%	
Pumps	25,388		25,256		25,383		25,252		2.9%		2.8%		2.9%		0.52%		0.02%		0.54%	
Vent	218,196		217,532		218,189		217,498		25.2%		24.3%		25.3%		0.30%		0.00%		0.32%	
DHW		2,877		2,877		2,877		2,877	0.0%	21.8%	0.0%	21.8%	0.0%	21.8%		0.00%		0.00%		0.00%
Exterior Lighting	0		0		0		0		0.0%		0.0%		0.0%							
TOTAL	899,229	13,194	861,936	13,195	897,949	13,209	860,516	13,211	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	4.15%	-0.01%	0.14%	-0.11%	4.31%	-0.13%
Total Equipment	286,776		252,158		285,489		250,871	0	29.25%		31.79%		29.15%							
Peak kW	474.53		465.02		473.90		464.39								2.00%		0.13%		2.14%	
Peak Sum	3,996.47		3,879.06		3,989.82		3,871.76								2.94%		0.17%		3.12%	
Peak Gas		272		273		272		273												
Peak Sum		1,318		1,319		1,320		1,321												
MBTU Site	4,388.40		4,261.28		4,385.17		4,257.94								2.9%		0.6%		100.0%	
MBTU Srce	9,125.90		8,799.69		9,115.22		8,788.70								3.6%		0.8%		100.0%	
EUI Srce	82.90		79.90		82.80		79.80								3.6%		0.6%		100.0%	

	HS "C" in Queens								% Total						% Savings					
	Initial		Proposed Kitchen		Proposed Non-Kitchen		Proposed Kitchen + Non-Kitchen		Proposed Kitchen		Proposed Non-Kitchen		Proposed Kitchen + Non-Kitchen		Proposed Kitchen		Proposed Non-Kitchen		Proposed Kitchen + Non-Kitchen	
	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm	kWh	therm
Interior Lighting	63,183		63,183		63,183		63,183		11.8%		11.4%		12.0%		0.00%		0.00%		0.00%	
Misc	212,263	4,911	212,263	4,911	204,553	4,911	204,553		39.7%		36.9%		38.9%		0.00%		3.63%		3.63%	
Misc Kitchen	55,533		29,089		55,533		29,089								47.62%		0.00%		47.62%	
Misc Source	28,273		25,553		28,273		25,553								9.62%		0.00%		9.62%	
Heat	189	1,473	190	1,570	189	1,522	190	1,624	0.0%	14.9%	0.0%	14.5%	0.0%	28.6%	-0.53%	-6.59%	0.00%	-3.33%	-0.53%	-10.25%
Cool	104,915		104,865		104,326		104,386		19.6%		18.8%		19.8%		0.05%		0.56%		0.50%	
Pumps	12,318		12,326		12,332		12,345		2.3%		2.2%		2.3%		-0.06%		-0.11%		-0.22%	
Vent	83,712		83,713		83,017		83,098		15.7%		15.0%		15.8%		0.00%		0.83%		0.73%	
DHW		4,057		4,057		4,057		4,057	0.0%	38.5%	0.0%	38.7%	0.0%	71.4%		0.00%		0.00%		0.00%
Exterior Lighting	3,680		3,680		3,680		3,680		0.7%		0.7%		0.7%		0.00%		0.00%		0.00%	
TOTAL	564,066	10,441	534,862	10,538	555,086	10,490	526,077	5,681	89.8%	53.4%	84.9%	53.2%	89.6%	100.0%	5.18%	-0.93%	1.59%	-0.47%	6.73%	45.59%
Total Equipment	296,069		266,905		288,359		259,195	0	49.90%		51.95%		49.27%							
Peak kW	348.80		334.58		338.47		329.00								4.08%		2.96%		5.68%	
Peak Sum	3,040.60		2,937.28		2,997.23		2,887.42								3.40%		1.43%		5.04%	
Peak Gas		107		108		107		108												
Peak Sum		1,044		1,054		1,049		1,059												
MBTU Site	2,969.30		2,879.34		2,943.53		2,854.71								3.0%		0.9%		3.9%	
MBTU Srce	6,819.60		6,530.28		6,732.52		6,445.69								4.2%		1.3%		5.5%	
EUI Srce	72.80		69.70		71.90		68.80								4.3%		1.2%		5.5%	