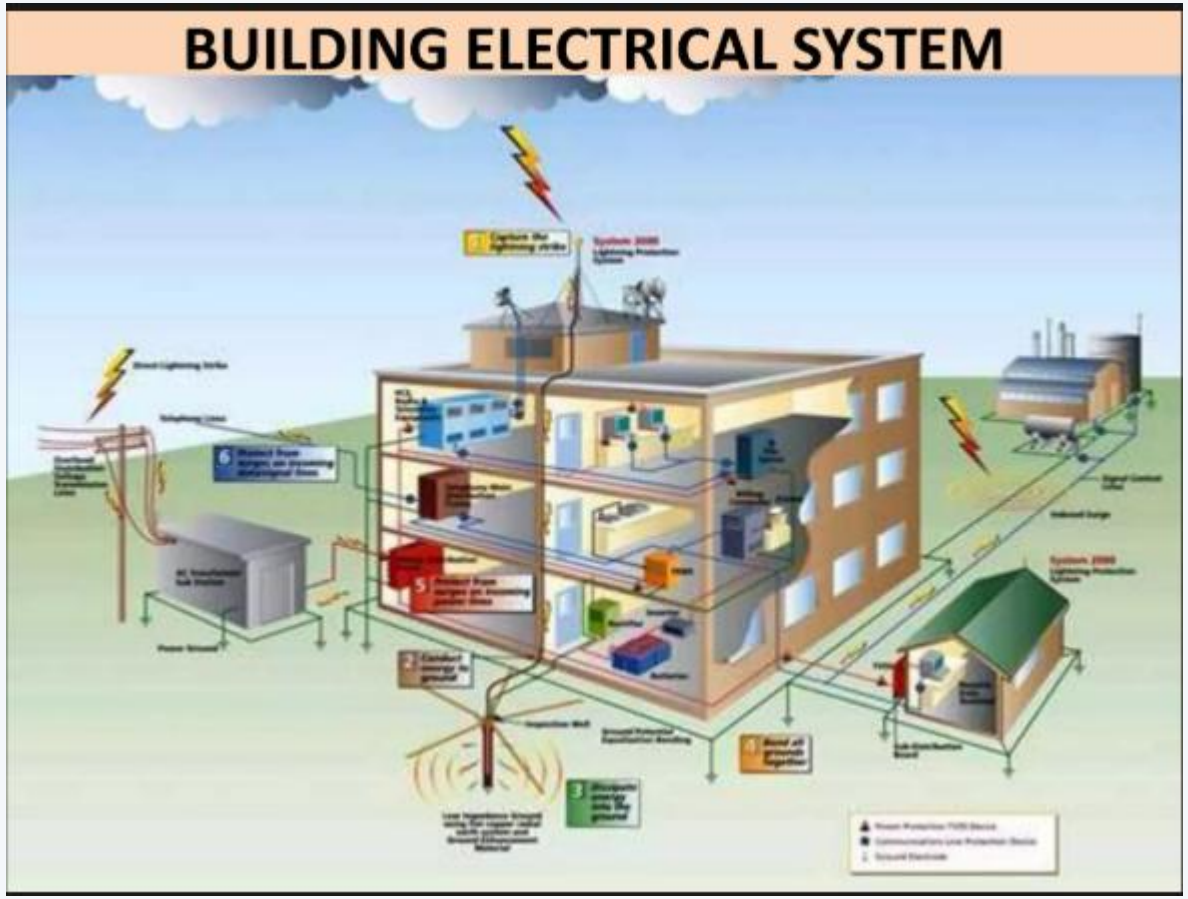
BUILDING EQUIPMENT SYSTEM SELECTION TOOL

Quick Start Guide for HVAC system selection matrix users and file managers

Excel-based logic matrix

BCAS linked source data

Ranked HVAC system choices



Use this guide to populate the required inputs, preserve formulas and source links, and interpret the ranked results.

What the user will need and both files should be in the same directory for the links to function as anticipated:

- BCAS Data Set file - Excel sheet
- Blank Selection Matrix

User workflow

1

Open workbook

Confirm macros/links are allowed and the correct project file is open.

2

Verify linked data

BCAS/database-derived cells populate building, roof, window, utilization and other base conditions.

3

Answer manual questions

Use dropdown/menu values when available; field observations supersede BCAS where needed.

4

Review logic scores

Each area type calculates feasible, possible, and terminal choices.

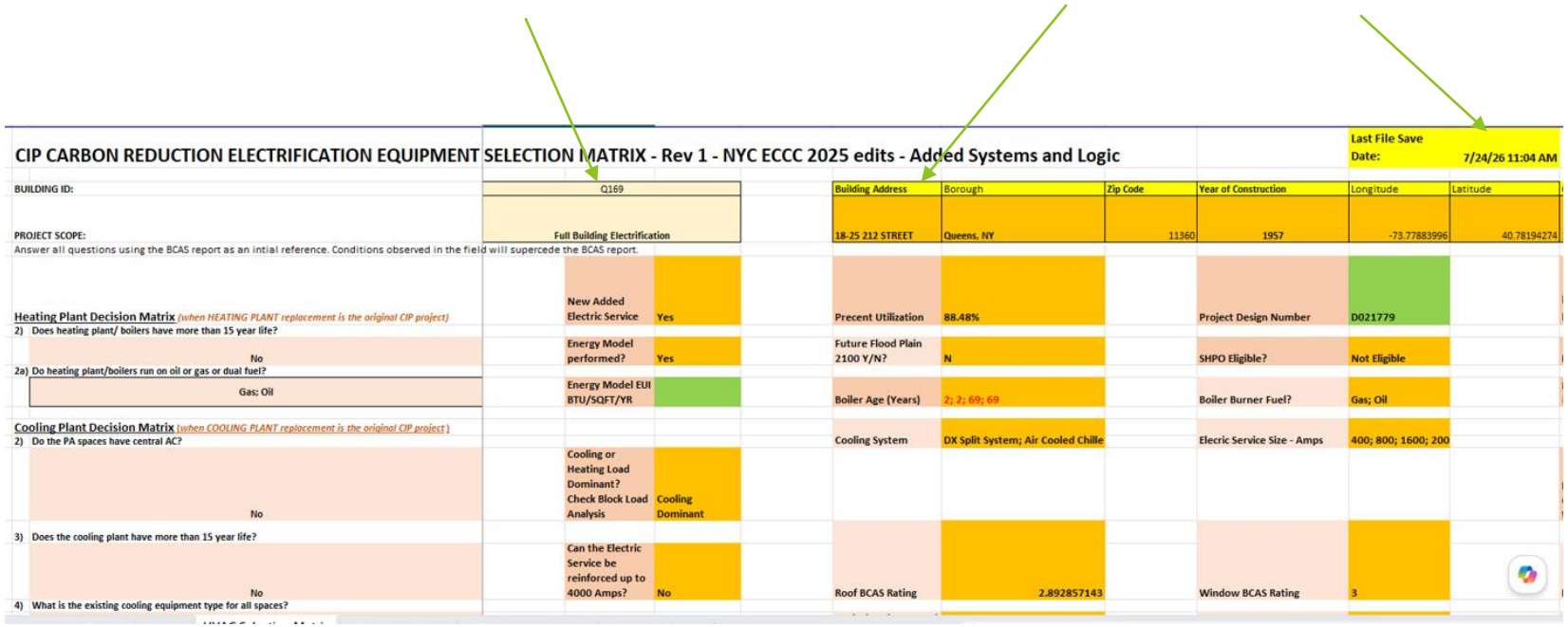
5

Read Summary tab

Use highest and second-highest rated systems for design/pricing direction.

Tip: Do not overwrite formulas in the scoring or summary cells. Use designated Yes/No and input fields only.

2. Populate the primary project inputs



CIP CARBON REDUCTION ELECTRIFICATION EQUIPMENT SELECTION MATRIX - Rev 1 - NYC ECCC 2025 edits - Added Systems and Logic

Last File Save Date: 7/24/26 11:04 AM

BUILDING ID:	Q169		Building Address	Borough	Zip Code	Year of Construction	Longitude	Latitude	
PROJECT SCOPE:	Full Building Electrification		18-25 212 STREET	Queens, NY	11360	1957	-73.77883996	40.78194274	
Answer all questions using the BCAS report as an intial reference. Conditions observed in the field will supercede the BCAS report.									
Heating Plant Decision Matrix *(when HEATING PLANT replacement is the original CIP project)*	New Added Electric Service	Yes	Precent Utilization	88.48%		Project Design Number	D021779		
2) Does heating plant/ boilers have more than 15 year life?	Energy Model performed?	Yes	Future Flood Plain 2100 Y/N?	N		SHPO Eligible?	Not Eligible		
No									
2a) Do heating plant/boilers run on oil or gas or dual fuel?	Energy Model EUI BTU/SQFT/YR		Boiler Age (Years)	2; 2; 69; 69		Boiler Burner Fuel?	Gas; Oil		
Gas; Oil									
Cooling Plant Decision Matrix *(when COOLING PLANT replacement is the original CIP project)*			Cooling System	DX Split System; Air Cooled Chille		Elecric Service Size - Amps	400; 800; 1600; 200		
2) Do the PA spaces have central AC?	Cooling or Heating Load Dominant? Check Block Load Analysis	Cooling Dominant							
No									
3) Does the cooling plant have more than 15 year life?	Can the Electric Service be reinforced up to 4000 Amps?	No	Roof BCAS Rating	2.892857143		Window BCAS Rating	3		
No									
4) What is the existing cooling equipment type for all spaces?									

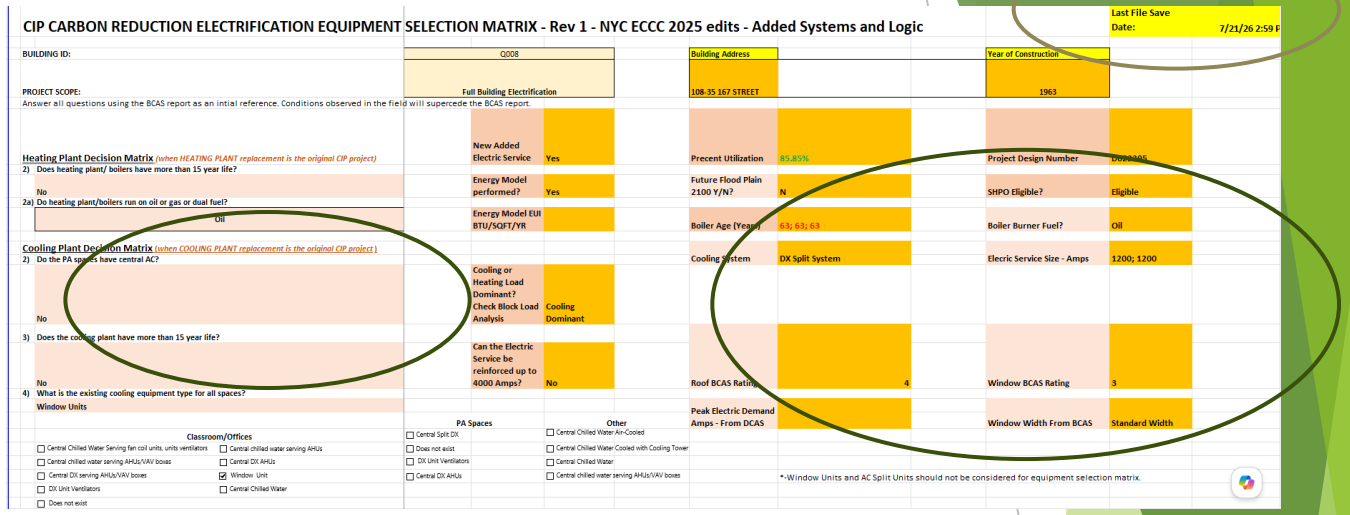
What gets populated here

- Building ID and Project Scope establish the project context.
- Heating plant and cooling plant decision questions determine candidate logic paths.
- BCAS/database fields populate available building characteristics; verify against field conditions.
- Manual Yes/No and dropdown inputs must use consistent controlled values.

If a lookup field shows “Not Found,” track it before relying on calculated ratings.

Database-linked workbook management

- Keep source database files in their expected locations or update workbook links deliberately.
- Use a controlled “working copy” for each building/project rather than editing the source template directly.
- Confirm the Last File Save Date and Building ID before starting user entry.
- Protect formula-heavy areas after validation to reduce accidental overwrites.
- Document unresolved lookup values, assumptions, and field-observation overrides.



CIP CARBON REDUCTION ELECTRIFICATION EQUIPMENT SELECTION MATRIX - Rev 1 - NYC ECCC 2025 edits - Added Systems and Logic

Last File Save Date: 7/21/26 2:59 P

BUILDING ID:	Q008		Building Address		Year of Construction		
PROJECT SCOPE:	Full Building Electrification		108-35 167 STREET		1963		
Answer all questions using the BCAS report as an intial reference. Conditions observed in the field will supercede the BCAS report.							
Heating Plant Decision Matrix *(when HEATING PLANT replacement is the original CIP project)*	New Added Electric Service	Yes	Precent Utilization	85.85%	Project Design Number	D033295	
2) Does heating plant/ boilers have more than 15 year life?	Energy Model performed?	Yes	Future Flood Plain 2100 Y/N?	N	SHPO Eligible?	Eligible	
No							
2a) Do heating plant/boilers run on oil or gas or dual fuel?	Energy Model EUI BTU/SQFT/YR		Boiler Age (Years)	63; 63; 63	Boiler Burner Fuel?	Oil	
Oil							
Cooling Plant Decision Matrix *(when COOLING PLANT replacement is the original CIP project)*			Cooling System	DX Split System	Elecric Service Size - Amps	1200; 1200	
2) Do the PA spaces have central AC?	Cooling or Heating Load Dominant? Check Block Load Analysis	Cooling Dominant					
No							
3) Does the cooling plant have more than 15 year life?	Can the Electric Service be reinforced up to 4000 Amps?	No	Roof BCAS Rating	4	Window BCAS Rating	3	
4) What is the existing cooling equipment type for all spaces?							
Window Units			Peak Electric Demand Amps - From DCAS		Window Width From BCAS	Standard Width	

Classroom/Offices	PA Spaces	Other
☐ Central Chilled Water Serving fan coil units, units ventilators	☐ Central Split DX	☐ Central Chilled Water Air-Cooled
☐ Central chilled water serving AHUs/VAV boxes	☐ Does not exist	☐ Central Chilled Water Cooled with Cooling Tower
☐ Central DX serving AHUs/VAV boxes	☐ DX Unit Ventilators	☐ Central Chilled Water
☐ DX Unit Ventilators	☐ Central DX AHUs	☐ Central chilled water serving AHUs/VAV boxes
☐ Does not exist	☐ Central Chilled Water	
☐ Central DX AHUs	☑ Window Unit	

*-Window Units and AC Split Units should not be considered for equipment selection matrix.

Controlled response values help XLOOKUP / validation logic match expected text.

Fill in the missing Project Data:

- Those are – Energy Modeling EUI Values
- And – Project Design Number

New Added Electric Service	Yes	Precent Utilization	88.48%	Project Design Number	D021779
Energy Model performed?	Yes	Future Flood Plain 2100 Y/N?	N	SHPO Eligible?	Not Eligible
Energy Model EUI BTU/SQFT/YR		Boiler Age (Years)	2; 2; 69; 69	Boiler Burner Fuel?	Gas; Oil
		Cooling System	DX Split System; Air Cooled Chille	Elecric Service Size - Amps	400; 800; 1600; 200
Cooling or Heating Load Dominant? Check Block Load Analysis	Cooling Dominant				
Can the Electric Service be reinforced up to 4000 Amps?	No	Roof BCAS Rating	2.892857143	Window BCAS Rating	3
		Peak Electric Demand Amps - From DCAS		Window Width From BCAS	Standard Width

PA Spaces | Other

- ☐ Central Chilled Water Air-Cooled
- ☐ Central Chilled Water Cooled with Cooling Tower
- ☐ Central Chilled Water
- ☐ Central chilled water serving AHUs/VAV boxes

*-Window Units and AC Split Units should not be considered for equipment selection matrix.

stem: 1- Optimal Option, 0- Possible Option, -1 - Not Desired, T-Terminal (Not Feasible)

4. Classrooms & Offices logic block

Complete existing-condition answers before interpreting ratings

Classrooms & Offices: question column, answer column, and scoring matrix

CLASSROOMS & OFFICES				Options															
Existing Conditions			Yes/No	Central RT DX Heat Pumps (includes	Split/DX Heat Pump in interior MER	Packaged Heat Pump w/ERV and electric	Heater/DU Temp/Wat to Water WCHP	Heater/DU Temp/Wit Water to Water WSH	Heater/DU Temp/Wat to Water WCHP	Chiller/He Dual Temp VUVs w/ER (Coupled i Heating)	Chiller/He Dual Temp RTU to FPA with HW reheat	Heat Pump with Electric	RTU Electr Chiller/He Dual Temp AHU to VA with HW reheat	RTU Electr Heat Pump with VAV a Electric Reheat	DX VUV-Sy Heat Pump w/ERV w/Rooftop Outdoor	VRF Heat Pump w/ D Heat Pump (Coupled i Heating)	VRF Heat Pump w/ E (Coupled i Heating)	Chiller/Heate FCU (Hydronic)	
Envelope enhancement part of the scope of work?			No	-1	-1	-1	0	1	0	0	0	-1	0	-1	-1	-1	-1	0	
Is the perimeter heat loss at the walls over 450 Btu/ LF based on load calc			Yes	1	1	1	1	0	1	0	0	1	0	-1	0	0	0	0	
Is the window to wall ratio			Yes	0	0	T	1	0	1	0	1	1	1	1	1	0	0	0	
Is the system coupled in			No	1	1	1	1	0	1	0	1	1	1	1	0	0	0	0	
Can the systems be zoned to separate interior zones from perimeter zones?			No	1	1	0	0	0	1	0	1	1	1	1	0	0	0	0	
Is the required supplemental heating density over 2.5W/Sq Ft?			Yes	-1	-1	-1	1	1	1	1	1	-1	1	-1	-1	1	1	1	
Is MERV 13 filtration of reciculated air required for space?			Yes	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	
Roof more than 15 years old? Verify with Capital Planning.			No	0	1	1	0	0	0	1	0	0	1	0	1	1	1	0	
Utilization rate less than 80%? Capital Planning to provide the information.			No	0	0	1	0	0	0	1	0	0	0	0	1	1	1	1	
MER in future flood plane for year 2100 (NYC Flood Hazard Mapper)?			No	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	
Classroom served by supply air (SA) duct system?			Yes	1	1	0	1	1	1	0	1	1	1	1	0	0	0	0	
Supply Air (SA) duct systems in classroom insulated?			No	-1	-1	1	-1	-1	-1	1	-1	-1	-1	-1	1	1	1	1	
Classroom suspended ceiling			Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Structural floor to			No	1	1					0	0	0	0	0	0	0	0	0	
Cinder concrete slabs/clay			No	1	1					0	1	1	1	1	0	0	0	0	
SHPO eligible or			Yes	1	1	0	1	1	1	0	1	1	1	1	0	0	0	0	
Is it feasible to open up the masonry to install louver?			Yes	0	0	1	0	0	0	1	0	0	0	0	1	0	1	1	
Existing unit ventilators to be removed? If none existing Enter "0" or "no" from Menu			Yes	1	1					1	1	1	1	1	1	1	1	1	
Does the building have under window perimeter heating existing?			Yes	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	
Is there existing chilled water distribution system and in good condition? If			No	1	1	1	-1	-1	-1	-1	-1	1	-1	1	1	1	1	-1	
Windows BCAS rating of 4-5, single pane, or more than 35 year old?			Yes	0	1	1	1	0	0	0	0	0	0	0	1	0	1	1	
Windows have narrow widths or most classrooms have only a few windows?			No	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Ribbon Windows in the			No	0	0	1	1	1	1	1	1	0	0	1	0	0	0	0	
Penthouse MER space			No	0	0	1	1	1	0	1	0	1	1	1	1	1	1	1	
Pitched Roofs			No	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	
Is there an Existing Photo Voltaic System (PV) and does it cover over 1/2 of the			Yes	T	0	1	T	0	1	0	T	T	1	T	0	0	0	0	
Noise Criteria Standard under 45 dBA without special acoustic meaasures?			Yes	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	
Smaller than standard classroom floor space (less than 675 ft2)?			Yes	1	1	T	1	T	1	T	0	1	1	1	T	0	0	0	
			Classroom and Office	N/A	13	N/A	N/A	N/A	14	N/A	N/A	N/A	14	N/A	N/A	10	12	10	
Engineer to provide cost of the 2 highest rated options as part of draft scope																			
*-Fan driven linear diffuser can be accomodated: 1. If less than 10' from diffuser discharge to floor. 2. If																			

User answers each existing-condition question here.

PV / roof constraints can terminally eliminate RTU options.

Ratings calculate after answers are complete.

The yellow columns in the screenshot mark the user-facing questions and answer cells. Scores across system options calculate from those answers.

High-impact classroom checks

Envelope / heat loss

Envelope enhancements, perimeter heat loss, window-to-wall ratio, supplemental heating density.

Distribution constraints

Supply-air ductwork, duct insulation, suspended ceilings, floor-to-beam height.

Structural / envelope constraints

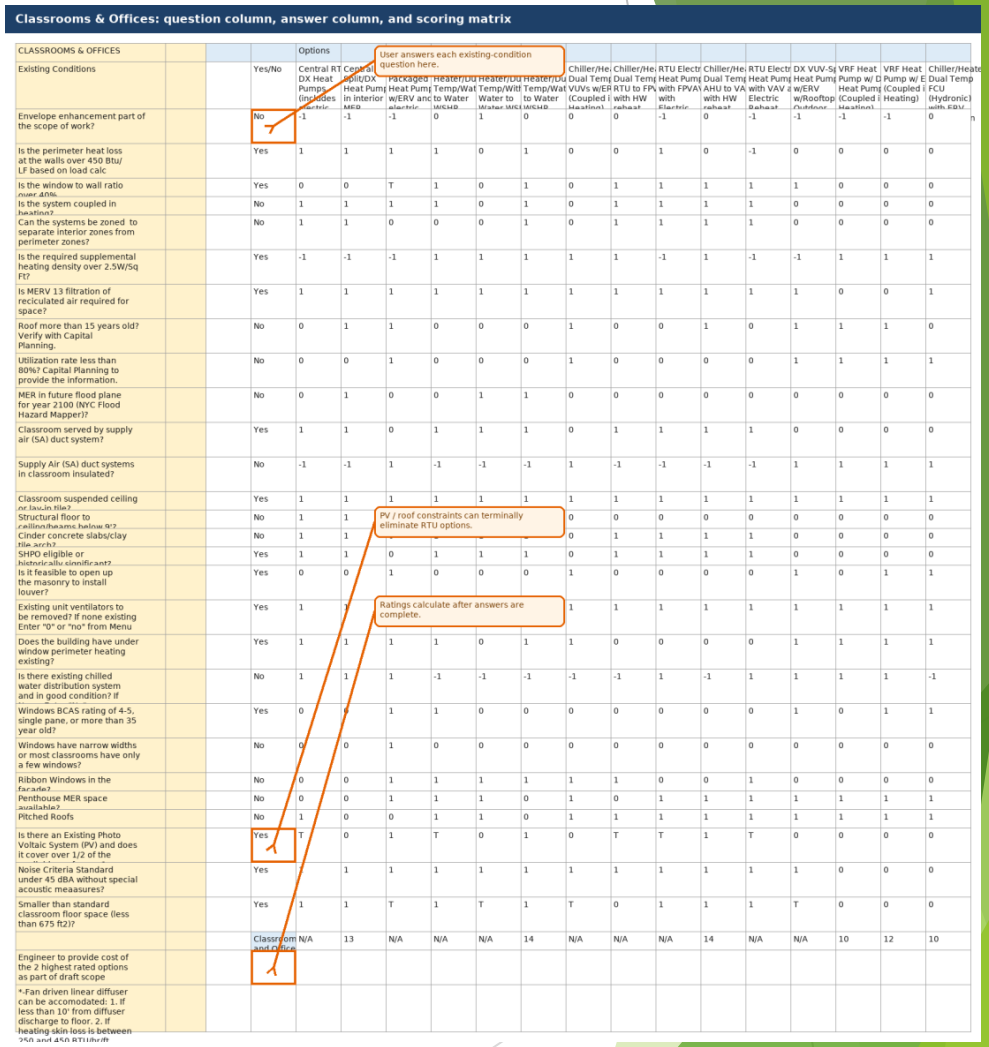
Cinder concrete or clay tile arch, SHPO status, masonry/louver feasibility, ribbon windows.

Roof / outdoor equipment

Roof age, pitched roof, PV coverage, penthouse MER space.

Existing systems

Unit ventilators, perimeter heat, chilled water distribution.



Classrooms & Offices: question column, answer column, and scoring matrix

CLASSROOMS & OFFICES			Options														
Existing Conditions			Yes/No	Central RT DX Heat Pumps (includes	Split/DX Heat Pump in interior	Heat Pump w/ERV and electric	Packaged Heater/DU Temp/Water to Water WSHP	Heater/DU Temp/Water to Water WSHP	Heater/DU Temp/Water to Water WSHP	Chiller/Heat Pump VUVs w/ER (Coupled Heating)	Dual Temp RTU to FPA with HW reheat	Chiller/Heat Pump with FP/AHU with Electric	RTU Electric Heat Pump with FP/AHU with HW reheat	Chiller/Heat Pump to VAV with Electric Reheat	RTU Electric Heat Pump with VAV w/ERV	DX VUV-Split Heat Pump w/ERV w/Rooftop	VRF Heat Pump w/ DX (Coupled Heating)	VRF Heat Pump w/ Electric (Coupled Heating)	Chiller/Heater FCU (Hydronic) with ERV
Envelope enhancement part of the scope of work?			No	-1	-1	-1	0	1	0	0	0	-1	0	-1	-1	-1	0
Is the perimeter heat loss at the walls over 450 Btu/LF based on load calc			Yes	1	1	1	1	0	1	0	0	1	0	-1	0	0	0
Is the window to wall ratio over 40%			Yes	0	0	T	1	0	1	0	1	1	1	1	1	0	0
Is the system coupled in heating?			No	1	1	1	1	0	1	0	1	1	1	1	0	0	0
Can the systems be zoned to separate interior zones from perimeter zones?			No	1	1	0	0	0	1	0	1	1	1	1	0	0	0
Is the required supplemental heating density over 2.5W/Sq Ft?			Yes	-1	-1	-1	1	1	1	1	1	-1	1	-1	-1	1	1
Is MERV 13 filtration of reciculated air required for space?			Yes	1	1	1	1	1	1	1	1	1	1	1	1	0	1
Roof more than 15 years old? Verify with Capital Planning.			No	0	1	1	0	0	0	1	0	0	1	0	1	1	0
Utilization rate less than 80%? Capital Planning to provide the information.			No	0	0	1	0	0	0	1	0	0	0	0	1	1	1
MER in future flood plane for year 2100 (NYC Flood Hazard Mapper)?			No	0	1	0	0	1	1	0	0	0	0	0	0	0	0
Classroom served by supply air (SA) duct system?			Yes	1	1	0	1	1	1	0	1	1	1	1	0	0	0
Supply Air (SA) duct systems in classroom insulated?			No	-1	-1	1	-1	-1	-1	1	-1	-1	-1	-1	1	1	1
Classroom suspended ceiling or lay-in tile?			Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Structural floor to ceiling/beams below 9'?			No	1	1					0	0	0	0	0	0	0	0
Cinder concrete slabs/clay tile arch?			No	1	1					0	1	1	1	1	0	0	0
SHPO eligible or historically significant?			Yes	1	1	0	1	1	1	0	1	1	1	1	0	0	0
Is it feasible to open up the masonry to install louver?			Yes	0	0	1	0	0	0	1	0	0	0	0	1	0	1
Existing unit ventilators to be removed? If none existing Enter "0" or "no" from Menu			Yes	1	1					1	1	1	1	1	1	1	1
Does the building have under window perimeter heating existing?			Yes	1	1	1	1	0	1	1	0	0	0	0	1	1	1
Is there existing chilled water distribution system and in good condition? If			No	1	1	1	-1	-1	-1	-1	-1	1	-1	1	1	1	-1
Windows BCAS rating of 4-5, single pane, or more than 35 year old?			Yes	0	0	1	1	0	0	0	0	0	0	0	1	0	1
Windows have narrow widths or most classrooms have only a few windows?			No	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Ribbon Windows in the facade?			No	0	0	1	1	1	1	1	1	0	0	1	0	0	0
Penthouse MER space available?			No	0	0	1	1	1	0	1	0	1	1	1	1	1	1
Pitched Roofs			No	1	0	0	1	1	0	1	1	1	1	1	1	1	1
Is there an Existing Photo Voltaic System (PV) and does it cover over 1/2 of the			Yes	T	0	1	T	0	1	0	T	T	1	T	0	0	0
Noise Criteria Standard under 45 dBA without special acoustic meaasures?			Yes	1	1	1	1	1	1	1	1	1	1	1	1	0	0
Smaller than standard classroom floor space (less than 675 ft2)?			Yes	1	1	T	1	T	1	T	0	1	1	1	T	0	0
			Classroom and Office	N/A	13	N/A	N/A	N/A	14	N/A	N/A	N/A	14	N/A	N/A	10	12	10
Engineer to provide cost of the 2 highest rated options as part of draft scope																	
*-Fan driven linear diffuser can be accomodated: 1. If less than 10' from diffuser discharge to floor. 2. If heating skin loss is between 250 and 450 BTU/sqft																	

User answers each existing-condition question here.

PV / roof constraints can terminally eliminate RTU options.

Ratings calculate after answers are complete.

Public Assembly: Auditorium/Gymatorium logic block

Envelope enhancement part of the scope of work?			No	-1	0	-1	-1	-1	0	0	0	0
Is the perimeter heat loss at the walls over 450 Btu/ LF based on load calc			Yes	1	0	1	1	1	0	0	1	1
Is the window to wall ratio over 40%			Yes	0	1	0	1	0	0	0	0	0
Is the system coupled in heating?			Yes	0	1	0	1	0	1	1	0	0
Is the space dividable via moveable partitions?			No	0	1	0	1	0	1	1	0	0
Can the systems be zoned to separate interior zones from perimeter zones?			Yes	0	1	0	1	0	0	1	0	0
Is the required heating density over 2.5W/Sq Ft based on the energy model?			No	1	0	1	0	0	0	0	1	1
Is MERV 13 filtration of reciculated air required for space by GSG?			Yes	1	1	1	1	1	0	1	1	1
Roof more than 15 years old?			Yes	1	1	0	0	1	1	1	1	0
Linear footage > 200ft between roof and mechanical room serving PA space			No	0	0	0	0	0	0	0	0	0
MER in future flood plane for year 2100 (NYC Flood Hazard Mapper)			No	0	0	0	0	0	0	0	0	0
PA spaces served by salvagable supply air (SA) duct system?			No	-1					1	-1	-1	-1
Supply Air (SA) duct systems in PA insulated?			Yes	1	1	1	1	1	0	1	1	1
Ornate and/or historic ceilings in Auditorium			No	1	1	1	1	1	0	1	1	1
Gym on the top floor?			No	-1	-1	1	1	-1	1	-1	-1	1
PA spaces on lower floors w/ classrooms above?			Yes	-1	1	1	1	-1	0	-1	0	0
Cinder concrete slabs/clay tile arch?			No	1	1	1	1	1	1	1	1	0
Is there existing chilled water distribution system and in good condition?			No	1	1	1	1	-1	1	-1	-1	-1
Pitched Roof			No	1					0	1	1	0
Structural floor to ceiling/beams below 12'?			Yes	-1	-1	0	0	-1	1	-1	-1	0
Is there an Existing Photo Voltaic System (PV) and does it cover over 1/2 of the			No	1	1	1	1	1	1	1	1	0
			Large Public	5	10	8	10	2	9	5	5	4
Engineer to provide cost of the 2 highest rated options as part of draft scope												
KITCHEN/CAFETERIA (options noted below)												
Existing Conditions			Yes/No	Central RTU/DX H Pumps SZ (includes recessed	Central RTU/DX H Pumps SZ (Coupled heating	Central Split/DX Heat Pum SZVAV in interior ME	Central Split/DX Heat Pum in interior MER	Chiller Heater Central RT Dual Temp SZVAV	VRF w/ DO - Coupled Heating	Chiller Heater/Du Temp with RTU (Coup in Heating	Chiller Heater/Du Temp with RTU and F (Decouple	Chiller Heater/Centr AHU Dual Temp SZVAV in interior
Envelope enhancement part of the scope of work?			No	-1	0	-1	-1	-1	0	0	0	0
Is the perimeter heat loss at the walls over 450 Btu/ LF based on load calc			Yes	1	0	1	0	1	0	0	1	1
Is the window to wall ratio over 40%			Yes	0	1	0	1	0	0	0	0	0
Is the system coupled in heating?			Yes	0	1	0	1	0	1	1	0	0

Answer the PA-specific conditions separately from classrooms.

Ceiling and location constraints directly affect central systems.

Top-rated PA options appear in the rating line.

Populate PA-specific conditions

- Answer public assembly conditions separately from classroom values.
- Check ceiling height, ornate/historic ceilings, lower-floor location, and gym location because they influence ducted options.
- Confirm whether existing PA supply-air duct systems are salvageable and insulated.
- Review the PA rating line before selecting systems to carry forward.

7. Kitchen/Cafeteria block

Kitchen/Cafeteria: dedicated logic block

Is the required heating density over 2.5W/Sq Ft based on the energy model?			No	1	0	1	0	0	0	0	1	1
Is MERV 13 filtration of reciculated air required for space by GSG?			Yes	1	1	1	1	1	0	1	1	1
Roof more than 15 years old?			Yes	1	1	0	0	1	1	1	1	0
Linear footage > 200ft between roof and mechanical room serving PA space			No	0	0	0	0	0	0	0	0	0
MER in future flood plane for year 2100 (NYC Flood Hazard Mapper)			No	0	0	0	0	0	0	0	0	0
Spaces served by salvagable supply air (SA) duct system?			Yes	1	1	1	1	1	0	1	1	1
Supply Air (SA) duct systems in PA insulated?			Yes	1	1	1	1	1	0	1	1	1
Spaces on lower floors w/ classrooms above?			Yes	-1	1	1	1	-1	0	-1	0	0
Cinder concrete slabs/clay tile arch?			No	1	1	1	1	1	1	1	1	0
Is there existing chilled water distribution system and in good condition?			No	1	1	1	1	-1	1	-1	-1	-1
Pitched Roof			No	1	1	0	0	1	0	1	1	0
Structural floor to ceiling/beams below 12'?			Yes	-1	-1	0	0	-1	1	-1	-1	0
Is there an Existing Photo Voltaic System (PV) and does it cover over 1/2 of the			Yes	T	T	0	0	T	0	T	T	1
			Kitchen/Ca System	N/A	N/A	7	8	N/A	5	N/A	N/A	5
Engineer to provide cost of the 2 highest rated options as part of draft scope												

Kitchen/cafeteria inputs can differ from auditorium inputs.

PV condition may eliminate rooftop-heavy systems.

Use the rating row to select options to price.

Kitchen/Cafeteria reminders

- Use the dedicated kitchen/cafeteria questions even when they look similar to PA questions.
- PV coverage and roof constraints can eliminate rooftop-heavy choices.
- Lower-floor duct routing and chilled-water availability should be field-verified.
- The final rating row identifies which systems should be priced or reviewed next.

Summary tab: final recommended systems

CIP ELECTRIF			
CIP CARB REDUCTI HVAC			
BUILDING		Q008	
PROJECT SCOPE:		Full Building Electrification	
Heating Plant		Yes	
Cooling Plant		Ye	
HEAT PU SYSTEM SELECTIC			
Highest Rated Sy		Chiller Heater/Dual Temp/Water to Water WSHP Secondary with MER AHU and	
2nd High Rated Sy (if within		Chiller Heater/Dual Temp/Water to Water WSHP Secondary with MER AHU and	
HEAT PU SYSTEM			
Highest Rated Sy		Central RTU/DX Heat Pumps SZVAV (Coupled in heating - minimal or no electric heating)	
2nd High Rated Sy (if within points)		Central RTU/DX Heat Pumps SZVAV (Coupled in heating - minimal or no electric heating)	
HEAT PU SYSTEM			
Highest Rated Sy		Central Split/DX Heat Pumps in interior MER (Coupled in Heating - minimal or no electric heating)	
2nd High Rated Sy (if within points)		Central Split/DX Heat Pumps SZVAV in interior MER (includes recessed electric convectors in spaces - Decoupled in Heating)	

Selections roll up automatically from Matrix logic.

Highest and second-highest options are shown by area type.

How to interpret the result

- Check whether the heating plant and cooling plant matrices identify the project as a candidate.
- Use the highest-rated and qualifying second-highest-rated systems by area type.
- Carry the recommended options into scope development, cost comparison, and engineering review.
- If ratings do not look reasonable, return to the input blocks and investigate missing or inconsistent answers.

Per workbook note: engineer to provide cost of the two highest rated options as part of draft scope.

9. Validation checklist before issuing results

A short QA pass prevents misleading rankings

- ✓ **Links** — No unexpected “Not Found” fields unless documented.
- ✓ **Inputs** — Every Yes/No or dropdown field in the active logic blocks is answered.
- ✓ **Formulas** — No formulas overwritten in rating, summary, or scoring areas.
- ✓ **Assumptions** — BCAS conflicts, field overrides, and missing data are noted.
- ✓ **Output** — Highest and second-highest systems are reviewed for feasibility before pricing.

Recommended management practice: maintain an unmodified template, a project working copy, and a dated issued copy for each building.

Minimum information to gather for reliable logic

- Building ID, address, project scope, design number
- New electric service / reinforcement feasibility / percent utilization
- Heating plant life, fuel, boiler age, energy model status
- Cooling plant life, cooling type, central AC status, load dominance
- Roof age/rating, PV array coverage, pitched roof, penthouse MER space
- Window rating/age/width/ribbon windows, window-to-wall ratio
- Masonry/louver feasibility, cinder concrete/clay tile arch, SHPO status
- SA ductwork availability and insulation by space type
- Ceiling type/height and lower-floor / top-floor constraints
- Existing perimeter heat, unit ventilators, chilled-water distribution

Use this as a punch list for the screenshots in the guide—each item maps back to a field or logic question in the workbook.

What the tool produces

- Ranked HVAC options for each area type — feasible, possible, and terminal choices.
- Highest and second-highest rated systems flagged for design and pricing.
- Separate results for Classrooms & Offices, Public Assembly, and Kitchen/Cafeteria.
- Candidate status derived from the heating and cooling plant matrices.
- A Summary tab that consolidates scores from every logic block.

How to act on the results

- Carry the top two rated systems into scope development and cost comparison.
- Validate rankings against field conditions before pricing.
- Investigate any unreasonable ratings back in the input blocks.
- Document assumptions, field overrides, and unresolved lookups.
- Hand the recommended options to engineering review.

Bottom line: verified inputs become a defensible shortlist of HVAC systems to price and review—engineer to cost the two highest-rated options in the draft scope.

Questions ?