Integrative Design Process – Discovery 1 Summary

School: LLW:

Date of IDP Workshop:

Sustainability Consultant:

# Energy Use

**Target source energy use:** Project teams should be mindful that as they continue to develop their energy model through subsequent design phases, the school performance energy target is 60 Source EUI.

# Site Conditions

## Site Shading

1. Describe the site shading features.

Scheme 1:

Scheme 2:

Scheme 3:

1. Evaluate and compare the pros and cons for each of the schemes.

## Adjacent Site Conditions, Landscaping, Exterior Lighting

1. Describe opportunities for deciduous shade plants/trees on the south side of the building, and evergreen trees on the north/west sides.
2. Note any unique site features or special exterior lighting that may impact energy usage of the building.

# Massing, Envelope and Façade Elements

1. If there is a preferred scheme selected for design that is not noted as the most efficient option as per the box modeling results:

a) Explain why the preferred box model scheme is selected (e.g., technical constraints, program efficiency, aesthetics, constructability, cost).

2. Describe how the findings from the box model will influence the preferred scheme design (e.g., window to wall ratio, glazing location on a particular orientation, improved daylight quality/ views, massing, PV system configuration).

# Load Reduction Strategies

* 1. End-use Discussion: Provide strategies to reduce the loads in each of the categories below:

|  |  |
| --- | --- |
| Lighting Levels |  |
| Plug and Process Load Needs |  |
| Programmatic and Operational Parameters |  |

* 1. Using either Option 1 HVAC End-use or Option 2 HVAC Load outputs in the IDP Box Model Summary spreadsheet, evaluate and compare the HVAC end-use/loads for each scheme.
  2. How significant is the HVAC load change from the WWR sensitivity analysis.

# MEP Qualitative Analysis

1. In the chart below, please provide qualitative assessment of the different HVAC options as applied to various schemes based on your experience regarding the following:

* Massing & orientation of buildings on the heating/cooling loads and any effect on equipment sizing.
* Complication of duct layout for each scheme and HVAC option.
* First costs and maintenance costs.
* High/Med/Low duct and pipe pressures drops that may significantly affect energy usage and HVAC system’s overall efficiency.
* High/Med/Low amount of envelope penetrations.
* Other considerations brought forth by the MEP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MEP Qualitative Analysis and Comparison Chart** | | | | |
| **Building Scheme** | **Scheme 1** | **Scheme 2** | **Scheme 3** | **MEP Notes** |
|  | Mechanical System Review | | | |
| Air duct pressure drop |  |  |  |  |
| Envelope penetrations |  |  |  |  |
| Piping pressure drop |  |  |  |  |
| Simplicity of Duct Layout |  |  |  |  |
| First Cost |  |  |  |  |
| Maintenance Cost |  |  |  |  |
| Other |  |  |  |  |

1. Are additional HVAC systems being considered for the project?
   1. What advantage will an alternate HVAC system provide to the project?
   2. Does the scheme choice impact the HVAC systems being considered?
   3. Provide qualitative assessment to compare the HVAC systems.