

OWNER PROJECT REQUIREMENTS (OPR)

New Latrobe Elementary School

Summary

The Owner's Project Requirements establishes a baseline of performance expectations for the building systems selected for commissioning. This document was developed by the Director of Facilities, Operations and Planning as part of an initial design charrette with the Owner and Design Team.

The owner is not pursuing a LEED Silver certification rating, however the owner will demonstrate their commitment to the principles of sustainability and responsible stewardship of limited natural resources. The LEED for Schools Matrix rating system offers a specific set of guidelines that specially suite the unique aspects of a school building and is to be utilized.

Owner and User Requirements

1. This project consists of the construction of a new elementary school housing grades K-6. The total square footage is not to exceed 125,000 square feet.
2. Construction timeline - OPEN School Year 2018-2019

Environmental and Sustainability Goals.

1. The project is to be considered sustainable and although not aspiring to be LEED certified the project shall meet the minimum requirements of LEED for Schools at the Silver performance level.
2. Independent Commissioning of Building Energy Systems required to verify that the project's energy-related systems are installed, calibrated and perform according to the project requirements, basis of design and construction documents.
 - a. Heating, ventilating, air conditioning and refrigeration (HVACR) systems and associated controls.
 - b. Lighting and daylighting controls;
 - c. Domestic hot water systems.
3. The project must establish an energy performance rating goal for the facility using EPA's Target Finder rating tool.
4. Zero use of ozone-depleting CFC-base refrigerants in building HVACR systems.
5. Project focus shall be in the Energy and Atmosphere and Indoor Environmental Quality categories.
6. Project shall comply with all ICC Building Codes.

Water and Energy Efficiency Goals

1. Employ strategies that use 20-percent less water than the water use baseline calculated. No Potable water use or irrigation, landscaping shall not require permanent irrigation systems.
2. Select high efficiency HVACR equipment that offer cost effective energy savings that will obtain at least a 30-percent improvement over the minimum requirements of ASHRAE 90.1-2007 building energy efficiency standards.
3. Select refrigerants and HVACR that minimize or eliminate the emission of compounds that contribute to ozone depletion.
4. Select lighting systems that offer cost effective energy savings potential, and lighting fixtures and/or controls shall be selected to exceed ASHRAE 90.1-2007 minimum efficiency requirements by 24.5-percent or greater.
5. Additional energy efficiency measures that provide cost effective energy savings shall be included wherever feasible.
6. Additional requirements include proper site orientation to take advantage of daylighting and energy efficiency. A light colored roof, in compliance with LEED standards for a cool roof is also desired. Operable windows should be designed into all classrooms and into office spaces that are adjacent to exterior walls.

Indoor Environmental Quality Requirements

1. Meet the requirements of Ventilation for Acceptable Indoor Air Quality and ventilation rate procedures as defined by ASHRAE 62.1-2007.
2. Develop and implement an Indoor Air Quality (IAQ) management plan for during construction.
3. Indoor lighting requirements: Lighting levels shall comply with the general requirements for school design. Daylighting is important in the classroom areas, gymnasium and administration areas, but additional controllability is required for the cafeteria/stage area. Sloped ceilings are desired to allow for higher windows at the perimeter of classrooms.
4. Occupant lighting control requirements: Multilevels of lighting are preferred in all classroom spaces. This will allow dimming of the window wall lights on sunny days with daylight sensors, or turn down the lights for other classroom activities (teaching wall and dual level in the field)
5. Thermal comfort requirements: Teachers are to have control over the thermal environment in each classroom. Mechanically ventilated and conditioned spaces to comply with ASHRAE 55-2004 and prevent mold by limiting relative humidity below 60-percent or less.

6. Ventilation and filtration requirements: Filtration is important for the reduction of air-borne illnesses and other allergy triggers. Consideration should be given to alternative methods of establishing minimum outdoor requirements (e.g., Dynamic filtration, CO2 control, etc.).
7. Meet or exceed minimal acoustic environment requirements: Sound transmittance between classrooms, classrooms adjacent to mechanical rooms or other loud spaces should be reduced. Gymnasiums, Cafeteria, Band Instrumental and Music rooms should have sound absorbing panels. ANSI Standard S12.60-2002.
8. Other Owner requirements: Each classroom should have operable windows for controllability of air-flow and temperature.

Special Equipment and Systems Expectations

1. Special HVAC equipment requirements: Owner would like to explore the possibility of integrating ground source heat pumps.
2. Special lighting equipment requirements: The Owner prefers to have as few lamp fixtures as possible throughout the building for ease of stocking and changing fixtures.
3. Maintenance access must be considered for all mechanical and electrical systems (e.g., no exterior, roof-mounted equipment without practical access, filter access). Special consideration should be given to provide the ability to move needed equipment located in sections of the building not accessible from the first floor (winch system).
4. Consideration should be given to existing systems and system design. To the greatest extent possible, continuity in system and equipment manufacturer and type should be maintained.
5. Pursuant to the Sustainable Sites Credit 8, Light Pollution Reduction, consideration should be given to alternative fixture design to help achieve a minimum lighting footprint (e.g., LED fixtures, etc.).
6. Consideration shall be given to instantaneous hot water heaters, time-of-day scheduling, and out-of-season shutdown of system throughout.

Materials and Resources

1. Consideration shall be given to implementing a construction waste management plan that identifies materials diverted from disposal.
2. Pursuant to Materials and Resources Credits 4, 5, and IEQ Credit 4, consideration should be given to utilizing materials with recycled content, that are regional, and that are low-emitting (adhesives/sealants, paints/coatings, flooring systems, composite wood, and/or ceiling/wall systems).

Building Envelope

1. The exterior shall be designed to endure for at least 75-years. Selection of materials and detailing of envelope systems shall be consistent with the ICC Building Codes; performance-based to allow the building to withstand conditions typical of Western Pennsylvania (zone 5); and aesthetically consistent with the area.
2. Prevention of moisture intrusion is a high-priority goal applicable to all design team disciplines.
3. Solar transmission shall be controlled and designed in accordance with ASHRAE Standard 90.1-2007 through triple-glazed windows, low-e glazing, overhangs and external shading, and other techniques to minimize solar heat gain and maximize light transmittance for daylighting where functionally practical.
4. Walls (Mass 11.4ci / Metal Framed R13+R-13ci) - anticipated to be a mixture of masonry mass and metal framed - exterior fenestration to be a mixture of brick masonry, concrete masonry (split or ground face), and metal panels.
5. Roofs (R25ci) - anticipated to be mixture of flat and sloped standing seam metal - to have appropriate SRI to reduce solar heat gain.

Building Occupant and O&M Personnel Expectations

1. Day-to-day HVAC operation shall be by faculty and other staff. Students and teachers will not have access to the control systems other than operable windows in the classroom.
2. Periodic HVAC maintenance will be performed by operating staff in the building. This staff will need to be trained in the operation and maintenance of the equipment. Assist in developing and registering a ENERGY STAR's Portfolio Manager tool.
3. Lighting system maintenance will also be performed by operating staff in the building. These staff will need to be trained in the operation and maintenance of the equipment.
4. Training required for building occupants: faculty and staff should be trained upon occupancy of the building regarding operation of lighting controls and thermal comfort controls. Demonstration or training manuals will be useful.
5. Training required for operating and maintenance staff will also be required. Assistance in establishing maintenance logs, checklists, and verification is preferred.

