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The Polyisocyanurate Insulation Manufacturers Association (PIMA) appreciates the opportunity to comment on the above referenced request for information on energy improvements at public school facilities. PIMA anticipates that a significant portion of funding will be made available for physical improvements to public school facilities, including building envelope retrofit projects like roof replacements. Additionally, PIMA urges the Department of Energy (DOE) to encourage schools and local educational agencies (LEAs) (generally referred to as “eligible entities”) to use this funding for the development and implementation of roof asset management plans.

I. Category 1 Questions – Capacity Development:

A. For which aspects of school facilities projects are LEAs most in need of additional capacity?

Our industry’s experience demonstrates that many eligible entities lack the resources or technical expertise to design and implement a roof asset management plan. The development of an appropriate plan requires technical knowledge in the field of roof system design as well as current understanding of roofing materials and systems appropriate for a particular project or climate. A roof asset management plan can help eligible entities identify roofs in need of replacement and prioritize the projects in a way that matches the expected service life of the roof and key components with factors such as capital budget, school schedules and other physical improvement projects. In our experience, effective planning for roof replacement projects allows eligible entities to take full advantage of the project while minimizing the inefficiencies caused by maintaining a roof through a series of emergency (and often expensive) repairs.

1 www.polyiso.org
Additionally, leveraging the natural replacement cycle of components like roofs is a recognized approach to improving the resiliency and energy efficiency of buildings over time. Replacement roofs can help mitigate or correct issues with storm water management at schools, improve the building’s resistance to severe weather such as high winds and hail, and of course enhance the energy efficiency of the building envelope through the installation of roof insulation. A roof asset management plan is critical to achieving these outcomes.

B. What kinds of technical assistance would be most effective in helping LEAs and their partners develop competitive applications and build long term capacity to maintain and enhance their facilities? What are examples of organizations that are currently providing effective technical assistance to LEAs and their partners?

A roof asset management plan provides additional institutional capacity to eligible entities by involving professionals with specialized knowledge of roof system design and materials, which expertise is often beyond the capabilities of a typical facilities management team for a school district. This expertise is available through several resources, including roofing contracting businesses or design consultants accredited through organizations like the International Institute of Building Enclosure Consultants.\(^2\) The expertise provided by these professionals is often supplemented by design and material knowledge from building product manufacturers. Not only is a roofing professional’s expertise critical to the design of a roof asset management plan, these professionals offer important oversight during the construction phase. This ensures that the dollars spent go toward a properly designed and installed roof system that will meet or exceed the performance requirements. Finally, in terms of building long term capacity, developing roof asset management plans at schools across the country will ensure that roofs installed well beyond the expenditure of current funding under the Bipartisan Infrastructure Bill provide long-lasting benefits to school and communities.

II. Category 3 Questions – Criteria and Metrics:

A. What metrics, data, methods, screening tools, etc. are available for identifying the LEAs and schools most in need of energy improvements?

Recent analysis conducted by PIMA and ICF International demonstrates that a typical existing roof on a school building is under insulated and replacing or upgrading the existing roof system to meet current energy code requirements (i.e., the 2021 IECC or ASHRAE Standard 90.1-2019) will generate significant energy and carbon emissions savings.\(^3\) Given that the average age of school buildings pre-dates the widespread adoption of modern building energy codes, the benefits of replacing or upgrading the roofs on school buildings should be a constant for most eligible entities.

\(^2\) https://iibec.org/
\(^3\) https://www.polyiso.org/page/EnergyCarbonSavingsAnalysis
The research on adding insulation during roof replacement projects for a primary school building (based on DOE prototypical building models) demonstrates the following benefits by climate:

- **Climate Zone 2:** Whole building annual total energy savings of 3%; cumulative total energy cost savings of $201,921; and total CO₂ equivalent savings per square foot of 31.78 pounds.
- **Climate Zone 3:** Whole building annual total energy savings of 6%; cumulative total energy cost savings of $226,740; and total CO₂ equivalent savings per square foot of 44.77 pounds.
- **Climate Zone 4:** Whole building annual total energy savings of 10%; cumulative total energy cost savings of $362,535; and total CO₂ equivalent savings per square foot of 80.89 pounds.
- **Climate Zone 5:** Whole building annual total energy savings of 9 to 10%; cumulative total energy cost savings of $339,153 to $354,078; and total CO₂ equivalent savings per square foot of 74.95 to 81.62 pounds.
- **Climate Zone 6:** Whole building annual total energy savings of 11 to 12%; cumulative total energy cost savings of $435,335 to $444,636; and total CO₂ equivalent savings per square foot of 102.50 to 107.12 pounds.

### III. Category 6 Questions – Partnership Structures:

A. What innovative partnership structures have been used to realize economies of scale or other collective impacts for facility improvements and what factors were key to success?

The Milwaukee Public School District (MPS) provides a standout example of how the benefits of a roof asset management plan can return benefits year-over-year for well over two decades. To achieve its success, MPS partnered with a product manufacturer and its representatives to design and implement the program. A notable factor in the success of MPS is a facilities management team with delegated responsibility for roofs. As noted earlier, many eligible entities will not have the resources to support an internal team focused on roofing. Therefore, funding can provide the critical resources to build a team comprised of roofing industry professionals. The following article provides additional details on the MPS program and how it may serve as a model for other schools across the country: [https://roofingmagazine.com/talented-team-helps-school-district-get-the-most-out-of-its-roof-assets/](https://roofingmagazine.com/talented-team-helps-school-district-get-the-most-out-of-its-roof-assets/).

Respectfully submitted,

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