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REIMAGINING EDUCATION FACILITIES WITH RETROFIT CLADDING

A GUIDE FOR FACILITY MANAGERS

by Jonnie Hasan, P.E.

Improving Efficiency, Sustainability, Aesthetics, and Occupant Comfort with Minimal Disruption

Across North America, educational institutions are grappling with aging infrastructures that struggle to meet today's performance, environmental, and design expectations. Facility managers face mounting pressure to reduce operational costs, meet evolving building codes, and enhance the learning environment, without disrupting daily school operations or exceeding tight budgets.

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Retrofit cladding solutions, including rainscreen systems, over-roof assemblies, aesthetic wall upgrades, and engineered deck systems over pool areas, offer a practical, low-disruption path forward. These systems address not only energy inefficiency and weather protection but also allow schools to renovate problematic spaces and rejuvenate tired exteriors.

For those exploring such a project, we explored how retrofit cladding strategies can transform educational facilities, boost sustainability, solve chronic maintenance issues, and breathe new life into outdated architecture—especially when delivered by a single-source partner with integrated design and construction capabilities.

What Is Retrofit Cladding?

Retrofit cladding refers to the installation of new exterior or structural layers—walls, roofs, or decks—over existing building components. These upgrades provide enhanced functionality, durability, and aesthetics without requiring full demolition.

Key retrofit systems for educational buildings include:

- Rainscreen wall cladding, for improving thermal performance, managing moisture, and extending building life
- Roofing systems consisting of over-roof assemblies that increase insulation and weather protection without removing existing roofs
- Deck systems over pools, which are structural systems that resolve moisture problems common with indoor pool enclosures
- Aesthetic wall cladding, which is designed for a visual refresh, offering color, texture, and identity without extensive thermal or envelope upgrades

These retrofit solutions modernize facilities while maintaining occupancy and complying with modern sustainability goals.

Thermal Upgrades and Operational Savings

Older school buildings often suffer from poor insulation, thermal bridging, and leaky envelopes. Retrofit cladding systems allow facility managers to upgrade performance to modern standards.

Rainscreens and roof retrofits add continuous insulation, vapor control, and air barriers. Systems are typically installed without disturbing internal finishes, making them especially suitable for schools that typically need to maintain operations.

The U.S. Department of Energy notes that schools can reduce HVAC-related energy use by 20 to 40 percent with effective building envelope improvements . These upgrades also create more stable classroom temperatures, improving student comfort and concentration.

Moisture Management and Mold Prevention

Moisture intrusion is a major concern in aging buildings, especially in pool areas, where high humidity and outdated waterproofing can lead to structural decay, indoor air quality problems, and unsafe conditions.

Retrofit cladding and deck systems address these concerns by Integrating vapor barriers and drainage mats into rainscreen and roof assemblies to manag1`e water and condensation and by preventing mold and mildew growth with proper detailing and material selection, thereby reducing health risks and maintenance costs.

These improvements support a healthier indoor environment, which has become an increasingly important consideration for school administrators post-COVID.

Lower Embodied Carbon

Retrofit strategies minimize demolition, reuse existing structures, and avoid the carbon-intensive materials required in new construction. According to Architecture 2030, building reuse can reduce carbon emissions by up to 75% compared to building new.

For districts working toward LEED, CHPS, or other green certification programs, retrofit cladding provides measurable gains in embodied carbon, waste reduction, and resource conservation.

Managing Moisture Challenges in Active Pool Areas

Indoor swimming pools are a valuable asset for many educational institutions, supporting physical education, athletics, and community engagement. However, these facilities often present persistent challenges—especially when housed in older buildings that were not designed with today's understanding of building envelope science.

Retrofit Deck and Cladding Solutions for Moisture Control

With active daily use, school pool enclosures often suffer from:

- Persistent condensation on ceiling surfaces and roof decks
- Water vapor infiltration into wall and roof assemblies, leading to corrosion or mold
- Roof leaks due to failing seals, aging membranes, or poor detailing
- Premature degradation of building components due to high humidity and chlorine exposure

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To address these challenges, retrofit roof deck systems can be installed directly over the existing structure. These systems are engineered to:

- Provide continuous thermal insulation and high-performance vapor barriers that contain moist indoor air and prevent condensation at cold surfaces
- Use corrosion-resistant components, including stainless steel fasteners, flashings, and support assemblies that resist degradation from humid and chemically aggressive pool air

Incorporate detailed, code-compliant edge, curb, and penetration detailing that help ensure long-term leak prevention and watertight integrity

These upgrades mitigate long-term water damage and extend the life of the building structure. Many can be installed in stages or during off-peak times, maintaining student and community access to educational facilities.

Aesthetic Upgrades for 21st-Century Appeal

While performance and durability are top priorities, many educational institutions are also looking to modernize the outward appearance of their facilities—not only to boost pride and student morale, but to align with contemporary educational branding and community engagement efforts.

Aesthetic Retrofit Wall Cladding

For schools that do not require extensive thermal upgrades, aesthetic cladding systems offer a transformative, cost-effective solution. These lightweight panels are installed over existing façades and bring immediate visual impact.

These aesthetic solutions offer:

- Colorful, textured finishes using materials such as aluminum composite, phenolic panels, or fiber cement
- Durable performance against weather, UV exposure, and vandalism
- School branding opportunities via color schemes, emblems, or patterning
- Fast installation, with minimal preparation required on stable substrates

These improvements can dramatically alter the perceived age and condition of a facility, elevating its reputation with students, parents, and the broader community.

Supporting Learning Through Design

Studies have shown that building design and aesthetics can impact student performance. The University of Salford's "Clever Classrooms" study found that well-designed learning environments can improve academic progress by up to 16 percent in a single year . The visual impact of refreshed exteriors reinforces a culture of excellence and a commitment to progress.

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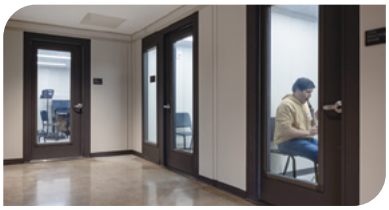

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Minimal Disruption to Daily Operations

Perhaps the greatest strength of retrofit systems is their ability to be installed with little to no interference in academic activity.

- Exterior wall and roof systems are installed from scaffolds or lifts without entering classrooms.
- Deck retrofits in pools can be implemented during summer breaks or off-hours and staged, sealing off construction zones from active areas.
- No demolition or relocation is typically required, preserving valuable instructional time.

These strategies allow facility managers to focus on enhancing the student experience rather than navigating logistical hurdles.

Streamlining Success with a Single-Source Partner

Retrofit projects require a high level of integration: design coordination, material compatibility, compliance with energy and fire codes, and precise sequencing. Working with a single-source partner ensures all these elements align smoothly.

A single-source provider can offer:

- Design-build support, including site evaluation and energy modeling
- System compatibility, ensuring roofing, wall, and deck assemblies work together
- Centralized warranty and accountability, eliminating finger-pointing between trades or suppliers
- Fast-track scheduling, leveraging prefabrication and coordinated installation crews

This holistic approach reduces risk, accelerates timelines, and provides better lifecycle value.

Warranties on thermal performance, waterproofing, and structural integrity covering 20 to 30 years are common with system-based cladding solutions. When partnering with a singlesource, facility managers have one point of contact should problems arise—not multiple contractors and manufacturers passing blame.

Funding and Incentive Opportunities

Retrofit projects often qualify for a range of financial incentives:

- Federal funding, such as ESSER, supports HVAC and envelope upgrades that improve air quality .

- State and utility rebate programs reward energy-efficiency improvements to insulation, windows, and roof assemblies.
- Section 179D of the IRS code offers tax deductions of up to $5 per square foot for public building energy improvements .

Proactive alignment with these programs can offset capital expenditures and improve return-on-investment timelines.

Retrofit with Purpose

For educational facility managers facing pressure to modernize, save energy, and solve persistent building issues, retrofit cladding solutions offer a practical, future-ready path forward. Whether the goal is to cut energy costs and carbon emissions, renovate problematic pool areas, refresh building aesthetics, or execute improvements with zero classroom disruption.

Retrofit systems deliver measurable, lasting value. And when implemented through a single-source partner, the process becomes simpler, faster, and more accountable—ensuring that every dollar invested helps create an environment where students can thrive.

ABOUT THE AUTHOR: Jonnie Hasan, P.E. serves as vice president of business development and R&D for IMETCO, a leading manufacturer of premier metal products for the building envelope, offering a comprehensive range of high-performance metal roofing, wall, and deck systems and accessories. With over 22 years of experience in commercial construction and design-build delivery in the cladding industry, Hasan has a Master of Engineering in Sustainable Development and is a certified Building Enclosure Envelope Commissioning Provider (BECxP) and Commissioning Authority + Building Enclosure (CxA+BE) through the University of Wisconsin.