



FACILITIES & MAINTENANCE

The Greenest Building on Campus May Already Exist

BY TAREK DROUBI, MS

How envelope retrofits help universities solve aging-building challenges without starting over

Across the country, colleges and universities are facing a familiar facilities challenge: many of the buildings that support campus life were constructed decades ago.

Academic halls, libraries, residence halls, laboratories, and administrative buildings may still be structurally sound, but their envelopes often no longer meet modern expectations for energy performance, occupant comfort, moisture management, or campus appearance.

For facilities teams, the problem is practical as much as environmental. Aging walls and roofs can contribute to air leakage, inconsistent indoor temperatures, recurring leaks, rising maintenance costs, and growing deferred maintenance backlogs. At the same time, universities are under pressure to reduce carbon emissions, control capital spending,

and keep buildings operational during construction.

Historically, the answer to an outdated building was often demolition and replacement. Today, that approach is being reconsidered. Retrofitting existing buildings can improve sustainability, energy performance, resilience, and long-term building value while preserving the resources already invested in the original structure.

The Problem: Aging Buildings, Rising Expectations

Many campus buildings constructed in the 1960s, 1970s, and 1980s were designed before

today's energy codes, insulation standards, and building science practices became common. As a result, they may have limited insulation, thermal bridging, poor air control, aging cladding, or roof assemblies that are nearing the end of their service life.

For occupants, these issues may show up as drafty classrooms, uncomfortable residence halls, moisture concerns, or outdated building appearances. For facilities teams, they often appear as repeated work orders, difficult-to-maintain assemblies, higher energy use, and pressure to keep aging assets functional.

The challenge is not always the building structure itself. In many cases, the core structure still has significant value. The real weakness is the building enclosure.

The Solution: Recladding the Building Envelope

Building envelope retrofits allow universities to modernize an existing facility without removing the building from campus life entirely. Instead of demolishing a structurally

sound building, institutions can improve the parts of the building that most directly affect performance: the exterior walls, roof, insulation, air barrier, water barrier, and cladding.

A recladding project may include continuous insulation, modern air and water barriers, ventilated framing systems, and a new exterior cladding material. Together, these components can help reduce heat loss, limit uncontrolled air leakage, improve moisture management, and extend the useful life of the building.

For example, a dated residence hall with poor thermal comfort could be upgraded with continuous insulation, a new air and water barrier, and a modern metal panel or terracotta cladding system. The result is a facility that performs more like a contemporary building while preserving the original structural frame.

This type of retrofit can support both sustainability and operations. Facility

managers are increasingly expected to manage building systems, resources, and environmental impact in a proactive way.

The Material Strategy: Better Barriers, Insulation, and Cladding

The success of an envelope retrofit depends on more than a new exterior finish. The materials behind the surface are what create long-term performance.

Continuous insulation helps reduce thermal bridging and improves the overall energy efficiency of the wall assembly. Modern air and water barriers help control air infiltration and moisture intrusion. Ventilated wall assemblies can promote drainage and drying, which reduces the risk of trapped moisture and long-term deterioration.

The exterior cladding then provides both protection and design flexibility. Metal panels, terracotta, brick veneers, and other façade systems can be used to modernize the building while respecting the surrounding

campus architecture.

This gives architects and facilities teams the ability to solve several problems at once: improve performance, refresh aesthetics, reduce maintenance demands, and create a stronger connection between the building and the institution's identity.

The Retrofit Advantage: Less Disruption to Campus Life

One of the strongest arguments for envelope retrofits is that much of the work can often be performed from the exterior. That matters on a college campus.

Academic calendars continue. Residence halls remain occupied. Research may operate year-round. Student services and administrative offices still need to function. Full demolition or major interior renovation can create costly and complicated disruptions.

Exterior recladding and roof retrofit projects can often reduce those impacts. Students

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can continue attending class, researchers can continue their work, and campus services can remain accessible while the building is improved from the outside.

For facilities teams, this makes retrofits not only a sustainability strategy, but also an operational strategy.

Roof Retrofits: Extending Life from the Top Down

The same thinking applies to aging roof systems. Many universities manage roofs with recurring leaks, declining thermal performance, and increasing maintenance demands. Traditional replacement may involve major tear-off, landfill waste, and disruption to occupied buildings.

Roof retrofit strategies can sometimes allow new assemblies to be installed over existing conditions, depending on the condition of the roof and code requirements. This can reduce waste, improve thermal performance, and extend service life.

In some cases, new framing or support systems can also be used to create a higher-performing roof assembly. The goal is not simply to cover an old roof. The goal is to create a more durable enclosure that supports the building for decades to come.

A Smarter Path for Campus Renewal

Universities are being asked to do more with existing buildings. They must address deferred maintenance, improve sustainability performance, manage limited budgets, support students and faculty, and preserve the character of campus.

Building envelope retrofits offer a practical way to meet those goals. By preserving existing structures and upgrading walls and roofs, institutions can reduce embodied carbon, improve energy efficiency, enhance comfort, modernize appearance, and extend the life of valuable campus assets.

For many facilities teams, the question is no longer whether an aging building should

automatically be replaced. The better question is whether it can be transformed.

In many cases, the answer is yes.

Through thoughtful envelope retrofits, universities can preserve what already exists while creating buildings that are more efficient, resilient, attractive, and ready to serve future generations. The greenest building on campus may not be new at all. It may be the one already standing.



ABOUT THE AUTHOR: Tarek Droubi is Engineering Manager at IMETCO, leading Engineering Services and supporting R&D for innovative metal building envelope systems. Since joining IMETCO in 2019, he has provided expertise in project design, application engineering, and system performance. He also contributes editorial insight on air barriers, sustainable cladding, and recladding solutions. With a background in civil and environmental engineering, Tarek brings a practical, forward-thinking approach to energy-efficient, code-compliant building design.



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