

Rebuilding Amherst College with a 21st Century insulating air barrier system

Helping Make
Buildings Better™


The Chemical Company

Owner
Amherst College

Architect
Shepley Bulfinch Richardson and Abbott,
Boston MA

Contractor
Soep-Durwest, Malden, MA

Buildings
James and Stearns Residence Halls

Challenges
Short construction schedule, cost control,
energy efficiency

Solutions
BASF Polyurethane Foam Enterprises
WALLTITE® medium density spray poly-
urethane foam insulating air barrier on all
vertical walls.
ZERODRAFT® single-component poly-
urethane foam insulating sealant at joints,
including window openings.

Advantages

- Air barrier reduced uncontrolled air leakage
- Strict field quality control
- Quality insulation for energy efficiency
- Faster installation schedule
- Code compliance

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Amherst College in Amherst, MA, looks exactly how you might imagine a traditional New England campus. That's why, when it came time to modernize, the college and its architectural firm, Shepley Bulfinch Richardson and Abbott of Boston, decided to rebuild with an exterior design of its place and time that would maintain the same high standards of construction.

But following tradition did not prevent the design team from specifying a technology approach to the performance of the building envelope. Nothing illustrates this better than the choice of the BASF Polyurethane Foam Enterprises LLC WALLTITE® insulating air barrier system in combination with ZERODRAFT® foam sealants. Project manager Shaun Landon described the construction: "medium density spray polyurethane foam insulating air barrier and one part urethane foam sealant." He said it "provided a tight, efficient, high-performance building envelope."

"I've been on the design team for the rebuilding of James and Stearns residence halls, right from the conceptual design stage," says Landon. The two buildings compose the east side of Amherst's historic quadrangle, each approximately 36,000

square feet. The buildings are steel-frame construction with concrete block back-up and a brick veneer. The design includes wood windows and copper roofs. The water table projecting ledge is granite and there is granite veneer where the basement is exposed.

The architect's original plan for the Massachusetts-mandated air barrier system was a liquid-applied vapor barrier with rigid insulation on top. But Shepley Bulfinch is one of an increasing number of New England firms who are focused on air barrier systems that meet the highest expectations of field quality control, like the WALLTITE insulation and air barrier system installed at Amherst College by contractors Soep-Durwest.

"We are recommending spray foam on many projects" says Landon. "We brought in the construction manager early in the process to view a spray foam application on another building. He accepted it with open arms. We then recommended spray foam to Amherst College, whose facilities team had not seen the concept before. They quickly realized that this was not only a quality air barrier and insulation product, but that the schedule would benefit as well."

"We are concerned about building envelope failures in the Northeast where we have dramatic temperature changes throughout the year" Landon explains. "Whenever you have warm air coming out of the joints in the winter, for example, the performance of your building envelope is at risk. It's difficult to make sure that every joint in a building is impermeable. With spray, you remove that problem."

Shepley Bulfinch is now designing a third building at Amherst. "We will be using a spray polyurethane system," says Landon, "Not only is it an efficient installation process, it allows us to perform our field inspections with greater confidence."

The U.S. Department of Energy (DOE) reports 40 percent of the energy cost of heating and cooling a building is wasted by uncontrolled air leakage through the building envelope. A National Institute of Science and Technology (NIST) report, Investigation of the Impact of Commercial Building Envelope Airtightness on HVAC Energy Use, indicates energy savings in

commercial buildings ranging from 25 to 40 percent when acceptable air barriers are installed during construction. Uncontrolled leakage can contribute to premature building deterioration, condensation, spalling, ice damming, poor indoor air quality (IAQ) and mold growth.

The BASF Polyurethane Foam Enterprises WALLTITE insulating air barrier system uses the versatility of polyurethane chemistry to combine superior insulation R value with seamless, almost-zero air permeability for increased building energy efficiency, durability and occupant comfort, health and safety.

The WALLTITE engineered air barrier system uses ZONE3® zero ozone-depleting blowing agent technology and is one of the most environmentally responsible and lowest lifecycle cost systems available. The award-winning BASF Eco-Efficiency Analysis assesses total cost and ecological impact over the product lifecycle to benchmark current performance and get insight for future improvements. The WALLTITE® system outperformed traditional insulation materials in eco-efficiency on its test scores.

The WALLTITE air barriers are installed only by Air Barrier Association of America (ABAA)-approved applicators with third-party quality control inspection.

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