Faced with a major exterior renovation of 18 two-story student apartment buildings, officials with Cook College, the land-grant school of agriculture, environmental and life sciences at Rutgers, The State University of New Jersey, opted for a water-managed exterior insulation and finish system from United States Gypsum Company, Chicago.

Keys behind the selection were the ability of the water-managed system to effectively handle moisture intrusion and the lo-year warranty USG offers on its top-of-the-line INSULSCREEN 2100 system. The warranty includes the cement board substrate. The system complies with ICBO No. 5105, BOCA No. 94-6 and SBCCI No. 9610.

“We had the option of going with a five-year system from a variety of manufacturers, or with the lo-year system from USG,” says Larry Alessandrini, associate director of Housing, Facilities and Operations at Rutgers. “After careful analysis, we chose to spend additional monies for the lo-year exterior.”

Alessandrini’s choice of the water-managed system is characteristic of a growing number of facility and building managers who are looking for superior performance from EIFS. The system that was chosen employs high-performance Durock Cement Board as a water-durable substrate and incorporates a weather-resistant barrier, flashing, weeping and other construction details all designed to protect against moisture intrusion damage.

“This is a one-of-a-kind system in the EIFS industry, because it’s an adhered water-management system with a full system warranty including substrate,” says John Bregman, president, CSI Builders Inc., Fairfield, N.J. CSI has the exterior contract for the Newell renovation.

Water-managed EIF systems start with a different premise than barrier-type EIFS. While barrier systems assume that all water penetration can be stopped at the exterior face of the wall, water-managed systems are designed under the assumption that moisture can, and will, penetrate wall surfaces. Thus, the components of the INSULSCREEN 2100 system are designed to work together so that, intruding water quickly exits the system before it causes any damage to sheathing framing and moisture-sensitive building components. The system includes a weather-resistant barrier (either asphalt felt or Tyvek StuccoWrap), Durock Cement Board, foam insulation board, mesh, basecoat and finish coat.

**Application Techniques**

Application of the system on the Newell apartments project began by...
applying the cement board panels horizontally over the weather-resistant barrier. EPS foam insulation board was then adhesively applied over the cement board surface. Tier the EPS was properly prepared, including rasping and cutting in aesthetic details, 20-oz. high-impact mesh was imbedded in the basecoat layer to a height of 6 feet above grade. Reinforcing mesh was then embedded into the basecoat over the entire wall surface. Finally, finish texture in two off-white colors and an accent color was applied.

“IT’S an adhered system, which is the best type of system,” says John Rajski, CSI project manager.

How did Rutgers justify the high-end water-managed exterior? Alessandrini says the system was chosen after analyzing the maintenance costs associated with various systems. While construction figures on the Newell renovation are not available from Rutgers, the university concluded that a five-year system would cost less to install but more to maintain in the long run than a system warranted for a decade. Rajski says the difference between a standard, five-year water-managed EIFS and the INSULSCREEN 2100 is approximately an extra 75 cents per square foot.

**Buildings Look Great**

The Newell renovation began in June 1997 and is being handled in phases. Four buildings representing a total of about 35,000 square feet of exterior surface were completed in September 1997. More buildings will be finished this summer.

Newell has 18 separate two-story
buildings—a total of 252 apartments and maximum capacity of 1,008 student residents. The buildings were constructed in 1973 as prefabricated modular units with flat roofs and exterior vertical ship-lap wood siding. Alessandrini says the roofs leaked, the exhaust systems were inefficient and the buildings’ small-size windows failed to meet emergency-egress codes. Furthermore, he says the wood siding was “constantly needing to be painted” and was “terribly bowed and warped.”

“We couldn’t afford to demolish these buildings and rebuild anew,” Alessandrini says, “nor could we keep doing Band-Aid solutions when they needed major surgery.”

Kehrt Shatken Sharon Architects, Princeton, N.J., designed a new look for the complex. Renovation plans called for pitched roofs, larger windows
and a new stucco-look exterior. Originally, a five-year water-managed system was specified, but Alessandrini decided to take bids for both five- and lo-year systems. At the time, U.S. Gypsum was the only company with an exterior product carrying a 10-year warranty.

As work began, an extra layer of plywood sheathing was added. The architect’s structural engineer had determined that the second layer was necessary to support the roof trusses.

Once the new window openings had been prepped, CSI crews installed window sill wedges to channel water toward the front of the asphalt-felt water barrier. The INSULSCREEN System was then applied as described previously.

“The buildings look great,” Alessandrini says, “The students love them. Their parents love them. They’ve really been well received.”

Alessandrini says the timetable for future phases of the Newell renovation depends on funding. However, he anticipates completing the project by 2000. While much renovation work remains, one thing that won’t require effort for some time is upkeep of the recently renovated exteriors.