EIFS in Renovation: Building on Experience

By Peter Harrison

It is now widely recognized that, with the current downturn in new construction, building renovation presents significant market opportunities for exterior insulation and finish systems (EIFS). Indeed, actively selling for renovation work should be viewed not simply as an opportunity for business development, but as a necessity to the vitality and growth of any firm involved in the EIFS industry.

Renovation work has a number of characteristics which distinguish it from new construction, and understanding these characteristics can help in the promotion of EIFS in renovation. First of all, the owner of an existing building is usually a business or individual who is not in the design profession or construction industry. Unlike the developer, architect or design-build firm usually involved in new construction, the owners of existing buildings may have little or no knowledge of EIFS. Those of us approaching renovation work with EIFS can profit by remembering and promoting the fundamental EIFS properties which were stressed when EIFS were relatively little known. As time has gone by, widening construction industry knowledge of EIFS has tended to make us forget that others are not also familiar with benefits of EIFS we know well. Return to the basics to interest and excite the building owner seeking renovation ideas and solutions.

EIFS are stylistically unlimited, economical in first cost, require low maintenance and conserve energy. They can be installed over all types of existing construction, are light weight so as not to overburden the existing structure, and won’t cause interruption of inside activities during installation. There are simply no other wall systems which can bring all of these attributes to the exterior renovation of a building. Many of these points will be new information to the owner of a building and they should be re-emphasized to construction professionals as well.

It is helpful to divide the owner’s possible needs into two basic categories and address them individually. The first category concerns appearance, the second the physical functional qualities of the building. The division is somewhat artificial, but it serves to clarify project goals among owners, contractors, designers and suppliers.

Aesthetic objectives will involve the owner’s projection of a designed image through the architectural statement made by the building. The image may be a new one, such as when a retail store or apartment modernizes to attract business, or an existing image that the owner is going to preserve because it is part of an established identity or of historical value. The designs possible range from utilitarian to lavish, creatively embellished, and highly individualized. They can quietly harmonize with surroundings or be starkly attention getting.

EIFS are truly “plastic” in the primary meaning of the word—“that which may be molded, having the power of artistic expression.” In combined formability, color range, and economy, no other wall exterior comes close to EIFS. When limitations on adding weight to existing structures are also considered, EIFS revolutionizes exterior renovation. Also, the seriousness which accompanies the substantial expenditures required by construction shouldn’t be allowed to make us forget the basic fun of designs in EIFS.

Applying an EIFS system to an existing building insulates and provides a barrier to weather. The advantages of space conditioning cost reduction, increased comfort, and lengthened service life of the building are clear, but should always be repeated in promoting a renovation. Renovations, though, involve some further development of these points.

An EIFS system might pay for itself in energy savings by addition of insulation and reduction of air infiltration to a few worst case buildings. However, a more reasonable appraisal of the investment payback through energy savings can be made by considering only the cost of the insulation board itself in comparison to utility savings. After all, the installed coating materials are independently giving value of enhanced appearance and weather protection. Their cost can logically be left out of an energy savings payback analysis.

Adding insulation also typically
Left, a New England apartment building after renovation. Right, the EIFS system was installed by mechanically attaching the insulation directly onto the steel studs. Architect for the project was HMFH Architects, Inc., Boston; general contractor was James O. McFarland Inc., Roxbury; and applicator was New England Synthetic Systems, Inc., Berkeley, Massachusetts.

helps to move potentially harmful condensation points in the existing wall assembly safely out of the existing structure by keeping the existing wall assembly warmer. EIFS systems are also designed to allow water vapor to harmlessly escape from them. Manufacturers of EIFS materials can typically provide calculations to analyze water vapor transmission characteristics during the design phase of a project to show the benefits of adding the EIFS system.

Buildings which are not weather-tight are often in urgent need of renovation. The effects of water entry, especially combined with cyclical freezing, can lead to great distress in the wall materials and assembly.

Sometimes, when weather entry has been protracted, structural reme-
diation is required to provide a structurally sound substrate for the EIFS system. The EIFS system itself may help to prevent deterioration of the structure, but it can not compensate for structural deficiencies. However in some cases, EIFS on light gage steel stud panels fastened to the primary building frame have been used to isolate existing claddings which were not stable enough to serve as the substrate. With appropriate engineering, such panels can even relieve underlying distressed claddings of windloads which are excessive for them. A wide array of installation strategies are available to economically meet the needs of most distressed wall exteriors.

Staying in contact with architects, consulting engineers, and general contractors specializing in renovation is valuable for approaching this kind of work. Often, the owners of distressed buildings require special sensitivity to their circumstances. Those involved in such projects should respect any confidentiality that the owner may desire, and should explain such needs to their personnel. This is an important feature of the renovator’s professionalism.

When a renovation project is to be pursued, it is valuable to review all of these points above related to appearance and performance needs of the project. Try to do some research and relate them to the specific desires and requirements of the project owner. In a time when every success demands an extra effort, you will have powerful tools to win work for EIFS.

Some cases in point will illustrate how some EIFS advantages provided the winning edge in obtaining renovation work.

A bank tower of glazed masonry required insulating to provide the owner with air conditioning savings. Because the substrate had a smooth non-porous surface, field tests were made to determine a surface washing method and EIFS adhesive suitable for South Florida’s hurricane wind exposure. After testing, a Parex polymer-based EIFS system was specified using one of Parex, Inc.’s 100% acrylic non-cementitious adhesives to adhere the EPS insulation board to the glazed masonry.

The adhesive has performed fully as required, demonstrating that a substrate which might have been thought difficult for EIFS renovation was, in fact, perfectly suited for it.

In the renovation of an eight-story brick clad medical university building in Charleston, South Carolina, special attention to historically appropriate finishes was required because the building was in a historic district. Representatives of the university and design team were brought by the EIFS system manufacturer to see mock-ups of the proposed cladding design at its plant. A system was selected of metal stud framed spandrel panels clad in the Insul/Crete system. The key to official acceptance in the historic control district was a brick-face style finish. It was achieved by applying a wet brick-red finish coat over a firm, but still wet, mortar-grey finish coat. By a process of striking grooves through the red finish to expose the
The finished New England apartment building.

grey, a running bond pattern of red brick and grey mortar joints was created, maintaining the integrity of the style of the historic district.

When a savvy investor purchased a large unoccupied apartment building with a highly desirable New England oceanside location, some special renovation was called for. The existing building was clad in pebble-aggregate coated cement boards which had cracked and were admitting water. Recladding with an EIFS system for weatherization and an updated appearance was a natural choice.

The adhesion of the pebble-aggregate to the cement board and the screw attachment of the cement board to the studs were both in question. Therefore, adhering an EIFS system to the existing cladding was not suitable. Since the steel studs were structurally sound, the decision was made to install a mechanically anchored system using screws penetrating through the existing cladding and into the studs. This had the further advantage of avoiding demolition of the existing cladding.

Parex’s Insul/Crete Gold system was selected to provide the new cladding for the building because it was a mechanically anchored system but required no control joints in the coating. As an “un-jointed” system using higher density extruded polystyrene insulation board, the system offered the owner unique aesthetic and functional qualities. And, where the existing building contained expansion joints, expansion joints in the new system were sealed by back rods and color matched sealants, as typical of EIFS system expansion joints. This installation withstood the full coastal exposure to Hurricane Bob with no damage at all.

As projects such as these demonstrate, the science and art of renovating with EIFS is fully established. Those of us who are engaged in installing, designing, and supplying EIFS have extraordinary opportunities in renovation. Now it is up to us to seek them out and apply our knowledge, experience, and faith to them to succeed.

About the Author:
Peter Harrison is Research and Development Manager at Parex, Inc. He has eight years experience in the EIFS industry and is a member of the EIMA Technical Committee.