

Scope of Work (500 Words Max)

Installation of pipe frame scaffolding was performed to provide access for the exterior restoration work, and also included interior, insulated partitions constructed by SRW for the duration of the project to minimize the weather exposure of the units. Once the demolition of the existing wall components and removal of the cement board panels was completed by Standard, FEA was able to observe the condition of the wood sheathing and framing members, including corner posts and floor joists, beneath the open seams and laps of the air and water barrier. Visible dark spots within the plywood sheathing throughout the corner wall assemblies clearly indicated underlying problems of water damage to the wood components. It was evident that six years of water infiltration through the previously noted cladding defects had resulted in not only interior damages, but in severe and widespread deterioration at the corner structural framing posts and window header framing, consisting of three 2x8's. This damage and deterioration had been completely obscured by the cladding material on the outside. SRW and FEA reviewed the total extent of the deterioration, and after measurements and up-close reviews of components were performed, the wood rot appeared to have spanned from the bottom of the second floor to the underside of the fourth floor, with other isolated locations of wood rot around window assemblies. In general, it appeared that open gaps in the house wrap had combined with the open gaps in the exterior cement board panels to allow for saturation and eventual rot of the wood structural components. The sealant replacement project now needed to switch gears to become a structural restoration program. Any water that had entered the exterior cladding components was able to enter the wood framing through open laps in the house wrap, and no evaporation of the stored moisture appeared to have been made possible due to the building elevation exposure and cladding components at the corner assembly. Essentially, moisture could find its way into the wall but could not drain or evaporate out of the wall.

Despite the increased scope of work and resultant additional unforeseen costs, all parties agreed that addressing of the uncovered structural deterioration was not only essential to the project, but to the health and safety of the public and existing building occupants. SRW was authorized to proceed with removal and replacement of existing deteriorated wood sheathing and wood framing members, which included corner post replacement at two floors, header replacement at several windows, and supplemental wood blocking to reinforce a portion of the floor framing joists, prior to installation of the waterproofing system.

The Prosoco R-GUARD air and water barrier and sealant membrane system was then installed by SRW to protect the new wood components by providing a complete, durable elastomeric assembly, which would be unaffected by any future gaps or water retained within exterior cladding components. Though only the corner work area received this assembly, Prosoco technical support provided clear direction on termination of the membrane behind adjacent wall components and at exterior wall openings with the FastFlash material, and issued a five-year warranty at the completion of the project.

Abstract (100 Words Max) [What Makes Project Worthy of Award]

What began as a project to stop leaks escalated into a major project to address structural deterioration at the corner of a four-story, wood-framed residential condominium in Silver Spring, Maryland. Initiated as a sealant replacement project, once cladding was removed, extensive wood rot was made visible and was able to be repaired. If this work had not been completed, continuous leaks and structural deterioration could have potentially resulted in a catastrophic failure near a busy public thoroughfare. A watertight, continuous sealant system and a structurally sound, wood-framed building envelope were the end results achieved.

Unforeseen Conditions

Deteriorated plywood sheathing, window and door headers, corner posts, and built-up joists were encountered on the project throughout the three-unit corner tier as the most significant unforeseen problems due to water damage to the wood-framed structural components. Over six years of continuous water infiltration through the previously noted cladding defects had resulted in not only interior damage to drywall and wood flooring for the tenants, but in severe and widespread deterioration at the structural framing throughout the corner assembly. This damage and deterioration had been completely obscured by the cladding material on the outside. The wood rot spanned from the bottom of the second floor to the underside of the fourth floor, with other isolated locations of wood rot around window assemblies. In general, it appeared that open gaps in the house wrap had combined with the open gaps in the exterior cement board panels to allow for saturation and eventual rot of the wood structural components.

Problems/Challenges/Solutions

A team approach was recommended by FEA due to the extremely unpredictable nature of the concealed conditions as well as the difficulty in staging the work area. Property management, FEA, and SRW worked together to develop an approach to the project which could be flexible, but yet protect all parties concerned from the unforeseen conditions in the wall. The final piece of the puzzle was to find a manufacturer who had a sealant system that could meet all the necessary detailing requirements to encapsulate the corner assembly, be applied quickly to potentially wet substrates, and also be applied in just about any weather conditions. During the project, deteriorated wood framing or sheathing components were replaced, prior to application of the new sealant system. FEA invited Prosoco to review the project and it was quickly determined that the R-GUARD product line was the right fit for this project. Once Prosoco became part of the team, FEA provided a preliminary design, required for permit by the local county authorities, which detailed removal and re-installation of the existing windows, replacement of the existing doors with sliding glass door assemblies, and installation of the Prosoco air and water barrier system, in a complete building envelope approach at the corner tier of leaking condominium units. Rather than an exterior sealant approach which relies on the waterproof integrity of individual cladding components and assemblies, the proposed waterproofing system was comprised of a sealant-like material applied in a membrane

application. The teaming effort between FEA, SRW and Prosoco were essential to the cost-effective approach of completing this project.

Community/Environmental Impact

The completed project scope of work should provide peace of mind to not only the engineer, contractor, manufacturer, and building owner, but also to anyone living in the affected units or walking along the nearby sidewalk for the foreseeable future. To date, no additional leaks have been reported, and a sound structure is in place.

Technology/Innovation

The Prosoco R-GUARD air and water barrier and sealant membrane system was installed by SRW to protect the new wood components by providing a complete, durable elastomeric assembly. Though only the corner work area received this assembly, Prosoco technical support provided clear direction on termination of the membrane behind adjacent wall components and at exterior wall openings with the FastFlash material, and issued a five-year warranty at the completion of the project.

Site Constraints

During the project, the project team needed to maintain both access to a side parking lot and drive lane (which accessed both the subject property's garage as well as the neighboring building's garage), plus maintain access below the scaffolding for tenants and vendors to the main entrance of the condominium facility.

Quality Control/Field Testing

Both FEA and Prosoco visited the site weekly to review the completed structural repairs and the installation of the R-GUARD system being performed by SRW. SRW issued a contractor's warranty at the completion of the work.

Rigging Approach

Installation of pipe frame scaffolding was performed by SRW to provide access for the exterior restoration work. SRW also constructed interior, insulated partitions to minimize the weather exposure of the units for the building tenants for the duration of the project. In particular, these areas created by the partitions were particularly useful when temporary shoring had to be installed while the structural wood framing was being retrofit and repaired.

Sustainment (Maintenance/Support)

The R-GUARD air and water barrier and sealant membrane system was recommended by Prosoco to be unaffected by any future gaps or water retained within exterior cladding components, and would not require significant maintenance for the foreseeable future.