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Director's Dialogue

Sealant, Waterproofing and Restoration Business, What does the future hold?

As an engineer who is routinely involved in the evaluation and repair of building exterior systems, I have seen many changes in our industry in the past couple of decades.

I'm old enough to be able to say that "I've been doing this for more than 20 years". Twenty years ago, a vast majority of the buildings we worked on were older buildings that suffered expected wear and tear. Sealant joints would fail because they were old, masonry walls needed tuckpointing because the mortar joints were 30 or more years old, shelf angles needed repairs because they had been exposed to moisture for more than 3 or 4 decades, exposed copper flashings needed replacement because they had corroded through after 70 years of service, etc. However, in the past several years, we have all been witness to a disturbing trend in the construction industry. More than ½ of the projects our firm gets involved with today are less than 5 years old! This begs the question: What has changed?

In my experience, many factors have contributed to the adverse changes in the reliability and durability of newer buildings:

1. Many of the older buildings were constructed using the traditional construction delivery mechanism in which three main parties were involved in the construction of a building: The Owner, the Architect and the Contractor. The Owners tended to build buildings with the intention of keeping the building in their investment portfolio for a long time. The Architect was hired to design the building and oversee the Contractor's work, and the Contractor was hired to build a quality building. The owner had no incentive to direct the Architect or the Contractor to cut corners. Today, the construction delivery mechanism for many buildings has changed. The owners are sometimes developers who have no long-term interest in the building, the architect's scope of services is typically limited and does not include much construction phase services, and the contractors are constantly being asked to move the construction schedule faster and construct buildings at lower costs. Many new delivery mechanisms such as developer/builder or design/build arrangements eliminate the independence of the architect and result in compromised quality control measures. This is not to say that there are no quality minded developers or builders. Many buildings are still built with good quality, but the percentages seem lower.
2. Years ago, buildings were simpler. While many buildings had intricate facades, they didn't have complicated HVAC systems, fire sprinklers, alarms, double facades, and a myriad of other components that needed an architect's attention and expertise. All one has to do is to review a complete drawing set for a typical commercial building being built today. There are typically hundreds of sheets of drawings for various interior and exterior details and systems, not to mention volumes of shop drawings from various system manufacturers and installers. Some of these shop drawings are never coordinated between systems. It is not always possible to pay the needed attention to all of those systems, given the limitations on design fees and time limits. The norm is for the architects to conceptually design a system (such as a curtain wall system) and leave the "details" to the manufacturers and installers of those systems. What gets lost is the coordination between those systems. The curtain wall manufacturer isn't responsible for designing the

Continued on Page 5

Director's Dialogue

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Continued from Page 4

flashing between the curtain wall and the adjacent masonry walls, and so on.

3. Energy efficiency requirements have caused building designers to increase wall and roof insulation. We have also added new components such as air barriers to cut down energy usage in buildings. Generally speaking, increased wall insulation increases condensation potential if the intricate details of the vapor retarders, weather-resistive barriers and air barriers are not fully understood and designed. Increased insulation also increases the potential for freeze-thaw damage of exterior components. Where they were previously kept warm by heat conduction from the building interior, they are now well-insulated from the interior. This, in combination with lower wall mass, increases freeze-thaw cycles in exterior wall components. I have spoken to many groups of architects over the past few years, and am still amazed how much misunderstanding and confusion exists about vapor retarders, air barriers and weather-resistive barriers. Knowing where to locate any one of those components in a wall system takes good knowledge of building science, and considerable experience.
4. Workmanship has also suffered in the past few decades. While we all know that it is harder and harder to find skilled workers with experience in a craft, we need to realize that there are far more sub-specialties that workers need to be trained in. In the past, there were only a few types of exterior flashing materials that the workers needed to be familiar with. Today, we have a myriad of proprietary flashing systems, each of which need skilled workers who are trained in their installation.

There are many other factors that have changed our industry in the past ¼ century. Some of the above changes such as the shortage of skilled workers pose serious challenges for the sealant, waterproofing and restoration industry. Others may present more opportunities for us since the new generation of buildings will require sealants, waterproofing and restoration to keep them in a serviceable condition. Since many of the deficiencies with newer buildings cannot be properly repaired within the current economic means of the building owners, comprehensive building exterior repairs will become a necessity in the future. Those in our industry who deal with new construction will likely suffer consequences of the current problems in the construction industry. Those of us who primarily work in the restoration side of our business will likely keep busy for some time to come. So, for the foreseeable future, the restoration industry should grow. Although that sounds optimistic, we all need to make sure that our industry doesn't suffer from the same issues the construction industry as a whole has suffered.

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