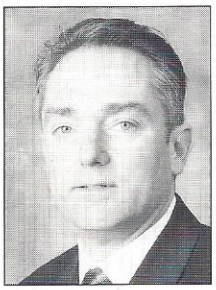
Reprinted from the issue of December 28, 1998

BANKER & TRADESMAN

THE REAL ESTATE, BANKING AND COMMERCIAL WEEKLY FOR MASSACHUSETTS *ESTABLISHED 1872*

Protection From Water Damage Is Key Building Consideration

By Dennis Kulesza



Keeping a building water-tight is critical to the preservation of any structure. Water is, after all, the single most damaging element to a building.

In many cases, facility managers are faced with water problems that plague a structure from initial construction. As time goes on, these problems become even more severe.

Water first damages a building cosmetically, then structurally. And by the time water damage is visible on the interior of a building, it is likely that some irreversible damage has been caused to the exterior. Once irreversible damage to the building exterior has occurred, costly retrofit/reinstallation work is required. Over time, the only way to prevent water from entering a structure is through a regularly scheduled maintenance program that incorporates visual inspections by skilled professionals.

Roofs should be routinely inspected in the spring and fall. Inspecting a roof in the fall will allow one to ready it for the winter. Fall is a good time to check drains and gutters to see that they are free of debris. Clearing debris from drains is a simple task during mild weather, but it becomes difficult, if not impossible, once temperatures drop below freezing.

Inspecting a roof in the spring helps identify damage caused to it over the winter. Making repairs before spring rains begin prevents water from causing permanent damage to the roof. Cursory inspections should also be done after windstorms and after any work is done to the roof or roof top equipment.

Walls are typically more durable than roofs and usually require inspection once a year. Many items on the roof waterproofing checklist also appear on the wall checklist. An example is coping and counter flashings. This occurs because both the roof system and wall system depend on these building components to keep water out. These components make the transition between systems and are actually shared by the roof and the walls.

To help illustrate and explain the relationship between roof, wall and horizontal waterproofing systems within the same structure, the concept of the "building envelope" has been developed. The building envelope concept maintains that, in order to effectively keep water out of a structure, one must design and construct continuity between the vertical and horizontal components of the building's waterproofing systems.

Accordingly, one must consider walls when dealing with roofs and vice versa. The key to understanding how the building envelope works is to realize that a waterproofing medium must exist on all vertical and horizontal surfaces and to realize that the entire system is interconnected and overlapping at these interfaces.

In summary, water can have devastating effects on a structure. Keeping water out of a building begins in the design stage. Good design must be complemented by quality workmanship and the use of the right construction materials for the given application. The rest is up to the facility manager. The manager must have a good maintenance system in place – one that incorporates routine inspections.

The watertight integrity of the building envelope will only be as strong as the weakest link in the construction and maintenance chain. Facility managers play a critical role in keeping water out a facility, as they are the maintenance link in the chain to a watertight structure.

In historic restoration work, waterproofing is integral to any work that is performed. Concurrent to restoring a structure as close as possible to its original condition/construction is the critical goal of sealing the building envelope in order to achieve a watertight facade from roof to foundation.

The Warner Theatre at Worcester Academy is a case in point, as water had caused considerable structural damage to the exterior of the facility. All restoration work conducted at the historic building was done in accordance with sound waterproofing techniques. ■

Worcester Academy's historic Warner Theatre was recently restored, in accordance with sound waterproofing techniques.

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