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## **Water infiltration can cause major problems to a building, first cosmetically, then structurally**

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Facility management has become more complex and demanding than ever. Concerns such as, strategic planning, ergonomics, benchmarking, accessibility, post-occupancy building evaluations, partnering, and downsizing continue to devour a facility manager's time. It is little wonder that building leaks do not rate preferential treatment. Inevitably, though, keeping a building safe from water infiltration becomes an important part of every facility manager's duties.

Water infiltration causes major problems to a structure. Water damages a building, first cosmetically, then structurally. It is important to realize that by the time a stain shows up on the interior of your building, most likely, irreversible damage has been caused to the exterior. Water soaked roof insulation will never dry out. The effective "R" value of the insulation is therefore destroyed. Trapped moisture in insulation can also decay a roof deck and will cause roofs to fail prematurely. Water entering walls will rust steel relieving angles and carrying beams, which support the structure. Moisture penetrating reinforced concrete structures carry chloride ions that will rust reinforcing bars causing them to expand in size resulting in spalling concrete. As one begins to understand the mechanics of water infiltration one begins to understand the importance of keeping a building watertight.

The best way to prevent water from entering a structure is to implement a scheduled building maintenance program that incorporates routine visual inspections. The waterproofing firm handling inspections should provide a comprehensive checklist, and report on the condition of all aspects of the building structure that comprise the building envelope. Roofs should be routinely inspected in the spring and fall. Inspecting a roof in the fall will allow you to ready your roof 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 becomes difficult if not impossible once temperatures drop below freezing. Inspecting a roof in the spring helps identify damage caused to the roof over the winter. Make repairs before spring rains begin to prevent water from causing permanent damage to your roof. cursory inspections should also be done after wind storms and after any work is done to your roof or roof top equipment.

Walls are typically more durable than roofs and usually require inspection once a year. Many of the items on the roof checklist also appear on the wall checklist. Examples are coping and counter flashings. Both the roof system and wall system depend on and share these building components to keep water out.

The building envelope concept helps illustrate the interdependent relationship between roof, wall, and horizontal waterproofing systems within a structure. 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 that the entire system is interconnected and overlapping at these interfaces. The well-trained waterproofing specialist will recommend the proper waterproofing systems for your facility and provide the reasons for them.

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 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 of a facility. They are the maintenance link in the chain to a watertight structure.

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