

Be Proactive to Find Problems With Your Building Envelope

BY FRED KING

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Indoor air quality and sick building syndrome have become hot topics, especially when publicly occupied facilities are concerned.

The effects of an airborne particle or pollutant such as dust or dust mites will vary depending on a person's medical history and sensitivity. Pollutants are likely to affect people with allergies or asthma more severely than volatile organic compounds such as paint, cleaning solvents and carpet shampoos.

A pollutant can be created either by internal or external sources. Those caused externally may penetrate the envelope of a building — its roof, walls, windows, doors, basement or concrete slab.

The best way to be proactive is to:

- Identify potential problems with the building envelope before occupying the facility.
- Look for other factors that can contribute to problems. An example would be poor site drainage that allows water from the parking lot to back up against the building.

MOISTURE

Moisture penetration through the roof, walls, windows and floors can cause mold growth. The first signs of moisture problems include stained ceiling tiles, moisture stains above or below window openings, a chalky appearance on exterior walls, cracking of bricks, moisture on interior walls and mold growth on basement walls.

If mold is present, a certified industrial hygienist should be contacted along with a ventilation specialist.

When looking for moisture intrusion:

- Examine the roof, its flashing and rooftop equipment.
- Also look for ponded water on the roof or around the building's foundation, deteriorated caulk on window frames, missing glazing on win-

dows and weatherstripping around windows and door openings.

A leaking roof can affect sprayed-on fireproofing and acoustical materials. The wetting/drying cycle can release fibers and particles into the air, causing sick building syndrome.

A CLOSER LOOK

Nondestructive and sometimes destructive testing of certain components may be necessary to evaluate a building's envelope.

An example of nondestructive testing is an infrared moisture survey conducted at night on the roof. The infrared scan would identify moisture-laden insulation under the roofing membrane.

An example of destructive testing is interior demolition of sheetrock above a window to determine whether there is flashing between the internal and external walls. You also will be able to determine whether the flashing is working properly and directing water outside.

Another critical aspect in the analysis of the building envelope is to compare the original design with today's codes and to look at the available options when upgrading to the new standards.

Although the code may call for additional insulation to make a building more energy efficient it may not require changes to the ventilation system. The impact these modifications will have on the building and its occupants should not be left to chance.

A checklist of building components to be inspected should include the above-mentioned items.

Other external conditions must be considered as well, including whether pollutants are being discharged from neighboring buildings or industry.

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