Healthy Schools for Healthy Children

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NCFI POLYURETHANES

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Healthy Schools for Healthy Children

BUILDING HEALTHIER SCHOOLS

We believe most, if not all, of the nation's public schools can be made healthier by paying more attention to the building's envelope—the exterior walls, roof, and insulation. Mold is such a problem that we must design, site, and build to prevent it. That takes the work of all stakeholders. The first step is education. We have to answer the question, "What makes for a healthy school? What can we (architects, engineers, site planners, builders, school boards, administrators, superintendents, principals and teachers) do to make sure we keep moisture out of the building through some proven methods?"

Healthy Schools for Healthy Children is a coalition of major stakeholders using our vast and varied experience to help make every new school being built, and those being renovated, the healthiest environments for our children by educating others about the dangers of mold and simple ways they can prevent it in the planning and building processes.

MOLD

According to the Center for Disease Control (CDC), "As many as 1,000 species of mold have been found in our homes," states Clark. "Mold spores come into buildings on the air or attached to clothing and there is nothing any of us can do to prevent that. But, what we can do is deny mold what it needs to grow and become dangerous—moisture, and we are experts at keeping out moisture!"

When mold grows out of control in a classroom and school environment it releases spores which are breathed in by all children. According to Ruth Etzel, M.D., former chairwoman of the Committee on Environmental Health of the American Academy of Pediatrics, "Children are more susceptible to mold-related illness than adults, because their lungs and other organs are still developing."

The problem of mold in school buildings is not a new concern. According to a Government Accounting Office (GAO) report, 20 percent of the country's 80,000 public schools have indoor air quality problems. According to the report, "Microbiological contaminants—particularly molds—account for half of indoor air health complaints. That means as many as 7,500 public schools have indoor air problems related to mold." There is no way of really knowing how many more schools have undiscovered mold problems.

What is known is that mold in schools makes children very sick. Exposure to mold produces diverse symptoms—fatigue, eye irritation, respiratory problems, nausea, headaches—and can lead to more severe illnesses like Asthma, Organic Dust Toxic Syndrome with an abrupt onset of fever, flu-like symptoms, and respiratory symptoms—and pulmonary hemorrhages and hemosiderosis—bleeding of the lungs.

FOLLOW GOOD DESIGN PRACTICES TO KEEP MOISTURE OUT OF THE BUILDING:

- Design roofs for positive drainage; design flashing with appropriate height to prevent water intrusion over the top of flashing. Use NCFI's EnduraTech® Roofing Systems (www.enduratechsystems.com)
- Detail flashing appropriately at wall openings such as windows and doors; provide weep holes at adequate spacing
- Do not rely on caulking alone to prevent water intrusion
- Design cavity walls rather than composite walls
- Ensure that finish grade is 8" (6" min.) below finish floors
- Base-of-wall flashing should weep to the exterior at least one brick course below finish floor level, and be integrated into the interior with several inches above finish floor
- Carefully design any changes in floor levels, conditions where finish floor is below finish grade, retaining wall conditions, and other situations where waterproofing, foundation drains, and the like would be used
- Apply InsulBloc® polyurethane spray foam insulation. Where possible, use products that perform multiple functions to keep designs simple and easy to build properly: Insulation like InsulBloc® that is also the air barrier and water seal
- Ensure transition areas, such as wall to roof junction are able to be sealed for air leakage wind-blown water
- Plan for joints of dissimilar materials such as steel columns in a masonry block wall
- Detail vapor barriers with type and position, as appropriate to building function and geographic location
- Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof, or floors) by adding spray polyurethane insulation
- Provide ventilation for space above uninsulated soffits
- Outbuildings: provide good natural ventilation, high and low, and provide durable and easily cleanable finish materials

DESIGN AND MAINTAIN HVAC EQUIPMENT TO CONTROL MOISTURE ACCUMULATION

- Ventilation air is perhaps the largest moisture source in schools. Proper design and maintenance is vital to controlling moisture in schools and, thus, inhibiting the growth of mold.
- Maintain low indoor humidity – below 60% relative humidity (RH), ideally 30-50%.
- ASHRAE standards for ventilation rates can be reduced (7.5-15 cfm per person) in classrooms
- Adequately vent showers and other moisture-generating sources to the outside
- Use exhaust fans whenever cooking, dishwashing, and cleaning in food service areas.
- Vent moisture-generating appliances, such as dryers, to the outside
- Keep HVAC drip pans clean, flowing properly, and unobstructed
- Perform regular equipment inspections and maintenance as scheduled

**It can also save schools money. InsulBloc® spray foam insulation is a safe moisture barrier system that contains no ozone depleting chemicals and contains renewable agricultural products like sugar beets and corn. It's safe, long-lasting and even allows schools to focus their limited maintenance budgets on things like HVAC upkeep—another major point at which moisture enters buildings and collects—rather than extremely costly wall repairs or replacement.

HEALTHY SCHOOLS HEALTHY CHILDREN