Lab looks at 'dry-fog' technology for mold remediation, prevention

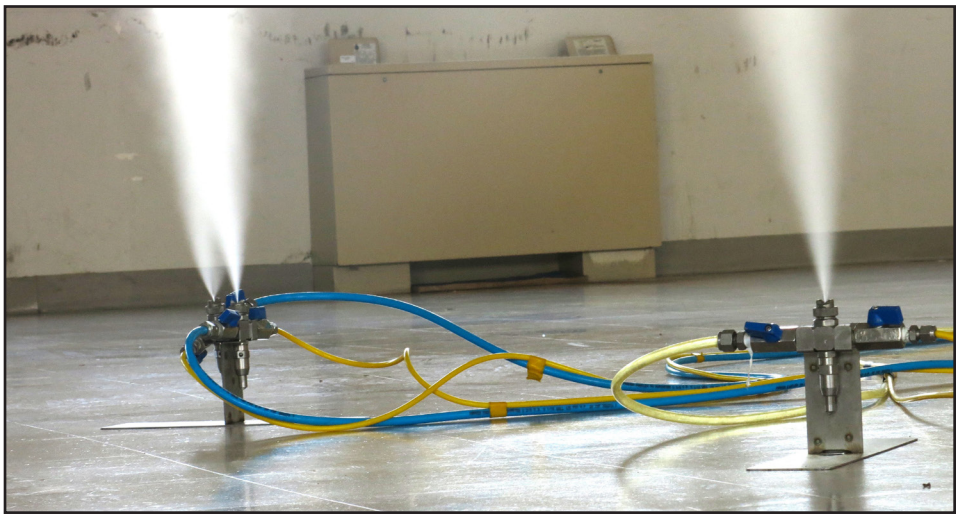
by Shane Hirschi and Dale Herron

Mold is a fungus that can grow on virtually any surface provided moisture is present, damaging buildings and negatively affecting the health of building occupants. The preferred solution is to control and eliminate the source of moisture that precipitates the mold growth.

However, this is an insufficient method to a chronic problem. Long term solutions within real world operational settings (*where building occupants continuously adjust system specific heating, ventilation and air conditioning set points to achieve their immediate comfort*) must address all surfaces where mold may grow. These "comfort" adjustments inevitably create environments where moisture and temperature enhance the already prime onsite environmental conditions for mold growth. Another contributor to enhanced mold growth is insufficient maintenance due to funding levels at military installations.

Fort Campbell, Kentucky, and the U.S. Army Engineer Research and Development Center partnered with the Army Office of the Assistant Chief of Staff for Installation Management's Installation Technology Transfer Program to demonstrate the effectiveness of the two-step dry-fog mold remediation process technology developed by Pure Maintenance, LLC. Pure Maintenance is a commercial partner that owns a patented treatment technology. Two buildings were identified for the dry-fog demonstration: a vacant dining facility and a dormant barracks administration section that included classrooms, restrooms and office facilities.

The two-step dry-fog process introduces a gas/vapor with micron-sized particles that cover, penetrate and encompass mold spores in materials, spaces, and places that current mold removal technologies are not able to penetrate mold growth areas. Unlike many current mold remediation methods, the two-step dry-fog process requires no personal protective equipment and minimal manpower, as the application system itself performs the work required to destroy existing mold spores and prevent future growth.



Dry-fog treatment is initiated via spray nozzles (Photo by Shane Hirschi)

The first step of the treatment process is the application of InstaPURE®, a powerful disinfectant that destroys mold spores and disinfects any surface it touches. The second step is the application of EverPURE®, an anti-microbial barrier that destroys bacteria or viruses that come in contact with treated surfaces. The U.S. Environmental Protection Agency approves the use of both InstaPURE® and EverPURE® in all 50 states.

The center's team members analyzed the demonstration for the efficacy of mold spore removal, and the potential for long-term mold prevention. Treating each test building took five to six hours and included: mobilization, "before" air and surface sampling, treatment application, "after" air and surface sampling, and de-mobilization.

Initial prior to treatment air samples taken from the dining facility and barracks locations indicated an average of hundreds of thousands mold spores per cubic meter while outdoor/background samples were in the thousands. Air samples to date, three months after treatment, have shown and continue to indicate complete treatment of all mold spores, showing below outdoor/background levels. Surfaces in both buildings were covered with visible mold spores. Surface samples taken after treatment indicate complete removal and continue to show no new mold growth to date. The dry vapor coating extends the period that mold growth is inhibited. Further studies may suggest the maximum extent this process offers growth inhibiting characteristics as well as additional applications, perhaps testing medical equipment infrastructure, new construction, etc.

Early project results have been shared with Region IV of the Federal Emergency Management Agency and the U.S. Army Corps of Engineers Huntington District. Based on results to date, the dry-fog technology potentially could support mold remediation needs resulting from recent and future natural hazards.

The two-step dry-fog technology is commercially available through Pure Maintenance. Pure Maintenance provides training and equipment to interested parties for organic application, per specific situational contracting and/or agreements.

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