

CASE STUDY: HVAC MALFUNCTION MUSTY ODORS



PROJECT DESCRIPTION: ODOR INVESTIGATION/REMEDICATION RETAIL BANK BRANCH

Scope of Services: AET was contracted to identify the cause of musty-like odors present in a bank branch facility. This investigation was performed during the summer HVAC cooling season. A single HVAC unit with supply/return duct work serviced the branch. The HVAC duct work was internally lined with fiberglass insulation.

AET's Investigative Approach/Tools:

1. **Visual Inspection:** AET's CIH staff professional identified condensation on the exterior surfaces of the HVAC supply ductwork downstream from the cooling coil. Confirmation of moisture impact to fiberglass interior lining was performed by partially disassembling the ductwork. The extent and distribution of moisture impact throughout the HVAC ductwork was performed by core sampling/moisture measurement testing.
2. **Source Assessment:** The discharge temperature of the supply air downstream from the cooling coil was measured at 40°F. An average temperature of 55°F is recommended to control moisture condensation within ductwork (i.e. above the dew point).

AET's Experience: Fiberglass lined ductwork cannot be effectively cleaned. Although wet newly installed fiberglass does not actively support mold growth, the dirt/debris attached to the fiberglass in older ductwork can provide a mold growth food source. Wet fiberglass will also promote bacteria growth and result in a noxious odor.

Final Solution: AET's CIH developed and oversaw the implementation of an HVAC modification design change as well as the remediation of the moisture impacted ductwork. Approximately 70 feet of ductwork was removed/replaced. Work was performed in a negative pressure containment to control mold spore/bacteria release during the remediation process. Work was performed after normal business hours while the branch was kept operational. Project closeout included strict visual inspection/odor assessments as well as mold spore air quality sampling to verify the effectiveness of the remediation process.

Considerations for adjusting discharge temperature to existing HVAC units can include, increasing fan speed, modulating of Freon flow, adjusting return/outdoor air mixing. Additionally, in-line heater elements can be incorporated to prevent short cycling of equipment and build-up of humidity. Vigilance in post monitoring of adjustments is essential to ensure that proper operational parameters are maintained for occupant comfort and equipment efficiency.

When you need professional help or advice, email Roy Mosaicant, CIH, at r.mosaicant@aetinc.biz or call 610-891-0114. We provide nationwide services; phone consultations are free. Check out the full range of environmental contracting/consulting services we provide at our website www.aetinc.biz.

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