

CASE STUDY: HVAC PTAC UNITS - PREVENTIVE MAINTENANCE EVALUATION

PROJECT DESCRIPTION: MOLD, BACTERIA, LEGIONELLA, HOSPITAL PATIENT ROOMS

Scope of Services: AET was contracted by a Hospital Facilities Department and Infection Control Officer to evaluate preventive maintenance/cleaning procedures utilized on PTAC units in patient rooms. Package Terminal Air Conditioning (PTAC) units are self contained, through-the-wall HVAC systems which can be found in hospitals, hotels and school classrooms. In hospitals, PTAC units require strict preventative maintenance including aggressive cleaning such as pressure-washing or steam cleaning. Cleaning and maintenance are essential to minimize potential healthcare acquired infections (HAIs) to patients and staff from molds and bacteria. High risk patients include immunocompromised individuals and patients with respiratory illness.

AET Experience - PTAC units are similar to window-type air conditioners except they contain both heating and cooling coils. Room air is supplied to the coils from air intakes located near the floor and in some cases mixed with outdoor air. Operation of these units is based on individual temperature settings on the units to satisfy the requirements of the occupants of the space.

Problems associated with PTAC units include intake of contamination/odors associated with the outside air and/or lack of maintenance on these units. PTACs contain intake filters/screens which must be kept clean or dust will buildup and restrict airflow which allows for excess condensation or heating and can cause odors. Condensate pans within PTACs must also be routinely serviced or mold/bacteria will grow within the pans resulting in mildew-like odors.

Preventative Maintenance Evaluation Step-by-Step Approach:

1. PTAC units in this hospital are removed from the wall, taken to a service area, partially disassembled to expose the interior plenum and coils and pressure washed clean (followed by forced air drying) every 6 months.
2. For this evaluation, multiple PTACs on various floors and patient rooms were removed, disassembled and the interior plenum surface wipe tested for mold and bacteria surface contamination. Approximate operational times for the PTACs since the last cleaning was also noted.
3. The efficiency of preventative maintenance/cleaning was also verified by mold/bacteria surface wipe sampling on recently cleaned PTACs.
4. Bacteria sampling also included a Legionella evaluation due to concerns of potential stagnant water within the condensate pans of the PTACs.

Conclusion: AET was able to conclude no Legionella bacteria was found in any of the PTAC units. Further, the pressure washing preventative maintenance procedure proved adequate to remove potential mold/bacteria contamination. The client was also able to adjust their preventative maintenance schedule on the PTAC units based on mold/bacteria data within the interior plenum based on the duration of operation of each of these units.

Routine facility maintenance in conjunction with AET's sampling protocols help ensure positive clinical outcome in healthcare facilities and reduce IAQ complaints in schools, hotels and office buildings.

When you need professional help or advice, email Alan Sutherland, CIH, CHMM at a.sutherland@aetinc.biz or 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.