

DIRTY COOLING COILS IN AIR HANDLER UNITS: 3 MAIN CULPRITS | MAR. 2024



In the world of facility management, maintaining the optimal performance of air handler units is crucial. One key aspect that often gets overlooked is the cleanliness of cooling coils. Dirty cooling coils can lead to reduced efficiency, increased energy consumption, and compromised indoor air quality. In this article, we'll explore three main ways cooling coils in air handler units get dirty and discuss effective solutions, with a focus on high-temperature, low-pressure steam cleaning.

The Three Main Culprits of Dirty Cooling Coils

- 1) **Filter Bypass:** One of the primary culprits behind dirty cooling coils is filter bypass. Air filters are designed to trap dust, debris, and other contaminants, preventing them from entering the air handler unit. However, when filters are improperly installed or damaged, particles can bypass the filter and accumulate on the cooling coils. This not only hampers the unit's efficiency but also poses a threat to the overall system.
- 2) **Cabinet Infiltration:** Another common cause of dirty cooling coils is cabinet infiltration. Air handler units are housed in cabinets to protect them from external elements. However, if the cabinet is not properly sealed or if there are gaps and cracks, airborne

particles from the surrounding environment can infiltrate the unit and settle on the cooling coils. Regular inspection and maintenance of cabinet seals are essential to prevent this form of contamination.

- 3) **Microbial Growth:** Beyond the obvious dust and dirt, microbial growth presents a less visible but equally problematic issue. When moisture is present in the system, it creates an environment conducive to the growth of mold and bacteria on the coils. This biological contamination not only hinders efficiency but can also pose health risks.

Proven Solutions

- **Addressing Filter Bypass:** Regularly inspect and replace air filters as recommended by the manufacturer. Ensure proper installation of filters and fix any gaps or leaks around them.
- **Sealing Cabinet Infiltration:** Conduct thorough inspections of the air handler unit's cabinet for gaps and seams. Seal any openings with appropriate materials to prevent unfiltered air from entering.
- **Controlling Microbial Growth:** Manage moisture levels by fixing leaks and ensuring proper drainage. Conduct a deep steam cleaning of the dirty cooling coils. Incorporate UV light sterilization systems to inhibit microbial growth on coils.

Steam Coil Cleaning

To effectively clean dirty cooling coils, consider the use of [high-temperature, low-pressure steam](#). This method offers several advantages:

- **Efficiency:** Steam efficiently dissolves and lifts dirt, even from hard-to-reach areas. It also restores airflow!
- **Environmentally Friendly:** Uses eco-friendly bio-enzymes compared to traditional cleaning methods.
- **Minimizes Coil Damage:** The gentle nature of steam cleaning prevents damage to delicate fins and coils.

For HVAC maintenance, understanding the common causes of dirty cooling coils is essential for ensuring the longevity and efficiency of air handler units. By addressing filter bypass, cabinet infiltration, and outdoor air contamination, and implementing regular high-temperature, low-pressure steam cleaning, contractors can keep cooling coils in optimal condition, leading to improved system performance and energy savings.

Sources

1. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE): [www.ashrae.org]
2. HVAC School: [www.hvacschool.com]
3. Environmental Protection Agency (EPA): [www.epa.gov]

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