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Inside the Air Handler: Inspection, Cleaning and Refurbishment



2026

FALL TECHNICAL
CONFERENCE

SEPTEMBER 10-12, 2026 • WILTON NORFOLK THE MAINE
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Presenters



Robert Rizen

Robert Rizen is VP of GC Industrial. He has been involved with air conveyance cleaning since 1989 as well as full-service restoration operations.

NADCA - ASCS, CVI, VMT
ASCS, CVI Instructor
Education & Safety, Whitepaper, Fall Tech & Leadership Committees

ICRC S590 Committee
ICRC: ASD, MRS, OCT, CCT, FST, WRT

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Disclaimer

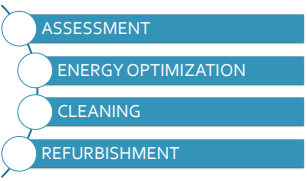
This presentation is not intended to be a comprehensive program covering all aspects of this topic. All technicians are encouraged to read and follow all applicable standards, codes and regulations related to this topic.

- ✓ It is the responsibility of each individual contractor to follow local building codes and licensing requirements and to work safely in accordance with OSHA guidelines.
- ✓ It is the contractor's responsibility to take proper precautions on each project to prevent cross contamination. Always take the health and safety of the building occupants into consideration before you conduct any cleaning procedures.
- ✓ All of the following tips are only general tips. They do not cover every situation and it is your responsibility to adapt these tips to the individual system you are working on.
- ✓ The Instructor is not responsible in any way for the work you perform after viewing this slide show. You are responsible for your own work.
- ✓ The views and opinions following are the instructors opinions and not necessarily the official position of the National Air Duct Cleaners Association.

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What We'll Learn



- ASSESSMENT
- ENERGY OPTIMIZATION
- CLEANING
- REFURBISHMENT

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INSIDE THE AIR HANDLER

ASSESSMENT



Air-Handling Unit Inspections: The air handling unit (AHU) cleanliness inspection shall include, but is not limited to, the following components within the unit:

Filters and air bypass; heating and cooling coils; condensate pans; condensate drain lines; humidification systems; acoustic insulation; fans and fan compartments; dampers; door gaskets; and general unit integrity.

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INSIDE THE AIR HANDLER

ASSESSMENT

NADCA CVI goes beyond "is it dirty?"

1. Understanding the HVAC system and components
2. Industry standards and guidelines
3. HVAC and indoor-air-quality considerations
4. Performing the inspection
5. Risk management



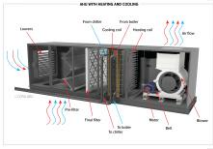
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INSIDE THE AIR HANDLER

ASSESSMENT

- Existing Conditions
- OA Intakes
- Filter Racks
- Mixing Compartment
- Pre Heat or Energy Coil?
- Heat Coils
- Cooling Coils
- SA & RA Fans
- All Compartments
- Discharge Compartment
- Sound Attenuators
- Fiberglass Liner?
- Door Gaskets
- Accessibility

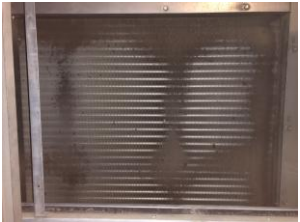


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INSIDE THE AIR HANDLER

ASSESSMENT



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INSIDE THE AIR HANDLER

ASSESSMENT



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INSIDE THE AIR HANDLER

ASSESSMENT

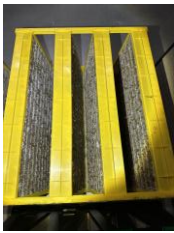


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ASSESSMENT

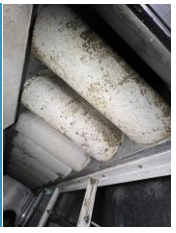


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ASSESSMENT



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INSIDE THE AIR HANDLER

ASSESSMENT



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ENERGY OPTIMIZATION



Dirty Fans & Coils are Costing the Facility Money!!!!

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ENERGY OPTIMIZATION

NADCA Energy Study:

- Clean fans deliver 10 - %46 percent more airflow
- Cleaning fans and blowers cuts their energy consumption by **41% to 60%**

ASHRAE 2006 Study:

Cleaning the cooling coil in AHU SF-9 resulted in an increase of **25.3%** tons of cooling (on prior 81 tons of cooling). They estimated that 100 tons (352 kW) of cooling capacity would be added to the building once all four AHUs coils were cleaned. (Building had a total of 1,800 [6330 kW] tons available capacity)

Cleaning the cooling coil would continue to save energy by decreasing the load on the chiller plant and making the heat transfer of this loading more efficient. It reduced the time of multiple chiller operation and its associated pumps, cooling towers, chemical costs, wear and tear, etc.

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ENERGY OPTIMIZATION

University Energy Recovery Coil

- Lab exhaust system, 40 + years old
- Large energy recovery coil 7 x 16'
- No filters



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ENERGY OPTIMIZATION

University Energy Recovery Coil The Data

Design CFM	Pre-Coil Clean 4/8/12	Post-Coil Clean 5/13/25
49,270	19,358	50,034

Before cleaning, the fan had to fight extreme static pressure from the dirty coil, causing the VFD to run the 30 HP motor at near 100% capacity just to squeeze out 19,358 CFM. Now that the restriction is gone, the VFD can slow the motor down dramatically to hit that same airflow target.

Total annual savings will be between \$28,000 and \$34,000+ per year, depending on how your building automation system (BAS) leverages the VFD post-cleaning.

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CLEANING COILS

- Appropriate chemicals / detergents
- Science has changed: probiotics
- Dwell Time!!!!
- High volumes of water at lower pressures
- Wet steam

Coils Found in AHU's

- Pre Heat
- Energy Recovery
- Cooling
- Heat
- Re Heat
- Energy Wheel



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CLEANING COILS

Energy Recovery Wheels

Cleanable?
Material its constructed of?
Drainage?



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CLEANING PORUS SURFACES



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CLEANING NON-PORUS / HARD SURFACES



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REFURBISHMENT

What's the purpose?

- Extend the life of aging assets with minimal impact
- Create more hygienic air side surfaces
- Re pitch drain pans
- Stop drain pan / wet area leaks
- Remove & replace failing / contaminated liner

What is a good candidate for refurb?

- RTU's, Built up AHU, larger units
- Select residential / small RTU's

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REFURBISHMENT

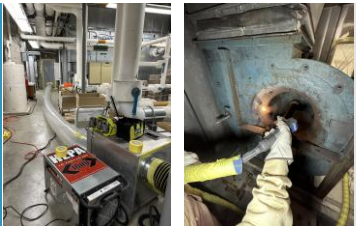


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REFURBISHMENT



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REFURBISHMENT



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Conclusion

- Inspection / Assessment is the first step
- Keeping coils & fans clean equal energy savings
- Refurbishment can extend the life of aging assets
- These are valuable services you can provide

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Title of
Presentation

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