



Advanced Commercial  
Cleaning, Zoning, & Isolating

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Presenter



David M. Monson

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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

- How to divide a large project into simpler parts
- Developing a general work plan for the parts
- Executing the plan
- Solving problems opposed to the plan

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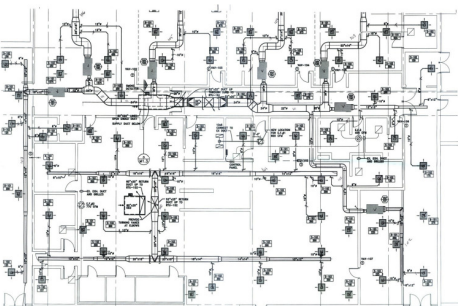
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### The Basic Cleaning Plan

- Return
- Air Handling Unit
- Supply
- The most basic cleaning plan of all is to clean in the same order as the direction of air flow from where it enters the system to where it exits the system.
  - Why?
    - What happens if a sudden situation arises where the forced air system must be restored to operation prior to the cleaning of the system being completed?

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- Does this basic cleaning paradigm really matter if the area served is unoccupied and the system will be left off for the duration of the project?
- How certain are you that it will be able to be left off?
- Are you in a season of year where you might need to change your mind and restart a system prematurely for the protection of the building?

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- Are there other operations in the building that might have sudden needs for this system to be restored to operation quickly?
- Are there other people potentially involved that might have the authority to make decisions that would suddenly change the plan?
- If an unoccupied/unused area does not require the detail of following this basic cleaning strategy is there a compelling reason why you wouldn't do it anyway?

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First Step

- Define your work zones by the areas served by the systems being cleaned.
- This drawing shows 2 systems;
- an "H" shaped constant volume system
  - and a VAV system.

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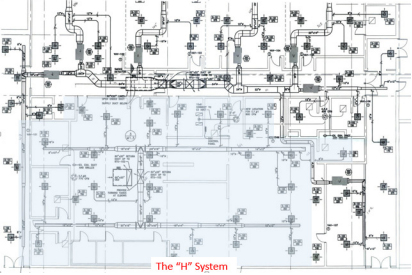
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The "H" System

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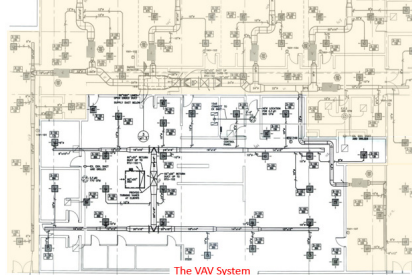
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The VAV System

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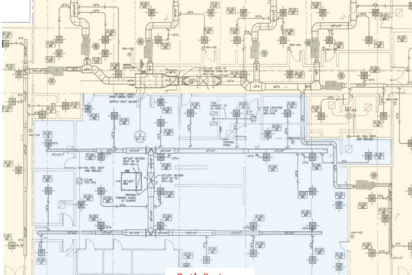
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Both Systems

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A Task to Start Work and Learn the Jobsite Before Committing Crews

- Have a lead team go in and cut all access that will likely be needed for the whole project.
- Have the lead team install filter media in all registers.

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Benefits:

- This activity is low impact and will give opportunity to learn about the space.
- Assembly line efficiency will be added to access cutting reducing overall per access installation cost.
- Problem situations will be encountered and quantified before cleaning crews are set up on the jobsite. This gives time to work out solutions before crews are dead in the water.
- The lead team will have an opportunity to take what is learned and apply it to the cleaning plan.

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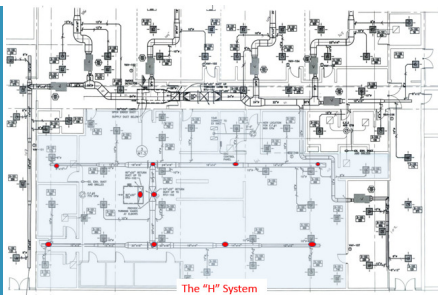
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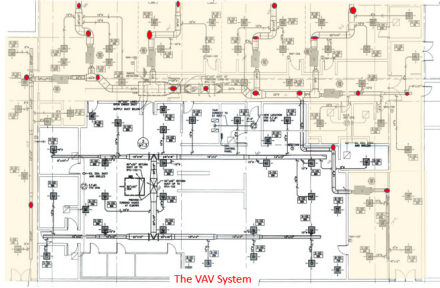
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### The "H" System Cleaning Strategy

- Is there merit in cleaning a large duct system in as few neg-air hook ups as possible?
- What is the cost of moving a neg-air machine to a new location vs. the reduction in cost of having better suction at a particular piece of duct?

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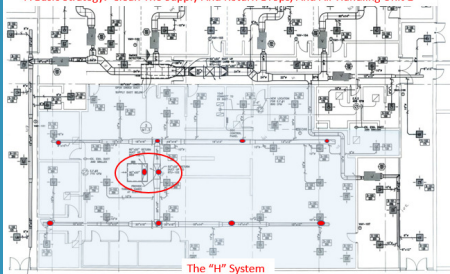
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A Basic Strategy: Clean The Supply And Return Drops, And Air Handling Unit 1<sup>st</sup>



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Basic Strategy: Clean One Half Of Supply

The "H" System

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Basic Strategy: Clean Remaining Half Of Supply

The "H" System

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### The VAV System Cleaning Strategy

- The VAV system is more complex than the constant volume "H" system.
- There is a sense that we are dealing with a composite of numerous smaller systems.
- The return air and supply feed to the VAV boxes are "one" system.
- Each individual VAV box and downstream ductwork are distinct "other" systems.

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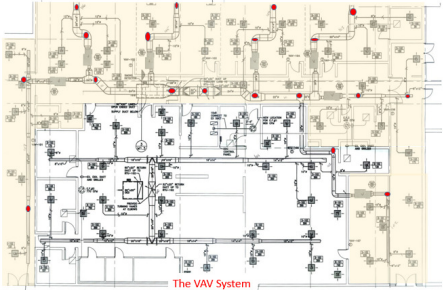
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The VAV System

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What Are Some Things That You Can Expect To Find In VAV Systems?

- What typical conditions will you find in return ducts?
- What typical conditions will you find in supply feed ducts?
- What typical conditions will you find in VAV boxes?
  - Air valve VAV boxes
  - Reheat VAV boxes
  - Fan-powered VAV boxes
  - Will factory access panels be covered by utilities/structure?
- What typical conditions will you find in supply ducts after VAV boxes?

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Unorthodox Approaches

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The customer indicates at the start of the project that the area inside of the purple box must be done 1<sup>st</sup>, before all other areas. Also, the system has to be restored to operation at the end of each cleaning shift.

The "H" System

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Can such a request be entertained?

- Block off plate
- Does the area need to receive conditioning air when the system is running?
  - Temporary filter bank
  - Tie a HEPA filter unit of appropriate CFM across a block off plate

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Because of customer operational needs only half of the system can be cleaned at a time. The work stations in the area being cleaned are to be moved on the other side of the purple line. The system needs to continue to provide HVAC to the area not being cleaned while cleaning of the unoccupied area is ongoing. When the first half is completed, everything will be shifted over to the other side.

The VAV System

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Can this request be entertained?

- Block off plates and zip walls segregating the work area from the operational area.
- If return air has to come exclusively from the operational area and not the work area, rig temporary flex ducts to the operational area out of the ceiling.

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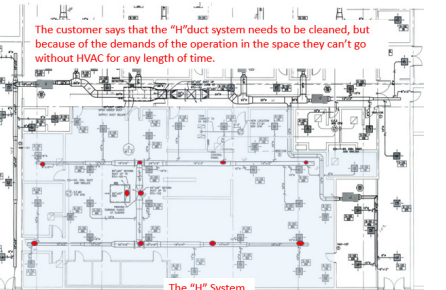
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Can this request be *safely* entertained?

- Temporary HVAC on a trailer
  - Depends upon the cost of what is going on inside the space that requires HVAC.
- HEPA filtered neg-air machines on each supply register.
  - Have to make sure that the output of the machine equals or exceeds the CFM of the register connected.
  - Again, it depends upon the cost of what is going on inside the space that requires the HVAC.
- Money talks.

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Q&A  
You have  
Questions  
We have  
Answers

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**Presenter Contact Information**

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Thank you  
for  
Participating!

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