

Slide 1



MiniSplit Cleaning

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Slide 2



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Presenter:  
David Monson  
Ops Manager  
Armstrong  
Duct & Vent

David Monson

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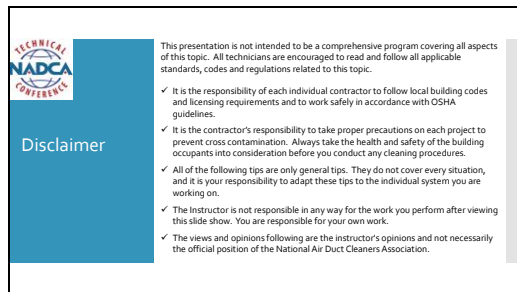
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Slide 3



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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 instructor's opinions and not necessarily the official position of the National Air Duct Cleaners Association.

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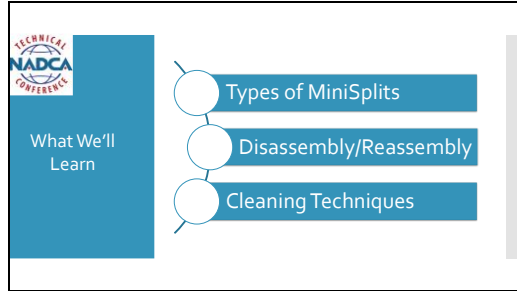
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Slide 4



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What We'll Learn

- Types of MiniSplits
- Disassembly/Reassembly
- Cleaning Techniques

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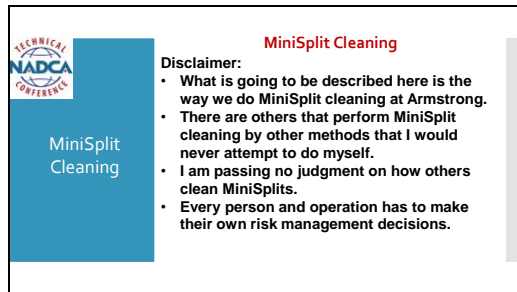
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Slide 5



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MiniSplit Cleaning

**MiniSplit Cleaning**

Disclaimer:

- What is going to be described here is the way we do MiniSplit cleaning at Armstrong.
- There are others that perform MiniSplit cleaning by other methods that I would never attempt to do myself.
- I am passing no judgment on how others clean MiniSplits.
- Every person and operation has to make their own risk management decisions.

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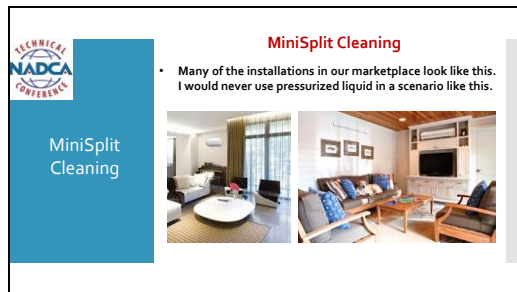
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MiniSplit Cleaning

**MiniSplit Cleaning**

- Many of the installations in our marketplace look like this. I would never use pressurized liquid in a scenario like this.



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MiniSplit Cleaning

**MiniSplit Cleaning**

**MiniSplit Cleaning Fundamentals:**

- None of the cleaning activities performed on MiniSplit cassette type systems is special or proprietary.
- Cleaning of the surfaces is primarily performed by contact vacuuming and contact spray and wipe surface cleaning.
- Cleaning of coils is standard Type 2 coil cleaning with evaporator coil cleaner application and rinsing with water.

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Slide 8



MiniSplit Cleaning

**MiniSplit Cleaning**

- The elements of this service that are specialized and brand specific are the disassembly/reassembly of the components without causing damage.
- Golden Rule of Disassembly:
  - Never take anything further apart than you are certain that you can put it together again AND have it work.

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MiniSplit Cleaning

**MiniSplit Cleaning**

- Biggest concerns with disassembly/reassembly and cleaning:
  - Don't lose parts
  - Don't break parts
  - Control water
  - Don't damage coil:
    - Coils are very thin, only 2 passes of tubing thick
    - Fins are very thin, can't be straightened with fin combs (obsolete tool).

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MiniSplit Cleaning

**MiniSplit Cleaning**

**Good Advice:**

- Have a working relationship with an HVAC contractor that deals in MiniSplits that can bail you out in a time of need.

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MiniSplit Cleaning

**MiniSplit Cleaning**

**Basic Process:**

- Front tilt-up cover can be snapped out of place and filters removed.
- Remove the shroud covering the whole unit
- Remove the Outer Directional Vanes
- Disconnect Condensate Pan and Lower:
  - Check if there is water first.
  - Secondary directional vanes may be attached and can't be removed.
  - Don't damage connection from condensate pan to drain hose.

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MiniSplit Cleaning

**MiniSplit Cleaning**

- Remove the fan wheel (if you can)
- Wash the fan wheel in a bucket of detergent with a bristle brush.
  - The cups of the fan blades hold grime and mold. Simple spraying won't remove it.
- Clean back, shroud, filters, directional vanes by spraying and wiping with detergent. A sink is helpful for the disconnected parts.

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 MiniSplit Cleaning

**MiniSplit Cleaning**

- Reassemble fan in reverse order of disassembly.
- Reinstall condensate drain pan.
- Perform Type 2 coil cleaning of AC coil with evaporator coil cleaner and rinse.
- Watch to make sure water drains down condensate drain line.

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 MiniSplit Cleaning

**MiniSplit Cleaning**

- Reassemble the rest of the parts in the reverse order of disassembly.
- Make sure you don't have any extra parts.
- Turn on and observe operation.

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 MiniSplit Cleaning

**MiniSplit Cleaning**  
Case 1, a Mitsubishi Mr. Slim



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Slide 17



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Slide 18



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MiniSplit Cleaning  
Case 2, Pics from Brooks Ingrassia



The cleaned fan wheel



The housing cleaned and the fan wheel back in place before installation of the condensate pan.

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MiniSplit Cleaning  
Case 3, Sanyo, Smoke Damage in an Architects Office



The work area upon arrival.



The bench cleaned and plastic laid.



A drop cloth set on top to absorb liquid.

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MiniSplit Cleaning  
Case 3, Sanyo, Smoke Damage in an Architects Office



The flip-up cover and filters removed



The shroud being removed



Vanes being removed



Condensate pan snapped out and hanging



The fan wheel exposed



Removal of the bearing

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MiniSplit Cleaning  
Case 3, Sanyo, Smoke Damage in an Architects Office



Uh-Oh! Where's the set screw?

It's underneath this plastic shroud. The plastic shroud is for the base of the electrical control panel. The whole thing has to be unscrewed and carefully moved aside, hanging by the wires.

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MiniSplit Cleaning  
Case 3, Sanyo, Smoke Damage in an Architects Office



Uh-Oh! Where's the set screw?

And it's so frozen by rust that it rounded out the end of my allen wrench.

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MiniSplit Cleaning  
Case 3, Sanyo, Smoke Damage in an Architects Office



As they say, "when its 4<sup>th</sup> and 40, time to punt!"

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MiniSplit Cleaning  
Case 3, Sanyo, Smoke Damage in an Architects Office



Cleaning in  
place the best  
you can.

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MiniSplit Cleaning  
What About Ceiling Cassettes?



How do you clean these?

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MiniSplit Cleaning  
What About Ceiling Cassettes?



Next steps of disassembly

Halt! The next step is unwiring the control box and removing it to get to the fan and coil.

Consider the golden rule: Never take anything further apart than you are certain that you can put it together again AND have it work.

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 MiniSplit Cleaning

**MiniSplit Cleaning**  
**What About Ducted Minisplits?**



Ducted MiniSplit in an accessible attic

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 MiniSplit Cleaning

**MiniSplit Cleaning**  
**What About Ducted Minisplits?**



Ducted MiniSplit inside ceiling cavity before it gets sealed in with sheetrock.

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 MiniSplit Cleaning

**MiniSplit Cleaning**  
**What About Ducted Minisplits?**

- There are no removable access panels on the air handling unit to gain access to the blower compartment or after the AC coil.
- The only access panels are for access to controls and sensors.
- Access to the AC coil is limited to the inlet side if it can be seen from the access you have to the return duct.

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**Conclusion**

- Cleaning MiniSplits is a doable service.
- There is a substantial demand for disassembly/reassembly to perform cleaning. This will take some study and practice.
- Never take any machine further apart than you know for certain you can put it back together.

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**Conclusion**

- A closing anecdote:
- Unlike conventional HVAC Air Handling Units which have the control brain inside the air handling unit, MiniSplits have the brain in the condensing unit.
- We had a crew shut of a ducted MiniSplit at the air handling unit to perform duct cleaning. When they turned it back on there was a comm error on the thermostat.
- We were eventually put in touch with the installing contractor. They are prone to boot up errors when shutting off power at the air handling unit only; better to shut off power at the condensing unit.
- The solution to the boot up error is to shut off power at the condensing unit at the disconnect, then press and hold the start button for 30 seconds. This bleeds the capacitors on the control board and wipes the memory on the chip. Then reenergize and restart.

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**Q&A**

*You have  
Questions  
We have  
Answers*

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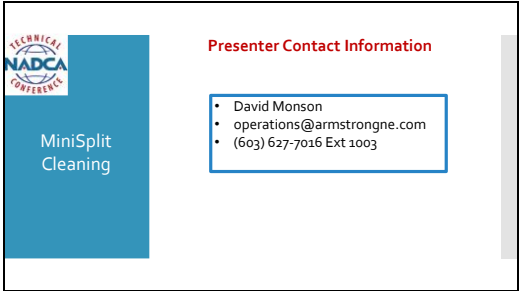
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**Presenter Contact Information**

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- (603) 627-7016 Ext 1003

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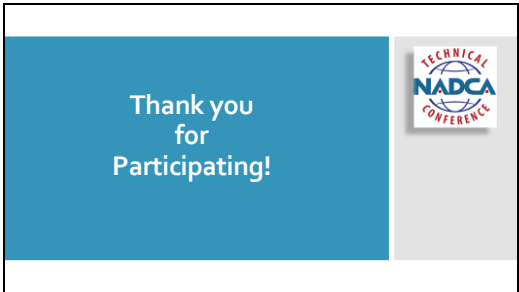
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Thank you  
for  
Participating!

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