

## Straight Talk: How to Deal with Fiberglass Insulation in Air Duct Cleaning

Many commercial air duct cleaning contractors encounter fiberglass insulation in the air handlers, plenums and ductwork of the HVAC systems they are cleaning. Engineers originally designed in fiberglass insulation in HVAC systems for acoustical reasons (help control sound) or for thermal reason (to help prevent temperature loss).

Dealing with fiberglass insulation can be a real challenge. It can be damaged or degraded by:

- Air erosion from the fan in the air handler
- Smoke contamination from a fire
- Mold or microbial contamination cause by the combination of excessive moisture and a microbial food source (dirt).



What do you do? What are your options? In all cases, the first thing you must do is to inspect the fiberglass to determine the condition it's in. Can it stand up to the rigors of cleaning or does it fall apart when you touch it? Is it wet?

### **In air handles and large plenums/ductwork that you can crawl, you have the following options to consider:**

- If the insulation is in good shape and can stand up to the rigor of cleaning you can:
  - Clean the insulation
  - Clean the insulation and then coat the insulation.
- If the insulation is not in good shape and cannot stand up to the rigor of cleaning you can:
  - Remove the insulation
  - Remove the insulation and coat the sheet metal
  - Remove the insulation and replace with new insulation
  - Remove the insulation and replace with new coated insulation
  - Remove the insulation and replace with close cell insulation
- If the insulation is wet you can:
  - Remove the insulation
  - Remove the insulation and coat the sheet metal
  - Remove the insulation and replace with new insulation
  - Remove the insulation and replace with new coated insulation
  - Remove the insulation and replace with close cell insulation

### **In ductwork that is too small to crawl you have the following options to consider:**

- If the insulation is in good shape and can stand up to the rigor of cleaning you can:
  - Clean the insulation
  - Clean the insulation and then coat the insulation
- If the insulation is not in good shape and cannot stand up to the rigor of cleaning you can:
  - Remove the ductwork and replace with new ductwork (with insulation on the outside)
- If the insulation is wet:
  - Remove the ductwork and replace with new ductwork (with insulation on the outside)



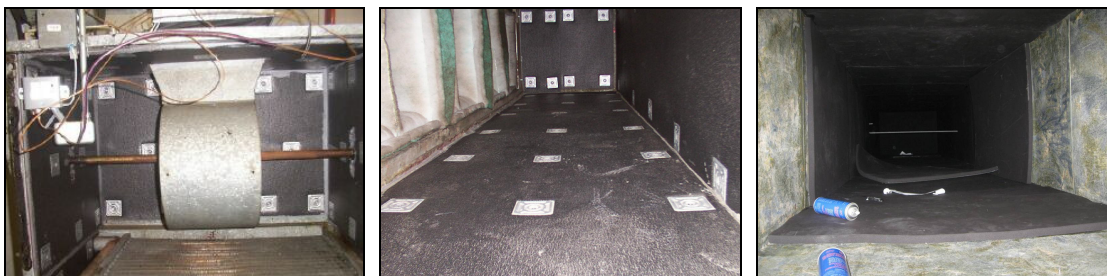
Normal cleaning methods include contact vacuuming or cleaning with a powered brushing system/robotic system with a nylon brush and then air washing. This removes the dirt/contamination from the surface of the insulation but does not remove the dirt/contaminating from the interior of the fiberglass insulation. To keep this dirt/contamination in the interior of the fiberglass insulation from becoming a future problem you can coat the mechanical insulation. The benefits of coating include:

- Locking down any remaining loose fiberglass fibers after cleaning
- Locking in the dirt/microbial spores/smoke contaminants inside the interior of the fiberglass so we can't smell the smoke particulate and the microbial spores can't combine with moisture and grow.
- Providing a more durable air stream surface that is more resistant to air erosion and moisture and is easier to clean in the future.
- A way to extend the life of the HVAC system for the building owner at a lower cost than replacing ductwork, air handlers and other system components.



Another option to cleaning and coating is to replace the damaged/degraded mechanical insulation with closed cell insulation. You remove the existing insulation; measure and cut the appropriate size close cell insulation; then glue and rivet the close cell insulation in place; seal all exposed edges and butt joints. The benefits of relining with closed cell insulation include:

- You have eliminated the damaged mechanical insulation altogether.
- Providing a more durable air stream surface that is more resistant to air erosion and moisture and is easier to clean in the future.
- A way to extend the life of the HVAC system for the building owner at a lower cost than replacing ductwork, air handlers and other system components.



If you have any questions about cleaning and coating damaged mechanical insulation request our Introduction to coating HVAC systems guideline or call Peter Haugen, Vac Systems International at 800-597-3955 or 952-808-1619. If you have any questions about installing closed cell insulation contact Peter Haugen, Vac Systems International at 855-Vac-Systems or 952-808-1619 or [phaugen@vacsysint.com](mailto:phaugen@vacsysint.com).