

Slide 1

Ignite: Quick Overviews and In-Depth Breakouts on Key Topics on How to Grow Your Business Offerings



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Slide 2

Fire Life Safety Program – Fire and Smoke Dampers





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Slide 3



Presenter



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Slide 4



What We'll Learn

- Resources
- Types of Fire and Smoke Dampers
- Fusible Links
- Fire Damper Access Panels
- Testing and Inspection
- What you Need to Know!
- Service Challenges

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RESOURCES

- ▶ USA/CANADA: NFPA 80, 90 AND 105
- ▶ CANADA: NFC 2020
- ▶ AUSTRALIA: AS 1851
- ▶ EUROPEAN COUNTRIES: CFPA EUROPE
- ▶ INDIA: NATIONAL BUILDING CODE STANDARDS
- ▶ Check with local Authorities Having Jurisdiction (AHJ) for local or regional guidelines and standards as well.
- ▶ Fellow NADCA members.

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Slide 6



Fire Life Safety Program - Fire and Smoke Dampers

- ▶ We understand the common fire life devices found in commercial and multi-family dwellings are installed to allow occupants time to exit the building in case of a fire. But it isn't as easy to identify fire dampers located in the attic, duct systems which play an important role.

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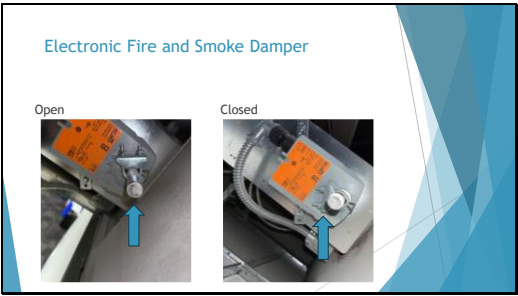
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Slide 9



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Slide 11



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Slide 12



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Slide 13

### Roller Doors



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### Fusible Links

▶ WHAT IS A FUSIBLE LINK?


▶ Wikipedia states: A mechanical fusible link is a device consisting of two strips of metal soldered together with a **fusible alloy** that is designed to melt at a specific temperature, thus allowing the two pieces to separate.

▶ The link will have the specified temperature engraved on it with typical temperature ranges from 165 - 212 Fahrenheit or 70 - 100 Celsius.


100 F




212 F



155 F



200 F



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### FUSIBLE LINKS



▶ WHEN DO YOU REPLACE THEM?

▶ If they are cracked/broken.

▶ They have been altered (grinded down, bent).

▶ Painted or coated.

▶ If they are melted and have been activated. (Please refer client to contact a mechanical contractor if the reason is unknown as to why they have melted.)

▶ They are missing.

▶ The Client/AHJ has requested in writing.

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Slide 17



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Slide 18



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Slide 19

### Fire and Smoke Damper Door Testing and Inspections

- ▶ What are fire and smoke dampers and where are they installed?
- ▶ A fire damper is a passive fire protection product used in HVAC (heating, ventilation, air conditioning) ducts to prevent the spread of fire inside the ductwork. They can be used in commercial or residential properties.
- ▶ Why are fire and smoke damper inspections required?
- ▶ Fire and smoke dampers are essential to a facility's overall fire and life safety protection system. Unfortunately, dampers tend to fail during routine inspections frequently. With other fire protection features, dampers are often installed and forgotten about. Out of sight, out of mind. Fire and smoke can spread fast, and one of the quickest ways for a fire to travel throughout the entire building is through the ventilation system. Hence why fire, smoke and combination (fire and smoke) dampers are specifically designed and installed in the ductwork to help contain the fire to its original origin in order to prevent the fire from spreading through the ductwork.
- ▶ Dampers are typically in the ductwork of a facility. According to statistics, on average, nearly 22% of dampers fail during a routine fire and smoke damper inspection. Therefore, it is not uncommon to have a list of deficient dampers needing repairs after facility performance testing.

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### Fire Damper Door Testing and Inspections: NFPA 80.

- ▶ NFPA 80 (2025) - Standard for Fire Doors and Other Opening Protectives
  - Section 20.3.4 Periodic Inspection and Testing
    - 20.3.4.1 Testing Frequency
      - 20.3.4.1.1 - Each damper shall be tested and inspected 1 year after acceptance testing.
      - 20.3.4.1.2 - After the inspection and test required by 20.3.4.1.1, the test and inspection frequency for dampers shall comply with one of the following:
        - Every 4 years,
        - Every 6 years, in buildings containing a hospital.

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### Smoke Damper Door Testing and Inspections: NFPA 105

- ▶ NFPA 105 (2025) - Standard for Smoke Door Assemblies and Other Opening Protectives
  - Section 7.5.2 Periodic Testing
    - 7.5.2.2 - Testing Frequency
      - 7.5.2.2.1 - Each damper shall be inspected and tested 1 year after the completion of acceptance testing.
      - 7.5.2.2.2 - After the inspection and test required by 7.5.2.2.1, the test and inspection frequency shall then be every 4 years, except in buildings containing a hospital, where the frequency shall be every 6 years.

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### What you need to know!

- 1. **Confirm Damper Inspection and Testing Due Dates**
- NFPA (National Fire Protection Association 80 and 105) requires facilities to have damper testing every 4 years, except healthcare facilities, where inspection is required every 6 years.
- Refer to location, state, regional, provincial and national standards that may exists as outlined in the previous slide.
- However, if the building has had a fire/smoke incident it would be recommended to inspect and test the dampers before recommissioning the building.
- If the building is of new construction fire dampers are to be inspected and tested and reports completed before turning the building over and then retested/inspected 1 year later.
- Knowing when your next inspection and testing is due can help your client avoid any citations, penalties or declined insurance policies.

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### 2. Locate the Damper Service Report from the last Inspection

As per Section 5.2.4 of NFPA 80:

The Damper inspection report shall list date, name of facility, address, person performing the service and their signature, location of the fire damper door, type, Verification of visual and functional operation and deficiencies found.

#	Location	Type	Remarks
1	Ground Floor	Smoke	Official - OK
2	Ground Floor	Smoke	Official - OK
3	Ground Floor	Smoke	Official - OK
4	Ground Floor	Smoke	Official - OK
5	Ground Floor	Smoke	Official - OK
6	Ground Floor	Smoke	Official - OK
7	Ground Floor	Smoke	Official - OK
8	Ground Floor	Smoke	Official - OK
9	Ground Floor	Smoke	Official - OK
10	Ground Floor	Smoke	Official - OK
11	Ground Floor	Smoke	Official - OK
12	Ground Floor	Smoke	Official - OK
13	Ground Floor	Smoke	Official - OK
14	Ground Floor	Smoke	Official - OK
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18	Ground Floor	Smoke	Official - OK
19	Ground Floor	Smoke	Official - OK
20	Ground Floor	Smoke	Official - OK
21	Ground Floor	Smoke	Official - OK
22	Ground Floor	Smoke	Official - OK

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### 3. Provide Facility Blueprints

- Facility blueprints will help the inspection process go quickly without a hitch. Providing these blueprints to the inspector will allow for the job to be completed in a timely manner as it will assist in locating the dampers within the facility.
- If blueprints are not available, a floor plan would be beneficial for creating a fire damper working template but sometimes graph paper and physically walking the facility will be your only option.

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**4. Schedule Inspection in Advance**

Communicate with your Customers that they should have their damper inspection and testing booked in advance of the due date to ensure that they remain compliant.

NOTE: Picture of a noncompliant painted fusible link and a compliant fusible link.

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► **5. Keep your documentation!**

► NFPA 80 states that documentation shall be maintained for at least three test cycles and made for review by the AHJ (authority having jurisdiction)

NOTE: Noncompliant fire damper door held open with wire.

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**Service Challenges**

- Conduit / piping blocking fire damper access
- Inaccessible areas:
  - Ceiling void heights
  - No access
  - Improperly sized/non-existent access panels
- Drywall ceilings - No access
- Small duct systems
- Fire Dampers installed incorrectly (upside down/backwards)
- No blueprints
- Facility personal with limited knowledge of the building

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### Access Challenges

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### Duct Access: NFPA 90

- NFPA 90A (2024) - Standard for the Installation of Air-Conditioning and Ventilating Systems
  - Section 6.5 Air Duct Access and Inspection
    - 6.5.1 - A service opening shall be provided in air ducts adjacent to each fire damper, smoke damper, combination fire-smoke damper, and any smoke detectors that need access for installation, cleaning, maintenance, inspection, and testing.
    - 6.5.1.1 - The opening shall be large enough to permit maintenance and resetting of the device

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### Access Challenges with Solutions!



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Deficiencies: broken links, snapped spring mechanisms, broken louvers, rust.

NOTE: If a fire damper has failed it is important to take pictures and measurements so you can source pricing to repair without having to return to site a second time!

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Deficiencies

Left – HVAC component protruding through fire damper opening

Middle – Fire damper inset over drywall ceiling and multiple piping obstructions preventing safe access to perform service

Right – severely corroded/rust fire damper

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Deficiencies

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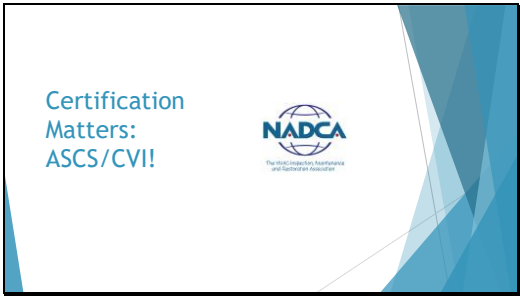
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Fire Life Safety Program – Fire and Smoke Dampers

**Conclusion**

- Understand the different types of fire dampers and the purpose of their design.
- Understand the different code books and codes you will need to reference.
- Document your findings as per code.
- Communicate with your client so they better understand this over-looked component of their fire life safety system.
- YOU, as NADCA trained techs are the right people to perform this type of work!

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Fire Life Safety Program – Fire and Smoke Dampers

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Air Flow Solutions

Brian Critch, ASCS



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Air Flow Solutions

- How Air Balancing Works
- Where Air Balancing is Important
- Why Test
- Air Duct Cleaning and Air Balancing

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Overhead Structure Cleaning

Additional Add-On Services to Meet Your Client's Needs



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Slide 40



Presenter



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What We'll Learn

- What is Overhead Structure Cleaning?
- Setting Expectations
- Safety Considerations
- How to Price a Job

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Overhead Structure Cleaning

What is Overhead Structure Cleaning?



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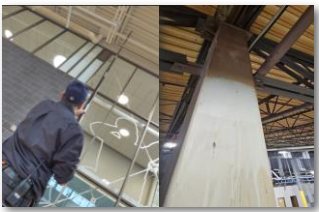
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Overhead  
Structure  
Cleaning

Setting Expectations



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Overhead  
Structure  
Cleaning

Safety Considerations



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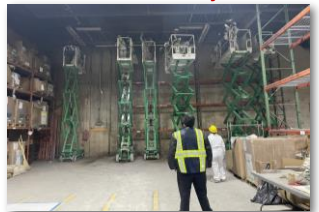
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Overhead  
Structure  
Cleaning

How to Price a Project



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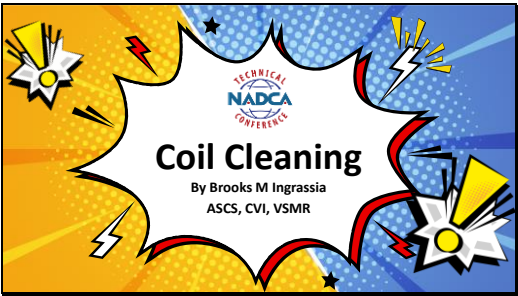
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**PROBLEM**

Evaporator Coils are within the air handling unit, they are involved with moving air, but also removing moisture.

Coils are prone to getting dirty when dust, debris, and other contaminants get past the air filter this can lead to lower efficiencies and IAQ Problems.

On the evaporator side, a dirty coil takes longer to cool a space, increases the amount of air flow delivered and inhibits water removal from the air. All of which can create moisture. Moisture can create excessive humidity. And that can lead to strange smells, microbial growth, and even affected building materials.



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**COIL CLEANING PROCESS**

- 1 Assessment
- 2 Visual Inspection
- 3 Dry Cleaning (Type 1)
- 4 Wet Cleaning (Type 2)



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**DRY CLEANING**

Use vacuums, negative air, or air washing to remove dust and debris from the coil. This allows you to remove surface debris and contamination, to prevent it from pushing it into the coil.



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### WET CLEANING

Once you remove the surface debris then we can work with wet cleaning. This will involve applying a chemical or treatment to the coils. Allowed to dwell, then fully rinsed from the coil until it is free of dust, debris...And Cleaner!

Use of Normal Pressure Rinsing, Pressure Washing Rinsing, Or Steam

**QUICK TIPS**  
Rinse double the amount of cleaner you put on the coil

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### Coil Cleaners

- What is best? Any of them.
- Chose the product you need to get the job done.
- Be sure to read the label, use as directed.
- Be sure to include necessary PPE.



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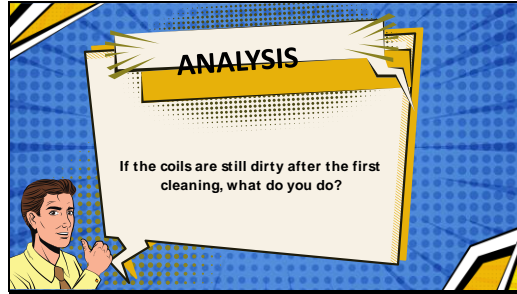
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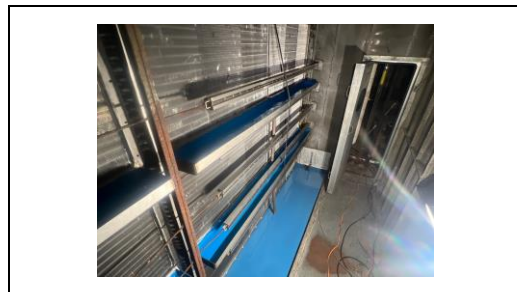
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**CONCLUSION**

- Coil cleaning extends the life span of equipment, by cleaning the coils the system will have reduce strain and run time.
- Coil cleaning causes better thermal transfer across the coils, becomes more efficient, and makes the home or facility more comfortable.
- Reduces maintenance and downtime, it's one service duct cleaners perform that truly pays for itself year over year.

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**DON'T BELIEVE ME?**

As dirt and debris collect on a unit's coils it becomes increasingly harder for the designed heat transfer to occur. This ultimately means you will be paying for this loss of efficiency through your energy bills. In fact, studies show a failure to maintain clean coils can cause your HVAC system to utilize 20-50% more energy. To help prove the point, let's turn to an ASHRAE coil cleaning study from 2005. In it, they performed coil cleaning procedures on two of a building's four commercial HVAC units and compared the energy usage results. They found just one of the cleaned units dropped energy consumption by \$40,000 in one year alone.

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**Thank You  
Now let's discuss**

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Slide 61

Cleaning Open Air Plenums

Jim Castellano, ASCS, CVI



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Slide 62





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Slide 63



Computer Sub Floor Plenum



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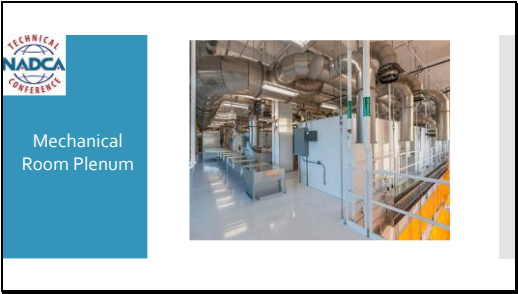
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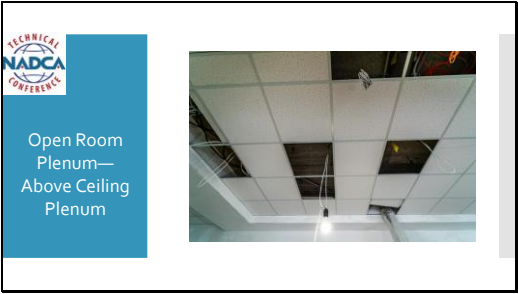
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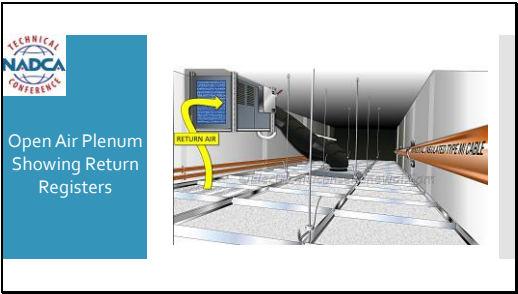
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# Cooling Tower Cleanings



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Slide 68



# Presenter



Kevin Ulkile

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# What We'll Learn

- 1 Equipment needed
- 2 How to wash
- 3 Clean up

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Cleaning  
Cooling Towers



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Kitchen Exhaust Cleaning





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Slide 72



Presenter



Jonathan Blue  
ASCS / CECS

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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

- Understanding Kitchen Exhaust
- Cleaning Process Overview
- Tools and Equipment
- Challenges

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Slide 75



Kitchen Exhaust Cleaning

Why Offer Kitchen Exhaust Cleaning?

- Natural Extension of Duct Cleaning Services
- High Demand in Commercial Kitchens
- Recurring Revenue

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Kitchen Exhaust Cleaning

Understanding Kitchen Exhaust Systems

- Exhaust Hood
- Grease Filters
- Ductwork
- Exhaust Fan



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Kitchen Exhaust Cleaning

How It's Different from HVAC Duct Cleaning

- Grease, not dust – Flammable and sticky
- Cleaning frequency is higher
- Regulated by NFPA 96
- Fire Marshal Reporting
- Requires more aggressive methods and containment

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Kitchen Exhaust  
Cleaning

Tools of the Trade

- Heavy – duty degreasers
- Scrapers, brushes, scrubbing pads
- Hot water pressure washers – Steamers
- PPE – Gloves, Eye Protection, respirators



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Kitchen Exhaust  
Cleaning

Cleaning Process Overview

- System Inspection – Before and After Photos
- Chemical Application – Foam or Spray
- Scraping and Pressure Washing
- Final Polish, Cleanup, and Hood Certification



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Kitchen Exhaust  
Cleaning

Access Challenges

- Grease in horizontal ductwork will need more access
- Additional fire rated access doors may be needed.
- Roof Fans need to be lifted – Hinge Kits
- Contain Water Runoff



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Kitchen Exhaust  
Cleaning

Summary

- Kitchen exhaust cleaning = fire prevention and Fire Code Compliance
- It requires new tools, methods, and regulations
- With training, it's a natural expansion for duct cleaners
- Certified Services are in high demand nationwide

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Kitchen Exhaust  
Cleaning



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Slide 83



Kitchen Exhaust  
Cleaning

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Thank you  
for  
Participating!



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