

SAFETY





Presenter



**Matt Mountain,
ASCS**

Matt Mountain is a 2nd generation duct/HVAC cleaning technician and business owner. Matt cleaned his first duct system at the age of 14. He has been an ASCS since 2010.

Mountain Duct Cleaning provides Residential, Commercial, and Industrial duct and HVAC cleaning services in the Minneapolis/St. Paul MN metro area.



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.



What We'll Learn

- Having a Safety Plan
- Personal Protective Equipment (PPE)
- Engineering Controls/Containment
- Lock-Out Tag-Out
- Fall Protection
- Hazardous Materials
- Confined Space Entry



Safety

Safety is a multi-step process.

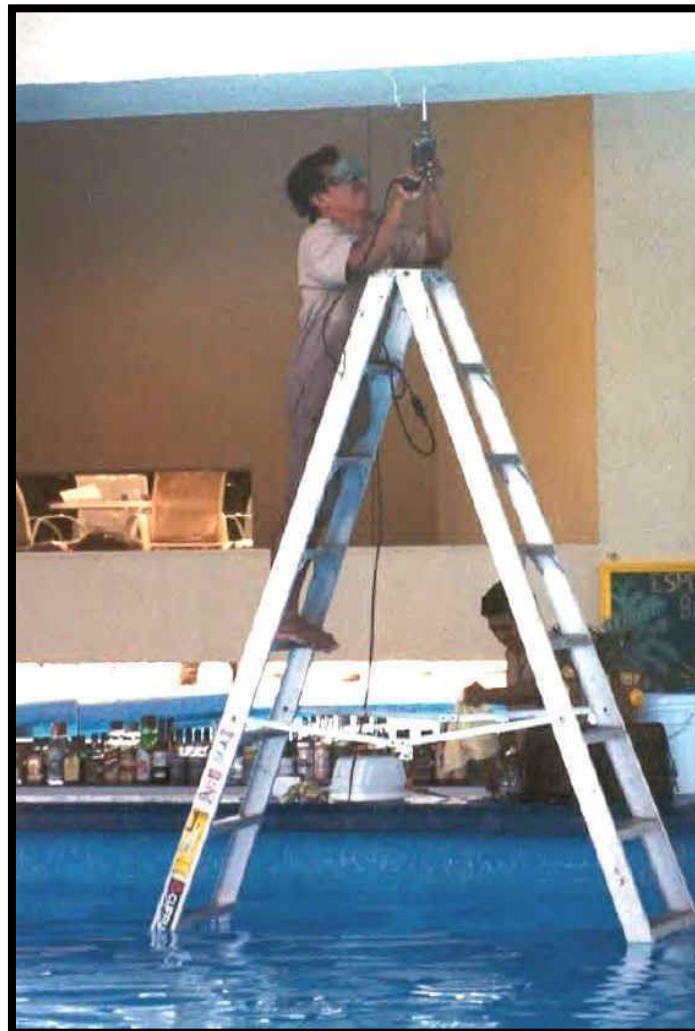


Is this guy being safe?



Safety

And it requires a wholistic approach!



How about now?



Safety – Having a Safety Plan

You need to have a plan.

Causes of Workplace Incidents**



Just like cleaning procedures, safety is **learned** behavior.
Which means it must be **taught!**

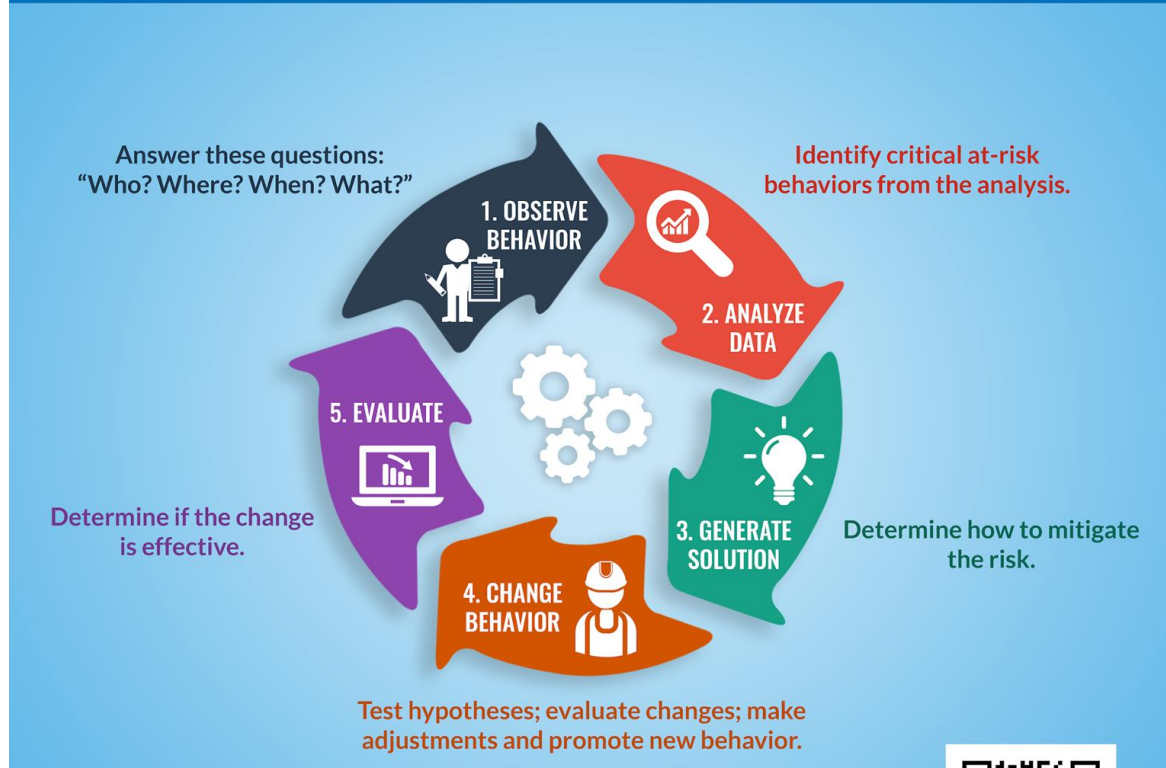


Safety – Having a Safety Plan

You need to have a plan.

THE 5 ELEMENTS OF A WORLD-CLASS BBS PROGRAM

Behavioral Based Safety is most effective when treated as a continuous loop, constantly adapting to your employee, safety and business needs.



Just like cleaning procedures, safety is **learned** behavior.
Which means it must be **taught!**



Safety – Having a Safety Plan

You need to have a plan.



NADCA Safety Manual

This fully customizable manual allows you to insert your company logo and contact information to create a safety manual for any job. The manual includes chapters on confined space entry, hazard communication, ladder safety, fall protection, emergency procedures, accident investigation, fire protection and much more.

INSERT YOUR LOGO HERE	COMPANY Safety Management System	Doc No: ABRASIVE
		Initial Issue Date: Insert Date
STATEMENT OF POLICY	Preparation: Safety Mgr Authority: President Issuing Dept: Safety	Revision Date: Initial Version
		Revision No: 0
		Next Review Date: Insert Date
		Page: Page 1 of 1



Safety – Having a Safety Plan

You need to have a plan.

- Develop a Company Safety Manual
- Require that its studied. Keep it on all trucks.
- Train on the manual in-shop and on-site.
- Point out and fix infractions immediately.
- Keep each other accountable.
- Penalize if necessary to drive the point home.



Safety – Having a Safety Plan

You need to have a plan.

Safety Meetings

- Start of every work shift, especially at the start of a new project.
 - Risks may change day-to-day. Staff may change.
- Assess and highlight job or site-specific risks.
 - Working with a lift? On a roof? In a big hole in the ground?
 - Other trades working on site?
 - Asbestos insulation in the attic you're working in?
 - Clients in the work area or not?
 - Excessive heat or cold?
 - Etc. etc. etc.
- Review general safety procedures.
 - Pick one topic to cover each day.

Even solo techs on a residential job need to do this!

- Are the front steps icy?
- How hot is it in that attic?
- Angry Chihuahua?



Safety – Having a Safety Plan

You need to have a plan.

You (or your boss) can't afford not to!

OSHA Fine: \$1036 up to \$15,625 for serious violation.

- Same amount PER DAY for not fixing the issue by abatement date.

The OSHA fine might not be the worst of it:

- Job has to stop, loss of that day's revenue.
- Technician out for the next day.
- Technician out for a week.
- Technician out for 3 months.
- Technician dies. Lawsuits. End of company.

Safety – Worker Readiness

Worker Readiness

- **Fatigue Management**
 - To ensure our employees recognize to effect of fatigue as related to safely being able to perform work and to establish guidelines for work hours and equipment to reduce fatigue in our business and at our client locations.



Warning Signs

- head nodding
- drowsiness
- inability to keep eyes open
- constant yawning
- poor concentration
- slow reaction time
- increased irritability



Safety – Worker Readiness

Worker Readiness

- **Fit for Duty**
 - Employees are expected to report for work fit for duty, which means able to perform their job duties in a safe, appropriate and an effective manner free from the adverse effects of physical, mental, emotional and personal problems.



Safety – PPE

Personal Protective Equipment (PPE)



- Hearing Protection
- Eye Protection
- Head Protection
- Hand Protection
- Feet Protection
- Hi-Vis
- Face Protection
- Respiratory Protection

Personal Protective Equipment (PPE)

TYPES OF RESPIRATORY PROTECTION



Elastomeric Half Facepiece Respirators are reusable and have replaceable cartridges or filters. They cover the nose and mouth and provide protection against gases, vapors, or particles when equipped with the appropriate cartridge or filter.



Elastomeric Full Facepiece Respirators are reusable and have replaceable canisters, cartridges, or filters. The facepiece covers the face and eyes, which offers eye protection.



Filtering Facepiece Respirators are disposable half facepiece respirators that filter out particles such as dusts, mists, and fumes. They do NOT provide protection against gases and vapors.



Powered Air-Purifying Respirators (PAPRs) have a battery-powered blower that pulls air through attached filters, canisters, or cartridges. They provide protection against gases, vapors, or particles, when equipped with the appropriate cartridge, canister, or filter. Loose-fitting PAPRs do not require fit testing and can be used with facial hair.



Supplied-Air Respirators are connected to a separate source that supplies clean compressed air through a hose. They can be lightweight and used while working for long hours in environments not immediately dangerous to life and health (IDLH).



Self-Contained Breathing Apparatus (SCBAs) are used for entry into or escape from environments considered to be IDLH. They contain their own breathing air supply and can be either open circuit or closed circuit.



Combination Respirators can be either a supplied-air/SCBA respirator or supplied-air/air-purifying respirator. The SCBA type has a self-contained air supply if primary airline fails and can be used in IDLH environments. The air-purifying type offers protection using both a supplied-air hose & an air-purifying component and cannot be used for entry into IDLH environments.



Safety – Engineering Controls

Engineering Controls (Containment)

Meant to protect the workers, the occupants, and the property.

ACR, The NADCA Standard – 2021 Edition

3.13 Summary of Engineering Controls:

Appropriate engineering controls are mandatory on every HVAC cleaning and restoration project. Protecting workers and building occupants and preventing cross-contamination **shall** be considered a priority on every project. It is *recommended* that the above listed engineering controls are considered minimum requirements. When a contractor has any questions about project-specific engineering controls, it is *recommended* that an Indoor Environmental Professional (IEP) be consulted.



Safety – Engineering Controls

Engineering Controls (Containment)

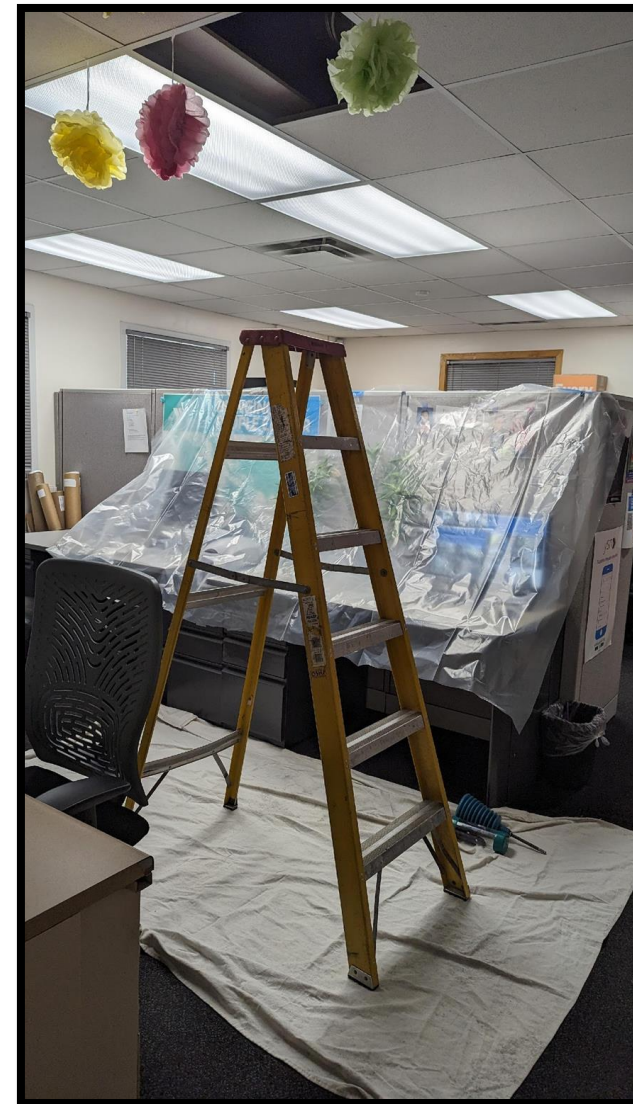
ACR, The NADCA Standard –
2021 Edition

3.9 Level 1 Containment:

Level 1 is the minimum level of containment that ***shall*** be used on all HVAC system component cleaning projects.

Level 1 Containment

- **Negative Pressure**
- **Protective Coverings**
- **Clean Equipment**
- **Cross-Contamination Control**





Safety – Engineering Controls

Engineering Controls (Containment)

ACR, The NADCA Standard –
2021 Edition

3.10 Level 2 Containment:

- all requirements from Level 1
- temporary barriers
- containment area floor
- containment area under negative pressure (not just the duct)
- ambient air cleaning





Safety – Engineering Controls

Engineering Controls (Containment)

ACR, The NADCA Standard –
2021 Edition

3.11 Level 3 Containment:

Level 3 is a containment with a single chamber decontamination unit.

3.12 Level 4 Containment:

A Level 4 containment is a containment with a two-chamber decontamination unit.



Safety – Lock-Out Tag-Out

Lock-Out Tag-Out

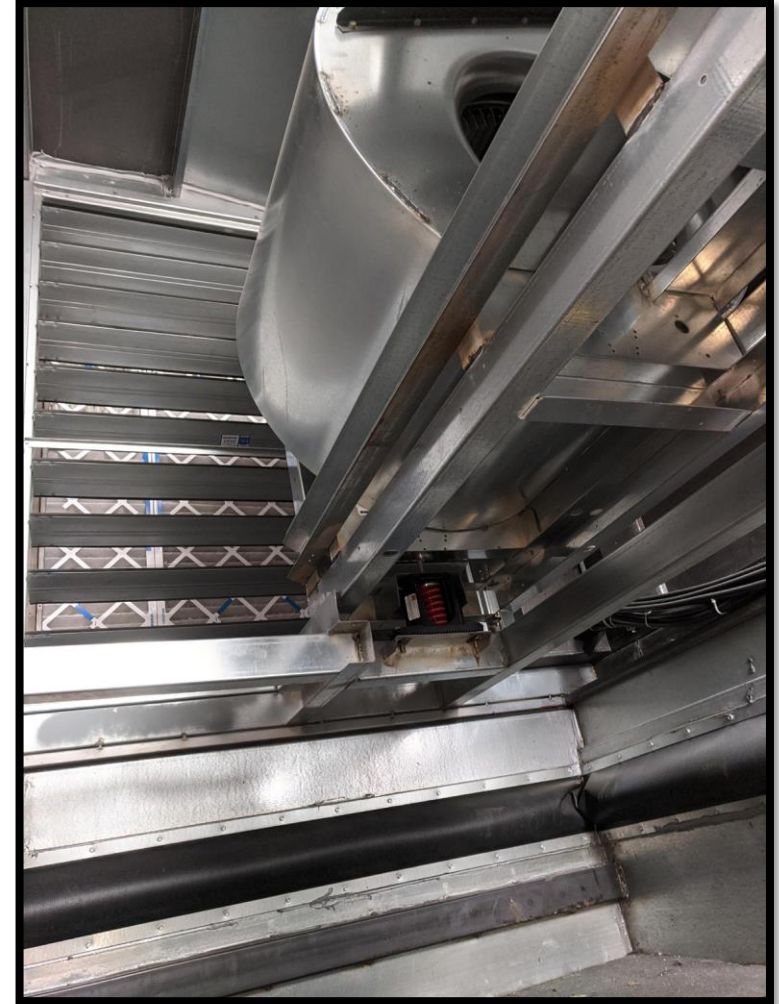
- **Lockout Tagout**
 - The purpose of this program is to establish procedures for affixing appropriate lockout/tagout equipment to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy to prevent injury or incident.





Safety – Lock-Out Tag-Out

Lock-Out Tag-Out





Safety – Lock-Out Tag-Out

Lock-Out Tag-Out





Safety – Pop Quiz



What is the most common OSHA citation/fine?

Fall Protection





Safety – Fall Protection

Fall Protection

Top 10 Most Cited Standards

FY 2022





Safety – Fall Protection

- Fall Protection
- Ladders
- Scaffolding
- Rooftops
- Aerial Work Platforms (lifts)
- Duct Risers
- Unprotected Edges (no railing)



Safety – Fall Protection

Fall Protection

HIERARCHY OF FALL PROTECTION

The Hierarchy of Fall Protection is the preferred order of control for fall hazards. As the Hierarchy progresses, so does the risk.

1 HAZARD ELIMINATION
Preferred solution is to eliminate exposure to the fall hazard.

2 PASSIVE FALL PROTECTION
Physical barriers, like guardrails around unprotected edges and covers over holes.

3 FALL RESTRAINT SYSTEMS
Use personal protective equipment to restrict the worker's range of movement so they cannot fall.
* Training required

4 FALL ARREST SYSTEMS
Use personal protective equipment to arrest a fall within acceptable force and clearance margins.
* Training and rescue planning required

5 ADMINISTRATIVE CONTROLS
Least preferred solution is work practices or procedures that increase a worker's awareness of a fall hazard.
* Not recommended

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Safety – Fall Protection

Fall Protection

Ladders

- Shall be inspected for visible defects by a competent person on a periodic basis and after any occurrence that could affect their safe use.
 - Recommend same for scaffolding including portable scaffolding.
- Shall be used only for their intended purpose.

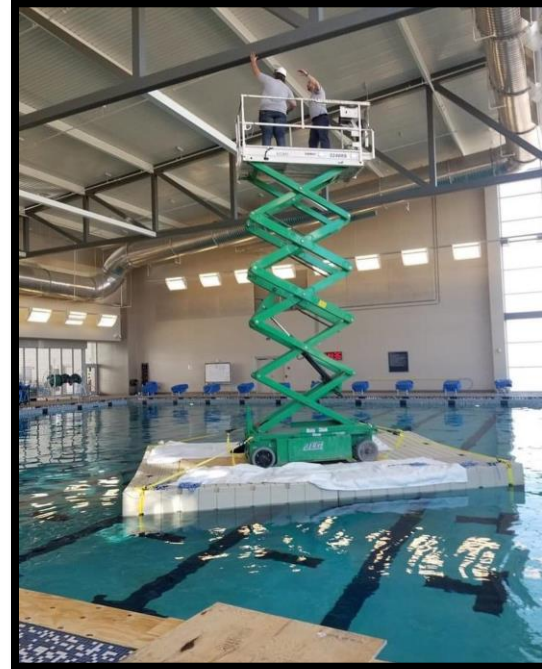
Making a ladder safer:





Safety – Fall Protection

Fall Protection



Aerial Work Platforms (Lifts)

- May include Scissor Lifts, Boom Lifts, Man Lifts, Articulating Bucket Truck, etc.
- PPE required
 - Fall Arrest Harness
 - Hardhat
 - Hi-Vis Clothing
- Always have a spotter.
- Get proper training!
 - Local OSHA office, large rental firms or third-party safety companies may offer.



Safety – Hazardous Materials

- Hazardous Materials
- Microbial (Mold)
- Asbestos
- Lead
- Chemicals
- Environmental



Safety – Hazardous Materials

Hazardous Materials



**Identify potential hazards to protect you the worker,
the company, and the customer.**

Know when NOT to start or continue a job.



Safety – Hazardous Materials

Hazardous Materials



Hazard Communication

- Employees and Customers have right to know.
- Provide information (SDS) prior to starting the job.
- SDS Sheets should be on all trucks and a master list at the office.
 - Cleaning Agents
 - Fogging Chemicals
 - Surface Repair Coatings

NADCA White Paper:

Chemical Product Applications in HVAC Systems



Safety – Confined Space Entry

Confined Space Entry

What is a Confined Space?

A Confined Space is/has:

- Limited means of entry and/or exit
 - Need to use a ladder or movable stairs
 - Door that is difficult to open or too small
 - Obstructions worker must crawl over/around
 - Need to travel a long distance
- Is large enough for a worker to enter
 - You can fit in the hole
- Is NOT intended for regular or continuous occupancy
 - Not designed with features you'd normally need such as ventilation, lighting, and sufficient space to move around or work



○ Confined Space Entry

EXAMPLES

Safety –
Confined Space
Entry





Safety – Confined Space Entry

○ Confined Space Entry

EXAMPLES

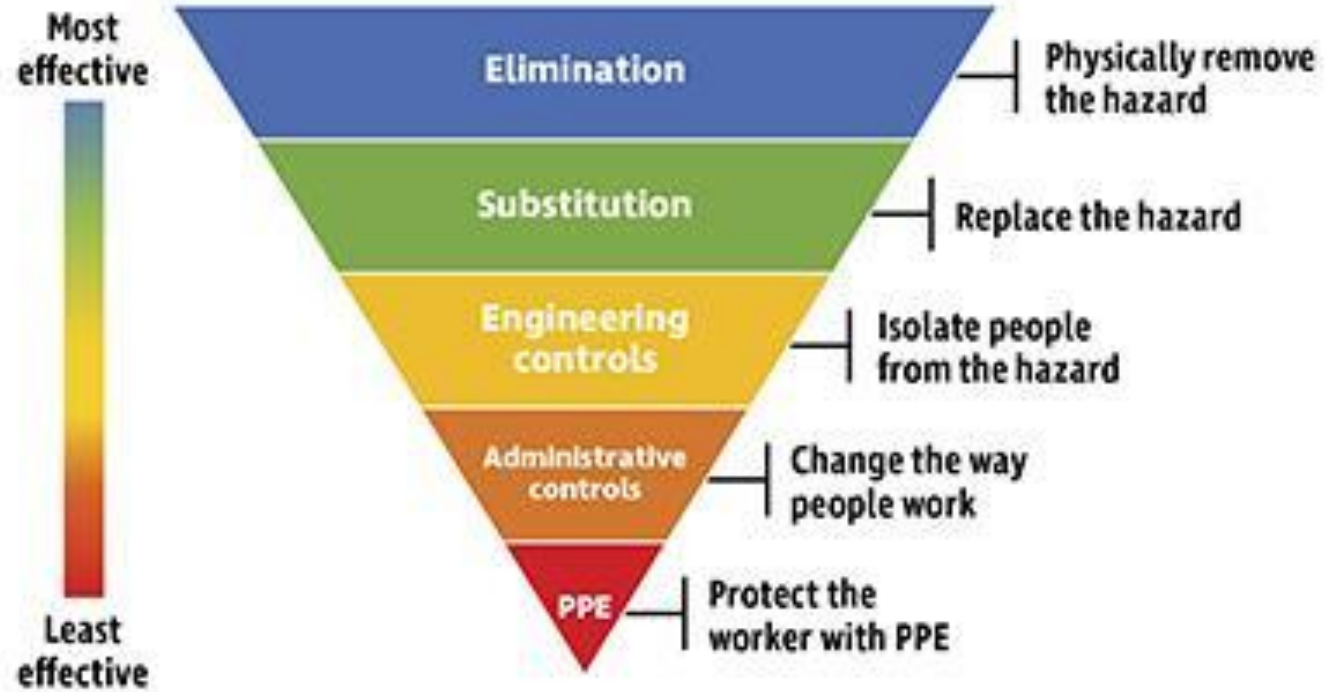




Safety – Confined Space Entry

Confined Space Entry

NIOSH HIERARCHY OF CONTROLS





Safety

Q&A

You have

Questions

We have

Answers



Residential HVAC 101

Presenter Contact Information

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Thank you
for
Participating!

