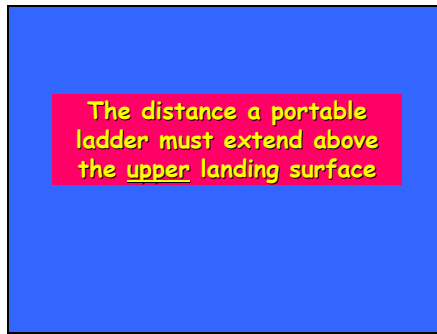


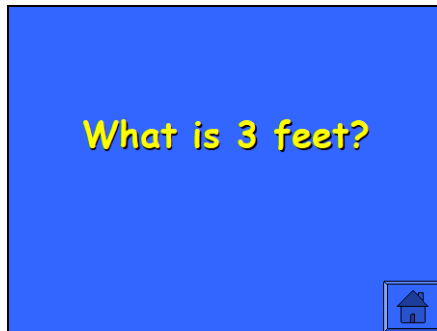
Slide 1

Magic Safety Numbers	Acronyms	Electrical	Chemicals	General Safety Hazards
1 pt	1 pt	1 pt	1 pt	1 pt
2 pt	2 pt	2 pt	2 pt	2 pt
3 pt	3 pt	3 pt	3 pt	3 pt
4 pt	4 pt	4 pt	4 pt	4 pt
5 pt	5 pt	5 pt	5 pt	5 pt

Slide 2



Slide 3



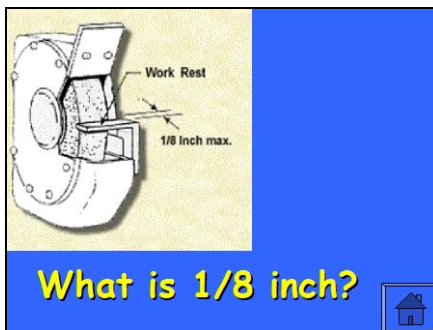
CFR 1926.1053 (b)(1)  
When portable ladders are used for access to an upper landing surface, **the ladder side rails shall extend at least 3 feet (.9 m) above the upper landing surface to which the ladder is used to gain access;** or, when such an extension is not possible because of the ladder's length, then the ladder shall be secured at its top to a rigid support that will not deflect, **and a grasping device, such as a grabrail, shall be**

**provided to assist employees in mounting and dismounting the ladder.** In no case shall the extension be such that ladder deflection under a load would, by itself, cause the ladder to slip off its support.

Slide 4

The maximum opening between a work rest and an abrasive wheel on a grinder

Slide 5

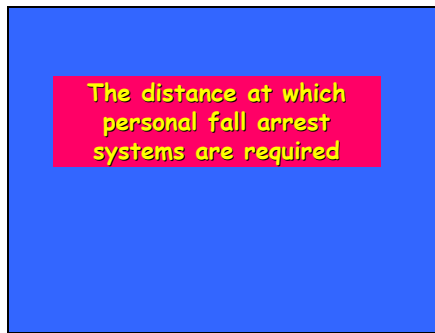


CFR 1910.215 (a)(4) Work rests. On offhand grinding machines, work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a **maximum opening of one-eighth inch to prevent the work from being jammed between the wheel and the rest, which may cause wheel breakage.** The work rest

shall be securely clamped after each adjustment. The adjustment shall not be made with the wheel in motion.

Also – if anyone asks:  
the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed one-fourth inch.

Slide 6



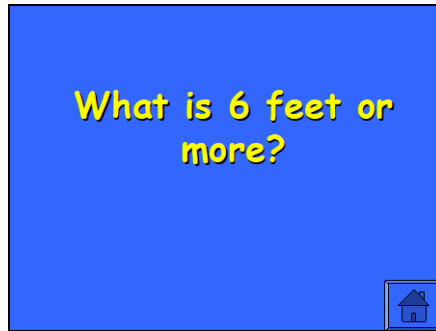
CFR1910.66

**“Personal fall arrest system”**

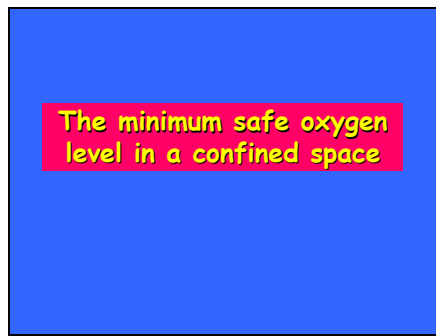
means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

(iv) Shall have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of **six feet (1.8 m), or the free fall distance permitted by the system, whichever is less.**

Slide 7



Slide 8



CFR 1910.146

"Hazardous atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

(1) Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

(2) Airborne combustible dust at a concentration that meets or exceeds its LFL;

NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.

**(3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;**

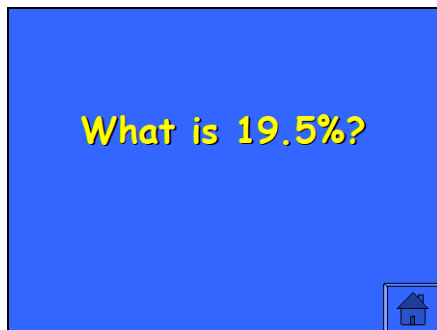
(4) Atmospheric concentration of any

substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;

NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

(5) Any other atmospheric condition that is immediately dangerous to life or health.

Slide 9



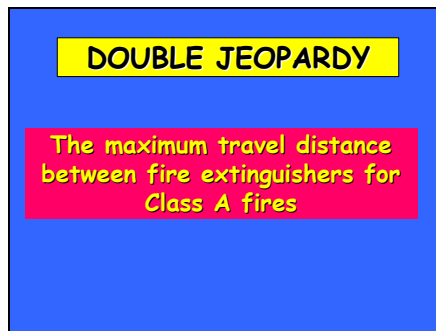
OSHA confined space standard 1910.146. Examples include things like fuel tanks, vats, silos, sewers etc... A space that's large enough to enter, restricted means of entry/exit, and not designed for continuous occupancy.

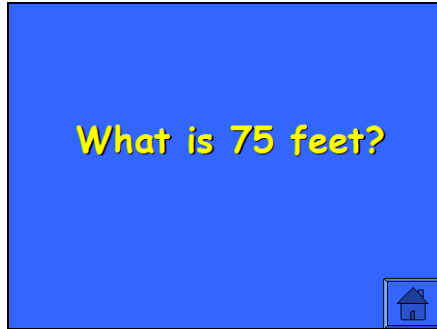
Dangers of confined space include: **Physical hazards** such as moving parts from mechanical equipment, heat, gases/liquids entering the space from pipes. **Oxygen deficiency:** Normal air is 20.8 % and minimum safe level by OSHA is 19.5 %. At 16% you will become disoriented and between 8-12% you will become unconscious. Oxygen

can be **displaced** by other gases like argon, nitrogen, or methane. It could be **consumed by** reactions like rusting, rotting, or burning. Fire and explosion are also dangers in confined spaces. **Flammable and combustible** gases may be present and be ignited by faulty electrical equipment, static, or sparks from welding. **Toxic air contaminants** may also be present and you may not be aware of their presence until it's too late!

For this reason, OSHA has specific requirements for training those working in these areas, as well as, procedures for entry, monitoring, and rescue.

Slide 10





1910.157

**1910.157(d)(2)** The employer shall distribute portable fire extinguishers for use by employees on Class A fires so that the **travel distance for employees to any extinguisher is 75 feet (22.9 m) or less.**

NFPA classifies fires based on the type of combustible material involved. There are 4 classifications: A, B, C, D.  
Easy way to remember:

**A- Ash**

**B- Boiling**

**C-Current**

**D-Metals**

**Class A** extinguishers are for ordinary combustible materials such as paper, wood, cardboard, and most plastics. The numerical rating on these types of extinguishers indicates the amount of water it holds and the amount of fire it can extinguish. **Class B** fires involve flammable or combustible liquids such as gasoline, kerosene, grease and oil. The numerical rating for class B extinguishers indicates the approximate number of square feet of fire it can extinguish.

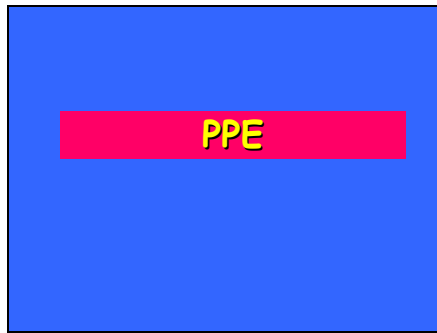
**Class C** fires involve electrical equipment, such as appliances, wiring, circuit breakers and outlets. Never use water to extinguish class C fires - the risk of electrical shock is far too great! Class C extinguishers do not have a numerical rating. The C classification means the

extinguishing agent is non-conductive.

**Class D** fire extinguishers are commonly found in a chemical laboratory. They are for fires that involve combustible metals, such as magnesium, titanium, potassium and sodium. These types of extinguishers also have no numerical rating, nor are they given a multi-purpose rating - they are designed for class D fires only.

There are multipurpose extinguishers and they will be labeled ABC, so be sure to read the label.

Slide 12





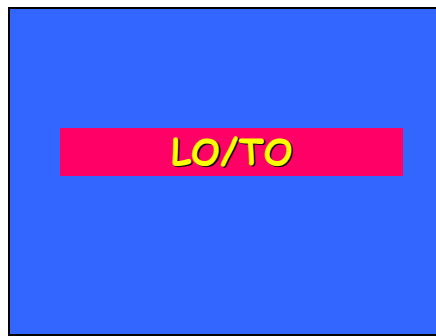
Slide 13



### **Personal Protective Equipment.**

We should be trying to engineer out any potential hazards but when that is not possible we can use PPE to protect employees. OSHA requires a PPE hazard assessment on all jobs/tasks to determine not only what the hazards are but the appropriate level of PPE that will be required.

Slide 14



Slide 15



### **CFR 1910.147**

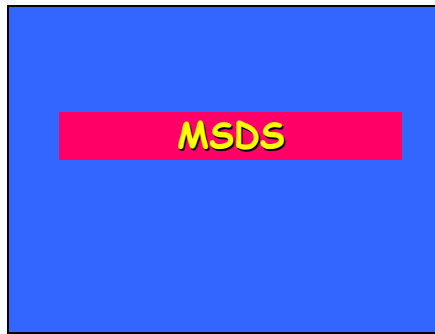
Lockout is a way to prevent the flow of energy from a power source to a piece of equipment, the tag acts as a warning not turn power on. It applies to a wide range of energy sources. For example, electrical, mechanical, pneumatic, hydraulic, chemical, thermal, steam, etc... The goal is to prevent accidental start ups, electrical shock, and the release of stored energy.

**Lockout.** The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring

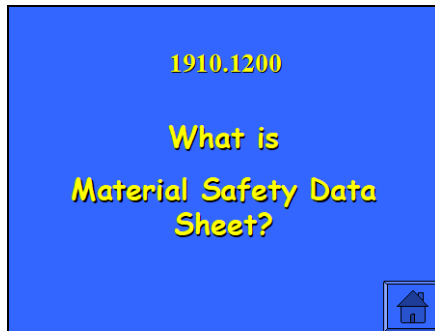
that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Tagout.** The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Slide 16



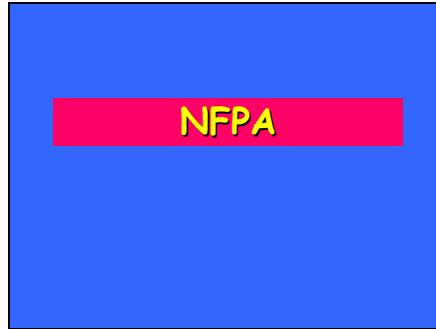
Slide 17



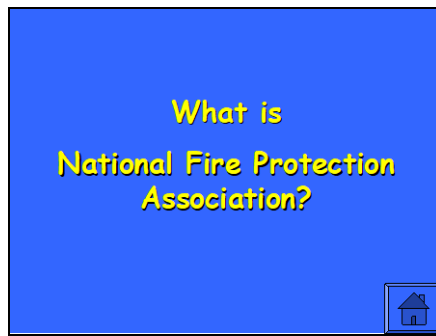
### **CFR 1910.1200 Hazard Communication (Haz Comm)**

This standard says you have the right to know what chemicals you are working with and how to protect yourself from them. One of the ways the standard ensures that you have information is through Material Safety Data Sheets. Your employer should have an MSDS on every chemical in your workplace and you should have access to them.

Slide 18

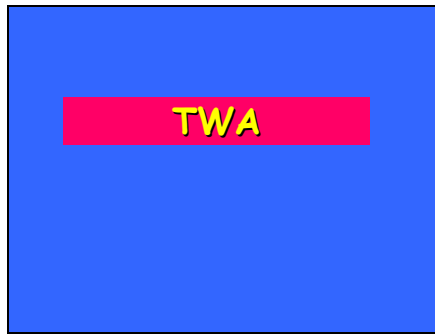


Slide 19

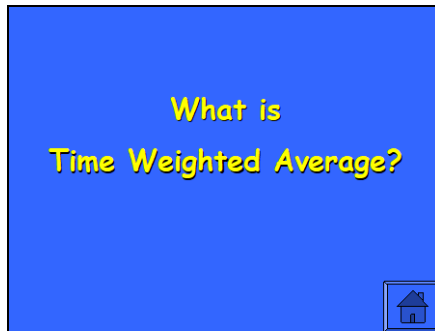


**The authority on fire, electrical, and building safety.** The mission of the international nonprofit NFPA is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research, training, and education. NFPA membership totals more than 75,000 individuals from around the world and more than 80 national trade and professional organizations. Established in 1896, NFPA serves as the world's leading advocate of fire prevention and is an authoritative source on public safety. In fact, NFPA's 300 codes and standards influence every building, process, service, design, and installation in the United States, as well as many of those used in other countries. NFPA's focus on true consensus has helped the association's code-development process earn accreditation from the American National Standards Institute (ANSI).

Slide 20



Slide 21



Permissible Exposure Limits (PEL) are limits that OSHA has determined as acceptable limits employees can be exposed to without adverse health effects.

To determine what levels an employee is exposed to during the course of a shift, one would do personal monitoring. It is a reflection of what that employee has been exposed to. It will take the higher concentrations and the lower concentrations and calculate an average exposure level for that workday.

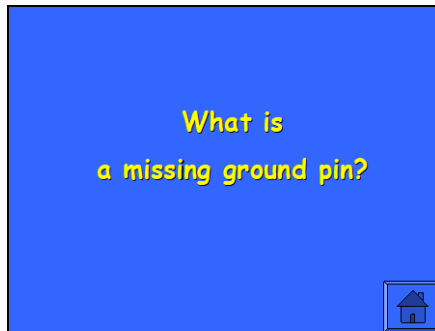
CFR 1910.1200

**(i) Time Weighted Average (TWA) is the employee's average airborne [or noise] exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.**

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Slide 23

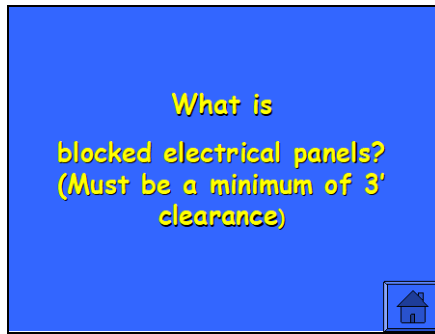


Be sure that all electrical equipment is maintained properly. Regularly inspect tools, cords, and equipment. Be sure that safety features like 3 pronged cords, double-insulated are in place.

Slide 24



Slide 25

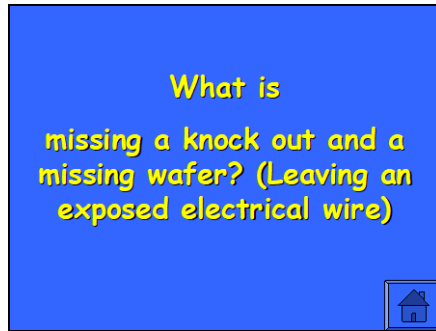


CFR 1910.303  
Electrical panels must have a  
clearance of 3' around them. The  
must be accessible in case of  
emergency. Don't use this as a  
storage area!

Slide 26

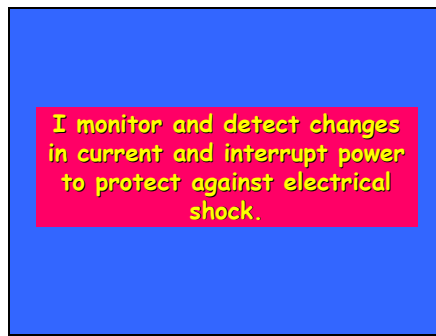


Slide 27

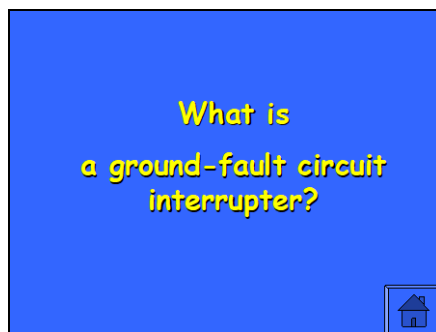


This box has a missing knock out and a missing wafer on the plug. This leaves you with exposed electrical components. There is a potential for you to come in contact with electricity. Inspect before use.

Slide 28



Slide 29



Ground fault circuit interrupter is one of several types of electrical protective devices. Other protective devices include things like fuses and circuit breakers. They are critical to ensuring your safety.

Use ground-fault circuit interrupters (GFCI) near water and sinks. Circuit breakers are primarily for fire protection. GFCIs are for employee protection. GFCIs protect people. GFCIs will shut off electrical power within 1/40th of a second when it detects a difference of 5 mA or

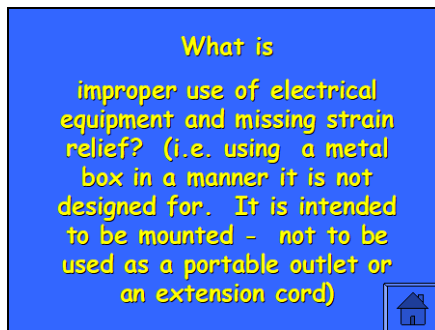
more.

GFCIs must be used when tools and extension cords are used on construction sites and near water.

Slide 30



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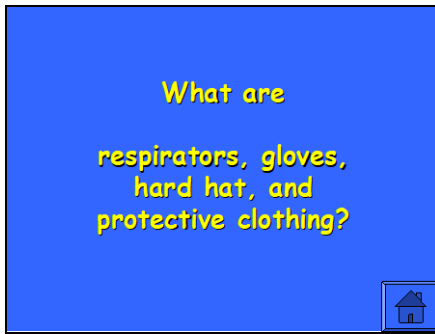




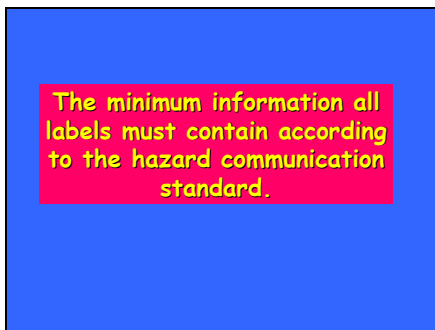
Slide 32



Slide 33




Slide 34



Slide 35

What is  
the product name, the  
hazard associated with the  
product, and the name and  
address of the  
manufacturer.




If you transfer chemicals from their original container they must be labeled properly. The container must have the hazard warning and the name of the product.

Slide 36

Name at least two  
pieces of information  
found on a material  
safety data sheet.

Slide 37

What is  
company information,  
hazardous ingredients,  
physical data, fire &  
explosion data, health  
hazards, reactivity, spill  
procedures, PPE, and other  
special precautions?




Slide 38

**DOUBLE JEOPARDY**

I am the legally enforced concentration of air contaminant to which most workers can be exposed without adverse health effects.

Slide 39

What is the permissible exposure limit?

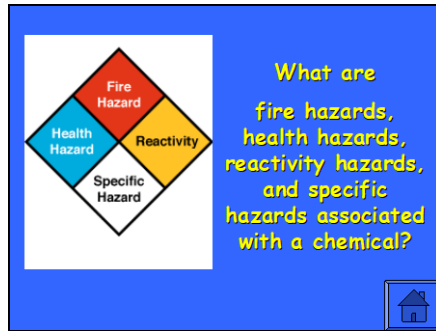


Permissible exposure limit. These are limits recognized by OSHA as the limit that employees can be exposed to without experiencing any adverse health effects.

Slide 40

RED, BLUE, YELLOW, & WHITE denote what type warnings on NFPA labels.

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**Red** denotes the flammability hazard, whether or not they catch fire easily.

**Blue** denotes the health hazard.

**Yellow** denotes reactivity. A reactive chemical is one that can undergo a chemical reaction....burn, explode, or release toxic vapors.

**White** denotes specific hazards of that chemical. For example, it might be an oxidizer, corrosive, radioactive and so forth.

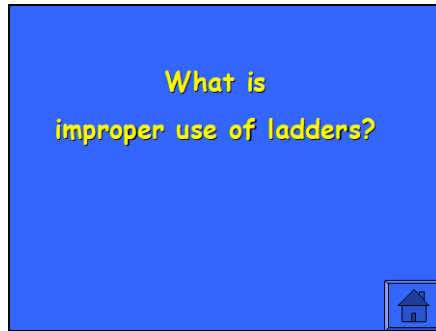
Each of these boxes will generally have a number rating from 0-4 with 0 representing no hazard to 4 representing a very dangerous.

National Fire Code 704

Slide 42



Slide 43



This is a no brainer and it appears as if these guys might not be using theirs.

Ladder safety:

Use the correct ladder/tool for the job.

Only one person on the ladder at a time

Don't use broken or dirty ladders

Place ladder on secure footing

Use both hands as you climb

Don't overreach from a ladder

Set ladder properly by using 4 to 1 rule. The distance from the base of the wall to the ladder base should be  $\frac{1}{4}$  the distance from the base of the ladder to where it touches the wall.

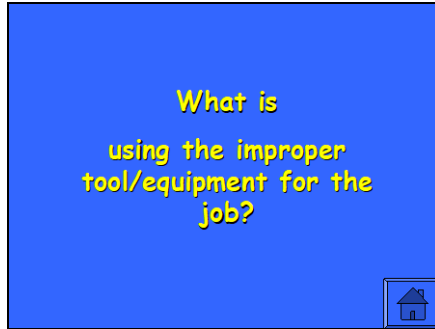
Don't stand on the top step of the ladder.

AND IN THIS CASE....DON'T  
STACK THEM ON TOP OF EACH  
OTHER!

Slide 44



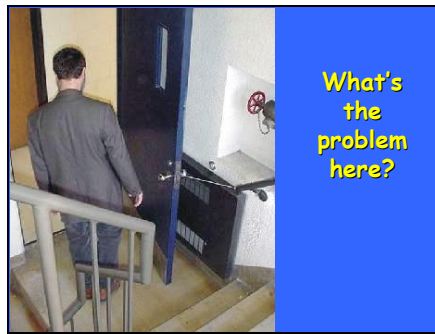
Slide 45



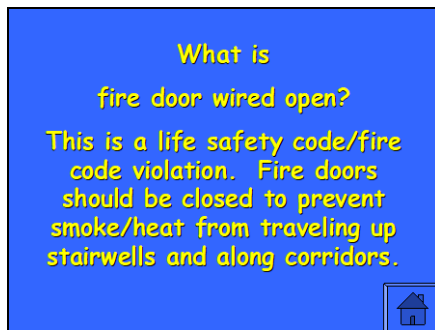
### CFR 1910.25-.26

Don't build make-shift ladders out of boxes, cans, benches, buckets etc... Take the time to go get a ladder and do the job safely. It only takes a minute and it could save you days, weeks, or months of recuperation!

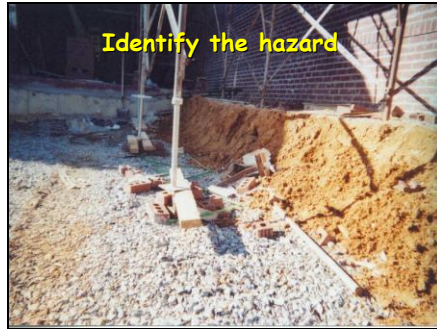
Slide 46



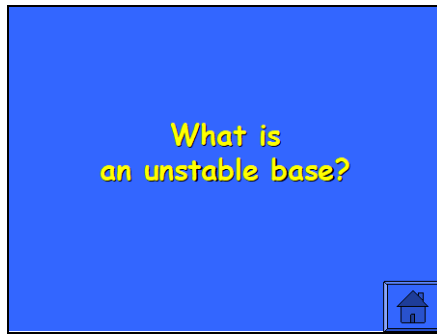
Slide 47



Slide 48



Slide 49



Scaffolds need to be set up on solid ground. Never set them up on top of bricks or buckets etc.

Only qualified personnel should build or inspect them.

Designed to carry 5x the maximum intended load.

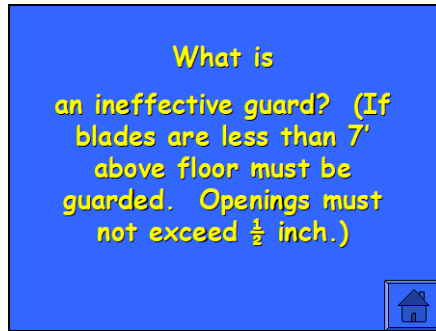
If above 10' must have standard guardrails

Ladders should be used to mount scaffold

At start of shift, competent person should inspect for any defects.

Slide 50





If blades are less than 7' above the floor they must be guarded. Openings must not exceed 1/2 inch. As general rule if you can go under it, around it, or through it, the guard is not sufficient. You want to "dummy proof" it if possible....keep the dummy from putting his hands in it!

**CFR 1910.212**

Exposure of blades. When the periphery of the blades of a fan is less than seven (7) feet above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than one-half (1/2) inch.