

Overview of Construction Safety

BC 1214, Fall 2006

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Introducing: Your Instructor

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OSHA – Applicability to Construction

- OSHA Covers all “employers”
- Employer =

The term "employer" means a person engaged in a business affecting commerce who has employees

- General vs. Sub-contractor
- Multi-employer Worksites

OSHA and the Small Employer

Table 1
(Exceptions and Limitations)

OSHA Activity	Farm with 10 or fewer EES and no TLC activity within 12 mo.	Farm with more than 10 EES or a farm with an active TLC within 12 Mo.	Non-farm ERS with 10 or fewer EES in a SIC listed in Appendix A
Programmed Safety Inspections	Not Permitted	Can Inspect	Cannot Inspect
Programmed Health Inspections	Not Permitted	Can Inspect	Can Inspect
Employee Complaint	Not Permitted	Can Inspect	Can Inspect (See limits on Citations and Penalties)
FAT/CAT and Accidents	Not Permitted	Can Inspect	Can Inspect
Imminent Danger	Not Permitted	Can Inspect	Can Inspect
11C	Not Permitted	Can Inspect	Can Inspect
Consultation & Technical Assistance	Not Permitted	Permitted	Permitted
Education and Training	Not permitted	Permitted	Permitted
Conduct Surveys & Studies	Not Permitted	Permitted	Permitted



OSHA: Construction Standards

29 CFR 1926

- Training
- Recordkeeping
- First Aid
- Noise
- Radiation
- Chemicals
- Lead
- Asbestos
- **Personal Protective Equipment**
- Fire Hazards
- Signs, Barricades
- Material Handling
- Tools
- Welding, cutting
- Electrical Hazards
- Scaffolds
- **Fall Protection**
- Cranes, hoists, etc
- Motor vehicles
- Excavations
- Concrete
- Steel
- Underground
- Demolition
- Blasting
- Power Transmission
- **Ladders**

OSHA: Top Ten

- ⌚ Training
- ⌚ Fall Protection
- ⌚ Head Protection
- ⌚ Electrical – Ground Fault
- ⌚ Trenching/Excavating
- ⌚ Scaffolds
- ⌚ Recordkeeping
- ⌚ Personal Protective Equipment
- ⌚ Flammable Chemicals
- ⌚ Welding



Training, Recordkeeping, Reporting

- Hazard Communication
- OSHA 300 Log
- Identical to “General Industry” Standard
- Documentation of Training



First Aid

- In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

Noise

- Exposure Limits
- Engineering Controls
- Hearing Protective Devices
- Hearing Testing

TABLE D-2 –
PERMISSIBLE NOISE EXPOSURES

8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2.....	102
1.....	105
1/2.....	110
1/4 or less.....	115

Radiation

- Ionizing
- Non-Ionizing
- Uses in Construction





Chemicals

- Gases, vapors, fumes, dusts, mists
 - Hazard Communication
 - Process Safety
 - Carcinogens
- (examples:
benzene,
methylene chloride)



Lead

- Scope. This section applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from coverage in the general industry standard for lead by 29 CFR 1910.1025(a)(2) is covered by this standard. Construction work is defined as work for construction, alteration and/or repair, including painting and decorating.
- The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m³) averaged over an 8-hour period.
- Lead effects all major body systems and accumulates in the body.



Asbestos

- Respiratory health Hazard
- Fibers found in many historical construction materials



- **Class I asbestos work** means activities involving the removal of TSI and surfacing materials.

Class II asbestos work means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Personal Protective Equipment

- Eye and Face Protection
- Foot Protection
- Hand Protection
- Head Protection
- Hearing Protection
- Respiratory Protection



Fire Hazards

- Develop Fire Protection Program
- Fire fighting equipment
- Water sources
- Portal fire extinguishers
- Sprinklers



Signs, Barricades

- Danger
- Caution
- Exit
- Directional
- Traffic Control
- ANSI



Material Handling & Storage

- Aisles, passages, scaffolds, hoists – free from materials obstructions
- Stack specifications to avoid objects falling
- Hooks, chains, slings, ropes, cable – specs and inspections



Tools

- Condition
- Guarding
- Inspection
- On/off control specs
- Safety clips/devices intact
- Nail guns
- Compressed air



Welding, Cutting

- Gas and arc standards
- Safe use, storage, transport of cylinders
- Torch maintenance and use
- Grounding and insulation of arc welding equipment
- Fire prevention
- Ventilation



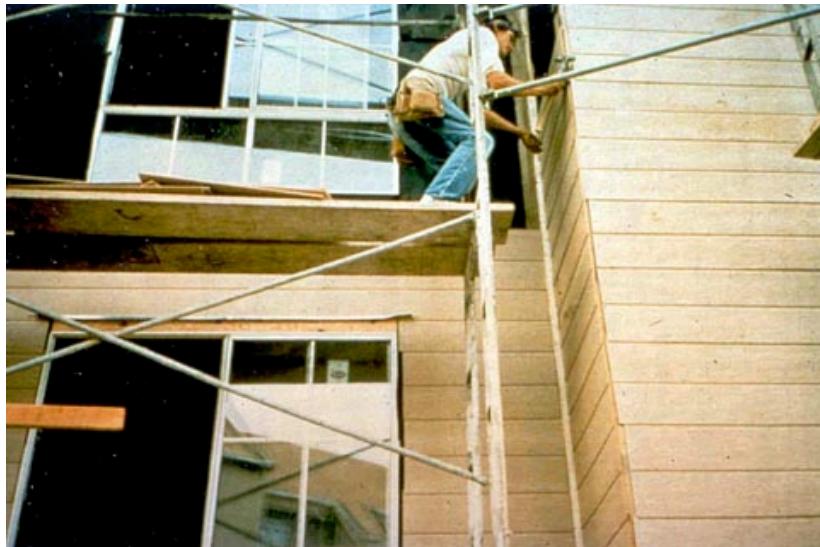
Electrical Hazards

- Wiring design
- Wiring methods
- Temporary wiring
- Grounding
- Lock-out/Tag-out



Scaffolds

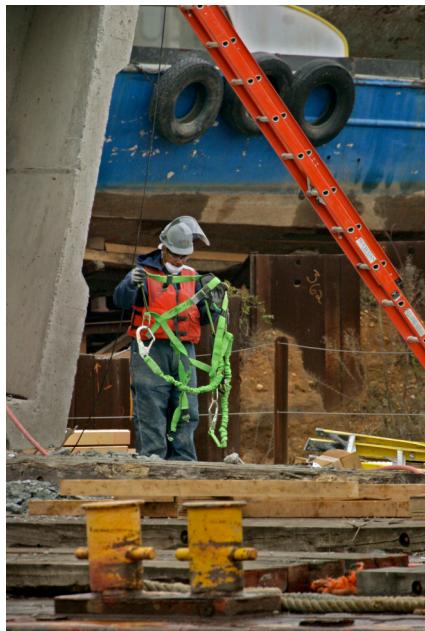
- Should be erected under the direction of a competent person
- Footings on sound and rigid - not set on soft ground, frozen ground, or resting on blocks
- Scaffold level
- Wheels / castors locked
- Able to hold four times its maximum intended load
- Platform complete front to back and side to side (fully planked or decked, with no gaps greater than 1 inch)
- Guardrails and toeboards in place on all open sides
- All sections pinned or appropriately secured
- Safe way to get on and off the scaffold, such as a ladder
- Front face within 14 inches of the work (or within 3 feet for outrigger scaffolds)





Fall Protection

- Hazard Elimination
- Fall Prevention Systems
- Fall Arrest
- Monitoring Techniques





Cranes, Derricks, Hoists, Elevators, Conveyors

- Load specifications
- Fall protection
- Inspection, maintenance
- Exhaust control
- Ropes, cables,
platforms –
detailed specs



Motor Vehicles

- Brakes
- Lights
- Warning systems
- Seat belts
- Roll-over protection
- Tires
- Mud flaps
- Scissor Points



Excavations

- "Excavation" means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
- Sloping, shoring, support systems
- Trench – longer than it is wide, not more than 15 feet wide
- Protective systems required for depths exceeding 5 feet



Concrete & Steel

- Hazards associated with concrete and masonry operations
- Steel erection activities include hoisting, laying out, placing, connecting, welding, burning, guying, bracing, bolting, plumbing and rigging structural steel, steel joists and metal buildings; installing metal decking, curtain walls, window walls, siding systems, miscellaneous metals, ornamental iron and similar materials; and moving point-to-point while performing these activities.



Underground

- Construction of underground tunnels, shafts, chambers, and passageways
- Air monitoring
- Ventilation
- Communication
- Illumination
- Check in/Check out



Demolition

- Specific rules for removal of floors, walls, masonry
- Use of chutes and floor openings
- Use of mechanical demolition systems
- Demolition of steel
- Use of explosives
- Storage and disposal



Blasting

- Blaster credentials
- Storage, transportation, use
- Cords, fuses
- Inspection
- Site access



Power Transmission

- Includes the erection of new electric transmission and distribution lines and equipment, and the alteration, conversion, and improvement of existing electric transmission and distribution lines and equipment.
- Clearances
- Isolation, insulation, guarding, grounding specs





Ladders

- Do not hand-carry loads on a ladder
- Do not reach so far to the side, that you lose your balance
- Do not stand on the ladder's top three rungs
- A damaged side rail may cause one side of a ladder to give way. Hold onto rungs, not rails
- The base should be set on stable, level surface
- The base should be spaced 1 foot away for every 4 feet it reaches up
- Ladders used to reach a walking surface or roof must extend at least 3 feet beyond
- Step ladders should be securely spread open. Never use a folding step ladder in an unfolded position.





QUESTIONS ?