Build It Smart

Hazards Associated with Working @ Heights

This material was produced under grant 46K1-HT18 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does the mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

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Steps in Reviewing the Hazards Associated with Working @ Heights

Risk Assessment-

Identify potential Fall Hazards using the Preplanning Checklist

Hazard Analysis -

Exposure avoidance and control techniques -

Fall Hazard Controls -

Employee awareness & communication (preplanning and coordination) ,Protection systems

Fall Restraint -

Guard rails, travel restraint systems

Fall Arrest -

Personal arrest systems, safety nets, lifeline systems– vertical and horizontal walk line requirements

Anchor Requirements -

Restraint versus arrest, temporary versus permanent

Procedure Development -

Safe Work Practice Guidelines

Daily Preplanning

Identify:

Existing and potential height related hazards and exposures to falls

Know:

1) Risks you impose on others and risk others impose on you

2) Risks of your trade and the risks of the trades around you

Ask:

1) Why is this a hazard?

2) How do we abate or minimize the hazard?

Remember:

If you see a hazard, see it gets fixed.

SILENCE IS CONSENT!

Preplanning Checklist

Excavations___ **Flooring**___

Scaffolds/ladders___ **Elevator openings**___

Ramps, runways, and walkways___ **Stairwells** ___

Crane supported work platforms___ **Forming, pouring, stripping concrete columns/walls**___

Aerial platforms___ **Perimeter/leading edge activities**___

Temporary work platforms ___ **Weather**___

Welding, decking, bolting___

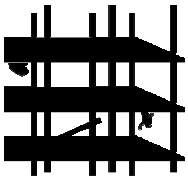
Roofing and roof openings___

Siding/sheeting___

Wall openings___

Boom & scissor lifts___

Steel erection, welding, bolting___



Recognizing Hazards

Consider Hazardous Falls

- ⇒ **Falls at the same level**
- ⇒ **Falls against an object**
- ⇒ **Falls from vehicles/equipment**
- ⇒ **Falls from stairs, ladders and ramps**
- ⇒ **Falls from one work level to another**
- ⇒ **Falls into/through openings**

Underlying Causes of Falls

- ⇒ **Reaching beyond the work surface**
- ⇒ **Poor housekeeping**
- ⇒ **Walking off unguarded edge**
- ⇒ **Carrying objects**
- ⇒ **Slippery surfaces**
- ⇒ **Climbing onto or from work surface**
- ⇒ **Using machinery or equipment**
- ⇒ **Weather conditions: heat, rain, ice, and/or winds**

Fall Protection Options for Hazardous Exposures

Working Over Dangerous Equipment: guard rail system—safety net system—personal fall arrest system

Excavations: guard rail system—fences—barricades

Floor/Roof Openings: hole covers—guard rail system—personal fall arrest system—all restraint system

Formwork and Reinforcing Steel: safety net system—personal fall arrest system—positioning system

Hoist Areas: guard rail system—safety net system—personal fall arrest system—fall restraint system

Holes Covers: guard rail system—safety net system—personal fall arrest system—fall restraint system

Leading Edge: guard rail system—safety net system—personal fall arrest system—fall restraint system—fall protection

Over-head Work: guard rail system—safety net system—personal fall arrest system—controlled access zone

Fall Protection Options for Hazardous Exposures

Precast Concrete Erection: guard rail system—safety net system—personal fall arrest system—fall protection plan

Roofing Work: guard rail system—safety net system—personal fall arrest system—safety monitor system—warning line with guard rail **or** safety net ***OR*** personal fall protection **or** fall restraint system

Unprotected Sides and Edges: guard rail system—safety net system—personal fall arrest system—fall restraint system

Ramps, Runways, Walkways: guard rail system—personal fall arrest system—safety net system

Wall Openings: guard rail system—safety net system—personal fall arrest system—fall restraint system

Safe Work Practice Guidelines

Eliminate Structure Collapse

Follow erection sequence

Install all temporary and permanent bracing

Remember bracing provides no value until both ends are connected

Leave all bracing in place until it can be safely removed

Keep erection within limits of bolts, welding and other fasteners

Do not over-load

On multiple story structures, check the status of the floor you are loading to ensure it can easily accommodate the anticipated load

Once plumb and square, install and secure bridging before loading, to eliminate possibility of collapse

Safe Work Practice Guidelines

Eliminate Scaffold Collapse

Inspect:

All pieces before erecting

All components before getting on any scaffold

Over-head anchors before each shift

Do:

Build base on level, solid surface to withstand weight

Consider and construct for wind loads

Follow erection procedures and manufacturers specifications

Install bracing and out riggers

Travel only on level surfaces

Do Not:

Over-load

Climb on bracing

Use damaged or faulty planks or other components

Eliminate Scissor Lift & Boom Supported Work Platform Tip-Over or Collapse

Do not over-load

Be aware of all sources of electrical power

Be alert for surface penetration covers

(continued on page 12)

Safe Work Practice Guidelines

Stay clear of workers, ladders, and scaffolds

Use caution when attaching anything that could get caught

(Cords, hoses, etc.)

Eliminate Derrick Collapse or Failure

Use qualified operators

Use qualified signal persons

Do not over-load

Ensure derrick flooring is adequately fastened

Inspect all parts daily

Refuse to use damaged derrick

Eliminate Crane Collapse, Failure or Tip-Over

Use qualified operators

Use qualified signal persons

Do not over-load

Travel only within manufacture's limits

Inspect parts daily

Refuse to use damaged crane

Place outriggers on solid support

Eliminate Ladder Collapse or Failure

Inspect daily

Do not over-load

Keep feet of ladder at even levels

Use the proper ladder for the job

What is the Hazard? Why is it a Hazard ?
How to Reduce the Hazard?

Eliminate Falling Objects

Maintain good housekeeping

Dispose of left over materials

Secure materials, tools, parts on hoists

Eliminate over-head work of welders and burners—when unavoidable every effort to catch the fire must be made

Preplan for catching slag and fire

Use appropriate fall protection equipment (see pg 8 and 9)

Highlight all barricade hazards with signs

Cover holes with clearly marked covers

Eliminate Unguarded Edges Hazards

Preplan for leading edge work at unprotected edge, side, or openings in floors, roofs, ramps, or runways where there is no guard rail system in place

Use appropriate fall protection equipment (see pg 8 and 9)

Eliminate Falls Through Roofs or Floor Openings

Barricade holes before removing covers

Use appropriate fall protection equipment

Safe Work Practice Guidelines

Eliminate Lighting Hazards

Preplan to limit exposures in non-daylight hours

Use good lighting to illuminate work areas, pathways, corridors, hall ways, working platforms

Have a supply of flashlights

Eliminate Electrical Hazards

Instruct crew members on location of all sources of electrical power and proper work practices including that equipment must be grounded or double insulated

Tag, barricade and post warning signs in hazardous areas

Watch distances when transporting ladders, or scaffolds, or other materials

Eliminate Weather Related Hazards

Keep work areas cleared, dry, sanded, covered, barricaded, or protected

Use temporary bracing

Flag roof mounted weather heads to prevent tripping or falling over power lines

Use personal protective equipment

Preplanning for Safety

Minimum Safe Distance From High Voltage

Power line voltage Phase to phase (kV)	Minimum safe clearance (feet)
50 or below	10
Above 50 to 200	15
Above 200 to 350	20
Above 350 to 500	25
Above 500 to 750	35
Above 750 to 1,000	45

Safe Work Practices Guidelines

Eliminate Slipping & Tripping Hazards

Maintain good housekeeping

Look for and remove nuts, washers, cords, rope & tools

Keep loose parts and pieces in secure containers or non hazardous area

Clean up and properly dispose of left over materials

Pay attention to work surfaces; for mud, sand, water or ice

Clean up oil, grease, paint, fireproofing, & dust

Ladders

Keep angle of the ladder within prescribed limits

Secure ladders to prevent slipping

Where possible, secure top and or bottom of ladder

Do not splice together short ladders to make a longer ladder

Destroy and discard damaged ladders

When in traffic areas barricade or tape off the area

Do not use the top two steps on step ladders