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Hazards Associated with Working @ Heights

Build It Smart

Steps in Reviewing the Hazards Associated with Working @ Heights

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Identify potential Fall Hazards using the Preplanning Checklist

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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

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

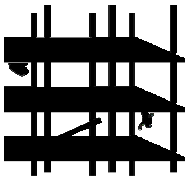
Over-head Work: guard rail system—safety net system—personal fall arrest system—controlled access zone

Daily Preplanning

Identify:	Know:
Existing and potential height related hazards and exposures to falls	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___	



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

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

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

Eliminate Scaffold Collapse

Travel only on level surfaces

Inspect:

All pieces before erecting

Over-load

Climb on bracing

Use damaged or faulty planks or other components

Do Not:

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

(continued on page 12)

Be alert for surface penetration covers

Be aware of all sources of electrical power

Do not over-load

Collapse

Platform Tip-Over or

& Boom Supported Work

Eliminate Scissor Lift

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

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

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	**Eliminate Electrical Hazards**
Preplan to limit exposures in non-daylight hours	**Instruct** crew members on location of all sources of electrical power and proper work practices including that equipment must be grounded or double insulated
Use good lighting to illuminate work areas, pathways, corridors, hall ways, working platforms	**Tag**, barricade and post warning signs in hazardous areas
Have a supply of flashlights	**Watch** distances when transporting ladders, or scaffolds, or other materials
Eliminate Weather Related Hazards	**Flag** roof mounted weather heads to prevent tripping or falling over power lines
Keep work areas cleared, dry, sanded, covered, barricaded, or protected	
Use temporary bracing	
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