



## **BEST PRACTICE: SAFETY AT HEIGHTS**

### **INTRODUCTION:**

The Partnership is committed to the practice of Safety at Heights wherever the potential exists for personnel falling from heights. A series of Best Practices will be developed that will address fall hazards associated with the Electric Transmission and Distribution industry. Best Practices will address fall hazards associated with, but not limited to, aerial tasks performed while working on wood/steel poles, metal/lattice structures, transformers, vehicles and associated equipment. The Best Practices will utilize fall protection hierarchy of fall hazard elimination or control of the fall hazard. The following shall be considered in designing a fall protection solution: elimination or substitution, passive fall protection, fall restraint, fall arrest and administrative controls. First consideration shall be given to the elimination of fall hazards. Where elimination of the fall hazard is not practical effective control of the fall hazard shall be used at all times.

### **SUBJECT: FALL PROTECTION WHEN PERFORMING AERIAL WORK ON LATTICE STRUCTURES**

**PRACTICE STATEMENT:** Fall Protection Equipment (FPE) shall be used when ascending, while in the working position, when changing positions, descending, and/or performing rescue operations while on a lattice structure.

**PRACTICE DESCRIPTION:** Fall hazards associated with aerial work performed on lattice structures shall be assessed, and fall hazard mitigation plans developed.

- Climbers shall be competent in the application of all necessary fall protection methods used for the fall hazard mitigation of the tasks that will be performed on a given lattice structure.
- A Fall Hazard Analysis (FHA) shall be completed. As a function of the planning/job site analysis, the following information should be obtained and included with the FHA:
  - Identify tasks to be performed on given lattice structures.
  - Client/Owner Fall Protection policies, procedures and hazard analysis documentation as applicable.
  - Identify suitable anchorage points that are going to be used for the task to be performed on any given lattice structure.
  - Employers shall address rescue considerations and develop appropriate procedures that will allow successful performance of a given rescue technique for varied field conditions.
  - Determine/Identify necessary FPE and/or Work Positioning Equipment (WPE).
  - Determine climber qualification in the use of FPE and/or WPE.
- FPE/WPE shall be inspected and used in accordance with the manufacturer's instructions and guidelines.



- Company policies shall apply when the conditions of this Best Practice cannot be met. Alternative work methods ensuring climber safety shall be identified, communicated to all affected climbers, implemented, and documented as part of the job briefing process.
- Lattice structure climbers shall be trained and competent in the care, use, and inspection of the equipment used to conform to this Best Practice. Climbers must be trained in the selection and safe use of the equipment/system. Training shall only be conducted by qualified trainers.
- Visual inspections shall be performed prior to, and during climbing, to ensure that the structure is in acceptable condition for the safe execution of the tasks to be performed.
- This Best Practice applies to all climbers including those that perform rescue on lattice structures. Rescue application should be predetermined as early as possible, but no later than during the pre-job briefing, based on rescue needs such as timeliness and consideration given to the characteristics of the structure that rescue is being performed on.

**BENEFITS:** To eliminate injuries and fatalities associated with falls from lattice structures.

**REFERENCE:**

ANSI Z359.2 – 2007

CSA Z259.14-01

29 CFR 1910.66 App C

29 CFR 1926.500 – 503

BLM 1292-1

Best practices utilized by OSP members for lattice structures.

IEEE 1307 – IEEE Standard for Fall Protection for Utility Work

Example FHA attached

**DEFINITIONS AND CONSIDERATIONS:**

- **Anchorage** — A secure point of attachment on the lattice structure to which the fall protection system is connected.
- **Fall Protection Equipment (FPE)** — Any equipment, device or system that prevents accidental falls from elevations or that mitigates the effect of such fall.
- **Personal Fall Arrest System (PFAS)** — A system used to arrest a fall from a working level. It consists of an anchorage point, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.
- **Work Positioning Equipment (WPE)** — Equipment used to support a climber on the lattice structure so that the climber's hands are free when he or she reaches the work position. A safety strap (skid), a lineman's body belt, and/or a lineman's harness constitute WPE.
- **Fall Hazard Analysis (FHA)** — Analysis conducted to identify the integrity of the structure. Identify the fall hazards based on the type of structure and tasks to be performed on given structure, as well as equipment and procedures necessary to control the fall hazards.



## Questions & Answers

1. Does this Best Practice apply to all climbers?

A: This Best Practice applies to all climbers of lattice structures.

2. What type of training is required?

A: Climber training in the selection and use of personal fall arrest systems is imperative. Before the equipment is used, climbers must be trained in the care, use and inspection of the equipment/system. This should include the following: Application limits; WPE, anchorage points, including determination of deceleration distance, and total fall distance to prevent striking a lower level; methods of use, inspection, and storage of the system and rescue procedures.

3. What type of fall protection is required?

A: All equipment identified in the FHA. The FHA must include plans to perform a rescue, as well as identify all rescue equipment to be readily available in the event of an emergency.

4. What are examples of climbing methods and suitable FPE to be used while climbing and working on lattice structure?

A: Full body harness with double (2) lanyards (with proper snap hooks)

- Rebar hooks and belay line with full body harness and double lanyards
- Temporary horizontal lifelines
- Self-retracting lifelines (SRL)
- Double safety's (skids) are acceptable when the safety is rigged such that a climber cannot fall more than two feet
- Vertical lifelines, rope grabs, body harnesses with frontal and dorsal D-rings.

5. What should be considered when selecting and use of anchor points?

A: The supervisor or person in charge of the work being performed will identify what structural members will be used as anchorage points and document those on the FHA.

- An anchor point utilized where the line passes over or around rough or sharp surfaces should be avoided or padded/protected.
- Horizontal lifeline systems may, depending on their geometry and angle of sag, be subjected to greater loads than the impact load imposed by the attached equipment. The use of these methods must be designed by a qualified person.
- The potential free fall distance when using PFAS should be kept to a minimum and shall not be in excess of six feet (1.8 m).



- The location of the anchor point should also consider the hazard of obstructions in the potential fall path of the climber. Consideration should be given to anchor points that minimize the possibilities of exaggerated swinging.

6. What is meant by the Work Positioning System limiting the fall to less than two feet?

A: WPE may be used when rigged such that a climber cannot fall more than two feet.

7. Must I maintain 100% fall protection when I pass over an obstruction or maneuver on lattice structures?

A: Yes, follow your employer's FHA.

8. What is meant by "visual" inspection?

A: All lattice structures shall be carefully inspected before climbing to ensure they are in safe condition for the work to be performed.

1. Verify step bolts are secure and in acceptable conditions.
2. Verify acceptable conditions of footers.
3. Verify steel members are secure on each end before applying or transferring weight.
4. Check for damage or distortion to the structure members.

9. Does fall protection have to be included in the "Pre-Job Briefing"?

A: Yes, fall protection should be planned and discussed during the job briefing. Visually determine the climbing route, review FHA documents, identify all potential hazards, and determine the control measures to be used.

10. Is a Fall Protection System required when transitioning from the lattice structure to and from another device being used on the structure (i.e., spacer buggy, dead end ladder, etc.)?

A: Yes, FPE shall be used continuously when transitioning to and from the structure and while on the devices.

11. Does this include transferring to and from helicopters and aerial lifts?

A: No, to be addressed in a separate best practice.

## APPENDIX A: LATTICE STRUCTURE FALL HAZARD SAFETY ANALYSIS

Safety at Heights Best Practice – Lattice Structures

Supervisor: _____ Qualified Climbers: YES <input type="checkbox"/> NO <input type="checkbox"/> Personnel Trained in use of FP equipment: YES <input type="checkbox"/> NO <input type="checkbox"/> Location / WO# _____	Visual Inspection performed: YES <input type="checkbox"/> NO <input type="checkbox"/> Identified Anchorages: YES <input type="checkbox"/> NO <input type="checkbox"/>
Task Description:	
<p style="text-align: center;">Examples of Lattice Structure Fall Protection Equipment to be available and/or Climbing Methods for consideration:</p> <ul style="list-style-type: none"> <li>Work Positioning Equipment (Harness/Body Belt &amp; Safety)</li> <li><u>PFAS</u>: Retractable Lanyard(s), Full Body Harness with Lanyard, Full Body Harness with Double Lanyard</li> <li>Horizontal Life Line W/PFAS(s), Vertical Life Line w/rope grabs</li> <li>Travel Restriction Equipment</li> <li>Three Points of Contact for Qualified Climbers</li> <li>Guard/Hand Rails, Safety Nets</li> </ul>	

Task Step	Fall Hazard Control Measures
Ascending	
Work Positioning	
Maneuvering	
Descending	
Rescue	