

FESHM 7070: LADDER & SCAFFOLD SAFETY

Revision History

Author	Description of Change	Date
M. Bonkalski	Initial Release. This chapter provides guidance regarding actions needed to use a ladder and assembly and disassembly of scaffolding.	November 2015

TABLE OF CONTENTS

1.0	INTRODUCTION	2
2.0	REFERENCES	2
3.0	DEFINITIONS	2
4.0	RESPONSIBILITIES	3
4.1	Competent Person (Scaffolding)	3
4.2	Ladder Worker	3
4.3	Scaffold Worker	4
4.4	Task Manager/Construction Coordinator/Service Coordinator	4
5.0	LADDER PROGRAM DESCRIPTION	4
5.1	All Ladders	4
5.2	Mobile Ladder Stand and Mobile Ladder Stand Platform	4
5.3	Step Ladder.....	5
5.4	Single and Extension Ladders	5
5.5	Field Constructed Ladders.....	6
5.6	Fixed Ladder.....	6
6.0	SCAFFOLD PROGRAM DESCRIPTION.....	6
6.1	Scaffold Pre-Assembly	6
6.2	Scaffold Assembly	6
6.3	Scaffold Disassembly	7
6.4	Scaffold Recordkeeping	7

1.0 INTRODUCTION

It is the intent of this chapter to provide guidance regarding actions needed to use a ladder and assembly and disassembly of scaffolding. This chapter is not a primer on how to do a safe assembly of scaffolding, standards to follow when assembling and disassembling scaffolding can be found in the Code of Federal Regulations 29 CFR 1926 Subpart L for construction and 29 CFR 1910.28 General Requirements for all Scaffolds. This chapter also excludes suspension scaffolds.

2.0 REFERENCES

- 29 CFR 1910.28, General Requirements for all Scaffolds
- 29 CFR 1926.454, Scaffolds
- American National Standards Institute (ANSI) A.10.8 Safety Requirements for Scaffolding, 2011 Edition.
- American National Standards Institute (ANSI) A14.3 Fixed Ladders, 2008 Edition.
- Fermilab ES&H Manual (FESHM) Chapter 7010, ES&H Program for Construction
- FESHM Chapter 7020, ES&H Program for Subcontractor Safety Other Than Construction
- FESHM Chapter 7060, Fall Protection

3.0 DEFINITIONS

- **Competent Person** – One who is capable of identifying existing and predictable hazards in the surrounding, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- **Construction Coordinator** – A person specifically assigned to oversee the work of a construction subcontract for conformance to the subcontract agreements/documents. Construction Coordinators serve as the primary construction point of the contract between the Subcontractor and the laboratory.
- **Fixed Ladder** – Is a stationary vertical set of rungs to form a ladder mounted permanently to a structure and commonly made of metal. These ladders are primarily used to access roofs or other structures.
- **Portable Ladder** – Is a mobile vertical or inclined set of rungs to form a ladder and commonly made of metal, wood, or fiberglass.
- **Baker Type Scaffold** – Platform that is easily transportable, typically narrow in design and typically has casters for mobility.
- **Ladder Jack Scaffold** – Platform supported by vertical poles and movable supported brackets.
- **Pump Jack Scaffold** – Platform supported by vertical poles and movable support brackets.
- **Suspended Scaffold** – Are platforms suspended by ropes, or other non-rigid means, from an overhead structure.
 - **Single Point Adjustable** – Platform suspended by one rope or other non-rigid means, to permit the platform to move to desire working levels.

- **Two point (swing stage)** – Platform suspended by two ropes or other non-rigid means, to permit the platform to be raised and lowered.
- **Multi-Point Adjustable** – Platform suspended by more than two repos or other non-rigid means, to permit the platform to be raised and lowered.
- **Tube and Coupler Type Scaffold** – Platform(s) supported by tubing, erected with coupling devices connecting uprights, braces, bearers and runners. Casters may be used for mobility.
- **Tubular Welded Frame Scaffold** – Platform system using prefabricated welded sections that serve as posts and horizontal bearers. The deck platform can be built with (stamped) scaffold grade lumber or manufactured deck boards spanning the end-frames.
- **Scaffold Worker** – A person who is qualified to assembly and disassembly scaffolding.
- **Service Coordinator** – The Fermilab point of contact between the subcontractor and the laboratory for specific work related to service subcontracts.
- **Task Manager** – A division/section/center designated individual specifically assigned to oversee and direct a work activity. The Task Manager has primary responsibility for developing hazard assessments for the work, as prescribed by FESHM 2060 – Work Planning and Hazard Analysis. An approved TM .list indicating individual experience and competency to direct specific work activities can be found at: <http://esh.fnal.gov/xmsAudience-Pages/TM-CC-SC>

4.0 RESPONSIBILITIES

Reference FESHM 7010 and 7020 for additional roles and responsibilities.

4.1 Competent Person (Scaffolding)

- Completed the equivalent FN000389/CR/01 Scaffolding training.
- Ensure assigned Scaffold Workers are trained and/or qualified.
- Ensure Scaffold Workers are appropriately briefed and/or authorized.
- Provide Scaffold Workers with the hazard mitigation training associated with the assigned scaffold.
- Plan, select, inspect, and maintain scaffold equipment in accordance with manufacture's specifications.
- Explain the assembly procedure to Scaffold Workers.
- Monitor scaffold assembly.
- Inspect completed scaffold before initial use and daily thereafter.

4.2 Ladder Worker

- Inspect, set-up, use, and store ladders in accordance with manufacturer's instructions and Fermilab's requirements.
- If repair/maintenance is necessary tag the ladder out of service and contact your ESH&Q Liaison
- Placement of ladder in vicinity of exposed or outside overhead electrical power is not permitted without proper LOTO.

4.3 Scaffold Worker

- Obtain authorization for scaffold use from the appointed Competent Person.
- Assembly and disassembly scaffolding in accordance with manufacture's specifications.
- Placement of scaffold in vicinity of overhead electrical power is prohibited.

4.4 Task Manager/Construction Coordinator/Service Coordinator

- Inspect ladders visually. If ladder fails inspection, the ladder must be tagged out immediately and removed from service by locking it out.
- Review and if adequate, accept equivalent training qualifications documentation or train workers in the appropriate scaffold assembly and disassembly.
- Review scaffold safety requirements with workers in area.
- Ensure scaffolding is selected, used, and stored in accordance with manufacture's requirements.

5.0 LADDER PROGRAM DESCRIPTION

5.1 All Ladders

- Only one person on a ladder at a time (except for specially constructed, double-sided, step ladders or mobile ladder stand platforms).
- Face the ladder when ascending or descending (exception: when the slope of the steps on a fixed ladder or mobile ladder stand or platform, is 50 degrees or less above the horizontal).
- Maintain three-points of contact when moving up or down a ladder.
- Use a tool belt or hand line to raise or lower equipment or tools.
- Do not store or hang materials or equipment on/from the steps or platform of a unit.
- Place the ladder close to the work. Do not lean out/over the ladder rails (keep belt buckle area inside the rails).
- Use ladders made from fiberglass or wood if working near electrical hazards.
- Do not exceed the ladder load label rating.
- Do not set-up in front of a door unless the door is clearly blocked off so that personnel cannot open into ladder.
- Closed off for use and signage posted.

5.2 Mobile Ladder Stand and Mobile Ladder Stand Platform

- Secure all lockable wheels and casters before ascending the ladder.
- Only stand on steps or platforms.
- Perform any manufacture recommended inspection procedures.
- All components are free from damage and unusual wear, deterioration, or corrosion. If necessary tighten loose bolts, nuts, or connections; and secure with locking hardware.
- All exposed surfaces are free from sharp edges and burrs.
- Stand and platforms are clear of debris.
- Rubber foot pads are free of wear and tear; and, when under load prevent horizontal movement.
- Wheels or casters lock when under load in a manner sufficient to prevent horizontal movement.

- Non-locking wheels or casters vertically retract when under load allowing the feet to make contact with the ground to prevent horizontal movement.
- Shall met the American National Standard Institute (ANSI) 14.7 Mobile ladder Stands and Mobile Ladder Stand Platforms and shall be heavy duty 250 pounds or greater.

5.3 Step Ladder

- The highest point of use is two steps down from the top unless otherwise indicated on the ladder's identification label. Best practice is the belt buckle should not be above the top step.
- Ensure label is in place and legible indicating duty rating.
- Ensure you can access the work from no higher than two steps from the top of the ladder. (Step ladders, four feet or less in height, may be designed for standing closer to the top. Refer to the manufacturer instructions.)
- Fully expand, and lock supports prior to use. (Do not use folded or propped up against a vertical surface.)
- Use on a level surface, free of debris or obstacles
- Shall met ANSI 14.5 Portable Reinforced Ladders and shall be heavy duty 250 pounds or greater.

5.4 Single and Extension Ladders

- A safety spotter is required until the top of the ladder is securely tied or attached to the structure.
- The highest standing level is four rungs down from the top.
- Ensure the ladder is 7 to 10 feet longer than the highest support or contact point (wall or roof line). This allows for:
 - enough length for proper setup,
 - overlap of ladder sections,
 - height restrictions of the highest standing level, and
 - where appropriate, the extension of the ladder to be above the roof line.
- Shall met ANSI 14.5 Portable Reinforced Ladders and shall be heavy duty 250 pounds or greater.
- Place the base a distance from the vertical wall equal to one-fourth the working length of the ladder plus the horizontal distance of the overhang (eve).
- Ensure that the ladder extends at least three feet beyond the point of support (roof line).
- Tie the ladder off, or otherwise secure it in place. (A second person, or other security measure, is needed to brace the ladder at the base until it can be secured at the top.)

Table 1 - Extension Ladder Setup

Height to Gutter or Top Support Point	Ladder Height	Maximum Reach
9' max.	16'	15'
9' to 13'	20'	19'
13' to 17'	24'	23'
17' to 21'	28'	27'
21' to 25'	32'	31'

Height to Gutter or Top Support Point	Ladder Height	Maximum Reach
25' to 28'	36'	34'
28' to 31'	40'	37'

5.5 Field Constructed Ladders

- Use on a level surface, free of debris or obstacles
- Ensure rungs are secure and cleaned of debris.
- Walk through rails at the top section of the ladder.
- Inspection by competent person at initial use and weekly thereafter.
- Job-made ladders shall comply with 29 CFR 1926.1053.

5.6 Fixed Ladder

- When not in use, secure swing gate, chain, cage, or well-guard.
- Shall met ANSI 14.3 Fixed Ladders

6.0 SCAFFOLD PROGRAM DESCRIPTION

6.1 Scaffold Pre-Assembly

- Competent person will evaluate the work required;
- Inspect the location;
- Determine the type of scaffold and location;
- Develop work plan;
- Includes the qualified scaffold workers;
- Reviews scaffold manufacturer's requirements including toe board on platforms over 6-feet in height;
- Verifies with Fermilab's Fire Department when wood scaffolding is used indoors;
- Conducts a pre-brief job meeting prior to assembling scaffolding.

6.2 Scaffold Assembly

- Competent person conducts a pre-brief job meeting prior to assembling scaffolding;
- Supervises scaffold assembly to ensure standards and regulatory requirements are met;
- Supervises scaffold assembly by qualified workers to ensure standards and regulatory requirements are met;
- As soon as scaffold is self-supporting, inspects the scaffold before being released and attaches at the access point(s) the appropriate tag:
 - Red – DO NOT USE
 - Yellow – SCAFFOLD DOES NOT MEET OSHA REQUIREMENTS. WORKERS MUST USE FALL PROTECTION WHEN WORKING FROM THIS SCAFFOLD
 - Green – SCAFFOLD IS APPROVED FOR USE
- Tags must include scaffold capacity, light duty 25 pounds per square foot, medium duty 50 pounds per square foot, heavy duty 75 pounds per square foot, and special greater than 75 pounds per square foot.
- Providing access either by built-in or attached ladder for workers to access scaffold.

- Provide swing as required.

6.3 Scaffold Disassembly

- Competent person conducts a pre-brief job meeting prior to disassembling scaffolding;
- Supervises scaffold is disassembly to ensure standards and regulatory requirements are met;
- Supervises scaffold is disassembly by qualified workers to ensure standards and regulatory requirements are met;
- Place tag indicating DO NOT USE if scaffold fails inspection;
- Ensures the work site is left in a clean and safe condition.

6.4 Scaffold Recordkeeping

- A scaffold tag must be attached to the scaffold as soon as possible by the scaffold qualified worker responsible for the scaffold. The scaffold tag is required for the duration of scaffold's assembly and disassembly.