

## Stairways and Ladders

### Short description

This section outlines the requirements to effectively protect Centennial employees and subcontractors from the hazards stairways and ladders.

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## Content

1	Objective and area of application.....	3
2	Superior and additional applicable documents.....	3
3	Definitions.....	3
4	Personnel roles and responsibilities.....	4
	4.1 Competent person.....	4
	4.2 Qualified Person.....	5
	4.3 Authorized user.....	5
5	General requirements.....	5
	5.1 Stairways.....	6
	5.1.1 Temporary construction service stairs.....	6
	5.1.2 Stairway inspection.....	6
6	Portable ladders and stilts.....	7
	6.1 Selection of portable ladders.....	7
	6.2 Criteria for portable ladder inspections.....	8
	6.3 Proper use and limitations of portable ladders.....	8
	6.3.1 Extension ladders.....	9
	6.3.2 Step ladders.....	10
	6.3.3 Stilts.....	10
7	Fixed ladders.....	11
8	Job made ladders.....	11
9	Training.....	11
10	Amendment history.....	12
11	Appendix.....	12

## 1 Objective and area of application

The objective of this section is to identify the requirements for Centennial employees and subcontractors working on or near stairways and ladders. Working or accessing stairways and/or ladders can present many hazards to the user and nearby affected personnel. The use of stairways and ladders shall involve performing a comprehensive risk assessment to identify associated activities and hazards that could lead to potential risk to employees, subcontractors or other affected personnel.

This section provides the basic framework for the requirements of the following elements:

- Stairways
- Ladders

This section applies to all Centennial project sites:

- Construction project sites
- Permanent office facilities
- Temporary office facilities

## 2 Superior and additional applicable documents

1000\_GP\_11\_01\_en\_5.0 Global Policy on Health, Safety, Environment/Sustainability and Quality (HSEQ)

ANSI ASC A14.1, 14.2, 14.3, 14.4

29 CFR 1926 Subpart X

This section of the HSEQ Manual applies to all Centennial employees and subcontractors who are performing work in Centennial facilities and project sites. There may be more stringent requirements than this section as defined by specific State, local or contact specific stairway or ladder requirements. If there is a conflict between this section and other applicable regulations, the more stringent will apply.

## 3 Definitions

The following definitions of terms are important for an understanding of this section.

Term	Definition
Centennial	All Centennial employees, joint venture employees, subcontractors and business partners
ANSI	American National Standards Institute
Cleat	A ladder crosspiece of rectangular cross section placed on edge upon which a person may step while ascending or descending a ladder

Competent person	Person who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees and has authority to take prompt corrective measures to eliminate or protect against those hazards
Double-cleat ladder	A ladder similar in construction to a single-cleat ladder, but with a center rail to allow simultaneous two-way traffic for employees ascending or descending
Portable ladder	A ladder that can be readily moved or carried. Not designed for permanent placement
Fixed-ladder	A ladder that cannot be readily moved or carried because it is an integral part of a building or structure
Job-made ladder	A ladder that is not commercially manufactured
Maximum intended load	The total load of all employees, equipment, tools, materials, transmitted loads, and other loads anticipated to be applied to a ladder component at any one time
Point of access	All areas used by employees for work related passage from one area or level to another
Stairway	A passageway from one level, as of a building, to another by a series of stairs; staircase
Handrail	A rail used to provide employees with a handhold for support
Stair-rail system	A vertical barrier erected along the unprotected sides and edges of a stairway to prevent employees from falling to lower levels
RPE	Registered Professional Engineer
Riser height	The vertical distance from the top of a tread to the top of the next higher tread or platform/landing or the distance from the top of a platform/landing to the top of the next higher tread or platform/landing
Qualified person	A person with a recognized degree, professional certificate, or professional standing, or who by extensive knowledge, training and experience has successfully demonstrated the ability to solve or resolve problems related to the subject matter of the work or the project

## **4 Personnel roles and responsibilities**

### **4.1 Competent person**

The competent person shall have the following responsibilities regarding stairways and ladders:

- Report all questionable use of stairways or ladders including hazardous conditions to the Centennial project superintendent and/or PSO
- Initiate stop work procedure if questionable conditions are not correct

- Perform periodic inspections of all portable and/or fixed ladders according to manufacturer's specifications

## **4.2 Qualified person**

The qualified person shall have the following responsibilities regarding the use of stairways and ladders:

- Design criteria of ladders and stairways
- Calculate duty ratings (load rating capacity) of ladders
- Determine appropriate set up and use of ladders

## **4.3 Authorized user**

Authorized users shall have the following responsibilities regarding the use of stairways and ladders:

- Inspect ladders and stairways prior to use
- Report all potential hazards or deficiencies to the Centennial project superintendent and/or PSO and competent person
- Tag defective ladders or stairways as "OUT OF SERVICE" or "DO NOT USE"
- Follow all manufacturer recommendations regarding the use of ladders

Authorized users shall be trained in the following:

- Nature of fall hazards in the work area
- Proper selection, use, placement and care in handling of all stairways and ladders
- Maximum intended load of ladders
- Manufacturer's recommendations and limitations for use of ladders

## **5 General requirements**

The following are general requirements for stairways and ladders used in Centennial facilities or on project sites:

- Ladders shall only be used as a work platform when performing overhead work that cannot be safely performed from floor or ground level or where the use of a lifts or staging is impossible or impractical
- A stairway or ladder shall be provided at all points of access where there is a break in elevation of 19 inches or more and there is not a ramp, runway, embankment or other acceptable means of access provided
- Where there is only one point of access between levels, it must be kept clear to permit free passage by workers. If free passage becomes restricted, a second point of access must be provided and used
- Portable and fixed ladders shall be maintained to prevent injury to personnel from punctures, lacerations or snagging of clothing
- Ladders shall not be painted or coated with material that prevents warning or duty rating labels from being legible

- Portable step ladders and/or extension ladders shall be secured both top and bottom to hold them rigidly in place
- All types of ladders shall be restricted to their intended use as specified by the manufacturer
- Portable ladders shall not be moved, shifted or extended while occupied
- Ladders shall not be climbed by more than one person at a time unless the manufacture permits such use
- Three legged portable ladders are prohibited from use in all Centennial project sites or facilities
- Ladders shall be inspected prior to use and any ladders with defects shall be removed from service and marked as "OUT OF SERVICE" or "DO NOT USE"
- Users shall maintain three (3) points of contact at all times while ascending and descending ladders
- All ladders must be securely placed, held, tied, or otherwise made secure to prevent slipping or falling

## **5.1 Stairways**

All stairways shall be constructed according to OSHA specifications for stair strength, stair width, angle of stairway rise, stair treads, stairway platforms, railings and handrails, and vertical clearance.

All wood parts shall be free from sharp edges and splinters; sound and free from accepted visual inspection from shake, wane, compression, failures, decay or other irregularities. Low density wood shall not be used.

Stairways shall be free from hazardous projections, such as nails, screws, splintered wood, etc., and shall be free of conditions which would cause the stairway to become a slip hazard.

### **5.1.1 Temporary construction service stairs**

Treads for temporary service shall be made of wood or other solid material, and shall be installed the full width and depth of the stair.

Except during stairway construction, foot traffic is prohibited on:

- Stairways with pan stairs where the treads and/or landings shall be filled with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan
- Metal stairs where permanent treads and/or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area

### **5.1.2 Stairway inspection**

The following includes general requirements for Centennial employees or subcontractors who inspect or use stairways on Centennial project sites:

- Stairway parts must be maintained free of dangerous projections such as protruding nails
- Slippery conditions on stairways must be corrected
- Spiral stairways that will not be a permanent part of the structure may not be used by workers

- Metal pan landings and metal pan treads must be secured in place before filling
- Temporary treads must be made of wood or other solid material and installed the full width and depth of the stair or landing
- Stairways having four or more risers, or rising more than 30 inches in height must have at least one handrail. A stair rail also must be installed along each unprotected side or edge
- Handrails and the top rails of stair rail systems must be capable of withstanding at least 200 pounds of side impact force

## 6 Portable ladders and stilts

All portable ladders used in Centennial facilities or project sites must be constructed and used in accordance with OSHA regulations and ANSI standards. All commercially manufactured ladders must have a visible and legible ANSI duty rating of Class IAA, IA, or I.

Type II, III and type IV ladders are not rated as heavy duty and are prohibited from use on all Centennial project sites. When selecting a ladder, the user must consider the proper duty rating, ladder type and length to safely accommodate the combined weight of the user and material.

This section provides guidance for the following:

- Selection of ladders for use/task
- Criteria for portable ladder inspections
- Proper use and limitations of portable ladders
  - Extension ladders
  - Step ladders
  - Stilts

ANSI Duty rating classes for manufactured portable ladders are as follows:

LOAD CAPACITY	DESCRIPTION	ANSI CODE / CLASS
200 lbs.	Household – Light Duty	Type III (not permitted)
225 lbs.	Medium Duty	Type II (not permitted)
250 lbs.	Heavy Duty	Type I
300 lbs.	Heavy Duty	Type IA
375 lbs.	Heavy Duty	Type IAA

### 6.1 Selection of portable ladders

Selecting the right ladder for the job is critical in reducing the risks associated with ladder use. Using the incorrect ladder is dangerous as it often leads to ladder misuse and can result in increased risk and present additional or increased hazards. Selecting the proper ladder for the task involves understanding what the task is and what the potential hazards associated with the task include.

Specific items that shall be evaluated when selecting a ladder for a task include:

- The work area and specific conditions that require the use of a ladder
- The potential risks that are involved in the task
- The presence of electrical exposures
- The duty rating of the ladder and the maximum intended load that will be imposed on the ladder
- The conditions of the ladder resting surface or other obstacles that may create additional risk
- The height of the task from the lower level and the ability of the ladder to allow the user to reach the required height

## **6.2 Criteria for portable ladder inspections**

Prior to use, Centennial employees and subcontractors shall inspect all portable ladders using an acceptable inspection checklist. Any defective ladder shall be tagged out of service and removed from service in accordance with section 5 of this section.

The following items shall be inspected during visual inspections:

- Ladders will be inspected for broken or missing rungs or cleats, broken side rails, and other damaged parts
- Ladder cleats, rungs, and side rails shall be inspected for grease, oil, paint or other slippery substances
- Tightness of joints between steps and side rails
- Hardware and fittings
- Movable parts and their operation(s)
- Decay or other irregularities
- Sharp edges, burrs and/or corrosion
- Dents or bends in side rails, rungs or cleats
- Side rail connections, hardware connections and rivets
- Decals such as:
  - Duty rating
  - Warning labels
  - Manufacturer instructions for use

Ladders shall be stored in areas free of known hazards, protected from the weather and or corrosive elements, where they can be inspected easily, and can be reached without causing an incident. Unless ladders are stored in a supported, designed ladder storage system, they shall be laid down onto the side rail at ground level to prevent a tipping hazard.

## **6.3 Proper use and limitations of portable ladders**

The following includes general requirements for Centennial employees or subcontractors who use portable ladders:

- All portable ladders shall be of sufficient length so that personnel will not stretch or assume hazardous or awkward positions
- The ladder user shall not carry any object or load that could cause the user to lose his or her balance and fall



- The length of portable ladders shall not exceed 20 feet
- All portable ladders used for electrical work (or potential electrical exposure) shall be made from a non-power-conducting material (dielectric)
- Ladders shall only be used for their intended purpose and not for platforms or as walk-boards
- Ladders shall be visually inspected before each use and after any occurrence which could affect their safe use
- Ladders which are damaged shall not be used and must be tagged: "Out of Service".
- Rungs shall be kept free of grease and oil
- Ladders shall be equipped with non-slip bases when the ladder is placed on a slippery surface and there is a hazard of slipping
- Ladders shall not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded
- Ladders shall not be placed on boxes, barrels, or other unstable bases or spliced together to obtain additional height
- Ladders shall not be moved, shifted, or extended while occupied
- The tops of ladders (unless using a stepladder) shall rest against a solid, fixed surface and be prevented from shifting or displacement by securing both top and bottom
- The climber shall face the ladder at all times
- When used to access an upper landing surface, the ladder side rails shall extend at least three (3) feet above the upper landing surface
- When setting up non-self-supporting ladders, the base of the ladder shall be placed at a distance from the wall that is equal to  $\frac{1}{4}$  of the height that the ladder is extended

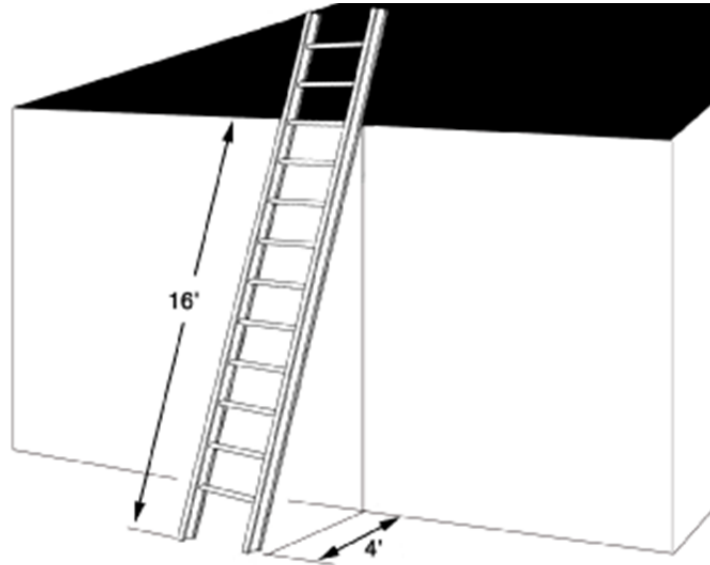
Portable ladders shall not be:

- Used in a horizontal position as platforms, runways, or scaffolds
- Placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded and signs are posted
- Placed on boxes, barrels, or other unstable bases to obtain additional height
- Tied or fastened together to provide longer sections

### 6.3.1 Extension ladders

The following guidelines apply to the use of all portable extension ladders:

- Must be secured at the top and bottom to prevent movement / displacement.
- Must be used on level firm foundation
- Both automatic locks are to be in the proper position and fully locked before ascending the ladder
- Users must maintain three (3) points of contact at all times while climbing, working, and descending from extension ladders
- The top of the extension ladder must extend 36" past the elevated work surface, roof, or platform to which access is being provided. See the following diagram
- Extension ladders must be erected with the base one quarter of the working length of the ladder from the wall or structure (75 degree angle). See the following diagram
- The top of the ladder must be placed with the two rails supported, unless equipped with a single support attachment
- Ladder sections may not be separated and used as individual ladders



### 6.3.2 Step ladders

The following procedures apply to the use of portable stepladders:

- Step ladders must be used on a level firm foundation
- Users may use two points of contact when working from the step ladder
- The top 2 (two) steps of the step ladder may not be used, do not stand or sit on the top 2 steps of step ladders
- Bracing on the back legs of step ladders is designed solely for increasing stability and not for climbing (unless specifically manufactured for that purpose)
- Step ladders must be used in the fully open position with spreader arms fully locked
- Step ladders may never be used closed and leaning against a wall or another structure

### 6.3.3 Stilts

The following procedures provide health and safety information to centennial employees and or subcontractors using stilts to perform work duties.

Potential hazards from the use of stilts include:

- Losing one's balance and falling or tipping
- Falling off or over balconies and handrail or through windows / wall openings
- Tripping over debris, materials or tools on the floor, or falling on slippery surfaces
- Falling over while entering a different level or going through doorways
- Manual handling injuries caused by bending over or twisting from the stilts

Before using stilts to complete work tasks, employees must identify and evaluate all potential hazards such as changes in the level or slope of the work area, guardrails that are next to edges, walls, doors or ceiling, floor penetrations, stairwells, voids, windows and adequate housekeeping. Housekeeping will be in compliance with HSEQ Manual Section 12 (Housekeeping, Sanitation and Environmental Control).

Stilts shall only be used for light duty tasks. A safe means of attaching and removing the stilts shall be readily available. For example, a rigid platform shall be used for mounting / dismounting

stilts. The platform shall be at a height equal to or slightly greater than the height of the stilts. Do not use step ladders for mounting / dismounting stilts.

Follow all manufacturer specifications when using stilts as well as when performing maintenance and inspections on the stilts. All tools and equipment including stilts and their components must be examined regularly and any worn or damaged components will be replaced immediately. If replacing damaged parts immediately is not possible the stilts shall be placed and tagged out of service with a 'Danger – Do Not Use' tag. Stilts must be stored, serviced and maintained by a competent person as per the manufacturer's specifications.

## **7 Fixed ladders**

Fixed ladders shall be, at a minimum, provided according to the standards outlined in OSHA 29 CFR 1926 subpart X for design, clearance, and pitch. Fixed ladders shall be designed by a Qualified Person. The following requirements apply to the use / design of fixed ladders:

Fixed ladders shall be equipped with one of the following protective systems, when the total length of the climb equals or exceeds 24 feet:

- Ladder safety device / ladder climbing device (LCD)
- Self-retracting lifeline and rest platforms every 150 feet or less
- A cage or well and multiple ladders sections every 50 feet or less with landing platforms

If a Centennial employee or subcontractor is required to access and/or complete his or her work while positioned on the fixed ladder, he or she shall utilize a work positioning device. This will require the use of a full body harness. Use of a fall positioning system requires the submission and approval of a Centennial Fall Protection Work Plan Template in accordance with HSEQ Manual Section 20 (Fall Protection).

## **8 Job made ladders**

The assembly, use, and disassembly of job made ladders shall be under the direction of a Qualified Person (RPE).

## **9 Training**

Centennial employees and subcontractors who use or inspect portable ladders or stairways shall be trained by a competent person in the following areas:

- The nature of fall hazards in the work area resulting from the use of a stairway or ladder
- The procedures for erecting, maintaining, and disassembling the ladder or stairway
- The proper construction, use, placement, and care in handling of all stairways and ladders
- The maximum intended load-carrying capacities of ladders
- The criteria for inspecting stairways and/or ladders
- Limitations in the use of stairways and/or ladders

Documentation of this training should be available as required.

Retraining is required when:

- Changes in the workplace render previous training incomplete or obsolete
- Changes in the types of ladders or equipment to be used render previous training incomplete or obsolete
- Inadequacies in an employee's knowledge or use of stairways or ladders indicate that the employee or subcontractor has not retained the requisite understanding or skill

## 10 Amendment history

Date	Version	Revised content
17.04.2014	1.0	Initial Preparation
01.01.2018	2.0	Updates to Paragraph 2 Superior Documents to add the Group Policy and Global Standards, Paragraph 3 Definitions (Centennial), Paragraph 6.2 Criteria for portable ladder inspections (removed Appendix 1), Paragraph 6.3 Proper use and limitations of portable ladders (facing the ladder), Paragraph 6.3.1 Extension ladders (separation) and Paragraph 9 Training (documentation).

## 11 Appendix

There are no appendices to this section.