

GEORGIA INSTITUTE OF TECHNOLOGY

ENVIRONMENTAL HEALTH AND SAFETY

LADDER SAFETY PROCEDURE

PURPOSE

The purpose of this program is to establish the minimum requirements for the safe and proper use of ladders (including wooden, metal, and fiberglass ladders) and the minimum requirements for the care and use of portable and fixed ladders in order to ensure safety under normal conditions of use at Georgia Tech.

SCOPE

This program is inclusive of Georgia Tech employees, including faculty, staff, and student employees, who are required to use ladders to perform any work activities.

RESPONSIBILITIES

Environmental Health and Safety (EHS)

- Providing ladder safety training to affected employees
- Providing technical support and consultation to departments of affected employees to interpret requirements and establish safe practices
- Maintaining training records

Managers/Supervisors

- Providing the proper type, rated, and ANSI-compliant ladders for employees, students, and faculty
- Conducting ladder inspections
- Contacting EHS for technical support when questions arise regarding compliance and safe procedures
- Ensuring that proper safety equipment is supplied to their affected employees where needed
- Ensuring that employees attend all required training
- Ensuring that designated employees perform documented portable ladder inspections
- Informing EHS when refresher Ladder Safety Training is needed

Employees

- All employees are responsible for ensuring all ladders used meet OSHA regulations and are ANSI compliant;
- Comply with the manufactures instructions
- Reporting damaged ladders and tagging them out of service
- Conduct visual inspections of ladders before each use
- Document ladder inspections annually
- Notify their supervisor when questions arise surrounding safe procedures, the need for safety equipment, and difficulties complying with these requirements

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Contractors

- Contractors working on campus are required to comply with all applicable OSHA workplace safety regulations
- Contractors should not use GT ladders

PORTABLE LADDERS

All ladders at Georgia Tech must be constructed and used in accordance with OSHA regulations and ANSI standards. All commercially manufactured ladders must have a label indicating it meets the requirements of the ANSI standard. 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.

General Requirements

- Ladders are only to 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 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 cannot be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded
- Ladders cannot 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) must rest against a solid, fixed surface;
- When ascending or descending, the climber must face the ladder
- When used to access an upper landing surface, the ladder side rails must extend at least three (3) feet above the upper landing surface
- When setting up non-self supporting ladders, the base of the ladder should be placed at a distance from the wall that is equal to $\frac{1}{4}$ of the height that the ladder is extended (i.e., a ladder that is extended twenty (20) ft high should have its base approximately five (5) ft from the wall)

STEPLADDERS

The bracing on the back legs of stepladders is designed solely for increasing stability and cannot be used for climbing

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A metal spreader or locking device of sufficient size and strength to securely hold the ladder in the open position shall be a component of each stepladder. The spreader shall have all sharp points or edges covered or removed

The tops two steps of a step ladder are not to be used for standing/stepping

Stepladder selection and use must be in accordance with the following rating:

LADDER TYPE	DUTY RATING	LOAD CAPACITY	TYPICAL USE
Type IAA	Special Duty	375 pounds	3 ft – 20 ft for heavy duty, such as utilities, contractors, and industrial use
Type IA	Extra Heavy Duty	300 pounds	3ft - 20ft for heavy duty, such as utilities, contractors, and industrial use
Type I	Heavy Duty (Industrial)	250 pounds	3ft – 20ft for heavy duty, such as utilities, contractors, and industrial use
Type II	Medium Duty (Commercial)	225 pounds	3ft – 12ft for medium duty, such as painters, office and light industrial use
<i>Type III</i>	<i>Light Duty (Household)</i>	<i>200 pounds</i>	<i>3ft – 6ft for light duty, such as light household use</i>

SINGLE LADDERS

Single ladders and individual sections of ladders shall not exceed thirty (30 ft) in length.

EXTENSION LADDERS

Two-section extension ladders must not exceed forty-eight (48) ft in length

Extension ladders with more than two-sections must not exceed sixty (60) ft in length

When employees are on extension ladders at heights of 20 feet or higher, either a second person is present to steady the ladders base or the top of the ladder is effectively tied off to a sound anchor point

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On two-section extension ladders, the minimum overlap for the two sections in use shall be as follows:

Size of Ladder (Overlap by ft.)

Up to and including 36 ft	Overlap by 3 ft
Over 36 ft, up to and including 48 ft	Overlap by 4 ft
Over 48 ft, up to and including 60 ft	Overlap by 5 ft

Special Ladders / Restrictions

TYPE OF LADDER	RESTRICTION
Trestle, extension or base sections of extension trestle ladders	Equal to or less than 20 ft
Painter's stepladders	Equal to or less than 12 ft
Mason's ladders	Equal to or less than 40 ft
Trolley	Equal to or less than 20 ft
Side-Rolling Ladders	

FIXED LADDERS

All fixed ladders greater than 20 ft. in length are required to be equipped with cages. When the length exceeds 30 ft. in unbroken length, rest platforms or ladder landings are required.

Requirements

- Fixed ladders must be able to support a minimum load of 200 pounds
- Fixed ladders must be secured to the object to which they are attached
- All ladders shall be maintained in a safe condition
- All ladders shall be inspected before each use
- Annual inspections must be documented
- Defects in fixed ladders must be repaired as soon as possible
- When a defect is not repairable, the ladder must be tagged as out of service
- Rungs, cleats, and steps shall be free of splinters, sharp edges, burrs or projections which may be a hazard
- The rungs of an individual-rung ladder shall be so designed that an employee's foot cannot slide off the end

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- The preferred pitch of fixed ladders shall be considered to come in the range of 75° and 90° with the horizontal
- Ladders having a pitch in excess of 90° with the horizontal are prohibited

Requirements for Cages and Wells

- Cages or wells shall be provided on ladders of 20 feet to a maximum unbroken length of 30 feet;
- Cages shall extend a minimum of 42 inches above the top of landing, unless other acceptable protection is provided
- Cages shall extend down the ladder to a point not less than seven (7) feet nor more than eight (8) feet above the base of the ladder, with bottom flared not less than four (4) inches, or portion of cage opposite ladder shall be carried to the base

Requirements for Landing Platforms

- When ladders are used to ascend to heights exceeding 20 feet (except on chimneys), landing platforms shall be provided for each 30 feet of height, except where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet of height
- Where a person has to step a distance greater than 12 inches from the centerline of the rung of a ladder to the nearest edge of structure or equipment, a landing platform shall be provided. The minimum step-across distance shall be 2 ½ inches
- All landing platforms shall be equipped with standard railings and toe boards
- Platforms shall not be less than 24 inches in width and 30 inches in length

SAFE USE OF LADDERS ON OR AROUND ELECTRICAL EQUIPMENT

Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contact when work is performed near or on equipment or circuits which may be energized.

The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards. Further information is found in OSHA 29 CFR 1910.333. Metallic or metal type ladders **shall NOT** be used around electrical energy, components and sources. Only fiberglass or wood ladders shall be used around electrical sources.

MAINTENANCE REQUIREMENTS

Portable and fixed ladders with structural defects must be withdrawn from service until repaired. Ladders are considered withdrawn from use when they are immediately tagged with “Do Not Use” or marked in a manner that identifies them as defective.

Ladder repairs must restore the ladder to a condition meeting its original design criteria before the ladder is returned to service.

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All ladder repairs must be made by a qualified person trained and familiar with the design and proper procedures for making repairs.

INSPECTIONS

Documented ladder inspections will be conducted by the department/shop possessing the ladder on an annual basis. When conducting ladder inspections ensure that:

- All side rails are free of dents or bends
- All step-to-side rail connections are intact
- All rivets are in good condition
- All hardware connections are intact
- The stepping surfaces are free of oil, grease or other slippery substances

Note:

A ladder must be inspected immediately whenever tipped over or after an occurrence that affects its safe use

Examine each ladder for signs of damage, deterioration and other indications of excessive wear prior to each use

TRAINING and RECORDS

Ladder Safety training offered through Georgia Tech EHS

EHS will maintain training records

RECORD KEEPING

Training records are retained by EHS

REFERENCES

OSHA Walking-Working Surfaces Portable and Fixed Ladders 29 CFR 1910.25-27; Subpart D.

OSHA 2003 Walking and Working Surfaces; Personal Protective Equipment (Fall Protection Systems) Proposed Rule.

OSHA Electrical Standard- Selection and Use of Work Practices 29 CFR 1910.333