

BUILDING CONSTRUCTION AND MAINTENANCE

A=cross-sectional area of timber in square inches

L=unbraced length of timber in inches

D=least cross-sectional dimension of timber in inches

Shores or braces should be set at an angle not greater than 30 degrees from the horizontal. For excavations more than 16 ft deep or where heavy lateral pressures are encountered, interlocking steel sheet piling is recommended.

Ladders

Construction of all ladders should conform to the provisions of state and local ordinances, if any, and the applicable ladder safety code.* Special-use climbing equipment, such as the combination stepladder-work platform shown in Fig 15-8, also

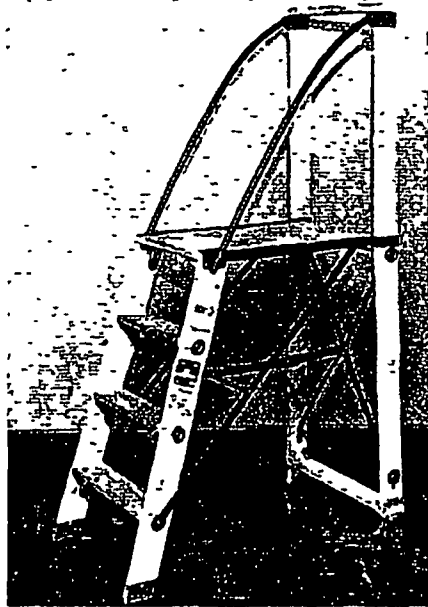


Fig 15-8. Combination stepladder-work platform equipped with casters for easy moving. Front casters are spring-loaded to allow rubber feet to be depressed to floor and hold device in place when mounted by worker.

should be constructed to comply with the applicable codes.

Ladder materials

Wood for ladder construction should be straight-grained, thoroughly seasoned, free from large checks, shakes, decay, or injurious knots. Detailed requirements are listed in the wood ladder code. This code establishes minimum requirements for ladder construction, but indicates that certain conditions of use may necessitate somewhat more substantial construction. Metal ladders should be of adequate strength and rigidity also. There is no standard yet developed for glass fiber ladders, so the provisions of American Standard A14 2, *Metal Ladders*, should be applied.

Some provisions from the code for wood ladders are as follows: (1) Side rails may be constructed of West Coast hemlock, Eastern spruce, Sitka spruce, or other woods in sizes that give equivalent strength. Wood side rails should be dressed on all sides and should be free from sharp edges and splinters.

(2) Each step, whether a rung, tread, or cleat, should conform to the minimum dimensions and specifications given in the code.

(3) Wood rungs should be constructed of white ash or equivalent hardwood. Neither Douglas fir nor Southern yellow pine should be used for rungs.

(4) Wood treads should be constructed of spruce or equivalent as indicated in the wood ladder code.

(5) Metal parts or fittings should be of steel, wrought iron, malleable cast iron, or equivalent metal adequate in strength for the purpose intended and should be properly coated and protected so as to be rust resistant.

Types of ladders

Single ladders should not be over 30 ft long. Portable single ladders should be built with spread side rails, with the width

*American Standards Association, 10 East 40th St., New York City. *Safety Code for Portable Wood Ladders*, A14 1; *Safety Code for Portable Metal Ladders*, A14 2, and *Safety Code for Fixed Ladders*, A14 3.