

Chapter Ind 52

GENERAL REQUIREMENTS

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**Ind 52.001 Design and supervision.** (1) Every new building containing more than 50,000 cubic feet total volume, or addition to a building which by reason of such addition results in a building containing over 50,000 cubic feet total volume, or structural alteration to a building containing over 50,000 cubic feet total volume shall be designed by an architect or engineer in accordance with the provisions of this code; and shall be constructed under the supervision of an architect or engineer who shall be responsible for its erection in accordance with the plans and specifications of the designer. No change from the original plans and specifications shall be made except with the knowledge and consent of the designer, and as provided in Wis. Adm. Code section Ind 50.10. ✓

(2) On completion of the construction, the supervising architect or engineer shall file a written statement with the department of industry, labor and human relations certifying that, to the best of his knowledge and belief, the construction has been performed in accordance with the plans and specifications approved by the department.

(3) No owner shall construct or alter any building, or portion of a building, or permit any building to be constructed or altered, except in accordance with the provisions of this section.

*Note:* By the term "architect" or "engineer" above is meant "registered architect" or "registered professional engineer", as defined in the Architects and Professional Engineers Registration Act, Section 101.31, Wis. Stats.

**History:** 1-2-56; cr. (2) Register, August, 1957, No. 20, eff. 9-1-57.

**Ind 52.01. History:** 1-2-56; am. (5) Register, February, 1971, No. 182, eff. 7-1-71; r. and recr. (5) eff. 8-1-71 and exp. 1-1-72; cr. (5) eff. 1-1-72, Register, July, 1971, No. 187; r. Register, June, 1972, No. 198, eff. 1-1-73.

**Ind 52.02 Windows.** (1) Every room in which one or more persons

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live, sleep, or are employed (except storage rooms or other rooms where the nature of the occupancy will not permit) shall be lighted by a window or windows opening directly upon a street or alley, or upon a court on the same lot with the building. The windows shall be so constructed and distributed as to afford light. Every building more than 40 feet deep (measuring at right angles to the windows) shall have windows on at least 2 sides.

**Note:** For windows and other outdoor openings used for natural ventilation, see Ind 59.24 (4) and Ind 57.19.

(a) The provisions for (1) may be waived for such occupancies as factory, office, mercantile, or educational facilities if provisions are made for artificial lighting as covered by Wis. Adm. Code Chapter Ind 19, Illumination.

1. Requirements applicable to schools or places of instruction shall be as stated in section Ind 56.05.

(2) Every building more than one story in height which does not have windows opening directly upon a street in each story above the first shall be provided with a suitable access for fire department use. Such access shall be a window or door opening through the wall on each floor above the first story. The opening shall be at least 36 inches in width and not less than 48 inches in height with the sill not more than 32 inches above the floor. The openings shall be so spaced that there will be one opening in each 100 feet of wall length in any accessible wall of the building. This requirement for access openings for fire department use shall not apply where a building is equipped throughout with an automatic sprinkler system approved for fire protection purposes.

**History:** 1-2-56; a.m. Register, December, 1962, No. 84, eff. 1-1-63; r. and recr. (1) (a), Register, October, 1967, No. 142, eff. 11-1-67; a.m. (1) (a), Register, May, 1971, No. 185, eff. 6-1-71; r. and recr., Register, September, 1973, No. 213, eff. 10-1-73.

**Ind 52.03 Window cleaning.** (1) Where the tops of windows to be cleaned are more than 20 feet above the floor, ground, flat roof, balcony, or permanent platform, one of the following means shall be provided to protect the window cleaners.

(a) Approved attachments for window cleaner safety belts to which belts may be fastened at each end. Said attachments shall be permanent devices that shall be firmly attached to the window frame, or to the building proper, and so designed that a standard safety belt may be attached thereto; or

(b) An approved portable platform that is projected through the window or supported from the ground, floor, roof or platform level, for the window cleaner to stand upon and that is designed, constructed, maintained and equipped with handrail and toeboard in compliance with the requirements of chapter Ind 1, rules on Safety.

(c) A suspended scaffold, swinging scaffold, swinging chair scaffold, or boatswain's chair scaffold designed, constructed, equipped and maintained in compliance with the requirements of Wis. Adm. Code chapter Ind 35, rules on Safety in Construction, or

(d) Other equally effective devices.

(e) Where the window consists of a fixed panel not more than 24 inches in width alongside a removable panel, the fixed panel may be

(2) **STRUCTURAL GLUED-LAMINATED TIMBER.** Structural glued-laminated timber is an engineered, stress-rated product of a timber laminating plant comprising assemblies of specially selected and prepared wood laminations securely bonded together with adhesives. The grain of all laminations is approximately parallel longitudinally. The following standards are adopted as part of this building code for the design and production of structural glued-laminated timber, except that the modification of design stresses for duration of load shall be as specified in Ind 53.61 (1) (a) 1. c. ✓

(3) **ROUND POLES.** Allowable unit stresses for nongraded round poles used as structural members other than piling shall be 80 percent of the allowable unit stresses for select structural grade beams and stringers (19 percent moisture content) of the appropriate species as listed in Table 1, supplement to the National Design Specification for Stress Grade Lumber and Its Fastenings [Ind 51.27 (8)]. ✓  
No obviously unsound load-bearing poles are to be used. Higher allowable stresses will be permitted for round poles graded in accordance with a recognized standard.

**Note:** ASTM designation D 3200-73 "Standard Specification and Methods for Establishing Recommended Design Stresses for Round Timber Construction Poles" is acceptable for graded round poles. ANSI Standard 05.1-1972 may be used for poles subject to transverse loads only.

(4) **PILING.** See section Ind 53.24. ✓

(5) **PLYWOOD.** (a) *General.* The quality and design of all plywood used in construction of all buildings and structures shall conform to the minimum standards under this section. All plywood when used structurally, including among others, use for siding, roof and wall sheathing, subflooring, diaphragms, and built-up members, shall conform to the performance standards for its type in U.S. Product Standard PS 1 [Ind 51.27 (11)] ✓ for softwood plywood/construction and industrial. Each panel or member shall be identified for grade and glue type by the trademarks of an approved testing and grading agency. In addition, all plywood when permanently exposed in outdoor applications shall be of exterior type.

**Note:** It will be the policy of the department to approve designs in conformance with the following: (1) "Plywood Design Specification," including Supplement No. 1, "Design of Plywood Curved Panels"; Supplement No. 2, "Design of Plywood Beams"; Supplement No. 3, "Design of Flat Plywood Stressed-Skin Panels"; and Supplement No. 4, "Design of Flat Plywood Sandwich Panels"; (2) "Plywood Diaphragm Construction"; (3) Laboratory Report 121, "Plywood Folded Plate Design and Details"; (4) Laboratory Report 93, "Load-Bearing Plywood Sandwich Panels"; and (5) "Fabrication Specifications Plywood-Lumber Components: CP-3, BB-3, SS-3, SP-61, FF-62, PW-61" (above publications available from the American Plywood Association, 1119 A Street, Tacoma, Washington 98401); (6) Design Guide HP-SG-71, "Structural Design Guide for Hardwood Plywood" (available from the Hardwood Plywood Manufacturers Association, 2310 South Walter Reed Drive, Arlington, Virginia 22206).

(b) No part of any of the above referenced standards shall supersede the general live load requirements of section Ind 53.11. ✓

(6) **RECONSTITUTED WOOD BASE-FIBER AND PARTICLE PANEL MATERIALS.** Materials of this type, when used structurally, shall be approved by the department in accordance with the requirements of section Ind 50.12. Evaluation will be based on ASTM D 1037 [Ind 51.25 (44)]. ✓

(7) **SOLID WOOD FLOOR AND ROOF SHEATHING.** Minimum thickness of nonstress rated lumber used for floor and roof sheathing shall be in accordance with Table 53-XVI.

**TABLE 53-XVI**  
**MINIMUM NET THICKNESS OF LUMBER PLACED (INCHES)**

Use	Span (Inches)	Perpendicular to Support		Diagonal to Support	
		Surfaced Dry†	Surfaced Unseasoned	Surfaced Dry†	Surfaced Unseasoned
Floors.....	24 16	3/4 5/8	25/32 11/16	3/4 5/8	25/32 11/16
Roofs.....	24	5/8	11/16	3/4	25/32

† Maximum 19% moisture content.

(a) The above dimensions shall be the minimum dimensions for lumber with grades as specified in Table 53-XVII.

**TABLE 53-XVII**  
**MINIMUM BOARD GRADES†**

Grading Agency	Solid Floor or Roof Sheathing	Spaced Roof Sheathing
West Coast Lumber Inspection Bureau.....	Utility	Standard
Western Wood Products Association.....	4 Common or Utility	3 Common or Standard
Southern Pine Inspection Bureau.....	No. 3	No. 2
Redwood Inspection Service.....	Merchantabl	Construction, common
National Lumber Grades Authority.....	4 Common or Utility	3 Common or Standard
Northern Hardwood and Pine Manufac- turers Association.....	4 Common	3 Common
Northeastern Lumber Manufacturers Association.....	4 Common	3 Common

† The above grades are taken from grading rules approved by the American Lumber Standards Committee.

(8) **TIMBER FASTENERS.** The design and use of timber fasteners shall be in accordance with the requirements of National Design Specifications for Stress-Grade Lumber and Its Fastenings [Ind 51.27 (8)]. ✓

(a) *Fastener identification.* Light gauge perforated metal plate connectors shall be permanently identifiable with regard to their gauge and manufacturer.

**History:** Cr. Register, July, 1974, No. 223, eff. 1-1-75; am. (2), Register December, 1974, No. 228, eff. 1-1-75.

**Ind 53.62 Special systems.** (1) **WOOD TRUSSES.** Wood trusses shall be constructed in accordance with the following recommended standard and the listed exceptions:

(a) "Design Specifications for Light Metal Plate Connected Trusses" [Ind 51.27 (10)]. ✓

1. Exceptions and additions:

a. Section 301.2. Moment coefficients used in design of top or bottom chord members shall be based on the assumption of no fixity at member ends or joints due to plate connectors.