CR 90-233

RULES CERTIFICATE

STATE OF WISCONSIN)
) SS
DEPT. OF INDUSTRY,)
LABOR & HUMAN RELATIONS)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Carol Skornicka, Secretary of the Department of Industry, Labor and Human Relation, and custodian of the official records of said department, do hereby certify the the annexed rule(s) relating to the uniform dwelling code (Subject) were duly approved and adopted by this department on January 8, 1992 (Date).

I further certify that said copy has been compared by me with the original on file in the department and that the same is a true copy thereof, and of the whole of such original.

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Revisor of Statutes Bureau

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the department at 9:00 a.m. in the city of Madison, this 8th day of January A.D. 19 92.

Carol Skornicka
Secretary

ADM-6056 (R.10/89)

3-1-92

ORDER OF ADOPTION

Pursuant to authority vested n the Department of Industry, Labor and Human Relations by section(s)

101.02 (1), 101.19 (1), 101.63 (1), 101.64 (3), and 101.73 (1) to (3),

Stats., the Department of Industry, Labor and Human Relations [X] creates; [X] amends;

[X] repeals and recreates; [X] repeals and adopts rules of Wisconsin Administrative Code chapter(s):

ILHR 20-25 (Number) Uniform Dwelling Code (Title)

The attached rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register pursuant to section 227.22, Stats.

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Revisor of Statutes Bureau

Adopted at Madison, Wisconsin this

date: January 8, 1992

DEPARTMENT OF INDUSTRY, LABOR AND HUMAN RELATIONS

Secretary

State of Wisconsin \ Department of Industry, Labor and Human Relations

RULES in FINAL DRAFT FORM

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Rule No.: Chapters ILHR 20-25, 82 and Ind 69

Relating to: Uniform Dwelling Code, Plumbing and Fees

* *

The Wisconsin Department of Industry Labor and Human Relations proposes an order to repeal ILHR 20.10 (1)(b) 2. e., ILHR 21.18 (2)(c), Table 21.21, ILHR 21.29 (9) Note, ILHR 22.06 (2) to (8), ILHR 22.21, ILHR 22.22 (2), ILHR 23.15 (2)(c), ILHR 23.15 (2)(f), ILHR 23.155 (2), and ILHR 23.16 (1)(b);

to renumber ILHR 20.10 (1)(b) 2. f., ILHR 20.10 (1)(b) 3., ILHR 20.10 (3), ILHR 21.08 (5)(b), ILHR 21.09, ILHR 21.10 (3) (intro.), ILHR 21.11 (1)(c), ILHR 21.18 (2)(d) and (e), ILHR 22.06 (10), ILHR 22.20 (1) to (4), ILHR 22.22 (1), ILHR 22.23, ILHR 23.15 (2)(e), ILHR 23.15 (2)(g) and (h), ILHR 23.155 (1)(a) to (c), and ILHR 23.16 (1)(c);

to renumber and amend ILHR 21.08 (5)(c), ILHR 21.11 (1)(b), ILHR 22.06 (9), ILHR 23.15 (2)(f), and ILHR 23.155 (1) (intro.);

to amend ILHR 20.01, ILHR 20.04 (1), ILHR 20.07 (16), ILHR 20.07 (34m), ILHR 20.07 (40), ILHR 20.07(52), ILHR 20.09 (3)(a), ILHR 20.09 (4)(a) 2., ILHR 20.22 (3), ILHR 20.24 (intro.), ILHR 20.24 (1), ILHR 20.24 (2), ILHR 20.24 (2k), ILHR 20.24 (2m), ILHR 20.24 (2p), ILHR 20.24 (2s), ILHR 20.24 (3m), ILHR 20.24 (4), ILHR 20.24 (5), ILHR 21.02 (1)(d) Note, ILHR 21.03 (3), ILHR 21.03 (7), ILHR 21.04 (1)(a), ILHR 21.04 (2)(a), ILHR 21.04 (2)(c) 2., ILHR 21.04 (3)(a), ILHR 21.045 (3), ILHR 21.05 (2)(a), ILHR 21.05 (4), ILHR 21.05 (5), ILHR 21.07, ILHR 21.08 (2), ILHR 21.08 (4), ILHR 21.08 (5)(a), ILHR 21.10 (1)(f), ILHR 21.11 (1)(a)(title), ILHR 21.18 (intro.), ILHR 21.18 (2)(b), Table 21.18-D, ILHR 21.18 (3)(b), ILHR 21.19, ILHR 21.22 (2)(title), (4) and (5), ILHR 21.22 (6)(a), ILHR 21.22 (6)(b), ILHR 21.22 (9), ILHR 21.25 (3)(a), ILHR 21.25 (6), Table 21.25-D Note, ILHR 21.26 (6)(b), ILHR 21.27 (3)(a), ILHR 21.28 (1), ILHR 21.28 (5)(title) and (6), ILHR 21.29 (intro.), ILHR 21.29 (12), ILHR 21.30 (8), ILHR 22.06 (intro.), ILHR 22.11 (4)(b) Note #2, ILHR 22.15, ILHR 23.02 (3), ILHR 23.04 (intro.), ILHR 23.04 (1)(e), ILHR 23.045 (1), ILHR 23.045 (2)(b)(intro.), ILHR 23.045 (3)(a) 1., ILHR 23.045 (8)(a), Table 23.045-A, ILHR 23.08 (3), ILHR 23.08 (6), ILHR 23.11 (2), ILHR 23.12 (8), ILHR 23.13 (1), ILHR 23.16 (2)(a), ILHR 24.01, Ind 69.21 (1), and ILHR 82.10 (3);

to repeal and recreate ILHR 20.03 (3), ILHR 20.05 (8), ILHR 21.03 (10), ILHR 21.03 (11), ILHR 21.04 (title)(intro.), ILHR 21.04 (3)(c), ILHR 21.10 (1)(intro.), ILHR 21.10 (1)(b), ILHR 21.11(1)(intro.), ILHR 21.21, Table 21.22-A2, ILHR 21.27 (1), ILHR 21.28 (4)(c), ILHR 21.29 (6), ILHR 21.32 (3), Table 22.04-A, ILHR 22.05 (1), ILHR 22.06 (1), ILHR 22.09, Table 22.10-A, ILHR 22.11 (1), ILHR 22.19 (2)(b) Note, ILHR 22.20 (intro.), Table 23.04-B, Table 23.045-C, ILHR 23.08 (2)(a), and Chapter ILHR 25;

and to create ILHR 20.07 (21m), ILHR 20.10 (1)(b) 3., ILHR 20.24 (6), ILHR 21.04 (2)(c) 6., ILHR 21.08 (5)(b), ILHR 21.08 (4), ILHR 21.08 (5)(e), ILHR 21.09 (2), ILHR 21.09 (3), ILHR 21.10 (3)(b), ILHR 21.10 Note, ILHR 21.11 (1)(b), ILHR 21.15 (1)(f), ILHR 21.17 (5), Table 21.18, Table 21.22-A1 Note #3, ILHR 21.225, ILHR 21.27 (1)(b), ILHR 21.28 (2m), ILHR 21.28 (6)(a) 3., ILHR 21.29 (5m), Table 22.06, ILHR 22.06 (3)(b), ILHR 22.20 (1)(intro.), ILHR 22.20 (1)(e) and (f), ILHR 22.20 (2), ILHR 22.20 Note, ILHR 23.045 (2)(b) 4, and ILHR 23.15 (2)(d) Relating to the Uniform Dwelling Code.

ANALYSIS OF PROPOSED RULES

Statutory authority: ss. 101.02 (1), 101.19 (1), 101.63 (1), 101.64 (3), and 101.73 (1) to (3), Stats.
Statutes interpreted: ss. 101.05 (2), 101.63 (1) and (5), 101.64 (3), and 101.73 (1) to (3), Stats.

In accordance with s. 101.63 (5), Stats., the Department has the responsibility to review the Uniform Dwelling Code biennially. This set of proposed changes to update and revise the code is based on the results of the latest review. Many of the proposed changes come from suggestions submitted by users of the code, state enforcement and inspection staff, and local building inspectors. Many of the changes are nonsubstantive in nature: code sections are reworded for clarity; tables are reformatted; and typographical errors are corrected. Other changes are intended to take out unnecessary requirements, recognize new technology, and to reflect changes in national standards on which code sections are based.

The following is a summary of the other major changes included in the hearing draft.

Chapter ILHR 20
ADMINISTRATION AND ENFORCEMENT

ILHR 20.03 (3) The third floor levels of bed and breakfast establishments, when used for other than storage, are required to comply with the code in accordance with the amendment to s. 101.05 (2), Stats., created by the 1989 Wisconsin Act 354.

ILHR 20.04 (1) New foundations for existing dwellings are required to be constructed in accordance with the code.

ILHR 20.05 (8) To be consistent with the nonretroactive nature of the code, language is added to indicate that the code will apply to onsite construction of additions to recreational vehicles and mobile homes only if they were produced after the effective date of the code.

ILHR 20.07 (21m) The term "deck" is defined.

ILHR 20.07 (34m) The definition of "floor area" is revised for consistency with s. ILHR 21.06.

ILHR 20.09 (3)(a) Permit seals and state fees will not be required by the Department for additions and alterations; permit seals are to be required for new dwellings only.

ILHR 20.09 (4)(a)2. The use of each room is required to be indicated on plans to aid in the review for adequate exiting.

ILHR 20.22 (3) An unnecessary requirement for Department notification of municipal enforcement actions is removed.

ILHR 20.24 New standards are adopted by reference; standards currently adopted are updated.

Chapter ILHR 21
CONSTRUCTION STANDARDS

ILHR 21.03 (7) The minimum height of secondary required exits is reduced from 6 feet 8 inches to 6 feet 4 inches.

ILHR 21.03 (10) The requirements for materials for balconies used as exits are expanded to apply to all balconies.

ILHR 21.04 (1)(a) The requirements for the width of intermediate stair landings are modified to apply more appropriately to circular landings.

ILHR 21.04 (2)(c) 2. The maximum dimension of openings in guardrails or handrails is reduced from 9 inches to 6 inches to be consistent with model codes.

ILHR 21.04 (2)(a), 21.04 (2)(c) 6. and 21.04 (3)(a) Handrail size and placement requirements are more clearly specified.

ILHR 21.04 (3)(c) The tread width and riser height requirements are clarified to reduce the number of petitions that result from incorrect interpretations of this rule.

ILHR 21.05 (5) The placement of required safety glass is more accurately specified to be consistent with s. 101.125 (1)(c), Stats.

ILHR 21.07 Amendments are made so that attics and crawl spaces with less than specified minimum clearances are not required to be provided with access openings.

ILHR 21.08 (2) and 21.08 (4) A restriction on the use of mineral-based insulation is added to reflect the conditions under which the material was tested to obtain approval for that use.

ILHR 21.08 (6) A fire-resistive separation is required between living units. The required separation may be achieved with two layers of type X gypsum wallboard, or equivalent.

ILHR 21.09 (2) Smoke detectors are required to be powered by house current and to be interconnected so that all alarms will sound if one is activated.

ILHR 21.11 (1)(a) Materials that are acceptable as 15-minute thermal barriers over foam plastic insulation are specified.

ILHR 21.11 (1)(b) Foam plastic insulation separated from the building interior by masonry or concrete construction is not required to be protected by an additional thermal barrier.

ILHR 21.15 (1)(f) A new section is created to acknowledge that decks will have lesser footing requirements than dwellings.

ILHR 21.18 To aid users of the code, one of the methods for providing the required lateral support for foundation walls is specified by adding a table of acceptable bolt sizes and spacings. Other methods for providing lateral support may still be used.

ILHR 21.22 Design requirements for wood floors are updated to be consistent with the model codes on which they are based. The ends of floor joists must be tied together where they meet. Floor bridging will not be required in most cases.

ILHR 21.225 A new section is created to specify the code sections that will be typically applicable to decks.

ILHR 21.27 (1)(b) Lesser snow loads are allowed for roof slopes greater than 30 degrees.

ILHR 21.27 (3)(a) Materials that will be acceptable as equivalent to 15-pound asphalt-impregnated felt paper are specified.

ILHR 21.28 Design requirements for wood roofs are updated to be consistent with the model codes on which they are based. Roof ladders are only required if the overhang exceeds 12 inches. Bird-mouth cuts of rafters may not exceed one-third of the depth of the rafter.

ILHR 21.29 (6) and 21.32 (3) Hearth extension requirements for masonry fireplaces are revised to be consistent with current National Fire Protection Association (NFPA) standards and not allow support of the hearth extension by wood framing.

Chapter ILHR 22
ENERGY CONSERVATION

Tables 22.04-A and 22.10-A Revisions are made to clarify that winter design temperatures are less than 50°F rather than 70°F in nonhabitable basement areas.

ILHR 22.05 (1) Rules for vapor retarders have been rewritten for clarity, to better reflect accepted installation practice and to require installation under basement slab floors to reduce moisture transmission.

ILHR 22.06 Insulation requirements for nonelectrically heated dwellings have been reformatted into a table.

ILHR 22.09 Claims of thermal resistance values (R-values) for insulation that are better than typical values for a given material are required to be substantiated by appropriate independent test reports.

ILHR 22.15, 22.19 (2)(b) and 22.20 Provisions for the use of water heaters for simultaneous space and domestic water service heating are added.

Chapter ILHR 23
HEATING, VENTILATING, AND AIR CONDITIONING STANDARDS

ILHR 23.02 (3) For improved indoor moisture control, all bathrooms with bathtubs or showers are required to have exhaust ventilation.

ILHR 23.04 For fire safety reasons, the requirement for the testing and listing of space heating equipment is expanded to cover all heat producing appliances.

ILHR 23.04 (1)(e) Fire safety requirements from NFPA standards are included for proper installation of heating equipment installed in garages.

Table 23.04-B Outdated references to asbestos millboard as an insulating product are removed.

Table 23.045-A References to galvanized sheet metal for wood heating appliance pipe connectors are removed due to poor performance of that material.

ILHR 23.08 (3) Exterior duct requirements are updated to recognize the use of plastic duct materials for bath fans and air-to-air heat exchangers.

ILHR 23.11 Termination requirements for chimneys and vents are expanded to recognize new technology and allow termination of the chimney or vent in any location compatible with its listing.

ILHR 23.155 Requirements for multiple appliance venting have been updated to be consistent with national standards and allow common venting of appliances that use different nonsolid fuels.

Chapter ILHR 25
PLUMBING AND POTABLE WATER STANDARDS

Chapter ILHR 25 The entire chapter is repealed and recreated to aid plumbers in complying with the code requirements. Sections that duplicate or conflict with plumbing code requirements are taken out. Other sections are moved to the plumbing code. Requirements for energy efficiency of water heaters are removed from the code due to pre-emption by federal energy efficiency standards.

UNIFORM DWELLING CODE COUNCIL MEMBERSHIP

The membership of the Uniform Dwelling Code Council which advised the Department in the development of the proposed rules is given below.

NAME	REPRESENTING
Joseph Chudnow	Building Contractors
Dennis Dorn	Material Suppliers
Reimar Frank	Architects
Howard Gygax	Public
James Korotev	Building Inspectors
Len Linzmeier	Chairman, Housing Manufacturers
George Nawrot	Labor
Garry Nelson	Material Suppliers
Peter Risberg	Labor
William Roehr	Labor
Carole Rule	Public
Lu Sacharski	Material Suppliers
Richard Segelken	Building Inspectors
Randolph Thelen	Building Contractors
Brian Walter	Building Inspectors
Frank Weeks	Housing Manufacturers
Christine Wilson	Building Inspectors

* *

SECTION 1. ILHR 20.01 is amended to read:

ILHR 20.01 PURPOSE. The purpose of this code is to establish uniform statewide construction standards and inspection procedures for one- and 2-family dwellings and manufactured ~~buildings/for~~ dwellings in accordance with the requirements of ss. 101.60 and 101.70, Stats.

SECTION 2. ILHR 20.04 (1) is amended to read:

ILHR 20.04 (1) NEW DWELLINGS. The provisions of this code shall apply to all dwellings, ~~and~~ dwelling units, and foundations for dwelling units, for which the ~~initial~~ construction ~~of/which~~ was commenced or the building permit was applied for on or after the effective date of this code. Additions and alterations to dwellings covered by this code shall comply with the provisions of this code at the time the permit for the addition or alteration is issued.

SECTION 3. ILHR 20.04 (3) is repealed and recreated to read:

ILHR 20.04 (3) BED AND BREAKFAST ESTABLISHMENTS. The third floor of bed and breakfast establishments, as defined under s. 50.50 (1), Stats., when used for other than storage, shall comply with the provisions of this code.

SECTION 4. ILHR 20.05 (8) is repealed and recreated to read:

ILHR 20.05 (8) RECREATIONAL VEHICLES AND MANUFACTURED (MOBILE) HOMES. The provisions of this code shall not apply to recreational vehicles or manufactured (mobile) homes, but shall apply to the onsite construction of additions to recreational vehicles and manufactured homes if the recreational vehicle or manufactured home was produced after June 1, 1980.

SECTION 5. ILHR 20.07 (16) is amended to read:

ILHR 20.07 (16) "Code" means the Wisconsin uniform dwelling code, chs. ILHR 20 to 25.

SECTION 6. ILHR 20.07 (21m) is created to read:

ILHR 20.07 (21m) "Deck" means an unenclosed exterior structure, attached or adjacent to the exterior wall of a building, which has a floor, but no roof.

SECTION 7. ILHR 20.07 (34m) is amended to read:

ILHR 20.07 (34m) "Floor area" means the area of a room that has a ceiling height of at least 7 feet. Rooms with ceilings less than 7 feet in height for more than 50% of the room are not considered to be floor areas.

SECTION 8. ILHR 20.07 (40) is amended to read:

ILHR 20.07 (40) "Heating load" is the ~~probable~~ estimated heat loss of each room or space to be heated, based on maintaining a selected indoor temperature during periods of design outdoor weather conditions. The total heat load includes: the transmission losses of heat transmitted through the wall, floor, ceiling, glass or other surfaces; and either the infiltration losses ~~or the heat required to warm outside air used for ventilation, around doors and windows, or through open doors and windows,~~ or heat required to warm outdoor air used for ventilation.

Note: Infiltration losses include heat required to warm outside air which leaks through cracks and crevices, around doors and windows or through open doors and windows.

SECTION 9. ILHR 20.07 (52) is amended to read:

ILHR 20.07 (52)(a) "Manufactured ~~building~~ dwelling" means any structure or component thereof which is intended for use as a dwelling and:

1. Is of closed construction and fabricated or assembled on site or off site in manufacturing facilities for installation, connection or assembly and installation at the building site; or

2. Is a building of open construction which is made or assembled in manufacturing facilities away from the building site for installation, connection or assembly and installation on the building site and for which certification is sought by the manufacturer.

(b) The term manufactured ~~building~~ dwelling does not include a building of open construction which is not subject to par. (a) 2. A single or double width ~~mobile~~ manufactured (mobile) home is not considered a manufactured ~~building~~ dwelling and is not subject to this code.

SECTION 10. ILHR 20.09 (3)(a) is amended to read:

ILHR 20.09 (3)(a) Municipal fees. Fees shall be submitted to the municipality at the time the Wisconsin uniform building permit application for new construction is filed. The municipality shall, by ordinance, determine fees to cover expenses of plan examination, inspection and the issuance of the Wisconsin uniform building permit. The municipality shall collect and send to the department the fee for ~~the~~ Wisconsin uniform building ~~permit~~ permits issued for new dwellings in accordance with s. Ind 69.21.

SECTION 11. ILHR 20.09 (4)(a) 2. is amended to read:

ILHR 20.09 (4)(a) 2. 'Floor plans'. Floor plans shall be provided for each floor. The size and location of all rooms, doors, windows, structural features, exit passageways and stairs shall be indicated. The use of each room shall be indicated. The location of plumbing fixtures, chimneys, and heating and cooling appliances, and when requested, a heating distribution layout shall be included.

SECTION 12. ILHR 20.10 (1)(b) 2. e. is repealed.

SECTION 13. ILHR 20.10 (1)(b) 2. f. is renumbered 20.10 (1)(b) 2. e.

SECTION 14. ILHR 20.10 (1)(b) 3. is renumbered 20.10 (1)(b) 4.

SECTION 15. ILHR 20.10 (1)(b) 3. is created to read:

ILHR 20.10 (1)(b) 3. 'Insulation inspection'. An inspection shall be made of the insulation and vapor retarder after they are installed but before they are concealed.

SECTION 16. ILHR 20.10 (3) is renumbered 20.10 (2).

SECTION 17. ILHR 20.22 (3) is amended to read:

ILHR 20.22 (3) MUNICIPAL ENFORCEMENT. Any municipality which administers and enforces this code may provide, by ordinance, remedies and penalties for violation of that jurisdiction exercised under s. 101.65, Stats. These remedies and penalties shall be in addition to those which the state may impose under subs. (1) and (2). ~~Any municipality invoking a remedy or penalty, including forfeiture, shall promptly notify the department of the remedy or penalty being imposed and the reason therefor.~~

SECTION 18. ILHR 20.24 (intro.) is amended to read:

ILHR 20.24 (intro.) Adoption of standards. All dwellings shall be required to be designed by the method of structural analysis or the method of accepted practice outline in chs. ILHR 20 to 25. Dwellings designed by the method of structural analysis shall comply with the standards and manuals listed in sub. (1) to ~~(5)~~ 6. Pursuant to s. 227.21 (2), Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the following standards. Copies of the standards are on file in the offices of the department, the secretary of state and the revisor of statutes. Copies for personal use may be obtained, at a reasonable cost, from the organizations listed.

SECTION 19. ILHR 20.24 (1) is amended to read:

ILHR 20.24 (1) American Institute of Steel Construction, ~~400 N. Michigan Ave.,~~ One E. Wacker Drive, Suite 3100, Chicago, IL ~~60611.~~ 60601, SPECIFICATION FOR ~~THE DESIGN, FABRICATION AND ERECTION OF~~ STRUCTURAL STEEL ~~FOR~~ BUILDINGS, ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN, WITH COMMENTARY, ~~November 1, 1978~~ June 1, 1989.

SECTION 20. ILHR 20.24 (2) is amended to read:

ILHR 20.24 (2) American Concrete Institute (ACI), P. O. Box 19150, Redford Station, Detroit, Michigan 48219, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-~~83~~89; BUILDING CODE REQUIREMENTES FOR STRUCTURAL PLAIN CONCRETE, ACI 318.1-~~83~~89.

SECTION 21. ILHR 20.24 (2k) is amended to read:

ILHR 20.24 (2k) American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, Pennsylvania 19103, STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY, ASTM Designation C270-~~82~~88; STANDARD SPECIFICATION FOR ASPHALT-SATURATED ORGANIC FELT USED IN ROOFING AND WATER PROOFING, ASTM Designation D226-87; STANDARD PRACTICE FOR MEASURING AIR LEAKAGE BY THE FAN PRESSURIZATION METHOD, ASTM Designation E779-~~83~~87.

SECTION 22. ILHR 20.24 (2m) is amended to read:

ILHR 20.24 (2m) American Society of Heating, Refrigerating, and Air-conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, N.E., Atlanta, Georgia 30329, ENERGY CONSERVATION IN NEW BUILDING DESIGN, ASHRAE Standard 90A-80; ASHRAE HANDBOOK, FUNDAMENTALS, 1989 edition.

SECTION 23. ILHR 20.24 (2p) is amended to read:

ILHR 20.24 (2p) American Wood Preservers Association (AWPA), P.O. Box 849, Stevensville, Maryland 21666, STANDARD FOR COAL TAR CREOSOTE FOR LAND AND FRESH WATER AND MARINE (COASTAL WATER) USE, ~~P1-78~~ P1/P13-~~83~~89; STANDARD FOR ~~CREOSOTE/AND~~/CREOSOTE SOLUTIONS, P2-~~83~~89; STANDARD FOR CREOSOTE-PETROLEUM OIL SOLUTION, P3-67; STANDARDS FOR WATERBORNE PRESERVATIVES, P5-~~86~~90; STANDARDS FOR OIL-BORNE PRESERVATIVES, P8-~~77~~90; STANDARDS FOR SOLVENTS AND FORMULATIONS FOR ORGANIC PRESERVATIVE SYSTEMS, P9-~~84~~87; ~~STANDARD/FOR CREOSOTE-PENTACHLOROPHENOL/WOOD/PRESERVATIVE/SOLUTION//P11-70/~~ ALL TIMBER PRODUCTS-PRESERVATIVE TREATMENT BY PRESSURE PROCESSES, C1-~~86~~90; LUMBER, TIMBERS, BRIDGE TIES AND MINE TIES-PRESERVATIVE TREATMENT BY PRESSURE PROCESSES, C2-~~85~~90; PILES-PRESERVATIVE TREATMENT BY PRESSURE PROCESSES, C3-~~86~~90; POLES-PRESERVATIVE TREATMENT BY PRESSURE PROCESSES, C4-~~86~~90; PLYWOOD-PRESERVATIVE TREATMENT BY PRESSURE PROCESSES, C9-~~85~~90; STANDARD FOR PRESSURE TREATED MATERIAL IN MARINE CONSTRUCTION, C18-~~86~~90; ROUND POLES AND POSTS USED IN BUILDING CONSTRUCTION-PRESERVATIVE TREATMENT BY PRESSURE PROCESSES, C23-84; SAWN TIMBER PILES USED FOR RESIDENTIAL AND COMMERCIAL BUILDING, C24-86; STANDARD FOR PRESERVATIVE TREATMENT OF STRUCTURAL GLUED LAMINATED MEMBERS AND LAMINATIONS BEFORE GLUING OF SOUTHERN PINE, PACIFIC COAST DOUGLAS FIR, HEMFIR AND WESTERN HEMLOCK BY PRESSURE PROCESSES, C28-~~85~~90; and STANDARD FOR THE CARE OF PRESERVATIVE-TREATED WOOD PRODUCTS, M4-~~84~~90.

SECTION 24. ILHR 20.24 (2s) is amended to read:

ILHR 20.24 (2s) American Wood Preservers Bureau (AWPB), 2772 South Randolph Street, P.O. Box 6085, Arlington, Virginia 22206. STANDARD FOR SOFTWOOD LUMBER, TIMBER AND PLYWOOD PRESSURE TREATED WITH WATER-BORNE PRESERVATIVES FOR GROUND CONTACT USE, AWPB STANDARDS ~~LB-22~~ LP-22, 1980~~8~~; QUALITY CONTROL PROGRAM FOR SOFTWOOD LUMBER, TIMBER AND PLYWOOD PRESSURE TREATED WITH WATER-BORNE PRESERVATIVES FOR GROUND CONTACT USE IN RESIDENTIAL AND LIGHT COMMERCIAL FOUNDATIONS, AWPB Standard ~~1980~~ FDN, 1980~~8~~.

SECTION 25. ILHR 20.24 (3m) is amended to read:

ILHR 20.24 (3m) National Fire Proteciton Association, Batterymarch Park, Quincy, Mass. 02269, NATIONAL FUEL GAS CODE, NFPA No. 54-1984~~8~~.

SECTION 26. ILHR 20.24 (4) is amended to read:

ILHR 20.24 (4) National Forest Products Association, 1250 Connecticut Avenue N.W., Washingotn, D.C. 20036, NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION, 1986 edition, except for section 4.1.7., including DESIGN VALUES FOR WOOD CONSTURCITON, 1986~~8~~, supplement; THE PERMANENT WOOD FOUNDATION SYSTEM, Basic Requirements, Technical Report No. 7, January, 1987, exept for section 3.3.1.

SECTION 27. ILHR 20.24 (5) is amended to read:

(5) Portland Cement Association, 5420 Old Orchard Road, Skokie, Illinois 60077, CONCRETE MASONRY HANDBOOK FOR ARCHITECTS, ENGINEERS, BUILDERS, ~~fourth edition, 1976~~/fifth edition, 1991.

SECTION 28. ILHR 20.24 (6) is created to read:

ILHR 20.24 (6) Truss Plate Institute, Inc., 583 D'Onofrio Drive, Madison, Wisconsin 53719, DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES, TPI-85; DESIGN SPECIFICATION FOR METAL PLATE CONNECTED PARALLEL CHORD WOOD TRUSSES, PCT-80.

SECTION 29. ILHR 21.02 (1)(d) Note is amended to read:

ILHR 21.02 (1)(d) Note: See the Appendix for a schedule of fasteners that will be acceptable to the department for compliance with this subsection. Other fastening methods may be allowed if engineered under s. ILHR 21.02 (3).

SECTION 30. ILHR 21.03 (3) is amended to read:

ILHR 21.03 (3) EXITS ABOVE THE SECOND FLOOR. At least two exits shall be provided for each habitable floor level above the second floor. The exits shall be located such that in case any exit is blocked some other exit will still be accessible to the second floor. The exits shall be stairways or ramps that lead to the second floor or discharge to grade.

SECTION 31. ILHR 21.03 (7) is amended to read:

ILHR 21.03 (7) DOORS. One of the required exit doors from a dwelling unit shall be a swing type door at least 3 feet wide by 6 feet 8 inches high. All other required exterior exit doors shall be at least 2 feet 8 inches wide by 6 feet 84 inches high. Where double doors are provided as a required exit, the width of each door leaf shall be at least 2 feet 6 inches and the doors shall not have an intermediate mullion.

SECTION 32. ILHR 21.03 (10) is repealed and recreated to read:

ILHR 21.03 (10) BALCONIES. (a) Balconies shall be made of treated, protected or naturally decay-resistive wood, concrete or metal materials. Materials may be protected by the use of paints or stains which are suitable for the material.

(b) Balconies shall be provided with guardrails in accordance with s. ILHR 21.04 (2).

(c) Balconies which are required for exit purposes shall also comply with all of the following requirements:

1. The balcony guardrail shall terminate no more than 46 inches above the floor level of the balcony.

2. The floor level of the balcony shall be no more than 15 feet above the grade below.

3. The floor of the balcony shall have minimum dimensions of 3 feet by 3 feet. The guardrail and its supports may infringe on the dimensions of the required area.

SECTION 33. ILHR 21.03 (11) is repealed and recreated to read:

ILHR 21.03 (11) SPLIT LEVEL DWELLINGS. In determining the exit requirement in a split level dwelling, all levels that are to be considered a single story shall be within 5 feet of each other.

SECTION 34. ILHR 21.04 (title) and (intro.) are repealed and recreated to read:

ILHR 21.04 (title) STAIRS AND ELEVATED AREAS. Every exterior or interior stairs, including tub access steps but excluding those leading to attics or crawl spaces, shall conform to the requirements of this section.

SECTION 35. ILHR 21.04 (1)(a) is amended to read:

ILHR 21.04 (1)(a) Intermediate landings. Intermediate landings shall be provided for any flight of stairs of 12 feet or more in height. Intermediate landings located in a flight of stairs shall be at least as wide as the stairs and shall measure at least 3 feet in the direction of travel. For curved or semicircular landings, the radius of the landing shall be larger than or equal to the width of the stairway. Trim and handrails may project no more than 3 1/2-inches into the required width at each side of the landing.

SECTION 36. ILHR 21.04 (2)(a) is amended to read:

ILHR 21.04 (2)(a) Handrails. Every ~~stairs~~ stairway of more than 3 risers shall be provided with at least one handrail for the full length of the stairway. Handrails shall be provided on all open sides of stairways of more than 3 risers. Handrails shall be provided on the side of winder steps where the tread is widest. Stairway handrails shall be continuous except where newel posts may intervene.

SECTION 37. ILHR 21.04 (2)(c) 2. is amended to read:

ILHR 21.04 (2)(c) 2. 'Open railings'. Open guardrails or handrails shall be provided with intermediate rails or an ornamental pattern to prevent the passage of a sphere with a diameter larger than ~~9~~ 6 inches.

SECTION 38. ILHR 21.04 (2)(c) 6. is created to read:

ILHR 21.04 (2)(c) 6. 'Handrail size'. The diameter or width of the gripping surface of stair handrails shall be no more than 2 5/8 inches.

SECTION 39. ILHR 21.04 (3)(a) is amended to read:

ILHR 21.04 (3)(a) Minimum width. Every ~~stairs~~ stairway shall measure at least 3 feet in width. Trim and handrails may project no more than 3 1/2 inches into the required width at each side of the stairs.

SECTION 40. ILHR 21.04 (3)(c) is repealed and recreated to read:

ILHR 21.04 (3)(c) Treads and risers. 1. Risers shall not exceed 8 inches in height, measured vertically from tread to tread. Treads shall be at least 9 inches wide, measured horizontally from nosing to nosing.

2. Within stairways, tread widths and riser heights may vary in uniformity by a maximum of 3/16 inches. Variations in uniformity shall not cause the minimum and maximum dimensions specified in subd. 1. to be exceeded.

SECTION 41. ILHR 21.045 (3) is amended to read:

ILHR 21.045 (3) HANDRAILS. Handrails shall be provided on all open sides of ramps. Every ramp ~~which~~ that overcomes a change in elevation of more than ~~24~~ 8 inches shall be provided with at least one handrail. ~~/and with/handrails/on/all/open/sides/of/ramps/~~

SECTION 42. ILHR 21.05 (2)(a) is amended to read:

ILHR 21.05 (2)(a) Natural ventilation. Natural ventilation shall be provided to all habitable rooms, kitchens and bathrooms by means of openable exterior doors, skylights or windows. The net area of the openable exterior doors, skylights or windows shall be at least 3.5 percent of the net floor area of the room. Mechanical ventilation may be provided in lieu of openable exterior doors, skylights or windows provided the system is capable of providing at least one air change per hour.

SECTION 43. ILHR 21.05 (4) is amended to read:

ILHR 21.05 (4) CRAWL SPACE VENTING. ~~Crawl~~ Unheated crawl spaces shall be vented in accordance with either s. ILHR 22.05 (3)(b) or 22.11 (3)(b). ~~Unheated/crawl~~ All crawl spaces shall be provided with a ~~continuous/solid/roofing/or/plastic/film/vapor/barrier~~ vapor retarder that has a transmission rate of no more than 0.1 perm. All decayable organic material and topsoil shall be removed from crawl space floors. ~~The/decayable/organic/material/shall/be/removed~~ prior to the placement of the vapor retarder ~~a/floor/covering,/if/any~~.

SECTION 44. ILHR 21.05 (5) is amended to read:

ILHR 21.05 (5) SAFETY GLASS. Glass in ~~entrance/and/exit~~ all interior and exterior doors, sliding glass doors, storm doors, adjacent sidelights of doors, bathtub enclosures, shower doors, and any fixed or operating flat glass panels ~~immediately/adjacent/to~~ within 2 feet of doors and less than 2 feet from the floor shall be safety glass.

SECTION 45. ILHR 21.07 is amended to read:

ILHR 21.07 ATTIC AND CRAWL SPACE ACCESS. (1) ATTIC. Attics with 30 inches of clearance or more between the top of the ceiling framing and the bottom of the rafter or top truss chord framing shall be provided with an access opening of at least 14 by 24 inches, accessible from the inside of the structure.

(2) CRAWL SPACES. Crawl spaces with 18 inches of clearance or more between the crawl space floor and the underside of the house floor joist framing shall be provided with an access opening of at least 14 by 24 inches.

Note: Access to plumbing or electrical systems may be required under chs. ILHR 81-86, Plumbing Code or ch. ILHR 16, Electrical Code, Volume 2.

SECTION 46. ILHR 21.08 (2) is amended to read:

ILHR 21.08 (2) FIRESTOPPING MATERIALS. Firestopping shall consist of 2-inches nominal lumber or 2 thicknesses of one-inch nominal lumber or one thickness of 23/32-inch plywood with joints backed by 23/32-inch plywood. Oriented strand board, particle board and waferboard may be used in place of plywood. Gypsum wallboard~~//mineral wool insulation~~ or other noncombustible material may also be used for firestopping. Noncombustible mineral-based insulation may be used where the least dimension of the opening to be firestopped does not exceed 4 inches.

Note: Any nonrigid material used as firestopping, such as batt insulation, must completely fill the opening and be tightly packed ~~or otherwise secured~~ to maintain a permanent installation.

SECTION 47. ILHR 21.08 (4) is amended to read:

ILHR 21.08 (4) DRAFTSTOPPING MATERIALS. ~~Except as provided in sub. (3)(c),~~ draftstopping ~~Draftstopping~~ shall not be less than 1/2-inch gypsum board, 3/8-inch plywood~~//mineral-based insulation~~ or other approved noncombustible materials. Noncombustible mineral-based insulation may be used where the least dimension of the opening to be draftstopped does not exceed 4 inches. Metallic firestops shall be used for metal vents and chimneys.

Rearrange for Clarity per DILHR

SECTION 48. ILHR 21.08 (5)(a) is amended to read:

ILHR 21.08 (5)(a) The garage shall be separated from habitable and nonhabitable areas of the dwelling unit, as well as attics and soffit areas. The vertical separation shall extend from the top of the concrete or masonry foundation to the underside of the roof sheathing or to fire-rated ceiling construction. The fire-rated construction shall conform with Table 21.08.

SECTION 49. ILHR 21.08 (5)(b) is renumbered 21.08 (5)(c).

SECTION 50. ILHR 21.08 (5)(b) is created to read:

ILHR 21.08 (5)(b) Beams, columns and bearing walls that are exposed to the garage and which provide support for separated spaces shall be protected by one of the methods specified in s. ILHR 21.08 (5)(a) 1. to 3. or other minimum 45-minute fire-resistive rated protection.

SECTION 51. ILHR 21.08 (5)(c) is renumbered 21.08 (5)(d) and is amended to read:

ILHR 21.08 (5)(d) Garage floors shall be constructed of concrete or noncombustible materials which are impermeable to petroleum products. Concrete garage floors shall be at least 4 inches thick placed over at least 4 inches of granular fill. The garage floor shall slope toward the exterior garage opening or shall slope to an interior drain.

SECTION 52. ILHR 21.08 (5)(e) is created to read:

ILHR 21.08 (5)(e) Access openings in fire separation walls or ceilings shall maintain the required separation and shall have any drywall edges protected from physical damage. The cover or door of the opening shall be permanently installed with hardware which will maintain it in the closed position when not in use.

SECTION 53. ILHR 21.08 (6) is created to read:

ILHR 21.08 (6) LIVING UNIT SEPARATION. (a) In 2-family dwellings, living units shall be separated from each other, from common areas, and from exit access corridors by construction protected with not less than one layer of 5/8-inch Type X gypsum wallboard or equivalent on each side of the wall.

(b) Any door and frame assembly installed in the living unit separation shall:

1. Have a minimum fire rating of 20 minutes; or

2. Consist of a minimum 1 3/4-inch solid core wood or insulated metal door installed with 1 1/2-inch steel hinges in a 1 7/32-inch thick solid wood frame with a 1/2-inch thick door stop.

SECTION 54. ILHR 21.09 is renumbered 21.09 (1).

SECTION 55. ILHR 21.09 (2) is created to read:

ILHR 21.09 (2) Smoke detectors required by this section shall be continuously powered by the house electrical service, and shall be interconnected so that activation of one detector will cause activation of all detectors.

SECTION 56. ILHR 21.09 (3) is created to read:

ILHR 21.09 (3) For family living units with one or more communicating split levels or open adjacent levels with less than one full story separation between levels, one smoke detector on the upper level shall suffice for an adjacent lower level, including basements. Where there is an intervening door between one level and the adjacent lower level, smoke detectors shall be installed on each level.

SECTION 57. ILHR 21.10 (1)(intro.) is repealed and recreated to read:

ILHR 21.10 (1) GENERAL. Except as provided in sub. (2), wood used in the following locations shall be either pressure treated with preservative or be a naturally durable, decay resistant species of lumber. Wood that is not pressure treated with preservative shall be protected against termites unless naturally termite resistant.

SECTION 58. ILHR 21.10 (1)(b) is repealed and recreated to read:

ILHR 21.10 (1)(b) Sills which are less than 8 inches above exposed earth, and rest on concrete or masonry walls or concrete floors.

SECTION 59. ILHR 21.10 (1)(f) is amended to read:

ILHR 21.10 (1)(f) Bottom plates of load bearing walls ~~in~~ on slab floors of basements and garages.

SECTION 60. ILHR 21.10 (3)(intro.) is renumbered ILHR 21.10 (3)(a).

SECTION 61. ILHR 21.10 (3)(b) is created to read:

ILHR 21.10 (3)(b) Pressure treated wood used below grade in foundations shall be labeled to show conformance with AWPA C-22 "Lumber and Plywood for Permanent Wood Foundations - Pressure Processes" or AWPB FDN "Quality Control Program for Softwood Lumber, Timber and Plywood Pressure Treated with Water-Borne Preservatives for Ground Contact Use in Residential and Light Commercial Foundations."

SECTION 62. ILHR 21.10 (3)(b) Note is created to read:

ILHR 21.10 (3)(b) Note: Heartwood of redwood, cypress, black walnut, catalpa, chestnut, osage orange, red mulberry, white oak, or cedar lumber are considered by the department to be naturally decay-resistant. Heartwood of bald cypress, redwood, and eastern red cedar are considered by the department to be naturally termite resistant.

SECTION 63. ILHR 21.11 (1)(intro.) is repealed and recreated to read:

ILHR 21.11 (1) THERMAL BARRIERS. Foam plastic insulation shall be protected in accordance with this subsection. One half-inch gypsum wallboard, 19/32-inch plywood, oriented strand board, particle board or waferboard, or nominal one-inch tongue and groove or lap-jointed sawn lumber are acceptable as 15-minute thermal barrier materials.

SECTION 64. ILHR 21.11 (1)(a) and (title) are amended to read:

ILHR 21.11 (1)(a) (title) Walls and ceilings. Foam plastic insulation may be used within the stud space of a wood frame wall, or on the inside of a building surface of a wall or ceiling if the foam plastic insulation is fully protected by a 15-minute thermal barrier having a finish rating of at least 15 minutes.

SECTION 65. ILHR 21.11 (1)(b) is renumbered 21.11 (1)(c) and amended to read:

ILHR 21.11 (1)(c) Roofs. Roof coverings may be applied over foam plastic insulation where the interior of the dwelling is separated from the foam plastic insulation by plywood sheathing, oriented strand board, particle board or waferboard at least 15/32-inch in thickness, or other approved 15-minute thermal barrier materials having a minimum 15-minute finish rating.

SECTION 66. ILHR 21.11 (1)(b) is created to read:

ILHR 21.11 (1)(b) Masonry or concrete components. Foam plastics may be used within the cavity of a masonry wall, in cores of masonry units, or under a masonry or concrete floor system where the interior of the dwelling is separated from the foam plastic insulation by a minimum one-inch thickness of masonry or concrete or other approved 15-minute thermal barrier materials.

SECTION 67. ILHR 21.11 (1)(c) is renumbered 21.11 (1)(d).

SECTION 68. ILHR 21.15 (1)(f) is created to read:

ILHR 21.15 (1)(f) Deck footings. Decks attached to dwellings and detached decks which serve an exit shall be supported on a structural system designed to transmit and safely distribute the loads to the soil. Footings shall be sized to not exceed the allowable material stresses. The bearing area shall be at least equal to the area required to transfer the loads to the supporting soil without exceeding the bearing values of the soil.

SECTION 69. ILHR 21.17 (5) is created to read:

ILHR 21.17 (5) OTHER SYSTEMS. Other equivalent engineered foundation drainage systems may be submitted to the department for review and approval.

SECTION 70. ILHR 21.18 (intro.) is amended to read:

ILHR 21.18 FOUNDATIONS. Foundation walls shall be designed and constructed to support the vertical loads of the dwelling, lateral soil pressure, and other loads without exceeding the allowable stresses of the materials of which the foundations are constructed. Lateral support such as floor slabs or framing shall be provided at the base of walls. Lateral support shall be provided at the top of foundation walls in accordance with Table 21.18, or shall be provided by a ledger block at the perimeter of the floor or other system designed through structural analysis.

SECTION 71. Table 21.18 is created to read:

TABLE 21.18

BOLT SIZE AND SPACING FOR TOP RESTRAINT OF BASEMENT WALLS[1]

NOMINAL WALL THICKNESS (Inches)	MAXIMUM HEIGHT[2] OF UNBALANCED FILL (Feet)	ANCHOR BOLT SIZE[3] AND SPACING
8	4	1/2" at 60"
	5	1/2" at 40"
	6	5/8" at 32"
10	6	5/8" at 32"
	7	5/8" at 24"
	8	3/4" at 20"
12	7	5/8" at 24"
	8	3/4" at 20"
	9	7/8" at 18"
	10	1" at 16"

[1]Soil equivalent fluid weight is assumed to be 30 pcf.
[2]Unbalanced fill is the difference in elevation between outside grade and the basement floor.
[3]Anchor bolts shall be embedded a minimum of 7 inches into concrete and a minimum of 15 inches into masonry. One bolt shall be placed a distance from the outside corner equal to between one and 1 1/2 wall thicknesses.

SECTION 72. ILHR 21.18 (2)(b) is amended to read:

ILHR 21.18 (2)(b) Reinforced masonry wall; thickness. Reinforced masonry walls shall be reinforced in accordance with the requirements of Tables 21.18-C ~~and~~ or 21.18-D. In partially reinforced masonry walls, vertical reinforcement shall be provided on each side of any opening, at each wall corner, and at intervals indicated in ~~the tables~~ Table 21.18-D.

SECTION 73. ILHR 21.18 (2)(c) is repealed.

SECTION 74. ILHR 21.18 (2)(d) and (e) are renumbered ILHR 21.18 (2)(c) and (d).

SECTION 75. Table 21.18D is amended to read:

TABLE 21.18-D

MAXIMUM DEPTH BELOW GRADE FOR PARTIALLY REINFORCED MASONRY WALLS

Wall Construction Nominal Thickness and Type of Unit	Total Maximum Wall Height[1] (feet-inches)	Minimum Reinforcement Size and Maximum Spacing Center to Center	Maximum Depth Below Grade[2] (feet-inches) for Fill Type[3]	
			Granular	Other
8-inch Hollow Load Bearing	8-4	#5 bars @ 8 ft.	6-6	5-6
	8-4	#6 bars @ 8 ft.	7-6	6-6
	8-4	#7 bars @ 8 ft.	8-0	7-0
	8-4	#8 bars @ 8 ft.	8-04	7-6
10-inch Hollow Load Bearing	8-4	#5 bars @ 8 ft.	7-0	6-6
	8-4	#6 bars @ 8 ft.	7-6	7-0
	8-4	#7 bars @ 8 ft.	8-0	7-6
	8-4	#8 bars @ 8 ft.	8-4	8-0
12-inch Hollow Load Bearing	8-4	#4 bars @ 8 ft.	6-6	6-0
	8-4	#5 bars @ 8 ft.	7-6	6-6
	8-4	#6 bars @ 8 ft.	8-0	7-6
	8-4	#7 bars @ 8 ft.	8-4	8-0

1 The height of the wall equals the clear height between floors providing lateral support.

2 Depth below grade equals the vertical distance between the finished exterior grade and the basement floor or inside grade.

3 Granular fill is sand, sand and gravel or washed gravel. See "Other" for all other fill types or soils which are not well drained.

SECTION 76. ILHR 21.18 (3)(b) is amended to read:

ILHR 21.18 (3)(b) Materials. All lumber and plywood shall be pressure treated with preservative and labeled to show conformance with AWPA C-22 or AWPB FDN.

SECTION 77. ILHR 21.19 is amended to read:

ILHR 21.19 FLOOR DESIGN. Floors shall support all dead loads plus the minimum unit live loads as set forth in s. ILHR 21.02. The live loads shall be applied to act vertically and uniformly to each square foot of horizontal floor area. Basements shall be provided with wood or concrete or similar type floors that comply with s. ILHR 21.20 or 21.205.

SECTION 78. ILHR 21.21 is repealed and recreated to read:

ILHR 21.21 PRECAST CONCRETE FLOORS. Precast concrete floors shall be designed through structural analysis, or load tables furnished by the precast product fabricator may be used, provided the load tables were developed using structural analysis or load testing.

SECTION 79. Table 21.21 is repealed.

SECTION 80. ILHR 21.22 (2) and (title), (4) and (5) are amended to read:

ILHR 21.22 (2)(title) FLOOR TRUSSES. ~~Wood trusses joists shall be designed through structural analysis~~ Metal plate connected wood floor trusses shall be designed in accordance with the Design Specifications for Metal Plate Connected Parallel Chord Wood Trusses and the National Design Specification for Wood Construction. Truss members shall not be cut, bored or notched.

ILHR 21.22 (4) BEARING. The minimum bearing for wood joists ~~and rafters~~ shall be at least 1 1/2-inches on wood or metal and at least 3 inches on masonry or concrete. Wood beams and girders shall have at least 3 inches of bearing ~~on masonry or to concrete~~. Floor joists framing over beams from opposite sides shall either lap at least 3 inches and be securely fastened together, or when framed end-to-end, the joists shall be provided with blocking or shall be securely fastened together by ties, straps or plates. Tail ends of floor joists shall not ~~overlap the beams~~ go beyond the beam by more than 8 inches.

ILHR 21.22 (5) NOTCHING AND BORING. Notching and boring of beams or girders is prohibited unless determined through structural analysis.

(a) Notching. 1. Notches located in the top or bottom of floor joists shall not ~~exceed~~ have a depth exceeding 1/6 the depth of the joist, shall not have a length exceeding 1/3 the joist depth nor be located in the middle 1/3 of the span of the joist.

2. Where floor joists are notched on the ends, the notch shall not exceed 1/4 the depth of the joist. Notches over supports may extend the full bearing width of the support.

(b) Boring. Holes bored in floor joists shall be located ~~in the center~~ no closer than 2 inches to the top or bottom edges of the joist. ~~The~~ Where holes are located outside the middle 1/3 of the span, the diameter of the hole shall not exceed 1/3 the depth of the joist. Where the joist is notched, the hole shall not be closer than 2 inches to the notch.

SECTION 81. Table 21.22-A1 Note #3 is created to read:

Table 21.22-A1 Note #3: Wood main beams or girders may be built up from nominal 2-inch members. The 2-inch members shall be laid on edge and fastened together with a double row of common nails not less than 3 1/2-inches in length. Nails shall be spaced not more than 18 inches apart in each row with the end nails placed 4 inches to 6 inches from the end of each piece. Where built-up beams are employed over a single span, the length of each individual piece used to fabricate the beam shall equal the length of the beam.

SECTION 82. Table 21.22-A2 is repealed and recreated to read:

TABLE 21.22-A2

MINIMUM SIZES FOR BUILT-UP WOOD BEAMS IN BASEMENTS
AND CRAWL SPACES SUPPORTING ONE FLOOR ONLY

HOUSE WIDTH	F_b=800 psi		F_b=1000 psi		F_b=1200 psi		F_b=1400 psi	
	Col. Spacing ft-in	Beam Size	Col. Spacing ft-in	Beam Size	Col. Spacing ft-in	Beam Size	Col. Spacing ft-in	Beam Size
16 ft.	7-8	3-2x8	8-7	3-2x8	9-4	3-2x8	10-2	3-2x8
	8-11	4-2x8	9-11	4-2x8	10-11	4-2x8	11-10	4-2x8
	9-11	3-2x10	11-1	3-2x10	12-1	3-2x10	13-1	3-2x10
	11-4	4-2x10	12-8	4-2x10	13-1	4-2x10	15-0	4-2x10
	12-0	3-2x12	13-5	3-2x12	14-8	3-2x12	15-10	3-2x12
	13-10	4-2x12	15-7	4-2x12	17-0	4-2x12	18-4	4-2x12
20 ft.	6-11	3-2x8	7-8	3-2x8	8-5	3-2x8	9-1	3-2x8
	7-11	4-2x8	8-11	4-2x8	9-9	4-2x8	10-7	4-2x8
	8-10	3-2x10	9-11	3-2x10	10-10	3-2x10	11-8	3-2x10
	10-2	4-2x10	11-4	4-2x10	12-6	4-2x10	13-6	4-2x10
	10-9	3-2x12	12-0	3-2x12	13-2	3-2x12	14-3	3-2x12
	11-5	4-2x12	13-11	4-2x12	15-2	4-2x12	16-5	4-2x12
24 ft.	6-3	3-2x8	7-1	3-2x8	7-8	3-2x8	8-4	3-2x8
	7-3	4-2x8	8-2	4-2x8	8-11	4-2x8	9-8	4-2x8
	8-1	3-2x10	9-0	3-2x10	9-11	3-2x10	10-8	3-2x10
	9-4	4-2x10	10-4	4-2x10	11-5	4-2x10	12-4	4-2x10
	9-9	3-2x12	10-11	3-2x12	12-0	3-2x12	12-11	3-2x12
	11-3	4-2x12	12-7	4-2x12	13-11	4-2x12	15-0	4-2x12

TABLE 21.22-A2 (Cont.)
MINIMUM SIZES FOR BUILT-UP WOOD BEAMS IN BASEMENTS
AND CRAWL SPACES SUPPORTING ONE FLOOR ONLY

HOUSE WIDTH	F_b=800 psi Col. Spacing ft-in	Beam Size	F_b=1000 psi Col. Spacing ft-in	Beam Size	F_b=1200 psi Col. Spacing ft-in	Beam Size	F_b=1400 psi Col. Spacing ft-in	Beam Size
28 ft.	5-10	3-2x8	6-6	3-2x8	7-2	3-2x8	7-8	3-2x8
	6-8	4-2x8	7-6	4-2x8	8-3	4-2x8	8-11	4-2x8
	7-5	3-2x10	8-4	3-2x10	9-1	3-2x10	9-11	3-2x10
	8-7	4-2x10	9-8	4-2x10	10-6	4-2x10	11-4	4-2x10
	9-0	3-2x12	10-1	3-2x12	11-1	3-2x12	10-11	3-2x12
	10-5	4-2x12	11-8	4-2x12	12-10	4-2x12	13-10	4-2x12
32 ft.	5-4	3-2x8	6-1	3-2x8	6-8	3-2x8	7-3	3-2x8
	6-3	4-2x8	7-1	4-2x8	7-8	4-2x8	8-4	4-2x8
	7-0	3-2x10	7-9	3-2x10	8-7	3-2x10	9-2	3-2x10
	8-1	4-2x10	8-11	4-2x10	9-10	4-2x10	10-8	4-2x10
	8-5	3-2x12	9-6	3-2x12	10-4	3-2x12	11-1	3-2x12
	9-9	4-2x12	11-0	4-2x12	12-0	4-2x12	12-11	4-2x12
36 ft.	5-1	3-2x8	5-9	3-2x8	6-3	3-2x8	6-9	3-2x8
	5-11	4-2x8	6-7	4-2x8	6-9	4-2x8	7-10	4-2x8
	6-6	3-2x10	7-4	3-2x10	8-1	3-2x10	8-8	3-2x10
	7-6	4-2x10	8-6	4-2x10	9-4	4-2x10	10-0	4-2x10
	7-11	3-2x12	8-11	3-2x12	9-9	3-2x12	10-7	3-2x12
	9-2	4-2x12	10-4	4-2x12	11-4	4-2x12	12-4	4-2x12

Note #1. This table provides maximum allowable spans in feet and inches for main beams or girders which are built-up from nominal 2-inch members.

Note #2. Fiber bending stress for various species and grades of wood is given in Appendix A21.

Note #3. The 2-inch members shall be laid on edge and fastened together with a double row of common nails not less than 3-1/2 inches in length. Nails shall be spaced not more than 18 inches apart in each row with the end nails placed 4 inches to 6 inches from the end of each piece.

Note #4. Where built-up wood beams are employed over a single span, the length of each individual piece used to fabricate the beam shall equal the length of the beam.

SECTION 83. ILHR 21.22 (6)(a) is amended to read:

ILHR 21.22 (6)(a) Floor Unless designed through structural analysis under s. ILHR 21.02, floor joists which are at right angles to the supporting wall shall not be cantilevered more than 2 feet over the supporting wall, and shall support only the wall and the roof above it.

SECTION 84. ILHR 21.22 (6)(b) is amended to read:

ILHR 21.22 (6)(b) Where overhanging floor joists are parallel/to/the supporting/wall perpendicular to the main joists, a double floor joist may be used to support lookout joists extending not more than 2 feet over the wall line below. The double joist shall be located a distance of twice the overhang from the lower wall. The lookout joists shall be fastened to the double joists with metal hangers. Lookout joists that extend more than 2 feet over the wall line below shall be designed through structural analysis under s. ILHR 21.02.

SECTION 85. ILHR 21.22 (9) is amended to read:

ILHR 21.22 (9) BRIDGING. Bridging shall be provided at intervals not exceeding 8 feet where the nominal depth to thickness ratio of sawn lumber framing is greater than 6 to 1. Bridging shall be provided for engineered framing components when required by the manufacturer.

SECTION 86. ILHR 21.225 is created to read:

ILHR 21.225 DECKS. Decks attached to dwellings and detached decks which serve an exit shall comply with the applicable provisions of this chapter, including but not limited to:

(1) Excavation requirements of s. ILHR 21.14;

(2) Footing requirements of s. ILHR 21.15 (1)(f);

(3) Frost penetration requirements of s. ILHR 21.16;

(4) Load requirements of s. ILHR 21.02;

(5) Stair, handrail and guardrail requirements of s. ILHR 21.04; and

(6) Decay protection requirements of s. ILHR 21.10.

SECTION 87. ILHR 21.25 (3)(a) is amended to read:

ILHR 21.25 (3)(a) Header size. The size of headers shall be determined in accordance with spans and loading conditions listed in Tables 21.25-B, 21.25-C, and 21.25-D. Headers for longer spans shall be designed by an engineering method under s. ILHR 21.02.

SECTION 88. ILHR 21.25 (6) is amended to read:

ILHR 21.25 (6) WALL SHEATHING. ~~Exposed~~ Any exposed plywood panel siding and plywood wall sheathing shall conform to the requirements shown in Table 21.25-E.

SECTION 89. Table 21.25-D Note is amended to read:

Table 21.25-D Note: *These tables are based on wood with a fiber bending stress of 1000. For other species with different fiber bending stresses, multiply the span by the square root of the ratio of the actual bending stress to 1000. Example: The allowable roof/ceiling span for a 28-foot wide house in Zone 2, using two 2 x 8 header members with a 1400 psi bending stress is 4 foot x ~~1400/1000/=/5/6/feet~~ $\sqrt{1400/1000}$ = 4.7 feet.

SECTION 90. ILHR 21.26 (6)(b) is amended to read:

ILHR 21.26 (6)(b) Lintels. Unless designed through structural analysis, lintels shall be provided using either steel angles or reinforcing bars in accordance with Table 21.26-C.

SECTION 91. ILHR 21.27 (1) is repealed and recreated to read:

ILHR 21.27 ROOF DESIGN. (1) ROOF LOADS. (a) General. Roof and roof/ceiling assemblies shall support all dead loads plus the minimum live loads as set forth in par. (b) and s. ILHR 21.02.

(b) Slope roof snow loads. Snow loads specified in s. 21.02 (1)(b) 2. may be reduced for roof slopes greater than 30 degrees by multiplying the snow load by Cs. The value of Cs shall be determined by the following:
$Cs = 1 - \frac{(a-30)}{40}$ where a is the slope of the roof expressed in degrees.

SECTION 92. ILHR 21.27 (3)(a) is amended to read:

ILHR 21.27 (3)(a) Roofing. Roofing shall be installed to shed water. Underlayment of 15-pound asphalt-impregnated felt paper or equivalent or other material designated as Class I when tested in accordance with ASTM Standard D 226 shall be provided under shingles. Fasteners shall be corrosion resistant.

SECTION 93. ILHR 21.28 (1) is amended to read:

ILHR 21.28 (1) ROOF RAFTERS. (a) Ridge boards. Where rafters meet to form a ridge, the rafters shall be placed directly opposite and secured to each other or to a ridge board a minimum of one inch, nominal, in thickness. Where rafters are offset more than the thickness of a rafter, a ridge board of 2 inches, nominal, in thickness shall be used.

(b) Bearing. The required bearing for wood rafters shall be in accordance with the National Design Specification for Wood Construction published by National Forest Products Association. In no case shall the bearing be less than 1 1/2 inches on wood or metal or less than 3 inches on masonry or concrete.

SECTION 94. ILHR 21.28 (2m) is created to read:

ILHR 21.28 (2m) CATHEDRAL CEILINGS. In cathedral ceilings, the upper end of the rafters shall be supported by a ridge beam or bearing wall, or thrust restraint shall be provided per s. ILHR 21.02.

SECTION 95. ILHR 21.28 (4)(c) is repealed and recreated to read:

ILHR 21.28 (4)(c) Ladders. Overhangs at gable end walls of more than 12 inches shall be provided with ladders (rafters which extend over the wall) which extend into the structure a distance no less than the length of the overhang. The ladders shall be fastened at the wall. The interior end of each ladder shall be attached to a rafter or truss with a hanger.

SECTION 96. ILHR 21.28 (5) and (title) and (6) are amended to read:

ILHR 21.28 (5)(title) ROOF TRUSSES. ~~Trusses/rafters/and prefabricated trusses/shall/be/designed/throughstructural/analysis/~~ Metal plate connected wood roof trusses shall be designed in accordance with the Design Specifications for Metal Plate Connected Wood Trusses and the National Design Specification for Wood Construction. Truss members shall not be cut, bored or notched ~~unless/designed/throughstructural/analysis~~.

(6) NOTCHING AND BORING. Notching and boring of beams or girders is prohibited unless determined through structural analysis. Notching and boring of ceiling joists shall comply with pars. (a) and (b).

(a) Notching. 1. Notches located in the top or bottom of ceiling joists shall not ~~exceed~~ have a depth exceeding 1/6 the depth of the joist, shall not have a length exceeding 1/3 the joist depth, and shall not ~~nor~~ be located in the middle third of the span of the joist.

2. Where ceiling joists are notched on the ends, the notch shall not exceed 1/4 the depth of the joist. Notches over supports shall be permitted to extend the full bearing length of the support.

(b) Boring. Holes bored in ceiling joists shall be located ~~in/the center~~ no closer than 2 inches to the top or bottom edges of the joist. ~~The~~ Where holes are located outside the middle 1/3 of the span, the diameter of the hole shall not exceed 1/3 the depth of the joist. Where the joist is notched, the hole shall not be closer than 2 inches to the notch.

SECTION 97. ILHR 21.28 (6)(a) 3. is created to read:

ILHR 21.28 (6)(a) 3. Bird-mouth cuts shall not exceed 1/3 the depth of the rafter unless the seat cut bears fully on the wall plate.

SECTION 98. ILHR 21.29 (intro.) is amended to read:

ILHR 21.29 (intro.) Masonry fireplaces shall be constructed of masonry, stone or concrete ~~and shall be provided with masonry chimneys~~. Masonry fireplaces shall be supported on foundations of concrete or masonry. Structural walls shall be at least 8 inches thick. Masonry fireplaces shall conform to the following requirements:

SECTION 99. ILHR 21.29 (5m) is created to read:

ILHR 21.29 (5m) RETURN AIR GRILLES. Return air grilles shall not be located in bathrooms, kitchens, garages, utility spaces or in a confined space defined under s. ILHR 23.06 in which a draft diverter or draft regulator is located.

SECTION 100. ILHR 21.29 (6) is repealed and recreated to read:

ILHR 21.29 (6) HEARTH AND HEARTH EXTENSION. Masonry fireplaces shall have hearth extensions of brick, concrete, stone, tile or other approved noncombustible material properly supported and with no combustible material against the underside of the hearth extension. There shall be a minimum of 4 inches of reinforced concrete under the hearth and hearth extension surface. Wooden forms or centers used during the construction of the hearths and hearth extensions shall be removed when the construction is completed. The minimum dimension of the hearth extension shall be based on the size of the fireplace opening as specified in Table 21.29-1.

SECTION 101. ILHR 21.29 (9) Note is repealed.

SECTION 102. ILHR 21.29 (12) is amended to read:

ILHR 21.29 (12) CHIMNEY CAPS. Chimneys shall be provided with chimney caps. Precast or cast-in-place concrete caps shall have a minimum thickness of 2 inches. A minimum of a 1/4-inch mortar joint shall be used between flues and caps, and shall be caulked or sealed.

SECTION 103. ILHR 21.30 (8) is amended to read:

ILHR 21.30 (8) CHIMNEY CAPS. Chimneys shall be provided with chimney caps. Precast or cast-in-place concrete caps shall have a minimum thickness of 2 inches. A minimum of a 1/4-inch mortar joint shall be used between flues and caps, and shall be caulked or sealed.

~~Note: Mortar means refractory cement.~~

SECTION 104. ILHR 21.32 (3) is repealed and recreated to read:

ILHR 21.32 (3) HEARTH EXTENSIONS. Hearth extensions shall be provided in accordance with the manufacturer's listing. Where no hearth extension is specified in the listing, a hearth extension shall be provided in accordance with s. ILHR 21.29 (6).

SECTION 105. Table 22.04-A is repealed and recreated to read:

TABLE 22.04-A

INDOOR DESIGN TEMPERATURES

SEASON	TEMPERATURE
Winter	
All areas except nonhabitable basement areas	70°F
Unheated nonhabitable basement areas only	45°F
Summer	
All areas	78°F

SECTION 106. ILHR 22.05 (1) is repealed and recreated to a read:

ILHR 22.05 (1) VAPOR RETARDERS. (a) Where thermal insulation is used, a vapor retarder shall be installed. The vapor retarder shall be installed on the interior side of the insulation, facing the heated interior, and behind the interior finish at the wall, ceiling and roof/ceiling assemblies.

(b) The vapor retarder shall cover the exposed insulation and the interior face of studs, joists and rafters. The vapor retarder shall be continuous in all areas except the box sill.

(c) Vapor retarders shall also be provided under slab and basement floors, and around the exterior insulation installed around ducts in unheated areas. Vapor retarders over crawl space floors shall be provided in accordance with s. ILHR 21.05 (4).

(d) The transmission rate of the vapor retarder shall not exceed one perm.

Note: Tongue-and-groove plywood may serve as the required vapor retarder where the transmission rate of the plywood does not exceed one perm.

SECTION 107. ILHR 22.06 (intro.) is amended to read:

ILHR 22.06 INSULATION STANDARDS FOR NONELECTRICALLY HEATED DWELLINGS. The thermal envelope of dwellings which are not electrically heated shall be insulated to meet the requirements of ~~this section~~ sub. (1) or (2).

SECTION 108. ILHR 22.06 (1) is repealed and recreated to read:

ILHR 22.06 (1) COMPONENT METHOD. Each component of the thermal envelope shall meet the thermal performance values specified in Table 22.06.

SECTION 109. Table 22.06 is created to read:

TABLE 22.06

INSULATION STANDARDS FOR NONELECTRICALLY HEATED DWELLINGS

Component of Thermal Envelope	Maximum Overall Thermal Transmittance, U_o
Roof/Ceiling[a]	0.029
Walls:	
Exterior walls above the foundation wall[b]	0.12
Foundation walls above-grade	
25% or less of the foundation wall exposed	0.25
More than 25% of the foundation wall exposed:	
Area equal to 25% of the foundation wall	0.25
Remaining portion	0.12
Below-grade walls[c]	0.20
Floors:	
Slab-on-grade[d]	0.11
Over unconditioned spaces[e]	0.09

Note a: Roof/ceiling assemblies include attic access panels and sky lights.

Note b: Includes box sills, windows and doors.

Note c: The thermal transmittance value applies to the surface area which extends from grade to 3 feet below-grade, or to the top of the footing, whichever is less. The insulation type shall be suitable for the below-grade application.

Note d: The thermal transmittance value applies to a surface area which extends from the top of a slab to 48 inches vertically downward or horizontally or a combination thereof with a total dimension of 48 inches.

Note e: Includes unheated crawl spaces, basements, garages and other spaces outside of the thermal envelope.

SECTION 110. ILHR 22.06 (2) to (8) are repealed.

SECTION 111. ILHR 22.06 (9) is renumbered 22.06 (2) and is amended to read:

ILHR 22.06 (2) SYSTEM DESIGN. The overall thermal transmittance or U_o for any one component (such as wall, roof/ceiling or floor) may be increased and the U_o for other components decreased provided that the overall heat loss for the entire building enclosure does not exceed the total heat loss resulting from complying with ~~s. ILHR 22.06 (7) to (8)~~ sub. (1).

SECTION 112. ILHR 22.06 (10) is renumbered 22.06 (3)(a).

SECTION 113. ILHR 22.06 (3)(b) is created to read:

ILHR 22.06 (3)(b) The thermal resistance or thermal transmittance values used in heat gain or loss calculations shall be those given in the ASHRAE Handbook of Fundamentals or shall be substantiated by the submittal of test data from an independent laboratory that verifies the claimed thermal resistance for the specific application of the product.

Note: See Appendix for a table of R-values reprinted from the ASHRAE Handbook of Fundamentals.

SECTION 114. ILHR 22.09 is repealed and recreated to read:

ILHR 22.09 ACCURACY OF CALCULATIONS. (1) The thermal transmittance values used in heat gain or loss calculations shall have a minimum decimal accuracy of 4 places, rounded to 3.

(2) The thermal resistance or thermal transmittance values used in heat gain or loss calculations shall be those given in the ASHRAE Handbook of Fundamentals or shall be substantiated by the submittal of test data from an independent laboratory that verifies the claimed thermal resistance for the specific application of the product.

Note: See the Appendix for a table of R-values reprinted from the ASHRAE Handbook of Fundamentals.

SECTION 115. Table 22.10-A is repealed and recreated to read:

TABLE 22.10-A

INDOOR DESIGN TEMPERATURES

SEASON	TEMPERATURE
Winter	
All areas except nonhabitable basement areas	70°F
Unheated nonhabitable basement areas only	45°F
Summer	
All areas	78°F

SECTION 116. ILHR 22.11 (1) is repealed and recreated to read:

ILHR 22.11 (1) VAPOR RETARDERS. (a) A vapor retarder shall be installed to prevent water vapor from condensing within the insulated cavity. The vapor retarder shall be installed on the interior side of the insulation, facing the heated interior, and behind the interior finish at the wall, ceiling and roof/ceiling assemblies.

(b) The vapor retarder shall cover the exposed insulation and the interior face of studs, joists and rafters. All joints in the vapor retarder shall be overlapped and secured or sealed. Rips and punctures in the vapor retarder shall be patched with vapor retarder materials and taped or sealed. Openings in the vapor retarder around electrical boxes and other utility services shall be taped or sealed.

(c) Vapor retarders shall also be provided under slab and basement floors, and around the exterior insulation installed around ducts in unheated areas. Vapor retarders over crawl space floors shall be provided in accordance with s. ILHR 21.05 (4).

(d) The transmission rate of the vapor retarder shall not exceed 0.1 perm.

SECTION 117. ILHR 22.11 (4)(b) Note #2 is amended to read:

ILHR 22.11 (4)(b) Note #2: Information on ventilation capacity calculations is contained in ~~Appendix E~~ the energy worksheet.

Note #3: An example of the energy worksheet is contained in Appendix A22.

SECTION 118. ILHR 22.15 is amended to read:

ILHR 22.15 SELECTION OF EQUIPMENT. ~~The~~ (1) GENERAL. Except as provided in sub. (2), the output capacity of the mechanical heating, cooling and air conditioning equipment shall not exceed the calculated heating load and cooling load by more than 15 percent, except to satisfy the next closest manufacturer's nominal size.

(2) WATER HEATERS USED FOR SPACE HEATING. The output capacity of water heaters that are used for simultaneous space and domestic water heating shall exceed the calculated space heating load by at least 43 percent, but by no more than 49 percent. Other sizing methods may be used if approved by the department for water heaters providing simultaneous space and domestic water heating.

SECTION 119. ILHR 22.19 (2)(b) Note is repealed and recreated to read:

Note: Efficiencies for electrical equipment and combustion heating equipment manufactured after January 1, 1992, shall comply with the National Appliance Energy Conservation Act which will preempt state regulations. As an exception, the NAECA will apply to air conditioners and central air conditioning heat pumps classed as single package systems which are manufactured after January 1, 1993.

SECTION 120. ILHR 22.20 (intro.) is repealed and recreated to read:

ILHR 22.20 ELECTRONIC IGNITION AND AUTOMATIC FLUE DAMPERING. Combustion space heating equipment shall be provided with intermittent ignition devices and automatic flue dampers.

SECTION 121. ILHR 22.20 (1) to (4) are renumbered 22.20 (1)(a) to (d).

SECTION 122. ILHR 22.20 (1)(intro.) is created to read:

ILHR 22.20 (1) Automatic flue dampers may be eliminated where:

SECTION 123. ILHR 22.20 (2) and (3) are created to read:

ILHR 22.20 (2) Appliances that burn solid fuels may be provided with manual dampers in lieu of automatic dampers.

(3) Thermally operated dampers shall not be used on boilers.

SECTION 124. ILHR 22.20 (4) is created to read:

ILHR 22.20 (4) Intermittent ignition devices may be omitted on water heaters used for simultaneous space and domestic water heating.

SECTION 125. A note is created at the end of ILHR 22.20 to read:

Note: Furnaces and boilers manufactured after January 1, 1992, shall comply with the National Appliance Energy Conservation Act which will preempt state regulations for electronic ignition and automatic flue dampering.

SECTION 126. ILHR 22.21 is repealed.

SECTION 127. ILHR 22.22 (1) is renumbered 22.21.

SECTION 128. ILHR 22.22 (2) is repealed.

SECTION 129. ILHR 22.23 is renumbered ILHR 22.22.

SECTION 130. ILHR 23.02 (3) is amended to read:

ILHR 23.02 (3) VENTILATION. (a) Habitable rooms, kitchens and bathrooms, without openable windows shall be provided with a mechanical ventilation system producing one air change per hour. All ~~required~~ exhaust vents shall terminate outside the structure. Ductless exhaust fans may be used in lieu of required ventilation systems if approved by the department under s. ILHR 20.18 for that use.

(b) Any bathroom with a bathtub or shower shall be provided with exhaust ventilation capable of exhausting 50 cubic feet per minute.

SECTION 131. ILHR 23.04 (intro) is amended to read:

ILHR 23.04 TYPES OF EQUIPMENT. ~~Heating~~ All heat producing appliances and cooling appliances shall be listed by a testing agency acceptable to the department. The clearances from combustible materials in Tables 23.04-A and 23.04-B shall apply unless otherwise shown on listed appliances.

Note: The following agencies are acceptable to the department: The American Gas Association (AGA), Underwriter's Laboratories (UL), ~~and~~ PFS Corporation, Warnock Hersey International, ETL Testing Laboratories, and other testing agencies approved per s. ILHR 20.18.

SECTION 132. ILHR 23.04 (1)(e) is amended to read:

ILHR 23.04 (1)(e) Location. No ~~furnace~~ space or water heating appliance shall be placed in a bedroom, bathroom, closet, or garage unless listed for such installation. Appliances installed in garages shall have burners and burner ignition devices located at least 18 inches above the floor and be protected or located so that the furnace is not subject to physical damage from a moving vehicle.

SECTION 133. Table 23.04-B is repealed and recreated to read:

TABLE 23.04-B

Clearances (Inches) With Specified Forms of Protection*

Type of Protection Applied to the combustible material unless otherwise specified and covering all surfaces within the distance specified as the required clearance with no protection. Thicknesses are minimum.	Where the required clearance with no protection is:											
	36 inches			18 inches			12 inches		9 inches	6 inches		
	Above	Sides & Rear	Vent Connector	Above	Sides & Rear	Vent Connector	Above	Sides & Rear	Vent Connector	Above	Sides & Rear	Vent Connector
(a) 1/4" insulating millboard** spaced out 1"***	30	18	30	15	9	12	9	6	6	3	2	3
(b) 28 gage sheet metal on 1/4" insulating millboard**	24	18	24	12	9	12	9	6	4	3	2	2
(c) 28 gage sheet metal spaced out 1"***	18	12	18	9	6	9	6	4	4	2	2	2
(d) 28 gage sheet metal on 1/8" insulating millboard** spaced out 1"***	18	12	18	9	6	9	6	4	4	2	2	2
(e) 1/4" insulating millboard** on 1" mineral wool bats reinforced with wire mesh or equivalent	18	12	18	6	6	6	4	4	4	2	2	2
(f) 22 gage sheet metal on 1" mineral wool bats reinforced with wire or equivalent	18	12	12	4	3	3	2	2	2	2	2	2
(g) 1/4" insulating millboard**	36	36	36	18	18	18	12	12	9	4	4	4

*All clearances shall be measured from the outer surface of the equipment to the combustible material disregarding any intervening protection applied to the combustible material.

**A factory fabricated board formed with noncombustible materials, normally fibers, and having a thermal conductivity in the range of 1 Btu inch per square foot per ^{o}F, or less.

***Spacers shall be of noncombustible material.

SECTION 134. ILHR 23.045 (1) is amended to read:

ILHR 23.045 (1) GENERAL. Solid-fuel-burning appliances shall be installed as specified in this section unless the manufacturer or listing specifies the use of protection or clearances other than those specified in this section. All solid-fuel-burning appliances ~~and/factory/manufactured fireplaces~~ shall be tested and listed by an accepted testing agency.

Note: Factory-built fireplaces shall comply with s. ILHR 21.32.

SECTION 135. ILHR 23.045 (2)(b)(intro.) is amended to read:

ILHR 23.045 (2)(b) Combustion air. Solid-fuel-burning appliances shall not be installed in spaces where the volume of the room (measured in cubic feet) is less than ~~1/20th~~ 1/10th of the maximum input BTU rating of all the ~~appliances~~ appliances located in the room, unless combustion air is provided by one of the following methods:

SECTION 136. ILHR 23.045 (2)(b) 4 is created to read:

ILHR 23.045 (2)(b) 4. 'Location.' Combustion air openings shall not be located in a confined space in which a draft diverter or draft regulator is located.

SECTION 137. ILHR 23.045 (3)(a) 1 is amended to read:

ILHR 23.045 (3)(a) 1. Factory-built chimneys or vents. A listed residential-type and building heating appliance chimney ~~or/building/heating appliance/only/chimney~~ may be used with solid fuel-burning appliances if the chimneys have been tested 3 times to a minimum flue gas temperature exposure of 2100°F, under the conditions specified by the listing agency, for at least 10 minutes each time.

SECTION 138. Table 23.045-A is amended to read:

TABLE 23.045-A

METAL THICKNESS FOR PIPE CONNECTORS

Diameter of Connector (inches)	~~Galvanized~~ Sheet Gage No.	Minimum Thickness Inches
6 to 10	24	.023
over 10 to 16	22	.029
over 16	16	.056

SECTION 139. Table 23.045-C is repealed and recreated to read:

TABLE 23.045-C

FLOOR MOUNTINGS FOR SOLID FUEL-BURNING APPLIANCES

Kind of Appliance	Allowed Mounting
(1) All forced air and gravity furnaces, steam and water boilers. or (2) Residential-type ranges, water heaters, fireplace stoves, room heaters and combination fireplace stove/room heaters, having less than 2 inches of ventilated open space beneath the fire chamber or base of the appliance.	Floors of fire-resistive construction with noncombustible flooring and surface finish, or fire-resistive arches or slabs. This construction shall have no combustible material against the underside. Such heaters and combination fireplace 18 inches beyond the appliance on all sides. These appliances shall not be placed on combustible floors.
(3) Residential-type ranges, water heaters, fireplace stoves, room heaters and combination fireplace stove/room heaters having legs or pedestals providing 2 to 6 inches of ventilated open space beneath the fire chamber or base of the appliance.	On combustible floors when such floors are protected by 4 inches of hollow masonry, laid to provide air circulation through the masonry layer. Such masonry shall be covered with 24 gage sheet metal. The required floor protection shall extend at least 18 inches on all sides of the appliance. Noncombustible floors shall extend at least 18 inches on all sides of the appliance.
(4) Residential-type ranges, water heaters, fireplace stoves, room heaters and combination fireplace stove/room heaters having legs or pedestals providing over 6 inches of ventilated open space beneath the fire chamber or base of the appliance.	On combustible floors when such floors are protected by closely spaced masonry units of brick, concrete or stone, which provide at least 2 inches of thickness. Such masonry shall be covered by or placed over a sheet of 24 gage sheet metal. The required floor protection shall extend at least 18 inches on all sides of the appliance. Noncombustible floors shall extend at least 18 inches on all sides of the appliance.

SECTION 140. ILHR 23.045 (8)(a) is amended to read:

(a) Return air duct. The area of the return air duct shall be at least equal to the area of the warm air supply duct. The return air duct shall be of the same material as specified for supply air ducts. Return air grilles shall not be located in bathrooms, kitchens, garages, utility spaces or in a confined space defined under s. ILHR 23.06 in which a draft diverter or draft regulator is located.

SECTION 141. ILHR 23.08 (2)(a) is repealed and recreated to read:

ILHR 23.08 (2)(a) Supply and return air ducts. Supply and return air ducts shall comply with this paragraph except that ducts attached to appliances may be constructed of materials specified in the appliance listing.

1. Kitchen exhaust ducts and ducts for air exceeding 250°F shall be constructed of sheet metal or lined with sheet metal or constructed of other noncombustible noncorrigated materials.

2. Ducts connected to furnaces shall be constructed of sheet metal for at least 6 feet from the furnace.

3. Unlined wood joists and stud spaces may be used as return air ducts. Wood joists and stud spaces used as return air ducts shall be cut off from all remaining unused portions by tight-fitting stops of sheet metal or of wood at least 2 inches nominal thickness. Bridging shall be removed from the joist space.

SECTION 142. ILHR 23.08 (3) is amended to read:

ILHR 23.08 (3) EXTERIOR DUCTS. ~~Ducts~~ (a) General. Except as provided in par. (b), ducts located outside the dwelling (in garages, attics, and other similar spaces) shall be constructed of galvanized steel or corrosion-resistive metal.

(b) Exception. Plastic may be used for bath fan or air-to-air heat exchanger exhaust runs located in spaces outside the dwelling.

SECTION 143. ILHR 23.08 (6) is amended to read:

ILHR 23.08 (6) THICKNESS. ~~Ducts~~ Sheet metal ducts shall conform to the minimum thicknesses listed in Table 23.08-A.

SECTION 144. ILHR 23.11 (2) is amended to read:

ILHR 23.11 (2) TERMINATION. (a) Chimneys. All listed factory manufactured chimneys ~~or vents~~ depending on a principal of gravity for the removal of products of combustion shall terminate at the location specified in the product listing. For masonry chimneys or where termination location is not specified as a part of the listing, the chimney shall extend at least 3 feet above the highest point where the ~~chimneys and vents pass~~ chimney passes through the roof of the building, and at least 2 feet higher than any ridge, peak, wall, or roof within 10 feet horizontally of the chimney ~~or vent~~.

(b) Vents. Gas and oil appliance vents shall terminate in locations specified in their listings.

SECTION 145. ILHR 23.12 (8) is amended to read:

ILHR 23.12 (8) CHIMNEY CAPS. Chimneys shall be provided with chimney caps. Precast or cast-in-place chimney caps shall have a minimum thickness of 2 inches. A minimum of a 1/4-inch mortar joint shall be used between flues and caps, and shall be caulked or sealed.

SECTION 146. ILHR 23.13 (1) is amended to read:

ILHR 23.13 (1) RESIDENTIAL TYPE AND BUILDING HEATING APPLIANCE. An approved "residential type and building heating appliance" chimney ~~or/a/ "building/heating/appliance/only"/chimney~~ may be used with ~~solid,~~ liquid or gas-fired heating appliances where the flue gas temperature does not exceed 1000°F continuously, and does not exceed 1400°F for infrequent brief periods of forced firing.

SECTION 147. ILHR 23.15 (2)(c) is repealed.

SECTION 148. ILHR 23.15 (2)(e) is renumbered 23.15 (2)(c).

SECTION 149. ILHR 23.15 (2)(f) is repealed.

SECTION 150. ILHR 23.15 (2)(d) is created to read:

ILHR 23.15 (2)(d) Dampers. Automatic or manual flue dampers shall be provided in accordance with s. ILHR 22.20. When used, listed automatic dampers shall be installed in accordance with the listing.

SECTION 151. ILHR 23.15 (2)(g) and (h) are renumbered 23.15 (2)(e) and (f).

SECTION 152. ILHR 23.155 (1) (intro.) is renumbered 23.155 (intro.) and amended to read:

ILHR 23.155 MULTIPLE APPLIANCE VENTING. ~~Except as provided in sub. (2),~~ 2 Two or more listed gas-or liquid-fueled appliances ~~using the same type of fuel~~ may be connected to a common gravity-type flue provided the appliances are equipped with listed primary safety controls and listed shutoff devices and comply with the following requirements.

SECTION 153. ILHR 23.155 (1)(a) to (c) are renumbered 23.155 (1) to (3).

SECTION 154. ILHR 23.155 (2) is repealed.

SECTION 155. ILHR 23.16 (1)(b) is repealed.

SECTION 156. ILHR 23.16 (1)(c) is renumbered 23.16 (1)(b).

SECTION 157. ILHR 23.16 (2)(a) is amended to read:

ILHR 23.16 (2)(a) Except as provided in pars. (b) and (c), oil storage tanks shall be installed in accordance with ch. ~~Ind 8~~/ILHR 10, Flammable and Combustible Liquids.

SECTION 158 ILHR 24.01 is amended to read:

ILHR 24.01 ELECTRICAL STANDARDS. All electrical wiring, installations, equipment and materials used in the construction of dwellings shall comply with the Wisconsin Administrative Electrical Code, Vol. 2, ch. ILHR 16.

Note: Section ~~167.16~~ 101.865, Stats., requires that the company furnishing the electric current obtain proof that the wiring complies with these standards before furnishing the current. Proof must be a certificate furnished by the inspection department or officer, or if there is no officer, an affidavit furnished by the person doing the wiring.

SECTION 159. Chapter ILHR 25 is repealed and recreated to read:

Chapter ILHR 25
PLUMBING

ILHR 25.01 PLUMBING. The design, construction and installation of plumbing shall comply with the requirements of the Wisconsin Administrative Plumbing Code, chs. ILHR 81 to 86.

SECTION 160. ILHR 82.10 (3) is amended to read:

ILHR 82.10 (3) ~~In accordance with chs. Ind 20 to 25, each~~ Each dwelling unit connected to a private sewage system or public sewer shall have at least one water closet, one wash basin, one kitchen sink and one bathtub or shower to meet the basic requirements of sanitation and personal hygiene. All other structures for human occupancy shall be equipped with sanitary facilities in sufficient numbers as specified in chs. ILHR 50 to 64.

SECTION 161. Ind 69.21 (1) is amended to read:

Ind 69.21 (1) UNIFORM BUILDING PERMIT SEAL. A fee of $22.00 shall be remitted to the department or its agent at the time of application for a Wisconsin Uniform Building Permit Seal for a new dwelling. A fee shall not be required for additions or alterations to dwellings. Municipalities ~~administering~~ enforcing the Uniform Dwelling Code shall purchase one $22.00 permit seal for each new dwelling ~~or addition or alteration to dwellings~~ falling within the scope of the Uniform Dwelling Code.

Note to Revisor: On page 236 in Appendix, please replace the section titled VAPOR BARRIERS and the first paragraph of the section titled EQUIPMENT with the following:

VAPOR RETARDERS

Vapor retarders are used in conjunction with insulation to decrease the change of moisture condensation inside the building insulation. Vapor retarders are placed on the side of the wall, ceiling or floor that is warm in winter. For equal vapor pressures, moisture vapor penetration through holes or tears in the insulation vapor retarder is proportional to the size of the opening. Holes or tears should be repaired. A snug fit of blanket flanges against the framing is necessary to prevent moisture from bypassing the vapor retarder.

EQUIPMENT

The installation of the heating system can contribute to inefficiencies. A furnace which is oversized by a factor of 2 will require 8 to 10 percent more fuel than a furnace of correct size. An installation that has uninsulated ducts passing through an unheated crawl or attic space will lose about 1.5 BTU per hour per square foot of duct per degree of temperature differential between duct air and outside air. This can amount to 40 percent of a furnace output under mild conditions. Undersized ducting will reduce the amount of circulating air and will affect the capacity of the furnace, but will normally have little effect upon its efficiency. Atmospheric combustion equipment that draws its combustion and stack-dilution air from the heated space will require more fuel to heat the required makeup air than sealed combustion equipment. Stack heat recovery devices can recover from about 4 percent at 450°F to 8 percent at 800°F.

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EFFECTIVE DATE

Pursuant to s. 227.22 (2)(intro.) Stats., these rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register.

* *

143WPP02

Tommy G. Thompson
Governor

Carol Skornicka
Secretary

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State of Wisconsin
Department of Industry, Labor and Human Relations

January 8, 1992

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Revisor of Statutes

Dear Messrs. Poulson and LaFollette:

TRANSMITTAL OF RULE ADOPTION

CLEARINGHOUSE RULE NO. 90-233

RULE NO. Chapters ILHR 20-25

RELATING TO: Uniform Dwelling Code

Pursuant to section 227.20, Stats., agencies are required to file a certified copy of every rule adopted by the agency with the offices of the Secretary of State and the Revisor of Statutes.

At this time, the following material is being submitted to you:

1. Order of Adoption.
2. Rules Certificate Form.
3. Rules in Final Draft Form.

Pursuant to section 227.114, Stats., a summary of the final regulatory flexibility analysis is included for permanent rules. A fiscal estimate and fiscal estimate worksheet is included with an emergency rule.

Respectfully submitted,

Carol Skornicka
Secretary

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Bureau