

TABLE 67.05-A

INSULATION OF ATTICS AND ACCESS PANELS OR DOORS				
	If insulation of an R-Value less than or equal to R-5 is present	If insulation of an R-Value greater than R-5, but less than or equal to R-10 is present	If insulation of an R-Value greater than R-10, but less than or equal to R-19 is present	If insulation of an R-Value greater than R-19 is present
Attics (a)(b)(c)	Insulation shall be added to bring the total insulation level to R-38	Insulation shall be added to bring the total insulation level to R-38	R-19 insulation shall be added to the existing insulation	No additional insulation is required
Horizontal Access Panels or Doors to Attics or Other Vented Spaces	Insulation shall be added to bring the total insulation level to R-19	Insulation shall be added to bring the total insulation level to R-19	Insulation shall be added to bring the total insulation level to R-19	No additional insulation is required
Vertical Access Panels or Doors to Attics or Other Vented Spaces	Insulation shall be added to bring the total insulation level to R-5	No additional insulation is required	No additional insulation is required	No additional insulation is required

(a) Wall and ceiling cavities open to the attic area shall be insulated.

(b) If knob and tube wiring is present, insulation shall be installed in such a way as not to cause a hazard. The owner may wish to consult the municipal inspector or an insulation contractor for the correct insulation procedure.

(c) If floor boards are present, insulation shall be installed over the floor boards to the required R-value or the cavities below the floor boards shall be completely filled with insulation.

(b) *Insulation of box sills, side walls and floors.* Insulation shall be provided in all accessible areas as specified in Table 67.05-B

TABLE 67.05-B
INSULATION OF BOX SILLS, SIDE WALLS AND FLOORS

	If insulation of an R-Value less than or equal to R-2.5 is present	If insulation of an R-Value greater than R-2.5, but less than or equal to R-10 is present	If Insulation of an R-Value greater than R-10 is present
Box Sills (a)	Insulation shall be added to bring the total insulation level to R-19	R-11 insulation shall be added to the existing insulation	No additional insulation is required
Side Walls (a) (b) (c) (d)	Insulation shall be added to bring the total insulation level to R-11	No additional insulation is required	No additional insulation is required
Floors over Vented Spaces (a) (e)	Insulation shall be added to bring the total insulation level to R-19	R-11 insulation shall be added to the existing insulation	No additional insulation is required

(a) Walls or floors which separate the rental unit from a garage which is unvented or is vented with outside air shall be insulated, if accessible.

(b) If a garage is attached to a rental unit and the garage is vented with outside air which is heated or supplied with heated air from another source, then the exterior walls of the garage shall be insulated, if accessible.

(c) Wall and ceiling cavities open to the attic area shall be insulated.

(d) If knob and tube wiring is present, insulation shall be installed in such a way as not to cause a hazard. The owner may wish to consult the municipal inspector or an insulation contractor for the correct insulation procedure.

(e) Structural concrete floors or ceilings are considered to be inaccessible due to the difficulty of attaching insulation and fire barriers.

(c) *Insulation of ducts and pipes.* Insulation shall be provided in all accessible areas as specified in Table 67.05-C.

TABLE 67.05-C
INSULATION OF DUCTS, PIPES AND FOUNDATIONS

BUILDING ELEMENT	AMOUNT OF INSULATION REQUIRED
Heating Supply and Return Ducts Located In:	
Vented Spaces	R-5
Uninsulated Basements	R-5
Crawl Spaces Which Have Insulated Ceilings	R-5
Basements Which Have Insulated Ceilings	R-5
Steam Heating Pipes Not Located In Habitable Rooms, Kitchens or Bath or Toilet Rooms	R-4
Hydronic Heating Pipes Not Located In Habitable Rooms, Kitchens or Bath or Toilet Rooms	R-2
Domestic Hot Water Pipes:	
Circulating	R-2
Noncirculating Hot and Cold Water Pipes Within 5 Feet of Water Heater	R-2
Foundations	
Exterior (above grade and to 18" below grade) or	R-5
Interior (full height)	R-5

(2) **WINDOWS.** All windows shall be double glazed or shall be provided with exterior or interior storm windows except that windows of store fronts are exempt from the requirements of this subsection. Where exterior storms are installed over openable windows required for natural ventilation, a portion of the storm shall be openable from the inside. Windows located in boiler or furnace rooms do not need to be double glazed or equipped with storms. Windows located in basement areas which are not habitable rooms may be permanently sealed and insulated in lieu of double glazing or installing exterior or interior storm windows.

(3) **WEATHERSTRIPPING.** Windows, including basement windows, which are designed to be opened, doors exposed to the exterior, and doors and access panels to attic or other vented spaces shall be provided with weatherstripping. All swinging exterior doors shall be equipped with a doorsweep. Any crack that exceeds 0.10 inches shall be weatherstripped. Windows located in boiler or furnace rooms need not be weatherstripped.

(4) **CAULKING.** All accessible exterior joints within the first 3 stories between the foundation and box sill; around the windows, including basement windows, and door frames; at penetrations from utility services and pipes, dryer vents and all other openings or cracks in the exterior building envelope shall be caulked, gasketed or otherwise sealed. This requirement does not apply to openings for combustion air and joints in the siding.

(5) **DOORS.** Patio doors shall be insulated, double glazed or equipped with a storm door. Where no vestibule exists, inward swinging exterior doors shall be insulated, double glazed or equipped with a storm door.

Door lites need not be double glazed if they are part of the door. All storm doors shall be equipped with a self-closing device.

(6) **MOISTURE CONTROL.** (a) *Ceilings.* Minimum ventilation shall be provided above the ceiling or attic insulation. The free area of ventilation shall be at least 1/300 of the horizontal area. Where overhangs with soffits are provided, one-half of the free area shall be near the eaves and one-half in the upper one-third of the roof or gable. Where it is impractical to install gravity venting, power vent systems may be used to provide equivalent ventilation. Power vents shall be connected to a humidistat.

(b) *Crawl spaces.* Minimum ventilation shall be provided in unheated crawl spaces. The area of ventilation shall be at least 1/300 of the floor space. The area of ventilation shall be distributed equally to at least 2 openings in the foundation wall. The openings shall be located to provide cross ventilation. Where accessible, a vapor barrier shall be applied to cover the exposed earth.

(7) **EQUIPMENT.** All heating equipment which is not electric and all water heaters which are not electric shall have been examined within 6 months prior to the date of the energy efficiency inspection by a contractor, service technician, or energy supplier to ensure that the equipment is properly adjusted and maintained. Water heaters located in vented spaces and in basements and crawl spaces which are uninsulated or have insulated ceilings shall be provided with insulated jackets with a minimum insulating value of R-5. Insulated jackets are not required for water heaters stamped as meeting ASHRAE 90-75, 90-77 or 90A-80. Combustion air openings shall be unobstructed. All showers shall be equipped with flow restricters rated at three gallons per minute or less. Through-wall air conditioners shall be fully covered, and effectively sealed from the inside or outside or both during the heating season.

Note 1: The department will accept as evidence a service report signed and dated by the contractor, service technician or energy supplier that the heating equipment and water heater is properly adjusted and maintained.

Note 2: ASHRAE is an acronym for the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. Copies of ASHRAE standards for domestic water heating systems may be purchased from the ASHRAE Publications Sales Department, 1791 Tullie Circle N.E., Atlanta, Georgia 30329.

History: Cr. Register, February, 1983, No. 326, eff. 3-1-83; am. (intro.), (2) to (5) and (7), r. and recr. table, Register, December, 1984, No. 348, eff. 1-1-85; emerg. am. table, (6) (b) and (7), eff. 1-1-85; am. (intro.), (2) to (5) and (7), r. and recr. (1), Register, November, 1985, No. 359, eff. 12-1-85; am. table 67.05-C, Register, December, 1985, No. 360, eff. 1-1-86.

ILHR 67.06 Cost payback exemptions. No specific energy conservation measure may be required under s. ILHR 67.05 (1) to (5) and (7) where the cost payback obtained from installing the specific energy measure exceeds 5 years. In order to receive an exemption for a specific energy measure, the owner shall submit evidence to the department to demonstrate that the cost payback for the specific energy measure exceeds 5 years. Envelope cost payback calculations shall be made in accordance with this section unless otherwise approved by the department. All calculations and analyses shall be based on the actual conditions to which the specific energy measure is subject. Other nonenvelope cost payback calculations utilizing principles and concepts outlined in this section may be approved by the department. The final acceptance of any cost payback shall be made by the department.

(1) **APPLICATION FOR COST PAYBACK EXEMPTIONS.** Any request for an exemption of a specific energy conservation measure based on cost payback shall be made in writing on application forms provided by the department.

Note: See Appendix for an example of the application form (SBD-7303).

(2) **PROCESSING APPLICATIONS FOR EXEMPTIONS.** (a) *Information required.* Any application for an exemption shall be submitted to the department for processing along with the 5-year payback calculations, drawings and pictures describing the specific energy conservation measure to be exempted, fuel bills or utility documentation of fuel cost, the cost estimate for the installed specific energy conservation measure, and processing fees. The application form shall be signed and dated by the owner requesting the exemption.

(b) *Department processing.* The department shall evaluate and process the application in accordance with this section and shall process the applications for exemption in the order of the date the applications are received by the department. All forms shall be completed and all information requested shall be received by the department before processing of the exemption will occur. Submitted cost estimates which differ significantly from the average or typical costs established by the department, will be subject to department examination. The applicant may be asked for additional information concerning the particular energy conservation measure. Analyses submitted on department worksheets or pre-approved analyses shall receive priority over alternative analysis methods.

(3) **EXEMPTION FOR FOUNDATION INSULATION.** Any request for an exemption from foundation insulation shall include an analysis of the cost payback for each of the following conditions:

(a) Installing insulation of the basement or crawl space ceiling, if accessible;

(b) Installing insulation at the exterior of the foundation, if accessible; and

(c) Installing insulation at the interior of the foundation, if accessible.

(3m) **EXEMPTION FOR STORM WINDOWS.** Any request for an exemption from storm windows shall include an analysis of the cost payback for each of the following conditions:

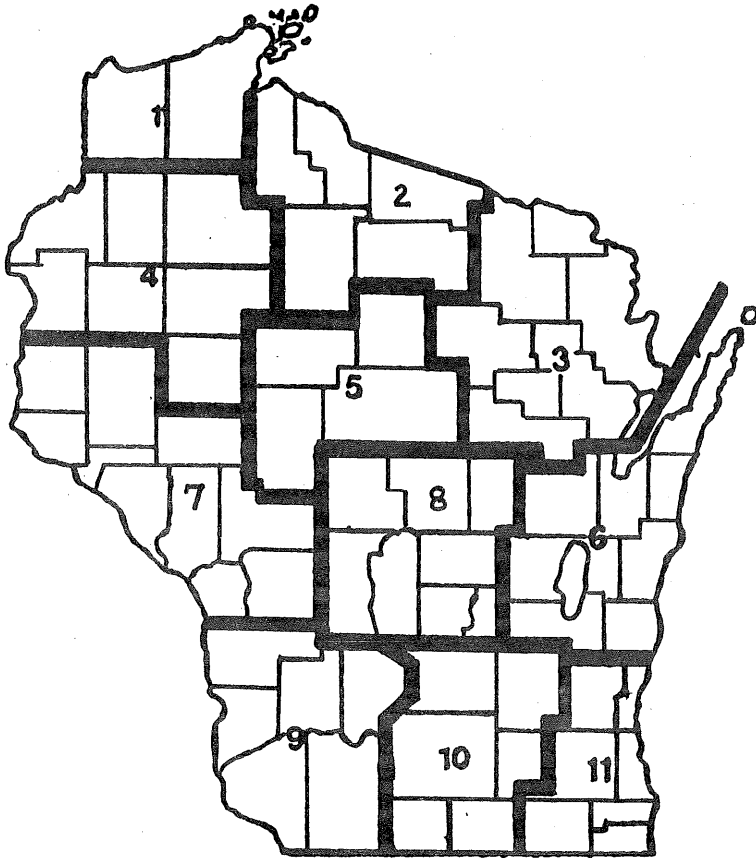
(a) Installing storm windows from the exterior, if accessible; and

(b) Installing storm windows from the interior, if accessible.

(4) **PROCEDURES FOR CALCULATING PAYBACK.** The calculation of the envelope energy savings and the determination of the economic feasibility for each minimum energy efficiency standard shall be computed as follows:

FIGURE 67.06
DEGREE DAYS PER YEAR

Wisconsin Division of State Energy Degree Day Zones



Zone 1 - 9, 169
Zone 2 - 9, 114
Zone 3 - 8, 460
Zone 4 - 8, 721
Zone 5 - 8, 487

Zone 6 - 8, 098
Zone 7 - 8, 388
Zone 8 - 8, 201
Zone 9 - 7, 171
Zone 10 - 7, 730
Zone 11 - 7, 444

(a) *Energy savings calculations.* The following energy savings equation shall be used to calculate the heat loss of the specific energy measure:

$$ES = \frac{(U_i - U_f) \times A \times D \times 24}{K \times V}$$

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where:

ES = The fuel or energy savings in the appropriate energy units for the estimated period; e.g., hundreds of cubic feet of natural gas, gallons of fuel oil, or kilowatt-hours of electricity.

U_i = U value of the existing building element, including any insulation that is already contained in the building element being evaluated, expressed in Btu/hr - ft²-F°.

U_f = U value of the existing building element, including the level of insulation required in Table 67.05 for the specific building element being evaluated, expressed in Btu/hr - ft²-F°.

A = The gross area of the building element being evaluated, in square feet.

V = The heating value of the fuel type:

Oil	138,500 Btu/Gal
Gas	100,000 Btu/CCF
Electricity	3413 Btu/Kilowatt-Hr
LP (Propane & Butane)	91,500 Btu/Gal
Coal	10,000 Btu/lb
Wood	4,000 Btu/lb or 25,000,000 Btu/cord

K = A correction factor which includes the effects of rated full load efficiency, part load performance, oversizing and energy conservation devices. The following factors shall be used unless higher AFUE's for newer equipment can be substantiated:

LP	0.55
Gas	0.55
Oil	0.55
Electricity	1.00
Wood	0.50
Coal	0.50

D = Number of 65° F degree days for the estimated period based on geographical zones in Figure 67.06.

(b) *Energy price.* The current retail price per unit of energy (P) shall be determined for the annual energy savings at the time the calculations are submitted.

(c) *Cost of improvement.* The actual total cost (C) of the energy savings improvement shall be determined and an itemized breakdown of the total cost for labor and materials shall be submitted to the department. Additional information may be requested from the applicant if the cost is outside the range of expected, current regional costs.

(d) *Cost payback.* The cost payback period shall be calculated using the following formula:

$$\text{P.B.} = \frac{C}{P \times \text{ES}}$$

where:

- P.B. = Payback in number of years
- C = Total cost of energy measure
- ES = Total energy savings
- P = Current retail price of energy unit

(5) **PAYBACK LESS THAN 5 YEARS.** If the payback period (P.B.) is less than or equal to 5 years, the specific energy measure shall be installed.

(6) **PAYBACK EXCEEDS 5 YEARS.** If the payback period (P.B.) is more than 5 years, the department shall issue an exemption. Although an exemption may be issued for any requirement, the department may specify an alternative requirement.

(7) **DEPARTMENT DETERMINATION AND NOTIFICATION.** After the department reviews the calculations and information submitted by the owner, the department shall notify the owner of its findings in writing. The department shall review and make a determination on payback calculations within 15 business days of receipt of all calculations and documents necessary to complete the review.

(8) **OWNER'S RESPONSIBILITY.** Upon receipt of the department's determination, the owner shall install the specific energy measure or provide a copy of the exemption letter to the certified inspector.

(9) **EXEMPTION EXPIRATION.** The exemption shall be valid for a period of 5 years from the date specified on the exemption.

History: Cr. Register, February, 1983, No. 326, eff. 3-1-83; r. and recr. Register, December, 1984, No. 348, eff. 1-1-85; emerg. r. (3), eff. 1-1-85; am. (7), Register, April, 1985, No. 352, eff. 5-1-85; am. (2) (b), (4) (a) and (6), r. and recr. (3), Register, November, 1985, No. 359, eff. 12-1-85; renum. (3) to be (3m), cr. (3), Register, December, 1985, No. 360, eff. 1-1-86.

Subchapter IV Inspection and Certification of Rental Units

ILHR 67.07 Request for energy efficiency inspection. An owner of a rental unit may request an energy efficiency inspection from the department or any inspector certified by the department under ch. ILHR 68 for the purpose of determining whether the rental unit meets the energy efficiency standards specified in this chapter. If an owner, after reasonable effort, is unable to procure an inspection from an authorized municipality or an independent certified rental unit energy inspector, a request for an inspection may be made to the department.

(1) **APPLICATION FOR INSPECTION FROM THE DEPARTMENT OR MUNICIPALITY.** Where an owner requests the inspection from the department or municipality, the owner shall apply for the inspection on forms obtained from the department or municipality.

Note: A copy of the application for inspection form (SBD-7267) is contained in the appendix.

(2) **FILING OF APPLICATION.** No application for inspections will be accepted by the department or municipality that does not contain all of the information requested on the application form. The application shall be filed with the department or municipality enforcing this chapter.

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(3) **FEES.** (a) *Municipal fees.* Any fee required by the municipality for administering and enforcing this chapter shall be deposited with the municipality at the time the application is filed.

(b) *Department fees.* Where the department administers and enforces this chapter, the fees required for inspection and certification shall be submitted at the time the application is filed with the department.

(c) *Certified inspection fees.* Where inspections are performed by a certified inspector, other than the department or municipality, the certified inspector may charge a fee to cover the cost of the inspection and issuance of the certificate as specified in ch. Ind 69, Fee Schedule.

(4) **INSPECTIONS.** All energy efficiency inspections for the purpose of certifying rental units under this chapter shall be performed by the department, municipality or inspector certified by the department.

(5) **ACTION TO INSPECT.** The municipality or department performing inspection services under this chapter shall perform inspections within 10 business days after an application is filed.

History: Cr. Register, February, 1983, No. 326, eff. 3-1-83; am. (5), Register, April, 1985, No. 352, eff. 5-1-85.

ILHR 67.08 Issuance of certificate, waiver or stipulation. (1) **CERTIFICATE OF COMPLIANCE.** If upon inspection, the inspector determines that the building conforms to energy conservation measures specified in this chapter, the inspector shall authorize the certificate of compliance by signing and affixing the DILHR Transfer Authorization label and then issue the certificate prescribed by the department and file a copy of the certificate with the department. The department shall issue the certificate within 10 business days of determination that the building conforms to energy conservation measures.

Note: A copy of the certificate form (SBD-7114) is contained in the Appendix.

(a) *Certificate forms and transfer authorization stamps.* Any certified inspector may obtain certificate forms and transfer authorization stamps from the department.

(b) *Requests for certificate form.* All requests for certificate forms shall be made in writing. The fee for the certificate forms shall accompany the request. The department shall respond to all requests for certificate forms within 10 business days of receipt of an application for forms and the required fee.

Note: Copies of the certificate forms are available at no charge from:

Department of Industry, Labor and Human Relations
Division of Safety and Buildings
Post Office Box 7969
Madison, Wisconsin 53707

(c) *Notice of noncompliance.* If upon inspection, an inspector determines that the rental unit does not conform to the energy measures specified in this chapter, the inspector shall specify in writing the energy conservation measures necessary to make the rental unit comply with the energy efficiency standards specified in this chapter and notify the owner of the findings. The department shall specify the energy conservation measures necessary to make the rental unit comply with the energy efficiency standards within 10 business days of completion of the inspection.