

IOWA STATE BUILDING CODE

**THERMAL AND LIGHTING
EFFICIENCY STANDARDS**

**IOWA STATE BUILDING CODE
DIVISION 8**

H-9835

THERMAL AND LIGHTING
EFFICIENCY STANDARDS
DIVISION 8

PROMULGATED
BY

THE BUILDING CODE ADVISORY COUNCIL
AND THE BUILDING CODE COMMISSIONER
IN CONSULTATION WITH
THE IOWA STATE ENERGY POLICY COUNCIL

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FORWARD

This is a copy of Division 8 of the Iowa State Building Code which was certified to the Secretary of State on November 14, 1977 by the Building Code Commissioner as required by Chapter 103A of the Code of Iowa.

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Mr. Glenn Lundblad Architect/Engineer 209 Lindenwood Place Sioux City, Iowa 51104 (712) 252-4464	1978
Mr. Herman T. (Ted) Wiedenman Director of Building Inspection Services City Hall, E. 1st and Locust Streets Des Moines, Iowa 50309 (515) 283-4934	1978
Mr. Robert Williams International Representative for International Brotherhood of Electrical Workers (IBEW) 4211 W. Shawnee Des Moines, Iowa 50310 (515) 278-0984	1978
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DIVISION 8

630—5.800(103A) Iowa state building code thermal and lighting efficiency standards.

5.800(1) Scope. This division of the state building code sets forth the minimum requirements for the design of new buildings and structures or portions thereof and additions to existing buildings that provide facilities or shelter intended primarily for human occupancy or use by regulating their exterior envelopes and selection of their heating, ventilation, and air conditioning systems, service water heating, electrical distribution and illuminating systems and equipment for effective use of energy.

5.800(2) Applicability. The provisions of this division shall after the effective date apply as follows:

a. The provisions of this division apply to all factory-built structures which are required to meet the requirements of the state building code.

b. The thermal efficiency requirements of this division shall be applicable:

(1) To all new construction owned by the state, an agency of the state, or a political subdivision of the state;

(2) To all new construction located in a governmental subdivision which has adopted either the state building code or a local building code or compilation of requirements for building construction;

(3) To all other new construction in the state which contains more than one hundred thousand cubic feet of enclosed space that is heated or cooled.

c. The lighting efficiency requirements of this division shall be applicable to all new construction owned by the state, an agency of the state, or a political subdivision of the state and to all new construction in the state of buildings which are open to the general public during normal business hours.

5.800(3) Adoption. The "Code for Energy Conservation in New Construction", sections 1 through 7 and including all charts, figures and appendices are referenced herein jointly developed by the National Conference of States on Building Codes and Standards (NCSBCS) and the three model code groups, Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International, Inc. (SBCC) dated November 1977 is adopted by reference and herein amended and is hereby declared a division of the state building code. The provisions of these rules or state statutes shall prevail when they differ from the referenced code.

Copies of the referenced code may be purchased from either the National Conference of States on Building Codes and Standards, 1970 Chain Bridge Road, McLean, Virginia 22101, or from the commissioner's office.

5.800(4) Amendments and additions. The following are deletions, revisions, and amendments to the code adopted in 5.800(3).

a. Add after 101.3 A 2

3. Other Exemptions—Exemptions of other buildings or classes of buildings shall be requested from the commissioner in writing. Exemptions shall be granted if the commissioner determines the requirements are unreasonable as they apply to a particular building or class of buildings based upon the data supplied with the written request or additional data if requested by the commissioner.

b. Add after 101.3 B

(4) Occupancy—The occupancies and use of all buildings shall be as defined by the Uniform Building Code as adopted by the State Building Code, Chapter 103A of the Code.

c. Add to 102.1 the following:

(a) All materials and equipment used to comply with the requirements of this code shall meet the minimum requirements of the Iowa State Building Code or other applicable building codes.

(b) The use of all foam plastics shall be in accordance with the requirements of the State Building Code.

d. Add to 103.0 the following:

Procedures for alternate materials and methods of construction acceptance are in rule 630—5.3(103A) of the Iowa Administrative Code.

e. Delete section 104.1 and replace with the following:

104.1 GENERAL. Nothing in these rules shall exempt or change the requirements of Chapters 114 and 118 of the Code, pertaining to registered Architects or Engineers.

(a) The plans and specifications for all buildings to be constructed after the effective date of these rules and which exceeds a total volume of one hundred thousand cubic feet of enclosed space that is heated or cooled shall be reviewed by a registered architect or registered engineer for compliance with applicable energy efficiency standards.

(b) A statement that a review has been accomplished and that the design is in compliance with the energy efficiency standards shall be signed and sealed by the responsible registered architect or registered engineer. This statement shall be filed with the commissioner on the form furnished by the commissioner, prior to construction or the obtaining of any local permits.

(1) Included with the statement shall be a remittance of \$10.00 (checks shall be made payable to the Treasurer State of Iowa).

(c) If the plans and specifications relating to energy efficiency for a specific structure have been approved, additional buildings may be constructed from those same plans and specifications without need of further approval if construction begins within five years of the date of approval. Alterations of a structure which has been previously approved shall not require a review because of these changes, provided the basic structure remains unchanged and no additional energy is required for heating, cooling or lighting.

(d) No changes shall be made to any approved plan or specifications which either decreases or increases the amount of energy used for heating, cooling, or lighting, unless approved by the responsible registered architect or registered engineer in writing and notice filed with the commissioner.

(e) The review of plans and specifications for buildings constructed with a volume of less than one hundred thousand cubic feet of enclosed space which is heated or cooled shall be in accordance with local or other building code requirements pertaining to plan review, as required by section 103A.19 of the Code.

f. Add an additional paragraph to section 104.2:

Plans and specifications shall not be filed with the commissioner, however, the person signing the approval statement or the owner shall maintain a copy of the approved plans and specifications, for a period of five years following substantial completion of the construction.

g. Delete section 105.0 Inspections and replace with the following:

105.0 INSPECTIONS. Inspection and review of construction shall be performed in the same manner as for other construction, in accordance with section 103A.19 of the Code.

h. Add the following exception to the definition of "Building Official" in section 2.

EXCEPTION: For purposes of Division 8 approvals pertaining to criteria of design, systems approvals, and materials, the Building Official shall be the Building Code Commissioner.

i. Add to the footnote of the outdoor design temperature table in section 302.1

Degree days heating and the north latitude shall be the common practice for the locality in which the building is located. (RS-1, weather service data or other authorities.)

j. Delete the exception to 402.5 and replace with the following:

EXCEPTION: Except for a comparison of energy consumption between the alternate design and the standard design, single and multifamily dwellings are exempt. Commercial and industrial structures having a volume of heated or cooled space of less than one hundred thousand cubic feet and the indoor temperature is controlled from a single point are exempt from the full-year energy analysis described in paragraph 402.3(b); however, a comparison of energy consumption between the alternative design and the standard design shall be provided.

k. Add new subsections to section 503.4 as follows:

(h) System Design Heating/Cooling Capacity. The rated capacity of the heating/cooling system at design conditions shall not be greater than 130% for heating, 115% for cooling at design output load calculated in accordance with section 503.2 whenever appropriate equipment is available. Equipment designed for stand by purposes is not included in this capacity limitation requirement. The cooling capacity of heat pumps are exempt from this limitation.

(i) Combustion Air. Combustion air shall be supplied as required by Chapter 6 of the Uniform Mechanical Code as adopted as part of the State Building Code.

l. Delete subsection 503.8(a)3. and replace with the following:

3. Where used to control both heating and cooling, it shall have a maximum heating mode temperature setting of 85F and a minimum cooling mode temperature setting of 55F and shall be capable of operating the system heating and cooling in sequence. It shall be adjustable to provide a temperature range of up to 10F between full heating and full cooling, except as allowed in 503.3(c)5b.

m. Add at the end of the first paragraph of section 503.10:

Provisions of the duct requirements of the Uniform Mechanical Code as adopted as part of the State Building Code shall be used if different from these standards.

n. Delete section 505.2(a) and replace as follows:

(a) Power Factor: Utilization equipment, rated greater than 1,000 W and lighting equipment greater than 15W, with an inductive reactance load component, shall have a power factor of at least 85 percent under rated load conditions. Power factors of less than 85 percent shall be corrected to at least 90 percent under rated load conditions. Power factor corrective devices may be either utilization equipment design or capacitors placed in banks automatically controlled, except where a device results in an unsafe condition or interferes with the intended operation of the equipment.

o. Delete section 601.1 and replace with the following:

601.1 GENERAL. The requirements contained in this section are applicable only to buildings containing less than one hundred thousand cubic feet of enclosed heated or cooled space and three stories or less in height. The provisions of this section are limited to residential buildings that are heated only or heated and mechanically cooled and to other buildings that are heated only. Buildings constructed in accordance with this section are deemed to comply with this Code.

p. Add to RS-8 in section 701.0

IES pamphlets EMS-1, EMS-2, and EMS-3 are included as part of this standard.

This rule is intended to implement H.F. 75, Acts of the Sixty-seventh General Assembly.

5.801 to 5.899 Reserved.

[Filed 11/30/77, Notice 9/21/77—published 11/30/77, effective 1/4/78]

For additional history, see individual divisions within Chapter 5.

INTERIOR DESIGN CONDITION

Indoor design temperature shall be 72F for heating and 78F for cooling. Other design temperatures may be used for equipment selection if it results in a lower energy usage.

EXTERIOR DESIGN CONDITIONS

(REQUIRED FOR SECTION 302.1 OF SECTION 3)

	NORTHERN LATITUDE Col. 1	WINTER DRY BULB Col. 2	SUMMER DRY BULB WET BULB Col. 3 Col. 4		DEGREE DAYS HEATING Col. 5
IOWA					
Ames.....	42 0	-7	92	78	6800
Burlington.....	40 5	0	92	78	6100
Cedar Rapids....	41 5	-4	90	76	6600
Clinton.....	41 5	-3	90	77	6800
Council Bluffs..	41 2	-3	94	78	6600
Des Moines.....	41 3	-3	92	77	6600
Dubuque.....	42 2	-7	90	76	7400
Fort Dodge.....	42 3	-8	92	77	7400
Iowa City.....	41 4	-4	91	77	6400
Keokuk.....	40 2	1	93	78	5600
Marshalltown....	42 0	-6	91	77	6800
Mason City.....	43 1	-9	88	75	7600
Newton.....	41 4	-5	93	77	6600
Ottumwa.....	41 1	-2	93	78	6400
Sioux City.....	42 2	-6	93	77	7000
Waterloo.....	42 3	-8	80	76	7400

The exterior design values for columns 1, 2, 3 & 4 are taken from Standard RS-1. These are the 97½% values for winter conditions and the 2½% value for summer conditions. The degree day heating values are from Standard RS-1 or the Insulation Manual published by NAHB Research Foundation, Inc. For those cities not listed, values may be obtained from local weather service data or other authorities.