

Minnesota Attorney General: Administrative Rules Proceedings

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Version 3
August 20, 2018

mjc

RULE REVIEW CHECKLIST

File No. 1602 — Docket No. 05.0009.0730

DATE RECEIVED 5/4/89 — ADOPTED W/O HEARING X

REVIEW DATE 5-15-89 — EMERGENCY RULE _____

DUE DATE 5-18-89 AM — REVISOR APPROVED _____

APPROVED 5.18.89 mjc — REVISOR DISAPPROVED _____

DISAPPROVED _____ — FILED W/SEC. OF STATE _____

WITHDRAWN _____ — RETURNED TO AGENCY _____

✓ Rule as adopted (4 copies)

✓ Notice to Solicit Outside Information/Opinion (if applicable)
- 11/28/88 Date published in State Register
- None Comments

~~Petition for Adoption of a Rule (if applicable)~~

~~Board's Authorizing Resolution~~
- ~~Date adopted~~

✓ Proposed Rule
- Yes Revisor's Certificate

✓ Notice of Intent to Adopt Rule
- 325F.20+.21 Statutory Authority
- Yes Small Business Statement
- Yes Expenditure of public money statement
- Yes Signature

✓ Statement of Need and Reasonableness (if applicable)
- Yes Small Business Statement
- N/A Fees - § 16A.128

✓ Affidavit of Mailing Notice of Intent to Adopt Rule
- 3/13/89 Date 30/25 days before adoption
- Yes Notice attached
- ~~Copy of rule or summary attached~~

✓ Publication in State Register
- 3/30/89 Date 30/25 days before adoption

180-day deadline from:
- N/A Effective date of law requiring rule (14.12) (both rules)
- 4/19/89 end of comment period (§ 14.26) (rules without hearing)
- ~~effective date of statutory authority (§ 14.29) (emergency rules)~~

~~Resolution Adopting~~
- ~~Date adopted~~

✓ Findings of Fact, Conclusions & Order Adopting
- 5/2/89 Date

✓ Written requests, submissions or comments (6)

✓ Declaration of attorney
- Tom Waldo Name of SAAG representing agency

✓ Notice of Submission to Atty. Gen. (if applicable)

✓ Aff. of Mailing Notice to Atty. Gen. (if applicable)

SF-00006-05 (4/86)

STATE OF MINNESOTA

Office Memorandum

DEPARTMENT : ATTORNEY GENERAL

DATE : May 18, 1989

TO : THOMAS S. WALDO
Special Assistant Attorney General

FROM : MARTY J. CASSERLY
Special Assistant Attorney General

PHONE : 6-6839

SUBJECT : In the Matter of the Adopted Permanent Rules Relating to Thermal Insulation Standards

The above-referenced rule has been approved as to its legality by the Attorney General on May 18, 1989.

Enclosed is the agency's copy of the approved rule. This office has already filed two copies with the Secretary of State who will forward one copy to the Revisor of Statutes. The fourth is being retained by this division of the Attorney General's Office for its records.

Also enclosed are any petitions, requests, submission or comments received by the agency and any extra copies of documents which the agency submitted to the Attorney General.

In order for a permanent rule without a hearing to become effective, your agency must publish a notice of adoption in the State Register in accoradance with Minn. Stat. § 14.27. An emergency rule becomes effective five working days after approval by the Attorney General; however, the agency must publish a notice in the State Register in accordance with Minn. Stat. § 14.34.

If you have any questions in this regard, please contact me.

MJC:klk
Enclosures

cc: Maryanne Hruby
Executive Director
Legislative Commission to Review
Administrative Rules

William Brown
Chief Administrative Law Judge
Office of Administrative Hearings

Department of Public Service

Energy Division

Adopted Permanent Rules Relating to Thermal Insulation Standards

Rules as Adopted

7640.0110 APPLICABILITY.

Subpart 1 to 3. [Unchanged.]

Subp. 4. **Prohibitions.** The prohibitions in this subpart apply to the installation and application of insulation.

A. Industry members may not install insulation in residential structures unless it conforms to the product quality standards and installation standards in this chapter.

B. to D. [Unchanged.]

Subp. 5. [Unchanged.]

7640.0120 DEFINITIONS.

Subpart 1. **Applicability.** For the purposes of this chapter, the following definitions of terms apply. Technical, scientific, and engineering terms undefined by this part have the meanings given in the ASHRAE Handbook of Fundamentals or in ASTM C 168-88a, Standard Definitions of Terms Relating to Thermal Insulation Materials.

Subp. 2. to 9. [Unchanged.]

Subp. 10. [See Repealer.]

Subp. 11. **FTC.** "FTC" means the United States Federal Trade Commission, Code of Federal Regulations, title 16, part 460, or a standard issued for thermal insulation materials by that commission.

Subp. 12. to 19. [Unchanged.]

Subp. 19a. **Quality assurance program.** "Quality assurance program" means the collective set of plans, activities, and events that are provided to ensure that the product or service will satisfy given needs. A quality assurance program must ~~include the elements of~~ conform to "Generic Guidelines for Quality Systems," American National Standards Institute -

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American Society for Quality Control standard ~~ANSI~~ ANSI/ASQC Z-1.15~~,~~-1979.

Subp. 20. [Unchanged.]

Subp. 20a. **Radiant barrier.** "Radiant barrier" means a building construct consisting of a low emittance surface bounded by an open air space.

Subp. 20b. **Reflective insulation.** "Reflective insulation" means a building construct consisting of a low emittance surface bounded by an enclosed air space.

Subp. 21. to 26. [Unchanged.]

7640.0130 INSULATION MATERIALS STANDARDS.

Subpart 1. [Unchanged.]

Subp. 2. **General testing requirements.** General testing requirements for regulated thermal insulation materials in this part are as follows:

A. [Unchanged.]

B. All regulated thermal insulation materials must be tested for compliance with the standards in this part by April 2, 1986. Testing procedures are as follows:

(1) to (3) [Unchanged.]

(4) Testing for each type of insulation must be performed in accordance with the methods specified in subparts 3 to 8.

(5) Insulation must have flammability characteristics in accordance with the Uniform Building Code, 1985 Edition, sections 1712 and 1713, for its intended uses.

C. All thermal performance tests must be conducted in accordance with this item, unless additional requirements are imposed within the body of a materials standard. Insulation's thermal performance must be stated in R-value.

(1) [Unchanged.]

(2) R-value testing must be performed at the insulation's representative thickness, and be consistent with the requirements of the United States Federal Trade Commission. Unit R per inch must be derived from R-value testing performed

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to its representative thickness.

(3) For polyurethane, polyisocyanurate, and extruded polystyrene, in accordance with the FTC R-value rule, section 460.5, R-value tests must be done on samples that fully reflect the effect of aging on the product's R-value.

(4) to (6) [Unchanged.]

D. Manufacturers shall have a quality assurance program in place for all regulated thermal insulation products. A quality assurance program must be in place for installers of products whose manufacture is completed at the jobsite.

Manufacturers and other industry members must maintain an in-house quality assurance program in order for products to meet the required standards.

If a manufactured product fails to meet those required standards, the department shall notify the industry member to pursue corrective measures.

Subp. 3. **Cellulose insulation.**

A. Cellulose fiber in loose-fill form must meet the following requirements:

(1) The product must comply with ASTM C 739-86, Standard Specification for Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation or the United States Consumer Product Safety Commission Interim Safety Standard for Cellulose Insulation, Code of Federal Regulations, title 16, part 1209 subpart B.

(2) All manufacturers shall contract with an approved laboratory for a follow-up agreement to accomplish the following:

(a) The laboratory shall conduct unannounced inspections.

(b) The inspections must be:

(i) monthly, if production is 350,000 pounds or more per month; or

(ii) quarterly, if production is less than 350,000 pounds per month.

(c) The inspector shall conduct tests on a

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sample at the plant laboratory for settled density, smoldering combustion, critical radiant flux, and corrosiveness (ph).

(d) The inspector shall examine the manufacturer's quality assurance program.

(3) [Unchanged.]

B. Cellulose fiber spray-applied must meet the following requirements:

(1) to (4) [Unchanged.]

(5) Critical radiant flux and smoldering combustion must be tested for in accordance with ASTM C 739-86, part 5, or the CPSC Interim Safety Standard for Cellulose Insulation, Code of Federal Regulations, title 16, part 1209. Values achieved must not exceed those established by the CPSC.

(6) to (8) [Unchanged.]

Subp. 4. [Unchanged.]

Subp. 5. **Foam plastic insulation.**

A. and B. [Unchanged.]

C. Unfaced polyurethane and polyisocyanurate in board form must comply with ASTM C 591-85, Standard Specification for Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation.

Exception: Aged R-value must be ~~6.0~~ 5.6 per inch or greater at ~~70~~ 75 degrees Fahrenheit.

D. to F. [Unchanged.]

G. Foam plastic insulation that conforms to all requirements of ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982, for the intended application, meets the Minnesota testing standards in this subpart.

Subp. 6. [Unchanged.]

Subp. 7. **Reflective foil insulation.**

A. The following requirements apply to reflective foil insulation:

(1) Specimens for tests must consist of pieces of insulation cut to approximately three by six inches, suspended in a vertical position and heated to a temperature of 180 degrees Fahrenheit (plus or minus five degrees Fahrenheit) for at least five hours. At the end of the heating period, the

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tester shall examine the reflective surfaces to determine whether the adhesive has bled through the surface or whether delamination has occurred.

(2) Except for radiant barrier products, thermal performance for single or multiple sheet sections must be determined according to ASTM C 976-82 or ASTM C 236-87. The test panel must consist of a panel using a wooden frame of two-by-six inch boards 16 inches apart and at least 24 inches long, covered with a minimum of 1/2-inch gypsum wallboard or 1/2-inch plywood on each side. For tests in the vertical position, the test panel must be at least seven feet high at a mean temperature of 75 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit. The resultant thermal performance must be based upon the insulation and the associated air spaces.

(3) Layers of insulation composed of unsupported foil that is exposed must have a minimum thickness of 0.0004 inch. Unsupported foil that is sandwiched in multilayer sheet must have a minimum thickness of 0.00035 inch. Foil bonded to kraft paper must have a minimum thickness of 0.00025 inch.

(4) Adhesive used in bonding must be waterproof and show no sign of bleeding when tested in accordance with the test procedure identified in section V, part A, of the ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987, section V, part A, for adhesive bleeding requirements. Bleeding at cut edges may be disregarded.

(5) Foil must be folded in accordance with TAPPI Standard No. 512-OM86, and the folded edge smoothed using a light finger pressure. The finished insulation must not crack when folded to 180 degree bend at a temperature of 70 degrees Fahrenheit (plus or minus two degrees Fahrenheit) and a relative humidity of 50 percent (plus or minus five percent).

(6) Reflective foil insulation that conforms to all requirements of ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987 (with the exception that thermal performance must be tested in accordance with item

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B, C, or D), meets the Minnesota testing standards in this subpart.

B. Reflective insulation systems with more than one sheet must be tested according to ASTM C 976-82 or ASTM C 236-87 to determine the thermal performance in horizontal, upward, and downward directions. The tested thermal performance in the heat-flow direction or directions of the intended application must be labeled on the material. The manufacturer shall test once in each direction of intended application; except that, for products labeled with only one heat-flow direction, the manufacturer shall test two samples in that direction. The tests must be done at a mean temperature of 75 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit.

C. Single sheet reflective insulation systems must be tested with ASTM E 408 or another test method that provides comparable results. This tests the emissivity of the foil (its power to radiate heat). To get the R-value for a specific emissivity level, air space, and direction of heat flow, use the tables in the most recent edition of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Handbook. The R-value shown for 50 degrees Fahrenheit must be used, with a temperature differential of 30 degrees Fahrenheit.

D. Radiant barrier products must meet the requirements of the United States Federal Trade Commission in Code of Federal Regulations, title 16, part 460.5(b) and (c).

If the R-value listed on the Federal Trade Commission fact sheet is not that for a radiant barrier, the Federal Trade Commission fact sheet must also include the following statement: "These R-values are not for a radiant barrier and are likely to differ when the product is installed as a radiant barrier."

Subp. 8. **Other insulation.** Insulation other than insulation specified in subparts 1 to 7, to be sold, marketed, or advertised for use in residential structures in Minnesota must comply with the requirements in items A to F.

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A. Thermal performance and surface burning characteristics must be determined in accordance with subpart 2.

B. Results of the water absorption test must be reported.

C. If the material is foam in place, a test of the shrinkage using ASTM C ~~591-85~~ 951-83, section 8.5 must be used.

D. If the material contains formaldehyde, a formaldehyde content test is necessary.

E. The initial report as required by part 7640.0150, subpart 2, must include a description of other tests applied to the product.

F. The manufacturer shall provide a statement that the insulation and its intended uses are safe and effective and do not pose a threat to human health. The manufacturer shall disclose any known or reasonably suspected attributes of the product that will adversely affect its safety or effectiveness.

7640.0140 REQUIREMENTS FOR INSULATION FOR SPECIAL APPLICATIONS.

Subpart 1. to 3. [Unchanged.]

Subp. 4. **Pipe insulation, duct wrap insulation, and water heater blanket insulation.** Pipe insulation, duct wrap insulation, and water heater blanket insulation must meet the standards of part 4155.0130, including the flammability requirements for insulation in part 4155.0130, subpart 2, item B, clause (6). Water heater blanket products must meet the flammability requirements of flame spread 50 and smoke developed 100, when tested in accordance with ASTM standard E84-84, Revision A, Surface Burning Characteristics of Building Materials.

Pipe insulation does not have to be listed with an R-value. If the R-value is not identified on the label, it does not need to be tested. If the R-value is identified, it must be supported by test results as identified in part 7640.0130, subpart 2, item C.

7640.0150 REPORTING REQUIREMENTS.

Subpart 1. **Applicability.** This subpart identifies all

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industry members to whom subparts 2 and 3 apply.

A. and B. [Unchanged.]

C. An industry member that intends to sell an insulation product manufactured by another industry member under its own trade or brand name, desires to be listed as the manufacturer, and does not alter physical properties of the insulation product, shall file an initial report. The filing insulation member can comply with subpart 2, item F, by certifying that the product is the same as when it was previously filed.

D. Insulation products identified in part 7640.0130, subparts 3 to 8 that are composed of the identical material, for example the same chemical make-up, composition, or physical properties, but that have different dimensional characteristics, such as width, length, or thickness, ~~or density,~~ need not undergo additional testing by the same manufacturer once the initial similar product meets the necessary requirements.

Subp. 2. [Unchanged.]

Subp. 3. **Annual filing requirement.**

A. [Unchanged.]

B. For each product, the report must include:

(1) and (2) [Unchanged.]

(3) certification that the product has not undergone significant changes since the initial report was filed;

(4) identification of and changes in information that may have changed from the initial or previous annual report, including product brand names, product literature, Federal Trade Commission fact sheet, product usage, or discontinuation of manufacture; and

(5) a list of three, or as many as available if less than three, Minnesota purchasers or customers of the product. The department shall maintain this information with the strictest confidence.

C. [Unchanged.]

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7640.0160 APPLICATION AND INSTALLATION STANDARDS.

Subpart 1. [Unchanged.]

Subp. 2. **Application and inspection.** Industry members installing insulation shall follow manufacturer's written application instructions.

In attic areas where insulation is to be installed, the installer shall comply with part 7640.0110, subpart 5.

Installation of cellulosic and mineral fiber in loose-fill form must comply with ASTM standard ~~C-101-5~~ C 1015-84, including part 7.7.2.

Installation of reflective insulation must comply with ASTM standard C 727-72 (reapproved 1978).

Subp. 3. [Unchanged.]

7640.0170 PRODUCT INFORMATION.

Subpart 1. **Generally.** Insulation used or offered for sale in Minnesota must meet the requirements of the United States Federal Trade Commission in Code of Federal Regulations, title 16, part 460.

Subp. 2. **False and misleading statements.** Any false, misleading, or unsubstantiated statements in a sales presentation, or on any label, product literature, or product intended for the purchaser, as identified in Minnesota Statutes, sections 325F.22, 325F.67, and 325F.69, subdivision 1, are subject to the state's remedies provided in Minnesota Statutes, sections 325F.24 and 325F.70.

Subp. 3. **Labeling for insulation products with follow-up programs.** Insulation products with a follow-up program must carry the label of the laboratory indicating that a follow-up program is being conducted.

7640.0180 INCORPORATIONS BY REFERENCE AND CITATIONS.

Subpart 1. [Unchanged.]

Subp. 2. **ASTM.** The following ASTM standards are incorporated by reference:

A. ASTM C 168-88a, Standard Definitions of Terms Relating to Thermal Insulation Materials.

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by Revisor _____

B. ASTM C 177-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus.

C. ASTM C 236-87, Standard Test Method for Steady State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box.

D. ASTM C 516-80 (reapproved 1985), Standard Specification for Vermiculite Loose-Fill Thermal Insulation.

E. ASTM C 518-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

F. [Unchanged.]

G. ASTM C 553-70 (reapproved 1977), Standard Specification for Mineral Fiber Blanket and Felt Insulation (Industrial Type).

H. to J. [Unchanged.]

K. ASTM C 727-72 (reapproved 1978), Standard Recommended Practice for Use of Reflective Insulation in Building Constructions.

L. ASTM C 739-86, Standard Specification for Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation.

M. ASTM C 764-84, Standard Specification for Mineral Fiber Loose-Fill Thermal Insulation.

N. ASTM C ~~951-85~~ 951-83, Standard Specification for Urea-Formaldehyde-Based, Foam in Place Insulation.

O. ASTM C 976-82, Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box.

P. ASTM C 1014-84, Standard Specification for Spray-Applied Mineral Fiber Thermal or Acoustical Insulation.

Q. ASTM E 84-84 Revision A, Surface Burning Characteristics of Building Materials.

R. ASTM C ~~1015~~ 1015-84, Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation.

S. ASTM C 1029-85, Standard Specification for

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Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.

T. ASTM E 408-71 (reapproved 1985), Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques.

U. ASTM E 605-77 (reapproved 1982), Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members.

Subp. 2a. **Standards.** The following American National Standards Institute - American Society for Quality Control standard is incorporated by reference:

~~ANSI~~ ANSI/ASQC standard Z-1.15-1979: Generic Guidelines for Quality Systems.

Subp. 3. **Other incorporation and citations.** The following non ASTM standards are also incorporated by reference:

A. to H. [Unchanged.]

I. ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982.

J. TAPPI Standard No. 512-OM86 by the Technical Association of the Pulp and Paper Industry.

Subp. 4. [Unchanged.]

REPEALER. Minnesota Rules, part 7640.0110, subpart 10, is repealed.

STATE OF MINNESOTA
DEPARTMENT OF STATE
FILED
MAY 18 1989
Secretary of State

Approved
by Revisor _____

STATE OF MINNESOTA
DEPARTMENT OF STATE
FILED

MAY 18 1989

Joan Anderson Growe

Secretary of State

JH

1:30 pm

APPROVED AS TO FORM AND LEGALITY

May 18 1989

HUBERT H. HUMPHREY, III
ATTORNEY GENERAL

BY MJ Cassedy

SPECIAL ASSISTANT ATTORNEY GENERAL

MINNESOTA
Department of Public Service

Energy Division
(612) 296-5120

900 American Center
150 East Kellogg Boulevard
St. Paul, Minnesota 55101

RESIDENTIAL THERMAL INSULATION STANDARDS

Notice of Intent to Amend Rules Without a Public Hearing

Notice is hereby given that the Minnesota Department of Public Service proposes to adopt amendments to Minnesota Rules, Chapter 7640, without a public hearing. The Commissioner has determined that the proposed amendment of these rules will be noncontroversial in nature and has elected to follow the procedures set forth in the Minn. Stat., sections 14.22 to 14.28. Authority for the adoption of these rules is contained in Minn. Stat., sections 325F.20, subd. 1 and 325F.21, subd. 1 and 2.

Minnesota Rules, Chapter 7640 apply to manufacturers, sellers and installers of residential thermal insulation products sold or installed in Minnesota.

All persons have 30 days in which to submit comment in support of or in opposition to any part of the proposed amendments. Comment is encouraged. Each comment should identify the proposed amendment addressed, the reason for the comment, and any change proposed.

All persons may make a written request for a public hearing on the proposed amendments within the 30-day comment period. If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficent number withdraw their requests in writing. Any person requesting a public hearing must state his or her name and address and is encouraged to identify the portion of the proposed amendment addressed, the reason for the request, and any change proposed. If a public hearing is required, the agency will proceed pursuant to Minn. Stat., sections 14.131 to 14.20.

Persons who wish to submit comments or a written request for a public hearing should submit such comments or requests to: Bruce Nelson, Department of Public Service, Energy Division, 900 American Center Building, 150 East Kellogg Boulevard, St. Paul, Minnesota 55101 (612)297-2313.

Comments or requests for a public hearing must be received by the Department of Public Service, Energy Division by 4:00 p.m., April 20, 1989. The proposed amendments may be modified if the modifications are supported by the data and views submitted to the Department and do not result in a substantial change in the proposed amendments as noticed.

A Copy of the proposed rule amendment is attached to this notice.

A Statement of Need and Reasonableness that describes the need for and reasonableness of each provision of the proposed amendments and identifies the data and information relied upon to support the proposed amendments has been prepared and is available by requesting a copy from Mr. Nelson at the address listed above.

The implementation of these amendments will not require the expenditure of public money in excess of $100,000 by local bodies in either of the two years following their adoption, nor do the rules have any impact on agricultural land.

The adoption of these amendments will affect small businesses in Minnesota. The Department has evaluated the effect of the proposed rules on small businesses and has considered each of the methods prescribed by Minn. Stat. Section 14.155, subd. 2, for reducing the impact of the rules on small businesses. Small businesses would benefit from the proposed rule, since the required frequency of testing is reduced, resulting in less stringent compliance, schedules and deadlines in conformance with Minn. Stat. Section 14.155, subd. 2(a) and (b). The propsed rule would have no effect on reporting requirements addressed by Minn. Stat. Section 14.155, subd. 2(a), (b) or (c). The requirements of Chapter 4155 are already performance standards for all insulation types in conformance with Minn. Stat. Section 14.155, subd. 2(d). The Department has determined that small businesses cannot be exempted from any or all requirements of the rules in conformance with Minn. Stat. Section 14.155, subd. 2(e).

If no hearing is required, upon adoption of the rule, the rule and the required supporting documents will be submitted to the Attorney General for review as to legality and form to the extent that form relates to legality. Any person may request notification of the date of submission to the Attorney General. Persons who wish to be advised of the submission of this material to the Attorney General, or who wish to receive a copy of the adopted rules, must submit a written request for such to Mr. Nelson at the above address.

Tony Perpich

Tony Perpich, Commissioner
Department of Public Service

Feb 28, 1989
Dated

State of Minnesota

STATE REGISTER

Department of Administration—Print Communications Division



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Pages 1259-1362

The federal law establishes safeguards necessary to protect human health and the environment and includes the following areas; 1) design, construction, installation and notification of UST systems; 2) general operating requirements; 3) release detection requirements; 4) release reporting, investigation and confirmation; and 5) closure of UST systems. Regulated substances include petroleum products as well as certain hazardous materials.

The MPCA invites all interested persons or groups to submit information or comments on these subjects to Thomas P. Clark, MPCA, Hazardous Waste Division, Tanks and Spills Section, 520 Lafayette Road North, St. Paul, Minnesota 55155 (612/296-7335).

Any written material received by the MPCA by January 6, 1989, shall become part of the background record regarding these rules.

Gerald L. Willet
Commissioner

Department of Public Service

Energy Division

Notice of Solicitation of Outside Information or Opinions Regarding Proposed Rule Governing Residential Thermal Insulation Standards

NOTICE IS HEREBY GIVEN that the State Department of Public Service is seeking information or opinions from sources outside the agency in preparing to propose the amendment of the rule governing Residential Thermal Insulation Standards. The adoption of the rule is authorized by *Minnesota Statutes*, section 325E.20 subdivision 1 and 325E.21 subdivisions 1 & 2, which requires the agency to establish standards for the product quality, safety, installation, and labeling of thermal insulation products, and to establish test programs and procedures to ensure that standards established by this chapter are met.

The State Department of Public Service requests information and opinions concerning the subject matter of the rule, including: requirements for quality assurance programs generally, quality assurance for insulations whose manufacturing process is completed on-site, test standards for radient barrier insulation, and test standards and application requirements for insulation intended for exterior foundation wall insulation. Interested persons or groups may submit data or views on the subject matter of concern in writing or orally. Written statements should be addressed to:

Bruce Nelson, Department of Public Service, Energy Division
900 American Center Building, 150 East Kellogg Boulevard
St. Paul, Minnesota 55101, (612) 297-2313.

Oral statements will be received during regular business over the telephone and in person at the above address.

All statements of information and opinions shall be accepted until January 2, 1989. Any written material received by the State Department of Public Service shall become part of the rulemaking record to be submitted to the attorney general or administrative law judge in the event that the rule is adopted.

Dated: 16 November 1988

Tony Perpich
Commissioner

Office of the Secretary of State

Notice of Vacancies in Multi-Member State Agencies

NOTICE IS HEREBY GIVEN to the public that vacancies have occurred in multi-member state agencies, pursuant to *Minnesota Statutes* 15.0597, subdivision 4. The following vacancies include scheduled vacancies occurring in December and unscheduled vacancies. Vacancies scheduled to occur in January are indicated in the Annual Compilation of State Agencies, also published in this issue of the *State Register*. Application forms may be obtained and submitted to the Office of the Secretary of State, Open Appointments, 180 State Office Building, St. Paul, MN 55155-1299; (612) 296-2805. Requests for applications may also be made in person at Room 174, State Office Building. The application deadline is December 20, 1988.

TELECOMMUNICATION ACCESS FOR COMMUNICATION-IMPAIRED PERSONS BOARD

1 member—must be a representative of Deafness Education and Advocacy Foundation (D.E.A.F), Inc., the organization chosen by TACIP to establish and operate the state-wide message relay service.

Department of Public Service

Energy Division

Proposed Permanent Rules Relating to Thermal Insulation Standards

Rules as Proposed

7640.0110 APPLICABILITY.

Subpart 1 to 3. [Unchanged.]

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A. Industry members may not install insulation in residential structures unless it conforms to the product quality standards and installation standards in this chapter.

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Subp. 5. [Unchanged.]

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Subp. 10. [See Repealer.]

Subp. 11. **FTC.** "FTC" means the United States Federal Trade Commission ~~or~~, Code of Federal Regulations, title 16, part 460, or a standard issued for thermal insulation materials by that commission.

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Systems," American National Standards Institute standard ANSI Z-1.15, 1979.

Subp. 20. [Unchanged.]

Subp. 20a. **Radiant barrier.** "Radiant barrier" means a building construct consisting of a low emittance surface bounded by an open air space.

Subp. 20b. **Reflective insulation.** "Reflective insulation" means a building construct consisting of a low emittance surface bounded by an enclosed air space.

Subp. 21. to 26. [Unchanged.]

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Subp. 2. **General testing requirements.** General testing requirements for regulated thermal insulation materials in this part are as follows:

A. [Unchanged.]

B. All regulated thermal insulation materials must be tested for compliance with the standards in this part by April 2, 1986. Testing procedures are as follows:

(1) to (3) [Unchanged.]

~~(4) Manufacturers without approved laboratory testing facilities shall contract with an approved laboratory to conduct an annual surprise on-site inspection of the manufacturer's production facilities for the following two purposes:~~

~~(a) to take random samples of insulation from the manufacturer's assembly or process system for testing under this chapter; and~~

~~(b) to evaluate testing techniques and make recommendations for improvement if the insulation fails to meet the assigned testing standards.~~

~~(5)~~ Testing for each type of insulation must be performed in accordance with the methods specified in subparts 3 to 8.

~~(6)~~ (5) Insulation must have flammability

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characteristics in accordance with the Uniform Building Code, 1985 Edition, sections 1712 and 1713, for its intended uses.

C. All thermal performance tests must be conducted in accordance with this item, unless additional requirements are imposed within the body of a materials standard. Insulation's thermal performance must be stated in R-value.

(1) [Unchanged.]

(2) R-value testing must be performed at the insulation's representative thickness, and be consistent with the requirements of the United States Federal Trade Commission.

~~(3)~~ Unit R per inch must be derived from R-value testing performed to its representative thickness~~, as specified in subitem (2)~~.

(3) For polyurethane, polyisocyanurate, and extruded polystyrene, in accordance with the FTC R-value rule, section 460.5, R-value tests must be done on samples that fully reflect the effect of aging on the product's R-value.

(4) to (6) [Unchanged.]

D. Manufacturers shall have a quality assurance program in place for all regulated thermal insulation products. A quality assurance program must be in place for installers of products whose manufacture is completed at the jobsite.

Manufacturers and other industry members must maintain an in-house quality assurance program in order for products to meet the required standards.

If a manufactured product fails to meet those required standards, the department shall notify the industry member to pursue corrective measures.

Subp. 3. **Cellulose insulation.**

A. Cellulose fiber in loose-fill form must meet the following requirements:

(1) The product must comply with ASTM C ~~739-84~~ 739-86, Standard Specification for Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation or the United States Consumer Product Safety Commission Interim Safety Standard for Cellulose Insulation, Code of Federal Regulations, title 16, part

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1209 subpart B.

(2) All manufacturers shall contract with an approved laboratory for a follow-up agreement ~~for~~ to accomplish the following ~~two purposes~~:

~~(a) The laboratory shall pick up three randomly selected unopened bags of manufacturer's cellulose for testing under this chapter.~~

~~(b) The laboratory shall conduct a minimum of one in-plant inspection every two months. The inspection must be unannounced, and the inspector shall conduct tests in the plant laboratory, on a sample for settled density, smoldering combustion, critical radiant flux, corrosiveness (ph), and starch.~~ The laboratory shall conduct unannounced inspections.

(b) The inspections must be:

(i) monthly, if production is 350,000 pounds or more per month; or

(ii) quarterly, if production is less than 350,000 pounds per month.

(c) The inspector shall conduct tests on a sample at the plant laboratory for settled density, smoldering combustion, critical radiant flux, and corrosiveness (ph).

(d) The inspector shall examine the manufacturer's quality assurance program.

(3) [Unchanged.]

B. Cellulose fiber spray-applied must meet the following requirements:

(1) to (4) [Unchanged.]

(5) Critical radiant flux and smoldering combustion must be tested for in accordance with ASTM C 739-86, part 5, or the CPSC Interim Safety Standard for Cellulose Insulation, Code of Federal Regulations, title 16, part 1209 ~~for the ASTM equivalent in C 739-86~~. Values achieved must not exceed those established by the CPSC.

(6) to (8) [Unchanged.]

Subp. 4. [Unchanged.]

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Subp. 5. **Foam plastic insulation.**

A. and B. [Unchanged.]

C. Unfaced polyurethane and polyisocyanurate in board form must comply with ASTM C ~~591-83~~ 591-85, Standard Specification for Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation.

Exception: Aged R-value must be 6.0 or greater at 70 degrees Fahrenheit.

D. to F. [Unchanged.]

G. Foam plastic insulation that conforms to all requirements of ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982, meets the Minnesota testing standards in this subpart.

Subp. 6. [Unchanged.]

Subp. 7. **Reflective foil insulation.**

A. The following requirements apply to reflective foil insulation:

~~A.~~ (1) Specimens for tests must consist of pieces of insulation cut to approximately three by six inches, suspended in a vertical position and heated to a temperature of 180 degrees Fahrenheit (plus or minus five degrees Fahrenheit) for at least five hours. At the end of the heating period, the tester shall examine the reflective surfaces to determine whether the adhesive has bled through the surface or whether delamination has occurred.

~~Adhesive used in bonding must be waterproof and show no sign of bleeding when tested in accordance with the test procedure identified in section V, part A, of the ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987, section V, part A, for adhesive bleeding requirements. Bleeding at cut edges may be disregarded.~~

~~B. Reflective foil insulation must be tested according to ASTM C 976-82 or ASTM C 236-87 to determine the thermal performance in horizontal, upward, and downward directions. The tested thermal performance in the heat flow direction or directions of the intended application must be~~

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~~labeled on the material. The manufacturer shall test once in each direction of intended application, except that, for products labeled with only one heat flow direction, the manufacturer shall test two samples in that direction.~~

(2) Except for radiant barrier products, thermal performance for single or multiple sheet sections must be determined according to ASTM C 976-82 or ASTM C 236-87. The test panel must consist of a panel using a wooden frame of two-by-six inch boards 16 inches apart and at least 24 inches long, covered with a minimum of 1/2-inch gypsum wallboard or 1/2-inch plywood on each side. For tests in the vertical position, the test panel must be at least seven feet high at a mean temperature of 75 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit. The resultant thermal performance must be based upon the insulation and the associated air spaces.

~~C.~~ (3) Layers of insulation composed of unsupported foil that is exposed must have a minimum thickness of 0.0004 inch. Unsupported foil that is sandwiched in multilayer sheet must have a minimum thickness of 0.00035 inch. Foil bonded to kraft paper must have a minimum thickness of 0.00025 inch.

(4) Adhesive used in bonding must be waterproof and show no sign of bleeding when tested in accordance with the test procedure identified in section V, part A, of the ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987, section V, part A, for adhesive bleeding requirements. Bleeding at cut edges may be disregarded.

~~D.~~ (5) Foil must be folded in accordance with TAPPI Standard No. 512-OM86, and the folded edge smoothed using a light finger pressure. The finished insulation must not crack when folded to 180 degree bend at a temperature of 70 degrees Fahrenheit (plus or minus two degrees Fahrenheit) and a relative humidity of 50 percent (plus or minus five percent).

~~E.~~ (6) Reflective foil insulation that conforms to all requirements of ICBO Evaluation Service Acceptance

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Criteria for Reflective Foil Insulation, June 1987 (with the exception that thermal performance ~~shall~~ must be tested ~~with a temperature differential of 30 degrees Fahrenheit between the inside surfaces of the test panel~~ in accordance with item B, C, or D), meets the Minnesota testing standards in this subpart.

B. Reflective insulation systems with more than one sheet must be tested according to ASTM C 976-82 or ASTM C 236-87 to determine the thermal performance in horizontal, upward, and downward directions. The tested thermal performance in the heat-flow direction or directions of the intended application must be labeled on the material. The manufacturer shall test once in each direction of intended application; except that, for products labeled with only one heat-flow direction, the manufacturer shall test two samples in that direction. The tests must be done at a mean temperature of 75 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit.

C. Single sheet reflective insulation systems must be tested with ASTM E 408 or another test method that provides comparable results. This tests the emissivity of the foil (its power to radiate heat). To get the R-value for a specific emissivity level, air space, and direction of heat flow, use the tables in the most recent edition of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Handbook. The R-value shown for 50 degrees Fahrenheit must be used, with a temperature differential of 30 degrees Fahrenheit.

D. Radiant barrier products must meet the requirements of the United States Federal Trade Commission in Code of Federal Regulations, title 16, part 460.5(b) and (c).

If the R-value listed on the Federal Trade Commission fact sheet is not that for a radiant barrier, the Federal Trade Commission fact sheet must also include the following statement: "These R-values are not for a radiant barrier and are likely to differ when the product is installed as a radiant barrier."

Subp. 8. **Other insulation.** Insulation other than

insulation specified in subparts 1 to 7, to be sold, marketed, or advertised for use in residential structures in Minnesota must comply with the ~~following~~ requirements~~:~~ in items A to F.

A. Thermal performance and surface burning characteristics must be determined in accordance with subpart 2~~;~~.

B. Results of the water absorption test must be reported~~;~~.

C. If the material is foam in place, a test of the shrinkage using ASTM C 591-85, section 8.5 must be used~~;~~.

D. If the material contains formaldehyde, a formaldehyde content test is necessary~~;--and~~.

E. The initial report as required by part 7640.0150, subpart 2, must include a description of other tests applied to the product.

~~Before insulation is sold, marketed, or advertised for use in residential structures in Minnesota, the manufacturer shall test the insulation with an approved laboratory and submit a certification of compliance with a federal, state, or ASTM standard specification that addresses all of the performance characteristics of the product. When no federal, state, or ASTM standard specification has been developed, the manufacturer shall present test data from an approved laboratory that shows the insulation and its intended uses are safe and effective and does not pose a threat to human health.~~

F. The manufacturer shall provide a statement that the insulation and its intended uses are safe and effective and do not pose a threat to human health. The manufacturer shall disclose any known or reasonably suspected attributes of the product that will adversely affect its safety or effectiveness.

7640.0140 REQUIREMENTS FOR INSULATION FOR SPECIAL APPLICATIONS.

Subpart 1. to 3. [Unchanged.]

Subp. 4. **Pipe insulation, duct wrap insulation, and water heater blanket insulation.** Pipe insulation, duct wrap insulation, and water heater blanket insulation must meet the standards of part 4155.0130, including the flammability

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requirements for insulation in part 4155.0130, subpart 2, item B, clause (6). Water heater blanket products must meet the flammability requirements of flame spread 50 and smoke developed 100, when tested in accordance with ASTM standard E84-84, Revision A, Surface Burning Characteristics of Building Materials.

Pipe insulation does not have to be listed with an R-value. If the R-value is not identified on the label, it does not need to be tested. If the R-value is identified, it must be supported by test results as identified in part 7640.0130, subpart 2, item C.

7640.0150 REPORTING REQUIREMENTS.

Subpart 1. **Applicability.** This subpart identifies all industry members to whom subparts 2 and 3 apply.

A. and B. [Unchanged.]

C. An industry member that intends to sell an insulation product manufactured by another industry member under its own trade or brand name, desires to be listed as the manufacturer, and does not alter physical properties of the insulation product, shall file an initial report. The filing insulation member can comply with subpart 2, item B F, by certifying that the product is the same as when it was previously filed.

D. Insulation products identified in part 7640.0130, subparts 3 to 8 that are composed of the identical material, for example the same chemical make-up, composition, or physical properties, but that have different dimensional characteristics, such as width, length, thickness, or density, need not undergo additional testing by the same manufacturer once the initial similar product meets the necessary requirements.

Subp. 2. [Unchanged.]

Subp. 3. **Annual filing requirement.**

A. [Unchanged.]

B. For each product, the report must include:

(1) and (2) [Unchanged.]

(3) certification that the product has not undergone significant changes since the initial report was filed; ~~and~~

(4) identification of and changes in information that may have changed from the initial or previous annual report, including product brand names, product literature, Federal Trade Commission fact sheet, product usage, or discontinuation of manufacture; and

(5) a list of three, or as many as available if less than three, Minnesota purchasers or customers of the product. The department shall maintain this information with the strictest confidence.

C. [Unchanged.]

7640.0160 APPLICATION AND INSTALLATION STANDARDS.

Subpart 1. [Unchanged.]

Subp. 2. **Application and inspection.** Industry members installing insulation shall follow manufacturer's written application instructions.

In attic areas where insulation is to be installed, the installer shall comply with part 7640.0110, subpart 5.

Installation of cellulosic and mineral fiber in loose-fill form must comply with ASTM standard C-1015, including part 7.7.2.

Installation of reflective insulation must comply with ASTM standard C 727-72 (reapproved 1978).

Subp. 3. [Unchanged.]

7640.0170 ~~LABELING~~ PRODUCT INFORMATION.

Subpart 1. **Generally.** Insulation used or offered for sale in Minnesota must ~~be labeled according to~~ meet the requirements of the United States Federal Trade Commission ~~requirements~~ in Code of Federal Regulations, title 16, part 460.

Subp. 2. **False and misleading statements.** Any false, misleading, or unsubstantiated statements in a sales presentation, or on any label, product literature, or product intended for the purchaser, as identified in Minnesota Statutes, sections 325F.22, 325F.67, and 325F.69, subdivision 1, are

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subject to the state's remedies provided in Minnesota Statutes, sections 325F.24 and 325F.70.

Subp. 3. **Labeling for insulation products with follow-up programs.** ~~All cellulose insulation products must also comply with the United States Consumer Product Safety Commission requirements in Code of Federal Regulations, title 16, part 1209~~ Insulation products with a follow-up program must carry the label of the laboratory indicating that a follow-up program is being conducted.

7640.0180 INCORPORATIONS BY REFERENCE AND CITATIONS.

Subpart 1. [Unchanged.]

Subp. 2. **ASTM.** The following ASTM standards are incorporated by reference:

A. ASTM C ~~160-80a~~ 168-88a, Standard Definitions of Terms Relating to Thermal Insulation Materials.

B. ASTM C 177-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus.

C. ASTM C 236-87, Standard Test Method for Steady State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box.

D. ASTM C 516-80 (reapproved ~~85~~ 1985), Standard Specification for Vermiculite Loose-Fill Thermal Insulation.

E. ASTM C 518-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

F. [Unchanged.]

G. ASTM C 553-70 (reapproved ~~77~~ 1977), Standard Specification for Mineral Fiber Blanket and Felt Insulation (Industrial Type).

H. to J. [Unchanged.]

K. ASTM C 727-72 (reapproved 1978), Standard Recommended Practice for Use of Reflective Insulation in Building Constructions.

L. ASTM C 739-86, Standard Specification for

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Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation.

~~L.~~ M. ASTM C 764-84, Standard Specification for Mineral Fiber Loose-Fill Thermal Insulation.

~~M.~~ N. ASTM C 951-85, Standard Specification for Urea-Formaldehyde-Based, Foam in Place Insulation.

~~N.~~ O. ASTM C 976-82, Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box.

~~O.~~ P. ASTM C 1014-84, Standard Specification for Spray-Applied Mineral Fiber Thermal or Acoustical Insulation.

~~P.~~ Q. ASTM E 84-84 Revision A, Surface Burning Characteristics of Building Materials.

~~Q.--ASTM-E-605-77-reapproved-1982,-Thickness-and Density-of-Sprayed-Fire-Resistive-Material-Applied-to-Structural Members.~~

R. ASTM C 1015, Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation.

S. ASTM C 1029-85, Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.

T. ASTM E 408-71 (reapproved 1985), Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques.

U. ASTM E 605-77 (reapproved 1982), Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members.

Subp. 2a. **Standards.** The following American National Standards Institute standard is incorporated by reference:

ANSI Standard Z-1.15-1979: Generic Guidelines for Quality Systems.

Subp. 3. **Other incorporation and citations.** The following non ASTM standards are also incorporated by reference:

A. to H. [Unchanged.]

I. ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982.

J. TAPPI Standard No. 512-OM86 by the Technical Association of the Pulp and Paper Industry.

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Subp. 4. [Unchanged.]

REPEALER. Minnesota Rules, part 7640.0110, subpart 10, is repealed.

Office of the Revisor of Statutes

Administrative Rules

TITLE: Proposed Permanent Rules Relating to Thermal Insulation Standards

AGENCY: Department of Public Service, Energy Division

MINNESOTA RULES: Chapter 7640

INCORPORATIONS BY REFERENCE: ASTM C 168-88a, Standard Definitions of Terms Relating to Thermal Insulation Materials; ASTM C 177-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus; ASTM C 236-87, Standard Test Method for Steady State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box; ASTM C 516-80 (reapproved 1985), Standard Specification for Vermiculite Loose-Fill Thermal Insulation, ASTM C 518-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; ASTM C 553-70 (reapproved 1977), Standard Specification for Mineral Fiber Blanket and Felt Insulation (Industrial Type); ASTM C 727-72 (reapproved 1978), Standard Recommended Practice for Use of Reflective Insulation in Building Constructions; ASTM C 739-86, Standard Specification for Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation; ASTM C 764-84, Standard Specification for Mineral Fiber Loose Fill Thermal Insulation; ASTM C 951-85, Standard Specification for Urea-Formaldehyde-Based, Foam in Place Insulation; ASTM C 976-82, Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box; ASTM C 1014-84, Standard Specification for Spray Applied Mineral Fiber Thermal or Acoustical Insulation; ASTM E 84-84 Revision A, Surface Burning Characteristics of Building Materials; ASTM C-1015, Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation; ASTM C 1029-85, Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation; ASTM E 408-71 (reapproved 1985), Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques; ASTM E 605-77 (reapproved 1982), Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members; ANSI Standard Z-1.15-1979: Generic Guidelines for Quality Systems; ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982.

The attached rules are approved for publication in the State Register

Craig E. Lindeke
Senior Assistant Revisor

Department of Public Service, Energy Division

In the matter of the Proposed Amendment of the Rule of the State Department of Public Service, Energy Division Governing Residential Thermal Insulation Standards

STATEMENT OF NEED AND REASONABLENESS March, 1989

The Commissioner of the Minnesota Department of Public Service proposes to adopt amendments to Minnesota Rules Chapter 7640 (formerly designated as Minnesota Rules Chapter 4155) without a public hearing. The Commissioner has determined that the proposed amendment of these rules will be non-controversial in nature and has elected to follow the procedures set forth in Minnesota Statutes sections 14.22 to 14.28. The above-captioned proposed rules are amendments to the existing Minnesota Residential Thermal Insulation Standards.

Authority

The Commissioner is authorized by Minnesota Statutes sections 325F.20, subdivision 1, and 325F.21, subdivisions 1 and 2, to establish standards for the quality, safety, installation, and labeling of thermal insulation products. Furthermore, these statutes authorize the establishment of test programs and procedures to ensure that standards established by this chapter will be met.

History

The administrative rules establishing standards governing the manufacture of all thermal insulation for residential buildings that is offered for sale in Minnesota were adopted on November 30, 1985. The rules were amended on June 30, 1987 and again on April 30, 1988. Since the inception of these rules, approximately 70 manufacturers have filed with the Department of Public Service.

The Department began the rule modification process in November 1988 by printing a notice in the State Register (13 S.R. 1342) soliciting comments from industry members concerning the rules governing this program. This current revised version of Minn. Chap. 7640 is non-controversial in nature and primarily will clarify existing language and define terms. Several standards and specifications have either been updated or amended by standard writing organizations.

Summary

The proposed rule amendment is a revision to Minnesota Residential Thermal Insulation Standards: clarifying and simplifying existing language, definitions, and applications; updating testing standards and procedures; identifying industry members' quality assurance programs; and clarifying performance testing requirement for radiant barrier products. In addition, a few editorial changes are proposed by the Revisor of Statutes to conform with current style regulations.

Small Business

The adoption of these amendments will affect small businesses in Minnesota. The Department has evaluated the effect of the proposed rules on small businesses and has considered each of the methods prescribed by Minnesota Statutes Section 14.155, subd. 2, for reducing the impact of the rules on small businesses. Small businesses would benefit from the proposed rule, since the required frequency of testing is reduced, resulting in less stringent compliance, schedules, and deadlines in conformance with Minnesota Statutes section 14.115, subd. 2(a) and (b). The proposed rule will simplify reporting requirements addressed by Minnesota Statutes section 14.115, subd. 2(a), (b), or (c). The Department is taking steps to simplify all reporting requirements. Minn. Rules Chap. 7640 requires performance standards for all insulation product types in conformance with Minnesota Statutes section 14.115, subd. 2(d). Minnesota Statutes section 14.115, subd. 2(e) requires the Department to consider exempting small businesses from any or all requirements of the rules. To assure that insulation products sold or installed in the state are safe and effective, it is essential that all manufacturers of insulation be subject to the requirements of these rules. To exempt some businesses from these requirements would raise the possibility that insulation products could be sold and installed in Minnesota which were neither safe nor effective. Thus, the Department concludes that small businesses cannot be exempted from any or all requirements of these rules.

Public Monies

The implementation of these amendments will not require the expenditure of public monies in excess of $100,000 by local bodies in either of the two years following their adoption and meets the test of the exceptions to fiscal notes as provided by Minnesota Statutes 3.983 subpart 2. The proposed amendments would not have any impact on agricultural land.

If a public hearing is required, Bruce Nelson, Senior Engineer and Narv Somdahl, Manager of the Conservation Programs section of the Energy Division will appear on behalf of the proposed rules at the hearing. They will testify regarding the need for and reasonableness of the proposed rules.

STATEMENT OF NEED AND REASONABLENESS

INTRODUCTION

The Department of Public Service, Energy Division proposes to modify the rules governing the Minnesota Residential Thermal Insulation Program.

A goal of the suggested revisions is to assure quality control in the manufacture of insulation products sold in Minnesota. The means being proposed to achieve this goal in these rule revisions is to identify the current quality assurance and testing standards currently in use by industry members.

GRAMMATICAL CHANGES

Some grammatical and editorial changes found hereinafter are proposed by the Revisor of Statutes to conform with current style regulations. Minn. Rules Chap. 14 requires that all rules and regulations do not repeat existing rules and regulations in order to avoid redundancy and repetitiveness.

REPLACEMENT OF ASTM STANDARDS

All ASTM standards that are within these rules have been updated to conform with the most recent versions. It is reasonable to identify the latest standards because all testing laboratories use only the most recent ASTM standards.

Chap. 7640.0110 Applicability

Subpart 4 (A) - addition of the term "installation standards" to which industry members must conform.

Need & Reasonableness - This clarification recognizes that the rule requirements consist of both quality standards and installation standards. Referencing both standards will result in easier use of Minn. Rules Chap. 7640. Minnesota Statutes section 325F.20 subdivision 1 authorizes the rule to include installation standards.

Chap. 7640.0120 Definitions

Subpart 10 - definition of "FS" deleted.

Need & Reasonableness - This definition occurs in only one place in the rules (7640.0130, subp. 5(D)) and is sufficiently identifiable. A separate definition here is redundant and its elimination would simplify use of these rules.

Subpart 19a - definition of "Quality Assurance Program" added.

Need - This definition has been added to clarify its usage as proposed in this rulemaking in Minn. Rules Chap. 7640.

Reasonableness - All industry members must have a definition of a Quality Assurance Program in order to comply with the proposed requirement (Minn. Rules Chap. 7640) that all manufacturers have a quality assurance program in place. This definition is derived from the American National Standards Institute and American Society for Quality Control standard ANSI/ASQC Z-1.15-1979. **[Attachment A]**

Chap. 7640.0120 Definitions (cont.)
Subpart 20a - definition of "Radiant Barrier" added.
Need - This definition has been added to clarify its usage in Minn. Rules Chap. 7640.
Reasonableness - A definition of Radiant Barrier is necessary so that industry members can comply with Minn. Rules Chap. 7640. This definition is copied from the ASTM draft standard, "Use and Installation of Radiant Barrier Systems in Building Constructions, September 27, 1988. **[Attachment B]**

Subpart 20b - definition of "Reflective Insulation" added.
Need - This definition has been added to clarify its usage as proposed in Minn. Rules Chap. 7640.
Reasonableness - All industry members must be able to understand what Reflective Insulation means in relation to a manufacturer's operation and its anticipated compliance with Minn. Rules Chap. 7640. This definition is derived from the ASTM draft standard, "Use and Installation of Radiant Barrier Systems in Building Constructions, September 27, 1988. **[see Attachment B]**

Chap. 7640.0130 Insulation Materials Standards
Subpart 2 (B)(4) - Deletion of requirement for manufacturers without approved laboratory testing facilities to contract for annual surprise inspections.
Need - The deletion of this requirement is needed because the requirement is unnecessary for a sufficient thermal insulation manufacturing quality assurance program. The quality assurance standard ANSI/ASQC Z-1.15-1979 (Attachment A) does not require manufacturers without approved laboratory testing facilities to have a contract for a laboratory to perform annual surprise inspections.
Reasonableness - A contract for a laboratory to perform periodic surprise inspections is one element of some thermal insulation manufacturers' quality assurance programs. However, the department has found that this element is, in many cases, not necessary for a complete quality assurance program. One exception is the manufacture of loose-fill cellulose, where a program of surprise inspections is required by Minn. Rule Chap. 7640.0130 subp. 3 A (2). The department has also found that a program of surprise inspections is by itself not a sufficient quality assurance program.

Subpart 2 (C)(3) - Aged R-value testing for foam plastic insulations.
Need - Foam plastic insulations incorporating chloro-fluorocarbons (CFC) blowing agents may loose a significant percentage of their initial R-value with aging. This requirement will assure that "other" insulations will be subject to the same testing requirements as imposed by Minn. Rules Chap. 7630 for extruded polystyrene, faced and unfaced polyisocyanurate and urethane products.
Reasonableness - This requirement is similar to FTC rules part 460.5 (a)1, required for residential insulation products. **[Attachment C]**

Chap. 7640.0130 Insulation Materials Standards (cont.)

Subpart 2 (D) - All manufacturers, and installers of insulation products whose manufacture is completed at the jobsite, must have a quality assurance program.

Need - A manufacturing quality assurance program is essential for the consistent production of thermal insulation products that meet the standards required by Minn. Rules Chap. 7640. The proposed amendment is needed to provide a standard for quality assurance programs for all types of insulation products. It is also needed in the event, upon testing of a product authorized by Minn. Stat. 325F.21, subp. 2, the department finds a product which does not meet the standard. In this case, the department can work with the manufacturer to improve its quality assurance program, using the criteria included in the referenced standard.

The manufacture of some specific insulations is not complete until just prior to installation. These include spray-applied fibrous insulations to which water and/or adhesives are added as they are sprayed, foam plastics which consist of two or more chemical components mixed as they are sprayed and others. A requirement for a quality assurance program for this jobsite completion of manufacture is needed to assure that insulation meeting quality standards is installed.

Reasonableness - All manufacturers with products currently filed with the Minnesota Insulation Standards Program have quality assurance programs.

All installers of insulation currently filed for use in Minnesota whose manufacturer is completed at the jobsite have quality assurance programs. The proposed rule does not set specific criteria for the makeup of a quality assurance program. Those criteria are broadly identified in the American National Standards Institute and American Society for Quality Control standard ANSI/ASQC Z-1.15-1979.

Subpart 3 (A)(2)(a - d) - Follow-up agreement purposes restated and clarified.

Need - The existing rules are dissimilar to the follow-up programs which currently exist for cellulose. The proposed rule would modify the standards for follow-up programs which the department has already found to be acceptable. A consultant report prepared in 1987 recommended these specific modifications. **[Attachment D]**

Reasonableness - These requirements are presently identical to those of Underwriters Laboratories and the U.S. Testing Company follow-up agreements which the Department has found to be acceptable.

Subpart 5 (C) - Aged R-value exception to ASTM 591-85 recognized.

Need - The aged R-value specified in the ASTM standard is unreasonable. An unfaced polyisocyanurate product cannot maintain its CFC content when tested for aged R-value as well as a faced polyisocyanurate product can. Therefore, unfaced polyisocyanurate is unable to maintain its R-value and meet the criteria specified in the ASTM standard. This position has been clearly expressed by Dow Chemical Company. **[Attachment E]**

Reasonableness - The measured aged R-value of unfaced polyisocyanurate products must be listed on their respective FTC fact sheets. Therefore, consumers will have information as to the tested aged R-value of this product.

Chap. 7640.0130 Insulation Materials Standards (cont.)

Subpart 5 (G) - Acceptance of ICBO criteria for foam plastic insulation for meeting testing standards of Minn. Rule Chap. 7640.0130 subp.5.

Need - The International Council of Building Officials requires that the manufacturer submit test data showing conformance of the product with the applicable ASTM standard. If a product has a current ICBO listing, the testing required by Minn. Rule Chap. 7640 will have already been conducted. Therefore, there is no need to repeat the testing.

Reasonableness - ICBO Acceptance Criteria for Foam Plastic, October, 1982, requires testing identical to Minn. Rule Chap. 7640. **[Attachment F]**

Subpart 7 A - D - Reflective foil insulation standards reorganized.
In order to reflect the different requirements and standards for various types of insulation within this subpart, this subpart identifies multi-sheet and single sheet reflective insulation. It also individually identifies requirements for radiant barrier products.

Subpart 7 A :
A (2): clarifies that thermal performance tests pursuant to ASTM C 976-82 or ASTM C 236-87 do not apply to radiant barrier products.
A (6): temperature differential language is redundant here as it is already recognized within the cited ICBO standard.

Need - This subpart contains the criteria which are common to all reflective foil products.

Reasonableness - There is no content change from existing rules.

Subpart 7 B - C:
Reflective insulation thermal performance criteria.
B: temperature standard specifically for multi-sheet insulation is identified.
C: ASTM E 408 is cited as a standard for single sheet reflective insulation.

Need & Reasonableness - These criteria are identical to those in FTC Rule part 460.5 (b) & (c). **[See attachment C]**

Subpart 7 D: Radiant barrier products thermal performance criteria.

Need - The thermal performance of radiant barrier products is different from reflective insulation products. At this time there is no specific standard that is generally accepted for determining the thermal performance of radiant barrier products. By this proposed amendment, the rule would recognize this difference and furthermore recognize the Federal Trade Commission interpretation of the thermal performance for radiant barriers.

The language mandated in the second paragraph of the proposed rule is needed because the FTC Rule 460.13 states that any disclosures required must be mandated by State law or rule **[See attachment C]**. Some radiant barrier manufacturers have listed the thermal performance of their products to be the same as if it were installed as single sheet reflective insulation. The department has indicated that it believes that this practice is not in conflict with the requirements of Minn. Rules Chap. 7640. The disclosure statement is necessary to notify the consumer that the installed R-value for the product may be different than listed on the FTC fact sheet.

Reasonableness - The proposed amendment acknowledges that thermal performance of radiant barrier products is different from reflective insulation products. It defers interruption of the method of testing and labeling of thermal performance of radiant barrier products to the Federal Trade Commission.

The proposed disclosure is simply a statement of fact, and should not burden any radiant barrier manufacturer.

Chap. 7640.0130 Insulation Materials Standards (cont.)
Subpart 8 (E & F) - "Other insulation" requirement for manufacturers to specifically test and attest to product safety has been eliminated and replaced with a broader requirement.

Need - The existing rule has criteria which are impossible to meet. An approved laboratory cannot certify that the product is "safe and effective" because no relevant test criteria exists on which to base this determination. The Department needs the statement proposed in this rule from the manufacturer to assure that the product is safe and effective.

Reasonableness - The manufacturer should be aware of a product's attributes and should be able to provide such a statement.

Chap. 7640.0140 Requirements for Insulation for Special Applications
Subpart 4 - R-value testing for pipe insulation not necessary.

Need & Reasonableness - FTC Rule part 460.2 does not require R-value testing or labeling for pipe insulation **[See attachment C]**. If a manufacturer does list an R-value, the manufacturer should be able to provide substantiation as required by Minn. Stat. sec. 325F.22, subd. 3.

Chap. 7640.0150 Reporting Requirements
Subpart 1 (D) - waiving of testing for similarly composed material.

Need & Reasonableness - it is recognized that if a manufacturer has more than one insulation product composed of essentially the same material, with the only difference being size or shape, only one of those products need be tested.

Subpart 3 (B)(5) - identification of local customers.

Need - In accordance with Minn. Stat. sec. 325F.21, subd. 2, the Department can obtain samples of the insulation product. In order to identify a source for product procurement, the Department must know where it is available in the state.

Reasonableness - The manufacturer should be able to identify its customers. Such information received by the Department will be maintained with the utmost secrecy. The proposed rule requires the department to maintain this information with the strictest confidence. Thus the industry member can be assured that no unauthorized disclosure of trade secret information. The Department has a trade secret policy **[Attachment G]** which would govern its actions in this regard.

Chap. 7640.0160 Application and Installation Standards
Subpart 2 - Standards for installation are adopted

Need - These standards are needed to provide uniform minimum criteria for installation of the referenced products.

Reasonableness - The referenced standards are consensus standards adopted by ASTM. These standards are not intended to be a replacement for installation instructions but are meant to be used in conjunction with such instructions.

Chap. 7640.0170 Labeling

Subpart 1 - FTC R-value rule conformance requirement.

Need - The inclusion of this requirement in Minn. Rules Chap. 7640 is needed to make all industry members doing business in Minnesota aware of the FTC rule. It is also needed so the department has clear authority to require conformance to the provisions of the FTC R-value rule before making a determination that a filing of a product under the Minnesota Insulation Standards Program is complete.

Reasonableness - The FTC R-value rule already applies to all residential thermal insulation products sold in the United States. All manufacturers with products currently having a completed filing with the Minnesota Insulation Standards Program currently comply with this requirement.

Subpart 2 - false and misleading statements

Need - This amendment is needed to assure that all industry members are aware of relevant state law.

Reasonableness - The proposed rule is a restatement of statutory language utilized in Minnesota Statutes. There is no change in authority implied in this reference.

Subpart 3 - labeling under follow-up programs.

Need - This amendment is needed to assure that, when required by Minn. Rules Chap. 7640, all products sold in Minnesota are manufactured under the provisions of a follow-up program. The laboratories which are contracted for follow-up service allow the use of their labels on the products manufactured under their follow-up inspection. Without the proposed amendment it is possible, hypothetically, that a manufacturer could sell in Minnesota a product without the laboratory's label. That particular product may or may not have been produced under that laboratory's follow-up inspection.

Reasonableness - The proposed amendment does not impose any additional requests for labeling that are not already in use by the industry.

AFFIDAVIT OF CERTIFICATE OF MAILING LIST

In the Matter of the Proposed Adoption of the Rule of the Minnesota Department of Public Service, Energy Division, Governing Residential Thermal Insulation Standards

AFFIDAVIT OF CERTIFICATE OF MAILING LIST FOR NOTICE OF INTENT TO ADOPT A RULE WITHOUT A PUBLIC HEARING

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Judy Schmidt, being first duly sworn deposes and says:

I hereby certify that the list of persons and associations who have requested, pursuant to Minnesota Statutes, sections 14.14, subdivision 1a and 14.22 or 14.30, that their names be placed on the state Department of Public Service, Energy Division, rulemaking list is accurate, complete, and current as of this 13 day of March, 1989.

Judy Schmidt
(name)

Data Proc. Coord I
(title)

Subscribed and sworn to before me this 13th day of MARCH, 1989.

Dennis M. Devereaux
Notary Public

DENNIS M. DEVEREAUX
NOTARY PUBLIC-MINNESOTA
RAMSEY COUNTY
My Comm. Expires Apr. 1, 1994

AFFIDAVIT OF MAILING

In the Matter of the Proposed Adoption of the Rule of the Minnesota Department of Public Service, Energy Division, Governing Residential Thermal Insulation Standards

AFFIDAVIT OF MAILING THE NOTICE OF INTENT TO ADOPT A RULE WITHOUT A PUBLIC HEARING

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Dianne Brown, being first duly sworn deposes and says:

I hereby certify that on the 14 day of March, 1989, at the City of St. Paul, County of Ramsey, State of Minnesota, I mailed the attached Notice of Intent to Adopt a Rule Without a Public Hearing by depositing in the State of Minnesota Central Mail System, a copy thereof, with postage prepaid, to all persons and associations on the aforementioned mailing list.

Dianne Brown
(name)

Clerk Typist III
(title)

Subscribed and sworn to before me this 14th day of MARCH, 1989.

Dennis M. Devereaux
Notary Public

DENNIS M. DEVEREAUX
NOTARY PUBLIC-MINNESOTA
RAMSEY COUNTY
My Comm. Expires Apr. 1, 1994

State of Minnesota

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Subp. 5. **Integration of required curriculum offerings.** Environmental education, youth service-learning, and media and technology skills shall be taught in the context of the other required curriculum offerings. Although particular curriculum offerings in subpart 4 are clustered to indicate emphasis in a balanced elementary school curriculum, any curriculum offering may be taught in combination or cluster with any of the other offerings.

Subp. 6. and 7. [Unchanged.]

3500.1600 MIDDLE SCHOOL CURRICULUM.

Subpart 1. and 2. [Unchanged.]

Subp. 3. **Youth service-learning.** Youth service-learning must be integrated into the middle school curriculum.

Subp. 4. **Youth service activities.** A school district must provide opportunities for students to participate in youth service activities within the school or community.

3500.1900 CURRICULUM FOR JUNIOR SECONDARY SCHOOLS.

Subpart 1. and 2. [Unchanged.]

Subp. 3. **Youth service-learning.** Youth service-learning must be integrated into the junior secondary school curriculum.

Subp. 4. **Youth service activities.** A school district must provide opportunities for students to participate in youth service activities within the school or community.

3500.2000 CURRICULUM FOR THREE-YEAR SENIOR SECONDARY SCHOOLS.

Subpart 1. and 2. [Unchanged.]

Subp. 3. **Youth service-learning.** Youth service-learning must be integrated into the three-year senior secondary school curriculum.

Subp. 4. **Youth service activities; credit.** A school district must provide opportunities for students to participate in youth service activities within the school or community. The district shall acknowledge student participation in youth service activities through awarding credit. The district shall determine the amount of credit awarded for the activities.

3500.2110 REQUIRED CURRICULUM OFFERINGS FOR FOUR-YEAR SENIOR SECONDARY SCHOOLS.

Subpart 1. and 2. [Unchanged.]

Subp. 3. **Required offerings without minimum hours.** The programs in items A and B must be offered to students. The number of clock hours to be devoted to each is up to the local school board. Satisfactory completion will be based on locally determined learner outcomes which are defined as knowledge, skills, or understandings that an individual student derives from a learning experience.

A. A school district must provide a career education program developed by involving parents or guardians and the community. The program must be designed to assist pupils in making career decisions including course selections.

B. A school district must provide an information technology program to meet individual student needs. Information technology includes such things as student learning about and with one or more of the following: computers, telecommunications, cable television, interactive video, film, low power television, satellite communications, and microwave communications. Information technology may be integrated with course content of other subject areas.

C. Youth service-learning must be integrated into the four-year senior secondary school curriculum.

D. A school district must provide opportunities for students to participate in youth service activities within the school or community. The district shall acknowledge student participation in youth service activities through awarding credit. The district shall determine the amount of credit awarded for the activities.

Department of Public Service Energy Division

Proposed Permanent Rules Relating to Thermal Insulation Standards

Notice of Intent to Amend Rules Without a Public Hearing

NOTICE IS HEREBY GIVEN that the Minnesota Department of Public Service proposes to adopt amendments to *Minnesota Rules,* Chapter 7640, without a public hearing. The Commissioner has determined that the proposed amendment of these rules will be noncontroversial in nature and has elected to follow the procedures set forth in the *Minnesota Statutes,* sections 14.22 to 14.28. Authority for the adoption of these rules is contained in *Minnesota Statutes,* sections 325E.20, subd. 1 and 325E.21, subd. 1 and 2.

Minnesota Rules, Chapter 7640 apply to manufacturers, sellers and installers of residential thermal insulation products sold or installed in Minnesota.

All persons have 30 days in which to submit comment in support of or in opposition to any part of the proposed amendments. Comment is encouraged. Each comment should identify the proposed amendment addressed, the reason for the comment, and any change proposed.

All persons may make a written request for a public hearing on the proposed amendments within the 30-day comment period. If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficient number withdraw their requests in writing. Any person requesting a public hearing must state his or her name and address and is encouraged to identify the portion of the proposed amendment addressed, the reason for the request, and any change proposed. If a public hearing is required, the agency will proceed pursuant to *Minnesota Statutes,* sections 14.131 to 14.20.

Persons who wish to submit comments or a written request for a public hearing should submit such comments or requests to: Bruce Nelson, Department of Public Service, Energy Division, 900 American Center Building, 150 East Kellogg Boulevard, St. Paul, Minnsota 55101 (612) 297-2313.

Comments or requests for a public hearing must be received by the Department of Public Service, Energy Division by 4:00 p.m., April 20, 1989. The proposed amendments may be modified if the modifications are supported by the data and views submitted to the Department and do not result in a substantial change in the proposed amendments as noticed.

A Copy of the proposed rule amendment is attached to this notice.

A Statement of Need and Reasonableness that describes the need for and reasonableness of each provision of the proposed amendments and identifies the data and information relied upon to support the proposed amendments has been prepared and is available by requesting a copy from Mr. Nelson at the address listed above.

The implementation of these amendments will not require the expenditure of public money in excess of $100,000 by local bodies in either of the two years following their adoption, nor do the rules have any impact on agricultural land.

The adoption of these amendments will affect small businesses in Minnesota. The Department has evaluated the effect of the proposed rules on small businesses and has considered each of the methods prescribed by *Minnesota Statutes* Section 14.155, subd. 2, for reducing the impact of the rules on small businesses. Small businesses would benefit from the proposed rule, since the required frequency of testing is reduced, resulting in less stringent compliance, schedules and deadlines in conformance with *Minnesota Statutes* Section 14.155, subd. 2(a) and (b). The proposed rule would have no effect on reporting requirements addressed by *Minnesota Statutes* Section 14.155, subd. 2(a), (b) or (c). The requirements of Chapter 4155 are already performance standards for all insulation types in conformance with *Minnesota Statutes* Section 14.155, subd. 2(d). The Department has determined that small businesses cannot be exempted from any or all requirements of the rules in conformance with *Minnesota Statutes* Section 14.155, subd. 2(e).

If no hearing is required, upon adoption of the rule, the rule and the required supporting documents will be submitted to the Attorney General for review as to legality and form to the extent that form relates to legality. Any person may request notification of the date of submission to the Attorney General. Persons who wish to be advised of the submission of this material to the Attorney General, or who wish to receive a copy of the adopted rules, must submit a written request for such to Mr. Nelson at the above address.

Dated: 28 February 1989

Tony Perpich, Commissioner
Department of Public Service

Rules as Proposed

7640.0110 APPLICABILITY.

Subpart 1 to 3. [Unchanged.]

Subp. 4. **Prohibitions.** The prohibitions in this subpart apply to the installation and application of insulation.

A. Industry members may not install insulation in residential structures unless it conforms to the product quality standards and installation standards in this chapter.

B. to D. [Unchanged.]

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." ADOPTED RULES SECTION — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

Subp. 5. [Unchanged.]

7640.0120 DEFINITIONS.

Subpart 1. **Applicability.** For the purposes of this chapter, the following definitions of terms apply. Technical, scientific, and engineering terms undefined by this part have the meanings given in the ASHRAE Handbook of Fundamentals or in ASTM C ~~168-80a~~ 168-88a, Standard Definitions of Terms Relating to Thermal Insulation Materials.

Subp. 2. to 9. [Unchanged.]

Subp. 10. [See Repealer.]

Subp. 11. **FTC.** "FTC" means the United States Federal Trade Commission ~~or~~, Code of Federal Regulations, title 16, part 460, or a standard issued for thermal insulation materials by that commission.

Subp. 12. to 19. [Unchanged.]

Subp. 19a. **Quality assurance program.** "Quality assurance program" means the collective set of plans, activities, and events that are provided to ensure that the product or service will satisfy given needs. A quality assurance program must include the elements of "Generic Guidelines for Quality Systems," American National Standards Institute standard ANSI Z-1.15, 1979.

Subp. 20. [Unchanged.]

Subp. 20a. **Radiant barrier.** "Radiant barrier" means a building construct consisting of a low emittance surface bounded by an open air space.

Subp. 20b. **Reflective insulation.** "Reflective insulation" means a building construct consisting of a low emittance surface bounded by an enclosed air space.

Subp. 21. to 26. [Unchanged.]

7640.0130 INSULATION MATERIALS STANDARDS.

Subpart 1. [Unchanged.]

Subp. 2. **General testing requirements.** General testing requirements for regulated thermal insulation materials in this part are as follows:

A. [Unchanged.]

B. All regulated thermal insulation materials must be tested for compliance with the standards in this part by April 2, 1986. Testing procedures are as follows:

(1) to (3) [Unchanged.]

(4) ~~Manufacturers without approved laboratory testing facilities shall contract with an approved laboratory to conduct an annual surprise on-site inspection of the manufacturer's production facilities for the following two purposes:~~

~~(a) to take random samples of insulation from the manufacturer's assembly or process system for testing under this chapter; and~~

~~(b) to evaluate testing techniques and make recommendations for improvement if the insulation fails to meet the assigned testing standards.~~

~~(5)~~ Testing for each type of insulation must be performed in accordance with the methods specified in subparts 3 to 8.

~~(6)~~ (5) Insulation must have flammability characteristics in accordance with the Uniform Building Code, 1985 Edition, sections 1712 and 1713, for its intended uses.

C. All thermal performance tests must be conducted in accordance with this item, unless additional requirements are imposed within the body of a materials standard. Insulation's thermal performance must be stated in R-value.

(1) [Unchanged.]

(2) R-value testing must be performed at the insulation's representative thickness, and be consistent with the requirements of the United States Federal Trade Commission.

~~(3)~~ Unit R per inch must be derived from R-value testing performed to its representative thickness~~, as specified in subitem (2)~~.

(3) For polyurethane, polyisocyanurate, and extruded polystyrene, in accordance with the FTC R-value rule, section 460.5, R-value tests must be done on samples that fully reflect the effect of aging on the product's R-value.

(4) to (6) [Unchanged.]

D. Manufacturers shall have a quality assurance program in place for all regulated thermal insulation products. A quality assurance program must be in place for installers of products whose manufacture is completed at the jobsite.

Manufacturers and other industry members must maintain an in-house quality assurance program in order for products to meet the required standards.

If a manufactured product fails to meet those required standards, the department shall notify the industry member to pursue corrective measures.

Subp. 3. **Cellulose insulation.**

A. Cellulose fiber in loose-fill form must meet the following requirements:

(1) The product must comply with ASTM C ~~739-84~~ 739-86, Standard Specification for Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation or the United States Consumer Product Safety Commission Interim Safety Standard for Cellulose Insulation, Code of Federal Regulations, title 16, part 1209 subpart B.

(2) All manufacturers shall contract with an approved laboratory for a follow-up agreement ~~for~~ to accomplish the following ~~two purposes~~:

(a) ~~The laboratory shall pick up three randomly selected unopened bags of manufacturer's cellulose for testing under this chapter.~~

~~(b) The laboratory shall conduct a minimum of one in plant inspection every two months. The inspection must be unannounced, and the inspector shall conduct tests in the plant laboratory, on a sample for settled density, smoldering combustion, critical radiant flux, corrosiveness (ph), and starch.~~ The laboratory shall conduct unannounced inspections.

(b) The inspections must be:

(i) monthly, if production is 350,000 pounds or more per month; or

(ii) quarterly, if production is less than 350,000 pounds per month.

(c) The inspector shall conduct tests on a sample at the plant laboratory for settled density, smoldering combustion, critical radiant flux, and corrosiveness (ph).

(d) The inspector shall examine the manufacturer's quality assurance program.

(3) [Unchanged.]

B. Cellulose fiber spray-applied must meet the following requirements:

(1) to (4) [Unchanged.]

(5) Critical radiant flux and smoldering combustion must be tested for in accordance with ASTM C 739-86, part 5, or the CPSC Interim Safety Standard for Cellulose Insulation, Code of Federal Regulations, title 16, part 1209 ~~[or the ASTM equivalent in C 739-86]~~. Values achieved must not exceed those established by the CPSC.

(6) to (8) [Unchanged.]

Subp. 4. [Unchanged.]

Subp. 5. **Foam plastic insulation.**

A. and B. [Unchanged.]

C. Unfaced polyurethane and polyisocyanurate in board form must comply with ASTM C ~~591-83~~ 591-85, Standard Specification for Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation.

Exception: Aged R-value must be 6.0 or greater at 70 degrees Fahrenheit.

D. to F. [Unchanged.]

G. Foam plastic insulation that conforms to all requirements of ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982, meets the Minnesota testing standards in this subpart.

Subp. 6. [Unchanged.]

Subp. 7. **Reflective foil insulation.**

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." ADOPTED RULES SECTION — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

A. The following requirements apply to reflective foil insulation:

~~A.~~ (1) Specimens for tests must consist of pieces of insulation cut to approximately three by six inches, suspended in a vertical position and heated to a temperature of 180 degrees Fahrenheit (plus or minus five degrees Fahrenheit) for at least five hours. At the end of the heating period, the tester shall examine the reflective surfaces to determine whether the adhesive has bled through the surface or whether delamination has occurred.

~~Adhesive used in bonding must be waterproof and show no sign of bleeding when tested in accordance with the test procedure identified in section V, part A, of the ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987, section V, part A, for adhesive bleeding requirements. Bleeding at cut edges may be disregarded.~~

~~B. Reflective foil insulation must be tested according to ASTM C 976-82 or ASTM C 236-87 to determine the thermal performance in horizontal, upward, and downward directions. The tested thermal performance in the heat flow direction or directions of the intended application must be labeled on the material. The manufacturer shall test once in each direction of intended application; except that, for products labeled with only one heat flow direction, the manufacturer shall test two samples in that direction.~~

(2) Except for radiant barrier products, thermal performance for single or multiple sheet sections must be determined according to ASTM C 976-82 or ASTM C 236-87. The test panel must consist of a panel using a wooden frame of two-by-six inch boards 16 inches apart and at least 24 inches long, covered with a minimum of 1/2-inch gypsum wallboard or 1/2-inch plywood on each side. For tests in the vertical position, the test panel must be at least seven feet high at a mean temperature of 75 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit. The resultant thermal performance must be based upon the insulation and the associated air spaces.

~~C.~~ (3) Layers of insulation composed of unsupported foil that is exposed must have a minimum thickness of 0.0004 inch. Unsupported foil that is sandwiched in multilayer sheet must have a minimum thickness of 0.00035 inch. Foil bonded to kraft paper must have a minimum thickness of 0.00025 inch.

(4) Adhesive used in bonding must be waterproof and show no sign of bleeding when tested in accordance with the test procedure identified in section V, part A, of the ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987, section V, part A, for adhesive bleeding requirements. Bleeding at cut edges may be disregarded.

~~D.~~ (5) Foil must be folded in accordance with TAPPI Standard No. 512-OM86, and the folded edge smoothed using a light finger pressure. The finished insulation must not crack when folded to 180 degree bend at a temperature of 70 degrees Fahrenheit (plus or minus two degrees Fahrenheit) and a relative humidity of 50 percent (plus or minus five percent).

~~E.~~ (6) Reflective foil insulation that conforms to all requirements of ICBO Evaluation Service Acceptance Criteria for Reflective Foil Insulation, June 1987 (with the exception that thermal performance ~~shall~~ must be tested ~~with a temperature differential of 30 degrees Fahrenheit between the inside surfaces of the test panel~~ in accordance with item B, C, or D), meets the Minnesota testing standards in this subpart.

B. Reflective insulation systems with more than one sheet must be tested according to ASTM C 976-82 or ASTM C 236-87 to determine the thermal performance in horizontal, upward, and downward directions. The tested thermal performance in the heat-flow direction or directions of the intended application must be labeled on the material. The manufacturer shall test once in each direction of intended application; except that, for products labeled with only one heat-flow direction, the manufacturer shall test two samples in that direction. The tests must be done at a mean temperature of 75 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit.

C. Single sheet reflective insulation systems must be tested with ASTM E 408 or another test method that provides comparable results. This tests the emissivity of the foil (its power to radiate heat). To get the R-value for a specific emissivity level, air space, and direction of heat flow, use the tables in the most recent edition of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Handbook. The R-value shown for 50 degrees Fahrenheit must be used, with a temperature differential of 30 degrees Fahrenheit.

D. Radiant barrier products must meet the requirements of the United States Federal Trade Commission in Code of Federal Regulations, title 16, part 460.5(b) and (c).

If the R-value listed on the Federal Trade Commission fact sheet is not that for a radiant barrier, the Federal Trade Commission fact sheet must also include the following statement: "These R-values are not for a radiant barrier and are likely to differ when the product is installed as a radiant barrier."

Subp. 8. **Other insulation.** Insulation other than insulation specified in subparts 1 to 7, to be sold, marketed, or advertised for use in residential structures in Minnesota must comply with the ~~following~~ requirements~~:~~ in items A to F.

A. Thermal performance and surface burning characteristics must be determined in accordance with subpart 2~~;~~.

B. Results of the water absorption test must be reported~~;~~.

C. If the material is foam in place, a test of the shrinkage using ASTM C 591-85, section 8.5 must be used~~;~~.

D. If the material contains formaldehyde, a formaldehyde content test is necessary~~; and~~.

E. The initial report as required by part 7640.0150, subpart 2, must include a description of other tests applied to the product.

~~Before insulation is sold, marketed, or advertised for use in residential structures in Minnesota, the manufacturer shall test the insulation with an approved laboratory and submit a certification of compliance with a federal, state, or ASTM standard specification that addresses all of the performance characteristics of the product. When no federal, state, or ASTM standard specification has been developed, the manufacturer shall present test data from an approved laboratory that shows the insulation and its intended uses are safe and effective and does not pose a threat to human health.~~

F. The manufacturer shall provide a statement that the insulation and its intended uses are safe and effective and do not pose a threat to human health. The manufacturer shall disclose any known or reasonably suspected attributes of the product that will adversely affect its safety or effectiveness.

7640.0140 REQUIREMENTS FOR INSULATION FOR SPECIAL APPLICATIONS.

Subpart 1. to 3. [Unchanged.]

Subp. 4. **Pipe insulation, duct wrap insulation, and water heater blanket insulation.** Pipe insulation, duct wrap insulation, and water heater blanket insulation must meet the standards of part 4155.0130, including the flammability requirements for insulation in part 4155.0130, subpart 2, item B, clause (6). Water heater blanket products must meet the flammability requirements of flame spread 50 and smoke developed 100, when tested in accordance with ASTM standard E84-84, Revision A, Surface Burning Characteristics of Building Materials.

Pipe insulation does not have to be listed with an R-value. If the R-value is not identified on the label, it does not need to be tested. If the R-value is identified, it must be supported by test results as identified in part 7640.0130, subpart 2, item C.

7640.0150 REPORTING REQUIREMENTS.

Subpart 1. **Applicability.** This subpart identifies all industry members to whom subparts 2 and 3 apply.

A. and B. [Unchanged.]

C. An industry member that intends to sell an insulation product manufactured by another industry member under its own trade or brand name, desires to be listed as the manufacturer, and does not alter physical properties of the insulation product, shall file an initial report. The filing insulation member can comply with subpart 2, item ~~B~~ F, by certifying that the product is the same as when it was previously filed.

D. Insulation products identified in part 7640.0130, subparts 3 to 8 that are composed of the identical material, for example the same chemical make-up, composition, or physical properties, but that have different dimensional characteristics, such as width, length, thickness, or density, need not undergo additional testing by the same manufacturer once the initial similar product meets the necessary requirements.

Subp. 2. [Unchanged.]

Subp. 3. **Annual filing requirement.**

A. [Unchanged.]

B. For each product, the report must include:

(1) and (2) [Unchanged.]

(3) certification that the product has not undergone significant changes since the initial report was filed; ~~and~~

(4) identification of and changes in information that may have changed from the initial or previous annual report, including product brand names, product literature, Federal Trade Commission fact sheet, product usage, or discontinuation of manufacture; and

(5) a list of three, or as many as available if less than three, Minnesota purchasers or customers of the product. The department shall maintain this information with the strictest confidence.

C. [Unchanged.]

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." ADOPTED RULES SECTION — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

7640.0160 APPLICATION AND INSTALLATION STANDARDS.

Subpart 1. [Unchanged.]

Subp. 2. **Application and inspection.** Industry members installing insulation shall follow manufacturer's written application instructions.

In attic areas where insulation is to be installed, the installer shall comply with part 7640.0110, subpart 5.

Installation of cellulosic and mineral fiber in loose-fill form must comply with ASTM standard C-1015, including part 7.7.2.

Installation of reflective insulation must comply with ASTM standard C 727-72 (reapproved 1978).

Subp. 3. [Unchanged.]

7640.0170 ~~LABELING~~ PRODUCT INFORMATION.

Subpart 1. **Generally.** Insulation used or offered for sale in Minnesota must ~~be labeled according to~~ meet the requirements of the United States Federal Trade Commission ~~requirements~~ in Code of Federal Regulations, title 16, part 460.

Subp. 2. **False and misleading statements.** Any false, misleading, or unsubstantiated statements in a sales presentation, or on any label, product literature, or product intended for the purchaser, as identified in *Minnesota Statutes*, sections 325F.22, 325F.67, and 325F.69, subdivision 1, are subject to the state's remedies provided in *Minnesota Statutes*, sections 325F.24 and 325F.70.

Subp. 3. **Labeling for insulation products with follow-up programs.** ~~All cellulose insulation products must also comply with the United States Consumer Product Safety Commission requirements in Code of Federal Regulations, title 16, part 1209~~ Insulation products with a follow-up program must carry the label of the laboratory indicating that a follow-up program is being conducted.

7640.0180 INCORPORATIONS BY REFERENCE AND CITATIONS.

Subpart 1. [Unchanged.]

Subp. 2. **ASTM.** The following ASTM standards are incorporated by reference:

A. ASTM C ~~168-80a~~ 168-88a, Standard Definitions of Terms Relating to Thermal Insulation Materials.

B. ASTM C 177-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus.

C. ASTM C 236-87, Standard Test Method for Steady State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box.

D. ASTM C 516-80 (reapproved ~~85~~ 1985), Standard Specification for Vermiculite Loose-Fill Thermal Insulation.

E. ASTM C 518-85, Standard Test Method for Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

F. [Unchanged.]

G. ASTM C 553-70 (reapproved ~~77~~ 1977), Standard Specification for Mineral Fiber Blanket and Felt Insulation (Industrial Type).

H. to J. [Unchanged.]

K. ASTM C 727-72 (reapproved 1978), Standard Recommended Practice for Use of Reflective Insulation in Building Constructions.

L. ASTM C 739-86, Standard Specification for Cellulosic Fiber (wood-base) Loose-Fill Thermal Insulation.

~~L.~~ M. ASTM C 764-84, Standard Specification for Mineral Fiber Loose-Fill Thermal Insulation.

~~M.~~ N. ASTM C 951-85, Standard Specification for Urea-Formaldehyde-Based, Foam in Place Insulation.

~~N.~~ O. ASTM C 976-82, Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box.

~~O.~~ P. ASTM C 1014-84, Standard Specification for Spray-Applied Mineral Fiber Thermal or Acoustical Insulation.

~~P.~~ Q. ASTM E 84-84 Revision A, Surface Burning Characteristics of Building Materials.

~~Q. ASTM E 605-77 reapproved 1982, Thickness and Density of Sprayed Fire Resistive Material Applied to Structural Members.~~

R. ASTM C 1015, Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation.

S. ASTM C 1029-85, Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.

T. ASTM E 408-71 (reapproved 1985), Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques.

U. ASTM E 605-77 (reapproved 1982), Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members.

Subp. 2a. **Standards.** The following American National Standards Institute standard is incorporated by reference:

ANSI Standard Z-1.15-1979: Generic Guidelines for Quality Systems.

Subp. 3. **Other incorporation and citations.** The following non ASTM standards are also incorporated by reference:

A. to H. [Unchanged.]

I. ICBO Evaluation Service Acceptance Criteria for Foam Plastic, October, 1982.

J. TAPPI Standard No. 512-OM86 by the Technical Association of the Pulp and Paper Industry.

Subp. 4. [Unchanged.]

REPEALER. *Minnesota Rules,* part 7640.0110, subpart 10, is repealed.

State Board of Vocational Technical Education

Proposed Permanent Rules Relating to Emerging Health Occupations

Notice of Intent to Adopt a Rule Without a Public Hearing

NOTICE IS HEREBY GIVEN that the State Board of Vocational Technical Education intends to adopt the above-entitled rule without a public hearing following the procedures set forth in the Administrative Procedure Act for adopting rules without a public hearing in *Minnesota Statutes,* Section 14.22 to 14.28. The statutory authority to adopt the rules is *Minnesota Statutes* 136C.04, Subdivision 9.

All persons have 30 days until 4:30 p.m., Tuesday, April 18, 1989, in which to submit comment in support of or in opposition to the proposed rule or any part or subpart of the rule. Comment is encouraged. Each comment should identify the portion of the proposed rule addressed, the reason for comment, and any change proposed.

Any person may make a written request for a public hearing on the rule within the 30-day comment period. If 25 or more persons submit a written request for a public hearing within the 30-day comment period, a public hearing will be held unless a sufficient number withdraw their request in writing. Any person requesting a public hearing should state his or her name and address, and is encouraged to identify the portion of the proposed rule addressed, the reason for the request, and any change proposed. If a public hearing is required, the agency will proceed pursuant to *Minnesota Statutes,* Sections 14.131 to 14.20.

Comments or written requests for a public hearing must be submitted to either:

Glenda Moyers, Supervisor
Minnesota Technical Institute System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-5707

Georgia Pomroy, License Revision Specialist
Minnesota Technical Institute System
100 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Telephone: (612) 296-0680

The proposed rule may be modified if the modifications are supported by data and views submitted to the agency and do not result in a substantial change in the proposed rule as noticed.

A copy of the proposed rule is attached to this notice.

A Statement of Need and Reasonableness that describes the need for and reasonableness of each provision of the proposed rule and identifies the data and information relied upon to support the proposed rule has been prepared and is available from Glenda Moyers or Georgia Pomroy at the above address and phone, upon request.

KEY: PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." **ADOPTED RULES SECTION** — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language.

STATE OF MINNESOTA

DEPARTMENT OF PUBLIC SERVICE

In the matter of the Proposed Amendment of the Rule of the Department of Public Service, Energy Division, governing Residential Thermal Insulation Standards

FINDINGS OF FACT, CONCLUSIONS AND ORDER ADOPTING A RULE WITHOUT A PUBLIC HEARING

Proper notice of Intent to Adopt a Rule Without a Public Hearing was given. Notice of the Commissioner's intent to adopt the above-titled rule was published in the State Register on March 20, 1989, and was sent by United States mail to all persons on the list maintained by the agency pursuant to Minnesota Statutes sec. 14.14, subdivision 1(a), and sec. 14.22 on March 13, 1989. The Statement of Need and Reasonableness was prepared before the Notice of Intent to Adopt a Rule Without a Public Hearing was mailed to all persons on the rulemaking mailing list and published in the State Register and was available to the public.

All persons were given the opportunity to submit comments on the rule for 30 days after notice of proposed rulemaking. The agency received 0 requests for a public hearing. Therefore, the agency did not receive requests for 25 or more persons which were not withdrawn.

Based on the comments and evidence, I find the following:

1) A solicitation of outside opinion for proposed amendments to Residential Thermal Insulation Standards was published on November 28, 1988 in 13 S.R. 1342. 0 responses were received.

2) The agency received five (5) written comments in response to the proposed adoption to amend the above-entitled rules without a public hearing published on March 20, 1989 in 13 S.R. 2272. The comments received pertained to the clarification and/or simplification of language of the proposed rule amendment. All of these changes are non-substantial changes.

The written comments received provided persuasive evidence or opinions for some constructive modifications within the rules. The following changes, labeled A through H are identified to correspond to the proposed rule amendment as prepared by the Revisor's Office. Each item noted includes the actual change, the need or purpose of the change, and the source of the information necessitating the change. These changes do not constitute substantial changes to the rules in the proposed amendment. Copies of comments received and/or referenced are attached to this document.

A) **Page 1: line 34** - should read: "A quality assurance program must <u>conform to</u> Generic Guidelines ..."; and deleting "include the elements of". This change, in response to suggestions in a letter from Mr. Bowen Hyma of Energy Saver Imports [see attached Energy Saver Imports letter], will lend itself to a clearer understanding of the reference to the quality assurance guideline. In addition, the change is consistent with intended application of the referenced standard [see Statement of Need and Reasonableness, Attachment A, section 2.3].

B) **Page 2: line 1, and**
Page 11: lines 9 & 11 should read: "American National Standards Institute - American Society for Quality Control," and "ANSI/ASQC standard ...." These changes, suggested by staff, are necessary because the name "American Society for Quality Control" and the ASQC abbreviation are included in the title of this standard [see Statement of Need and Reasonableness, Attachment A].

C) Page 4: lines 21 & 22 - should read: "Aged R-value must be 5.6 per inch or greater at 75 degrees Fahrenheit" instead of an R-value of 6.0 or greater at 70 degrees. The different R-value is needed because, as pointed out by David J. Williams of Dow Chemical Company, the initially proposed standard is not realistic for this product [see attached Dow letter]. The "per inch" is needed because, as pointed out by Richard J. Ray of Manville Sales Corp., the requirement is unclear without it [see attached Manville letter]. The change to 75 degrees Fahrenheit is needed, suggested by staff, to be consistent with the requirements of the referenced standard ASTM C 591-85 [see attached ASTM C 591-85].

D) Page 4: line 26 - should read: "... for the intended application ...." The initially proposed language is too broad, and as pointed out by James L. Andersen of Foam Enterprises, Inc., needs to be narrowed for clearer understanding [see attached Foam Enterprises letter]. The revised language is also consistent with requirements of the ICBO Acceptance Criteria for Foam Plastic [see Statement of Need and Reasonableness, Attachment F, section II. F.]

E) Page 7: line 6 - should read: "C 951-83 ...." A typographical error, noted by staff, was corrected.

F) Page 8: line 15 - should read: "... such as width, length, or thickness, need not undergo ..."; deleting "density". This change, suggested by staff, is necessary because a density change in an insulation product may affect physical properties which can result in different testing results.

G) Page 9: line 9, and
page 10: line 33 - should read: "C 1015-84...." A typographical error, pointed out by Richard J. Ray of Manville Sales Corp. [see attached Manville letter], was corrected.

H) Page 10: line 24 - should read: "C 951-83...." A typographical error, noted by staff, was corrected.

The above captioned rule is needed and reasonable.

NOW, THEREFORE, IT IS ORDERED that the rule identified as proposed amendment to the rule of the State Department of Public Service, Energy Division, governing Residential Thermal Insulation Standards, is adopted this 2 day of May, 1989, pursuant to authority vested in me by Minnesota Statutes, sections 325F.20, subdivision 1, and 325F.21, subdivisions 1 and 2.

Tony Perpich

Tony Perpich, Commissioner,
Department of Public Service

Designation: C 59 85

Standard Specification for Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation[1]

This standard is issued under the fixed designation C 591; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This specification has been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 This specification covers the types, physical properties, and dimensions of unfaced, preformed rigid cellular polyurethane plastic material intended for use as thermal insulation on surfaces operating between −40°F (−40°C) and +225°F (107°C).

1.2 This specification does not cover cryogenic applications. Consult the manufacturer for specific recommendations and properties regarding cryogenic applications.

1.13 For specific applications, the actual temperature limits shall be agreed upon by the manufacturer and the purchaser.

NOTE 1—For the purpose of this specification, the term "polyurethane" is understood to include both polyurethane and polyisocyanurate rigid cellular plastics.

1.1 The values stated in inch-pound units are to be regarded as the standard.

NOTE 2—The application of a suitable vapor retardant material may be required in conjunction with the application of this insultant where the service temperatures are to be generally below ambient.

NOTE 3—For polyurethane applications other than for thermal insulation, see Specification D 2341.

2. Referenced Documents

2.1 *ASTM Standards:*

C 165 Method for Measuring Compressive Properties of Thermal Insulations [2]

C 168 Definitions of Terms Relating to Thermal Insulating Materials[2]

C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus[2]

C 236 Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box[2]

C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots[2]

C 518 Test Method for the Steady State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus[2]

C 550 Practice for Measuring Trueness and Squareness of Rigid Block Thermal Insulation[2]

D 883 Definitions of Terms Relating to Plastics[3]

D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics[4]

D 2126 Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging[4]

D 2341 Specification for Rigid Polyurethane Foam[4]

D 2856 Test Method for Open Cell Content of Rigid Cellular Plastics by the Air Pycnometer[4]

E 84 Test Method for Surface Burning Characteristics of Building Materials[5]

E 96 Test Methods for Water Vapor Transmission of Materials[2]

2.2 *Society of the Plastics Industry Standards:*

SPI Bulletin 108 An Assessment of the Thermal Performance of Rigid Polyurethane and Polyisocyanurate Foam Insulation for Use in Building Construction[6]

3. Terminology

3.1 Terms used in this specification are defined in Definitions C 168 and D 883.

4. Classification

4.1 The unfaced, preformed rigid cellular polyurethane thermal insulation boards covered by this specification are classified into three types as follows:

4.1.1 Type 1—Compressive strength 16 psi (110 kPa) minimum.

4.1.2 Type 2—Compressive strength 35 psi (240 kPa) minimum.

4.1.3 Type 3—Compressive strength 50 psi (345 kPa) minimum.

5. Ordering Information

5.1 Orders for materials purchased under this specification shall include the following

5.2.1 Designation of this specification,

5.2.2 Product name or type, or both,

5.2.3 Board dimensions,

5.2.4 Quantity of material,

5.2.5 Special packaging or marking, if required, and

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[1] This specification is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.22 on Organic and Nonhomogeneous Inorganic Thermal Insulations.

Current edition approved Jan. 25, 1985. Published May 1985. Originally published as C 591 – 66 T. Last previous edition C 591 – 83.

[2] *Annual Book of ASTM Standards,* Vol 04.06.

[3] *Annual Book of ASTM Standards,* Vols 08.01 and 08.04.

[4] *Annual Book of ASTM Standards,* Vol 08.02.

[5] *Annual Book of ASTM Standards,* Vol 04.07.

[6] Available from the Society of the Plastics Industry, 355 Lexington Ave., New York, NY 10017.

TABLE 1 Physical Property Requirements of Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation

Property	Type 1	Type 2	Type 3
Compressive resistance at yield, or 10 % deformation, whichever occurs first, min, psi (kPa)	16 (110)	35 (240)	50 (345)
Water vapor permeability, max perm· (ng/Pa s·m)	4.0 (5.8)	3.0 (4.4)	2.5 (3.6)
Response to thermal and humid aging (change in length or width), max %	4	4	4
Closed cell content, min %	90	90	90
Thermal resistance, min, 75°F (24°C) mean temperature, F ft²h/Btu (K m²/W)	6.2 (1.1)	6.2 (1.1)	6.2 (1.1)

5.2.6 Special requirements for inspection or testing, or both.

6. Materials and Manufacture

6.1 Unfaced, preformed rigid cellular polyurethane thermal insulation is produced by the chemical reaction of polyisocyanates with polyhydroxyl compounds usually in the presence of catalysts, cell stabilizers, and blowing agents.

6.2 Unfaced, preformed rigid cellular polyisocyanurate thermal insulation is produced by the polymerization of polymeric polyosocyanates, usually in the presence of polyhydroxyl compounds with the addition of catalysts, cell stabilizers, and blowing agents.

7. Physical Requirements

7.1 Polyurethane thermal insulations shall have limiting property values as shown in Table 1.

7.2 The actual thermal resistance, when tested in accordance with 12.1, shall be not less than 90 % of the supplier's states values. Rigid cellular polyurethane thermal insulation generally exhibits its highest *R* value at the time of manufacture. The measured *R* value may be significantly influenced by application and service variables such as 'foam' thickness, age, encapsulation within gas-barrier materials, environmental conditions and mechanical abuse, and may be reduced from the measured values after exposure to conditions of end use. (For additional information, refer to SPI Bulletin 108.)

7.3 Other physical properties may be required, as agreed upon by the purchaser and supplier.

8. Dimensions and Tolerances

8.1 The dimensions shall be as agreed upon by the purchaser and the seller. Polyurethane thermal insulation boards are normally available in lengths up to 144 in. (3.66 m), widths up to 48 in. (1.22 m), and thicknesses from 0.5 in. (1.2 cm) to 24 in. (0.6 m).

8.2 Dimensional tolerances shall be:

Dimension	Tolerance in. (mm)
Length	±⅛ (3)
Width	±1/16 (1.5)
Thickness	±1/32 (1)

8.3 *Other Board Parameters:*

8.3.1 *Squareness*—The thermal insulation boards shall not be out of square by more than 1/16 in./ft of width or length.

8.3.2 *Straightness*—Unless otherwise specified, the boards shall be furnished with straight edges that shall not deviate by more than 1/32 in./ft.

8.3.3 *Flatness*—The boards shall not depart from absolute flatness by more than 1/16 in./ft of width or length.

8.3.4 The trueness, squareness, and flatness shall be determined in accordance with Practice C 550, except that a straight edge of length longer than the dimension being determined shall be used.

9. Workmanship and Appearance

9.1 The insulation boards shall not have visible defects that will adversely affect the service properties.

10. Sampling

10.1 Sampling for qualification tests, if required, shall be in accordance with Criteria C 390. Conduct the qualification tests in accordance with the physical properties in 7.1 and Table 1.

10.2 Sampling for inspection tests, if required, shall be in accordance with Criteria C 390. Inspection requirements are dimensions, Section 8, and any other properties agreed upon between the manufacturer and purchaser.

11. Specimen Preparation

11.1 A period of at least 72 h must elapse from the time of manufacture of the rigid cellular polyurethane until the cutting of any test specimens.

11.2 Unless otherwise specified, the test specimens shall be conditioned at 73 ± 4°F (23 ± 2°C) and 50 ± 5 % relative humidity for at least 12 h prior to testing.

12. Test Methods

12.1 Determine the thermal resistance in accordance with either Test Methods C 177, C 236, or C 518 at a mean temperature of 75 ± 2°F (24 ± 1°C) and 40°F (22°C) minimum temperature gradient on 1 ± ⅛ in. (25 ± 3-mm) thick core specimens. These core specimens shall be aged at 73 ± 4°F (23 ± 2°C) and 50 ± 5 % relative humidity for 180 ± 5 days from time of manufacture.

12.1.1 Where thermal resistance testing requirements are mandated by governmental energy conservation rules and regulations, this section shall be superceded by such rules and regulations, for example, at aging 140°F for 90 days.

NOTE 4—It is anticipated that the next revision of this specification will require thermal resistance testing at two additional mean temperatures.

NOTE 5—Conditioning at 73 ± 4°F (23 ± 2°C) and 50 ± 5 % relative humidity has been specified due to a lack of data validating accelerated conditioning techniques such as 90-day exposure in a 140°F (60°C) oven.

NOTE 6—The thermal resistance, as stated by the manufacturer, shall be calculated as follows:

$$R = \frac{d}{k} = \mathrm{m}^2K/W$$

where
d = thickness, and
k = thermal conductivity, W/mK.
The manufacturer shall also state the mean test temperature(s) used in measuring the thermal resistance.

12.2 Determine compressive resistance in accordance with Test Method D 1621, Procedure A at a crosshead speed of 0.1 in./min/in. of thickness, or by Method C 165.

12.3 Determine the water vapor permeability in accordance with Test Methods E 96 using the dessicant procedure at 73 ± 2°F (23 ± 1°C).

12.4 When specified, determine the surface burning characteristics at use thickness in accordance with Test Method E 84.

12.5 Determine the response to humid and thermal aging in accordance with Test Method D 2126.

12.6 Determine the open cell content in accordance with Test Method D 2856.

12.7 Determine the dimensional parameters in accordance with Practice C 550.

13. Inspection

13.1 Inspection of the insulation board shall be made as agreed upon between the purchaser and the supplier, as part of the purchase agreement.

14. Rejection

14.1 Failure to conform to the requirements of this specification shall be grounds for rejection. In the case of rejection, the seller shall have the right to reinspect the rejected shipment and resubmit same after removal of the nonconforming portion(s) providing the means for reliably distinguishing, and separating, nonconforming from conforming materials can be identified and are acceptable to the purchaser.

15. Packaging and Marking

15.1 Unless otherwise specified, the insulation shall be supplied in the manufacturer's standard commercial packaging.

15.2 Unless otherwise specified, each package shall be marked with the material name, manufacturer's name or trademark, or both, board dimensions, number of pieces, area coverage of the contents, and the thermal resistance.

16. Health and Safety Hazards

16.1 The installation and use of thermal insulating materials may expose individuals to health and safety hazards. The manufacturer shall provide the buyer appropriate information regarding any hazards, known to him, associated with the designated end-use of this product, and shall recommend the protective measures to be employed in its safe installation and use.

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 1916 Race St., Philadelphia, PA 19103.

In the Matter of the Adoption
of the Rule of the State Department of
Public Service Governing Residential
Thermal Insulation Standards

DECLARATION
OF COUNSEL

I, Thomas S. Waldo, Special Assistant Attorney General, do hereby declare that I have examined the above-captioned rule, and the supporting rulemaking record, and that, based on my examination, the Administrative Procedure Act and Minnesota Rules, chapter 2010 have been followed. Any exceptions are listed below. For Attorney General billing purposes, the four digit docket client code is 0730.

Thomas S. Waldo

THOMAS S. WALDO
Special Assistant
Attorney General

Dated: May 3, 1989

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STATE OF MINNESOTA

DEPARTMENT OF PUBLIC SERVICE

In the Matter of the Proposed Adoption of the Rule of the Minnesota Department of Publi Service, Energy Division, Governing Residential Thermal Insulation Standards	**NOTICE OF SUBMISSION OF RULE ADOPTED WITHOUT PUBLIC HEARING TO THE ATTORNEY GENERAL**

Pursuant to your request and in accordance with Minnesota Statutes, section 14.26.

PLEASE TAKE NOTICE that the above-captioned rule as adopted has been submitted to the Office of the Attorney General on the date of this notice, May 3, 1989, for review as to legality and form to the extent form relates to legality. The proposed rule, the rule as adopted, all the notices, the Statement of Need and Reasonableness, all written comments and requests for a hearing received, and other required documents also have been submitted to the Attorney General.

The proposed rule which was published in the State Register and made available to the public on March 20, 1989, has been modified. A copy of the rule as modified is enclosed with this notice.

The rule must be approved or disapproved by the Attorney General within 14 calendar days of the date of submission to the attorney general. You may submit written comments to the attorney general on the legality of the rule. Any written comments must be submitted within eight calendar days of the date of submission of the rule to the Attorney General. Your comments must address only the issue of legality of the rule or the legality of the specific parts or subparts of the rule. The attorney general standards for review are set forth in Minnesota Rules, part 2010.1000. You may receive a copy of the attorney general decision upon written request to the attorney general. Your comments or requests for the decision must be directed to:

The Office of the Attorney General
204 Administration Building
50 Sherburne Avenue
Saint Paul, Minnesota 55155
Telephone Number: (612) 296-1288

Any written comments submitted to the Attorney General must be submitted simultaneously to: Bruce Nelson, Senior Engineer
900 American Center Building
150 East Kellogg Boulevard
Saint Paul, Minnesota 55101

Dated: May 3, 1989

AFFIDAVIT OF CERTIFICATE OF MAILING LIST

In the Matter of the Proposed Adoption of the Rule of the Minnesota Department of Public Service, Energy Division, Governing Residential Thermal Insulation Standards

AFFIDAVIT OF MAILING THE NOTICE OF SUBMISSION OF RULE ADOPTED WITHOUT PUBLIC HEARING TO THE ATTORNEY GENERAL

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Dianne Brown, being first duly sworn deposes and says:

That on the third day of May, 1989, in the City of [St. Paul], County of [Ramsey], State of Minnesota, I mailed the attached Notice of Submission to the Attorney General by depositing in the State of Minnesota Central Mail System for United States mailing, a copy thereof, with postage prepaid, to all persons and associations who requested notice that the rule in the above-entitled matter has been submitted to the Attorney General.

Dianne Brown
[NAME]

Clerk-Typist III
[TITLE]

Subscribed and sworn to before me this 3rd day of May, 1989.

ELIZABETH L. WOODHOUSE
NOTARY PUBLIC-MINNESOTA
RAMSEY COUNTY
MY COMMISSION EXPIRES FEBRUARY 28, 1993

Elizabeth L. Woodhouse
Notary Public

SF-00006-05 (4/86)

STATE OF MINNESOTA

Office Memorandum

DEPARTMENT : ATTORNEY GENERAL - BREMER

DATE : May 3, 1989

TO : RITA DESMOND
Legal Assistant

OK RMD Recd 5/4/89

FROM : THOMAS S. WALDO
Special Assistant
Attorney General

PHONE : 296-8703

SUBJECT : **Rule Submission**

Enclosed for review and approval of the Attorney General pursuant to Minn. Stat. § 14.26 and Minn. Rules pt. 2010.0300 are amendments adopted by the Department of Public Service to its rules governing residential thermal insulation standards.