

Minnesota Department of Labor and Industry

Construction Codes and Licensing Division

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Minnesota Commercial Energy Code, Proposed as Minnesota Rules, Chapter 1323; and Repeal of Minnesota Rules, Chapters 7676 and 7678.

INTRODUCTION

The Department of Labor and Industry's Construction Codes and Licensing Division is currently engaged in two concurrent rulemakings pertaining to energy. Upon adoption, these two rulemakings will become the Residential Energy Code¹ (proposed as chapter 1322) and the Commercial Energy Code (proposed as chapter 1323). This Statement of Need and Reasonableness pertains specifically to the Division's rulemaking related to commercial energy.

The Division is proposing amendments to Minnesota's current commercial energy code rules by adopting one administrative rule chapter as Minnesota's Commercial Energy Code. The proposed rules incorporate the ANSI/ASHRAE/IESNA Standard 90.1-2004, version PC 1.06,² which is promulgated by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., as amended.

The proposed rules regulate energy efficiency for the design and construction of new and remodeled commercial structures regulated by Minnesota Rules, chapter 1305. The proposed rules also regulate the energy efficiency for the design and construction of new or remodeled residential buildings regulated by Minn. R. ch. 1309, which are four or more stories in height, contain shared conditioned common space between dwellings, or where each dwelling unit contains a shared means of egress.

ASHRAE Standard 90.1 is the most current and complete criteria relating to energy in the design of commercial building systems. Because the ASHRAE Standard 90.1, in conjunction with the Division's proposed Residential Energy Code Rules, offers the most current set of criteria pertaining to energy efficiency, the Division proposes these rules so that users of the code can conveniently locate the most current and complete criteria related to energy.

Currently, Minnesota's building code provisions pertaining to energy and commercial buildings constructed to Minn. R. ch. 1305 and 1309 are contained in Minn. R. ch. 7676 and 7678. An unintended consequence of these requirements being located in two chapters is confusion and difficulty in administering and complying with commercial energy code requirements.

1 For more information about the Division's proposed Residential Energy Code, Minn. R. ch. 1322, visit: http://www.doli.state.mn.us/rulemaking_activity.html

2 Hereinafter referred to as "ASHRAE Standard 90.1" or "the Standard."

In the development and drafting of these proposed rules, the Division worked with the Department of Commerce and an advisory committee.³

ALTERNATIVE FORMAT

Upon request, this Statement of Need and Reasonableness can be made available in an alternative format, such as large print, Braille, or cassette tape. To make a request, contact Carrie Rohling at the Department of Labor and Industry, 443 Lafayette Road North, Third Floor, St. Paul, MN 55155, telephone (651) 284-5217, fax, (651) 284-5725, or email to dli.rules@state.mn.us. TTY users may call the Department at (651) 297-4198.

STATUTORY AUTHORITY

The authority to adopt the energy portion of the Minnesota State Building Code transferred to the Department of Administration on July 1, 1999.⁴ Then, pursuant to the Department of Administration Reorganization Order No. 193, dated April 4, 2005, the responsibilities of the Department of Administration in relation to State Building Codes and Standards as set forth in Minnesota Statutes, section 16B.59 through 16B.76 (2004) were transferred to the Department of Labor and Industry.⁵ The Reorganization Order was codified by the 2007 Legislature.⁶

The Department's statutory authority to adopt the rules is set forth in Minnesota Statutes sections 16B.59, 16B.61, and 16B.64.

Minnesota Statutes, section 16B.59, states in pertinent part:

The State Building Code governs the construction, reconstruction, alteration, and repair of buildings and other structures to which the code is applicable. The commissioner shall administer and amend a state code of building construction which will provide basic and uniform performance standards, establish reasonable safeguards for health, safety, welfare, comfort, and security of the residents of this state and provide for the use of modern methods, devices, materials, and techniques which will in part tend to lower construction costs. The construction of buildings should be permitted at the least possible cost consistent with recognized standards of health and safety.

3 SONAR Exhibit A: Advisory Committee Membership List.

4 See, *1999 Minn. Laws*, Chapter 135, Section 7, which states: “[TRANSFER.] While the energy portion of the state building code is developed by the commissioner of public service, adoption of the energy portion of the building code is transferred from the commissioner of public service to the commissioner of administration in consultation with the commissioner of public service in accordance with Minnesota Statutes, section 15.039, excluding subdivisions 6 and 7.”

5 Reorganization Order No. 193 was effective upon filing with the Secretary of State on May 16, 2005, and shall remain in effect until amended, repealed, or superseded. For a copy of the reorganization order, please contact Carrie Rohling by email at dli.rules@state.mn.us, or phone to (651) 284-5217.

6 See 2007 Minn. Laws, Chapter 140, Articles 2 and 4.

Minnesota Statutes, section 16B.61, subdivision 1, states in pertinent part:

[T]he commissioner shall by rule establish a code of standards for the construction, reconstruction, alteration, and repair of buildings, governing matters of structural materials, design and construction, fire protection, health, sanitation, and safety, including design and construction standards regarding heat loss control, illumination, and climate control... The code must conform insofar as practicable to model building codes generally accepted and in use throughout the United States... Model codes with necessary modifications and statewide specialty codes may be adopted by reference. The code must be based on the application of scientific principles, approved tests, and professional judgment. To the extent possible, the code must be adopted in terms of desired results instead of the means of achieving those results, avoiding wherever possible the incorporation of specifications of particular methods or materials. To that end the code must encourage the use of new methods and new materials. Except as otherwise provided in sections 16B.59 to 16B.75, the commissioner shall administer and enforce the provisions of those sections...

Minnesota Statutes, section 16B.64, subdivision 6 states, “The commissioner shall approve any proposed amendments deemed by the commissioner to be reasonable in conformity with the policy and purpose of the code and justified under the particular circumstances involved...”

These sources of statutory authority were adopted and effective prior to January 1, 1996, and so Minnesota Statutes, section 14.125, does not apply. *See* 1995 Minnesota Laws, chapter 233, article 2, section 58.

As part of the codification of the reorganization order, Minnesota Statutes, section 326B.02 (Supp. 2007), provides a general rulemaking authority to the Commissioner. This general authority states in pertinent part, “The commissioner may, under the rulemaking provisions of chapter 14 and as otherwise provided by this chapter, adopt, amend, suspend, and repeal rules relating to the Commissioner's responsibilities under this chapter...”⁷

Pursuant to Minnesota Statutes, section 14.125, the Department published a notice of intent to adopt rules within 18 months of the effective date of the law authorizing or requiring rules to be adopted. Because the Department’s notice of intent to adopt rules published within 18 months of the effective date of the law, the rulemaking authority has not expired.

Under these statutes, the Department has the necessary statutory authority to adopt the proposed rules.

REGULATORY ANALYSIS

⁷ 2007 Minn. Laws, Art. 2, Sec. 3 became effective May 26, 2007.

Minnesota Statutes, section 14.131, sets out seven factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (7) below quote these factors and then give the agency's response.

(1) a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule:

Any person who owns, builds, or remodels commercial structures, or residential structures that are four or more stories in height, share conditioned common space between dwellings, or where each dwelling unit contains a shared means of egress, and contractors, subcontractors and others who perform construction work, architects, professional engineers, and certified building officials will be affected by the proposed rules if there are any. Ultimately, the owners of structures that must comply with commercial energy code rules will bear the costs of the proposed rules. Those individuals who own or occupy the space will benefit from the proposed rules.

(2) the probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues:

The probable costs to the agency and to any other agency of the implementation and enforcement of this rule is likely to be consistent with the costs associated with educating interested persons about newly adopted rules. The Division does not anticipate any effect on State revenues.

(3) a determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule:

The Division has determined that there are no less costly methods for achieving the purpose of the proposed rule. Consistent with the mandate to provide basic and uniform performance standards, establish reasonable safeguards for health, safety, welfare, comfort, and security of Minnesota's residents, and to provide for the use of modern methods, devices, materials, and techniques, in addition to including design and construction standards regarding heat loss control, illumination, and climate control, the Division is proposing rules that result in a minimum cost for all parties. Additionally, the proposed rules establish uniform performance standards, which results in requirements that do not contain any hidden costs.

The Division has also determined that amending this rule is the least intrusive method for achieving the purpose of the proposed rule. With this proposed rule, the Department has reorganized existing energy code rules from two rule chapters into one chapter for the convenience of those users who must comply with the code and those that must enforce the code.

(4) a description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule:

The advisory committee and the Division reviewed and considered alternative methods such as the International Energy Conservation Code, the 2001 version of ASHRAE Standard 90.1, and other model documents. [which ones?] These alternatives were rejected in favor of the 2004 version of ASHRAE Standard 90.1 because each alternative method was more complex or cumbersome to administer and enforce than ASHRAE Standard 90.1-2004. The Division believes that the 2004 Standard is more complete and up-to-date.

(5) the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals:

The probable costs of complying with the proposed rules will be those incurred through the implementation of a stricter mechanical and lighting standard for these buildings. Although, building owners are likely to bear any additional cost related to these building, mechanical and lighting standards, they are the most likely to benefit from their installation and these standards are only slightly more than what is required in the current Energy Code Chapter for these buildings and are needed to meet the mandate in the Federal Register.

(6) the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals:

The probable costs or consequences of not adopting the proposed rules may result in the construction of new buildings that are less energy efficient and may not meet the mandate in the Federal Register.

(7) an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference:

The Energy and Policy Act of 1992⁸ requires that a state energy code meet or exceed the ASHRAE Standard 90.1-1989. The Division has determined that the 2004 edition of this standard meets or exceeds the 1989 standard.

Additionally, the appliance and equipment efficiencies contained in the proposed rule are identical to the efficiencies specified by the National Appliance Energy Conservation Act and the Energy Policy Act of 1992.

PERFORMANCE-BASED RULES

Minnesota Statutes, sections 14.002 and 14.131, require that the SONAR describe how the Department, in developing the rules, considered and implemented performance-based standards that emphasize superior achievement in meeting its regulatory objectives and maximum flexibility for the regulated party and the Department in meeting those goals.

8 10 C.F.R § 420.15.

Minnesota Statutes, section 16B.6175, requires that the Department use research and analysis addressing, at a minimum, air quality, building durability, moisture, enforcement, enforceability cost benefit, and liability in adopting all or part of a model energy code. These proposed rules reflect the Division's consideration of this research and analysis. The department is adopting and amending a national standard that utilizes research as mentioned above, and amends that standard to be specific to Minnesota climatic conditions.

ADDITIONAL NOTICE

Minnesota Statutes, sections 14.131 and 14.23, require that the SONAR contain a description of the Department's efforts to provide additional notice to persons who may be affected by the proposed rules or explain why these efforts were not made.

This Additional Notice Plan was reviewed by the Office of Administrative Hearings and approved in a June 3, 2008 letter by Administrative Law Judge Beverly Jones Heydinger.

We will mail or email the Dual Notice of Intent to Adopt Rules to interested parties. Those parties include:

1. All certified building officials. This includes all municipal building officials that are responsible for the administration of the State Building Code;
2. Commercial Energy Code Advisory Committee Members;
3. Minnesota Department of Commerce;
4. American Institute of Architects—Minnesota Chapter;
5. Building Owners and Managers Association—Minnesota Chapter; and
6. Minnesota Society of Professional Engineers.

We will post the proposed rules and the Dual Notice of Intent to Adopt Rules on the Department's rulemaking webpage, which is located at:
http://www.doli.state.mn.us/rulemaking_activity.html.

Our Notice Plan also includes giving notice required by statute. We will mail the Dual Notice of Intent to Adopt Rules to everyone who has registered to be on the Department's rulemaking mailing lists pertaining generally to all rulemakings related to the construction codes and specifically to all rulemakings related to the adoption of the International Residential Code, the International Building Code, and the Mechanical Code, which are maintained pursuant to Minnesota Statutes, section 14.14, subdivision 1a.

We will also give notice to the Legislature per Minnesota Statutes, section 14.116.

CONSULT WITH FINANCE ON LOCAL GOVERNMENT IMPACT

As required by Minnesota Statutes, section 14.131, the Department has consulted with the Commissioner of Finance. We did this by sending Keith Bogut, Executive Budget Officer at the Department of Finance copies of the documents sent to the Governor's Office for review and approval by the Governor's Office prior to the Department publishing the Notice of Intent to

Adopt. We sent the copies on April 16, 2008. The documents included: the Governor's Office Proposed Rule and SONAR Form; draft rules, dated 03/27/08; and almost final SONAR. Mr. Bogut sent a memorandum dated INSERT, which included the following comments:

Since the new rule only impacts future building projects, no costs will be incurred resulting from any requirement to retrofit existing buildings. Local governments may actually experience lower costs as the proposed rule is simpler and easier to understand and enforce.

In my opinion, the proposed changes will not impose a significant cost on local governments.

COST OF COMPLYING FOR SMALL BUSINESS OR CITY

Agency Determination of Cost

As required by Minnesota Statutes, section 14.127, the Division has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed \$25,000 for any small business or small city. The Division has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not exceed \$25,000 for any small business or small city. First, these rules do not require any building or remodeling to occur. Secondly, the proposed rules are simpler and easier to understand. Therefore, the Division believes that builders of commercial structures will find it easier to comply with the code and easier for those administering and enforcing the code to inspect for compliance with the code.

LIST OF WITNESSES

If these rules go to a public hearing, the Department anticipates having the following witnesses testify in support of the need for and reasonableness of the rules:

1. Department staff from the Construction Codes and Licensing Division; and
2. Members of the Commercial Energy Code Advisory Committee.

RULE-BY-RULE ANALYSIS

1323.0001 TITLE.

This part specifies that this rule chapter shall be known as the Minnesota Commercial Energy Code.

1323.0005 ADMINISTRATION AND PURPOSE.

Subpart 1. Administration. This subpart states that this chapter shall be administered in accordance with Minnesota Rules, chapter 1300, which governs the administration of the State Building Code. This provision is important because Chapter 1300 lists the various administrative

rule chapters that comprise the State Building Code. With the adoption of these rules, two of those chapters will be repealed and replaced with Chapter 1323. As such, it is very important that users of the code understand that the provisions of Chapter 1300 apply to the administration of the Commercial Energy Code even though it will not be immediately listed in Chapter 1300.

Subp. 2. Purpose. This rule part states that the purpose of Chapter 1323 is to establish a minimum code of standards for the construction, reconstruction, alteration, and repair of buildings, governing matters including design and construction standards regarding heat loss control, illumination, and climate control, which includes acceptance testing to assure their potential for energy efficient operation.

1323.0010 INCORPORATION BY REFERENCE.

The rule part incorporates by reference the ANSI/ASHRAE/IESNA⁹ Standard 90.1-2004, version PC 1/06, titled Energy Standard for Buildings Except Low-Rise Residential Buildings, with amendments, as the Minnesota Commercial Energy Code.

This rule part is needed to correctly identify the document that is incorporated, as amended, that will serve as the Minnesota Commercial Energy Code. ASHRAE Standard 90.1 is a nationally recognized standard that serves as the national model for commercial and high-rise residential building energy codes across the country.

ASHRAE Standard 90.1 is ANSI approved, which demonstrates that the principles of openness and due process has been followed and that a consensus of all interested stakeholder groups has been reached on a national level.

1323.0230 SECTION 2, SCOPE.

This rule part amends ASHRAE Standard 90.1, Section 2, to clearly state that the Commercial Energy Code applies to structures that are not regulated by the Minnesota Residential Energy Code, which is being concurrently proposed as Minnesota Rules, Chapter 1322.¹⁰

The two exceptions clearly exclude buildings that do not use either electricity or fossil fuel or equipment, and portions of building systems that use energy primarily to provide for industrial or manufacturing processes.

1323.0320 SECTION 23.2, DEFINITIONS.

ASHRAE Standard 90.1, Section 3.2, is amended by adding the following definitions:

⁹ ANSI means the American National Standards Institute. ASHRAE means the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. IESNA means the Illuminating Engineering Society of North America.

¹⁰ The adoption of the Minnesota Residential Energy Code is a concurrent rulemaking. Information about the adoption of the Residential Energy Code is available on the Department's rulemaking docket web page, which is located at http://www.doli.state.mn.us/rulemaking_activity.html.

Demand Control Ventilation: The proposed definition specifically identifies that “DVC” means demand control ventilation systems, which are referred to by that acronym throughout the Standard.

Lamp Wattage, Rated: The term “Rated lamp wattage” currently does not appear in ASHRAE Standard 90.1 although it has been included in previous editions of the standard. The definition is included in the proposed rule because the term is used several times in section 9 of ASHRAE Standard 90.1. The proposed definition is identical to the one found in the 2001 edition of ASHRAE Standard 90.1

R-value Computation for Concrete Masonry Block Wall Assembly with Integral Insulation: A definition of “R-value computation for a concrete masonry block wall assembly with integral insulation” is needed to assure that users of this code can have confidence in the claimed thermal performance of a concrete masonry block wall assembly with integral insulation. The proposed definition is based on recommended procedures from the *2005 ASHRAE Handbook of Fundamentals*, which is a standard that is used throughout the industry for thermal calculations.

The proposed definition includes a requirement that the *R*-values of foundation wall assemblies must be calculated excluding air film coefficients and the *R*-value of the surrounding soil. This is needed because these elements are not included in the calculation procedure in the ASHRAE Standard 90.1-2004.

The proposed amendment also gives two alternate methods for determining thermal performance. The requirement of subitem (a) is an isothermal planes calculation method from the *2005 ASHRAE Handbook of Fundamentals*, which provides the most accurate method to calculate *R*-values in foundation wall assemblies. This calculation method must be certified by a Minnesota licensed professional engineer because of the complexity of the mathematical calculations involved. The requirement of subitem (b) identifies ASTM C 236 test procedure for thermal transmittance measurements.

Climate Zone 6, Climate Zone 7, Northern and Southern Climate Zones: Definitions of these climate zones have been included to add clarity as to which counties in Minnesota are included in each zone. ASHRAE Standard 90.1-2004 shows a map that differs slightly from what is indicated in this proposed definition.

The Division believes that adding these definitions is necessary so that all users of the Code will clearly understand the terms used within the Code.

1323.0513 SECTION 5.1.3, ENVELOPE ALTERATIONS.

ASHRAE Standard 90.1, Section 5.1.3, is amended by making several changes to clarify the need to insulate wall cavities when the plaster is removed from existing walls. This modification is similar to the requirement found in Minnesota Rule, part 7676.1400, subpart 8, item C, which is intended to clarify that anytime the interior wall finish of the building envelope is replaced, the wall cavity needs to be fully insulated, or for very deep cavities, the insulating

value installed needs to comply with new wall cavity requirements.

The section has also been amended to include exceptions pertaining to certain alterations and the installation of vapor retarders.

This section of the Standard includes exceptions a through g, which are proposed as items under the exception pertaining to certain alterations. Exception (e) has been amended because the ASHRAE Standard 90.1 wording allows membranes to be placed over existing membranes with no increase in insulation, but does not allow removing and replacing damaged membranes on small percentages of the roof without increasing the insulation. The Standard does not specify what existing levels of roof insulation are acceptable so that additional insulation would not be required if the roof membrane is replaced. The proposed change addresses both of these issues.

Exception (h) is added to carry forth the exception of Minn. R. part 7676.1400, subp. 8, item C, Exceptions. The exception addresses walls that are back-plastered, more than 50% filled with insulation, and walls without framing cavities. This exception is intended to clarify exceptions to the insulating requirements where it is neither feasible nor reasonable to require the installation of insulation in existing walls.

Exception (i), which includes small openings for purposes of installing, altering, or repairing plumbing, electrical, and mechanical systems, carries forth requirements of Minn. R. part 7676.1400, subp. 8, item C, Exceptions. This exception is intended to clarify the insulating requirements where it is neither feasible nor reasonable to require the installation of insulation in existing walls.

The second exception states that a vapor retarder is not required if the interior finish is not removed. This exception carries forth the requirements of Minn. R. part 7676.1400, subp. 8, item D. This exception is intended to clarify exceptions to the vapor retarder requirements where it is neither feasible nor reasonable to require the installation of a vapor retarder in existing walls.

1323.0543 SECTION 5.4.3, AIR LEAKAGE.

Subpart 1. Building envelope air sealing. ASHRAE Standard 90.1, Section 5.4.3.1, is amended because there is a compelling need for an air barrier for all buildings in Minnesota.

Wetness in wood framed walls and wood rot in the exterior sheathings of small buildings is often caused by air leakage. It is now known that air leakage also causes frost in attics, ice damming at the edge of roofs, efflorescence on brick and stone facades, spalling of bricks and mortar, corrosion of anchors, the formation of frost in cavities, icicles on facades, high energy costs, low indoor humidity and more recently the cause of mold and mildew in buildings. During the early to mid-eighties, it was realized that air sealing was not the same as vapour diffusion control. It was discovered that air sealing required a different approach, to include specific air sealing (air barrier) design requirements, new materials and equally important,

revisions to the National Building Code of Canada. Rick Quirouette, Sandra Marshall, & Jacques Rousseau, Design Considerations for an Air Barrier System, Canada Mortgage and Housing Corporation, November 2000, at 2.¹¹

There are two key reasons why air barriers are catching on: energy efficiency in both cold and warm climates, and increased building envelope performance. According to the U.S. Department of Energy, up to 40 percent of the energy consumed to heat or cool a building is due to air leakage into and out of the structure. Air barrier proponents also point to increasing concern with mold and mildew, and rising litigation costs — especially in metal stud and gypsum board backup construction. All these factors have shifted the cost-benefit calculation, and are steadily eroding the largely economic resistance to air barriers. Pat Conway, Air Barrier Systems – Opportunities and Challenges, Mason Contractors Association of America, July 2003, at 2.¹²

The intent of the proposed amendment is to revise the language to make it clear that the provision is broadly applicable to any area that could potentially be an air leakage point in the building. Since the adoption of the current code, building scientists have recognized that the air barrier is even more important for energy efficiency and building durability. ASHRAE Standard 90.1 is not as clear as Minnesota’s current code.

First, the word “Air” was included in the title of Section 5.4.3.1 to clarify that it applies to air sealing, rather than water or other sealing issues addressed elsewhere in the State Building Code.

An introductory sentence was added to indicate what the air barrier is intended to accomplish and where it must be installed. The term “building envelope” is defined in ASHRAE Standard 90.1, Section 3.2, Definitions. The addition of the phrase “a material or combination of materials” is needed to clarify the fact that envelope air sealing can be accomplished by one material or a combination of several materials. The Division has frequently been called on to clarify this matter. Inserting this language will address this question. The proposed sentence also adds the phrase “to resist the passage of air into or out of the conditioned or semi conditioned space.” This is needed to specify the overall intent of the section, which is missing from the ASHRAE Standard 90.1 language. The proposed change of adding this sentence is reasonable because it clearly and unambiguously states the intent of the air barrier requirement.

The proposed rule deletes the words “caulked, gasketed or weather stripped” because these three words are not defined. The change is reasonable because the remaining word “sealed” adequately describes the requirement.

Two phrases were added to the existing sentence describing what is meant by “sealed.” The inclusion of this language is needed to give a uniform understanding to the term for users of

11 <http://www.cmhc-schl.gc.ca/en/inpr/bude/himu/coedar/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=70126>

12 <http://www.masonrymagazine.com/7-03/airbarrier.html>

this chapter. This amendment is reasonable because both the words and meaning are taken from the current commercial energy code definition of the term “seal” located in Minnesota Rules, part 7676.0500, subp. 29.

The fifth change is to amend the list of building envelope areas that shall be sealed by changing item (g) and adding new items (h) and (i). The deletion of the phrase “all other openings in the building envelope” is needed because it is too vague to ensure uniform enforcement. The three provisions are needed to address possible sources of air leakage not identified in the Standard. The three provisions are identical to air sealing requirements which have been part of the National Building Code of Canada since 1995. These provisions are comparable to the requirements of the current energy code.

The sixth change is to create a new subsection, 5.4.3.1.1, which addresses where the air barrier system must be located so that the air barrier will prevent the circulation of conditioned air into and out of insulated cavities. The circulation of conditioned air into and out of insulated cavities cannot be allowed to happen because all air carries water vapor, which will condense into liquid water when it reaches the cold side of an insulated cavity. If liquid water is allowed to accumulate the building envelope it will damage the building. This provision carries forward the current commercial energy code. Minn. R., part 7676.0800 requires an interior air barrier on the “warm side” of the building envelope, which is defined as “the location within a building envelope element between the interior surface and the winter design condition dew point.”¹³ The change includes an exception for the location of the air sealing material when the certain identified materials make up the building component or assembly. This provision is needed because the identified materials inherently do not allow circulation of conditioned air sufficient to allow moisture accumulation.

The seventh and final change is to create a subsection 5.4.3.1.2, which requires drawings and specifications to indicate the location of the air barrier system. This provision assures that builders, contractors and enforcement agents can identify which building components the designer has intended to serve as the air barrier system. The requirement is carried forward from Minn. R., part 7676.0300, subp. 2, item E.

Subp. 2. Fenestration and doors. This section of the Standard has been amended for clarity. Additionally, there is an amendment identifying the standard conditions under which air leakage is measured, and to establish a standard for users of the code to uniformly measure air leakage.

Subp. 3. Recessed lighting fixtures. Currently, Minn. R., part 7676.0600, subp. 5, item C, requires recessed fixtures to be “sealed in an approved manner” which is ambiguous and subject to non-uniform enforcement. The proposed rule sets a standard for minimizing air leakage through recessed light fixtures installed in the building envelope (i.e., an insulated ceiling), which is needed to establish uniform criteria for compliance.

Air leakage must be minimized to reduce energy loss and to avoid the passage of moisture (in the form of water vapor contained in the air) that can cause deterioration and

¹³ Minn. R. part 7676.0500, subp. 40.

structural problems in the building.

1323.0550 SECTION 5.5, PRESCRIPTIVE BUILDING ENVELOPE OPTION.

Subpart 1. Roof insulation. ASHRAE Standard 90.1, Section 5.5, is amended by omitting the exception in subsection 5.5.3.1, and the Table 5.5.3.1 Roof U-Factor Multipliers for Exception to 5.5.3.1. These omissions are needed because all regions located in Minnesota are in climate zones 6 and 7, in which case the Roof U-Factor Multiplier is 1.00. The exception is not required in Minnesota. These changes will avoid confusion in the use of the roof U-factor multipliers, which would always be 1.00 in Minnesota because of the climate zones.

Subp. 2. Table 5.5-6, and Subp. 3. Table 5.5-7. Various amendments to ASHRAE Standard 90.1, Tables 5.5.-6 and 5.5-7, are proposed. The net affect of these proposed amendments is to maintain the building envelope thermal performance requirements that exist in the current energy code located in Minn. Rules, ch. 7676. The exception is for the slab or below grade walls, which now have a higher required *R*-value. These amendments are needed because the requirements of the Standard energy standard for thermal envelopes are not consistent with the current energy code.

The amendment to change the *R*-value for slab or below grade wall from *R*-8 in the current Minnesota code and *R*-10 in the Standard is needed to encourage installation of exterior slab or below grade wall insulation.

The amendment is consistent with current requirements in Minn. Rules, part 7676.0700, subp.. 8 (tables) and Part 7676.0600, subp. 2, item B (slab or below grade wall). These values have been accepted by the Minnesota design and construction industry.

1323.0562 SECTION 5.6, COMCHECK OPTION.

ASHRAE Standard 90.1, Section 5.6, is amended by adding Section 5.6.2, COMcheck Option, which replaces the use of analysis involving the envelope performance factor with the COMcheck computer program. COMcheck is a tool that is the commonly used in Minnesota to perform this trade-off analysis. The amendment is consistent with current requirements in Minn. Rules, part 7676.0700, subp. 7. While the current rule limits the applicability of COMcheck to buildings 30,000 square feet and less, analysis by engineers at Pacific Northwest National Laboratories has concluded that the program is a valid tool for performing trade off calculations for buildings of any size.

1323.0581 SECTION 5.8.1.5, SUBSTANTIAL CONTACT.

ASHRAE Standard 90.1, Section 5.8.1.5, is amended by adding the word “and,” which is needed simply to improve the readability of the lengthened sentence.

The amendment changes the words “inside surface” to “interior air barrier” because insulation must be in substantial contact with the interior air barrier to maintain a high level of performance. ASHRAE Standard 90.1 does not consider that there could be an interior air barrier

other than the inside surface.

The modification adding the words “building element making up the” and changing “inside” to “interior” add clarity because insulation is not installed in contact with the inside or visible surface, but rather behind a building element such as wallboard.

Several types of foam insulations that are sprayed into wall cavities create an air barrier on the inside surface of the foam. This air barrier may not be the inside surface of the wall because there may be a gap between the foam surface and interior wallboard. The Division has frequently responded to questions about this, and the amendment is needed to clarify the requirement. The addition of the word “exposed” to describe flexible batt insulation is needed to clarify that this provision only applies to insulation that is not in a cavity enclosed on all sides.

The modification adding “and walls” to locations requiring insulation support is needed because batt insulation on walls extending into attics (for a skylight chute, for example) must be supported, or it will sag and become ineffective. The amendment is consistent with current requirements Minn. R. part 7676.0600, subp. 10, items A and C.

1323.0642 SECTION 6.4.2, LOAD CALCULATIONS.

This amendment identifies that heating and cooling load calculations are regulated by the Minnesota Mechanical Code, Minn. R. ch. 1346. This change clarifies the original language contained in this section. The original language does not require a specific standard or design handbook to be used for determining heating and cooling design loads. The proposal specifically identifies that the *2005 ASHRAE Handbook of Fundamentals* shall be used for this purpose, or an equivalent computation procedure, such as computer software or other evaluation methods.

Section 6.4.2.1, and Table 6.4.2.1. Winter and summer design conditions are published in this new subsection and table as an aid to the designer on the appropriate design temperatures in Minnesota. The published temperatures are intended to be used as the basis for all heat loss and heat gain calculations. ASHRAE Standard 90.1 is not specific enough for the variations in actual weather data that occurs within Minnesota. The subsection and table are intended to provide that information.

1323.0643 SECTION 6.4.3, CONTROLS.

Subpart 1. Setback controls. This proposal adds subsection 6.4.3.2.1, which addresses cooling setback controls because such setback controls will always save energy in Minnesota buildings. Setback controls are nearly always installed in buildings within the scope of this chapter. This change is also makes this chapter consistent with the current energy code requirement is Minn. Rules, part 7676.1100, subp. 14.

Exceptions for spaces with radiant floor and radiant ceiling heating systems and spaces where constant temperature conditions are maintained were added because a setback control would be of no value if added to such spaces.

Subp. 2. Optimum start controls. The proposed rule amends ASHRAE Standard 90.1, Section 6.4.3.3.3, by adding to words “that are connected together in a common system,” to clarify that the section applies to single systems even if the system has more than one supply.

Subp. 3. Zone isolation. This proposal amends Section 6.4.3.3.4 by adding the required type of space temperature controls required during periods of automatic zone shutdown. The amendment is consistent with Minn. R. part 7676.1100, subp. 14, item D, in that it requires zone isolation devices and controls to shut off or set back the supply of heating and cooling to each zone.

Subp. 4. Freeze protection and snow/ice melting systems. This subsection of the Standard has been amended to permit snow and ice melting systems only where life safety is enhanced. All buildings constructed in Minnesota are designed to carry the weight associated with snow and ice on the roof. Hence, snow and ice melting should not be permitted on roofs in Minnesota except where life safety is enhanced.

Subp. 5. Ventilation controls for high-occupancy areas. This subsection of the Standard has been amended because reducing the outdoor air volume when a space is not fully occupied saves energy without compromising the indoor air quality of the building.

1323.0644 SECTION 6.4.4, HVAC SYSTEM CONSTRUCTION AND INSULATION.

The Division proposes to amend ASHRAE Standard 90.1, Section 6.4.4, by deleting section 6.4.4, all subsections, and Tables 6.4.4.2A and 6.4.4.2B and replacing them with the following:

Section 6.4.4 HVAC System Construction and Insulation.

- 6.4.4.1 Insulation. Duct insulation must comply with Minnesota Rules, chapter 1346.
- 6.4.4.2 Duct and plenum sealing. Duct and plenum sealing must comply with Minnesota Rules, chapter 1346.
- 6.4.4.3 Pipe insulation. Pipe insulation must comply with Minnesota Rules, chapter 1346.

This amendment is needed because the Minnesota Mechanical Code (Minn. Rules Ch. 1346) addresses these matters and the provisions in ASHRAE Standard 90.1 are in conflict with the requirements of the Mechanical Code. The amendment assures these provisions are consistent with other Minnesota law.

1323.0646 SECTION 6.4.6, PROHIBITION OF HEATED COMMERCIAL PARKING FACILITIES.

The Division proposes to amend ASHRAE Standard 90.1, Section 6.4, by adding section 6.4.6, which prohibits heated commercial parking facilities.

This amendment is for the convenience of users of the energy code to assist them in complying with Minnesota Statutes, section 216C.20, subd. 3. The incorporation of the

definition “parking garage” into the same paragraph as the requirement for commercial parking garage is needed because this definition is used only once. The word “commercial” is retained in the title so that it may be readily associated with the statutory provision, but is intentionally left out of the description of parking garage because this provision is intended to apply to both private and commercial parking facilities.

The changes to exception (b), from the definition in Minn. R. part 7676.0500, subp. 8, clarifies that the exception applies to parking facilities with a majority of parking spaces serving dwelling unit occupancies, and that the exception applies only to facilities within the same building structure as dwelling unit occupancies. These modifications are needed to clarify the exception and make it enforceable.

The change to exception (b), from the definition in Minn. R. part 7676.0500, subp. 8, to delete “public transit” from the list of buildings is needed because, back in 1991 when the exclusion was adopted, the predecessor of the Metropolitan Transit Commission housed their busses in heated garages since the bus engines did not have antifreeze coolant. It is reasonable to remove this exclusion now because today's busses have antifreeze coolant, and therefore, there is no compelling reason to heat bus storage garages.

The change to exception (c), from the requirement located in Minn. R. part 7676.1100, subp. 2, deletes the words “if substantially all useful heat previously has been removed from the air” because there is no condition where there would be any useful heat remaining in exhaust air that would be practical to remove.

1323.0651 SECTION 6.5.1, ECONOMIZERS (C-66).

Subpart 1. Economizers. This rule amends Section 6.5.1 because an economizer is a cost effective energy conservation measure for all Minnesota design conditions and to assure uniform enforcement of the code. The requirement for an economizer is simplified to require its installation on all systems over 3,000 cfm in size. The amendment is consistent with the requirements of Minn. R., part 7676.1100, subp. 13.

Subp 2. High-limit shutoff. This amendment requires that High-Limit Shutoff Control Options for Air Economizers be chosen from “All Other Climates” in the climate zone category, which will provide consistency for air economizer high-limit shutoff control options across all climate zones in Minnesota.

Table 6.5.1.1.3A and Table 6.5.1.1.3B provide options for high-limit shut off control options for Minnesota; one for climate zone 6 (Southern Climate Zone) and one for climate zone 7 (Northern Climate Zone). The change specifies that high-limit shut off control options be limited to those defined as “All Other Climates,” which would provide one category for all climate zones located Minnesota and promote uniform designs option and compliance.

1323.0652 SECTION 6.5.2.1, ZONE CONTROLS.

ASHRAE Standard 90.1, Section 6.5.2.1, is amended by the addition of exceptions (d)

and (e), which allows building owners to limit the rise of relative humidity in occupied spaces for the control of mold growth.

1323.0653 SECTION 6.5.3, AIR SYSTEM DESIGN AND CONTROL.

Subpart 1. Table 6.5.3.1 fan power limitation. The Division proposes to amend ASHRAE Standard 90.1, Section 6.5.3.1, Table 6.5.3.1, by using actual consumed power (brake horsepower) requirements, rather than the nameplate horsepower. The changes provide a reasonable energy efficiency of fan systems by using actual consumed power (brake horsepower) requirements rather than the nameplate horsepower, which almost always exceeds the required horsepower because of the standardization of motor sizes and good design practice.

Typically, systems that have the calculated brake horsepower (actual horsepower required) very near the motor nameplate horsepower would have the next size up motor selected. The existing table discourages, and in some cases will even prohibit, the designer from increasing the motor size in these cases. Upsizing motors on systems where the calculated brake horsepower is very near the nameplate horsepower is considered to be good design practice to allow for unknown conditions during the construction of the system.

Subp. 2. Part-load fan power limitation. ASHRAE Standard 90.1, Section 6.5.3.2.1, is amended by including motors 7-1/2 hp and larger, which is similar to the requirements currently found in Minn. R. part 7676.1000, subp. 9C.

Most VAV fan systems are being provided with electrical variable speed drives, which would comply with requirement “a” of this subsection.

Subp. 3. Static pressure sensor location. ASHRAE Standard 90.1, Section 6.5.3.2.2, is amended to identify where the controlling static pressure sensor needs to be located to accomplish its intended function. The changes are reasonable because there are mechanical systems that would not function correctly if the static pressure setpoint is to be no greater than one-third of the total design fan static pressure. Also, to require multiple sensors to be located in each major duct branch adds unnecessary cost and complexity to typical fan systems.

1323.0657 SECTION 6.5.7.2, FUME HOODS.

ASHRAE Standard 90.1, Section 6.5.7.2, exception (a), is amended by adding the phrase “except when higher volumes are required to maintain safe operating conditions.” The proposed change is needed because a reduction in fume hood exhaust volumes needs to address maintaining safe operating conditions of the fume hood system. Each fume hood system needs to be reviewed by the design engineer and operating parameters established which maintain a safe operating condition at the fume hoods. It may be possible to reduce the exhaust volume to save energy, but reducing to 50% or less of the design capacity may be too much of a reduction in some cases.

1323.0672 SECTION 6.7.2, COMPLETION REQUIREMENTS.

Subpart 1. Drawings. ASHRAE Standard 90.1, Section 6.7.2.1, is amended by reducing the required time period to submit record drawings from 90 days to 60 days. The reduction is needed to assure that the record drawings are turned over as a part of the project and not forgotten. The 60-day period is a reasonable period of time for a contractor to compile and complete the record drawings, which are generally required to be kept up to date during the construction period as part of the construction contract.

Subp. 2. Manuals. ASHRAE Standard 90.1, Section 6.7.2.2, is amended by reducing the required time period to provide operating and maintenance manuals to the building owner the designated representative of the building owner from 90 days to 60 days. This is consistent with the requirement of Section 6.7.2.1, as amended.

Subp. 3. HVAC System Acceptance Testing. This provision is needed to assure that HVAC controls are installed and operating correctly in a newly constructed building. It is not uncommon for HVAC controls to be given a cursory test after installation. Individual components may be switched on, but the entire system and how the components interact with each other is often not verified to assure complete functionality and energy efficiency.

Verification of the entire system is especially important with today's sophisticated control systems. Their complexity increases the likeliness that components, equipment, systems and interfaces between systems and controls will not meet all requirements of the construction documents. The proposed rule will remedy this potential for poor HVAC system performance by requiring thorough testing and documentation of the results. The amendment for acceptance testing is cost effective and facility owners have an expectation that all of the components in which they are investing will work as intended.

The proposed rule is also reasonable because of the success of Minn. Stat. § 123B.72, which requires acceptance testing of new or retrofitted HVAC systems in public schools after July 1, 2002. The Department of Education reports that implementation of the guideline written at the behest of this the statute (System-Inspection Guidelines for Minnesota-PK-12 School Construction Projects) has dramatically and cost effectively improved performance of affected HVAC systems in all buildings to which it has applied.

Section 6.7.2.3 of the Standard exempts buildings under 50,000 square feet and semi-heated spaces from this requirement of system balancing, which is needed and reasonable because it is identical to the exception in ASHRAE Standard 90.1 for the commissioning of HVAC systems. The provision exempting buildings complying with the New Buildings Institute standard from this requirement is needed and reasonable because the New Buildings Institute standard contains a very comprehensive commissioning procedure, which includes HVAC system acceptance testing.

1323.0681 SECTION 6.8, MINIMUM EQUIPMENT EFFICIENCY TABLES.

ASHRAE Standard 90.1, Section 6.8, Table 6.8.1C, is amended by adding a reference to section 6.9 regarding water chiller packages. This new section is consistent with the existing Energy Code, which prohibits the use of single effect absorption chilling systems unless the

source of heat is from a waste source or renewable energy source.

The footnotes of Table 6.8.1C are amended to make them consistent with the existing Energy Code, Minn. R. part 7678.0700, which prohibits the use of single effect absorption chilling systems unless the source of heat is from a waste source or renewable energy source.

This amendment does not preclude the use of double effect absorption chilling systems.

1323.0690 SECTION 6.9, WATER CHILLING PACKAGES AND ONCE-THROUGH COOLING SYSTEMS.

This rule amends ASHRAE Standard 90.1, Section 6, by adding section 6.9, which pertains to water chilling packages and once-through cooling systems.

This provision is needed for the convenience of users of the energy code to comply with the requirements of Minnesota Stat. § 103G.271, subd. 5, the definition in Minn. R. part 7678.0400, subp. 10, and the requirements of Minn. R. part 7678.0700, subp. 4 and 7.

Minn. R. part 7685.0120, subp. 5, defines a “once-through cooling system” as a system that has been issued a permit by the Department of Natural Resources to use in excess of 5,000,000 gallons of water annually from a groundwater source. It further defines a “once-through system” as a space heating, ventilation, air conditioning (HVAC), or refrigeration system used for any type of temperature or humidity control application, using groundwater that circulates through the system and is then discharged without reusing it for a higher priority purpose.¹⁴

1323.0741 SECTION 7.4.1, LOAD CALCULATIONS.

ASHRAE Standard 90.1, Section 7.4.1, is amended to clarify the original language contained in this section by requiring a specific standard or design handbook be used for determining service water heating design loads. The proposed rule specifically identifies that the *ASHRAE Handbook – HVAC Applications* shall be used for this purpose, or an equivalent computation procedure, such as computer software or other evaluation method.

1323.0745 SECTION 7.4.5, POOLS.

The proposed rule deletes the requirement for continuously burning pilot lights in the Standard because the pool and spa heaters available in Minnesota may not have intermittent ignition. The reference to the Minnesota Department of Health pool cover safety standard is needed for the convenience of users of this code.

Additionally, the word “solar” is replaced with the word “renewable” because all renewable energy sources (such as wood or methane) are considered by the State Building Code to be equal to solar. The deletion of the requirement for time switches on pumps is needed to comply with

¹⁴ Minn. R. part 7585.0120, subp. 6.

Minn. R., part 4717.2550.

The proposed rule is consistent with the energy code requirements for swimming pools and spas currently found in Minn. R., part 7676.1200, subp. 5.

1323.0780 TABLE 7.8, PERFORMANCE REQUIREMENTS FOR WATER HEATING EQUIPMENT.

ASHRAE Standard 90.1, Section 7, Table 7.8, is amended by changing the performance required for electric water heaters, gas storage water heaters, and gas instantaneous water heaters. This amendment parallels federally mandated water heater efficiencies as published in the Code of Federal Regulations¹⁵ on January 17, 2001, which requires new and higher efficiency levels effective January 20, 2004. Water heater manufacturers have stopped supplying water heaters that do not meet these new federal standards.

1323.0871 SECTION 8.7.1, DRAWINGS.

ASHRAE Standard 90.1, Section 8.7.1, is amended to make the electrical record drawing requirements read similar to the mechanical record drawing requirements identified under subsection 6.7.2.1, which is discussed above at proposed rule part 1323.0672.

1323.0872 SECTION 8.7.2, MANUALS.

This proposal requires that operating and maintenance manuals be provided to the building owner within 60 days after the date of system acceptance, which is intended to ensure that operation and maintenance manuals are indeed turned over as a part of the project, and not forgotten. The revisions make the electrical manual requirements similar to the mechanical manual requirements identified under Section 6.7.2.2.

The Division believes that 60 days is reasonable a reasonable time-period for the contractors to compile and complete the operation and the maintenance manuals, which should be kept up-to-date during the construction period. The revised wording makes the electrical and mechanical manuals requirements consistent with each other

1323.0891 SECTION 8.9.1, ELECTRICAL ENERGY DETERMINATION.

ASHRAE Standard 90.1, Section 8, is amended by adding section 8.9, which addresses electrical energy determinations in new multifamily dwellings. This language is transferred from Minn. R. part 7676.1300, subp. 1, item A, without modification.

1323.0911 SECTION 9.1.1, LIGHTING SCOPE.

ASHRAE Standard 90.1, Section 9.1.1, is amended by clarifying that the scope of Section 9.1 does not apply to decorative gas lighting systems that meet the requirements of Minn. Stat. § 216C.19. The language of exception (d) has been modified to include the citation

¹⁵ Department of Energy, 10 CFR § 430.32 (2008).

for the convenience of users. Decorative gas lamp equipment complying with the provisions of Minn. Stat. § 216C.19¹⁶ is widely available and its installation is standard practice in Minnesota.

1323.0944 SECTION 9.4.4, EXTERIOR BUILDING GROUNDS LIGHTING.

ASHRAE Standard 90.1, Section 9.4.4, is amended to specify that parking lot lighting shall be in accordance with Minn. Stat. § 216C.19¹⁷ and Minn. R. ch. 8885,¹⁸ which currently contain more stringent requirements than the ASHRAE Standard. The amendment is also convenient for those that use the code.

1323.0991 SECTION 9.9.1, COMCHECK OPTION.

ASHRAE Standard 90.1, Section 9, is amended by adding Section 9.9, COMcheck Option. The proposed rule is consistent with and transfers Minn. R. part 7676.1300, subp. 2, item F, which permits the use of the COMcheck program. Additional language has been added to identify the publisher of the COMcheck program and a citation to Minn. R. part 7676.0700, subpart 7.

The proposed rule states:

“9.9.1 COMcheck Option. Buildings shall be deemed to comply with requirements of Sections 9.5 and 9.6 if the COMcheck program published by the Pacific Northwest National Laboratories

16 Minn. Stat. § 216C.19, states in pertinent part:

Subd. 5. **Natural gas outdoor lighting prohibited; exception.** After July 1, 1974, no new natural gas outdoor lighting shall be installed in the state. However, the installation and use of natural gas outdoor lighting that is equipped with either an automatic daytime shutoff device or is otherwise capable of being switched on and off, is permitted.

Subd. 6. **Variance for decorative gas lamp.** Beginning April 20, 1977, no person shall use a decorative gas lamp in Minnesota except as provided in this subdivision and in subdivisions 5 and 7. The commissioner shall grant a permanent variance allowing a homeowner who received a variance in 1977 to operate a decorative gas lamp or lamps at the homeowner's principal place of residence. The variance shall be valid for the life of the recipient. The commissioner shall not issue a variance to any other person to use a decorative gas lamp or lamps.

17 Minn. Stat. § 216C.19, subd. 1, states:

Roadway lighting rules. After consultation with the commissioner and the commissioner of public safety, the commissioner of transportation shall adopt rules under chapter 14 establishing minimum energy efficiency standards for street, highway, and parking lot lighting. The standards must be consistent with overall protection of the public health, safety and welfare. No new highway, street or parking lot lighting may be installed in violation of these rules. Existing lighting equipment, excluding roadway sign lighting, with lamps with initial efficiencies less than 70 lumens per watt must be replaced when worn out with light sources using lamps with initial efficiencies of at least 70 lumens per watt.

18 Minn. R. part 8885.0100, subp. 7, states:

“Parking lot. “Parking lot” means an improved area designated for the purposes of parking, storing, or allowing licensed motor vehicles to remain, but does not include a motor vehicle sales lot or a parking area of a single family residence.””

demonstrates it to be in compliance.

1323.1114 SECTION 11.1.4, COMPLIANCE.

ASHRAE Standard 90.1, Section 11.1.4, is amended by deleting the “Informative Note.” The informative note serves as instructive information for code officials and users of the Energy Cost Budget Method. The Division believes that deleting the note will remove ambiguous language, which could create confusion for users of the code. The deletion of the informative note does not affect enforcement requirements.

1323.1121 SECTION 11.2.1, SIMULATION PROGRAM.

ASHRAE Standard 90.1, Section 11.2.1, is amended by deleting the “Note to Adopting Authority.” Like the instructive note above, this language was included in the Standard as an instruction for code officials. The Division believes that deleting the note will remove ambiguous language, which could create confusion for users of the code. The deletion of the note does not affect enforcement requirements.

1323.1132 SECTION 11.3.2, HVAC SYSTEMS.

ASHRAE Standard 90.1, Section 11, Table 11.3.2C, Water Chiller Types, is amended by replacing Single-Effect absorption, direct fired” with “Double-effect absorption direct/indirect fired” or “Single-effect absorption using waste heat,” which is consistent with current energy code requirements that prohibit the use of single effect absorption chilling systems unless the source of heat is from a waste source or renewable energy source found in Minn. R. part 7678.0700.

1323.1300 SECTION 13, OTHER BUILDINGS.

ASHRAE Standard 90.1, is amended by adding Section 13, which applies to other buildings. The addition of this section is intended to address a similar requirement pertaining to greenhouses and inflated structures, which is located in Minn. R. part 7676.0900, subp. 1. The amendment adds detail to the current requirement for clarity.

ASHRAE Standard 90.1 does not currently address energy efficiency for greenhouse and inflatable structures other than to provide minimal heating system efficiencies. The detailed requirements for envelope (Sections 13.1.1 and 13.2.1) and heating elements (Sections 13.1.2 and 13.2.2) and additional requirements (Sections 13.1.3 and 13.2.3) in these structures is needed to improve uniformity of design and enforcement.

The Division believes these amendments are reasonable because the detailed requirements for envelope elements, heating elements and additional requirements are identical to the recommendations for cost effective energy conservation strategies in two reports published by the Department of Commerce, State Energy Office:

1. Energy Conservation Strategies for Air Supported Structures, May 2002; and

2. Energy Conservation Opportunities for Greenhouse Structures, September 2003.¹⁹

These studies include analyses to determine cost effective energy conservation and operational strategies using Minnesota climate conditions and utility rates. Furthermore, the evaluations considered the economics of structures in both partial season as well as full season operation.

REPEALER: The Department proposes that Minnesota Rules, Chapters 7676 and 7678 be repealed. The repealed chapters have made up the commercial portions of Minnesota's energy code since July 1999. Further, the out-of-date appliance and equipment efficiencies embodied by chapter 7678 are in the proposed rules, which are consistent with applicable federal regulations.²⁰ The repealer is needed and reasonable to prevent conflict with the proposed rules when they are adopted.

EFFECTIVE DATE: The Department proposes that the amendments to these rules are effective five working days after publication of the Notice of Adoption in the *State Register*.

Minnesota Statutes § 16B.64, subdivision 8²¹, states:

A rule to adopt or amend the state's building code is effective 180 days after the filing of the rule with the secretary of state under section 14.16 or 14.26. The rule may provide for a different effective date if the commissioner or board proposing the rule finds that a different effective date is necessary to protect public health and safety after considering, among other things, the need for time for training of individuals to comply with and enforce the rule.

Because the Department's Construction Codes and Licensing Division has been providing continuing education to train individuals to comply with and enforce these proposed rules, the Commissioner found that 180 days is not necessary to protect public health and safety. Additional consideration was given to the industry's awareness of the proposed rules and their expectation that the rules be adopted and enforced as quickly as possible.

LIST OF EXHIBITS

If a hearing is conducted on these proposed rules, and in addition to the documents that must be placed into the hearing record pursuant to Minn. R. part 1400.2220, subp. 1, the Department may enter the following exhibits into the hearing record in support of the need for and reasonableness of the proposed rules:

¹⁹ These reports are available on the Department of Commerce Web site at <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536881511&programid=536908155&sc3=-536889047&sc2=-536889043&id=-536881350&agency=Commerce> and <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536881511&programid=536908156&sc3=-536889047&sc2=-536889043&id=-536881350&agency=Commerce> respectively.

²⁰ See, SONAR at 5.

²¹ 2007 Minn. Laws, Chapter 140, Article 4, Section 11.

- 1) Rick Quirouette, Sandra Marshall, & Jacques Rousseau, Design Considerations for an Air Barrier System, Canada Mortgage and Housing Corporation, November 2000;
- 2) Pat Conway, Air Barrier Systems – Opportunities and Challenges, Mason Contractors Association of America, July 2003;
- 3) Energy Conservation Strategies for Air Supported Structures, May 2002; and
- 4) Energy Conservation Opportunities for Greenhouse Structures, September 2003.

CONCLUSION

Based on the foregoing, the proposed rules are both needed and reasonable.

June 9, 2008
Date

/s/Steve Sviggum
Steve Sviggum
Commissioner