



September 12, 2019

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Re: In the Matter of the Proposed Rules of the Department of Labor and Industry Governing the Adoption of the Commercial Provisions of the International Energy Conservation Code, Minnesota Rules, Chapter 1323; Revisor's ID Number R-04513

Dear Librarian:

The Minnesota Department of Labor and Industry ("Department") intends to adopt amendments to rules governing the adoption of the commercial provisions of the International Energy Conservation Code, Minnesota Rules, chapter 1323. The Department plans to publish a Dual Notice in the September 16, 2019, *State Register*.

The Department has prepared a Statement of Need and Reasonableness. As required by Minnesota Statutes, sections 14.131 and 14.23, the Department is sending the Library an electronic copy of the Statement of Need and Reasonableness at the same time we are mailing our Dual Notice.

If you have questions, please email me at wendy.legge@state.mn.us or call me at (651) 284-5019.

Very truly yours,



Wendy Willson Legge
General Counsel
Office of General Counsel
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Attachment: Statement of Need and Reasonableness

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Adoption of the Commercial Provisions of the 2018 International Energy Conservation Code, Minnesota Rules, Chapter 1323; Revisor's ID Number R-04513

INTRODUCTION

The Commissioner ("Commissioner") of the Department of Labor and Industry ("Department") and certain local authorities enforce the Minnesota State Building Code, which consists of 22 chapters of the Minnesota Rules. One of those 22 chapters is chapter 1323, the Minnesota Commercial Energy Code. *See* Minnesota Rules, part 1300.0050.

The Commissioner proposes to adopt amendments to the Minnesota Commercial Energy Code, Minnesota Rules, chapter 1323. The proposed rules will incorporate by reference the commercial provisions of the 2018 International Energy Conservation Code ("IECC"), with amendments.

The International Code Council ("ICC") publishes the IECC. The ICC reviews and modifies the ICC Model Codes every three years to incorporate the most current construction code criteria to provide the construction industry with the most current code provisions for use throughout the nation.

The IECC establishes the minimum standards for the efficient use and conservation of energy in new and remodeled residential buildings (*see* Residential Provisions) and in new and remodeled commercial buildings (*see* Commercial Provisions). Commercial buildings include all buildings except for one- and two-family dwellings and townhouses that are three stories or less in height.¹ The IECC addresses energy conservation requirements for all aspects of energy use including heating, ventilation, lighting, water heating, and power usage for appliances and building systems. The IECC provides design requirements for all facets of energy conservation.

The current chapter 1323 adopts and amends the 2012 edition of the IECC. *See* Minnesota Rules, part 1323.0010, subp. 1. Accordingly, the Department currently administers and enforces the 2012 edition of the IECC with amendments as contained in Minnesota Rules, chapter 1323. Although the ICC published a 2015 edition of the IECC, the Department did not adopt the 2015 edition of the IECC due to legislation that requires the Department to review and adopt the model codes with amendments every six years, beginning with the 2018 edition of the model codes.²

Minnesota Statutes, section 326B.106, subdivision 1, requires the Department to consult with the Construction Codes Advisory Council ("CCAC") in adopting amendments to the

¹ *See* Minn. R. 1300.0040, subp. 2. .

² *See* Minn. Stat. § 326B.106, subd. 1(c) (2018).

Minnesota State Building Code. The Department has consulted with the CCAC in connection with this rulemaking. This consultation is discussed in detail on pages 4-5 of this SONAR.

In consultation with the CCAC, the Department utilized a Technical Advisory Group (“TAG” or “Energy Code TAG”) to review the current Chapter 1323 and the commercial provisions of the 2018 IECC to propose reasonable and necessary amendments to the existing rule and the model code. The Energy Code TAG members were appointed by the CCAC, and consisted of representatives from the Association of Minnesota Building Officials; Builders Association of Minnesota; Builders Association of the Twin Cities--Housing First; American Society of Heating, Refrigerating, and Air-Conditioning Engineers (“ASHRAE”); energy conservation associations; and department personnel.³ The proposed amendments in this rulemaking incorporate changes to the commercial provisions of the 2018 IECC proposed by Energy Code TAG members.⁴

ALTERNATIVE FORMAT

Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make a request, contact Amanda Spuckler at the Department of Labor and Industry, 443 Lafayette Road N., St. Paul, Minnesota 55155, phone: 651-284-5006, and fax: 651-284-5749.

STATUTORY AUTHORITY

Under Minnesota Statutes, section 326B, the Commissioner has authority to adopt, amend and repeal the State Building Code except for those portions of the code to which the Legislature has granted rulemaking authority to the Plumbing Board, Board of Electricity, or Board of High Pressure Piping Systems:

326B.02, Subdivision 5. General rulemaking authority. 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, except for rules for which the rulemaking authority is expressly transferred to the Plumbing Board, the Board of Electricity, or the Board of High Pressure Piping Systems.

Because the Legislature has not granted rulemaking authority to any of these boards in connection with the Minnesota Commercial Energy Code, the Commissioner is responsible for all amendments to the Minnesota Commercial Energy Code. *See* Minnesota Statutes, sections 326B.32, subd. 2, 326B.435, subd. 2, and 326B.925, subd. 2.

In Minnesota Statutes, sections 326B.101 and 326B.106, the Legislature has enacted additional requirements regarding the adoption or amendment of the State Building Code:

³ A complete list of the Chapter 1323 TAG participants is attached hereto as Exhibit A.

⁴ Energy Code TAG meetings occurred on the following dates in 2018: January 19; February 2 and 16; and March 2, 16 and 28. *See* Notes of Energy Code TAG meetings, available at <http://www.dli.mn.gov/about-department/boards-and-councils/energy-code-technical-advisory-group-tag>

326B.101, Policy and purpose. The State Building Code governs the construction, reconstruction, alteration, repair, and use 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.

326B.106, Subdivision 1. (a) Adoption of code. Subject to paragraphs (c) and (d) and sections 326B.101 to 326B.194, the commissioner shall by rule and in consultation with the Construction Codes Advisory Council 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 also include duties and responsibilities for code administration, including procedures for administrative action, penalties, and suspension and revocation of certification. The code must conform insofar as practicable to model building codes generally accepted and in use throughout the United States, including a code for building conservation. In the preparation of the code, consideration must be given to the existing statewide specialty codes presently in use in the state. 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 326B.101 to 326B.194, the commissioner shall administer and enforce the provisions of those sections.

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

In addition to providing the required statutory authority, Minnesota Statutes Chapter 326B includes special requirements regarding the commercial energy code. Specifically, Minnesota Statutes section 326B.106, subdivision 1(d), requires the Department to comply with federal law on energy codes administered by the United States Department of Energy (DOE):

(d) Notwithstanding paragraph (c), the commissioner shall act on each new model residential energy code and the new model commercial energy code in accordance with federal law for which the United States Department of Energy has issued an affirmative determination in compliance with United States Code, title 42, section 6833. The commissioner may adopt amendments prior to adoption of the new energy codes, as amended for use in Minnesota, to advance construction methods, technology, or materials, or, where necessary to protect the health, safety, and welfare of the public, or to improve the efficiency or use of a building.

The federal statute cited in this law requires DOE to evaluate each update of a specified energy efficiency standard (ASHRAE Standard 90.1) and issue a determination about whether the update will improve energy efficiency in commercial buildings. If the DOE determines that the update will improve energy efficiency in commercial buildings, then:

... each State shall, not later than 2 years after the date of the publication of such determination, certify that it has reviewed and updated the provisions of its commercial building code regarding energy efficiency in accordance with the revised standard for which such determination was made. Such certification shall include a demonstration that the provisions of such State's commercial building code regarding energy efficiency meet or exceed such revised standard.⁵

In accordance with this statute, the DOE on February 27, 2018, issued a determination that the 2016 edition of ASHRAE Standard 90.1 improves overall energy efficiency in buildings subject to the code.⁶ “States are required to certify that they have reviewed the provisions of their commercial building code regarding energy efficiency, and, as necessary, updated their codes to meet or exceed the updated edition [2016] of Standard 90.1.”⁷

After adoption of the 2018 IECC (as amended), Minnesota will be able to certify to the DOE that Minnesota has updated its commercial energy code to meet or exceed the 2016 edition of ASHRAE Standard 90.1. Section C401.2 of the 2018 IECC specifically allows compliance with ASHRAE Standard 90.1 as one option for compliance with the code. All references to ASHRAE Standard 90.1 in the 2018 IECC are to the 2016 edition.⁸ Many states, like Minnesota, adopt the IECC. The DOE accepts certification from states that adopt the most recent IECC commercial provisions that their adoption of these provisions meets or exceeds the updated ASHRAE 90.1.

CONSULTATION WITH THE CONSTRUCTION CODES ADVISORY COUNCIL

Minnesota Statutes, section 326B.106, subdivision 1(a), requires the Commissioner to consult with the CCAC in connection with the adoption of rules, codes, and standards relating to building construction. Minnesota Statutes, section 326B.07, subdivision 1, sets forth the requirements for membership of the CCAC.⁹ Minnesota Statutes, section 326B.07, subdivision 2, directs the CCAC to review code changes and provide recommendations to the Commissioner on proposed changes to the rule chapters that comprise the Minnesota State Building Code.

The Department consulted with the CCAC in connection with these proposed rules. A report detailing the TAG review of the 2018 ICC model codes was submitted to the CCAC. As previously discussed, the CCAC appointed the members of the TAGs, including the Energy Code TAG. Upon completion of the review of the rules and the 2018 model codes by the TAGs,

⁵ 42 U.S.C. § 6833(b)(2) (2019).

⁶ See 2018-02-27 Final Determination Regarding Energy Efficiency Improvements in ANSI/ASHRAE/IES Standard 90.1-2016: Energy Standard for Buildings, Except Low-Rise Residential Buildings; Notice of order, available at: <https://www.regulations.gov/document?D=EERE-2017-BT-DET-0046-0008>

⁷ <https://www.energycodes.gov/development/determinations>. States must either make this certification by February 27, 2020 or request an extension by that deadline.

⁸ See Chapter 6[CE] of the 2018 IECC, under ASHRAE.

⁹ A complete list of the members of the Construction Codes Advisory Council is attached as Exhibit B.

a report was submitted to the CCAC detailing the TAGs' evaluation of the 2018 ICC model codes and recommended changes to the model codes and the current Minnesota Rules. The report included recommended changes to the IECC commercial provisions and Chapter 1323. After review, the CCAC forwarded this report, with comments by the CCAC, to the Commissioner for consideration in proposing amendments to chapter 1323.¹⁰

REGULATORY ANALYSIS

Minnesota Statutes, section 14.131, sets out eight factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (8) below quote these factors and then give the Department'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

The classes of persons who likely will be affected by the proposed rules include building officials, engineers, architects, commercial building contractors, mechanical contractors, suppliers, building owners and managers and other building users.

The classes of persons who will likely bear the costs of the proposed rule include building owners who build new buildings or add to, alter, renovate or repair existing buildings subject to this code. Only the existing building portions that are added, altered, renovated, or repaired must meet the new energy efficiency requirements of the code.

The classes of persons who will likely benefit from the proposed rule include building owners and ultimately, the general public, because the proposed rule will improve energy efficiency standards and provide better environmental protection by updating regulations for the energy efficient design of commercial buildings.

(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 or any other agency for the implementation and enforcement of the proposed rule include costs associated with educating those who administer and enforce the code and costs for new code books. Code books would cost a maximum of \$450 per person.

The probable costs to any other agency of implementation and enforcement include costs for code books for building officials and other entities involved with enforcement of the code, and any educational expenses necessary for training on the proposed rule. The anticipated cost of educational seminars is approximately \$170 per person.

¹⁰ A Report detailing the Energy Code TAG review of the 2018 ICC model codes, with comments from the CCAC, can be found at <http://www.dli.mn.gov/sites/default/files/pdf/report062618.pdf>.

There is no anticipated effect on state revenues as a result of the implementation and enforcement of the proposed rule.

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

There are no less costly or intrusive methods for achieving the purpose of the proposed rule. Specifically, the proposed rule adopts and amends the 2018 IECC because it is the most comprehensive standard that belongs to the family of ICC codes adopted in other chapters of the Minnesota State Building Code. The adoption of this code will result in predictable code application and enforcement, which will tend to lower costs by reducing the need for review by local and state boards and other entities responsible for code interpretation and review.

There are two nationally recognized energy efficiency standards for commercial buildings, ASHRAE Standard 90.1 and the IECC. The IECC achieves the same purpose as ASHRAE Standard 90.1 but the IECC better coordinates with other building codes. The requirements of the IECC and ASHRAE 90.1 are comparable; therefore, the IECC accepts compliance with ASHRAE 90.1 as an alternative to compliance with the IECC commercial provisions.

(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 Department did not review any other national model codes because the IECC is the most comprehensive model energy code that is generally accepted and in use in the United States. Also, the IECC is part of the family of ICC codes. The Department has already adopted multiple ICC codes. This code is coordinated with the other ICC codes adopted or proposed for adoption in Minnesota.

(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 proposed rule will only apply to new construction or any addition, alteration, or repair. It is difficult to identify actual compliance costs associated with the construction or remodeling of a new or existing building because these costs depend on a building's design, use, age and condition, and the extent of the alteration. There may be negligible costs to individuals responsible for interpreting, applying, and enforcing this proposed rule, including building officials, designers, contractors, and installers. Most procedures and documents already exist in Minnesota rules so changes will likely involve minor revision to current practices or documents that currently exist and will not create a need for new procedures or documents.

A small cost is associated with proposed rule 1323.0403, subpart 12a, which is an amended version of current subpart 8. The proposed amendment would increase the minimum insulation R-value from R-8 to R-12 for exterior ducts and ducts in unconditioned spaces. R-12 insulation costs approximately \$0.70 more per square foot than R-8 insulation. However, this

increased insulation will lower energy costs. The extra cost of the R-12 insulation is anticipated to be recovered in energy savings in approximately 11 years.

(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 ICC reviews and modifies the ICC Model Codes every three years to incorporate the most current construction criteria. The 2012 edition of the IECC commercial provisions, with amendments, is currently applied and enforced in Minnesota. The family of ICC Codes is designed to work together as they reference each other within the body of each individual model code provision. The Department intends to adopt several of the 2018 ICC Codes at the same time. Therefore, if this proposed rule is not adopted, it could create confusion in other rule chapters that adopt and incorporate the 2018 ICC model codes. This is because the other 2018 ICC Codes reference sections in the 2018 IECC, and those references would be wrong in Minnesota where the section number or content changed from the 2012 IECC (currently applied in Minnesota) to the 2018 IECC.

Another consequence of not adopting the proposed rule would be using outdated materials and methods. Because current chapter 1323 is based on the 2012 version of the IECC commercial provisions, the methods and materials are all from 2012 or earlier. Such older methods may prove to be less efficient and outdated materials will be more difficult to obtain. Manufacturers do not have a financial incentive to maintain an inventory of outdated materials. As a result, failure to update chapter 1323 by not adopting the proposed rule would have a negative impact on the administration, safety, application and enforcement of Minnesota's commercial energy code provisions.

The costs associated with not adopting the proposed rule will likely be borne by building owners, to whom the costs of purchasing outdated equipment and materials would be passed. The consequences of not adopting the proposed rule will also be borne by industry personnel responsible for administering and enforcing the code because the various 2018 ICC codes adopted by the Department would not provide accurate references to sections in the 2012 IECC, which is currently adopted.

(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

As discussed above on page 4, Minnesota is required to certify to the federal DOE that its updated commercial energy provisions meet or exceed the requirements of the 2016 edition of ASHRAE Standard 90.1. Section C401.2 of the 2018 IECC specifically allows compliance with the 2016 edition of ASHRAE Standard 90.1 as one option for compliance with the code. Therefore, building owners can comply with the proposed rule by complying with what is required by federal regulation.

“(8) an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule. . . . ‘[C]umulative effect’ means the impact that results from incremental impact of the proposed rule in addition to other rules,

regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time.”

There is no cumulative effect related to the specific purpose of the rule. The purpose of the proposed 1323 rule is to update the Commercial Energy Code. Although there is no cumulative effect related to the specific purpose of the 1323 rule, it is one chapter of the twenty-two chapters that make up the Minnesota State Building Code, which is a single set of coordinated building construction regulations that apply throughout the state of Minnesota. There are no other building codes that can be used or enforced in this state. When the Department adopts the individual rules that make up the Minnesota State Building Code, the Department works with other state agencies that may also regulate certain buildings to ensure that requirements in the Minnesota State Building Code are not cumulative.

As discussed above on page 4, Minnesota is required to certify to the federal DOE that its updated commercial energy provisions meet or exceed the requirements of the 2016 edition of ASHRAE Standard 90.1. Although there is therefore federal oversight of the Minnesota commercial energy code, there are no federal regulations that would create a cumulative effect with the proposed rule.

In the Request for Comments, the Department requested information on any cumulative effect of the proposed rule with federal or state regulations:

Additionally, the agency requests any information pertaining to the cumulative effect of this rule with other federal and state regulations related to the specific purpose of the rule. Cumulative effect means the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules.¹¹

The Department did not receive any information in response to this request.

PERFORMANCE-BASED RULES

Minnesota Statutes, section 326B.106, subdivision 1, authorizes the Department to establish by rule a code of standards for construction. This statute requires the code to "conform insofar as practicable to model building codes generally accepted and in use throughout the United States." At the same time, this statute mandates that, "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."

The commercial provisions of the 2018 IECC establish minimum requirements for building systems using prescriptive and performance-based provisions. The proposed rules that contain amendments to the 2018 IECC commercial provisions incorporate the philosophy required by Minnesota Statutes, section 326B.106.

¹¹ 43 S.R. 276 (Aug. 27, 2018).

ADDITIONAL NOTICE

This Additional Notice Plan was reviewed by the Office of Administrative Hearings and approved in an August 20, 2019 order by Administrative Law Judge Jessica Palmer-Denig.

Our Notice Plan includes giving notice required by statute. We will mail or email the Dual Notice, which will contain an easily readable and understandable description of the nature and effect of the proposed rule, to everyone who has registered to be on the Department's state building code rulemaking mailing list under Minnesota Statutes, section 14.14, subdivision 1a. We will also give notice to the Legislature per Minnesota Statutes, section 14.116.

Our Notice Plan also includes giving additional notice to associations and trade groups not required by statute. The Department will mail the Dual Notice to the following interested industry groups or associations. Those groups or associations include:

- a. All certified building officials involved in code administration. This list includes all municipal building officials responsible for administration of the Minnesota State Building Code.
- b. Association of Minnesota Building Officials
- c. Minnesota Mechanical Contractors' Association
- d. Minnesota Society of Professional Engineers
- e. Association of Minnesota Counties
- f. League of Minnesota Cities
- g. Minnesota Board of Electricity
- h. Minnesota Plumbing Board
- i. American Institute of Architects - Minnesota
- j. Building Owners and Managers of Minneapolis and St. Paul
- k. Minnesota Manufactured Home Association
- l. Minnesota Department of Commerce
- m. Builders Association of Minnesota
- n. Builders Association of the Twin Cities--Housing First
- o. Minnesota Chamber of Commerce
- p. Building Owners and Managers Association
- q. Minnesota Housing Finance Agency
- r. Minnesota Multi-Housing Association

Our Notice Plan did not include notifying the Commissioner of Agriculture because the rules do not affect farming operations per Minnesota Statutes, section 14.111.

CONSULTATION WITH MMB ON LOCAL GOVERNMENT IMPACT

As required by Minnesota Statutes, section 14.131, the Department consulted with the Commissioner of Minnesota Management and Budget ("MMB") concerning the fiscal impact and benefits the proposed rules may have on units of local government. This was done on July 19, 2019, by providing MMB with copies of the Governor's Office Proposed Rule and SONAR Form, the proposed rules, and the near-final SONAR. On August 15, 2019, the Department

received a memorandum dated the same day from MMB Executive Budget Officer Laurna Schlottach-Ratcliff which provided general comments and concluded as follows:

Under this rule local governments constructing new commercial buildings may have increased costs as it relates to the requirement in 1323.0403, subpart 12a requiring R-12 insulation rather than R-8 insulation for exterior ducts and ducts located in unconditioned spaces. The impact of this change is about \$0.70 more per square foot. Additionally, local governments may also have costs associated with purchasing new code books (\$450 per person maximum) and any educational expenses (\$170 per person maximum) necessary for the training of enforcement officials.

The Department will submit a copy of its correspondence with MMB and the August 15, 2019, response received from that agency to OAH at the hearing or with the documents it submits for ALJ review.

DETERMINATION ABOUT RULES REQUIRING LOCAL IMPLEMENTATION

As required by Minnesota Statutes, section 14.128, subdivision 1, the agency has considered whether these proposed rules require a local government to adopt or amend any ordinance or other regulation in order to comply with these rules. Pursuant to Minnesota Statutes, section 14.128, the Department has determined that a local government will not be required to adopt or amend an ordinance or other regulation to comply with these proposed rules. The State Building Code is the standard that applies statewide. Minnesota Statutes, section 326B.121, subdivision 1, mandates compliance with the State Building Code whether or not a local government adopts or amends an ordinance. As a result, an ordinance or other regulation is not required for compliance. If a city wishes that its ordinances accurately reflect legal requirements in a situation in which the State Building Code has superseded the ordinances, then the city may want to amend or update its ordinances.

In the Request for Comments, the Department asked for information from any local unit of government that believed it would need to amend an ordinance or regulation: "If you believe that the possible rule amendments would require your local unit of government to adopt or amend an ordinance or other local regulation to comply with the proposed rules, the Department requests that you provide information about the ordinance or regulation to the Agency Contact person listed below."¹² The Department has not received any information in response to this request.

COST OF COMPLYING FOR SMALL BUSINESS OR CITY

Agency Determination of Cost

As required by Minnesota Statutes, section 14.127, the Department 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 Department has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not

¹² 43 S.R. 276 (Aug. 27, 2018).

exceed \$25,000 for any small business or small city. As previously discussed, the costs of compliance should be minimal. (See pages 6-7 of this SONAR.)

In the Request for Comments, the Department requested information on the issue of cost of compliance to a small business or city:

The Department is also interested in determining whether the cost of complying with the rule in the first year after the rule takes effect will cost or exceed \$25,000 for any small city or small business under *Minnesota Statutes*, section 14.127, subdivision 1. A small city is a statutory or home rule charter city that has less than ten full-time employees and a small business means a business that has less than 50 full-time employees.¹³

The Department has not received any response to this request. The Department has no reason to believe that the cost of compliance to any small business or small city will exceed \$25,000 in the first year after the rules are effective.

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. Construction Codes and Licensing Division Staff, if necessary; and
2. Energy Code Technical Advisory Group Members, if necessary.

RULE-BY-RULE ANALYSIS

1323.0010 INCORPORATION BY REFERENCE OF THE INTERNATIONAL ENERGY CONSERVATION CODE—COMMERCIAL ENERGY PROVISIONS.

Subpart 1. General. This subpart is amended to provide the necessary information to incorporate by reference the applicable portions of the 2018 IECC, which is copyright 2017. Because the 2018 IECC includes both residential and commercial provisions and because Minnesota Rules chapter 1323 is limited to commercial provisions, it is necessary to clarify that chapter 1323 only incorporates commercial provisions. Moreover, because Minnesota's administrative provisions are in chapter 1300, it is reasonable not to incorporate the administrative provisions of the IECC (which are in chapter 1). As discussed in connection with subpart 2 below, it is reasonable not to incorporate chapter 5.

Subp. 2. Mandatory chapters. This subpart is amended to update which commercial energy chapters of the IECC must be applied and enforced as a part of the Minnesota State Building Code. The proposed rule deletes the reference to IECC chapter 5. Chapter 5 of the 2018 IECC is a new chapter that was not included in the 2012 IECC. Chapter 5 of the 2018 IECC addresses energy use and efficiency requirements for existing buildings. Minnesota State Building Code requirements only apply to existing buildings undergoing renovation. The

¹³ 43 S.R. 276 (Aug. 27, 2018).

requirements for existing buildings undergoing renovation are located in Minnesota Rules, Chapter 1311, Minnesota Conservation Code for Existing Buildings. The proposed rule instead mandates the application of commercial energy chapter 6 of the 2018 IECC. Chapter 5 of the 2012 IECC was on referenced standards. That topic has been moved to chapter 6 of the 2018 IECC. It is therefore reasonable to mandate chapter 6 instead of chapter 5 of the 2018 IECC.

Subp 3. References to administration. This subpart is amended for clarification and to reference the 2018 edition of the IECC. Chapter 1 of the IECC is not incorporated by reference and therefore does not need to be deleted. Instead, references to chapter 1 of the IECC and to code administration are replaced by Minnesota's administrative provisions, chapter 1300. The rule needs to refer to the 2018 edition of the IECC because the proposed rule incorporates by reference chapters from that edition.

1323.0020 REFERENCES TO OTHER INTERNATIONAL CODE COUNCIL (ICC) CODES.

This rule part is amended to add commonly used abbreviations for various model codes that are referred to in the IECC. Specifically, in subpart 2, IBC is added because it is used as an abbreviation for the International Building Code. In subpart 3, IRC is added because it is used as an abbreviation for the International Residential Code. In subpart 6, IMC is added because it is used as an abbreviation for the International Mechanical Code.

1323.0100 ADMINISTRATION FOR COMMERCIAL ENERGY CODE.

Subpart 4. Change of occupancy or use. The references to table and section numbers are revised to coordinate with numbering changes made in the 2018 IECC.

Subp. 6. Compliance. This subpart is amended to clarify that the amendments to the residential provisions of the IECC are located in Minnesota Rules, Chapter 1322 and the amendments to the commercial provisions are located in this chapter. This amendment is reasonable because it clarifies to code users and designers that the residential provisions are amended in a different rules chapter. This is helpful for designers from other states who may not be familiar with the organization of the Minnesota State Building Code.

Subp. 9. Low-energy buildings. Repeal. This subpart is repealed because similar requirements for low-energy buildings are located in Section C402.1.1 of the 2018 IECC. The only substantive difference is that Section C402.1.1 of the 2018 IECC exempts greenhouses, which are not exempted in current subpart 9. It is reasonable to exempt greenhouses because they do not have a thermal envelope; they rely on radiant heat from sunlight and radiant energy. Therefore, this subpart is no longer needed.

Subp. 10. Information on construction documents. This subpart requires code users to include details on construction documents so building officials can verify that the project complies with energy use and conservation requirements. The language is revised to clarify that the code user must provide any of the listed details applicable to the construction project. The current text has caused confusion because some designers have not included all details applicable to their projects on construction documents.

The applicable details are re-formatted as a list of subitems for ease of use by both designers and building officials. Subitems G, L, and N are new details. Subitem G is added because Section C403.2.10.2 of the 2012 IECC and Section C403.8.2 of the 2018 IECC require fan brake horsepower to be included on construction documents; however, fan brake horsepower is often not included on construction documents because it is not listed in this subpart. For consistency with the exception to Section C403.8.2 of the 2018 IECC, the fan brake horsepower is only required for fan motors that are 1 horsepower or greater. The addition of subitem G to this subpart will ensure that designers include fan brake horsepower on construction documents.

Subitem L is added because Section C103.2, Information on construction documents, requires that the location of daylight zones is provided on construction documents. Section C103.2 is a part of Chapter 1 of the 2018 IECC commercial energy provisions, and Chapter 1 is not incorporated by reference. *See* Minnesota Rules part 1323.0010, subpart 1. The addition of subitem L is reasonable because the building official needs to know the location of daylight zones to properly evaluate lighting controls. Subitem L also requires that provisions for the functional testing of lighting controls are included on construction documents. Section C408.3 requires functional testing of lighting controls to ensure they work in accordance with the design provided on construction documents. It is therefore reasonable to include information about the functional testing on the construction documents.

Subitem N is added so designers and builders are aware that the building official can request additional details necessary to determine whether the work will conform to code requirements. A request for additional details by a building official can help ensure that designers and builders comply with code requirements before construction begins, which avoids costly changes at the end of the project.

Finally, several grammatical changes are made to subitem M. These are needed for grammatical parallelism and do not substantively modify the code. These changes are reasonable because they will provide clarity.

1323.0202 SECTION C202, GENERAL DEFINITIONS.

A. Definitions contained in this subsection modify the definitions in section C202 of the IECC.

Building thermal envelope. This definition is deleted because the definition for “building thermal envelope” in the 2018 IECC has been revised and is similar to the definition in this rule part. The current rule lists “air barrier,” which is not listed in the 2018 IECC. The 2018 IECC lists “ceilings,” which is not listed in the current rule. However, because both “air barriers” and “ceilings” provide a boundary between conditioned space and exempt or unconditioned space, both of these types of barriers would be included in both the current rule and the 2018 IECC definition of “building thermal envelope.” It is reasonable to delete the current definition from this rule part and use the definition in the IECC for consistency and ease of use.

Computer room. This definition corrects the 2018 IECC definition. The IECC definition states that a computer room “has a design electronic data equipment power density of less than 20 watts per square foot” or “a connected design electronic data equipment load of less than 10

kW.” The definition is modified to replace “less than” with “greater than” in both instances. This is necessary because computer spaces contain extensive computer equipment and are designed with watt densities exceeding 20 watts per square foot. The proposed change will ensure that computer rooms are designed to the correct parameters.

Infiltration. The words “infiltration means” are added to the beginning of this definition for consistency with the structure of the other definitions.

U-factor (thermal transmittance). This definition modifies the IECC definition. The difference between the IECC definition and the proposed definition relates to air films. The U-factor is the rate of heat loss. An air film is a layer of still air adjacent to the surface that provides some thermal resistance, and therefore has some insulating properties that prevent heat loss. The IECC definition calculates the U-factor by looking at the difference between the warm side and cold side air films. The proposed definition calculates the U-factor by looking at the difference between the warm side and cold side of the building component or assembly, inclusive of the inside and outside air films. It is reasonable to require the calculation of the U-factor to include the inside and outside of air films because air has some insulating properties that affect the calculation of the U-factor. The proposed change clarifies the calculation of the U-factor so designers and building officials can correctly verify that the design complies with code requirements.

B. Because two of the definitions in this subsection are deleted (see below), only one remaining additional definition is needed: the definition of “code.” Therefore, the introductory phrase of this subsection is amended.

Continuous insulation. The definition of “continuous insulation” is deleted from this rule part because the definition of “continuous insulation” is included in Section C202 of the 2018 IECC. There are no substantive differences between the definition of “continuous insulation” in the current rule and the definition in the 2018 IECC. The current rule definition is therefore unnecessary.

Roof replacement. The definition of “roof replacement” is deleted from this rule part because the definition for “roof replacement” is included in the Section C202 of the 2018 IECC. There are no substantive differences between the definition of “roof replacement” in the current rule and the definition in the 2018 IECC. The current rule definition is therefore unnecessary.

1323.0303 SECTION C303, MATERIALS, SYSTEMS, AND EQUIPMENT.

IECC section C303.1, Identification. The last sentence of this rule part is modified for clarity. There is no substantive change.

1323.0402 SECTION C402, BUILDING ENVELOPE REQUIREMENTS.

Subpart 2. IECC section C402.4.1.1, Air barrier construction. Repeal. This subpart is being repealed because the requirements for air barrier construction in Section C402.5.1.1 of the 2018 IECC are similar to the requirements in the current rule. The current rule directs code users to a different section, C402.4.2 of the 2018 IECC, for requirements for sealing air barrier penetrations. The 2018 IECC now incorporates the requirements for sealing air barrier

penetrations in the section addressing air barrier construction. The only difference between the 2012 IECC and 2018 IECC requirements for sealing air barrier penetrations is that the 2018 IECC provides additional guidance for the sealing of air barrier penetrations caused by fire sprinklers. The additional guidance for the sealing of air barrier penetrations caused by fire sprinklers will help improve a building's thermal performance by ensuring that another penetration where air may leak from the building is properly sealed.

Subp. 3. IECC section C402.4.5.1, Stairway and shaft vents. Repeal. This subpart is being repealed because the 2018 IECC has been revised to include the damper requirements for stairway and shaft vents in Section C403.7.7, Shutoff dampers (mandatory). The proposed amendment of section C403.7.7 of the 2018 IECC is discussed below in connection with proposed rule 1323.0403, subp. 9.

Subp. 4. IECC section C402.4.5.2, Outdoor air intakes and exhausts. Repeal. This subpart is being repealed because requirements for outdoor air intake and exhaust are included in Section C403.7.7 of the 2018 IECC, Shutoff dampers (mandatory). The proposed amendment of section C403.7.7 of the 2018 IECC is discussed below in connection with proposed rule 1323.0403, subp. 9.

1323.0403 SECTION C403, BUILDING MECHANICAL SYSTEMS.

Subpart 1. IECC section C403.1.1, Calculation of heating and cooling loads. The section references are renumbered because those sections are renumbered in the 2018 IECC. The first sentence of this subpart is also modified to clarify that Table C403.1.1 is added. The language of section C403.1.1 is amended to match the language in Section C403.1.1 of the 2018 IECC. The proposed rule is the same as Section C403.1.1 of the 2018 IECC, with one exception: the first sentence of Section C403.1.1 refers to Chapter 3 while the first sentence of the proposed rule refers to Table C403.1.1. There is no Table C403.1.1 in the 2018 IECC. For clarity and ease of reference, it is reasonable to refer the reader to the specific climate data design conditions effective in Minnesota, which are in Table C403.1.1. (Because the section has been renumbered, the table also needs to be renumbered.)

Subp. 2. IECC section C403.4.1.4, Heated or cooled vestibules (mandatory). The current language modifying provisions for equipment and system sizing is deleted because it is outdated. This language is no longer needed because of national standards addressing the oversizing of equipment.

The proposed rule is the same as Section C403.4.1.4 of the 2018 IECC with the exception of two temperatures in the rule. The proposed rule requires the heat source to the vestibule to shut down when the outdoor temperature is greater than 60 degrees Fahrenheit, instead of greater than 45 degrees Fahrenheit. Also, the proposed rule permits the vestibule to be heated to a maximum of 68 degrees Fahrenheit instead of a maximum of 60 degrees Fahrenheit. Vestibules are walk-through spaces that provide a buffer between the outdoor air and the heated interior of a building. Vestibules that are only heated when the outdoor air temperature is below 45 degrees and are only heated to a maximum temperature of 60 degrees Fahrenheit will permit more cold air to enter the building. As a result, the reception area of the building will be colder and more energy will be expended to heat the interior of the building. The proposed amendment will not

increase or decrease overall energy use but will make the building more comfortable, especially in reception areas.

Subp. 2a. IECC section C403.4.1.5, Hot water boiler outdoor temperature setback control (mandatory). This new subpart is added to modify Section C403.4.1.5 of the 2018 IECC by adding an exception. Section C403.4.1.5 requires the temperature of boiler water to be lowered based on the outdoor temperature in certain situations. The exception would permit boiler systems used for service water heating to maintain a constant water temperature rather than lowering the water temperature based on the outdoor temperature. This exception is necessary because: (1) hot water will get to the faucet faster, to avoid wasting cold water before it becomes hot; and (2) maintaining a constant water temperature prevents a hotter temperature that has the potential for scalding the user.

Subp. 3. IECC section C403.4.2.1, Thermostatic setback. The section reference number and heading are changed to correspond to changes in the 2018 IECC. The minimum cooling setpoint for thermostatic controls is changed from 90 degrees Fahrenheit to 85 degrees Fahrenheit, which is consistent with the cooling setpoint in Section C403.4.2.1 of the 2018 IECC. This means the thermostatic controls used to control cooling must maintain a temperature of 85 degrees Fahrenheit or higher when a space is unoccupied. An unoccupied space can still have a cooling setpoint of 90 degrees Fahrenheit or higher but the proposed change permits the cooling setpoint to be a lower temperature where necessary to prevent high humidity in a space.

Subp. 4. IECC section C403.4.3.3.2, Heat rejection. The existing language is deleted because the requirements for freeze protection and snow melt system controls have been revised in the 2018 IECC and relocated to Sections C403.12.3 and C403.12.2, respectively. The requirements of Sections C403.12.3 and C403.12.2 are substantively the same as the existing requirements in rule; therefore, the amendments are no longer needed.

The proposed amendments to subpart 4 modify item 3 of Section C403.4.3.3.2 so that it applies to closed-circuit towers as well as open-circuit towers. The modifications to item 3 are necessary because closed-circuit towers can be used for the same purposes as open-circuit towers. The rest of the proposed rule is identical to Section 403.4.3.3.2 of the 2018 IECC. Because the exception in the IECC is listed after item 3 in the 2018 IECC, a sentence is added to clarify that the exception is not changed.

Subp. 5. IECC Section C403.4.3.3.3, Two-position valve. The current language in subpart 5 is relocated to proposed subpart 7, with amendments discussed below. Proposed subpart 5 is identical to subpart 13 of the current rule. This language is moved to subpart 5 to maintain the numerical order of the amendments to subsections of IECC Section C403.

Subp. 6. IECC section C403.6.5, Supply-air temperature reset controls. The current language in subpart 6 is moved to proposed subpart 8, and is discussed below. Proposed subpart 6 is a revised version of the language in current subpart 14. The requirements regarding supply-air temperature reset controls have been moved to subpart 6 to maintain numerical order consistent with the renumbering of the model code sections. The language of proposed subpart 6 is identical to the language in current subpart 14 except that the IECC section has been renumbered from C403.4.5.4 to C403.6.5.

Subp. 7. IECC section C403.7.4, Energy recovery ventilation systems. The current language in subpart 7 is relocated to proposed subpart 11a, with amendments discussed below. Proposed subpart 7 is a revised version of the language in current subpart 5. The requirements regarding energy recovery ventilation systems have been moved to subpart 7 to maintain numerical order consistent with the renumbering of the model code sections.

Subp. 8. IECC Table C403.7.4 Exhaust air energy recovery. The current language in subpart 8 is relocated to proposed subpart 12a, with amendments discussed below. Proposed subpart 8 was moved from current subpart 6. Current subpart 6 changes the title of a table. Because related tables in the 2018 IECC are proposed for replacement as discussed below, the current language in subpart 6 is no longer needed.

Proposed subpart 8 contains a table that replaces Tables C403.7.4(1) and C403.7.4(2) of the 2018 IECC with proposed Table C403.7.4. The 2018 IECC has two tables with different energy recovery requirements depending on the number of hours per year the ventilation system operates. Proposed Table C403.7.4 provides simplified, cost-effective, energy recovery requirements that apply to all ventilation systems regardless of the number of hours the ventilation system operates. The energy recovery requirements in proposed Table C403.7.4 are the requirements in 2012 IECC Table C403.2.6, with modifications to clarify code requirements for low airflow and to eliminate climate zones that are not applicable to Minnesota.

The proposed rule deletes Tables C403.7.4(1) and C403.7.4(2) of the 2018 IECC. Table C403.7.4(1) applies to ventilation systems operating less than 8,000 hours per year and Table C403.7.4(2) applies to those operating 8,000 or more hours per year. Both tables include many climate zones that do not apply to Minnesota. All counties in Minnesota are either in zone 6A or zone 7. *See* Table C301.1 of the 2018 IECC. In climate zones 6A and 7, both Table C403.7.4(1) and Table C403.7.4(2) of the 2018 IECC require ventilation systems to be equipped with an energy recovery system when the percentage of outdoor air at full design air rate is between 10 percent and 29 percent. Energy recovery systems recover energy used by the ventilation system to cool, heat, humidity, or de-humidify outdoor air. A ventilation system with lower outdoor airflow has little energy to recover because less air is conditioned. The modest savings that an energy recovery system provides to systems with lower outdoor airflow does not justify the cost of an energy recovery system, which can be from \$37,000 to \$96,000 depending on the size of the system, according to an industry expert on the TAG. Both tables also require an energy recovery system at a low design supply fan airflow rate where the percentage of outdoor air at full design airflow rate is more than 50 percent in climate zones 6A and 7. However, due to Minnesota's cold climate conditions, particularly in the northern part of the state located in climate zone 7, there is energy that can be recovered at lower design supply fan airflow rates. The energy recovery requirements in Tables C403.7.4(1) and C403.7.4(2) are not cost effective for ventilation systems with a low percentage of outdoor air at full design air rate and are not sufficiently energy efficient for ventilation systems in northern Minnesota with a high percentage of outdoor air at full design airflow rate.

Proposed Table C403.7.4 is 2012 IECC Table C403.2.6 with modifications to clarify code requirements and eliminate climate zones not applicable to Minnesota. The rows for climate zones 3B, 3C, 4B, 4C, 5B; 1B, 2B, 5C; and 6B are deleted because Minnesota is located in climate zones 6A and 7. Columns are added for 10 to 20 percent and 20 to 30 percent outdoor air

at full design airflow rate to clarify that there is not a requirement for an exhaust energy recovery system. This is reasonable because for ventilation systems with less than 30 percent outdoor airflow, there is little energy for the system to recover; therefore, an energy recovery system is an unnecessary expense. Energy recovery systems continue to be required for ventilation systems with a high percentage of outdoor air at full design airflow rate where there are low design supply fan airflow rates. Finally, a method of conversion from United States Customary Units to the International System Units is provided for consistency with the conversion method in the 2018 IECC. It is reasonable to provide a method for ease of use when converting table values to the International System Units.

Subp. 9. IECC section C403.7.7, Shutoff dampers (mandatory). The current language of subpart 9 regarding protection of piping insulation is relocated to subpart 15, as discussed below. Proposed subpart 9 amends the exception to section C403.7.7 of the 2018 IECC, so that nonmotorized gravity dampers are permitted instead of motorized dampers for certain exhaust and relief openings. The language of the proposed exception deletes the following item from the itemized list in the exception: “In buildings of any height located in Climate Zones 1, 2 or 3.” This language is not applicable in Minnesota because Minnesota is located in climate zones 6A and 7.

The proposed rule also changes the paragraph after the itemized list by providing two alternative requirements for nonmotorized dampers. The following language from the model code is comparable to the language in item 1 (the first alternative) of the proposed rule:

Nonmotorized gravity dampers shall have a maximum air leakage rate of not greater than 20 cfm/ft² (101.6 L/s • m²) where not less than 24 inches (610 mm) in either dimension and 40 cfm/ft² (203.2 L/s • m²) where less than 24 inches (610 mm) in either dimension. The rate of air leakage shall be determined at 1.0 inch water gauge (249 Pa) when tested in accordance with AMCA 500D for such purpose.

The model code requires all of these nonmotorized gravity dampers to be tested for air flow leakage. The proposed rule adds a second alternative (item 2); proposed item 2 does not require this testing for an exhaust duct 8 inches in diameter or smaller that is equipped with a spring-loaded backdraft damper and a weather hood at the point of discharge. This language regarding ducts 8 inches or smaller is in the current rule, part 1323.0402, subp. 4 (exception number 3).

Subp. 10. IECC section C403.9.4, Tower flow turndown. The existing language modifying Section C403.2.10.1 of the 2012 IECC is deleted because allowable fan motor horsepower is now addressed in Section C403.8.1 of the 2018 IECC. Because the 2018 IECC includes requirements comparable to the requirements in current subpart 10, the current language is deleted.

The proposed amendment modifies Section C403.9.4 of the 2018 IECC to add an exception permitting an increase in the water flow rate in open-circuit cooling towers during freezing conditions to prevent excessive ice buildup on the tower. Ice buildup can damage the tower and other equipment and is hazardous to maintenance technicians. The proposed

amendment is reasonable because Minnesota's climatic conditions can cause damaging and hazardous ice to build up on cooling towers.

Subp. 11. IECC Table C403.2.10.1(2) Fan power limitation pressure drop adjustment. Repeal. The current language in subpart 11 (current Table C403.2.10.1(3)) is no longer needed because Table C403.8.1(2) of the 2018 IECC contains similar requirements.

Subp. 11a. IECC section C403.11.1, Duct and plenum insulation and sealing. The proposed language in subpart 11a is the same as the language in current subpart 7 regarding duct and plenum insulation and sealing (current section C403.2.7), except for the following:

1. The section number has been changed to C403.11.1 because of the renumbering of the model code.
2. The cross-references to the Table and subpart have been changed because of the renumbering of the model code and change in subpart number.
3. In the last sentence, the reference to a specific section in the International Mechanical Code has been removed because section numbers often change with the amendment of the International Mechanical Code. Eliminating the specific reference may avoid the future need for amendment or future confusion when the section number changes.

Subp. 12. IECC section C403.4.2.1 Static pressure sensor location. Repeal. The current language in section 12 regarding static pressure sensor location is no longer needed because Section C403.6.9 of the 2018 IECC has clearer requirements for the location of the static pressure sensors.

Subp. 12a. IECC Table C403.11.1, Minimum required duct and plenum insulation. Proposed Table C403.11.1 is the same as current Table C403.2.7 in current subpart 8, except for the following:

1. The table number is changed because of the renumbering of the model code.
2. The insulation requirements for exterior ducts and ducts located in unconditioned spaces (attics, garages, and ventilated crawl spaces) are modified for consistency with Section C403.11.1 of the 2018 IECC. Specifically, the minimum insulation R-value is increased from R-8 to R-12 for exterior ducts and ducts in unconditioned spaces. The 2018 model code requires insulation with a minimum R-value of R-12 in Minnesota's climate zones (6A and 7). Insulation with an R-12 rating better resists heat flow than insulation with an R-8 rating, and can improve the building's use of energy and reduce energy costs.
3. In footnote "c," the reference to a specific section in the International Mechanical Code has been removed because section numbers often change with the amendment of the International Mechanical Code. Eliminating the specific reference may avoid the future need for amendment or future confusion when the section number changes.
4. Footnote "f" is modified to clarify how to determine the extent of insulation needed to reduce the temperature of the supply ducts. There are no changes to the requirements for duct insulation; the modification to the footnote merely clarifies that sufficient insulation must be provided for the supply duct to limit the temperature rise to 3 degrees Fahrenheit.

Subp. 13. IECC section C403.11.2, Duct construction (mandatory). As previously discussed, the language in the current subpart 13 regarding two-position valves was amended and

moved to subpart 5. The proposed language in subpart 13 regarding duct construction is the same as current sections C403.2.7.1 through C403.2.7.1.3 in subpart 7, except for the following:

1. The section numbers have been changed because of the renumbering of the model code.
2. Proposed sections C403.11.2, C403.11.2.1, and C403.11.2.2 each add a reference to chapter 1346, for the convenience of the reader.
3. The cross-reference in proposed sections C403.11.2.2 and C403.11.2.3 has been changed because of the renumbering of the model code.
4. The equation number in proposed section C403.11.2.3 has been changed for consistency with the numbering of equations in the 2018 IECC.

Subp. 14. IECC Table C403.11.3, Minimum pipe insulation thickness. The proposed language in subpart 14 modifies Table C403.11.3 to add Footnote “d.” Footnote “d” clarifies that insulation is not required for piping that is a part of the radiant heating system. The heat transmitted by the pipes in a radiant heating system heats a space, so insulation of the pipes would make the system ineffective and inefficient. The proposed amendment provides necessary clarification to ensure the proper functioning of radiant heating systems.

Subp. 15. IECC section C403.11.3.1, Protection of piping insulation. This language in this subpart is identical to the language in current subpart 9, except that the section has been renumbered because of the renumbering of the model code.

1323.0404 SECTION C404, SERVICE WATER HEATING (MANDATORY).

This subpart is amended to reflect numbering changes in the model code. The proposed rule does not change the current code requirement that a vapor-retardant cover is required for all pools and spas, unless the exception applies. The amendment to the current rule is only an amendment to the exception. The exception is modified to increase the percentage of site-recovered energy from 70 percent to 75 percent, so that a pool receiving 75 percent of energy for heating from site-recovered energy is not required to have a cover. This modification is reasonable because it is consistent with the percentage in the 2018 IECC.

Reliance on the exception is not required, of course. The vapor-retardant cover continues to be the most cost effective and commonly used option in Minnesota because covers prevent evaporation of water in the pool or spa. When evaporation occurs, the owner of the pool or spa incurs costs to add fresh water and to heat that water. For those wishing to use the site-recovered energy option to heat a pool or spa, there would be a cost increase for additional equipment such as an additional solar panel or extra piping in order to comply with the exception.

1323.0405 SECTION C405, ELECTRICAL POWER AND LIGHTING SYSTEMS.

Repeal.

This rule part is being repealed for consistency with the Minnesota Electrical Code. The 2018 IECC is silent regarding “conductor sizing; voltage drop.” Therefore, there is no language in the 2018 IECC that needs to be deleted or amended. It is reasonable to leave the issue of conductor sizing/voltage drop to the Minnesota Electrical Code. Minnesota adopts the National Electrical Code (*see* Minn. Rule 1315.0200). The National Electrical Code (“NEC”) contains

recommendations, not requirements, to adjust for voltage drop when sizing conductors. *See* NEC Informational Notes to sections 210.19(A), 215.2(A)(4), and 310.15(A)(1). Specifically, the NEC recommends that the maximum combined voltage drop for both the feeder and branch circuit should not exceed 5%, and the maximum on the feeder or branch circuit should not exceed 3%. This recommendation is a performance issue, not a safety issue. Because this is addressed in the NEC, it is reasonable to repeal rule 1323.0405.

1323.0408 SYSTEM COMMISSIONING.

Subpart 1. IECC section C408.2, Mechanical systems and service water heating systems commissioning and completion requirements. This subpart is modified for consistency with 2018 IECC by adding commissioning and completion requirements for plumbing systems. To that end, the section heading is modified to add “service water heating systems” and the first sentence is modified to add “plumbing inspections.” The word “passing” is not needed because by definition, an inspection is not “final” unless the system passes the inspection.

The subpart is also modified to match a provision in the model code permitting the owner’s authorized agent to accept the construction documents. It is reasonable to permit the building owner’s authorized agent to receive the documents since that individual may be more involved with the day-to-day maintenance and operations of the building than the owner.

A cross-reference is amended because of the renumbering of the model code.

Finally, the last sentence is added to clarify that subsections C408.2.1 through C408.2.5.2 are not amended.

Subp. 2. IECC Section C408.2.2.1, Air systems balancing. Repeal. This subpart is being repealed because the 2018 IECC now contains similar language with the same substantive requirements for air systems balancing. Therefore, this subpart is no longer necessary.

EFFECTIVE DATE.

Amendments to the Minnesota State Fire Code (chapter 7511) and the following chapters of the building code are being proposed to be effective simultaneously: chapters 1300, 1305, 1307, 1309, 1311, 1323, 1341 and 1346. It is important that amendments to these chapters be effective at the same time because these chapters overlap and all work together. For example, chapter 1300, the Minnesota Administrative Code, contains procedures relating to the administration and enforcement of all the other codes, except the Minnesota State Fire Code, chapter 7511. *See, e.g.*, proposed rule 1323.0010, subp. 3. The Minnesota State Fire Code overlaps with chapter 1305, the Minnesota Building Code. *Compare, e.g.*, Minn. R. 1305.0903 to 1305.0912 *with* Minn. R. 7511.0903 to 7511.0912. The chapters all cross-reference each other. For example, the IECC and the proposed amendments to chapter 1323 cross-reference chapters 1305, 1309 and 1346 (see proposed rules 1323.0020, subparts 2, 3, 5 and 6; 1323.0403, subparts 7 and 11a). Chapter 1305 cross-references not only the fire code but also chapter 1300 (*see* part 1305.0011 and the proposed definition of “historic buildings” in proposed part 1305.0202), chapter 1341 (*see* part 1305.0011, subp. 2 and current rule 1305.1017, to be renumbered 1305.1018), and chapter 1346 (*see* proposed amendment to definition of “alternating tread device” in 1305.0202, proposed rule 1305.0717, subp. 3, proposed rule 1305.0903, subp. 1d, proposed rule 1305.1011, subp. 2, proposed rule 1305.1015, subp. 2a, and proposed rule 1305.1202). Regulations for elevators and conveying systems are being proposed to be moved from chapter 1307 to chapter 1305. Specifically, the current chapter 1307, Elevators and Related Devices, amends the requirements in chapter 30 of the 2012 International Building Code governing elevators and conveying systems. *See* Minn. R. 1307.0095. The proposed chapter

1307 would repeal this part while the proposed chapter 1305 would include amendments to chapter 30 of the 2018 IBC.

Because of the coordination of the fire code and the building code chapters listed above, the commissioner finds that it is necessary for public health and safety that the amendments to the fire code and all chapters of the building code being amended become effective on the same date. If amendments were effective on different dates, there would be inconsistent and in some cases contradictory rules in effect. This would cause confusion as well as potential health and safety problems.

Not only do the amendments to all of these chapters need to be effective simultaneously, but the amendments also need to be effective as soon as possible. Under Minnesota Statutes, section 326B.13, subdivision 8, a rule to adopt or amend the state building code is effective 270 days after publication of the notice of adoption in the State Register. However, the statute allows the Commissioner of Labor and Industry to set an earlier effective date if the commissioner finds that an earlier 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.

The commissioner finds that it is necessary for public health and safety that the chapters of the building code being amended, as well as amendments to the fire code, become effective as soon as possible. There are many provisions in these chapters that will result in improved public safety. One important example is the regulation of carbon monoxide detection. The proposed chapter 1305 adopts the 2018 IBC; section 915 of the 2018 IBC expands and details the requirements for carbon monoxide detection. Similarly, the proposed chapter 7511 adopts the 2018 International Fire Code; section 915 of the 2018 IFC also expands and details the requirements for carbon monoxide detection. The proposed chapter 1309 adopts the 2018 International Residential Code; section 35 of the 2018 IRC expands and details the requirements for carbon monoxide detection. The proposed chapter 1311 adopts the 2018 International Existing Building Code; sections 503, 804 and 1105 of the 2018 IEBC include new requirements regarding carbon monoxide detection.

The commissioner has determined that March 31, 2020, is the earliest date when all the chapters could be effective, given the large amount of work in amending all of these chapters. In selecting March 31, 2020, or five days after the publication of the notice of adoption, as the effective date for all of these chapters, the commissioner has considered the need for time for training of individuals to comply with and enforce the rules. The model code books have been available since the fall of 2017, despite the edition date of 2018. Many regulated parties are already familiar with the model codes. However, the commissioner recognizes the need for time to train individuals on the Minnesota rules amending the codes.

The commissioner intends to publish the final rules on the department's website as far as possible before the March 31, 2020 date, and before the publication of the notice of adoption in the State Register. The commissioner also intends to begin offering training sessions to the regulated parties well before the effective date. Many regulated parties and building code officials responsible for enforcing the building code have been involved in the rule amendment process, and are therefore aware of the proposed amendments. The additional notice plan for all

of these rules also ensures that regulated parties are aware of the proposed rules. The commissioner recognizes that, if the rules are to be effective 5 days after publication of the notice in the State Register, it may be necessary to delay that publication so that all of the rule amendments are ready at the same time. However, the commissioner will post the amended rules on its website and begin training before publication of the notice of adoption.

CONCLUSION

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

9/3/2019
Date

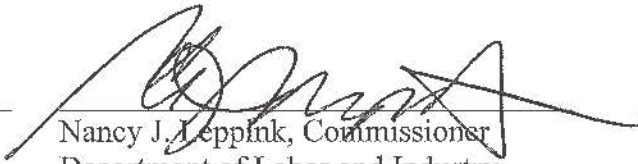

Nancy J. Leppink, Commissioner
Department of Labor and Industry

EXHIBIT A

Energy Code Technical Advisory Group Members

Don Sivigny, TAG Lead, Department of Labor and Industry

Chris Meier, TAG Co-Lead, Department of Labor and Industry

Ann Jacklitch, Association of Minnesota Building Officials

Ed Von Toma, Builders Association of Minnesota

Ross Anderson, Builders Association of the Twin Cities-Housing First

John Smith, American Society of Heating, Refrigerating, and Air-Conditioning Engineers

Russ Landry, Center for Energy and Environment

Ben Rabe, Fresh Energy

EXHIBIT B

Construction Codes Advisory Council Members

Scott McLellan, Department of Labor and Industry Commissioner's Designee/Chair

Jim Smith, Department of Public Safety Commissioner's Designee

Scott Novotny, Board of Electricity

Patrick Higgins, Certified Building Official

Ken Hinz, Commercial Building Industry

Thomas Erdman, Commercial Building Owners/Managers

Laura McCarthy, Fire Marshal

Todd Gray, Heating and Ventilation Industry

Gerhard Guth, Licensed Architect

Thomas Downs, Licensed Professional Engineer

Mike Paradise, Licensed Residential Building Industry

Jennifer DeJournett, Local Units of Government

Mark Brunner, Manufactured Housing Industry

Dan McConnell, Minnesota Building and Construction Trades Council