Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing Adoption of the 2018 International Residential Code, Minnesota Rules, Chapter 1309; Revisor's ID Number R-04510

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 1309, the Minnesota Residential Code. *See* Minnesota Rules, part 1300.0050.

The Commissioner proposes to adopt amendments to the Minnesota Residential Code, Minnesota Rules, Chapter 1309. The proposed rules will incorporate by reference the 2018 International Residential Code ("IRC"), with amendments.

The International Code Council ("ICC") publishes the IRC. 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 IRC establishes the minimum standards of construction for one-family dwellings, two-family dwellings, and townhouses that are no more than three stories above ground level.[1]

The IRC is founded on broad-based principles that make possible use of new materials, methods, and building designs. The IRC principles are intended to establish provisions that are consistent with the scope of a residential code that adequately protects the public health, safety, and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

The current chapter 1309 adopts and amends the 2012 edition of the IRC. *See* Minnesota Rules, part 1309.0011, subp. 1. Accordingly, the Department currently administers and enforces the 2012 edition of the IRC with amendments as contained in Minnesota Rules, chapter 1309. Although the ICC published a 2015 edition of the IRC, the Department did not adopt the 2015 edition of the IRC 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]

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[1] One-family dwellings, two-family dwellings, and townhouses that are four stories or more above ground level must be constructed to the requirements of the International Building Code ("IBC"). *See* Minnesota Rules, part 1300.0040, subpart 2. Other residential buildings that contain multiple units, such as apartment buildings and boarding houses, must be constructed to the requirements of the IBC. A complete list of buildings used for residential purposes that are required to comply with the IBC can be found in Minnesota Rules, part 1305.0310 (2018).

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

Minnesota Statutes, section 326B.106, subdivision 1, requires the Department to consult with the Construction Codes Advisory Council ("CCAC") in adopting amendments to the Minnesota State Building Code. The Department has consulted with the CCAC in connection with this rulemaking. This consultation is discussed in detail on page 4 of this SONAR.

In consultation with the CCAC, the Department utilized a Technical Advisory Group ("TAG") committee to review the 2018 edition of the IRC and existing rule Chapter 1309 to propose reasonable and necessary amendments to the model code and existing chapter. TAG committee members were appointed by the CCAC to review and comment upon the 2018 ICC model codes and proposed changes to the Minnesota State Building Code. The Chapter 1309 TAG consisted of representatives from the Association of Minnesota Building Officials, Builders Association of Minnesota, Builders Association of the Twin Cities-Housing First, Greater Metropolitan Housing Corporation, and Department personnel.[3] The proposed amendments in this rulemaking incorporate changes to the 2018 IRC proposed by the Chapter 1309 TAG.[4]

To review requirements for foundations and exterior decks attached to dwellings, the Department used a Structural Technical Advisory Group ("Structural TAG"). The Structural TAG was also appointed by the CCAC, and consisted of representatives from the Association of Minnesota Building Officials, Builders Association of the Twin Cities-Housing First, Builders Association of Minnesota, the Minnesota Structural Engineering Association, and Department personnel.[5] The Structural TAG evaluated the structural provisions of the 2018 I-Codes, including the IRC. The proposed amendments in this rulemaking incorporate changes reviewed by the Structural TAG.[6]

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,

[3] A complete list of the Chapter 1309 TAG participants is attached as Exhibit A.
[4] Chapter 1309 TAG meetings occurred on the following dates in 2018: January 24, February 9, February 23, and March 9 and 23. *See* Notes of Residential Building Code TAG meetings at http://www.dli.mn.gov/about-department/boards-and-councils/residential-building-code-technical-advisory-group-tag
[5] A complete list of the Structural TAG members is attached as Exhibit B.
[6] Structure TAG meetings occurred on the following dates in 2018: January 24, and February 7 and 21. See Notes of Structural TAG meetings at https://www.dli.mn.gov/about-department/boards-and-councils/structural-technical-advisory-group-tag

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 Residential Code, the Commissioner is responsible for all amendments to the Minnesota Residential 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:

> **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 Commissioner has the necessary authority to adopt the proposed rules.

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 the state building code. Minnesota Statutes, section 326B.07, subdivision 1, sets forth the requirements for membership of the CCAC.[7] 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 ICC model codes was submitted to the CCAC. As previously discussed, the CCAC appointed the members of the TAGs, including the 1309 TAG and the Structural TAG. Upon completion of the review of the rules and 2018 model codes by the TAGs, 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 IRC and chapter 1309. After review, the CCAC forwarded this report, with comments by the CCAC, to the Commissioner for consideration in proposing amendments to Chapter 1309.[8]

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 probably will be affected by the proposed rule include residential building contractors and builders, designers, certified building officials, materials manufacturers, fire service personnel, homebuyers, and homeowners.

Those that will bear the costs of the proposed rule include residential building contractors and builders, and homebuyers and homeowners to whom they will ultimately pass on the costs.

Persons who will benefit from the proposed rule include the general public as well as homebuyers, homeowners, and fire service personnel.

(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

[7] A complete list of the members of the Construction Codes Advisory Council is attached as Exhibit C.
[8] The report detailing the TAG review of the ICC model codes with comments from the CCAC regarding the proposed changes to the model codes is available at https://www.dli.mn.gov/sites/default/files/pdf/report062618.pdf.

The probable costs to the agency for the implementation and enforcement of the proposed rule include costs to purchase code books for agency staff. 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.

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. The adoption of this code will provide uniform application and enforcement of construction standards. The uniform application and enforcement of this code will result in more 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.

(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

Because the IRC serves as the base document for the Minnesota Residential Code and it is currently the only model residential building code that is generally accepted and in use in the United States, no alternative model code was considered.

(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

While some specific requirements of this rule may be considered more restrictive than the current rule, others will be less restrictive. For most affected parties, any increase in costs will be passed along to the homeowner or homebuyer. The cost to construct a new dwelling is difficult to ascertain due to fluctuations in current construction economy, material costs, and local labor costs. In general, the adoption of the 2018 IRC, and the proposed amendments, are not anticipated to significantly increase the cost of construction of new dwellings.[9]

The proposed rule does not require compliance for existing buildings, unless the buildings undergo certain modifications. The proposed rule will only apply to new construction

[9] Home Innovation Research Labs prepared a report entitled "Estimated Costs of the 2018 IRC Code Changes" for the National Association of Home Builders. Home Innovation Research Labs determined compliance with the 2018 IRC will increase the cost of construction for new dwellings located in coastal areas and areas with moderate to high risk of seismic activity. Minnesota is not in a coastal area and does not experience seismic activity; therefore, no significant costs are anticipated for compliance with the 2018 IRC. The report can be found at https://www.homeinnovation.com/~/media/Files/Reports/2018-IRC-Cost-Analysis.pdf.

or any addition, alteration, or repair to an existing dwelling. It is difficult to identify actual compliance costs associated with the construction of a new dwelling or remodeling of an existing dwelling. The costs associated with remodeling an existing dwelling are difficult to identify because these costs are dependent upon a building's design, use, age, and condition. The adoption of the 2018 IRC and the proposed amendments are not anticipated to increase the cost to remodel an existing dwelling.

The cost to construct a detached accessory building will increase because of the proposed rule. The 2018 IRC requires the installation of a water-resistive material to protect the exterior walls of detached accessory buildings, such as garages and sheds. Home Innovation Research Labs analyzed this code change to determine the costs for labor and materials to install a water-resistive barrier for a detached shed and detached garage. For a shed that is eight feet by eight feet in area and seven feet in height, the cost to the builder to install a water-resistive barrier is approximately $43 or $65, depending on the material used. This in turn costs the homeowner approximately $51 or $77. For a detached garage that is twenty-four by twenty-four feet in area and eight feet in height, the cost to the builder to install a water-resistive barrier is approximately $149 or $228, depending on the material used. This costs the homeowner approximately $178 or $271.[10] This modest cost increase is reasonable because the durability of detached sheds and detached garages will be improved by the installation of water-resistive barriers.

(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 IRC, with amendments, is currently applied and enforced in Minnesota. The family of ICC Codes is designed to work together as they reference other ICC codes within the body of each separate code book. 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 Codes. This is because the other 2018 ICC Codes reference sections in the 2018 IRC, and those references would be wrong in Minnesota where the section number or content changed from the 2012 IRC (currently applied in Minnesota) to the 2018 IRC.

Another consequence of not adopting the proposed rule would be using outdated materials and methods. Because current chapter 1309 is based on the 2012 version of the IRC, 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 1309 by not adopting the proposed rule would have a negative impact on the administration, safety, application and enforcement of Minnesota's residential building code provisions.

The costs associated with not adopting the proposed rule will likely be borne by homebuyers and homeowners, to whom the costs of purchasing outdated equipment and

[10] All of the costs described in this paragraph are from the report described in footnote 9 *supra*.

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 IRC, 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

The federal accessibility requirements in the Americans with Disabilities Act affect a limited number of townhouses regulated by this code: townhouses with four or more dwelling or sleeping units under one roof. The accessibility requirements are addressed in Minnesota Rules, chapter 1341, the Minnesota Accessibility Code. Proposed rule 1309.0320 refers readers to chapter 1341 for specific accessibility requirements. There are no other applicable federal regulations that address residential construction.

(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.

The Minnesota State Building Code 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.

The Department also develops the Minnesota Accessibility Code so that it incorporates the federal accessibility requirements to the extent they are applicable. When certain accessibility features are not required in Minnesota, our accessibility experts inform code users that although something is not required by the Minnesota Code, it may still be required federally and must be complied with.

The adoption cycle for most of the Minnesota State Building Code (including chapter 1309) occurs every six years[11] so the codes are current and reflect the most recent changes that occur federally and with other state agencies. For example, the federal Department of Energy implements federal requirements for energy in construction by working through the model code process; by basing Minnesota's rules on the same model codes, the cumulative effect is thereby eliminated. Department staff monitor any regulatory changes that occur federally and on a state level. Department staff also monitor code changes being proposed to the model building codes at the national level to ensure that the Minnesota State Building Code will not conflict with other building code regulations.

[11] *See* Minn. Stat. § 326B.106, subd. 1(c) (2018). Note that this does not apply to chapters in the state building code adopted by agencies other than the Department (such as chapter 4714, adopted by the Plumbing Board).

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.[12]

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 2018 IRC establishes minimum regulations for building systems using prescriptive and performance-based provisions. The proposed rules that contain amendments to the 2018 IRC incorporate the philosophy required by Minnesota Statutes, section 326B.106, subdivision 1.

ADDITIONAL NOTICE

This Additional Notice Plan was reviewed by the Office of Administrative Hearings and approved in an August 19, 2019, order by Administrative Law Judge Barbara J. Case.

Our Notice Plan includes giving notice required by statute. We will mail 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 building code rulemaking mailing list under Minnesota Statutes, section 14.14, subdivision la. We will also give notice to the Legislature as required by Minnesota Statutes, section 14.116.

Our Notice Plan also includes giving additional notice to associations and trade groups not required by statute. We will also mail or email the Dual Notice to the following interested parties:

1. All certified building officials involved in code administration. This list includes all municipal building officials responsible for administration of the Minnesota State Building Code;
2. Builders Association of Minnesota;
3. Association of Builders and Contractors;
4. Builders Association of the Twin Cities-Housing First;
5. Minnesota Association of Building Officials;

[12] 43 S.R. 273 (Aug. 27, 2018).

6. Fire Marshals Association of Minnesota;
7. Minnesota State Fire Chiefs Association;
8. Insurance Federation of Minnesota;
9. League of Minnesota Cities;
10. Minnesota Society of Professional Engineers;
11. Minnesota Board of Electricity;
12. Minnesota Plumbing Board;
13. American Institute of Architects -- Minnesota; and
14. Association of Minnesota Counties.

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 Laurena Schlottach-Ratcliff which provided general comments and concluded as follows:

> Because the costs associated with this rule change relate to new construction of one- and two-family homes, and buildings with three or more townhouses there should be no direct costs for local governments. However, local governments may 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."[13] 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 exceed $25,000 for any small business or small city. As previously discussed, the costs of compliance should be minimal. (See pages 5-6 of this SONAR.)

In the Request for Comments, the Department requested information on the 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.[14]

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;

2. 1309 Technical Advisory Group Members, if necessary; and

[13] 43 S.R. 273 (Aug. 27, 2018).
[14] 43 S.R. 273 (Aug. 27, 2018).

3. Structural Technical Advisory Group Members, if necessary.

RULE-BY-RULE ANALYSIS

GENERAL

Throughout this rule, references to the 2012 edition of the IRC are changed to 2018 because the Department is incorporating by reference the 2018 edition of the IRC.

1309.0010 ADOPTION OF THE INTERNATIONAL RESIDENTIAL CODE (IRC) BY REFERENCE.

Subpart 1. Generally. This rule subpart is amended by updating and replacing copyright information and permission that was provided by the International Code Council to the Department for incorporation of the 2018 IRC into this rule.

Subp. 1a. Deleted appendices. This subpart is added for clarification. This clarifies that the only IRC appendices being adopted are Appendix K and Appendix Q. Current subpart 2 specifies how Appendix K should be administered; the intent of the current code was that Appendix K was the only appendix adopted. The proposed rule also adopts Appendix Q for the reasons discussed in connection with proposed subpart 2 below.

Subp. 2. Mandatory chapters. The phrase "of chapter 29" is added for ease of reference. In both the current code and in the 2018 IRC, section P2904 is located in chapter 29.

IRC Appendix Q, Tiny Houses, is entirely new in the 2018 IRC. Appendix Q is added as a required mandatory appendix in Minnesota Rules, Chapter 1309, because it will ensure that tiny houses are properly constructed and contain necessary life-safety features. Appendix Q defines tiny houses as dwelling units having a floor area of 400 square feet or less. Tiny houses are an increasingly popular alternative to traditional housing options because of their perceived affordability and environmental benefits. Appendix Q requires tiny houses to be constructed to the provisions of the IRC while allowing for the creative utilization of space within the dwelling. Specifically, the requirements for ceiling heights, stairs, ladders, and loft spaces, are reduced for tiny houses in Appendix Q. Additionally, tiny houses are required to have an emergency escape and rescue opening in lofts used as sleeping rooms, which provides improved life safety for occupants.

Before the publication of the 2018 IRC, there were no uniform standards for tiny houses nationally or within Minnesota. As a result, building officials have inconsistently applied existing code provisions to tiny houses. The adoption of Appendix Q as a mandatory chapter will clarify requirements for tiny houses, which will result in more uniform application and enforcement of the code for dwellings that are less than 400 square feet in area.

Subp. 3. Replacement chapters. The first sentence is amended for clarity.

Clause A is amended for consistency with the language in Minnesota Rule 1309.0100, subp. 1, which is not proposed for amendment. Subpart 1 of part 1309.0100 states:

"Subpart 1. **IRC chapter 1.** IRC chapter 1 is deleted and replaced with the following:

CHAPTER 1

ADMINISTRATION

This code shall be administered according to Minnesota Rules, chapter 1300."

Because this replaces IRC chapter 1, it is reasonable to refer to this section in Clause A of part 1309.0010, subp. 3.

Clause D is amended to clarify that section P2904 in chapter 29 of the IRC is not deleted. This is consistent with subpart 2 of the current rule, which refers to section P2904.

Clause E is amended to clarify that section R315 regarding carbon monoxide alarms is not deleted. This is implicit in the current code, because current rule 1309.0315 amends section R315 in the 2012 IRC regarding carbon monoxide alarms. Clause E is amended for consistency with rule 1309.0315.

1309.0020 REFERENCES TO OTHER ICC CODES.

Subpart 1. Generally. The only amendment is the date of the IRC.

Subp. 7. Plumbing Code. This subpart is amended to provide the correct reference to the statutory authority for adoption of the Minnesota Plumbing Code.

1309.0100 CHAPTER 1, ADMINISTRATION

Subpart 3. Transient Use. This new subpart is added to specify that single-family dwellings, two-family dwellings, and townhouses constructed for transient use that are required to be licensed by the Minnesota Department of Health ("MDH") must be constructed to the specifications of Minnesota Rules, Chapter 1305, the Minnesota Building Code. The life-safety provisions for dwellings constructed for transient use are different from the life-safety provisions for dwellings intended for permanent or long-term use. For a dwelling to be licensed for transient use by MDH, it must comply with the Minnesota State Fire Code. Dwellings intended for transient use that are constructed in accordance with Minnesota Rules, Chapter 1305, comply with the Minnesota State Fire Code. This amendment clarifies that single-family dwellings, two-family dwellings, and townhouses intended for transient use must be built as specified by the Minnesota Building Code to be licensed by MDH. The proposed subpart is necessary so that dwellings constructed for transient use are built to the requirements of the correct code and will not require renovations following construction in order to be licensed by MDH.

1309.0202 SECTION R202, DEFINITIONS.

Subpart 2. Additional definitions. This subpart is modified by adding a definition for the term "approved." This definition is needed in chapter 1309 to coordinate the definition of "approved" with the other chapters of the Minnesota State Building Code. Building officials are authorized to allow some construction methods or materials that have been determined to be in

compliance with the Minnesota State Building Code. It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts between terms from one chapter to another.

The proposed definition of "approved" is the same as the current definition of "approved" in part 1300.0070, subp. 4a. This is reasonable because all chapters of the Minnesota State Building Code, including the Minnesota Residential Code, are administered using the provisions of chapter 1300. See current part 1309.0100, subp. 1, which is not proposed for amendment.

The definition of "transient" is added to subpart 2 to define the period of time that a dwelling can be occupied for its use to be considered transient. Transient use of dwellings is more fully described above in connection with part 1309.0100, subpart 3. The proposed definition of "transient" is identical to the definition in chapter 2 of the 2018 International Building Code ("IBC"). Current chapter 1305 adopts the 2012 edition of the IBC. This chapter is being proposed for amendment to adopt the 2018 IBC. The proposed amendments to chapter 1305 incorporate the definition of "transient" without amendment.

1309.0301 SECTION R301, DESIGN CRITERIA.

Subpart 2. IRC Table R301.2(1). This subpart is modified to ensure consistency with the 2018 IRC and to correct errors. The wind design methodology used in the 2012 IRC is basic speed wind design. The 2018 IRC has been revised to use ultimate wind speed. See section R301.2.1 of the 2018 IRC, which is not proposed for amendment. The table is modified to change the wind speed from the basic speed wind design of 90 mph to an ultimate wind speed of 115 mph. Basic wind design speed is calculated differently than ultimate wind speed so a basic wind design speed of 90 mph is similar to an ultimate wind speed of 115 mph. Therefore, dwellings will be built to withstand similar wind gusts and the change in wind design methodology does not affect the methods and means of construction.

Additional modifications are necessary to direct code users to the correct sources for temperature information. The current amendment erroneously directs the user to Minnesota Rules, Chapter 1323, the Minnesota Commercial Energy Code, for winter design temperature. The incorrect reference to energy requirements for commercial buildings is replaced with "1322" to direct the code user to Minnesota Rules, Chapter 1322, the Minnesota Residential Energy Code. Footnote "j" is deleted from the "Mean Annual Temp" heading and "41.16" is replaced with "See Footnote 'j.'" Footnote "j" directs the code user to a National Climatic Data Center data table containing the average mean temperature for a municipality or jurisdiction. This change is reasonable because 41.16 is not an accurate average mean temperature for all municipalities and jurisdictions in Minnesota.

In footnote "a," the reference to Figure R301.2(3) has been changed to Figure R301.2(4) because the weather probability map has been renumbered in the 2018 IRC.

Footnote "d" is amended to delete unnecessary language that directs the jurisdiction to complete the table with basic wind speed. The footnote is modified to direct the user to refer to the wind speed map. The wind speed map has been renumbered from Figure R301.2(4)A to R301.2(5)A in the 2018 IRC.

Footnote “e” is amended to delete the reference number to a specific table for climate data design conditions due to frequent changes to reference numbers in other I-codes adopted by Minnesota. An inaccurate reference number can confuse code users as to the location of the information. The proposed change directs the code user to Minnesota Rules, Chapter 1322, the Minnesota Residential Energy Code, for climate data design conditions.

Footnote “h” is amended to update the references to sections addressing ice dams due to numbering and formatting changes in the 2018 IRC.

Footnote “i” is revised to direct code users to the correct website for the air freezing index. The website currently provided is no longer in use.

Footnote “j” is revised to direct code users to the correct website for mean annual temperature. The website currently provided is no longer in use.

Subp. 3. IRC Figure R301.2(6). Figure R301.2(5) of the 2012 IRC was renumbered and relocated in the 2018 IRC to Figure R301.2(6). It is reasonable to amend the figure number to ensure consistency with the 2018 IRC.

1309.0302 SECTION R302, FIRE-RESISTANT CONSTRUCTION.

This rule part is reorganized to locate the sections in the correct numerical order. The current rule lists the section references numerically as R302.2, R302.2.1, R302.2.2, Table R302.1(1), Table R302.1(2), R302.2.3, R302.2.4, and R302.2.5. As written, Section 302.2 and its subsections should follow Table R302.1(1) and Table R302.1(2). To correct the numerical ordering, Section R302.2.1, Continuity, and Section 302.2.5, Sound transmissions, are relocated from subpart 1 to subparts 2 and 2a, respectively, and renumbered for consistency with the 2018 IRC. It is reasonable for the requirements for exterior walls for all dwellings, including one-family dwellings, in Table R302.1(1) and Table R302.1(2) to be located in a separate subpart from the requirements specific to townhouses, which the proposed rule relocates to subparts 2 and 2a. As a result of the reorganization of this rule part and reformatting of the 2018 IRC, the section amendments in subsequent subparts are relocated accordingly.

Subpart 1. IRC Tables R302.1(1) and R302.1(2). Sections R302.2, Townhouses; R302.2.2, Parapets; R302.2.3, Parapet construction; and R302.2.4, Structural independence are deleted because the 2018 IRC was revised to contain similar provisions. Therefore, the modifications to these sections are no longer needed. Section R302.2.1, Continuity, and Section 302.2.5, Sound transmission, are deleted from subpart 1 and renumbered and relocated to subpart 2.

Tables R302.1(1) and R302.1(2) in the current rule are deleted and replaced with modified versions of Tables R302.1(1) and R302.1(2) in the 2018 IRC. These tables identify specific construction requirements for exterior walls of all dwellings and their accessory structures as the location of the exterior wall of the dwelling or accessory structure relates to the lot line. Exterior walls that are closer to the lot line must have additional fire-resistant construction materials to impede the spread of fire from one structure to another across the lot line.

Table 302.1(1) Exterior Walls. Table R302.1(1) of the 2018 IRC is modified by adding footnote "c," which states: "One hour on the underside equates to one layer of 5/8-inch type X gypsum sheathing. Openings are not allowed." Proposed footnote "c" is identical to footnote "a" in the current Table 302.1(1). The footnote is needed to coordinate the requirement for one-hour fire-resistance on the underside of projections with the same requirement in other parts of the Minnesota State Building Code. The footnote provides a reasonable and acceptable alternative method of compliance without having to obtain a listed one-hour assembly. Because the 2018 IRC added footnotes "a" and "b," the current footnote "a" needs to be re-lettered as "c." Footnote "a," footnote "b," and the entire Table 302.1(1) are included in the proposed rule to provide context.

Table 302.1(2) Exterior Walls--Dwellings with Fire Sprinklers. Table R302.1(2) of the 2018 IRC is modified by adding footnote "d," which states: "One hour on the underside equates to one layer of 5/8-inch type X gypsum sheathing. Openings are not allowed." Proposed footnote "d" is identical to footnote "a" in the current Table 302.1(2). The footnote is needed to coordinate the requirement for one-hour fire-resistance on the underside of projections with the same requirement in other parts of the Minnesota State Building Code. The footnote provides a reasonable and acceptable alternative method of compliance without having to obtain a listed one-hour assembly. Because the 2018 IRC added footnotes "a," "b" and "c," the current footnote "a" needs to be re-lettered as "d." Footnotes "a," "b," and "c," and the entire Table 302.1(2), are included in the proposed rule to provide context.

Subp. 2. IRC Section R302.2.3, Continuity. The language in current subpart 2 is being relocated to subpart 3 because of renumbering and reformatting of Section R302 in the 2018 IRC. Proposed subpart 2 amends section R302.2.3 of the 2018 IRC. Except for the numbering of a cross-referenced section, the language in proposed subpart 2 is comparable to the language in current subpart 1 that amends section R302.2.1. This language has been moved and renumbered, for consistency with the 2018 IRC and to keep the sections in numerical order. The first sentence of the current language has also been modified by adding the word "or," so that the first sentence reads: "The fire resistance wall **or** assembly separating townhouses …." The lack of the word "or" is an error in the current rule. This is clear from the second sentence of the current rule, which refers to "wall or assembly." The rest of this proposed section is identical to the current rule.

Subp. 2a. IRC Section R302.2.7, Sound Transmission. With two differences, proposed subpart 2a is identical to the current rule language in subpart 1 amending current section R302.2.5. One difference is renumbering, which is required because of the renumbering of the 2018 IRC. The only other difference is the addition of the word "IRC," which is needed and reasonable for clarity.

Subp. 3. IRC Section R302.3.2, Two-family dwellings. The requirements of current subpart 3 regarding "Opening protection" have been moved to subpart 4, which will be discussed below. With two exceptions, the language of proposed subpart 3 is identical to the language of current subpart 2. One difference is renumbering, which is required because of the renumbering of the 2018 IRC. The only other difference is the addition of the word "IRC," which is needed and reasonable for clarity.

Subp. 4. IRC Section R302.5.1, Opening protection. The requirements of current subpart 4 regarding "Dwelling/garage fire separation" have been moved to subpart 5, which will be discussed below. The language of proposed subpart 4 is identical to current subpart 3.

Subp. 5. IRC Section 302.6, Dwelling/garage fire separation. With the following three differences, proposed subpart 5 is identical to current subpart 4:

- Footnote "a" is added to the table to provide the code user with a reference to the section describing the requirements for the attachment of gypsum board.
- The title of the table is changed from "Dwelling/Garage Separation" to "Dwelling/Garage Separation Material." This is for clarity because the table describes separation material.
- At the end of the table, a line is added to provide a method of conversion from United States Customary Units to the International System Units. It is reasonable to provide a method for ease of use when converting table values to International System Units. This line regarding conversion is identical to the line at the end of Table R302.6 in the 2018 IRC.

1309.0303 SECTION R303, LIGHT, VENTILATION, AND HEATING.

Section R303.4, Mechanical ventilation. This new rule part is added to modify Section R303.4 of the 2018 IRC to delete the reference to Section M1505.4 of the 2018 IRC and replace it with references to: Minnesota Rules, Chapter 1322, the Minnesota Residential Energy Code; and ASHRAE 62.2, as incorporated by reference by Minnesota Rules, Chapter 1346, the Minnesota Mechanical Code. The proposed change is necessary because, under current part 1309.0020, subpart 6 (which is not proposed for amendment), the mechanical references in the IRC are defined as referring to the Minnesota Mechanical Code; however, the requirements for mechanical ventilation in residential dwellings are located in both the Minnesota Mechanical Code and the Minnesota Residential Energy Code.

1309.0310 SECTION R310, EMERGENCY ESCAPE AND RESCUE OPENINGS.

Subpart 1. Section R310.1, Emergency escape and rescue opening required. The title of this subpart has been changed to correspond with the title in the 2018 IRC. The first two sentences of the current rule are amended for clarity only.

Four sentences are deleted before the exceptions. The deleted language specifies window sill height for emergency escape and rescue openings and the requirements for emergency escape and rescue openings below the adjacent ground elevation. This language is no longer needed because these requirements are now included in the 2018 IRC. Section R310.2.2 of the 2018 IRC addresses the requirements for window sills. The exception to Section 310.2.1 of the 2018 IRC addresses the requirements for window openings that are below grade. Section R310.3 of the 2018 IRC addresses the requirements for emergency escape and rescue doors where the opening is below the adjacent grade. Because the 2018 IRC addresses these requirements, the four deleted sentences are no longer needed.

Exception #1 as amended is identical to Exception #1 to Section R310.1 of the 2018 IRC. Exception #2 of section R310.1 remains the same as in the current rule.

Exception #3 of section R310.1 is amended to remove the first two conditions to permit the installation of a fire sprinkler system instead of an emergency escape and rescue opening in the basement of new dwellings. The proposed amendment deletes the first two conditions because they apply to existing construction only. The emergency escape and rescue opening requirements for existing basements are relocated to subpart 3.

Exception #3 is reasonable because it offers an alternate method of life safety by permitting the installation of fire sprinkler coverage instead of the construction and installation of emergency escape and rescue openings. Fire sprinklers are effective and permit building occupants sufficient time to escape a potential fire hazard. The proposed amendment will potentially decrease the costs for some new construction where it is cost prohibitive to install an emergency escape and rescue opening in a basement. The installation of an emergency escape and rescue opening in a basement can be expensive and complex depending upon the foundation and soils at the site where the dwelling is being constructed. Also, some new dwellings have deeper basements that make emergency escape and rescue openings impractical to use for evacuation in the event of an emergency. For dwellings with deeper basements, an automatic sprinkler system can be a more effective and practical life safety option that will allow dwelling occupants sufficient time to evacuate.

R310.1.1, R310.1.2, R310.1.3, R310.1.4, and R310.1.5. The requirements relating to minimum opening area, minimum opening height, minimum opening width, operational constraints and replacement windows are all addressed in subsection R310.1.1 and in some of the subsections of section R310.2 of the 2018 IRC. The 1309 Technical Advisory Group recommended that these subsections of the 2018 IRC did not need to be amended. Therefore, the language in the current rule addressing these requirements is deleted. Instead, a sentence is added clarifying that subsection R310.1.1 in the 2018 IRC remains unchanged.

Subp. 2. IRC Section R310.2.5.1, Licensed facilities. The substantive language in this subpart is the same as in the current rule. The section number has been changed for consistency with the 2018 IRC. The language has been placed in a separate subpart, with clarifying language at the beginning, for improved readability.

Subp. 3. IRC section R310.6, Alterations or repairs of existing basements. The first sentence is identical to Section R310.6 of the 2018 IRC. The proposed rule deletes the model code exception addressing sleeping rooms created in existing basements. The requirements for sleeping rooms created in existing basements are addressed in new Section 310.6.1. The language in proposed Section 310.6.1 is identical to the language in the exception to Section R310.6 of the 2018 IRC. This language is moved to a new Section 310.6.1 for clarification, and to make the new exception to Section 310.6.1 easier to understand.

An exception is added to Section 310.6.1 to exempt sleeping rooms in existing basements from the emergency escape and rescue opening requirement where an automatic sprinkler system is installed throughout: (1) the entire basement area; (2) all portions of the means of egress to the level of exit discharge; and (3) all the areas on the level of exit discharge that are open to the

means of egress. The automatic sprinkler system must meet the requirements of section P2904 of the IRC or NFPA 13D, a nationally recognized standard for automatic sprinkler systems. This exception is comparable to exception 3 to Section R310.1, in subpart 1.

Currently, only basements constructed before August 1, 2008 can be equipped with an automatic sprinkler system instead of an emergency escape and rescue opening in newly created sleeping rooms. The Minnesota State Building Code was recognized as the standard of construction for the entire state on August 1, 2008. Some dwellings constructed prior to that date in areas where the Minnesota State Building Code is not enforced may not have an emergency escape and rescue opening in the basement. Basements constructed after August 1, 2008 are required to have an emergency escape and rescue opening whether or not the dwelling is constructed in an area that enforces the Minnesota State Building Code. However, the space in existing basements constructed after that date can be remodeled to create a new sleeping room that will require an emergency escape and rescue opening. The proposed exception will permit any existing basement in Minnesota to be equipped with an automatic sprinkler system instead of an emergency escape and rescue opening in the sleeping room.

The exception is reasonable because it offers an alternate method of life safety by permitting the installation of fire sprinkler coverage instead of the construction and installation of emergency escape and rescue openings. Fire sprinklers are effective and permit building occupants sufficient time to escape a potential fire hazard. The proposed amendment will potentially decrease the costs for some basement renovations where it is cost prohibitive to install an emergency escape and rescue opening in the existing basement. The installation of an emergency escape and rescue opening in an existing basement can be expensive and complex depending upon the foundation and soils at the site where the dwelling is located. Additionally, some new dwellings have deeper basements that make emergency escape and rescue openings impractical to use for evacuation in the event of an emergency. For dwellings with deeper basements, an automatic sprinkler system can be a more effective and practical life safety option that will allow dwelling occupants sufficient time to evacuate.

1309.0311 SECTION R311, MEANS OF EGRESS.

Subpart 3. IRC section R311.7.2, Headroom. This section is modified to add an exception to direct the code user to section R311.7.10.1 for the headroom requirements for spiral stairways. This is identical to exception #2 to section R311.7.2 in the 2018 IRC. It is reasonable to direct the user to the correct section for headroom for spiral staircases because the headroom requirements for spiral staircases are different from the headroom requirements in this section.

1309.0312 SECTION 312, GUARDS AND WINDOW FALL PROTECTION.

Subpart 2. IRC section R312.2, Window fall protection. The language in the current rule, section R312.2.2, Window opening control devices, is deleted from subpart 2 because the 2018 IRC includes requirements for window control opening devices. The language in the 2018 IRC is similar to the language in the existing amendment; therefore, the amendment is no longer necessary. A sentence is added to clarify that Subsection R312.2.2 of the 2018 IRC is not amended.

1309.0314 SECTION 314, SMOKE ALARMS.

The proposed changes to this rule part modify Section 314 of the 2018 IRC to carry forward the current requirement that battery-powered, non-interconnected smoke alarms be placed in existing dwellings undergoing alteration or repair in the same locations as they are required to be placed in new dwellings. Interconnected smoke alarms that draw power from the building wiring are only required when the alteration or repair requires the removal of interior finishes of the dwelling to provide access to the wiring. The proposed amendments clarify existing code requirements by specifying that additional smoke alarms are only required in existing dwellings when the alteration or repair requires a building permit. The proposed amendment also eliminates the requirement that smoke alarms be interconnected and wired to an existing dwelling where the attic, crawl space, or basement provides access to dwelling wiring.

The proposed rule does not modify code requirements for smoke alarms in new dwellings. The 2012 IRC and 2018 IRC both require smoke alarms in new dwellings to be interconnected and wired to the dwelling. This is reasonable because the smoke alarms can be easily wired to the dwelling while it is being built. Smoke alarms are required to be located in each sleeping room, outside of each separate sleeping area in the immediate vicinity of the sleeping rooms, and on each additional story of the dwelling in both new dwellings and existing dwellings undergoing repair or alteration.

Subpart 1. IRC section R314.2.2, Alterations, repairs, and additions. Section R314.3.1 of the 2012 IRC was renumbered and relocated in the 2018 IRC to section R314.2.2. It is reasonable to amend the section reference number to ensure consistency with the 2018 IRC. The subpart is amended by adding the word "building" before "permit" to clarify that existing dwellings are required to have smoke alarms located in the same areas as required for new dwellings when the alterations, repairs, and additions require a building permit. This change is reasonable because it clarifies the permit type as a building permit as opposed to a plumbing, electrical, or mechanical permit. Other types of permits may be required when exception 2 applies. Exception 2 exempts existing dwellings from the requirement that smoke alarms be located as required for new dwellings where the installation, alteration, or repairs are to the plumbing, electrical or mechanical systems.

Subp. 2. IRC section R314.4, Interconnection. The 2018 IRC requires the installation of smoke alarms that are interconnected, physically or wirelessly, in new dwellings and existing dwellings undergoing repair or alteration. Smoke alarms that are interconnected are connected with each other so when one smoke alarm is activated, all the alarms in the dwelling will sound. The proposed rule modifies IRC section 314.4 by adding an exception so that interconnected smoke alarms are not required in existing dwellings unless alterations or repairs to the existing area result in the removal of the interior wall or ceiling finishes exposing the structure. This exception for existing dwellings was included in the 2012 IRC, but not the 2018 IRC. This is a reasonable exception because the cost of interconnecting smoke alarms is much lower if interior wall or ceiling finishes are being removed and the structure is exposed. As discussed below, battery-powered smoke alarms serve the life safety function at a much lower cost when the interior wall or ceiling finishes are not being removed.

The 1309 TAG members did not recommend carrying forward the 2012 IRC language

requiring interconnected smoke alarms where an attic, crawl space, or basement provides access to the building wiring without the removal of interior finishes. The cost to have an electrician wire smoke alarms to a dwelling can be several hundred dollars. Elimination of this requirement will reduce expenses for homeowners while preserving the life safety function of battery-powered smoke alarms.

The 1309 TAG members recognized that smoke alarms serve an important life safety function and smoke alarm requirements have reduced civilian fire deaths. However, the TAG members were concerned that the expense of physically or wirelessly interconnected smoke alarms may decrease compliance with code requirements. DLI staff reviewed the cost to purchase smoke alarms at big-box retailers, such as Home Depot, Lowe's, and Menards. The cost to purchase an individual battery-operated smoke alarm without interconnection capabilities is $5 to $15. A single battery-powered smoke alarm that interconnects via radio frequency costs $30 to $50. A single battery-powered smoke alarm that interconnects via Wi-Fi costs $40 to $80. A single battery-powered combination smoke and carbon monoxide alarm that interconnects via radio frequency costs $50 to $70.[15] A single battery-powered combination smoke and carbon monoxide alarm that interconnects via Wi-Fi costs $80 to $120.

Smoke alarms, including those not interconnected to each other, are effective in alerting occupants to exit a dwelling in the event of smoke. The current requirements permitting non-interconnected smoke alarms have increased the number of smoke alarms in dwellings undergoing alteration or repair and improved life safety for dwelling occupants. It is reasonable to permit the continued use of non-interconnected smoke alarms when interior finishes are not removed because the lower cost will encourage continued compliance with smoke alarm requirements as well as building permit requirements for alterations and repairs made to existing dwellings.

Subp. 3. Section R314.6, Power source. The second exception to IRC section 314.6 is modified to carry forward an exception from the 2012 IRC requiring the installation of smoke alarms that receive their power from the existing dwelling wiring when alterations or repairs to an existing area result in the removal of the interior wall or ceiling finishes exposing the structure. It is reasonable to require that smoke alarms receive their power from the dwelling wiring when alteration or repair work exposes areas the smoke alarms can be wired to. Under the proposed second exception, if the alteration or repair to an existing dwelling does not require removal of the interior wall or ceiling finishes, then the smoke alarms can be battery-powered instead of hard-wired. This is a reasonable exception because the cost of hard-wired smoke alarms is much lower if interior wall or ceiling finishes are being removed and the structure is exposed. As discussed below, battery-powered smoke alarms serve the life safety function at a much lower cost when the interior wall or ceiling finishes are not being removed.

The 1309 TAG members did not recommend carrying forward the 2012 IRC language requiring smoke alarms to receive their power from the dwelling wiring where there is an attic, crawl space, or basement available that provides access to the wiring without the removal of interior finishes. The cost to have an electrician hard-wire smoke alarms can be several hundred

[15] Carbon monoxide alarms are required within ten feet of each sleeping room. Therefore, a combination alarm may be a cost effective option for some areas of a dwelling. *See* Minn. Stat. § 299F.51.

dollars. Elimination of this requirement will reduce expenses for homeowners while preserving the life safety function of battery-powered smoke alarms.

The 1309 TAG members recognized that smoke alarms serve an important life safety function and that smoke alarm requirements have reduced civilian fire deaths. However, TAG members were concerned that the cost of hard-wired smoke alarms may decrease compliance with smoke alarm requirements. Hard-wired smoke alarms are more expensive than those that receive their power solely from batteries, in addition to the expense of having an electrician install the alarms. If interior wall or ceiling finishing needs to be removed and replaced solely for the purpose of hard-wiring smoke alarms, that would add considerable expense.

Smoke alarms that are wired to the dwelling are also required to have battery back-up. Battery back-up is necessary when the smoke alarm is unable to receive power from the dwelling wiring, such as during a power outage. Dwelling occupants often use candles and space heaters during a power outage, increasing the risk of fire and the need to alert occupants. Batteries in hard-wired smoke alarms must be the replaced just like batteries in battery-powered smoke alarms.

It is reasonable to permit the use of battery-operated smoke alarms in dwellings undergoing alteration or repair where interior wall or ceiling finishes are not being removed. In these circumstances, battery-operated smoke alarms improve life safety at a lower cost to homeowners than other alternatives that have similar drawbacks like the periodic replacement of batteries. The lower cost of battery-operated smoke alarms will encourage continued compliance with building permit requirements for alterations and repairs. This will result in more dwellings being equipped with smoke alarms and will help ensure that alterations and repairs are inspected.

1309.0315 SECTION R315, CARBON MONOXIDE ALARMS.

The requirements for carbon monoxide alarms in the 2018 IRC are more detailed than the requirements in the 2012 IRC and include requirements for interconnectivity and power source. Proposed rule 1309.0315 modifies Section 315 of the 2018 IRC so that the requirements for carbon monoxide alarms are consistent with the requirements for smoke alarms in proposed part 1309.0314. The proposed amendments to Section 315 require new dwellings to be equipped with interconnected carbon monoxide alarms that draw their power from the dwelling wiring. Existing dwellings undergoing alteration or repair that require a building permit can be equipped with battery-powered carbon monoxide alarms without interconnectivity capabilities. Both new dwellings and dwellings undergoing alteration or repair must have carbon monoxide alarms installed outside of and not more than ten feet from each separate sleeping area or bedroom. As a result, dwellings where a new sleeping room is added must be equipped with a carbon monoxide alarm.

Subpart 1. IRC section R315.2, Where Required. Section R315.1 of the 2012 IRC has been renumbered to section R315.2 and revised in the 2018 IRC. The first sentence of proposed Section R315.2 is identical to the 2018 IRC. Proposed Section R315.2.1 modifies the first sentence of IRC Section R315.2.1 to incorporate language from Minnesota Statutes, section 299F.51, Requirements for Carbon Monoxide Alarms. The modified text specifically requires one-family dwellings, each unit in a two-family dwelling unit, and each townhouse dwelling unit

to be equipped with carbon monoxide alarms. The proposed language also requires the carbon monoxide alarms be "approved and operational." These requirements are contained in Minnesota Statutes, section 299F.51.[16] These proposed changes are reasonable and necessary because they combine the 2018 IRC requirements with statutory requirements to provide for uniform enforcement. The conditions listed in proposed Section R315.2.1 are identical to the conditions listed in Section R315.2.1 of the 2018 IRC.

Section R315.2.2 of the 2018 IRC requires carbon monoxide detectors to be installed as for new construction where an alteration, repair or addition would require a permit (with two exceptions), regardless of whether any sleeping rooms are added. One exception is for work involving the exterior surfaces, such as the addition or replacement of windows or doors. The second exception is for installation, alteration or repairs of plumbing or mechanical systems.

Proposed Section 315.2.2 would require carbon monoxide detectors to be installed as for new construction (with two exceptions) where one of two conditions exists. The first condition requires carbon monoxide alarms to be located as required for new dwellings where alterations, repairs, or additions to an existing dwelling require a building permit, including the installation and replacement of windows or doors. It is reasonable to specify a building permit because alterations or repairs of plumbing, electrical, or mechanical systems might also require a permit but not a building permit. In the proposed rule, the replacement of windows and doors is not exempt from carbon monoxide alarm requirements because this work requires a building permit in Minnesota. *See* Minnesota Rules, part 1300.0120, subpart 4. The current code and proposed rule 1309.0314 require smoke alarms in a dwelling to be updated when an alteration or repair requires a building permit, including the installation and replacement of windows or doors. Smoke alarms and carbon monoxide alarms both serve important life safety functions so it is reasonable to require both types of alarms to be updated when doors or windows are installed or replaced.

The second condition requires the updating of carbon monoxide alarms when a new sleeping room is added to an existing dwelling. Minnesota Statutes, section 299F.51, requires a carbon monoxide alarm to be installed within ten feet of each room used for sleeping purposes. It is reasonable to require carbon monoxide alarms be added to an existing dwelling when a sleeping room is added to ensure compliance with the statutory requirement.

The first exception is modified to remove the exception for doors and windows, for the reasons discussed above. The proposed first exception also includes chimney repairs as an additional example of work covered by the exception. This is reasonable because chimney repairs are limited to the exterior of the dwelling. Finally, the first exception adds the word "open" before "porch or deck" for clarification. The addition of an enclosed porch or deck would not be work limited to the exterior of the dwelling, because it would create a new room.

The second exception is the same as the second exception in the model code except for the addition of the word "electrical." This will prevent the mandatory updating of carbon monoxide alarms when the work being completed is the replacement of a light fixture or similar work. This exemption from carbon monoxide alarm requirements for installation, alteration, or

[16] The statute includes requirements for all one- and two-family dwellings and all multiple unit dwellings. The only multiple unit dwellings that are within the scope of chapter 1309 are townhouses.

repairs to the electrical system is consistent with the exception in part 1309.0314 regarding smoke alarms when work is performed to the electrical system. Consistent standards for smoke alarms and carbon monoxide alarms will provide more uniform application and enforcement of the code.

Subp. 2. IRC section R315.3, Location. The first sentence of IRC section R315.3 requires carbon monoxide alarms to be placed outside of and "in the immediate vicinity of the bedrooms." The first sentence of the proposed section modifies the model code to specify that carbon monoxide alarms must be installed outside of and not more than ten feet from each separate sleeping area or sleeping room. This is consistent with Minnesota Statutes, section 299F.51, which requires carbon monoxide alarms be installed "within ten feet of each room lawfully used for sleeping purpose." It is reasonable to modify Section R315.3 to convey the specific requirements of Minnesota Statutes, section 299F.51. The proposed change is reasonable and necessary because it combines the 2018 IRC requirements with statutory requirements to provide for uniform enforcement.

The second sentence of proposed Section R315.3 is new. This clarifies that carbon monoxide alarms must be on each level containing sleeping areas or bedrooms. This is to prevent an interpretation of the code that would allow an alarm on a different level, immediately above or below the sleeping area or bedroom. That would be contrary to the intent of the code, because the carbon monoxide alarm would not be effective on a different level.

The last sentence of proposed Section R315.3 is identical to the last sentence of model code Section R315.3.

Subp. 3. IRC section R315.5, Interconnectivity. The exception to this section is modified to delete the language requiring existing dwellings undergoing alteration or repair to be equipped with interconnected carbon monoxide alarms where there is an attic, crawl space, or basement that provides access to the dwelling wiring. The proposed exception would not require interconnected carbon monoxide alarms unless alterations or repairs result in the removal of interior wall or ceiling finishes exposing the structure. This is a reasonable exception because the cost of interconnecting carbon monoxide alarms is much lower if interior wall or ceiling finishes are being removed and the structure is exposed. As discussed below, battery-powered carbon monoxide alarms serve the life safety function at a much lower cost when the interior wall or ceiling finishes are not being removed.

The 1309 TAG members recommended not requiring interconnected carbon monoxide alarms where an attic, crawl space, or basement is available for the same reasons that proposed part 1309.0314, subpart 2, does not require interconnected smoke alarms in this situation. The deletion of this requirement will reduce expenses for homeowners while preserving the life safety function of battery-powered carbon monoxide alarms.

The 1309 TAG members recognized that carbon monoxide alarms serve an important life safety function and carbon monoxide requirements have reduced civilian deaths. However, the TAG members were concerned that the expense of physically or wirelessly interconnected carbon monoxide alarms may decrease compliance with code requirements. Section R315.5 of the 2018 IRC permits the installation of wirelessly interconnected carbon monoxide alarms

instead of alarms connected by the dwelling wiring. DLI staff reviewed the cost to purchase carbon monoxide alarms at big-box retailers such as Home Depot, Lowe's, and Menards, and found that those capable of wireless interconnectivity were more expensive. One interconnected carbon monoxide alarm that connects wirelessly via radio frequency costs approximately $40. One interconnected carbon monoxide alarm that connects via Wi-Fi costs $77. A single battery-powered combination smoke and carbon monoxide alarm that interconnects via radio frequency costs $50 to $70. A single battery-powered combination smoke and carbon monoxide alarm that interconnects via Wi-Fi costs $80 to $120. A single non-interconnected, battery powered carbon monoxide alarm costs $20 to $40. A single carbon monoxide alarm that is connected to and receives its power from the dwelling wiring costs $30 to $50. An interconnected combination carbon monoxide and smoke alarm that receives its power from the dwelling wiring costs $35 to $90. However, the cost to wire the carbon monoxide alarms to the dwelling may be several hundred dollars.

Carbon monoxide alarms, including those not interconnected to each other, are effective in alerting occupants to exit a dwelling in the event of dangerous levels of carbon monoxide. The current requirements permitting non-interconnected smoke alarms have increased the number of smoke alarms in dwellings undergoing alteration or repair and improved life safety for dwelling occupants. It is reasonable to permit the continued use of non-interconnected carbon monoxide alarms when interior finishes are not removed because the lower cost will encourage continued compliance with carbon monoxide alarm requirements as well as building permit requirements for alterations and repairs made to existing dwellings.

Subp. 4. IRC section R315.6, Power Source. The second exception to IRC Section 315.6 is modified to require the installation of hard-wired carbon monoxide alarms when alterations or repairs to an existing area result in the removal of the interior wall or ceiling finishes, which exposes the structure. It is reasonable to require hard-wired carbon monoxide alarms when alteration or repair work exposes areas to which the carbon monoxide alarms can be wired. Under the proposed second exception, if the alteration or repair to an existing dwelling does not require removal of the interior wall or ceiling finishes, then the carbon monoxide alarms can be battery powered instead of hard-wired. This is a reasonable exception because the cost of hard-wired carbon monoxide alarms is much lower if interior wall or ceiling finishes are being removed and the structure is exposed.

Furthermore, this is consistent with the proposed rule that smoke alarms only need to be hard-wired when an alteration or repair requires the removal of interior wall or ceiling finishes. *See* discussion above of proposed part 1309.0314, subpart 3.

1309.0320 SECTION R320, ACCESSIBILITY.

This new subpart is added to delete Sections R320.1 and 320.1.1 of the 2018 IRC and replace those sections with a new Section R320.1. Section R320.1 of the 2018 IRC states: "Where there are four or more dwelling units or sleeping units in a single structure, the provisions of Chapter 11 of the International Building Code for Group R-3 shall apply." The proposed rule makes two changes. First, it adds the term "IRC-3" before "dwelling units." This is reasonable because the only types of dwellings regulated by the IRC that contain four or more dwelling units or sleeping units are IRC-3 occupancies. Other occupancies with four or more

dwelling or sleeping units are regulated by chapter 1305, the Minnesota Building Code. The proposed rule part does not change the types of dwellings to which accessibility provisions apply, but clarifies to the Minnesota Residential Code user that the accessibility provisions apply only to IRC-3 dwelling units and sleeping units and do not apply to one- and two-family dwellings.

The proposed rule part refers the code user to Minnesota Rules, Chapter 1341, the Minnesota Accessibility Code, instead of chapter 11 of the IBC. The Minnesota amendments to the IBC refer the code users to the Minnesota Accessibility Code for accessibility requirements. *See* Minnesota Rules, part 1305.0011, subp. 2. It is reasonable to provide IRC users with the correct location for accessibility requirements.

Section R320.1.1 of the 2018 IRC is deleted. Section R320.1.1 requires guestrooms to comply with the accessibility requirements of the IBC. This section is being deleted because guestrooms are contained in buildings constructed for transient use. Under the proposed rule, buildings constructed for transient use cannot be constructed in accordance with the Minnesota Residential Code. Proposed part 1309.0100, subpart 3, states that dwellings constructed for transient use are to be constructed to the requirements of Minnesota Rules, Chapter 1305, the Minnesota Building Code. Because buildings with guestrooms could not be built in accordance with the Minnesota Residential Code, it is reasonable to delete provisions for guestrooms.

1309.0321 SECTION R321, ELEVATORS AND PLATFORM LIFTS.

In the 2018 IRC, Section R321.1 concerns elevators, Section R321.2 concerns platform lifts, and Section R321.3 concerns accessibility. The proposed rule deletes these sections and creates a new Section R321.1 of the 2018 IRC to refer code users to Minnesota Rules, chapter 1307, Elevators and Related Devices, for the requirements for elevators and platform lifts. Minnesota Rules, chapter 1307, is the code for elevators and platform lifts in Minnesota and adopts by reference several codes and standards addressing the requirements for elevators and platform lifts. It is reasonable to modify this section to provide code users with the correct location of requirements for elevators and platform lifts. Section R321.3 of the 2018 IRC is not needed because chapter 1307 deals with accessibility by referring the code user to chapter 1341. *See* Minn. R. 1307.0095, subp. 1(C).

1309.0326 SECTION R326, SWIMMING POOLS, SPAS AND HOT TUBS.

Section R326 is a new section added to the 2018 IRC and is being deleted in its entirety. Section R326 of the 2018 IRC references the International Swimming Pool and Spa Code. The substance of new Section R326 was addressed in an appendix in previous editions of the IRC. That appendix has not been previously adopted in part 1309.0010, subpart 2, as a mandatory chapter of the Minnesota State Building Code. Section R326 is being deleted in its entirety from the 2018 IRC because regulation of swimming pools, spas, and hot tubs is considered a local zoning issue in Minnesota, not a code compliance issue. This deletion is reasonable and necessary to prevent conflicts between the proposed rule and local zoning regulations in Minnesota.

1309.0402 SECTION 402, MATERIALS.

The column heading (Minimum Specified Compressive Strength) and footnote "g" are modified to correct an error in the symbol for compressive strength.

Footnote "h" is added to Table R402.2 of the IRC to specify that concrete able to withstand 5,000 pounds of force per square inch ("5000 psi") is not required for post footings of decks and porches, wood foundations, slab-on-grade foundation walls, and footings for floating slabs. During the adoption of the 2012 IRC, Table 402.2 was modified to require that footings for dwellings be constructed with 5000 psi concrete. The purpose of this requirement was to prevent moisture from passing through the porous concrete material of the footing and then into the concrete or masonry foundation walls that enclose the basement or the crawl space.

The moisture protection provided by 5000 psi concrete is unnecessary for post footings of decks and porches, wood foundations, slab-on-grade foundation walls, and footings for floating slabs. The footings for decks and porches are not a part of the foundation of the dwelling and therefore 5000 psi concrete is unnecessary. Slab-on-grade and floating slab foundations are at the level of the soil and do not require footings. Moisture protection is necessary for foundations that are deeper in the ground to accommodate a basement or crawlspace. Wood foundations do not have concrete components and therefore do not require concrete footings. This change is reasonable to clarify the types of footings where 5000 psi concrete is not required, which will ensure uniform application and enforcement of the code.

1309.0403 SECTION R403, FOOTINGS.

Subpart 1. IRC section R403.1.4.1, Frost protection. The existing exception is deleted because the 2018 IRC has been revised to include similar requirements for the frost protection of deck footings in Section R507.3.2.

Subp. 2. IRC section 403.1.6, Foundation anchorage. This subpart is amended to clarify that anchor bolts are required to be within eight inches of the vertical foundation reinforcement. Vertical reinforcement consists of steel rebar dowels placed in the masonry or concrete foundation to provide structural support. Anchor bolts are used to attach the foundation to the wall of the dwelling. The current amendment requires the vertical reinforcement to align with the anchor bolts. The exact alignment of the vertical foundation reinforcement with the anchor bolts can be difficult. The proposed amendment clarifies that anchor bolts can be placed within eight inches of the vertical foundation reinforcement, which provides sufficient structural support. Eight inches was selected because that is the normal construction tolerance for concrete masonry construction. The final sentence of the section (before the exceptions) is modified to clarify the placement of the grout used to secure an anchor bolt in a masonry foundation. The proposed final sentence is more specific and will help eliminate current confusion in the industry. The proposed modifications to this section are reasonable to clarify existing code provisions and ensure uniform application and enforcement of the code.

1309.0404 SECTION R404, FOUNDATION AND RETAINING WALLS.

Subpart 1. IRC section R404.1, Concrete and masonry foundation walls. Item number 4 is amended to direct the code user to footnote "e" of Table R404.1(1) for blocking

requirements. The proposed rule amends subpart 2 to relocate blocking requirements to footnote "e" of Table R404.1(1). It is reasonable to relocate blocking requirements to footnote "e" of Table R404.1(1) in subpart 2 because the table provides requirements for spacing of blocking. Item number 5 is deleted because it was causing confusion; some users were applying item 5 to the wrong walls. It is reasonable to delete item 5 because these requirements are sufficiently covered in Table R404.1(1) in subpart 2.

The exception is revised to limit its application to cantilevered concrete and masonry foundation walls that support unbalanced backfill (meaning there is backfill on the outside of the foundation wall but not on the inside of the foundation wall) and that lack lateral support at the top of the foundation. These edits were requested by the Structural TAG for clarification; they are consistent with the intent of the current rule.

Two sentences have been added at the end of this subpart for clarification and ease of reference. The first sentence refers the reader to subpart 9 for the amended Subsection R404.1.1. The second sentence clarifies that Subsections R404.1.2 through R404.1.9 remain unchanged.

Subp. 2. IRC Table R404.1(1), Maximum anchor bolt and blocking spacing for supported foundation wall. The current Table R404.1(1) is deleted and replaced with a revised table. The revised table adds a row for foundations with a maximum wall height of ten feet. Foundations with wall heights of ten feet are increasingly common but the current rule does not include prescriptive requirements for foundations of this height. The 2018 IRC recognizes that taller foundation walls are increasingly common and includes prescriptive requirements for foundation walls up to ten feet in height. Currently in Minnesota, a builder must hire an engineer to design a foundation wall nine to ten feet in height. The proposed rule corresponds to a recognized need for prescriptive requirements for foundation walls nine to ten feet in height and eliminates the need for the residential contractor to hire an engineer to design the foundation. Other model code tables include foundation walls up to ten feet in height, such as Tables R404.1.1(2), R404.1.1(3), and R404.1.1(4). The entries for proposed Table R404.1(1) for foundation walls between nine and ten feet in height were developed by a local engineer based on accepted engineering principles. These entries are consistent with the model code and with construction practice in Minnesota. By eliminating the need to hire an engineer, the proposed rule decreases the cost of construction by $500 to $1000.

In the rows for all wall heights, the soil class "SM" has been added to the middle row (with soil load of 45 pcf/ft). A unified soil classification system symbol of SM is assigned to silty sand, sand-silt mixtures. *See* Table R405.1 of the 2018 IRC. Failure to include SM soil class in the current Table R404.1(1) was an oversight, as can be seen from the inclusion of SM soil class in current Tables R404.1.1(5), R404.1.1(6), and R404.1.1(7) (in current rule 1309.0404, subparts 6-8). Soil classified as SM is grouped with soil classified as GM, GC, SM-SC, & ML for consistency with Tables R404.1.1(5), R404.1.1(6), and R404.1.1(7).

In the row for maximum wall height of 8 feet, the revised table changes the maximum unbalanced backfill height from 7 feet four inches to 7 feet six inches. Similarly, in the row for maximum wall height of 9 feet, the revised table changes maximum unbalanced backfill height from 8 feet four inches to 8 feet six inches. The 2018 IRC requires the height of the unbalanced backfill to be six inches from the top of the foundation wall, so the table is revised for

consistency with the model code. The additional two inches of unbalanced backfill height provides the foundation wall with extra support. Because of the additional backfill, this extra support is needed. In the column labeled "1/2" diameter Anchor Bolt Spacing (inches)," the last value for maximum wall height of nine feet has been reduced from 40 to 32 because 32 inches is the maximum spacing that engineering calculations will allow. The values in the column labeled "Spacing of Blocking Perpendicular to Floor Joists (inches)" are increased for consistency with the required spacing of anchor bolts. The spacing of the blocking is equal to the spacing of the anchor bolts to simplify the construction of the foundation. This will result in more uniform application and enforcement of the code.

The footnotes to the table have been expanded and revised. Footnote "a" has been added for readability and consistency with the 2018 IRC. The abbreviations for soil classes as used in the table are the abbreviations used in the Unified Soil Classification System, as specified in Table R405.1 of the 2018 IRC. It is reasonable to refer readers to Table R405.1 for a description of what the abbreviations mean.

Footnote "b" concerns anchor bolts. Anchor bolts attach the dwelling to the concrete or masonry foundation. The proposed revisions to the requirements for the placement and use of anchor bolts are necessary to ensure the foundation and dwelling are securely fastened. The first sentence of proposed footnote "b" is a requirement found in the second sentence of current footnote "b." The second and third sentences are added to specify the construction tolerances based on accepted engineering principles.

The first sentence of proposed footnote "c" is the same as the first sentence of current footnote "a." The second sentence of proposed footnote "c" is based on accepted engineering principles. The specific requirement can be found in the following referenced standard: ANSI/WC NDS—2018: National Design Specification for Wood Construction, referenced in chapter 44 of the 2018 IRC.

The requirements in the first sentence of proposed footnote "d" are contained in the last sentence of current footnote "a." The proposed footnote adds the words "round or square" to clarify that either type of washer is acceptable. The second sentence of proposed footnote "d" is added to increase the usability of the table. It is sometimes difficult to obtain the larger washers specified in the first sentence of footnote "d." The second sentence provides the option of using easily available washers (standard and non-countersunk washers) if the anchor bolt spacing is reduced by half. This is consistent with accepted engineering principles.

Existing footnote "b" is relocated to new footnote "e" and the language is unchanged. New footnote "f" is added with more specific requirements for blocking. Blocking is a part of the structure of the floor that is added between the joists for added stability; blocking helps prevent the foundation walls from pushing in. The floor assembly attached to the foundation walls provides the top of the foundation with lateral support. Footnote "f" provides information for the correct installation of blocking to improve the lateral support of the foundation. Current rule 1309.0404, subp. 1, item 4, addresses blocking based on a higher load than the proposed rule. The proposed rule allows more spacing in the blocking, consistent with accepted engineering principles, because this is less costly. The level of blocking required under the current rule is not necessary based on an engineering analysis.

Subparts 6, 7, and 8. IRC Tables R404.1.1(5), R404.1.1(6), and R404.1.1(7). The only amendments to these subparts are the formatting of the footnotes. The format is being changed for consistency with the Revisor's style for footnotes.

Subp. 9. IRC section R404.1.1. The numbering of the IRC section has been changed to correspond with the renumbering of the 2018 IRC. No other changes have been made.

1309.0507 SECTION R507, EXTERIOR DECKS.

Subpart 1. IRC Table R507.3.1, Minimum footing size for decks. Table R507.3.1 is modified to delete references to snow loads and to require the minimum footing size for decks to be determined based on a live load of 40 pounds per square foot ("psf"). The first column in the table is modified so that the heading reads as "Live Load" and the load values are deleted and replaced with a uniform live load of "40." Footnote "b" is modified to require load to be calculated based on the dead load and live load, and to delete the option permitting the determination of load based on snow load and dead load.

The 2018 IRC requires the minimum footing size for decks to be determined based on live load (temporary weight that changes over time including persons and furniture) or snow load in addition to the dead load (weight of the deck itself). Currently, decks in Minnesota are designed and constructed based on a live load of 40 psf. The floors within a dwelling are also designed to support a live load of 40 psf. The proposed modifications to Table R507.3.1 are necessary to maintain the current requirements and simplify the determination of footing size for decks.

The elimination of the option to design the deck based on snow load simplifies the determination of the footing size and lowers the cost of construction. Snow load varies in Minnesota based on geographic location. The design snow load is 35 psf in southern Minnesota and 42 psf in the northern part of the state. If the design load is variable then a structural engineer must design the deck, which is an additional expense for the residential contractor and ultimately the homebuyer or homeowner. A uniform design load of 40 psf eliminates the need for an engineer to design the deck, which lowers the cost of construction. A uniform design load of 40 psf based on live load also ensures the structural integrity of the deck, as in the current code. The proposed modifications are reasonable because they provide a uniform design standard which in turn will lead to continued uniform application and enforcement of the code for decks.

Subp. 2. IRC Table R507.5, Deck beam span. Footnote "a" of table R507.5 is modified by replacing "Ground snow load, live load" with "Live load." This change is necessary for consistency with the proposed modifications to Table R507.3.1 in subpart 1; proposed Table R507.3.1 deletes the references to snow load and requires decks to be designed based on a uniform live load of 40 psf.

Subp. 3. IRC Table R507.6, Deck joist spans for common lumber species. Footnotes "b" and "c" are modified to replace "Ground snow load, live load" with "live load." This change is necessary for consistency with the proposed modifications to Table R507.3.1 in subpart 1; proposed Table R507.3.1 deletes the references to snow load and requires decks to be designed based on a uniform live load of 40 psf.

Subp. 4. IRC Table R507.9.1.3(1), Deck ledger connection to band joist. Table R507.9.1.3(1) is modified to delete the references to snow load. The reference to snow load in the heading is being deleted and footnote "b" is being deleted. The subsequent footnotes are re-lettered accordingly. This change is necessary for consistency with the proposed modifications to Table R507.3.1 in subpart 1; proposed Table R507.3 deletes the references to snow load and requires decks to be designed based on a uniform live load of 40 psf.

1309.0602 SECTION R602, WOOD WALL FRAMING.

Subpart 1. IRC Table R602.3.1, Maximum allowable length of wood wall studs exposed to wind speeds of 115 MPH or less. Table R602.3.1 provides requirements for tall wall construction specific to the climatic conditions in Minnesota. This enables tall walls used for framing dwellings to withstand the pressures of wind loads and snow loads. The table provides a cost effective method for the construction of tall walls. The table heading is revised by replacing "90 MPH" with "115 MPH" and adding a notation for new footnote "j". The wind speed is revised to 115 miles per hour because the wind design methodology in the IRC was revised from the basic wind design to ultimate wind speed. Due to differences in the calculation of basic wind speed design and ultimate wind speed, a basic wind design speed of 90 mph is similar to an ultimate wind speed of 115 mph so no changes are required for wall height and on-center spacing.

Notations for footnotes "h" and "i" are deleted from the "Exposure Category" column. Notations for these footnotes were erroneously carried forward from a previous rulemaking. This proposed rulemaking adds footnotes "h" and "i" with new content that does not apply to "Exposure Category." New footnotes "h" and "i" describe additional requirements for the attachment of wood wall studs to the foundation and floor. Therefore, the notations for footnotes "h" and "i" are deleted from the "Exposure Category" column.

The format of the footnotes is amended for consistency with the Revisor's style for footnotes.

The content of footnote "c" is revised to replace "32" with "30" and "38" with "36." This change is necessary to coordinate with numbering changes made to items in Table R602.3(1) of the 2018 IRC.

Footnotes "h," "i," and "j" are added with conditions for the attachment of wood wall studs to the foundation and floor of a dwelling to ensure the tall wall has sufficient strength and stability to withstand environmental pressures. All of the specific requirements in footnotes "h," "i," and "j" are from the following referenced standard: ANSI/WC NDS—2018: National Design Specification for Wood Construction, referenced in chapter 44 of the 2018 IRC.

Footnote "h" is added to include anchor bolt spacing requirements for walls between twelve feet and twenty-four feet in height. The requirements contained in footnote "h" are reasonable to ensure the wood wall studs used for framing a dwelling are securely attached to the foundation.

Footnote "i" is added with conditions for the attachment of the wood wall studs to components that attach the foundation and floor of a dwelling. These requirements are

reasonable to ensure the floor framing and wall framing are correctly connected to ensure the dwelling has sufficient strength and stability to withstand environmental pressures.

Footnote "j" is added with conditions for the attachment of frame walls to components at the top and bottom of the wall when the frame wall is more than 20 feet in height. Due to the weight of the tall frame walls and the environmental pressures the frame wall must withstand, it is reasonable to require the fastening or fastener to support at least 450 pounds.

Subp. 2. IRC section R602.10.11, Cripple wall bracing. Repealed. This subpart is repealed because section R602.10.11 was renumbered to section R602.10.10 in the 2018 IRC and contains similar language as the existing amendment. Therefore, this subpart is no longer necessary and is being repealed.

1309.0612 SECTION R612, EXTERIOR WINDOWS AND DOORS. Repealed.

This rule part is repealed because section R612 was renumbered to section R609 in the 2018 IRC and now contains similar requirements for exterior windows and doors. Therefore, this rule part is no longer necessary and is being repealed.

1309.0702 SECTION R702, INTERIOR COVERING.

Subpart 1. IRC Table R702.1(3). Repealed. This subpart is repealed because Table R702.1(3) was revised in the 2018 IRC and is identical to the table located in the existing subpart. Therefore, the modification is no longer necessary and the subpart is being repealed.

1309.0703 SECTION R703, EXTERIOR COVERING.

Subpart 2a. IRC section R703.2, Water–resistive barrier. Section R703.2 is revised to be almost identical to the model code. The only difference between proposed Section R703.2 and model code section 703.2 is the last sentence of the proposed rule. The last sentence of the model code states: "The No. 15 asphalt felt or other approved water-resistive barrier material shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section R703.1." In the proposed rule, the phrase "to the top of walls" is changed to "up to the underside of the rafter or truss top chord." This is also language in the current rule, and is needed and reasonable to clarify precisely to what point the felt or other material must be continuous.

Subp. 2b. IRC section R703.4, Flashing. This rule part contains language that is relocated from existing subpart 9 because the section pertaining to flashing was renumbered in the 2018 IRC. Proposed Section R703.4 is identical to current Section R703.8 (in subpart 9) except that one sentence has been added to the first paragraph of the rule. That sentence requires fluid-applied membranes used as flashing in exterior walls to comply with AAMA 714, Voluntary Specification for Liquid Applied Flashing Used to Create a Water-Resistive Seal Around Exterior Wall Openings in Buildings. This sentence is added for consistency with the 2018 IRC, which contains the same sentence in the first paragraph of model code Section R703.4. Flashing is installed around doors and windows to direct water away from the dwelling. Flashing can include fluid applied membranes. The proposed change is reasonable because it

refers code users to the recognized industry standard for the use of fluid-applied membranes as flashing, which will lead to more uniform enforcement and application of the code.

Proposed Section R703.4.1 is identical to current Section R703.8.1 in subpart 9.

Subp. 3. IRC section R703.7, Exterior plaster. Section R703.6 of the 2012 IRC was renumbered and relocated in the 2018 IRC to section R703.7. The subsequent section reference numbers are renumbered and a cross-reference changed because the corresponding sections were renumbered in the 2018 IRC. The only other amendment is to subsection R703.7.2.

Proposed subsection R703.7.2 is amended for consistency with the 2018 IRC to include the approved types of cement materials. The new language proposed in subsection R703.7.2 is identical to language in model code section R703.7.2. It is reasonable to include the approved types of cement materials for consistency with recognized cement industry standards and practice.

Subp. 8a. IRC section R703.7.4.2, Air space. Repeal. This subpart is repealed because it is no longer needed. Air space is required between the veneer and sheathing to allow water to drain away from the wall and the interior of the dwelling. The air space requirements in Table 703.8.4(1) of the 2018 IRC are consistent with the existing requirements for air space. Therefore, the existing subpart is no longer needed and it is reasonable to repeal the subpart.

Subp. 8b. IRC section R703.7.4.3, Mortar or grout fill; and IRC section R703.7.4.4, Masonry veneer on sheathed substrates. Repeal. The 2018 IRC includes requirements regarding grout fill and masonry veneer in sections R703.8.4, R703.8.4.1, R703.8.4.1.1, and R703.8.4.2. These requirements are a reasonable substitute for the requirements in current subpart 8b because the model code requirements serve the same purpose as the current rule: to ensure that the studs or sheathing are protected from weather corrosion, and to ensure that the weather-resistant material is adequately attached.

Subp. 9. IRC section R703.8, Flashing; and IRC section R703.8.1, Pan flashing of windows and doors. Repeal. This rule language has been moved to subpart 2b and amended as discussed above in connection with proposed subpart 2b. It is therefore reasonable to repeal current subpart 9.

1309.0807 SECTION R807, ATTIC ACCESS.

This rule part is added to modify section R807.1 of the 2018 IRC and carry forward the 2012 IRC code language for this section. There is no difference between the substantive requirements for attic access in the 2012 and 2018 IRC editions. However, the language in the 2012 IRC more clearly conveys the dimensions of attics required to have an access opening. The final sentence of this section is modified to direct the code user to Minnesota Rules, chapter 1346, the Minnesota Mechanical Code for the requirements for mechanical equipment located in attics. These modifications are reasonable so code requirements are more understandable and to provide the correct reference for mechanical equipment requirements.

1309.0903 SECTION R903, WEATHER PROTECTION.

IRC section R903.2.1.1 Existing buildings and structures. This section is modified to require kick-out flashings to be installed when an existing dwelling undergoes re-siding. Part 1309.0202 defines kick-out flashing as "flashing used to divert water where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding." Kick-out flashing is installed where the roof and the wall intersect to protect the wall and divert rainwater into the gutter and away from the dwelling to prevent rotting caused by water damage. The current amendment requires the installation of kick-out flashings when an existing dwelling is undergoing re-roofing and re-siding and does not require the installation of kick-out flashings for a dwelling that is undergoing re-siding. The current amendment does not state whether the installation of kick-out flashing is required when an existing dwelling undergoes re-siding. The proposed amendment clarifies that kick-out flashing is to be installed when the dwelling undergoes re-siding. It is reasonable to require the installation of kick-out flashing when a dwelling undergoes re-siding because it is easily installed at that time and will protect the newly installed siding from water damage. The proposed amendment clarifies an existing provision, which will result in more uniform enforcement and application of the code.

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.,* parts 1309.0030; 1309.0100, subp. 1. The chapters all cross-reference each other. For example, chapter 1309 and its proposed amendments cross reference chapter 1305 (*see, e.g.,* parts 1309.0020, subp. 2; 1309.0100, proposed subp. 3), chapter 1346 (*see, e.g.,* parts 1309.0010, subp. 3(D); 1309.0020, subps. 5, 6; proposed 1309.0303), chapter 1341 (*see, e.g.,* part 1309.0020, subp. 11; proposed part 1309.0320) and chapter 1311 (*see, e.g.,* part 1309.0100, subp. 2).

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 of adoption 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

1309 Technical Advisory Group Members

Rich Lockrem, TAG Lead, Department of Labor and Industry

Paul Swett, TAG Co-Lead, Department of Labor and Industry

Jerry Backlund, Association of Minnesota Building Officials

Mike Paradise, Builders Association of the Twin Cities-Housing First

Brent Nygaard, Builders Association of Minnesota

Curt Bennett, Greater Metropolitan Housing Corporation

EXHIBIT B

Structural Technical Advisory Group Members

Dan Kelsey, TAG Lead, Department of Labor and Industry

Scott Erickson, TAG Co-Lead, Department of Labor and Industry

Kyle Dimler, Association of Minnesota Building Officials

Randy Johnson, Association of Minnesota Building Officials

Craig Oswell, Builders Association of Minnesota

Mike Barden, Builders Association of the Twin Cities-Housing First

Ron LaMere, Minnesota Structural Engineering Association

EXHIBIT C

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