

## Minnesota Department of Labor and Industry

### STATEMENT OF NEED AND REASONABLENESS

#### Proposed Amendment to Rules Governing Adoption of the International Existing Building Code, Minnesota Rules, chapter 1311; Revisor's ID Number R-04511

#### 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 1311, the Minnesota Conservation Code for Existing Buildings. *See* Minnesota Rules, part 1300.0050.

The Commissioner proposes to adopt amendments to the Minnesota Conservation Code for Existing Buildings, Minnesota Rules, chapter 1311. The proposed rules will incorporate by reference the 2018 International Existing Building Code ("IEBC"), with amendments.

The International Code Council ("ICC") publishes the IEBC. 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 IEBC allows for the cost-effective rehabilitation of existing commercial buildings where compliance with all requirements with the current code for new construction would be cost prohibitive. The IEBC also provides the requirements for the addition, alteration, repair, and change of occupancy, or use, of existing buildings. The IEBC allows for the continued use or reuse of existing buildings while maintaining or improving the basic safety levels.

The current chapter 1311 adopts and amends the 2012 edition of the IEBC. *See* Minnesota Rules, part 1311.0010, subd. 1. Accordingly, the Department currently administers and enforces the 2012 edition of the IEBC with amendments as contained in Minnesota Rules, chapter 1311. Although the ICC published a 2015 edition of the IEBC, the Department did not adopt the 2015 edition of the IEBC 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.<sup>1</sup>

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 Chapter 1311 Technical Advisory Group ("Chapter 1311 TAG") to review the existing rule Chapter 1311 and the 2018 IEBC to propose reasonable and necessary amendments to the existing rule and the model code. The Chapter 1311 TAG members were appointed by the CCAC to review and comment upon the

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<sup>1</sup> *See* Minn. Stat. § 326B.106, subd. 1(c) (2018).

2018 IEBC and proposed changes to the Minnesota State Building Code. The Chapter 1311 TAG consisted of representatives from the Association of Minnesota Building Officials, Fire Marshals Association of Minnesota, American Institute of Architects Minnesota, Building Owners and Managers Association, and Department personnel.<sup>2</sup> The proposed amendments in this rulemaking incorporate changes to the 2018 IEBC proposed by the Chapter 1311 TAG members.<sup>3</sup>

Because many of the requirements in Chapter 1311 focus on evaluating the strength and stability of structural elements of a building, such as roofs and load-bearing walls, the Department also 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.<sup>4</sup> The Structural TAG evaluated the structural provisions of the 2018 I-Codes, including the IEBC. The proposed amendments in this rulemaking incorporate changes reviewed by the Structural TAG.

## **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 email: [dli.rules@state.mn.us](mailto:dli.rules@state.mn.us).

## **STATUTORY AUTHORITY**

Under Minnesota Statutes, chapter 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:

### **Section 326B.02.**

**Subdivision 5. General rulemaking authority.** The commissioner may, under the rulemaking provisions of chapter 14 and as otherwise provided by this chapter, adopt, amend, suspend, and repeal rules relating to the commissioner's responsibilities under this chapter, except for rules for which the rulemaking authority is expressly transferred to the Plumbing Board, the Board of Electricity, or the Board of High Pressure Piping Systems.

Because the Legislature has not granted rulemaking authority to any of these boards in connection with the Minnesota Conservation Code for Existing Buildings, the Commissioner is

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<sup>2</sup> A complete list of the Chapter 1311 TAG members is attached as Exhibit A.

<sup>3</sup> Chapter 1311 TAG during meetings on the following dates in 2018: January 18 and 24; February 8 and 22; and March 2 and 14. See Minutes of 1311 TAG meetings, available at <http://www.dli.mn.gov/about-department/boards-and-councils/existing-building-code-technical-advisory-group-tag>.

<sup>4</sup> A complete list of the Structural TAG members is attached as Exhibit B.

responsible for all amendments to the Minnesota Conservation Code for Existing Buildings. *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:

**Section 326B.101. Policy and purpose.** The State Building Code governs the construction, reconstruction, alteration, and repair of buildings and other structures to which the code is applicable. The commissioner shall administer and amend a state code of building construction which will provide basic and uniform performance standards, establish reasonable safeguards for health, safety, welfare, comfort, and security of the residents of this state and provide for the use of modern methods, devices, materials, and techniques which will in part tend to lower construction costs. The construction of buildings should be permitted at the least possible cost consistent with recognized standards of health and safety.

**Section 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, subd. 1(a), requires the Commissioner to consult with the Construction Codes Advisory Council (CCAC) in connection with the adoption of the State Building Code. Minnesota Statutes, section 326B.07, sets forth the requirements for membership in the CCAC. Exhibit C, attached, is a list of the current members of the CCAC.

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 1311 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 IEBC and chapter 1311. After review, the CCAC forwarded this report, with comments by the CCAC, to the Commissioner for consideration in proposing amendments to Chapter 1311.<sup>5</sup> The CCAC's comments and recommendations concerning changes to Chapter 1311 were then forwarded to the Commissioner for consideration in proposing amendments to Chapter 1311.

## 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 will likely be affected by the proposed rule include building officials, building contractors, designers, architects, engineers, materials manufacturers, historical officers and societies, building owners and managers, users of the facilities, and the general public.

The classes of persons who will bear the costs of the proposed rule include primarily building owners who must pay for the construction costs. Where businesses pay for the construction costs, the costs will ultimately be passed on to the consumers.

The proposed rule increases the costs for additions to existing schools, which increases the costs to school districts proposing new building projects. The cost of school buildings is ultimately passed on to the general public in the form of property taxes.

The classes of persons who will likely benefit from the proposed rules include building contractors, designers, building officials, materials manufacturers, historical officers and societies, building owners, and the general public.

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<sup>5</sup> 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>.

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

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

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 final rule.

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 less-intrusive methods for achieving the purpose of the proposed rules. The adoption of this code will provide uniform application and enforcement of construction standards, which will tend to lower costs by reducing the need for review by local and state review boards or other entities responsible for code interpretation and review. By adopting this code, construction costs will be reduced because this code permits less restrictive code requirements than the International Building Code ("IBC") to make building conservation and reuse of existing buildings more cost-effective.

**“(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 IEBC serves as the base document for Minnesota Rules, Chapter 1311, and it is currently the only model code limited to the rehabilitation of existing buildings 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”**

The proposed rules are required only insofar as a building owner chooses to renovate an existing building. The rules do not require an existing building to be renovated; rather, they are an option to reuse existing buildings as an alternative to demolition and new construction. Reusing an existing building typically costs less than demolition and new construction. Should a building owner choose to renovate an existing building subject to these rules, the building owner would likely bear any costs to comply with the proposed rules. It is difficult to quantify actual costs for renovation of existing buildings because design, age and condition of the building, among other factors, have a significant impact on costs, but the Department has determined the proposed rule will increase the cost of construction for some additions to existing schools.

The proposed rule will increase the cost of school construction for school districts by requiring many schools to have storm shelters if they build an addition of a certain size. These

costs are discussed in detail below. These requirements will provide additional life and safety protections to students.

Proposed rule 1311.1106, would require a storm shelter when certain additions are added to existing Group E occupancies in specified counties. A Group E occupancy is a building or part of a building used for educational purposes through the twelfth grade. Under proposed rule 1311.1106, schools would be required to have a storm shelter if: (1) an addition has an occupant load of 50 or more; and (2) the school is located in a county identified as at risk for tornadoes with high wind speeds. The proposed rule modifies section 1106.1 of the 2018 IEBC to clarify the counties where storm shelters are required for additions to existing Group E occupancies. Subsection 1106.1.1 of the model code, which is not proposed for amendment, clarifies that the storm shelter must be able to accommodate the entire occupancy of the school, with some exceptions. These exceptions are for additions that are too small to include a shelter to accommodate the occupancy of the entire school or where there are other existing storm shelters on the school site. At a minimum, the addition must have a storm shelter that can accommodate the occupants of the addition. The requirements of proposed rule 1311.1106 are necessary to protect building occupants from hazards to life and safety.

The Department requested a cost estimate for the storm shelter for a school from a design firm. The IEBC requires the storm shelter to be built to the specifications of the ICC 500 Standard on the Design and Construction of Storm Shelters. The ICC 500 requires five square feet for each occupant and toilet facilities to be provided. A minimum of two toilet facilities are required for a storm shelter with 50 to 500 occupants and an additional toilet facility is required for every 500 occupants. The design firm determined the cost per square foot for a storm shelter is approximately \$60 and each toilet facility costs approximately \$15,000. The anticipated cost to comply with the requirement for a school with 100 occupants and no existing storm shelter is \$60,000.

For additions, alterations, or repairs to existing buildings not used for educational purposes, it is difficult to anticipate the cost of compliance with the proposed rules. Generally, the additional cost of implementing the proposed existing building rules, when compared to the cost of implementing the current existing building rules, is not anticipated to be significant.

The IEBC and the other 2018 model codes include new requirements for hard-wired carbon monoxide detectors outside sleeping units. Minnesota Statutes section 299F.51 already requires carbon monoxide detectors in single and multi-family residences. The 2018 model building code also requires carbon monoxide detectors in various institutional buildings with sleeping units, such as day cares, dormitories, and commercial apartment buildings. Carbon monoxide detectors may therefore be required to be installed in existing areas of a building when additions are made to the building or when there is a change in occupancy within the building to a use requiring carbon monoxide detection. The installation of carbon monoxide detectors will add minimal cost. Because smoke detectors are already required, common practice is to install a combination smoke and carbon monoxide detector. The added cost is approximately \$25 per unit, with no additional installation cost.

There would be negligible costs to a municipal building department associated with a need for building officials to implement and update procedures, such as training, the purchase of

new code books, or the revision of certain documents, such as building permits. Most of the procedures and documentation are currently in place, so the changes would likely be revisions to current practices and would not create a need for new procedures or documents.

**“(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 IEBC, 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 2012 IEBC, and those references would be wrong in Minnesota where the section number or content changed from the 2012 IEBC (currently applied in Minnesota) to the 2018 IEBC.

Another consequence of not adopting the proposed rule would be the use of outdated materials and methods. Because current chapter 1311 is based on the 2012 edition of the IEBC, the materials and methods are all from 2012 or earlier. Such older methods may prove to be less efficient and outdated materials may become 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 1311 by not adopting the proposed rule would have a negative impact on administration, safety, application, and enforcement of Minnesota's building code provisions. The costs associated with not adopting the proposed rule will likely be borne by building owners, to whom the costs of purchasing outdated equipment and materials would be passed. The consequences of not adopting the proposed rule will likely 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 IEBC, 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”**

There are two types of federal regulations that affect the rehabilitation of existing buildings. First, there are federal accessibility requirements in the Americans with Disabilities Act. Those requirements are addressed in Minnesota Rules, chapter 1341, the Minnesota Accessibility Code. Chapter 1311, and the proposed amendments, refer readers to chapter 1341 for specific accessibility requirements.

The only other federal regulations that affect the rehabilitation of existing buildings are regulations that apply to nursing homes and other health care facilities regulated and licensed by the Minnesota Department of Health or that participate in Title XVIII (Medicare) or Title XIX (Medicaid) of the Social Security Act. The proposed rule includes an alternative method of compliance and an exception for health care facilities regulated and licensed by the Minnesota

Department of Health or participating in Medicare or Medicaid where federal regulations conflict with 2018 IEBC requirements.

**“(8) an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule. . . . ‘[C]umulative effect’ means the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time.”**

There is no cumulative effect related to the specific purpose of the rules. The purpose of these rules is to permit code requirements less restrictive than the IBC, so the conservation and reuse of existing buildings will be more cost-effective while maintaining building safety. Although there is no cumulative effect related to the specific purpose of the rules, chapter 1311 is one chapter of the approximately twenty-two chapters that comprise the Minnesota State Building Code, which is a single set of coordinated building construction regulations that apply throughout the state of Minnesota. There are no other building codes that can be used or enforced in this state. These rules are coordinated as part of the Minnesota State Building Code and with other state agencies' non-building regulations, when applicable.

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.<sup>6</sup>

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

## **PERFORMANCE-BASED RULES**

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

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<sup>6</sup> 43 S.R. 274-75 (Aug. 27, 2018).



## **ADDITIONAL NOTICE**

This Additional Notice Plan was reviewed by the Office of Administrative Hearings and approved in an Order dated June 6, 2019, by Administrative Law Judge Barbara J. Case.

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

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

- a. All certified building officials involved in code administration. This list includes all municipal building officials responsible for administration of the State Building Code.
- b. Association of Minnesota Building Officials
- c. Builders Association of Minnesota
- d. Builders Association of the Twin Cities-Housing First
- e. Associated Builders and Contractors – Minnesota/North Dakota Chapter
- f. Associated General Contractors of Minnesota
- g. Building Owners and Managers Association
- h. Minnesota State Fire Marshal Division
- i. Minnesota State Fire Chiefs Association
- j. League of Minnesota Cities
- k. Association of Minnesota Counties
- l. American Institute of Architects - Minnesota
- m. Minnesota Board of Electricity
- n. Minnesota Plumbing Board
- o. Minnesota Society of Professional Engineers
- p. Minnesota Association of School Administrators
- q. Minnesota Department of Education

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 April 1, 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 May 31, 2019, the Department received a memorandum dated the same day from MMB Executive Budget Officer Laurena Schlottach-Ratcliff which concluded that amended requirements for storm shelters and carbon

monoxide detectors will have a fiscal impact for school districts and local governments. Specifically, the memorandum states:

There are two provisions in this rule change that will have additional costs to school districts and/or local units of government that undergo renovation or rehabilitation of existing buildings. Under this rule change, schools that add an addition to existing buildings and that meet a specific criteria of conditions, will be required to build a storm shelter, which is estimated to cost about \$60,000. Additionally, this rule requires carbon monoxide detectors be installed in renovated/remodeled institutional buildings with sleeping units including day cares and dormitories with the estimated cost being \$25 per unit.

In summary the proposed rule changes will have a fiscal impact for school districts and local governments.

## **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.”<sup>7</sup> 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

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<sup>7</sup> 43 S.R. 274 (Aug. 27, 2018).

compliance should be minimal except for the costs to school districts contemplating the construction of additions to existing schools. (See pages 5-6 of this SONAR.)

In finding that the proposed rules would have a fiscal impact on school districts and/or local government, Executive Budget Officer Laurena Schlottach-Ratcliff pointed to two provisions in the rules: the requirement that schools adding an addition to an existing building may need to build a storm shelter, and the requirement that carbon monoxide detectors be installed in renovated/remodeled institutional buildings with sleeping units. The cost of the storm shelter would be borne by the school district. Although a school district might be considered a part of “local government” in the broad sense, since it is supported by local taxes, a school district is not a small city or small business. A school district is a legal entity separate from any city. Therefore, no small city or small business would bear the cost of the storm shelter. Regarding carbon monoxide detectors, the anticipated cost of each carbon monoxide detector is \$25 per unit. Even if a small city or business would need to install carbon monoxide detectors in connection with additions, this cost would be minimal.

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

The Department is also interested in determining whether the cost of complying with the rule in the first year after the rule takes effect will cost or exceed \$25,000 for any small city or small business under *Minnesota Statutes*, section 14.127, subdivision 1. A small city is a statutory or home rule charter city that has less than ten full-time employees and a small business means a business that has less than 50 full-time employees.<sup>8</sup>

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. Division staff from the Construction Codes and Licensing Division, if necessary; and
2. Other members of the Technical Advisory Groups, if necessary.

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<sup>8</sup> 43 S.R. 275 (Aug. 27, 2018).

## **RULE-BY-RULE ANALYSIS**

### **GENERAL**

Throughout the Rule-by-Rule Analysis section of this SONAR, specific terms are used to explain the type and extent of work that will allow for the rehabilitation and reuse of an existing building.

**Addition.** “Addition” is defined in section 202 of the IEBC as an extension or increase in floor area, number of stories, or height of any building or structure. The provisions of the International Building Code (“IBC”) that apply to new construction apply to the addition itself; however, the IEBC contains provisions that require the designer to evaluate the impact of the addition on the existing building.

**Alteration.** “Alteration” is defined in section 202 of the IEBC as any construction or renovation to an existing structure other than a repair or addition. Alterations are more extensive than repairs. Section 503 of the IEBC describes the prescriptive requirements for alterations. The IEBC also includes requirements based on the extent of the alterations being performed. The IEBC identifies three levels of alterations.

**Level 1 alteration.** A “Level 1 alteration” is described in section 602 of the IEBC as the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. There are no changes to the configuration of spaces or rooms within the existing building. The replacement or covering materials, elements, equipment, or fixtures serve the same purpose as the existing ones.

**Level 2 alteration.** A “Level 2 alteration” is described in section 603 of the IEBC as the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment. The work area that is undergoing alteration constitutes fifty percent or less of the building. The reconfiguration of space can include the addition or removal of a wall, which can change how occupants exit the building. An extension of a system can include the extension of the plumbing system to a space reconfigured for an additional toilet room. A Level 2 alteration must comply with IEBC requirements for Level 1 alterations as well as Level 2 alterations.

**Level 3 alteration.** A “Level 3 alteration” is described in section 604 of the IEBC as an alteration where the work area undergoing alteration exceeds fifty percent of the building. A Level 3 alteration must comply with IEBC requirements for Level 1 alterations and Level 2 alterations as well as Level 3 alterations.

**Occupancy classification.** “Occupancy classification” is defined in section 302 of the IBC as the formal designation of the primary purpose of the building, structure for portion thereof. Structures are classified into occupancy groups based on the nature of the hazards and risks to the building occupants associated with the intended purpose of the structure. Occupancy groups are described in detail in chapter 3 of the IBC. The IEBC has requirements for existing buildings that change from one occupancy to another.

**Change of occupancy.** A “change of occupancy” is defined section 202 of the IEBC as:

A change in the use of a building or a portion of a building that results in any of the following:

1. A change of occupancy classification.
2. A change from one group to another group within an occupancy classification.
3. Any change in use within a group for which there is a change in application of the requirements of this code.

An existing building currently used as an office that is converted to a retail store undergoes a change of occupancy from Group B to Group M. An example of a change from one group to another group within an occupancy classification is an assisted living center (Group I-1) converted to a nursing home (Group I-2). A change of occupancy may result in a change in the application of the code that requires additional features for the life safety of building occupants.

### **1311.0010 ADOPTION BY REFERENCE OF THE INTERNATIONAL EXISTING BUILDING CODE.**

**Subpart 1. General.** This subpart is modified to incorporate by reference the 2018 IEBC edition instead of the 2012 edition. The latest edition is the 2018 edition, which includes the most current construction criteria. This modification is necessary to properly incorporate by reference the 2018 edition of the IEBC. This modification is reasonable because it incorporates the most current, nationally recognized minimum requirements to safeguard the public health, safety, and general welfare of occupants of existing buildings undergoing rehabilitation, alternation, addition, or repair. This modification is also consistent with the following requirement in Minnesota Statutes, section 326B.106, subd. 1(a): “The code must conform insofar as practicable to model building codes generally accepted and in use throughout the United States ....”

**Subp. 1a. Deleted appendices.** This proposed subpart deletes the IEBC appendices. This is needed for clarity and consistency with current practice. Chapter 1311 does not refer to any of the appendices to the IEBC, and the Department does not enforce anything in the appendices to the IEBC. It is therefore appropriate to delete the appendices.

**Subp. 2. Mandatory Chapters.** The first sentence of this subpart is amended to correct an error. The Minnesota State Building Code consists of many rule chapters, including chapter 1311. The term “Minnesota Building Code” refers only to chapter 1305, the adoption of the International Building Code. *See* Minn. R. 1300.0050. The second sentence of subpart 2 is added to explain that the amendments to IEBC section 305 are located in Minnesota Rules, chapter 1341, the Minnesota Accessibility Code. IEBC section 305 addresses accessibility requirements for existing buildings undergoing addition, alteration, or change of occupancy. The proposed amendments to IEBC section 305 are included with the proposed changes to Minnesota Rules, chapter 1341. It is reasonable to locate the amendments to the accessibility section of the IEBC in Minnesota Rules, chapter 1341 because the accessibility code is a stand-alone code that amends other documents within chapter 1341 to comprise the entire Minnesota Accessibility Code. The explanation that the amendments to IEBC section 305 are located in Minnesota Rules, chapter 1341, also directs code users to the correct location for Minnesota’s accessibility requirements for existing buildings undergoing addition, alteration, or change of occupancy.

**Subp. 3. Replacement chapters and provisions.** Existing subitem A is being deleted because the sections listed no longer address accessibility for existing buildings. The 2018 edition of the IEBC revised and reformatted accessibility provisions into a single section, 305, that is being incorporated by reference in this rules chapter with amendments to be located in Minnesota Rules, chapter 1341. It is reasonable to delete existing subitem A because of revisions to the IEBC. Because subitem A is being deleted, the subsequent subitems are re-lettered accordingly. Other than re-lettering, there are three changes to existing subitems B through F. Existing subitem B refers to the 2012 IEBC. The date needs to be deleted because part 1311.0010, subp. 1, identifies the version of the IEBC incorporated by reference (which is proposed to be the 2018 version). In existing subitem D, the words “Minnesota Rules” are added to clarify that the reference to chapter 1305 is not a reference to IEBC chapter 1305. Existing subitem F is made a separate subpart 4, because the text of subitem F does not fit with the introductory sentence of subpart 3: existing subitem F is not something replacing a chapter or section in the 2018 IEBC.

### **1311.0020 REFERENCES TO OTHER INTERNATIONAL CODE COUNCIL CODES.**

**Subp. 2. Building code.** This definition is being amended to add “Minnesota Building Code.” This is consistent with the definition of chapter 1305 in Minnesota Rule 1300.0050. This is distinguished from the Minnesota State Building Code, defined in proposed subpart 12.

**Subp. 12. Minnesota State Building Code.** This proposed subpart is needed to clarify the meaning of the Minnesota State Building Code, which is different from the Minnesota Building Code. While Minnesota Building Code means only chapter 1305, Minnesota State Building Code means all the chapters that comprise the state building code. *See* Minn. R. 1300.0050.

### **1311.0202 SECTION 202, GENERAL DEFINITIONS.**

**Subp. 2. Section 202, General definitions; amended.** These definitions are in the IEBC but amended in part 1311.0202. In some definitions, the only change is to add the phrase “[term being defined] means” at the beginning of the definition, for clarity and consistency. Other amendments to the definitions are discussed below.

**Code official.** The definition of “code official” is modified to clarify that both “code official” and “building code official” have the same meaning as “building official” in chapter 1300, which is the administrative chapter adopted in the various chapters of the building code. *See, e.g.,* current part 1311.0010, subp. 3(B). The IEBC uses “code official” and “building code official” to describe an individual who administers and enforces building codes. Other I-Codes, including the IBC, use the term “building official” to describe the individual who has the responsibility to enforce and administer the building code. It is reasonable to clarify that “code official” and “building code official” have the same meaning as “building official” because the IEBC frequently refers users to the IBC for additional requirements.

**Historic Building.** The definition of historic building located in the 2018 IEBC is modified to refer to the definition of “historical building” located in Minnesota Rules, part 1300.0070. Minnesota Rules, chapter 1300, contains the administrative provisions of the

Minnesota State Building Code. This definition allows for broader interpretation of “historic building” than the definition located in the 2018 IBC. The definition of historical building located in rule 1300.0070 includes buildings that are listed on the National or State Register of Historic Places or are eligible to be listed in the opinion of the State Historic Preservation Officer or Keeper of the National Register of Historic Places. Furthermore, the proposed amendments to the Minnesota Building Code include this same proposed definition of “historic building.”<sup>9</sup> It is needed and reasonable for the definitions of “historic building” and “historical building” to be consistent in all rules chapters that comprise the Minnesota State Building Code.

**Repair.** The proposed definition substitutes the phrase “individual component replacement” for the word “replacement” in the IEBC. This is reasonable and needed to distinguish repairs from alterations. Alterations are more extensive, and are subject to additional requirements in IEBC section 503.

**Substantial damage.** The definition of substantial damage in the IEBC is modified to delete the phrase “[f]or the purpose of determining compliance with the flood provisions of this code” because part 1311.0010, subpart 3, subitem D, replaces flood hazard and floodproofing provisions in the IEBC with Minnesota Rules, chapter 1335, Floodproofing Regulations. It is reasonable to delete the reference to flood provisions because the IEBC flood provisions for structures that have sustained substantial damage do not apply.

**Substantial improvement.** The definition of substantial improvement in the IEBC is modified to delete the phrase “[f]or the purpose of determining compliance with the flood provisions of this code” because part 1311.0010, subpart 3, subitem D, replaces flood hazard and floodproofing provisions in the IEBC with Minnesota Rules, chapter 1335, Floodproofing Regulations. It is reasonable to delete the reference to flood provisions because the IEBC flood provisions for structures that are undergoing substantial improvement do not apply. The definition is also modified to use the term “historic building” instead of “historic structure” because the rule defines the term “historic building.”

### **1311.0301 SECTION 301, ADMINISTRATION.**

The title of this rule part is changed from “Compliance Methods” to “Administration” for consistency with the headings in the 2018 IEBC. In addition, this subpart is amended by renumbering the IBC section references because the corresponding sections were renumbered in the 2018 IBC.

**Subpart 1. Section 301.3.1, Prescriptive compliance methods.** This subpart is amended for consistency with revisions made to the 2018 IEBC. Chapter 5 of the 2018 IEBC addresses prescriptive compliance methods, which were addressed in chapter 4 of the 2012 IEBC. The reference to chapter 4 is therefore deleted and replaced with chapter 5. The language is modified to delete “repairs” for consistency with section 301.3.1 of the 2018 IEBC. Due to revisions to the 2018 IEBC, repairs are no longer addressed in the chapter on prescriptive compliance methods and are discussed in a separate chapter.

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<sup>9</sup> See proposed rule 1305.0202, subpart 1.

**Subp. 2. Section 301.5, Compliance with accessibility.** The existing language in this subpart is deleted because the 2018 IEBC has been reformatted. The existing language on window cleaning anchors is relocated to new rule part 1311.0302. The existing language on replacement windows is no longer needed because replacement windows are addressed in sections 702.4 and 702.5 of the IEBC (with proposed amendments to section 702.5 as discussed below). The proposed changes to this subpart modify section 301.5 of the 2018 IEBC to require compliance with Minnesota Rules, chapter 1341, the Minnesota Accessibility Code. Chapter 1341 adopts the ICC A117.1 with amendments. It is reasonable to modify section 301.5 to provide code users with the correct reference to Minnesota accessibility requirements.

### **1311.0302 SECTION 302, GENERAL PROVISIONS.**

**Section 302.3.1 Window cleaning anchors.** This section is renumbered from 301.2.1 to 302.3.1 for consistency with the renumbering of the 2018 IEBC. Therefore, this section is relocated from subpart 1311.0301 to this new subpart. There are no changes made to the requirement that window cleaning anchors comply with the Minnesota Building Code.

### **1311.0305 SECTION 305, ACCESSIBILITY FOR EXISTING BUILDINGS.**

This subpart is added to coordinate between this rule chapter and Minnesota Rules, chapter 1341, the Minnesota Accessibility Code. Contemporaneously with this rulemaking, the Department is proposing amendments to chapter 1341. The proposed amendments include incorporation by reference of section 305 of the 2018 IEBC. All proposed amendments to section 305 of the 2018 IEBC will be contained in Chapter 1341.

Proposed part 1311.0305 refers the code user to Chapter 1341 because the Minnesota Accessibility Code is enforced throughout the state. The Minnesota State Building Code is the minimum standard for construction in Minnesota. It must be enforced in the seven metropolitan counties and any municipality that has adopted the code by ordinance. To ensure that the accessibility provisions for existing buildings are properly applied and all state accessibility requirements are located in the same rules chapter, it is reasonable to incorporate section 305 with amendments in Minnesota Rules, chapter 1341, and to direct the code user to Chapter 1341.

### **1311.0401 SECTION 401, GENERAL: REPEALED**

Section 401 in the 2012 IEBC has been amended and renumbered as section 501 in the 2018 IEBC. Section 501.1 in the 2018 IEBC is comparable to current rule 1311.0401, except that the exception in the rule refers readers to the requirements for bleachers in Minnesota Statutes, section 326B.112 instead of the ICC 300. A reference to section 326B.112 is not needed here because current rule 1305.1028<sup>10</sup> amends ICC 300 to be consistent with the requirements of section 326B.112. Therefore, there is no need to amend section 501 of the 2018 IEBC; the repeal of current rule 1311.0401 is reasonable.

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<sup>10</sup> Proposed amendments to part 1305.1028 would renumber the rule 1305.1029 for consistency with the 2018 IBC, and would place all the amendments to ICC 300 in subpart 1, but would not make any substantive changes to the amendments to ICC 300.



### **1311.0404 SECTION 404, REPAIRS: REPEALED**

In the 2012 IEBC as amended by the current chapter 1311, repairs were addressed in several sections, including chapter 6 and section 404.<sup>11</sup> In the 2018 IEBC, the provisions regarding repairs are consolidated in the new chapter 4. Current rule 1311.0404 is being repealed because it is no longer needed; the new IEBC chapter 4 (as amended by proposed rule 1311.0405 below) contains all the necessary provisions.

### **1311.0405 SECTION 405, STRUCTURAL**

Current rule 1311.0606 is being renumbered to 1311.0405, and references to sections are renumbered because of the renumbering of sections in the IEBC. The language of the amendment is revised for consistency with 2018 IEBC section 405.2.4 with modifications. The modifications require the repair of structural components that have sustained substantial structural damage to comply with the IBC requirements for snow loads, including the effects of snow drifts. The IEBC only requires the rehabilitation of components to comply with the snow load requirements of the IBC if snow loads caused the damage to the component. It is necessary to require any rehabilitation of components to comply with the IBC requirements for snow loads due to Minnesota's climatic conditions, which include heavy snowfall. Determining if the rehabilitated building components can withstand snow loads is necessary to ensure that the component will not be required to carry too much load, or weight, following a snowfall event. The modification that the damaged component comply with IBC requirements for snow drift effects is necessary for roofs that are damaged and undergoing rehabilitation. The rehabilitation of the roof may alter the snow drift effects, meaning snow may collect on the roof at a different location than it did prior to the rehabilitation. If the changes to snow drift effect are not calculated and anticipated as a part of the rehabilitation of components, then the weight of snow may result in damage to the roof.

The language is also modified to require building components that are not damaged to be rehabilitated or the designer must verify the undamaged components are able to carry whatever loads, or forces, that will be placed on them because of design changes for the rehabilitated damaged components.

A design professional must calculate the loads on damaged rehabilitated components and undamaged components. The modifications to this section merely clarify the calculations that must be performed for snow drift effects in order to verify that the undamaged components do not require rehabilitation to sustain the loads of the rehabilitation design.

### **1311.0502 SECTION 502, ADDITIONS.**

Current rule 1311.0402 is being renumbered to 1311.0502, and references to sections are renumbered because of the renumbering of sections in the IEBC. All other amendments are discussed below.

**Subpart 1. Section 502.4, Existing structural elements carrying gravity load.** The language is revised for consistency with section 502.4 of the 2018 IEBC, with modifications.

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<sup>11</sup> See <https://codes.iccsafe.org/content/MCCEB2015>

The proposed amendment clarifies that, when an addition is added to an existing structure, the demand-capacity ratio for a structural element is permitted to increase to a total of 105 percent. The IEBC language and the current rule would allow the demand-capacity to increase by five percent. This means the structural element may carry five percent more load than the structural element carried before the addition. The purpose of the language was to prevent the structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the addition, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio before the addition, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence is new. This sentence would require the calculation of the demand-capacity ratio to include all loads on the structural element as a result of all additions and alterations that have occurred since the original construction of the building. The total load the structural element carries from all cumulative changes can only be five percent more than the load the structural element is permitted to carry by the IBC. If prior additions and alterations are not considered, then allowing 105 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a five percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The last two sentences of proposed section 502.4 are amended to be identical to the last two sentences of section 502.4 of the IEBC.

Because the exception does not need to be amended, a sentence is added to clarify that the exception remains unchanged.

**Subp. 1a. Section 502.5, Existing structural elements carrying lateral load.** The language of the first exception is revised for consistency with section 502.5 of the 2018 IEBC, with modifications. The first sentence of the proposed exception clarifies that, when an addition is added to an existing lateral load-carrying structural element, the demand-capacity ratio for the structural element is only permitted to reach a total of 110 percent. The IEBC language and the current rule would allow the demand-capacity ratio to increase by up to 10 percent. This means the structural element may carry up to ten percent more load than the structural element carried before the addition. The purpose of the language was to prevent the structural element from carrying more than ten percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the addition, it would not make sense to limit the increase to ten percent. Similarly, if the structural element carried 106 percent of the demand-capacity ratio before the addition, allowing an additional ten percent would permit too much load

on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 110 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence of the exception is new. This sentence would require the calculation of the demand-capacity ratio to include all loads on the structural element as result of all additions and alterations that have occurred since the original construction of the building. The total load the structural element carries from all cumulative changes can only be ten percent more than the load the structural element is permitted to carry by the IBC. If prior additions and alterations are not considered, then allowing 110 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a ten percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The second sentence of the exception is also modified to delete the reference to section 1613 of the IBC. That section contains design requirements for earthquake loads, and chapter 1311 deletes all references to earthquake provisions of the IEBC. *See* Minnesota Rules, part 1311.0010, subpart 3, item F.

### **1311.0503 SECTION 503, ALTERATIONS.**

Current rule 1311.0403 is being renumbered to 1311.0503, and references to sections are renumbered because of the renumbering of sections in the IEBC. All other amendments are discussed below.

**Subpart 1. Section 503.1, General.** This subpart is amended to delete unnecessary words in exception 3.

**Subp. 2. Section 503.3, Existing structural elements carrying gravity load.** The language is revised for consistency with section 503.3 of the 2018 IEBC, with modifications. The proposed amendment clarifies that, when an alteration is made to an existing structure, the demand-capacity ratio for a structural element is only permitted to increase to a total of 105 percent. The IEBC language and the current rule would allow the demand-capacity to increase by five percent. This means the structural element may carry up to five percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio before the alteration, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence is new. This sentence would require calculation of the demand-capacity ratio to include all loads on the structural element as result of all additions and alterations that have occurred since the original construction of the building. The total load the structural element carries from all cumulative changes can only be five percent more than the load the structural element is permitted to carry by the IBC. If prior additions and alterations are not considered, then allowing 105 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a five percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition rather than taking into account the cumulative effects of all additions and alterations on the structural element.

**Subp. 2a. Section 503.4, Existing structural elements carrying lateral load.** The language of the exception is revised for consistency with section 503.4 of the 2018 IEBC, with modifications. The first sentence of the proposed amendment clarifies that, when an alteration is made to an existing lateral load-carrying structural element, the demand-capacity ratio for the structural element is only permitted to reach a total of 110 percent. The IEBC language would allow the demand-capacity ratio to increase by up to 10 percent. This means the structural element may carry up to ten percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than ten percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to ten percent. Similarly, if the structural element carried 106 percent of the demand-capacity ratio before the alteration, allowing an additional ten percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 110 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a ten percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The exception is also modified to delete the reference to section 1613 of the IBC and to seismic forces. Section 1613 of the IBC contains design requirements for earthquake loads, and chapter 1311 deletes all references to earthquake and seismic provisions of the IEBC. *See* Minnesota Rules, part 1311.0010, subpart 3, item F.

**Subp. 9. Section 503.15, Carbon monoxide alarms.** A new subpart is added to modify section 503.15 to direct code users to section 915 of the IBC for the requirements for carbon monoxide alarms for existing buildings undergoing alteration using the prescriptive compliance method. This modification is necessary because section 503.15 of the IEBC directs readers to the International Fire Code. In Minnesota, all references to the International Fire Code do not apply and have been deleted, pursuant to current rule 1311.0020, subpart 3, which is not being amended.

### **1311.0504 SECTION 504, FIRE ESCAPES.**

Current rule 1311.0405 is being renumbered to 1311.0504, and references to sections are renumbered because of the renumbering of sections in the IEBC.

### **1311.0505 SECTION 505, WINDOWS AND EMERGENCY ESCAPE OPENINGS.**

**Subpart 1. Section 505.3 Replacement window and emergency escape and rescue openings.** This new subpart adds subsection 505.3.1 to the IEBC with the minimum size requirements for replacement windows in state licensed facilities where the prescriptive compliance method is used for the rehabilitation of a building. During the adoption of the 2012 I-Codes, the Minnesota Fire Code was amended to include sizing requirements for replacement windows for state licensed facilities. The amendment was necessary so individuals who own facilities (such as foster care and day care) and code users are informed of requirements for replacement windows. The proposed modification to section 505.3.1 is reasonable because it clarifies code requirements for replacement windows in state licensed facilities and will provide uniform enforcement of the code for building officials and between state agencies. The specific requirements in the proposed rule are the same as in current part 7511.1029, subpart 3.

**Subp. 2. Section 505.4, Emergency escape and rescue openings.** This subpart is added to delete the final sentence of section 505.4 of the 2018 IEBC that addresses the location of smoke alarm requirements. Other than the final sentence, proposed section 505.4 is identical to section 505.4 of the 2018 IEBC. The final sentence of section 505.4 of the 2018 IEBC contains requirements for smoke alarms. The inclusion of fire alarm requirements in this section is inconsistent with how smoke alarm requirements are addressed in other sections of the 2018 IEBC. The inclusion of smoke alarm requirements in this section may cause confusion which can result in misapplication of code requirements for smoke alarms so smoke alarms are not properly installed and placed in existing buildings as required by the IEBC. Smoke alarms are required to be placed in existing buildings by sections 502.6 and 503.14.

### **1311.0506 SECTION 506, CHANGE OF OCCUPANCY.**

Current rule 1311.0407 is being renumbered to 1311.0506, and references to sections and the table are renumbered because of the renumbering of the IEBC. All other amendments are discussed below.

**Subpart 1. Section 506.1, Compliance.** The title has been changed and the exception added for consistency with section 506.1 of the 2018 IEBC. The exception is identical to the exception in section 506.1 of the 2018 IEBC. The last sentence of the subsection has been added to clarify that IEBC subsection 506.1.1 is not amended.

**Subp. 2. Table 506.1, Life safety and fire risk.** Table 407.1 in the 2012 IEBC has been renumbered Table 506.1 in the 2018 IEBC, so the table number in the rule needs to be changed accordingly.

This table was added by amendment to chapter 1311 during the adoption of the 2012 I-Codes to clarify how hazardous the various occupancies are in relation to one another and to be used as a tool to support building officials in determining relative hazards when interpreting

Section 407.1 (now 506.1). When a designer presents a change of occupancy, the table provides classification and hazard ratings for the building official when the design is of an equal or lesser hazard to the existing occupancy of the building. The hazard rating indicates to the building official whether additional features are needed to mitigate fire risk and otherwise protect the life safety of building occupants.

The Technical Advisory Group reviewed the existing Relative Hazard Levels and distribution of Occupancy Classifications and found that the number of relative hazard categories was not enough to adequately reflect differences in hazard levels indicated by several provisions of the IBC. In addition, the distribution of occupancy groups among the levels was inconsistent with the relative hazard levels indicated by: (1) the building code height and area tables found in IBC Chapter 5; (2) fire alarm requirements and fire sprinkler requirements found in IBC Chapter 9; and (3) means of egress requirements found in Chapter 10 of the 2018 IBC. Furthermore, Table 407.1 did not adequately address the conversion of a residential building constructed in accordance with Minnesota Rules, chapter 1309, when there is a change in use inconsistent with scoping to Minnesota Rules, chapter 1309. Therefore occupancy classifications for IRC-1, IRC-2, IRC-3, and IRC-4 as defined by Minnesota Rule 1300.0070, subpart 12b, are added to the table to provide guidance.

Level 1: The highest hazard level, Level 1, remains unchanged and includes all Group H (Hazardous) occupancies, I-2 (hospitals & nursing homes), and I-3 (prisons, jails, and detention facilities).

Level 2: Assembly Occupancies A-1, A-2, A-3 and A-4 form the new Level 2. New to this level are occupancies A-2, A-3, and A-4. These assembly occupancies have dense concentrations of people and require panic hardware on doors when the occupant loads exceed 50 persons. These assembly occupancies also have low thresholds for requiring sprinkler systems and fire alarm systems based upon occupant load as well as area. The I-4 category previously located at this level is moved down one level because the occupancy group has consistently higher allowable areas and does not require panic hardware on doors.

Level 3: New to Hazard Level 3 are the A-5 and I-4 occupancies. Group A-5 (bleachers, grandstands, and stadiums) is increased from Level 4 because of the large concentration of people, the requirement for panic hardware, as well as the requirement for sprinklers and alarm systems. Sprinkler requirements are limited to accessory use areas larger than 1,000 square feet which keeps Group A-5 from the same level as the other A occupancy groups. Group I-4 is very similar to Group E in allowable height and area. Other occupancy groups remaining at this hazard level are E (K-12 education), I-1 (senior housing and assisted living), R-1 (hotels), and R-2 (apartments).

Level 4: Remaining at Level 4 are Group R-3 (one to two dwelling units within a mixed occupancy building or residential with 16 or fewer occupants), Group R-4 (supportive living environments such as alcohol and drug centers, halfway houses, etc.), and Group M (retail sales/mercantile) occupancies. Upgraded from this level is occupancy A-5 as previously discussed. Downgraded from this level are Groups B (offices), F-1 (moderate hazard manufacturing), and S-1 (moderate hazard storage) occupancies. Groups B, F-1, and S-1 do not require panic hardware and have significantly higher allowable areas and heights. Level 5 was

created to accommodate this group.

Level 5: Introduced between the previous Level 5 and Level 4, this new level is included to reflect that Groups B, F-1, and S-1 are lower in hazard than Groups R-3, R-4 and M. This lower hazard level is indicated by these occupancies' significantly larger allowable areas and heights, lack of a requirement for panic hardware, and opportunity for an unlimited area building option if fully sprinklered and provided with 60 foot yards around the building perimeter per Section 507. Also introduced at this level are Groups IRC-1 (single family detached dwellings) and IRC-3 (single family attached/townhomes), which are stand-alone buildings of Type V construction having greater protections either by separation from other buildings or by complete separation through fire-resistance rated construction and sprinkler systems.

Level 6: This new level is included to reposition Groups F-2 (low hazard manufacturing) and S-2 (low hazard storage) from the previous Level 5 position. These two groups have larger allowable areas and heights, and higher thresholds for requiring sprinkler systems than F-1 and S-1. Group U is demoted to hazard level 7. Group IRC-2 is added to level 6 because the separation requirements between dwelling units in a two-family dwelling are less restrictive than they are between IRC-1 single-family detached and IRC-3 townhomes.

Level 7: This new hazard level is introduced to reflect the lowest hazard represented by Group U and IRC-4 occupancies. These two groups are comprised of private detached garages, utility sheds, agricultural buildings, tanks and towers.

The IEBC does not address requirements for the remodeling of residential dwellings. These residential occupancy classifications are added to the table for reference in the event that a residential dwelling is being converted to non-residential use such as mercantile or business. The addition of residential occupancies to the table will assist building officials in determining the hazard posed by the change of occupancy. Footnote (a) to this effect is added for clarification.

**Subp. 4. Section 506.4.1, Live loads.** A new subpart is added to modify the exception to section 506.4.1 of the 2018 IEBC. The IEBC language would allow the demand-capacity to increase by five percent. This means the structural element may carry up to five percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio before the alteration, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

A sentence is added to the end of the exception to clarify that the designer should account for the effects of all additions and alterations upon the structural element and the effects of all loads and forces upon the building when determining the demand-capacity ratio. Without this sentence, the designer may only account for the most recent alteration or addition the element is

undergoing. It is necessary to take into account all additions, alterations, loads and forces in order to ensure that the structural element is capable of carrying the demands of forces that are placed upon it, such as gravity, the weight of snow, and the force of wind.

## **1311.0702 SECTION 702, BUILDING ELEMENTS AND MATERIALS.**

**Section 702.5, Replacement window emergency escape and rescue openings.** The language in the first sentence of section 702.5 of the 2018 IEBC is amended to remove the references to the International Residential Code and to one- and two-family dwellings and townhomes, which are regulated by the International Residential Code. This is needed and reasonable because chapter 1311 does not apply to residential construction in Minnesota. *See* Minnesota Rules, part 1311.0020, subpart 9.

Item number 1 of section 702.5 of the 2018 IEBC is modified to add a second sentence. The new sentence would allow a replacement window in an existing building undergoing Level 1 alterations to have either: (1) the same operating style, such as double hung or casement, as the existing window; or (2) a style that allows for an equal or greater window opening than the existing window. This change offers more flexibility with replacement windows, but still maintains life safety by ensuring that the replacement window serving as an emergency escape and rescue opening has at least the same opening size as the current window.

Item number 2 and the last sentence of the proposed section are identical to the 2018 IEBC.

**Section 702.5.1, Licensed facilities.** This is a new subsection with the minimum size requirements for replacement windows in state licensed facilities in buildings undergoing Level 1 alterations. During the adoption of the 2012 I-Codes, the Minnesota Fire Code was amended to include sizing requirements for replacement windows for state licensed facilities. The amendment was necessary so individuals who own facilities such as foster care and day care and code users are informed of requirements for replacement windows. Proposed subsection 702.5.1 is reasonable because it clarifies code requirements for replacement windows in state licensed facilities and will provide uniform enforcement of the code for both building officials and between state agencies. The requirements in proposed section 702.5.1 are identical to the requirements in the current Minnesota Fire Code, part 7511.1029, subpart 3.

## **1311.0706 SECTION 706, STRUCTURAL.**

**Section 706.2, Addition or replacement of roofing or replacement of equipment.** This rule part is amended for consistency with the 2018 IEBC, with modifications. The proposed amendment clarifies how designers are to determine a structure's ability to support the addition or replacement of roofing or replacement of equipment when a building is undergoing Level 1 alterations. Specifically, the proposed language would only permit the demand-capacity ratio to increase to a total of 105 percent. The IEBC language and the current rule would allow the demand-capacity to increase by five percent. This means the structural element may carry up to five percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does



just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio before the alteration, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence of the proposed rule is new. This sentence would require the calculation of the demand-capacity ratio to include all loads on the structural element as result of all additions and alterations that have occurred since the original construction of the building. Under the proposed rule, the total load the structural element carries from all cumulative changes could only be five percent more than the load the structural element is permitted to carry by the IBC. If prior additions and alterations are not considered, then allowing 105 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a five percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition or replacement of roofing or replacement of equipment rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The exceptions to this section are revised for consistency with the 2018 IEBC. The proposed first exception is the same as the first exception in the 2018 IEBC except that the reference to the International Residential Code (“IRC”) would be eliminated. This is needed and reasonable because chapter 1311 does not apply to residential construction. *See* Minnesota Rules, part 1311.0020, subpart 9. The second exception is identical to the second exception in the 2018 IEBC.

#### **1311.0801 SECTION 801, GENERAL.**

This subpart is amended by renumbering the section reference from “504” to “603” to coordinate with numbering changes made to the 2012 IEBC.

#### **1311.0802 SECTION 802, SPECIAL USE AND OCCUPANCY [REPEALED].**

This rule part is being repealed because requirements for special use and occupancy buildings have been relocated to sections 902 and 1002. Therefore, this subpart is no longer necessary and is being repealed.

### **1311.0803 SECTION 803, BUILDING ELEMENTS AND MATERIALS [REPEALED].**

This rule part is being repealed because it addresses fire resistance ratings for smoke barriers. The 2018 IEBC now requires smoke barriers to comply with the International Building Code, which contains the same requirement as current rule 1311.0803. For example, section 802.3 of the IEBC requires certain smoke barrier walls to comply with section 407.5 of the IBC, which in turn refers to section 709 of the IBC. Section 709.3 of the IBC requires a one-hour fire-resistance rating for smoke barriers.

### **1311.0805 SECTION 805, MEANS OF EGRESS.**

**Subpart 2. Section 805.3.1.1 Single exit buildings [repeal].** The existing subpart deletes subitem 4 pertaining to community residences. The subpart is now being repealed because the subitem has been removed from the 2018 IEBC so the current amendment is no longer needed.

### **1311.0806 SECTION 806, STRUCTURAL.**

Section 807 of the 2012 IEBC was renumbered section 806 in the 2018 IEBC. Because the proposed language completely re-writes current rule 1311.0807, current rule 1311.0807 is proposed for repeal and is replaced with proposed rule 1311.0806.

#### **Subpart 1. Section 806.2, Existing structural elements carrying gravity loads.**

The language of this subpart is a revised version of 2018 IEBC section 806.2. The proposed amendment clarifies when a structural element must be altered or replaced if a building is undergoing Level 2 alterations. The first sentence of the proposed amendment clarifies that, when an alteration is made to an existing structure, the demand-capacity ratio for a structural element is only permitted to increase to a total of 105 percent. The IEBC language and the current rule (1311.0807) would allow the demand-capacity to increase by five percent. This means the structural element may carry up to five percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio before the alteration, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence of proposed section 806.2 is new. This sentence would require the calculation of the demand-capacity ratio to include all loads on the structural element as result of all additions and alterations that have occurred since the original construction of the building. The total load the structural element carries from all cumulative changes can only be five percent more than the load the structural element is permitted to carry by the IBC. If prior additions and alterations are not considered, then allowing 105 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure.

Current rule 1311.0807 has caused confusion because some designers have interpreted this section as: (1) permitting a five percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned alteration rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The third sentence of proposed section 806.2 is identical to the second sentence of IEBC section 806.2. A sentence is added at the end of the subpart to clarify that the IEBC exceptions are not amended.

**Subpart 2. Section 806.3, Existing structural elements resisting lateral loads.** The language of the exception is a revised version of the exception to section 806.3 of the 2018 IEBC. The first sentence of the proposed exception clarifies that, when an alteration is made to an existing lateral load-carrying structural element, the demand-capacity ratio for the structural element is only permitted to reach a total of 110 percent. The IEBC language and the current rule would allow the demand-capacity ratio to increase by up to 10 percent. This means the structural element may carry up to ten percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than ten percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to ten percent. Similarly, if the structural element carried 106 percent of the demand-capacity ratio before the alteration, allowing an additional ten percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 110 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence of the proposed exception is the same as the second sentence as the exception in the IEBC. The only difference from the IEBC is that the reference to section 1613 of the IBC is deleted. Section 1613 of the IBC contains design requirements for earthquake loads, and chapter 1311 deletes all references to earthquake and seismic provisions of the IEBC. *See Minnesota Rules, part 1311.0010, subpart 3, item F.* For the same reason, the third sentence of the IEBC exception, regarding seismic forces, is deleted.

The last sentence of the proposed exception is identical to the last sentence of the IEBC exception.

**Current 1311.0807 SECTION 807, STRUCTURAL.** This rule is being repealed because it has been renumbered section 806 in the 2018 IEBC, and has been rewritten as explained above.

### **1311.0807 SECTION 807, ELECTRICAL.**

Current rule 1311.0808 is being renumbered to 1311.0807, and references to sections are renumbered because of the renumbering of sections in the IEBC.

### **1311.0809 SECTION 809, PLUMBING.**

Current rule 1311.0810 is being renumbered to 1311.0809, and references to sections are renumbered because of the renumbering of sections in the IEBC.

### **1311.0810 SECTION 810, ENERGY CONSERVATION.**

Current rule 1311.0811 is being renumbered to 1311.0810, and references to sections are renumbered because of the renumbering of sections in the IEBC. The title of the section is also changed to correspond with the IEBC. Extraneous words are deleted in the first sentence of the proposed rule.

### **1311.0901 SECTION 901, GENERAL.**

**Section 901.2, Compliance.** Section 901.2 of the 2018 IEBC is modified to delete the exception. The exception to section 901.2 is also deleted in current chapter 7511. Specifically, current rule 7511.0010, subpart 3, deletes the exception to 901.2. Because that language in part 7511.0010 is proposed to be deleted, the language deleting the exception to 901.2 needs to be moved to a new location. It is reasonable to continue deleting this exception because it deals with accessibility. Under proposed part 7511.0010, subpart 2, the reader is directed to chapter 1341 for all accessibility requirements.

### **1311.0907 SECTION 907, ENERGY CONSERVATION.**

Current rule 1311.0908 is being renumbered to 1311.0907, and references to sections are renumbered because of the renumbering of sections in the IEBC. The title of the section is also changed to correspond with the IEBC. Extraneous words are deleted in the first sentence of the proposed rule.

### **1311.1006 SECTION 1006, STRUCTURAL.**

Section 1007 of the 2012 IEBC was renumbered section 1006 in the 2018 IEBC. Because the proposed language completely re-writes current rule 1311.1007, current rule 1311.1007 is proposed for repeal and is replaced with proposed rule 1311.1006.

Section 1006.1 addresses structural requirements for buildings undergoing a change of occupancy. The first part of section 2006.1 of the 2018 IEBC no longer needs any amendment because it addresses the requirements addressed in the current rule. Only the exception to the IEBC section needs to be modified. The first sentence of the proposed exception clarifies that a change of occupancy is not permitted to increase the demand-capacity ratio to more than 105 percent. The IEBC language would allow the demand-capacity to increase by five percent. This means the structural element may carry up to five percent more load than the structural element carried based on previously approved live loads. The purpose of the language was to prevent the

structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio based on previously approved live loads, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio based on previously approved live loads, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The proposed second sentence of the exception clarifies that the calculation of the demand-capacity ratio must include all loads on the structural element as result of all additions and alterations that have occurred since the original construction of the building. If prior additions and alterations are not considered, then allowing 105 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure. The current language has caused confusion because some designers have interpreted this section as permitting the calculation of demand-capacity ratio based on only the planned changes rather than taking into account the cumulative effects of all additions and alterations on the structural element.

### **1311.1007 SECTION 1007, STRUCTURAL [REPEALED].**

As discussed above, current rule 1311.1007 is proposed for repeal because it is being replaced by proposed rule 1311.1006.

### **1311.1009 SECTION 1009, PLUMBING.**

Current rule 1311.1010 is being renumbered to 1311.1009, and references to sections are renumbered because of the renumbering of sections in the IEBC.

### **1311.1011 SECTION 1011, CHANGE OF OCCUPANCY CLASSIFICATION.**

Current rule 1311.1012 is being renumbered to 1311.1011, and references to sections are renumbered because of the renumbering of sections in the IEBC. Other amendments are discussed below.

**Subpart 1. Section 1011.1.1, Compliance with Chapter 9.** This new subpart is added to modify section 1011.1.1 of the 2018 IEBC. The only modification is the addition of the words “International Existing Building Code.” This is needed to clarify that the chapter 9 being referenced is located in the International Existing Building code. This clarification is necessary because sections 1011.1.1.1 and 1011.1.1.2 direct code users to chapter 9 of the International Building Code for fire protection requirements when an existing building undergoes a change of occupancy. This change is reasonable because it clarifies which I-Code is referred to and will lead to more uniform enforcement of the code. For additional clarity, a sentence is added at the end stating that subsections 1011.1.1.1 and 1011.1.1.2 remain unchanged.

## **1311.1103 SECTION 1103, STRUCTURAL.**

**Subpart 1. Section 1103.1 Additional gravity loads.** The references to sections are renumbered because of the renumbering of sections in the IEBC. The subpart is amended so the language is consistent with section 1103.1 of the 2018 IEBC, with modifications. Rather than merely referring the reader to the IBC, the proposed amendment provides substantive guidance to the reader, for ease of reference. The first sentence of IEBC section 1103.1 has been modified to clarify that, when an addition is added to an existing structure, the demand-capacity ratio for a structural element is permitted to increase to a total of 105 percent. The IEBC language and the current rule (in exception 1) would allow the demand-capacity to increase by five percent. This means the structural element may carry five percent more load than the structural element carried before the addition. The purpose of the language was to prevent the structural element from carrying more than five percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the addition, it would not make sense to limit the increase to five percent. Similarly, if the structural element carried 102 percent of the demand-capacity ratio before the addition, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

The second sentence of proposed section 1103.1 is new. This sentence would require the calculation of the demand-capacity ratio to include all loads on the structural element as result of all additions and alternations that have occurred since the original construction of the building. Under the proposed rule, the total load the structural element carries from all cumulative changes could only be five percent more than the load the structural element is permitted to carry by the IBC. If prior additions and alterations are not considered, then allowing 105 percent of the demand-capacity ratio of the original building might result in too much load on the element, causing a risk of failure. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a five percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition or replacement of roofing or replacement of equipment rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The last two sentences before the exception are identical to the model code.

In the current rule and in the 2012 IEBC, there are two exceptions to this section. The first exception is not included in 2018 IEBC and is therefore no longer needed in rule. The second exception in the current rule is comparable to the remaining exception in the IEBC. Therefore, a sentence is added stating that the IEBC exception is not amended.

**Subp. 2. Section 1103.3, Lateral force resisting systems.** The first sentence of the current subpart has been deleted because section 1103.3 of the 2018 IEBC no longer has subsections; instead, the substantive requirements have been moved into section 1103.3.

The only amendment needed is to the second exception. The first sentence of the

proposed second exception clarifies that, when an alteration is made to an existing lateral load-carrying structural element, the demand-capacity ratio for the structural element is only permitted to reach a total of 110 percent. The IEBC language and the current exception 2 would allow the demand-capacity ratio to increase by up to 10 percent. This means the structural element may carry up to ten percent more load than the structural element carried before the alteration. The purpose of the language was to prevent the structural element from carrying more than ten percent greater load than the structural element is permitted to carry by the IBC. The proposed language does just that. In other words, if the structural element only carried half of the demand-capacity ratio before the alteration, it would not make sense to limit the increase to ten percent. Similarly, if the structural element carried 106 percent of the demand-capacity ratio before the alteration, allowing an additional ten percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 110 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases. The current language has caused confusion because some designers have interpreted this section as: (1) permitting a ten percent increase in loads carried by all structural elements in excess of the maximum load the structural element is permitted to carry by the IBC; or (2) permitting the calculation of demand-capacity ratio based on only the planned addition rather than taking into account the cumulative effects of all additions and alterations on the structural element.

The second exception is also modified to delete the reference to section 1613 of the IBC. Section 1613 of the IBC contains design requirements for earthquake loads, and chapter 1311 deletes all references to earthquake provisions of the IEBC. *See* Minnesota Rules, part 1311.0010, subpart 3, item F.

**Subp. 3. Section 1103.4, Snow drift loads.** This subpart is repealed because section 1103.4 has been removed from the 2018 IEBC. Snow drift loads are now covered elsewhere in the proposed rules: 1311.0405; 1311.0502, subp. 1; 1311.0503, subp. 2; 1311.0706; 1311.0806; and 1311.1103, subp. 1.

### **1311.1105 SECTION 1105, CARBON MONOXIDE ALARMS IN GROUPS I-1, I-2, I-4, AND R.**

**Section 1105.1, Carbon monoxide alarms in existing portions of a building.** A new rule part is added to modify section 1105.1. Section 1105.1 of the 2018 IEBC directs code users to the International Fire Code and the IRC for the requirements for carbon monoxide alarms when an addition is made to an existing building. The proposed rule modifies this section to direct users to section 915 of the IBC. This modification is needed and reasonable for two reasons. First, chapter 1311 does not cover residential structures that are within the scope of chapter 1309, so the reference to the IRC is not appropriate. Also, all references to the International Fire Code do not apply and have been deleted, pursuant to current rule 1311.0020, subpart 3, which is not being amended.

### **1311.1106 SECTION 1106, STORM SHELTERS.**

**Section 1106.1, Addition to a Group E occupancy.** This proposed rule modifies section 1106.1 of the IEBC by replacing the model code language referencing Figure 304.2(1) of the

ICC 500 (Standard on the Design and Construction of Storm Shelters) with a list of counties in Minnesota where the speed for tornadoes is 250 miles per hour. Figure 304.2(1) of the ICC 500 is a map of United States illustrating wind speed for tornadoes in different areas of the country. The map is difficult to interpret because wind speed for tornadoes varies within the state and the map does not show distinct geographic boundaries for where tornado wind speed changes. As a result, it is difficult for code users to interpret where in the state tornado wind speeds are 250 miles per hour. Replacing the reference to Figure 304.2(1) of the ICC 500 with a list of counties provides clarity as to what counties are affected by tornadoes with speeds of 250 miles per hour. The language is reformatted for clarity.

The language in proposed rule 1311.1106 is comparable to language being proposed in chapter 1305, the Minnesota Building Code. Proposed rule 1305.0423, subp. 2, would require a storm shelter for all Group E occupancies with an occupant load of 50 or more in the same counties listed in proposed rule 1311.1106.

The exceptions are identical to the exceptions in the 2018 IEBC.

#### **1311.1201 SECTION 1201, GENERAL.**

**Section 1201.2 Report.** This rule part is amended to delete “repair” for consistency with the 2018 IEBC. Section 1201.2 of the 2018 IEBC does not require a designer to submit a report to the code official when a historic building undergoes repair. It is reasonable not to require the submission of a report when a building undergoes repair because a repair is only intended to maintain or correct damage to a building and is not as extensive as the changes that occur when a building undergoes alteration or a change of occupancy.

#### **1311.1301 SECTION 1301, GENERAL.**

Current rule 1311.1401 is being renumbered to 1311.1301, and references to sections and chapters are renumbered because of the renumbering of sections and chapters in the IEBC. Also, in subpart 1, Group I-2 has been moved from the group of occupancies exempted from the subsections of section 1301.2 to the group of occupancies that must comply with the subsections of section 1301.2. This is needed and reasonable for consistency with the 2018 IEBC, which moved Group I-2 occupancies to the group of occupancies that need to comply with the subsections of section 1301.2.

#### **1311.1401 SECTION 1401, GENERAL.**

Current rule 1311.1301 is being renumbered to 1311.1401, and references to sections are renumbered because of the renumbering of sections in the IEBC.

#### **1311.1402 SECTION 1402, REQUIREMENTS.**

Current rule 1311.1302 is being renumbered to 1311.1402, and references to sections are renumbered because of the renumbering of sections in the IEBC. All other amendments are discussed below.

**Subpart 1. Section 1402.3, Wind loads.** Exception number 2 is modified to clarify how



designers are to evaluate demand-capacity ratios and design lateral loads, which include the effects of the force of wind on the building. The first sentence of second exception is amended to clarify that, when a building is relocated, the demand-capacity ratio for the structural elements is only permitted to reach a total of 110 percent. The IEBC language and the current exception 2 would allow the demand-capacity ratio to increase by up to 10 percent. This means the structural elements may carry up to ten percent more load than the structural elements carried before the relocation. The purpose of the language was to prevent the structural elements from carrying more than ten percent greater load than the structural elements are permitted to carry by the IBC. The proposed language does just that. In other words, if the structural elements only carried half of the demand-capacity ratio before the relocation, it would not make sense to limit the increase to ten percent. Similarly, if the structural elements carried 106 percent of the demand-capacity ratio before the relocation, allowing an additional ten percent would permit too much load on the elements, causing a risk that the structural elements will fail. Under the proposed rule, the load could be increased to up to 110 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

Under the proposed second sentence of the second exception, the calculation of the demand-capacity ratios, and design lateral loads, forces, and capacities must include the effects of all additions and alterations since the original construction. It is necessary to take into account the cumulative effects of all additions and alterations because the structural elements may fail if they are overloaded.

**Subp. 2. Section 1402.5, Snow loads.** Section 1402.5 is modified to eliminate the reference to the IRC because chapter 1311 does not apply to residential construction. *See* Minnesota Rules, part 1311.0020, subpart 9. The exception is modified to clarify how designers are to evaluate the demand-capacity ratio. The first sentence of the proposed exception clarifies that, when a building is relocated, the demand-capacity ratio for the structural elements is permitted to increase to a total of 105 percent. The IEBC language and the current rule would allow the demand-capacity to increase by five percent. This means the structural elements may carry five percent more load than the structural elements carried before the relocation. The purpose of the language was to prevent the structural elements from carrying more than five percent greater load than the structural elements are permitted to carry by the IBC. The proposed language does just that. In other words, if the structural elements only carried half of the demand-capacity ratio before the addition, it would not make sense to limit the increase to five percent. Similarly, if the structural elements carried 102 percent of the demand-capacity ratio before the relocation, allowing an additional five percent would permit too much load on the element, causing a risk that the structural element will fail. Under the proposed rule, the load could be increased to up to 105 percent of the demand-capacity ratio, which provides the necessary limitations to avoid failure while allowing reasonable load increases.

Under the second sentence of the proposed exception, the evaluation of the structural elements' ability to support the demand of loads and forces must include the effect of all the additions and alternations since the original construction. It is necessary to take into account the cumulative effects of all additions and alterations because the structural elements may fail if they are overloaded.

## **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. The Minnesota State Fire Code overlaps with chapter 1305, the Minnesota Building Code. *Compare, e.g.,* Minn. R. 1305.0903 to 1305.0912 *with* Minn. R. 7511.0903 to 7511.0912. The chapters all cross-reference each other. For example, the proposed amendments to chapter 1305 cross-reference not only the fire code but also chapter 1300 (*see* part 1305.0011 and the proposed definition of “historic buildings” in proposed part 1305.0202), chapter 1341 (*see* part 1305.0011, subp. 2 and current rule 1305.1017, to be renumbered 1305.1018), and chapter 1346 (*see* proposed amendment to definition of “alternating tread device” in 1305.0202, proposed rule 1305.0717, subp. 3, proposed rule 1305.0903, subp. 1d, proposed rule 1305.1011, subp. 2, proposed rule 1305.1015, subp. 2a, and proposed rule 1305.1202). Regulations for elevators and conveying systems are being proposed to be moved from chapter 1307 to chapter 1305. Specifically, the current chapter 1307, Elevators and Related Devices, amends the requirements in chapter 30 of the 2012 International Building Code governing elevators and conveying systems. *See* Minn. R. 1307.0095. The proposed chapter 1307 would repeal this part while the proposed chapter 1305 would include amendments to chapter 30 of the 2018 IBC.

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

Not only do the amendments to all of these chapters need to be effective simultaneously, but the amendments also need to be effective as soon as possible. Under Minnesota Statutes, section 326B.13, subdivision 8, a rule to adopt or amend the state building code is effective 270 days after publication of the notice of adoption in the State Register. However, the statute allows the Commissioner of Labor and Industry to set an earlier effective date if the commissioner finds that an earlier effective date is necessary to protect public health and safety after considering, among other things, the need for time for training of individuals to comply with and enforce the rule.

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

International Residential Code; section 35 of the 2018 IRC expands and details the requirements for carbon monoxide detection. The proposed chapter 1311 adopts the 2018 International Existing Building Code; sections 503, 804 and 1105 of the 2018 IEBC include new requirements regarding carbon monoxide detection.

The commissioner has determined that March 31, 2020, is the earliest date when all the chapters could be effective, given the large amount of work in amending all of these chapters. The commissioner intends to publish the notice of adoption as soon as possible, and certainly before the end of 2020.

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 also 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 in the State Register. The commissioner also intends to begin offering training sessions to the regulated parties well before the effective date. Many regulated parties and building code officials responsible for enforcing the building code have been involved in the rule amendment process, and are therefore aware of the proposed amendments. The additional notice plan for all of these rules also ensures that regulated parties are aware of the proposed rules. The commissioner recognizes that, if the rules are to be effective 5 days after publication of the notice in the State Register, it may be necessary to delay that publication so that all of the rule amendments are ready at the same time. However, the commissioner will post the amended rules on its website and begin training before publication of the notice of adoption.

## CONCLUSION

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

6/11/19

Date



Nancy J. Leppink, Commissioner  
Minnesota Department of Labor and Industry

## EXHIBIT A

### 1311 Technical Advisory Group Members

Mike Bunnell, TAG Lead, Department of Labor and Industry

Greg Metz, TAG Co-Lead, Department of Labor and Industry

Steve Ubl, Association of Minnesota Building Officials

Vincent DiGiorno, American Institute of Architects Minnesota

Michael Post, Fire Marshals Association of Minnesota

Tom Erdman, Building Owners and Managers Association

## 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