



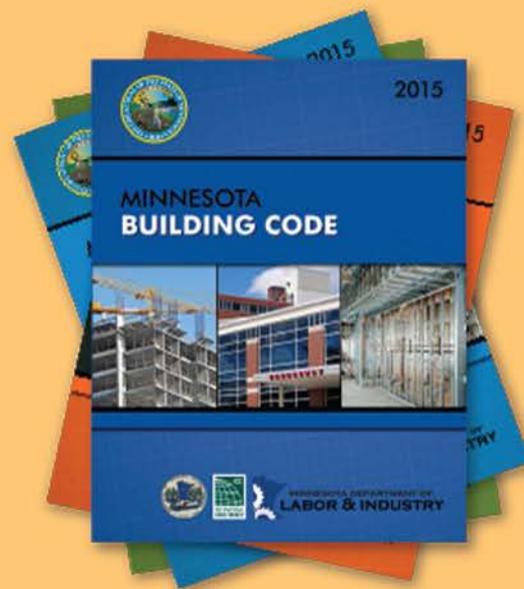
2015

MINNESOTA

UNDERSTANDING AMENDMENTS

to the **STATE BUILDING CODE**

- Administration
- Radon & Special Provisions
- Commercial Building Code
- Elevators and Related Devices
- Residential Building Code
- Existing Buildings
- Energy
- Accessibility
- Mechanical & Fuel Gas
- Plumbing



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY



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PREFACE

Understanding Amendments to the State Building Code is a compilation of the Rule-by-Rule analysis portion of the Statement of Need and Reasonableness (SONAR) of 10 Rule Chapters adopted as part of the State Building Code in 2015 & 2016. They are presented here in a single publication as a help to the user by providing both a brief technical explanation as well as an understanding of the purpose behind each of the amendments made to these 10 chapters. In some cases, explanation is provided for changes made as a result of comments received during a public hearing or the public comment period.

It is our intent that this information will contribute to accurate and uniform application of the code in the design and construction of buildings. The user should be aware that this document does not contain an explanation of all the amendments to the State Building Code but only those that were introduced as new or modified for 2015. An explanation of legacy amendments has not been included here.

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2015

MINNESOTA BUILDING CODE ADMINISTRATION

Chapter 1300, Building Code Administration, is not published separately. However, it can be found in all Minnesota Building Code books.



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Administration of the Minnesota State Building Code, Minnesota Rules, chapter 1300; and Proposed Amendment to Rules Governing Minnesota Provisions, Minnesota Rules, Chapter 1303; Revisor's ID Number R-04140

INTRODUCTION

The Commissioner of the Department of Labor and Industry proposes to amend rules governing the administration of the Minnesota State Building Code, Minnesota Rules, Chapter 1300. The Department also proposes to amend rules governing Minnesota provisions of the Minnesota State Building Code, Minnesota Rules, Chapter 1303.

This rule chapter incorporates the necessary administrative information from each "Chapter 1" of the International Code Council ("ICC") model codes that are adopted by reference. This rule chapter also incorporates administrative requirements specific to Minnesota. Where specific administrative provisions are necessarily related to a specific rule chapter, the specific administrative provision will govern.

The Department utilized an advisory committee to review the existing rule and to propose necessary changes to the rule. The committee consisted of representatives from the Builders Association of Minnesota, the Association of Minnesota Building Officials, greater Minnesota Building Officials, the League of Minnesota Cities, the Minnesota Building Permit Technicians Association, and Construction Codes and Licensing Division staff. The proposed amendments incorporate changes proposed by the committee and changes made to the administrative provisions in the model codes that affect this chapter or other chapters of the Minnesota State Building Code.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1300
STATE BUILDING CODE ADMINISTRATION**

1300.0010 ADMINISTRATION.

Subpart 1. The text of subpart 1 is not modified, however, the paragraph was given a subpart number and heading because two new subparts have been added to the rule part. It is necessary to separate the text into subparts because all three paragraphs pertain to different subject matter.

Subpart 2. This paragraph is modified by adding a subpart number and heading to the paragraph. This subpart is also modified by changing Minnesota Rules, chapter 3800 to chapter 3801. This modification is necessary because in 2009 chapter 3800 was divided into two rule chapters: chapter 3800 and chapter 3801. Chapter 3800 is composed of rules adopted and enforced by the Board of Electricity and chapter 3801 is composed of rules adopted and enforced by the Department of Labor and Industry. This change is necessary and reasonable to properly indicate that Minnesota Rules, chapter 1315, the Minnesota Electrical Code, is administered according to the pertinent parts of chapter 3801.

The statutory citation to the Minnesota Electrical Act is changed to reflect numbering changes made to sections of that Act by the Minnesota legislature in 2007. It is necessary and reasonable to change the statutory citation to update it to the current and correct citation.

Subpart 3. A new subpart regarding the Minnesota Plumbing Code is added to clarify, for administrative purposes, that Minnesota Rules, chapter 4715 is administered and enforced statewide, pursuant to Minnesota Statutes, section 326B.106, subdivision 3.

1300.0030 PURPOSE AND APPLICATION.

Subpart 2, subitem A. This rule part is modified to reflect changes made to statute requiring that the State Building Code “is the standard that applies statewide...” This change to statute was made during the 2008 Regular Session and can be found in Minnesota Statutes, section 326B.121, subdivision 1. This change is necessary to keep this rule consistent with statutory language.

This subpart is also modified to delete exceptions located in citations to Minnesota Statutes, sections 326B.112 (bleacher safety provisions), 326B.16 (enforcement of requirements for persons with disabilities), and 326B.184 (fees for licensure and

permits). These citations are no longer needed because those sections are not exceptions to the statewide standard.

The rule is further modified to remove the citation to subdivision 8 in Minnesota Statutes, section 103F.141, because subdivision 8 no longer exists, and to add Minnesota Statutes, section 326B.121, subdivision 1 (c)(2) as applied to agricultural buildings. It is necessary to add reference to this statute in subitem A because this subitem addresses the application of the Minnesota State Building Code to agricultural buildings and Minnesota Statutes, section 326B.106, subdivision 15, specifically requires that the State Building Code address this issue.

1300.0040 SCOPE. The changes to this section are necessary to coordinate this rule part with new language in the model code documents that are incorporated into the State Building Code.

Subpart 1, Exception. This exception is added to permit the construction of certain buildings to mirror actual field conditions encountered by military, police, fire, or first responders. These buildings permit training in buildings that simulate the conditions they will encounter in the field. It is reasonable to permit the exception because it will allow emergency personnel to be more fully prepared for their duties. These buildings are not used by the general public, but by persons trained and equipped for the anticipated field conditions.

The structural provisions of the code are still required to be applied to ensure that the buildings are structurally sound for snow loads, wind loads, intended use loads, and any other structural consideration that makes the building withstand general building use loads.

Subpart 2. The Minnesota Rule citation to part 1300.0070, subpart 12a, has been renumbered to subpart 12b. This modification is necessary to accommodate the renumbering and to provide correct citations.

The exception in this subpart incorporates a change to provide optional compliance and adds two circumstances (buildings undergoing addition and buildings being moved) to the list of exceptions that may be designed to comply with Minnesota Rules, chapter 1311, instead of the requirements of Minnesota Rules, chapter 1305.

Minnesota Rules, chapter 1311, was adopted to comply with a statutory requirement enacted during the 1999 Regular Session, located in Minnesota Statutes, section 326B.106, subdivision 1, which required that 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.” The intention was to adopt a code that permitted existing buildings to be renovated in whole or in part without having to comply with all of the provisions required for new buildings. Chapter 1311 provided requirements to renovate existing buildings.

Currently the exception requires that existing or historic buildings “shall be designed” to meet the requirements of chapter 1311 to renovate an existing building. The phrase “permitted to be” has been inserted to allow designers and owners the option to choose to use chapter 1311 instead of chapter 1305.

The current requirement to use chapter 1311 causes conflicts for building designers who chose to use chapter 1305, which is the code for new buildings but is more restrictive. Chapter 1311, on the other hand, is less restrictive, but was required to be used. With the proposed modification to the requirement, the choice is now up to the designer to determine which code to apply.

This change is necessary to permit the designer or owner to make the choice at the beginning of the project. It is reasonable because the use of chapter 1305 is more restrictive than chapter 1311, and the proposed language will now permit the designer, and ultimately the owner, to decide which code to use to renovate the building.

The change to this exception also permits additions to existing buildings or moved buildings to be evaluated using chapter 1311. This is reasonable because the entire building is not new construction and moved buildings are considered existing buildings.

1300.0050 CHAPTERS OF MINNESOTA STATE BUILDING CODE.

Subitem E (1305, Minnesota Building Code). This change to the existing rule deletes the phrase “Adoption of the International Building Code” and replaces it with the phrase “Minnesota Building Code.” This change is necessary to clarify and provide a more accurate title for the code, with its amendments, which is being included in the Minnesota State Building Code. The existing title can be misinterpreted to mean adoption of the model code document without amendment.

Subitem H (1309, Minnesota Residential Code). This change to the existing rule deletes the phrase

“Adoption of the International Residential Code” and replaces it with the phrase “Minnesota Residential Code.” This change is necessary to clarify and provide a more accurate title for the code, with its amendments, which is being included in the Minnesota State Building Code. The existing title can be misinterpreted to mean adoption of the model code document without amendment.

Subitem J (1315, Minnesota Electrical Code). This change to the existing rule deletes the phrase “Adoption of the National Electrical Code” and replaces it with “Minnesota Electrical Code.” This change is necessary to clarify and provide a more accurate title for the code, with its amendments, which is being included in the Minnesota State Building Code. The existing title can be misinterpreted to mean adoption of the model code document without amendment.

Subitem L (1335 Floodproofing Regulations). This proposed change deletes the reference and inclusion of Minnesota Rules, chapter 1330, Fallout Shelters, as a part of the Minnesota State Building Code. This rule chapter was previously repealed through the obsolete rules procedure and must be deleted from the list of chapters that make up the Minnesota State Building Code for accuracy. The remaining subitems are relettered to adjust for the deleted rule chapter.

Subitem T (relettered) (1322 and 1323, Minnesota Energy Codes). This change to existing rule deletes references to Minnesota Rule chapters 7670, 7672, 7674, 7676, and 7678 and replaces them with references to Minnesota Rule chapters 1322 and 1323. This modification is necessary because the previous rule chapters no longer make up the Energy Code in Minnesota. Those chapters have been replaced with Minnesota Rule chapters 1322 and 1323, the residential and commercial energy code chapters. This modification is necessary to direct the user to the correct rule chapters of the energy code.

Subitem U (relettered). This proposed amendment adds rules for high pressure piping systems. Rules for high pressure piping systems were added to the Minnesota State Building Code because of a Department reorganization that occurred in 2005, which incorporated High Pressure Piping into the Department’s Construction Codes and Licensing Division and into the Minnesota State Building Code.

1300.0060 OPTIONAL ADMINISTRATION.

Subitem C. This proposed change deletes subitem C, Floodproofing Regulations, from the list of optional chapters in the State Building Code. This modification is necessary because there is a conflict with Minnesota

Rules, part 1335.0600, which requires that “this section shall apply unless equivalent provisions are incorporated in the city or county flood plain zoning ordinance.” Minnesota Rules, parts 1335.0600 to 1335.1200, cannot be optional if they may be required under certain circumstances for a city or a county to adopt. It is necessary and reasonable to repeal a rule part that conflicts with another rule part to ensure coordination and uniformity.

1300.0070 DEFINITIONS.

Subparts 3, 10a, 11, 12, 18, 22 and 23. These subparts are repealed however, the content of these definitions is included in chapter 1305 (IBC) in Table 302.2. The Table describes the types of facilities, number of occupants and the occupancy classification that is described in these definitions.

Subp. 4a. Approved. This definition is needed in this administrative chapter to coordinate the definition of “approved” with the other chapters of the Minnesota State Building Code to address all situations similarly where the building official is authorized to take formal action to indicate whether or not proposed construction methods have been determined to be in compliance with the state building code. It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts between terms from one chapter to another.

Subpart 8. Code. This definition is modified to distinguish the use of the term “code” in chapter 1300 from the definition of “code” in other chapters of the State Building Code. Other chapters use the term to refer to the content of that specific chapter rather than the entire State Building Code as it is used in chapter 1300.

Subp. 12a. Historical building. This definition is needed to coordinate with the definition for “Historic Building” in Minnesota Rules, chapter 1311. Chapter 1311 is intended to be used solely for the renovation of existing buildings. When buildings are renovated using Minnesota Rules, chapter 1305, the rules in chapter 1311 do not apply and chapter 1305 does not provide a definition for “historical building.” Therefore, it is reasonable to include the definition in this chapter because it is the administrative chapter for all chapters in the Minnesota State Building Code. (See Minnesota Rules, part 1300.0040, Scope, for information about the application of chapter 1311.)

Subp. 12b. International residential code (IRC) occupancy classifications. The content of this definition is not changed. The subpart number is changed

from 12a. to 12b. to accommodate the new definition for “historical building” located in subpart 12a.

Subpart 25. State licensed facilities. This definition is changed to reflect changes made to the statutory definition of “State Licensed Facilities,” which was previously located in Minnesota Statutes, section 16B.60, subdivision 11, now renumbered to Minnesota Statutes, section 326B.103, subdivision 13. It is reasonable to change the rule to match the statute to clarify that boarding care homes and residential hospice are “state licensed facilities.”

1300.0110 DUTIES AND POWERS OF BUILDING OFFICIAL.

Subpart 1. General. This subpart is changed to coordinate with the same language in the incorporated model code documents.

Subpart 3. Applications and permits. This subpart is changed to coordinate with the same language in the incorporated model code documents. It is reasonable and necessary to give the permit applicant the opportunity to meet with the building official before an application is made for a permit to ensure that the proposed project is viable before any time or money is spent in the application process.

It is also reasonable and necessary to give the applicant and building official the right to refuse to meet at a location that is not suitable given any certain circumstance. Municipalities may establish a fee for this service to cover the costs of the building official’s time.

Subpart 5. Inspections. This subpart is changed to coordinate the same language in the incorporated model code documents.

Subpart 8. Department records. The changes made to the first sentence of this subpart are needed to coordinate with the same language in the incorporated model code documents.

The changes to the remainder of the subpart are needed to properly address the records management requirements in Minnesota Statutes, section 138.17. It is the responsibility of the municipality to create the records management schedule so the building official can follow the schedule. This change is reasonable because the building official is responsible for the record keeping aspect and compliance with the records management schedule created by the municipality.

Subpart 9. Liability. This change is needed to protect the Board of Appeals members from liability and

legal costs to the same degree that the building official is protected. The existing rule recognizes that both building officials and Appeal Board members are protected from liability while discharging their duties in good faith. The rule also recognizes that building officials are not liable for litigation costs when being defended against a legal claim. However, the existing rule does not address this same protection for Appeal Board members. It is reasonable that these persons are afforded the same protection against costs as building officials because they already enjoy the same basic immunities from liability as building officials and there is no reason why these immunities should not also extend to liability from costs for Board of Appeal members who perform their duties in good faith. Additionally, Board of Appeal members serve ad hoc and on a voluntary basis, without pay or other remuneration. Without equal protection from liability, including indemnification of legal costs, recruitment and retention of these individuals by the building official for performance of these necessary duties would be unreasonably difficult to obtain.

1300.0120 PERMITS.

Subpart 4, subitem A (1). The change to this existing rule is needed to resolve the difference that exists between the International Building Code (IBC) and the International Residential Code (IRC) regarding square footage requirements that exempt work on structures from permitting requirements. The IBC exempts the subject structures from a permit when the structure does not exceed 120 square feet. The IRC exempts the subject structures from a permit when the structure does not exceed 200 square feet. This change reconciles the difference and makes the code application consistent.

It is reasonable to exempt accessory structures that do not exceed 200 square feet from a permit for buildings built under the IBC and IRC because the structures are small enough to not justify a permit or fee, however the structures must still comply with the State Building Code. There will be a negligible financial impact to the municipal permit fee revenue because the exempted structures under the proposed rule will only be slightly larger than the structures exempted under the current provision, and a very small number of structures will be affected by the change.

Subpart 4, subitem A (2). The change to this subitem is needed to coordinate this subpart with the same changes that were made in both the 2012 IBC and 2012 IRC.

Subpart 4, subitem A (13). This subitem needs to be deleted because the exemption for agricultural buildings already exists in part 1300.0030, subpart 2.A.,

and that part explains more completely the application of other parts of the State Building Code to agricultural buildings. It is reasonable to delete a part that is merely repetitive of existing provisions and is not needed.

Subpart 4, subitem A (14). This subitem is renumbered because of the deletion of subitem 13. The language in this subitem did not change.

Subpart 4, subitem D. This subitem is deleted because currently no plumbing work in Minnesota Rules, chapter 4715 is exempt from a permit. Therefore, it is necessary to delete this exemption to prevent a conflict with Minnesota Rules, chapter 4715. However, limited exemptions from permitting and inspections for plumbing work are being proposed in Minnesota Rules, part 1300.0215, Plumbing.

Subpart 4, subitem D (relettered). The change to this subitem is needed to identify the appropriate statute that exempts certain electrical work from a permit. It also changes the appropriate jurisdiction for electrical inspections from the Board of Electricity to the Commissioner of Labor and Industry. These changes are necessary to coordinate with statutory changes.

Subpart 6. Repairs. This change is needed to incorporate more commonly-used terminology for the words “cutting away.” The phrase “opening or removal” more accurately describes the action taking place and will help to clarify the requirement.

Subpart 10. Validity of permit and Subpart 11. Expiration. Subpart 10 is modified by deleting the sentence pertaining to the issuance of a permit based on construction documents from the subpart and adding language pertaining to invalidating a permit for suspended or abandoned work beyond 180 days. Subpart 10’s deleted language has been relocated to Minnesota Rules, part 1300.0130, subpart 6, because part 1300.0130, subpart 6, pertains to the approval of construction documents and is a more appropriate location for this language.

The new language in subpart 10 is revised language about invalid permits, which is currently located in Minnesota Rules, part 1300.0120, subpart 11. The language is being relocated to subpart 10 because it deals with the “validity” of a permit. The language is further revised because the current language in subpart 11 could be misinterpreted to mean that a permit will become invalid if work is suspended or abandoned at any time during the 180-day period after work is commenced. The new language proposed for subpart 10 clarifies that a permit will become invalid if the work is suspended or abandoned for more than 180 days. This new language

also clarifies that the 180-day period begins the first day the work is suspended or abandoned. This change is necessary to provide clarity and uniform application to the requirement and to ensure that the requirement is properly located within the rule.

The phrase “become invalid,” currently found in subpart 11, is deleted from that subpart and replaced with the word “expires.” This change clarifies that a permit will expire. The expiration of a permit and the validity of a permit are different concepts. Subpart 11 is describing expiration and not validity. The change in this provision is necessary and reasonable as it clarifies the intent of the section and will provide more uniform enforcement. In addition, the word “may” has been changed to “shall” as it pertains to granting permit expiration extensions. It is necessary to require the building official to grant an extension if the applicant has demonstrated justifiable cause for the extension.

Subpart 13. Information and placement of permit. This rule subpart is changed to include language from Minnesota Statutes, section 15.41, which requires that every state agency and every political subdivision shall specify on every construction permit the name and address of the permit applicant and the name of the general contractor, if there is one. This statute also requires the construction permit to be posted in a conspicuous and accessible place on the premises or construction site. This statute is not regularly used or referenced by the Department, so it is reasonable to include the requirement in the proposed rule so that building officials are aware of requirements that are not part of Minnesota Statutes, chapter 326B.

Subpart 14. Responsibility. The change to this subpart is needed to clarify that the person, firm, or corporation that obtains the building permit is the appropriate party to address for correspondence from the building official, including correction notices, to comply with the code. It is necessary and reasonable to have a designated person, firm, or organization responsible for code compliance and for the building official to have a responsible and readily identifiable contact for which the permit was issued.

1300.0130 CONSTRUCTION DOCUMENTS.

Subpart 6. Approval of construction documents.

Subitem A. The text of Subitem A is not modified, however, the paragraph was given a subitem letter because a new Subpart B has been added to the existing rule part. It is necessary to separate the text into subparts because the two paragraphs pertain to different

subject matter relating to the approval of construction documents by the building official.

Subitem B. This change is needed to make building officials aware of the laws and rules of the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscientists and Interior Design (“Board”) concerning the practice of building officials “marking-up” code deficiencies directly on plan documents that have been prepared, signed, certified and dated by a person licensed or certified by the Board.

With limited exception, Minnesota Statutes, section 326.03, subdivision 1, prohibits individuals from preparing and certifying construction documents unless the person is licensed or certified by the Board pursuant to Minnesota Statutes, sections 326.02 to 326.15. Building officials are not licensed or certified by the Board under sections 326.02 to 326.15, and therefore cannot prepare and certify construction documents for projects which require participation of a licensed design professional.

Each construction document is required by Minnesota Statutes, section 326.12, subdivision 3, to bear the signature and licensing certification of the design professional preparing the document, including the date on which the signature and certification were affixed. The signature and license certification become a permanent part of the document to which they are affixed in accordance with Minnesota Rule part 1800.4200 and operate to ensure the public that the document was prepared by a licensed design professional “whose professional skill and judgment are embodied in the document signed” and who “assumes responsibility for the accuracy and adequacy thereof.” If the certified construction document is marked up by someone other than the licensed design professional who originally signed and certified the document, then it becomes difficult for anyone viewing the document to determine whether the changes therein were made by the licensed design professional, building official or some other person, thus putting the public’s reliance upon the certification at risk.

Since the licensed design professional is responsible for the accuracy and adequacy of the certified construction document, changes made to the document are also the design professional’s responsibility and it is therefore reasonable to require building officials to itemize any changes or corrections to the certified construction document in a separate plan review letter, rather than on the certified document itself.

The sentence “[t]he issuance of a permit based on construction documents and other data shall not prevent

the building official from requiring the correction of errors in the construction document and other data” is added to this subitem. This sentence has been relocated to this subpart from part 1300.0120, subpart 10. The relocated language is more appropriately included in this subitem because the language pertains to construction documents and this subpart addresses this topic.

The sentence “all sets of required construction documents, including the site copy, municipality copy, or inspector copy, must be marked identically by the building official, with one copy retained by the building official after construction is completed” is added to this subitem. This sentence is added to ensure that all sets of plans that are “marked up” by the building official are identical to avoid confusion on the construction site. Further, two more sentences “[w]ork regulated by the code must be installed according to the reviewed construction documents. Work that does not comply with the approved construction documents must not proceed until the applicant submits changes that are approved by the building official” are added to this subitem. This language is needed and reasonable because it clarifies that changes made during construction must first be approved by the building official before it can proceed, if the work is not being installed according to the approved plans.

1300.0160 FEES.

Subpart 4, subitem C. This subitem is deleted because the statute placing a permit fee limitation on the replacement of a residential fixture or appliance was repealed in the 2007 Regular Legislative Session. It is reasonable to eliminate a rule requirement that mirrors a statutory requirement if the statute no longer exists.

Subpart 6, subitem A.

Exception (a). Exception (a) is amended by deleting the phrase “types to include” and replacing it with “configurations of” to provide clarity to the exception.

Exception (b). Exception (b) is amended by deleting “to include poured concrete, masonry units, and wood” and adding “alternate” before the word “foundation,” and by adding “approved by the building official,” after the word “materials.” This modification is necessary because the existing exception is too specific and does not permit flexibility by the building official for approving modifications to master plans.

Exception (c). Exception (c), “garage dimensions,” is deleted because garage size changes cause additional structural plan review work that was not intended when this exception was included in the rule.

Exception old (d), new (c). This exception is not modified, but relettered because subitem (c) is deleted.

Exception new (d). New exception (d) is relocated from exception (g). This modification is necessary because subitems (e) and (f) are deleted.

Exceptions (e), (f), and (g). Exceptions (e) “bays or cantilevered floor areas,” and (f) “decks and porches,” are deleted because the modifications are significant enough to cause structural plan review work that was not intended when the rule was written. Also, a master plan with a small attached deck may not have a suitable structural floor system to support a larger deck. Exception (g) is relettered to become new exception (d).

Subpart 8. Work commencing before permit issuance. This subpart is modified by adding the phrase “whether or not a permit is issued” after the phrase “[a]n investigation fee established by the municipality shall be collected.” Adding this phrase is necessary to clarify that an investigation fee will be charged regardless of whether a permit is ultimately issued if an investigation occurs. After the investigation, it may be determined that the project will not be permitted to proceed based on zoning violations, improper construction techniques, or other ordinances of the municipality. It is reasonable to collect the investigation fee nevertheless because of the time and expense the municipality incurred in determining the work that will require permitting or whether the work can be completed at all.

Subpart 10. State surcharge fees. This subpart is modified by deleting the phrase at the end of the first and second paragraphs that states “to the attention of the state building official.” These phrases were in the rule to direct surcharge report mail to the office of the State Building Official, which was physically located in a different building than the offices of the Department of Administration. The office of the State Building Official is now located within the same building as the Department of Labor and Industry, so it is no longer necessary to redirect the mail.

1300.0170 STOP WORK ORDER.

The change in the first paragraph is needed to authorize the building official to issue a stop work order, or a notice or order specified in part 1300.0110 subpart 4. This is reasonable because the building official can require corrections without stopping the work on the entire project or portion thereof by using a correction notice or order to accomplish the goal to require the work to meet the state building code.

This part is further modified by adding a phrase near the end of the part regarding the continuance of work after service of a stop work order. This modification is necessary to coordinate with the incorporated model code documents. In addition, it is needed to clarify that continuing work after a stop work order is a violation of law.

It is also needed to clarify that a stop work order may authorize limited work to be done to abate a continuing violation or unsafe condition. It is reasonable to clarify that while violating a stop work order by continuing to work may be a violation, a stop work order may also include orders to correct work that cannot continue to exist until the stop work order is lifted.

1300.0180 UNSAFE BUILDINGS OR STRUCTURES.

The first sentence of the third paragraph is modified to require the building official to order dangerous buildings to be vacated. It is reasonable to require the building official to take this action rather than to use discretion when a building is, in fact, dangerous to occupy.

This rule is further modified by adding language to the third paragraph giving the building official authority to order disconnection of utilities to eliminate a safety hazard. This modification is necessary to permit the building official to order disconnection of building utilities in emergency situations. Building utilities, such as electricity and gas, can add to the emergency if not disconnected in the event of a fire, flood, or damaging storm. It is reasonable to give the building official the authority to order the disconnection of utilities to help prevent additional damage to property and to minimize hazards to emergency personnel.

1300.0190 TEMPORARY STRUCTURES AND USES.

Subpart 1. General. This subpart is modified by deleting the language pertaining to limiting the time the permit is effective. Deleting this language is necessary to allow municipalities to regulate the time period that a temporary structure will be permitted to continue. It is reasonable to permit municipalities to limit this through local zoning rather than be regulated and confined by the State Building Code.

1300.0210 INSPECTIONS.

Subpart 6, subitem D. This subitem is modified to reflect changes made to language contained in incorporated model code documents.

Subpart 6, subitem H. This subitem is modified to reflect changes made to language contained in incorporated model code documents.

1300.0215 PLUMBING.

Subpart 1. Inspection, testing and permits. The heading to this subpart has been modified to reflect changes made to the remainder of the subpart to more accurately describe what is contained in the subpart. The existing language in the subpart is deleted in its entirety but has been revised and relocated in two new subparts. It is necessary to revise the language for ease of understanding and to separate the requirements in the provision because the current provision combines issues that are better presented separately for clarity. There are two reasons for this change. First, neither the Minnesota Plumbing Code nor this chapter contains any provisions to provide exceptions for a permit for plumbing work. As a result, this section is amended to specifically identify plumbing work that would not require a permit and inspection by the municipality. Second, local jurisdictions often question which type of plumbing work, pursuant to 1300.0215, subpart 1, requires a permit and inspection. In some jurisdictions, permits are required for any plumbing work covered by the Minnesota Plumbing Code in any building or home, including mere replacement of any plumbing material, faucet, or a toilet. This requirement is unreasonable and unrealistic because fixture replacement is considered basic maintenance and does not involve the replacement of plumbing piping, so it should not require permitting, inspections, or testing by the administrative authority.

Subpart 1, subitem A. The phrase “administrative authority,” as used in this part, refers to a different entity than the entity defined in Minnesota Rule, part 1300.0070, subpart 2, and referenced in the rest of chapter 1300. To avoid confusion, it is necessary to define “administrative authority” separately as it relates to administration of the plumbing code in Chapter 1300.

Subpart 1, subitem B This subitem contains language that was located in the existing subpart 1 but has been revised to further clarify the testing and inspection requirements for new plumbing systems or parts of existing plumbing systems that have been altered, extended or repaired. These requirements are consistent with the existing rule language and past practices.

Subpart 1, subitem C. This subitem provides exceptions to plumbing work that typically require permits, inspections, and testing. The listed exceptions are considered basic work and common installations that do not need to be subject to permit, inspection, and testing requirements unless the plumbing work poses an unsanitary or hazardous condition. Types of basic

plumbing work may include water line connections to the replacement of a refrigerator or a clothes washer with existing plumbing connections that are associated with plumbing in residential installation. For this reason, it is reasonable to waive plumbing permits, inspections, and testing without jeopardizing health and safety. The exceptions are limited to one-and two family dwellings only and apply only if the plumbing work does not pose an unsanitary or hazardous condition. In addition, this part does not waive the plumbing licensing requirement to perform any plumbing work listed in the exceptions (1) through (4).

Subpart 1, subitem D. This subitem provides exceptions to testing requirements for limited plumbing work. This language already existed in rule but has been relocated to this subpart. Examples of plumbing work that may not require testing are adjustment of a water closet carrier for accessibility height requirement under Chapter 1341, repair work by replacement of wax rings for water closets, or replacement of faucet parts. Testing requirements for this type of work may be waived if the work does not create a hazardous or unsanitary condition. The exceptions are specific to testing requirements only for residential and commercial installations. The proposed language is consistent with existing language and past practices.

Subpart 2. Notifications. This subpart is repealed because it is not consistent with inspection and approval processes established in Minnesota Rules, part 1300.0120. This part was moved into Minnesota Rules, chapter 1300 from Minnesota Rules, chapter 4715, and was a separate requirement for plumbing inspection notices. Plumbing inspections are the same as other inspections required by the Minnesota State Building Code and, as such, should follow the same administrative procedure for uniformity purposes. It is reasonable to delete a rule that is not consistent with other rules found in the same chapter.

Subpart 6. Plans and specifications. The existing rule is modified to correctly identify the governmental authority responsible for administration of the Minnesota Plumbing Code. The Governor's Reorganization Order Number 193, issued on April 4, 2005, transferred the authority responsible for administering the Minnesota Plumbing Code from the Commissioner of Health to the Commissioner of Labor and Industry.

This subpart is also modified to clarify that plans for plumbing plan review submitted to the Department do not require duplicate sets, which is consistent with current practices.

This rule subpart is further modified by adding the phrase "and specifications" after the phrase "approved plans" in the third sentence of the subpart. This change is necessary because the phrase "plans and specifications" is referenced several times throughout this subpart. In this sentence, the phrase "and specifications" is missing from the reference. The Commissioner requires that both plans and specifications be submitted to him for approval of plumbing work. This change is necessary to ensure that all phrases that refer to "plans and specifications" are consistent.

The submission of plans and specifications to the Commissioner of Labor and Industry extends to all plumbing installations in state licensed health care facilities. These facilities are licensed by the state as a hospital, nursing home, supervised living facility, free standing outpatient surgical center, hospice, or a boarding care home. The proposed change clarifies that, in cities of the first class, plumbing plans for all state licensed health care facilities must be submitted to the Commissioner of Labor and Industry. This proposed change is needed to provide consistency with current practices and the Minnesota Department of Health's health care licensing requirements.

This subpart is also amended to clarify that plan review and specifications for federal buildings are not required to be submitted and approved by the Commissioner of Labor and Industry. This modification is consistent with federal preemption laws.

Finally, additional language is added to clarify that a connection may be not made to a water supply system except when proper backflow preventer devices are provided and approved, pursuant to Minnesota Rules, chapter 4715. Without this amendment, the requirement is inconsistent with the rule parts that permit backflow preventer devices in the water supply system.

1300.0220 CERTIFICATE OF OCCUPANCY.

Subpart 2. Existing structures. This subpart is modified by deleting the phrase "except as specifically required in chapter 1311." This modification is necessary to coordinate this requirement with Minnesota Rules, part 1300.0040. Part 1300.0040 permits existing structures undergoing a change of occupancy to be designed to comply with the provisions of either chapter 1311 or chapter 1305. Requiring the use of chapter 1311 creates conflicts for building designers who chose to use chapter 1305, which is the code for new buildings, but is more restrictive. Chapter 1311, on the other hand, is less restrictive, but was required to be used. With the proposed modification to part 1300.0040, the choice is now up to the designer to determine which code to apply. It is

reasonable and necessary to coordinate this subpart with Minnesota Rules, part 1300.0040.

Subpart 3. Change in use. This subpart is modified by deleting the phrase “shall not be made except as specified in chapter 1311,” and replacing it with the phrase “must comply with the Minnesota State Building code or chapter 1311.” This modification is necessary to coordinate this requirement with Minnesota Rules, part 1300.0040. Part 1300.0040 permits existing structures undergoing a change of occupancy to be designed to comply with the provisions of either chapter 1311 or chapter 1305. It is reasonable and necessary to coordinate this subpart with Minnesota Rules, part 1300.0040.

Subpart 4. Moved buildings, exceptions. This subpart is modified by adding a new exception that states “buildings designed to comply with chapter 1311.” This new exception is necessary to permit buildings to be moved into a jurisdiction if it is designed to comply with chapter 1311. It is reasonable to permit a moved building to comply with chapter 1311 because other existing buildings within a municipality are also permitted to be designed to comply with chapter 1311.

1300.0225 MAINTENANCE. This is a new rule part regarding maintenance on buildings and structures. Similar language is in the Guidelines for the Rehabilitation of Existing Buildings Code book that is currently incorporated in rule chapter 1311 but is not included any of the ICC model documents, including the 2012 International Existing Building Code. It is necessary to incorporate this requirement into the administrative provisions so an owner can continue use of a building built under a certain code edition without having to update the building to a new code with each subsequent code adoption. This protects the owner from future costs for unknown future code changes. However, it requires the owner to maintain the building in a safe, sanitary, and habitable condition. It is reasonable to require buildings to be maintained and to permit the building to be maintained in accordance with the code under which it was constructed.

1300.0230 BOARD OF APPEALS.

Subpart 5. Final interpretive authority. This subpart is modified to remind the user that, in accordance with Minnesota Statutes, section 326B.127, the commissioner has final interpretive authority to all codes adopted as part of the State Building Code, except for the State Plumbing Code, the State Electrical Code, and the State High Pressure Piping Code, which are all governed by their respective Boards.

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2015

MINNESOTA PROVISIONS TO THE STATE BUILDING CODE

Chapter 1303, Provisions to the Minnesota State Building Code (including radon), is not a separate code book. It can be found in the 2015 Minnesota Residential Code and 2015 Minnesota Building Code.



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing Radon Gas Mitigation Control Methods in Residential Buildings and the Minnesota Residential Energy Code, Minnesota Rules, parts 1303.2400-1303.2403 and 1322.0010-1322.2400; Revisor's ID Number R-04141

INTRODUCTION

On June 1, 2009, the Commissioner of the Department of Labor and Industry (“Department”) adopted rules for radon control methods by incorporating by reference a portion of the 2006 International Residential Code (“IRC”), with amendments.¹ The radon control methods rules are part of the Minnesota State Building Code and are currently found in *Minnesota Rules*, Parts 1322.2100 to 1322.2103, within the Residential Energy Code chapter. The Commissioner, in 2009, adopted the Minnesota Residential Energy Code, found in Minnesota Rules, Parts 1322.0010 to 1322.1104. The current Residential Energy Code incorporates by reference the 2006 IRC, with amendments² The Department is amending these rules.

The radon control methods rules will be relocated from the Residential Energy Code chapter, *Minnesota Rules*, Chapter 1322, to the Minnesota Provisions of State Building Code, *Minnesota Rules*, Chapter 1303. The Department convened the Radon Rule Advisory Committee to update the radon control methods.³ A complete list of the Radon Rule Advisory Committee members can be found in Exhibit A. Additionally, pursuant to Minnesota Statutes, section 326B.106, subdivision 1, the Department consulted with the Construction Codes Advisory Council (“CCAC”) on June 21, 2012, regarding Chapter 1303 Radon Control Methods.⁴ During the previous adoption process, basic requirements for radon control were adopted into the State Building Code. In the proposed rules, the Department is incorporating more comprehensive requirements for radon control systems. The proposed rules address both passive and active radon control systems to provide an option to homeowners should they chose to install an active system.

¹ Specifically, Appendix F, Radon Control Methods, of the IRC

² Chapter 11

³ The Radon Rule Advisory Committee met on November 1, 2011, November 29, 2011, and December 13, 2011. Meeting agendas and notes can be found at: <http://www.dli.mn.gov/CCLD/rm/1303agendas.asp>

⁴ Meeting minutes can be found at: <http://www.dli.mn.gov/PDF/ccac/0612minutes.pdf>

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1303
MINNESOTA PROVISIONS OF THE STATE BUILDING CODE**

Throughout this analysis, there are references to the IRC and the IBC in both the radon control rules and the energy code rules. The IRC is incorporated by reference into the Minnesota State Building Code in Minnesota Rules, part 1309.0010, subpart 1, and the IBC is incorporated by reference into the Minnesota State Building Code in Minnesota Rules, part 1305.0011, subpart 1.

The proposed rules carry forward some of the requirements from Minnesota Rules, Chapter 1322 for radon control systems with modifications, and also incorporate new requirements. These requirements were located in Chapter 1322 at the time because that Minnesota Rule Chapter was open for amendments when legislation was passed to include radon control provisions in the Minnesota State Building Code. Minnesota Rules, Chapter 1303 is a better location for radon control system requirements because the requirements are specific to Minnesota and the rules apply to the construction of buildings built under the IRC and IBC, so putting the rules in chapter 1303 prevents repeating the same rules in Chapters 1305 (Adoption of the International Building Code) and 1309 (Adoption of the International Residential Code).

Minnesota Statutes, section 326B.106, subdivision 6, requires the radon control rules to incorporate the radon control methods found in the IRC appendix as a model but allows amendments to coordinate with the other adopted construction codes in Minnesota. The current rules use Appendix F of the IRC (“Appendix F”) as a model, but incorporation by reference was unnecessary because there are many modifications to the model language in the proposed rule. That is, Minnesota Rules, parts 1322.2101 through 1322.2103 are modifications, deletions, or additions to the language in Appendix F. Some of the language in the proposed rule has been carried forward from the existing rules without substantive revision. Some of the language is new to provide clear standards; the additions are based on experience about the radon control methods the Department has gained since the radon control rules were first promulgated.

1303.1600 FOOTING DEPTH FOR FROST PROTECTION.

Subp. 2. Soil under slab on grade construction

for buildings (exception). This amendment is modified by deleting the current 3,000 square-foot size limit and replacing it with 1,000 square feet. This exception is intended to apply to accessory structures, such as garages, carports, and sheds, at risk of experiencing structural damage resulting from frost heave. The Structural Advisory Committee believed that structures built to the 3,000 square-foot threshold are not necessarily considered to be a low risk for damage from frost heave. The 3,000 square-foot threshold is also greater than the 400 and 600 square foot thresholds allowed in the 2012 IRC and IBC. The advisory committee believed that 3,000 square feet does not accurately reflect the sizes to which these structures are commonly constructed and that the 1,000 square-foot threshold would better reflect a size to reduce the risk for damage from frost heave. The Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscientists and Interior Design’s rules, Minnesota Rules, part 1800.5900, requires the 1,000 square-foot threshold for Group U occupancy types, which are structures defined as buildings and structures of an accessory character. The occupancy Group U structures that exceed the 1,000 square-foot area or a structure that is greater than 1-story are not exempt from the Board’s professional design requirements, pursuant to Minnesota Rules, part 1800.5900. The structural engineer of record’s design, therefore, would be required to protect the structure from effects of frost heave. For these reasons, the advisory committee chose the 1,000 square-foot threshold as the new limit for this exception.

While the proposed threshold is more restrictive than the current rule, the proposed amendment is less restrictive than similar requirements in the IRC and IBC proposed for adoption. There is a potential initial cost increase to a small percentage of buildings, but there will also be potential for long term cost savings because of reduced structural damage and repair costs to larger structures. Most detached, one-story private garages, carports, and sheds built over 1,000 square feet are built with a post and beam structure with the posts extending to minimum frost depth, so these structures are at less risk of damage caused by ground movement.

1303.2200 SIMPLIFIED WIND LOADS.

Subp. 2. Simplified design wind pressures. This subpart is modified by changing the equation and

tables for horizontal pressures. This modification is necessary and reasonable to keep the Minnesota State Building Code's "Simplified Wind Load Procedure" current with procedural changes that have occurred in the International Building Code. By maintaining the "Simplified Wind Load Procedure," the cost of designing simple structures for wind loads is reduced.

REPEALER. 1303.1800 RADIAL ICE ON TOWERS.

Minnesota Rule part 1303.1800, Radial Ice on Towers, added a necessary requirement that was not in the 2006 IBC. This rule part is now being repealed because the 2012 edition of the IBC contains Section 1614, Atmospheric Ice Loads, and references Chapter 10 of the ASCE-7 (Section C10.0, Ice Loads—Atmospheric Icing), which contains the necessary requirements and references.

The national standard lists the requirements by county. There will be an increase in requirements in some counties, and therefore an increase in cost in some counties. Requirements and associated costs will vary based on location and on type and size of the structure.

1303.2400 PURPOSE AND SCOPE.

Subpart 1. Applicability; residential structures. Like the current rules, the proposed rules apply to new residential buildings but clarify more specifically what buildings are within the scope of the rule and which ones are not. This subpart explains that these rules apply only to new residential structures, residential portions, and some additions to existing dwellings. The subpart explains that if a radon control system is required pursuant to this rule part, then a passive system is the minimum requirement for a radon control system. This language is new.

The purpose of the Minnesota State Building Code is to establish reasonable safeguards for health, safety, comfort, and security of the residents of this state. If an addition, without required radon protection, is allowed to be added to a residence that has a radon system, the unprotected area of the addition would potentially allow radon into the protected area of the house, thus making it less safe.

Subp. 2. Applicability; design features. This subpart identifies the structural features in a building design that trigger the requirement for a radon control system if the rule applies to the structure type and clarifies what features do not trigger that requirement. For example, hotels and motels are explicitly exempted from these requirements because the statutory authority in Minnesota Statutes, section 326B.106, subdivision 6, authorizes the Department to "adopt rules for radon

control as part of the State Building Code for all new residential buildings." Emphasis added.

The building configurations listed in subpart 2(A) through (F), identify when radon control methods must be included in the construction. This list is necessary because it incorporates the most common building configurations that are known to allow the intrusion of radon gas into the building. It is reasonable to require radon control systems only when the building configuration is conducive to radon intrusion. The proposed language further clarifies that in addition to hotels and motels, any foundation alteration or an addition to an existing structure that does not have a radon control system is not subject to these rules. This clarifies to the building construction industry and building officials the types of structures and alterations and additions that require radon control systems.

Exceptions are added to the end of this subpart.

Exception 1. Crawl spaces outside the conditioned space of the residential dwelling. The first exception clarifies that unconditioned crawl spaces which are vented directly to the outside atmosphere, according to the building code requirements specified for that building, are exempt from the radon control requirements. This exception references several code sections that, if complied with, would exempt the crawl space from a radon control system. Section R408.1 of the 2012 IRC and sections 1203.3 through 1203.3.1 of the 2012 IBC address ventilation of "under-floor space between the bottom of the floor joists and the earth under any building. Section R408.2 of the IRC addresses openings for under-floor ventilation. IBC Sections 1203.3 and 1203.3.1 pertain to under-floor ventilation of buildings. Title 24, section 3285.505, of the Code of Federal Regulations pertains to crawlspace ventilation. Minnesota Rules, part 1350.2700, subpart 8, addresses skirting material, and ventilation, in foundations and support systems of manufactured homes. This exception is necessary to ensure that these requirements are enforced and interpreted correctly by providing accurate descriptions for the types of crawl spaces that are exempt from the radon control system requirement.

Exception 2. Hotels and motels. An exception for Hotels and Motels has been included because Minnesota Statutes, section 326B.106, Subdivision 6, states in part that "[t]he commissioner of labor and industry shall adopt rules for radon control as part of the State Building Code for all new residential buildings." Since hotels and motels are transient in nature and not intended for use as a long term residence, they have been exempted from the radon control system requirements.

Exception 3. Additions to existing dwellings which have not incorporated a radon control system.

The purpose of the radon control system is to protect the occupants of a dwelling by reducing the potential radon within the dwelling by the use of a radon control system. It is not necessary to require a radon control system for an addition to an existing dwelling which does not have a radon control system installed. Adding a radon control system to a new addition would unnecessarily increase the cost of construction while providing no additional protection to the occupants because the existing structure will remain unprotected.

Subp. 3. Mixed-occupancy or multistory mixed occupancy buildings. The requirements in this subpart are new. The Department received numerous inquiries regarding multi-story and mixed occupancy structures and whether radon control systems are necessary in these structures. This new language eliminates that confusion and clarifies the radon control requirements for these types of structures. It is important to ensure residential portions are protected from radon with radon control systems or proper sealing from non-residential portions where appropriate. This provision strikes a balance between meeting the statutory authority and protecting residential portions and maintaining reasonable costs by not requiring radon control systems in some non-residential portions of mixed occupancy buildings.

1303.2401 DEFINITIONS.

Subpart 1. Terms Not Defined. This subpart provides direction to the user for terms that are not defined in these rules or elsewhere in the Minnesota State Building Code. This language is consistent with language in other portions of the Minnesota Building Code such as Minnesota Rules, part 1300.0070, subpart 1.

Subp 2. Definitions. This subpart provides definitions for terms used in this rule that are not defined elsewhere in parts 1303.2400 to 1300.2403.

Active Radon Control System. This definition is derived and modified from two terms in the current rules. The current rules in Chapter 1322 have definitions for: 1) “sub-slab depressurization system (passive)” and 2) “sub-slab depressurization system (active).” The two definitions are nearly identical with the exception that the passive definition includes a vent pipe whereas the active definition references a fan-powered vent pipe. The similarities between the two terms and definitions have caused confusion in the past. Putting the key word first, “active” in this case, aids in distinguishing the type of system which is defined below. Changing the term “sub-slab depressurization” to “radon control” uses

common language that more simply describes the purpose of these systems and is used throughout the rule. The definition describes the intended objective (achieving “lower air pressure below the soil-gas membrane relative to the indoor air pressure”) and how it will be accomplished (“by use of a fan that has been added to the passive radon control system”). Adding this definition will provide clarity to the proposed rule.

Approved. This definition is added to this proposed rule and to other chapters in the Minnesota State Building code, including chapter 1300, to give the building official discretion to approve new materials or technology while maintaining quality and the purpose of the rules.

CFR. This definition is added to clarify the reference in the exception in rule part 1303.2400, subpart 2.

Gas Permeable Material. This definition describes the types of material that are accepted as gas permeable materials, which are required to be installed below the soil-gas membrane.” This definition is necessary because the term is used in this rule. The language in subitems 1 and 2 is from Appendix F of the IRC, AF103.2. The language for subitem 3 is modified from the language contained in Appendix F of the IRC, AF103.2. The language in Appendix F contains the phrase, “other floor designs with demonstrated capability to permit depressurization.” This language is problematic because it does not specify how to demonstrate the capability. The language is modified by removing the phrase “with demonstrated capability to permit depressurization across the entire sub-floor area” and replacing it with the phrase “professionally engineered to provide depressurization under the entire soil-gas membrane.” This modification clarifies that the materials, systems or floor designs must be engineered designs by licensed design professionals to be accepted as establishing the required movement of gases below the soil gas membrane so they can be collected and vented to the exterior.

IBC. This definition is provided because the proposed rule references the International Building Code but this code is not defined. This definition will provide clarity to the user.

IRC. This definition is provided because the proposed rule references the International Residential Code but this code is not defined. This definition will provide clarity to the user.

Passive Radon Control System. This definition is derived and modified from two terms in the current rules. The current rules in Chapter 1322 have definitions

for: 1) “sub-slab depressurization system (passive)” and 2) “sub-slab depressurization system (active).” The two definitions are nearly identical with the exception that the passive definition includes a vent pipe whereas the active definition references a fan-powered vent. The similarities between the two terms and definitions have caused confusion in the past. Putting the key word first, “passive,” in this case, aids in distinguishing this term from the optional active radon control system defined above. Changing the term “sub-slab depressurization” to “radon control” uses common language that more simply describes the purpose of these systems and is used throughout the rule. The definition describes the intended objective (achieving “lower air pressure below the soil-gas membrane relative to the indoor air pressure”) and how it will be accomplished (“by use of a vent pipe that relies on stack effect to provide an upward flow of air from beneath the soil-gas membrane”). Adding this definition will provide clarity to the proposed rule.

Radon Gas. This definition is an excerpt of the current definition in Minnesota Rules part 1322.2102. The definition is amended by removing unnecessary commentary that describes how radon gas moves through soil and is undetectable by human senses. This modification will clarify this definition.

Sealed. This definition is necessary to provide a definition for the word “sealed” that is specific to the construction industry and to the installation of radon control systems.

Soil-Gas Membrane. This term replaces “SOIL-GAS RETARDER” in the current rule. The term “membrane” replaces “retarder” because “membrane” better describes the material whereas “retarder” describes the function. That is, “membrane” is a more accurate descriptor in this case. The language in the proposed definition is largely the same as the current definition but removes “or other equivalent material used to retard the flow of soil gases into a building.” This language was removed because it is redundant; Minnesota Rules, part 1300.0110, subp. 13, allows the building official to accept alternate methods and materials as long as the alternate methods and materials would be equivalent to those required by the Minnesota State Building Code.

Vent Pipe. The current rules define what a vent pipe is and include some description of the physical requirement along with a description of how a vent pipe must be utilized. The proposed rule language extracts the physical description provided to create a definition that applies to all “vent pipe” references.

1303.2402 REQUIREMENTS FOR PASSIVE RADON CONTROL SYSTEMS.

Subpart 1. Gas permeable material preparation. The language in this subpart will ensure that a gas permeable material, as defined above, is placed on top of the prepared subgrade prior to the installation of a floor system. This language is necessary because it is the first step of the procedure for the proper installation of a passive radon control system.

Subp. 2. Soil-gas membrane installation. The language in this subpart describes how and where soil-gas membranes must be installed so that radon control systems will operate effectively and efficiently. The soil-gas membrane will contribute to the health and safety of Minnesota residents by further preventing radon from entering the dwelling from the ground below the building.

Subp. 3. “T” Fitting. This subpart describes how a “T” fitting must be installed in a vent system. The current rule refers to “the ‘T’ fitting” in Minnesota Rules, part 1322.2103 in sections AF103.5.3 and AF103.6.1, Requirements. Connecting and orienting the “T” fitting is not clearly explained in the current rule. The proposed language is necessary to clarify how to connect the “T” fitting to ensure that same-size materials are used for all pipes and fittings. E.g., 3-inch perforated pipe or drain tile, connected to 3-inch “T” fitting, connected to 3-inch vent pipe.

Subp 4. Potential entry routes. The first sentence of this subpart is a slightly modified version of Minnesota Rules, part 1322.2103, section AF103.4. Specifically, the phrase “closed in accordance with sections...” is deleted and replaced with the phrase “sealed according to this subpart, as applicable.” The phrase, “as applicable” is added to the end of the sentence to clarify that the requirements apply to the circumstances that are relevant. These modifications are necessary to provide clarity and consistency with language in other parts of the Minnesota State Building Code.

A. Floor openings. This item is a modified version of Minnesota Rules, part 1322.2103, section AF103.4.1. The following modifications are made:

1. The phrase “...that penetrate concrete slabs or other floor assemblies” is modified to read “...that penetrate the soil-gas membrane and the concrete slab or other floor systems.” This change is necessary to incorporate the soil-gas membrane into the description for “floor openings” because the soil gas membrane may be part of the floor system or possibly the only floor system.

2. The phrase “...shall be filled with a polyurethane caulk or equivalent sealant...” was deleted. This modification is necessary because the deleted language mandates a polyurethane caulking or equivalent material to be used. The term “sealed” is newly defined in

a way so that specifying sealant material is unnecessary; the new definition describes a final outcome of what is necessary to prevent radon gas from entering the building where objects penetrate both the soil-gas membrane and the floor system.

B. Concrete joints. This item is a modified version of rule part 1322.2103, section AF103.4.2. The modifications include: 1) using the phrase “shall be sealed” in place of the phrase “sealed with a caulk or sealant” and 2) “and filled with polyurethane caulk or other elastomeric sealant in accordance with the manufacturer’s recommendations” is replaced with “prior to sealing” because “sealed” is now defined. These modifications use language that is consistent with other portions of the proposed rules.

C. Foundation walls. The requirement for foundation walls is being carried forward from rule part 1322.2103, section AF103.4.5, but the content is rephrased and reorganized to provide better clarity. The sentence “Penetrations of all foundation wall types shall be sealed,” is added at the beginning of the provision because it provides the objective of the requirement. The remaining language is reorganized in a list format to clarify the requirements for the different types of foundations walls or features on foundation walls. These requirements are now in a centralized location rather than being scattered throughout the rule.

D. Unconditioned crawl spaces. The language in this item is derived from two sections in rule part 1322.2103: sections AF103.4.9 and AF103.4.10. These sections are being combined into a single requirement for clarity and simplicity. Section AF103.4.9 addresses unconditioned crawl space floors and Section AF103.4.10 addresses unconditioned crawl space access. The phrase “or otherwise filled to prevent air leakage” is deleted and replaced with the newly defined term “sealed,” because the original phrase is vague. With regard to the crawl space floors and access, “sealed” is a more accurate term because to “otherwise fill” the crawl space opening according to the current language could result in an opening being filled, which is not the desired result. The proposed language addresses how to prevent radon gas from escaping through access openings by use of a gasketed door. These changes are reasonable and necessary to provide clarity.

E. Sumps. The requirement for sumps is being carried forward from rule part 1322.2103, section AF103.4.4 but the content is revised slightly for clarity. The current language in rule part 1322.2103, section AF103.4.4 addresses the requirements for the sump lid in two statements. The proposed rule combines these statements into a single statement that identifies the need

for the sump lid to be gasketed and if the sump is used as the termination point for the radon control system, the lid must be designed to accommodate the vent pipe. The proposed rule also addresses the prevention of a possible short circuit in the radon control system by clarifying that a back flow prevention device is required in the sump pump water discharge line to prevent the radon control system from drawing outside air rather than air from below the soil gas membrane. This change is reasonable and necessary because it provides clarity and simplicity to the reader who may be installing or enforcing this rule.

Note: AF103.4.3, Condensate drains is not carried forward here because condensate drains are regulated by the International Mechanical Code, as adopted in Minnesota Rules chapter 1346. AF103.4.6 Waterproofing/dampproofing is not carried forward because they are regulated by the International Residential Code, as adopted in Minnesota Rules chapter 1309.

Subd. 5. Vent pipes.

A. Single vent pipe. The language in this subitem is a modified version of the language currently located in part 1322.2103, sections AF103.5.3 and AF103.6.1. The proposed rule eliminates repetitive language and reorganizes the vent pipe requirements into a single location. The requirement regarding “T” fittings is relocated to its own subpart; rule part 1303.2402, subpart 3. Adding a requirement requiring individual sections of the vent pipe to be “primed and glued” together provides clarity that is missing in the current rule. The installation requirements regarding an extension above the roof and a location in proximity of an opening into the conditioned spaces of a building are carried forward from Minnesota Rules, part 1322.2103, sections AF103.5.3 and AF103.6.1.

Finally, the current rule part 1322.2103, section AF103.6.1, Exceptions, identifies requirements for a minimum of an R-4 insulation when vent pipes run through unconditioned space. However, this insulation requirement is triggered only when an active radon control system is installed. This insulation requirement is modified in the proposed rule to apply when any vent pipe runs through unconditioned space, including passive radon control systems, because only a passive system may be required. The insulation requirement plays an important role in maintaining the interior temperature of the vent that is relying on natural stack effect (hot air rises). The addition of this language in the vent pipe section of the proposed rule is reasonable and necessary to ensure that the required passive system will operate effectively.

B. Multiple vent pipes. The requirements in this subitem pertaining to multiple vent pipes is carried forward from rule part 1322.2103, section AF103.6.2, but revised for clarity. The phrase “sub-slab aggregate” is deleted in the proposed rule because this phrase is not used in the proposed rules; it has been replaced with the term “gas-permeable material.” This change is reasonable and necessary for clarity. The current language in rule part 1322.2103, section AF103.6.2 is ambiguous because it does not specify when areas may be divided into separate areas because of barriers. Adding the phrase “into 2 or more areas” clarifies when separate radon control systems are required; these separate systems can be connected to a single vent. The phrase “at least 12 inches above the roof” was deleted to remove redundant language and it is replaced with “in accordance with item A.” This change is reasonable and necessary to ensure that vent systems are installed properly.

C. Vent pipe drainage. The language in this subitem pertaining to vent pipe drainage is carried forward from Minnesota Rules, part 1322.2103, section AF103.7. This language is modified by deleting the word “positive” prior to the word “drainage” in the current rule. The word “positive” is not necessary because all radon gas vent pipes shall drain to the ground beneath the soil-gas membrane. The phrase “slab or soil-gas-retarder” is replaced with “soil-gas membrane.” This modification is necessary to coordinate the language with other language used in the proposed rules.

D. Vent pipe accessibility. The language in this subitem is carried forward from rule part 1322.2103, section AF103.8, but is modified grammatically for better clarity.

E. Vent pipe identification. The language in this subitem is from rule part 1322.2103, section AF103.9, but contains modifications. The word “floor” is deleted and replaced with the word “story” to provide better clarity and consistency with terminology used in the proposed rules. The phrase “and crawl spaces” is added to the end of the first sentence because vent pipes may be in crawl spaces and therefore should be identified consistently with the other stories. The label “Radon Reduction System” was deleted and replaced with the label “Radon Gas Vent System” because the label uses plain language that is easy to understand and consistent with other language used in the proposed rule.

F. Combination foundations. The language in this subitem is carried forward from rule part 1322.2103, section AF103.10, but is modified. The exception in the subitem is deleted because single vent pipes are addressed above so it is no longer necessary.

Subp. 6. Power Source. The requirement in this subpart is a modified version of rule part 1322.2103, section AF103.12. The modified language is necessary to provide clarity and better direction regarding the installation of a power source. The proposed rule states that the power source cannot be installed in any conditioned space, basement, or crawl space. This is necessary so that the fan will only pressurize the vent outside the living space, which will prevent the exposure of radon gas into the dwelling if the vent system should experience a joint failure.

1303.2403 REQUIREMENTS FOR ACTIVE RADON CONTROL SYSTEMS.

This rule part describes the requirements for an active radon control system. The current rules regarding active radon control (a.k.a. submembrane depressurization) systems provide only two pieces of information relative to the subject matter. Minnesota Rules, part 1322.2102, section AF102 provides a definition for this type of system and the exception in Minnesota Rules, part 1322.2103, section AF103.6.1, which describes the routing for vent pipes in unconditioned spaces if an active radon control system is installed. The proposed rule part provides all of the requirements for an active radon control system in one location. This proposed rule part offers clear requirements for proper application and installation of active radon control systems.

A. Radon gas vent pipe fan. This subitem provides detailed information relating to the requirements for a radon gas vent pipe fan. This item is necessary because it establishes the size and location of the radon fan, which is not specified in the current radon rules.

B. System-monitoring device. This subitem requires a system monitoring device for active radon control systems. This requirement is necessary because occupants and owners need to know if the fan ceases to operate because radon gas could build up under the soil-gas membrane without a functioning fan. Because the fan is not easily accessible or audible in normal use in a residential building, a monitoring device is necessary.

C. Luminaire and receptacle outlet. This subitem requires a light to be installed at the power source. This requirement is necessary to ensure the area near the appliance installation site is illuminated for both the installation and maintenance of the fan. This requirement also exempts the requirement in the Mechanical Code for a catwalk to the appliance when the appliance is a radon gas vent pipe fan. The additional expense incurred by requiring the catwalk would provide no added benefit so the requirement was exempted.



2015

MINNESOTA BUILDING CODE



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Adoption of the International Building Code, Minnesota Rules, chapter 1305; Revisor's ID Number R-04142

INTRODUCTION

The Commissioner of the Department of Labor and Industry proposes to adopt amendments to rules governing the Minnesota Building Code, Minnesota Rules, chapter 1305. The proposed rules will incorporate by reference the 2012 International Building Code ("IBC"), with amendments.

On July 10, 2007, the 2006 edition of the International Building Code became effective and was adopted, with amendments, by the Department. The Department chose to skip the adoption of the 2009 edition of the IBC because of the drastic slowdown of the construction economy and the lack of technical experts available to assist the Department with that adoption. Therefore, the Department currently administers and enforces the 2006 edition of the IBC, with amendments.

The International Code Council ("ICC") publishes the IBC. 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 IBC is the primary commercial, industrial and institutional code that provides minimum requirements to safeguard the public health, safety, and general welfare to occupants of new and existing buildings, facilities, and systems. The IBC applies to all occupancies, including one- and two-family dwellings and townhouses. While not required, the IBC may be used for one-and-two family dwellings and townhouses in lieu of the International Residential Code ("IRC"), however the differences between the IBC and IRC are not significant.

The Department utilized a Chapter 1305 Advisory Committee ("Advisory Committee") composed of commercial construction technical experts and fire safety experts to provide the Commissioner with recommended changes to the 2012 edition of the IBC. Pursuant to Minnesota Statutes, section 326B.106, subdivision 1, the Department also consulted with the Construction Codes Advisory Council in establishing the proposed adoption of, and amendments to, the 2012 IBC in this rulemaking.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1305
MINNESOTA BUILDING CODE**

GENERAL.

References to IBC Editions and Minnesota Rule Parts. When referencing the IBC throughout the proposed rules, the year “2006” is deleted and replaced with the year “2012.” The Department is proposing to adopt the 2012 edition of the IBC, replacing the 2006 edition, with amendments. Also, in many locations throughout the proposed rules, the phrase “Minnesota Rules” is added prior to references to specific Minnesota rule chapters and parts to provide clarity about chapter reference. Similarly, references to “IBC” are added prior to references to specific IBC chapters and sections to clarify that the specific chapter or section that is being referenced in the proposed rule is a section of the IBC.

Definitions. Throughout the proposed rules and in this SONAR, specific terms are used to explain requirements contained in certain rule parts. These terms are defined in detail within Chapter 2 of the 2012 IBC or within Part 1305.0202 of the proposed rules, and are described in this “GENERAL” section so that referring to the IBC is not necessary to understand these terms.

Occupancy Groups. Throughout the proposed rules and in this SONAR, various “occupancy groups” are frequently mentioned when describing application of specific requirements under the 2012 IBC and its proposed amendments to structures occupied and used by various groups of people. While not separately defined in Chapter 2 of the IBC, these occupancy groupings are described in detail in Sections 301 through 312 of the 2012 IBC. A brief summary of all occupancy groupings follows to assist the reader in more fully understanding the scope and application of the 2012 IBC to specific types of building occupancies:

Assembly Group A occupancies (A-1, A-2, A-3, A-4, and A-5). Generally, Group A occupancies are places where people assemble in small or large groups. Examples of Group A occupancies would include indoor symphony or concert halls, night clubs, restaurants, amusement arcades, places of worship, bowling alleys, gymnasiums, museums, outdoor amusement park structures, outdoor grandstands, and outdoor stadiums. Group A occupancies are more fully

described in Section 303 of the International Building Code.

Business Group B occupancies. Group B occupancies are structures or buildings, or a portion thereof, that provide general business services for people, including the use for office, professional, or service-type transactions, and the storage of records and accounts. Group B occupancies are more fully described in Section 304 of the International Building Code.

Educational Group E occupancies. Group E occupancies are facilities or building structures that provide educational services for people, including the use of a building or structure, or portion thereof, by six or more persons at any one time for educational purposes through the twelfth grade. Group E occupancies are more fully described in Section 305 of the International Building Code.

Factory Group F occupancies (F-1 and F-2). Group F occupancies are factory industrial buildings or structures used for assembly, disassembly, fabrication, finishing, manufacturing, packaging, repair or processing operations that are not otherwise classified as a Group H hazardous or Group S storage occupancy. Group F occupancies are more fully described in Section 306 of the International Building Code.

High-Hazard Group H occupancies (H-1, H-2, H-3, H-4, and H-5). Group H occupancies are generally buildings or structures used for the manufacturing, processing, generation or storage of materials in quantities that constitute a high physical or health hazard as established by various IBC provisions. Group H occupancies are more fully described in Section 307 of the International Building Code.

Institutional Group I occupancies (I-1, I-2, I-3, and I-4). Generally, Group I occupancies are

facilities or buildings that provide care services for people, long-term detention for people, or serve as a long-term residence for persons that receive custodial care from persons other than parents or guardians. Examples of Group I occupancies would include assisted living facilities, group homes, rehabilitation facilities, hospitals, nursing homes, detoxification facilities, prisons, reformatories, and detention centers. Group I occupancies are more fully described in Section 308 of the International Building Code and in Minnesota Rules, part 1305.0308, subparts 1, 2, and 3.

Mercantile Group M occupancies. Group M occupancies are buildings or structures, or portions thereof, accessible to the public and used for the display and sale of merchandise, including the stocking of goods, wares or merchandise incidental to such purposes. Group M occupancies are more fully described in Section 309 of the International Building Code.

Residential Group R occupancies (R-1, R-2, R-3 and R-4). Group R occupancies are typically places that people board for short or long periods of time, family dwellings, adult and child care facilities, congregate living facilities, and residential care or assisted living facilities. Examples of Group R occupancies include boarding houses, hotels, motels, apartment houses, fraternities, sororities, monasteries, one and two family dwellings, adult care facilities, smaller child day care facilities, and residential care/assisted living facilities. Group R occupancies are more fully described in Section 310 of the International Building Code and Minnesota Rules, part 1305.0310.

Storage Group S occupancies (S-1 and S-2). Group S occupancies are buildings or structures, or portions thereof, used for storage that is not classified as a high-hazardous occupancy under Section 307 of the IBC. Group S occupancies are more fully described in Section 311 of the International Building Code.

Utility and Miscellaneous Group U occupancies. Group U occupancies are buildings and structures

of an accessory character and miscellaneous structural use not classified in any other specific occupancy group by the IBC. Group U occupancies are more fully described in Section 312 of the International Building Code.

1305.0011 ADOPTION OF THE INTERNATIONAL BUILDING CODE BY REFERENCE AND ADMINISTRATIVE AUTHORITY.

Subpart 1. General. This subpart is modified by revising the code publisher’s information because the address and the edition have changed since the last code adoption cycle. This modification is necessary to properly incorporate by reference the 2012 edition of the IBC.

Subp. 2. Mandatory chapters. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. In addition, the phrase “Minnesota State Building” was added before the word “code” in the first sentence to clarify that the code referred to in this case means the Minnesota State Building Code.

Subp. 3. Replacement chapters. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. In addition, the phrase “State Building” was added before the phrase “code administration” to provide the proper reference to the title of Minnesota Rules, chapter 1300.

Subp. 5. Flood hazard or floodproofing regulations. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

1305.0021 REFERENCES TO OTHER INTERNATIONAL CODE COUNCIL CODES.

Subpart 3. Residential code. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the sentence is revised by relocating the phrase “adopted pursuant to” to correct a grammatical error in the sentence.

Subp. 4. Electrical code. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the sentence is revised by relocating the phrase “adopted pursuant to” to correct a grammatical error in the sentence.

Subp. 5. Fuel gas code. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the sentence is revised by relocating the phrase “adopted pursuant to” to correct a grammatical error in the sentence.

Subp. 6. Mechanical code. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the sentence is revised by relocating the phrase “adopted pursuant to” to correct a grammatical error in the sentence.

Subp. 7. Plumbing code. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the sentence is revised by relocating the phrase “adopted pursuant to” to correct a grammatical error in the sentence. The reference to Minnesota Statutes, section 326B.106, subdivisions 1 and 2 is deleted and replaced with a reference to Minnesota Statutes, section 326B.435. This change is necessary because the statute section was renumbered and the proposed rule now contains the correct statutory citation.

Subp. 8. Private sewage disposal code. References to Minnesota Rule chapters 7081, 7082, and 7083 are added to this subpart to direct the user to the appropriate rules governing individual sewage treatment systems.

Subp. 9. Energy conservation code. References to Minnesota Rule chapters 1322 and 1323 are added to this subpart to clarify that the Minnesota Energy Code is comprised of both Minnesota Rules, chapter 1322, the residential provisions of the International Energy Conservation Code, with amendments, and Minnesota Rules, chapter 1323, the commercial provisions of the International Energy Conservation Code, with amendments. Additionally, the section reference to Minnesota Statutes, section 326B.115, is deleted and replaced with section 326B.106, subdivision 1, to reflect the correct statutory authority for adoption of the Minnesota Energy Code.

Subp. 11. Fire code. This subpart is modified by adding the phrase “Minnesota Rules” before “chapter 7511” to clarify that chapter 7511 is a Minnesota Rule and not a chapter in the International Fire Code.

Subp. 12. International Existing Building Code. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. This subpart is amended to correct the title from “State Building

Conservation Code” to “Conservation Code for Existing Buildings.” Additionally, the sentence is revised by relocating the phrase “adopted pursuant to” to correct a grammatical error in the sentence.

1305.0030 ADMINISTRATIVE PROCEDURE CRITERIA.

Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this rule part. This subpart is modified by changing the statutory reference from Minnesota Statutes, section 16B.57, to section 326B.101, because the statutory requirement was renumbered and relocated in Minnesota Statutes to Chapter 326B.

1305.0040 VIOLATION [Repeal].

This rule part is being repealed because this language is now located in Minnesota Rule, chapter 1300, which provides administrative direction for all chapters of the Minnesota State Building Code. As a result, the rule part is no longer necessary.

1305.0202 SECTION 202, DEFINITIONS.

Subpart 1. Amended definitions. This subpart and its title are modified to provide the user with amended definitions to terms used in this proposed rule. This subpart contains definitions that are being modified from those definitions contained in Chapter 2 of the 2012 IBC. The definition for “Agricultural Building” is relocated alphabetically within this subpart and is revised as described below.

Agricultural building. The existing definition for “agricultural building” is being deleted because the term is defined in Minnesota Statutes, section 326B.103, subdivision 3. The reference to that statutory citation is added to this definition instead of the current definition to ensure that a consistent definition is used between the proposed rule and Minnesota Statutes.

Aisle. The amended definition for “aisle” is being proposed to be relocated here without change because this definition is currently located in Minnesota Rules, part 1305.1002, but the 2012 IBC definition section has been relocated to Chapter 2 of the International Building Code. Therefore, it is reasonable and necessary to relocate this definition to the corresponding location in Minnesota Rules, now located in part 1305.0202. The definition remains unchanged.

Alternating Tread Device. This definition has been modified to clarify that it is the device that is “standing” between 50 and 70 degrees from horizontal,

rather than the language that described a series of steps between 50 and 70 degrees from horizontal. This change is needed to clarify that it is the device that is standing between 50 and 70 degrees and not that the treads are at 50 to 70 degrees from horizontal. Additionally, the phrase “that has a series of steps” has been relocated to complete the description of the device. This definition is also amended from the 2012 IBC by adding the second sentence to provide another option for designers. The second sentence permits the use of a ships ladder that complies with Minnesota Rules, part 1305.1209, as an equivalent to an alternating tread device, when permitted. This modification is reasonable because both ships ladders (*see* Minnesota Rule, part 1305.1209) and alternating tread devices provide safe alternatives as limited-use stair devices.

Ambulatory care facility. This is a new definition in the 2012 IBC, which addresses medical facilities that provide care on a less than 24-hours basis where the care recipient may be rendered incapable of self-preservation without assistance from care providers. Normally, the inability to exit the building without assistance would place this use in the Group I-2 occupancy classification, but since one criterion for the Group I-2 occupancy classification is that the care is on a 24-hour basis, they are instead defined as a “outpatient clinic” and classified as a Group B occupancy.

The amended definition, along with the revision of the “outpatient clinic” definition, is an attempt to mandate additional safeguards under the “ambulatory care facility” use not required under the “outpatient clinic” use to address the concerns of the care recipients being rendered incapable of self-preservation. These additional safeguards include a fire sprinkler system, smoke detection, and a smoke barrier that can be utilized as an area of refuge in the event the occupants cannot exit the building.

An amendment to the new definition is also necessary to clarify the scoping of the definition for kidney dialysis centers to coordinate with Minnesota Department of Health rules as they relate to Federal Medicare/Medicaid reimbursement provisions. Without the modification, Minnesota building and fire officials would not know how to properly classify kidney dialysis facilities (“ambulatory care facility” or “outpatient clinic”) which would lead to a lack of consistency in code interpretation and enforcement among code officials. The omission of a kidney dialysis center located on the level of exit discharge from the classifications as an ambulatory care facility is also necessary and reasonable as the time necessary for these dialysis patients to egress when located on the ground floor is minimized since there would be no stairs to traverse and assistance from a care

provider is therefore not necessary.

Approved. This definition is modified to coordinate the definition of “approved” with the same term contained in other chapters of the Minnesota State Building Code. The modified definition also provides the building official with methods to ensure that similar situations are uniformly addressed when the building official must determine whether or not construction methods comply with the Minnesota State Building Code and formal action is required. The methods listed in this definition establish whether or not proposed construction methods comply with the Minnesota State Building Code while maintaining the intent and purpose of the code. It is reasonable to provide the same definition for this term that is frequently used throughout the Minnesota State Building Code to ensure uniformity and help prevent conflicts from one rule to another.

Corridor. The amended definition of “corridor” is being proposed to be relocated here without change because this definition is currently located in Minnesota Rules, part 1305.1002, but the 2012 IBC definition section has been relocated to Chapter 2 of the International Building Code. Therefore, it is reasonable and necessary to relocate this definition to the corresponding location in Minnesota Rules, now located in part 1305.0202. The definition remains unchanged.

Live/work unit. This is a new term in the 2012 IBC which identifies construction requirements for a building pertaining to live/work units, commonly referred to as “home occupations” in Minnesota. This term is being deleted in its entirety from the 2012 IBC because regulation of live/work units is considered a local zoning issue in Minnesota, not a code compliance issue. This deletion is reasonable and necessary to prevent conflicts between the proposed rule and local zoning regulations in Minnesota.

Outpatient clinic. This definition is modified to coordinate with an existing definition that is currently located in chapter 1300. This definition is being relocated from chapter 1300 to chapter 1305 because this term is specific to buildings constructed under the IBC. It is also necessary to modify this definition to include the phrase “and ambulatory care facilities” to the definition to provide a more complete list of uses and to help building officials determine which of those facilities should be classified as outpatient clinics with respect to the use or function of the occupancy.

This amendment is necessary due a definition change in the 2012 IBC for the term “ambulatory care facility.” The current definition of “outpatient clinic” is almost identical to the new “ambulatory care facility”

definition. That is, both definitions are based on the care recipients being rendered incapable of self-preservation.

In the past, the department amended the outpatient clinic definition so that building and fire officials would not classify kidney dialysis centers under the more restrictive Group I-2 occupancy classification, but instead considered them an “outpatient clinic.” This was done at the request of the Minnesota Department of Health to insure that these facilities were not held to the higher standard of a Group I-2 occupancy including fire-resistive construction, smoke barriers, and a fire sprinkler system.

The group I-2 classification could discourage the construction of kidney dialysis centers in greater Minnesota because the cost of construction would make them economically infeasible. The lack of these facilities in greater Minnesota could create a hardship for individuals that require kidney dialysis because they would have to travel greater distances for kidney dialysis services. By providing the “ambulatory care facility” definition, kidney dialysis centers can now be classified as either an ambulatory care facility or an outpatient clinic, depending upon the level that the dialysis center is located within a building.

Roof covering. The amended definition for “roof covering” is being proposed to be relocated here without change because this definition is currently located in Minnesota Rules, part 1305.1502, but the 2012 IBC definition section has been relocated to Chapter 2 of the International Building Code. Therefore, it is reasonable and necessary to relocate this definition to the corresponding location in Minnesota Rules, now located in part 1305.0202. The definition remains unchanged.

Townhouse. This definition in the IBC is being deleted because townhouses will not be constructed under the 2012 IBC in Minnesota (*See* part 1305.0310 below for a full explanation of this change and statement of reasonableness).

Subp. 2. Added definitions. The title to this subpart is changed to provide the user with definitions used in this proposed rule chapter that have not been included in Chapter 2 of the 2012 IBC. Additionally, the definition for “Townhouse” is deleted and relocated alphabetically to subpart 1 of this rule section and revised as described in that section of the SONAR above.

Code. This definition is added to clarify that “the code” or “this code” as used in this rule chapter means Minnesota Rules, Chapter 1305.

Guest room. This definition is added to coordinate with the same term that has been added to the Minnesota State Fire Code, Minnesota Rules, chapter 7511, to prevent conflicts between the same terms utilized in both chapters 1305 and 7511 of the Minnesota Rules.

Room. This definition is being added here because the 2012 IBC does not define this term and it is used frequently in the proposed rule. The definition of “room” is currently located in Minnesota Rules, part 1305.1002, but is proposed to be relocated here because the 2012 IBC definition section has been relocated to Chapter 2 of the 2012 IBC. Therefore, it is reasonable and necessary to relocate this definition to the corresponding location in Minnesota Rules, now located in part 1305.0202. The definition remains unchanged.

Small Hose Connection. This definition is being added because of proposed changes to part 1305.0905, subp. 6a. The current rule requires Class III wet standpipes and hose connections in Group R-2 occupancies. This proposed rule requires the use of “small hose connections” in Group R-2 occupancies. This new terminology is necessary for firefighters to differentiate between a small hose connection and a Class III standpipe hose connection.

1305.0302 SECTION 302, CLASSIFICATION.

IBC Table 302.2, Care facilities. This is a new subpart that provides classifications for the various types of licensed, registered, and unlicensed care facilities for application and use of the 2012 IBC. Many of the care facilities identified in this table are licensed by the Minnesota Department of Health (“MDH”), the Minnesota Department of Human Services (“DHS”), or both. Building officials have struggled in the past with correctly classifying these facilities because the national model codes are not consistent with MDH or DHS licensing provisions. Proper occupancy classifications are based on the number of care recipients permitted by the classification, the capabilities of those care recipients to respond during emergencies (ambulatory vs. non-ambulatory), and permitted uses within a dwelling unit. As licensed care facilities, each may or may not be subject to additional construction requirements as determined by the appropriate licensing agency, which can be overlooked if code officials improperly classify the use of the building. Without clear guidance, building officials may place these facilities in a more restrictive occupancy classification than is intended by statute or rule. This improper classification can result in inconsistent code application and increased construction costs. After receiving numerous complaints about conflicts between the model code and agencies’ licensing of these facilities, Department staff met with the appropriate staff of MDH,

DHS, and the State Fire Marshal's Office ("SFM") in 2008, and developed a publication entitled "*Quick Reference Guide to Care Facilities in Minnesota*." Since the guide's classification of these facilities can deviate from the 2012 IBC, it is therefore reasonable and necessary to incorporate the occupancy classification portion of this guide into the proposed rule. The proposed table also provides building officials with guidance about which licensed facilities should be treated similar to a "dwelling unit" for the purposes of fire suppression.

Received during comment period regarding care facilities:

1305.0302, Table 302.2, Care Facilities. The commenter requests that under the heading "Chemical Dependency Treatment Program-residential, <5 residents," the Department add "dwelling unit" under R-3 because treatment programs with <5 residents occur in (one family) dwelling units. The commenter states that this proposed change is submitted for improved clarity and consistency.

The Department created a new table in the proposed rules that describes building uses required to be licensed by the State of Minnesota. The table identifies certain uses contained in dwelling units. A dwelling unit can be a single family dwelling, an apartment, or condominium. The commenter identifies one additional use in the table that can be located in a dwelling unit. The Department agrees that the table should be modified to add the phrase "dwelling unit" in the "Chemical Dependency Treatment Program-residential <5 residents" category because the commenter is correct in that this licensed use can be located in a dwelling unit. Accordingly, the Department agrees to modify the proposed rule.

1305.0308 SECTION 308, INSTITUTIONAL GROUP I.

Subpart 1. IBC section 308.3, Institutional Group I-1. This subpart is amended by renumbering the IBC section references because the corresponding sections were renumbered in the 2012 IBC. The language in this subpart is also amended to match the 2012 IBC text, except that "Boarding care," "Housing with services," and "Supervised living facilities Class A-2" are added to the list of occupancy use groups. These use groups are added to the list of Group I-1 occupancies contained in in the 2012 IBC because these use groups are specific to the MDH and DHS licensing provisions and adding these to the list contained in the proposed rule will ensure uniform use of the terms and uniform enforcement of the code by building officials. Additionally, the occupancy use group "Residential board and custodial care facilities," referenced in the 2012 IBC, is amended by deleting the term "custodial" because that term is already used in the

opening paragraph to describe all I-1 occupancies and it is redundant to include the term in this location. In addition, the sentence in the current rule part that reads "The occupants are capable of responding to an emergency situation without physical assistance from staff" is deleted because the state-issued licenses for these uses dictate when assistance from staff is a requirement of the use. These modifications are reasonable and necessary to help eliminate misclassification of these facilities by designers and code officials.

Finally, the language in the existing subpart that states "A facility such as the above with five or fewer persons shall be classified as Group R-3. A facility such as above housing at least six and not more than 16 persons, shall be classified as Group R-4" is amended. That language is amended in the proposed rule by dividing the language into two separate section numbers, sections 308.3.1 and 308.3.2, respectively. This amendment is made to coordinate the proposed rule's format with the reformatted sections contained in the 2012 IBC.

Received during comment period regarding care facilities:

1305.0308, subpart 1, section 308.3, Institutional Group I-1. The commenter requests that in the list of examples we change the phrase "assisted living facilities" to "assisted living services" because it is "services" that are being provided in these occupancies. Also, the commenter states that the phrase "Housing with services" should be changed to "Housing with services establishment" because this more fully describes the current way these services are provided. Typically, outside service companies provide "assisted living services" in buildings originally created as other occupancies.

The rule contains the phrase "Assisted living facilities" to provide an example of a use in Institutional Group I-1 occupancies. Because this section of the rule part contains a sample list of facilities or uses, the Department believes that a "service" does not logically fit into the list of facilities or uses. The Department will delete the word "facilities" from the phrase "Assisted living facility" so that the phrase is all encompassing and will apply to anything associated with assisted living, including the use or the services provided to the use. Additionally, the Department agrees with the commenter that the phrase "Housing with services" should be changed to "Housing with services establishment" because the modified phrase better describes the way these services are provided and is also consistent with terminology used in proposed Table 302.2. Accordingly, the Department agrees to modify the proposed rule

Subp. 2. IBC section 308.4, Institutional Group I-2. This subpart is amended by renumbering the IBC section references because the corresponding sections were renumbered in the 2012 IBC. The first sentence in this subpart is further amended by deleting the phrases “surgical, psychiatric, nursing, or custodial” and “not capable,” and by inserting the term “incapable,” to also coordinate with language changes made to the 2012 IBC text. The list of occupancy uses is amended by adding “Detoxification facilities” and “Foster care facilities.” The list is also amended by deleting “Mental” hospitals and replacing it with “Psychiatric” hospitals. The text “both intermediate-care facilities and skilled nursing facilities,” following the phrase “Nursing homes,” has also been deleted. All of these amendments to the list of examples of Institutional Group I-2 occupancies in this subpart are necessary to coordinate with textual changes made to the list in the 2012 IBC or to correlate with requirements from the MDH and the DHS because these agencies classify these uses into different classifications or they use different terminology. These changes are reasonable as they will coordinate with the corresponding sections of the 2012 IBC and will help prevent construction conflicts between building officials and other state agencies’ licensing staff.

Subp. 3. IBC section 308.5, Institutional Group I-4, day care facilities. This subpart is repealed because the 2012 IBC now contains the same language. Therefore, this modification is no longer necessary.

Subp. 4. IBC section 308.6.4, Five or fewer persons receiving care in a dwelling unit. This subpart is new and modifies section 308.6.4 of the 2012 IBC by deleting the phrase “or shall comply with the International Residential Code” from the end of the section. This reference to the International Residential Code is deleted because licensed facilities in Minnesota are classified according to the IBC, not the IRC. Failure to delete that language may create confusion and conflicts with the licensing requirements of other state agencies that may be involved in regulating these facilities, such as MDH and the DHS.

1305.0310 SECTION 310, RESIDENTIAL GROUP R.

IBC sections 310.1 to 310.6. The existing rule part is amended by reformatting the rule part to correspond with reformatting changes made to section 310 of the 2012 IBC. Additionally, this part is amended to coordinate with the residential occupancy classifications contained in the rules of the Minnesota Department of Health and the Minnesota Department of Human Services.

IBC section 310.1, Residential Group R. The phrase “Residential occupancies shall include the

following:” is deleted to coordinate with reformatting changes made to section 310 of the 2012 IBC. Additionally, the language of the existing rule part is amended by adding a phrase as follows: “This group shall not include buildings regulated by chapter 1309, the International Residential Code (IRC). However, the licensed uses specified in this part, section 310.5, and section 310.6 are applicable to a building constructed in accordance with the IRC that houses a use that is required to be licensed.” This phrase is added because the ICC produces two model documents for the general regulation of building construction, the IBC and the IRC. If a jurisdiction adopts only the IBC, then the provisions for one-family dwellings, two-family dwellings and townhouses that are normally in the scope of the IRC must then be included in the IBC adopted by that jurisdiction.

However, Minnesota adopts both the IRC (Chapter 1309) and the IBC (Chapter 1305). There needs to be a clear distinction regarding when the IRC applies and when the IBC applies to certain buildings. Currently there is a path to use the IBC for the construction of one-family dwellings, two-family dwellings and townhouses. This is done by classifying these buildings as “R-3” occupancies in the IBC. This path needs to be closed because only Chapter 1309 contains the required durability-related provisions for these buildings that are mandated by Minnesota Statutes, section 326B.118. While the Minnesota Residential Energy Code (Chapter 1322) contains the bulk of the durability-related provisions mandated by this statute, certain durability-related provisions required by this statute for one-family dwellings, two-family dwellings and townhouses are located in Chapter 1309. The mandatory provisions for these building types are not located in Chapter 1305, which is intended to regulate buildings other than those regulated by Chapter 1309.

Minnesota Statutes, section 326B.118, requires the Commissioner to “explore and review the availability and appropriateness of any model energy codes related to the construction of single one- and two-family residential buildings.” Additionally, this statute requires the department to adopt an energy code for residential buildings that includes “research and analysis that addresses, at a minimum, air quality, building durability, moisture, enforcement, enforceability cost benefit, and liability.”

As stated previously, most of the provisions that comply with Minnesota Statutes, section 326B.118’s mandate are located in Minnesota rule chapter 1322. However, some of the mandatory provisions fit better into the IRC and were recently made part of Chapter 1309. For example, since the IRC is intended to be used for construction of one-family and two-family dwellings and

townhouses, some of the required durability and moisture requirements for these structures have been located in the IRC during its recent adoption, not the IBC. In order to meet these durability-related requirements, it is essential that these structures be built according to the IRC, rather than the IBC. Therefore, the inclusion of the sentence “This group shall not include buildings regulated by chapter 1309, the International Residential Code (IRC)” in section 310.1 is reasonable and needed to clarify that one-family dwellings, two-family dwellings and townhouses must be constructed to the IRC, not the IBC.

In addition, the phrase “However, the licensed uses specified in this part, section 310.5, and section 310.6 are applicable to a building constructed in accordance with the IRC that houses a use that is required to be licensed” is added to clarify that one-family dwellings, two-family dwellings and townhouses built under the IRC are permitted to have applicable licensed uses in those buildings. It is reasonable to permit buildings built under the IRC to house applicable licensed uses because the licenses were permitted in the same buildings, however possibly built in accordance with the IBC.

IBC section 310.2, Definitions. This section is incorporated from the 2012 IBC without modification. The section lists common definitions used throughout Section 310 to let the user know that these terms are now defined in Section 202 of the 2012 IBC.

IBC section 310.3, Residential Group R-1. The language in this rule part is amended by adding occupancy uses for R-1 occupancies to the list of examples of Residential Group R-1 occupancies to coordinate with changes made to Section 310 of the 2012 IBC. The 2012 IBC changed by adding the words “with more than 10 occupants” to the end of the phrases “Boarding houses (transient)” and “Congregate living facilities (transient).” Additionally, the phrase “Bed and breakfast facilities with six or more guest rooms. A facility with less than six guest rooms shall be classified as a Group R-3 occupancy” is relocated within the proposed rule to place the phrase in alphabetical order in the 2012 IBC list.

IBC section 310.4, Residential Group R-2. The language in this rule part is further amended to coordinate with reformatting and other changes made to Section 310 of the 2012 IBC concerning Residential Group R-2 occupancies. Additionally, the reference to “Live/work units” contained in section 310.4 of the 2012 IBC is not being incorporated into this rule part because the Department is deleting this term entirely from its adoption of the 2012 IBC. This term must be deleted by the Department because the regulation of live/work units is considered a local zoning issue in Minnesota. This modification is reasonable and necessary as it will prevent

conflicts between the proposed rule and local zoning regulations. Finally, the phrase “Congregate living facilities with 16 or fewer occupants are permitted to comply with construction that complies with the requirements for Group R-3” is deleted from the existing rule part because this requirement is now appropriately located in the Group R-3 section of the 2012 IBC, section 310.5, and is no longer needed.

IBC section 310.5, Residential Group R-3. The amendments to this rule part are necessary to coordinate with changes made to Section 310 of the 2012 IBC concerning Residential Group R-3 occupancies and to add certain uses to the list of examples of Residential Group R-3 occupancies contained in the proposed rule.

The phrase “Buildings that do not contain more than two dwelling units” is deleted because buildings that meet this description will be built to the requirements of Chapter 1309 (*See* Section 310.1, above). In addition, “Dwelling units in mixed occupancy buildings” is added to accommodate situations where a dwelling unit is attached to a building that is only regulated by the IBC and is termed a “mixed occupancy.” This is needed because mixed occupancies are not addressed in the IRC. It is reasonable to accommodate situations where a dwelling unit is attached to an occupancy other than a residential IBC occupancy.

A sentence is also added to the end of this part to require that new R-3 occupancies shall meet the durability provisions of Chapter 1309 to affect the intention of Minnesota Statutes Section 326B.118, which requires single one- and two-family residential buildings to meet energy and durability requirements. “Dwelling units in mixed occupancy buildings” are the same as one-family dwellings, therefore it is reasonable to require those dwelling units to meet the energy and durability requirements of Chapter 1309. The modifications to the list are reasonable and necessary to prevent confusion and conflict between this code and the regulations of other state agencies, such as the Minnesota Department of Health and the Minnesota Department of Human Services.

Received during comment period regarding care facilities:

1305.0310, subsection 310.5, Residential Group R-3. The commenter requests that in the list of examples of these occupancies, the Department change the phrase “assisted living facilities” to “assisted living services” because it is services that are provided in these occupancies. Also the commenter states that the phrase “Housing with services” should be changed to “Housing with services establishment” because this more fully describes the current way these services are provided. Typically, outside services companies provide “assisted

living services” in buildings originally created as other occupancies.

The rule contains the phrase “Assisted living facilities” to provide an example of a use in Residential Group R-3 occupancies. Because this section of the rule part contains a sample list of facilities or uses, the Department believes that a “service” does not logically fit into the list of facilities or uses. The Department will delete the word “facilities” from the phrase “Assisted living facility” so that the phrase is all encompassing and will apply to anything associated with assisted living, including the use or the services provided to the use. Additionally, the Department agrees with the commenter that the phrase “Housing with services” should be changed to “Housing with services establishment” because the modified phrase better describes the way these services are provided and is also consistent with terminology used in proposed Table 302.2. Accordingly, the Department agrees to modify the proposed rule.

IBC section 310.5.1, Care facilities within a dwelling. This section of the 2012 IBC is being modified by deleting it in its entirety. This modification is necessary because *all* care facilities in Minnesota are regulated only by Minnesota Rules Chapter 1305, the IBC. This section of the IBC, as published, refers the user to the International Residential Code. This existing reference will therefore send the user to a code that has no applicability to care facilities in Minnesota. Therefore, it must be deleted to avoid potential confusion.

IBC section 310.6, Residential, Group R-4. This section of the 2012 IBC is modified by expanding the list of uses classified as residential Group R-4 occupancies. This list includes facilities licensed by other state agencies. Examples of these facilities include boarding care facilities, housing with services, and residential hospice facilities with 12 or fewer occupants. This modification is reasonable and necessary to prevent confusion or conflict between this code and the regulations of other state agencies such as the Minnesota Department of Health and the Minnesota Department of Human Services.

Received during comment period regarding care facilities:

1305.0310, subsection 310.6, Residential Group R-4. The commenter requests that in the list of examples of these occupancies, the Department add “Assisted Living Services” to the list of examples of these types of occupancies because this type of service. This phrase needs to be added to the Group R-4 occupancy list because “services” are also provided in this occupancy classification.

Also, the commenter proposes to change the phrase “Housing with services (including those that provide assisted living services)” to “Housing with services establishment,” because this this more phrase more fully describes the current way these services are provided. Typically, outside service companies provide “assisted living services” in buildings originally created as other occupancies.

The rule contains the phrase “Assisted living facilities” to provide an example of a use in Residential Group R-4 occupancies. Because this section of the rule part contains a sample list of facilities or uses, the Department believes that a “service” does not logically fit into the list of facilities or uses. The Department will delete the word “facilities” from the phrase “Assisted living facility” so that the phrase is all encompassing and will apply to anything associated with assisted living, including the use or the services provided to the use. Additionally, the Department agrees with the commenter that the phrase “Housing with services” should be changed to “Housing with services establishment” because the modified phrase better describes the way these services are provided and is also consistent with terminology used in proposed Table 302.2. Accordingly, the Department agrees to modify the proposed rule.

1305.0402 SECTION 402, COVERED MALL AND OPEN MALL BUILDINGS.

This existing rule part heading is amended by adding the phrase “and open mall” to the title to coordinate with changes made to the Section heading in the 2012 IBC.

Subpart 1. IBC section 402.4.2.2.2, Property lines. This subpart is amended by renumbering the section reference number and the section references in the body of the subpart to coordinate with renumbering changes made to the 2012 IBC.

Subp. 3. IBC section 402.7.2, Smoke control. This new subpart modifies section 402.7.2 of the 2012 IBC by adding a paragraph after the exception regarding covered mall buildings exceeding 50,000 square feet. The requirements for smoke control in covered mall buildings are currently located in Minnesota Rules, part 1305.0404, Section 404, Atriums. The Department has determined that the requirements for smoke control in covered mall buildings would be more appropriately located in Section 402 of the 2012 IBC, which addresses covered mall buildings. Therefore, the Department has determined that the existing requirements of Minnesota Rules, part 1305.0404, be repealed and relocated to Minnesota Rules, part 1305.0402, which addresses covered mall buildings.

The Department further determined that proposed rule part 1305.0402, subpart 3, be added to exempt covered mall buildings 50,000 square feet or less in floor area, excluding the anchor buildings, from the requirement for a “post fire exhaust system.” The existing rule language of part 1305.0404 requires all covered mall buildings to be equipped with a post fire smoke exhaust system, regardless of size. The proposed language in this new subpart does not require a post fire smoke exhaust system in covered mall buildings that are 50,000 square feet or less in floor area, excluding anchor buildings, if they are provided with an approved smoke control system that complies with Section 909 of the IBC. This exception is reasonable because smaller malls that experience a fire incident can adequately clear the smoke by opening the structure’s exterior doors. Post fire smoke exhaust systems are intended to allow the removal of smoke from a structure after a fire incident. In larger malls, it is not practical, nor efficient, to open exterior doors to remove smoke after a fire incident. Without a post fire smoke exhaust system, even a small fire incident may render a larger mall unable to resume operation in a timely matter. Exempting covered malls 50,000 square feet and smaller from the requirement for a post fire smoke exhaust system, if they are equipped with an approved smoke control system, is therefore reasonable as it will reduce costs for the building owner without any additional risk to the structure.

1305.0403 SECTION 403, HIGH-RISE BUILDINGS.

Subpart 1. IBC section 403.3.2, Shaft enclosures. This subpart is amended by renumbering section reference numbers to coordinate with renumbering changes made to the 2012 IBC.

Subp. 2. IBC section 403.15, Post fire smoke exhaust system. This subpart is being repealed because the 2012 IBC now contains requirements for post fire smoke exhaust systems in high-rise buildings. Therefore, this modification is no longer necessary.

Subp. 3. IBC section 403.4.8.2, Standby power loads. This subpart modifies section 403.4.8.2 of the 2012 IBC by revising the third classification item listed by deleting the word “elevators” and replacing it with language pertaining to passenger elevators serving occupied floors more than 75 feet above the lowest level of fire department access. Standby power is an alternate source of power that is used in the event of an interruption of the primary power source. This modification is necessary because freight elevators were not intended to comply with this requirement. Freight elevators are not used for the movement of people and are not allowed to be used in an emergency situation. Without this modification, the IBC’s classification of standby power loads may be

misapplied to freight elevators, which could increase costs to the building owner because installation of standby power would be required for elevators banks within a high-rise building, including freight elevators. This modification is reasonable as it provides clarity, ensures uniform enforcement, and reduces costs for building owners.

1305.0404 SECTION 404, ATRIUMS.

IBC section 404.5, Smoke control. This rule part is repealed because the requirements for smoke control in atriums are being relocated to Minnesota Rules, part 1305.0402, subpart 3. As a result, the amendment is no longer necessary.

1305.0406 SECTION 406, MOTOR VEHICLE-RELATED OCCUPANCIES.

Subpart 1. IBC section 406.4.5, Floor surface. IBC section 406.4.5 is modified by adding a new exception that exempts unoccupied portions of nonpublic parking garages from having to be made of concrete or similar noncombustible or nonabsorbent material. This exception is intended to reduce costs of vehicular storage buildings that are being constructed for security or general weather protection of vehicles. The exception is intended to apply to buildings like pole sheds or garages where an earth or gravel floor is adequate for the protection and preservation of the equipment.

Subp. 2. IBC section 406.5.7, Means of egress. This section of the 2012 IBC has been renumbered from 406.3.8 to 406.5.7 so the section reference number must be renumbered to coordinate with this change. Additionally, a new amendment is being added to section 406.4.5 of the 2012 IBC causing this language to be numerically formatted as subpart 2 to accommodate the new amendment, which will become subpart 1. The content of the amendment is unchanged.

1305.0407 SECTION 407, GROUP I-2.

IBC section 407.2.1, Spaces open to the corridor. This rule part is amended by revising the title of the rule part from “Spaces of unlimited area” to “Spaces open to the corridor.” Section 407.2.1 in the 2012 IBC is entitled “407.2.1, Waiting and similar areas.” Both the title in the existing rule part and the title in the 2012 IBC section are misleading regarding the actual content of the code requirement, which addresses spaces that are permitted to be open to corridors for Group I-2 occupancies. As a result, the title is changed to more reasonably correlate it with the actual content and intent of the rule part. This rule part is further modified by deleting the phrase “In an I-2 occupancy” because section 407 only

addresses requirements pertaining to Group I-2 occupancies. Therefore, the phrase is redundant and not necessary. Condition number 1 in Section 407.2.1 is modified to coordinate with changes made to the 2012 IBC. These modifications are reasonable to provide clarity and help ensure uniform enforcement of the 2012 IBC.

1305.0408 SECTION 408, GROUP I-3.

Subpart 1. IBC section 408.6, Smoke barrier [Repeal]. This subpart is being repealed because the same requirements are also contained in the Minnesota Department of Correction's rules for construction of sleeping cell areas. Section 408.6 of the 2012 IBC now requires a fire-resistive smoke barrier wall for the compartmentalization of any correctional facility, regardless of the size or number of sleeping cells. Unlike previous editions, the 2012 IBC language now coordinates with the Department of Correction's rule requirements, so this modification is no longer necessary and is being repealed.

Subp. 2. IBC section 408.7, Security glazing. This subpart is amended by renumbering the IBC section references because the section was renumbered in the 2012 IBC. The amended language for sections 408.9.1 and 408.9.2 of the 2012 IBC are also being incorporated into this newly amended language for Group I-3 occupancies and the existing language is deleted. The language in section 408.7 is modified by adding the phrase "2-hour fire barriers constructed in accordance with section 707 used for horizontal exits." This modification is needed to maintain visual supervision in detention facilities when a 2-hour fire barrier is used as a horizontal exit. Additionally, an exception is added to condition number 2 that reads, "Exception: Fire partitions or smoke barriers with ¼-inch (6.4 mm) wire glass in a security assembly." Security laminated glazing is used instead of traditional glazing in detention facilities because the traditional glazing can be broken and used as a weapon. A new condition number 5 is also added to the list of conditions that reads, "5. Security glazing in fire partitions, 1-hour fire barriers enclosing fire command centers, and smoke barriers, shall not be limited to 25 percent of the area of the common wall with any room."

The first modification described above is carried forward from existing language in sections 408.9 and 408.9.2. The exception in condition number 2 is added to allow sandwiching of rated ¼ wire-glass in the assembly instead of providing sprinkler wash of the glass. This exception addresses those instances where it is undesirable to place a sprinkler head in a position where an inmate may be able to access it, damage it, and then use it as a weapon. Additionally, visual observation of detainees is needed in addition to providing glazing

material that cannot be readily broken and the pieces used as weapons. The historical problem with the national model codes is that where rated doors and windows were required, the code did not have an exception to permit the use of security laminated glazing. Beginning with the 1998 Minnesota State Building Code, Minnesota has included provisions that permit the use of security laminated glazing in fire-rated door and wall assemblies. The 2012 IBC now contains requirements for laminated security glazing; however, they do not address all the instances where the use of security laminated glazing is necessary.

The new condition number 5 is added to remove the limitation on size of security glazing in fire partitions, fire barriers enclosing fire command centers, and smoke barriers. These partition types are limited to a maximum of 25% of the common wall, in accordance with IBC section 716.6.7.2. It is reasonable to remove the 25 % area coverage size limitation on security glazing in detention facilities because visual observation of detainees is critical in a detention facility. Moreover, the proposed changes to this section are not more restrictive or more costly as compared to existing rule requirements.

IBC sections 408.9.1, Corridors and 408.9.2, Other. The existing rule amendments to IBC sections 408.9.1 and 408.9.2 are being deleted because the 2012 IBC, as amended, now addresses laminated security glazing installations in detention facility corridors. Therefore, the amendments are no longer necessary.

Subp. 3. IBC section 408.9, Windowless buildings. This is a new subpart that adds a modification to IBC section 408.9, Windowless buildings. The first sentence has been revised for clarity and the term "skylights" is added to the sentence. This section is also modified by adding the phrase "or exterior doors provided in all resident areas of the exit access with an occupant load greater than 50" to the end of the sentence. This modification is intended to clarify that the exit access for resident areas having more than 50 occupants shall have an exterior door, or an operable window or skylight, or a breakable window or skylight. This modification is necessary because the language in IBC section 408.9 does not provide specific parameters addressing when an opening or an engineered smoke control system is required. The modifications are reasonable because they establish clear parameters as to what constitutes a windowless building under this code.

1305.0413 SECTION 413, COMBUSTIBLE STORAGE.

IBC section 413.3, Fire protection of floors. This new rule part adds new subsection 413.3 to Section

413 of the 2012 IBC. This new subsection directs the user to section 420.6 of the 2012 IBC for floor protection requirements, in addition those discussed in Section 413. It is necessary that this amendment reference another proposed amendment located in Minnesota Rules, part 1305.0420, so that building designers do not miss the additional requirements when applying the combustible storage provisions of section 413. It is reasonable to add a provision to make the code easier and clearer for building designers to use.

1305.0419 SECTION 419, LIVE/WORK UNITS.

This is a new rule part that deletes section 419 of the 2012 IBC that pertains to live/work units, commonly referred to as “home occupations” in Minnesota. Deleting this requirement is needed and reasonable because regulation of live/work units in Minnesota is addressed by local zoning laws that could conflict with these requirements.

1305.0420 SECTION 420, GROUPS I-1, R-1, R-2, R-3.

Subpart 1. IBC section 420.1, General. This new subpart is added to modify Section 420 of the 2012 IBC. Section 420.1 of the IBC is modified by changing the section reference “420.1 through 420.5” to “420.1 through 420.6.” This change is necessary because subpart 2 of this proposed new rule part adds new subsection 420.6, Fire protection of floors, to Section 420 to address floor assemblies that are not fire-resistance rated construction.

Subp. 2. IBC section 420.6, Fire protection of floors. This new subpart is added to incorporate fire-resistance protection for residential-type occupancies into the 2012 IBC. The proposed language is identical to the adopted language in Chapter 1309, the 2012 International Residential Code (“IRC”).⁵ Proposed section 420.6 is entitled “Fire protection of floors.” As in the IRC adoption, the language in this proposed subpart is added to address floor assemblies that are not fire-resistance rated construction. The requirements of this section reasonably provide additional safety to the occupants, first responders, and fire fighters by protecting the floor assembly during a fire event when entering and exiting the structure. This subpart is necessary to provide consistency between the International Building Code and the International Residential Code for construction projects of similar construction.

⁵ Minnesota Rules, Chapter 1309, was filed with the Secretary of State’s Office and formally adopted on April 23, 2014. The Notice of Adoption was published in the State Register on July 28, 2014. The effective date for Chapter 1309 is January 24, 2015.

1305.0421 SECTION 421, GROUP E OCCUPANCIES.

This existing rule part is repealed because Section 421 of the 2012 IBC was renumbered to Section 306. As a result, the existing rule language is being relocated to Minnesota Rules, part 1305.0425.

1305.0425 SECTION 425, GROUP E OCCUPANCIES.

This rule part contains language that is relocated from existing Minnesota Rules, part 1305.0421, because the section pertaining to this subject was renumbered in the 2012 IBC. The language includes some minor grammatical edits to provide clarity, but the requirements in this part remain unchanged.

1305.0507 SECTION 507, UNLIMITED AREA BUILDINGS.

Subpart 2. IBC section 507.3, Sprinkled, one-story. This subpart is amended by adding the phrase “above grade plane” following the phrase “one-story” in two places in the subpart. This modification is reasonable and necessary to coordinate the subpart with changes made to Section 507 in the 2012 IBC.

Subp. 3. IBC section 507.4, Two-story. This subpart is amended by adding the phrase “above grade plane” following the phrase “one-story” in the subpart. This modification is reasonable and necessary to coordinate with changes made to Section 507 in the 2012 IBC.

1305.0508 SECTION 508, MIXED USE AND OCCUPANCY

IBC section 508.3.3.4. This rule part is amended by deleting the current language pertaining to the exception for an occupancy separation between a child or adult daycare and a Group A-3 church building. This language is deleted because this section has been renumbered in the 2012 IBC. Additionally, this exception is no longer needed because section 308.6.2 of the 2012 IBC now applies to these occupancies and addresses such care being provided in places of worship. The existing rule amendment was included with the 2000 IBC code adoption to address problematic code applications that were occurring with these two occupancies. Since that time, however, a requirement for “Accessory Uses” has also been included in section 508.2 of the 2012 IBC which can now be used in these situations to eliminate problematic issues such as the requirement for fire resistive separation between mixed uses and occupancies.

IBC section 508.1. Additionally, the rule part is amended by adding language that deletes exception number 3 from section 508.1 of the 2012 IBC. Exception #3 states, “Uses within live/work units, complying with Section 419, are not considered separate occupancies.” This exception must be deleted to maintain consistency with other modifications made throughout the 2012 IBC adoption process pertaining to requirements for “live/work units.” References to “live/work units” are being deleted throughout the code because these uses are regulated by local zoning laws in Minnesota, not the State Building Code. This modification is reasonable and needed to prevent conflict between the code and local zoning laws and to maintain consistency with other amended sections of the 2012 IBC.

1305.0603 SECTION 603, COMBUSTIBLE MATERIALS IN TYPE I AND II CONSTRUCTION.

IBC section 603.1, Allowable materials. This new rule part modifies section 603.1 of the 2012 IBC by adding an exception number 26 to the list of other exceptions regarding permitted combustible materials that can be used in buildings of Type I or Type II construction. Type I or Type II construction materials are generally restricted to materials that are non-combustible, such as steel or concrete. The new exception identifies that wood may be used for roof construction to support equipment, building and roof joint systems, skylight or mechanical equipment, curb, cants, blocking and backing, and parapet or roof edge construction. This modification is reasonable because permitting wood in the limited applications in this type of construction is standard practice in the industry in the locations described in this exception. Also, the limited amount of wood in this exception is needed to properly secure roofing materials at the intersection of the roof covering and parapets. This modification will provide consistent and uniform code administration relating to roof and related roofing construction practices in Type I or II building construction.

1305.0714 SECTION 714, PENETRATIONS.

IBC section 714.4.1.2, Membrane penetrations. This new rule part modifies exception number 7 of section 714.4.1.2 of the 2012 IBC by deleting “fire-resistance rated” from the first sentence pertaining to the required installation of a fire-resistance rated wall assembly when or if the top plate of a wall interrupts or penetrates the bottom side of the ceiling membrane, which is typically gypsum board, of a horizontal ceiling assembly. This modification is necessary because walls are typically framed with double top plates that are tight to the underside of the horizontal floor-ceiling framing members above. The finished ceiling system is then applied to the underside of the horizontal ceiling framing members up to

and around the top plates of the wall. Top plates of walls are typically installed in this manner, which is considered to be a standard construction method in Minnesota. When installed in this manner and when the double top plates are properly sealed (fire caulked) at all penetrations, there is no need to use or install a fire rated wall assembly below it.

This section is further amended by deleting the last sentence from exception number 7 that states, “The fire resistance rating of the wall shall not be less than the rating of the horizontal assembly.” This modification is necessary because without it, designers would be required to provide a fire-resistance rated wall at every location in the building that interrupts the horizontal ceiling membrane above. It would also add substantial cost to a building and deviate from conventional construction practices in Minnesota that are considered to achieve the same fire protection at less cost. Both modifications discussed above for section 714.4.1.2 are reasonable and needed to provide clarity, ensure uniform design and enforcement, and reduce construction costs for building owners.

1305.0716 SECTION 716, DUCTS AND AIR TRANSFER OPENINGS [Repeal].

This rule part is being repealed because Section 716 was renumbered to Section 717 in the 2012 IBC. As a result, the amendment is no longer applicable and needs to be repealed to correlate with changes made to the 2012 IBC.

1305.0717 SECTION 717, DUCTS AND AIR TRANSFER OPENINGS.

Subpart 1. IBC section 717.5.3, Shaft enclosures. The language in this new subpart was previously located in Minnesota Rules, part 1305.0716, Ducts and Air Transfer Openings. The amendment modified section 716.5.3 by adding an exception number 5 pertaining to shaft enclosures. The language remains unchanged from that in the existing amendment, but the section reference numbers and the exception number are changed to correlate with new section and exception numbers found in the 2012 IBC.

Received during comment period regarding shaft enclosures IBC Section 717.5.3:

Proposed Minnesota Rules, Part 1305.0717, Subpart 1. The commenter requests that proposed Minnesota Rule, part 1305.0717, subpart 1, which amends IBC section 717.5.3 by adding exception 6 concerning laboratory ventilation systems installed in accordance with NFPA 45, be modified to specify the applicable chapters of NFPA 45 which necessarily apply to these

systems in order for them to meet the exception (NFPA 45 Chapters 1-4, 7 and 8). As correctly noted by the commenter, the proposed rule as written does not specify which chapters of NFPA 45 are necessary to comply with in the design and installation of the system in order for it to meet the exception; instead, as written the proposed language may be interpreted as requiring that all chapters of NFPA 45 be complied with in order to meet the exception, whether those chapters are relevant or not. The commenter further notes that requiring compliance with NFPA 45 in its entirety could result in several unintended consequences and conflicts with other portions of the IBC and the International Fire Code. Therefore, the commenter proposes that the proposed rule be further modified to clearly identify which chapters of NFPA 45 the design and installation of the laboratory ventilation system must comply with in order to meet the exception.

The Department agrees that the commenter's suggested change is necessary and reasonable. The Department does not wish to include chapters of the NFPA 45 standard that are not appropriate, that will cause conflict with other portions of the IBC, or that may render the code difficult or impossible to comply with. Moreover, this modification will assist in clarifying the intent of the requirement without changing the requirement itself. Accordingly, the Department agrees to modify the proposed rule.

Subp. 2. IBC section 717.6.1, Through penetrations. This is a new subpart that modifies section 717.6.1 of the 2012 IBC. The modification renumbers the existing exception and its list of requirements as exception number 1, subitems a through e. The modification also amends the first subitem of the existing exception by permitting another option to protect the duct and adds a new exception number 2 that addresses duct openings connecting adjacent floors in Group I occupancies. The rest of the content remains unchanged from the 2012 IBC.

The modification to the first subitem of the existing exception is made to allow the use of a listed through penetration firestop system that has an F and T rating as an option to the non-listed 26-gage duct assembly enclosed within a wall. Items that penetrate fire-resistive assemblies (walls, floors, roofs) are traditionally required to be tested to ensure that the penetrating item (conduit, pipe, duct, and plumbing) does not negatively affect the fire-resistive assembly that is being penetrated. The testing agency assigns an F and T rating to the penetrating item. An F rating designates the time frame used to determine the acceptance (1, 2 or 3 hour fire-resistivity) and the T rating determines whether the temperature of the penetrating item gets so hot that it is likely to ignite something combustible that it may be in contact with on the non-fire side of the assembly. Rather than requiring an

F and T rating, the exception includes a prescriptive requirement on how to protect the ductwork where it penetrates the floor and deals with the temperature concerns by requiring that the duct be within the cavity of a wall so that no combustibles can come in contact with it.

This modification is reasonable because fire and life safety precautions are increased when installing a listed and tested through penetration firestop system having a T rating which ensures that the penetrating item's temperature on the non-fire side does not increase to a point that it would ignite combustibles. This practice is proven and already used in wood framed multi-family construction as an alternative to strict application of the code and is now considered a standard construction practice in Minnesota. This modification is also reasonable because it reduces the cost for duct installation conditions at walls that intersect with floor-ceilings by allowing walls to terminate at the ceiling line of the floor-ceiling or roof-ceiling assemblies.

Finally, exception number 2 is added to address duct openings connecting adjacent floors in Group I occupancies. The exception addresses the many instances where a hospital, nursing home, or detention facility is only two stories in height. Without the modification, a duct penetration to a single floor that connects the two stories would be required to be protected by a fire-resistive shaft and a smoke/fire damper installed both at the point where the duct enters and leaves the shaft.

The primary purpose of a shaft is to protect the building from the vertical movement of smoke and fire in multi-story buildings. For occupancies other than Group I-2 and I-3, a shaft would not be required unless connecting three stories in fire rated construction and four stories in non-fire rated construction.

The typical construction associated with Group I-2 and I-3 occupancies is fire-rated non-combustible construction, such as precast or poured in place concrete floors or bar joist with metal deck and concrete topping. It is not practical to construct a shaft and install two smoke/fire dampers in these typical construction assemblies, as the length of the shaft would be a mere 8 to 24 inches and would not provide sufficient clearance for the proper operation and required access to the smoke/fire dampers. The amendment recognizes this, and instead reasonably permits a single smoke/fire damper. Because Group I-2 and I-3 occupancies already require the most restrictive NFPA 13 fire sprinkler systems, fire alarms, and smoke detection, very little is lost from a fire and life safety standpoint by allowing this construction practice. This proposed exception is also consistent with the Minnesota Department of Health's requirements pursuant to the NFPA 101 Life Safety Code, which that agency

enforces.

1305.0901 SECTION 901, GENERAL.

IBC [F] section 901.6.2, Fire alarm systems.

This rule part is amended by adding the name of the 2012 IBC section to the part to provide clarity for the user. The remaining language is unchanged.

1305.0903 SECTION 903, AUTOMATIC SPRINKLER SYSTEMS.

Subpart 1. IBC [F] section 903.1, Scope [Repeal]. This subpart is being repealed because it contains language that was erroneously included in the original rule part. The format of the 1305 Rule is incorrect; therefore, it is being repealed.

Subp. 1a. IBC [F] section 903.2.8, Group R.

The existing language in this subpart pertaining to section 903.2.7 of the 2006 IBC is deleted because that section has been reformatted and renumbered to 903.2.8 in the 2012 IBC. As a result, it is necessary to delete the IBC section reference number and language in this subpart and add revised language under the new IBC section number. The new language in exception number 1 modifies section 903.2.8 of the 2012 IBC to maintain the effect of the existing provision of section 903.2.7, item number 1 that requires R-1 and R-2 occupancies to be equipped with an automatic fire sprinkler system when the floor area exceeds 9,250 square feet. The new language in exception number 2 of this subpart modifies section 903.2.8 of the 2012 IBC to coordinate R-3 and R-4 occupancies in the IBC with the revised residential fire sprinkler installation requirements of recently adopted Minnesota Rules, chapter 1309, the Residential Building Code, and proposed Minnesota Rules, chapter 7511, the State Fire Code. The language in section 903.2.8 of the 2012 IBC is also being reformatted to coordinate with the changes made to the parallel rule part found in the recently adopted Chapter 1309.

Specifically, IBC Section 903.2.8 is modified by adding three exceptions to the requirement to install an automatic fire sprinkler system in all buildings with a Group R fire area. The first exception excludes Group R-1 or R-2 fire areas or combined fire areas with less than or equal to 9,250 square feet of building area to maintain the current effect of the provisions of 903.2.7.

The second exception excludes dwelling units that are classified as a Group R-3 or R-4 occupancy with less than 4,500 square feet of building area, excluding garages. This exception is necessary to coordinate these requirements with the one-family dwelling sprinkler threshold requirement recently adopted in Minnesota

Rules, Chapter 1309.

The third exception excludes additions or alterations made to existing Group R-3 or R-4 buildings or portions thereof that do not have an automatic fire sprinkler system installed, unless required by a Minnesota license. This exception is necessary to coordinate this part with the identical exception recently adopted in Minnesota Rules, Chapter 1309.

Received during comment period regarding Automatic Fire Sprinkler Systems:

Proposed Minnesota Rules, Part 1305.0903,

Subpart 1a. During the comment period for this rulemaking, the Department learned that the fire service industry was planning to propose the threshold be changed to match the 2012 IBC and the 2012 IFC and was planning to request a hearing to do so. The Department also learned that other areas of the industry regulated by Chapter 1305 and the 2012 IBC, including the Minnesota Multi Housing Association (representing the part of the industry that build and manage apartment housing in R-1 and R-2 occupancies) and the Minnesota Resort & Campground Association (representing resorts and campgrounds in Minnesota) preferred that the square footage threshold remain at 9,250 square feet as written in the existing rule. Following several discussions between all of the affected parties, the parties agreed to a compromise. The compromise reduced the square footage threshold for exemption from the requirement to install automatic fire sprinklers from less than or equal to 9,250 square feet to less than 4,500 square feet for Group R-1 or R-2 fire areas or combined fire areas of building area. In addition, the resort industry requested that a new exception be added exempting Group R-1 multi-unit resort buildings with less than 9,250 square feet of building area, as defined in Minnesota Statutes, section 157.15, and licensed by the Minnesota Department of Health.

As will be seen in the Department's responses to individual comments below, the Department believes that it is necessary and reasonable to incorporate a 4,500 square feet threshold for R-1 and R-2 occupancies into its proposed Chapter 1305 rulemaking. The threshold of 4,500 square feet is the threshold that is now required in Minnesota Rules, Chapter 1309, the Minnesota Residential Code, for residential sprinkler requirements. Incorporating a threshold of 4,500 square feet for similar residential occupancies into Chapter 1305 is both necessary and reasonable, as this change will promote uniformity and coordinate this Chapter with the residential sprinkle requirements found in the Minnesota Residential Code.

The Department discussed all the above concerns with the Minnesota Multi Housing Association, the

Minnesota Resort and Campground Association, and the Fire Industry and agrees that an exception for R-1 and R-2 occupancies of less than 4,500 square feet is reasonable and needed to promote uniformity and coordinate the proposed rules with the recently adopted 4,500 square foot threshold contained in the Residential Building Code.

The Department further agrees that Group R-1 multiunit resort buildings, as defined in Minnesota Statutes, section 157.15, and licensed by the Minnesota Department of Health, should be exempt from automatic fire sprinkler system requirements when the floor area of the building is less than 9,250 square feet. In addition to the reasons provided by the commenter, the Department believes that a higher threshold for multiunit resort buildings is reasonable because unlike other group occupancies, these facilities are inspected on a regular basis as part of their Lodging Establishment license they are required to secure and maintain from the Minnesota Department of Health under Minnesota Statutes, section 157.16. As part of the lodging establishment inspection, Minnesota Rules, chapter 4625 requires that the facility meet multiple criteria for sanitation, lighting and ventilation, waste disposal, cleanliness of premises, egress routes, fire extinguishers, and fire alarms. Assurance of continued compliance of these building features with Department of Health safety regulations help to reduce or minimize the fire danger at these facilities. Although many of these features are also required in other group occupancies, the required inspection schedule for these resort occupancies assures that they will be maintained on a regular basis. Therefore, the Department agrees with the commenter that it is reasonable to maintain the existing 9,250 square foot threshold for these resort facilities.

The Department also wishes to modify this section by relocating the second sentence located in Exception 1 of the proposed rule to the main body of the subpart. This scoping provision was clearly meant to apply to all Group R occupancies in the proposed subpart, not just to Groups R-1 and R-2, and was erroneously relocated into the exception during the final drafting phase of these proposed rules.

IBC [F] section 903.2.8.1, Group R-3 or R-4 congregate residences. This section of the 2012 IBC is included for context to assist the user, but is unchanged from the 2012 IBC language.

IBC [F] section 903.2.8.2, State licensed facilities. This section of the 2012 IBC is modified to clarify that state licensed facilities located within Group R occupancies must meet the fire sprinkler requirements of the licensing authority or this code, whichever is more restrictive. In many cases, the licensing authority (e.g., MDH, DHS, DOC) have fire sprinkler system design

requirements for licensed facilities that are more restrictive than this code. In those cases, the fire sprinkler system must be installed to the more restrictive requirements of the respective state licensing authority. This proposed rule will help prevent conflicts between other agencies' requirements and this code.

IBC [F] section 903.2.8.3, Residential hospice facilities. This is a new section that is being added to the 2012 IBC to require the installation of an automatic sprinkler system in accordance with NFPA 13 throughout all buildings with a Group R-3 or R-4 fire area containing a residential hospice facility when they are located in dwelling units. Because residential hospice facilities are required to be licensed by the Minnesota Department of Health ("MDH"), they are required to provide fire sprinkler protection in accordance with their rules, which require the installation of a fire sprinkler system meeting the installation standards of NFPA 13, a fire sprinkler standard designed for structures other than one-family dwellings. This requirement coordinates with a similar MDH requirement, which also requires that the entire building is fully sprinkled. This additional requirement will help prevent confusion, provide better guidance to code users, and will coordinate the requirements of this proposed rule with those of other state licensing agencies. Parallel language has been proposed in Minnesota Rules, chapter 7511, the Minnesota State Fire Code.

Subp. 1b. IBC [F] section 903.2.11.4, Fire protection for exhaust systems. This section of the 2012 IBC has been renumbered from 903.2.12.1 in the 2006 IBC to 903.2.11.4 in the 2012 IBC. This 2012 IBC section is also modified by deleting the title and the language from the section and replacing it with parallel proposed language located in Minnesota Rules, chapter 1346, the Minnesota Mechanical and Fuel Gas Codes, to coordinate the requirements between the codes and to provide more uniform application and enforcement of the requirement. In addition, the word "process" has been replaced with "appliances, equipment, machinery or any apparatus." This change is needed to clarify that a "process" includes appliances, equipment, machinery or any apparatus that will present a serious life or fire hazard if water from a sprinkler system is permitted to flow back to the appliance, equipment, machinery or apparatus of any sort.

Subp. 2a. IBC [F] section 903.3.1, Standards. This new subpart modifies IBC section 903.3.1 by adding a sentence to the end of the IBC section pertaining to fire sprinklers and State of Minnesota licensed or registered facilities. Facilities licensed by the State of Minnesota may have more restrictive requirements for the installation of sprinkler systems than those required by the national standards referenced in the building code (NFPA 13, NFPA 13R or NFPA 13D). This modification is

necessary to provide direction to designers regarding possible additional fire sprinkler installation requirements mandated by other state licensing agencies.

Subp. 2b. IBC [F] section 903.3.1.1, Exempt locations. This new subpart modifies IBC section 903.3.1.1.1 by adding an exempt location for elevator shafts, elevator pits, or elevator machine rooms to the list of locations in the 2012 IBC. These locations must be exempt from sprinkler protection requirements because elevators, including the elevator pit and machine rooms, are used by the fire service for evacuating people from a building in an emergency. Elevator shafts are also used to vent the products of combustion after a fire, so it would render that function useless since the vented products of combustion will activate a sprinkler, which would cool the products of combustion and not vent from the building. Additionally, this new exempt location contains an exception for healthcare occupancies that are licensed by the Minnesota Department of Health or that participate with Medicare or Medicaid. These occupancies must be excluded from the exemption because federal law requires these spaces to be sprinkled.

Subp. 3a. IBC [F] section 903.3.1.3, NFPA 13D sprinkler systems. This subpart is amended by deleting the existing language pertaining to the protection of decks and balconies. This amended language is no longer necessary because the requirements are now included in the 2012 IBC.

The language in this subpart permits sprinkler systems for R-3 and R-4 occupancies to be installed in accordance with NFPA 13D. This added language parallels the language with the same requirements contained in the recently adopted Minnesota Rules Chapter 1309. This change is needed to coordinate the requirements between the IBC and IRC to provide uniform application and enforcement of the requirements.

Subp. 4. IBC [F] section 903.3.1.4, Buildings of undetermined use. The section reference number in this subpart is renumbered from 903.3.1 to 903.3.1.4 to provide a more specific reference to the section being amended. The rule language remains unchanged.

Subp. 5. IBC [F] section 903.3.1.5, Special sprinkler design criteria. The section reference number in this subpart is renumbered from 903.3.1 to 903.3.1.5 to provide a more specific reference to the section being amended. The rule language remains unchanged.

Subp. 5a. IBC [F] section 903.3.1.6, Modifications to sprinkler standards. The section reference number in this subpart is renumbered from 903.3.1 to 903.3.1.6 to provide a more specific reference

to the section being amended.

The amendment for subsection 903.3.1.6.2, Elevator shafts and equipment, is deleted because the requirement is being relocated to Subpart 2b in this rule part. It is necessary to relocate this requirement to 903.3.1.1.1 because IBC section 903.3.1.6.2 has been renumbered to section 903.3.1.1.1.

Subsection 903.3.1.6.5, Vestibules, is added to the subpart to exempt sprinkler protection from certain building entrance vestibules. The requirements to qualify for this exemption are reasonably stringent because the vestibule must be 225 square feet or less, is required to be of very limited combustible construction, is only to be used for ingress and egress, is required to have glazing to prevent hidden problems, and there are no fuel sources and no fuel present. These conditions control the likelihood of any fire incident to a reasonable minimum. This exemption can be reasonably controlled in commercial buildings through fire inspections, unlike sprinkler protection required for covered patios, covered decks and covered porches over 40 square feet that are attached to two-family dwellings and townhouses. The restrictions that apply to vestibules cannot be applied to dwellings and townhouses due to the combustible construction that is prevalent in those structures. This exemption is further needed to protect sprinkler heads from freezing during cold climate months. Although dry sprinkler heads could be used, their use would be cost prohibitive and maintenance intensive for this particular application.

Received during comment period regarding fire protection:

1305.0903, subpart 5a, subsection 903.3.1.6.5, Vestibules. The commenter requests that the Department add a sentence to the end of item 5 that reads, “Incidental combustible storage in the vestibule is limited to 5 ft.³ of material.” This change is needed to allow some reasonable storage of incidental combustibles in a vestibule while limiting the size of a potential fire by restricting the amount of combustible material stored in a vestibule when fire sprinklers have been omitted, as permitted by this section. Examples of incidental combustibles commonly stored in vestibules include newspaper and magazine racks, travel brochures and maps, and cleaning materials and supplies.

The Department agrees with the commenter’s proposal permitting incidental combustible storage in a non-sprinklered vestibule if storage is limited to 5 ft³ of material. Fire sprinkler heads are not required in all vestibules because of concerns with exterior sprinkler heads in Minnesota’s winter climate. Currently, there is no limitation on the amount of combustibles permitted to be

stored in a vestibule when an automatic sprinkler system has been omitted from the building's design. The Department recognizes that it is difficult and impracticable to completely prohibit all incidental combustible storage in a vestibule, but if space for the combustible materials is reasonable and limited, then the potential fire hazard posed by those materials is greatly reduced. Accordingly, the Department agrees to modify the proposed rule.

Subp. 6a. IBC [F] section 907.3.3.7, Sprinkler system design pressure safety margin. Refer to the "General" statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 7. IBC [F] section 903.4, Sprinkler system supervision and alarms. Refer to the "General" statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 8. IBC [F] section 904.4.4, Valve security. Refer to the "General" statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered from 903.4 to 903.4.4 to provide a more specific reference to the section being amended.

1305.0905 SECTION 905, STANDPIPE SYSTEMS.

Subpart 1, IBC [F] section 905.2.1, Modifications to standards, Subp. 2, IBC [F] section 905.3.2.1, Group A exhibition, and Subp. 3, IBC [F] section 905.3.4, Stages. The section reference numbers in these subparts are renumbered to provide more specific references to the sections being amended. These subparts also contain grammatical and formatting changes, but the requirements remain unchanged.

Subpart 6. IBC [F] section 905.3.9, Detention and correctional facilities. This subpart is amended by modifying the section reference numbers from section 905.3.8 to 905.3.9 because the sections were renumbered in the 2012 IBC. The content of the subpart remains unchanged.

Subp. 6a. IBC [F] section 903.3.10, Group R-2 occupancies small hose connections. This subpart is amended by modifying the section reference numbers from section 905.3.9 to 905.3.10 because the sections were renumbered in the 2012 IBC. The section title has been modified by adding the phrase "small hose connections" to the title and changing references from "Class III wet standpipes" or "standpipes" to "small hose

connections." This subpart is also amended by adding a list of specific requirements pertaining to small hose connections.

The modification from "Class III wet standpipes" or "standpipes" to "small hose connections" is being made because it is not necessary to utilize the Class III wet standpipe for the purposes of "mop up" operations, which is the purpose of the small hose connection. The requirements in this section are intended to provide reduced requirements for these hose connections, to provide a water supply for "mop-up" operations. Class III wet standpipes are used for interior firefighting, which requires minimum water flow and pressure requirements of 500 gallons per minute of water flowing at 100 pounds per square inch. The pipe supplying water to Class III standpipes must be a minimum of 4 inches in diameter.

On the other hand, "mop up" operations consist of the final fire extinguishment of any hot spots and clean-up of any fire debris that may exist. "Mop-up" operations do not require the same water flow and pressure requirements as that of Class III wet standpipes used for interior firefighting. As a result, the requirements for the small hose connections are being reduced from those of the Class III wet standpipe requirements. The amendments to this subpart will reduce the hose connection requirements for small hose connections and in turn, will reduce costs associated with the sprinkler systems.

A list of requirements for small hose connections is added to the subpart. These requirements are less restrictive and less costly than the requirements for Class III wet standpipe connections. The first item in the list requires a 1 ½-inch hose valve at each floor level or intermediate stair landing in each required or enclosed stairway. This requirement is also located in NFPA 13, section 8.17.5.1.4, item 1. Class III wet standpipes require a 2 ½ inch hose connection. This will reduce the amount of water flow required and will reduce the cost of the materials and equipment needed for this system.

The second item in the list for small hose connections requires that water be supplied for those connections separately from the sprinkler system protecting the area. This requirement is located in NFPA 13, section 8.17.5.1.3, items 3 and 4, and will ensure that the supply of water to the small hose connections do not interfere with the water required for the sprinkler system and that water will still be available to the small hose connections if the sprinkler system is shut down.

The third item in the list requires that a minimum pipe size of 1 ½ inches be installed. This requirement is located in NFPA 13, section 8.17.5.1.4, item 1. Class III wet standpipe systems require a 2 ½ inch hose connection.

Therefore, the reduced pipe size will reduce the cost of materials.

The fourth item requires that the connections attach only to a wet pipe system. This requirement will ensure that the system used for “mop up” operations is always accessible to deliver water for firefighters’ use.

The fifth item in the list requires metallic piping and hose valve connections. This requirement is necessary because hose valve connections must be very durable to remain in service for the life of the building.

Finally, new language is added at the end of the subpart requiring that permanent signage be installed that reads “Fire Department Overhaul Hose Connection” at each connection in the building. A sign must also be provided at the exterior Fire Department connection if a separate standpipe system is provided. This signage is necessary to clearly identify to the Fire Department personnel the type of system that exists in the building.

Subp. 7. IBC [F] section 905.5.1, Groups A-1 and A-2. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

1305.0906 SECTION 906, PORTABLE FIRE EXTINGUISHERS.

Subpart 1. IBC [F] section 906.1, General. The language in section 906 of the 2012 IBC is being deleted and replaced with language that directs the code user to the Minnesota State Fire Code for requirements relating to the installation of portable fire extinguishers. Because fire extinguishers are portable equipment, the building code does not regulate the requirements for fire extinguishers. Moreover, regulation of fire extinguishers has always been located in the fire code and enforced by fire officials. This modification is necessary to coordinate the requirements for fire extinguishers between these codes and ensure that the requirements are enforced by the fire official.

1305.0907 SECTION 907, FIRE ALARM AND DETECTION SYSTEMS.

Subpart 1. IBC [F] section 907.1.3, Protection of control units [Repeal]. This subpart is being repealed because it contains an exception for sprinkler-protected buildings. However, because the 2010 edition of NFPA 72 no longer allows sprinkler protection in lieu of smoke detection, this subpart is being repealed to avoid a conflict with NFPA 72.

Subp. 1a. IBC [F] section 907.2, Where required--new buildings and structures. Refer to the

“General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. This subpart is also amended by revising a code reference in the third sentence from 508.3.3 to 508.4 for mixed occupancies. This modification is necessary to coordinate the subpart with changes in the 2012 IBC. The remainder of the subpart is unchanged.

Subp. 2a. IBC [F] section 907.2.1, Group A, general. This new subpart is added to the proposed rule because it was inadvertently excluded from the proposed rule during the adoption of the 2006 IBC. This language was included in Minnesota Rules, chapter 7511, during the adoption of the 2006 International Fire Code and should have been included in this rule to coordinate the requirements so they could be properly enforced.

Received during comment period regarding fire alarms:

Minnesota Rules, part 1305.0907, subpart 2a, section 907.2.1, Group A, general. The commenter requests to change exception 2 by adding the phrase “in buildings with an occupant load of less than 1,000” after “a fire alarm system is not required.” The commenter states this change is necessary for the requirement to be consistent with section 907.2.1.3, which requires a fire alarm system in Group A occupancies with an occupant load of 1,000. According to the commenter, this change will also avoid confusion and provide needed clarity for both the design professional and the code official.

The Department agrees with the commenter’s proposed change. This change is necessary and reasonable as it will help prevent confusion since the Department’s language, as proposed, could be interpreted to mean that no Group A occupancies are required to have a fire alarm system if an automatic fire sprinkler system is installed in the building. However, a fire alarm system is required by IBC section 907.2.1.3 if the occupant load is 1,000 or more, regardless of whether an automated sprinkler system is installed. Accordingly, the Department agrees to modify the proposed rule

Subp. 3. IBC [F] section 907.2.1.1, Initiation. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 4. IBC [F] section 907.2.1.2, Notification. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 5. IBC [F] section 907.2.1.3, System

initiation in Group A occupancies with an occupant load of 1,000 or more. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference numbers in this subpart are renumbered to provide more specific references to the sections being amended. The content of the subpart remains unchanged.

Subp. 6. IBC [F] section 907.2.2, Group B, general. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. This subpart contains grammatical changes for clarity. Additionally, the subpart is amended by deleting the phrase “outpatient clinic” and replacing it with the phrase “ambulatory care facility” to coordinate the terminology with changes that have been made elsewhere within the 2012 IBC. The term “ambulatory care facility” is also included in the definition section located in IBC Chapter 2. There are no technical changes to the requirements.

Subp. 7. IBC [F] section 907.2.2.1, Initiation. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference numbers in this subpart are renumbered to provide more specific references to the section being amended. This subpart is also amended by deleting the phrase “outpatient clinic” and replacing it with the phrase “ambulatory care facility” to coordinate the terminology with changes that have been made elsewhere in the 2012 IBC. The new term “ambulatory care facility” is also included in the definition section located in IBC Chapter 2. There are no technical changes to the requirements.

Subp. 8. IBC [F] section 907.2.2.2, Notification. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference numbers in this subpart are renumbered to provide more specific references to the section being amended.

Subp. 9. IBC [F] section 907.2.2.3, Ambulatory care facilities. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference numbers in this subpart are renumbered to provide more specific references to the section being amended. This subpart is also modified by deleting the phrase “outpatient clinic” and replacing it with the phrase “ambulatory care facility” in the title and in the body to coordinate terminology changes that have been made elsewhere within the 2012 IBC. The new term “ambulatory care facility” is also

included in the definition section located in Chapter 2 of the 2012 IBC. Finally, the sentence was revised grammatically to provide better clarity to the requirement.

Subp. 10. IBC [F] section 907.2.3, Group E, General. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 11. IBC [F] section 907.2.3.1, Initiation. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. This subpart also amended by deleting the word “supervised” in the first exception. The requirement for a sprinkler system to be supervised is covered elsewhere in this rule chapter, so it is not necessary to duplicate the requirement. The remainder of the subpart is unchanged.

Subp. 12. IBC [F] section 907.2.3.2, Travel through adjoining rooms. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. The remainder of the subpart is unchanged.

Subp. 13. IBC [F] section 907.2.3.3, Notification. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. The remainder of the subpart is unchanged.

Subp. 14. IBC [F] section 907.2.4, Group F, general. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 15. IBC [F] section 907.2.4.1, Initiation. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. The remainder of the subpart is unchanged.

Subp. 16. IBC [F] section 907.2.4.2, Notification. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. The remainder of the subpart is unchanged.

Subp. 17. IBC [F] section 907.2.5, Group H, general. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, this subpart is amended by deleting the reference chapters “37, 39, and 40” and replacing them with chapters “60, 62, and 63 of the 2012 IFC.” This amendment is necessary to coordinate this code with Minnesota Rules, chapter 7511, the State Fire Code, and other International Code Council codes. The remainder of the subpart is unchanged.

Subp. 18. IBC [F] section 907.2.5.1, Initiation. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. This subpart is also amended by deleting the reference chapters “37, 39, and 40” and replacing them with chapters “60, 62, and 63 of the 2012 IFC.” This amendment is necessary to coordinate this code with Minnesota Rules, chapter 7511, the State Fire Code, and other International Code Council codes. The remainder of the subpart is unchanged.

Subp. 19. IBC [F] section 907.2.5.2, Notification. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered to provide more specific references to the section being amended. The remainder of the subpart is unchanged.

Subp. 22. IBC [F] section 907.2.6, Group I-1, general. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. This provision is also amended by changing the section reference “907.2.6 through 907.2.6.4.3” to “907.2.6 through 907.2.6.4.2” to coordinate with numbering changes made to the 2012 IBC. Additionally, the existing rule language is deleted and replaced with similar language. The new language is formatted to coordinate with the format of other alarm requirements contained in the proposed language for sections 907.2.6.2, 907.2.6.3, and 907.2.8, for example. The requirements are the same, but the requirements for I-1 occupancies are subdivided into general requirements, alarm initiation requirements, and alarm notification requirements. This new format will clarify the requirements for the user. The existing rule

language does not contain general group I-1 alarm requirements. This omission caused confusion because the existing language contains specific alarm requirements for group I-2 and I-3 occupancies, but not for group I-1 occupancies. These amendments also coordinate alarm installation requirements with those contained in Minnesota Rules, Chapter 7511, the Minnesota State Fire Code, for the same occupancy groups.

Received during comment period regarding Smoke Detectors:

1305.0907, subpart 22, subsection 907.2.6.2.3, Patient room smoke detectors. The commenter proposes that the Department remove the comma after the phrase “part of the facility,” located in the fourth sentence within the proposed paragraph, to make the sentence more grammatically correct. Also, the commenter believes that an incorrect reference to IBC section number “907.2.6.3.1” is contained within the fifth sentence of the proposed paragraph and proposes to correct that error by inserting the word “this” before the word “section” and to delete the referenced section number.

The Department agrees with the commenter’s suggested change because the comma was incorrectly incorporated and changes the meaning of the sentence. The Department is also changing the phrase to read “part of the facility’s fire alarm system,…” to provide further clarity. The Department also agrees with the commenter’s request to delete the section reference to “907.2.6.3.1” because it was included erroneously in the draft of the proposed rule. However, the Department disagrees with the commenter’s proposed change referencing “this section” because it does not completely clarify the intent of the sentence. Instead, the Department created a new subsection to this section to set this sentence apart as an additional option in the requirement. This new subsection will help clarify that integral smoke detectors for automatic door closing devices can be installed only if the devices meet all of the other requirements listed in the main section 907.2.6.3 for patient room smoke detectors. The Department believes this modification is needed and reasonable as it better clarifies the intent of the requirement by including this option in a separate subsection without changing the requirement itself. Accordingly, the Department agrees to modify the proposed rule.

Received during comment period regarding fire alarms:

1305.0907, subpart 22, subsection 907.2.6.4.2, Notification. The commenter requests to add a sentence to the end of the subsection that reads, “In addition, activation of the fire alarm system shall immediately transmit an alarm signal to an approved central station or remote station service.” The commenter believes this

change is necessary to correct an error or omission made by the Department in the reformatting of the subsection during the draft of the proposed rule since proper notification of an activated alarm to an occupied location is obviously necessary and has been a requirement in the code for many years.

The Department agrees with the commenter's proposed change to include this sentence in the subsection. The addition of this sentence is reasonable and necessary since it is vital for a fire alarm system to not only initiate a signal, but to also have that signal reach a location staffed or monitored by individuals who can notify fire department personnel that the fire alarm system has been activated. This modification does not change the existing requirement and merely corrects a drafting error made by the Department in the language of the proposed rule. Accordingly, the Department agrees to modify the proposed rule.

Subp. 23. IBC [F] section 907.2.7, Group M, and Subp. 24, IBC [F] section 907.2.7.1, Occupant notification. Refer to the "General" statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in these subparts. Additionally, both subparts are amended by adding a phrase to read: "in its entirety" following the word "deleted" to provide clarity to the subparts.

Subp. 25. IBC [F] section 907.2.8, Group R-1, general. Refer to the "General" statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, this subpart is amended by revising exception numbers 1 and 2 by replacing the term "guest room" with "sleeping room." This change coordinates with language changes made to the 2012 IBC. Exception number 2 is also amended by replacing the section reference "907.2.10" with "907.2.11" to coordinate with numbering changes made in the 2012 IBC.

Received during comment period regarding fire alarms:

1305.0907, subpart 25, subsection 907.2.8, Group R-1, general, exception 2. The commenter requests that this subpart be modified by replacing the word "less" with the word "fewer" in the first sentence of the exception to coordinate this language with other similar language in the code.

The Department agrees with the commenter that similar language should be consistent throughout the proposed rule. The Department will delete the word "less" and replace it with the word "fewer" for consistency and uniformity within the proposed rule. Accordingly, the Department agrees to modify the proposed rule.

Subsection 907.2.8.1, Initiation. This subsection is amended by deleting the phrase "throughout the building and manual activation" and replacing it with "in accordance with section 903.3.1.1 or 903.3.1.2." The subsection is also amended by adding a sentence to the end of the exception that reads, "When a constantly attended location is not provided, the manual fire alarm box shall be provided at the main exit." The new references to sections 903.3.1.1 and 903.3.1.2 will help clarify the requirements that pertain to the exception. The addition to the exception requiring manual fire alarm boxes at the main exits when a constantly attended location is not provided is necessary to provide consistency with other parts of the proposed rule pertaining to occupancies with the same exception. The addition to this exception will help reduce costs to the owner for a fire alarm system by permitting a manual fire alarm box at the main entrance instead of requiring a constantly attended location. This exception has been common practice in the construction industry and the amendment coordinates this exception with similar exceptions found in the Minnesota State Fire Code.

Received during comment period regarding fire alarms:

1305.0907, subpart 25, subsection 907.2.8.1, Initiation, the exception. The commenter requests to add the phrase "and a manual fire alarm box" after the section number "903.3.1.2" within the exception to correct an apparent error in drafting of the proposed rule.

The Department agrees that the addition of the language helps to clarify the meaning and intent of the requirement. Without the added phrase, the sentence is confusing because it is unclear what is being provided in the constantly attended location. The Department will add the phrase "and a manual fire alarm box" after the section number "903.3.1.2" in the exception. Accordingly, the Department agrees to modify the proposed rule.

Subsection 907.2.8.2, Notification, remains unchanged.

Subsection 907.2.8.3, Sleeping unit smoke alarms. This subsection is amended by revising the title from "Guest room detectors" to "Sleeping unit smoke alarms." This modification is needed to coordinate with changes made to these terms in the 2012 IBC. The first sentence contains changes that replace the term "guest room" with "sleeping unit" and replaces the word "detectors" with "alarms." This subpart is also amended by replacing the section reference number from "907.2.10" to "907.2.11." These terminology changes and section reference changes are necessary to coordinate the language in this subpart with changes made to the 2012 IBC. This change is also consistent with a national trend to

more accurately identify smoke detectors versus smoke alarms.

Subp. 26. IBC [F] section 907.2.9, Group R-2, general. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. This requirement applies to apartments, condominiums, and similar types of buildings or uses. The changes in this subpart clarify that an alarm system is not required until the building height is at least 3 stories above grade. The existing language caused confusion because some building officials required alarm system installations in 2-½ story garden style apartments, which was not the intent of the code.

This subpart is amended by deleting the term “guest rooms” and replacing it with the term “sleeping unit” in several places. This terminology change is necessary to coordinate the language in the rule with changes made to the 2012 IBC.

Item 1 of this section is modified by deleting the phrase “the story containing the lowest level of exit discharge” and replacing it with the phrase “the grade plane.” This modification is necessary because “grade plane” is defined in the code, whereas “the story containing the lowest level of exit discharge” is not defined, vague, and subject to differing interpretations.

Item 2 of this section is modified by deleting the phrase “the highest level of exit discharge of exits serving the dwelling unit” and replacing it with the phrase “the grade plane.” This modification is necessary because “grade plane” is defined in the code, whereas “the highest level of exit discharge of exits serving the dwelling unit” is not defined, vague, and subject to differing interpretations.

Item 4 of this section is modified by adding the phrases “congregate living facility” and “group home or shelter” to the list of structural uses in the item. Older editions of the Minnesota State Building Code used the term “congregate residences.” Congregate residences are facilities such as dormitories, fraternities, sororities, and similar facilities where there are often three or more persons sleeping in a single room. Previous code editions required fire alarm systems within congregate residences with 20 or more occupants. This amendment adds “congregate living facility” and “group home or shelter” to the list of uses that are required to have a fire alarm system when the occupant load exceeds 20 people. The requirements for the uses remain the same, but the uses are added to the list to clarify that they are classified as Group R-2 uses for the purposes of alarm system requirements in the code.

Subsections 907.2.9.1, Initiation, and 907.2.9.2, Notification, remain unchanged.

Subsection 907.2.9.3, Dwelling unit smoke alarms. This subsection is amended by replacing the section reference number “907.2.10” to 907.2.11” to coordinate with numbering changes made to the 2012 IBC. This subsection is also amended by deleting the word “detectors” and replacing it with the word “alarms.” This change is consistent with a national trend to more accurately identify smoke detectors versus smoke alarms. Smoke alarms contain integral detection and alerting functions, which may be self-contained units, while smoke detectors are detection devices that only detect smoke but are typically connected to a larger smoke detection and alert system in a building. The device in this section is considered a smoke alarm because it is meant to both detect smoke and provide an alert from the same device, but is not permitted to be connected to a building’s fire alarm system. This subsection is also amended by renumbering the section reference number to coordinate with changes made to the 2012 IBC.

Received during comment period regarding fire alarms:

1305.0907, subpart 26, subsection 907.2.9, Group R-2, general, subitems 1 and 2. The commenter requests that the Department revert back to the existing rule language in these subitems. The commenter believes that this change is needed because the “level of exit discharge” is readily understood and distinguished during the plan review phase of a new building and readily understood and distinguished on field inspections, whereas the use of the “grade plane” definition in the IBC is both cumbersome and confusing.

The Department agrees with the commenter that the proposed language, which incorporates the phrase “grade plane” is more problematic than the existing language in each subitem. The IBC defines the phrase “grade plane,” but the definition is cumbersome and vague. The IBC defines “grade plane” as follows:

“A reference plane representing the average of finished ground level adjoining the building at exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line, or, where the lot line is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.”

This definition does not establish a definitive measurement point to determine exactly where the ground level is and it invites interpretation. Additionally, by applying this definition, the determination of a “ground

level” can differ by almost one story for buildings on sloped building sites.

Therefore, the Department agrees with the commenter and will withdraw its proposed change to the existing language in subitems 1 and 2 because the existing language is clearer than the language that is proposed. Accordingly, the Department agrees to modify the proposed subitems

Subp. 26a. IBC [F] section 907.2.10.1.4, Fire station and emergency medical quarters [Repeal]. This subpart is being repealed in its entirety. This subpart requires smoke alarms in the sleeping areas of fire stations and emergency medical quarters. These occupancies are considered mixed occupancies in the 2012 codes. As a result, any sleeping areas are now considered Group R occupancies in the 2012 IBC and must comply with the requirements for smoke detection and alarms for that occupancy. As a result, this amendment is no longer necessary and is being repealed.

Subp. 26b. IBC [F] section 907.2.10, Group R-4, general. This is a new subpart that modifies section 907.2.10 of the 2012 IBC to require fire alarm systems in Group R-4 occupancies. This section and its subparts are completely revised from the section in the 2012 IBC. This modification is necessary to coordinate with the language and format for the same requirements located in the Minnesota State Fire Code.

Exception number 1 is added to this section to exempt fire alarm systems in rooms that are separated with walls and floors consisting of fire-rated construction, when the building is limited to two stories in height (maximum), and where each sleeping room has an exit directly to the exterior of the building. This type of building is similar to the older “motor hotel” style buildings (also known as “motels”) where guests enter their rooms from a parking lot or yard, not through an interior corridor or lobby. Since these units are fire separated, limited in height, and have exit doors leading directly to the outside, the fire risk to occupants is greatly reduced. As a result, an exception for a building fire alarm system is allowed by this code. Based on the design prerequisites, this exception will decrease costs for buildings of this type.

Exception number 2 is added to this section to exempt buildings containing five or fewer sleeping units with smoke alarms installed, which are required for one and two-family dwellings. When smoke alarms are provided according to the requirements for one or two-family homes, a complete building fire alarm system is not required. Smaller buildings of this type are similar in design to that of a one or two-family dwelling (in

appearance and function), so this exception is a reasonable alternative compared to the requirements of a more expensive building fire alarm system. A smoke detection system meeting the code requirements for a one or two-family dwelling also provides adequate life-safety features when installed in smaller buildings of this type. Based on the requirements of this section, this modification will decrease costs for buildings of this type.

Subsection 907.2.10.1, Initiation. This subsection is added to clarify that automatic detection is required when a fire alarm system is installed. These requirements are the same as the requirements for Group R-1 and R-2 occupancies. An exception has been added to this subsection pertaining to the automatic detection device requirement for buildings that are sprinkled. This exception is necessary because the 2006 IBC did not contain specific requirements for alarms in Group R-4 occupancies, but the 2012 IBC now does. However, the new IBC alarm language does not follow the same format as the State Fire Code. This requirement therefore incorporates the format from the State Fire Code to maintain consistency between this rule part and Minnesota Rules, Chapter 7511. This requirement will reduce the cost to owners by eliminating the requirement for manual fire alarm boxes.

Subsection 907.2.10.2, Notification. This language is added to the subsection to clarify that activation of the sprinkler system or fire alarm system must also activate a general evacuation signal. This clarification is needed to ensure consistency between the IBC and the State Fire Code, Chapter 7511, and to assist in uniform enforcement of those provisions.

Subsection 907.2.10.3, Smoke Alarms. This language is added to the subsection to provide standards for smoke alarm installation and to ensure uniform enforcement of both the IBC and the State Fire Code, Chapter 7511. The amendment is proposed by the SFM to deal with an oversight in the previous 2007 State Fire Code and the companion amendment to the IBC. The currently adopted 2006 International Fire Code does not have any fire alarm requirements for Group R-4 occupancies, only smoke detector requirements. This creates confusion among code officials as virtually every other occupancy group was represented in the alarm section. Group R-4 occupancies are usually associated with group I-1 health care related occupancies that, due to the number of care recipients being 16 or fewer, can be classified into the less restrictive group R-4 occupancy. Although the installation of a sprinkler system eliminates most of the alarm requirements, it was felt that there needs to be a specific section for Group R-4 occupancies to instruct the user. The amendment is in keeping with the format for all other occupancy alarm requirements, and

mirrors the following order of appearance in the rule: General (scoping), Activation (manual or automatic) and Notification (who is notified in the event of an alarm).

Subp. 27. IBC [F] section 907.2.11.4, Power source. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, this subpart is amended by modifying the section reference numbers from “907.2.10.2” to “907.2.11.4” to coordinate with changes made to the 2012 IBC.

Subp. 27a. IBC [F] section 907.2.10.5, Smoke alarms in arc fault protected circuits [Repeal]. This subpart is repealed because the requirement is now contained in the 2012 IBC; therefore, the modification is no longer necessary.

Subp. 28. IBC [F] section 907.2.28, Residential hospices. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered from “907.2” to “907.2.24” to provide more specific references to the section being amended.

Subp. 30. IBC [F] section 907.9.2, Audible alarms [Repeal]. This subpart is being repealed because the requirement it is now contained in the 2012 IBC; therefore, the modification is no longer necessary.

Subp. 31. IBC [F] section 907.3, Fire safety functions. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. This subpart is also modified by renumbering the section reference numbers to coordinate with changes made to the 2012 IBC. Additionally, section reference numbers in the body of this subpart are changed to coordinate with the numbering changes in the 2012 IBC. Finally, several grammatical changes are made to provide clarity.

Subp. 31a. IBC [F] section 907.6.5, Monitoring. This subpart adds language to delete section 907.6.5 from the 2012 IBC. The language in this section of the 2012 IBC requires fire alarm systems to be monitored by an approved supervising station. This same requirement exists in the 2006 IBC, but the section was renumbered between editions. This requirement was deleted in the 2006 IBC adoption by Minnesota amendment, which is currently located in subpart 33 of this rule part. The Department is carrying forward its deletion of this requirement, but the amendment must be renumbered and relocated because the requirement was renumbered in the 2012 IBC. As a result, subpart 33 is being repealed and this new subpart is added here due to the renumbering of

the section in the 2012 IBC.

Subp. 32. IBC [F] section 907.11, Duct smoke detectors [Repeal]. This subpart is repealed because this section of the IBC was deleted in the 2012 edition of the code. Therefore, the amendment is no longer applicable and is being repealed.

Subp. 33. IBC [F] section 907.14, Monitoring [Repeal]. This subpart is repealed because this section was renumbered to 907.6.5 in the 2012 IBC. As a result, this amendment is being relocated to Subpart 31a, so it is no longer applicable to this section number and is being repealed.

1305.0908 SECTION 908, EMERGENCY ALARM SYSTEMS.

IBC [F] section 908.7, Carbon monoxide alarms. This new rule part modifies the 2012 IBC requirements for carbon monoxide alarms. This requirement is included in the proposed rule to coordinate with the statutory requirements for carbon monoxide detectors in Minnesota Statutes, section 299F.51, and with the requirements in the recently adopted Minnesota Rules, Chapter 1309, the Minnesota Residential Code.

1305.0909 SECTION 909, SMOKE CONTROL SYSTEMS.

Subpart 1. IBC [F] section 909.4.7, Door opening force [Repeal]. This subpart is repealed because the language in this subpart is being relocated to subpart 1c in this same rule part. This language is being relocated to coordinate it with numbering changes made in the 2012.

Subp. 1a. IBC [F] section 909.1, Scope and purpose. This new subpart is added to modify section 909.1 of the 2012 IBC by changing the first sentence to clarify that the mechanical or passive smoke control systems regulated by this section apply only to new buildings or portions of new buildings. This subpart also modifies this IBC section by deleting the last two sentences in the section pertaining to purpose of smoke control systems in this section of the IBC. Smoke control systems are intended to provide a tenable atmosphere while occupants are evacuating the area or building during a fire, and for firefighters while engaged in fire suppression and overhaul activities. The fire service needs smoke control for fire suppression so they can approach and attack the fire faster and for “overhaul” after the fire suppression is complete. Overhaul is considered one of the most hazardous jobs for firefighters because the building structural members may have been compromised, the atmosphere can be toxic, and piles of debris can be trip-and-fall hazards. The reduction of smoke will make

overhaul operations safer. The requirements in this section are intended to provide “life-safety,” and are not intended to be installed for the purpose of removing all the smoke, to preserve the contents, or to get the property back in operation quickly. These changes are needed because individuals have mistakenly interpreted these requirements to be *additional* requirements for the purposes listed above. If the requirements are enforced in this manner, it adds unnecessary cost to a building’s mechanical system and creates additional system maintenance for the building owners. These changes will therefore clarify the intended application of the requirements and result in lower construction costs.

Subp. 1b. IBC [F] section 909.4.6, Duration of operation. This new subpart is added to modify this section of the 2012 IBC by deleting the phrase “or 1.5 times the calculated egress time, whichever is less” and replacing it with “System design shall be for 20 minutes; however, fans shall continue to operate after 20 minutes and shall continue to operate automatically for smoke removal during fire suppression and overhaul efforts for a minimum of 5 minutes for every 10 feet vertically of protected space.” This modification is needed to clarify minimum system operating timelines when the system is in alarm/operating mode for firefighting and overhaul operations. This clarification will simplify the operating prerequisites for smoke control systems and assist system designers by not having to engage the services of a fire protection engineer in every design project. Egress time calculations involve hiring a fire protection engineer. Smoke control system installation is typically performed by a mechanical engineer who is not familiar with egress time calculations. Without this change, a fire protection engineer’s assistance would be required for every smoke control system design. While fire protection engineers are necessary for complex fire protection designs, they are not necessary for every smoke control system installation.

Subp. 1c. IBC [F] section 909.4.7, Door opening force. This new subpart relocates the requirement for door opening force that is currently located in Subpart 1 in this rule part to Subpart 1c. In addition, the code section reference numbers in the existing rule text are changed from “1008.1.2” to “1008.1.3” to coordinate with numbering changes in the 2012 IBC. The remaining rule language is unchanged.

Subp. 2. IBC [F] section 909.21, High rise and covered mall smoke exhaust systems [Repeal]. This subpart is repealed because the 2012 IBC now contains requirements for smoke exhaust and removal in high-rise buildings in IBC Section 403.4.7. Smoke exhaust and removal system requirements for covered and open mall buildings are also addressed in proposed Minnesota Rules, part 1305.0402; therefore, this subpart is no longer

necessary.

1305.0910 SECTION 910, SMOKE AND HEAT REMOVAL.

Subpart 1. IBC [F] section 910.1.1, Required venting method. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the word “VENTS” in the title is deleted and replaced with the word “REMOVAL” in two locations. This amendment is necessary to coordinate with language changes made to the 2012 IBC. Exception number 3 is also amended by replacing the term “code” with “building” before the word “official.” This modification clarifies that it is specifically the building official who can approve smoke and heat vents that comply with IBC Section 910.3 in sprinkled buildings.

Subp. 2. IBC [F] section 910.4, Mechanical smoke exhaust. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart.

Subp. 3. IBC [F] section 910.4.3, Operation. Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, this subpart is amended by deleting the word “automatically” and replacing it with the word “manually.” The remainder of the sentence and the next sentence are deleted (“...upon sprinkler system water flow. A 5 to 10 minute delay shall be provided between the sprinkler water flow signal and activation of the exhaust fans”). This amendment reflects a change in the way the system is required to be activated. Smoke and heat vents will now be required to be manually activated, as opposed to automatically activated, in a fire/heat condition. The subpart is further amended by deleting the exception, which permits manual activation when approved by the building official.

There is no reasonable basis to require the installation of expensive automatic operating capabilities because it is the fire commander’s function at the scene of a fire is to determine when or if a system needs to be activated. Most smoke and heat exhaust and venting systems are already designed to be manually activated, and because these systems are intended to be used solely by fire department personnel, control and operation of the system would commence only if or when necessary. Moreover, automatic systems can experience a premature activation of the mechanical smoke control, which can negatively affect the efficiency of the fire suppression system. These modifications will not reduce minimum levels of life-safety or fire-fighting capabilities. The requirement will decrease costs related to the design and

installation of the system. These modifications will also reduce associated long-term maintenance requirements and related fees.

Subp. 4. IBC [F] section 910.4, Supply air.

Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the fifth sentence deletes the word “four” and replaces it with the number “4” to grammatically correct the reference. The remaining language is unchanged.

Subp. 5. IBC [F] section 910.5, Calculated engineering design of mechanical smoke exhaust.

Refer to the “General” statement at the beginning of the Rule by Rule Analysis section for an explanation to the proposed changes in this subpart. Additionally, the section reference number in this subpart is renumbered from “910” to “910.5” to provide more specific references to the section being amended. Subsection 901.5.3 Operation, is also being amended by deleting the word “automatically” and changing it to the word “manually.” The remainder of the sentence is then deleted (“...upon sprinkler system water flow. A 5 to 10 minute delay shall be provided between the sprinkler water flow signal and activation of the exhaust fans.”). This amendment reflects a change in the way the system is required to be activated. Smoke and heat vents are now be required to be manually activated, as opposed to automatically activated, in a fire or heat condition. The subpart is further amended by deleting the exception, which permits manual activation when approved by the building official.

There is no reasonable basis to require the installation of expensive automatic operating capabilities because it is the fire commander’s function at the scene of a fire to determine when or if a system needs to be activated. Most smoke and heat exhaust and venting systems are already designed to be manually activated, and because these systems are intended to be used solely by fire department personnel, control and operation of the system would commence only if or when necessary. Moreover, automatic systems can experience a premature activation of the mechanical smoke control, which can negatively affect the efficiency of the fire suppression system. These modifications will not reduce minimum levels of life-safety or fire-fighting capabilities. The requirement will decrease costs related to the design and installation of the system. These modifications will also reduce associated long-term maintenance requirements and related fees.

Finally, Subsection 910.6.1, Acceptance testing, is amended by renumbering the section reference numbers from “909.18.2 through 909.18.5” to “909.18.1 through 909.18.7” to coordinate with numbering changes made to

the 2012 IBC.

1305.0913 SECTION 913, POST FIRE EXHAUST SYSTEM [Repeal].

The language in this rule part is being relocated to proposed Minnesota Rules, part 1305.0916, because the section was renumbered in the 2012 IBC. The language in the rule part will remain unchanged, but will be relocated. As a result, this rule part is repealed because it is no longer applicable.

1305.0916 SECTION 916, POST FIRE EXHAUST SYSTEM.

The language in this rule part is relocated from Minnesota Rules, part 1305.0913, because the section was renumbered in the 2012 IBC. The language in the rule part is unchanged.

1305.1002 SECTION 1002, DEFINITIONS [Repeal].

This rule part is being repealed because formatting changes made to the 2012 IBC moved the definitions section to chapter 2. As a result, the content of Minnesota Rules, part 1305.1002, is also relocated to Minnesota Rules, part 1305.0202, to coordinate with the changes made to the 2012 IBC. The terms and definitions in the existing rule remain unchanged.

1305.1008 SECTION 1008, DOORS, GATES, AND TURNSTILES.

Subpart 4. IBC section 1008.1.3.6, Special egress control devices [Repeal]. This subpart is repealed because the 2012 IBC now contains requirements for special locking arrangements in Group I-2, IBC section 1008.1.9.6, where it previously had none. However, since IBC section 1008.1.9.6 does not contain all of the requirements that are contained in the current rule language, portions of this subpart are being relocated to subpart 7a of this rule part. This is necessary to ensure that all relevant content of this subpart will be maintained.

Subp. 5. IBC section 1008.1.5, Floor elevation.

This subpart is amended by renumbering the section reference numbers because the sections were renumbered in the 2012 IBC. Section 1008.1.4 has been renumbered to Section 1008.5.1 in the 2012 IBC. The modification for exception number 5 remains as written in the existing rule without change. This amendment is needed to correlate with changes made to the 2012 IBC and to maintain the current modified language for use with the 2012 IBC.

Subp. 6. IBC section 1008.1.9.3, Locks and latches. This subpart is amended by renumbering the

current section reference numbers 1008.1.8.3 to 1008.1.9.3 because the section was renumbered in the 2012 IBC. The subpart is also modified, conditions renumbered, and new conditions added, as follows:

Condition numbers 1, 2.1, 2.2, 2.3, 3, and 4 remain as written in the current rule language and are consistent with the 2012 IBC.

Condition number 2 is amended by modifying the term “churches” to “places of religious worship” to be consistent with the code language as written in the 2012 IBC.

Condition number 5 is added to the subpart as written in the 2012 IBC.

Condition number 5 of the existing subpart is renumbered to condition number 6 without change to the existing language.

Condition number 6 of the existing subpart is renumbered to condition number 7 with some changes to the existing language. The term “egress control devices” is replaced with the term “locking arrangements” to coordinate with terminology used elsewhere in the rule and the 2012 IBC. The term “in conformance with” is replaced with the term “in accordance with” to be consistent with language used throughout the IBC code books. Section reference “1008.1.3.6” is replaced with “1008.1.9.6” to coordinate with the renumbering of the 2012 IBC.

Condition number 8 is new language added to the subpart regarding electromagnetically locked egress doors. This addition is needed to coordinate with an existing requirement located in the Minnesota State Fire Code, Minnesota Rules, part 7511.1008, subpart 1. This locking method is also added here because, although referenced as an approved locking/latching method in section 1008.1.9.9, it was inadvertently omitted from section 1008.1.9.3 of the 2012 IBC. Therefore, the addition of electromagnetically locked egress doors as condition 8 of this rule part is reasonable and also needed to correct that omission.

Condition number 7 of the existing rule subpart is renumbered to condition number 9 with some changes to the existing language. The existing term “special locking” is replaced with the term “special detention.” Chapter 1305 has contained two amendments to allow the locking of egress doors in buildings since 2003. The first is used in

health care occupancies and is entitled “special egress control devices” (see Minnesota Rules, part 1305.1008, subpart 4). The second is used in school seclusion rooms and is entitled “special locking arrangements” (see Minnesota Rules, part 1305.1008, subpart 8). The 2012 IBC has added a new provision for locking in health care occupancies similar to the existing Minnesota amendment found in Minnesota Rules, part 1305.1008, subpart 4, but it is titled as “special locking arrangements.” This new 2012 IBC term now conflicts with the existing Minnesota term for locking requirements in school seclusion rooms found in Minnesota Rules, part 1305.1008, subpart 8. Therefore, in an effort to be consistent with the 2012 IBC, “special egress control devices” is re-titled to “special locking arrangements” and “special locking arrangements” is re-titled to “special detention.” This change is reasonable and needed to prevent confusion with terminology that is now used elsewhere within the code.

The rule part is also amended by replacing the word “which” with “that” and by changing the section reference from “1008.1.10” to “1008.1.11” to coordinate with the section renumbering that occurred in the 2012 IBC.

The amendments throughout this subpart are reasonable and needed to maintain consistency between the rule language and the 2012 IBC, as well as coordination of requirements with the Minnesota State Fire Code.

Subp. 6a. IBC section 1008.1.9.6, Special door locking arrangements in Group I-1, I-2, R-3 or R-4 occupancies. This is a new subpart that incorporates the language from Minnesota Rules, part 1305.1008, subpart 4, into the special locking arrangement requirements that are now contained in section 1008.1.9.6 of the 2012 IBC. This modification is necessary to carry forward those parts of existing rule language that are not included in the requirements of this section in the 2012 IBC. The 2012 IBC language is limited to Group I-2 occupancies (hospitals and nursing home/health care uses), but the existing rule language being carried forward here also addresses special locking arrangements for Group I-1, R-3, and R-4 occupancies (group homes or apartments, foster care facilities, half-way houses, boarding houses, and/or other smaller types of congregate living facilities). These are facilities licensed by the Minnesota Department of Health or the Minnesota Department of Human Services and provide specialized care for their residents. They are also facilities that typically install special locking to assure the safety and security needs of their residents. To

ensure that the requirements are comprehensive, the existing rule language is being combined with the IBC language so that all occupancies that provide the same type of care can install special locking when the needs of a care facility demand it.

The list of requirements for locking doors in this section is also expanded from that of the 2012 IBC to include additional safeguards for residents. These additional safeguards are part of existing rule language and are being carried forward into this IBC section to ensure that the level of safety and security is unchanged from the existing rule requirements.

Subp. 7. IBC section 1008.1.9.7, Delayed egress door locks. This subpart is amended by renumbering the section reference numbers because the sections were renumbered in the 2012 IBC. This subpart has also been amended to use the complete title of the occupancies where delayed egress locks must not be installed. The reorganization also clarifies that items 1-4 apply to the door locks. Items 5 and 6 are renumbered to 1 and 2 under the requirements that apply to items other than the locking devices. Item 3 is new and is needed to ensure that the locking devices will continue to function properly.

This subpart is also amended by adding the phrase “and assembly uses within Group E occupancies” to the first sentence. This language is being added because of a change in the 2012 IBC where “assembly uses” connected to an educational occupancy (e.g., school gymnasiums, cafeterias, multi-purpose rooms, auditoriums, theaters, etc.) are now classified as an educational occupancy classification (Group E), instead of an assembly (Group A) occupancy classification. Assembly occupancies must not have delayed locking mechanisms on doors because in the event of an emergency, large groups of people must be able to evacuate quickly and cannot be locked in for an additional 15 or 30 seconds, risking being crushed by a crowd trying to evacuate. Several descriptive terms are added to better define Group A and H occupancies. The phrase “Delayed egress locks shall be installed only” before the phrase “in buildings that” to provide clarity to the sentence.

This subpart is also amended by deleting the language “or an approved automatic smoke detection system installed in accordance with section 907” and replacing it with the language “and an approved smoke detection system installed in means of egress system serving the locked area.” This change is reasonable and needed because the State Fire Marshal has experienced problems in schools where the delay mechanism identified in condition number 4 of the requirement (“not more than 15 second latch release when a 15 pound force is applied”) has been overridden. The delay devices can be

overridden because these unlocking systems can be controlled by facility staff using a computer program. The 1305 Advisory Committee recommended this language as a compromise to eliminating the subpart entirely, which would have then left schools (public and private) with few options to maintain building security.

The subpart is also amended by requiring early warning fire/smoke detection devices to be installed within the means of egress system (i.e., building corridor system), as opposed to throughout the entire building, as part of this same condition. This is reasonable as the 2012 IBC only requires early warning protection by detectors located within the exit system of the building.

Received during comment period regarding delayed egress door locks:

1305.1008, subpart 7, section 1008.1.9.7, Delayed egress door locks. The commenter requests that in the second sentence in this subpart, the word “and” should be replaced with the word “or” after the section number “903.3.1.1.” The commenter believes this was most likely a typographical error made during the drafting of the proposed rule since it obviously would be difficult or impossible for an owner of an existing building to add a fire sprinkler system after the building was completed. Additionally, the commenter believes that this change is necessary for uniformity between the Building and Fire Codes.

The Department agrees with the commenter’s proposed change. The Department acknowledges that this was, in fact, a typographical error. This requirement exists in the current building and fire codes with the word “or” incorporated in the section instead of the word “and.” Accordingly, the Department agrees to modify the proposed rule.

Subp. 7a. IBC section 1008.1.9.11, Stairway doors. This new subpart modifies exception number 3 of section 1008.1.9.11 of the 2012 IBC by deleting the requirement for an electronic monitoring system for locked doors. This modification is necessary because these signaling methods are considered to be unreliable, ineffective, and costly. This deletion is reasonable because there is no way to ensure that the service is properly functioning or will always be staffed and monitored. This proposal was submitted and supported by the Minnesota State Fire Marshal’s Division.

Exception number 3 is also modified to clarify that the “exit discharge door” can be locked, but must be operable from the egress (inside) side of the door so that people can exit. Otherwise people could be locked in the stairway which is an unsafe situation.

Subp. 8. IBC section 1008.1.11, Special detention arrangements. This subpart is amended by renumbering the section reference number from 1008.1.10 to 1008.1.11 and retitling the section from “Special locking arrangements” to “Special detention arrangements.” The sections are renumbered to coordinate with changes made to the 2012 IBC and the section is retitled to better explain the intent of the requirement for use with the 2012 IBC. This amendment adds a section to the IBC.

Subsection 1008.1.10.4, entitled “Construction,” is retitled to “Door swing.” The subsection is also renumbered to 1008.1.11.4 to coordinate with numbering changes made to the 2012 IBC. This section is modified by deleting the current language pertaining to rooms with special locking arrangements, door separating rooms, and interior finishes and replacing it with new language that pertains only to door swing. The requirement regarding the door swing coordinates with language that is also being added to Minnesota Rules, chapter 7511, the Minnesota State Fire Code.

The language in existing section 1008.1.10.4 regarding construction requirements for rooms with special locking requirements and existing section 1008.1.10.5, Location, are being deleted at the recommendation of the State Fire Marshal Division. Locked areas are already required to be equipped with quick response sprinkler heads and smoke detection and there is no documented history of fire related problems relative to locked rooms with quick response sprinkler heads and smoke detection. As a result, the existing requirements provide no additional value to life-safety and add an unnecessary expense. Since the rooms with special locking are required to have quick response sprinklers which will extinguish a fire quickly, the fire resistivity of the room or location of the room will not be a significant factor for the life safety of the room occupant. In addition, smoke detection connected to the building fire alarm will notify facility personnel that there is a smoke or fire in the room. The existing sprinkler and smoke alarm requirements outweigh the need for unnecessary and expensive fire-resistive construction and is not needed to protect the room occupant. Therefore, it is reasonable to delete these requirements because they unnecessarily increase construction costs and are not needed to protect detention occupants.

Finally, the word “detention” has been added to section 1008.1.11.4, Door swing, to clarify that the door swing must be in the direction of exiting from the detention room.

Received during comment period regarding locking hardware:

1305.1008, subpart 8, subsection 1008.1.11.1, Locking hardware. The commenter requests that in the last paragraph, a period should be added after the phrase “open position” and to capitalize the “f” in the word “following.” The commenter also requests that a period should be replaced with a comma after the phrase “conditions specified above” and make the “r” in the word “Relocking” a lower case. The commenter believes that this change is needed because, as written, the rule requires that locking devices need to fail in the open position only if they are released pursuant to one of the six conditions, rather than after any release. The proposed language does not accomplish the intent that the locks must always fail in the open position, regardless of other unlocking conditions that are triggered by items 1-6 in this subsection, to prevent occupants from being trapped in the locked structure during an emergency.

The Department agrees with the commenter’s suggested modifications because they provide more clarity to the requirement. The rule language, as written, only requires locking devices to be designed to fail in the open position only if the conditions listed in items 1-6 occur. However, there are conditions other than those listed in items 1-6 that could cause a lock to fail, such as the failure or breakage of the locking mechanism itself. In that case, the locking device must still fail in the open position to prevent people from being trapped in the locked area of the building. The commenter’s proposed language is reasonable and consistent with the rule’s underlying intent and clarifies that regardless of the circumstance, locking devices must always be designed to fail in the open position to prevent people from being unintentionally locked in a structure during an emergency or some other unexpected event. Accordingly, the Department agrees to modify the proposed rule.

1305.1009 SECTION 1009, STAIRWAYS AND HANDRAILS.

Subpart 1. IBC section 1009.13, Alternating tread devices. This subpart is amended by renumbering the section reference numbers to coordinate with numbering changes made in the 2012 IBC. Additionally, a statement is provided to alert users of the code that sections 1009.13.1, 1009.13.2, and the exception still apply.

Subp. 2. IBC section 1009.14, Ships ladders. This new subpart modifies section 1009.14 of the 2012 IBC. The modified language permits the use of ships ladders, constructed as required for permanent stairs, for access to and egress from raised or recessed floor areas with limited access and occupant load. Ships ladders, also

referred to as fixed industrial ladders by Federal OSHA, have a history of providing a safe alternative to a traditional stairway when used in spaces having small occupant loads and by those who are familiar with their surroundings (non-public access).

1305.1013 SECTION 1013, GUARDS.

Subpart 1. IBC section 1013.2, Where required. This subpart is amended by renumbering the section reference numbers from section 1013.1 to section 1013.2 in the 2012 IBC because the sections were renumbered in the 2012 IBC.

Subp. 2. IBC section 1013.3, Height. This subpart is amended by renumbering the section reference numbers from section 1013.2 to section 1013.3 to coordinate with renumbering changes made to the 2012 IBC. This subpart is also amended by renumbering the current exception from number “2” to number “4,” also to coordinate with renumbering changes made to the 2012 IBC. This exception is further modified by adding the word “guard” immediately preceding the word “height” to provide better clarity to the exception. Finally, the section reference of 1025.14 is being changed to section 1028.14 to coordinate with changes made in the 2012 IBC.

Subp. 3. IBC section 1013.8, Window sills. This new subpart is added to modify section 1013.8 of the 2012 IBC to provide consistent regulation and enforcement between this code, Chapter 1309 (Minnesota Residential Code), and Chapter 7511 (Minnesota State Fire Code).

A new exception number 5 is added to address window replacement criteria. This exception specifically exempts replacement windows from the window fall protection requirements in this section. The exemption of replacement windows from these requirements is reasonable and necessary so the requirements will not apply retroactively to existing buildings which may otherwise discourage the replacement of old windows that may be unsafe, inoperable or energy inefficient.

Subsection 1013.8.1, Window opening control devices, is included in the subpart for context, but is not modified from the language contained in this section of the 2012 IBC.

There will be an increase in the overall cost of windows because these requirements will now require window fall protection devices to be installed on operable windows that are located within 36 inches of the finished floor. Double-hung windows are currently the dominant type of window on the market. Adding a window fall protection device would cost approximately \$30.00 per

window for double-hung windows. On casement windows, which currently have a smaller market share, window fall protection devices would increase the cost by approximately \$100.00 per window. Nevertheless, the cost increase is needed and reasonable as these requirements are incorporated into the proposed rule to increase the life safety of occupants as required by Minnesota Statutes, section 326B.106, subdivision 7, which directs the Commissioner of Labor and Industry to adopt window fall protection rules.

1305.1014 SECTION 1014, EXIT ACCESS [Renumbered].

This rule part is being renumbered and relocated to Minnesota Rules, part 1305.1017 because this section in the 2012 IBC was renumbered. As a result, this rule part is no longer applicable.

1305.1015 SECTION 1015, EXIT AND EXIT ACCESS DOORWAYS.

The title of section 1015.1 in this rule part is amended by adding the phrase “from spaces” to the end of the title to coordinate with changes made to the 2012 IBC.

The existing exception for condition number 1 is amended to create exceptions (a) and (b) to incorporate the exceptions included in a similar manner to that of the 2012 IBC. In exception (a), the maximum occupant load of “16” is changed to “20” to coordinate with changes made in the 2012 IBC. The new exception “b” is also added to coordinate with the language in the 2012 IBC.

Existing condition number 3 is amended by adding a fourth section reference to the references listed to coordinate with changes made to the 2012 IBC.

The existing exception in condition #4 is deleted because it was incorporated into condition number 1 in the 2012 IBC, so it is no longer needed in this location of the rule part.

Finally, new language is added at the end of this rule part to coordinate with changes made to the 2012 IBC.

1305.1017 SECTION 1017, AISLES.

This rule part is being renumbered and relocated because this section was renumbered from Section 1014 to Section 1017 in the 2012 IBC. This is a new rule part that carries forward existing language from Minnesota Rules, part 1305.1014. The title and two section reference numbers are amended to coordinate with changes made to the 2012 IBC. Additionally, grammatical changes are

made in several sections of this rule part to provide for improved clarity. The remaining content is unchanged.

1305.1018 SECTION 1018, CORRIDORS.

Subpart 1. IBC Table 1018.1. This new subpart is added to modify table 1018.1 in the 2012 IBC. The table is modified by replacing the phrase “Not Permitted” with a number “1” in the group R occupancy (residential occupancies) row. The 2012 IBC, as published, requires all Group R occupancies to be equipped with an automatic fire sprinkler system. However, Minnesota modifies the sprinkler installation requirements in proposed Minnesota Rules, part 1305.0903, subpart 1a, to exempt certain occupancies from that requirement if the building corridors have a 1-hour fire-resistance rating. The change to Table 1018.1 is therefore reasonable and needed to recognize that not all group R occupancies in Minnesota are required to be sprinkled and that buildings that are not equipped with an automatic sprinkler system must have a 1-hour fire-resistive corridor system to protect the exit system from smoke and fire.

Subp. 2. IBC section 1018.6, Corridor continuity. This new rule subpart modifies section 1018.6 of the 2012 IBC by adding language to the first exception and by adding a second exception. The exception in this section of the IBC is modified by adding the phrase “if the aggregate area of these spaces does not exceed 1,000 square feet per floor.” This language is added because the IBC requirement does not allow rooms or spaces to be open to a fire-resistive rated corridor, other than those identified in the exception (foyers, lobbies, and reception rooms). However, those rooms identified in the exception have no size limitations and may pose a hazard to life and safety during a fire due to the potential for combustible loading of these larger room areas. Therefore, the added language limits the size of the allowable spaces listed in the exception to permit them to be open to the fire-resistive rated corridor without additional requirements to be met to ensure occupant safety such as automatic smoke detection systems or automatic fire sprinkler systems.

The second exception allows other rooms, including lobbies, foyers and reception areas, to be open to the fire-resistive rated corridor without size limitations if additional criteria are met to ensure occupant safety. Therefore, the 1000 square foot limitation of exception number 1 can be exceeded by meeting the additional requirements of exception number 2 which ensure the early warning of building occupants to begin exiting because of the presence of smoke or fire in the exit way.

The modifications in this subpart are needed and reasonable because they incorporate “alternate” designs or methods that are accepted and proven effective over the years. This will provide more uniform application and enforcement of the requirements, while maintaining a level of safety for occupants that use these fire-resistance rated corridors during a fire event.

1305.1019 SECTION 1019, NUMBER OF EXITS AND CONTINUITY [Repeal].

This rule part is being repealed because the 2012 IBC now contains similar provisions. Therefore, this rule part is no longer necessary.

1305.1022 SECTION 1022, INTERIOR EXIT STAIRWAYS AND RAMPS.

IBC section 1022.5, Penetrations. This new rule part modifies section 1022.5 of the 2012 IBC by deleting the exception listed in this section that permits miscellaneous membrane penetrations in the outside membrane material of interior exit stairway enclosure walls when they are protected according to IBC section 714.3.2. The 2006 IBC did not include this exception, which would permit miscellaneous penetrations for items such as electrical pipes, plumbing pipes, outlets, or mechanical ducts. These penetrations may cause oversized holes around the items penetrating the wall and could potentially allow fire or smoke to enter the protective enclosure, thus jeopardizing fire protection for occupants while exiting downward in an exit enclosure during a fire. This modification carries forward the 2006 IBC code language, which will provide consistent application and uniform enforcement while maintaining current life safety requirements for interior exit stairways and ramps.

1305.1023 SECTION 1023, EXIT PASSAGEWAYS.

IBC section 1023.6, Penetrations. This new rule part modifies section 1023.6 of the 2012 IBC by deleting the exception listed in this section that permits miscellaneous membrane penetrations in the outside membrane material of an exit passageway wall when it is protected according to IBC section 714.3.2. An exit passageway is a fire-resistive rated “tunnel,” used only for the purposes of exiting, that runs from the interior of a building to a safe exterior exit discharge area. The 2006 IBC did not include this exception. These miscellaneous membrane penetrations potentially allow fire or smoke to enter the exit passageway wall cavity and may jeopardize fire protection for occupants while they are exiting through the exit passageway to an exit or exit discharge area in the event of a fire. This modification carries forward the 2006 IBC code language, which will provide

consistent application and uniform enforcement while maintaining current life safety requirements for exit passageways.

1305.1025 SECTION 1025, ASSEMBLY [Repeal].

This rule part is being repealed because this section in the 2012 IBC was renumbered from Section 1025 in the 2006 IBC to Section 1028 in the 2012 IBC. As a result, this rule part is being repealed and relocated to Minnesota Rules, part 1305.1028.

1305.1026 SECTION 1026, EMERGENCY ESCAPE AND RESCUE [Renumbered].

This rule part is being renumbered and relocated because this section in the 2012 IBC was renumbered from Section 1026 in the 2006 IBC to Section 1029 in the 2012 IBC. As a result, the content of this rule part is being relocated to Minnesota Rules, part 1305.1029, so this rule part is no longer applicable.

1305.1028 SECTION 1028, ASSEMBLY.

This new rule part is added because this section in the 2012 IBC was renumbered from Section 1025 in the 2006 IBC to Section 1028 in the 2012 IBC. The content in this part is relocated from Minnesota Rules, part 1305.1025.

The first sentence of the rule part is amended to add “that are not building elements” to coordinate with language changes made in this section of the 2012 IBC. The existing language (currently located in Minnesota Rules, part 1305.1025) for International Code Council (“ICC”) 300, Section 405.1, Aisles, number 8 (d), item 1, is amended by adding a new exception pertaining to tiered seating that is located adjacent to a wall. This new exception does not require a guard if the space between the wall and tiered seating is less than 4-inches. The remaining language is unchanged from the existing language currently contained in Minnesota Rules, part 1305.1025. These amendments are reasonable and necessary to coordinate the language in this rule part with changes made in the 2012 IBC and to clarify guard requirements for tiered seating in Minnesota.

1305.1029 SECTION 1029, EMERGENCY ESCAPE AND RESCUE.

This rule part is renumbered from the existing Minnesota Rules, part 1305.1026, to coordinate with numbering changes made to the 2012 IBC. The content from the existing rule is being carried forward into this rule part, but with amendments.

Subpart 1. IBC section 1029.1, General. This subpart is amended to coordinate with changes made to the 2012 IBC regarding emergency escape and rescue openings (windows) in basements and sleeping rooms of Group R-2 and R-3 occupancies. In addition, this subpart is amended by revising exceptions 1 and 2, and by adding exceptions number 7, 8, and 9. This subpart is amended by deleting the phrase “in Group R as applicable in Section 101.2 and Group I-1” and replacing it with the phrase “openings in Group R-2 occupancies in accordance with Tables 1021.2(1) and 1021.2(2) and Group R-3.” This amendment is needed to coordinate the rule language with changes made to the 2012 IBC. This subpart is also amended by deleting the phrase “as applicable in Section 101.2” from exceptions 1 and 2 because these are outdated references from the 2000 IBC, which no longer exist in the 2012 IBC.

This subpart adds new exceptions 7, 8, and 9 pertaining to basements in the 2012 IBC.

Exception 7 is added to provide an option for new or existing basements or basement bedrooms if the building is protected with an automatic sprinkler system. In some cases, it may be less costly to install a fire sprinkler system in lieu of emergency escape and rescue openings due to the building’s foundation design, soil type, or water table. This amendment is needed and reasonable because it will allow buildings to omit emergency escape and rescue openings when the building has a fire sprinkler system installed throughout. This option may be a cost savings in cases where an emergency escape and rescue opening would be more expensive to install than a fire sprinkler system. The existing rule permitted this exception only for apartment buildings, but with this modification the option will extend to all basements or basement bedrooms. Similar requirements are also included in the amendments to the 2012 IRC.

Exception 8 exempts emergency escape and rescue openings from basements in Group R-3 occupancies that only house mechanical equipment that does not exceed 200 square feet in area. This also coordinates with similar requirements in the amendments to the 2012 IRC.

Exception 9 is added to provide another option for emergency escape and rescue opening requirements in basements or basement bedrooms in Group R-3 occupancies that must comply with all the conditions listed in the exception. The first condition applies to buildings constructed prior to August 1, 2008. Buildings in “non-code” enforcement areas constructed prior to that date were not mandated to comply with the Minnesota State Building Code requirements. Therefore, buildings with basements or basement bedrooms constructed prior

to that date would be exempt. The second condition requires that the building must be undergoing an alteration or repair. The third condition identifies specific requirements under which a fire sprinkler system may be installed in lieu of the required emergency escape and rescue opening. This condition requires that an automatic fire sprinkler system be installed in accordance with section 903.3 throughout the entire basement area and installed in all portions of the means of egress to the level of exit discharge, including all the areas on the level of exit discharge that are open to the means of egress. The installation of an emergency escape and rescue opening can become expensive and complex, and in certain cases, could involve altering the foundation and soils surrounding the home due to the building's foundation design, soil type, or water table. Exceptions 7 and 9 provide needed and reasonable alternatives to installing emergency escape and rescue openings for basements or basement bedrooms in difficult circumstances.

Received during comment period regarding emergency escape and rescue openings:

1305.1029, IBC Section 1029.1, General. The commenters state that they believe the intent of the original IBC Section 1029.1 and the Minnesota proposed amendment to it is to only require emergency escape and rescue openings in certain R occupancies that are allowed by Section 1021 to have only one exit from the story and building. However, reading both the original text and the Minnesota proposed amendment, the commenters find the language confusing at best. The language contained in the first paragraph stating that openings are “in accordance with Tables 1021.2(1) and 1021.2(2)” is the confusing part. The commenters believe the language should state that emergency escape and rescue openings are required when these 2 tables permit a building or floor to have one exit only.

The Department agrees with the commenters' concern and suggested change. The Department is relocating the reference to Group R-2 occupancies (with the references to the tables) to exception 1 of this subpart. This change is necessary to coordinate the requirements in this section with the changes being made to the requirements in section 903.2.8 regarding sprinkler thresholds. The 2012 IBC as written assumes that all Group R occupancies are sprinkled. To coordinate the requirements in section 1029.1 with the changes being made to section 903.2.8, the Department must relocate the reference to Group R-2 occupancies and the table references to exception 1 to ensure that Group R-2 occupancies that have only one exit are provided with an approved egress window in case the door is blocked. Additionally, to provide more clarity, the Department is adding titles to the Tables to clarify the content in the tables. These changes are necessary and reasonable as

they coordinate the requirements in this section with the changes to the sprinkler requirements being made elsewhere in this rule and clarify emergency escape and rescue openings requirements. As a result of the concern and comments submitted, the Department proposes to modify this subpart of the proposed rules.

Subp. 2. IBC section 1029.4, Operational constraints. The language in this new subpart modifies section 1029.4 of the 2012 IBC by adding an exception to permit the installation of window opening control devices that do not require the use of keys or tools to operate if the device is installed in accordance with ASTM F 2090. This requirement is needed to coordinate with the same requirement in other parts of this rule and Minnesota Rules, chapter 1309.

Subp. 3. IBC section 1029.6, Replacement windows. The language in this new subpart adds requirements for replacement windows to this section of the 2012 IBC. This modification exempts replacement windows from maximum sill height, minimum opening area, minimum opening width, and minimum opening height requirements if they meet the conditions listed in this rule part. This change is reasonable and needed because most existing windows do not meet current building code requirements for minimum size, height, and opening area. For replacement windows to meet these minimum requirements, window opening sizes would generally need to be increased, which can require extensive remodeling and increased construction costs. This change will allow replacement windows to be the same or different style as the original window, so long as the area of the new window opening is the same size or larger than that of the original opening. This change not only offers more flexibility in determining what type and style of window can be used, it also ensures that a minimum level of life-safety is maintained in each space where the window is replaced.

IBC section 1029.6.1, Licensed facilities. This new subpart modifies section 1029.6 by adding new subsection 1029.6.1, Licensed facilities, which states that rooms used for foster care or daycare which are licensed by or registered with the State of Minnesota must comply with conditions “a” through “d” or section 1029.6, whichever is more restrictive. This language is based on a current policy enforced by the Minnesota State Fire Marshal Division and is also proposed for adoption in the 2012 IFC. The State Fire Marshal Division has had problems concerning replacement windows. Individuals have replaced windows, sought foster care or daycare licensing or registration, and subsequently learned that the windows that were replaced do not comply with the requirements for foster care or daycare licensing or registration requirements. This amended language will

inform code users and stakeholders that foster care or licensed or registered daycare in the State of Minnesota must comply with section 1029.6 or 1029.6.1, whichever is more restrictive. This is reasonable and needed because it clarifies window replacement requirements for rooms used for foster care or day care and will provide uniform enforcement of the code for both building officials and between state agencies.

1305.1203 SECTION 1203, VENTILATION.

IBC section 1203.1, General. This existing rule part is amended to add a reference to Minnesota Rules, chapters 1322 and 1323. The references are needed to remind users that there are specific ventilation requirements for buildings in chapters 1322 (Minnesota Residential Energy Code) and 1323 (Minnesota Energy Code for all other buildings). It is reasonable to assist code users by providing references to other applicable codes. The remaining content is unchanged.

1305.1209 SECTION 1209, ACCESS TO UNOCCUPIED SPACES.

IBC section 1209.3.1, Mechanical equipment and appliance access. This rule part is modified by adding the term “and appliances” after the word “equipment” in the exception to section 1209.3.1. This additional language is necessary because the references to “equipment” was changed to “equipment and appliances” in the 2012 International Mechanical Code and to the amendments. This change will provide consistent language between the two rules. The remaining modifications made to sections 1209.3.1 and 1209.3.1.1 are grammatical to provide better clarity to the section.

1305.1210 SECTION 1210, SURROUNDING MATERIALS.

IBC section 1210.2.1, Floors and wall bases. This rule part is amended by renumbering the section reference numbers from section 1210.1 in the 2006 IBC to section 1210.2.1 because the sections were renumbered in the 2012 IBC. The rule part is also amended by changing the title and some of the language in the body of the rule part to coordinate with changes made to the 2012 IBC.

1305.1403 SECTION 1403, PERFORMANCE REQUIREMENTS.

This is a new rule part that deletes 2012 IBC section 1403.5, Vertical and lateral flame propagation, entirely. Section 1403.5 is new to the 2012 IBC. This section requires walls to be covered with a combustible weather resistive barrier and, when constructed over 40-feet in height, to meet the acceptance criteria of the

2011 edition of National Fire Protection Association (“NFPA”) standard number 285, entitled “Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-Bearing Wall Assemblies Containing Combustible Components.” The 2006 IBC required this standard in section 2603.5.5 for exterior wall assemblies containing foam plastics. The 2012 IBC now requires all exterior wall assemblies to be tested and listed to this standard.

This standard was originally developed as a test for vertical and lateral fire propagation for exterior curtain wall assemblies. However, most exterior building wall assemblies in Minnesota are not designed as curtain walls. Therefore, design options for using wall types that have been tested or listed to this standard are very limited. Moreover, most exterior wall configurations have never been tested to any standard. As a result, this new IBC requirement places an additional burden on a designer or building owner to prove compliance with the standard, which will be impractical and costly. As recommended by the Chapter 1305 Advisory Committee, this IBC provision is deleted in its entirety and the existing requirements for vertical and lateral fire propagation in Minnesota Rules, part 1305.2603, subpart 2, shall apply instead. It is reasonable to modify section 1403.5 by deletion and rely upon existing code requirements where application of that code section in Minnesota will be impractical and tend to raise the costs of construction without added benefit to life-safety requirements.

1305.1405 SECTION 1405, INSTALLATION OF WALL COVERINGS.

Subpart 1. IBC section 1405.4.2, Masonry. This subpart is amended by renumbering IBC section 1405.3.2 to section 1405.4.2 to coordinate with renumbering changes made to the 2012 IBC. Additionally, the phrase “in anchored veneer” is added to the language in this subpart to reflect the addition of this clarifying language made to the 2012 IBC and the reference to IBC section 1405.5 is changed to section 1405.4.6 to coordinate with renumbering changes made to the 2012 IBC.

Subpart 3. IBC section 1405.12.2. This subpart is being repealed because the referenced section has been renumbered in the 2012 IBC to section 1013.8. This section was deleted in the 2006 IBC because the subject was “window sills,” which regulated widow fall prevention devices. The provisions for window fall prevention are located in Minnesota Rule, part 1303.2320.

1305.1502 SECTION 1502, DEFINITIONS [Repeal].

A formatting change was made to the 2012 IBC

wherein all definitions were moved to chapter 2 of the IBC. Because of this change, this existing rule part is being repealed and the definition of “Roof Covering” relocated to Minnesota Rules, part 1305.0202, Definitions, to maintain consistency with the reformatting of the 2012 IBC and the proposed Minnesota Rules, chapter 1305.

1305.1509 SECTION 1509, ROOFTOP STRUCTURES.

IBC section 1509.2.3, Use limitations. This rule part is amended by changing the existing rule language to coordinate with reformatting changes made to the 2012 IBC. The current rule part 1305.1509, Section 1509.2, referenced in the existing rule part is renumbered, retitled, and amended to coordinate with changes made in the 2012 IBC. The first and second sentences of the current language are deleted in their entirety. The third sentence is amended to coordinate with the language of the 2012 IBC and the exception remains as written in the existing rule part. The last paragraph in the existing rule language regarding protection of the mechanical equipment is deleted to coordinate with changes made in the 2012 IBC. The amendments to the existing rule part are reasonable and needed to coordinate this rule with the 2012 IBC.

1305.1511 SECTION 1511, SOLAR PHOTOVOLTAIC PANELS/MODULES.

IBC section 1511.1, Solar photovoltaic panels/modules. This is a new rule part that modifies section 1511.1 by deleting the reference to the International Fire Code (“IFC”). This modification is necessary because the solar photovoltaic system power requirements in the 2012 IFC, which include references to “panels/modules” in sections 605.11 through 605.11.4, are being modified and adopted into the IBC. Therefore, the reference is not needed (*See* part 1305.3113 below for a detailed explanation as to the need and reason for this change).

1305.1607 SECTION 1607, LIVE LOADS.

Subpart 2. IBC section 1607.13.2, Vertical impact force. This subpart is amended by renumbering the section reference number because the section was renumbered from 1607.12.3 in the 2006 IBC to 1607.13.2 in the 2012 IBC. The content and text of the existing rule remain unchanged, but the subpart is divided into two sections to assist in and improve readability.

Subp. 3. IBC section 1607.13.3m Lateral force. This subpart is amended by renumbering the section reference numbers because the sections were renumbered from 1607.12.3 in the 2006 IBC to 1607.13.3 in the 2012 IBC. The content and text of the existing rule remain

unchanged, but the subpart is divided into two sections to assist in and improve readability.

1305.1702 SECTION 1702, DEFINITIONS [Repeal].

This rule part is being repealed because the 2012 IBC now contains a definition for “Approved Agency” in Section 202, Definitions. Therefore, this rule part is no longer necessary.

1305.1704 SECTION 1704, SPECIAL INSPECTIONS [Repeal].

This rule part is being repealed because the sections and table were renumbered and relocated within the 2012 IBC. Some of the requirements in this section will be carried forward into Minnesota Rules, part 1305.1705, subpart 1, with modifications, to coordinate with new Table 1705.2.2 in the 2012 IBC.

1305.1705 SECTION 1705, REQUIRED VERIFICATION AND INSPECTION.

Subpart 1. IBC Table 1705.3, Required verification and inspection of concrete construction. This is a new subpart that modifies Table 1705.3 in the 2012 IBC. The content in this subpart is relocated from Minnesota Rules, part 1305.1704, but is modified to coordinate with previous changes made in subpart 4 of that existing rule part. The modifications include changing the section reference numbers, footnote references, and column numbers. Additionally, the language contained in the existing exception is amended by deleting the phrase “Inspection can be periodic when acceptable to the structural engineer of record and the building official” and replacing it with “Periodic verification and inspection is permitted, upon approval of the structural engineer of record and the building official.” This amendment is reasonable and needed to carry forward the current requirements for Table 1704.4 of the 2006 IBC, as amended. The modifications do not change the requirements of the table and will not add costs to special inspection requirements or to the inspection of concrete construction.

Subp. 2. IBC section 1705.4, Masonry construction. The language in section 1705.4 of the 2012 IBC refers the user to separate documents that contain quality assurance requirements for masonry construction. However, it is necessary to provide a more direct method of compliance. Therefore, the modification to this section of the 2012 IBC carries forward the special inspection requirements for the placement of grout in masonry that were incorporated into Table 1704.5.1 of the 2006 IBC, as amended. This modification is reasonable and needed to provide uniform application and enforcement of the

requirements for masonry construction in the State of Minnesota.

1305.1805 SECTION 1805, DAMPROOFING AND WATERPROOFING.

Subpart 4. IBC section 1805.2, Depth of footings [Repeal]. This subpart is repealed because section 1805.2 was renumbered and reorganized in the 2012 IBC. Therefore, this existing subpart is no longer applicable.

Subp. 5. IBC section 1805.2.1, Frost protection [Repeal]. This subpart is repealed because section 1805.2.1 was renumbered and reorganized in the 2012 IBC. Therefore, this existing subpart is no longer applicable.

Subp. 6. IBC section 1805.4.3, Drain discharge. This requirement is currently located in Minnesota Rules, part 1305.1807, but is being relocated here to coordinate with a renumbering of the 2012 IBC.

1305.1807 SECTION 1807, DAMPROOFING AND WATERPROOFING [Repeal].

This rule part is being repealed because section 1807 was renumbered in the 2012 IBC. Therefore, this amendment is no longer applicable.

1305.1809 SECTION 1809, SHALLOW FOUNDATIONS.

This new rule part is added because this section in the 2012 IBC was renumbered. The content in this section was previously located in Minnesota Rules, part 1305.1805, subpart 5, which amended 2006 IBC section 1805.5.2.1, Frost protection. The content is being carried forward to this rule part and modified. The last sentence in the section is modified by deleting the phrase “unless such frozen condition is of a permanent character.” This deletion is reasonable and necessary because Minnesota does not experience “permafrost” conditions. The remaining content is necessary to coordinate with both the requirements in section 1809 of the 2012 IBC and similar requirements located in Minnesota Rules, part 1303.1600, subpart 2.

1305.1907 SECTION 1907, DETAILS OF REINFORCEMENT [Repeal].

This rule part is being repealed because section 1907 of the 2006 IBC no longer exists in the 2012 IBC and it is not necessary to amend Minnesota Rules, chapter 1305, to retain it.

1305.2109 SECTION 2109, EMPIRICAL DESIGN OF MASONRY [Repeal].

This rule part is being repealed because the language modified in Table 2109.4.1 of the 2006 IBC is no longer included in the 2012 IBC. Therefore, the amendment is no longer applicable.

1305.2510 SECTION 2510, LATHING AND FURRING FOR CEMENT PLASTER.

This new rule part is added to modify language in section 2510.6, Water resistive barriers, of the 2012 IBC. Specifically, the second sentence of section 2510.6, which contains a new prescriptive requirement for installation of two layers of Grade D paper as a water resistive barrier, is deleted. It is reasonable and necessary to delete this new requirement because it deviates from standard acceptable installation practices in Minnesota and would result in increased labor and material costs without any added life-safety benefit.

1305.2603 SECTION 2603, FOAM PLASTIC INSULATION.

Subpart 1. IBC section 2603.4.1.13, Type V construction. [Repeal]. This subpart is being repealed because the amended language is now incorporated in section 2603.4.1.13 of the 2012 IBC. The same language is also included in Minnesota Rules, chapter 1309, the 2012 International Residential Code (“IRC”). It is necessary and reasonable to repeal existing amended model code language when the language no longer requires modification and the same language is also adopted and used in both the 2012 IRC and IBC for uniformity and consistency.

Subp. 2. IBC section 2603.5.5, Vertical and lateral fire propagation. Subpart 2 is being added to include another exception to section 2603.5.5 of the 2012 IBC. This exception was developed by a sub-committee of the 1305 Advisory Committee to address foam plastic on the exterior of buildings. This new exception coordinates with another rule part, Minnesota Rules, part 1305.1403, which eliminates IBC section 1403.5 that requires all exterior walls to have a combustible weather resistive barrier complying with the NFPA 285 acceptance criteria. Instead, this new subpart establishes requirements to address vertical and lateral fire propagation from foam plastic in exterior walls of buildings. NFPA 285 is still the standard for acceptance, but the requirements in this subpart add a second exception that allows installation of fireblocking (materials used to subdivide concealed/void spaces into small areas so fire cannot easily spread), a process that further prevents the spread of fire. This expanded exception is both needed and reasonable

because it provides the building designer and building owner with a safe and cost effective option for compliance and tends to reduce construction costs.

Received during comment period regarding foam plastic insulation:

1305.2603, IBC Section 2603, Foam Plastic Insulation. The commenters express various concerns over the proposed exception from both building science and energy perspectives. Specifically, the commenters question the building science behind the requirements of the exception which, in their opinions, could lead to possible water penetration, mold and moisture problems, and reduced energy savings by compromising the insulation value of the added foam plastic insulation. They also identify possible conflicts between the proposed language and Minnesota's Commercial Energy Code, Chapter 1323. The commenters believe that further investigation and discussions with qualified building scientists and energy code committee members must occur before the proposed exception is adopted.

The Department agrees with the commenters and has determined that this amendment must be investigated further and vetted by the Commercial Energy Code Committee for chapter 1323 to address the identified concerns and conflicts before it can be included in this rule. As a result, the Department will withdraw its proposed amendment to this section of the 2012 IBC in its entirety at this time.

1305.2902 SECTION 2902, MINIMUM PLUMBING FACILITIES.

Subpart 1a. IBC section 2902.1.2, Family or assisted-use toilet and bath fixtures. This subpart is amended by renumbering the section reference number because the section was renumbered in the 2012 IBC. The title is also changed to coordinate with the title change made to section 2902.1.2 in the 2012 IBC. The subpart is further amended by deleting the word "unisex" and replacing it with the phrase "family or assisted-use" to coordinate the existing rule language with changes made to the 2012 IBC. Finally, the end of the sentence is amended to add the phrase "for either the male or female occupants" to coordinate with the addition of this language in the 2012 IBC. This added language clarifies that family or assisted-use toilet and bath fixtures can be used toward the total plumbing fixture count required by Table 2902.1 and count for either male fixtures or female fixtures, but not both. The proposed amendments do not otherwise change the intent or requirements of the section.

Subp. 2. IBC Table 2902.1, Minimum number of required plumbing fixtures. This subpart is amended by re-lettering some of the footnotes because the 2006

IBC had four footnotes, whereas the 2012 IBC has seven footnotes. The amended footnotes "e", "g" and "h" were re-lettered to "h", "i" and "j," respectively, to coordinate with changes made to the 2012 IBC. The existing modification of footnote "f" remains unchanged. In footnote "b," the word "patients" is being replaced with the term "care recipients." This change is made to coordinate with terminology changes made to the 2012 IBC. The proposed amendments do not otherwise change the requirements of Table 2902.1.

Subp. 3. IBC section 2902.2, Separate facilities. This subpart amends exceptions number 2 and 3, and deletes exception number 4 in its entirety. Exception number 2 is modified-by deleting the occupant load factor of "15" and replacing it with "20." This modification is needed because the Department is proposing to delete exception number 4 in its entirety. Since exception number 4 allowed for a unisex restroom to be used for up to 20 occupants, it is reasonable and necessary to increase the number of occupants served by a unisex restroom in exception number 2 from 15 to 20 occupants to compensate for elimination of exception number 4. This will result in lower cost to business owners as restrooms are one of the most expensive spaces per square foot in a building due to furnishings.

Exception number 3 is amended by replacing the current occupant load factor of "50" and replacing it with "100," as provided for in the 2012 IBC. This change is needed to coordinate this rule subpart with changes made to the 2012 IBC.

Existing exception number 4 is being deleted because the occupant load factor that the 2012 IBC specifies for use in determining the number of occupants (*see* IBC Table 1004.1.2) for a business space of 2000 gross square foot equates to 20 persons (1 occupant per 100 sf of floor area). Therefore, amended exception 2 discussed above replaces the requirement in exception number 4. In addition, this change also modifies the requirement in exception number 4 for an additional urinal within a family or assisted-use restroom to respond to several complaints received from the public over the years concerning the presence of a male urinal in unisex or family use facilities. By deleting the requirement for a urinal, the change permits a family or assisted-use restroom to contain only a water closet and sink. This deletion is reasonable because the water closet already accommodates the purpose of a urinal and this change will tend to reduce both facility user complaints and construction costs.

Subp. 4. IBC section 2902.6, Controlled access to required facilities. This subpart is amended by changing the section reference number from 2902 to

2902.6 to coordinate with the subsection heading number contained in the body of the rule subpart. The remainder of the subpart remains as written in the current rule and applicable for use in the 2012 IBC.

1305.3109 SECTION 3109, SWIMMING POOL ENCLOSURES AND SAFETY DEVICES.

This rule part is modified by changing the title to coordinate with the title change of section 3109 in the 2012 IBC and adds the title in the body of the rule, clarifying that IBC section 3109 is entirely deleted. In Minnesota, public swimming pool requirements are administered and regulated by the Minnesota Department of Health under Minnesota Rules, chapter 4717, not this code. Similarly, residential swimming pool requirements are administered and regulated by municipalities under their zoning regulations, not this code. Therefore, it is reasonable and necessary to delete section 3109 in its entirety.

1305.3111 SECTION 3111, SOLAR PHOTOVOLTAIC PANELS/MODULES.

IBC section 3111.1, General. This is a new rule part that modifies section 3111.1 by deleting the reference to the International Fire Code (“IFC”). This modification is necessary because the solar photovoltaic power system requirements in the 2012 IFC, which include references to “panels/modules” in sections 605.11 through 605.11.4, are being modified and adopted into the IBC. Therefore, the reference is not needed (*See* part 1305.3113 below for a detailed explanation for the need and reason for this change).

1305.3112 SECTION 3112, WINDOW CLEANING BUILDING ANCHORS.

This new rule part modifies chapter 31 of the 2012 IBC by adding new Section 3112, Window cleaning anchors. This modification is reasonable and necessary because Minnesota Statutes, section 326B.106, subdivision 4 (N) (2012), requires installation of safety and protection devices in Minnesota for use by window washing companies when a building is four or more stories in height. These buildings typically require window washing personnel to suspend from ropes temporarily tied off at the roof of buildings. This new rule part incorporates language that requires the installation of permanent anchors on a building’s roof to permit window washers to tie-off to a safe apparatus during window washing operations. This new part is reasonable and needed to comply with statutory requirements.

1305.3302 SECTION 3302, CONSTRUCTION SAFEGUARDS.

This existing rule part is amended by renumbering the section reference numbers to coordinate with formatting changes made to the 2012 IBC. The existing rule language is being carried forward without change.

1305.3113 SECTION 3113, SOLAR PHOTOVOLTAIC POWER SYSTEMS

Introduction.⁶ IBC section 1305.3113 is modified to add a section regarding “Solar Photovoltaic Power Systems.” This rule proposal is taken from the 2012 International Fire Code (“IFC”) sections 605.11 through 605.11.4, and modified herein. Section 1305.3113 is being added to the 2012 IBC because the Department believes that locating these provisions in the IBC is the most appropriate code chapter for enforcement of the provisions. As noted in the background section of the ICC’s 2012 International Building Code, Coordination between the International Building and Fire Codes:

The model codes can also be adopted as a family of complementary codes. When adopted together there should be no conflict of any of the technical provisions. When multiple model codes are adopted in a jurisdiction it is important for the adopting authority to evaluate the provisions in each code document and determine how and by which agency or agencies they will be enforced. It is important, therefore, to understand that where technical provisions are duplicated in multiple model documents that enforcement duties must be clearly assigned by the local adopting jurisdiction.

Id. at p. vii (emphasis added).

The Department has evaluated the provisions for “Solar Photovoltaic Power Systems” in the 2012 IFC and believes that the provisions properly belong in the IBC, as modified, for the following reasons:

1. The Commissioner of Labor and Industry has sole authority to adopt regulations concerning structural loads that are applied from the installation of these systems on the roof of a building under Minnesota Statutes, section 326B.106. The Minnesota Board of Electricity has sole authority to adopt regulations for electrical installations under Minnesota Statutes, section 326B.32, subdivision 2(a)(3);

⁶ All parts of this rule part renumber companion sections in the 2012 International Fire Code.

2. The provisions apply to buildings regulated by the 2012 IBC;
3. The designated building official in each municipality is already responsible to enforce structural provisions for alterations to buildings that will increase the structural load (weight) added to new and existing structures, such as solar panels. Under Minnesota Rules, Part 1300.0130, subpart 1, the building official also has authority to require that plans and specifications for these installations be prepared by a Minnesota licensed professional engineer; and
4. The electrical portions of the provisions in Sections 605.11 through 605.11.1.4 and 605.11.2 of the 2012 IFC are not coordinated with the National Electrical Code (NFPA 70) adopted by the Minnesota Board of Electricity. In addition, IFC section 605.11 exempts the application of the electrical code to certain structures, which is in direct conflict with the Minnesota Electrical Code as adopted by the Minnesota Board of Electricity.

For the above stated reasons, it is necessary and reasonable to add Section 3113 to proposed Chapter 1305 to regulate solar photovoltaic power systems in Minnesota. This modification is needed so that the regulations can be applied by designated municipal building officials who have the specific training and experience in building and structural loads to effectively enforce the Code and regulate these systems. It is also reasonable that the adoption of provisions regulating the electrical installation of solar photovoltaic power systems be made by the Minnesota Board of Electricity, pursuant to that board's statutory mandate.

Finally, it should be noted that certain provisions in this proposed rule refer to the "fire department," so that their expertise will be included in solar photovoltaic power system installation decisions that are made, which directly affect fire service personnel and their safety.

IBC section 3113 (IFC section 605.11), Solar photovoltaic power systems; general. The exception is modified to clarify that the Minnesota Electrical Code applies to the structures in the exception. IFC section 605.7 conflicts with the Minnesota Electrical Code because the electrical code does not exempt these structures from electrical installation safety requirements. IFC sections 605.11.1 through 605.11.1.4 and IFC section 605.11.2 are not needed because the Minnesota State Board of Electricity has sole authority to adopt provisions regulating electrical installations. Currently, Article 690 of the 2014 National Electrical Code ("NEC") contains

regulations for Solar Photovoltaic Power Systems, as follows: Section 690.31(G)(3) "Marking and Labeling Required," Section 690.31(G)(4) "Marking and Labeling Methods and Locations," and Section 690.17(E) "Interrupting Rating" are similar to the requirements in the 2012 IFC, Sections 605.11.1 through 605.11.1.4. Also, Sections 690.31 (A) "Methods Permitted," 690.31 (G) "Direct-Current Photovoltaic Source and Direct-Current Output Circuits on or Inside a Building," and 690.35 (D) "Conductors" are similar to the requirements in the 2012 IFC, Section 605.11.2.

IBC section 3113.1 (IFC 605.11.3), Access and pathways. Exception number 2 is modified by changing the term "fire chief" to "fire department." This modification is reasonable and needed to recognize that approval for the exception to the general requirement can come from authorized fire department personnel, other than the fire chief.

IBC section 3113.1.1. (IFC 605.11.3.1), Roof access points. The term "fire department" is added before the words "ground ladders" to clarify that the location of roof access points are dependent upon ground ladder placement for fire department personnel, not upon placement of any or all ground ladders.

IBC section 3113.1.2 (IFC 605.11.3.2) Residential systems for dwelling units. The title of this section is modified to read, "IBC section 3113.1.2 (IFC 605.11.3.2) Residential systems for dwelling units." This change is needed because the IBC does not regulate two-family dwellings (*See* Section 310.1, above).

Also, the language of the requirement of this section needs to be changed from, "Access to residential systems for one-and-two family dwellings shall be provided in accordance with sections 3113.1.2.1 through 3113.1.2.4" to "Access to residential systems for dwelling units shall be provided in accordance with sections 3113.1.2.1 through 3113.1.2.4" because the IBC does not regulate two-family dwellings.

IBC section 3113.1.2.1. (IFC 605.11.3.2.1), Residential buildings with hip roof layouts. The words "structurally strong" have been deleted from the last sentence because the words are redundant since the remainder of the sentence details that the access pathway shall be located at a "location on the building capable of supporting the live load of fire fighters accessing the roof."

IBC section 3113.1.2.2. (IFC 605.11.3.2.2), Residential buildings with a single ridge, IBC section 3113.1.2.3. (IFC 605.11.3.2.3), Residential buildings with roof hips and valleys, and IBC section 3113.1.2.4.

(IFC 605.11.3.2.4), Residential building smoke ventilation. These sections are adopted without change from the language in the 2012 IFC and are needed to provide complete rules for solar photovoltaic systems within this section.

IBC section 3113.2 (IFC 605.11.3.3.), Other than residential buildings. The phrase “one-and two-family dwellings” is being changed to “dwelling units” because the IBC does not regulate two-family dwellings.

The exception is further modified by replacing the term “fire code official” with the term “fire department” in the exception. This modification is reasonable and needed to recognize that the determination that approval for the exception to the general requirement can come from authorized fire department personnel, other than the fire chief.

Also in the exception, the phrase “one-or two-family dwelling” is being changed to “dwelling unit” because the IBC does not regulate two-family dwellings.

IBC section 3113.2.1. (IFC 605.11.3.3.1), Access, IBC section 3113.2.1.2. (IFC 605.11.3.3.2), Pathways, IBC section 3113.3. (IFC 605.11.3.3.3), Smoke ventilation, and IBC section 3113.4 (IFC 605.11.4), Ground-mounted photovoltaic arrays. These sections are adopted without change from the language in the 2012 IFC and are needed to provide complete rules for solar photovoltaic systems within this section.

1305.3302 SECTION 3302, CONSTRUCTION SAFEGUARDS.

IBC section 3302.3, Fire safety during construction. This section is renumbered to 3302.4 because a new 3302.3 was added to the 2012 IBC. The term “IBC” is added to clarify that the section number that follows is part of the IBC. The reference to IBC section 717.3.1 is changed to IBC section 718.3.1 because the section in the 2012 IBC that addresses draftstopping changed to 718.3.1. These changes are needed to direct code users to the correct section in the IBC.

1305.3500 CHAPTER 35, REFERENCED STANDARDS.

Subpart 1. Modifications to Chapter 35. [Repeal]. This subpart is being repealed because the standards identified in this subpart are now contained in Chapter 35 of the 2012 IBC. Therefore, modification of Chapter 35 to identify these referenced standards is no longer needed.

Subp. 2. Supplemental standards. This subpart is amended by updating the edition of NFPA Standard 45 from 2004 to 2011, which is the most current edition of that NFPA standard. This amendment is reasonable and needed to enhance life-safety requirements by referencing the most current standard for application and enforcement.

This subpart is also amended by adding the ANSI/IWCA I-14.1 2011- Standard for Window Cleaning. The addition of this standard is reasonable and necessary because it is referenced in proposed Minnesota Rules, part 1305.3112, which provides new window cleaning anchor requirements.

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2015

MINNESOTA ELEVATORS AND RELATED DEVICES

Chapter 1307, Elevators and Related Devices, is not a separate code book. It can be found in the 2015 Minnesota Building Code.



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing Elevators and Related Devices, Minnesota Rules, Chapter 1307; Revisor's ID Number R-04143; OAH Docket Number 82-1900-30854

INTRODUCTION

On January 29, 2007, the Department adopted the current Minnesota Elevator Code. In February 2009, the Department decided to skip the 2009 code adoption cycle because of a drastic slowdown in the construction economy. As a result, certain editions of the codes and standards that would have been incorporated into this rule chapter were skipped.

The Commissioner of the Minnesota Department of Labor and Industry now proposes to adopt amendments to chapter 1307 entitled *Elevators and Related Devices* to incorporate the most recent editions of the codes and standards included in this rule chapter. In addition to substantive changes, reorganization and grammatical changes are proposed to improve clarity and to conform to current style requirements.

The proposed rules contain certain amendments in Chapter 1307 of the Minnesota State Building Code and incorporates by reference the following American Society of Mechanical Engineers ("ASME") standards: *ASME A17.1/CSAB44-2010, Safety Code for Elevators and Related Equipment* ("ASME A17.1"); *ASME A17.3-2011, Safety Code For Existing Elevators and Escalators* ("ASME A17.3"); *ASME A17.5-2011, Elevator and Escalator Electrical Equipment* ("ASME A17.5"); *ASME A18.1-2011, Safety Standard for Platform Lifts and Stairway Chairlifts* ("ASME A18.1"); *ASME A90.1-2009, Safety Standard for Belt Manlifts* ("ASME A90.1"); and *ASME B20.1-2009, Safety Standard for Conveyors and Related Equipment* ("ASME B20.1"). This rule chapter also incorporates Chapter 30 of the *2012 International Building Code*, published by the International Codes Council, Washington, D.C., copyright 2012, reproduced with permission, all rights reserved.

The Department used an Advisory Committee comprised of small and large elevator companies, the Building Owners and Managers Association, representatives from the Elevator Union Local 9, the Minnesota Housing Association, the City of Minneapolis, the City of St. Paul, the Association of Minnesota Building Officials, and the Fire Marshals Association of Minnesota. A complete listing of those members can be found in Exhibit A. The committee met several times and reviewed numerous proposals from committee members, as well as changes identified by the Department. Pursuant to Minnesota Statutes, section 326B.106, subdivision 1, the Department also consulted with the Construction Codes Advisory Council in establishing the proposed adoption of the proposed rules governing Elevators and Related Devices.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1307
ELEVATORS AND RELATED DEVICES**

GENERAL.

In numerous locations throughout the proposed rule chapter, references to the editions of the various incorporated codes or standards are modified to reflect the most current editions of the code or standard that is proposed for incorporation. These changes are necessary to ensure the proper edition of the code is being referenced and incorporated into the rule. Additionally, incorporated IBC subsection headings throughout the proposed rule chapter are now separated by alphanumeric characters. These formatting modifications are necessary to assist in the overall ease of use, reading, and citation to the rule.

The following are the codes or standards proposed for incorporation:

Chapter 30, Elevators and Conveying Systems, of the 2006 edition of the International Building Code is being replaced with chapter 30 of the 2012 edition of the International Building Code. The International Building Code is published by the International Code Council, Inc., Washington, D.C., copyright 2012, portions reproduced with permission, all rights reserved;

Safety Code for Elevators and Escalators, ASME A17.1-2004 with 2005 A17.1A addenda and the supplement ASME A17.1S-2005 is being replaced with ASME A17.1/CSA B44-2010;

Safety Code for Existing Elevators and Escalators, ASME A17.3-2002 is being replaced with ASME A17.3-2011;

Elevator and Escalator Electrical Equipment, ASME A17.5-2004 is being replaced with ASME A17.5-2011;

Safety Standard for Platform Lifts and Stairway Chairlifts, ASME A18.1-2005 is being replaced with ASME A18.1-2011;

Safety Standard for Belt Manlifts, ASME A90.1-2003 is being replaced with ASME A90.1-2009; and

Safety Standard for Conveyors and Related Equipment, ASME B20.1-2003 is being replaced with ASME B20.1-2009.

The ASME Codes and Standards are published by the American Society of Mechanical Engineers, New York, New York.

Modifications are made throughout the rule chapter to reflect the most current editions of the codes and standards referenced in the rule.

1307.0010 PURPOSE AND SCOPE.

The statutory subdivision addressing permissive municipal enforcement was renumbered by the Legislature in 2010, so it is necessary to change it in the proposed rule to coordinate the rule with the most current referenced statute.

1307.0020 CODES ADOPTED BY REFERENCE.

This rule part is modified to change the address for the ICC and to incorporate the publisher's copyright information. Additional changes are made to reflect the latest edition of the incorporated code or standard for elevators and related devices and the name and address of the publisher of the code or standard that is referenced throughout the rule chapter. These changes are necessary to ensure the proper codes and standards are incorporated into and referenced throughout the proposed rule.

1307.0027 DEFINITIONS.

Subpart 1a. This new subpart is added to provide a definition for the word "approved." This definition is needed in this chapter to coordinate the definition of "approved" with the other chapters of the Minnesota State Building Code to address all situations similarly where the building official is authorized to take formal action to indicate whether or not proposed construction methods have been determined to be in compliance with the state building code. It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts between terms from one chapter to another.

Subparts 2 through 7. See the "GENERAL" statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subparts 8 through 11 remain unchanged.

Subparts 12 and 13. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 14. This subpart is modified to clarify language in the first portion of the sentence. The subpart is also modified by deleting an old effective date and replacing it with language that will not require the Department to amend this subpart with each new code adoption. This modification does not change the meaning or intent of the requirement.

Subpart 15. This subpart is modified to reflect a change of address for the International Code Council, Inc., to accurately reflect the address for the code publisher.

Subparts 16 and 17 remain unchanged.

Subpart 18. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

1307.0030 PERMITS.

Subpart 1. Permits required. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. Changes are made to section number references because the standard renumbered the sections. This change is necessary to ensure the user has correct references to sections in the standard.

Subparts 2 and 3 remain unchanged.

Subparts 4 and 5. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

1307.0035 INSPECTION, TESTS, AND APPROVALS.

Subpart 1. Approval of plans. This subpart is modified to add language allowing for electronic submission of PDF files for the plan approval process and so that electronic submissions may be received and utilized through the Department’s online electronic permitting program.

Subpart 2 remains unchanged.

Subpart 3. Approval. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 4 remains unchanged.

1307.0047 SPECIAL PROVISIONS.

Subparts 1 through 4. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. (Subpart 3 remains unchanged.)

Subparts 5 through 7 remain unchanged.

Subparts 8 through 15. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. Changes are made to section number references because the standard renumbered the sections. This change is necessary to ensure the user has correct references to sections in the standard.

Subpart 16. Newly constructed parking ramps or new construction in an existing parking ramp. The existing language in this subpart pertaining to elevators in parking ramps is deleted and replaced with new language requiring newly constructed and altered elevator hoistways in parking ramps to maintain a conditioned temperature between 50 and 90 degrees Fahrenheit. This change is necessary to provide an actual temperature range because “safe operating temperature for people” is too subjective and not separately defined. Additionally, the language is revised to clarify that the requirement applies to new hoistway construction or a hoistway alteration because the existing language does not clearly state that the requirement applies to hoistways and not the entire parking ramp.

1307.0067 AMENDMENTS TO ASME A17.1/CSA B44-2010.

Subparts 1 and 2. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 3. ASME A17.1/CSA B44-2010 2.7.3.1 General requirements. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. The subpart is also modified by adding two sections from the ASME A17.1 document to identify specific areas of access to elevator equipment space that cannot be through a toilet room. This requirement is not new. The requirement was renumbered so it is necessary to add the new section numbers to provide correct references.

Subparts 4 through 7. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 8. ASME A17.1/CSA B44-2010 2.14.7.1.4. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. This subpart is also modified to delete the word “approved” and replace it with the word “recognized.” This change is necessary to clarify that OSHA does not approve equipment.

Subparts 9 through 13. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 14. ASME A17.1/CSA B44-2010 8.10.1.1.3. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. This subpart is also modified by deleting the existing language regarding certification requirements and replacing it with new certification language requiring the certifying organization to be recognized by the commissioner. This change is necessary because the existing language describes the certifiers as being accredited by the ASME. ASME no longer accredits organizations. Organizations are now being certified to the QEI-1 standard by a third party organization using an ISO standard for accrediting organizations.

Subpart 15. ASME A17.1/CSA B44-2010 8.11.1.3 Periodic inspection and test frequency. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. No additional requirements are added to the table in this subpart. The table was relocated in the standard and the changes in this table reflect the new locations of these requirements.

1307.0090 EXISTING INSTALLATIONS.

Subpart 2. Conditions for continued operation. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. Changes are made to section number references because the standard renumbered the sections. This change is necessary to ensure the user has correct references to sections in the standard.

Subparts 3 and 4 remain unchanged.

Subpart 6. Other requirements. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 7 remains unchanged.

Subpart 8. Removal of existing elevators, dumbwaiters, escalators and moving walks. See the “GENERAL” statement at the beginning of the

Rule-by-Rule Analysis section of this SONAR. This subpart is also modified by adding new subitems C and D to subpart 8. The existing subitems C and D were relettered to incorporate the new subitems C and D. The new subitem C pertains to the removal of existing dumbwaiters and the new subitem D pertains to the removal of existing escalators and moving walks. The advisory committee believed these requirements were necessary to prevent unintentional injury to persons not trained in the removal of dumbwaiters, escalators and moving walks. The actual costs associated with these requirements will be borne by the contractor removing the device, but likely passed on to the building owner.

1307.0095 CHAPTER 30 OF THE INTERNATIONAL BUILDING CODE; ELEVATORS AND CONVEYING SYSTEMS.

Subpart 1. IBC Section 3001, General. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 2. IBC Section 3002, Hoistway enclosures. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subitem C, 3002.3, Emergency signs. This subitem is modified by deleting the reference to Appendix O and relocating the exception for the emergency signs for elevators complying with Section 1007.4 and replacing it with a reference to ASME A17.1-2010, figure 2.27.9. This subitem is also modified by adding two new exceptions, one of which is the exception for emergency signs that was relocated from the body of the requirement. The second exception exempts emergency signs for elevators that are used for occupant self-evacuation. These changes are necessary because occupant evacuation elevators in high rise buildings are now being used under special conditions to evacuate occupants in the event of a fire.

Subitem D, 3002.4, Elevator car to accommodate ambulance stretcher. This subitem is modified by rephrasing the requirement for ambulance stretchers. This change is necessary because the IBC was changed to clarify that most stretchers have radius corners which will allow designers to use smaller elevators and still be able to accommodate an ambulance stretcher.

Subpart 3. IBC Section 3003, Emergency operations. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. A new subitem C is added to the subpart pertaining to standardized fire service elevator keys. This new requirement is necessary because almost every

installer has their own specific key. Emergency personnel recognized that having a single key would allow them to have access to all elevators. This provision is for new and altered elevators only.

Subpart 4. IBC Section 3004, Hoistway venting. Subitem A, Vents required, is amended by adding two more exceptions to the subitem. The two additional exceptions are added because they were added to the 2012 IBC. This change is necessary to coordinate this rule with the 2012 IBC.

Subpart 5. IBC Section 3005, Conveying systems. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 6. IBC Section 3006, Machine rooms. This subpart is modified by deleting language pertaining to the fire-resistance rating in a hoistway enclosure in subitem D and replacing it with new language pertaining to the same circumstance, including two new exceptions. This change is necessary because the IBC changed this language in the 2012 edition and this will ensure the rule is coordinated with the 2012 IBC.

Subpart 7. IBC Section 3007, Fire Service Access Elevator. This subpart is new to the rule. IBC section 3007 was added to Chapter 30 after the September 11, 2001 attack on New York’s World Trade Center buildings. This section of the IBC applies to high rise applications with occupied floors more than 120 feet above the lowest level of fire department vehicle access. This requirement is being incorporated into the elevator code to recognize the changes in the building code that are not yet recognized in the elevator safety code standards. It will not impact the cost of elevator equipment, but it may have some impact costs on the building design.

Subpart 8. Occupant Evacuation Elevators. This subpart is new to the rule. IBC section 3008 was added to Chapter 30 after the September 11, 2001 attack on New York’s World Trade Center buildings. Section 3008 is only applicable where occupant evacuation elevators are installed. Unlike section 3007, section 3008 is optional. This requirement is being incorporated into the elevator code to recognize the changes in the building code that are not yet recognized in the elevator safety code standards. The building code does not require occupant evacuation elevators, but states what is required if they are installed.

1307.0110 MINNESOTA AMENDMENTS TO ASME A18.1-2011.

Subpart 1. ASME A18.1-2011 Section 2.1 Runways. See the “GENERAL” statement at the

beginning of the Rule-by-Rule Analysis section of this SONAR. This subpart is also modified by changing some section number references because the code renumbered the sections and changed the referenced dimensions from American to metric and metric to American. The previous edition referenced the imperial numbering as the hard number and the metric as the soft conversion. This hard number is now the metric number. This change is necessary to coordinate the rule with the new edition of the standard.

Subpart 2. ASME A18.1-2011 Section 2.7.1 Limitation of load, speed, and travel. This subpart is being repealed because the amendment is no longer needed. The A18.1 standard now incorporates the travel distance criteria language.

Subpart 3. ASME A18.1-2011 Section 2.10 Operating devices and control equipment. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. This subpart is also modified by changing the referenced dimensions from American to metric and metric to American. The previous code referenced the imperial numbering as the hard number and the metric as the soft conversion. This hard number is now the metric number. This change is necessary to coordinate the rule with the new edition of the standard.

Subpart 4. ASME A18.1-2011 Section 2.11 Emergency signals. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 5. ASME A18.1-2011 Section 2.12 Standby power. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. The section numbers in this subpart have been changed to coordinate with numbering changes made in the standard. Additionally, the language in section 2.12 regarding standby power for vertical lifts is revised to clarify the requirements for vertical lifts. The changes do not affect the use of the lift. The existing language caused confusion for industry personnel. These changes clarify the intent of the existing provision.

Subpart 6. ASME A18.1-2011 Section 3.6.8 Platform guarding. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 7. ASME A18.1-2011 Section 3.10.1 Operation. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. Additionally, this subpart is modified by adding

a sentence pertaining to the location of controls as defined in A117.1. This sentence is added to clarify the reach requirements to access the controls. This subpart is also modified by deleting the phrase “UP and DOWN” from the section. The requirement for both “UP” and “DOWN” buttons at each landing for both vertical platform lifts and inclined platform lifts is language from the A18.1-2005 code edition. It was subsequently dropped in the 2008 and 2011 editions of the A18.1. The A18.1 advisory committee believed that a requirement for UP and DOWN controls did not enhance end user safety as opposed to alternative methods (such as “CALL” controls). The “CALL” control is currently permitted in the adopted standards. Regardless of whether the lift is above or below the floor a person is on when the call button is held, the lift will approach the floor where the “CALL” button was pressed.

Deleting the phrase “UP and DOWN” will also coordinate the rule with the current A18.1 standard. It does not affect the use of the lift and will reduce the costs because lifts are generally sent out with a single call button for each floor. Requiring two buttons (“UP” and “DOWN”) would increase the cost of the lift by having to install two buttons.

Subpart 8. ASME A18.1--2011 Section 3.11 Emergency signals. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR.

Subpart 9. ASME A18.1--2011 Section 3.12 Standby power. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. Changes were made to section number references because the standard renumbered the sections. This change is necessary to ensure the user has correct references to sections in the standard.

The language in section 3.12 regarding standby power for vertical lifts is revised in this subpart to clarify the requirements for vertical lifts. The change does not affect the use of the lift. The existing language caused confusion for industry personnel. These changes clarify the existing intent of the provision.

Subpart 10. ASME A18.1--2011 Section 6.1.1 Clearances. See the “GENERAL” statement at the beginning of the Rule-by-Rule Analysis section of this SONAR. This subpart is also modified by changing the referenced dimensions from American to metric and metric to American. The previous code referenced the imperial numbering as the hard number and the metric as the soft conversion. This hard number is now the metric number. This change is necessary to coordinate the rule with the new edition of the standard.

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2015

MINNESOTA RESIDENTIAL CODE

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MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing Adoption of the 2012 International Residential Code, Minnesota Rules, Chapter 1309; Revisor's ID Number R-04144.

INTRODUCTION

The Commissioner of the Department of Labor and Industry proposes to adopt amendments to rules governing the Minnesota Residential Code, Minnesota Rules, chapter 1309. The proposed rules will incorporate by reference the 2012 International Residential Code ("IRC") with amendments.

In July 2007, the 2006 edition of the IRC became effective in Minnesota. The Department chose to skip the adoption of the 2009 edition of the IRC because of the drastic slowdown of the construction economy and the lack of technical experts available to assist the Department with the adoption. Accordingly, the Department currently administers and enforces the 2006 edition of the IRC with amendments, as contained in Minnesota Rules, chapter 1309.

The International Code Council ("ICC") publishes the IRC. The ICC reviews and modifies the ICC model codes every three years to incorporate the most current construction code criteria and to provide the construction industry with the most current code provisions for use throughout the nation. The IRC is the residential code that establishes minimum regulations for one-family dwellings, two-family dwellings, and townhouses using both performance and prescriptive provisions. The IRC is founded on broad-based principles that make possible use of new materials, methods, and building designs. The IRC principles are intended to establish provisions that are consistent with the scope of a residential code that adequately protects the public health, safety, and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

The Department utilized a Chapter 1309 Advisory Committee ("Advisory Committee") composed of residential construction stakeholders to provide the Commissioner with recommended changes to the 2012 edition of the IRC.⁷ Requirements for fire sprinkler systems were the most contentious subject discussed. Current rule requires that two-family dwellings and townhouses having floor areas exceeding 9250 square feet (859.35 m²) have automatic fire sprinkler systems installed. The 9250 square-foot threshold includes the floor area of all floors, including the basement and garage. The 2012 IRC model code requires that all one-family dwellings, two-family dwellings, and all townhouses have fire sprinkler systems installed. In this rulemaking, the Department accepts that all two-family dwellings and townhouses should have fire sprinkler systems installed as required in the model code. However, the Department proposes to amend the 2012 IRC model code so that single family dwellings have a fire sprinkler system installed only when they reach a threshold of 4,500 square feet. This was decided upon by the Commissioner based on research, committee, and stakeholder input, including approximately forty publications submitted to the Advisory Committee that were posted on the Department's rulemaking website. The 4500 square-foot threshold includes all floors and basement, but excludes garage floor area. Automatic fire sprinkler system requirements under the 2012 IRC and its amendments are more fully discussed in the Rule-By-Rule Analysis section that follows.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1309
MINNESOTA RESIDENTIAL CODE**

GENERAL

Throughout this rule in its entirety, references to the 2006 edition of the IRC are changed to 2012 because the Department is incorporating by reference the 2012 edition of the IRC.

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

Subpart 1. Generally. This rule subpart is modified by updating and replacing copyright information and permission that was provided by the International Code Council to the Department for incorporation of the 2012 IRC into this rule.

Subp. 2. Mandatory chapters.

Chapter 43, Referenced standards. This chapter is deleted and renumbered to Chapter 44 because the publisher added a new chapter to the code book, causing the Referenced Standards chapter to be renumbered.

P2904, Dwelling unit fire sprinkler systems. 2012 IRC, Section P2904 of Chapter 29, will become a mandatory section with the adoption of this rule. This section of the 2012 IRC is identified as one of the prescriptive fire sprinkler design methods for fire sprinklers required in IRC sections R302, R313 and R309. The content in this section did not exist in the 2006 IRC. Section P2904 is being required as a mandatory chapter in this rule to ensure proper design and enforcement of the code requirements for dwelling unit fire sprinkler systems. It is necessary and reasonable to include section P2904 as a mandatory chapter to provide effective and efficient use of fire sprinkler system designs.

IRC Appendix K, Sound transmission. This appendix is required as a mandatory appendix in Minnesota Rules, chapter 1309, because it will ensure proper design and will help enforce sound transmission requirements between two-family dwellings and townhouses. In the adoption of the 2006 IRC, Appendix K text was incorporated into section R317 in its entirety by amendment to prevent possible oversights by the design and enforcement industries. With the adoption of the 2012 IRC, the sound transmission requirements are incorporated by adding amendments to 2012 IRC, sections R302.3.2 and R302.5, which direct the user to

Appendix K. Appendix K requires that two-family dwellings and townhouses comply with the sound transmission requirements. It is reasonable and necessary to include Appendix K as a mandatory appendix chapter because the requirements are being carried forward and the amendment will continue to provide sound transmission protection between attached dwellings and townhouses.

Subp. 3. Subitems B, D and E. The reference to Minnesota Statutes, section 326B.115, in subitem B is deleted and replaced with a reference to the Minnesota Rule chapters that contain the residential and commercial energy codes. This amendment is necessary to ensure that the user is directed to the correct citation for the energy codes. Chapter references in subitems D and E are amended to reflect chapter and section renumbering that occurred in the 2012 IRC.

Subp. 4. Seismic or earthquake provisions. The existing rule deleted international model code requirements for seismic provisions in Minnesota with the 2006 IRC adoption. The current rule amendment is proposed for repeal. By repealing Minnesota Rules, part 1309.0010, subpart 4, Minnesota is subject to the seismic provisions in the IRC, which are incorporated by reference in Minnesota Rules, part 1309.0010, subpart 1. The Structural Advisory Committee recommended that the seismic provisions in the 2012 IRC model code document should apply in Minnesota because seismic provisions are necessary for practical application of all code provisions in the IRC. Adopting the 2012 IRC model code seismic provisions will impact current construction practices that were previously exempt from addressing IRC model code seismic concerns. However, Minnesota is located in Seismic Design Category “A,” as identified in 2012 IRC Table R301.2(1). Seismic Design Category “A” is the category that contains the least restrictive construction requirements. Adopting the 2012 IRC seismic provisions and allowing Minnesota code users to apply the least restrictive Seismic Design Category “A” provisions will have little, if any, effect on current residential construction practices because those provisions are so basic as applied to residential construction that they do not require the additional expenditure of construction resources. Moreover, as noted by the Structural Advisory Committee, adoption of the 2012 IRC seismic provisions will encourage uniform enforcement and further practical application of all the IRC code provisions.

Adoption of the 2012 IRC seismic provisions in this rulemaking will result in little to no cost increase for residential builders and designers. This amendment clarifies application of seismic code provisions and, when properly applied, will effectively maintain the status quo regarding residential construction practices in Minnesota.

1309.0020 REFERENCES TO OTHER ICC CODES.

Subpart 9. Energy conservation code. A reference to the Minnesota Rule chapters that contain the residential and commercial energy codes is added in place of the reference to Minnesota Statutes, section 326B.115, to direct the user to the correct citations for the energy codes.

1309.0030 ADMINISTRATIVE PROCEDURE CRITERIA.

The reference to Minnesota Statutes, section 16B.57, in this existing rule is deleted and replaced with section 326B.101 because the statute was renumbered by the Minnesota legislature during the 2007 Regular Session.

1309.0040 VIOLATION.

This existing rule is being repealed because Minnesota Rules, part 1300.0150, already establishes that violation of any part of the Minnesota State Building Code is a misdemeanor pursuant to Minnesota Statutes, section 326B.082. It is reasonable to repeal a rule that is repetitive and whose subject matter is more appropriately found in another more general rule chapter that already addresses administrative aspects of the State Building Code.

1309.0202 SECTION R202, DEFINITIONS.

Subpart 2. Additional definitions.

The definitions for the terms “connector” and “fastener” are deleted because of changes in the 2012 IRC. Minnesota Rules, part 1309.0802, Wood roof framing, amended 2006 IRC, section R802.10.5, by adding language that used the terms “connector” and “fastener.” As a result, the definitions for “connector” and “fastener” were added to the definition section in Minnesota Rules, part 1309.0202, during the previous code adoption to support the amendment located in Minnesota Rules, part 1309.0802. The 2012 IRC no longer contains section R802.10.5, but the language in that section is incorporated into 2012 IRC, section R802.11. Because section R802.10.5 no longer exists in the 2012 IRC, the definitions for “connector” and “fastener” located in Minnesota Rules, part 1309.0802, subpart 2, are being

deleted since the definitions to support the previous rule part are no longer necessary.

The definition for “code” is added to clarify that “the code” means the Minnesota Residential Code as adopted by Minnesota Rules, chapter 1309. It is reasonable to add the definition for clarity and effective use of the 2012 IRC.

The definition for “crawl space” is modified to coordinate with other code changes that reduce the minimum ceiling height for basements to 6 feet 4 inches (1931 mm). The existing definition identifies a crawl space as a “room” or “area” having a ceiling height of less than 7’-0”. The IRC does not provide a definition for “crawl space.” However, there are several rule amendments that use the phrase “crawl space,” including exemptions for stairs and smoke alarms. Therefore, it is necessary to define the term “crawl space.” The proposed definition is a modification to an existing Minnesota Rule that changes the minimum ceiling height of the space. It is necessary and reasonable to include a definition for “crawl space” to clarify the intent of other amended code sections involving these types of spaces.

The definition for “dampproofing” is deleted from subpart 2. The definition is no longer applicable for use in the 2012 IRC because section R406.1, Concrete and masonry foundation dampproofing, is being deleted in its entirety. Proposed Minnesota Rules, part 1322.0402, subpart 2, will require that all concrete and masonry foundations be waterproofed in accordance with 2012 IRC, section R406.2, regarding waterproofing. It is necessary and reasonable to delete the definition of “dampproofing” for consistency with the amendment to 2012 IRC, section R406.1.

The definition for “floor area” is added to subpart 2 because that term is not defined by the 2012 IRC and it is necessary to establish uniform application of the State Building Code as it applies to fire sprinkler system installation requirements. The proposed rule language for IRC section R313 requires that fire sprinkler systems are required for all two-family dwellings, townhouses, and one-family dwellings of 4,500 square feet or more in floor area (excluding the garage). The proposed definition of “floor area” clarifies that only the floor area within the perimeter exterior walls is the area used to determine whether fire sprinkler systems are required for one-family dwellings. This definition will eliminate confusion with the definition of “floor area” as used in the 2012 IBC. The 2012 IBC definition includes floor areas under a roof or projection not provided within surrounding walls. It is therefore reasonable to add the definition of “floor area” to the proposed rules to alleviate confusion between

definitions and requirements under the IRC and IBC, as well as to encourage uniform enforcement of the code.

The definition for “pan flashing” is deleted from subpart 2 because the definition and requirements for “pan flashing” are now included in the 2012 IRC. Section R703.8 of the 2012 IRC addresses and defines “pan flashing,” so the amendment containing the definition is no longer required. It is reasonable to delete a definition that is incorporated into the 2012 IRC document.

The definition for “stair” is deleted from subpart 2 because the definition for “stair” is now included in the 2012 IRC, section 202. It is reasonable to delete the current definition for “stair” from subpart 2 and use the definition in the IRC code book to provide consistency and ease of use.

The definition for “story above-grade plane” is deleted from subpart 2 because it is included in the 2012 International Building Code (“IBC”) and the IRC. Therefore, this definition is no longer necessary. It is reasonable to delete the current definition from subpart 2 and use the definition in the IRC code book to provide consistency and ease of use.

The definition of “sill height” is added to subpart 2 to define how and where the sill height is measured as referenced in the 2012 IRC, section R310.1, Emergency escape and rescue required. The definition is necessary to clarify confusion about how and where the sill height is actually measured. This concept is also discussed in the 2012 IRC, section R312.2, Window fall protection, however, the term “sill height” is not actually used. The incorporation of this definition into the code is necessary to provide uniformity because the concept is referenced in two different ways. It is therefore reasonable to add the definition to the Minnesota State Building Code for clarity and effective use of the 2012 IRC.

1309.0301 DESIGN CRITERIA.

Subpart 1. R301.1.4. This subpart amends 2012 IRC, section R301.1.4, Automatic sprinkler systems (general). The subpart, which includes subsections R301.1.4, R301.1.4.1, and R301.1.4.2, is being repealed. The Advisory Committee recommended deleting this amendment and using the 2012 IRC for sprinkler provisions and installation requirements instead, which are located and addressed in section R313 in the 2012 IRC.

The current amendment to section R301.1.4.1 contained in subpart 1 regarding state licensed facilities for IRC-1, IRC-2, and IRC-3 occupancy classifications is being moved to Minnesota Rule, part 1309.0313. The

amendment to 2012 IRC, section R313.3, is needed to prevent possible conflicts between the IRC and state licensed facilities, and their licensing requirements regarding fire sprinkler system installations. The amendment requires that the most restrictive provisions of the IRC or state licensing agency apply. It is reasonable to delete the current amendment for section R301.1.4.1 and to relocate the current requirements to 2012 IRC, section R313.3, to provide effective and efficient use of the code and to prevent possible confusion with code interpretations. It is reasonable to repeal the current amendment language regarding automatic sprinkler systems because these requirements are now incorporated in the 2012 IRC, section R313, and are no longer necessary.

Subp. 2. Table R301.2(1). This subpart is modified by deleting Table R301.2 (1), Climatic and Geographic Design Criteria, including its footnotes, and replacing it with a new Table 301.2(1) and footnotes.

This table was previously amended by deleting certain information with the 2006 IRC adoption. However, that amended table failed to include the column titled “Ice Barrier Underlayment Required.” This omission created a code tracking problem for the ice barrier installation being required. Most code enforcement personnel understood that, historically, Minnesota had the potential for ice damming issues and enforced it accordingly. Nevertheless, some industry personnel failed to enforce the requirements for ice barriers because of the tracking problem.

To address this problem, the Advisory Committee recommended that the entire 2012 IRC Table R301.2(1), as amended, be adopted in Minnesota rule, thus offering more clarity to industry personnel when using the code. The amended table contained in this proposed rule identifies as many column conditions as possible for the user. Some column headings, however, will not be applicable throughout the entire state. Additionally, some Minnesota jurisdictions will need to specifically address column headings for Flood Hazards and Termites, if applicable to their local conditions. It is reasonable to amend the existing rule for Table R301.2 (1) to provide for more ease of use and uniform code enforcement.

Subp. 4. Table R301.5. This table is repealed because it is no longer needed. The existing rule amendment for Table R301.5 adds language to footnote “g” of Table 301.5 (Minimum Uniformly Distributed Live Loads) to include additional requirements for uninhabitable attics. These requirements were not included in the 2006 IRC table. The 2012 IRC has a revised Table R301.5 and now includes the requirements

under footnote “g” for uninhabitable attics. Therefore, the existing rule amendment is no longer needed and it is therefore reasonable to repeal the same.

1309.0302 SECTION R302, FIRE-RESISTANT CONSTRUCTION (new title).

Section R302, Exterior wall location, in the 2006 IRC has been revised and re-titled in its entirety in the 2012 IRC to become “Section R302, Fire-resistant construction.” This section now contains all of the fire-resistant construction requirements located in one section. The title of this rule part is therefore changed to “1309.0302 Section R302, Fire-resistant construction” to more accurately reflect the revisions and title change of section R302 in the 2012 IRC.

The existing amendment to section R302.1, Exterior walls, is being deleted because the requirements in this section are revised in the 2012 IRC. The Advisory Committee recommended that 2012 IRC, section R302.1, was acceptable as revised by the ICC and that there was no longer a reason to amend section R302.1 with the adoption of the 2012 IRC. It is reasonable to delete the existing amendment to section R302.1 and use the 2012 IRC, section R302.1, because the updated language of section R302.1 no longer needs to be revised by rule.

Subpart 1. R302.2, Townhouses. This subpart contains the 2012 IRC requirements for townhouses, but incorporates some modifications to the language for clarity and carries forward some existing rule language for townhouses. The current language is deleted and replaced with new amendments to Section R302.2.

In section R302.2, Townhouses, the language in the exception is modified to delete the reference to “Chapters 34 through 43.” These chapters pertain to electrical requirements. Minnesota’s Electrical Code is located in Minnesota Rules, chapter 1315, and is mandatory in Minnesota. To coordinate this requirement with Minnesota’s Electrical Code, the reference to chapters 34 through 43 are deleted and replaced with a reference to Minnesota Rules, chapter 1315. This modification is necessary to ensure that this amendment is consistent with the Minnesota’s Electrical Code and prevents possible conflict between the rules.

In subsection R302.2.1, Continuity, the IRC language is amended by adding the word “roof” before the reference to “deck” and “slab” to provide clarity. Section R302.2.1 is further amended by adding a sentence at the end that states, “[t]he separation shall extend through enclosed soffits, overhangs, and similar projections.” This sentence defines the extent of the fire-resistant rating required at these construction features. These changes are

in the existing IRC amendments and are being carried forward because they better specify the termination point of the fire resistive walls and projections to ensure uniform enforcement. Section R317.2.1 of the 2006 IRC was renumbered and relocated in the 2012 IRC to section 302.2.1. It is necessary to carry forward the existing amendment to provide more uniform code enforcement.

In subsection R302.2.2, Parapets, the language is unchanged from the 2012 IRC, but the subsection is included in the proposed rule to provide context to the entire amendment. Including this language will clarify to the user that the subsection applies and is not deleted from the code.

Table R302.1 (1) Exterior Walls. The 2006 IRC included Table R302.1.1 for exterior walls. The 2012 IRC now incorporates two tables: Table R302.1 (1) Exterior Walls; and Table R302.1 (2) Exterior Walls-Dwellings with Fire Sprinklers. These tables identify specific construction requirements for exterior wall elements as they relate to their location to the lot line.

Table R302.1 (1) Exterior Walls, is amended by adding footnote “a,” which requires “1 hour on the underside equates to one layer of 5/8” type X gypsum sheathing. Openings are not permitted.” This footnote was included by amendment in Table R302.1 of the 2006 IRC to coordinate the requirement for a one-hour fire-resistance on the underside of projections with the same requirement in other parts of the Minnesota State Building Code. The footnote provided a reasonable and acceptable method of compliance without having to obtain a listed one-hour assembly. Footnote “a” is therefore added to Table R302.1 (1) to carry forward that existing requirement.

Table R302.1 (2) Exterior Walls- Dwellings with Fire Sprinklers. Table R302.1 (2) Exterior Walls-Dwellings with Fire Sprinklers, is amended by deleting the 2012 IRC footnote “a” text and replacing it with the same amended footnote for Table R302.1(1). The 2012 IRC footnote “a” reads: “For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler systems [*sic*] installed in accordance with section P2904, the fire separation distance for nonrated exterior walls and rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard of 6 feet or more in width on the opposite side of the property line.” The Advisory Committee recommended that Table R302.1 (2)’s footnote “a” be deleted due to the lack of a definition for the term “subdivision” used in the 2012 IRC Table’s footnote. The proposed footnote “a” states “1 hour on the underside equates to one layer of 5/8” type X

gypsum sheathing. Openings are not permitted.” This footnote was part of Table R302.1 in the 2006 IRC. The footnote is added to coordinate the requirement for a one-hour fire-resistance on the underside of projections with the same requirement in other parts of the Minnesota State Building Code. The proposed footnote provides an acceptable method of compliance without having to obtain a listed one-hour assembly. The footnote to Table R302.1 (2) is therefore added to carry forward the current requirement.

For subsections R302.2.3, Parapet construction and R302.2.4, Structural independence, the 2012 IRC language is unchanged, but the subsections are included in the amendment to provide context to the entire amendment. Including this language will clarify to the user that the subsection applies and is not deleted from the code.

R302.2.5 Sound transmission. The Department amended section R317 of the 2006 IRC to incorporate the sound transmission text from Appendix K into section R317. This amendment provided easier access to the information and acted as a reminder to the user about sound transmission requirements. Both the 2006 and 2012 IRC editions failed to include tracking to the requirements in Appendix K for two-family and townhouse structures, so it is still necessary to include an amendment to direct the user to Appendix K for sound transmission requirements. The 2012 IRC renumbered and retitled the 2006 IRC, section R317, Dwelling unit separation, which is now R302 Fire-retardant construction. The amendment to section R302.2.5, Sound transmission, is needed and reasonable because it will provide uniform code enforcement and design for users of the 2012 IRC.

Subp. 2. R302.3, Two-family dwellings.

R302.3.2 Sound transmission. Section R317.1 of the 2006 IRC was amended to add the sound transmission requirements from Appendix K into section R317 by adding a new section R317.4, Sound transmission. This amendment provided easier access to the information and served as a reminder about sound transmission requirements. Neither the 2006 nor the 2012 IRC documents included tracking to Appendix K for two-family and townhouse structures, therefore, it is still necessary to include an amendment to direct the user to Appendix K for sound transmission requirements for two-family and townhouse structures.

The 2012 IRC renumbered and retitled the 2006 IRC, section R317, Dwelling unit separation, which is now numbered section R302 Fire-retardant construction. The proposed new amendment is reasonable and necessary because it will provide uniform code

enforcement and design for all users of the 2012 IRC.

Subp. 3. R302.5.1, Opening protection. 2012 IRC, Section R302.5.1, is amended by deleting the text “equipped with a self-closing device” from the last sentence of the section. The code language pertains to openings between the garage and residence and applies to a door opening or other openings between a garage and the residence. The requirement for self-closing devices was previously included in the 2000 IRC, but omitted from the 2006 IRC model code requirements, then reappeared in the 2012 IRC code.

This amendment is necessary because it eliminates a potential for injury to small children. There has been no indication in Minnesota of a need for self-closing devices. The amendment is reasonable because it does not impose unnecessary and unjustified requirements on the public.

Subp. 4. R302.6, Dwelling/garage fire separation. Table R302.6, Dwelling/garage fire separation, in the 2012 IRC is amended to provide additional clarity to the model code text.

The “Material” column is amended by adding a sentence that states, “Vertical separation between the garage and the residence attic shall extend to the roof sheathing or rafter blocking” following “Not less than ½-inch gypsum board or equivalent.” This additional sentence helps clarify that the wall-separation material on the garage side of the residence between the garage and the attic shall extend up to the roof sheathing or to the rafter blocking to provide a fire separation wall between the garage and residence. This amendment is necessary and reasonable because it will not require sheet rock to be installed around the rafter block, but instead can stop at the rafter block, which will save time, expense and extra materials. This language is not contained in the IRC and is necessary to ensure uniform enforcement.

TABLE R302.6 DWELLING/GARAGE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch gypsum board or equivalent applied to the garage side. Vertical separation between the garage and the residence attic shall extend to the roof sheathing or rafter blocking.
From all habitable rooms above the garage	Not less than 5/8-inch Type X gypsum board or equivalent
Structural members supporting floor/ceiling assemblies or garage ceiling used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent applied to the garage side of structural members supporting the floor/ceiling assemblies or garage ceiling. Structural members include, but not limited to: walls, columns, beams, girders, and trusses.
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

Table R302.6 is further modified by amending the third row under the “Separation” column. The language currently reads “Structure(s) supporting floor/ceiling assemblies used for separation required by this section.” This language is amended to read, “Structural members supporting floor/ceiling or garage ceiling used for separation required by this section.” This modification will now permit designers and contractors to use the garage floor/ceiling assembly above the garage space as a horizontal “fire wall” between the residence and garage instead of requiring a vertical “fire wall.” This provides the designer or contractor with an alternate method of fire separation between the residence and garage. Having an alternate (horizontal) method for the

installation of fire separation is needed and reasonable because it will provide a more practical installation method if vertical framing conditions may make installation too difficult and unreasonable. Adding the text “structural members” identifies what must be fire protected and is further explained in the “Material” column where the structural members are identified as walls, columns, beams, girders, and trusses. Adding the phrase “or garage ceiling” will provide clarity because the code, as written, has confused code users who have interpreted that requirement to apply only to garage ceilings that have floor systems above.

Table R302.6 is further modified by amending the third row under “Material” that currently reads, “Not less than 1/2-half inch gypsum board or equivalent.” The amended language reads, “Not less than 1/2-inch gypsum board or equivalent applied to the garage side of structural members supporting the floor/ceiling assemblies or garage ceiling. Structural members include, but are not limited to: walls, columns, beams, girders, and trusses.” This modification expands the requirements that identify which structural members are required to be covered by 1/2-inch gypsum board or equivalent material, which will, in turn, permit the use of the garage ceiling or garage floor/ceiling as a horizontal fire separation between the residence and garage when the installation of vertical separation would be too difficult. This amended language is intended to clarify that any structural member that supports the garage ceiling or garage floor/ceiling when used as a horizontal fire separation must be protected with 1/2-inch gypsum board or equivalent material. This modification will help provide uniform application and enforcement.

Table R302.6 is also amended by modifying the fourth row in the “Material” column that currently reads, “Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area.” This language is amended by adding a sentence that reads “This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit walls.” The added text clarifies that only garage walls that are parallel and less than 3 feet from the dwelling require the fire separation material to be installed. The requirement does not apply to garage walls that are perpendicular to the dwelling even if they are within 3 feet. Without this amendment, small portions of garage walls that are perpendicular to the dwelling would require protection. The small portion of perpendicular garage wall that would require protection would not significantly alter the fire protection already provided by the walls that are parallel to the dwelling and protected. This amended language is reasonable and necessary to ensure uniform application and enforcement.

1309.0305 SECTION R305, CEILING HEIGHT.

R305.1, Minimum height, new buildings (new section title). This section is amended by using the base language from 2012 IRC, section R305.1, Minimum height, and by expanding the ceiling height requirements to specifically address new buildings, basements of new buildings, and alterations to existing building basements. The proposed language is a combination of the amended language for this section and the amended definition for “crawl space,” located in 2012 IRC, section R202.

This modification is necessary because conflicts exist for jurisdictions throughout Minnesota related to requests to finish a basement space that has less than a seven-foot ceiling height and is technically a “crawl space,” by definition. Jurisdictions often refuse to issue a building permit to finish a space that is technically defined as a crawl space. In many cases, the homeowner ultimately finishes the space without permits or inspections. Other jurisdictions issue permits for a space that is technically defined as a crawl space. Those jurisdictions justify their actions as being more important to inspect the work to verify code and life safety compliance than it is to adhere to the definitional limitation. The amendments to this section are therefore intended to create more uniform enforcement throughout Minnesota in the future.

Amendments to IRC section R305.1 mirror the text in section R305.1 of the 2012 IRC, but a sentence is added concerning the measurement of the floor to ceiling height and the title of the section is changed. The title change is necessary to better describe that the section pertains to ceiling heights for new buildings, basements of new buildings, and alterations to existing building basements. This rule part also amends the section so that the text will mirror the 2012 IRC section text. The last sentence of the current amendment stating “areas or rooms with ceiling heights less than 7 feet (2134mm) are considered crawl spaces” is being deleted because it conflicts with the new “crawl space” definition located in section R202. The amendment adds the second sentence to clarify how the ceiling height is determined.

The exceptions in this section are amended to reflect changes made to the 2012 IRC and other modifications for clarity. Exception 1, pertaining to beams and girders with respect to ceiling height, is deleted and replaced with the ceiling height requirements for sloped ceilings as written in the 2012 IRC. The requirements for beams and girders is relocated as an exception to basements of new buildings (R305.1.1) and included in the text for alterations to existing building basements (R305.2) to encourage uniform enforcement.

Exception 2 addresses minimum ceiling heights in front of water closets, bidets, or sinks and specifically includes the phrase “water closets, bidets, or sinks,” which replaces the 2012 IRC text “fixtures as shown in Figure R307.1.” The Advisory Committee recommended that “bidets and sinks” be included with the water closet clearance requirements since these fixtures require an adequate ceiling clearance space for use. Moreover, the illustrations in Figure R307.1 do not comply with the Minnesota State Plumbing Code requirements and are also removed for that reason. The deleted text regarding sloped ceiling heights is relocated to exception 1 to maintain consistency with the 2012 IRC format.

R305.1.1, Basements, new buildings (new section title). Section R305.1.1 is added based on the changes to the 2012 IRC. The code language is the same as the 2012 text with the exception of adding the phrase “new buildings” following the term “basements” located in the section title. The title change is necessary to better describe that this section pertains to basement ceiling heights for new buildings only.

This section is specific to basements of new buildings and establishes a minimum ceiling height permitted for these basements and accommodates the space needed for beams, girders, ducts, and other obstructions by exception. The Advisory Committee’s recommendation was to recognize specific ceiling height requirements for new buildings, basements of new buildings, and alterations made to existing building basements to provide more uniform enforcement.

R305.2, Alterations to existing building basements. The amendment to this section adds a new section R305.2 to the model code to address issues associated with finishing basements in existing buildings. Code officials have been put in a difficult position when the finished ceiling of a remodeled basement does not meet the minimum ceiling height of 7 feet required by the amendment to R305.1 in the 2006 IRC. Even with the exception for beams, girders, ducts, or other obstructions in the current R305.1, many remodeled basements in Minnesota do not meet the minimum requirements in the code. The modification to this section will provide code officials with requirements that will permit homeowners to convert basements into a habitable space if the space does not meet the minimum ceiling height requirements in the 2012 IRC. This amendment is necessary and reasonable because there are a significant number of homes in Minnesota that contain unfinished basements that may have a mechanical room, laundry room, or storage space. Homeowners often finish their basements to convert it to more habitable space. This is one of the most cost effective ways for a homeowner to add a bathroom, bedroom, playroom, or den.

R305.2.1, Minimum ceiling height, existing buildings. This is a new amendment added to provide ceiling height requirements for basement ceilings less than 7 feet in height. Section R305.1 requires a minimum ceiling height of 7 feet for new buildings. This new amendment permits a ceiling height of not less than 6 feet 8 inches, but also provides an exception for ceilings with beams, girders, ducts, and other protrusions. The exception states that the protrusions must not extend beyond a 6 foot 4-inch ceiling height and does not permit any exceptions to that ceiling height. This amendment is necessary to address existing buildings that have basement ceiling heights less than 7 feet. Similar language exists in the current code, however this amendment permits a 6 foot 8-inch ceiling height and a 6 foot 4-inch ceiling height with projections, which are specific to existing buildings, rather than new construction.

R305.2.1.1, Bathroom plumbing fixture clearance. This is a new amendment that provides a minimum ceiling height requirement of 6 feet 4 inches for bathrooms. The amendment also provides a minimum ceiling height of 6 feet 4 inches for tubs and showers equipped with a showerhead. This amendment is needed to clarify that accommodations are needed to address ceiling heights at plumbing fixtures when the minimum ceiling height is reduced to 6 feet 4 inches in lieu of that for new buildings and it also addresses minimum ceiling heights for water closets, bidets, or sinks. Similar language exists in the current code, however, this amendment permits a 6 foot 4-inch minimum ceiling height at plumbing fixtures, which are specific to existing buildings rather than new construction.

R305.2.2, Minimum stairway headroom, existing buildings. This is a new amendment that provides minimum headroom in all parts of the stairway of not less than 6 feet 4 inches when altering an existing basement stairway. The amendment also provides an exception for stairways where stair tread nosings at the side of the flight extend under the edge of the floor opening. This amendment is necessary to clarify minimum headroom requirements for stairways. Specifically, the amendment provides accommodations to address minimum stairway headroom when the minimum ceiling height for existing buildings is reduced to 6 feet 4 inches in lieu of the requirement for new buildings. The amendment is also needed to clarify how the headroom should be measured from the adjoining tread nosing at landings or platforms and also addresses a permitted horizontal projection into the headroom area to accommodate conditions that may be present in existing buildings. Similar language exists in the current code, however, this amendment permits a 6 foot 4-inch minimum clearance for stairway headroom, which is specific to existing buildings rather than new construction.

The amendments to Section R305 are needed and reasonable because it aligns the realities of Minnesota's new buildings, new basements, and existing buildings for acceptable ceiling heights. These amendments merge market realities and encourage life and safety minimums to basements previously recognized as crawl spaces. There will be no cost increase to residential builders and designers. Costs for owners should decrease because the costs to update basement ceilings to meet the minimum height requirements are reduced or eliminated.

1309.0307 SECTION R307, TOILET, BATH AND SHOWER SPACES.

R307.1, Space required. Section R307.1 of the 2012 IRC pertains to the minimum clearances for plumbing fixture installations. The amendment deletes the text in section R307.1, Space required, and replaces it with the following language: "Fixtures shall be installed in accordance with Minnesota Rules, chapter 4715, the Minnesota Plumbing Code." The illustrations in figure R307.1 conflict with the provisions of the Minnesota Plumbing Code. The reference to the 2012 IRC, section P2705.1, is also deleted since this section is not incorporated into this rule. Further, the International Plumbing Code is not adopted in Minnesota.

The amendment is necessary and reasonable because it eliminates the conflict between this code and the Minnesota Plumbing Code, and it continues to provide a standard for the industry and homeowners to follow, which has been in the code for decades.

1309.0309 SECTION R309, GARAGES AND CARPORTS.

Subpart 1. R309.1, Floor surface. This subpart is amended to change the code section reference number only. The section was renumbered from R309.3 in the 2006 IRC to R309.1 in the 2012 IRC. The content of the subpart remains the same. It is reasonable to amend section references to ensure consistency with the 2012 IRC.

Subp. 2. R309.2, Carports. This subpart is amended to change the code section reference number only. The section was renumbered from R309.4 in the 2006 IRC to R309.2 in the 2012 IRC. The content of the subpart remains the same. It is reasonable to amend section references to ensure consistency with the 2012 IRC.

Subp. 3. R309.4, Automatic garage door opening systems. This subpart is amended to change the code section reference number only. The section was renumbered from R309.6 in the 2006 IRC to R309.4 in the

2012 IRC. The content of the subpart remains the same. It is reasonable to amend section references to ensure consistency with the 2012 IRC.

Subp. 4. R309.5, Fire sprinklers. This subpart is amended to delete section R309.5, Fire sprinklers, in its entirety and to replace it with new language that addresses fire sprinkler requirements in attached garages. In the 2012 IRC requirements, as written for attached garages, fire sprinklers only apply when footnote “(a)” of Table R302.1(2) is used. The recommendation of the Advisory Committee was to delete footnote “(a)” because the footnote does not contain a definition for the term “subdivision” used in the footnote. By deleting the footnote, the section became irrelevant for the purpose of this requirement. Therefore, the entire section is deleted and replaced with new language.

2012 IRC, section R309.5, Fire sprinklers, is amended to require that when a garage is attached to a townhouse, two-family dwelling, or a 4,500 square feet or more single-family dwelling, the garage must be protected by fire sprinklers. The garage fire sprinkler system requirements for two-family dwellings and townhouses are based on the amended 2006 IRC, section R301.1.4, requirements. The garage fire sprinkler system requirements for one-family dwellings with 4,500 square feet or more are based on determinations made by the Commissioner in accordance with the 2012 IRC, section R313, as amended. The Commissioner’s rationale pertaining to the 4500 square-foot requirement is located below in the SONAR for proposed Minnesota Rules, part 1309.0313, which amends 2012 IRC, section R313.2.

The amendment to section R309.5 is necessary and reasonable because it carries forward the current requirements regarding fire sprinkler protection for garages attached to townhouses and two-family dwellings, and clarifies the requirements for garages attached to one-family dwellings with a floor area of 4,500 square feet or more. These requirements will help protect attached garages at the common door between the house and garage, since attached garages are exempted from sprinkler requirements in section P2904, Dwelling Unit Fire Sprinkler Systems, of the 2012 IRC.

There will be no cost increase to residential builders and designers for two-family dwellings and townhouses that already require fire sprinklers due to the threshold of 9250 square feet in the current rule. However, there will be a cost associated with fire sprinklers for two-family dwellings and townhouses that were previously exempt from the current 9250 square feet threshold. There also will be a cost associated with fire sprinklers for one-family dwellings with a floor area of 4500 square feet or more under the proposed rule. Costs

associated with fire sprinklers are explained and discussed further below in the SONAR for proposed Minnesota Rules, part 1309.0313.

As a result of the public hearing:

Part 1309.0309, subpart 4, and Part 1309.0313 of the proposed rules are amended by excluding single-family dwellings from the dry head sprinkler requirements for attached garages, covered patios, covered decks, covered porches and similar structures. Several people submitted comments and testimony at the hearing below urging the Department to exclude this dry head installation requirement from single-family dwellings due to increased costs, lack of common walls between unrelated dwellings, and the potential for malfunction due Minnesota’s inclement weather conditions. Because single-family dwellings are not attached to other family structures by a common wall between them, the Department agrees that the need for installation of sprinkler heads in common, exterior fire spread points such as garages and covered porches is not as critical as it is for attached multi-family dwellings. This exclusion is also reasonable as it tends to lower construction costs while not significantly impacting the safety of single-family dwelling residents, first-responders, and fire service personnel. *See* Minn. Stat. §326B.101 (2012) (“The construction of buildings should be permitted at the least possible cost consistent with recognized standards of health and safety”).

This change does not make the rule substantially different from the proposed rules because it is clearly within the scope of the adoption of the 2012 International Residential Code as announced in the October 28, 2013 notice of hearing and intent to adopt rules governing the State Building Code. The change is also a logical outgrowth of the contents of the notice of hearing and the proposed rule’s publication which provided fair warning to all stakeholders that the outcome of the underlying rulemaking proceeding may include changes to the residential sprinkler installation requirements of the 2012 International Residential Code. Finally, the modification is being made at the request of those submitting comments and testimony at the hearing below and in direct response to the issues and concerns raised by those who are directly affected by the contents of the proposed rule. Accordingly, the change is supported by the record below as needed and reasonable, does not constitute a substantial change from the proposed rule, and is made within the Department’s authority under Minnesota law.

1309.0310 SECTION R310, EMERGENCY ESCAPE AND RESCUE OPENINGS.

R310.1, Emergency escape and rescue required. This section is amended by adding new

language to the second sentence of the main code book section and by adding two new exceptions. The second sentence in 2012 IRC, section R310.1, currently reads, “Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room.” This sentence is being modified by adding language to the end of the sentence that reads, “but not be required in adjoining areas of the basement.” This language was in the 2006 IRC but was removed from the 2012 IRC model code. The proposed language does not require an additional emergency escape and rescue opening in an adjacent area such as a family room, storage area, or an unfinished basement area. This change will maintain the current code requirements while providing uniform enforcement of the emergency escape and rescue opening requirements regarding basements.

Exception 1 of section R310.1 remains the same as written in both the 2006 and 2012 IRC. Exception 2 of section R310.1 is added to provide an option for new or existing basements or basement bedrooms if the building is protected with an automatic sprinkler system. In some cases, it may be more practical financially to install a fire sprinkler system in lieu of emergency escape and rescue openings due to the building’s foundation design, soil type, or water table. This modification is necessary and reasonable because it will allow buildings to omit emergency escape and rescue openings when the building has a fire sprinkler system installed throughout. This option may be a cost savings in cases where an emergency escape and rescue opening would be more expensive to install than the fire sprinkler system. The current code permitted this exception only for apartment buildings, but with this modification, the option will extend to all basements or basement bedrooms.

Exception #3 of section R310.1 is added in the amendment to provide another option for emergency escape and rescue opening requirements in basements or basement bedrooms that must comply with all the conditions listed in the exception. The first condition applies to buildings constructed prior to August 1, 2008, when the Minnesota State Building Code was recognized as the standard of construction for the State of Minnesota. Buildings constructed prior to that date were not mandated to comply with the Minnesota State Building Code requirements. Therefore, buildings with basements or basement bedrooms constructed prior to that date would be exempt. The second condition requires that the building must be undergoing an alteration or repair. The third condition identifies specific requirements under which a fire sprinkler system may be utilized in lieu of the required emergency escape and rescue opening. This condition requires that an automatic fire sprinkler system be installed throughout the entire basement area when all portions of the means of egress to the level of exit

discharge, and all the areas on the level of exit discharge that are open to the means of egress, are protected with an automatic sprinkler system in accordance with Section P2904 of the IRC or NFPA 13D. Exceptions #2 and #3 present reasonable options in lieu of installing emergency escape and rescue openings for basements or basement bedrooms when fire sprinkler systems are installed. The amended exceptions are also reasonable because they offer alternate methods of life safety by installing fire sprinkler coverage instead of constructing and installing emergency escape and rescue openings. Fire sprinklers have been shown to be effective and permit building occupants sufficient time to escape a potential fire hazard.

Costs associated with this proposed rule could potentially decrease by providing an alternative to the installation of an emergency escape and rescue opening and opting to instead install a fire sprinkler system. The installation of an emergency escape and rescue opening can be very expensive and complex and can involve an alteration to the foundation and soils surrounding the home.

R310.1.1, Minimum opening area; R310.1.2, Minimum opening height; and R310.1.3, Minimum opening width. Sections R310.1.1 to R301.1.3 mirror the 2012 IRC code sections and have no changes, but are included in the rule text to provide context to section R310.1.

R310.1.4, Operational constraints. Section R310.1.4 adds an exception regarding windows that have installed window opening control devices. This exception is intended to permit the installation of window opening control devices on window units to provide window fall protection. The Department learned that some jurisdictions have prohibited the installation of window control devices, citing IRC section R310.1.4, Operational constraints, which states, “Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools, or special knowledge.” Those jurisdictions that have prohibited the installation of the devices believed that the window control devices required special knowledge for occupant use. The Department determined, however, that the window opening devices require no more special knowledge than opening the window unit itself and encourage homeowners to install such devices to protect their children. This amendment is consistent with the current DLI Division Opinion #2011-01 that was requested by Bryan Horton of Renewal by Andersen and uses the same language as in the division opinion.

The exception in section R310.1.4 requires that the window opening control devices be approved and installed in accordance with ASTM F 2090, provided the

devices do not require the use of keys, tools to operate, or special knowledge. An approved ASTM F 2090 device installed in accordance with the manufacturers' installation instructions is not considered to be an installation requiring "special knowledge." The amended language is reasonable because it will provide uniform enforcement throughout Minnesota and allow homeowners to protect their children from window falls.

R310.1.5, Replacement windows. Several amendments have been made to this section to clarify existing language and to coordinate certain requirements for replacement windows in licensed facilities that are used for daycare and foster care.

The first sentence is modified to provide plain language for the benefit of the user by replacing "meeting the scope of" with "regulated by." Additionally, the first sentence is modified by deleting the word "requirements" and adding the phrase "maximum sill height requirements." This change clarifies that replacement windows are exempt from the sill height requirements only, and not all of the requirements in section R310.1. This sentence is also amended by adding "including subsections" preceding "R310.1.1, R310.1.2, and R310.1.3." These sections pertain specifically to the minimum opening area, minimum opening height, and minimum opening. These changes are necessary to clarify that replacement windows are exempt from the maximum sill height, minimum opening area, minimum opening width, and minimum opening height requirements if they meet the conditions listed in the rule. A new definition for "sill height" is proposed in Minnesota Rule, part 1309.0202, to provide additional clarity to the amendment in this section.

The current amendment deletes conditions #1, #2 and #3. The language in condition #1 has been amended and added to the body of section R310.1.5. Condition #1, as added to the body of R310.1.5, deletes "The replacement window," which is already in the text of the section, so it is not necessary. The current text is further amended by deleting the word "a" immediately preceding the phrase "greater window opening than the existing window," and replacing it with the phrase "an equal or." These changes will allow the replacement window to be the same style (i.e. double hung, casement) as the original window or a different style, as long as the area of the window opening is the same size or larger than that of the original window. The existing language requires a replacement window of a different style to have a larger window opening than the original window. This change will offer more flexibility with replacement windows, but still maintain life safety.

Condition #2 regarding replacement windows for state licensed or registered buildings is deleted and relocated to section R310.1.5.1 (new subsection).

Condition #3 is deleted in its entirety. Municipal rental housing ordinances can and do vary from municipality to municipality in Minnesota. However, one main purpose of the Minnesota State Building Code is to provide "basic and *uniform* performance standards." See Minnesota Statutes, section 326B.101, Policy and Purpose (emphasis supplied). The current amendment which permits variations from municipality to municipality in addressing replacement windows for rental housing units is contrary to section 326B.101's stated purpose. Therefore, it is necessary and reasonable to delete the existing amendment in its entirety.

R310.1.5.1, Licensed facilities (new). This amended section includes a new subsection R310.1.5.1, titled "Licensed facilities." The amended language states that rooms used for foster care or daycare which are licensed or registered with the State of Minnesota must comply with conditions "a" through "d" or section R310.1.5, whichever is more restrictive. This amended language was based on a current policy enforced by the Minnesota State Fire Marshal Division. The State Fire Marshal Division has had problems concerning replacement windows based on the current IRC, section R310.1.5. Individuals have replaced windows, sought foster care or daycare licensing or registration, and subsequently learned that some windows were non-compliant with the requirements for that licensing or registration agency. This amended language will inform code users and stakeholders that foster care or licensed or registered daycare in the State of Minnesota must comply with sections R310.1.5 or R310.1.5.1, whichever is more restrictive. This proposed amendment is reasonable and necessary because it clarifies window replacement requirements for rooms used for licensed foster care or daycare and will provide uniform enforcement of the code for both building officials and between state agencies.

1309.0311 SECTION R311, MEANS OF EGRESS.

This rule part is modified by deleting the existing language pertaining to landings at doors and is replaced with new language about similar subject matter. The proposed rule part is being divided into subparts to more clearly identify separate code book subsections within section R311. The existing amendment is deleted because the 2006 IRC sections were renumbered and revised in the 2012 IRC.

Subpart 1. R311.3.2, Floor elevations for other exterior doors. This section was previously section R311.4.3.2 in the 2006 IRC. The Advisory

Committee recommended keeping the 2012 IRC text as written, but modified the exception in Section R311.3.2. The amended exception reads, “A landing is not required if a stairway less than 30 inches (762 mm) in height is located on the exterior side of the door, provided the door does not swing over the stairway. The stairway height shall be measured vertically from the interior floor surface to the finished grade.” This language is necessary to maintain the requirements of the 2006 IRC, as amended. This change is reasonable because it clarifies current requirements and provides more uniform enforcement by carrying forward existing requirements in the rule.

Subp. 2. R311.7.1, Stairways. This section is amended by adding language to the main requirement to provide scoping provisions, which was inadvertently missed in the previous rule adoption. This section in the 2012 IRC does not contain scoping language to clearly identify the types of stairways that are intended to be regulated by this section. These changes are necessary because there has been confusion about which stairs are regulated by these requirements. This section is intended to regulate stairs that serve as a means of egress from a dwelling. The exceptions in this section provide exclusions for stairs serving attics, crawl spaces, and access to plumbing, mechanical, or electrical equipment. These types of stairs are excluded because these stairs are not intended to serve as a means of egress from a dwelling. This amendment is necessary to eliminate the confusion and inconsistency that exists in the enforcement of stair requirements. This amendment is reasonable because it clarifies which stairs are regulated by code and will provide more uniform enforcement.

Subp. 3. R311.7.2, Headroom. Section R311.7.2 is amended by adding a second exception to allow stairway headroom to be reduced to 6 feet 4 inches for stairs leading to a basement alteration, in accordance with section R305.2.2, as amended. This amendment is needed and reasonable so that unfinished basements in existing buildings can be more easily finished. This amendment is also necessary to coordinate with the amended ceiling height requirements in section R305. Costs pertaining to this rule change may decrease because costs associated with updating stairway headroom heights will be reduced or eliminated.

1309.0312 SECTION R312, GUARDS AND WINDOW FALL PROTECTION.

Subpart 1. R312.1.1, Where required (guards). Section R312.1.1 is amended by modifying the first sentence to define the architectural features that require a guard and by deleting the horizontal method of measuring sill height above the grade or floor.

The first sentence of 2012 IRC, section R312.1.1, is revised by deleting the phrase “walking surfaces” and replacing it with the word “floors.” As amended, guards are required along open-sided floors, stairs, ramps, and landings when they are located more than 30 inches vertically to the floor or grade below. This change is necessary because the term “walking surfaces” is too broad and can be misinterpreted to apply to almost any surface on or in a building or a lot. This requirement could be interpreted to mean that guards are required to be installed around window wells, on the top of retaining walls, along driveways and sidewalks, on landings near window wells, at the edge of swimming pools, and even at the edge of flat roofs. It is reasonable to use terms that are currently defined and that will best convey the intent of the requirement.

The first sentence is also amended by deleting the phrase “at any point within 36 inches (914 mm) horizontally to the edge of the open side.” This text is new to the 2012 IRC and did not exist in the 2006 IRC. The method of measurement in the existing rule has been in the IRC since its inception and has been in previous model codes. It is reasonable to carry forward language that has been in the Minnesota State Building Code because it provides consistency of application and enforcement. Costs associated with this rule change may decrease because the installation of guards, when or where they are not needed, will be eliminated.

Subp. 2. R312.2, Window fall protection. This amendment is based on 2012 IRC, section R312.2, with modifications to exception #1 and adds a new exception #4 regarding replacement windows. To successfully incorporate this amendment, Minnesota Rules, part 1303.2300, must be repealed. 2012 IBC, section 1013.8, must also apply to address window fall protection, which will replace the requirement in current Minnesota Rules, part 1303.2300, which only addresses window fall protection for apartments, hotels, motels, and condominiums, excluding single-family dwellings, two-family dwellings and townhouses. Minnesota Rules, part 1303.2300, is proposed for repeal and an amendment to section 1013.8 of the 2012 IBC is proposed to address window fall protection in Minnesota.

The first sentence of 2012 IRC, section R312.2.1, deletes the 2006 IRC language “the lowest part of the clear opening of the window” and replaces it with the phrase “the lowest part of the window opening.” The Advisory Committee determined that “the lowest part of the window opening” meant the same thing as “lowest part of the clear opening.” The proposed text “lowest part of the window opening” is also consistent with the proposed definition for “sill height” in part 1309.0202, which clarifies the meaning of sill height pertaining to

emergency escape and rescue openings. The first sentence also replaces the phrase “24 inch above finished floor” with “36 inches above the floor.” The 24- and 36-inch dimensions are heights that establish a threshold at which the window fall protection requirements are required. The threshold dimension in the current rule is set at 24 inches. The 2012 IRC sets this dimension at 24 inches, while the 2012 IBC sets this dimension at 36 inches. This threshold dimension must be coordinated between the two codes to provide consistent application and enforcement in residential construction. Windows installed having the lowest part of the window opening below this threshold will require window fall protection compliance. The Department determined that the 36-inch dimension is reasonable because it will provide increased life safety for occupants since raising the threshold dimension from 24 to 36 inches will require more windows to be fall protection compliant. Requiring more windows to have fall protection devices installed will provide increased life safety to more occupants, especially children. Additionally, these more restrictive requirements are consistent with the intent of Minnesota Statutes, section 326B.106, subdivision 7, which directs the Commissioner of Labor and Industry to adopt window fall protection rules which require compliance with the standards for window fall protection devices established in the IBC.

The proposed exception #4 is added to exempt replacement windows from the window fall protection requirements. The Advisory Committee determined that requiring window fall protection devices in replacement windows would mandate retroactive code compliance for existing structures. Typically, the code is not retroactive for existing structures, with the exception of smoke alarms and safety glazing. If homeowners of existing homes are required to add safety devices that must comply with ASTM F 2090, they may not be as likely to replace windows that trigger this requirement. It is not reasonable to require window fall protection safety devices that may discourage homeowners from replacing old windows that are broken or painted shut.

There will be an increase to the overall cost of windows in a comparable residential unit. Double-hung windows are currently dominant in the market in sizes that would be most likely affected and adding a window fall protection device would cost about \$30.00 per window. On casement windows, which currently have a smaller share of the market, adding a window fall protection device would increase the cost by approximately \$100.00 per window. However, these more restrictive requirements are being incorporated into the proposed rule to provide for increased life safety of occupants, to coordinate the provisions of the IBC and IRC, and to provide more consistent application and enforcement

between the Codes in residential construction and Minnesota Statutes, section 326B.106, subdivision 7.

1309.0313 SECTION R313, AUTOMATIC FIRE SPRINKLER SYSTEMS (new title)

This rule part entitled “Smoke Alarms” is re-titled to “Automatic Fire Sprinkler Systems” to accommodate chapter and section reorganization that occurred between the 2006 and 2012 editions of the IRC.

R313.1, Townhouse automatic fire sprinkler systems. Section R313.1, Townhouse automatic fire sprinkler systems, is not amended from the language in the IRC, but is included in the rule text for context.

R313.1.1, Design and installation. IRC Section R313.1.1, Design and installation, is amended to add NFPA 13D as an approved standard of design and installation, which can be used in lieu of section P2904. This section in the 2012 IRC requires compliance with section P2904 only. However, the 1309 Advisory Committee determined that NFPA 13D is the basis of the 2012 IRC P2904 requirements and is an equivalent requirement. The committee recommended to the Commissioner that NFPA 13D be added as an approved standard and the Commissioner accepted this recommendation, resulting in the amendment proposed here.

⁸R313.2, One-family and two-family dwellings automatic fire systems. Section R313.2 in the 2012 IRC, requires the installation of an automatic fire sprinkler system in all one- and two-family dwellings. The 2012 IRC, section R313.2, provides an exception to the requirement for additions and alterations to existing buildings where an automatic sprinkler system has not previously been installed. The proposed amendment to this section creates an additional exception for one-family dwellings with less than 4,500 square feet of floor area.⁹ Under the proposed amendment, newly constructed one-family homes meeting this size criterion would not be required to install an automatic fire sprinkler system.

⁸ **On October 13, 2015 the Minnesota Court of Appeals issued an opinion stating that the adopted Minnesota Residential Code rule that requires the installation of automatic fire sprinkler systems is invalid for the construction of all new two-family dwellings and one-family dwellings over 4,500 square feet.**

⁹ “Floor area” is defined in proposed Minnesota Rules, part 1309.0202, subpart 2, as “[t]he calculated square footage of the floor within the inside perimeter of the exterior walls of the building under consideration without deduction for stairways, closets, the thickness of interior walls, columns, or other features.”

The requirement to include automatic fire sprinklers in one-family homes has been discussed by the Department, stakeholders, and at the Legislature since it was first included in the IRC in 2009. Over the last three years, the Department has held 9 meetings with building industry trade officials, fire prevention officials, and other interested parties. The 1309 Advisory Committee also discussed this issue at length and has made recommendations to the Commissioner. In both 2011 and 2012, bills were introduced and legislation passed in the Minnesota Legislature which prohibited any code requirement to install automatic fire sprinkler systems in single-family homes.¹⁰ However, both bills were vetoed by the Governor. The focus of these discussions has been the life-safety benefits of automatic fire sprinkler systems as compared to the cost of system installation. Based on these discussions, the Commissioner considered several factors in developing amendments to this section: 1) the life-safety concerns that are mitigated by automatic fire sprinkler systems; 2) the cost to install automatic fire sprinkler systems; and 3) how to adequately address both of these two factors in rule.

In its analysis of the life-safety concerns related to fire sprinklers, the Department received information from the Minnesota Fire Chiefs Association of Minnesota (“MSFCA”) and the Minnesota Fire Marshals Association (“FMAM”). MSFCA and FMAM state that automatic fire sprinkler systems are critical to providing protection for occupants, fire fighters and property in the event of a fire. These organizations provided numerous reports and publications, all of which have been posted on the 1309 Advisory Committee’s publication website at: <http://www.dli.mn.gov/CCLD/rm/1309pub.asp>. Representatives from the fire service associations have stated that light-weight construction in one- and two-family dwellings without automatic sprinkler systems make floors and roofs susceptible to collapse earlier in a fire, which puts both residents and first responders at risk, that larger homes pose an additional risk to occupants because it takes a longer time to exit, and that larger homes are more difficult to deal with from a rescue and firefighting perspective.

MSFCA and FMAM submitted a report entitled “Structural Stability of Engineered Lumber in Fire Conditions,” written and researched by Underwriters Laboratories, dated September of 2008, that describes the fire resistive performance of nine assemblies tested as part of a research and education grant sponsored by the Fire Prevention and Safety Grants and under the direction of the Department of Home Land Security and the Federal Emergency Management Agency. Each test assembly was tested to ASTM Standard E119 and established a fire

resistance rating in minutes for each assembly. This data describes load bearing capacity performance which is the time period before structural collapse of the floor or roof assembly. The research findings are as follows:

- Test Assembly No. 1: 2 x 10 assembly without a ceiling containment had an 18 minute load bearing capacity performance.
- Test Assembly No. 2: I-joint assembly without a ceiling containment had a 4 minute load bearing capacity performance.
- Test Assembly No. 4: I-joint assembly with ½-inch thick regular gypsum board ceiling had a 25 minute load bearing capacity performance.
- Test Assemblies No. 4 and 5: I-joint and parallel chord truss (metal gussets) assemblies with ½-inch thick regular gypsum board ceiling were approximately equal (24-25 minute) to the 2 x10 assembly with ½-inch thick regular gypsum board ceiling.

Table E-3 - Summary of Significant Events in Addition to ASTM E119 Conditions of Acceptance

Test Assembly No.	Initial falling of ceiling material (More than 1 ft ²) (min:sec)	Average temperature on unexposed surface of ceiling at initial falling (°F)	Finish rating (min:sec)	Load bearing capacity (min)
1	No ceiling	No ceiling	00:45	18
2	No ceiling	No ceiling	00:30	4
3	23:30	605	15:30	45
4	17:15	531	7:45	25
5	16:30	519	10:45	24
6	16:00	559	12:15	25
7	15:45	253	15:15	40
8	74:00**	1109	74:00**	80
9	13:45	730	14:45	24

Notes:
 ** - plaster ceiling in contact with furnace thermocouples at 51 minutes

This report is important because it establishes that floors and roofs in houses built under the current code can fail so quickly from fire that the life and safety of residents and responding fire fighters are at risk of falling through floors or roofs before they can affect rescue or retreat from a burning building. In response to this research, the Department is also proposing to retain the provisions contained in IRC section R501.3, Fire protection of floors.

The Department also notes that some single-family homes are already required to install automatic fire sprinkler systems. For example, the Minnesota Department of Human Services (“DHS”) and Minnesota Department of Health (“MDH”) require

¹⁰ See 2011 HF 460, 2012 SF 717.

automatic fire sprinkler systems for one-and two-family dwellings used for purposes that require either a license or to be registered with an agency. Some of these uses include child and adult day care, supervised living facilities, hospice and foster care facilities, assisted living and housing with services, boarding care and lodging facilities, and senior housing.

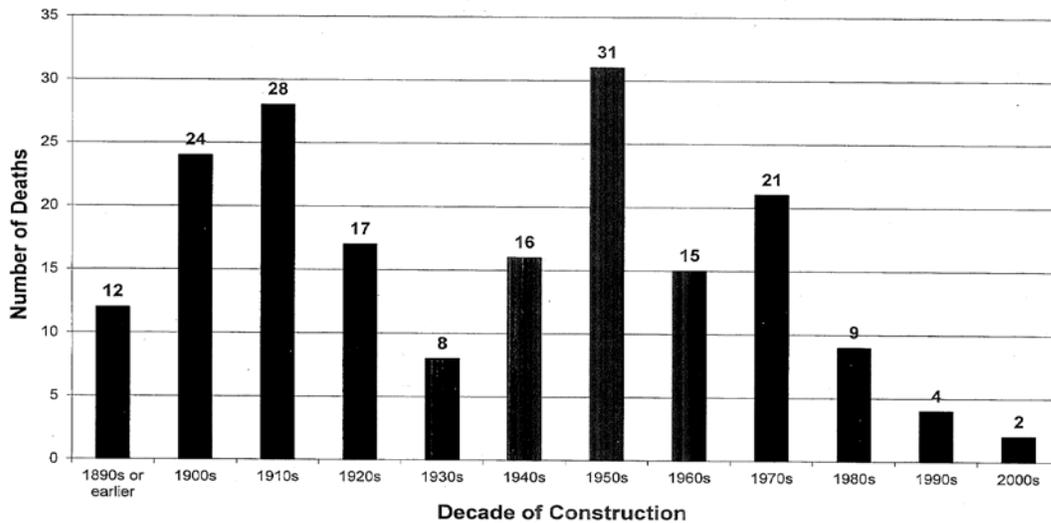
The Department also received information from the Builders Association of Minnesota (“BAM”), a trade organization of home builders, stating that automatic fire sprinkler systems are not needed to adequately protect occupants in the case of a fire. BAM indicated that smoke alarm requirements have substantially reduced Minnesota civilian fire deaths from double digits to single digits in the past twenty years and only two civilian fire deaths in the 2000’s. Current codes require smoke alarms on each level of a dwelling and in each individual sleeping room. These smoke alarms are also required to be hardwired into the dwelling’s electrical system and include battery backup power. BAM states that smoke alarms have proven to be effective in alerting some occupants to exit structures in the event of smoke and in reducing fatalities.

BAM submitted a report entitled “1998-2010 Minnesota Civilian Fire Deaths in Single Family Homes,” based on data from the Minnesota State Fire Marshal’s office. The bar chart below identifies

the number of civilian fire deaths by decade and indicates 21 fire deaths in the 1970’s, 9 fire deaths in the 1980’s, 4 fire deaths in the 1990’s, and 2 fire deaths so far in this decade.

The Commissioner considered all of the information submitted regarding the protection of life-safety and property, and acknowledges that properly located, hard-wired smoke detectors are effective in saving the lives of some occupants, but do not further the protection of property. The Commissioner has further determined that there is increased life-safety and property protection with automatic fire spinkler systems as demonstrated by occupants having sufficient time to escape, by providing additional structural protection for first responders, and by limiting the extent of structural damage.

ATTACHMENT A **1998-2010 Minnesota Civilian Fire Deaths in Single Family Homes by Decade of Construction (187 total*)**



*BAM was unable to determine year of construction for 38 SF homes (and 42 additional deaths) due to insufficient addresses from State Fire Marshal data. see 2nd page for details]. Data do not include fire deaths caused by explosions, arson/homicide or suicide in single family homes; or those in mobile homes , duplexes, multi-family, apartments, commercial, and other residential uses such as motels, hotels, and nursing homes.

In evaluating the cost of installing automatic fire sprinkler systems under the 2012 IRC requirements, the Commissioner reviewed information submitted by MSFCA and FMAM, including the “Home Fire Sprinkler Cost Assessment” final report prepared by the Fire Protection Research Foundation, dated September 2008. This report was also referenced in BAM’s Code Change Proposal IRC-87, R313.2; Attachment “C” entitled “Minnesota State Fire Chiefs Association – White paper on Residential Sprinkler Systems.” This report indicates that the average automatic fire sprinkler installation cost for residential dwellings is \$1.61 per square foot.¹¹ There were several other reports regarding fire sprinkler costs prepared prior to the publication of the 2009 IRC. The 2009 IRC was the first model code document that required fire sprinklers for one-and two-family dwellings. However, Minnesota did not adopt the 2009 IRC.

In response to the concern about cost of installation, the MSFCA recommended phasing in the automatic fire sprinkler system requirement beginning at 4,000 square feet in area. The FMAM submitted a code change proposal to the 1309 Advisory Committee phasing in the requirement beginning at 5,000 square feet as follows:

- Upon adoption of this code, all two family and single family dwellings exceeding 5000 square feet;
- On or after January 1, 2014, all two family and single family dwellings exceeding 4000 square feet;
- On or after January 1, 2015, all two family and single family dwellings exceeding 3000 square feet;
- On or after January 1, 2016, all two family and single family dwellings exceeding 2000 square feet; and
- On or after January 1, 2017, all two family and single family dwellings shall be

¹¹ The 2008 Home Fire Sprinkler Cost Assessment was recently updated by the Fire Protection Research Foundation in September of 2013. While the 2008 report was based on a sampling of 30 homes in 10 communities, the 2013 update studied sprinkler cost assessment samples from 51 homes in 17 communities. In the original 2008 report, the 30 homes analyzed had an average price per square foot of \$1.61. In the 2013 study, the average cost per square foot decreased to \$1.35. The 2013 study concluded that this decrease in average installation cost over the past 5 years was attributable to improved installation methods, standardized practices, and increased market competition among contactors and others in the building trade industry.

protected with automatic residential fire sprinklers in accordance with R313.2.1.

In addition to BAM’s IRC-87, R313.2 Code Change Proposal, BAM also submitted a May 31, 2012 letter to the Commissioner indicating that it received installation information from home builders where the installation of automatic sprinkler systems cost was between \$2.93 and \$3.95 per square foot when the builder markup is included in the price. BAM stated that 29% of Minnesotans receive their water from private wells and that the cost of installing sprinklers on a private well system can add from \$2,500-\$4,000 to the cost of the sprinkler system. BAM further stated that a homeowner may not be able to afford a new home if they are required to include automatic fire sprinklers due to their installation cost. BAM therefore urged, and the 1309 committee recommended, that the Department amend out all one-family dwellings from the proposed automatic fire sprinkler requirement.

In evaluating the cost of the installation of automatic fire sprinklers systems in one-family homes, the Department considered the relative cost of installing an automatic sprinkler system in a newly constructed home. The Department utilized the figure of \$95.73 per square foot for construction costs of a new home as found in the 2013 Building Valuation Data Table, (http://www.dli.mn.gov/CCLD/PDF/2013_bldg_valuation.pdf). This is the same square foot value that is provided for use by all 450 code-enforced municipalities in the state of Minnesota when comparing building value for calculating permit fees.

In reaching its balance between the benefits of the life-safety/property protections offered by automatic fire sprinkler systems and the costs of installing these systems in newly constructed one-family homes, the Department determined that larger homes have the same challenges for occupants and first responders as other two-family and townhouse structures, but that the relative cost of installing sprinkler systems in smaller homes may be too expensive. Therefore, the Department is proposing to amend IRC Rule 313.2 to exclude homes under 4,500 square feet from the automatic sprinkler requirement.

The Department chose the threshold of 4,500 square feet in response to the case made by the fire service that homes between 4,000 and 5,000 square feet and larger provide the greatest initial life-safety risk to the public. The Department of Public Safety notes that most fire departments are equipped and staffed to handle typical single-family dwelling fires. However, many departments are simply not equipped to safely handle fires involving larger buildings such as townhouse complexes or even larger single-family homes – greater than 4,500 square feet.

According to the Department's calculations and the 2013 Building Valuation Data Table referenced above, a 4,500 square foot dwelling has an approximate value of \$430,785.00. Homes valued at \$430,785.00 do not represent the typical entry level home value in Minnesota. A 4,500 square foot home with a fire sprinkler system based on the fire service's average of \$1.61 per square foot, would add \$7,245 or 1.68% to the cost. BAM's estimation of what some builders will charge to install automatic fire sprinklers of \$2.93 per square foot would result in an added cost of \$13,185 or 3.06% to build a 4,500 square foot home. Construction costs would change from an estimated \$430,785 to \$438,030 under the fire service estimate or \$443,785 according to BAM's figures. However, homes with fire sprinklers installed would not incur the additional cost of installing ½-inch gypsum board for fire protection of floors as required in the 2012 IRC, section R501.3.

Automatic Fire Sprinklers have been acknowledged for years by the Department, the building industry, and the fire service to be important life-saving equipment in commercial and multi-family structures, including townhouses. The average cost of installation of an automatic sprinkler system for these types of occupancies in Minnesota currently ranges from \$1.50 to \$2.00 per square foot or 1 to 2% of the average construction costs of these types of structures.¹² While recognizing that differences exist between single-family automatic sprinkler system installations and installations for these other occupancies, the Department believes that the projected costs per square foot for sprinkler installation in single-family dwellings of 4500 square feet or more will be more similar to those installation costs of multiple occupancy dwellings than the installation costs for single-family dwellings as projected by the building trade industry. The proposed rule will clearly increase construction costs for some larger homes in Minnesota,

¹² Sprinkler costs vary widely based on numerous factors including building use, design, materials, climate control, number of stories, etc. The Department selected a commercial retail building where the sprinkler design would be considered to be fairly "typical" with suspended ceilings. Costs were arrived at by telephone quotes CCLD received in September 2013 by 3 major metropolitan sprinkler contractors: Summit Fire Protection, Viking Automatic Sprinkler and Brothers Fire Protection. The range of these quotes was also directly in-line with an on-line construction estimating resource at <http://www.BuildingJournal.com>. The median costs for each were \$1.67, \$1.38, \$2.02, and \$1.86 (BuildingJournal.com), respectively. Parameters used in the quotes included: Occupancy - Retail; Size - 4,500 square feet; Other - 18-20 foot high suspended ceiling; and Location - St. Paul or Minneapolis.

but the Department believes that these additional costs will decrease over time and result in increased life-safety and property protection for homeowners and firefighters.

R313.2.1, Design and installation. Section R313.2.1, Design and installation, is not amended from the language contained in the 2012 IRC, but is included for context. Similar requirements are currently located in the amendments to section 301 of the 2006 IRC.

R313.3, Installation requirements. IRC section R313 is being amended by adding a new section R313.3 pertaining to installation requirements. The content in section R313 of the 2012 IRC was previously located in section R301 of the 2006 IRC. During the last rule adoption, the Department amended section R301 by adding a new section R301.1.4.2 that incorporated requirements similar to the requirements proposed in this rule part. The proposed content for section R313.3 is being carried forward from Minnesota Rules, part 1309.0301, subpart 1, with two modifications. First, the existing language in the subpart requires sprinkler systems to be installed in accordance with NFPA 13D. This language is modified by requiring sprinkler systems to be installed in accordance with either NFPA 13D or IRC Section P2904. This change is necessary because it acknowledges that requirements contained in either NFPA 13D or IRC Section P2904 are considered equivalent. Section 2904.1 of the 2012 IRC states that, "the design and installation of residential fire sprinkler systems shall be in accordance with NFPA 13D or section P2904, which shall be considered equivalent to NFPA 13D." Second, the requirement is also modified by deleting the existing language that states "for the purposes of this section, fire-resistance-rated floors, walls, or ceiling assemblies separating dwelling units of IRC-2 and IRC-3 buildings shall not constitute separate buildings." This language is no longer necessary because the 2012 IRC requires that all two-family dwellings and townhouses (IRC-2 and IRC-3 occupancies) shall have fire sprinkler systems installed, regardless of how the structures are separated.

R313.4, State licensed facilities. IRC section R313 is also being amended by adding a new section R313.4 pertaining to state licensed facilities. The content in section R313 of the 2012 IRC was previously located in section R301 of the 2006 IRC amendments. During the last rule adoption, the Department amended section R301 by adding a new section R301.1.4.1 that incorporated requirements similar to the requirements proposed in this rule part. The current language in the amendment is being revised by replacing references to "IRC-1, IRC-2, and IRC-3" to read "one- and two-family dwellings and townhouse buildings" to coordinate with the 2012 IRC code book language. The current amendment establishing occupancy classifications IRC-1, IRC-2, IRC-3, and

IRC-4 will be carried forward from the 2006 IRC amended language, which is currently located in Minnesota Rules, part 1309.0202. The 2006 and 2012 IRC's do not contain occupancy classifications for IRC structures. These occupancy classifications were established to provide a means for building officials to classify IRC structures, similar to both the 2006 and 2012 IBC structure classifications for the different types or building uses. The remaining existing amended language for section R301 is being carried forward into this proposed amendment.

1309.0314 SECTION R314, SMOKE ALARMS (new title).

The 2006 IRC, section R313, Smoke alarms, has been renumbered to section R314, Smoke alarms, in the 2012 IRC. The existing 2006 IRC, section R314, Foam Plastic, has been renumbered to Section R316 in the 2012 IRC. The instant rule part has been re-titled to "1309.0314, Section R314, Smoke Alarms" to accommodate this 2012 IRC section reorganization. The current amendment to R314.5.11, Sill plates and headers, pertaining to foam plastic is being deleted from the rule part because the language in the 2012 IRC is similar to the existing amendment, therefore the amended language is no longer necessary.

R314.3.1, Alterations, repairs, and additions.

This amendment revises the smoke alarm requirements for alterations, repairs, and additions from that of the 2006 and 2012 editions of the IRC. The amended content is based on the 2012 IRC and the current rule amendment to the 2006 IRC, with some additional language included for clarity. The proposed amendment clarifies this code section and will provide more uniform enforcement.

The first sentence of R314.3.1 contains revised language that clarifies conditions under which existing dwellings will require smoke alarms located in the same areas as for new dwellings. The section also provides two exceptions for work that does not require compliance with this section. The revised language is necessary to clarify conditions under which smoke alarms will need to comply with the same requirements as those for new dwellings, to clarify the code section content, and to help provide more uniform enforcement.

The first condition states that smoke alarms are required to be installed for alterations, repairs, or additions that require a permit. This condition includes the installation or replacement of windows or doors. The reference to windows and doors clarifies that the installation of these items is considered an alteration or repair and will require a permit. The installation of replacement windows or doors is not exempt from a

permit, in accordance with Minnesota Rules, part 1300.0120, subpart 4. The second condition mirrors the language in the 2012 IRC code section.

Exception #1 is based on the 2012 IRC text, but deletes the phrase "or the addition or replacement of windows or doors," which carries forward the current amendment for the 2006 IRC section. The word "open" preceding "porch or deck" and "or chimney repairs" preceding "are exempt" are added to the exception to clarify that these conditions do not warrant updating the smoke alarms for existing dwellings.

Exception #2 amends the 2012 IRC text to add the word "electrical" to system installations, alterations, or repairs, which are exempt from required smoke alarm installations for existing dwellings. This revision will prevent mandatory updating of smoke alarm systems in a dwelling when the work being completed is just light fixture replacement or similar work. Adding the word "electrical" to the text is necessary to make this proposed language consistent with the existing amendment for the 2006 IRC section. This change is also necessary to provide consistent and uniform enforcement.

1309.0315 SECTION R315, CARBON MONOXIDE ALARMS.

R315.1, Carbon monoxide alarms. The carbon monoxide alarm requirements located in 2012 IRC, section R315, are new to the IRC model code document and did not exist in the 2006 IRC.

The 2012 IRC, section R315.1, is amended to incorporate language from Minnesota Statutes, section 299F.51 (requirements for carbon monoxide alarms), into the rule. The amended text specifically identifies one-family, two-family, and townhouse dwellings as the types of dwellings that require carbon monoxide alarms. The amended language requires that an "approved and operational" carbon monoxide alarm be installed. The 2012 IRC, section R315.4, requires that carbon monoxide alarms be listed as complying with Underwriters Laboratories Standards Number 2034 (UL2034) and installed in accordance with the manufacturer's installation instructions to be approved by the building official. The amended language also requires that carbon monoxide alarms be installed within ten feet of each sleeping room, as required by Minnesota Statutes, section 299F.51, subdivision 2 (1).

These changes are necessary to convey specific requirements of Minnesota Statutes, section 299F.51, which are not contained in the 2012 IRC, section R315. The text in the remaining subsections of section 315 is not amended and will apply as written. This proposed

amendment is reasonable and necessary because it combines the 2012 IRC requirements with statutory requirements to provide uniform design, installation, and enforcement.

1309.0317 SECTION R317, DWELLING UNIT SEPARATION.

This rule part is being repealed. The 2006 IRC Section R317 requirements have been relocated in the 2012 IRC to section R302, Fire-resistant construction. It is reasonable and necessary to repeal this amendment because it no longer applies in this location with the adoption of the 2012 edition of the IRC.

1309.0318 SECTION R318, MOISTURE VAPOR RETARDERS.

This rule part is being repealed. The 2006 IRC Section R318 requirements have been relocated in the 2012 IRC to section R702.7, Vapor retarders. It is reasonable and necessary to repeal this amendment because it no longer applies in this location with the adoption of the 2012 edition of the IRC.

1309.0323 SECTION R323, STORM SHELTERS.

R323, Storm shelters. The proposed amendment deletes the requirements for storm shelters from the code. Storm shelter requirements are new to 2012 IRC and did not exist in the 2006 IRC. This new section states that if a storm shelter or safe room is built, it must provide “safe refuge from storms that produce high winds, such as tornadoes and hurricanes.” Storm shelters are commonly separate, detached buildings; safe rooms are commonly rooms inside a dwelling, usually a bath room, walk-in closet, or utility room that is reinforced to withstand high winds and wind borne debris. Section R323.1 of the 2012 IRC does not mandate that IRC dwellings include storm shelters or safe rooms, but if a homeowner or builder decides to build a storm shelter or safe room, it must be constructed in accordance with the specifications of ICC/NSSA 500.

The proposal to delete this section is necessary because it eliminates the requirement to construct storm shelters and safe rooms to certain specifications, allowing homeowners’ flexibility in construction of a storm shelter or safe room, if they decide to build one. Deleting the requirements for storm shelters and safe rooms is reasonable because Minnesota homeowners infrequently install these shelters and if they are installed, the shelters are often constructed to requirements that are different from those in the ICC/NSSA 500 Standard.

1309.0402 SECTION R402, MATERIALS.

Table R402.2, Minimum specified compressive strength of concrete. This table is being modified by adding a new row to the table for footing specifications and a new footnote “g” relating to the footing specifications. The new footing specifications are necessary to incorporate requirements for a minimum comprehensive strength in concrete for footings pursuant to Minnesota Statutes, section 326B.118. This statute states, in part, that “[t]he commissioner may not adopt all or part of a model energy code relating to the construction of residential buildings without research and analysis that addresses, at a minimum, air quality, building durability, moisture, enforcement, enforceability cost benefit, and liability.”

The new footing specifications require the use of concrete that can withstand 5,000 pounds of force per square inch (“5000 psi”). This type of concrete must be used for footings made of concrete pertaining to dwellings regulated by the IRC. These new specifications will create a water separation plane (“WSP”) between the adjacent foundation soil and the building foundation to prevent moisture in both bulk and vapor forms from passing through the porous concrete material of the footing. The current language requires a 2500 psi concrete mixture for footings, which permitted water and water vapor forms to pass through the footing’s porous concrete material and add moisture in the basement’s foundation area. Footnote “g” permits a concrete mixture that is 2500 psi with an approved admixture (chemicals that can be added to concrete to change its moisture permeability), which provides a water- and vapor resistance equivalent to that of 5000 psi concrete. Footnote “g” includes language stating a minimum 3,000 psi concrete strength is required when Tables R404.1.1(5), R404.1.1(6), or R404.1.1(7) are applicable regarding cantilevered concrete and masonry foundation walls. The 3,000 psi concrete will require an admixture that provides water and vapor resistance at least equivalent to 5,000 psi concrete. This language was necessary to eliminate possible confusion between 2,500 psi concrete strength with an admixture and the 3,000 psi concrete strength with an admixture required for cantilevered foundations. These requirements utilize building science research and reports from Dr. Louise Goldberg, Building Scientist from the University of Minnesota. The research and proposed amendment will prevent capillary water flow through the building foundation creating a healthier and more durable structure.

There will be a cost increase of approximately ten to fifteen dollars per cubic yard of concrete to use a 5000 psi concrete mixture compared to a 2500 psi concrete mixture. However, it is necessary and reasonable to

amend the language pertaining to concrete footing mixture strength to address moisture and durability issues for the building envelope and for the building structure as identified in Dr. Goldberg's research.

1309.0403 SECTION R403, FOOTINGS.

Subpart 1. R403.1.4.1, Frost protection. The subpart, which amends section R403.1.4.1 of the 2006 IRC, is being carried forward but is being modified grammatically and organizationally for clarity. Section R403.1.4.1 in the 2006 IRC is the same in the 2012 IRC. These changes are necessary and reasonable because they will clarify the requirements in section R403.1.4.1 while carrying forward the requirements in the current amendment to this section.

Subp. 2. R403.1.6, Foundation anchorage. This subpart is modified by incorporating changes made in the 2012 IRC but carries forward the existing rule amendment language. These changes are needed to update the language to be consistent with changes made to the IRC, but the changes do not affect the original intent of the amendment.

1309.0404 SECTION R404, FOUNDATION AND RETAINING WALLS.

Subpart 1. R404.1, Concrete and masonry foundation walls. The Structural Advisory Committee recommended revising this subpart in its entirety to incorporate the 2006 IRC, section R404.1 requirements and current amended language. The 2012 IRC does not contain the prescriptive foundation lateral support requirements as written in the 2006 IRC. These prescriptive requirements are essential to foundation design and durability. The prescriptive requirements in this proposed rule identify methods to provide lateral support for the foundation system at the basement floor and at the top of the foundation to resist soil pressures on the foundation. These prescriptive methods utilize floor systems to help transfer and resist soil pressures imposed on the foundation by providing support at the top and base of the foundation walls. This proposed amendment is necessary to maintain the current lateral supported foundation requirements for durability in Minnesota and to ensure uniform enforcement. Since the amendment carries forward the current code requirements, there will be no cost increase associated with this amendment.

Subp. 2. Table R404.1(1). Table R404.1(2) in the 2006 IRC has been renumbered to Table R404.1(1) in the 2012 IRC. The table title is also amended to read "Maximum Anchor Bolt and Blocking Spacing for Supported Foundation Wall." The words "and blocking" are added to the title to incorporate a new column titled

"Spacing of Blocking Perpendicular To Floor Joists." This new column is added to the table to provide clarity, uniform enforcement, and ease of use.

Subp. 3. Table R404.1(3). The existing subpart contains language that deletes Table R404.1(3) from the 2006 IRC. This subpart is now being repealed because the table has been removed from the 2012 IRC so the current amendment is no longer needed.

Subp. 4. R404.1.1. This section has been renumbered in the 2012 IRC to section R404.1.1.1, so the subpart is being repealed because it no longer coordinates with the 2012 IRC. This subpart also contains requirements for cantilever foundations, but the language is not necessary and is being deleted because cantilever foundation requirements are already addressed in subparts 6 through 8 of this rule part.

Subp. 5. R404.1.2. This subpart is being repealed because the language in the 2012 IRC is similar, so the amendment is no longer necessary. This subpart also contains requirements for cantilever foundations, but the language is not necessary and is being deleted because cantilever foundation requirements are already addressed in subparts 6 through 8 of this rule part.

Subps. 6 through 8. Tables R404.1(5), R404.1.1(6), R404.1.1(7) (renumbered). These subparts are amended by changing the table numbers and section references to coordinate with changes made to the 2012 IRC, but the content remains unchanged.

Subp. 9. R404.1.3. This subpart is amended by changing the referenced table numbers to coordinate with changes made to the 2012 IRC, but the content remains unchanged.

1309.0406 SECTION R406, FOUNDATION WATERPROOFING AND DAMPPROOFING.

Subpart 1. R406.1, Concrete and masonry foundation dampproofing. The existing rule amendment regarding dampproofing of concrete and masonry foundations is repealed. The amended rule deletes section R406.1 of the 2012 IRC in its entirety. IRC Section R406.1 is deleted because proposed Minnesota Rules, part 1322.0402, subpart 2, will require that all concrete and masonry basement foundation walls be waterproofed, not just dampproofed. The required waterproofing for masonry and concrete foundations is based on building science research and reports requested from Dr. Louise Goldberg, Building Scientist from the University of Minnesota, pursuant to Minnesota Statutes, section 326B.118. The research and proposed amendment will prevent capillary water flow through the building

foundation, creating a healthier and more durable structure.

The modifications to Minnesota Rules, part 1309.0406, are necessary to provide uniform application and enforcement and will ensure that all the applicable requirements in the Minnesota State Building Code are coordinated.

Subp. 2. R406.2, Concrete and masonry foundation waterproofing. The existing rule amendment for section R406.2 of the 2006 IRC is being modified to coordinate with changes made to the 2012 IRC. The first sentence is amended to delete the phrase “In all soils groups other than Group I soils in accordance with Table R405.1.” Soil Group I are soils that have good drainage characteristics and a percolation rate over 4-inches per hour, as compared to a Group IV soils which have poor drainage characteristics and a percolation rate of less than 2-inches per hour. The percolation rate is the rate at which water moves through the soil. This text and referenced table are no longer necessary because proposed Minnesota Rules, part 1322.0402, subpart 2, will require all concrete and masonry foundations to be waterproofed, regardless of the soil classification type. This proposed amendment will prevent capillary water flow through the building foundation, creating a healthier and more durable structure.

The first sentence also adds the phrases “below grade” and “and crawl spaces” to the rule to clarify that foundations with below grade interior spaces, floors, and crawl spaces must be waterproofed. The beginning of the second sentence is modified by adding the phrase “Waterproofing shall be installed” to clarify that waterproofing shall be installed from the top of the footing to the finished grade or that it must be installed in accordance with the manufacturer’s installation instructions. This modification recognizes that some manufacturers specifically require that their product be installed from the top of the footing to the top of the foundation, instead of to the finished grade. The language in the exception to section R406.2 of the 2006 IRC is being carried forward, but is amended to coordinate with changes made to the 2012 IRC.

The amendments to sections R406.1 and R406.2 may create a cost increase for residential builders depending on the products of choice for waterproofing. Builders that have customarily built in Group I soils have not been required to waterproof their foundations because the current amendment exempted them from waterproofing the foundations. These builders will now be required to waterproof foundations, as explained above, because proposed Minnesota Rules, part 1322.0402, subpart2, will require all concrete and

masonry foundations to be waterproofed, regardless of the soil type classification. Those builders that have been able to dampproof foundations using the current rule amendment will also be required to waterproof foundations, as explained above. However, most builders already install waterproofing to their foundations, even in Group I soils, in the course of their standard construction methods and will not be affected by the proposed amendments. A local insulation contractor offers a full line of foundation dampproofing and waterproofing and explained their typical installation process for foundations without exterior foundation insulation. The contractor installs a Perma Guard 2000 polymer asphalt waterproofing membrane from the top of the footing to finished grade height elevation. Then they install a Poly Wall dampproofing product from the finished grade elevation to the top of the foundation wall. This contractor charges between \$0.95 cents to \$1.00 per square foot for either the dampproofing or waterproofing installations.

1309.0602 SECTION R602, WOOD WALL FRAMING.

Subpart 1. Table R602.3.1, Maximum allowable length of wood wall studs exposed to wind speeds of 90 MPH or less. Table R602.3.1 is amended by revising footnotes c, d, h, and i in the table, which address windows or other opening in tall walls. This amended table provides requirements for tall wall construction for wind speeds of 100 mph or less and snow loads not to exceed 25 psf. This table was amended for the 2006 IRC to address the snow load design for Minnesota, but it did not include information for windows or other openings in a tall wall design. Table R602.3.1 is being amended by adding text to footnotes “c” and “d.” The amended footnotes provide additional prescriptive requirements regarding sheathing, fastening, bracing, and tall wall openings. The proposed changes to this subpart also delete the current amended footnotes “h” and “i” pertaining to exposure categories “B” and “C.” These footnotes are deleted because they are redundant code information and not necessary for use with the 2012 IRC.

Subp. 2. R602.10.11, Cripple wall bracing. The changes made to 2012 IRC, section R602.10.11, deletes the last sentence in the section regarding a reduction in the spacing between the adjacent edges of braced wall panels. Braced wall panels are full height wall sections constructed to resist loads through the interaction of framing members, sheathing material, and anchors. A code change at the national level to the 2012 IRC reduced the spacing for cripple wall bracing from the requirements in the 2006 IRC. Without this amendment, the spacing requirements for cripple wall bracing will be overly restrictive for Minnesota’s low seismic zone because it requires more wall bracing than is necessary. The

amendment removes the statement requiring the reduction of spacing between braced wall panels. This change is reasonable and necessary because the requirement in the 2012 IRC, without amendment, would increase the cost of construction in Minnesota without providing a life safety benefit in Minnesota's seismic zone.

1309.0612 SECTION R612, EXTERIOR WINDOWS AND DOORS.

This amendment deletes the phrase "and flashed" from the second sentence in section R612.1 of 2012 IRC to prevent a possible conflict between the requirements in sections R612.1 and R703.8. Section R612.1 states that windows and doors must be installed and flashed according to the manufacturer's instructions. That section also states that windows and doors must be flashed in accordance with section R703.8. However, the requirements in section R703.8 conflict with the requirements in section R612.1. Section R703.8, subitem 1, as amended, contains requirements for window and door flashing that are more specific than the general requirements in section R612.1, which require flashing in accordance with the manufacturer's instructions. Section R703.8 as amended, however, identifies that windows and doors shall be flashed in accordance with the window or door manufacturer's installation and flashing instructions, the flashing manufacturer's instructions, a registered design professional's design, or in accordance with other approved methods. The intent of section R612.1, as amended, is that designers and builders must refer to section R703.8 for flashing requirements and to section R612.1 for the installations requirements. This amendment is therefore reasonable and necessary to eliminate the potential conflict and confusion between code requirements of sections R612.1 and R703.8 and to clarify the installation and flashing requirements for windows and doors.

1309.0613 SECTION R613, EXTERIOR WINDOWS AND GLASS DOORS.

This existing rule part that amends 2006 IRC, section R613, is being repealed. Section R613 was renumbered to R612 in the 2012 IRC. Section 612 is amended as described in the rationale for Minnesota Rules, part 1309.0612, above. It is reasonable to delete this amendment because it is no longer applicable to the 2012 IRC.

1309.0702 SECTION R702, INTERIOR COVERING.

Subpart 1. Table R702.1 (3). This subpart is added to correct an error in the 2012 IRC Table R702.1 (3), regarding cement plaster proportions for interior plaster. The correction identifies that one part masonry

cement of Type M, S, or N shall be used instead of one part lime, as shown in the 2012 IRC model code table for the first coat proportioning. To support the corrected information, 2012 IRC, section R702.2.2, Cement plaster, indicates that cement plaster materials shall conform to ASTM C 926 and other standards listed in that section. ASTM C 926 is specifically referenced because this standard addresses the application of portland cement based plaster. This standard includes the plaster proportions and mixing requirements in ASTM C 926, Table 3, which is why IRC Table R702.1(3) is being corrected for continuity. The other ASTM standards referenced in Section R702.2.2 are specific to other components of the plaster material and installation (i.e., masonry cement, portland cement, blended hydraulic cements, metal lath, aggregate, woven wire, accessories, and installation of lath). The proportion shown in IRC Table R702.1 (3) does not coordinate with the proportioning in ASTM C 926, Table 3. This correction is necessary to coordinate the proportions in the table with the requirements in section R702.2.2. It is reasonable to amend Table R702.1 (3) of the 2012 IRC to conform to the requirements in section R702.2.2 and ASTM C 926.

Subp. 2. R702.7, Vapor retarders. This subpart amends 2012 IRC, section R703.7, Vapor retarders, to clarify the use of Class I or II vapor retarders. The first sentence deletes references to Climate Zones 5, 6, and Marine 4 from the section in the model code. It is reasonable to delete these climate zones from Section R702.7 because these climate zones are not applicable in Minnesota, as shown by 2012 IRC, Table N1101.10 (R301), and Figure N1101.10 (R301). The 2012 IRC language states that Class I or II vapor retarders are required. The modification to section R702.7 deletes "or Class II" from the first sentence and adds a second sentence to the section that permits a Class II vapor retarder only when specified by the designer on the construction documents. The text "or Class II" is therefore deleted from the first sentence to clarify that only a Class I vapor retarder is required on the interior side of frame walls in Climate Zones 6 and 7. The second sentence further clarifies that Class II vapor retarders are permitted only if the designer requires them on the construction documents.

There will be no financial impact on project costs due to this amended language. Most Minnesota contractors are installing a sheet polyethylene vapor retarder material complying as a Class I vapor retarder over batt insulation. A contractor can also choose to install insulation having a kraft paper facing, which is considered a Class II vapor retarder. This amendment identifies that either Class I or Class II vapor retarders are permitted and that the choice of product is mandated by the contractor or design professional through the

construction document preparation, instead of by the building official.

This subpart also amends the section by deleting all of the exceptions that are included in 2012 IRC, section R702.7. Exceptions #1 and #2, pertaining to basement walls and below grade portions of a wall, respectively, are not necessary because foundation walls and below grade portions of walls are regulated by the prescriptive design and installation requirements in the Minnesota Residential Energy Code, Minnesota Rules, chapter 1322. Exception #3, pertaining to construction where moisture or its freezing will not damage materials, is deleted because it has no applicability in Minnesota. Construction practices and designs in Minnesota must address moisture and freezing for sustainability, as required by chapter 1322 and Minnesota Statutes, section 326B.118. It is therefore reasonable to amend section R703.7 to provide for uniform enforcement and to clarify the requirements for use of a Class II vapor retarder in Minnesota.

1309.0703 SECTION R703, EXTERIOR COVERING.

Subp. 2a. R703.2, Water-resistive barrier. Section R703.2 of the 2012 IRC is amended to clarify the installation requirements for the water-resistive barrier at laps and flashing. The modification will provide clarity and encourage uniform enforcement by providing minimum lap requirements when approved ASTM D 226 Type 1 felt is used or, in the absence of specific installation instructions, if other approved water-resistive barrier materials are used. Forensic engineers Air Tamarack Inc. and the University of Minnesota’s Dr. Louise Goldberg have researched and identified that improper lapping of water-resistive barriers and flashings contribute to water intrusion damage in residential construction.

This subpart inserts a new third sentence in section R703.2 that reads, “The water-resistive barrier shall overlap the flashings required in Section R703.8 not less than 2 inches (51 mm).” This amended language requires a minimum 2-inch water-resistive barrier overlap of the flashing, and therefore requires that the flashing have a minimum 2-inch vertical leg to be overlapped. Typical flashing is constructed with a corrosion-resistant material bent to form a right angle. This right angle flashing is installed directly on top and parallel (horizontal) with the window unit brick molding with the leg of the right angle flashing extending beyond the projection of the brick molding. The other (vertical) leg of the right angle is installed against the exterior wall sheathing. For the purpose of this amendment, the vertical leg is required to be at least 2 inches in height. The forensic engineers who have studied improper lapping of

water-resistive barriers and flashing have also determined that a 2-inch vertical flashing leg and water-resistive barrier overlap is necessary to protect or limit wind driven water intrusion for Minnesota. This code change proposal was submitted by Air Tamarack Inc., which provides forensic mold solutions, and identifies that the 2-inch water-resistive overlap installation is consistent with IRC section R703.2 requirements. That section requires water-resistive barriers to be installed with a minimum overlap.

Dr. Louise Goldberg has also conducted research regarding the minimum overlap of water-resistive barriers based on specific wind speeds. The following Table was prepared by Dr. Goldberg and indicates that a wind speed of 64 miles per hour will push rain water up vertically 2-inches. This is the bench mark used for the requirement that building paper be overlapped a minimum of 2-inches. Wind speeds over 65 miles per hour will push rain behind building paper and cause the wall sheathing to get wet. This same logic applies to cap flashings over windows and doors and other locations around a house. With most rain storms the wind speed is normally less than 64 miles per hour. Minnesota rarely experiences wind speeds over 65 miles per hour during a typical rain storm, so under most conditions a 2-inch overlap will protect the wall sheathing. The wall sheathing occasionally getting wet is not likely to be a problem as long as this does not occur frequently.

Ability of Wind to Push Water Up Vertically	
Wind Speed, mph	Height Water Pushed up Vertical in inches
45	1
64	2
80	3
90	4
101	5

This Table was prepared by Dr. Louise Goldberg at the U of Minnesota

According to Air Tamarack Inc., requiring a 2-inch cap flashing will not increase costs because most building contractors are presently using cap flashings with back legs longer than 2- inches. Indeed, Scherrer Bros. Lumber, one of the largest lumber yards in Minnesota, does not sell a cap flashing with a back leg less than 2 1/2 inches. Air Tamarack Inc., also interviewed several local building contractors concerning their use of cap flashings. All contractors interviewed indicated that they only use cap flashings that have a minimum of a 2 inch back leg.

Air Tamarack Inc., inspects 30-50 homes per year that have water penetration problems. Air Tamarack Inc.’s estimated repair cost on homes that suffer from water intrusion due to improper installation or missing cap flashings averages over \$50,000. Indeed, the most common water penetration problem identified is improper

installation or missing cap flashings, which includes using cap flashings with back legs less than 2 inches high. The cap flashings with less than 2 inch back legs are more difficult to fasten to the wall sheathing and frequently will be distorted by the fasteners, and are more likely to leak. However, cap flashings with a back leg of at least 2 inches long can be more easily fastened with sealant behind the flashing and is less likely to leak than smaller fasteners.

This subpart also modifies the fourth sentence in section R703.2 by adding the phrase “in the water-resistive barrier or flashing” after the phrase “Where joints occur.” Additionally, the word “felt” is deleted and replaced with “the joints” before the phrase “shall be lapped.” The above modification are reasonable and necessary because the 2012 IRC requires that water-resistive barrier joints be lapped 6 inches, but fails to address joints in the flashing. These changes will ensure that flashings and water-resistive barriers are installed with proper lapping to protect or limit water intrusion for Minnesota residential construction.

The rest of the text in section R703.2, including the exceptions, has not been amended from that of the model code. Based on Dr. Goldberg’s research and Air Tamarack Inc.’s experience, it is reasonable and necessary to amend section R703.2 to provide greater protection in Minnesota from water intrusion at the flashing locations.

The amendments to Section R703.2 may create a cost increase only for residential builders that are currently using a flashing with less than a two-inch vertical leg. However, as indicated above, most residential builders in Minnesota are already installing flashings having a vertical leg of at least two inches or more as part of their standard method of construction. A local lumber supplier was contacted with regards to the drip cap flashing available and cost for installation above windows, doors, and other required locations. The supplier stocks 1 ¼” x 10’, 1 3/8” x 10’, and 2” x 10” aluminum flashings. There is only a \$0.03 additional cost per linear foot to use 2” flashing in lieu of 1 ¼” or 1 3/8” flashings. Air Tamarack Inc., states that a typical 2500 square foot home in Minnesota requires about 70 feet of cap flashings for the windows and doors (this assumes 16 windows 4 feet wide and two doors of average size). For this 2500 square foot home example, the additional cost to increase the flashing width to 2” is approximately \$2.10.

Subp. 3. R703.6, Exterior plaster. This section is amended by deleting the references to the editions of the standards cited therein. The 2012 IRC, chapter 44, Referenced standards, references both ASTM C 926-06 and ASTM C 1063-08, which identifies the year of the applicable standard. Therefore, references to the editions of those standards in this amendment are no longer

necessary. It is reasonable to delete these references since it is no longer necessary and is identified in chapter 44 in the 2012 IRC.

R703.6.1, Lath. section R703.6.1, Lath, is not modified but included for context.

R703.6.1.1, Control joints and expansion joints. During the adoption of the 2006 IRC, code language regarding control joints and expansion joints were added by amendment. This language is being carried over to the 2012 IRC and amended to correct minor issues with the current text. The modification to this section corrects minor issues by deleting the edition of the referenced standard “03” that follows the reference to ASTM C 1063. Chapter 44 of the 2012 IRC, Referenced standards, references the ASTM C 1063 – 08 edition. Therefore, the reference to the edition for this standard contained in this rule part is no longer necessary. The amendment is also modified by adding missing decimal points to the section references “7.11.4-7.11.4.4” contained in the second sentence of section R703.6.1.3, as amended. This change is reasonable and necessary to correct typographical errors in the rule.

R703.6.2, Plaster. Part 1309.0703, subpart 3, of the proposed rules is amended to delete the reference to IRC Table R702.1(3) from the adoption of subsection R703.6.2 of the 2012 International Residential Code. Deletion of this reference is needed to alleviate confusion and conflict between required exterior and interior plaster mix proportions. The Administrative Law Judge addressed this change in Findings of Fact Nos. 96–98 and Conclusion No. 8 of the February 7, 2014 Report and determined that the change is needed, reasonable, and not a substantial change from the rule as originally proposed.

The modification to section R703.6.2 of the 2012 IRC is added to provide context to the rule amendment and make the amendment complete. If this language is not included in the amendment, the amendment will appear to have deleted this text from section 703.2. It is reasonable to add section R703.6.2 to the rule language for accuracy, ease of use, and uniform enforcement.

R703.6.2.1, Weep screeds. This section is amended by incorporating the metric equivalent, which was inadvertently left out during the previous rulemaking. This section is also amended by deleting the edition of the referenced standard “03” that follows the reference to ASTM C 1063. Chapter 44 of the 2012 IRC, Referenced standards, references the ASTM C 1063 - 08 edition, so this part, which identifies the edition, is no longer necessary.

R703.6.1.3, Control joints and expansion joints. This section has been renumbered from R703.6.1.3 to R703.6.1.1 to correct the current rule as written. The current rule lists the section references numerically as R703.6, R703.6.1, R703.6.2.1, R703.6.1.3, and R703.6.3. As written, Section R703.6.1.3 should have followed R703.6.1 for proper numerical order. To correct this item Section R703.6.1.3 is renumbered to R703.6.1.1.

R703.6.3, Water-resistive barriers. The amendment to this section is modified by adding the word “of” to both subitems 1 and 2 to correct a grammatical error. This section is also modified by changing the reference to the edition of the AATCC 127 standard from “1998” to “2008.” This year of standard date is important and must be included in the amendment because this standard is not referenced in chapter 44 of the 2012 IRC code document.

R703.6.4, Application. This code section was not contained in the 2006 IRC and is new to the 2012 IRC. The modification to this new section adds a second sentence to the exception about when the second coat of stucco can be applied. The new text is consistent with the text in section 2512.8 of the 2012 IBC and is similar to the requirements in ASTM C 926, which is referenced in the exception contained in Section R703.6.4. 2012 IRC, section R703.6, Exterior plaster, requires that the installation of exterior plaster materials shall comply with ASTM C 926, ASTM C 1063, and the provisions of the code. ASTM C 926 is specifically referenced here because this standard addresses the application of portland cement based plaster. ASTM C 1063 is specifically referenced here because this standard addresses the application of lathing and furring to receive interior and exterior portland cement based plaster.

This second coat application practice has been recognized by ASTM C 926. Following are the sections from the ASTM C 926 regarding the second coat of stucco, which reads as follows:

“7.2.1.2 The first (scratch) coat shall become sufficiently rigid to support the application of the second (brown) coat without damage to the monolithic continuity of the first (scratch) coat or its key.

7.2.2. The second (brown) coat shall be applied with sufficient material and pressure to ensure tight contact with the first (scratch) coat and to bring the combined thickness of the base coat to the nominal thickness shown in Table 1.”

The Minnesota Lath and Plaster Bureau and the Northwest Wall and Ceiling Bureau recommend this procedure, sometimes called the “double-back” method, because it ensures a more intimate bond between the successive applications of the plaster and provides for a more uniform and better curing of the basecoat (the combined application of the first and second coat). The added exception is reasonable because it acknowledges a procedure already in practice by the plastering industry and it eliminates ambiguity with the reference to the ASTM C 926 Standard.

There will be no cost increase to residential builders and designers. The amendment merely adds an industry accepted practice to the Minnesota Building Code, which is also recognized in the ASTM C 926 standard.

R703.6.5, Curing. Section R703.6.5 is amended to add the phrase “except as noted in section R703.6.4” at the end of the second sentence. The modification to the section clarifies an ambiguity related to the amendment in Section R703.6.4. The new sentence added to the exception contained in section R703.6.4 states: “the second coat is permitted to be applied as soon as the first coat has attained sufficient rigidity to receive the second coat.” This installation method, sometimes called the “double-back” method, ensures a more intimate bond between the successive applications of the plaster and provides for a more uniform basecoat and better curing of the coats (the combined application of the first and second coat). The requirement that the second coat be applied no sooner than 48 hours after the application of the first coat would contradict current industry practice. While it is acceptable to install the second coat 48 hours after the first coat, the plastering industry recognizes that the first coat attains sufficient rigidity oftentimes within hours of its initial installation. Therefore, the requirement to wait 48 hours after the first coat is not necessary if the double-back method is used. The new language is reasonable because it acknowledges a procedure that is already being practiced by the plastering industry and eliminates any confusion. Moreover, there is no cost increase to residential builders and designers because the amendment adds an industry accepted practice already in use in the state of Minnesota.

Subp. 3a. R703.7, Stone and masonry veneer, general. This subpart is being repealed. The current amendment to this 2006 IRC section permits stone and masonry veneers to be installed on more than the first story above grade by applying exceptions for Seismic Design Category A to be used in Minnesota. This practice is already permitted in Minnesota Rules, part 1309.0301, subpart 2, Table R301.2 (1). Therefore, this amendment is redundant and is no longer necessary.

Subp. 9. R703.8, Flashing. The modifications to the 2006 IRC, section R703.8 amendment, are a result of 1309 Advisory Committee recommendations and DLI staff discussions. The modifications include text from the 2012 IRC and revisions to location number one requirements by reformatting the text. Location number nine is modified by deleting the phrase “kick out” and adding a reference to section R903.2.1. A new location number ten is added to the list of locations.

A new sentence is added to the general provision in R703.8 that states when self-adhered membranes are used for flashing, the flashing shall comply with the American Architectural Manufacturers Association standard 711 (“AAMA 711”), which is an option for self-adhered flashing when used with fenestration products. The text is added to this section because it was added to the 2012 IRC. The change is necessary to coordinate this amendment with the 2012 IRC.

The following changes are made to the flashing locations as identified in section R703.8:

Amendments to location number 1 include changes made to the 2012 IRC with additional modifications included for clarity. The first sentence is amended by deleting the word “at” and replacing it with the phrase “shall be installed at the head and sides of” after the word “flashing.” This modification is necessary because it incorporates new text that was added to the 2012 IRC model code document and is necessary for consistency and clarity. The first sentence is also modified by adding “and” following “door openings” to clarify that the flashing must also extend to the exterior wall finish or to the water-resistive barrier for subsequent drainage. A new second sentence requiring exterior windows and doors to comply with at least one of the new sub items (a), (b), or (c) is added because they were added to the 2012 IRC, with the exception for pan flashing requirements, which are addressed in section R703.8.1. These modifications will provide additional clarity to the requirements. Subitems (b) and (c) are added to coordinate with changes made to the 2012 IRC.

Locations 2 through 8 are unchanged from the existing rule.

Location 9 is amended by deleting the phrase “or kick out” because the phrase is not used in this section of the 2012 IRC. However, the requirement known as “kick out flashing” is still addressed in section R903.2.1 of the 2012 IRC, as amended. The definition for “kick out flashing” is still included in the amendments to section R202 because the phrase is used in another location in this rule chapter.

Location 10 is added to address flashing requirements where the foundation intersects with the rim joist framing. This flashing provision acknowledges that some exterior foundation insulations can range between one-inch to three or more inches in thickness when installed. The proposed Minnesota Rules, chapter 1322, will require R-15 exterior foundation insulation as a prescriptive requirement with other options for compliance. The R-15 foundation insulation requirement is based on the 2009 IECC. The 2009 IECC is the minimum standard that Minnesota must meet or exceed to comply with a federal mandate as part of the American Recovery and Reinvestment Act of 2009 (“ARRA”). This federal mandate requires that minimum standards be met or exceeded using cost effective products which are commonly available. *See* Minnesota Rules, chapter 1322, for further detail and explanation.

The sill plate cannot be cantilevered to be flush with the exterior foundation insulation, so a flashing is necessary to flash the offset at the sill plate and exterior face of the foundation insulation. Contractors often want to cantilever the foundation sill plate to align it with the foundation insulation. This cantilever is not recommended from a structural standpoint. An R-15 foundation insulation installed on the exterior of the foundation could be up to three or more inches in thickness, depending on the product manufacturer. A typical sill plate is a 2 by 6-inch treated plate, which actually measures 5 ½ inches in width. A sill plate cantilevered to align with a 3-inch foundation insulation leaves only 2 ½ inches of sill plate to bear on the foundation. Wall framing studs need to be supported by the foundation, not the insulation. This amendment acknowledges that there may be a misalignment between the exterior surface of the foundation insulation and the exterior surface of the wall framing (including the sill plate). In this case, the location must be properly flashed.

It is necessary and reasonable to coordinate the amendments to section R703 with changes made to the 2012 IRC to provide consistency to the rule. It is also necessary to incorporate the new language to clarify the requirements for flashing and to provide uniform enforcement of these requirements.

There will be no cost increase to residential builders and designers related to locations one through nine, which simply clarify existing rule language. There will be a cost increase for residential builders that do not currently install the flashing required in location number ten of this section. Many residential builders are currently installing some form of flashing with respect to this condition because they have already been placing the foundation insulation on the exterior of the foundation. The practice of installing the foundation insulation on the

exterior of the foundation has been encouraged for several years by energy and sustainability experts, even though the current Energy Code permits interior and exterior foundation insulation installation.

R703.8.1, Pan flashing of windows and doors.

Pan flashing requirements are now included in the 2012 IRC, but were not previously included in the 2006 IRC. The current amendment for section R703.8.1 regarding “pan flashing” will be carried forward. However, the language will also incorporate 2012 IRC language while maintaining the current exceptions. The modification to the existing amendment to section R703.8.1 requires pan flashing to be installed according to the fenestration manufacturer’s installation and flashing instructions or in according to the requirements of this section when manufacturer’s installation instructions are not provided. This amendment is necessary to require that door and window installations must still comply with this section when manufacturer instructions are not available. The content of this section with the listed exceptions is necessary because it provides better clarity for uniform enforcement than do the requirements of the 2012 IRC. The content of the existing exceptions remains unchanged.

1309.0802 SECTION R802, WOOD ROOF FRAMING.

R802.10.5, Truss to wall connection. This rule part is being repealed because the 2012 IRC no longer contains section R802.10.5 and that information is now renumbered in the 2012 IRC to R802.11, Roof tie down. Therefore, this amendment is no longer required.

1309.0806 SECTION R806, ROOF VENTILATION

R806.4, Conditioned attic assemblies. The current amendment that deletes “conditioned attic assemblies” is being repealed. 2006 IRC, Section 806.4 was deleted because the language was unclear, conflicted with conventional Minnesota attic ventilation requirements, and improperly required an ASTM Standard. This section, renumbered R806.5 in the 2012 IRC, has been rewritten.

The changes made in the 2012 IRC Section R806.5 address Minnesota’s climactic conditions and concerns. It is reasonable to delete the existing amendment to Section R806.4 because it is no longer needed.

1309.0903 SECTION R903, WEATHER PROTECTION.

R903.2.1, Locations. This proposed amendment modifies section R903.2.1 of the 2012 IRC. The amendment adds the phrase, “A kick out” preceding the word “flashing” at the beginning of the second sentence of the 2012 IRC section. A new third sentence is added to specifically name the flashing as “kick out flashing” and to identify a minimum dimension for the flashing length. A definition for “kick out flashing” exists in Minnesota Rules, part 1309.0202, subpart 2. Although the term “kick out flashing” is not used in the 2012 IRC, the industry is familiar with the term, its requirements, and its benefits. Members of the forensic community have determined that “kick out flashing” should be a minimum of two and one-half inches long to properly divert rain water beyond the surface of the adjoining exterior wall. It is reasonable to add this language and the minimum dimension requirement for kick out flashing to provide clarity and to coordinate with other code sections. The last sentence of 2012 IRC, section R903.2.1, remains unchanged.

R903.2.2, Kick out flashing/diverter. The current amendment regarding “kick out flashing/diverter” is being repealed because the requirements for “kick out flashing” are now included in the 2012 IRC. Although the term “kick out flashing” is not used in the 2012 IRC language, the requirements pertaining to kick out flashing are covered in section R903.2.1, Locations. It is reasonable to delete the existing amendment because the concepts and requirements are incorporated into the 2012 IRC model code.

R903.2.1.1, Existing buildings and structures. This is a new amendment intended to encourage uniform enforcement regarding kick out flashing installed in existing buildings and structures. The amendment requires that kick out flashing shall be installed when simultaneously re-siding and re-roofing an existing building or structure. The exception clarifies that kick out flashing is not required when only re-roofing an existing building or structure. This amendment will help clarify the requirements for kick-out flashing, including when and where it applies.

1309.0905 SECTION R905, REQUIREMENTS FOR ROOF COVERINGS.

Subp. 2. R905.2.8.5, Drip edge. This proposed amendment deletes 2012 IRC, section R905.2.8.5, Drip edge, in its entirety. As written in the 2012 IRC, drip edge material would be required as part of the roof covering installation requirements. A code requirement for drip edge has never been required in Minnesota’s code history, unless specifically required by the roof covering

manufacturer's installation instructions. Most roof covering manufacturers' installation instructions recommend a drip edge, but do not mandate its installation. The installation of a drip edge has always been the choice of builders or designers and the inclusion or exclusion of a drip edge has not created an issue in Minnesota. It is reasonable to delete this section from the model code because it was not shown to be necessary or to serve any useful purpose, and would increase the cost of construction.



2015

MINNESOTA CONSERVATION CODE for EXISTING BUILDINGS



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Adoption of the International Existing Building Code, Minnesota Rules, Chapter 1311; Revisor's ID Number RD4145.

INTRODUCTION

Until May 16, 2005, the Minnesota State Building Code was adopted, administered, and amended by the Department of Administration pursuant to Minnesota Statutes, sections 16B.59 to 16B.76. By Executive Order (Department of Administration Reorganization Order No. 193), Governor Pawlenty transferred the responsibility for the Minnesota State Building Code to the Department of Labor and Industry ("Department" or "agency"), effective May 16, 2005.¹³ The transfer of this responsibility to the Department was confirmed by statute in 2007. *See* Minnesota Statutes, section 326B.02, subdivision 1 (added by 2007 Minn. Laws chapter 140, art. 2, § 3). The Minnesota State Building Code is identified in Minnesota Rules, part 1300.0020.

On March 31, 2003, the Department of Administration adopted the 2000 Guidelines for the Rehabilitation of Existing Buildings ("GREB") with state amendments.¹⁴ This document was published by the International Conference of Building Officials ("ICBO"). At that time, the Department of Administration utilized an advisory committee to review several draft code documents for existing buildings that were being reviewed by other states. The advisory committee chose the draft form of the 2000 Uniform Code for Existing Buildings and proposed numerous changes to the document. For the Department of Administration to incorporate a document by reference in Minnesota, the document must be a published document and available to the public.¹⁵ At the time of review, this document was still in draft form. The ICBO then issued a copyrighted version of the document so that it could be incorporated by reference into rule and into the Minnesota State Building Code. The published document was re-titled "Guidelines for the Rehabilitation of Existing Buildings" and was available for purchase from the code publisher.

After the release of the GREB document, the ICBO merged with other code publishers around the United States and collectively became the International Code Council, Inc. ("ICC"), who publishes many of the model codes incorporated in the Minnesota State Building Code. The GREB code published by ICBO was one of the model documents for existing buildings that was utilized by the ICC as the basis for the development and publication of the 2001 final draft of the International Existing Building Code ("IEBC"). In 2003, the ICC issued the first edition of the IEBC, which was a comprehensive set of regulations for existing buildings consistent with and inclusive of the scope of the existing model codes. The 2012 edition of the IEBC presents the code as originally issued in 2003 with the changes reflected in the 2006 edition, the 2009 edition, and additional changes approved through the ICC code development process through 2010.

The Department is updating the Minnesota Conservation Code for Existing Buildings ("Minnesota's Existing Building Code") and has chosen to incorporate by reference, with amendments, the 2012 edition of the IEBC. The GREB is outdated and generally replaced by the IEBC.

The Department formed the 1311 – Existing Building Code Committee to advise the Department on chapter 1311 rulemaking. The notes from each of the five meetings are available on the Department's web site located at <http://www.dli.mn.gov/CCLD/rm/1311agendas.asp>.¹⁶ A list of the committee members is available at <http://www.dli.mn.gov/CCLD/rm/1311members.asp> and in Exhibit A of this document. Additionally, pursuant to Minn. Stat. § 326B.106, subdivision 1, the Department consulted with the Construction Codes Advisory Council ("CCAC") on June 21, 2012. The CCAC reviewed a draft of the proposed rules and received an update on 1311 and a brief history of the GREB from the Department.

¹³ "Minnesota State Building Code" refers to the collection of chapters that make up the Minnesota State Building Code listed in Minn. R. 1300.0050. It is sometimes referred to as the "State Building Code." E.g., Minn. Stat. § 326B.101.

¹⁴ There are no subsequent editions of the GREB.

¹⁵ Minn. Stat. § 14.07, subd. 4.

¹⁶ The 1311 Committee met on December 16, 2011, January 5, 2012, February 17, 2012, March 2, 2012, and March 23, 2012.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1311
MINNESOTA CONSERVATION CODE FOR EXISTING BUILDINGS**

GENERAL.

The adoption of this code is based on Minnesota Statutes, section 326B.106, which requires the Department to adopt a code for “building conservation.” The Department interprets this to mean that the reuse of existing buildings should be encouraged by adopting essential minimum code provisions to renovate an existing building that are less restrictive than Minnesota Rules, Chapter 1305, which adopts the IBC.

References to the “International Fire Code” (“IFC”) are deleted. The IFC is adopted by reference into the Minnesota State Fire Code (“MSFC”) in chapter 7511, with amendments, and applies retroactively to existing buildings statewide. Since the MSFC applies statewide and is applicable to existing buildings regulated by this chapter, the entire MSFC is not needed in this chapter.

However, several provisions of the MSFC are needed and repeated in this chapter to provide for uniform enforcement for building officials and fire officials. The provisions are as follows: part 1311.0402, section 402 Additions, IEBC section 402.5 Smoke alarms in existing portions of a building, part 1311.0403, section 403 Alterations, subpart 1, IEBC section 403.1 General, exceptions #1 and #2 for existing stairways, section 403.6 Smoke alarms, Minnesota Rules, part 1311.0405 Fire Escapes, IEBC section 405.4 Dimensions, and table 405.4 Dimensions for existing and replacement fire escape stairs. It is reasonable to include certain provisions from the MSFC in the IEBC to ensure that there are no conflicts between the MSFC and the IEBC for existing buildings.

1311.0010 ADOPTION BY REFERENCE OF THE INTERNATIONAL EXISTING BUILDING CODE.

Subpart 1. General. The current language is deleted because the Department is no longer incorporating by reference the GREB. Instead, the Department is adding new language to incorporate by reference a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the incorporation language pertaining to the GREB is no longer necessary or reasonable.

Subp. 2. Mandatory chapters. This subpart is necessary because it identifies those IEBC chapters that will be included in the Minnesota State Building Code. Chapter 1, “Scope and Administration,” is not adopted because Minnesota Rules, Chapter 1300, “Administration

of the State Building Code” provides the administrative and scoping provisions for all of the Minnesota State Building Code chapters.

Subp. 3. Replacement chapters and provisions.

This subpart directs the code user to use certain Minnesota Rule chapters that pertain to the specific code provisions or code topics referenced throughout the IEBC instead of the chapters or sections referenced in the IEBC or other ICC documents. This amendment is necessary to ensure that Minnesota Rule chapters that have been adopted into the Minnesota State Building Code pertaining to specific code provisions referenced in the IEBC are followed and enforced instead of un-amended IEBC sections or other ICC documents that do not apply.

A. Accessibility for existing buildings.

Minnesota Rules, Chapter 1341, contains the code provisions related to accessibility requirements for buildings and structures in the Minnesota State Building Code. As a result, all references in the IEBC to accessibility are deleted and Chapter 1341 will apply.

B. Administration.

Minnesota Rules, Chapter 1300, contains all code provisions related to administration of the Minnesota State Building Code and will provide the administrative provisions in lieu of chapter one in the IEBC.

C. Elevators and platform lift provisions.

Minnesota Rules, Chapter 1307, contains all code provisions related to elevators and related devices in the Minnesota State Building Code. As a result, all references in the IEBC to elevators or related devices are deleted and Chapter 1307 will apply.

D. Flood hazard or floodproofing provisions.

Minnesota Rules, Chapter 1335, contains the code provisions related to floodproofing regulations. As a result, all references in the IEBC to flood hazard or floodproofing are deleted and Chapter 1335 will apply.

E. Construction Safeguards.

IEBC Chapter 15, Construction safeguards, is deleted and replaced with 2012 IBC, Chapter 33, Safeguards During Construction, as adopted and amended in Chapter 1305. Chapter 15 of the IEBC and Chapter 33 of the IBC are similar but not identical. The IBC is more widely used by building officials, architects, engineers, and builders than the IEBC so those professionals will be more familiar with the IBC.

It is easier for all involved parties to become familiar with Chapter 33 of the IBC rather than both Chapter 15 of the IEBC and Chapter 33 of the IBC. It is reasonable to have only one chapter apply to safeguards during construction rather than two.

F. Seismic or earthquake provisions. Seismic or earthquake provisions are not adopted into this code because Minnesota does not experience seismic events. As a result, all references to seismic or earthquake provisions in the IEBC are deleted and do not apply.

1311.0020 REFERENCES TO OTHER INTERNATIONAL CODE COUNCIL CODES.

Subpart 1. General. This subpart provides a scope about the applicability of other ICC Codes referenced in the IEBC. This amendment is necessary to establish the application of the references to other International Code Council Codes that are referenced in the IEBC. This amendment is reasonable because it provides a mechanism to properly apply other provisions of the Minnesota State Building Code.

Subp. 2. Building code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Building Code found in the IEBC. The International Building Code is adopted by reference in Minnesota Rules, Chapter 1305, Adoption of the International Building Code, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the IEBC.

Subp. 3. Fire code. The IEBC contains references to the “International Fire Code,” (“IFC”) which are deleted in part 1311.0020, subpart 3. The Minnesota State Fire Code (“MSFC”) applies retroactively to existing buildings statewide. Therefore, IEBC references to the IFC do not apply and are deleted.

Subp. 4. Property maintenance code. This subpart deletes the references to the International Property Maintenance Code from the IEBC. The State of Minnesota does not adopt the International Property Maintenance Code or any other property maintenance code.

Subp. 5. Fuel Gas Code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Fuel Gas Code found in the IEBC. The International Fuel Gas Code is adopted by reference in Minnesota Rules, Chapter 1346, Adoption of the International Mechanical and Fuel Gas Codes, with amendments. This amendment is reasonable

and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the IEBC.

Subp. 6. Mechanical code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Mechanical Code found in the IEBC. The International Mechanical Code is adopted by reference in Minnesota Rules, Chapter 1346, Adoption of the International Mechanical and Fuel Gas Codes, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the IEBC.

Subp. 7. Plumbing code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Plumbing Code found in the IEBC. The International Plumbing Code is not adopted in Minnesota Rule. Minnesota instead has its own plumbing code located in Minnesota Rules, Chapter 4715, which must be used in place of any reference to the International Plumbing Code. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter for plumbing when applying references to the International Plumbing Code found in the IEBC.

Subp. 8. Energy conservation code. This subpart provides the appropriate Minnesota Rule chapters that must be used to replace any reference to International Residential Energy Conservation Code or International Commercial Energy Conservation Code found in the IEBC. The International Residential Energy Conservation Code and the International Commercial Energy Conservation Code are adopted by reference in Minnesota Rules, Chapters 1322 and 1323, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapters for energy conservation when applying references to the International Energy Conservation Codes found in the IEBC.

Subp. 9. Residential code. Chapter 1311 does not apply to any construction regulated by the International Residential Code as amended in Minnesota Rules, Chapter 1309. Therefore, any reference to the International Residential Code is deleted.

Subp. 10. Private sewage disposal code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Private Sewage Disposal Code found in the IEBC. The International Private Sewage Disposal Code is not adopted in Minnesota Rule. Instead, Minnesota Rules, Chapter 7080, is the Minnesota Pollution Control

Agency's minimum standards and criteria for individual sewage treatment systems. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter for private sewage disposal when applying references to the International Private Sewage Disposal Code found in the IEBC.

Subp. 11. Electrical code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the National Electrical Code found in the IEBC. The National Electrical Code is incorporated by reference in Minnesota Rules, Chapter 1315. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter for electrical when applying references to the National Electrical Code found in the IEBC.

1311.0103 SECTION 103, SCOPE; 1311.0109 SECTION 109, MODIFICATIONS; 1311.0110 SECTION 110, TESTS; 1311.0201 SECTION 201, ADMINISTRATION.

These parts are repealed. The scope of these sections is covered in Minnesota Rules, Chapter 1300, and the other parts modify GREB sections. The Department is incorporating a new model document, the IEBC, into Minnesota's Existing Building Code. As a result, these parts are no longer necessary.

1311.0202 SECTION 202, GENERAL DEFINITIONS.

The current language in part 1311.0202, Permits required, is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota's Existing Building Code and the current language modifies GREB section 202. As a result, the language in the current rule is no longer appropriate or necessary. Section 202 in the IEBC provides general definitions. Some of the definitions in the IEBC section require amendments to coordinate with the Minnesota State Building Code. The title for the IEBC section 202 is General Definitions. Some definitions are modified and some are added in the proposed rule and the rationale is provided below.

Subpart 1. Section 202, General definitions; added. These are definitions added to the IEBC section.

Approved. This definition is added to this proposed rule and to other chapters in the Minnesota State Building code, including Chapter 1300, to give the building official discretion to approve new materials or technology while maintaining quality and the purpose of the rules.

Code. The word "code" is added and defined to mean the IEBC and the amendments in this proposed rule. Together, they comprise the code for existing buildings in Minnesota. Any reference to "the code" or "this code" shall mean the combination of the IEBC and its amendments. It is reasonable and necessary to define this term to differentiate this meaning from that of the Minnesota State Building Code.

Subpart 2. Section 202, General definitions; amended. These are definitions that are in the IEBC but amended in part 1311.0202.

Existing building. The phrase "date of adoption of the appropriate code" is deleted from the IEBC definition and replaced with "effective date of this code." The language "date of adoption of the appropriate code" is not clear as to when the code is applicable. The language "effective date of this code" provides a definitive date for the user to determine whether or not the building in question qualifies as an existing building.

Historic building. The phrase "or survey" was deleted after the phrase "or state designation law" from the IEBC definition. The fact that a building is included in a historic survey does not automatically confer historic building status. An historic building is determined to be historic by the State Historic Preservation Officer, or the Keeper of the National Register. Surveys can become outdated, may be incomplete or inaccurate, or may be prepared by unqualified persons so they are not a reliable source to determine a historic building's status. It is reasonable to delete surveys because they are not a reliable means to determine the historic status of a building.

Technically Infeasible, Accessibility. The term associated with this definition is changed to add the word "Accessibility" to it in order to distinguish this definition from the definition of "Technically Infeasible, Stair Construction." The term "technically infeasible" is used in two contexts for which different definitions are necessary. The context in which this definition is used is clear because it includes the word "accessibility." The definition for this term is from the IEBC.

Technically Infeasible, Stair Construction. The term associated with this definition is changed to add the word "Stair Construction" in order to distinguish this definition from the definition of "Technically Infeasible, Accessibility." The term "technically infeasible" is used in two contexts for which different definitions are necessary. The context in which this definition is used is clear because it includes the word "stairs." This definition is added to address situations in building renovation where structural or other physical constraints in existing buildings prevent complete compliance with a prescriptive

provision of the code for renovations to existing stairway construction.

1311.0203 SECTION 203, INSPECTION OF WORK; 1311.0205 SECTION 205, LIABILITY; 1311.0206 SECTION 206, UNSAFE BUILDINGS OR STRUCTURES.

These parts are repealed because they modify GREB sections. The Department is incorporating a new model document, the IEBC, into Minnesota's Existing Building Code. As a result, these rule parts are no longer appropriate or necessary.

1311.0301 SECTION 301, COMPLIANCE METHODS.

The title "definitions" is deleted because it reflects the GREB section 301 title. The Department is incorporating a new model document, the IEBC, into Minnesota's Existing Building Code. As a result, the GREB title is replaced with the IEBC section 301 title, "compliance methods."

Subpart 1. Section 301.1.1, Prescriptive compliance methods. The modification to this section deletes references to the International Fire Code. The MSFC, Minnesota Rules, Chapter 7511, applies statewide and is retro-active to existing buildings within the scope of Chapter 1311. It is reasonable to delete references to the Fire Code in this chapter because the MSFC covers this area of regulation as provided by Minnesota Statutes, section 299F.011; therefore, IFC references are not needed in these rules.

Subp. 2. IEBC Section 301.2, Additional codes. This section is amended by deleting GREB code amendments that no longer apply in this subpart; subsections on window cleaning anchors and replacement windows are added.

Section 301.2.1, Window cleaning anchors. This section is added to IEBC section 301. The Minnesota Legislature determined that the building code must include anchoring provisions for window cleaning safety. Minnesota Statutes, section 326B.106, subdivision 4(n), Special Requirements, is a new section which states:

The code must require the installation of dedicated anchorages for the purpose of suspended window cleaning on (1) new buildings four stories or greater and (2) buildings four stories or greater, only on those areas undergoing reconstruction alteration, or repair that includes the

exposure of primary structural components of the roof.

The commissioner may waive all or a portion of the requirements of this paragraph related to reconstruction, alteration, or repair, if the installation of dedicated anchorages would not result in significant safety improvements due to limits on the size of the project, or other factors as determined by the commissioner.

This requirement is a response to that legislation. The window cleaning anchors section of Minnesota Rules, part 1305.3112, is referenced so that the IEBC coordinates with Chapter 1305, the Minnesota Building Code, for window cleaning anchors.¹⁷

Section 301.3, Replacement windows. This section is added to IEBC section 301. The replacement window section of Minnesota Rules, part 1305.1029, subpart 3, is referenced so that the IEBC coordinates with Chapter 1305, amendments to the IBC, for replacement of existing windows.

1311.0401 SECTION 401, GENERAL.

Section 401.2.7. The current section amends GREB section 401.2.7 and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota's Existing Building Code. As a result, the current section pertaining to the GREB is no longer necessary or reasonable.

IEBC Section 401.1, Scope. The section is grammatically modified in this proposed rule for clarity. The reference to the ICC 300 in the exception is modified to reference Minnesota Statutes, section 326B.112. This modification is needed to clarify that Minnesota Statutes, section 326B.112 regulates these items.

1311.0402 SECTION 402, ADDITIONS.

IEBC Section 402.3, Existing structural elements carrying gravity load. This proposed change will establish that an evaluation by a design professional will be the basis for determining if strengthening or enhancement of the structural element is needed if the increased load on a structural element exceeds 5 percent. The current code language is interpreted to mean that any increased load will require an engineering analysis and replacement or reinforcement of a structural element. The

¹⁷ The Minnesota Building Code refers to only chapter 1305, which adopts the International Building Code.

proposed language is needed to permit an increase in gravity loads up to 5 percent before it will require strengthening, supplementing, or replacement of the structural element. The structural committee determined that it is reasonable to permit a 5 percent increase in gravity loads before engineering analysis is necessary.

IEBC Section 402.5, Smoke alarms in existing portions of a building. This section is amended to provide coordination between Chapters 1311 and Chapter 7511, the MSFC. The relevant portion of the MSFC is replicated here to maintain consistency between the chapters for designers, building officials, and fire marshals when addressing smoke alarms in existing buildings.

1311.0403 SECTION 403, ALTERATIONS.

Subpart 1. IEBC section 403.1 General. The current rule language amends the GREB and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the current amendment pertaining to the GREB is no longer appropriate or necessary.

IEBC 403.1, General. The IEBC exceptions are amended here. Proposed exception #1 is repeated from the MSFC. It is reasonable because consistency between the MSFC and this code is necessary for enforcement. Modifications to the first exception are in response to the concern expressed to the committee that existing stair renovations are required to comply with Chapter 1305, the IBC, which are overly restrictive for some existing buildings. The consensus was to incorporate the requirements for existing buildings in the MSFC so that the language will match requirements that already affect existing buildings. These changes are reasonable because it maintains consistency between the MSFC and the IEBC so that designers, building officials, and fire marshals have the same requirements for existing stair construction. Proposed exception #2 is needed for existing buildings where it would be technically infeasible to meet exception #1. Lastly, proposed exception #3 is added. It is needed to accommodate stair designs that cannot meet the handrail extension requirements without hindering required means of egress.

Subp. 2. IEBC Section 403.3. The current language amends the GREB and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the current language pertaining to the GREB is no longer appropriate or necessary. Subpart 2 is retitled “Section 403.3 Existing structural elements carrying gravity load” to be consistent with the IEBC section titles.

Section 403.3, Existing structural elements carrying gravity load. This proposed new language will clarify that an evaluation by a design professional will be the basis for determining if strengthening or enhancement of the structural element is needed if the increased load on a structural element exceeds 5 percent. The current code language is interpreted to mean that any increased load will require an engineering analysis and replacement or reinforcement of a structural element. The proposed language is needed to permit an increase in gravity loads up to 5 percent before it will require strengthening, supplementing, or replacement of the element. The Structural Advisory Committee determined that it is reasonable to permit a 5 percent increase in gravity loads before engineering analysis is necessary.

Subps. 3-7. The language in these subparts is repealed because it amends the GREB; the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the GREB amendment language is no longer appropriate or necessary.

Subp. 8. IEBC section 403.6, Smoke alarms. This proposed subpart is repeated from the MSFC for consistent requirements and enforcement for building and fire officials.

1311.0404 SECTION 404, REPAIRS.

The current rule language amends the GREB and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the GREB amendment is no longer appropriate or necessary.

IEBC Section 404.3, Substantial structural damage to gravity load-carrying components. This proposed amendment deletes the phrase “dead and live loads” from the IEBC section and replaces it with the phrase “all gravity loads.” Dead loads are loads that are relatively constant over time, including the structure itself.¹⁸ Live loads are temporary, of short duration, or

¹⁸ The IBC defines “dead load” as, “The weight of materials of construction incorporated into the building, including but not limited to walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, cladding and other similarly incorporated architectural and structural items, and the weight of fixed service equipment, such as cranes, plumbing stacks and risers, electrical feeders, heating, ventilating and air-conditioning systems and automatic sprinkler systems.

moving.¹⁹ “All gravity loads” includes snow loads as well as dead and live loads. This proposed change will clarify language that may lead to confusion for the building designer. The IEBC language distinguishes snow loads from dead and live loads and treats snow loads as a special case. In Minnesota, snow loading is the critical load condition on roofs and must always be considered; the proposed changes include snow loads in regard to structural repairs and evaluations.

1311.0405 SECTION 405, FIRE ESCAPES.

The current rule language amends the GREB and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the GREB amendment is no longer appropriate or necessary. A new part 1311.0405 is introduced here; it amends IEBC section 405.

IEBC Section 405.4, Dimensions. The proposed rule language coordinates dimensions for existing and replacement fire escape stairs with the MSFC. MSFC table 1027.16, is replicated here, and titled “Table 405.4 Dimensions for Existing and Replacement Fire Escape Stairs.” The MSFC is currently being updated. The proposed MSFC includes Chapter 11, Construction Requirements for Existing Buildings. The proposed change here is consistent with the proposed Chapter 11 and will maintain consistency for designers, building officials, and fire marshals when addressing existing exterior fire escapes.

1311.0407 SECTION 407, CHANGE OF OCCUPANCY.

The current language amends the GREB and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the current GREB amendment is no longer appropriate or necessary.

Subpart 1. IEBC Section 407.1, Conformance.

The phrase “No change shall be made in the” is deleted from the IEBC section and replaced with the phrase “Changes in the...shall be permitted if...” For clarity, the first sentence of this paragraph was revised to use positive statements rather than negative statements about changing the use of a building.

¹⁹The IBC defines “live load” as, “A load produced by the use and occupancy of the building or other structure that does not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or dead load.”

In the last sentence of the paragraph, the phrase “equally or” was added prior to the phrase “less hazardous.” The intent of this change is to provide the building official with direction when the proposed use is equal in hazard to the existing use. This language is similar to the current provision in Minnesota’s Existing Building Code. It is reasonable to permit less restrictive requirements when the new use of the building is equal in hazard as the existing use.

Subp. 2. Table 407.1, Life safety and fire risk.

This table is added to section 407.1. The intent of the table is to clarify how hazardous the various occupancies are in relation to one another. 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. It is reasonable to clarify when hazards in a building are equal or less hazardous than are currently present in a building.

Subp. 3. Section 407.1.1 Small assembly spaces.

This is a new subsection added to IEBC section 407.1. This new provision reflects similar language found in IBC section 303.1.2. Adding this provision for existing buildings helps coordinate this requirement with a similar provision found in the IBC for new buildings. Adding this language is reasonable to prevent a circumstance where requirements for existing buildings would be more restrictive than those for new buildings.

1311.0408 SECTION 408, FIRE ALARMS; 1311.0409 SECTION 409, HIGH RISE BUILDINGS; 1311.0410 SECTION 410, BOILER/FURNACE EQUIPMENT ROOMS; 1311.0411 SECTION 411, STRUCTURAL REQUIREMENTS; 1311.0413 SECTION 413, OTHER SAFETY FEATURES; 1311.0501 GENERAL.

These rule parts are repealed because they amend GREB sections; the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the GREB amendments are no longer appropriate or necessary.

1311.0502 SECTION 502, REPAIRS.

The current language amends the GREB and is deleted because the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the current GREB amendment is no longer appropriate or necessary. The language is replaced with an amendment to IEBC section 502.

IEBC Section 502.1, Scope. This section is amended by adding the phrase “worn or” before the phrase “damaged materials...” in the IEBC section. In this provision, the meaning of “damaged” is vague. Adding the phrase “worn or” helps clarify that damage could also include the need to replace or repair a component because it is simply worn out from use or exposure to weather.

1311.0503 SECTION 503, ENCLOSURE OF VERTICAL SHAFTS; 1311.0505 SECTION 505, STRUCTURAL SAFETY; 1311.0601 SECTION 601, CERTIFIED HISTORIC STRUCTURES; 1311.0603 SECTION 603, FIRE SAFETY; 1311.0604 SECTION 604, CHANGE OF OCCUPANCY.

These rule parts are repealed because they amend GREB sections; the Department is incorporating a new model document, the IEBC, into Minnesota’s Existing Building Code. As a result, the GREB amendments are no longer appropriate or necessary.

1311.0606 SECTION 606, STRUCTURAL.

IEBC Section 606.2.3, Substantial structural damage to gravity load-carrying components. The phrase “dead and live loads” is replaced with “all gravity loads.” The second sentence of the IEBC section that reads, “Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects” is deleted. The third sentence is amended by deleting the phrase “dead, live or snow” and replaced with the word “gravity.”

These proposed code changes clarify language that leads to confusion for building designers. The IEBC language differentiates between dead and live loads and treats snow loads as a special case. In Minnesota, snow loading is the critical load condition on roofs and must always be considered; the proposed changes include snow loads in regard to structural repairs and evaluations.

1311.0704 SECTION 704, MEANS OF EGRESS.

IEBC Section 704.1, General. The word “fire” was added in front of “protection” because “fire protection” more accurately describes the purpose of egress systems and the phrase is common industry terminology.

1311.0706 SECTION 706, STRUCTURAL.

IEBC Section 706.2, Addition or replacement of roofing or replacement of equipment. Exception #1 was modified by replacing the phrase “the force in the element by more than 5 percent” with the following: “the

demand-capacity ratio for the element by more than 5 percent. Additional loads due to snow retention as a result of a change in roof insulation shall be included in the evaluation.” The proposed new language references an increase in demand-capacity ratio instead of “the force in the element...” This new language conforms to the industry standard for the practice of structural engineering in which calculations are prepared using reliability-based design methods and recognizes that a 5 percent increase in the stress may not be acceptable if the structural element demand-capacity ratio is already considerably above 1.00.

Exception #2 removes the reference to the International Residential Code (“IRC”) because this rule does not apply to buildings regulated by the IRC.

Exception #3 is the same as IEBC exception #3; it is replicated in the rule to clarify that it is a preserved part of the code.

1311.0707 SECTION 707, ENERGY CONSERVATION.

This IEBC section is amended to reference the Minnesota Energy Code rule Chapters 1322 and 1323, as applicable. Chapters 1322 and 1323 contain provisions for alterations to existing buildings. This modification is needed to prevent conflicts between Chapter 1311 and Chapters 1322 and 1323.

1311.0801 SECTION 801, GENERAL.

IEBC section 801.1, Scope. This amendment deletes the reference to section 404 from the IEBC section and replaces it with a reference to section 504. This change was made to correct an error made by the code book publisher.

1311.0802 SECTION 802, SPECIAL USE AND OCCUPANCY.

IEBC Section 802.1, General. This amendment adds the phrase “chapter 4 of” before the phrase “the International Building Code” and deletes the last phrase “and the scoping provisions of chapter 1 where applicable.” This additional language clarifies that provisions for special use and occupancy are found in IBC Chapter 4 “Special Detailed Requirements Based on Use and Occupancy.” The language regarding chapter 1 is deleted because chapter 1 is not adopted into this rule, and does not apply.

1311.0803 SECTION 803, BUILDING ELEMENTS AND MATERIALS.

IEBC Section 803.3.2, Fire-resistance rating.

This amendment is necessary because it is consistent with the language in NFPA 101 for a one-hour rating and the 2012 edition of the IBC, section 709.3 that also requires a one-hour rating. Smoke barriers are typically required in health care facilities where occupants depend on the barrier to protect them while a fire incident is addressed by the “defend in place” firefighting method. This particular barrier needs a fire rating of one hour to ensure its viability in a fire. NFPA standards and the IBC, including section 709.3, are used or adopted in other parts of the Minnesota State Building Code. Setting a standard consistent with those two standards facilitates consistency throughout the Minnesota State Building Code.

1311.0805 SECTION 805, MEANS OF EGRESS.

Subpart 1. IEBC Section 805.2, General.

IEBC section 805.2 is amended by deleting exception #1 that states “where the work area and the means of egress serving it comply with NFPA 101.” The proposed amendment preserves the IEBC exception #2 as the only exception to this section; it addresses the means of egress conforming to the requirements of the building code under which the building was constructed. The reference to NFPA 101 in exception #1 of the IEBC is not needed because it is redundant with the egress standards in the Minnesota State Building Code. The proposed exception gives the building official the parameters to accept existing means of egress components and is consistent with other chapters of the IEBC.

Subpart 2. Section 805.3.1.1, Single-exit buildings. IEBC subsection 805.3.1.1, single-exit buildings, subitem 4, states: “4. In community residences for the developmentally disabled, the maximum occupant load excluding staff is 12.” This subitem is deleted because in Minnesota, these residences are regulated by the Minnesota Department of Health or the Minnesota Department of Human Services.

1311.0807 SECTION 807, STRUCTURAL.

IEBC Section 807.4, Existing structural elements carrying gravity loads. This section is amended by deleting the language in exception #1 that states: “Structural elements whose stress is not increased by more than 5 percent” and replacing it with “Structural elements whose demand-capacity ratio is not increased by more than 5 percent. Additional loads due to snow retention as a result of a change in roof insulation shall be included in the evaluation.” The proposed amendment refers to an increase in the demand-capacity ratio instead

of the stress in the element. This language conforms to the industry standard for the practice of structural engineering in which calculations are prepared using reliability based design methods. The change will also recognize that a 5 percent increase in the stress may not be acceptable if the structural element demand capacity ratio is already considerably above 1.00. Re-roofing that involves new roof insulation with a higher R-value will increase snow retention and cause additional loading because the snow will no longer melt at the same rate; this additional loading needs to be included in the structural evaluation.

1311.0808 SECTION 808, ELECTRICAL.

Subpart 1. IEBC Section 808.1, New installations and Subp. 2. IEBC Section 808.2, Existing installations. Both subparts 1 and 2 reflect the following amendments to the IEBC: The reference to “Chapter 7” is replaced with “NFPA 70.” Chapter 7 does not reference the NFPA 70 document for electrical requirements, which is the adopted model code in Minnesota’s Electrical Code, Minnesota Rules, Chapter 1315. This amendment is necessary to appropriately reference to NFPA 70 for new electrical installations. The IEBC exception to 808.1 is deleted because the rule now references the same standard that is listed in the exception; the exception would be redundant.

1311.0810 SECTION 810, PLUMBING.

IEBC Section 810.1, Minimum fixtures. The IEBC code section is amended by deleting the reference to the “the International Plumbing Code” and replacing it with “Minnesota Rules, Chapter 1305.” This amendment is necessary because the number of plumbing fixtures is determined by using Chapter 29 of the IBC. The IBC is adopted by reference, with amendments, in Minnesota Rules, Chapter 1305.

1311.0811 SECTION 811, ENERGY CONSERVATION.

The section is amended to reference the Minnesota Energy Code rules in Chapters 1322 and 1323, as applicable. This is needed to prevent conflicts between the IEBC and Chapters 1322 and 1323.

1311.0903 SECTION 903, BUILDING ELEMENTS AND MATERIALS.

IEBC Section 903.2.1, Separation required. This section is amended by deleting the phrase “or any multiple single-family dwelling (townhouse).” This amendment is necessary because dwelling units meeting

the definition of “Townhome” are regulated by the IRC and not by the IEBC.

**1311.0908 SECTION 908,
ENERGY CONSERVATION.**

IEBC Section 908, Energy conservation. The section is amended to reference the Minnesota Energy Code rules in Chapters 1322 and 1323, as applicable. This is needed to prevent conflicts between the IEBC and Chapters 1322 and 1323.

1311.1007 SECTION 1007, STRUCTURAL.

IEBC Section 1007.1, Gravity loads. The exception was amended by deleting “Structural elements whose stress is not increased by more than 5 percent” and replacing it with “Structural elements whose demand-capacity ratio is not increased by more than 5 percent. Additional loads due to snow retention as a result of a change in roof insulation shall be included in the evaluation.” The proposed code change refers to an increase in demand-capacity ratio instead of the stress in the structural element. This amendment is necessary because the new language conforms to the industry standard for the practice of structural engineering in which calculations are prepared using reliability based design methods. Re-roofing that involves new roof insulation with a higher R-value will increase snow retention and cause additional loading because the snow will melt at a slower rate; this additional loading needs to be included in the structural evaluation.

1311.1010 SECTION 1010, PLUMBING.

IEBC Section 1010.1, Increased demand. This section was amended by adding the phrase “in accordance with Minnesota Rules, Chapter 1305” after the phrase “different plumbing fixture requirements.” This amendment is necessary because plumbing fixtures must be determined by using Chapter 29 of the IBC, which is adopted by reference, with amendments, in Minnesota Rules, Chapter 1305. This amendment is also modified by changing the references to the “International Plumbing Code” to read “Minnesota Rules, Chapter 4715.” This change is necessary because Minnesota does not adopt the International Plumbing Code. Minnesota’s plumbing code is located in Minnesota Rules, Chapter 4715. This will provide an accurate reference to the plumbing code.

**1311.1012 SECTION 1012, CHANGE OF
OCCUPANCY CLASSIFICATION.**

IEBC Section 1012.2.1, Fire sprinkler system. This section is amended by deleting “Chapter 9 of the

International Building Code” and replacing it with “Minnesota Rules, Chapters 1305.” This amendment is necessary because this section provides requirements for a change of occupancy, and specifically addresses fire sprinkler systems. However, the IBC with amendments, which are incorporated in Minnesota Rules, Chapter 1305, also contains sprinkler provisions. Fire sprinkler systems in Minnesota must comply with Chapter 1305.

1311.1103 SECTION 1103, STRUCTURAL.

Subpart 1. IEBC Section 1103.2, Additional gravity loads. This section is amended by modifying exception 1. Exception #1 is amended by deleting “Structural elements whose stress is not increased by 5 percent” and replacing it with “Structural elements whose demand-capacity ratio is not increased by more than 5 percent. Additional loads due to snow retention as a result of a change in roof insulation shall be included in the evaluation.” The proposed change refers to an increase in demand-capacity ratio instead of the stress in the element. This modification is necessary because the new language conforms to the industry standard for the practice of structural engineering in which calculations are prepared using reliability-based design methods. Re-roofing that involves new roof insulation with a higher R-value will increase snow retention and cause additional loading because the snow will melt at a slower rate; this additional loading needs to be included in the structural evaluation.

Exception #2 is modified by deleting a reference to provisions of the IRC. It is needed and reasonable to delete this reference because the IEBC does not apply to buildings regulated by the IRC.

Subp. 2. IEBC Section 1103.3, Lateral force-resisting system. This section is modified by removing the reference to the IRC because this rule does not apply to buildings regulated by the IRC.

Subp. 3. IEBC Section 1103.4, Snow drift loads. This section is amended by modifying exception #1 by deleting “Structural elements whose stress is not increased by more than 5 percent” and replacing it with “Structural elements whose demand-capacity ratio is not increased by more than 5 percent. Additional loads due to snow retention as a result of a change in roof insulation shall be included in the evaluation.” The proposed change refers to an increase in demand-capacity ratio instead of the stress in the element. This amendment is necessary because this new language conforms to the industry standard for the practice of structural engineering in which calculations are prepared using reliability-based design methods. Re-roofing that involves new roof insulation with a higher R-value will increase snow retention and cause additional loading because the snow will melt at a

slower rate; this additional loading needs to be included in the structural evaluation.

Exception #2 is modified by deleting a reference to provisions of the IRC. It is needed and reasonable to delete this reference because the IEBC does not apply to buildings regulated by the IRC.

1311.1201 SECTION 1201, GENERAL.

IEBC Section 1201.2, Report. This section is amended by deleting “shall be in accordance with Chapter 1 and...” because chapter 1 of the IEBC is deleted. This section is also amended by deleting language about Seismic Design Categories. Seismic sections of the IEBC are not adopted because Minnesota does not experience seismic events. This section, as amended, provides sufficient requirements for a report prepared by a registered design professional that will identify required safety features and where compliance with the IEBC provisions would damage historic features. It is reasonable for the report to the building official to be used to identify compliant features and IEBC provisions that, if applied, would be damaging to the historic features.

1311.1203 SECTION 1203, FIRE SAFETY.

IEBC Section 1203.10.1, Height. This section is amended by replacing “Section 605” with “Section 805.” This amendment is necessary because errata from the code publisher correct the code reference.

1311.1301 SECTION 1301, GENERAL.

IEBC Section 1301.2, Conformance. This section is amended by deleting “The building shall be safe for human occupancy as determined by the International Fire Code and the International Property Maintenance Code” and replacing it with “Buildings that are unsafe as provided in part 1300.0180, shall not be moved.” This amendment is necessary because the International Fire Code and the International Property Maintenance Code are not part of the Minnesota State Building Code. Additionally, Minnesota Rules, part 1300.0180, currently provides criteria to determine if a building is considered unsafe. This section is further amended by deleting “or the International Residential Code as applicable” because this rule does not apply to buildings regulated by the IRC. It is reasonable to delete references to codes that do not apply and are deleted in 1311.0020, subparts 3 and 4, respectively.

1311.1302 SECTION 1302, REQUIREMENTS.

IEBC Section 1302.3, Wind loads. In this IEBC section, the phrase, “or International Residential Code” is deleted because this rule does not apply to buildings regulated by the IRC. Additionally, exception #2 is amended by replacing the word “stress” with “demand-capacity ratio.” This amendment is necessary because the new language conforms to the industry standard for the practice of structural engineering in which calculations are prepared using reliability-based design methods.

1311.1401 SECTION 1401, GENERAL.

Subpart 1. IEBC Section 1401.2, Applicability.

This IEBC section is amended by adding the language “the effective date of this code” within the brackets provided by the code publisher. The publisher provided the brackets with instruction for the jurisdiction to insert a date that coincides with the effective date of the building codes of the jurisdiction. In order to ensure coordinated dates, it is reasonable to include the language “the effective date of this code” rather than a specific date. This amendment is necessary to clarify that any building constructed prior to the effective date of the current code would be considered an existing building.

Subp. 2. IEBC Section 1401.3.1, Hazards.

This IEBC section is amended by replacing the first reference to “Section 115” with “Minnesota Rules, part 1300.0180.” This amendment is necessary because provisions in the Minnesota State Building Code for unsafe buildings or structures are found in the administrative provisions of Minnesota Rules, part 1300.0180.

This IEBC section is also amended by replacing the second reference to “Section 115” with “Minnesota Statutes, sections 463.15 to 463.26.” This amendment is necessary because the requirements for abating unsafe buildings or hazardous conditions in buildings in Minnesota are in the referenced statutes.

Subp. 3. IEBC Section 1401.3.2, Compliance with other codes.

This IEBC section is deleted in its entirety to prevent conflicts with other Minnesota State Building Code rule chapters.



2015

MINNESOTA ENERGY CODE

with ANSI/ASHRAE/IES STANDARD 90.1-2010



← HEATING HOT WATER SUPPLY →

→ HEATING WATER RETURN ←



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Minnesota Residential Energy Code, Minnesota Rules, part 1322.0010-1322.2400; Revisor's ID Number R-04141

INTRODUCTION

The Department is proposing to also amend Minnesota's current Residential Energy Code by adopting and incorporating by reference the residential provisions, chapters 2(RE) through 5(RE) of the 2012 International Energy Conservation Code ("IECC"), with amendments.²⁰ The proposed rules provide energy efficiency requirements pertaining to new and remodeled residential buildings. The Department convened the 1322 – Residential Energy Code Committee to update chapter 1322.²¹ A complete list of the Residential Energy Code Committee members can be found in Exhibit B. The Advisory Committee was comprised of a diverse membership from industry, state agencies, and builders' groups from Minnesota, manufacturers, suppliers, educators, and others. Pursuant to Minnesota Statutes, section 326B.106, subdivision 1, the Department consulted with the CCAC on October 19, 2012, regarding Chapter 1322 proposed amendments.

²⁰ The IECC is a national model code promulgated by the International Code Council ("ICC").

²¹ The Residential Energy Code Committee met on January 5, 2012, February 2, 2012, February 16, 2012, March 12, 2012, and March 21, 2012.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1322
MINNESOTA RESIDENTIAL ENERGY CODE**

Throughout this analysis, there are references to the IRC and the IBC in both the radon control rules and the energy code rules. The IRC is incorporated by reference into the Minnesota State Building Code in Minnesota Rules, part 1309.0010, subpart 1, and the IBC is incorporated by reference into the Minnesota State Building Code in Minnesota Rules, part 1305.0011, subpart 1.

The proposed rules carry forward some of the requirements from Minnesota Rules, Chapter 1322 for radon control systems with modifications, and also incorporate new requirements. These requirements were located in Chapter 1322 at the time because that Minnesota Rule Chapter was open for amendments when legislation was passed to include radon control provisions in the Minnesota State Building Code. Minnesota Rules, Chapter 1303 is a better location for radon control system requirements because the requirements are specific to Minnesota and the rules apply to the construction of buildings built under the IRC and IBC, so putting the rules in chapter 1303 prevents repeating the same rules in Chapters 1305 (Adoption of the International Building Code) and 1309 (Adoption of the International Residential Code).

Minnesota Statutes, section 326B.106, subdivision 6, requires the radon control rules to incorporate the radon control methods found in the IRC appendix as a model but allows amendments to coordinate with the other adopted construction codes in Minnesota. The current rules use Appendix F of the IRC (“Appendix F”) as a model, but incorporation by reference was unnecessary because there are many modifications to the model language in the proposed rule. That is, Minnesota Rules, parts 1322.2101 through 1322.2103 are modifications, deletions, or additions to the language in Appendix F. Some of the language in the proposed rule has been carried forward from the existing rules without substantive revision. Some of the language is new to provide clear standards; the additions are based on experience about the radon control methods the Department has gained since the radon control rules were first promulgated.

1322.0010 ADOPTION OF INTERNATIONAL ENERGY CONSERVATION CODE (IECC) BY REFERENCE.

The Title of this section has been changed from “Definitions” to “Adoption of the International Energy Conservation Code (IECC) by Reference.” This modification is necessary because the “Definition” section was relocated to section 202 in the 2012 IECC. The actual definitions are deleted from this rule part but are relocated to Minnesota Rules, part 1322.0202. This rule part is being reused to provide the “incorporation by reference” information at the beginning of this rule.

Subpart 1. General. This new subpart is added to provide the necessary information to incorporate by reference the 2012 IECC.

Subp. 2. Mandatory chapters. This subpart is necessary because it identifies the residential IECC chapters (chapters 2(RE)-5(RE)) that are mandatory and will be enforced as part of the Minnesota State Building Code. Chapter 1 is not adopted because Minnesota Rules, Chapter 1300, Building Code Administration, provides the administrative and scoping provisions for all of the rule chapters that comprise the Minnesota State Building Code.

Subp. 3. Replacement chapters. This subpart is necessary to provide direction to the user pertaining to chapters in the IECC that do not apply and to provide appropriate information to redirect the user to the same subject matter in the Minnesota State Building Code. Specifically, Chapter 1300, Building Code Administration, provides the administrative provisions for this code instead of Chapter One in the Residential Provisions of the IECC.

1322.0015 ADMINISTRATION AND PURPOSE;

Subpart 2. Purpose. This subpart is modified by deleting the phrase “and radon control methods” because the provisions for radon control are being moved to Minnesota Rules, Chapter 1303. The radon control requirements were initially adopted into Minnesota Rules, Chapter 1322 because, at the time the legislation was passed requiring the Department to adopt these requirements, this was the only Minnesota Rule chapter that was open for rulemaking. It is necessary and reasonable to move these requirements out of the Energy

Code and into Minnesota Rules, chapter 1303, because the proposed radon control requirements are specific to Minnesota. Code requirements specific to Minnesota are located in Minnesota Rules, Chapter 1303.

1322.0030 REFERENCES TO OTHER INTERNATIONAL CODE COUNCIL (ICC) CODES.

Subpart 1. Generally. This subpart is needed and reasonable because it replaces the references to other ICC Codes in the 2012 IECC with references to the applicable portion of the Minnesota State Building Code.

Subp. 2. Building code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Building Code found in the 2012 IECC. The International Building Code is adopted by reference in Minnesota Rules, Chapter 1305, Adoption of the International Building Code, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the 2012 IECC.

Subp. 3. Residential Code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Residential Code found in the 2012 IECC. The International Residential Code is adopted by reference in Minnesota Rules, Chapter 1309, Adoption of the International Residential Code, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the 2012 IECC.

Subp. 4. Electrical code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the National Electrical Code found in the 2012 IECC. The National Electrical Code is incorporated by reference in Minnesota Rules, Chapter 1315. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter for electrical when applying references to the National Electrical Code found in the 2012 IECC.

Subp. 5. Fuel Gas Code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Fuel Gas Code found in the 2012 IECC. The International Fuel Gas Code is adopted by reference in Minnesota Rules, Chapter 1346, Adoption of the International Mechanical and Fuel Gas Codes, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the 2012 IECC.

Subp. 6. Mechanical code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Mechanical Code found in the 2012 IECC. The International Mechanical Code is adopted by reference in Minnesota Rules, Chapter 1346, Adoption of the International Mechanical and Fuel Gas Codes, with amendments. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter when applying those references found in the 2012 IECC.

Subp. 7. Plumbing code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Plumbing Code found in the 2012 IECC. The International Plumbing Code is not adopted in Minnesota Rule. Minnesota instead has its own plumbing code located in Minnesota Rules, Chapter 4715, which must be referenced in place of any reference to the International Plumbing Code. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapter for plumbing when applying references to the International Plumbing Code found in the 2012 IECC.

Subp. 8. Private sewage disposal code. This subpart provides the appropriate Minnesota Rule chapter that must be used to replace any reference to the International Private Sewage Disposal Code found in the 2012 IECC. The International Private Sewage Disposal Code is not adopted in Minnesota Rule. Instead, Minnesota Rules, Chapters 7080, 7082 and 7083, are the Minnesota Pollution Control Agency's minimum standards and criteria for individual sewage treatment systems. This amendment is reasonable and necessary to direct the user to the proper Minnesota Rule chapters for private sewage disposal when applying references to the International Private Sewage Disposal Code found in the 2012 IECC.

Subp. 9. Energy conservation code. This subpart provides the appropriate Minnesota Rule chapters that must be used to replace any reference to International Residential Energy Conservation Code or International Commercial Energy Conservation Code found in the IECC. The International Residential Energy Conservation Code and the International Commercial Energy Conservation Code are adopted by reference in Minnesota Rules, Chapters 1322 and 1323, with amendments. This modification is reasonable and necessary to direct the user to the proper Minnesota Rule chapters for energy conservation when applying references to the International Energy Conservation Codes found in the IECC.

Subp. 10. Property maintenance code. This subpart deletes the references to the International Property Maintenance Code from the 2012 IECC. The State of Minnesota does not adopt the International Property Maintenance Code or any other property maintenance code.

Subp. 11. Accessibility code. This subpart provides the appropriate Minnesota Rule chapter that must be used when any reference is made to accessibility or accessibility requirements. Minnesota Rules, Chapter 1341 is the Minnesota Accessibility Code.

1322.0040 ADMINISTRATIVE PROCEDURE CRITERIA.

This rule part is necessary to provide the user with the Minnesota Rule location of Minnesota's administration requirements. The administrative requirements in Minnesota Rules, Chapter 1300, provide administration and enforcement requirements for the entire Minnesota State Building Code.

1322.0100 ADMINISTRATION FOR RESIDENTIAL ENERGY.

In addition to Minnesota Rules, Chapter 1300, there are also more specific administrative provisions that relate to residential energy conservation. It is necessary to add these specific requirements to this rule so the user has access to all pertinent administrative provisions relative to the residential energy code.

Subpart 1. Administration. This subpart requires the user to apply not only the requirements of Minnesota Rules, Chapter 1300, but also the additional administrative provisions located in this rule part. This subpart provides clarity as to the makeup of all of the residential energy code administrative provisions that apply to this code.

Subp. 2. Scope. This subpart is needed to clarify that this rule chapter applies to residential buildings only as defined within the IECC. It is necessary to provide direction to the user regarding which buildings are regulated by this code because the IECC addresses energy code requirements for both residential and commercial buildings.

Subp. 3. Applicability. This subpart is added to provide the circumstances under which this code will apply to residential buildings.

A. Additions, alterations, renovations, and repairs. This subitem is added to provide specific conditions or circumstances under which

an existing building must comply with the residential energy conservation code. This language is contained in section R101.4.3 of the 2012 IECC, and is incorporated into this subitem with a few modifications. Section R101.4.3 is modified by making some small grammatical changes in the section and by adding two sentences at the end of the first paragraph pertaining to the installation of insulation. It is necessary to add this language because the IECC does not address attic bypasses and how they must be sealed. Several exceptions are added to this subitem which has been taken from Section R101.4.3, with some modifications to that language. The language in Exception 1 is taken from section R101.4.3 but is amended by deleting the word "fenestration" and replacing it with the word "windows." This modification is necessary because the word "fenestration" applies to windows and doors. However, in this provision, the requirement applies only to windows and not doors. The language in exception 5 is modified from the language in section R101.4.3 by deleting the language in the exception pertaining to reroofing and replacing it with "Reroofing and residing." This modification results in reroofing and residing projects being exempt from the energy code requirements because these projects do not significantly affect the building envelope. A new exception 9 is added pertaining to the applicability of insulation R-value, air barrier, and vapor retarder requirements for dwelling or dwelling units in which a permit was issued before June 1, 2009. The intent of this exception is to exempt buildings constructed prior to the effective date of the previous code, which is June 1, 2009. As such, it clarifies the requirement of the code for existing buildings.

B. Change in occupancy or use. This subitem is added to provide direction to the user about spaces undergoing a change in occupancy and subsequent compliance with this code. This language is taken from section R101.4.4 of the 2012 IECC and is included in this subitem without amendment.

C. Change in space conditioning. This subitem is added to provide direction to the user about unconditioned spaces altered to become conditioned spaces and subsequent compliance with this code. This language is taken from section R101.4.5 of the 2012 IECC and is included in this subitem with a minor grammatical change, but no substantive change.

D. Mixed occupancy. This subitem is added to provide direction to the user about mixed occupancy buildings and subsequent compliance with this code. This language is taken from section R101.4.6 of the 2012 IECC and is included in this subitem with minor amendment to the State Building Code references.

Subp. 4. Compliance. This subpart is added to include but modify the compliance provisions located in Chapter 1 of the 2012 IECC. The modifications change the references from IECC sections to the chapters of the State Building Code, specifically, Chapters 1322 and 1323.

A. Compliance materials. This subitem is added to provide direction to the user about a code official's ability to approve energy compliance through the use of computer software programs that demonstrate a building's energy performance is equal to or better than the prescriptive options of this code. This language is contained in section R101.5.1 of the 2012 IECC and is included in this subitem with only minor grammatical amendment. A building official's use of other compliance methods is a reasonable approach to acquire documented compliance for certain buildings that are not typical and would not otherwise meet the prescriptive option of this code.

B. Low energy buildings. This subitem is added to provide direction to the user about low energy buildings and their compliance with the code. This language is taken from section R101.5.2 of the 2012 IECC, with minor grammatical changes. This language addresses buildings that are not required to meet the energy code provisions because they use little or no energy. Requiring these buildings to meet the provisions of this code would be more costly than the amount of energy used by the building so it reasonable to exempt these buildings from the requirements of this code.

1. The exemption includes buildings that do not use greater than 3.4 Btu's or 1.0 watts of energy per square foot of floor area for space conditioning. The costs of compliance with the provisions of this code would be greater than the energy saved if built to comply with the code.
2. This exemption includes buildings that do not contain any conditioned space. These buildings do not use energy to condition

the space in the building. As a result, they are exempt from the requirements of this code. The cost of compliance with the provisions of this code would be greater than the energy saved if built to comply with the code.

1322.0103 CONSTRUCTION DOCUMENTS.

Information on construction documents. This rule part is added to the rule because Minnesota Rules, part 1300.0130, does not cover in sufficient detail the pertinent data and features required on construction documents to indicate how these buildings will comply with this code. It is reasonable to require the builder or designer to provide the jurisdiction with all the information that is needed to conduct a proper plan review and to ensure all necessary information is on the plans so proper field inspections can be conducted.

1322.0201 SECTION R201, GENERAL.

Section R201.4 Terms not defined. This rule part is added to incorporate a way to define terms that are not defined in the code or the rule. This language is necessary to ensure that a particular source is available for the definition of terms when they are not defined in this rule chapter. This is language used in other parts of the State Building Code.

1322.0202 SECTION R202, GENERAL DEFINITIONS.

Section R202 Definitions. This entire rule part is being relocated from current Minnesota Rules, part 1322.0010 to this rule part but with modifications to the content. Several definitions have been deleted because they are contained in IECC Chapter 2, Definitions, or are listed in Chapter 5, Referenced standards, which lists the name of the standard and its acronym.

The definitions that are deleted from the previous rule part are as follows:

ACCA
ASHRAE
ASTM
BUILDING
CONDITIONED SPACE
EXHAUST VENTILATION SYSTEM
NATIONAL FENESTRATION RATING
COUNCIL

Subpart 1. Amended definitions. The definition of "accessible" is carried forward from Minnesota Rules, part 1322.0010. This definition differs

from the definition in the 2012 IECC but the Department is proposing this definition for consistency with other chapters of the Minnesota State Building Code.

Subp. 2. Added definitions. The purpose of this subpart is to add the following definitions to section R202 of the 2012 IECC and to carry forward the content of the definitions from Minnesota Rules, part 1322.0010 to provide consistent definitions that have already been in use and previously approved and adopted into rule. Three definitions are new.

- ACCESSIBLE, READILY**
- AIR CIRCULATION, FORCED**
- AIR, EXHAUST**
- AIR, OUTDOOR**
- AIR-CONDITIONING SYSTEM**
- APPROVED**
- BALANCED SYSTEM**
- CODE**
- CUBIC FEET PER MINUTE (CFM)**
- ENERGY RECOVERY VENTILATOR (ERV)**
- FURNACE**
- HEAD RECOVERY VENTILATOR (HRV)**
- MANUFACTURER’S INSTALLATION**
- INSTRUCTIONS**
- MECHANICAL VENTILATION**

The three new definitions are proposed because these definitions are not in the current rule but are now necessary for the user to understand the content of the rule. The three new definitions that are proposed are “Approved,” “Balanced system” and “Code.”

1322.0303 SECTION R303, MATERIALS, SYSTEMS, AND EQUIPMENT.

Subpart 1. IECC Section R303.1, Identification. This subpart is amended to modify section R303.1 by adding language to ensure that materials and equipment used are designed for that intended use, installed according to the manufacturers’ installation instructions and must be installed by an individual certified to install the product as required by the manufacturer if the certification exists for that particular product. The manufacturer’s installation instructions are required because many product manufacturers have specific instructions about how their products must be installed to ensure their performance. Requiring the use of the instructions will help ensure the product performs as the manufacturer intended. Some products require installers to pass a certification test to ensure that the product is installed according to the manufacturer’s specifications. Use of a certified installer, if such certification exists for a certain product, will help ensure the product performs as the manufacturer intended.

Subp. 2. IECC Section R303.1.5, Minnesota thermal insulation standards. This subpart adds a subsection to section R303.1 that addresses Minnesota thermal insulation standards. This language refers the user to Minnesota Rules, Chapter 7640, which establishes thermal insulation standards for Minnesota. The language in this subpart is similar to the existing language in Minnesota Rules, part 1322.1101, subp. 8 but does not list the requirements of Chapter 7640.

1322.0401 SECTION R401, GENERAL.

IECC Section R 401.3, Certificate (mandatory). The language in this rule part amends section R401.3 by replacing the word “permanent” in the first sentence with the word “building.” This change is necessary because the term “permanent certificate” is not used in the industry while the term “building certificate” is the correct term that pertains to the document being referenced in this section. The remainder of the changes to this section contain requirements that are currently in table N1101.8 in Minnesota Rules, part 1322.1101, subpart 15, which will be repealed in this rulemaking. The table is not carried forward because the requirements are in the written language of the code section.

Additional requirements are added to the IECC list of certificate requirements: the date the certificate is posted so that the building is complete and all the information needed can be added to the certificate; the contractor name and license number or the homeowner name and contact information (if acting as the general contractor)²²; the insulation product and R-values in the Rim/Band joist area because the Rim/Band joist area is typically insulated with a different system or product than the rest of the home; information on the buildings mechanical ventilation system because this system is an important component of the buildings air quality and durability as required by other provisions of the code; to list the building’s type of radon control system (active or passive) and the location of the building’s radon control system²³; and input rating, model numbers, and equipment efficiencies of all the heating and cooling equipment.²⁴ The department removed the language that addressed “unvented gas heaters” because these unvented heaters are no longer allowed to be installed in accordance with other

²² This informs a future homeowner of who is the responsible party for the original construction of the building.

²³ This language has been placed here for easy use by the building’s owner, future contractors and building inspectors. This will list the system that will be installed in accordance with Minn. Rules, parts 1303.2400 to 1303.2403.

²⁴ These are needed to combine with the building heating and cooling load requirements to properly size the heating and cooling equipment for the building.

provisions of the State Building Code; there is no need to keep them on the certificate requirements.

These requirements provide consistency with regard to building certificate requirements.

1322.0402 SECTION R402, BUILDING THERMAL ENVELOPE.

Subpart 1. IECC Table R402.1.1, Insulation and fenestration requirements by component. The R-value requirements in this table are arranged by climate zones. An R-value is a measure of thermal resistance for a particular material used in the building construction industry. These R-values establish the minimum R-values in the code that must be met and may be exceeded. The southern half of Minnesota is located in climate zone six and the northern half is located in zone seven. All other zones and accompanying footnotes were deleted from the table because they do not apply in Minnesota.

The Department inadvertently did not include the complete explanation for the initial amendments to table R402.1.1 of the 2012 IECC in the published SONAR. Specifically, the Department changed R-values for wood frame walls in zones six and seven in the table and deleted part of footnote h that related to the change in R-values in the 2012 IECC table. Following the comment period, the Department agreed to amend the R-value in the proposed rule by modifying the R-value in the table, adding a recommended R-value formula (13+5) option and reincorporating the deleted portion of the footnote related to the R-value formula (footnote h in the 2012 IECC but footnote f in the proposed rule) for zone six. By virtue of this modification, the Department is providing its explanation for both the initial proposed amendment and the subsequent amendments to the proposed rule.

Initial proposed amendment. The 2012 IECC requires an R-value of “20+5 or 13+10” for wood frame walls in both zones six and seven. The first value represents the insulation R-value required between the wall studs (interior) and the second value represents the continuous foam insulation R-value required on the exterior of wall studs. These R-values, as written, require exterior foam sheathing on every new residential above-grade wall. The Department determined that the minimum R-values for zones six and seven in table R402.1.1 in the 2012 IECC were not appropriate in Minnesota because they require both cavity (interior) and continuous (exterior) insulation.

In the late 1970s and early 1980s in Minnesota, foam sheathing was used for the exterior insulation application; numerous problems resulted. The exterior foam sheathing added thickness, which caused problems

in the structures such as water penetration around flashing and improper installation of windows and doors. Considering the problems experienced with exterior insulation, the Department initially did not want to require it in every option in the table.

The Department revised, based on the recommendation from the 1322 Advisory Committee, the R-values in the 2012 IECC table R402.1.1. The 2012 IECC table was changed from “20 + 5 or 13 + 10” to “21” for wood frame walls in climate zones six and seven to require wall-cavity-only insulation. Combination cavity (interior) and continuous (exterior) insulation methods would be permitted but would require calculations to determine the cavity/continuous insulation equivalent of the cavity-only R-value of 21 and subject to approval. The change was in compliance with the requirements contained in the American Recovery and Reinvestment Act²⁵ (ARRA).²⁶

Subsequent proposed amendment. The majority of the comments received during the Department’s comment period focused on the table R402.1.1 value for wood frame walls in zone six. The Department recognized the value of making a minor change in zone six from “21” as initially proposed to “20.” The insulation difference between an R-value of 20 versus 21 is negligible. The change allows the use of more products that have R-values between 20 and 21 and adds an R-value formula option of “13 + 5” in the table to provide an acceptable cavity plus continuous exterior insulation R-value if a contractor prefers to use that method. With this change, the requirement continues to comply with the requirements of the ARRA. Because an R-value formula was returned to the table, the previously deleted portion of footnote h that applies to the R-value formula is reintroduced in the subsequent amendment.²⁷ The footnote explains that both configurations of insulation are acceptable if the insulation formula is followed when structural sheathing is used. The problems experienced in the 1970s and 1980s mentioned above have begun to be addressed by insulation manufacturers by providing detailed installation instructions for exterior insulation products.²⁸

²⁵ As explained in the original SONAR, Minnesota received ARRA funds and therefore must meet those standards. A link to the “Governor’s Assurance Certification” to receive ARRA funds is in the original SONAR.

²⁶ The ARRA requirements are from the 2009 IECC. Minnesota did not adopt the 2009 IECC.

²⁷ Note: the pertinent part of footnote h from the 2012 IECC table is added back to the list of footnotes in the proposed rule but is re-lettered as footnote f.

²⁸ For example, see:

www.dupont.com/content/dam/assets/products-and-servi

The amendments to the proposed rules do not result in substantially different rules because the differences are within the scope of adopting “by incorporation specific residential energy code chapters of the International Energy Conservation Code, with amendments, which provide a comprehensive residential energy code” as announced in the Dual Notice.²⁹ Further, revising the R-value for climate zone six in 2012 IECC table R402.1.1 was in response to comments received by the Department to change the R-value requirement so more products will satisfy the R-value requirement. The amendments do not significantly change the proposed rules and, in fact, provide more flexibility to the regulated parties and clearer standards. The difference is a logical outgrowth of the contents of the Dual Notice and the comments submitted in response to the Dual Notice. The Dual Notice provided fair warning that the outcome of the rulemaking proceeding could be the rule in question.

Subp. 2. IECC Section R402.1.1, Insulation, waterproofing, and fenestration criteria. This subpart contains modifications to section R402.1.1 of the 2012 IECC. The section title is modified by adding the word “waterproofing” after the word “insulation.” The section content is separated into several foundation insulation systems because each system has unique qualities or attributes and each system handles moisture differently. Dr. Louise Goldberg from the University of Minnesota conducted research on foundation insulation systems and assessed whether requirements should be added to or changed in the code to address building durability. This research is required by Minnesota Statutes, section 326B.118. The results and conclusions of Dr. Goldberg’s research can be found at <http://www.doli.state.mn.us/CCLD/rm/1322pub.asp>

The modifications to this section incorporate the recommendations by Dr. Goldberg to address building durability. Specifically, the modifications require that cast-in-place and masonry block foundation systems must be waterproofed in accordance with section 406 of the International Residential Code (IRC). This section provides waterproofing application and installation methods.

1. This requirement is added to provide additional requirements relative to locations on the foundation wall where waterproofing must be applied, and provides an alternate sealing method located at the top of the foundation wall system. This language is

necessary to guide the user as to proper location and application of the waterproofing system, and provides an alternate sealing method at the top of the wall that is currently being used effectively in the industry.

2. This requirement is added to help prevent degradation that occurs in waterproofing systems as a result damage caused by solar radiation impinging on the waterproofing products. A flashing system that complies with IRC section R703.8 is required, which will help prevent water from getting behind the system and degrading it.

Section R402.1.1.1, Integral foundation insulation systems. The language in this subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.5, Integral foundation insulation requirements, with minor modifications. The first word “An” was replaced with “Any.” This change simply corrects a typographical error in the existing language. The word “its” is replaced with “that” to clarify the first sentence. The last word in the section, “specifications” is replaced with “installation instructions.” This change provides consistent terminology with other chapters in the Minnesota State Building Code relative to installation instructions provided by the manufacturer.

Section R 402.1.1.2, Exterior draining foundation insulation requirements. The language in this subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.6, Exterior foundation insulation requirements, with modifications. The content from the existing N1102.2.6.6 section has been split into two sections, one addressing exterior draining foundation systems and the other addressing exterior non-draining systems (see amendments in section R402.1.1.3). Draining and non-draining insulation systems are being addressed separately in this section because they perform differently. A non-draining system stores a larger capacity of water in the system because the water can become trapped, which creates a path for the transfer of heat, known as thermal bridging that provides a path for heat loss through the building’s thermal envelope. A draining system stores less water so the transfer of heat is reduced. The word “draining” is added to the section heading and the words “permits water drainage” are added to the first paragraph. The amended requirements will improve foundation durability by addressing the accumulation and drainage of bulk water along the foundation system. These requirements will help prevent the degradation on a

ces/construction-materials/assets/JK-K27290%20ThermaWrap%20R5%20Install%20Guidelines.pdf

²⁹ See [Minnesota Statutes, section 14.05](#), subdivision 2(b)(1)

building's structure, including durability, which results from rain and winter snow melt.

Section R402.1.1.3, Exterior non-draining foundation insulation requirements. The language in this subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.6, Exterior foundation insulation requirements, with modifications. The content from the existing N1102.2.6.6 language has been split into two sections; one section addresses exterior draining foundation systems, (see amendments to section R402.1.1.2) and the other addresses exterior non-draining systems, in this section. The word "non-draining" is added to the section heading and the words "permit bulk water drainage" is added to the first paragraph. These requirements will help prevent the degradation on a building's structure, including durability, which results from rain and winter snow melt. Additionally, a new subitem number 4 is added to the existing language requiring the insulation assembly to be covered with a 6-mil polyethylene slip sheet over the entire exterior surface. This additional requirement is needed to provide a waterproof barrier to prevent water from the exterior from entering the foundation insulation and freezing, thereby damaging the insulation system. The slip sheet will also prevent soil from freezing to the exterior foundation insulation. This modification is necessary because of Minnesota's freezing and thawing conditions that can cause structural damage to the foundation wall that is not addressed in the IECC.

Section R402.1.1.4, Interior foundation insulation requirements. The language in this subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.7, Interior foundation insulation requirements, with modifications. The current language is modified by making a few grammatical corrections and by modifying subitem 2. Specifically, the phrase "unless that interior side of the foundation wall has been waterproofed" was deleted because the requirement is already addressed in section R402.1.1. In subitems 3 and 4, the words "The insulation assembly shall" are added at the beginning of each subitem to clarify that subitems are required and not optional. Additionally, the section references in subitems #3 and #4 were updated to coordinate with changes made to the 2012 IECC.

Section R402.1.1.5, Rigid interior insulation. The language in this subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.8, Rigid interior insulation, with modifications. Most of the modifications

to this section are organizational and include minor rephrasing, but the requirements have not substantively changed. These modifications are necessary to clarify the requirements. Subitem 2 in the existing language was deleted in its entirety because it is already addressed in section R402.1.1 of the code. Subitem number 3 of the proposed rule is added to this section to require through penetrations to be sealed.

Section R 402.1.1.6, Spray-applied interior foam insulation. The language in this subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.9, Spray-applied interior insulation, with modifications. In the first line of section N1102.2.6.9 of the existing language, the word "foam" is added between "interior" and "insulation" and in item 1, "polyurethane" is replaced with the word "foam." This change is necessary to clarify that this section addresses all spray-applied "foam" insulation. Permeance, as used in this code, is the degree to which a material permits the flow of moisture. The existing language in subitem 1(a) is revised to provide lower permeance thresholds based on recent building science research, as required by Minnesota State law.³⁰ The lower the permeance threshold, the better protection the material will provide. ASTM permeance thresholds will help ensure the wall system remains dry by keeping the moisture out of the assembly; this will prevent mold growth in the insulation system. The existing language in subitem 1(b) revises the existing language by making grammatical changes but the meaning of the requirements remain the same. The existing language in subitem 1(c) is modified by adding the phrase "fasteners, or connectors used to install a framed wall, with the exception of through penetrations" to the end of the existing section. This additional language is necessary to protect the insulation system from punctures caused by such installations. Any puncture can provide an avenue that permits water to penetrate the insulation system and cause durability issues. "Through penetrations" are permitted because certain building service piping needs to penetrate the wall, however through penetrations are required to be sealed. The existing language in subitem 1(d) is revised grammatically but the meaning of the requirement remains the same.

The existing language in item 2 is revised by replacing the phrase "One-half pound free rise open cell foam" with the phrase "Open-cell foam." This change is necessary because open-cell foams are no longer listed by

³⁰ See Minnesota Statute section 326B.106, subd. 1. In relevant part, "The code must be based on the application of scientific principles, approved tests, and professional judgment."

weight (pounds). The existing language in subitem 2(a) is revised grammatically but the meaning and intent of the requirement remains the same. The existing language in subitem 2(b) is modified by adding the phrase “fasteners, or connectors used to install a framed wall, with the exception of through penetrations” to the end of the existing language in the subitem. This additional language is necessary to protect the system from punctures caused by such installations. Any puncture can provide an avenue that permits water to penetrate the insulation system and cause durability issues. “Through penetrations” are permitted because certain building service piping needs to penetrate the wall; through penetrations are required to be sealed. The existing language in subitem 2(c) is revised for clarity. The language in subitem 2(d) is new and adds a requirement for vapor retarder and air barrier permeance thresholds to this section. ASTM permeance thresholds will help ensure the wall system remains dry by keeping the moisture out of the assembly; this will and prevents mold growth in the insulation system.

Section R402.1.7, Fiberglass batt interior insulation. This subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.11, Unfaced fiberglass batt interior insulation, with modifications. The word “unfaced” was removed from both the heading of the section and the first sentence because this section addresses all fiberglass systems. The requirement in subitem 1 regarding waterproofing is replaced with a new requirement pertaining to above-grade exposed foundation wall height because the requirements for waterproofing have been added to this code by an amendment to section R 402.1.1. The new requirement addresses foundation wall systems that extend more than 1.5 feet above grade because a wall system greater than 1.5 feet above grade creates a durability issue due to moisture condensation on the foundation wall. The existing language in subitem 2 is modified grammatically but the meaning of the requirement remains the same. The existing language in subitem 3 is modified to provide more specific language and more specific permeance thresholds. Complying with the ASTM permeance thresholds will help ensure the wall system remains dry, to prevent mold growth in the insulation system. The existing language in subitem 4 that permits up to R-13 batts is deleted because the IECC now requires a minimum of R-15 insulation on foundation wall systems so this requirement is no longer necessary.

Section R 402.1.1.8, Foundation wall Insulation performance option. This subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota

Rules, part 1322.1102, subpart 9, section N1102.2.6.12, Foundation wall insulation performance option, with modifications. The first sentence of the section is amended by adding the phrase “and the foundation, basement, or crawl space wall equivalent U-factor from Table 402.1.3.” This additional language is necessary to clarify that the requirements of the U-factor table must be complied with when a designer uses the performance option to design a foundation system.

1. **Water separation plane.** This subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.12.1, Water separation plane, and its subitems with minor modifications.
2. **Documentation.** This subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.12.2, Documentation, with minor modifications.
3. **Installation.** This subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.12.3, Installation.
4. **Foundation air barrier.** This subsection is added to section R402.1.1 of the 2012 IECC. The content in this subsection is carried forward from Minnesota Rules, part 1322.1102, subpart 9, section N1102.2.6.12.4, Foundation air barrier (with minor modifications).

Subp. 3. IECC Section R402.2.8, Basement walls. This subpart amends section R402.2.8, Basement walls, in the 2012 IECC. The language in the IECC requirement is revised by replacing the phrase “or to the basement floor” with “or to the top of the footing.” The top of the footing is lower than the basement floor. This modification is necessary because the foundation system must be protected from heat loss beyond the top of the basement floor system. By providing insulation to the top of the footing, heat loss at the intersection of the concrete floor and the foundation wall is reduced. The section is further amended by adding a sentence that states, “Foundation insulation shall be installed according to the manufacturer’s installation instructions.” This additional requirement is necessary because if these instructions are not followed, the product may not perform as it is intended. Subitems (a) and (b) are added as additional requirements “the floor overhead” must meet for the unconditioned basement exception. Subitem (a) pertains

to R-15 insulation for concrete and masonry foundations. The exception in subitem (a) permits an R-10 continuous insulation on the exterior of a foundation if it meets the criteria listed in the exception. Adding subitem (a) is necessary because the majority of the insulation should be installed on the exterior of the building, which will cause the interior side of the foundation wall system to be warmer, reducing the opportunity for any interior moisture to condense on the foundation wall. Condensation on the foundation wall can create a durability issue for the building foundation system. This exception is necessary to coordinate with the requirements located in footnote (c) of Table R402.1.1. Subitem (b) requires a minimum R-19 cavity insulation in wood foundation walls based on recent building science research, as required by Minnesota State law.³¹ Adding this requirement is necessary because the 2012 IECC does not address minimum R-values for wood foundation walls. This modification provides a minimum insulation standard for this type of a foundation.

1322.0403, SECTION R403, SYSTEMS.

The changes to minimum R-values in Table R403.2.1 “Minimum Required Duct and Plenum Insulation for Dwelling Units” are needed to correct the R-values synthesized from the MMC, part 1346.0604, and the IECC section R403.2.1 into the table.

When the MMC Table was transferred to chapter 1322, some of the R-values in the Table had to be synthesized with the requirements in IECC section R403.2.1. IECC section R403.2.1 contains requirements for “Supply ducts in attics” and “all other ducts.” “All other ducts” are required to have a minimum R-value of R-6. When the table was first added to chapter 1322 in the recently adopted rulemaking, “all other ducts” in the table were set to have a minimum R-value of R-6. However, the table in the MMC had a more detailed delineation of duct types.

There are three duct locations specified in the MMC Table that are not individually listed in the IECC. They are “Outdoor air intakes within conditioned spaces,” “Exhaust ducts within conditioned spaces” and ducts “Within cement slab or within ground.” The proposed amendment changes the last duct to read, “Within concrete slab or within ground.”

The IECC is clear on supply ducts but is not clear what “all other ducts” means. In the IECC, the section

³¹ See Minnesota Statute section 326B.106, subd. 1. In relevant part, “The code must be based on the application of scientific principles, approved tests, and professional judgment.”

following R403.2.1, section R403.2.2, “Sealing,” states that, “Ducts, air handlers, and filter boxes shall be sealed.” Emphasis added. Common industry practices and enforcement apply the sealing requirement to forced air furnaces and the supply and return air ducts connected to the furnace but not the three ducts that are the subject of this rulemaking. That is, the general term “ducts” does not apply to the three ducts that are the subject of this rulemaking. The use of “all other ducts” in R403.2.1 and the duct reference in R403.2.2 are both overly broad.

Table R403.2.1 is more detailed and specific than the text in IECC subsection R403.2.1. The minimum R-values for the three specific duct types listed in the table are amended for the following reasons.

Ducts “Within concrete slab or within ground.” Ducts in concrete slabs or ground are not individually described in the IECC. The 2012 IECC requires more insulation on slab-on grade construction exterior walls than the 2009 IECC, which reduces the need for more insulation on ducts in a concrete slab than required in the MMC before the transfer. The increased exterior wall insulation will make the cement slab warmer than under the previous code so the R-values from the MCC table are sufficient and reasonable.

“Outdoor air intakes within conditioned spaces” and “Exhaust ducts within conditioned spaces.” “Outdoor air intakes within conditioned spaces” are ducts that bring in outside air for combustion appliances or ventilation air. “Exhaust ducts within conditioned spaces” are ducts for exhausting a bathroom fan, for example. Instead of grouping these duct types in the “all other ducts” category and applying the general minimum, it is reasonable to follow a table that specifically lists them and individually assigns a minimum R-value.

It is reasonable to reinstate the previous requirements of the MMC Table for “Outdoor air intakes within conditioned spaces,” “Exhaust ducts within conditioned spaces,” and ducts “Within concrete slab or within ground” because it complies with the ARRA, the higher insulation rating in these three locations will not contribute significantly to energy savings in buildings and it is the most clear and accurate requirement for these specific duct types.

It should also be noted that these changes closely mirror the requirements for duct insulation in the American Society of Heating, Refrigerating and Air-Conditioning Engineers, “ASHRAE,” Standard 90.1-2010, Table 6.8.2B which can be used as an energy compliance path authorized by IECC section C401.2. See Exhibit A. The ASHRAE is widely accepted as a national

authority on building energy conservation.

Subpart 1. IECC Section R403.2.1 Insulation (Prescriptive) and Table 403.2.1. This subpart contains amendments to section R403.2.1. The section is revised to incorporate requirements from the current Minnesota Mechanical Code, requirements in the 2012 IECC. This revised section clarifies the insulation values for ducts that have not been specifically identified in the past and incorporates the R-values contained in the 2012 IECC. These changes are necessary to provide insulation values that are appropriate for the installed locations, will result in energy efficient and durable systems that are not likely to deteriorate due to condensation formation on the interior or exterior of the ducts or plenums, and are consistent with IECC duct insulation and vapor retarder requirements.

Subp. 2. IECC Section R403.5, Mechanical ventilation (mandatory). This subpart deletes the language in section R403.5 of the 2012 IECC and replaces it with the language in the current Minnesota Rules, part 1322.1104, section N1104.3.2, that provides requirements for balanced and HRV/ERV systems. Current building envelope systems are built tightly to reduce energy loss so exhaust-only systems are no longer permitted under the Minnesota State Building Code. Building envelope systems no longer provide enough air leakage or infiltration to offset the amount of air being removed from the building's exhaust-only system; this could cause the building to depressurize inside the building itself, thereby creating an unhealthy environment for the building occupants. Therefore, the rules will require the ventilation system to be balanced within a 10% air flow margin of the exhaust and intake air, consistent with Minnesota Rules 1346.0309.2.1. This language also clarifies that a basement that is part of the building's conditioned space must be included in the ventilation calculations, even if the basement does not contain a finished area. Table R403.5 clarifies the fan efficiency of the mechanical ventilation fan systems. Without the requirements of this table, the use of insufficient fan capabilities will increase the energy use of the building.

Section R403.5.1, Alterations. The language in this section is revised to address only the alterations to an existing building's mechanical ventilation system and exempts these alterations from the balanced mechanical ventilation system requirements of R403.5. The existing requirements in Minnesota Rules, part 1322.1104, subpart 2, section N1104.1.1 addressed additions and alterations to existing buildings; additions are now addressed in section 1322.0100, subp. 3(A).

Section R403.5.2, Total ventilation rate. This section is added to IECC section 403.5 and contains

language that is carried forward from Minnesota Rules, part 1322.1104, subpart 2, section N1104.2, "Total ventilation rate", with a modification. The modification changes the provisions for conditioned crawl spaces to be included in the calculations for total ventilation rate the square footage of conditioned crawl spaces. This change is necessary because a conditioned crawl space uses the same mechanical systems as the other conditioned spaces in a building. Therefore, the square footage of these spaces must be added to the calculation to properly size the mechanical systems. This section is also modified by deleting the language from the existing rule pertaining to heat and energy recovery ventilators. This language is deleted because it is addressed in the amended section R403.5.5. It is being deleted from this location to prevent duplication.

Section R403.5.3, Continuous ventilation rate. This section contains requirements that are carried forward from Minnesota Rules, part 1322.1104, section N1104.2.1, Continuous ventilation rate, with modifications. Most of the revisions to the language are grammatical in nature to provide clarity, with the exception of references to tables or equations. Those references are revised to coordinate with similar tables or equations in the 2012 IECC. The requirements of the section remain the same.

Section R403.5.4, Intermittent ventilation rate. This language is an excerpt from Minnesota Rules, part 1322.1104, section N1104.2.2, Intermittent ventilation. The proposed language removes unnecessary commentary.

Section 403.5.5, Balanced and HRV/ERV systems: This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.3.2, Balanced and HRV/ERV systems, with modifications. This section is modified by adding a sentence to the beginning of the section that reads, "All balanced systems shall be balanced so that the air intake is within 10 percent of the exhaust output." This is necessary because a system that is balanced within ten percent will ensure proper ventilation for both the building and its occupants. It is reasonable because it creates consistency with both the Minnesota Mechanical Code and HVI standards for HRV and ERV systems. The exception in this section is modified by replacing "2.5" before the word "sones" with "1.0." This was a typographical error that occurred in the last code adoption cycle. Surface mounted fans must be rated at one sone or less. This requirement is necessary and reasonable because it prevents the occupants from turning off the fan to eliminate the noise it would emit if the requirement was greater than 1.0 sone. Without the fan running, moisture levels in the building will increase thereby defeating the

purpose of the fan. Additionally, the references to section numbers are revised to coordinate with similar sections in the 2012 IECC.

Section R403.5.6, Installation requirements.

This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4, with minor grammatical changes and includes a reference to the correct section number in the 2012 IECC.

Section R403.5.6.1, Air distribution/circulation. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.1, with one modification. The phrase “or a passive opening” was deleted from the end of the section because a passive opening is not part of a mechanical ventilation system. As a result, the requirement does not belong in this section.

Section R403.5.6.1.1, Forced air circulation systems. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.1.1, with modifications. Subitem (b) is modified by deleting the phrase “60 degrees Fahrenheit or the” from the existing language. This deletion is necessary because the minimum air temperature permitted in a return air duct of a forced air system must be determined by the appliance manufacturer, which is also consistent with the requirements in Minnesota Rules, part 1346.0501 of the Minnesota Mechanical Code. Additionally, a few minor grammatical revisions were made for clarity.

Section R403.5.6.1.2, Directly ducted and individual room inlets. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.1.2 without modification.

Section R403.5.6.1.3, Airflow verification. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.2, with one modification. The phrase “using a flow hood, flow grid, pitot tube, or other airflow measuring device” after the words “tested and verified” is deleted. This deletion of the list of testing procedures is necessary because there are additional ways that the system can be tested using other products that are not on the list.

Section R403.5.7, Fans. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.3, with modifications. In the first sentence, the phrase “at the point of air discharge or intake” is added after the phrase “the designed air flow” to ensure that the designed air flow from the conditioned space of the building is achieved at the point of discharge. In the second sentence, the word “maximum” is added before the phrase “fan-rated cfm.” Adding the word

“maximum” to this requirement is necessary to address fans used in the mechanical ventilation to assure that these fans meet the airflow requirements. A maximum sound rating, 2.5 sone, is added to limit the installed-fan noise level to a level of loudness not anticipated to be an annoyance. A sentence is added to the end of the section before the exception that reads, “Mechanical ventilation system fans shall meet the efficacy requirements of Table R403.5.1.” This language is necessary to provide a table for fan efficacy because efficacy is a measure of a product’s energy performance. The table provides minimum efficacy requirements based on the product’s performance after it is placed into use. In the exception in this section, a sentence is added at the end that reads, “Where mechanical ventilation fans are integral to tested and listed HVAC equipment, the fans shall be powered by an electronically commutated motor.” Electronically commutated motors are motors that are integral to mechanical equipment and can eliminate operational problems because they are designed and operated to run continuously; this reduces energy use because motor start up loads require more energy than continuously running the fan.

Section R403.5.8, Multifan systems. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.4, with one modification. The word “exhaust” before the word “duct” is deleted. The proposed rule no longer permits exhaust-only systems because exhaust-only systems rely on passive air infiltration to bring air into the building but the advances in construction have resulted in buildings no longer having enough passive air infiltration needed in exhaust-only systems. This lack of passive air infiltration would depressurize the building and create a potential life safety issue for its occupants. The remaining language is unchanged from the existing language.

Section R403.5.9, Connection to forced air circulation systems. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.5, with modifications. This section clarifies the requirements that apply when a mechanical ventilation system is connected to the ductwork of a forced air circulation system, that is, a fan-driven heating system, and that the fan of the heating system must operate when the ventilation system operates in the event both outdoor air and exhaust air are connected to the heating system. Other grammatical changes have been made to the section for clarity however the requirements are the same.

Section R403.5.10, Dampers. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.6, with one grammatical modification. The requirement remains the same.

Section R403.5.11, Intake openings. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.7, with only minor grammatical modifications but the requirements remain the same.

Section R 403.5.12, Filtration. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.8, with modifications. The modified language contains grammatical changes but the requirements remain the same.

Section R403.5.13, Noise and vibration. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.9, with modifications. The language contains grammatical changes but the requirements remain the same.

Section R403.5.14, Controls. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.10, with modifications. This section is revised by adding the word “Balanced” before the word “Mechanical” in the first sentence. This modification is necessary to clarify that a balanced mechanical ventilation system is the only type of system being addressed in this section. The existing requirement addressed three different types of mechanical ventilation systems that are no longer permitted in this rule. The exhaust-only systems and other systems have been found to be ineffective with new construction methods so these systems are no longer permitted. Three of the existing requirements are deleted because they pertain to systems other than a balanced system and are no longer needed.

Section R403.5.15, Labeling. This section contains some language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.11, with modifications. The language is revised to make the requirement easier to understand and to clarify that the labeling of all intake and exhaust ventilation outlets must be located on the exterior of the building. This change is reasonable because individuals who service this home in the future need to differentiate between the intake and exhaust outlets and the equipment or appliance they serve.

Section R403.5.16, Documentation. This section contains language that is carried forward from Minnesota Rules, part 1322.1104, section N1104.4.12, with modifications. The language in the section is grammatically revised for clarity. Additionally, the requirements to provide a warning regarding potential problems if the system is not operated and maintained and to affix a permanent warning label to the system if it is readily available are deleted. This language is not necessary because maintenance and service for these

appliances is already required by the Mechanical Code. The remaining requirements have not changed.

Section R403.5.17, Climate design conditions. This language is modified from the current rule by revising the language to require that equipment sizing be calculated in accordance with ACCA Manual S or an equivalent method. ACCA Manual S is typically used by the industry to size the equipment based on the loads determined by either ACCA Manual J or the ASHRAE Handbook of Fundamentals. This modification will provide more uniform application and enforcement of the proposed rule.

Table R403.5.17, Climatic design conditions. This section contains content that is carried forward from Table N1104.4.13 located in Minnesota Rules, part 1322.1104, without modification.

Subp. 3. IECC Section R403.12, Photovoltaic modules and systems. This subpart is added to section R403 to provide requirements for photovoltaic modules and systems because they are needed for installers and building officials to ensure that industry standards for collectors are met to protect the public from products that do not meet these standards.

Additionally, these modules and systems are electricity generating energy systems so they must also meet the requirements of Minnesota Rules, chapter 1315, the Minnesota Electrical Code.

1322.0500 CHAPTER 5(RE) REFERENCED STANDARDS.

This chapter lists the standards that are referenced in various sections of this rule, but are not contained in this chapter of the IECC. The standards are listed in the rule with: the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard.

Chapter 5(RE) of the 2012 IECC is amended by adding the following referenced standards.

- A. Standard reference number: ASHRAE Standard 52.2, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size; referenced in section R403.5.12;
- ~~B. Title: Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size;~~
- ~~C. B.~~ Standard reference number: HVI Standard 915; ~~and~~

~~D. C. Standard reference number: HVI Standard 916;~~ and
E. D. Standard reference number: HVI Standard 920.

The Department received a comment suggesting that the Department make the above-referenced corrections to the proposed rules. The Department agrees with the commenter that the corrections are necessary to provide clarity to the proposed rules.

The first correction combines items A and B into one item, revised item A. This amendment is necessary to correct a typographical error that was made during the data entry process. Items A and B of the proposed rule refer to the same referenced standard. The standard reference number was listed in item A and the standard title was listed separately in item B, which was a mistake. This amendment will correct the error and provide clarity to the proposed rules.

The commenter also suggested that the Department add HVI Standard 920 to the list of referenced standards because the standard is referenced in part 1322.0403, subpart 2, section R403.5.5. The Department agrees with the commenter that the standard is necessary to provide an accurate list of additional referenced standards identified in the proposed rules. This amendment will correct the oversight and provide clarity to the proposed rules.

The remaining items are re-lettered to accommodate the amendments to the list of referenced standards.

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Commercial Provisions of the Minnesota Energy Conservation Code, Minnesota Rules, Chapter 1323.

INTRODUCTION

On June 1, 2009, the Department adopted rules governing the commercial provisions of the Minnesota Commercial Energy Code by incorporating by reference the 2004 edition of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (“ASHRAE”) Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings, with amendments.

Since that time, the International Code Council, Inc. (“ICC”) developed and published the 2012 edition of the International Energy Conservation Code (“IECC”). This publication contains energy efficiency requirements for new and remodeled residential buildings (see Residential Provisions) and commercial buildings (see Commercial Provisions). The Department is proposing to adopt chapters 2 to 5 of the commercial provisions of the 2012 IECC, with amendments, to comply with the minimum energy provisions mandated by the American Recovery and Reinvestment Act of 2009 (“ARRA”).³²

The Department convened a rulemaking Advisory Committee to recommend changes to the commercial energy code. The Advisory Committee was comprised of a diverse membership from industry, state agencies, architects, engineers, manufacturers, suppliers, educators, building owners and managers, and others. A complete listing of those members of the Advisory Committee can be found in Exhibit A. Additionally, pursuant to Minnesota Statutes, section 326B.106, subdivision 1, the Department consulted with the Construction Codes Advisory Council (“CCAC”) on October 19, 2012. The CCAC reviewed a draft of the proposed rules and received an update on 1323 and a brief history on the commercial provisions of this code from the Department.

³² In 2009, Governor Pawlenty signed the “Governor’s Assurance Certification” to receive American Recovery and Reinvestment Act (“ARRA”) funding. A copy of the Governor’s Assurance Certification can be found at: www.dli.mn.gov/PDF/docket/1323letter.pdf. The Minnesota Department of Commerce received this funding in its energy security section. In relevant part, the ARRA requires states that receive this funding to implement a commercial building code that meets or exceeds the most recent IECC or achieves equivalent or greater energy savings. The Department of Labor and Industry has the rulemaking authority to implement a commercial building code.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1323
MINNESOTA COMMERCIAL ENERGY CODE**

GENERAL.

1323.0010 INCORPORATION BY REFERENCE OF THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

Subpart 1. General. This subpart is amended to properly incorporate by reference the commercial energy (CE) provisions of the 2012 edition of the International Energy Conservation Code (IECC). The existing language in this subpart is deleted because it incorporates by reference the ANSI/ASHRAE/IESNA Standard 90.1-2004, “ASHRAE Standard 90.1.” ASHRAE Standard 90.1 will no longer be incorporated. Instead, this Commercial Energy Code will incorporate by reference the Commercial Provisions of the IECC to replace ASHRAE standard 90.1. However, IECC section C401.2 requires compliance with one of three options, the first of which is ASHRAE 90.1.

Subp. 2. Mandatory chapters. This new subpart states the mandatory commercial energy chapters of the IECC, chapters two through five, that must be applied and enforced, except as qualified in Minnesota Rules, Chapter 1300 and as amended in Minnesota Rules Chapter 1323. Not all chapters of the Commercial Provisions are adopted into this code because the State Building Code administrative provisions are in Minnesota Rules, Chapter 1300. IECC chapter one is the administrative chapter.

Subp. 3. Replacement chapters. This new subpart references another Minnesota Rule chapter that applies in lieu of Chapter 1 (CE) in the IECC. That is, Chapter 1 (CE) and any references to code administration are deleted and replaced with Minnesota Rules, Chapter 1300. This subpart is necessary because Chapter 1 (CE) is not incorporated into the proposed rule and code users must know where to locate administrative provisions for this code.

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

Subparts 1 to 11. These new subparts state that references to other ICC Code references in this IECC have a different meaning in this code. Specifically, other Minnesota Rule chapters replace the ICC Codes because a particular ICC Code is not adopted in Minnesota. For

example, references to the International Building Code (“IBC”) are replaced with Minnesota Rules, Chapter 1305 because Chapter 1305 adopts and amends the IBC. References to the International Property Maintenance Code (“IPMC”) do not apply and are deleted because the IPMC is not adopted or replaced by any Minnesota rule.

1323.0030 ADMINISTRATIVE PROCEDURE CRITERIA.

This new rule part references the location of the administrative and enforcement provisions that govern the application of this rule. This rule part is necessary because Chapter 1 of the commercial energy provisions of the IECC is not adopted. Therefore, it is necessary to provide the code user with the location of the administrative provisions that govern this proposed rule.

1323.0100 ADMINISTRATION FOR COMMERCIAL ENERGY CODE.

Application. This rule part is new and adds administrative provisions in addition to those in Minnesota Rules, Chapter 1300. Items A through I specifies situations the code applies.

A. Scope. This new subitem clarifies the code applies to building structures, building sites, associated systems, and associated equipment. This clarifying language facilitates uniform application and enforcement of the code.

B. Additions, alterations, renovations or repairs. This new subitem clarifies that the code applies to additions, alterations, renovations, or repairs to structures by providing specific circumstances under which a building must comply with this code. The new subitem also contains a list of conditions found in the 2012 IECC that are exempt from code compliance because they do not increase the energy use of the building. In fact, some will make the building more energy efficient. This clarifying language facilitates uniform application and enforcement of the code.

C. Change of occupancy or use. This new subitem clarifies that the code applies to changes to a structure’s occupancy or use by referencing Table C405.5.2(1) and (2) that contains interior lighting power allowances to show what building area types must comply with the requirements of this code. This clarifying

language facilitates uniform application and enforcement of the code.

D. Change in space conditioning. This new subitem clarifies that the code applies to the conditioning of nonconditioned space that is altered to become conditioned space by identifying the specific circumstances. This clarifying language facilitates uniform application and enforcement of the code.

E. Compliance. This new subitem clarifies that residential and commercial provisions of the IECC requirements apply to residential and commercial buildings, respectively. This language will provide uniform application and enforcement of the code.

F. Mixed Occupancy. This new subitem clarifies that the code applies to structures that contain both residential and commercial occupancies. That is, that the commercial provisions apply to the commercial occupancies and the residential provisions apply to the residential occupancies even in mixed-occupancy buildings. This language will provide uniform application and enforcement of the code.

G. Compliance materials. This new subitem clarifies that the building official is permitted to approve other compliance materials that meet the intent of the code. This language clarifies that designers are permitted to use energy compliance computer software if approved by the building official.

H. Low-energy buildings. This new subitem states that the code does not apply to buildings or portions of buildings separated from the remainder of the building by building thermal envelope assemblies if listed criteria are met. The code still applies to the building, or portion thereof, within the building envelope assemblies. There are two exempt buildings, or portions thereof, that are not subject to the building thermal envelope provisions of the code. They are exempt because they use little or no energy. This language will provide uniform application and enforcement of the code.

I. Information on construction documents. This new subitem states what is required on construction documents, including examples of specific information. This language supports uniform application and enforcement of the code by clarifying required information the builder or designer must provide to the building official for a complete review of construction plans as they pertain to applicable energy code requirements. This information is necessary so that field inspections can be conducted based on the plans and specifications that have been reviewed by the jurisdiction. The information on the construction documents will help

provide clarity and consistency in both the enforcement process and during the plan review and inspections.

1322.0201 SECTION C201, GENERAL.

IECC Section C201.4, Terms not defined. This is a new rule part states the method to use when a term is not defined in the code, the Merriam-Webster Collegiate Dictionary. The Merriam-Webster Collegiate Dictionary is recognized as providing ordinarily accepted meanings.

1323.0202 SECTION C202, GENERAL DEFINITIONS.

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

Approved. The IECC definition is modified to coordinate the definition of “approved” with the other chapters of the Minnesota State Building Code that contain the same definition. The definition gives the building official discretion to approve new materials or technology while maintaining quality and the purpose of the rules because objective, reasonable criteria on which approval is based is listed in the definition. It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts between terms from one chapter to another.

Building Thermal Envelope. This definition is modified to correct an omission from the 2012 IECC definition to include “air barrier” as part of the building thermal envelope assembly and rephrases “and any other building elements” to “and any other building envelope components” for clarity. The air barrier is an important component of the building thermal envelope. The change will ensure that this definition is consistent with accepted building science, which incorporates the air barrier, and adds clarity.

Infiltration. This definition is modified by adding the phrase “or the imbalance between supply and exhaust air systems” to the definition and deleting “or both”. The additional language is necessary to address the negative pressure affect that mechanical appliances and ventilation systems have on a building’s envelope, which is not addressed in the 2012 IECC. The appliances and ventilation systems increase infiltration air leaks in the building envelope because of the negative pressure exhaust systems create.

B. Added Definitions. Definitions contained in this subsection are added to section C202 of the IECC because they are terms that are used in this rule.

Code. “The code” or “this code,” as used in this rule chapter, means Chapter 1323 of the Minnesota Rules which incorporates by references the commercial provisions of the 2012 IECC, as amended. This definition is added to distinguish the use of the term “code” in this rule chapter from the definition and use of the term “code” in other chapters of the State Building Code.

Continuous insulation (ci). This definition is added because it is referenced in IECC section C402 and Table C402.2, but is not defined. This definition is similar to the definition in ASHRAE 90.1 with a slight modification, which replaces the words “building envelope” with “building thermal envelope” to distinguish between insulation systems that have significant thermal bridging effect and continuous insulation, which does not have a significant thermal bridging effect.

Roof replacement. This definition is added to clarify the specific requirements for roof replacement projects because no definition currently exists in the 2012 IECC. A definition is necessary because a new subpart is proposed below that contains insulation requirements for roof replacement (see C402.2.1.2). The definition clarifies what constitutes a roof replacement project as compared to, for example, a roof repair, that is subject to different requirements.

1323.0303 SECTION C303, MATERIALS, SYSTEMS, AND EQUIPMENT.

IECC Section C303.1, Identification. This proposed amendment modifies section C303.1 by adding a sentence to the end of the section that reads, “Materials shall be designed for the intended use, and installed in accordance with the manufacturer’s installation instructions, any listing, or certifications required.” This additional language ensures that materials and equipment used in a building will meet the manufacturers’ installation instructions, any listing requirements, and be installed by an individual certified for these installations, if required by the manufacturer. It is reasonable to require materials to be installed as the manufacturer intended.

1323.0401 SECTION C401 GENERAL.

The Department is making the following modifications to its proposed rules as published with the Notice on the Department’s website. Any rule language not reflected below remains unchanged. Based on comments received during the comment period, the relevant rule excerpts being modified are as follows.

Subp. 1 IECC section C401 is amended by adding three new sections C401.3, C401.4 and C401.5 to read as follows:

Subp. 2. C401.3 Heating of commercial parking facilities prohibited. Heating commercial parking facilities is prohibited in accordance with Minnesota Statutes, section 216C.20, subdivision 3.

Subp. 3. C401.4 Prohibition of once-through water use permits. Once-through water use permits are prohibited in accordance with Minnesota Statutes, section 103G.271, subdivision 5.

Subp. 4. C401.5 Parking lot lighting. Parking lot lighting is regulated by the Minnesota Department of Transportation in Minnesota Rules, chapter 8885.

The Department made the above modification to the proposed rule to clarify that heated commercial parking facilities, once-through water use permits and parking lot lighting are already regulated in Minnesota statutes and rules. Specifically, heated commercial parking facilities are prohibited in Minnesota Statutes, section 216C.20 and once-through water use permits are prohibited in Minnesota Statutes, section 103G.271, subdivision 5. Parking lot lighting is regulated by the Department of Transportation in Minnesota Rules, chapter 8885. Thus, those three references are added to the rule. These modifications do not affect or conflict with IECC requirements.

1323.0402 SECTION C402, BUILDING ENVELOPE REQUIREMENTS.

Subpart 1. IECC Section C402.2.1.2, Insulation requirements for roof replacement: This new subpart adds a subsection to IECC section 402.2.1, Roof assembly, pertaining to the insulation requirements for roof replacement work. The IECC does not exempt roof replacement work from compliance with the roof envelope R-Value requirements, located in Table C402.2. This new subsection provides a limited exception to required roof R-values when there is not enough space between the existing rooftop conditions (existing equipment, structures, etc.) and the space needed to install the normally required amount of insulation. In circumstances when there is not enough space to comply with the insulation requirements, the required maximum insulation thickness will be dictated by the space available because of the existing rooftop conditions. This is a reasonable requirement and exception because the cost that would result from altering existing roof obstacles to meet new roof insulation requirements would be disproportionate to the energy savings from the thicker insulation. That is, the cost would be much greater than the benefit.

Subp. 2. IECC Section C402.4.1.1, Air Barrier construction. The proposed amendment modifies the section to correct a typo in the national code by correcting the section reference in subitem 3, regarding recessed lighting, from “C404.2.8” to “C402.4.8.” There is no section C404.2.8. Section C402.4.8 is titled “Recessed lighting.” Minor grammar changes were made for consistency with other code amendments.

Subp. 3. IECC Section C402.4.5.1, Stairways and shaft vents. The proposed amendment modifies section C402.4.5.1 by deleting the second paragraph and subitems 1 and 2 from the section. Specifically, the language pertaining to vent dampers opening automatically and the thresholds that trigger them is deleted and replaced with a reference to Minnesota Rules, Chapter 1305. Minnesota Rules, Chapter 1305 addresses stairway and shaft vents so the proposed amendment avoids redundant or conflicting codes.

Subp. 4. IECC Section C402.4.5.2 Outdoor air intakes and exhausts. [IECC section C402.4.5.2 is further modified by adding the following exception.]

3. Dampers for exhaust ducts 8 inches (203 mm) in diameter and smaller shall be permitted without being tested in accordance with AMCA 500D if equipped with a spring-loaded backdraft damper and a weather hood at the point of discharge.

The above modification adds a third exception to the requirement that all exhaust ducts be tested in accordance with AMCA 500D because it is not practical to require testing of dampers on ducts 8 inches in diameter and smaller. The purpose of AMCA 500D testing is to ensure adequate protection from exterior elements. Dampers on ducts 8 inches and smaller will be adequately protected from the elements with a spring-loaded backdraft damper and weather hood. Therefore, testing is not necessary. Furthermore, the cost to test dampers on ducts 8 inches or smaller is disproportionate to the cost of potential air leakage and the damper part itself.

The proposed amendment modifies section C402.4.5.2 by combining and reorganizing the exceptions for clarification. No substantive changes are proposed. Proposed exception 1 clarifies that gravity exhaust and relief dampers are permitted only in buildings less than three stories. This is reasonable because gravity dampers can open and close due to wind pressure, which permits uncontrolled air leakage. Uncontrolled air leakage should not be permitted in buildings three stories or higher because the wind pressure increases with the height of the buildings because there are fewer obstacles, such as other buildings, to block or slow down the wind. Also, “stack effect” (warmer air rising) is more prevalent in taller

buildings than shorter buildings. Stack effect exacerbates uncontrolled leakage by exerting a negative pressure on dampers at lower levels of the building.³³ Exception 1.3 is not incorporated into the exception because it applies to Climate Zones 1, 2, and 3 and Minnesota is located in Climate Zones 6 and 7. Exception 2 is modified by adding the word “Nonmotorized” to the beginning of the exception to clarify that it applies only to nonmotorized dampers.

1323.0403 SECTION C403, BUILDING MECHANICAL SYSTEMS.

Subpart 1. IECC Section C403.2.1, Calculation of heating and cooling loads. The proposed amendment modifies section C403.2.1 by deleting the language after the first sentence in the section, adding new language and adding Table C403.2.1, Climatic Data Design Conditions. The ASNI/ASHRAE/ACCA Standard 90.1 (“Standard 90.1”) is permitted in IECC C401.2, item 1. This table replaces the design load calculations in ANSI/ASHRAE/ACCA Standard 183 referenced in the 2012 IECC. Table C403.2 provides specific design conditions for several representative Minnesota cities and is an expanded version of the Table in Standard 90.1. The locations listed in the table represent the temperatures that will be used for heating and cooling equipment load design in that city or in areas near those cities. The expanded table content is carried forward from current Minnesota Rules, part 1323.0642, which is proposed to be repealed in this rulemaking. The title of the table is modified from “Outdoor Design Conditions” to “Climatic Data Design Conditions” to coordinate with terminology that is used by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) for this data.

Subpart 2. IECC Section C403.2.2, Equipment and system sizing. The proposed amendment adds a third exception to the IECC code section that permits the heat load calculations and cooling load calculations to be adjusted to a point of 10 percent greater than the calculated peak heating or cooling loads. Oversizing of heating and cooling equipment is required to bring the building back to the desired temperature if the temperature is “set-back” lower for heating or higher for cooling. Without oversizing, the equipment is not able to overcome the temperature difference for either heating or cooling modes.

Subpart 3. IECC C403.2.4.3.1, Thermostatic setback capabilities. The proposed amendment relocates

³³ Because the warm air that is rising needs to be replenished at the lower levels of the building, negative pressure forms on the dampers.

language from Minnesota Rules, part 1323.0643, subpart 1, entitled “Setback controls,” which is proposed to be repealed in this rulemaking, here. The 2012 IECC section is entitled “Thermostatic setback capabilities.” The relocated language is carried forward in lieu of the language in the 2012 IECC section because it specifies the target heating and cooling setback requirements for thermostatic controls, clarifies the automation requirement and provides a wider range of setpoints than the IECC language.

Subpart 4. IECC Section C403.2.4.5, Snow melt system controls. The proposed amendment modifies IECC section C403.2.4.5 by changing the title of the IECC section from “Snow melt system controls” to “Freeze protection and snow melt system controls.” The title change is necessary because freeze protection requirements are added to the beginning of this subpart. The current freeze protection requirements are in Minnesota Rules, part 1323.0643, subpart 4, which is proposed for to be repealed in this rulemaking. The freeze protection language from part 1323.0643, subpart 4, is added to the IECC section because this IECC section is silent on freeze protection and regulates control of snow and ice only. The freeze protection requirements include heat tracing system shut off capabilities, which are necessary to provide energy conservation when freeze protection is not needed in warmer conditions. This proposed amendment is reasonable because Minnesota experiences deep freezing annually. The freeze protection requirement will protect the snow melt system from freezing and the pipes from breaking.

Subpart 5. IECC Section C403.2.6, energy recovery ventilation systems. The proposed amendment modifies IECC section C403.2.6 by modifying exception 2.1 by adding the phrase “except when higher volumes are required to maintain safe operating conditions” to the end of the exception. The proposed amendment also adds two items to the list of exceptions. Added exception 10 exempts systems that exhaust fumes that are toxic, flammable, or corrosive, or paint fumes, or dust. Added exception 11 exempts commercial kitchen hoods used to collect and remove grease vapors and smoke. These two new exceptions are necessary because the exhaust from these types of systems will damage an energy recovery ventilator.

Subpart 6. IECC Table C403.2.6, Energy recovery requirement. The proposed amendment modifies the title of Table C403.2.6 to read, “Exhaust Air Energy Recovery Requirement.” This modification is necessary to correct an oversight by the code publisher. The information in the table was duplicated from ASHRAE Standard 90.1 but the title of the table was not

duplicated correctly.³⁴ This modification will coordinate the table in the proposed rule with the table in the ASHRAE Standard. The content of the table remains unchanged.

Subpart 7. IECC Section C403.2.7, Duct plenum insulation and sealing. IECC section C403.2.7 is amended to read as follows:

[The text in the proposed rule from C403.2.7 through C403.2.7.1.2 remains as published.]

C403.2.7.1.3 High-pressure duct systems. Ducts designed to operate at static pressures in excess of 3 inches water gauge (w.g.) (750 Pa) shall be insulated and sealed in accordance with section C403.2.7. In addition, ducts and plenums shall be leak-tested in accordance with the SMACNA HVAC Air Duct Leakage Test Manual with the rate of air leakage (CL) less than or equal to 4.0 as determined in accordance with Equation 4-5.

$$\text{(Equation 4-5) } CL = F/P0.65$$

where:

F = The measured leakage rate in cfm per 100 square feet of duct surface area.

P = The static pressure of the test, which is equal to the design duct pressure class rating, inches w.g.

Documentation shall be furnished by the designer demonstrating that representative sections totaling at least 25 percent of the duct area have been tested and that all tested sections meet the requirements of this section. Positive pressure leakage testing is acceptable for negative pressure ductwork.

Statement of Need and Reasonableness for the modification to the proposed rule.

The above modification corrects and clarifies the meaning of “P” in the equation without changing the requirement. The modification spells out “inches” because it is unclear that “in” is intended to mean inches and corrects “w.c.” to read “w.g.” as was intended and evident in the C403.2.7.1.3 paragraph above (for water gauge), which is from the IECC.

The proposed amendment modifies IECC section C403.2.7 by deleting the language in the section and replacing it with modified requirements from Minnesota Rules, part 1346.0603. These modifications provide insulation values for duct locations that are not covered in the IECC. It is reasonable to explicitly require ducts be protected from physical damage and from other types of

³⁴ The table, with the accurate title, from ASHRAE Standard 90.1 is attached to this document as Exhibit B.

damage, such as moisture and weather-related elements. IECC Sections C403.2.7.1, Duct construction, C403.2.7.1.1, Low-pressure duct systems, C403.2.7.1.2, Medium-pressure duct systems, and C403.2.7.1.3, High-pressure duct systems, are not amended but are included in the proposed rule for context.

Subpart 8. IECC Table C403.2.7, Minimum required duct and plenum insulation. The proposed amendment adds a table from the current Mechanical Code, part 1346.0604, with modifications.³⁵ The table contains duct insulation R-value requirements, which are typically found in the building provisions of the Energy Code for other parts of building envelope systems. The table is added to this rule because the Mechanical Code will reference this section for duct insulation requirements.³⁶ This table provides specific requirements for ducts based on duct locations. The R-values, vapor retarder, and weatherproof barrier requirements are different for interior ducts and exterior ducts. The R-values in this table reflect the general minimum R-values of R-6, and R-8 for supply and return ducts in unconditioned spaces or where located outside the building. Additional specific duct locations and the associated R-values, such as “Within cement slab or within ground,” are carried forward from Minnesota Rules, part 1346.0604, without change.

Subpart 9. IECC Section C403.2.8.1, Protection of piping insulation. The proposed amendment modifies section C403.2.8.1 by deleting the phrase “exposed to weather” to require all piping to be protected from damage that occurs and not limited to protection from weather. This section is also modified grammatically for clarity and adds additional piping insulation requirements. The added requirements provide protection for piping insulation where it is subject to damage, whether it is inside or outside of the building. If piping insulation is not protected in all areas, it might sustain physical damage that will reduce the efficiency of the piping system. Reduced piping system efficiency may result in problems such as equipment overheating from an insufficient amount of water to cool equipment during operation or a loss of control to heat or cool in spaces within the building.

Subpart 10. IECC Section C403.2.10.1, Allowable fan motor horsepower. The proposed

³⁵ As of the date of this analysis, Minnesota Rules, Chapter 1346 is undergoing rulemaking. The table referenced in Minnesota Rules, part 1346.0604, is proposed for deletion.

³⁶ As stated above, Minnesota Rules, Chapter 1346 is undergoing rulemaking. The proposed deletion of the table and the reference to this code is anticipated to be approved and become an adopted rule by the end of 2014.

amendment modifies this section by adding the phrase “exhaust fans” after “return/relief fans,” in the second sentence. This modification is necessary because the fan power limitation should include exhaust fan power, in addition to the fans listed in exception 2. Exhaust fan motors need to be properly sized to reduce energy costs. This section is also modified by replacing the word “floor” with the word “motor” in this subsection to correct a typographical error in the 2012 IECC. There is no such thing as fan floor horsepower but there is fan motor horsepower.

Subpart 11. IECC Table C403.2.10.1(2), Fan power limitation pressure drop adjustment. This table is modified by adding two rows at the end of the table for air blenders and preheat coils. These devices are added to the table because due to Minnesota’s climatic conditions, some HVAC systems require additional components to assure adequate mixed air temperatures during very cold outdoor conditions to prevent system piping from freezing.

Subpart 12. IECC Section C403.4.2.1, Static pressure sensor location. The proposed amendment modifies section C403.4.2.1 by deleting the last sentence in the section that states, “For sensors installed down-stream of major duct splits, at least one sensor shall be located on each major branch to ensure that static pressure can be maintained in each branch” and replacing it with the following, “Sensors shall be located in a position so the controller setpoint is optimized to maintain the minimum static pressure required for system operation throughout its range.” This modification is a necessary to prevent unnecessary system expense and complexity that results from installing multiple sensors. This language is similar to language contained in current Minnesota Rules, part 1323.0653, subpart 3 and is also a recognized engineering practice.³⁷

Subpart 13. IECC Section C403.4.3.3.3, Two position valve. The proposed amendment deletes the requirement for hydronic systems with power exceeding 10 horsepower to have a two-position valve and replaces it with a requirement for all heat pumps to have a two-position automatic valve interlocked to shut off the water flow when the compressor is off. This modification is necessary to ensure that all heat pump systems employ the use of the two-way valves. Hydronic heat pumps, regardless of horsepower, must use automatic valves that interlock the system to shut off water flow when the compressor is not operating. A water flow shut off valve that is interlocked with a compressor is an important energy savings feature because it keeps heated water in the

³⁷ Minnesota Rule, part 1323.0653 is proposed to be repealed in this rulemaking.

tank where it will remain warm versus allowing the water to flow through the piping even though the water is not needed at that time, which causes a substantial heat loss as it travels through the system.

Subpart 14. IECC Section C403.4.5.4, Supply-air temperature reset controls. IECC section C403.4.5.4 is amended to read as follows:

C403.4.5.4 Supply-air temperature reset controls. Multiple zone HVAC systems shall include controls that automatically reset the supply-air temperature in response to representative building loads, or to outdoor air temperature. The controls shall be capable of resetting the supply-air temperature at least 25 percent of the difference between the design supply-air temperature and the design room air temperature. New zones with constant loads shall be designed for the fully reset supply temperature.

Exceptions:

1. Systems that prevent reheating, recooling, or missing of heated and cooled supply air.
2. 75 percent of the energy for reheating is from site-recovered or site solar energy sources.
3. Zones with peak supply air quantities of 300 cfm (142 L/s) or less.

Statement of Need and Reasonableness for the modification to the proposed rule.

The above modification corrects the sentence that is added to the IECC language to accurately reflect what the signed Statement of Need and Reasonableness states is added. The addition of “New” was unintentional, as evidenced by the explanation in the signed Statement of Need and Reasonableness. See page 15 of the signed SONAR.

The proposed amendment modifies this section by adding a sentence at the end of the main paragraph that states, “Zones with constant loads shall be designed for the fully reset supply temperature.” This language requires that a space with a constant cooling load, which may represent a small fraction of the total air handling unit capacity, is not prohibited from resetting the supply air temperature for the remainder of the air handling system. This language is necessary to ensure the rest of the system and the rooms served by the system are provided with supply and return air based on the requirements for each specific room.

1323.0404 SECTION C404, SERVICE WATER HEATING (MANDATORY).

IECC Section C404.7.3, Covers: The proposed

amendment modifies section C404.7.3 by adding two sentences that read, “Covers for heated swimming pools shall comply with Minnesota Rules, part 4717.1575, the Minnesota Department of Health pool cover safety standard. Pools heated to more than 90°F shall have a pool cover with a minimum insulation value of R-12.” Similar language is in the current Minnesota Rules, part 1323.0745, section 7.4.5.2. It is reasonable to add this language to the IECC section to clarify these rules are coordinated with other agency rules.

1323.0405 SECTION C405, ELECTRICAL POWER AND LIGHTING SYSTEMS (MANDATORY).

IECC Section C405.8, Conductor sizing; voltage drop. The proposed amendment adds a subsection to IECC section C405 pertaining to conductor sizing and voltage drops. This requirement is needed to identify voltage drop requirements as they pertain to conductor size to provide the maximum voltage drops permitted for electrical distribution systems. This language ensures that the required amount of power will be available to operate the building’s equipment by reducing the voltage from the feeder lines to the branch lines. A drop in voltage causes a loss of power that is perpetuated to the building through the feeder lines. Correctly sizing these conductors will ensure that the minimum amount of power necessary will be supplied to the equipment while still allowing the equipment to operate at its peak efficiency. The transformer efficiency and motor efficiency requirements are important because these transformers require significant power use, but they also establishing a minimum voltage drop for that equipment, which helps to reduce energy consumption.

1323.0408 SECTION C408, SYSTEM CONDITIONING

Subp. 1. IECC section C408.2 is amended to read as follows:

C408.2 Mechanical systems commissioning and completion requirements. Prior to passing the final mechanical inspection, the registered design professional, the permit applicant, or an approved agency shall provide evidence of mechanical systems commissioning and completion in accordance with the provisions of this section.

Construction document notes or specifications shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Copies of all documentation shall be given to the owner and made available to the code official upon request in accordance with Sections C408.2.4 and

C408.2.5.

Exception: The following systems are exempt from the commissioning requirements:

1. Mechanical systems in buildings where the total mechanical equipment capacity is less than 480,000 Btu/h (140 690 W) cooling capacity and 600,000 Btu/h (175 860 W) heating capacity.

2. Systems included in Section C403.3 that serve dwelling units and sleeping units in hotels, motels, boarding houses or similar units.

[IECC subsections C408.2.1 through C408.2.2 are not amended.]

Subp. 2. IECC subsection C408.2.2.1 is amended to read as follows:

C408.2.2.1 Air systems balancing. Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the International Mechanical Code. Discharge dampers are prohibited on constant volume fans and variable volume fans with motors 10 hp (18.6 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp (0.74 kW), fan speed shall be adjusted to meet design flow conditions.

Exception: Speed adjustment is not required for fan motors rated at 1 hp (0.74 kW) or less.

[IECC subsections C408.2.2.2 through C408.2.5.4 are not amended.]

Statement of Need and Reasonableness for the modification to the proposed rule

Subpart 1: In addition to registered design professionals, the above modification adds “the permit applicant, or an approved agency” to the IECC language as entities who may provide evidence of commissioning. Permit applicants are allowed to provide evidence of commissioning in certain circumstances because there are some projects where a registered design professional is not required by the Board of Architecture, Land Surveying, Landscape Architecture, Geoscience and Interior Design and therefore might not be involved in a project. In other circumstances, a permit applicant is a reasonable party to provide evidence of commissioning when, for example, a project has several commissioning agents because it has multiple systems that must comply with the design of the system. For example, a project might include mechanical, service water heating and electrical systems subject to commissioning requirements.

An approved agency is allowed to provide evidence of commissioning for consistency with the requirements contained in the entire section. For example, subsections C408.2.1 and C408.2.4 require plans and reports to be developed and completed, respectively, by “a registered design professional or approved agency.”

It is reasonable to add both permit applicants and approved agencies to the list of approved entities who may submit evidence of commissioning.

Exception: This modification clarifies the exception language and aligns it with the part of the Minnesota Mechanical Code, part 1346.0309, that requires mechanical ventilation and hydronic systems to be balanced. Specifically, the modification clarifies that the HVAC system as a whole must still be balanced according to the rule but that individual fans are not required to be speed adjusted. For example, an HVAC system that incorporates variable air volume (VAV) units throughout a building might not have a single fan that is larger than 1 hp but the system itself must be balanced according to generally accepted engineering standards pursuant to C408.2.2. The modified language is identical to the exception to International Mechanical Code section 309.2.1 in Minnesota Rules, part 1346.0309.

REPEALER

Minnesota Rule part 1323.0646 is added to the repealer section.

Statement of Need and Reasonableness for the modification to the proposed rule

This rule part was inadvertently missed in the repealer section. This rule part applies to the ASHRAE Standard 90.1, which the Department is no longer incorporating by reference. ASHRAE Standard 90.1 is incorporated by reference in the existing rule, however, the proposed rule no longer incorporates it by reference and instead incorporates the 2012 IECC. Therefore, amendments made to the ASHRAE document are no longer applicable and must be repealed.

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2015

MINNESOTA ACCESSIBILITY CODE



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing the Minnesota Accessibility Code, Minnesota Rules, chapter 1341; Revisor's ID Number R-04152; OAH Docket Number 60-1900-30859

INTRODUCTION

The Americans with Disabilities Act (“ADA”) is a federal civil rights law that prohibits discrimination on the basis of a disability. As a part of the law, a set of design criteria for the built environment was developed to ensure that buildings and facilities do not construct barriers to accessibility that would adversely affect persons with disabilities. One of the first federal documents intended to be used as a model to help states incorporate accessibility requirements for design and construction was the Americans with Disabilities Act Accessibility Guidelines (“ADAAG”). In 2010, the design criteria associated with the ADA were updated and renamed the 2010 ADA Standards for Accessible Design.

Chapter 11 of the International Building Code (“IBC”) and the International Code Council/American National Standards Institute’s (“ICC/ANSI”) A117.1 standard, Accessible and Usable Buildings and Facilities Standards, rely heavily on the provisions from the 2010 ADA Standards for Accessible Design. Chapter 11 of the IBC provides the scoping provisions of Minnesota’s Accessibility Code, which describes what is required to be accessible and quantities required. ICC/ANSI A117.1 (“ICC A117.1”) provides technical design criteria for the design and construction of the built environment to ensure access for persons with disabilities.

On July 10, 2007, the Minnesota Department of Labor and Industry (“Department”) promulgated a new Accessibility Code, Minnesota Rule Chapter 1341, which adopted Chapter 11 of the 2006 IBC and the ICC/ANSI A117.1-2003, with amendments. Prior to that adoption, Minnesota’s Accessibility Code was based on the ADAAG. The Department is now proposing to amend Chapter 1341 to incorporate changes made to both Chapter 11 of the 2012 International Building Code and the ICC/ANSI A117.1-2009 edition.

The Department used an Advisory Committee comprised of representatives from the Minnesota Council on Disability, the University of Minnesota Disability Services, the Building Owners and Managers Association, the American Institute of Architects, the Builders Association of Minnesota, the Association of Minnesota Building Officials, and a corporate representative to provide the Commissioner with recommended changes to the Minnesota Accessibility Code. A complete listing of those members of the Advisory Committee can be found in Exhibit A. The committee met several times and reviewed seven proposals from committee members, as well as numerous changes identified by the Department relative to the 2012 IBC and the 2009 edition of the ICC/ANSI A117.1 standard. Pursuant to Minnesota Statutes, section 326B.106, subdivision 1, the Department also consulted with the Construction Codes Advisory Council in establishing the proposed adoption of the Minnesota Accessibility Code in this rulemaking.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1341
MINNESOTA ACCESSIBILITY CODE**

GENERAL.

Throughout the Rule-by-Rule Analysis section of this SONAR, specific terms are used to explain accessibility requirements based on an occupancy type, a type of unit, or other occupancies. These terms are specifically defined within the International Building Code or Minnesota Rule, but are more fully described in this “GENERAL” section, below.

Accessible. “Accessible” is defined in Minnesota Rules, part 1341.0011, subpart 2, and means that a person with a vision disability, hearing disability, aging disability, a disability of coordination, or any other disability that significantly reduces mobility, flexibility, coordination, or perceptiveness can access or use a space, area, device, or piece of equipment. A “unit” is a room or a space intended for human occupancy. An “occupancy” means the use or intended use of a building or part of a building that is rented, leased, or otherwise used or occupied by people.

Dwelling unit. A “dwelling unit” is defined in A117.1 Section 106.5 and means a room or space where people reside.

Sleeping unit. A “sleeping unit” is defined in A117.1 Section 106.5 and means a room or space where people sleep.

Accessible units. An “Accessible unit” is defined in Minnesota Rules, part 1341.011, subpart 2, and means a unit that provides the highest level of accessibility. This type of accessibility is generally required for transient facilities, which have frequent turnover, and the users have no ability to modify the unit.

Type A unit. A “Type A unit” is defined in Minnesota Rules, part 1341.011, subpart 2, and only applies to apartments, monasteries, and convents. These units provide a level of accessibility that is slightly less than that of an Accessible unit. Accommodations must be made in a Type A unit to provide grab bars or remove cabinets under sinks.

Type B unit. A “Type B unit” is defined in Minnesota Rules, part 1341.011, subpart 2, and refers to a unit that provides the lowest level of accessibility. The accessibility level in a Type B unit is consistent with the requirements found in the Federal Fair Housing Act.

These units must provide an accessible route throughout the unit and clear floor spaces next to bathroom fixtures and kitchen appliances to accommodate a person with a disability.

Units with communication features. A “unit with communication features” is defined in Minnesota Rules, part 1341.011, subpart 6 J and refers to units that are dwelling units and sleeping units, which provide audible and visual emergency alarms and visual notification devices to alert a person with a disability to the use of a door bell or a door knock.

Ambulatory toilet compartment. An “ambulatory toilet compartment” is defined in A117.1 Section 604.10 and means a toilet compartment that is intended for people who are ambulatory but need assistance by using grab bars to use the toilet or fixture. The compartment must be three feet wide and must provide grab bars on each side of the toilet fixture.

Occupancy Groups.

Group A occupancies (A-1, A-2, A-3, A-4, and A-5). Generally, Group A occupancies are places where people assemble in small or large groups. Examples of Group A occupancies would include indoor symphony or concert halls, night clubs, restaurants, amusement arcades, places of worship, bowling alleys, gymnasiums, museums, outdoor amusement park structures, outdoor grandstands, and outdoor stadiums. Group A occupancies are more fully described in section 302 of the International Building Code.

Group I occupancies (I-1, I-2, I-3, and I-4). Generally, Group I occupancies are facilities or buildings that provide care services for people, long-term detention for people, or serve as a long-term residence for persons that receive custodial care from persons other than parents or guardians. Examples of Group I occupancies would include assisted living facilities, group homes, rehabilitation facilities, hospitals, nursing homes, detoxification facilities, prisons, reformatories, and detention centers. Group I occupancies are more fully described in section 308.4 of the International Building Code and in Minnesota Rules, part 1305.0202, subparts 1, 2, and 3.

Group R occupancies (R-1, R-2, R-3 and R-4). Group R occupancies are typically places that people board for short or long periods of time, family dwellings,

adult and child care facilities, congregate living facilities, and residential care or assisted living facilities. Examples of Group R occupancies include boarding houses, hotels, motels, apartment houses, fraternities, sororities, monasteries, one and two family dwellings, short term (less than 24 hours) adult care facilities, smaller short term (less than 24 hours) child day care facilities, congregate living facilities (16 or fewer persons), and residential care/assisted living facilities (5-16 persons). Group R occupancies are more fully described in section 310 of the International Building Code.

Congregate living facilities. “Congregate living facilities” are buildings or portions of buildings that contain sleeping units where the residents share bathroom or kitchen facilities. Congregate living facilities are more fully described in section 310.2 of the International Building Code.

Boarding houses. “Boarding houses” are buildings arranged or used for lodging for compensation, with or without meals, and not occupied as a single family unit. Boarding houses are more fully described in section 310.2 of the International Building Code.

1341.0005 INCORPORATION OF CHAPTER 11 OF THE 2012 INTERNATIONAL BUILDING CODE (“IBC”) BY REFERENCE.

This rule part is modified by revising the language to properly incorporate by reference the 2012 IBC. This change is necessary to ensure the proper edition of the IBC is incorporated and the publisher’s copyright information is included.

1341.0010 REFERENCED STANDARD.

This rule part is modified by changing the edition of the incorporated code book to update to the new version of the ICC/ANSI A117.1. This change is necessary to ensure that the proper edition of the A117.1 standard is incorporated into the rule.

1341.0011 IBC CHAPTER 11.

Subpart 1a. **IBC Section 1101.4, Calculation of percentages.** IBC section 1101 provides guidance for both the scoping provisions in the IBC and the technical provisions in the ICC A117.1. The scoping provisions in chapter 11 of the IBC provide the Accessibility Code with direction about what is required to be accessible and in what quantity. This new subpart specifically describes how to handle the calculation of accessible elements when fractions or remainders are involved (IBC scoping) and how to handle size and dimension rounding (A117.1 technical). This language existed previously as an

amendment to the ICC A117.1 and is being relocated because it more appropriately belongs in the IBC as scoping.

Subpart 2. IBC Section 1102, Definitions. This subpart is modified by adding several definitions currently found in the IBC and adding several new definitions to the subpart. The ICC relocated these definitions to chapter 2 of the IBC. It is necessary to include these definitions into this rule so they are readily available to non-code areas of the state required to enforce the Accessibility Code. Additionally, several definitions are added to this subpart because the terms in the proposed rule require definition but are not defined in chapter 2 of the IBC.

Subpart 2a. IBC Section 1102.2, Terms not defined. This subpart is added to incorporate a way to define terms that are not defined in the code or the rule. This language is necessary to ensure that a singular source is available to define terms when they are not defined in the code or the rule.

Subpart 3. IBC Section 1103, Scoping requirements.

Subitems A-E. 1103.2. General exceptions. The amendment to section 1103.2 is modified by changing certain section numbers referenced in subitems A and B. It is further modified by deleting existing subitem D and replacing it with a new subitem D. A new subitem E is added to the subpart to provide an amendment to section 1103.2.16, Recreational facilities. The section numbers in subitems A and B were changed because those sections were renumbered in the 2012 IBC. It is necessary to delete existing subitem D, which deletes the code book section pertaining to fuel dispensing systems, because this section was relocated in the 2012 IBC to section 1109.14. Adding a new subitem D to delete the code book section pertaining to live/work units is necessary because the requirements for live/work units is being deleted from the rule and local zoning ordinances will apply instead. Live/work units are commonly referred to as “home occupations” in Minnesota and are considered a local zoning issue. This change will prevent conflicts with local zoning regulations. Adding a new subitem E that amends the code book section pertaining to recreational facilities is necessary to clarify that these structures and elements are not included in the scope of the building code provisions. The renumbering changes are necessary to correlate this amendment with the new numbering made to the IBC.

Subpart 4. Section 1104, Accessible route.

A. 1104.3 Connected spaces. The amendment to section 1104.3 deletes exception 2 from this section.

This exception is misdirected because it equates the size of the door with the need for maneuvering clearance. However, the size of a door has nothing to do with whether or not a person with a disability requires maneuvering clearance to approach and operate that door. In addition, chapter 11 of the IBC is a scoping chapter. Door maneuvering clearance and door size are technical requirements already addressed in ICC A117.1, so this language is not appropriate for this subpart and should be deleted.

B. 1104.4 Multilevel buildings and facilities.

The format of this section is modified to more clearly convey the intent of the requirement by deleting the “exception within an exception” format. Exception 1 is modified by moving subitem 1.5 into the main exception and relocating the remaining subitems into a new section 1104.4.2. The modification to exception 1 is necessary to eliminate the size consideration of square footage of the space and to instead base it on occupant load. This change is reasonable because the concern with access here is a matter of number of people and not simply size of the space. This change will reduce costs for areas with more than 3,000 square feet and an occupant load of 30 or less.

Exception 2 pertaining to levels without accessible elements is modified to coordinate with changes made to the 2012 IBC. Exception 4 regarding two-story buildings with one story that has an occupant load of five or fewer is deleted because this issue is now addressed in the modification to exception 1. New language is added to exception 4 because it coordinates with modifications made in the 2012 IBC.

A new section 1104.4.2, Specific public areas, is added to address the issues currently located in the subitems in exception 1 and relocates and restates the language as a positive requirement, instead of the current exception within an exception (double-negative) format, which causes confusion. This change is reasonable because it more clearly conveys the intent as a positive requirement, as opposed to the current double negative format.

C. IBC Section 1104.5, Location. This subitem is modified by adding the phrase “be the shortest route possible” and “primary use” to the first sentence and by deleting the phrase “or be located in the same area as...” and relocating it to exception 3. These modifications are necessary to ensure that the intent of this section is met, which is that the accessible route and the general route coincide to the maximum extent possible. A new sentence is added to the section that reads “Where the circulation path is within a tenant space in a multi-tenant facility, the accessible route shall also be within the tenant space.” This new sentence is necessary so that a person with a

disability is not required to exit a space and re-enter at another level if other occupants are able to access the other level from within the space. The modifications to this section will increase costs for multistory tenant spaces by requiring a platform lift or elevator. The word “unit” is added in two places in exception number two to coordinate with the format of the 2012 IBC.

Subpart 5a. Section 1106, Parking and passenger loading facilities. This new subpart adds a new subsection to section 1106.7 regarding bus boarding and alighting. This new subsection is necessary to provide criteria for bus boarding and alighting, which is not currently addressed in the code. It is reasonable to address this issue because it is not an uncommon condition.

Subpart 5b. Section 1106.8, Restriping. This is a new subpart that adds a subsection to section 1106 to provide language regarding restriping existing parking spaces. This new subsection is necessary to provide guidance for restriping parking spaces, which is a frequent and common practice.

Subpart 6. IBC Section 1107, Dwelling units and sleeping units.

A. Section 1107.4, Accessible route. This subitem is modified by adding the words “Type B” before “units” in the first exception and by deleting the phrase “intended to be occupied as a residence” from the same exception. The second exception is deleted in its entirety. These changes are made to the language to provide clarification about the type of unit to which the provision applies. The deletion of the second exception is necessary to eliminate duplication of section 1004.4.2 in the ICC A117.1, which contains similar language and is also incorporated into this rule.

B. Section 1107.5, Group I. This new subitem amends IBC section 1107.5 regarding accessibility in Group I occupancies. This modification adds language to the section to address transient type units provided for guests or visitors in Group I occupancies. This change is necessary to ensure that at least one of these unit types is fully accessible to guests or visitors who need accessible features.

C. Section 1107.5.1, Group I-1. This new subitem amends section 1107.5.1 regarding Group I-1 units. This modification adds language to the section to prevent conflict and duplication of effort between the Minnesota State Building Code and the requirements of the Department of Health. This will give the Department of Health control over the spaces addressed in their rule and give authority to the building code in areas not specifically addressed in the Department of Health rule.

D. Section 1107.5.1.3 Boarding care. This new subitem amends section 1107.5.1.3 regarding boarding care occupancies. This modification adds language to the section to prevent conflict and duplication of effort between the Minnesota State Building Code and the requirements of the Department of Health. This will reduce conflict between the Minnesota State Building Code and the Department of Health by giving the Department of Health control over the spaces addressed in their rule and give authority to the building code in areas not specifically addressed in the Department of Health rule.

E. Section 1107.5.2, Group I-2 nursing homes. This subitem is modified by deleting the language pertaining to accessible units and replacing it with new language about Group I-2 nursing homes. These changes are necessary to prevent conflict and duplication of effort between the Minnesota State Building Code and the requirements of the Department of Health as it relates to resident sleeping units and bathing facilities. Areas other than resident sleeping rooms and bathing facilities are required to comply with applicable accessibility requirements. This will reduce conflict between the State Building Code and the Department of Health by giving the Department of Health control over the spaces addressed in their rule and give authority to the building code in areas not specifically addressed in the Department of Health rule.

F. Section 1107.5.5.1, Group I-3 sleeping units (new subitem). This new subitem modifies the language pertaining to accessibility within Group I-3 sleeping units. The changes made to this section are intended to comply with the federal Department of Justice Regulation 35.151 (k), which requires that 3 percent of the total number of dwelling units and sleeping units in the facility, but not less than one unit in each classification level, be an Accessible unit. It is reasonable for the Accessibility Code to coordinate with the federal regulations to help ensure compliance with the ADA.

G. Section 1107.6, Group R (relettered). This subitem is modified by deleting the references to different unit types and replacing them with the phrase “Dwelling units and sleeping units shall be provided...” New language is added to more thoroughly explain the requirements for guests in Groups R-2, R-3, and R-4 occupancies, facilities that provide student housing, and crew quarters used exclusively as a residence for emergency response personnel. These changes are necessary to address transient type units provided for guests or visitors in Group R occupancies. It is reasonable that these units are accessible to provide access to all persons. The change to student housing is necessary to ensure that any occupancy group that provides student

housing provides Accessible units and Type B units. It requires that individual bedrooms be counted separately in order to determine the number of rooms required to be Accessible units. This change could increase costs by expanding the types of Group R occupancies providing student housing that are required to provide accessibility. Adding requirements for crew quarters for emergency personnel is necessary to correlate with the Americans with Disabilities Act provision found at 28 CFR 35.151(d), which requires that these facilities be Type B units rather than Accessible units. This change will reduce costs by requiring these units to meet a reduced level of accessible design.

H. Section 1107.6.1, Group R-1 (relettered). This subitem is modified by moving one of the referenced sections to a new sentence at the end of the section that reads, “Units not required to be Accessible units or Type B units shall comply with Section 1107.6.1.5.” These changes are not substantive but are necessary to clarify that the provision in section 1107.6.1.5 applies to units that are not Accessible units or Type B units.

I. Section 1107.6.1.1, Group R-1 (relettered). This subitem is modified by deleting the word “facilities” and replacing it with “dwelling units and sleeping units.” The subitem is also modified by deleting Table 1107.6.1.1, Accessible Dwelling Units and Sleeping Units, and subsection 1107.6.1.1.1, Accessible Unit Facilities, so that Table 1107.6.1.1 and section 1107.6.1.1.1 in the 2012 IBC will apply instead. These changes are necessary to coordinate with changes made to the 2012 IBC.

J through L (relettered). Sections 1107.6.1.3, Communication features, 1107.6.1.4, Dispersion, and 1107.6.1.5, Passenger doors, are re-lettered but the content is unchanged.

M. IBC Section 1107.6.2, Group R-2 (relettered). This subitem is modified by deleting the references to the different unit types and replacing them with the phrase, “Dwelling units and sleeping units shall be provided...” This change is necessary to coordinate with changes made to the 2012 IBC.

N. Section 1107.6.2.1.1, Type A units (relettered). This subitem is modified by deleting the words “on a site” and replacing it with “Group R-2 units within a contiguous parcel of land development, irrespective of lot lines and public rights-of-way within the development.” This subitem is also modified by changing exception #2 from “Existing structures on a site shall not contribute to the total number of units on a site” to “Existing Group R-2 units shall not contribute to the total number of units considered to determine the number of Type A units required.” The change made in the main

body of the section is necessary to clarify that property lines between buildings that are part of a single development do not create separate requirements for Type A units. The previous language “on a site” was too vague and did not specifically address lot lines and public rights of way. The change to exception #2 is necessary to specifically address existing Group R-2 units, instead of the more general language pertaining to existing structures. This change is necessary to clarify that the exception only applies to Group R-2 units, and not to all existing structures. These changes may decrease costs because it may reduce the requirement for the number of Type A units required in Group R-2 occupancies.

O. Section 1107.6.2.2, Group R-2 other than apartment houses, monasteries, and convents (relettered). This subitem is amended by relocating the reference to the deletion of subsections 1107.6.2.2.1 and 1107.6.2.2.2 to the end of the section. This statement was inadvertently included in the wrong location in this section during the previous rulemaking. The content is unchanged. This subitem is also modified by deleting the unit types and replacing them with “dwelling units and sleeping units.” This change is not substantive, but coordinates with changes to 1107.6.1, and is necessary to clarify the current intent of the code.

P. Section 1107.6.3, Group R-3 (new subitem). This is a new subitem added to address dwelling units and sleeping units within Group R-3 occupancies. The new language in section 1107.6.3.1 retains the current provision of the section that a dwelling or sleeping unit in a single structure occupancy intended to be a residence must be a Type B unit if the occupancy has four or more dwelling or sleeping units. The new language in section 1107.6.3.2 requires congregate living facilities, boarding houses, and care facilities, each of which contains four or more sleeping units, to comply with sections 1107.6.4.1 and 1107.6.4.2 (requirements for Accessible units and Type B units). This change is necessary because these units are the same type of uses that are addressed in section 1107.6.4 for Group R-4 occupancies. It is reasonable that the same type of uses have the same requirements, whether they are Group R-3 or Group R-4 occupancies. The new language in section 1107.6.3.3 exempts care facilities from the accessibility requirements if they provide accommodations for less than 24 hours. It is reasonable to exempt care facilities if the stay is less than twenty-four hours because those facilities are considered transient, not living facilities.

Q. and R (relettered). Section 1107.7, General exceptions, and 1107.7.6, Owner occupied units, are re-lettered but the substantive content remains unchanged.

Subpart 7. Section 1108, Special occupancies.

The amendment to section 1108.2.8, Dining areas, and its exceptions are deleted and replaced with an amendment to section 1108.2, Assembly area seating. The current language in this subpart is deleted because the requirement is no longer necessary due to changes made in the 2012 IBC for special occupancies. This IBC section will now apply regarding dining areas.

A. Section 1108.2, Assembly area seating. The new subitem A modifies Section 1108.2, Assembly area seating, to address all assembly areas without fixed seats. Specifically, requirements regarding lawn seating was amended out of the code book section and replaced with requirements for assembly areas without fixed seats. Deleting the language regarding lawn seating and replacing it with non-fixed seating is reasonable to ensure that all areas without fixed seats, and not just lawn seating areas, are located on an accessible route.

B. Section 1108.2.6, Non-fixed seating. This is a new subitem that modifies section 1108.2.6, Lawn seating. This section is modified to make the provision more generally applicable to all non-fixed seating, rather than just lawn seating and overflow seating areas. This change is needed and reasonable to ensure that all areas without fixed seats, not just lawn seating areas and overflow areas, are located on an accessible route.

Subpart 8. Section 1109, Other features and facilities.

A. Section 1109.1, General. This subitem is modified by clarifying the terms used for the types of units in the exception. The changes also clarify that chapter 10 of the ICC A117.1 must be complied with for Accessible units, Type A units, and Type B units. These changes are necessary to coordinate with changes made in the 2012 IBC.

B. Section 1109.2.1.5, Prohibited location. This subitem is modified by deleting the word “unisex” and replacing it with the words “family or assisted-use.” This change is necessary to coordinate with changes made in the 2012 IBC.

C. Section 1109.2.2, Water closet compartment. This subitem is modified by changing references from “bathing facilities” to “bathing rooms” to coordinate with the 2012 IBC. This subitem is also modified to require that one ambulatory toilet compartment be provided whenever two or more toilet compartments are provided in a toilet or bathing room. The requirement for one ambulatory toilet compartment where six or more water closet compartments are provided is being deleted from the rule. Changing the rule from requiring one ambulatory toilet

compartment for every six or more water closet compartments to requiring one ambulatory toilet compartment for two or more water closet compartments will result in more ambulatory toilet compartments being provided. While this will increase the number of required ambulatory toilet compartments, the cost to provide them is justified because the number of persons with disabilities, including the population of elderly persons, is increasing. There are more persons with disabilities that will benefit from increased availability of ambulatory toilet compartments. An ambulatory toilet compartment requires an increase the size of the toilet compartment from 30" in width to 36" in width and also requires the installation of two horizontal grab bars and two vertical grab bars, one set on each side of the compartment. The cost for grab bars in an ambulatory toilet compartment would be approximately \$260.00.

This subitem was modified by deleting language pertaining to gender specific toilet rooms because it is no longer relevant with the change in the requirement for an ambulatory toilet compartment where two or more toilet compartments are provided. This requirement is no longer gender-specific so it will apply to all toilet rooms. This requirement was necessary previously because it ensured that both gender-specific toilet rooms would receive an ambulatory toilet compartment if one of the gender-specific toilet rooms required an ambulatory toilet compartment and the other did not, based on the fixture count in the toilet room.

The last sentence at the end of the section is deleted because the language was deleted from the 2012 IBC section.

D. Section 1109.3, Sinks. This amendment is unchanged.

E. Section 1109.4, Kitchens and kitchenettes (new subitem). This is a new subitem that adds an exception to section 1109.4 about accessibility when multiple kitchens are provided in a facility. This exception is necessary to address areas with multiple kitchens in the same space. It is reasonable to require at least one, but not all, such kitchens to be accessible to ensure accessibility in these kitchens, but also to ensure that the requirement is not overly restrictive or excessive. This will reduce costs by requiring fewer accessible kitchens.

F. Section 1109.6, Swimming pools, wading pools, hot tubs, spas, saunas and steam rooms (new subitem). This is a new subitem that modifies section 1109.6 to incorporate accessibility requirements for amenities other than saunas and steam rooms. An exception is included for hot tubs, spas, saunas, or steam

rooms that are clustered in a single location. This change is necessary to address all of the types of amenities that may be in facilities. It is reasonable to ensure that all amenities that may be in facilities are accessible to everyone.

G. Section 1109.7, Elevators (relettered). This subitem is modified by replacing references to section numbers due to renumbering and by deleting the reference to ICC A117.1 and the exception regarding the restricted use of limited-use/limited-application elevators. This change is necessary to coordinate with the 2012 IBC and to coordinate the rule with national standards. This will reduce cost by not restricting the use of limited-use/limited-application elevators.

H. IBC Section 1109.8, Lifts (relettered). This subitem is modified by replacing references to section numbers. The subitem is also modified by deleting the reference to ICC A117.1 and adding a requirement for lifts to be accessible and comply with Minnesota Rules, chapter 1307. Item 2 in the list of required accessible routes is modified by replacing a section number that was renumbered and adding another option for accessible routes for wheelchair spaces. Item 11 is added to the list to allow a lift to be provided as an accessible route within a tenant space. These changes are necessary to coordinate section number changes in the 2012 IBC and to coordinate with conditions established in other state amendments to IBC sections 1104.4.3, 1104.4.4 and 1104.5.

I. IBC Section 1109.10, Detectable warnings (relettered). This subitem is modified by replacing section numbers because they were renumbered in the 2012 IBC. The remainder of the language is unchanged.

(Existing H) IBC Section 1109.10, Assembly area seating. This subitem is deleted because the amendment to section 1108.2 already addresses assembly seating. As a result, this amendment is no longer necessary.

J. IBC Section 1109.12.3, Point of sale and service counters (relettered). This subitem is modified by deleting the last sentence regarding the location of accessible counters, or portions of counters. This deletion is necessary because this requirement has been relocated to A117.1, section 904.2.

K. 1109.14 Fuel dispensing systems (new subitem). This new subitem is added to delete IBC section 1109.14 regarding fuel dispensing systems. The requirement for fuel dispensing systems is deleted in the current Accessibility Code. This deletion is necessary to carry forward current Minnesota State Building Code requirements and to ensure uniform enforcement.

L. IBC Section 1109, Other features and facilities (relettered). Sections 1109.15 and 1109.16 and all their subsections were renumbered in the 2012 IBC. This subitem is modified by replacing section numbers to reflect the 2012 IBC renumbering. A new subsection is added to the rule, 1109.18, Airplane hangars. This subsection is added to reduce the number of required accessible private aircraft hangers to 5% of the total number of hangers. It is reasonable to provide access to a limited number of hangers because there are a limited number of persons with disabilities who require access to these facilities. This will reduce cost by not requiring that all private aircraft hangers are accessible. The amendment to section 1109.17, Two-way communication systems, is unchanged but is renumbered to 1109.19 to accommodate the new subsection for airplane hangars.

Subpart 9. Section 1110, Signage. Subitems were added to this subpart for ease of reference. No changes are made to the content in subitem A, 1110.1, General, subitem B, 1110.2, Designations, and C, 1110.3, Directional and informational signs. Subitem D, 1110.4, Means of egress, is amended by deleting the first sentence in the section, the first sentence in the first subsection, and moving the remaining subsection text into the charging statement. A sentence is added to the end of section 1104 that requires other signs for accessible means of egress to comply with IBC chapter 10. These changes to the means of egress provisions are necessary to eliminate duplication and redundancy with IBC Chapter 10. Subsections 1110.4.2 and 1110.4.3 are deleted to eliminate redundancy with IBC chapter 10. Subitem E, 1110.5, Parking, Subitem F, 1110.6, Entrances, Subitem G, 1110.7, TTYs, Subitem H, 1110.8, Assistive listening systems, and Subitem I, 1110.9, Check-out aisles, are all unchanged but have been given subitem letters for ease of reference. Subitem J, 1110.10, Variable message signs, and its subparts are added to coordinate with changes in the 2012 IBC.

Subpart 10. Section 1111 (previous section number), Swimming pools, wading pools, spas, saunas, and steam rooms. This subpart is repealed because its contents have been relocated to IBC section 1109.6.

Subpart 11. Section 1111 (new section number), Additions. This subpart is modified by adding subitems for ease of reference, renumbering the section numbers and by adding language to ensure that if an addition affects access to the existing building, that an accessible route is provided to the existing building. New language is added for the purpose of determining whether access to stories or mezzanines is required pursuant to Section 1104.4. To make this determination, existing space and the added space must be considered aggregately, in compliance with Section 1104.4. This change is necessary to clarify the relationship between an addition

and an existing building. The group occupancies in new Subitem B are deleted because they are unnecessary and referencing dwelling units and sleeping units is sufficient.

Subpart 12. Section 1112 (new section number), Alterations. This subpart is modified by adding subitems for ease of reference, renumbering the section and subsection references throughout, and by amending phrases to incorporate more appropriate language for unisex rooms and bathing rooms throughout. The proposed modifications also delete existing subsections 1113.5, Eighty-five percent alteration, and 1113.6, Means of egress. Existing section 1113.5 is deleted to coordinate with the 2010 ADA Standards for Accessible Design, which no longer contains this provision. Existing section 1113.6 is deleted because it is redundant with IBC chapter 10. Existing section 1113.7 is renumbered to 1112.5, Addition of pedestrian route, and the language in the section is modified by deleting references to escalators or stairs and replacing them with references to pedestrian routes. Adding the language pertaining to pedestrian routes instead of escalators or stairs is necessary to ensure that any new route of travel is accessible and not just for stairs or escalators. Renumbered section number 1112.8.1, Elevators, is amended by adding the phrase “be accessible and” to the section and by deleting the reference to ICC A117.1. These changes are necessary to coordinate with changes made in the 2012 IBC. Renumbered section 1112.8.3.2 is added to ensure that, where it is technically infeasible to alter existing toilet and bathing rooms, an ambulatory toilet compartment is provided, which will provide more accessible compartments where they otherwise would not be provided. Renumbered section 1112.8.3.3 is modified by adding the word “rooms” after “toilet” and “bathing” to make the language consistent with changes in the IBC. Section 703.3 is renumbered to 703.2 to conform to changes in the 2010 ADA Standards for Accessible Design that require tactile signs instead of visual signs. Renumbered section 1112.8.10, Parking restriping, is added to provide criteria for a common situation that is currently not addressed in the code.

Subpart 13. Section 1113 (new section number), Change of occupancy. This subpart is modified by renumbering the section and subsection references throughout and by amending phrases to incorporate more appropriate language for unisex rooms and bathing rooms to make the language consistent with changes in the IBC. This subpart is also modified by changing the title of the section from “Change in use” to “Change of occupancy,” which is necessary to coordinate with language in the International Existing Building Code (“IEBC”) to maintain consistent requirements within the State Building Code. Renumbered subsection 1113.1.1 is modified by deleting the language “to a building places the building in a different division of the same occupancy group or in a different

occupancy group” because it is redundant to similar language in the general statement in section 1113.1, so it is not needed. Similarly, renumbered subsection 1113.1.2 is modified by deleting the language “to a portion of a building places the portion of the building in a different division of the same occupancy group or in a different occupancy group” because it is also redundant to similar language in the general statement in section 1113.1. The exception in section 1113.1 regarding owner occupied Type A and Type B dwelling units is deleted to ensure that the types of units undergoing a change of occupancy are consistent with those required in new construction and alterations.

1341.0104 A117.1 SECTION 104, CONVENTIONS.

Subpart 2. Section 104.6, Calculation of percentages. This rule part is repealed because the requirements have been relocated to IBC section 1101.4.

1341.0202 A117.1 SECTION 202, DWELLING AND SLEEPING UNITS

This rule part is modified by adding “Type C (Visitable) dwelling units” after the reference to Type B units. This modification is necessary to coordinate with changes made in the ICC A117.1.

1341.0402 A117.1 SECTION 402.2, COMPONENTS.

This rule part is modified by deleting the existing language from the rule and replacing it with new language pertaining to the same subject matter but the content is revised by changing the format by incorporating a section with subsections. Revising this rule part is necessary to correct an error in format in which the intended requirements were listed as exceptions. It is necessary and reasonable to revise this language to ensure the intent of the code is clear and that the code is correct.

1341.0403 A117.1 SECTION 403, WALKING SURFACES.

This rule part is modified by deleting Table 403.5 and replacing it with language that clarifies the clear width requirements and provides a new exception. The subsections are renumbered and a new charging statement was added to reference the subsections appropriately. These modifications are necessary to coordinate with changes made in the ICC A117.1.

1341.0407 A117.1 SECTION 407, ELEVATORS.

Subpart 2a. Section 407.4.5 Illumination. This is a new subpart regarding illumination levels in elevators. Adding this requirement is necessary to coordinate with

similar requirements in Elevators and Related Devices, Minnesota Rules, chapter 1307.

1341.0408 A117.1 SECTION 408, LIMITED-USE/LIMITED-APPLICATION ELEVATORS.

Subpart 2. A117.1 Section 408.3.3, Door location and width. Subpart 2 is repealed because the requirement was incorporated into the ICC A117.1.

Subpart 3. A117.1 Section 408.4.1, Inside dimensions of elevator cars. Subpart 3 is repealed because the requirement was incorporated into the ICC A117.1.

Subpart 4. A117.1 Section 408.4.3, Platform and hoistway clearance. The changes made to subpart 4 are grammatical and provide clarity to the subpart.

1341.0409 A117.1 SECTION 409, PRIVATE RESIDENCE ELEVATORS.

This rule part is modified by adding the phrase “shall not be required to comply with Section 409” at the end of the exception. This modification is necessary to coordinate with changes made in the ICC A117.1.

1341.0410 A117.1 SECTION 410, PLATFORM LIFTS.

Subpart 1. A117.1 Section 410.1, General. This subpart is modified by correcting two typographical errors in the subpart. The remaining language is unchanged.

Subpart 2. A117.1 Section 410.5.2 (new section number), Lifts with doors on adjacent sides. This subpart is modified by deleting the language pertaining to section 410.2.1, Doors and gates, and replacing it with language that deletes the exception in 410.5.2. This modification is necessary to coordinate the language with changes made in the ICC A117.1. The exception is being deleted from the ICC A117.1 because the exception permits a platform size that is inadequate to allow for wheelchair maneuverability.

Subpart 3. A117.1 Section 410.2.2, Ramps, and Subpart 4, A117.1, Section 410.5, Clear floor space. A117.1 Section 410.2.2, Ramps, and A117.1, Section 410.5, Clear floor space, are being repealed because these issues are addressed in changes made in the ICC A117.1 so the amendments are no longer necessary.

1341.0502 A117.1 SECTION 502, PARKING SPACES.

Subpart 2. A117.1 Section 502.4, Access aisle.

Section 502.4.4, Marking, is modified by adding language and exceptions to the subpart pertaining to “no parking designations” in accessible parking aisles. Modifications are made to this rule amendment requiring that the “no parking” designation be depicted on a sign in addition to the marking on the surface of the access aisle itself. It is reasonable to provide a sign so that the “no parking” designation is more easily visible while parking a vehicle. These modifications are necessary because Minnesota has climatic conditions, specifically snow that often covers marked access aisles, which warrant the placement of a sign for better visibility. The cost to install a sign of this nature mounted on a post is approximately \$100.

1341.0603 A117.1 SECTION 603, TOILET AND BATHING ROOMS.

Subpart 1. A117.1 Section 603.3, Mirrors.

This subpart is being repealed because this issue is addressed in a rule governed by the Department of Health. This change will eliminate any duplication of effort between agencies and may decrease costs by decreasing the number of agencies and time involved in reviews and inspections.

Subpart 2. Section 603.5, Diaper changing tables. This subpart is modified by deleting the existing language regarding diaper changing tables and replacing it with revised language pertaining to the same subject matter. This modification is necessary to coordinate with changes made in the ICC A117.1 and to ensure that accessible compartments can be used for their intended purpose.

1341.0604 A117.1 SECTION 604, WATER CLOSETS AND TOILET COMPARTMENTS.

Subpart 1. A117.1 Section 604.3.2 (new section number), Clearance depth. This subpart is modified to coordinate the rule with format changes made in the ICC A117.1. The existing code clearance requirements are being carried forward.

Subpart 1a. A117.1 Section 604.3.3, Clearance overlap. Section 604.3.3, Clearance overlap, is modified to provide clarification regarding the elements allowed in the clearance. A new exception is provided to allow a baby changing station in family or assisted-use rooms. It is reasonable to provide the exception so that the size of the room does not have to be increased to provide the changing table. The exceptions could reduce costs by not requiring a larger room.

Subpart 2. A117.1 Section 604.5.1, Fixed side wall grab bars. This subpart is modified by deleting the current language regarding grab bars and replacing it with references to code sections and by adding new subsections pertaining to the same subject matter. These modifications are necessary to provide requirements for vertical grab bars for children’s fixtures, which is not addressed in the ICC A117.1.

Subpart 3. A117.1 Section 604.7, Dispensers. This subpart is modified by deleting the current language pertaining to dispensers and replacing it with revised language pertaining to the same subject matter. These modifications are necessary to coordinate with changes made in the ICC A117.1 and to clarify the criteria for the location of dispensers: specifically, recessing dispensers if they are located above a grab bar. It is reasonable to require the dispenser to be recessed if it is located above the grab bar to maintain access to the grab bars. Recessing the dispenser may increase costs, but locating the dispenser above the grab bar is a design choice and is not required.

Subpart 4. A117.1 Section 604.9.2, Size (new section number). This subpart is modified by renumbering the section number and modifying the language to incorporate the current rule amendment into the ICC A117.1 format.

Subpart 5. A117.1 Section 604.9.3, Doors (new section number). This subpart is modified by renumbering the section number to coordinate the rule with the ICC A117.1. Additionally, the ICC A117.1 was modified to address similar requirements located in the current rule amendment, except for the door swing issue, which is being carried forward from current code. The remaining requirements are deleted because they are no longer necessary.

Subpart 6. A117.1 Section 604.10.3, Doors (new section number). This subpart is modified by deleting the current language pertaining to dispensers and relying on the language in ICC A117.1. This subpart is further modified by adding an exception to section 604.10.3, Doors, to exempt the door maneuvering clearance requirement in three foot wide ambulatory compartments. The new exception is necessary because ambulatory compartments are not intended for wheelchair use and are not wide enough to provide maneuvering clearance at the door.

1341.0607 A117.1 SECTION 607.2, CLEARANCE.

This rule part is being repealed because this issue is addressed in rule governed by the Department of Health. This should decrease cost by decreasing the

number of agencies enforcing the requirement and reducing the time involved with reviews and inspections.

1341.0608 A117.1 SECTION 608, SHOWER COMPARTMENTS.

Subparts 1 through 8. Subparts 1 through 8 are being repealed to coordinate with changes made in ICC A117.1 because the amendments have been incorporated into the standard.

Subpart 9. A117.1 Section 608.5, Hand showers. This subpart is being renumbered to coordinate with changes made to the ICC A117.1. Additionally, the exception is being modified to incorporate the ICC A117.1 requirement for a fixed shower head at 48 inches above the floor and to carry forward the current amendment addressing security issues. This change is necessary to coordinate the current rule requirement with the requirements in the ICC A117.1.

1341.0609 A117.1 SECTION 609.4, POSITION OF GRAB BARS.

This rule part is modified by deleting the current language pertaining to grab bars and replacing it with requirements pertaining to the position of children's grab bars. This modification is necessary to coordinate this language with changes made to the ICC A117.1, section 604.5.1.2.1.

1341.0610 A117.1 SECTION 610, SEATS.

This rule part is modified by deleting the current language pertaining to shower compartment seats and relying instead on the requirement in ICC A117.1 pertaining to the same subject matter. This rule part is further modified by adding an exception to limit the size of seats in roll-in showers that exceed the minimum size requirement. It is reasonable to limit the length of seats in large showers because the functional portion of the seat is the same size as it would be in the minimum size shower. This will decrease costs because large custom designed seats will not be required.

1341.0805 A117.1 SECTION 805, TRANSPORTATION FACILITIES.

Subpart 1. A117.1 Section 805.9, Escalators. This subpart is modified by deleting the specifications related to escalators and replacing them with language requiring compliance with Minnesota Rules, chapter 1307, Elevators and Related Devices. This modification is necessary to prevent redundancy and a conflict with the Minnesota Elevator Code.

Subpart 2. A117.1 Section 805.10, Track crossings. This subpart is being repealed because the issue is addressed by changes made to the ICC A117.1, so the amendment is no longer necessary.

1341.0904 A117.1 SECTION 904, SALES AND SERVICE COUNTERS.

A117.1 Section 904.2 Approach. This is a new rule part that relocates a current amendment to IBC section 1109.12.3 pertaining to accessible portions of sales and service counters. It is reasonable and necessary to relocate this amendment to this rule section because this requirement is more appropriately located within these technical provisions of the code since it affects the design of the counter, which is a technical issue.

1341.1002 A117.1 SECTION 1002.15, BEDS.

This rule part is being repealed because the ICC A117.1 incorporated this language into the standards, so the amendment is no longer necessary.

1341.1003 A117.1 SECTION 1003, TYPE A UNITS.

This rule part is being repealed because the ICC A117.1 incorporated this language into the standard, so the amendment is no longer necessary.

1341.1004 A117.1 SECTION 1004, TYPE B UNITS.

Subpart 2. A117.1 Section 1004.9, Operable parts. This subpart is being repealed because the ICC A117.1 incorporated this language into the standard, so the amendment is no longer necessary.

Subpart 3. A117.1 Section 1004.11, Toilet and bathing facilities. Subitems A. through E. and G. through H. are being deleted because the ICC A117.1 incorporated this language into the standard so the amendment is no longer necessary. Existing subitem F, A117.1 section 1004.11.3.1.3.1, Parallel approach bathtubs, will remain in the rule because the language was not incorporated into the standard. One grammatical change is made deleting the word "either" and replacing it with the word "one" so as to coordinate the subpart with changes made in the ICC A117.1.

1341.1006 A117.1 SECTION 1006.6.1, PUBLIC OR COMMON-USE INTERFACE.

This rule part is renumbered to coordinate with numbering changes made in the ICC A117.1.

**1341.1100 A117.1 CHAPTER 11, SWIMMING
POOLS, WADING POOLS, SPAS, SAUNAS, AND
STEAM ROOMS.**

This rule part is repealed because the ICC A117.1 incorporated this language into the standard, so the amendment is no longer necessary.

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2015

MINNESOTA MECHANICAL and FUEL GAS CODE

with ANSI/ASHRAE STANDARD 154-2011



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Department of Labor and Industry

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment to Rules Governing of the 2012 International Mechanical and Fuel Gas Codes, Minnesota Rules, Chapter 1346; Revisor's ID Number R-04147

INTRODUCTION

On October 26, 2009, the Department amended the rules governing mechanical systems and fuel gas systems by adopting and amending the 2006 editions of the International Mechanical Code (IMC) and International Fuel Gas Code (IFGC), both issued by the International Code Council, Inc. ("ICC"). The Department did not adopt the 2009 editions of the IMC or IFGC because of the drastic slowdown of the construction economy and the lack of technical experts available to assist the Department with the adoption. Since that time, the ICC developed and published the 2012 editions of the IMC and IFGC.

The Commissioner of the Minnesota Department of Labor and Industry proposes to adopt amendments to Minnesota Rules, Chapter 1346, which incorporates by reference the 2012 IMC and the 2012 IFGC. The proposed rules update certain Minnesota mechanical and fuel gas rules to require the most current industry standards and practices.

The Department convened an advisory committee, the Mechanical/Fuel Gas Code Committee ("committee"), and consulted the Construction Codes Advisory Council (CCAC) to update Minnesota's Mechanical and Fuel Gas Codes.³⁸ A list of committee members can be found in Exhibit A. The committee provided the Department with important information from all areas of the mechanical and fuel gas industries. The committee proposed changes to the 2012 editions of the IMC and IFGC; the proposed changes are reflected in the proposed amendments.

³⁸ The Mechanical/Fuel Gas Code Committee met on November 30, 2011, December 14, 2011, December 21, 2011, January 4, 2012, January 18, 2012, February 1, 2012, February 15, 2012, and February 29, 2012. The Department consulted the CCAC regarding this rulemaking on June 21, 2012. The "Mechanical and Fuel Gas Codes" refers to chapter 1346.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 1346
MINNESOTA MECHANICAL AND FUEL GAS CODE with ANSI/ASHRAE Standard 154-2011**

NOTE.

Throughout the rules, references to the 2006 IMC have been changed to 2012 IMC because the Department is incorporating the 2012 edition of the IMC. Many code sections have been renumbered in the 2012 IMC so the rule is revised to reflect these renumbered sections. The definitions for the terms “appliance” and “equipment” did not change from the 2006 edition of the IMC to the 2012 edition of the IMC. The terms are used interchangeably in the existing rule. The rules have been corrected in the proposed rules to more accurately reflect the distinction between the two terms.

Throughout the rule, grammatical changes are made to clarify the requirements. This includes modifying numeric formats to provide clarity to the user.

1346.0050 TITLE; INCORPORATION BY REFERENCE.

This rule part is modified to properly incorporate by reference the 2012 edition of the IMC and the 2014 edition of the NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

1346.0101 SCOPE.

This rule part is modified by striking the references to IMC section 101, which is part of 2012 IMC chapter one, because chapter one is not incorporated by reference. The phrase “and appliances” is added to the second sentence after the word “equipment.”³⁹ The second paragraph of this rule part is modified by deleting the reference to the edition of the ASME standards listed in the rule part. The editions are not necessary because the most current edition of these documents is listed in the “Referenced Standards” section in the 2012 IMC so it is not necessary to list them in the rule part. The last sentence is modified and corrected to accurately refer to the Minnesota statute section regarding data classification of biotechnology process piping systems.

1346.0102 EXISTING INSTALLATIONS.

This rule part is modified by striking the references to section 102, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The remainder of the section is unchanged.

1346.0103 MAINTENANCE.

This rule part is modified by striking the references to section 103, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The remainder of the section is unchanged.

1346.0104 ADDITIONS, ALTERATIONS, RENOVATIONS, OR REPAIRS.

This rule part is modified by striking the references to section 104, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The remainder of the section has no substantive changes but is modified for clarity.

1346.0105 WORK EXEMPT FROM PERMIT.

The current language in this rule part regarding work exempt from permit is deleted and replaced with language that refers the user to Minnesota Rules, chapter 1300. Chapter 1300 already addresses requirements for work that is exempt from a permit.

1346.0106 REQUIRED INSPECTIONS.

This rule part is modified by striking the references to section 106, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The phrase “on the jobsite” is replaced with the word “used” to clarify that the material must be used and not merely present. The remainder of the section is unchanged.

1346.0108 AUTHORITY TO CONDEMNATE MECHANICAL SYSTEMS.

This rule part is modified by striking the references to section 108, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The remainder of the section has no substantive changes but is modified for clarity or correction, including adding a reference to Minnesota Rules, chapter 1300.

³⁹ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

1346.0109 AUTHORITY TO ORDER DISCONNECTION OF ENERGY SOURCES.

This rule part is modified by striking the references to section 109, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The remainder of the section is unchanged.

1346.0110 CONNECTION AFTER ORDER TO DISCONNECT.

This rule part is modified by striking the references to section 110, which is part of 2012 IMC chapter one, because chapter one of the 2012 IMC is not adopted. The remainder of the section has no substantive changes.

1346.0202 SECTION 202, GENERAL DEFINITIONS.

Subpart 1. Section 202; Adding or amending definitions. IMC section 202 is amended by adding or amending the following definitions:

....

Subp. 2. Deleting definitions. IMC section 202 is amended by deleting the following definitions:

- Extra-Heavy-Duty Cooking Appliance.**
- Heavy-Duty Cooking Appliance.**
- Light-Duty Cooking Appliance. Medium-Duty Cooking Appliance.**

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.0202. The proposed rule published at the time of the Notice amends two additional definitions and further amends another definition. Those amendments remain as published. Upon consideration of a comment received during the comment period, the Department proposes to delete four definitions: extra-heavy-duty cooking appliance; heavy-duty cooking appliance; light-duty cooking appliance; and medium-duty cooking appliance.

There is a table taken from ASHRAE Standard 154-2011 added to section 507.2.1 that classifies appliances into light-duty, medium-duty, heavy-duty and extra-heavy-duty cooking appliances.⁴⁰ This table replaces the four definitions proposed for deletion above. The IMC definitions are outdated; they haven't been updated since at least 2003, if not earlier.

The table is used instead of the IMC definitions because the table was developed by ASHRAE using current information about appliances. ASHRAE is the leading organization on commercial kitchen ventilation research and standards development. The table more clearly conveys the information and represents accepted current appliance classifications.

Approved. This rule part is modified by adding a definition for the term "approved." This definition is needed in this chapter to coordinate the definition of "approved" with the other chapters of the Minnesota State Building Code. Building officials are authorized to allow some construction methods or materials that have been determined to be in compliance with the state building code. It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts between terms from one chapter to another.

Code. This rule part is amended by adding a definition for the term "code" to clarify that any reference to "the code" or "this code" in Minnesota Rules, parts 1346.0050 to 1346.1500, means the Minnesota Mechanical Code.

Exhaust system. The definition for the term "exhaust system" is amended by deleting the phrase "central vacuums" and adding it as an exception to the end of the definition because a central vacuum system is typically exhausted into a garage and not directly to the outside. This definition is also modified by deleting the word "radon" and replacing it with the phrase "sub-slab soil" because a sub-slab soil exhaust system is more accurate. Radon systems are specifically addressed in Chapter 1303. The phrase "or an attached garage" is deleted from the end of the definition to correct an error because the exhaust systems listed in the first portion of the definition should not exhaust into a residential garage.

1346.0301 SECTION 301, GENERAL.

Section 301.7, Listed and labeled (new section number). The "Listed and labeled" section has been renumbered in the 2012 IMC to Section 301.7; that renumbering is reflected in this amendment. This section is also modified by deleting the reference to the year of publication for NFPA and ASME standards because the edition of the standards is already listed in the "referenced standards" section of the 2012 IMC therefore reference to the editions is redundant and unnecessary. No substantive changes were made to this part.

⁴⁰ See 507.2.1 explanation below.

1346.0306 SECTION 306, ACCESS AND SERVICE SPACE.

Subpart 1. Section 306.5, Mechanical equipment and appliances on roofs and elevated structures. This subpart amends IMC section 306.5. This amendment is modified by adding the phrase “and appliances” to the exception.⁴¹ No substantive changes were made to this section but it is modified for clarity or correction.

Section 306.5.1 Permanent ladders. No substantive changes were made to this section but it is modified for clarity.

Subp. 2. Section 306.5.2, Electrical requirements. This subpart is modified by adding the phrase “or appliance” to the current rule language.⁴² This subpart is also modified by deleting the reference to “ICC” and replacing it with the word “Minnesota” to correctly identify the electrical code adopted in Minnesota.

Subp. 3. Section 306.5.3, Sloped roofs. This subpart is modified by deleting the phrase “International Building Code” and replacing it with the phrase, “Minnesota Rules, chapter 1305” to correctly identify the location of Minnesota’s commercial construction code. No substantive changes were made to this part but it is modified for clarity or correction.

1346.0309 SECTION 309, TEMPERATURE CONTROL.

This rule part is modified by deleting exception #2 from the list of exceptions in section 309.2.1. Exception #2 is deleted because it pertains to exhaust-only ventilation systems, which are no longer permitted in Minnesota’s Mechanical Code. No other substantive changes are proposed.

Section 309.2.3 Systems balancing reports. There are no substantive changes to this section but it is modified for clarity.

1346.0401 SECTION 401, GENERAL.

Subpart 1. Section 401.1. IMC section 401.1, Scope, is amended by adding the following exception to the end of the section:

⁴¹ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

⁴² Id.

....

Subp. 2. Section 401.4. IMC section 401.4 is amended to read as follows: Air intake openings shall comply with all of the following:

A. Intake openings shall be located a minimum of ten feet (3,048 mm) from lot lines or buildings on the same lot. Where openings front on a street or public way, the distance shall be measured to the centerline of the street or public way.

B. Mechanical outdoor air intake openings shall be located a minimum of ten feet (3,048 mm) from any hazardous or noxious contaminant, such as chimneys, plumbing vents, streets, alleys, parking lots, and loading docks, except as specified in item C or section 501.2.1. Outdoor air intake openings shall be permitted to be located less than ten feet (3,048 mm) horizontally from streets, alleys, parking lots, and loading docks provided that the openings are located not less than 25 feet (7,620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured to the centerline of the street or public way.

C. Intake openings shall be located not less than three feet (914 mm) below contaminant sources where such sources are located within ten feet (3,048 mm) of the opening.

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.0401. The proposed rule published at the time of the Notice strikes large portions of the existing rule that amends section 401.4. Upon consideration of a comment received during the comment period, the Department will restore IMC section 401.4, with different amendments (that is, different from the existing code amendments). The strikethrough will largely remain and section 401.4 is reintroduced to more closely reflect the IMC language. The new amendments to IMC section 401.4 preserve IMC requirements one through three, with amendments described below, and delete the fourth requirement.

The first IMC requirement, “A,” is modified by adding a sentence that reads, “Intake openings that front on a street or public way must be located a minimum of 10 feet (3048 mm) horizontally from the centerline of the street or public way.” This addition clarifies that intake openings on the exterior wall in buildings that are in close proximity to property lines are allowed because the 10-foot measurement is taken to the centerline of the street rather than the property line.

The second IMC requirement, “B,” is modified by deleting “and gravity” from the first sentence because this section of the Minnesota rules addresses only mechanical intake openings and gravity openings are not mechanical. The last sentence that addresses measurement is modified by replacing “from the closest edge of the street or public way” with “to the centerline of the street or public way.” Intake openings would not be possible when buildings are within 10 feet of the property line, which is sometimes necessary, if the IMC is not amended here. The required separation from potential contaminants into an intake opening has been measured from the centerline of the street in the building and mechanical codes adopted in Minnesota for decades. Therefore, the reference to the closest edge of the street is replaced with the centerline of the street to allow the buildings that are adjacent to alleys and streets (public ways) be allowed to have intake openings installed consistent with the original design and intent of the previous codes.

The third IMC requirement, “C,” is not amended except for numbering and spelling out “three” and “ten” instead of the Arabic numerals “3” and “10,” respectively. The fourth IMC requirement is deleted because it regulates intake openings on structures in flood hazard areas. Flood hazard areas are regulated by Minnesota Rules, Chapter 1335.

This rule part is modified by deleting the current rule language and adding an exception to IMC section 401.1. The added exception is necessary because residential ventilation requirements are regulated in Minnesota Rules chapter 1322. The current rule language is deleted because the requirements are now addressed in part 1346.0501 of the 2012 IMC.

1346.0403 SECTION 403, MECHANICAL VENTILATION.

This rule part is repealed because although the 2006 IMC did not include the language supplemented by this rule part, section 403 of the 2012 IMC incorporates this language; therefore the rule part is no longer necessary.

1346.0404 SECTION 404, ENCLOSED PARKING GARAGES.

Subpart 1. Section 404.1, Enclosed parking garages. The existing language in this subpart pertaining to enclosed parking garages is replaced with proposed language. The proposed language requires mechanical ventilation systems to detect by automatic sensor carbon monoxide (CO), nitrogen dioxide (NO₂), or both, whichever is applicable. Upon detection of CO or NO₂ at

the stated levels, the automatic sensor will activate the ventilation system. The levels of CO and NO₂ specified are the maximum allowable concentration levels recommended by the American Council of Governmental Industrial Hygienists, which provide industry-accepted values. The system capability rate is addressed below. These modifications are necessary to ensure the systems operate when needed, based on the CO or NO₂ levels, and to promote the use of energy-efficient exhaust systems that operate only upon detection of CO or NO₂ instead of operating continuously.

Subp. 2. Section 404.2, Minimum exhaust. The language in the current rule that amends IMC section 404.2 is deleted because the motor vehicle repair garage standards that were addressed here were not included in the 2006 IMC but they are addressed in the 2012 IMC Table 403.3. The proposed 404.2 language retitles the section and specifies the minimum exhaust rate which a ventilation system must be capable of meeting because it is not regulated elsewhere in the 2012 IMC.

Subp. 3. Section 404.3, Occupied spaces accessory to public garages. This subpart is modified by adding “elevator lobbies” to the requirement because elevator lobbies that are adjacent to parking garages are similar to other accessory spaces. The omission of “elevator lobbies” in the rule has historically caused inconsistent application of this requirement. The referenced standard has been changed to IMC section 403.3 instead of the ASHRAE standards.

1346.0501 SECTION 501, GENERAL.

Subpart 1. Section 501.3, Exhaust discharge. Section 501.2 is renumbered to Section 501.3 to coordinate with numbering changes made in the 2012 IMC and deleting the “1.” in front of the only exception listed. The other amendments to the IMC section remain the same (e.g., deletion of the first of two exceptions listed in the IMC but only one exception maintained in the rule).

Subp. 2. Section 501.4, Pressure equalization. Section 501.3 is renumbered to Section 501.4 to coordinate with changes made in the 2012 IMC.

Subsection 501.3.1 is renumbered to 501.4.1 and references to this subsection in the body of the requirement are modified to coordinate with this numbering change made in the 2012 IMC. Modifications to this section also replace the word “dwellings” with the words “dwelling units” because section 202 of the 2012 IMC defines the term dwelling as a building or portion thereof that contains not more than two dwelling units. “Dwelling unit” is defined as a single unit providing complete, independent living facilities for one or more

persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. Dwelling unit is the term that accurately defines what is intended here. As a result, this change requires all dwelling units, including townhomes, condominiums and apartments, to have makeup air as required by this section. The reference to the edition of the standard is deleted because it is provided in the referenced standards section; the reference here is redundant.

Subsections 501.4.2.4 (Makeup air termination restriction) and 501.4.2.6 (Makeup air effectiveness) were modified by replacing “equipment” with “appliance” and “appliances,” respectively.⁴³

The subsections and subsection references (501.4.1 to 501.4.2.6) have been renumbered accordingly to coordinate with numbering changes made in the 2012 IMC described above.

Subsection 501.3.3 is renumbered to 501.4.3 and references to this subsection are modified to coordinate with this numbering change made in the 2012 IMC. Other modifications to this section delete the word “dwellings” and replace it with the words “dwelling units” or add the word “unit” after the word “dwelling” throughout the subsection because section 202 of the 2012 IMC defines the term dwelling as a building or portion thereof that contains not more than two dwelling units. The term “dwelling unit” as defined in section 202 of the 2012 IMC is the term that accurately defines what was intended here. Other modifications include removing “IMC” in some cases when the section is not from the IMC but rather are rule (sub)sections only.

Table 501.3.1, and any references to it, is renumbered to 501.4.1 and retitled by replacing the word “Dwelling” with “Dwelling units” to coordinate with changes made in the 2012 IMC. Column #4 is retitled by adding the phrase “appliances that are” to the heading to clarify that the column applies to multiple appliances. Minnesota Rules, Chapter 1322, the Residential Energy Code, prohibits the use of an exhaust-only system in Minnesota because structures are now constructed in a way that air infiltration from building leakage is not sufficient to supply adequate makeup air for an exhaust-only system. Therefore, the exhaust-only system calculation to be used for residential dwelling units, column #1, the second row, 2. Exhaust capacity, subitem a) continuous exhaust-only ventilation system (cfm), is deleted. This table further modifies the “Total Exhaust Capacity (cfm)” formula in the first column by deleting

the reference to “+2d” because subitem 2a is deleted and the remaining subitems are relettered, so there is no longer a subitem labeled “2d.”

Table 501.3.2, and any references to it, is renumbered to 501.4.2 and retitled by replacing the word “Dwelling” with “Dwelling units” to coordinate with changes made in the 2012 IMC. Column #5 is retitled by adding the phrase “appliances that are” to the heading to clarify that the column applies to multiple appliances.

Table 501.3.3(1), and any references to it, is renumbered to 501.4.3(1) and retitled by replacing the word “Dwelling” with “Dwelling units” to coordinate with changes made in the 2012 IMC. The title is also modified by deleting the word “Equipment” and replacing it with the word “Appliances.”⁴⁴ Column #5 is retitled by adding the phrase “appliances that are” to clarify that the column applies to multiple appliances.

Table 501.3.3(2), and any references to it, is re-numbered to Table 501.4.3(2) and is retitled by replacing the word “Dwelling” with “Dwelling units” to coordinate with changes made in the 2012 IMC. The title is also modified by deleting the word “Equipment” and replacing it with the word “Appliances.” Column #5 is retitled by adding the phrase “appliances that are” to clarify that the column applies to multiple appliances.

Table 501.3.3(3), and any references to it, is renumbered to Table 501.4.3(3) and retitled by replacing the word “Dwelling” with “Dwelling units” to coordinate with changes made in the 2012 IMC. The title is also modified by deleting the word “Equipment” and replacing it with the word “Appliances.” Column #5 is retitled by adding the phrase “appliances that are” to clarify that the column applies to multiple appliances. Minnesota Rules, Chapter 1322, the Residential Energy Code, prohibits the use of an exhaust-only system in Minnesota because structures are now constructed in a way that air infiltration from building leakage is not sufficient to supply adequate makeup air for an exhaust-only system. Therefore, the exhaust-only system calculation to be used for residential dwelling units, column #1, the second row, 2. Exhaust capacity, subitem a) continuous exhaust-only ventilation system (cfm), is deleted. This table further modifies the “Total Exhaust Capacity (cfm)” formula in the first column by deleting the reference to “+2d” because subitem 2a is deleted and the remaining subitems are relettered, so there is no longer a subitem labeled “2d.”

⁴³ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

⁴⁴ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

1346.0502 SECTION 502, REQUIRED SYSTEMS.

This rule part adds a fourth exception to section 502.14 of the 2012 IMC. This additional exception replaces a source capture system in some cases – when an exhaust pipe extension duct is less than ten feet, connected directly to the motor vehicle exhaust system and discharges the exhaust directly to the outside of the building. This has been proven to be a safe method to discharge motor vehicle exhaust to the outside.

1346.0504 SECTION 504, CLOTHES DRYER EXHAUST.

This rule part is repealed because the 2012 IMC contains similar language regarding condensation and requires compliance with the manufacturer’s installation instructions to ensure correct installation of the equipment. As a result, this rule part is no longer necessary.

1346.0505 SECTION 505, DOMESTIC KITCHEN EXHAUST APPLIANCES.

This rule part is modified by replacing the word “equipment” with the word “appliances” in the title of the rule part.

1346.0506 SECTION 506, COMMERCIAL KITCHEN HOOD VENTILATION SYSTEM DUCTS AND EXHAUST APPLIANCES.

~~Subpart 1. Section 506.1. IMC section 506.1 is amended by adding a sentence to the end of the section to read as follows:~~

~~For additional requirements for commercial kitchen hoods licensed and inspected by the Department of Agriculture, Department of Health, or local authorities that conduct inspections of food establishments, refer to the Minnesota Food Code, Minnesota Rules, chapter 4626.~~

~~Subp. 1a Subpart 1. Section 506.3.~~

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.0506. The proposed rule published at the time of the Notice adds a new subpart 1 and renumbered the existing subparts accordingly. The new subpart 1 references the Minnesota Food Code in Minnesota Rules, chapter 4626, and is provided for the convenience of the user of this code. The Department received one request for hearing during the comment period that expressed concern that the reference to the Minnesota Food Code causes confusion for users of this

code. Upon consideration of that request for hearing, the Department will not add the new subpart and will revert to the original subpart numbering. Furthermore, two other references to the Minnesota Food Code were proposed for deletion from the existing code as reflected in the proposed rule published at the time of the Notice.⁴⁵

This rule part is modified by replacing the word “equipment” with the word “appliances” in the title of the rule part.

Subpart 1. Section 506.1. The language in this subpart is relocated, with non-substantive modifications, from Minnesota Rules, part 1346.0507, subparts 4 and 7, to coordinate with changes made to the 2012 IMC. Part 1346.0507, subpart 4 is repealed and subpart 7 is modified to delete the redundant language. See below.

Subp. 1a. Section 506.3. This subpart is amended by deleting the edition of the NFPA 96 Standard because the edition is included in the “Referenced Standards” chapter in the 2012 IMC. It is not necessary to repeat it in the rule.

Subp. 2. Sections 506.3.1 to 506.3.2.4. This subpart is modified by deleting the amended NFPA 96 language and instead references NFPA 96 chapters 1 to 10 and 12 to 15. The amended NFPA 96 language is no longer necessary because NFPA 96 chapters 1 to 10 and 12 to 15 now contain that language.

Subp. 2a. Section 506.3.2.5. This is a new subpart that amends section 506.3.2.5 and incorporates three new subsections, 506.3.2.5.1, 506.3.2.5.2, and 506.3.2.5.3. This new language is added to incorporate requirements from the ASHRAE Standard 154, which provides three testing methods to ensure that the joints on grease ducts are liquid tight. The method in section 506.3.2.5.2 is currently in Minnesota Rules, part 1346.0506, subpart 2, but has been modified grammatically for clarity. Part 1346.0506, subpart 2 is proposed to be deleted (see above). The addition of these requirements is necessary because more than one method is necessary in the rule to provide flexibility to evaluate whether the joints are liquid tight. These modifications are reasonable because they are based on accepted testing methods for grease duct systems in the sheet metal/grease duct industry.

⁴⁵ Chapter 4626 is referenced in the existing code in part 1346.0506, subpart 2, part 1346.0507, subpart 2, and part 1346.0507, subpart 7. The proposed rule published with the notice deleted two of the references and relocated the reference in part 1346.0506, subpart 2. The relocated reference in part 1346.0506 is now proposed for deletion as well.

Subp. 2b. Sections 506.3.3 to 506.3.13.3. These sections are being deleted from the 2012 IMC for purposes here because they are included in the adopted chapters of the 2014 NFPA 96. The adopted chapters of the 2014 NFPA 96 contain nationally recognized comprehensive standards that address ventilation control and fire protection of commercial cooking operations. Because the NFPA 96 chapters provide a more comprehensive set of standards than the IMC, it is reasonable to use the single set of standards, the NFPA 96, instead of a combination of the NFPA 96 to supplement the 2012 IMC.

Subp. 3. Section 506.4.2. This subpart is modified by deleting requirement #3 from the list of requirements and renumbering requirement #4 to #3. Current requirement #3 pertaining to an increased slope in horizontal ducts exceeding 75 feet is deleted because typical ceiling heights found in most kitchens and adjacent rooms are too low to accommodate such a slope. Deleting this requirement is reasonable because ducts and plenums that serve Type II hoods do not involve liquid grease that is typically generated from commercial kitchen cooking operations, for which Type II hoods are used.

Subp. 4. Section 506.5 to 506.5.5. This new subpart deletes sections 506.5 to 506.5.5 from the 2012 IMC because these requirements are now contained in the adopted chapters of the 2014 NFPA 96. This modification will prevent any conflicts between this code and the NFPA 96.

1346.0507 SECTION 507, COMMERCIAL KITCHEN HOODS.

Subpart 2. Section 507.2, Where required.

IMC section 507.2 is amended to read as follows:

507.2 Where required. A Type I or Type II hood shall be installed at or above all commercial cooking appliances in accordance with ASHRAE standard 154. Where any cooking appliance under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. **507.2.1 Type I hoods.** Type I hoods shall be installed where cooking appliances produce grease or smoke as a result of the cooking process. Type I hoods shall be installed over medium-duty, heavy-duty, and extra-heavy-duty cooking appliances. Type I hoods shall be installed over light-duty cooking appliances that produce grease or smoke. The duty classifications of cooking appliances served by Type I hoods shall be in accordance with Table 507.2.1.

Exception: A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m^3 or less of grease when tested at an exhaust flow rate of 500 cfm ($0.236 \text{ m}^3/\text{s}$) in accordance with Section 17 of UL 710B.

**Table 507.2.1
Appliance Duty Classifications by Appliance Type**

<u>Appliance Description</u>	<u>Size</u>	<u>Type I Hoods</u>			
		<u>Light Duty</u>	<u>Medium Duty</u>	<u>Heavy Duty</u>	<u>Extra-Heavy Duty</u>
<u>Braising pan/tilting skillet, electric</u>	<u>All</u>	●			
<u>Oven, rotisserie, electric and gas</u>	<u>All</u>	●			
<u>Oven, combi, electric and gas</u>	<u>All</u>	●			
<u>Oven, convection, full-size, electric and gas</u>	<u>All</u>	●			
<u>Oven, convection, half-size, electric and gas (protein cooking)</u>	<u>All</u>	●			
<u>Oven, deck, electric and gas</u>	<u>All</u>	●			
<u>Oven, mini-revolving rack, electric and gas</u>	<u>All</u>	●			
<u>Oven, rapid cook, electric</u>	<u>All</u>	●			
<u>Oven, rotisserie, electric and gas</u>	<u>All</u>	●			
<u>Range, discrete element, electric (with or without oven)</u>	<u>All</u>	●			
<u>Salamander, electric and gas</u>	<u>All</u>	●			
<u>Braising pan/tilting skillet, gas</u>	<u>All</u>		●		
<u>Broiler, chain conveyor, electric</u>	<u>All</u>		●		
<u>Broiler, electric, under-fired</u>	<u>All</u>		●		
<u>Conveyor oven, electric</u>	<u>6 kW or larger</u>		●		
<u>Conveyor oven, gas</u>	<u>All</u>		●		
<u>Fryer, doughnut, electric and gas</u>	<u>All</u>		●		
<u>Fryer, kettle, electric and gas</u>	<u>All</u>		●		

<u>Fryer, open deep-fat, electric and gas</u>	<u>All</u>		●		
<u>Fryer, pressure, electric and gas</u>	<u>All</u>		●		
<u>Griddle, double-sided, electric and gas</u>	<u>All</u>		●		
<u>Griddle, flat, electric and gas</u>	<u>All</u>		●		
<u>Range, cook-top, induction</u>	<u>All</u>		●		
<u>Range, open-burner, gas (with or without oven)</u>	<u>All</u>		●		
<u>Range, hot top, electric and gas</u>	<u>All</u>		●		
<u>Broiler, chain conveyor, gas</u>	<u>All</u>			●	
<u>Broiler, electric and gas, over-fired (upright)</u>	<u>All</u>			●	
<u>Broiler, gas, under-fired</u>	<u>All</u>			●	
<u>Range, wok, gas and electric</u>	<u>All</u>			●	
<u>Appliances using solid fuel (wood, charcoal, briquettes, and mesquite) to provide all or part of the heat source for cooking</u>	<u>All</u>				●
Exception: <u>Appliances complying with Section 14.3.4 of NFPA Standard 96</u>	<u>All</u>				●

507.2.1.1 Operation. Type I hood systems shall be designed and installed to automatically activate the exhaust fan whenever cooking operations occur. The activation of the exhaust fan shall occur through an interlock with the cooking appliances, by means of heat sensors or by means of other approved methods. A method of interlock between an exhaust hood system and appliances equipped with standing pilot burners shall not cause the pilot burners to be extinguished. A method of interlock between an exhaust hood system and cooking appliances shall not involve or depend upon any

component of a fire extinguishing system. **507.2.2 Type II hoods.** Type II hoods shall be installed above dishwashers and appliances as required by Table 507.2.2. The duty classifications of cooking appliances served by Type II hoods shall be in accordance with Table 507.2.2. Type II hoods shall be installed above all appliances that produce products of combustion and do not produce grease or smoke as a result of the cooking process. Where hoods are not required, the additional heat and moisture loads generated by such appliances shall be accounted for in the sensible and latent loads for the HVAC system.

Table 507.2.2
Type II Hood Requirements by Appliance Description

<u>Appliance Description</u>	<u>Size</u>	<u>Hood Not Required^{a,b}</u>	<u>Type II Hoods^a</u>	
			<u>Light Duty</u>	<u>Medium Duty</u>
<u>Cabinet, holding, electric</u>	<u>All</u>	●		
<u>Cabinet, proofing, electric</u>	<u>All</u>	●		
<u>Cheese-melter, electric</u>	<u>All</u>	●		
<u>Coffee maker, electric</u>	<u>All</u>	●		
<u>Cooktop, induction, electric</u>	<u>All</u>	●		
<u>Dishwasher, under-counter, electric</u>	<u>All</u>	●		
<u>Dishwasher, powered sink, electric</u>	<u>All</u>	●		
<u>Drawer Warmer, 2 drawer, electric</u>	<u>All</u>	●		
<u>Egg cooker, electric</u>	<u>All</u>	●		
<u>Espresso machine, electric</u>	<u>All</u>	●		
<u>Grill, panini, electric</u>	<u>All</u>	●		
<u>Hot dog cooker, electric</u>	<u>All</u>	●		
<u>Hot plate, countertop, electric</u>	<u>All</u>	●		
<u>Ovens, conveyor, electric</u>	<u>< 6 kW</u>	●		
<u>Ovens, microwave, electric</u>	<u>All</u>	●		
<u>Ovens, warming, electric</u>	<u>All</u>	●		
<u>Popcorn machine, electric</u>	<u>All</u>	●		
<u>Rethermalizer, electric</u>	<u>All</u>	●		
<u>Rice cooker, electric</u>	<u>All</u>	●		
<u>Steam table, electric</u>	<u>All</u>	●		

<u>Steamers, bun, electric</u>	<u>All</u>	<u>●</u>		
<u>Steamer, compartment atmospheric, countertop, electric</u>	<u>All</u>	<u>●</u>		
<u>Steamer, compartment pressurized, countertop, electric</u>	<u>All</u>	<u>●</u>		
<u>Table, hot food, electric</u>	<u>All</u>	<u>●</u>		
<u>Toaster, electric</u>	<u>All</u>	<u>●</u>		
<u>Waffle Iron, electric</u>	<u>All</u>	<u>●</u>		
<u>Cheese-melter, gas</u>	<u>All</u>		<u>●</u>	
<u>Dishwasher, conveyor rack, chemical sanitizing</u>	<u>All</u>		<u>●</u>	
<u>Dishwasher, conveyor rack, hot water sanitizing</u>	<u>All</u>		<u>●</u>	
<u>Dishwasher, door-type rack, chemical sanitizing</u>	<u>All</u>		<u>●</u>	
<u>Dishwasher, door-type rack, hot water sanitizing</u>	<u>All</u>		<u>●</u>	
<u>Kettle, steam jacketed, tabletop, electric, gas and direct steam</u>	<u>< 20 gallons</u>		<u>●</u>	
<u>Oven, convection, half-size, electric and gas (non- protein cooking)</u>	<u>All</u>		<u>●</u>	
<u>Pasta cooker, electric</u>	<u>All</u>		<u>●</u>	
<u>Rethermalizer, gas</u>	<u>All</u>		<u>●</u>	
<u>Rice cooker, gas</u>	<u>All</u>		<u>●</u>	
<u>Steamer, atmospheric, gas</u>	<u>All</u>		<u>●</u>	
<u>Steamer, pressurized, gas</u>	<u>All</u>		<u>●</u>	
<u>Steamer, atmospheric, floor-mounted, electric</u>	<u>All</u>		<u>●</u>	
<u>Steamer, pressurized, floor-mounted, electric</u>	<u>All</u>		<u>●</u>	
<u>Kettle, steam-jacketed floor mounted, electric, gas and direct steam</u>	<u>< 20 gallons</u>		<u>●</u>	
<u>Pasta cooker, gas</u>	<u>All</u>			<u>●</u>
<u>Smoker, electric and gas, pressurized</u>	<u>All</u>			<u>●</u>
<u>Steam-jacketed kettle, floor mounted, electric and gas</u>	<u>20 gallons or larger</u>			<u>●</u>

^a A hood shall be provided for an electric appliance if it produces $3.1 \times 10^{-7} \text{ lb/ft}^3$ (5 mg/m^3) of grease or more when measured at 500 cfm (236 L/s).

^b Where hoods are not required, the additional heat and moisture loads generated by such appliances shall be accounted for in the sensible and latent loads for the HVAC system.

507.2.2.1. Type II hood exhaust flow rates. The net exhaust flow rate for Type II hoods shall comply with Table 507.2.2.1. The duty level for the hood shall be the duty level of the appliance that has the highest (heaviest) duty level of all of the appliances that are installed underneath the hood according to Table 507.2.2.

Table 507.2.2.1
Type II Hood Minimum Net Exhaust Airflow Rates

<u>Type of Hood</u>	<u>Minimum Net Exhaust Flow Rate per Linear Hood Length in cfm/ft (L/s/m)</u>	
	<u>Light-Duty Equipment</u>	<u>Medium-Duty Equipment</u>
<u>Wall-mounted canopy</u>	<u>200 (310)</u>	<u>300 (465)</u>
<u>Single island</u>	<u>400 (620)</u>	<u>500 (775)</u>
<u>Double island (per side)</u>	<u>250 (388)</u>	<u>300 (465)</u>
<u>Eyebrow</u>	<u>250 (388)</u>	<u>250 (388)</u>
<u>Backshelf/Pass-over</u>	<u>200 (310)</u>	<u>300 (465)</u>

507.2.2.2 Type II hood overhang. Type II hoods shall overhang the appliances and equipment served in accordance with Table 507.2.2.2.

Table 507.2.2.2
Minimum Overhang Requirements for Type II Hoods

Type of Hood	End Overhang	Front Overhang	Rear Overhang
Wall-mounted canopy	6 in. (154 mm)	12 in. (154 mm)	N/A
Single-island canopy	12 in. (154 mm)	12 in. (154 mm)	12 in. (154 mm)
Double-island canopy	12 in. (154 mm)	12 in. (154 mm)	N/A
Eyebrow	N/A	12 in. (154 mm)	N/A
Backshelf/Proximity/		10 in. (254 mm)	
Pass-over	6 in. (154 mm)	(setback)	N/A

N/A = not applicable

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.0507, subpart 2. The proposed rule published at the time of the Notice deletes subsections 507.2.1, 507.2.1.1 and 507.2.2. Upon consideration of a comment received during the comment period, the Department will restore large portions of the stricken language, add language to match that of the IMC, and add new tables in sections 507.2.2.1 and 507.2.2.2.

Section 507.2.1, including Table 507.2.1; Sections 507.2.1.1 and 507.2.2, including Table 507.2.2. The proposed changes incorporate provisions from ASHRAE Standard 154-2011 (“Standard 154”) to clearly identify all of the types of cooking equipment and processes that occur in commercial kitchen cooking applications. Standard 154 is the product of scientific research conducted by ASHRAE, the leading organization on commercial kitchen ventilation research and standards development. Standard 154 classifies the duty level required for both Type I and Type II hoods based on several ASHRAE research projects that evaluated wall canopy hood performance, appliance heat gain, capture and containment, and island hood performance. Standard 154 includes tables that classify appliances as unhooded, requiring Type I hoods or requiring Type II hoods. These tables allow for more consistent application and enforcement of the mechanical code in commercial kitchens. This amendment is necessary because the existing code lacks clarity and specificity. The

Mechanical/Fuel Gas Code Committee⁴⁶ recommended these tables be included in the amendments to Section 507 to provide clarity in the code.⁴⁷ Despite this recommendation, the Department did not include them in the rule because there was no copyright agreement between the Department and ASHRAE. In response to the comment and other changes to this proposed rule, the tables are added and a copyright agreement between the Department and ASHRAE is in place to use these tables in Minnesota rules.⁴⁸

Section 507.2.2.1, including Table 507.2.2.1. The proposed changes incorporate a table from Standard 154 to clearly identify the minimum net exhaust flow rates for various kinds of type II hoods based on several ASHRAE research projects that evaluated wall canopy hood performance, appliance heat gain, capture and containment, and island hood performance. This table also specifies that type II hoods are allowed only for light-duty and medium-duty commercial kitchen equipment, based on the various configurations of hoods. This table allows for more consistent application and enforcement of this code in commercial kitchens. The existing code lacks clarity and specificity. This table is based on scientific research completed by ASHRAE. The Mechanical/Fuel Gas Code Committee recommended these tables be

⁴⁶ The Mechanical/Fuel Gas Code Committee, a rule advisory committee, met eight times between November 30, 2011, and February 29, 2012.

⁴⁷ See <http://www.dli.mn.gov/CCLD/rm/1346.asp>, specifically, accepted proposal [IMC #28a](#).

⁴⁸ A copy of the copyright agreement is attached as Exhibit C.

included in the amendments to Section 507 to provide clarity in the code.⁴⁹

Section 507.2.2.2, including Table 507.2.2.2. The proposed changes incorporate Table 507.2.2.2 from Standard 154 to clearly identify the minimum overhang requirements for various kinds of type II hoods in commercial kitchen applications based on several ASHRAE research projects that evaluated wall canopy hood performance, appliance heat gain, capture and containment, and island hood performance. This table provides clarity because it contains minimum requirements for end overhang, front overhang and rear overhang for various configurations of type II hoods. This table allows for more consistent application and enforcement of this code in commercial kitchens. The existing code lacks clarity and specificity. The table is based on scientific research completed by ASHRAE. The Mechanical/Fuel Gas Code Committee recommended these tables to be included in the amendments to Section 507 to provide clarity in the code.⁵⁰

This subpart is modified by replacing the reference to “sections 507.2.1 and 507.2.2” with a reference to ASHRAE 154. Subsections 507.2.1, 507.2.1.1, 507.2.2 and 507.2.2. are deleted. This modification is necessary to simplify the requirements located in section 507.2 for the installation requirements of Type I and Type II hoods over commercial cooking appliances.

Subp. 4. Section 507.2.3 Domestic cooking appliances used for commercial purposes. This subpart is repealed because the information is now contained in the 2012 IMC.

Subp. 7. Section 507.5, Type II hood materials. The reference to the Minnesota Food Code is deleted and relocated to Minnesota Rules, part 1346.0506, subpart 1, with grammatical modifications.

Subp. 8. Section 507.7 Hood joints, seams, and penetrations. This subpart is modified grammatically for clarity. The substantive requirement remains unchanged.

Subp. 9. Section 507.7.1 Type I hoods. This subpart amends IMC section 507.7.1; the proposed rule deletes the reference to the edition of the NFPA 96 because the “Referenced Standards” chapter in the 2012 IMC lists the edition. As a result, the edition in this subpart is redundant and not necessary.

⁴⁹ See <http://www.dli.mn.gov/CCLD/rm/1346.asp>, specifically, accepted proposal IMC #28a. Please note the same circumstances for Table 507.2.1 apply here.

⁵⁰ Id.

1346.0508 SECTION 508, COMMERCIAL KITCHEN MAKEUP AIR.

Subpart 1. IMC Section 508.1, Makeup air. This subpart is modified by deleting the requirement that a minimum of 80% of the make-up air be supplied into the space where the exhaust hood is located. This modification is necessary to permit makeup air to be supplied to the space where the exhaust hood is located from other locations instead of 80% being supplied only into the space where the exhaust hood is located. This subpart also replaces the reference to section 401.4.1 with IMC section 401.5 because section 401.5 addresses the subject matter covered in 401.4.1, which is deleted in the proposed rule.

1346.0510 SECTION 510, HAZARDOUS EXHAUST SYSTEMS.

Subpart 1. IMC Section 510.1, General. This subpart is modified by deleting the edition of the NFPA 45. This modification is necessary because IMC Chapter 15, Referenced Standards, already identifies the NFPA 45 Standard. As a result, this reference is no longer necessary.

1346.0512 SECTION 512, SUBSLAB SOIL EXHAUST SYSTEMS.

IMC Section 512.1, General. This new rule part adds an exception providing the user direction to find the requirements for sub-slab soil exhaust systems used for radon control in residential occupancies. Radon control systems are a type of sub-slab soil exhaust system. This exception is necessary because Minnesota currently has code requirements for radon control that are more specific than the requirements for sub-slab soil exhaust systems.

1346.0603 DUCT CONSTRUCTION AND INSTALLATION

Subpart 2. IMC Table 603.4, Duct Construction Minimum Sheet Metal Thicknesses for Single Dwelling Units. This subpart modifies Table 603.4 by reproducing the 2006 IMC version of Table 603.4 rather than using the 2012 IMC version. The 2006 requirements are carried over because the 1346 Rule Advisory committee recommended maintaining 2006 standards; the requirements in the 2012 version are overly restrictive by requiring thicker sheet metal in applications where it is unnecessary.

Subpart 2a. Section 603.4. IMC section 603.4. This section has been renumbered subpart 2a from subpart 2.

Subsection 603.4.1, Minimum fasteners, is added to the rule for context but the language is verbatim from this section of the 2012 IMC.

Subsection 603.4.2, Elbows, is a subsection added to the IMC. The current rule is modified here by replacing the reference to 76.2 m/min with 5 m/sec in two locations. This modification is necessary to correct a metric conversion error. Subsections 603.4.3, Transition fittings, and 603.4.4, Obstructions, are renumbered from 603.4.2 and 603.4.3, respectively, to accommodate the addition of subsection 603.4.1.

Subp. 9. IMC Section 603.9, Joints, seams, and connections. This subpart is modified by deleting the current language and table pertaining to duct sealing and replacing it with new language that amends the language in section 603.9 of the 2012 IMC, including the exception. Specifically, the IMC language is modified by adding a sentence near the end of the section that reads, “Pressure-sensitive tape shall not be used as the primary sealant on ducts, unless it has been certified to comply with UL-181A or UL-181B by a nationally recognized testing laboratory and the tape is used in accordance with that certification.” This new language is necessary because pressure-sensitive (self-adhesive) duct tape cannot be used as the primary sealant for any duct system unless it has been certified to comply with the applicable standards. Currently, there is no duct tape manufacturer that has a pressure-sensitive duct tape that is certified to be used on metallic duct work as a primary sealant. This modification clarifies that duct tape cannot be used in this application but leaves room for advancements in products.

Subp. 10. IMC Section 603.18, Registers, grilles and diffusers. This subpart is modified by renumbering the section number from 603.17 to 603.18 to coordinate with changes made in the 2012 IMC. Specifically, the modified section, Adjustment of volume dampers, is renumbered from 603.17.3 to 603.18.3. There are no proposed substantive changes.

1346.0604 SECTION 604, INSULATION.

This rule part is modified by replacing the existing language pertaining to minimum required duct insulation with references to the residential and commercial Minnesota Energy Conservation Codes, Minnesota Rules, Chapters 1322 and 1323. This change is necessary because chapters 1322 and 1323 contain comprehensive energy requirements that apply to Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) systems.

1346.0607 SECTION 607, DUCT AND TRANSFER OPENINGS.

IMC Section 607.6.1, Through penetrations.

This is a new subpart that modifies IMC section 607.6.1. Specifically, this section is modified by changing references to specific IMC sections and replacing them with references to the Minnesota Building Code. These modifications are necessary to coordinate these requirements with the same requirements in the IBC. This subpart also modifies this section by adding a new exception pertaining to Group I-2 and I-3 occupancies. This modification is necessary to coordinate with IBC requirements for smoke/fire dampers, which permits only one smoke/fire damper for a duct that connects two stories in group I-2 and I-3 occupancies.

Exceptions:

1. A duct is permitted to penetrate three floors or less without a fire damper at each floor, provided such duct meets all of the following requirements:

a. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel having a minimum wall thickness of 0.0187 inches (0.4712 mm) (No. 26 gage) or the duct shall be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E 814 or UL 1479. The approved through-penetration firestop system shall have an F rating or T rating of not less than the required rating of the horizontal assembly being penetrated.

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.0607. The proposed rule published at the time of the Notice amends IMC section 607.6.1, including the exceptions. Exception 1 allows an exception when certain requirements are met. Requirement (a) addresses duct construction, including setting minimum requirements for duct wall thickness. The Department intended to make this exception the exact same as part 1305.0717, subpart 2, exception 1, to avoid confusion. However, a portion of requirement (a) was left out. Part 1305.0717, subpart 2, exception 1 in relevant part reads, “The duct shall be contained and located within the cavity of a wall and shall be constructed of steel having a minimum wall thickness of 0.0187 inches (0.4712 mm) (No. 26 gage) *or the duct shall be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E 814 or UL 1479. The approved through-penetration firestop system shall have an F rating or T rating of not less than the required rating of the horizontal assembly being penetrated.*” Emphasis added here. The italicized portion is the exact

same language missing in the published rule and added here.

1346.0701 SECTION 701, GENERAL.

This rule part is being repealed because the content is incorporated in the 2012 IMC. As a result, this amendment is no longer necessary.

1346.0703 SECTION 703, OUTDOOR AIR.

This rule part is being repealed because the content is incorporated in the 2012 IMC. As a result, this amendment is no longer needed.

1346.0803 SECTION 803, CONNECTORS.

This rule part is being repealed because the content is included in the 2012 IMC. As a result, this amendment is no longer needed.

1346.1001 SECTION 1001, GENERAL.

Relevant excerpts:

Subpart 1. ~~Section 1001.1, Scope.~~ IMC section 1001.1 is amended as follows:

1001.1, Scope.

Subp. 1a. ~~Section 1001.2, Scope; boilers; labor and industry.~~ IMC section 1001 is amended by adding a section to read as follows:

1001.2, Scope; boilers; labor and industry.

Subp. 1b. ~~Section 1001.3, Scope; pressure vessels; labor and industry.~~ IMC section 1001 is amended by adding a section to read as follows:

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

These are edits from the Revisor.

Subpart 1. IMC Section 1001.1, Scope. This subpart is modified by replacing the current subpart 1 with the language in subpart 3, with modifications. Organizationally, it is clearer to provide the scope of the chapter first. There were no substantive changes to the list of exceptions when moved from subpart 3 to subpart 1. The changes are simply related to relocation and reorganization as will be evident in the other subparts of this section.

Subp. 1a. IMC Section 1001.2, Scope; boilers; labor and industry. This subpart adds a section to the IMC; the language that is currently in subpart 1 is moved here, with some modifications. The modifications include

removing the reference to chapter 5225 and Minnesota statutes 326B.952 to 326B.998 because the references are no longer necessary. The modified paragraph clarifies and limits this subpart to *inspection* of boilers. The current rule language includes installation, alteration and repair of boilers and pressure vessels. The proposed rule reorganizes the requirements so they are no longer necessary in this subpart.

Subp. 1b. IMC Section 1001.3, Scope; pressure vessels; labor and industry. This subpart adds a section to the IMC; it is new language that separates certain pressure vessel requirements from boiler requirements to avoid confusion. There are slightly different requirements for pressure vessels than for boilers. This subpart makes that clear. This subpart is very similar to the requirements for boilers in subpart 2 but who can inspect the pressure vessel is different

Subp. 2. High-Pressure Piping for Boilers; Labor and Industry. This is the existing subpart 2 language but renumbered and updated to reflect that the applicable Minnesota Statutes go to section 326B.93 instead of just to section 326B.925.

1346.1004 SECTION 1004, BOILERS.

Subp. 1. IMC Section 1004.1, Standards. This subpart is modified by replacing the references to the ASME codes with a reference to Minnesota Statutes, section 326B.964 because that section cites all of the applicable inspection codes and standards and avoids repeating the statute.

Subp. 2. IMC Section 1004.2, Installation. This subpart is modified by replacing the reference to IMC chapter 16 with a reference to Minnesota Rules, parts 1346.1601 to 1346.1606. This change is necessary because the requirements in parts 1346.1601 to 1346.1606 are only in Minnesota Rules, not the IMC.⁵¹

1346.1006 SECTION 1006, SAFETY AND PRESSURE RELIEF VALVES AND CONTROLS.

Subpart 1. IMC Section 1006.4, Approval of safety and safety relief valves. This subpart is modified by replacing the phrase “lifting the seat” with the phrase “testing the valve.” This modification clarifies the intent of the requirement, which is to test the valve and not merely lift the seat (of the valve). Consistent with Minn. St. § 326B.106 performance-based requirements, this

⁵¹ See part 1346.1601, which adds sections 1601 to 1606 to the IMC for Minnesota purposes, e.g., “The IMC is amended by adding a section to read as follows: SECTION 1601 GENERAL”

clarification also allows for other methods of manually testing the valve.

Subp. 3. IMC Section 1006.9, Boiler shutdown switch. This subpart is amended by deleting the reference to the edition of the ASME Standard referenced in the subpart because Chapter 15, Referenced Standards, already contains the edition of the Standard. As a result, this reference is no longer necessary.

1346.1007 SECTION 1007, BOILER LOW-WATER CUTOFF.

Subpart 1. IMC Section 1007.1, General. This subpart is modified by replacing the word “when” with the word “before” to clarify that the low water cutoff must stop the fuel flow before the water level in the boiler drops below the safe water level. It is unsafe to allow the boiler water level to drop below the point of safety. This modification is necessary to ensure life safety.

1346.1011 SECTION 1011, TESTS.

IMC Section 1011.1, Tests. This rule part is modified by replacing the reference to the ASME Code with references to Minnesota Statutes, section 326B.958 and 326B.966. This modification provides a reference to requirements that are coordinated with the Minnesota State Building Code.

1346.1101 SECTION 1101, GENERAL.

IMC Section 1101.1, Scope. This new rule part adds an exception to section 1101.1, Scope, of the 2012 IMC. This exception clarifies that ammonia refrigeration systems are regulated by Minnesota Rules, chapter 5230, and not by this rule chapter.

1346.1204 SECTION 1204, PIPE INSULATION.

IMC Section 1204.2, Required thickness. This rule part is repealed. The rule part contains a piping insulation table that is already in the Minnesota Residential Energy Code. As a result, this amendment is being deleted to prevent a conflict between codes.

1346.1500 CHAPTER 15, REFERENCE STANDARDS.

Subpart 1. Modifications to chapter 15. This subpart is being repealed because all of the standards listed in this subpart are updated in the 2012 IMC, Referenced Standards section, so they no longer need to be modified and updated. As a result, the subpart is no longer necessary.

Subp. 2. Supplemental standards. Several of the referenced standards listed in this rule part are now included in the referenced standards section of the 2012 IMC, therefore they are no longer needed in this rule. This subpart also adds a standard to the list, ASHRAE 154-2011, as subitem A, because this standard is referenced in the proposed rules and is not in the 2012 IMC list of referenced standards. The remaining listed standards are re-lettered as a result of these modifications.

2012 INTERNATIONAL FUEL GAS CODE

NOTE.

Throughout the rule, references to the 2006 IFGC have been changed to 2012 IFGC because the Department is incorporating the 2012 edition of this code. Many code sections have been renumbered in the 2012 IFGC so the rule is revised to reflect these renumbered sections.

In the 2006 IFGC, the definitions for the words “appliance” and “equipment” are the same and were used interchangeably. In fact, the definition for “equipment” refers the user to the definition for the word “appliance.” In the 2012 IFGC, each term is defined with a distinct definition. The definition for “equipment” specifically excludes “appliances” in the definition. Therefore, the terms used throughout the rule were corrected to reflect the intended term consistent with the distinct definitions in the 2012 IFGC. Incidents of those changes are noted below.

Throughout the rule, grammatical changes are made to clarify the requirements. Some number references were changed from numeric representations to word representations or vice versa for clarity to the user.

1346.5050 TITLE; INCORPORATION BY REFERENCE.

This rule part is modified to incorporate by reference the 2012 edition of the International Fuel Code and clarifies the rule parts that make up the Minnesota Fuel Gas Code. The definition of “the code” and “this code” are deleted here and relocated to the definitions section.

1346.5101 ADMINISTRATION.

Subpart 1. Scope. This subpart is modified by deleting references to IFGC section 101, which is part of IFGC chapter 1, because chapter 1 is not adopted into this rule. The section is assigned a subpart number instead. Although chapter 1 of the IFGC is not adopted into this rule, there are portions previously replicated and added to this rule (see below). The proposed subpart also replaces

the phrase “utilization equipment” with the word “appliances” because, in this case, “utilization equipment” as used here has the intended meaning of “appliances” as defined in the 2012 IFGC.⁵²

Subp. 2. Gaseous hydrogen systems. The section heading is modified by deleting the reference to section 101.1 because chapter 1 of the IFGC is not adopted into this rule. The section was assigned a subpart number instead.

Subp. 3. Piping systems. This section heading is modified by deleting the reference to section 101.2 because chapter 1 of the IFGC is not adopted into this rule. The section was assigned a subpart number instead. The proposed subpart replaces the phrase “These regulations cover” with the phrase “This code applies” to more accurately and clearly describe the scope. As previously explained, “equipment” is changed to “appliance.”

Subp. 4. Gas appliances. This section heading is modified by deleting the reference to section 101.3 because chapter 1 of the IFGC is not adopted into this rule. The section was assigned a subpart number instead. The proposed subpart replaces the phrase “Requirements for” with the phrase “This code applies to” because it is a more accurate description. Other grammatical changes were made for clarity. As previously explained, “equipment” is changed to “appliance.”

Subp. 5. Systems, appliances, and equipment outside the scope. This section heading is modified by deleting the reference to section 101.4 because chapter 1 of the IFGC is not adopted into this rule. The section was assigned a subpart number instead. As previously explained, “equipment” is changed to “appliance.”⁵³

Subp. 6. Other fuels. This section heading is modified by deleting the reference to section 101.4 because chapter 1 of the IFGC is not adopted into this rule. The section was assigned a subpart number instead.

1346.5202 SECTION 202 (IFGC), GENERAL DEFINITIONS.

Subpart 1. IFGC Section 202, General definitions. This subpart is modified by adding a definition for the term “approved.” This definition is needed in this chapter to have a consistent definition of

⁵² See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

⁵³ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

“approved” with the other chapters of the Minnesota State Building Code. In some situations, the building official is authorized to assess and determine whether proposed construction methods are in compliance with the state building code. This definition helps to provide consistency in the assessments and determination methods while maintaining quality among building official approvals. It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts between terms from one chapter to another. This subpart is also modified by adding a definition for the term “code.” This definition is necessary to clarify that references to the code shall mean the Fuel Gas portion of Minnesota Rules, chapter 1346, Adoption of the 2012 International Fuel Gas Code, with amendments. Other amendments in this subpart delete redundant numerical references as described above.

1346.5301 SECTION 301 (IFGC), GENERAL.

IFGC Section 301.3, Listed and labeled. This rule part is modified by deleting the edition year of each standard referenced. Chapter 8, Referenced Standards, of the IFGC already contains a list of the referenced standards, including the edition year; therefore including the edition in the rule is redundant and unnecessary.

1346.5303 SECTION 303 (IFGC), APPLIANCE LOCATION.

IFGC Section 303.3, Prohibited locations. This new rule part deletes items 3 and 4 pertaining to unvented room heaters from the list of exceptions in section 303.3. This modification is necessary because unvented room heaters are prohibited in the Minnesota Mechanical and Fuel Gas Codes.⁵⁴

1346.5304 SECTION 304 (IFGC), COMBUSTION, VENTILATION, AND DILUTION AIR.

Subpart 1. IFGC Section 304.1, General.

Subpart 1. **Section 304.1.** IFGC section 304 is amended by adding language to the end of the first paragraph and additional exceptions to read as follows:

304.1 General. Refer to IFGC Appendix E for Worksheet E-1, “Residential Combustion Air Calculation Method” and Table E-1, “Residential Combustion Air Required Volume.” in part 1346.6012.

⁵⁴ See Minn. R. 1346.0901, which is not being amended at this time.

Exceptions:

1. Direct vent appliances.
2. Type 1 clothes dryers that are provided with makeup air in accordance with the manufacturer's installation instructions.
3. Replacement of a fuel gas utilization appliance that complies with all of the following conditions:
 - 3.1 Replacement appliance has a Btu/hr (kW) input rating not greater than 30 percent above the original appliance input rating.
 - 3.2 Combustion air provisions meet the code requirements in effect at the time of the original installation.
 - 3.3 Replacement appliance shall not cause an existing mechanical system to become unsafe, hazardous, or overloaded.
4. Combustion air may be determined using Table 304.1 for gas-fired appliances when combustion air is provided from a single opening from the outdoors, commencing within 12 inches of the bottom of the enclosure.
5. Combustion air for power burner appliances equipped with a draft control device and having an input above 400,000 Btu/hr shall have a net free area of 0.2 square inches per 1,000 Btu/hr. Combustion air shall be provided from a single opening from the outdoors, terminating within 12 inches of the bottom of the enclosure. In lieu of this requirement, combustion air requirements specified by the manufacturer for a specific power burner appliance may be approved by the building official.
6. Combustion air for power burner appliances not equipped with a draft control device and having an input above 400,000 Btu/hr shall have a net free area of 0.1 square inches per 1,000 Btu/hr. Combustion air shall be provided from a single opening from the outdoors, terminating within 12 inches of the bottom of the enclosure. In lieu of this requirement, combustion air requirements specified by the manufacturer for a specific power burner appliance may be approved by the building official.

Table 304.1

Combustion Air Requirements for Gas-fired Appliances When the Combined Input Is Up To and Including 400,000 Btu/hr		
Total input of appliances¹, thousands of Btu/hr (kW)	Required free area of air-supply opening or duct, square inches (sq mm)	Acceptable approximate round duct equivalent diameter², inch (mm)
25 (8)	7 (4,500)	3 (75)
50 (15)	7 (4,500)	3 (75)
75 (23)	11 (7,000)	4 (100)
100 (30)	14 (9,000)	4 (100)
125 (37)	18 (12,000)	5 (125)
150 (45)	22 (14,000)	5 (125)
175 (53)	25 (16,000)	6 (150)
200 (60)	29 (19,000)	6 (150)
225 (68)	32 (21,000)	6 (150)
250 (75)	36 (23,000)	7 (175)
275 (83)	40 (26,000)	7 (175)
300 (90)	43 (28,000)	7 (175)
325 (98)	47 (30,000)	8 (200)
350 (105)	50 (32,000)	8 (200)
375 (113)	54 (35,000)	8 (200)
400 (120)	58 (37,000)	9 (225)

¹For total inputs falling between listed capacities, use next largest listed input.
²If flexible duct is used, increase the duct diameter by one inch.*
 *Flexible duct shall be stretched with minimal sags.

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.5304, subpart 1. The proposed rule amendments to this part published at the time of the Notice will not be changed. The Department proposes an additional amendment which will add, “in part 1346.6012” to clarify where Appendix E is located.

Part 1346.5304, exceptions. In addition to the proposed rule amendments to this part at the time of the Notice, which will not be changed, are the following additional amendments. Upon consideration of one comment received during the comment period, three more exceptions will be added to section 304.1 and Table 304.1, “Combustion Air Requirements for Gas-fired Appliances When the Combined Input Is Up To and Including 400,000 Btu/hr” will be added.

New exception 4. Combustion air requirement calculations in the existing code are complicated and cumbersome. Table 304.1 offers a simpler alternate method to determine adequate combustion air

requirements for new and existing installations within a limited input range. The method in Table 304.1 is based on the results of a research project completed for the Fire Protection Research Foundation, on behalf of National Fire Protection Association (“NFPA”), by Exponent that evaluated combustion air requirements for various gas-fired appliances.⁵⁵ One of the combustion air options reviewed was based on Canadian provisions that require one square inch of outdoor combustion air per 7,000 Btu/hr input rating of appliances, up to and including 400,000 Btu/hr. Because the operating conditions and heating and ventilation needs in Canada are similar to those in Minnesota, it is reasonable to apply the same formula in this code as an alternative to the general requirements contained in Section 304 of the 2012 IFGC. The formula developed from the study described above and accepted for use is reasonable to apply here because the research and data are reliable and produced by a nationally recognized organization. Based on review of the report, the Department confirmed the reliability of the research and data.

New exception 5. Combustion air requirements for power burners with Btu/hr ratings above 400,000⁵⁶ equipped *with* a draft control device are not specifically and not correctly regulated in the existing code, resulting in unnecessarily large outdoor air openings in the mechanical room where power burner appliances are installed. The large openings create unsafe situations in these spaces due to possible freezing water pipes and damage to other equipment from the severe cold. A study done in 2012 shows a minimum combustion air opening of 0.2 square inches per 1,000 Btu/hr input rating for power burner appliances with Btu/hr ratings above 400,000 is adequate.⁵⁷ It is reasonable to incorporate that as the new combustion air requirement for power burner appliances equipped with a draft control device because the formula is derived from recent, solid research conducted by a nationally recognized organization.

New exception 6. Combustion air requirements for power burners *not* equipped with a draft control device are not specifically and not correctly regulated in the existing code, resulting in unnecessarily large outdoor air

openings in the mechanical room where power burner appliances are installed. The large openings create unsafe situations in these spaces due to possible freezing water pipes and damage to other equipment from the severe cold. Based on the results of a 2012 research project completed for the Fire Protection Research Foundation, on behalf of NFPA, by Exponent that evaluated combustion air requirements for various gas-fired appliances, the new exception requires a minimum combustion air opening of 0.1 square inches per 1,000 Btu/hr input rating for power burner appliances.⁵⁸ This is a reasonable requirement regulating the combustion air requirement for power burner appliances *not* equipped with a draft control device because it is based on recent, solid research conducted by a nationally recognized organization.

As previously explained, “equipment” is changed to “appliance.”⁵⁹ The current rule amends the IFGC by adding some exceptions; the proposed rule clarifies that the rule adds exceptions to the IFGC.

Subp. 2a. IFGC Section 304.6.1, Two-permanent openings method. The IFGC section is deleted in its entirety because it would conflict with part 1346.5304, subpart 8, which amends section 304.11, Combustion air ducts, of the IFGC. Specifically, the amendment in subpart 8 states that ducts shall not terminate in an attic space.⁶⁰

Subp. 3. IFGC Section 304.6.2, One permanent opening method. The language was modified by replacing the word “equipment” with the word “appliances,” as explained above.⁶¹

1346.5306 SECTION 306, ACCESS AND SERVICE SPACE.

Subpart 1. IFGC Section 306.5, Mechanical equipment and appliances on roofs or elevated structures. This subpart is modified by adding the phrase “and appliances” in the exception because the exception applies to both appliances and equipment, given the distinct definitions found in the 2012 IFGC.⁶²

⁵⁵ See Exhibit B, “Combustion Air Requirements for Power Burner Appliances; Final Report,” by Utiskul, Wu, Biteau of Exponent, © Fire Protection Research Foundation, January 2012.

⁵⁶ 400,000 Btu/hr is considered a threshold point because appliances above 400,000 Btu/hr trigger additional safety measures because of its significant size.

⁵⁷ See Exhibit B, “Combustion Air Requirements for Power Burner Appliances; Final Report,” by Utiskul, Wu, Biteau of Exponent, © Fire Protection Research Foundation, January 2012.

⁵⁸ *Id.*

⁵⁹ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

⁶⁰ See Minn. R. 1346.5304, subp. 8, in relevant part, “5. Ducts shall not terminate in an attic space.”

⁶¹ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

⁶² *Id.*

1346.5403 SECTION 403 (IFGC), PIPING MATERIALS.

Subpart 1a. Section 403.10.1, Pipe Joints. This new subpart amends section 403.10.1 on pipe joints. Specifically, the section is amended by adding an option to join pipes using pressure connect fittings that comply with ANSI LC-4. This additional option is necessary, which references this standard, to permit pressure connected fittings for gas piping. This option was not specifically permitted in the existing rule or the 2012 IFGC but it is a newly accepted method. The current subpart 1a is renumbered to 1b.

1346.5404 SECTION 404 (IFGC), PIPING SYSTEM INSTALLATION.

Subpart 1. IFGC Section 404.6, Underground penetrations prohibited. This subpart is modified by deleting the amendment to IFGC section 404.4, piping through foundation wall, because the requirement is now contained in the 2012 IFGC; amending the section is no longer necessary. The proposed subpart modifies IFGC section 404.6 pertaining to the prohibition of underground penetrations to coordinate with language changes made in the 2012 IFGC. The last sentence in this subpart is not new and continues to be relevant. It allows the building official to permit underground piping if structural conditions require it.

Subp. 2. IFGC Section 404.8, Piping in solid floors. This subpart is modified by renumbering the IFGC section that is amended to coordinate with the renumbering in the 2012 IFGC. The proposed subpart adds a sentence that reads, “As an alternative to installation in channels, the piping shall be installed in a conduit of Schedule 40 steel, wrought iron, PVC, or ABS pipe in accordance with IFGC section 404.8.1 or 404.8.2.” This sentence is necessary because it provides industry-accepted alternatives to pipe placement based on the material permitted in this section.

Subp. 5. IFGC Section 404.14, Piping underground beneath buildings. This subpart is modified by renumbering the IFGC section that is amended and the IFGC section referenced in it to coordinate with numbering changes made in the 2012 IFGC.

Subp. 6. IFGC Section 404.15, Prohibited devices. This subpart is being repealed because the 2012 IFGC now contains this language. As a result, the subpart is no longer necessary.

1346.5406 SECTION 406 (IFGC), INSPECTION, TESTING, AND PURGING.

Subpart 1. IFGC Section 406.1.2. Alterations, repairs, and additions. This subpart is modified by adding the phrase “or appliance” to the exception because the exception applies to both appliances and equipment, given the distinct definitions found in the 2012 IFGC.

1346.5408 SECTION 408 (IFGC), DRIPS AND SLOPED PIPING.

This rule part is modified by replacing the word “equipment” with “appliances” in several places in the rule part as explained above. The word “utilization” is deleted for consistency in terminology with other rule parts.

1346.5409 SECTION 409 (IFGC), SHUTOFF VALVES.

Subpart 1. IFGC Section 409.1, Main shutoff valve. This subpart is modified by replacing the word “equipment” with “an appliance” to the exception.⁶³

1346.5501 SECTION 501 (IFGC), GENERAL.

Subp. 2. IFGC Section 501.8, Appliances not required to be vented. This subpart is modified by replacing the word “Equipment” in the heading with the word “Appliances.” The proposed subpart also deletes item 9 from the list of appliances not required to be vented. This item pertains to other equipment that is listed for unvented use and not provided with flue collars. This item is deleted because it will conflict with IFGC sections 602.3 and 621, as amended in Minnesota rules parts 1346.5602 and 1346.5621.

1346.5503 SECTION 503 (IFGC), VENTING OF APPLIANCES.

Subpart 3. IFGC Section 503.5.5, Size of chimneys. This subpart is amended by replacing the word “equipment” with the word “appliance.”

Subp. 7. IFGC Section 503.7.9, Size of single-wall metal pipe. This subpart is modified by renumbering the IFGC section that is amended to coordinate with the renumbering in the 2012 IFGC. In addition, the proposed subpart is modified by replacing the word “equipment” with the word “appliance.”

⁶³ See the “Note” section at the beginning of the Rule-by-Rule Analysis section of this SONAR for the rationale.

Subp. 9. Section 503.10.7, Joints. The subpart is repealed because the 2012 IFGC now adequately addresses joints, so the amendment in this subpart is no longer necessary.

1346.5504 SECTION 504 (IFGC), SIZING OF CATEGORY 1 APPLIANCE VENTING SYSTEMS.

Subpart 1. IFGC Section 504.2.7, Liner system sizing. This subpart is modified by correcting the reference to section 504.3, a typographical error, to 504.2.3.

Subp. 1a. IFGC Table 504.2(3), Masonry chimney. This is a new subpart that modifies Table 504.2(3) by deleting the phrase “seven times” and replacing it with the phrase “four times” in the row entitled “Maximum Internal Area of Chimney (square inches).” This modification is necessary so the table does not conflict with section 504.2.8, as amended. Minnesota’s climatic conditions require the size of vents to be kept to a minimum.

Subp. 1b. IFGC Table 504.2(4), Masonry chimney. This is a new subpart the modifies Table 504.2(4) by deleting the phrase “seven times” and replacing it with the phrase “four times” in the row entitled “Maximum Internal Area of Chimney (square inches).” This modification is necessary so the table does not conflict with section 504.2.8, as amended. Minnesota’s cold climatic conditions require the size of vents to be kept to a minimum.

1346.5602 SECTION 602 (IFGC), DECORATIVE APPLIANCES FOR INSTALLATION IN FIREPLACES.

Subpart 1. IFGC Section 602.1, General. This subpart is being repealed because the amendment in the current rule is no longer necessary. The 2012 IFGC has updated this portion of the code to reflect what is in our current rule so we no longer need to amend this section. Using the 2012 IMC language will ensure Minnesota’s installation standards and practices for decorative appliances are consistent with industry standards and practices.

1346.5630 SECTION 630 (IFGC), INFRARED RADIANT HEATERS.

Subpart 3. IFGC Section 630.3, Combustion and ventilation air. This subpart is modified by adding the word “Combustion” to the section title to coordinate with changes made to the 2012 IFGC. Also, this section

was renumbered in the 2012 IFGC, as reflected in the proposed subpart.

1346.5631 SECTION 631 (IFGC), BOILERS.

This rule part is being repealed because the standards are now addressed in section 631 of the 2012 IFGC. This amendment to the 2006 IFGC is no longer necessary.

1346.5800 CHAPTER 8, REFERENCED STANDARDS.

Subpart 1. Modifications to IFGC chapter 8. This subpart is being repealed because the standards listed in the subpart are now included in chapter 8 of the 2012 IFGC. As a result, this subpart is no longer necessary.

Subp. 2. Supplemental standards. The ~~standard standards~~ listed in this part shall supplement the list of referenced standards in chapter 8 of the 2012 IFGC. The ~~standard standards~~ referenced in this rule shall be considered part of the requirements of this rule to the extent prescribed in each rule or reference.

A. *NFPA 54-2012 National Fuel Gas Code.*

B. *ANSI LC-4-2012 Press-Connect Metallic Fittings for Use In Fuel Gas Distribution Systems.*

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Part 1346.5800. The proposed rule published at the time of the Notice added one additional referenced standard, NFPA 54-2012 National Fuel Gas Code, to chapter 8, the referenced standards chapter. Upon consideration of a comment received during the comment period, a second standard that is referenced in the code, ANSI LC-4-2012 Press-Connect Metallic Fittings for Use in Fuel Gas Distribution Systems, must be added to the referenced standards chapter. It is referenced in section 403.10.1, as amended. Related amendments, such as changing singular “standard” back to “standards” and renumbering accordingly, are included here as well.

Two standards are deleted from this subpart because they have been added to Chapter 8 of the 2012 IFGC. The referenced edition of the NFPA 54 is updated from the 2009 edition to the 2012 edition to provide the most current version.

1346.5901 SECTION 901 (IFGC) GENERAL. RENUMBERED TO PART 1346.5900

Relevant excerpts:

1346.5900 CHAPTER 9, INSTALLATION AND TESTING OF FUEL GAS-FIRED EQUIPMENT. [MOVED FROM PARTS 1346.5901 TO 1346.5907]

Subpart 1. Chapter 9. The IFGC is amended by adding a chapter to read as follows:

~~SECTION 901 GENERAL CHAPTER 9~~

Subp. 2. Installation and testing of fuel gas-fired equipment; general.

~~901.1 General.~~

Subp. 3. Placing equipment in operation.

~~SECTION 902~~

~~EQUIPMENT PLACEMENT~~

~~902.1 Placing equipment in operation.~~

Subp. 4. Pilot operation.

~~SECTION 903 PILOT OPERATION~~

~~903.1 Pilot operation.~~

Subp. 5. Burner operation.

~~SECTION 904~~

~~BURNER OPERATION~~

~~904.1 Burner operation.~~

Subp. 6. Method of test.

~~SECTION 905~~

~~METHOD OF TEST~~

~~905.1 Method of test.~~

Subp. 7. Pressure regulators.

~~SECTION 906~~

~~PRESSURE REGULATORS~~

~~906.1 Pressure regulators.~~

Subp. 8. Equipment information.

~~SECTION 907~~

~~EQUIPMENT INFORMATION~~

~~907.1 Equipment information.~~

1346.5902 SECTION 902 (IFGC) EQUIPMENT PLACEMENT.

[RENUMBERED TO PART 1346.5900, SUBPART 3]

1346.5903 SECTION 903 (IFGC) PILOT OPERATION.

[RENUMBERED TO PART 1346.5900, SUBPART 4]

1346.5904 SECTION 904 (IFGC) BURNER OPERATION.

[RENUMBERED TO PART 1346.5900, SUBPART 5]

1346.5905 SECTION 905 (IFGC) METHOD OF TEST.

[RENUMBERED TO PART 1346.5900, SUBPART 6]

1346.5906 SECTION 906 (IFGC) PRESSURE REGULATORS.

[RENUMBERED TO PART 1346.5900, SUBPART 7]

1346.5907 SECTION 907 (IFGC) EQUIPMENT INFORMATION.

[RENUMBERED TO PART 1346.5900, SUBPART 8]

Statement of Need and Reasonableness for this Amendment to the Proposed Rule.

Parts 1346.5900 to 1346.5907. The existing code adds two chapters to the IFGC. See parts 1346.5901 and 1346.6000. In the proposed amendments published at the time of the Notice, formatting and other changes were made to 1346.6000. The formatting changes in part 1346.6000 are applied here so that both rule parts that add a chapter to the IFGC are organized and formatted consistently. To reach this consistency, it requires renumbering part 1346.5901 to 1346.5900, among other formatting changes. Because the new formatting in part 1346.6000 is the most clear and logical, that format is replicated here.

1346.6000 CHAPTER 9—10, MANUFACTURED HOME PARK/COMMUNITY FUEL GAS EQUIPMENT AND APPLIANCE INSTALLATION.

Subpart 1. IFGC—Chapter 9—10. The IFGC is amended by adding a chapter to read as follows:

Subp. 2. General. Except as otherwise permitted or required by this chapter, all fuel gas equipment and appliance installations in manufactured home parks and communities shall comply with the provisions of this code. The provisions of this chapter shall not apply to manufactured home gas piping, appliances, and equipment.

Subp. 3. Required gas supply. The minimum hourly volume of gas required at each manufactured home lot outlet or any section of the manufactured home gas piping system shall be calculated as shown in ~~IFGC~~ Table ~~902-1002~~. Required gas supply for buildings or other fuel gas utilization equipment and appliances connected to the

manufactured home gas piping system shall be calculated as provided in this code.

Table ~~902-1002~~

Demand Factors for Calculating Gas Piping Systems in
Manufactured Home Parks and Communities

**Statement of Need and Reasonableness for this
Amendment to the Proposed Rule.**

Part 1346.6000. The proposed rule published at the time of the Notice changes some content and formatting of the added chapter to the IFGC. However, the proposed content changes are incorrect. While the formatting changes are maintained, the content changes are reverted to the existing code language.

**1346.6000 CHAPTER 9, MANUFACTURED HOME
PARK/COMMUNITY FUEL GAS EQUIPMENT
AND APPLIANCE INSTALLATION.**

This rule part is modified by renumbering the chapter number from 10 to 9 and changing the corresponding references associated with the numbering change. This numbering change is necessary to coordinate with chapter numbering changes made in the 2012 IFGC. The term “appliance” has been added throughout the rule part to coordinate with a new definition for “appliance” in the 2012 IFGC, as explained above. Additionally, section references are deleted and replaced with subpart numbers because those sections have newly been assigned subpart numbers in this proposed rule for clarity.

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2015

MINNESOTA PLUMBING CODE



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

Minnesota Plumbing Board

STATEMENT OF NEED AND REASONABLENESS

Proposed Permanent Rules Governing the Minnesota Plumbing Code and Adopting the 2012 Uniform Plumbing Code, *Minnesota Rules*, chapter 4714, and Repeal of *Minnesota Rules*, chapter 4715; Revisor's ID Number R-04139

INTRODUCTION

Plumbing in Minnesota has been supervised by a state entity since 1933. In 2007, the rulemaking authority for the Minnesota Plumbing Code was transferred to the then newly-established Minnesota Plumbing Board (“Board”).⁶⁴ The Board consists of 14 members.⁶⁵

The Minnesota Plumbing Code (“Plumbing Code”) is part of the State Building Code.⁶⁶ Although the Plumbing Code is adopted by the Board, it is administered and enforced by the Minnesota Department of Labor and Industry (“Department”). The Board proposes to repeal the current Plumbing Code in chapter 4715 and replace it with a new Plumbing Code in chapter 4714.

The current Plumbing Code is a homegrown code. The Board proposes to incorporate the 2012 Uniform Plumbing Code by reference, with amendments, to replace the existing Plumbing Code. The Board formed an advisory committee, the Plumbing Board National Code Review Committee (“Review Committee”), at the April 2010 board meeting. The Review Committee was charged with reviewing two national codes and the current Plumbing Code and making a recommendation to the full Board as to whether to pursue a national code adoption and if so, which one. Based on request for action forms received, the Review Committee considered the International Plumbing Code (“IPC”) published by the International Code Council (“ICC”) and the Uniform Plumbing Code (“UPC”) published by the International Association of Plumbing and Mechanical Officials (“IAPMO”). Representatives from ICC and IAPMO presented to the whole Board at the April 2011 meeting. A motion to adopt a national code was passed with the statutorily required two-thirds majority vote at the April 2011 meeting.⁶⁷ A separate motion to adopt the UPC with amendments also passed with the statutorily required two-thirds majority vote at the April 2011 meeting.⁶⁸ The Review Committee met thirteen times from February 2011 to September 2013 and followed the open meeting laws.⁶⁹ The Review Committee and others proposed specific UPC amendments to the Board; the Board discussed each suggested amendment at board meetings and ultimately developed the proposed rules. The Board, pursuant to statute and Board bylaws, approved the proposed rules presented here by an affirmative two-thirds or more majority vote of all the voting members of the Board.⁷⁰

⁶⁴ See (as Minnesota Statute, section 326.37) 2007 c 135 art 3 s 19, 20 at

www.revisor.mn.gov/laws/?doctype=Chapter&year=2007&type=0&id=140.

⁶⁵ A list of current Board members is available at www.dli.mn.gov/PDF/pb/members.pdf

⁶⁶ See [Minnesota Rules, part 1300.0050](#).

⁶⁷ See meeting minutes at www.dli.mn.gov/PDF/pb/minutes0411.pdf and statutory requirement at www.revisor.mn.gov/statutes/?id=326B.435 (note that only 13 of the 14 members are voting members).

⁶⁸ Id.

⁶⁹ See www.dli.mn.gov/pbCodeReview.asp.

⁷⁰ [Minnesota Statutes, section 326B.435](#), subdivision 6(c). The Board took the official vote at the October 2014 board meeting. The minutes are available at www.dli.mn.gov/PDF/pb/minutes1014.pdf. Final modifications to the proposed rule were approved at the January 2015 Board meeting. The link to the minutes will be available at www.dli.mn.gov/pb.asp but are not available as of the completion of this document.

RULE-BY-RULE ANALYSIS

**MINNESOTA RULES, CHAPTER 4714
MINNESOTA PLUMBING CODE**

4714.0050 TITLE; INCORPORATION BY REFERENCE.

This rule part adopts portions of the 2012 Uniform Plumbing Code, with amendments, by incorporation by reference.

4714.0100 BASIC PLUMBING PRINCIPLES.

This section lists 23 basic principles of health, sanitation, and safety that serve as the basis of this code. This language is carried forward from part 4715.0200 of the current Plumbing Code, with minor grammatical clarifications. The Board has determined that these principles are necessary for protection of public health and the safety of all Minnesotans and will be used to clarify the intent of the code. This list of plumbing principles has been used for many years in the Minnesota Plumbing Code. The listed principles are necessary and reasonable to guide interpretation for unforeseen situations that are not covered in the code.

4714.0101 CONFORMANCE WITH CODE.

Subpart 1. Scope. Subpart 1 states that “this code” applies to “all new plumbing installations performed anywhere in the state.” The proposed language is taken from Minnesota Statutes, sections 326B.43 and 326B.52. It is reasonable to clearly state the scope of the code.

Subpart 2. New buildings. Subpart 2 clarifies that all new plumbing installations in new buildings must meet the full provisions of this code.

Subpart 3. Existing buildings. Subpart 3 requires new materials and work to existing plumbing installations in existing buildings to meet the full provisions of the code when they are added, altered, renovated, or replaced. Although the scope stated in subpart 1 includes additions, alterations, and replacements, this subpart explicitly includes them in existing buildings. However, deviation from this code in existing buildings may be approved by the Authority Having Jurisdiction if there is undue hardship or excessive difficulty to meet this code and the public would not be endangered. This deviation is necessary and reasonable because public safety is maintained while balancing preservation of existing buildings in a more cost-effective manner than requiring full compliance with this code.

Subpart 4. Changes in building occupancy.

Subpart 4 requires plumbing installations in existing buildings or structures undergoing a change in use or occupancy to meet the plumbing requirements of the new use or occupancy. It is necessary and reasonable to require a building or structure to have plumbing installations consistent with its use and occupancy and the current code.

Subpart 5. Moved buildings. Subpart 5 requires buildings moved into the jurisdiction of the code to comply with the code. Moved buildings may have been compromised through the removal and re-install process. It is reasonable to test moved buildings as new to properly assess them for health and safety of the occupants.

Subpart 6. Health and safety. Subpart 6 allows existing plumbing and drainage systems to operate and be maintained in accordance with an earlier code under which it was installed unless the Authority Having Jurisdiction deems the plumbing or drainage system to be dangerous, unsafe, unsanitary or a nuisance or hazard to life, health or property. This is necessary and reasonable for health protection and safety yet balanced to permit existing plumbing and drainage systems.

Subpart 7. Commissioner’s authority. Subpart 7 clarifies that although some local jurisdictions may be delegated authority to enforce this code, the commissioner retains ultimate authority to enforce this code. This is particularly important in regard to code enforcement disputes between the enforcing entity and the regulated party.

4714.0203 TERMS DEFINED BEGINNING WITH A.

Subpart 1. Added Definitions.

Administrative Authority. The proposed amendment adds a definition of the term “administrative authority” to mean the commissioner of labor and industry except when a local governing body adopts, maintains, and enforces this code in its entirety. The term is added because it is a term used in the existing plumbing code and is therefore a familiar term with regulated parties. It is necessary and reasonable to define the term for clarity.

Subpart 2. Amended Definitions.

Approved. The proposed amendment amends the UPC’s definition of the term “approved.” The amended definition is consistent with the definition for

“approved” in other Minnesota State Building Code chapters and provides objective approval parameters that the UPC definition lacks.⁷¹ It is reasonable to provide coordinated definitions of frequently used terms throughout the building code to avoid conflicts or confusion of terms from one chapter to another.

Authority Having Jurisdiction. This is a term used throughout the UPC over 500 times. Instead of amending each use of the term in the UPC, the Board proposes to amend the definition to have the same meaning as “administrative authority,” the established and familiar term in the existing plumbing code. Furthermore, the UPC definition would cause confusion if used in Minnesota because it is too broad and includes possible authorities having jurisdiction that cannot be regulated by the plumbing code.

4714.0204 TERMS DEFINED BEGINNING WITH B.

Barometric loop. The proposed definition is taken from the current rule part 4715.0100, subpart 14, with modifications to clarify that “35 feet” is a minimum requirement.

4714.0205 TERMS DEFINED BEGINNING WITH C.

Subpart 1. Amended Definitions.

Certified Backflow Assembly Tester. The proposed definition refers to the definition in Minnesota Statutes, section 326B.42, subdivision 1c to clarify that this term has the same meaning as “backflow prevention tester.” The two terms have the same intended meaning but “backflow prevention tester” is specific to Minnesota.

Clear Water Waste. The proposed definition clarifies that “clear water waste” must be uncontaminated waste discharges, groundwater discharges and similar discharges. The UPC definition includes all discharges from heating and cooling equipment including contaminated discharges. Contaminated discharges pose a risk to health and public safety. Including contaminated discharges in the definition could conflict with or cause confusion with other parts of this code or other codes in Minnesota. The proposed amendment is reasonable to protect the health and safety of the public and coordinates with other rules for proper disposal of discharges from heating and cooling equipment.

Code. The proposed definition clarifies that the term “code” means the Minnesota Plumbing Code, MN Rules, Chapter 4714. The UPC definition is generic and not useful as applied to the plumbing code.

⁷¹ See e.g., Minn. R. parts 1311.0202, subp.1; 1303.2401, subp. 2; and 1322.0202, subp. 1.

Subpart 2. Added Definitions.

Commissioner. The proposed definition clarifies that “commissioner” means the commissioner of labor and industry or a duly designated representative of the commissioner who is either an employee or a person working under contract with the department of labor and industry. This is needed and reasonable for consistent use and enforcement of the term used in this code.

4714.0206 TERMS DEFINED BEGINNING WITH D.

Drainage System. The proposed amendment modifies the UPC definition to clarify that pipes conveying rainwater are considered part of a drainage system of a plumbing system. It is the intent of the Board to continue to include rainwater pipes in the definition of “drainage system” as it is in the existing plumbing code. See Minnesota Rules, part 4715.0100, subpart 42. The proposed definition is reasonable and necessary to maintain consistent use and enforcement of drainage system regulation. The UPC definition of “drainage system” includes piping only for “sewage or other liquid wastes.”⁷² The UPC definition is unclear as to whether rainwater is included. The proposed amendment clarifies the definition by explicitly listing rainwater. Because rainwater catchment systems and storm drainage systems are regulated in this code, it is reasonable to clarify that drainage systems that convey rainwater are generally subject to drainage system requirements.

4714.0210 TERMS DEFINED BEGINNING WITH H.

Subpart 1. Amended Definitions.

Hydromechanical Grease Interceptor. The proposed definition removes item D from the UPC definition. Item D of the UPC definition permits indirect connection without external flow control, to a drainage system, which conflicts with the drainage system installation requirements in sections 704.3 as amended. Section 704.3 requires commercial kitchen fixtures to be directly connected to the drainage system. Therefore, it is reasonable to remove the item that conflicts with another part of the code.

Subpart 2. Added Definitions.

Health Authority. The proposed definition of “health authority” clarifies that the entity with authority over the drinking water supply is different from the Authority Having Jurisdiction, administrative authority or commissioner. It clarifies that it is the entity which has established rules governing the drinking water supply.

⁷² Liquid waste is defined in the UPC as “The discharge from a fixture, appliance, or appurtenance in connection with a plumbing system that does not receive fecal matter.” See UPC section 214.

4714.0218 TERMS DEFINED BEGINNING WITH P.

Plumbing System. The proposed definition of “plumbing system” is amended to include nonpotable water piping serving plumbing fixtures whereas the UPC definition does not include nonpotable water piping. Nonpotable water piping can be part of a plumbing system and therefore has been added to this definition. This amendment is necessary in order to include nonpotable water piping serving plumbing fixtures in the rainwater catchment system regulations in UPC Chapter 17, as amended in this code.

Potable Water. The proposed definition amends “health authority having jurisdiction” to “health authority” to coordinate with health authority defined above. Furthermore, the term is consistent with the definition of “health authority” as defined in part 4714.0210.

Private Sewage Disposal System. The proposed definition reflects the term used by the Minnesota Pollution Control Agency (MPCA) because MPCA regulates private sewage disposal systems in Minnesota. MPCA uses the term subsurface sewage treatment system. Because MPCA regulates this type of system, it is reasonable to include MPCA’s preferred terminology here and refer to MPCA for clarification and coordinated enforcement.

4714.0220 TERMS DEFINED BEGINNING WITH R

Registered Professional Engineer. The phrase “registered professional engineer” is commonly used throughout the 2012 UPC. The definition also includes references to “engineer” and “registered engineer” because the UPC uses those terms as well to mean the same thing. The term “registered professional engineer” was chosen to coordinate with licensure requirements for the practice of professional engineering as described in Minnesota Statutes, section 326.02, subdivision 3, that are specific to the State of Minnesota as a professional engineer by the Board of Architecture, Engineering, Land Surveying, Landscape architecture, Geoscience, and Interior Design. The proposed amendment is needed and reasonable for consistent and clear use of the term in this code.

4714.0221 TERMS DEFINED BEGINNING WITH S.

Single-family Dwelling. The proposed definition references the definition for dwelling, single-family in Minnesota Rules, Chapter 1309. Chapter 1309 is the Minnesota Residential Code chapter and part of the Minnesota State Building Code. Referencing the definition in 1309 is reasonable and necessary because

doing so coordinates the definition with other state rules for consistent use and enforcement of the term.

4714.0301 SECTION 301.0 MATERIALS - STANDARDS AND ALTERNATIVES.

Subpart 1. Section 301.1 Minimum Standards.

The proposed amendment to UPC 301.1 deletes the reference to the mechanical code language requirements since it’s not regulated in this code.

Subsection 301.1.2. The proposed amendment removes the language regarding whether Appendix I is part of the code or not because Appendix I, with some exceptions, is proposed for incorporation by reference in part 4714.0050. To avoid confusion about whether Appendix I is available for convenience or part of the code, this language is deleted.

Subsection 301.1.3. The proposed amendment deletes this UPC subsection in its entirety because plumbing in existing buildings is addressed in part 4714.0101, subparts 3 and 6.

Subpart 2. Section 301.2 Alternate Materials and Methods of Construction Equivalency.

The proposed amendment adds “Prior to installation” to the second sentence to clarify that technical documentation of alternate materials and methods to the code that demonstrate equivalency must be submitted for approval before installation occurs. Approval before installation eliminates additional costs that might result if installation begins before the alternates are approved and need revision per the Authority Having Jurisdiction. Additional proposed amendment to this section clarifies that alternates to the code submitted for approval shall not be prohibited elsewhere in the code or law. The proposed amendments establish reasonable requirements that permit alternates from the code to keep current with new technologies while maintaining public safety and reasonable costs.

Language explicitly preserving subsections 301.2.1, 301.2.1.1 and 301.2.1.2 clarifies how those subsections should be treated.

Subpart 3. Section 301.4.6 Inspection and Testing.

The UPC section requires alternative engineered designs be tested and inspected. The proposed amendment further specifies that the registered professional engineer must certify that the registered professional engineer (or designee) has visually inspected the system and that installation was properly implemented. That is, the proposed amendments provide clarity to the vague UPC language. Most alternative engineered designs are

complex and require expertise in the registered professional engineer's field. Therefore, visual inspection by the registered professional engineer or their designee reasonably ensures that the installation is in accordance with the engineered design.

4714.0307 LOCATION.

Section 307.1 System.

The proposed amendment deletes the words "private sewage disposal system" from the list of items to which the section applies. Private sewage disposal systems are regulated by the Minnesota Pollution Control Agency under Minnesota Rules, Chapter 7080.

4714.0311 INDEPENDENT SYSTEMS.

Subpart 1. Section 311.0 Use of Public Sewer and Water Systems Required.

The proposed amendment retitles the section from "Independent Systems" to "Use of Public Sewer and Water Systems Required" to more accurately describe the proposed amendments in subpart 2 below.

Subpart 2. Section 311.1 General.

The proposed amendment replaces the entire UPC section 311.1, including the exception, with language that requires connections of building services to public water and sewer when available and feasible, unless otherwise permitted by the Administrative Authority. The UPC section is conceptually similar to the proposed amendment. The UPC exception allows the extension of a front building drain to a rear building if no private sewer is available. This is deleted because connecting a new building sewer to another building sewer restricts access to a sewer for maintenance, presents potential legal property damage ramifications from sewer back-ups into another building and possible trespassing issues. The proposed language is largely taken from the existing Minnesota Plumbing Code, part 4715.0310, with grammatical changes and updates. This requirement offers economic benefits for property owners and better public health protection. Maximizing use of available public water and sewer systems offers lower costs to each participant and consistent maintenance of the systems. The public sewer and water systems are coordinated in a way to provide efficient and safe systems. Private sewer and water, while sometimes a better option, are typically second to public systems in terms of overall quality and safety.

4714.0312 PROTECTION OF PIPING, MATERIALS, AND STRUCTURES.

Subpart 1. Section 312.7 Fire-Resistant Construction.

The proposed amendment replaces the UPC reference to "the building code and Chapter 15, 'Firestop Protection'" with "the State Building Code." UPC chapter 15 is not incorporated by reference in this code. Firestop protection as it is used here is regulated in the Minnesota State Building Code. The Board does not have statutory authority to regulate fire-resistant construction.

Subpart 2. Section 312.9 Steel Nail Plates.

The proposed amendment replaces the UPC reference to "Section 1210.3.3" in the exception with "Minnesota Rules, chapter 1346, Minnesota Mechanical and Fuel Gas Codes." Chapter 12, Fuel Gas Piping, of the UPC is not incorporated by reference into this code. In Minnesota, fuel gas piping is regulated in chapter 1346. The Board does not have statutory authority to regulate gas piping.

4714.0313 HANGERS AND SUPPORTS.

Section 313.7 Gas Piping.

The proposed amendment deletes UPC section 313.7 because it is a gas piping requirement. In Minnesota, gas piping is regulated in chapter 1346, the Minnesota Mechanical and Fuel Gas Code. The Board does not have statutory authority to regulate gas piping.

4714.0314 TRENCHING, EXCAVATION, AND BACKFILL.

Section 314.0 Trenching, Excavation, and Backfill.

The proposed amendment deletes this section in its entirety. This section is in conflict with federal Occupational Safety and Health Administration (OSHA) laws and regulations relating to requirements of trenching, excavation, and backfill. Trenching regulations are governed by Federal OSHA laws in 29 CFR and not this code. The UPC section is not necessary. The Board does not have statutory authority to regulate trenching, excavation and backfill.

4714.0315 JOINTS AND CONNECTIONS.

Section 315.1 Unions.

The proposed amendment deletes the language that references gas piping. Gas piping is regulated in chapter 1346, the Minnesota Mechanical and Fuel Gas Code. The Board does not have statutory authority to regulate gas piping. The proposed change is needed and reasonable to eliminate conflicts with other state code requirements.

4714.0317 FOOD-HANDLING ESTABLISHMENTS.

Section 317.1 General.

The proposed amendment clarifies what the plumbing requirements are for drainage piping installed over food preparation, and storage areas. The UPC language is amended to require soil or drain pipes installed over food areas to have minimum protection to prevent food contamination. Possible contamination of food being stored or prepared below the drainage piping can lead to sickness and public health outbreaks at food establishments. Therefore, it is reasonable to establish specific requirements to protect the health and safety of the public.

The proposed amendment also deletes redundant requirements of code-approved drainage piping materials that are already addressed under Section 701.1 and Table 1401.1.

4714.0319 MEDICAL GAS AND VACUUM SYSTEMS.

The proposed amendment deletes UPC section 319.0 in its entirety. The Board regulates the licenses of persons installing medical gas systems. See Minnesota Statutes, section 326B.435. However, the Plumbing Code only applies to plumbing systems and water conditioning systems, not medical gas and vacuum systems. See Minnesota Statutes, section 326B.435, subdivision 2(a)(3). The Board does not have statutory authority to regulate the installation of medical gas and vacuum systems.

4714.0403 WATER-CONSERVING FIXTURES AND FITTINGS.

Section 403.3.1 Nonwater Urinals.

The proposed amendment removes the UPC requirement to install a water distribution line rough-in that allows for installation of an approved backflow prevention device in the event of a retrofit. This will reduce installation costs. Instead, the proposed amendment requires a water-supplied fixture be installed upstream of the nonwater urinal at the end of the same drainage branch. The UPC requirement creates dead-ends where water lines are capped, causing stagnant water which could lead to concerns about the growth of organisms in dead-ends. Such growths would affect the quality of drinking water and become a public health concern. The proposed change offers better public health protection and is less expensive than the UPC requirement.

Unlike water supplied plumbing fixtures, nonwater urinal does not use water to flush the urine or to dilute urine in the fixture drainage piping. An additional

requirement is added to require a water supplied fixture upstream of the nonwater urinal installation to dilute the urine in the fixture drainage piping. This is necessary to reduce and prevent build-up of urine in the fixture drainage piping when installing nonwater urinals to minimize premature failures of the drainage system.

4714.0406 PROHIBITED FIXTURES.

Section 406.3 Miscellaneous Fixtures.

The proposed amendment deletes the subsection in its entirety. Subsection 406.3 specifically prohibits certain fixtures including wooden and tile wash trays for domestic use. UPC section 401.1, which is not amended in this code, addresses the quality of fixtures and applies to all plumbing fixtures. Any non-code-approved fixtures are not considered a standard plumbing fixture and must be reviewed and approved by the Authority Having Jurisdiction in accordance with UPC section 301.1 and 301.2, as amended. It is redundant to keep subsection 406.3 and therefore might cause confusion. Dry or chemical toilets which include composting and portable chemical toilets are not allowed for installation in a building used for human habitation. Furthermore, this subsection gives the “health officer” authority or discretion over these fixtures but the term “Health Officer” is not defined in the UPC or elsewhere in Minnesota plumbing rules or statutes. Lastly, “health officers” are not the administrative authority or Authority Having Jurisdiction with authority to approve plumbing fixtures. Therefore, deletion of this section prevents confusion regarding review and approval of alternate plumbing materials and fixtures.

4714.0409 BATHTUBS AND WHIRLPOOL BATHTUBS

Section 409.1, Application.

The proposed amendment specifically adds requirements for whirlpool pedicure tubs. Whirlpool pedicure tubs are plumbing appliances and function similarly to typical whirlpool bathtubs. The differences are that the whirlpool pedicure tub size is much smaller than a typical whirlpool bathtub and only feet are submerged instead of the entire body like a typical whirlpool bathtub. Whirlpool pedicure tub fixtures raise concerns of sanitation because disease could be spread through water retained in the tubs and recirculated or unitized jet components similar to a typical whirlpool bathtub, particularly when used in commercial salons. Whirlpool pedicure tubs are intended for submerging only feet so suction and hair entrapment requirements are not safety concerns that need to be addressed here. The whirlpool bathtub standards are ASME A112.19.7, Hydromassage Bathtub Appliances, and IAPMO IGC 155, Pipeless Whirlpool Bathtub Appliances. The applicable

sections in ASME A112.19.7 that apply to whirlpool pedicure tubs are general requirements that cover material construction, water pump standard UL 1795, and circulation/air piping; water retention requirements are included. The applicable sections of IAPMO IGC 155 are all sections of this standard. Therefore, minimum requirements for health and sanitation are established to protect public health.

4714.0415 DRINKING FOUNTAINS.

Section 415.2, Public Use Fountains.

The proposed amendment adds language taken from a portion of existing Minnesota Rules, part 4715.1260, with two changes. The existing language includes the word “bubbler” after “drinking fountain” but is not included in the proposed language because the term is no longer used in common language and is not defined. Also, “must” is changed to “shall.” The proposed amendment prohibits a combined faucet and drinking fountain unit unless there is at least an 18-inch separation between the drinking fountain and any other faucet spout. The required separation prevents unsanitary conditions such as the spread of disease from hands, saliva, and water flow off body parts splashing from the use of fixtures.

4714.0418 FLOOR DRAINS.

Subpart 1. Section 418.4, Food Storage Areas.

The proposed amendment is not substantively different from the UPC language. There are some minor grammar changes but the proposed amendment largely replicates the UPC language. This section requires that drains located where food is stored, such as in walk-in coolers, must have indirect waste piping to the drainage system and vented traps. This code does not regulate when drains can be located in food storage areas but does regulate their installation when they are. Indirect drains in spaces where freezing temperatures are maintained must be located where the seal will not freeze. The requirements in this section are necessary to protect food from a sewer back-up or contamination of food storage areas/compartments, or walk-in coolers and freezers when drains are allowed to be installed by the licensing authority.

Subpart 2. Section 418 additions.

Section 418.6 Elevator Pit Drain.

The proposed amendment adds this subsection to address specifically elevator pit drains. The language is in the existing Minnesota Plumbing Code, with the exception of a word change from “must” to “shall.” The amendment requires the proper method of draining elevator pits consistent with the Minnesota Elevators and Related Devices Code, chapter 1307. Because elevator

pits collect hydraulic fluid, grease, and oily waste from elevator equipment, elevator pits must drain to the building sanitary system. Furthermore, the elevator pits must drain dry at all times and must discharge waste to the building sanitary system by an indirect connection to protect a sewage backup into the elevator pit creating an unsanitary condition in the pit.⁷³ When a sump is used to receive pit drainage, the sump must be placed outside the elevator pit with a dry pan drain installed in the pit that flows into the sump. Sumps are located outside elevator pits for direct access for maintenance and inspections of the sumps and pumps without entering the elevator pit.

Section 418.7 Garage and parking area floor drains.

The proposed amendment is taken from the existing Plumbing Code and adds a section that requires drains in enclosed garages to discharge to the sanitary sewer while floor drains in open parking areas must discharge to the storm sewer.⁷⁴ Drains in enclosed garages generally do not collect rainwater, but will collect oil, grease, even vehicle wash waste, and other types of waste from vehicles that need proper treatment and discharge to the sanitary sewer. Open areas of parking ramps will collect significant amounts of rainwater and must discharge to the storm sewer with an exception that the municipal sewer authority may determine other approved places of disposal as necessary for open parking ramp drainage.

Exception. An exception for floor drains in one- and two-family dwellings allows discharge to “daylight” when approved by the local administrative authority. “Daylight” is an industry term used to mean outdoors; in this case, outside of the garage. The need for local administrative authority approval is necessary to ensure the discharge is within the owner’s property line, does not cross other properties, and does not flow into surface water. The scope is limited to one- and two-family dwellings so no commercial or industrial garages may discharge to daylight. This practice is currently in use and was coordinated with and acceptable to the Minnesota Pollution Control Agency.⁷⁵

4714.0420 SINKS.

Section 420.3 Waste Outlet.

The proposed amendment largely replicates the UPC language but clarifies that commercial pot and scullery sinks must be provided with waste outlets that are

73 Drain dry means that the pits will drain to complete dryness at all times so no waste remains in the elevator pit.

74 See Minnesota Rules, part 4715.1300, subpart 6, for the existing rule.

75 See

www.pca.state.mn.us/publications/wq-wwists4-05.pdf

at least two inches in diameter because these sinks have large compartments holding a large volume of water and must be able to handle commercial kitchen functions.⁷⁶ For these reasons, the waste outlet of each compartment of the sink must be provided with minimum 2-inch waste outlets for proper draining. A 1-1/2 inch waste outlet would take longer to drain than a 2-inch waste outlet and the concern is that if the sinks do not drain quickly enough, unapproved methods resulting in unsanitary conditions will be used and put the drainage system at risk.

4714.0421 FIXTURES AND FIXTURE FITTINGS FOR PERSONS WITH DISABILITIES.

Section 421.2 Limitation of Hot Water Temperature for Public Lavatories.

The proposed amendment limits the maximum temperature to 110 degrees Fahrenheit where the UPC limit is 120 degrees Fahrenheit. This amendment is necessary because Minnesota Rules chapter 1323, the Commercial Energy Code, incorporates by reference the 2012 International Energy Conservation Code, Commercial Provisions, which limits the maximum temperature for public lavatories to 110 degrees Fahrenheit.⁷⁷ This amendment is consistent with the Minnesota Commercial Energy Code.

4714.0422 MINIMUM NUMBER OF REQUIRED FIXTURES.

Subpart 1. Section 422.1 Required Minimum Number of Fixtures

Minimum fixture requirements are regulated by the Minnesota Building Code, Chapter 1305, not the Minnesota Plumbing Code. Therefore, the proposed amendment references the Minnesota Building Code in chapter 1305. The proposed amendment also clarifies that the minimum fixture requirements listed in the Minnesota Building Code apply to all facilities subject to the Minnesota Plumbing Code.

Subpart 2. Sections 422.1.1 to 422.5.

These UPC sections regulate different types of facilities and the minimum number of required fixtures in them. Because the minimum fixture requirements are regulated in the Minnesota Building Code, Chapter 1305, these sections are proposed to be deleted.

⁷⁶ Commercial kitchen functions include use and washing of large-scale pots and pans and a larger quantity and frequency of washing as compared to household kitchen functions, for example.

⁷⁷ See section C404.3 Temperature Controls of the 2012 International Energy Conservation Code, as amended.

Subpart 3. Table 422.1

Table 422.1 is titled, “Minimum Plumbing Facilities.” It is referenced only in UPC section 422.1. However, the amended section 422.1 deletes all references to Table 422.1 because minimum plumbing fixture requirements for facilities are regulated in the Minnesota Building Code, Chapter 1305. Therefore, UPC Table 422.1 is proposed for deletion.

4714.0501 GENERAL.

Section 501.1 Applicability

The proposed amendment clarifies that this chapter as amended applies to the construction, location and installation of fuel-burning and other water heaters heating potable water. The proposed amendment deletes “together with chimneys, vents, and their connectors” because the Board does not have statutory authority to regulate the chimneys, vents and connectors.

4714.0503 INSPECTION.

The proposed amendment deletes UPC sections 503.0 to 503.2. Section 503.0 is just the section title. Section 503.1 regulates inspections of chimneys or vents. This section is proposed for deletion because the Board does not have statutory authority to regulate chimneys or vents, including inspections of them.⁷⁸ Therefore, such inspections cannot be part of the Plumbing Code. Section 503.2 regulates final inspection of water heaters. This section is proposed for deletion because Minnesota Rules, part 1300.0215 authorizes the administrative authority to inspect installation and construction authorized by the permit, including for water heaters.⁷⁹ If this section is not deleted, there would be redundant water heater inspection rules.

4714.0504 WATER HEATER REQUIREMENTS.

Subpart 1. Sections 504.1 to 504.2

The proposed amendment deletes UPC sections 504.1 through 504.2 because they contain venting, self-closing, and door requirements for water heater installations in bedrooms and bathrooms. These venting, self-closing and door requirements go to the structure near and around the water heater and are not part of plumbing.⁸⁰ The Board does not have statutory authority to promulgate rules regarding non-plumbing regulations. The proposed deletion also eliminates conflicts with other code requirements.

⁷⁸ Chimneys and vents are regulated in the Minnesota Mechanical and Fuel Gas Code in chapter 1346.

⁷⁹ [Minnesota Rules, part 1300.0215.](#)

⁸⁰ Venting, self-closing and door requirements are regulated in the Minnesota Mechanical Code, Minnesota Rules, Chapter 1346.

Subpart 2. Section 504.6.

The proposed amendment deletes the reference to automatic gas shut-off devices because those are regulated in the Minnesota Mechanical Code, Chapter 1346. The Board does not have statutory authority to regulate such devices.

4714.0505 OIL-BURNING AND OTHER WATER HEATERS.

This subsection regulates single-wall heat exchangers. The proposed amendment deletes section 505.4.1⁸¹ “Single-Wall Heat Exchanger” but relocates the text, with grammatical amendments, to a proposed new section 603.5.4.1⁸² “Single-Wall Heat Exchanger.” The requirements relocated from section 505.4.1 to section 603.5.4.1 establish safety parameters for single-wall heat exchangers to protect the potable water system and prevent cross-connection contamination. It is well-established in the Minnesota plumbing industry that regulation of single-wall heat exchangers will be covered under potable water protection rather than specifically under water heaters. It is reasonable to locate these requirements under “Heat Exchangers,” section 603.5.4, instead of under the limited parameter of water heaters, section 505.

4714.0506 AIR FOR COMBUSTION AND VENTILATION.

UPC sections 506.0 to 506.9 regulate portions of heating, ventilation and air conditioning (“HVAC”) systems. In Minnesota, HVAC systems are regulated in the Minnesota Mechanical Code, Chapter 1346. The Board does not have statutory authority to regulate HVAC systems.

4714.0507 OTHER WATER HEATER INSTALLATION REQUIREMENTS.

Subpart 1. Sections 507.6 to 507.11 and 507.14 to 507.23.

The proposed amendment deletes UPC sections 507.6 to 507.11 and 507.14 to 507.23 because they provide requirements for gas appliances; specifically, use of air for combustion and ventilation, fire resistance constructions installed in commercial garages and air craft hangars, and gas piping and venting of gas appliances, all

⁸¹ The headings this location falls under are section 505 Oil-Burning and Other Water Heaters; 505.4 Indirect-Fired Water Heaters; 505.4.1 Single-Wall Heat Exchanger.

⁸² The headings this location falls under are section 603 Cross-Connection Control; 603.5 Specific Requirements; 603.5.4 Heat Exchangers; 603.5.4.1 Single-Wall Heat Exchanger.

of which are HVAC-related requirements. Gas appliances and HVAC systems are governed by the Minnesota Mechanical Code, Chapter 1346. The Board does not have statutory authority to regulate gas appliances or HVAC systems.

Subpart 2. Section 507.5 Relief Valve Discharge.

The proposed amendment adds one sentence to the end of the UPC language, “Discharge relief valves shall terminate to a safe place of disposal or within 18 inches of the floor.” This added language is taken from the existing Plumbing Code, with minor grammatical differences for clarification. The proposed amendment specifies a location for the discharge of a water heater relief valve to supplement the UPC’s general statement of prohibition. Because the temperature relief valve is set by the manufacturer to release at 210 degrees Fahrenheit, unsafe conditions, including the risk of scalding the public and occupants, exist if the valve discharge is not located in a safe place. It is reasonable for a water heater relief valve to discharge to a location that will not create an unsafe situation.

4714.0508 APPLIANCES ON ROOFS.

UPC section 508 contains requirements for appliances on roofs. Because these requirements are not considered “plumbing,” the proposed amendment deletes the entire section. Appliances on roofs are regulated in the Minnesota Mechanical Code, Chapter 1346. The Board does not have statutory authority to regulate appliances on roofs.

4714.0509 VENTING OF APPLIANCES; 4714.0510 SIZING OF CATEGORY I VENTING SYSTEMS; 4714.0511 DIRECT-VENT APPLIANCES.

UPC sections 509 through 511 regulate venting of appliances. These requirements are not considered “plumbing.” In Minnesota, venting of appliances is regulated in the Minnesota Mechanical Code, Chapter 1346. The Board does not have statutory authority to regulate venting of appliances.

4714.0601 HOT AND COLD WATER REQUIRED.

Section 601.1 General.

UPC section 601.1 provides general potable running water requirements. The proposed amendments make minor grammatical changes for clarification and add language. The new language requires return circulation type hot water supply systems in buildings that are four stories or higher and buildings where the developed length of hot water piping from the source of hot water supply to the farthest fixture supplied exceeds 100 feet . This requirement is added to conserve water and safely

maintain adequate hot water demand within a reasonable time period. The threshold length of 100 feet is an industry standard because lengths beyond 100 feet will result in unnecessary amounts of potable water being wasted while waiting for hot water to dispense and also poses insufficient washing conditions.

4714.0602 UNLAWFUL CONNECTIONS.

Subpart 1. Section 602.2, Cross-contamination

The proposed amendment reorganizes the UPC language to clarify that a backflow prevention device is required in order for certain connections to the domestic water supply to exist. The proposed amendment also supplements the UPC requirement to clarify that each point of use in the water supply system shall be separately protected. Potentially contaminated water used in cooling, heating, and similar processes must be properly discharged into the drainage system and must not return to the potable water system. Much of this new language is in the existing plumbing code at part 4715.1912, with the addition of water used for heating equipment. The proposed rule protects the potable water systems from contaminants including oil, grease, other petroleum products, chemicals, refrigerants, and any substance that may contaminate the potable water system. This is a reasonable measure to protect safe drinking water.

4714.0602 Subp. 2. Section 602.4, Approval by Authority

The proposed amendment deletes the UPC references to “Health Department, or other department having jurisdiction” in order to prevent confusion or conflict as to what agency is qualified and authorized to approve connections that could potentially contaminate the water supply system. The amended section is consistent with the existing plumbing code in part 4715.1920 and reasonably protects the drinking water system.

4714.0603 CROSS-CONNECTION CONTROL.

Subpart 1. Section 603.2, Approval of Devices or Assemblies

The proposed amendment deletes one reference to the Authority Having Jurisdiction as the authority that approves a device or assembly to clarify that the device or assembly must be approved as defined in this code.⁸³ The

⁸³ The definition of “Approved” is amended in part 4714.0203, subpart 2, to mean “approval by the administrative authority, pursuant to the Minnesota Plumbing Code, by reason of inspection, investigation, or testing; accepted principles; computer simulations; research reports; or testing performed by a nationally recognized testing laboratory.” This definition is consistent

backflow prevention devices or assemblies must also meet testing requirements and comply with Table 603.2, “Backflow Prevention Devices, Assemblies, and Methods,” unless excepted in sections 603.5.1 through 603.5.23. The proposed amendment changes the UPC reference from “603.5.21” to “603.5.23” because the proposed amendment adds two provisions (subsections 603.5.22 and 603.5.23).

In the last paragraph, the words, “or otherwise approved by the Authority Having Jurisdiction” are deleted because who can perform backflow testing is regulated in Minnesota Rules, chapter 4716, the plumbing licensing and apprentice registration rules.

Subpart 2. Section 603.5.4, Heat Exchangers

The proposed amendment amends the UPC language by replacing the reference to section 505.4.1 with the requirements of 505.4.1. Along with relocating the requirements to this section, the language is reformatted for clarity and modified to permit connection to low-pressure steam systems but is otherwise replicated exactly. It is reasonable to put all requirements for single wall water heaters in one location, here in section 603.5.4, for the convenience of users of this code.

Subpart 3. Section 603.5.12, Beverage Dispensers

The proposed amendment adds “made of copper” to the prohibitions that apply to carbonated beverage dispenser piping materials that are downstream of the backflow preventer. The water is carbonated downstream of the backflow preventer. Copper reacts strongly with carbon dioxide and dissolves at a rate that greatly exceeds the federal Maximum Contaminant Level of 1.3 milligrams per liter, a standard established to prevent short term gastrointestinal illness and long term liver or kidney damage. The amendment prohibits use of copper piping where carbonated water will flow.

Subpart 4. Section 603.5.18 Potable Water Outlets and Valves

The proposed amendment adds an exception to the UPC language that reads, “except for a freeze-proof yard hydrant that is located at least two feet above the water table and at least ten feet from any sewer or similar source of contamination.” The added language is largely taken from the existing Minnesota Plumbing Code, part 4715.1800, subpart 1, with modifications. It is reasonable to permit freeze-proof yard hydrants to be underground, subject to the location requirements, because they are commonly used in Minnesota and have previously been permitted under the existing Plumbing Code.

with other chapters of the Minnesota State Building Code. See, e.g., parts 1311.0202, subp. 1; 1303.2401, subp. 2; and 1322.0202, subp. 1.

Subpart 5. Section 603.5.22, Barometric Loop

The proposed amendment adds this subsection that regulates the use of barometric loops to the list of specific requirements. Barometric loops are permitted in the existing-Plumbing Code as an acceptable method of cross-connection control. Barometric loops are an accepted cross-connection control method for use in the water distribution system where back siphonage hazards may exist when there is no backpressure backflow. The barometric loop method is an option available in some situations to provide cross-connection control without the testing and maintenance requirements of other cross-connection control options. It is reasonable to offer this safe, simple and non-mechanical method for certain installations.

Section 603.5.23 Installation of Testable Backflow Prevention Assembly

The proposed amendment adds this subsection that regulates use of testable backflow prevention assemblies (devices) to the list of specific requirements. Testable backflow prevention assemblies are installed to protect potable water systems from the most dangerous and toxic contaminants. The standards listed in the proposed amendment (ASSE 1013, 1015, 1020, 1047, 1048 or 1056) address the material quality, performance requirements and design of the assembly but not specific field installation, testing, maintenance or removal of the assemblies. The UPC requires approval and annual testing of all devices or assemblies installed for the prevention of backflow in sections 603.2 and 603.4.2. However, the UPC does not address testing and inspection tags, and reporting as required in current Minnesota rules.⁸⁴ In addition to adding the existing Minnesota rule requirements to the UPC requirements, the proposed amendment adds a requirement that a community public water supplier (typically a municipal water utility) be notified when a testable backflow assembly is installed, tested, or removed from a community public water system. The proposed language does not require community public water supplier approval, but does require notification so that the public water supplier is aware of changes to the public water system that could negatively affect water quality and safety of the entire public system. The testing notification requirement is reasonable and not overly burdensome for persons performing the test and it is reasonable for the administrative authority and water supplier to be aware that the testing has been performed. The proposed amendment would align the testing notification requirement with the testing requirements.

⁸⁴ See [Minnesota Rules, part 4715.2161](#), subparts 2 and 3. Wording and terminology from the current Minnesota Plumbing Code is modified for clarity and for consistency with the UPC along with the new requirement.

4714.0604 MATERIALS.

Section 604.11, Lead Content

The proposed amendment replaces “8 percent” with “a weighted average of 0.25 percent in the wetted surface material, as established in the Safe Drinking Water Act, section 1417(d)” as the maximum lead content of water pipe and fittings that convey potable water. Effective January 4, 2014, the federal Reduction of Lead in Drinking Water Act amended the federal Safe Drinking Water Act (SDWA), reducing the allowable amount of lead from 8% lead content (currently in the Plumbing Code, Minnesota rules part 4715.0500) to “not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures.” This amendment is necessary to comply with federal law.

4714.0608 WATER PRESSURE, PRESSURE REGULATORS, PRESSURE RELIEF VALVES, AND VACUUM RELIEF VALVES.

Section 608.5, Drains.

The proposed amendment reformats part of the UPC language for clarity and deletes other UPC language that permits drain tube and piping to terminate outside of a building. Instead of permitting discharge to the outside of a building, the proposed amendment requires discharge “to a safe place of disposal or within 18 inches of the floor,” both of which are indoors. Considerations for “a safe place of disposal” include whether the discharge will not cause damage to property or injure persons from high temperature discharge. The proposed amendment is reasonable because it provides a specific safe place to discharge to while leaving flexibility to reasonably accommodate unique situations.

4714.0609 INSTALLATION, TESTING, UNIONS, AND LOCATION.

Subpart 1. Section 609.6 Location.

Subsection 609.6.1 Water supply near sources of contamination.

The proposed amendment adds a new subsection that establishes the required minimum separation distance between water supply and potential sources of contamination. Specifically, a minimum of ten feet horizontal separation distance is required between a water supply and a source of contamination. The proposed amendment takes language from the existing Minnesota Plumbing Code, with amendments. This requirement has been used and enforced for many years to protect the water supply system from contamination. Ten feet is a reasonable distance from possible sources of contamination because it is far enough to protect the water

supply but not so far as to require excessive space; it balances the need to protect the water supply, risk and cost.

Subpart 2. Section 609. 11. Water Meters.

The proposed amendment adds requirements for water meter installation. The amendment clarifies that water meters must be located inside a building, installed at least 12 inches above a finished floor, readily accessible and rigidly supported. When it is not possible to install the water meter inside a building, an exception is available to accommodate location outside a building if other requirements are satisfied. The other requirements for meters located outside the building are: the meter must be enclosed in a structure not subject to flooding, high groundwater, or surface drainage runoff, must be protected from freezing and must be installed above grade when possible. If a water meter is installed below grade, the top of the structure must be located at least 12 inches above the finished grade, must be secured and must be accessible. The structure shall not be connected to any storm or sanitary sewer system. This amendment is reasonable because it maintains water meters safely while providing reasonable accommodations when optimal conditions are not possible.

4714.0610 SIZE OF POTABLE WATER PIPING.

Table 610.3 Water Supply Fixture Units (WSFU) and Minimum Fixture Branch Pipe Sizes

This table lists appliances, appurtenances or fixtures and provides the minimum fixture branch pipe size and the number of units required for private use, public use, and assembly. Included in the list of appliances in the UPC is “Lavatory.” The proposed amendment changes it to read, “Lavatory (each basin), or hand sink.” The additions clarifies that “lavatory” means each basin and adds hand sinks to have the same minimum water piping sizing as lavatories. Lavatories are plumbing fixtures located in restrooms for hand washing. A hand sink is known in the plumbing industry to refer to a plumbing fixture used for hand washing in hospitals, clinics, and commercial kitchens. That is, hand sinks are not typically in a room with a toilet whereas lavatories are. Because the two plumbing fixtures are similar in design and function (washing hands for sanitation). It is reasonable that the two fixtures have the same minimum piping sizes.

4714.0611 WATER CONDITIONING EQUIPMENT.

Sections 611.0 to 611.3

These sections provide general minimum requirements for water conditioning equipment in plumbing systems. The proposed amendments replace terminology, including the UPC title of section 611,

“Drinking Water Treatment Units” with a new title, “Water Conditioning Equipment” to be consistent with the terms used in Minnesota Statutes for licensing and installation rules relating to water conditioning equipment. Drinking water treatment units are a type of water conditioning equipment. The proposed amendments establish a clear title in this rule for installers, designers, and the public that is consistent with the terminology in licensing statutes and installation rules.

Section 611.1 Application

The proposed amendment replaces UPC section 611.1 with Minnesota-specific requirements laid out in three subsections of water conditioning equipment. The changes are necessary to permit a variety of products, ranging from completely manufactured water conditioning equipment products to custom design equipment, available to the public while maintaining health and safety.

Subsection 611.1.1 Definition.

The proposed amendment adds a definition of “water conditioning equipment” to clarify the scope of this section. Clarification is particularly important here to know when this section applies.

Subsection 611.1.2 Manufacture and Assembly.

The UPC requires all water conditioning equipment (a.k.a. water treatment units) to comply with various national standards. Such a requirement is very limiting. The proposed amendments permit water conditioning systems to be manufactured as a complete system *or* to be assembled as a complete system by a licensed plumbing contractor or licensed water conditioning contractor. Complete systems that are assembled must be assembled by a licensed professional to ensure assembly is done correctly and the system is safe. Allowing assembly of a system by a licensed contractor allows for more water conditioning system options for treatment of potable water system and provides for less costly installation because third-party certification is not required for assembled systems. There is a limited number of listed water conditioning products available to consumers and third-party testing of larger water conditioning equipment is not available in some cases. Therefore, permitting a licensed plumbing contractor or licensed water conditioning contractor accommodates the availability challenges while safely conditioning the water.

An exception is given to water conditioning equipment that is used for non-potable use and is installed downstream of a code-approved backflow preventer. These systems pose less risk to public health since the water treated by these systems is not intended for potable use. Therefore, it is reasonable that these systems do not

need to comply with standards established for potable water use.

Subsection 611.1.3 Labeling

The proposed amendment requires water conditioning equipment be labeled to identify the type of equipment and contact information of the manufacturer or licensed professional who assembled the system. Labeling is a reasonable requirement because it is easy to do and inexpensive but extremely useful.

Section 611.2 Airgap Discharge

The proposed amendment replaces “drinking water treatment units” with “water conditioning equipment” for consistency and clarity in the amendments. No substantive changes were made.

Section 611.3 Connection Tubing

The proposed amendment replaces “drinking water treatment units” with “water conditioning units” for consistency and clarity in the amendments. No substantive changes were made.

Section 611.4 and Table 611.4

UPC subsection 611.4 and Table 611.4 are not amended.

4714.0701 MATERIALS.

Section 701.1, Drainage Piping

The proposed amendment makes grammatical changes for clarity and deletes the fire stop protection language because fire stop protection is not regulated by the plumbing code in Minnesota. The Board does not have statutory authority to regulate fire stop protection even when applied to piping installations.

4714.0702 FIXTURE UNIT EQUIVALENTS.

Section 702, Table 702.1, Drainage Fixture Unit Values (DFUs)

The proposed amendment adds “Shower,” in front of “Multi-head, Each” to clarify what the line is referencing. The proposed amendment adds, “Commercial Pot or Scullery” to the plumbing appliances, appurtenances, or fixtures list along with minimum requirements (2-inch trap and trap arm, four drainage fixture units for public buildings and four units for assembly occupancies). “Commercial Pot or Scullery” are sinks that are designed, generally, with three compartments. Each compartment has a large holding capacity for washing commercial equipment and discharges to the drainage system.⁸⁵ A minimum 2-inch

size trap and trap arm and four drainage fixture units for commercial pot and scullery sinks allows the sinks to drain within a reasonable period of time for sanitary purposes as these sinks are used in commercial applications.

The proposed amendment deletes footnote 6 in the UPC which reads, “Water closets shall be computed as 6 fixture units where determining septic tank sizes based on Appendix H of this code.” The Minnesota Pollution Control Agency regulates septic tank sizing. The Board does not have statutory authority to regulate septic tank sizing. Table 422.1 also is proposed for deletion, so references to that table have been deleted.⁸⁶ UPC footnotes and references numbered 7 and 8 are renumbered to 6 and 7, respectively.

4714.0704 FIXTURE CONNECTIONS (DRAINAGE).

Section 704.3 Commercial Dishwashing Machines and Sinks

The proposed amendment adds two types of sinks used in licensed commercial food establishments to the scope of this requirement, “commercial kitchen sinks” and “beverage service sinks.” These sinks have similar functions and similar sanitary concerns as the other sink types listed and must have the same protection as any other commercial sinks prescribed in this section. It is reasonable to clarify that this requirement applies to commercial kitchen sinks and beverage service sinks.

This section requires a floor drain be connected to the fixture drain to protect any possible sewage backups into the fixture. The original UPC language requires a floor drain. The proposed amendment adds that the floor drain must be “constructed without backwater valves.” Specifying that the floor drain must not have backwater valves is important to prevent sewage backup into the fixture it intends to protect. Backwater valves, as defined in the UPC, are devices “installed in a drainage system to prevent reverse flow.” That is, if a backwater valve is installed in the floor drain adjacent to the fixture, sewage would backup into the sink instead of through the floor drain, causing possible contamination of the fixture. Other minor grammatical clarifications are made but do not alter the technical requirement. It is reasonable to specify that the floor drain must be constructed without a backwater valve for effective protection.

which are already in the table. Commercial With Food Waste appliances typically receive more food waste than a commercial pot or scullery.

⁸⁶ See 4714.0422, pages 16-17 of this SONAR.

⁸⁵ Commercial Pot or Scullery is added because it is different from Commercial With Food Waste appliances,

4714.0705 JOINTS AND CONNECTIONS.

Section 705.10.2 Expansion Joints.

The proposed amendment deletes the following language from the UPC, “except where in vent piping or drainage stacks” because that language provided an exception to the requirement that the expansion joints be accessible. Expansion joints are mechanical devices which are subject to failure regardless of location and need to be accessible for maintenance and repair. Expansion joints in vent piping or drainage stacks are equally subject to failure as expansion joints in other locations. Therefore, it is reasonable to delete language excepting them being accessible for maintenance and repair.

4714.0707 CLEANOUTS.

Section 707.4.1 Back-to-Back.

The proposed amendment adds a new subsection to require a cleanout on the vertical drain or vent serving back-to-back fixtures when a common vent at the same level is utilized. A cleanout is a capped or plugged opening in a drain pipe that can be accessed to unclog a pipe such as with a drain auger. When a sanitary cross is used in common venting, cleaning equipment cannot always be easily directed into the vertical drain from the trap arm unless the trap adapter is immediately adjacent to the sanitary cross.⁸⁷ Because the horizontal distance between the sanitary cross and the trap opening will vary with building construction or drainage piping arrangement, discretion is also given to eliminate the cleanout where the vertical drain is accessible through the trap opening.

4714.0710 DRAINAGE OF FIXTURES LOCATED BELOW THE NEXT UPSTREAM MANHOLE OR BELOW THE MAIN SEWER LEVEL.

Section 710.12, Grinder Pump Ejector; 710.12.1 Discharge Piping.

The proposed amendment adds requirements that the sizing of the sump and pump capacity for grinder pumps must be adequate to prevent overloading.⁸⁸ Grinder pumps are generally designed with low discharge rates and small sumps so the sumps can fill up quickly, creating an unsanitary condition in the building. The plumbing system designer must consider sizing of the sumps and pumps when using grinder pumps in the plumbing design. It is reasonable and more cost-effective

⁸⁷ A sanitary cross is a fitting where vertical pipe and horizontal pipe intersect as a single unit. Trap arms are always on the horizontal arms of a sanitary cross.

⁸⁸ A grinder pump is a wastewater conveyance device used to facilitate the removal of waste from an appliance, such as a toilet, through the pipes to the sewer system or septic tank.

to address pump capacity and sump basin size properly in the design to prevent sewage backing up into the building drainage system rather than trying to retrofit larger capacities after installation.

Section 710.13, Macerating Toilet Systems.

The proposed amendment deletes “where approved by the Authority Having Jurisdiction” from the first sentence. It is replaced with, “only in one- or two-family dwellings when gravity flow is not possible. Not more than one bathroom group is permitted to discharge into a macerating toilet system. One bathroom group consists of: a toilet; a lavatory; and a shower or bathtub. Components of macerating toilet systems shall be accessible.” A macerating toilet system is a system comprised of a toilet and a sump with a macerating pump instead of relying on gravity flow with flushed water. Macerating toilet systems are not designed for commercial application regardless of the number of bathroom groups or when gravity is not possible. The proposed amendment is reasonable because it specifies parameters when macerating toilet systems are appropriate rather than leaving unbridled discretion with the Authority Having Jurisdiction.

Minor grammatical changes are proposed to subparts 710.13.1, 710.13.2 and 710.13.3 but no substantive changes have been made.

4714.0712 TESTING.

Section 712.1. Media

The proposed amendment deletes “except that plastic pipe shall not be tested with air” from the first sentence. This exception is deleted to accommodate winter conditions in Minnesota. Without the proposed deletion, the water test would be required on plastic pipe. In the winter, this would not be possible due to freezing temperatures and most buildings under construction are not heated. Testing plastic pipes with air is well known to Minnesota plumbing contractors.

The proposed amendment modifies the language that allows the Authority Having Jurisdiction to require “the necessary points of access” to the plumbing system to isolate and add air for testing purposes. The modification clarifies that it is necessary to remove openings, including cleanouts, to test the plumbing system.

Section 712.4 Negative Test

The proposed amendment adds this subsection that requires negative pressure test or hydrostatic test for concrete manholes and concrete sewer lines. The negative pressure test must meet one of two recognized standards listed in the rule. The hydrostatic test must comply with section 1109.2.2. Negative pressure testing and hydrostatic testing are commonly used methods to test

sewers. Negative pressure testing and hydrostatic testing are safe methods of testing manholes and sewer lines. Air testing concrete manholes and concrete sewer piping is unsafe to perform because there is risk of severe injury in large sewer pipes and manhole structures holding pressurized air as compared to air testing small drain pipes. It is unsafe because the pipe might explode. The proposed amendment reasonably requires safe methods of testing concrete manholes and concrete sewer lines that are similar in burden and cost as with the more dangerous methods.

Section 712.5 Finished Plumbing

The proposed amendment adds this subsection that requires a specific final test after plumbing fixtures have been set up to test their connections. It is reasonable to require final testing and this test is reasonable because it is effective, not overly burdensome and a standard final test method in the plumbing industry. A final test of newly constructed plumbing systems detects potential leaks and allows for repair before the systems are fully activated. Detecting and repairing leaks in a new plumbing system is easier to do before activation than after it is fully in use. Any leakage in fixture connections can result in unsanitary health conditions.

Section 712.6 Test Plugs or Caps.

The proposed amendment adds this subsection to require test plugs and caps for roof terminals to “extend above or outside the end of the vent pipe to provide visible indication for removal after the test has been completed.” That is, when a plumbing system is tested, test plugs and caps are used during the process. These test plugs and caps must be removed for the system to function normally when not being tested. In order to ensure all test plugs and caps are removed after testing, they must be visible.

4714.0713 SEWER REQUIRED.

Subpart 1. Section 713.1 Where Required

The proposed amendment deletes the UPC reference to section 101.8, existing construction, because chapter one of the UPC is not adopted by this rule. The proposed amendment adds a reference to part 4714.0101, subpart 6 because, like section 101.8, that rule part addresses plumbing and drainage systems in existing buildings.

Subpart 2. Section 713.5 Permit

The proposed amendment deletes this section that prohibits permits for the installation, alteration, and repair of a private septic system if a public sewer is available. Permits for private septic systems are not under the authority of the Board or the Department. Rather, permits

for private septic systems are issued by Minnesota Pollution Control Agency.⁸⁹

Subpart 3. Section 713.7 Installation

The proposed amendment replaces “a department other than the Authority Having Jurisdiction” with “a municipal utility easement” because the amendment is more specific, clear and customized to apply to Minnesota. In Minnesota, building sewers under a municipal utility easement are not subject to the Minnesota Plumbing Code. The proposed amendment adds two-family dwellings to the exception for consistency with other sections of this code and the Minnesota Residential Code in rules chapter 1309 and makes grammatical clarifications.

4714.0714 DAMAGE TO PUBLIC SEWER OR PRIVATE SEWAGE DISPOSAL SYSTEM.

The proposed amendment deletes, “or the Health Officer” because it is unclear who the Health Officer is and the Board does not have statutory authority to promulgate rules administered by other state agencies.⁹⁰ If not deleted, the term will create confusion and inconsistency about which entity grants approvals.

4714.0715 BUILDING SEWER MATERIALS.

Section 715.3 Existing Sewers

The proposed amendment adds, “cured-in-place pipe lining” to the first sentence to specify the type of trenchless methodology that is allowed under this code. The proposed amendment also adds, “Replacement using cured-in-place pipe liners shall not be used on collapsed piping or when the existing piping is compromised to a point where the installation of the liners will not eliminate hazardous or insanitary conditions.” The new sentence clarifies that conditions where the existing sewers are significantly damaged to the point that the lining will not provide sufficient remedy are not appropriate for using cured-in-place lining technology. It is reasonable to clearly prohibit the use of cured-in-place pipe lining when the existing sewers are substantially damaged to prevent insanitary conditions.

4714.0717 SIZE OF BUILDING SEWERS.

Section 717, Table 717.1 Maximum/Minimum Fixture Unit Loading on Building Sewer Piping

The proposed amendment deletes the asterisk reference to Appendices C (Alternate Plumbing Systems) and H (Private Sewage Disposal Systems). Neither

⁸⁹ See [Minnesota Rules, part 7082.0500](#).

⁹⁰ Rules that the Minnesota Plumbing Board promulgate are administered and enforced by the Minnesota Department of Labor and Industry.

appendix is adopted into this code. Private sewage disposal systems are regulated by Minnesota Pollution Control Agency rules and are not part of this code. The table is otherwise unchanged. It is reasonable and necessary to maintain this table because portions of plumbing piping intersects with sewer piping regulated by MPCA but delete the reference to the appendices because they are not part of this code. It is important to coordinate state codes.

4714.0721 LOCATION

Table 721.1 Minimum Horizontal Distance Required from Building Sewer (feet)

UPC Table 721.1 provides required minimum horizontal distances from building sewer for various things. The proposed amendment deletes four of the six lines and related footnotes in the table because they are ambiguous, regulated by a different state agency or do not offer a benefit to the public such as adding protection to public health or the environment. The remaining two lines are amended.

Table line one regarding “Buildings or structures” is deleted. Buildings or structures have not historically had a minimum distance required from the building sewer. No benefit is apparent from this requirement (UPC requires two feet minimum distance). Because there is no benefit from this requirement but it would add a burden, it is reasonable to delete this line.

Table line two regarding “Property line adjoining private property” is deleted. UPC Table 721.1 lists the minimum horizontal distance from the property line adjoining private property to the building sewer as “clear.” There is a footnote that references section 312.3. Section 312.3 regulates building sewer and other piping as it relates to material and distance to a building or structure. It is unclear how this reference applies to the distance listed in line two of this table.

Table line three regarding “Water supply wells” is amended. The table sets the minimum horizontal distance between building sewers and water supply wells at 50 feet. The proposed amendment replaces that measurement with a reference to Minnesota Rules, Chapter 4725, Wells and Borings, under the Minnesota Department of Health. Chapter 4725 contains distance requirements from building sewers. This amendment is necessary to avoid duplicative or conflicting regulations.

Table line four regarding “Streams” is deleted. The table sets the minimum horizontal distance between building sewers and streams at 50 feet. The proposed amendment deletes this line because the Board does not have statutory authority to regulate the minimum

horizontal distance between building sewers and streams. Although the Minnesota Department of Natural Resources (DNR) does not regulate a horizontal distance requirement between streams and building sewers, DNR staff impose the table in light of Minnesota Rules, Chapter 6120 and supported the recommendation to delete line four from the table. The proposed amendment is reasonable and necessary to avoid confusion.

Table line five regarding “On-site domestic water service line” is amended. The proposed amendment renames this line to “Building supply” to coordinate with the definition of “building supply” in the UPC. “Domestic water service line” is not defined in the UPC and is often misunderstood to mean water supply lines only to a residence. Rather, the requirement applies to water service lines that serve commercial and public buildings as well as homes. The proposed amendment is necessary and reasonable because it removes ambiguity by using an existing, defined term in the table.

The minimum horizontal distance between building sewer and building supply is amended from one foot to 10 feet and the footnote is amended to read, “Unless otherwise permitted by the Administrative Authority and when installed in accordance with Section 720.0.” The proposed amendment provides increased protection of the building supply line from building sewer piping and is consistent with the recommended guidelines that are followed for water mains and sewers. The Minnesota Department of Health (“MDH”) is a member of the Great Lakes – Upper Mississippi River Board that has issued “Recommended Standards for Water Works.”⁹¹ MDH follows those recommended standards.⁹² In regard to the horizontal distance between water mains and sewers or septic tanks, the guidelines require 10 horizontal feet unless not practical, subject to review and approval. Because the water mains and sewer lines approach the property line being 10 feet apart, horizontally, it is reasonable that those lines remain 10 horizontal feet apart when they pass over the property line as building sewer and building supply lines. The exception in the table footnote allows the Administrative Authority to approve a minimum horizontal distance less than 10 feet if the building supply is installed in accordance with section 720.0. The proposed amendment is reasonable and necessary because it coordinates with regulations of the pipes outside the property line and establishes safe practices while allowing case-by-case determinations when necessary.

⁹¹ See www.10statesstandards.com/.

⁹² These guidelines are commonly referred to as the “10 States Standards.” Please see 10statesstandards.com/waterrev2012.pdf.

Table line six regarding “Public water main” is deleted. The proposed amendment deletes line six, “Public water main” because public water mains are regulated by the Minnesota Department of Health. The Board does not have statutory authority to regulate this requirement. It is reasonable and necessary to delete a requirement the Board does not have authority to promulgate.

4714.0722 ABANDONED SEWERS AND SEWAGE DISPOSAL FACILITIES.

Sections 722.0 to 722.5

The proposed amendment deletes sections 722.0 to 722.5 in their entirety. The Board does not have statutory authority to regulate abandoned sewage disposal facilities. Abandoned sewers are regulated by the Minnesota Pollution Control Agency (Minnesota Rules, Chapters 7080 and 7081), and by local ordinances. It is necessary and reasonable to delete these subsections to avoid conflict with existing local ordinances and to avoid promulgating regulations without statutory authority.

4714.0723 BUILDING SEWER TEST.

Section 723.1

The proposed amendment deletes the language which prohibits testing DWV (plastic) piping using an air test method. The following sentence is added in its place: “Testing of building sewers shall be in accordance with Section 712.0, as amended.” Section 712.0 relates to Minnesota climate conditions. This provides consistent testing requirements and avoids redundant language that has already been established in another section.

4714.0724 RECREATIONAL VEHICLE SANITARY DISPOSAL STATION.

The proposed amendment adds this new section outlining the construction requirements of the sanitary disposal or “dump” stations which commonly exist at recreational vehicle parks, at campgrounds, gas stations, and highway rest stops. The dump station allows owners of recreational vehicles to empty the sewage holding tank. The stations typically have a source of water to wash any spilled sewage. There are public health concerns associated with these functions, and therefore the minimum construction requirements are necessary for preventing human contact with, and disease transmission from, feces and other sewage components and preventing backflow of sewage into the water supply system.

Section 724.1 Construction.

This section establishes the minimum size of the concrete pad for the “dump” station and the pitch on the concrete pad to the center so proper drainage is possible. This will facilitate the cleaning while providing a

self-closing, foot-operated hatch for a tight fit for the 4-inch drain inlet connecting to the sewer system for proper disposal of the sewage from RV holding tanks.

Section 724.2 Flushing Device.

Consistent with past and current practices in Minnesota, this section establishes a flushing device which is a handheld water supply hose secured to a post at a minimum required height to allow for cleaning while requiring proper backflow to protect the water supply system.

Lastly, signage is required to be posted adjacent to the dump station to clearly state that the use of the water from the handheld water supply is not safe for drinking or domestic use. This is necessary since the water supply downstream of a backflow preventer on the handheld device is now considered non-potable water piping and must clearly state so to the public.

4714.0801 INDIRECT WASTES.

Subpart 1. section 801.2.2 Walk-In Coolers

The proposed amendment adds to the beginning of the subsection, “Floor drains shall not be located inside walk-in coolers unless they are specifically required by the licensing authority. Where required,…” The UPC does not clarify when floor drains should or should not be used in walk-in coolers. The Board does not have statutory authority to regulate *when* floor drains are required in walk-in coolers. The Board has statutory authority to regulate only *how* they are installed when they are required. The amendment makes this clarification. The UPC language carried forward has minor grammatical amendments for clarity but no substantive changes to the installation of floor drains in walk-in coolers.

Subpart 2. section 801.2.3 Food-Handling Fixtures

The proposed amendment changes the listed types of food-handling fixtures by deleting “food preparation sinks” and “sinks” and adding cooking ranges, cooling counters, compartments and storage or holding compartments. The additions are consistent with licensing regulations. The proposed amendment changes the minimum drain pipe size from ½ inch to ¾ inch and adds a trap requirement. A ¾ inch minimum pipe size is needed to provide a sufficient opening for the equipment discharge without clogging. The trap prevents insects or other living creatures from crawling into the food compartments. The amendments are reasonable and necessary because they clearly identify common equipment and fixtures that are in food establishments and establish a minimum pipe size that will properly drain the fixtures without adding significant cost to the fixture or installation.

Subpart 3. Section 801.3 Bar and Fountain Sink Traps

The proposed amendment deletes this section in its entirety. The UPC section provides an alternative discharge option involving an air gap or air break for sinks in bars, soda fountains or counters that have traps that cannot be vented. Sinks in a bar, soda fountain, or counter must be directly connected and vented properly for sanitation purpose and for consistency with other state agencies. When a conventional vent is not possible for these sinks, there are other venting options available in this code.⁹³

4714.0804 INDIRECT WASTE RECEPTORS.

Section 804.2 Domestic or Culinary Type Fixtures Prohibited as Receptors

The proposed amendment adds this subsection to clarify that sinks that are intended for domestic purposes or food preparation, including in commercial settings, must not receive any indirect waste piping. An exception allows domestic use dishwashers in residential settings to discharge into a sink, sink tailpiece or food-waste grinder if properly installed. The amendment is reasonable and necessary to prevent contamination of food in domestic and culinary plumbing fixtures.

4714.0813 SWIMMING POOLS.

Section 813.1 General

The proposed amendment adds, “water from scum gutter drains and pool deck drains” to this section to clarify that water from the pool gutters and deck drains must also discharge to the drainage system through an indirect connection. This is reasonable and necessary to prevent sewage back-ups into areas of the pool that would contaminate pool water and expose swimmers to contaminated water and unhealthy conditions.

4714.0814 CONDENSATE WASTES AND CONTROL.

Subpart 1. UPC section 814.1 Condensate Disposal, including Table 814.1

The proposed amendment deletes the reference to Table 814.1; and deletes the last sentence of the UPC paragraph that reads, “Condensate or wastewater shall not drain over a public way” because it is redundant with subpart 4 of this part. It is reasonable and necessary to delete references to tables no longer a part of the code and eliminate redundant requirements.

⁹³ See UPC section 909.0 Special Venting for Island Fixtures and UPC section 910.0 Combination Waste and Vent Systems.

Subpart 2. Table 814.1 Minimum Condensate Pipe Size

The proposed amendment deletes Table 814.1, Minimum Condensate Pipe Size. The Minnesota Mechanical Code already regulates condensate pipe sizes and the Board does not have statutory authority to regulate condensate pipes sizes.⁹⁴ The proposed amendment is reasonable and necessary to avoid conflicting requirements between the two codes and to delete regulations that the Board does not have statutory authority to promulgate.

Subpart 3. Section 814.2

The proposed amendment deletes this section because this section specifies condensate waste pipe sizes which are regulated by the Minnesota Mechanical Code. It is reasonable and necessary to delete this section to avoid conflict with another code and because the Board does not have the statutory authority to regulate condensate waste pipe sizes.

Subpart 4. Section 814.3

The proposed amendment reorganizes the existing language, makes some additions and deletes one portion. The phrase “dry wells, leach pits” is deleted because MPCA regulates dry wells and leach pits. A new place to discharge to, “an exterior place of disposal approved by the Minnesota Pollution Control Agency” is added in its place. The proposed amendments reorganize the UPC requirements so language clearly indicates that condensate must discharge into a code approved receptor for receiving this waste and the added option for disposal on the exterior of the building when disposal methods and locations are approved by rules governed by MPCA. The proposed amendment adds to the requirement that condensate waste shall not drain over a public way, “or in areas causing a nuisance.” An example of an area “causing a nuisance” is discharging into a swale, which might enter the neighbor’s property and cause unintended erosion, cracking of walk-ways or slippery conditions on other hard surfaces. Another example is discharging to the ground surface where the discharge overflows onto a public walkway. The proposed amendments are necessary and reasonable because the rule is clearer and coordinated with existing rules of other state agencies.

⁹⁴ Condensate pipe sizing is regulated in section 307 of the 2012 International Mechanical Code, which is incorporated by reference in Minnesota Rules, chapter 1346, the Minnesota Mechanical Code, effective January 24, 2015. See www.dli.mn.gov/PDF/docket/1346docket.pdf.

4714.0902 VENTS NOT REQUIRED.

Section 902.2 Bars, Soda Fountains, and Counter

The proposed amendment deletes this section because all sinks, including bar, soda fountain and counter sinks, must be directly connected, trapped and vented. This section offers an exception that does not align with food licensing requirements of other state agencies that regulate commercial food businesses because it does not adequately protect public health. This change is consistent with the proposed amendments to section 801.3 for proper sanitation and consistency with the food licensing authority's requirements.

4714.0903 MATERIALS.

Section 903.1 Applicable Standards

The proposed amendment rewords the UPC requirements in the affirmative rather than negative to be clearer and deletes the reference to Chapter 15 because Chapter 15 is not proposed for adoption in this code.⁹⁵

4714.0905 VENT PIPE GRADES AND CONNECTIONS.

Section 905.3 Vent Pipe Rise

The proposed amendment requires these vent pipe rise requirements unless otherwise provided elsewhere in the plumbing code. The UPC language allows deviation from this section if "structural conditions" prohibit this vent pipe rise. The proposed amendment also deletes the language that allows plumbing vents to be installed less than 6 inches above the flood-level rim of a fixture. Proper venting is important to prevent siphoning of the traps and prevent sewer gas from escaping to the environment. Proper vents require at least 6 inches above the flood-level rim of a fixture. The proposed amendment is reasonable and necessary because public health and safety is increased without being overly burdensome.

4714.0906 VENT TERMINATION.

Subpart 1, Section 906.1 Roof Termination

The proposed amendment changes the UPC requirement that vent pipes and stacks terminate "not less than 6 inches (152 mm) above the roof nor less than 1 foot (305 mm) from a vertical surface" to "not less than 12 inches (305 mm) above the roof." It is common to have snow load higher than 6 inches on the roof in a typical winter in Minnesota which may block the opening of the vent pipe and cause improper functioning of the plumbing system including possible exposure to sewer gas. Because

of the change from 6 inches to 12 inches, the UPC language "nor less than 1 foot (305 mm) from a vertical surface" is no longer necessary. The proposed amendment is reasonable and necessary because it addresses Minnesota winter conditions without substantially increasing the burden.

Subpart 2 Section 906.3 Use of Roof

The proposed amendment changes the requirement for vent pipes to terminate above roofs from 6 inches to 12 inches to align with the proposed amendment to section 906.1 relating to Minnesota winter conditions. In addition, the reference to "fire wall" is deleted because this term might cause confusion and result in vent designs that terminate through a side wall instead of through the roof, which is not allowed. There are minor changes for grammatical clarity. The proposed amendment is necessary and reasonable because it economically accommodates Minnesota winter conditions.

Subpart 3 Section 906.7

The proposed amendment deletes the conditional UPC language specifying this section applies only where frost or snow closure is likely. Because frost or snow closure is likely in Minnesota, the conditional language is deleted. The proposed amendment changes the requirement that vent pipes "terminate not less than 10 inches" to "not less than 12 inches" to be consistent with the proposed amendments in sections 906.1 and 906.3 relating to Minnesota winter conditions. The proposed amendment clarifies with grammatical changes that the vent terminal minimum size is 2 inches in diameter. The proposed amendment is reasonable and necessary because temperatures in Minnesota winters are often below zero degrees Fahrenheit. The proposed amendment accommodates Minnesota winters by removing any contingency as to when this requirement must be followed and does not add much cost to the UPC requirement; extending a pipe from 10 inches to 12 inches is not costly.

4714.1001 TRAPS REQUIRED.

Section 1001.1 Where Required

The proposed amendment clarifies that a laundry tub is an acceptable receptor for waste discharge from an adjacent clothes washer. The UPC language is unclear and likely to be interpreted to mean that a trap of a laundry tub is permitted to receive discharge from a clothes washer. It is not clear that the waste discharge goes through the laundry tub and not directly into the drain pipe. The proposed amendment reasonably clarifies the requirement.

⁹⁵ Chapter 15, Firestop Protection, is not adopted into this code because the Board does not have statutory authority to adopt firestop protection rules.

4714.1007 TRAP SEAL PROTECTION.

Section 1007

The proposed amendment deletes this section in its entirety. This section requires a trap seal primer on floor drains or similar traps directly connected to the drainage system and subject to infrequent use. This requirement adds cost to the plumbing project, requires long-term maintenance, and involves a mechanical device which is subject to failure. The benefit is minimal. The existing Minnesota Plumbing code does not require a trap primer. It is reasonable to delete a requirement that offers little benefit but adds cost and maintenance.

4714.1008 BUILDING TRAPS.

Section 1008

The proposed amendment deletes this section in its entirety. This section requires building traps when the Authority Having Jurisdiction requires them and provides requirements for the traps when they are required. Building traps are in addition to other traps and venting required for individual plumbing fixtures. Historically, building traps were needed to prevent sewer gas from entering into the storm drainage system in buildings served by combined storm and sanitary sewers. Combined sewers (containing storm and sanitary) are no longer a standard construction method and are extinct or nearly extinct. Installation of a building trap may negatively affect the plumbing system by interfering with the flow of air and sewage in the system. The proposed amendment is necessary and reasonable because it deletes a requirement that is not applicable in Minnesota and results in safer conditions with less cost.

4714.1009 INDUSTRIAL INTERCEPTORS (CLARIFIERS) AND SEPARATORS.

Section 1009.2 Where Required

The proposed amendment deletes the requirement that the Authority Having Jurisdiction must approve the size, type and location of each interceptor (clarifier) and separator. Instead of approval for each unit, the proposed amendment states that all interceptors (clarifiers) and separators are subject to chapter 10 with an exception. The exception is for units that are engineered and manufactured, with documentation from the manufacturer and the project registered professional engineer, for specific projects and approved by the Authority Having Jurisdiction. It is reasonable to require all units to comply with this chapter and require approval from the Authority Having Jurisdiction only for special units rather than every unit, which would be unnecessarily burdensome. The formatting of the exception conveys the information more clearly than the single paragraph in the UPC.

The UPC language reads, “Except where otherwise specifically permitted, no wastes other than those requiring treatment or separation shall be discharged into an interceptor (clarifier).” The proposed amendment largely keeps this language but relocates it to follow the proposed exception, reorganizes for grammatical clarity, adds “or separator” to be included in this scope, and deletes “except where otherwise specifically permitted.” As a result of the deletion, there is no exception to what wastes can be discharged into an interceptor (clarifier) or interceptor.

4714.1010 SLAUGHTERHOUSES, PACKING ESTABLISHMENTS, ETC.

Section 1010 Slaughterhouses.

This section is specific to slaughterhouses, packing establishments and other establishments that process animals, which may produce unwanted wastes from processing of animals that will clog the drainage system. The proposed amendment provides more specific requirements than the UPC language. The UPC lists specific types of animal product processing establishments and requires them to be connected to and drain into an approved grease interceptor (clarifier). The proposed amendment refers generally to slaughtering and dressing room drains and requires separators or interceptors that are approved by the administrative authority. The proposed amendment provides a description of the purpose of the separators or interceptors; to “prevent the discharge into the drainage system of feathers, entrails, or other material likely to clog the drainage system.”

4714.1014 GREASE INTERCEPTORS.

Section 1014.3.7 Abandoned Gravity Grease Interceptors.

The UPC section requires all abandoned grease interceptors be pumped and filled as required for abandoned sewers and sewage disposal facilities in section 722.0. A proposed amendment discussed previously deletes section 722.0. The proposed amendment to this section also requires abandoned gravity grease interceptors be pumped and filled but “as required by the Authority Having Jurisdiction.” It is reasonable to delete a reference to a section that is proposed for deletion, clarify that this applies to gravity grease interceptors because headings are not enforceable and to refer to an entity with jurisdiction to determine when and how abandoned gravity grease interceptors are pumped and filled.

4714.1101 GENERAL.

Subpart 1. Section 1101.1 Where Required.

The proposed amendment adds a sentence that reads, “In no case shall water from roofs or any building roof drainage flow onto the public sidewalk.” The amendment prohibits water from building roofs from being discharged onto public sidewalks, including discharges from primary and secondary roof drainage systems. This prohibition is needed and reasonable because water on sidewalks is a nuisance to the public and creates unsafe conditions for walking and safe egress from buildings, especially when there are concerns of freezing and thawing in Minnesota.

Subpart 2. Section 1101.2 Storm Water Drainage to Sanitary Sewer Prohibited.

The proposed amendment adds an allowance for storm water to drain into sanitary drainage when “approved by the municipal sewer authority or stated elsewhere in this code.” In cases such as open parking ramps or exterior drains in washing areas, the storm water might be contaminated and need treatment. Discharge to a sanitary sewer undergoes treatment where typical storm water drainage does not. Specific approval from the sewer authority is necessary and emphasized to ensure that the storm water must connect to sanitary sewer for treatment. Provisions must be made to prevent flooding of the sanitary sewer system if required by the sewer authority and the sanitary sewer system is properly sized to handle the additional storm water load.

Subpart 3. Section 1101.3 Material Uses.

The proposed amendment makes one grammatical change for clarity and deletes firestop protection references and regulations because the Board does not have statutory authority to regulate firestop protection. Firestop protection and flame spread materials are governed by the State Fire Code and the Minnesota Building Code.

Subpart 4 Section 1101.11 Roof Drainage.

Section 1101.11.1 Primary Roof Drainage.

The proposed amendment reorganizes the language for clarity, deletes references to gutters and changes the circumstances and calculation for sizing the roof drainage system to be based on a minimum rate of rainfall of four inches per hour. References to gutters are deleted because the Board does not have statutory authority to regulate gutters. As with other references to gutters in the UPC, these are deleted here because they are regulated by the Minnesota Building Code. The roof drainage system size calculation is changed from “60 minutes duration and 100 year return period” and the reference to Table D in Appendix D is deleted because Appendix D is not adopted into this code and the proposed calculation is a clearer

method of determining the adequate drainage system size for storm drainage in Minnesota. The exception language allowing the Authority Having Jurisdiction to require a different size calculation is deleted. Lastly, the proposed rule clarifies that the coordination with the structural design and pitch of the roof must be done in accordance with section 1106.

Section 1101.11.2 Secondary Drainage. The proposed amendment refers to Minnesota Rules, chapter 1305, Adoption of the International Building Code, which specifies the requirements for secondary roof drainage systems including scuppers for all buildings.

Subpart 5 Section 1101.11.2.1, 1101.11.2.2, 1101.11.2.2 (A), and 1101.11.2.2 (B).

Subsections 1101.11.2.1, 1101.11.2.2, 1101.11.2.2 (A), and 1101.11.2.2 (B) are all requirements governed by other chapters of the Minnesota Building Code and therefore must be deleted from the Plumbing Code.

4714.1106 SIZE OF LEADERS, CONDUCTORS, AND STORM DRAINS.

Section 1106.3 Reduction in size prohibited.

The proposed amendment prohibits storm drain piping from reducing in size in the direction of flow. If piping reduces in size in the direction of flow, debris will collect and cause obstructed flow. Obstructed flow will likely cause a clog and rainwater will become backed up onto the roof, which compromises the building structure because it was not designed to hold the weight of backed up rainwater. The proposed amendment is necessary and reasonable because it prevents obstruction of flow (including where there are changes in direction from horizontal to vertical) without adding burden or cost and reduces pipe maintenance and system cleaning needs.

4714.1108 CONTROLLED-FLOW ROOF DRAINAGE.

1108.1 Application.

This section regulates sizing of the storm drainage system. It allows sizing to be based on controlled flow and storage of the storm water on the roof provided thirteen conditions are met. The proposed amendment makes minor grammatical changes for clarity and in item (7), changes the design roof live load from “not less than 30 lb/ft²” to “not less than 40 lb/ft².” The current Plumbing Code requires not less than 40 lb/ft² and is based on a minimum rate of rainfall of four inches per hour consistent with Section 1101.11.1, as amended.

The proposed amendment also deletes the remainder of item (7) language that reads, “...to provide a

safety factor exceeding the 15 lb/ft² (73 kg/m²) represented by the depth of water stored on the roof in accordance with Table 1108.1(2).” That language is deleted because it explains the calculation for determining the “not less than 30 lb/ft²” requirement which has been changed to 40 lb/ft².

The proposed amendment is reasonable and necessary because it provides Minnesota-specific design conditions for building protection.

4714.1109 TESTING.

Subpart 1 Section 1109.1

The proposed amendment replaces references to Section 1109.2.1 or Section 1109.2.2 with a reference to section 712, makes minor grammatical clarifications, and adds “except as provided in section 1109.2.” Section 712, as amended, establishes all testing requirements that are necessary for Minnesota-specific conditions. Section 1109.2 provides specific exceptions to section 712 testing. It is necessary to coordinate testing requirements to provide consistency and avoid redundant requirements.

The proposed amendment adds a sentence requiring an air test for any building storm sewer that passes through contaminated soils or contaminated water in accordance with section 712.3. Any storm sewer that passes through contaminated soils or contaminated waters is at risk of infiltration of contaminants into the sewer and possibly entering into waters of the state (lakes, ponds, streams, etc.). Therefore, it is reasonable to subject such storm sewers to an air test to ensure the sewer is air-tight to prevent contamination.

Subpart 2 Section 1109.2. Exceptions

The proposed amendment replaces the UPC section and subsections with exceptions to the testing requirement in Section 1109.1. The two proposed subsections contain language from the existing Minnesota Plumbing Code.

The first subsection, 1109.2.1, provides specific exceptions when testing is not required for building storm drainage systems. The proposed amendment does not require testing for any outside leaders, perforated or open drain tiles, or portions of the storm drainage system and storm sewers that are located more than ten feet from buried water lines, and more than 50 feet from water wells. These exceptions are reasonable because perforated pipes are intended for groundwater removal and storm drainage systems and storm sewers carry rainwater and other contaminants that enter into the storm sewers through rainwater. Testing is not necessary in these specific, limited situations because the contaminants carried in

these situations do not pose a threat to public health like sanitary sewers (which require testing).

The second subsection, 1109.2.2, offers an alternative testing option for building storm drainage systems and sewers in lieu of the test in section 712. The proposed amendment offers the hydrostatic test method from the City Engineers Association of Minnesota, 2013 edition as a testing option. It is reasonable to adopt the hydrostatic test method to test building storm sewers because it is a commonly used method in the utility industry and storm sewer sizes might have too large a diameter that renders the tests prescribed in section 712 impracticable or unsafe.

4714.1110 SIPHONIC ROOF DRAINAGE SYSTEM.

The proposed amendment adds this section to establish minimum requirements for engineered siphonic roof drainage systems. The language is largely taken from the existing Minnesota Plumbing Code. The requirements in this section ensure proper design and installation of the system.

Section 1110.1 General Requirements

This proposed section provides the general requirements for siphonic roof drainage systems. Siphonic roof drainage systems must be engineered systems that meet design criteria and special considerations for suitability for each construction project. Because of these unique parameters and criteria, engineered siphonic roof drainage systems may be used for building roof drainage only when approved by the administrative authority.

Section 1110.2 Design Criteria

This proposed section establishes the minimum requirements and adopts standards that must be met in the design of siphonic roof drainage systems. The first requirement is that a registered professional engineer, licensed by the State of Minnesota, must design and certify the siphonic roof drainage system. Siphonic roof drainage systems are engineered systems and the designs require a higher level of technical understanding by the designer than conventional roof drainage systems prescribed in section 1106. The proper design of the building roof drain system is critical to protect against roof collapse and to preserve public safety.

1110.2.1 Sizing

This proposed subsection establishes the specific minimum requirement of four inches per hour rainfall rate in the design of a siphonic roof drainage system. This rate is consistent with the requirements proposed for all building roof drainage systems in this code.

1110.2.2 Design

This proposed subsection specifies that the siphonic drainage system design must meet ASPE Standard 45 (“ASPE 45”), Siphonic Roof Drainage. The standard establishes design criteria, parameters, materials, methods, and performance specifications for siphonic roof drainage systems. In addition, ASPE 45 describes the basis for the design and manufacturer of siphonic roof drain products and procedures. For example, all materials must be installed in accordance with the referenced standard in ASPE 45 under which materials are acceptable and approved, and in accordance with manufacturers’ written instructions for siphonic roof drainage systems. All manufacturer design software used in the design and sizing of the system must meet ASPE Standard 45. Because of the complexities of the siphonic design calculation, it is important for the manufacturers of these roof drains to use an established and proven design software program that is based on ASPE Standard 45. Assurance that the manufacturer’s design software meets ASPE Standard 45 is necessary for accurate and consistent designs and calculations among the different manufacturers of roof drains.

1110.2.3 Roof drain bodies

This proposed subsection requires roof drain bodies to meet ASME Standard A112.6.9, Siphonic Roof Drains. ASME Standard A112.6.9 establishes minimum design, testing, and performance standards for the roof drain bodies for the proper functioning of siphonic roof drainage systems.

1110.2.4 Water accumulation.

This proposed subsection requires roofs designed for water accumulation to be designed for the maximum possible water accumulation according to Section 1108.1(7), as amended, and chapter 1305, the Adoption of the International Building Code. This requirement is necessary to prevent roof collapse when a roof is designed for water accumulation to control the flow from the roofs beyond the minimum required depth for the priming of the siphonic roof drains.

1110.2.5 Pipe size and cleanouts.

This proposed subsection sets a minimum pipe size of 1-1/2 inch and requires all pipe sizes and cleanouts in the drainage system to be designed and installed according to ASPE Standard 45. ASPE Standard 45 provides plumbing standards for siphonic drainage systems. A minimum pipe size of 1-1/2 inch gives the registered professional engineer flexibility while maintaining the scouring velocity properties of the siphonic pipe work. The 1-1/2 inch pipe is the smallest size used in ASPE 45 for sizing and configuration in the designs of siphonic roof drainage systems for siphonic draining action and is specified in this rule section to

ensure smaller sizes are not used in any design of a siphonic roof drainage system.

1110.2.6 Horizontal pipes.

This proposed subsection prohibits any reduction in horizontal pipe size in the direction of flow because such a reduction will lead to clogging and interrupt proper pipe flow. This is necessary and reasonable because debris and rainwater might collect at the point of reduction. This requirement does not have any negative affect on the design of siphonic roof drainage systems, does not add significant cost, and minimizes maintenance and cleaning needs of the system.

1110.2.7 Plans and specifications.

This proposed subpart establishes requirements for identification of plans and specifications to indicate the siphonic roof drainage system as the engineered method used for the building roof drain design. It is critical that there is a clear record of the method used in sizing the building roof drainage system because a siphonic roof drainage system is a specialized engineered system. Code officials, plan reviewers, and owners must consider the hydraulics related to the siphonic roof drainage system for future modifications or re-design to ensure that design parameters are safely maintained by the registered professional engineer.

1110.2.8 Markings.

This proposed subsection requires markings of all piping at each floor, wall, and approved interval as necessary. Roof drain markings must meet the requirements in ASME A112.6.9, which is also referenced in subsection 1110.2.3. Markings are necessary for inspections, maintenance, and replacements to maintain the proper functioning and condition of this type of system after construction. Owners and maintenance personnel must be able to clearly identify the installed system to avoid improper maintenance or modifications.

1110.2.9 Transition locations.

The proposed subsection requires the transition location from siphonic to gravity to be determined by the registered professional engineer and approved by the administrative authority. Designing a reduction in velocity at the transition location of siphonic to gravity flow protects the building drainage system and ultimately the property in general. The siphonic roof drainage, by design, is primed and fully pressurized in order to function and the transition location is the relief point of the system. The gravity system receiving the siphonic system discharge must be able to handle the higher flow capacities and velocities from the siphonic system. At this transition location, the siphonic system turns into gravity flow so air is mixed into the rainwater at this point. Therefore, the transition location from siphonic to gravity flow must be

adequately vented so the system does not become airborne. The subsection also requires gravity storm drainage sizing to comply with the gravity sizing requirements of section 1106.0. This requirement is necessary and reasonable because the system needs a proper pressure relief location to protect the roof drainage system.

1110.2.10 Required submissions.

This proposed subsection requires plans, specifications, and calculations for the siphonic roof drainage system to be signed and certified by a registered professional engineer and submitted to the administrative authority for review and approval. This subsection also specifies that extreme calculations, as compared to averaged data, must be included in the design calculations of the system in the submittal to the administrative authority for review and approval. This requirement is necessary and reasonable because the role of the registered professional engineer is critical to the safe design of siphonic roof drainage systems and averaged calculations can be misleading. Submitting signed certification is not overly burdensome, particularly when compared with the safety benefit a safe system offers and extreme calculations offer accurate, useful information while not being any more burdensome than average calculations.

Section 1110.3 Proof of Suitability

This proposed section and subsections address requirements for testing, inspections, and certification of the siphonic roof drainage system that must be submitted to the administrative authority prior to the issuance of the certificate of occupancy. Engineered siphonic roof drainage systems must demonstrate proof of suitability upon completion of the installation by meeting testing requirements in accordance with ASPE Standard 45 to verify system integrity. The testing demonstrates that the system functions under all pressures when tested to worst-case siphonic conditions in the design.

Also, registered professional engineers are required to physically perform a final field inspection and provide written certification that the system has been installed in accordance with the design, plans, specifications, and any field modifications. This requirement is necessary because a siphonic roof drainage system is a complex engineered system that requires special expertise and an understanding of hydraulics, proper pipe configuration for balancing the system, and precise installation, to ensure the correct application of the system; field certification by the registered professional engineer is a reasonable method to ensure safe design and testing is done.

4714.1401 REFERENCED STANDARDS

Table 1401.1. This is a table in the UPC that contains all referenced standards throughout the UPC. Some of the proposed amendments reference additional standards that are not referenced elsewhere in the UPC and therefore are not included in Table 1401.1. Therefore, this proposed amendment adds the five newly referenced standards to Table 1401.1.

4714.1701 GENERAL.

1701.1 Applicability.

The proposed amendment modifies the UPC wording to clarify that rainwater is considered nonpotable and that this chapter applies to rainwater collected for use in nonpotable applications. The proposed amendment adds a reference to UPC section 1702.1 to clarify the nonpotable applications to which this chapter applies.

1701.1.1 Irrigation.

The proposed amendment adds this subsection to clarify that rainwater catchment systems used for outdoor lawn irrigation, whether surface or subsurface, are not regulated by this chapter. This language does not prohibit the use of captured rainwater for irrigation but clarifies that such systems are not regulated here.

1701.1.2 Combination Systems.

The proposed amendment adds this subsection to clarify that combination systems used for both lawn irrigation and approved nonpotable applications in 1702.1 are regulated under this chapter. All portions or components of the rainwater catchment system used for both lawn irrigation and approved nonpotable applications shall meet the requirements of this chapter; this includes the minimum water quality requirements in Table 1702.9.4. The treated rainwater used in the rainwater catchment system is susceptible to contamination and must be protected in a manner similar to the potable water system. Proper backflow protection or an air gap is required to separate the nonpotable water distribution system from the irrigation system to protect the nonpotable water distribution system from possible contamination. The irrigation system must meet the same backflow protection requirements as irrigation systems supplied from a potable water distribution system.

4714.1702 NONPOTABLE RAINWATER CATCHMENT SYSTEMS.

Subpart 1. 1702.1 General.

The proposed amendment removes the term “irrigation” because this code does not apply to irrigation systems downstream of proper backflow protection. Vehicle washing facilities are increasingly using captured

rainwater. The proposed amendment specifically lists vehicle washing facilities to clarify they are subject to this chapter. The term “similar” has replaced the term “other” to clarify and narrow the scope of acceptable uses for captured rainwater. The commissioner of Labor and Industry has authority to approve the “similar” uses in order to provide consistency throughout the state. The proposed amendment is needed to identify the common applications which may be approved.

Subpart 2. 1702.2 Plumbing Plan Submission.

The proposed amendment deletes redundant language and references Minnesota Rules, part 1300.0215, subpart 6, of the Minnesota State Building Code, which regulates plumbing plans and specification approval, in place of the Authority Having Jurisdiction.⁹⁶ Part 1300.0215, subpart 6, provides clearer requirements than the UPC language. The UPC section, if not amended, would be redundant or in conflict with part 1300.0215. The proposed amendment reasonably regulates plan and specification approval within existing Minnesota rules.

Subpart 3. 1702.4 Connections to Potable or Reclaimed (Recycled) Water Systems.

This section prohibits rainwater catchment systems from having a direct connection to a potable water supply or alternate water source system and provides acceptable means of supplying makeup water to a rainwater catchment system and backflow protection. The proposed amendment maintains those requirements and adds that an automatic makeup water system must be installed as backup in the event that rainfall is inadequate to supply the system or in the case of system failure. The proposed amendment ensures proper and continuous operation of the rainwater catchment system.

Subpart 4. 1702.5 Initial Cross-Connection Test.

This section requires an initial cross-connection test of rainwater catchment systems to ensure the potable water system has not been compromised. The proposed amendment does not substantially change the requirement. The proposed amendment adds, “as amended” to clarify that the amended version of section 1702.11.2 should be followed and replaces “installer” with “plumbing contractor” to clarify who must perform the cross-connection test. The proposed amendment deletes “by the Authority Having Jurisdiction” from the last sentence; the reference is redundant because the proposed definition of “approval” includes who approves.

Subpart 5. 1702.7 Rainwater Catchment System Materials.

This section states the subsections that contain specific material requirements for rainwater catchment systems. There is no proposed amendment to this section but it is included in the rule draft for context of the following amendments.

1702.7.1 Water Supply and Distribution Materials.

This proposed amendment does not substantively change this section. The proposed amendment adds a reference to “Chapter 6, as amended in this code” to specify where water supply and distribution materials are regulated and to clarify that the amended version of UPC chapter 6 should be followed.

1702.7.2 Rainwater Catchment System Drainage Materials.

This proposed amendment does not substantively change this section. The proposed amendment adds a reference to “Chapter 11, as amended in this code” to specify where storm drainage is regulated and to clarify that the amended version of UPC chapter 11 should be followed.

1702.7.3 Storage Tanks.

This proposed amendment adds, “as amended in this code” after the reference to Section 1702.9.5 to clarify that the amended version of section 1702.9.5 should be followed.

1702.7.4 Collection Surfaces.

There are no proposed amendments to the requirement but rather a grammatical correction to the section heading. Specifically, the term “Collections” is amended to the singular form.

Subpart 6. 1702.9.3 Collection Surfaces.

This section limits the source of collected rainwater for rainwater catchment systems to rainwater collected only from roof surfaces. The proposed amendment adds “only” to emphasize the limitation. To further clarify this point, the section lists three areas where rainwater cannot be collected for such catchment systems. The proposed amendment adds one more item, a catchall item that reads, “similar nonroof surfaces.” Although rainwater sometimes collects on various surfaces such as the prohibited areas listed in the section, the water collected from the prohibited areas might be contaminated in a way that the rainwater catchment system is not designed to handle safely. Because all surfaces that collect rainwater cannot be listed, the additional language is needed to clarify that rainwater from nonroof locations shall not be used in rainwater collection systems. The proposed additional item is reasonably broad to include

⁹⁶ Plumbing permits are statutorily required in [Minnesota Statutes, section 326B.49, subdivision 3.](#)

surfaces intended but not explicitly listed yet specific enough to be clear (“nonroof”).

1702.9.3.1 Prohibited Discharges.

The proposed amendment adds “condensate, and other waste disposal” to the items that shall not discharge onto roof surfaces that collect rainwater for rainwater catchment systems. The chemical composition of water from condensate and other waste discharged from overflows and bleed-off pipes to roof surfaces is often unknown and could contaminate collected rainwater. The proposed amendment reasonably prohibits potential contaminants from discharging onto roof surfaces that collect rainwater for rainwater catchment systems.

Subpart 7. 1702.9.4 Minimum Water Quality.

The proposed amendment modifies terminology for consistency throughout this chapter and introduces Table 1702.9.4, which contains the minimum water quality limits for rainwater catchment systems, in lieu of the narrative provided in the UPC. In the unamended UPC, the Authority Having Jurisdiction determines the minimum required water quality standard which could lead to inconsistency throughout the state. This code does not regulate water quality requirements for irrigation systems, whether subsurface or non-sprinkled, so the proposed amendment deletes the UPC language that addresses them.

Subpart 8. Table 1702.9.4.

The proposed amendment adds this table to section 1702.9.4. The main concern when using rainwater for nonpotable applications is the quality of the water and whether it will be safe for its intended use. After consultation with various state departments, these minimum water quality standards and indicators are established to ensure only safe rainwater is used in rainwater catchment systems.⁹⁷ The limits in this table have been recommended by the Minnesota Department of Health (“MDH”), Noncommunity Public Water Supply Unit, Duluth, and were based on a review of current guidelines and recommendations (e.g. NSF Standard 350, EPA Guidelines for Water Reuse, and others), and general knowledge of surface water treatment and water quality indicators, and the Minnesota Department of Labor and Industry, Plan Review Division.⁹⁸ Turbidity is measured

in Nephelometric Turbidity Units (NTU), which is the standard unit of measurement for turbidity. E. coli is measured in Most Probable Number per 100 milliliters of water (MPN/100 mL), which is the standard unit of measurement for E. coli. It is reasonable to provide objective water quality standards for rainwater catchment systems in lieu of subjective determination authority granted to the Authority Having Jurisdiction with no consistent parameters or criteria in place.

Subpart 9. 1702.9.5.1 Construction.

This section regulates storage tank construction. The proposed amendment deletes the language granting the Authority Having Jurisdiction approval power including, “approved applicable standards.” There are no such standards specific to rainwater storage tanks. The proposed amendment retains the performance-based requirement that the materials be suitable for rainwater storage and the listed features. It is reasonable to regulate materials and construction generally to ensure safe storage of rainwater. It is reasonable to address the suitability of rainwater storage tanks and not require an exact standard be met when there is none. On a practical level, verification of storage tank suitability meeting the performance-based standards and intent of this section will be accomplished during the plan review process. Although rainwater storage tank standards are not yet established, approved potable water storage tanks, for which there are established standards, would likely satisfy this requirement.

Subpart 10. 1702.9.5.6(A) Animals and Insects.

The proposed amendment does not substantively change the requirement. The proposed amendment adds, “and piping system” to the scope of what must be protected and adds requirements including a minimum screen aperture for covering the openings. This requirement reasonably clarifies the requirement and protects the rainwater catchment system from contamination from animals and insects.

Subpart 11. 1702.9.5.8 Storage Tank Venting.

The proposed amendment adds this subsection to require that each storage tank have a vent. Rainwater storage tanks must remain at atmospheric pressure to avoid a positive or negative pressure forming inside the storage tank which could impede proper operation. The proposed amendment prevents the installation of unvented tanks or a vent smaller than 1½ inches in diameter which is consistent with the receiving tank vent requirement in 710.10.

⁹⁷ The Board consulted with the Minnesota Department of Labor and Industry, the Minnesota Pollution Control Agency, the Minnesota Department of Natural Resources and the Minnesota Department of Health.

⁹⁸ The MDH Noncommunity Public Water Supply Unit consists of MDH staff, including field staff and compliance staff, and is responsible for assuring the compliance of noncommunity water systems with the federal Safe

Drinking Water Act. See www.health.state.mn.us/divs/eh/water/ncom/.

Subpart 12. 1702.9.6 Pumps.

The proposed amendment does not substantively change the requirement. The proposed requirement clarifies that the required pressure-reducing valve to reduce the pressure to 80 psi or less must be listed. When excessive pressure is present, proper performance of a pressure-reducing valve is necessary for the continuous operation of the rainwater catchment water distribution system. It is reasonable to require that all installed pressure-reducing valves be listed to a product standard.

Subpart 13. 1702.9.7 Roof Drains.

The proposed amendment replaces “roof drains, conductors, leaders, and gutters shall” with “roof drain systems shall.” The Board does not have statutory authority to regulate gutters (which are typically installed entirely on the exterior of buildings, such as single family dwellings) but does have authority to regulate roof drain systems (which have discharge piping through the interior of the building).

The proposed amendment adds a specific reference to chapter 11 of the UPC, as amended, to replace the original UPC language that generically refers to “this code.” Chapter 11 contains the specific design and installation requirements applicable to storm drainage and roof drains. When secondary roof drainage systems activate and supply rainwater catchment systems, it is difficult to determine if the primary or secondary drainage system is supplying rainwater. A working alarm on the secondary system to indicate that flow has been detected is a reasonable requirement to provide notice that the primary system is plugged or otherwise incapable of sufficiently draining the roof area.

Subpart 14. 1702.9.8 Water Quality Devices and Equipment.

The proposed amendment replaces the general UPC requirement for listed or labeled equipment with specific standards and characteristics. Instead of referring to just the function of the equipment (“to treat rainwater to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction”), the proposed amendment clarifies that the system shall include filtration and disinfection to maintain the water quality requirements in Table 1702.9.4, a 5-micron absolute filter and a 0.5-log inactivation of viruses. The proposed amendment also adds the requirement that a Minnesota registered professional engineer design, size, document and select devices and equipment used in the rainwater catchment system. Utilizing a qualified individual will ensure the system is sufficient to satisfy its intended use and meet the minimum quality requirements.

Subpart 15. Sections 1702.9.11 and 1702.9.12.

The proposed amendment deletes subsection 1702.9.11 because the proposed amendment to section 1702.9.8 requires filters in the rainwater catchment system, which is redundant with the filter requirement here (“for rainwater supplied to water closets, urinals, trap primers, and drip irrigation system”). The filter required in 1702.9.11, “not larger than 100 microns,” is in direct conflict with the more stringent requirements in Table 1702.9.4 and the filter requirement in the proposed amendment to 1702.9.8, “a 5-micron absolute filter” and “0.5-log inactivation of viruses.” The proposed amendment deletes subsection 1702.9.12, “Roof Gutters.” The Plumbing Board published a Notice of Final Interpretation on November 21, 2011, stating that a gutter installed entirely outside of a building is not regulated by the plumbing code. Roof gutters are gutters installed entirely outside of a building. Therefore, the Board does not regulate roof gutters.

Subpart 16. 1702.10.1 Commercial, Industrial, and Institutional Restroom Signs.

This subsection regulates signage to inform individuals using restrooms that nonpotable rainwater is used in the restroom. The proposed amendment replaces the UPC language that authorizes the Authority Having Jurisdiction to determine the number and location of signs with language that describes the location requirements of the signs. It is not necessary for the Authority Having Jurisdiction to specifically determine the number of signs because the requirement regarding sign location will indirectly regulate the number of signs. Also, the UPC language does not provide any parameters or criteria that the Authority Having Jurisdiction would use to determine the number of signs. The proposed amendment expands the options of required sign text from one, “TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS” to four variations of that text. The proposed amendment adds 1702.10.1 (A) through 1702.10.1(D) where the additional text options are listed:(A) “TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS”; (B) “TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS”; (C) “TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH URINALS”; and (D) “TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO **.” Option D is open-ended to allow appropriate sign text for other rainwater usage not listed in A through C.

Subpart 17. 1702.11.2 Cross-Connection Inspection and Testing.

The first proposed amendment to this section is the deletion of “Annual” before “Cross-Connection” in

the section heading to avoid confusion; this section applies to the initial inspection as well as the annual inspections. As a result of that deletion, the first sentence of the UPC language is redundant and therefore deleted. The proposed amendments are necessary and reasonable to clarify this requirement.

1702.11.2.1 Visual System Inspection.

This section specifies what will be visually inspected initially before cross-connection testing and annually thereafter. The proposed amendment adds “and annually thereafter” to clarify that the visual inspection should occur not just initially but also annually. The UPC language does not clearly convey the annual visual inspection requirement except in the heading (where it is proposed for deletion) and narrative of 1702.11.2. The proposed amendment deletes the language that states the Authority Having Jurisdiction “and other authorities having jurisdiction” will conduct the dual system inspection because Table 1702.12, “Minimum Alternate Water Source Testing, Inspection, and Maintenance Frequency” addresses who will perform the cross-connection inspection. The proposed amendment adds, “inspected for visible cross-connections, proper operation, and damage” to replace “checked” in the UPC. The proposed amendment clarifies what it means to “check” the equipment listed. The proposed amendments coincide with the requirements in proposed Table 1702.12, “Minimum Alternate Water Source Testing, Inspection, and Maintenance Frequency.” The proposed amendments clarify what is required. An inspection by the Authority Having Jurisdiction is already required to be performed under the requirements covered in the plan review and permitting process.⁹⁹

1702.11.2.2 Cross-Connection Test.

In addition to grammatical changes for clarity, the proposed amendment replaces “applicant” with “plumbing contractor” to clarify who will conduct the cross-connection test. “Plumbing contractor” is a term already used in Minnesota statutes and rules. It is not clear who the “applicant” is in this context. The proposed amendments to the cross-connection test procedure clarify the requirements by streamlining terms and language used, clarifying parameters, and making grammatical corrections. For example, the UPC uses “completely drained,” “is empty,” and “depressurized” to describe the same condition; the proposed amendment streamlines all these references to be “completely drained.” The proposed amendments do not substantively change the requirements or process in this section. It is reasonable to require that a plumbing contractor, having the knowledge and experience in water distribution systems and related equipment, perform the test. The proposed amendments

are reasonable and needed because they clarify the intent of the UPC language and add consistency to the language.

1702.11.2.3 Discovery of Cross-Connection.

This section is included in the rule draft for context as the surrounding subparts are amended. There is a minor grammatical correction to item (1) where an unnecessary comma is deleted.

1702.11.2.4 Inspection.

The proposed amendment removes the word “Annual” from the section heading and sets a defined length of time between cross-connection tests. Visual inspections (1702.11.2.1) must occur annually and cross-connection testing (1702.11.2.2) is required every five years. The original UPC language requires visual inspection annually but also requires cross-connection testing annually “unless site conditions do not require it” but in “no event shall the test occur less than once in 4 years.” The UPC language is confusing and ambiguous because there are no parameters describing what “site conditions” would render annual inspections unnecessary and quadrennial testing sufficient. The existing Minnesota Plumbing Code requires rebuilding of a reduced pressure zone backflow prevention assembly every five years.¹⁰⁰ Testing every five years is reasonable because it is in addition to annual visual inspections and is a reasonable balance of the expense of cross-connection testing and public water safety.

Subpart 18. 1702.12 Maintenance and Inspection.

The proposed amendment adds section 1702.12, including Table 1702.12, and subsections 1702.12.1 through 1702.12.3. The added section, subsections and table provide specific requirements for regularly scheduled maintenance of the system, inspections and testing. They further define the requirements to keep a maintenance log and designate the individual responsible for the system.

1702.12.1 Frequency.

This proposed subsection references Table 1702.12 and requires rainwater catchment systems and components to be inspected and maintained, at a minimum, in accordance with the table. Manufacturers of equipment used in rainwater catchment systems may require more frequent inspection and maintenance of the equipment than the schedule in Table 1702.12. It is reasonable to establish minimum inspection and maintenance frequency requirements while also deferring to manufacturer inspection and maintenance schedules when they are stricter than the table.

¹⁰⁰ See overhaul intervals set in [Minnesota Rules, part 4715.2161](#). This rule part is proposed to be repealed in this rulemaking.

⁹⁹ See section 1702.11.1, as amended.

1702.12.2 Maintenance Log.

This proposed subsection requires property owners or designated appointees to keep records that document the frequency of testing, inspection and maintenance listed in Table 1702.12. These records will show whether Table 1702.12 or manufacturer schedules were followed. This requirement ensures proper inspection and maintenance, and ultimately operation, of the rainwater catchment system in a continuous and safe manner.

1702.12.3 Maintenance Responsibility.

This proposed subsection specifies that the property owner is ultimately responsible for the proper upkeep of a rainwater catchment system. It is reasonable to make the property owner the responsible party because he or she will likely incur the costs of inspection, maintenance, repairs, and collateral damage resulting from improperly operating systems. Property owners are the responsible party for other mechanical systems. It is further reasonable to assign this responsibility clearly.

Subpart 19. Table 1702.12 Minimum Alternate Water Source Testing, Inspection, and Maintenance Frequency.

The table is taken from UPC Chapter 16.¹⁰¹ Chapter 16 is not adopted into this code. This table is added to Chapter 17 as it lists the frequency of minimum required testing, inspections and maintenance of rainwater catchment systems and is referenced in Chapter 17. When a potable water distribution system and an alternate source of nonpotable water such as a rainwater catchment water distribution system are located together, there is always a concern about cross-connection. The cross-connection test must be performed by a licensed plumber because he or she will have the necessary knowledge and experience in water distribution systems and related equipment to perform the tests. The additional requirement of certification to ASSE Standard 5120, Professional Qualifications Standard for Cross-Connection Control Surveyors, verifies that the plumber has received specialized training to identify existing and potential cross-connections hazards. ASSE Standard 5120, contained in the ANSI accredited ASSE Series 5000 Standards, is a nationally recognized professional qualification. Minnesota Rules Chapter 4716, currently requires certification to ASSE Standard 5110 and 5130, also part of Series 5000, as proof that an individual has received specialized training related to the protection of the potable water system.¹⁰²

The requirement in the footnote that a plumber licensed under Minnesota Statutes, section 326B.46 and

¹⁰¹ See UPC Table 1601.5.

¹⁰² See Minnesota Rules, part 4716.0096, subparts 1 and 2.

certified to ASSE Standard 5120 will conduct the cross-connection inspections and tests is reasonable because of the importance of the test and skill necessary to perform the test correctly.

Subpart 20. 1702.13 Operation and Maintenance Manual.

The proposed amendment adds this section to require the rainwater catchment system designer to supply the building owner with a manual that includes: a system diagram listing components and location, operating instructions, water quality requirements, deactivation of system instructions and manufacturer contact information. The proposed amendment is needed for the proper operation and maintenance of the rainwater catchment system and a reasonable method to supply this information. It is reasonable to require this information from the system designer because the information contained in the manual would be difficult to obtain from another source or would be disproportionately expensive.

Subpart 21. 1702.14 Separation Requirements.

The proposed amendment adds this section to reference the underground separation requirements relating to the installation of the building sewer, potable water pipes and nonpotable water pipes. This amendment is reasonable because it coincides with other parts of this code, section 609.2, and common industry practice.

Subpart 22. 1702.15 Abandonment.

The proposed amendment adds this section to address abandoned rainwater catchment systems, which it defines as rainwater catchment systems that are no longer in use and are not maintained in accordance with this code. The UPC does not address abandoned rainwater catchment systems. The most similar UPC section addresses abandonment of sewers and sewage disposal facilities, section 722, but it is proposed to be deleted since these systems are regulated by the Minnesota Pollution Control Agency. However, abandoned rainwater catchment systems can pose a serious risk to public health and safety, requiring proper abandonment to be addressed. This amendment safeguards against improperly maintained systems and unapproved uses other than the original intent of the rainwater catchment system.

1702.15.1 General.

The proposed amendment adds this subpart to establish the first requirement for abandoned systems: disconnect, drain, plug and cap. Abandoned rainwater catchment systems include all piping, equipment and storage tanks. Disconnecting abandoned systems from systems that remain in use reasonably eliminates the possibility of contamination of the potable water system still in use. Draining and disconnecting by plugging or capping abandoned systems is a reasonable method to

eliminate a potential or actual cross-connection to the potable water system in a controlled manner. It is reasonable to require that abandoned rainwater catchment systems be properly disconnected, drained, plugged and capped.

1702.15.2 Underground Tank.

The proposed amendment adds this subsection which requires underground tanks of abandoned systems to be drained and filled with an approved material or removed in an approved manner. It is reasonable to regulate abandoned underground tanks to protect the public from the tank being used for an unapproved or unmonitored purpose. The proposed rule offers two methods of approved abandonment.

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