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 amendments[2] 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.

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.[5] 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.[6] 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,

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[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
[5] The IECC is a national model code promulgated by the International Code Council ("ICC").
[6] The Residential Energy Code Committee met on January 5, 2012, February 2, 2012, February 16, 2012, March 12, 2012, and March 21, 2012. Meeting agendas and notes can be found at: http://www.dli.mn.gov/CCLD/rm/1322agendas.asp

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.[7]

ALTERNATIVE FORMAT

Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make a request, contact Colleen Clayton at Minnesota Department of Labor and Industry, 443 Lafayette Road North, St. Paul, MN 55155, (651) 284-5867, and fax at (651) 284-5749.

STATUTORY AUTHORITY

The Commissioner of the Department has the power and responsibility to adopt rules regarding radon control and residential energy as part of the State Building Code. The Department's statutory authority to adopt these rules is in Minnesota Statutes, sections 326B.02, subdivision 5, 326B.101, and 326B.106, subdivisions 1 and 6. The 18-month time limit per Minnesota Statutes, section 14.125 does not apply here because section 14.125 permits the subsequent amendment or repeal of rules where the statutory authority was first used within the time limit; this is an amendment to existing rules where the statutory authority was first used within the time limit and which the Legislature has not revised since it was granted.

Minnesota Statutes, section 326B.02, subdivision 5 provides that "[t]he commissioner may, under the rulemaking provisions of chapter 14 and as otherwise provided by this chapter, adopt, amend, suspend, and repeal rules relating to the commissioner's responsibilities under this chapter, except for rules for which the rulemaking authority is expressly transferred to the Plumbing Board, the Board of Electricity, or the Board of High Pressure Piping Systems."

The Commissioner has general statutory authority to adopt the rules in Minnesota Statutes, section 326B.101. In part, it states, "The commissioner shall administer and amend a state code of building construction which will provide basic and uniform performance standards, establish reasonable safeguards for health, safety, welfare, comfort, and security of the residents of this state and provide for the use of modern methods, devices, materials, and techniques which will in part tend to lower construction costs." The radon control methods and residential energy code rules are for the health, safety, welfare and comfort of residents of this state.

Minnesota Statutes, section 326B.106, subdivision 1 provides, in part, that "[s]ubject to sections 326B.101 to 326B.194, the commissioner shall by rule and in consultation with the Construction Codes Advisory Council establish a code of standards for the construction, reconstruction, alteration, and repair of buildings, governing matters of structural materials, design and construction, fire protection, health, sanitation, and safety, including design and construction standards regarding heat loss control, illumination, and climate control. The code must also include duties and responsibilities for code administration, including procedures for administrative action, penalties, and suspension and revocation of certification. The code must conform insofar as practicable to model building codes generally accepted and in use throughout the United States, including a code for building conservation. In the preparation of the code, consideration must be given to the existing statewide specialty codes presently in use in the state. Model codes with

[7] Meeting minutes can be found at: http://www.dli.mn.gov/PDF/ccac/1012minutes.pdf

necessary modifications and statewide specialty codes may be adopted by reference. The code must be based on the application of scientific principles, approved tests, and professional judgment. To the extent possible, the code must be adopted in terms of desired results instead of the means of achieving those results, avoiding wherever possible the incorporation of specifications of particular methods or materials. To that end the code must encourage the use of new methods and new materials. Except as otherwise provided in sections 326B.101 to 326B.194, the commissioner shall administer and enforce the provisions of those sections."

The Department's specific statutory authority to adopt the rules is stated in Minnesota Statutes section 326B.106, subdivision 6, which provides: "The commissioner of labor and industry shall adopt rules for radon control as part of the State Building Code for all new residential buildings. These rules shall incorporate the radon control methods found in the International Residential Code appendix as the model language, with necessary amendments to coordinate with the other adopted construction codes in Minnesota."

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

REGULATORY ANALYSIS

Minnesota Statutes, section 14.131, sets out eight factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (8) below quote these factors and then give the agency's response. The responses below apply to both the 1303 and 1322 rule amendments unless otherwise specified.

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

The classes of persons who probably will be affected by the proposed 1303 and 1322 rules include building contractors, mechanical contractors, architects, engineers, municipal building officials, building inspectors, building managers and homeowners. The affects will be minimal as similar standards already exist in the Minnesota State Building Code.

When 1303 or 1322 rules apply, building owners will likely bear the costs of the proposed rules. The anticipated additional cost difference resulting from the proposed rule amendments is minimal because similar standards are currently in effect.

Those that will likely benefit from the proposed 1303 and 1322 rules include homeowners and occupants of the buildings subject to these rules; homeowners will gain the long-term benefits of the proposed rules. Furthermore, the general public will benefit from the proposed 1322 rules because the proposed rules include improved energy efficiency standards and provide better environmental protection with up-to-date regulations governing the design of residential buildings.

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

The probable costs to the agency for the implementation and enforcement of the proposed 1303 and 1322 rules include costs to obtain copies of updated ICC code books and updated rules.

The probable costs to the agency or any other agency for the implementation and enforcement of the proposed rules include costs associated with educating those who administer and enforce the code and costs for updated code books. The costs associated with the proposed rule will be negligible because agency personnel are currently required to obtain education and training as part of their position and to maintain their certifications or licenses.

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

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

The purpose of the proposed 1303 rules is to provide minimum standards for radon control methods by adopting rules for radon control methods utilizing code information from Appendix F of the IRC as a model. The proposed rules do that. There are no less costly or intrusive methods for achieving the purpose of the proposed rule because using a model code will provide more uniform application and enforcement, which will, in turn, help lower costs for the regulated industry by reducing confusion about the code and will reduce inconsistent application and enforcement.

The purpose of the 1322 proposed rules is to provide minimum standards for energy conservation. There are no less costly or less intrusive methods for achieving the purpose of the proposed rule because incorporating a model code by reference will provide a code that will require more uniform application and enforcement, which will, in turn, help lower costs for the regulated industry by reducing confusion about the code and will reduce inconsistent application and enforcement.

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

No alternative methods for achieving the purposes of the proposed 1303 or 1322 rules were considered by the Department because the statutory requirement mandates the IRC Appendix F be used as a model for the purpose of the proposed 1303 rules and the IECC is the most comprehensive energy code available for the purposes of adoption. Additionally, the IECC is part of the family of ICC codes adopted by the Department so this code will provide coordinated requirements that work in concert with the other ICC codes adopted as part of the Minnesota State Building Code.

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

The probable costs of complying with the proposed 1303 rule will be borne by homeowners and building owners building new homes and buildings that must comply with the proposed rules for radon control methods. Any other additional costs for other entities involved in construction will likely pass those costs of compliance on to the homeowner.

The probable costs of complying with the proposed 1322 rules include costs associated with necessary updates to equipment, control devices, and materials to achieve and maintain minimum industry standards for energy efficiency to comply with the requirements of this code. There may also be negligible costs to individuals responsible for interpreting, applying, and enforcing this rule, including building officials, designers, contractors, and installers. These individuals will likely need training or other education related to the changes made to the IECC and the amended rule.

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

The probable costs of not adopting the proposed 1303 rules include referencing outdated methods, outdated materials, outdated standards, using Department time and resources to dispute or clarify the meaning or applicability of the rules. The current radon control method rules in chapter 1322 incorporate by reference Appendix F of the 2006 IRC. The proposed rules are based on Appendix F of the 2012 IRC, recent industry standards as discussed and recommended by the advisory committees and clarified based on questions and disputes that arose under the current rules. The 2006 edition of the IRC may be more difficult to obtain because newer editions (2009 and 2012) are published and in use throughout the construction industry. The publisher could even choose to stop publishing the code book entirely if it is no longer feasible to maintain the publication.

Probable costs associated with not adopting the proposed 1322 rules could include manufacturers and installers having to retrofit buildings according to the existing requirements of Minnesota Rules, Chapter 1322. The existing Residential Energy Code rules incorporate by reference the 2006 edition of the IRC; the proposed rules incorporate by reference the 2012 edition of the IRC. If the Department did not adopt the proposed rules, many requirements would be outdated or inefficient as compared to the 2012 requirements. Some materials may even be difficult to obtain because manufacturers may decide to stop producing the outdated materials or possibly even copies of the 2006 codebook itself. Probable consequences of not adopting the proposed rule may include the use of outdated materials and outdated design and construction methods that are not consistent with nationally recognized and accepted methods and materials. An additional consequence that may occur is that cross-references between the Mechanical and Fuel Gas Codes and the Residential and Commercial Energy Codes, other ICC codes, may not be accurate. Most importantly, federal funding provided to the State of Minnesota related to compliance with the requirements in the 2012 IECC may be lost if this code is not adopted.[8]

[8] 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: http://www.dli.mn.gov/PDF/docket/1303_1322docket.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

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

There are no federal regulations that apply to 1303 rules. Adopting and enforcing the proposed 1322 rules in Minnesota will comply with the minimum federal regulations agreed to when the State of Minnesota received ARRA funding described above.

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

There is no cumulative effect related to the specific purpose of the rules. This purpose of the proposed 1303 rules is to update and clarify radon control method regulations. There are no other rules or statutes that regulate radon control methods in residential structures. The purpose of the proposed 1322 rules is to update the Residential Energy Code that also complies with the standards set in the Governor's Assurance Certification. There is no cumulative effect because the 2012 IECC is consistent with the standards agreed to in the Governor's Assurance Certification.

Although there is no cumulative effect related to the specific purpose of the1303 or 1322 rules, they are two chapters of the approximately twenty-two chapters that make up the Minnesota State Building Code, which is a single set of coordinated building construction regulations that apply throughout the state of Minnesota. There are no other building codes that can be used or enforced in this state. These rules are coordinated as part of the Minnesota State Building Code and with other state agencies' non-building regulations, when applicable.

PERFORMANCE-BASED RULES

Minnesota Statutes, section 326B.106, subdivision 1, authorizes the Department to establish, by rule, a code of standards for construction. This statute requires the code to "conform insofar as practicable to model building codes generally accepted and in use throughout the United States." At the same time, this statute mandates that, "to the extent possible, the code must be adopted in terms of desired results instead of the means of achieving those results, avoiding wherever possible the incorporation of specifications of particular methods or materials."

Appendix F of the 2012 IRC establishes minimum regulations for radon control for all new residential buildings using prescriptive and performance-based provisions, with emphasis on performance. The proposed Chapter 1303 rules incorporate radon control methods using Appendix F as the model, which, in turn, incorporates the philosophy required by Minnesota Statutes, section 326B.106, subdivision 1.

The Residential Energy Code, as proposed in 1322, establishes minimum requirements for

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a residential building energy code that meets or exceeds the most recent IECC or achieves equivalent or greater energy savings.

building systems using prescriptive and performance-based provisions and is founded on broad-based principles that make the use of new methods, materials, and construction practices possible. The proposed rules are intended to incorporate the philosophy required by Minnesota Statutes, section 326B.106.

ADDITIONAL NOTICE

This Additional Notice Plan was reviewed by the Office of Administrative Hearings and approved, with additions reflected below, in a March 17, 2014, order by Administrative Law Judge LauraSue Schlatter.

Our Notice Plan also includes giving notice required by statute. We will mail or email the Notice of Intent to Adopt to everyone who has registered to be on the Department's rulemaking mailing lists under Minnesota Statutes, section 14.14, subdivision 1a. We will also give notice to the Legislature per Minnesota Statutes, section 14.116.

We will additionally mail the Dual Notice of Intent to Adopt Rules to the following interested parties:

1. All certified building officials and others involved in code administration. This includes all municipal building officials that are responsible for the administration of the State Building Code;
2. American Association of Radon Scientists and Technologists;
3. Builders Association of Minnesota;
4. Builders Association of the Twin Cities;
5. Association of Minnesota Building Officials;
6. National Radon Safety Board;
7. National Environmental Health Association;
8. Minnesota Department of Health;
9. American Institute of Architects – Minnesota;
10. Minnesota Society of Professional Engineers;
11. League of Minnesota Cities;
12. Association of Minnesota Counties;
13. Minnesota Association of Realtors;
14. Minnesota Mechanical Contractors' Association;
15. Minnesota Society of Professional Engineers;
16. Building Owners and Managers of Minneapolis and St. Paul.
17. Associated General Contractors of Minnesota
18. Current list of voluntarily certified radon mitigation contractors maintained by the Minnesota Department of Health at http://www.health.state.mn.us/divs/eh/indoorair/radon/mitigation.html

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

Our Notice Plan does not include notifying the Council on Affairs of Chicano/Latino People because the proposed rules do not have their primary effect on Chicano/Latino people; therefore, Minnesota Statutes, section 3.9223 does not apply.

CONSULTATION WITH MMB ON LOCAL GOVERNMENT IMPACT

As required by Minnesota Statutes, section 14.131, the Department consulted with Minnesota Management and Budget ("MMB"). On January 24, 3014, the Department sent the Executive Budget Officer at MMB copies of the documents that we sent to the Governor's Office for review and approval. The Department did this before publishing the Notice of Intent to Adopt. The documents included: the Governor's Office Proposed Rule and Proposed SONAR Form; a near-final copy of the proposed rules; and a near-final copy of the SONAR. On February 13, 2014, the Department received from MMB a response stating, in part, the following:

> Based upon the information provided to me by the Department of Labor and Industry, there does not appear to be significant costs to local units of government that are not recoverable through local fees as a result of this proposed rule.

DETERMINATION ABOUT RULES REQUIRING LOCAL IMPLEMENTATION

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

COST OF COMPLYING FOR SMALL BUSINESS OR CITY

Agency Determination of Cost

As required by Minnesota Statutes, section 14.127, the Department has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed $25,000 for any small business or small city.[9] The Department has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not exceed $25,000 for any small business or small city because the proposed rules do not require any construction to occur, much less within the first year after the rules take effect. Any small business or city contemplating new construction or remodeling will decide whether or not to undertake the construction or remodeling project and when that construction or remodeling will occur.

Any small business in the construction industry will not bear any additional costs as a

[9] A small business is "any one business that has less than 50 full-time employees." Minnesota Statute section 14.127. A small city is "any one statutory or home rule charter city that has less than ten full-time employees." Id.

result of the proposed rule; rather the costs would be borne by the building owner simply as the cost to construct or remodel the building. A small city may need to purchase new code books and send some employees to training to learn about new code changes but this cost would not exceed $25,000 for the small city.

The cost differential between constructing or remodeling a building under the current rules compared to the same construction or remodeling under the proposed rules is anticipated to be minimal but would vary from project to project. Some changes in the proposed rules provide cost savings while some might result in higher costs as compared to the current rules. Therefore, it is unlikely the proposed rules will result in an increase in cost by more than $25,000 for any single renovation project.

LIST OF WITNESSES

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

1. Department of Labor and Industry staff, if necessary;
2. Members of 1303 Radon Advisory Committee, if necessary; and
3. Members of the 1322 Advisory Committee, if necessary.

RULE-BY-RULE ANALYSIS

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.

1303.2400 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-gad 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 (f.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.

CHAPTER 1322

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)[10]; 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 that 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 system[11]; and input rating, model numbers, and equipment efficiencies of all the heating and cooling equipment.[12] 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 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.

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[10] This informs a future homeowner of who is the responsible party for the original construction of the building.

[11] 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.

[12] These are needed to combine with the building heating and cooling load requirements to properly size the heating and cooling equipment for the building.

Subpart 1. IECC Table R402.1.1, Insulation and fenestration requirements by component. The requirements of this table are set up by climate zones. The Southern half of Minnesota is in climate zone six and the Northern half in zone seven. All other zones and accompanying footnotes are being deleted from the table because they do not apply in Minnesota.[13]

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

[13] The footnotes retained from the IECC are identical as to content but have been renumbered for accuracy.

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 nondraining 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 building's structure, including durability, which results from rain and winter snow melt.

Section R402.1.1.3, Exterior nondraining 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 "nondraining" 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.[14] 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 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

[14] 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."

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 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.[15]. 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.

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

[15] 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."

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. ASHRAE Standard 52.2, referenced in section R403.5.12
B. Title: Method of Testing General Ventilation Air-Cleaning Devices for Removal of Efficiency by Particle Size
C. HVI Standard 915
D. HIV Standard 916
E. Title: Heating system certification program.

REPEALER. Minnesota Rules, parts 1322.0020; 1322.1101; 1322.1102; 1322.1103; and 1322.1104 are being repealed because they contain amendments to chapter 11 of the 2006 International Residential Code. The Department is proposing to incorporate by reference a new model energy code, the 2012 edition of the International Energy Conservation Code, with amendments. As a result, the amendments to the 2006 International Residential Code will no longer apply.

Minnesota Rules, parts 1322.2100; 1322.2101; 1322.2102, and 1322.2103 govern radon control methods and are being repealed from this rule chapter because they are being revised and relocated to Minnesota Rules, chapter 1303, Minnesota Provisions of the State Building Code. The radon requirements are specific to Minnesota, apply to all building codes, and are more logically located in the Minnesota-specific requirements.

CONCLUSION

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

3-25-14
Date

Ken B. Peterson, Commissioner

This SONAR will be made available for public view on April 4, 2014.

EXHIBIT A

List of 1303 Radon Advisory Committee Members

Name	Association	Committee title/role
Don Sivigny	Minnesota Department of Labor and Industry	Chair
Herman Hauglid	Minnesota Department of Labor and Industry	Co-Chair
Steve Noble	Builders Association of Minnesota	Committee Member
Jane De Austin	Builders Association of Minnesota	Alternate
Karen Linner	Builders Association of the Twin Cities	Committee Member
James Vagle	Builders Association of the Twin Cities	Alternate
Doug Determan	Association of Minnesota Building Officials	Committee Member
Rick Davidson	Association of Minnesota Building Officials	Alternate
Joshua Kerber	Minnesota Department of Health	Committee Member
Joshua Miller	Minnesota Department of Health	Alternate

EXHIBIT B

List of 1322 Residential Energy Code Advisory Committee Members

Name	Association	Committee title/role
Russell Thornburg,	Association of Minnesota Building Officials	Committee Member
Jack Rossbach,	Representing himself	Committee Member
Paul Elringer,	Representing himself	Committee Member
Eric Boyd,	Minnesota Department of Commerce	Committee Member
Bruce Nelson,	Minnesota Department of Commerce	Alternate
Mark Sigel,	Minnesota Mechanical Contractors Association	Committee Member
Gary Thaden,	Minnesota Mechanical Contractors Association	Alternate
Bob Baumann,	Association of Minnesota Building Officials	Committee Member
Rick Kot,	Builders Association of the Twin Cities	Committee Member
Craig Plekkenpol,	Builders Association of the Twin Cities	Alternate
Cary Becker,	Builders Association of the Twin Cities	Committee Member
David Siegel,	Builders Association of the Twin Cities	Alternate
Isaac Elnecave,	Midwest Energy Efficiency Alliance	Committee Member
Bryan Kerby,	National Association of Home Builders	Committee Member
Mark Cross,	Greater Minnesota Builders Representative	Committee Member
Hans Hagen,	Builders Association of Minnesota	Committee Member
Karen Linner,	Builders Association of Minnesota	Committee Member
Jon Petersen,	Builders Association of Minnesota	Alternate
Don Sivigny,	Minnesota Department of Labor and Industry	Committee Member
Scott Nelson,	Minnesota Department of Labor and Industry	Committee Member