

December 21, 2011

Legislative Reference Library  
645 State Office Building  
100 Constitution Avenue  
St. Paul, Minnesota 55155

Re: In The Matter of the Proposed Amendment to Rules Governing the Minnesota Plumbing Code, *Minnesota Rules*, Chapter 4715, and Repeal of Parts 4715.1110 and 4715.1115; Governor's Tracking #AR 1036

Dear Librarian:

The Minnesota Plumbing Board intends to adopt rule amendments governing the Minnesota Plumbing Code, and repeal *Minnesota Rules*, parts 4715.1110 and 4715.1115. We plan to publish a Dual Notice of Intent to Adopt Rules without a Public Hearing in the December 27, 2011 *State Register*.

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

If you have questions, please contact me at (651) 284-5006.

Yours very truly,

**Carrie**

**Carrie Rohling, Rules Coordinator**  
**Plumbing Board**  
**c/o MN Department of Labor and Industry**  
**(651) 284-5006 - Direct**  
**(651) 284-5725 - Fax**  
[dli.rules@state.mn.us](mailto:dli.rules@state.mn.us)

## **Minnesota Plumbing Board**

### **STATEMENT OF NEED AND REASONABLENESS**

#### **Proposed Amendment to Rules Governing the Minnesota Plumbing Code, *Minnesota Rules*, Chapter 4715, and Repeal of Parts 4715.1110 and 4715.1115.**

### **INTRODUCTION**

The Minnesota Plumbing Board (the “Board”) is authorized to adopt and amend the Minnesota Plumbing Code (the “Plumbing Code” or the “Code”), which sets the minimum standards for plumbing that must be followed throughout the state. With the publication of a dual notice of intent to adopt rules and this Statement of Need and Reasonableness, the Board proposes to adopt rules that are in response to legislation from the 2010 and 2011 sessions, and requests for action that the Board has considered and approved between its last rulemaking to update the Plumbing Code and April 19, 2011.

The Board published three requests for comments to solicit comments related to the proposed rules. First, on May 10, 2010, the Board asked for comments on possible rules related to grease interceptors, backflow preventers relating to dental water treatment systems, deck-mounted and equipment-mounted vacuum breaker backflow preventers, design of sumps and grinder pumps, macerating toilet systems, water closet personal hygiene devices, and wet venting of water closets.

Then on September 7, 2010, the Board sought comments on its possible rules to update the Code and chapter 4716, which regulates the licensing, registration, and certification of plumbers. The Board later determined that modifications to the Code and chapter 4716 should be separate rulemakings because it was likely that updates to the two chapters would proceed with different timelines because of licensing related rulemaking authorities that were passed during the 2010 and 2011 legislative sessions. So, on August 1, 2011, the Board published a request for comments related to the Code subject matters from the May 2010 publication, legislative changes related to Code requirements, and the requests for action that had been approved by the Board through April 19, 2011.

Specifically, the subject matter of the proposed rules are: grease interceptors, backflow preventers relating to dental water treatment systems, deck-mounted and equipment-mounted vacuum breaker backflow preventers, standards associated with backflow devices, design of sumps and grinder pumps, macerating toilet systems, water closet personal hygiene devices, wet venting of water closets, materials and fixtures including pedicure whirlpool tubs, existing bathtub and whirlpool bathtub provisions, clarifications on shower control valve requirements, trough urinals, stand pipe, hangers and supports, siphonic roof drainage systems, indirect waste piping, and clarification of existing language, editorial corrections, or to coordinate the rules with other licensing related rule chapters or the Minnesota Building Code, and to address laws passed during any regular or special legislative sessions in 2010 or 2011.

A majority of the proposed rules are in response to requests for action (RFA) that the board has considered and approved. The RFA is the business process used by the Board to consider

amendments to the Code that are brought forward by members of the public, municipal code officials, and any other interested parties.

### **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 Carrie Rohling, MN Plumbing Board, c/o Department of Labor and Industry, 443 Lafayette Road North, Saint Paul, MN 55155, (651) 284-5006, FAX (651) 284-5725, or e-mail [dli.cclboards@state.mn.us](mailto:dli.cclboards@state.mn.us). TTY users may call the Board through the Department of Labor and Industry at (651) 297-4198.

### **STATUTORY AUTHORITY**

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

*Minnesota Statutes* § 326B.43 authorizes the Board to adopt and amend rules of minimum standards for plumbing. *Minnesota Statutes*, section 326B.435 authorizes the Board to adopt and amend the plumbing code. These rulemaking authorities have been used in prior rulemakings, so *Minn. Stat.* § 14.125, does not apply. *See Minnesota Laws 1995*, chapter 233, article 2, section 58.

*Minnesota Laws*, 2010, chapter 183, sections 11 and 14 (*Minn. Stat.* §§ 326B.52 and 326B.57), transferred rulemaking authority from the Commissioner of Labor and Industry to the Board. Effective August 1, 2010, these authorities require the Board to prescribe to minimum standards related to water conditioning by rule, and permits rules related to water distribution systems. Because these authorities have been used before and have simply been transferred from one agency to another, *Minn. Stat.* § 14.125 does not apply. Regardless, the Board will publish a Dual Notice within 18 months of the effective date of the amendment to the law.

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

### **REGULATORY ANALYSIS**

*Minnesota Statutes*, section 14.131, sets out seven factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (7) below restate these factors and then give the Board's response.

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

Those who probably will be *affected* by the proposed rule, who will bear the costs of the proposed rule, and who will benefit from the proposed rule include: Plumbers and persons who wish to become plumbers; building owners; plumbing equipment suppliers and manufacturers; contractors; and plumbing code enforcement authorities.

**(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:**

Because the Board only adopts the plumbing code and plumbing licensing rules, and does not administer those rules, the Board will not incur any costs associated with the adoption of the proposed rules.

Costs to the Department of Labor and Industry include the costs of purchasing code books for state employees who deal with plumbing code questions as well as the cost of revising license examinations to reflect the updated code. Adoption of the proposed rules will not affect state revenues.

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

There are no less costly methods or less intrusive methods for achieving the purpose of the proposed rules. Some of the proposed rules result in equivalent or less costly methods or materials. For example, part 4715.1105, which is about grease interceptors, allows for additional construction options, which are less costly or equivalent in cost to construct or install, and less costly to administer since sizing and standards are addressed by the rule as proposed. Part 4715.2790, which is about siphonic roof drainage systems, also provides for less costly methods because it provides for smaller and fewer pipes

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

The purpose of the proposed rule is to promote the public health and safety through properly designed, acceptably installed, and adequately maintained plumbing systems. Because the Board is required to use rulemaking to adopt, amend, or repeal the Code, no other methods were considered for achieving the purpose of the proposed rule.

**(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:**

Plumbers, municipal inspection departments and designers will need to purchase or print from the Web copies of the amended Code. Training curriculum will need to be updated to incorporate any new/changed provisions in the Code. These costs are expected to be minimal. No additional construction costs related to the amendments are expected for a typical new home or commercial building.

**(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 governmental units, businesses, or individuals:**

If amendments to the Code are not adopted, this would cause the industry to continue using an

outdated code that does not incorporate all the latest methods and technologies.

**(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 applicable federal regulations that address plumbing code issues in the construction of non-federally owned buildings.

**PERFORMANCE-BASED RULES**

The Code is performance based: it emphasizes the end result of the plumbing work rather than the method of achieving that end result. The proposed revisions to chapter 4715 are therefore also performance based. The proposed amendments therefore implement performance-based standards to the extent practicable. Where the Code is not performance based, it provides detailed prescriptive minimum standards that are founded on broad-based principles that make use of new methods, materials, and construction practices.

**ADDITIONAL NOTICE**

As part of its regular business, the Board receives and considers input from interested parties during its meetings. In addition to obtaining ongoing input from interested parties, our Additional Notice Plan includes mailing or e-mailing the Dual Notice to trade associations involved in plumbing and building construction. Those associations are as follows:

- a. Associated Builders and Contractors
- b. Local chapter of the Association of Minnesota Building Officials (AMBO)
- c. Minnesota Mechanical Contractors Association
- d. Association of General Contractors of Minnesota
- e. Builders Association of Minnesota (BAM)
- f. Builders Association of the Twin Cities
- g. Minnesota State Fire Chiefs Association
- h. Minnesota Plumbing, Heating and Cooling Contractors Association
- i. American Society of Plumbing Engineers – Minnesota Chapter
- j. American Society of Civil Engineers – Minnesota Section
- k. Association of Minnesota Counties
- l. Building Owners and Managers (BOMA), Minneapolis
- m. Building Owners and Managers (BOMA), St. Paul
- n. League of Minnesota Cities
- o. American Council of Engineering Companies of Minnesota
- p. Minnesota Pipe Trades Association
- q. Minnesota State Fire Marshal Division
- r. Minnesota Association of Townships
- s. Metropolitan Council

The Board will also post the proposed rules, the Statement of Need and Reasonableness, and Dual Notice of Intent to Adopt Rules on the Board's webpage on the Department of Labor and

Industry's ("DLI") website at <http://www.dli.mn.gov/PDF/docket/4715docket.pdf>.

Our Notice Plan also includes giving notice required by statute. We will mail or e-mail the Dual Notice of Intent to Adopt Rules to everyone who has registered to be on the Board's and the Department of Labor and Industry's plumbing rulemaking mailing lists that are maintained under Minnesota Statutes § 14.14, subdivision 1a. We will also give notice to the Legislature per Minnesota Statutes § 14.116.

## **CONSULTATION WITH MMB ON LOCAL GOVERNMENT IMPACT**

As required by Minnesota Statutes § 14.131, the Board has consulted with Minnesota Management and Budget (MMB). The Board did this by sending MMB copies of the documents that were sent to the Governor's Office for review and approval on the same day we sent them to the Governor's office. The documents included: the Governor's Office Proposed Rule and SONAR Form; the almost final draft rules; and almost final SONAR. MMB had not yet commented before this SONAR was finalized.

## **DETERMINATION ABOUT RULES REQUIRING LOCAL IMPLEMENTATION**

As required by Minnesota Statutes § 14.128, subdivision 1, the Board 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 Board determined that a local government will not be required to adopt or amend an ordinance or other regulation to comply with these proposed rules because Minn. Stat. § 326B.43, subd. 1, authorizes the Board to prescribe minimum standards "which shall be uniform and which shall be effective for all new plumbing installation performed anywhere in the state, including additions, extensions, alteration, and replacements."<sup>1</sup> In addition, Minn. Stat. § 326B.121 sets the State Building Code as the standard that applies statewide and the Plumbing Code is part of the State Building Code.<sup>2</sup>

Additionally, in the request for comments published in the State Register on August 1, 2011, the Board specifically requested that local units of governments provide information if it believed that a possible amendment of the plumber licensing rules might require the adoption or amendment of an ordinance or other regulation. The Board did not receive any comments or information from local units of government.

## **COST OF COMPLYING FOR SMALL BUSINESS OR CITY**

### **Agency Determination of Cost**

As required by Minnesota Statutes, section 14.127, the Board has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed \$25,000 for any small business or small city. The Board has determined that the cost of complying with the

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<sup>1</sup> See, 2010 Minn. Laws, Chapter 183, Section 4 (adding the words "performed anywhere in the state"; effective August 1, 2010.)

<sup>2</sup> See, Minn. R. 1300.0050.

proposed rules in the first year after the rules take effect will not exceed \$25,000 for any small business or small city. The Board has made this determination based on the probable costs of complying with the proposed rule, as described in the Regulatory Analysis section of this SONAR on pages 2-4. The probable costs are expected to be the minimal costs of purchasing or printing new code books, and modifying training curricula to reflect the amendments. These minimal costs will not exceed \$25,000 for any small business or small city during the first year after the rules take effect.

## **LIST OF WITNESSES**

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

1. Mr. John Parezik, Chair, Minnesota Plumbing Board, will testify about the Board's interest in amending the Plumbing Code.
2. Ms. Cathy Tran, P.E., Public Health Engineer and Plumbing Plan Review and Inspections Manager, Department of Labor and Industry, will testify about the technical aspects of the proposed amendments.
3. Other Board members or Department of Labor and Industry staff, if necessary.

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

### **4715.0100 DEFINITIONS.**

This part is amended to add three definitions that are related new rule parts 4715.1105 (grease interceptors) and 4715.2450 (macerating toilets). One definition is added to clearly define the term "grinder pump," which is used in part 4715.2440. Lastly, one definition has been amended to correct a misspelling. All of the changes to this rule part are intended to provide clarity for users so that terms are used and enforced consistency.

**Subpart 56a. Gravity grease interceptor.** This definition is necessary to distinguish a gravity grease interceptor from other types of interceptors (such as hydromechanical grease interceptors).

**Subp. 57a. Grinder Pump.** This definition is necessary to so that it is clearly understood that a grinder pump, as used in new part 4715.2440, means a specialized submersible pump designed for reducing sewage particulates and pumping the resulting slurry.

**Subp. 60a. Hydromechanical grease interceptor.** This definition is necessary to distinguish a hydromechanical grease interceptor from other types of interceptors (such as gravity grease interceptors).

**Subp. 70a. Macerating toilet system.** This definition is necessary to inform users of the Code how the Board defines a macerating toilet system, which is a term used in proposed new part 4715.2450.

**Subp. 113. Trap seal.** This necessary amendment corrects a misspelling. The correction requires

replacing the word “wire” with “weir.”

#### **4715.0420 STANDARDS FOR PLUMBING MATERIALS.**

**Subpart 2. Abbreviations.** The changes to this subpart are necessary to provide users with up-to-date information related to the organizations or government agencies that are commonly known by acronyms, which are, in turn, used throughout Code. The changes include adding information pertaining to the American Society of Mechanical Engineers (ASME), updating mailing addresses, or correcting a name.

**Subp. 3. Standards for plumbing materials.** This amendment adds a plastic water service material that complies with AWWA C900 to the list of approved plumbing materials at item 6F. The proposed amendment is consistent with the pipe materials that have been approved for use in public water supply/main by the Minnesota Department of Health. Secondly, DLI has reviewed and approved this material as an alternate water service pipe material for more than a decade. Third, the amendment adds a material that is consistent with nationally recognized model codes.

The amendment also adds NSF61, which is a standard that evaluates the health effects of products and drinking water additions for potable water service products. All plastic piping approved for potable water must also be certified to NSF61 which is currently required by reference of the pipe material standard.

#### **4715.0510 WATER SERVICE PIPE.**

This part lists the materials that may be used for water service pipe and the applicable installation requirements. The amendment to item G is intended to clearly state that water service pipe made of PVC material meeting AWWA C900 must be installed in accordance with AWWA C605. This is needed because AWWA C605 provides for underground installation of PVC meeting the requirements of AWWA C900, including excavation, trenching, and pipe installation requirements for service connections.

The amendment to this part also updates an existing installation standard ASTM D2774-72, to the latest edition of ASTM D2774. Because ASTM D2774-72 is no longer available it is necessary and reasonable to make this change.

The proposed rule also deletes pipe 6I from the very last sentence. Currently, the rule requires pipe 6I to be installed in accordance with the manufacturer’s instructions. Specifically requiring pipe 6I to be installed in accordance with the manufacturers’ installation instructions implies that, by default, this requirement does not apply to the other approved plastic water service pipes. This amendment is necessary so that all of the other approved water service pipe must be installed in accordance with the manufacturers’ installation instructions.

#### **4715.0640 FIXTURE MATERIALS.**

This amendment deletes words that are specific to trough urinals to comport with the changes



proposed to part 4715.1410.<sup>3</sup>

#### **4715.0900 FIXTURE TRAP REQUIREMENTS.**

Except for plumbing fixtures with integral traps, this part requires all fixture traps to be “readily accessible” for cleaning and repairing. Floor-set fixture traps on slab-on-grade installations, plumbing fixtures with concealed slip joint connection installed with access panels, and solvent welded plastic traps are not readily accessible as defined in part 4715.0100, subp. 84a.<sup>4</sup> Deleting the word “readily” from this part is needed for consistent code enforcement and is consistent with DLI practices. The amendment does not delete the accessibility requirement for floor-set fixture traps because they are accessible for cleaning and repairing with the use of tools and cleanouts.

#### **4715.1105 GREASE INTERCEPTORS.**

This is new rule part is intended to replace parts 4715.1110 and 4715.1115,<sup>5</sup> and is about permitted construction materials and standards for grease interceptors. The proposed rule focuses on performance and different types of grease interceptors based on volume and flow rates. The proposed rule also allows for new technologies, permits the use of materials that are currently available for use, and is consistent with national model codes.

**Subpart 1. General.** This subpart provides a copy right disclaimer as there are portions of the copyrighted languages and tables in this part are adopted by reference from the Uniform Plumbing Code, 2009 edition.

**Subp. 2. Requirements.** This subpart provides general requirements for all grease interceptors. The local administrative authority determines when a grease interceptor may be installed. This determination is important since the sewer district provides treatment for the wastewater and oversees the operations and maintenance programs of the city sewer. Secondly, a grease interceptor is used to separate grease from equipment and plumbing fixtures, and fixtures that do not waste grease must not be connected to the interceptor. (For example, fixtures conveying human waste such as water closets, urinals, or condensate piping, must not drain into a grease interceptor.) The proposed language also clearly states that food waste grinders and dishwashers may only discharge into a gravity grease interceptor where permitted by the manufacturer and administrative authority. This requirement is needed because gravity grease interceptors are large capacity interceptors that are usually located outside of buildings, and food waste grinders can cause clogging and high temperatures from dishwashers causing the grease to bypass the smaller flow-based performance based units. Gravity grease interceptors are typically volume based and designed with minimum retention time in the tank for the grease to coagulate for proper separation while hydromechanical interceptors are based on flow rates and are not intended to receive hot dishwasher waste and food waste. Dishwasher waste and food disposal waste must connect to the

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<sup>3</sup> The proposed amendment to 4715.1410 prohibits all trough urinals. The change is discussed on page 13.

<sup>4</sup> Part 4715.0100, subp. 84a, defines “readily accessible” as “capable of being reached safely and quickly for operation, repair, or inspection without requiring those to whom ready access is requisite to remove obstacles, panels, or similar obstructions.”

<sup>5</sup> Minn. R. parts 4715.1110 and 4715.1115 are listed in the repealer section of the proposed rules, and explained in this SONAR on page 22.

drainage system downstream of all interior grease interceptors. This requirement is consistent with the requirements of the UPC model code.

This part also requires that each installed interceptor only serve one establishment unless specifically approved by the administrative authority and must be located where there the interceptor is readily accessible for inspection and maintenance. The term “readily accessible” is used to clarify that the location of any interceptor must have ready access without using special equipment, tools, or having any obstacles to get to the interceptor itself for inspections and maintenance. An example of an unacceptable installation which does not meet the readily accessible is when installing an exterior grease interceptor where the access manhole covers are buried below the finished grade. These requirements are necessary to ensure that inspections and maintenance functions are performed for the proper functioning of the interceptors by the correct establishment.

The proposed language specifically requires that a fixture upstream of the grease interceptor must be trapped and vented. The trapping and venting of the fixtures upstream will prevent any fouling odor from the interceptors.

Finally, a sentence is added to make it clear that grease interceptors that are located outside the building that are part of an individual sewage disposal system are not subject to the requirements of the Code. These grease interceptors are governed by the Minnesota Pollution Control Agency as part of a pretreatment system for individual sewage disposal systems, so it is reasonable to exempt them for the requirements of the Code.

**Subp. 3. Hydromechanical grease interceptors.** This subpart sets the requirement for hydromechanical grease interceptor by requiring compliance with ASME Standard A112.4.3, Grease Interceptors. Hydromechanical grease interceptors complying with ASME Standard A112.4.3 are usually smaller units intended to be located on the inside of a building. This subpart will establish flow design, performance, and testing requirements for hydromechanical grease interceptors rated up to 100 gallons per minute as specified in the standard. This subpart also set requirements for flow control requirements for proper installation and clearly requires that a vent be installed downstream of the interceptor consistent with the standard.

Currently, the Code does not address the sizing of grease interceptors. This subpart includes two sizing methods that provide for proper sizing, clearer directions for designers, and consistent enforcement by code officials. The first method uses gravity flow rates as a basis using the diameter of the drain connecting to the inlet of the interceptor for a more conservative sizing when plumbing fixtures are unknown. The second method is based on fixture capacity when the flow rates of all plumbing fixtures and equipment are known. Both sizing methods are based on one minute drainage period. This is reasonable since it provides multiple methods for the designer and is consistent with national model codes.

**Subp. 4. Gravity grease interceptors.** This subpart sets requirements for gravity grease interceptors by identifying two standards that are specific to this type concrete construction and design. Gravity grease interceptors are usually larger tanks that are located outside the building to separate kitchen greases and fatty waste from the wastewater by using the application of gravity

over time retention for separation. IAPMO/ANSI Standard, Z1001, Prefabricated Gravity Grease Interceptors, establishes specifications for the construction of this type of interceptors by providing design, materials, testing and the installation requirements, including marking/labeling of the interceptors that meet this standard. ASTM Standard C1613, Standard Specification for Precast Concrete Grease Interceptor Tanks, specifies design and performance requirements for monolithic or sectional precast concrete grease interceptors which are intended to separate kitchen grease from other kitchen wastewater.

Because the Code currently does not including sizing requirements for these interceptors, the subpart includes a table of sizing requirements for gravity grease interceptor drainage fixture units (DFUs), which will assist designers and code officials with consistent and more effective review and enforcement in all jurisdictions.

These standards provide the proper design and construction of gravity grease interceptors and will result in consistent statewide enforcement.

**Subp. 5. Protective treatments.** This subpart requires protective treatment of the interceptors that are subject to corrosion. Based on information received from the Portland Cement Association, the Board has determined that protective treatment is required for concrete tank constructions because concrete material is subject to corrosion when exposed to an environment composed of oil, fat, and chemicals. Protective treatment is necessary to protect a tank's premature failure due to fat, oil, and acidic waste from cleaning chemicals in the kitchen wastewater. Protective treatment must be approved by the manufacturer of the interceptor because warranties and installation requirements are the responsibility of the manufacturer.

**Subp. 6. Interceptors located outside of buildings.** This subpart sets the requirements for grease interceptors that are located outside of buildings. When installed outside these interceptors must be protected from freezing. In addition, in an area with a high water table, buoyancy protection must be considered in the design and installation of the units. The subpart also requires proper protection from vehicle loading to prevent tank collapse and adequate access for maintenance and inspection of the interceptor.

**Subp. 7. Labeling.** This subpart requires proper labeling of all grease interceptors for the purpose of inspection and maintenance/repair for all interceptors; and any other pertinent information that the construction standard requires.

**Subp. 8. Testing, maintenance, and records.** This subpart addresses requirements for testing, inspections, and maintenance of grease interceptors. Testing of the installed interceptor is critical to verify site installation and ensuring the unit will not leak due to possible damage from shipping or installation. The testing requirements are consistent with other code approved types of grease interceptor from past installations. When grease interceptors are properly designed, installed, and maintained, the interceptors function as designed in waste separation. Without maintenance and inspection, grease will accumulate and the unit will eventually fail, which in turn cause blockages in the plumbing system and unsanitary conditions for any public building. Blockages in the system will result in increased costs to building owners and municipalities for drain cleaning and any associated cleaning of the building drainage system, grease interceptors, and sewer mains.

## **4715.1240 BATHTUBS, WHIRLPOOL BATHTUBS, AND WHIRLPOOL PEDICURE TUBS.**

This part includes three new subparts that specifically identify various types of tub fixtures that are currently available in the industry and are commonly used in commercial establishments. The part is also amended to update the listed standards so that they are the most currently available. The changes to this rule are necessary to ensure that public health, safety, and sanitation concerns associated with these fixtures are adequately addressed.

**Subp. 1. General.** This new subpart clearly states that all bathtubs, whirlpool bathtubs, and whirlpool pedicure tubs must comply with the applicable material product standards. Additionally, bathtubs and whirlpool bathtubs with pressure-sealed doors must comply with ASME A112.19.15, Bathtubs/Whirlpool Bathtubs with Pressure Sealed Doors, to ensure that the doors on tubs are constructed to maintain watertight when filled with water.

**Subp. 1a. Outlets.** This used to be numbered as subpart one. It has been renumbered as subpart 1a to put the “general” subpart at the beginning of the rule. The only change is to add the words “and whirlpool bathtubs” so that whirlpool bathtubs are required to meet the same outlet requirements as bathtubs. The subpart clearly requires waste outlets and overflows of at least 1 ½ inches in diameter and that the waste control device must be located at the tub outlet.

**Subp. 2. Whirlpool bathtubs.** The changes to this subpart include replacing the “ANSI” abbreviation with “ASME” to correctly name ASME standard A112.19.7. Second, the reference to ASME A112.19.8 has been deleted because it is no longer applicable to the installation of whirlpool bathtubs and is intended for suction fittings use in public spa/swimming pools which are constructed with a complete recirculation and water treatment system. The requirements for suction fittings for entrapment and hair entanglement in whirlpool bathtubs is now located in ASME A112.19.7.

The amendment also requires pipeless whirlpool bathtubs to comply with ASME A112.19.7 or IAPMO IGC 155 (Pipeless Whirlpool Bathtub Appliances). Pipeless whirlpool bathtubs use self-contained jet/suction fitting/pump units which are removable, cleanable, and can agitate the water without any recirculation piping system. IAPMO IGC 155 covers the applicable requirements of ASME A112.19.7 for whirlpool bathtubs; requirements for the jet/suction fitting and pump units along with operation; use and care instructions; retention testing; and hair entrapment testing.

Lastly, the proposed rule clarifies that all equipment must be provided with access panel so maintenance and replacement is possible.

**Subp. 2a. Whirlpool pedicure tubs.** A pedicure whirlpool tub (chair) is considered a plumbing appliance or (special plumbing fixture). Currently the Code does not specifically list pedicure whirlpool tubs as a plumbing fixture. These pedicure whirlpool tubs may be analogous to whirlpool bathtubs since they function very much like whirlpool bathtubs with the exception that their size is smaller and only the feet are submerged rather than a majority of the body. However,

concerns of sanitation and the spreading of diseases through water retention from the recirculation components of the pedicure whirlpool tub are similar to those of the whirlpool bathtub, if not more so, when use in commercial nail salons. Therefore, minimum requirements for health and sanitation are necessary to protect the public.

One noted difference is that pedicure whirlpool tubs are only intended for the submersion of feet, suction and hair entrapment requirements are not safety concerns that need to be addressed. It is reasonable to adopt, at minimum, the applicable sections of the standards for the whirlpool bathtubs. The whirlpool bathtub standards are ASME A112.19.7, Hydromassage Bathtub Appliances, and the IAPMO IGC 155, Pipeless Whirlpool Bathtub Appliances. The applicable sections in ASME A112.19.7, which apply to pedicure whirlpool tubs are general requirements which cover material construction, water pump standard UL 1795, and circulation/air piping which includes water retention requirements. The applicable sections of IAPMO IGC 155 are all sections of this standard, except for the hair entrapment requirements.

This amendment is consistent with DLI practices and will provide for consistent enforcement along all code officials.

**Subp. 3. Drop-in bathtubs.** This subpart is not being modified and does not appear in the proposed rule.

**Subp. 4. Hot water temperature control device for tubs.** This subpart requires all bathtub and whirlpool faucets to be set at a maximum outlet water temperature of 120 degrees Fahrenheit in accordance with ASSE Standard 1070, Performance Requirements for Water Temperature Limiting Devices. Scalding is a serious injury. Scalding accidents often happen when the tub faucet is left running without supervision or from slips/falls in the tub, especially in young children and vulnerable adults, which can lead to death by hyperthermia. By requiring compliance with the standard, extra protection is provided to reduce the risk of scalding. There are currently several manufacturers that make devices that comply with and are listed to ASSE Standard 1070. This is reasonable and consistent with the national model codes that addresses public safety.

#### **4715.1310 FOOD-WASTE GRINDER UNITS.**

The amendment to this subpart points users to exceptions that permit food-waste grinders to discharge through a grease interceptor. The exceptions are located in parts 4715.1100 and 4715.1105. Without this amendment, the requirements of this part are inconsistent with the rule parts that address the permitted exceptions.

#### **4715.1380 SHOWERS.**

**Subp. 5. Anti-scald control devices.** The changes to this subpart include: (1) to deleting the phrase, “anti-scald type” and replacing it with “individual”. This change creates consistency with the terms used in ASSE Standard 1016; (2) the reference to ASSE Standard 1016-96 is changed to delete the “-96” because the listings it contained have been deactivated by ASSE and either no longer exist or are no longer available; (3) clarifying that valves may be thermostatic, pressure-balancing, or a combination thermostatic and pressure-balancing type in accordance with

ASSE Standard 1016, which results in the addition of the combination thermostatic and pressure balancing type valve; (4) a reference to ASSE Standard 1069, which will prevent the misapplication and improper installation of the master thermostatic control valves. This standard will also provide for thermal shock protection as well as thermostatic protection to master thermostatic control valves for gang showers or similar where the bather does not adjust the final outlet temperature. This allows multiple showers to be used by a single master blender thermostatic control valve with scalding protection. The amendment is consistent with national model codes and reflects the final interpretation issued by the Board's Code Interpretation Committee on August 18, 2010.

The amendments are consistent with the intended application of each ASSE standard referenced and the manufacturers' installation requirements. The amendments are necessary to protect public health and safety by preventing scalding by the proper use of different types of control valves for differing applications.

#### **4715.1410 URINALS.**

The proposed change to subpart one will prohibit all types of trough urinals. Currently, the rule only prohibits floor-type trough urinals. All trough urinals are unsanitary since one urinal can serve multiple users and can create splashing of raw urine from one user to another, including small children. In addition, the use of trough urinals has decreased since they do not provide for any privacy. This proposed amendment is consistent with national model codes.

#### **4715.1420 WATER CLOSETS.**

This amendment adds subpart four, which allows the installation of water closet personal hygiene devices that conform to ASME Standard A112.4.2, Water Closet Personal Hygiene Device. The ASME standard establishes requirements for the design, installation, and testing. Adopting this proposed amendment provides consistent enforcement for all code officials and is consistent with the requirements of national model codes.

#### **4715.1430 HANGERS AND SUPPORTS.**

**Subpart 4. Horizontal piping.** This change adds an exception to item F, which addresses 32-inch interval hanger spacing requirements and currently applies to all plastic pipe including all plastic water distribution pipe. The exception allows hanger spacing at 4-foot intervals for horizontal plastic CPVC water distribution pipe and polypropylene (PP-R) water distribution pipe. This is reasonable since PP-R could accommodate longer intervals of horizontal piping due to the fiberglass reinforcement and CPVC pipe hanger intervals are consistent with manufacturer's installation recommendation for worst case use, which is in hot water supply. The adoption of the proposed hanger spacing for both of these pipe materials are consistent with recognized national model codes.

The amendment also adds item G, which requires fiberglass reinforced pipe to be installed with hangers and supports in accordance with the manufacturer's installation instructions. This is necessary since currently, there is no requirement for this material.

#### **4715.1500 INDIRECT WASTE CONNECTIONS.**

The changes to this rule add walk-in coolers, walk-in freezers, and display cooling cases, to accurately specify the type of cold storages that are addressed by the rule. The additions are consistent with the intent of the existing language and current practices.

Secondly, the words “discharge indirectly” are added to allow the indirect waste piping from food storage/cold storage equipment or compartments to discharge to the drainage system by an air gap as well as an air break. Currently, the discharge to the drainage system is only permitted by an air break. This change is necessary because an air gap provides a higher level of protection than an air break.

Thirdly, an additional requirement is proposed for ice cream dipper wells, ice storage bins, and similar receptacles to discharge to the drainage system through an air gap. Currently, the rule only requires these receptacles to discharge through an air break. There are health concerns of bacteria and bio-films contaminating the indirect waste pipe through the installation of an air break as defined in part 4715.1580. An air gap as defined in 4715.1570 provides a higher level of protection than an air break. This is needed since these types of receptacles store food and utensils that are ready to be used or eaten without any other protection. By adopting this requirement, it will increase the protection of health and safety of the public in all commercial food establishments.

#### **4715.1530 STERILIZERS.**

This amendment requires all waste discharge piping from sterilizing devices to discharge to the drainage system by an air gap only. The Code currently allows for discharge by use of an air gap or an air break. However, when discharging to air break, bio-films could build on the indirect waste piping. This amendment is needed since these types of devices hold sanitized and sterilized products which must be protected from any possible sewer backups or contamination.

#### **4715.1540 POTABLE CLEAR WATER WASTES.**

This amendment is for clarification. The amendment clarifies that water conditioning equipment, water heater relief pipes, and backflow preventer relief pipes, when connected to the potable water system that is waste clear water only, are required to discharge to the drainage system by an air gap, which is consistent with current practices and enforcement.

#### **4715.1590 RECEPTORS OR SUMPS.**

**Subpart 1. Installment.** This subpart is amended to permit clothes washers in residential bathrooms. Currently, the Code prohibits any waste receptors installed in a toilet room including residential bathrooms. This change is necessary to allow single-family dwellings to have clothes washers in the bathrooms. Many builders have proposed this type of design since there is a trend toward larger bathrooms, which are able to accommodate the washers. This amendment is consistent with national model codes and there are no health or safety concerns with the change.

**Subp. 4. Stand pipe receptors.** This subpart is amended to clarify that each stand pipe, regardless of use, must be individually trapped and vented according to the Code. Standpipes are considered receptors for receiving a substantial amount of liquid that must be trapped and vented. This clarification is reasonable and consistent with the intent of the current rule, practices, and enforcement.

#### **4715.2100 BACKFLOW PREVENTERS.**

The amendments proposed for this part are to reference the nationally recognized standards from the American Society of Sanitary Engineering (ASSE) that are appropriate for each type of backflow preventers listed in the rule. ASSE standards have been used by DLI and industry for the proper certification of approved backflow preventers for many years. This amendment provides guidance to inspectors or local officials to recognize the proper standard associated with the listed backflow preventer to protect against backflow into the potable water system. A local plumbing official requested this amendment to address their concern that industry would benefit from additional guidance and clarifications of the Code approved backflow standards for each type of backflow preventer. The specified ASSE standards for the listed backflow preventers are consistent with national model codes and will provide uniform inspection and enforcement of the requirements in the field. These changes are at items A(5), B(4), C(5), D(4-5), E(5), F(4-5), and G(4-5).<sup>6</sup>

Item C is amended to require a spill-proof vacuum breaker (SVB) to be installed at least 12 inches above the spill line rather than the currently required six inches. Mr. Steve Hazzard, an ASSE staff engineer, submitted documentation to the Board in support of this change in that the amendment is necessary to correct an inconsistency with an ASSE Cross Connection Protection Device publication, which recommends an installation height of at least 12 inches above the spill line.<sup>7</sup> This amendment will also provide consistency with item B of this part, which regulates backflow devices that are rated for pressure vacuum breaker assemblies in a similar hazard application.

This part is further amended to add item H, which provides another option for compliance with backflow requirements by specifying ASSE Standard 1001, Atmospheric Type Vacuum Breakers, and articulating the conditions under which an integral vacuum breaker device may be used. ASSE 1001 addresses requirements for limitation of use, performance, and testing criteria as well as conditions of use. This amendment and ASSE 1001 allow deck-mounted and equipment mounted vacuum breakers, and faucets with integral atmospheric or spill proof vacuum breakers be used. This change will provide consistent administration of the requirement and still provide protection of the potable water system.

#### **4715.2110 TYPES OF DEVICES REQUIRED WHERE AN AIR GAP CANNOT BE PROVIDED.**

This part uses a table to identify various installation applications and their recommended backflow

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<sup>6</sup> See Part 4715.2100 at lines 24.7 to 26.14 of the proposed rule.

<sup>7</sup> The documentation was received on April 1, 2011.



protective devices. The amendments are need to update the recommended backflow protective devices that may be used when an air gap cannot be provided; to add a footnoted exception to the backflow prevention requirements for dental waterline treatment units; and other clarifications that will make the table easier for users to read and understand. City plumbing officials and inspectors asked for these amendments, which will result in improved and uniform enforcement.

The double-check valve with intermediate atmospheric vent (DCVIA) backflow device is now rated and only suitable for low hazard application by ASSE 1012. Low hazard applications are considered aesthetic concerns such as taste, color, and non-health effects. As a result, the DCVIA is no longer approved for use in the backflow protection for cooling towers, fire sprinkler systems commercial laundry machines, process lines, RV dump stations, soap dispensers, swimming pools, aquariums, or similar applications because they are all considered applications with concerns of health effects. Consequently, this column of the table has been updated to reflect all installation applications consisting of the DCVIA device. This amendment is necessary so that backflow prevention devices are used in a manner that is consistent with the installation applications listed in the table.

A footnote has been added to provide an exception for certain dental water treatment systems so that, in part, the Code does not regulate dental units that are under the control of the Food and Drug Administration (FDA).<sup>8</sup> Item I of the table requires each dental unit (dental chair) to be protected by a reduced pressure zone assembly backflow preventer (RPZ) to each dental chair. The proposed footnote permits one RPZ device to be installed upstream of a water treatment unit that delivers treated water to multiple dental chairs when the system has been cleared by the FDA for marketing.<sup>9</sup> These FDA cleared systems provide a dual check valve assembly at each line to each dental chair. This amendment is necessary because when an RPZ backflow device is required after the water treatment system to each dental chair (operative), concerns about the presence of potential harm from bacterial (biofilm) contamination through the air/testing vent ports of the RPZ device, bacterial and other chemicals that may be trapped in the backflow devices that are not able to be disinfected every day, and metals from the backflow device that are not suitable to handle pure water from the treatment system present an increase of hazard for patients undergoing dental treatment.

The Board received information regarding the degree of these hazards from multiple sources. The Center of Disease Control suggests that disease transmission caused by backflow from dental units is possible but have very low probability occurrences. Minnesota Board of Dentistry expressed the need for proper sanitation and clean water, and the Minnesota Department of Health supports the need for an RPZ device for containment protection between the water supply source and the dental chair. Because these agencies did not specifically request or support the requirement of an RPZ at each dental chair, the Board proposes the footnote to allow an exception to the requirement of an RPZ at each dental chair since the dental water treatment device is listed and cleared by FDA as a medical device. This will allow an installation of a RPZ device prior to the dental water treatment system. This is reasonable since the protection of water supply is still maintained by requiring the

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<sup>8</sup> See Proposed Rule, Part 4715.2110, footnote 2, at line 28.30.

<sup>9</sup> These systems treat water to meet certain water quality standards during dental procedures, and deliver the water to syringes and hand-pieces for dental patients. FDA 510(k) refers to that agencies clearance of the device for use as a class I medical device.

RPZ backflow between the water supply and the dental water treatment system. Other footnotes to the table have been renumbered to accommodate this footnote.

#### **4715.2150 CONNECTIONS NOT SUBJECT TO BACK PRESSURE.**

**Subpart 2. Cross-connections where protective devices are required and critical level (C-L) settings for backflow preventers.** The amendment to part 4715.1410 prohibits all trough urinals.<sup>10</sup> The change to this subpart is needed for consistency with that amendment. The change deletes trough urinals as a fixture or equipment and the corresponding method of installation.

#### **4715.2300 LOAD ON DRAINAGE PIPING.**

**Subpart 3. Table of fixture unit values for various plumbing fixtures.** Because the amendment to part 4715.1410 prohibits all trough urinals.<sup>11</sup> As a result the language related to the trough urinals has been deleted from this table. This change is needed for consistency with the amendment to part 4715.1410.

In addition, changes are proposed that are minor clarifications to some of the listed fixtures. The changes assign the proper drainage fixture unit for the sizing of the drainage system, which make the table clearer for those that use the table. First, the proposed change adds a hand sink fixture in the same category as the lavatory in the table. The reason is that the use of a hand sink solely for hand washing purposes in a licensed food establishment or in an exam room is similar to a lavatory in a restroom. Further, some of the listed fixtures are outdated and no longer exist, so they have been deleted from the table to avoid confusion.<sup>12</sup>

Finally, to reflect the requirements of part 4715.1310, which is about food waste grinder units, this amendment clarifies that sinks with food waste grinders must be connected to a minimum size trap and drain of two inches.

#### **4715.2350 MINIMUM SIZE OF UNDERGROUND GRAVITY DRAINS.**

The changes to this part include replacing the words “drainage piping” with “gravity drains” in the headnote (the name of the rule). The amendment to the text of the rule clarifies its intent, which is to require that no portion of a gravity drainage system shall be less than two inches in diameter when installed underground.

#### **4715.2420 PROHIBITED FITTINGS AND CONNECTIONS.**

**Subpart 1. General prohibitions.** The amendment adds the words “or cleanout” to specify that a cleanout connection or fixture must not be installed or connected to a closet bend. Since a water closet may be removed to cleanout the line, a cleanout is not required at the water closet. The amendment addresses concerns about the unsanitary conditions from sewer build-up overtime in

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<sup>10</sup> See, page 13.

<sup>11</sup> See, page 13.

<sup>12</sup> For example, the combination, sink and tray is a fixture that is no longer available.

a cleanout that is installed on the closet bend. The amendment is consistent with current industry practices.

#### **4715.2440 DESIGN OF SUMPS.**

The changes to this part will allow a smaller pipe diameter of pump and pump discharge serving water closets. Specifically, the proposed amendment will provide the minimum sizing requirements for sump basin, pump and its discharge for grinder pumps. Grinder pumps typically consist of smaller diameter pump discharges of 1-1/4 inch and 1-1/2 inch and are designed with a lower discharge flow rate than most sanitary sewage pumps. Although, the Code does not currently prohibit grinder pumps, it does prohibit any pump discharge serving a water closet from being less than 2 inches in size.

Grinder pumps are designed with low discharge rates and usually are available in small sump basins. Because of the smaller basins available in these systems, the peak discharge rates from the plumbing fixtures discharging into the sump can quickly exceed the pump flow capacity, and therefore, will cause a buildup of sewage in the sump basin and then the building drainage system. The minimum sizing criteria for these sumps can be achieved by determining the peak water supply demand of the plumbing fixtures discharging to the sump and the combined factors of sump storage volume and pump capacity. Water distribution systems in a plumbing system are sized based on peak demand, and most systems that are connected to municipal supplies are therefore able to supply the peak demand. The proposed amendment is reasonable since sizing using peak water distribution system usage is a standard of practice for most pump manufacturer's guideline for sewage pumps. A time period of five minutes for the peak demand was selected as a reasonable minimum duration for the storage in the basin to prevent sewer back-ups creating an unsanitary condition in any home or public building.

Because these pumps are designed with and deliver a relatively low flow rate, a requirement was added to provide a minimum of two feet per second velocity in the sump discharge line. This is the minimum scouring velocity in any wastewater system design to ensure adequate scouring thereby reducing the chance of line blockage. In addition, a requirement is added for pump controllers to alternate the operation of duplicate pumps during normal use to extend the operating life of the pumps and provide a visual means of determining when maintenance is necessary. This feature is important because when only one pump is operating on a system with alternating controls, maintenance personnel will be able to visually determine when maintenance is necessary. This is reasonable for the proper maintenance and functioning of the system, which relies on pumps for conveying sewer since gravity flow is not possible.

#### **4715.2450 MACERATING TOILET SYSTEMS.**

This new part addresses macerating toilet systems and requires compliance with ASME A112.3.4, Macerating Toilet Systems and Related Components. The standard establishes physical, performance and testing requirements for macerating toilet systems and related components. The system is a toilet with a sump intended to collect waste from a single water closet, lavatory, and tub or shower, that is located in the same room and grind the waste into a slurry and discharge it by pumping the sanitary waste to the building drainage system, usually within a vertical height of 12

feet. Such systems are designed and suitable for limited one- and two-family dwellings and are not intended for commercial application. Since the macerating toilet system is design to break the waste into slurry, the minimum discharge pipe from these systems can a minimum of ¾ inches. Because these systems are designed with vent connections of 1-1/4 inch in size, a requirement is added to increase the vent size to a minimum of two inches immediately after the connection of the system for proper venting. Further, the use of a macerating toilet system is only permitted when gravity flow is not possible. This is consistent with current Code requirements for sump pump installations.

#### **4715.2630 VENTS FOR FIXTURE TRAP.**

This change deletes the words “below trap dip” from the headnote because the rule does not contain any requirements relating to trap dip. This will make the headnote, which is a finding tool for users, more accurate. No amendment to the rule is proposed.

#### **4715.2790 SIPHONIC ROOF DRAINAGE SYSTEM.**

This new part is about a new engineered roof drainage system– the siphonic roof drainage system. The rule specifies the requirements necessary for a proper design and installation of the system. There are three subparts to address the general requirements, design criteria, and proof of suitability of an installed siphonic roof drainage system.

Part two establishes the minimum requirements and adopts standards that must be met in the design of the siphonic roof drainage system. Part three addresses the requirements for testing, inspections, and certification of the siphonic roof drainage system. It is also clarify that the intent of the proposed adoption to allow overflow roof drainage (secondary) to be siphonic system as well as primary. Based on all the presented factors for and against this method by the plumbing industry, the presenter, and DLI staff, there was a consensus of the Board members that the secondary roof drainage can be siphonic.

**Subpart 1. General requirements.** This subpart provides the general requirements for a siphonic roof drainage system and provides an exemption from the requirements of the conventional roof drainage system found in part 4715.2710. The siphonic roof drainage system is an engineered system with performance based criteria requiring proper design with unique installation requirements for building safety and special consideration for suitability for each construction project. Because of these unique parameters, and criteria, a siphonic roof drainage system may only be used when allowed and approved by the administrative authority.

**Subp. 2. Design criteria.** This subpart specifies that a professional engineer (PE), licensed by the State of Minnesota, must design and certify each siphonic roof drainage system.<sup>13</sup> Licensed design is explicitly required since this is an engineered system and the siphonic roof drainage system design requires a higher level of technical understanding by the designer than the conventional roof drainage system. The proper design of the building roof drain system is necessary to protect

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<sup>13</sup> Professional engineers are licensed by the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design. See, Minn. Stat. §§ 326.02 to 326.15.

against roof collapse which is an important component of public safety.

Item A establishes the specific minimum design parameters that must be considered in the design of the system and establishes a minimum requirement of 4 inches per hour rainfall rate in the design of the siphonic roof drainage system to provide consistency with the requirement for other roof drainage systems in the Code.

Items B and C specify that the drainage system design must comply with ASPE<sup>14</sup> Standard 45 (ASPE 45), Siphonic Roof Drainage, and the roof drain body must comply with ASME A112.6.9, Siphonic Roof Drains. In addition, emphasis is also made in this requirement that all manufacturer design software must meet ASPE Standard 45. Because of the complexities of the siphonic design calculation, it is important for the manufacturers of these roof drains to use an established and proven design software program that is based on ASPE Standard 45. Assurance of the of the manufacturer's design software meets ASPE Standard 45 is necessary for accurate and consistent designs and calculations among the different manufacturers of roof drains.

Item D specifies that the maximum roof loading from water accumulation and ponding load must meet the requirements set out in chapter 1305<sup>15</sup> of the Minnesota State Building Code and part 4715.2780, subp. 1C. This requirement is necessary to provide an additional safety factor for public safety and to prevent roof collapse when a roof is designed for water accumulation to control the flow from the roofs beyond the minimum required for the priming of the siphonic roof drains.

Items E and F specify a minimum of 1-1/2 inch pipe to give the designing PE flexibility while maintaining the scouring velocity properties of the siphonic pipe work. The 1-1/2 inch pipe is the smallest size addressed in ASPE 45. The reduction in pipe size in the horizontal run will lead to clogging and, therefore, is not allowed. This is reasonable since debris or the retention of rainwater will collect at the point of reduction.

Items G and H require that plans and specifications indicate the siphonic roof drainage system as the engineered method use for the design so that there is a clear record of the method used in sizing the roof drainage system. This is necessary so that code officials, plan reviewers, and owners must consider the hydraulics related to the siphonic roof drainage system in future modifications or re-design to ensure that design parameters for a safe design are met. Additionally, the marking of all the piping at each floor and roof drain body are required for inspections, maintenance, and replacements. This is necessary to maintain the proper functioning and condition of this type of system after construction because owners and maintenance personnel must be able to clearly identify the installed system to avoid improper maintenance or modifications without a re-design by a PE.

Item I specifies that the transition location from siphonic to gravity be determined by the designing PE and approved by the administrative authority, which is consistent with the Code requirements of part 4715.2700. Protection of the building drainage system is provided by requiring the

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14 American Society of Plumbing Engineers

15 Minn. R. ch. 1305, Adoption of the International Building Code.

discharge transition location to reduce to 3 feet per second, ensuring that the priming break point from siphonic to gravity is adequately vented so the system does not become airborne, and requiring the sizing of the gravity storm drainage to comply with the gravity sizing requirements of part 4715.2710.

Item J requires that the PE's plans, specifications, and calculations be signed and certified, and submitted to the administrative authority. This item also specifies that important extreme parameters must be included in the design calculations that are submitted to the administrative authority for review and approval.

**Subp. 3. Proof of suitability.** This subpart requires that the engineered siphonic roof drainage system demonstrate proof of suitability upon completion of the installation by requiring tests in accordance with ASPE 45, written certification of visual inspection and field modifications by the PE and submitted to the administrative authority.

First, the testing requirements of ASPE 45 assure system integrity by demonstrating that the system can function under positive pressure and in negative pressure in siphonic (depressurized) when tested to worst case conditions.

Secondly, the designing PE is required to physically perform a final field inspection and provide a written certification that the system has been installed in accordance with the design, plans, specifications, and any field modifications. This requirement is necessary because a siphonic roof drainage system is a complex engineered system that requires special expertise and an understanding of hydraulics, proper pipe configuration for balancing the system, and a precise installation, to ensure the correct application of the system.

#### **4715.2820 METHOD OF TESTING.**

**Subpart 2. Rough plumbing.** This subpart is amended to require the pressure gauge used for the air test of the drain, waste, and vent system to have a maximum full-scale reading of not more than 30 pounds per square inch (psi) and a minimum gauge face diameter of 2½ inches. This is necessary to provide a discernible indication of pressure drop within the plumbing system during the test. Because the Code does not currently specify a maximum full-scale reading of the pressure gauge, a gauge could be used where small changes in pressure are not easily noticed to determine compliance. For example, a gauge with a 100 psi scale may be used for the 5 psi air test, and leakage within the plumbing system will not be as readily noticed as a gauge with a maximum scale of 30 psi. A maximum full-scale reading of 30 psi was selected as the pressure increments on the gauge face are most often 1 psi. A 2½-inch minimum gauge face was selected so that pressure changes are easily discernible where immediate access to the gauge by the inspector is not practical.

**Subp. 2a. Exceptions.** Item B is updated to correctly reference the applicable sections of the Standard Utilities Specifications.

**Subp. 3. Finished plumbing.** Currently, the Code does not prescribe a minimum required time period for testing the final finished plumbing, but instead indicates that “the period of inspection”

is the required time. The amendment prescribes 15 minutes as the duration for the testing of the finished plumbing system, or at minimum, the duration of the inspection. This is necessary because without a prescribed time, plumbing contractors and regulated industries are not able to easily determine scheduling and expectations for compliance with the testing requirement. The amendment allows the inspector to set the duration of the test for a finished plumbing system as appropriate for larger and smaller projects.

**REPEALER.** Parts 4715.1110 and 4715.1115 are about grease interceptors. The parts are repealed because they are replaced with the new rule part, which is proposed at 4715.1105.<sup>16</sup>

## CONCLUSION

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

December 12, 2011



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John Parizek, Chair  
Minnesota Plumbing Board

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<sup>16</sup> The discussion of part 4715.1105 is on pages 8-10.