

**Plumbing Board  
Meeting Minutes  
October 15, 2013 at 9:30 a.m.  
Minnesota Room – Department of Labor and Industry  
443 Lafayette Road North, St. Paul, MN 55155**

**Members**

Mike McGowan  
John Parizek  
Pete Moulton  
John Flagg  
Joe Beckel  
Gale Mount  
Jim Kittelson  
Chad Filek  
Grant Edwards  
Phillip Sterner  
Larry Justin  
Ron Thompson  
Thomas Pahkala  
*Jim Lungstrom*

**Members Absent**

Chad Filek

**DLI Staff & Visitors**

A/C Jessica Looman (DLI)  
Pat Munkel-Olson (DLI)  
Cathy Tran (DLI)  
Jim Peterson (DLI)  
Lyndy Lutz (DLI)  
Brian Noma (MDH)  
David Rindal (MDH)  
Jim Gander (Superior Mech)  
Matt Marciniak (IAPMO)  
Gary Ford (Metro Testing)  
Phil Raines (ABC)  
Mike Ritter (MWQA)  
Scott Schiesser (MWQA)  
Carl Crimmins (PHCC)  
Rick Hauffe (ICC)  
Laura Millberg (MPCA)  
Dan Driessen (Ultrapure)  
Brian Soderholm (Soderholm & Assoc. /  
Water Control Corp.)

**I. Call to Order**

The meeting was called to order by Chair Parizek at 9:35 a.m. Introductions and housekeeping announcements were made. Attendance was taken, a quorum was met.

**II. Approval of Meeting agenda**

A motion was made by McGowan to approve the agenda, seconded by Mount, with the following additions to the agenda:

III. Approval of Previous Meeting Minutes

**B) *September 17, 2013 National Code Review Committee Meeting***

VI. Special Business

**A) *Executive Committee – Nomination of Secretary***

**III. Approval of Previous Meeting Minutes**

**A. Board of Plumbing 7/16/2013 Meeting Minutes**

Justin made a motion to approve the minutes as presented, seconded by Flagg. The majority vote ruled; motion carried with one abstention by Lungstrom.

**B. National Code Review Committee 9/17/2013 Meeting Minutes**

Lungstrom made a motion to approve the 9/17/2013 meeting minutes, seconded by Beckel. The majority vote ruled; motion carried with one abstention by Mount.

Parizek explained that approval of the National Code Review Committee minutes will signify that they will be brought forward to the Board for review.

#### **IV. Regular Business**

Approval of Expense Reports –Parizek approved the expenses as presented.

Parizek introduced Thomas Pahkala as the newest board member and Pahkala provided a brief personal history stating he works for the City of Minneapolis as a rain leader disconnect inspector. He became involved with the board two years ago when the City of Minneapolis agreed to support requests from Soderholm & Associates to adopt a portion of rain water reuse.

#### **V. Committee Reports**

A/C Looman addressed the board and visitors to discuss the Construction Industry Conference and a Department Update.

##### **Construction Industry Conference:**

The State of Minnesota and four statewide associations - the Associated General Contractors of Minnesota, Associated Builders and Contractors, Builders Association of Minnesota and the Minnesota State Building Trades Council are partnering with the following government agencies: Department of Employment & Economic Development, Department of Transportation, Department of Administration, and the Department of Human Rights, for the 2014 Minnesota Construction Industry Conference on February 6, 2014. In addition, there are many local contractor and sub-contractor associations that are sponsoring this event. The conference will have 15 workshops in 3 different industry tracks - highway/heavy, commercial and residential. Our goal is to shed some light on the regulatory framework of the construction industry while, at the same time, celebrating the construction industry and the critical role this industry plays in Minnesota's economy. Registration should be available online the first week in November. Website information: <http://www.dli.mn.gov/construction/>

##### **Department Update:**

The department has updated all of our dashboards and performance measures. DLI Dashboard is available on our website at: <http://www.dli.mn.gov/Dashboard.asp> CCLD online permitting and licensing is going very well at 75% volume. Please continue to encourage online licensing and permitting.

OSHA is celebrating 40 years of keeping Minnesota workers safe on the job. Website information: <http://www.dli.mn.gov/MnOsha.asp>

Jim Lungstrom has helped implement electronic plan review of both building and plumbing plans; we hope to have more to share on this in January. A large portion of the planning process from architects and engineers are done online already and plans will be able to be submitted, reviewed, and sent back electronically. This will integrate with our online permitting system, creating a seamless process of submittal and permit authorization. DLI is moving forward with efficiencies, greater service delivery and better performance – if you have any concerns or feedback, please let DLI know.

**A. Executive Committee**

The Executive Committee met this morning and reviewed today's agenda and discussed the process that will be used for the Special Business portion of our meeting.

**i. Correspondence**

**Minnesota Landscape Association email:**

Concerns were raised regarding requirements of the ASSE Certification with irrigation contractors. All of their questions were answered sufficiently. In regards to ASSE certification schools being identified, Parizek stated it is a slow, very detailed process with specific requirements needing to be met. As demand increases for training the available schools will also increase and he anticipates that most of the school's that used to be listed for certification throughout the state will eventually be listed as ASSE certified.

**Correspondence from Manufacturers regarding the standards for ASSE 1070 and ASSE 1016 devices for bathtubs and showers:**

Email will be sent to address and clarify their questions on why the ASSE 1070 and 1016 devices were required for certain installations.

**Perma Liner correspondence:**

Perma-Liner requested to have their product approved by the plumbing board now that they are listed in the 2012 UPC. Parizek explained the process and different avenues that could be traveled for product approval with options as follows: Submit an RFA to the board for review for approval or wait to see what happens in this process with possible national adoption. He explained that there has not been any recommendations to the portion of the UPC that deals with cured-in-place pipelining systems and Perma-Liner is aware of their options.

**ii. Water Reuse Interagency Workgroup**

Parizek stated the group meets every other month with Tran and himself as representatives from the Plumbing Board. In addition, there are representatives from the Department of Health, Minnesota Pollution Control, and Department of Natural Resources. The issue found when dealing with water reuse is that jurisdiction over a lot of these systems crossed different boundaries of multiple agencies. Questions were raised on how to deal with these issues, who has responsibility for what, and how can we consolidate and reach a consensus. The group is still meeting and we may have to start dealing with the legislature in regards to establishing jurisdictional boundaries.

**B. Product and Code Review Committee**

Justin stated they have not met; nothing to report.

**C. Construction Codes Advisory Council**

Kittleson stated that they had a discussion on the adoption of the green building code and the model code of the ICC, adopting parts of it. Legislative plan review and OSHA's 40 year history were also discussed with A/C Looman already providing this update.

**D. National Code Review Committee**

Lungstrom provided an update, meeting monthly since March 2013 in order to develop potential amendments to the UPC. The Committee has compiled these potential amendments into a document being brought forward to the board for review. These amendments are simply a summary of the Committee's work identifying potential amendments - the board can accept, deny, modify, or reject any and all of these comments. The board should begin the review process of these potential amendments and make decisions on what should move forward. The board could elect to move these forward into Rulemaking but even at that point, the Revisor could change or deny any proposal that the board makes. This is the preliminary, initial stage of the process and these amendments will be discussed as Item 6 in today's agenda.

**E. DLI Reports**

**i. Final Interpretations published**

**Penguin Toilets and Combi-Ovens**

Munkel-Olson provided an update stating that they both have an appeal period associated with them that expires on the October 18, 2013 and October 21, 2013, respectfully. She does not expect appeals for either of these interpretations.

**ii. Continuing Education Rules, Intent to Adopt published**

The intent to adopt was published on July 29, 2013. Munkel-Olson addressed the board stating one comment was received that Chair Parizek responded to and she is in the process of preparing those rules for submission to the Office of Administrative Hearing for review and approval under the expedited rulemaking authorities. The board has already authorized Parizek to move forward for adoption should this be the judge's decision.

Tran provided an update stating that the department's accelerated plan review has been eliminated and effective January 1, 2014 all plans will be first come, first serve.

**VI. Special Business**

**A. Nomination for Secretary**

McGowan has stepped down therefore Parizek asked if there were any volunteers for the position, noting that the Secretary is responsible for review of the draft minutes of both the Executive Committee and the Board before publishing on the website. **Edwards nominated Pahkala. No other nominations were made. The vote was unanimous, nomination passed. Pahkala was elected as Secretary.**

**B. National Code Review Committee Recommendation**

Lungstrom stated that the Committee recommends that the Board review the comments and begin the process of moving items forward.

**C. Review of possible amendments to the 2012 Uniform Plumbing Code for potential adoption under future rulemaking to adopt a national model code.**

Parizek stated the board did vote to adopt a national code; therefore we now have to go through the process to decide on a national code with possible amendments. The National Code Review Committee was directed to review the UPC and submit possible amendments to that code for the board's review. The intent today is not to adopt anything but to review the Committee's proposed amendments and decide what we want to move forward with.

This is just the beginning of the process; we need to review all of the information and if language moves forward then SONARS will need to be written, documents will need to be prepared, and Revisor's will need to review everything before we ever get to the point of adoption. Items that cannot be quickly discussed will be tabled for a more in depth review at future meetings to be held at 9:30 a.m. on November 18, 2013 and, if needed, December 10, 2013. Typically the Executive Committee meets before each board meeting – we will decide if the Committee will meet at 8:00 a.m.

Parizek discussed the 3-ring binder with all of the suggested changes that each board member received stating that each amendment refers to an Exhibit that should be referred to when discussing. He stated that if there are any questions or concerns from the board or visitors, we will accept any comments. MDH asked about previously denied proposals and whether these topics could be discussed. Parizek stated that at this time the board is addressing only amendments brought forward to the board but added that the board will not eliminate anything at this point and time; any items can be brought forward to the board at a future, special meeting. Munkel clarifies that the goals of the Committee is to have their recommendations considered by the board, in the sense that the actual rule language that might be proposed could begin to be compiled. This is not an adoption or a proposal; it is an infancy draft of language that is a refinement of the Committee's recommendations. She stated that after reviewing the Committee's recommendations, the items that were not a part of this should be reviewed to determine if they should be included, adding that the Board could also decide not to move forward.

Parizek stated that when the process was begun, it was intended that we compare the UPC to the current state plumbing code and review for conflicts. If there were, do we need to delete some of the UPC language and accept some of our State language in its place; are there health reasons, structural issues, or concerns for the plumbing system itself that come into play that would require us to make these changes? We need to look at whether there is a justifiable reason for making some of these changes. Recommendations may be valid but should possibly be proposed at a national level instead. As we go through the review, keep these things in mind, is this something we need to change, is it a health or concern to the integrity of the plumbing system, is it something we just want to hang on to, or is it something that is better of proposed at a national level. Code language can be reviewed every 3 years. Parizek clarified that our original intent was to pick either the state code or national code but concerns in the national code were brought up that needed to be addressed. In addition, special weather concerns for the state of Minnesota were also raised.

***Refer to attachment A for discussion on recommendations from the National Code Review Committee.***

**VII. Complaints**

Licensing complaints were turned over to enforcement and dealt with swiftly.

**VIII. Open Forum**

None brought forward.

**IX. Board Discussion**

Nothing brought forth.

**X. Announcements**

**Next Regularly Scheduled Meetings**

- i. January 21, 2014 @ 9:30 – Minnesota Room, DLI
- ii. April 15, 2014 @ 9:30 – Minnesota Room, DLI

**Notification regarding special meetings to be held on November 18, 2013 and December 10, 2013 will be emailed to all board members and interested parties.**

**XI. Adjournment**

**A motion was made by Sterner, seconded by Edwards to adjourn. The vote was unanimous and the meeting was adjourned at 4:01 p.m.**

Respectfully submitted



Chair

**Plumbing Board  
National Code Review Committee  
RECOMMENDED CODE LANGUAGE - 2013**

**Language displayed in RED reflects 10/15/13 board meeting discussion**

Requester/ Meeting Date	Section	Motion To	Exhibit	Accept or Deny to move forward, or Tabled for future meeting	Carried – Majority, Unanimous, or Fail  Yes or No
<sup>1</sup> DLI 8/26/13	Chapter 1 2012 UPC	Accept  The intent of the Committee was to recommend that all of Chapter 1 be deleted in the UPC and that the Minnesota Administrative chapter in our building codes be adopted. Also recommend to take Basic Plumbing Principles out of our current code and insert that into Chapter 1.	1	Edwards / Pahkala Accept to move forward with deletion of un-needed portions of Chapter 1 and insertion of Basic Plumbing Principles into Chapter 1	Yes Carries Unanimous
<i>The meeting broke at 10:45 a.m. and resumed at 11:00 a.m.</i>					
<sup>1</sup> DLI 8/26/13	Chapter 2 2012 UPC  <b><i>This is a WORK IN PROGRESS – If we proceed with Chapter 2 items are going to continue to change</i></b>  <b><i>Extraneous definitions may need to be removed but it is too premature to know what these items are</i></b>  <b><i>We will need to delete items in 4715 that we no longer need</i></b>	Motion to proceed to accept DLI Chapter 2; with understanding this is a work in progress. Friendly amendments: <ul style="list-style-type: none"> <li>• Certified Backflow Assembly Tester: look at language in MN Statutes</li> <li>• add a definition for Health Authority</li> <li>• strike Minnesota Department of Health use “Health Authority” reference “Authoritative Commissioner”</li> </ul> Formatting issues were brought up by legal counsel: Transferring language into rule-part language may require re-numbering and if text is not new language, it should not be presented as such. Language in 4715 that we do not need should be deleted. When brought forward there are pieces of 4715, rule parts and/or sub-parts, which may require moving or re-numbering in order for them to make sense. If nothing is being changed in the Basic Plumbing Principles in 4715 then it will not appear as language in a rule that will be proposed because you are not changing it. It already exists. For instance, in the definitions we wouldn't be inserting administrative authority into the UPC because it already exists in 4715 under definitions – all we are doing is modifying authority having jurisdiction in the UPC to reference the definition in 4715. The portions of 4715 that will not be changed in this rulemaking were suggested to be re-numbered and can be done as a re-numbering instruction.	2	Justin / Moulton To table and revisit	Yes Carries Unanimous

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<sup>2</sup> MDH 4/16/13	<b>307.1 (System)</b>	Accept suggested deletion of “private sewage disposal system” in <b>307.1</b> since under the MPCA rules. <i>When language exists, it should be deleted as we do not have authority over private sewage systems.</i>	3	Justin / Pahkala To accept deletion	Yes Carries Unanimous
<sup>1</sup> DLI 4/16/13	Ch. 3 2012 UPC Thru  <i>Marciniak was asked to provide a list of states that have included Appendices as part of their code body vs. after the code; he stated he would provide this list at the 11/18/13 meeting, along with information on how other states deal with expansion of plastic piping.</i>	(1) Accept with change to 301.2 relating to “Unless prohibited by this code <i>or by law,...</i> ” (2) Accept with change to 301.4.6 as “Prior to the final plumbing inspection, the <i>design professional engineer</i> must provide written certification to the administrative authority that the system has been visually inspected by the <i>design professional engineer or their designee,...</i> ” (3) Deny 312.9 referencing mechanical code. Entire exception is deleted. <i>As this is existing language, Tran adds that sections 300.1, 300.2 and 300.3 would need to be brought forward with re-numbering for clarification. Sections 300.1 to 300.3 come from the current plumbing code; sections 300.4 to 300.6 are from chapter 1 of the UPC. Legal counsel commented that there are some vague terms, such as: Section 300.6 – “in fact” – what is the standard for including this language? Section 300.6 is a compilation from different paragraphs, not word for word; therefore the language “in fact” could possibly be stricken. Clarification to be provided to legal counsel directly following the meeting. There was also a deletion in 301.1 “<del>other than those for gas</del>” since the plumbing code does not deal with natural gas. Section 301.1.2 Standards, deletion of language because Appendix I is being adopted. Section 301.1.3 Existing Buildings is stricken because it is already addressed in section 300.3, providing a broader area of when to deviate. Section 301.2 – additional language is similar to current 4715 language. Additional language in 301.4.6 change to be brought forward: Strike “<del>design</del>” and replace with “<u>professional</u>”.</i>  <i>Recommended DLI to review Appendix I Installation Standards.</i>	4	<i>Pahkala / Justin Accept moving forward with Chapter 3, sections 300.0 to 315.1 with exceptions noted below:  Section 301.5.4, Appendix I was tabled to be reviewed in more detail at the 11/18/13 or 12/10/13 meeting  Section 317.0 was previously denied and accepted to move forward in MDH’s Exhibit 6 attached  Section 319.0 to 319.1 is addressed separately on the next page</i>	Yes Carries Unanimous
<i>The meeting broke while discussing Exhibit 4 at Noon and resumed at 1:05 p.m.</i>					

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<sup>1</sup> DLI 4/16 & 9/17	314.0 (General Trenches) to 314.4	Accept with motion to strike 314.1 in its entirety Motion to strike 314.1 due to conflict with OSHA regulations	5	Justin / Sterner Accept moving forward with deletion of 314.1	Yes Carries Unanimous
<sup>2</sup> MDH 4/16/13	317.1 (General)	Accept new suggested language DLI proposed to delete entire section (Exhibit 4), arguing that it should be in the food code. Board chose to deny DLI's 317.1 and accept MDH's 317.1, Exhibit 6	6	Justin / Moulton to Accept moving forward	Yes Carries Majority, 1 opposed
<b>DLI</b>	<b>319.0 to 319.1</b>	<b>Motion to strike language was accepted</b>	<b>4</b>	<b>Justin / Sterner Accept to move forward</b>	<b>Yes, Carries Unanimous</b>
Justin 6/18/13	403.3.1 (Nonwater Urinals)	Accept	7	Beckel / Edwards Accept moving forward	Yes Carries Majority, 1 opposed
<sup>2</sup> MDH 6/18/13	403.4 (Metered Faucets)	Accept Motion to leave 404.3.1 as is – <b>do not change UPC language Language recommendation denied – do not carry forward</b>	8	Mount / Parizek Deny moving forward	Yes Majority, 4 opposed
Ames 6/18/13	408.4 (Waste Outlet)	Accept to move forward with exemption for the shower drains on existing or retrofits to be allowed to be 1.5 inches in lieu of 2 inches <b>MOTION FAILS – STAYS AS WRITTEN IN UPC, NOTHING TO MOVE FORWARD</b>	9	Justin / Pahkala Accept moving forward with exemption	No FAILS to carry Stays as written in UPC
<sup>2</sup> MDH 6/18/13	408.8 (Public Shower Floors) <b>Should possibly be addressed at National level</b>	Accept with modification <b>MOTION TO DENY RECOMMENDED LANGUAGE; EXISTING UPC LANGUAGE REMAINS – DO NOT MOVE FORWARD</b>	10	Mount / Edwards Deny moving forward	Yes Carries Majority, 2 opposed, 1 abstention
<b>Meeting broke at 2:30 and resumed at 2:43 p.m.</b>					
<sup>2</sup> MDH 6/18/13	415.5 (Public Use Fountains)	Accept	11	Justin / Mount Accept moving forward	Yes Carries Majority
<sup>2</sup> MDH 6/18/13	418.4 (Food Storage Areas)	Accept	12	Mount / Justin Accept moving forward	Yes Carries Majority



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<sup>1</sup> DLI 7/16/13	603.2 (Approval of Devices or Assemblies)	Accept	16	Tabled	N/A
<sup>1</sup> DLI 7/16/13	608.5 (Drains)	Accept	16	Tabled	N/A
<sup>1</sup> DLI 7/16/13	610.3 – Table (Water Supply Fixture Units)	See Table for specific elements that were either Accepted or Denied	16	Tabled	N/A
<sup>1</sup> DLI 4/16/13	Chapter 12 & 13	Accepted to delete in their entirety (The Plumbing Code doesn't have any jurisdiction – it is under the jurisdiction of the Fire Marshal)	N/A	Pahkala / Moulton Accept moving forward with deletion of Ch. 12 & 13 in their entirety	Yes Carries Majority, 1 opposed
<sup>1</sup> DLI 8/26/13	Chapter 14	Accept as is, no changes Legal Counsel requested clarification regarding the Appendices	N/A	Justin / Lungstrom Accept moving forward	Yes Carries Unanimous
<sup>1</sup> DLI 4/16/13	Chapter 15	Accepted to delete in its entirety (The Plumbing Code doesn't have any jurisdiction)	N/A	Pahkala / Moulton Accept moving forward with deletion of Ch. 12 & 13 in their entirety	Yes Carries Majority, 1 opposed
Parizek 8/26/13	Chapter 16 (UPC: Alternate Water Sources for Nonpotable Applications)	Accept in principal with amendments – There needs to be additional discussion / parameters that everyone can accept  <b>Working Draft Place-holder position</b>  <b>Parizek recommending tabling until next rulemaking session due to opposition from other departments; controversy on water quality standards and agency authority – Board discussion resulted in motion being withdrawn</b>	40	<del>Parizek / Lungstrom Motion to table for future rulemaking, remove completely and deal with in 3 years</del>  <b>Motion was withdrawn; Tabled for future meeting</b>	N/A

**Plumbing Board  
National Code Review Committee  
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Requester/ Meeting Date	Section	Motion To	Exhibit	Accept or Deny to move forward, or Tabled for future meeting	Carried – Majority, Unanimous, or Fail Yes or No
Parizek 8/26/13	Chapter 17 (UPC: Nonpotable Rainwater Catchment Systems)	Accept in principal with amendments – motion to move ahead in principal that there needs to be additional discussion / parameters that everyone can accept • 1701.1.1 - Strike the word “Alternate” and add in its place the word “Rain” <b>Working Draft Place-holder position</b>  <b>Parizek to make modifications to Chapter 17 – will bring forward at a future meeting</b>	41	Tabled for future meeting	N/A

# NATIONAL CODE REVIEW COMMITTEE SUGGESTION FORM

(This form must be submitted electronically)

*Author/requestor:* Cathy Tran

*Email address:* cathy.tran@state.mn.us

*Telephone number:* 651/284-5898

*Firm/Association affiliation, if any:* DLI

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## **Suggested Code Change - Language**

Please provide your suggested change using a strikeout and underline format. Provide the *specific* language you would like to see changed, with new words underlined and ~~strikeout~~ the words to be deleted. Tell us whether the language you are suggesting or changing is from a code book or from Minnesota Rules, chapter 4715. (You may provide the language (electronically) on a separate attached sheet).

**2012 UPC Chapter 1** -See attached documentation.

## **Suggested Code Change – Need and Reason**

Please provide a thorough explanation of the need for the suggested changed and why the change is a reasonable one. During the rulemaking process, the Board must defend the need for and reasonableness of all its recommended changes. (You may provide the need and reason (electronically) on a separate attached sheet).

See attached documentation.

## **Suggested Code Change – Cost/Benefit Analysis**

Please explain whether the change you suggest will increase or decrease costs, or that the change will not have any cost implications. If there is an increased cost, will this cost be offset somehow by a life-safety or other benefit? If so, please explain. Are there any cost increases or decreases to enforce or comply with the suggested change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate attached sheet).

No cost implications.

**Please explain:**

1. Is the suggested change meant to:

x change language contained in a published code book? If so, list section(s).

change language contained in an existing Minnesota Rule in chapter 4715? If so, list the Rule part(s).

delete language contained in a published code book? If so, list section(s).

delete language contained in an existing Minnesota Rule in chapter 4715? If so, list Rule the part(s).

neither; the suggested change is new language and is not in a code book or in Minnesota Rules, chapter 4715.

2. Is the suggested change required by a federal requirement or regulation, state statute or new legislation? If so, please explain and provide the citation to the regulation, statute or legislation.  
MN Statutes 326b.43

3. Will the suggested change impact other sections of a published code book or the Minnesota State Building Code or other administrative rules? If so, please list the affected sections or rule parts.

4. Who are the parties affected or segments of industry that might be affected by the suggested change?

5. Can you think of other means or methods to achieve the purpose of the suggested change? If so, please explain what they are and why your suggested change is the preferred method or means to achieve the desired result.  
no

6. Are you aware of any federal requirement or regulation related to this recommended code change? If so, please list the regulation or requirement.  
No

Accept to move forward with deletion of un-needed portions of Chapter 1 and insertion of Basic Plumbing Principles into Chapter 1

## CHAPTER 1 - 2012 UPC DLI Recommended changes

Propose to delete chapter 1 in its entirety and replace with the following:

### CHAPTER 1 BASIC PLUMBING PRINCIPLES

#### 101.0 BASIC PLUMBING PRINCIPLES.

This code is founded upon certain basic principles of environmental sanitation and safety through properly designed, acceptably installed and adequately maintained plumbing systems. Some of the details of plumbing construction may vary but the basic sanitary and safety principles desirable and necessary to protect the health of the people are the same everywhere. As interpretations may be required, and as unforeseen situations arise which are not specifically covered in this code, the twenty three principles which follow shall be used to define the intent.

- A. All premises intended for human habitation, occupancy, or use shall be provided with a potable water supply which meets the requirements of the Commissioner of Health. Such water supply shall not be connected with unsafe water sources nor shall it be subject to the hazards of backflow or back-siphonage.
- B. Proper protection shall be provided to prevent contamination of food, water, sterile goods, and similar materials by backflow of sewage. When necessary, the fixtures, device, or appliance shall be connected indirectly with the building drainage system.
- C. Each family dwelling unit shall have at least one water closet, one lavatory, one kitchen type sink, and one bathtub or shower to meet the basic requirements of sanitation and personal hygiene. All other structures for habitation shall be equipped with sufficient sanitary facilities.
- D. The building sewer in every building with installed plumbing fixtures and intended for human habitation, occupancy, or use when located on premises where the sewer authority has determined that a public sewer is available shall be connected to the public sewer.
- E. The building drainage system shall be designed to provide adequate circulation of air in all pipes with no danger of siphonage, aspiration, or forcing of trap seals under conditions of ordinary use.
- F. The drainage system shall be designed, constructed, and maintained to conduct the waste water with velocities which will prevent fouling, deposition of solids, and clogging.
- G. The drainage system shall be provided with an adequate number of cleanouts so arranged that in case of stoppage the pipes may be readily cleaned.
- H. Where a building drainage system may be subjected to back flow of sewage, suitable provision shall be made to prevent its overflow in the building.
- I. Each vent terminal shall extend to the outer air and be so installed as to minimize the possibilities of clogging and the return of foul air to the building.
- J. No substance which will clog or accentuate clogging of pipes, produce explosive mixtures, destroy the pipes or their joints, or interfere unduly with the sewage disposal process shall be allowed to enter the drainage system.
- K. The piping of the plumbing system shall be of durable material free from defective construction and so designed and constructed as to give satisfactory service for its reasonable expected life.
- L. The plumbing system shall be subjected to adequate tests and to inspections in a manner that will disclose all leaks and defects in the work or the material.
- M. Plumbing systems shall be maintained in a safe and serviceable condition from the standpoint of both mechanics and health.
- N. Plumbing shall be installed with due regard to preservation of the strength of structural members and prevention of damage to the walls and other surfaces through fixture usage.
- O. Plumbing fixtures shall be made of durable, smooth, nonabsorbent, and corrosion-resistant material and shall be free from concealed fouling surfaces.

P. Plumbing fixtures, devices, and appurtenances shall be supplied with water in sufficient volume and at pressures adequate to enable them to function properly and without undue noise under normal conditions of use.

Q. Plumbing fixtures shall be designed and adjusted to use the minimum quantity of water consistent with proper performance and cleaning. Hot water shall be supplied to all plumbing fixtures which normally need or require hot water for their proper use and function.

R. All plumbing fixtures shall be so installed with regard to spacing as to be accessible for their intended use and cleansing.

S. Each fixture shall be provided with a separate, accessible, self-scouring, reliable trap placed as near to the fixture as possible.

T. No water closet or similar fixture shall be located in a room or compartment which is not properly lighted and ventilated.

U. If water closets or other plumbing fixtures are installed in a building where there is no public sewer available as determined by sewer authority, suitable provision must be made for treatment of the building sewage by methods which meet the design criteria of the Minnesota Pollution Control Agency.

V. Devices for heating water and storing it shall be designed and installed to prevent all dangers from explosion and overheating.

W. Sewage or other waste shall not be discharged into surface or subsurface water unless it first has been subjected to an acceptable form of treatment methods approved by the Minnesota Pollution Control Agency.

**Sonar:** This lists 23 basic principles of health and sanitation, and safety that are the basis of the Plumbing Code. These principles are used to define the intent of the code by providing a proper functioning plumbing system that is safe and sanitary. The listed principles are used as interpretation maybe required, and unforeseen situations may arise that are not covered in the code, the principles are used to define the intent.

## NATIONAL CODE REVIEW COMMITTEE SUGGESTION FORM

(This form must be submitted electronically)

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*Telephone number:* 651/284-5898

*Firm/Association affiliation, if any:* DLI

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### **Suggested Code Change - Language**

Please provide your suggested change using a ~~strikeout~~ and underline format. Provide the *specific* language you would like to see changed, with new words underlined and ~~strikeout~~ the words to be deleted. Tell us whether the language you are suggesting or changing is from a code book or from Minnesota Rules, chapter 4715. (You may provide the language (electronically) on a separate attached sheet).

**2012 UPC Chapter 2** –Definition, see attached documentation.

### **Suggested Code Change – Need and Reason**

Please provide a thorough explanation of the need for the suggested changed and why the change is a reasonable one. During the rulemaking process, the Board must defend the need for and reasonableness of all its recommended changes. (You may provide the need and reason (electronically) on a separate attached sheet).

See attached documentation.

### **Suggested Code Change – Cost/Benefit Analysis**

Please explain whether the change you suggest will increase or decrease costs, or that the change will not have any cost implications. If there is an increased cost, will this cost be offset somehow by a life-safety or other benefit? If so, please explain. Are there any cost increases or decreases to enforce or comply with the suggested change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate attached sheet).

No cost implications.

**Please explain:**

1. Is the suggested change meant to:

change language contained in a published code book? If so, list section(s).

change language contained in an existing Minnesota Rule in chapter 4715? If so, list the Rule part(s).

delete language contained in a published code book? If so, list section(s).

delete language contained in an existing Minnesota Rule in chapter 4715? If so, list Rule the part(s).

neither; the suggested change is new language and is not in a code book or in Minnesota Rules, chapter 4715.

2. Is the suggested change required by a federal requirement or regulation, state statute or new legislation? If so, please explain and provide the citation to the regulation, statute or legislation.  
MN Statutes 326b.43

3. Will the suggested change impact other sections of a published code book or the Minnesota State Building Code or other administrative rules? If so, please list the affected sections or rule parts.

4. Who are the parties affected or segments of industry that might be affected by the suggested change?

5. Can you think of other means or methods to achieve the purpose of the suggested change? If so, please explain what they are and why your suggested change is the preferred method or means to achieve the desired result.  
no

6. Are you aware of any federal requirement or regulation related to this recommended code change? If so, please list the regulation or requirement.  
No

Table and revisit

## CHAPTER 2 - 2012 UPC DLI Recommended changes DEFINITIONS

### 201.0 General.

**201.1 Applicability.** For the purpose of this code, the following terms have the meanings indicated in this chapter.

No attempt is made to define ordinary words, which are used in accordance with their established dictionary meanings, except where a word has been used loosely and it is necessary to define its meaning as used in this code to avoid misunderstanding.

### 202.0 Definition of Terms.

**202.1 General.** The definitions of terms are arranged alphabetically according to the first word of the term.

### 203.0

– A –

**ABS.** Acrylonitrile-butadiene-styrene.

**Accessible.** Where applied to a fixture, connection, appliance, or equipment, “accessible” means having access thereto, but which first may require the removal of an access panel, door, or similar obstruction.

**Accessible, Readily.** Having a direct access without the necessity of removing a panel, door, or similar obstruction.

**Administrative Authority.** “Administrative authority” means the commissioner of labor and industry. (When a governmental subdivision adopts and maintains a comprehensive plumbing enforcement program that is conducted by personnel who are knowledgeable about plumbing installation requirements, and includes enforcement of all code provisions including materials, methods, inspection, and testing, the administrative authority shall be the governing body of the adopting unit of government, its agents, and employees; however, the commissioner of labor and industry retains the ultimate authority to enforce Minnesota Statutes, sections 326B.43 to 326B.49, and provisions of this chapter that are necessary to ensure compliance.)

**SONAR:** This is needed to provide a specific definition for the term “Administrative Authority” for consistent use in the statewide plumbing administration as well as providing clarity that the department is ultimate authority to enforce the plumbing code in accordance MS 326B.106.

**Air Break.** A physical separation which may be a low inlet into the indirect waste receptor from the fixture, appliance, or device indirectly connected.

**Air Gap, Drainage.** The unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe, plumbing fixture, appliance, or appurtenance conveying waste to the flood-level rim of the receptor.

**Air Gap, Water Distribution.** The unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe or faucet conveying potable water to the flood-level rim of a tank, vat, or fixture.

**Alternate Water Source.** Nonpotable source of water that includes but not limited to gray water, on-site treated non-potable water, rainwater, and reclaimed (recycled) water.

**Anchors.** See Supports.

~~**Appliance Categorized Vent Diameter/Area.** The minimum vent area/diameter permissible for Category I appliances to maintain a nonpositive vent static pressure where tested in accordance with nationally recognized standards. [NFPA 54:3.3.7]~~

~~**Appliance Fuel Connector.** An assembly of listed semi rigid or flexible tubing and fittings to carry fuel between a fuel piping outlet and a fuel burning appliance.~~

**Approved.** Acceptable to the Authority Having Jurisdiction.

**Approved Testing Agency.** An organization primarily established for purposes of testing to approved standards and approved by the Authority Having Jurisdiction.

**Area Drain.** A receptor designed to collect surface or storm water from an open area.

**Aspirator.** A fitting or device supplied with water or other fluid under positive pressure that passes through an integral orifice or constriction, causing a vacuum.

~~**Authority Having Jurisdiction.** Unless specify otherwise in this code, the term “Authority Having Jurisdiction” has the same meaning as the “Administrative Authority”. The organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, installations, or procedures. The Authority Having Jurisdiction shall be a~~

federal, state, local, or other regional department or an individual such as a plumbing official, a mechanical official, labor department official, health department official, building official, or others having statutory authority. In the absence of a statutory authority, the Authority Having Jurisdiction may be some other responsible party. This definition shall include the Authority Having Jurisdiction's duly authorized representative.

**SONAR:** The recommended change is to clarify that the definition of Authority Having Jurisdiction, unless specify otherwise, has the same meaning as Administrative Authority when used in this code. This recommended change is needed since the term Authority Having Jurisdiction is widely used in this code and if not changed, will consists of many entities and authorities which may or may not apply to this code. This will create more confusion as to who is the responsible person enforcing the code. In addition, this recommended change will minimize amendments to this code when the term "Authority Having Jurisdiction" is used.

## 204.0

### - B -

**Backflow.** The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from sources other than its intended source. See Backsiphonage, Backpressure Backflow.

**Backflow Connection.** An arrangement whereby backflow can occur.

**Backflow Preventer.** A backflow prevention device, an assembly, or other method to prevent backflow into the potable water system.

**Backpressure Backflow.** Backflow due to an increased pressure above the supply pressure, which may be due to pumps, boilers, gravity, or other sources of pressure.

**Backsiphonage.** The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to a pressure less than atmospheric in such pipe. See Backflow.

**Backwater Valve.** A device installed in a drainage system to prevent reverse flow.

**Bathroom.** A room equipped with a shower, bathtub, or combination bath/shower.

**Bathroom Group.** Any combination of fixtures, not to exceed one water closet, two lavatories, either one bathtub, or one combination bath/shower, and one shower, and may include a bidet and an emergency floor drain.

**Bathroom, Half.** A room equipped with only a water closet and lavatory.

**Battery of Fixtures.** A group of two or more similar, adjacent fixtures that discharge into a common horizontal waste or soil branch.

**Boiler Blowoff.** An outlet on a boiler to permit emptying or discharge of sediment.

~~**Bonding Jumper.** A reliable conductor to ensure the required electrical conductivity between metal parts required to be electrically connected. [NFPA 70:100.1]~~

**Branch.** A part of the piping system other than a main, riser, or stack.

**Branch, Fixture.** See Fixture Branch.

**Branch, Horizontal.** See Horizontal Branch.

**Branch Vent.** A vent connecting one or more individual vents with a vent stack or stack vent.

**Building.** A structure built, erected, and framed of component structural parts designed for the housing, shelter, enclosure, or support of persons, animals, or property of any kind.

**Building Drain.** That part of the lowest piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer beginning 2 feet (610 mm) outside the building wall.

**Building Drain (Sanitary).** A building drain that conveys sewage only.

**Building Drain (Storm).** A building drain that conveys storm water or other drainage, but no sewage.

**Building Sewer.** That part of the horizontal piping of a drainage system that extends from the end of the building drain and that receives the discharge of the building drain and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal.

**Building Sewer (Combined).** A building sewer that conveys both sewage and storm water or other drainage.

**Building Sewer (Sanitary).** A building sewer that conveys sewage only.

**Building Sewer (Storm).** A building sewer that conveys storm water or other drainage, but no sewage.

**Building Subdrain.** That portion of a drainage system that does not drain by gravity into the building sewer.

**Building Supply.** The pipe carrying potable water from the water meter or other source of water supply to a building or other point of use or distribution on the lot.

## 205.0

### - C -

~~**Certified Backflow Assembly Tester.** A person who has shown competence to test and maintain backflow assemblies to the satisfaction of the Authority Having Jurisdiction.~~

**Cesspool.** A lined excavation in the ground that receives the discharge of a drainage system or part thereof, so designed as to retain the organic matter and solids discharging therein, but permitting the liquids to seep through the bottom and sides.

**Chemical Waste.** See Special Wastes.

~~**Chimney.** A vertical shaft enclosing one or more flues for conveying flue gases to the outside atmosphere.~~

~~**Chimney, Factory Built.** A chimney composed of listed factory built components assembled in accordance with the terms of listing to form the completed chimney. [NFPA 54:3.3.18.2]~~

~~**Chimney, Masonry.** A field constructed chimney of solid masonry units, bricks, stones, listed masonry chimney units, or reinforced portland cement concrete, lined with suitable chimney flue liners. [NFPA 54:3.3.18.3]~~

~~**Chimney, Metal.** A chimney constructed of metal with a minimum thickness not less than 0.127 inch (3.23 mm) (No. 10 manufacturer's standard gauge) steel sheet.~~

**Clarifier.** See Interceptor.

~~**Clear Water Waste.** Cooling water and condensate drainage from refrigeration and air conditioning equipment; cooled condensate from steam heating systems; and cooled boiler blowdown water. Uncontaminated water discharges, subsoil discharges and similar discharges.~~

**Clinic Sink.** A sink designed primarily to receive wastes from bedpans and having a flush rim, an integral trap with a visible trap seal, and the same flushing and cleansing characteristics as a water closet.

~~**Code.** A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.~~

**Combination Thermostatic/Pressure Balancing Valve.** A mixing valve that senses outlet temperature and incoming hot and cold water pressure and compensates for fluctuations in incoming hot and cold water temperatures, pressures, or both to stabilize outlet temperatures.

**Combination Waste and Vent System.** A specially designed system of waste piping embodying the horizontal wet venting of one or more sinks or floor drains by means of a common waste and vent pipe, adequately sized to provide free movement of air above the flow line of the drain.

**Combined Building Sewer.** See Building Sewer (Combined).

**Combustible Material.** As pertaining to materials adjacent to or in contact with heat-producing appliances, vent connectors, gas vents, chimneys, steam and hot water pipes, and warm air ducts, materials made of or surfaced with wood, compressed paper, plant fibers, or other materials that are capable of being ignited and burned. Such material shall be considered combustible even though flame-proofed, fire-retardant treated, or plastered. [NFPA 54:3.3.67.1]

**Common.** That part of a plumbing system that is so designed and installed as to serve more than one appliance, fixture, building, or system.

**Conductor.** A pipe inside the building that conveys storm water from the roof to a storm drain, combined building sewer, or other approved point of disposal.

**Confined Space.** A room or space having a volume less than 50 cubic feet per 1000 British thermal units per hour (Btu/h) (4.83 m<sup>3</sup>/kW) of the aggregate input rating of all fuel-burning appliances installed in that space.

**Contamination.** An impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, or waste. Also defined as High Hazard.

**Continuous Vent.** A vertical vent that is a continuation of the drain to which it connects.

**Continuous Waste.** A drain connecting the compartments of a set of fixtures to a trap or connecting other permitted fixtures to a common trap.

**CPVC.** Chlorinated Poly (Vinyl Chloride).

**Critical Care Area.** Those special care units, intensive care units, coronary care units, angiography laboratories, cardiac catheterization laboratories, delivery rooms, operating rooms, post anesthesia recovery rooms, emergency departments, and similar areas in which patients are intended to be subjected to invasive procedures and connected to line-operated, patient-care-related electrical appliances. [NFPA 99:3.3.138.1]

**Critical Level.** The critical level (C-L or C/L) marking on a backflow prevention device or vacuum breaker is a point conforming to approved standards and established by the testing laboratory (usually stamped on the device by the manufacturer) that determines the minimum elevation above the flood-level rim of the fixture or receptor served at which the device may be installed. Where a backflow prevention device does not bear a critical level marking, the bottom of the vacuum breaker, combination valve, or the bottom of such approved device shall constitute the critical level.

**Cross-Connection.** A connection or arrangement, physical or otherwise, between a potable water supply system and a plumbing fixture or a tank, receptor, equipment, or device, through which it may be possible for nonpotable, used, unclean, polluted, and contaminated water, or other substances to enter into a part of such potable water system under any condition.

**206.0**

– D –

**Debris Excluder.** A device installed on the rainwater catchment conveyance system to prevent the accumulation of leaves, needles, or other debris in the system.

**Department Having Jurisdiction.** The Authority Having Jurisdiction, including any other law enforcement agency affected by a provision of this code, whether such agency is specifically named or not.

**Design Flood Elevation.** The elevation of the “design flood,” including wave height, relative to the datum specified on the community’s legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation is the elevation of the highest existing grade of the building’s perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number is taken as being equal to 2 feet (610 mm).

**Developed Length.** The length along the center line of a pipe and fittings.

**Diameter.** Unless specifically stated, “diameter” is the nominal diameter as designated commercially.

**Direct-Vent Appliances.** Appliances that are constructed and installed so that air for combustion is derived directly from the outdoors and flue gases are discharged to the outdoors. [NFPA 54:3.3.6.3]

**Domestic Sewage.** The liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

**Downspout.** The rain leader from the roof to the building storm drain, combined building sewer, or other means of disposal located outside of the building. See Conductor and Leader.

**Drain.** A pipe that carries waste or waterborne wastes in a building drainage system.

**Drainage System.** Includes all the piping within public or private premises that conveys sewage, rainwater, or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.

**Dry Vent.** A vent that does not receive the discharge of any sewage or waste.

**Durham System.** A soil or waste system in which all piping is threaded pipe, tubing, or other such rigid construction, using recessed drainage fittings to correspond to the types of piping.

**207.0**

– E –

~~**Effective Ground-Fault Current Path.** An intentionally constructed, low impedance electrically conductive path designed and intended to carry current under ground fault conditions from the point of a ground fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protective device or ground fault detectors on high impedance grounded systems. [NFPA 54 12:3.3.36]~~

**Effective Opening.** The minimum cross-sectional area at the point of water supply discharge measured or expressed in terms of: (1) diameter of a circle or (2) where the opening is not circular, the diameter of a circle of equivalent cross-sectional area. (This is applicable also to air gap.)

**Essentially Nontoxic Transfer Fluid.** Essentially nontoxic at practically nontoxic, Toxicity Rating Class 1 (reference "Clinical Toxicology of Commercial Products" by Gosselin, Smith, Hodge, & Braddock).

~~**Excess Flow Valve (EFV).** A valve designed to activate where the fuel gas passing through it exceeds a prescribed flow rate. [NFPA 54:3.3.105.3]~~

**Existing Work.** A plumbing system or any part thereof that has been installed prior to the effective date of this code.

**208.0**

– F –

**F Rating.** The time period that the penetration firestop system limits the spread of fire through the penetration, where tested in accordance with ASTM E 814 or UL 1479.

**Fixture Branch.** A water supply pipe between the fixture supply pipe and the water distribution pipe.

**Fixture Drain.** The drain from the trap of a fixture to the junction of that drain with any other drain pipe.

**Fixture Supply.** A water supply pipe connecting the fixture with the fixture branch.

**Fixture Unit.** A quantity in terms of which the load-producing effects on the plumbing system of different kinds of plumbing fixtures are expressed on some arbitrarily chosen scale.

**Flammable Vapor or Fumes.** The concentration of flammable constituents in air that exceeds 25 percent of its lower flammability limit (LFL).

**Flood Hazard Area.** The greater of the following two areas:

- (1) The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year.
- (2) The area designated as a flood hazard area on a community’s flood hazard map, or otherwise legally designated.

**Flood Hazard Area Subject to High-Velocity Wave Action.** Area within the flood hazard area that is subject to high velocity wave action, and shown on a Flood Insurance Rate Map or other flood hazard map as Zone V, VO, VE or V1-30.

**Flood Level.** See Flooded.

**Flood-Level Rim.** The top edge of a receptor from which water overflows.

**Flooded.** A fixture is flooded where the liquid therein rises to the flood-level rim.

~~**Flue Collar.** That portion of an appliance designed for the attachment of a draft hood, vent connector, or venting system. [NFPA 54:3.3.46]~~

**Flush Tank.** A tank located above or integral with water closets, urinals, or similar fixtures for the purpose of flushing the usable portion of the fixture.

**Flush Valve.** A valve located at the bottom of a tank for the purpose of flushing water closets and similar fixtures.

**Flushometer Tank.** A tank integrated within an air accumulator vessel that is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

**Flushometer Valve.** A valve that discharges a predetermined quantity of water to fixtures for flushing purposes and is actuated by direct water pressure.

**FOG Disposal System.** A grease interceptor that reduces nonpetroleum fats, oils, and grease (FOG) in effluent by separation, mass, and volume reduction.

~~**Fuel Gas.** Natural, manufactured, liquefied petroleum, or a mixture of these.~~

~~**Fuel Gas Quick Disconnect.** A hand operated device that provides a means for connecting and disconnecting an appliance or an appliance connector to a gas supply and that is equipped with an automatic means to shut off the gas supply where the device is disconnected. [NFPA 54:3.3.29.3]~~

~~**Fuel Gas Vent.** A listed factory made vent pipe and vent fittings for conveying flue gases to the outdoors.~~

~~**Fuel Gas Venting System.** A continuous open passageway from the flue collar or draft hood of an appliance to the outdoors for the purpose of removing flue or vent gases. [NFPA 54:3.3.100.7]~~

## 209.0

### - G -

**Gang or Group Shower.** Two or more showers in a common area.

~~**Gas Piping.** An installation of pipe, valves, or fittings that is used to convey fuel gas, installed on a premises or in a building, but shall not include:~~

~~(1) A portion of the service piping.~~

~~(2) An approved piping connection 6 feet (1829 mm) or less in length between an existing gas outlet and a gas appliance in the same room with the outlet.~~

~~**Gas Piping System.** An arrangement of gas piping or regulators after the point of delivery and each arrangement of gas piping serving a building, structure, or premises, whether individually metered or not.~~

**General Care Areas.** General care areas are patient bedrooms, examining rooms, treatment rooms, clinics, and similar areas in which it is intended that the patient will come in contact with ordinary appliances such as a nurses-call system, electric beds, examining lamps, telephones, and entertainment devices. [NFPA 99:3.3.138.2]

**Grade.** The slope or fall of a line of pipe in reference to a horizontal plane. In drainage, it is usually expressed as the fall in a fraction of an inch (mm) or percentage slope per foot (meter) length of pipe.

**Gravity Grease Interceptor.** A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oils, and greases (FOG) from a wastewater discharge and is identified by volume, 30 minute retention time, baffle(s), not less than two compartments, a total volume of not less than 300 gallons (1135 L), and gravity separation. [These interceptors comply with the requirements of Chapter 10 or are designed by a registered professional engineer.] Gravity grease interceptors are generally installed outside.

**Gray Water.** Untreated wastewater that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources. Gray water includes wastewater from bathtubs, showers, lavatories, clothes washers, and laundry tubs. Also known as grey water, graywater, and greywater.

**Gray Water Diverter Valve.** A valve that directs gray water to the sanitary drainage system or to a subsurface irrigation system.

**Grease Interceptor.** A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil, and greases (FOG) from a wastewater discharge.

**Grease Removal Device (GRD).** A hydromechanical grease interceptor that automatically, mechanically removes non-petroleum fats, oils and grease (FOG) from the interceptor, the control of which are either automatic or manually initiated.

~~**Grounding Electrode.** A device that establishes an electrical connection to the earth.~~

## 210.0

### - H -

**Hangers.** See Supports.

**Heat-Fusion Weld Joints.** A joint used in some thermoplastic systems to connect pipe to fittings or pipe lengths directly to one another (butt-fusion). This method of joining pipe to fittings includes socket-fusion, electro-fusion, and saddle-fusion. This method of welding involves the application of heat and pressure to the components, allowing them to fuse together forming a bond between the pipe and fitting.

**High Hazard.** See Contamination.

**Horizontal Branch.** A drain pipe extending laterally from a soil or waste stack or building drain with or without vertical sections or branches, which receives the discharge from one or more fixture drains and conducts it to the soil or waste stack or to the building drain.

**Horizontal Pipe.** A pipe or fitting that is installed in a horizontal position or which makes an angle of less than 45 degrees (0.79 rad) with the horizontal.

**Hot Water.** Water at a temperature exceeding or equal to 120°F (49°C).

**House Drain.** See Building Drain.

**House Sewer.** See Building Sewer.

**Hydromechanical Grease Interceptor.** A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil, and grease (FOG) from a wastewater discharge and is identified by flow rate, and separation and retention efficiency. The design incorporates air entrainment, hydromechanical separation, interior baffling, or barriers in combination or separately, and one of the following:

A - External flow control, with air intake (vent), directly connected.

B - External flow control, without air intake (vent), directly connected.

C - Without external flow control, directly connected.

~~D - Without external flow control, indirectly connected.~~

These interceptors comply with the requirements of Table 1014.2.1. Hydromechanical grease interceptors are generally installed inside.

## 211.0

– I –

**Indirect-Fired Water Heater.** A water heater consisting of a storage tank equipped with an internal or external heat exchanger used to transfer heat from an external source to heat potable water. The storage tank either contains heated potable water or water supplied from an external source, such as a boiler.

**Indirect Waste Pipe.** A pipe that does not connect directly with the drainage system but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle that is directly connected to the drainage system.

**Individual Vent.** A pipe installed to vent a fixture trap and that connects with the vent system above the fixture served or terminates in the open air.

**Industrial Waste.** Liquid or water-borne waste from industrial or commercial processes, except domestic sewage.

**Insanitary.** A condition that is contrary to sanitary principles or is injurious to health.

Conditions to which “insanitary” shall apply include the following:

- (1) A trap that does not maintain a proper trap seal.
- (2) An opening in a drainage system, except where lawful, that is not provided with an approved liquid-sealed trap.
- (3) A plumbing fixture or other waste discharging receptor or device that is not supplied with water sufficient to flush and maintain the fixture or receptor in a clean condition.
- (4) A defective fixture, trap, pipe, or fitting.
- (5) A trap, except where in this code exempted, directly connected to a drainage system, the seal of which is not protected against siphonage and backpressure by a vent pipe.
- (6) A connection, cross-connection, construction, or condition, temporary or permanent, that would permit or make possible by any means whatsoever for an unapproved foreign matter to enter a water distribution system used for domestic purposes.
- (7) The foregoing enumeration of conditions to which the term “insanitary” shall apply, shall not preclude the application of that term to conditions that are, in fact, insanitary.

**Interceptor (Clarifier).** A device designed and installed so as to separate and retain deleterious, hazardous, or undesirable matter from normal wastes and permit normal sewage or liquid wastes to discharge into the disposal terminal by gravity.

**Invert.** The lowest portion of the inside of a horizontal pipe.

## 212.0

– J –

**Joint, Brazed.** A joint obtained by joining of metal parts with alloys that melt at temperatures exceeding 840°F (449°C), but less than the melting temperature of the parts to be joined.

**Joint, Soldered.** A joint obtained by the joining of metal parts with metallic mixtures or alloys that melt at a temperature up to and including 840°F (449°C).

**Joint, Welded.** A gastight joint obtained by the joining of metal parts in the plastic molten state.

### 213.0

– K –

No definitions.

### 214.0

– L –

**Labeled.** Equipment or materials bearing a label of a listing agency (accredited conformity assessment body). See Listed (third-party certified).

**Lavatories in Sets.** Two or three lavatories that are served by one trap.

**Leader.** An exterior vertical drainage pipe for conveying storm water from roof or gutter drains. See Downspout.

~~**Liquefied Petroleum Gas (LPG) Facilities.** Liquefied petroleum gas (LPG) facilities means tanks, containers, container valves, regulating equipment, meters, appurtenances, or any combination thereof for the storage and supply of liquefied petroleum gas for a building, structure, or premises.~~

**Liquid Waste.** The discharge from a fixture, appliance, or appurtenance in connection with a plumbing system that does not receive fecal matter.

**Listed (Third-party certified).** Equipment or materials included in a list published by a listing agency (accredited conformity assessment body) that maintains periodic inspection on current production of listed equipment or materials and whose listing states either that the equipment or material complies with approved standards or has been tested and found suitable for use in a specified manner.

**Listing Agency.** An agency accredited by an independent and authoritative conformity assessment body to operate a material and product listing and labeling (certification) system and that is accepted by the Authority Having Jurisdiction, which is in the business of listing or labeling. The system includes initial and ongoing product testing, a periodic inspection on current production of listed (certified) products, and makes available a published report of such listing in which specific information is included that the material or product is in accordance with applicable standards and found safe for use in a specific manner.

**Lot.** A single or individual parcel or area of land legally recorded or validated by other means acceptable to the Authority Having Jurisdiction on which is situated a building or which is the site of any work regulated by this code, together with the yards, courts, and unoccupied spaces legally required for the building or works, and that is owned by or is in the lawful possession of the owner of the building or works.

**Low Hazard.** See Pollution.

### 215.0

– M –

**Macerating Toilet System.** A system comprised of a sump with macerating pump and with connections for a water closet and other plumbing fixtures, which is designed to accept, grind, and pump wastes to an approved point of discharge.

**Main.** The principal artery of a system of continuous piping to which branches may be connected.

**Main Sewer.** See Public Sewer.

**Main Vent.** The principal artery of the venting system to which vent branches may be connected.

**May.** A permissive term.

~~**Medical Air.** For purposes of this code, medical air is air supplied from cylinders, bulk containers, medical air compressors, or has been reconstituted from oxygen USP and oil free, dry nitrogen NF [NFPA 99:3.3.106]. Medical air shall be required to have the following characteristics:~~

- ~~(1) Be supplied from cylinders, bulk containers, medical air compressor sources, or be reconstituted from oxygen USP and oil free dry nitrogen NF.~~
- ~~(2) Meet the requirements of medical air USP.~~
- ~~(3) Have no detectable liquid hydrocarbons.~~
- ~~(4) Have less than 25 parts per million (ppm) gaseous hydrocarbons.~~
- ~~(5) Have equal to or less than 1.8 E -10 pounds per cubic inch (lb/in<sup>3</sup>) (5 mg/m<sup>3</sup>) of permanent particulates sized one micron or larger in the air at normal atmospheric pressure. [NFPA 99:5.1.3.5.1]~~

~~**Medical Gas.** Gas used in a medical facility, including oxygen, nitrous oxide, carbon dioxide, helium, medical air, and mixtures of these gases. Standards of purity apply.~~

~~**Medical Gas Building Supply.** The pipe from the source of supply to a building or structure.~~

~~**Medical Gas Manifold.** A device for connecting outlets of one or more gas cylinders to the central piping system for that specific gas. [NFPA 99:3.3.103]~~

~~**Medical Gas System.** Complete system consisting of a central supply system (manifold, bulk, or compressors), including control equipment and piping extending to station outlets at the points where medical gases are required.~~

~~**Medical Vacuum System.** See Vacuum System – Level 1.~~

~~**Mobile Home Park Sewer.** That part of the horizontal piping of a drainage system that begins 2 feet (610 mm) downstream from the last mobile home site and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal.~~

~~**Mulch.** Organic materials, such as wood chips and fines, tree bark chips, and pine needles that are used in a mulch basin to conceal gray water outlets and permit the infiltration of gray water.~~

~~**Mulch Basin.** A subsurface catchment area for gray water that is filled with mulch and of sufficient depth and volume to prevent ponding, surfacing, or runoff.~~

## 216.0

– N –

~~**Nitrogen, NF (Oil-Free, Dry)** (Nitrogen for Brazing and Testing). Nitrogen complying, at a minimum, with oil-free, dry nitrogen NF-1 [NFPA 99:3.3.120.1]~~

~~**Nonpotable Water.** Water that is not safe for drinking, culinary, and domestic purposes, and does not meet the water quality requirements of the Health Department for drinking or consumption.~~

**Sonar:** The recommended definition is to clarify that water that is intended for nonpotable water use are not safe for drinking or consumption. One type of nonpotable water is alternate water source.

**Nuisance.** Includes, but is not limited to:

- (1) A public nuisance known at common law or in equity jurisprudence.
- (2) Where work regulated by this code is dangerous to human life or is detrimental to health and property.
- (3) Inadequate or unsafe water supply or sewage disposal system.

## 217.0

– O –

**Offset.** A combination of elbows or bends in a line of piping that brings one section of the pipe out of line but into a line parallel with the other section.

**Oil Interceptor.** See Interceptor.

**On-Site Treated Nonpotable Water.** Nonpotable water, including gray water that has been collected, treated, and intended to be used on-site and is suitable for direct beneficial use.

## 218.0

– P –

**Patient Care Area.** A portion of a health care facility wherein patients are intended to be examined or treated. [NFPA 99:3.3.138]

**PB.** Polybutylene.

**PE.** Polyethylene.

**PE-AL-PE.** Polyethylene-aluminum-polyethylene.

**PE-RT. Polyethylene of raised temperature.**

**Penetration Firestop System.** A specific assemblage of field-assembled materials, or a factory-made device, which has been tested to a standard test method and, where installed properly on penetrating piping materials, is capable of maintaining the fire-resistance rating of assemblies penetrated.

**Person.** A natural person, his heirs, executor, administrators, or assigns and shall also include a firm, corporation, municipal or quasi-municipal corporation, or governmental agency. Singular includes plural, male includes female.

**PEX.** Cross-linked polyethylene.

**PEX-AL-PEX.** Cross-linked polyethylene–aluminum–cross-linked polyethylene.

**Pipe.** A cylindrical conduit or conductor conforming to the particular dimensions commonly known as “pipe size.”

**Plumbing.** The business, trade, or work having to do with the installation, removal, alteration, or repair of plumbing and drainage systems or parts thereof.

**Plumbing Appliance.** A special class of device or equipment that is intended to perform a special plumbing function. Its operation, control, or both may be dependent upon one or more energized components, such as motors, controls, heating elements, or pressure-

or temperature-sensing elements. Such device or equipment may operate automatically through one or more of the following actions: a time cycle, a temperature range, a pressure range, a measured volume or weight; or the device or equipment may be manually adjusted or controlled by the user or operator.

**Plumbing Appurtenance.** A manufactured device, a prefabricated assembly, or an on-the-job assembly of component parts that is an adjunct to the basic piping system and plumbing fixtures. An appurtenance demands no additional water supply, nor does it add a discharge load to a fixture or the drainage system. It performs some useful function in the operation, maintenance, servicing, economy, or safety of the plumbing system.

**Plumbing Fixture.** An approved-type installed receptacle, device, or appliance that is supplied with water or that receives liquid or liquid-borne wastes and discharges such wastes into the drainage system to which it may be directly or indirectly connected. Industrial or commercial tanks, vats, and similar processing equipment are not plumbing fixtures, but may be connected to or discharged into approved traps or plumbing fixtures where and as otherwise provided for elsewhere in this code.

**Plumbing Official.** See Authority Having Jurisdiction.

**Plumbing System.** Includes all potable water, building supply, and distribution pipes; all plumbing fixtures and traps; all drainage and vent pipes; and all building drains and building sewers, including their respective joints and connections, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, ~~and nonpotable water piping serving plumbing fixtures, medical gas and medical vacuum systems, liquid and fuel gas piping, and water heaters and vents for same.~~

**Plumbing Vent.** A pipe provided to ventilate a plumbing system, to prevent trap siphonage and backpressure, or to equalize the air pressure within the drainage system.

**Plumbing Vent System.** A pipe or pipes installed to provide a flow of air to or from a drainage system or to provide a circulation of air within such system to protect trap seals from siphonage and backpressure.

**Pollution.** An impairment of the quality of the potable water to a degree that does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such potable water for domestic use. Also defined as Low Hazard.

**Potable Water.** Water that is satisfactory for drinking, culinary, and domestic purposes and that meets the requirements of the Minnesota Health Department Authority Having Jurisdiction.

**PP.** Polypropylene.

**Pressed Fitting.** A mechanical connection for joining copper tubing that uses a crimping tool to affix the O-ring seal copper or copper alloy fitting to the tubing. The tubing shall be inserted into the fitting, and the crimp shall be made using the tool recommended by the manufacturer.

**Pressure.** The normal force exerted by a homogeneous liquid or gas, per unit of area, on the wall of the container.

**Residual Pressure.** The pressure available at the fixture or water outlet after allowance is made for pressure drop due to friction loss, head, meter, and other losses in the system during maximum demand periods.

**Static Pressure.** The pressure existing without any flow.

**Pressure-Balancing Valve.** A mixing valve that senses incoming hot and cold water pressures and compensates for fluctuations in either to stabilize outlet temperature.

**Pressure-Lock-Type Connection.** A mechanical connection that depends on an internal retention device to prevent pipe or tubing separation. Connection is made by inserting the pipe or tubing into the fitting to a prescribed depth.

**Private or Private Use.** Applies to plumbing fixtures in residences and apartments, to private bathrooms in hotels and hospitals, and to restrooms in commercial establishments where the fixtures are intended for the use of a family or an individual.

**Private Sewage Disposal System.** A septic tank with the effluent discharging into a subsurface disposal field, into one or more seepage pits, or into a combination of subsurface disposal field and seepage pit designed for use ~~or of such other facilities as may be use apart from a public sewer as regulated under rules administered by the Minnesota Pollution Control Agency permitted under the procedures set forth elsewhere in this code.~~ This system is also referred to as Subsurface Sewage Treatment System (SSTS).

**SONAR:** This recommended change is to clarify that the Minnesota Pollution Control Agency is the agency that administers the rules and regulation of private sewer disposal systems.

**Private Sewer.** A building sewer that receives the discharge from more than one building drain and conveys it to a public sewer, private sewage disposal system, or other point of disposal.

~~**Provision for Location of Point of Delivery.** The location of the point of delivery shall be acceptable to the serving gas supplier. [NFPA 54:5.2]~~

**Public or Public Use.** Applies to plumbing fixtures that are not defined as private or private use.

**Public Sewer.** A common sewer directly controlled by public authority.

~~**Purge, Flow (Medical Gas).** The removal of oxygen from a system by oil free dry nitrogen during brazing.~~

~~**Purge, System (Medical Gas).** The removal of nitrogen from a system with the medical gas required for that system.~~

**Push Fit Fitting.** A mechanical fitting where the connection is assembled by pushing the tube or pipe into the fitting and is sealed with an “O” ring.

**PVC.** Poly(vinyl chloride).

**PVDF.** Polyvinylidene Fluoride.

## 219.0

### – Q –

**Quick-Disconnect Device.** A hand-operated device that provides a means for connecting and disconnecting a hose to a water supply and that is equipped with a means to shut off the water supply where the device is disconnected.

## 220.0

### – R –

**Rainwater.** Natural precipitation that has not been contaminated by use.

**Rainwater Catchment System.** A system that utilizes the principal of collecting, storing, and using rainwater from a rooftop or other manmade, aboveground collection surface. Also known as a rainwater harvesting system.

**Rainwater Storage Tank.** The central component of the rainwater catchment system. Also known as a cistern or rain barrel.

**Receptor.** An approved plumbing fixture or device of such material, shape, and capacity as to adequately receive the discharge from indirect waste pipes, so constructed and located as to be readily cleaned.

**Reclaimed (Recycled) Water.** Nonpotable water provided by a water/wastewater utility that, as a result of tertiary treatment of domestic wastewater, meets requirements of the public health Authority Having Jurisdiction for its intended uses.

**Regulating Equipment.** Includes valves and controls used in a plumbing system that are required to be accessible or readily accessible.

**Relief Vent.** A vent, the primary function of which is to provide circulation of air between drainage and vent systems or to act as an auxiliary vent on a specially designed system.

**Remote Outlet.** Where used for sizing water piping, it is the furthest outlet dimension, measuring from the meter, either the developed length of the cold-water piping or through the water heater to the furthest outlet on the hot-water piping.

**Rim.** See Flood-Level Rim.

**Riser.** A water supply pipe that extends vertically one full story or more to convey water to branches or fixtures.

**Roof Drain.** A drain installed to receive water collecting on the surface of a roof and to discharge it into a leader, downspout, or conductor.

**Roof Washer.** A device or method for removal of sediment and debris from a collection surface by diverting initial rainfall from entry into the cistern(s). Also known as a first flush device.

**Roughing-In.** The installation of all parts of the plumbing system that can be completed prior to the installation of fixtures. This includes drainage, water supply, gas piping, vent piping, and the necessary fixture supports.

## 221.0

### – S –

**Sand Interceptor.** See Interceptor.

**SCFM.** Standard cubic feet per minute. [NFPA 99:3.3.163]

**SDR.** An abbreviation for “standard dimensional ratio,” which is the specific ratio of the average specified outside diameter to the minimum wall thickness for outside controlled diameter plastic pipe.

**Seam, Welded.** See Joint, Welded.

~~**Seepage Pit.** A lined excavation in the ground which receives the discharge of a septic tank so designed as to permit the effluent from the septic tank to seep through its bottom and sides.~~

~~**Septic Tank.** A watertight receptacle that receives the discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention, and allow the liquids to discharge into the soil outside of the tank through a system of open joint piping or a seepage pit meeting the requirements of this code.~~

~~**Service Piping.** The piping and equipment between the street gas main and the gas piping system inlet that is installed by, and is under the control and maintenance of, the serving gas supplier.~~

**Sewage.** Liquid waste containing animal or vegetable matter in suspension or solution and that may include liquids containing chemicals in solution.

**Sewage Ejector.** A device for lifting sewage by entraining it on a high-velocity jet stream, air, or water.

**Sewage Pump.** A permanently installed mechanical device, other than an ejector, for removing sewage or liquid waste from a sump.

**Shall.** Indicates a mandatory requirement.

**Shielded Coupling.** An approved elastomeric sealing gasket with an approved outer shield and a tightening mechanism.

**Shock Arrester.** See Water Hammer Arrester.

**Should.** Indicates a recommendation or that which is advised but not required.

**Single-Family Dwelling.** ~~A building designed to be used as a home by the owner of such building, which shall be the only dwelling located on a parcel of ground with the usual accessory buildings.~~ Refer to Chapter 1309, Minnesota State Building Code.

**SONAR:** The recommended change is necessary to refer the definition to the Minnesota State Building Code for consistent enforcement of the term. Chapter 1309, Adoption of the International Residential Code, is one of the chapters that make up the Minnesota State Building Code.

**Size and Type of Tubing.** See Diameter.

**Slip Joint.** An adjustable tubing connection, consisting of a compression nut, a friction ring, and a compression washer, designed to fit a threaded adapter fitting or a standard taper pipe thread.

**Slope.** See Grade.

**Soil Pipe.** A pipe that conveys the discharge of water closets, urinals, clinic sinks, or fixtures having similar functions of collection and removal of domestic sewage, with or without the discharge from other fixtures, to the building drain or building sewer.

~~**Special Hazard Area (Medical Gas).** An area such as a kitchen or electrical switch gear room.~~

**Special Wastes.** Wastes that require some special method of handling, such as the use of indirect waste piping and receptors, corrosion-resistant piping, sand, oil or grease interceptors, condensers, or other pretreatment facilities.

**Stack.** The vertical main of a system of soil, waste, or vent piping extending through one or more stories.

**Stack Vent.** The extension of a soil or waste stack above the highest horizontal drain connected to the stack.

**Standard.** A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine print note and are not to be considered a part of the requirements of a standard.

~~**Station Inlet.** An inlet point in a medical surgical piped vacuum distribution system at which the user makes connections and disconnections. [NFPA 99:3.3.171]~~

~~**Station Outlet.** An inlet point in a piped medical/surgical vacuum distribution system at which the user makes connections and disconnections. [NFPA 99:3.3.172]~~

**Storm Drain.** See Building Drain (Storm).

**Storm Sewer.** A sewer used for conveying rainwater, surface water, condensate, cooling water, or similar liquid wastes.

**Subsoil Drain.** A drain that collects subsurface or seepage water and conveys it to a place of disposal.

~~**Subsoil Irrigation Field.** Gray water irrigation field installed in a trench within the layer of soil below the topsoil. This system is typically used for irrigation of deep rooted plants.~~

~~**Subsurface Irrigation Field.** Gray water irrigation field installed below finished grade within the topsoil.~~

**Sump.** An approved tank or pit that receives sewage or liquid waste and which is located below the normal grade of the gravity system and which must be emptied by mechanical means.

**Supports.** Supports, hangers, and anchors are devices for properly supporting and securing pipe, fixtures, and equipment.

~~**Surge Tank.** A reservoir to modify the fluctuation in flow rates to allow for uniform distribution of gray water to the points of irrigation.~~

## 222.0

- T -

~~**T Rating.** The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise of 325°F (163°C) above its initial temperature through the penetration on the nonfire side, where tested in accordance with ASTM E 814 or UL 1479.~~

**Tailpiece.** The pipe or tubing that connects the outlet of a plumbing fixture to a trap.

**Thermostatic (Temperature Control) Valve.** A mixing valve that senses outlet temperature and compensates for fluctuations in incoming hot or cold water temperatures.

~~**Transition Gas Riser.** A listed or approved section or sections of pipe and fittings used to convey fuel gas and installed in a gas piping system for the purpose of providing a transition from belowground to aboveground.~~

**Trap.** A fitting or device so designed and constructed as to provide, where properly vented, a liquid seal that will prevent the back passage of air without materially affecting the flow of sewage or wastewater through it.

**Trap Arm.** That portion of a fixture drain between a trap and the vent.

**Trap Primer.** A device and system of piping that maintains a water seal in a remote trap.

**Trap Seal.** The vertical distance between the crown weir and the top dip of the trap.

**Crown Weir (Trap Weir).** The lowest point in the cross-section of the horizontal waterway at the exit of the trap.

**Top Dip (of trap).** The highest point in the internal cross-section of the trap at the lowest part of the bend (inverted siphon). By contrast, the bottom dip is the lowest point in the internal cross-section.

~~**Type B Gas Vent.** A factory-made gas vent listed by nationally recognized testing agency for venting listed or approved appliances equipped to burn only gas.~~

~~**Type BW Gas Vent.** A factory-made gas vent listed by a nationally recognized testing agency for venting listed or approved gas-fired vented wall furnaces.~~

~~**Type L Gas Vent.** A venting system consisting of listed vent piping and fittings for use with oil burning appliances listed for use with Type L or with listed gas appliances.~~

## 223.0

– U –

**Unconfined Space.** A room or space having a volume equal to not less than 50 cubic feet per 1000 Btu/h (4.83 m<sup>3</sup>/kW) of the aggregate input rating of all fuel-burning appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.

**Unsanitary.** See Insanitary.

~~**Use Point.** A room or area of a room where medical gases are dispensed to a single patient for medical purposes. A use point is permitted to be comprised of a number of station outlets of different gases.~~

~~**User Outlet.** See Station Outlet.~~

## 224.0

– V –

**Vacuum.** A pressure less than that exerted by the atmosphere.

**Vacuum Breaker.** See Backflow Preventer.

**Vacuum Relief Valve.** A device that prevents excessive vacuum in a pressure vessel.

~~**Vacuum System Level 1.** A system consisting of central vacuum producing equipment with pressure and operating controls, shutoff valves, alarm warning systems, gauges, and a network of piping extending to and terminating with suitable station inlets at locations where patient suction could be required. [NFPA 99:3.3.91]~~

**Valve, Isolation.** A valve that isolates one piece of equipment from another.

**Valve, Riser.** A valve at the base of a vertical riser that isolates that riser.

**Valve, Service.** A valve serving horizontal piping extending from a riser to a station outlet or inlet.

**Valve, Source.** A single valve at the source that controls a number of units that make up the source.

~~**Valve, Zone.** A valve that controls the gas or vacuum to a particular area.~~

**Vent.** See Plumbing Vent; Dry Vent; Wet Vent.

~~**Vent Connector, Gas.** That portion of a gas venting system that connects a listed gas appliance to a gas vent and is installed within the space or area in which the appliance is located.~~

**Vent Pipe.** See Plumbing Vent.

**Vent Stack.** The vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system.

**Vent System.** See Plumbing Vent System.

**Vented Flow Control Device.** A device installed upstream from the hydromechanical grease interceptor having an orifice that controls the rate of flow through the interceptor, and an air intake (vent) downstream from the orifice, which allows air to be drawn into the flow stream.

**Vertical Pipe.** A pipe or fitting that is installed in a vertical position or that makes an angle of not more than 45 degrees (0.79 rad) with the vertical.

## 225.0

– W –

**Wall-Hung Water Closet.** A water closet installed in such a way that no part of the water closet touches the floor.

**Waste.** See Liquid Waste and Industrial Waste.

~~**Waste Anesthetic Gas Disposal.** The process of capturing and carrying away gases vented from the patient breathing circuit during the normal operation of gas anesthesia or analgesia equipment. [NFPA 99:3.3.184]~~

**Waste Pipe.** A pipe that conveys only liquid waste, free of fecal matter.

**Water-Conditioning or Treating Device.** A device that conditions or treats a potable water supply so as to change its chemical content or remove suspended solids by filtration.

**Water Distribution Pipe.** In a building or premises, a pipe that conveys potable water from the building supply pipe to the plumbing fixtures and other water outlets.

**Water Hammer Arrestor.** A device designed to provide protection against hydraulic shock in the building water supply system.

**Water Heater or Hot Water Heating Boiler.** An appliance designed primarily to supply hot water for domestic or commercial purposes and equipped with automatic controls limiting water temperature to a maximum of 210°F (99°C).

**Water Main (Street Main).** A water supply pipe for public or community use.

**Water Supply System.** The building supply pipe, the water distribution pipes, and the necessary connecting pipes, fittings, control valves, backflow prevention devices, and all appurtenances carrying or supplying potable water in or adjacent to the building or premises.

**Water/Wastewater Utility.** A public or private entity which may treat, deliver, or do both functions to reclaimed (recycled) water, potable water, or both to wholesale or retail customers.

~~**Welder, Pipe.** A person who specializes in the welding of pipes and holds a valid certificate of competency from a recognized testing laboratory, based on the requirements of the ASME Boiler and Pressure Vessels code, Section IX.~~

**Wet Vent.** A vent that also serves as a drain.

**Whirlpool Bathtub.** A bathtub fixture equipped and fitted with a circulating piping system designed to accept, circulate, and discharge bathtub water upon each use.

**226.0** – X –

No definitions.

**227.0** – Y –

**Yoke Vent.** A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stacks.

**228.0** – Z –

No definitions.

Accept deletion of ~~private sewage disposal system,~~

**307.1 System.** Except as otherwise provided in this code, no plumbing system, drainage system, building sewer, ~~private sewage disposal system,~~ or parts thereof shall be located in a lot other than the lot that is the site of the building, structure, or premises served by such facilities.

## NATIONAL CODE REVIEW COMMITTEE SUGGESTION FORM

(This form must be submitted electronically)

*Author/requestor:* Cathy Tran

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*Telephone number:* 651/284-5898

*Firm/Association affiliation, if any:* DLI

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### **Suggested Code Change - Language**

Please provide your suggested change using a strikeout and underline format. Provide the *specific* language you would like to see changed, with new words underlined and ~~strikeout~~ the words to be deleted. Tell us whether the language you are suggesting or changing is from a code book or from Minnesota Rules, chapter 4715. (You may provide the language (electronically) on a separate attached sheet).

**2012 UPC Chapter 3** -See attached documentation.

### **Suggested Code Change – Need and Reason**

Please provide a thorough explanation of the need for the suggested changed and why the change is a reasonable one. During the rulemaking process, the Board must defend the need for and reasonableness of all its proposed changes. (You may provide the need and reason (electronically) on a separate attached sheet).

See attached documentation.

### **Suggested Code Change – Cost/Benefit Analysis**

Please explain whether the change you suggest will increase or decrease costs, or that the change will not have any cost implications. If there is an increased cost, will this cost be offset somehow by a life-safety or other benefit? If so, please explain. Are there any cost increases or decreases to enforce or comply with the suggested change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate attached sheet).

No cost implications.

**Please explain:**

7. Is the suggested change meant to:

change language contained in a published code book? If so, list section(s).

change language contained in an existing Minnesota Rule in chapter 4715? If so, list the Rule part(s).

delete language contained in a published code book? If so, list section(s).

delete language contained in an existing Minnesota Rule in chapter 4715? If so, list Rule the part(s).

neither; the suggested change is new language and is not in a code book or in Minnesota Rules, chapter 4715.

8. Is the suggested change required by a federal requirement or regulation, state statute or new legislation? If so, please explain and provide the citation to the regulation, statute or legislation.  
MN Statutes 326b.43

9. Will the suggested change impact other sections of a published code book or the Minnesota State Building Code or other administrative rules? If so, please list the affected sections or rule parts.

10. Who are the parties affected or segments of industry that might be affected by the suggested change?

11. Can you think of other means or methods to achieve the purpose of the suggested change? If so, please explain what they are and why your suggested change is the preferred method or means to achieve the desired result.

no

12. Are you aware of any federal requirement or regulation related to this proposed code change? If so, please list the regulation or requirement.

No

Accept moving forward with Chapter 3, sections 300.0 to 315.1 with exceptions noted below:

- Section 301.5.4, Appendix I was tabled to be reviewed in more detail at the 11/18/13 or 12/10/13 meeting
- Section 317.0 was previously denied and accepted to move forward in MDH's Exhibit 6
- Section 319.0 to 319.1 to be tabled; may be addressed in other exhibits

## CHAPTER 3 - 2012 UPC DLI Proposed changes GENERAL REGULATIONS

**(Below, 300.1, 300.2, & 300.3 come from the current plumbing code)**

### **300.0 Conformance with Code.**

**300.1 Scope.** As provided in Minnesota Statutes, sections 326B.43 and 326B.52, this Code applies to all new plumbing installations performed anywhere in the state, including additions, extensions, alterations, and replacements.

**300.2 New buildings.** All plumbing materials and plumbing systems or parts thereof must be installed to meet the minimum provisions of this code.

**300.3 Existing buildings.** In existing buildings or premises in which plumbing or drainage system or other work regulated by this code are to be added, altered, renovated, or replaced, the new materials and work must meet the provisions of this code. If the authority having jurisdiction finds that the full performance of bringing the work into compliance with all requirements of this code would result in exceptional or undue hardship by reason of excessive structural or mechanical difficulty, or impracticability, a deviation may be granted by the Authority Having Jurisdiction only to the extent the deviation can be granted without endangering the health and safety of the occupants and the public.

**(Below, 300.4, 300.5 and 300.6 were brought forward from Chapter 1 of the UPC)**

**300.4 Changes in Building Occupancy.** Plumbing systems that are a part of a building or structure undergoing a change in use or occupancy, as defined in the building code, shall be in accordance with the requirements of this code that are applicable to the new use or occupancy.

**300.5 Moved Buildings.** Plumbing systems that are part of buildings or structures moved into this jurisdiction shall be in accordance with the provisions of this code for new installations. Parts of the plumbing systems of a building or part thereof that is moved from one foundation to another, or from one location to another, shall be completely tested as new work, except that walls or floors need not be removed during such test where other equivalent means of inspection acceptable to the Authority Having Jurisdiction are provided.

**300.6 Health and Safety.** No provision of this code shall be deemed to require a change in a portion of a plumbing or drainage system or other work regulated by this code in or on an existing building or lot where such work was installed and is maintained in accordance with rule in effect prior to the effective date of this code, except where such plumbing or drainage system or other work regulated by this code is determined by the Authority Having Jurisdiction to be **in fact** dangerous, unsafe, insanitary, or a nuisance and a hazard to life, health, or property. Where these conditions exist, corrections by the owner or owner's agent shall be responsible for installing additional plumbing or making such corrections as may be necessary to abate such nuisance or hazard and bring the existing plumbing installation within the provision of this code.

**SONAR:** 300.0 This entire part is added to identify general requirements for conformance with code. Part 300.1 is merely taken from Minnesota Statutes 326B.43 and 326B.52 to specify the scope of the plumbing installations for the State of MN. Parts 300.2 and 300.3 are intended to require all new plumbing installations for new and existing buildings to meet the provisions of the code with an allowance for deviation when approved and are based on undue hardship and excessive difficulty without endangering the public. Parts 300.4 and 300.5 identify specific requirements for any moved buildings or change in occupancy of buildings. Part 300.6 specifically covers corrections for unsafe, unsanitary, and dangerous situations for the public and property due to existing plumbing has not been maintained or installed properly. This is necessary for health protection and safety.

### **301.0 Materials – Standards and Alternates.**

**301.1 Minimum Standards.** Pipe, pipe fittings, traps, fixtures, material, and devices used in a plumbing system shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and shall comply with the approved applicable recognized standards referenced in this code, and shall be free from defects. Plastic pipe and the fittings used for plastic pipe, ~~other than those for gas~~, shall meet the requirements of NSF 14. Unless otherwise provided for in this code,

materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval.

**301.1.1 Marking.** Each length of pipe and each pipe fitting, trap, fixture, material, and device used in a plumbing system shall have cast, stamped, or indelibly marked on it the manufacturer's mark or name, which shall readily identify the manufacturer to the end user of the product. Where required by the approved standard that applies, the product shall be marked with the weight and the quality of the product. Materials and devices used or entering into the construction of plumbing and drainage systems, or parts thereof, shall be marked and identified in a manner satisfactory to the Authority Having Jurisdiction. Such marking shall be done by the manufacturer. Field markings shall not be acceptable.

**301.1.2 Standards.** Standards listed or referred to in this chapter or other chapters cover materials that will conform to the requirements of this code, where used in accordance with the limitations imposed in this or other chapters thereof and their listing. Where a standard covers materials of various grades, weights, quality, or configurations, the portion of the listed standard that is applicable shall be used. Design and materials for special conditions or materials not provided for herein shall be permitted to be used only by special permission of the Authority Having Jurisdiction after the Authority Having Jurisdiction has been satisfied as to their adequacy. A list of accepted plumbing material standards is referenced in Table 1401.1. ~~IAPMO Installation Standards are referenced in Appendix I for the convenience of the users of this code. They are not considered as a part of this code unless formally adopted as such by the Authority Having Jurisdiction.~~

~~**301.1.3 Existing Buildings.** In existing buildings or premises in which plumbing installations are to be altered, repaired, or renovated, the Authority Having Jurisdiction has discretionary powers to permit deviation from the provisions of this code, provided that such proposal to deviate is first submitted for proper determination in order that health and safety requirements, as they pertain to plumbing, shall be observed.~~

**SONAR:** The proposed deletion in subpart 301.1.2 is necessary as Appendix I is proposed for adoption in part 301.5. Subpart 301.1.3 is proposed for deletion in its entirety since this has been relocated to subpart 300.3.

**301.2 Alternate Materials and Methods of Construction Equivalency.** Nothing in this code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this code. Prior to installation, technical documentation shall be submitted to the Authority Having Jurisdiction to demonstrate equivalency. Unless prohibited by this code, The Authority Having Jurisdiction shall have the authority to approve or disapprove the system, method, or device for the intended purpose.

However, the exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. An alternate material or method of construction so approved shall not be considered as in accordance with the requirements, intent, or both of this code for a purpose other than that granted by the Authority Having Jurisdiction where the submitted data does not prove equivalency.

**SONAR:** For new materials and methods alternates, the proposed amendment is to ensure that alternates are received for review and approval prior to installation and not after the fact. This is important and necessary for proper review of the alternates to verify suitability for which it is requested and to minimize field corrections.

**301.4 Alternative Engineered Design.** An alternative engineered design shall comply with the intent of the provisions of this code and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability, and safety. Material, equipment, or components shall be designed and installed in accordance with the manufacturer's installation instructions.

*-For texts of 301.4.1 through 301.4.5 see UPC 2012 -*

**301.4.6 Inspection and Testing.** The alternative engineered design shall be tested and inspected in accordance with the submitted testing and inspection plan and the requirements of this code. Prior to the final plumbing inspection, the design professional engineer must provide written certification to the administrative authority that the system has been visually inspected by the design professional engineer and the installation has been properly implemented according to the certified plans, calculations, and specification.

**SONAR:** Since this is an alternative engineered design, the proposed amendment is necessary to require the licensed design engineer to verify suitability and acceptance after installation. Most alternative engineered design requires a special expertise in the engineer's field of expertise. Therefore, the final inspection by the design engineer will ensure the installation is in accordance with the engineered design.

### **301.5 Appendices.**

**301.5.1 General.** Unless specified otherwise, the provisions in the appendices listed in this part shall be considered part of this code.

**301.5.2 Appendix A Recommended Rules for Sizing the Water Supply System**

**301.5.3 Appendix B Explanatory Notes on Combination Waste and Vent Systems**

**301.5.4 Appendix I IAPMO Installation Standards.** Except for IS 12-2006, IS 13-2006, IS 26-2006, SIS 1-2003, and SIS 2-2003, the standards in Appendix I are considered part of this code.

**SONAR:** Appendices must be formally adopted to be part of the code and therefore, Appendix A, B, and part of I are proposed for adoption. The proposed adoption of Appendix A & B are necessary for design, plan review, and consistent administration of the requirements. Applicable installation standards in Appendix I are proposed for adoption to provide installation requirements and ensure consistent enforcement on a statewide basis.

**311.0 Independent Systems.**

**311.1 General.** The drainage system of each new building and of new work installed in an existing building shall be separate and independent from that of any other building, and, where available, every building shall have an independent connection with a public or private sewer.

~~**Exception:** Where one building stands in the rear of another building on an interior lot, and no private sewer is available or can be constructed to the rear building through an adjoining court, yard, or driveway, the building drain from the front building shall be permitted to be extended to the rear building.~~

**SONAR:** The exception in part 311.1 is proposed for deletion. There should not be a reason why a new building should ever connect or discharge into any building drains of an existing building. The language could be construed to allow a new building sewer to connect into a neighbor's property and building drain which conflicts with the intent of the requirement for independent connection to a sewer. If the exception is not deleted, it will create possible unsanitary health concerns and rights to access another building to maintain the sewer.

**312.7 Fire-Resistant Construction.** Piping penetrations of fire-resistance-rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the building code ~~and Chapter 15, "Firestop Protection."~~

**SONAR:** Chapter 15 is not part of the Plumbing Code and therefore, the proposed amendment is to delete references to Chapter 15.

**312.9 Steel Nail Plates.** Plastic and copper piping penetrating framing members to within 1 inch (25.4 mm) of the exposed framing shall be protected by steel nail plates not less than No. 18 gauge (0.0478 inches) (1.2 mm) in thickness. The steel nail plate shall extend along the framing member not less than 1½ inches (38 mm) beyond the outside diameter of the pipe or tubing.

~~**Exception:** See Section 1210.3.3. See Minnesota Mechanical Code.~~

**SONAR:** 312.9 Exception references Chapter 12 for gas piping. The correct reference is in the Minnesota Mechanical Code.

~~**313.7 Gas Piping.** Gas piping shall be supported by metal straps or hooks at intervals not to exceed those shown in Table 1210.2.4.1.~~

**SONAR:** 313.7 Gas piping are regulated in the mechanical code and not the Plumbing Code.

~~**315.1 Unions.** Approved unions shall be permitted to be used in drainage piping where accessibly located in the trap seal or between a fixture and its trap in the vent system, except underground or in wet vents, at a point in the water supply system, and in gas piping as permitted by Section 1211.5.~~

**SONAR:** 315.1 Gas piping are regulated in the mechanical code and not the Plumbing Code.

***(DLI's section 317.0 was denied on 4/16/13 and is NOT to be included to move forward. MDH's 317.0 was accepted to move forward)***

**317.0 Food-Handling Establishments.**

~~**317.1 General.** For Food and beverage licensing requirements, refer to the Minnesota Food Code, Chapter 4626. Food or drink shall not be stored, prepared, or displayed beneath soil or drain pipes, unless those areas are protected against leakage or condensation from such pipes reaching the food or drink as described below. Where building design requires that soil or drain~~

pipes be located over such areas, the installation shall be made with the least possible number of joints and shall be installed so as to connect to the nearest adequately sized vertical stack with the provisions as follows:

- ~~(1) Openings through floors over such areas shall be sealed watertight to the floor construction.~~
- ~~(2) Floor and shower drains installed above such areas shall be equipped with integral seepage pans.~~
- ~~(3) Soil or drain pipes shall be of an approved material as listed in Table 1401.1 and Section 701.1. Materials shall comply with established standards. Cleanouts shall be extended through the floor construction above.~~
- ~~(4) Piping subject to operation at temperatures that will form condensation on the exterior of the pipe shall be thermally insulated.~~
- ~~(5) Where pipes are installed in ceilings above such areas, the ceiling shall be of the removable type, or shall be provided with access panels in order to form a ready access for inspection of piping.~~

**SONAR:** Part 317.0 in its entirety addresses food licensing requirements. Food Licensing and handling regulations are established in the Food Code regulated by the Minnesota Department of Health (MDH) and not by the Plumbing Code. The proposed amendment is to make the correct reference.

***Section 319.0 to 319.1 was accepted to move forward with stricken language***

### **319.0 Medical Gas and Vacuum Systems.**

**319.1 General.** Such piping shall be installed, tested, and verified in accordance with the applicable standards referenced in Table 1401.1 and the requirements of Chapter 13. The Authority Having Jurisdiction shall require evidence of the competency of the installers and verifiers.

**SONAR:** Part 319.0 is proposed for deletion in its entirety. Installation of medical gas and vacuum system are regulated in other codes and not the Plumbing Code.

Accept moving forward with deletion of 314.1

DLI: UPC Chapter 3

### 314.0 Trenching, Excavation, and Backfill.

**314.1 General Trenches.** Trenches deeper than the footing of a building or structure and paralleling the same shall be not less than 45 degrees (0.79 rad) therefrom, or as approved in accordance with Section 301.0 of this code.

**314.2 Tunneling and Driving.** Tunneling and driving shall be permitted to be done in yards, courts, or driveways of a building site. Where sufficient depth is available to permit, tunnels shall be permitted to be used between open-cut trenches. Tunnels shall have a clear height of 2 feet (610 mm) above the pipe and shall be limited in length to one-half the depth of the trench, with a maximum length of 8 feet (2438 mm). Where pipes are driven, the drive pipe shall be not less than one size larger than the pipe to be laid.

**314.3 Open Trenches.** Excavations required to be made for the installation of a building drainage system or part thereof, within the walls of a building, shall be open trench work and shall be kept open until the piping has been inspected, tested, and accepted.

**314.4 Excavations.** Excavations shall be completely backfilled as soon after inspection as practicable. Precaution shall be taken to ensure compactness of backfill around piping without damage to such piping. Trenches shall be backfilled in thin layers to 12 inches (305 mm) above the top of the piping with clean earth, which shall not contain stones, boulders, cinderfill, frozen earth, construction debris, or other materials that will damage or break the piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc., shall be permitted to then be used to complete backfill to grade. Fill shall be properly compacted. Precautions shall be taken to ensure permanent stability for pipe laid in filled or made ground.

**317.1 – MDH: Accept to move forward**

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**NATIONAL CODE COMMITTEE COMMENT FORM**  
**FOR PROPOSED AMENDMENTS TO THE UPC**  
(This form must be submitted electronically)

*Author/requestor:* Minnesota Department of Health

*Email address:* ronald.thompson@state.mn.us

*Telephone number:* (651) 201-3658

*Firm/Association affiliation, if any:*

---

**Proposed Code Change - Language**

Please provide your proposed UPC amendment in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

XXXX.XXXX CHAPTER 3 GENERAL REGULATIONS

UPC Section 3.17.1 is amended as follows:

**3.17.1 General.** Food or drink shall not be stored, prepared, or displayed beneath soil drain pipes, unless those areas are protected against leakage or condensation from such pipes reaching the food or drink as described below. Soil drain pipes in facilities regulated by Minnesota Rules, Chapter 4626 must have the pipes shielded in accordance with part 4626.0960 4-903. Where building design requires that soil or drain pipes be located over such areas, the installation shall be made with leas possible number of joints and shall be installed so as to connect to the nearest adequately sized vertical stack with the provisions as follows:

- (1) Openings through floors over such areas shall be sealed watertight to the floor construction.
- (2) Floor and shower drains installed above such areas shall be equipped with integral seepage pans.
- (3) Soil or drain pipes shall be of an approved material as listed in Table 1401.1 and Section 701.1. ~~Materials shall comply with established standards.~~ Cleanouts shall be extended through the floor construction above.
- (4) Piping subject to operation at temperatures that will form condensation on the exterior of the pipe shall be thermally insulated.
- (5) Where pipes are installed in ceilings above such areas, the ceiling shall be of the removable type, or shall be provided with access panels in order to form a ready access for inspection of piping.

**Proposed Code Change – Need and Reason**

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

The Minnesota Food Code, Minnesota Rules, Chapter 4626, contains requirements for food establishments. Part 4626.0960 4-903.12 contains requirements for storage of food equipment, utensils, laundered linens, or single-service and single use articles and prohibits storage under a sewer line that is not shielded to intercept potential drips.

**Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

This is a requirement of existing Minnesota Rules, part 4626.0960 4-903.12.

**Other Factors to Consider Related to Proposed Amendment**

1. Is this proposed code change meant to:
  - change language contained in a published code book? If so, list section(s).  
This amends Section 3.17.1
  - change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
  - delete language contained in a published code book? If so, list section(s).
  - delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
  - neither; this language will be new language, not found in the code book or in Minnesota Rule.
2. Is this proposed code change required by a Minnesota Statute or new legislation? If so, please provide the citation to the Statute or legislation.  
no
3. Will this proposed code change impact other sections of a published code book or of an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.  
no
4. Will this proposed code change impact other parts of the Minnesota State Building Code? If so, please list the affected parts of the Minnesota State Building Code.  
no
5. Who are the parties affected or segments of industry affected by this proposed code change?  
no
6. Can you think of other means or methods to achieve the purpose of the proposed code change? If so, please explain what they are and why your proposed change is the preferred method or means to achieve the desired result.  
no
7. Are you aware of any federal requirement or regulation related to this proposed code change? If so, please list the regulation or requirement.  
no

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## NATIONAL CODE COMMITTEE COMMENT FORM FOR PROPOSED AMENDMENTS TO THE UPC

(This form must be submitted electronically)

*Author/requestor:* Lawrence G Justin PE

*Email address:* ljustin@wentzassoc.com

*Telephone number:* 952-843-6203

*Firm/Association affiliation, if any:* Plumbing Board/Professional Engineer

---

### Proposed Code Change - Language

Please provide your proposed UPC amendment in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

**403.3 Urinals.** Urinals shall have an average water consumption not to exceed 1 gallon (4 L) of water per flush.

**403.3.1 Nonwater Urinals.** Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 1401.1. Nonwater urinals shall have a barrier liquid sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. ~~Where nonwater urinals are installed they shall have a water distribution line rough in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit. Where a nonwater urinal is installed, a water supplied fixture shall be installed upstream of the nonwater urinal at the end of that same drainage branch.~~

### Proposed Code Change – Need and Reason

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

The requirement to install a water distribution line rough-in "in the event of a retrofit" results in the following concerns:

1. Additional cost to the project.
2. Provides a "dead-end" supply pipe allowing stagnant water to collect (health issue)
3. Why should code "assume" a retrofit? Is that not the property owners decision, and thus responsibility if they do replace the urinals?

The addition of the requirement to install a "water supplied fixture" upstream of the urinal is beneficial as it runs water in the drain pipe diluting the urine and reducing material build-up in drainage piping. If fixture is a lavatory, it is used after the urinal.

#### **Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

Proposed Code Change deletion will reduce cost of project since water distribution line rough-in is not installed.

Proposed Code Change addition will not add any cost to the project since Toilet rooms where the urinal will be located will also have a lavatory and water closet, thus the requested water supplied fixture is already present.

**MDH – 403.4: Deny moving forward, staying with UPC language, no changes**

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## NATIONAL CODE COMMITTEE COMMENT FORM FOR PROPOSED AMENDMENTS TO THE UPC

(This form must be submitted electronically)

*Author/requestor:* Minnesota Department of Health

*Email address:* ronald.thompson@state.mn.us

*Telephone number:* (651) 201-3658

*Firm/Association affiliation, if any:*

---

### Proposed Code Change - Language

Please provide your proposed UPC amendment in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be striken. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

XXXX.XXXX CHAPTER 4 PLUMBING FIXTURES AND FIXTURE FITTINGS

UPC Section 403.4 is amended as follows:

~~**403.4 Metered Faucets.** Self-closing or self-closing metering faucets shall be installed on lavatories intended to serve the transient public, such as those in, but not limited to, service stations, train stations, airports, restaurants, and convention halls. Metered faucets shall deliver a maximum of 0.26 gallons (0.98 L) of water per use.~~

### Proposed Code Change – Need and Reason

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

The Minnesota Plumbing Code does not currently require self-closing faucets to be installed on public facilities. The faucets provide for conservation of water, may prevent spills, and are generally a good idea. However, self-closing faucets are not the norm on small public systems such as rural churches. The requirement to place the faucets on all transient public facilities will increase costs and will create inspection and compliance issues. Also, the language "not limited to" is an open-ended list that creates vagueness.

**Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

The proposed amendment will decrease costs required by UPC section 403.4

## Ames – 408.4: Fails to carry, stays as written in the UPC

**Lungstrom, Jim (DLI)**

---

**From:** Ames, Rebecca <RAmes@ci.bloomington.mn.us>  
**Sent:** Thursday, July 05, 2012 9:07 AM  
**To:** Lungstrom, Jim (DLI)  
**Subject:** RE: UPC Assignments

Hi Jim,  
 My comments are:

UPC 2012, Chapter 4.

408.4 Waste Outlet (showers)

Waste outlet and tailpiece are 2 inches.

This would require the entire waste line from the shower to be increased to 2 inches. Easily done in new construction, but remodeling could be more difficult and costly. Is this our intent?

Would this be covered under Chapter 1, Administration, 101.11.2 Existing Installation?

I know of jurisdictions that would require the increase in waste pipe sizing regardless of 101.11.2.

I have been looking for a code section that address' when a hot water recirculation line is required. I do not find a designated distance in L 602.3, Recirculation systems: or L 602.7.3 Recirculation Loop.

Rebecca

---

**From:** Lungstrom, Jim (DLI) [mailto:Jim.Lungstrom@state.mn.us]  
**Sent:** Wednesday, June 20, 2012 3:08 PM  
**To:** Parizek, John (jparizek@dunwoody.edu); Tran, Cathy (DLI); Peterson, Jim (DLI); Larry Justin (ljustin@wentzassoc.com); Gale Mount (Gmount@rochestermn.gov); Chad Filek (cfilek@j-berd.com); Ames, Rebecca; Michael McGowan (mikem@mcgowanwater.com); Thompson, Ronald (MDH); Noma, Brian (MDH); Kittelsonph@frontiernet.net  
**Subject:** RE: UPC Assignments

Hello All,

If you would all email me the amendments you identified, I will compile them into a single document. This will make it much easier to review for our next meeting.

Thanks,

Jim

Jim Lungstrom, P.E.  
 Assistant Director  
 Construction Codes and Licensing Division  
 Department of Labor and Industry  
 Phone: (651) 284 - 5879  
 Fax: (651) 284 - 5748  
 Email: [Jim.Lungstrom@state.mn.us](mailto:Jim.Lungstrom@state.mn.us)

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*Author/requestor:* Minnesota Department of Health

*Email address:* ronald.thompson@state.mn.us

*Telephone number:* (651) 201-3658

*Firm/Association affiliation, if any:*

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**Proposed Code Change - Language**

Please provide your proposed UPC amendment in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

XXXX.XXXX CHAPTER 4 PLUMBING FIXTURES AND FIXTURE FITTINGS

UPC section 408.8 is amended as follows:

**408.8 Public Shower Floors.** Floors of public shower rooms shall have a nonskid surface and shall be drained in such a manner that wastewater from one bather shall not pass over areas occupied by other bathers. Where each shower space is not provided with an individual waste outlet, the waste outlet must be located and the floor pitched so that the water from one shower does not flow over the floor area serving another shower. Gutters in public or gang shower rooms shall have rounded corners for easy cleaning and shall be sloped not less than 2 percent toward drains. Drains in gutters shall be spaced at a maximum of 8 feet (2438 mm) from sidewalls nor more than 16 feet (4877 mm) apart.

**Proposed Code Change – Need and Reason**

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

The proposed amendment to section 408.8 is the exact language contained in existing rule part 4715.1380, subpart 2. The requirement further clarifies the purpose of the first sentence of section 408.8, that bathers not be exposed to the wastes of other bathers. However; section 408.8 does

not necessarily assure that bathers walking to enter or leave the shower space are not exposed to wastewater from other bathers. This amendment is needed and reasonable to prevent the transmission of disease.

**Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

This is an existing requirement of part 4715.1380, subpart 2.

**MDH – 415.5: Accept moving forward**

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*Author/requestor:* Minnesota Department of Health

*Email address:* ronald.thompson@state.mn.us

*Telephone number:* (651) 201-3658

*Firm/Association affiliation, if any:*

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**Proposed Code Change - Language**

Please provide your proposed UPC amendment in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

XXXX.XXXX CHAPTER 4 PLUMBING FIXTURES AND FIXTURE FITTINGS

**UPC Section 415.5 is amended as follows:**

**415.5 Public Use Fountains.** Installation of a combined cold water faucet and drinking fountain is prohibited for public use. If a drinking fountain is provided at a public use sink, it must have at least an 18-inch separation from any other faucet spout.

**Proposed Code Change – Need and Reason**

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

Minnesota Rules, part 4715.1260 contains the existing language, except that the modifier "bubbler" is deleted since the term is not defined, colloquial, and not needed to understand the requirement. The rule prohibits a "combined" faucet and fountain which operates by a person placing a finger or some other object, which is usually unsanitary, over a hole to divert the water flow. The required separation is also needed to prevent unsanitary conditions and the spread of disease from hands, saliva, and water flow off body parts.

**Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

This is a requirement of existing rule and does not increase costs.

**MDH – 418.4: Accept moving forward**

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*Telephone number:* (651) 201-3658

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### Proposed Code Change - Language

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XXXX.XXXX CHAPTER 4 PLUMBING FIXTURES AND FIXTURE OPENINGS

UPC Section 418.4 is amended as follows:

**418.4 Food Storage Areas.** Where drains are provided in storerooms, walk-in freezers, walk-in coolers, refrigerated equipment, or other locations where food is stored, such drains shall have indirect waste piping. Except that floor drains are prohibited in retail food service refrigeration systems according to part 4626.1190 5-40212 and ANSI/NSF Standard 7 as adopted by Chapter 4626. Separate waste pipes shall be run from each food storage area, each with an indirect connection to the building sanitary drainage system. Traps shall be provided in accordance with Section 801.2.2 of this code and shall be vented.

Indirect drains shall be permitted to be located in freezers or other spaces where freezing temperatures are maintained, provided that traps, where supplied, shall be located where the seal will not freeze. Otherwise, the floor of the freezer shall be sloped to a floor drain located outside of the storage compartment.

### Proposed Code Change – Need and Reason

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it

has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

The Minnesota Food code, Minnesota Rules, chapter 4626 adopts NSF Standard 7 by reference. NSF Standard 7, 8.1.2.7 states that "Walk-in units with pre-fabricated floors shall not have floor drains." Minnesota Rules, part 4626.1190 5-402.12 item A states "Except as specified in items B and C, a direct connection shall not exist between the sewage system and a drain originating from equipment in which food, portable equipment, or utensils are placed."

#### **Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

This does not change existing requirements of the Minnesota Food Code.

**Plumbing Board**  
**c/o Department of Labor and Industry**  
**443 Lafayette Road North**  
**Saint Paul, MN 55155-4344**  
[dli.cclboards@state.mn.us](mailto:dli.cclboards@state.mn.us)

**NATIONAL CODE REVIEW COMMITTEE SUGGESTION FORM**

(This form must be submitted electronically)

*Author/requestor:* Cathy Tran

*Email address:* cathy.tran@state.mn.us

*Telephone number:* 651/284-5898

*Firm/Association affiliation, if any:* DLI

**Suggested Code Change - Language**

Please provide your suggested change using a ~~strikeout~~ and underline format. Provide the *specific* language you would like to see changed, with new words underlined and ~~strikeout~~ the words to be deleted. Tell us whether the language you are suggesting or changing is from a code book or from Minnesota Rules, chapter 4715. (You may provide the language (electronically) on a separate attached sheet).

**2012 UPC Chapter 4** -See attached documentation.

**Suggested Code Change – Need and Reason**

Please provide a thorough explanation of the need for the suggested changed and why the change is a reasonable one. During the rulemaking process, the Board must defend the need for and reasonableness of all its proposed changes. (You may provide the need and reason (electronically) on a separate attached sheet).

See attached documentation.

**Suggested Code Change – Cost/Benefit Analysis**

Please explain whether the change you suggest will increase or decrease costs, or that the change will not have any cost implications. If there is an increased cost, will this cost be offset somehow by a life-safety or other benefit? If so, please explain. Are there any cost increases or decreases to enforce or comply with the suggested change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate attached sheet).

No cost implications.

6/18/13 National Code Committee

**Please explain:**

1. Is the suggested change meant to:
  - change language contained in a published code book? If so, list section(s).
  - change language contained in an existing Minnesota Rule in chapter 4715? If so, list the Rule part(s).
  - delete language contained in a published code book? If so, list section(s).
  - delete language contained in an existing Minnesota Rule in chapter 4715? If so, list Rule the part(s).
  - neither; the suggested change is new language and is not in a code book or in Minnesota Rules, chapter 4715.
2. Is the suggested change required by a federal requirement or regulation, state statute or new legislation? If so, please explain and provide the citation to the regulation, statute or legislation.  
MN Statutes 326b.43
3. Will the suggested change impact other sections of a published code book or the Minnesota State Building Code or other administrative rules? If so, please list the affected sections or rule parts.
4. Who are the parties affected or segments of industry that might be affected by the suggested change?
5. Can you think of other means or methods to achieve the purpose of the suggested change? If so, please explain what they are and why your suggested change is the preferred method or means to achieve the desired result.  
no
6. Are you aware of any federal requirement or regulation related to this proposed code change? If so, please list the regulation or requirement.  
No

**DLI – Chapter 4, various**

- **403.3.1 & 418.4 PREVIOUSLY DENIED; OMIT FROM EXHIBIT 13**
- **Accept moving forward with 420.3**
- **Accept moving forward with other recommendations (omitting 403.3.1 & 418.4. tabling 418.7)**

## CHAPTER 4 - 2012 UPC DLI Proposed changes

### Fixtures

**CHAPTER 4 PROPOSED**

~~**403.3.1 Nonwater Urinals.** Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 1401.1. Nonwater urinals shall have a barrier liquid sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater urinals are installed they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit.~~

*Delete 403.3.1 in its entirety and replace with the following amendments:*

Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 1401.1. Where a nonwater urinal is installed, a water-supplied fixture must be installed upstream of the nonwater urinal at the end of the same drainage branch. The water distribution system must be designed to allow for replacement of nonwater urinals with water-supplied urinals without dead ends. Each nonwater urinal must be separately trapped by a nonpetroleum liquid seal that is lighter than water to protect from odor escape or evaporation of the trap contents. Metallic traps or traps with elastomeric membranes for nonwater urinals are prohibited.

The owner of each nonwater urinal must ensure that the urinal is cleaned and maintained in strict compliance with the manufacturer's requirements after installation.

**SONAR:** To minimize premature failure of the drainage system resulting from build-up of dry raw urine on the drainage pipe from usage over time, the proposed change in section 403.3.1 specifically requires that a water supplied plumbing fixture must be installed upstream of nonwater urinal to provide dilution of the waste stream from the nonwater urinal. In addition, to avoid stagnant water and bacteria growth in the design of the water distribution system from rough-ins in the event of a retrofit, emphasis is placed to avoid dead end branches.

Since nonwater urinals do not have conventional water traps, the proposed language in this subpart prescribe specific fixture trap requirements for nonwater urinal by use of a liquid seal consisting of a non petroleum liquid that is lighter than water. This will prevent odor and evaporation of the trap and minimize unsanitary conditions that may exist otherwise. The proposed language prohibits metallic and elastomeric membrane type traps for nonwater urinals. These types of traps will deteriorate from pure urine waste causing premature failure of the traps. is necessary to protect the integrity of the plumbing system.

~~**406.3 Miscellaneous Fixtures.** Fixed wooden, or tile wash trays or sinks for domestic use shall not be installed in a building designed or used for human habitation. No sheet metal lined wooden bathtub shall be installed or reconnected. No dry or chemical closet (toilet) shall be installed in a building used for human habitation, unless first approved by the Health Officer.~~

**SONAR:** Propose to delete Section 406.3 in its entirety. Section 401.1 already prescribes general requirements for quality of fixtures that used to evaluate suitability for plumbing fixtures which are not standard fixture. By specifically listing miscellaneous fixtures that are not allowed in this part may be construed or mislead to some improper review and approval of other materials which are not code approved or are prohibited.

**409.0 Bathtubs and Whirlpool Bathtubs.**

**409.1 Application.** Bathtubs and whirlpool bathtubs shall comply with the applicable standards referenced in Table 1401.1. Pressure sealed doors within a bathtub or whirlpool bathtub enclosure shall comply with the applicable standards referenced in Table 1401.1. Whirlpool pedicure tubs must comply with general requirements and water retention sections of ASME A112.9.7 or IAPMO IGC 155, Pipeless Whirlpool Bathtub Appliances.

**SONAR:** A pedicure whirlpool tub (chair) is considered a plumbing appliance or (special plumbing fixture), and function like the whirlpool bathtubs with the exception that the size is much smaller and only the feet is submerged instead of the entire body. In addition, concerns of sanitation and spreading of diseases through water retention from the recirculation components of the pedicure whirlpool tubs are similar to a typical whirlpool bathtub, if not more when use in commercial nail salons. Therefore, minimum requirements for health and sanitation must be established to protect the public.

One noted difference is that pedicure whirlpool tubs are only intended for submerging of feet, suction and hair entrapment requirements are not of 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 hair entrapment requirements.

**418.6 Elevator Pit Drain.** An elevator pit drain must discharge to the sanitary sewer using an indirect connection that precludes the possibility of sewage backup into the pit. If a sump pump system is used, the sump must be outside the pit with a dry pan drain flowing to it.

**SONAR:** This proposed part is to clarify the proper method of draining and elevator pit consistent with the Minnesota Elevator Code. The elevator pit will receive hydraulic fluid, grease, oil, which must discharge to the sanitary sewer. In addition, the discharge must be made through an indirect connection to prevent sewage backups from the sanitary sewer system into the pit and the receptor must be sized properly to receive the pump discharge. Addition language is proposed to require a sump when used be located outside the pit so the direct access for maintenance and inspections can be made without entering the pit or elevator shaft.

**418.7 Garage and parking area floor drains.** Floor area drains in open parking areas, including open areas of parking ramps, must discharge to the storm sewer or to a place of disposal satisfactory to the municipal sewer authority. Floor drains in parking areas which are enclosed, and floor drains in areas open or enclosed which are used for maintenance or as a vehicle wash bay, must discharge to the sanitary sewer if a municipal sewer is available. Oil and flammable liquid interceptor must be provided if required by section 1017.

**Exception:** Floor drains in private garages serving one- and two-family dwellings may discharge to daylight if approved by the administrative authority.

**SONAR:** This proposed part is to clarify the proper method of draining of drains in enclosed garages by requiring the drains to discharge to sanitary sewer instead of storm sewer. Drains in enclosed garages generally do not receive rainwater, but will receive oily, greasy, and other types of waste from vehicles even vehicle washing, which need proper treatment. Open areas of parking ramps will receive significant of rainwater and therefore, must discharge to to the storm sewer unless the municipal sewer authority determines other point of disposals are proper for the intended waste in the open parking ramps. Also reference is made to section 1017, Oil and Flammable Liquid Interceptor, for proper design and installation of the interceptor when provided.

An exception for floor drains in one-and two-family dwellings to allow discharge to "daylight" when approved by the local administrative authority. The intent of "daylight" is to allow floor drain discharge onto the ground surface outside the garage. The need for local administrative authority approval is necessary to ensure the discharge is within the owner's property line and does not cross other properties, and to prevent discharge from entering into surface water. The scope is limited therefore the concerns of environmental impact are minimal since there are no commercial or industrial applications in these garages. This has been a practice that has been used as well as coordinated and approved by the Minnesota Pollution Agency.

**418.4 Food Storage Areas.** Where specifically approved by the licensing authority, floor drains may be provided in storerooms, walk-in freezers, walk-in coolers, refrigerated equipment, or other locations where food is stored, such drains shall have indirect waste piping. Separate waste pipes shall be run from each food storage area, each with an indirect connection to the building sanitary drainage system. Traps shall be provided in accordance with Section 801.2.2 of this code and shall be vented.

**SONAR:** Consistent with section 801.2.2 (Walk-In Coolers) this is clarify that floor drains may only be installed in these types of storage areas when approved by the licensing requirements.

**420.3 Waste Outlet.** Kitchen and laundry sinks shall have a waste outlet and fixture tailpiece not less than 1½ inches (40 mm) in diameter, except commercial pot and scullery sinks must be provided with waste outlets not less than two inches in diameter. Service sinks shall have a waste outlet and fixture tailpiece not less than 2 inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section 701.1 for drainage piping, provided, however, that such connections where exposed or accessible shall be permitted to be of seamless drawn brass not less than No. 20 B & S Gauge (0.032 inches) (0.81 mm). Waste outlets shall be provided with an approved strainer.

**SONAR:** this is to clarify that commercial pot and scullery must be provided with two inch outlet since these sinks have large compartments and handle commercial kitchen functions that must be provided with two inch outlet.

**421.2 Limitation of Hot Water Temperature for Public Lavatories.** Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 110 ±20°F (49°C) by a device that is in accordance with ASSE 1070 or CSA B125.3. The water heater thermostat shall not be considered a control for meeting this provision.

SONAR: This proposed amendment limiting the max. temperature to 110 degree F would provide consistent requirement with the MN Commercial Energy Code (ASHRAE Standard 90.1-2004).

#### **422.0 Minimum Number of Required Fixtures.**

~~422.1 For all premises subject to this chapter, plumbing fixtures shall be provided for the type of building occupancy and in the minimum number listed in chapter 1305, Minnesota Building Code.~~

~~Plumbing fixtures shall be provided for the type of building occupancy and in the minimum number shown in Table 422.1. The total occupant load and occupancy classification shall be determined in accordance with the building code. Occupancy classification not shown in Table 422.1 shall be considered separately by the Authority Having Jurisdiction.~~

~~The minimum number of fixtures shall be calculated at 50 percent male and 50 percent female based on the total occupant load. Where information submitted indicates a difference in distribution of the sexes such information shall be used in order to determine the number of fixtures for each sex. Once the occupancy load and occupancy are determined, Table 422.1 shall be applied to determine the minimum number of plumbing fixtures required. Where applying the fixture ratios in Table 422.1 results in fractional numbers, such numbers shall be rounded to the next whole number. For multiple occupancies, fractional numbers shall be first summed and then rounded to the next whole number.~~

~~422.1.1 Family or Assisted-Use Toilet and Bathing Facilities. Where family or assisted-use toilet and bathing rooms are required, in applicable building regulations, the facilities shall be installed in accordance with those regulations.~~

~~422.2 Separate Facilities. Separate toilet facilities shall be provided for each sex.~~

~~Exceptions:~~

~~(1) Residential installations.~~

~~(2) In occupancies with a total occupant load of 10 or less, including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.~~

~~(3) In business and mercantile occupancies with a total occupant load of 50 or less including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.~~

~~422.3 Fixture Requirements for Special Occupancies. Additional fixtures shall be permitted to be required where unusual environmental conditions or referenced activities are encountered. In food preparation areas, fixture requirements shall be permitted to be dictated by health codes.~~

~~422.4 Toilet Facilities Serving Employees and Customers. Each building or structure shall be provided with toilet facilities for employees and customers. Requirements for customers and employees shall be permitted to be met with a single set of restrooms accessible to both groups.~~

~~Required toilet facilities for employees and customers located in shopping malls or centers shall be permitted to be met by providing a centrally located toilet facility accessible to several stores. The maximum travel distance from entry to any store to the toilet facility shall not exceed 300 feet (91.440 m).~~

~~Required toilet facilities for employees and customers in other than shopping malls or centers shall have a maximum travel distance not to exceed 500 feet (152.4 m).~~

~~422.4.1 Access to Toilet Facilities. In multi-story buildings, accessibility to the required toilet facilities shall not exceed one vertical story. Access to the required toilet facilities for customers shall not pass through areas designated as for employee use only such as kitchens, food preparation areas, storage rooms, closets, or similar spaces. Toilet facilities accessible only to private offices shall not be counted to determine compliance with this section.~~

~~422.5 Toilet Facilities for Workers. Toilet facilities shall be provided and maintained in a sanitary condition for the use of workers during construction.~~

SONAR: Section 422.0 is proposed for deletion in its entirety. Minimum fixture requirements are regulated in SBC and other licensing codes and not the Plumbing Code.

Tabled; November

443 Lafayette Road N.  
St. Paul, Minnesota 55155  
www.dli.mn.gov



MINNESOTA DEPARTMENT OF  
**LABOR & INDUSTRY**

(651) 284-5005  
1-800-DIAL-DLI  
TTY: (651) 297-4198

**NATIONAL CODE COMMITTEE COMMENT FORM**  
**FOR PROPOSED AMENDMENTS TO THE UPC**  
(This form must be submitted electronically)

Author/requestor: John Parizek

Email address: jparizek@dunwoody.edu

Telephone number: 612-581-1314

Firm/Association affiliation, if any: Plumbing Board

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**Proposed Code Change - Language**

Please provide your proposed UPC amendment in ~~strikeout~~/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

~~505.4.1 Single-Wall Heat Exchanger. Indirect-fired water heater that incorporate a single-wall heat exchanger shall meet the following requirements:~~

- ~~(1) Connected to a low-pressure hot water boiler limited to a maximum of 30 pounds-force per square inch gauge (psig) (207 kPa) by an approved safety or relief valve.~~
- ~~(2) Heater transfer medium is either potable water or contains fluids having a toxicity rating or Class of 1.~~
- ~~(3) Bear a label with the word "Caution," followed by the following statements:~~
  - ~~(a) The heat transfer medium shall be water or other nontoxic fluid having a toxic rating or Class of 1 as listed in Clinical Toxicology of Commercial Products, 5th edition.~~
  - ~~(b) The pressure of the heat transfer medium shall be limited to a maximum of 30 psig (207 kPa) by an approved safety or relief valve.~~

~~The word "Caution" and the statements in letters shall have an uppercase height of not less than 0.120 of an inch (3.048 mm). The vertical spacing between lines of type shall be not less than 0.046 of an inch (1.168 mm). Lowercase letters shall be compatible with the uppercase letter size specification.~~

~~603.5.4 Heat Exchangers. Heat exchangers used for heat transfer, heat recovery, or solar heating shall protect the potable water system from being contaminated by the heat-transfer medium. Single-wall heat exchangers used in indirect-fired water heaters shall meet the requirements of Section 505.4.1.~~

~~603.5.4.1 Single-Wall Heat Exchanger. Indirect-fired water heater that incorporate a installation of a single-wall heat exchanger shall meet all of the following requirements:~~

- ~~(1) Connected to a low-pressure hot water boiler limited to a maximum of 30 pounds-force per square inch gauge (psig) (207 kPa) by an approved safety or relief valve.~~
- ~~(2) Heater transfer medium is either potable water or contains fluids having a toxicity rating or Class of 1.~~
- ~~(3) Bear a label with the word "Caution," followed by the following statements:~~
  - ~~(a) The heat-transfer medium shall be water or other nontoxic fluid having a toxic rating or Class of 1 as listed in Clinical Toxicology of Commercial Products, 5th edition.~~
  - ~~(b) The pressure of the heat-transfer medium shall be limited to a maximum of 30 psig (207 kPa) by an approved safety or relief valve.~~

- The word "Caution" and the statements in letters shall have an uppercase height of not less than 0.120 of an inch (3.048 mm). The vertical spacing between lines of type shall be not less than 0.046 of an inch (1.168 mm). Lowercase letters shall be compatible with the uppercase letter size specification.
- (4) A reduced-pressure principle backflow prevention assembly shall be installed on the building supply before the first branch.

**603.5.4.2 Double-Wall Heat Exchanger.** Double-wall heat exchangers shall separate the potable water from the heat-transfer medium by providing a space between the two walls that are vented to the atmosphere.

#### **Proposed Code Change – Need and Reason**

Please provide a thorough explanation of the need for this amendment and why this proposed amendment is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

Section 603.5.4 addresses requirements for heat exchangers and refers to section 505.4.1 for single-wall heat exchangers. Section 505.4.1 has been blended into section 603.5.4 to avoid repetition and 505.4.1 deleted. A concern with single-wall heat exchangers has always been the replacement of the heat transfer medium with a higher toxicity rated substance after the initial installation. By requiring the installation of a properly maintained reduced-pressure principle backflow prevention assembly on the building water supply, upstream of the first branch, the possible contamination of the potable water supply will be eliminated. Any contamination of the potable water due to failure of a single-wall heat exchanger will be contained within the building.

#### **Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed amendment will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

There would be no additional cost since installation of a single-wall heat exchanger is an optional. This amendment to the UPC is also less restrictive than existing Minnesota Plumbing Code, part 4715.1941, subpart 3 and more cost effective. In addition, the potable water supply will have added protection.

DLI – Chapter 5 – 507.5: **Accept moving forward**

(Accept with change as “Discharge from a relief valve into a water heater pan shall be prohibited. Discharge relief valve shall terminate within 18 inches of the floor or a safe place of disposal”.)

**Chapter 5 - UPC 2012 DLI Proposed Changes**

**501.1 Applicability.** The regulations of this chapter shall govern the construction, location, and installation of fuel-burning and other water heaters heating potable water, ~~together with chimneys, vents, and their connectors.~~ The minimum capacity for storage water heaters shall be in accordance with the first hour rating listed in Table 501.1. Design, construction, and workmanship shall be in accordance with accepted engineering practices, manufacturer’s instructions, and applicable standards and shall be of such character as to secure the results sought to be obtained by this code. No water heater shall be hereinafter installed that does not comply with the type and model of each size thereof approved by the Authority Having Jurisdiction. ~~A list of accepted gas appliance standards are referenced in Table 1401.1.~~

**SONAR:** This amendment would eliminate the requirement that the plumbing code regulates chimneys, vents, and their connectors. These items are currently regulated in the Minnesota Mechanical Code, Chapter 1346.

**503.0 Inspection.**

~~**503.1 Inspection of Chimneys or Vents.** This inspection shall be made after chimneys, vents, or parts thereof, authorized by the permit, have been installed and before such vent or part thereof has been covered or concealed.~~

~~**503.2 Final Water Heater Inspection.** This inspection shall be made after work authorized by the permit has been installed. The Authority Having Jurisdiction will make such inspection as deemed necessary to be assured that the work has been installed in accordance with the intent of this code. No appliance or part thereof shall be covered or concealed until the same has been inspected and approved by the Authority Having Jurisdiction.~~

**SONAR:** 503.1 This amendment would remove the inspection requirement of chimneys and vents serving gas burning appliances. These items are currently regulated in the Minnesota Mechanical Code, Chapter 1346. 503.2 Inspection of water heater is an administrative function under the authority of DLI. This subpart is deleted the water heater inspection from this chapter since it’s regulated in the Minnesota Administrative Chapter 1300.

**Sections 504.1 through 504.2 Vent.**

**SONAR:** This language from section 504.1 through 504.2 are requirements for venting, self closing, and door requirements for water heaters installations in bedrooms and bathrooms. These requirements are governed by the Minnesota Mechanical code (specifically part 303.2 of the International Mechanical Code). The proposed deletion is necessary to reference the requirements in the correct location, Minnesota Mechanical Code, Chapter 1346.

**504.6 Temperature, Pressure, and Vacuum Relief Devices.** The installation of temperature, pressure, and vacuum relief devices or combinations thereof, ~~and automatic gas shutoff devices,~~ shall be installed in accordance with the terms of their listings and the manufacturer’s installation instructions. A shutoff valve shall not be placed between the relief valve and the water heater or on discharge pipes between such valves and the atmosphere. The hourly British thermal units (Btu) (kW•h) discharge capacity or the rated steam relief capacity of the device shall be not less than the input rating of the water heater. [NFPA 54:10.28.5]

**SONAR:** This amendment would remove the requirements of automatic gas shutoff devices. This item is currently regulated in the Minnesota Mechanical Code, Chapter 1346.

**Sections 506.0 through 506.9**

**SONAR:** This amendment would eliminate the sections on Air for Combustion and Ventilation. These items are currently regulated in the Minnesota Mechanical Code, Chapter 1346.

**507.5 Relief Valve Discharge.** Discharge from a relief valve shall terminate within 18 inches of the floor and the discharge into a water heater pan shall be prohibited.

**SONAR:** This amendment would require a more specific and safer location for the discharge of a water heater relief valve.

**Sections 507.6 through 507.11**

**SONAR:** This amendment would eliminate the sections on the use of air for combustion and ventilation. These items are currently regulated in the Minnesota Mechanical Code, Chapter 1346.

**Sections 507.14 through 507.15**

**SONAR:** This proposed amendment would delete sections 507.14 and 507.15 in its entirety. These two parts are requirements for appliances relating to combustion air and fire resistance constructions installed in commercial garages and air craft hangars which are not part of plumbing.. These requirements are specifically regulated in the Minnesota Mechanical Code, Chapter 1346.

**Sections 507.16 through 507.23**

**SONAR:** This amendment would eliminate the sections on gas piping and venting of gas appliances. These items are currently regulated in the Minnesota Mechanical Code, Chapter 1346.

**Sections 508.0 Appliances on Roofs.**

**SONAR:** This amendment would delete the entire section 508. The provisions in section 508 in its entirety are not considered plumbing and are regulated in the Minnesota Mechanical Code, Chapter 1346. Therefore, it is reasonable to delete the entire section.

**Sections 509.0 through 511.1**

**SONAR:** This amendment would eliminate the sections on venting of appliances. These items are currently regulated in the Minnesota Mechanical Code, Chapter 1346.

# NATIONAL CODE REVIEW COMMITTEE SUGGESTION FORM

(This form must be submitted electronically)

*Author/requestor:* Cathy Tran

*Email address:* cathy.tran@state.mn.us

*Telephone number:* 651/284-5898

*Firm/Association affiliation, if any:* DLI

## **Suggested Code Change - Language**

Please provide your suggested change using a strikeout and underline format. Provide the *specific* language you would like to see changed, with new words underlined and ~~strikeout~~ the words to be deleted. Tell us whether the language you are suggesting or changing is from a code book or from Minnesota Rules, chapter 4715. (You may provide the language (electronically) on a separate attached sheet).

***2012 UPC Chapter 6, Water Supply and Distribution***-See attached documents.

## **Suggested Code Change – Need and Reason**

Please provide a thorough explanation of the need for the suggested change and why the change is a reasonable one. During the rulemaking process, the Board must defend the need for and reasonableness of all its proposed changes. (You may provide the need and reason (electronically) on a separate attached sheet).

See attached documentation.

## **Suggested Code Change – Cost/Benefit Analysis**

Please explain whether the change you suggest will increase or decrease costs, or that the change will not have any cost implications. If there is an increased cost, will this cost be offset somehow by a life-safety or other benefit? If so, please explain. Are there any cost increases or decreases to enforce or comply with the suggested change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate attached sheet).

No cost implications.

**Please explain:**

7. Is the suggested change meant to:

change language contained in a published code book? If so, list section(s).

change language contained in an existing Minnesota Rule in chapter 4715? If so, list the Rule part(s).

delete language contained in a published code book? If so, list section(s).

delete language contained in an existing Minnesota Rule in chapter 4715? If so, list Rule the part(s).

neither; the suggested change is new language and is not in a code book or in Minnesota Rules, chapter 4715.

8. Is the suggested change required by a federal requirement or regulation, state statute or new legislation? If so, please explain and provide the citation to the regulation, statute or legislation.  
MN Statutes 326b.43

9. Will the suggested change impact other sections of a published code book or the Minnesota State Building Code or other administrative rules? If so, please list the affected sections or rule parts.

10. Who are the parties affected or segments of industry that might be affected by the suggested change?

11. Can you think of other means or methods to achieve the purpose of the suggested change? If so, please explain what they are and why your suggested change is the preferred method or means to achieve the desired result.  
no

12. Are you aware of any federal requirement or regulation related to this recommended code change? If so, please list the regulation or requirement.  
No

## CHAPTER 6 - 2012 UPC DLI Recommended changes

### Tabled for future discussion

#### Chapter 6 suggestions:

***(Accept with modification: Move section 601.0.2 to 609.6.1)***

**601.0.2 Water Supply near sources of pollution.** Potable water supply pipes must not be located in, under, or above cesspools, septic tanks, septic tank drainage fields, seepage pits, soil treatment systems, contaminated soil, sewer manholes, catch basins, storm water storage tanks, buried tanks containing chemicals or petroleum products, or any other source of pollution that in the judgment of the administrative authority might contaminate the potable water supply. A horizontal separation of ten feet must be maintained between the outer edge of the water supply pipe and the outer edge of the contamination source.

**SONAR:** The recommended added language requires a minimum of 10 feet separation between a source of pollution and a water supply pipe. This is necessary to protect the potable water supply.

***(Deny 601.0.3 below. MDH recommends language in 601.3 accepted in lieu of DLI 601.0.3)***

**601.0.3 Potable water required.** Every building equipped with plumbing fixtures and used for human occupancy or habitation shall be provided with a supply of potable water, which meets the standards of the Department of Health, in the amounts and at the pressures specified in this chapter.

Only potable water shall be provided to plumbing fixtures supplying water for drinking, bathing, culinary use, washing, or the processing of food, medical, or pharmaceutical products. Only potable water shall be supplied to emergency showers and eyewashes.

**SONAR:** The recommended language sets minimum requirement for all buildings constructed for human habitation with plumbing fixtures installed to be provided with potable water supply and requires potable water to fixtures which are used for bathing, washing, cooking, processing of food and medical products as well as emergency equipment . This is necessary to provide for basic sanitation and public health.

***(Last sentence is accepted with modification to move to 601.1)***

In occupancies where plumbing fixtures are installed for private use, hot water shall be required for bathing, washing, laundry, cooking purposes, dishwashing or maintenance. In occupancies where plumbing fixtures are installed for public use, hot water shall be required for bathing and washing purposes. This requirement shall not supersede the requirements for individual temperature control limitations for public lavatories, bidets, bathtubs, whirlpool bathtubs and shower control valves. ***(Move this last sentence to 601.1) Hot water supply systems in four-story buildings or higher, and buildings where the developed length of hot water piping from the source of hot water supply to the farthest fixture supplied exceeds 100 feet shall be of the return circulation type.***

**SONAR:** The recommended change adds a title to this part to clarify the content for easy location of the content and requirements when hot water is required for certain types of fixtures. In addition, language is added to required recirculation of hot water systems for buildings of four stories or higher, and systems where the develop length of hot water supply exceeds 100 feet must be provided with return circulation system to conserve water and maintain adequate hot water demand within a reasonable time period.

***(603.2 Recommendation accepted)***

**603.2 Approval of Devices or Assemblies.** Before a device or an assembly is installed for the prevention of backflow, it shall have first been approved by the Authority Having Jurisdiction. Devices or assemblies shall be tested in accordance with recognized standards or other standards acceptable to the Authority Having Jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through Section 603.5.21.

Devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often where required by the Authority Having Jurisdiction. Where found to be defective or inoperative, the device or assembly shall be repaired or replaced. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the Authority Having Jurisdiction.

Testing shall be performed by a certified backflow assembly tester in accordance with ASSE Series 5000 ~~or otherwise approved by the Authority Having Jurisdiction.~~

**SONAR:** the recommended deletion is to clarify that testing requirements for backflow preventers and certification of backflow testers are established by the MN Plumbing Board and state rules, and not by any other approved authorities.

*(606.8 Recommendation denied – new language not accepted)*

**606.8 Valves for sill cocks.** All sill cocks and wall hydrants shall be separately controlled by a valve inside the building.

**SONAR:** The recommended language is necessary for winterization of these fixtures in Minnesota.

***(608.5 Recommendation accepted)***

**608.5 Drains.** Relief valves located inside a building shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard-drawn copper piping and fittings, CPVC, PP, or listed relief valve drain tube with fittings that will not reduce the internal bore of the pipe or tubing (straight lengths as opposed to coils) and shall terminate within 18 inches of the floor or a safe place of disposal ~~extend from the valve to the outside of the building, with the end of the pipe not more than 2 feet (610 mm) nor less than 6 inches (152 mm) aboveground or the flood level of the area receiving the discharge and pointing downward. Such drains shall be permitted to terminate at other approved locations.~~ Relief valve drains shall not terminate in a building's crawl space. No part of such drain pipe shall be trapped or subject to freezing. The terminal end of the drain pipe shall not be threaded.

**SONAR:** Discharging to the outside of the building is not an approved method statewide and would not meet MPCA discharge regulations. This amendment would require a more specific and safer location for the discharge of a water heater relief valve which is. consistent with UPC Chapter 507.5.

(At 4/16/13 National Committee Mtg: Members voted to change 507.5 as “Discharge from a relief valve into a water heater pan shall be prohibited. Discharge relief valve shall terminate within 18 inches of the floor or a safe place of disposal.)

**TABLE 610.3  
WATER SUPPLY FIXTURE UNITS (WSFU) AND MINIMUM FIXTURE BRANCH PIPE SIZES<sup>3</sup>**

APPLIANCES, APPURTENANCES OR FIXTURES <sup>2</sup>	MINIMUM FIXTURE BRANCH PIPE SIZE <sup>1,4</sup> (inches)	PRIVATE	PUBLIC	ASSEMBLY <sup>6</sup>
Bathtub or Combination Bath/Shower (fill)	$\frac{1}{2}$	4.0 <sup>1,4</sup>	4.0	—
$\frac{3}{4}$ inch Bathtub Fill Valve	$\frac{3}{4}$	10.0	10.0	—
Bidet	$\frac{1}{2}$	1.0	—	—
Clothes Washer	$\frac{1}{2}$	4.0	4.0	—
Dental Unit, cuspidor	$\frac{1}{2}$	—	1.0	—
Dishwasher, domestic	$\frac{1}{2}$	1.5	<del>1.5</del> 4.0	—
<u>Dishwasher, commercial</u>	$\frac{3}{4}$		4.0	
Drinking Fountain or Water Cooler	$\frac{1}{2}$	0.5	0.5	0.75
Hose Bibb	$\frac{1}{2}$	2.5	2.5	—
Hose Bibb, each additional <sup>8</sup>	$\frac{1}{2}$	1.0	1.0	—
Lavatory (each basin) or hand sink	$\frac{1}{2}$	1.0	1.0	1.0
Lawn Sprinkler, each head <sup>5</sup>	—	1.0	1.0	—
Mobile Home, each (minimum)	—	12.0	—	—
Sinks	—	—	—	—
Bar	$\frac{1}{2}$	1.0	2.0	—
Clinic Faucet	$\frac{1}{2}$	—	3.0	—
Clinic Flushometer Valve with or without faucet	1	—	8.0	—
Kitchen, domestic with or without dishwasher	$\frac{1}{2}$	1.5	1.5	—
Laundry	$\frac{1}{2}$	1.5	1.5	—
Service or Mop Basin	$\frac{1}{2}$	1.5	3.0	—
Washup, each set of faucets	$\frac{1}{2}$	—	2.0	—
<u>Commercial, prep. pot, or scullery sink</u>	$\frac{3}{4}$		4	
Shower, per head	$\frac{1}{2}$	2.0	2.0	—
Urinal, 1.0 GPF Flushometer Valve	$\frac{3}{4}$	See Footnote <sup>7</sup>		—
Urinal, greater than 1.0 GPF Flushometer Valve	$\frac{3}{4}$	See Footnote <sup>7</sup>		—
Urinal, flush tank	$\frac{1}{2}$	2.0	2.0	3.0
Wash Fountain, circular spray	$\frac{3}{4}$	—	4.0	—
Water Closet, 1.6 GPF Gravity Tank	$\frac{1}{2}$	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Tank	$\frac{1}{2}$	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Valve	1	See Footnote <sup>7</sup>		—
Water Closet, greater than 1.6 GPF Gravity Tank	$\frac{1}{2}$	3.0	5.5	7.0
Water Closet, greater than 1.6 GPF Flushometer Valve	1	See Footnote <sup>7</sup>		—

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For SI units: 1 inch = 25 mm

**Notes:**

- <sup>1</sup> Size of the cold branch pipe, or both the hot and cold branch pipes.
- <sup>2</sup> Appliances, appurtenances, or fixtures not referenced in this table shall be permitted to be sized by reference to fixtures having a similar flow rate and frequency of use.
- <sup>3</sup> The listed fixture unit values represent their load on the cold water building supply. The separate cold water and hot water fixture unit value for fixtures having both hot and cold water connections shall be permitted to be each taken as three-quarter of the listed total value of the fixture.
- <sup>4</sup> The listed minimum supply branch pipe sizes for individual fixtures are the nominal (I.D.) pipe size.
- <sup>5</sup> For fixtures or supply connections likely to impose continuous flow demands, determine the required flow in gallons per minute (gpm) (L/s), and add it separately to the demand in gpm (L/s) for the distribution system or portions thereof.
- <sup>6</sup> Assembly [Public Use (See Table 422.1)].
- <sup>7</sup> Where sizing flushometer systems, see Section 610.10.
- <sup>8</sup> Reduced fixture unit loading for additional hose bibbs is to be used where sizing total building demand and for pipe sizing where more than one hose bibb is supplied by a segment of water distribution pipe. The fixture branch to each hose bibb shall be sized on the basis of 2.5 fixture units.

**SONAR:**

1. Domestic dishwasher use in public facilities (breakroom) and uses in commercial (licensed facilities) demand frequent uses and more water and therefore, must be sized using a 4 water supply fixture unit, similar to commercial dishwasher and a clothes washer.
2. Another type of sink common in licensed facilities are commercial kitchen sink (prep, pot or scullery) which demand a large quantity of water and the use is a high frequencies and must be added to the proper for proper water sizing.
3. Hand sink is added to the same category a lavatory. This is reasonable as both are used for hand washing purposes.

**TABLED FOR FUTURE MEETING**

## CHAPTER 2 DEFINITIONS

**203.0 - A -**

**Authoritative Commissioner.** The departmental commissioner having the authority to recommend minimum quality standards for alternate water sources used for nonpotable applications, or which has been granted the power to promulgate rules, pursuant to Chapter 14, which include the minimum quality standards required for alternate water sources used for nonpotable applications.

### CHAPTER 16 ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS

**1601.0 General.**

**1601.1 Applicability.** The provisions of this chapter shall apply to the construction, alteration, and repair of alternate water source systems for nonpotable applications.

**1601.1.1 Allowable Use of Alternate Water.** ~~Where approved or required by the Administrative Authority, a~~Alternate water sources shall be permitted to be used in lieu of potable water for the applications identified in this chapter.

**1601.2 System Design.** Components, piping, and fittings used in an alternate water source system shall be listed per Chapter 14 and installed per all applicable chapters of this plumbing code.

**1601.1.2 Irrigation.** Alternate water systems designed for irrigation in combination with any of the applications identified in this chapter shall meet the requirements of this Chapter.

**1601.4 Component Identification.** System components shall be properly identified as to the manufacturer.

**1601.5 Maintenance and Inspection.** Alternate water source systems and components shall be inspected and maintained in accordance with Section 1601.5.1 through Section 1601.5.3.

**1601.5.1 Frequency.** Alternate water source systems and components shall be inspected and maintained in accordance with Table 1601.5 unless more frequent inspection and maintenance is required by the manufacturer.

**1601.5.1.1 Irrigation.** All pressurized irrigation systems shall be visually inspected on an annual basis in accordance with Section 1601.11.2.1.

**1601.5.2 Maintenance Log.** A maintenance log for gray water and on-site treated nonpotable water systems is required and shall be maintained by the property owner and be available for inspection. The property owner or designated appointee shall ensure that a record of testing, inspection and maintenance in accordance with Table 1601.5 is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.

**1601.5.3 Maintenance Responsibility.** The required maintenance and inspection of alternate water source systems shall be the responsibility of the property owner, ~~unless otherwise required by the Administrative Authority.~~

**TABLE 1601.5  
MINIMUM ALTERNATE WATER SOURCE TESTING, INSPECTION, AND MAINTENANCE FREQUENCY**

DESCRIPTION	MINIMUM FREQUENCY
Inspect and clean filters and screens, and replace.	Every 3 months
Inspect and verify that disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined in 1601.7 <del>by the Administrative Authority.</del>	<del>In accordance with manufacturer's instructions, and the Administrative Authority.</del> <u>After initial installation and monthly thereafter.</u> <u>Exception: Every 12 months thereafter when electronically monitored.</u>
Inspect pumps and verify operation.	After initial installation and every 12 months thereafter
Inspect valves and verify operation.	After initial installation and every 12 months thereafter
Inspect pressure tanks and verify operation.	After initial installation and every 12 months thereafter
Clear debris from and inspect storage tanks, locking devices, and verify operation.	After initial installation and every 12 months thereafter
Inspect caution labels and marking.	After initial installation and every 12 months thereafter
Cross-connection inspection and test*	After initial installation and every 12 months thereafter

\* ~~The annual cross-connection test shall be performed in accordance with the requirements of this chapter by in the presence of an~~ The annual cross-connection test shall be performed in accordance with the requirements of this chapter by in the presence of an plumber licensed under Minnesota Statutes, section 326B.46 and currently certified to ASSE Standard 5120 ~~individual approved by the Administrative Authority in accordance with the requirements of this chapter.~~

**1601.6 Operation and Maintenance Manual.** An operation and maintenance manual for gray water and on-site treated water systems shall be supplied to the building owner by the system designer. The operating and maintenance manual shall include the following:

- (1) Detailed diagram of the entire system and the location of system components.
- (2) Instructions on operating and maintaining the system.
- (3) Details on maintaining the required water quality as determined in 1601.7 ~~by the Administrative Authority.~~
- (4) Details on deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance frequencies in accordance with Table 1601.5.
- (6) A method of contacting the manufacturer(s).

**1601.7 Minimum Water Quality Requirements.** The minimum water quality for alternate water source systems shall meet the applicable water quality requirements for the intended application as determined by the Authoritative Commissioner ~~Administrative Authority~~. In the absence of water quality requirements, the EPA/625/R-04/108 contains recommended water reuse guidelines to assist the Authoritative Commissioner ~~Administrative Authority~~ develop, revise, or expand alternate water source water quality standards.

**1601.8 Material Compatibility.** Alternate water source systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system. Components, piping, and fittings used in an alternate water source system shall be listed per Chapter 14 of this plumbing code.

**1601.9 System Controls.** Controls for pumps, valves, and other devices that contain mercury that come in contact with alternate water source water supply shall not be permitted.

**1601.10 Commercial, Industrial, and Institutional Restroom Signs.** A sign shall be installed in all restrooms in commercial, industrial, and institutional occupancies using reclaimed (recycled) water and on-site treated water, for water closets, urinals, or similar other uses approved by the Administrative Authority. Each sign shall contain ½ inch letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The location of the sign(s) shall be approved by the Administrative Authority and shall contain the following text:

TO CONSERVE WATER, THIS BUILDING USES \* \_\_\_\_\_ \* TO FLUSH TOILETS AND URINALS.

**1601.10.1 Equipment Room Signs.** Each room containing reclaimed (recycled) water and on-site treated water equipment shall have a sign posted in a location that is visible to anyone working on or near non-potable water equipment with the following wording in 1 inch letters:

CAUTION: NON-POTABLE \* \_\_\_\_\_ \*, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

\* \_\_\_\_\_ \* Shall indicate RECLAIMED (RECYCLED) WATER or ON-SITE TREATED WATER, accordingly.

**1601.11 Inspection and Testing.** Alternate water source systems shall be inspected and tested in accordance with Section 1601.11.1 and Section 1601.11.2.

**1601.11.1 Supply System Inspection and Test.** Alternate water source systems shall be inspected and tested in accordance with the plumbing code for testing of potable water piping.

**1601.11.2 Annual Cross-Connection Inspection and Testing.** An ~~initial and subsequent annual~~ inspection and test shall be performed on both the potable and alternate water source systems. The potable and alternate water source system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1601.11.2.1 through Section 1601.11.2.4.

**1601.11.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by an individual certified to ASSE Standard 5120 ~~approved by the Administrative Authority~~ as follows:

- (1) Meter locations of the alternate water source and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.
- (2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.
- (3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

**1601.11.2.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the ~~applicant in the presence of an individual approved by the Administrative Authority~~ plumbing contractor to determine whether a cross connection has occurred as follows:

- (1) The potable water system shall be activated and pressurized. The alternate water source system shall be shut down, depressurized, and drained.
- (2) The potable water system shall remain pressurized ~~for a minimum period of time specified by the Administrative Authority~~ while the alternate water source system is empty. The minimum period the alternate water source system is to

remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the alternate water source distribution systems, but in no case shall that period be less than 1 hour.

(3) The drain on the alternate water source system shall be checked for flow during the test and all fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from any alternate water source system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the alternate water source system.

(4) The potable water system shall then be depressurized and drained.

(5) The alternate water source system shall then be activated and pressurized.

(6) The alternate water source system shall remain pressurized ~~for a minimum period of time specified by the Administrative Authority~~ while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.

(7) All fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from an alternate water source outlet will indicate that it is connected to the potable water system.

(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.

(9) If there is no flow detected in any of the fixtures which would indicate a cross-connection, the potable water system shall be re-pressurized.

**1601.11.2.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the following procedure, ~~in the presence of individuals approved by the Administrative Authority~~, shall be activated immediately:

(1) The alternate water source piping to the building shall be shut down at the meter, and the alternate water source riser shall be drained.

(2) Potable water piping to the building shall be shut down at the meter.

(3) The cross-connection shall be uncovered and disconnected.

(4) The building shall be retested following procedures listed in Section 1601.11.2.1 and Section 1601.11.2.2.

(5) The potable water system shall be chlorinated with 50 parts-per-million (ppm) chlorine for 24 hours.

(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be permitted to be recharged.

**1601.11.2.4 Annual Inspection.** An annual inspection of the alternate water source system, following the procedures listed in Section 1601.11.2.1 shall be required. Annual cross-connection testing of the alternate water source system, following the procedures listed in Section 1601.11.2.2 shall be required unless otherwise specified by the Administrative Authority. In no event shall the cross-connection test occur less than once in 45 years. Written records must be maintained and submitted to the Administrative Authority. Alternate testing requirements shall be permitted by the Administrative Authority.

**1601.12 Separation Requirements.** All underground alternate water source service piping other than gray water shall be separated from the building sewer in accordance with the plumbing code. Treated non-potable water pipes shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inch minimum vertical and horizontal separation when both pipe materials are approved for use within a building. Where horizontal piping materials do not meet this requirement the minimum separation shall be increased to 60 inches. The potable water piping shall be installed at an elevation above the treated non-potable water piping.

**1601.13 Abandonment.** All alternate water source systems that are no longer in use or fails to be maintained in accordance with Section 1601.5 shall be abandoned. Abandonment shall comply with Section 1601.13.1 and Section 1601.13.2.

**1601.13.1 General.** Every abandoned system or part thereof covered under the scope of this chapter shall be disconnected from any remaining systems, drained, plugged, and capped per the requirements of this plumbing code.

**1601.13.2 Underground Tank.** Every underground water storage tank that has been abandoned or otherwise discontinued from use in a system covered under the scope of this chapter shall be completely drained and filled with earth, sand, gravel, concrete, or other approved material or removed in a manner approved by the Administrative Authority.

**1601.14 Sizing.** Unless otherwise provided for in this supplement, alternate water source piping shall be sized in accordance with Chapter 6 for sizing potable water piping.

## 1602.0 Gray Water Systems.

**1602.1 General.** The provisions of this section shall apply to the construction, alteration, and repair of gray water systems.

### 1602.2 System Requirements.

**1602.2.1 Discharge.** Gray water shall be permitted to be diverted away from a sewer ~~or private sewage disposal system~~, and discharge to a subsurface irrigation or subsoil irrigation system when allowed by the Minnesota Pollution Control Agency. ~~The gray water shall be permitted to discharge to a mulch basin for single family and multi family dwellings.~~ Gray water shall not be used to irrigate root crops or food crops intended for human consumption that come in contact with soil.

**1602.2.2 Surge Capacity.** ~~A surge tank is required for systems that are unable to accommodate peak flow rates and distribute the total amount of gray water by gravity drainage. The water discharge for gray water systems shall be determined in accordance with Section 1602.8.1 or Section 1602.8.2.~~

**1602.2.3 Diversion.** The gray water system shall connect to the sanitary drainage system downstream of fixture traps and vent connections through an approved and listed gray water diverter valve per Chapter 14. The gray water diverter shall be installed in an accessible location and clearly indicate the direction of flow.

**1602.2.4 Backwater Valves.** Gray water drains subject to backflow shall be provided with a backwater valve so located as to be accessible for inspection and maintenance.

**1602.3 Connections to Potable and Reclaimed (Recycled) Water Systems.** Gray water systems shall have no direct connection to a potable water supply, on-site treated nonpotable water supply, or reclaimed (recycled) water systems. Potable, on-site treated nonpotable, or reclaimed (recycled) water is permitted to be used as makeup water for a non-pressurized storage tank provided the connection is protected by an air gap in accordance with this code.

**1602.4 Location.** No gray water system or part thereof shall be located on a lot other than the lot that is the site of the building or structure that discharges the gray water, nor shall a gray water system or part thereof be located at a point having less than the minimum distances indicated in Table 1602.4.

**TABLE 1602.4  
LOCATION OF GRAY WATER SYSTEMS**

<u>MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM</u>	<u>SURGE TANK (feet)</u>	
<u>Building structures<sup>1</sup></u>	<u>5<sup>2,9</sup></u>	
<u>Property line adjoining private property</u>	<u>5</u>	
<u>Water supply wells<sup>4</sup></u>	<u>50</u>	
<u>On-site domestic water service line</u>	<u>5</u>	
<u>Pressurized public water main</u>	<u>10</u>	

1 Including porches and steps, whether covered or uncovered, breezeways, roofed carports, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.

2 The distance shall be permitted to be reduced to 0 feet for aboveground tanks where first approved by the Administrative Authority.

4 Where special hazards are involved, the distance required shall be increased as directed by the Administrative Authority.

9 The distance shall be permitted to be reduced to 0 feet for surge tanks of 75 gallons or less.

**1602.8 Procedure for Estimating Gray Water Discharge.** Gray water systems shall be designed to distribute the total amount of estimated gray water on a daily basis. The water discharge for gray water systems shall be determined in accordance with Section 1602.8.1 or Section 1602.8.2.

**1602.8.1 Single Family Dwellings and Multi-Family Dwellings.** The gray water discharge for single family and multi-family dwellings shall be calculated by water use records, calculations of local daily per person interior water use, or the following procedure:

(1) The number of occupants of each dwelling unit shall be calculated as follows:

First Bedroom \_\_\_\_\_ 2 occupants

Each additional bedroom \_\_\_\_\_ 1 occupant

(2) The estimated gray water flows of each occupant shall be calculated as follows:

Showers, bathtubs, and lavatories \_\_\_\_\_ 25 gallons per day/occupant

Laundry \_\_\_\_\_ 15 gallons per day/occupant

(3) The total number of occupants shall be multiplied by the applicable estimated gray water discharge as provided above and the type of fixtures connected to the gray water system.

**1602.8.2 Commercial, Industrial, and Institutional Occupancies.** The gray water discharge for commercial, industrial, and institutional occupancies shall be calculated by utilizing the procedure in Section 1602.8.1, water use records, or other documentation to estimate gray water discharge.

**1602.9 Gray Water System Components.** Gray water system components shall comply with Section 1602.9.1 through Section 1602.9.7.

**1602.9.1 Surge Tanks.** Where installed, surge tanks shall be in accordance with the following:

(1) Surge tanks shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. Surge tanks constructed of steel shall be approved by the Administrative Authority, provided such tanks are in accordance with approved applicable standards.

- ~~(2) Each surge tank shall be vented in accordance with this code. The vent size shall be determined based on the total gray water fixture units as outlined in this code.~~
- ~~(3) Each surge tank shall have an access opening with lockable gasketed covers or approved equivalent to allow for inspection and cleaning.~~
- ~~(4) Each surge tank shall have its rated capacity permanently marked on the unit. In addition, a sign stating GRAY WATER, DANGER — UNSAFE WATER shall be permanently marked on the holding tank.~~
- ~~(5) Each surge tank shall have an overflow drain. The overflow drains shall have permanent connections to the building drain or building sewer, upstream of septic tanks. The overflow drain shall not be equipped with a shutoff valve.~~
- ~~(6) The overflow drain pipes shall not be less in size than the inlet pipe. Unions or equally effective fittings shall be provided for piping connected to the surge tank.~~
- ~~(7) Surge tank shall be structurally designed to withstand anticipated earth or other loads. Surge tank covers shall be capable of supporting an earth load of not less than 300 pounds per square foot (lb/ft<sup>2</sup>) where the tank is designed for underground installation.~~
- ~~(8) Where a surge tank is installed underground, the system shall be designed so that the tank overflow will gravity drain to the existing sewer line or septic tank. The tank shall be protected against sewer line backflow by a backwater valve installed in accordance with this code.~~
- ~~(9) Surge tanks shall be installed on dry, level, well compacted soil where underground or on a level 3 inch thick concrete slab where aboveground.~~
- ~~(10) Surge tanks shall be anchored to prevent against overturning where installed aboveground. Underground tanks shall be ballasted, anchored, or otherwise secured, to prevent the tank from floating out of the ground where empty. The combined weight of the tank and hold down system shall meet or exceed the buoyancy forces of the tank.~~

**1602.9.2 Gray Water Pipe and Fitting Materials.** Aboveground and underground building drainage and vent pipe and fittings for gray water systems shall comply with the requirements for aboveground and underground sanitary building drainage and vent pipe and fittings in this code. These materials shall extend not less than 5 feet outside the building.

**1602.9.5 Valves.** Valves shall be accessible.

**1602.9.6 Trap.** Gray water piping discharging into the surge tank or having a direct connection to the sanitary drain or sewer piping shall be downstream of an approved water seal type trap(s). Where no such trap(s) exists, an approved vented running trap shall be installed upstream of the connection to protect the building from possible waste or sewer gases.

**1602.9.7 Backwater Valve.** A backwater valve shall be installed on gray water drain connections to the sanitary drain or sewer.

**1602.12 Gray Water System Color and Marking Information.** Pressurized gray water distribution systems shall be identified as containing nonpotable water in accordance with Section 601.2 of this code.

~~**1602.13.1 Higher Requirements.** Nothing contained in this chapter shall be construed to prevent the Administrative Authority from requiring compliance with higher requirements than those contained herein, where such higher requirements are essential to maintain a safe and sanitary condition.~~

**1602.14 Testing.** Building drains and vents for gray water systems shall be tested in accordance with this code. ~~Surge tanks shall be filled with water to the overflow line prior to and during inspection. Seams and joints shall be left exposed, and the tank shall remain watertight. A flow test shall be performed through the system to the point of gray water discharge.~~

~~**1602.15 Maintenance.** Gray water systems and components shall be maintained in accordance with Table 1601.5.~~

### **1603.0 Reclaimed (Recycled) Water Systems.**

**1603.1 General.** The provisions of this section shall apply to the installation, construction, alteration, and repair of reclaimed (recycled) water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, aboveground and subsurface irrigation, industrial or commercial cooling or air conditioning, and ~~others~~ similar uses approved by the Administrative Authority.

~~**1603.2.1 Plumbing Plan Submission.** No permit for a reclaimed (recycled) water system shall be issued until complete plumbing plans, with data satisfactory to the Administrative Authority, have been submitted in duplicate and approved by the commissioner.~~

**1603.3 System Changes.** No changes or connections shall be made to either the reclaimed (recycled) water system or the potable water system within a site containing a reclaimed (recycled) water system without approval by the ~~commissioner~~ Administrative Authority.

**1603.4 Connections to Potable or Reclaimed (Recycled) Water Systems.** Reclaimed (recycled) water systems shall have no connection to a potable water supply or alternate water source system. Potable water is permitted to be used as makeup water for a reclaimed (recycled) water storage tank provided the water supply inlet is protected by an air gap or reduced-pressure principle backflow preventer in accordance with this code.

**1603.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1601.11.2. Before the building is occupied or the system is activated, the ~~installer~~ plumbing contractor shall perform the initial cross-connection test in the

presence of ~~an individual approved by the proper Administrative Authority~~. The test shall be ruled successful ~~by the Administrative Authority~~ before final approval is granted.

**1603.6 Reclaimed (Recycled) Water System Materials.** Reclaimed (recycled) water supply and distribution system materials shall comply with the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

**1603.7 Reclaimed (Recycled) Water System Color and Marking Information.** Reclaimed (recycled) water systems shall have a colored background and marking information in accordance with Section 601.2 of this code.

**1603.8 Valves.** Valves, except fixture supply control valves, shall be equipped with a locking feature.

**1603.9 Installation.**

**1603.9.1 Hose Bibbs.** Hose bibbs shall not be allowed on reclaimed (recycled) water piping systems located in areas accessible to the public. Access to reclaimed (recycled) water at points in the system accessible to the public shall be through a quick-disconnect device that differs from those installed on the potable water system. Hose bibbs supplying reclaimed (recycled) water shall be marked with the words: "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK," and the symbol in Figure 1603.9.



**FIGURE 1603.9**

**1603.9.2 Required Appurtenances.** The reclaimed (recycled) water system and the potable water system within the building shall be provided with the required valves, air and vacuum relief valves, or other appurtenances to allow for deactivation or drainage as required for a cross-connection test in accordance with Section 1601.11.2.

**1603.9.3 Same Trench as Potable Water Pipes.** Reclaimed (recycled) water pipes shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inches minimum vertical and horizontal separation where both pipe materials are approved for use within a building. Where piping materials do not meet this requirement the minimum horizontal separation shall be increased to 60 inches. The potable water piping shall be installed at an elevation above the reclaimed (recycled) water piping. Reclaimed (recycled) water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in accordance with this code for potable water piping.

**1603.10 Signs.** Rooms and water closet tanks in buildings using reclaimed (recycled) water shall be in accordance with Section 1601.10.

**1603.11 Inspection and Testing.** Reclaimed (recycled) water systems shall be inspected and tested in accordance with Section 1601.11.

**1604.0 On-Site Treated Nonpotable Water Systems.**

**1604.1 General.** The provisions of this section shall apply to the installation, construction, alteration, and repair of on-site treated nonpotable water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, and similar other uses approved by the Administrative Authority.

**1604.2 Plumbing Plan Submission.** No permit for an on-site treated nonpotable water system shall be issued until complete plumbing plans, ~~with data satisfactory to the Administrative Authority~~, have been submitted in duplicate and approved by the commissioner.

**1604.3 System Changes.** No changes or connections shall be made to either the on-site treated nonpotable water system or the potable water system within a site containing an on-site treated nonpotable water system without approval by the commissioner~~Administrative Authority~~.

**1604.4 Connections to Potable or Reclaimed (Recycled) Water Systems.** On-site treated nonpotable water systems shall have no connection to a potable water supply or reclaimed (recycled) water source system.

**1604.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1604.12.2. Before the building is occupied or the system is activated, the ~~installer~~ plumbing contractor shall perform the initial cross-connection test in the presence of ~~an individual approved by the~~ proper Administrative Authority. The test shall be ruled successful ~~by the Administrative Authority~~ before final approval is granted.

**1604.6 On-Site Treated Nonpotable Water System Materials.** On-site treated nonpotable water supply and distribution system materials shall comply with the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

**1604.7 On-Site Treated Nonpotable Water Devices and Systems.** Devices or equipment used to treat on-site treated nonpotable water in order to maintain the minimum water quality requirements determined in 1601.7 ~~by the Administrative Authority~~ shall be listed, and labeled by a third-party certifying listing agency and approved for the intended application. Devices or equipment used to treat on-site treated non-potable water for use in water closet, urinal flushing, and similar applications shall be listed and labeled to IAPMO IGC207-2009a, NSF 350-2011 ~~or approved by the Administrative Authority.~~

**1604.8 On-Site Treated Nonpotable Water System Color and Marking Information.** On-site treated water systems shall have a colored background and marking information in accordance with Section 601.2 of this code.

**1604.9 Valves.** Valves, except fixture supply control valves, shall be equipped with a locking feature.

**1604.10 Design and Installation.** The design and installation of on-site treated nonpotable systems shall be in accordance with Section 1604.10.1 through Section 1604.10.5.

**1604.10.1 Listing Terms and Installation Instructions.** On-site treated nonpotable water systems shall be installed in accordance with the terms of its listing and the manufacturer's installation instructions.

**1604.10.2 Minimum Water Quality.** On-site treated nonpotable water supplied to toilets, urinals, or for similar ~~other~~ uses in which it is sprayed or exposed shall be disinfected. Acceptable disinfection methods shall include chlorination, ultraviolet sterilization, ozone, or other methods as approved by the Administrative Authority. The minimum water quality for on-site treated nonpotable water systems shall meet the applicable water quality requirements for the intended applications as determined in 1601.7 ~~by the Administrative Authority.~~

**1604.10.3 Deactivation and Drainage.** The on-site treated nonpotable water system and the potable water system within the building shall be provided with the required valves, air and vacuum relief valves, or other appurtenances to allow for deactivation or drainage as required for a cross-connection test in accordance with Section 1601.11.2.2.

**1604.10.4 Near Underground Potable Water Pipe.** On-site treated nonpotable water pipes shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inch minimum vertical and horizontal separation where both pipe materials are approved for use within a building. Where piping materials do not meet this requirement the minimum separation shall be increased to 60 inches. The potable water piping shall be installed at an elevation above the on-site treated nonpotable water piping.

**1604.10.5 Required Filters.** A filter permitting the passage of particulates no larger than 100 microns shall be provided for on-site treated nonpotable water supplied to water closets, urinals, trap primers, or similar ~~other~~ uses ~~approved by the Administrative Authority.~~

**1604.11 Signs.** Signs in buildings using on-site treated nonpotable water shall comply with Section 1601.10.

**1604.12 Inspection and Testing.** On-site treated nonpotable water systems shall be inspected and tested in accordance with Section 1601.11.

**CHAPTER 2  
DEFINITIONS**

**203.0 - A -**

**Authoritative Commissioner.** The departmental commissioner having the authority to recommend minimum quality standards for alternate water sources used for nonpotable applications, or which has been granted the power to promulgate rules, pursuant to Chapter 14, which include the minimum quality standards required for alternate water sources used for nonpotable applications.

**CHAPTER 17  
NONPOTABLE RAINWATER CATCHMENT SYSTEMS**

**1701.0 General.**

**1701.1 Applicability.** The provisions of this chapter shall apply to the installation, construction, alteration, and repair of nonpotable rainwater catchment systems for nonpotable applications listed in 1702.1.

**1701.1.1 Allowable Use of Alternate Water.** ~~Where approved or required by the Administrative Authority, r~~ Rainwater shall be permitted to be used in lieu of potable water for the applications identified in this chapter.

**1701.4 Component Identification.** System components shall be properly identified as to the manufacturer.

**1701.5 Maintenance and Inspection.** Rainwater systems and components shall be inspected and maintained in accordance with Section 1701.5.1 through Section 1701.5.3.

**1701.5.1 Frequency.** Rainwater systems and components shall be inspected and maintained in accordance with Table 1701.5 unless more frequent inspection and maintenance is required by the manufacturer.

**1701.5.2 Maintenance Log.** A maintenance log for rainwater systems is required. The property owner or designated appointee shall ensure that a record of testing, inspection, and maintenance in accordance with Table 1701.5 is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.

**1701.5.3 Maintenance Responsibility.** The required maintenance and inspection of rainwater systems shall be the responsibility of the property owner, ~~unless otherwise required by the Administrative Authority.~~

**TABLE 1701.5  
MINIMUM ALTERNATE WATER SOURCE TESTING, INSPECTION, AND MAINTENANCE FREQUENCY**

DESCRIPTION	MINIMUM FREQUENCY
Inspect and clean filters and screens, and replace.	Every 3 months
Inspect and verify that <u>required</u> disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements in 1701.7 <del>as determined by the Administrative Authority.</del>	<del>In accordance with manufacturer's instructions and the Administrative Authority.</del> <u>After initial installation and monthly thereafter. Exception: Every 12 months thereafter when electronically monitored.</u>
Inspect and clear debris from rainwater gutters, downspouts, and roof washers.	<del>At the beginning of seasonal usage and e</del> Every <del>6-3</del> months
Inspect and clear debris from roof or other aboveground rainwater collection surfaces.	<del>At the beginning of seasonal usage and e</del> Every <del>6-3</del> months
Remove tree branches and vegetation overhanging roof or other aboveground rainwater collection surfaces.	As needed
Inspect pumps and verify operation.	After initial installation and every 12 months thereafter
Inspect valves and verify operation.	After initial installation and every 12 months thereafter
Inspect pressure tanks and verify operation.	After initial installation and every 12 months thereafter
Clear debris from and inspect storage tanks, locking devices, and verify operation.	After initial installation and every 12 months thereafter
Inspect caution labels and marking.	After initial installation and every 12 months thereafter
Cross-connection inspection and test*	After initial installation and <u>at the beginning of seasonal usage every 12 months thereafter</u>

\* The annual cross-connection test shall be performed in accordance with the requirements of this chapter by in the presence of a plumber licensed under Minnesota Statutes, section 326B.46 and currently certified to ASSE Standard 6120 individual approved by the Administrative Authority in accordance with the requirements of this chapter.

**1701.6 Operation and Maintenance Manual.** An operation and maintenance manual for rainwater systems shall be supplied to the building owner by the system designer. The operating and maintenance manual shall include the following:

- (1) Detailed diagram of the entire system and the location of system components.
- (2) Instructions on operating and maintaining the system.
- (3) Details on maintaining the required water quality as determined ~~in 1701.7 by the Administrative Authority.~~
- (4) Details on deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance frequencies in accordance with Table 1701.5.
- (6) A method of contacting the manufacturer(s).

**1701.7 Minimum Water Quality Requirements.** The minimum water quality for rainwater systems shall meet the applicable water quality requirements for the intended application as determined by the ~~Authoritative Commissioner-Administrative Authority.~~ Water quality for non-potable rainwater catchment systems shall comply with Section 1702.9.4. In the absence of water quality requirements, the EPA/625/R-04/108 contains recommended water reuse guidelines to assist the ~~Authoritative Commissioner-Administrative Authority~~ develop, revise, recommend, or expand rainwater quality standards.

**1701.8 Material Compatibility.** Rainwater systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system. Components, piping, and fittings used in rainwater systems shall be listed per Chapter 14 and installed in accordance with the requirements of this plumbing code.

~~+1701.9 System Controls.~~ Controls for pumps, valves, and other devices that contain mercury that come in contact with rainwater supply shall not be permitted.

**1701.10 Separation Requirements.** All underground rainwater service piping shall be separated from the building sewer in accordance with Section 609.2. Treated non-potable water pipes shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inch minimum vertical and horizontal separation when both pipe materials are approved for use within a building. Where horizontal piping materials do not meet this requirement the minimum separation shall be increased to 60 inches. The potable water piping shall be installed at an elevation above the treated non-potable water piping.

**1701.11 Abandonment.** All rainwater systems that are no longer in use or fails to be maintained in accordance with Section 1701.5 shall be abandoned. Abandonment shall comply with Section 1701.11.1 and Section 1701.11.2.

**1701.11.1 General.** Every abandoned system or part thereof covered under the scope of this chapter shall be disconnected from any remaining systems, drained, plugged, and capped per the requirements of this plumbing code.

**1701.11.2 Underground Tank.** Every underground water storage tank that has been abandoned or otherwise discontinued from use in a system covered under the scope of this chapter shall be completely drained and filled with earth, sand, gravel, concrete, ~~or other approved material~~ or removed in a manner satisfactory to the Administrative Authority.

**1701.12 Sizing.** Unless otherwise provided for in this ~~supplement-Chapter~~, rainwater piping shall be sized in accordance with Chapter 6 for sizing potable water piping.

## **1702.0 Nonpotable Rainwater Catchment Systems.**

**1702.1 General.** The installation, construction, alteration, and repair of rainwater catchments systems intended to supply uses such as water closets, urinals, trap primers for floor drains, industrial processes, water features, cooling tower makeup, and similar ~~other~~ uses shall be approved by the Administrative Authority.

**1702.1.1 Irrigation.** Catchment systems used for irrigation in combination with any uses listed in 1702.1 shall meet the requirements of this Chapter.

**1702.2 Plumbing Plan Submission.** No permit for a rainwater catchment system shall be issued until complete plumbing plans, ~~with data satisfactory to the Administrative Authority,~~ have been submitted in duplicate and approved by the commissioner. ~~No changes or connections shall be made to either the rainwater catchment or the potable water system within a site containing a rainwater catchment water system without approval by the Administrative Authority.~~

**1702.3 System Changes.** No changes or connections shall be made to either the rainwater catchment system or the potable water system within a site containing a rainwater catchment system requiring a permit without approval by the ~~commissioner~~Administrative Authority.

**1702.4 Connections to Potable or Reclaimed (Recycled) Water Systems.** An automatic means shall be installed to supply the rainwater catchment system with makeup water when there is insufficient rainwater to meet the required demand. Rainwater catchment systems shall have no direct connection to a potable water supply or alternate water source system. Potable or reclaimed (recycled) water is permitted to be used as makeup water for a rainwater catchment system provided the potable or reclaimed (recycled) water supply connection is protected by an air gap or reduced-pressure principle backflow preventer in accordance with this code.

**1702.5 Initial Cross-Connection Test.** Where a portion of a rainwater catchment system is installed within a building, a cross-connection test is required in accordance with Section 1702.11.2. Before the building is occupied or the system is activated, the ~~installer~~ plumbing contractor shall perform the initial cross-connection test in the presence of ~~an individual approved by the~~ proper Administrative Authority. The test shall be ruled successful ~~by the Administrative Authority~~ before final approval is granted.

**1702.6 Sizing.** The design and size of rainwater drains, conductors, and leaders shall comply with Chapter 11 of this code.

**1702.7 Rainwater Catchment System Materials.** Rainwater catchment system materials shall comply with Section 1702.7.1 through Section 1702.7.43.

**1702.7.1 Water Supply and Distribution Materials.** Rainwater catchment water supply and distribution materials shall comply with Chapter 6 and the requirements for potable water supply and distribution systems of this code, unless otherwise provided for in this section.

**1702.7.2 Rainwater Catchment System Drainage Materials.** Materials used in rainwater catchment drainage systems shall be in accordance with Chapter 11 and the requirements for storm drainage in this code.

**1702.7.3 Storage Tanks.** Rainwater storage tanks shall comply with Section 1702.9.5.

**1702.8 Rainwater Catchment System Color and Marking Information.** Rainwater catchment systems shall have a colored background in accordance with Section 601.2. Rainwater catchment systems shall be marked, in lettering in accordance with Section 601.2, with the words: "CAUTION: NONPOTABLE RAINWATER WATER, DO NOT DRINK."

**1702.9 Design and Installation.**

**1702.9.1 Outside Hose Bibbs.** Outside hose bibbs shall be allowed on rainwater piping systems. Hose bibbs supplying rainwater shall be marked with the words: "CAUTION: NONPOTABLE WATER, DO NOT DRINK" and Figure 1702.9.



FIGURE 1702.9

**1702.9.2 Deactivation and Drainage for Cross-Connection Test.** The rainwater catchment system and the potable water system within the building shall be provided with the required valves, air and vacuum relief valves, or other appurtenances to allow for deactivation or drainage as required for a cross-connection test in accordance with Section 1702.11.2.

**1702.9.3 Collection Surfaces.**

**1702.9.3.1 Rainwater Catchment System Surfaces.** Rainwater shall be collected from roof surfaces or other manmade, aboveground collection surfaces.

**1702.9.3.2 Other Surfaces.** Natural precipitation collected from surface water runoff, vehicular parking surfaces or manmade surfaces at or below grade shall comply with the storm water requirements for on-site treated non-potable water systems in Section 1604.0.

**1702.9.3.3 Prohibited Discharges.** Discharge from roof-mounted equipment and appliances shall not discharge onto roof surfaces that are intended to collect rainwater.

**1702.9.4 Minimum Water Quality.** The minimum water quality for harvested rainwater shall meet the applicable water quality requirements for the intended applications as determined in 1701.7 by the Administrative Authority. ~~In the absence of water quality requirements determined by the Administrative Authority, the minimum treatment and water quality shall also comply with Table 1702.9.4.~~

**1702.9.5 Rainwater Storage Tanks.** Rainwater storage tanks shall be constructed and installed in accordance with Section 1702.9.5.1 through Section 1702.9.5.7.

**1702.9.5.1 Construction.** Rainwater storage tanks shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. ~~Storage tanks shall be approved by the Administrative Authority, provided such tanks are in accordance with approved applicable standards.~~

**1702.9.5.2 Location.** Rainwater storage tanks shall be permitted to be installed above or below grade.

**1702.9.5.3 Above Grade.** Above grade storage tanks shall be of an opaque material, approved for aboveground use in direct sunlight or shall be shielded from direct sunlight. Tanks shall be installed in an accessible location to allow for inspection and cleaning. The tank shall be installed on a foundation or platform that is constructed to accommodate loads in accordance with the building code.

**1702.9.5.4 Below Grade.** Rainwater storage tanks installed below grade shall be structurally designed to withstand anticipated earth or other loads. Holding tank covers shall be capable of supporting an earth load of not less than 300

pounds per square foot (lb/ft<sup>2</sup>) where the tank is designed for underground installation. Below grade rainwater tanks installed underground shall be provided with manholes. The manhole opening shall be a minimum diameter of 20 inches above and located not less than 4 inches above the surrounding grade. The surrounding grade shall be sloped away from the manhole. Underground tanks shall be ballasted, anchored, or otherwise secured, to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold down system shall meet or exceed the buoyancy force of the tank.

**1702.9.5.5 Drainage and Overflow.** Rainwater storage tanks shall be provided with a means of draining and cleaning. The overflow drain shall not be equipped with a shutoff valve. The overflow outlet shall discharge in accordance with this code for storm drainage systems. Where discharging to the storm drainage system, the overflow drain shall be protected from backflow of the storm drainage system by a backwater valve or other approved methods.

**1702.9.5.5(A) Overflow Outlet Size.** The overflow outlet shall be sized to accommodate the flow of the rainwater entering the tank and not less than the aggregate cross-sectional area of inflow pipes.

**1702.9.5.6 Opening and Access Protection.**

**1702.9.5.6(A) Animals and Insects.** Rainwater tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank.

**1702.9.5.6(B) Human Access.** Rainwater tank access openings exceeding 12 inches in diameter shall be secured to prevent tampering and unintended entry by either a lockable device or other approved method.

**1702.9.5.7 Marking.** Rainwater tanks shall be permanently marked with the capacity and the language: "NONPOTABLE RAINWATER." Where openings are provided to allow a person to enter the tank, the opening shall be marked with the following language: "DANGER-CONFINED SPACE."

**1702.9.5.8 Storage Tank Venting.** A vent shall be installed on each tank. The vent shall extend from the top of the tank and terminate a minimum of ~~6~~12 inches above grade and shall be a minimum of 1-½ inches in diameter. The vent terminal shall be directed downward and covered with a 3/32 inch mesh screen to prevent the entry of vermin and insects.

**1702.9.6 Pumps.** Pumps serving rainwater catchment systems shall be listed per Chapter 14 of this plumbing code. Pumps supplying water to water closets, urinals, and trap primers shall be capable of delivering not less than 15 pounds-force per square inch (psi) residual pressure at the highest and most remote outlet served. Where the water pressure in the rainwater supply system within the building exceeds 80 psi, a listed pressure reducing valve reducing the pressure to 80 psi or less to water outlets in the building shall be installed in accordance with this code.

**1702.9.7 Roof Drains.** Primary and secondary roof drains, conductors, and leaders, shall be designed and installed in accordance with Chapter 11 of this code. Secondary roof drains if used for catchment shall be alarmed.

**1702.9.8 Water Quality Devices and Equipment.** Devices and equipment used to treat rainwater to maintain the minimum water quality requirements determined in 1701.7 ~~by the Administrative Authority~~ shall be listed, and labeled by a third-party certifying listing agency and approved for the intended application.

**1702.9.9 Freeze Protection.** Tanks and piping installed in locations subject to freezing shall be provided with an approved means of freeze protection.

**1702.9.10 Debris Removal.** The rainwater catchment conveyance system shall be equipped with a debris excluder or other approved means to prevent the accumulation of leaves, needles, other debris, and sediment from entering the storage tank. Devices or methods used to remove debris or sediment shall be accessible and sized and installed in accordance with manufacturer's installation instructions.

**1702.9.11 Required Filters.** A filter permitting the passage of particulates not larger than 100 microns shall be provided for rainwater supplied to water closets, urinals, trap primers or similar other uses approved by the Administrative Authority.

**1702.10 Signs.** Signs in buildings using rainwater shall be in accordance with Section 1702.10.1 and Section 1702.10.2.

**1702.10.1 Commercial, Industrial, and Institutional Restroom Signs.** A sign shall be installed in restrooms in commercial, industrial, and institutional occupancies using nonpotable rainwater for water closets, urinals, or similar other uses approved by the Administrative Authority. Each sign shall contain ½ inch letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to users. The number and location of the signs shall be approved by the Administrative Authority and shall contain one of the following texts determined by the following applications:

**1702.10.1(A) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS.**

**1702.10.1(B) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS.**

**1702.10.1(C) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH URINALS.**

**1702.10.1(D) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO \* \_\_\_\_\_ \***

\* \_\_\_\_\_ \* Shall indicate the Rainwater usage.

**1702.10.2 Equipment Room Signs.** Each equipment room containing nonpotable rainwater equipment shall have a sign posted with the following wording in 1 inch letters:

CAUTION NONPOTABLE RAINWATER, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM.

NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near rainwater water equipment.

**1702.11 Inspection and Testing.** Rainwater catchment systems shall be inspected and tested in accordance with Section 1702.11.1 and Section 1702.11.2. Storage tanks shall be filled with water to the overflow opening for a period of 24 hours and during inspection or by other means as approved by the Administrative Authority. All seams and joints shall be exposed during inspection and checked for water tightness.

**1702.11.1 Supply System Inspection and Test.** Rainwater catchment systems shall be inspected and tested in accordance with the applicable provisions of this code for testing of potable water and storm drainage systems.

**1702.11.2 Annual Cross-Connection Inspection and Testing.** An ~~initial and subsequent annual~~ inspection and test ~~in accordance with Section 1702.5~~ shall be performed on both the potable and rainwater catchment water systems. The potable and rainwater catchment water systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1702.11.2.1 through Section 1702.11.2.43.

**1702.11.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by an individual certified to ASSE Standard 5120 ~~approved by the Administrative Authority~~ as follows:

(1) Pumps, equipment, equipment room signs, and exposed piping in an equipment room shall be checked.

**1702.11.2.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the ~~applicant in the presence of an individual approved by the Administrative Authority~~ plumbing contractor to determine whether a cross-connection has occurred as follows:

(1) The potable water system shall be activated and pressurized. The rainwater catchment water system shall be shut down and completely drained.

(2) The potable water system shall remain pressurized ~~for a minimum period of time specified by the Administrative Authority~~ while the rainwater catchment water system is empty. The minimum period the rainwater catchment water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and rainwater catchment water distribution systems, but in no case shall that period be less than 1 hour.

(3) Fixtures, potable water, and rainwater systems shall be tested and inspected for flow. Flow from a rainwater catchment water system outlet shall indicate a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the rainwater water system.

(4) The drain on the rainwater catchment water system shall be checked for flow during the test and at the end of the period.

(5) The potable water system shall then be completely drained.

(6) The rainwater catchment water system shall then be activated and pressurized.

(7) The rainwater catchment water system shall remain pressurized ~~for a minimum period of time specified by the Administrative Authority~~ while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.

(8) Fixtures, potable water, and rainwater systems shall be tested and inspected for flow. Flow from a potable water system outlet shall indicate a cross-connection. No flow from a rainwater catchment water outlet shall indicate that it is connected to the potable water system.

(9) The drain on the potable water system shall be checked for flow during the test and at the end of the period.

(10) Where there is no flow detected in the fixtures which would indicate a cross-connection, the potable water system shall be re-pressurized.

**1702.11.2.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the following procedure, ~~in the presence of the Administrative Authority~~, shall be activated immediately:

(1) Rainwater catchment water piping to the building shall be shut down at the meter, and the rainwater water riser shall be drained.

(2) Potable water piping to the building shall be shut down at the meter.

(3) The cross-connection shall be uncovered and disconnected.

(4) The building shall be retested following procedures listed in Section 1702.11.2.1 and Section 1702.11.2.2.

(5) The potable water system shall be chlorinated with 50 ppm chlorine for 24 hours.

(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

**1702.11.2.43 Annual Inspection and Test.** An annual inspection of the rainwater catchment water system, following the procedures listed in Section 1702.11.2.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 1702.11.2.2 shall be required ~~by the Administrative Authority~~, unless ~~site conditions do not require it otherwise specified by the Administrative Authority~~, but in no event shall the test occur less than once in ~~45~~ years. Written records must be maintained and submitted to the Administrative Authority. Alternate testing requirements shall be permitted by the Administrative Authority.

**Table 1702.9.4  
Minimum Water Quality**

<b>Application</b>	<b>Minimum Treatment</b>	<b>Minimum Water Quality</b>
Car Washing	Debris excluder or other approved means in compliance with Section 1702.9.10 and 1702.9.11.	N/A
Urinal and water closet flushing, clothes washing, and trap priming	Debris excluder or other approved means in compliance with Section 1702.9.10 and 1702.9.11.	Escherichia coli: <100 CFU/100 ml and Turbidity: <10 NTU
Ornamental Fountains and other water features	Debris excluder or other approved means in compliance with Section 1702.9.10 and 1702.9.11.	Escherichia coli: <100 CFU/100 ml and Turbidity: <10 NTU
Cooling tower make-up water	Debris excluder or other approved means in compliance with Section 1702.9.10 and 1702.9.11.	Escherichia coli: <100 CFU/100 ml and Turbidity: <10 NTU