

**Plumbing Board
Meeting Minutes
January 21, 2014 at 9:30 a.m.
Minnesota Room – Department of Labor and Industry
443 Lafayette Road North, St. Paul, MN 55155**

Members

John Parizek (Chair)
Jim Lungstrom
Ron Thompson
Jim Kittelson
Chad Filek
John Flagg
Pete Moulton
Grant Edwards
Mike McGowan

Members Absent

Joe Beckel
Larry Justin
Phillip Sterner
Gale Mount

DLI Staff & Visitors

Pat Munkel-Olson (DLI)
Suzanne Todnem (DLI)
Cathy Tran (DLI)
Jim Peterson (DLI)
Lyndy Lutz (DLI)
Gary Thaden (MMCA)
Gary Ford (Metro Testing)
Brian Noma (MDH)
Tim Power (MNLA)
Laura Millberg (MPCA)
David Skallet (City of St. Louis Park)
Cory VanVickle (MWSM)
Bob Burk (Rep Rite)
Dave Schulenberg (MWWA)
Ryan Anderson (MPCA)
Phil Raines (ABC)

I. Call to Order

The meeting was called to order by Chair Parizek at 9:37 a.m. Introductions and housekeeping announcements were made. Attendance was taken; a quorum was met.

II. Approval of Meeting agenda

The following additions were made to the agenda:

- A) V. Committee Reports, item A) Department Updates, i. Rules
- B) VI. Special Business, item C) Appointment of Secretary

A motion was made by McGowan to approve the agenda as amended above, seconded by Flagg. The vote was unanimous; the motion carried.

III. Approval of Previous Meeting Minutes

- A. Plumbing Board Minutes – 12/10/2013

A motion was made by Flagg to approve the 12/10/2013 Minutes as presented, seconded by Filek. The majority vote ruled and the motion carried with one abstention.

IV. Regular Business

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

V. Committee Reports

A) Department Update

- i. Pat Munkel-Olson gave a Rules update - Continuing Education (CE) Rules for RPZ Testers/Rebuilders have been adopted. After submission to the Office of Administrative Hearings they were approved and the Notice of Adoption published on January 6, 2014. There were no changes made by the Judge. Chair Parizek added that this CE rule for backflow allowed us to meet the requirements in ASSE Standard 5110 and 5130; the board did not require additional continuing education. Munkel-Olson stated that the true benefit of this adoption was that the board preserves rulemaking authority so that in future CE requirements could be changed. Discussion followed regarding efforts to get ASSE certification for continuing education training programs – this would be up to the individuals providing the course; there were some issues with Anoka Tech but those issues were resolved. There are many courses available now.

There were no other department updates.

B) Executive Committee

- i. Water Reuse Interagency Group
They have met and provided a letter of recommendation for Chapter 17, Rainwater Reclamation.

The Executive Committee talked about some of the ad-hoc committees of the board – The National Code Committee hasn't met since they provided their report to the board; recommendation to disband/dissolve this committee . Future national code issues would be handled by the board.

A motion was made by Edwards to disband the National Code Review Committee, seconded by McGowan. The vote was unanimous; the motion carried.

- ii. Appointments
All board members have re-applied except one. The position for Municipal Inspector, Metro, was posted January 1, 2014; not aware of any applicants. Board member's terms that expired 12/31/2013 are still officially on the board until re-appointed or replaced. If there is no action taken by July 1, 2014 then current members would automatically be seated on the board for another 3 year term. It could take 1-3 months before official notice.

C) Construction Codes Advisory Council

Have not met

VI. Special Business

A) 2014 Construction Industry Conference is scheduled for February 6, 2014. Information and registration found on the DLI website at:

<http://www.dli.mn.gov/construction/main.asp>

B) Review of proposed amendments to the 2012 Uniform Plumbing Code for possible adoption under future rulemaking to adopt a national model code.

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

Parizek stated that a motion needs to be made by the board recommending that all the exhibits that were dealt with and reviewed, be moved forward and SONARS begin being drafted. When completed it would be brought back to the board for a final motion of acceptance.

A motion was made by Kittelson, seconded by Flagg, that all language that has been reviewed be moved forward, all SONARS be drafted, and move forward with the Rulemaking process. The vote was unanimous; the motion carried.

Parizek requested the board's permission or authorization to draft a letter regarding Chapter 16 and 17 regarding the progress made and what we hope to accomplish in the future. The letter would be presented to the Commissioner and a copy provided to the Governor so that they know what the Plumbing Board is doing in water conservation and being green. He asked for creative leeway to compose this letter.

A motion was made by Edwards, seconded by Flagg, to grant authority to Chair Parizek to compose and send a letter to the Commissioner and Governor regarding accomplishments on Chapters 16 and 17. A draft would be sent to the board members. The vote was unanimous; the motion carried.

VII. Complaints

Parizek discovered a company without a license or a bond – turned over to enforcement.

VIII. Open Forum

Nothing brought forth.

IX. Board Discussion

Nomination of Secretary – A motion was made by consent to nominate Filek as Secretary to the Board. The vote was unanimous; the motion carried.

X. Announcements

Next Regularly Scheduled Meetings

- i. April 15, 2014 @ 9:30 a.m. – Minnesota Room, DLI
- ii. July 15, 2014 @ 9:30 a.m. – Minnesota Room, DLI
- iii. October 21, 2014 @ 9:30 a.m. – Minnesota Room, DLI

XI. Adjournment

A motion was made by Moulton, seconded by Flagg, to adjourn the meeting at 3:29 p.m.

Respectfully submitted,



Chad Filek
Secretary

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

Language displayed in RED reflects 1/21/2014 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
¹ DLI 6/18/13	Ch. 4 (Various) <i>Tran discussed re- numbering of sections: 409.1, 418.6, 418.7</i>	Accept; with omission of 403.3.1 & 418.4 <ul style="list-style-type: none"> Section 403.3.1 – Previously omitted, not to be included Section 406.3 – Recommended to be removed Section 409.1 – Include existing 415 language Section 418.4 – Previously omitted, not to be included Section 418.6 – Leave existing language in 4715 Section 418.7 – Garage and parking area floor drains Concerns with definitions of “open” and “enclosed” were discussed. Section 1017 does not require an interceptor, therefore 418.7 will be addressed when dealing with Exhibit 35 Section 420.3 – Accept moving forward with recommended language Section 421.2 – Temperature change 420°F to <u>110°F</u> No discussion/concerns Sections 422.0 to 422.1.1 - Recommended new language for section 422.1; striking existing language for sections 422.1 to 422.1.1 as it is already addressed in the building code Sections 422.2 to 422.5 – Recommended striking language 	13	Section 418.7 Flagg / Kittelson Motion to accept the language as presented with the exception of striking the word municipal in the first sentence	Majority, carries
¹ DLI 9/17/13	Ch. 10 (Various) 1017.0 1017.1 1017.2	The National Code Review Committee recommended the following friendly amendment to read as follows: 1017.2 Design of Interceptors. <u>Oil separators are to be designed to the standards as listed in chapter 14.</u> Each manufactured interceptor that is rated shall be stamped or labeled by the manufacturer with an indication of its full discharge rate in gpm (L/s). The full discharge rate to such an interceptor shall be determined at full flow. Each interceptor shall be rated equal to or greater than the incoming flow. and shall be provided with an overflow line to an underground tank. IAPMO PS80 Standards were reviewed and due to time constraints, chapter 10 was tabled.	35	Moulton / Edwards Motion to accept DLI language as presented for 1017.0, 1017.1, & 1017.2 (pages 116 & 117) which would be staying with our existing Minnesota Code Language on the Oil and Flammable Liquid Interceptors	Majority, carries

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

Language displayed in RED reflects 1/21/2014 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
		<p>Tran addressed the board and discussed the two changes that were brought forward. If the goal is to maintain the UPC then DLI believes striking the language takes it out of context. There is no specific standard for flammable interceptors; it would have to be a case by case basis. It would cause an amendment to be added back in just to refer back to Chapter 14. The second proposed amendment is taken out of context because the intent is to have that overflow tank and by striking it you don't have the underground tank. Removing this language should be done at a national level. Car washes, parking ramps, and vehicle storage garages would NOT be required to have an oil or flammable waste interceptor under the UPC. If we are going to refer to Chapter 14 for a standard, we should have an actual standard we are referring to. This would be linked back to the parking ramp provision under 418, which was tabled in line with this section (Exhibit 13).</p> <p>Parizek recommended staying with current language in the Minnesota Plumbing Code or stay with the UPC as is written in the 2012 edition. There would be an issue if a municipality said they couldn't accept any grease or oil in their waste drain; they would need to have an ordinance.</p> <p>1017.1 and 1017.2 in the 2012 UPC would be stricken and the current Minnesota language would be inserted.</p>			
Justin 6/18/13	1005.1 (Trap Seal)	<p>Accept Revising the authority having jurisdiction to the Administrative Authority. This will be a general change throughout the 2012 UPC therefore no change is required.</p>	36	<p>N/A This language will be changed automatically. No vote required</p>	N/A
Justin 6/18/13	1007.0, 1007.1 (Trap Seal Protection)	<p>Accept Recommendation by Justin, Section 1007.0 & 1007.1 to be stricken; the requirement for a trap seal primer. DLI does not see</p>	36	<p>McGowan / Flagg Motion to accept stricken language as</p>	Motion Fails

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

Language displayed in RED reflects 1/21/2014 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
		an issue with striking the language, it is very vague. Munkel-Olson stated you are incorporating by reference and then making changes to it therefore section 1007.1 is deleted in its entirety but it would need to be explained and addressed in SONAR.		presented	
Justin 6/18/13	1008.0, 1008.1 (Building Traps)	Accept Recommendation to strike language in section 1008.0, 1008.1	36	Edwards / Kittelson Motion to deny the recommendation and leave 1008.0, 1008.1 as written in the 2012 UPC	Unanimous, carries
Justin 6/18/13	1010.1 (Slaughterhouses)	Accept Recommended to omit 1010.1 and replace with 4715.1130 Language was not received with recommended changes.	36	Kittelson / McGowan Motion to deny the recommendation; leave as written in the UPC	Unanimous, carries
¹ DLI 6/18/13 & 9/17/13	Ch. 11 (Various)	Accept 1101.11.1 Primary Roof Drainage – Edwards stated that Minneapolis inspectors do not believe that 4-inch per hour is adequate; would not recommend going less than 4-inch. DLI proposed striking the reference to Table D and just adding the language as presented. Discussion: <ul style="list-style-type: none"> • Could the language stay the same and add 4-inch into the table? Cannot change the 100-year average. • Is there an indication in the Table of the time period? <hr/> 1101.11.2 Secondary Roof Drain – correct reference to the current code – making the connection between codes <hr/> 1106.0, 1106.1, 1106.2 – accept as presented; accept minimum 4 inch per hour <hr/>	37	Section 1101.11.1 Edwards / Flagg Motion to accept the language as presented <hr/> Section 1101.11.2 Flagg / Edwards Motion to accept recommendation <hr/> Section 1106.0–1106.2 Flagg / Filek Motion to accept recommendation <hr/> Section 1106.3 Edwards / Flagg	Section 1101.11.1 Unanimous, carries <hr/> Section 1101.11.2 Unanimous, carries <hr/> Section 1106.0-1106.2 Unanimous, carries <hr/> Section 1106.3 Unanimous, carries

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

Language displayed in RED reflects 1/21/2014 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
		<p>1106.3 – Reduction in size prohibited.</p> <hr/> <p>1108.0, 1108.1 - Controlled Flow Roof Drainage</p> <hr/> <p>1109.0 – 1109.2.3 - Section 712 of the UPC (Exhibit 31) was referred to – Hydro test or test with air options. The current UPC language 2.1, 2.2, and 2.3 is almost repetitive to 712.0; intent is to get rid of some duplicate language. Discussed 1109.2, Item B, be given a separate number since it is under the exceptions. The Hydrostatic Test Method is a guideline, not a standard.</p>		<p>Motion to accept recommendation</p> <hr/> <p>Section 1108.0-1108.1 Flagg / Moulton Motion to accept recommendation</p> <hr/> <p>Section 1109.0-1109.2 Flagg / Edwards Motion to accept language as presented</p>	<p>Section 1108.0-1108.1 Unanimous, carries</p> <hr/> <p>Section 1109.0-1109.2 Majority, 1 opposed, carries</p>
Greenway 6/18/13	1101.11.2.2 (B) (Combined System)	<p>Accept 1101.1 – was approved under Exhibit 37</p> <hr/> <p>1101.5.2 Sump – 1101.6 was read aloud by Tran, stating that it appears to refer back to building sumps – implying sanitary sump; 710.4 talks about the discharge line and 710.10 addresses the cover.</p> <hr/> <p>1101.11.2.2(B) Combined System. “monitored” language was discussed and was considered vague. (Page 138 UPC) DLI recommended striking this language – it has been a building code alternative method. This language was stricken in Exhibit 37</p>	38	<p>Section 1101.5.2 Edwards / Flagg Motion to deny recommendation</p> <hr/> <p>Section 1101.11.2.2 (B) Edwards / Kittelson Motion to deny language as presented</p>	<p>Section 1101.5.2 Unanimous, carries</p> <hr/> <p>Section 1101.11.2.2 (B) Unanimous, carries</p>
Justin 6/18/13	1101.11.3 to 1101.11.3.2 (Siphonic Roof Drainage System)	<p>Accept with amendments:</p> <ul style="list-style-type: none"> • 1101.11.3.1 “...in part 41014715-2740”, replace with 1101.11 • Add language to D. <u>Minnesota Rules</u>, chapter 1305. <p>There is a provision in chapter 3 of the UPC; DLI sees no harm in adopting. If we didn’t adopt this language engineers would use permit application, technical data, design documents, etc.</p>	39	<p>Edwards / Kittelson Motion to insert 4715.2790 in its entirety into the UPC, including minimum 4 inch per hour to 1101.11.3</p>	<p>Unanimous, carries</p>

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

Language displayed in RED reflects 1/21/2014 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
		<i>The meeting broke at 11:50 a.m. and resumed at 1:10 p.m.</i>			
Water Reuse Work Group (MDH inter-agency water reuse group) 11/07/13 and DLI 11/07/13 Parizek 8/26/13	Chapter 16 (UPC: Alternate Water Sources for Nonpotable Applications)	<p>Accept in principal with amendments – There needs to be additional discussion / parameters that everyone can accept <i>Working Draft Place-holder position – Continue working with the Water Reuse Group</i></p> <p>The Interagency Workgroup’s decision was to support chapter 17 but not chapter 16. Due to all of the controversy and safety issues surrounding chapter 16, Parizek recommended denying and revisiting it in the future.</p> <p>Discussion:</p> <ul style="list-style-type: none"> • Key issues were water quality standards, jurisdictional issues, properly trained personnel, gray water, waste water, reclaimed, and un-treated water. • If chapter 16 is denied now how will it be brought back? Every time the code is opened for revisions, the entire UPC would be reviewed again for possible changes and modifications. • Many state agencies have issues with Chapter 16 moving forward – safety and jurisdictional issues. • The burden to administer Chapter 16 would be on DLI – type of criteria and standards. The Health Department doesn’t have the authority to establish standards. • Some people believe there should be law changes to clarify this issue. • From a DLI standpoint – health, safety issues, gray water, solid waste, and dry drain. Systems would not be maintained and safety issues could ensue. Health and safety could be compromised. • Agencies are already getting together and trying to come to an understanding but a solution has not been brought forward as of yet. They haven’t had a lot of time to get this done but they do take the request seriously. • Chapter 16 is a bare-bones administrative rule for an extremely 	40 Memo dated 1.21.14; <i>Water Reuse Group draft dated 11/07/13; DLI draft dated 11/07/13</i>	Flagg / Edwards Motion to delete Chapter 16 from the UPC in its entirety	Unanimous, carries

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

Language displayed in RED reflects 1/21/2014 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
		<p>complicated situation. There is a lot of regulatory gray area. With reuse within a building there are most likely responsibilities that rest with a lot of different agencies and chapter 16 needs to have continued discussions and work.</p> <ul style="list-style-type: none"> The board could push legislatively for money to be appropriated and duties assigned to push Chapter 16 forward. Thaden said if we decide to bring it back then we would have to put language in therefore he believed that Parizek's recommendation to delete chapter 16 in its entirety was prudent and the most appropriate action. 			
<p>Water Reuse Work Group (MDH inter-agency water reuse group) Memo & Draft 2 dated 1/17/14 11/12/13 & 10/17/13 and DLI 10/17/13</p> <p>Parizek 8/26/13</p>	<p>Chapter 17 (UPC: Nonpotable Rainwater Catchment Systems) <i>Working Draft Placeholder position – Continue working with the Water Reuse Group</i></p> <p>Chapter 17 deals specifically with rain water catchment systems</p>	<p>Accept in principal with amendments – motion to move ahead in principal that there needs to be additional discussion / parameters that everyone can accept</p> <ul style="list-style-type: none"> 1701.1.1 - Strike the word "Alternate" and add in its place the word "Rain" <p>Parizek made modifications to the Water Reuse Group's Chapter 17 and provided handouts dated 10/17/13 and 11/12/13. Also provided an updated (10/17/2013) DLI Chapter 17. Revisions do not include issues pertaining to water quality standards therefore there shouldn't be issues moving forward with Chapter 17.</p> <p>Anita Anderson, MN Dept. of Health, Duluth, Water Reuse Group addressed the Board. Water Reuse Group is working on consistent strategy/policy on these issues, addressing water quality parameters. They have an interest in setting and recommending water quality but they don't necessarily have the authority.</p> <p>Ryan Anderson, MN Pollution Control Agency Area of focus: Monitor and be careful with discharges of pollutants in the environment. Primary interest is to make certain standards are included in rules and that the rules don't implicate agencies that do not have oversight into those areas. He asked for time to review the changes brought forward in the Chapter 17 handout.</p> <p>Revised language on DLI's 10/17/13 draft pertaining to Rainwater harvesting was discussed – 1702.9.8 Water Quality Devices and Equipment <u>Required</u>.</p>	<p>41 Water Reuse Draft 2, dated 1/17/14 with memo</p> <p>Memo and draft dated 1/17/14 replaces all previous versions of Exhibit 41</p>	<p>Edwards / Flagg Motion to approve and move forward in rulemaking with the changes noted below to 1702.11.2.2 and 1702.11.2.4</p> <ul style="list-style-type: none"> 1702.11.2.2 Cross-Connection Test: and other authorities having jurisdiction 1702.11.2.4 Annual Inspection: Annual-eC 	<p>Majority, 1 opposed, 1 abstention, carries</p>

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

Language displayed in RED reflects 1/21/2014 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
		<p>Memo and DRAFT 2 dated 1/17/2014 was distributed and replaced all previous versions. The Interagency Workgroup supports the changes for Chapter 17 with just a few minor edits to 1702.11.2.2 and 1702.11.2.4, as noted in the motion.</p> <p>Discussion:</p> <ul style="list-style-type: none"> • Should we add every 5 years to 1702.11.2.2 Cross-Connection Test? The property owners are required to keep documentation on everything that is done to these systems. The owner would need to initiate the review to occur every 5 years. This could be handled similar to what is done for RP Testing although it the Municipality's responsibility to follow up. Concern with cross-connection, contamination of public water supply. Are we required to worry about enforcement? • Where do the rules for the drainage system and the distribution system apply? The material standards for storm water are different than the material standards for the pipe distribution water. Any water used on the distribution side has to meet the section for water piping and that would be pumped out of the tank. Anything draining into the tank would have to meet the requirements for drainage. • Plans are approved at DLI. Plans would be reviewed by the local Administrative Authority if DLI has a plan review agreement with them. The Administrative Authority would come out for the initial startup and check the water quality. After this it would be up to the person that owns the system, most likely commercial, to be responsible for maintaining logs and cross-connection tests. This is in its infancy and we are trying to move forward with this in rule. This gives us a starting point and also gives chapter 16 something to build off of. • 1702.9.4 – Water Quality Table – This was a recommendation 			

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

Language displayed in RED reflects 1/21/2014 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
		<p>from Anita Anderson, Department of Health. E. coli limit of 2.2 will be hard to meet. From a DLI standpoint this is a design standard. Questions were asked, if these limits are not met what then? DLI does not feel they are in the position to monitor and check on the facility – it is ultimately the responsibility of the owner to take care of the system, however, they can see where there would be an issue with enforcement to be sure the system is in compliance.</p> <ul style="list-style-type: none"> • 1702.12 Maintenance and Inspection and Table 1701.12 came from chapter 16 and are specific to all types of water reuse systems. Inspections meeting standards would be required. • 1702.13, 1702.14, and 1702.15 – all came from chapter 16 – This was language that needed to address reuse system in chapter 17. • Highlighted blue language on the draft reflects changes to the existing language between 16 and 17 			
Pete Moulton 12/10/13	<p>Chapter 4 404.5.4</p> <p>Chapter 3 311.0 311.1</p>	<p>Language to read as presented with change noted, as follows: EXHIBIT 42 “If a public sewer is available in a street or alley to a building or premises and the connection is feasible, liquid waste from any plumbing system in that building must be discharged into the public sewer unless otherwise prohibited by this code or a local ordinance. If a public water supply is accessible, the water distribution system must be connected to it unless otherwise permitted by the authority having jurisdiction. Private water well taken out of service because of a connection to a public water supply shall be maintained as per Minnesota Water Well Code or per local Ordinance. Every building must have its own independent water and sewer connection except that a group of buildings may be connected to one or more sewer manholes on the premises which are constructed to standards set by the authority having jurisdiction.”</p>	<p>42 <i>There is not a separate attachment for this exhibit; language is adjacent</i></p> 	<p>Flagg / Edwards Motion to strike “independent system” in 311, insert the term “Use of public sewer and water systems required”, strike all of 311.1, insert exhibit 42 with changes noted, and delete Exhibit 17</p>	Unanimous, carries

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

Language displayed in RED reflects 1/21/2014 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
		<p>If this motion passes then we need to take a look at DLI's Chapter 3, Exhibit 4 – DLI proposed on not deleting an exception in 311.1. Exhibit 42 should be assigned to chapter 3 and have a new heading: Use of public systems and water systems required. Move into the water section and strike the sewer connection portions, section 311.</p> <p>Parizek summed up the recommendation:</p> <ul style="list-style-type: none"> • Strike the words "independent system" in 311 • Insert the term "Use of public sewer and water systems required" • Strike all of 311.1 • Inserting Exhibit 42 with the words or per local Ordinance stricken • Delete Exhibit 17 (601.3) 			

Plumbing Board
c/o Department of Labor and Industry
443 Lafayette Road North
Saint Paul, MN 55155-4344
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

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

DLI, Chapter 4 – 418.7: Section 418.7

Motion to accept the language as presented with the exception of striking the word ~~municipal~~ in the first sentence

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 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 use 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 110 120°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 degrees 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.

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 10 -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

1/21/2014 Meeting: Motion to accept DLI language as presented for 1017.0, 1017.1, & 1017.2 which would be staying with our existing Minnesota Code Language on the Oil and Flammable Liquid Interceptors

The National Code Review Committee recommended the following friendly amendment to read as follows:

1017.2 Design of Interceptors.

Oil separators are to be designed to the standards as listed in chapter 14. Each manufactured interceptor that is rated shall be stamped or labeled by the manufacturer with an indication of its full discharge rate in gpm (L/s). The full discharge rate to such an interceptor shall be determined at full flow. Each interceptor shall be rated equal to or greater than the incoming flow. ~~and shall be provided with an overflow line to an underground tank.~~

CHAPTER 10 - 2012 UPC DLI Recommended changes

Chapter 10 Recommended Amendments:

1001.1 Where Required. Each plumbing fixture shall be separately trapped by an approved type of liquid seal trap. This section shall not apply to fixtures with integral traps. Not more than one trap shall be permitted on a trap arm. Food waste disposal units installed with a set of restaurant, commercial, or industrial sinks shall be connected to a separate trap. Each domestic clothes washer and each laundry tub shall be connected to a separate and independent trap, except that ~~a trap serving a laundry tub shall be permitted to also receive the waste from a clothes washer set adjacent thereto.~~ The vertical distance between a fixture outlet and the trap weir shall be as short as practicable, but in no case shall the tailpiece from a fixture exceed 24 inches (610 mm) in length. One trap shall be permitted to serve a set of not more than three single compartment sinks or laundry tubs of the same depth or three lavatories immediately adjacent to each other and in the same room where the waste outlets are not more than 30 inches (762 mm) apart and the trap is centrally located where three compartments are installed.

Sonar: The recommended change is to clarify that a laundry tub is a receptor and may receiving the indirect waste discharge from a clothes washer. As written and without proposing the change, it may be interpreted that a trap of a laundry tub to receive discharges from a clothes washer adjacent to it. Concerns of having physical connection into the trap of the laundry tub would siphon dirty waste from the laundry tub or its trap during the clothes washer spinning cycle.

1009.2 Approval. The size, type, and location of each interceptor (clarifier) or separator shall meet the requirements of this chapter, except for interceptors or separators which are engineered and manufactured and which are documented by the manufacturer and the project design engineer to be properly designed and sized for the specific project, and ~~be approved by the Authority Having Jurisdiction.~~ Except where otherwise specifically permitted, no wastes other than those requiring treatment or separation shall be discharged into an interceptor (clarifier).

Sonar: The recommended change is to clarify that engineered units are acceptable and are needed for special uses or designs where interceptors that are approved in this chapter would not address the needed design or special types of waste for a specific project. Therefore, the recommended change allows an option for interceptors and separators which are engineered, design, size, and manufacture for a specific use when documentation from the manufacturer and the project engineer stating the interceptor is properly designed and sized for the specific project.

~~**1014.3.7 Abandoned Gravity Grease Interceptors.** Abandoned grease interceptors shall be pumped and filled as required for abandoned sewers and sewage disposal facilities in Section 722.0.~~

Sonar: This section refers to Section 722.0. Section 722.0 has been recommended to be deleted and therefore no longer would exist in this code. Consistent with Section 722.0, this part is recommended for deletion since private sewage treatment regulations are governed by the MPCA rules and not the MN Plumbing Code.

Delete languages in 1017.1 and 1017.2 entirely and replace with recommended changes:

1017.0 Oil and Flammable Liquid Interceptors.

1017.1 Interceptors Required. ~~Repair garages and gasoline stations with grease racks or grease pits, and factories that have oily, flammable, or both types of wastes as a result of manufacturing, storage, maintenance, repair, or testing processes, shall be provided with an oil or flammable liquid interceptor that shall be connected to necessary floor drains. The separation or vapor compartment shall be independently vented to the outer air. Where two or more separation or vapor compartments are used, each shall be vented to the outer air or shall be permitted to connect to a header that is installed at a minimum of 6 inches (152 mm) above the spill line of the lowest floor drain and vented independently to the outer air. The minimum size of a flammable vapor vent shall be not less than 2 inches (51 mm), and, where vented through a sidewall, the vent shall be not less than 10 feet (3048 mm) above the adjacent level at an approved location. The interceptor shall be vented on the sewer side and shall not connect to a flammable vapor vent. Oil and flammable interceptors shall be provided with gastight cleanout covers that shall be readily accessible. The waste line shall be not less than 3 inches (80 mm) in diameter with a full size cleanout to grade. Where an interceptor is provided with an overflow, it shall be provided with an overflow line [not less than 2 inches (50 mm) in diameter] to an approved waste oil tank having a minimum capacity of 550 gallons (2082 L) and meeting the requirements of the Authority Having Jurisdiction. The waste oil from the interceptor shall flow by gravity or shall be pumped to a higher elevation by an automatic pump. Pumps shall be adequately sized and accessible. Waste oil tanks shall have a 2-inch (50 mm) minimum pump-out connection at grade and a 1¹/₂ inch (38 mm) minimum vent to atmosphere at an approved location not less than 10 feet (3048 mm) above grade.~~

1017.2 Design of Interceptors. ~~Each manufactured interceptor that is rated shall be stamped or labeled by the manufacturer with an indication of its full discharge rate in gpm (L/s). The full discharge rate to such an interceptor shall be determined at full flow. Each interceptor shall be rated equal to or greater than the incoming flow and shall be provided with an overflow line to an underground tank.~~

~~Interceptors not rated by the manufacturer shall have a depth of not less than 2 feet (610 mm) below the invert of the discharge drain. The outlet opening shall have not less than an 18 inch (457 mm) water seal and shall have a minimum capacity as follows: Where not more than three motor vehicles are serviced, stored, or both, interceptors shall have a minimum capacity of 6 cubic feet (0.2 m³), and 1 cubic foot (0.03 m³) of capacity shall be added for each vehicle up to 10 vehicles. Above 10 vehicles, the Authority Having Jurisdiction shall determine the size of the interceptor required. Where vehicles are serviced and not stored, interceptor capacity shall be based on a net capacity of 1 cubic foot (0.03 m³) for each 100 square feet (9.29 m²) of surface to be drained into the interceptor, with a minimum of 6 cubic feet (0.2 m³).~~

1017.0 Oil and Flammable Liquid Interceptors.

1017.1 Interceptors Required. Enclosed garages of over 1,000 square feet or housing more than four motor vehicles, repair garages, gasoline stations with grease racks, work or wash racks, auto washes, and all buildings where oily and/or flammable liquid wastes are produced as a result of manufacturing, storage, maintenance, repair, or testing processes shall have an interceptor installed into which all oil, grease, and sand bearing and/or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal, when floor drains or trench drains are provided. The interceptor shall be located inside the building.

Exception: Private garages serving one- and two-family dwellings.

1017.2 Design of Interceptors. Each interceptor shall be of watertight construction and of not less than 35 cubic feet holding capacity, be provided with a water seal of not less than three inches on the inlet and not less than 18 inches on the outlet. The minimum depth below the invert of the discharge drain shall be three feet. The minimum size of the discharge drain shall be four inches. The interceptor may be constructed either: (i) of monolithic poured reinforced concrete with a minimum floor and wall thickness of six inches with protected treatment approved by the manufacturer for the intended use (ii) of iron or steel of a minimum thickness of 3/16 inch, protected with an approved corrosion resistant coating on both the inside and the outside, or (iii) of fiberglass resins that comply with ASTM C-581 and meets IAPMO Material and Property Standard, PS 80-2003b, for clarifiers.

The interceptor must be provided with a nonperforated iron or steel cover and ring of not less than 24 inches in diameter, and the air space in the top of the tank must have a three-inch vent pipe, constructed of approved metallic material, extending separately to a point at least 12 inches above the roof of the building. Drains and piping from motor vehicle areas must be a minimum of three inches in size. Drains discharging to an interceptor must not be trapped and must be constructed so as not to retain liquids. In motor vehicle wash facilities, a sand interceptor which meets the requirements of section 1016.0, except that no water seal is permitted, may be installed to receive wastes before discharging into a flammable waste interceptor.

No cleanout, mechanical joint, or backwater valve shall be installed inside the interceptor which could provide a bypass of the trap seal. Only wastes that require separation shall discharge into the interceptor, except that a water supplied and trapped sink may be connected to the vent of the interceptor. Whenever the outlet branch drain serving an interceptor is more than 25 feet from a vented drain, such branch drain shall be provided with a two inch vent pipe. A backwater valve shall be installed in the outlet branch drain whenever in the judgment of the administrative authority backflow from the building drain could occur.

Sonar: 1017.1 and 1017.2 Recommend deleting the languages in 1017.1 and 1017.2 entirely and replace with language consistent with MN part 4715.1120. The language in 1017.1 & 1017.2 would not provide consistent administration throughout the state. The recommended new language is consistent with past requirements specific to Minnesota. Allowance for other types of interceptors which are engineered and manufactured may be entertained in recommended changes in section 1009.2. The following are reasons why 1017.1 and 1017.2 should not be adopted:

1. The language in UPC 1017.1 does not include drains in vehicle wash bays, or vehicle storage facilities/parking garages which also receive oily and flammable wastes.
2. UPC 1017.1 and 1017.2 does not clearly spelled out do not address minimum interceptor size required, would allow any size of floor drains or drainage piping upstream of the interceptor, no dry-pan design required.
3. The language in 1017.1 does not specifically reference types of construction for the interceptor nor waste oil tank but allow both which leads to maintenance of two tanks instead of one, and higher chance of leakage. Material construction and compatibility with wastes being stored needs to be addressed under the UPC
4. Minimum size and leak proof requirements of waste oil tank are not specify in 1017.1.
5. There are pumping provisions as an option for compliance without requiring fire explosion proof pumps.
6. 1017.2 for design of interceptors allows for minimum sizing of 6 gallons interceptor and mandates underground oily/flammable storage tank for overflow from the interceptor which is an added cost for owners and building pumping connection to the outside.
7. The language suggests a minimum interceptor size of 6 gallons in vehicle service garage which is substantially small and would require more frequent pump schedule even with the waste oil tank.
8. Allow traps upstream of the interceptor which is a possible fire/safety hazard.
9. Language does not provide exception for residential/single family garages.
10. Concerns of sufficient vapor vent sizes of 2-inches and allowance of venting to the side wall of the building.

- 1005.1 – This language will be changed automatically – no vote is required
- 1007.0, 1007.1 – Motion to accept stricken language as presented – MOTION FAILS
- 1008.0, 1008.1 – Motion to deny the recommendation and leave 1008.0, 1008.1 as written in the 2012 UPC
- 1010.1 – Motion to deny the recommendation; leave as written in the UPC

**State of Minnesota Plumbing Board
National Code Review Committee
April 17, 2012
Review of Chapter 10 – Traps and Interceptors**

- 1003.3 Traps Described - Size
No revisions recommended; recommend omit “Mobile Home Trap” from Table 702.1.
- 1005.1 Trap Seal – General
Recommend to remove/revise “Authority Having Jurisdiction”.
- 1007.1 Trap Seal Protection – General
Recommend to remove requirement of trap seal primer.
Recommend to remove/revise “Authority Having Jurisdiction”.
- 1008.1 Building Traps – General
Recommend to omit section.
- 1010.1 Slaughterhouses, Packing Establishments, etc. – General
Recommend to omit and replace with 4715.1130.

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: 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).

~~4007.0 Trap Seal Protection.~~

~~4007.1 General. Floor drain or similar traps directly connected to the drainage system and subject to infrequent use shall be protected with a trap seal primer, except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction. Trap seal primers shall be accessible for maintenance.~~

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 State of Minnesota Plumbing code presently does not require, or never has required to my knowledge, a trap seal primer. If owner of property, Engineer or Master Plumber feels the Use of trap primers are necessary, then they may install them, Requiring trap primers have the following concerns:

1. Additional cost to the project.
2. Additional maintenance to site/owner of building.
3. Additional water usage and if trap primer fails open, will run constantly, typically with owner unaware that the water running.

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 trap primer is not installed and reduce water usage.

**State of Minnesota Plumbing Board
National Code Review Committee
August 6, 2012
Review of Chapter 11 – Storm Drainage**

The chapter is predominately “No revisions recommended” except for below.

1101.11.1 Primary Roof Drainage

Need to determine if Minnesota prefers to remain with 4” per hour rainfall rate throughout the state or use Appendix D as referenced in the UPC.

1101.11.2 Secondary Roof Drain

Allows maximum ponding height to be based on structural capabilities instead of 2”; no revisions recommended.

General Item:

Minnesota presently allows Siphonic Roof Drain systems; recommend to allow and place in amendments.

<p align="center">Section 1101.11.1 Edwards / Flagg Motion to accept the language as presented</p>	<p align="center">Section 1101.11.1 Unanimous, carries</p>
<p align="center">Section 1101.11.2 Flagg / Edwards Motion to accept recommendation</p>	<p align="center">Section 1101.11.2 Unanimous, carries</p>
<p align="center">Section 1106.0-1106.2 Flagg / Filek Motion to accept recommendation</p>	<p align="center">Section 1106.0-1106.2 Unanimous, carries</p>
<p align="center">Section 1106.3 Edwards / Flagg Motion to accept recommendation</p>	<p align="center">Section 1106.3 Unanimous, carries</p>
<p align="center">Section 1108.0-1108.1 Flagg / Moulton Motion to accept recommendation</p>	<p align="center">Section 1108.0-1108.1 Unanimous, carries</p>
<p align="center">Section 1109.0-1109.2 Flagg / Edwards Motion to accept language as presented</p>	<p align="center">Section 1109.0-1109.2 Majority, 1 opposed, carries</p>

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 11 -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

CHAPTER 11 - 2012 UPC DLI Recommended changes

Chapter 11 Recommended Amendments:

1101.1 Where Required. Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells, or similar areas having rainwater, shall be drained into a separate storm sewer system, or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the Authority Having Jurisdiction. In no case shall water from roofs or any building roof drainage be allowed to flow upon the public sidewalk. In the case of one- and two-family dwellings, storm water shall be permitted to be discharged on flat areas, such as ~~streets or lawns~~, so long as the storm water shall flow away from the building and away from adjoining property, and shall not create a nuisance.

SONAR: the recommended change is to clarify that in no case shall water from the roof be discharged onto public sidewalks as this creates nuisance and there are concerns of freeze and thaw in MN climate conditions creating unsafe conditions for the public. This includes primary and secondary roof drainage system.

1101.2 Storm Water Drainage to Sanitary Sewer Prohibited. Storm water shall not be drained into sewers intended for sanitary drainage unless approved by the municipal sewer authority or stated elsewhere in this code.

SONAR: This recommended change is to address the need when storm water must discharge into sanitary. In particular when storm water is subject to receive unwanted waste or contamination and need to discharge to sanitary for proper treatment. This change is consistent with recommended part 418.7 for garage and parking area floor drains.

~~**1101.3 Material Uses.** Rainwater piping placed within the interior of a building or run within a vent or shaft shall be of cast iron, galvanized steel, wrought iron, brass, copper, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, stainless steel 304 or 316L [stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground], or other approved materials, and changes in direction shall be in accordance with the requirements of Section 706.0. ABS and PVC DWV piping installations shall be installed in accordance with IS 5, IS 9, and Chapter 15 "Firestop Protection." Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame spread index of a maximum of 25 and a smoke developed index of a maximum of 50, where tested in accordance with ASTM E 84 and UL 723.~~

SONAR: 1101.3 The material requirements in this section are related to fire protection and flame spread rules under the authority of the State Fire Marshal and/or MN Building Code, and therefore is deleted.

1101.11 Roof Drainage.

1101.11.1 Primary Roof Drainage. Roof areas of a building shall be drained by roof drains or gutters. The location and sizing of drains and gutters shall be coordinated with the structural design and pitch of the roof. ~~Unless otherwise required by the Authority Having Jurisdiction, roof drains, gutters, vertical conductors or leaders, and horizontal storm drains for primary drainage shall be sized based on a storm of 60 minutes duration and 100 year return period. Refer to Table D 1.1 (in Appendix D) for 100 year, 60 minute storms at various locations. The roof drainage system shall be sized on a basis of a rate of rainfall of at minimum four inches per hour.~~

Sonar: 1101.11.1 The recommended amendment is to reflect local established condition of the minimum rate of rainfall of four inches per hour in the design of the roof drainage system.

1101.11.2 Secondary Drainage. Secondary (emergency) roof drainage shall be provided in accordance with Chapter 1305, Minnesota Building Code by one of the methods specified in Section 1101.11.2.1 or Section 1101.11.2.2.

~~1101.11.2.1 Roof Scuppers or Open Side. Secondary roof drainage shall be provided by an open-sided roof or scuppers where the roof perimeter construction extends above the roof in such a manner that water will be entrapped. An open-sided roof or scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.11.1. Scupper openings~~

shall be not less than 4 inches (102 mm) high and have a width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1101.11.

~~1101.11.2.2 Secondary Roof Drain. Secondary roof drains shall be provided. The secondary roof drains shall be located not less than 2 inches (51 mm) above the roof surface. The maximum height of the roof drains shall be a height to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.11.1. The secondary roof drains shall connect to a piping system in accordance with Section 1101.11.2.2(A) or Section 1101.11.2.2(B).~~

~~1101.11.2.2(A) Separate Piping System. The secondary roof drainage system shall be a separate system of piping, independent of the primary roof drainage system. The discharge shall be above grade, in a location observable by the building occupants or maintenance personnel. Secondary roof drain systems shall be sized in accordance with Section 1101.11.1 based on the rainfall rate for which the primary system is sized.~~

~~1101.11.2.2(B) Combined System. The secondary roof drains shall connect to the vertical piping of the primary storm drainage conductor downstream of a horizontal offset below the roof. The primary storm drainage system shall connect to the building storm water that connects to an underground public storm sewer. The combined secondary and primary roof drain systems shall be sized in accordance with Section 1106.0 based on double the rainfall rate for the local area.~~

SONAR: 1101.11.2, 1101.11.2.1, 1101.11.2.2, 1101.11.2.2(A) & (B). The recommended amendments listed are to reflect state established requirements governed in the MN Building Code and therefore, it is necessary to delete and add the correct reference to State Building Code which administers secondary roof drainage system including scuppers.

1106.0 Size of Leaders, Conductors, and Storm Drains.

1106.1 Vertical Conductors and Leaders. Vertical conductors and leaders shall be sized on the basis of the maximum projected roof area and Table 1101.11—for a minimum rainfall rate of four inches per hour.

1106.2 Size of Horizontal Storm Drains and Sewers. The size of building storm drains or building storm sewers or their horizontal branches shall be based upon the maximum projected roof or paved area to be handled and Table 1101.7—for a minimum rainfall rate of four inches per hour.

SONAR: 1106.1, 1106.2 The recommended amendments are to reflect local established condition of the minimum rate of rainfall of four inches per hour in the design of roof drainage system.

~~**1106.3 Size of Roof Gutters.** The size of semi-circular gutters shall be based on the maximum projected roof area and Table 1106.3.~~ **Reduction in size prohibited.** Storm drain piping shall not reduce in size in the direction of flow, including changes in direction from horizontal to vertical.

SONAR: 1106.3 Scuppers are regulated by the Minnesota Building Code and therefore is deleted. Recommended new language is added in place to require that roof drain piping must not reduce in the direction of flow. This is reasonable amendment to prevent obstruction of flow or collection of debris or leaves when pipes reduce in the direction of flow.

1108.0 Controlled-Flow Roof Drainage.

1108.1 Application. In lieu of sizing the storm drainage system in accordance with Section 1106.0, the roof drainage shall be permitted to be sized on the basis of controlled flow and storage of the storm water on the roof, provided the design is based on a minimum of four inches per hour and following conditions are met:

- (7) Roof design, where controlled-flow roof drainage is used, shall be such that the design roof live load is not less than ~~30~~ 40 lb/ft² (146 kg/m²) ~~to provide a safety factor exceeding the 15 lb/ft² (73 kg/m²) represented by the depth of water stored on the roof in accordance with Table 1108.1(2).~~

SONAR: 1108.0, 1108.1 Consistent with the recommended amendment in 1101.11.1, the amendment is to clarify that the roof drainage system must be designed to reflect the local established condition of the minimum of rainfall of four inches per hour. 1108.1 is amended to local snow load is at 40 pounds per square foot as required in the Minnesota building Code in some areas of the state. This snow load is higher than the 6 inch maximum allowable for controlled flow roof drainage design and is therefore, reasonable to use the local established loading.

1109.0 Testing.

1109.1 Testing Required. New building storm drainage systems and parts of existing systems that have been altered, extended, or repaired shall be tested in accordance with Section 712 ~~Section 1109.2.1~~ or ~~Section 1109.2.2~~ to disclose leaks and defects.

1109.2 Exceptions.

A. Testing is not required for:

- (1) outside leaders;
- (2) perforated or open drain tile; or
- (3) portions of storm drainage system and sewers located more than ten feet from buildings, more than ten feet from buried water lines, and more than 50 feet from water wells, and not passing through soil or water identified as being contaminated.

B. Building storm sewers may be tested in accordance with the Hydrostatic Test Method from the City Engineers Association of Minnesota, except that an air test may be required for any section of the building storm sewer that passes through contaminated soils or contaminated water. The Hydrostatic Test Method, provisions F2 and F3, as specified in Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation, written and published by the City Engineers Association of Minnesota, 1999 edition, is incorporated by reference, is not subject to frequent change, and is available in the office of the commissioner.

~~**1109.2 Methods of Testing Storm Drainage Systems.** Except for outside leaders and perforated or open jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation by water or air, except that plastic pipe shall not be tested with air, and proved tight. The Authority Having Jurisdiction shall be permitted to require the removal of cleanout plugs to ascertain whether the pressure has reached parts of the system. One of the following test methods shall be used in accordance with Section 1109.2.1 through Section 1109.2.3.~~

~~**1109.2.1 Water Test.** After piping has been installed, the water test shall be applied to the drainage system, either to the entire system or to sections. Where the test is applied to the entire system, all openings in the piping shall be tightly closed except for the highest opening, and the system shall be filled with water to the point of overflow. Where the system is tested in sections, each opening shall be tightly plugged except for the highest opening of the section under test, and each section shall be filled with water, but no section shall be tested with less than a 10 foot (3048 mm) head of water. In testing successive sections, not less than the upper 10 feet (3048 mm) of the next preceding section shall be tested so that no joint of pipe in the building except the uppermost 10 feet (3048 mm) of a roof drainage system, which shall be filled with water to the flood level of the uppermost roof drain, shall have been submitted to a test of less than 10 foot (3048 mm) head of water. The water shall be kept in the system or in the portion under test for not less than 15 minutes before inspection starts; the system shall then be tight.~~

~~**1109.2.2 Air Test.** The air test shall be made by attaching an air compressor testing apparatus to a suitable opening after closing other inlets and outlets to the system, forcing air into the system until there is a uniform gauge pressure of 5 pounds force per square inch (psi) (34 kPa) or sufficient pressure to balance a column of mercury 10 inches (34 kPa) in height. This pressure shall be held without introduction of additional air for a period of not less than 15 minutes.~~

~~**1109.2.3 Exceptions.** Where circumstances exist that make air and water tests described in Section 1109.2.1 and Section 1109.2.2 impractical, see Section 103.5.6.3.~~

SONAR: Sections 1109.1 is amended to reflect the testing requirements established in section 712 for consistency so the language is not redundant since requirements have been addressed in another section. In addition, exceptions are recommended in 1109.2 for specific installations where testing is not require consistent with Minnesota requirements for proper installation to ensure protection of drinking water and building safety.

ARKELLA Greenway

Chapter 11

1101.1 Where Required: Storm water shall not be directed to flow over public sidewalks.

1101.5.2 Sump: Sump covers shall be of a structural design and the discharge piping shall have an approved backwater valve and gate or full port ball valve for servicing the pump.

1101.11.2.2(B) Combined System: If a combined system is approved flow switches shall be installed on the horizontal overflow system before the combined connection and shall be monitored.

Section 1101.5.2 Edwards / Flagg Motion to deny recommendation	Section 1101.5.2 Unanimous, carries
Section 1101.11.2.2 (B) Edwards / Kittelson Motion to deny language as presented	Section 1101.11.2.2 (B) Unanimous, carries

Exhibit 14

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: Lawrence G. Justin PÉ

Email address: ljustin@wëntzassoc.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).

1101.11.3 SIPHONIC ROOF DRAINAGE SYSTEM.

1101.11.3.1 General requirements. In lieu of sizing the storm drainage system from conventional methods as required in part 11014715.2710, the roof drainage may be designed as an engineered siphonic roof drainage system when allowed by the administrative authority. The engineered siphonic roof drainage system must meet the requirements of 1101.11.3.2 and 1101.11.3.3.

1101.11.3.2 Design criteria. The siphonic roof drainage system must be designed and certified by a professional engineer licensed in the state of Minnesota.

A. The system must be sized on the basis of the rainfall rate listed Table D 1.1 (in Appendix D) for 100 year, 60 minute storms at various locations in Minnesota, unless ASPE 45 Standard indicates a greater rate, in which case, the design should be in accordance with rainfall rates listed in the ASPE 45 standard.

B. The drainage system must be designed according to ASPE Standard 45, Siphonic Roof Drainage, and according to the manufacturer's recommendations and requirements. Manufacturer design software must be in accordance with ASPE Standard 45.

C. Roof drains must meet ASME A112.6.9, Siphonic Roof Drains.

D. When designed for water accumulation, the roof must be designed for the maximum possible water accumulation according to chapter 1305.

E. Minimum pipe size must be 1-1/2 inches. All pipe sizes and cleanouts in the drainage system must be designed and installed according to ASPE Standard 45.

F. The plans and specifications for the drainage system shall indicate the siphonic roof drainage system as an engineered method used for the design.

G. The installed drainage system must be permanently and continuously marked as a siphonic roof drainage system at approved intervals and clearly at points where piping passes through walls and floors. Roof drains must be marked in accordance with ASME A112.6.9.

H. The transition locations from the siphonic roof drainage system to a gravity system must be determined by the design engineer at a location acceptable to the administrative authority. The design, sizing, and venting of the transition location must be in accordance with ASPE Standard 45. The velocity at the transition location to gravity shall be reduced to less than three feet per second. The gravity portion of the building storm sewer system receiving the siphonic roof drainage system must be sized for the design rate but no less than a rainfall rate listed Table D.1.1 (in Appendix D) for 100 year, 60 minute storms at various locations in Minnesota, unless ASPE 45 Standard indicates a greater rate, in which case, the design should be in accordance with rainfall rates listed in the ASPE 45.

I. All plans, specifications, and calculations must be submitted to the administrative authority and signed and sealed by the design engineer. The submitted calculations must include performance data for the drainage system for the required rainfall rate, including the minimum and maximum calculated operating pressures and velocities verifying that the design solution is within the operating parameters required by the design standard. All performance data must be reported as the extreme maximum and minimum calculations and shall not be presented with "averaged" data.

1101.11.3.3 Proof of suitability. Upon completion of the project, proper tests, inspections, and certification of the siphonic roof drainage system must be performed according to items A and B.

A. Testing must be performed according to ASPE Standard 45.

B. Prior to the final plumbing observation, the design engineer must provide written certification to the administrative authority that the system has been visually observed and the installation has been properly implemented according to the certified design, plans, calculations, and specifications. The submitted written certification must include any field modification from the initial design involving dimensions, location, or routing of the siphonic drainage system that must be reapproved and recertified by the design engineer and be accompanied by a final as-built design of the altered system and supported by calculated data to show that the overall system remains in accordance with ASPE Standard 45.

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 State of Minnesota Plumbing code has recently allowed Siphonic Roof Drainage System as an Engineered System. The 2012 UPC allows the installation of the Siphonic Roof Drainage system under Part 301.2 and Chapter 14, but since Minnesota has already spent the effort vetting this section, it is advantageous to place the specific requirements as an amendment.

The above proposal does have some revisions to the 2012 Minnesota Plumbing Code language:

1. Revised design to meet rainfall rate listed in 2012 UPC Table D 1.1 (in Appendix D) for 100 year, 60 minute storms instead of 4" per hour; this matches the typical 2012 UPC language.
2. Removed the requirement of design Engineer to visually inspect the installation. Typically the design Engineer or their representative will "observe" the installation, not inspect.

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 addition will provide additional options to the owner/design Engineer and could reduce cost of project.

Date: January 21, 2014

To: Members of the Plumbing Board

From: Anita Anderson, Duluth District Office
218-302-6143

Subject: Water Reuse Interagency Workgroup comments on the proposed adoption of UPC Chapters 16 & 17

As the board is aware, a group of state agency representatives has been working with John Parizek regarding the language in Chapters 16 & 17 of the UPC regarding Alternate Water Sources for Nonpotable Applications and Nonpotable Rainwater Catchment Systems.

If the board decides to proceed with adoption of Chapter 17, the group recommends it be amended as in the attached document. Rainwater catchment systems are seen as the lowest risk of the alternate sources and present the least jurisdictional overlap, however they still require attention to design and monitoring.

The group does not recommend adopting Chapter 16 at this time. These sources are higher risk, and more details need to be worked out regarding treatment, monitoring and oversight of these systems. In addition, there are several jurisdictional conflicts related to gray water and wastewater applications.

The group will continue to work on these issues, and will likely have new recommendations for both chapters in the future.

Water Reuse Group – this Exhibit 40, DRAFT 11/7/2013, was distributed at the 12/10/13 meeting and replaced Exhibit 40 found in the Recommended Code Language 2013 binder.

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. 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. Additional design requirements may be covered by other authorities or codes.

1601.1.2 Irrigation. Alternate water systems designed for irrigation is not covered under this Chapter. No irrigation here but irrigation is included in 17?

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 the manufacturer's recommendations unless more frequent inspection and maintenance is required by an enforcing agency.

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 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. Additional certifications may be required by another enforcing agency.

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.
- (4) Details on deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance.
- (6) A method of contacting the manufacturer(s).

1607.7 Minimum Treatment Requirements

Treatment of alternate sources is required in order to maintain satisfactory water quality and will be reviewed along with the system design.

Exceptions?

(1) Water treatment is not required for rainwater catchment systems used for aboveground irrigation with a maximum storage capacity of 360 gallons (1363 L).

(2) Water treatment is not required for gray water used for subsurface irrigation.

(3) Water treatment is not required for rainwater catchment systems used for subsurface or drip irrigation.

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 gray water, and on-site treated water, for water closets, urinals, or similar uses. 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 gray 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 GRAY 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 Cross-Connection Inspection and Testing. An 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 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 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 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 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 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 5 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 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.

1602.1.1 Allowable Use of Gray Water. Gray water shall be permitted to be used in lieu of potable water for the applications listed in 1604.1 and meet the requirements of 1602.2 through 1602.14 and the requirements listed in 1604.0 through 1604.12 for On-Site Treated Nonpotable Water Systems. Is this eliminating the use of gray water for subsurface irrigation?

Are surge tanks not allowed or just covered by other authorities?

1602.2 System Requirements.

1602.2.1 Discharge. Gray water shall be permitted to be diverted away from a sewer as allowed by MPCA rules?.

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.

1602.9.2 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.

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.

1602.14 Testing. Building drains and vents for gray water systems shall be tested in accordance with this code.

1604.0 On-Site Treated Nonpotable Water Systems. Somehow make this case-by-case basis? I think we want a certified operator, etc. for this one.

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 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, have been submitted in duplicate and approved by the commissioner. Additional plans may be required by other authorities.

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 (defined?).

1604.4 Connections to Potable Water Systems. On-site treated nonpotable water systems shall have no connection to a potable water supply.

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 plumbing contractor shall perform the initial cross-connection test in the presence of the proper administrative authority. The test shall be ruled successful 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 shall be listed, and labeled by a third-party certifying listing agency and approved for the intended application. Devices or equipment used to treat gray water or wastewater for 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. Other authorities may have additional treatment requirements.

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.

1604.10.3 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.

1604.11 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.

Put this somewhere:

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.

It seems to me that we would be more ready to approve the reclaimed wastewater section since by definition reclaimed wastewater is "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".
vs. on-site treated water which will need a separate operator

DLI – this Exhibit 40, DRAFT 11/7/2013, was distributed at the 12/10/13 meeting and replaced Exhibit 40 found in the Recommended Code Language 2013 binders.

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. 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 is not covered under 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 the manufacturer's recommendations.

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.

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.
- (4) Details on deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance.
- (6) A method of contacting the manufacturer(s).

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 gray water, and on-site treated water, for water closets, urinals, or similar uses. 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 gray 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 GRAY 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 Cross-Connection Inspection and Testing. An 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 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 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 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 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 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 5 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 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.

1602.1.1 Allowable Use of Gray Water. Gray water shall be permitted to be used in lieu of potable water for the applications listed in 1604.1 and meet the requirements of 1602.2 through 1602.14 and the requirements listed in 1604.0 through 1604.12 for On-Site Treated Nonpotable Water Systems.

1602.2 System Requirements.

1602.2.1 Discharge. Gray water shall be permitted to be diverted away from a sewer.

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.

1602.9.1 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/ft²) 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.

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.

1602.14 Testing. Building drains and vents for gray water systems shall be tested in accordance with this code.

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 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, 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.

1604.4 Connections to Potable. On-site treated nonpotable water systems shall have no connection to a potable water supply.

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 plumbing contractor shall perform the initial cross-connection test in the presence of the proper administrative authority. The test shall be ruled successful 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~~ 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.

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.

1604.10.3 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.

1604.11 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.

Memo and DRAFT 2 dated 1/17/2014 was distributed and replaces all previous versions. There were two changes made to this document at the 1/21/2014 meeting – Sections 1702.11.2.2 and 1702.11.2.4 – both highlighted in yellow.

Date: January 21, 2014

To: Members of the Plumbing Board

From: Anita Anderson, Duluth District Office
218-302-6143

Subject: Water Reuse Interagency Workgroup comments on the proposed adoption of UPC Chapters 16 & 17

As the board is aware, a group of state agency representatives has been working with John Parizek regarding the language in Chapters 16 & 17 of the UPC regarding Alternate Water Sources for Nonpotable Applications and Nonpotable Rainwater Catchment Systems.

If the board decides to proceed with adoption of Chapter 17, the group recommends it be amended as in the attached document. Rainwater catchment systems are seen as the lowest risk of the alternate sources and present the least jurisdictional overlap, however they still require attention to design and monitoring.

The group does not recommend adopting Chapter 16 at this time. These sources are higher risk, and more details need to be worked out regarding treatment, monitoring and oversight of these systems. In addition, there are several jurisdictional conflicts related to gray water and wastewater applications.

The group will continue to work on these issues, and will likely have new recommendations for both chapters in the future.

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 Irrigation. Rainwater catchment systems used for irrigation are not covered under this Chapter.

1701.1.2 Combination Systems. Rainwater catchment systems used for irrigation in combination with any uses listed in 1702.1 shall meet the requirements of this Chapter. The irrigation system shall be separated by an air gap or proper backflow protection as required for potable water.

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 and floor sinks, ~~irrigation~~, industrial processes, water features, ~~vehicle washing facilities~~, cooling tower makeup and ~~other similar~~ uses shall be approved by the ~~Authority Having Jurisdiction~~ commissioner.

1702.2 Plumbing Plan Submission. No permit for a rainwater catchment system shall be issued until complete plumbing plans, ~~with data satisfactory to the Authority Having Jurisdiction~~, have been submitted and approved by the commissioner in accordance with Minnesota Rules, part 1300.0205, subpart 6. ~~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 Authority Having Jurisdiction.~~

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 Authority Having Jurisdiction.

1702.4 Connections to Potable or Reclaimed (Recycled) Water Systems. 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. ~~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 or due to system failure.~~

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 the Authority Having Jurisdiction ~~and other authorities having jurisdiction~~. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

1702.6 Sizing. Rainwater catchment system distribution piping for indoor applications shall be sized as outlined in this code for sizing potable water piping. The design and size of rainwater drains, gutters, 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 1702.7.4.

1702.7.1 Water Supply and Distribution Materials. Rainwater catchment water supply and distribution materials shall comply with ~~Chapter 6 and~~ the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

1702.7.2 Rainwater Catchment System Drainage Materials. Materials used in rainwater catchment drainage systems, including gutters, downspouts, conductors, and leaders shall be in accordance with ~~Chapter 11 and~~ the requirements of this code for storm drainage.

1702.7.3 Storage Tanks. Rainwater storage tanks shall comply with Section 1702.9.5.

1702.7.4 Collections Surfaces. The collection surface shall be constructed of a hard, impervious material.

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.

DRAFT 2 – 1/17/14



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 appurtenances (e.g., valves, air or vacuum relief valves, etc.) 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. Rainwater shall be collected from roof surfaces. A rainwater catchment system shall not collect rainwater from:

- (1) Vehicular parking surfaces
- (2) Surface water runoff
- (3) Bodies of standing water
- (4) or similar

1702.9.3.1 Prohibited Discharges. Overflows and bleed-off pipes from roof-mounted equipment and appliances, condensate, and other waste disposal shall not discharge onto roof surfaces that are intended to collect rainwater for harvesting.

1702.9.4 Minimum Water Quality. The minimum water quality for harvested rainwater shall meet the applicable water quality requirements in Table 1702.9.4. ~~for the intended applications as determined by the Authority Having Jurisdiction. No treatment is required for rainwater used for subsurface or non-sprinkled surface irrigation where the maximum storage volume is less than 360 gallons (1363 L).~~

Table 1702.9.4

Measure	Limit
Turbidity (NTU)	<1
E. coli (MPN/100ml)	2.2
Odor	Non-offensive
Temperature (degrees Celsius)	MR
Color	MR
pH	MR
MR = measured and recorded only	

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 shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight, and suitable for rainwater storage. ~~Storage tanks shall be approved by the Authority Having Jurisdiction, 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^2) (1465 kg/m^2) where the tank is designed for underground installation. Below grade rainwater tanks installed underground shall be provided with manholes. The manhole opening shall be located not less than 4 inches (102 mm) 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 where 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 method.

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 and piping system. Screen installed on vent pipes, inlets, and overflow pipes shall be corrosion resistant and have an aperture of not greater than 1/16 of an inch (1.6 mm) and shall be close fitting.

1702.9.5.6(B) Human Access. Rainwater tank access openings exceeding 12 inches (305 mm) 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 12 inches above grade, shall be a minimum of 1-1/2 inch in diameter and turned downward.

1702.9.6 Pumps. Pumps serving rainwater catchment systems shall be listed. 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) (103 kPa) 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 (552 kPa), a listed pressure reducing valve reducing the pressure to 80 psi (552 kPa) 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, leaders, and gutters shall be designed and installed in accordance with Chapter 11 of this code. Secondary roof drains shall be alarmed.

1702.9.8 Water Quality Devices and Equipment. The rainwater harvesting system must include filtration and disinfection to maintain the minimum water quality requirements in Table 1702.9.4. At a minimum a 5 micron absolute filter will be provided along with disinfection to provide 0.5-log inactivation of viruses. Devices and equipment used to treat rainwater to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be suitable for rainwater harvesting applications, properly designed and sized for the specific project and documented by a Minnesota Registered Engineer, listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) 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 (100 μm) shall be provided for rainwater supplied to water closets, urinals, trap primers, and drip irrigation system.~~

~~**1702.9.12 Roof Gutters.** Gutters shall maintain a minimum slope and be sized in accordance with Section 1106.3.~~

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 both. Each sign shall contain 1/2 of an inch (12.7 mm) 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 Authority Having Jurisdiction 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 (25.4 mm) 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.

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 1702.11.2.4.

1702.11.2.1 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted ~~by the Authority Having Jurisdiction and other authorities having jurisdiction~~ 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~~ plumbing contractor in the presence of the Authority Having Jurisdiction ~~and other authorities having jurisdiction~~ 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 Authority Having Jurisdiction 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 and rainwater, 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 Authority Having Jurisdiction 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 and rainwater catchment, 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 repressurized.

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 Authority Having Jurisdiction, 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.

1702.11.2.4 Annual Inspection. 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 every 5 by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years.~~

Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

1702.12 Maintenance and Inspection. Rainwater catchment systems and components shall be inspected and maintained in accordance with Section 1702.12.1 through Section 1702.12.3.

1702.12.1 Frequency. Rainwater catchment systems and components shall be inspected and maintained in accordance with Table 1702.12.1 unless more frequent inspection and maintenance is required by the manufacturer.

1702.12.2 Maintenance Log. A maintenance log for rainwater catchment systems is required. The property owner or designated appointee shall ensure that a record of testing, inspection, and maintenance in accordance with Table 1702.12 is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.

1702.12.3 Maintenance Responsibility. The required operation, maintenance, monitoring, testing, and inspection of rainwater catchment systems shall be the responsibility of the property owner, ~~unless otherwise required by the Administrative Authority.~~

**TABLE 1702.12
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 required disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements in Table 1702.9.4.	In accordance with manufacturer's instructions and the Administrative Authority. After initial installation and monthly thereafter. Exception: Every 12 months thereafter when electronically monitored.
Inspect and clear debris from rainwater gutters, downspouts, and roof washers.	At the beginning of seasonal usage and Every 6 monthly during seasonal usage.
Inspect and clear debris from roof or other aboveground rainwater collection surfaces.	At the beginning of seasonal usage and Every 6 monthly during seasonal usage.
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 every 12 months thereafter in accordance with Section 1702.11.

* The 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.~~

1702.13 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 in ~~Table 1702.9.4 as determined 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 1702.12.
- (6) A method of contacting the manufacturer(s).

1702.14 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.

1702.15 Abandonment. All rainwater systems that are no longer in use or fails to be maintained in accordance with Section 1702.12 shall be abandoned. Abandonment shall comply with Section 1702.15.1 and Section 1702.15.2.

1702.15.1 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.

1702.15.2 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.

DRAFT 2 – 1/17/14