

# Minutes: SPECIAL Plumbing Board meeting

Date: August 29, 2019  
Time: 9:30 a.m.  
Minutes by: Lyndy Logan  
Location: Minnesota Room, Department of Labor and Industry  
443 Lafayette Road No., St. Paul, MN 55117-4344

## **Members**

Richard Becker  
Jeff Brown  
Michael Dryke  
Kent Erickson  
John Flagg (Vice-Chair)  
Mike Herman (Secretary)  
Rick Jacobs (Chair)  
Phillip Sterner  
Cathy Tran (DLI Commissioner's Designee)  
David Wagner  
David Weum

## **Members Absent**

Justin Parizek

## **DLI Staff & Visitors**

Suzanne Todnem, General Counsel (DLI)  
Lyndy Logan (DLI)  
Jim Peterson (DLI)  
Brad Jensen (DLI)  
Scott Thompson (My Plumbing Training)  
Mike Johnson (J-Berd Mechanical)  
Ruth Thompson (My Plumbing Training)  
Matt Marciniak (IAPMO)  
Trevor Ogilvie (City of Minneapolis)  
Brandon Bardwell (City of Minneapolis)  
Tom Pahkala (UA Local 15)  
Aaron Ganson (ADS)  
Anita Anderson (MDH) – via teleconference  
Larry Justin (MN FASPE) – via teleconference

### **1. Call to Order**

The meeting was called to order by Chair Jacobs at 9:36 a.m. Roll call was taken by the Secretary and a quorum was declared with 10 of 11 voting members, and one non-voting member, present in person. Introductions and housekeeping announcements were made.

### **2. Approval of meeting agenda**

A motion was made by Flagg, seconded by Becker, to approve the agenda as presented. The vote was unanimous with 10 votes in favor; the motion carried.

### **3. Approval of previous meeting minutes**

A motion by Herman, seconded by Sterner, to approve the 7/16/2019 minutes as presented. The vote was unanimous with 10 votes in favor; the motion carried.

### **4. Regular Business**

Approval of expense reports – Jacobs approved the expenses as presented.

## 5. Special Business

- A. Discuss 2018 Uniform Plumbing Code and review “Ad Hoc Code Review and Rulemaking Committee 2018 UPC Recommendations to the Board” document – **See Attachment A** for meeting discussion and accepted, rejected, or modified recommendations.
- B. RFA’s submitted since the July 16 meeting were discussed. Tran referred to [PB0140](#) (**see Attachment B**). The Board agreed with proposed amendments as follows:
  - Section 408.7 – The Board agreed with proposed amendment 1 as presented.
  - Section 4XX.X (Trench Drains) – The Board agreed with proposed amendment 2 as presented.
  - Section 1009.4 (Relief Vent) – The Board agreed with proposed amendment 3 as presented.

## 6. Announcements

The next regularly scheduled meeting will be held on October 15, 2019, at 9:30 a.m. in the Minnesota Room, and the Executive Committee will meet at 8:30 a.m.

## 7. Adjournment

A motion was made by Sterner, seconded by Becker, to adjourn the meeting at 2:53 p.m. The vote was unanimous with 10 votes in favor of the motion; the motion passed.

Respectfully submitted,

*Mike Herman*

Mike Herman, Board Secretary

## Ad Hoc Code Review and Rulemaking Committee 2018 UPC Recommendations to the Board

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cccept (R)eject (M)odify
1.	PB0097	RFA	Thomas Johnson	Chapter 1	Add chapter 1 of the UPC into the Plumbing Code	<p><b>Proposal:</b> add chapter 1 of the UPC to the Plumbing Code.</p> <p><b>Recommendation:</b> do not add chapter 1 of the UPC because MN uses rule chapter 1300 for code administration.</p>	8/29/19	The Board accepted the recommendation as presented.	Accept
2.	Letter	N/A	Jeff Quinn, Farr Plumbing and Heating		Letter to Board re: Dishwasher air gaps, venting floor drains, boiler water fill, for next rule cycle.	Addressed in RFAs below.	8/29/19	Items were addressed in RFA's submitted to the Ad Hoc Committee – no further discussion.	N/A
3.	<a href="#">PB0135</a>	RFA (2018 UPC) Also see Final Interpretation at line #8	DLI	Chapter 2 definitions	Definition of "building supply" and registered design professional	<p><b>Proposal:</b> amend definitions of "building supply" and change term "Registered Professional Engineer" to "Registered Design Professional"</p> <p><b>Recommendation:</b> amend the definitions of "building supply" and "Registered Professional Engineer" as proposed. See <a href="#">PB0135</a>.</p>	8/29/19	<p>The Board accepted the recommendation as presented to amend term "Registered Professional Engineer" to Registered Design Professional.</p> <p>The Board accepted the recommendation to amend the definition of "building supply" with one modification: Remove "is" as follows: "Building Supply. The pipe <del>is</del> carrying potable water from municipal water supply..."</p>	<ol style="list-style-type: none"> <li>1. Accept Registered Design Professional as presented</li> <li>2. Accept building supply with modification (remove "is")</li> </ol>
4.	<a href="#">PB0128</a>	RFA (2018 UPC)	Scott Thompson	Chapter 2	Definition of "floor drain" and "floor drain – emergency"	<p><b>Proposal:</b> amend definition of "floor drain" and "floor drain – emergency" as proposed.</p> <p><b>Recommendation:</b> define "floor drain – emergency" as "Floor drains that <u>DO NOT SERVE AS A RECEPTOR THAT</u> are located in restrooms, under emergency eyewash/shower equipment and in laundry rooms." No definition for "floor drain."</p>	8/29/19	<ol style="list-style-type: none"> <li>1. <b>Floor drain:</b> The Board agreed to keep the definition of floor drain with a modification to add language shown in ALL CAPS: Floor drains that DO NOT SERVE AS A RECEPTOR THAT are located in restrooms, under emergency eyewash/shower equipment and in laundry rooms."</li> </ol>	<ol style="list-style-type: none"> <li>1. Accept with modifications noted in ALL CAPS</li> <li>2. Amend to emergenc</li> </ol>

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)ject (M)odify
								<p><b>2. Floor drain – emergency:</b> The Board agreed to amend to “emergency floor drain” in lieu of “floor drain – emergency.”</p> <p>The Board discussed whether the language should read “floor drain, emergency” or “emergency floor drain.” The language “floor drain, emergency” is used in Table 702.1; however, “emergency floor drain” is defined in the definitions; therefore, the Board agreed to accept the recommendation but amend to “emergency floor drain” in lieu of “floor drain – emergency.”</p>	y floor drain
5.	<a href="#">PB0137</a>	RFA (2018 UPC)	MDH	Chapter 2	Definition of “potable water”	<p><b>Proposal:</b> amend definition of “potable water” as proposed.</p> <p><b>Recommendation:</b> leave definition of “potable water” as is in 2018 UPC.</p>	8/29/19	<p>The Board agreed with the recommendation as presented after discussion noted below.</p> <p>Weum read the definition of potable water. The Board discussed leaving “potable water” but defining “water for human consumption” The definition of Human Consumption in Section 604.2 of the 2018 UPC would affect the manufacturer’s lead content. Tran read Exception 2 of Section 604.2 of the 2018 UPC.</p>	Accept
6.	<a href="#">PB0129</a>	RFA (2018 UPC)	Scott Thompson	Chapter 2	Definition of “quick-acting valve”	<p><b>Proposal:</b> amend definition of “quick-acting valve” as proposed</p> <p><b>Recommendation:</b> Full-board discussion</p>	8/29/19	<p>The Board rejected the proposal and accepted language to modify the 2018 UPC, Section 609.10 as follows: “Building water supply systems where <u>water hammer occurs</u> shall be provided with water hammer arrestors to absorb the <u>resulting</u> high pressures. Water hammer ...”</p>	Reject proposal. Amend 2018 UPC Section 609.10 as shown
7.	<a href="#">PB0083</a>	Final Interpretation	Patrick Lorio, City of Minneapolis	2012 UPC, sections 414.3 & 807.4, MN	Air gap fittings and drainage from domestic dishwashers	<p><b>Question:</b> May a domestic dishwasher be drained to a lower floor, without the installation of an approved air gap fitting with an indirect drain?</p>	N/A	<p>The Board agreed that no further discussion was needed at the 8/29/2019 meeting.</p> <p>5.11.2016: No, a domestic dishwasher cannot drain to a lower floor without the installation of</p>	

Line #	PB #	RFARFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cccept (R)eject (M)odify
				Rule 4714.0050		<b>Answer:</b> No. The Minnesota Plumbing Board interprets UPC Sections 414.3 and 807.4 as incorporated into the Minnesota Plumbing Code by Minnesota Rule 4714.0050, to require a domestic dishwasher to discharge through a listed air gap fitting. The air gap fitting must be referenced in chapter 14 of the 2012 UPC as amended by Minnesota Rules chapter 4714.		an approved air gap fitting with an indirect drain. The air gap fitting must be referenced in chap 14 of the 2012 UIPC as amended by MN Rules chapter 4714	
8.	<a href="#">Definition of "Building Supply"</a>  See also PB0135	Final Interpretation	Gordon Granse, Polyethylene Technology	2012 UPC section 204.0, MN Rule 4714.0050	Definition of Building Supply	<b>Question:</b> Is the pipe supplying water to a water meter or pressure tank inside the building considered part of the building supply?  <b>Answer:</b> Yes.	N/A	Final Interpretation issued (in response to a letter) May 11, 2016. Yes, the pipe supplying water to a water meter or pressure tank inside the building is considered part of the building supply.	
9.	<a href="#">PB0085</a>  See also PB0135	Final Interpretation	David Henrich, Bergerson Caswell, Inc./MN Water Well Assoc	2012 UPC section 204, Table 604.1, and IS 7 (2.6.1), MN Rule, part 4714.0050	Use of polyethylene piping for building supply piping	<b>Question:</b> Based on the Plumbing Board's May 11, 2016, Final Interpretation, can polyethylene piping, when used for building supply, be installed inside and under buildings?  <b>Answer:</b> Yes.	N/A	Final Interpretation issued June 15, 2016. Yes, polyethylene piping, when used for building supply, can be installed inside and under buildings	
10.	<a href="#">PB0088</a>	Final Interpretation	Sean Flaherty, President MN Chapter of the NFSA	Sec. 603.5.15, part 4714.0050	Double Check backflow prevention assemblies (DC) and double check detector fire protection backflow prevention assemblies that are an integral	<b>Question:</b> Is additional backflow protection required if all of the following conditions are met: (1) an individual licensed under Minnesota Statutes chapter 299M installs a fire protection system; (2) the fire protection system includes as an integral component a double check backflow prevention assembly (DC) that meets ASSE 1015 and meets the requirements of NFPA 13, Parts 8.16.1.1.3.1 and 8.16.1.1.3.2 or a double check detector fire protection backflow prevention assembly that meets ASSE 1048	8/29/19	The Board agreed that no modifications were necessary following discussion below: Final interpretation issued March 20, 2017. Todnem asked the Board if there needed to be any further discussion and Peterson said this should be addressed in the Licensing rules, not the Plumbing Code. Minnesota Plumbing Code 603.5.15.1 (renumbered to 603.5.14) would not be affected.  Backflow protector is part of the fire system per Tran.	No modifications necessary

Line #	PB #	RFARFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cccept (R)eject (M)odify
					part of a fire protection system.	and meets the requirements of NFPA 13, Parts 8.16.1.1.3.1 and 8.16.1.1.3.2; and (3) neither a reduced pressure principle backflow prevention assembly nor a reduced pressure detector fire protection backflow prevention assembly is required by section 603.5.15.1 of the Minnesota Plumbing Code?  <b>Answer:</b> No. Uniform Plumbing Code section 603.5.23, as adopted in the Minnesota Plumbing Code, Minn. R. parts 4716.0096 and 4716.0097, and Minn. Stat. § 326B.437 still apply to the backflow assembly			
11.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0301	chapters 3-5, various	(1) <b>Proposal:</b> Delete Minn. rule part 4714.0301 (default to use 2018 UPC)  <b>Recommendation:</b> Delete Minn. rule part 4714.0301	6/17/19	The Board agreed to accept recommendation as presented. The Board previously determined that 4714 is the controlling document and the 2018 UPC would be adopted as the reference.	Accept
12.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	301.2.5	chapters 3-5, various	(2) <b>Proposal:</b> Delete 2018 UPC sec. 301.2.5 (Existing Buildings) in its entirety. Already addressed in Minn. rule 4714.0101, subparts 3 and 6.  <b>Recommendation:</b> Delete 2018 UPC sec. 301.2.5 in its entirety.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
13.	N/A	N/A	Committee	312 and 313	Pipe expansion	<b>Proposal:</b> Becker to make tables to address ΔT 50 (conditioned space) and ΔT 100 (unconditioned space).  <b>Recommendation:</b> Use proposed Table 313.3.1 as modified	8/29/19, 6/17/19	8/29/2019: Becker submitted <b>Exhibit A</b> and Jim Peterson and Zach Barnaal submitted <b>Exhibits B and C</b> on behalf of DLI. <ul style="list-style-type: none"> <li>The Board agreed to accept Exhibit B with modifications. Modifications are shown on attached Exhibit B2.</li> <li>Add a footnote #6 to Table 313.3, at line "Schedule 40 PVC and ABS DWV" under column "Horizontal": For expansion loops, see Table 313.3.1</li> </ul>	8/29/19: Accept with modifications as noted on <b>Exhibit B.1</b> . Modifications accepted with addition of 10 and 20 feet – See <b>Exhibit B.2</b>

Line #	PB #	RFARFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
								<ul style="list-style-type: none"> <li>Table title change: <u>Schedule 40 PVC and ABS DWV and Storm Pipe Expansion Table</u></li> </ul> <p>6/17/19 Discussion: Installation shall compensate for thermal expansion and contraction. Expansion joints shall be utilized in vertical straight runs in excess of thirty (30) feet (9,144 mm) provided they are installed per manufacturer's installation instructions. Except piping buried below ground, horizontal and vertical piping must be installed with restraint fittings or a minimum twenty-four (24) inches (610 mm) 45 degree offset every thirty (30) feet (9144 mm) Becker said he would revise the tables to incorporate formulas for ABS and PVC and bring back to the Board at a later date.</p>	6/17/19: Modify
14.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	Table 313.3	chapters 3-5, various	(4) <b>Proposal:</b> Add footnote 6 to Table 313.3.  <b>Recommendation:</b> DLI will bring recommendation to Board for discussion. See also Item 13 above as part of discussion	6/17/19	6/17/2019: Table 313.3 is connected to the above tables; therefore, it will be discussed when tables above are revised and brought back to Board.	See above  6/17/19: Modify
15.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0314	chapters 3-5, various	(3) <b>Proposal:</b> Delete Minn. rule 4714.0314 (default to use 2018 UPC for tunneling/trenching)  <b>Recommendation:</b> Delete Minn. rule 4714.0314	6/17/19	The Board agreed to accept recommendation as presented.	Accept
16.	<a href="#">N/A</a>	N/A	Committee	407.4	Transient Public Lavatories	<b>Proposal:</b> delete section 407.4 Transient Public Lavatories	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
						<b>Recommendation:</b> delete section 407.4 of 2018 UPC.			
17.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0409	chapters 3-5, various	(5) <b>Proposal:</b> Amend Minn. rule 4714.0409  <b>Recommendation:</b> Amend rule part 4714.0409 to reflect the additions of nationally recognized standards in the body of the code that are also referenced standards under Chapter 17 of the UPC 2018, strike IAPMO IGC 155 references (see PB0102)	6/17/19	The Board agreed to accept recommendation as presented.	Accept
18.	<a href="#">PB0090</a> <a href="#">PB0099</a> <a href="#">PB0101</a> <a href="#">PB0110</a>	RFA	Multiple	4714.0414.3	Redundancy - Dishwasher listed air gap device	<b>Proposal:</b> Delete "through an air gap fitting in accordance with Section 807.4 in section 414.3 and delete section 807.4."  <b>Recommendation:</b> add language to sections 414.3 and 807.3, "or run the discharge line as high as possible under the countertop, securely fastened." (Section 807.3 of 2018 UPC renumbered section 807.4) See <a href="#">1/14/19 Ad Hoc meeting minutes</a> .	6/17/19	The Board agreed to accept recommendation as presented.  Note: Tran noted that the recommendation as presented is correct. Marciniak previously confirmed that IGC 155 (2018 version) was superseded by ASME A112.19.7 (2012 version).	Accept
19.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0418	chapters 3-5, various	<b>Proposal:</b> Amend Minn. rule 4714.0418, regarding section 418.7, add a reference to other sections (1017, 1009.1, 1011.1, and 1017.1)  <b>Recommendation:</b> Full Board review; committee recommends adding definitions for "open parking garage" and "enclosed parking garage."	6/17/19	The Board agreed to accept recommendation as presented.  Currently neither are defined; therefore, DLI references the building code for "open parking garage" and "enclosed parking garage" definitions.	Accept
20.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0421	chapters 3-5, various	<b>Proposal:</b> Use 2018 UPC language, delete Minn. rule 4714.0421, result: change temperature from 110 degrees F to 120 degrees F (relocated to section 407.3 in 2018 UPC).	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
						<b>Recommendation:</b> delete Minn. rule 4714.0421, result: change temperature from 110 degrees F to 120 degrees F.			
21.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0501	chapters 3-5, various	<b>Proposal:</b> Amend Minn. rule 4714.0501 to exclude chimneys, vents and their connectors because not plumbing. <b>Recommendation:</b> Amend Minn. rule 4714.0501 to exclude chimneys, vents and their connectors because not plumbing.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
22.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0504	chapters 3-5, various	<b>Proposal:</b> Amend Minn. rule 4714.0504, subp. 2, to add "Discharge piping shall be installed in accordance with Section 608.5." <b>Recommendation:</b> Amend Minn. rule 4714.0504, subp. 2, to add "Discharge piping shall be installed in accordance with Section 608.5." Delete "[NFPA 54: 10.25.5]" that is in the rule.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
23.	N/A	N/A	Committee	505.4.1	Single-wall heat exchanger	Discussion of the change for single-wall exchange in UPC 2018, Section 505.4.1, and current Minn. rule 603.5.4.1. Minn. Rule does not have a heat-transfer medium that is listed as a toxicity rating or Class of 1. No recommendation.	6/17/19	No recommendation	No Action
24.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0507	chapters 3-5, various	<b>Proposal:</b> Amend Minn. rule 4714.0507, subp. 2 regarding Relief Valve Discharge, to replace the Minnesota amendment and use 2018 UPC language. <b>Recommendation:</b> Amend Minn rule 4714.507, subp. 2 regarding Relief Valve Discharge, to replace the Minnesota amendment and use 2018 UPC language.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
25.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0508	chapters 3-5, various	<b>Proposal:</b> Amend Minn. rule 4714.0508 to effectively use 2018 UPC language for 508.4 Appliances in Attics and Under-Floor	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)ject (M)odify
						Spaces, and maintain deletion of sections 508.0 to 508.3.3.  <b>Recommendation:</b> Amend Minn. rule 4714.0508 to effectively use 2018 UPC language for 508.4 Appliances in Attics and Under-Floor Spaces, and maintain deletion of sections 508.0 to 508.3.3.			
26.	<a href="#">PB0102</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0509	chapters 3-5, various	<b>Proposal:</b> Amend Minn. rule 4714.0509 to include deletion of UPC section 509.15, Venting of Appliances.  <b>Recommendation:</b> delete section 509 in its entirety, including 509.15, of the 2018 UPC.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
27.	<a href="#">PB0104</a>	RFA (2018 UPC)	Richard Becker	509-510.2.27	Delete those section in their entirety	<b>Proposal:</b> Delete UPC sections 509.0 through 510.2.27 in their entirety.  <b>Recommendation:</b> Delete UPC sections 509.0 through 510.2.27; these deletions already covered in other recommendation or already in Minn. rule 4714.0510.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
28.	N/A			4714.0511	Delete 4714.0511	<b>Proposal:</b> Delete Minn. rule 4714.0511 because no section 511 in 2018 UPC.  <b>Recommendation:</b> Delete 4714.0511.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
29.	<a href="#">PB0115</a>	RFA (2018 UPC)	DLI	4714.0601	Various chapter 6 proposals (DLI)	<b>Proposal:</b> renumber section 601 (4714.0601) to 602, per 2018 UPC  <b>Recommendation:</b> correct numbering	6/17/19	The Board agreed to accept recommendation as presented.	Accept
30.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	4714.0603	Various chapter 6 proposals (MDH)	<b>Proposal:</b> Keep the current Minnesota amendment in Minn. rule 4714.0603, subp. 1 as is.  <b>Recommendation:</b> Keep the current Minnesota amendment in Minn. rule 4714.0603, subp. 1 as is. (No action necessary)	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
31.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	4714.0603	Various chapter 6 proposals (MDH)	<p><b>Proposal:</b> Keep the current Minnesota amendment in Minn. rule 4714.0603, subp. 5.</p> <p><b>Recommendation:</b> Keep the current Minnesota amendment in Minn. rule 4714.0603, subp. 5. (No action necessary)</p>	6/17/19	The Board agreed to accept recommendation as presented.	Accept
32.	<a href="#">PB0092</a>	Final Interpretation	Douglas R. Morin	603.2	Double check assembly	<p><b>Question 1:</b> Can a backflow preventer approved to ASSE 1022 be installed on a domestic water line serving a combi-oven pursuant to Minnesota Plumbing Code section 603.2?</p> <p><b>Answer:</b> No. Table 603.2 explicitly states that a backflow preventer approved to ASSE 1022 is appropriate for carbonated beverage machines or dispensers. A combi-oven is not a carbonated beverage machine or dispenser. UPC section 603.2, as adopted in chapter 4714, requires backflow prevention devices or assemblies to comply with Table 603.2.</p> <p><b>Question 2:</b> Is a backflow preventer approved to ASSE 1012 a suitable device for the installation on a combi-oven under section 603.2 when approved by the Authority Having Jurisdiction?</p> <p><b>Answer:</b> Yes. ASSE 1012 is not specifically listed in Table 603.2. Devices approved to ASSE 1012 are not explicitly addressed as approved devices in Table 603.2 so the Authority Having Jurisdiction must approve its use, including for use on a combi-oven.</p>	6/17/19	No action necessary – clarification only	No action

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
33.	<a href="#">PB0098</a>	Final Interpretation	Thomas Johnson	4714.0603.2 and table	Whether an AVP can have a valve downstream.	Pending litigation.		Final Interpretation issued 10/8/2018;	
34.	<a href="#">PB0100</a>	RFA	Joel Hipp	Table 603.2	Table 603.2, Atmospheric Vacuum Breaker Installation	<p><b>Proposal:</b> Amend Table 603.2 (and 1401) to replace “No valve downstream” with “have outlet open to atmospheric pressure” consistent with the 2017 edition of ASSE 1001.</p> <p><b>Recommendation:</b> leave language as is in the code because proposed amendment would require updating reference to the 2017 edition of ASSE for consistency; concern that updating this referenced standard edition could lead to other referenced standard updates, which would defeat the purpose of adopting a model code.</p>	6/17/19	The Board agreed to accept recommendation as presented.	Accept
35.	<a href="#">PB0115</a>	RFA (2018 UPC)	DLI	603.5.8	Various chapter 6 proposals (DLI)	<p><b>Proposal:</b> renumber 603.5.18 to 603.5.17</p> <p><b>Recommendation:</b> renumber</p>	6/17/19	The Board agreed to accept recommendation as presented.	Accept
36.	<a href="#">PB0105</a> <a href="#">PB0116</a>	RFA (2018 UPC)	Scott Eggen, Steve Tiedman	603.5.10	Exception to Steam or Hot Water Boilers	<p><b>Proposal:</b> Amend section 603.5.10 by adding an exception for 1- and 2-family dwellings.</p> <p><b>Recommendation:</b> do not add an exception for 1- and 2-family homes; use 2018 UPC language as is.</p>	6/17/19	The Board agreed to accept recommendation as presented.	Accept
37.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	603.5.18	Various chapter 6 proposals (MDH)	<p><b>Proposal:</b> Renumber section 603.5.18 to 603.5.17 to reflect 2018 UPC numbering.</p> <p><b>Recommendation:</b> Renumber section 603.5.18 to 603.5.17.</p>	6/17/19	The Board agreed to accept recommendation as presented.	Accept
38.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	603.5.21	Various chapter 6 proposals (MDH)	<p><b>Proposal:</b> Section 603.5.21 is new to the 2018 UPC, keep it incorporated as is.</p>	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
						<b>Recommendation:</b> Incorporate (new) 2018 UPC section 603.5.21 as is. (No action necessary)			
39.	<a href="#">PB0114</a> <a href="#">PB0115</a>	RFA (2018 UPC)	DLI	4714.0604	Various chapter 6 proposals (DLI)	<b>Proposal:</b> repeal rule Minn. rule 4714.0604 in its entirety. <b>Recommendation:</b> repeal Minn. rule 4714.0604. Use 2018 UPC language re: lead content (604.2)	6/17/19	The Board agreed to accept recommendation as presented.	Accept
40.	<a href="#">PB0137</a>	RFA (2018 UPC)	MDH	604.2 (formerly 604.11)	Amend 2018 UPC language re: potable water and lead content	<b>Proposal:</b> amend 2018 UPC language regarding definition of potable water and Section 604.2 on lead content by revising "water for human consumption" to "potable water" (Committee recommends deleting MN amendment) <b>Recommendation:</b> do not amend; use 2018 UPC language.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
41.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	604.11	Various chapter 6 proposals (MDH)	<b>Proposal:</b> Do not amend Minn. rule section 604.11, keep the 2018 UPC language. <b>Recommendation:</b> Do not amend section 604.11, keep the 2018 UPC language (604.2). (No action necessary)	6/17/19	The Board agreed to accept recommendation as presented.	Accept
42.	<a href="#">PB0118</a>	RFA (2018 UPC)	Rich Olson	Table 604.1, chapter 14	Add NSF SE 17304 to the Referenced Standards Fittings column for CPVC fittings in Table 604.1	<b>Proposal:</b> Amend Table 604.1 and add NSF SE 17304 to the Referenced Standards chapter. <b>Recommendation:</b> do not amend Table 604.1 to add NSF SE 17304.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
43.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	604.10	Various chapter 6 proposals (MDH)	<b>Proposal:</b> Renumber Minn. rule 604.10 to 604.9 to reflect 2018 UPC numbering. <b>Recommendation:</b> Renumber 604.10 to 604.9	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
44.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	607.3	Drinking water protection	<b>Proposal:</b> Amend 2018 UPC section 607.3 for potable water tanks <b>Recommendation:</b> Amend 2018 UPC section 607.3 as written in the RFA.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
45.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	607.4	Tanks used in commercial settings	<b>Proposal:</b> Amend 2018 UPC section 607.4 <b>Recommendation:</b> Amend 2018 UPC section 607.4 as written in RFA except last sentence of RFA language should read: "Overflow pipe shall discharge through an air gap."	6/17/19	The Board agreed to accept recommendation as presented in chart – The word "No" is removed from the last sentence as shown in PB0114. "No e-Overflow may be connected directly to any drain, sanitary sewer, or storm sewer"	Accept
46.	<a href="#">PB0115</a>	RFA (2018 UPC)	DLI	4714.0608	Various chapter 6 proposals (DLI)	<b>Proposal:</b> repeal Minn. rule 4714.0608, use 2018 UPC language. <b>Recommendation:</b> repeal part 4714.0608	6/17/19	The Board modified the proposal and recommendation as shown below and accepted the modified recommendation. <b>MODIFIED Proposal:</b> Amend Minn. rule 4714.0608, use 2018 UPC language.  <b>MODIFIED Recommendation:</b> Amend MN Rule 4714.0608, use the 2018 UPC but amend 608.5 and use the verbiage as presented in PB0115.	Accept modified language
47.	<a href="#">PB0103</a>	RFA (2018 UPC)	Brent Marsolek, Dave Wagner	UPC 609.1, 312.6	UPC sec. 609.1. Installation	<b>Proposal:</b> amend 2018 UPC sections 312.6, 609.1 <b>Recommendation:</b> Amend water pipe bury depth requirements: "Building supply and yard piping shall be not less than 12 inches (305 mm) below the maximum local frost depth in accordance with Section 312.6, or an alternative approved by the Authority Having Jurisdiction." PB to define "maximum frost depth" or find a published source of maximum frost depth.	6/17/19	The recommendation matches NFPA 24 and the Board agreed to accept the recommendation with <b>no need for the PB to define "maximum frost depth" or find a published source of maximum frost depth.</b>  Wagner and Tran no longer need to review and bring a revised recommendation back to the Board as discussed earlier.	Accept as modified
48.	<a href="#">PB0113</a>	RFA	Brent Marsolek, Dave Wagner	4714. 609	Meter location, section 609.11	<b>Proposal:</b> amend Minn. rule 4714.0609.11 to require water meters be located as close as possible to the point of entrance of the potable water supply pipe.	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)ccept (R)eject (M)odify
						<b>Recommendation:</b> amend Minn. rule 4714.0609.11 as drafted in RFA.			
49.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	609.6 and 611.0 through 611.3	Various chapter 6 proposals (MDH)	<b>Proposal:</b> Maintain Minnesota amendments in rule chapter 4714 to sections 609.6 and 611.0 through 611.3. <b>Recommendation:</b> Maintain Minnesota amendments to sections 609.6 and 6110 through 611.3.	6/17/19	The Board agreed to accept recommendation as presented.	Accept
50.	<a href="#">PB0106</a> <a href="#">PB0129</a>	RFA (2018 UPC)	Multiple	609.10	Quick acting valves, water hammer, section 609.10	<b>Proposal:</b> define "quick-acting valve" as used in section 609.10. <b>Recommendation:</b> Full-board discussion	6/17/19	The Board agreed that it would be too difficult to define "quick-acting valve" and after much discussion agreed to table this item.	Table
51.	<a href="#">PB0114</a>	RFA (2018 UPC)	MDH	609.11 to 609.12	Various chapter 6 proposals (MDH)	<b>Proposal:</b> Renumber in Minn. rule, section 609.11 to 609.12, keep Minnesota amendment. <b>Recommendation:</b> Renumber in Minn. rule, section 609.11 to 609.12, keep Minnesota amendment.	6/17/19	The Board rejected the recommendation as presented because section 609.11 would be replaced. Pipe insulation removed.	Reject
52.	<a href="#">PB0115</a>	RFA (2018 UPC)	DLI	611.3.1	Various chapter 6 proposals (DLI)	<b>Proposal:</b> add subsection 611.3.1 to Minn. rule 4714.0611 <b>Recommendation:</b> add subsection 611.3.1 as proposed. See RFA PB0115.	6/17/19	The Board agreed to accept modified proposal and recommendation as shown below. <b>MODIFIED Proposal:</b> add subsection 611.5 to Minn. rule 4714.0611 <b>MODIFIED Recommendation:</b> add subsection 611.5 as proposed. See RFA PB0115.	Accept as modified
53.	<a href="#">PB0119</a>	RFA (2018 UPC)	Jason Kruger	Table 701.2	Amend Table 701.1 to allow the use of reinforced concrete pipe as described in ASTM C76	<b>Proposal:</b> Amend Table 701.2 of Chapter 7 to add ASTM C76 reinforced concrete pipes and ASTM C443 as proposed <b>Recommendation:</b> amend as proposed with addition of footnote stating, "***For storm sewer application only"	6/17/19	The Board agreed to accept recommendation as presented.	Accept
54.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	701.1	chapter 7, various	<b>Proposal:</b> minor corrections and renumbering to coordinate with numbering changes in the 2018 UPC	6/17/19	The Board agreed to accept recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
						<b>Recommendation:</b> amend as proposed. See <a href="#">3/11/19 meeting minutes</a> .			
55.	<a href="#">PB0107</a>	RFA (2018 UPC)	Aaron Ganson	Table(s) 701.1 (and 1701.1)	polypropylene pipe per ASTM F2764, Table 701.1 and Table 1701.1 (referenced standards)	<b>Proposal:</b> Add polypropylene pipe per ASTM F2736 and ASTM F2764 to Tables 701.1 and 1701.1 for sanitary building sewers. See <a href="#">3/11/19 meeting minutes</a> . <b>Recommendation:</b> add the ASTM standards, and joints and connections section as proposed (with updated numbering per the UPC 2018).	6/17/19	<b>MODIFIED recommendation:</b> <ul style="list-style-type: none"> <li>Add footnote *** With no change in direction</li> <li>Add the ASTM standards with updated numbering per the UPC 2018 under building sewer pipe and fittings.</li> </ul> No directional changes. If good enough for sanitary sewer use then acceptable for storm use. Storm use would have cheaper pipe options available that could be used.	Accept as modified
56.	<a href="#">PB0133</a>	RFA (2018 UPC)	Robert G Moore	Table 701.1	Add ASTM F2562 to Table 701.1	<b>Proposal:</b> add ASTM F2562 standard to Table 701.1 (renumbered Table 701.2) <b>Recommendation:</b> do nothing, do not add ASTM F2562 to Table 701.1.	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
57.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	705.10.2 Expansion Joints	chapter 7, various	<b>Proposal:</b> delete Minnesota rule amendment and use the 2018 UPC language <b>Recommendation:</b> amend as proposed (use the 2018 UPC language)	8/29/19, 7/16/19	8/29/2019: The Board agreed with their decision to Accept the recommendation on 7/16/2019. 7/16/2019: The Board agreed to accept the recommendation as presented.	Accept
58.	<a href="#">PB0121</a> <a href="#">PB0108</a> <a href="#">PB0109</a>	RFA (2018 UPC)	DLI	707.4.1	chapter 7, various	<b>Proposal:</b> eliminate the cleanout requirement for back-to-back (or common) vertical fixture drains installed at same level by deleting Section 707.4.1 <b>Recommendation:</b> delete section 707.4.1	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
59.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	707.4	chapter 7, various	<b>Proposal:</b> delete exception #3 of Section 707.4 <b>Recommendation:</b> keep exception #3 (DLI can review the RFA and resubmit)	7/16/19	The Board agreed to accept the recommendation as re-submitted using the 2021 UPC preprint language as follows: Exceptions: (3) Excepting the building drain, its horizontal branches, kitchen sinks, and urinals, a cleanout	Accept as modified

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)ect (M)odify
								shall not be required on a pipe or piping that is above the floor level of the lowest floor of the building.	
60.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	710.10	chapter 7, various	<b>Proposal:</b> add an exception to Section 710.10 for vents serving elevator sumps and pool sumps to not terminate through the roof <b>Recommendation:</b> amend as proposed, add an exception.	7/16/19	The Board agreed to accept the recommendation as presented.  <b>Exception:</b> <u>Vents serving sumps connected to elevator pit drains or swimming pool deck drains need not extend through the roof and must not connect to any other vent pipe.</u>	Accept
61.	<a href="#">PB0096</a>	Final Interpretation	Peter Daniels, PE	710.10 and 906.4	Do Plumbing Code sections 710.10 and 906.4 apply to exterior sumps and receiving tanks?	<b>Final Interpretation:</b> Yes, if the sump and receiving tank are located within in the property lines and not covered by a utility easement. If the sump and receiving tank are covered by a utility easement, then the Plumbing Code does not apply.	7/16/19	Final Interpretation issued on 8/29/2018  The board agreed to take no action.	No Action
62.	<a href="#">PB0127</a>	RFA (2018 UPC)	Scott Thompson	Sec. 712.1	Amend section 712.1 [and 4714.0712, subp. 1]	<b>Proposal:</b> repeal MN amendment to section 712.1 and use 2018 UPC 712.1 language. <b>Recommendation:</b> keep current MN amendment in Minn. <a href="#">rule part 4714.0712</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
63.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	715 - CIPP	chapter 7, various	<b>Proposal:</b> amend Minn. rule 4714.0715 regarding section 715.3 to reflect the language of UPC 2018 <b>Recommendation:</b> full board should have a full discussion and make a decision on this proposed change. See <a href="#">3/11/19 ad hoc meeting minutes</a> for discussion notes.	7/16/19	The Board agreed to reject the recommendation as presented.	Reject
64.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	717.1, Table 717.1	chapter 7, various	<b>Proposal:</b> add language to provide an option for the AHJ to accept fixture loading less than the minimum fixture loading required by this table for building sewers while maintaining the minimum scouring pipe velocity of two feet per second: "Loadings less than the listed minimums must be approved by the Authority Having Jurisdiction."	7/16/19	The Board agreed to accept the recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)ccept (R)eject (M)odify
						<b>Recommendation:</b> add language as proposed. See <a href="#">RFA PB0121</a> .			
65.	<a href="#">PB0121</a>	RFA (2018 UPC)	DLI	719.6	chapter 7, various	<b>Proposal:</b> add an additional option to join pipe to manholes and similar structures to provide a water tight connection  <b>Recommendation:</b> amend as proposed. See <a href="#">3/11/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented but noted that the word "follow" should be "follows" as shown below.  <u>Connections to manhole and similar structures must be provided as follows:</u> add "s" to follow	Accept w-amendment (adding "s" to follow)
66.	<a href="#">PB0136</a>	RFA (2018 UPC)	DLI	4714.0724	Add a table to section 724, Recreational Vehicle, drainage pipe sizes	<b>Proposal:</b> amend section 724.1 as proposed  <b>Recommendation:</b> Amend section 724.1 as proposed in <a href="#">PB0136</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
67.	<a href="#">PB0131</a>	RFA (2018 UPC)	Cathy Tran, DLI	810.1	Chapter 8, various	<b>Proposal:</b> Amend 810.1 Steam and Hot Water Drainage Condensers and Sumps and delete sections 810.1 (remaining) to 814.1 (see RFA PB0131)  <b>Recommendation:</b> amend as proposed. See <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
68.	<a href="#">PB0131</a>	RFA (2018 UPC)	Cathy Tran, DLI	4714.0813	Chapter 8, various	<b>Proposal:</b> amend current Minn. rule 4714.0813 SWIMMING POOLS  <b>Recommendation:</b> amend as proposed. See <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
69.	<a href="#">PB0130</a>	RFA (2018 UPC)	Scott Thompson	905.3	Adopt 2018 UPC section 905.3 in its entirety	<b>Proposal:</b> adopt Section 905.3 of the 2018 UPC in its entirety, delete MN amendment to section 905.3 in Minn. rule 4714.0905  <b>Recommendation:</b> no recommendation, full board to consider the proposal. See <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The proposal was rejected.	Rejected
70.	<a href="#">PB0117</a>	RFA (2018 UPC)	Dennis Anderson	908.2	delete 908.2	<b>Proposal:</b> delete section 908.2 in its entirety (Horizontal Wet Venting for a Bathroom Group)	7/16/19	The Board agreed to accept the recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
						<b>Recommendation:</b> keep section 908.2 in its entirety.			
71.	<a href="#">PB0122</a>	RFA (2018 UPC)	Richard Blaylock	911	add/keep section 911.0 through 911.5	<b>Proposal:</b> adopt circuit venting method under 2018 UPC <b>Recommendation:</b> adopt circuit venting method (no action necessary to include)	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
72.	<a href="#">PB0089</a>	RFA	Cathy Tran, DLI	1002.2 Fixture traps	Chapter 10	<b>Proposal:</b> add an exception to 1002.2: "Exception: Emergency floor drains, tell tail floor drains, and floor drains not used as waste receptors installed within 25 feet of a vented branch or main." <b>Recommendation:</b> Amend as modified, see <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
73.	<a href="#">PB0089</a>	RFA	Cathy Tran, DLI	1006.1	Chapter 10	<b>Proposal:</b> Add an exception to the end of 1006.1: "Exception: Floor drains or trench drains which connect to sand interceptors or oil and flammable liquid interceptors do not need to be trapped." <b>Recommendation:</b> Amend as modified, see <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
74.	<a href="#">PB0089</a>	RFA	Cathy Tran, DLI	1016.4	Chapter 10	<b>Proposal:</b> Amend section 1016.4 <b>Recommendation:</b> Amend as modified, see <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
75.	<a href="#">PB0089</a>	RFA	Cathy Tran, DLI	1017.1	Chapter 10	<b>Proposal:</b> Amend section 1017.1 <b>Recommendation:</b> Amend as modified, see <a href="#">3/29/19 meeting minutes</a> .	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
76.	<a href="#">PB0111</a>	RFA (2018 UPC)	Ken Loucks	1014.2.2	Exception to section 1014.2.2 vents	<b>Proposal:</b> Add an exception to Section 1014.2.2 Vent <b>Recommendation:</b> do not add exception, leave 2018 UPC language as is.	7/16/19	The Board agreed to accept the recommendation as presented.	Accept

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)ccept (R)eject (M)odify
77.	<a href="#">PB0112</a>	RFA (2018 UPC)	Mike Johnson	1017.2	Design of interceptors, section 1017.2	<p><b>Proposal:</b> Establish set sizing for garages used for storage with 10 or more vehicles</p> <p><b>Recommendation:</b> amend section 1017.2 and add subsection 1017.2.1, to read as stated in <a href="#">3/29/19 meeting minutes</a>.</p>	7/16/19	The Board agreed to accept the recommendation as presented.	Accept
78.	<a href="#">PB0123</a>	RFA (2018 UPC)	Aaron Ganson	Table 1101.4.5	Add materials and standards to Building Storm Sewers, create Table 1101.4.5	<p><b>Proposal:</b> create a table in chapter 11 and add referenced standards to the table, or add the referenced standards to Table 701.2.</p> <p><b>Recommendation:</b> Do not create table in Chapter 11. Include F2306 and F2881 standards for storm sewer use only, include F2648 for yard drainage only, to Table 701.2, add proposed joints language, to section 1101.4.5 and referenced standards 1701.1. Add joints and connections section as proposed (with updated numbering per the UPC 2018). Add Footnote #2 to require deflection testing for pipes 12" and larger.</p> <p><b>Note: Reference PB0142 to renumber.</b></p>	7/16/19	<p>After the discussion below, the Board agreed to accept the recommendation with a modification to replace ASTM C1628 with ASTM C443 in Section 1101.2.1 Mechanical Joints.</p> <p>Riley Dvorak, Forterra Pipe and Precast, and Jennifer Schaff, County Materials Corp, addressed the Board after Jason Kruger's email regarding <a href="#">Line #78 of PB0123</a> was read aloud by the Chair (see Correspondence section of the 7.16.2019 minutes).</p> <p>Dvorak said there are two standards C443 and C1628 – both will have the same performance requirements, both are required to meet 13 PSI. There is one major difference in that C1628 requires additional tolerance requirements. Their standard product meets the performance criteria of C443, but the joint tolerances are slightly different.</p> <p>Schaff said that through this process she found that C1628 was created for a sanitary sewer mechanism for a joint. C443 is standard for storm sewer applications which is what is being discussed. The federal standard referenced in the submittal is C443 as well, therefore, Schaff said if the intention is for storm sewer use only, then refer just to C443. If using for sanitary sewer application, then that would be something different.</p>	Accept as modified

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cept (R)eject (M)odify
79.	<a href="#">PB0125</a>	RFA (2018 UPC)	Cathy Tran, DLI	1101.11.2.1 and 1101.11.2.2	Chapter 11, various	<b>Proposal:</b> add subsections 1101.11.2.1 Location and 1101.11.2.2 Engineered System. <b>Recommendation:</b> amend as submitted. See <a href="#">PB0125</a> .	8/29/19	The Board reviewed the 4/22/2019 Ad Hoc Committee meeting minutes for modifications that the Committee made to PB0125, item 1, page 3, and the Board accepted the modifications. The Committee's recommendation includes clarity to adding secondary roof drains. The Board agreed to accept the recommendation as modified in the 4/22/2019 Committee minutes. (4/22/2019 minutes, page 3 of 5, PB0125, item 1 should read 1101.11.2.1 not 1101.2.1)	Accept as modified in 4/22 Ad Hoc minutes
80.	<a href="#">PB0125</a>	RFA (2018 UPC)	Cathy Tran, DLI	Chapter 11	Chapter 11, various	<b>Proposal:</b> amend sections 1103.1 and 1103.2 (renumbered from 1106). Add to both sections. <b>Recommendation:</b> amend as submitted. See <a href="#">PB0125</a> .	8/29/19	The Board reviewed the 4/22/2019 Ad Hoc Committee meeting minutes for modifications that the Committee made to PB0125, item 2, page 3, and the Board accepted the modifications.	Accept as modified in 4/22 Ad Hoc minutes
81.	<a href="#">PB0132</a>	RFA (2018 UPC)	Arthur Schwidder	1106	Add a new section 1106.5 Sump Manhole/Catch Basin with Vertical Baffle	<b>Proposal:</b> require a minimum of 18 inches between nearest inlet pipe and a vertical baffle <b>Recommendation:</b> take no action, do not require a minimum of 18 inches.	8/29/19	The Board this could restrict the use of products. The Board agreed to take no action as recommended by the Committee.	Accept
82.	<a href="#">PB0124</a>	RFA (2018 UPC)	MDH	Chapter 15	Do not adopt chapter 15	<b>Proposal:</b> Do not adopt chapter 15 <b>Recommendation:</b> do not incorporate chapter 15.	8/29/19	The Board agreed to accept the recommendation as presented.	Accept
83.	<a href="#">PB0124</a>	RFA (2018 UPC)	MDH	Table 1702.9.4	Update Table 1702.9.4	<b>Proposal:</b> Amend Table 1702.9.4 as proposed. <b>Recommendation:</b> amend Table 1702.9.4 as proposed in <a href="#">PB0124</a> .	8/29/19	The Board reviewed the 5/31/2019 Ad Hoc Committee minutes for modifications made to PB0124 and accepted these modifications.	Accept as modified in 5/31 Ad Hoc minutes
84.	N/A	N/A	Committee	Chapts. 16, 17	Chpts. 16, 17	<b>Proposal:</b> Keep current chapter 17 regarding rainwater catchment systems (renumber as appropriate for consistency	8/29/19	The Board agreed to accept the proposal as noted with the change to Table 1702.9.4 as amended above.	Accept proposal as presented

Line #	PB #	RFA/RFI	Submitter	Rules affected	Brief Title	Proposal and Committee recommendation	Date reviewed by PB	PB action	(A)cccept (R)eject (M)odify
						with 2018 UPC), with RFA proposals recommended			
85.	N/A	N/A	Committee	App. E	App. E	<b>Proposal:</b> do not include Appendix E in the Minnesota Plumbing Code <b>Recommendation:</b> do not include Appendix E in the Minnesota Plumbing Code	8/29/19	The Board agreed to accept the recommendation as presented.	Accept

PB = Minnesota Plumbing Board

Accept, Reject, Deny column = in reference to the Board’s determination in regard to the committee’s recommendation

Some PB numbers are not included for a variety of reasons (e.g., RFA was withdrawn, RFA/RFI was incomplete, was for the plumber licensing chapter, etc.).

All UPC section and table numbers that have changed in the 2018 UPC will be adjusted as necessary, even if not indicated on this table. The substantive change is addressed here and renumbering corrections will be made as necessary for any proposed rules stemming from this document.

Plumbing Board  
 c/o Department of Labor and Industry  
 443 Lafayette Road North  
 St. Paul, MN 55155-4344  
 www.dli.mn.gov

## Plumbing Board Request for Action

PRINT IN INK or TYPE

<b>NAME OF SUBMITTER</b> CATHY TRAN	<b>PURPOSE OF REQUEST</b> (check all that apply): <input type="checkbox"/> New Code <input checked="" type="checkbox"/> Code Amendment <input type="checkbox"/> Repeal of an existing Rule
--	---

The Minnesota Plumbing Code (MN Rules, Chapter 4714) is available at <http://www.dli.mn.gov/CCLD/PlumbingCode.asp>.

**Specify the purpose of the proposal:** (If recommendation for code change for fixture, appurtenance, material, or method, check all that apply)

Appurtenance (e.g., water conditioning equipment)  Test Method  
 Other (describe)

**Does your submission contain a Trade Secret?**  Yes  No

If Yes, mark "**TRADE SECRET**" prominently on each page of your submission that you believe contains trade secret information. Minnesota Statutes, section 13.37, subdivision 1(b), defines "trade secret" as follows:

"Trade secret information" means government data, including a formula, pattern, compilation, program, device, method, technique or process (1) that was supplied by the affected individual or organization, (2) that is the subject of efforts by the individual or organization that are reasonable under the circumstances to maintain its secrecy, and (3) that derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

Note that, although "trade secret" information is generally not public, the Board and its committees may disclose "trade secret" information at a public meeting of the Board or committee if reasonably necessary for the Board or committee to conduct the business or agenda item before it (such as your request.) The record of the meeting will be public.

**Describe the proposed change.** The Minnesota Plumbing Code (Minnesota Rules Chapter 4714) is available via the World Wide Web at <http://www.revisor.leg.state.mn.us/arule/4714/>

**NOTE:**

- Please review the Minnesota Plumbing Code and include all parts of the Code that require revision to accomplish your purpose.
- The proposed change, including suggested rule language, should be *specific*. If modifying existing rule language, underline new words and ~~strike through deleted words~~. Please list all areas of the Minnesota Plumbing Code that would be affected.

**See attached proposed amendments sections:**

**408.7 (Lining for Showers and Receptors)**

**4XX.X (Trench Drains)**

**1009.4 (Relief Vent)**

**Office Use Only**

RFA File No. PB0140	Date Received by DLI 8.12.2019	Dated Received by Committee	Date Forwarded to Board
Title of RFA	By:		

Committee Recommendation to the Board:  Accept  Reject  Abstain

Board approved as submitted:  Yes  No Board approved as modified:  Yes  No

This material can be made available in different forms, such as large print, Braille or audio. To request, call 1-800-342-5354.

**Need and Reasons For the Change.** Thoroughly explain the need and why you believe it is reasonable to make this change. During a rulemaking process, the need and reasonableness of all proposed rule changes must be justified; therefore, a detailed explanation is necessary to ensure the Board thoroughly considers all aspects of the proposal.

*See attached*

If your product/method standard(s) is not currently listed in both national codes, your Request For Action will not be considered by the Board or its committees, however, you are welcome to present at any Board meeting during the Open Forum section of the Agenda.

The proposal must be accompanied by copies of any published standards, the results of testing, and copies of any product listings, as documentation of the health, sanitation and safety performance of any materials, methods, fixtures, and/or appurtenances. If none are available, please explain:

*See attached*

Please attach electronic scanned copies of any literature, standards and product approvals or listings. Printed or copyrighted materials, **along with written permission from the publisher to distribute the materials at meetings**, should be sent to the Plumbing Board, c/o Department of Labor and Industry, 443 Lafayette Road No., St. Paul, MN 55155-4344.

**Primary reason for change:** (check only one)

- |   |  |
|---|--|
| <input type="checkbox"/> Protect public, health, safety, welfare, or security | <input type="checkbox"/> Mandated by legislature       |
| <input type="checkbox"/> Lower construction costs                             | <input type="checkbox"/> Provide uniform application   |
| <input type="checkbox"/> Encourage new methods and materials                  | <input type="checkbox"/> Clarify provisions            |
| <input type="checkbox"/> Change made at national level                        | <input type="checkbox"/> Situation unique to Minnesota |
| <input type="checkbox"/> Other (describe) _____                               |  |

**Anticipated benefits:** (check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Save lives/reduce injuries             | <input type="checkbox"/> Provide more affordable construction |
| <input type="checkbox"/> Improve uniform application            | <input type="checkbox"/> Provide building property            |
| <input type="checkbox"/> Improve health of indoor environment   | <input type="checkbox"/> Drinking water quality protection    |
| <input type="checkbox"/> Provide more construction alternatives | <input type="checkbox"/> Decrease cost of enforcement         |
| <input type="checkbox"/> Reduce regulation                      | <input type="checkbox"/> Other (describe) _____               |

**Economic impact:** (explain all answers marked "yes")

1. Does the proposed change increase or decrease the cost of enforcement?  Yes  No If yes, explain

2. Does the proposed change increase or decrease the cost of compliance?  Yes  No If yes, explain  
 Include the estimated cost increase or decrease, and who will bear the cost increase or experience the cost decrease:

3. Are there less costly or intrusive methods to achieve the proposed change?  Yes  No If yes, explain

4. Were alternative methods considered?  Yes  No If no, why not? If yes, explain what alternative methods were considered and why they were rejected.

5. If there is a fiscal impact, try to explain any benefit that will offset the cost of the change. If there is no impact, mark "N/A."

6. Provide a description of the classes of persons affected by a proposed change, who will bear the cost, and who will benefit.

7. Does the proposed rule affect farming operations? (Agricultural buildings are exempt from the Minnesota Building Code under Minnesota Statutes, Section 326B.121.)  Yes  No If yes, explain

Are there any existing Federal Standards?  Yes  No If yes, list:

Are there any differences between the proposed change and existing federal regulations?

- Yes  No  Not applicable  Unknown

If yes, describe each difference & explain why each difference is needed & reasonable.

Minnesota Statutes, section 14.127, requires the Board to determine if the cost of complying with proposed rule changes in the first year after the changes take effect will exceed \$25,000 for any small business or small city. A small business is defined as a business (either for profit or nonprofit) with less than 50 full-time employees and a small city is defined as a city with less than ten full-time employees.

During the first year after the proposed changes go into effect, will it cost more than \$25,000 for any small business or small city of comply with the change?  Yes  No If yes, identify by name the small business(es) or small city(ies).

Will this proposed plumbing code amendment require any local government to adopt or amend an ordinance or other regulation in order to comply with the proposed plumbing code amendment?  Yes  No, If yes, identify by name the government(s) and ordinances(s) that will need to be amended in order to comply with the proposed plumbing code amendment.

Additional supporting documentation may also be attached to this form. Are there any additional comments you feel the Committee/Board may need to consider? If so, please state them here:

#### Information regarding submitting this form:

- Submissions are received and heard by the Committee on an "as received" basis. **Any missing documentation will delay the process, and your proposal will be listed as the date it was received "Complete."**
- **Submit any supporting documentation to be considered**, such as manufacturer's literature, approvals by other states, and engineering data electronically to [DLI.CCLDBOARDS@state.mn.us](mailto:DLI.CCLDBOARDS@state.mn.us). Once your Request For Action form has been received, it will be assigned a file number. Please reference this file number on any correspondence and supplemental submissions.
- **For copyrighted materials that must be purchased from publishers, such as published standards, product approvals or testing data, listings by agencies (IAPMO, ASSE, ASTM, etc..) you may send just 2 copies, along with written permission from the publisher to distribute the materials at meetings, via U.S. Mail to: Plumbing Board, c/o Department of Labor and Industry, 443 Lafayette Road No., St. Paul, MN 55155-4344.**
- **For materials that must be submitted by U.S. Mail, please include a copy of your "Request For Action" form originally submitted and reference your assigned RFA file number.**

#### Information for presentation to the Committee and/or Board:

- Limit presentations to 5 minutes or less.
- Be prepared to answer questions regarding the proposal and any documentation.

#### Information regarding Committee and/or Board function:

- The Plumbing Board or designated committee.

I understand that any committee action is a recommendation to the Plumbing Board and is not to be considered final action.

SUBMITTED BY NAME <i>Cathy Tran</i>	FIRM NAME <i>DLI<sup>o</sup></i>	SUBMITTER'S E-MAIL ADDRESS <i>Cathy.Tran@state.md.us</i>
NAME, PHONE NUMBER & E-MAIL ADDRESS OF PRESENTER TO THE COMMITTEE (if different):		

ADDRESS	CITY	STATE ZIP CODE
---------	------	----------------

PHONE <i>651 284-5898</i>	SIGNATURE (original or electronic) <i>[Signature]</i>	DATE <i>8/12/19</i>
------------------------------	--	------------------------

For Assistance or questions on completing this form, contact Cathy Tran, Department of Labor and Industry at 651-284-5898.

<b>For Office/Committee Use Only</b> Proposal received completed? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Date Proposer notified of gaps:	Mode of notification (e.g., e-mail)	Date returned to Proposer:	Date materials re-received:

## PROPOSED AMENDMENT #1

**408.7 Lining for Showers and Receptors.** Shower receptors built on-site shall be watertight and shall be constructed from approved-type dense, nonabsorbent, and noncorrosive materials. Each such receptor shall be adequately reinforced, shall be provided with an approved flanged floor drain designed to make a watertight joint in the floor, and shall have smooth, impervious, and durable surfaces. Unless the shower receptor is poured on the ground as part of a slab, an approved shower liner must be provided in accordance with the requirements of this section.

Showers shall have the subfloor and rough side of walls to a height of not less than 3 inches (76 mm) above the top of the finished dam or threshold shall be first lined with sheet plastic, lead, or copper, or shall be lined with other durable and watertight materials. Showers that are provided with a built in place, permanent seat or seating area that is located within the shower enclosure, shall be first lined with sheet plastic, lead, copper, or shall be lined with other durable and watertight materials that extend not less than 3 inches (76 mm) above horizontal surfaces of the seat or the seating area.

Lining materials shall be pitched  $\frac{1}{4}$  inch per foot (20.8 mm/m) to weep holes in the subdrain of a smooth and solidly formed subbase. Such lining materials shall extend upward on the rough jambs of the shower opening to a point not less than 3 inches (76 mm) above the horizontal surfaces of the seat or the seating area, the top of the finished dam or threshold and shall extend outward over the top of the permanent seat, permanent seating area, or rough threshold and be turned over and fastened on the outside face of both the permanent seat, permanent seating area, or rough threshold and the jambs.

Nonmetallic shower subpans or linings shall be permitted to be built up on the job site of not less than three layers of standard grade 15 pound (6.8 kg) asphalt-impregnated roofing felt. The bottom layer shall be fitted to the formed subbase and each succeeding layer thoroughly hot-mopped to that below. Corners shall be carefully fitted and shall be made strong and watertight by folding or lapping, and each corner shall be reinforced with suitable webbing hot-mopped in place.

Folds, laps, and reinforcing webbing shall extend not less than 4 inches (102 mm) in all directions from the corner, and webbing shall be of approved type and mesh, producing a tensile strength of not less than 50 lb/ft<sup>2</sup> (244 kg/m<sup>2</sup>) in either direction. Nonmetallic shower subpans or linings shall be permitted to consist of multilayers of other approved equivalent materials suitably reinforced and carefully fitted in place on the job site as elsewhere required in this section.

Linings shall be properly recessed and fastened to approved backing so as not to occupy the space required for the wall covering, and shall not be nailed or perforated at a point that is less than 1 inch (25.4 mm) above the finished dam or threshold. An approved-type subdrain shall be installed with a shower subpan or lining. Each such subdrain shall be of the type that sets flush with the subbase and shall be equipped with a clamping ring or other device to make a tight connection between the lining and the drain. The subdrain shall have weep holes into the waste line. The weep holes located in the subdrain clamping ring shall be protected from clogging.

Showers shall comply with approved standards acceptable to the Authority Having Jurisdiction. Lead and copper subpans or linings shall be insulated from conducting substances other than their connecting drain by 15 pound (6.8 kg) asphalt felt or its equivalent, and no lead pan or liner shall be constructed of material weighing less than 4 lb/ft<sup>2</sup> (19 kg/m<sup>2</sup>). Copper pans or liners shall be not less than No. 24 B & S Gauge (0.02 inches) (0.51 mm). Joints in lead pans or liners shall be burned. Joints in copper pans or liners shall be soldered or brazed. Plastic pans shall not be coated with asphalt-based materials.

*See 2018 UPC 408.7.1 to 408.7.5*

### Justification:

The current 2018 UPC language of 408.7 does not have specific language to separate or provide exceptions for onsite built showers that is poured on the ground (slab on grade) verse showers that are onsite built aboveground. The proposed language clarifies that showers poured on the ground as part of the slab do not required shower liners. This proposed amendment is consistent with IAPMO's interpretation of this provision and adds clarity for consistent code enforcement.

## PROPOSED AMENDMENT #2

### Code Section 4714.04xx.x

Add the following subsection (to be determined) in Chapter 4

### 4xx.x Trench Drains

Trench Drains shall comply with ASME A112.6.3, ASME A112.3.1, or be constructed of watertight material, watertight joint, and be tested for watertightness by filling with water to the level of the flood rim of the trench drain.

### Justification:

Proposed language adds a new subsection to address trench drains since the 2018 UPC does not. The proposed language adds nationally recognized standards for the construction of trench drains and also addresses trench drains which are not. The proposed language also sets construction requirements for trench drains that are not certified, including testing and watertight installation for consistent enforcement. Trench drains are used in many plumbing systems especially in garages and manufacturing to collect and discharge into the drainage system and are not intended to retain water for long periods of time. The proposed language is reasonable since requiring listing on all trench drains as currently required under code 301.1 is overly restrictive and redundant since the code allows the use of brick and concrete constructed sand/flammable waste interceptors which both are not listed to any standard and more

concerning than trench drains. Many trench drains constructed in Minnesota are formed as part of a concrete slab and testing is necessary to ensure the integrity and integrity of the non-certified trench drains.

### PROPOSED AMENDMENT #3

**1009.4 Relief Vent.** Interceptors (clarifiers) shall be so designed that they will not become air-bound where closed covers are used. Each interceptors (clarifiers) shall be properly vented. Interceptor (clarifier) and neutralization tank vent ports must be located above the highest liquid flow level.

**Justification:**

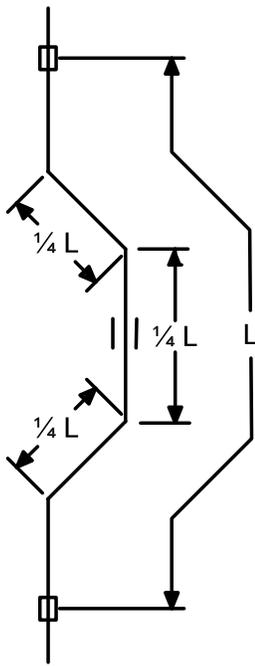
Proposed language adds clarify that vent ports must not be located such that the vent is submerged when flowing ½ to highest flow level. Blockage may occurred over times if submerged or during back-ups of the drainage system. This proposed amendment is not a significant change but rather adds clarify to the current requirement that an interceptor must be “properly vented”

PVC DRAIN, WASTE, VENT, AND STORM DRAIN PIPING LOCATED WITHIN BUILDING THERMAL ENVELOPE $\Delta T=70^{\circ}F$						
LENGTH OF RUN (FT.)						
	10	20	30	40	50	60
PIPE SIZE	EXPANSION LOOP LENGTH = L (IN.)					
1½"	19"	27"	33"	38"	43"	47"
2"	22"	30"	37"	43"	48"	52"
3"	26"	37"	45"	52"	58"	63"
4"	30"	42"	51"	59"	66"	72"
6"	36"	51"	62"	71"	80"	87"
8"	41"	58"	70"	81"	91"	99"
10"	46"	64"	79"	91"	101"	111"
12"	50"	70"	86"	99"	110"	121"

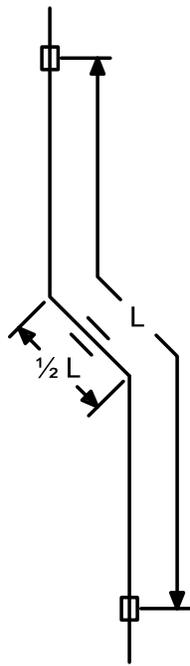
PVC DRAIN, WASTE, VENT, AND STORM DRAIN PIPING LOCATED OUTSIDE BUILDING THERMAL ENVELOPE $\Delta T=120^{\circ}F$						
LENGTH OF RUN (FT.)						
	10	20	30	40	50	60
PIPE SIZE	EXPANSION LOOP LENGTH = L (IN.)					
1½"	25"	36"	43"	50"	56"	61"
2"	28"	40"	49"	56"	63"	68"
3"	34"	48"	59"	68"	76"	83"
4"	39"	54"	67"	77"	86"	94"
6"	47"	66"	81"	93"	104"	114"
8"	53"	75"	92"	106"	119"	130"
10"	60"	84"	103"	119"	132"	145"
12"	65"	91"	112"	129"	144"	158"

ABS DRAIN, WASTE, VENT, AND STORM DRAIN PIPING LOCATED WITHIN BUILDING THERMAL ENVELOPE $\Delta T=70^{\circ}F$						
LENGTH OF RUN (FT.)						
	10	20	30	40	50	60
PIPE SIZE	EXPANSION LOOP LENGTH = L (IN.)					
1½"	22"	31"	37"	43"	48"	53"
2"	24"	34"	42"	48"	54"	59"
3"	29"	41"	50"	58"	65"	71"
4"	33"	47"	57"	66"	74"	81"
6"	40"	57"	69"	80"	89"	98"
8"	46"	65"	79"	91"	102"	111"
10"	51"	72"	88"	102"	114"	124"
12"	56"	78"	96"	111"	124"	135"

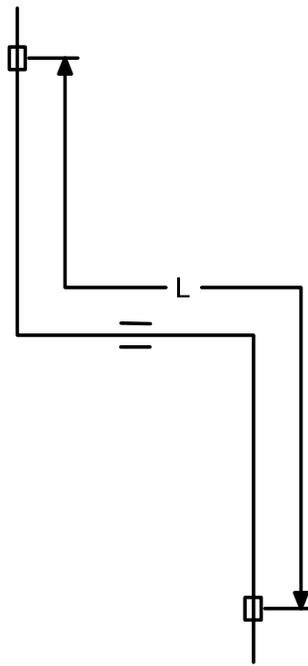
ABS DRAIN, WASTE, VENT, AND STORM DRAIN PIPING LOCATED OUTSIDE BUILDING THERMAL ENVELOPE $\Delta T=120^{\circ}F$						
LENGTH OF RUN (FT.)						
	10	20	30	40	50	60
PIPE SIZE	EXPANSION LOOP LENGTH = L (IN.)					
1½"	28"	40"	49"	56"	63"	69"
2"	32"	44"	54"	63"	70"	77"
3"	38"	54"	66"	76"	85"	93"
4"	43"	61"	75"	86"	96"	105"
6"	52"	74"	90"	104"	117"	128"
8"	60"	84"	103"	119"	133"	146"
10"	67"	94"	115"	133"	148"	163"
12"	73"	102"	125"	145"	162"	177"



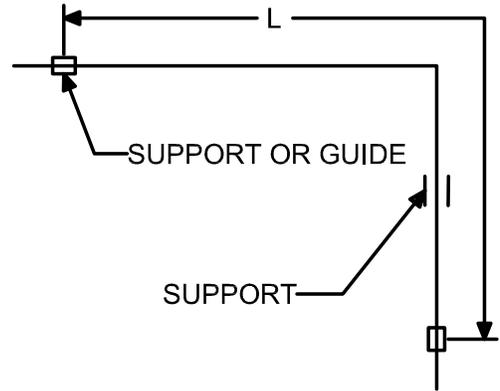
VERTICAL OR HORIZONTAL OFFSET



VERTICAL OR HORIZONTAL OFFSET



HORIZONTAL OFFSET



CHANGE OF DIRECTION

# Plastic DWV and storm pipe expansion table Attachment B Exhibit B

Based on greatest expansion determined as limiting strain and thermal expansion of ABS drain, waste, vent, and storm pipe expansion. Values and formulas from PPFA User Bulletin 17:

**Conditioned building** Limiting Strain  $\epsilon$  (in./in.) = **0.0035**

Temperature diff.  $\Delta T$  (°F) = **70** Coeff. of Thermal Expansion  $\alpha$  (in./in./°F) = **0.000055**

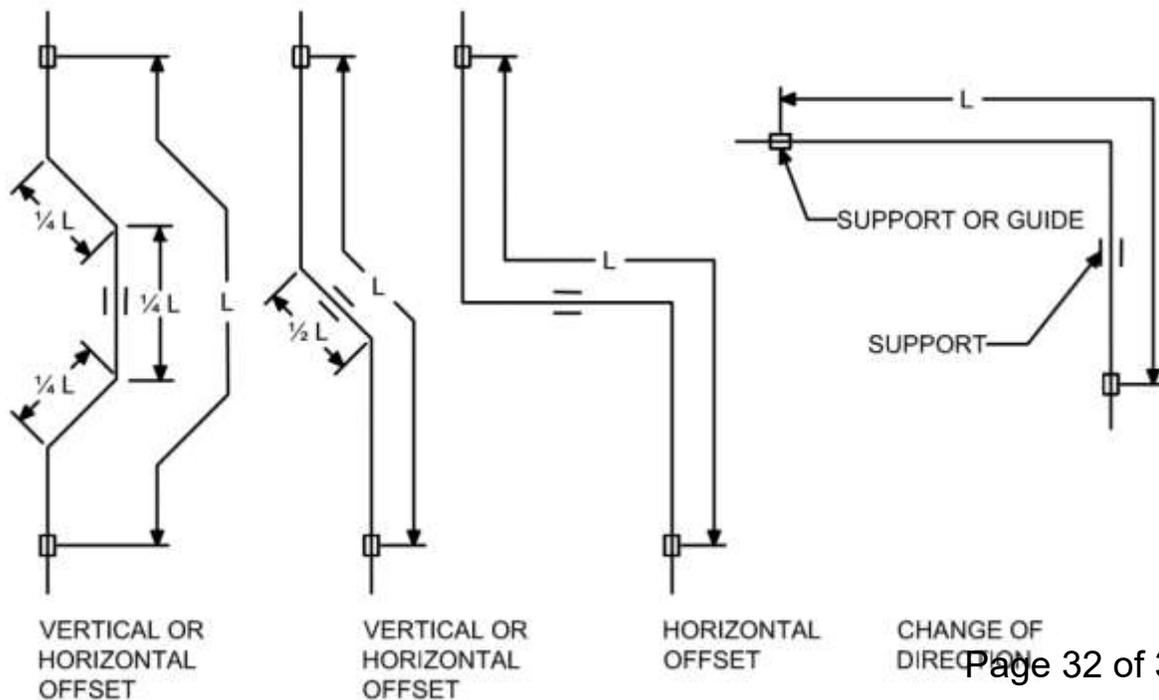
Pipe Size =	Expansion loop length = L (in.)							
	30	40	50	60	70	80	90	100
1.5"	34	39	44	48	52	55	59	62
2"	38	44	49	54	58	62	66	69
3"	46	53	59	65	70	75	79	84
4"	52	60	67	74	79	85	90	95
6"	63	73	81	89	96	103	109	115
8"	72	83	93	102	110	117	124	131
10"	80	93	104	114	123	131	139	146
12"	88	101	113	124	133	143	151	159

## Unconditioned area

Temperature diff.  $\Delta T$  (°F) = **120**

Pipe Size	Expansion loop length = L (in.)							
	30	40	50	60	70	80	90	100
1.5"	44	51	57	63	68	72	77	81
2"	50	57	64	70	76	81	86	90
3"	60	69	78	85	92	98	104	109
4"	68	79	88	96	104	111	118	124
6"	83	95	107	117	126	135	143	150
8"	94	109	121	133	144	154	163	172
10"	105	121	136	148	160	171	182	192
12"	114	132	148	162	175	187	198	209

For length of runs (Lo) less than 30 feet or over 100 feet, expansion loops or other compensation for expansion/contraction must be installed to the manufacturers instructions.



# Plastic DWV and storm pipe expansion table

Based on greatest expansion determined as limiting strain and thermal expansion of ABS drain, waste, vent, and storm pipe expansion. Values and formulas from PPA User Bulletin 17:

**Conditioned building** Inside building thermal envelope Limiting Strain  $\epsilon$  (in./in.) = **0.0035**

Temperature diff.  $\Delta T$  (°F) = **70**      Coeff. of Thermal Expansion  $\alpha$  (in./in./°F) = **0.000055**

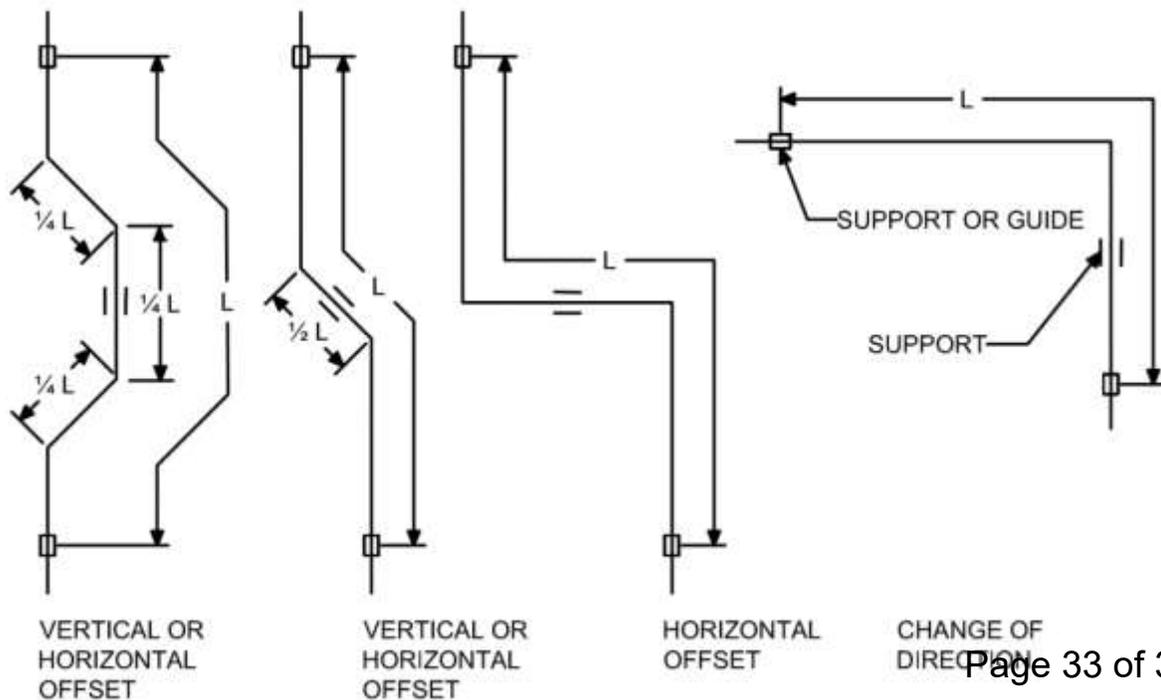
Length of Run $L_o$ (ft.) =		10	20	30	40	50	60	70	80	90	100
Pipe Size =	Expansion loop length = L (in.)										
1.5"		34	39	44	48	52	55	59	62		
2"	Add numbers	38	44	49	54	58	62	66	69		
3"	from Zach	46	53	59	65	70	75	79	84		
4"	for 10 and	52	60	67	74	79	85	90	95		
6"	20	63	73	81	89	96	103	109	115		
8"		72	83	93	102	110	117	124	131		
10"		80	93	104	114	123	131	139	146		
12"		88	101	113	124	133	143	151	159		

**Unconditioned area** Outside building thermal envelope

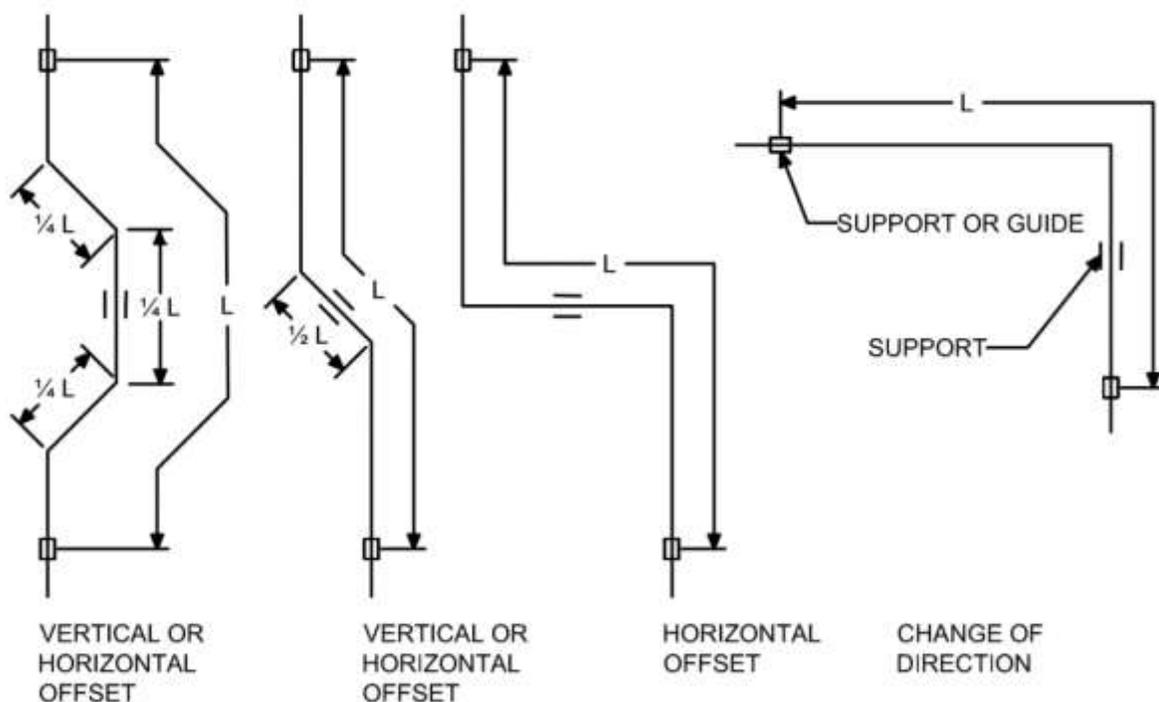
Temperature diff.  $\Delta T$  (°F) = **120**

Length of Run $L_o$ (ft.) =		10	20	30	40	50	60	70	80	90	100
Pipe Size	Expansion loop length = L (in.)										
1.5"		44	51	57	63	68	72	77	81		
2"	Add numbers	50	57	64	70	76	81	86	90		
3"	from Zach	60	69	78	85	92	98	104	109		
4"	for 10 and	68	79	88	96	104	111	118	124		
6"	20	83	95	107	117	126	135	143	150		
8"		94	109	121	133	144	154	163	172		
10"		105	121	136	148	160	171	182	192		
12"		114	132	148	162	175	187	198	209		

For length of runs ( $L_o$ ) less than 30 feet or over 100 feet, expansion loops or other compensation for expansion/contraction must be installed to the manufacturers instructions.



<b>TABLE 313.3.1 SCHEDULE 40 PVC AND ABS</b>			
<b>DWV AND STORM PIPE EXPANSION TABLE</b>			
Inside the building thermal envelope			
Pipe Size	Length of Run (ft.)		
	10	20	30
Pipe Size	Expansion loop length (in.) = L		
1.5"	20	28	34
2"	22	31	38
3"	27	38	46
4"	30	43	52
6"	37	52	63
8"	42	59	72
10"	47	66	80
12"	51	72	88
Outside the building thermal envelope			
Pipe Size	Length of Run (ft.)		
	10	20	30
Pipe Size	Expansion loop length (in.) = L		
1.5"	26	36	44
2"	29	41	50
3"	35	49	60
4"	40	56	68
6"	48	68	83
8"	55	77	94
10"	61	86	105
12"	66	94	114



# Plastic DWV and storm pipe expansion table

Attachment B

Based on greatest expansion determined as limiting strain and thermal expansion of ABS drain, waste, vent, and storm pipe expansion. Values and formulas from PPFA User Bulletin 17:

<b>Conditioned building</b>		Limiting Strain $\epsilon$ (in./in.) =							0.0035
Temperature diff. $\Delta T$ (°F) =	50	Coeff. of Thermal Expansion $\alpha$ (in./in./°F) =							0.000055
Length of Run $L_o$ (ft.) =									
	30	40	50	60	70	80	90	100	
Pipe Size =	Expansion loop length = L (in.)								
1.5"	29	33	37	41	44	47	50	52	
2"	32	37	41	45	49	52	55	58	
3"	39	45	50	55	59	63	67	71	
4"	44	51	57	62	67	72	76	80	
6"	54	62	69	75	81	87	92	97	
8"	61	70	79	86	93	99	105	111	
10"	68	78	88	96	104	111	117	124	
12"	74	85	95	105	113	121	128	135	
<b>Unconditioned area</b>									
Temperature diff. $\Delta T$ (°F) =	100								
Length of Run $L_o$ (ft.) =									
	30	40	50	60	70	80	90	100	
Pipe Size	Expansion loop length = L (in.)								
1.5"	41	47	52	57	62	66	70	74	
2"	45	52	58	64	69	74	78	82	
3"	55	63	71	78	84	89	95	100	
4"	62	72	80	88	95	101	108	113	
6"	75	87	97	107	115	123	130	137	
8"	86	99	111	121	131	140	149	157	
10"	96	111	124	136	146	156	166	175	
12"	105	121	135	148	159	170	181	190	

For length of runs ( $L_o$ ) less than 30 feet or over 100 feet, expansion loops or other compensation for expansion/contraction must be installed to the manufacturer's instructions.

