Plumbing Board
c/o Department of Labor and Industry
443 Lafayette Road North
St. Paul, MN 55155-4344
www.dli.mn.gov
Email: DLI.ccldboards@state.mn.us

PB0205.RFA.Anita Anderson.MDH.Chapter 6
PVC Rec'd 6.2.2025 | **Revised 6.25.2025**

Plumbing Board
Request for Action

PRINT IN INK or TYPE

NAME OF SUBMITTER	**PURPOSE OF REQUEST** (check all that apply): ☐ New Code
Anita Anderson	✓ Code Amendment ☐ Repeal of an existing Rule

The Minnesota Plumbing Code (MN Rules, Chapter 4714) is available at https://epubs.iapmo.org/2020/MPC/

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

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

✓ Other (describe) The purpose of the proposal is to amend the Minnesota Plumbing Code to allow PVC for cold water piping in treatment systems.

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 here: https://epubs.iapmo.org/2020/MPC/

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.

Please see attached.

For Office/Committee Use Only Proposal received complete? ☐ Yes ☐ No

Date Proposer notified of gaps:	Mode of notification (e.g., e-mail)	Date returned to Proposer:	Date materials re-received:

Office Use Only

RFA File No. PB0205	Date Received by DLI Revised 6/25/2025, 6/23/2025,	Dated Received by Committee 7/2/2025, 6/3/2025	Date of Forwarded to Board TBD

Title of RFA
PB0205.RFA.Anita Anderson.MDH.Chapter 6 PVC.Revised 6.25.25

Committee Recommendation to the Board: ☐ Accept ☐ Reject ☐ Abstain

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

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.

Please see attached.

If your product/method standard(s) is not currently listed in a national code, 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:

All supporting standards are already listed in the 2020 Minnesota Plumbing Code.

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***, and email to DLI.ccldboards@state.mn.us

Primary reason for change: (check only one)	
☐ Protect public, health, safety, welfare, or security	☐ Mandated by legislature
☐ Lower construction costs	✓ Provide uniform application
☐ Encourage new methods and materials	☐ Clarify provisions
☐ Change made at national level	☐ Situation unique to Minnesota
☐ Other (describe)	

Anticipated benefits: (check all that apply)		
☐ Save lives/reduce injuries		✓ Provide more affordable construction
✓ Improve uniform application		☐ Provide building property
☐ Improve health of indoor environment		✓ Drinking water quality protection
✓ Provide more construction alternatives		☐ Decrease cost of enforcement
☐ Reduce regulation	☐ Other (describe)	

The Following Information is Optional. This Information can Assist in Evaluating a Request for Action and in Rulemaking and Should be Provided if Known.

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:

Using PVC instead of CVPC for cold water indoor treatment applications will reduce the cost of compliance for public water systems because it is a less expensive material that still meets the necessary standards for the application.

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.

Leaving the code as is causes increased cost and confusion for public water systems seeking compliance with the Safe Drinking Water Act because they don't know what materials will be accepted for construction of treatment systems.

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."

Costs to public water supplies will either decrease or remain the same under the proposal.

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

Public water systems that are required to provide treatment to meet Safe Drinking Water Act (SDWA) requirements will benefit from this change by having robust and operable treatment systems at reduced cost. Consumers will benefit from drinking water that is in compliance with the SDWA.

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:

40 CFR 141.2 defines Finished water: "Finished water is water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals)." Our proposed change provides more consistency with this federal definition.

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:

Any additional comments are included in the attachment.

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. 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 (or email) two 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 action is a recommendation to the Plumbing Board and is not to be considered final action.

Submitter's Name	Submitter's Email Address	Submitter's Firm Name
Anita Anderson	Anita.c.anderson@state.mn.us	Minnesota Department of Health

Presenter's name, phone, and email if different

Submitter's Mailing Street Address	City	State	Zip Code
11 E. Superior Street Suite 290	Duluth	MN	55802

Submitter's Phone	Submitter's Signature (original, electronic or typed)	Date
218-302-6143	Anita C. Anderson	6/2/25

For Assistance or questions on completing this form, contact Mike Westemeier, Department of Labor and Industry at michael.westemeier@state.mn.us or by phone 651-284-5898.

Proposed Change:

The proposed change is to allow PVC as an approved material for water treatment and/or storage systems. Under the change, in addition to the line from the source to the building and exterior cold water applications, PVC would be allowed for interior cold water pipe carrying water through any central water conditioning or treatment equipment and/or the last pressure or storage tank prior to the piping that takes water to water heaters, fixtures or other water outlets.

The following excerpts from the IAPMO Uniform Codes Answers and Analysis database indicate the PVC piping must be protected from hot water backflow but do not include other concerns with this material. If PVC is only used up to the point of the last storage or pressure tank in a water treatment system, there will be adequate protection from hot water backflow.

UPC 2003 IS 8 UPC 2006 IS 8 UPC 2009 IS 8 UPC 2012 IS 8

Topic: PVC Installation

We had a new school project in which the contractor installed PVC for the domestic cold water system. This installation was disapproved because the code only permits PVC to be used on the outside of a
building underground.
Since PVC is allowable for use on water service piping, can you explain why the code does not allow
PVC for use on for cold water systems located inside of the building?

Installation Standard IS 8 Section 2.7.1 states that PVC water pipe may only be used underground outside of the building. The main reason that it is not allowed within a building is that almost every building has
water heating equipment inside the building. When a water heater is heating water and no hot water is
being used the hot water can back up into the cold water piping. This can happen when hot water circulating
systems are in use also. The pressure rating of all plastic pipes decrease as the temperature of the
fluid inside the pipe increases. PVC water pipe loses about 78 percent of its pressure rating at 140°F while
CPVC loses only 50 percent. CPVC pipe is rated at 100 psi at 180°F.

UPC 2009 Table 6-4 UPC 2012 Table 604.1

Topic: Materials for Building Supply and Water Distribution

Per Table 6-4 (2006/2009) Table 604.1 (2012), PVC pipe cannot be used for water distribution systems, but could be used for building supply or cold water applications.
1. Does this mean that PVC pipe cannot be used inside of buildings at all?
2. Can the pipe be used inside of the building if the piping is PVC – NSF 61?
3. Can PVC- NSF 61 piping be used for domestic hot water systems? What code section would address this?

1. Yes. PVC water piping is only approved for outdoor use (see IS 8-2006).
2. No. PVC water pipe and fittings are NSF 61 approved, but are not approved for use inside a building. They are only listed and approved to be used for water service piping outside of a building. Table 6-4 (2006/2009) Table 604.1 (2012) is the section in the code that addresses the limitations of PVC pipe and fittings. The standards listed in chapter 14 and the listings also address the limitations of PVC pipe and fittings.
3. No. See Table 6-4(2006/2009) Table 604.1 (2012)and IS 8-2006

UPC 2009 S 7, 2.6.1 and IS 8, 2.7.1 UPC 2012 IS 7, 2.6.1 and IS 8, 2.7.1 UPC 2015 Table 604.1

Topic: Installation Standards

What are the reasons for not allowing the installation of PE and PVC under or within a building or structure?

The main reason that it is not allowed within a building is that almost every building has water heating equipment inside the building. When a water heater is heating water and no hot water is being used the hot water can back up into the cold water piping. This can happen when hot water circulating systems are in use also. The pressure rating of all plastic pipes decrease as the temperature of the fluid inside the pipe increases.

In addition, commonly available PVC products meet the requirements of NSF 14, which covers both health effects and performance of plastic piping components as shown in the table below.

Important Similarities and Differences

Certification includes:	NSF/ANSI 14	NSF/ANSI/CAN 61
NSF/ANSI/CAN 61 health effects testing to ensure pipe is suitable for drinking water	✓	✓
Testing to product standards such as ASTM for dimensions, burst, sustained pressure, crush, extrusion quality, etc.	✓	
Annual monitoring testing to verify continuous compliance	✓	✓
Verification of the pipe material's long-term strength rating	✓	
Material physical properties (cell class)	✓	
Regular, unannounced inspections of the manufacturing location	✓	✓
Use of the globally accepted and respected NSF mark	NSF pw	NSF Certified to NSF/ANSI/CAN 61

Illinois is another state that allows PVC for this type of use as seen in this excerpt from PART 890 ILLINOIS PLUMBING CODE : Sections Listing Appendix A Table A for Water Distribution Pipe:

9)	Polyvinyl Chloride (PVC) Pipe[2, 3]	ANSI/NEMA Z535.1-2006 (R2011)
		ASTM D 1785-2012
		ASTM D 2241-2009
		ASTM D 2672-2009
		CSA B137.3-2009 in B137
	Joints	ASTM D 2855-2010
		ASTM F 441/F 441M-2012
		CSA B137.2-2009 in B137
		CSA B137.3-2009 in B137
	Primer	ASTM F 656-2010
	Solvent Cement[1]	ASTM D 2564-2012
		CSA B137.3-2009 in B137

[2] Water distribution pipe must meet the appropriate NSF standard for potable water. Plastic shall be rated at 160 psi at 73.4 degrees Fahrenheit.

[3] Use for cold or tempered water only.

Options for Amended Language

We see multiple ways this change could be addressed in the code:

Option 1:

Section 611.3 of the 2020 Minnesota Plumbing Code is amended to read:

611.3 Connection Tubing or Piping. *The tubing or piping carrying water to and from chemical injection points, water conditioning or treatment units, detention tanks, and/or storage tanks shall be of a size and material as recommended by the manufacturer or licensed designer. The tubing or piping shall comply with the requirements of NSF 14, NSF 42, NSF 44, NSF 53, NSF 55, NSF 58, NSF 62, or the appropriate material standards referenced in Table 1701.1.*

Section 205.0 of the 2020 Minnesota Plumbing Code is amended to read:

Connection Tubing or Piping. The tubing or piping carrying water to and from chemical injection points, water conditioning or treatment units, detention tanks, and/or storage tanks. Connection tubing or piping is not considered building supply or distribution piping.

Table 604.1 of the 2024 UPC is amended to read:

TABLE 604.1
MATERIALS FOR BUILDING SUPPLY AND WATER DISTRIBUTION PIPING AND FITTINGS

MATERIAL	BUILDING SUPPLY PIPE AND FITTINGS	WATER DISTRIBUTION PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
Copper and Copper Alloys	X	X	ASTM B42, ASTM B43, ASTM B75, ASTM B88, ASTM B135, ASTM B251, ASTM B302, ASTM B447	ASME B16.15, ASME B16.18, ASME B16.22, ASME B16.26, ASME B16.50[2], ASME B16.51, ASSE 1061, ASTM F3226, AWWA C606, CSA B242, IAPMO PS 53, IAPMO PS 117
CPVC	X	X	ASTM D2846, ASTM F441, ASTM F442, CSA B137.6	ASSE 1061, ASTM D2846, ASTM F437, ASTM F438, ASTM F439, ASTM F1970, CSA B137.6, IAPMO PS 53
CPVC-AL-CPVC	X	X	ASTM F2855	ASTM D2846
Ductile-Iron	X	X	AWWA C151	ASME B16.4, AWWA C110, AWWA C153, AWWA C606, CSA B242, IAPMO PS 53
Galvanized Steel	X	X	ASTM A53	AWWA C606, CSA B242, IAPMO PS 53
Malleable Iron	X	X	—	ASME B16.3, AWWA C606, IAPMO PS 53
PE	X[1]	—	ASTM D2239, ASTM D2737, ASTM D3035, AWWA C901, CSA B137.1	ASTM D2609, ASTM D2683, ASTM D3261, ASTM F1055, CSA B137.1
PE-AL-PE	X	X	ASTM F1282, CSA B137.9	ASTM F1282, ASTM F1974, CSA B137.9
PE-RT	X	X	ASTM F2769, CSA B137.18	ASSE 1061, ASTM D3261, ASTM F1055, ASTM F1807, ASTM F2098, ASTM F2159, ASTM F2735, ASTM F2769, CSA B137.18
PEX	X	X	ASTM F876, CSA B137.5, AWWA C904[1]	ASSE 1061, ASTM F877, ASTM F1807, ASTM F1960, ASTM F2080, ASTM F2159, ASTM F2735, ASTM F3347, ASTM F3348, CSA B137.5
PEX-AL-PEX	X	X	ASTM F1281, CSA B137.10	ASTM F1281, ASTM F1974, ASTM F2434, CSA B137.10
PP	X	X	ASTM F2389, CSA B137.11	ASTM F2389, CSA B137.11
PVC	X[1]	—	ASTM D1785, ASTM D2241, AWWA C900	ASTM D2464, ASTM D2466, ASTM D2467, ASTM F1970, AWWA C907, IAPMO PS 53
Stainless Steel	X	X	ASTM A269, ASTM A312, ASTM A554, ASTM A778	ASTM F3226, CSA B242, IAPMO PS 53, IAPMO PS 117

Notes:

[1] For building supply or exterior cold-water applications, not for water distribution piping or water treatment connection tubing or piping.

[2] For brazed fittings only.

[3] For building supply or exterior cold-water applications, or for interior cold-water connection tubing or piping.

Option 2:

Table 604.1 of the 2024 UPC is amended to read:

TABLE 604.1
MATERIALS FOR BUILDING SUPPLY AND WATER DISTRIBUTION PIPING AND FITTINGS

MATERIAL	BUILDING SUPPLY PIPE AND FITTINGS	WATER DISTRIBUTION PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
Copper and Copper Alloys	X	X	ASTM B42, ASTM B43, ASTM B75, ASTM B88, ASTM B135, ASTM B251, ASTM B302, ASTM B447	ASME B16.15, ASME B16.18, ASME B16.22, ASME B16.26, ASME B16.50[2], ASME B16.51, ASSE 1061, ASTM F3226, AWWA C606, CSA B242, IAPMO PS 53, IAPMO PS 117
CPVC	X	X	ASTM D2846, ASTM F441, ASTM F442, CSA B137.6	ASSE 1061, ASTM D2846, ASTM F437, ASTM F438, ASTM F439, ASTM F1970, CSA B137.6, IAPMO PS 53
CPVC-AL-CPVC	X	X	ASTM F2855	ASTM D2846
Ductile-Iron	X	X	AWWA C151	ASME B16.4, AWWA C110, AWWA C153, AWWA C606, CSA B242, IAPMO PS 53
Galvanized Steel	X	X	ASTM A53	AWWA C606, CSA B242, IAPMO PS 53
Malleable Iron	X	X	—	ASME B16.3, AWWA C606, IAPMO PS 53
PE	X[1]	—	ASTM D2239, ASTM D2737, ASTM D3035, AWWA C901, CSA B137.1	ASTM D2609, ASTM D2683, ASTM D3261, ASTM F1055, CSA B137.1
PE-AL-PE	X	X	ASTM F1282, CSA B137.9	ASTM F1282, ASTM F1974, CSA B137.9
PE-RT	X	X	ASTM F2769, CSA B137.18	ASSE 1061, ASTM D3261, ASTM F1055, ASTM F1807, ASTM F2098, ASTM F2159, ASTM F2735, ASTM F2769, CSA B137.18
PEX	X	X	ASTM F876, CSA B137.5, AWWA C904[1]	ASSE 1061, ASTM F877, ASTM F1807, ASTM F1960, ASTM F2080, ASTM F2159, ASTM F2735, ASTM F3347, ASTM F3348, CSA B137.5
PEX-AL-PEX	X	X	ASTM F1281, CSA B137.10	ASTM F1281, ASTM F1974, ASTM F2434, CSA B137.10
PP	X	X	ASTM F2389, CSA B137.11	ASTM F2389, CSA B137.11
PVC	X[1]	—	ASTM D1785, ASTM D2241, AWWA C900	ASTM D2464, ASTM D2466, ASTM D2467, ASTM F1970, AWWA C907, IAPMO PS 53
Stainless Steel	X	X	ASTM A269, ASTM A312, ASTM A554, ASTM A778	ASTM F3226, CSA B242, IAPMO PS 53, IAPMO PS 117

Notes:

[1] For building supply or exterior cold-water applications, not for water distribution piping.

[2] For brazed fittings only.

[3] For exterior cold-water applications, or for interior cold-water applications from the building supply line through any water conditioning or treatment equipment and/or the last pressure or atmospheric storage tank, provided the application is upstream of any water heater or consumer outlet and is protected from hot-water backflow coming from distribution piping.

Section 611.3 of the 2020 Minnesota Plumbing Code is amended to read:

611.3 Connection Tubing or Piping. *The tubing or piping carrying water to and from chemical injection points, water conditioning or treatment units, detention tanks, and/or storage tanks shall be of a size and material as recommended by the manufacturer or licensed designer. The tubing or piping shall comply with the requirements of NSF 14, NSF 42, NSF 44, NSF 53, NSF 55, NSF 58, NSF 62, or the appropriate material standards referenced in Table 1701.1.*

Option 3:

Understanding Option 3 conflicts with RFAs approved at the June 4th Ad Hoc meeting, we have still included it here.

Section 204.0 of the 2020 Minnesota Plumbing Code is amended to read:

Building Supply. ~~Means the pipe carrying potable water from the municipal water supply or source of water supply to a building water meter, pressure tank, or other point of use or distribution on the lot.~~ Building supply means the pipe carrying water from the source of supply (municipal water main, approved drinking water well or approved surface water body) through any central water conditioning or treatment equipment and/or the last pressure or atmospheric storage tank prior to the piping that takes water to water heaters, fixtures or other water outlets.

Table 604.1 of the 2020 Minnesota Plumbing Code is amended to read:

TABLE 604.1
MATERIALS FOR BUILDING SUPPLY AND WATER DISTRIBUTION PIPING AND FITTINGS

MATERIAL	BUILDING SUPPLY PIPE AND FITTINGS	WATER DISTRIBUTION PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
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CPVC	X	X	ASTM D2846, ASTM F441, ASTM F442, CSA B137.6	ASSE 1061, ASTM D2846, ASTM F437, ASTM F438, ASTM F439, ASTM F1970, CSA B137.6, IAPMO PS 53
CPVC-AL-CPVC	X	X	ASTM F2855	ASTM D2846
Ductile-Iron	X	X	AWWA C151	ASME B16.4, AWWA C110, AWWA C153, AWWA C606, CSA B242, IAPMO PS 53
Galvanized Steel	X	X	ASTM A53	AWWA C606, CSA B242, IAPMO PS 53
Malleable Iron	X	X	—	ASME B16.3, AWWA C606, IAPMO PS 53
PE	X[1]	—	ASTM D2239, ASTM D2737, ASTM D3035, AWWA C901, CSA B137.1	ASTM D2609, ASTM D2683, ASTM D3261, ASTM F1055, CSA B137.1
PE-AL-PE	X	X	ASTM F1282, CSA B137.9	ASTM F1282, ASTM F1974, CSA B137.9
PE-RT	X	X	ASTM F2769, CSA B137.18	ASSE 1061, ASTM D3261, ASTM F1055, ASTM F1807, ASTM F2098, ASTM F2159, ASTM F2735, ASTM F2769, CSA B137.18
PEX	X — X	X	ASTM F876, CSA B137.5, AWWA C904[1]	ASSE 1061, ASTM F877, ASTM F1807, ASTM F1960, ASTM F2080, ASTM F2159, ASTM F2735, ASTM F3347, ASTM F3348, CSA B137.5
PEX-AL-PEX	X	X	ASTM F1281, CSA B137.10	ASTM F1281, ASTM F1974, ASTM F2434, CSA B137.10
PP	X	X	ASTM F2389, CSA B137.11	ASTM F2389, CSA B137.11
PVC	X[1]	—	ASTM D1785, ASTM D2241, AWWA C900	ASTM D2464, ASTM D2466, ASTM D2467, ASTM F1970, AWWA C907, IAPMO PS 53
Stainless Steel	X	X	ASTM A269, ASTM A312, ASTM A554, ASTM A778	ASTM F3226, CSA B242, IAPMO PS 53, IAPMO PS 117

Notes:

[1] PE pipe can be used ~~f~~For building supply, excluding water treatment connection piping, or exterior cold-water applications, not for water distribution piping.

[2] For brazed fittings only.

611.3 Connection Tubing or Piping. *The tubing or piping carrying water to and from chemical injection points, water conditioning or treatment units, detention tanks, and/or storage tanks shall be of a size and material as recommended by the manufacturer or licensed designer. The tubing or piping shall comply with the requirements of NSF 14, NSF 42, NSF 44, NSF 53, NSF 55, NSF 58, NSF 62, or the appropriate material standards referenced in Table 1701.1.*

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.

Need

Confusion around the appropriateness of PVC as a material component of public water system treatment plants requires clarification to prevent undue burden on public water systems. While public health and safety are the primary concerns for drinking water, MDH is also concerned with the costs of compliance at public water systems, especially noncommunity public water systems that are not typically eligible for Drinking Water Revolving Loans or other public funding.

For the Minnesota Department of Health, the agency with authority for implementing the Safe Drinking Water Act (SDWA) at public water systems, the treatment plant, whether a municipal treatment plant located off-site or a nonmunicipal or noncommunity treatment plant located on the building property, should either be considered part of building supply, or have a definition separate from either building supply or distribution. For public water systems, the treatment plant is usually considered part of building supply because whether it is treating for aesthetic contaminants such as hardness or iron, or for health-based contaminants such as nitrate or arsenic, the water is not considered ready for distribution until it has been treated and possibly stored and re-pressurized. This concept is supported by the definition of “entry point” in Minnesota Rules, part 4720.0450 Subp.5, as a location after any application of treatment but before the water is delivered to any consumer. The majority of water quality monitoring under the SDWA occurs at the Entry Point. When the Minnesota Plumbing Code was administered by the Minnesota Department of Health, building supply for public water systems was therefore commonly constructed to extend through any centralized treatment equipment and/or the last pressure or storage tank prior to the piping that takes water to water heaters, fixtures or other water outlets (i.e., the Entry Point). PVC pipe and fittings were approved for many treatment plants during the years of MDH Plumbing Code administration.

In addition, PVC has been approved under Department of Labor and Industry (DLI) Plumbing Code administration, as shown, for example, in the Report on Plumbing Plans for Plan No. PB-R2303-0177. In this case, DLI allowed the use of PVC piping/fittings in a water treatment system, siting Section 611.1.1, and approving it only for cold water applications.

The recent interpretation of building supply (see PB0172 Final Interpretation.Scott Thompson.7.16.2024) may lead authorities to require replacement of existing PVC components because PVC is only an allowed material for building supply in Table 604.1 of the 2020 Minnesota Plumbing Code (MPC). However, this type of replacement would be costly and provide no benefit to public health or safety.

The plumbing for water conditioning, treatment and storage systems at public water supplies can involve filter manifolds, backwash control valves, chemical feed systems, flow meters and contact tanks (see Figures 1 and 2). PVC has been proposed and accepted for these public water system applications because it offers substantial benefits over other approved materials. These benefits include:

1) ***Corrosion Resistance***: Copper is a regulated contaminant under the Safe Drinking Water Act (SDWA) and copper pipe corrosion can be increased at a chlorine or other chemical injection site as compared to under other water quality conditions.

2) ***System Operability***: Surface water treatment equipment, for example, is required to meet design requirements for forward flow and backwash rates. Standard filter heads, primarily designed for the operation of softeners or water conditioning devices that treat the water for aesthetic purposes, often do not accommodate these requirements. PVC offers broader availability of valves and appurtenances needed for proper treatment operations as compared to CVPC.
3) ***System Integrity***: For certain treatment layouts such as filter manifolds, PVC's rigidity may provide advantages over more flexible materials like PEX, allowing for neater installations and more secure support of valves, meters, or sampling ports.
4) ***Economics***: PVC is more economical than CPVC and is appropriate for cold-water conditions present in treatment systems and atmospheric storage tanks. MDH is concerned with the costs of compliance at public water systems, especially noncommunity public water systems that are not typically eligible for Drinking Water Revolving Loans or other public funding. The cost of CPVC piping, parts and valves can be up to four times that of PVC resulting in a significant burden for small businesses.

Figure 1:

Figure 2:

Reasonableness

Allowing the use of PVC for interior cold-water applications, from the building supply line through water conditioning or treatment equipment and/or atmospheric storage tanks within a public water system, is reasonable based on several factors:

- ***The proposed change is consistent with the existing Section 611.3 of the 2020 Minnesota Plumbing Code that covers connection tubing for water conditioning equipment***:

  611.3 Connection Tubing. The tubing to and from water conditioning units shall be of a size and material as recommended by the manufacturer. The tubing shall comply with the requirements of NSF 14, NSF 42, NSF 44, NSF 53, NSF 55 and SF 58 NSF 62, or the appropriate material standards referenced in table 1701.1.

PVC meets the requirements of NSF 14, which covers both health effects and performance of plastic piping components as shown in the table below.

Important Similarities and Differences

Certification includes:	NSF/ANSI 14	NSF/ANSI/CAN 61
NSF/ANSI/CAN 61 health effects testing to ensure pipe is suitable for drinking water	✓	✓
Testing to product standards such as ASTM for dimensions, burst, sustained pressure, crush, extrusion quality, etc.	✓	
Annual monitoring testing to verify continuous compliance	✓	✓
Verification of the pipe material's long-term strength rating	✓	
Material physical properties (cell class)	✓	
Regular, unannounced inspections of the manufacturing location	✓	✓
Use of the globally accepted and respected NSF mark	NSF pw	NSF Certified to NSF/ANSI/CAN 61

- ***The following excerpts from the IAPMO Uniform Codes Answers and Analysis database indicate the PVC piping must be protected from hot water backflow but do not include other concerns with this material.*** If PVC is only used up to the point of the last atmospheric storage or pressure tank in a water treatment system, there will be adequate protection from hot water backflow.

UPC 2003 IS 8 UPC 2006 IS 8 UPC 2009 IS 8 UPC 2012 IS 8

Topic: PVC Installation

We had a new school project in which the contractor installed PVC for the domestic cold water system. This installation was disapproved because the code only permits PVC to be used on the outside of a
building underground.
Since PVC is allowable for use on water service piping, can you explain why the code does not allow PVC for use on for cold water systems located inside of the building?

Installation Standard IS 8 Section 2.7.1 states that PVC water pipe may only be used underground outside of the building. The main reason that it is not allowed within a building is that almost every building has
water heating equipment inside the building. When a water heater is heating water and no hot water is
being used the hot water can back up into the cold water piping. This can happen when hot water circulating
systems are in use also. The pressure rating of all plastic pipes decrease as the temperature of the
fluid inside the pipe increases. PVC water pipe loses about 78 percent of its pressure rating at 140°F while
CPVC loses only 50 percent. CPVC pipe is rated at 100 psi at 180°F.

UPC 2009 Table 6-4 UPC 2012 Table 604.1

Topic: Materials for Building Supply and Water Distribution

Per Table 6-4 (2006/2009) Table 604.1 (2012), PVC pipe cannot be used for water distribution systems, but could be used for building supply or cold water applications.
1. Does this mean that PVC pipe cannot be used inside of buildings at all?
2. Can the pipe be used inside of the building if the piping is PVC – NSF 61?
3. Can PVC- NSF 61 piping be used for domestic hot water systems? What code section would address this?

1. Yes. PVC water piping is only approved for outdoor use (see IS 8-2006).
2. No. PVC water pipe and fittings are NSF 61 approved, but are not approved for use inside a building. They are only listed and approved to be used for water service piping outside of a building. Table 6-4 (2006/2009) Table 604.1 (2012) is the section in the code that addresses the limitations of PVC pipe and fittings. The standards listed in chapter 14 and the listings also address the limitations of PVC pipe and fittings.
3. No. See Table 6-4(2006/2009) Table 604.1 (2012)and IS 8-2006

UPC 2009 S 7, 2.6.1 and IS 8, 2.7.1 UPC 2012 IS 7, 2.6.1 and IS 8, 2.7.1 UPC 2015 Table 604.1

Topic: Installation Standards

What are the reasons for not allowing the installation of PE and PVC under or within a building or structure?

The main reason that it is not allowed within a building is that almost every building has water heating equipment inside the building. When a water heater is heating water and no hot water is being used the hot water can back up into the cold water piping. This can happen when hot water circulating systems are in use also. The pressure rating of all plastic pipes decrease as the temperature of the fluid inside the pipe increases.

- ***Additional support for this proposed change is included in the following email from Scott Hamilton with IAPMO***:

From: Scott Hamilton <scott.hamilton@asse-plumbing.org>
Sent: Tuesday, April 8, 2025 10:47 AM
To: Anderson, Anita.C (MDH) <anita.c.anderson@state.mn.us>
Subject: Re: UPC Interpretation Question

Hello Anita,

Most codes and AHJ's identify the water building supply as the supply from the municipality or well to the meter or pressure tank. Based on the information you provided; I would agree with your interpretation and building supply up to the final pressure tank.

The codes state that the water distribution supply within the building can be CPVC but not PVC per the footnote. PVC is rated up to 140 degrees while CPVC is rated for 200. Under certain conditions, the hot water supply may exceed the 140-degree temperature which could harm the PVC piping. Also, CPVC supplies the piping and water with additional chlorination which aids in the control of bacteria.

Scott Hamilton

From: Anderson, Anita.C (MDH)
Sent: Monday, March 31, 2025 9:08 AM
To: scott.hamilton@asse-plumbing.org
Cc: Karp, Nate (MDH) <nate.karp@state.mn.us>; Weum, David (MDH) <david.weum@state.mn.us>
Subject: UPC Interpretation Question

Hello Scott-

We have a question in Minnesota regarding the use of PVC pipe and fittings in building water treatment systems. A typical system is shown in this schematic: Schematic of a Small GWUDI Treatment Plant. The treatment is located in a building on the cold-water line, prior to the distribution piping that conveys water directly to end-use fixtures or water heaters. Our staff at the Health Department would consider appropriate materials to the point after the final pump and pressure tank (not shown in the diagram) to be the building supply materials listed in Table 604.1. We are interested in your interpretation/thoughts on appropriate materials and where the building supply line/water distribution piping difference is delineated. We would also appreciate any applicable background on the Footnote requirement that PVC is allowed for building supply or exterior cold-water applications, not for water distribution piping.

Thank you,
Anita

Anita Anderson
Principal Engineer | Noncommunity Public Water Supply Unit

Minnesota Department of Health
Office: 218-302-6143 | Mobile: 218-258-7211

- ***PVC has a proven track record of performance.*** Treatment and storage systems using PVC piping, parts and valves have been in place for over 30 years at public water systems without damage or deterioration and have provided for robust system operation. Systems are inspected routinely by MDH.
- ***PVC meets all the necessary structural and safety requirements for cold water distribution piping.*** Relevant standards are already included in the 2020 MPC.

  ASTM D1785 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

  ASTM D2241 Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)

  AWWA C900

  NSF/ANSI Standards 14 and 61

- ***PVC is a common material component of NSF certified drinking water treatment units*** and will therefore be present in water conditioning equipment approved under Section 611 of the Minnesota Plumbing Code.

Background

As shown in the attached schematics, a public water system can be simply a well, a service line, a pressure tank, and single building distribution system. Or it can be a well or a surface water source, a service line, a municipal treatment plant, and an extensive city-wide distribution system. Or it can be somewhere in between. Licensed well contractors construct wells and can design and install water service lines and pressure tanks. Treatment systems/plants and storage structures are designed by a licensed plumbing contractor, water conditioning contractor or a licensed engineer. Some treatment components are certified to ASTM, ANSI/NSF

or similar standards. Others are built to standards such as the Recommended Standards for Water Works (Ten States Standards) or EPA Guidance Manuals. Under Minnesota Rules, Chapter 4720, MDH reviews plans for compliance with the SDWA. The Minnesota Plumbing Code is an important regulation for public water systems but does not always address their unique nature. Our proposed changes are aimed at protecting public health and safety while making code implementation feasible.

(see attached diagrams and definitions)

DEPARTMENT OF LABOR AND INDUSTRY

Division of Construction Codes and Licensing

REPORT ON PLUMBING PLANS

PROJECT: Glenmore Resort's Water Treatment Plant, 1017 Glenmore Road, Greenwood Township, St. Louis County, Minnesota, *Plan No. PB-R2303-0177*

OWNERSHIP: Glenmore Resort c/o Paul Hrvol, 1017 Glenmore Drive, Tower, MN 55790
SUBMITTER: Midwest Water Engineering, 19406 East Bethel Boulevard, East Bethel, MN 55011

Plans Dated: May 2, 2023; Signed by Engineer of Record: May 9, 2023
Initial Date Received: March 23, 2023
Last Date Received: May 10, 2023
Date Approved: May 11, 2023

This review is limited to the provisions of the Minnesota Plumbing Code, Minnesota Rules, Chapter 4714 and assumes the data on which the design is based are correct. Approval is contingent upon meeting the requirements listed below. **A copy of the approved plans and this report must be retained at the project location.**

INSPECTIONS: The Minnesota Department of Labor and Industry (DLI) will be inspecting the plumbing for this project, including utility installations. Please contact Brad Jensen at 218/290-1591 for all plumbing inspections. No plumbing work may be covered prior to inspection. The installer must verify that the required inspection fee has been submitted before scheduling. A separate permit may be required for interior plumbing and site utilities. For additional information, visit our website at: http://www.dli.mn.gov/business/plumbing-contractors/plumbing-inspections

1. All plumbing shall be installed in accordance with Chapter 4714. All pipe, fittings, traps, fixtures, materials, and devices shall be listed or labeled by a third-party listing agency and comply with the applicable standards referenced in the code (see Sections 301.2 and 1701.1).

2. Verify that the existing water supply and waste systems are sized for any additional loads/losses (see Sections 610.7 through 610.12 and 703.0). The re-use of existing fixtures is prohibited unless the fixtures conform to the current Minnesota Plumbing Code (see part 4714.0101, subparts 3 and 4).

3. No fitting, fixture and piping connection, appliance, device, or method of installation shall be used that obstructs or retards the flow of water unless it is indicated as acceptable or is approved in accordance with Section 301.1 of this code. Verify the treatment system isolation valves/fittings, injection unit, flow sensors, meters, sample points, etc. do not obstruct or impede the flow to an extent detrimental to the system.

4. Potable and nonpotable water distribution systems and outlets must be identified per Section 601.3.

5. The water treatment installations appear manufactured as a complete system or assembled as such per Section 611.1.1. All wetted surface materials must comply with ASNI/NSF 61 and/or equipment shall comply with the applicable NSF standards as listed in Table 1701.1. Code-complying labeling of all equipment must be per Section 611.1.2.

6. The potable water supply tanks, interior tank coatings, and/or liners must comply with NSF 61. The pressurized tanks shall be provided with a listed pressure-relief valve installed in accordance with the manufacturer's installation instructions and discharged per Section 608.5 (see Section 607.2 through 607.5).

7. The atmospheric tanks used for the potable water supply shall be tightly covered and vented in accordance with the manufacturer's installation instructions. Such vents must open downward and be screened with a corrosion-resistant material of not less than #24 mesh. The vent opening must not be in an environment that can contaminate the water supply. The tanks must have an overflow pipe opened downwards with the same screen requirements. The overflow pipe shall be sufficient diameter to permit discharge via air gap of surplus water exceeding the maximum filling rate (see Sections 607.3 through 607.4).

8. The receptor or fixture receiving indirect discharge from the conditioning equipment and/or storage tanks must always maintain air gap, be located in the same room, approved by this office, and have shape and capacity to prevent splashing or flooding (see Sections 802.1 and 804.1).

9. Indirect waste pipes 5 to 15 feet in length from appliances, devices, or equipment not regularly classed as plumbing fixtures, but which are equipped with drainage outlets, must be trapped, but the traps need not be vented (see Section 803.3). Traps on indirect wastes longer than 15 feet must be vented and such vents may not combine with sewer-connected vents. Indirect wastes less than 15 feet in length may not be smaller than the equipment outlet or ½-inch, whichever is larger.

10. Water conditioning equipment must discharge to the drainage system by an air gap per Table 603.3.1, or an air gap device per Table 603.2, NSF 58, or IAPMO PS 65 (see Section 611.2). Pipe and tubing used in water conditioning installations must comply with NSF Standard 14, 42, 44, 53, 55, 58, 62, or the appropriate material standard in Table 1401.1 (see Section 611.3).

11. Readily accessible isolation valves installed by a licensed plumber are required for all water conditioning installations. Water conditioning contractors may not install isolation valves, pipes larger than 2-inch, or any connection to the existing drainage system without an air gap (see Minnesota Statutes, Chapter 326B.50).

12. Water pressure booster pumps must have a low-pressure cutoff switch within 5 feet from the inlet set at 10 psi minimum (see Section 609.8). A pressure gauge must be located between the shutoff valve and the pump.

13. No water, soil, or waste pipe shall be installed or permitted attics, crawl spaces, exterior walls, or outside a building unless necessary and adequate provisions are made to protect from freezing (see Section 312.6).

14. Full-way gate or ball valves must be provided at all locations described under Section 606.2, including on the discharge side of the water meter and on each unmetered water supply. Unions shall be installed not more than 12 inches from water heating or regulating equipment, water conditioning tanks, and similar equipment requiring service by removal or replacement (see Section 609.5).

15. Pipe hangers and supports shall comply with Section 313.0 and Table 313.3.

16. All materials used in potable water systems must meet the requirements of NSF 61 (see Section 604.1). Pipe and fittings with lead content must not exceed 0.25 percent lead in the wetted surface material (see Section 604.2). Solder and flux shall contain less than 0.2 percent lead. Joints must use ASTM B813 non-corrosive non-toxic paste-type flux (see Section 605.1.4).

17. The details appear to reference the use of Schedule 80 PVC in the water systems. Proposed PVC pipe and fittings may be used only as approved for cold water application and must meet ASTM D1785 and NSF 61 (Section 604.1). If CPVC will be used, it must meet Section 605.2 and Table 604.1:
    a. Pipes must meet ASTM Standards D2846, F441, F442, or CSA B137.6.
    b. Solvent cement must comply with ASTM F493. Solvent cement requiring the use of primer must be orange. Primer must meet ASTM F656 and be colored. Listed one-step yellow or red solvent cement is permitted for ½-inch through 2-inch ASTM D2846 pipes and ASTM F442 ½-inch through 3-inch pipes only.
    c. Push-fit fittings must comply with ASSE 1061.
    d. The installation must include provisions for expansion and contraction (see Section 312.2).

18. The plumbing system shall be tested in accordance with Sections 609.4 and 712.0.

19. The completed water distribution system shall be flushed and disinfected per Section 609.9.

NOTE(S):

1. The scope of this project consists of remodeling an existing facility. The plumbing installation includes a chlorine injection water treatment system with chemical feed/injectors, water filters, flow meters, two pressure potable water storage tanks, two atmospheric potable water storage tanks, and repressurization pumps to the existing water services and distribution systems.

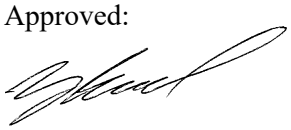
2. This facility is served by an existing on-site septic system and an existing private well.

3. The licensing authority may require additional plans, information and fee. Changes to the plumbing system may result. Any significant plumbing changes must be approved by this office prior to installation. Contact information for the Minnesota Department of Health (MDH) state and local environmental health offices licensing food, beverage, and lodging facilities can be found at: https://www.health.state.mn.us/communities/environment/food/docs/license/locals.pdf

4. The MDH Noncommunity Public Water Supply Unit has reviewed and approved the facility chemical water treatment as a PWS as of March 21, 2023 under Plan No. 230403 and PWSID 5690930.

Authorization may be withdrawn if installation does not begin within one year. Additional requirements may result from changed conditions or additional information.

Approved:



Zachary D. Barnaal
Public Health Engineer
Plumbing Plan Review and Inspections Unit
651/284-5888; Zachary.Barnaal@state.mn.us

cc: Midwest Water Engineering
Cartwright Consulting Co. LLC c/o Peter Cartwright
P & K Plumbing LLC c/o Phil Mauriala
Glenmore Resort c/o Paul Hrvol
File

Primary Path

Secondary Path

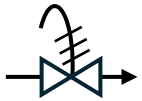
Pump

Sample Tap

Flow Meter

Flow Interlocked Meter

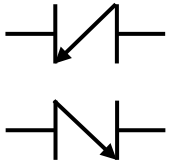
Pressure Gauge



Air/Vacuum Release

Ball Valve

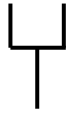
Normally Closed Ball



Swing Check Valve

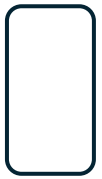
Ball Check Valve

Static Mixer



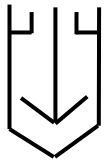
Air-Break

Chemical Pump

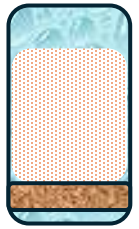


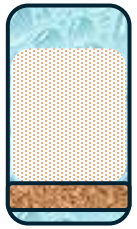
Pressure Vessel 1

Pressure Vessel 2

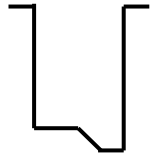


Clarifier

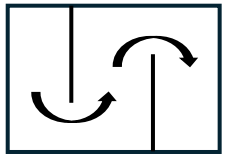




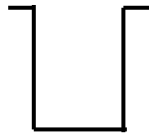
Pressure Tank



Tank 2



Detention Tank



Open Tank

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Public Water System Definitions

- ***PWS Definitions Found at 40 CFR 141.2***
- ***Public water system*** means a system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system."
- ***Community water system*** means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
- ***Non-community water system*** means a public water system that is not a community water system. A non-community water system is either a "transient non-community water system (TWS)" or a "non-transient non-community water system (NTNCWS)."
- ***Non-transient non-community water system or NTNCWS*** means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.
- ***Transient non-community water system or TWS*** means a non-community water system that does not regularly serve at least 25 of the same persons over six months per year.

Public Water System Definitions

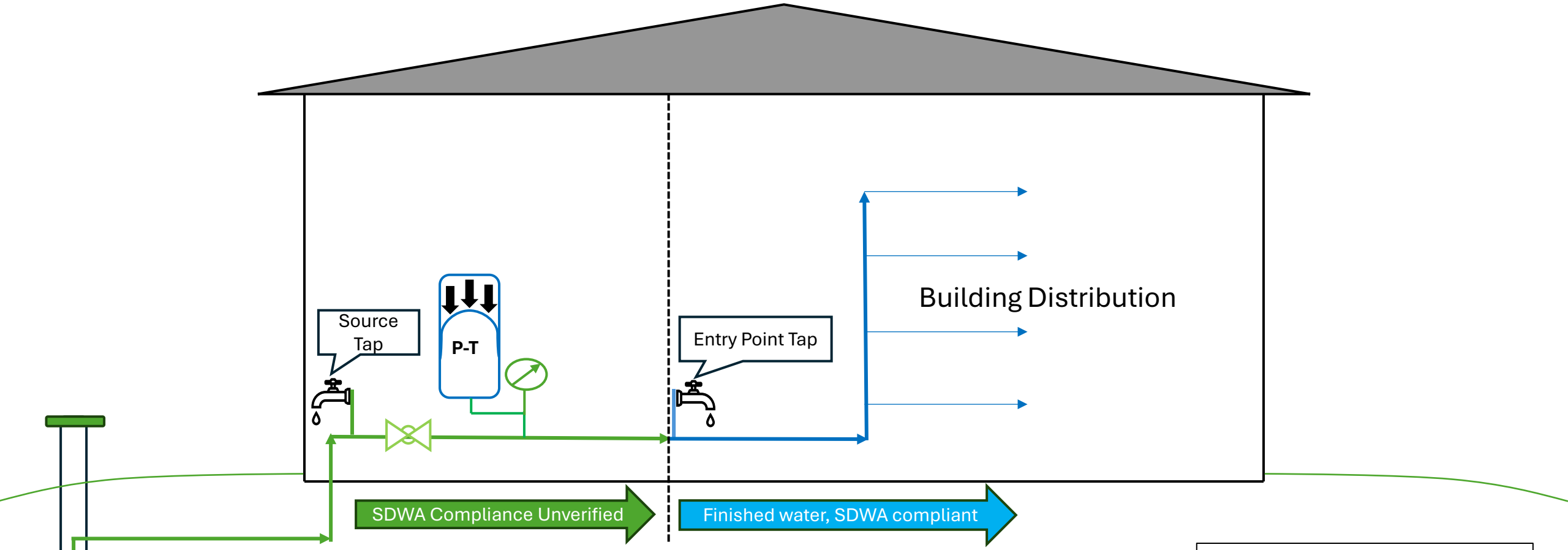
- 40 CFR 141.2: **Finished water** is water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

Public Water System Definitions

- Minnesota Rules, part 4720.0450:
- **“Central water treatment"** means providing treatment at a common location or facility and subsequently delivering it to the consumer of the public water supply.
- **"Distribution system"** means a network of pipes, valves, storage reservoirs, and pumping stations that delivers water to homes, businesses, and industries for drinking and other uses.
- **"Entry point samples"** means water samples collected at a location after any application of treatment but before the water is delivered to any consumer.

SDWA Water Quality Monitoring

- Most monitoring occurs at the Entry Point (most chemicals (e.g. PFAS, VOCs), nitrate, arsenic, etc.)
- New wells are sampled for bacteria, arsenic and nitrate
- Bacteria, lead and copper, and disinfection by-products are monitored in the distribution system
- The source is only monitored under special circumstances
- A full list can be found here: 2024 SDWA Wall Chart 18th Edition



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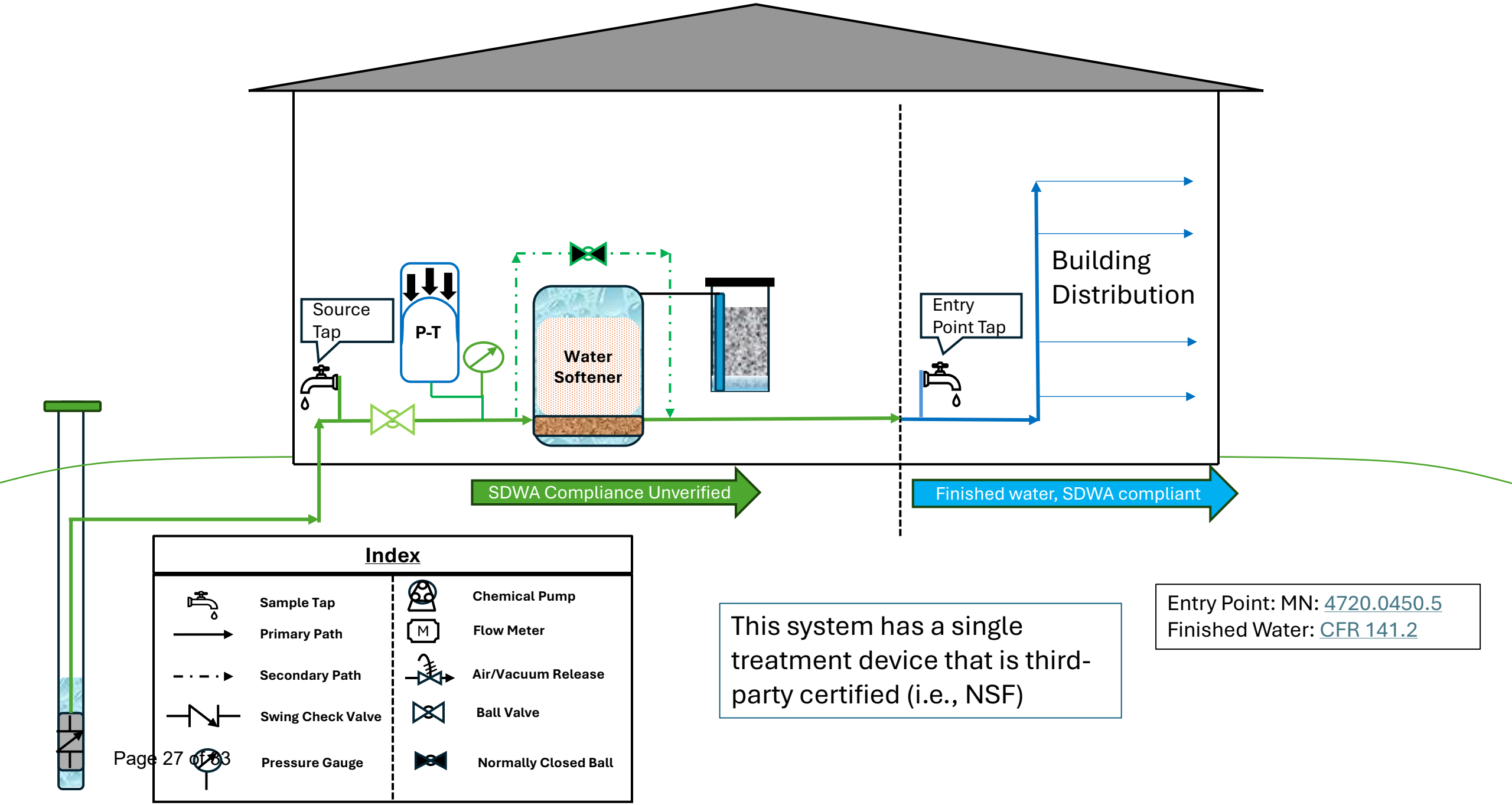
Sample Tap	Chemical Pump
Primary Path	Flow Meter
Secondary Path	Air/Vacuum Release
Swing Check Valve	Ball Valve
Pressure Gauge	Normally Closed Ball

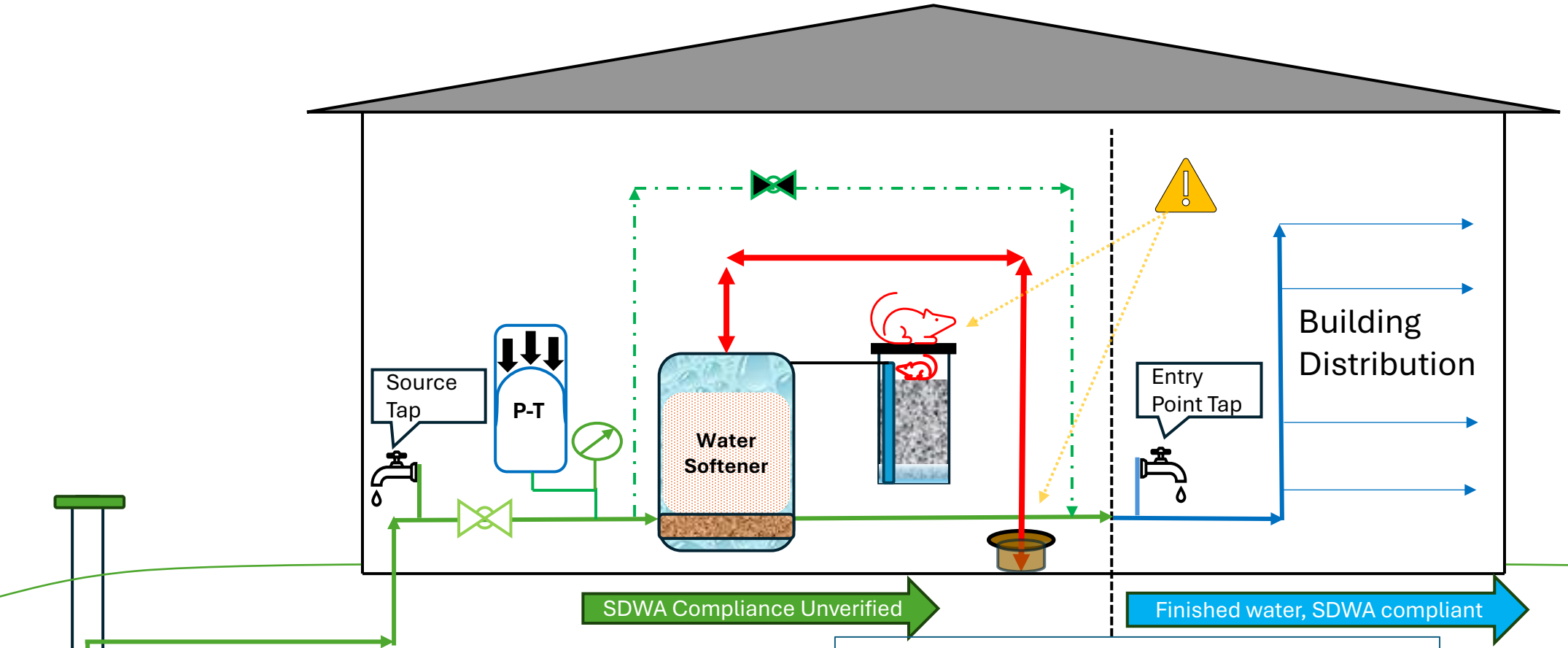
Entry Point: MN: 4720.0450.5
Finished Water: CFR 141.2

This system is “plumbing” only with no treatment



This system has a single treatment device that is third-party certified (i.e., NSF)

Entry Point: MN: 4720.0450.5
Finished Water: CFR 141.2



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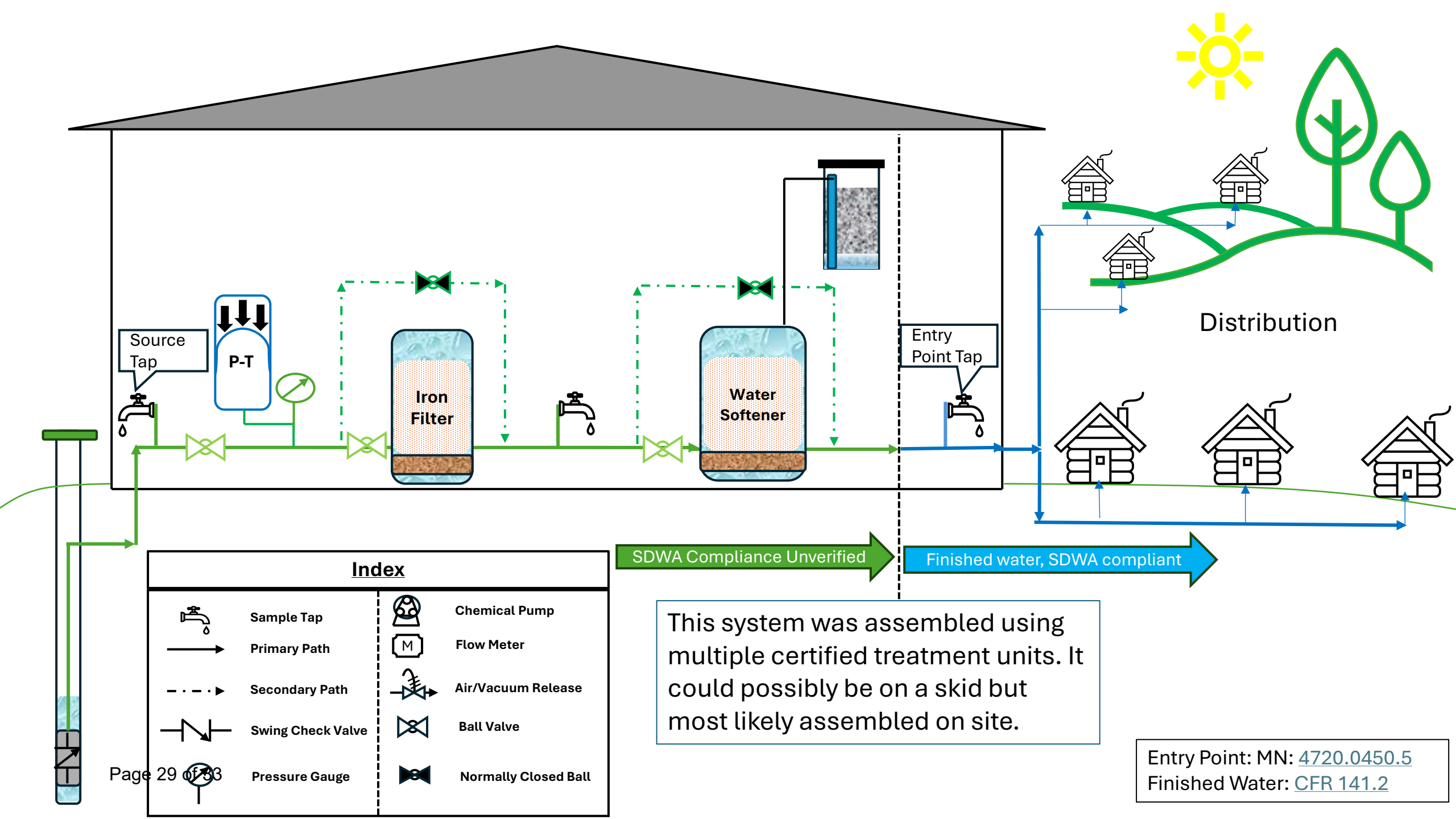
Sample Tap	Chemical Pump
Primary Path	Flow Meter
Secondary Path	Air/Vacuum Release
Swing Check Valve	Ball Valve
Pressure Gauge	Normally Closed Ball

Since contamination can arise not only from unsanitary conditions or cross connections, but also from new plumbing components, treatment media, or microbial intrusion, monitoring is typically performed at the Entry Point to detect any introduction of SDWA contaminants before distribution.

Entry Point: MN: 4720.0450.5
Finished Water: CFR 141.2



This system was assembled using multiple certified treatment units. It could possibly be on a skid but most likely assembled on site.

Entry Point: MN: 4720.0450.5
Finished Water: CFR 141.2

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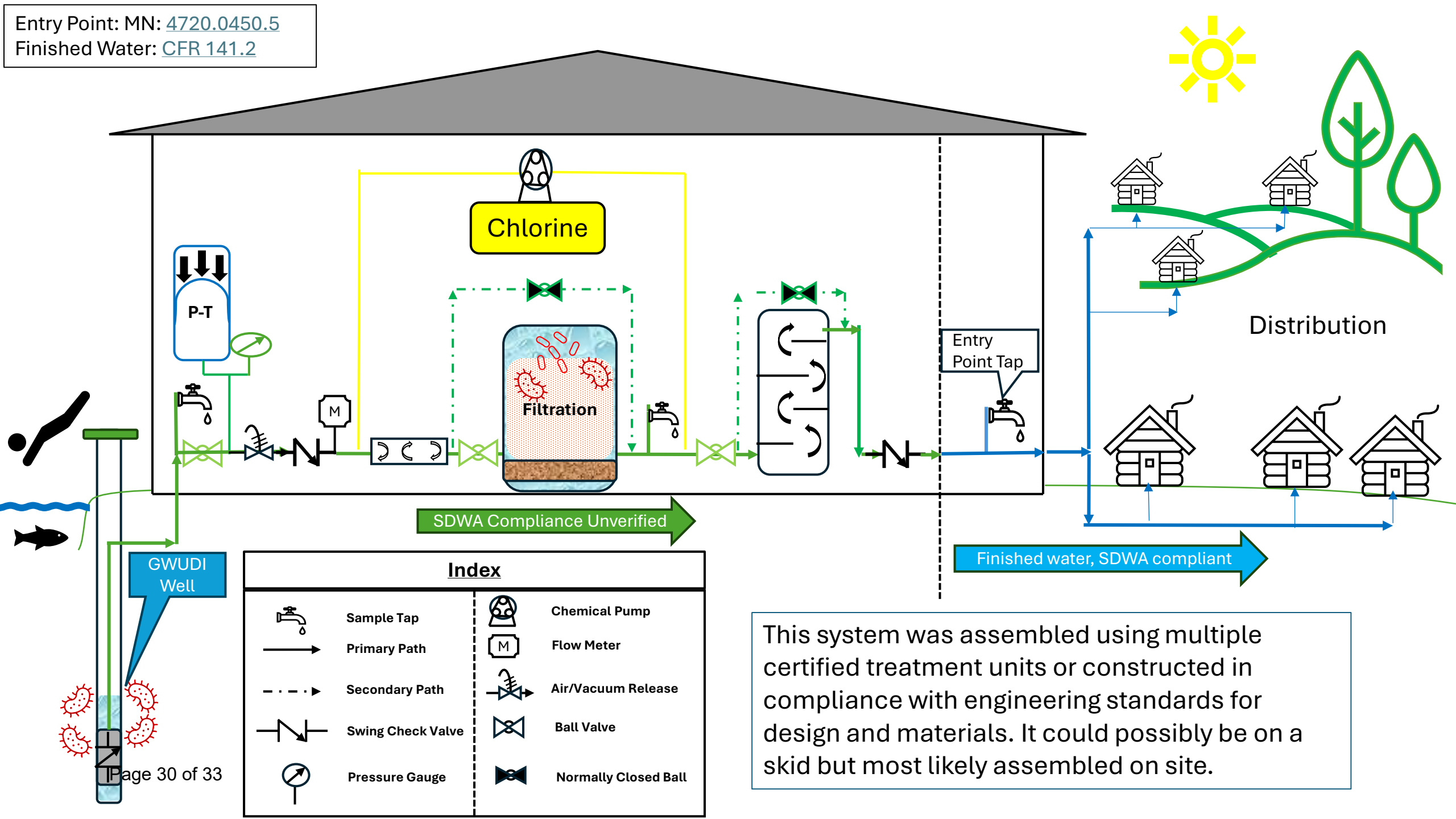
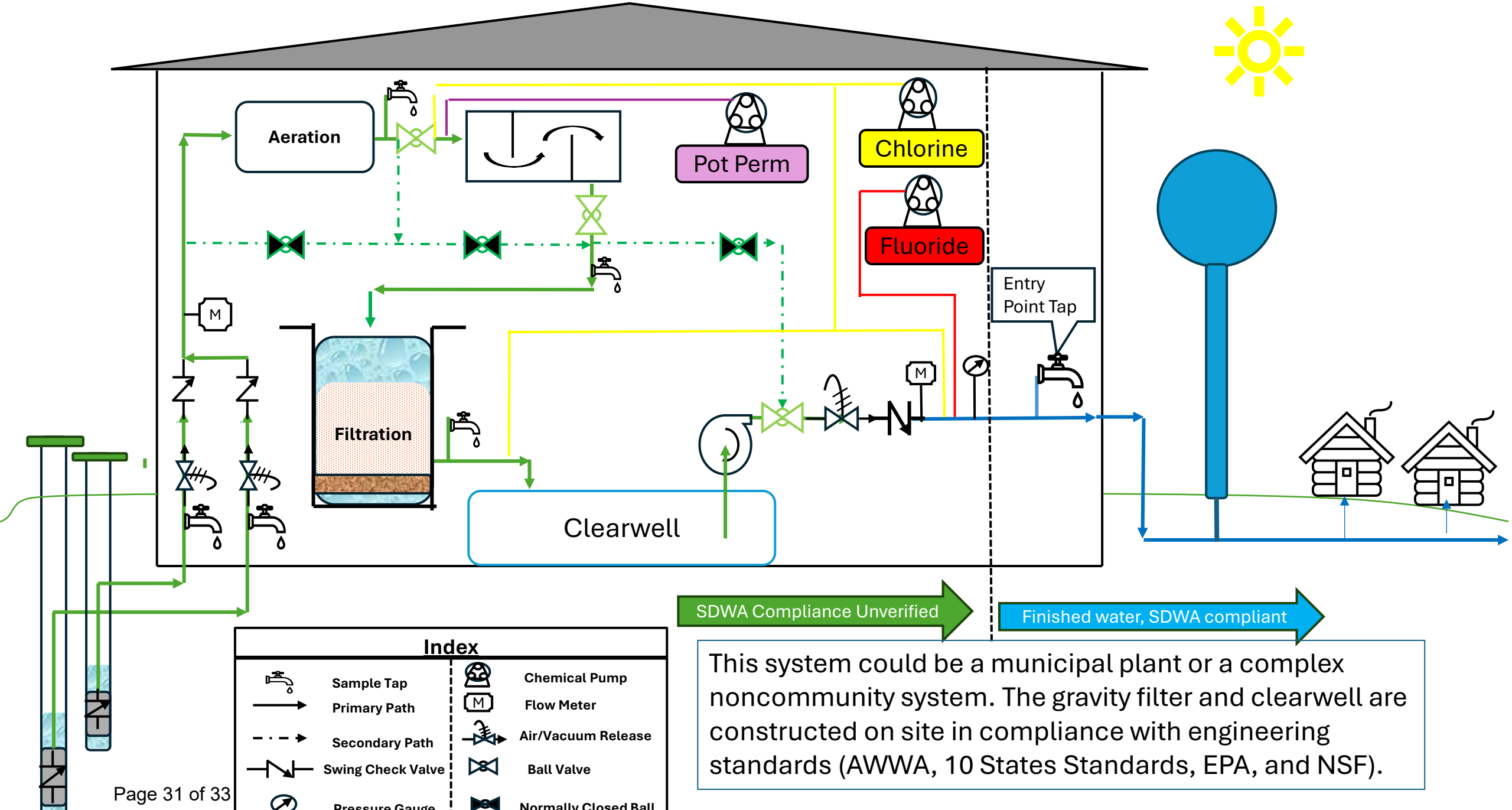


This system was assembled using multiple certified treatment units or constructed in compliance with engineering standards for design and materials. It could possibly be on a skid but most likely assembled on site.



This system could be a municipal plant or a complex noncommunity system. The gravity filter and clearwell are constructed on site in compliance with engineering standards (AWWA, 10 States Standards, EPA, and NSF).

June 23, 2025

Dear Minnesota Plumbing Board and Interested Parties:

The Minnesota Water Quality Association (MWQA) wishes to express our wholehearted support of the Request for Action (RFA) # PB0205, as submitted by Anita Anderson from the Minnesota Department of Health. For half a century, Sch. 80 PVC piping has been a frequently used material for the piping of cold water to/from water treatment equipment, including softeners, sediment filters, ultrafilters, disinfectant injection systems, and more. It has the benefits of being 100% safe (NSF/ANSI 61 listed), lightweight, easy-to-install, chemical resistant, economical, and extremely versatile in terms of available accessories (valves, couplings, flanges, tees, flow restrictors, sensors, and much more).

In the sphere of Non-Community Water Systems, such as those commonly employed in Northern Minnesota hotels/resorts, nearly all water treatment systems are currently plumbed in Sch. 80 PVC. This allows resort owners to provide potable water to guests in a manner that they can afford.

Without Sch. 80 PVC as an available piping material, manufacturers and suppliers are relegated to metallic piping materials, which are much more expensive to provide and install – and often do not have appropriate chemical resistant qualities – or to use alternate plastic materials such as CPVC, PEX, or PPR-CT. All these materials are significantly more expensive and offer far fewer options in terms of valves, couplings, flanges, tees, flow restrictors, sensors, etc. The product offerings are quite limited in comparison. Moreover, whatever alternative material is used (be it metal piping or other plastics), many of the water treatment system components being connected to will likely be made of PVC themselves.

For these reasons, MWQA supports PB0205. We concur that there are three options for code interpretation / modifications that could allow for the use of Sch 80 PVC for cold water connections to water treatment equipment:

1) Update/reinterpret section 611.3 to include the tubing AND piping that interconnects water treatment system components, so long as the materials used comply with the referenced NSF standards (Sch 80 PVC typically complies with NSF14).
2) Modify the chart of approved materials for Water Distribution piping/fittings to allow Sch. 80 PVC, with a note that Sch. 80 PVC can only be used to convey COLD water to water treatment equipment/storage tank, and no further than that—AND that it must be protected from any hot water backflow.
3) Modify the definition of Building Supply, such that any point-of-entry water treatment equipment is now included in that definition. We believe that this makes sense. Water treatment equipment is often critical to providing a supply of safe, potable, usable water. Without proper treatment systems (in certain cases), there can be no practical supply of safe domestic water.

In the end, MWQA believes that either route would ensure that water treatment providers are able to provide a full array of solutions, at the most affordable price possible, as they have been doing for many decades already. We understand and agree that Sch. 80 PVC should never be used to convey hot water. For this reason, we support the current code language, which precludes its usage for Water Distribution piping in general; but we think it appropriate and wise that this preclusion should start AFTER (i.e. DOWNSTREAM OF) any point-of-entry water treatment equipment. There would be zero negative impact to health and safety and significant positive impact when it comes to cost and availability of critical materials. We believe this fully maintains the spirit of the current regulations.

We thank you for your time and consideration in this matter.

Sincerely,

MINNESOTA WATER QUALITY ASSOCIATION

Brett Vanderpoel

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