

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

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

The proposed change would add deflection testing requirements to Chapter 11, Storm Drainage. Thermoplastic piping materials deflect in response to loading. Such deflection is by design and proper installation is necessary to ensure the pipe has not deflected more than 5%, typical, as compared to the actual inside diameter of the pipe. If deflection exceeds 5%, structural concerns can include shear cracking and buckling deflection, the point at which the pipe no longer sustains increasing or constant load without increasing deflection. The requirement needs to be explicitly defined apart from the thermoplastic pipe ASTM standard references.

Office Use Only

RFA File No. PB0142	Date Received by DLI 10.7.2019	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.

References:

- ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- United Facilities Guide Specifications 33 40 00 Storm Drainage Utilities.

To have a tight pipeline system, it must be structurally sound. For thermoplastic piping systems, structural soundness is linked to maximum deflection (a.k.a. out-of-roundness). As soil and traffic loads are applied from above, the pipe flexes into the bedding/in-situ soil “to carry the applied loads without excessive strains from deflections or localized pipe wall distortions,” per ASTM D2321, Appendix X1.3.

Testing using a properly sized “go, no-go” mandrel device verifies deflection limits are not exceeded, also known as “pigging.” Mandrels used for pipeline inspections consist of metal rods with fingers or arms around their core. They are usually made of steel or aluminum. The tool stops when it encounters any impediment. Deflection testing shall be conducted no fewer than 30 days after the completion of all fill over the pipe. The purpose of this waiting period is to allow the pipe/soil system to “seat,” or come into equilibrium. This type of test is common nationwide and considered a prudent part of pipeline structural verification.

For local reference, the Minnesota Department of Transportation requires 30-day mandrel deflection testing of ALL plastic storm sewer lines (HDPE and Polypropylene plastic pipe) prior to payment to the utility contractor. MnDOT explicitly requires that all plastic pipe that deflects more than 5% of the nominal inside diameter as measured by a mandrel test must be removed and replaced with new or undamaged plastic pipe, backfilled, and retested for deflection before the project is “accepted” and payment is made to the utility contractor.

Municipal sanitary sewer lines made of PVC plastic pipe also required 30-day deflection testing.

Minnesota DOT also allows the use of laser enhanced video inspections instead of metal mandrel tests. Laser mandrels can identify all the problems in a pipe at once. With standard mandrels, each problem found must be fixed before the mandrel inspection can continue.

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:

- United Facilities Guide Specifications 33 40 00 Storm Drainage Utilities.
- ASTM International Standard Specifications D2321- Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.

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 checked="" 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 checked="" 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.

This is an industry standard method for testing as described in ASTM and other national and local standards.

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."

This will ensure structurally sound installations in the State especially where larger diameter piping is utilized >12". This is prudent testing to verify performance required by pipeline systems. It appears in keeping with the State's efforts in providing leadership for quality and structurally sound installations.

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

This proposed addition is considered standard of care to verify proof of structure of thermoplastic pipelines. Cost associated shall be incidental to the piping materials specified, as it is with other pipe testing cited by ASTM. The description and need of this testing is not typically included in the individual ASTM standards for various thermoplastic pipe types. The purchaser/owner of the system will bear the costs and associated benefits.

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:

United Facilities Guide Specifications 33 40 00 Storm Drainage Utilities.

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. 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	FIRM NAME	SUBMITTER'S E-MAIL ADDRESS
Jason Kruger	Minnesota Concrete Pipe Association	jkruger@jskrugerconsulting.com

NAME, PHONE NUMBER & E-MAIL ADDRESS OF PRESENTER TO THE COMMITTEE (if different):

Jason Kruger, Minnesota Concrete Pipe Association

ADDRESS	CITY	STATE	ZIP CODE
3540 DuPont Ave S	Minneapolis	MN	55408
PHONE	SIGNATURE (original or electronic)	DATE	
612-867-2037		10-7-19	

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

For Office/Committee Use Only			
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:

Plumbing Board Request for Action

Submitter: Jason Kruger, Minnesota Concrete Pipe Association

Issue date: 10-7-19

Proposed modifications are as follows:

Modify paragraph 1107.2- Adding last sentence in italics

1107.2 Methods of Testing Storm Drainage Systems.

Except for the outside leaders and perforated or open-jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation by water or air, except that plastic pipe shall not be tested with air, and proved tight. The Authority Having Jurisdiction shall be permitted to require the removal of cleanout plugs to ascertain whether the pressure has reached parts of the system. One of the following test methods shall be used in accordance with Section 1107.2.1 through Section 1107.2.3. *Perform deflection testing on thermoplastic pipe 12 inches in diameter or greater in accordance with Section 1107.2.4.*

Insert paragraph 1107.2.4

1107.2.4 Deflection Testing

A. Perform deflection tests on entire length of installed thermoplastic pipeline. Test at least 30 days after backfilling and all fill placement. It may be necessary to clean or flush all lines prior to testing.

B. Use a mandrel or laser profiler to ensure pipe deflection does not exceed 5% of the actual inside diameter of the pipe, unless prescribed differently in ASTM.

1. Mandrel (Standard)

a. Pull 9 arm deflection mandrel, with pulling rings on each end and complying with applicable ASTM Standards, through the sewer by hand. This is a pass or fail test. The mandrel shall be rigid, nonadjustable, engraved with the nominal pipe size and mandrel outside diameter (OD). Proving rings shall be used to verify the mandrel OD.

b. A failed mandrel test shall indicate deflection exceeded 5%.

2. Laser Profiler

a. Inspect the interior of the pipe with laser profiling equipment. Utilize low barrel distortion video equipment for pipe sizes 48" or less. Use a camera with suitable lighting to allow a clear picture of the entire periphery of the pipe interior. Center the camera in

the pipe both vertically and horizontally. The camera must be able to pan and tilt to a 90-degree angle with the axis of the pipe rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition. The video image shall be clear, focused and relatively free from roll static or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe.

b. For initial post installation inspections for pipe sizes larger than 48" inches, a visual inspection shall be completed of the pipe diameter.

C. When deflection readings exceed allowable deflection of the actual inside diameter of the pipe, remove and replace with new pipe. Retest 30 days after completing backfill and leakage testing.

D. Inspection Reporting

1. Provide a copy of the documented inspection to the engineer and municipal official upon completion of the tests. Include photo of the mandrel, line detail including direction of pull, date line was installed, date line was tested, engineer approval to deviate from design, and any other project information.

2. Retest request may be made within seven business days of submitted report.