

**Plumbing Board
Product and Code Review Committee
Meeting Minutes
September 22, 2009**

**Department of Labor and Industry (DLI) – Minnesota Room
443 Lafayette Road No., Saint Paul, MN 55155-4344
DLI.CCLDBOARDS@State.MN.US**

Members Present:

Karl Abrahamson
Lawrence G. Justin
Allen J. Lamm
Jim Lungstrom (DLI Commissioner's designee)
John A. Parizek

Members Absent:

None

Board Members Present:

Ronald Thompson (MDH Commissioner's designee)
Steve Christenson
Rebecca Ames

Staff Present:

Cathy Tran
Jim Peterson
Annette Trnka

Visitors:

Chris Mueller
Shari Loushin
Rick Speckon
Don Knipe
Jeff Mogush
Luther Westman

Visitors via Teleconference:

Charlie Ismert
Silvano Ferrazo
Mark Kuykendall

I. Call To Order

The meeting was called to order by Justin at 9:30 a.m. Announcements were made and introductions were done.

II. Approval of Agenda

Parizek made a motion, seconded by Abrahamson, to approve the meeting agenda. The vote was unanimous and the motion carried. Lamm was not present for this vote.

III. Regular Business

- A. June 23, 2009 Minutes – Parizek made a motion, seconded by Abrahamson, to accept the previous Minutes. The vote was unanimous and the motion passed. Lamm was not present for this vote.
- B. Expense Reports – Parizek stated he had reviewed the expense reports and Per Diems, found them in order and declared them approved. Lamm arrived at 9:34 a.m.

IV. Special Business

- A. RFA's Reviewed in past Committee Meetings – Updated information
1. 4715.2440: Grinder Pumps discharge pipe size – 1 ¼” minimum. (PB0009/revised 5-13-08; reviewed at 6/25/08 and 6/23/09 meetings) Staff is requested to send the language of 4715.2450 to the requester (Lechner) for review by the Board at the October 20, 2009 meeting. Parizek made a motion, seconded by Justin, to forward the proposed language with revisions on to the Plumbing Board for their review, with a recommendation to approve from the Product and Code Review Committee. The vote was Parizek, Justin, Lamm, and Lungstrom. Abrahamson abstained. The majority ruled and the motion passed. The proposed language is as follows (items in red were added by the Committee):

4715.2350 MINIMUM SIZE OF UNDERGROUND GRAVITY DRAINS DRAINAGE PIPING.

No portion of the gravity drainage system installed underground shall be less than two inches in diameter.

4715.0100. Subp. XX - **Grinder Pump.** A grinder pump is a specialized submersible pump designed for reducing sewage particulates and pumping the resulting slurry.

4715.2440 DESIGN OF SUMPS.

Subp. 2. Discharge line. The discharge line from such pumping equipment shall be provided with an accessible backwater valve and gate or full port ball valve, and if the gravity drainage line to which such discharge line connects is horizontal, the method of connection shall be from the top through a wye branch fitting. Except for grinder pumps and as provided in part 4715.2450, the minimum size of any pump or discharge pipe having a water closet connected thereto shall not be less than two inches. Grinder pump and discharge line shall be at minimum of 1-1/4 inches in size. The calculated velocity in any sump discharge line shall not be less than two feet per second.

Subp. 3. Sumps for buildings. Building drains for building sewers receiving discharge from any pumping equipment shall be adequately sized to prevent overloading. In all buildings, other than single- and two-family dwellings, should three or more water closets discharge into the sump, duplicate pumping equipment shall be installed with controls that alternate the operation of each pump under normal conditions.

Subp. 5. ~~Single-family dwellings.~~ Capacity. In a single-family dwellings the minimum storage capacity from the pump suction inlet to the alarm level capacity of a sump other than a macerating toilet system shall be 18 gallons. For all facilities, the

sump basin storage volume and the pump capacity shall be adequate to prevent overloading and shall meet the following requirements at minimum:

a. The pump and sump basin shall be able to accommodate the peak flow into the sump for a duration of five minutes.

b. The peak flow into the sump shall be approximated by calculating the peak water supply demand for the fixtures discharging to the sump as determined in part 4715.3700, and adding any flows from tanks or other equipment based on the maximum flow rates from such equipment. The maximum liquid level in the sump shall be calculated with the peak flow beginning at the highest design liquid level in the sump under normal operating conditions with one pump operating.

c. The calculated maximum liquid level in the sump shall not reach the alarm level or cause backup into the sump inlet.

4715.2450. Macerating Toilet Systems.

Subp. 1. Macerating Toilet Systems. Macerating toilet systems shall comply with ASME A112.3.4 and shall be installed per the manufacturer's recommendations.

Subp. 2. Location. A macerating toilet system may only be installed in one- or two-single family dwellings when gravity flow is not possible. Not more than one bathroom group, consisting of a toilet, a lavatory, and a shower or bathtub, must discharge into a macerating toilet system. Components of macerating toilet systems shall be accessible.

Subp. 3. Discharge line. The discharge line of a macerating toilet system shall not be less than ¾ inch.

Subp. 4. Sump vent. If the macerating toilet systems' vent connection is less than 2 inches, the vent shall transition to a minimum of 2 inches immediately after the connection to the system.

The meeting took a break at 10:29 a.m. and reconvened at 10:46 a.m. Jim Peterson arrived at 10:55 a.m.

2. 4715.1115 Exterior Grease Interceptors by Schier Products in conjunction with Green Turtle (Proceptor) (File PB0037 submitted 1/15/09; reviewed at 1/28/09, 4/29/09 and 6/23/09 meetings). At the 6/23/09 PCRC meeting, it was determined that the proposed language would need copyright acceptance from IAPMO. The RFA was tabled until IAPMO was contacted to determine any limitations or restrictions on using their language. The Committee and Presenters received IAPMO's approval of using their copyrighted language.

At the 9/22/09 PCRC meeting, this item was tabled until the Presenter could provide a packet for public review, as no copies were provided at the meeting. The packets were provided after the lunch break. Mr. Ismert and Mr. Ferrazo presented by teleconference, Grant Brekke presented in

person. Parizek made a motion, seconded by Justin, to forward the proposed language with Committee recommended revisions on to the Plumbing Board for their review, with no recommendation from the Product and Code Review Committee. The vote was unanimous and the motion passed. The RFA deleted sections 4715.1110 and 4715.1115 in their entirety and replaced with the following language (items in red are recommended Committee revisions):

4715.1115 EXTERIOR GREASE INTERCEPTORS.

A. Grease Interceptors. Where it is determined by the Authority Having Jurisdiction that waste pretreatment is required, an approved type of grease interceptor(s) complying with the provisions of this section shall be correctly sized and properly installed in grease waste line(s) leading from sinks and drains, such as floor drains and floor sinks and other fixtures or equipment in ~~establishments such as restaurants, cafes, lunch counters, cafeterias, bars and clubs, hotels, hospitals, sanitariums, factory or school kitchens~~ **food establishments**, or other establishments where grease may be introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal. Any combination of (hydromechanical), and (gravity) grease interceptors and engineered systems shall be allowed in order to meet this code and other applicable requirements of the Authority Having Jurisdiction when space or existing physical constraints of existing buildings necessitate such installations. A grease interceptor shall not be required for individual dwelling units or for any private living quarters. Water closets, urinals, and other plumbing fixtures conveying human waste shall not drain into or through the grease interceptor.

A1. Each fixture discharging into a grease interceptor shall be individually trapped and vented in an approved manner.

A2. All grease interceptors shall be maintained in efficient operating condition by periodic removal of the accumulated grease and latent material. No such collected grease shall be introduced into any drainage piping or public or private sewer. ~~If the Authority Having Jurisdiction determines that a grease interceptor is not being properly cleaned or maintained, the Authority Having Jurisdiction shall have the authority to mandate the installation of additional equipment or devices and to mandate a maintenance program.~~

A3. Due to high F.O.G. (fats, oils, greases) content in food waste, effluent from food waste grinders and dishwashers shall be permitted to connect to the grease interceptor. ~~Where food waste grinders and/or dishwashers connect to grease interceptors, special consideration shall be made by the engineer to determine if a solids interceptor shall be installed in the drain line prior to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated to accommodate the discharge of the food waste grinder and/or dishwasher.~~

B. Hydromechanical Grease Interceptors.

B1. Hydromechanical Grease Interceptors shall be tested and certified by an accredited third-party agency to ASME A112.14.3, the consensus standard for the performance of grease interceptors.

B2. Types. Plumbing fixtures or equipment connected to a hydromechanical grease interceptor shall discharge through an approved type of vented flow control installed in a readily accessible and visible location. Flow control devices shall be designed and installed so that the total flow through such device or devices shall at no time be greater than the rated flow of the connected grease interceptor. No flow-control device having adjustable or removable parts shall be approved. The vented flow control device shall be

located such that no system vent shall be between the flow-control and the grease interceptor inlet. The vent or air inlet of the flow-control device shall connect with the sanitary drainage vent system, as elsewhere required by this code, or shall terminate through the roof of the building, and shall not terminate to the free atmosphere inside the building.

Exception: Listed grease interceptors with integral flow controls or restricting devices shall be installed in an accessible location in accordance with the manufacturers' instructions.

B3. Venting. When installed indoors, a vent shall be installed downstream of the hydromechanical grease interceptors in accordance with the requirements of this code.

C. Gravity Grease Interceptors.

C1. Gravity Grease Interceptors shall be tested and certified by an accredited third-party agency to IAPMO/ANSI Z1001, the design standard for prefabricated gravity grease interceptors.

C2. Location. Each grease interceptor shall be ~~so located,~~ installed and connected that it shall be at all times easily accessible for inspection, cleaning, and removal of the intercepted grease. Location of the grease interceptor shall meet the approval of the Authority Having Jurisdiction. Interceptors shall be placed as close as practical to the fixtures they serve. Each business establishment for which a gravity grease interceptor is required shall have an interceptor which shall serve only that establishment unless otherwise approved by the Authority Having Jurisdiction. ~~Each gravity grease interceptor shall be located so as to be readily accessible to the equipment required for maintenance.~~

C3. Abandoned Gravity Grease Interceptors. Abandoned grease interceptors shall be pumped and filled as required for abandoned sewers and ~~sewage disposal facilities~~ subsurface sewage treatment systems (SSTS).

D. Grease Interceptor Sizing. Hydromechanical grease interceptors shall be sized by calculating the maximum flow rate of all ~~offending-grease conveying~~ fixtures. Gravity grease interceptors shall be sized by the drainage fixture unit value for all ~~offending-grease conveying~~ fixtures. Hydromechanical grease interceptors greater than 100 GPM may be piped in parallel to achieve larger flow rates as allowable by the manufacturer.

HYDROMECHANICAL INTERCEPTOR(S) USING FIXTURE CAPACITY

Step 1: Determine the flow rate from each fixture.

[Length] X [Width] X [Depth] / [231] = Gallons X [.75 fill factor] / [Drain Period (1 min or 2 min)]

Step 2: Add hydrant capacity (gpm supply); add rated appliances such as dishwasher, water wash hood at manufacturers' ratings.

Step 3: Calculate the total load from all fixtures that discharge into the interceptor.

Fixtures	Compartments	Load (gal.)	Size of Grease Interceptor	
			1-Minute Drainage Period (gpm)	2-Minute Drainage Period (gpm)

Compartment size				
12"x 24"x 12"	2	44.9		
Hydrant		3		

Notes

When the flow rate of directly connected fixture(s) or appliance(s) are unknown, the grease interceptor volume shall be based on the known flow rate (gpm) of the primary drain line leading to the interceptor.

GRAVITY INTERCEPTOR SIZING USING FIXTURE CAPACITY (4)

Gravity Grease Interceptor Sizing	
DFUs (drainage fixture units) (1, 3)	Interceptor Volume (2)
8	500
21	750
35	1,000
90	1,250
172	1,500
216	2,000
307	2,500
342	3,000
428	4,000
576	5,000
720	7,500
2112	10,000
2640	15,000

Notes

- (1) The maximum allowable DFUs plumbed to the kitchen drain lines that will be connected to the grease interceptor.
- (2) This size is based on: DFUs, the pipe size from this code; Table 7-5; Useful Tables for flow in half-full pipes (ref: *Mohinder Nayyar Piping Handbook*, 3rd Edition, 1992). Based on 30-minute retention time (ref: George Tchobanoglous and Metcalf & Eddy. *Wastewater Engineering Treatment, Disposal and Reuse*, 3rd Ed. 1991 & Ronald Crites and George Tchobanoglous. *Small and Decentralized Wastewater Management Systems*, 1998). Rounded up to nominal interceptor volume.
- (3) When the flow rate of directly connected fixture(s) or appliance(s) have no assigned DFU values, the additional grease interceptor volume shall be based on the known flow rate (gpm) multiplied by 30 minutes.
- (4) Drainage Fixture Unit values may be referenced from [Chapter 7 of the 2009 Uniform Plumbing Code or other available source 4715.2300](#).

E. Protective Treatments for Corrosive Materials

E1. Steel [units grease interceptors](#) must be coated externally and internally with a 1.5 to 2.0 mil thick epoxy or equivalent {CSA B481 (2007), paragraph 2}.

E2. Concrete [units grease interceptors](#) must have protective treatment of entire internal compartment per the PCA (Portland Cement Association) Publication titled the "Effects of Substances on Concrete & Guide to Protective Treatments" for the following substances: fats and fatty acids, salts, sugars, bleach and water.

E3. Other materials [considered corrosive subject to corrosion](#) shall require [approved](#) protective treatment per the local authority having jurisdiction.

F. Labeling.

F1. Hydromechanical Grease Interceptors shall provide a clear and permanent product identification label on the underside of the cover indicating: the words "Grease Interceptor," the manufacturer's name, model number, flow rate (GPM), flow control type

(type A, B, C or D) and rated grease storage capacity (lbs.), and third-party certification to ASME standard A112.14.3 or A112.14.4. Products must be installed with appropriate flow control and apparatus for efficient grease separation for valid certification.

F2. Gravity Grease Interceptors shall provide a clear and permanent product identification label on the underside of the cover or permanently affixed to the interior of the grease interceptor in a visible location, indicating: the manufacturer's name, model number, liquid gallon capacity and third-party certification to IAPMO/ANSI Z1001-2007 or corresponding UPC certification mark.

G. Venting.

The grease interceptor design must allow for anti-siphoning and air relief. Each fixture discharging into a grease interceptor shall be individually trapped and vented in an approved manner. All venting must comply with part 4715.2540-Vent Grade & Connections.

H. Installation.

Grease interceptors shall be placed as close as practical to the fixtures they serve. When grease interceptors are installed outside of the building, it must be protected from freezing. Exterior grease interceptors must provide buoyancy protection when required per manufacturer's installation instructions. If a grease interceptor is installed in a non-paved area, the landscape must be bermed to divert runoff. The grease interceptor and covers must be protected from loadings that may lead to structural collapse— and depending on location, the grease interceptor cover(s) must withstand any anticipated traffic loadings. Consideration for cleanouts in entire length of inlet side grease-waste piping shall be made.

I. Inspection & Testing.

Grease Interceptors must be readily accessible for inspection and maintenance. Accessway(s) for exterior grease interceptors must be at least 20" square or diameter to allow adequate access to tank interior for inspection and maintenance. Access to inlet and outlet must be provided. After installation, grease interceptors must pass a manometer test with one inch of water column for five minutes or a vacuum test with two inches of mercury for 60 minutes.

J. Maintenance & Records.

All grease interceptors shall be maintained in efficient operating condition by periodic removal of the accumulated grease and latent material. ~~No such collected grease shall be introduced into any drainage piping or public or private sewer. It is recommended that a sampling port with a minimum access diameter of 4" be located at or following the outlet end of all grease interceptors so that the Authority Having Jurisdiction may sample effluent quality at their discretion.~~

If the Authority Having Jurisdiction determines that a grease interceptor is not being properly cleaned or maintained, they shall have the authority to mandate the installation of additional equipment/devices and/or mandate a maintenance program to meet their requirements. As general best practice, grease interceptors should be pumped and cleaned once every 1-3 months. Records of inspection and maintenance must be kept. The administrative authority shall set the exact frequency, duration, and availability of the inspections, cleaning, and record-keeping information.

B. New RFA's

1. 4715.0420 Stainless Steel Pipe meeting ASTM A240 by Easyflex (File PB0041 submitted 5/26/09). Mr. Mark Kuykendall presented by

teleconference. Justin made a motion, seconded by Lamm, to table this item and add it to the December 2009 Product and Code Review Committee meeting Agenda, for which the Presenter should provide the following:

- a. A sample of the product along with fittings.
- b. Literature and information on installation and any other product information.
- c. Provide language to be added to 4715.0520.
- d. Provide language for 4715.0850 (fittings).
- e. Provide testing results for the maximum working temperature of 212°F.
- f. Provide documentation of NSF 61 verification.

The vote was unanimous and the motion passed.

2. 4715.0850 – Subp. 6 Copper Water Tube structural adhesive type joint installed in accordance with IAPMO IGC 251-2008 by Mueller (File PB0043 submitted 6/17/09). As the Presenter didn't have available packets, the meeting broke for lunch at 11:37 and reconvened at 12:47 p.m. Chris Mueller and Shari Loushin presented. Lamm made a motion, seconded by Justin, to pass this item on to the Plumbing Board without recommendation to the Board. The vote was unanimous and the motion passed.

Due to time constraints, Parizek made a motion, seconded by Abrahamson, to table the remainder of the Agenda. The vote was unanimous and the motion passed.

- C. Department update on previously presented RFA's
 1. 4715.2240 Access to Water Heaters (File PB0039 submitted 4/13/09). (Tabled.)
 2. Any past RFA's not acted on. (Tabled.)

V. Open Forum

There were no requests for Open Forum.

VI. Discussion

- A. New Request For Action items.
 - i. DLI to provide updated list of RFA's for Committee to schedule review date. (Tabled.)

VII. Announcements

- A. Next Regularly Scheduled Meetings:

- i. Tuesday, December 22, 2009, 9:30 a.m. – Minnesota Room – DLI (This meeting date is subject to change because of its proximity to holiday breaks.)

XI. Adjournment

Parizek made a motion, seconded by Lamm, to adjourn the meeting. The vote was unanimous, and the motion passed. The meeting adjourned at 3:30 p.m.

Respectfully Submitted,

Lawrence Justin

Lawrence Justin