



State of Wisconsin \ Department of Commerce

# HEARING DRAFT of PROPOSED RULES

**Rule No.:**  
**Relating to:**

**Chs. Comm 2 and 81 to 87**  
**Fees and Uniform State Plumbing Code**

COM-10544 (N.03/97)

The Wisconsin Department of Commerce proposes an order to:

**repeal** Comm 2.66(1)(b) 1.;

**renumber** Comm 2.66(1)(b)2.;

**amend** Comm 2.64 Table 2.64; 2.66 (title); Table 2.66; Tables 82.20-1 and 82.30-1; 82.32(3)(a)3.; Table 82.38; Table 82.70-1; Table 84.10 (line 9.); 84.20(5)(p) 1.; 84.30(3)(e)3. and Note; 84.30(6)(h)(intro.), (i) (intro.), and (j)(intro.);

**repeal and recreate** Comm 82.36; 82.37(1)(c) Note; Table 82.40-9;

**create** Comm 81.01 (62s), (70m), (133s), (136s), (171e) and (186s); 82.20(1)(b) Note; Table 82.20-2 (line 9.); 82.365; 82.37(2)(a); 82.40(4)(a) 2.b. Note; 82.51(3)(c) Note; and 84.30(6)(k).

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**ANALYSIS OF PROPOSED RULES**

Statutory authority: Sections 101.19 (1) (a), 101.63 (1), 101.73 (2), 145.02 (2), and 167, Stats.

Statutes interpreted: Sections 145.02 (2) and (3), and 145.13, Stats.

Under section 145.02, Stats., the Department of Commerce has the responsibility of safeguarding public health and the waters of the state relative to the construction, installation and maintenance of plumbing. Additional authority has been granted to allow Commerce to establish fees, set inspection and construction standards and adopt rules to provide for public health, safety and welfare. To fulfill this responsibility the Department has promulgated the state uniform plumbing code, chapters Comm 81 to 87.

The Federal Clean Water Act requires all states to ensure that the nation’s waters meet their fishable/swimable designation. In response, Wisconsin’s DNR has established performance standards for urban stormwater runoff in chapter NR 151. The proposed revisions to chapter Comm 82 (specifically Comm 82.36 and 82.365) contain options for the designs of plumbing systems so as to aid citizens in their compliance with NR 151. The NR 151 provisions will become effective October 1, 2004.

State stormwater discharge permit rules, under chapter NR 216, have been updated to respond to EPA Phase II stormwater regulations, 40 CFR part 122.26(d). NR 216 also serves as the implementation vehicle for the NR 151 performance standards. Phase II regulates disturbed areas of 1 acre or more. The Federal construction site regulation for such sites requires the creation of a post construction stormwater management plan and implementation of that plan. Revisions to NR 216 require that these post construction stormwater management plans meet or exceed the performance standards set by NR 151. Most of the commercial construction sites under Commerce authority will be affected by those DNR rules.

A comparison of the four surrounding states found the following. Both Iowa and Michigan have adopted national model codes. Iowa has adopted the Uniform Plumbing Code (UPC) and Michigan has adopted the International Plumbing Code (IPC). Minnesota's code is a state written uniform code and Illinois has a state written uniform plumbing code with exceptions for cities that existed prior to Illinois statehood.

The IPC, UPC and Minnesota's code require that all roofs, paved areas, yards, courts and courtyards drain into a separate storm sewer system, or a combined sewer system, or to an approved place of disposal. The "approved place of disposal" is defined as being approved by the authority having jurisdiction. Because of the flexibility of this requirement, a local authority in Iowa, Michigan, Minnesota or one of the cities adopting a national model plumbing code could allow subsurface infiltration. Illinois' code addresses piping materials for stormwater, not the acceptable discharge points, leaving the place of disposal unregulated at the state level.

The most significant difference in other state's codes and this proposal is the recognition and regulation of subsurface storm infiltration systems as viable means of managing stormwater. The subsurface infiltration requirements proposed for Wisconsin are based, in part on experience with Wisconsin private onsite wastewater treatment plumbing systems and knowledge acquired from other states (Maryland and Oregon) where stormwater infiltration has been an accepted practice.

The proposed revisions include minor changes to chapter Comm 2 related to fees for two products (commercial water vending or dispensing machines, and exterior grease interceptors) to be consistent with chapter Comm 84 product review requirements.

**Chapter Comm 81;** Revisions to chapter Comm 81 include definitions relating to stormwater and clearwater plumbing systems.

**Chapter Comm 82;** A number of additions and revisions are proposed for chapter Comm 82, relating to the design, construction, installation, supervision and inspection of plumbing.

A summary of the significant rule revisions in chapter Comm 82 is as follows:

1. Tables 82.20-1 and 82.20-2 are being amended to include submittals specific to use of the stormwater and reuse of clearwater, and stormwater plumbing conveyance, detention and infiltration systems.
2. Section Comm 82.36 is being repealed and recreated to reflect new options for the design, installation and maintenance of piping, devices and appurtenances in connection with stormwater and clearwater plumbing systems. Proposed changes in this section are as follows:
  - Options are allowed for designers to use tables, equations and computer models to comply with the performance requirements stated in the revisions.
  - Options are permitted for calculating the inputs to the plumbing system.
  - Requirements for calculating runoff volumes are created.
  - Tables Comm 82.36-1 to 82.36-4 have been revised for use with both horizontal and vertical piping and expressed in gallons per minute by pipe material and construction.

- Detention on parking lots is limited to 6 inches in depth, except where prohibited by local ordinance.
  - The requirement for insulating stormwater piping is clarified so that only stormwater sewers affected by freezing and clearwater sewers require insulation.
  - The addition of language to allow pressurized discharges into stormwater piping under certain circumstances.
  - The addition of requirements for grates on stormwater horizontal piping inlets.
  - Operation and maintenance requirements are proposed for stormwater systems.
3. Section Comm 82.365 is created to address stormwater and clearwater infiltration systems. Proposed requirements are as follows.
- Requirements for site and soil evaluation are added as a requirement for stormwater and clearwater infiltration systems.
  - Soil treatment volume limits are established by creating a new Table 82.365-1, and hydraulic application rates are assigned by the creation of Table 82.365-2.
  - Requirements are provided for groundwater mounding assessments for infiltration components with a width of more than 15 feet and depth to groundwater of more than 15 feet.
  - A requirement that dry detention systems must be designed to drain within 24 hours of a storm event.
4. Table Comm 82.70-1, plumbing treatment standards, is amended to prohibit the irrigation of food crops with plumbing system reuse water and to create a performance requirement for cyst and oocyst reduction for possible human contact water such as car washing and toilet and urinal flushing.

**Chapter Comm 84;** Section Comm 84.30 (6) is amended to recognize infiltration components allowed for use in designing stormwater infiltration systems. An additional paragraph recognizes synthetic aggregate for POWTS and stormwater infiltration systems.

The proposed rule revisions were developed with the assistance of the Plumbing Advisory Code Council.

<u>Name</u>	<u>Representing</u>
Thomas Boehnen	American Society of Plumbing;
Rudy Petrowitsch	American Society of Sanitary Engineers
Jack Ellinger/Alex Newirth/Louie Pody	State AFL-CIO
Gary Kowalke,	Plumbing contractors
Mark Krowski	City of Milwaukee, Plumbing Inspection
Jeff Kuhn,	Plumbing and Mechanical Contractors of SE Wisconsin
Clint McCullough	Madison Contractors Association
Bob Netzler/Art Biesek	League of Wisconsin Municipalities
Joe Zoulek	Wisconsin Association of Plumbing, Heating, and Cooling Contractors, Inc.
Dave Viola,	Plumbing Manufacturers Institute
Dale Schlieve	Wisconsin Society of Professional Designers of Engineering Systems, Inc.
Gene Shumann	Plumbing designers

Also assisting Commerce with these rule revisions were technical advisors (Jim Davis and Steve Macejkovic, technical college instructors) and members of an ad hoc stormwater workgroup, which included the following individuals: Mazen Amer, City of Milwaukee - Engineering; Tom Cottreau, City of Milwaukee- Plumbing Inspection; Willie Gonwa; Tirad Engineering, Inc.; Dan Jensen; Weiser Concrete; Bob Pups, City of Greenfield - Plumbing Inspection; Mary Anne Lowndes, WDNR; and Jim Wolf, City of Madison - Plumbing Inspection.

SECTION 1. Comm 2.64 Table 2.64-1 (partial) is amended to read:

**Table 2.64-1 (partial)**  
**Plan Examination Fees for Plumbing Systems**

<u>Plan Type</u>		<u>Fee</u>
<del>§*6.</del>	<del>Building storm and clear</del> <u>Clearwater drain system ...</u>	\$10.00 per inch diameter of each <del>bdg. storm sewer, or for multiple sewer discharge points for a single site the fee may be calculated per sub. (3)(e)</del> <u>clearwater drain system</u>
* <del>65.</del>	Car wash interceptor .....	\$70.00 per interceptor
18.	Storm <del>private</del> <u>interceptor main sewers, determined on the largest diameter of each interceptor main sewer systems:</u> .....	\$10.00 per inch diameter
	<u>Less than or equal to one acre drainage area .....</u>	\$10.00 per inch of largest diameter storm sewer, or for multiple sewer discharge points for a single site the fee may be calculated per sub. (3)(c)
	<u>&gt; one or equal to 5 acres drainage area.....</u>	\$350.00
	<u>&gt; 5 acres to &lt; or equal to 15 acres drainage area..</u>	\$400.00
	<u>&gt; 15 acres drainage area.....</u>	\$500.00
21.	Stormwater <del>and clearwater</del> <u>infiltration systems for public buildings or facilities .....</u>	\$100.00 per system **

\* ~~Note:~~ For table entries ~~6 to 11~~ 5. to 11., no additional fee would be required if submitted with the ~~sanitary~~ respective drain and vent system.

\*\* ~~Note:~~ This fee is in addition to building ~~storm and clear water~~ stormwater and clearwater.

SECTION 2. Comm 2.66 (title) is amended to read:

**Comm 2.66 Product and standard approvals.**

SECTION 3. Comm 2.66 Table 2.66 (partial) is amended to read:

**Table 2.66 (partial)**  
**Plumbing Product and Alternate Standard Review Fees**

<b>Product or Standard</b>	<b>Fee</b>	
	<b>Type of Review</b>	
	<b>New Review</b>	<b>Revision or Renewal</b>
<u>9. Commercial water vending or dispensing machines</u>	<u>\$200.00</u>	<u>\$100.00</u>
<u>10. Exterior grease interceptors</u>	<u>\$200.00</u>	<u>\$100.00</u>

SECTION 4. Comm 2.66 (1) (b) 1. is repealed.

SECTION 5. Comm 2.66 (1) (b) 2. is renumbered Comm 2.66 (1) (b).

SECTION 6. Comm 81.01 (62s), (70m), (129s), (133s), (136s), (171e), and (186s) are created to read:

**Comm 81.01 (62s)** “Conveyance system” means that portion of a drain system that consists of a series of pipes that transports water from one area to another without providing detention.

**(70m)** “Detention” means the collection and temporary storage of water for subsequent gradual discharge.

**(133s)** “Infiltration component” means any device or method that is intended to promote the assimilation of water into in situ soil.

**(136s)** “Irrigation” means the application of water to the root zone of plants or plantings.

**(171e)** “Peak flow, stormwater” means the largest anticipated flow from a given storm event.

**(186s)** “Pre-development” means the condition of the topography of vegetation, including that resulting from human activities which existed prior to land disturbance for construction.

SECTION 7. Comm 82.20 (1) (b) 1. Note is created to read:

**Comm 82.20 (1) (b) 1. Note:** For a listing of agent municipalities, see Appendix A-82.20 (2).

SECTION 8. Comm 82.20 Table 82.20-1 is amended to read:

<b>Table 82.20-1 (partial)</b>	
<b>SUBMITTALS TO DEPARTMENT</b>	
<u>Type of Plumbing Installation</u>	
8.	<del>Subsurface storm water or subsurface clear water dispersal plumbing systems in connection with public buildings</del> <u>Stormwater and clearwater infiltration plumbing systems serving a public building or facility.<sup>d</sup></u>
9.	<del>Plumbing water treatment systems</del> <u>wastewater reuse systems and stormwater use systems, other than POWTS, designed to treat water for compliance with Table 82.70-1.<sup>c</sup></u>

<sup>d</sup> Agent municipalities may perform this review when so authorized by the department.

SECTION 9. Comm 82.20 Table 82.20-2 (line 9.) is created to read:

**Table 82.20-2 (partial)**  
**SUBMITTALS TO DEPARTMENT OR AGENT**  
**MUNICIPALITY**

Type of Plumbing Installation	
9.	Stormwater systems, not including infiltration plumbing systems, serving a public building or facility where the drainage area is one acre or more.

SECTION 10. Comm 82.30 Table 82.30-1 is amended to read:

**Table 82.30-1(partial)**  
**DRAINAGE FIXTURE UNIT VALUES**  
**BY FIXTURE TYPE**

Type of Fixture	Drainage Fixture Unit Value (dfu)	Trap Size Minimum Diameter (inches)
Lavatory .....	1	1 ¼
<u>Lavatory, combination per trap</u> .....	<u>1</u>	<u>1 ½</u>
Sinks: <sup>1</sup>		
<u>Bar, residential</u> .....	<u>1</u>	<u>1 ¼</u>

SECTION 11. Comm 82.32 (3) (a) 3. is amended to read:

**Comm 82.32 (3) (a) 3.** Storm drains as provided in s. Comm 82.36 ~~(14)~~ (12) (b).

SECTION 12. Comm 82.36 is repealed and recreated to read:

**Comm 82.36 Stormwater and clearwater plumbing systems. (1) SCOPE.** The provisions of this section set forth the requirements for the design, installation and maintenance of piping, conveyance, venting, detention and treatment of stormwater and clearwater plumbing systems.

**Note:** Refer to ch. NR 151 for stormwater management requirements.

**(2) MATERIALS.** All stormwater and clearwater plumbing systems shall be constructed of approved materials in accordance with s. Comm 84.30 (3).

**(3) DESIGN OF STORMWATER PLUMBING SYSTEMS.** (a) Plumbing systems upstream of detention shall be designed, at a minimum, based on the 10-year, 24-hour storm event.

(b) Plumbing detention systems and plumbing systems located downstream of detention shall be designed based on anticipated flows and volumes.

(c) Stormwater and clearwater infiltration systems shall comply with s. Comm 82.365.

**Note:** For a listing of best management practices (BMPs) refer to Appendix A-82.36 (3)-1.

**Note:** Where local discharge requirements are more stringent, stormwater plumbing systems may provide detention and treatment to comply with the local stormwater management plan.

**(4) DISCHARGE, DISPERSAL, CLEARWATER REUSE OR STORMWATER USE.**

(a) *Discharge points.* The discharge points for stormwater and clearwater shall be as specified in Table 82.38-1.

(b) *Segregation of wastewater.* 1. Except as provided in subd. 2., stormwater or clearwater piping may not connect to a sanitary drain system.

2. Where a combined sanitary-storm sewer system is available, stormwater, clearwater and sanitary wastewater may be combined in the building sewer.

3. Stormwater gravity drains shall not be combined with clearwater drains prior to discharging to the storm building drain, unless the clearwater drains are protected by a check valve or backwater valve.

**Note:** For the use of stormwater or reuse of clearwater, refer to the appropriate requirements in ss. Comm 82.30, 82.34, 82.40, 82.41, 82.70 and this section.

**(5) INPUT CALCULATIONS.** (a) *Peak flow.* The peak flow of stormwater influent to a plumbing system shall be calculated using any of the following methods:

1. ‘Area method.’ For sizing of conveyance piping, when calculating stormwater peak flow based on the tributary area, the area in square feet shall be divided by the following applicable divisors:

a. For roofs the divisor is 26 square feet/gpm.

b. For paved or graveled ground surfaces the divisor is 32.5 square feet/gpm.

c. For lawns, parks and similar land surfaces the divisor is 104 square feet/gpm.

**Note:** For example, 10,000 square feet of roof area/26 square feet/gpm = 385 gpm or 0.85 cubic feet/second.

2. ‘Rational method.’ For calculating peak flow, the intensity shall be determined using the time of concentration for the tributary area.

**Note:** For the equation procedure for runoff coefficients for use with the rational method, refer to Appendix A-82.36 (5)-1.

3. ‘Engineering analysis method.’ An engineering analysis, acceptable to the department, shall be based on the peak flow calculated in accordance with sub. (3) (a).

**Note:** A model that calculates peak flow such as SLAMM, TR-55, P8 or an equivalent methodology may be used. Information on how to access SLAMM and P8 is available at: <http://www.dnr.state.wi.us/org/water/wm/nps/slam.html> or contact the department.

(b) *Volume.* The volume of stormwater influent to a plumbing system shall be based on an engineering design acceptable to the department and a minimum of a two-year, 24-hour storm event and the 100-year, 24-hour storm event with a Type II distribution.

**Note:** For runoff coefficients and use of other methods or models, refer to Appendix A-82.36 (5)-2 and A-82.36 (5)-3.

**Note:** The intensity of rainfall varies considerably during a storm as well as geographic regions. To represent various regions of the United States, the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) developed four synthetic 24-hour rainfall distribution types from available National Weather Service (NWS) duration-frequency data (Hershfield 1961; Frederick et al., 1977) or local storm data. Type IA is the least intense and type II is the most intense short duration rainfall. Types I and IA represent the Pacific maritime climate with wet winters and dry summers. Type III represents Gulf of Mexico and Atlantic coastal areas where tropical storms bring large 24-hour rainfall amounts. Type II represents the rest of the country, including Wisconsin. For more information, see the USDA-NRCS webpage: <http://www.nrcs.usda.gov/>.

**Note:** “Frequency” is the means of expressing the probability that a storm event of a given size or intensity may occur at a given site. The 10-year storm is large enough that is predicted to occur once every ten years. The probability of the occurrence of a storm within one year is the reciprocal of the recurrence. That means a 10-year storm has a 10% chance of occurring in any one year. A 100-year storm has a 1% chance of occurring in any one year.

(c) *Additional inputs to stormwater systems.* Additional inputs to stormwater systems shall be estimated based on anticipated flows and volumes.

**(6) CONVEYANCE AND DETENTION SYSTEMS.** (a) *Design.* The design of stormwater and clearwater conveyance systems shall conform to all of the following:

1. Horizontal stormwater conveyance piping shall be sized using either of the following:
  - a. An engineering analysis, based on full flow capacity, acceptable to the department.
  - b. Tables 82.36-1 to 82.36-5 based on pipe type, diameter and pitch.

**Table 82.36-1**

**MAXIMUM CAPACITY OF STORMWATER CONVEYANCE PIPING FOR PVC, ASTM D1785, D2665, F891 and ABS, ASTM D1527, D2661, F628**

Nominal Pipe Size (in inches)	Maximum Capacities in gallons per minute (gpm)					
	Pitch of Piping Per Foot					
	1/32 inch (0.26% slope)	1/16 inch (0.52% slope)	1/8 inch (1.04% slope)	¼ inch (2.08% slope)	½ inch (4.16% slope)	Vertical
3	30	40	60	80	110	89
4	60	80	120	160	230	183
5	110	150	210	300	420	334
6	170	240	340	480	690	545
8	360	510	710	1,010	1,430	1,133
10	660	930	1,310	1,850	2,620	2,079
12	1,050	1,480	2,090	2,960	4,180	3,316
14	1,350	1,900	2,690	3,810	5,390	4,271
16	1,920	2,720	3,840	5,440	7,690	6,097
18	2,630	3,720	5,270	7,440	10,520	8,348
20	3,520	4,970	7,030	9,956	14,060	11,155
24	5,750	8,140	11,490	16,260	22,990	18,244

**Note:** To convert to cubic feet per second (cfs) divide gpm by 448.8.

**Table 82.36-2**

**MAXIMUM CAPACITY OF STORMWATER HORIZONTAL CONVEYANCE PIPING FOR PVC, ASTM D3034**

Nominal Pipe Size (in inches)	Maximum Capacities in gallons per minute (gpm)				
	Pitch of Piping Per Foot				
	1/32 inch (0.26% slope)	1/16 inch (0.52% slope)	1/8 inch (1.04% slope)	¼ inch (2.08% slope)	½ inch (4.16% slope)
4	60	80	110	160	220
6	160	230	320	450	640
8	350	490	700	990	1,400
10	630	900	1,270	1,790	2,540
12	1,010	1,430	2,020	2,850	4,040
15	1,730	2,450	3,460	4,900	6,920

**Note:** To convert to cubic feet per second (cfs) divide gpm by 448.8.

**Table 82.36-3**

**MAXIMUM CAPACITY OF STORMWATER CONVEYANCE PIPING FOR CAST IRON, ASTM A74 and ASTM A888**

Nominal Pipe Size (in inches)	Maximum Capacities in gallons per minute (gpm)					
	Pitch of Piping Per Foot					
	1/32 inch (0.26% slope)	1/16 inch (0.52% slope)	1/8 inch (1.04% slope)	¼ inch (2.08% slope)	½ inch (4.16% slope)	Vertical
3	20	30	40	60	80	80
4	50	60	90	130	180	173
5	80	120	170	230	330	315
6	140	190	270	380	540	516
8	290	420	590	830	1,170	1,118
10	540	770	1,090	1,540	2,170	2,068
12	870	1,230	1,740	2,490	3,490	3,318
15	1,630	2,310	3,270	4,620	6,530	6,217

**Note:** To convert to cubic feet per second (cfs) divide gpm by 448.8.

Table 82.36-4

**MAXIMUM CAPACITY OF STORMWATER HORIZONTAL CONVEYANCE PIPING  
FOR CONCRETE, ASTM C76 and ASTM C14**

Nominal Pipe Size (in inches)	Maximum Capacities in gallons per minute (gpm)				
	Pitch of Piping Per Foot				
	1/32 inch (0.26% slope)	1/16 inch (0.52% slope)	1/8 inch (1.04% slope)	¼ inch (2.08% slope)	½ inch (4.16% slope)
4	40	60	90	120	170
6	130	180	260	360	510
8	280	390	550	780	1,110
10	500	710	1,000	1,420	2,010
12	820	1,150	1,630	2,310	3,260
15	1,480	2,090	2,960	4,180	5,910
18	2,400	3,400	4,810	6,800	9,620
21	3,630	5,130	7,250	10,260	14,500
24	5,180	7,320	10,350	14,640	20,710
27	7,090	10,020	14,170	20,050	28,350
30	9,390	13,270	18,770	26,550	37,550
33	12,100	17,120	24,210	34,230	48,410
36	15,260	21,590	30,530	43,170	61,060
39	18,900	26,720	37,790	53,440	75,580
42	23,020	32,560	46,050	65,120	92,100
48	32,870	46,490	65,740	92,980	131,490
54	45,000	63,640	90,010	127,290	180,010
60	59,600	84,290	119,200	168,580	238,410

**Note:** To convert to cubic feet per second (cfs) divide gpm by 448.8.

**Table 82.36-5**  
**MAXIMUM CAPACITY OF STORMWATER HORIZONTAL CONVEYANCE PIPING**  
**FOR ELLIPTICAL REINFORCED CONCRETE PIPE**

Pipe Diameters in inches (circular pipe equivalent)	Maximum Capacities in gallons per minute (gpm)			
	Pitch of Piping Per Foot			
	1/16 inch (0.52% slope)	1/8 inch (1.04% slope)	¼ inch (2.08% slope)	½ inch (4.16% slope)
14 X 23 (18)	3,300	4,675	6,700	9,500
19 X 30 (24)	7,200	10,060	14,700	21,000
24 X 38 (30)	13,250	18,740	26,500	37,475
29 X 45 (36)	21,545	30,475	43,095	60,940
34 X 53 (42)	32,500	45,965	65,000	91,925
38 X 60 (48)	46,405	65,625	92,800	131,245
43 X 68 (54)	63,525	89,840	127,050	179,800
48 X 76 (60)	84,135	118,985	168,270	237,965

2. a. A vertical conductor for stormwater may not be smaller than the largest horizontal branch discharging into the conductor.

b. Vertical conductors shall be sized in accordance with Tables 82.36-1 and 82.36-3 or by an engineering analysis acceptable to the department.

**Note:** For the use of Baird's equation, refer to Appendix A-82.36 (6)-1.

3. Clearwater conveyance systems shall be sized in accordance with s. Comm 82.30 (3) and (4).

4. Underground storm building sewers shall have a minimum 3-inch inside diameter.

(b) *Velocity in stormwater conveyance system piping.* The pitch of stormwater conveyance system piping shall be designed to create a minimum velocity of one foot per second when flowing full.

(c) *Fittings and connections.* 1. Except as provided subd. 2., fittings and connections for stormwater and clearwater conveyance systems shall be comply with s. Comm 82.30 (8) and (9).

2. The minimum radius for the first 90° fitting located downstream of a roof drain shall comply with the horizontal to vertical requirements in Table 82.30-4.

(d) *Stack offsets.* Stack offsets for piping of a clearwater conveyance system piping shall comply with s. Comm 82.30 (6).

(e) *Pitch of clearwater gravity conveyance system piping.* 1. The minimum pitch of gravity conveyance system piping having a 2-inch inside diameter or less shall be 1/8 inch per foot.

2. The minimum pitch of clearwater gravity conveyance system piping having at least a 3-inch inside diameter or more shall be 1/16 inch per foot.

(f) *Branch connections near base of stack.* Branch drains from interior clearwater inlets may not connect downstream from the base fitting or fittings of a drain stack within a distance equal to 20 pipe diameters of the building drain.

(g) *Detention systems.* 1. The storage volume of a dry detention system shall be designed and installed so as to drain within 24 hours of the rainfall event.

2. Detention areas on paved surfaces or parking lots shall be limited to a design depth of 6 inches, unless otherwise limited by local ordinance.

(7) OTHER DESIGN REQUIREMENTS. (a) *Subsoil drains.* 1. A subsoil drain subject to backwater that discharges to a plumbing system shall discharge into an area drain, manhole or storm sewer through a valved, trapped and vented receptor or a sump with a pump.

2. Where a foundation drain is subject to backwater, the drain shall be protected by a backwater valve or a sump with a pump.

(b) *Backwater valve.* All backwater valves shall be accessible for maintenance.

(c) *Sewer location.* 1. No storm building sewer or private interceptor main storm sewer may pass through or under a building to serve another building, unless one of the following conditions is met:

a. The storm building sewer or private interceptor main storm sewer serves farm buildings or farm houses, or both, which are located on one property.

b. Where a storm building sewer or private interceptor main storm sewer serves buildings which are located on one property, a document which indicates the piping and distribution arrangement for the property and buildings will be recorded with the register of deeds no later than 90 days after installation.

2. The location of storm building drains and building sewers shall comply with ss. Comm 82.30 (11) (d) and 82.40 (8) (b) 7.

(d) *Installation requirements.* 1. The connection of a stormwater leader discharging to a storm building sewer shall be made above the finished grade.

**Note:** For more information regarding joints and connections, refer to s. Comm 84.40.

2. The elevation of a storm building drain shall comply with s. Comm 82.30 (11) (b) 1.

3. Interior inlets and drains subject to backflow or backwater shall be protected with a check valve or backwater valve.

4. Storm building drains and building sewers shall be installed comply with s. Comm 82.30 (11) (e).

5. Storm building sewers when connected to public sewers shall be in accordance with s. Comm 82.30 (11) (f).

6. Cleanouts for conveyance system piping shall be installed in accordance with s. Comm 82.35.

7. Storm building sewers receiving clearwater and which may be subject to freezing shall be installed in accordance with s. Comm 82.30 (11) (c) 2.

8. Storm building drains, clearwater building drains, and building storm sewers and appurtenances shall be separated from water wells by the applicable separation distances contained in chs. NR 811 and 812 or as otherwise permitted by the department of natural resources.

9. All underground stormwater storage tanks for water reuse shall be separated from sanitary sewers by a minimum of 8 feet.

**(8) SUMPS AND PUMPS** (a) *Sumps*. 1. ‘General.’ All storm building subdrains shall discharge into a sump, the contents of which shall be automatically lifted and discharged, dispersed or used in accordance with sub. (4).

2. ‘Construction and installation’. a. Except as provided in subds. c. and d., an interior sump shall have a rim extending at least one inch above the floor immediately adjacent to the sump.

b. A sump shall have a removable cover of sufficient strength for anticipated loads.

c. Where a sump is installed in an exterior meter pit or elevator pit, the rim may be level with the floor.

d. When a sump is provided with an airtight, solid cover, the rim may be at or below floor level.

3. ‘Location’. All sumps installed for the purpose of receiving clearwater, groundwater or stormwater shall be separated from water wells by the applicable separation distances contained in chs. NR 811 and 812, or as otherwise permitted by the department of natural resources.

**Note:** See Appendix A-82.30 (11) (d) for material reprinted from s. NR 812.08.

4. 'Size'. Except as recommended by the pump manufacturer, the size of each sump shall be no smaller than 16 inches in diameter at the top, 14 inches in diameter at the bottom, and 22 inches in depth.

(b) *Pumps*. 1. 'Size.' The pump shall be of a capacity appropriate for the anticipated use.

2. 'Discharge piping.' a. Where a pump discharges into a storm drain system, a check valve shall be installed.

b. The minimum diameter discharge piping shall be based on the design flow rate of the pump, a maximum velocity 10 feet/second and a minimum velocity of one foot/second.

**(9) INLET REQUIREMENTS.** (a) *Interior clearwater drain inlets*. Interior clearwater drain inlets shall terminate at least one inch above the finished floor.

(b) *Exterior stormwater inlets*. 1. 'Construction.' a. All exterior stormwater inlets shall be constructed of material in accordance with s. Comm 84.30.

**Note:** For additional information on approved materials, refer to s. Comm 84.30 (3) (f).

b. All exterior stormwater inlets subject to vehicular traffic shall be set on a suitable base capable of sustaining the anticipated load.

2. 'Design'. All exterior stormwater inlets shall be designed for the anticipated flow.

**Note:** For manhole requirements, refer to s. Comm 82.35 (3).

3. 'Inlet grates'. a. General. All inlets shall be provided with a well-fitted, removable grate of a thickness and strength to sustain the anticipated loads. The grate shall be provided with an available inlet area equal to or greater than the required outlet. Floor or ground surface inlets when placed within an identifiable accessible route shall comply with ss. Comm 62.1101 to 62.1110.

**Note:** Sections Comm 62.1101 to 62.1110 specifies that for floor or ground surface inlets when placed within an identifiable accessible route, openings in the floor or ground surface shall be of a size that does not permit the passage of a ½-inch sphere. Also, it states that grates having elongated openings be placed so that the longest dimension is perpendicular to the dominant direction of travel.

b. Floor or ground surface inlets. Openings in the floor or ground surface shall be of a size that prohibits the entrapment of wheeled vehicles, wheelchairs or pedestrians within the grate openings.

c. Grates on horizontal pipes. Grates shall be provided on horizontal inlets greater than 6 inches in diameter. The grates shall be placed so that the rods or bars are not more than 3 inches downstream of the inlet. Rods or bars shall be spaced so that the openings do not permit the passage of a 6-inch sphere.

**Note:** See Appendix A-82.36 (9) for further explanatory material.

(c) *Subsurface areas of 50 square feet or less.* Other than stairwells, all subsurface areas not exceeding 50 square feet and exposed to the weather, shall comply with one of the following:

1. Drain to foundation drains through a minimum 2-inch diameter pipe or a continuous layer of gravel.
2. Drain to the storm building drain, storm subdrain or storm sewer through a minimum 3-inch diameter pipe.

(d) *Subsurface areas of more than 50 square feet and stairwells.* An area drain shall be provided in subsurface areas greater than 50 square feet and in all stairwells exposed to the weather. The area drain shall comply with all of the following:

1. Drain to the storm building drain, storm subdrain or storm sewer.
2. The fixture drain shall have a minimum 3-inch inside diameter and may not discharge into a subsoil or foundation drain.

**(10) ROOF DRAINS.** (a) *General roofs.* Roof drains shall be equipped with strainers extending not less than 4 inches above the surface of the roof immediately adjacent to the roof drain. Strainers shall have an available inlet area above the roof of not less than 1.5 times the area of the conductor to which the drain connects.

(b) *Flat decks.* Roof drain strainers used on sun decks, open parking decks and similar areas shall be of the flat surface type shall be level with the deck and shall have an available inlet area of not less than 2 times the area of the conductor to which the drain connects.

**(11) OVERFLOW SYSTEMS.** (a) *Prohibited connection.* An overflow roof drain system may not connect to the primary roof drain system.

(b) *Discharge.* All overflow roof drain systems shall discharge in accordance with Table 82.38-1.

**(12) TRAPS AND VENTS.** (a) *Traps.* 1. Traps shall be required for interior drain inlets receiving clearwater.

2. Except for exterior loading dock drains, traps shall be required for exterior drain inlets located within 10 feet of an air inlet, door or openable window.

3. More than one drain inlet may discharge to the same trap.

4. A foundation drain that discharges by gravity to a storm sewer shall be trapped. The trap shall be provided with cleanouts.

(b) *Vents.* 1. A trap receiving clearwater shall be vented in accordance with s. Comm 82.31. Vent piping for a clearwater drain system may not be connected to a vent system serving a sanitary drain system or chemical waste system.

2. Solid-covered sumps shall have a means of venting at a minimum of one inch above the finished floor.

**(13) OPERATION AND MAINTENANCE.** (a) *Plan.* An operation and maintenance plan shall be implemented for all stormwater plumbing systems for drainage areas of one or more acres and installed on or after the effective date of this section [Revisor to insert date].

(b) *Plan information.* An operation and maintenance plan as required in par. (a) shall include at least the following information, applicable to the system:

1. Accumulated solids or byproduct removal requirements.
2. Identification of safety hazards.
3. Cleaning and inspection schedule.
4. Inspection and maintenance checklist, including at least the following items:
  - a. Filters.
  - b. Disinfection units.
  - c. Sedimentation chambers.
  - d. Detention devices.
5. Start up and shutdown procedures.
6. Vector control requirements.
7. A contingency plan in the event of system failure.

(c) *Plan location.* The operation and maintenance plan shall remain onsite and be available for inspection when requested by the department.

SECTION 13. Comm 82.365 is created to read:

**Comm 82.365 Stormwater and clearwater subsurface infiltration plumbing systems.** (1) **SCOPE.** The provisions of this section set forth the requirements for the design, installation and maintenance of stormwater and clearwater subsurface infiltration plumbing systems serving building sites.

**Note:** The department of natural resources has registration requirements for class V injection wells. See Appendix A-82.365 (1) for further explanatory material.

**(2) SITE AND SOIL EVALUATION.** (a) *Site evaluation.* A site evaluation shall be conducted in accordance with the methods and standards as provided in ch. Comm 85.40 (3) (a).

(b) *Soil evaluation.* A soil evaluation shall be conducted in accordance with the methods and standards as provided in s. Comm 85.30 (1) (c).

**(3) INFILTRATION SYSTEM DESIGN.** (a) *Influent quality.* For stormwater and clearwater infiltration plumbing systems, the influent quality shall comply with the requirements in Table 82.70-1 for subsurface infiltration and irrigation.

(b) *In situ soil requirements.* 1. Except as provided in subd. 2., the minimum depth of suitable in situ soil for infiltration systems shall be as specified in Table 82.365-1 to separate the system from the highest groundwater elevation or bedrock. When groundwater mounding calculations affect the depth to seasonal groundwater, the depth of suitable soil shall be measured to the calculated elevation of mounded groundwater.

2. For roof runoff or where treatment has afforded an equivalent level of water quality, the depth of in situ soil shall be no less than one foot of materials finer than coarse sand.

**Table 82.365-1  
DEPTH OF SUITABLE SOILS BY SOIL TEXTURE  
AND PERCENT FINES OF THE INFILTRATIVE  
SURFACE**

<b>Soil Texture <sup>a</sup></b>	<b>Minimum 5 ft. of Suitable Soil Separation and <math>\geq 10\%</math> but &lt;20% Fines</b>	<b>Minimum 3 ft. of Suitable Soil Separation and <math>\geq 20\%</math> Fines</b>
<b>Sands</b>		
COS	NP <sup>b</sup>	NP
S	NP <sup>b</sup>	NP <sup>b</sup>
FS	NP <sup>b</sup>	NP <sup>b</sup>
VFS	X	X
<b>Loamy sands</b>		
LCS	X	NP <sup>b</sup>
LS	X	NP <sup>b</sup>
LFS	X	NP <sup>b</sup>
LVFS	X	X
<b>Sandy loams</b>		
CSL	X	X
SL	X	X
FSL	X	X
VFSL	X	X
<b>Silt Loams</b>		
SIL	X	X
SI	X	X
<b>Clay Loams</b>		
SCL	X	X
SICL	X	X
<b>Clays</b>		
SC	X	X
SIC	X	X
C	X	X

NP = Not permitted

X = Suitable for use under the specified conditions.

<sup>a</sup> Soil texture abbreviations:

COS – Coarse Sand	LVFS – Loamy Very Fine Sand	SI – Silt
S – Sand	COSL – Coarse Sandy Loam	SCL – Sandy Clay Loam
LCOS – Loamy Coarse Sand	SL – Sandy Loam	CL – Clay Loam
LS – Loamy Sand	FSL – Fine Sandy Loam	SICL – Silty Clay Loam
FS – Fine Sand	VFSL – Very Fine Sandy Loam	SC – Sandy Clay
LFS – Loamy Fine Sand	L – Loam	C – Clay
VFS – Very Fine Sand	SIL – Silt Loam	SIC – Silty Clay

<sup>b</sup> Permitted only where laboratory analysis provides evidence of percent fines required.

(c) *Hydraulic application rates.* 1. The maximum hydraulic application rate for a stormwater and clearwater subsurface infiltration plumbing system shall be in accordance with Table 82.365-2, unless otherwise permitted by the department.

**Table 82.365-2  
HYDRAULIC APPLICATION RATES OF THE INFILTRATIVE  
SURFACE**

Soil Characteristics			Hydraulic Application Rate (in inches/hour)
Texture <sup>a</sup>	Structure <sup>b</sup>		
	Shape	Grade	
COS, LCOS, S	SG	0	3.6
LCS	---	0	3.6
LS	---	0	2.4
LS	M	0	1.6
FS	SG	2, 3	3.0
LFS	--	2, 3	2.4
LFS	M	1	0.5
LVFS	M	0	1.0
VFS, LVFS	---	0	0.3
COSL, SL	M	2, 3	0.6
SL	PL, M	1	0.5
SL	--	2, 3	2.0
SL	PR, BK, GR	1	0.5
FSL, VFSL	M	0	0.2
FSL, VFSL	PL	2, 3	1.0
FSL, VFSL	PL, PR, BK, GR	1	0.3
FSL, VFSL	PR, BK, GR	2, 3	2.0
L	M	0	0.25
L	PL	2, 3	0.5
L	PL, PR, BK, GR	1	0.25
L	PR, BK, GR	2, 3	0.5
SIL	M	0	0.2
SIL	--	2, 3	0.6
SIL	PL	1	0.2
CL, SICL	---	2, 3	0.2
CL, SICL	M	0	0.1
SCL, CL, SICL	PR, BK, GR	1	0.3
SCL	PL	1	0.1
SCL	M	0	0.06
SCL	--	2, 3	0.2
C	M	0	0.02
C	---	2, 3	0.1
SC	M	1	0.05
SC	--	1, 2, 3	0.1
SIC	M	0	0.04
SIC	--	2, 3	0.08
C, SIC, SC	PR, BK, GR	1	0.02

<sup>a</sup> Soil texture abbreviations:

COS – Coarse Sand	LVFS – Loamy Very Fine Sand	SI – Silt
S – Sand	COSL – Coarse Sandy Loam	SCL – Sandy Clay Loam
LCOS – Loamy Coarse Sand	SL – Sandy Loam	CL – Clay Loam
LS – Loamy Sand	FSL – Fine Sandy Loam	SICL – Silty Clay Loam
FS – Fine Sand	VFSL – Very Fine Sandy Loam	SC – Sandy Clay
LFS – Loamy Fine	L – Loam	C – Clay



1. The longest dimension of a stormwater or clearwater subsurface infiltration plumbing systems consisting in part of in situ soil shall be oriented along the surface contour of the site location, unless otherwise approved by the department.

2. The infiltrative surface of a stormwater or clearwater subsurface infiltration plumbing system consisting in part of in situ soil and located below the surface of the original grade shall be level.

(b) *Other requirements.* 1. A stormwater or clearwater subsurface infiltration plumbing system consisting in part of in situ soil may not be installed if the soil is frozen at the infiltrative surface.

2. Snow cover shall be removed before excavating or installing a stormwater or clearwater system component consisting in part of in situ soil.

3. For a stormwater or clearwater subsurface infiltration plumbing system consisting in part of in situ soil, the soil moisture content shall be evaluated immediately prior to installation of the component. If the soil at the infiltrative surface can be rolled into a ¼ –inch wire, the installation may not proceed.

4. All vessels and pipes of a stormwater or clearwater subsurface infiltration plumbing system shall be bedded in accordance with a product approval under s. Comm 84.10 or a plan approval under s. Comm 82.20.

**(5) OPERATION AND MAINTENANCE.** (a) *General.* Operation and maintenance shall be performed in accordance with the operation and maintenance plan submitted with the stormwater and clearwater subsurface infiltration plumbing system design and s. Comm 82.36 (13), where applicable.

(b) *Prohibited substance.* 1. Except as provided in subd. 2., no substance shall be discharged into a stormwater or clearwater subsurface infiltration plumbing system that results in exceeding the enforcement standards and preventive action limits specified in ch. NR 140 Tables 1 and 2 at a point of standards application, pursuant to s. 160.21 (2), Stats.

**Note:** For groundwater standard limits on various substances, refer to ch. NR 140 Table 1.

2. Pursuant to s. 160.19 (2) (a), Stats., the department has determined that it is not technically or economically feasible to require that a stormwater or clearwater subsurface infiltration plumbing system treat wastewater to comply with the preventive action limit for chloride specified in ch. NR 140 Table 2, as existed on June 1, 1998.

**Note:** Section 160.19 (2) (a), Stats., reads: “Each regulatory agency shall promulgate rules which define design and management practice criteria for facilities, activities and practices affecting groundwater which are designed, to the extent technically and economically feasible, to minimize the level of substances in groundwater and to maintain compliance by these facilities, activities and practices with preventive action limits, unless compliance with the preventive action limits is not technically and economically feasible.”

3. Pursuant to s. 160.21 (2), Stats., the point of standards application relative to the performance of stormwater and clearwater subsurface infiltration plumbing systems shall be:

- a. Any point of present groundwater use for potable water supply.
  - b. Any point beyond the boundary of the property on which the facility, practice or activity is located.
- (c) *Deleterious substance.* Substances deleterious to a stormwater or clearwater subsurface infiltration plumbing system shall be intercepted, diluted or treated in accordance with s. Comm 82.34 prior to the substance discharging into a stormwater or clearwater infiltration system

SECTION 14. Comm 82.37 (1) (c) Note is repealed and recreated to read:

**Comm 82.37 (1) (c) Note:** For a listing of agencies acceptable to the department, see Appendix A-84.11.

SECTION 15. Comm 82.37 (2) (a) Note is created to read:

**Comm 82.37 (2) (a) Note:** See Appendix A-82.37 (2) for further explanatory material.

SECTION 16. Comm 82.38 (3) (a) Table 82.38-1 is amended to read:

**Table 82.38 – 1 (partial)**  
**ALLOWABLE DISCHARGE POINTS BY FIXTURE OR SPECIFIC USES**

Use or Fixture	Allowable Discharge Points					
	POWTS <sup>a</sup>	Municipal Sanitary Sewer	Municipal Storm Sewer	Ground Surface <u>and</u> <u>Surface Water</u> <sup>c</sup>	Combined Sanitary-Storm Sewer	Subsurface Dispersal
10. <del>Storm water</del> Stormwater, groundwater and <del>clear water</del> <u>clearwater</u>	X	X <sup>g</sup>	X <sup>c</sup>	X <sup>b</sup>	X	X <sup>d</sup>
10m. <u>Stormwater, overflow roof drains</u>				<u>X</u>		
15. Wastewater from water treatment device	X	X	X <sup>c</sup>	X <sup>b, c</sup>	X	<del>X</del> <sup>d</sup>

<sup>g</sup> Fifty gpd ~~clear water~~ as specified under s. Comm 82.36 (3) (b) maximum.

SECTION 17. Comm 82.40 (4) (a) 2. b. Note is created to read:

**Comm 82.40 (4) (a) 2. b. Note:** See Appendix A-82.40 (4) for further explanatory material.

SECTION 18. Comm 82.40 Table 82.40-9 is repealed and recreated to read:

**Table 82.40-9  
 MAXIMUM ALLOWABLE LOAD FOR CROSSLINKED POLYETHYLENE (PEX) TUBING,  
 ASTM F876 and F877; (C=150)**

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																				
	1/2"			5/8"			3/4"			1"			1 1/4"			1 1/2"			2"		
	GPM	WSFU		GPM	WSFU		GPM	WSFU		GPM	WSFU		GPM	WSFU		GPM	WSFU		GPM	WSFU	
FM		FT	FM		FT	FM		FT	FM		FT	FM		FT	FM		FT	FM		FT	
0.5	0.5	-	0.5	0.5	-	0.5	1.0	-	1.0	2.5	-	2.5	4.0	-	4.0	6.5	-	8.0	13.5	4.5	19.0
1	0.5	-	0.5	1.0	-	1.0	1.5	-	1.5	3.5	-	3.5	6.0	-	7.0	9.5	-	12.5	19.5	6.5	29.0
2	1.0	-	1.0	1.5	-	1.5	2.5	-	2.5	5.0	-	6.0	9.0	-	11.5	14.0	4.5	20.0	28.0	11.0	50.0
3	1.0	-	1.0	2.0	-	2.0	3.0	-	3.0	6.5	-	8.0	11.0	4.0	15.0	17.5	5.5	25.5	36.0	22.0	73.0
4	1.5	-	1.5	2.5	-	2.5	4.0	-	4.0	7.5	-	9.5	13.0	4.5	18.0	20.5	6.5	31.0	42.0	33.0	100
5	1.5	-	1.5	3.0	-	3.0	4.5	-	5.0	8.5	-	10.5	15.0	5.0	21.5	23.0	7.5	37.0	47.0	42.0	116
6	2.0	-	2.0	3.0	-	3.0	5.0	-	6.0	9.5	-	12.5	16.5	5.5	24.0	25.0	8.5	42.0	51.0	53.0	135
7	2.0	-	2.0	3.5	-	3.5	5.5	-	6.5	10.5	4.0	14.0	18.0	6.0	26.5	28.0	11.0	50.0	NP		
8	2.0	-	2.0	3.5	-	3.5	5.5	-	6.5	11.0	4.0	15.0	19.0	6.0	28.0	30.0	13.5	55.0	NP		
9	2.5	-	2.5	4.0	-	4.0	6.0	-	7.0	12.0	4.0	16.5	20.5	6.5	31.0	NP			NP		
10	2.5	-	2.5	4.0	-	4.0	6.5	-	8.0	12.5	4.5	17.5	21.5	7.0	34.0	NP			NP		
11	2.5	-	2.5	4.5	-	5.0	7.0	-	9.0	13.5	4.5	19.0	NP			NP			NP		
12	2.5	-	2.5	4.5	-	5.0	7.0	-	9.0	14.0	4.5	20.0	NP			NP			NP		
13	3.0	-	3.0	5.0	-	6.0	7.5	-	9.5	14.5	4.5	20.5	NP			NP			NP		
14	3.0	-	3.0	5.0	-	6.0	8.0	-	10.0	NP			NP			NP			NP		
15	3.0	-	3.0	5.5	-	6.5	8.0	-	10.0	NP			NP			NP			NP		
16	3.0	-	3.0	5.5	-	6.5	8.5	-	10.5	NP			NP			NP			NP		
17	3.5	-	3.5	5.5	-	6.5	8.5	-	11.0	NP			NP			NP			NP		
18	3.5	-	3.5	6.0	-	7.0	NP			NP			NP			NP			NP		
19	3.5	-	3.5	6.0	-	7.0	NP			NP			NP			NP			NP		
20	3.5	-	3.5	6.0	-	7.5	NP			NP			NP			NP			NP		
21	4.0	-	4.0	NP			NP			NP			NP			NP			NP		
	NP			NP			NP			NP			NP			NP			NP		

Note: WSFU means water supply fixture units.  
 GPM means gallons per minute.  
 FM means predominately flushometer type water closets or syphon jet urinals.  
 FT means predominately flush tank type water closets or wash down urinals.  
 NP means - not permitted, velocities exceed 8 feet per second.  
 For using this table, round the calculated pressure loss due to friction to the next higher number shown.  
 Comm 82.40 (7) (f) and (g) specifies minimum sizes for water distribution piping.

SECTION 19. Comm 82.51 (3) (c) Note is created to read:

**Comm 82.51 (3) (c) Note:** See Appendix A-82.51 (3) for further explanatory material.

SECTION 20. Comm 82.70 Table 82.70-1 is amended to read:

**Table 82.70-1  
PLUMBING TREATMENT STANDARDS**

<b>Intended Use</b>	<b>Plumbing Treatment Standards</b>
1. Drinking, cooking, food processing, preparation and cleaning, pharmaceutical processing, and medical uses	NR 811 and 812 approved sources
2. Personal hygiene, bathing, and showering, clothes washing, etc.	NR 811 and 812 approved sources
3. Automatic fire protection systems	As acceptable by local authority
4. Swimming pool makeup water	NR 811 and 812 approved sources <del>to private water supplies</del>
5. Swimming pool fill	<del>Pool fill requirements in accordance with ch. HFS 172 requirements</del>
6. Once through cooling <sup>b</sup>	pH 6 - 9 <sup>e,b</sup> $\leq 30$ mg/L BOD <sub>5</sub> $\leq 30$ mg/L TSS $\leq 200$ fecal coliform cfu/100 mL $\geq 1$ mg/L <u>and</u> $< 4$ mg/L chlorine residual <sup>e,b</sup>
7. Subsurface <del>dispersal/</del> infiltration and irrigation <sup>b, c, d, e</sup>	<del><math>\leq 30</math></del> <u>15</u> mg/L oil and grease $\leq 30$ mg/L BOD <sub>5</sub> <del><math>\leq 450</math></del> <u>35</u> mg/L TSS $\leq 200$ fecal coliform cfu/100 mL
8. <del>Surface or spray irrigation of any food crop, including crops eaten raw, non-commercial only</del> <sup>a, e</sup>	<del>pH 6 - 9<sup>e</sup></del> <del><math>\leq 10</math> mg/L BOD<sub>5</sub></del> <del><math>\leq 5</math> mg/L TSS</del> <del>no detectable fecal coliform/100 mL</del> <del><math>\geq 1</math> mg/L chlorine residual<sup>e</sup></del>

**Table 82.70-1 (continued)**  
**PLUMBING TREATMENT STANDARDS**

Intended Use	Plumbing Treatment Standards
98. Surface irrigation except food crops, vehicle washing, toilet and urinal flushing, air conditioning, and other urban uses with similar human access or exposure to the water soil compaction, dust control, washing aggregate and making concrete <sup>a, c, d, e</sup>	pH 6 - 9 <sup>e, b</sup> $\leq 10$ mg/L BOD <sub>5</sub> $\leq 5$ mg/L TSS No detectable fecal coliform cfu/100 mL $\geq 1$ mg/L and $< 4$ mg/L chlorine residual <sup>e, b</sup> No detectable cysts or oocysts <sup>d</sup>
10. Soil compaction, dust control, washing aggregate and making concrete	$\leq 30$ mg/L BOD <sub>5</sub> $\leq 30$ mg/L TSS $\leq 200$ fecal coliform/100 mL $\geq 1$ mg/L chlorine residual <sup>e</sup>
11. Irrigation of sod farms, silviculture sites and other areas where human access is prohibited or restricted <sup>e</sup>	pH 6 - 9 <sup>e</sup> $\leq 30$ mg/L BOD <sub>5</sub> $\leq 30$ mg/L TSS $\leq 200$ fecal coliform/100 mL $\geq 1$ mg/L chlorine residual <sup>e</sup>
129. Uses not specifically listed above	Contact department for approval standards

<sup>a</sup> Refer to the department of agriculture, trade and consumer protection for commercial use.

<sup>b</sup> Refer to ch. Comm 83 for domestic wastewater treatment requirements.

<sup>e, b</sup> Applies only to wastewater treatment devices for reuse and stormwater use systems. Other equivalent disinfection methods may be approved by the department.

<sup>d</sup> Stormwater collected from parking lots and industrial sites may not be infiltrated prior to pretreatment.

<sup>e, c</sup> These requirements do not apply to the treatment of industrial wastewater or other wastewater discharges that are subject to a WPDES permit issued by the department of natural resources.

<sup>d</sup> NSF 53 rated filters provide treatment to meet this requirement.

<sup>e</sup> A 12-inch minimum separation of medium sand or finer material above high groundwater or bedrock.

SECTION 21. Comm 84.10 Table 84.10 line 9. is repealed.

SECTION 22. Comm 84.20 (5) (p) 1. is amended to read:

**Comm 84.20 (5) (p) Water heaters.** 1. Listed equipment. All water heaters shall bear the label of a listing agency approved by acceptable to the department. Listing agencies approved by the department shall include:

a. ~~Underwriters Laboratories, Inc.;~~

b. ~~American Gas Association;~~

e. ~~American Society of Mechanical Engineers; and~~

d. ~~ETL Testing Laboratories, Inc.~~

**Note:** See Appendix A-84.11 for listing agencies acceptable to the department.

SECTION 23. Comm 84.30 (3) (e) 3. and Note is amended to read:

**Comm 84.30 (3) (e) 3.** Roof drains shall be sized in accordance with s. Comm 82.36 (10) ~~and the drain outlet shall not be less than 2<sup>+</sup>/<sub>2</sub> inches in diameter.~~

**Note:** See s. Comm 82.36 (48) (10) for additional roof drain requirements.

SECTION 24. Comm 84.30 (6) (h) (intro.), (i) (intro.) and (j) (intro.) are amended to read:

**Comm 84.30 (6) (h) *Leaching chambers.*** Leaching chambers for distribution cell components of POWTS or stormwater subsurface infiltration systems shall meet all of the following requirements:

(i) *Stone aggregate.* Stone aggregate which is used as a filtering medium or to create a distribution cell in a treatment or dispersal component of a POWTS or stormwater subsurface infiltration system shall meet all of the following requirements:

(j) *Sand.* Sand which is used as a filtering medium in a treatment or distribution cell of a POWTS or stormwater subsurface infiltration system shall conform to ASTM Standard C33 for fine aggregate.

SECTION 25. Comm 84.30 (6) (k) is created to read:

**Comm 84.30 (6) (k) *Synthetic aggregate.*** Synthetic aggregate which is used as a filtering medium or to create a distribution cell in a treatment or dispersal component of a POWTS or stormwater subsurface infiltration system shall meet all of the following requirements:

1. Be made from inert materials.
2. Be ½ inch to 2½ inches in size.
3. Be made of material that will not leach and contaminate groundwater.
4. Be recognized by the manufacturer for use as a filtering media or a material to create a distribution cell.

(end)

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**EFFECTIVE DATE**

Pursuant to s. 227.22 (2) (intro.), Stats., these rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register.

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