State of Wisconsin \ Department of Commerce

RULES in FINAL FORM

Rule No.: Chs. Comm 2, 34, 81, 82, 84 and 90

Relating to: Wisconsin Uniform Plumbing Code; Fees; Amusement Rides; and Design and Construction of Public Swimming Pools

Clearinghouse Rule No.: 02-002

COM-10535 (N.03/97)

The Wisconsin Department of Commerce proposes an order to:

repeal Comm 34.50 and Subch. VIII; Comm 82.20(1)(b)2.; Comm 82.31(12)(d) Note 2.; Comm 82.33(8)(a) 2.; Comm 82.34(3)(g); Comm 82.40(3)(e); Comm 82.50 Tables 22, 23, 24, 26 and 27; Comm 82.51 Table 82.51; Comm 84.30 Tables 84.30-7 and 84.30-10; Comm 84.30(4)(d); and Comm 84.40(6)(b)4.;

renumber Comm 34.55 Subch. IX as Subch. VIII; Comm 82.03 as 82.03(1); Comm 82.20(1)(b) 1. as 82.20(1)(b)2.; Comm 82.20(1)(b)(intro.) as 82.20(1)(b)1.; Comm 82.20 (13) as 82.20 (14); Comm 82.33 (11)(b) 3. as 82.30(11)(b) 3. a.; Comm 82.30 (11)(c) 3.b. and c. as 82.30 (11)(c) 3.c. and d.; Comm 82.33(8)(a) 1. as 82.33(8)(a); Comm 82.33(10) as 82.33(10)(a); Comm 82.34(3)(a) to (f) as 82.34(3)(b) to (g); Comm 82.34(3)(h) as 82.34(3)(g); Comm 82.40(3)(f) as 82.40(3)(e); Comm 82.40(8)(b) 4. to 8. as 82.40 (8)(b) 3. to 7.; Comm 82.41(5)(i) to (L) as 82.41(h) to (k); Comm 84.40(6)(b) 5. as 84.40(6)(b)4.; and Appendix A-82.33(8)(c) as A-82.33(8)(d);

renumber and amend Comm 82.20(4)(c) to (e) as 82.20(4)(b) to (d); Comm 82.31(8) as 82.31(8)(a); Comm 82.33(9)(a)2. as 82.33(9)(a)2.a.; Comm 82.35(3)(g) as 82.35(3)(g) 1.; Comm 84.30 Tables 84.30-8, 84.30-9 and -9m as Table 84.30-7, 84.30-8 and 84.30-9; Comm 84.30 Table 84.30-11 as Table 84.30-10; Comm 84.30(4)(e) and (f) as 84.30(4)(d) and (e); and Comm 82.31 (8) as 82.31 (8)(a);

amend Comm 2.64 Table 2.64-1(partial); Comm 2.66 Table 2.66 (partial); Comm 2.68(title)(1) and (2); Comm 2.68 Table 2.68-1 (title); Comm 61 Subch. III (title); Comm 81.01(7e), (42), (44), (46), (56), (80), (84), (90e), (120), (134), (147), (178), (181), (193), (195), (210), (245), (246), (247), and (276); Comm 81.20 Tables 81.20-3e, 81.20-5, 81.20-8 and 81.20-11; chapter Comm 82 (title); Comm 82.01; Comm 82.10 Subch. I (title); Comm 82.20(title) and (1); Comm 82.20 Tables 82.20-1 and 82.20-2; Comm 82.21(1)(d) 8. b.; Comm 82.30 Tables 82.30-1, 82.30-2 and 82.30-3; Comm 82.30(4)(d) 5.; Comm 82.30(5)(b) 2.b. and (c)2.; Comm 82.30(10)(a) 2. and 4.b.; Comm 82.30(11)(b) 1. a.; Comm 82.30(11) (c) 2. a. to c.; Comm 82.30(11)(c) 3. (intro.); Comm 82.30(11)(g)2.; Comm 82.30(12) (f)(intro.) and 1.; Comm 82.30 Tables 82.30-5 and 82.30-6; Comm 82.31(11)(a); Comm 82.31 Table 82.31-4 (partial); Comm 82.31(12)(intro.) and (a); Comm 82.31(13)(c) 1.; Comm 82.31(17)(a) 1. a. and b.; Comm 82.32(3)(c) 2. Note and (4)(b) 1. b.; Comm 82.33(5)(a) 2.; Comm 82.33(9)(c) 1. b.; Comm 82.33(9)(e) and (g) 6.; Comm 82.34(3)(intro.); Comm 82.34(6)(a); Comm 82.34(14)(b); Comm 82.35(3)(a) and (d)1.; Comm 82.36 Table 82.36-4; Comm 82.36(5)(e), Comm 82.36(10) and (12); Comm 82.36(14) (a), (b) and (c); Comm 82.36(15)(a) and (b); Comm 82.37 (title); Comm 82.40(3)(b)1.; Comm 82.40(4)(c) 1. b. and 2. b.; Comm 82.40 Tables 82.40-1 and 82.40-2; Comm 82.40(7)(d) 1. a. and b.; Comm 82.40(8)(d)4.; Comm 82.40(8)(g); Comm 82.41(3)(intro.) and (5)(a) and Tables 82.41-1 and 82.41-2; Comm 82.60 Table 82.60; Comm 84.10 Table 84.10; Comm 84.11 Table 84.11 (partial); Comm 84.15; Comm 84.20(5)(n) 2.; Comm 84.30(2)(intro.); Comm 84.30 Tables 84.30-1, 84.30-2, 84.30-3, 84.30-4 and Note, 84.30-5, 84.30-6; Comm 84.30 (4)(f) 2. a.; Comm 84.30(5)(a), (b) 3. and (d); Comm 84.40(1)(c) 1. to 4.; Comm 84.40(6)(b)(intro.) and 1.; Comm 84.40(8)(d) and (17)(d) 2.; Comm 90.01; Comm 90.04(5)(a); Comm 90.08(8)(b)4., Comm 90.10(2); Comm 90.11(3)(a); Comm 90.12(1)(a); Comm 90.19(2)(b) 2.; Comm 90.20(1); and Appendix A-82.40(7)(a), A-84.10(3)(b), A-84.20(5) Figures 84.20-2 (title) and 84.20-4 (title);

repeal and recreate Comm 81.01(249); Comm 81.20; Comm 82.10; Comm 82.20(4)(c); Comm 82.21(1)(b) 4. b ; Comm 82.21(2)(d); Comm 82.30(11)(a)2.; Comm 82.30(11)(d) and Note; Comm 82.30(12)(f)2.; Comm 82.31 Table 82.31-5; Comm 82.32(3)(c) 1.; Comm 82.32(4)(b)2.; Comm 82.33(8)(c) and (d); Comm 82.33(9)(b) and (d); Comm 82.33 (9)(i); Comm 82.34(1), (2), (4)(a) and (8); Comm 82.35(5)(a)1.; Comm 82.36(3); Comm 82.36(10), (11)(a) 3.; Comm 82.36(13)(a)2; Comm 82.36(15)(a) and (b); Comm 82.40(3)(a); Comm 82.40(3)(d) 1. a. and d.; Comm 82.40 Tables 82.40-4 to 82.40-11; Comm 82.40(7)(h); Comm 82.40(8)(c); Comm 82.50; Comm 82.51; Comm 84.30(1)(intro.); Comm 84.20 (6)(c); Comm 84.30(4)(e) 2. Note and 3.; Comm 84.30(4)(i); Comm 90.03 (11) (h) and (19); and Appendix A-82.20(2), A-82.30(4), A-82.30(11)(b), A-82.33(9)(f), A-82.34(4), A-82.40(7)(b) Graphs A-82.40(7)-2 to 11;

create Comm 2.645; Comm 2.68 Table 2.68-2; Comm 61.39; Comm 62.2902(1)(c); Comm 81.01(7m), (35m), (51m), (56e) and Note, (61m), (62m), (65m), (72e), (90m) and Note, (108m), (160m); (187e), (212e) and Note, , (214m) and Note, (265e) and Note, (273e) and (277e); Comm 82.01 Note; Comm 82.015; Comm 82.03 (2); Comm 82.10(14); Comm 82.20(1)(b)1. Note and (1)(c); Comm 82.20 (4)(b) 2. Note; Comm 82.20(13); Comm 82.30(4)(d) 5. Note; Comm 82.30(8)(b) 2. b. and (c) 2. Notes; Comm 82.30(10)(b) 2. d. and (b) 3. Notes; Comm 82.30(10)(c) and (d); Comm 82.30(11)(c) 2. e. and Note; Comm 82.30(11)(d) Note; Comm 82.30 Figure 82.30-1 (title); Comm 82.31 (8) (b); Comm 82.31(14)(j) and (16)(h); Comm 82.32(3)(c) 1. Note; Comm 82.32(4)(b)1. d.; Comm 82.33(8)(d) Note; Comm 82.30(9)(a) 2. b.; Comm 82.33(9)(c)1.c.; Comm 82.33(10)(a) Note and (b); Comm 82.34(3)(a); Comm 82.34 (4) Note; Comm 82.34(5)(b) Note; Comm 82.34(14)(b) 3.; Comm 82.35(3)(g) 2. and (m); Comm 82.36(11)(a) 3. Note; Comm 82.36(14)(b) Note; Comm 82.37 (2) (h) and(3); Comm 82.38; Comm 82.38 Table 82.38-1; Comm 82.40(3)(a)2.; Comm 82.40(3)(c) 3.; Comm 82.40(3)(d)1.h; Comm 82.40(8)(b) Note; Comm 82.40(8)(d) 5. and 6.; Comm 82.50 Table 82.50-1; Comm 82.70 Subch. VII (title) and Comm 82.70 and Table 82.70-1.; Comm 84.30(1)(f) and (2)(j); Comm 84.30 Table 84.30-11; Comm 84.30 (4)(c) Note; Comm 84.30(4)(e) 2. Note, 3., and (4)(i); Comm 84.40(17)(f) and (19); Comm 90.03(10m) and (20)(a) and (b); Comm 90.04(6) and (7); Comm 90.20(4) and Notes; and Appendix A-82.30(4)(d), A-82.30(10(b)3., A-82.30(11)(c) and (d), A-82.50(3), and A-84.30(4)(e)2., relating to the Wisconsin Uniform Plumbing Code, Fees; Amusement Rides; and Design and Construction of Public Swimming Pools.

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Chapter Comm 82, the design, construction, installation, supervision and inspection of plumbing, is proposed for a number of additions or revisions. The scope of this chapter is being revised to acknowledge that plumbing systems shall be maintained. Throughout ch. Comm 82 notes are proposed concerning plumbing setbacks to wells are as specified by the department of natural resources. Various minor revisions to chapter 82 will correct current errors and recognize current plumbing practices.

- Section Comm 82.10, basic plumbing principles, is being repealed and recreated to reflect changing philosophies within the plumbing industry, including:
  - Allowing recycling of wastewater in addition to the traditional holding, treatment and dispersal.
  - Changing the reference to the "efficient" transport of wastewater that is proposed to replace the language to "quickly" transport wastewater. Many systems require lower velocities to reduce turbulence and also to promote sedimentation of solids.
  - Adding to the basic plumbing principles the statutory mandate to protect the waters of the state.

- Changes to s. Comm 82.20 are proposed to eliminate plan review for cross connection control devices and assemblies, except for those installed in hospitals or health-care and related facilities [Table 82.20-1] and to establish a registration process for these devices and assemblies [s. Comm 82.20 (13)]. Also, plan submittal requirements would reduce the submittal requirements to only one set of plans and specifications.

- Section Comm 82.30 (11), insulation for building sewers, is being clarified and expanded to allow forming a box of polystyrene foam around the piping reflecting current practice.

- Section Comm 82.30 includes other revisions reflecting table format and standardizing terminology. In Table 82.30-1, the drainage fixture unit values (dfu) are expanded and revised to include additional fixtures. In addition, dfu values for health-care facilities are proposed to be incorporated in the table. Presently the number of water closets impact the load permitted on 3" diameter drain pipe; the proposed revision will eliminate this restriction. Sump and pump requirements are proposed to be revised to codify alternate approvals for homogenous units and expand requirements for exterior sumps. Another revision will require alarms to indicate failure of duplex units.

- Section Comm 82.31 includes amendments for clarifying various venting methods based on location of fixtures and drainage fixture unit, dfu, values of the fixture.

- Section Comm 82.32 includes a section to define requirements for campgrounds and exterior sanitary traps.

- Section Comm 82.33 is the subject of clarification for indirect waste piping as well as proper installation for residential dishwashers. Approved materials for these installations are included in ch. Comm 84. Revisions for receptors of indirect wastes will allow more options for acceptable receptors for wastewater from water treatment devices, furnaces, sterilizers and air conditioners. Requirements for the connection of dishwashing and clothes washing machines will be more consistent with national standards.

- Section Comm 82.34, revisions to the requirements for the installation of garage catch basins and interceptors are proposed; these revisions will clarify current policy statements and interpretations.

- Sections Comm 82.35 and 82.36 include changes relating to the discharge and dispersal to drain systems.

- Section Comm 82.37, requirements for campground plumbing installations are included in the proposal. Currently no requirements are codified. This section would now include a separate section on water supply and drain systems for these facilities.

- Section Comm 82.38 and Table 82.38-1 are being created to list the allowable discharge points for drinking fountains, iron filters, water softeners, floor drains and other fixtures by specific use.

- Section Comm 82.40 contains allowances for the use of nonpotable water in a plumbing system as specified in s. Comm 82.70. Other additions proposed for this section are specific to piping serving water treatment devices, identification of piping for hazards and cross connection protection. Table 82.40-2 includes the revisions to the water supply fixture units for health-care fixtures. Tables 82.40-10 and 82.40-11 are created to reflect loading for various pipe materials.

- Section Comm 82.50, health care and related facilities, is repealed and recreated in its entirety to reflect contemporary health-care practices and facilities, such as hospitals, clinics, and operatories, community-based residential facilities and other inpatient and nursing facilities. The section provides language for safeguarding the water supply as well as reducing scalding for the end user. Table 82.50-1 is being created to specify spouts and actions of various fixtures when used in these facilities.

- Section Comm 82.51 regarding water supply, and drain and vent systems for mobile home parks is revised in total for better organization and clarification of installation requirements.

- Section Comm 82.60, Table 82.60 is revised to include new materials and the pipe supports.

- Section Comm 82.70 is being created to specify plumbing treatment standards for plumbing systems based on specific intended uses. These standards apply to wastewater treatment devices and drinking water treatment devices.

Chapter Comm 84, plumbing products, is proposed to be revised in part. Tables 84.30-8 and 84.30-9 include footnotes to clarify under what water conditions copper tubing shall not be installed. A new Table 84.30-11 has been created for the listing of piping standards for fixture supply connectors and indirect waste piping/tubing when used with point-of-use water treatment devices. Terminology has been updated in these tables to reflect allowable materials for use in POWTS.

Proposed changes to ch. Comm 90, design and construction of public swimming pools, relate to modifying terms for slides and water attractions [s. Comm 90.03] as well as creating or modifying sections which outline the process for construction inspection of public pools and water attractions. Minor changes throughout the chapter modify the term water recreation attraction to be consistent with state Statutes as water attractions.

Also included in this proposal are various revision to the Appendices of these chapters; these revisions are generally the inclusion of sketches to better clarify the specific subject.

The proposed rule revisions were developed with the assistance of the Plumbing Advisory Code Council. This Council consists of the following individuals: Thomas Boehnen, American Society of Plumbing; Rudy Petrowitsch, American Society of Sanitary Engineers; Gary Hamilton/Jack Ellinger, State AFL-CIO; Gary Kowalke, plumbing contractors; Mark Krowski, City of Milwaukee; Jeff Kuhn, Plumbing and Mechanical Contractors of SE Wisconsin; Clint McCullough, Madison Contractors Association; Bob Netzler, League of Wisconsin Municipalities; Joe Zoulek, Wisconsin Association of Plumbing, Heating, Cooling Contractors, Inc.; Dave Viola, Plumbing Manufacturers Institute; Dale Schlieve, Wisconsin Society of Professional Designers of Engineering Systems, Inc.; and Gene Shumann, plumbing designers. Also assisting with these rule revisions were members of the Pool Advisory Code Council: Dave Baker, Pool Operators; Bill Branson, Plumbing Inspectors; Duane Jackson, Wisconsin Environmental Health Professionals; Hal Maier, Pool Contractors; Daryl Matzke, Ramaker & Associates/ Pool Designers; Chuck Neuman, Water World Park Assoc.; Peter Simon, Neuman Pools Inc./ Pool Designers; Sean O'Connor, Badger Swim Pools/ Pool Construction Contractors; Doug Voegeli, Madison Department of Public Health/Municipal Agents; and Jack Waterman, Wisconsin Innkeepers Association.

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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

20. Water or wastewater treatment systems, other than POWTS, designed to achieve compliance with Table 82.70-1	Amount as specified in s. Comm 2.04 (1)
21. Stormwater infiltration systems for public buildings or facilities.	$100.00 per system**

** Note: This fee is in addition to building storm and clear water.

SECTION 2. Comm 2.645 is created to read:

Comm 2.645 Cross connection control device or assembly registration. A registration fee of $125.00 per device or assembly shall be submitted to the department in accordance with s. Comm 82.20 (1) (c).

SECTION 2a. Comm 2.66 Table 2.66 is amended to read:

Table 2.66

Plumbing Product ~~Approval~~ and Standard Review Fees

Product or Standard	Fee	
	Type of Review	
	New Review	Revision or Renewal
1. Alternate standards	$400.00*	$200.00*
~~1.~~ 2. Chemical or biochemical treatment for ~~private sewage systems~~ POWTS	$200	$100
~~2.~~ 3. Health care plumbing appliance	$200	$100
~~3. Laboratory plumbing appliance~~	~~$200~~	~~$100~~
4. Physical restoration processes for POWTS	$200	$100
~~4.~~ 5. Prefabricated holding or treatment components for ~~private onsite wastewater treatment systems~~ POWTS	$200	$100
~~5.~~ 6. Prefabricated plumbing	$200	$100
~~6.~~ 7. Water treatment device	$200	$100
8. Wastewater treatment device	$200	$100

* Per standard.

SECTION 3. Comm 2.68 (title) and (1) is amended to read:

Comm 2.68 ~~Swimming~~ Public Swimming pool and ~~whirlpool~~ water attraction plan review and inspection fees. (1) Plan examination and inspection fees for public swimming pools and water attractions shall accompany plans and specifications when submitted to the department for review. If the department determines, upon review of the plans, that inadequate fees were received, the necessary additional fees shall be received by the department prior to ~~approval~~ plan review and determination.

SECTION 4. Comm 2.68 (2) is amended to read:

Comm 2.68 (2) Except as provided in sub. (3), plan examination and inspection fees for the construction or modification of public swimming pools and water attractions shall be as listed in ~~Table~~ Tables 2.68-1 and 2.68-2.

SECTION 5. Comm 2.68 Table 2.68-1 (title) is amended to read:

Table 2.68-1
Plan Review and Inspection Fees For Public Swimming Pools and Water Attractions
Not Located in Municipalities That Perform Construction Inspections

Pool Type or Water Attraction	Fee Type ~~of Review~~		
	Initial Construction	Modification	Revision to Previously Approved Plans
Public Swimming Pool, gutter type	$~~600.00~~ 900.00	$~~200.00~~ 500.00	$120.00
Public Swimming Pool, skimmer type	$~~450.00~~ 750.00	$~~200.00~~ 500.00	$120.00
Water Attraction	$~~600.00~~ 900.00	$~~200.00~~ 500.00	$120.00
Public Whirlpool	$~~450.00~~ 750.00	$~~200.00~~ 500.00	$120.00
Alternate and Experimental Design	$~~750.00~~ 1050.00	$~~375.00~~ 675.00	$150.00

SECTION 6. Comm 2.68 Table 2.68-2 is created to read:

Table 2.68-2

Plan Review Fees For Public Swimming Pools and Water Attractions

Located in Municipalities That Perform Construction Inspections

Pool Type or Water Attraction	Fee Type: Initial Construction	Fee Type: Modification	Fee Type: Revision to Previously Approved Plans
Public Swimming Pool, gutter type	$600.00	$200.00	$120.00
Public Swimming Pool, skimmer type	$450.00	$200.00	$120.00
Water Attraction	$600.00	$200.00	$120.00
Public Whirlpool	$450.00	$200.00	$120.00
Alternate and Experimental Design	$750.00	$375.00	$150.00

SECTION 7. Comm 34.50 and Subch. VIII are repealed.

SECTION 8. Comm 34.55 Subch. IX is renumbered as Subch. VIII.

SECTION. 9. Comm 61 Subchapter III (title) is amended to read:

Comm 61 (title) Subchapter III – Plan Review <u>and Related Functions</u>

SECTION. 10. Comm 61.39 is created to read:

Comm 61.39 Registration of cross connection control devices. Cross connection control devices to be installed in water-based fire protection systems shall be registered with the department in accordance with ch. Comm 82.

SECTION 10a. Comm 62.2902 (1) (c) is created to read:

Comm 62.2902 (1) (c) *Substitutions in IBC Table 2902.1* 1. Substitute the following wording for the water closets heading in IBC Table 2902.1: Water closets [see s. Comm 62.2902 (1) (a)].

2. Substitute the following wording for the drinking fountains heading in IBC Table 2902.1: Drinking fountains (see the *International Plumbing Code)*.

3. Substitute the following wording for the required number of bathtubs or showers in storage occupancies in IBC Table 2902.1: See the *International Plumbing Code*.

4. Substitute the following wording for the required number of bathtubs or showers in factory and industrial occupancies in IBC Table 2902.1: See the *International Plumbing Code*.

SECTION 11. Comm 81.01 (7e) is amended to read:

Comm 81.01 (7e) "Alternate plumbing system" means a type of plumbing system designed in such a manner that valid and reliable data shall demonstrate to the department that the plumbing system is in compliance with the intent of chs. Comm ~~82 and~~ 81 to 84.

SECTION 12. Comm 81.01 (7m) and (35m) are created to read:

Comm 81.01 (7m) "Ambulatory surgery center" means a health care facility that accepts federal funding in accordance with 42 CFR 416 of the federal register for health care finance and where 4 or more individuals that undergo a surgical procedure for which federal reimbursement is based.

(35m) "Branch tailpiece" means a fitting consisting of a combination tail piece and a wye.

SECTION 13. Comm 81.01 (42), (44) and (46) are amended to read:

Comm 81.01 (42) "Building drain, storm" means a building drain which conveys storm water, ~~wastes or~~ clear water ~~wastes~~, or both.

(44) "Building sewer" means that part of the drain system not within or under a building which conveys its discharge to a public sewer, private interceptor main sewer, private onsite wastewater treatment system or other point of ~~disposal~~ discharge or dispersal.

(46) "Building sewer, storm" means a building sewer which conveys storm water, ~~wastes or~~ clear water ~~wastes~~, or both.

SECTION 14. Comm 81.01 (51m) is created to read:

Comm 81.01 (51m) "Campsite receptor" means the vertical drain piping and trap combination that receives wastewater from recreational vehicles.

SECTION 15. Comm 81.01 (56) is amended to read:

Comm 81.01 (56) "Clear water ~~wastes~~" means ~~liquids~~ wastewater other than storm water, having no impurities or where impurities are below a minimum concentration considered harmful by the department, including but not limited to noncontact cooling water and condensate drainage from refrigeration compressors and air conditioning equipment, drainage of water used for equipment chilling purposes and cooled condensate from steam heating systems or other equipment.

SECTION 16. Comm 81.01 (56e) and Note is created to read:

Comm 81.01 (56e) "Clinic sink" means a fixture having an integral trap and a flushing rim so that water cleanses the interior surface.

Note: This fixture has flushing and cleansing characteristics similar to a water closet. A clinic sink may also be referred to as a clinic service sink, a bedpan washing sink or a flushing rim sink.

SECTION 17. Comm 81.01 (61m), (62m) and (65m) are created to read:

Comm 81.01 (61m) "Containment" means the installation of a cross connection control method, device or assembly to prohibit the flow of contamination from a building or facility into a water supply system.

(62m) "Continuous pressure" means a pressure greater than atmospheric and exerted for a period of more than 12 continuous hours.

(65m) "Cross connection control assembly" means a testable backflow preventer consisting of an arrangement of components.

SECTION 19. Comm 81.01 (72e) is created to read:

Comm 81.01 (72e) "Dfu" means drainage fixture unit.

SECTION 20. Comm 81.01 (80) and (84) are amended to read:

Comm 81.01 (80) "Double check detector assembly backflow preventer" means a type of a double check backflow prevention assembly which includes a parallel flow meter to indicate leakage or unauthorized use of water downstream of the assembly. The terms "DC detector" and "double check detector valve type backflow preventer" have the same meaning as double check detector backflow preventer. ~~The terms "DC detector" and "double check detector valve type backflow preventer" have the same meaning as double check detector backflow preventer.~~

(84) "Effluent" means liquid discharged from a ~~POWTS treatment component~~ <u>process, device, appurtenance or piping system</u>.

SECTION 21. Comm 81.01 (90e) is amended to read:

Comm 81.01 (90e) "Experimental plumbing system" has the same meaning as experimental system as specified in ~~specified in~~ sub. (91).

SECTION 22. Comm 81.01 (90m) and Note and (108m) are created to read:

Comm 81.01 (90m) "Exam sink" means a plumbing fixture used for hand washing in health care and related facilities.

Note: An exam sink may also be referred to as a treatment sink.

(108m) "Foundation drain" means a subsoil drain that serves the area of the foundation of a building.

SECTION 23. Comm 81.01 (120), (134) and (147) are amended to read:

Comm 81.01 (120) "High hazard" means a situation where the water supply system could be contaminated with a toxic solution so as to alter the characteristics of the water making the water unsuitable for the designated use.

(134) "Infiltrative surface" means the plane within a ~~POWTS~~ treatment or dispersal component at which effluent is applied to in situ soil or engineered soil.

(147) "Low hazard" means a situation where the water supply system could be contaminated with a nontoxic substance so as to alter the characteristics of the water making the water unsuitable for the designated use.

SECTION 24. [This treatment section was deleted after the public hearing.]

SECTION 25. Comm 81.01 (160m) is created to read:

Comm 81.01 (160m) "Noncontinuous pressure" means a pressure greater than atmospheric and exerted for a period of no more than 12 continuous hours.

SECTION 26. Comm 81.01 (178) is amended to read:

Comm 81.01 (178) "Plumbing fixture" means a receptacle or device which meets at least one of the following:

(a) Is either permanently or temporarily connected to the water ~~distribution~~ supply system of the premises, and demands a supply of water from the system~~;~~.

(b) Discharges ~~used water, waste materials, or sewage~~ wastewater or waste materials either directly or indirectly to the drain system of the premises~~; or~~.

SECTION 27. Comm 81.01 (181) is amended to read:

Comm 81.01 (181) "Potable water" means water that is both:

(a) Safe for drinking, personal or culinary use~~; and~~.

(b) Free from impurities present in amounts sufficient to cause disease or harmful physiological effects ~~and conforming in its bacteriological and chemical quality to the requirements specified in ch. NR 809~~.

SECTION 28. Comm 81.01 (187e) is created to read:

Comm 81.01 (187e) "Prefabricated sump and pump system" means a simplex or duplex pump and sump designed as a combined unit.

SECTION 29. Comm 81.01 (193), (195) and (210) are amended to read:

Comm 81.01 (193) "Private interceptor main sewer" means a ~~privately owned~~ sewer serving 2 or more buildings and not ~~directly controlled by a public authority~~ part of the municipal sewer system.

(195) "Private water main" means a ~~privately owned~~ water main serving 2 or more buildings and not ~~directly controlled by a public authority~~ part of the municipal water system.

(210) "Safing" means a membrane or material installed ~~a pan or other collector placed~~ beneath a fixture to prevent leakage from escaping to the floor, ceiling or walls.

SECTION 30. Comm 81.01 (212e) and Note, and (214m) and Note are created to read:

Comm 81.01 (212e) "Scrub sink" means a plumbing fixture used for hand and arm washing prior to surgery or other medical procedures.

Note: A scrub sink may also be referred to as a surgeon washup sink.

(214m) "Service sink" means a fixture designed to be used for building or facility maintenance.

Note: A service sink may also be referred to as a mop sink, mop basin or janitor's sink.

SECTION 31. Comm 81.01 (245), (246) and (247) are amended to read:

Comm 81.01 (245) "Storm sewer" means a pipe, other than a pipe located inside a building, that carries ~~storm water~~ any of the following: storm water, ~~surface water,~~ groundwater ~~and~~ or clear water ~~wastes~~.

(246) "~~Storm water wastes~~ Storm water" means ~~the~~ wastewater ~~collected~~ from a precipitation event.

(247) "Subsoil drain" means that part of a drain system ~~which~~ that conveys ~~the ground~~ groundwater ~~or seepage water from the footings of walls or below the basement floor under buildings~~ to ~~the storm sewer or other~~ a point of ~~disposal~~ discharge or dispersal.

SECTION 32. Comm 81.01 (249) are repealed and recreated to read:

Comm 81.01 (249) "Sump pump" means an automatic device located in a sump, pit or low point that is designed to elevate storm water, groundwater or clear water.

SECTION 33. Comm 81.01 (265e) and (273e) are created to read:

Comm 81.01 (265e) "Vacuum breaker tee" means an assembly of fittings designed to eliminate the possibility of back siphonage in a system by allowing air to enter through a tee fitting.

(273e) "Washer sanitizer" means a plumbing appliance used for washing and disinfecting equipment.

SECTION 34. Comm 81.01 (276) is amended to read:

Comm 81.01 (276) "Wastewater" means clear water ~~wastes~~, storm water ~~wastes~~, domestic wastewater, industrial wastewater, sewage or any combination of these.

SECTION 35. Comm 81.01 (277e) is created to read:

Comm 81.01 (277e) "Wastewater treatment device" means a device or method that is intended to beneficially alter the characteristics of wastewater.

SECTION 36. Comm 81.20 is repealed and recreated to read:
[Note to Revisor: The tables are not being repealed.]

Comm 81.20 Incorporation of standards by reference. (1) CONSENT. Pursuant to s. 227.21 (2), Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the standards listed in sub. (3).

Note: Copies of the adopted standards are on file in the offices of the department, the secretary of state and the revisor of statutes. Copies of the standards may be purchased through the respective organizations listed in Tables 81.20-1 to 81.20-13.

(2) ALTERNATE STANDARDS. (a) Alternate standards that are equivalent to or more stringent than the standards referenced in this code may used in lieu of the referenced standards when approved by the department or if written approval is issued by the department in accordance with sub. (b).

1. Upon receipt of a fee and a written request, the department may issue an approval for the use of the alternate standard.

2. The department shall review and make a determination on an application for approval within 40 business days of receipt of all forms, fees and documents required to complete the review.

Note: Fees for standards under this paragraph are listed in ch. Comm 2.

(b) Determination of approval shall be based on an analysis of the alternate standard and the standard referenced in this code, prepared by a qualified independent third party or the organization that published the standard contained in this code.

(c) The department may include specific conditions in issuing an approval, including an expiration date for the approval. Violations of the conditions under which an approval is issued shall constitute a violation of this code.

(d) If the department determines that the alternate standard is not equivalent to or more stringent than the referenced standard, the request for approval shall be denied in writing.

(e) The department may revoke an approval for any false statements or misrepresentations of facts on which the approval was based.

(f) The department may reexamine an approved alternate standard and issue a revised approval at any time.

(3) ADOPTION OF STANDARDS. The standards referenced in Tables 81.20-1 to 81.20-13 are hereby incorporated by reference into this chapter.

Note: The tables in this section provide a comprehensive listing of all of the standards adopted by reference in this code. For requirements or limitations in how these standards are to be applied, refer to the code section that requires compliance with the standard.

Note: For requirements or limitations in how these standards are to be applied, refer to the code section within chs. Comm 82 to 84 that requires compliance with the standard.

SECTION 37. Comm 81.20 Tables 81.20-3e (partial), 81.20-5 (partial), 81.20-8 and 81.20-11 (partial) are amended to read:

Table 81.20-3e (partial)

ASME		**American Society of Mechanical Engineers** **345 East 47th Street** **New York, New York 10017** **Phone: (800) THE-ASME** **Web page: www.infocentral@asme.org**
Standard Reference Number		**Title**
1e.	A112.1.3-00	Air-gap Fittings for Use with Plumbing Fixtures, Appliances, and Appurtenances

Table 81.20-5 (partial)

ASTM	**American Society for Testing and Materials** **100 Barr Harbor Drive** **West Conshohocken, Pennsylvania 19428-2959** **Phone: (610) 832-9585** **Web page: www.astm.org**

Standard Reference Number		**Title**
7e.	~~A888-96~~ A888-98	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Specifications for
15s.	B828-98	Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings, Practice for
~~16.~~	~~C4-97~~	~~Clay Drain Tile and Perforated Clay Drain Tile, Specification for~~
24h.	C923-98	Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals, Specification for
~~44.~~	~~D2666-96a~~	~~Polybutylene (PB) Plastic Tubing, Specification for~~
~~45.~~	~~D2672-96a~~	~~Joints for IPS PVC Pipe Using Solvent Cement, Specification for~~
57s.	D3138-95	Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components, Specifications for
92.	F1866-98	Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings, Specifications for

Table 81.20-8

CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Road, Suite 419 Chattanooga, Tennessee 37421 Web page: www.cispi.org
Standard Reference Number	**Title**
~~1. F1281-97~~	~~Crosslinked Polyethylene / Aluminum / Crosslinked (PEX-AL-PEX) Polyethylene Pressure Pipe~~
~~2. 301-97~~	~~Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Standard Specification for~~
~~3.~~ 310-97	Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Specification for

Table 81.20-11 (partial)

NSF	NSF ~~International~~ *International* ~~3475 Plymouth~~ 789 Dixboro Road P.O. Box 130140 Ann Arbor, Michigan 48113-0140 Phone: (800) 673-6275 Web page: www.nsf.org
Standard Reference Number	**Title**
1. Standard ~~14-90~~ 14-99	Plastic Piping Compounds and Related Materials
5. Standard 51-1997	Food Equipment Materials
~~5.~~6. Standard 61-~~97b~~2001	Drinking Water System Components Health Effects

SECTION 38. Chapter Comm 82 (title) is amended to read:

Chapter Comm 82
DESIGN, CONSTRUCTION, INSTALLATION, SUPERVISION, MAINTENANCE AND INSPECTION OF PLUMBING

SECTION 39. Comm 82.01 is amended to read:

Comm 82.01 Scope. The provisions of this chapter apply uniformly to the design, construction, installation, supervision, maintenance and ~~installation~~ inspection of plumbing, including but not limited to sanitary and storm drainage, water supplies, ~~storm water and sewage disposal~~ wastewater treatment, dispersal or discharge for buildings.

SECTION 39a. Comm 82.01 Note is created to read:

Comm 82.01 Note: For treatment and dispersal of domestic wastewater by means of a POWTS, refer to ch. Comm 83.

SECTION 40. Comm 82.015 is created to read:

Comm 82.015 Purpose. Pursuant to s. 145.02, Stats., the purpose of this chapter is to provide that all plumbing in connection with buildings and facilities in the state, including buildings owned by the state or any political subdivision thereof, shall be safe, sanitary and such as to safeguard the public health and the waters of the state.

SECTION 41. Comm 82.03 is renumbered as Comm 82.03 (1).

SECTION 42. Comm 82.03 (2) is created to read:

Comm 82.03 (2) Pursuant to s 145.13, Stats., this chapter is uniform in application and a municipality may not enact an ordinance for the design, construction, installation, supervision, maintenance and inspection of plumbing which is more stringent than this chapter, except as specifically permitted by rule.

SECTION 43. Comm 82.10 Subchapter I (title) is amended to read:

Subchapter I – ~~Plumbing Principles and Definitions~~ Intent and Basic Requirements

SECTION 43a. Comm 82.10 is repealed and recreated to read:

Comm 82.10 This chapter is founded upon basic principles of environmental sanitation and safety through properly designed, installed and maintained plumbing systems. Some of the details of plumbing construction may vary, but the basic sanitary and safety principles desirable and necessary to protect the health of people are the same**.** As interpretations may be required and as unforeseen situations arise which are not specifically addressed, the following intent statements and basic requirements shall be used to evaluate equivalency where applicable:

(1) INTENT. (a) Plumbing in connection with all buildings, public and private, intended for human occupancy, shall be installed and maintained in such a manner so as to protect the health, safety and welfare of the public or occupants and the waters of the state.

(b) Plumbing fixtures, appliances and appurtenances, whether existing or to be installed, shall be supplied with water in sufficient volume and at pressures adequate to enable the fixtures, appliances and appurtenances to function properly and efficiently at all times and without undue noise under normal conditions of use. Plumbing systems shall be designed and adjusted to use the minimum quantity of water consistent with proper performance and cleaning.

(c) Devices for heating and storing water in pressure vessels or tanks shall be so designed and installed as to prevent dangers of explosion or overheating.

(d) Drain systems shall be designed, constructed and maintained so as to conduct the wastewater or sewage efficiently and shall have adequate cleanouts.

(e) The drain systems shall be so designed as to provide an adequate circulation of air in all pipes and no danger of siphonage, aspiration or forcing of trap seals under conditions of ordinary use.

(f) A plumbing system shall be of durable material, free from defective workmanship, and designed and constructed so as to provide satisfactory service for its reasonable expected life.

(g) Proper protection shall be provided to prevent contamination of food, water, sterile goods and similar materials by backflow of wastewater.

(h) All plumbing fixtures shall be installed so as to provide adequate spacing and accessibility for the intended use and cleaning.

(2) BASIC REQUIREMENTS. (a) Every building intended for human occupancy shall be provided with an adequate, safe and potable water supply.

(b) To fulfill the basic needs of sanitation and personal hygiene, each dwelling connected to a POWTS or public sewer shall be provided with at least the following plumbing fixtures: one water closet, one wash basin, one kitchen sink and one bathtub or shower, except a system or device recognized under ch. Comm 91 may be substituted for the water closet. All other structures for human occupancy shall be equipped with sanitary facilities in sufficient numbers as specified in chs. Comm 61 to 65.

(c) Hot or tempered water shall be supplied to all plumbing fixtures that normally require hot or tempered water for proper use and function.

(d) Where plumbing fixtures exist in a building that is not connected to a public sewer system, suitable provision shall be made for treating, recycling, dispersing or holding the wastewater.

(e) Plumbing fixtures shall be made of durable, smooth, non-absorbent and corrosion resistant material, and shall be free from concealed fouling surfaces.

SECTION 45. Comm 82.20 (title) and (1) are amended to read:

Comm 82.20 Plan review and ~~approval~~ cross connection control device or assembly registration. (1) GENERAL. Plans and specifications shall be submitted to the department or to an approved agent municipality for review in accordance with pars. (a) and (b). All registrations for cross connection control devices or assemblies shall be submitted to the department in accordance with par. (c).

Note: ~~A plan approval application form (SBD-6154) is available from the Safety and Buildings Division, P. O. Box 7162, Madison, WI 53707.~~ The department forms required in this chapter are available from the Safety and Buildings Division at P.O. Box 7162, Madison, WI 53707-7162, or at telephone 608/266-3151 and 608/264-8777 (TTY), or at the Safety and Buildings' web site at www.commerce.state.wi.us.

SECTION 45a. Comm 82.20 (1) (a) is repealed and recreated to read:

Comm 82.20 (1) (a) *Department review.* When review is required, regardless of where the installation is to be located, written approval for the plans shall be obtained prior to installation of the work. The following types of installations shall be submitted to the department for review:

1. All types of installations listed in Table 82.20-1.

2. Treatment systems intended to be used to comply with the plumbing treatment standards as listed in Table 82.70-1, unless the treatment system is otherwise approved for that use as specified under s. Comm 82.20 (12), 84.10 or 84.50.

SECTION 46. Comm 82.20 (1) (b) 2. is repealed.

SECTION 47. Comm 82.20 (1) (b) 1. is renumbered as Comm 82.20 (1) (b) 2.

SECTION 48. Comm 82.20 (1) (b) (intro.) is renumbered as Comm 82.20 (1) (b) 1.

SECTION 49. Comm 82.20 (1) (b) 1. Note is created to read:

Comm 82.20 (1) (b) 1. **Note:** The number of plumbing fixtures to be submitted and reviewed by an agent municipality is a subject of local ordinances.

SECTION 50. Comm 82.20 (1) (c) is created to read:

Comm 82.20 (1) (c) *Cross connection control device or assembly registration.* The initial installation of each reduced pressure principle backflow preventer, back siphonage backflow vacuum breaker, reduced pressure detector backflow preventer, double check valve, double detector check valve, or pressure vacuum breaker, shall meet all of the following:

1. a. Except for the provisions under subpar. b., for initial installation in any building or facility, each device or assembly covered under this paragraph shall be registered with the department.

b. Plan review approval for a cross connection control device or assembly issued prior to [EFFECTIVE DATE … REVISOR TO INSERT EFF. DATE] is considered in compliance with this paragraph.

2. For each device or assembly covered under this paragraph registration shall be submitted prior to the initial test.

SECTION 51. Comm 82.20 Tables 82.20-1 and 82.20-2 are amended to read:

Table 82.20-1
SUBMITTALS TO DEPARTMENT

	Type of Plumbing Installation
1.	~~All~~ Except for direct replacement, all plumbing, new installations, additions and alterations, regardless of the number of plumbing fixtures involved, to be installed in ~~health care facilities~~ hospitals, nursing homes and ambulatory surgery centers.[b]
2.	Plumbing, new installations, additions and alterations involving 16 or more plumbing fixtures, to be installed in connection with buildings owned by a metropolitan or sanitary sewer district.[a]
3.	Plumbing, new installations, additions and alterations involving 16 or more plumbing fixtures, to be installed in connection with buildings owned by the state.[a]
4.	Alternate and experimental plumbing systems.
~~5.~~	~~Controlled roof drainage systems.~~
~~6.~~ 5.	~~Reduced~~ For installation in health care and related facilities, reduced pressure principle backflow preventers and reduced pressure detector backflow preventers.
~~7.~~ 6.	~~Pressure~~ For installation in health care and related facilities, pressure vacuum breaker assembly.
~~8.~~ 7.	~~Back~~ For installation in health care and related facilities, back siphonage backflow vacuum breaker.
8.	Subsurface storm water or subsurface clearwater dispersal plumbing systems in connection with public buildings.
9.	Plumbing water treatment systems, other than POWTS, designed to treat water for compliance with Table 82.70-1.[c]

[a] ~~A water heater is~~ Water heaters, floor drains, storm inlets, roof drains and hose bibbs are to be counted as ~~a~~ plumbing ~~fixture~~ fixtures.
[b] For hospitals, nursing homes and ambulatory care surgery centers, registration for cross connection control devices as specified under s. Comm 82.20 (1) is included as a part of plan approval.
[c] For a product approved under s. Comm 84.10 or 84.50, the installation of such product does not constitute a system.

Table 82.20-2
SUBMITTALS TO DEPARTMENT OR AGENT MUNICIPALITY

	Type of Plumbing Installation
1.	~~New~~ Except for direct replacement, new installations, additions and alterations to drain systems, vent systems, water service systems, and water distribution systems involving 16 or more plumbing fixtures to be installed in connection with public buildings.[a,b]
2.	Grease interceptors to be installed for public buildings.
3.	Garage catch basins, carwash interceptors and oil interceptors to be installed for public buildings and facilities.
~~4.~~	~~Automatic car wash facilities.~~
~~5.~~ 4.	Sanitary dump stations.
~~6.~~ 5.	~~Private~~ Piping designed to serve as private water mains.
~~7.~~6.	Water supply systems and drain systems to be installed for mobile home parks and campgrounds.[c]
~~8.~~7.	~~Private~~ Piping designed to serve as private interceptor main sewers greater than 4 inches in diameter when sized for gravity flow as specified in Table 82.30-1.
~~9.~~ 8.	Chemical waste systems regardless of the number of plumbing fixtures ~~involved~~.[c]

[a] ~~A water heater is~~ Water heaters, floor drains, storm inlets, roof drains and hose bibbs are to be counted as ~~a~~ plumbing ~~fixture~~ fixtures.
[b] For the purpose of plan submittal, public buildings do not include zero-lot-line row houses where each living unit is served by an individual water service and an individual building sewer.
[c] Only agent municipalities which are cities of the first class may review these types of installations.

SECTION 52. Comm 82.20 (4) (c) to (e) are renumbered as Comm 82.20 (4) (b) to (d) and Comm 82.20 (4) (b), as renumbered, is amended to read:

Comm 82.20 (4) (b) All plans submitted for approval shall be accompanied by sufficient data and information for the department to ~~judge~~ determine if the installation and its performance will meet the requirements of ~~this chapter and ch. Comm 84~~ chs. Comm 81 to 84.

1. Information to accompany the plans shall include the location or address of the installation and the name of the owner.

2. Plans proposing the installation, creation or extension of a private sanitary building sewer or a sanitary private interceptor main sewer which is to discharge to a municipal treatment facility shall:

SECTION 53. [This treatment section was consolidated into SECTION 52.]

SECTION 54. Comm 82.20 (4) (b) 2. Note is created to read:

Comm 82.20 Note: For plans proposing the installation, creation or extension of a private interceptor main sewer which is to discharge to a municipal treatment facility, see also ch. NR 121.

SECTION 55. [This treatment section was deleted after the public hearing.]

SECTION 56. Comm 82.20 (4) (c) is repealed and recreated to read:

Comm 82.20 (4) (c) Plumbing plans, index sheets and specifications for a plumbing system submitted for review and approval shall be signed in accordance with any of the following methods:

1. A Wisconsin registered architect, engineer or plumbing designer shall sign and seal or stamp all plans and accompanying specifications in accordance with ch. A-E 2.

2. A master plumber, master plumber restricted service, master plumber restricted appliance or a utility contractor shall sign and date all plumbing plans and accompanying specifications as provided under s. 145.06, Stats. Each sheet of plans and specifications submitted shall be signed and dated and shall include the valid Wisconsin license number of the individual responsible for the installation. Where more than one sheet is bound together into one volume, only the title sheet or index sheet shall be signed and dated by the individual responsible for the installation. The signed title or index sheet shall clearly identify all of the other sheets in the volume.

3. A pump installer shall sign and date all plumbing plans and accompanying specifications for which the individual is responsible for the installation. Each sheet of plans and specifications submitted shall be signed and dated and shall include the valid Wisconsin license number of the individual responsible for the installation. Where more than one sheet is bound together into one volume, only the title sheet or index sheet shall be signed and dated by the individual responsible for the installation. The signed title or index sheet shall clearly identify all of the other sheets in the volume.

SECTION 57. Comm 82.20 (13) renumbered as Comm 82.20 (14).

SECTION 58. Comm 82.20 (13) is created to read:

Comm 82.20 (13) CROSS CONNECTION CONTROL REGISTRATION. (a) Registration, as specified in sub. (1) (c), shall be submitted in a format acceptable to the department.

Note: The forms required in this chapter are available from the Safety and Buildings Division, P.O. Box 7162, Madison, WI 53707-7162, or at telephone (608) 266-3151 and (608) 264-8777 (TTY), or at the Safety and Buildings' web site at www.commerce.state.wi.us.

(b) The form for registering cross connection control devices and assemblies with the department shall include at least all of the following information:

1. The building or facility name and address where the device or assembly is or will be installed.

2. The location of the cross connection control device or assembly within the building or facility.

3. A description of the cross connection control device or assembly including the size, model number, serial number and manufacturer.

4. The name of the owner or owner's agent submitting the registration form and contact information.

(c) Each registration form submitted shall be accompanied by the appropriate fee in accordance with s. Comm 2.645.

(d) Upon receipt of a completed registration form, the department shall issue written confirmation of registration including a department assigned identification number for each cross connection control device or assembly.

(e) Upon permanent removal or replacement of any reduced pressure principle backflow preventer, back siphonage backflow vacuum breaker, reduced pressure detector backflow preventer, pressure vacuum breaker, double check or double check detector, the owner shall notify the department, in writing using a format acceptable to the department.

SECTION 59. Comm 82.21 (1) (b) 4. b. is repealed and recreated to read:

Comm 82.21 (1) (b) 4. b. Municipalities may require that a final test be conducted in accordance with par. (d) 8. and that the final test, when required by the municipality, shall be observed by the plumbing inspector.

SECTION 60. Comm 82.21 (1) (d) 8. b. is amended to read:

Comm 82.21 (1) (d) 8. b. The air test shall be made by attaching ~~an air compressor testing apparatus~~ a gauge to any suitable opening~~,~~ and, after closing all other inlets and outlets ~~to the completed~~ in the system, ~~forcing~~ adding air into the system until a pressure equivalent to ~~the gauge pressure of~~ a one inch water column exists. ~~This shall be accomplished by the use of~~ The pressure shall remain constant for ~~the~~ at least a 5-minute test period ~~of inspection~~ without the introduction of additional air.

SECTION 61. Comm 82.21 (2) (d) is repealed and recreated to read:

Comm 82.21 (2) (d) *Plumbing reused.* 1. Except as provided in subd. 2., plumbing materials removed and found to be in good condition, may be reused if such reuse is approved by the department or a local plumbing inspector. The owner of the building or facility in which the reused materials are to be installed shall provide written consent.

2. Water supply piping materials may only be reused when intended for uses having an equal or higher degree of hazard than the previous use as specified in Table 82.70-1.

SECTION 62. Comm 82.30 Tables 82.30-1 (partial and footnotes), 82.30-2 (partial and footnotes) and 82.30-3 (partial and footnotes) are 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 ~~Min.~~ Minimum Diameter (in inches)
Autopsy Table	[h]	[h]
Health Care Fixtures		
Clinic sink ……..	6	[f] NA
Exam/treatment sink …….…….	1	$1^1/_4$
Sitz bath …….	2	$1^1/_2$
Mobile Home ……..…..	11	NA
Campsite receptor ……...……...	6	4
Sinks,[i]		
Breakroom (single compartment) …..….	1	1 ½
Fountain wash up~~, per station~~ …….	1	1 ½
Receptors of Indirect Wastes, gravity flow discharge.		
$1^1/_4$ inch receptor outlet diameter …...	1	$1^1/_4$

NA = not applicable.
[h] Trap size corresponds to the size of the drain outlet. Use the dfu value of the receptor serving the autopsy table.
[i] Sinks not specified in this table shall be assigned 1 dfu for $1^1/_4$" tailpiece, 2 dfu for 1 ½" tailpiece and 3 dfu for 2" tailpiece.

Table 82.30-2
HORIZONTAL AND VERTICAL DRAIN PIPING

Pipe Diameter (in inches)	Maximum Number of Drainage Fixture Units Which May Drain Through Any Portion of Horizontal and Vertical Drain Piping			
	Horizontal Drain Piping[a]	Vertical Drain Piping of 3 Branch Intervals or Less[b]	Vertical Piping in Drain Stacks of ~~more than~~ More Than 3 Branch Intervals[b]	
			Total Discharge from Side Connections into One Branch Interval	Total Discharge Through Any Portion
3	20[e]	48[d]	20[e]	72[d]

~~[e] Not more than 2 water closets or similar flush action type fixtures of 4 or more drainage fixture units.~~
~~[d] Not more than 2 water closets or similar flush action type fixtures of 4 or more drainage fixture units within each branch interval nor more than 6 flush action type fixtures on the stack.~~

Table 82.30-3
BUILDING DRAINS, BUILDING SUBDRAINS, BUILDING SEWERS AND PRIVATE INTERCEPTOR MAIN SEWERS [a]

Pipe Diameter (in inches)	Maximum Number of Drainage Fixture Units Which May Drain Through Any Portion of a Building Drain, Building Subdrain, Building Sewer or Private Interceptor Main Sewer			
	Pitch (inch per foot)			
	1/16	1/8	1/4	1/2
3	NP	36[e]	42[e]	50[e]

[e] ~~Not more than 2 water closets or similar flush action type fixtures of 4 or more drainage fixture units.~~

Note: For further explanatory material see Appendix A-82.30 (4).

SECTION 63. Comm 82.30 (4) (d) 5. is amended to read:

Comm 82.30 (4) (d) 5. Private interceptor main sewers 8 inches or larger in diameter shall conform with the design ~~flow~~ criteria specified in ~~ch. NR 110~~ s. NR 110.13.

SECTION 64. Comm 82.30 (4) (d) 5. Note is created to read:

Comm 82.30 (4) (d) 5. **Note:** See Appendix A-82.30 (4) (d) for further explanatory material.

SECTION 65. Comm 82.30 (5) (b) 2. b. and (c) 2. are amended to read:

Comm 82.30 (5) (b) 2. b. The minimum pitch of building sewers 12 inches or larger in diameter shall conform with the minimum ~~pitches~~ pitch specified for municipal sewers in s. NR 110.13 ~~(2) (c).~~

(c) 2. The minimum pitch of private interceptor main sewers 8 inches or larger in diameter shall conform with the minimum ~~pitches~~ pitch specified for municipal sewers in s. NR 110. 13 ~~(2) (c)~~.

SECTION 66. Comm 82.30 (5) (b) 2. b. Note is created to read:

Comm 82.30 (5) (b) 2. b. Note: See also s. Comm 82.30 (4) (d) 5 for further explanatory material.

SECTION 67. Comm 82.30 (5) (c) 2. Note is created to read:

Comm 82.30 (5) (c) 2. **Note:** See Appendix A-82.30 (4) (d) for further explanatory material.

SECTION 68. Comm 82.30 (10) (a) 2. is amended to read:

Comm 82.30 (10) (a) 2. *Capacity.* ~~The~~ Except as provided in pars. (c) and (d) , the minimum capacity of the sump shall be determined in accordance with the provisions of subd. 2. a. to e.

SECTION 69. Comm 82.30 (10) (b) 2. d. is created to read:

Comm 82.30 (10) (b) 2. d. Where duplex pumping equipment is installed, an audible or visual alarm system with a manual control reset shall be installed to indicate pump failure.

SECTION 70. Comm 82.30 (10) (b) 3. Note is created to read:

Comm 82.30 (10) (b) 3. **Note:** See Appendix A-82.30 (10) (b) 3. for velocity in relation to flow rate by various pipe sizes.

SECTION 71. Comm 82.30 (10) (b) 4. b. is amended to read:

Comm 82.30 (10) (b) 4. b. ~~A~~ With the exception of exterior sumps, a full flow check valve shall be installed in the discharge piping from each ejector or pump.

SECTION 72. Comm 82.30 (10) (c) and (d) are created to read:

Comm 82.30 (10) (c) *Prefabricated pumps and sump systems.* The minimum capacity of a prefabricated pump and sump system shall be determined in accordance with all of the following:

1. The water supply fixture unit, wsfu, method shall be used to determine peak input flow in gallons per minute. The peak input shall include all the fixtures that drain to the sump.

2. Unless storage is provided as specified in par. (a) 2., the capacity of the prefabricated pump and sump system shall accommodate the peak input flow.

3. The low water level shall be maintained in accordance with the pump manufacturer's requirements.

(d) *Exterior sumps.* The minimum capacity of exterior sumps shall be determined in accordance with all of the following:

1. Peak input flow in gallons per minute shall be determined in accordance with either of the following:

a. The water supply fixture unit, wsfu, method of all the fixtures that drain to the sump.

b. The provisions as specified in s. Comm 83.43 (2) through (6).

2. In lieu of providing the duplex pumping equipment as specified in par. (b) 2., a one-day holding capacity may be provided above a high level alarm when installed on a simplex system.

SECTION 73. Comm 82.30 (11) (a) 2. is repealed and recreated to read:

Comm 82.30 (11) (a) 2. The building sewer or private interceptor main sewer serves buildings located on the same property and a document, which indicates the piping and distribution arrangement for the property and buildings, shall be recorded with the register of deeds no later than 90 days after installation.

SECTION 74. Comm 82.30 (11) (b) 1. a. is amended to read:

Comm 82.30 (11) (b) *Building drains.* 1. Elevation. a. All building drains shall be installed below the lowest floor levels on which fixtures may be installed if the public sewer, ~~septic tank~~ POWTS or private interceptor main sewer elevation permits.

SECTION 75. Comm 82.30 (11) (b) 3. is renumbered as Comm 82.30 (11) (b) 3. a.

SECTION 76. Comm 82.30 (11) (b) 3. b. is created to read:

Comm 82.30 (11) (b) 3. b. In any room containing the recessed or concealed portions of sterilizers located in health care or related facilities, at least one floor drain connecting to the drainage system shall be installed in a manner to adequately drain the entire floor area.

SECTION 77. Comm 82.30 (11) (c) 2. a. to c. is amended to read:

Comm 82.30 (11) (c) 2. 'Protection from frost.' a. Except as provided in subpars. c. ~~and d~~. to e., a building sewer or private interceptor main sewer shall be protected from frost in accordance with subd. 3. in areas where the top of the building sewer or private interceptor main sewer is located less than 60 inches below a surface area from which snow will be cleared.

b. Except as provided in subd. 2. c. ~~and d~~. to e., a building sewer or private interceptor main sewer shall be protected from frost in accordance with subd. 3. in areas where the top of the building sewer or private interceptor main sewer is located less than 42 inches below a surface area which snow will not be cleared.

c. Where a building sewer or private interceptor main sewer discharges to a ~~septic tank,~~ holding tank, ~~or~~ POWTS treatment tank or grease interceptor, the portion of a building sewer or private interceptor main sewer which is within 30 feet from the connecting building drain and which is under a surface area from which snow will not be cleared shall not be required to be protected from frost.

SECTION 78. Comm 82.30 (11) (c) 2. e. is created to read:

Comm 82.30 (11) (c) 2. e. Where a building sewer or private interceptor main sewer is installed to serve summer use public facilities, frost protection requirements shall not apply.

Note: This exemption applies to frost sleeves as provided in s. Comm 82.35 (5) (a) 2.

SECTION 79. Comm 82.30 (11) (c) 3. (intro.) is amended to read:

Comm 82.30 (11) (c) 3. 'Insulation for building sewers.' Where required by subd. 2. a. or b., building sewer or private interceptor main sewer insulation for frost protection shall be provided in accordance with one of the methods specified in subd. 3. a. to ~~c~~d.

SECTION 80. Comm 82.30 (11) (c) 3. b. and c. are renumbered as Comm 82.30 (11) (c) 3. c. and d.

SECTION 81. Comm 82.30 (11) (c) 3. b. and Note are created to read:

Comm 82.30 (11) (c) 3. b. Extruded polystyrene foam insulation shall be installed using a box method. The 3-sided box shall be formed with 3 lengths of polystyrene foam insulation where the top of the box extends horizontally to the farthest edge of both vertical sides. The insulation shall be installed at or below a depth of at least 12 inches below finished grade and 6 inches above the top and 6 inches from each side of the building sewer or private interceptor main sewer. The minimum thickness of the foam insulation shall be determined from Figure 82.30-1 and Table 82.30-5.

Note: See Appendix A-82.30 (11) (c) for further explanatory material.

SECTION 82. Comm 82.30 (11) (d) and Note is repealed and recreated to read:

Comm 82.30 (11) (d) *Location limitations.* Comm 82.30 (11) (d) Building drains, building sewers or private interceptor main sewers shall be separated from water wells by the applicable separation distances contained in chs. NR 811 and 812 or as otherwise approved by the department of natural resources.

Note: See s. Comm 82.40 for provisions regarding the separation of water supply piping ~~and~~ building sewers and private interceptor main sewers.

SECTION 83. Comm 82.30 (11) (d) Note is created to read:

Comm 82.30 (11) (d) **Note:** See Appendix A-82.30 (11) (d) for further explanatory material. Section NR 812.08 may require additional setbacks.

SECTION 84. Comm 82.30 (11) (g) 2. is amended to read:

Comm 82.30 (11) (g) 2. Storm water and clear water connections. Except as provided in s. Comm 82.36 (3) ~~(b) 4.~~, storm drain piping and clear water drain piping may not discharge to a sanitary building drain which connects to a publicly owned treatment works.

SECTION 85. [This treatment section was deleted after the public hearing.]

SECTION 86. Comm 82.30 (12) (f) (intro.) and 1. is amended to read:

Comm 82.30 (12) (f) No private interceptor main sewer may pass through or under a building to serve another building, unless one of the following conditions are met:

1. The private interceptor main sewer serves farm buildings ~~or~~, farm houses, or both which are ~~all~~ located on one property~~; or~~.

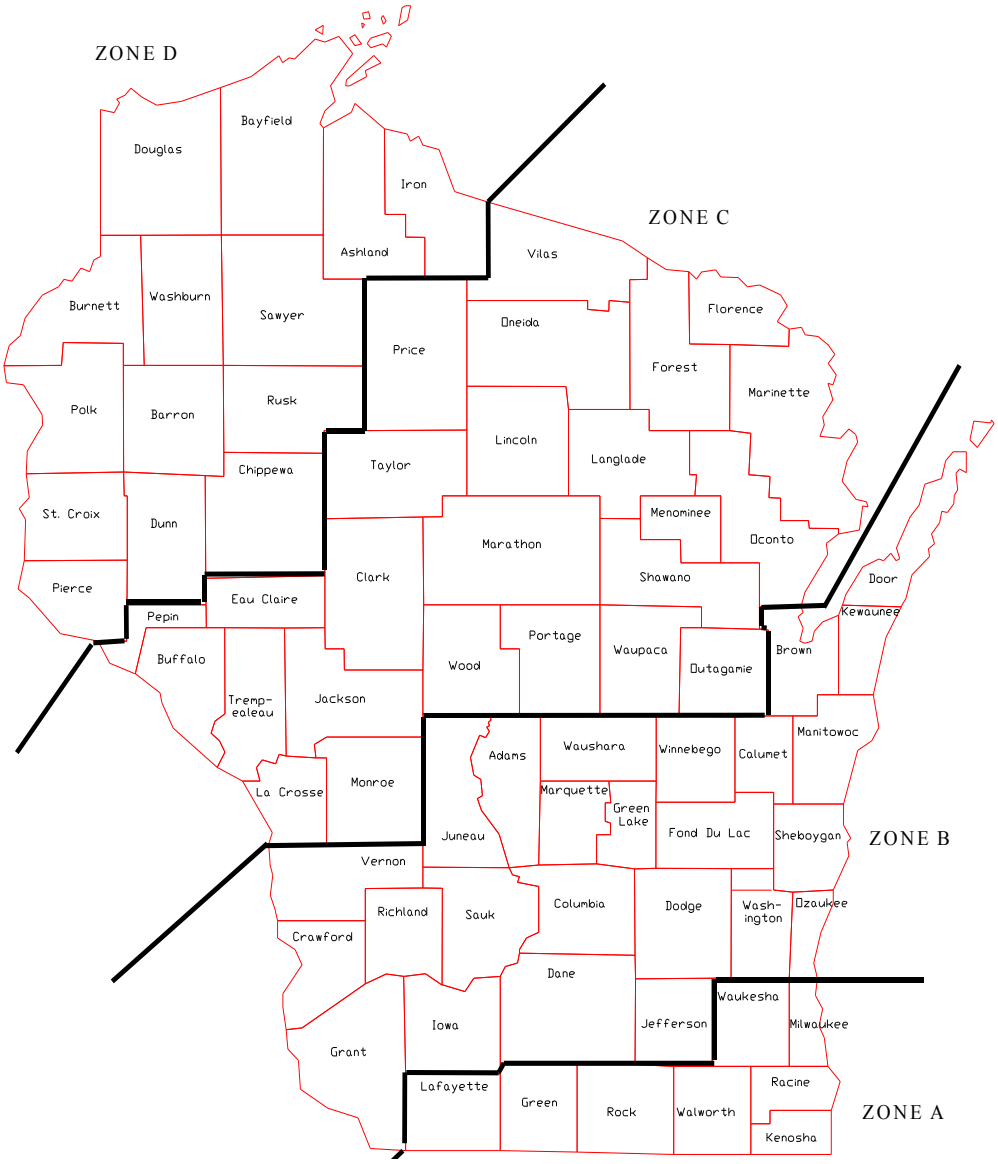
SECTION 87. Comm 82.30 (12) (f) 2. is repealed and recreated to read:

Comm 82.30 (12) (f) 2. The private interceptor main sewer serves buildings that are located on one property and a document, which indicates the piping and distribution arrangement for the property and buildings, shall be recorded with the register of deeds no later than 90 days after installation.

SECTION 88. Comm 82.30 Figure 82.30-1 (title) is created:

[Note to Revisor: Map is unchanged; a better copy is being submitted for publication.]

Figure 82.30-1. Frost protection zones.



SECTION 89. Comm 82.30 Tables 82.30-5 (partial) and 82.30-6 (partial) are amended to read:

Table 82.30-5 (partial)
MINIMUM THICKNESS OF INSULATION

~~Installation Site~~ Frost Protection Zone	Extruded Polystyrene Foam (in inches)	Insulating Concrete (in inches)

Table 82.30-6 (partial)
PREDICTED DEPTH OF FROST IN VARIOUS TYPES OF BACKFILL SOIL (in feet)

Soil Type	~~Installation Site~~ Frost Protection Zone			
	A	B	C	D

SECTION 89a. Comm 82.31 (8) is renumbered as Comm 82.31 (8)(a) and amended to read:

Comm 82.31 (8) Vents for sanitary sumps. (a) *Interior sanitary sumps.* Sanitary sumps shall be provided with a vent connecting either to the sump above the drain inlet or to the drain inlet within 12 inches of the sump.

SECTION 89b. Comm 82.31 (8) (b) is created to read:

Comm 82.31 (8) (b) *Exterior sanitary sumps.* Sanitary sumps shall be provided with a vent that terminates in accordance with subd. (16) (h).

SECTION 90. Comm 82.31 (11) (a) is amended to read:

Comm 82.31 (11) (a) *Vertical drains.* A common vent may serve a maximum of 2 ~~fixture traps~~ fixtures where both fixture drains connect to a vertical drain at the same elevation. Where this connection is by means of a sanitary tee fitting with a side inlet, the centerline of the side inlet opening may not be below the centerline of the larger opening. The drain connection of a blowout type fixture or a kitchen sink served by a common vent may not be by means of a double sanitary tee fitting.

SECTION 91. Comm 82.31 (12) (intro.) and (a) are amended to read:

Comm 82.31 (12) ~~Island fixture venting.~~ RETURN VENTS. ~~Island plumbing~~ Plumbing fixtures may be vented in accordance with pars. (a) to (d).

(a) ~~Island plumbing fixtures~~ Wall outlet fixtures may be vented by extending an individual vent, vertical wet vent or a common vent as high as possible under the fixture enclosure and returning the vent vertically downward and connecting ~~it~~ the vent to the fixture drain or branch drain by means of a wye pattern fitting.

SECTION 92. Comm 82.31 (12) (d) Note 2. is repealed.

SECTION 93. Comm 82.31 (13) (c) 1. is amended to read:

Comm 82.31 (13) (c) 1. No more than 2 wall outlet fixtures, each fixture with a drainage fixture unit value of one or less, may have their fixture drains connected ~~individually~~ into the individual vent, common vent, circuit vent or relief vent ~~thereby forming a wet vent~~.

SECTION 94. Comm 82.31 (14) (j) is created to read:

Comm 82.31 (14) (j) *Vents for chemical basins.* The size of vents serving chemical dilution or neutralizing basins shall be determined in accordance with Table 82.31-3 and based upon the number of drainage fixture units discharging into the basins.

SECTION 94a. Comm 82.31 (16) (h) is created to read:

Comm 82.31 (16) (h) Except when installation is in accordance with par. (d) 3., penetrations through grade shall terminate at least 12 inches above finished grade and terminate with a vent cap or return bend.

SECTION 95. Comm 82.31 (17) (a) 1. a. and b. is amended to read:

Comm 82.31 (17) (a) *Stacks.* 1. A drain stack may serve as a combination drain and vent system for ~~identical~~ fixtures in accordance with subd. 1. a. to ~~e~~f.

a. The drain stack shall not serve more than 3 ~~identical~~ fixtures. Each fixture shall be located on a separate floor level.

b. The drain stack shall be limited to serving ~~kitchen sinks with or without food waste grinders or dishwasher connections within dwelling units, drinking fountains and lavatories~~ fixtures with a drainage fixture unit value of no greater than 2.0. A urinal may not discharge into the combination drain and vent portion of the stack. The largest drainage fixture unit value served by the stack shall determine the stack size as specified in Table 82.31-5.

SECTION 95a. Comm 82.31 Table 82.31-4 (partial) is amended to read:

Table 82.31-4
SIZE AND LENGTH OF VENTS FOR SANITARY SUMPS

Discharge Capacity of Ejector (gpm)	Maximum Developed Length of Vent[a] (feet)				
	Diameter of Vent (inches)				
	$1^1/_4$[d]	$1^1/_2$[d]	2	3	4

[d] Diameter not permitted for exterior sumps.

SECTION 96. Comm 82.31 Table 82.31-5 is repealed and recreated to read:

Table 82.31-5
STACK SIZING BY DFU VALUE

Drainage Fixture Unit (dfu) Value	Size of Stack (in inches)
0.5	1 ½
1.0	2
2.0	3

SECTION 97. Comm 82.32 (3) (c) 1. is repealed and recreated to read:

Comm 82.32 (3) (c) 1. A trap seal primer valve or other means of trap seal protection acceptable to the department shall be provided for a trap subject to seal loss due to evaporation.

SECTION 98. Comm 82.32 (3) (c) 1. Note is created to read:

Comm 82.32 (3) (c) 1. **Note:** Liquids acceptable to use for reducing trap seal evaporation include mineral oil, vegetable oil, propylene glycol and glycerin.

SECTION 99. Comm 82.32 (3) (c) 2. Note is amended to read:

Comm 82.32 (3) (c) 2. **Note:** A list of referenced standards is contained in ch. Comm ~~84~~ 81.

SECTION 100. Comm 82.32 (4) (b) 1. b. is amended to read:

Comm 82.32 (4) (b) 1. b. The vertical distance between the top of the fixture drain outlet of a pedestal ~~drinking fountain~~ fixture~~,~~ or a cuspidor ~~or a drain receptor for a sanitary dump station~~ and the horizontal centerline of the trap outlet shall not exceed 60 inches.

SECTION 101. Comm 82.32 (4) (b) 1. d. is created to read:

Comm 82.32 (4) (b) 1. d. The vertical distance from the inlet to the horizontal centerline of the fixture drain for a campsite receptor, exterior storm drain inlet, or a receptor for a sanitary dump station may exceed 3 feet so as to permit the trap to be installed below the predicted depth of frost.

SECTION 102. Comm 82.32 (4) (b) 2. is repealed and recreated to read:

Comm 82.32 (4) (b) 2. 'Horizontal distance.' Except as provided in subd. 2. a. and b., the horizontal distance between the vertical centerline of a fixture drain outlet and the vertical centerline of the trap inlet shall not exceed 15 inches.

a. The horizontal distance for a pedestal drinking fountain shall not exceed 24 inches.

b. The horizontal distance for an exterior sanitary area drain or a residential garage floor drain discharging through an interior trap shall not exceed 25 feet.

SECTION 103. Comm 82.33 (5) (a) 2. is amended to read:

Comm 82.33 (5) (a) 2. All indirect waste piping draining a refrigerated food storage room, compartment or display case shall be provided with a trap in accordance with s. Comm 82.32 (4).

SECTION 104. Comm 82.33 (7) (b) is amended to read:

Comm 82.33 (7) (b) *Air-break installation*. The air-break between indirect waste piping or local waste piping and the receptor shall be accomplished by extending the indirect waste piping or local waste piping below the flood level rim of the receptor and terminating at an elevation above the trap outlet.

SECTION 105. Comm 82.33 (8) (a) 1. is renumbered as Comm 82.33 (8) (a).

SECTION 106. Comm 82.33 (8) (a) 2. is repealed.

SECTION 107. Comm 82.33 (8) (c) and (d) are repealed and recreated to read:

Comm 82.33 (8) (c) *Local waste piping.* Local waste piping may not receive discharge from another local waste pipe.

(d) *Other receptors.* A plumbing fixture may not be used as a receptor for indirect or local waste piping, except as provided in subds. 1. to 5.

1. The indirect waste piping of a portable dishwasher or water treatment device serving one or 2 outlets may discharge into a kitchen sink of a dwelling unit or to a branch tail piece serving a kitchen sink.

2. The indirect waste piping of an automatic clothes washer or water treatment device may discharge into a laundry tray.

3. The indirect or local waste piping serving a cross connection control device or assembly, water treatment device, air conditioner, humidifier or furnace condensate may discharge into a branch tailpiece serving a laundry tray.

4. The local waste piping serving a water heater temperature and pressure relief valve, water treatment device, cross connection control device or assembly, humidifier, sterilizer, or a furnace or air conditioner may discharge into the riser of a floor drain when installed in accordance with s. Comm 82.33 (7) (b).

5. The indirect or local waste piping serving a water heater temperature and pressure relief valve, water treatment device, cross connection control device or assembly, or a furnace or air conditioner may discharge to a floor served by a floor drain so as not to create a health or safety hazard.

SECTION 108. Comm 82.33 (8) (d) Note is created to read:

Comm 82.33 (8) (d) **Note:** See Appendix A-82.33 (8) (a) to (d) for further explanatory material.

SECTION 109. Comm 82.33 (9) (a) 2. is renumbered as Comm 82.33 (9) (a) 2. a. and amended to read:

Comm 82.33 (9) (a) 2. ~~Wastewater~~ a. Except as provided in subd. 2. b., wastewater more than 160° F~~.~~ in temperature ~~not discharge into any part of a~~ shall be discharged by means of indirect waste to the plumbing system.

SECTION 110. Comm 82.33 (9) (a) 2. b. is created to read:

Comm 82.33 (9) (a) 2. b. Steam condensate blow down shall be cooled to 160° F in temperature prior to discharging to a plumbing system.

SECTION 111. Comm 82.33 (9) (b) is repealed and recreated to read:

Comm 82.33 (9) (b) *Clear water.* When discharging to a plumbing system, all clear water shall discharge by means of an air-gap.

SECTION 112. Comm 82.33 (9) (c) 1. b. is amended to read:

Comm 82.33 (9) (c) 1. b. ~~The top of a~~ A 1 ½-inch or larger diameter standpipe receptor shall terminate at least 32 inches but not more than ~~42~~ 48 inches above the floor on which the clothes washer is located.

SECTION 113. Comm 82.33 (9) (c) 1. c. is created to read:

Comm 82.33 (9) (c) 1. c. A 2-inch or larger diameter standpipe receptor shall terminate at least 26 inches but not more than 48 inches above the floor on which the clothes washer is located. A 2-inch trap and fixture drain shall be installed downstream of the standpipe.

SECTION 114. Comm 82.33 (9) (d) is repealed and recreated to read:

Comm 82.33 (9) (d) *Dishwashing machines.* All dishwashing machines shall discharge to the sanitary drain system.

1. 'Residential type.' The indirect waste piping from a residential-type dishwashing machine shall not exceed a developed length of 10 feet. The indirect waste piping from a residential-type dishwashing machine shall be installed in accordance with one of the following methods:

a. Where an air-gap or air-break is located below the countertop, the indirect waste piping from the dishwashing machine shall discharge to a standpipe. The standpipe shall be at least 1 ½ inches in diameter and shall extend at least 15 inches above the trap weir.

b. Where an air-gap or air-break is located above the countertop, the indirect waste piping from the dishwashing machine shall discharge to local waste piping. The local waste piping shall connect to the kitchen sink branch tailpiece above the trap inlet, the standpipe or to the dishwashing machine connection of a food waste grinder. When the local waste piping discharges to a standpipe, the standpipe shall be at least 1 ½ inches in diameter and shall extend at least 15 inches above the trap weir. Where a hose is used for local waste piping, the developed length shall not exceed 18 inches.

SECTION 115. Comm 82.33 (9) (e) and (g) 6. are amended to read:

Comm 82.33 (9) (e) *Drips and drain outlets.* Appliances, devices and apparatus not defined as plumbing fixtures which have drip or drain outlets, which discharge to the plumbing system, shall ~~be drained through indirect waste piping~~ discharge into an ~~open~~ approved receptor by means of an approved air-gap or air-break.

(g) 6. ~~Preparation sinks~~ 'Food preparation.' Open culinary ~~sinks~~ sink compartments for thawing or washing food shall discharge to the sanitary drain system through ~~indirect waste piping~~ an independent connection by means of an air-gap. The ~~indirect waste piping may~~ fixture drain upstream of the air-gap shall not exceed a length of 30 inches.

SECTION 116. [This treatment section was deleted after the public hearing.]

SECTION 117. Comm 82.33 (9) (i) is repealed and recreated to read:

Comm 82.33 (9) (i) *Cross connection control devices or assemblies.* Where a receptor is provided, the vent port discharge from cross connection control devices or assemblies shall discharge to the receptor by means of an air-gap.

SECTION 118. Comm 82.33 (10) is renumbered as Comm 82.33 (10) (a).

SECTION 119. Comm 82.33 (10) (a) Note is created to read:

Comm 82.33 (10) (a) Note: See Appendix A-82.30 (11) (d) for further explanatory material. Section NR 812.08 may require additional setbacks from wells for water treatment devices.

SECTION 120. Comm 82.33 (10) (b) is created to read:

Comm 82.33 (10) (b) The indirect waste piping or tubing from a water treatment device shall be of a material conforming to one or more of the standards listed in Tables 84.30-8 or 84.30-11.

SECTION 121. Comm 82.34 (1) and (2) are repealed and recreated to read:

Comm 82.34 Wastewater treatment devices. (1) SCOPE. The provisions of this section set forth the requirements for design and installation of plumbing wastewater treatment devices, appurtenances and systems, including but not limited to interceptors, catch basins, and dilution and neutralizing basins.

(2) MATERIALS. All piping, devices and appliances for wastewater treatment devices, appurtenances and systems shall be of approved materials in accordance with ch. Comm 84.

SECTION 122. Comm 82.34 (3) (intro.) is amended to read:

Comm 82.34 (3) GENERAL. Any deleterious waste material which is discharged into a plumbing system shall be directed to ~~an interceptor, catch basin or other approved~~ a wastewater treatment device. The ~~interceptor, catch basin or approved~~ wastewater treatment device shall be capable of separating, diluting or neutralizing the deleterious waste material ~~from the normal sewage and retaining the deleterious waste material to facilitate its periodic removal or treatment or both~~ to a degree that the wastewater is no longer deleterious. Wastewater treatment devices that retain any waste materials shall be designed and installed to facilitate periodic removal or treatment, or both.

SECTION 123. Comm 82.34 (3) (a) to (f) are renumbered as Comm 82.34 (3) (b) to (g).

SECTION 124. Comm 82.34 (3) (a) is created to read:

Comm 82.34 (3) (a) 1. Except as provided in subd. 2., wastewater discharged from water closets or urinals shall not be reused for drinking water or treated for reuse.

2. All treatment works permitted by the department of natural resources, or a POWTS which includes an in situ soil dispersal or treatment component may treat wastewater discharged from water closets or urinals for reuse.

SECTION 125. Comm 82.34 (3) (g) is repealed.

SECTION 126. Comm 82.34 (3) (h) is renumbered as Comm 82.34 (3) (g).

SECTION 127. Comm 82.34 (4) (a) is repealed and recreated to read:

Comm 82.34 (4) GARAGE FLOOR AREA WASTEWATER. (a) *Garages for public buildings and facilities.* 1. Where a drain will be installed to receive the wastewater from floor areas of public buildings and facilities on which self-propelled land, air or water vehicles can be driven, the wastewater shall discharged using one of the following methods:

a. In areas where vehicles will be serviced, the wastewater shall be discharge through a garage catch basin or oil interceptor connected to a municipal sewer or holding tank approved to receive industrial wastewater.

b. In areas where vehicles will be driven or stored, the wastewater shall discharge through a floor drain equipped with a solid bottom sediment bucket, garage catch basin or oil interceptor.

2. Garage catch basins design shall conform to all of the following:

a. The holding area of the catch basin shall be watertight.

b. The catch basin shall have inside a minimum inside diameter of 36 inches.

c. The minimum depth of the basin shall be 24 inches measured from the lowest portion of the trap on the outlet of the basin.

d. The outlet of the basin shall be at least 4 inches in diameter and trapped with a water seal of at least 6 inches and constructed on the interior or exterior of the basin. Where an external trap is provided, the trap shall be within 36 inches of the basin.

e. Except as provided in subd. 5., the water line in the basin shall be at least 2 inches below all horizontal drains discharging into the basin. Where an external trap is provided, the measurement point on the horizontal drain shall be upstream of the trap.

f. The basin shall be provided with a cover at least 24 inches square or 24 inches in diameter.

g. Gravity drains from fixtures serving garage floor areas located on different floors from the basin may discharge into the basin if the drain stack carrying the wastewater is located at a distance equal to at least 20 times the inside diameter of the horizontal piping upstream of the basin.

h. Catch basins with solid covers shall be vented in accordance with par. (8) (c).

3. Drains with traps may connect to the garage catch basin under all of the following conditions:

a. The trap shall be a minimum of 3 inches in diameter.

b. Except as provided in subd. 3. c., the developed length from all trap outlets to the basin shall not exceed the distance as specified in Table 82.31-1.

c. Where the maximum distance exceeds that as specified in Table 82.31-1, the trap shall be vented in accordance with s. Comm 82.31 (3) and the connection to the basin shall form a 6-inch trap seal. The trap seal may be constructed on either the interior or exterior of the basin, but within 36 inches of the basin.

4. Drains without traps may discharge into a garage catch basin under all of the following conditions:

a. The fixture drain shall have a minimum 4-inch inside diameter.

b. The fixture drain shall be piped with a 6-inch water seal constructed either on the interior or exterior of the basin.

c. An exterior trap shall be constructed within 36 inches of the basin.

d. The developed length of the fixture drain shall not exceed the distance equal to 24 times the diameter of the fixture drain.

e. Fixture drains shall individually discharge into a garage catch basin.

5. Pressurized drains from garage floor areas discharging to a garage catch basin shall conform to all of the following conditions:

a. The pressurized drain piping shall terminate inside the basin with a 6-inch submerged inlet. The termination shall be at least 12 inches above the floor of the basin.

b. The pressurized equipment, devices and piping shall be designed and installed to produce a maximum velocity of 2 feet per second at the point of connection to the basin.

SECTION 127a. Comm 82.34 (4) (a) Note is created to read:

Comm 82.34 (4) Note: Plans for garage floor discharge-holding tanks may require plan approval by the department of natural resources.

SECTION 128. Comm 82.34 (5) (b) Note is created to read:

Comm 82.34 (5) (b) **Note:** See Appendix A-82.30 (11) (d) for material reprinted from s. NR 812.08. Section NR 812.08 may have additional setback requirements to wells.

SECTION 129. Comm 82.34 (6) (a) is amended to read:

Comm 82.34 (6) (a) *Design.* Except as provided in subds. 1. and 2. and par. (b), car wash interceptors shall be constructed and installed in accordance with sub. (4) (a) 2.

SECTION 130. Comm 82.34 (8) is repealed and recreated to read:

Comm 82.34 (8) OIL AND FLAMMABLE LIQUIDS. Oily and flammable wastewater that discharges to a building sewer shall be intercepted or treated by a means acceptable to the department.

(a) *Site-constructed interceptors.* Site-constructed interceptors shall be designed in accordance with the requirements in sub. (4) (a) 2.

(b) *Prefabricated oil interceptors and separators.* Prefabricated oil interceptors and separators shall be manufactured with adequate capacity for the anticipated load.

SECTION 131. Comm 82.34 (14) (b) is amended to read:

Comm 82.34 (14) (b) *Vents.* The vents for chemical waste systems shall be sized and installed in accordance with ~~s. Comm 82.31.~~ all of the following:

SECTION 132. Comm 82.34 (14) (b) 3. is created to read:

Comm 82.34 (14) (b) 3. The vents for a chemical waste basin shall be sized based on the number of drainage fixture units discharging into the basin and installed in accordance with s. Comm 82.31.

SECTION 133. Comm 82.35 (3) (a) is amended to read:

Comm 82.35 (3) WHERE REQUIRED. (a) *Horizontal drains.* All gravity horizontal drains within or under a building shall be accessible through a cleanout. ~~Cleanouts shall be located so that the~~ The developed length of drain piping between cleanouts ~~does~~ may not exceed 75 feet. For the purpose of this requirement, cleanouts in drain stacks may serve horizontal drains.

SECTION 134. Comm 82.35 (3) (d) 1. is amended to read:

Comm 82.35 (3) (d) *Private interceptor main sewers.* 1. Private interceptor main sewers 5 inches or less in diameter shall be provided with ~~a~~ an exterior cleanout or manhole ~~at the most~~ upstream of the point of the creation of the private interceptor main sewer and such that:

SECTION 135. Comm 82.35 (3) (g) is renumbered as Comm 82.35 (3) (g) 1. and amended to read:

Comm 82.35 (3) (g) *Branches.* ~~Cleanouts~~ 1. Except as provided in subd. 2., cleanouts shall be provided in connection with batteries of fixtures at such points that all parts of the branch drain ~~pipes~~ may be ~~reached~~ accessible for cleaning or removal of stoppages. For the purposes of this requirement, removable fixture traps may serve as ~~a~~ cleanout ~~opening~~ openings.

SECTION 136. Comm 82.35 (3) (g) 2. is created to read:

Comm 82.35 (3) (g) 2. A cleanout shall not be required for a branch drain when the fixtures on the branch include one floor outlet fixture and any fixtures discharging into an accompanying wet vent.

SECTION 137. Comm 82.35 (3) (m) is created to read:

Comm 82.35 (3) (m) *Catch basins and interceptors.* The fixture drain from all interceptors designed in accordance with s. Comm 82.34 (4) (a) 2. shall be provided with an accessible cleanout located outside of the basin and not more than 15 inches from the weir of the trap.

SECTION 138. Comm 82.35 (5) (a) 1. is repealed and recreated to read:

Comm 82.35 (5) (a) 1. All interior and exterior cleanouts where the vertical distance between the centerline of the horizontal drain pipe being served and the top of the cleanout opening exceeds 18 inches in length, shall connect to the drain piping through a fitting as specified in Table 82.30-4.

SECTION 139. Comm 82.36 (3) is repealed and recreated to read:

Comm 82.36 (3) DISCHARGE. When discharged to a plumbing system storm water, groundwater and clear water shall be discharged as specified in Table 82.38-1 and in accordance with all of the following conditions:

(a) *Discharge to sanitary sewer.* Clear water may be discharged to a sanitary drain system which connects to a publicly-owned treatment works, if the clear water discharge from the building is not more than 50 gallons per day.

(b) *Segregation of wastewater.* 1. a. Except as provided in subd. b., where a sanitary drain system and a storm drain system are available, the piping carrying storm water, groundwater or clear water may not connect to any part of the sanitary drain system.

b. Where a combined sanitary-storm sewer system is available storm water, groundwater, clear water and sanitary wastewater may not be combined prior to discharging to the building sewer.

2. When discharged by gravity storm water may not be combined with clear water prior to discharging to the storm building drain.

SECTION 140. Comm 82.36 (5) (e) is amended to read:

Comm 82.36 (5) (e) *Minimum size of storm building sewers.* The pipe size for storm building sewers shall be determined from Tables 82.36-1 to 82.36-4a. Storm building sewers ~~serving~~ transporting combined storm water ~~and~~, groundwater or clear water ~~wastes~~ shall be sized in accordance with ~~Table~~ Tables 82.36-4 and 82.36-4a.

SECTION 141. Comm 82.36 Table 82.36-4 (partial) is amended to read:

Table 82.36-4 (partial)
MAXIMUM CAPACITY OF STORM WATER
HORIZONTAL DRAIN PIPING FLOWING FULL

Pipe Diameters (in inches)	Maximum Capacities ~~in Gallons Per Minute~~ (in gallons per minute)			
	Pitch of Piping Per Foot			
	1/16 inch	1/8 inch	1/4 inch	1/2 inch
4	~~59~~ 50	75	115	145

SECTION 142. Comm 82.36 (10) is amended to read:

Comm 82.36 (10) FIXTURE BRANCH CONNECTIONS NEAR BASE OF STACK. Branch drains from interior clear water inlets shall not connect downstream from the base fitting or fittings of a ~~darien~~ drain stack or conductor within the distance equal to 20 pipe diameters of the building drain.

SECTION 143. Comm 82.36 (11) (a) 3. is repealed and recreated to read:

Comm 82.36 (11) (a) 3. 'Location'. All sumps installed for the purpose of receiving clear water, or basement or foundation drainage water shall be separated from any reservoir or water well by the applicable separation distances contained in chs. NR 811 and 812 or as otherwise approved by the department of natural resources.

SECTION 144. Comm 82.36 (11) (a) 3. Note is created to read:

Comm 82.36 (11) (a) 3. **Note:** See Appendix A-82.30 (11) (d) for material reprinted from s. NR 812.08. Section NR 812.08 may have additional setback requirements.

SECTION 145. Comm 82.36 (12) is amended to read:

Comm 82.36 (12) SUBSOIL DRAINS. Where a ~~subsoil~~ foundation drain ~~for a building~~ is subject to backwater, it shall be protected by an accessible backwater valve or a sump with pump. ~~Subsoil drains may discharge into an area drain, drain tile receiver or a sump with pump.~~

SECTION 146. Comm 82.36 (13) (a) 2. is repealed and recreated to read:

Comm 82.36 (13) (a) 2. The storm building sewer or private interceptor main storm sewer serves buildings which are all located on one property and 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.

SECTION 147. Comm 82.36 (14) (a) and (b) are amended to read:

Comm 82.36 (14) ~~Wastes~~ TRAP REQUIREMENTS. (a) Traps shall be required for interior drain inlets receiving clear water ~~wastes~~.

(b) ~~Traps~~ Except for exterior loading dock drains, traps shall ~~not~~ be required for ~~roof drains~~ exterior drain inlets ~~or exterior area drains for storm water waste, unless the drain inlet is~~ located within 10 feet of an air inlet, door or openable window. Where a trap is required, the trap may be located inside the building. More than one drain inlet may discharge to the same trap.

SECTION 148. Comm 82.36 (14) (b) Note is created to read:

Comm 82.36 (14)(b) Note: Traps may be located inside the building.

SECTION 148a. Comm 82.36 (14) (c) is amended to read:

Comm 82.36 (14) (c) Where a ~~subsoil~~ foundation drain discharges by gravity to a storm sewer the drain shall be trapped. Such a trap shall be provided with a cleanout.

SECTION 149. Comm 82.36 (15) (a) and (b) are repealed and recreated to read:

Comm 82.36 (15) (a) ~~A trap~~ Except as provided in par. (b), a trap located inside a building shall be vented in accordance with s. Comm 82.31. Vent piping for clear water or stormwater systems shall not ~~be connected~~ connect to other venting systems.

(b) Vents shall not be required for traps which receive only storm water or groundwater ~~wastes~~.

SECTION 150. Comm 82.37 (title) is amended to read:

Comm 82.37 Sanitation facilities <u>and campgrounds</u>.

SECTION 151. Comm 82.37 (2) (h) is created to read:

Comm 82.37 (2) (h) 1. Aboveground drains shall be constructed of approved materials in accordance with s. Comm 84.30 (2) (a).

2. Aboveground water supply piping shall be constructed of approved materials in accordance with s. Comm 84.30 (4) (e).

SECTION 152. [This treatment section was consolidated with section 151.]

SECTION 153. [This treatment section was consolidated with section 151.]

SECTION 154. Comm 82.37 (3) is created to read:

Comm 82.37 (3) CAMPGROUNDS. (a) *Drain systems.* Sewers serving campgrounds shall comply with the provisions in s. Comm 82.30 and all of the following:

1. A drain line serving a recreational vehicle shall discharge to a minimum 4-inch diameter campsite receptor by means of an indirect waste pipe.

2. One campsite receptor shall be designed to serve no more than 4 recreational vehicles.

3. Where 2 or more drain lines are designed to discharge into the same campsite receptor, an increaser shall be installed in the vertical portion of the trap riser to accommodate the drains.

4. The rim of a campsite receptor shall terminate no less than 4 inches above the finished grade.

5. The rim of a campsite receptor shall not terminate at an elevation that is higher than the water supply termination serving the same site.

6. A vent is not required to serve the trap serving a campsite receptor.

7. When not in use, a campsite receptor shall be capped.

(b) *Water supply systems.* Water supply systems serving campgrounds shall comply with the provisions in s. Comm 82.40 and all of the following:

1. An accessible control valve shall be installed at the most upstream point of the campground water supply distribution system and downstream of the municipal meter or pressure tank.

2. If water is provided to a campsite, individual approved backflow protection shall serve each hose connection in accordance with s. Comm 82.41.

3. A campsite water supply riser shall terminate no less than 12 inches above finished grade.

Note: See Appendix A-82.37 (3) for further explanatory material.

SECTION 155. Comm 82.38 is created to read:

Comm 82.38 Discharge points. (1) PURPOSE. The purpose of this section is to establish allowable discharge points for wastewater discharging from plumbing systems.

(2) SCOPE. The provisions of this section set forth the requirements for the discharge points for wastewater based on the use of the fixtures, appurtenances, appliances and devices discharging into the plumbing system.

(3) GENERAL REQUIREMENTS. (a) Wastewater from plumbing systems shall be discharged as specified in Table 82.38-1.

(b) Wastewater from uses other than those listed in Table 82.38-1, shall be discharged as specified by the department on a site-specific basis.

SECTION 156. Comm 82.38 Table 82.38-1 is created to read:

Table 82.38 – 1
ALLOWABLE DISCHARGE POINTS BY FIXTURE OR SPECIFIC USES

Use or Fixture	Allowable Discharge Points					
	POWTS[a]	Municipal Sanitary Sewer	Municipal Storm Sewer	Ground Surface	Combined Sanitary-Storm Sewer	Subsurface Dispersal
1. Cross connection control device or assembly [see s. Comm 82.33(9)(k)]	X	X		X [b, c,e]	X	
2. Domestic wastewater	X	X			X	
3. Condensate from high efficiency furnace or water heater	X	X			X	
4. Drinking fountain	X	X	X	X [b]	X	X [d]
5. Elevator pit drain [see s. Comm 82.33(9)(f)]			X	X[b]	X	X[d]
6. Enclosed public parking levels	X	X		X [b]	X	X [d]
7. Industrial wastewater [h]	X[f]	X			X	
8. Municipal well pump house floor drain and sink	X	X		X [b]	X	X [d]
9. One- and 2-family garage floor area [see s. Comm 82.34(4)(b)]	X	X		X [b]	X	
10. Storm water, ground-water and clear water	X	X [g]	X [c]	X [b]	X	X [d]
11. Swimming pool or wading pool-- diatomaceous earth filter backwash	X	X			X	
12. Swimming pool or wading pool-- drain wastewater	X	X [b]	X [b,c]	X [b,c]	X [b]	X [d]
13. Swimming pool or wading pool-- sand filter backwash	X	X [b]	X [b,c]	X [b,c]	X [b]	X [d]

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

Use or Fixture	Allowable Discharge Points					
	POWTS[a]	Municipal Sanitary Sewer	Municipal Storm Sewer	Ground Surface	Combined Sanitary-Storm Sewer	Subsurface Dispersal
14. Water heater temperature and pressure relief valve [see s. Comm 82.40(5)]	X	X	X	X[b]	X	X[d]
15. Wastewater from water treatment device	X	X[g]	X[c]	X[b, c]	X	X[d]
16. Whirlpool backwash drain and wastewater	X	X	X[c]	X[b,c]	X	
17. Discharges not specifically listed above	Contact the department.					

[a] Allowed when the POWTS is designed to include designated wastewater.
[b] Unless prohibited by local municipality and when no nuisance is created.
[c] A discharge permit may be required by the department of natural resources.
[d] For public buildings or facilities, allowed after receiving plan approval from the department. See also s. Comm 82.20.
[e] Allowed for exterior installation and when no sanitary sewer is in the building.
[f] Refer to the department of natural resources for discharge regulations.
[g] Fifty gpd clear water as specified under s. Comm 82.36 (3) (b).
[h] The department of natural resources may require WPDES permits for industrial discharges and may allow other options.

SECTION 157. Comm 82.40 (3) (a) is repealed and recreated as Comm 82.40 (3) (a) 1. to read:

Comm 82.40 (3) GENERAL. (a) 1. Every outlet providing water shall be provided with water of the quality as specified under s. Comm 82.70 (3) for the intended use.

SECTION 158. Comm 82.40 (3) (a) 2. is created to read:

Comm 82.40 (3) (a) 2. Nonpotable water may be supplied to water treatment devices or systems designed to treat water for compliance with Table 82.70-1.

SECTION 159. Comm 82.40 (3) (b) 1. is amended to read:

Comm 82.40 (3) (b) 1. ~~Lavatories,~~ Tempered water. a. Tempered water or hot water shall be provided to lavatories, wash fountains and shower heads which are not located in dwelling units or living units ~~shall be supplied with either tempered water or hot water~~.

~~a.~~ b. Tempered water ~~shall be provided~~ supplied to serve multiple lavatories, wash fountains and shower heads shall be provided by means of ~~tempered~~ thermostatic mixing valves.

SECTION 160. Comm 82.40 (3) (c) 3. is created to read:

Comm 82.40 (3) (c) 3. a. Except as provided in subd. 3. b., when a connection between two water supply systems exists, one system having a higher degree of hazard than the other system as specified in s. Comm 82.41, the water supply system with a lower degree of hazard shall be protected as specified in s. Comm 82.41.

b. When a water treatment device is provided to lower the concentration of a health-related contaminant, cross connection control shall not be required to protect the water supply system downstream of the treatment device from the upstream contaminated source.

SECTION 161. Comm 82.40 (3) (d) 1. a. and b. is repealed and recreated to read:

Comm 82.40 (3) (d) *Identification.* 1. Where buildings or facilities contain water supply systems where the water supply systems have different degrees of hazard, all water supply systems shall be labeled in accordance with this section.

a. All aboveground piping supplying nonpotable water shall be labeled by tags or yellow bands. The yellow bands shall be at least 3 inches wide and shall bear text identifying the water and the specific use or uses.

b. The tags or colored bands shall be placed at intervals of not more than 25 feet. Where piping passes through a wall the piping shall be so identified on each side of the wall and within each compartment.

SECTION 162. Comm 82.40 (3) (d) 1. h. is created to read:

Comm 82.40 (3) (d) 1. h. A hose bibb intended to discharge water that does not meet drinking water quality as specified in s. Comm 82.70, shall be labeled as nonpotable or so identified for the specific use or uses, and shall be equipped with a removable key handle.

SECTION 163. Comm 82.40 (3) (e) is repealed.

SECTION 164. Comm 82.40 (3) (f) is renumbered as Comm 82.40 (3) (e).

SECTION 165. Comm 82.40 (4) (c) 1. b. and 2. b. is amended to read:

Comm 82.40 (4) (c) 1. b. A control valve shall be installed in the supply piping to each water heater and water treatment device and in the fixture supply to each plumbing fixture, plumbing appliance and piece of equipment. <u>The control valve may be part of the bypass piping or an internal part of a water treatment device. When the valve is an internal part of the water treatment device, the device shall be capable to be removable for service.</u>

2. b. A control valve shall be installed in the supply piping to each water heater and water treatment device and in the fixture supply to each water closet, exterior hose bibb, plumbing appliance and piece of equipment. When the valve is an internal part of the water treatment device, the device shall be removable for service.

SECTION 166. Comm 82.40 Tables 82.40-1 (partial) and Table 82.40-2 (partial) are amended to read:

Table 82.40-1 (partial)
WATER SUPPLY FIXTURES UNITS FOR
NONPUBLIC USE FIXTURES

~~TYPE OF FIXTURE[a]~~ Type of Fixture[a]	~~WATER SUPPLY FIXTURE UNITS~~ Water Supply Fixture Units ~~(WEFA)~~ (wsfu)		
	Hot	Cold	Total
Mobile Home	--	15	15

Table 82.40-2 (partial)
WATER SUPPLY FIXTURE UNITS FOR
PUBLIC USE FIXTURES

~~TYPE OF FIXTURE[a]~~ Type of Fixture[a]	~~WATER SUPPLY FIXTURE UNITS~~ Water Supply Fixture Units (wsfu)		
	Hot	Cold	Total
Autopsy table	2.0	2.0	3.0
~~Medical Exam and, Treatment~~	~~1.0~~	~~1.0~~	~~1.5~~
Health Care Fixtures			
Clinic sink	2.0	7.0	7.0
Exam/treatment sink	0.5	0.5	1.0
Service sink	2.0	2.0	3.0
Sitz bath	1.5	1.5	2.0
Surgeon ~~Washup~~ washup	1.5	1.5	2.0
Water Closet:			
Flushometer		~~7.0~~ 6.5	~~7.0~~ 6.5

SECTION 167. [This treatment section was deleted after the public hearing.]

SECTION 168. Comm 82.40 Tables 82.40-4 to 82.40-11 are repealed and recreated to read:

Table 82.40-4
MAXIMUM ALLOWABLE LOAD FOR COPPER TUBING-TYPE K, ASTM B88; (C=150)

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																										
	1/2"			3/4"			1"			1 1/4"			1 1/2"			2"			2 1/2"			3"			4"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	1.5	-	1.5	3.5	-	3.5	6.5	-	8.0	10.5	4.0	14.0	22.0	7.0	35.0	39.0	28.0	83.0	62.0	80.0	185	132	437	538
1	1.0	-	1.0	2.5	-	2.5	5.0	-	6.0	9.5	-	12.5	15.5	5.0	22.5	32.0	16.0	60.0	57.0	67.0	160	91.0	196	330	192	864	882
2	1.0	-	1.0	3.5	-	3.5	7.5	-	9.5	14.0	4.5	20.0	22.0	7.0	35.0	47.0	42.0	116	83.0	160	290	132	437	538	279	1611	1611
3	1.5	-	1.5	4.5	-	5.0	9.5	-	12.5	17.5	5.5	25.5	28.0	11.0	50.0	58.0	70.0	165	103	261	390	165	661	723	291	1725	1725
4	2.0	-	2.0	5.0	-	6.0	11.5	4.0	15.5	20.5	6.5	31.0	32.0	16.0	60.0	68.0	100	215	116	338	455	165	665	726	NP		
5	2.0	-	2.0	6.0	-	7.0	13.0	4.5	18.0	23.0	7.5	37.0	36.0	22.0	73.0	75.0	128	250	NP			NP					
6	2.5	-	2.5	6.5	-	8.0	14.0	4.5	20.0	25.0	8.5	42.0	40.0	30.0	86.0	NP											
7	2.5	-	2.5	7.0	-	9.0	15.5	5.0	22.5	28.0	11.0	50.0	42.0	34.0	103												
8	3.0	-	3.0	7.5	-	9.5	16.5	5.5	24.0	30.0	13.5	55.0	NP														
9	3.0	-	3.0	8.0	-	10.0	17.5	5.5	25.5	NP																	
10	3.5	-	3.5	8.5	-	10.5	18.5	6.0	27.5																		
11	3.5	-	3.5	9.0	-	11.5	19.0	6.0	28.5																		
12	3.5	-	3.5	9.5	-	12.5	NP																				
13	4.0	-	4.0	10.0	4.0	13.0																					
14	4.0	-	4.0	10.5	4.0	14.0																					
15	4.0	-	4.0	10.5	4.0	14.5																					
16	4.5	-	5.0	NP																							
17	4.5	-	5.0																								
18	4.5	-	5.0																								
19	5.0	-	6.0																								
	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.

Table 82.40-5
MAXIMUM ALLOWABLE LOAD FOR COPPER TUBING-TYPE L , ASTM B88; (C=150)

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																										
	1/2"			3/4"			1"			1 1/4"			1 1/2"			2"			2 1/2"			3"			4"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	2.0	-	2.0	4.0	-	4.0	7.0	-	9.0	11.0	4.0	15.0	23.0	7.5	37.0	40.0	30.0	86.0	65.0	90.0	200	136	462	561
1	1.0	-	1.0	2.5	-	2.5	5.5	-	6.5	10.0	4.0	13.0	16.0	5.0	23.0	33.0	17.5	63.0	59.0	72.0	170	94.0	211	345	198	909	923
2	1.5	-	1.5	4.0	-	4.0	8.5	-	10.5	14.5	4.5	20.5	23.0	7.5	37.0	48.0	44.0	120	86.0	175	305	137	468	566	288	1694	1694
3	2.0	-	2.0	5.0	-	6.0	10.5	4.0	14.0	18.5	6.0	27.5	29.0	12.5	52.0	60.0	75.0	175	107	283	410	169	698	752	298	1792	1792
4	2.0	-	2.0	6.0	-	7.0	12.0	4.0	16.5	21.5	7.0	33.0	34.0	18.5	66.0	70.0	108	225	119	356	469	NP			NP		
5	2.5	-	2.5	6.5	-	8.0	14.0	4.5	20.0	24.0	8.0	40.0	38.0	26.0	80.0	77.0	136	260	NP								
6	2.5	-	2.5	7.5	-	9.5	15.5	5.0	22.5	26.0	9.0	45.0	42.0	33.0	100	NP											
7	3.0	-	3.0	8.0	-	10.0	16.5	5.5	24.0	29.0	12.5	52.0	44.0	37.0	107												
8	3.0	-	3.0	8.5	-	10.5	18.0	6.0	26.5	31.0	15.0	58.0	NP														
9	3.5	-	3.5	9.5	-	12.5	19.0	6.0	28.0	NP																	
10	3.5	-	3.5	10.0	4.0	13.0	20.0	6.5	30.0																		
11	4.0	-	4.0	10.5	4.0	14.0	20.5	6.5	31.0																		
12	4.0	-	4.0	11.0	4.0	15.0	NP																				
13	4.0	-	4.0	11.5	4.0	15.5																					
14	4.5	-	5.0	12.0	4.0	16.5																					
15	4.5	-	5.0	NP																							
16	5.0	-	6.0																								
17	5.0	-	6.0																								
18	5.0	-	6.0																								
19	5.0	-	6.0																								
20	5.5	-	6.5																								
	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.

Table 82.40-6
MAXIMUM ALLOWABLE LOAD FOR COPPER TUBING-TYPE M, ASTM B88; (C=150)

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																										
	1/2"			3/4"			1"			1 1/4"			1 1/2"			2"			2 1/2"			3"			4"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	2.0	-	2.0	4.0	-	4.0	7.0	-	9.0	11.5	4.0	15.5	23.0	7.5	37.0	42.0	33.0	100	67.0	96.0	210	139	481	577
1	1.0	-	1.0	3.0	-	3.0	6.0	-	7.0	10.5	4.0	14.0	16.5	5.5	24.0	34.0	18.5	66.0	61.0	77.0	180	97.0	227	360	202	945	953
2	1.5	-	1.5	4.5	-	5.0	9.0	-	11.5	15.5	5.0	22.5	24.0	8.0	40.0	50.0	48.0	128	88.0	184	315	141	493	588	294	1750	1750
3	2.0	-	2.0	5.5	-	6.5	11.5	4.0	15.5	19.5	6.5	29.0	30.0	13.5	55.0	62.0	80.0	185	110	300	425	174	731	776	303	1835	1835
4	2.5	-	2.5	6.5	-	8.0	13.0	4.5	18.0	22.0	7.0	35.0	35.0	20.0	70.0	73.0	120	240	121	374	484	NP			NP		
5	2.5	-	2.5	7.5	-	9.5	15.0	5.0	21.5	25.0	8.5	42.0	40.0	30.0	86.0	79.0	144	270	NP								
6	3.0	-	3.0	8.0	-	10.0	16.5	5.5	24.0	28.0	11.0	50.0	44.0	36.0	106	NP											
7	3.5	-	3.5	9.0	-	11.5	18.0	6.0	26.5	30.0	13.5	55.0	45.0	39.0	112												
8	3.5	-	3.5	9.5	-	12.5	19.5	6.5	29.0	32.0	17.0	62.0	NP														
9	4.0	-	4.0	10.0	4.0	13.0	20.5	6.5	31.0	NP																	
10	4.0	-	4.0	11.0	4.0	15.0	21.5	7.0	34.0																		
11	4.5	-	5.0	11.5	4.0	15.5	NP																				
12	4.5	-	5.0	12.0	4.0	16.5																					
13	5.0	-	6.0	12.5	4.5	17.5																					
14	5.0	-	6.0	12.5	4.5	18.0																					
15	5.0	-	6.0	NP																							
16	5.5	-	6.5																								
17	5.5	-	6.5																								
18	5.5	-	6.5																								
19	6.0	-	7.0																								
20	6.0	-	7.0																								
21	6.0	-	7.5																								
	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.

Table 82.40-7
MAXIMUM ALLOWABLE LOAD FOR GALVANIZED STEEL PIPE, SCHEDULE 40, ASTM A53; (C=150)

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																										
	1/2"			3/4"			1"			1 1/4"			1 1/2"			2"			2 1/2"			3"			4"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	1.5	-	1.5	3.5	-	3.5	7.0	-	9.0	11.0	4.0	15.0	21.0	7.0	32.0	34.0	18.5	66.0	60.0	75.0	175	123	381	490
1	1.0	-	1.0	2.5	-	2.5	5.0	-	6.0	10.5	4.0	14.0	16.0	5.0	23.0	31.0	15.0	57.0	49.0	46.0	124	87.0	180	310	179	769	805
2	1.5	-	1.5	4.0	-	4.0	7.5	-	9.5	15.5	5.0	22.5	23.0	7.5	37.0	45.0	38.0	110	72.0	116	235	127	406	511	260	1435	1435
3	2.0	-	2.0	5.0	-	6.0	9.0	-	11.5	19.0	6.0	28.0	29.0	12.5	52.0	56.0	65.0	155	89.0	188	320	158	607	683	317	1966	1966
4	2.5	-	2.5	5.5	-	6.5	11.0	4.0	15.0	22.0	7.0	35.0	34.0	18.5	66.0	65.0	90	200	104	266	395	184	809	837	NP		
5	3.0	-	3.0	6.5	-	8.0	12.0	4.0	16.5	25.0	8.5	42.0	38.0	26.0	80.0	74.0	124	245	118	350	465	NP					
6	3.0	-	3.0	7.0	-	9.0	13.5	4.5	19.0	28.0	11.0	50.0	42.0	33.0	100	81.0	152	280	119	358	471						
7	3.5	-	3.5	7.5	-	9.5	14.5	4.5	20.5	30.0	13.5	55.0	46.0	40.0	113	83.0	163	293	NP								
8	4.0	-	4.0	8.0	-	10.0	16.0	5.0	23.0	33.0	17.5	63.0	49.0	46.0	124	NP											
9	4.0	-	4.0	9.0	-	11.5	17.0	5.5	25.0	35.0	20.0	70.0	50.0	49.0	131												
10	4.5	-	5.0	9.5	-	12.5	18.0	6.0	26.5	37.0	24.0	76.0	NP														
11	4.5	-	5.0	10.0	4.0	13.0	19.0	6.0	28.0	37.0	24.0	77.0															
12	5.0	-	6.0	10.5	4.0	14.0	19.5	6.5	29.0	NP																	
13	5.0	-	6.0	11.0	4.0	15.0	20.5	6.5	31.0																		
14	5.0	-	6.0	11.0	4.0	15.0	21.5	7.0	33.0																		
15	5.5	-	6.5	11.5	4.0	15.5	NP																				
16	5.5	-	6.5	12.0	4.0	16.5																					
17	6.0	-	7.0	12.5	4.5	17.5																					
18	6.0	-	7.0	13.0	4.5	18.0																					
19	6.0	-	7.0	13.0	4.5	18.5																					
20	6.5	-	8.0	NP																							
21	6.5	-	8.0																								
22	7.0	-	9.0																								
23	7.0	-	9.0																								
24	7.0	-	9.0																								
25	7.5	-	9.5																								
	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.

Table 82.40-8
MAXIMUM ALLOWABLE LOAD FOR POLYBUTYLENE TUBING, ASTM D3309 and CHLORINATED POLYVINYL CHLORIDE TUBING, ASTM D2846; (C=150)

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																	
	1/2"			3/4"			1"			1 1/4"			1 1/2"			2"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	1.5	-	1.5	3.0	-	3.0	5.0	-	6.0	8.0	-	10.0	16.0	5.0	23.0
1	0.5	-	0.5	2.0	-	2.0	4.0	-	4.0	7.5	-	9.5	11.5	4.0	15.5	23.0	7.5	37.0
2	1.0	-	1.0	3.0	-	3.0	6.0	-	7.0	10.5	4.0	14.0	16.5	5.5	24.0	34.0	18.5	66.0
3	1.5	-	1.5	4.0	-	4.0	8.0	-	10.0	13.5	4.5	19.0	21.0	7.0	32.0	42.0	33.0	100
4	1.5	-	1.5	4.5	-	5.0	9.0	-	11.5	15.5	5.0	22.5	24.0	8.0	40.0	50.0	48.0	128
5	2.0	-	2.0	5.0	-	6.0	10.5	4.0	14.0	17.5	5.5	25.5	27.0	10.0	47.0	56.0	65.0	155
6	2.0	-	2.0	6.0	-	7.0	11.5	4.0	15.5	19.5	6.5	29.0	30.0	13.5	55.0	59.0	73.0	171
7	2.0	-	2.0	6.5	-	8.0	12.5	4.5	17.5	21.5	7.0	33.0	33.0	17.5	63.0	NP		
8	2.5	-	2.5	7.0	-	9.0	13.5	4.5	19.0	23.0	7.5	37.0	34.0	19.0	68.0			
9	2.5	-	2.5	7.0	-	9.0	14.5	4.5	20.5	24.0	8.0	40.0	NP					
10	2.5	-	2.5	7.5	-	9.5	15.0	5.0	21.5	24.0	8.0	41.0						
11	3.0	-	3.0	8.0	-	10.0	16.0	5.0	23.0	NP								
12	3.0	-	3.0	8.5	-	10.5	16.5	5.5	24.0									
13	3.0	-	3.0	9.0	-	11.5	NP											
14	3.0	-	3.0	9.5	-	12.5												
15	3.5	-	3.5	9.5	-	12.5												
16	3.5	-	3.5	10.0	4.0	13.0												
17	3.5	-	3.5	NP														
18	4.0	-	4.0															
19	4.0	-	4.0															
20	4.0	-	4.0															
21	4.0	-	4.0															
22	4.0	-	4.0															
23	4.5	-	5.0															
	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.

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"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	0.5	-	0.5	1.0	-	1.0	2.5	-	2.5	4.0	-	4.0	6.0	-	7.0	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	9.0	-	11.5	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	-	11.4	13.5	4.5	19.0	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	17.0	5.5	25.0	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	19.5	6.5	29.0	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	22.0	7.0	35.0	47.0	42.0	116
6	2.0	-	2.0	3.5	-	3.5	5.0	-	6.0	9.5	-	12.5	16.5	5.5	24.0	24.0	8.0	40.0	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	26.0	9.0	45.0	NP		
8	2.0	-	2.0	4.0	-	4.0	5.5	-	6.5	11.0	4.0	15.0	19.0	6.0	28.0	28.0	11.0	50.0			
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	29.0	12.5	53.0			
10	2.5	-	2.5	4.5	-	5.0	6.5	-	8.0	12.5	4.5	17.5	21.5	7.0	34.0	NP					
11	2.5	-	2.5	4.5	-	5.0	7.0	-	9.0	13.5	4.5	19.0	NP								
12	2.5	-	2.5	5.0	-	6.0	7.0	-	9.0	14.0	4.5	20.0									
13	3.0	-	3.0	5.0	-	6.0	7.5	-	9.5	14.5	4.5	20.5									
14	3.0	-	3.0	5.5	-	6.5	8.0	-	10.0	NP											
15	3.0	-	3.0	5.5	-	6.5	8.0	-	10.0												
16	3.0	-	3.0	6.0	-	7.0	8.5	-	10.5												
17	3.5	-	3.5	6.0	-	7.0	8.5	-	11.0												
18	3.5	-	3.5	6.0	-	7.0	NP														
19	3.5	-	3.5	6.5	-	8.0															
20	3.5	-	3.5	NP																	
21	4.0	-	4.0																		
		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.

Table 82.40-10
MAXIMUM ALLOWABLE LOAD FOR CHLORINATED POLYVINYL CHLORIDE TUBING, ASTM F442; (C=150)

Pressure Loss Due to Friction (in lbs. per 100 ft. of Length)	Pipe Diameter (in inches)																				
	3/4"			1"			1 1/4"			1 1/2"			2"			2 1/2"			3"		
		WSFU			WSFU			WSFU			WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	2.5	-	2.5	4.5	-	5.0	9.0	-	11.5	13.0	4.5	18.0	23.0	7.5	37.0	38.0	26.0	80.0	65.0	90.0	200
1	3.5	-	3.5	7.0	-	9.0	13.0	4.5	18.0	18.5	6.0	27.5	34.0	18.5	66.0	56.0	65.0	155	94.0	211	345
2	5.5	-	6.5	10.0	4.0	13.0	19.0	6.0	28.0	27.0	10.0	47.0	49.0	46.0	124	82.0	156	285	138	475	572
3	7.0	-	9.0	12.5	4.5	17.5	23.0	7.5	37.0	34.0	18.5	66.0	62.0	80.0	185	102	255	385	170	703	755
4	8.0	-	10.0	15.0	5.0	21.5	27.0	10.0	47.0	40.0	30.0	86.0	72.0	116	235	114	331	449	NP		
5	9.0	-	11.5	16.5	5.5	24.0	31.0	15.0	57.0	45.0	38.0	110	78.0	142	267	NP					
6	10.0	4.0	13.0	18.5	6.0	27.5	34.0	18.5	66.0	49.0	46.0	124	NP								
7	11.0	4.0	15.0	20.0	6.5	30.0	37.0	24.0	76.0	50.0	48.0	128									
8	11.5	4.0	15.5	21.5	7.0	33.0	38.0	26.0	80.0	NP											
9	12.5	4.5	17.5	23.0	7.5	37.0	NP														
10	13.0	4.5	18.0	23.0	7.5	39.0															
11	14.0	4.5	20.0	NP																	
12	14.5	4.5	20.5																		
13	14.5	5.0	21.5																		
	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.

Table 82.40-11
MAXIMUM ALLOWABLE LOAD FOR POLYETHYLENE ALUMINUM POLYETHYLENE TUBING (PexAlPex), ASTM F1281; (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"		
		WSFU			WSFU			WSFU			WSFU	
	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT	GPM	FM	FT
0.5	0.5	-	0.5	1.0	-	1.0	2.0	-	2.0	4.0	-	4.0
1	0.5	-	0.5	1.5	-	1.5	3.0	-	3.0	6.0	-	7.0
2	1.0	-	1.0	2.0	-	2.0	4.5	-	5.0	8.5	-	10.5
3	1.5	-	1.5	3.0	-	3.0	5.5	-	6.5	10.5	4.0	14.0
4	1.5	-	1.5	3.5	-	3.5	6.5	-	8.0	12.5	4.5	17.5
5	2.0	-	2.0	4.0	-	4.0	7.0	-	9.0	14.0	4.5	20.0
6	2.0	-	2.0	4.0	-	4.0	8.0	-	10.0	15.5	5.0	22.5
7	2.5	-	2.5	4.5	-	5.0	8.5	-	10.5	17.0	5.5	25.0
8	2.5	-	2.5	5.0	-	6.0	9.5	-	12.5	18.0	6.0	26.5
9	2.5	-	2.5	5.5	-	6.5	10.0	4.0	13.0	19.5	6.5	29.0
10	3.0	-	3.0	5.5	-	6.5	10.5	4.0	14.0	20.5	6.5	31.0
11	3.0	-	3.0	6.0	-	7.0	11.0	4.0	15.0	20.5	6.5	32.0
12	3.0	-	3.0	6.0	-	7.0	11.5	4.0	15.5	NP		
13	3.5	-	3.5	6.5	-	8.0	12.5	4.5	17.5			
14	3.5	-	3.5	7.0	-	9.0	NP					
15	3.5	-	3.5	7.0	-	9.0						
16	3.5	-	3.5	7.5	-	9.5						
17	4.0	-	4.0	NP								
18	4.0	-	4.0									
19	4.0	-	4.0									
20	4.0	-	4.0									
21	4.5	-	5.0									
	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 169. Comm 82.40 (7) (d) 1. a. and b. are amended to read:

Comm 82.40 (7) (d) 1. a. The ~~design~~ flow pressure at the outlets of the fixture supplies serving ~~syphonic~~ siphonic type urinals, washdown type urinals and washdown type water closets ~~and syphonic,~~ siphonic type flushometer water closets and campsite water supply hose connections shall be at least 15 psig.

b. The flow pressure at the outlets of the fixture supplies serving one piece tank type water closets, pressure balance mixing valves, mobile homes, and thermostatic mixing valves shall be at least 20 psig.

SECTION 170. [This treatment section was deleted after the public hearing.]

SECTION 171. Comm 82.40 (7) (h) is repealed and recreated to read:

Comm 82.40 (7) (h) *Maximum lengths of fixture supply connectors.* 1. Except as provided in subd. 1. b. and c., fixture supply connectors may not exceed more than 24 inches in developed length upstream from a plumbing fixture or the body of a faucet.

b. A fixture supply connector located downstream of a water cooler, water treatment device or water heater which individually serves a faucet or outlet may not exceed more than 10 feet in developed length.

c. A fixture supply connector located upstream of a water treatment device serving no more than 2 fixtures or outlets may not exceed 10 feet in developed length.

2. Fixture supply connectors may not extend more than 10 feet in developed length upstream of a plumbing appliance.

SECTION 172. [This treatment section was deleted after the public hearing.]

SECTION 173. Comm 82.40 (8) (b) Note is created to read:

Comm 82.40 (8) (b) **Note:** See Appendix A-82.30 (11) (d) for setback distance from yard hydrant to well.

SECTION 174. Comm 82.40 (8) (b) 4. to 8. are renumbered as Comm 82.40 (8) (b) 3. to 7.

SECTION 175. Comm 82.40 (8) (c) is repealed and recreated to read:

Comm 82.40 (8) (c) LIMITATIONS. No private water main or water service may pass through or under a building to serve another building unless one of the following conditions are met:

1. The private water main or water service serves farm buildings or farm houses, or both that are all located on one property.

2. The private water main or water service serves buildings that are located on the same property and a document which indicates that 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.

SECTION 176. Comm 82.40 (8) (d) 4. is amended to read:

Comm 82.40 (8) (d) 4. ~~Water distribution piping~~ Except as provided in subds. 5. and 6., a bypass shall be provided to ~~bypass~~ serve a water ~~softener and an iron removal~~ treatment device. The bypass piping may be an internal part of the water ~~softener or the iron removal~~ treatment device.

SECTION 177. Comm 82.40 (8) (d) 5. and 6. are created to read:

Comm 82.40 (8) (d) 5. A bypass shall not be required when a water treatment device serves no more than 2 fixtures or outlets.

6. A bypass shall be prohibited for a water treatment device installed to reduce a contaminant in order to comply with the provisions in s. Comm 82.70 (3).

SECTION 178. Comm 82.40 (8) (g) is amended to read:

Comm 82.40 (8) (g) *Temperature control.* The water temperature to all showers in public buildings shall be controlled by thermostatic or combination thermostatic-pressure balanced mixing valves or by individually controlled pressure balanced mixing valves. A thermostatic ~~or pressure balanced mixing valve~~ or combination thermostatic-pressure balanced mixing valve may not be bypassed.

SECTION 179. Comm 82.41 (3) (intro.) is amended to read:

Comm 82.41 (3) GENERAL REQUIREMENTS. ~~Potable water~~ Water supply systems and the connection of each plumbing fixture, piece of equipment, appliance~~,~~ or nonpotable water piping system ~~thereto~~ shall be designed, installed and maintained in such a manner as to prevent the contamination of ~~potable~~ water supplies by means of cross connections.

SECTION 180. Comm 82.41 (5) (a) is amended to read:

Comm 82.41 (5) INSTALLATION. (a) An air-gap for cross connection control shall conform to ASME A112.1.2 or ASME A112.1.3.

SECTION 181. Comm 82.41 Table 82.41-1 (partial) and Table 82.41-2 (partial) are amended to read:

Table 82.41-1 (partial)
ACCEPTABLE CROSS CONNECTION CONTROL METHODS OR ASSEMBLIES FOR SPECIFIC APPLICATIONS

METHODS or ASSEMBLIES of CROSS CONNECTION CONTROL (Standard)	SITUATIONS and CONDITIONS							
	Backpressure				Backsiphonage			
	Low Hazard		High Hazard		Low Hazard		High Hazard	
	Contin-uous	Noncon-tinuous	Contin-uous	Noncon-tinuous	Contin-uous	Noncon-tinuous	Contin-uous	Noncon-tinuous
	Pressure		Pressure		Pressure		Pressure	
Air-gap Fittings for use with Plumbing Fixtures, Appliances, and Appurtenances (ASME A112.1.3)					X	X	X	X

[a] See limitation listed under s. Comm 82.41 (4) (c) 1.a.

Table 82.41-2 (partial)
ACCEPTABLE CROSS CONNECTION CONTROL METHODS OR ASSEMBLIES FOR SPECIFIC APPLICATIONS

Methods or Assemblies of Cross Connection Control (Standard)	Types of Application or Use
Double Check Backflow Prevention Assemblies (ASSE 1015)	Automatic fire sprinkler systems and standpipe systems Water-based fire protection system
Double Check Detector Assembly Backflow Preventer (ASSE 1048)	Automatic fire sprinkler systems and standpipe systems Water-based fire protection system
Double Check Detector Valve Type Backflow Preventer (CAN/CSA B64.5)	Automatic fire sprinkler systems and standpipe systems Water-based fire protection system
Vacuum Breaker Tees [s. Comm 82.41 (5) ~~(k)~~ (j)]	Water treatment devices

SECTION 182. Comm 82.41 (5) (i) to (L) are renumbered as Comm 82.41 (5) (h) to (k).

SECTION 183. Comm 82.50 Tables 22, 23, 24, 26 and 27 are repealed.

SECTION 184. Comm 82.50 is repealed and recreated to read:

Comm 82.50 Health care and related facilities. (1) GENERAL. The provisions of this section shall set forth the requirements for the design, installation and maintenance of devices, fixtures and equipment which are installed in health care and related facilities.

(2) FIXTURES AND EQUIPMENT. (a) *Special fixtures and equipment.* 1. 'Requirements for ice manufacture and storage.' Machines for manufacturing ice or any device for handling or storage of ice shall be located in an area not subject to contamination.

2. 'Sterilizers and washer sanitizers.' a. Sterilizers and washer sanitizers shall discharge by means of indirect waste.

b. The indirect waste piping shall discharge by means of air-gap.

3. 'Aspirators.' Aspirators which require the use of water shall be provided with approved cross connection control.

(b) *Spouts and actions*. The selection of spouts and actions on plumbing fixtures shall comply with this section and Table 82.50-1.

1. 'Spouts'. Lavatories and sinks accessible to patients shall have the water supply spout mounted so that its discharge point is a minimum distance of 5 inches above the flood level rim of the fixture.

2. 'Actions.' All fixtures used by medical and nursing staff, and all lavatories used by patients and food handlers shall be equipped with valves that can be operated without the use of hands. Where wrist blade handles are used for this purpose, the handles shall not exceed 4 1/2 inches in length, except handles on scrub sinks and clinical sinks shall be no less than 6 inches long.

(c) *Floor drain prohibition.* 1. Except as provided in subd. 2., floor drains may not be installed in operating or delivery rooms.

2. Floor drains may be installed in cystoscopic rooms. The drain shall contain a non-splash, horizontal-flow flushing bowl beneath the drain plate.

(3) WATER SUPPLY SYSTEMS. (a) *Hospital water supply systems.* Water supply systems serving hospitals shall comply with all of the following:

1. All hospitals shall be provided with at least 2 water services. Whenever more than one water main is available, the connections shall be made to different water mains.

2. Each water service connection shall adequately serve the total building water supply demand as specified in s. Comm 82.40 (7).

Note: The installation of two water services or a private water main may require the installation of a check valve. Refer to ch. NR 811 for more information.

(b) *Hospital, community-based residential facility, inpatient hospice and nursing home water supply systems*. 1. Water supply systems serving a hospital, community-based residential facility, inpatient hospice or nursing home shall comply with all of the following:

a. Except as provided in subpar. b., a single control valve may serve an area where 4 or fewer patient care units exist and where each unit contains not more than 2 persons.

b. A water supply serving an intensive care patient care unit shall be individually valved.

2. All water distribution piping shall be insulated in accordance with chs. Comm 61 to 65.

3. Cold water shall be supplied to lavatories or sinks located in patient rooms.

4. A hot water distribution system shall be under constant recirculation to provide continuous hot water at each hot water outlet, except that uncirculated hot water distribution piping may not exceed 25 feet in developed length.

5. Water provided to patient showers, therapeutic equipment and all types of baths shall be installed with control valves which automatically regulate the temperature of the water supply to the fixture fitting outlet within a temperature range of 110°F to 115°F. Such control valves shall automatically reduce flow to 0.25 gpm or less when the water supply to the fitting outlet exceeds 115°F.

Note: See Appendix A-82.50 (3) (b) 6. for sketches showing various design options.

6. Hot water distribution systems shall be installed and maintained to provide bacterial control by one of the following methods:

a. Water stored and circulation initiated at a minimum of 140°F and with a return of a minimum of 124°F.

b. Water chlorinated at 2 mg/L residual.

Note: Additional information may be contained in ASHRAE Guideline 12-2000, Minimizing the Risk of Legionellosis Associated with Building Water Systems. This standard is published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE); 1791 Tullie Circle, N.E., Atlanta, GA 30329, phone: (800) 5-ASHRAE or (404) 636-8400 ext. 507; fax: (404) 321-5478; e-mail: orders@ashrae.org; or online at www.ashrae.org.

c. Another disinfection system approved by the department.

7. A water distribution system may not be designed, installed and maintained so that the maximum temperature to fixture fitting outlets accessible to patients exceeds 115°F.

Note: See s. Comm 82.40 (5) and ch. HFS 124 for additional requirements for circulation systems.

8. Except as provided in subd. 7., a water distribution system may not be designed, installed and maintained so that the maximum temperature to fixture fitting outlets exceeds 180°F.

SECTION 185. Comm 82.50 Table 82.50-1 is created to read:

TABLE 82.50-1
SPOUTS AND ACTIONS REQUIRED IN HEALTH CARE AND RELATED FACILITIES

Fixture Location	Type of Spout		Type of Action		
	Standard	Gooseneck or provide a 5-inch clearance	Hand	Wrist	Foot, Knee or Electronic Sensor
NURSING DEPARTMENT					
Patient toilet room		X		X	X
Patient toilet room, isolation		X			X
Utility room		X		X	X
Treatment room		X		X	X
Medicine room		X		X	X
Kitchen floor lavatory		X		X	X
Kitchen floor sink	X	X		X	X
Nurses toilet room	X	X	X	X	X
Floor laboratory		X	X	X	X
NURSERY					
Nursery		X		X	X
Exam/treatment room		X		X	X
Infant intensive care unit		X			X
Labor room		X		X	X
SURGICAL					
Scrub room		X [a]			X
Sub-sterile room	X	X		X	X
Clean-up room	X	X		X	X
Frozen sections room		X	X	X	X
Surgical supply room		X		X	X
Work room	X	X		X	X
Cystoscopic room		X [a]		X	X
Fracture room	X	X		X	X
Recovery room		X			X
CENTRAL SUPPLY					
Work room	X	X		X	X
Solutions room	X	X		X	X
Pharmacy		X	X	X	X
Manufacturing		X		X	X
EMERGENCY DEPARTMENT					
Observation bedroom		X		X	X
Utility room		X		X	X
Operating room		X [a]			X
Exam room		X		X	X

TABLE 82.50-1 (continued)
SPOUTS AND ACTIONS REQUIRED IN HEALTH CARE AND RELATED FACILITIES

Fixture Location	Type of Spout		Type of Action		
	Standard	Gooseneck or provide a 5-inch clearance	Hand	Wrist	Foot, Knee or Electronic Sensor
DIAGNOSTIC AND TREATMENT					
Occupational therapy room		X		X	X
Hydro-therapy room		X		X	X
Exam/treatment room		X		X	X
Radium treatment/exam room		X		X	X
Toilet room		X		X	X
Dark room		X		X	X
Autopsy room		X [a]			X
Lavatory in autopsy shower room		X	X		X
Laboratory		X	X		X
CLINIC OR OUTPATIENT DEPARTMENT					
Exam/treatment room		X		X	X
Dental operating room		X			X
Dental laboratory		X	X	X	X
Dental recovery		X		X	X
Surgical room		X [a]			X
Eye exam room		X			X
Ear, nose and throat exam room		X			X
SERVICE DEPARTMENT					
Lavatory in kitchen	X	X		X	X

X = means spout and action meet required type.
[a] Spout includes a spray head.

SECTION 186. Comm 82.51 Table 82.51 is repealed.

SECTION 187. Comm 82.51 is repealed and recreated to read:

Comm 82.51 Mobile homes and mobile home parks. (1) DRAIN SYSTEMS. Except as provided in pars. (a) and (b), the building sewers and private interceptor main sewers serving a mobile home or mobile home park shall comply with s. Comm 82.30.

(a) The minimum slope of the aboveground building sewer shall be 1/8 inch per foot.

(b) For mobile homes, the most upstream point of the building sewer shall be determined at the connection with the building drain installed by the mobile home manufacturer prior to delivery.

(c) The above ground building sewer shall be constructed of materials suitable for above ground drain and vent as specified in s. Comm 84.30 (2) (a).

(2) WATER SUPPLY SYSTEMS. (a) Except as provided in pars. (b) and (c), the water services and private water mains for a mobile home or mobile home park shall comply with s. Comm 82.40.

(b) The above ground water service shall be constructed of materials approved for water distribution as specified in s. Comm 84.30 (4) (e).

(c) The curb stop serving an individual mobile home shall terminate outside the perimeter of the mobile home.

(d) For mobile homes, the most downstream point of the water service shall be determined at the connection with the water distribution piping by the mobile home manufacturer prior to delivery.

(3) MOBILE HOME CONNECTIONS. (a) Frost sleeves for plumbing serving a mobile home shall conform to all of the following:

1. Water service and building sewer connections shall be provided with frost sleeves extending to within 6 inches of the top of the below ground horizontal building sewer or water service, or to a depth at least 6 inches below the predicted depth of frost in accordance with Table 82.30-6.

2. The frost sleeve shall terminate at least 2 inches above grade.

3. The sleeve shall be constructed of material approved for building drain or building sewer material as specified in s. Comm 84.30 (2).

(b) Termination of the water service and building sewer shall conform to all of the following:

1. The mobile home water service for connection to the mobile home shall terminate a minimum of 6 inches above the surrounding finished grade.

2. The mobile home building sewer for connection to the mobile home shall terminate a minimum of 4 inches above the surrounding finished grade and may not terminate higher than the water service.

(c) The mobile home water service and building sewer shall be capped or plugged when not connected to a mobile home.

SECTION 188. Comm 82.60 Table 82.60 (partial) is amended to read:

Table 82.60 (partial)
~~Support Spacing~~ SUPPORT SPACING

Material	Maximum Horizontal Spacing (in feet)	Maximum Vertical Spacing (in feet)
Polybutylene (PB)	~~2 2/3~~ 2 ft. 8 in.	4
Polyethylene (PE)	2	4
Polypropylene (PP)	2	4
Polyvinylidene Fluoride (PVDF)	2	4
Polyvinyl Chloride, flexible (PVC)	2	4
Polyvinyl Chloride (PVC)	4	10

SECTION 189. Comm 82.70 Subchapter VII (title) is created to read:

Subchapter VII—PLUMBING TREATMENT STANDARDS

SECTION 190. Comm 82.70 is created to read:

Comm 82.70 Plumbing treatment standards. (1) PURPOSE. The purpose of this section is to establish plumbing treatment standards for plumbing systems that supply water to outlets based on the intended use.

(2) SCOPE. The provisions of this section apply to plumbing systems that supply water to outlets.

Note: For requirements and specifications for POWTS, refer to ch. Comm 83.

Note: The department of natural resources requires WPDES permits for point source discharges under ch. 283, Stats.

(3) GENERAL REQUIREMENTS. A plumbing system shall supply water that is of a quality that will protect public heath and the waters of the state and be suitable for the intended use.

Note: Refer to s. Comm 82.34 for requirements for wastewater reuse.

(4) MINIMUM REQUIREMENTS. (a) Except as provided under par. (b), a plumbing system shall supply a quality of water at the outlet or at the termination of the plumbing system that meets or exceeds the minimum requirements as specified in Table 82.70-1.

(b) For an outlet other than a plumbing fixture, appliance or appurtenance, there may be more stringent requirements assigned by a municipality, governmental unit, state agency or the owner of the plumbing system.

SECTION 191. Comm 82.70 Table 82.70-1 is created to read:

Table 82.70-1
PLUMBING TREATMENT STANDARDS

Intended Use	Plumbing Treatment Standards
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 to private water supplies
5. Swimming pool fill	Pool fill requirements in accordance with ch. HFS 172
6. Once through cooling	pH 6 - 9 [c] $\leq$ 30 mg/L BOD_5 $\leq$ 30 mg/L TSS $\leq$ 200 fecal coliform/100 mL $\geq$ 1 mg/L chlorine residual [c]
7. Subsurface dispersal/irrigation [b, d, e]	$\leq$ 30 mg/L oil and grease $\leq$ 30 mg/L BOD_5 $\leq$ 150 mg/L TSS $\leq$ 200 fecal coliform/100 mL
8. Surface or spray irrigation of any food crop, including crops eaten raw, non-commercial only [a, e]	pH 6 - 9 [c] $\leq$ 10 mg/L BOD_5 $\leq$ 5 mg/L TSS no detectable fecal coliform/100 mL $\geq$ 1 mg/L chlorine residual [c]
9. Surface irrigation , vehicle washing, toilet and urinal flushing, air conditioning and other urban uses with similar human access or exposure to the water [d, e]	pH 6 - 9 [c] $\leq$ 10 mg/L BOD_5 $\leq$ 5 mg/L TSS no detectable fecal coliform/100 mL $\geq$ 1 mg/L chlorine residual [c]
10. Soil compaction, dust control, washing aggregate and making concrete	$\leq$ 30 mg/L BOD_5 $\leq$ 30 mg/L TSS $\leq$ 200 fecal coliform/100 mL $\geq$ 1 mg/L chlorine residual [c]
11. Irrigation of sod farms, silviculture sites and other areas where human access is prohibited or restricted [e]	pH 6 – 9 [c] $\leq$ 30 mg/L BOD_5 $\leq$ 30 mg/L TSS $\leq$ 200 fecal coliform/100 mL $\geq$ 1 mg/L chlorine residual [c]
12. Uses not specifically listed above	Contact department for approval

[a] Refer to the department of agriculture, trade and consumer protection for commercial use.
[b] Refer to ch. Comm 83 for domestic wastewater treatment requirements.
[c] Applies only to wastewater treatment devices for reuse systems. Other equivalent disinfection methods may be approved by the department.
[d] Stormwater collected from parking lots and industrial sites may not be infiltrated prior to pretreatment.
[e] 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.

SECTION 192. Comm 84.10 Table 84.10 is amended to read:

Table 84.10
SUBMITTALS TO DEPARTMENT

	Product Categories
1.	Chemical or biochemical treatments for ~~private sewage systems~~ POWTS
2.	Health care plumbing appliances
3.	~~Laboratory plumbing appliances~~ Physical restoration processes for POWTS
4.	Prefabricated holding or treatment components for POWTS
5.	Prefabricated plumbing
6.	Water treatment devices or bottled water vending machines not listed by a nationally recognized listing agency as complying with NSF Standard 44
7.	Wastewater treatment devices used to meet the requirements in s. Comm 82.70
8.	Exterior grease interceptors
9.	Exterior lift tanks

SECTION 193. Comm 84.11 Table 84.11 (partial) is amended to read:

Table 84.11 (partial)
~~Device Listings~~ DEVICE LISTINGS

Device	Referenced Standard
Backflow Preventers with Intermediate Atmospheric Vent	ASSE 1012
Chemical Dispensing Systems	ASSE 1055
Double Check Backflow Prevention Assemblies	ASSE 1015

SECTION 194. Comm 84.15 is amended to read:

Comm 84.15 Health care ~~and laboratory~~ plumbing appliances. Health care plumbing appliances ~~and laboratory plumbing appliances~~ shall function and perform in accordance with the drain, vent, water supply and backflow protection requirements of ch. Comm 82.

SECTION 195. Comm 84.20 (5) (n) 2. is amended to read:

Comm 84.20 (5) (n) 2. A urinal may not be located closer than 15 inches from its center to any side wall, partition, vanity or other obstruction, nor closer than 30 inches center to center, between urinals. ~~When the space between stall type urinals or a stall type urinal and a side wall is less than 12 inches, the space shall be filled flush with the front and top of the urinal with nonabsorbent material.~~

SECTION 195a. Comm 84.20 (6) (c) is repealed and recreated to read:

Comm 84.20 (6) (c) 1. Except as provided in subd. 2., all fixture supply connectors shall be designed and constructed to withstand a minimum pressure of 100 psig at 180ºF.

2. All fixture supply connectors installed on a cold water supply serving fixtures, appliances and devices that provide ≤1.0 gpm at each outlet shall be designed and constructed to withstand a minimum pressure of 100 psig at 73.4ºF.

SECTION 196. Comm 84.30 (1) (intro.) is repealed and recreated to read:

Comm 84.30 (1) GENERAL. When selecting the material and determining size for a plumbing system, due consideration shall be given to the waste that will discharge to the plumbing system and to the soil, liquid and atmospheric environments where the plumbing system will be located.

SECTION 197. Comm 84.30 (1) (f) is created to read:

Comm 84.30 (1) (f) Pipe and tubing for water distribution systems downstream of treatment devices designed to serve fixtures, appliances and devices that provide ≤1 gpm at each outlet shall be sleeved when penetrating a wall, floor or structural member.

SECTION 198. Comm 84.30 (2) (intro.) is amended to read:

Comm 84.30 (2) SANITARY DRAIN AND VENT SYSTEMS AND POWTS INSPECTION AND OBSERVATION PIPING. Sanitary drain systems and vent systems and POWTS inspection and observation piping shall be of such material and workmanship as set forth in this subsection.

SECTION 199. Comm 84.30 (2) (j) is created to read:

Comm 84.30 (2) (j) *POWTS inspection and observation pipe.* A POWTS inspection and observation pipe shall conform to at one of the standards listed in Table 84.30-1.

SECTION 200. Comm 84.30 Tables 84.30-1 (title) and (partial), 84.20-2 (partial), 84.30-3 (partial), 84.30-4 (Note) and (partial), 84.30-5 (partial), and 84.30-6 (partial) are amended to read:

Table 84.30-1 (partial)
ABOVE GROUND DRAIN AND VENT PIPE AND TUBING

Material	Standard
Cast iron	ASTM A74; ASTM A888; CISPI 301

Table 84.30-2 (partial)
UNDERGROUND DRAIN AND VENT PIPE AND TUBING

Material	Standard
Cast iron	ASTM A74; ASTM A888; CISPI 301

Table 84.30-3 (partial)
SANITARY BUILDING SEWER PIPE AND TUBING

Material	Standard
Cast iron	ASTM A74; ASTM A888; CISPI 301

Table 84.30-4 (partial)
PERFORATED EFFLUENT DISTRIBUTION PIPING FOR NONPRESSURIZED SOIL ABSORPTION SYSTEMS

Material	Standard
Polyvinyl chloride (PVC) [a]	ASTM D2729

Note a: ~~Polyethylene (PE)~~ The pipe shall have 2 rows, and only 2 rows, of perforations parallel to the axis of the pipe and 120º ± 5º apart. The perforations shall be at the nominal 4 and 8 o'clock positions when the pipe is installed.

Table 84.30-5 (partial)
PRESSURIZED DRAIN PIPE AND TUBING AND SERVICE SUCTION LINES

Material	Standard
~~Cast iron~~	~~ASTM A74; ASTM A377; AWWA C115/A21.15; CISPI 301~~
Polyvinyl chloride (PVC)[a]	ASTM D1785; ASTM D2241; ASTM D2665; ~~ASTM D2672;~~ AWWA C900

Table 84.30-6 (partial)
STORM BUILDING SEWER PIPE AND TUBING

Material	Standard
Cast iron	ASTM A74; ASTM A888; CISPI 301

SECTION 201. Comm 84.30 Table 84.30-7 and Table 84.30-10 are repealed.

SECTION 202. Comm 84.30 Tables 84.30-8, 84.30-9 and 84.30-9m are renumbered as Tables 84.30-7, 84.30-8 and 84.30-9 and amended to read:

Table 84.30-7 (partial)
PIPE AND TUBING FOR WATER SERVICES AND PRIVATE WATER MAINS

Material	Standard
~~Cast iron~~	~~ASTM A377; AWWA C115/A21.15~~
Copper[b,c]	ASTM B42; ASTM B88
Polyvinyl chloride (PVC)[a]	ASTM D1785; ASTM D2241; ~~ASTM D2672;~~ AWWA C900

[c] Copper pipe or tubing shall not be installed if the pH of the water to be conveyed is 6.5 or less.

Table 84.30-8 (partial)
WATER DISTRIBUTION PIPE AND TUBING

Material	Standard
Copper[b,c]	ASTM B42; ASTM B88

[c] Copper pipe or tubing shall not be installed if the pH of the water to be conveyed is 6.5 or less.

SECTION 203. Comm 84.30 Table 84.30-11 (partial) is renumbered as Table 84.30-10 and amended to read:

Table 84.30-10 (partial)
PIPE FITTINGS

Material	Standard
Polyvinyl Chloride (PVC)	ASTM D2464; ASTM D2466; ASTM D2467; ASTM D3311; ASTM F409; ASTM F1336; ASTM F1866

SECTION 204. Comm 84.30 Table 84.30-11 is created to read:

Table 84.30-11
PIPE AND TUBING FOR WATER DISTRIBUTION SYSTEMS DOWNSTREAM OF TREATMENT DEVICES DESIGNED TO SERVE FIXTURES, APPLIANCES AND DEVICES THAT PROVIDE ≤1 GPM AT EACH OUTLET

Material	Standard
Copper[b,c]	ASTM B42; ASTM B88
Polyethylene (PE)[a]	NSF 51, NSF 61
Polypropylene (PP)[a]	NSF 51, NSF 61
Polyvinylidene fluoride (PVDF)[a]	NSF 51, NSF 61
Polyvinyl chloride (PVC)[a]	NSF 51, NSF 61

[a] These materials are approved for cold water use only.
[b] Copper tubing, Type M, shall not be installed underground.
[c] Copper pipe or tubing shall not be installed if the pH of the water to be conveyed is 6.5 or less.

SECTION 205. Comm 84.30 (4) (d) is repealed.

SECTION 206. Comm 84.30 (4) (e) and (f) are renumbered as Comm 84.30 (3) (d) and (e) and amended to read:

Comm 84.30 (4) (d) *Water services and private water mains.* ~~1.~~ Water service pipe and private water mains shall conform to one of the standards listed in Table ~~84.30-8~~ 84.30-7. Pipe and tubing for water services and private water mains shall have a minimum working pressure of 150 psig at 73.4ºF.

~~2. A local governmental unit may by ordinance restrict the types of materials for water services and private water mains which are to be located within or beneath an area subject to an easement for a highway, street or public service right-of-way. Before adopting an ordinance restricting the types of materials for water services the local governmental unit shall submit a copy of the proposed ordinance to the department for review and approval.~~

~~3. Existing metallic water service piping or water distribution piping used for electrical grounding shall not be replaced with nonmetallic pipe or tubing until other approved electrical grounding means are provided.~~

(e) *Water distribution pipe.* 1. Except as provided in ~~subd~~. subds. 2. or 3., water distribution pipe shall have a minimum working pressure of 100 psig at 180ºF and shall conform to one of the standards listed in Table ~~84.30-9~~ 84.30-8.

2. ~~Water distribution~~ Cold water distribution pipe installed underground ~~for an exterior turf sprinkler~~ shall conform to one of the standards listed in Table ~~84.30-10~~ 84.30-7 or 84.30-8. ~~Water distribution pipe and fittings for exterior turf sprinkler systems shall have a minimum working pressure of 100 psig at 73.4ºF. Water distribution pipe installed above ground for an exterior turf sprinkler shall conform to subd. 1.~~

SECTION 206a. Comm 84.30 (4) (e) 2. Note and 3. are created to read:

Comm 84.30 (4) (e) 2. **Note:** See appendix for further explanation.

3. Water distribution pipe installed in the cold water supply system serving fixtures, appliances and devices that provide ≤ 1.0 gpm at each outlet shall have a minimum working pressure of 100 psig at 73.4^{o}F and shall conform to one of the standards listed in Table 84.30-11.

SECTION 206b. Comm 84.30 (4)(c) is amended to read:

Comm 84.30 (4) (c) *Certification of plastic pipe.* Plastic pipe for a water supply system shall ~~conform to NSF 14 and shall~~ be certified for potable water contact by a nationally recognized ~~testing~~ listing agency ~~as to conforming to NSF 14~~ acceptable to the department. ~~Plastic pipe for water supply systems shall bear the certification mark of the testing agency.~~

SECTION 207. Comm 84.30 (4) (c) Note is created to read:

Comm 84.30 (4) (c) Note: For a listing of nationally recognized agencies acceptable to the department, see Appendix A-84.11.

SECTION 208. Comm 84.30 (4) (f) 2. a. is amended to read:

Comm 84.30 (4) (f) 2. a. The bending radius of polybutylene water distribution pipe or tubing shall meet or exceed the bending radius specified in Table ~~84.30-9m~~ 84.30-9 and shall meet or exceed the bending radius specified by the manufacturer of the pipe or tubing.

SECTION 209. Comm 84.30 (4) (i) is created to read:

Comm 84.30 (4) (i) *Pipe and tubing for water distribution systems downstream of water treatment devices designed to serve fixtures, appliances and devices that provide ≤1 gpm at each outlet.* 1. Pipe and tubing for water distribution systems downstream of water treatment devices designed to serve fixtures, appliances and devices that provide ≤1 gpm at each outlet shall conform to one of the standards listed in Table 84.30-11.

2. Plastic pipe and tubing for water distribution systems downstream of water treatment devices designed to serve fixtures, appliances and devices that provide ≤1 gpm at each outlet shall be marked at intervals not to exceed 4 feet with the following information:

a. The manufacturer's name.

b. The trade designation of the pipe or tubing.

c. The type of material.

d. The minimum working temperature and pressure of the pipe or tubing.

e. The mark of the certifying agency.

SECTION 210. Comm 84.30 (5) (a), (b)and (d) are amended to read:

Comm 84.30 (5) PIPE FITTINGS AND VALVES. (a) *Fittings.* Pipe fittings shall conform to the pipe material standards listed in this chapter or one of the standards listed in Table ~~84.30-11~~ 84.30-10. Threaded drain pipe fittings shall be of the recessed drainage type.

(b) 3. ~~A~~ Except for a valve integral to a device, a control valve which serves 2 or more plumbing fixtures shall have, with the valve in a fully open position, a flow through passageway of not less than one nominal pipe size smaller than the nominal size of the piping connecting to the valve.

(d) *Pipe saddles.* Pipe saddles shall be installed in accordance with the instructions of the saddle manufacturer and conform to all of the following limitations:

1. Pipe saddles may be installed on private interceptor main sewers, building sewers, underground drain and vent pipe and tubing and where otherwise approved by the department

2. A saddle for drain piping shall have a radius in accordance with s. Comm 82.30 (8) (a)~~;~~ .

3. The material of the saddle shall be compatible with the materials of the pipes which are to be connected to the saddle~~;~~ .

4. The hole in the pipe which is to receive the saddle shall be drilled or cored to match the saddle outlet~~;~~ .

5. Straps or clamps which wrap around the pipe and saddle shall be provided by the manufacturer of the saddle~~;~~ .

6. Saddles shall be installed with straps or clamps which wrap around the pipe and saddle~~; and~~.

7. Proper hangers or bedding shall be provided to maintain alignment between the opening in the pipe and the saddle.

SECTION 211. [This treatment section was deleted after the public hearing.]

SECTION 212. Comm 84.40 (1) (c) 1. to 4. is amended to read:

Comm 84.40 (1) (c) *Prohibited joints and connections.* Unless otherwise permitted in this chapter or ch. Comm 82 or 83, all of the following types of joints and connections shall be prohibited:

1. Cement or concrete joints~~;~~.

2. Mastic or hot poured bituminous joints~~;~~.

3. Elastomeric rolling o-rings between different diameter pipes~~;~~.

4. Solvent cement joints between different types of plastic pipe~~; and~~ other than ABS and PVC in non-pressurized systems.

SECTION 213. Comm 84.40 (6) (b) (intro.), and 1. is amended to read:

Comm 84.40 (6) (b) *Solvent cemented joints.* Solvent cemented joints shall be made in accordance with ASTM D2846 ~~and its Appendix~~ or ASTM F493 ~~and its Appendix~~.

1. Joint surfaces shall be clean and free of moisture. ~~A~~ Cleaner, primer and cement ~~conforming to ASTM F656~~ shall be ~~applied to all joint surfaces~~ installed in accordance with the manufacturer's instructions for use of the solvent cement. ~~The primer shall be purple in color.~~

SECTION 214. Comm 84.40 (6) (b) 4. is repealed.

SECTION 215. Comm 84.40 (6) (b) 5. is renumbered as Comm 84.40 (6) (b) 4.

SECTION 216. Comm 84.40 (8) (d) is amended to read:

Comm 84.40 (8) (d) *Soldered joints.* All joint surfaces to be soldered shall be ~~cleaned bright by other than chemical means~~ made in accordance with ASTM B828. ~~A nontoxic flux~~ Flux approved by NSF for use in potable water systems shall be applied to all joint surfaces. Solder conforming to ASTM B32 or other approved material shall be used. The joining of water supply piping shall be made with lead-free materials.

SECTION 217. Comm 84.40 (17) (d) 2. is amended to read:

Comm 84.40 (17) (d) 2. ~~Connections~~ Except as provided in par. (f), connections between different types of plastic pipe or between plastic pipe and other piping materials other than cast iron shall be by means of threaded joints in accordance with sub. (14) (c).

SECTION 218. Comm 84.40 (17) (f) is created to read:

Comm 84.40 (17) (f) *ABS plastic to PVC plastic.* For solvent-cemented connections between ABS and PVC piping in non-pressurized systems, all of the following shall apply:

1. Joint surfaces shall be clean and free of moisture.

2. Primer conforming to ASTM F656 shall be applied to all PVC joint surfaces.

3. Solvent conforming to ASTM D3138 shall be applied to all joint surfaces and the joint shall be made while the cement is wet.

4. Solvent shall be handled in accordance with ASTM F402.

SECTION 219. Comm 84.40 (19) is created to read:

Comm 84.40 (19) CONNECTION OF PIPE TO CONCRETE STRUCTURES. Joints between concrete structures and piping shall be made with mechanical joints in conformance with ASTM C923, ASTM C564 or as otherwise permitted by local authority. Openings for pipe connections that are installed with mechanical joints conforming to ASTM C564 shall have an inside diameter of that required for cast iron pipe in conformance with ASTM A74.

SECTION 220. Comm 90.01 is amended to read:

Comm 90.01 Authority and purpose. This chapter is promulgated under the authority of s. 145.26, Stats., to regulate the design and construction, alteration~~,~~ or reconstruction of public swimming pools, including whirlpools and water ~~recreation~~ attractions, and the alteration of public swimming pool equipment in order to protect the health and safety of the public.

SECTION 220a. Comm 90.03 (10m) is created to read:

Comm 90.03 (10m) "Play feature" means a physical object installed in a pool or water attraction that is intended for recreational use.

SECTION 220b. Comm 90.03 (11) (h) is repealed and recreated to read:

Comm 90.03 (11) (h) "Wading pool" means a shallow pool intended for children's play and having a maximum depth of 24 inches.

Note: Examples of wading pools include: wet decks, splash pads, spray pads and zero-depth entry wading pools.

SECTION 221. Comm 90.03 (19) is repealed and recreated to read:

Comm 90.03 (19) "Water attraction" means a public facility with design and operational features that provide patron recreational activity other than conventional swimming and involves partial or total immersion of the body.

Note: Examples of water attractions are waterslide plunge pools, zero depth entry pools that exceed 24 inches in depth, leisure river or tubing pools, wave pools and any pool with play features, except wading pools with play features. A water attraction may consist of several play features interconnected by a single recirculation system and pool.

SECTION 221a. Comm 90.03 (20) (a) and (b) are created to read:

Comm 90.03 (20) (a) "Waterslide" means a slide where water is intended to flow in a flume.

(b) Slides not included in this definition are those that meet all of the following criteria:

1. The slide is no greater than 6 feet in height as measured vertically from the slide entrance to the slide exit.

2. From the slide entrance, the slide user has a view of the slide exit and landing area.

Note: Refer to chs. Comm 61 to 66 for information relating to plan review and submittal for waterslides.

SECTION 222. Comm 90.04 (5) (a) is amended to read:

Comm 90.04 (5) CONSTRUCTION SUPERVISION AND CERTIFICATION. (a) *Supervision.* 1. ~~In~~ For the purposes of this paragraph, "supervision" means the performance of an architect's or engineer's service of reasonable on-site observation to determine that the completed construction is in substantial compliance with approved plans and specifications~~.~~, ~~"Supervision"~~ but does not include the supervision of construction by a contractor.

SECTION 223. [This treatment section was deleted after the public hearing.]

SECTION 224. Comm 90.04 (6) and (7) are created to read:

Comm 90.04 (6) CONSTRUCTION INSPECTION. Every new installation or modification constructed under the authority of this chapter shall be inspected as required in this subsection.

(a) The construction or modification of any public swimming pool or water attraction shall be inspected by an authorized representative of the department.

(b) A rough-in inspection shall be conducted when the piping system is roughed-in and before concrete is poured.

1. When the installation is ready for inspection, the registered architect, professional engineer or pool contractor constructing or modifying any swimming pool shall make a telephone request for inspection with the representative of the department.

2. Except as provided under subd. 3., work may not proceed beyond the point of inspection, as described under subd. 1., until the inspection has been completed.

3. If the inspection is not made by the end of the normal business day following the day of notification, not including Saturday, Sunday or legal holidays, the installation work may proceed.

(c) A final inspection shall be made when the construction or modification is complete. The registered architect or professional engineer responsible for the supervision of the construction or modification of any public swimming pool shall make a request for the final inspection as specified in par. (b) 1. to 3.

(d) The registered architect or professional engineer responsible for the supervision of the construction or modification of any public swimming pool shall provide the necessary equipment and personnel required for the inspection as requested by the authorized representative of the department.

(e) If the authorized representative of the department finds that the work or installation does not comply with this code, necessary corrections shall be made to achieve compliance. The authorized representative of the department shall be notified for re-inspection when the corrections are completed.

(7) AUTHORIZED INSPECTION AGENT. (a) Upon request from a governmental unit the department may delegate to the governmental unit, the responsibility to conduct construction inspections of any public swimming pool or water attraction in accordance with this section.

(b) The delegation of inspection authority by the department shall be contingent upon a request by the governmental unit demonstrating sufficient capabilities to complete the construction inspections.

(c) The department shall provide the governmental unit with a written decision of authorization or denial relative to the request under this section concerning construction inspection.

(d) The department shall include as part of governmental unit audits conducted an evaluation of the construction inspection functions that are authorized to the governmental unit under this section.

(e) When a governmental unit wishes to discontinue the authorized construction inspection function under this section, written notification shall be made to the department at least 30 days prior to the discontinuance.

(f) The authorization to conduct construction inspections may be revoked by the department after providing the governmental unit with justification.

SECTION 225. Comm 90.08 (8) (b) 4. is amended to read:

Comm 90.08 (8) (b) 4. The words "bench ~~area~~ below" shall be placed on the deck at the edge of the pool at the bench area in a color in distinct contrast to the deck background.

SECTION 226. Comm 90.10 (2) is amended to read:

Comm 90.10 (2) A plunge pool or a wave-generating pool does not require a separate enclosure if, along with other water ~~recreation~~ attraction facilities, it is enclosed in an area under the control of an operator providing safety and supervision measures as required in s. HFS 172.05.

SECTION 227. Comm 90.11 (3)(a) is amended to read:

Comm 90.11 (3) (a) *Extent.* Gutters shall extend completely around the pool except at recessed steps, ladders or ramps. A water ~~recreation~~ attraction may be exempt from the continuous gutter requirement with the approval of the department.

SECTION 228. Comm 90.12 (1) (a) is amended to read:

Comm 90.12 Disinfection of pool water. (1) (a) *General.* Equipment shall be provided for continuous disinfection of pool water. For a water ~~recreation~~ attraction, an electronic system for the continuous monitoring and feeding of a disinfectant into the recirculation system shall be installed.

SECTION 228a. Comm 90.19 (2) (b) 2. is amended to read:

Comm 90.19 (2) (b) 2. The minimum headroom measured as the height between the top of the whirlpool rim and the ceiling shall be ~~6 feet 8 inches~~ as required under ~~s. Comm 51.164~~ chs. Comm 61 to 65.

SECTION 229. Comm 90.20 (1) is amended to read:

Comm 90.20 Water ~~recreation~~ attractions. (1) GENERAL. Water ~~recreation~~ attractions shall be designed and constructed in accordance with sound engineering practice. Design engineers may consult with the department regarding design variations and areas where potential problems may exist. The department may require a water recirculation rate for specific water ~~recreation~~ attractions which is greater than that stated in this chapter. Operators of water ~~recreation~~ attractions shall comply with this section and all other applicable requirements in this chapter.

SECTION 230. Comm 90.20 (4) and Notes are created to read:

Comm 90.20 (4) WATERSLIDES. The provisions of this section shall apply to all waterslides. These provisions shall apply in addition to all other applicable requirements in this chapter.

(a) All external parts and surfaces shall be of materials and finishes that will not cut, pinch, puncture or cause an abrasion to any person using the waterslide under normal use.

(b) Waterslide flumes shall be designed and constructed so as each person using the waterslide remains inside the flume path during normal use.

(c) All curves, turns and tunnels on the flume path shall be so designed and constructed as not to present a hazard to any person using the waterslide under normal use.

(d) Waterslides shall be so designed to support the use that is intended.

Note: Refer to ch. Comm 61 for plan review requirements.