

Subchapter II

Adminstration & Enforcement

ILHR 82.20 Plan review and approval. (1) **GENERAL.** Plumbing plans and specifications shall be submitted to the department or to an approved agent municipality for review in accordance with pars. (a) and (b).

(a) *Department review.* Plumbing plans and specifications for the types of plumbing installations listed in Table 82.20-1 shall be submitted to the department for review, regardless of where the installation is to be located. Written approval for the plumbing plans shall be obtained prior to installation of the plumbing.

Table 82.20-1

SUBMITTALS TO DEPARTMENT

Type of Plumbing Installation

1. All plumbing, new installations, additions and alterations, regardless of the number of plumbing fixtures involved, to be installed in health care facilities.
 2. Plumbing, new installations, additions and alterations involving 6 or more plumbing fixtures, to be installed in buildings owned by a metropolitan or sanitary sewer district.^a
 3. Plumbing, new installations, additions and alterations involving 6 or more plumbing fixtures, to be installed in buildings owned by the state.^a
 4. Engineered plumbing systems.
 5. Controlled roof drainage systems.
 6. Reduced pressure zone principle backflow preventers.
-

Note a: A water heater is to be counted as a plumbing fixture.

(b) *Department or agent municipality review.* Plumbing plans and specifications for the types of plumbing installations listed in Table 82.20-2 shall be submitted for review to an agent municipality, if the installation is to be located within the agent municipality or to the department, if the installation is not to be located within an agent municipality. A municipality shall be designated as an agent municipality in accordance with sub. (2). Written approval for the plumbing plans shall be obtained prior to installation of the plumbing.

Table 82.20-2

SUBMITTALS TO DEPARTMENT OR AGENT MUNICIPALITY

Type of Plumbing Installation

1. New installations, additions and alterations to drain systems, vent systems, water service systems, and water distribution systems involving 6 or more plumbing fixtures to be installed in public buildings.^{a,b}
2. Grease interceptors to be installed for public buildings.
3. Garage catch basins and oil interceptors to be installed for public buildings.
4. Automatic car wash facilities.
5. Sanitary dump stations.
6. Turf sprinkler systems connected to a potable water system.
7. Private water mains.
8. Water supply systems and drain systems to be installed for mobile home parks and campgrounds.
9. Private interceptor main sewers.
10. Chemical waste systems regardless of the number of plumbing fixtures involved.^c

Note a: A water heater is to be counted as a plumbing fixture.

Note 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.

Note c: Only agent municipalities which are cities of the first class may review these types of installations.

1. Plan review and approval of one- and 2-family dwellings. Review and approval of plumbing plans for one- and 2-family dwellings shall be in accordance with the provisions specified in s. ILHR 20.09.

2. Local review. An agent municipality may require by local ordinance the submittal and review of plumbing plans for those installations involving 5 or less plumbing fixtures.

(2) AGENT MUNICIPALITIES. The department may designate to an approved municipality the authority to review and approve plumbing plans and specifications for those plumbing installations to be located within the municipality's boundary limits and which require approval under sub. (1) (b).

(a) An agent municipality shall employ at least 2 full time plumbing inspectors who have been qualified by the department.

1. The primary duties of the plumbing inspectors shall include plumbing plan review.

2. The plumbing inspectors shall be Wisconsin licensed master or journeyman plumbers.

Note: See Appendix for listing of agent municipalities.

(b) An agent municipality may waive its jurisdiction for plan review and approval for any project, in which case plans shall be submitted to the department for review and approval.

(c) *Clear water drain piping.* Drain piping for clear water shall be sized in accordance with s. ILHR 82.30 (3) and (4).

(d) *Minimum size of underground drain piping.* Any portion of a storm or clear water drain system installed underground shall not be less than 2 inches in diameter. Underground drain piping which is 2 inches in diameter shall not exceed a length of 20 feet.

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

1. Gravity flow sewers. a. The minimum size of a gravity flow storm building sewer shall be 3 inches in diameter between the building and lot line and 4 inches in diameter between the lot line and public sewer or private interceptor main sewer. A municipality or sanitary district by ordinance may require that portion of the storm building sewer between the lot line and public sewer or private interceptor sewer to be larger than 4 inches in diameter.

b. A gravity flow storm building sewer shall not be smaller than any storm building drain connected thereto, except a decrease in diameter in the direction of flow will be permitted if the increase in slope is sufficient to maintain the volume rate of flow. A reduction in diameter for the storm building sewer shall be made in a manhole.

2. Pressurized or forced sewers. Pressurized storm building sewers shall be not less than $\frac{1}{4}$ inches in diameter.

(6) **PITCH OF HORIZONTAL DRAIN PIPING.** All horizontal drain piping shall be installed at a pitch which will produce a computed velocity of at least one foot per second when flowing full.

(a) *Storm water drain piping.* The minimum pitch of horizontal drain piping shall be in accordance with Tables 82.36-1 to 82.36-4.

(b) *Clear water drain piping.* The minimum pitch of horizontal clear water drain piping less than 3 inches in diameter shall be $\frac{1}{8}$ inch per foot. The minimum pitch of horizontal drain piping 3 inches or larger in diameter shall be $\frac{1}{16}$ inch per foot.

(7) **CHANGES IN DIRECTION OF FLOW.** Changes in direction of flow for storm and clear water drain piping shall be in accordance with s. ILHR 82.30 (8).

(8) **DRAINAGE FITTINGS AND CONNECTIONS.** Drain piping fittings and connections shall be in accordance with s. ILHR 82.30 (9).

(9) **STACK OFFSETS.** Stack offsets in clear water drain piping shall comply with s. ILHR 82.30 (6).

(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 drain stack or conductor within the distance equal to 20 pipe diameters of the building drain.

(11) **SUMPS AND PUMPS.** (a) *Sumps.* 1. General. All storm building sub-drains shall discharge into a sump, the contents of which shall be automatically lifted and discharged into the storm drain system.

Note: See Appendix for further explanatory material.

(b) *Subsurface areas of 50 square feet or less.* All subsurface areas, exposed to the weather, other than stairwells, with areas not exceeding 50 square feet shall be drained. These areas may drain to subsoil drains through a minimum 2 inch diameter pipe or a continuous layer of gravel or may drain to the storm building drain, storm subdrain, or storm sewer through a minimum 3 inch diameter pipe.

(c) *Subsurface areas of more than 50 square feet and stairwells.* An area drain shall be provided in subsurface areas, greater than 50 square feet in area, and all stairwells which are exposed to the weather. These areas shall be drained to the storm building drain, storm subdrain or storm sewer. If no storm sewer exists, the discharge shall be in accordance with sub. (3) (b). The fixture drain shall have a minimum inside diameter of 3 inches and shall not discharge into a subsoil, footing or foundation drain.

(18) **ROOF DRAINS.** (a) *General roofs.* Roof drains shall be equipped with strainers extending not less than 4 inches above the surface of the roof immediately adjacent to the roof drain. Strainers shall have an available inlet area above the roof of not less than 1½ times the area of the conductor to which the drain connects.

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

(19) **CONTROLLED FLOW ROOF DRAIN SYSTEMS.** (a) *Application.* In lieu of sizing the roof storm drain piping on the basis of actual maximum horizontal projected roof areas as specified in sub. (4), the roof drain piping may be sized based on the equivalent adjusted maximum horizontal projected roof areas which result from controlled flow and storage of storm water on the roof.

Note: See s. ILHR 53.11 (4) (d) as to provisions relating to the structural design of the roof for controlled flow drain systems.

(b) *Installation.* Control of storm water runoff shall be by control devices. Control devices shall be protected by strainers.

(c) *Sizing.* Not less than 2 drains shall be installed in roof areas 10,000 square feet or less and at least 4 drains in roofs over 10,000 square feet in area.

History: Cr. Register, February, 1985, No. 350, eff. 3-1-85; r. and recr. (3) (a) and (b) 1., (c) 1. and (11) (a) 4., cr. (3) (c) 3., Register, May, 1988, No. 389, eff. 6-1-88; renum. (13) (a) and (b) to be (b) and (c) and am. (b) 1., cr. (3) (b) 3. and (13) (a), r. (3) (c) 3. and (13) (intro.), Register, August, 1991, No. 428, eff. 9-1-91.

Subchapter IV Water Supply Systems

ILHR 82.40 Water supply systems. (1) **SCOPE.** The provisions of this section set forth the requirements for the design and installation of water supply systems.

Note: Chapter NR 111 governs the design and construction of community water systems or waterworks.

(2) **MATERIALS.** All water supply systems shall be constructed of approved materials in accordance with ch. ILHR 84.

Register, August, 1991, No. 428

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

TYPE OF FIXTURE ^a	WATER SUPPLY FIXTURE UNITS (WSFU)		
	Hot	Cold	Total
Automatic Clothes Washer, Individual	2.0	2.0	3.0
Automatic Clothes Washer, Large Capacity	b	b	b
Bathtub, With or Without Shower Head	2.0	2.0	3.0
Coffeemaker		0.5	0.5
Dishwasher, Commercial	b	b	b
Drink Dispenser		0.5	0.5
Drinking Fountain		0.25	0.25
Glass Filler		0.5	0.5
Hose Bibb:			
½" diameter		3.0	3.0
¾" diameter		4.0	4.0
Icemaker		0.5	0.5
Lavatory	0.5	0.5	1.0
Shower, Per Head	2.0	2.0	3.0
Sinks:			
Bar and Fountain	1.5	1.5	2.0
Barber and Shampoo	1.5	1.5	2.0
Cup		0.5	0.5
Flushing Rim		7.0	7.0
Kitchen and Food Preparation per faucet	2.0	2.0	3.0
Laboratory	1.0	1.0	1.5
Medical Exam and Treatment	1.0	1.0	1.5
Service	2.0	2.0	3.0
Surgeon Washup	1.5	1.5	2.0
Urinal:			
Syphon Jet		4.0	4.0
Washdown		2.0	2.0
Wall Hydrant, Hot and Cold Mix:			
½" diameter	2.0	2.0	3.0
¾" diameter	3.0	3.0	4.0
Wash Fountain:			
Semicircular	1.5	1.5	2.0
Circular	2.0	2.0	3.0
Water Closet:			
Flushometer		7.0	7.0
Gravity Type Flush Tank		3.0	3.0

Note a: For fixtures not listed, factors may be assumed by comparing the fixture to a listed fixture which uses water in similar quantities and at similar rates.

Note b: Load factors in gallons per minute, gpm, based on manufacturer's requirements.

Table 82.40-3
CONVERSION OF WATER SUPPLY FIXTURE UNITS TO GALLONS PER MINUTE

Water Supply Fixture Units	GALLONS PER MINUTE	
	Predominately Flushometer Type Water Closets or Syphon Jet Urinals	Predominately Flush Tank Type Water Closets or Washdown Urinals
1	—	1
2	—	2
3	—	3
4	10	4
5	15	4.5
6	18	5
7	21	6
8	24	6.5
9	26	7
10	27	8
20	35	14
30	40	20
40	46	24
50	51	28
60	54	32
70	58	35
80	62	38
90	65	41
100	68	42
120	73	48
140	78	53
160	83	57
180	87	61
200	92	65
250	101	75
300	110	85
400	126	10
500	142	12
600	157	14
700	170	16
800	183	17
900	197	19
1000	208	20
1250	240	24
1500	267	26
1750	294	294
2000	321	321
2250	348	348
2500	375	375
2750	402	402
3000	432	432
4000	525	525
5000	593	593

Note: Values not specified in the table may be calculated by interpolation.

(7) **SIZING OF WATER SUPPLY PIPING.** The sizing of the water supply system shall be based on the empirical method and limitations outlined in this subsection or on a detailed engineering analysis acceptable to the department.