

§1-808(f) Design Flow

- (a) A soil-based disposal system constructed to serve a new project, or a project with an increase in design flow may be reduced in size when composting or incinerating toilets are used. Systems for residential units will be granted a 25% reduction. The reduction in size for other systems will be determined on a case by case basis.

- (b) For potable water supplies that are not public water supplies, design flows shall be determined using this section of the Rules. For water supplies that are public water supplies, design flow shall be determined in accord with Section 2.2 and Table A2-1 of the Vermont Water Supply Rules. The design flow for a water supply may be different than wastewater design flows if the water supply is a public water supply. The design flow for the potable water supply may also differ from the wastewater design flow when the design basis of the two systems is different. Examples include:
 - (1) The wastewater flow is based on a connection to a wastewater system with a design capacity of 50,000 gallons per day or more and the water supply is an individual supply.
 - (2) The wastewater flow is based on connection of 5 or more units into a single wastewater system and the water supply is an individual supply for each unit.

Note: In the event of a conflict between these Rules and the Water Supply Rules, these Rules shall govern if the potable water supply is not a public water supply.

Table 1

Design Flow for Residential Units

- (a) The design flow for single family residential units shall be calculated on the following requirements:
 - (1) The design flow for each person shall be 70 gallons per person per day;
 - (2) the first three bedrooms shall be assumed to have two persons per bedroom;
 - (3) each additional bedroom may be assumed to have one person per bedroom. When a building will be subject to rental use or when it is likely there will be extended or frequent high occupancy use, the system should be sized for at least 2 persons per bedroom; and
 - (4) the design flow for a single-family residence on its own individual lot shall be based on a minimum of two bedroom.

- (b) When five or more single family residential units are connected to a single soil-based disposal system, a designer may choose to use the following design flows that are based only on the number of residential units without regard for the number of bedrooms:

§1-808 Design Flow Table 1 – Continued

Number of Single Family Units	Project Design Flow
5 units	1575 gallons per day
6 units	1830 gallons per day
7 units	2065 gallons per day
8 units	2280 gallons per day
9 units	2565 gallons per day
10 units	2800 gallons per day
11 units	3036 gallons per day
12 units	3264 gallons per day
13 units	3484 gallons per day
14 units	3696 gallons per day
15 units	3900 gallons per day
16 units	4112 gallons per day
17 units	4369 gallons per day
18 units	4518 gallons per day
19 units	4712 gallons per day
20 units	4900 gallons per day
20+ units	# of units X 245 gallons per day

Note: Single family residential units with only one bedroom, such as condominiums and apartment buildings will not benefit from the use of the design flows listed above. Single family residential units, with two bedrooms each, will benefit from use of the table when 11 or more units are connected to a single soil-based disposal system.

Note: Wastewater disposal systems with a design capacity of 6500 GPD or more may also require an Indirect Discharge Permit.

- (c) Single family residential units connected to a wastewater disposal system with a design capacity of at least 50,000 gallons per day may use a design flow of 210 gallons per unit per day, regardless of the number of bedrooms.
- (d) There is no reduction allowed in Table 1 design flows based on the use of low flow plumbing fixtures as the design flow assumes their use.
- (e) Multi-unit elderly housing projects may be calculated on 1.5 person per unit

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Table 2

Campgrounds (also see camps)	Open 7 mo/yr Or Less	Open more than 7 mo/yr
Campgrounds that allow only tents and camping units with no interior plumbing		
Central toilets and showers 4 people per site	75 gpd/site	100 gpd/site
Campgrounds that allow only tents and camping units with no interior plumbing		
Central toilets without showers 4 people per site	60 gpd/site	75 gpd/site
Campground sites that allow camping units with interior plumbing		
Served by central toilet facilities and dumping stations	50 gpd/site for central facilities plus 25 gpd/site for the dumping station	90 gpd/site for central facilities plus 35 gpd/site for the dumping station
Served by an individual sewer hook-up	75 gpd/site	125 gpd/site
Seasonal RV site with individual sewer hook-up		
RV owned by the occupant	75 gpd/site	125 gpd/site
RV not owned by the occupant	125 gpd/site	175 gpd/site
Cabins with RV type plumbing		
4 people per site	125 gpd/site	175 gpd/site
Cabins with conventional plumbing Minimum of 4 people per site		
With or without kitchen	50 gpd/person	50 gpd/person
With or without kitchen but with laundry facilities	70 gpd/person	70 gpd/person

§1-808 Design Flow**Table 2 – Continued**

Campgrounds

Open 7 mo/yr
Or LessOpen more
than 7 mo/yr

Park Model RV

For first bedroom

140 gpd/site

140 gpd/site

For additional bedroom

100 gpd/site

140 gpd/site

Mobile home used as vacation
facilities

For first bedroom

140 gpd/site

140 gpd/site

For additional bedrooms

100 gpd/site

140 gpd/site

Note: There is no reduction allowed in Table 2 design flows based on the use of low flow plumbing fixtures as the design flow assumes their use.

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Table 3

OTHER ESTABLISHMENTS	GALLONS/PERSON/DAY ^{a,b} (unless otherwise noted)
Assembly Areas, Conference Room	5
Airports (per passenger)	5
Bathhouses and Swimming Pools	5
Bowling Alley (no food service)(per lane)	75
Cafeterias (per seat)	50
Camps: Construction camps (semi permanent)	50
Day camps (no meals served)	15
Resort Camps (Night & Day) with limited plumbing ...	50
Churches: Sanctuary seating x 25%	5
Church suppers	8
Country Clubs (per resident member)	100
Country Clubs (per non resident member present)	25
Day Care Centers:	
Without meals:	15
With one meal:	20
With two meals:	25
Dentists:	
Staff Member	35
Per Chair	200
Doctor's Office:	
Staff Member	35
Patient.....	10
Room Rentals:	
Boarding Houses	50
Addition for non resident boarders.....	10

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Table 3- Continued

GALLONS/PERSON/DAY a, b
(unless otherwise noted)

Rooming Houses (per occupant bed space).....	40
Factories (gallons per person, per shift, exclusive of industrial waste).....	15
Gyms: Per Participant... ..	10
Spectator	3
Hairdressers: Operator	10
Per Chair	150
Hospitals (per bed space)	250
Hotels with Private Baths(per person sleeping space) ^c	50
Institutions other than hospitals (per bed).....	125
Laundries, self service (gallons per machine)	500
Mobile Home Parks:	
For wastewater systems serving 4 or fewer trailers (per space)	450
For wastewater systems serving 5 or more trailers (per space)	250
Motels with bath, toilet (per person sleeping space) ^c	50
Picnic Parks (toilet wastes only/picnicker)	5
Restaurants (toilet and kitchen wastes/seat, including restaurant and bar seats)	30
Additional per seat for restaurant serving 3 meals per day	15
Restaurants (fast food - see cafeterias).....	50
Schools:	
Boarding	100
Day, without gyms, cafeterias, or showers	15
Day, with gyms, cafeterias, and showers	25
Day, with cafeteria, but without gyms or showers ...	20

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Table 3-Continued

GALLONS/PERSON/DAY ^{a,b}
(unless otherwise noted)

Service Stations (first set of gas pumps)	500
(each set thereafter)	300
Sewer Line Infiltration ^d (where applicable)	300 gal/in pipe/dia/mile/day
Shopping Centers/Stores: ^c	
Large Dry Goods	5 GPD/100 ft ²
Large Supermarkets with meat department without garbage grinder	7.5 GPD/100 ft ²
Large Supermarkets with meat department with garbage grinder	11 GPD/100 ft ²
Small Dry Good Stores (in shopping centers)	100 GPD/store
Theaters:	
Movie (per auditorium seat).....	5
Drive in (per car space)	5
Veterinary Clinic (3 or less doctors):	
without animal boarding	750/clinic
with animal boarding	1,500/clinic
Workers:	
Construction (at semi permanent camps)	50
Day at schools and offices (per shift)	15

Note: These Rules change design flows for certain categories. It may be possible to add more residential or camping units to an existing potable water supply and/or wastewater system when the supply and/or system conform to current design requirements.

^a Use eighty (80) percent of design flows for projects to be connected to a wastewater system with a design capacity of 50,000 gallons per day or greater. Note that this design flow reduction applies only to the wastewater flow and DOES NOT apply to a project's associated potable water supply design flows if the water supply is regulated as a public transient, non-transient, or community water supply.

^b A 10% reduction in the design flow may be used when the plumbing includes standard water saving designs. Toilets must be 3.5 gallons per flush or less and showers and faucets must be 2 gallons per minute or less

^c Does not include laundry or restaurant waste.

^d The infiltration design flow is not reduced when water saving plumbing fixtures are used or when a connection is made to a wastewater system with a design flow of 50,000 gallons per day or greater. Any reduction shall be based the requirements of subsection 1-808(e) of this section.

Note: Elderly housing may be calculated at 1.5 people per bedroom

Excerpted from:

State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
Wastewater Management Division
The Sewing Building
103 South Main Street
Waterbury, Vermont 05671-0405
(802) 241-3822
Environmental Protection Rules
Chapter 1
Wastewater System and Potable Water Supply Rules
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