

CLEAR CREEK COUNTY Public and Environmental Health	Wastewater Flows and Strength	Appendix B
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1. Estimates of Wastewater Flow

A. The table in this section provides standardized estimates of wastewater flows and strength from various facilities. Actual, documented flows from similar facilities may be used for design purposes if they meet the requirements of Section 14.4. Flow from facilities not referenced in this table shall be as set forth in Regulation 43, Table 6-2.

Table B-1 – Single of Multi Family Dwellings

Bedrooms	gal/day	lbs /BOD ₅ / day	Bedrooms	gal/day	lbs /BOD ₅ / day
1*	150	0.40	4	525	1.4
2	300	0.80	5	600	1.6
3	450	1.20	additional, add	75	0.20

*may be used only for existing dwellings that either have only one (1) bedroom or where separate bedrooms are not provided within the structure.

Table B-2 – Single of Multi Family Dwellings (Fixture Flow)

FIXTURE	gal/day	lbs /BOD ₅ / day	FIXTURE	gal/day	lbs /BOD ₅ /day
Water closet	24.8	.029	Kitchen sink*	5.8	.052
Clothes washer	19.5	.037	Lavatory	8.4	.021
Bath/shower	14.7	.014	Dishwasher	1.8	.002
TOTAL FLOW PER PERSON PER DAY				75	0.2

*includes garbage disposal

Table B-3 – Non-Residential or Commercial Facilities

PUBLIC ACCOMMODATIONS	GPD	BOD₅ (lbs per day)
Hotels and motels per room without private baths	50	.15
Hotels and motels per room with private baths	75	.15
Multiple-family dwellings or apartments	75	.20
Boarding and rooming houses per room	50	.15
Mobile home (per person)	75	.20
Mobile home park (per space)	300	.80
COMMERCIAL WASTEWATER	GPD	BOD₅ (lbs per day)
Facilities with short-term or transient visitors such as fairgrounds per person attending; ball parks, race tracks, stadiums, theaters or auditoriums, per seat	5	.02
Barber and beauty shops, per chair	100	.70*
Country club, per member	30	.02
County club, per employee	20	.06
Dental offices, per non-wet chair	50	.14*
Medical offices, per doctor	250	.80*
Factories and plants exclusive of industrial wastewater, per employee per eight-hour shift – no showers	20	.05
Factories and plants exclusive of industrial wastewater, per employee per eight-hour shift - showers provided	35	.08
Kennels, per run	30	.20
Laundries, self-service, per commercial washer	400	.75
Office buildings, per employee per eight-hour shift	15	.06
Service stations, per toilet fixture	250	.50*
Stores and shopping centers, per square foot of retail space	.1	.01*
FOOD SERVICE ESTABLISHMENTS	GPD	BOD₅ (lbs. per day)
Restaurant open 1 or 2 meals, per seat	50	.06/meal
24-hour restaurant, per seat	75	.07/meal served
Restaurant with paper service only, per seat	25	.01/meal served
Additional for bars and cocktail lounges, per seat	30	.02
Drive-in restaurant, per car space	50	.02
INSTITUTIONS W/O KITCHENS UNLESS OTHERWISE NOTED	GPD	BOD₅ (lbs per day)
Religious institutions, per person	5	.01
Hospitals, per bed space	250	.20
Nursing homes, per bed space	100	.17
Schools, Day, without cafeteria, gym or showers	15	.04
Schools, Day, with cafeterias, no gym or showers	20	.08
Schools, Day, with cafeterias, gym and showers	25	.10

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Schools, Day, additional for employees	15	.06
RECREATIONAL AND SEASONAL FACILITIES	GPD	BOD₅ (lbs per day)
Camps, day, no meals served	15	.12
Luxury resort, per person	125	.17
Resort night and day, per person	50	.12
Campground, per campsite**	50	.12
Public park flush toilet, per fixture per operating hour	36	.04 lbs./ fixture
Public park urinal, per fixture per operating hour	10	.01 lbs./fixture
Public park shower, per fixture per operating hour	100	.10 lbs./ fixture
Public park faucet, per fixture per operating hour	15	.04 lbs./ fixture
Swimming pools and bathhouses, per user	10	.06
Travel trailer parks, per unit (water and sewage hookup)**	50	.12
Travel trailer park, per unit (no water and sewage)**	50	.12

*BOD₅ levels need further verification.

**Laundry facilities, if provided, are to be calculated on a per commercial washer basis in accordance with other elements of this table.

2. Multiple Flow Factors

For design purposes, estimates of sewage flow rates may require inclusion of several flow factors from the above table. Examples:

Daily sewage flow rate for a 30-run dog kennel with 3 employees would be calculated as follows:

$$\begin{array}{rcl}
 30 \text{ runs} \times 30 \text{ gal / run / day} & = & 900 \text{ GPD} \\
 3 \text{ employees} \times 15 \text{ gal / employee / day} & = & \underline{+45} \text{ GPD} \\
 \textbf{TOTAL DAILY SEWAGE FLOW} & & \textbf{945 GPD}
 \end{array}$$

Daily sewage flow rate for a 2,000 sq. ft. retail store with 5 employees and public restrooms would be calculated as follows:

$$\begin{array}{rcl}
 5 \text{ employees} \times 15 \text{ gal / employee / day} & = & 75 \text{ GPD} \\
 2,000 \text{ sq. ft} \times 0.1 \text{ gal / sq. ft. / retail space} & = & \underline{+200} \text{ GPD} \\
 \textbf{TOTAL DAILY SEWAGE FLOW} & & \textbf{275 GPD}
 \end{array}$$