CLEAR CREEK COUNTY Public & Environmental Health	**Wastewater and Flow Strength**	**Section 14**

1. Wastewater Flows

A. The health officer may require the installation of a meter to measure flow into the facility or the OWTS.

B. Reduction in flow rates shall not be permitted for the installation of water-saving plumbing fixtures.

2. Single-Family Residential Homes

A. Table 14-1 provides the design flows for single-family residential dwellings.

B. Design flow per person shall be 75 gallons per day (gpd).

C. For homes with more than three (3) bedrooms, the assumed number of persons shall be six (6) persons (first 3 bedrooms x 2 persons per bedroom) plus one (1) additional person for each bedroom more than three (3) bedrooms.

D. The minimum design flow for the repair or replacement of an OWTS of an existing one-bedroom dwelling or a dwelling where designated bedrooms are not identified, shall be one-bedroom unless bedrooms are added to the dwelling.

E. If a dwelling has unfinished areas or has space that can be converted into a bedroom that can meet building code requirements, the Department will consider this a limited bedroom use dwelling. The number of bedrooms in a limited bedroom use dwelling cannot exceed the number of bedrooms in the OWTS design. Owners of a limited bedroom use dwelling shall maintain a current Limited Bedroom Use Agreement with the Department. The Limited Bedroom Use Agreement shall be recorded with the Office of the Clear Creek County Clerk and Recorder.

F. Limited Bedroom Use Agreements shall be maintained until the number of potential bedrooms does not exceed the number of bedrooms designed for the system, as approved by the health officer. Termination of the Limited Bedroom Use Agreement shall be recorded with the Office of the Clear Creek County Clerk and Recorder.

Table 14-1 Minimum Single-Family Residential Design Flows

# Bedrooms	Occupancy (# of Persons)	Design Flow (gallons/day)
2	4	300
3	6	450
4	7	525
Each additional	Add 1	Add 75

3. Auxiliary Buildings

A. If a single-family home has an auxiliary building, such as a non-commercial shop with plumbing fixtures, the flow may be conveyed to the OWTS of the home or to a separate OWTS constructed to handle the flow from the auxiliary facility.

B. If the flow from the auxiliary building is only generated by residents of the home, it shall be assumed that the OWTS for the home will be adequately sized to include the auxiliary building if the flows are combined.

C. If the auxiliary building will have users in addition to residents and the flow from the auxiliary building will flow to the OWTS of the home, the design flow of the home must include the increased use. The design flow for such auxiliary building shall be for at least one (1) bedroom, unless otherwise specified and shall be included in the design.

D. If the auxiliary building has a separate OWTS, the facility shall be sized on the basis of Appendix B and a septic tank detention time of no less than 48 hours.

4. Multi-Family and Commercial Onsite Wastewater Treatment Systems

A. Design flow values and strengths for multi-family and commercial systems shall be determined from Appendix B; or

B. An analysis of flows and strengths from at least three (3) comparable facilities or from the facility, if it is an existing facility, shall be submitted to the health officer for approval. The analysis shall include:

1. Metered water flows for inside use only for at least a year, or if use is seasonal, for a full season. If metered flows are less than full capacity, they shall be paired with actual use in units of persons present or meals served or other units as appropriate so that an actual daily rate per unit can be determined. The daily rate per unit times the number of units at full occupancy shall be the design flow;

2. TSS and BOD_5 or $CBOD_5$ tests at times of full use. At least three (3) samples taken at least one (1) week apart are required; and

3. Explanation and justification for the comparability of the tested facilities with the proposed facility.

C. An OWTS that will serve a business, commercial, industrial, or institutional property or a multi-family dwelling shall:

1. Be designed by a professional engineer;

2. Receive only such biodegradable wastes for treatment and distribution as are compatible with those biological treatment processes as occur within the septic tank, any additional treatment unit and the soil treatment area; and

3. Receive authorization by rule or a Class V underground injection permit from the United States Environmental Protection Agency (EPA) before an application for an OWTS permit is approved if the system may receive non-residential wastewater or is otherwise covered by the EPA underground injection control program.

5. Flow Equalization

A. Flow equalization may be used if a facility has flows that vary from day to day by more than four (4) times the average flow.

B. The highest peak assumed shall be at least equal to the full capacity of the facility. If that peak exceeds 2,000 gpd, the design shall also comply with the provisions of Section 3.2.

C. The stored flow shall be distributed to the soil treatment area before the next greater-than-average peak.

D. Flow equalization may be used only if:

1. The facility is non-residential;

2. The facility is only used for one purpose;

3. Flows will follow a predictable pattern; and

4. There is a long-term expectation that size and pattern of the flows will remain the same.

E. Timed pressure distribution shall be used. The soil treatment area reduction for timed pressure distribution shall not be used in addition to the flow equalization reduction.

F. Contingency plans shall be made for expanding the capacity of the OWTS in the event of changed use at the facility.

6. Wastewater Strength

A. Table 14-2 includes levels of treatment that can be achieved by various OWTS components, excluding the soil treatment area. Systems qualifying for these treatment levels except TL1 produced by a septic tank alone shall be approved under Section 19 of these Regulations.

B. $CBOD_5$ strength shall be reduced to TL1 treatment level or lower before applying to a soil treatment area.

Table 14-2 Treatment Levels and Wastewater Strength

Treatment Level	$CBOD_5$* (mg/L)	TSS (mg/L)	Total Nitrogen (mg/L)
TL 1**	145	80	60-80
TL 2	**25**	**30**	**60-80**
TL 2N	**25**	**30**	**>50% reduction*** **
TL 3	**10**	**10**	**40-60**
TL 3N	**10**	**10**	**20 mg/L**

Note: **bold** areas indicate higher treatment levels

*If concentrations of organic material are submitted in BOD_5 without data in $CBOD_5$, the data in BOD_5 shall be multiplied by 0.85 to estimate $CBOD_5$ levels.

**Domestic septic tank effluent prior to soil treatment or higher level treatment has a wide range of concentrations. These values are typical, but values used for design shall account for site-specific information.

***NSF/ANSI Standard 245 – Wastewater Treatment Systems – Nitrogen Reduction requires reduction of 50 percent rather than an absolute value.