

Absorption Bed Design in Hawai'i

(1) Location.

(A) Absorption beds shall be located in accordance with section 11-62-32.

(B) Absorption beds shall not be constructed in soils with a percolation rate slower than sixty minutes per inch or where rapid percolation may result in contamination of water-bearing formations or surface waters.

(C) Absorption beds shall be located on the property to maximize the vertical separation distance from the bottom of the absorption bed to the seasonal high groundwater level, bedrock, or other limiting layer, but under no circumstance shall the vertical separation be less than three feet. The director may require a greater vertical separation where water-bearing formations are in danger of contamination.

(D) Absorption beds shall not be constructed in unstabilized fill.

(2) Design.

(A) The minimum area for any absorption bed system shall be based upon a flow of 200 gallons per bedroom per day and in accordance with Appendix D, Table III dated July 1, 2014 and located at the end of this chapter.

(B) The absorption area shall be computed using the bottom area of the absorption bed.

(C) Each soil absorption bed system shall have a minimum of two distribution lines.

(D) If more than one absorption bed is designed, each absorption bed shall be equal in area.

(E) The maximum length of any distribution line shall be one hundred feet.

(F) Distribution lines within an absorption bed shall be uniformly spaced no more than six nor less than four feet apart.

(G) Distribution lines within an absorption bed shall be placed no more than three feet nor less than eighteen inches from the sidewall of the bed.

(H) The bottom of absorption beds shall be at least eighteen inches below the finished grade.

(I) Absorption beds shall not be installed on land with a slope gradient greater than eight per cent.

(J) A distribution box or header shall be installed between the treatment unit and the absorption bed.

(K) Each distribution line shall connect individually to the distribution box.

(L) If a header is used, there shall be an equal number of distribution lines on each side of the influent junction. An inspection port shall be provided on the header and shall be brought to grade and fitted with a screw type cap.

(M) If a distribution box is used, a permanent inspection port with a minimum interior diameter of six inches shall be secured to the box cover, brought to the finished grade, and fitted with a screw type cap or cover.

(3) Materials.

(A) The engineer shall be responsible for the choice of materials used in the soil absorption system.

(B) Pipe used for distribution lines shall meet the appropriate ASTM standard or those of an equivalent testing laboratory. Fittings used in the absorption system shall be compatible with the materials used in the distribution lines.

(C) Gravel or crushed stone shall be washed and shall range in size from three-fourths to two and one-half inches.

(D) The material used to cover the top of the stone shall be a filter fabric material or equal.

(4) Construction.

(A) The floor of the absorption bed shall be level.

(B) A distribution box or header shall be set level and arranged so that effluent is evenly distributed to each distribution line. Adequate provisions shall be taken to ensure stability and provide access for inspection of the distribution lines.

(C) The pipe connecting the distribution box to the distribution line shall be of a tight joint construction laid on undisturbed earth or properly bedded throughout its length.

(D) If a header is used, it should be made of watertight construction.

(E) When the beds have been excavated, the sides and bottom shall be raked to scarify any smeared soil surfaces. Construction equipment and other materials not needed to construct the system should be kept off the area to be used for the absorption system to prevent undesirable compaction of the soils. Construction shall not be initiated when the soil moisture is high.

(F) At least six inches of gravel or crushed stone shall be placed in the bottom of the bed.

(G) The distribution line shall be carefully placed on the bedding with no slope and covered with at least two inches of gravel or stone.

(H) The ends of the distribution lines shall be capped or plugged.