**74:53:01:37.  Requirements for a mound or evapotranspiration system.** A mound or evapotranspiration system may be designed for gravity or pressure flows in accordance with the following criteria:

(1)  Plans and specifications shall be submitted to the secretary by a registered professional engineer or licensed plumber for review and approval of any individual or small on-site mound or evapotranspiration system prior to construction;

(2)  Mound and evapotranspiration systems shall not be constructed on sites located in a floodplain. Mound systems shall not be constructed on sites located on bedrock or on soils with percolation rates of 120 or more minutes per inch or 3 or fewer minutes per inch at a depth of 12 inches below the sand layer of the mound. Mound or evapotranspiration systems may not be located on natural slopes exceeding 12 percent under any soil percolation rate conditions. When a mound or evapotranspiration system is located on a slope, no buildings, driveways, other surface or subsurface obstructions, or future construction is permitted within 30 feet of the system on the down gradient side while the system is being used. The systems shall be located in open areas with maximum available sunshine. The area surrounding the systems shall be graded to provide for diversion of surface runoff water;

(3)  The mound or evapotranspiration system may be constructed only upon undisturbed naturally occurring soils. The bottom of the system bed shall be excavated to a depth from 8 to 12 inches below the ground surface and shall be completely level. The system may be round or rectangular;

(4)  The mound system shall be constructed so that the minimum distance between the seasonal high groundwater table and the invert elevation of the distribution system is 4 feet;

(5)  The required bottom area of the bed shall be calculated on the basis of a recommended or design application rate with respect to the soil percolation rate. For mound systems receiving less than 1,500 gallons of wastewater per day, an application rate of 0.6 gallons per square foot per day shall be used when the percolation rate is from 60 to 120 minutes per inch and an application rate of 0.83 gallons per square foot per day shall be used when the percolation rate is 3 or more but less than 60 minutes per inch. For mound systems receiving 1,500 or more gallons of wastewater per day, the application design rate shall equal the soil percolation rate plus the seasonal evapotranspiration rate as shown in Table 6. For evapotranspiration systems, the application design rate is the seasonal evapotranspiration rate shown in Table 6 as follows:

# TABLE 6

|  |  |  |
| --- | --- | --- |
| Evapotranspiration Rate | | |
|  |  |  |
| Season of Use |  | Gallons per square foot per day |
|  |  |  |
| Year Around |  | 0.12 |
| Summer |  | 0.20 |
| Winter |  | 0.06 |
|  |  |  |
| Soil Infiltration Rate | | |
|  |  |  |
| Percolation Time, Minutes per inch |  | Gallons per square foot per day |
|  |  |  |
| 5 or more but less than 10 |  | 0.65 |
| 10 or more but less than 15 |  | 0.60 |
| 15 or more but less than 20 |  | 0.54 |
| 20 or more but less than 30 |  | 0.49 |
| 30 or more but less than 45 |  | 0.42 |
| 45 or more but less than 60 |  | 0.34 |
| 60 or more but less than 90 |  | 0.27 |
| 90 or more but less than 120 |  | 0.18 |
| 120 |  | 0.12 |

(6)  The fill material for the interior portion of a mound or evapotranspiration system shall consist of sandy loam soil, medium-size pit run sand, and pea rock or washed gravel ranging in size from 1/2-inch to 2 1/2-inch diameter. The first layer of fill material placed on the excavated bed bottom shall be a minimum of 12 inches of sand. The next layer of fill material shall consist of at least 9 inches of the pea rock or washed gravel placed in the immediate area on which the distribution pipe system will be placed. After placement of the distribution pipe system, additional pea rock or washed gravel shall be added until there are at least 2 inches of cover over and around the entire pipe system. The rock or gravel layer shall be covered with untreated building paper. The finish fill shall consist of sandy loam soil placed on the untreated building paper to a depth of 1 foot in the center of the mound and to a depth of 6 inches at the sides tapered out onto the side of the sand filled layer;

(7)  The exterior portion of mound shall consist of at least a 6-inch layer of loose marsh hay or straw over the sandy loam soil, covered with at least 6 inches of topsoil. Flax straw may not be used. The outside slopes may not be steeper than 3 feet horizontally to 1 foot vertically (3:1). Where the terrain slopes more than 7 percent, the downward slopes may not be steeper than 5 feet horizontally to 1 foot vertically (5:1). The entire system shall be seeded, sodded, or otherwise provided with a grass cover. No shrubs, trees, or other woody vegetation may be planted on the top of the system;

(8)  The distribution pipe network for an elevated mound or evapotranspiration system shall consist of a dosing chamber, pump or siphon, 1 1/4-inch to 3-inch diameter flexible plastic pipe from the dosing chamber to the mound, and a manifold connected to the perforated distribution pipe. The distribution lines shall be installed in accordance with subdivision 74:53:01:36(2). The pipe from the dosing chamber to the center of the mound shall be installed below the frost line or be sloped uniformly back to the dosing chambers. The dosing or pressure system shall be constructed in accordance with § 74:53:01:27. The distribution lines shall have perforations spaced from 2 to 7 feet along the pipe with varying hole diameters from 3/16-inch to 1/2-inch to provide uniform pressure and distribution over the bed. All drilled holes shall have burrs removed. All distribution pipe ends shall be capped. For gravity flow systems, all distribution pipes shall be at least 4 inches in diameter and spaced not greater than 5 feet on center across the bed width or closer than 30 inches to the bed wall perimeter; and

(9)  Livestock and heavy equipment shall not be allowed on the bed.

**Source:** 12 SDR 2, effective July 18, 1985; 13 SDR 129, 13 SDR 141, effective July 1, 1987; transferred from § 74:03:01:74, July 1, 1996.

**General Authority:** SDCL 34A-2-93.

**Law Implemented:** SDCL 34A-2-20.