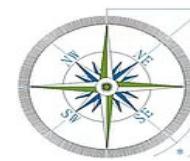


Synthetic Turf Base Stone Permeability/Conductivity Calculation

COMPONENTS

The following table provides typical ranges of permeability (hydraulic conductivity)
It is obtained from Essentials of Soil Mechanics and Foundations, Basic Geotechnics, 5th Edition by David F. McCarthy



Provided Range = 10 TO 10^{-2} OR 10 - 0.01 (MM/SEC)

Value used for k is 10^{-1} mm/sec = 0.1 mm/sec

$$1\text{mm/sec} = 0.2\text{ft/min} \longrightarrow 0.1\text{mm/sec} = 0.02\text{ ft/min}$$

$$0.02\text{ ft/min} \times 12\text{in/ft} = 0.24\text{ in/min} \longrightarrow 1\text{ min} = 0.24"$$

$$1" = 1\text{min}/[0.24\text{in/min}] \longrightarrow 1"=4.2\text{ min}$$

To be conservative, we have used 2 minutes per inch (2min/in)

Table 6-2 Typical Ranges of Permeability (Hydraulic Conductivity): Water and Different Soil Types*

| Soil Type | Relative Degree of Permeability | k , Coefficient of Permeability or Hydraulic Conductivity (mm/sec)** | Drainage Properties |
|--|----------------------------------|--|-----------------------------|
| Clean gravel | High | 10 to 100 | Good |
| Clean sand, sand and gravel mixtures | Medium | 10 to 10^{-2} | Good |
| Fine sands, silts | Low | 10^{-2} to 10^{-4} | Fair-poor |
| Sand-silt-clay mixtures, glacial tills | Very low | 10^{-3} to 10^{-6} | Poor-practically impervious |
| Homogeneous clays | Very low—practically impermeable | $<10^{-6}$ | Practically impervious |

*For other fluids, values of k are expected to vary from those shown, refer Eq. 6-5.

**To convert, use $1\text{ mm/sec} = 0.2\text{ ft/min} = 86.4\text{ m/day}$.

The flat panel drains will be placed 20-ft on center. $20\text{ ft} \times 12\text{in/ft} = 240$ inches.

$$240\text{ inches} \times 2\text{ minutes per inch} = 480\text{ minutes}$$