

TABLE 3.2 Unified Soil Classification System

Unified soil classes	Shear strength	Compressibility	Workability	Permeability when compacted
GW	Excellent	Negligible	Excellent	Pervious
GP	Good	Negligible	Good	Very pervious
GM	Good to fair	Negligible	Good	Semipervious to impervious
GC	Good	Very low	Good	Impervious
SW	Excellent	Negligible	Excellent	Pervious
SP	Good	Very low	Fair	Pervious
SM	Good to fair	Low	Fair to impervious	Semipervious
SC	Good to fair	Low	Good	Impervious
ML	Fair	Medium to high	Fair	Semipervious to impervious
CL	Fair	Medium	Good to fair	Impervious
OL	Poor	Medium	Fair	Semipervious to impervious
MH	Fair to poor	High	Poor	Semipervious to impervious
CH	Poor	High to very high	Poor	Impervious
OH	Poor	High	Poor	Impervious
Pt	Highly organic soils, not suitable for construction			

although poorly graded gravels (GP) and silty gravels (GMd) may be used under some circumstances. Soils designated SM or SC are good for athletic surfaces and playing fields.

Porosity is the amount of pore space in a soil, which is related to grain size distribution and consolidation. *Permeability* refers to the rate at which water will freely drain through a soil. Clay soils usually have high porosity but low permeability and may settle considerably when loaded with a foundation, but they have lower compressibility and higher strength.

TABLE 3.3 Soil Fraction Distribution

Soil	Particle size
Fine (silt, clay)	Less than no. 200 sieve
Fine sand	No. 40–no. 200 sieve
Medium sand	No. 10–no. 40 sieve
Coarse sand	No. 4–no. 10 sieve
Sand	No. 4–no. 200 sieve
Fine gravel	$\frac{3}{4}$ in–no. 4 sieve
Gravel	3 in–no. 4 sieve
Cobbles	3 in–12 in