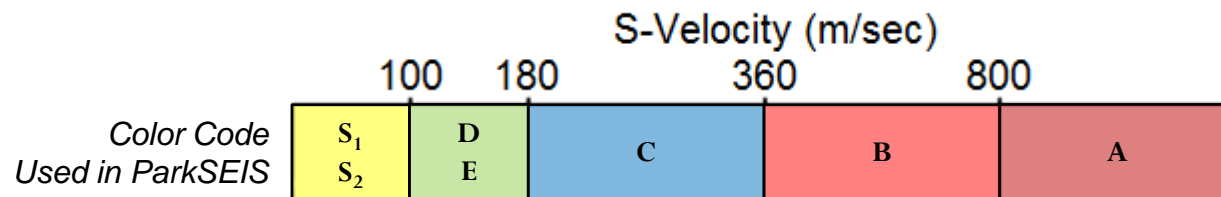


# Ground Types - Euro Code\*



Type	Description	Parameters		
		Vs30 <sup>a</sup>	N <sub>SPT</sub> <sup>b</sup>	C <sub>U</sub> <sup>c</sup>
<b>A</b>	Rock or other rock-like geological formation, including at most 5 m of weaker material at the surface.	<b>&gt; 800</b>	–	–
<b>B</b>	Deposits of very dense sand, gravel, or very stiff clay, at least several tens of meters in thickness, characterized by a gradual increase of mechanical properties with depth.	<b>360 – 800</b>	> 50	> 250
<b>C</b>	Deep deposits of dense or medium-dense sand, gravel or stiff clay with thickness from several tens to many hundreds of meters.	<b>180 – 360</b>	15 – 50	70 – 250
<b>D</b>	Deposits of loose-to-medium cohesionless soil (with or without some soft cohesive layers), or of predominantly soft-to-firm cohesive soil.	<b>&lt; 180</b>	< 15	< 70
<b>E</b>	A soil profile consisting of a surface alluvium layer with Vs values of type C or D and thickness varying between about 5 m and 20 m, underlain by stiffer material with Vs > 800 m/s.			
<b>S<sub>1</sub></b>	Deposits consisting, or containing a layer at least 10 m thick, of soft clays/silts with a high plasticity index (PI > 40) and high water content	<b>&lt; 100</b> (indicative)	–	10 – 20
<b>S<sub>2</sub></b>	Deposits of liquefiable soils, of sensitive clays, or any other soil profile not included in types A – E or S1			

\* defined by shear wave velocities (Vs's) in the top 30 m, and also by values for N<sub>SPT</sub> and C<sub>U</sub> [from “**Eurocode 8: Seismic Design of Buildings Worked Examples (EUR 25204 EN – 2012)**” by Bisch et al. (2011)]

<sup>a</sup> shear wave velocities in the top 30 m (m/sec), <sup>b</sup> standard penetration test (blows/30cm), <sup>c</sup> undrained cohesive resistance (kPa)