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Driven Pile Types Comparison

(for sizes up to approximately 20 inches)

Installation Characteristics		H-Piles	Pre-Stressed Concrete	Tapered Steel Piles	Pipe Piles	
					Closed-End	Open-End[5]
Stratigraphy						
End-Bearing Pile[1]		**X**	**X**	---	**X**	**X**
Friction Pile[1]	Cohesive Soils[2]	**O**	**X**	---	**X**	**O**[7]
	Cohesionless Soils[3]	---	**X**	**X**[6]	**X**	**O**[7]
High Soil/Pile Set-Up[4] Soils		**O**	**X**	**O**	**X**	**O**[7]
Physical						
High Capacity		**X**	**O**	**X**	**X**	**O**
Low-Displacement Pile		**X**	---	---	---	**O**[8]
Full-Displacement Pile		---	**X**	**X**	**X**	**O**[9]

X - Good Application **O** - Marginal Application --- - Not Applicable

Notes:

[1] Virtually no piles develop all their capacity from either only toe, or only shaft, resistance. "End-bearing" is common nomenclature for piles that develop the majority of their capacity in toe resistance by terminating on, or slightly into, a competent geomaterial. "Friction" is common nomenclature for piles that develop the majority of their capacity in shaft resistance, potentially not terminating in a competent geomaterial.

[2] Clays.

[3] Non-plastic silts, sands, gravels, and mixtures thereof.

[4] Set-up is time-dependent capacity increase (i.e., capacity gain after driving). Almost all driven piles can benefit from proper characterization and application of soil/pile set-up during design and installation.

[5] Pipe-pile diameters of approximately 20 inches and greater are usually driven open-ended; open-ended driving is optional with smaller diameters.

[6] Application is most-appropriate when a competent granular layer is relatively shallow.

[7] Application benefits if pile plugs with soil during driving.

[8] Low-displacement pile only if pile does not plug with soil during driving.

[9] Full-displacement pile only if pile plugs with soil during driving.

This table is intended to present generalized applicability of a number of more-common driven pile types. Because of differences in design constraints, site stratigraphy, contract and specification requirements, local design and contracting practices, availability, etc. between projects, the table is not definitive or all-inclusive.