TABLE 1810.3.2.6 ALLOWABLE STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS

MATERIAL TYPE AND CONDITION	MAXIMUM ALLOWABLE STRESS[a]
1.Concrete or grout in compression[b]	
Cast-in-place with a permanent casing in accordance with Section 1810.3.2.7	$0.4f'_c$
Cast-in-place in a pipe, tube, other permanent casing or rock	$0.33f'_c$
Cast-in-place without a permanent casing	$0.3f'_c$
Precast nonprestressed	$0.33f'_c$
Precast prestressed	$0.33f'_c - 0.27f_{pc}$
2.Nonprestressed reinforcement in compression	$0.4f_y \leq 30{,}000$ psi
3. Structural steel in compression	
Cores within concrete-filled pipes or tubes	$0.5\,F_y \leq 32{,}000$ psi
Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8	$0.5\,F_y \leq 32{,}000$ psi
Pipes or tubes for micropiles	$0.4\,F_y \leq 32{,}000$ psi
Other pipes, tubes or H-piles	$0.35\,F_y \leq 16{,}000$ psi
Helical piles	$0.6\,F_y \leq 0.5\,F_u$
4.Nonprestressed reinforcement in tension	
Within micropiles	$0.6f_y$
Other conditions	$0.5f_y \leq 24{,}000$ psi
5. Structural steel in tension	
Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8	$0.5\,F_y \leq 32{,}000$ psi
Other pipes, tubes or H-piles	$0.35\,F_y \leq 16{,}000$ psi
Helical piles	$0.6\,F_y \leq 0.5\,F_u$
6.Timber	In accordance with the AF&PA NDS

For SI: 1 pound per square inch = 6.895 kPa.

a. f'_c is the specified compressive strength of the concrete or grout; f_{pc} is the compressive stress on the gross concrete section due to effective prestress forces only; f_y is the specified yield strength of reinforcement; F_y is the specified minimum yield stress of structural steel; F_u is the specified minimum tensile stress of structural steel.

b. The stresses specified apply to the gross cross-sectional area within the concrete surface. Where a temporary or permanent casing is used, the inside face of the casing shall be considered the concrete surface.