Problem	Answer	Reference / Solution
		Site Class E & $S_S = 2.13$ → Table 3.1 → $S_{DS} = 1.70$ (by interpolation) *Site Class* E & $S_1 = 0.74$ → Table 3.2 → $S_{D1} = 0.99$ (by interpolation) $S_1 = 0.74 < 0.75$ → must use *Tables 1613.2.5(1) & (2)* to determine *SDC* $S_{DS} = 1.70$ & *RC* = IV → *Table 1613.2.5(1)* → *SDC* = D $S_{D1} = 0.99$ & *RC* = IV → *Table 1613.2.5(2)* → *SDC* = D ∴ *SDC* = D ←
1.32	c	p. 1-104 - Nonbuilding Structure NOT Similar to a Building Cooling tower is part of HVAC system for a Hospital → *IBC Table 1604.5* → *RC* = IV $I_e = 1.5$ – *ASCE 7-16* p. 5 - *Table 1.5-2* $R = 3.5$ – *ASCE 7-16* p. 148 - *Table 15.4-2* – cooling tower (steel) Operating weight, $W = 70{,}800$ lbs … ignore the shipping weight $T = 0.12$ sec (given) > 0.06 sec → this is NOT a rigid nonbuilding structure $T_S = S_{D1}/S_{DS} = (0.43) / (0.77) = 0.56$ second $T = 0.12$ sec < $T_s = 0.56$ sec → *ASCE 7 (12.8-2)* will govern for C_s $C_S = \dfrac{S_{DS}}{(R/I_e)} = (0.77) / (3.5 / 1.5) = 0.33$ *ASCE 7 (12.8-2)* $V = C_s W$ *ASCE 7 (12.8-1)* $= 0.33\ (70{,}800 \text{ lbs}) = 23{,}400$ lbs ∴ 23,400 lbs ←
1.33	b	p. 1-44 - Bearing Wall System *Shear walls* which resist lateral loads and support vertical gravity loads. ∴ Shear walls that resist lateral (wind and seismic) loads and also support a major portion of the vertical (gravity) loads from roofs and floors ←
1.34	a	p. 1-119 - Chord Force N-S: $w_s = f_{px} = F_{px} / L = 25$ kips / 100′ = 250 plf $CF_{N\text{-}S} = w_s L^2 / 8d = 250$ plf $(100')^2 / (8)(50') = 6{,}250$ lbs E-W: $w_s = f_{px} = F_{px} / L = 25$ kips / 50′ = 500 plf $CF_{E\text{-}W} = w_s L^2 / 8d = 500$ plf $(50')^2 / (8)(100') = 1{,}563$ lbs $CF_{N\text{-}S} / CF_{E\text{-}W} = (6{,}250 \text{ lbs}) / (1563 \text{ lbs}) = 4.0$ ∴ $CF_{N\text{-}S} = 4\ (CF_{E\text{-}W})$ ←
1.35	b	p. 1-104 - Rigid Nonbuilding Structures & *ASCE 7-16* p. 149 - *§15.4.2* Wastewater treatment facilities → *IBC Table 1064.5* → *RC* = III $I_e = 1.25$ – *ASCE 7-16* p. 5 - *Table 1.5-2* $W = 45$ kips $S_{DS} = 0.87$ $T = 0.05$ second < 0.06 second → Rigid nonbuilding structure $V = 0.30 S_{DS} W I_e$ *ASCE 7 (15.4-5)* $= 0.30(0.87)(45 \text{ kips})(1.25) = 14.7$ kips ∴ 15 kips ←