SPRINGBOLT CONCRETE ANCHOR

ACI 318-14
10/28/2019

JOHN H. RILEY, S.E., P.E.
QUANTUM CONSULTING ENGINEERS LLC
SEATTLE, WA 98101 (206) 957-3906

Calculated Design Considering "Un-Cracked" Concrete

Concrete Anchor	Anchor Bolt Diameter	Concrete Strength	Effective Embedment Depth, h_{ef}	Mimimum Fastener Spacing	Minimum Anchor Edge Distance	Nominal Tension Strength of Single Anchor in Tension N_n (lbs.)	Nominal Shear Strength of Single Anchor in Shear V_n (lbs.)
#P6R	5/8"	3000 PSI	2.5"	7.5"	3.75"	6495	4066
#P6R	5/8"	4000 PSI	2.5"	7.5"	3.75"	7500	4695
#P6R	5/8"	5000 PSI	2.5"	7.5"	3.75"	8385	5249
#P6R	5/8"	6000 PSI	2.5"	7.5"	3.75"	9186	5750

Calculated Design Considering "Cracked" Concrete

Concrete Anchor	Anchor Bolt Diameter	Concrete Strength	Effective Embedment Depth, h_{ef}	Mimimum Fastener Spacing	Minimum Anchor Edge Distance	Nominal Tension Strength of Single Anchor in Tension N_n (lbs.)	Nominal Shear Strength of Single Anchor in Shear V_n (lbs.)
#P6R	5/8"	3000 PSI	2.5"	7.5"	3.75"	5196	2904
#P6R	5/8"	4000 PSI	2.5"	7.5"	3.75"	6000	3354
#P6R	5/8"	5000 PSI	2.5"	7.5"	3.75"	6708	3750
#P6R	5/8"	6000 PSI	2.5"	7.5"	3.75"	7348	4107

Notes:

1. Concrete must be normal-weight concrete as required for structural concrete in accordance with ACI-318-14.
2. Nominal tension and shear strength values based on calculations per ACI-318-14, Appendix D.
3. The strength reduction factors as governed by concrete strength shall be taken as 0.70 for tension and shear loads.
4. SPRINGBOLT CONCRETE ANCHOR installation requires periodic special inspections in accordance with the 2015 IBC, Sections 1705.1.1 and 1705.3. Installation shall be verified in accordance with the manufacturer's installation instructions and the applicable code provisions.
5. Anchor Bolt Type shall be ASTM F 1554 Grade 55 or better.
6. Minimum edge distance for concrete edge failure in shear is 3.75" parallel to load and 7.5" perpendicular to load.
7. Design is based on a minimum concrete thickness of 6"

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#P8R	5/8"	3000 PSI	4.5"	13.5"	6.75"	15686	10170 *
#P8R	5/8"	4000 PSI	4.5"	13.5"	6.75"	18112	10170 *
#P8R	5/8"	5000 PSI	4.5"	13.5"	6.75"	16950 *	10170 *
#P8R	5/8"	6000 PSI	4.5"	13.5"	6.75"	16950 *	10170 *

Calculated Design Considering "Cracked" Concrete

Concrete Anchor	Anchor Bolt Diameter	Concrete Strength	Effective Embedment Depth, h_{ef}	Mimimum Fastener Spacing	Minimum Anchor Edge Distance	Nominal Tension Strength of Single Anchor in Tension N_n (lbs.)	Nominal Shear Strength of Single Anchor in Shear V_n (lbs.)
#P8R	5/8"	3000 PSI	4.5"	13.5"	6.75"	12548	7012
#P8R	5/8"	4000 PSI	4.5"	13.5"	6.75"	14490	8097
#P8R	5/8"	5000 PSI	4.5"	13.5"	6.75"	16200	9053
#P8R	5/8"	6000 PSI	4.5"	13.5"	6.75"	17746	10170 *

Notes:

1. Concrete must be normal-weight concrete as required for structural concrete in accordance with ACI-318-14.
2. Nominal tension and shear strength values based on calculations per ACI-318-14, Appendix D.
3. The strength reduction factors as governed by concrete strength shall be taken as 0.70 for both tension and shear loads. For tensile strengths governed by steel strength (Indicated by *), use a strength reduction factor of 0.75 and for shear strengths governed by steel strength (Indicated by *), use a strength reduction factor of 0.65.
4. SPRINGBOLT CONCRETE ANCHOR installation requires periodic special inspections in accordance with the 2015 IBC, Sections 1705.1.1 and 1705.3. Installation shall be verified in accordance with the manufacturer's installation instructions and the applicable code provisions.
5. Anchor Bolt Type shall be ASTM F 1554 Grade 55 or better.
6. Minimum edge distance for concrete edge failure in shear is 6.75" parallel to load and 13.5" perpendicular to load.
7. Design is based on a minimum concrete thickness of 8"