The following charts have been developed for proper pole section based on your specific requirements.

StormStrong Round Pole Mechanical & Physical Properties

Mechanical Properties	Round Pultruded Pole TU440 Polyester *10" x 3/8" (254mm x 9.52mm)*	Round Pultruded Pole TU455 *12" x 3/8" (305mm x 9.5mm)*	Round Pultruded Pole TU450 *12" x 1/2" (305mm x 12.7mm)*	Round Pultruded Pole TU460 *16" x 1/2" (406mm x 12.7mm)*
Flexural Strength per ASTM D1036 psi (Mpa)[3]	59,585 (411)	51,790 (357)	58,825 (406)	50,984 (351)
Compression Strength per ASTM D1036 psi (Mpa)[3]	59,585 (411)	51,790 (357)	58,825 (406)	50,984 (351)
Axial Compression Strength psi (Mpa)[3]	59,585 (411)	51,790 (357)	58,825 (406)	50,984 (351)
Ultimate Axial Compression Capacity (Short Column) lbf (kg)[3]	675,634 (306,463)	709,523 (321,834)	1,064,732 (482,954)	1,238,911 (561,960)
Modulus of Elasticity per ASTM D1036 psi (Gpa)	6.31E6 (43.5)[5]	5.10E6 (35.2)[4]	5.84E6 (40.3)	5.52E6 (38.1)
Bending Stiffness (EI) per ASTM D1036 lb▪in^2 (kg▪mm^2)	8.30E8 (243E9)[5]	1.18E9 (345E9)[4]	1.75E9 (512E9)	4.04E9 (118E10)
Ultimate Moment Capacity per ASTM D1036 lb-ft (kN▪m)[3]	130,590 (177)	166,591 (226)	244,124 (331)	388,752 (526)
Max. Bolt Torque lb▪ft (N▪m)[1]	50 (67.8)	50 (67.8)	50 (67.8)	50 (67.8)
Ultimate Pole Torque Strength lb▪ft (N▪m)	49,076 (66,538)	81,468 (110,456)	82,662 (112,075)	185,342 (251,290)
Ultimate Pin Bearing Strength Lengthwise psi (Mpa)[2,3]	27,755 (191.4)	20,553 (142)	24,585 (169.5)	20,087 (138.5)
Ultimate Pin Bearing Strength Crosswise psi (Mpa)[2,3]	16,577 (114.3)	13,412 (92.5)	14,063 (97.0)	12,399 (85.5)
Ultimate Washer Pull Through Strength kip (kg)[3,6]	14.8 (6,719)	15.5 (7,043)	18.9 (8,593)	20.2 (9,162)
Ultimate Shear Capacity, Calculated (lb) (kN)[3]	53,611 (238)	84,125 (374)	86,428 (384)	143,212 (637)
In-Plane Shear Strength per ASTM D5379 psi (Mpa)[3]	9,456 (65.2)	12,281 (84.7)	9,550 (65.8)	11,787 (81.3)
Physical Properties				
Moment of Inertia in^4 (mm^4)	132 (5.47E7)	231 (9.61E7)	299 (1.24E8)	732 (3.04E8)
Section Modulus in^3 (mm^3)	26.3 (4.31E5)	38.6 (6.32E5)	49.8 (8.16E5)	91.5 (1.50E6)
Radius of Gyration in (mm)	3.41 (86.6)	4.11 (104.4)	4.07 (103.4)	5.48 (139.2)
Weight lb /ft (N/m)	10.3 (150.3)	12.8 (186.8)	16.9 (246.6)	22.3 (325.4)
Wall Thickness in (mm)	0.375 (9.52)	0.375 (9.52)	0.5 (12.7)	0.5 (12.7)
Coefficient of Thermal Expansion (CTE) Lengthwise in/in/°F	5.00E-6	5.00E-06	5.00E-06	5.00E-06
Water Absorption ASTM D570 (max)	2.0% (24 hrs)	0.60% (24hrs)	0.60% (24hrs)	0.60% (24hrs)
Fiber Volume Fraction %	≥50%	≥50%	≥50%	≥50%
Cross Sectional Area in^2 (mm^2)	11.3 (7,290)	13.7 (8,839)	18.1 (11,700)	24.3 (15,700)
Surface Area ft^2/ft (m^2/m)	2.6 (0.80)	3.1 (0.96)	3.1 (0.96)	4.2 (1.28)
Fire Properties				
Flame Rating (UL 94)	V0 Self Extinguishing	V0 Self Extinguishing	V0 Self Extinguishing	V0 Self Extinguishing
Flame Spread ASTM E-84	Class A 25 or less	Class A 25 or less	Class A 25 or less	Class A 25 or less
Electrical Properties				
ASTM F711 (100 kVAC per foot - 5 minutes dry)	Passed	Passed	Passed	Passed
IEEE978 (75 kVAC per foot - 1 minute wet)	Passed	Passed	Passed	Passed

Notes:
1. Max torque based on utilizing 6"x1/2" steel washers.
2. Capacity based on testing conducted with ¾" hardware for the TU440 and 1" hardware for all others.
3. Values have been factored based on a 5% Lower Exclusion Limit (LEL) per NESC 2007 requirements.
4. Modulus of elasticity value obtained from ASTM D6109 protocol.
5. Modulus of elasticity value obtained from ASTM D638 protocol.
6. Capacity based on testing conducted with 6"x3/8" square/radius washer for the TU440 and 6"x1/2" square/radius washer for all others.