

EFFECTIVE WIND VELOCITY FORMULA SHEET ^a

A minimum 75 mph Effective Wind Velocity be used for determining ballast requirements. Refer to page 270 for ballast requirements and general notes.

$$V_e = (C1) (C2) (V)$$

V_e = Effective Wind Velocity at centerline of antenna for calculating required ballast.
 C1 = Importance factor coefficient from Table 1.
 C2 = Combined exposure and gust effect factor coefficient from Table 2.
 V = Design ground wind speed for location, per ANSI/TIA-222-G.

Table 1: Values of C1

Class	Description for installing considering height, use or location	Roof Height	
		≤ 60 ft.	> 60 ft.
I	Low hazard to human life and/or damage to property, optional services provided.	1.29	0.93
II	Significant hazard to human life and/or damage to property, services available by other means.	1.38	1.00
III	Substantial hazard to human life and/or damage to property, essential services provided.	1.48	1.07

Exposure	Description of Surrounding Terrain
B	Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.
C	Open terrain with scattered obstructions having heights generally less than 30' [9.1m], including flat, open country and grasslands.
D	Flat, unobstructed shorelines exposed to wind flowing over open water, smooth mud flats, salt flats, and other similar terrain.

Example: 30' antenna elevation, 90 mph design ground wind speed, Class I, Exposure B

$$V_e = (1.29) (0.82) (90) = 95 \text{ mph}$$

The minimum Effective Wind Velocity for determining ballast requirements for this example would be 95 mph.

This data sheet is provided to assist consumers in determining the minimum Effective Wind Velocity to be used for determining ballast requirements from a Non-Penetrating Roof Mount Ballast Chart. Higher velocities may be required for sites located on hills, escarpments or ridges (refer to ANSI/TIA-222-G). Potential increases in wind velocity due to channeling, roof projections and other obstructions must also be considered. The information shown should not be relied upon without competent professional examination and verification of its accuracy and suitability for a specific site or application.

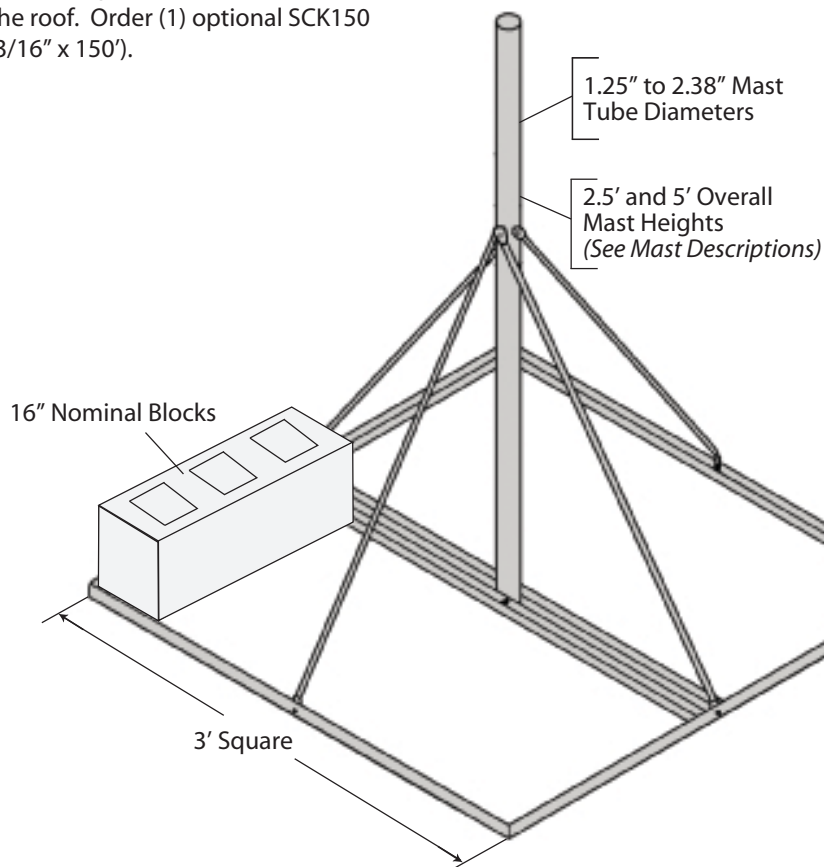
Table 2: Values of C2

Antenna Centerline Elevation Above Ground Level (ft.)	Exposure		
	B	C	D
	Urban or Wooded Areas	Open Country & Grasslands	Open Water or Smooth Terrain
0-15	0.82	0.90	0.99
20	0.82	0.92	1.01
25	0.82	0.95	1.04
30	0.82	0.96	1.05
40	0.85	0.99	1.08
50	0.88	1.02	1.10
60	0.90	1.04	1.12
70	0.92	1.05	1.13
80	0.94	1.07	1.14
90	0.95	1.09	1.16
100	0.97	1.10	1.17
120	0.99	1.12	1.19
140	1.02	1.14	1.20
160	1.04	1.15	1.21
180	1.05	1.17	1.23
200	1.07	1.18	1.24
250	1.10	1.21	1.26
300	1.13	1.23	1.28
350	1.16	1.25	1.30
400	1.18	1.27	1.31
450	1.20	1.29	1.33
500	1.22	1.30	1.34

FRM NON-PENETRATING

The FRM mount is a lightweight mount and is galvanized for corrosion protection. The FRM mount is easily shipped via UPS.

Order (1) optional FRMMAT (1/8" thick) or (1) optional FRMPAD (3/8" thick) for a protective barrier between the mount and the roof. Order (1) optional SCK150 safety cable kit (3/16" x 150').



MAST SPECIFICATIONS

Mount Part No.	Mast Part No.	Mast Description & Height
FRM125	FY202	1.25" O.D. x 16 GA. x 5.0' (PG)
FRM150	FY203	1.50" O.D. x 16 GA. x 2.5' (PG)
FRM166	FY204	1.66" O.D. x 16 GA. x 2.5' (PG)
FRM238	FY205	2.38" O.D. x 0.154" wall x 2.5' (HDG)
FRM225	FY205SP	2.25" O.D. x 14 GA. x 5.0' (HDG)
FRM238SP5	FY253	2.38" O.D. x 0.154" wall x 5.0' (HDG)

PG = Pre-galvanized mast
HDG = Hot-dip galvanized mast

FRM BALLAST REQUIREMENTS

Effective Projected Area (EPA) (FT ²)	Ballast (LBS)	Zero Velocity Load (PSF)	Vs (MPH)	Vmax at centroid of projected area, (MPH)			
				h=2 FT	h=3 FT	h=4 FT	h=5 FT
1	100	12	140	135	110	96	85
	200	24	198	188	153	133	119
	300	36	242	222	182	157 (154)	141 (131)
	400	48	280	269	219 (197)	190 (154)	170 (131)
2	100	12	99	96	78	68	60
	200	24	140	133	108	94	84
	300	36	171	157	129	111	99 (93)
	400	48	198	190	155 (139)	134 (109)	120 (93)
3	100	12	81	78	64	55	49
	200	24	114	108	88	77	68
	300	36	140	128	105	91 (89)	81 (76)
	400	48	161	155	127 (114)	110 (89)	98 (76)

h = Distance from support surface to centroid of EPA.

Vs = Effective wind velocity resulting in sliding on a flat surface with a .50 coefficient of friction.

Vmax = Effective wind velocity based on strength or overturning.

NOTE: The velocities in () apply to the FRM125 mount when the strength of the FRM125 mast governs.