Equinox™ Patio Cover, Carport and Commercial Structure Engineering 2012 IBC

This report covers these maximum conditions

Ground Snow Loads	**25**	**psf**
	30	**psf**
Wind Speed	**110 MPH EXPOSURE B**	
and Exposure	**110 MPH EXPOSURE C**	**or 120 MPH EXPOSURE B**
Maximum Ss =	**150%**	**Seismic Design Category D**

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

GENERAL NOTES:

1. DESIGNED IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE.

2. ALUMINUM DESIGN IN ACCORDANCE WITH THE 2010 EDITION OF ALUMINUM ASSOCIATION'S SPECIFICATIONS AND CHAPTER 20 OF THE INTERNATIONAL BUILDING CODE.

3. DESIGN LOADINGS: Ct = 1.2, I = 1.0, Ce = 1.0 (ALL EXPOSURES EXCEPT B AND C WHEN LOCATED TIGHT AMONG CONIFERS)

GROUND SNOW LOAD	ROOF DESIGN LOAD	
10 PSF	10 PSF	LIVE LOAD ONLY
20 PSF	20 PSF	LIVE LOAD ONLY
25 PSF	21 PSF	DESIGN ROOF SNOW LOAD
30 PSF	25.2 PSF	DESIGN ROOF SNOW LOAD
35.7 PSF	30 PSF	DESIGN ROOF SNOW LOAD
43 PSF	36.1 PSF	DESIGN ROOF SNOW LOAD

FOR 0.25/12 < SLOPE < 1/12

WIND SPEEDS IN THE 2012 IBC ARE "ULTIMATE DESIGN WIND SPEED." ALL STRUCTURES DESCRIBED IN THIS REPORT ARE DESIGNED USING PRESSURES CALCULATED FROM "ULTIMATE DESIGN WIND SPEEDS". FOR ATTACHED STRUCTURES THE MAXIMUM MEAN ROOF HEIGHT OF THE EXISTING STRUCTURE IS 30'. Kzt WAS ASSUMED AS 1.0 FOR ALL WIND LOADS. SITE LOCATIONS REQUIRING A HIGHER Kzt VALUE (ISOLATED HILLS, RIDGES, ESCARPMENTS) WILL REQUIRE HIGHER WIND LOADS AS PER ASCE7-10 SECTION 26.8 AND ARE OUTSIDE THE SCOPE OF THIS REPORT.

NOTE: EXPOSURE B: SHALL APPLY WHEN THE GROUND SURFACE ROUGHNESS CATEGORY B (URBAN AND SUBURBAN AREAS, WOODED AREAS, OR OTHER TERRAIN W/ NUMEROUS CLOSELY SPACED OBSTRUCTIONS HAVING THE SIZE OF A SINGLE FAMILY DWELLING OR LARGER) PREVAILS IN THE UPWIND DIRECTION FOR A DISTANCE OF AT LEAST 1500 FT.

EXPOSURE C: SHALL APPLY WHEN EXPOSURE B AND D (SMOOTH MUD FLATS, SALT FLATS, UNBROKEN ICE AND OTHER) DO NOT.

SEISMIC LOADING
MAXIMUM Ss = 150% SHOWN IN 2012 IBC FIGURE 1613.3.1(1)
Ss > 150% ARE NOT REQUIRED AS PER ASCE7-10 12.8.1.3
Ss USED FOR TABLES SHOWN ON TABLES SHEET
S1 NOT APPLICABLE TO THESE STRUCTURES
SITE CLASS = D
BASIC SEISMIC FORCE RESISTING SYSTEM
POSTS EMBEDDED INTO FOOTINGS =ORDINARY STEEL MOMENT FRAME >> R = 2.0
POSTS SURFACE MOUNTED = GENERIC SYSTEM >> R= 1.25
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE

THESE ROOFS ARE NOT SUBJECT TO MAINTENANCE WORKERS AND HAVE NOT BEEN EVALUATED FOR A CONCENTRATED 300 LBF LOAD.

THE BASIS OF THE DESIGN FORCES ARE IN ACCORDANCE WITH THE BASIC LOAD COMBINATIONS DESCRIBED IN IBC SECTION 1605.3.1 AND NO FURTHER INCREASES ARE PERMITTED FOR PATIO COVERS RESISTING WIND OR SEISMIC FORCES EXCEPT AS ALLOWED FOR WOOD CONSTRUCTION IN CHAPTER 23.

4. THIS ENTIRE ENGINEERING PACKAGE IS NOT REQUIRED FOR MOST BUILDING PERMITS. SUBMISSION FOR A BUILDING PERMIT MUST INCLUDE:
a. GENERAL NOTES (2 PAGES)
b. STRUCTURAL CONFIGURATIONS (1 PAGE)
c. LOUVER SPAN TABLES (1 PAGE)
d. HEADER POST SPACING, FOOTING SIZE AND POST TABLE FOR LIVE/SNOW , SEISMIC AND WIND LOAD (1 PAGE)
e. ALL APPROPRIATE DETAILS
f. OTHER DOCUMENTATION REQUIRED BY LOCAL BUILDING AUTHORITY.

5. CONCRETE MIX: Fc=2500, 3000 OR 3500 PSI FOR 28 DAYS IN NEGLIGIBLE, MODERATE, AND SEVERE CONDITIONS AS SHOWN IN FIGURE 1904.2 OF THE 2012 IBC. PATIO STRUCTURES MAY BE ATTACHED TO CONCRETE SLAB WITHOUT FOOTINGS WHEN THE POST LOAD IS 750# OR LESS AND THE FROST DEPTH IS ZERO. CONCRETE SHALL BE A MINIMUM OF 3.5 INCHES THICK AND NO CRACKS WITHIN 2'-6" OF POSTS. POSTS SHALL BE SET BACK A MINIMUM OF 4 INCHES FROM EDGE OR EXPANSION JOINT OF A SLAB.

6. FOOTINGS HAVE BEEN DESIGNED FOR CLASS 5 SOIL AS PER TABLE 1806.2. ALLOWABLE FOUNDATION PRESSURE IS 1500 POUNDS PER SQUARE FOOT. LATERAL BEARING PRESSURE IS 100 PSF/FT AND IS DOUBLED PER IBC SECTION 1806.3.4. THESE DESIGN VALUES DO NOT APPLY TO MUD, ORGANIC SILTS, ORGANIC CLAYS, PEAT OR UNPREPARED FILLS AND MAY REQUIRE FURTHER SOIL INVESTIGATION. THE BUILDING OFFICIAL MAY ASSIGN A LOAD BEARING CAPACITY. UNITS IN SNOW/LIVE LOAD AREA OF 25 PSF OR LESS MAY BE BUILT ON 1000 PSF BEARING SOIL W/O ADDITIONAL ENGINEERING. MINIMUM FOOTING DEPTH IS THE LOCAL FROST DEPTH.

7. 20 PSF AND HIGHER LIVE LOAD STRUCTURES MAY BE USED AS COVERS FOR PARKING OF MOTOR VEHICLES. CARPORTS MUST HAVE AT LEAST TWO OPEN SIDES AND HAVE FLOOR SURFACES MADE OF APPROVED NONCOMBUSTIBLE MATERIAL OR ASPHALT.

8. AT LEAST ONE HORIZONTAL DIMENSION (PROJECTION OR WIDTH) OF COVER SHALL BE LESS THAN 30'.

9. ALL STEEL SHALL BE GALVANIZED ASTM A-653 G90, A123 G45 OR A153 B-3, PAINTED ASTM A755 OR USE AN APPROVED COATING COMPLYING WITH IBC SECTION 2203.2.

10. ALTERNATE ALUMINUM ALLOYS OF EQUAL OR HIGHER STRENGTHS MAY BE USED. 3004H2x ALUMINUM MAY BE SUBSTITUTED FOR 3004H3x.

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

GENERAL NOTES:
(CONTINUED FROM SHEET NO. 1)

11. STEEL FASTENERS SHALL BE EITHER STAINLESS (3000 SERIES) OR GALVANIZED. BOLTS SHALL BE ASTM A-307 HOT DIPPED GLAVANIZED, MECHANICALLY GALVANIZED, ZINC ELECTROPLATED, ALUMINIZED OR 300 SERIES STAINLESS STEEL. CONCRETE ANCHOR BOLTS ARE SPECIFIED IN THE DETAILS. ALL WOOD SCREWS MUST COMPLY WITH ANSI/ASME STANDARD B18.6.1 AHD AND AF&PA NDS-12 11.1.4. ALL LAG SCREWS MUST COMPLY WITH ANSI/ASME B18.2.1 AND AF&PA NDS-05 11.1.3. ALL STEEL WASHERS TO BE ASTM F844 W/ DIMENSIONS IN ACCORDANCE WITH ASME B18.22.1, TYPE A. ALL STEEL NUTS TO BE ASTM A563. THE MINIMUM WASHER DIAMETER SHALL BE 1" FOR BOLTED CONNECTIONS. SCREWS AND BOLTS WILL HAVE A MINIMUM EDGE DISTANCE OF 2X FASTENER DIAMETER.

12. POSTS EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE FROM OILY SURFACES. ALUMINUM SHALL NOT BE EMBEDDED IN CONCRETE IF IT CONTAINS CHLORIDES OR CORROSIVE ADDITIVES. EMBEDDED ALUMINUM ELEMENTS WILL BE COVERED WITH PLASTIC TAPE OR OTHERWISE PROTECTED AS PER 2010 ADM M.7.3.

13. HEADER SPLICES SHALL NOT BE LOCATED NEARER TO THE END OF THE STRUCTURE THAN THE FIRST INTERIOR POST.

14. ALL SELF DRILLING AND SELF TAPPING SCREWS MUST COMPLY TO ICC- ESR 1730, 2196 OR EQUIVALENT AND USE HEADS W/ DIAMETERS EQUAL TO #8 = $\frac{5}{16}$", #10 = $\frac{3}{8}$", #12 = $\frac{13}{32}$" AND #14 = $\frac{1}{2}$" OR STEEL WASHERS OF SIMILAR DIAMETER AND AS PER GENERAL NOTE #11

15. STRUCTURES MAY NOT BE ENCLOSED IN ANY MANNER WITHOUT ADDITIONAL ENGINEERING ANALYSIS OR APPROVAL OF THE LOCAL BUILDING AUTHORITY.

16. STEEL AND ALUMINUM LOUVERS ARE CLASS A FIRE RATED AS INDICATED BY THE EXCEPTION #2 IN IBC SECTION 1505.2.

17. STRUCTURES MAY BE ATTACHED TO EAVE OVERHANGS PER DETAIL T.

18. WHERE ALUMINUM ALLOY PARTS ARE IN CONTACT WITH DISSIMILAR METALS (OTHER THAN STAINLESS, ALUMINIZED OR GALVANIZED STEEL) OR ABSORBENT BUILDING MATERIALS, LIKELY TO BE CONTINUOUSLY OR INTERMITTENTLY WET, THE FAYING SURFACES SHALL BE PAINTED OR OTHERWISE SEPARATED IN ACCORDANCE WITH THE ALUMINUM DESIGN MANUAL M.6 AND M.7.

20. All structures must comply with one of the following:

- **a. All structures with a roof snow load of 30 psf or less may be built in Seismic Design Category (SDC) A-D up to the maximum Ss noted in General Note #3.**
- **b. Structures with flat roof design snow loads over 30 psf complying with IBC Section 1613.1 Exception #1 do not require additional seismic analysis.**
- **c. Structures not complying with (a) or (b) require additional engineering seismic analysis.**

21. DRIFTING SNOW IS ADDRESSED IN DETAIL X. SLIDING SNOW IS BEYOND THE SCOPE OF THIS REPORT.

22. ALL MULTISPAN TABLES AND DETAILS ASSUME EQUAL SPANS WITHIN 20%. ALL SPECIFICATIONS MUST BE BASED ON LONGEST ACTUAL SPAN.

23. WOOD USED IN CONNECTIONS SHALL BE PROTECTED FROM WEATHER AS PER IBC SECTION 1403.2 (WALLS) AND/OR 1503 (ROOFS), WHICHEVER IS MORE APROPRIATE.

24. FREESTANDING STRUCTURES MUST USE DETAIL M. ATTACHED STRUCTURES MUST USE DETAIL M OR Q. R OR S MAY BE CHOSEN FOR DETAIL Q.

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

LOUVER SPANS FOR COMMERCIAL AND PATIO STRUCTURES

Ground Snow Load (psf)	Roof Design Load (psf)	Louver Description	Wind Speed and Exposure													
			Exposure B							Exposure C						
			110	115	130	140	150	160	170	110	115	130	140	150	160	170
10 LIVE	10	Extruded Alum Louver (Detail B)	14'-0"	14'-0"	14'-0"	14'-0"	14'-0"	13'-5"	12'-11"	14'-0"	14'-0"	14'-0"	13'-1"	12'-6"	12'-0"	11'-6"
20 LIVE	20	Extruded Alum Louver (Detail B)	14'-0"	14'-0"	14'-0"	14'-0"	14'-0"	13'-5"	12'-11"	14'-0"	14'-0"	14'-0"	13'-1"	12'-6"	12'-0"	11'-6"
25	21.0	Extruded Alum Louver (Detail B)	13'-10"	13'-3"	12'-9"	12'-6"	12'-3"	12'-0"	11'-9"	12'-9"	12'-7"	12'-6"	11'-10"	11'-6"	11'-2"	10'-8"
30	25.2	Extruded Alum Louver (Detail B)	12'-9"	12'-7"	12'-4"	12'-1"	11'-10"	11'-8"	11'-3"	12'-4"	12'-3"	12'-1"	11'-5"	11'-2"	10'-9"	10'-4"
35.7	30.0	Extruded Alum Louver (Detail B)	12'-4"	12'-3"	11'-10"	11'-8"	11'-5"	11'-2"	10'-11"	11'-10"	11'-9"	11'-8"	11'-0"	10'-8"	10'-4"	0'-0"
43	36.1	Extruded Alum Louver (Detail B)	11'-8"	11'-8"	11'-5"	11'-2"	10'-11"	10'-8"	10'-4"	11'-5"	11'-2"	11'-0"	10'-6"	0'-0"	0'-0"	0'-0"

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

A. Tables for Attached Structures with Single Span Louvers with Two Posts ONLY

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf

Table A1

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design Load (psf)	110 MPH EXPOSURE B or 110 MPH EXPOSURE B A	trib	B (on slab)	B	Cube Footing End d (in)	8 Overturning Moment (lbf *ft)	10	11
21	6	3	16.8	21.3	19	474	588	645
21	8	4	11.6	19.4	20	585	726	796
21	10	5	8.5	18.1	22	689	855	938
21	12	6	6.4	17.0	23	786	975	1069
21	13	6.5	5.6	16.5	23	835	1035	1135
21	14	7	4.9	16.1	23	880	1091	1197

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design Load (psf)	110 MPH EXPOSURE C or 120 MPH EXPOSURE B A	trib	B (on slab)	B	End d (in)	8 9 Overturning Moment (lbf *ft)		11
21	6	3	16.8	21.3	21	474	588	645
21	8	4	11.6	19.4	22	585	726	796
21	10	5	8.5	18.1	23	689	855	938
21	12	6	6.4	17.0	24	786	975	1069
21	13	6.5	5.6	16.5	25	835	1035	1135
21	14	7	4.9	16.1	25	880	1091	1197

Table A2

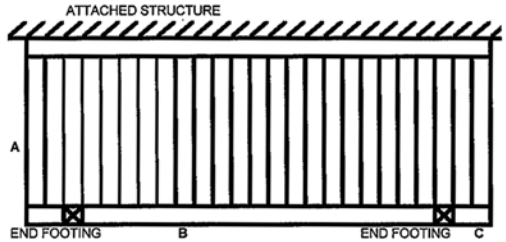
Ground Snow Load 30 psf

Table A3

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design Load (psf)	110 MPH EXPOSURE B or 110 MPH EXPOSURE B A	trib	B (on slab)	B	End d (in)	8 Overturning Moment (lbf *ft)	10	11
25.2	6	3	13.7	20.0	19	451	559	613
25.2	8	4	9.3	18.3	20	557	691	758
25.2	10	5	6.6	17.0	21	655	813	891
25.2	12	6	4.9	16.0	22	750	929	1019
25.2	13	6.5	4.2	15.6	23	795	986	1082
25.2	14	7	3.6	15.2	23	839	1041	1141

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design Load (psf)	110 MPH EXPOSURE C or 120 MPH EXPOSURE B A	trib	B (on slab)	B	End d (in)	8 10 Overturning Moment (lbf *ft)		11
25.2	6	3	13.7	20.0	20	451	559	613
25.2	8	4	9.3	18.3	22	557	691	758
25.2	10	5	6.6	17.0	23	655	813	891
25.2	12	6	4.9	16.0	24	750	929	1019
25.2	13	6.5	4.2	15.6	24	795	986	1082
25.2	14	7	3.6	15.2	25	839	1041	1141

Table A4



INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **SINGLE SPAN ATTACHED** Equinox cover **WITH ONLY TWO POSTS.**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf patio covers and 20 psf for carports or commercial structures.
3. Choose **"A"**. **"A"** will be limited by maximum louver panel span.
4. Determine maximum **"B"** from tables on this page
5. The maximum **"C"** is 24".
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing **"A"** and structure height
9. Choose Lateral Force Resisting System
   a. **Normal Knee Brace: Details R and Q**
      This knee brace is allowed if Moment Connection Value in Detail R is greater than **Overturning Moment.**
   b. **Strong Knee Brace: Details S and Q**
      This knee brace is allowed if Moment Connection Value in Detail S is greater than **Overturning Moment.**
   c. **Post embedded in footing: Detail M**
      i Determine **"Overturning Moment"** from tables on this page
      ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment to determine allowable footing sizes.**
10. Fasten to wall as per Detail J or T

FOR STRUCTURES ATTACHED TO 3.5" CONCRETE SLABS

SLAB 1 Follow Instructions #1-3 above.
SLAB 2 Maximum post spacing is **"B (on slab)"**
SLAB 3 Follow Instructions #5-8 above.
SLAB 4 Follow #9 above, embedding into concrete is not an option.
SLAB 5 Fasten to wall as per Detail J or T

USE THE BELOW TABLES WHEN USING A "B' LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF)

Table A5

Post Height	8 ft								10 ft								
max A (ft)	B (ft) 10	12	14	16	18	20	22	24	B (ft) 10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	262	300	337	375	412	450	487	525	325	372	418	465	511	558	604	651	110 MPH EXPOSURE B
8	350	400	450	500	550	600	650	700	434	496	558	620	682	744	806	868	110 MPH EXPOSURE B
10	437	500	562	625	687	750	812	875	542	620	697	775	852	930	1007	1085	110 MPH EXPOSURE B
12	525	600	675	750	825	900	975	1050	651	744	837	930	1023	1116	1209	1302	110 MPH EXPOSURE B
13	569	650	731	812	894	975	1056	1137	705	806	907	1007	1108	1209	1310	1410	110 MPH EXPOSURE B
14	612	700	787	875	962	1050	1137	1225	759	868	976	1085	1193	1302	1410	1519	110 MPH EXPOSURE B

Table A6

Post Height	8 ft								10 ft								
max A (ft)	B (ft) 10	12	14	16	18	20	22	24	B (ft) 10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	285	300	337	375	412	450	487	525	354	372	418	465	511	558	604	651	110 MPH EXPOSURE C
8	380	400	450	500	550	600	650	700	472	496	558	620	682	744	806	868	110 MPH EXPOSURE C
10	476	500	562	625	687	750	812	875	590	620	697	775	852	930	1007	1085	110 MPH EXPOSURE C
12	571	600	675	750	825	900	975	1050	708	744	837	930	1023	1116	1209	1302	110 MPH EXPOSURE C
13	618	650	731	812	894	975	1056	1137	767	806	907	1007	1108	1209	1310	1410	110 MPH EXPOSURE C
14	666	700	787	875	962	1050	1137	1225	826	868	976	1085	1193	1302	1410	1519	110 MPH EXPOSURE C

Table A7

max A (ft)	B (ft) 10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	16	16	17	18	18	19	19	20	110 MPH EXPOSURE B
8	17	18	19	19	20	21	21	22	110 MPH EXPOSURE B
10	19	19	20	21	22	22	23	23	110 MPH EXPOSURE B
12	20	21	21	22	23	24	24	25	110 MPH EXPOSURE B
13	20	21	22	23	24	24	25	25	110 MPH EXPOSURE B
14	21	22	23	23	24	25	25	26	110 MPH EXPOSURE B

Table A8

max A (ft)	B (ft) 10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	17	18	18	19	20	20	21	21	110 MPH EXPOSURE C
8	19	19	20	21	22	22	23	23	110 MPH EXPOSURE C
10	20	21	22	23	23	24	25	25	110 MPH EXPOSURE C
12	21	22	23	24	25	25	26	27	110 MPH EXPOSURE C
13	22	23	24	25	25	26	27	27	110 MPH EXPOSURE C
14	22	23	24	25	26	27	27	28	110 MPH EXPOSURE C

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

B. Tables for Attached Structures with Single Span Louvers with at Least 3 Posts

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf

Table B1

Single 0.125"x2"x8" Aluminum Header					Uplift Only		Post Height (ft)		
Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B				Cube Footing		8	10	11
					Middle	End	Overturning Moment		
Load (psf)	A	trib	B (on slab)	B	d (in)	d (in)	(lbf *ft)		
21	6	3	10.4	21.3	23	19	799	990	1086
21	8	4	7.8	19.4	24	20	971	1204	1320
21	10	5	6.3	18.1	25	22	1129	1400	1535
21	12	6	5.2	17.0	26	23	1273	1578	1731
21	13	6.5	4.8	16.5	27	23	1344	1667	1828
21	14	7	4.5	16.1	27	23	1410	1749	1918

Single 0.125"x2"x8" Aluminum Header					Uplift Only		Post Height (ft)		
Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B				Middle	End	8 Overturning Moment	10	11
Load (psf)	A	trib	B (on slab)	B	d (in)	d (in)	(lbf *ft)		
21	6	3	10.4	21.3	24	21	799	990	1086
21	8	4	7.8	19.4	26	22	971	1204	1320
21	10	5	6.3	18.1	27	23	1129	1400	1535
21	12	6	5.2	17.0	29	24	1273	1578	1731
21	13	6.5	4.8	16.5	29	25	1344	1667	1828
21	14	7	4.5	16.1	30	25	1410	1749	1918

Table B2

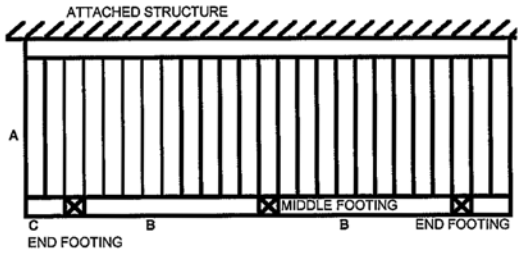
Ground Snow Load 30 psf

Table B3

Single 0.125"x2"x8" Aluminum Header					Uplift Only		Post Height (ft)		
Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B						8	10	11
					Middle	End	Overturning Moment		
Load (psf)	A	trib	B (on slab)	B	d (in)	d (in)	(lbf *ft)		
25.2	6	3	8.9	20.0	22	19	751	931	1021
25.2	8	4	6.6	18.3	24	20	915	1134	1244
25.2	10	5	5.3	17.0	25	21	1061	1315	1442
25.2	12	6	4.4	16.0	26	22	1199	1487	1631
25.2	13	6.5	4.1	15.6	26	23	1266	1569	1721
25.2	14	7	3.8	15.2	27	23	1328	1647	1807

Single 0.125"x2"x8" Aluminum Header					Uplift Only		Post Height (ft)		
Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B				Middle	End	8 Overturning Moment	10	11
Load (psf)	A	trib	B (on slab)	B	d (in)	d (in)	(lbf *ft)		
25.2	6	3	8.9	20.0	24	20	751	931	1021
25.2	8	4	6.6	18.3	26	22	915	1134	1244
25.2	10	5	5.3	17.0	27	23	1061	1315	1442
25.2	12	6	4.4	16.0	28	24	1199	1487	1631
25.2	13	6.5	4.1	15.6	28	24	1266	1569	1721
25.2	14	7	3.8	15.2	29	25	1328	1647	1807

Table B4



INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **SINGLE SPAN ATTACHED** Equinox cover **WITH AT LEAST 3 POSTS.**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf for patio covers and 20 psf for carports or commercial structures.
3. Choose **"A"**. **"A"** will be limited by maximum louver panel span.
4. Determine maximum **"B"** from tables on this page
5. The maximum **"C"** is 24".
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing **"A"** and structure height
9. Choose Lateral Force Resisting System
   a. **Normal Knee Brace: Details R and Q**
   This knee brace is allowed if Moment Connection Value in Detail R is greater thar **Overturning Moment.**
   b. **Strong Knee Brace: Details S and Q**
   This knee brace is allowed if Moment Connection Value in Detail S is greater thar **Overtunring Moment.**
   c. **Post embedded in footing: Detail M**
   i Determine **"Overturning Moment"** from tables on this page
   ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment to determine allowable footing sizes.**
10. Fasten to wall as per Detail J or T

FOR STRUCTURES ATTACHED TO 3.5" CONCRETE SLABS

SLAB 1 Follow Instructions #1-3 above.
SLAB 2 Maximum post spacing is **"B o(n slab)"**
SLAB 3 Follow Instructions #5-8 above.
SLAB 4 Follow #9 above, embedding into concrete is not an option.
SLAB 5 Fasten to wall as per Detail J or T

USE THE BELOW TABLES WHEN USING A "B' LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF)

Table B5

Post Height	8 ft								10 ft								
	B (ft)								B (ft)								
max A	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
(ft)	OVERTURNING MOMENT (LBF*FT)																
6	375	450	525	600	675	750	825	900	465	558	651	744	837	930	1023	1116	110 MPH EXPOSURE B
8	500	600	700	800	900	1000	1100	1200	620	744	868	992	1116	1240	1364	1488	110 MPH EXPOSURE B
10	625	750	875	1000	1125	1250	1375	1500	775	930	1085	1240	1395	1550	1705	1860	110 MPH EXPOSURE B
12	750	900	1050	1200	1350	1500	1650	1800	930	1116	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE B
13	812	975	1137	1300	1462	1625	1787	1950	1007	1209	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE B
14	875	1050	1225	1400	1575	1750	1925	2100	1085	1302	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE B

Table B6

Post Height	8 ft								10 ft								
	B (ft)								B (ft)								
max A	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
(ft)	OVERTURNING MOMENT (LBF*FT)																
6	375	450	525	600	675	750	825	900	465	558	651	744	837	930	1023	1116	110 MPH EXPOSURE C
8	500	600	700	800	900	1000	1100	1200	620	744	868	992	1116	1240	1364	1488	110 MPH EXPOSURE C
10	625	750	875	1000	1125	1250	1375	1500	775	930	1085	1240	1395	1550	1705	1860	110 MPH EXPOSURE C
12	750	900	1050	1200	1350	1500	1650	1800	930	1116	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE C
13	812	975	1137	1300	1462	1625	1787	1950	1007	1209	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE C
14	875	1050	1225	1400	1575	1750	1925	2100	1085	1302	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE C

Table B7

	B (ft)								
max A	10	12	14	16	18	20	22	24	
(ft)	UPLIFT ONLY CUBE FOOTING d (IN)								
6	18	19	20	21	21	22	23	24	110 MPH EXPOSURE B
8	19	21	22	23	24	24	25	26	110 MPH EXPOSURE B
10	21	22	23	24	25	26	27	28	110 MPH EXPOSURE B
12	22	24	25	26	27	28	29	30	110 MPH EXPOSURE B
13	23	24	25	27	28	29	30	31	110 MPH EXPOSURE B
14	23	25	26	27	28	29	30	31	110 MPH EXPOSURE B

Table B8

	B (ft)								
max A	10	12	14	16	18	20	22	24	
(ft)	UPLIFT ONLY CUBE FOOTING d (IN)								
6	19	20	21	22	23	24	25	25	110 MPH EXPOSURE C
8	21	22	23	24	25	26	27	28	110 MPH EXPOSURE C
10	23	24	25	26	27	28	29	30	110 MPH EXPOSURE C
12	24	25	27	28	29	30	31	32	110 MPH EXPOSURE C
13	25	26	27	29	30	31	32	33	110 MPH EXPOSURE C
14	25	27	28	29	31	32	33	34	110 MPH EXPOSURE C

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

C. Tables for Attached Structures with Multi Span Louvers with Two Posts ONLY

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf — Table C1

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B				Cube Footing End	8 Overturning Moment (lbf *ft)	10	11
Load (psf)	A	trib	B (on slab)	B	d (in)			
21	6	6	6.4	21.3	23	799	990	1086
21	8	8	3.8	19.4	24	971	1204	1320
21	10	10	2.3	18.1	25	1129	1400	1535
21	12	12	1.2	17.0	26	1273	1578	1731
21	13	13	0.8	16.5	27	1344	1667	1828
21	14	14	0.5	16.1	27	1410	1749	1918

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B				End	8 Overturning Moment (lbf *ft)	10	11
Load (psf)	A	trib	B (on slab)	B	d (in)			
21	6	6	6.4	21.3	24	799	990	1086
21	8	8	3.8	19.4	26	971	1204	1320
21	10	10	2.3	18.1	27	1129	1400	1535
21	12	12	1.2	17.0	29	1273	1578	1731
21	13	13	0.8	16.5	29	1344	1667	1828
21	14	14	0.5	16.1	30	1410	1749	1918

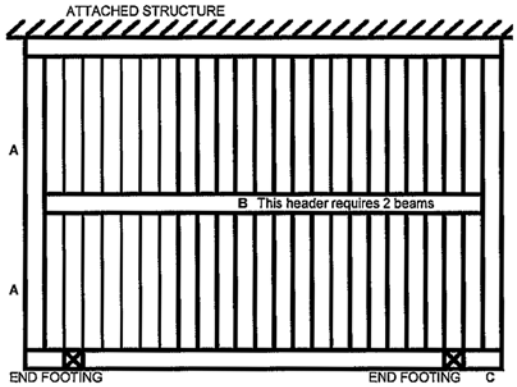
Table C2

Ground Snow Load 30 psf — Table C3

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B				End	8 Overturning Moment (lbf *ft)	10	11
Load (psf)	A	trib	B (on slab)	B	d (in)			
25.2	6	6	4.9	20.0	22	751	931	1021
25.2	8	8	2.6	18.3	24	915	1134	1244
25.2	10	10	1.3	17.0	25	1061	1315	1442
25.2	12	12	0.4	16.0	26	1199	1487	1631
25.2	13	13	0.1	15.6	26	1266	1569	1721
25.2	14	14	-0.2	15.2	27	1328	1647	1807

Single 0.125"x2"x8" Aluminum Header					Uplift Only	Post Height (ft)		
Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B				End	8 Overturning Moment (lbf *ft)	10	11
Load (psf)	A	trib	B (on slab)	B	d (in)			
25.2	6	6	4.9	20.0	24	751	931	1021
25.2	8	8	2.6	18.3	26	915	1134	1244
25.2	10	10	1.3	17.0	27	1061	1315	1442
25.2	12	12	0.4	16.0	28	1199	1487	1631
25.2	13	13	0.1	15.6	28	1266	1569	1721
25.2	14	14	-0.2	15.2	29	1332	1651	1811

Table C4



USE THE BELOW TABLES WHEN USING A "B' LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF)

Post Height	8 ft								10 ft								Table C5
	B (ft)								B (ft)								
max A (ft)	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	470	470	525	600	675	750	825	900	583	583	651	744	837	930	1023	1116	110 MPH EXPOSURE B
8	627	627	700	800	900	1000	1100	1200	777	777	868	992	1116	1240	1364	1488	110 MPH EXPOSURE B
10	783	783	875	1000	1125	1250	1375	1500	971	971	1085	1240	1395	1550	1705	1860	110 MPH EXPOSURE B
12	940	940	1050	1200	1350	1500	1650	1800	1166	1166	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE B
13	1018	1018	1137	1300	1462	1625	1787	1950	1263	1263	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE B
14	1097	1097	1225	1400	1575	1750	1925	2100	1360	1360	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE B

Post Height	8 ft								10 ft								Table C6
	B (ft)								B (ft)								
max A (ft)	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	571	571	571	600	675	750	825	900	708	708	708	744	837	930	1023	1116	110 MPH EXPOSURE C
8	761	761	761	800	900	1000	1100	1200	944	944	944	992	1116	1240	1364	1488	110 MPH EXPOSURE C
10	951	951	951	1000	1125	1250	1375	1500	1179	1179	1179	1240	1395	1550	1705	1860	110 MPH EXPOSURE C
12	1141	1141	1141	1200	1350	1500	1650	1800	1415	1415	1415	1488	1674	1860	2046	2232	110 MPH EXPOSURE C
13	1237	1237	1237	1300	1462	1625	1787	1950	1533	1533	1533	1612	1813	2015	2216	2418	110 MPH EXPOSURE C
14	1332	1332	1332	1400	1575	1750	1925	2100	1651	1651	1651	1736	1953	2170	2387	2604	110 MPH EXPOSURE C

	B (ft)								Table C7
max A (ft)	10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	18	19	20	21	21	22	23	24	110 MPH EXPOSURE B
8	19	21	22	23	24	24	25	26	110 MPH EXPOSURE B
10	21	22	23	24	25	26	27	28	110 MPH EXPOSURE B
12	22	24	25	26	27	28	29	30	110 MPH EXPOSURE B
13	23	24	25	27	28	29	30	31	110 MPH EXPOSURE B
14	23	25	26	27	28	29	30	31	110 MPH EXPOSURE B

	B (ft)								Table C8
max A (ft)	10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	19	20	21	22	23	24	25	25	110 MPH EXPOSURE C
8	21	22	23	24	25	26	27	28	110 MPH EXPOSURE C
10	23	24	25	26	27	28	29	30	110 MPH EXPOSURE C
12	24	25	27	28	29	30	31	32	110 MPH EXPOSURE C
13	25	26	27	29	30	31	32	33	110 MPH EXPOSURE C
14	25	27	28	29	31	32	33	34	110 MPH EXPOSURE C

INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **MULTI SPAN ATTACHED** Equinox cover **WITH ONLY 2 POSTS**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf for patio covers and 20 psf for carports or commercial structures.
3. Choose **"A"**. **"A"** will be limited by maximum louver panel span.
4. Determine maximum **"B"** from tables on this page
5. The maximum **"C"** is 24".
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing **"A"** and structure height
9. Choose Lateral Force Resisting System
   a. **Normal Knee Brace: Details R and Q**
      This knee brace is allowed if Moment Connection Value in Detail R is greater than **Overturning Moment.**
   b. **Strong Knee Brace: Details S and Q**
      This knee brace is allowed if Moment Connection Value in Detail S is greater than **Overturning Moment.**
   c. **Post embedded in footing: Detail M**
      i Determine **"Overturning Moment"** from tables on this page
      ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment to determine allowable footing sizes.**
10. Fasten to wall as per Detail J or T

FOR STRUCTURES ATTACHED TO 3.5" CONCRETE SLABS

SLAB 1 Follow Instructions #1-3 above.
SLAB 2 Maximum post spacing is **"B o(n slab)"**
SLAB 3 Follow Instructions #5-8 above.
SLAB 4 Follow #9 above, embedding into concrete is not an option.
SLAB 5 Fasten to wall as per Detail J or T

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

D. Tables for Freestanding Structures with Single Span Louvers with 4 posts

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf

Table D1

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B			Uplift Only Cube Footing	Post Height (ft) 8	10	11
				End	Overturning Moment		
Load (psf)	A	trib	B	d (in)	(lbf *ft)		
21	6	3	21.3	19	991	1229	1348
21	8	4	19.4	20	1171	1452	1592
21	10	5	18.1	22	1379	1710	1875
21	12	6	17.0	23	1573	1950	2139
21	13	6.5	16.5	23	1669	2070	2270
21	14	7	16.1	23	1760	2182	2394

Table D2

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B			Uplift Only	Post Height (ft) 8	10	11
				End	Overturning Moment		
Load (psf)	A	trib	B	d (in)	(lbf *ft)		
21	6	3	21.3	21	1203	1492	1636
21	8	4	19.4	22	1171	1452	1592
21	10	5	18.1	23	1379	1710	1875
21	12	6	17.0	24	1573	1950	2139
21	13	6.5	16.5	25	1669	2070	2270
21	14	7	16.1	25	1760	2182	2394

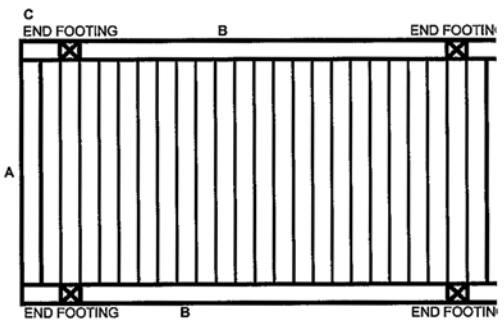
Ground Snow Load 30 psf

Table D3

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B			Uplift Only	Post Height (ft) 8	10	11
				End	Overturning Moment		
Load (psf)	A	trib	B	d (in)	(lbf *ft)		
25.2	6	3	20.0	19	1143	1417	1554
25.2	8	4	18.3	20	1115	1382	1516
25.2	10	5	17.0	21	1310	1625	1782
25.2	12	6	16.0	22	1499	1859	2039
25.2	13	6.5	15.6	23	1590	1972	2163
25.2	14	7	15.2	23	1678	2081	2283

Table D4

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B			Uplift Only	Post Height (ft) 8	10	11
				End	Overturning Moment		
Load (psf)	A	trib	B	d (in)	(lbf *ft)		
25.2	6	3	20.0	20	1143	1417	1554
25.2	8	4	18.3	22	1115	1382	1516
25.2	10	5	17.0	23	1310	1625	1782
25.2	12	6	16.0	24	1499	1859	2039
25.2	13	6.5	15.6	24	1590	1972	2163
25.2	14	7	15.2	25	1678	2081	2283



INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **SINGLE SPAN FREESTANDING** Equinox cover **WITH ONLY FOUR POSTS.**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf for patio covers and 20 psf for carports or commercial structures.
3. Choose "A". "A" will be limited by maximum louver panel span.
4. Determine maximum "B" from tables on this page
5. The maximum "C" is 24".
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing "A" and structure height
9. Lateral Force Resisting System DETAIL M
   a. **Normal Knee Brace: Details R and Q IS NOT ALLOWED Moment.**
   b. **Strong Knee Brace: Details S and Q IS NOT ALLOWED Moment.**
   c. **Post embedded in footing: Detail M**
      i. Determine "**Overturning Moment**" from tables on this page
      ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment** to determine allowable footing sizes.

USE THE BELOW TABLES WHEN USING A "B" LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF

Post Height	8 ft								10 ft								Table D5
	B (ft)								B (ft)								
max A	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
(ft)	OVERTURNING MOMENT (LBF*FT)																
6	750	900	1050	1200	1350	1500	1650	1800	930	1116	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE B
8	1000	1200	1400	1600	1800	2000	2200	2400	1240	1488	1736	1984	2232	2480	2728	2976	110 MPH EXPOSURE B
10	1250	1500	1750	2000	2250	2500	2750	3000	1550	1860	2170	2480	2790	3100	3410	3720	110 MPH EXPOSURE B
12	1500	1800	2100	2400	2700	3000	3300	3600	1860	2232	2604	2976	3348	3720	4092	4464	110 MPH EXPOSURE B
13	1625	1950	2275	2600	2925	3250	3575	3900	2015	2418	2821	3224	3627	4030	4433	4836	110 MPH EXPOSURE B
14	1750	2100	2450	2800	3150	3500	3850	4200	2170	2604	3038	3472	3906	4340	4774	5207	110 MPH EXPOSURE B

Post Height	8 ft								10 ft								Table D6
	B (ft)								B (ft)								
max A	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
(ft)	OVERTURNING MOMENT (LBF*FT)																
6	750	900	1050	1200	1350	1500	1650	1800	930	1116	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE C
8	1000	1200	1400	1600	1800	2000	2200	2400	1240	1488	1736	1984	2232	2480	2728	2976	110 MPH EXPOSURE C
10	1250	1500	1750	2000	2250	2500	2750	3000	1550	1860	2170	2480	2790	3100	3410	3720	110 MPH EXPOSURE C
12	1500	1800	2100	2400	2700	3000	3300	3600	1860	2232	2604	2976	3348	3720	4092	4464	110 MPH EXPOSURE C
13	1625	1950	2275	2600	2925	3250	3575	3900	2015	2418	2821	3224	3627	4030	4433	4836	110 MPH EXPOSURE C
14	1750	2100	2450	2800	3150	3500	3850	4200	2170	2604	3038	3472	3906	4340	4774	5207	110 MPH EXPOSURE C

	B (ft)								Table D7
max A	10	12	14	16	18	20	22	24	
(ft)	UPLIFT ONLY CUBE FOOTING d (IN)								
6	16	16	17	18	18	19	19	20	110 MPH EXPOSURE B
8	17	18	19	19	20	21	21	22	110 MPH EXPOSURE B
10	19	19	20	21	22	22	23	23	110 MPH EXPOSURE B
12	20	21	21	22	23	24	24	25	110 MPH EXPOSURE B
13	20	21	22	23	24	24	25	25	110 MPH EXPOSURE B
14	21	22	23	23	24	25	25	26	110 MPH EXPOSURE B

	B (ft)								Table D8
max A	10	12	14	16	18	20	22	24	
(ft)	UPLIFT ONLY CUBE FOOTING d (IN)								
6	17	18	18	19	20	20	21	21	110 MPH EXPOSURE C
8	19	19	20	21	22	22	23	23	110 MPH EXPOSURE C
10	20	21	22	23	23	24	25	25	110 MPH EXPOSURE C
12	21	22	23	24	25	25	26	27	110 MPH EXPOSURE C
13	22	23	24	25	25	26	27	27	110 MPH EXPOSURE C
14	22	23	24	25	26	27	27	28	110 MPH EXPOSURE C

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

E. Tables for Freestanding Structures with Single Span Louvers with at least 6 posts

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf

Table E1

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE B or 110 MPH EXPOSURE B A	trib	B	Uplift Only Cube Footing Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
21	6	3	21.3	23	19	1669	2069	2269
21	8	4	19.4	24	20	1521	1886	2069
21	10	5	18.1	25	22	1415	1754	1924
21	12	6	17.0	26	23	1329	1648	1808
21	13	6.5	16.5	27	23	1344	1667	1828
21	14	7	16.1	27	23	1410	1749	1918

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE C or 120 MPH EXPOSURE B A	trib	B	Uplift Only Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
21	6	3	21.3	24	21	2026	2512	2756
21	8	4	19.4	26	22	1847	2290	2512
21	10	5	18.1	27	23	1718	2130	2336
21	12	6	17.0	29	24	1614	2001	2195
21	13	6.5	16.5	29	25	1574	1951	2140
21	14	7	16.1	30	25	1533	1901	2085

Table E2

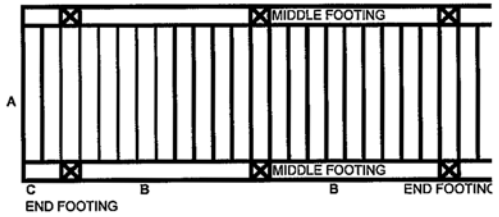
Ground Snow Load 30 psf

Table E3

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE B or 110 MPH EXPOSURE B A	trib	B	Uplift Only Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
25.2	6	3	20.0	22	19	1569	1945	2134
25.2	8	4	18.3	24	20	1433	1777	1949
25.2	10	5	17.0	25	21	1329	1648	1808
25.2	12	6	16.0	26	22	1252	1553	1703
25.2	13	6.5	15.6	26	23	1266	1569	1721
25.2	14	7	15.2	27	23	1328	1647	1807

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE C or 120 MPH EXPOSURE B A	trib	B	Uplift Only Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
25.2	6	3	20.0	24	20	1905	2362	2591
25.2	8	4	18.3	26	22	1740	2158	2366
25.2	10	5	17.0	27	23	1614	2001	2195
25.2	12	6	16.0	28	24	1521	1886	2068
25.2	13	6.5	15.6	28	24	1482	1837	2015
25.2	14	7	15.2	29	25	1444	1791	1964

Table E4



INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **SINGLE SPAN FREESTANDING** Equinox cover **WITH AT LEAST 6 POSTS.**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf for patio covers and 20 psf for carports or commercial structures.
3. Choose **"A"**. "A" will be limited by maximum louver panel span.
4. Determine maximum **"B"** from tables on this page
5. The maximum **"C"** is 24".
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing **"A"** and structure height
9. Lateral Force Resisting System DETAIL M
   a. **Normal Knee Brace: Details R and Q IS NOT ALLOWED Moment.**
   b. **Strong Knee Brace: Details S and Q IS NOT ALLOWED Moment.**
   c. **Post embedded in footing: Detail M**
      i Determine **"Overturning Moment"** from tables on this page
      ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment to determine allowable footing sizes**

USE THE BELOW TABLES WHEN USING A "B' LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF

Post Height	8 ft								10 ft								Table E5
	B (ft)								B (ft)								
max A (ft)	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	783	940	1097	1253	1410	1567	1723	1880	971	1166	1360	1554	1748	1943	2137	2331	110 MPH EXPOSURE B
8	783	940	1097	1253	1410	1567	1723	1880	971	1166	1360	1554	1748	1943	2137	2331	110 MPH EXPOSURE B
10	783	940	1097	1253	1410	1567	1723	1880	971	1166	1360	1554	1748	1943	2137	2331	110 MPH EXPOSURE B
12	940	940	1097	1253	1410	1567	1723	1880	1166	1166	1360	1554	1748	1943	2137	2331	110 MPH EXPOSURE B
13	1018	1018	1137	1300	1462	1625	1787	1950	1263	1263	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE B
14	1097	1097	1225	1400	1575	1750	1925	2100	1360	1360	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE B

Post Height	8 ft								10 ft								Table E6
	B (ft)								B (ft)								
max A (ft)	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	951	1141	1332	1522	1712	1902	2093	2283	1179	1415	1651	1887	2123	2359	2595	2831	110 MPH EXPOSURE C
8	951	1141	1332	1522	1712	1902	2093	2283	1179	1415	1651	1887	2123	2359	2595	2831	110 MPH EXPOSURE C
10	951	1141	1332	1522	1712	1902	2093	2283	1179	1415	1651	1887	2123	2359	2595	2831	110 MPH EXPOSURE C
12	1141	1141	1332	1522	1712	1902	2093	2283	1415	1415	1651	1887	2123	2359	2595	2831	110 MPH EXPOSURE C
13	1237	1237	1332	1522	1712	1902	2093	2283	1533	1533	1651	1887	2123	2359	2595	2831	110 MPH EXPOSURE C
14	1332	1332	1332	1522	1712	1902	2093	2283	1651	1651	1651	1887	2123	2359	2595	2831	110 MPH EXPOSURE C

	B (ft)								Table E7
max A (ft)	10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	18	19	20	21	21	22	23	24	110 MPH EXPOSURE B
8	19	21	22	23	24	24	25	26	110 MPH EXPOSURE B
10	21	22	23	24	25	26	27	28	110 MPH EXPOSURE B
12	22	24	25	26	27	28	29	30	110 MPH EXPOSURE B
13	23	24	25	27	28	29	30	31	110 MPH EXPOSURE B
14	23	25	26	27	28	29	30	31	110 MPH EXPOSURE B

	B (ft)								Table E8
max A (ft)	10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	19	20	21	22	23	24	25	25	110 MPH EXPOSURE C
8	21	22	23	24	25	26	27	28	110 MPH EXPOSURE C
10	23	24	25	26	27	28	29	30	110 MPH EXPOSURE C
12	24	25	27	28	29	30	31	32	110 MPH EXPOSURE C
13	25	26	27	29	30	31	32	33	110 MPH EXPOSURE C
14	25	27	28	29	31	32	33	34	110 MPH EXPOSURE C

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

F. Tables for Freestanding Structures with Multi Span Louvers with 4 posts

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf

Table F1

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B			Uplift Only Cube Footing Exterior	Post Height (ft) 8 10 11 Overturning Moment (lbf *ft)		
Load (psf)	A	trib	B	d (in)			
21	6	6	21.3	24	834	1035	1135
21	8	8	19.4	26	971	1204	1320
21	10	10	18.1	27	1129	1400	1535
21	12	12	17.0	28	1273	1578	1731
21	13	13	16.5	29	1344	1667	1828
21	14	14	16.1	29	1410	1749	1918

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B			Uplift Only Exterior	Post Height (ft) 8 10 11 Overturning Moment (lbf *ft)		
Load (psf)	A	trib	B	d (in)			
21	6	6	21.3	26	1013	1256	1378
21	8	8	19.4	28	971	1204	1320
21	10	10	18.1	29	1129	1400	1535
21	12	12	17.0	31	1273	1578	1731
21	13	13	16.5	31	1344	1667	1828
21	14	14	16.1	32	1410	1749	1918

Table F2

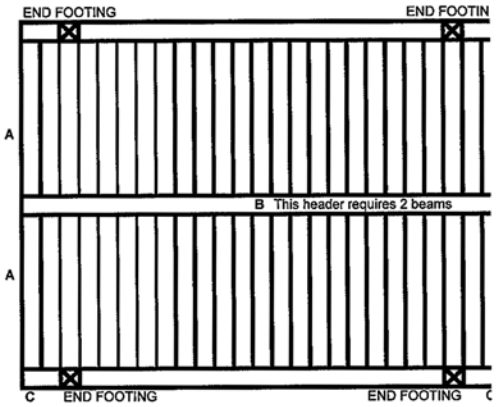
Ground Snow Load 30 psf

Table F3

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE B or 110 MPH EXPOSURE B			Uplift Only Exterior	Post Height (ft) 8 10 11 Overturning Moment (lbf *ft)		
Load (psf)	A	trib	B	d (in)			
25.2	6	6	20.0	24	784	973	1067
25.2	8	8	18.3	25	915	1134	1244
25.2	10	10	17.0	27	1061	1315	1442
25.2	12	12	16.0	28	1199	1487	1631
25.2	13	13	15.6	28	1266	1569	1721
25.2	14	14	15.2	29	1328	1647	1807

Single 0.125"x2"x8" Aluminum Header Roof Design	110 MPH EXPOSURE C or 120 MPH EXPOSURE B			Uplift Only Exterior	Post Height (ft) 8 10 11 Overturning Moment (lbf *ft)		
Load (psf)	A	trib	B	d (in)			
25.2	6	6	20.0	25	953	1181	1295
25.2	8	8	18.3	27	915	1134	1244
25.2	10	10	17.0	29	1061	1315	1442
25.2	12	12	16.0	30	1199	1487	1631
25.2	13	13	15.6	31	1266	1569	1721
25.2	14	14	15.2	31	1332	1651	1811

Table F4



USE THE BELOW TABLES WHEN USING A "B" LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF)

Table F5

Post Height	8 ft								10 ft								
	B (ft)								B (ft)								
max A	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
(ft)	OVERTURNING MOMENT (LBF*FT)																
6	470	470	548	627	705	783	862	940	583	583	680	777	874	971	1068	1166	110 MPH EXPOSURE B
8	627	627	700	800	900	1000	1100	1200	777	777	868	992	1116	1240	1364	1488	110 MPH EXPOSURE B
10	783	783	875	1000	1125	1250	1375	1500	971	971	1085	1240	1395	1550	1705	1860	110 MPH EXPOSURE B
12	940	940	1050	1200	1350	1500	1650	1800	1166	1166	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE B
13	1018	1018	1137	1300	1462	1625	1787	1950	1263	1263	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE B
14	1097	1097	1225	1400	1575	1750	1925	2100	1360	1360	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE B

Table F6

Post Height	8 ft								10 ft								
	B (ft)								B (ft)								
max A	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
(ft)	OVERTURNING MOMENT (LBF*FT)																
6	571	571	666	761	856	951	1046	1141	708	708	826	944	1061	1179	1297	1415	110 MPH EXPOSURE C
8	761	761	761	800	900	1000	1100	1200	944	944	944	992	1116	1240	1364	1488	110 MPH EXPOSURE C
10	951	951	951	1000	1125	1250	1375	1500	1179	1179	1179	1240	1395	1550	1705	1860	110 MPH EXPOSURE C
12	1141	1141	1141	1200	1350	1500	1650	1800	1415	1415	1415	1488	1674	1860	2046	2232	110 MPH EXPOSURE C
13	1237	1237	1237	1300	1462	1625	1787	1950	1533	1533	1533	1612	1813	2015	2216	2418	110 MPH EXPOSURE C
14	1332	1332	1332	1400	1575	1750	1925	2100	1651	1651	1651	1736	1953	2170	2387	2604	110 MPH EXPOSURE C

Table F7

	B (ft)								
max A	10	12	14	16	18	20	22	24	
(ft)	UPLIFT ONLY CUBE FOOTING d (IN)								
6	18	19	20	21	21	22	23	24	110 MPH EXPOSURE B
8	19	21	22	23	24	24	25	26	110 MPH EXPOSURE B
10	21	22	23	24	25	26	27	28	110 MPH EXPOSURE B
12	22	24	25	26	27	28	29	30	110 MPH EXPOSURE B
13	23	24	25	27	28	29	30	31	110 MPH EXPOSURE B
14	23	25	26	27	28	29	30	31	110 MPH EXPOSURE B

Table F8

	B (ft)								
max A	10	12	14	16	18	20	22	24	
(ft)	UPLIFT ONLY CUBE FOOTING d (IN)								
6	19	20	21	22	23	24	25	25	110 MPH EXPOSURE C
8	21	22	23	24	25	26	27	28	110 MPH EXPOSURE C
10	23	24	25	26	27	28	29	30	110 MPH EXPOSURE C
12	24	25	27	28	29	30	31	32	110 MPH EXPOSURE C
13	25	26	27	29	30	31	32	33	110 MPH EXPOSURE C
14	25	27	28	29	31	32	33	34	110 MPH EXPOSURE C

INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **MULTI SPAN FREESTANDING** Equinox cover **WITH ONLY FOUR POSTS.**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf for patio covers and 20 psf for carports or commercial structures.
3. Choose "A". "A" will be limited by maximum louver panel span.
4. Determine maximum **"B"** from tables on this page
5. The maximum **"C"** is 24".
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing **"A"** and structure height
9. Lateral Force Resisting System DETAIL M
   a. **Normal Knee Brace: Details R and Q IS NOT ALLOWED Moment.**
   b. **Strong Knee Brace: Details S and Q IS NOT ALLOWED Moment.**
   c. **Post embedded in footing: Detail M**
      i Determine **"Overturning Moment"** from tables on this page
      ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment to determine allowable footing sizes**

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

G. Tables for Attached Structures with Multi Span Louvers with at Least 3 Posts

max Ss= 150% Seismic Design Category D

Ground Snow Load 25 psf

Table G1

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE B or 110 MPH EXPOSURE B A	trib	B (on slab)	B	Uplift Only Cube Footing Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
21	6	6	10.4	17.0	21	17	665	824	904
21	8	8	7.8	15.4	22	18	772	958	1050
21	10	10	6.3	14.3	24	19	896	1111	1218
21	12	12	5.2	13.5	24	19	1011	1254	1375
21	13	13	4.8	13.1	25	20	1067	1322	1450
21	14	14	4.5	12.8	25	20	1122	1391	1526

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE C or 120 MPH EXPOSURE B A	trib	B (on slab)	B	Uplift Only Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
21	6	6	10.4	17.0	23	18	807	1001	1098
21	8	8	7.8	15.4	24	19	772	958	1050
21	10	10	6.3	14.3	25	20	896	1111	1218
21	12	12	5.2	13.5	26	21	1011	1254	1375
21	13	13	4.8	13.1	27	21	1067	1322	1450
21	14	14	4.5	12.8	27	22	1122	1391	1526

Table G2

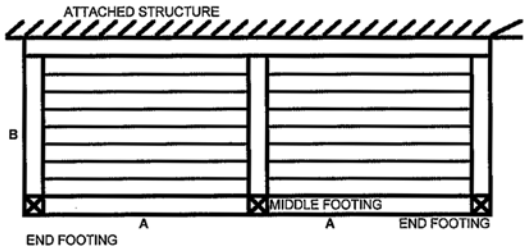
Ground Snow Load 30 psf

Table G3

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE B or 110 MPH EXPOSURE B A	trib	B (on slab)	B	Uplift Only Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
25.2	6	6	8.9	16.0	21	16	626	777	852
25.2	8	8	6.6	14.5	22	17	727	901	989
25.2	10	10	5.3	13.5	23	18	843	1045	1146
25.2	12	12	4.4	12.7	24	19	952	1181	1295
25.2	13	13	4.1	12.4	24	19	1005	1246	1367
25.2	14	14	3.8	12.1	25	20	1056	1309	1436

Single 0.125"x2"x8" Aluminum Header Roof Design Load (psf)	110 MPH EXPOSURE C or 120 MPH EXPOSURE B A	trib	B (on slab)	B	Uplift Only Middle d (in)	End d (in)	Post Height (ft) 8 Overturning Moment (lbf *ft)	10	11
25.2	6	6	8.9	16.0	22	18	760	943	1034
25.2	8	8	6.6	14.5	24	19	727	901	989
25.2	10	10	5.3	13.5	25	20	843	1045	1146
25.2	12	12	4.4	12.7	26	21	952	1181	1295
25.2	13	13	4.1	12.4	26	21	1005	1246	1367
25.2	14	14	3.8	12.1	27	21	1056	1309	1436

Table G4



INSTRUCTIONS FOR USING THESE TABLES

1. These instructions are for a **SINGLE SPAN ATTACHED** Equinox cover **WITH AT LEAST 3 POSTS.**
2. Determine wind and snow loads for structure site area. For zero snow load areas use 10 psf for patio covers and 20 psf for carports or commercial structures.
3. Choose "A". "A" will be limited by maximum louver panel span.
4. Determine maximum **"B"** from tables on this page
5. The maximum **"C"** is 0". (no overhangs)
6. Choose height of Structure
7. Determine **Uplift Footing Size.**
8. Determine **Overturning Moment** by cross indexing **"A"** and structure height
9. Choose Lateral Force Resisting System
   a. **Normal Knee Brace: Details R and Q**
      This knee brace is allowed if Moment Connection Value in Detail R is greater than **Overturning Moment.**
   b. **Strong Knee Brace: Details S and Q**
      This knee brace is allowed if Moment Connection Value in Detail S is greater than **Overturning Moment.**
   c. **Post embedded in footing: Detail M**
      i Determine **"Overturning Moment"** from tables on this page
      ii. Go to Tables F1 or F2. Cross index the required footing size from **#5 (Uplift Footing Size)** and **Overturning Moment to determine allowable footing sizes.**
10. Fasten to wall as per Detail J or T

FOR STRUCTURES ATTACHED TO 3.5" CONCRETE SLABS

SLAB 1 Follow Instructions #1-3 above.
SLAB 2 Maximum post spacing is **"B (on slab)"**
SLAB 3 Follow Instructions #5-8 above.
SLAB 4 Follow #9 above, embedding into concrete is not an option
SLAB 5 Fasten to wall as per Detail J or T

USE THE BELOW TABLES WHEN USING A "B" LESS THAN THE MAXIMUM ALLOWED (MAX ROOF SNOW LOAD FOR THIS TABLE IS 30 PSF

Table G5

Post Height	8 ft								10 ft								
	B (ft)								B (ft)								
max A (ft)	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	392	470	548	627	705	783	862	940	486	583	680	777	874	971	1068	1166	110 MPH EXPOSURE B
8	500	600	700	800	900	1000	1100	1200	620	744	868	992	1116	1240	1364	1488	110 MPH EXPOSURE B
10	625	750	875	1000	1125	1250	1375	1500	775	930	1085	1240	1395	1550	1705	1860	110 MPH EXPOSURE B
12	750	900	1050	1200	1350	1500	1650	1800	930	1116	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE B
13	812	975	1137	1300	1462	1625	1787	1950	1007	1209	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE B
14	875	1050	1225	1400	1575	1750	1925	2100	1085	1302	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE B

Table G6

Post Height	8 ft								10 ft								
	B (ft)								B (ft)								
max A (ft)	10	12	14	16	18	20	22	24	10	12	14	16	18	20	22	24	
	OVERTURNING MOMENT (LBF*FT)																
6	476	571	666	761	856	951	1046	1141	590	708	826	944	1061	1179	1297	1415	110 MPH EXPOSURE C
8	500	600	700	800	900	1000	1100	1200	620	744	868	992	1116	1240	1364	1488	110 MPH EXPOSURE C
10	625	750	875	1000	1125	1250	1375	1500	775	930	1085	1240	1395	1550	1705	1860	110 MPH EXPOSURE C
12	750	900	1050	1200	1350	1500	1650	1800	930	1116	1302	1488	1674	1860	2046	2232	110 MPH EXPOSURE C
13	812	975	1137	1300	1462	1625	1787	1950	1007	1209	1410	1612	1813	2015	2216	2418	110 MPH EXPOSURE C
14	875	1050	1225	1400	1575	1750	1925	2100	1085	1302	1519	1736	1953	2170	2387	2604	110 MPH EXPOSURE C

Table G7

max A (ft)	B (ft) 10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	18	19	20	21	21	22	23	24	110 MPH EXPOSURE B
8	19	21	22	23	24	24	25	26	110 MPH EXPOSURE B
10	21	22	23	24	25	26	27	28	110 MPH EXPOSURE B
12	22	24	25	26	27	28	29	30	110 MPH EXPOSURE B
13	23	24	25	27	28	29	30	31	110 MPH EXPOSURE B
14	23	25	26	27	28	29	30	31	110 MPH EXPOSURE B

Table G8

max A (ft)	B (ft) 10	12	14	16	18	20	22	24	
	UPLIFT ONLY CUBE FOOTING d (IN)								
6	19	20	21	22	23	24	25	25	110 MPH EXPOSURE C
8	21	22	23	24	25	26	27	28	110 MPH EXPOSURE C
10	23	24	25	26	27	28	29	30	110 MPH EXPOSURE C
12	24	25	27	28	29	30	31	32	110 MPH EXPOSURE C
13	25	26	27	29	30	31	32	33	110 MPH EXPOSURE C
14	25	27	28	29	31	32	33	34	110 MPH EXPOSURE C

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

W. ATTACHMENT TO WALL

TABLE W1 — #14 SCREW W/ 2.5" EMBEDMENT IN DOUGLAS FIR WOOD (DETAIL J)

	Live or Ground Snow Load	10			20			25			30 psf			35.71 psf			45 psf		
Roof Design+ Dead Load		13.0 psf			23.0 psf			24.0 psf			28.2 psf			33 psf			40.8 psf		
Wind Speed and Exposure	Net Wind Uplift Load (psf)	**Number of Fasteners per 16 in** 1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
		ALLOWABLE PROJECTION (FT)																	
110 MPH EXPOSURE B	9.5	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
115 MPH EXPOSURE B	10.5	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
120 MPH EXPOSURE B	11.6	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
130 MPH EXPOSURE B	14.0	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
140 MPH EXPOSURE B	16.5	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
150 MPH EXPOSURE B	19.2	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
160 MPH EXPOSURE B	22.1	16	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
170 MPH EXPOSURE B	25.1	14	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
180 MPH EXPOSURE B	28.4	12	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
110 MPH EXPOSURE C	11.9	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
115 MPH EXPOSURE C	13.2	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
120 MPH EXPOSURE C	14.5	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
130 MPH EXPOSURE C	17.3	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
140 MPH EXPOSURE C	20.4	17	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
150 MPH EXPOSURE C	23.7	15	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
160 MPH EXPOSURE C	27.2	13	24	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
170 MPH EXPOSURE C	30.9	11	23	24	9	19	24	10	21	24	9	18	24	7	15	23	6	12	19
180 MPH EXPOSURE C	34.9	10	20	24	9	19	24	10	20	24	9	18	24	7	15	23	6	12	19

TABLE W2 — #14 SCREW W/ 1.5" EMBEDMENT IN DOUGLAS FIR WOOD (DETAIL T)

	Live or Ground Snow Load	10			20			25			30 psf			35.71 psf			45 psf		
Roof Design+ Dead Load		13.0 psf			23.0 psf			24.0 psf			28.2 psf			33 psf			40.8 psf		
Wind Speed and Exposure	Net Wind Uplift Load (psf)	**Number of Fasteners per 24 in** 2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
		ALLOWABLE PROJECTION (FT)																	
110 MPH EXPOSURE B	9.5	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
115 MPH EXPOSURE B	10.5	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
120 MPH EXPOSURE B	11.6	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
130 MPH EXPOSURE B	14.0	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
140 MPH EXPOSURE B	16.5	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
150 MPH EXPOSURE B	19.2	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
160 MPH EXPOSURE B	22.1	14	21	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
170 MPH EXPOSURE B	25.1	12	18	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
180 MPH EXPOSURE B	28.4	10	16	21	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
110 MPH EXPOSURE C	11.9	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
115 MPH EXPOSURE C	13.2	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
120 MPH EXPOSURE C	14.5	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
130 MPH EXPOSURE C	17.3	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
140 MPH EXPOSURE C	20.4	15	22	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
150 MPH EXPOSURE C	23.7	13	19	24	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
160 MPH EXPOSURE C	27.2	11	17	22	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
170 MPH EXPOSURE C	30.9	10	15	20	8	12	17	9	14	18	7	11	15	6	10	13	5	8	11
180 MPH EXPOSURE C	34.9	8	13	17	8	12	17	8	13	17	7	11	15	6	10	13	5	8	11

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

X. MOMENT RESISTING FOOTING SIZE

Table X1

4000 LBF*FT IS MAXIMUM MOMENT FOR ALUMINUM POST — REQUIRES STEEL POST

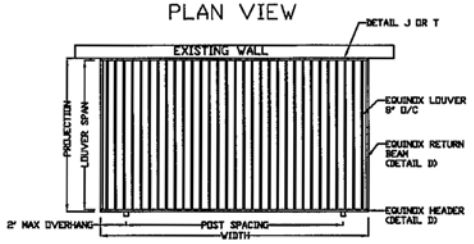
Uplift	Overturning Moment (lbf*ft)						CUBE FOOTING (in) d x d x d																		
Footing	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4250	4500	4750	5000
18	18	19	21	22	24	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
20	20	20	21	22	24	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
21	21	21	21	22	24	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
22	22	22	22	22	24	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
23	23	23	23	23	24	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
24	24	24	24	24	24	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
25	25	25	25	25	25	25	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
26	26	26	26	26	26	26	26	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
27	27	27	27	27	27	27	27	27	27	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
28	28	28	28	28	28	28	28	28	28	28	29	29	30	31	31	32	32	33	33	33	34	34	35	35
29	29	29	29	29	29	29	29	29	29	29	29	29	30	31	31	32	32	33	33	33	34	34	35	35
30	30	30	30	30	30	30	30	30	30	30	30	30	30	31	31	32	32	33	33	33	34	34	35	35
31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32	32	33	33	33	34	34	35	35
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	34	34	35	35
33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	34	35	35
34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	35	35
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40

Table X2

Uplift	Overturning Moment (lbf*ft)						SMALLEST FOOTING WIDTH x WIDTH x DEPTH																		
Footing	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4250	4500	4750	5000
18	20x20x15	17x17x19	16x16x23	15x15x25	14x14x28	14x14x30	14x14x32	13x13x34	13x13x35	13x13x37	12x12x38	12x12x39	12x12x41	12x12x42	12x12x43	11x11x44	11x11x45	11x11x46	11x11x47	11x11x48	11x11x50	11x11x51	11x11x52	10x10x53
20	24x24x14	21x21x18	19x19x21	18x18x24	18x18x26	17x17x28	16x16x30	16x16x32	16x16x33	15x15x34	15x15x36	15x15x37	14x14x38	14x14x39	14x14x41	14x14x42	14x14x43	14x14x44	13x13x45	13x13x45	13x13x47	13x13x48	13x13x49	13x13x50
21	26x26x13	23x23x18	21x21x21	20x20x23	19x19x25	18x18x27	18x18x29	17x17x31	17x17x32	17x17x33	16x16x35	16x16x36	16x16x37	16x16x38	15x15x39	15x15x40	15x15x41	15x15x42	15x15x43	14x14x44	14x14x45	14x14x46	14x14x47	14x14x48
22	29x29x13	25x25x17	23x23x20	22x22x23	21x21x25	20x20x27	19x19x28	19x19x30	18x18x31	18x18x33	18x18x34	17x17x35	17x17x36	17x17x37	17x17x38	16x16x39	16x16x40	16x16x41	16x16x42	16x16x43	16x16x44	15x15x45	15x15x46	15x15x47
23	31x31x13	27x27x17	25x25x20	24x24x22	23x23x24	22x22x26	21x21x27	20x20x29	20x20x30	20x20x32	19x19x33	19x19x34	19x19x35	18x18x36	18x18x37	18x18x38	18x18x39	17x17x40	17x17x41	17x17x42	17x17x43	17x17x44	16x16x45	16x16x46
24	34x34x12	29x29x16	27x27x19	25x25x21	24x24x23	23x23x25	23x23x27	22x22x28	22x22x30	21x21x31	21x21x32	20x20x33	20x20x34	20x20x35	20x20x36	19x19x37	19x19x38	19x19x39	19x19x40	18x18x41	18x18x42	18x18x43	18x18x44	18x18x45
25	36x36x12	31x31x16	29x29x19	27x27x21	26x26x23	25x25x25	24x24x26	24x24x28	23x23x29	23x23x30	22x22x31	22x22x32	22x22x33	21x21x34	21x21x35	21x21x36	20x20x37	20x20x38	20x20x39	20x20x40	20x20x41	19x19x42	19x19x43	19x19x43
26	39x39x12	34x34x15	31x31x18	29x29x20	28x28x22	27x27x24	26x26x26	26x26x27	25x25x28	24x24x29	24x24x31	24x24x32	23x23x33	23x23x34	23x23x35	22x22x36	22x22x36	22x22x37	21x21x38	21x21x39	21x21x40	21x21x41	21x21x42	20x20x42
27	41x41x11	36x36x15	33x33x18	31x31x20	30x30x22	29x29x23	28x28x25	27x27x26	27x27x28	26x26x29	26x26x30	25x25x31	25x25x32	24x24x33	24x24x34	24x24x35	24x24x36	23x23x36	23x23x37	23x23x38	22x22x39	22x22x40	22x22x41	22x22x42
28	44x44x11	39x39x15	36x36x17	34x34x20	32x32x21	31x31x23	30x30x24	29x29x26	29x29x27	28x28x28	27x27x29	27x27x30	26x26x31	26x26x32	26x26x33	25x25x34	25x25x35	25x25x36	25x25x36	24x24x37	24x24x38	24x24x39	23x23x40	23x23x41
29	47x47x11	41x41x14	38x38x17	36x36x19	34x34x21	33x33x22	32x32x24	31x31x25	30x30x26	30x30x28	29x29x29	29x29x30	28x28x31	28x28x32	27x27x32	27x27x33	27x27x34	26x26x35	26x26x36	26x26x36	26x26x37	25x25x38	25x25x39	25x25x40
30	50x50x11	44x44x14	40x40x17	38x38x19	36x36x20	35x35x22	34x34x23	33x33x25	32x32x26	32x32x27	31x31x28	30x30x29	30x30x30	30x30x31	29x29x32	29x29x33	28x28x33	28x28x34	28x28x35	28x28x36	27x27x37	27x27x37	27x27x38	26x26x39
31	53x53x11	46x46x14	43x43x16	40x40x18	39x39x20	37x37x22	36x36x23	35x35x24	34x34x25	34x34x26	33x33x28	32x32x28	32x32x29	31x31x30	31x31x31	31x31x32	30x30x33	30x30x34	29x29x34	29x29x35	29x29x36	29x29x37	28x28x37	28x28x38
32	56x56x10	49x49x14	45x45x16	43x43x18	41x41x20	39x39x21	38x38x23	37x37x24	36x36x25	36x36x26	35x35x27	34x34x28	34x34x29	33x33x30	33x33x31	32x32x31	32x32x32	32x32x33	31x31x34	31x31x34	31x31x35	30x30x36	30x30x37	30x30x37
33	59x59x10	52x52x13	48x48x16	45x45x18	43x43x19	42x42x21	40x40x22	39x39x23	38x38x24	38x38x26	37x37x27	36x36x27	36x36x28	35x35x29	35x35x30	34x34x31	34x34x32	33x33x32	33x33x33	33x33x34	32x32x34	32x32x35	32x32x36	31x31x37
34	63x63x10	55x55x13	50x50x15	48x48x17	45x45x19	44x44x20	43x43x22	41x41x23	40x40x24	40x40x25	39x39x26	38x38x27	38x38x28	37x37x29	37x37x29	36x36x30	36x36x31	35x35x32	35x35x32	34x34x33	34x34x34	34x34x35	33x33x35	33x33x36
35	66x66x10	58x58x13	53x53x15	50x50x17	48x48x19	46x46x20	45x45x21	44x44x23	43x43x24	42x42x25	41x41x26	40x40x26	40x40x27	39x39x28	38x38x29	38x38x30	38x38x30	37x37x31	37x37x32	36x36x32	36x36x33	35x35x34	35x35x35	35x35x36
36	70x70x10	61x61x13	56x56x15	53x53x17	50x50x18	49x49x20	47x47x21	46x46x22	45x45x23	44x44x24	43x43x25	42x42x26	42x42x27	41x41x28	40x40x28	40x40x29	39x39x30	39x39x31	39x39x31	38x38x32	38x38x33	37x37x33	37x37x34	37x37x35
37	73x73x9	64x64x13	59x59x15	55x55x17	53x53x18	51x51x19	50x50x21	48x48x22	47x47x23	46x46x24	45x45x25	44x44x26	44x44x26	43x43x27	43x43x28	42x42x29	41x41x29	41x41x30	41x41x31	40x40x31	40x40x32	39x39x33	39x39x34	38x38x34
38	77x77x9	67x67x12	62x62x14	58x58x16	56x56x18	54x54x19	52x52x20	51x51x21	49x49x22	48x48x23	47x47x24	47x47x25	46x46x26	45x45x27	45x45x28	44x44x28	44x44x29	43x43x30	43x43x30	42x42x31	42x42x32	41x41x32	41x41x33	40x40x34
39	80x80x9	70x70x12	65x65x14	61x61x16	58x58x17	56x56x19	54x54x20	53x53x21	52x52x22	51x51x23	50x50x24	49x49x25	48x48x26	47x47x26	47x47x27	46x46x28	46x46x29	45x45x29	45x45x30	44x44x30	44x44x31	43x43x32	43x43x33	42x42x33
40	84x84x9	73x73x12	68x68x14	64x64x16	61x61x17	59x59x19	57x57x20	55x55x21	54x54x22	53x53x23	52x52x24	51x51x24	50x50x25	50x50x26	49x49x27	48x48x27	48x48x28	47x47x29	47x47x29	46x46x30	46x46x31	45x45x31	45x45x32	44x44x33

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

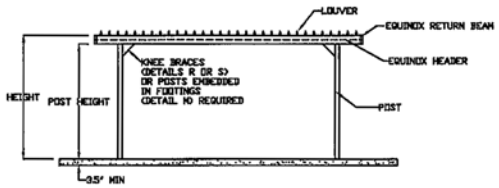
PLAN VIEW



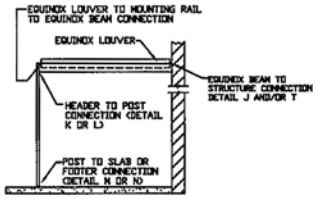
SINGLE SPAN LOUVER ATTACHED STRUCTURE (2 POST ONLY)

STRUCTURE TYPE A

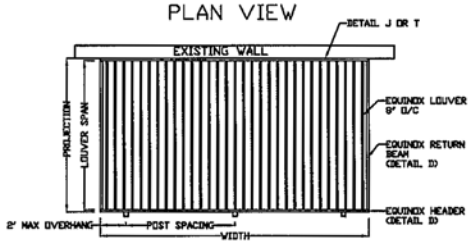
FRONT ELEVATION



SIDE ELEVATION



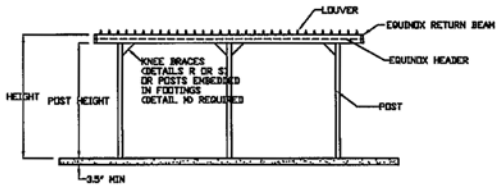
PLAN VIEW



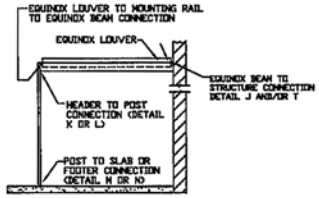
SINGLE SPAN LOUVER ATTACHED STRUCTURE (3 POST MINIMUM)

STRUCTURE TYPE B

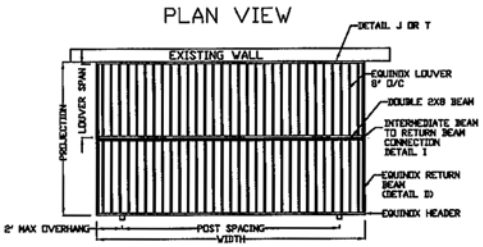
FRONT ELEVATION



SIDE ELEVATION



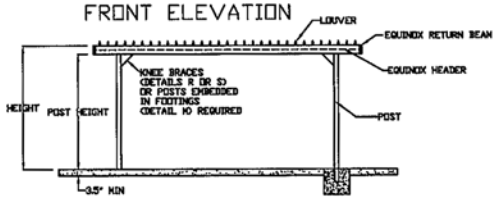
PLAN VIEW



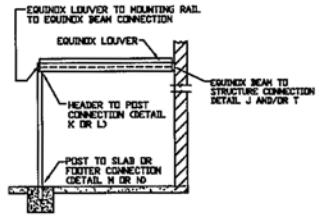
MULTI SPAN LOUVER ATTACHED STRUCTURE (2 POSTS ONLY)

STRUCTURE TYPE C

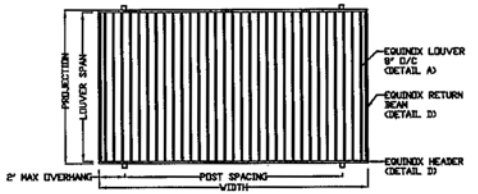
FRONT ELEVATION



SIDE ELEVATION



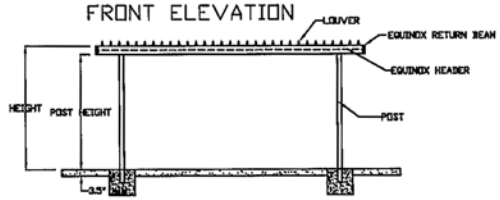
PLAN VIEW



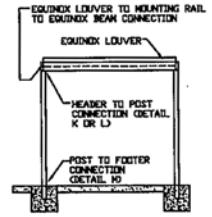
SINGLE SPAN LOUVER FREESTANDING STRUCTURE (4 POST ONLY)

STRUCTURE TYPE D

FRONT ELEVATION

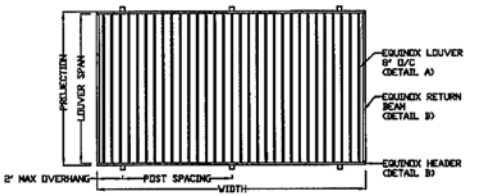


SIDE ELEVATION



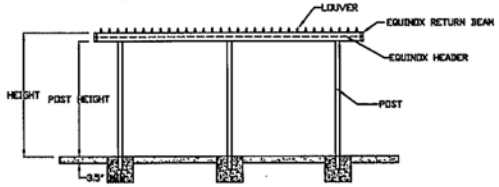
ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

PLAN VIEW

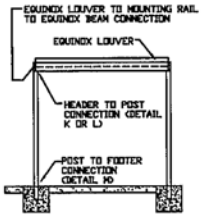


SINGLE SPAN LOUVER
FREESTANDING STRUCTURE
(6 POST MINIMUM)

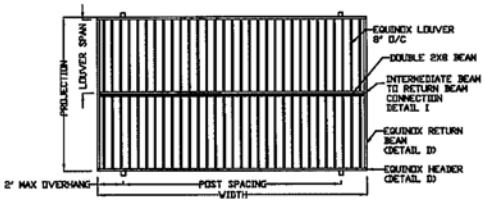
STRUCTURE TYPE E
FRONT ELEVATION



SIDE ELEVATION

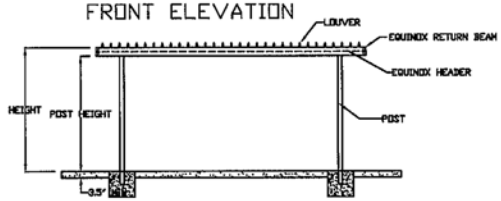


PLAN VIEW

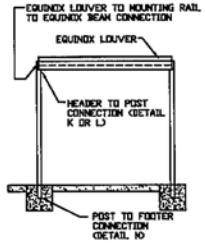


MULTI SPAN LOUVER
FREESTANDING STRUCTURE
(4 POST ONLY)

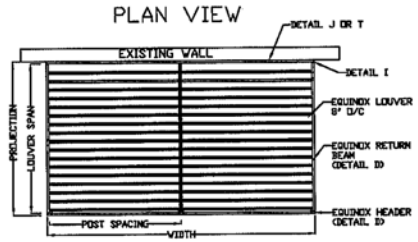
STRUCTURE TYPE F
FRONT ELEVATION



SIDE ELEVATION

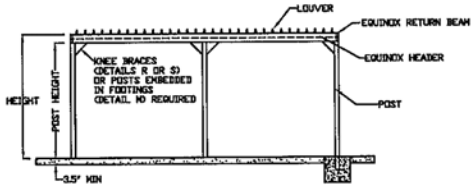


PLAN VIEW

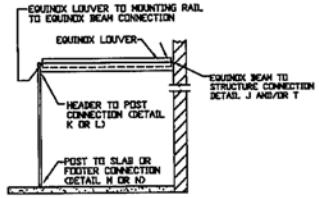


SINGLE SPAN LOUVER
ATTACHED STRUCTURE (3
POST MINIMUM)

STRUCTURE TYPE G
FRONT ELEVATION

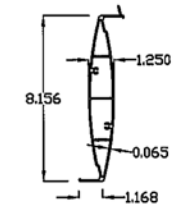


SIDE ELEVATION

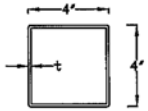


ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

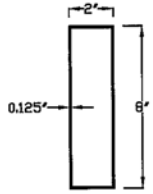
DETAIL B
EXTRUDED 6063T5
ALUMINUM LOUVER



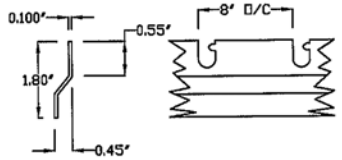
DETAIL C
EQUINOX POST
t=0.125" 6061-T6 ALUM. ALLOY
OR
t=0.188" ASTM A500 GRADE B STEEL



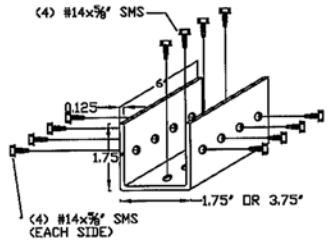
DETAIL D
2"x8" EQUINOX HEADER AND
RETURN BEAM
(6061-T6 ALUM. ALLOY)



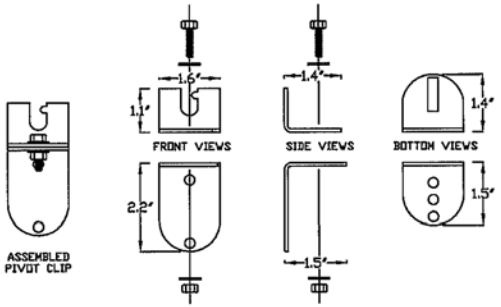
DETAIL E
EQUINOX LOUVER
MOUNTING RAIL
0.100" 6061T6 ALUM



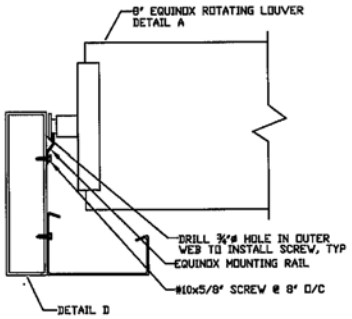
DETAIL F
6063T6 ALUM. SLEEVE
CLIP DETAILS



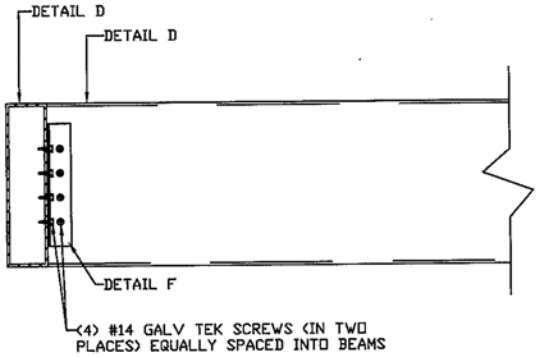
DETAIL G
EQUINOX PIVOT CLIP



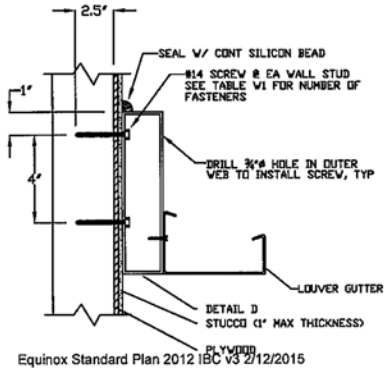
DETAIL H
EQUINOX LOUVER TO MOUNTING
RAIL TO HEADER CONNECTION



DETAIL I
EQUINOX BEAM TO EQUINOX BEAM CONNECTION

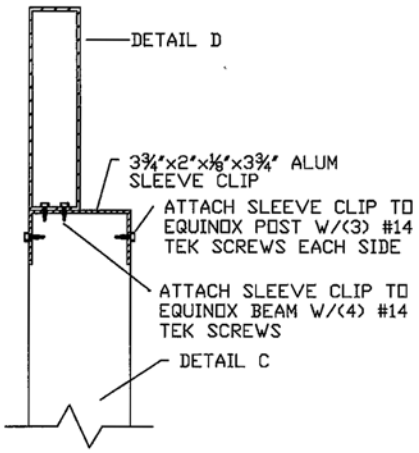


DETAIL J
EQUINOX BEAM TO STRUCTURE
CONNECTION

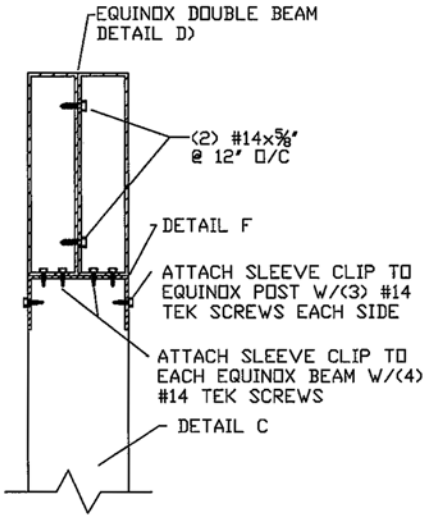


ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

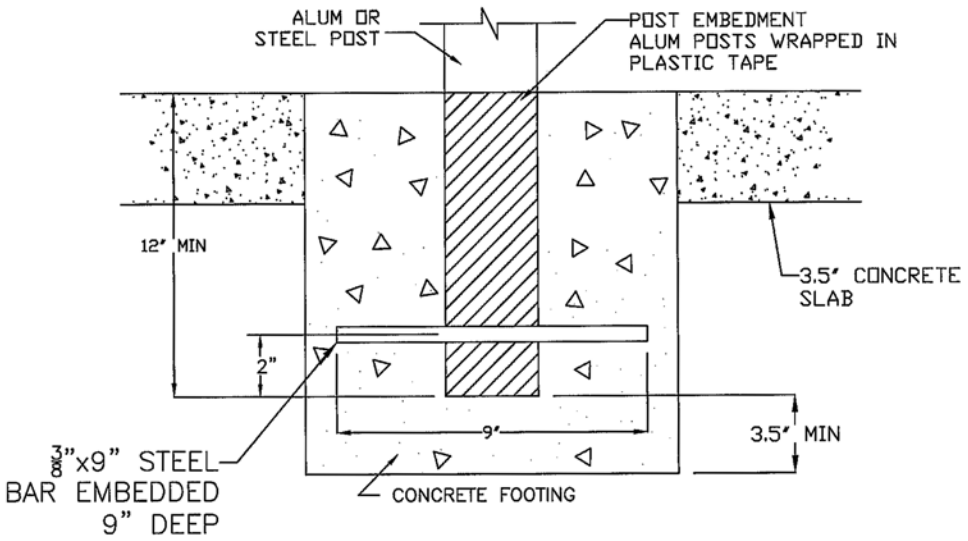
DETAIL K
EQUINOX HEADER TO POST CONNECTION



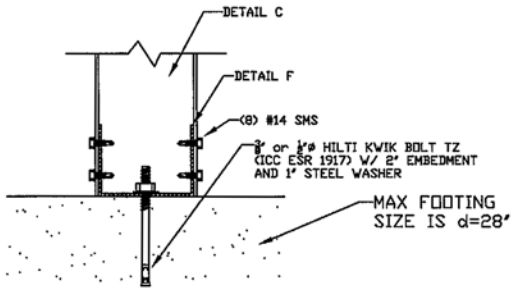
DETAIL L
EQUINOX HEADER TO POST CONNECTION



DETAIL M
POST TO FOOTER CONNECTION

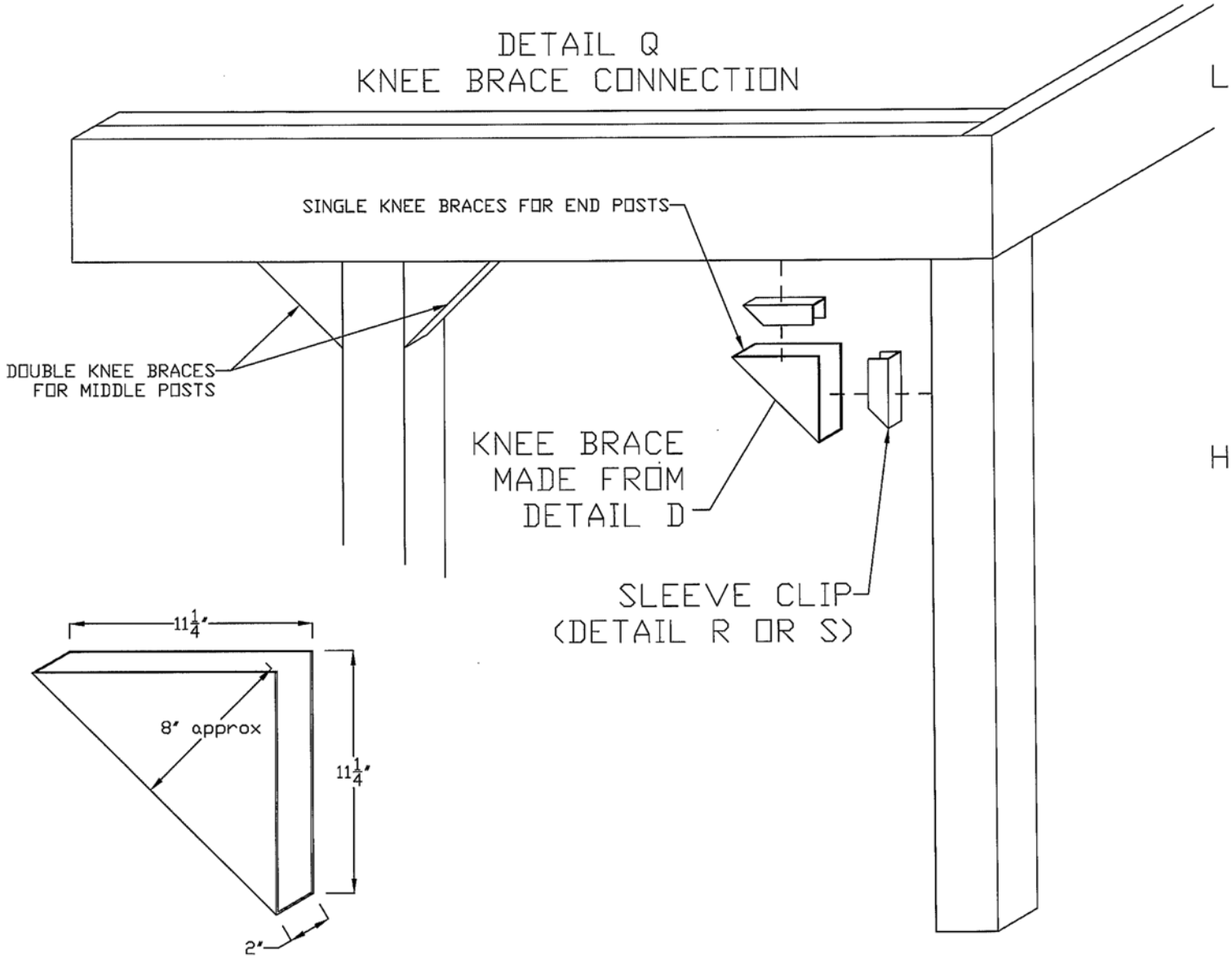


DETAIL N
POST TO SLAB/FOOTING CONNECTION

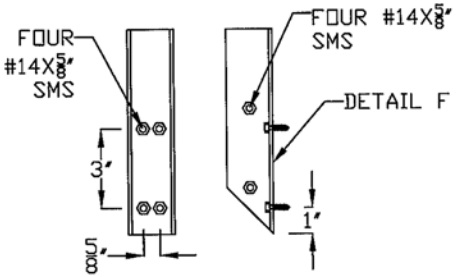


ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

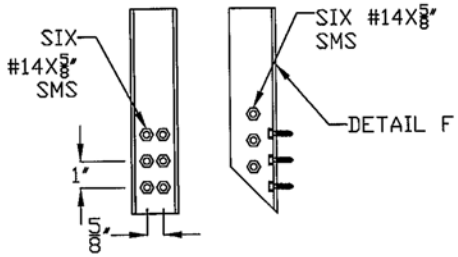
DETAIL Q
KNEE BRACE CONNECTION



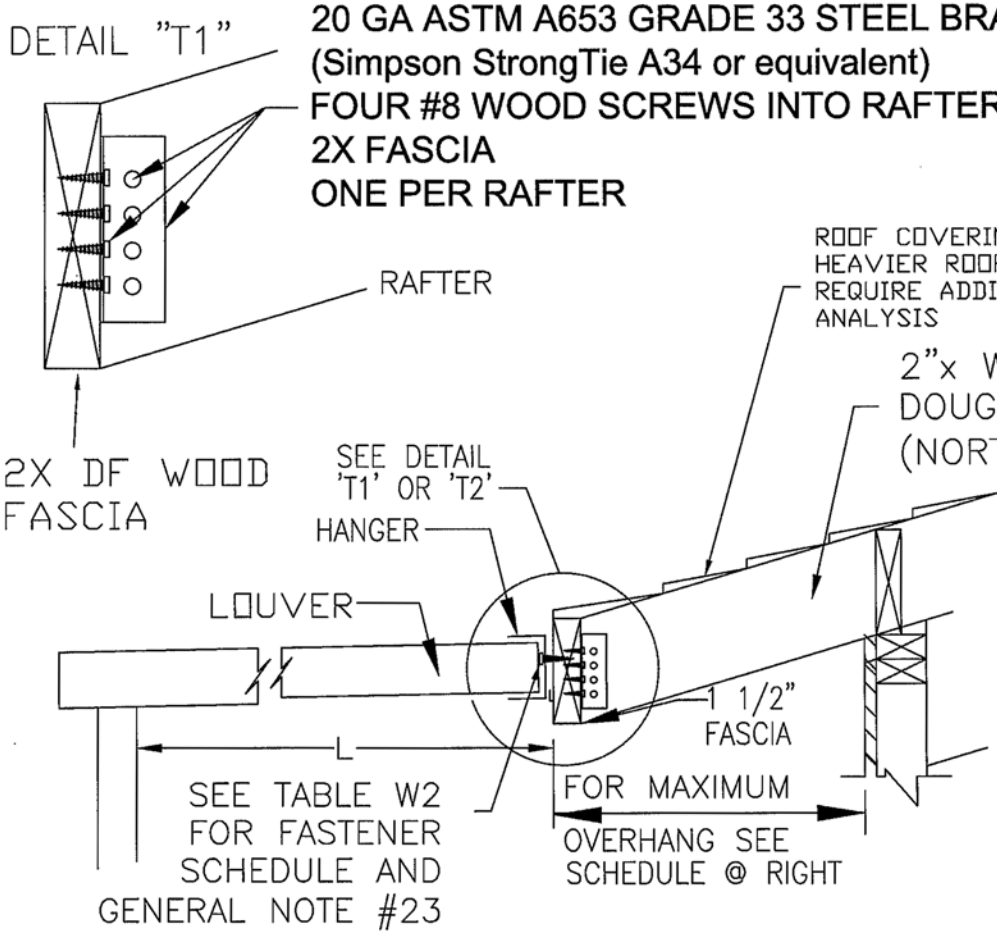
DETAIL R
LOW MOMENT CONNECTION
1064 FOOT-POUNDS



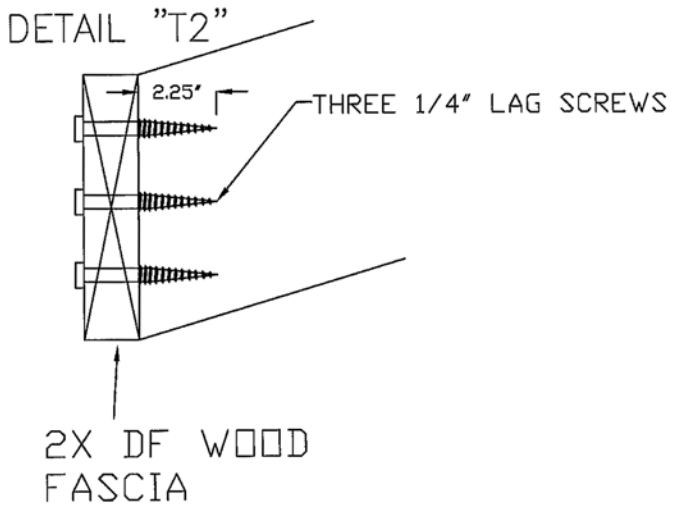
DETAIL S
HIGH MOMENT CONNECTION
1749 FOOT-POUNDS



ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

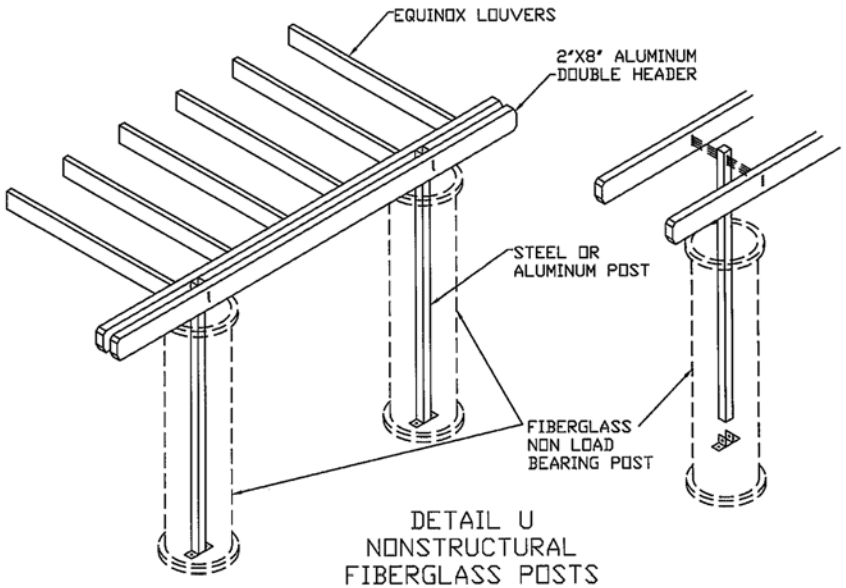


DETAIL T
EAVE ATTACHMENT USE
WITH STRUCTURE TYPE "A"
AND "B" ONLY

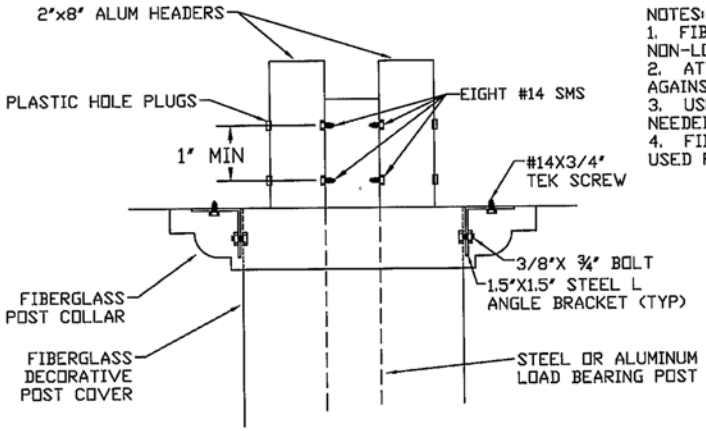


Live Load	RAFTER	MAX DISTANCE TO FIRST ROW OF POSTS "L"				
Ground Snow Load	SIZE		EAVE OVERHANG			
	(24" O/C)	6"	9"	12"	18"	24"
10 psf	2x4	14'-0'	14'-0'	14'-0'	11'-7"	6'-6"
130 MPH Exp C	2x6	14'-0'	14'-0'	14'-0'	14'-0'	14'-0'
140 MPH Exp B	2x8	14'-0'	14'-0'	14'-0'	14'-0'	14'-0'
20 psf	2x4	14'-0'	14'-0'	10'-2"	5'-9"	3'-3"
170 MPH Exp C	2x6	14'-0'	14'-0'	14'-0'	14'-0'	11'-8"
	2x8	14'-0'	14'-0'	14'-0'	14'-0'	14'-0'
25 psf	2x4	14'-0'	14'-0'	11'-2"	6'-3"	3'-6"
170 MPH Exp C	2x6	14'-0'	14'-0'	14'-0'	14'-0'	12'-8"
	2x8	14'-0'	14'-0'	14'-0'	14'-0'	14'-0'
30 psf	2x4	13'-9"	12'-10"	9'-1"	4'-10"	2'-6"
170 MPH Exp C	2x6	13'-9"	13'-9"	13'-9"	13'-9"	10'-2"
	2x8	13'-9"	13'-9"	13'-9"	13'-9"	13'-9"
36 psf	2x4	11'-7"	10'-8"	7'-6"	3'-10"	1'-8"
170 MPH Exp C	2x6	11'-7"	11'-7"	11'-7"	11'-7"	8'-2"
	2x8	11'-7"	11'-7"	11'-7"	11'-7"	11'-7"
43 psf	2x4	9'-7"	8'-9"	6'-0"	2'-10"	1'-0"
170 MPH Exp C	2x6	9'-7"	9'-7"	9'-7"	9'-7"	6'-4"
	2x8	9'-7"	9'-7"	9'-7"	9'-7"	9'-7"

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599

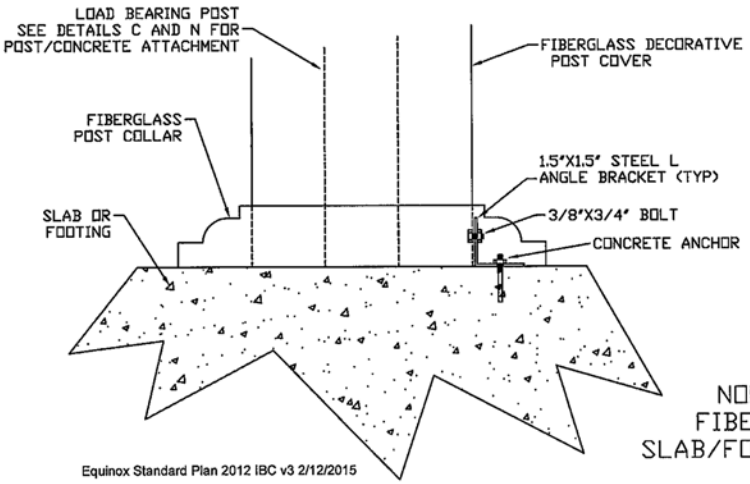


DETAIL U
NONSTRUCTURAL
FIBERGLASS POSTS

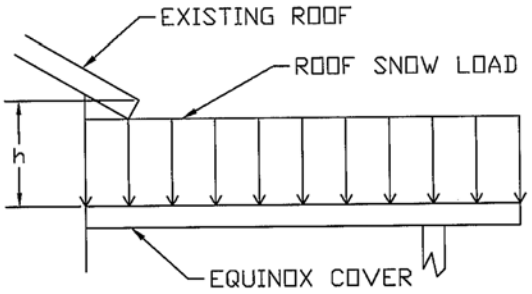


NOTES:
1. FIBERGLASS POSTS ARE NON-LOAD BEARING.
2. ATTACHMENT TO HOLD COVERING AGAINST MINOR LATERAL FORCES.
3. USE MULTIPLE BRACKETS AS NEEDED.
4. FIBERGLASS POSTS MAY BE USED FOR ANY STRUCTURE.

DETAIL V
NONSTRUCTURAL
FIBERGLASS POST TO
HEADER CONNECTION



DETAIL W
NONSTRUCTURAL
FIBERGLASS POSTS
SLAB/FOOTING CONNECTION



STRUCTURES COMPLYING WITH THIS DETAIL DO NOT REQUIRE ADDITIONAL DRIFTING SNOW CONSIDERATIONS

GROUND SNOW LOAD (PSF)	MAXIMUM "h" (IN)
10	9
15	14
20	17
25	18
30	20

DETAIL X
ALLOWABLE DRIFTING
SNOW CONDITIONS

ShadeAndShutter.com
Weather Protection and Sun Control Solutions
800.522.1599