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Natural Light PATIO COVERS

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T-Bar Roof Systems using Acrylite Panels

State of Maine

DESIGN MANUAL

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I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Maine.

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Maine Design Manual

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1. Introduction

This manual covers the design of the Natural Light Patio Covers™ T-bar roof system in the State of Maine.

1.1. Design Criteria

1. PREVAILING CODE: IBC 2009
2. ROOF LIVE LOAD: L_R = 20 PSF
3. SNOW LOAD:
   a. GROUND SNOW LOAD: P_G = 20 – 80 PSF
   b. IMPORTANCE FACTOR: I_S = 1.00
   c. THERMAL FACTOR: C_T = 1.10
   d. EXPOSURE FACTOR: C_E = 1.00
   e. SLOPE FACTOR: C_S = 1.00
4. WIND LOAD:
   a. BASIC WIND SPEED: 90 – 130 MPH
   b. IMPORTANCE FACTOR: I_W = 1.00
   c. EXPOSURE: C
5. SEISMIC LOAD:
   a. SEISMIC DESIGN CATEGORY: D
   b. IMPORTANCE FACTOR: I_E = 1.00

1.2. Design Notes

1. ALL STRUCTURAL ELEMENTS AND SYSTEMS MADE OF ALUMINUM SHALL CONFORM TO AA ALUMINUM DESIGN MANUAL (ADM) 2010 REQUIREMENTS.
2. THE DESIGNS CONTAINED IN THIS MANUAL HAVE BEEN MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ICC INTERNATIONAL BUILDING CODE (IBC) 2009. APPLICABLE STRUCTURAL LOADS HAVE BEEN TAKEN INTO ACCOUNT IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE CODES AND THE ASCE 7-05 (MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES).
3. THE BASE BUILDING STRUCTURE TO WHICH THE PATIO COVER IS ATTACHED IS ASSUMED TO BE SUFFICIENTLY STRONG TO RESIST THE REACTIONS PRODUCED BY THE SUPPLEMENTARY (PATIO COVER) STRUCTURE.
4. STRUCTURAL DESIGN LOADS ON THE STRUCTURE NEED TO BE DETERMINED IN ACCORDANCE WITH THE GOVERNING BUILDING CODES AND REGULATORY BODIES, LOCAL ORDINANCES, AND/OR PROJECT SPECIFICATIONS.
5. THE HEIGHT OF THE EXISTING WALL TO WHICH THE PATIO IS ATTACHED IS NOT EXPECTED TO EXTEND MORE THAN 1FT BEYOND THE ATTACHMENT POINT TO AVOID SNOW DRIFT ACCUMULATION. IN SUCH CASES THE DESIGN PROFESSIONAL OF RECORD HAS TO BE CONSULTED TO DETERMINE THE APPROPRIATE DESIGN.
6. ALL ALUMINUM ALLOYS SHALL CONFORM TO THE AA ALUMINUM STANDARDS AND DATA 2009.

7. MINIMUM MECHANICAL PROPERTIES OF ALUMINUM ALLOYS ARE PROVIDED IN THE ADM TABLE 3.3-1.
8. ALL DRAWING NOTES AND RECOMMENDATION SHOULD BE FOLLOWED WHILE USING THIS DESIGN MANUAL.
9. REFER TO THE INSTALLATION GUIDE FOR ERECTION PROCEDURES AND CARE AND MAINTENANCE.
10. MINIMUM RECOMMENDED ROOF PITCH IS 1/4" PER FOOT.
11. WHILE THE INFORMATION CONTAINED IN THIS DESIGN MANUAL CAN BE APPLIED TO MOST APPLICATIONS OF THE T-BAR ROOF SYSTEMS, WHEREVER NON-REGULAR GEOMETRIES OR LOADINGS ARE EXPECTED, THEY WOULD REQUIRE CASE SPECIFIC ENGINEERING AND DESIGN.

2. Components

(Drawings not to scale)

ACRYLITE 16/32
HIGH IMPACT NO DRIP DOUBLE-SKINNED
ACRYLIC SHEET

2.1. Acrylite Sheets

T-BAR CAP
6061-T6
DIE #24251

2.2. T-Bar Cap

HEAVY DUTY T-BAR
6061-T6

2.3. Heavy Duty T-Bar

HANGING RAIL
6061-T6
DIE #24091

2.4. Hanging Rail

COLONIAL GUTTER
6063-T5
DIE #30111

2.5. Colonial Gutter

SIDE FASCIA
6063-T5
DIE #24089

2.6. Side Fascia

F-SECTION
6063-T5
DIE #24252

2.7. F-Section

HEAVY DUTY I-BEAM
6061-T6
DIE #30278

2.8. Heavy Duty I-Beam

2.9. Top Shoe

2.10. Bottom Shoe

2.11. Square Post

3. Component Properties

MEMBER	DIE NO.	ALLOY	AREA (in^2)	S_x (in^3)	S_y (in^3)	I_x (in^4)	I_y (in^4)
Side Fascia	24089	6063-T5	0.609	0.473	0.0709	1.131	0.071
Heavy Duty T-Bar	-	6061-T6	1.424	0.607	0.428	1.201	0.672
Square Post	24250	6061-T6	0.832	0.713	0.713	0.980	0.980
T-Bar Cap	24251	6061-T6	0.392	0.166	0.110	0.168	0.130
F-Section	24252	6063-T5	0.146	0.008	0.031	0.004	0.029
Hanging Rail	24255	6061-T6	1.064	1.349	0.348	3.264	0.678
Top Shoe	24729	6061-T6	1.064	0.118	0.450	0.131	0.563
Bottom Shoe	24882	6061-T6	0.846	0.140	0.657	0.178	1.810
Colonial Gutter	30111	6063-T5	1.229	0.430	1.890	1.279	5.807
Heavy Duty I-Beam	30278	6061-T6	1.680	3.426	0.691	11.357	1.037

4. Design Details

(Drawings not to scale)

4.1. Design Notes

1. STRUCTURE FOR SUPPORT OF HANGING RAIL AND PATIO COVER TO BE RESPONSIBILITY OF OTHERS.
2. FOR FASTENING INTO SOLID CONCRETE USE 1/4" Φ – 2" EMBED. HILTI KWIK BOLT 3 EXPANSION ANCHORS @ 8" O/C.
3. DESIGN PROFESSIONAL TO BE CONSULTED FOR IRREGULAR LOAD OR SUPPORT CONDITIONS AND FOR ALTERNATIVES.
4. THE CONTRACTOR/OWNER MUST COMPLY WITH ALL APPLICABLE GOVERNING BUILDING CODE REGULATIONS AND BY-LAWS

4.2. Hanging Rail Connection Details

(T-Bar caps not shown for clarity)

4.2.1. Front View

4.2.2. Section View

4.2.3. Wall with Stucco or Similar Finish

4.2.4. Wall with Siding Finish

4.2.5. Fascia Overhang

4.2.6. Over Existing Roof with Stub Posts

4.3. Square Post & Heavy Duty I-Beam Connection Details

4.4. Beam Splice Details

4.5. Colonial Gutter and Acrylite Panel Connection Details

4.6. Heavy Duty T-Bar w/Cap And Acrylite Panel Details

4.7. Side Fascia Connection Details

4.8. Bottom Shoe Anchorage Details

4.8.1. Bottom Shoe Details

4.8.2. Bottom Shoe to Square Post Connection Detail

4.8.2.1. Wind Speeds up to 110 mph or less

4.8.2.2. Wind Speeds greater than 110 mph

4.8.3. Bottom Shoe to Wood Frame Anchorage Detail

4.8.3.1. Wind Speeds up to 110 mph or less

4.8.3.2. Wind Speeds greater than 110 mph

4.8.4. Bottom Shoe to Concrete Foundation Anchorage Detail

4.8.4.1. Wind Speeds up to 110 mph or less

4.8.4.2. Wind Speeds greater than 110 mph

5. Design Tables

5.1. Design Notes

1. THE DESIGNS CONTAINED IN THESE TABLES INCLUDE THE SELF-WEIGHT OF THE VARIOUS COMPONENTS.
2. ROOF SNOW LOAD WAS CALCULATED IN ACCORDANCE WITH THE REQUIREMENTS OF IBC 2009 AND THE PROCEDURES OUTLINED IN ASCE 7-05. THE FOLLOWING FACTORS WERE USED IN THE CALCULATION: $I_S = 1.00$, $C_E = 1.00$, $C_T = 1.10$, $C_S = 1.00$
3. THE HEIGHT OF THE WALL TO WHICH THE PATIO IS ATTACHED SHOULD NOT EXTEND MORE THAN 1FT BEYOND THE ATTACHMENT POINT. IN SITUATIONS WHERE THE EXISTING WALL IS MORE THAN 1 FT TALLER, SNOW DRIFT ACCUMULATION SHOULD BE ANTICIPATED AND THE DESIGN PROFESSIONAL HAS TO BE CONSULTED FOR SITE-SPECIFIC DESIGN.
4. THESE TABLES ARE TO BE USED ONLY IN THE CONFIGURATION DESCRIBED IN THE SCHEMATICS (SEE SCHEMATIC PRECEDING EACH TABLE) AND ARE VALID FOR RESIDENTIAL APPLICATIONS ONLY. FOR ANY OTHER USES OR CONFIGURATIONS, PLEASE CONSULT THE DESIGN PROFESSIONAL.

5.2. T-Bar Span Table

Table 1: T-Bar Span Table

T-Bar Cap Detail	Heavy Duty T-Bar And T-Bar Cap				Heavy Duty T-Bar And T-Bar Cap Screwed Together @ 12 in o.c.			
Section A	Spacing = 24 in o/c		Spacing = 48 in o/c		Spacing = 24 in o/c		Spacing = 48 in o/c	
Ground Snow Load (psf)	**Overhang (ft)**	**Maximum Span (ft)**	**Overhang (ft)**	**Maximum Span (ft)**	**Overhang (ft)**	**Maximum Span (ft)**	**Overhang (ft)**	**Maximum Span (ft)**
25	0	13.00	0	9.25	0	14.50	0	10.25
	1	13.25	1	9.25	1	14.50	1	10.25
	2	13.25	2	9.75	2	14.75	2	10.50
	3	13.75	3	10.00	3	15.00	3	10.75
30	0	12.75	0	9.00	0	14.00	0	10.00
	1	12.75	1	9.00	1	14.25	1	10.00
	2	13.00	2	9.50	2	14.25	2	10.25
	3	13.25	3	9.75	3	15.00	3	10.75
35	0	12.00	0	8.25	0	13.25	0	9.25
	1	12.00	1	8.50	1	13.25	1	9.25
	2	12.00	2	8.75	2	13.50	2	9.50
	3	12.50	3	9.25	3	14.00	3	10.00
40	0	11.25	0	7.75	0	12.25	0	8.75
	1	11.25	1	7.75	1	12.25	1	8.75
	2	11.50	2	8.25	2	12.50	2	9.00
	3	12.00	3	8.75	3	13.25	3	9.25
45	0	10.50	0	7.25	0	11.75	0	8.25
	1	10.50	1	7.25	1	11.75	1	8.25
	2	10.75	2	7.75	2	12.00	2	8.50
	3	11.25	3	8.25	3	12.50	3	9.00
50	0	10.00	0	7.00	0	11.00	0	7.75
	1	10.00	1	7.25	1	11.00	1	7.75
	2	10.25	2	7.25	2	11.25	2	8.00
	3	10.75	3	8.00	3	12.00	3	8.50

Ground Snow Load (psf)	Overhang (ft)	Maximum Span (ft)	Overhang (ft)	Maximum Span (ft)	Overhang (ft)	Maximum Span (ft)	Overhang (ft)	Maximum Span (ft)
55	0	9.50	0	6.75	0	10.75	0	7.50
	1	9.50	1	6.75	1	10.75	1	7.75
	2	9.75	2	7.25	2	10.75	2	7.75
	3	10.25	3	7.50	3	11.50	3	8.25
60	0	9.00	0	6.50	0	10.25	0	7.25
	1	9.00	1	6.50	1	10.25	1	7.25
	2	9.50	2	7.00	2	10.50	2	7.50
	3	9.75	3	7.25	3	11.00	3	7.75
65	0	8.50	0	6.25	0	9.75	0	6.75
	1	8.75	1	6.25	1	9.75	1	7.00
	2	9.00	2	6.75	2	10.00	2	7.25
	3	9.50	3	7.25	3	10.75	3	7.75
70	0	8.25	0	6.00	0	9.25	0	6.50
	1	8.50	1	6.00	1	9.50	1	6.75
	2	8.75	2	6.50	2	9.75	2	7.00
	3	9.25	3	7.00	3	10.25	3	7.50
75	0	8.00	0	5.75	0	9.25	0	6.50
	1	8.00	1	5.75	1	9.25	1	6.50
	2	8.50	2	6.25	2	9.25	2	6.75
	3	9.00	3	7.00	3	10.00	3	7.25
80	0	7.75	0	5.50	0	9.00	0	6.25
	1	7.75	1	5.75	1	9.00	1	6.50
	2	8.25	2	6.25	2	9.25	2	6.50
	3	8.75	3	-	3	9.50	3	7.00

5.3. Perimeter I-Beam Span Tables

PLAN VIEW

Table 2: Perimeter I-Beam Span Table

Ground Snow Load (psf)	Roof Projection (ft)	Overhang = 0 ft						Overhang = 1 ft						Overhang = 2 ft						Overhang = 3 ft					
		Post Height (ft)						Post Height (ft)						Post Height (ft)						Post Height (ft)					
		7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12
25	8.0	20.0	20.0	19.5	17.5	15.5	13.0	18.0	17.5	16.0	14.5	13.0	11.0	16.5	16.0	14.5	13.0	11.5	9.5	15.5	14.5	13.5	11.5	10.0	9.0
	9.0	19.0	18.5	17.0	16.0	14.0	12.0	17.5	17.0	15.0	14.0	12.0	10.5	16.0	15.5	14.0	12.0	10.5	9.0	14.5	14.0	13.0	11.5	10.0	8.0
	10.0	18.0	17.5	16.0	14.5	13.0	11.0	16.5	16.0	14.5	13.0	11.5	9.5	15.5	14.5	13.5	11.5	10.0	9.0	14.0	13.5	12.5	11.0	9.0	
	11.0	17.5	17.0	15.0	14.0	12.0	10.5	16.0	15.5	14.0	12.0	10.5	9.0	14.5	14.0	13.0	11.5	10.0	8.0	13.5	13.0	12.0	10.5	8.5	
	12.0	16.5	16.0	14.5	13.0	11.5	9.5	15.5	14.5	13.5	11.5	10.0	9.0	14.0	13.5	12.5	11.0	9.0		13.0	12.5	11.5	10.0	8.0	
	13.0	16.0	15.5	14.0	12.0	10.5	9.0	14.5	14.0	13.0	11.5	10.0	8.0	13.5	13.0	12.0	10.5	8.5		12.5	12.0	11.0	9.5		
	14.0	15.5	14.5	13.5	11.5	10.0	9.0	14.0	13.5	12.5	11.0	9.0		13.0	12.5	11.5	10.0	8.0		12.0	11.5	10.5	9.0		
	15.0	14.5	14.0	13.0	11.5	10.0	8.0	13.5	13.0	12.0	10.5	8.5		12.5	12.0	11.0	9.5			11.5	11.0	10.0	8.5		
30	8.0	20.0	19.5	18.0	16.0	14.5	13.0	17.5	17.5	15.5	14.5	13.0	11.0	16.0	15.5	14.5	12.5	11.0	9.5	15.0	14.5	13.0	11.5	10.0	8.5
	9.0	18.5	18.5	16.5	15.5	13.5	12.0	17.0	16.5	14.5	13.5	12.0	10.0	15.5	15.0	13.5	11.5	10.0	9.0	14.5	14.0	12.5	11.0	9.5	8.0
	10.0	17.5	17.5	15.5	14.5	13.0	11.0	16.0	15.5	14.5	12.5	11.0	9.5	15.0	14.5	13.0	11.5	10.0	8.5	14.0	13.0	12.0	10.5	9.0	
	11.0	17.0	16.5	14.5	13.5	12.0	10.0	15.5	15.0	13.5	11.5	10.0	9.0	14.5	14.0	12.5	11.0	9.5	8.0	13.5	12.5	11.5	10.0	8.5	
	12.0	16.0	15.5	14.5	12.5	11.0	9.5	15.0	14.5	13.0	11.5	10.0	8.5	14.0	13.0	12.0	10.5	9.0		13.0	12.0	11.0	9.5	8.0	
	13.0	15.5	15.0	13.5	11.5	10.0	9.0	14.5	14.0	12.5	11.0	9.5	8.0	13.5	12.5	11.5	10.0	8.5		12.5	11.5	10.5	9.0		
	14.0	15.0	14.5	13.0	11.5	10.0	8.5	14.0	13.0	12.0	10.5	9.0		13.0	12.0	11.0	9.5	8.0		12.0	11.0	10.0	8.5		
	15.0	14.5	14.0	12.5	11.0	9.5	8.0	13.5	12.5	11.5	10.0	8.5		12.5	11.5	10.5	9.0			11.5	10.5	9.5	8.0		
35	8.0	18.5	18.0	16.5	15.0	13.0	11.5	16.5	16.0	14.5	13.0	11.5	9.5	15.0	14.5	13.0	11.5	10.0	8.5	14.0	13.0	12.0	10.5	9.0	
	9.0	17.5	17.0	15.5	14.0	12.5	11.0	15.5	15.0	14.0	12.0	10.5	9.0	14.5	14.0	12.5	11.0	9.5	8.0	13.5	12.5	11.5	10.0	8.0	
	10.0	16.5	16.0	14.5	13.0	11.5	9.5	15.0	14.5	13.0	11.5	10.0	8.5	14.0	13.0	12.0	10.5	9.0		13.0	12.0	11.0	9.0		
	11.0	15.5	15.0	14.0	12.0	10.5	9.0	14.5	14.0	12.5	11.0	9.5	8.0	13.5	12.5	11.5	10.0	8.0		12.5	11.5	10.5	8.5		
	12.0	15.0	14.5	13.0	11.5	10.0	8.5	14.0	13.0	12.0	10.5	9.0		13.0	12.0	11.0	9.0			12.0	11.0	10.0	8.0		
	13.0	14.5	14.0	12.5	11.0	9.5	8.0	13.5	12.5	11.5	10.0	8.0		12.5	11.5	10.5	8.5			11.5	10.5	9.5			
	14.0	14.0	13.0	12.0	10.5	9.0		13.0	12.0	11.0	9.0			12.0	11.0	10.0	8.0			11.0	10.0	9.0			
	15.0	13.5	12.5	11.5	10.0	8.0		12.5	11.5	10.5	8.5			11.5	10.5	9.5				10.5	9.5	8.5			

Ground Snow Load (psf)	Roof Projection (ft)	Overhang = 0 ft						Overhang = 1 ft						Overhang = 2 ft						Overhang = 3 ft					
		Post Height (ft)						Post Height (ft)						Post Height (ft)						Post Height (ft)					
		7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12
40	8.0	17.5	17.0	15.0	14.0	12.5	10.5	15.5	15.0	13.5	11.5	10.0	9.0	14.0	13.5	12.0	10.5	9.0		13.0	12.0	11.0	9.5		
	9.0	16.5	16.0	14.5	12.5	11.0	9.5	14.5	14.0	13.0	11.5	10.0	8.0	13.5	13.0	11.5	10.0	8.5		12.5	11.5	10.5	9.0		
	10.0	15.5	15.0	13.5	11.5	10.0	9.0	14.0	13.5	12.0	10.5	9.0		13.0	12.0	11.0	9.5			12.0	11.0	10.0	8.5		
	11.0	14.5	14.0	13.0	11.5	10.0	8.0	13.5	13.0	11.5	10.0	8.5		12.5	11.5	10.5	9.0			11.5	10.5	9.5	8.0		
	12.0	14.0	13.5	12.0	10.5	9.0		13.0	12.0	11.0	9.5			12.0	11.0	10.0	8.5			11.0	10.0	9.0			
	13.0	13.5	13.0	11.5	10.0	8.5		12.5	11.5	10.5	9.0			11.5	10.5	9.5	8.0			10.5	9.5	8.5			
	14.0	13.0	12.0	11.0	9.5			12.0	11.0	10.0	8.5			11.0	10.0	9.0				10.0	9.0	8.0			
	15.0	12.5	11.5	10.5	9.0			11.5	10.5	9.5	8.0			10.5	9.5	8.5				9.5	8.5				
45	8.0	16.5	16.0	14.5	13.0	11.0	9.5	14.5	14.0	12.5	11.0	9.5	8.0	13.0	12.5	11.0	9.5	8.0		12.0	11.5	10.0	8.5		
	9.0	15.5	15.0	13.5	11.5	10.0	9.0	14.0	13.0	12.0	10.5	9.0		12.5	12.0	10.5	9.0			11.5	11.0	9.5	8.0		
	10.0	14.5	14.0	12.5	11.0	9.5	8.0	13.0	12.5	11.0	9.5	8.0		12.0	11.5	10.0	8.5			11.0	10.5	9.0			
	11.0	14.0	13.0	12.0	10.5	9.0		12.5	12.0	10.5	9.0			11.5	11.0	9.5	8.0			10.5	10.0	8.5			
	12.0	13.0	12.5	11.0	9.5	8.0		12.0	11.5	10.0	8.5			11.0	10.5	9.0				10.0	9.5	8.0			
	13.0	12.5	12.0	10.5	9.0			11.5	11.0	9.5	8.0			10.5	10.0	8.5				9.5	9.0				
	14.0	12.0	11.5	10.0	8.5			11.0	10.5	9.0				10.0	9.5	8.0				9.0	8.5				
	15.0	11.5	11.0	9.5	8.0			10.5	10.0	8.5				9.5	9.0					8.5	8.0				
50	8.0	15.5	15.0	14.0	12.0	10.5	9.0	14.0	13.0	12.0	10.5	9.0		12.5	12.0	10.5	9.0			11.5	10.5	9.0			
	9.0	14.5	14.0	12.5	11.5	9.5	8.0	13.0	12.5	11.0	9.5	8.0		12.0	11.0	10.0	8.5			11.0	10.0	8.5			
	10.0	14.0	13.0	12.0	10.5	9.0		12.5	12.0	10.5	9.0			11.5	10.5	9.0				10.5	9.5	8.0			
	11.0	13.0	12.5	11.0	9.5	8.0		12.0	11.0	10.0	8.5			11.0	10.0	8.5				10.0	9.0				
	12.0	12.5	12.0	10.5	9.0			11.5	10.5	9.0				10.5	9.5	8.0				9.5	8.5				
	13.0	12.0	11.0	10.0	8.5			11.0	10.0	8.5				10.0	9.0					9.0	8.0				
	14.0	11.5	10.5	9.0				10.5	9.5	8.0				9.5	8.5					8.5					
	15.0	11.0	10.0	8.5				10.0	9.0					9.0	8.0					8.0					

Ground Snow Load (psf)	Roof Projection (ft)	Overhang = 0 ft						Overhang = 1 ft						Overhang = 2 ft						Overhang = 3 ft					
		Post Height (ft)						Post Height (ft)						Post Height (ft)						Post Height (ft)					
		7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12
55	8.0	15.0	14.5	13.0	11.5	10.0	8.5	13.0	12.5	11.0	9.5	8.0		12.0	11.0	9.5	8.0			11.0	10.0	8.5			
	9.0	14.0	13.5	12.0	10.5	9.0		12.5	12.0	10.5	9.0			11.5	10.5	9.0				10.5	9.5	8.0			
	10.0	13.0	12.5	11.0	9.5	8.0		12.0	11.0	9.5	8.0			11.0	10.0	8.5				10.0	9.0				
	11.0	12.5	12.0	10.5	9.0			11.5	10.5	9.0				10.5	9.5	8.0				9.5	8.5				
	12.0	12.0	11.0	9.5	8.0			11.0	10.0	8.5				10.0	9.0					9.0	8.0				
	13.0	11.5	10.5	9.0				10.5	9.5	8.0				9.5	8.5					8.5					
	14.0	11.0	10.0	8.5				10.0	9.0					9.0	8.0					8.0					
	15.0	10.5	9.5	8.0				9.5	8.5					8.5											
60	8.0	14.0	13.5	12.5	11.0	9.0		12.5	12.0	10.5	9.0			11.5	10.5	9.0				10.5	9.5	8.0			
	9.0	13.5	12.5	11.5	10.0	8.0		12.0	11.0	9.5	8.0			10.5	10.0	8.5				10.0	9.0				
	10.0	12.5	12.0	10.5	9.0			11.5	10.5	9.0				10.0	9.5	8.0				9.5	8.5				
	11.0	12.0	11.0	9.5	8.0			10.5	10.0	8.5				9.5	9.0					9.0	8.0				
	12.0	11.5	10.5	9.0				10.0	9.5	8.0				9.0	8.5					8.5					
	13.0	10.5	10.0	8.5				9.5	9.0					8.5	8.0					8.0					
	14.0	10.0	9.5	8.0				9.0	8.5					8.0											
	15.0	9.5	9.0					8.5	8.0																
65	8.0	13.5	13.0	11.5	10.0	8.5		12.0	11.5	10.0	8.5			11.0	10.0	8.5		11.0		10.0	9.0				
	9.0	13.0	12.0	10.5	9.0			11.5	10.5	9.0				10.5	9.5	8.0				9.5	8.5				
	10.0	12.0	11.5	10.0	8.5			11.0	10.0	8.5				10.0	9.0					9.0	8.0				
	11.0	11.5	10.5	9.0				10.5	9.5	8.0				9.5	8.5					8.5					
	12.0	11.0	10.0	8.5				10.0	9.0					9.0	8.0					8.0					
	13.0	10.5	9.5	8.0				9.5	8.5					8.5											
	14.0	10.0	9.0					9.0	8.0					8.0											
	15.0	9.5	8.5					8.5																	

Ground Snow Load (psf)	Roof Projection (ft)	Overhang = 0 ft						Overhang = 1 ft						Overhang = 2 ft						Overhang = 3 ft					
		Post Height (ft)						Post Height (ft)						Post Height (ft)						Post Height (ft)					
		7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12
70	8.0	13.0	12.5	11.0	9.5	8.0		11.5	11.0	9.5	8.0			10.5	9.5	8.0				9.5	8.5				
	9.0	12.0	11.5	10.0	8.5			11.0	10.0	8.5				10.0	9.0					9.0	8.0				
	10.0	11.5	11.0	9.5	8.0			10.5	9.5	8.0				9.5	8.5					8.5					
	11.0	11.0	10.0	8.5				10.0	9.0					9.0	8.0					8.0					
	12.0	10.5	9.5	8.0				9.5	8.5					8.5											
	13.0	10.0	9.0					9.0	8.0					8.0											
	14.0	9.5	8.5					8.5																	
	15.0	9.0	8.0					8.0																	
75	8.0	12.5	12.0	10.5	9.0			11.0	10.5	9.0				10.0	9.0					9.0	8.0				
	9.0	12.0	11.0	9.5	8.0			10.5	9.5	8.0				9.5	8.5					8.5					
	10.0	11.0	10.5	9.0				10.0	9.0					9.0	8.0					8.0					
	11.0	10.5	9.5	8.0				9.5	8.5					8.5											
	12.0	10.0	9.0					9.0	8.0					8.0											
	13.0	9.5	8.5					8.5																	
	14.0	9.0	8.0					8.0																	
	15.0	8.5																							
80	8.0	12.0	11.5	10.0	8.5			10.5	10.0	8.5				9.5	8.5					8.5					
	9.0	11.5	10.5	9.0				10.0	9.0	8.0				9.0	8.0					8.0					
	10.0	10.5	10.0	8.5				9.5	8.5					8.5											
	11.0	10.0	9.0	8.0				9.0	8.0					8.0											
	12.0	9.5	8.5					8.5																	
	13.0	9.0	8.0					8.0																	
	14.0	8.5																							
	15.0	8.0																							

5.4. Intermediate I-Beam Span Tables

Table 3: Intermediate I-Beam Span Table

Ground Snow Load (psf)	Roof Projection (ft)	Post Height (ft)					
		7	8	9	10	11	12
25	10.0	18.0	17.5	17.0	15.0	13.5	11.0
	12.0	16.5	16.0	15.5	14.0	12.0	9.5
	14.0	15.5	14.5	14.0	12.5	10.5	9.0
	16.0	14.0	13.5	13.0	11.5	9.5	
	18.0	13.5	12.5	12.0	10.5	8.5	
	20.0	12.5	12.0	11.0	9.5	8.0	
	22.0	12.0	11.0	10.0	8.5		
	24.0	11.5	10.5	9.5	8.0		

Ground Snow Load (psf)	Roof Projection (ft)	Post Height (ft)					
		7	8	9	10	11	12
30	10.0	17.5	17.5	16.5	15.0	13.5	11.0
	12.0	16.0	15.5	15.0	13.5	11.5	9.5
	14.0	15.0	14.5	13.5	12.0	10.0	8.5
	16.0	14.0	13.0	12.5	11.0	9.5	
	18.0	13.0	12.5	11.5	10.0	8.5	
	20.0	12.0	11.5	10.5	9.0		
	22.0	11.5	11.0	10.0	8.5		
	24.0	11.0	10.0	9.5			
35	10.0	16.5	16.0	15.5	14.0	12.0	9.5
	12.0	15.0	14.5	13.5	12.0	10.0	8.5
	14.0	14.0	13.0	12.5	11.0	9.5	
	16.0	13.0	12.0	11.5	9.5	8.0	
	18.0	12.0	11.0	10.5	9.0		
	20.0	11.5	10.5	9.5	8.0		
	22.0	10.5	10.0	9.0			
	24.0	10.0	9.0	8.5			
40	10.0	15.5	15.0	14.0	12.5	10.5	9.0
	12.0	14.0	13.5	12.5	11.0	9.5	
	14.0	13.0	12.0	11.5	10.0	8.0	
	16.0	12.0	11.0	10.5	9.0		
	18.0	11.0	10.5	9.5	8.0		
	20.0	10.5	9.5	8.5			
	22.0	10.0	9.0	8.0			
	24.0	9.5	8.5				
45	10.0	14.5	14.0	13.0	11.5	10.0	8.0
	12.0	13.0	12.5	11.5	10.0	8.5	
	14.0	12.0	11.5	10.5	9.0		
	16.0	11.0	10.5	9.5	8.0		
	18.0	10.5	9.5	8.5			
	20.0	9.5	9.0	8.0			
	22.0	9.0	8.5				
	24.0	8.5	8.0				
50	10.0	14.0	13.0	12.5	11.0	9.5	
	12.0	12.5	12.0	11.0	9.5	8.0	
	14.0	11.5	10.5	9.5	8.0		
	16.0	10.5	9.5	9.0			
	18.0	10.0	9.0	8.0			
	20.0	9.0	8.5				
	22.0	8.5					
	24.0	8.0					

Ground Snow Load (psf)	Roof Projection (ft)	Post Height (ft)					
		7	8	9	10	11	12
55	10.0	13.0	12.5	11.5	10.0	8.5	
	12.0	12.0	11.0	10.0	8.5		
	14.0	11.0	10.0	9.0			
	16.0	10.0	9.0	8.0			
	18.0	9.0	8.5				
	20.0	8.5					
	22.0	8.0					
	24.0						
60	10.0	12.5	12.0	11.0	9.5	8.0	
	12.0	11.5	10.5	9.5	8.0		
	14.0	10.5	9.5	8.5			
	16.0	9.5	8.5				
	18.0	8.5	8.0				
	20.0	8.0					
	22.0						
	24.0						
65	10.0	12.0	11.5	10.5	9.0		
	12.0	11.0	10.0	9.0			
	14.0	10.0	9.0	8.0			
	16.0	9.0	8.0				
	18.0	8.5					
	20.0						
	22.0						
	24.0						
70	10.0	11.5	11.0	10.0	8.5		
	12.0	10.5	9.5	8.5			
	14.0	9.5	8.5				
	16.0	8.5					
	18.0	8.0					
	20.0						
	22.0						
	24.0						
75	10.0	11.0	10.5	9.5	8.0		
	12.0	10.0	9.0	8.0			
	14.0	9.0	8.0				
	16.0	8.0					
	18.0						
	20.0						
	22.0						
	24.0						

Ground Snow Load (psf)	Roof Projection (ft)	Post Height (ft)					
		7	8	9	10	11	12
80	10.0	10.5	10.0	9.0			
	12.0	9.5	8.5				
	14.0	8.5					
	16.0	8.0					
	18.0						
	20.0						
	22.0						
	24.0						