



AXIS CONCEPTS INC. ENGINEERING DATA SHEET

Apollo Opening Roof System Design Criteria

- 2016 International Building Code
- 2015 Aluminum Design Manual
- ASCE 7-10

Design Requirments

The Apollo Opening Roof System is an extrusion of 6063 -T6 aluminum
 This product has been engineered to be installed with 2x8x.125 or 2x10x.125 rectangular aluminum tube 6063 -T6
 Maximum recommended louvers per motor: 27 (18ft.). Multiple motors may be uses on runs longer than 28ft.
 (see specifications for details)
 Stainless Steel or E-Zinc Coated Fastners conforming to ASTM F1941 as per Specifications and Details

Design Loads

- Roof Live Loads: 10 & 20psf
- Wind Loads: 90, 100 & 110mph with exposures B & C
- Snow Loads as Snow Load Table:
- Seismic Loads: Seismic Design Category D, Site Classificatin D
- Miami Dade County Wind Loading:
 ASCE 180 mph 20 LB. LL Louver Max Span = 8.5 feet *
 *Assumes HD Pivot Pin Inserts

Product Dead Loads Specifications

- Apollo Opening Roof System: 2.5 LB. psf
- Apollo Extruded Frame:
 - 2 x 8 x .125 Beams= 3 LB. plf.
 - 2 x 10 x .125 Beams= 3.6 LB. plf.
 - 4 x 4 x .125 Post= 2.4 LB. plf.
 - 6 x 6 x .188 Post = 5.25 LB. plf.
- Complete Apollo System Including Frame Beams (post not included):
 - 2 x 8 x .125 Beams= 3.8 LB. psf.
 - 2 x 10 x .125 Beams= 3.95 LB. plf.

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**APOLLO 8" LOUVER SNOW LOAD SPAN CHART 20-60lb
STANDARD PIVOT PINS.**

20 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	10.00	10.00	10.00	B
	10.00	9.75	9.50	C
20	10.00	10.00	10.00	B
	10.00	9.75	9.50	C
30 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	9.25	9.00	8.75	B
	9.00	8.50	8.38	C
20	9.25	9.00	8.75	B
	9.00	8.50	8.38	C
40 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	8.38	8.15	8.00	B
	8.15	7.75	7.60	C
20	8.38	8.15	8.00	B
	8.15	7.75	7.60	C
60 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	6.75	6.50	6.50	B
	6.50	6.25	6.25	C
20	6.75	6.50	6.50	B
	6.50	6.25	6.25	C

**APOLLO 8" LOUVER SNOW LOAD SPAN CHART 20-60lb
HD PIVOT PINS W/ ALUMINUM INSERTS.**

20 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	11.50	11.50	11.50	B
	11.50	11.50	11.50	C
20	11.50	11.50	11.50	B
	11.50	11.50	11.50	C
30 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	11.50	11.50	11.50	B
	11.50	11.50	11.50	C
20	11.50	11.50	11.50	B
	11.50	11.50	11.50	C
40 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	11.25	11.25	11.25	B
	11.25	11.25	11.25	C
20	11.25	11.25	11.25	B
	11.25	11.25	11.25	C
60 LB. SNOW LOAD SPAN CHART				
Roof Live Load (psf)	Wind Loads			Wind Exposure
	90 mph	100 mph	110 mph	
	MAX LOUVER SPAN			
10	10.25	10.25	10.25	B
	10.25	10.25	10.25	C
20	10.25	10.25	10.25	B
	10.25	10.25	10.25	C

APOLLO OPENING ROOF EXTRUDED FRAME

2x8 & 2x10 .125" FASCIA BEAM MAX POST SPACING/ SPAN CHARTS

USE TO CALCULATE SPAN BETWEEN POST WHEN USING THE FASCIA BEAM AS THE SUPPORTING STRUCTURAL BEAM AS FOLLOWS:

- 1) LOCATE PROJECTION OF RAFTER BEAM (RAFTER BEAM IS THE MEMBER SUPPORTING THE LOUVERS)
- 2) DETERMINE FASCIA BEAM SIZE BASED UPON DESIRED POST SPACING

NOTE: COLUMNS INDICATE OPTION FOR DOUBLE BEAMS FOR GREATER SPAN BETWEEN POSTS

10 LBS. LIVE LOAD / 10 LBS. GROUND LOADS					
		2"x8"x.125" (ft) SINGLE	2"x10" x.125" (ft) SINGLE	2"x8"x.125" (ft) DOUBLE	2"x10"x.125" (ft) DOUBLE
MAX ALLOWABLE POST SPACING					
Projection (ft.)	6	16.50	20.00	20.00	24.00
	7	15.50	19.00	19.00	23.00
	8	15.00	18.00	18.00	22.50
	9	14.50	17.50	18.00	21.50
	10	15.00	17.00	17.50	21.00
	11	13.50	16.50	17.00	20.50
	12	13.00	16.00	16.50	20.00
	13	13.00	15.50	16.00	19.50
	14	12.50	15.50	15.50	19.00
	15	12.50	15.00	15.50	18.50
	16	12.00	14.50	15.00	18.00
	17	12.00	14.50	14.50	18.00
	18	11.50	14.00	14.50	17.50
	19	11.50	14.00	14.00	17.50
20	11.00	13.50	14.00	17.00	
10 LBS. LIVE LOAD / 20 LBS. SNOW LOADS					
		2"x8"x.125" (ft) SINGLE	2"x10" x.125" (ft) SINGLE	2"x8"x.125" (ft) DOUBLE	2"x10"x.125" (ft) DOUBLE
MAX ALLOWABLE POST SPACING					
Projection (ft.)	6	15.00	18.00	18.50	22.00
	7	14.00	17.00	17.50	21.00
	8	13.50	16.50	17.00	20.50
	9	13.00	16.00	16.50	19.50
	10	12.50	15.50	15.50	19.00
	11	12.50	15.00	15.50	18.50
	12	12.00	14.50	15.00	18.00
	13	11.50	14.00	14.50	17.50
	14	11.50	14.00	14.00	17.50
	15	11.00	13.50	14.00	17.00
	16	11.00	13.00	13.50	16.50
	17	10.50	13.00	13.50	16.00
	18	10.50	12.50	13.00	16.00
	19	10.00	12.50	13.00	15.50
20	10.00	12.50	12.50	15.50	

APOLLO OPENING ROOF EXTRUDED FRAME

2x8 & 2x10 .125" FASCIA BEAM MAX POST SPACING/ SPAN CHARTS

USE TO CALCULATE SPAN BETWEEN POST WHEN USING THE FASCIA BEAM AS THE SUPPORTING STRUCTURAL BEAM AS FOLLOWS:

- 1) LOCATE PROJECTION OF RAFTER BEAM (RAFTER BEAM IS THE MEMBER SUPPORTING THE LOUVERS)
- 2) DETERMINE FASCIA BEAM SIZE BASED UPON DESIRED POST SPACING

NOTE: COLUMNS INDICATE OPTION FOR DOUBLE BEAMS FOR GREATER SPAN BETWEEN POSTS

20 LBS. LIVE LOAD / 20 LBS. GROUND LOADS					
		2"x8"x.125" (ft) SINGLE	2"x10" x.125" (ft) SINGLE	2"x8"x.125" (ft) DOUBLE	2"x10"x.125" (ft) DOUBLE
		MAX ALLOWABLE POST SPACING			
Projection (ft.)	6	13.50	16.00	16.50	20.00
	7	12.50	15.50	16.00	19.00
	8	12.00	15.00	15.50	18.50
	9	11.50	14.50	15.00	17.50
	10	11.50	14.00	14.00	17.00
	11	11.50	13.50	14.00	16.50
	12	11.00	13.00	13.50	16.00
	13	10.50	12.50	13.00	16.00
	14	10.50	12.50	12.50	16.00
	15	10.00	12.00	37.00	15.50
	16	10.00	11.50	12.00	15.00
	17	9.50	11.50	12.00	14.50
	18	9.50	11.50	11.50	14.50
19	9.00	11.50	11.50	14.00	
20	9.00	11.50	11.50	14.00	
20 LBS. LIVE LOAD / 30 LBS. SNOW LOADS					
		2"x8"x.125" (ft) SINGLE	2"x10" x.125" (ft) SINGLE	2"x8"x.125" (ft) DOUBLE	2"x10"x.125" (ft) DOUBLE
		MAX ALLOWABLE POST SPACING			
Projection (ft.)	6	12.50	15.50	15.50	18.50
	7	11.50	14.50	15.00	18.00
	8	11.50	14.00	14.00	17.00
	9	11.00	13.00	13.50	16.50
	10	10.50	12.50	13.00	16.00
	11	10.50	12.50	12.50	15.50
	12	10.00	12.00	12.50	15.50
	13	9.50	11.50	12.00	15.00
	14	9.50	11.50	11.50	14.50
	15	9.00	11.50	11.50	14.50
	16	9.00	11.00	11.50	14.00
	17	9.00	11.00	11.50	13.50
	18	8.50	10.50	11.00	13.00
19	8.50	10.50	11.00	13.00	
20	8.50	10.50	10.50	12.50	

APOLLO OPENING ROOF EXTRUDED FRAME MAX RAFTER SPAN CHARTS

USE THE FOLLOWING CHART TO DETERMINE MAX SPAN FOR RAFTER SUPPORTING APOLLO LOUVERS

APOLLO 6063-T6 EXTRUDED RAFTER SPAN CHART							
10 LB. LL/ 10 LB. GROUND - SNOW LOAD				10 LB. LL/ 20 LB. GROUND - SNOW LOAD			
Tributary = 50% Louvers Length		MAX SPAN		Tributary = 50% Louvers Length		MAX SPAN	
		2"x8"x.125"	2"x10"x.125"			2"x8"x.125"	2"x10"x.125"
		Extruded	Extruded			Extruded	Extruded
Tributary Length (ft)	2.0	24.0	27.5	Tributary Length (ft)	2.0	24.0	27.5
	2.5	23.5	26.5		2.5	23.5	26.5
	3.0	23.0	26.0		3.0	23.0	26.0
	3.5	22.5	25.5		3.5	22.5	25.5
	4.0	22.0	25.0		4.0	21.5	25.0
	4.5	21.5	24.5		4.5	20.5	24.5
	5.0	21.0	24.0		5.0	19.5	23.5
	6.0	20.5	23.5		6.0	17.5	21.0
	7.0	19.5	22.5		7.0	16.5	20.5
	8.0	18.5	22.0		8.0	15.5	18.5
	9.0	17.5	21.0		9.0	14.5	17.5
	10.0	16.5	20.0		10.0	13.5	16.5
11.0	16.0	19.0					
12.0	15.0	18.5					
10 LB. LL/ 30 LB. GROUND - SNOW LOAD				20 LB. LL/ 10 LB. GROUND - SNOW LOAD			
Tributary = 50% Louvers Length		MAX SPAN		Tributary = 50% Louvers Length		MAX SPAN	
		2"x8"x.125"	2"x10"x.125"			2"x8"x.125"	2"x10"x.125"
		Extruded	Extruded			Extruded	Extruded
Tributary Length (ft)	2.0	24.0	27.5	Tributary Length (ft)	2.0	24.0	27.5
	2.5	23.5	26.5		2.5	23.5	26.5
	3.0	22.5	26.0		3.0	23.0	26.0
	3.5	21.0	25.0		3.5	22.5	25.5
	4.0	19.5	23.5		4.0	21.5	25.0
	4.5	18.5	22.0		4.5	20.5	24.5
	5.0	17.5	21.0		5.0	19.5	23.5
	6.0	16.0	19.5		6.0	17.5	21.0
	7.0	15.0	18.0		7.0	16.5	20.5
	8.0	14.0	16.5		8.0	15.5	18.5
	9.0	13.0	15.5		9.0	14.5	17.5
	10.0	12.5	15.0		10.0	13.5	16.5
20 LB. LL/ 20 LB. GROUND - SNOW LOAD				20 LB. LL/ 30 LB. GROUND - SNOW LOAD			
Tributary = 50% Louvers Length		MAX SPAN		Tributary = 50% Louvers Length		MAX SPAN	
		2"x8"x.125"	2"x10"x.125"			2"x8"x.125"	2"x10"x.125"
		Extruded	Extruded			Extruded	Extruded
Tributary Length (ft)	2.0	24.0	27.5	Tributary Length (ft)	2.0	24.0	27.5
	2.5	23.5	26.5		2.5	22.0	26.5
	3.0	22.0	26.0		3.0	20.0	24.0
	3.5	20.5	24.5		3.5	18.5	22.5
	4.0	19.0	23.0		4.0	17.5	21.0
	4.5	18.0	21.5		4.5	16.5	20.0
	5.0	17.0	20.5		5.0	15.5	19.0
	6.0	15.5	19.0		6.0	14.5	17.0
	7.0	14.5	17.5		7.0	13.0	16.0
	8.0	13.5	16.5		8.0	12.5	15.0
	9.0	13.0	15.5		9.0	11.5	14.0
	10.0	12.0	14.5		10.0	11.0	13.5