BEST METAL BUILDINGS, LLC.

STRUCTURAL DESIGN
STANDARD PACKAGE
FULLY OPEN BUILDING

MAXIMUM 30'- 0" WIDE X 20'- 0" HEIGHT- BOX EAVE FRAME AND BOW FRAME

2 March 2021
Revision 1
M&A Project No. 19294S/21025S

Prepared for:

Best Metal Buildings, LLC
484 NW Turner Avenue
Lake City, Florida 32055

Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue
North Augusta, SC 29841

401 South Main Street, Suite 200
Mount Airy, NC 27030

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

WAYNE S. MOORE
LICENSE
No 57170
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 1	DWG. NO: SK-1	REV.: 1

DRAWING INDEX

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INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 20'-0" EAVE HEIGHT OPEN CARPORT STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2015 IBC, AND 2012 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
   C) GROUND SNOW LOAD = 10 PSF (UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED).
4. LOW ULTIMATE WIND SPEED (LW) = 105 TO 140 MPH (NOMINAL WIND SPEED = 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END COLUMN SPACING = 5.0 FEET.
5. HIGH ULTIMATE WIND SPEED (HW) = 141 TO 170 MPH (NOMINAL WIND SPEED = 109 TO 132 MPH): MAXIMUM RAFTER/POST AND END COLUMN SPACING = 4.0 FEET.
6. END WALL COLUMNS (POST) ARE EQUIVALENT IN SIZE AND SPACING TO SIDE WALL POSTS (UNLESS NOTED OTHERWISE).
7. RISK CATEGORY I.
8. WIND EXPOSURE CATEGORY B.
9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2"x2 1/2"-14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE). WHERE TS 2 1/2" x 2 1/2" - 14 GAUGE IS SPECIFIED, TS 2 1/4" x 2 1/4" - 12 GAUGE MAY BE USED AS AN OPTION.
10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR DISTANCE OR EDGE DISTANCE) = 10" O.C. (MAX.) FOR LOW WIND AND 6" O.C. (MAX.) FOR HIGH WIND.
11. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY. ROOFING WITH SLOPES LESS THAN 3:12 MUST BE LAP SEALANT.
12. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL AT OR WITHIN 6" OF EACH COLUMN.
13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS $\leq$ 145 MPH. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AND FOR WIND SPEEDS > 145 MPH AS NOTED. COORDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
14. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
    SOIL SITE CLASS = D
    RISK CATEGORY I
    R= 3.25 I_E= 1.0
    S_{DS}= 2.039 g V= C_SW
    S_{D1}= 1.258 g

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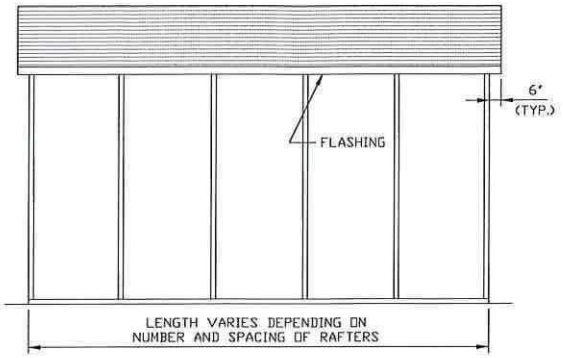
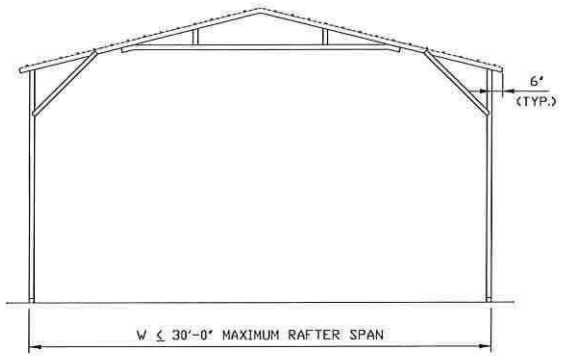
BOX EAVE FRAME RAFTER STRUCTURE

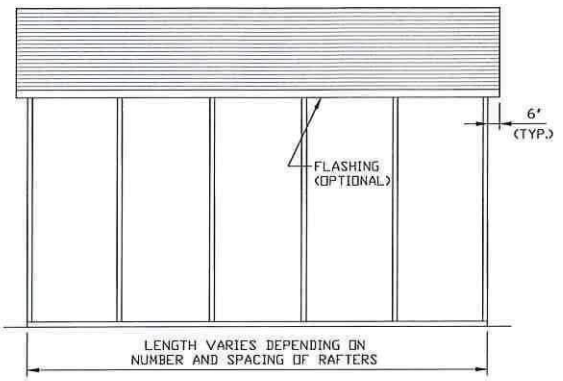


TYPICAL SIDE ELEVATION
SCALE: NTS



TYPICAL END ELEVATION
SCALE: NTS

BOW FRAME RAFTER STRUCTURE



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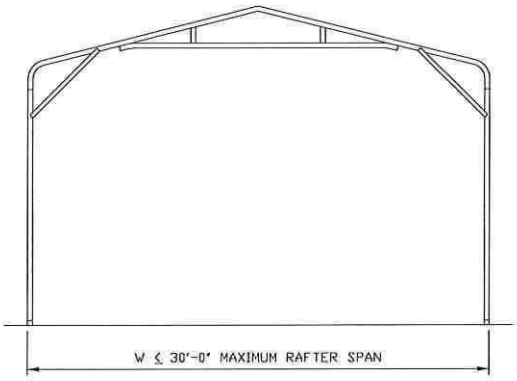

TYPICAL END ELEVATION
SCALE: NTS

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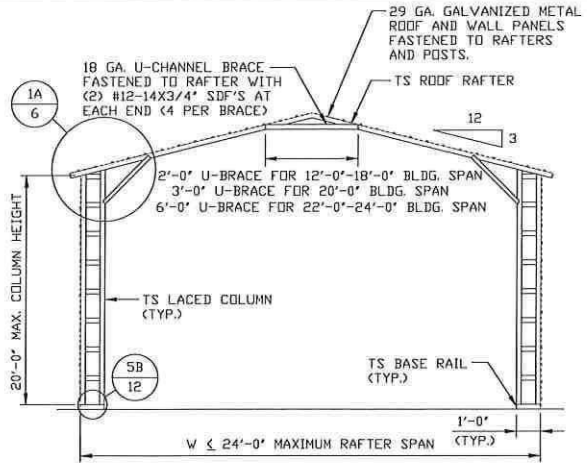
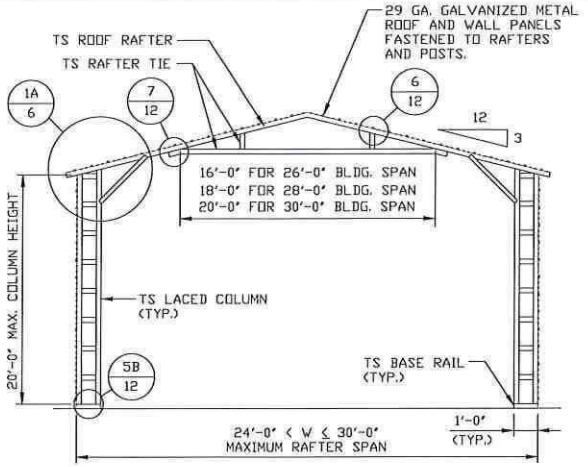


TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



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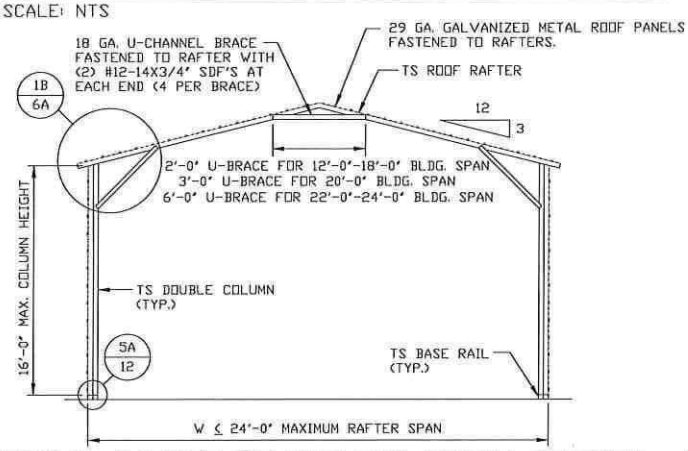

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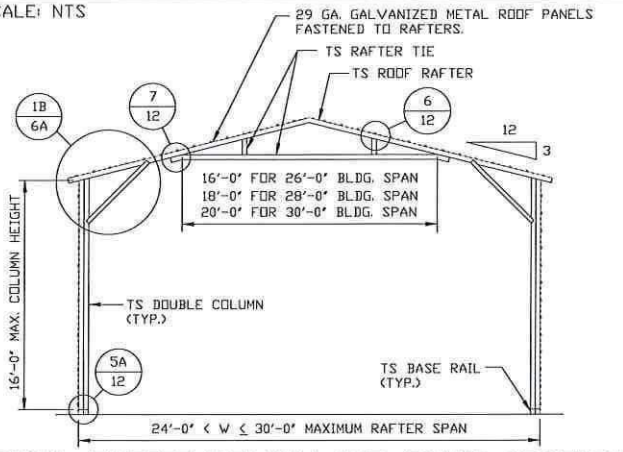

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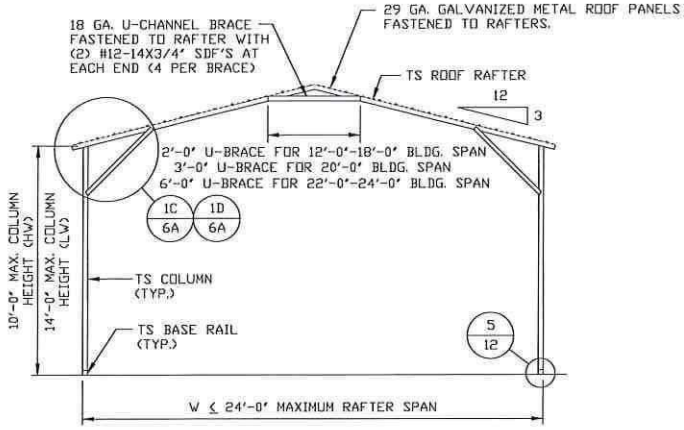

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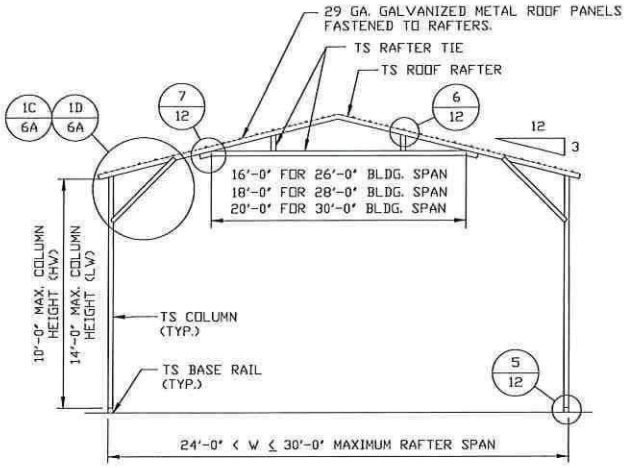

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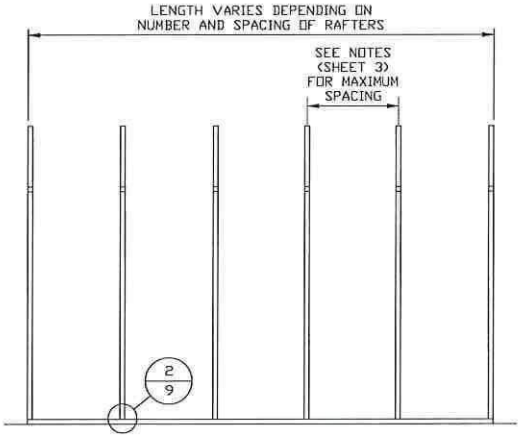

TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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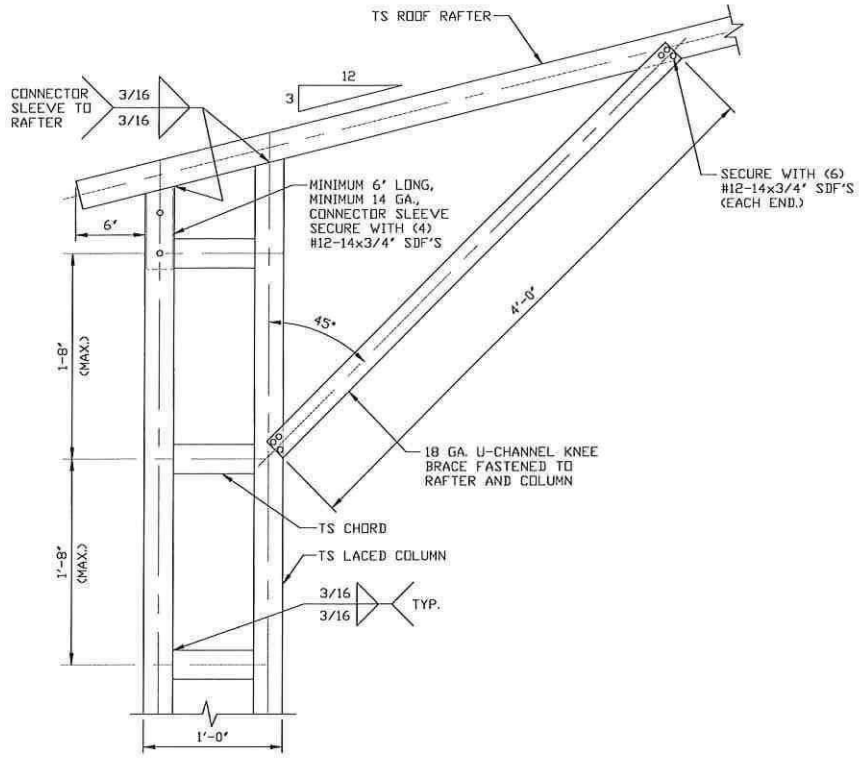
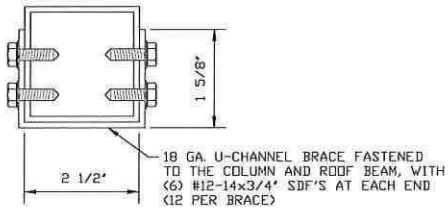


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

1A

SCALE: NTS



BRACE SECTION

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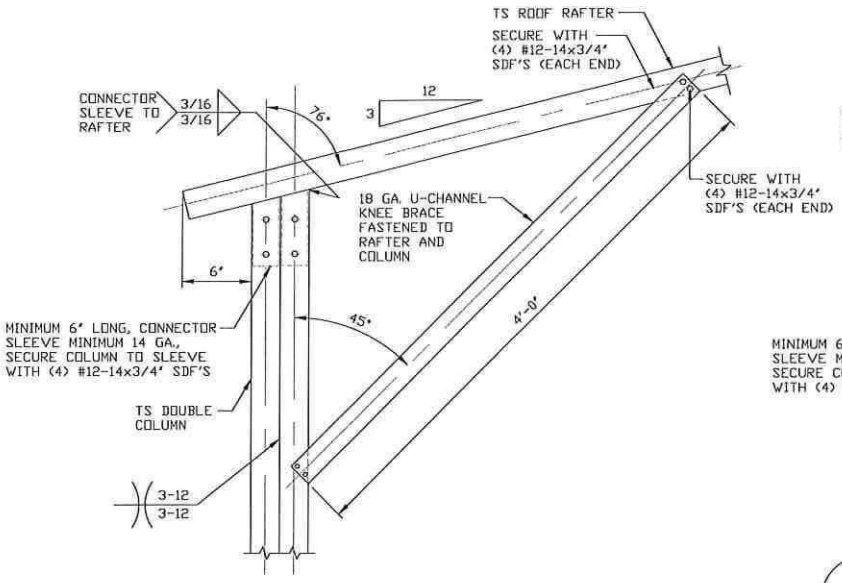
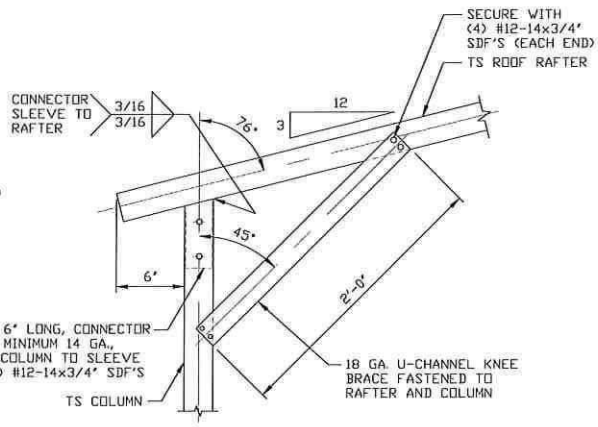


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 16'-0" (HW) AND HEIGHTS 14'-0" < TO ≤ 16'-0" (LW)

1B

SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0" (HW) AND HEIGHTS ≤ 12'-0" (LW)

1D

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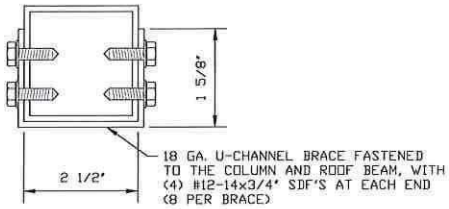

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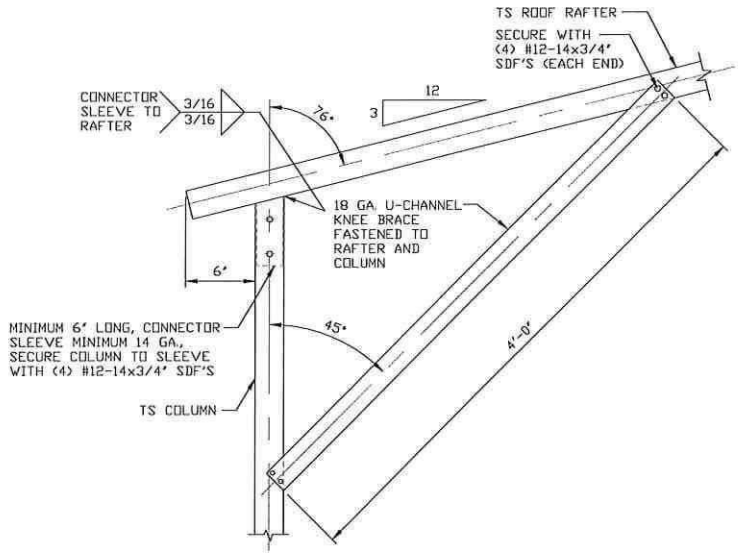

BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 10'-0" (HW) AND HEIGHTS 12'-0" < TO ≤ 14'-0" (LW)

1C

SCALE: NTS

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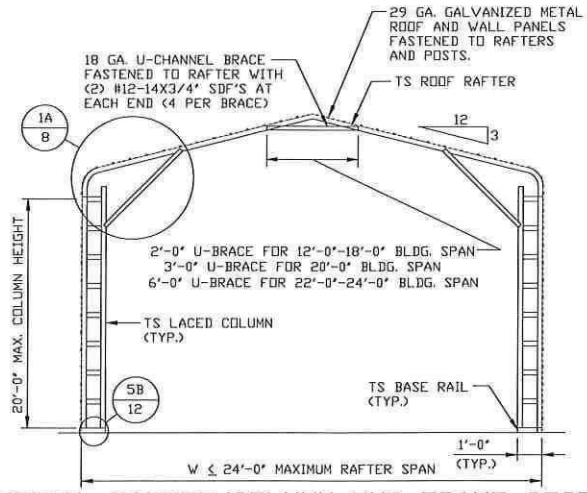

TYPICAL RAFTER/COLUMN END FRAME SECTION

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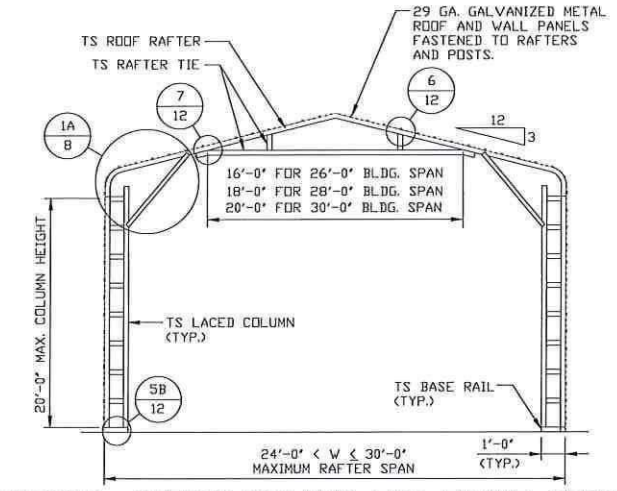

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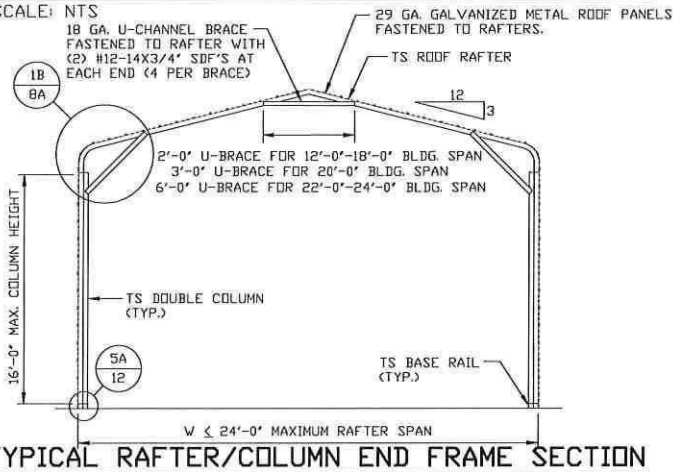

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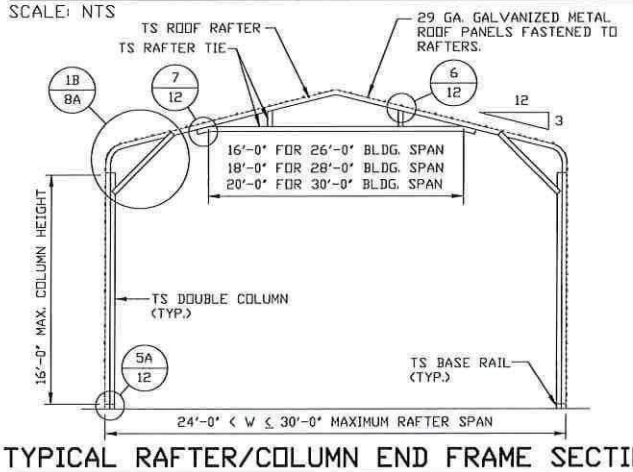

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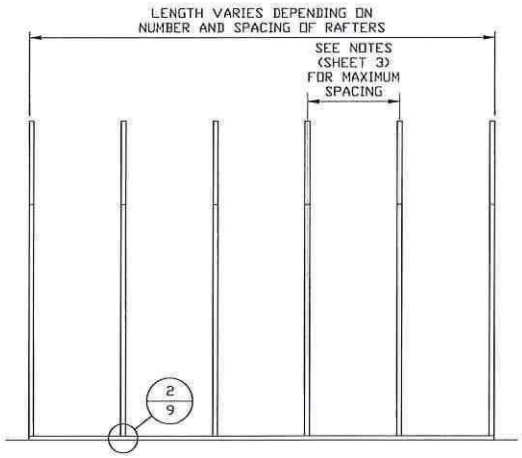

TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

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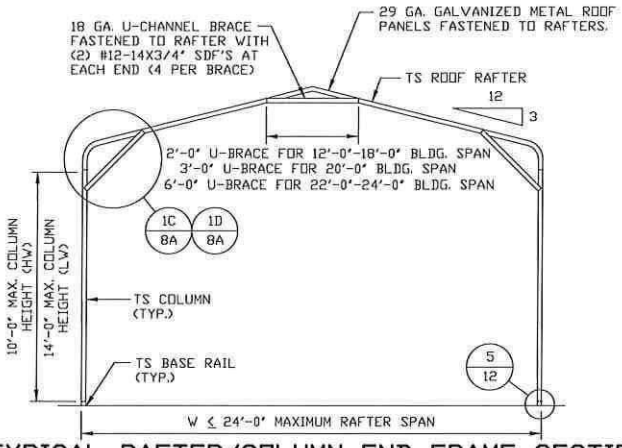

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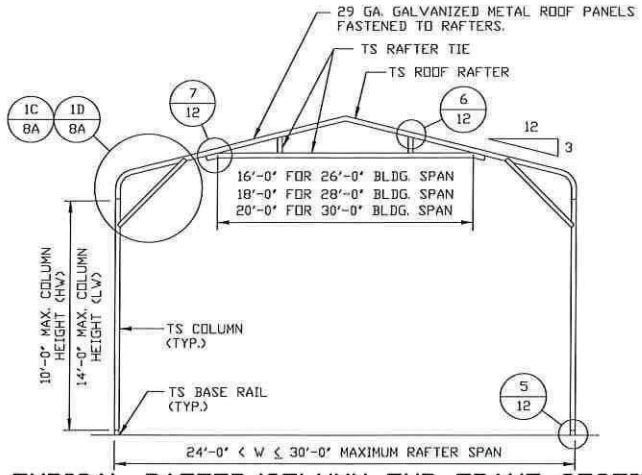

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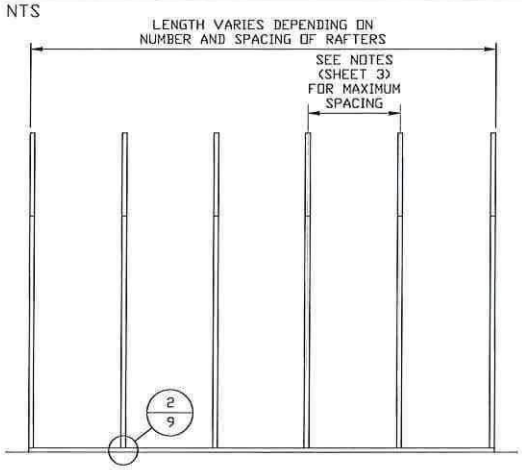

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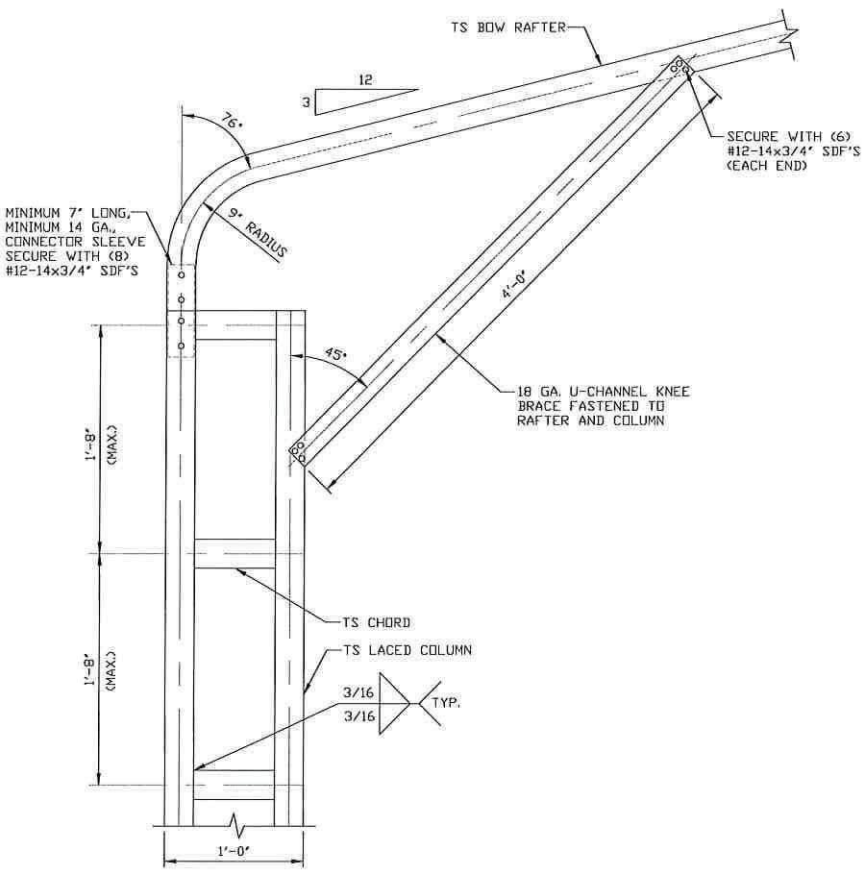
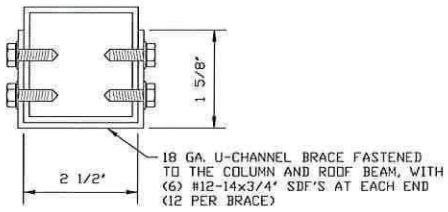


BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

1A

SCALE: NTS



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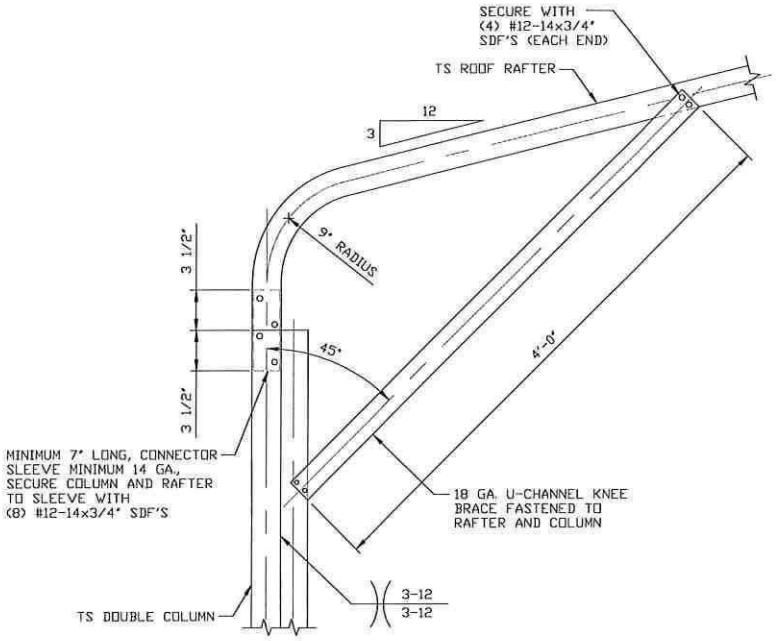
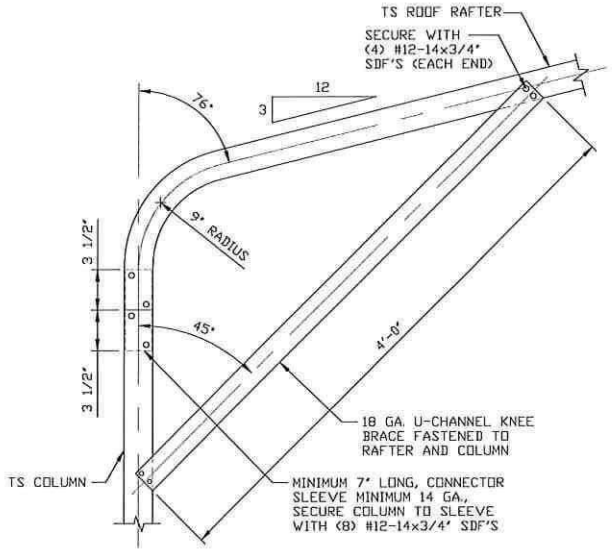


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 16'-0" (HW) AND HEIGHTS 14'-0" < TO ≤ 16'-0" (LW)

1B

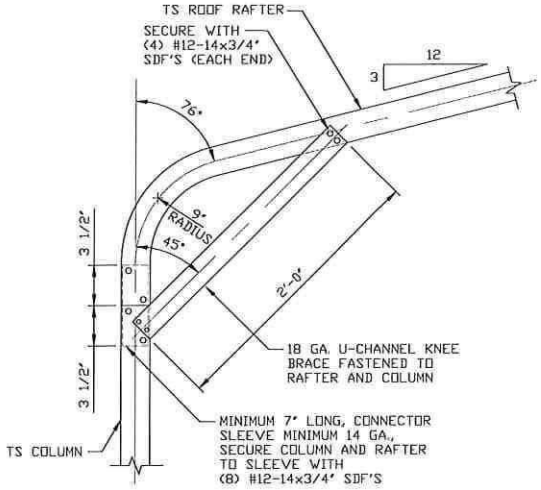
SCALE: NTS



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 10'-0" (HW) AND HEIGHTS 12'-0" < TO ≤ 14'-0" (LW)

1C

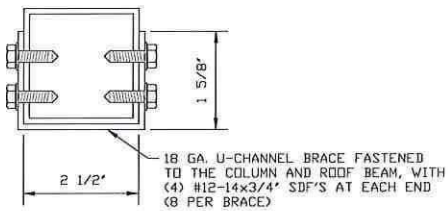
SCALE: NTS



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0" (HW) AND HEIGHTS ≤ 12'-0" (LW)

1D

SCALE: NTS



BRACE SECTION

WAYNE S. MOORE
LICENSE
No 57170
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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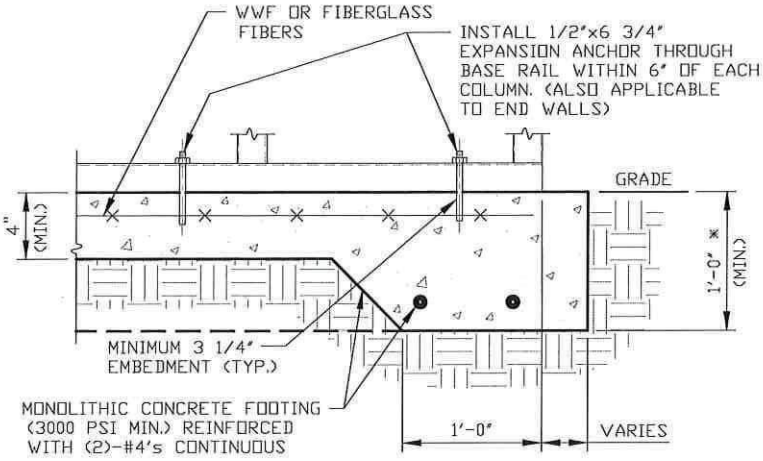
	CHECKED BY: PDH		
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 8A	DWG. NO: SK-1	REV.: 1

BASE RAIL ANCHORAGE OPTIONS

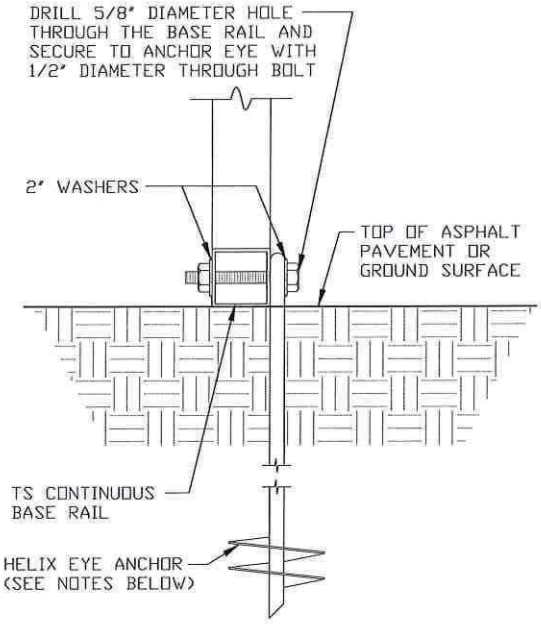


2A **CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE**

SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 4".

* COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH.



2B **GROUND BASE HELIX ANCHORAGE**

SCALE: NTS (CAN BE USED FOR ASPHALT)

* COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH (LENGTH).

GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED ON MINIMUM SOIL BEARING CAPACITY OF 1,500 PSF.

CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.

COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318:
3" IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2" ELSEWHERE.

REINFORCING STEEL:

THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

1. REINFORCEMENT IS BENT COLD.
2. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.

HELIX ANCHOR NOTES:

1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
2. FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
3. FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
4. FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" EMBEDMENT.
5. FOR VERY LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT.

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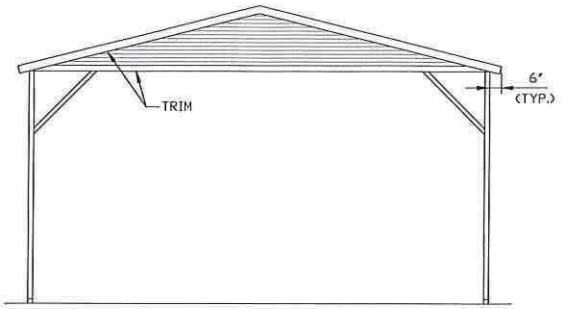
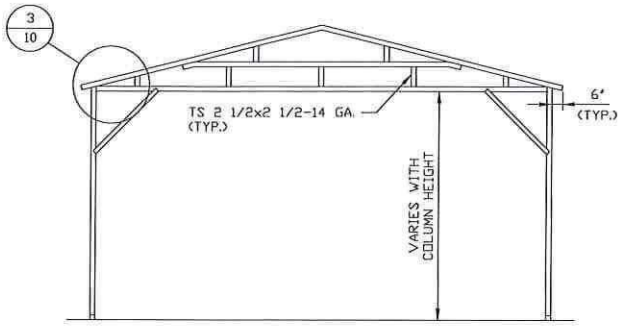
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 9	DWG. NO: SK-1	REV.: 1

BOX EAVE RAFTER GABLE END OPTION



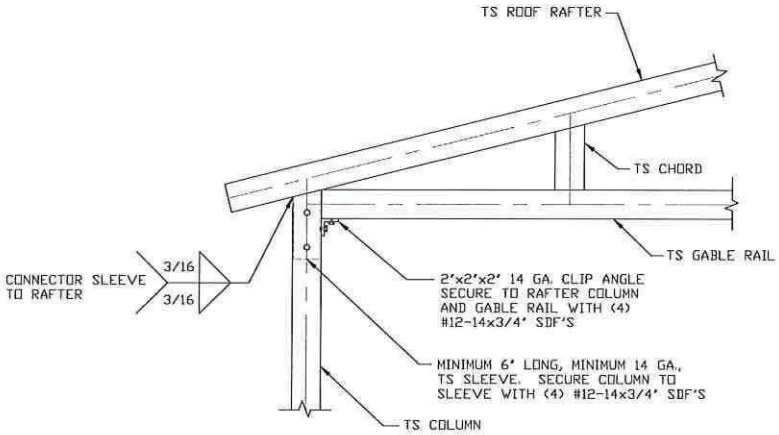
TYPICAL BOX EAVE RAFTER
GABLE END ELEVATION

SCALE: NTS



TYPICAL BOX EAVE RAFTER
GABLE END FRAMING SECTION

SCALE: NTS



3 BOX EAVE RAFTER GABLE RAIL TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

NOTE: KNEE BRACE NOT SHOWN FOR CLARITY

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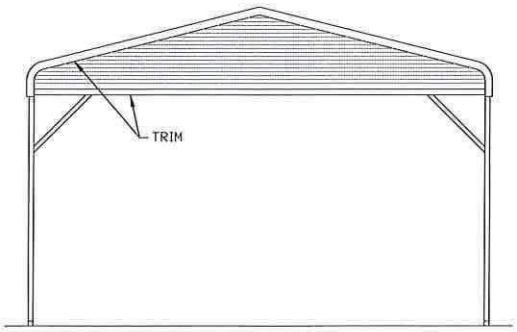
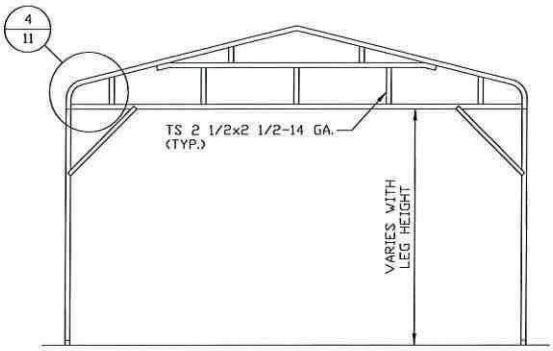
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 10	DWG. NO: SK-1	REV.: 1

BOW RAFTER GABLE END OPTION



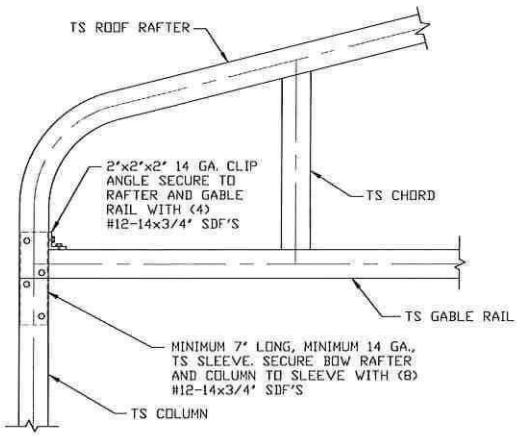
TYPICAL BOW RAFTER GABLE END ELEVATION

SCALE: NTS



TYPICAL BOW RAFTER GABLE END FRAMING SECTION

SCALE: NTS



4 BOW RAFTER GABLE RAIL TO RAFTER/COLUMN CONNECTION DETAIL

SCALE: NTS

NOTE: KNEE BRACE NOT SHOWN FOR CLARITY

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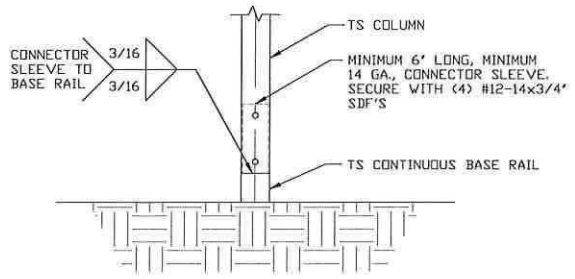
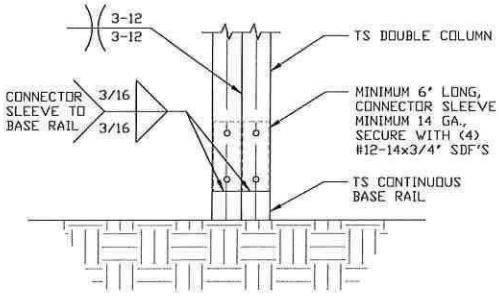
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 11	DWG. NO: SK-1	REV.: 1

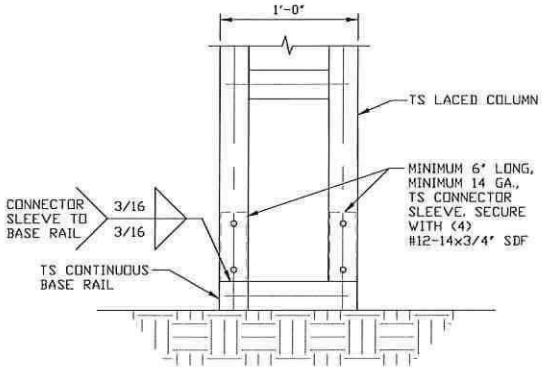
CONNECTION DETAILS



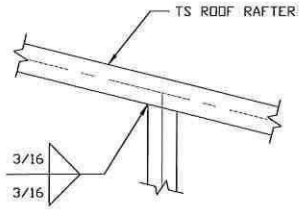
5 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



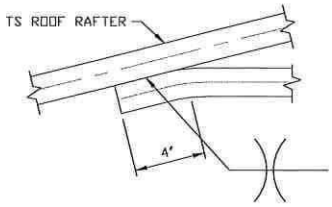
5A RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



5B RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



6 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



7 COLLAR TIE CONNECTION DETAIL
SCALE: NTS

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PROFESSIONAL ENGINEER

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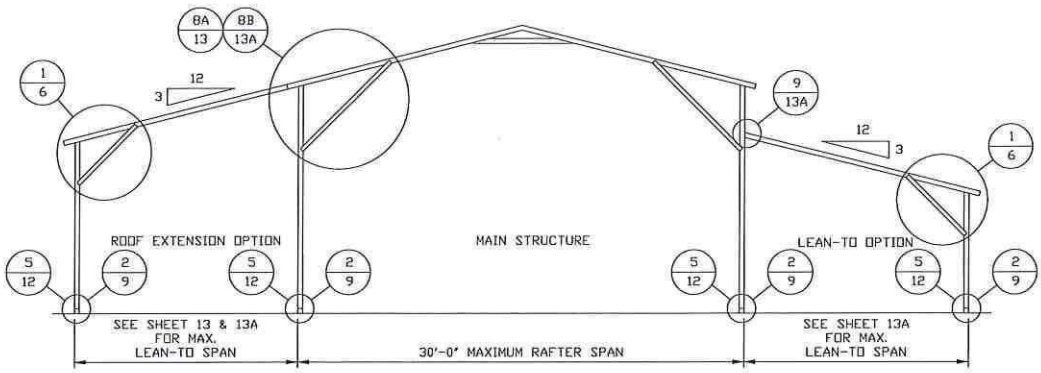
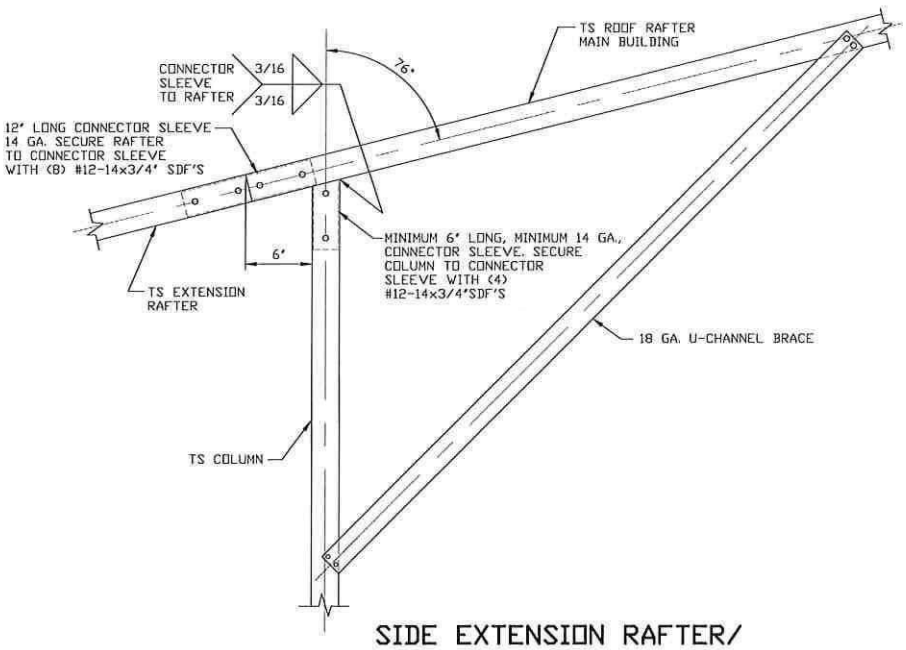
CHECKED BY: PDH				
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S	
CLIENT: BMB	SHT. 12	DWG. NO: SK-1	REV.: 1	

BOX EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)

SCALE: NTS
(MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION LEAN-TO IS 12'-0".)
(MAXIMUM WIDTH OF DOUBLE MEMBER ROOF EXTENSION LEAN-TO IS 16'-0".)
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 16'-0" < TO ≤ 20'-0".
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 10'-0" < TO ≤ 16'-0" (HIGH WIND) AND 14'-0" < TO ≤ 16'-0" (LOW WIND).
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 10'-0" (HIGH WIND) AND ≤ 14'-0" (LOW WIND).



8A — SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR RAFTER SPANS ≤ 12'-0"
SCALE: NTS

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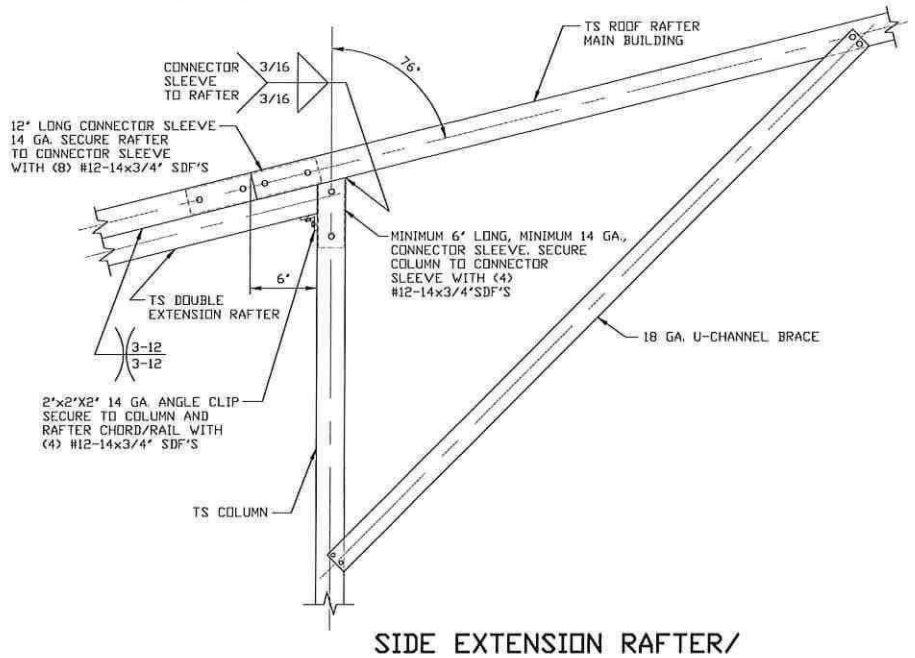
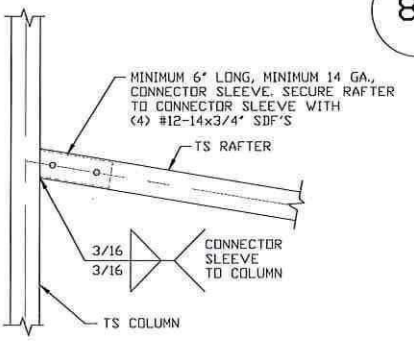
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/ 21025S
	CLIENT: BMB	SHT. 13	DWG. NO: SK-1	REV.: 1

BOX EAVE RAFTER LEAN-TO OPTIONS



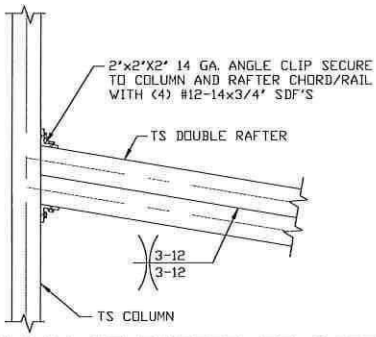
8B SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR RAFTER SPANS 12'-0" < L ≤ 16'-0"

SCALE: NTS



9A LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 12'-0"

SCALE: NTS



9B LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 12'-0" < L ≤ 16'-0"

SCALE: NTS

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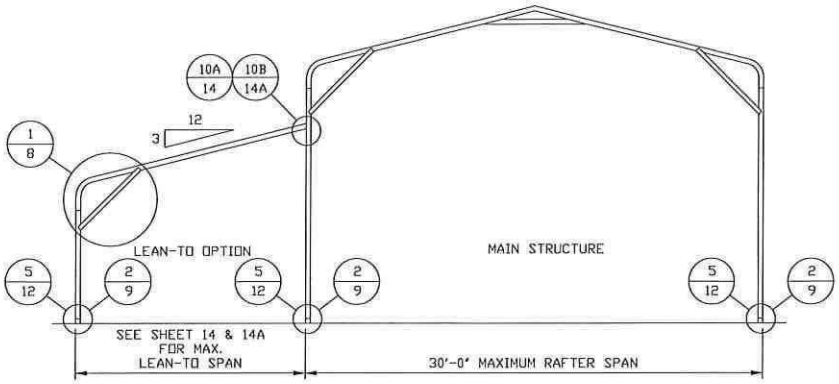
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/ 21025S
CLIENT: BMB	SHT. 13A	DWG. NO: SK-1	REV.: 1

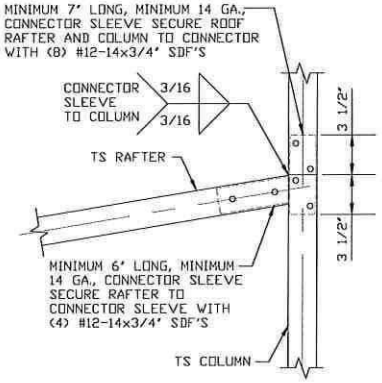
BOW RAFTER LEAN-TO OPTIONS



TYPICAL BOW RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

(MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION LEAN-TO IS 12'-0".)
(MAXIMUM WIDTH OF DOUBLE MEMBER ROOF EXTENSION LEAN-TO IS 16'-0".)
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 16'-0" < TO ≤ 20'-0".
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 10'-0" < TO ≤ 16'-0" (HIGH WIND) AND 14'-0" < TO ≤ 16'-0" (LOW WIND).
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 10'-0" (HIGH WIND) AND ≤ 14'-0" (LOW WIND).



10A

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 12'-0"

SCALE: NTS

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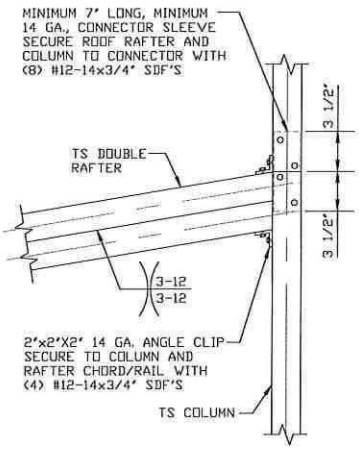
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 14	DWG. NO: SK-1	REV.: 1

BOW RAFTER LEAN-TO OPTIONS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $12'-0" < L \leq 16'-0"$

10B

SCALE: NTS

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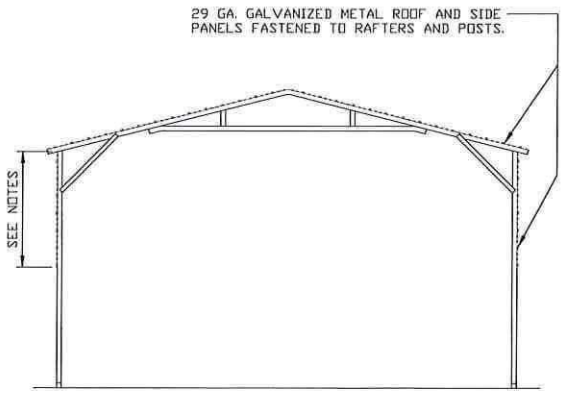
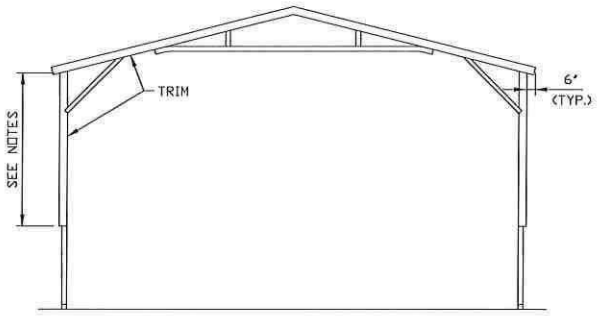
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/ 21025S
	CLIENT: BMB	SHT. 14A	DWG. NO: SK-1	REV.: 1

BOX EAVE RAFTER EXTRA SIDE PANEL OPTIONS



TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS
SCALE: NTS

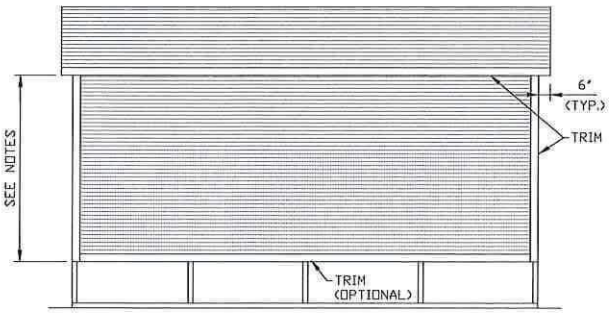


TYPICAL END ELEVATION
EXTRA SIDE PANELS
SCALE: NTS

NOTES:

(LW):
* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 16'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")

(HW):
* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 9'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")



TYPICAL SIDE ELEVATION
EXTRA SIDE PANELS
SCALE: NTS

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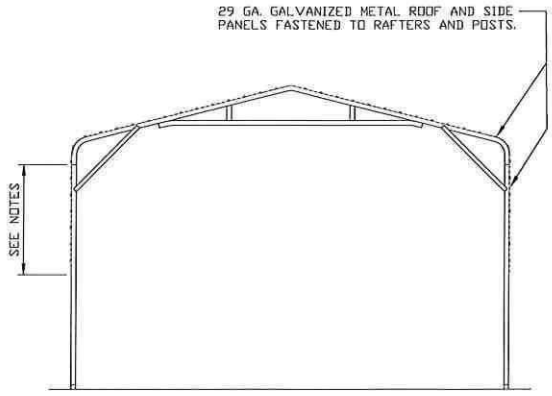
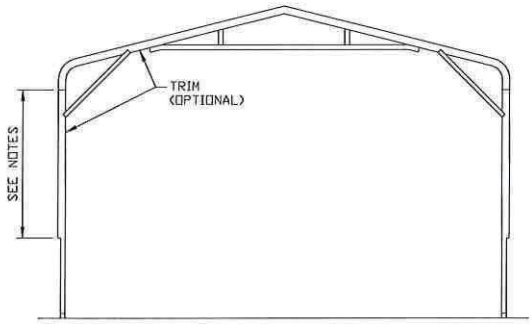
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 15	DWG. NO: SK-1	REV.: 1

BOW RAFTER EXTRA SIDE PANEL OPTIONS



TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS

SCALE: NTS



TYPICAL END ELEVATION
EXTRA SIDE PANELS

SCALE: NTS

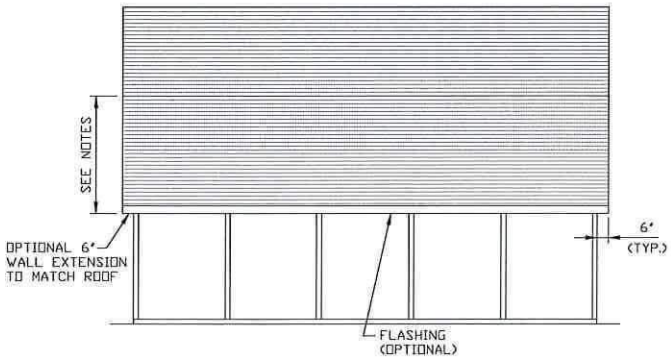
NOTES:

(LW):

* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 16'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")

(HW):

* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 9'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")



TYPICAL SIDE ELEVATION
EXTRA SIDE PANELS

SCALE: NTS

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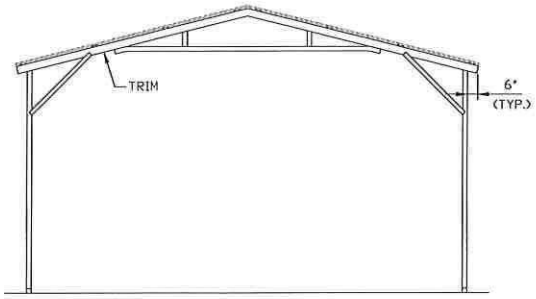
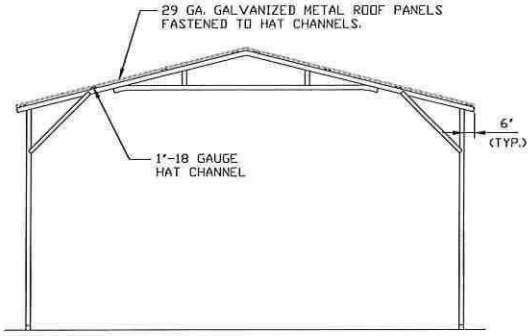
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 16	DWG. NO: SK-1	REV.: 1

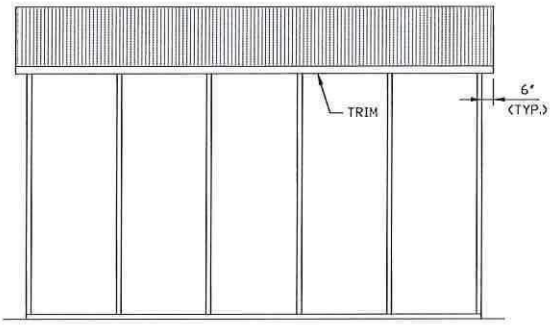
BOX EAVE RAFTER VERTICAL ROOF OPTION



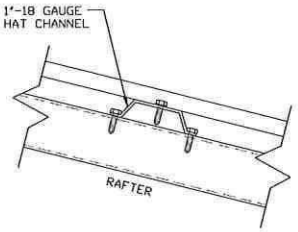
TYPICAL END ELEVATION
VERTICAL ROOF
SCALE: NTS



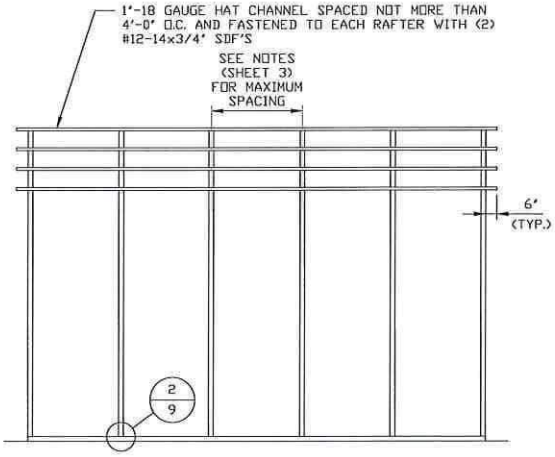
TYPICAL SECTION
VERTICAL ROOF OPTION
SCALE: NTS



TYPICAL SIDE ELEVATION
VERTICAL ROOF
SCALE: NTS



PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS



TYPICAL FRAMING SECTION
VERTICAL ROOF OPTION
SCALE: NTS

WAYNE S. MOORE
LICENSE
No 57170
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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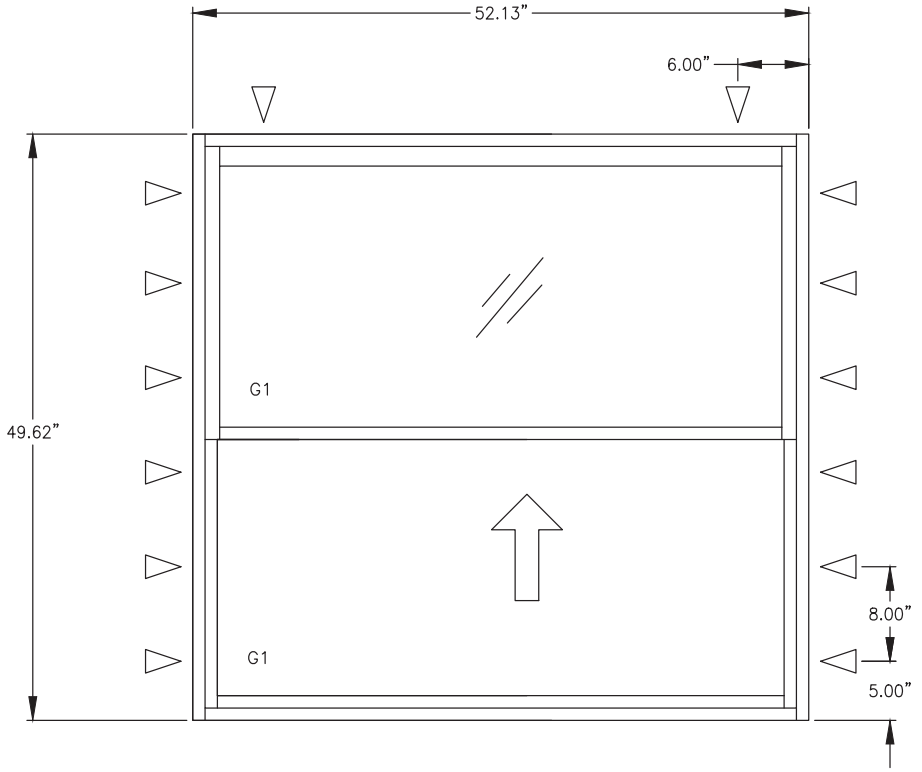
	CHECKED BY: PDH		
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 17	DWG. NO: SK-1	REV.: 1

NOTES:

1. Products and installations depicted satisfy the requirements of the Florida Building Code, Building 7th Edition (2020) for design wind pressures and overall sizes noted.
2. Wood bucks, wood framing, steel stud framing, concrete and concrete masonry are by others and shall be designed by the architect or engineer of record to resist the loads imparted to them.
3. Wood buck strips and wood frames are assumed S–P–F (G=0.42) or denser. Buck width shall be greater than the frame width. Tapered or partial width buck strips are not allowed.
4. Concrete masonry installations are assumed at least ASTM C90 normal weight hollow masonry units with a 1–1/4" wall thickness or normal weight concrete with a minimum compressive strength of f'c = 3,000 psi.
5. Metal stud frames are assumed to be a minimum 18 gauge 33 KSI steel.
6. Wood screws shall be corrosion resistant and meet the requirements of ANSI/ASME B18.6.1
7. Tapcon masonry anchors shall have a minimum embedment of 1–1/2" or full penetration of concrete masonry unit shell. They shall also have a minimum of 2" edge distance. Install concrete masonry anchors per manufacturer's installation instructions.
8. TEKS screws shall be corrosion resistant and shall be ASTM A510 Grade 1018 or equivalent.
9. Maximum permitted shim thickness is 1/4". Shims shall be non–compressible and load bearing type. Every through–frame fastener shall have a shim.
10. Short term load duration factors have not been used for evaluation of aluminum and steel components. Load duration factor C_D = 1.6 utilized for connections to wood.
11. Products are impact resistant and do not require approved protection devices if used in wind–borne debris regions.
12. Approved for use in High Velocity Hurricane Zone (HVHZ).

CONTENTS:

47000 SINGLE HUNG WINDOW (IMPACT)
MAXIMUM SIZE: 52–1/8" WIDE X 49–5/8" TALL
MAXIMUM GLAZING SIZE: 46–7/8" WIDE X 19–7/8" TALL
DESIGN PRESSURE: +35/–65 PSF
LARGE MISSILE IMPACT RESISTANT



△ ANCHOR
(SEE SHEETS 2 TO 5)

Design Pressure Rating	Impact Rating
+35/-65 psf	Large Missile

NOTE: Structural Performance +60/–65 psf
Impact/Cycle Performance +60/–65 psf
Water Test Performance +5.25 psf

Joseph A. Reed, PE
FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

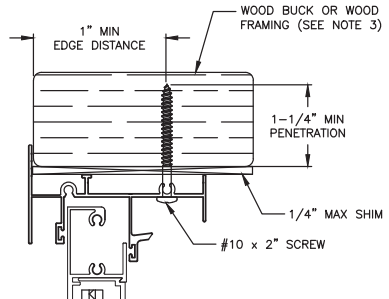
47000 Single Hung - Impact
Notes and Elevations

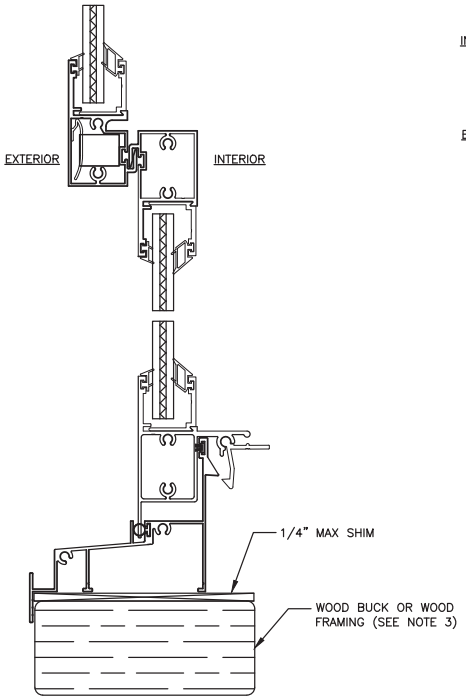
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

HEAD





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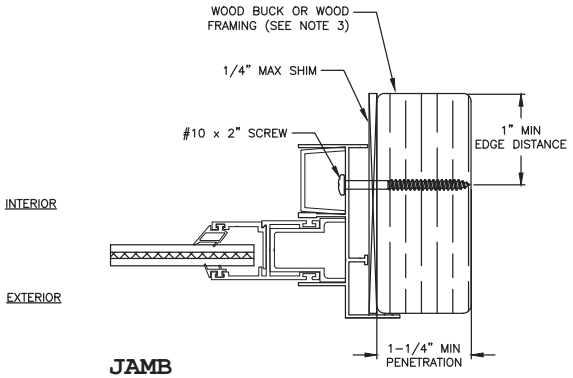

JAMB

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FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

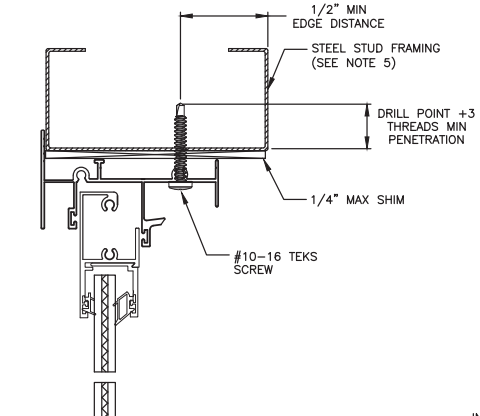
47000 Single Hung - Impact
Through Frame Installations
Wood

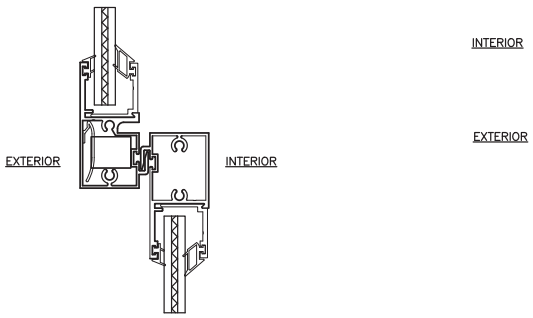
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

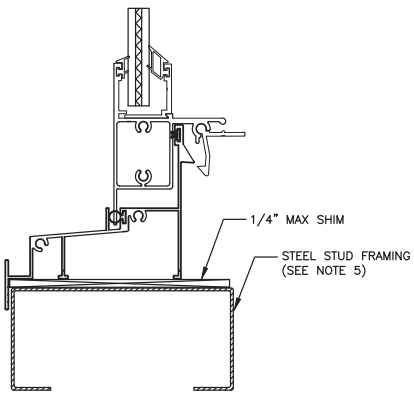
Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

HEAD







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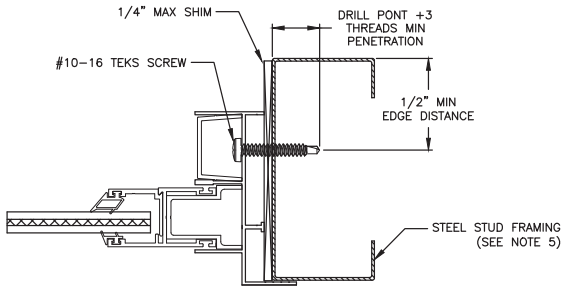

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5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

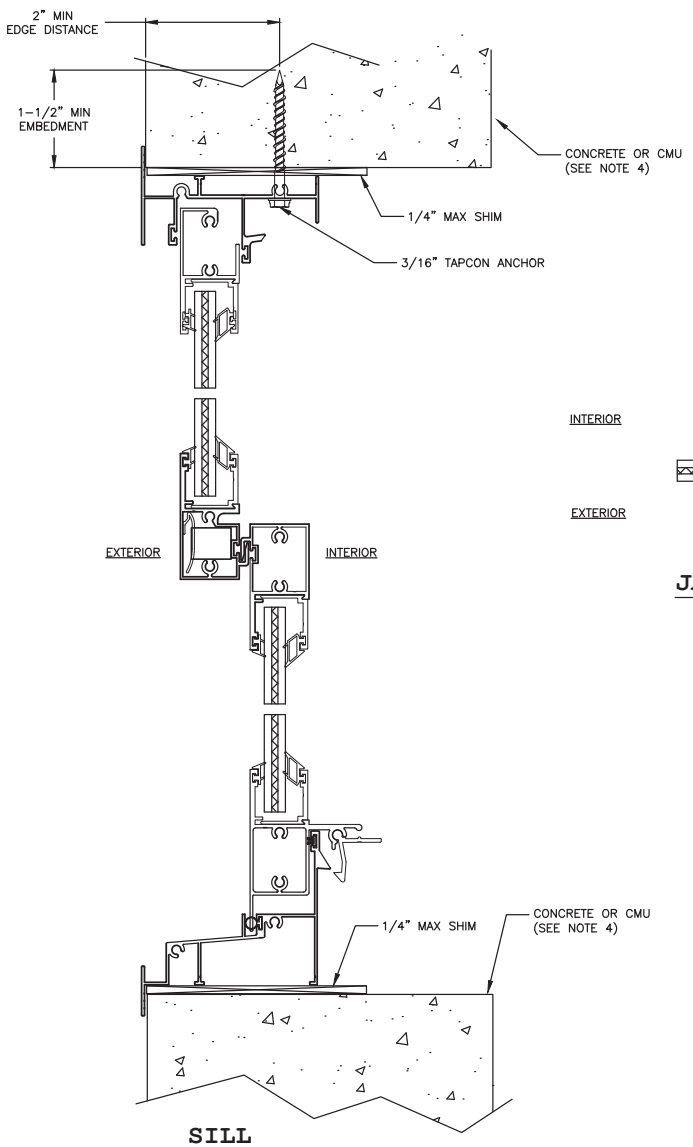
47000 Single Hung - Impact
Through Frame Installations
Steel Stud

TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

HEAD



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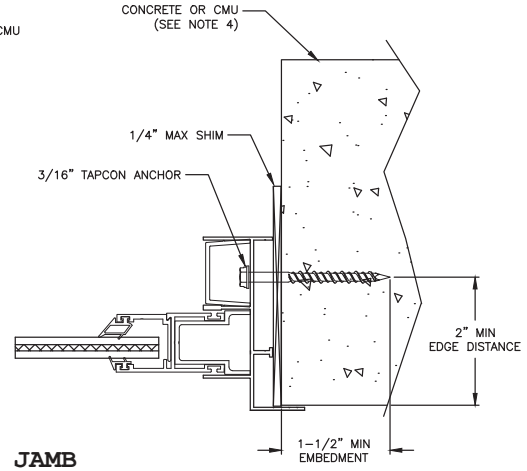

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York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

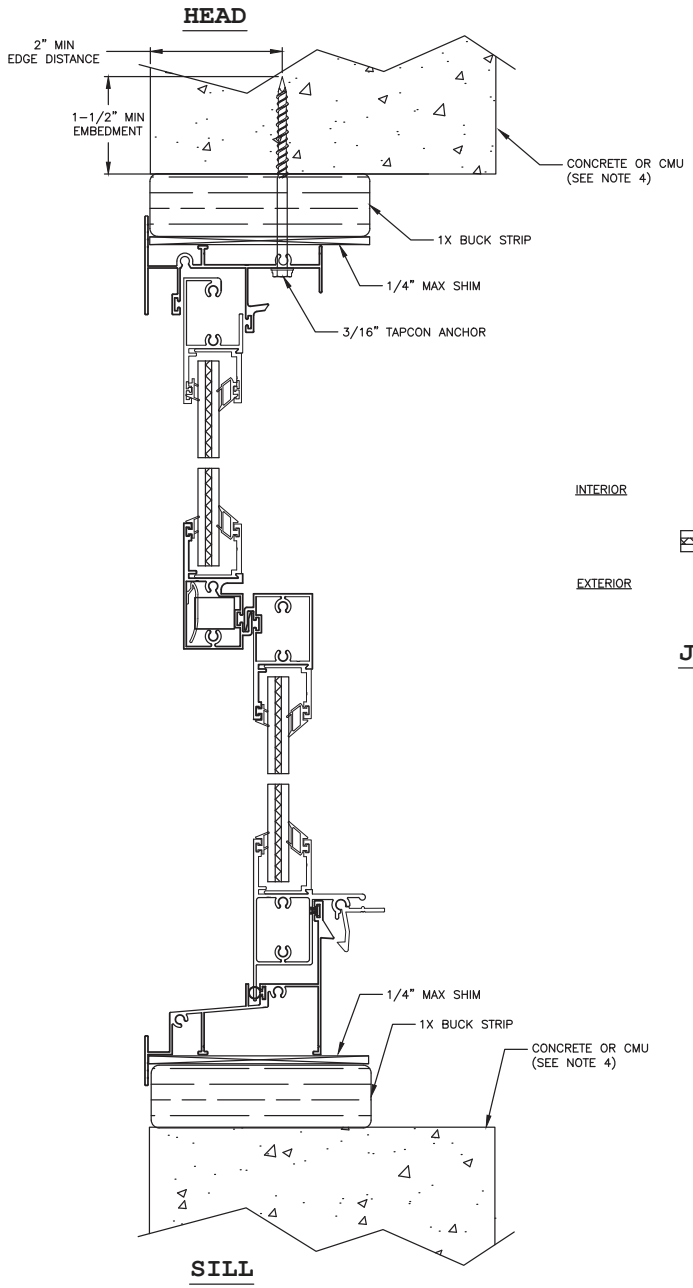
2021.01.08 09:27:49 -05'00'

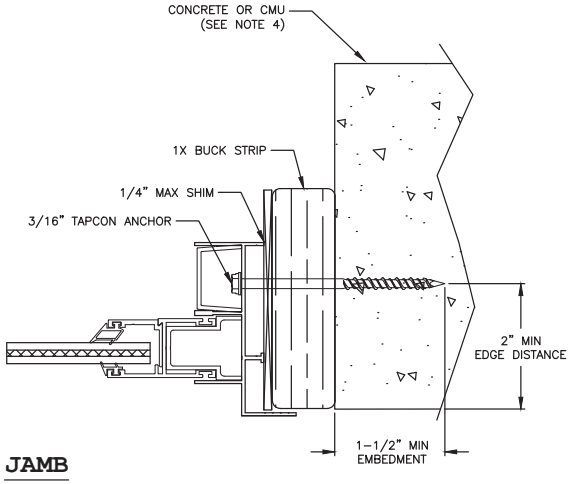
47000 Single Hung - Impact
Through Frame Installations
Concrete or CMU

TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS





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FL REG 33474
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York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Through Frame Installations
Concrete or CMU with Buck Strip

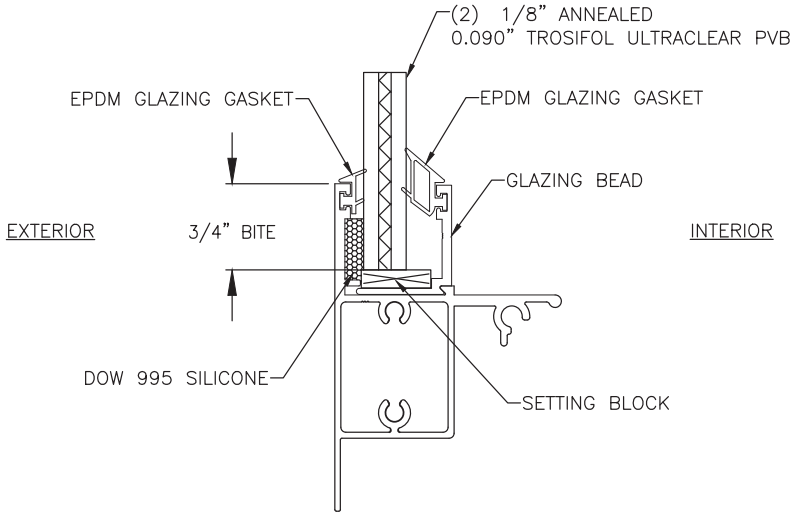
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

GLAZING DETAIL

G1 – LAMINATED GLASS



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717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

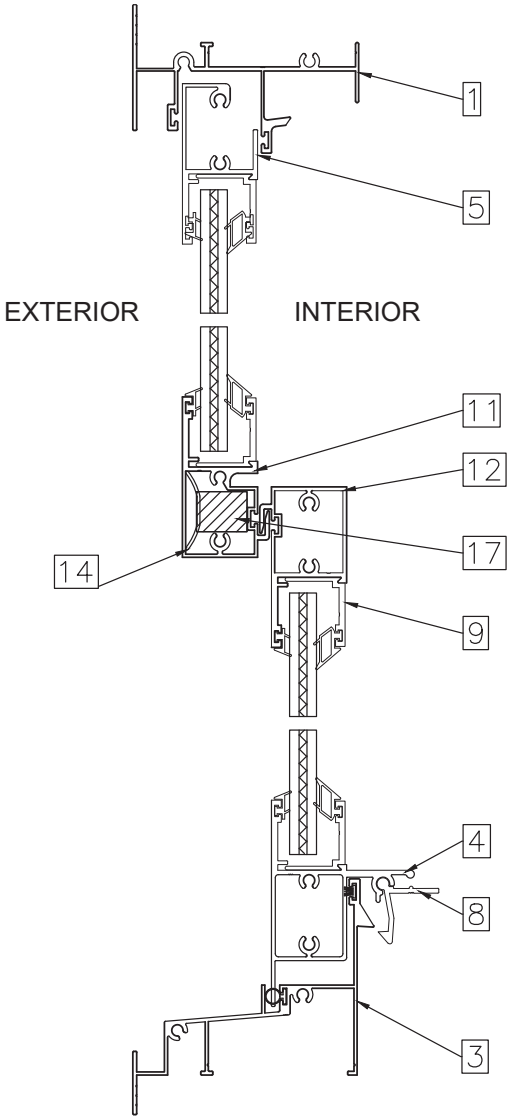
2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Glazing Details

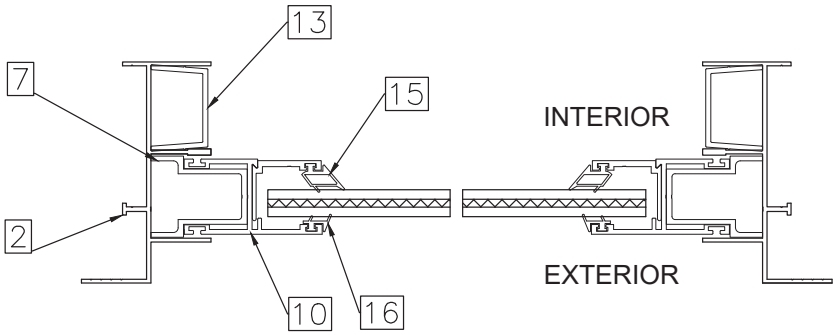
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

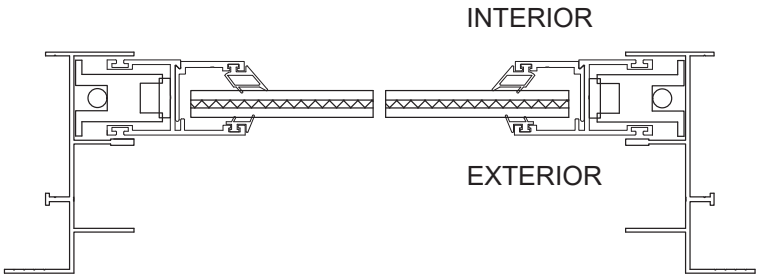
Scale: NTS



VERTICAL SECTION



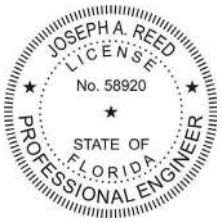
HORIZONTAL SECTION AT TOP SASH



HORIZONTAL SECTION AT BOTTOM SASH

HARDWARE		
ITEM	NUMBER	LOCATION
SWEEP LOCK	2	TOP RAIL OF BOTTOM SASH
PINCH LOCK	2	BOTTOM RAIL OF BOTTOM SASH
BLOCK AND TACKLE BALANCE	2	ONE EACH JAMB
WEATHERSTRIPPING		
ITEM	NUMBER	LOCATION
2-FIN PILE	2 ROWS	HEAD FRAME
2 FIN PILE	1 ROW	TOP SASH BOTTOM RAIL
2-FIN PILE	1 ROW	BOTTOM SASH TOP RAIL
2-FIN PILE	1 ROW	SILL UPSTAND
VINYL BULB	1 ROW	SILL
2-FIN PILE	2 ROWS	TOP SASH STILES
2-FIN PILE	2 ROWS	BOTTOM SASH STILES

ITEM NO.	NAME	MATERIAL	DESCRIP.
1	Head	6063-T5	EXTRUSION
2	Jamb	6063-T5	EXTRUSION
3	Sill	6063-T5	EXTRUSION
4	Bottom Sash Bottom Rail	6063-T5	EXTRUSION
5	Fixed Sash Top Rail	6063-T5	EXTRUSION
7	Fixed Sash Support	6063-T5	EXTRUSION
8	Pinch Lock	6063-T5	EXTRUSION
9	Glazing Bead	6063-T5	EXTRUSION
10	Sash Stile	6063-T5	EXTRUSION
11	Fixed Sash Bottom Rail	6063-T5	EXTRUSION
12	Bottom Sash Top Rail	6063-T5	EXTRUSION
13	Track Filler	PA6	INJECTION MOLD
14	Reinforcement Retainer	PA6	INJECTION MOLD
15	Wedge Gasket	EPDM RUBBER	EXTRUSION
16	Wedge Gasket	EPDM RUBBER	EXTRUSION
17	1/2" x 5/8" Reinforcement	STEEL	FLAT BAR STOCK



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FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

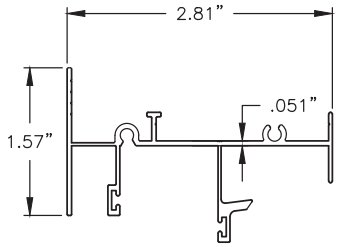
2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Sections and Bill of Material

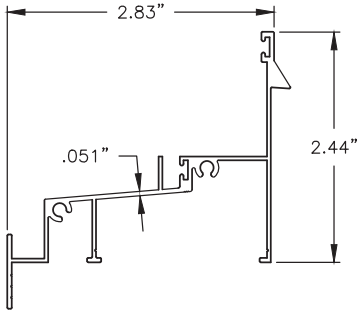
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

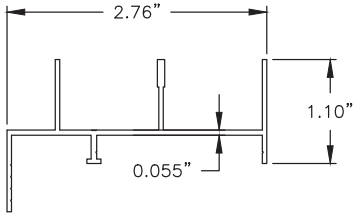
Scale: NTS



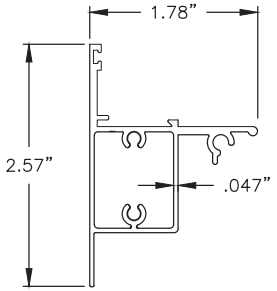
HEAD
6063–T5



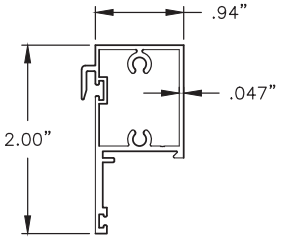
SILL
6063–T5



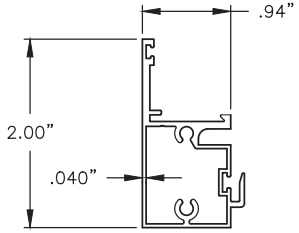
JAMB
6063–T5



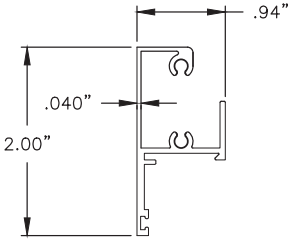
BOTTOM SASH BOTTOM RAIL
6063–T5



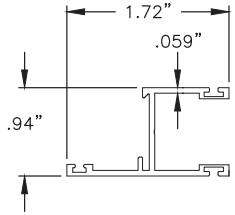
BOTTOM SASH TOP RAIL
6063–T5



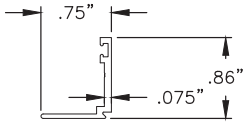
TOP SASH BOTTOM RAIL
6063–T5



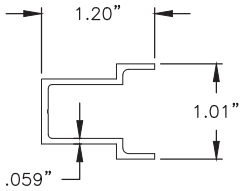
TOP SASH TOP RAIL
6063–T5



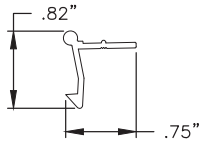
SASH STILE
6063–T5



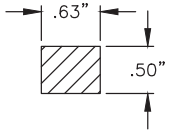
BLAZING BEAD
6063–T5



SASH SUPPORT
6063–T5



PINCH LOCK
6063–T5



REINFORCEMENT
STEEL

Joseph A. Reed, PE
FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Components

TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

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1009 East Avenue
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15 April 2021

State of Florida- Metal Building Component Product Approval
Engineering Evaluation Report
M&A Project No. 20300S

Prepared By:	Wayne S. Moore, P.E. FL PE No. 57170 M&A COA No. 8966
Manufacturer:	Steel Buildings and Structures, Inc. 820 Reeves Drive Mount Airy, NC 27030
Product:	**AG Metal Wall Panel**
Product Description:	Low and high wind rated wall panels.

FL Product Code Approval No.: **FL22562**

Code Compliance Statement:

Moore and Associates Engineering and Consulting, Inc. (M&A) has reviewed the plans, calculations and testing information that applies to Florida Product Approval #FL22562 under the 2020 Florida Building Code, 7th Edition and finds them in compliance.

Certificate of Independence:

Wayne S. Moore, P.E. and M&A does not have, nor does it intend to acquire or will it acquire, a financial interest the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. is not employed by nor is M&A owned, operated or controlled by the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will they acquire, a financial interest in the company manufacturing or distributing the product or products for which test reports are being issued. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product or products.

National Society of Professional Engineers®

Supporting Documents:

Calculations:	Structural calculations dated 11 January 2021 performed by John Smith, E.I.T. and checked by Wayne S. Moore, P.E.
Drawings:	Drawings SK-1 through SK-6 signed/sealed by Wayne S. Moore, P.E.
Testing:	ATLNC #0321.01-17 test report dated 04/05/2017 and signed/sealed by David Johnson, P.E.

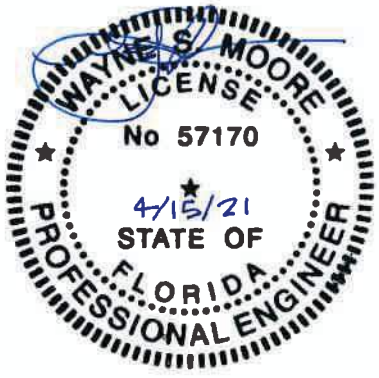
Limitations and Conditions of Use:

1. Structural calculations were performed in accordance with the 2020 FBC, 7th Edition and compared to test results performed under previous FBC given that testing of panel was performed to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports and attachment fasteners.
2. Maximum allowable design pressure shall be as indicated on plans for each configuration.
3. This product is for use outside of the High Velocity Hurricane Zone (HVHZ).
4. This product shall be minimum 29 gauge thick galvalume coated steel with minimum yield stress of 80 ksi.
5. Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
6. All supporting structural members shall be capable of supporting superimposed loads applied to this product.
7. Fasteners must consist of minimum 12-14 x ¾" self-drilling fasteners (SDFs) with control seal washers.
8. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof slope of 3:12 (14 degrees) or less.
9. Product shall be installed into substrates shown on installation drawings and shall not exceed spacing limitations.
10. Site conditions that deviate from calculation, drawing and/or testing limitation noted shall require further analysis by a licensed Professional Engineer registered in the State of Florida.

Quality Assurance:

The manufacturer has demonstrated compliance of proper quality assurance/quality control (QA/QC) in accordance with the Florida Administrative Code Rule 61G20-3.005. Manufacturer's QA/QC plan and practices have been audited by an approved quality assurance entity (Subsection 3).

Signature/Seal:



AG Metal Wall Calc Set

Design Loads:

$space_1 := 5 \cdot ft$ **o.c.** Low Wind Spacing

$space_2 := 4 \cdot ft$ **o.c.** High Wind Spacing

Risk Cat. I
Exposure B

$width := 180 \cdot in$

$Ht := 120\ in$

$$Ht_{roof} := \frac{width}{2} \cdot 0.25 = 1.875\ ft$$

$$mean_{rf}ht := 20\ ft = 20\ ft$$

$FS := 1.5$

Note: Test Protocol ASTM E330 requires a 50% safety factor over design load pressures.

Low Wind 140mph (Vasd=108mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ Adjustment Factor

$mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)

Wall (Wind Area = 20 square ft):

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

$Pw_{net30pos108} := 20.04\ psf \cdot \lambda = 17.836\ psf$ (Based on 2018 IBC (ASCE 7-16), Pg. 352-353)

$Pw_{net30neg108} := -26.24\ psf \cdot \lambda = -23.354\ psf$

Note: Used Zone 5 (more conservative)

Note: Highlighted values indicate input.

High Wind 170mph (Vasd=132mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ $mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)
Adjustment Factor

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

Wall (Wind Area = 20 square ft):

$Pw_{net30pos132} := 29.94\ psf \cdot \lambda = 26.647\ psf$ (Based on 2018 IBC (ASCE 7-16), Pg. 353)

$Pw_{net30neg132} := -39.2\ psf \cdot \lambda = -34.888\ psf$

Note: Used Zone 5 to be conservative.

Note: Highlighted values indicate input.

CHAPTER 30
WIND LOADS: COMPONENTS AND CLADDING

30.1 SCOPE

30.1.1 Building Types. This chapter applies to the determination of wind pressures on components and cladding (C&C) on buildings.

1. Part 1 is applicable to an enclosed or partially enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, multispan gable roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, and the wind pressures are calculated from a wind pressure equation.
2. Part 2 is a simplified approach and is applicable to an enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, or hip roof, and the wind pressures are determined directly from a table.
3. Part 3 is applicable to an enclosed or partially enclosed
   - Building with $h > 60$ ft (18.3 m).

   The building has a flat roof, pitched roof, gable roof, hip roof, mansard roof, arched roof, or domed roof, and the wind pressures are calculated from a wind pressure equation.
4. Part 4 is a simplified approach and is applicable to an enclosed
   - Building with 60 ft $< h \leq 160$ ft (18.3 m $< h \leq 48.8$ m).

   The building has a flat roof, gable roof, hip roof, monoslope roof, or mansard roof, and the wind pressures are determined directly from a table.
5. Part 5 is applicable to an open building of all heights that has a pitched free roof, monoslope free roof, or troughed free roof.
6. Part 6 is applicable to building appurtenances such as roof overhangs, parapets, and rooftop equipment.
7. Part 7 is applicable to non-building structures – circular bins, silos and tanks; and rooftop solar panels.
   - Circular Bins, Silos and Tanks: $h \leq 120$ ft (38.6 m).
   - Rooftop Solar Panels: Buildings of all heights with flat roofs or Gable or Hip Roofs with roof slopes less than or equal to 7 degrees

30.1.2 Conditions. A building that has design wind loads determined in accordance with this chapter shall comply with all of the following conditions:

1. The building is a regular-shaped building as defined in Section 26.2; and
2. The building does not have response characteristics that make it subject to across-wind loading, vortex shedding, or instability caused by galloping or flutter; nor does it have a site location for which channeling effects or buffeting in the wake of upwind obstructions warrant special consideration.

30.1.3 Limitations. The provisions of this chapter take into consideration the load magnification effect caused by gusts in resonance with along-wind vibrations of flexible buildings. The loads on buildings that do not meet the requirements of Section 30.1.2 or that have unusual shapes or response characteristics shall be determined using recognized literature documenting such wind load effects or shall use the wind tunnel procedure specified in Chapter 31.

30.1.4 Shielding. There shall be no reductions in velocity pressure caused by apparent shielding afforded by buildings and other structures or terrain features.

30.1.5 Air-Permeable Cladding. Design wind loads determined from Chapter 30 shall be used for air-permeable claddings, including modular vegetative roof assemblies, unless approved test data or recognized literature demonstrates lower loads for the type of air-permeable cladding being considered.

30.2 GENERAL REQUIREMENTS

30.2.1 Wind Load Parameters Specified in Chapter 26. The following wind load parameters are specified in Chapter 26:

- Basic wind speed, V (Section 26.5).
- Wind directionality factor, K_d (Section 26.6).
- Exposure category (Section 26.7).
- Topographic factor, K_{zt} (Section 26.8).
- Ground elevation factor, K_e (Section 26.9)
- Velocity pressure exposure coefficient, K_z or K_h (Section 26.10.1); Velocity pressure, q_z (Section 26.10.2)
- Gust-effect factor (Section 26.11).
- Enclosure classification (Section 26.12).
- Internal pressure coefficient, (GC_{pi}) (Section 26.13).

30.2.2 Minimum Design Wind Pressures. The design wind pressure for C&C of buildings shall not be less than a net pressure of 16 lb/ft^2 (0.77 kN/m^2) acting in either direction normal to the surface.

30.2.3 Tributary Areas Greater than 700 ft^2 (65 m^2). C&C elements with tributary areas greater than 700 ft^2 (65 m^2) shall be permitted to be designed using the provisions for main wind force resisting systems (MWFRS).

30.2.4 External Pressure Coefficients. Combined gust-effect factor and external pressure coefficients for C&C, (GC_p), are given in the figures associated with this chapter. The pressure coefficient values and gust-effect factor shall not be separated.

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 95–130 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			95		100		105		110		115		120		130	
Walls	4	10	16.2	−17.6	18.0	−19.5	19.8	−21.5	21.8	−23.6	23.8	−25.8	25.9	−28.1	30.4	
	4	20	15.5	−16.9	17.2	−18.7	18.9	−20.6	20.8	−22.6	22.7	−24.7	24.7	−26.9	29.0	
	4	50	14.5	−15.9	16.1	−17.6	17.8	−19.4	19.5	−21.3	21.3	−23.3	23.2	−25.4	27.2	
	4	100	13.8	−15.2	15.3	−16.8	16.9	−18.5	18.5	−20.4	20.2	−22.2	22.0	−24.2	25.9	
	5	10	16.2	−21.7	18.0	−24.1	19.8	−26.6	21.8	−29.1	23.8	−31.9	25.9	−34.7	30.4	
	5	20	15.5	−20.3	17.2	−22.5	18.9	−24.8	20.8	−27.2	22.7	−29.7	24.7	−32.4	29.0	
	5	50	14.5	−18.3	16.1	−20.3	17.8	−22.4	19.5	−24.6	21.3	−26.9	23.2	−29.3	27.2	
	5	100	13.8	−16.9	15.3	−18.7	16.9	−20.6	18.5	−22.6	20.2	−24.7	22.0	−26.9	25.9	
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	6.6	−25.9	7.3	−28.7	8.1	−31.6	8.9	−34.7	9.7	−37.9	10.5	−41.3	12.4	
	1	20	6.2	−24.2	6.9	−26.8	7.6	−29.5	8.3	−32.4	9.1	−35.4	9.9	−38.5	11.6	
	1	50	5.6	−21.9	6.3	−24.3	6.9	−26.8	7.6	−29.4	8.3	−32.1	9.0	−34.9	10.6	
	1	100	5.2	−20.2	5.8	−22.4	6.4	−24.7	7.0	−27.1	7.7	−29.6	8.3	−32.2	9.8	
	1′	10	6.6	−14.9	7.3	−16.5	8.1	−18.2	8.9	−19.9	9.7	−21.8	10.5	−23.7	12.4	−27.8
	1′	20	6.2	−14.9	6.9	−16.5	7.6	−18.2	8.3	−19.9	9.1	−21.8	9.9	−23.7	11.6	−27.8
	1′	50	5.6	−14.9	6.3	−16.5	6.9	−18.2	7.6	−19.9	8.3	−21.8	9.0	−23.7	10.6	−27.8
	1′	100	5.2	−14.9	5.8	−16.5	6.4	−18.2	7.0	−19.9	7.7	−21.8	8.3	−23.7	9.8	−27.8
	2	10	6.6	−34.1	7.3	−37.8	8.1	−41.7	8.9	−45.7	9.7	−50.0	10.5	−54.4	12.4	−63.9
	2	20	6.2	−31.9	6.9	−35.4	7.6	−39.0	8.3	−42.8	9.1	−46.8	9.9	−50.9	11.6	−59.8
	2	50	5.6	−29.0	6.3	−32.2	6.9	−35.5	7.6	−38.9	8.3	−42.5	9.0	−46.3	10.6	−54.4
	2	100	5.2	−26.8	5.8	−29.7	6.4	−32.8	7.0	−36.0	7.7	−39.3	8.3	−42.8	9.8	−50.2
	3	10	6.6	−46.5	7.3	−51.5	8.1	−56.8	8.9	−62.3	9.7	−68.1	10.5	−74.2	12.4	−87.5
	3	20	6.2	−42.1	6.9	−46.7	7.6	−51.4	8.3	−56.5	9.1	−61.7	9.9	−67.2	11.6	−78.9
	3	50	5.6	−36.3	6.3	−40.2	6.9	−44.4	7.6	−48.7	8.3	−53.2	9.0	−57.9	10.6	−68.0
	3	100	5.2	−31.9	5.8	−35.4	6.4	−39.0	7.0	−42.8	7.7	−46.8	8.3	−50.9	9.8	−59.8
Gable Roof > 7 to 20 Degrees	1	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	1	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	1	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	1	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2e	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	2e	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	2e	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	2e	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2n	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2n	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2n	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2n	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	2r	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2r	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2r	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2r	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3e	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	3e	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	3e	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	3e	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3r	10	9.8	−52.0	10.9	−57.6	12.0	−63.5	13.2	−69.7	14.4	−76.2	15.7	−83.0	18.4	−97.4
	3r	20	8.9	−44.6	9.8	−49.4	10.8	−54.4	11.9	−59.7	13.0	−65.3	14.1	−71.1	16.6	−83.4
	3r	50	7.6	−34.7	8.4	−38.4	9.3	−42.4	10.2	−46.5	11.1	−50.8	12.1	−55.4	14.2	−65.0
	3r	100	6.6	−27.2	7.3	−30.2	8.1	−33.3	8.9	−36.5	9.7	−39.9	10.5	−43.5	12.4	−51.0

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 140–200 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)											
			140		150		160		170		180		190		200	
Walls	4	10	35.3	−38.2	40.5	−38.2	46.1	−50.0	52.0	−56.4	58.3	−63.2	64.9	−70.4	72.0	−78.1
	4	20	33.7	−36.7	38.7	−36.7	44.0	−47.9	49.6	−54.1	55.7	−60.6	62.0	−67.5	68.7	−74.8
	4	50	31.6	−34.6	36.2	−34.6	41.2	−45.1	46.6	−51.0	52.2	−57.1	58.1	−63.7	64.4	−70.5
	4	100	30.0	−33.0	34.4	−33.0	39.2	−43.1	44.2	−48.6	49.6	−54.5	55.2	−60.7	61.2	−67.3
	5	10	35.3	−47.2	40.5	−47.2	46.1	−61.7	52.0	−69.6	58.3	−78.0	64.9	−87.0	72.0	−96.3
	5	20	33.7	−44.0	38.7	−44.0	44.0	−57.5	49.6	−64.9	55.7	−72.8	62.0	−81.1	68.7	−89.9
	5	50	31.6	−39.8	36.2	−39.8	41.2	−52.0	46.6	−58.7	52.2	−65.8	58.1	−73.4	64.4	−81.3
	5	100	30.0	−36.7	34.4	−36.7	39.2	−47.9	44.2	−54.1	49.6	−60.6	55.2	−67.5	61.2	−74.8
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	14.3	−56.2	16.5	−56.2	18.7	−73.4	21.1	−82.8	23.7	−92.9	26.4	−103.5	29.3	−114.6
	1	20	13.4	−52.5	15.4	−52.5	17.6	−68.5	19.8	−77.4	22.2	−86.7	24.8	−96.6	27.4	−107.1
	1	50	12.3	−47.6	14.1	−47.6	16.0	−62.1	18.1	−70.1	20.3	−78.6	22.6	−87.6	25.0	−97.1
	1	100	11.4	−43.9	13.0	−43.9	14.8	−57.3	16.7	−64.7	18.8	−72.5	20.9	−80.8	23.2	−89.5
	1′	10	14.3	−32.3	16.5	−32.3	18.7	−42.1	21.1	−47.6	23.7	−53.3	26.4	−59.4	29.3	−65.9
	1′	20	13.4	−32.3	15.4	−32.3	17.6	−42.1	19.8	−47.6	22.2	−53.3	24.8	−59.4	27.4	−65.9
	1′	50	12.3	−32.3	14.1	−32.3	16.0	−42.1	18.1	−47.6	20.3	−53.3	22.6	−59.4	25.0	−65.9
	1′	100	11.4	−32.3	13.0	−32.3	14.8	−42.1	16.7	−47.6	18.8	−53.3	20.9	−59.4	23.2	−65.9
	2	10	14.3	−74.1	16.5	−74.1	18.7	−96.8	21.1	−109.3	23.7	−122.5	26.4	−136.5	29.3	−151.2
	2	20	13.4	−69.3	15.4	−69.3	17.6	−90.6	19.8	−102.2	22.2	−114.6	24.8	−127.7	27.4	−141.5
	2	50	12.3	−63.0	14.1	−63.0	16.0	−82.3	18.1	−92.9	20.3	−104.2	22.6	−116.1	25.0	−128.7
	2	100	11.4	−58.3	13.0	−58.3	14.8	−76.1	16.7	−85.9	18.8	−96.3	20.9	−107.3	23.2	−118.9
	3	10	14.3	−101.0	16.5	−101.0	18.7	−131.9	21.1	−148.9	23.7	−166.9	26.4	−186.0	29.3	−206.1
	3	20	13.4	−91.5	15.4	−91.5	17.6	−119.5	19.8	−134.9	22.2	−151.2	24.8	−168.5	27.4	−186.7
	3	50	12.3	−78.9	14.1	−78.9	16.0	−103.0	18.1	−116.3	20.3	−130.4	22.6	−145.3	25.0	−161.0
	3	100	11.4	−69.3	13.0	−69.3	14.8	−90.6	16.7	−102.2	18.8	−114.6	20.9	−127.7	23.2	−141.5
Gable Roof > 7 to 20 Degrees	1	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	1	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	1	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	1	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2e	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	2e	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	2e	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	2e	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2n	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2n	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2n	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2n	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	2r	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2r	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2r	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2r	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3e	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	3e	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	3e	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	3e	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3r	10	21.4	−112.9	24.5	−112.9	27.9	−147.5	31.5	−166.5	35.3	−186.7	39.4	−208.0	43.6	−230.5
	3r	20	19.3	−96.8	22.1	−96.8	25.2	−126.4	28.4	−142.7	31.8	−159.9	35.5	−178.2	39.3	−197.5
	3r	50	16.5	−75.4	18.9	−75.4	21.5	−98.4	24.3	−111.1	27.2	−124.6	30.3	−138.8	33.6	−153.8
	3r	100	14.3	−59.2	16.5	−59.2	18.7	−77.3	21.1	−87.2	23.7	−97.8	26.4	−109.0	29.3	−120.7

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

Metricconversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure for Roof Overhang, p_{net30}, in lb/ft², for Exposure B at h = 30 ft, V= 95–200 mph

	Zone	Effective Wind Area (ft²)	Wind Speed (mph)												
			95	100	105	110	115	120	130	140	150	160	170	180	190
Hip Roof > 27 to 45 Degrees	1	10	–31.6	–35.1	–38.7	–42.4	–46.4	–50.5	–59.3	–68.7	–78.9	–89.8	–101.3	–113.6	–126.6
	1	20	–29.1	–32.2	–35.5	–39.0	–42.6	–46.4	–54.5	–63.2	–72.5	–82.5	–93.2	–104.5	–116.4
	1	50	–25.7	–28.5	–31.4	–34.5	–37.7	–41.1	–48.2	–55.9	–64.1	–73.0	–82.4	–92.4	–102.9
	1	100	–23.2	–25.7	–28.3	–31.1	–34.0	–37.0	–43.4	–50.4	–57.8	–65.8	–74.2	–83.2	–92.7
	2e	10	–38.1	–42.3	–46.6	–51.1	–55.9	–60.9	–71.4	–82.8	–95.1	–108.2	–122.1	–136.9	–152.6
	2e	20	–31.6	–35.0	–38.6	–42.3	–46.3	–50.4	–59.1	–68.6	–78.7	–89.6	–101.1	–113.4	–126.3
	2e	50	–22.9	–25.4	–28.0	–30.7	–33.6	–36.6	–42.9	–49.8	–57.1	–65.0	–73.4	–82.3	–91.7
	2e	100	–22.0	–24.4	–26.9	–29.5	–32.3	–35.1	–41.2	–47.8	–54.9	–62.4	–70.5	–79.0	–88.1
	2r	10	–46.1	–51.1	–56.3	–61.8	–67.5	–73.5	–86.3	–100.1	–114.9	–130.7	–147.6	–165.5	–184.4
	2r	20	–39.7	–44.0	–48.5	–53.2	–58.1	–63.3	–74.3	–86.2	–98.9	–112.5	–127.0	–142.4	–158.7
	2r	50	–31.2	–34.6	–38.1	–41.8	–45.7	–49.8	–58.4	–67.7	–77.7	–88.5	–99.9	–112.0	–124.7
	2r	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	10	–45.2	–50.1	–55.3	–60.6	–66.3	–72.2	–84.7	–98.2	–112.8	–128.3	–144.8	–162.4	–180.9
	3	20	–36.4	–40.3	–44.5	–48.8	–53.4	–58.1	–68.2	–79.1	–90.8	–103.3	–116.6	–130.7	–145.7
	3	50	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

Adjustment Factor for Building Height and Exposure, λ

Mean Roof Height (ft)	Exposure		
	B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.09	1.49	1.74
45	1.12	1.53	1.78
50	1.16	1.56	1.81
55	1.19	1.59	1.84
60	1.22	1.62	1.87

Note: Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

Table 30.5-1 Steps to Determine C&C Wind Loads for Enclosed or Partially Enclosed Building with $h > 60$ ft ($h > 18.3$ m)

Step 1: Determine risk category; see Table 1.5-1.
Step 2: Determine the basic wind speed, V, for applicable risk category; see Figs. 26.5-1 and 26.5-2.
Step 3: Determine wind load parameters:
- Wind directionality factor, K_d; see Section 26.6 and Table 26.6-1.
- Exposure category B, C, or D; see Section 26.7.
- Topographic factor, K_{zt}; see Section 26.8 and Fig. 26.8-1.
- Ground elevation factor, K_e; see Section 26.9 and Table 26.9-1
- Enclosure classification; see Section 26.12.
- Internal pressure coefficient, (GC_{pi}); see Section 26.13 and Table 26.13-1.

Step 4: Determine velocity pressure exposure coefficient, K_z or K_h; see Table 26.10-1.
Step 5: Determine velocity pressure, q, Eq. (26.10-1).
Step 6: Determine external pressure coefficient, (GC_p):
- Walls and flat roofs ($\theta < 10°$), see Fig. 30.5-1
- Gable and hip roofs, see Fig. 30.3-2 per Note 6 of Fig. 30.5-1
- Arched roofs, see Fig. 27.3-3, Note 4
- Domed roofs, see Fig. 30.3-7

Step 7: Calculate wind pressure, p, Eq. (30.5-1).

American Test Lab, Inc
1122 Calvert Road Brevard, NC 28712
828-884-3700
atli@comporium.net atlnc.com

ATLNC # 0321.01-17 Report Date: 04/05/17

Test Dates: 03/21/17 – 03/23/17

Miami Dade Certification # 16-0526.01
FL Organizational # TST 1555
IAS Certification # TL-423

Test Requested By: Steel Building And Structures Inc.
820 Reeves Drive
Mount Airy, NC 27030
Phone 877-272-8276, Fax 336-551-3449

Test Standard: ASTM E 1592-05

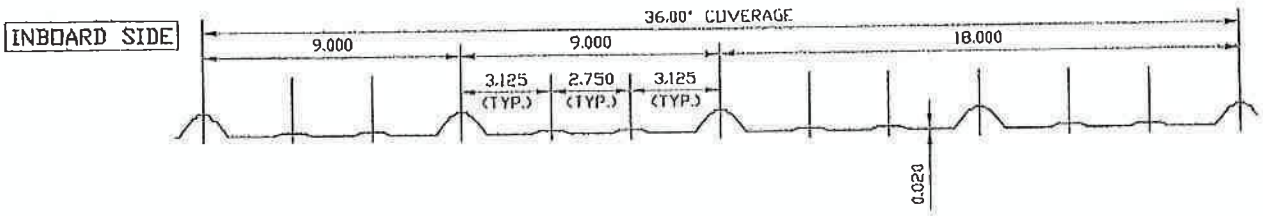
Test Conditions: 65 - 75 degrees F

Description of products tested:

Specimens A, F 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawings SK-1, SK-3, SK-4, SK-5, SK-6. Panels attached to 2-1/2" x 2-1/2" x 14 ga. rafters/ post with 12-14" x 3/4" self drilling screws at 6" oc.

Specimen B, D 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6 over 2-5/16" wide Hat Channel attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Hat Channel was attached to each rafter with (2) 12-14 x 3/4" self drilling screws, panels to Hat Channels with 12-14 x 3/4" self drilling screws at 6" OC.

Specimen C, E 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6.over 2-1/2" x 14 ga sq galvanized steel girth attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Girth was attached to each rafter with 2" x 2" x 14 ga angle with (4) 12-14 x 3/4" self drilling screws, panels attached to girth with 12-14 x 3/4" self drilling screws at 6" OC.



Configuration:

Specimen A, (3) 4' purlin spans, 3 panels wide mounted horizontally.

Specimen B, (3) 4' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen C, (3) 4' purlin spans, 4' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen D, 5' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen E, (3) 5' purlin spans, 5' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen F, (3) 5' purlin spans, 3 panels wide mounted horizontally.

Rafter/Post/Girth Construction- 2-1/2" x 2-1/2" x 14 ga tube

Rafter Spacing- Specimen A B, C, 3 spans 48" OC with 12" overhang.
Specimen D, E, F, 3 spans 60" OC, with 12" overhang.

Hat Channel Spacing: Specimen B, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 48" OC with 12" overhang, rafter spacing 60" OC.

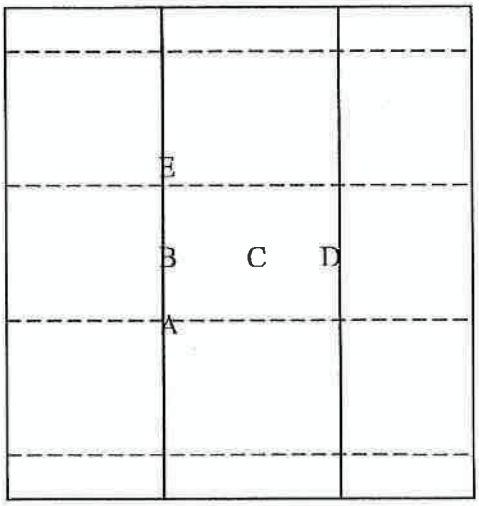
2-1/2" Tube Girth Spacing: Specimen C, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC.

Rafter/Post Attachment- Each rafter/post was attached the chamber.

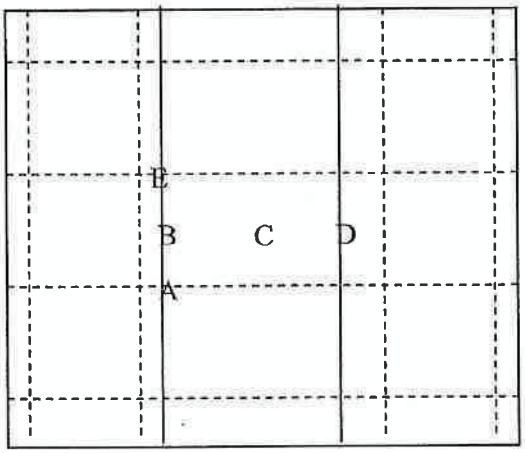
Test Specimens

Indicator Locations

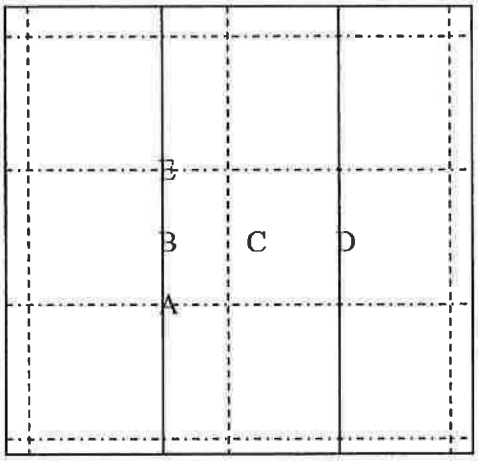
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

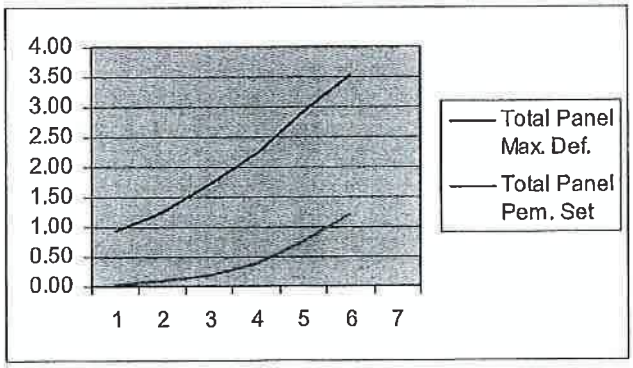
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
20	60	.75"	.02"	.83"	.03"	.93"	.03"
30	60	1.04"	.05"	1.12"	.07"	1.26"	.08"
40	60	1.45"	.15"	1.52"	.17"	1.73"	.20"
50	60	1.84"	.30"	1.92"	.33"	2.22"	.39"
60	60	2.35"	.55"	2.47"	.64"	2.90"	.76"
70	60	2.86"	.84"	2.97"	.99"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
20	60	.80"	.02"	.81"	.02"	.93"	.03"
30	60	1.09"	.06"	1.06"	.06"	1.26"	.08"
40	60	1.50"	.17"	1.47"	.16"	1.73"	.20"
50	60	1.90"	.32"	1.86"	30"	2.22"	.39"
60	60	2.46"	.63"	2.40"	.58"	2.90"	.76"
70	60	2.97"	.97"	2.87"	.89"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 124 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen B

Deflections in inches

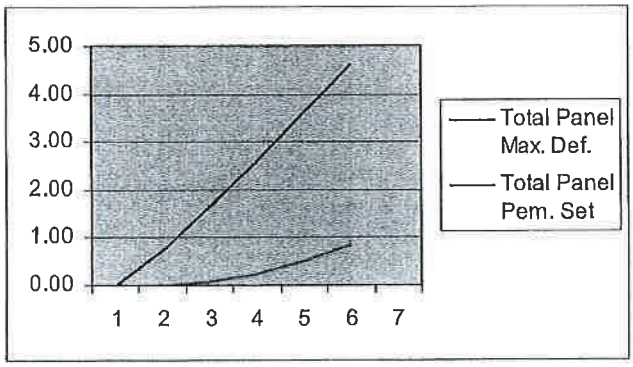
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.58"	.01"	.60"	0.0	.75"	.01"
30	60	1.34"	.07"	1.45"	.08"	.169"	.08"
40	60	2.07"	.21"	2.29"	.21"	2.57"	.22"
50	60	2.97"	.44"	3.03"	.46"	3.58"	.49"
60	60	3.89"	.75"	4.36"	.80"	4.62"	.86"
70	60						
80	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.61"	0.0	.56"	0.0	.75"	.01"
30	60	1.60"	.08"	1.30"	.06"	.169"	.08"
40	60	2.37"	.24"	2.06"	.18"	2.57"	.22"
50	60	3.36"	.48"	2.92"	.39"	3.58"	.49"
60	60	4.38"	.83"	3.83"	.69"	4.62"	.86"
70	60						
80	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 82 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Hat channel screws disengaged from rafter/post.

Specimen C

Deflections in inches

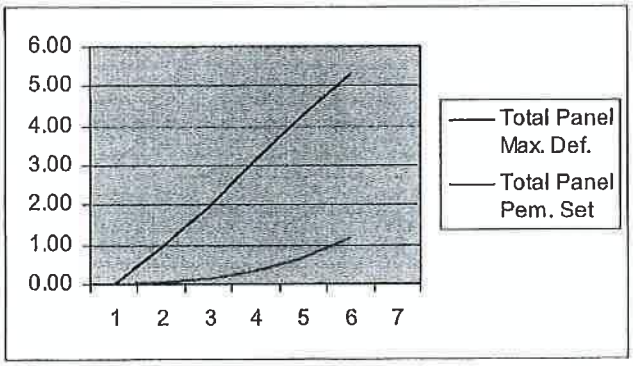
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.70"	.04"	.82"	.05"	.96"	.06"
20	60	1.53"	.08"	1.72"	.10"	1.99"	.12"
30	60	2.41"	.22"	2.68"	.24"	3.15"	.32"
40	60	3.18"	.44"	3.57"	.49"	4.26"	.66"
50	60	3.97"	.75"	4.41"	.84"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.93"	.05"	.71"	.03"	.96"	.06"
20	60	1.90"	.11"	1.49"	.07"	1.99"	.12"
30	60	2.94"	.28"	2.36"	.20"	3.15"	.32"
40	60	3.89"	.56"	3.10"	.44"	4.26"	.66"
50	60	4.79"	.96"	3.92	.78"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 50 psf to prevent damage. Failure occurred at approximately 105 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen D

Deflections in inches

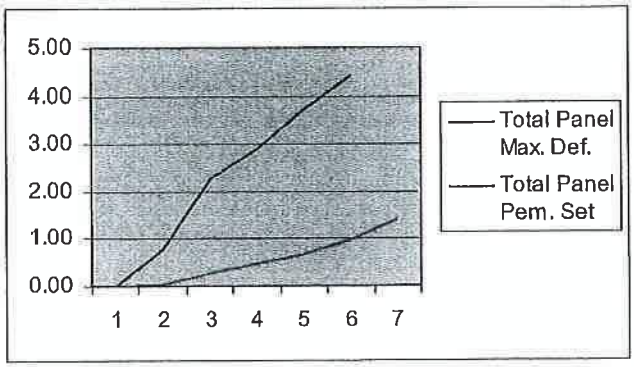
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.54"	.02"	.69"	.02"	.78"	.02"
14	60	1.70"	.29"	2.18"	36"	2.26"	.28"
21	60	2.20"	.47"	2.81"	.57"	2.90"	.45"
28	60	2.83"	.63"	3.61"	.78"	3.72"	.67"
35	60	3.32"	.88"	4.27"	1.13"	4.43"	.99"
42	60	4.11"	1.22"	5.14"	1.56"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.76"	.02"	.75"	.02"	.78"	.02"
14	60	2.08"	.22"	2.35"	.37"	2.26"	.28"
21	60	2.65"	.37"	3.01"	.58"	2.90"	.45"
28	60	3.37"	.56"	3.89"	.81"	3.72"	.67"
35	60	3.88"	.81"	4.62"	1.20"	4.43"	.99"
42	60	4.56"	1.10"	5.63"	1.71"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 42 psf to prevent damage. Failure occurred at approximately 73 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen E

Deflections in inches

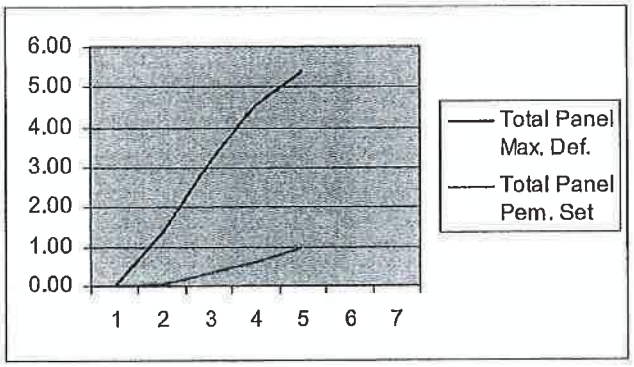
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.13"	.10"	1.22"	.07"	1.38"	.07"
20	60	2.49"	.30"	2.72"	.30"	3.12"	.31"
30	60	3.56"	.51"	3.90"	.53"	4.56"	.60"
40	60	4.45"	.80"	4.71"	.87"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.40"	.08"	1.09"	.07"	1.38"	.07"
20	60	3.08"	.30"	2.42"	.25"	3.12"	.31"
30	60	4.46"	.59"	3.44"	.42"	4.56"	.60"
40	60	5.43"	.99"	4.33"	.71"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 40 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen F

Deflections in inches

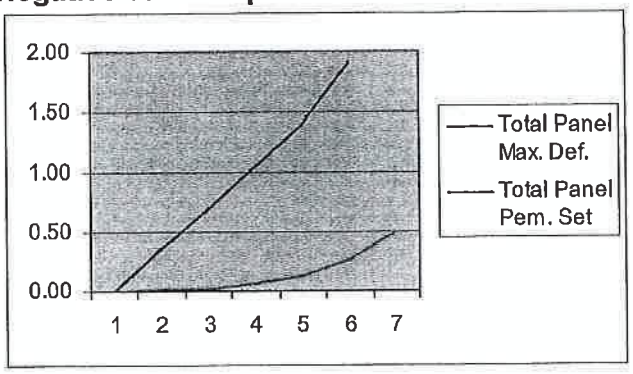
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.23"	.0"	.27"	.01"	.36"	.02"
14	60	.49"	.0"	.56"	.02"	.71"	.02"
21	60	.74"	.03"	.84"	.04"	1.05"	.06"
28	60	1.06"	.09"	1.12"	.10"	1.39"	.13"
25	60	1.41"	.20"	1.52"	.21"	1.90"	.27"
42	60	1.77"	.37"	1.52"	.40"	2.40"	.50"
49	60	2.27"	.63"	2.40"	.70"	2.93"	.86"
56	60	2.81"	1.00"	2.99"	1.11"	3.66"	1.38"
63	60	3.43"	1.48"	3.79"	1.61"	4.70"	2.06"
70	60						
77							
84							

Deflections in inches

Pre91ssure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.28"	.01"	.24"	.0"	.36"	.02"
14	60	.60"	.02"	.52"	.01"	.71"	.02"
21	60	.90"	.05"	.80"	.04"	1.05"	.06"
28	60	1.19"	.11"	1.09"	.09"	1.39"	.13"
25	60	1.59"	.23"	1.44"	.19"	1.90"	.27"
42	60	2.01"	.41"	1.81"	.35"	2.40"	.50"
49	60	2.49"	.70"	2.26"	.60"	2.93"	.86"
56	60	3.08"	1.12"	2.78"	.98"	3.66"	1.38"
63	60	3.87"	1.64"	3.39"	1.45"	4.70"	2.06"
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 63 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Note: 2 mil or 4 mil polyethylene film was used for the ASTM 1592 test, it is the opinion of the undersigned that it had no influence on the results of the test.

Technician: Keith Owen

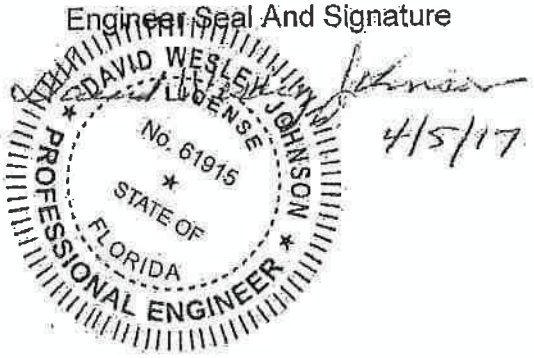
Observers-

Keith Owen, Ashley Poplin, / ATL
Sam Poplin, Keith Owen Jr., Ronald Anders / ATL
David W. Johnson, P.E

Keith Owen, Lab Director
American Test Lab, Inc.
Keith Owen
4/5/17

All Tests Witnessed and Certified by:
David Johnson P. E.
1122 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 61915

Engineer Seal And Signature

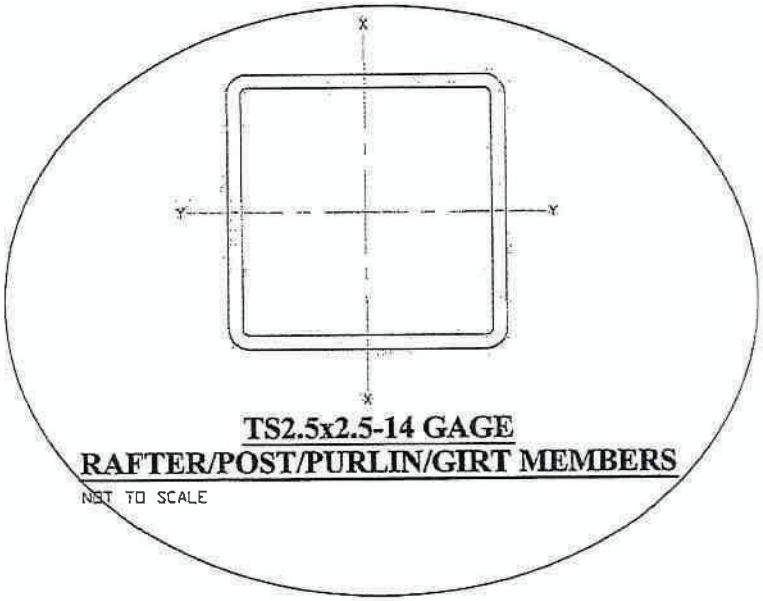


4/5/17

Certificate of Independence: The witnessing engineer has no equity interest in American Test Lab of North Carolina, Steel Building and Structures or their parts vendors. Witnessing engineer is in complete compliance of Florida Statue 9B-72, Section 72.110

Disclaimer:

ATL and its staff have no equity interest in any product tested or installed. This test report was prepared by American Test Lab, North (ATL) for the exclusive use of the above named client; it does not constitute certification of this product. The results are for that particular specimen tested and does not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. ATL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. This report may not be reproduced except in full, and only under expressed permission from American Test Lab or Steel Building and Structures. Reproduced reports in hard copy must be labeled "Copy".



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50-80 KSI

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/16/17

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-Inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

TS2.5x2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

M&A JOB NO. 16192S

SCALE: AS NOTED

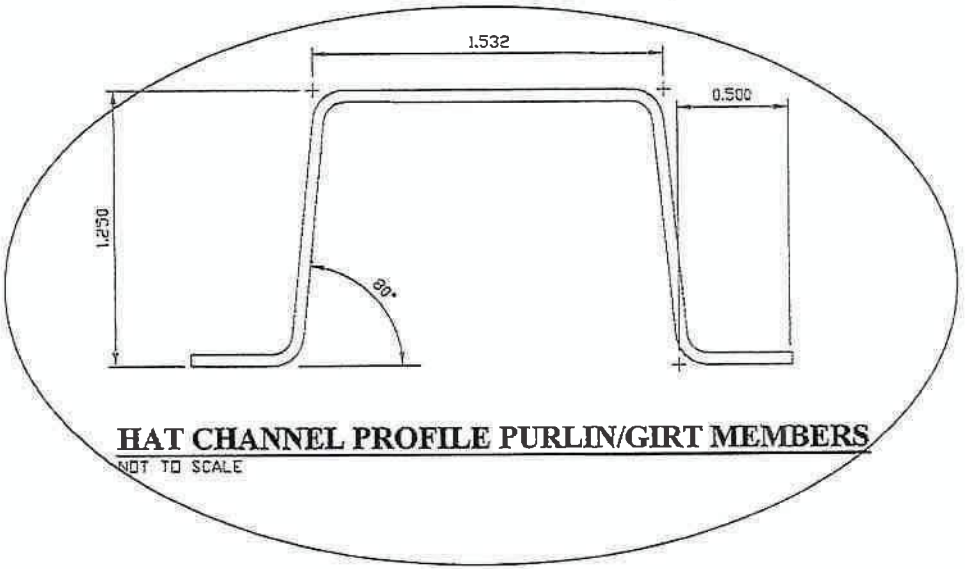
CHECKED BY: PDH

DRAWN BY: JRS

DATE: 3-14-17

REV. 0

SHEET NO. **SK-1**



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

WAYNE S. MOORE LICENSE No. 57470 STATE OF FLORIDA PROFESSIONAL ENGINEER 5/16/17

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH:	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES
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North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

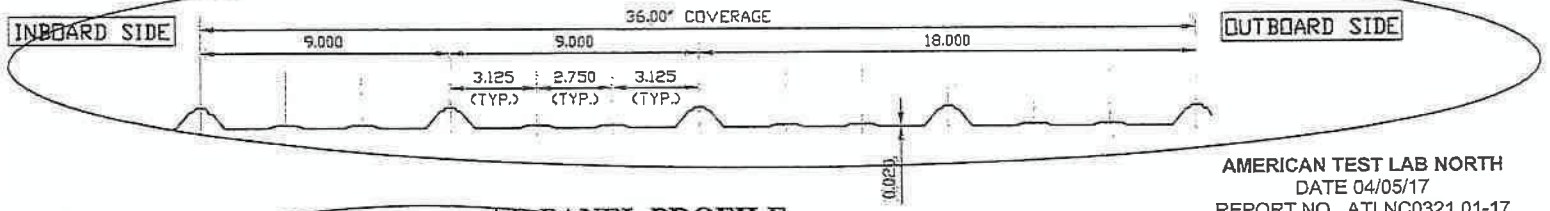
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PJH	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

SHEET NO. **SK-2**

REV. 0	SCALE: AS NOTED	M&A JOB NO. 161925	
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PJH	

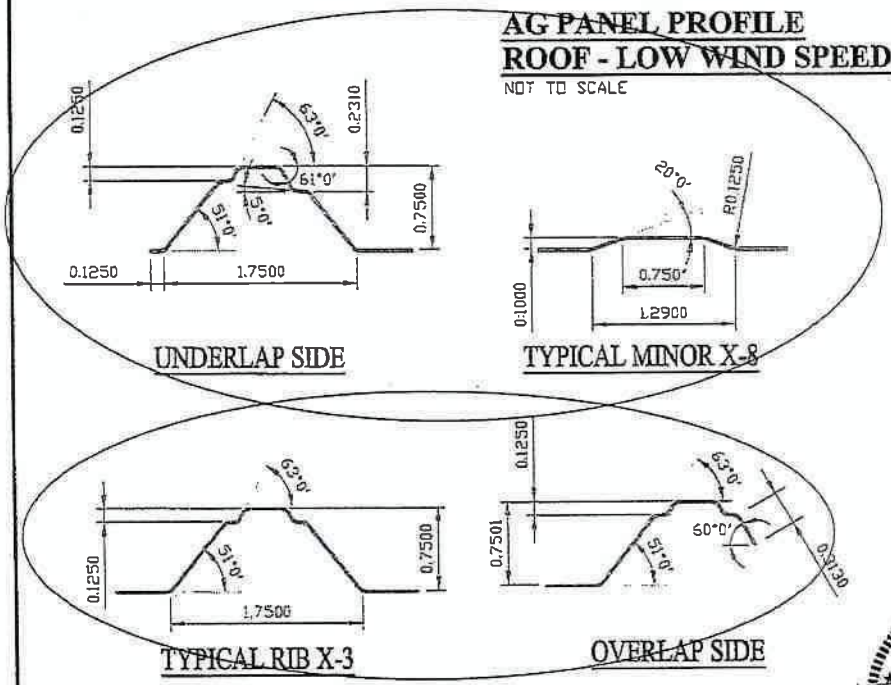


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

AG PANEL PROFILE
ROOF - LOW WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/22/17

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -28.2 PSF

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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North Augusta, South Carolina 29841
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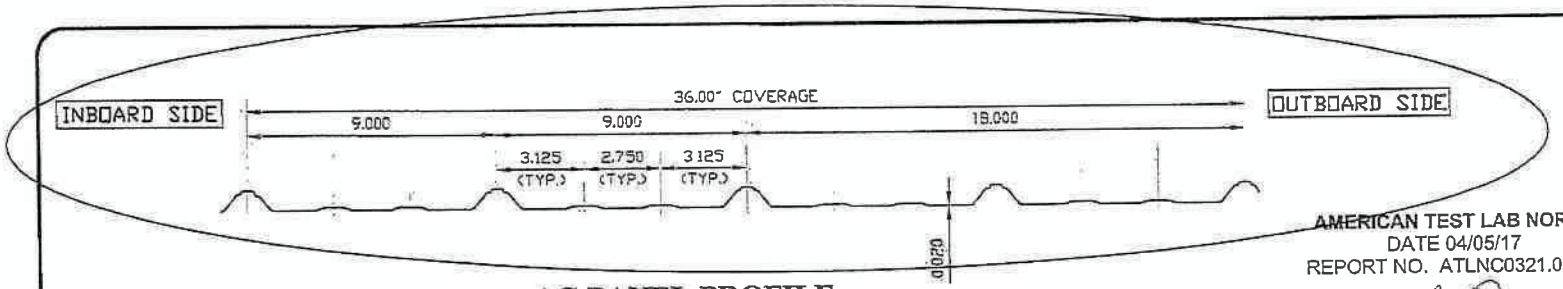
www.MandA-Inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
LOW WIND SPEED

SHEET NO. SK-3
REV. 0
DATE: 3-14-17
SCALE: AS NOTED
M&A JOB NO. 161925
CHECKED BY: PDH
DRAWN BY: JRS

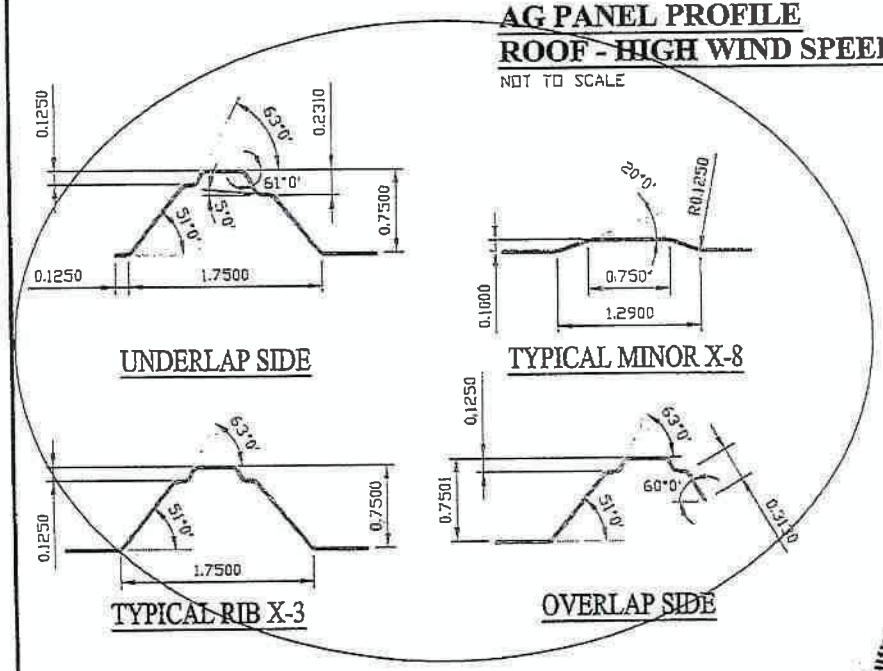


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

AG PANEL PROFILE
ROOF - HIGH WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57870 STATE OF FLORIDA PROFESSIONAL ENGINEER 8/28/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE ROOF PRESSURE: 21.2 PSF
SUCTION ROOF PRESSURE: -39.4 PSF

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7709 / FAX (803) 279-3840
www.Moore-Inc.com

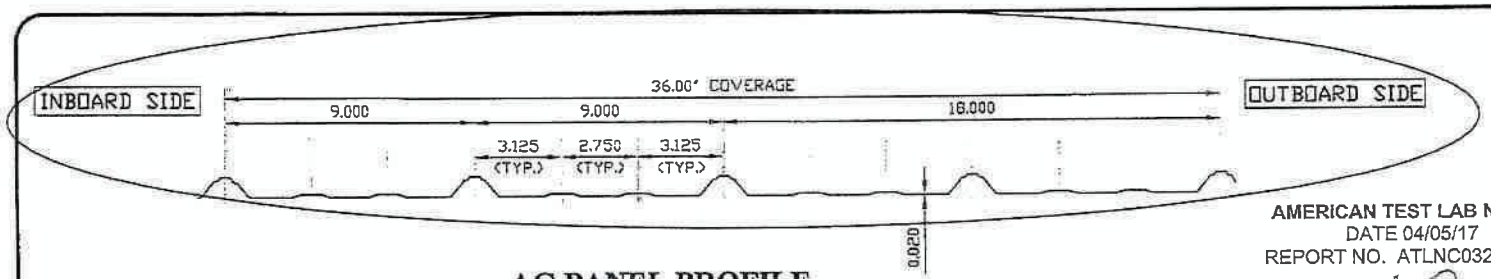
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL
ROOF
HIGH WIND SPEED

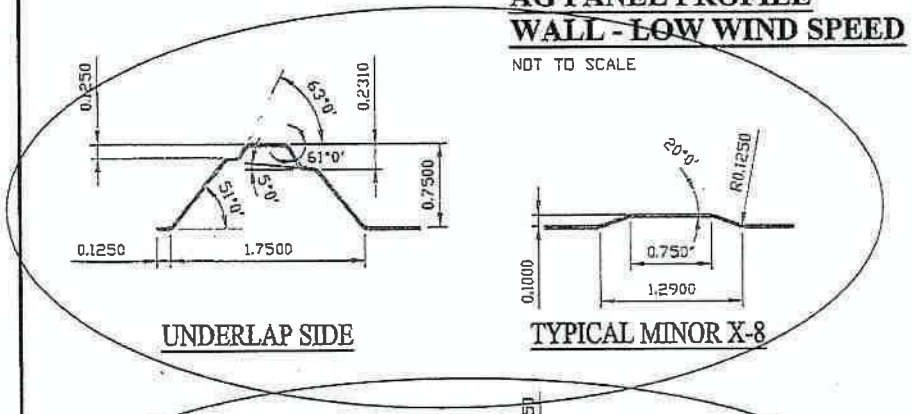
SCALE: AS NOTED | H&A JOB NO. 161925 | CHECKED BY: PDH
REV. 0 | DRAWN BY: JRS | DATE: 3-14-17

SHEET NO. SK-4



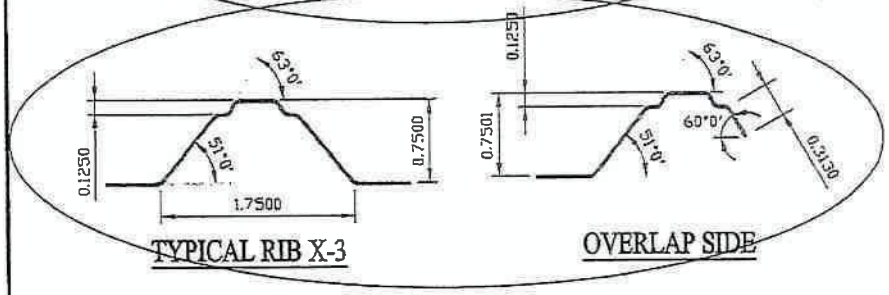
AG PANEL PROFILE
WALL - LOW WIND SPEED

NOT TO SCALE



UNDERLAP SIDE

TYPICAL MINOR X-8



TYPICAL RIB X-3

OVERLAP SIDE

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY 1.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57130 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/12/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE WALL PRESSURE: 18.5 PSF
NEGATIVE WALL PRESSURE: -24.1 PSF

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7769 / FAX (803) 279-3846
www.MooreAssociates-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSH

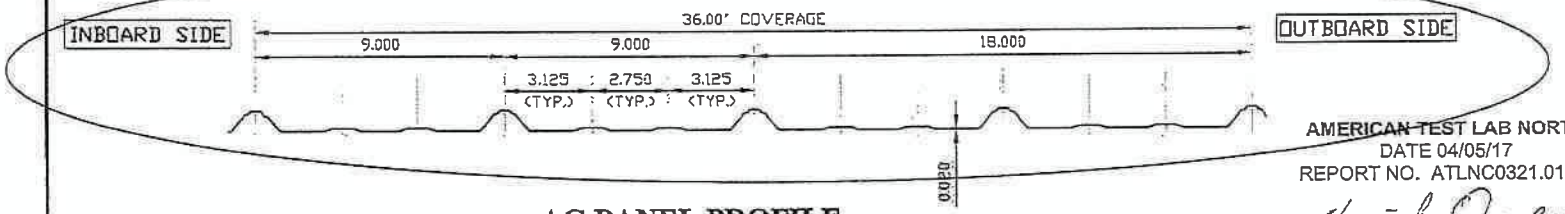
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

ASC STANDARD GRB AG PANEL WALL
LOW WIND SPEED

SHEET NO. **SK-5**

SCALE: AS NOTED	M&A JOB NO. 161928
REV. 0	CHECKED BY: PDH
DATE: 3-14-17	DRAWN BY: JRS

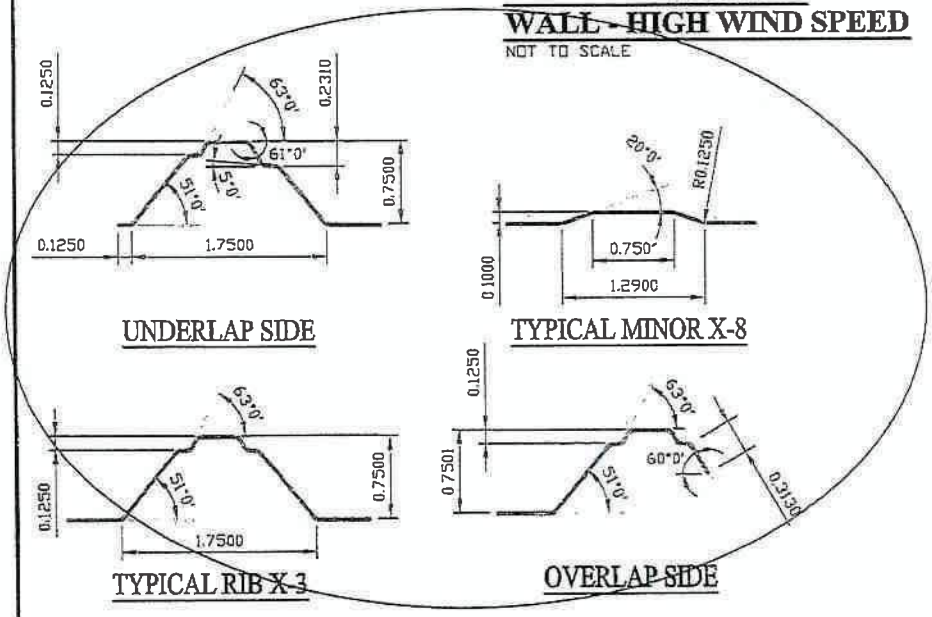


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

AG PANEL PROFILE
WALL - HIGH WIND SPEED

NOT TO SCALE



TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER-LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER; SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/16/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE WALL PRESSURE: 27.3 PSF
SUCTION WALL PRESSURE: -35.5 PSF

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1009 East Avenue
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(803) 278-7799 / FAX (803) 279-3848
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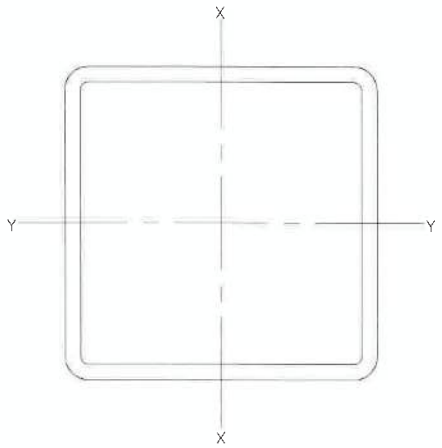
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
HIGH WIND SPEED

SHEET NO. SK-6
REV. 0
DATE: 3-14-17
SCALE: AS NOTED
M&A JOB NO. 161925
CHECKED BY: PDH
DRAWN BY: JRS



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50-80 KSI

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION ---- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
TS2.5x2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

M&A JOB NO. 16192S

SCALE: AS NOTED

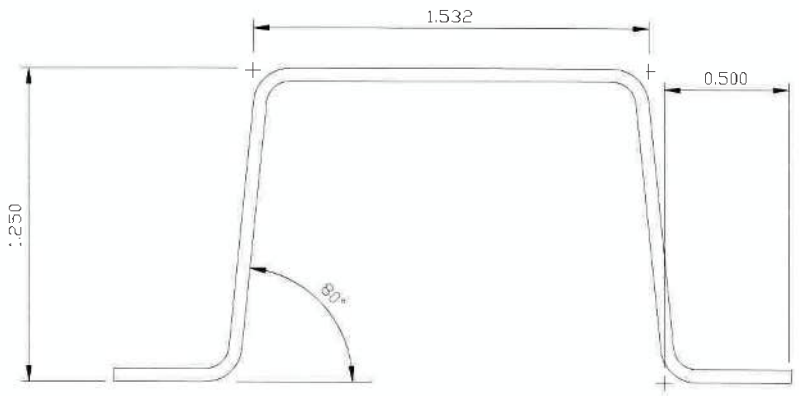
CHECKED BY: PDH

DRAWN BY: JRS

DATE: 3-14-17

REV. 0

SHEET NO.
SK-1



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50 80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION - (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES ---------- (+ OR -) 2 DEGREES
CAMBER ---------- (+ OR -) 1/8 IN IN 10 FT
SKI ---------- (+ OR -) 1/8 IN IN 10 FT
DIVE ---------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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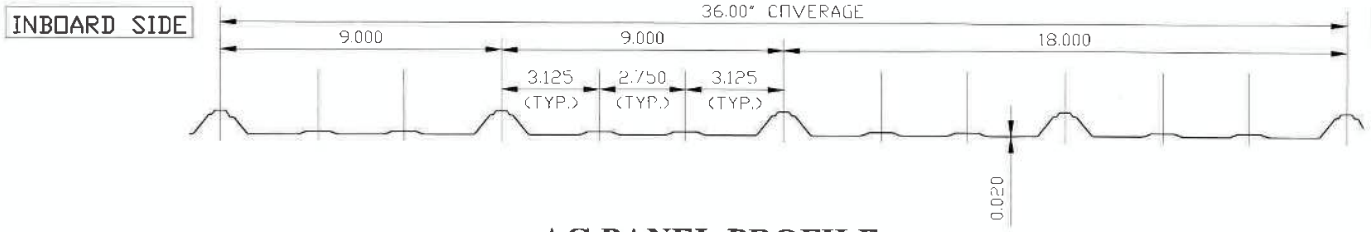
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

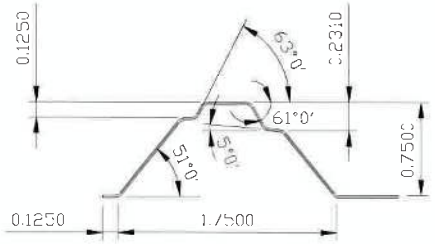
SHEET NO.
SK-2

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH

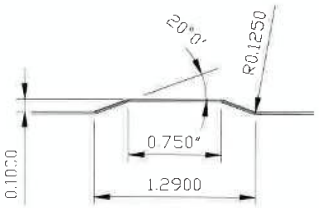


AG PANEL PROFILE
ROOF - LOW WIND SPEED

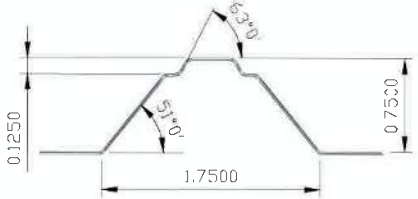
NOT TO SCALE



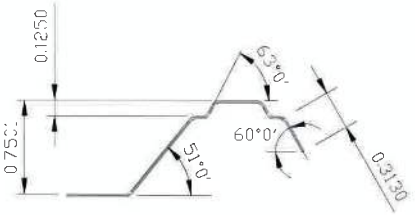
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH); MAXIMUM RAFTER/PURLIN AND END PURLIN SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

29 GAGE
CALCULATED COIL WIDTH: 43 13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -39.9 PSF

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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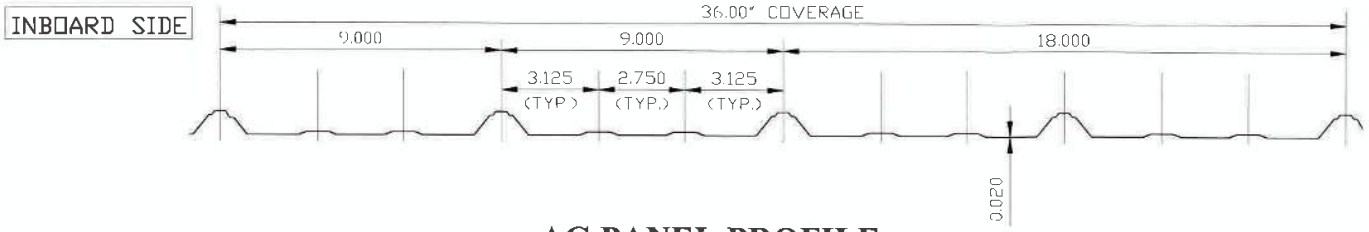
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

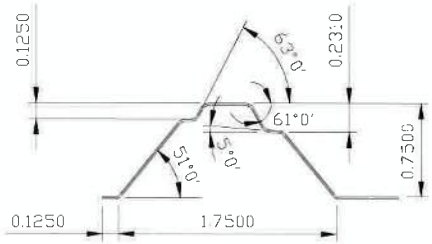
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
LOW WIND SPEED

SHEET NO.	SCALE:	M&A JOB NO. 16192S
SK-3	AS NOTED	
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		

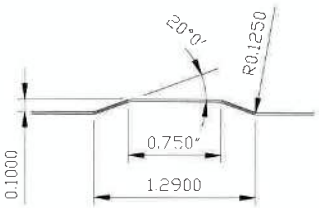


AG PANEL PROFILE
ROOF - HIGH WIND SPEED

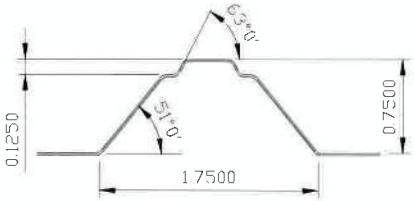
NOT TO SCALE



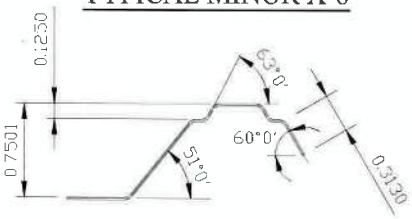
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FT.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING (IN-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (PP" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE ROOF PRESSURE: 16.0 PSF
SUCTION ROOF PRESSURE: -59.7 PSF

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

MOORE AND ASSOCIATES
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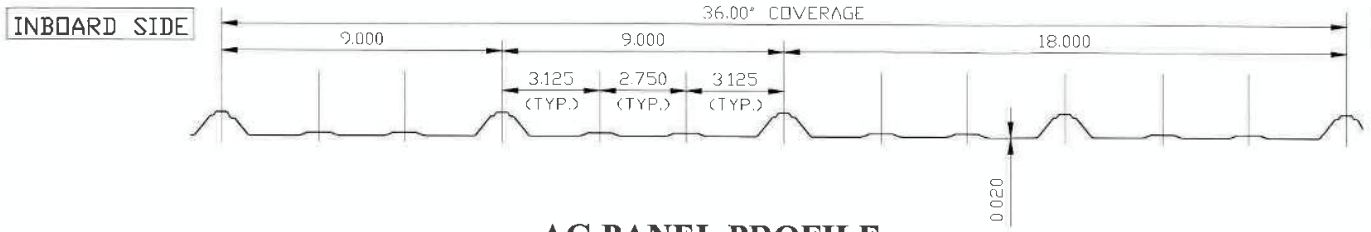
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

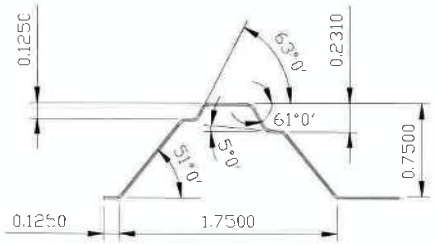
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
HIGH WIND SPEED

SHEET NO.	SCALE:	M&A JOB NO. 16192S
SK-4	AS NOTED	
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		

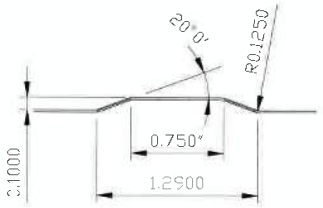


AG PANEL PROFILE
WALL - LOW WIND SPEED

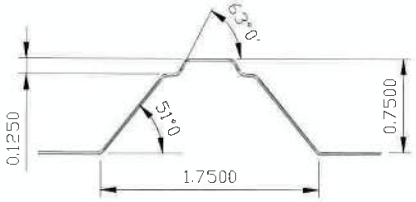
NOT TO SCALE



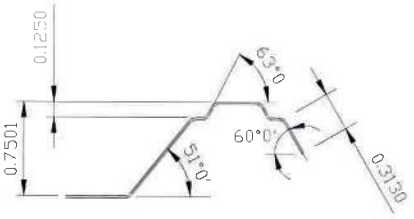
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH). MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH). SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 17.8 PSF
NEGATIVE WALL PRESSURE: -23.4 PSF

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

WAYNE B. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 1/12/21

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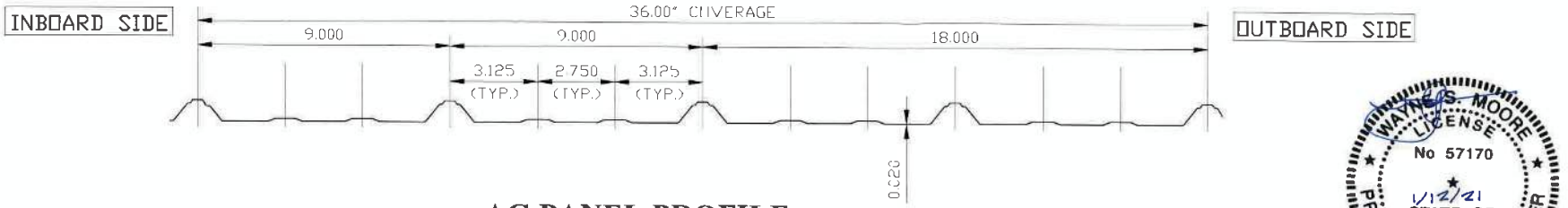
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	VSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
LOW WIND SPEED

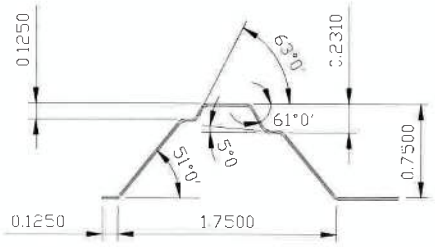
M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17

SHEET NO.
SK-5

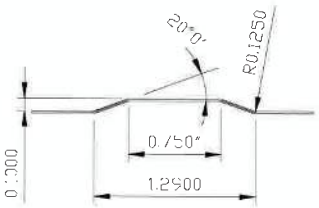


AG PANEL PROFILE
WALL - HIGH WIND SPEED

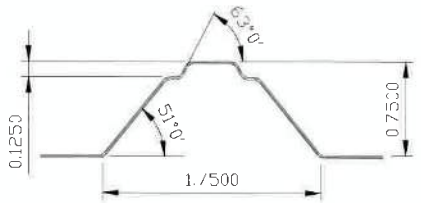
NOT TO SCALE



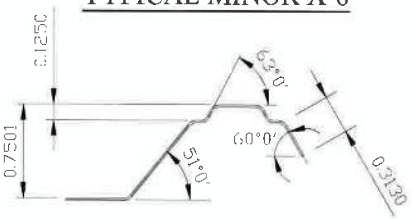
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH). MAXIMUM RAFTER/PURLIN AND END PURLIN SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG PURLINS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH). SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

29 GAGE
CALCULATED COIL WIDTH: 43 13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 26.6 PSF
SUCTION WALL PRESSURE: -34.9 PSF

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-Inc.com

WAYNE S. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 1/12/21

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL
WALL
HIGH WIND SPEED

SHEET NO. SK-6

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

401 S. Main Street
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15 April 2021

State of Florida- Metal Building Component Product Approval
Engineering Evaluation Report
M&A Project No. 20300S

Prepared By:	Wayne S. Moore, P.E. FL PE No. 57170 M&A COA No. 8966
Manufacturer:	Steel Buildings and Structures, Inc. 820 Reeves Drive Mount Airy, NC 27030
Product:	**AG Metal Roof Panel**
Product Description:	Low and high wind rated wall panels.

FL Product Code Approval No.: **FL22561**

Code Compliance Statement:

Moore and Associates Engineering and Consulting, Inc. (M&A) has reviewed the plans, calculations and testing information that applies to Florida Product Approval #FL22561 under the 2020 Florida Building Code, 7th Edition and finds them in compliance.

Certificate of Independence:

Wayne S. Moore, P.E. and M&A does not have, nor does it intend to acquire or will it acquire, a financial interest the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. is not employed by nor is M&A owned, operated or controlled by the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will they acquire, a financial interest in the company manufacturing or distributing the product or products for which test reports are being issued. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product or products.

National Society of Professional Engineers®

Supporting Documents:

Calculations:	Structural calculations dated 11 January 2021 performed by John Smith, E.I.T. and checked by Wayne S. Moore, P.E.
Drawings:	Drawings SK-1 through SK-6 signed/sealed by Wayne S. Moore, P.E.
Testing:	ATLNC #0321.01-17 test report dated 04/05/2017 and signed/sealed by David Johnson, P.E.

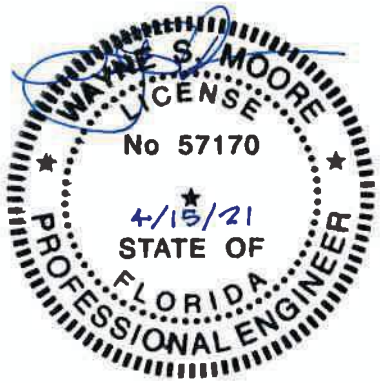
Limitations and Conditions of Use:

1. Structural calculations were performed in accordance with the 2020 FBC, 7th Edition and compared to test results performed under previous FBC given that testing of panel was performed to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports and attachment fasteners.
2. Maximum allowable design pressure shall be as indicated on plans for each configuration.
3. This product is for use outside of the High Velocity Hurricane Zone (HVHZ).
4. This product shall be minimum 29 gauge thick galvalume coated steel with minimum yield stress of 80 ksi.
5. Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
6. All supporting structural members shall be capable of supporting superimposed loads applied to this product.
7. Fasteners must consist of minimum 12-14 x ¾" self-drilling fasteners (SDFs) with control seal washers.
8. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof slope of 3:12 (14 degrees) or less.
9. Product shall be installed into substrates shown on installation drawings and shall not exceed spacing limitations.
10. Site conditions that deviate from calculation, drawing and/or testing limitation noted shall require further analysis by a licensed Professional Engineer registered in the State of Florida.

Quality Assurance:

The manufacturer has demonstrated compliance of proper quality assurance/quality control (QA/QC) in accordance with the Florida Administrative Code Rule 61G20-3.005. Manufacturer's QA/QC plan and practices have been audited by an approved quality assurance entity (Subsection 3).

Signature/Seal:



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Structural Analysis/Design Calculations Project Data Sheet

Client:	SBSI
Client Project/ PO Number:	
Project Name:	SBSI - Keystone FPC (FL22561.1)
Project Location:	
Subject:	Design
Date:	1/12/2021
M&A Project Number:	20300S

	Engineer	Checked By	Approved By
Name:	John Smith		
Date:	1/12/2021		

Project:	The purpose of the above calculations is to find design wind pressures for a 15'x10' section of **AG Metal Roof** for Risk Category I and Exposure B for 105-140mph (Low) and 141-170mph (High) winds.
References:	2018 International Building Code (IBC) 2020 Florida Building Code (FBC) ASCE 7-16 Mathcad 6.0

AG Metal Roof Calc Set

Design Loads:

$space_1 := 5 \cdot ft$ **o.c.** Low Wind Spacing

$space_2 := 4 \cdot ft$ **o.c.** High Wind Spacing

Risk Cat. I
Exposure B

$width := 180 \cdot in$

$Ht := 120\ in$

$$Ht_{roof} := \frac{width}{2} \cdot 0.25 = 1.875\ ft$$

$$mean_{rf}ht := 20\ ft = 20\ ft$$

$FS := 1.5$

Note: Test Protocol ASTM E330 requires a 50% safety factor over design load pressures.

Low Wind 140mph (Vasd=108mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ Adjustment Factor

$mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

Roof (Wind Area = 50 square ft):

Note: Used Zone 3r (most conservative)

$$Ppd_{net30pos108} := 9.84\ psf \cdot \lambda = 8.758\ psf$$

$$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos108}\right) = 16\ psf$$

$$Ppd_{net30neg108} := -44.86\ psf \cdot \lambda = -39.925\ psf$$

Note: Minimum Design pressure in either direction is 16psf per ASCE 7-16 Section 30.2.2 (pg. 333)

Roof (Wind Area = 50 square ft):

Note: Using Zone 3e (2nd most conservative)

$$Ppd_{net30pos108} := 9.84\ psf \cdot \lambda = 8.758\ psf$$

$$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos108}\right) = 16\ psf$$

$$Ppd_{net30neg108} := -38.76\ psf \cdot \lambda = -34.496\ psf$$

Note: Highlighted values indicate input.

High Wind 170mph (Vasd=132mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ $mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)
Adjustment Factor

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

Roof (Wind Area = 50 square ft):

Note: Used Zone 3r (most conservative)

$Ppd_{net30pos132} := 14.66\ psf \cdot \lambda = 13.047\ psf$

$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos132}\right) = 16\ psf$

Note: Minimum Design pressure in either direction is 16psf per ASCE 7-16 Section 30.2.2 (pg. 333)

$Ppd_{net30neg132} := -67.08\ psf \cdot \lambda = -59.701\ psf$

Roof (Wind Area = 50 square ft):

Note: Used Zone 3e (2nd most conservative)

$Ppd_{net30pos132} := 14.66\ psf \cdot \lambda = 13.047\ psf$

$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos132}\right) = 16\ psf$

$Ppd_{net30neg132} := -57.98\ psf \cdot \lambda = -51.602\ psf$

Note: Highlighted values indicate input.

CHAPTER 30
WIND LOADS: COMPONENTS AND CLADDING

30.1 SCOPE

30.1.1 Building Types. This chapter applies to the determination of wind pressures on components and cladding (C&C) on buildings.

1. Part 1 is applicable to an enclosed or partially enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, multispan gable roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, and the wind pressures are calculated from a wind pressure equation.
2. Part 2 is a simplified approach and is applicable to an enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, or hip roof, and the wind pressures are determined directly from a table.
3. Part 3 is applicable to an enclosed or partially enclosed
   - Building with $h > 60$ ft (18.3 m).

   The building has a flat roof, pitched roof, gable roof, hip roof, mansard roof, arched roof, or domed roof, and the wind pressures are calculated from a wind pressure equation.
4. Part 4 is a simplified approach and is applicable to an enclosed
   - Building with 60 ft $< h \leq 160$ ft (18.3 m $< h \leq 48.8$ m).

   The building has a flat roof, gable roof, hip roof, monoslope roof, or mansard roof, and the wind pressures are determined directly from a table.
5. Part 5 is applicable to an open building of all heights that has a pitched free roof, monoslope free roof, or troughed free roof.
6. Part 6 is applicable to building appurtenances such as roof overhangs, parapets, and rooftop equipment.
7. Part 7 is applicable to non-building structures – circular bins, silos and tanks; and rooftop solar panels.
   - Circular Bins, Silos and Tanks: $h \leq 120$ ft (38.6 m).
   - Rooftop Solar Panels: Buildings of all heights with flat roofs or Gable or Hip Roofs with roof slopes less than or equal to 7 degrees

30.1.2 Conditions. A building that has design wind loads determined in accordance with this chapter shall comply with all of the following conditions:

1. The building is a regular-shaped building as defined in Section 26.2; and
2. The building does not have response characteristics that make it subject to across-wind loading, vortex shedding, or instability caused by galloping or flutter; nor does it have a site location for which channeling effects or buffeting in the wake of upwind obstructions warrant special consideration.

30.1.3 Limitations. The provisions of this chapter take into consideration the load magnification effect caused by gusts in resonance with along-wind vibrations of flexible buildings. The loads on buildings that do not meet the requirements of Section 30.1.2 or that have unusual shapes or response characteristics shall be determined using recognized literature documenting such wind load effects or shall use the wind tunnel procedure specified in Chapter 31.

30.1.4 Shielding. There shall be no reductions in velocity pressure caused by apparent shielding afforded by buildings and other structures or terrain features.

30.1.5 Air-Permeable Cladding. Design wind loads determined from Chapter 30 shall be used for air-permeable claddings, including modular vegetative roof assemblies, unless approved test data or recognized literature demonstrates lower loads for the type of air-permeable cladding being considered.

30.2 GENERAL REQUIREMENTS

30.2.1 Wind Load Parameters Specified in Chapter 26. The following wind load parameters are specified in Chapter 26:

- Basic wind speed, V (Section 26.5).
- Wind directionality factor, K_d (Section 26.6).
- Exposure category (Section 26.7).
- Topographic factor, K_{zt} (Section 26.8).
- Ground elevation factor, K_e (Section 26.9)
- Velocity pressure exposure coefficient, K_z or K_h (Section 26.10.1); Velocity pressure, q_z (Section 26.10.2)
- Gust-effect factor (Section 26.11).
- Enclosure classification (Section 26.12).
- Internal pressure coefficient, (GC_{pi}) (Section 26.13).

30.2.2 Minimum Design Wind Pressures. The design wind pressure for C&C of buildings shall not be less than a net pressure of 16 lb/ft^2 (0.77 kN/m^2) acting in either direction normal to the surface.

30.2.3 Tributary Areas Greater than 700 ft^2 (65 m^2). C&C elements with tributary areas greater than 700 ft^2 (65 m^2) shall be permitted to be designed using the provisions for main wind force resisting systems (MWFRS).

30.2.4 External Pressure Coefficients. Combined gust-effect factor and external pressure coefficients for C&C, (GC_p), are given in the figures associated with this chapter. The pressure coefficient values and gust-effect factor shall not be separated.

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 95–130 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			95		100		105		110		115		120		130	
Walls	4	10	16.2	−17.6	18.0	−19.5	19.8	−21.5	21.8	−23.6	23.8	−25.8	25.9	−28.1	30.4	
	4	20	15.5	−16.9	17.2	−18.7	18.9	−20.6	20.8	−22.6	22.7	−24.7	24.7	−26.9	29.0	
	4	50	14.5	−15.9	16.1	−17.6	17.8	−19.4	19.5	−21.3	21.3	−23.3	23.2	−25.4	27.2	
	4	100	13.8	−15.2	15.3	−16.8	16.9	−18.5	18.5	−20.4	20.2	−22.2	22.0	−24.2	25.9	
	5	10	16.2	−21.7	18.0	−24.1	19.8	−26.6	21.8	−29.1	23.8	−31.9	25.9	−34.7	30.4	
	5	20	15.5	−20.3	17.2	−22.5	18.9	−24.8	20.8	−27.2	22.7	−29.7	24.7	−32.4	29.0	
	5	50	14.5	−18.3	16.1	−20.3	17.8	−22.4	19.5	−24.6	21.3	−26.9	23.2	−29.3	27.2	
	5	100	13.8	−16.9	15.3	−18.7	16.9	−20.6	18.5	−22.6	20.2	−24.7	22.0	−26.9	25.9	
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	6.6	−25.9	7.3	−28.7	8.1	−31.6	8.9	−34.7	9.7	−37.9	10.5	−41.3	12.4	
	1	20	6.2	−24.2	6.9	−26.8	7.6	−29.5	8.3	−32.4	9.1	−35.4	9.9	−38.5	11.6	
	1	50	5.6	−21.9	6.3	−24.3	6.9	−26.8	7.6	−29.4	8.3	−32.1	9.0	−34.9	10.6	
	1	100	5.2	−20.2	5.8	−22.4	6.4	−24.7	7.0	−27.1	7.7	−29.6	8.3	−32.2	9.8	
	1′	10	6.6	−14.9	7.3	−16.5	8.1	−18.2	8.9	−19.9	9.7	−21.8	10.5	−23.7	12.4	
	1′	20	6.2	−14.9	6.9	−16.5	7.6	−18.2	8.3	−19.9	9.1	−21.8	9.9	−23.7	11.6	
	1′	50	5.6	−14.9	6.3	−16.5	6.9	−18.2	7.6	−19.9	8.3	−21.8	9.0	−23.7	10.6	
	1′	100	5.2	−14.9	5.8	−16.5	6.4	−18.2	7.0	−19.9	7.7	−21.8	8.3	−23.7	9.8	
	2	10	6.6	−34.1	7.3	−37.8	8.1	−41.7	8.9	−45.7	9.7	−50.0	10.5	−54.4	12.4	
	2	20	6.2	−31.9	6.9	−35.4	7.6	−39.0	8.3	−42.8	9.1	−46.8	9.9	−50.9	11.6	
	2	50	5.6	−29.0	6.3	−32.2	6.9	−35.5	7.6	−38.9	8.3	−42.5	9.0	−46.3	10.6	
	2	100	5.2	−26.8	5.8	−29.7	6.4	−32.8	7.0	−36.0	7.7	−39.3	8.3	−42.8	9.8	
	3	10	6.6	−46.5	7.3	−51.5	8.1	−56.8	8.9	−62.3	9.7	−68.1	10.5	−74.2	12.4	
	3	20	6.2	−42.1	6.9	−46.7	7.6	−51.4	8.3	−56.5	9.1	−61.7	9.9	−67.2	11.6	
	3	50	5.6	−36.3	6.3	−40.2	6.9	−44.4	7.6	−48.7	8.3	−53.2	9.0	−57.9	10.6	
	3	100	5.2	−31.9	5.8	−35.4	6.4	−39.0	7.0	−42.8	7.7	−46.8	8.3	−50.9	9.8	
Gable Roof > 7 to 20 Degrees	1	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	1	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	1	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	1	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2e	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	2e	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	2e	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	2e	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2n	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2n	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2n	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2n	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	2r	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2r	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2r	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2r	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3e	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	3e	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	3e	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	3e	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3r	10	9.8	−52.0	10.9	−57.6	12.0	−63.5	13.2	−69.7	14.4	−76.2	15.7	−83.0	18.4	−97.4
	3r	20	8.9	−44.6	9.8	−49.4	10.8	−54.4	11.9	−59.7	13.0	−65.3	14.1	−71.1	16.6	−83.4
	3r	50	7.6	−34.7	8.4	−38.4	9.3	−42.4	10.2	−46.5	11.1	−50.8	12.1	−55.4	14.2	−65.0
	3r	100	6.6	−27.2	7.3	−30.2	8.1	−33.3	8.9	−36.5	9.7	−39.9	10.5	−43.5	12.4	−51.0

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 140–200 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			140		150		160		170		180		190		200	
Walls	4	10	35.3	−38.2	40.5	−38.2	46.1	−50.0	52.0	−56.4	58.3	−63.2	64.9	−70.4	72.0	−78.1
	4	20	33.7	−36.7	38.7	−36.7	44.0	−47.9	49.6	−54.1	55.7	−60.6	62.0	−67.5	68.7	−74.8
	4	50	31.6	−34.6	36.2	−34.6	41.2	−45.1	46.6	−51.0	52.2	−57.1	58.1	−63.7	64.4	−70.5
	4	100	30.0	−33.0	34.4	−33.0	39.2	−43.1	44.2	−48.6	49.6	−54.5	55.2	−60.7	61.2	−67.3
	5	10	35.3	−47.2	40.5	−47.2	46.1	−61.7	52.0	−69.6	58.3	−78.0	64.9	−87.0	72.0	−96.3
	5	20	33.7	−44.0	38.7	−44.0	44.0	−57.5	49.6	−64.9	55.7	−72.8	62.0	−81.1	68.7	−89.9
	5	50	31.6	−39.8	36.2	−39.8	41.2	−52.0	46.6	−58.7	52.2	−65.8	58.1	−73.4	64.4	−81.3
	5	100	30.0	−36.7	34.4	−36.7	39.2	−47.9	44.2	−54.1	49.6	−60.6	55.2	−67.5	61.2	−74.8
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	14.3	−56.2	16.5	−56.2	18.7	−73.4	21.1	−82.8	23.7	−92.9	26.4	−103.5	29.3	−114.6
	1	20	13.4	−52.5	15.4	−52.5	17.6	−68.5	19.8	−77.4	22.2	−86.7	24.8	−96.6	27.4	−107.1
	1	50	12.3	−47.6	14.1	−47.6	16.0	−62.1	18.1	−70.1	20.3	−78.6	22.6	−87.6	25.0	−97.1
	1	100	11.4	−43.9	13.0	−43.9	14.8	−57.3	16.7	−64.7	18.8	−72.5	20.9	−80.8	23.2	−89.5
	1′	10	14.3	−32.3	16.5	−32.3	18.7	−42.1	21.1	−47.6	23.7	−53.3	26.4	−59.4	29.3	−65.9
	1′	20	13.4	−32.3	15.4	−32.3	17.6	−42.1	19.8	−47.6	22.2	−53.3	24.8	−59.4	27.4	−65.9
	1′	50	12.3	−32.3	14.1	−32.3	16.0	−42.1	18.1	−47.6	20.3	−53.3	22.6	−59.4	25.0	−65.9
	1′	100	11.4	−32.3	13.0	−32.3	14.8	−42.1	16.7	−47.6	18.8	−53.3	20.9	−59.4	23.2	−65.9
	2	10	14.3	−74.1	16.5	−74.1	18.7	−96.8	21.1	−109.3	23.7	−122.5	26.4	−136.5	29.3	−151.2
	2	20	13.4	−69.3	15.4	−69.3	17.6	−90.6	19.8	−102.2	22.2	−114.6	24.8	−127.7	27.4	−141.5
	2	50	12.3	−63.0	14.1	−63.0	16.0	−82.3	18.1	−92.9	20.3	−104.2	22.6	−116.1	25.0	−128.7
	2	100	11.4	−58.3	13.0	−58.3	14.8	−76.1	16.7	−85.9	18.8	−96.3	20.9	−107.3	23.2	−118.9
	3	10	14.3	−101.0	16.5	−101.0	18.7	−131.9	21.1	−148.9	23.7	−166.9	26.4	−186.0	29.3	−206.1
	3	20	13.4	−91.5	15.4	−91.5	17.6	−119.5	19.8	−134.9	22.2	−151.2	24.8	−168.5	27.4	−186.7
	3	50	12.3	−78.9	14.1	−78.9	16.0	−103.0	18.1	−116.3	20.3	−130.4	22.6	−145.3	25.0	−161.0
	3	100	11.4	−69.3	13.0	−69.3	14.8	−90.6	16.7	−102.2	18.8	−114.6	20.9	−127.7	23.2	−141.5
Gable Roof > 7 to 20 Degrees	1	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	1	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	1	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	1	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2e	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	2e	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	2e	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	2e	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2n	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2n	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2n	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2n	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	2r	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2r	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2r	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2r	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3e	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	3e	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	3e	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	3e	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3r	10	21.4	−112.9	24.5	−112.9	27.9	−147.5	31.5	−166.5	35.3	−186.7	39.4	−208.0	43.6	−230.5
	3r	20	19.3	−96.8	22.1	−96.8	25.2	−126.4	28.4	−142.7	31.8	−159.9	35.5	−178.2	39.3	−197.5
	3r	50	16.5	−75.4	18.9	−75.4	21.5	−98.4	24.3	−111.1	27.2	−124.6	30.3	−138.8	33.6	−153.8
	3r	100	14.3	−59.2	16.5	−59.2	18.7	−77.3	21.1	−87.2	23.7	−97.8	26.4	−109.0	29.3	−120.7

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

Metricconversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure for Roof Overhang, p_{net30}, in lb/ft², for Exposure B at h = 30 ft, V= 95–200 mph

	Zone	Effective Wind Area (ft²)	Wind Speed (mph)												
			95	100	105	110	115	120	130	140	150	160	170	180	190
Hip Roof > 27 to 45 Degrees	1	10	–31.6	–35.1	–38.7	–42.4	–46.4	–50.5	–59.3	–68.7	–78.9	–89.8	–101.3	–113.6	–126.6
	1	20	–29.1	–32.2	–35.5	–39.0	–42.6	–46.4	–54.5	–63.2	–72.5	–82.5	–93.2	–104.5	–116.4
	1	50	–25.7	–28.5	–31.4	–34.5	–37.7	–41.1	–48.2	–55.9	–64.1	–73.0	–82.4	–92.4	–102.9
	1	100	–23.2	–25.7	–28.3	–31.1	–34.0	–37.0	–43.4	–50.4	–57.8	–65.8	–74.2	–83.2	–92.7
	2e	10	–38.1	–42.3	–46.6	–51.1	–55.9	–60.9	–71.4	–82.8	–95.1	–108.2	–122.1	–136.9	–152.6
	2e	20	–31.6	–35.0	–38.6	–42.3	–46.3	–50.4	–59.1	–68.6	–78.7	–89.6	–101.1	–113.4	–126.3
	2e	50	–22.9	–25.4	–28.0	–30.7	–33.6	–36.6	–42.9	–49.8	–57.1	–65.0	–73.4	–82.3	–91.7
	2e	100	–22.0	–24.4	–26.9	–29.5	–32.3	–35.1	–41.2	–47.8	–54.9	–62.4	–70.5	–79.0	–88.1
	2r	10	–46.1	–51.1	–56.3	–61.8	–67.5	–73.5	–86.3	–100.1	–114.9	–130.7	–147.6	–165.5	–184.4
	2r	20	–39.7	–44.0	–48.5	–53.2	–58.1	–63.3	–74.3	–86.2	–98.9	–112.5	–127.0	–142.4	–158.7
	2r	50	–31.2	–34.6	–38.1	–41.8	–45.7	–49.8	–58.4	–67.7	–77.7	–88.5	–99.9	–112.0	–124.7
	2r	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	10	–45.2	–50.1	–55.3	–60.6	–66.3	–72.2	–84.7	–98.2	–112.8	–128.3	–144.8	–162.4	–180.9
	3	20	–36.4	–40.3	–44.5	–48.8	–53.4	–58.1	–68.2	–79.1	–90.8	–103.3	–116.6	–130.7	–145.7
	3	50	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

Adjustment Factor for Building Height and Exposure, λ

Mean Roof Height (ft)	Exposure		
	B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.09	1.49	1.74
45	1.12	1.53	1.78
50	1.16	1.56	1.81
55	1.19	1.59	1.84
60	1.22	1.62	1.87

Note: Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \leq 60$ ft ($h \leq 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

Table 30.5-1 Steps to Determine C&C Wind Loads for Enclosed or Partially Enclosed Building with $h > 60$ ft ($h > 18.3$ m)

Step 1: Determine risk category; see Table 1.5-1.
Step 2: Determine the basic wind speed, V, for applicable risk category; see Figs. 26.5-1 and 26.5-2.
Step 3: Determine wind load parameters:
- Wind directionality factor, K_d; see Section 26.6 and Table 26.6-1.
- Exposure category B, C, or D; see Section 26.7.
- Topographic factor, K_{zt}; see Section 26.8 and Fig. 26.8-1.
- Ground elevation factor, K_e; see Section 26.9 and Table 26.9-1
- Enclosure classification; see Section 26.12.
- Internal pressure coefficient, (GC_{pi}); see Section 26.13 and Table 26.13-1.

Step 4: Determine velocity pressure exposure coefficient, K_z or K_h; see Table 26.10-1.
Step 5: Determine velocity pressure, q, Eq. (26.10-1).
Step 6: Determine external pressure coefficient, (GC_p):
- Walls and flat roofs ($\theta < 10°$), see Fig. 30.5-1
- Gable and hip roofs, see Fig. 30.3-2 per Note 6 of Fig. 30.5-1
- Arched roofs, see Fig. 27.3-3, Note 4
- Domed roofs, see Fig. 30.3-7

Step 7: Calculate wind pressure, p, Eq. (30.5-1).

American Test Lab, Inc
1122 Calvert Road Brevard, NC 28712
828-884-3700
atli@comporium.net atlnc.com

ATLNC # 0321.01-17 Report Date: 04/05/17

Test Dates: 03/21/17 – 03/23/17

Miami Dade Certification # 16-0526.01
FL Organizational # TST 1555
IAS Certification # TL-423

Test Requested By: Steel Building And Structures Inc.
820 Reeves Drive
Mount Airy, NC 27030
Phone 877-272-8276, Fax 336-551-3449

Test Standard: ASTM E 1592-05

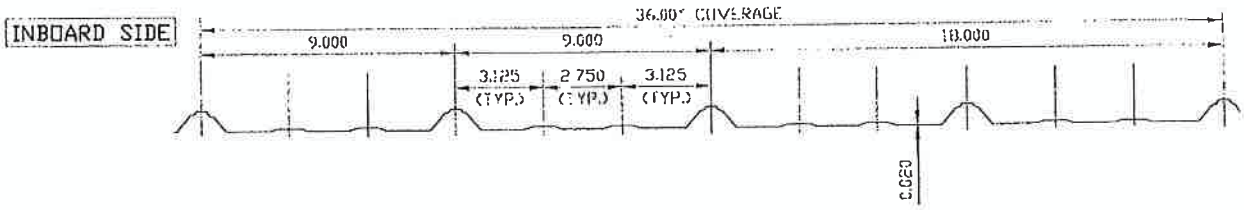
Test Conditions: 65 - 75 degrees F

Description of products tested:

Specimens A, F 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawings SK-1, SK-3, SK-4, SK-5, SK-6. Panels attached to 2-1/2" x 2-1/2" x 14 ga. rafters/ post with 12-14" x 3/4" self drilling screws at 6" oc.

Specimen B, D 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6 over 2-5/16" wide Hat Channel attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Hat Channel was attached to each rafter with (2) 12-14 x 3/4" self drilling screws, panels to Hat Channels with 12-14 x 3/4" self drilling screws at 6" OC.

Specimen C, E 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6.over 2-1/2" x 14 ga sq galvanized steel girth attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Girth was attached to each rafter with 2" x 2" x 14 ga angle with (4) 12-14 x 3/4" self drilling screws, panels attached to girth with 12-14 x 3/4" self drilling screws at 6" OC.



Configuration:

Specimen A, (3) 4' purlin spans, 3 panels wide mounted horizontally.

Specimen B, (3) 4' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen C, (3) 4' purlin spans, 4' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen D, 5' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen E, (3) 5' purlin spans, 5' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen F, (3) 5' purlin spans, 3 panels wide mounted horizontally.

Rafter/Post/Girth Construction- 2-1/2" x 2-1/2" x 14 ga tube

Rafter Spacing- Specimen A B, C, 3 spans 48" OC with 12" overhang.
Specimen D, E, F, 3 spans 60" OC, with 12" overhang.

Hat Channel Spacing: Specimen B, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 48" OC with 12" overhang, rafter spacing 60" OC.

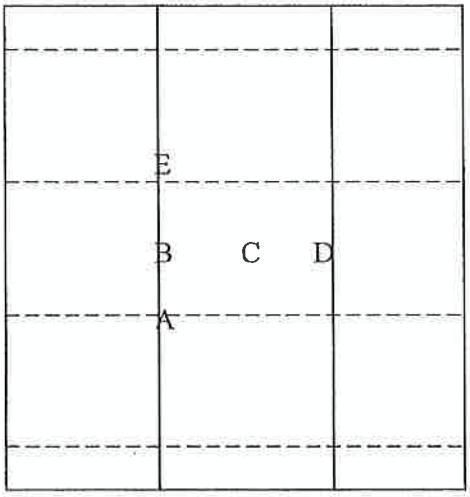
2-1/2" Tube Girth Spacing: Specimen C, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC.

Rafter/Post Attachment- Each rafter/post was attached the chamber.

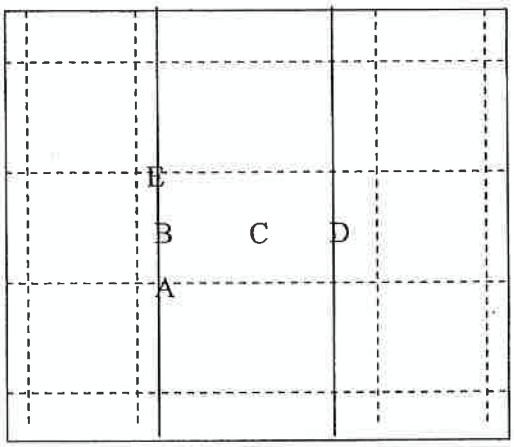
Test Specimens

Indicator Locations

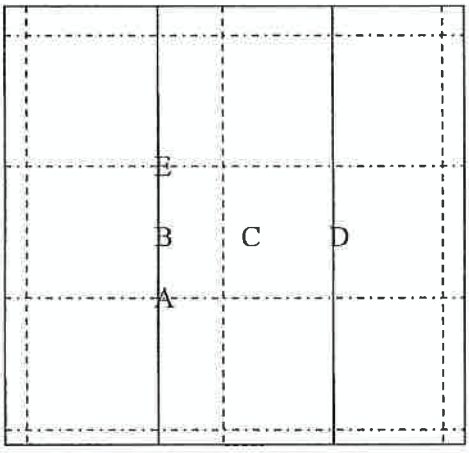
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

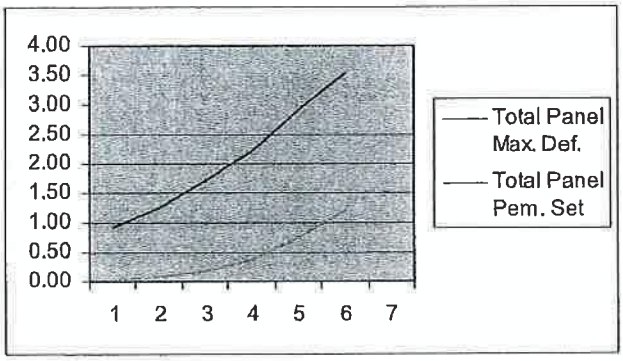
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
20	60	.75"	.02"	.83"	.03"	.93"	.03"
30	60	1.04"	.05"	1.12"	.07"	1.26"	.08"
40	60	1.45"	.15"	1.52"	.17"	1.73"	.20"
50	60	1.84"	.30"	1.92"	.33"	2.22"	.39"
60	60	2.35"	.55"	2.47"	.64"	2.90"	.76"
70	60	2.86"	.84"	2.97"	.99"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
20	60	.80"	.02"	.81"	.02"	.93"	.03"
30	60	1.09"	.06"	1.06"	.06"	1.26"	.08"
40	60	1.50"	.17"	1.47"	.16"	1.73"	.20"
50	60	1.90"	.32"	1.86"	30"	2.22"	.39"
60	60	2.46"	.63"	2.40"	.58"	2.90"	.76"
70	60	2.97"	.97"	2.87"	.89"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 124 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen B

Deflections in inches

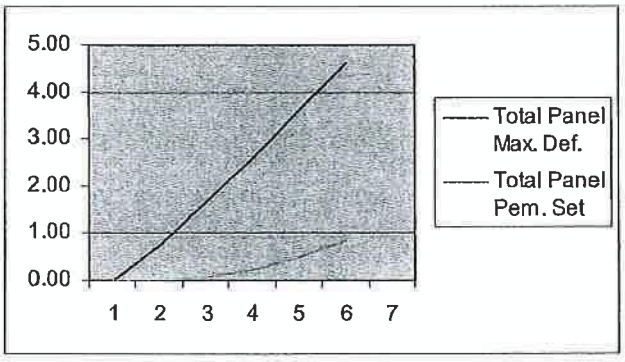
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.58"	.01"	.60"	0.0	.75"	.01"
30	60	1.34"	.07"	1.45"	.08"	.169"	.08"
40	60	2.07"	.21"	2.29"	.21"	2.57"	.22"
50	60	2.97"	.44"	3.03"	.46"	3.58"	.49"
60	60	3.89"	.75"	4.36"	.80"	4.62"	.86"
70	60						
80	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.61"	0.0	.56"	0.0	.75"	.01"
30	60	1.60"	.08"	1.30"	.06"	.169"	.08"
40	60	2.37"	.24"	2.06"	.18"	2.57"	.22"
50	60	3.36"	.48"	2.92"	.39"	3.58"	.49"
60	60	4.38"	.83"	3.83"	.69"	4.62"	.86"
70	60						
80	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 82 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Hat channel screws disengaged from rafter/post.

Specimen C

Deflections in inches

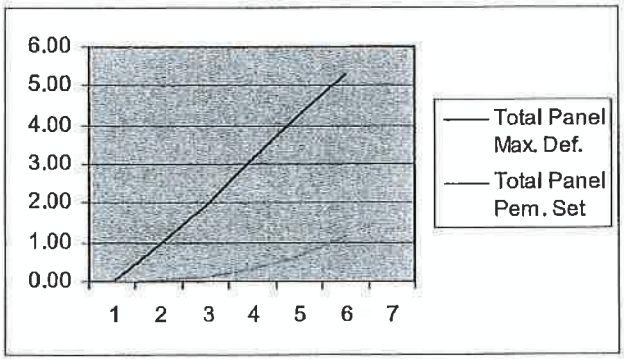
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.70"	.04"	.82"	.05"	.96"	.06"
20	60	1.53"	.08"	1.72"	.10"	1.99"	.12"
30	60	2.41"	.22"	2.68"	.24"	3.15"	.32"
40	60	3.18"	.44"	3.57"	.49"	4.26"	.66"
50	60	3.97"	.75"	4.41"	.84"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.93"	.05"	.71"	.03"	.96"	.06"
20	60	1.90"	.11"	1.49"	.07"	1.99"	.12"
30	60	2.94"	.28"	2.36"	.20"	3.15"	.32"
40	60	3.89"	.56"	3.10"	.44"	4.26"	.66"
50	60	4.79"	.96"	3.92	.78"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 50 psf to prevent damage. Failure occurred at approximately 105 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen D

Deflections in inches

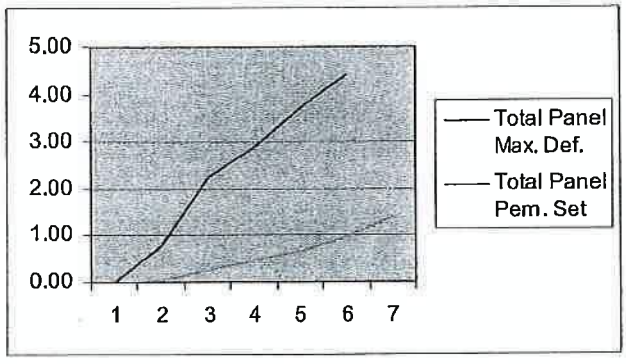
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.54"	.02"	.69"	.02".	.78"	.02"
14	60	1.70"	.29"	2.18"	36"	2.26"	.28"
21	60	2.20"	.47"	2.81"	.57"	2.90"	.45"
28	60	2.83"	.63"	3.61"	.78"	3.72"	.67"
35	60	3.32"	.88"	4.27"	1.13"	4.43"	.99"
42	60	4.11"	1.22"	5.14"	1.56"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.76"	.02"	.75"	.02"	.78"	.02"
14	60	2.08"	.22"	2.35"	.37"	2.26"	.28"
21	60	2.65"	.37"	3.01"	.58"	2.90"	.45"
28	60	3.37"	.56"	3.89"	.81"	3.72"	.67"
35	60	3.88"	.81"	4.62"	1.20"	4.43"	.99"
42	60	4.56"	1.10"	5.63"	1.71"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 42 psf to prevent damage. Failure occurred at approximately 73 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen E

Deflections in inches

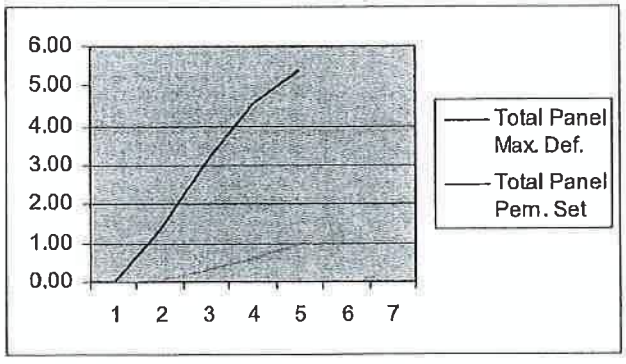
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.13"	.10"	1.22"	.07"	1.38"	.07"
20	60	2.49"	.30"	2.72"	.30"	3.12"	.31"
30	60	3.56"	.51"	3.90"	.53"	4.56"	.60"
40	60	4.45"	.80"	4.71"	.87"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.40"	.08"	1.09"	.07"	1.38"	.07"
20	60	3.08"	.30"	2.42"	.25"	3.12"	.31"
30	60	4.46"	.59"	3.44"	.42"	4.56"	.60"
40	60	5.43"	.99"	4.33"	.71"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 40 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen F

Deflections in inches

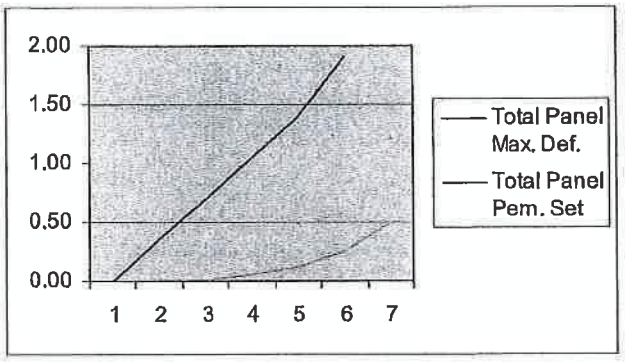
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.23"	.0"	.27"	.01"	.36"	.02"
14	60	.49"	.0"	.56"	.02"	.71"	.02"
21	60	.74"	.03"	.84"	.04"	1.05"	.06"
28	60	1.06"	.09"	1.12"	.10"	1.39"	.13"
25	60	1.41"	.20"	1.52"	.21"	1.90"	.27"
42	60	1.77"	.37"	1.52"	.40"	2.40"	.50"
49	60	2.27"	.63"	2.40"	.70"	2.93"	.86"
56	60	2.81"	1.00"	2.99"	1.11"	3.66"	1.38"
63	60	3.43"	1.48"	3.79"	1.61"	4.70"	2.06"
70	60						
77							
84							

Deflections in inches

Pre91ssure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.28"	.01"	.24"	.0"	.36"	.02"
14	60	.60"	.02"	.52"	.01"	.71"	.02"
21	60	.90"	.05"	.80"	.04"	1.05"	.06"
28	60	1.19"	.11"	1.09"	.09"	1.39"	.13"
25	60	1.59"	.23"	1.44"	.19"	1.90"	.27"
42	60	2.01"	.41"	1.81"	.35"	2.40"	.50"
49	60	2.49"	.70"	2.26"	.60"	2.93"	.86"
56	60	3.08"	1.12"	2.78"	.98"	3.66"	1.38"
63	60	3.87"	1.64"	3.39"	1.45"	4.70"	2.06"
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 63 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Note: 2 mil or 4 mil polyethylene film was used for the ASTM 1592 test, it is the opinion of the undersigned that it had no influence on the results of the test.

Technician: Keith Owen

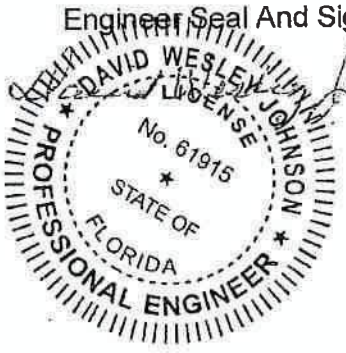
Observers-

Keith Owen, Ashley Poplin, / ATL
Sam Poplin, Keith Owen Jr., Ronald Anders / ATL
David W. Johnson, P.E

Keith Owen, Lab Director
American Test Lab, Inc.
Keith Owen
4/5/17

All Tests Witnessed and Certified by:
David Johnson P. E.
1122 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 61915

Engineer Seal And Signature

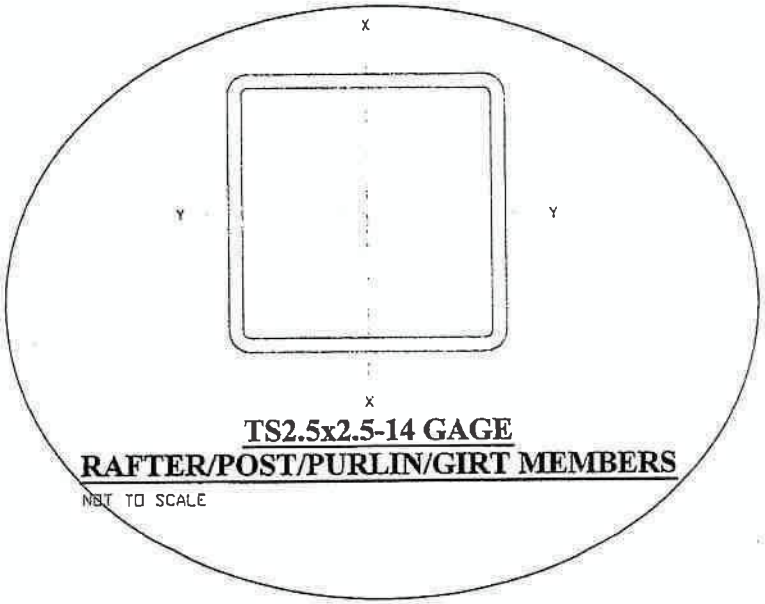


4/5/17

Certificate of Independence: The witnessing engineer has no equity interest in American Test Lab of North Carolina, Steel Building and Structures or their parts vendors. Witnessing engineer is in complete compliance of Florida Statue 9B-72, Section 72.110

Disclaimer:

ATL and its staff have no equity interest in any product tested or installed. This test report was prepared by American Test Lab, North (ATL) for the exclusive use of the above named client; it does not constitute certification of this product. The results are for that particular specimen tested and does not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. ATL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. This report may not be reproduced except in full, and only under expressed permission from American Test Lab or Steel Building and Structures. Reproduced reports in hard copy must be labeled "Copy".



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/16/17

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

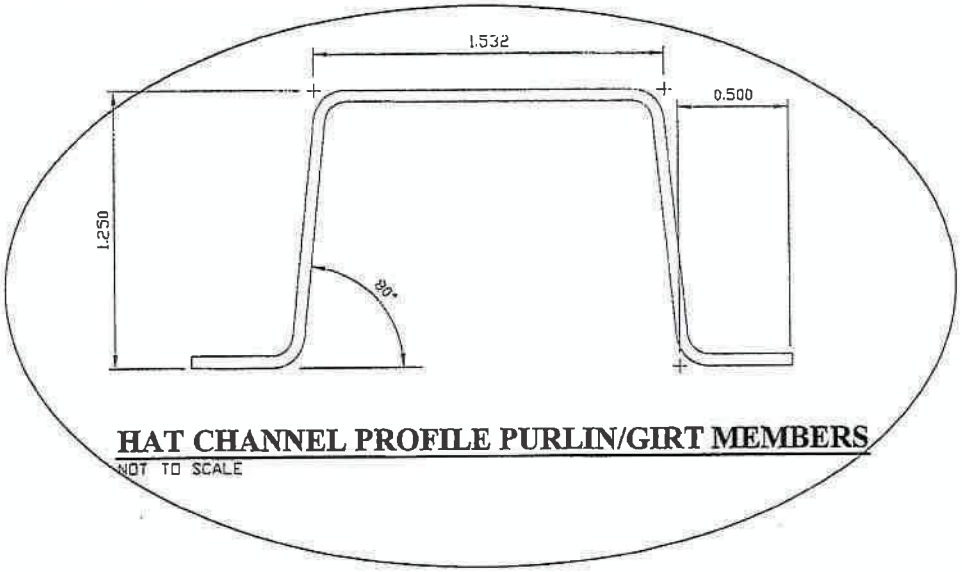
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
TS2.5X2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

SHEET NO. **SK-1**
REV. 0
DATE: 3-14-17
SCALE: AS NOTED
DRAWN BY: JRS
M&A JOB NO. 161925
CHECKED BY: PDH



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

WAYNE S. MOORE LICENSE No. 57470 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/16/17

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH:	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 278-3848
www.MandA-inc.com

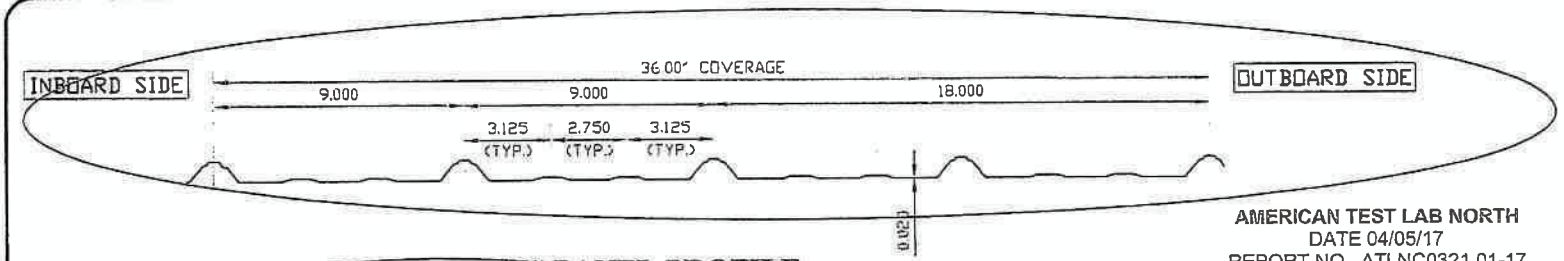
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PBH	WSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

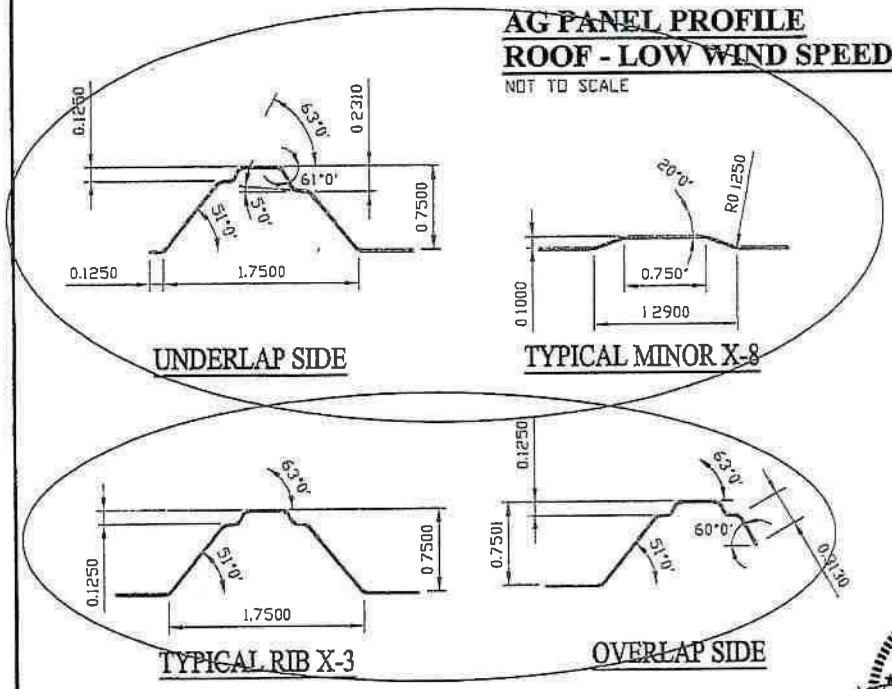
SHEET NO. SK-2

REV. 0 | SCALE: AS NOTED | M&A JOB NO. 161925 | CHECKED BY: PBH
DATE: 3-14-17 | DRAWN BY: JRS



AG PANEL PROFILE
ROOF - LOW WIND SPEED

NOT TO SCALE



AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 50 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD)
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/22/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -28.2 PSF

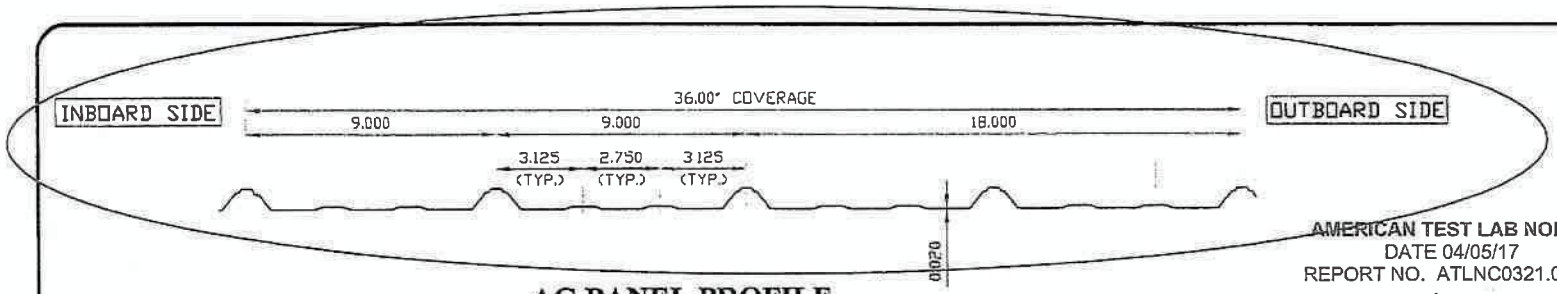
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GRB AG PANEL ROOF
LOW WIND SPEED

M&A JOB NO. 16193S
SCALE: AS NOTED
DRAWN BY: JRS
CHECKED BY: PDH
REV. 0
DATE: 3-14-17
SHEET NO. **SK-3**

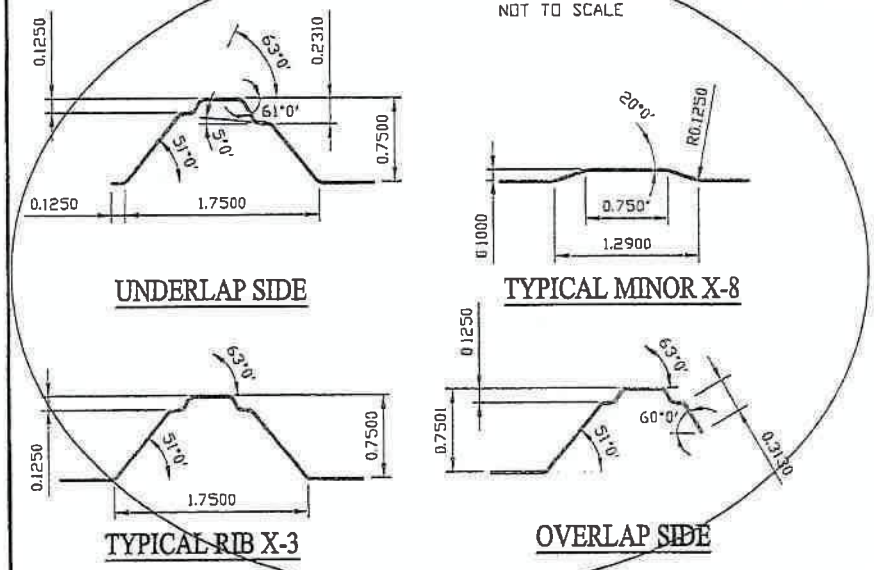


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Clarke
ATL INSPECTOR

AG PANEL PROFILE
ROOF - HIGH WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD)
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57470 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/23/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET

POSITIVE ROOF PRESSURE: 21.2 PSF
SUCTION ROOF PRESSURE: -39.4 PSF

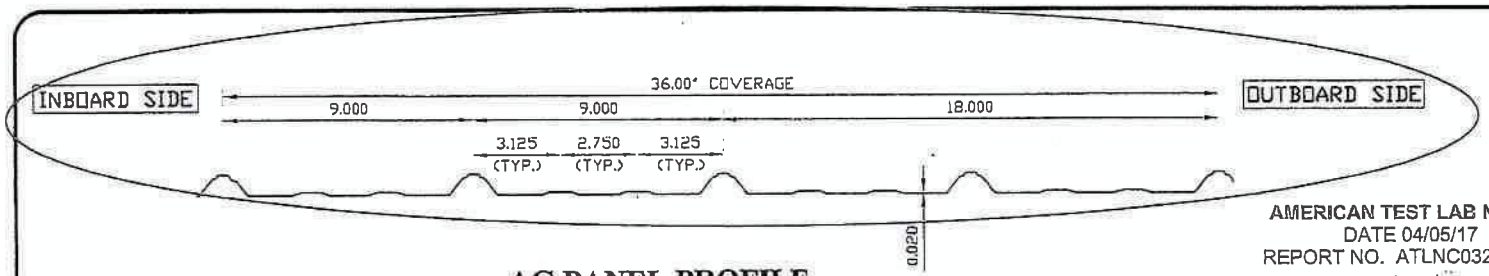
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSN

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

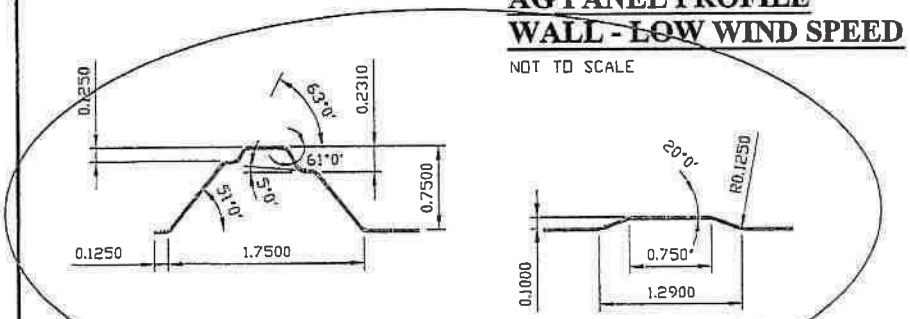
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
HIGH WIND SPEED

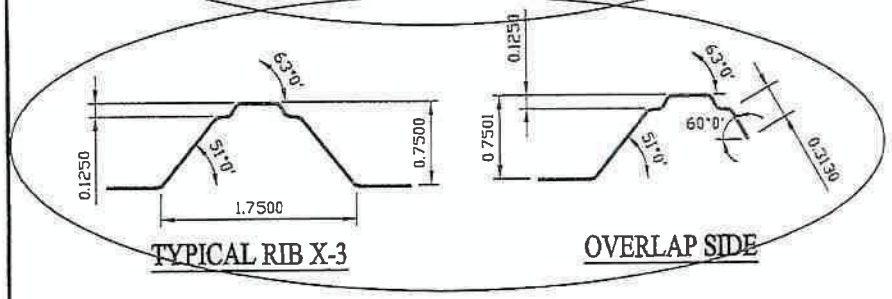
SHEET NO.	M&A JOB NO. 16192S	CHECKED BY: PDH
SK-4	SCALE: AS NOTED	DRAWN BY: JRS
	REV. 0	DATE: 3-14-17



AG PANEL PROFILE
WALL - LOW WIND SPEED

NOT TO SCALE





TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 18.5 PSF
NEGATIVE WALL PRESSURE: -24.1 PSF

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD)
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 5/16/17

29 GAGE
CALCULATED COIL WIDTH 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSN

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GRB AG PANEL WALL
LOW WIND SPEED

M&A JOB NO. 161925

SCALE: AS NOTED

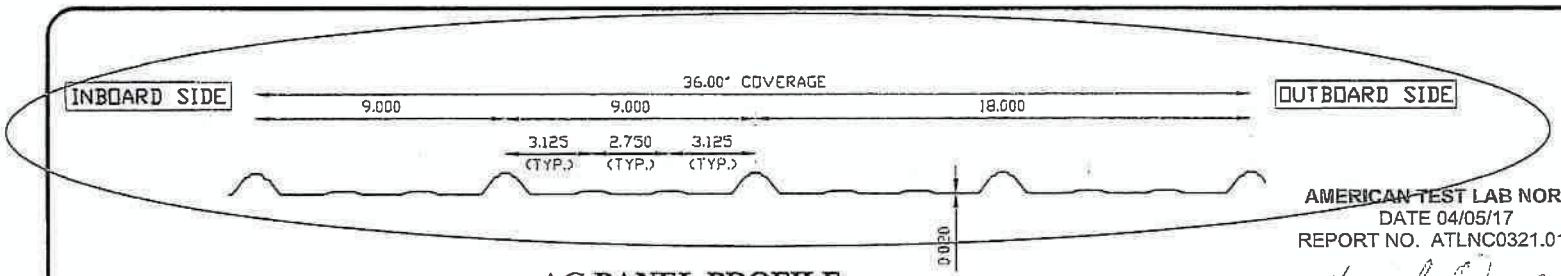
DRAWN BY: JRS

CHECKED BY: PDH

REV. 0

DATE: 3-14-17

SHEET NO. **SK-5**

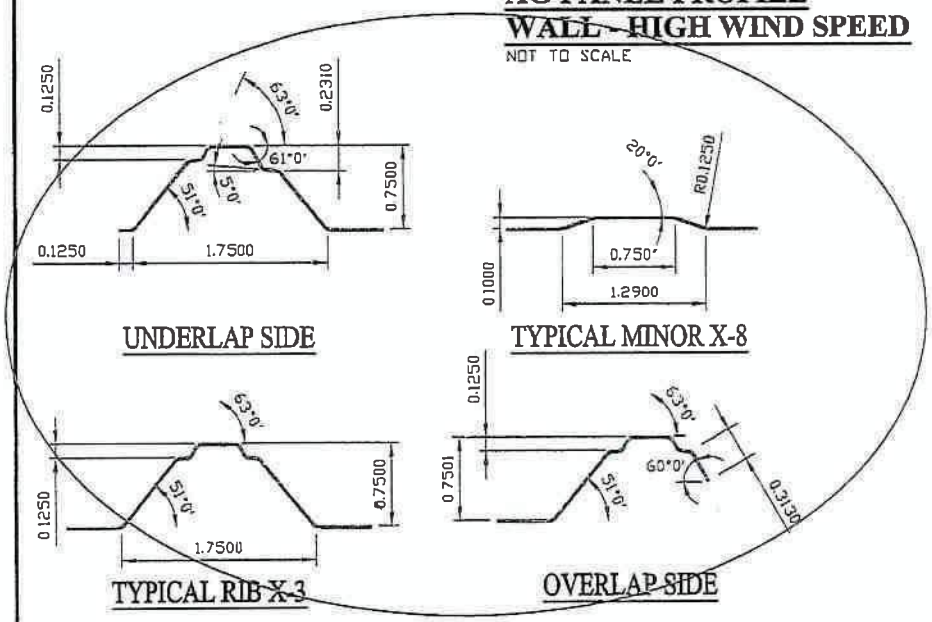


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

AG PANEL PROFILE
WALL - HIGH WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/16/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 27.3 PSF
SUCTION WALL PRESSURE: -35.5 PSF

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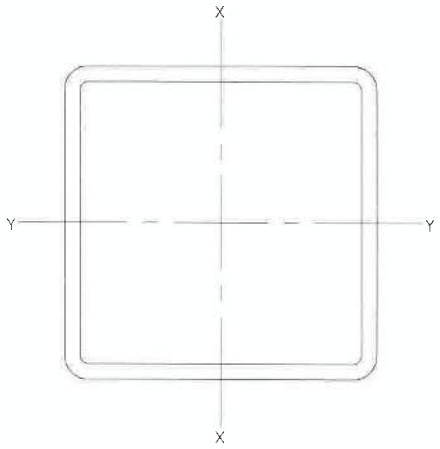
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
HIGH WIND SPEED

SHEET NO. SK-6	SCALE: AS NOTED	M&A JOB NO. 161925
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH:	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION ---- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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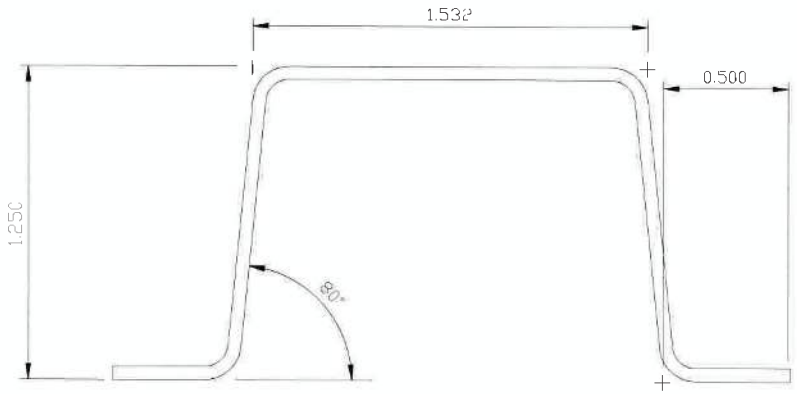
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
TS2.5x2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

SHEET NO.
SK-1

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH --- (+ OR -) 1/16 IN
RADII --- (+ OR -) 1/32 IN
ANGLES --- (+ OR -) 2 DEGREES
CAMBER --- (+ OR -) 1/8 IN IN 10 FT
SKI --- (+ OR -) 1/8 IN IN 10 FT
DIVE --- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

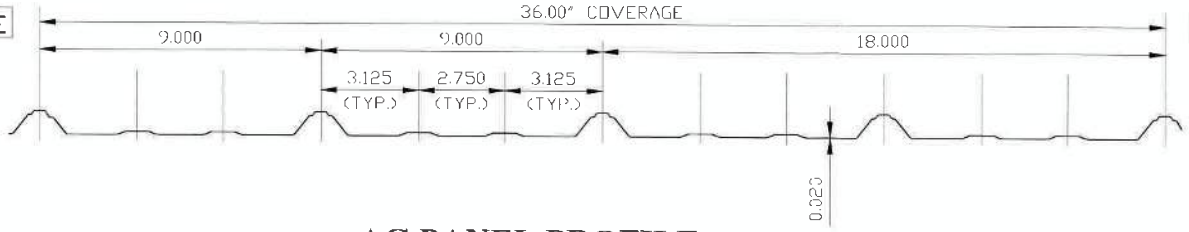
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

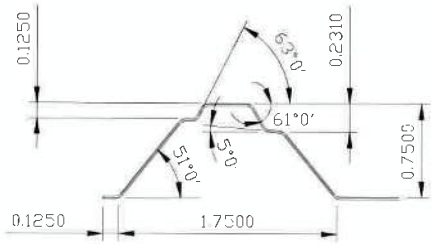
SHEET NO.
SK-2

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH

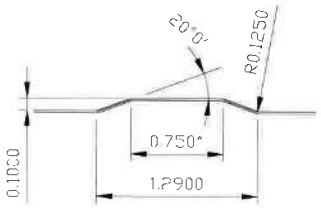


AG PANEL PROFILE
ROOF - LOW WIND SPEED

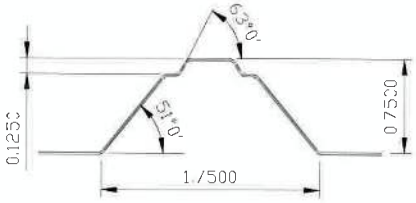
NOT TO SCALE



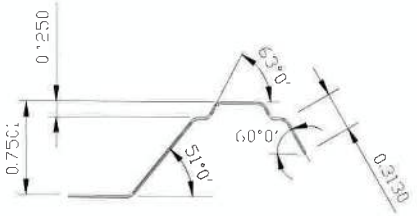
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12 14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKLST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVL	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -39.9 PSF

MOORE AND ASSOCIATES
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www.MandA-inc.com

WAYNE G. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 1/12/21

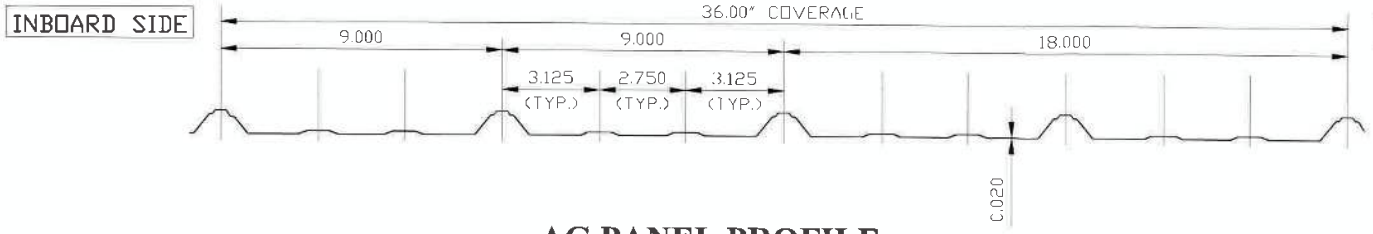
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	VSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

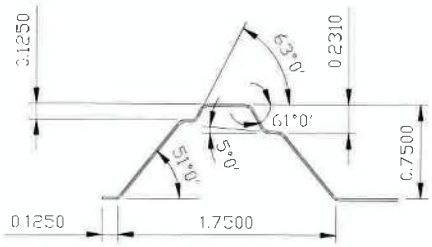
ASC STANDARD GR8 AG PANEL ROOF
LOW WIND SPEED

SHEET NO. SK-3	SCALE: AS NOTED	M&A JOB NO. 16192S
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		

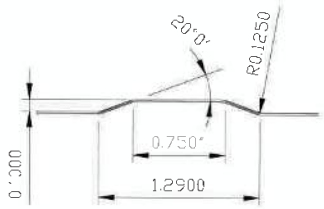


AG PANEL PROFILE
ROOF - HIGH WIND SPEED

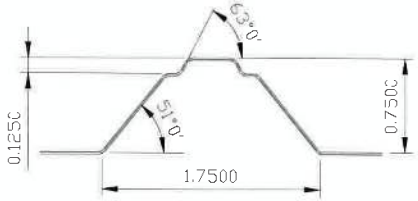
NOT TO SCALE



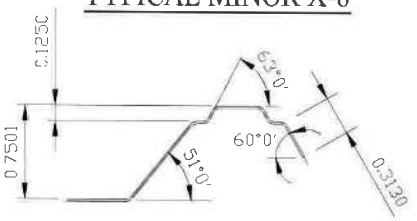
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE ROOF PRESSURE: 16.0 PSF
SUCTION ROOF PRESSURE: -59.7 PSF

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

MOORE AND ASSOCIATES
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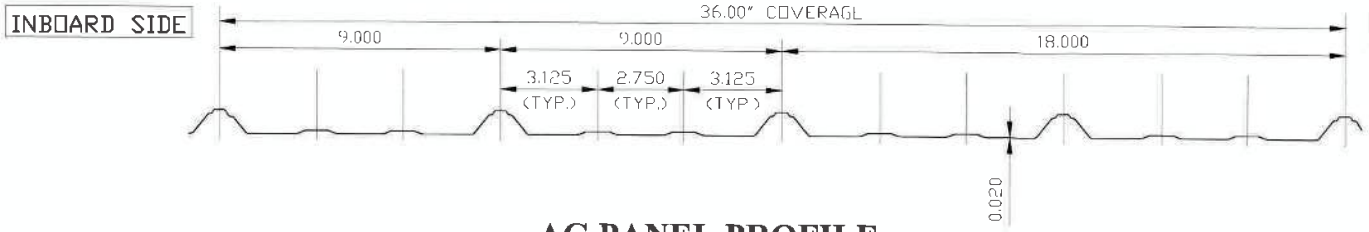
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
HIGH WIND SPEED

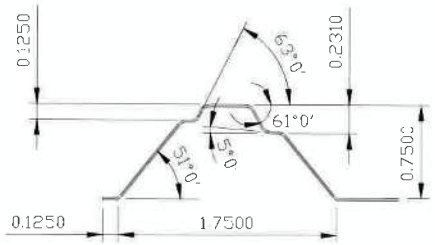
M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17

SHEET NO.
SK-4

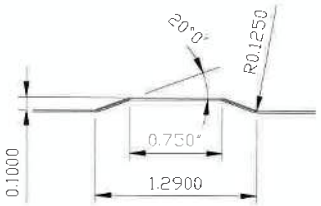


AG PANEL PROFILE
WALL - LOW WIND SPEED

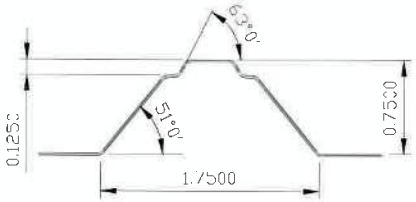
NOT TO SCALE



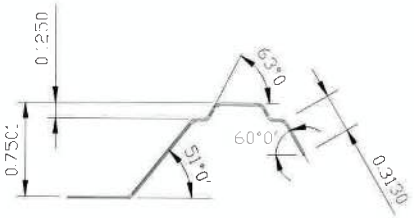
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 50 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH). SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION - - (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES ---------- (+ OR -) 2 DEGREES
CAMBER ---------- (+ OR -) 1/8 IN IN 10 FT
SKI ---------- (+ OR -) 1/8 IN IN 10 FT
DIVE ---------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE WALL PRESSURE: 17.8 PSF
NEGATIVE WALL PRESSURE: -23.4 PSF

WAYNE B. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

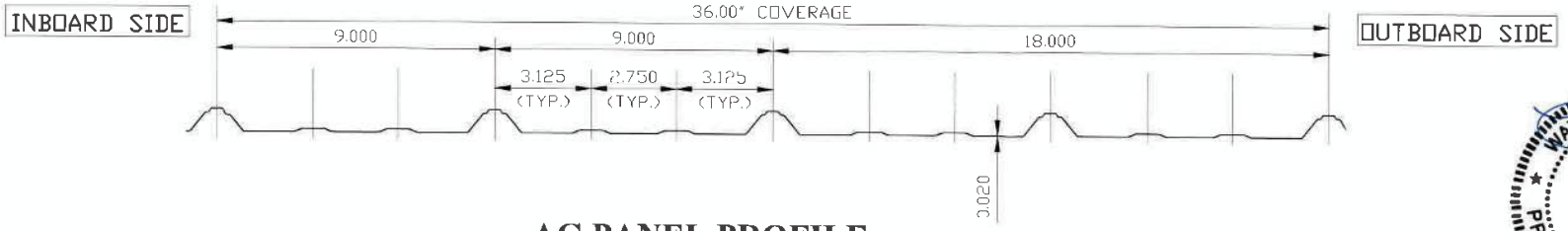
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
LOW WIND SPEED

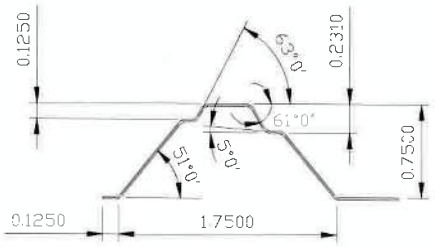
M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17

SHEET NO.
SK-5

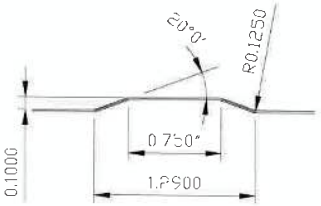


AG PANEL PROFILE
WALL - HIGH WIND SPEED

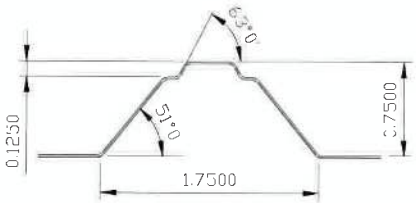
NOT TO SCALE



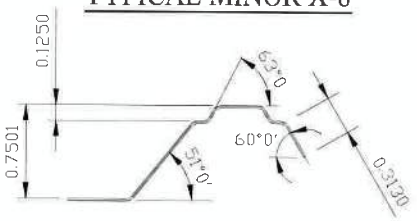
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING: STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 26.6 PSF
SUCTION WALL PRESSURE: -34.9 PSF

WAYNE B. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

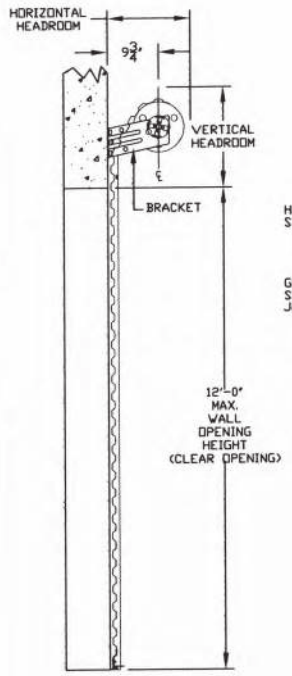
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
HIGH WIND SPEED

M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17
SHEET NO. SK-6

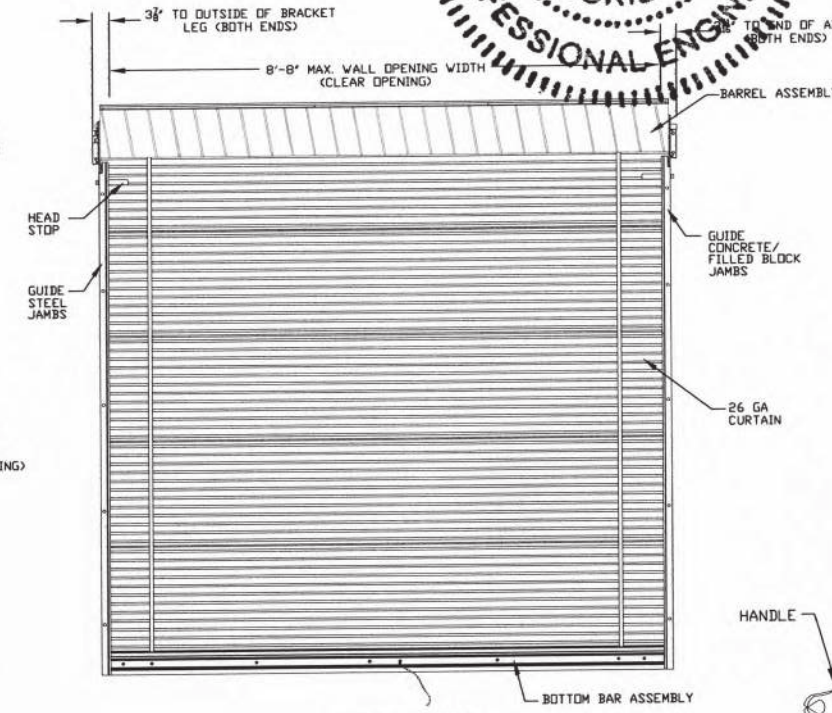
JOSEPH H. DIXON, JR. LICENSE No. 7768 STATE OF FLORIDA PROFESSIONAL ENGINEER

2/16/12

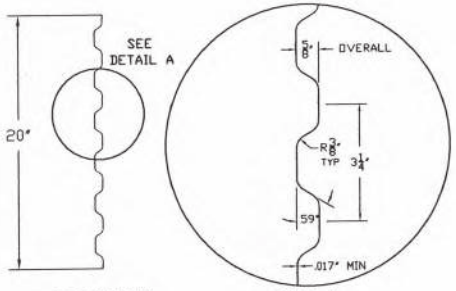
REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



SIDE VIEW



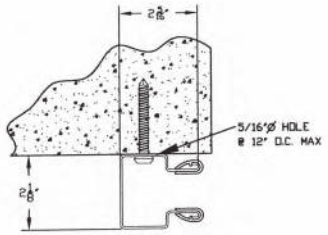
INSIDE ELEVATION



CURTAIN PANEL
ASTM A653 GR 80 ZINC COATED STEEL PRE-PAINTED WITH FULL COAT OF PRIMER AND BAKED SILICONIZED POLYESTER FINISH COAT

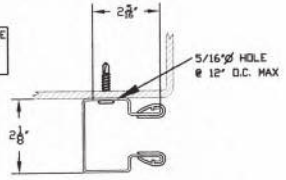
DETAIL A

26 GA CURTAIN DETAIL



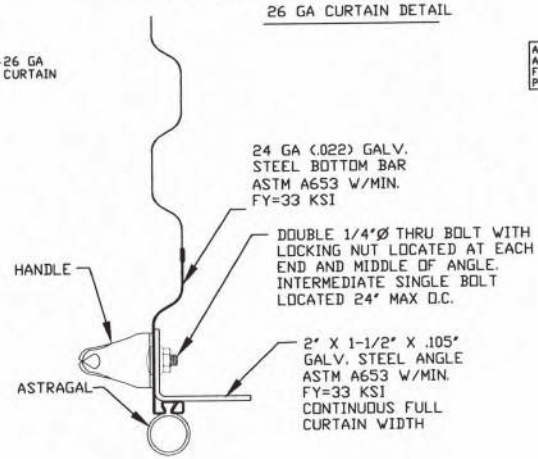
CONCRETE/FILLED BLOCK JAMBS
USING 5/16" X 2-1/4" TAPCON XL

ALL COMPONENTS SHALL BE ASTM A653 STEEL W/MIN FY=33 KSI GALVANIZED PER ASTM A653 G-90



STEEL JAMBS
USING #12-14 X 1" TEKS PANCAKE HEAD

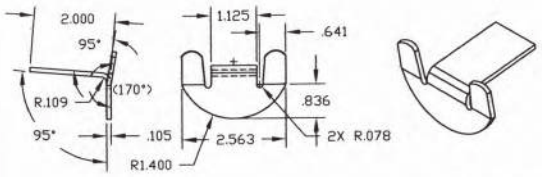
16 GA (.063) GUIDE MOUNTING DETAIL

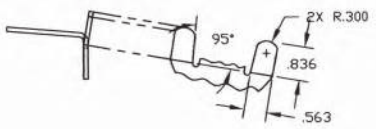


BOTTOM BAR ASSEMBLY

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 7'-4"	15-1/2"	17-1/2"
OVER 7'-4" THRU 8'-8"	16"	18"
OVER 8'-8" THRU 10'-0"	17"	18-1/4"

HEADROOM REQUIRED





WINDLOCK
GALV. STEEL, ASTM A653 WITH MIN. FY=33KSI

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 −.003 .251 to .500 +.006 −.003 OVER .500 +.008 −.003

PART NUMBER:	
MATERIAL:	
APPLIED FINISH:	
UNIT OF MEASURE:	

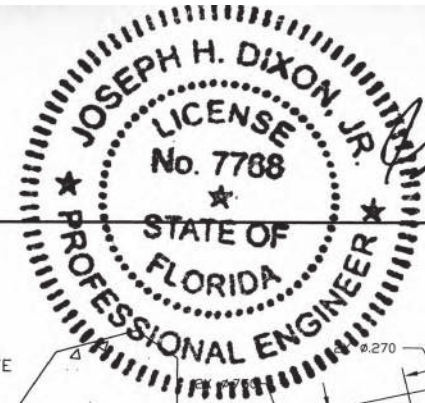
APPROVALS	DATE
DRAWN: BECKY NELSON	11-14-02
CHECKED: DON MILLS	11-14-02
APPROVED: DON MILLS	11-14-02

JANUS INTERNATIONAL CORPORATION
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179
770-562-2850/Fax 770-562-2264

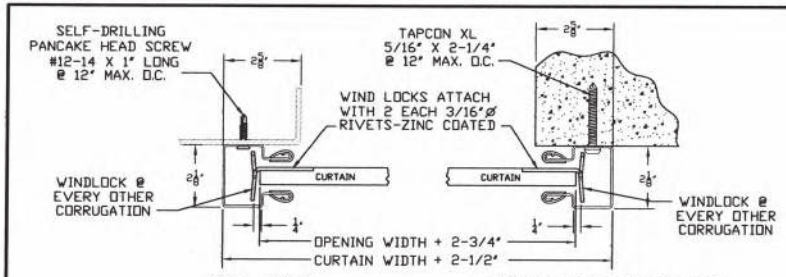
CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 8'-8" X 12'-0"

SIZE	DRAWING NUMBER:	REV:
B	T1002	B

SCALE: NONE SHEET: 1 OF: 2

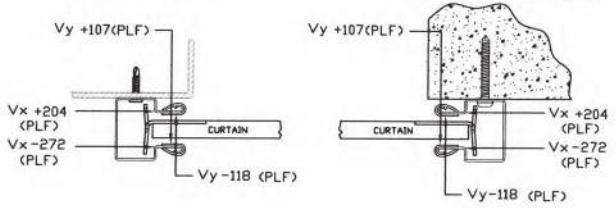


REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



STEEL JAMBS
LH GUIDE MOUNT SHOWN

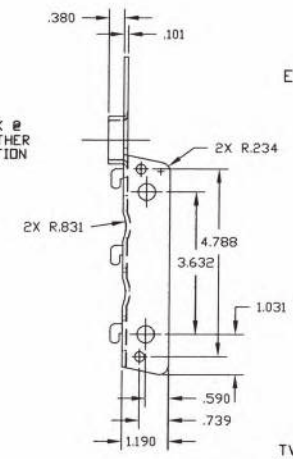
CONCRETE/FILLED BLOCK JAMBS
RH GUIDE MOUNT SHOWN



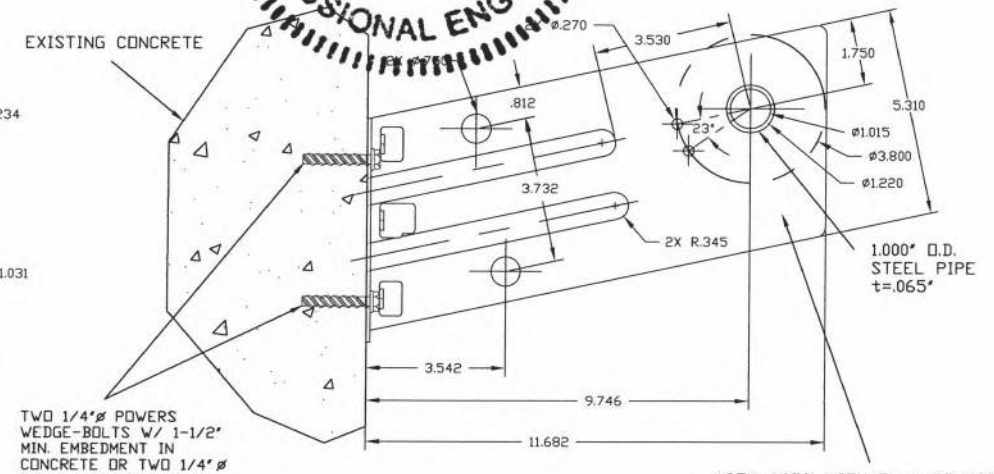
STEEL JAMBS
LH GUIDE MOUNT SHOWN

CONCRETE/FILLED BLOCK JAMBS
RH GUIDE MOUNT SHOWN

SUPERIMPOSED LOAD DIAGRAM



REAR VIEW



SIDE VIEW

DOOR MOUNTING BRACKET DETAIL

GENERAL NOTES

1. THIS ROLL-UP DOOR SYSTEM IS DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
2. THIS ROLL-UP DOOR HAS BEEN TESTED IN ACCORDANCE WITH ASTM E-330 AND COMPLIES WITH ANSI/DASMA 108.

DESIGN LOAD = $^{+24.4}_{-27.0}$ PSF

3. WIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE WIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHERE THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING.
4. SUPERIMPOSED LOADS ON THE JAMBS FROM THIS DOOR ARE DESIGNED AS Vx AND Vy HEREIN. CONTRACTORS SHALL HAVE BUILDING ENGINEER VERIFY ADEQUACY OF BUILDING STRUCTURE TO RESIST SUPERIMPOSED LOADS Vx, Vy AND BRACKET LOADS SHOWN.
5. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S. A5.1 GRADE E-70.
6. DOORS SHALL BE PROVIDED WITH LOCK MECHANISMS AT THE OPTION OF THE OWNER.
7. ALL BOLTS AND WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL WITH A MINIMUM TENSILE STRENGTH OF 60 KSI.
8. DESIGN BASED ON CERTIFIED TESTING LABORATORIES, INC., TEST REPORT NO. CTLA - 983W-2
9. ANCHOR NOTES:
   A. EMBEDMENT LENGTH DOES NOT INCLUDE STUCCO FINISH.
   B. FOR HOLLOW MASONRY, FILL ALL CELLS @ ANCHOR WITH 2500 PSI GROUT.
   C. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
10. DOOR OPERATION TYPE TO BE PUSH-UP.
11. GUIDE TO JAMB ATTACHMENT FASTENERS BEGIN 4" FROM FLOOR AND END 3-1/2" BELOW TOP OF WALL OPENING.
12. TEST DOOR WALL OPENING SIZE: 8'-8" x 8'-0".

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 -.003 .251 to .500 +.006 -.003 OVER .500 +.008 -.003

PART NUMBER:
MATERIAL:
APPLIED FINISH:
UNIT OF MEASURE:

APPROVALS	DATE
DRAWN: BECKY NELSON	11-14-02
CHECKED: DON MILLS	11-14-02
APPROVED: DON MILLS	11-14-02

JANUS INTERNATIONAL CORPORATION
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179
770-562-2850/Fax 770-562-2264

CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 8'-8" X 12'-0"

SIZE	DRAWING NUMBER	REV
B	T1002	B

SCALE: NONE SHEET: 2 OF: 2

Joseph H. Dixon, Jr. P.E.
Product Design Consultant *Florida No. 7768* 3952 Lake Mira Ct.
407-671-0169 Orlando, FL 32817

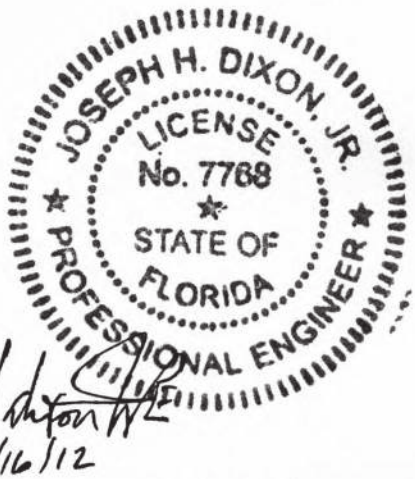
June 22, 2009
Rev. 02/15/12

EVALUATION REPORT No.: **ER-09-0007-R**

Reference No.: 29018_32003

Product: Exterior Doors - Rolling Overhead Doors
Series 750, Series 3100, Series 850-S

Manufacturer: Janus International Corporation
134 Janus International Blvd.
Temple, GA 30179-4435



Statement of Compliance:

The Rolling Doors, Series 750 and Series 3100 described in this report were evaluated to be in compliance with the 2010 Florida Building Code. Series 850-S was evaluated to be in compliance with the 2010 Florida Building Code "High Velocity Hurricane Zones" Sections in Chapters 16 and 17, and may be considered impact resistant. The doors are, for the purpose intended, at least equivalent to that required by the Code when manufactured and installed as described below.

Description of the Product:

All doors consist of a corrugated steel sheet curtain suspended from a drum roller. The curtain on all models is suspended from a drum roller. Coiling around the drum raises the curtain. The sides of the curtain are constrained from lateral movement along their vertical edges by steel guides that are attached to the door jambs. This constraint provides resistance to lateral wind forces. Various guide configurations are used for the different door styles included in this report. The lateral wind forces are transferred from the curtain to the guides and then through the attachment elements to the door jamb. The door jambs are part of the main wind frame resisting system and usually are constructed of steel, concrete, or concrete masonry units.

Series 750 (Mini Door)

Door curtains have a thickness of 26 gage (min. 0.017 in.) and are made of ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a full coat of primer and baked siliconized polyester finish coat The corrugated sheets are interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on center vertically in the installed door. The corrugation height is approximately 5/8 inches and the corrugation pitch is 3.25 in. Style variations include door width, windlocks, and wind load rating. Maximum door height is limited to 12'-0". Various door widths are described in detail on drawings T1000 (3'-0" wide), T1001 (6'-0" wide), T1002 (8'-8" wide) and T1003 (10'-0" wide). Tests were conducted on each of the four width doors shown on these drawings. A comparative an analysis was used to determine the design pressures on doors between 3'-0" and 6'-0" wide. Doors greater than 6'-0" wide having opening widths between those shown on drawings T1001, T1002, and T1003 may be used for the same design wind pressure as

the next larger width door provided all other requirements on the larger width door drawing remain unchanged. Doors shown on drawings T1000 and T1001 do not have windlocks. Doors shown on drawings T1002 and T1003 have windlocks. The guide geometry and attachment method is fully described on the drawings.

Series 3100 (Commercial Door)

Door curtains have a thickness of 26 gage (min. 0.017 in.) and are made of ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a full coat of primer and baked siliconized polyester finish coat The corrugated sheets are interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on center vertically in the installed door. The corrugation height is approximately 5/8 inches and the corrugation pitch is 3.25 in. Style variations include door width, and wind load rating. Maximum door height is limited to 20'-0". Two door widths are described in detail on drawings T1004 (12'-0" wide), and T1005 (16'-0" wide). Two complete tests were conducted on each of these two width doors. One test used the Option 1 Guide and the other used the Option 2 Guide for attachment to the steel jamb. Doors having opening widths less than 12'-0" may be used for the same design wind pressure as the 12'-0" wide door provided all other requirements on that drawing remain unchanged. Doors having opening widths less than 16'-0" may be used for the same design wind pressure as the 16'-0" wide door provided all other requirements on that drawing remain unchanged. All doors shown on drawings T1004 and T1005 have windlocks.

Series 850-S (Florida State Mini Door) Impact Resistant

Door curtains may have a thickness of either 24 gage (min. 0.022 in.) or 26 gage (min. 0.017 in.). The curtain steel is ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a full coat of primer and baked siliconized polyester finish coat The corrugated sheets are interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on center vertically in the installed door. The corrugation height is approximately 5/8 inches and the corrugation pitch is 3.25 inches. Maximum door height is limited to 12'-0". Only the 8'-8" wide door is qualified as impact resistant and it is described in detail on drawing T1006-S. Doors having opening widths less than 8'-8" may be used for the same design wind pressure as the 8'-8" wide door provided all other requirements on that drawing remain unchanged. The door shown on drawing T1006-S has windlocks. Tests in accordance with Florida Building Code Test Protocols TAS 201, TAS 202, and TAS 203 were conducted on this door.

All Series

Maximum door widths and heights are shown in Table 1. The pressures shown in Table 1 are the maximum allowable design wind load values. These design pressures may be used for narrower width doors of the same Series provided all other requirements of the wider door remain unchanged.

Drawings

The Door Series covered by this report are described in detail on the following Janus International Corporation drawings:

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Drawing T1000: 3'-0" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1001: 6'-0" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1002: 8'-8" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1003: 10'-0" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1004: 12'-0" wide max. x 20'-0" high max., shts 1 and 2 of 2, revised 01/20/12 ©2012
Drawing T1005: 16'-0" wide max. x 20'-0" high max., shts 1 and 2 of 2, revised 01/20/12 ©2012
Drawing T1006-S: 8'-8" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012

Technical Documentation:

All testing was done at Certified Testing Laboratories, Orlando, Florida. Tests for Series 750 and Series 3100 were conducted following the procedures of ASTM E330, Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference. The following test reports, signed and sealed by R. Patel, P.E. cover the Series 750 and Series 3100 doors contained in this report:

- Test Report No.: CTLA-983W, date: November 7, 2002, (Series 750, T1000), 3'-0" wide x 8'-0" high, +35 / -45 psf design pressure
- Test Report No.: CTLA-983W-1, date: November 7, 2002, (Series 750, T1001), 6'-0" wide x 8'-0" high, +19.9 / -24.4 psf design pressure
- Test Report No.: CTLA-983W-2, date: December 2, 2002, (Series 750, T1002), 8'-8" wide x 8'-0" high, +24.4 / -27.0 psf design pressure
- Test Report No.: CTLA-983W-3, date: November 7, 2002, (Series 750, T1003), 10'-0" wide x 8'-0" high, +19.4 / -22.7 psf design pressure
- Test Report No.: CTLA-1024W, date: February 20, 2003, (Series 3100, T1004) 12'-0" wide x 8'-0" high, +36.0 / -41.0 psf design pressure
- Test Report No.: CTLA-1194W, date: December 2, 2003, (Series 3100, T1004) 12'-0" wide x 8'-0" high, +36.0 / -41.0 psf design pressure, (Option 1 guide for steel)
- Test Report No.: CTLA-1432W, date: November 3, 2005, (Series 3100, T1005) 16'-0" wide x 8'-0" high, +35.0 / -38.0 psf design pressure
- Test Report No.: CTLA-1432W-1, date: November 3, 2005, (Series 3100, T1005) 16'-0" wide x 8'-0" high, +35.0 / -38.0 psf design pressure, (Option 1 guide for steel)

Calculations prepared by Joseph H. Dixon, Jr. P.E.:

- Series 750, no windlocks, Summary of Design Wind Pressures based on comparative analysis for doors 3'-4" to 5'-6" wide, 1 page, revised 4/10/04.
- Series 3100, dwg. T1004, attachment of guide, Option 3, to 14 gage minimum steel jamb thickness, 6 pages dated 6/18/09, plus drawing JI-3100G1-2SP and drawing JI-3100G1-2SN, both dated 4/07/04.
- Series 750 and 3100 verification of compliance with ANSI/DASMA 108

Impact Resistant Doors

Tests for Series 850-S were conducted following the procedures of the Florida Building Code Test Protocols TAS 201, TAS 202, and TAS 203. The following test reports, signed and sealed by R. Patel, P.E. cover the Series 850-S doors contained in this report:

- Test Report No.: CTLA-1115W, date: August 20, 2003, (Series 850-S, T1006-S) 8'-8" wide x 8'-0" high, +46 / -54 psf design pressure

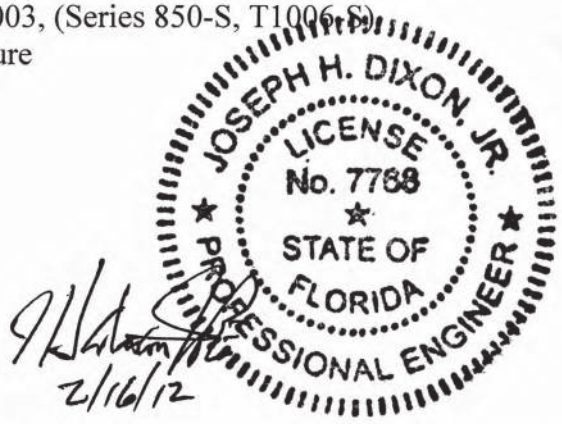


TABLE 1
Allowable Transverse Design Wind Loads (psf)

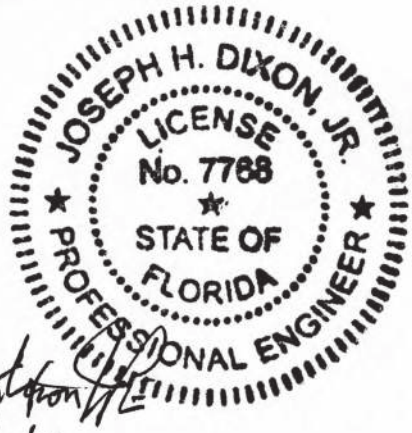
Series	Max. Door Width	Max. Door Height	Drawing Number	Design Load Positive	Design Load Negative
750	3'-0"	12'-0"	T1000	35.0	45.0
750	3'-4"	12'-0"	T1001	35.6	43.7
750	3'-6"	12'-0"	T1001	33.9	41.6
750	3'-8"	12'-0"	T1001	32.4	39.8
750	4'-0"	12'-0"	T1001	29.7	36.5
750	5'-0"	12'-0"	T1001	23.8	29.2
750	5'-6"	12'-0"	T1001	21.7	26.6
750	6'-0"	12'-0"	T1001	19.9	24.4
750	8'-8"	12'-0"	T1002	24.4	27.0
750	10'-0"	12'-0"	T1003	19.4	22.7
3100	12'-0"	20'-0"	T1004	36.0	41.0
3100	16'-0"	20'-0"	T1005	35.0	38.0
850-S	8'-8"	12'-0"	T1006-S	46.0	54.0

Design values used for the tests are shown in the boxed shaded values.
Maximum test load was 150% of design load.
Unshaded design wind loads were determined by comparative analyses using test results.

Installation Requirements:

Installation requirements are described in the Janus International Corporation Installation Instructions as follows:

- Series 750: 4 pages, Mini Door Installation Instructions Series 750
- Series 3100: 8 pages, Commercial Door Installation Instructions Series 3100
- Series 850: 4 pages, Mini Door Installation Instructions Series 850



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Limitations and Conditions of use:

The use of any door is limited to buildings for which the design wind loads for wall components and cladding, determined in accordance with Section 1609 of the 2010 Florida Building Code, do not exceed the rated design wind loads of the door as shown in Table 1.

Series 850-S is qualified as impact resistant. This door has been tested and met the additional requirements of Sections 1625 and 1626 of the 2010 Florida Building Code.

The maximum width and height limitations for each Series are shown in Table 1.

Doors are to be assembled as shown on the appropriate drawing referenced above, and the doors are to be installed in accordance with the installation instructions referenced above.

Door manufacturing is limited to those plants that have met the 2010 Florida Building Code Product Approval quality assurance requirements.

The doors covered by this report are not for use in the Florida High-Velocity Hurricane Zone.

Certification of Independence:

I, Joseph H. Dixon, Jr., certify that I am self-employed and operate as an independent contractor providing professional engineering services. I have no financial interest in nor will I acquire any financial interest in any company manufacturing or distributing products for which evaluation or validation reports have been issued by me.

Likewise, I have no financial interest in nor will I acquire any financial interest in any other entity involved in the approval process of those products for which I have issued reports.

Joseph H. Dixon, Jr. P.E.

2/16/12

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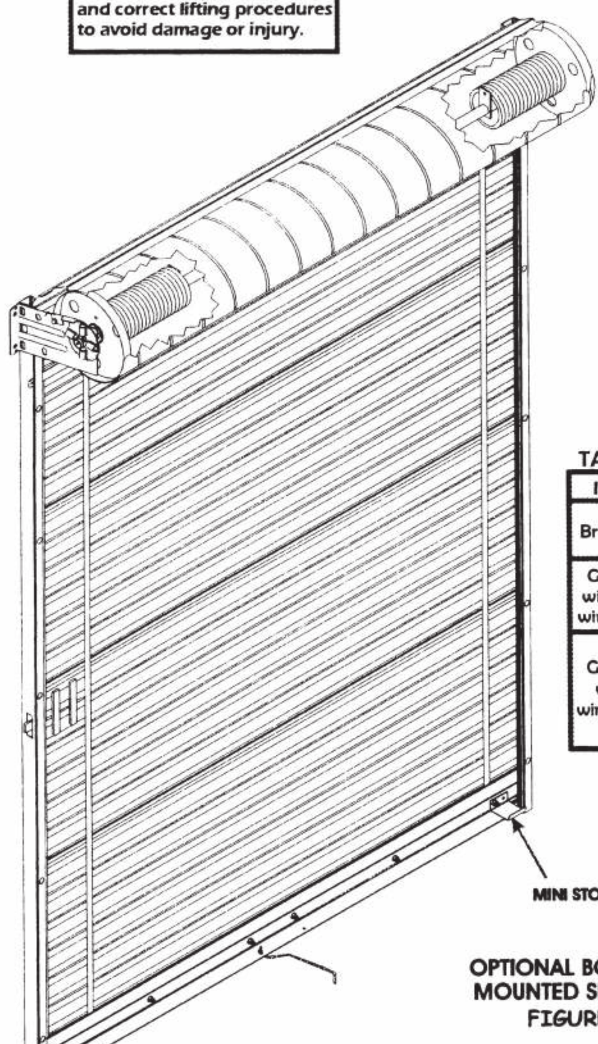
JOSEPH K. DIXON JR. PROFESSIONAL ENGINEER STATE OF FLORIDA

DOOR INSTALLATION INSTRUCTIONS SERIES 750/1000/1100

⚠ CAUTION
Use proper lifting equipment and correct lifting procedures to avoid damage or injury.

⚠ WARNING!
A rolling door is a large heavy object that moves with the help of springs under extreme tension. Moving objects and springs under tension can cause serious injuries or death. For your safety and the safety of others, follow these instructions.

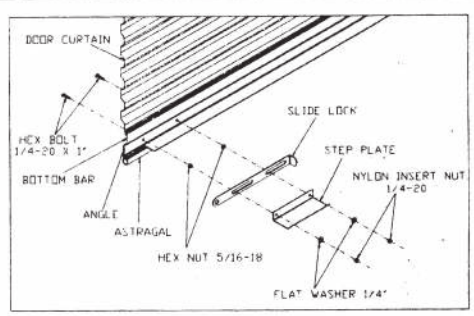


POTENTIAL HAZARD	EFFECT	PREVENTION
 MOVING DOOR	CAN CAUSE SERIOUS INJURY OR DEATH	DO NOT stand or walk under moving door. Keep door in full view and free of obstructions while operating. DO NOT allow children to operate the door.
 EXTREME SPRING TENSION	CAN CAUSE SERIOUS INJURY OR DEATH	Installation, repairs and adjustments must be made by a trained rolling service door systems technician using proper tools and instructions. DOOR MUST BE FULLY OPENED WHEN MAKING ADJUSTMENTS.

TABLE 1: Wall Fasteners - for jamb attachment of Brackets and Guides

ITEM	JAMB	FASTENERS	DRILL SIZE
Brackets	Steel	1/4-14 x 1" TEKS Screw	None
	Concrete or Filled Block	1/4" x 1-3/4" Powers Wedge-Bolt	Powers 01314
Guides without windlocks	Steel	1/4-14 x 1" TEKS Screw	None
	Concrete or Filled Block	1/4" x 1-3/4" Powers Wedge-Bolt	Powers 01314
Guides with windlocks	Steel	#12-14 x 1" PSD Pancake Head TEKS Screw	None
	Concrete or Filled Block	5/16" x 2-1/4" Tapcon XL (TORX T-40 drive)	1/4" Masonry

OPTIONAL BOTTOM BAR MOUNTED SLIDE LOCKS
FIGURE 1



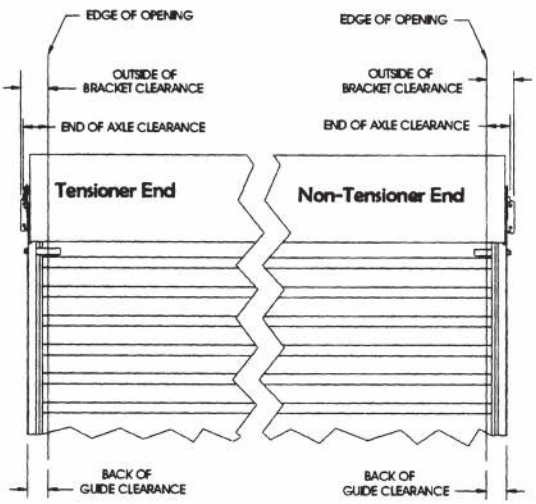
IMPORTANT NOTE: Do not cut tape and plastic wrap that holds the door in a roll until you are directed to do so in step 6B. Janus International Corporation cannot guarantee or accept responsibility for doors that are not installed as directed. Please read and understand all instructions before beginning the installation process.

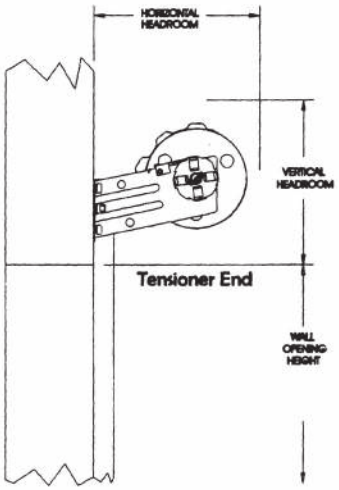
SERIES 750/1000/1100
CLEARANCE CHARTS FIGURE 2

SIDE ROOM REQUIRED*

	GUIDE	OUTSIDE OF EACH BRACKET LEG	EACH END OF AXLE
WITHOUT WINDLOCKS	2-1/4"	3-3/8"	3-1/4"
WITH WINDLOCKS	2-7/8"	4-1/8"	4"

*Dimensions are taken from edge of opening





SERIES 750 HEADROOM REQUIRED

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 7'-4"	15-1/2"	17"
OVER 7'-4" THRU 8'-8"	16"	17-1/2"
OVER 8'-8" THRU 10'-0"	17"	18-1/4"

SERIES 1000/1100 HEADROOM REQUIRED

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 8'-0"	18"	17-1/2"
OVER 8'-0" THRU 10'-0"	18-1/2"	17-3/4"
OVER 10'-0" THRU 12'-0"	18-3/4"	18"
OVER 12'-0" THRU 14'-0"	19"	18-1/2"

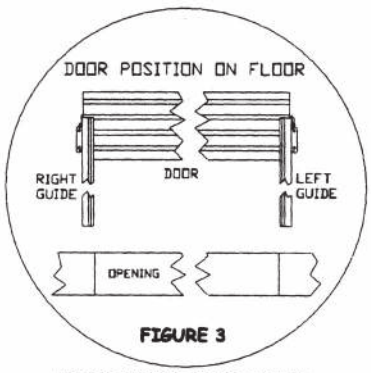


FIGURE 3

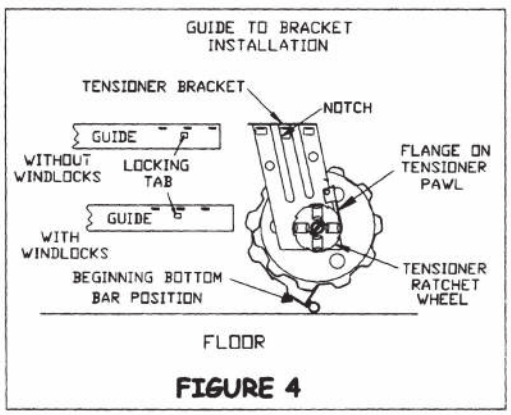


FIGURE 4

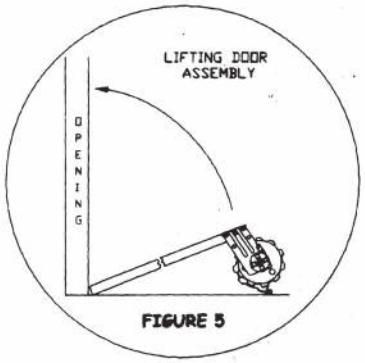


FIGURE 5

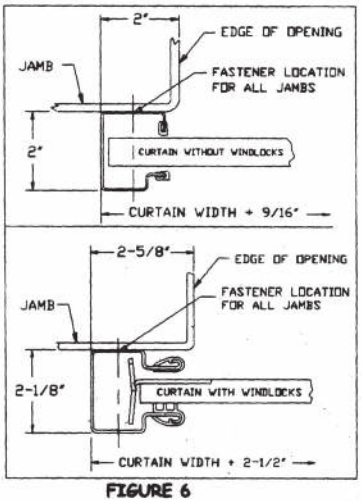


FIGURE 6

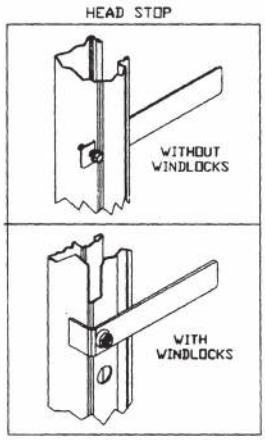


FIGURE 7

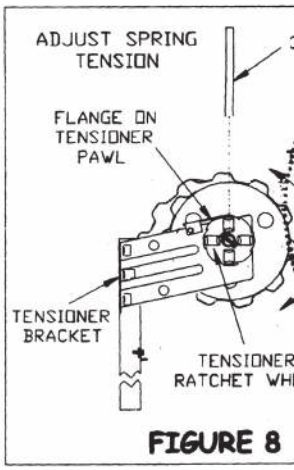


FIGURE 8

STEP 1: WALL OPENING

A. Check wall opening width and height and verify these measurements against size of door to be installed.
B. Verify that jambs are plumb.
C. Check floor and header for level.
D. Check for adequate side clearance at jambs and clearance above and at sides of header. See clearance charts figure 2 for minimum requirements.
E. Verify that the guide mounting surface on the jamb is flush.
F. Make sure all parts required for installation are with the door.

STEP 2: POSITION DOOR AND PARTS

A. Make sure floor is clean in order to prevent damage to curtain.
B. On inside of building, place left guide on floor perpendicular to opening with guide bottom close to the left jamb and the top toward inside of building. Do the same with the right guide to the right jamb. See figure 3.
C. Place door on floor at top of and between guides. Rotate door as necessary to locate bottom bar against floor. See figures 3 and 4.
D. Distribute hardware parts to appropriate areas.

NOTE: Brackets, tensioner, spring(s) and curtain mounted latch are pre-assembled to the door at the factory. Do not remove.

STEP 3: GUIDES TO BRACKETS INSTALLATION

A. At tensioner end of door, lift flange on tensioner pawl until end of the pawl clears the tensioner ratchet wheel. Rotate bracket in order to position short leg end upward. Release flange on pawl and allow end to engage with the nearest tooth on the ratchet wheel. See figure 4.
B. Bring top end of guide in alignment with bracket and insert hooks on bracket into slots in guide.
C. Slide bracket and guide together until locking tab in guide fully engages notch in bracket.
D. If locking tab does not fully engage with bracket notch, use a hammer and punch to bend tab into bracket notch.
E. Repeat steps 3B through 3D for other bracket and guide. This bracket will require being held in position.

NOTE: For non-windlock doors with opening heights over 8'-8", clamp bottom of brackets to guides with locking pliers in order to ensure rigidity of top of guide while lifting. Remove pliers after securing brackets to jambs.

⚠ WARNING!
Locking tab in guide must fully engage with notch in bracket. Failure to do so may allow the door to fall during installation, which can cause serious injury or death and/or damage to door.

STEP 4: GUIDES AND BRACKETS TO JAMB

A. Brackets and guides will be attached to jambs using fasteners shown in table 1.
B. The guides should be mounted centered about the opening and spaced curtain width + 9/16" apart for non-windlock doors and curtain width + 2-1/2"for windlock doors. This spacing is measured from back of guide to back of guide. See figure 6. Both guides must be plumb.
C. The appropriate fastener must be installed at each hole location in brackets and guides. See table 1.

⚠ WARNING!
Door can fall if both brackets are not securely fastened to the jambs. All fasteners attaching brackets to jambs must fit securely into a structural member or surface. If door falls, serious injury or death and/or damage to door can result.

STEP 5: LIFTING DOOR ASSEMBLY

A. Move door and guide assemblies toward wall opening with bottom of guides resting next to jambs.
B. Lift door assembly evenly, pivoting around bottom of guides. See figure 5.
C. Attach brackets and guides to jambs, according to step 4.

⚠ WARNING!
Two installers are required to lift door assembly into position against jambs. The guides are not designed to support the curtain weight during a one man installation. Attempting to make installation with only one installer can result in serious injury and/or damage to door. Do not leave door unattended until it is securely attached to jambs.

NOTE: Welding of guides to the jambs is not recommended.

STEP 6: SETTING SPRING INITIAL TENSION

⚠ WARNING!
Extreme spring tension can cause serious injury or death. Installation, repairs and adjustments must be made by a trained rolling service door systems technician using proper tools and instructions. Door must be fully opened when making adjustments.

A. Rotate door 1-1/2 revolutions in the direction that would send the bottom bar down through the guides.
B. While firmly holding the door at the bottom bar, cut the tape and plastic wrap that holds the door in a coil. Direct the bottom bar down into the guides, stopping just past the head stop area.

STEP 7: HEAD STOPS

A. For doors without windlocks, slide head stop from inside of each guide. Secure with 1/4-20 x 3/4" thread cutting type F hex screw. See figure 7.
B. For doors with windlocks, place head stop over outside of each guide. Secure with 1/4-20 x 1/2" carriage bolt and 1/4-20 serrated flange nut. Install carriage bolt from inside of guide. See figure 7.

STEP 8: MINI STOP CLIPS, HANDLE(S) AND PULL ROPE

A. Install mini stop clip at each end on inside of bottom bar using existing single 1/4-20 x 1/2" carriage bolt.
B. Install handle(s) on outside of bottom bar using 1/4-20 x 1/2" carriage bolts.
C. Install rope in one of the holes at the center of the horizontal leg of the bottom bar angle.

OPTIONAL: BOTTOM BAR MOUNTED SLIDE LOCKS - SEE FIGURE 1 FOR INSTALLATION.

STEP 9: CHECK DOOR OPERATION

A. Lower and raise the door to test the door balance.
B. If door is easy to close, but hard to open; increase spring tension.
C. If door is hard to close, but easy to open; decrease spring tension.

STEP 10: ADJUST SPRING TENSION

⚠ WARNING!
DOOR MUST BE FULLY OPENED WHEN MAKING ADJUSTMENTS.

A. Place 3/8" diameter winding bar in tensioner ratchet wheel. See figure 8.
B. Rotate winding bar in the down direction to increase spring tension. Each engagement of a tooth equals 1/8 turn.
C. To decrease spring tension, pull down slightly on winding bar until pawl disengages tooth. Lift flange on pawl and move winding bar up until past the pawl/tooth engagement. Allow pawl to rest on ratchet wheel and continue moving winding bar up until the pawl is fully engaged with the tooth.
D. Remove winding bar and operate door.
E. Repeat steps 10A through 10D as necessary.

NOTE: Latch side slot in the guide may require adjusting after door installation due to variances in manufacturing and/or site conditions.

JOSEPH M. DIXON LICENSED FL 72766 STATE OF FLORIDA PROFESSIONAL ENGINEER

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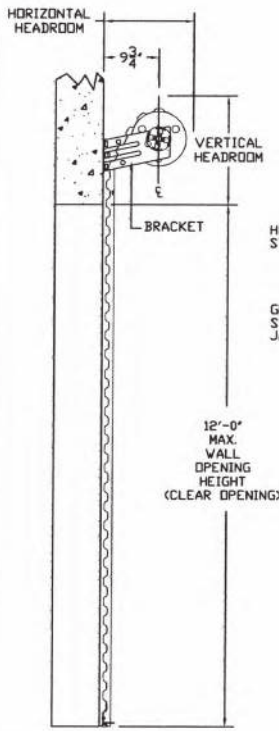
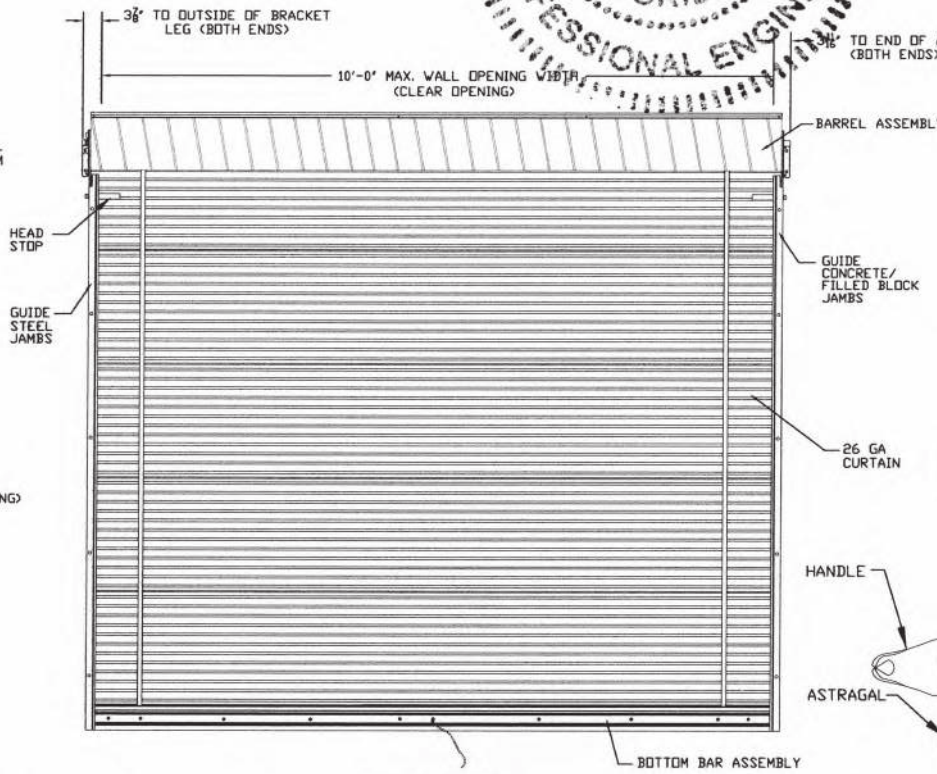
2/16/12

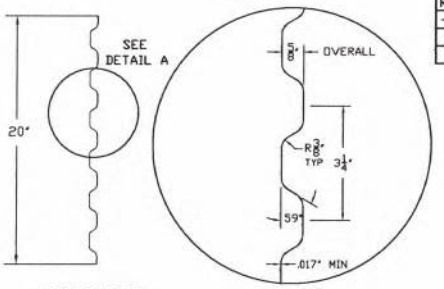
REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



SIDE VIEW



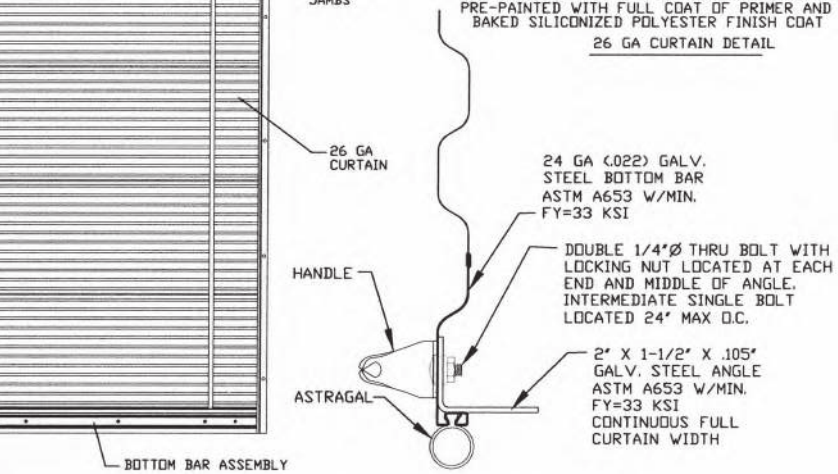
INSIDE ELEVATION



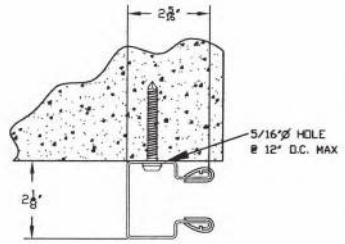
CURTAIN PANEL — DETAIL A

ASTM A653 GR 80 ZINC COATED STEEL PRE-PAINTED WITH FULL COAT OF PRIMER AND BAKED SILICONIZED POLYESTER FINISH COAT

26 GA CURTAIN DETAIL

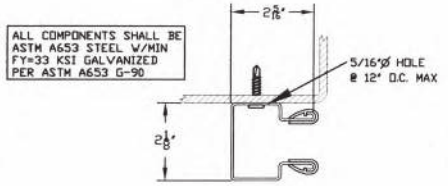


BOTTOM BAR ASSEMBLY



CONCRETE/FILLED BLOCK JAMBS

USING 5/16" X 2-1/4" TAPCON XL



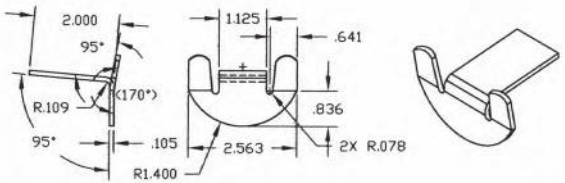
STEEL JAMBS

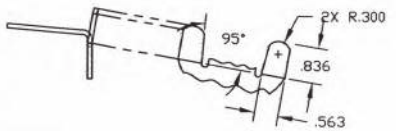
USING #12-14 X 1" TEKS PANCAKE HEAD

16 GA (.063) GUIDE MOUNTING DETAIL

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 7'-4"	15-1/2"	17-1/2"
OVER 7'-4" THRU 8'-8"	16"	18"
OVER 8'-8" THRU 10'-0"	17"	18-1/4"

HEADROOM REQUIRED





WINDLOCK
GALV. STEEL, ASTM A653 WITH MIN. FY=33KSI

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 -.003 .251 to .500 +.006 -.003 OVER .500 +.008 -.003

PART NUMBER:	
MATERIAL:	
APPLIED FINISH:	
UNIT OF MEASURE:	

APPROVALS	DATE
DRAWN: BECKY NELSON	11-14-02
CHECKED: DON MILLS	11-14-02
APPROVED: DON MILLS	11-14-02

JANUS INTERNATIONAL CORPORATION

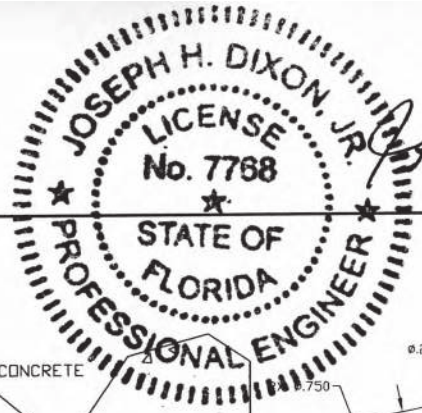
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179

770-562-2850/Fax 770-562-2264

CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 10'-0" X 12'-0"

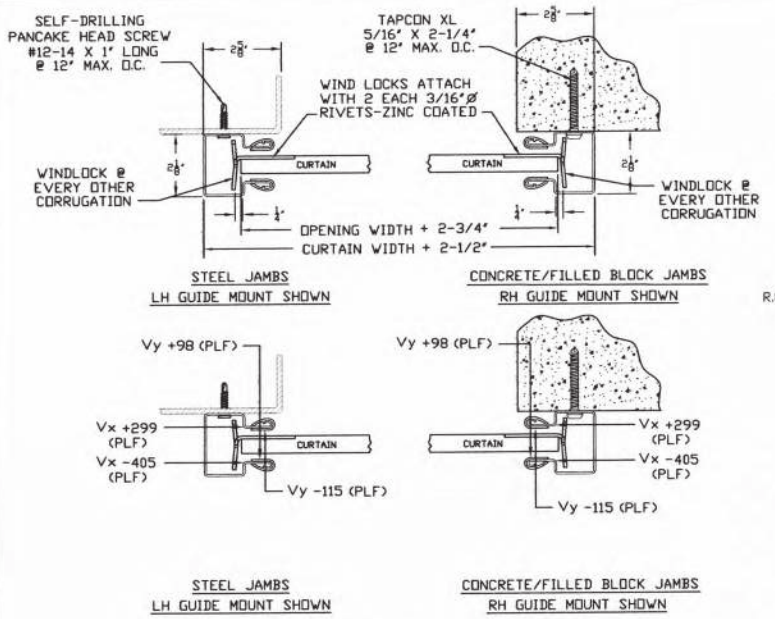
SIZE	DRAWING NUMBER	REV
B	T1003	B

SCALE: NONE SHEET: 1 OF: 2

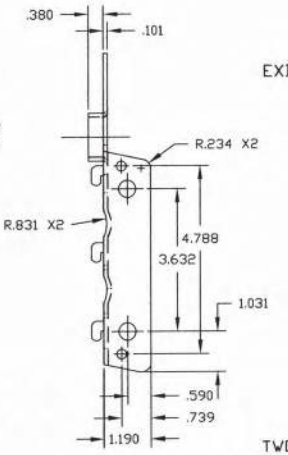


2/16/12

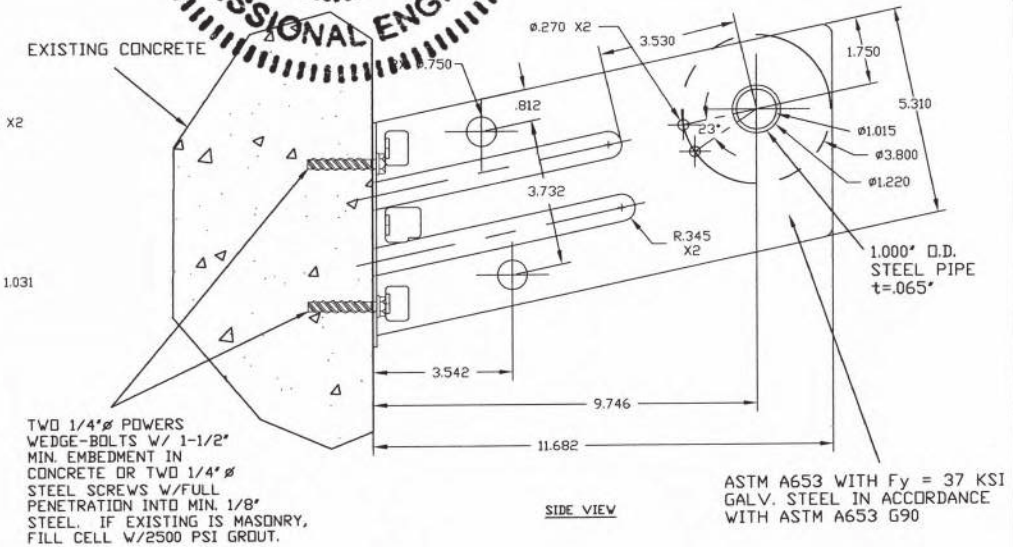
REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



SUPERIMPOSED LOAD DIAGRAM



REAR VIEW



SIDE VIEW

DOOR MOUNTING BRACKET DETAIL

GENERAL NOTES

1. THIS ROLL-UP DOOR SYSTEM IS DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
2. THIS ROLL-UP DOOR HAS BEEN TESTED IN ACCORDANCE WITH ASTM E-330 AND COMPLIES WITH ANSI/DASMA 108.

   DESIGN LOAD = $^{+19.4}_{-22.7}$ PSF

3. WIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE WIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHERE THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING.
4. SUPERIMPOSED LOADS ON THE JAMBS FROM THIS DOOR ARE DESIGNED AS Vx AND Vy HEREIN. CONTRACTORS SHALL HAVE BUILDING ENGINEER VERIFY ADEQUACY OF BUILDING STRUCTURE TO RESIST SUPERIMPOSED LOADS Vx, Vy AND BRACKET LOADS SHOWN.
5. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S. A5.1 GRADE E-70.
6. DOORS SHALL BE PROVIDED WITH LOCK MECHANISMS AT THE OPTION OF THE OWNER.
7. ALL BOLTS AND WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL WITH A MINIMUM TENSILE STRENGTH OF 60 KSI.
8. DESIGN BASED ON CERTIFIED TESTING LABORATORIES, INC., TEST REPORT NO. CTLA - 983W-3
9. ANCHOR NOTES:
   A. EMBEDMENT LENGTH DOES NOT INCLUDE STUCCO FINISH.
   B. FOR HOLLOW MASONRY, FILL ALL CELLS @ ANCHOR WITH 2500 PSI GROUT.
   C. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
10. DOOR OPERATION TYPE TO BE PUSH-UP.
11. GUIDE TO JAMB ATTACHMENT FASTENERS BEGIN 4" FROM FLOOR AND END 3-1/2" BELOW TOP OF WALL OPENING.
12. TEST DOOR WALL OPENING SIZE: 10'-0" x 8'-0".

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 -.003 .251 to .500 +.006 -.003 OVER .500 +.008 -.003

PART NUMBER:		
MATERIAL:		
APPLIED FINISH:		
UNIT OF MEASURE:		
APPROVALS		DATE
DRAWN: BECKY NELSON		11-14-02
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CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 10'-0" X 12'-0"

SIZE	DRAWING NUMBER:	REV:
B	T1003	B

SCALE:		SHEET: 2 OF: 2
NONE		

BEST METAL BUILDINGS, LLC.

STRUCTURAL DESIGN
STANDARD PACKAGE
FULLY OPEN BUILDING

MAXIMUM 30'- 0" WIDE X 20'- 0" HEIGHT- BOX EAVE FRAME AND BOW FRAME

2 March 2021
Revision 1
M&A Project No. 19294S/21025S

Prepared for:

Best Metal Buildings, LLC
484 NW Turner Avenue
Lake City, Florida 32055

Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue
North Augusta, SC 29841

401 South Main Street, Suite 200
Mount Airy, NC 27030

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

WAYNE S. MOORE
LICENSE
No 57170
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE		
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 1	DWG. NO: SK-1	REV.: 1

DRAWING INDEX

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CLIENT: BMB	SHT. 2	DWG. NO: SK-1	REV.: 1

INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 20'-0" EAVE HEIGHT OPEN CARPORT STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2015 IBC, AND 2012 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
   C) GROUND SNOW LOAD = 10 PSF (UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED).
4. LOW ULTIMATE WIND SPEED (LW) = 105 TO 140 MPH (NOMINAL WIND SPEED = 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END COLUMN SPACING = 5.0 FEET.
5. HIGH ULTIMATE WIND SPEED (HW) = 141 TO 170 MPH (NOMINAL WIND SPEED = 109 TO 132 MPH): MAXIMUM RAFTER/POST AND END COLUMN SPACING = 4.0 FEET.
6. END WALL COLUMNS (POST) ARE EQUIVALENT IN SIZE AND SPACING TO SIDE WALL POSTS (UNLESS NOTED OTHERWISE).
7. RISK CATEGORY I.
8. WIND EXPOSURE CATEGORY B.
9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2"x2 1/2"-14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE). WHERE TS 2 1/2" x 2 1/2" - 14 GAUGE IS SPECIFIED, TS 2 1/4" x 2 1/4" - 12 GAUGE MAY BE USED AS AN OPTION.
10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR DISTANCE OR EDGE DISTANCE) = 10" O.C. (MAX.) FOR LOW WIND AND 6" O.C. (MAX.) FOR HIGH WIND.
11. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY. ROOFING WITH SLOPES LESS THAN 3:12 MUST BE LAP SEALANT.
12. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL AT OR WITHIN 6" OF EACH COLUMN.
13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS $\leq$ 145 MPH. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AND FOR WIND SPEEDS > 145 MPH AS NOTED. COORDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
14. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
    SOIL SITE CLASS = D
    RISK CATEGORY I
    R= 3.25 I_E= 1.0
    S_{DS}= 2.039 g V= C_SW
    S_{D1}= 1.258 g

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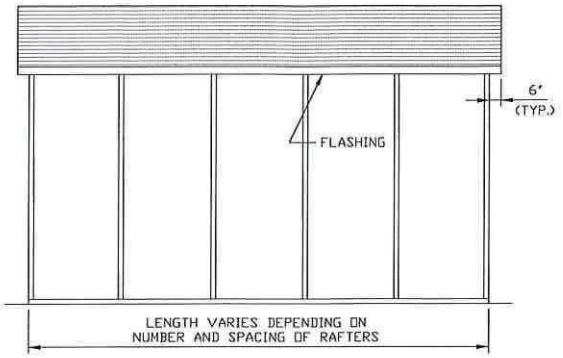
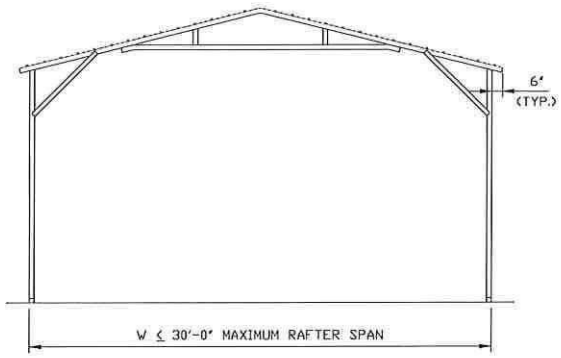
CLIENT: BMB	SHT. 3	DWG. NO: SK-1	REV.: 1	

BOX EAVE FRAME RAFTER STRUCTURE

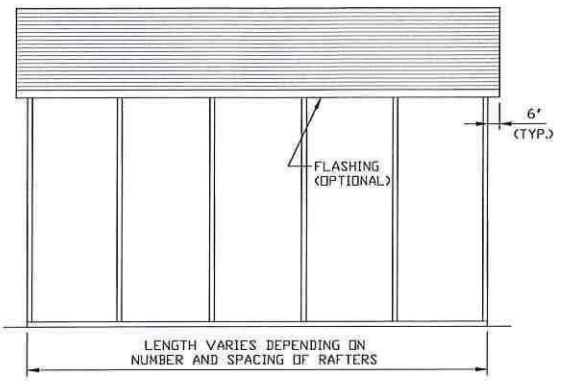


TYPICAL SIDE ELEVATION
SCALE: NTS



TYPICAL END ELEVATION
SCALE: NTS

BOW FRAME RAFTER STRUCTURE



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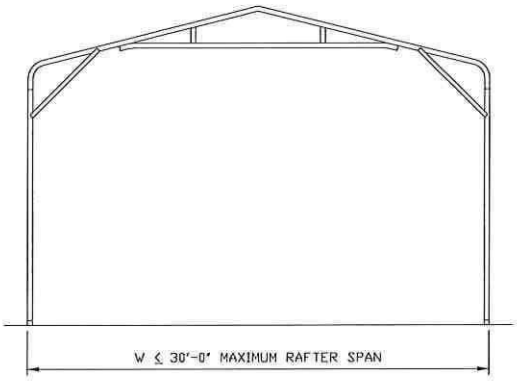

TYPICAL END ELEVATION
SCALE: NTS

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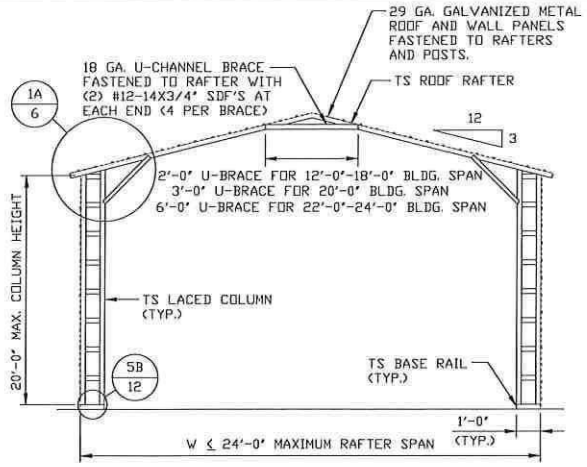
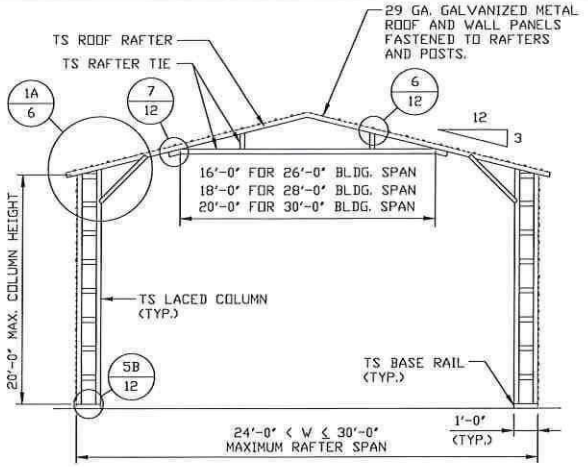
	CLIENT: BMB	SHT. 4	DWG. NO: SK-1	REV.: 1



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



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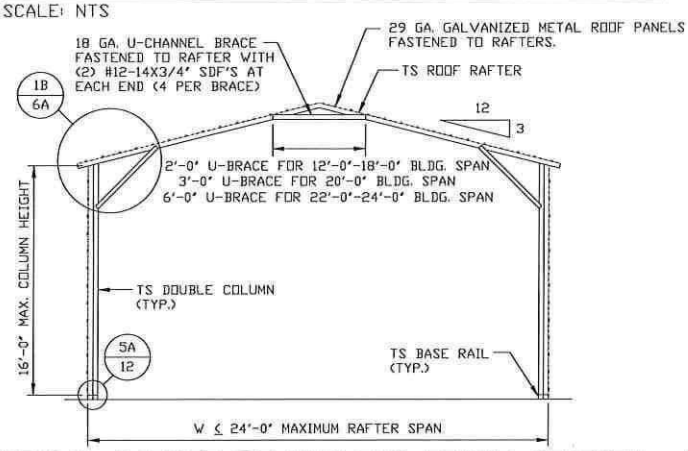

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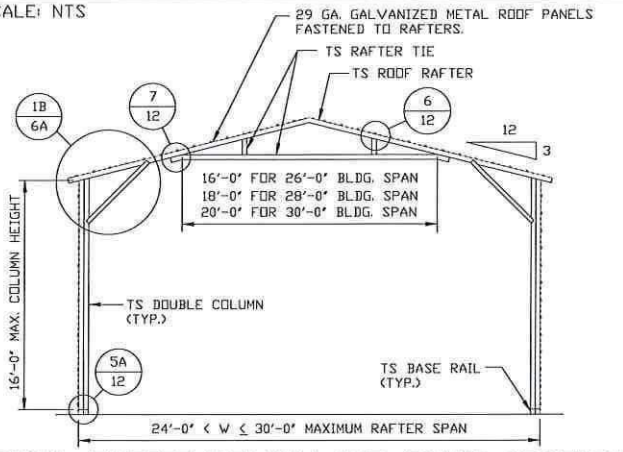

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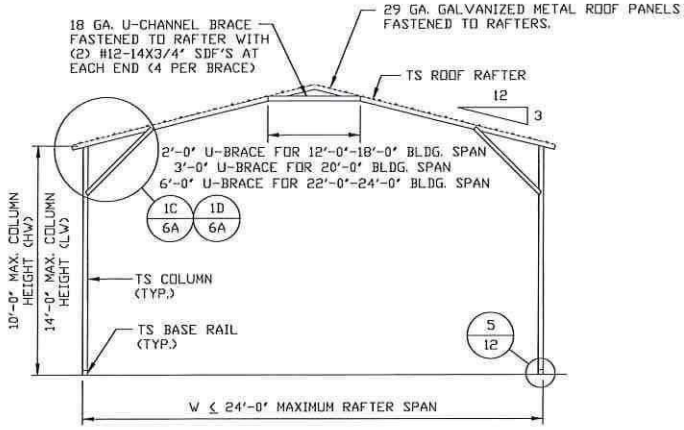

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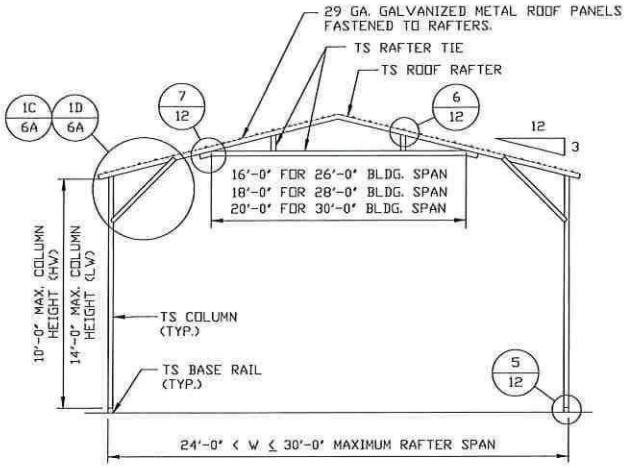

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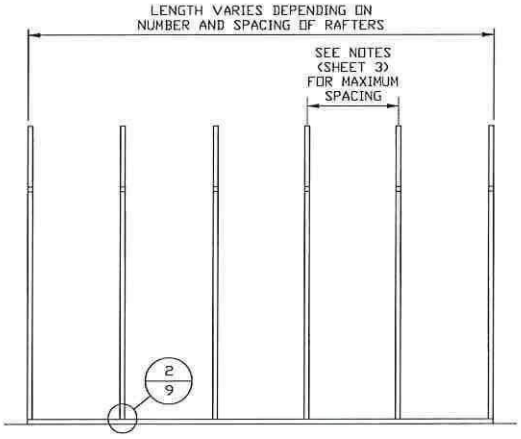

TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

WAYNE S. MOORE
LICENSE
No 57170
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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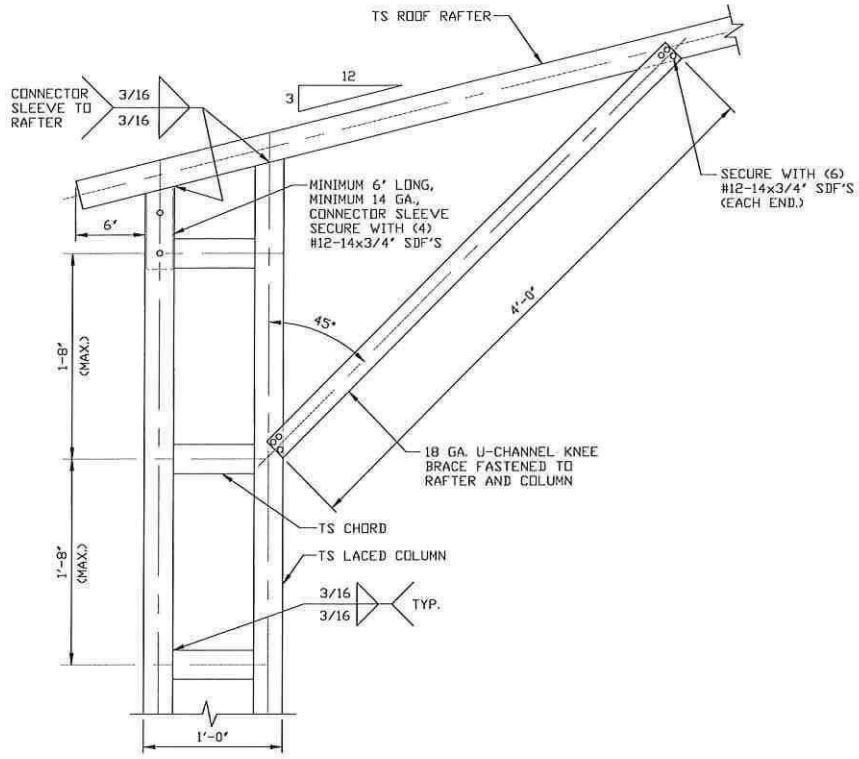
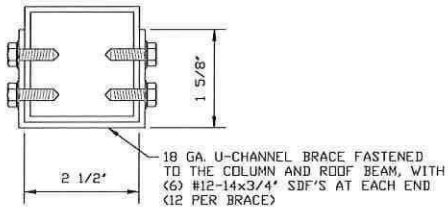
CLIENT: BMB	SHT. 5A	DWG. NO: SK-1	REV.: 1



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

1A

SCALE: NTS



BRACE SECTION

SCALE: NTS

WAYNE S. MOORE
LICENSE
No 57170
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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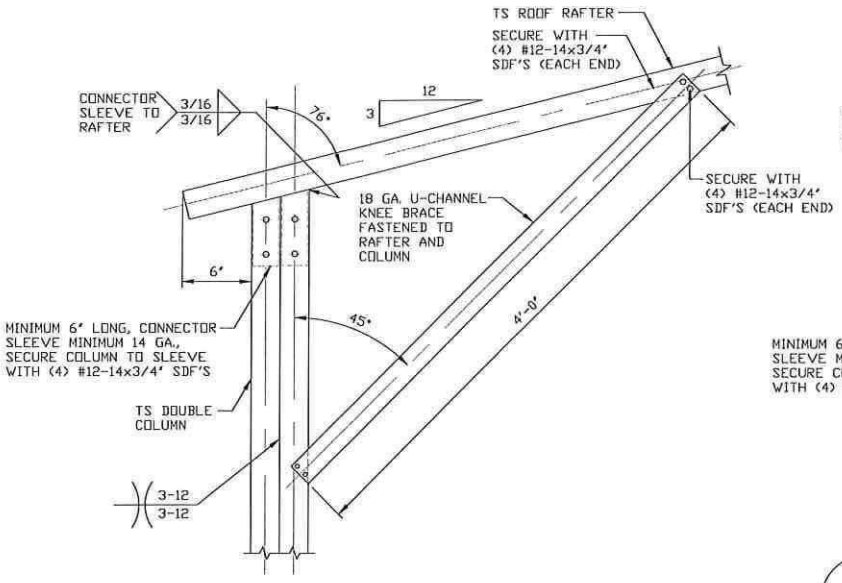
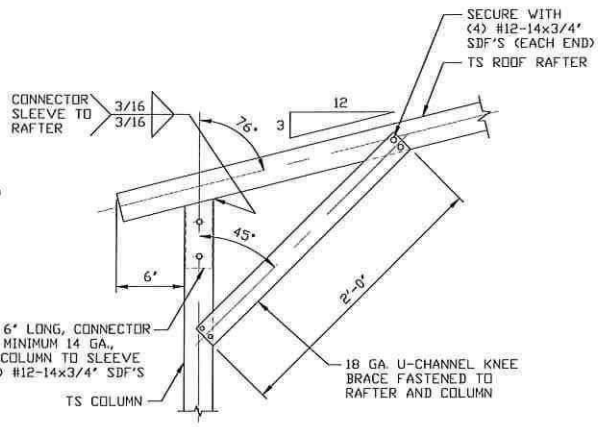
CLIENT: BMB	SHT. 6	DWG. NO: SK-1	REV.: 1



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 16'-0" (HW) AND HEIGHTS 14'-0" < TO ≤ 16'-0" (LW)

1B

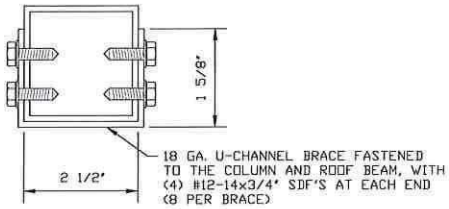
SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0" (HW) AND HEIGHTS ≤ 12'-0" (LW)

1D

SCALE: NTS



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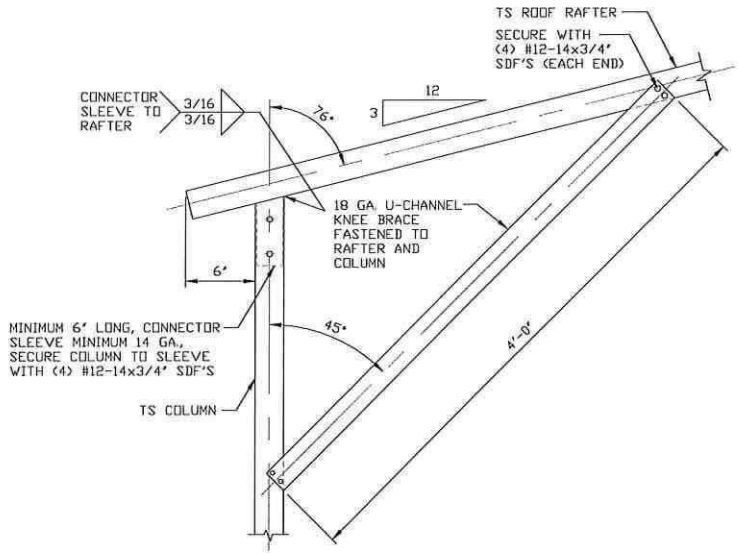

BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 10'-0" (HW) AND HEIGHTS 12'-0" < TO ≤ 14'-0" (LW)

1C

SCALE: NTS

WAYNE S. MOORE
LICENSE
No 57170
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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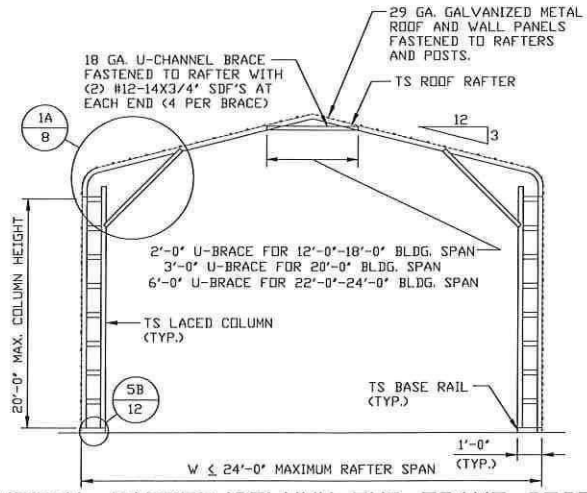
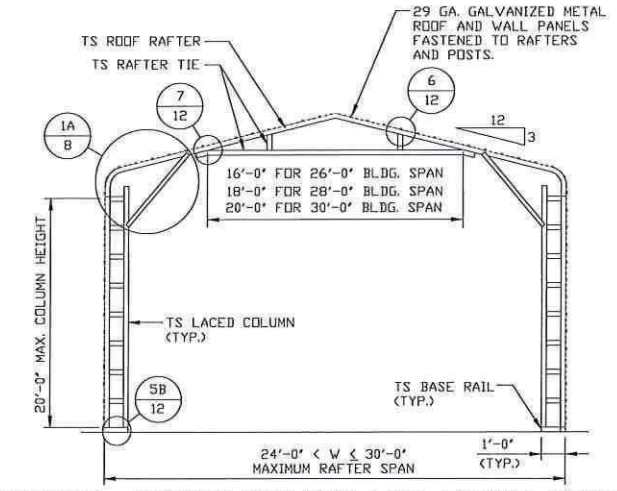
CLIENT: BMB	SHT. 6A	DWG. NO: SK-1	REV.: 1



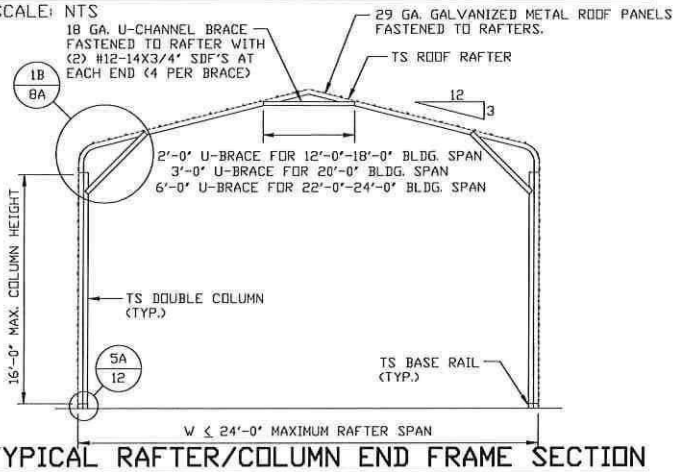
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



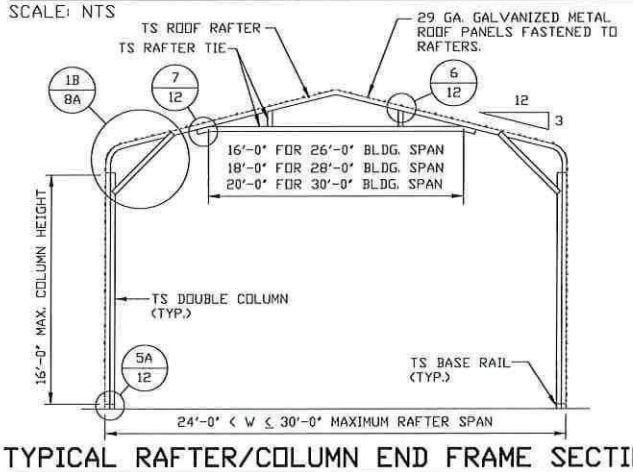
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



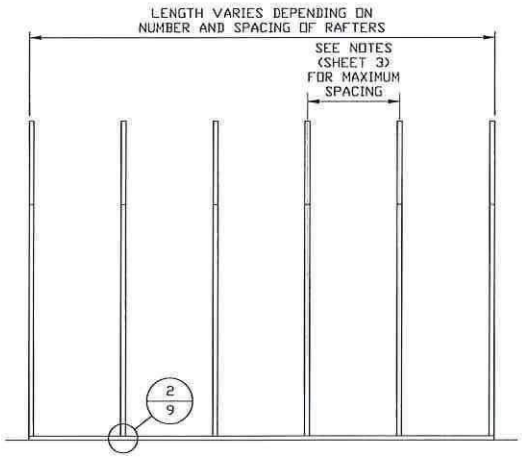
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

WAYNE S. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEERING AND CONSULTING, INC.

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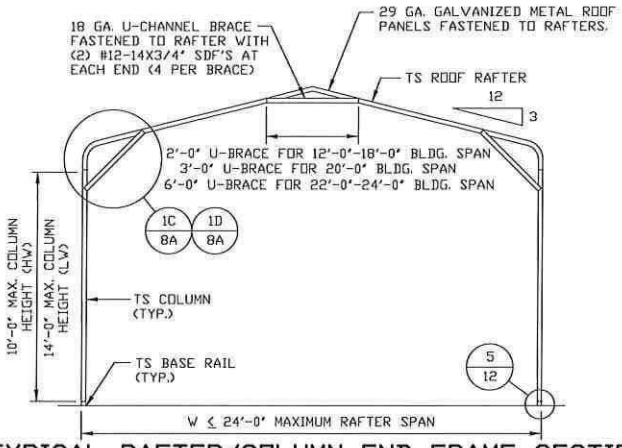
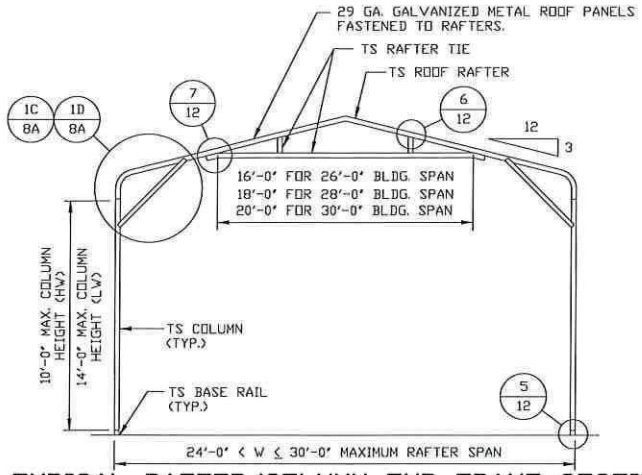
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 7	DWG. NO: SK-1	REV.: 1



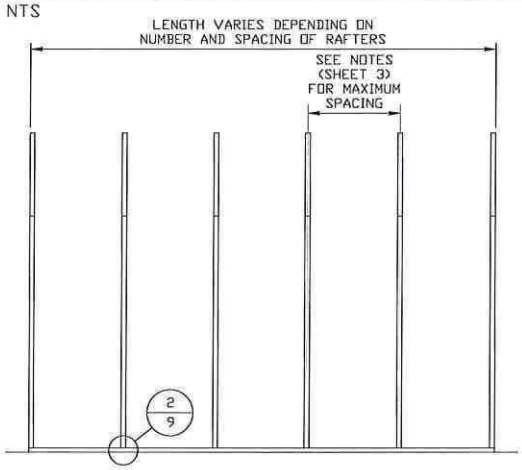
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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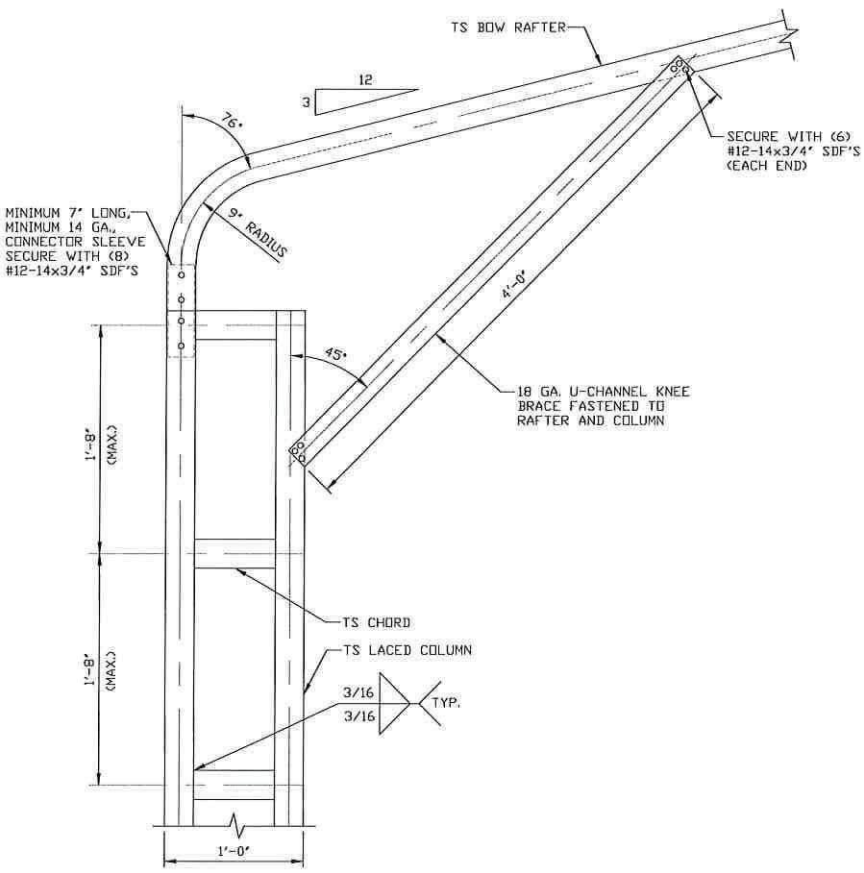
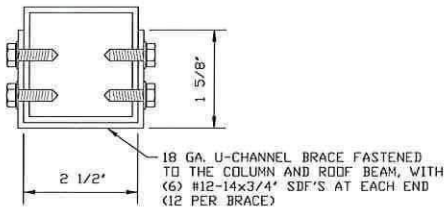
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 7A	DWG. NO: SK-1	REV.: 1



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

1A

SCALE: NTS



BRACE SECTION

SCALE: NTS

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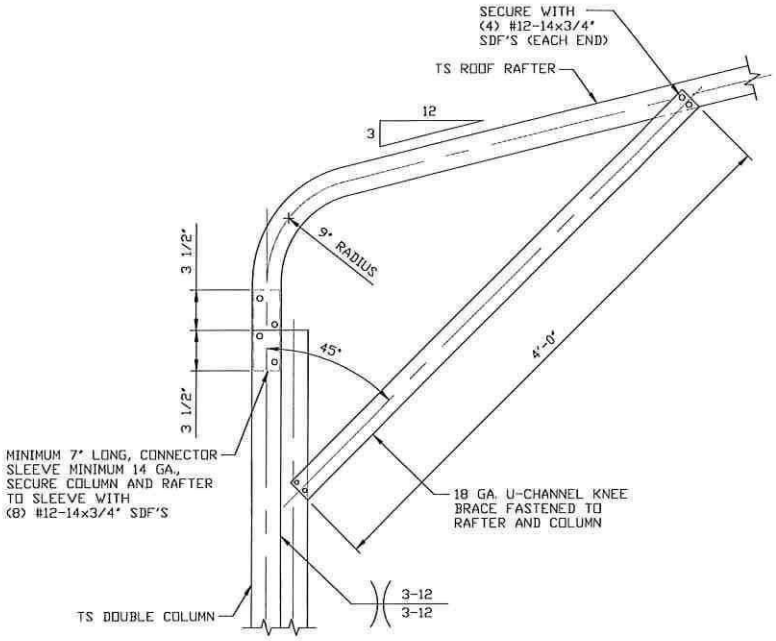
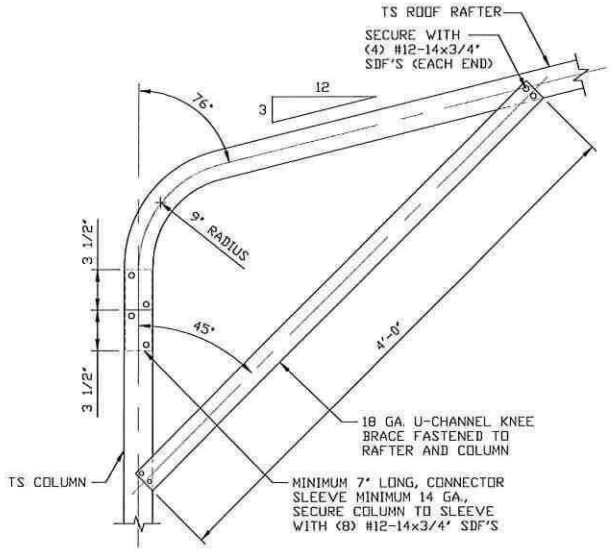
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 8	DWG. NO: SK-1	REV.: 1



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 16'-0" (HW) AND HEIGHTS 14'-0" < TO ≤ 16'-0" (LW)

1B

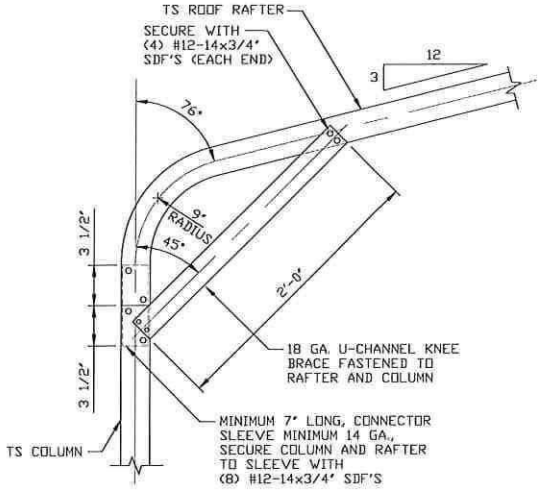
SCALE: NTS



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 10'-0" (HW) AND HEIGHTS 12'-0" < TO ≤ 14'-0" (LW)

1C

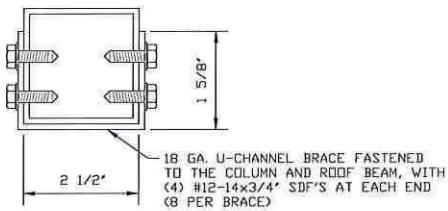
SCALE: NTS



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0" (HW) AND HEIGHTS ≤ 12'-0" (LW)

1D

SCALE: NTS



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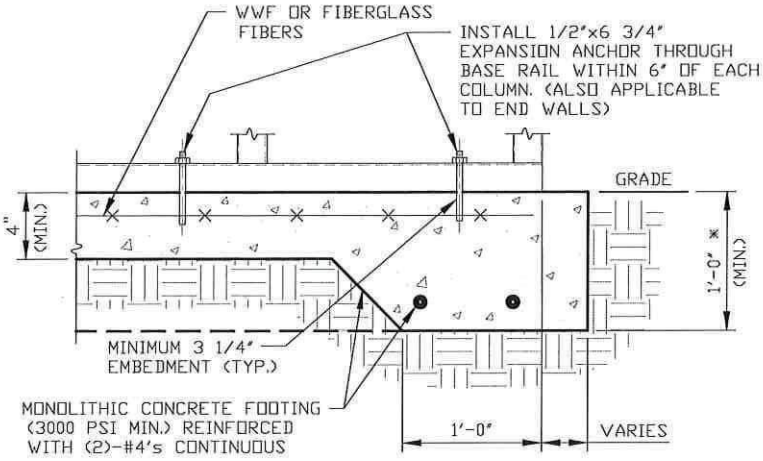
	CHECKED BY: PDH		
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 8A	DWG. NO: SK-1	REV.: 1

BASE RAIL ANCHORAGE OPTIONS

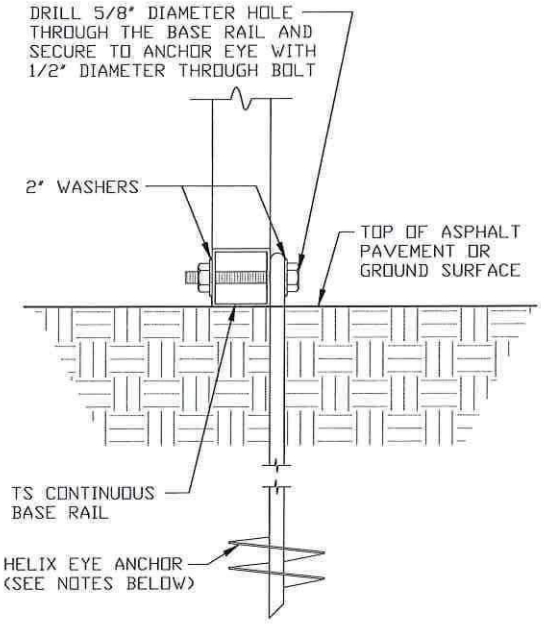


2A **CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE**

SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 4".

* COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH.



2B **GROUND BASE HELIX ANCHORAGE**

SCALE: NTS (CAN BE USED FOR ASPHALT)

* COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH (LENGTH).

GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED ON MINIMUM SOIL BEARING CAPACITY OF 1,500 PSF.

CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.

COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318:
3" IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2" ELSEWHERE.

REINFORCING STEEL:

THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

1. REINFORCEMENT IS BENT COLD.
2. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.

HELIX ANCHOR NOTES:

1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
2. FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
3. FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
4. FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" EMBEDMENT.
5. FOR VERY LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT.

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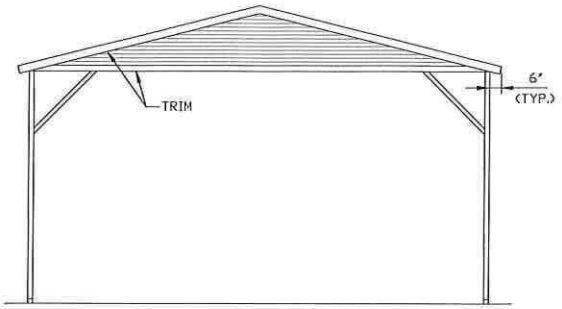
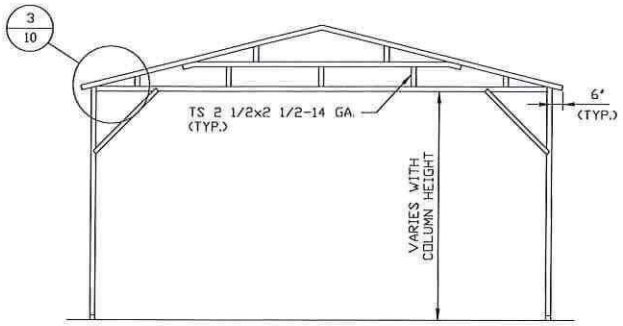
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 9	DWG. NO: SK-1	REV.: 1

BOX EAVE RAFTER GABLE END OPTION



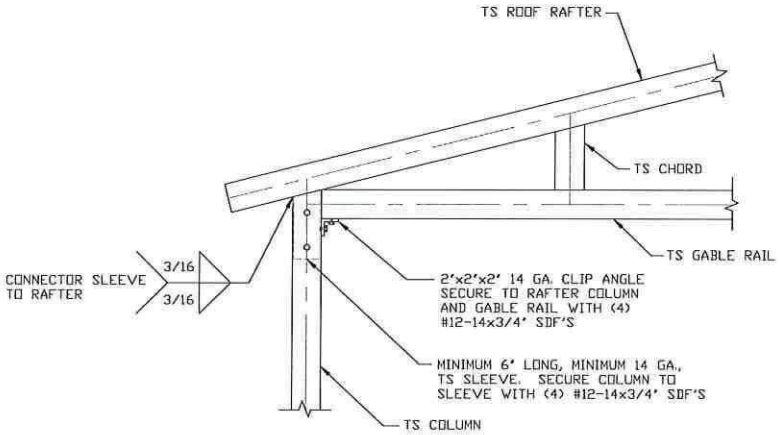
TYPICAL BOX EAVE RAFTER
GABLE END ELEVATION

SCALE: NTS



TYPICAL BOX EAVE RAFTER
GABLE END FRAMING SECTION

SCALE: NTS



3 BOX EAVE RAFTER GABLE RAIL TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

NOTE: KNEE BRACE NOT SHOWN FOR CLARITY

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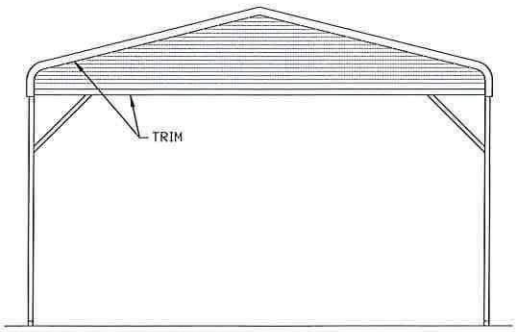
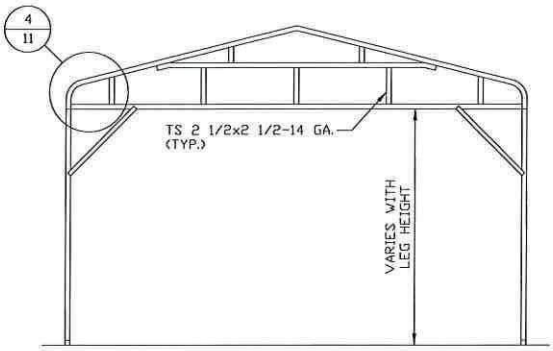
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 10	DWG. NO: SK-1	REV.: 1

BOW RAFTER GABLE END OPTION



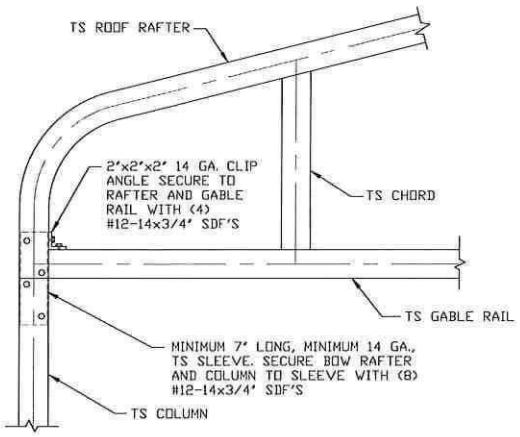
TYPICAL BOW RAFTER GABLE END ELEVATION

SCALE: NTS



TYPICAL BOW RAFTER GABLE END FRAMING SECTION

SCALE: NTS



4 BOW RAFTER GABLE RAIL TO RAFTER/COLUMN CONNECTION DETAIL

SCALE: NTS

NOTE: KNEE BRACE NOT SHOWN FOR CLARITY

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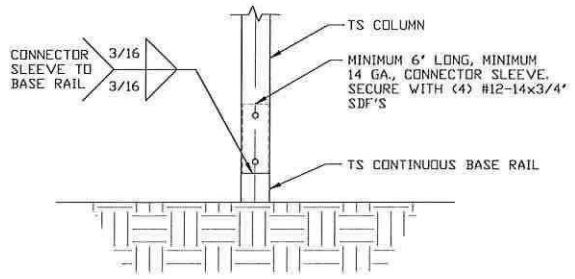
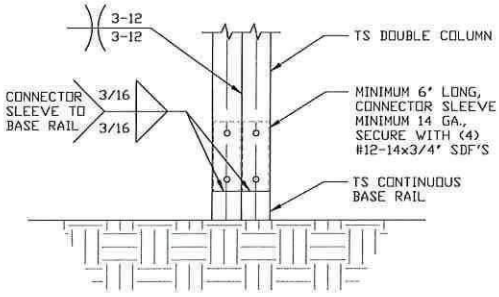
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 11	DWG. NO: SK-1	REV.: 1

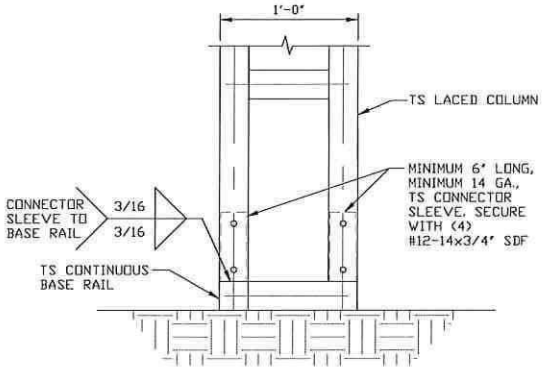
CONNECTION DETAILS



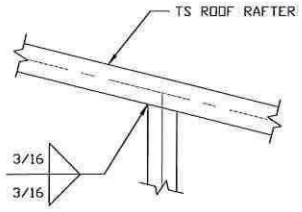
5 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



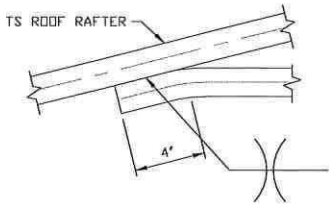
5A RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



5B RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



6 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



7 COLLAR TIE CONNECTION DETAIL
SCALE: NTS

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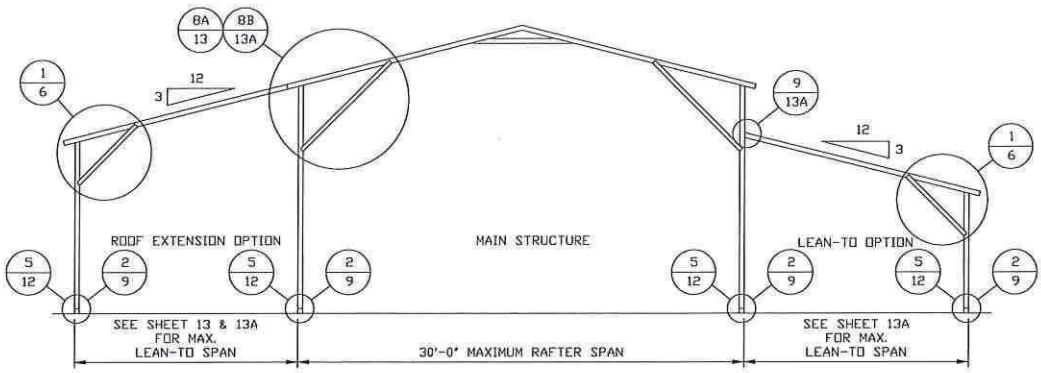
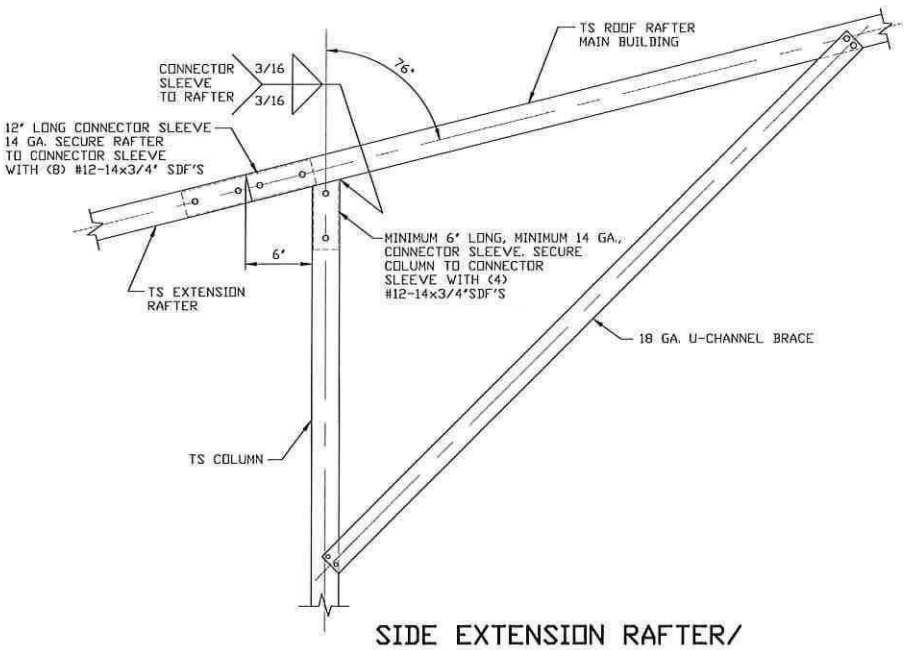
CHECKED BY: PDH				
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S	
CLIENT: BMB	SHT. 12	DWG. NO: SK-1	REV.: 1	

BOX EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)

SCALE: NTS
(MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION LEAN-TO IS 12'-0".)
(MAXIMUM WIDTH OF DOUBLE MEMBER ROOF EXTENSION LEAN-TO IS 16'-0".)
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 16'-0" < TO ≤ 20'-0".
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 10'-0" < TO ≤ 16'-0" (HIGH WIND) AND 14'-0" < TO ≤ 16'-0" (LOW WIND).
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 10'-0" (HIGH WIND) AND ≤ 14'-0" (LOW WIND).



8A — SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR RAFTER SPANS ≤ 12'-0"
SCALE: NTS

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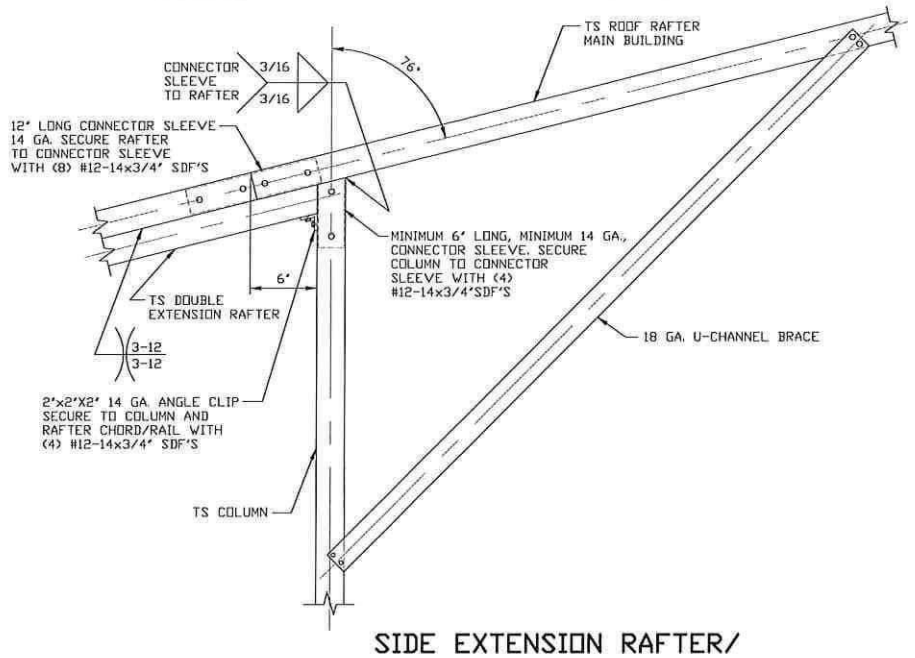
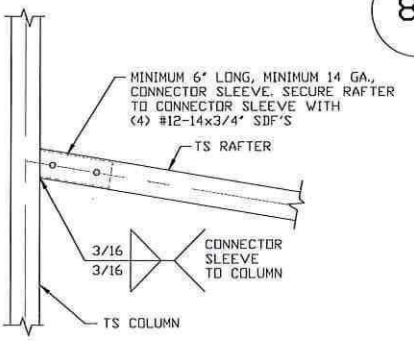
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/ 21025S
	CLIENT: BMB	SHT. 13	DWG. NO: SK-1	REV.: 1

BOX EAVE RAFTER LEAN-TO OPTIONS



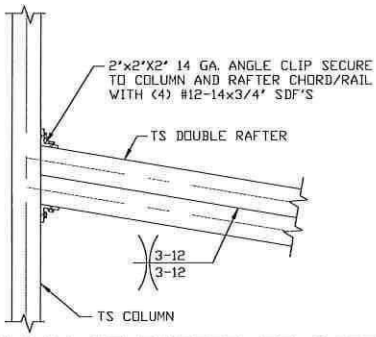
8B SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR RAFTER SPANS 12'-0" < L ≤ 16'-0"

SCALE: NTS



9A LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 12'-0"

SCALE: NTS



9B LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 12'-0" < L ≤ 16'-0"

SCALE: NTS

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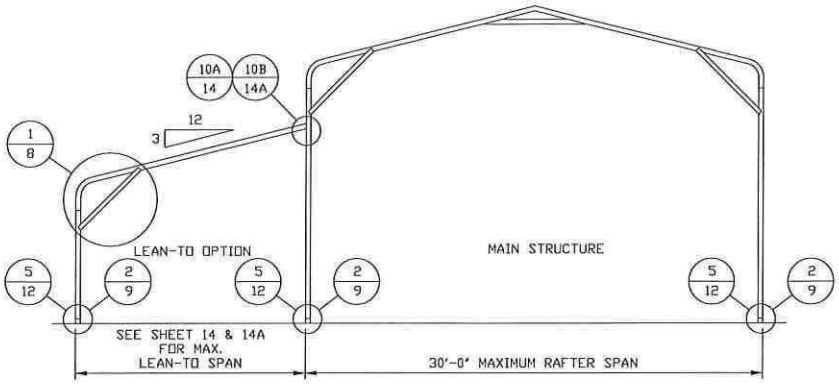
DRAWN BY: JG	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE		
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/ 21025S
CLIENT: BMB	SHT. 13A	DWG. NO: SK-1	REV.: 1

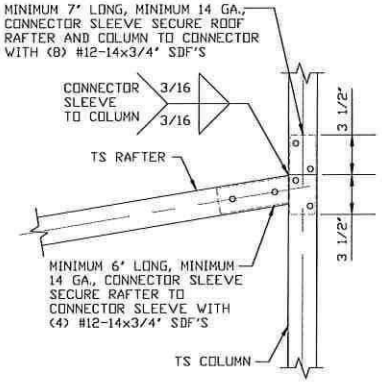
BOW RAFTER LEAN-TO OPTIONS



TYPICAL BOW RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

(MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION LEAN-TO IS 12'-0".)
(MAXIMUM WIDTH OF DOUBLE MEMBER ROOF EXTENSION LEAN-TO IS 16'-0".)
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 16'-0" < TO ≤ 20'-0".
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 10'-0" < TO ≤ 16'-0" (HIGH WIND) AND 14'-0" < TO ≤ 16'-0" (LOW WIND).
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 10'-0" (HIGH WIND) AND ≤ 14'-0" (LOW WIND).



10A

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 12'-0"

SCALE: NTS

WAYNE S. MOORE
LICENSE
No 57170
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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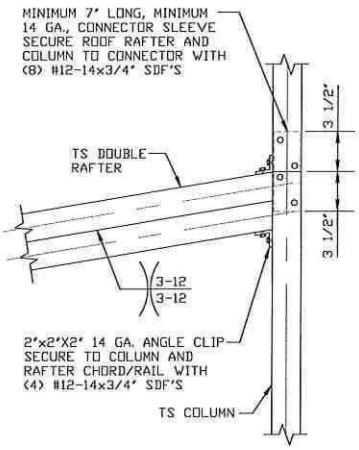
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE		
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
CLIENT: BMB	SHT. 14	DWG. NO: SK-1	REV.: 1

BOW RAFTER LEAN-TO OPTIONS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $12'-0" < L \leq 16'-0"$

10B

SCALE: NTS

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No 57170
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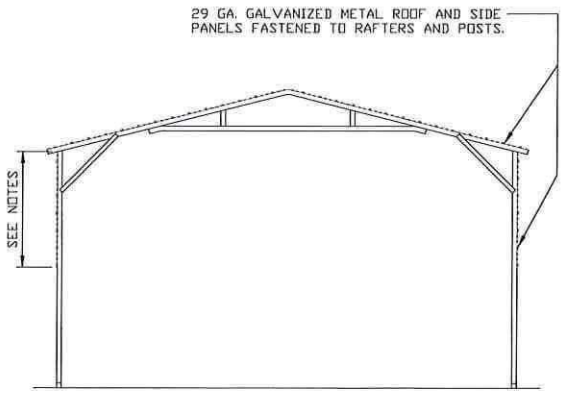
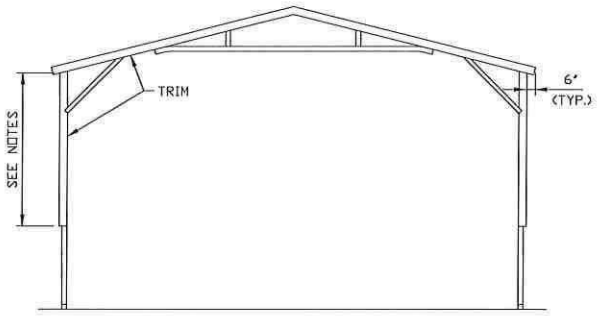
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/ 21025S
	CLIENT: BMB	SHT. 14A	DWG. NO: SK-1	REV.: 1

BOX EAVE RAFTER EXTRA SIDE PANEL OPTIONS



TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS
SCALE: NTS

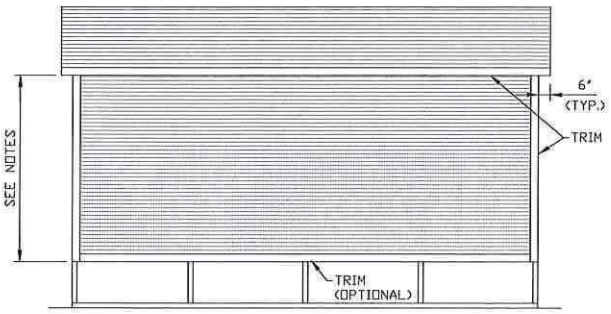


TYPICAL END ELEVATION
EXTRA SIDE PANELS
SCALE: NTS

NOTES:

(LW):
* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 16'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")

(HW):
* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 9'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")



TYPICAL SIDE ELEVATION
EXTRA SIDE PANELS
SCALE: NTS

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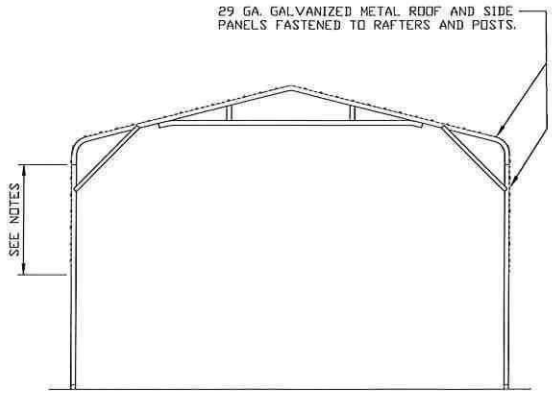
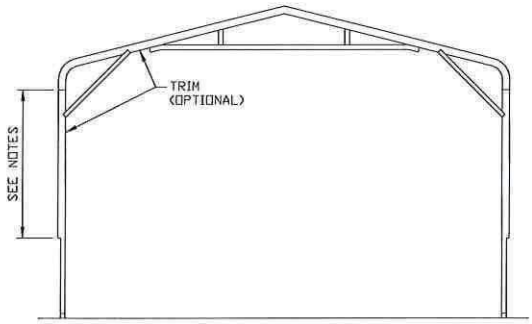
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 15	DWG. NO: SK-1	REV.: 1

BOW RAFTER EXTRA SIDE PANEL OPTIONS



TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS

SCALE: NTS



TYPICAL END ELEVATION
EXTRA SIDE PANELS

SCALE: NTS

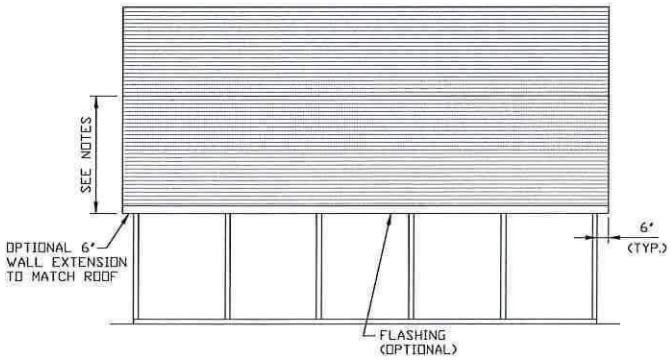
NOTES:

(LW):

* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 16'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")

(HW):

* 3'-0" MAX. (FOR EAVE HEIGHT ≤ 12'-0")
* NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"
* 9'-0" MAX. (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")
* 20'-0" MAX. (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")



TYPICAL SIDE ELEVATION
EXTRA SIDE PANELS

SCALE: NTS

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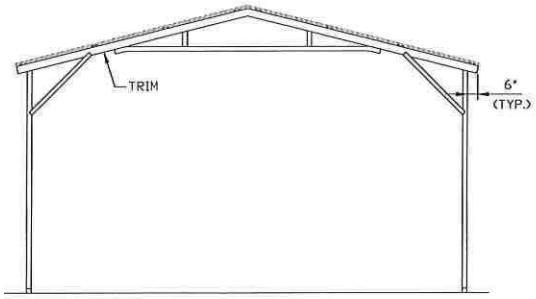
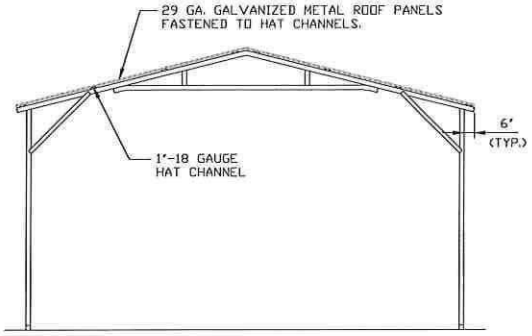
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 16	DWG. NO: SK-1	REV.: 1

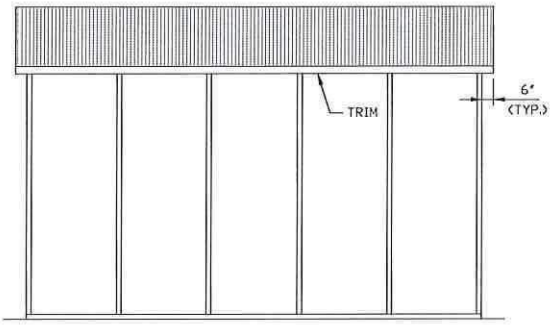
BOX EAVE RAFTER VERTICAL ROOF OPTION



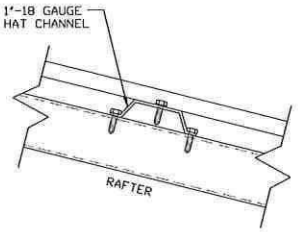
TYPICAL END ELEVATION
VERTICAL ROOF
SCALE: NTS



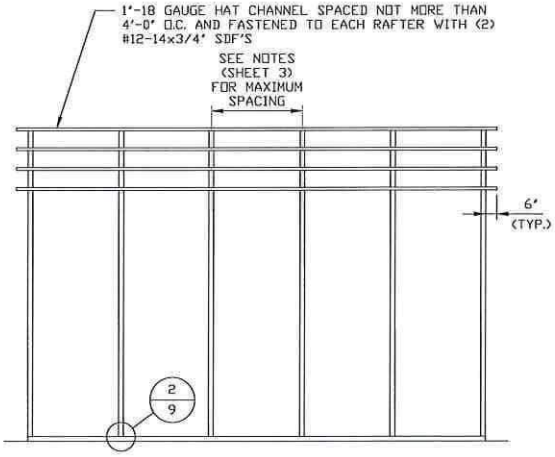
TYPICAL SECTION
VERTICAL ROOF OPTION
SCALE: NTS



TYPICAL SIDE ELEVATION
VERTICAL ROOF
SCALE: NTS



PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS



TYPICAL FRAMING SECTION
VERTICAL ROOF OPTION
SCALE: NTS

WAYNE S. MOORE
LICENSE
No 57170
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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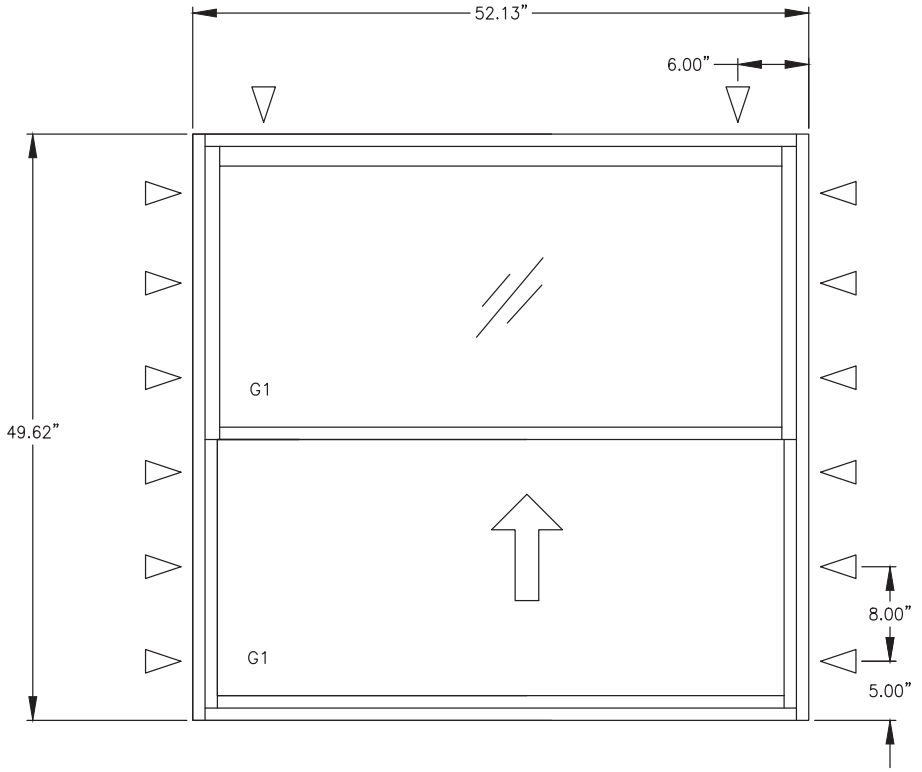
	CHECKED BY: PDH		
	PROJECT MGR: WSM	DATE: 3-2-21	SCALE: NTS	JOB NO: 19294S/21025S
	CLIENT: BMB	SHT. 17	DWG. NO: SK-1	REV.: 1

NOTES:

1. Products and installations depicted satisfy the requirements of the Florida Building Code, Building 7th Edition (2020) for design wind pressures and overall sizes noted.
2. Wood bucks, wood framing, steel stud framing, concrete and concrete masonry are by others and shall be designed by the architect or engineer of record to resist the loads imparted to them.
3. Wood buck strips and wood frames are assumed S–P–F (G=0.42) or denser. Buck width shall be greater than the frame width. Tapered or partial width buck strips are not allowed.
4. Concrete masonry installations are assumed at least ASTM C90 normal weight hollow masonry units with a 1–1/4" wall thickness or normal weight concrete with a minimum compressive strength of f'c = 3,000 psi.
5. Metal stud frames are assumed to be a minimum 18 gauge 33 KSI steel.
6. Wood screws shall be corrosion resistant and meet the requirements of ANSI/ASME B18.6.1
7. Tapcon masonry anchors shall have a minimum embedment of 1–1/2" or full penetration of concrete masonry unit shell. They shall also have a minimum of 2" edge distance. Install concrete masonry anchors per manufacturer's installation instructions.
8. TEKS screws shall be corrosion resistant and shall be ASTM A510 Grade 1018 or equivalent.
9. Maximum permitted shim thickness is 1/4". Shims shall be non–compressible and load bearing type. Every through–frame fastener shall have a shim.
10. Short term load duration factors have not been used for evaluation of aluminum and steel components. Load duration factor C_D = 1.6 utilized for connections to wood.
11. Products are impact resistant and do not require approved protection devices if used in wind–borne debris regions.
12. Approved for use in High Velocity Hurricane Zone (HVHZ).

CONTENTS:

47000 SINGLE HUNG WINDOW (IMPACT)
MAXIMUM SIZE: 52–1/8" WIDE X 49–5/8" TALL
MAXIMUM GLAZING SIZE: 46–7/8" WIDE X 19–7/8" TALL
DESIGN PRESSURE: +35/–65 PSF
LARGE MISSILE IMPACT RESISTANT



△ ANCHOR
(SEE SHEETS 2 TO 5)

Design Pressure Rating	Impact Rating
+35/-65 psf	Large Missile

NOTE: Structural Performance +60/–65 psf
Impact/Cycle Performance +60/–65 psf
Water Test Performance +5.25 psf

Joseph A. Reed, PE
FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

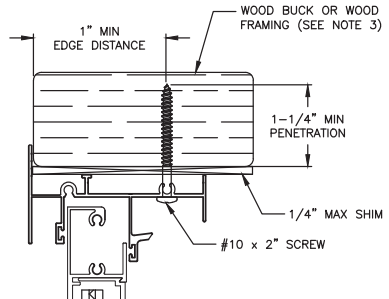
47000 Single Hung - Impact
Notes and Elevations

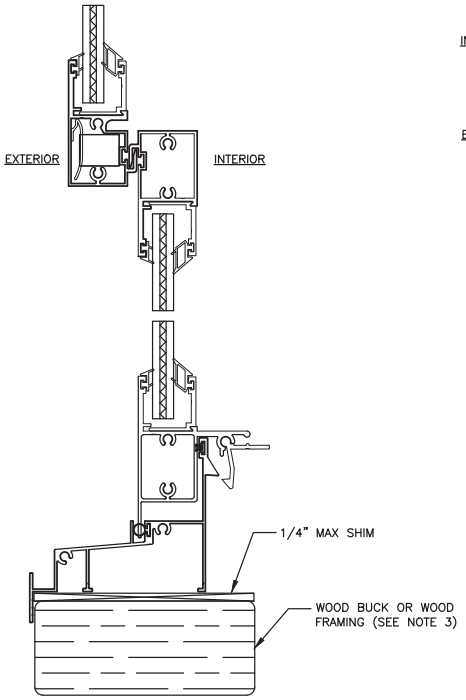
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

HEAD





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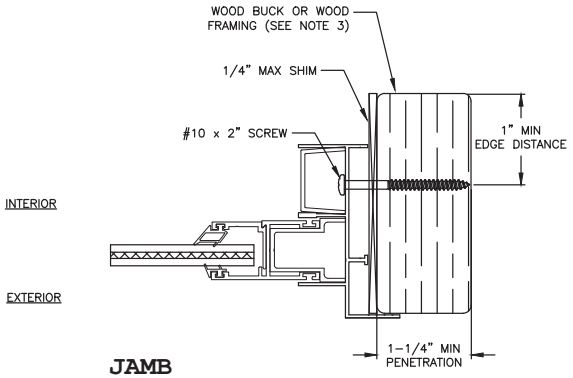

JAMB

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York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

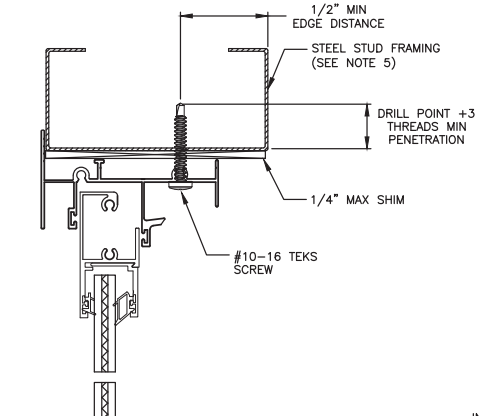
47000 Single Hung - Impact
Through Frame Installations
Wood

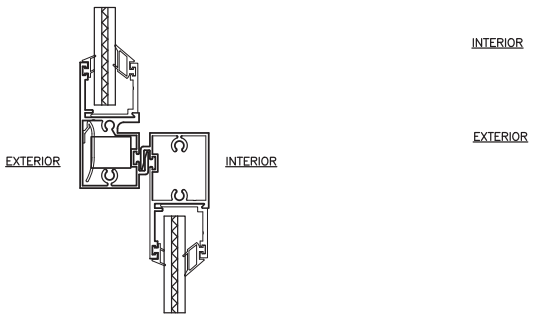
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

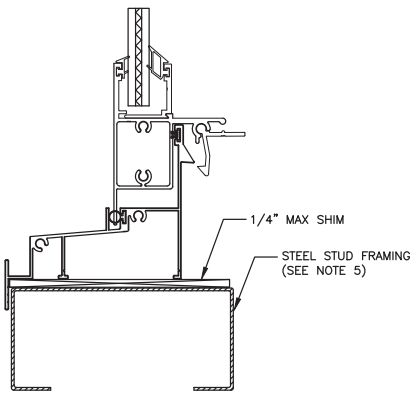
Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

HEAD







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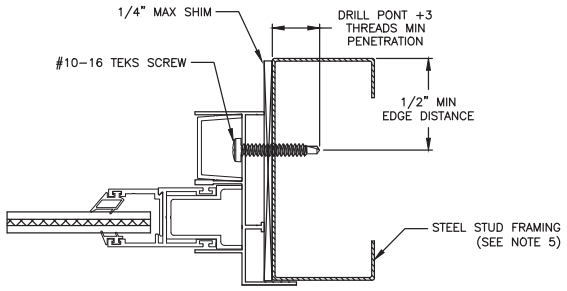

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5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

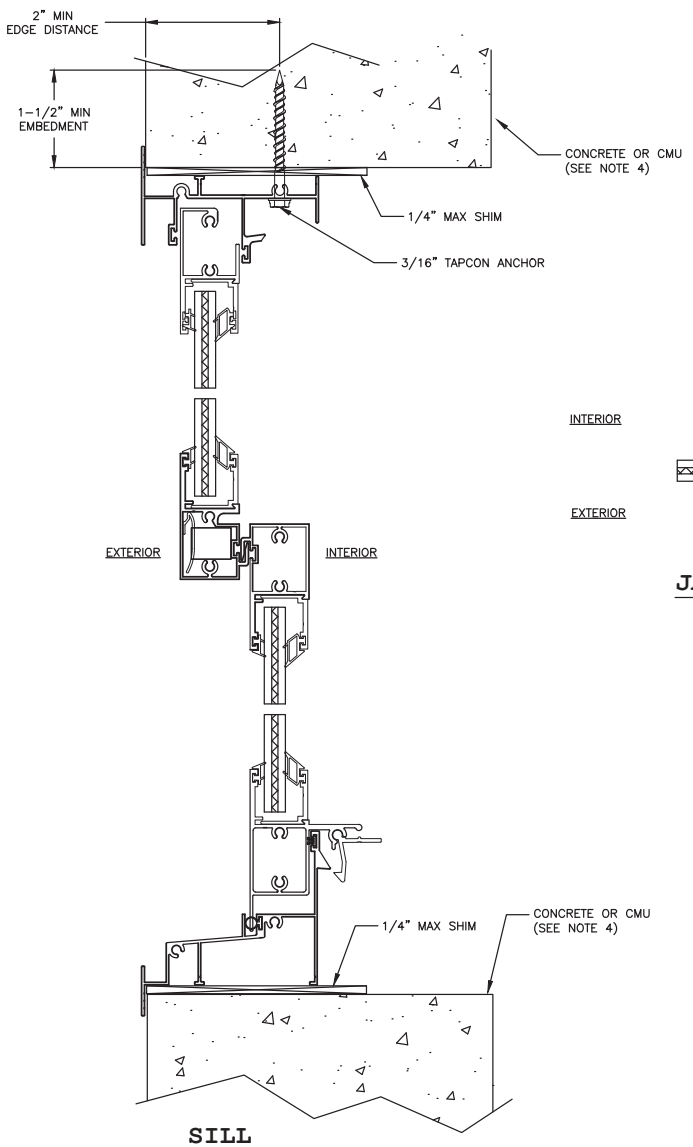
47000 Single Hung - Impact
Through Frame Installations
Steel Stud

TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

HEAD



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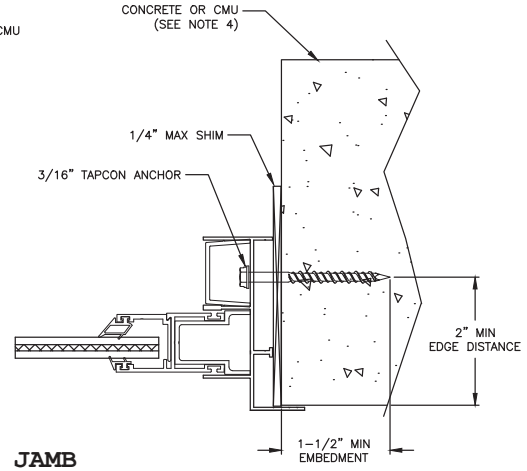

JAMB

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FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

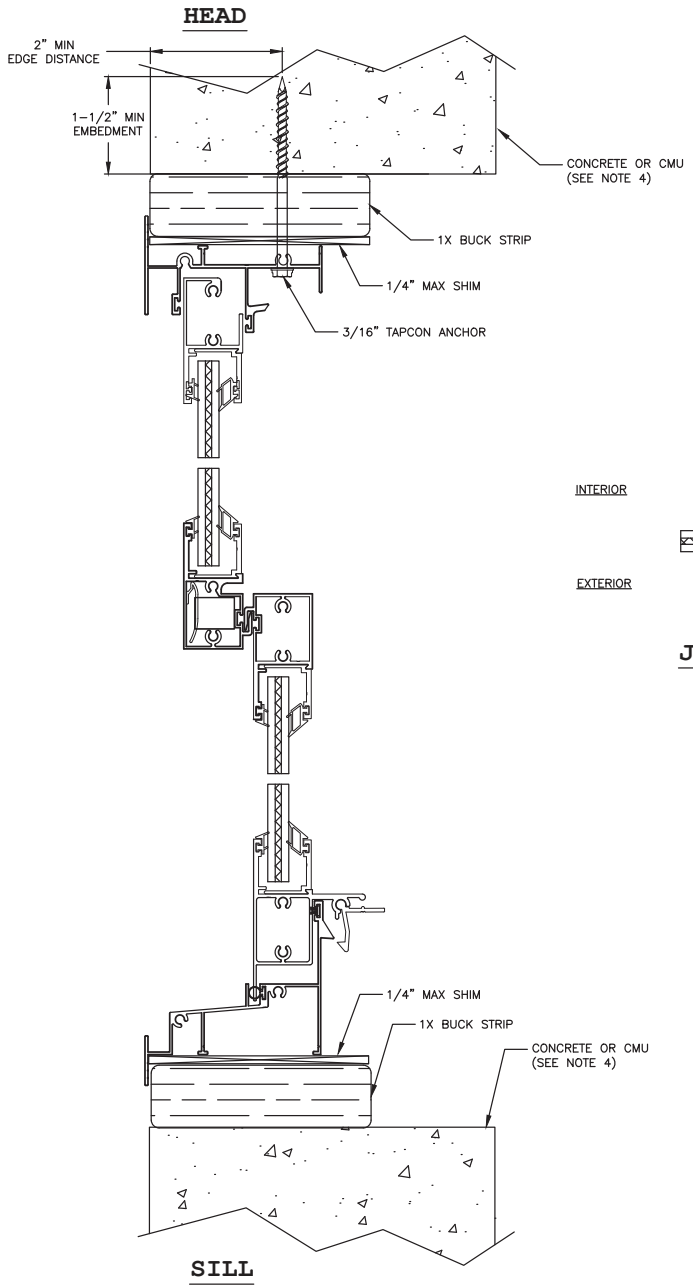
2021.01.08 09:27:49 -05'00'

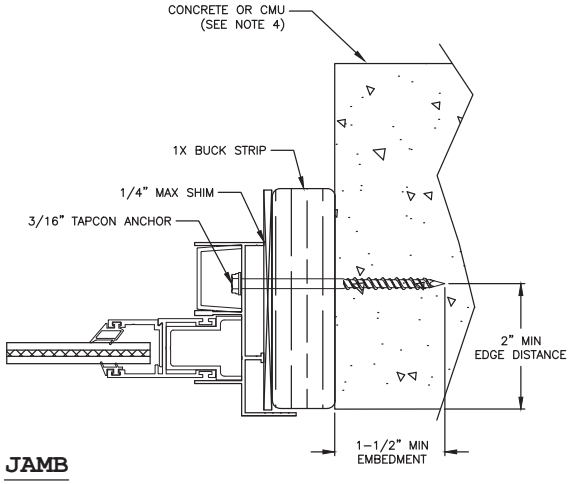
47000 Single Hung - Impact
Through Frame Installations
Concrete or CMU

TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS





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FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Through Frame Installations
Concrete or CMU with Buck Strip

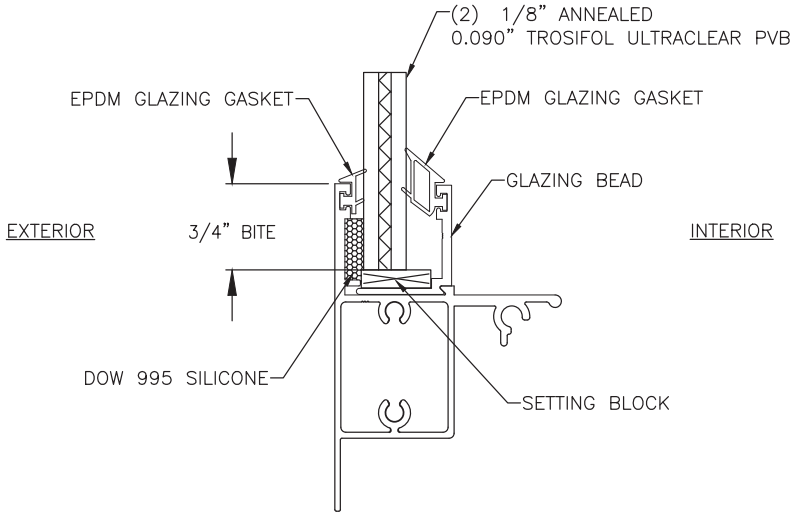
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

GLAZING DETAIL

G1 – LAMINATED GLASS



Joseph A. Reed, PE
FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

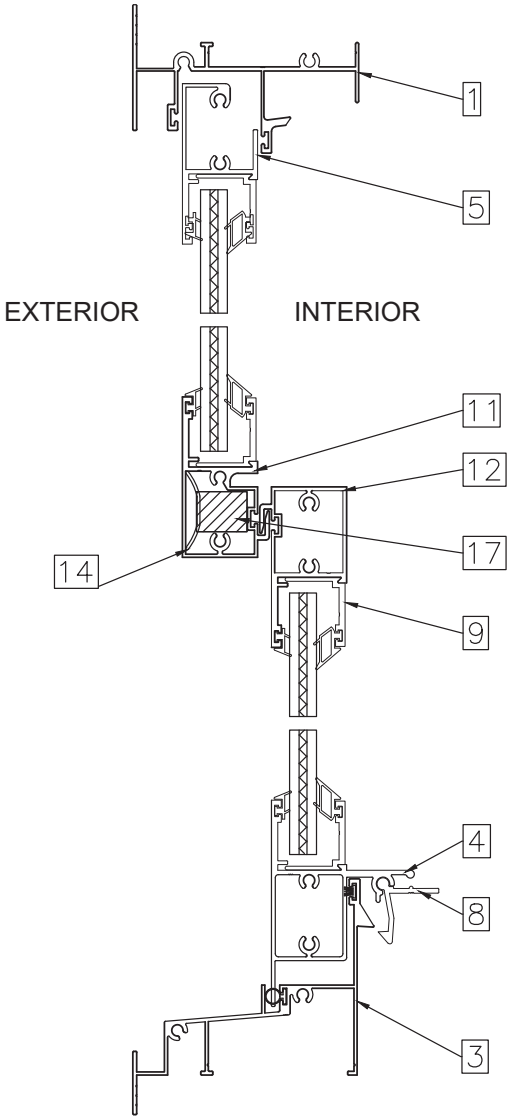
2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Glazing Details

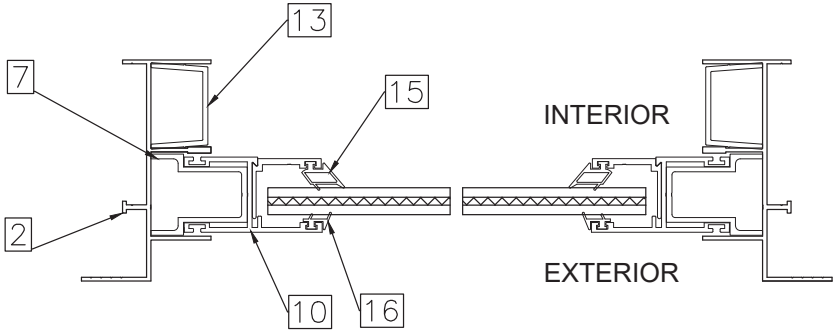
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

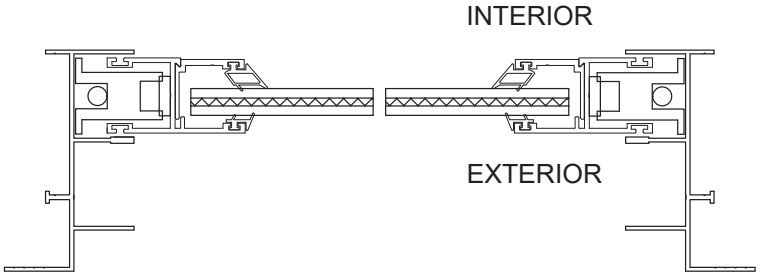
Scale: NTS



VERTICAL SECTION



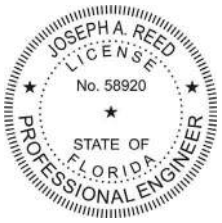
HORIZONTAL SECTION AT TOP SASH



HORIZONTAL SECTION AT BOTTOM SASH

HARDWARE		
ITEM	NUMBER	LOCATION
SWEEP LOCK	2	TOP RAIL OF BOTTOM SASH
PINCH LOCK	2	BOTTOM RAIL OF BOTTOM SASH
BLOCK AND TACKLE BALANCE	2	ONE EACH JAMB
WEATHERSTRIPPING		
ITEM	NUMBER	LOCATION
2-FIN PILE	2 ROWS	HEAD FRAME
2 FIN PILE	1 ROW	TOP SASH BOTTOM RAIL
2-FIN PILE	1 ROW	BOTTOM SASH TOP RAIL
2-FIN PILE	1 ROW	SILL UPSTAND
VINYL BULB	1 ROW	SILL
2-FIN PILE	2 ROWS	TOP SASH STILES
2-FIN PILE	2 ROWS	BOTTOM SASH STILES

ITEM NO.	NAME	MATERIAL	DESCRIP.
1	Head	6063-T5	EXTRUSION
2	Jamb	6063-T5	EXTRUSION
3	Sill	6063-T5	EXTRUSION
4	Bottom Sash Bottom Rail	6063-T5	EXTRUSION
5	Fixed Sash Top Rail	6063-T5	EXTRUSION
7	Fixed Sash Support	6063-T5	EXTRUSION
8	Pinch Lock	6063-T5	EXTRUSION
9	Glazing Bead	6063-T5	EXTRUSION
10	Sash Stile	6063-T5	EXTRUSION
11	Fixed Sash Bottom Rail	6063-T5	EXTRUSION
12	Bottom Sash Top Rail	6063-T5	EXTRUSION
13	Track Filler	PA6	INJECTION MOLD
14	Reinforcement Retainer	PA6	INJECTION MOLD
15	Wedge Gasket	EPDM RUBBER	EXTRUSION
16	Wedge Gasket	EPDM RUBBER	EXTRUSION
17	1/2" x 5/8" Reinforcement	STEEL	FLAT BAR STOCK



Joseph A. Reed, PE
FL PE 58920
FL REG 33474
5 Leigh Dr.
York, PA 17406
717-846-1200

Joseph A. Reed

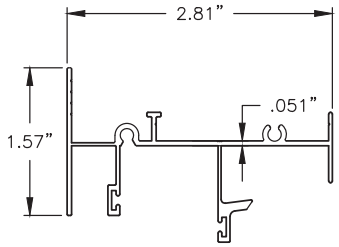
2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Sections and Bill of Material

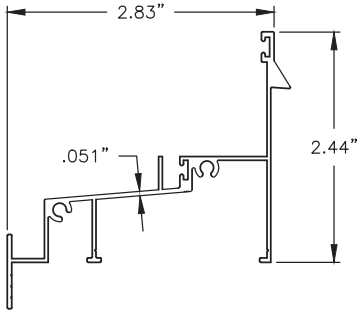
TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

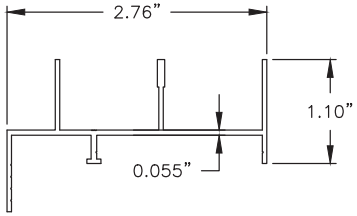
Scale: NTS



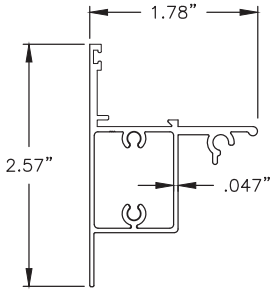
HEAD
6063–T5



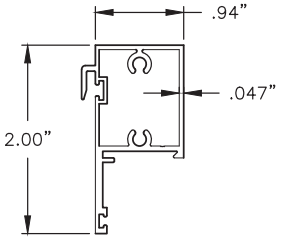
SILL
6063–T5



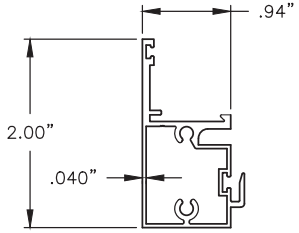
JAMB
6063–T5



BOTTOM SASH BOTTOM RAIL
6063–T5



BOTTOM SASH TOP RAIL
6063–T5



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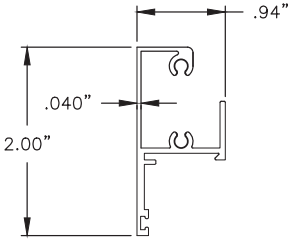
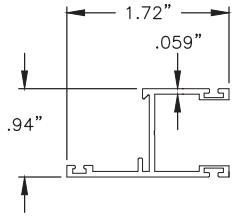
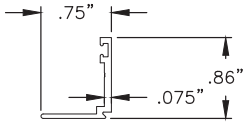
6063–T5



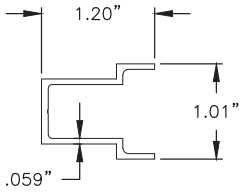
TOP SASH TOP RAIL
6063–T5



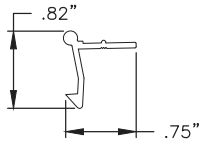
SASH STILE
6063–T5



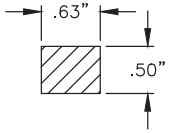
BLAZING BEAD
6063–T5



SASH SUPPORT
6063–T5



PINCH LOCK
6063–T5



REINFORCEMENT
STEEL

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York, PA 17406
717-846-1200

JOSEPH A. REED LICENSE No. 58920 STATE OF FLORIDA PROFESSIONAL ENGINEER

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact
Components

TAFCO Corporation
1953 North 17th Avenue
Melrose Park, IL 60160

Drawing No.: 23824-1-1001
Project No.: 23824-1
Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

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Suite 200
Mt. Airy, NC 27030
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1009 East Avenue
North Augusta, SC 29841
Phone: (803) 279-7799
Fax: (803) 279-3848
www.MandA-inc.com

15 April 2021

State of Florida- Metal Building Component Product Approval
Engineering Evaluation Report
M&A Project No. 20300S

Prepared By:	Wayne S. Moore, P.E. FL PE No. 57170 M&A COA No. 8966
Manufacturer:	Steel Buildings and Structures, Inc. 820 Reeves Drive Mount Airy, NC 27030
Product:	**AG Metal Wall Panel**
Product Description:	Low and high wind rated wall panels.

FL Product Code Approval No.: **FL22562**

Code Compliance Statement:

Moore and Associates Engineering and Consulting, Inc. (M&A) has reviewed the plans, calculations and testing information that applies to Florida Product Approval #FL22562 under the 2020 Florida Building Code, 7th Edition and finds them in compliance.

Certificate of Independence:

Wayne S. Moore, P.E. and M&A does not have, nor does it intend to acquire or will it acquire, a financial interest the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. is not employed by nor is M&A owned, operated or controlled by the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will they acquire, a financial interest in the company manufacturing or distributing the product or products for which test reports are being issued. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product or products.

National Society of Professional Engineers®

Supporting Documents:

Calculations:	Structural calculations dated 11 January 2021 performed by John Smith, E.I.T. and checked by Wayne S. Moore, P.E.
Drawings:	Drawings SK-1 through SK-6 signed/sealed by Wayne S. Moore, P.E.
Testing:	ATLNC #0321.01-17 test report dated 04/05/2017 and signed/sealed by David Johnson, P.E.

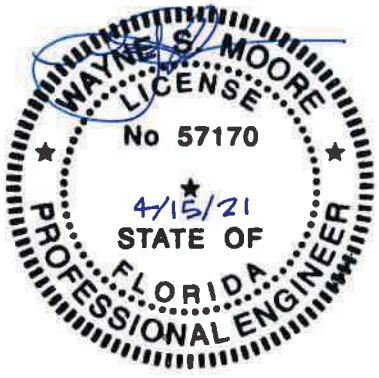
Limitations and Conditions of Use:

1. Structural calculations were performed in accordance with the 2020 FBC, 7th Edition and compared to test results performed under previous FBC given that testing of panel was performed to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports and attachment fasteners.
2. Maximum allowable design pressure shall be as indicated on plans for each configuration.
3. This product is for use outside of the High Velocity Hurricane Zone (HVHZ).
4. This product shall be minimum 29 gauge thick galvalume coated steel with minimum yield stress of 80 ksi.
5. Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
6. All supporting structural members shall be capable of supporting superimposed loads applied to this product.
7. Fasteners must consist of minimum 12-14 x ¾" self-drilling fasteners (SDFs) with control seal washers.
8. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof slope of 3:12 (14 degrees) or less.
9. Product shall be installed into substrates shown on installation drawings and shall not exceed spacing limitations.
10. Site conditions that deviate from calculation, drawing and/or testing limitation noted shall require further analysis by a licensed Professional Engineer registered in the State of Florida.

Quality Assurance:

The manufacturer has demonstrated compliance of proper quality assurance/quality control (QA/QC) in accordance with the Florida Administrative Code Rule 61G20-3.005. Manufacturer's QA/QC plan and practices have been audited by an approved quality assurance entity (Subsection 3).

Signature/Seal:



AG Metal Wall Calc Set

Design Loads:

$space_1 := 5 \cdot ft$ **o.c.** Low Wind Spacing

$space_2 := 4 \cdot ft$ **o.c.** High Wind Spacing

Risk Cat. I
Exposure B

$width := 180 \cdot in$

$Ht := 120\ in$

$$Ht_{roof} := \frac{width}{2} \cdot 0.25 = 1.875\ ft$$

$$mean_{rf}ht := 20\ ft = 20\ ft$$

$FS := 1.5$

Note: Test Protocol ASTM E330 requires a 50% safety factor over design load pressures.

Low Wind 140mph (Vasd=108mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ Adjustment Factor

$mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)

Wall (Wind Area = 20 square ft):

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

$Pw_{net30pos108} := 20.04\ psf \cdot \lambda = 17.836\ psf$ (Based on 2018 IBC (ASCE 7-16), Pg. 352-353)

$Pw_{net30neg108} := -26.24\ psf \cdot \lambda = -23.354\ psf$

Note: Used Zone 5 (more conservative)

Note: Highlighted values indicate input.

High Wind 170mph (Vasd=132mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ $mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)
Adjustment Factor

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

Wall (Wind Area = 20 square ft):

$Pw_{net30pos132} := 29.94\ psf \cdot \lambda = 26.647\ psf$ (Based on 2018 IBC (ASCE 7-16), Pg. 353)

$Pw_{net30neg132} := -39.2\ psf \cdot \lambda = -34.888\ psf$

Note: Used Zone 5 to be conservative.

Note: Highlighted values indicate input.

CHAPTER 30
WIND LOADS: COMPONENTS AND CLADDING

30.1 SCOPE

30.1.1 Building Types. This chapter applies to the determination of wind pressures on components and cladding (C&C) on buildings.

1. Part 1 is applicable to an enclosed or partially enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, multispan gable roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, and the wind pressures are calculated from a wind pressure equation.
2. Part 2 is a simplified approach and is applicable to an enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, or hip roof, and the wind pressures are determined directly from a table.
3. Part 3 is applicable to an enclosed or partially enclosed
   - Building with $h > 60$ ft (18.3 m).

   The building has a flat roof, pitched roof, gable roof, hip roof, mansard roof, arched roof, or domed roof, and the wind pressures are calculated from a wind pressure equation.
4. Part 4 is a simplified approach and is applicable to an enclosed
   - Building with 60 ft $< h \leq 160$ ft (18.3 m $< h \leq 48.8$ m).

   The building has a flat roof, gable roof, hip roof, monoslope roof, or mansard roof, and the wind pressures are determined directly from a table.
5. Part 5 is applicable to an open building of all heights that has a pitched free roof, monoslope free roof, or troughed free roof.
6. Part 6 is applicable to building appurtenances such as roof overhangs, parapets, and rooftop equipment.
7. Part 7 is applicable to non-building structures – circular bins, silos and tanks; and rooftop solar panels.
   - Circular Bins, Silos and Tanks: $h \leq 120$ ft (38.6 m).
   - Rooftop Solar Panels: Buildings of all heights with flat roofs or Gable or Hip Roofs with roof slopes less than or equal to 7 degrees

30.1.2 Conditions. A building that has design wind loads determined in accordance with this chapter shall comply with all of the following conditions:

1. The building is a regular-shaped building as defined in Section 26.2; and
2. The building does not have response characteristics that make it subject to across-wind loading, vortex shedding, or instability caused by galloping or flutter; nor does it have a site location for which channeling effects or buffeting in the wake of upwind obstructions warrant special consideration.

30.1.3 Limitations. The provisions of this chapter take into consideration the load magnification effect caused by gusts in resonance with along-wind vibrations of flexible buildings. The loads on buildings that do not meet the requirements of Section 30.1.2 or that have unusual shapes or response characteristics shall be determined using recognized literature documenting such wind load effects or shall use the wind tunnel procedure specified in Chapter 31.

30.1.4 Shielding. There shall be no reductions in velocity pressure caused by apparent shielding afforded by buildings and other structures or terrain features.

30.1.5 Air-Permeable Cladding. Design wind loads determined from Chapter 30 shall be used for air-permeable claddings, including modular vegetative roof assemblies, unless approved test data or recognized literature demonstrates lower loads for the type of air-permeable cladding being considered.

30.2 GENERAL REQUIREMENTS

30.2.1 Wind Load Parameters Specified in Chapter 26. The following wind load parameters are specified in Chapter 26:

- Basic wind speed, V (Section 26.5).
- Wind directionality factor, K_d (Section 26.6).
- Exposure category (Section 26.7).
- Topographic factor, K_{zt} (Section 26.8).
- Ground elevation factor, K_e (Section 26.9)
- Velocity pressure exposure coefficient, K_z or K_h (Section 26.10.1); Velocity pressure, q_z (Section 26.10.2)
- Gust-effect factor (Section 26.11).
- Enclosure classification (Section 26.12).
- Internal pressure coefficient, (GC_{pi}) (Section 26.13).

30.2.2 Minimum Design Wind Pressures. The design wind pressure for C&C of buildings shall not be less than a net pressure of 16 lb/ft^2 (0.77 kN/m^2) acting in either direction normal to the surface.

30.2.3 Tributary Areas Greater than 700 ft^2 (65 m^2). C&C elements with tributary areas greater than 700 ft^2 (65 m^2) shall be permitted to be designed using the provisions for main wind force resisting systems (MWFRS).

30.2.4 External Pressure Coefficients. Combined gust-effect factor and external pressure coefficients for C&C, (GC_p), are given in the figures associated with this chapter. The pressure coefficient values and gust-effect factor shall not be separated.

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 95–130 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			95		100		105		110		115		120		130	
Walls	4	10	16.2	−17.6	18.0	−19.5	19.8	−21.5	21.8	−23.6	23.8	−25.8	25.9	−28.1	30.4	
	4	20	15.5	−16.9	17.2	−18.7	18.9	−20.6	20.8	−22.6	22.7	−24.7	24.7	−26.9	29.0	
	4	50	14.5	−15.9	16.1	−17.6	17.8	−19.4	19.5	−21.3	21.3	−23.3	23.2	−25.4	27.2	
	4	100	13.8	−15.2	15.3	−16.8	16.9	−18.5	18.5	−20.4	20.2	−22.2	22.0	−24.2	25.9	
	5	10	16.2	−21.7	18.0	−24.1	19.8	−26.6	21.8	−29.1	23.8	−31.9	25.9	−34.7	30.4	
	5	20	15.5	−20.3	17.2	−22.5	18.9	−24.8	20.8	−27.2	22.7	−29.7	24.7	−32.4	29.0	
	5	50	14.5	−18.3	16.1	−20.3	17.8	−22.4	19.5	−24.6	21.3	−26.9	23.2	−29.3	27.2	
	5	100	13.8	−16.9	15.3	−18.7	16.9	−20.6	18.5	−22.6	20.2	−24.7	22.0	−26.9	25.9	
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	6.6	−25.9	7.3	−28.7	8.1	−31.6	8.9	−34.7	9.7	−37.9	10.5	−41.3	12.4	
	1	20	6.2	−24.2	6.9	−26.8	7.6	−29.5	8.3	−32.4	9.1	−35.4	9.9	−38.5	11.6	
	1	50	5.6	−21.9	6.3	−24.3	6.9	−26.8	7.6	−29.4	8.3	−32.1	9.0	−34.9	10.6	
	1	100	5.2	−20.2	5.8	−22.4	6.4	−24.7	7.0	−27.1	7.7	−29.6	8.3	−32.2	9.8	
	1′	10	6.6	−14.9	7.3	−16.5	8.1	−18.2	8.9	−19.9	9.7	−21.8	10.5	−23.7	12.4	−27.8
	1′	20	6.2	−14.9	6.9	−16.5	7.6	−18.2	8.3	−19.9	9.1	−21.8	9.9	−23.7	11.6	−27.8
	1′	50	5.6	−14.9	6.3	−16.5	6.9	−18.2	7.6	−19.9	8.3	−21.8	9.0	−23.7	10.6	−27.8
	1′	100	5.2	−14.9	5.8	−16.5	6.4	−18.2	7.0	−19.9	7.7	−21.8	8.3	−23.7	9.8	−27.8
	2	10	6.6	−34.1	7.3	−37.8	8.1	−41.7	8.9	−45.7	9.7	−50.0	10.5	−54.4	12.4	−63.9
	2	20	6.2	−31.9	6.9	−35.4	7.6	−39.0	8.3	−42.8	9.1	−46.8	9.9	−50.9	11.6	−59.8
	2	50	5.6	−29.0	6.3	−32.2	6.9	−35.5	7.6	−38.9	8.3	−42.5	9.0	−46.3	10.6	−54.4
	2	100	5.2	−26.8	5.8	−29.7	6.4	−32.8	7.0	−36.0	7.7	−39.3	8.3	−42.8	9.8	−50.2
	3	10	6.6	−46.5	7.3	−51.5	8.1	−56.8	8.9	−62.3	9.7	−68.1	10.5	−74.2	12.4	−87.5
	3	20	6.2	−42.1	6.9	−46.7	7.6	−51.4	8.3	−56.5	9.1	−61.7	9.9	−67.2	11.6	−78.9
	3	50	5.6	−36.3	6.3	−40.2	6.9	−44.4	7.6	−48.7	8.3	−53.2	9.0	−57.9	10.6	−68.0
	3	100	5.2	−31.9	5.8	−35.4	6.4	−39.0	7.0	−42.8	7.7	−46.8	8.3	−50.9	9.8	−59.8
Gable Roof > 7 to 20 Degrees	1	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	1	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	1	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	1	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2e	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	2e	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	2e	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	2e	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2n	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2n	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2n	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2n	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	2r	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2r	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2r	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2r	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3e	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	3e	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	3e	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	3e	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3r	10	9.8	−52.0	10.9	−57.6	12.0	−63.5	13.2	−69.7	14.4	−76.2	15.7	−83.0	18.4	−97.4
	3r	20	8.9	−44.6	9.8	−49.4	10.8	−54.4	11.9	−59.7	13.0	−65.3	14.1	−71.1	16.6	−83.4
	3r	50	7.6	−34.7	8.4	−38.4	9.3	−42.4	10.2	−46.5	11.1	−50.8	12.1	−55.4	14.2	−65.0
	3r	100	6.6	−27.2	7.3	−30.2	8.1	−33.3	8.9	−36.5	9.7	−39.9	10.5	−43.5	12.4	−51.0

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 140–200 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)											
			140		150		160		170		180		190		200	
Walls	4	10	35.3	−38.2	40.5	−38.2	46.1	−50.0	52.0	−56.4	58.3	−63.2	64.9	−70.4	72.0	−78.1
	4	20	33.7	−36.7	38.7	−36.7	44.0	−47.9	49.6	−54.1	55.7	−60.6	62.0	−67.5	68.7	−74.8
	4	50	31.6	−34.6	36.2	−34.6	41.2	−45.1	46.6	−51.0	52.2	−57.1	58.1	−63.7	64.4	−70.5
	4	100	30.0	−33.0	34.4	−33.0	39.2	−43.1	44.2	−48.6	49.6	−54.5	55.2	−60.7	61.2	−67.3
	5	10	35.3	−47.2	40.5	−47.2	46.1	−61.7	52.0	−69.6	58.3	−78.0	64.9	−87.0	72.0	−96.3
	5	20	33.7	−44.0	38.7	−44.0	44.0	−57.5	49.6	−64.9	55.7	−72.8	62.0	−81.1	68.7	−89.9
	5	50	31.6	−39.8	36.2	−39.8	41.2	−52.0	46.6	−58.7	52.2	−65.8	58.1	−73.4	64.4	−81.3
	5	100	30.0	−36.7	34.4	−36.7	39.2	−47.9	44.2	−54.1	49.6	−60.6	55.2	−67.5	61.2	−74.8
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	14.3	−56.2	16.5	−56.2	18.7	−73.4	21.1	−82.8	23.7	−92.9	26.4	−103.5	29.3	−114.6
	1	20	13.4	−52.5	15.4	−52.5	17.6	−68.5	19.8	−77.4	22.2	−86.7	24.8	−96.6	27.4	−107.1
	1	50	12.3	−47.6	14.1	−47.6	16.0	−62.1	18.1	−70.1	20.3	−78.6	22.6	−87.6	25.0	−97.1
	1	100	11.4	−43.9	13.0	−43.9	14.8	−57.3	16.7	−64.7	18.8	−72.5	20.9	−80.8	23.2	−89.5
	1′	10	14.3	−32.3	16.5	−32.3	18.7	−42.1	21.1	−47.6	23.7	−53.3	26.4	−59.4	29.3	−65.9
	1′	20	13.4	−32.3	15.4	−32.3	17.6	−42.1	19.8	−47.6	22.2	−53.3	24.8	−59.4	27.4	−65.9
	1′	50	12.3	−32.3	14.1	−32.3	16.0	−42.1	18.1	−47.6	20.3	−53.3	22.6	−59.4	25.0	−65.9
	1′	100	11.4	−32.3	13.0	−32.3	14.8	−42.1	16.7	−47.6	18.8	−53.3	20.9	−59.4	23.2	−65.9
	2	10	14.3	−74.1	16.5	−74.1	18.7	−96.8	21.1	−109.3	23.7	−122.5	26.4	−136.5	29.3	−151.2
	2	20	13.4	−69.3	15.4	−69.3	17.6	−90.6	19.8	−102.2	22.2	−114.6	24.8	−127.7	27.4	−141.5
	2	50	12.3	−63.0	14.1	−63.0	16.0	−82.3	18.1	−92.9	20.3	−104.2	22.6	−116.1	25.0	−128.7
	2	100	11.4	−58.3	13.0	−58.3	14.8	−76.1	16.7	−85.9	18.8	−96.3	20.9	−107.3	23.2	−118.9
	3	10	14.3	−101.0	16.5	−101.0	18.7	−131.9	21.1	−148.9	23.7	−166.9	26.4	−186.0	29.3	−206.1
	3	20	13.4	−91.5	15.4	−91.5	17.6	−119.5	19.8	−134.9	22.2	−151.2	24.8	−168.5	27.4	−186.7
	3	50	12.3	−78.9	14.1	−78.9	16.0	−103.0	18.1	−116.3	20.3	−130.4	22.6	−145.3	25.0	−161.0
	3	100	11.4	−69.3	13.0	−69.3	14.8	−90.6	16.7	−102.2	18.8	−114.6	20.9	−127.7	23.2	−141.5
Gable Roof > 7 to 20 Degrees	1	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	1	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	1	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	1	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2e	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	2e	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	2e	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	2e	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2n	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2n	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2n	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2n	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	2r	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2r	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2r	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2r	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3e	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	3e	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	3e	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	3e	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3r	10	21.4	−112.9	24.5	−112.9	27.9	−147.5	31.5	−166.5	35.3	−186.7	39.4	−208.0	43.6	−230.5
	3r	20	19.3	−96.8	22.1	−96.8	25.2	−126.4	28.4	−142.7	31.8	−159.9	35.5	−178.2	39.3	−197.5
	3r	50	16.5	−75.4	18.9	−75.4	21.5	−98.4	24.3	−111.1	27.2	−124.6	30.3	−138.8	33.6	−153.8
	3r	100	14.3	−59.2	16.5	−59.2	18.7	−77.3	21.1	−87.2	23.7	−97.8	26.4	−109.0	29.3	−120.7

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

Metricconversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure for Roof Overhang, p_{net30}, in lb/ft², for Exposure B at h = 30 ft, V= 95–200 mph

	Zone	Effective Wind Area (ft²)	Wind Speed (mph)												
			95	100	105	110	115	120	130	140	150	160	170	180	190
Hip Roof > 27 to 45 Degrees	1	10	–31.6	–35.1	–38.7	–42.4	–46.4	–50.5	–59.3	–68.7	–78.9	–89.8	–101.3	–113.6	–126.6
	1	20	–29.1	–32.2	–35.5	–39.0	–42.6	–46.4	–54.5	–63.2	–72.5	–82.5	–93.2	–104.5	–116.4
	1	50	–25.7	–28.5	–31.4	–34.5	–37.7	–41.1	–48.2	–55.9	–64.1	–73.0	–82.4	–92.4	–102.9
	1	100	–23.2	–25.7	–28.3	–31.1	–34.0	–37.0	–43.4	–50.4	–57.8	–65.8	–74.2	–83.2	–92.7
	2e	10	–38.1	–42.3	–46.6	–51.1	–55.9	–60.9	–71.4	–82.8	–95.1	–108.2	–122.1	–136.9	–152.6
	2e	20	–31.6	–35.0	–38.6	–42.3	–46.3	–50.4	–59.1	–68.6	–78.7	–89.6	–101.1	–113.4	–126.3
	2e	50	–22.9	–25.4	–28.0	–30.7	–33.6	–36.6	–42.9	–49.8	–57.1	–65.0	–73.4	–82.3	–91.7
	2e	100	–22.0	–24.4	–26.9	–29.5	–32.3	–35.1	–41.2	–47.8	–54.9	–62.4	–70.5	–79.0	–88.1
	2r	10	–46.1	–51.1	–56.3	–61.8	–67.5	–73.5	–86.3	–100.1	–114.9	–130.7	–147.6	–165.5	–184.4
	2r	20	–39.7	–44.0	–48.5	–53.2	–58.1	–63.3	–74.3	–86.2	–98.9	–112.5	–127.0	–142.4	–158.7
	2r	50	–31.2	–34.6	–38.1	–41.8	–45.7	–49.8	–58.4	–67.7	–77.7	–88.5	–99.9	–112.0	–124.7
	2r	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	10	–45.2	–50.1	–55.3	–60.6	–66.3	–72.2	–84.7	–98.2	–112.8	–128.3	–144.8	–162.4	–180.9
	3	20	–36.4	–40.3	–44.5	–48.8	–53.4	–58.1	–68.2	–79.1	–90.8	–103.3	–116.6	–130.7	–145.7
	3	50	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

Adjustment Factor for Building Height and Exposure, λ

Mean Roof Height (ft)	Exposure		
	B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.09	1.49	1.74
45	1.12	1.53	1.78
50	1.16	1.56	1.81
55	1.19	1.59	1.84
60	1.22	1.62	1.87

Note: Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

Table 30.5-1 Steps to Determine C&C Wind Loads for Enclosed or Partially Enclosed Building with $h > 60$ ft ($h > 18.3$ m)

Step 1: Determine risk category; see Table 1.5-1.
Step 2: Determine the basic wind speed, V, for applicable risk category; see Figs. 26.5-1 and 26.5-2.
Step 3: Determine wind load parameters:
- Wind directionality factor, K_d; see Section 26.6 and Table 26.6-1.
- Exposure category B, C, or D; see Section 26.7.
- Topographic factor, K_{zt}; see Section 26.8 and Fig. 26.8-1.
- Ground elevation factor, K_e; see Section 26.9 and Table 26.9-1
- Enclosure classification; see Section 26.12.
- Internal pressure coefficient, (GC_{pi}); see Section 26.13 and Table 26.13-1.

Step 4: Determine velocity pressure exposure coefficient, K_z or K_h; see Table 26.10-1.
Step 5: Determine velocity pressure, q, Eq. (26.10-1).
Step 6: Determine external pressure coefficient, (GC_p):
- Walls and flat roofs ($\theta < 10°$), see Fig. 30.5-1
- Gable and hip roofs, see Fig. 30.3-2 per Note 6 of Fig. 30.5-1
- Arched roofs, see Fig. 27.3-3, Note 4
- Domed roofs, see Fig. 30.3-7

Step 7: Calculate wind pressure, p, Eq. (30.5-1).

American Test Lab, Inc
1122 Calvert Road Brevard, NC 28712
828-884-3700
atli@comporium.net atlnc.com

ATLNC # 0321.01-17 Report Date: 04/05/17

Test Dates: 03/21/17 – 03/23/17

Miami Dade Certification # 16-0526.01
FL Organizational # TST 1555
IAS Certification # TL-423

Test Requested By: Steel Building And Structures Inc.
820 Reeves Drive
Mount Airy, NC 27030
Phone 877-272-8276, Fax 336-551-3449

Test Standard: ASTM E 1592-05

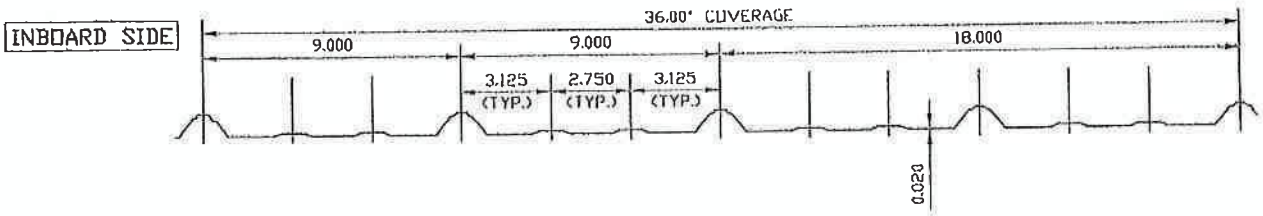
Test Conditions: 65 - 75 degrees F

Description of products tested:

Specimens A, F 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawings SK-1, SK-3, SK-4, SK-5, SK-6. Panels attached to 2-1/2" x 2-1/2" x 14 ga. rafters/ post with 12-14" x 3/4" self drilling screws at 6" oc.

Specimen B, D 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6 over 2-5/16" wide Hat Channel attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Hat Channel was attached to each rafter with (2) 12-14 x 3/4" self drilling screws, panels to Hat Channels with 12-14 x 3/4" self drilling screws at 6" OC.

Specimen C, E 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6.over 2-1/2" x 14 ga sq galvanized steel girth attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Girth was attached to each rafter with 2" x 2" x 14 ga angle with (4) 12-14 x 3/4" self drilling screws, panels attached to girth with 12-14 x 3/4" self drilling screws at 6" OC.



Configuration:

Specimen A, (3) 4' purlin spans, 3 panels wide mounted horizontally.

Specimen B, (3) 4' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen C, (3) 4' purlin spans, 4' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen D, 5' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen E, (3) 5' purlin spans, 5' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen F, (3) 5' purlin spans, 3 panels wide mounted horizontally.

Rafter/Post/Girth Construction- 2-1/2" x 2-1/2" x 14 ga tube

Rafter Spacing- Specimen A B, C, 3 spans 48" OC with 12" overhang.
Specimen D, E, F, 3 spans 60" OC, with 12" overhang.

Hat Channel Spacing: Specimen B, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 48" OC with 12" overhang, rafter spacing 60" OC.

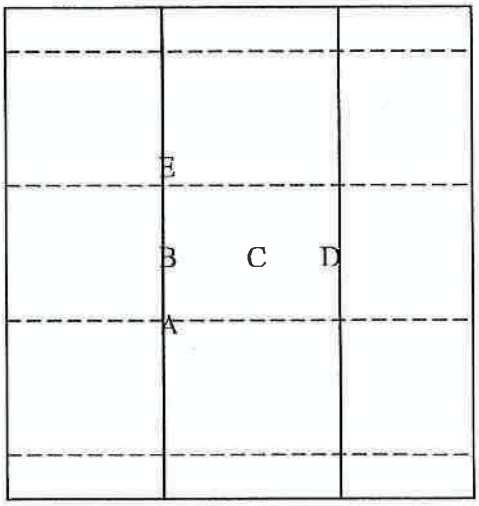
2-1/2" Tube Girth Spacing: Specimen C, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC.

Rafter/Post Attachment- Each rafter/post was attached the chamber.

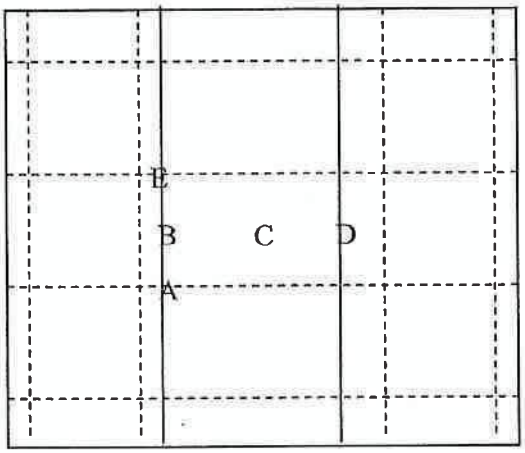
Test Specimens

Indicator Locations

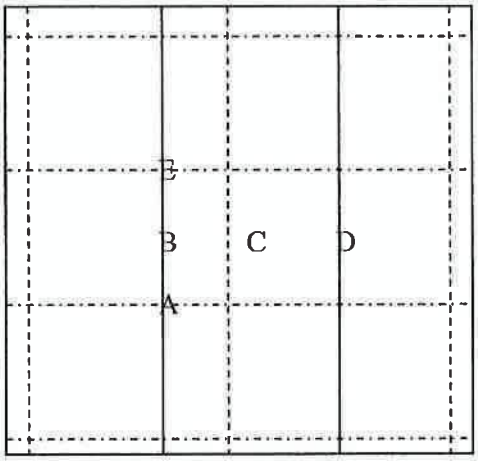
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

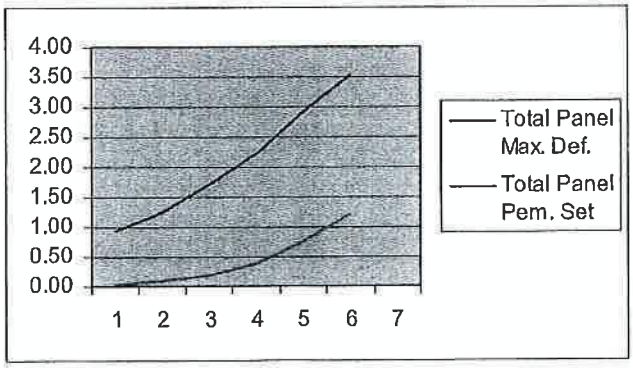
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
20	60	.75"	.02"	.83"	.03"	.93"	.03"
30	60	1.04"	.05"	1.12"	.07"	1.26"	.08"
40	60	1.45"	.15"	1.52"	.17"	1.73"	.20"
50	60	1.84"	.30"	1.92"	.33"	2.22"	.39"
60	60	2.35"	.55"	2.47"	.64"	2.90"	.76"
70	60	2.86"	.84"	2.97"	.99"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
20	60	.80"	.02"	.81"	.02"	.93"	.03"
30	60	1.09"	.06"	1.06"	.06"	1.26"	.08"
40	60	1.50"	.17"	1.47"	.16"	1.73"	.20"
50	60	1.90"	.32"	1.86"	30"	2.22"	.39"
60	60	2.46"	.63"	2.40"	.58"	2.90"	.76"
70	60	2.97"	.97"	2.87"	.89"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 124 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen B

Deflections in inches

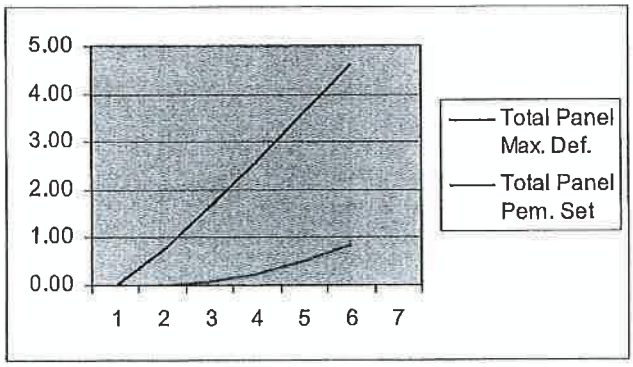
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.58"	.01"	.60"	0.0	.75"	.01"
30	60	1.34"	.07"	1.45"	.08"	.169"	.08"
40	60	2.07"	.21"	2.29"	.21"	2.57"	.22"
50	60	2.97"	.44"	3.03"	.46"	3.58"	.49"
60	60	3.89"	.75"	4.36"	.80"	4.62"	.86"
70	60						
80	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.61"	0.0	.56"	0.0	.75"	.01"
30	60	1.60"	.08"	1.30"	.06"	.169"	.08"
40	60	2.37"	.24"	2.06"	.18"	2.57"	.22"
50	60	3.36"	.48"	2.92"	.39"	3.58"	.49"
60	60	4.38"	.83"	3.83"	.69"	4.62"	.86"
70	60						
80	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 82 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Hat channel screws disengaged from rafter/post.

Specimen C

Deflections in inches

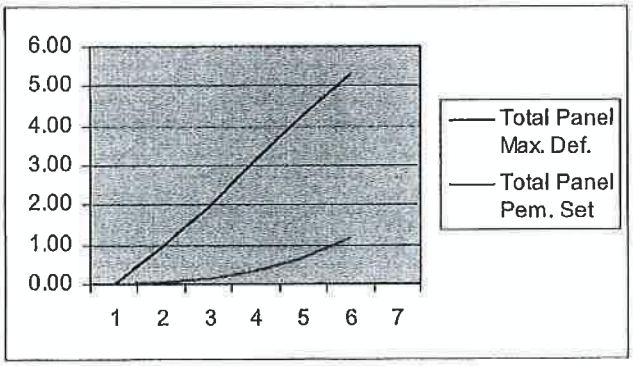
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.70"	.04"	.82"	.05"	.96"	.06"
20	60	1.53"	.08"	1.72"	.10"	1.99"	.12"
30	60	2.41"	.22"	2.68"	.24"	3.15"	.32"
40	60	3.18"	.44"	3.57"	.49"	4.26"	.66"
50	60	3.97"	.75"	4.41"	.84"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.93"	.05"	.71"	.03"	.96"	.06"
20	60	1.90"	.11"	1.49"	.07"	1.99"	.12"
30	60	2.94"	.28"	2.36"	.20"	3.15"	.32"
40	60	3.89"	.56"	3.10"	.44"	4.26"	.66"
50	60	4.79"	.96"	3.92	.78"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 50 psf to prevent damage. Failure occurred at approximately 105 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen D

Deflections in inches

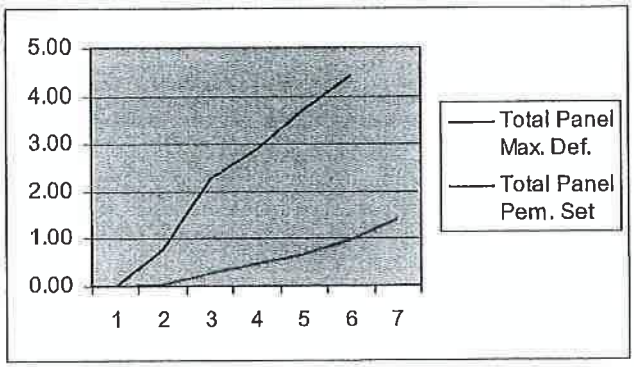
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.54"	.02"	.69"	.02"	.78"	.02"
14	60	1.70"	.29"	2.18"	36"	2.26"	.28"
21	60	2.20"	.47"	2.81"	.57"	2.90"	.45"
28	60	2.83"	.63"	3.61"	.78"	3.72"	.67"
35	60	3.32"	.88"	4.27"	1.13"	4.43"	.99"
42	60	4.11"	1.22"	5.14"	1.56"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.76"	.02"	.75"	.02"	.78"	.02"
14	60	2.08"	.22"	2.35"	.37"	2.26"	.28"
21	60	2.65"	.37"	3.01"	.58"	2.90"	.45"
28	60	3.37"	.56"	3.89"	.81"	3.72"	.67"
35	60	3.88"	.81"	4.62"	1.20"	4.43"	.99"
42	60	4.56"	1.10"	5.63"	1.71"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 42 psf to prevent damage. Failure occurred at approximately 73 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen E

Deflections in inches

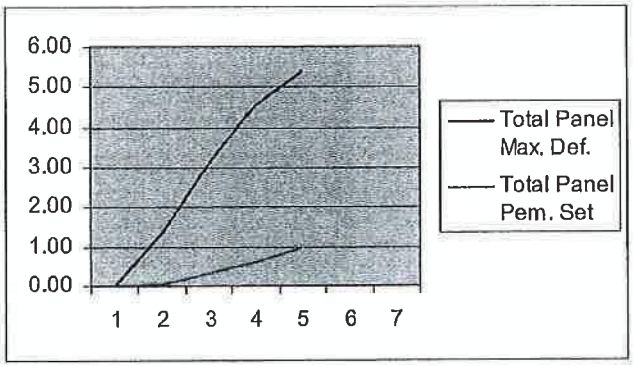
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.13"	.10"	1.22"	.07"	1.38"	.07"
20	60	2.49"	.30"	2.72"	.30"	3.12"	.31"
30	60	3.56"	.51"	3.90"	.53"	4.56"	.60"
40	60	4.45"	.80"	4.71"	.87"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.40"	.08"	1.09"	.07"	1.38"	.07"
20	60	3.08"	.30"	2.42"	.25"	3.12"	.31"
30	60	4.46"	.59"	3.44"	.42"	4.56"	.60"
40	60	5.43"	.99"	4.33"	.71"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 40 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen F

Deflections in inches

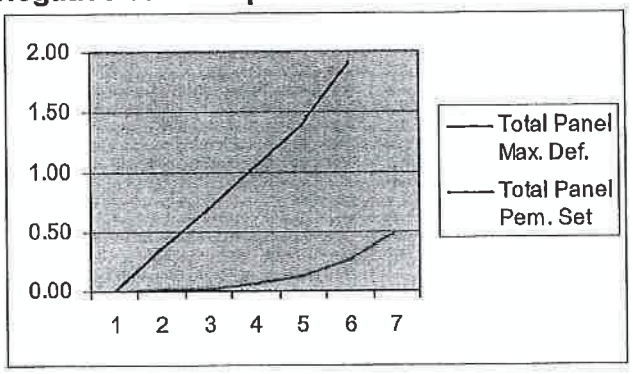
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.23"	.0"	.27"	.01"	.36"	.02"
14	60	.49"	.0"	.56"	.02"	.71"	.02"
21	60	.74"	.03"	.84"	.04"	1.05"	.06"
28	60	1.06"	.09"	1.12"	.10"	1.39"	.13"
25	60	1.41"	.20"	1.52"	.21"	1.90"	.27"
42	60	1.77"	.37"	1.52"	.40"	2.40"	.50"
49	60	2.27"	.63"	2.40"	.70"	2.93"	.86"
56	60	2.81"	1.00"	2.99"	1.11"	3.66"	1.38"
63	60	3.43"	1.48"	3.79"	1.61"	4.70"	2.06"
70	60						
77							
84							

Deflections in inches

Pre91ssure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.28"	.01"	.24"	.0"	.36"	.02"
14	60	.60"	.02"	.52"	.01"	.71"	.02"
21	60	.90"	.05"	.80"	.04"	1.05"	.06"
28	60	1.19"	.11"	1.09"	.09"	1.39"	.13"
25	60	1.59"	.23"	1.44"	.19"	1.90"	.27"
42	60	2.01"	.41"	1.81"	.35"	2.40"	.50"
49	60	2.49"	.70"	2.26"	.60"	2.93"	.86"
56	60	3.08"	1.12"	2.78"	.98"	3.66"	1.38"
63	60	3.87"	1.64"	3.39"	1.45"	4.70"	2.06"
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 63 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Note: 2 mil or 4 mil polyethylene film was used for the ASTM 1592 test, it is the opinion of the undersigned that it had no influence on the results of the test.

Technician: Keith Owen

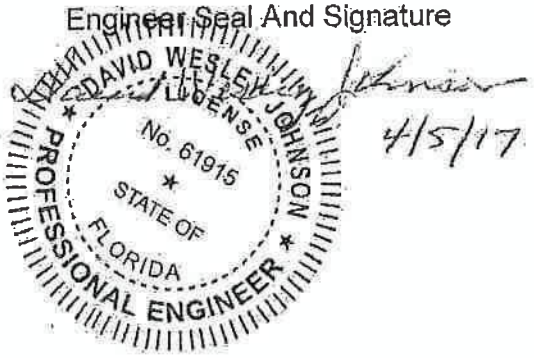
Observers-

Keith Owen, Ashley Poplin, / ATL
Sam Poplin, Keith Owen Jr., Ronald Anders / ATL
David W. Johnson, P.E

Keith Owen, Lab Director
American Test Lab, Inc.
Keith Owen
4/5/17

All Tests Witnessed and Certified by:
David Johnson P. E.
1122 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 61915

Engineer Seal And Signature

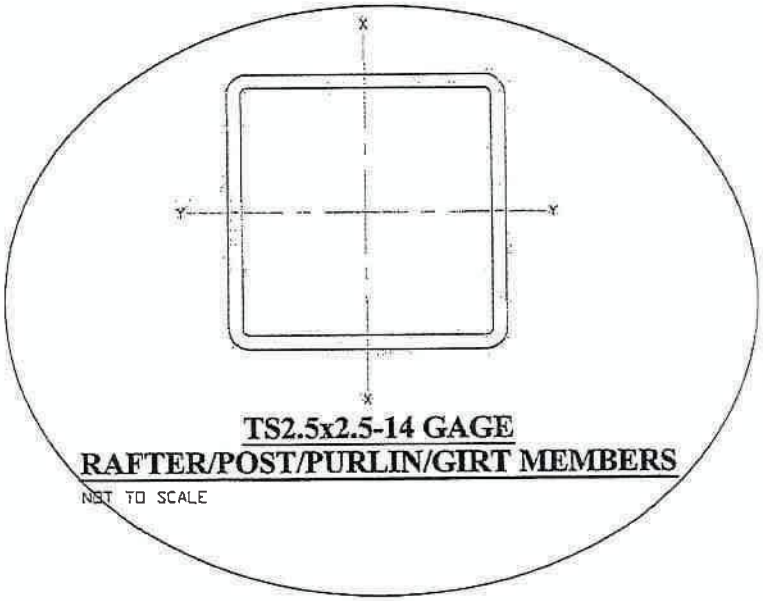


4/5/17

Certificate of Independence: The witnessing engineer has no equity interest in American Test Lab of North Carolina, Steel Building and Structures or their parts vendors. Witnessing engineer is in complete compliance of Florida Statue 9B-72, Section 72.110

Disclaimer:

ATL and its staff have no equity interest in any product tested or installed. This test report was prepared by American Test Lab, North (ATL) for the exclusive use of the above named client; it does not constitute certification of this product. The results are for that particular specimen tested and does not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. ATL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. This report may not be reproduced except in full, and only under expressed permission from American Test Lab or Steel Building and Structures. Reproduced reports in hard copy must be labeled "Copy".



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50-80 KSI

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/16/17

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-Inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

TS2.5x2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

M&A JOB NO. 16192S

SCALE: AS NOTED

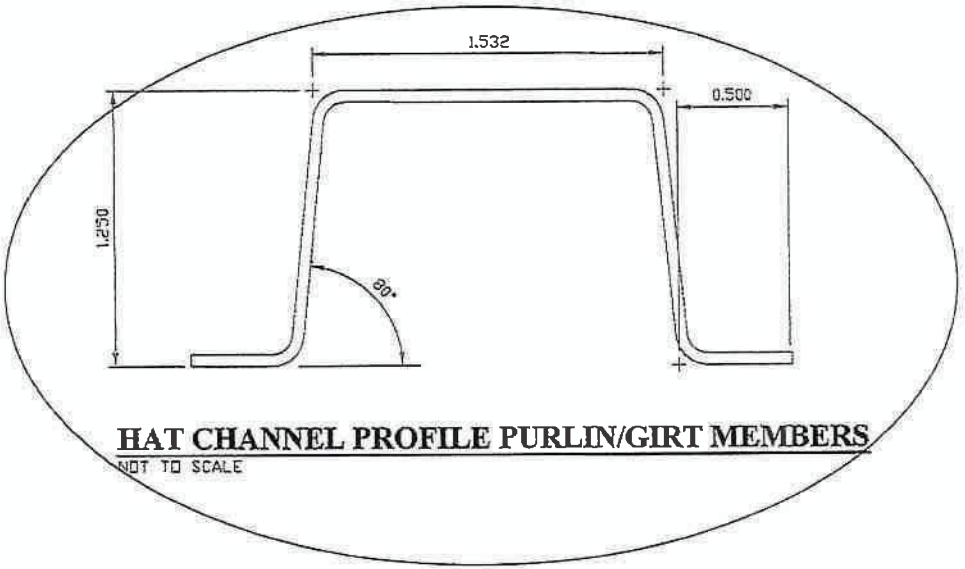
CHECKED BY: PDH

DRAWN BY: JRS

DATE: 3-14-17

REV. 0

SHEET NO. **SK-1**



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

WAYNE S. MOORE LICENSE No. 57470 STATE OF FLORIDA PROFESSIONAL ENGINEER 5/16/17

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH:	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

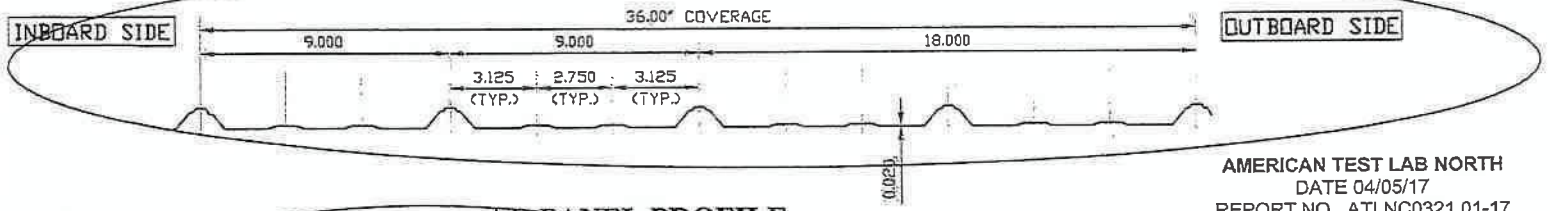
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PJH	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

SHEET NO. **SK-2**

REV. 0	SCALE: AS NOTED	M&A JOB NO. 161925	
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PJH	

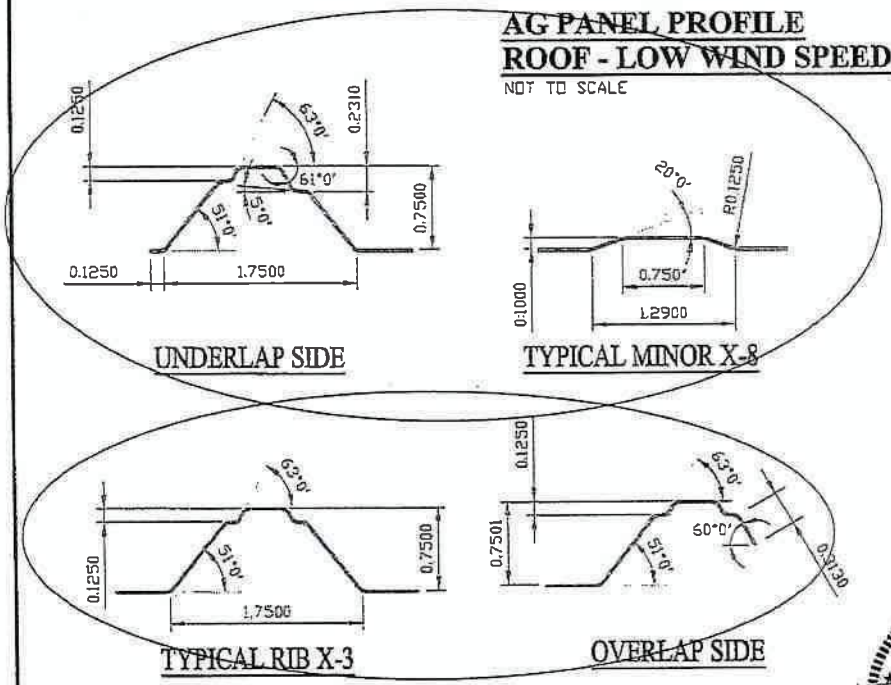


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

AG PANEL PROFILE
ROOF - LOW WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/22/17

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -28.2 PSF

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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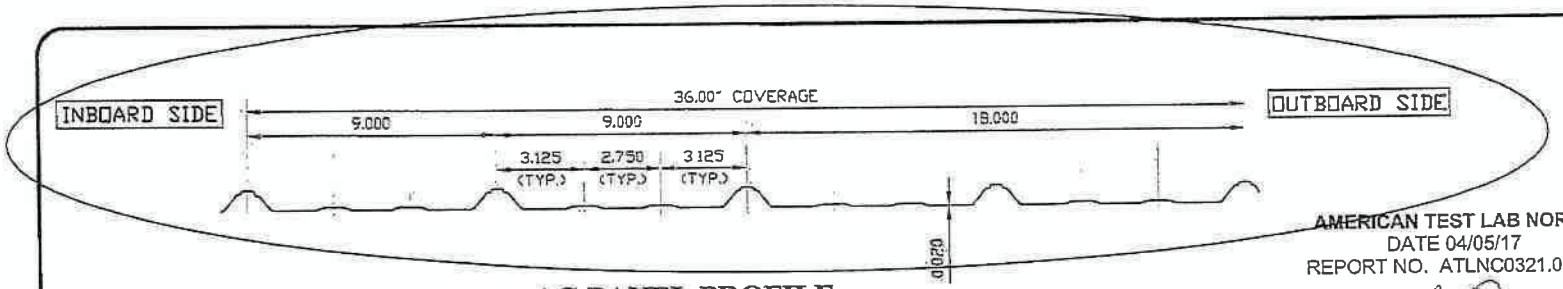
www.MandA-Inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
LOW WIND SPEED

SHEET NO. SK-3
REV. 0
DATE: 3-14-17
SCALE: AS NOTED
M&A JOB NO. 161925
CHECKED BY: PDH
DRAWN BY: JRS

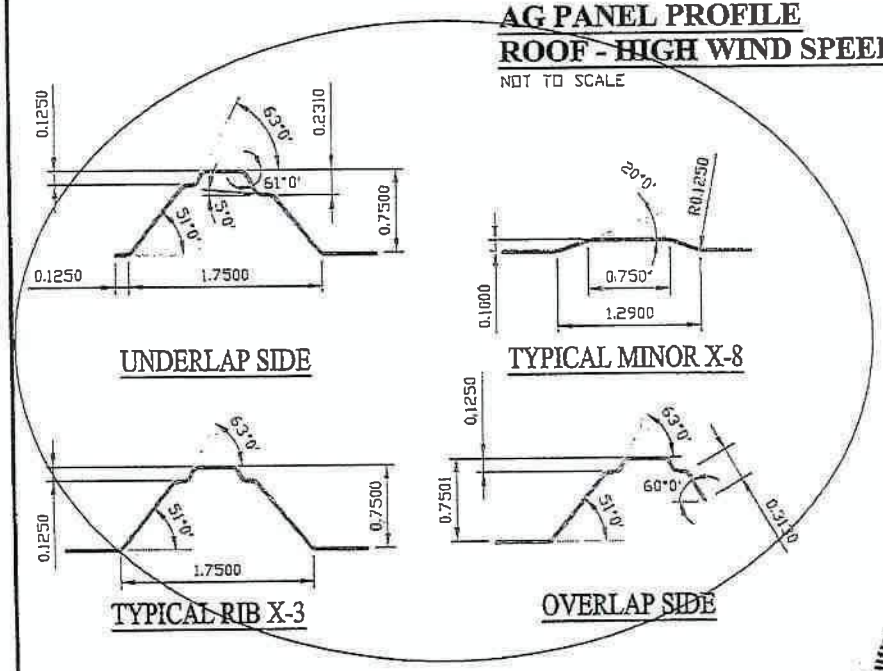


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

AG PANEL PROFILE
ROOF - HIGH WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57870 STATE OF FLORIDA PROFESSIONAL ENGINEER 8/28/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE ROOF PRESSURE: 21.2 PSF
SUCTION ROOF PRESSURE: -39.4 PSF

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7709 / FAX (803) 279-3840
www.Moore-Inc.com

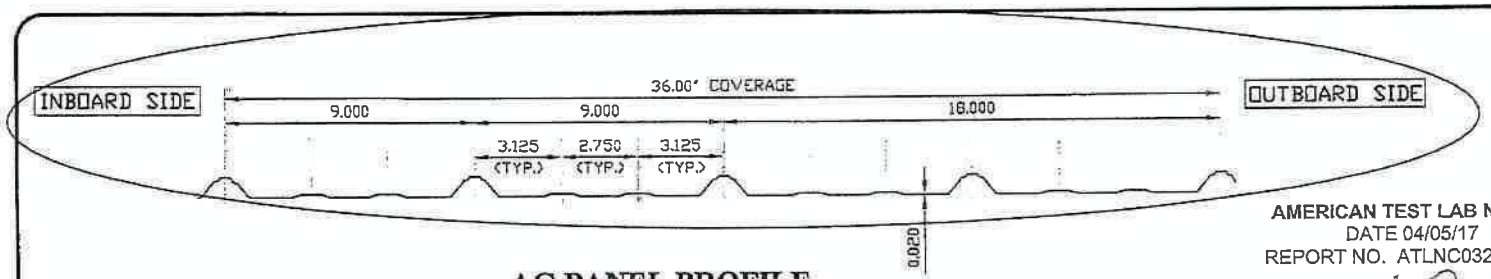
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL
ROOF
HIGH WIND SPEED

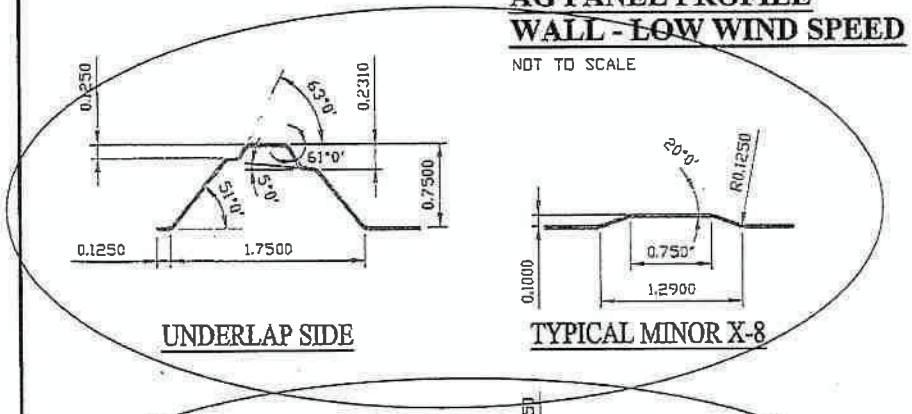
SCALE: AS NOTED | H&A JOB NO. 161925 | CHECKED BY: PDH
REV. 0 | DRAWN BY: JRS | DATE: 3-14-17

SHEET NO. SK-4



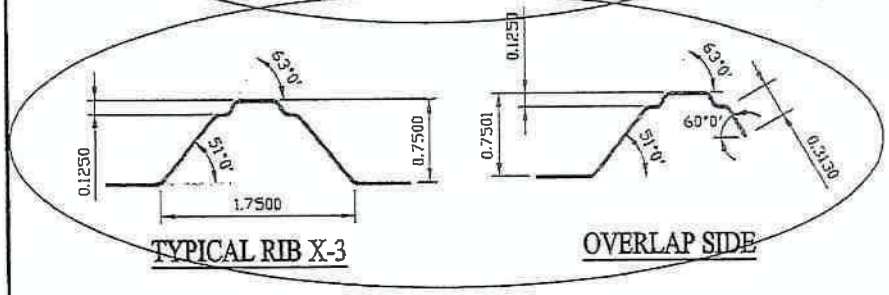
AG PANEL PROFILE
WALL - LOW WIND SPEED

NOT TO SCALE



UNDERLAP SIDE

TYPICAL MINOR X-8



TYPICAL RIB X-3

OVERLAP SIDE

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY 1.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57130 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/12/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE WALL PRESSURE: 18.5 PSF
NEGATIVE WALL PRESSURE: -24.1 PSF

MOORE AND ASSOCIATES
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1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7769 / FAX (803) 279-3846
www.MooreAssociates-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSH

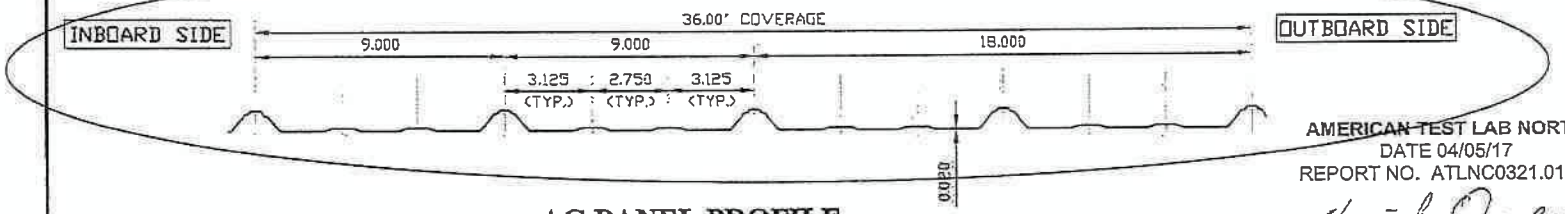
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

ASC STANDARD GRB AG PANEL WALL
LOW WIND SPEED

SHEET NO. **SK-5**

SCALE: AS NOTED	M&A JOB NO. 161928
REV. 0	CHECKED BY: PDH
DATE: 3-14-17	DRAWN BY: JRS

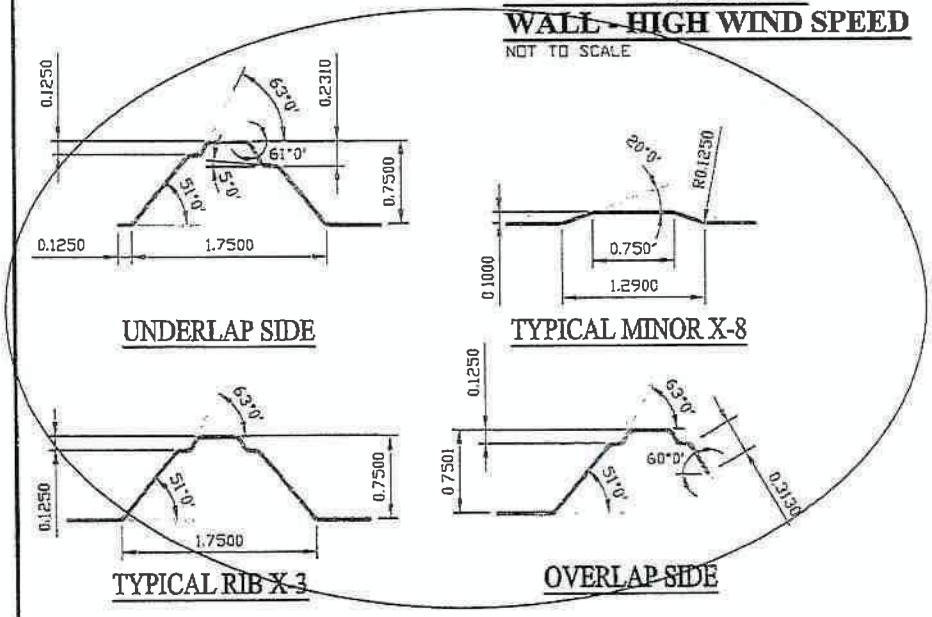


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

AG PANEL PROFILE
WALL - HIGH WIND SPEED

NOT TO SCALE



TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER-LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER; SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/16/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE WALL PRESSURE: 27.3 PSF
SUCTION WALL PRESSURE: -35.5 PSF

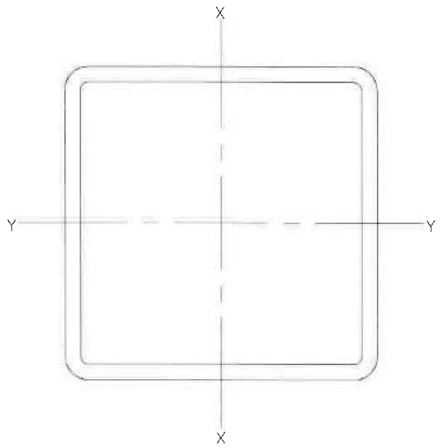
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 278-7799 / FAX (803) 279-3848
www.MandA-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
HIGH WIND SPEED

SHEET NO. SK-6
REV. 0
DATE: 3-14-17
SCALE: AS NOTED
M&A JOB NO. 161925
CHECKED BY: PDH
DRAWN BY: JRS



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50-80 KSI

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION ---- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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www.MandA-Inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
TS2.5x2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

M&A JOB NO. 16192S

SCALE: AS NOTED

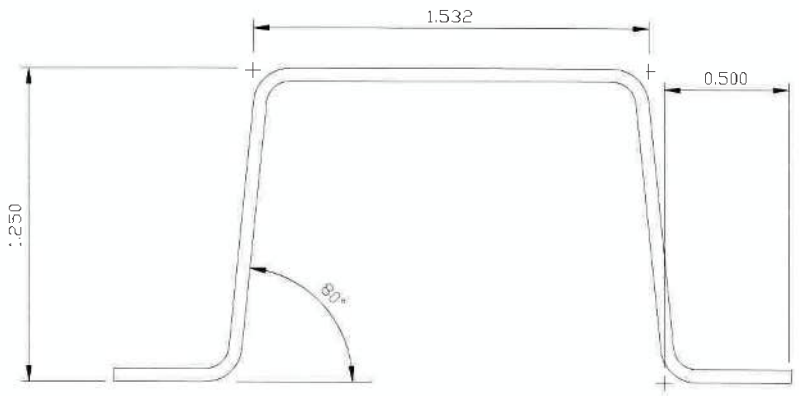
CHECKED BY: PDH

DRAWN BY: JRS

DATE: 3-14-17

REV. 0

SHEET NO.
SK-1



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50 80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION - (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES ---------- (+ OR -) 2 DEGREES
CAMBER ---------- (+ OR -) 1/8 IN IN 10 FT
SKI ---------- (+ OR -) 1/8 IN IN 10 FT
DIVE ---------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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www.MandA-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
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1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

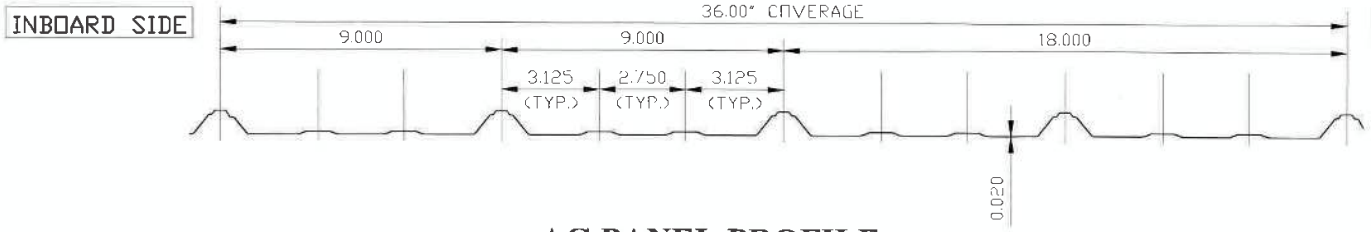
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

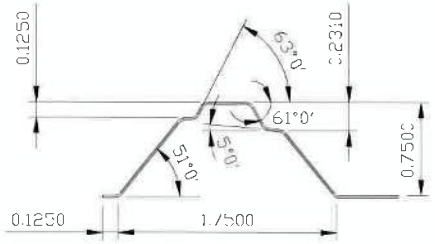
SHEET NO.
SK-2

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH

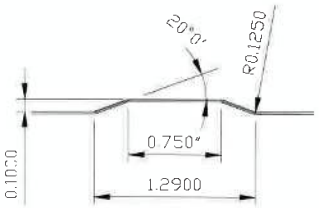


AG PANEL PROFILE
ROOF - LOW WIND SPEED

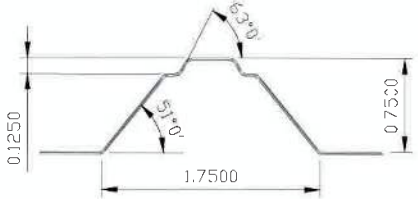
NOT TO SCALE



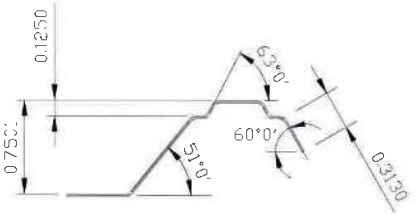
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH); MAXIMUM RAFTER/PURLIN AND END PURLIN SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

29 GAGE
CALCULATED COIL WIDTH: 43 13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -39.9 PSF

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
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North Augusta, South Carolina 29841
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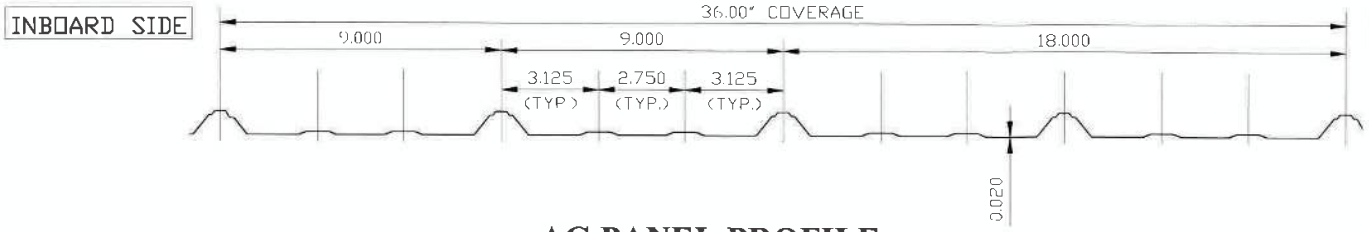
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

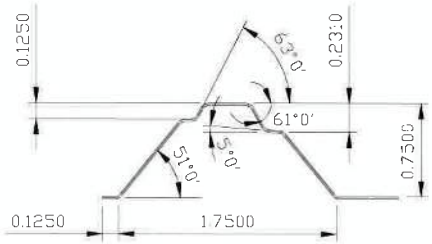
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
LOW WIND SPEED

SHEET NO.	SCALE:	M&A JOB NO. 16192S
SK-3	AS NOTED	
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		

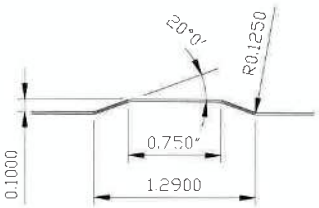


AG PANEL PROFILE
ROOF - HIGH WIND SPEED

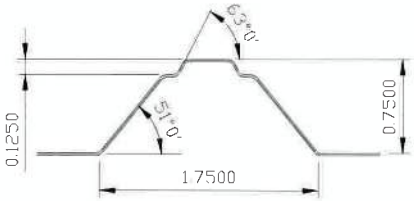
NOT TO SCALE



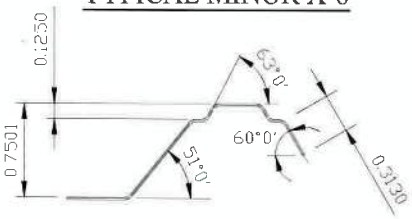
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FT.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING (IN-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (PP" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE ROOF PRESSURE: 16.0 PSF
SUCTION ROOF PRESSURE: -59.7 PSF

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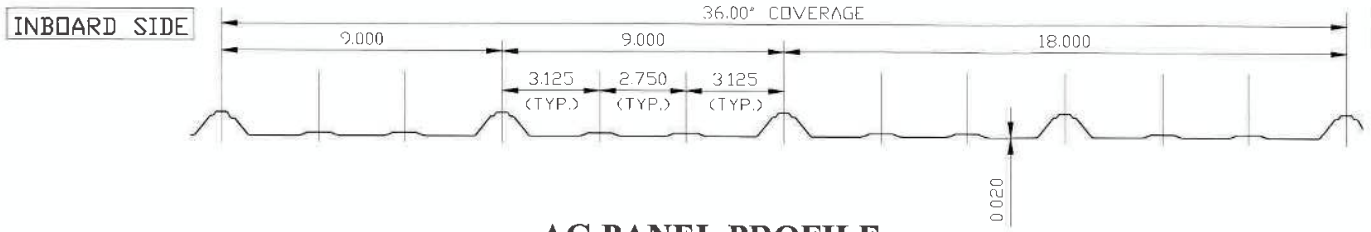
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

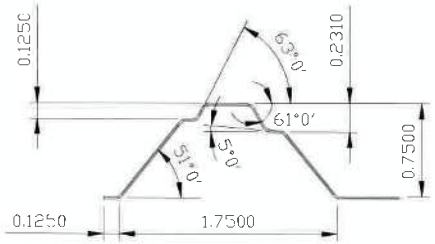
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
HIGH WIND SPEED

SHEET NO.	SCALE:	M&A JOB NO. 16192S
SK-4	AS NOTED	
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		

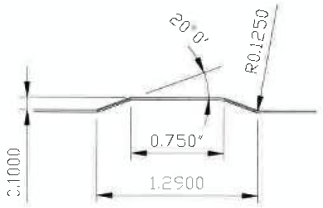


AG PANEL PROFILE
WALL - LOW WIND SPEED

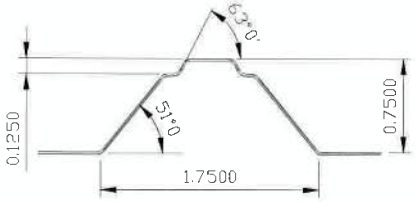
NOT TO SCALE



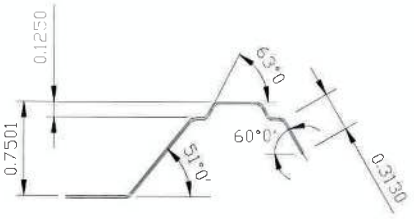
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH). MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH). SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 17.8 PSF
NEGATIVE WALL PRESSURE: -23.4 PSF

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

WAYNE B. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 1/12/21

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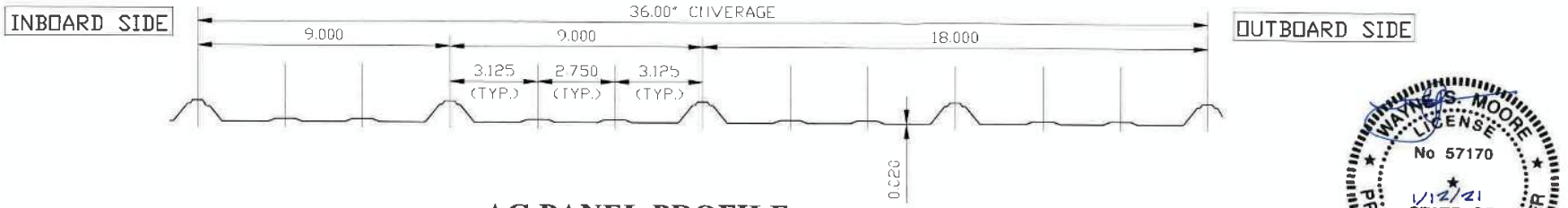
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	VSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
LOW WIND SPEED

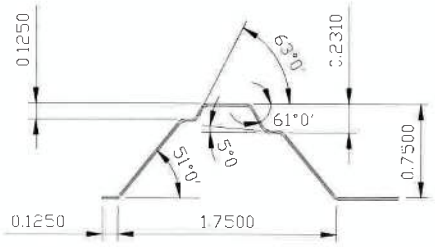
M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17

SHEET NO.
SK-5

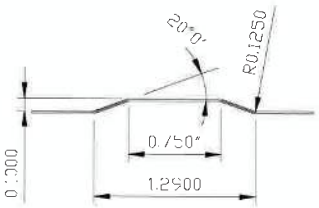


AG PANEL PROFILE
WALL - HIGH WIND SPEED

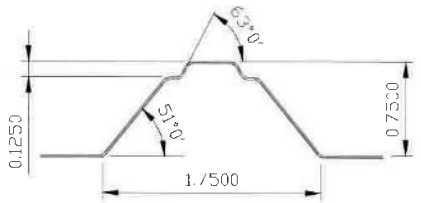
NOT TO SCALE



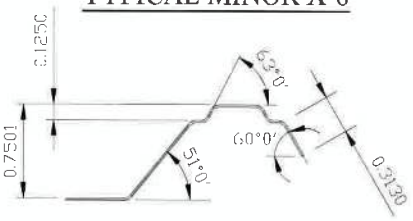
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH). MAXIMUM RAFTER/PURLIN AND END PURLIN SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG PURLINS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH). SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

29 GAGE
CALCULATED COIL WIDTH: 43 13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 26.6 PSF
SUCTION WALL PRESSURE: -34.9 PSF

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WAYNE S. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 1/12/21

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL
WALL
HIGH WIND SPEED

SHEET NO. SK-6

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

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Suite 200
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www.MandA-inc.com

15 April 2021

State of Florida- Metal Building Component Product Approval
Engineering Evaluation Report
M&A Project No. 20300S

Prepared By:	Wayne S. Moore, P.E. FL PE No. 57170 M&A COA No. 8966
Manufacturer:	Steel Buildings and Structures, Inc. 820 Reeves Drive Mount Airy, NC 27030
Product:	**AG Metal Roof Panel**
Product Description:	Low and high wind rated wall panels.

FL Product Code Approval No.: **FL22561**

Code Compliance Statement:

Moore and Associates Engineering and Consulting, Inc. (M&A) has reviewed the plans, calculations and testing information that applies to Florida Product Approval #FL22561 under the 2020 Florida Building Code, 7th Edition and finds them in compliance.

Certificate of Independence:

Wayne S. Moore, P.E. and M&A does not have, nor does it intend to acquire or will it acquire, a financial interest the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. is not employed by nor is M&A owned, operated or controlled by the company manufacturing or distributing the product or products being tested. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will they acquire, a financial interest in the company manufacturing or distributing the product or products for which test reports are being issued. Wayne S. Moore, P.E. and other M&A staff who are licensed Professional Engineers registered in the State of Florida who perform technical evaluations do not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product or products.

National Society of Professional Engineers®

Supporting Documents:

Calculations:	Structural calculations dated 11 January 2021 performed by John Smith, E.I.T. and checked by Wayne S. Moore, P.E.
Drawings:	Drawings SK-1 through SK-6 signed/sealed by Wayne S. Moore, P.E.
Testing:	ATLNC #0321.01-17 test report dated 04/05/2017 and signed/sealed by David Johnson, P.E.

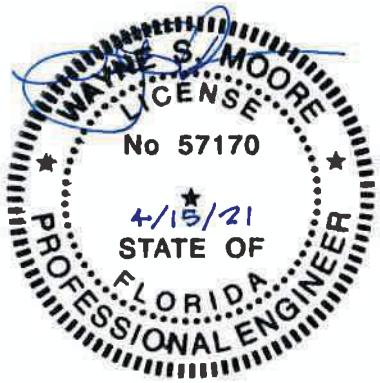
Limitations and Conditions of Use:

1. Structural calculations were performed in accordance with the 2020 FBC, 7th Edition and compared to test results performed under previous FBC given that testing of panel was performed to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports and attachment fasteners.
2. Maximum allowable design pressure shall be as indicated on plans for each configuration.
3. This product is for use outside of the High Velocity Hurricane Zone (HVHZ).
4. This product shall be minimum 29 gauge thick galvalume coated steel with minimum yield stress of 80 ksi.
5. Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
6. All supporting structural members shall be capable of supporting superimposed loads applied to this product.
7. Fasteners must consist of minimum 12-14 x ¾" self-drilling fasteners (SDFs) with control seal washers.
8. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof slope of 3:12 (14 degrees) or less.
9. Product shall be installed into substrates shown on installation drawings and shall not exceed spacing limitations.
10. Site conditions that deviate from calculation, drawing and/or testing limitation noted shall require further analysis by a licensed Professional Engineer registered in the State of Florida.

Quality Assurance:

The manufacturer has demonstrated compliance of proper quality assurance/quality control (QA/QC) in accordance with the Florida Administrative Code Rule 61G20-3.005. Manufacturer's QA/QC plan and practices have been audited by an approved quality assurance entity (Subsection 3).

Signature/Seal:



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401 S. Main Street
Mount Airy, NC 27030
(336) 415-3540
Fax (336) 719-2020
www.MandA-Inc.com

Structural Analysis/Design Calculations Project Data Sheet

Client:	SBSI
Client Project/ PO Number:	
Project Name:	SBSI - Keystone FPC (FL22561.1)
Project Location:	
Subject:	Design
Date:	1/12/2021
M&A Project Number:	20300S

	Engineer	Checked By	Approved By
Name:	John Smith		
Date:	1/12/2021		

Project:	The purpose of the above calculations is to find design wind pressures for a 15'x10' section of **AG Metal Roof** for Risk Category I and Exposure B for 105-140mph (Low) and 141-170mph (High) winds.
References:	2018 International Building Code (IBC) 2020 Florida Building Code (FBC) ASCE 7-16 Mathcad 6.0

AG Metal Roof Calc Set

Design Loads:

$space_1 := 5 \cdot ft$ **o.c.** Low Wind Spacing

$space_2 := 4 \cdot ft$ **o.c.** High Wind Spacing

Risk Cat. I
Exposure B

$width := 180 \cdot in$

$Ht := 120\ in$

$$Ht_{roof} := \frac{width}{2} \cdot 0.25 = 1.875\ ft$$

$$mean_{rf}ht := 20\ ft = 20\ ft$$

$FS := 1.5$

Note: Test Protocol ASTM E330 requires a 50% safety factor over design load pressures.

Low Wind 140mph (Vasd=108mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ Adjustment Factor

$mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

Roof (Wind Area = 50 square ft):

Note: Used Zone 3r (most conservative)

$$Ppd_{net30pos108} := 9.84\ psf \cdot \lambda = 8.758\ psf$$

$$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos108}\right) = 16\ psf$$

$$Ppd_{net30neg108} := -44.86\ psf \cdot \lambda = -39.925\ psf$$

Note: Minimum Design pressure in either direction is 16psf per ASCE 7-16 Section 30.2.2 (pg. 333)

Roof (Wind Area = 50 square ft):

Note: Using Zone 3e (2nd most conservative)

$$Ppd_{net30pos108} := 9.84\ psf \cdot \lambda = 8.758\ psf$$

$$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos108}\right) = 16\ psf$$

$$Ppd_{net30neg108} := -38.76\ psf \cdot \lambda = -34.496\ psf$$

Note: Highlighted values indicate input.

High Wind 170mph (Vasd=132mph) Components and Cladding Doors and Window Pressures:

$\lambda := 0.89$ $mean_{rf}ht = 20\ ft$ (Based on 2018 IBC (ASCE 7-16), Pg. 362)
Adjustment Factor

Note: Values found from interpolation using Vasd wind speeds since structure is Risk I.

Roof (Wind Area = 50 square ft):

Note: Used Zone 3r (most conservative)

$Ppd_{net30pos132} := 14.66\ psf \cdot \lambda = 13.047\ psf$

$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos132}\right) = 16\ psf$

Note: Minimum Design pressure in either direction is 16psf per ASCE 7-16 Section 30.2.2 (pg. 333)

$Ppd_{net30neg132} := -67.08\ psf \cdot \lambda = -59.701\ psf$

Roof (Wind Area = 50 square ft):

Note: Used Zone 3e (2nd most conservative)

$Ppd_{net30pos132} := 14.66\ psf \cdot \lambda = 13.047\ psf$

$Ppd_{net30pos108} := \max\left(16\ psf, Ppd_{net30pos132}\right) = 16\ psf$

$Ppd_{net30neg132} := -57.98\ psf \cdot \lambda = -51.602\ psf$

Note: Highlighted values indicate input.

CHAPTER 30
WIND LOADS: COMPONENTS AND CLADDING

30.1 SCOPE

30.1.1 Building Types. This chapter applies to the determination of wind pressures on components and cladding (C&C) on buildings.

1. Part 1 is applicable to an enclosed or partially enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, multispan gable roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, and the wind pressures are calculated from a wind pressure equation.
2. Part 2 is a simplified approach and is applicable to an enclosed
   - Low-rise building (see definition in Section 26.2); or
   - Building with $h \leq 60$ ft (18.3 m).

   The building has a flat roof, gable roof, or hip roof, and the wind pressures are determined directly from a table.
3. Part 3 is applicable to an enclosed or partially enclosed
   - Building with $h > 60$ ft (18.3 m).

   The building has a flat roof, pitched roof, gable roof, hip roof, mansard roof, arched roof, or domed roof, and the wind pressures are calculated from a wind pressure equation.
4. Part 4 is a simplified approach and is applicable to an enclosed
   - Building with 60 ft $< h \leq 160$ ft (18.3 m $< h \leq 48.8$ m).

   The building has a flat roof, gable roof, hip roof, monoslope roof, or mansard roof, and the wind pressures are determined directly from a table.
5. Part 5 is applicable to an open building of all heights that has a pitched free roof, monoslope free roof, or troughed free roof.
6. Part 6 is applicable to building appurtenances such as roof overhangs, parapets, and rooftop equipment.
7. Part 7 is applicable to non-building structures – circular bins, silos and tanks; and rooftop solar panels.
   - Circular Bins, Silos and Tanks: $h \leq 120$ ft (38.6 m).
   - Rooftop Solar Panels: Buildings of all heights with flat roofs or Gable or Hip Roofs with roof slopes less than or equal to 7 degrees

30.1.2 Conditions. A building that has design wind loads determined in accordance with this chapter shall comply with all of the following conditions:

1. The building is a regular-shaped building as defined in Section 26.2; and
2. The building does not have response characteristics that make it subject to across-wind loading, vortex shedding, or instability caused by galloping or flutter; nor does it have a site location for which channeling effects or buffeting in the wake of upwind obstructions warrant special consideration.

30.1.3 Limitations. The provisions of this chapter take into consideration the load magnification effect caused by gusts in resonance with along-wind vibrations of flexible buildings. The loads on buildings that do not meet the requirements of Section 30.1.2 or that have unusual shapes or response characteristics shall be determined using recognized literature documenting such wind load effects or shall use the wind tunnel procedure specified in Chapter 31.

30.1.4 Shielding. There shall be no reductions in velocity pressure caused by apparent shielding afforded by buildings and other structures or terrain features.

30.1.5 Air-Permeable Cladding. Design wind loads determined from Chapter 30 shall be used for air-permeable claddings, including modular vegetative roof assemblies, unless approved test data or recognized literature demonstrates lower loads for the type of air-permeable cladding being considered.

30.2 GENERAL REQUIREMENTS

30.2.1 Wind Load Parameters Specified in Chapter 26. The following wind load parameters are specified in Chapter 26:

- Basic wind speed, V (Section 26.5).
- Wind directionality factor, K_d (Section 26.6).
- Exposure category (Section 26.7).
- Topographic factor, K_{zt} (Section 26.8).
- Ground elevation factor, K_e (Section 26.9)
- Velocity pressure exposure coefficient, K_z or K_h (Section 26.10.1); Velocity pressure, q_z (Section 26.10.2)
- Gust-effect factor (Section 26.11).
- Enclosure classification (Section 26.12).
- Internal pressure coefficient, (GC_{pi}) (Section 26.13).

30.2.2 Minimum Design Wind Pressures. The design wind pressure for C&C of buildings shall not be less than a net pressure of 16 lb/ft^2 (0.77 kN/m^2) acting in either direction normal to the surface.

30.2.3 Tributary Areas Greater than 700 ft^2 (65 m^2). C&C elements with tributary areas greater than 700 ft^2 (65 m^2) shall be permitted to be designed using the provisions for main wind force resisting systems (MWFRS).

30.2.4 External Pressure Coefficients. Combined gust-effect factor and external pressure coefficients for C&C, (GC_p), are given in the figures associated with this chapter. The pressure coefficient values and gust-effect factor shall not be separated.

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 95–130 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			95		100		105		110		115		120		130	
Walls	4	10	16.2	−17.6	18.0	−19.5	19.8	−21.5	21.8	−23.6	23.8	−25.8	25.9	−28.1	30.4	
	4	20	15.5	−16.9	17.2	−18.7	18.9	−20.6	20.8	−22.6	22.7	−24.7	24.7	−26.9	29.0	
	4	50	14.5	−15.9	16.1	−17.6	17.8	−19.4	19.5	−21.3	21.3	−23.3	23.2	−25.4	27.2	
	4	100	13.8	−15.2	15.3	−16.8	16.9	−18.5	18.5	−20.4	20.2	−22.2	22.0	−24.2	25.9	
	5	10	16.2	−21.7	18.0	−24.1	19.8	−26.6	21.8	−29.1	23.8	−31.9	25.9	−34.7	30.4	
	5	20	15.5	−20.3	17.2	−22.5	18.9	−24.8	20.8	−27.2	22.7	−29.7	24.7	−32.4	29.0	
	5	50	14.5	−18.3	16.1	−20.3	17.8	−22.4	19.5	−24.6	21.3	−26.9	23.2	−29.3	27.2	
	5	100	13.8	−16.9	15.3	−18.7	16.9	−20.6	18.5	−22.6	20.2	−24.7	22.0	−26.9	25.9	
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	6.6	−25.9	7.3	−28.7	8.1	−31.6	8.9	−34.7	9.7	−37.9	10.5	−41.3	12.4	
	1	20	6.2	−24.2	6.9	−26.8	7.6	−29.5	8.3	−32.4	9.1	−35.4	9.9	−38.5	11.6	
	1	50	5.6	−21.9	6.3	−24.3	6.9	−26.8	7.6	−29.4	8.3	−32.1	9.0	−34.9	10.6	
	1	100	5.2	−20.2	5.8	−22.4	6.4	−24.7	7.0	−27.1	7.7	−29.6	8.3	−32.2	9.8	
	1′	10	6.6	−14.9	7.3	−16.5	8.1	−18.2	8.9	−19.9	9.7	−21.8	10.5	−23.7	12.4	
	1′	20	6.2	−14.9	6.9	−16.5	7.6	−18.2	8.3	−19.9	9.1	−21.8	9.9	−23.7	11.6	
	1′	50	5.6	−14.9	6.3	−16.5	6.9	−18.2	7.6	−19.9	8.3	−21.8	9.0	−23.7	10.6	
	1′	100	5.2	−14.9	5.8	−16.5	6.4	−18.2	7.0	−19.9	7.7	−21.8	8.3	−23.7	9.8	
	2	10	6.6	−34.1	7.3	−37.8	8.1	−41.7	8.9	−45.7	9.7	−50.0	10.5	−54.4	12.4	
	2	20	6.2	−31.9	6.9	−35.4	7.6	−39.0	8.3	−42.8	9.1	−46.8	9.9	−50.9	11.6	
	2	50	5.6	−29.0	6.3	−32.2	6.9	−35.5	7.6	−38.9	8.3	−42.5	9.0	−46.3	10.6	
	2	100	5.2	−26.8	5.8	−29.7	6.4	−32.8	7.0	−36.0	7.7	−39.3	8.3	−42.8	9.8	
	3	10	6.6	−46.5	7.3	−51.5	8.1	−56.8	8.9	−62.3	9.7	−68.1	10.5	−74.2	12.4	
	3	20	6.2	−42.1	6.9	−46.7	7.6	−51.4	8.3	−56.5	9.1	−61.7	9.9	−67.2	11.6	
	3	50	5.6	−36.3	6.3	−40.2	6.9	−44.4	7.6	−48.7	8.3	−53.2	9.0	−57.9	10.6	
	3	100	5.2	−31.9	5.8	−35.4	6.4	−39.0	7.0	−42.8	7.7	−46.8	8.3	−50.9	9.8	
Gable Roof > 7 to 20 Degrees	1	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	1	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	1	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	1	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2e	10	9.8	−30.0	10.9	−33.2	12.0	−36.6	13.2	−40.2	14.4	−44.0	15.7	−47.9	18.4	−56.2
	2e	20	8.9	−30.0	9.8	−33.2	10.8	−36.6	11.9	−40.2	13.0	−44.0	14.1	−47.9	16.6	−56.2
	2e	50	7.6	−18.2	8.4	−20.2	9.3	−22.3	10.2	−24.5	11.1	−26.7	12.1	−29.1	14.2	−34.2
	2e	100	6.6	−9.4	7.3	−10.4	8.1	−11.4	8.9	−12.5	9.7	−13.7	10.5	−14.9	12.4	−17.5
	2n	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2n	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2n	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2n	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	2r	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	2r	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	2r	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	2r	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3e	10	9.8	−43.8	10.9	−48.5	12.0	−53.4	13.2	−58.7	14.4	−64.1	15.7	−69.8	18.4	−81.9
	3e	20	8.9	−37.8	9.8	−41.9	10.8	−46.2	11.9	−50.7	13.0	−55.4	14.1	−60.4	16.6	−70.8
	3e	50	7.6	−30.0	8.4	−33.2	9.3	−36.6	10.2	−40.2	11.1	−44.0	12.1	−47.9	14.2	−56.2
	3e	100	6.6	−24.1	7.3	−26.7	8.1	−29.4	8.9	−32.3	9.7	−35.3	10.5	−38.4	12.4	−45.1
	3r	10	9.8	−52.0	10.9	−57.6	12.0	−63.5	13.2	−69.7	14.4	−76.2	15.7	−83.0	18.4	−97.4
	3r	20	8.9	−44.6	9.8	−49.4	10.8	−54.4	11.9	−59.7	13.0	−65.3	14.1	−71.1	16.6	−83.4
	3r	50	7.6	−34.7	8.4	−38.4	9.3	−42.4	10.2	−46.5	11.1	−50.8	12.1	−55.4	14.2	−65.0
	3r	100	6.6	−27.2	7.3	−30.2	8.1	−33.3	8.9	−36.5	9.7	−39.9	10.5	−43.5	12.4	−51.0

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure, p_{net30}, in lb/ft^2, for Exposure B at h = 30 ft, V= 140–200 mph

	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			140		150		160		170		180		190		200	
Walls	4	10	35.3	−38.2	40.5	−38.2	46.1	−50.0	52.0	−56.4	58.3	−63.2	64.9	−70.4	72.0	−78.1
	4	20	33.7	−36.7	38.7	−36.7	44.0	−47.9	49.6	−54.1	55.7	−60.6	62.0	−67.5	68.7	−74.8
	4	50	31.6	−34.6	36.2	−34.6	41.2	−45.1	46.6	−51.0	52.2	−57.1	58.1	−63.7	64.4	−70.5
	4	100	30.0	−33.0	34.4	−33.0	39.2	−43.1	44.2	−48.6	49.6	−54.5	55.2	−60.7	61.2	−67.3
	5	10	35.3	−47.2	40.5	−47.2	46.1	−61.7	52.0	−69.6	58.3	−78.0	64.9	−87.0	72.0	−96.3
	5	20	33.7	−44.0	38.7	−44.0	44.0	−57.5	49.6	−64.9	55.7	−72.8	62.0	−81.1	68.7	−89.9
	5	50	31.6	−39.8	36.2	−39.8	41.2	−52.0	46.6	−58.7	52.2	−65.8	58.1	−73.4	64.4	−81.3
	5	100	30.0	−36.7	34.4	−36.7	39.2	−47.9	44.2	−54.1	49.6	−60.6	55.2	−67.5	61.2	−74.8
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	14.3	−56.2	16.5	−56.2	18.7	−73.4	21.1	−82.8	23.7	−92.9	26.4	−103.5	29.3	−114.6
	1	20	13.4	−52.5	15.4	−52.5	17.6	−68.5	19.8	−77.4	22.2	−86.7	24.8	−96.6	27.4	−107.1
	1	50	12.3	−47.6	14.1	−47.6	16.0	−62.1	18.1	−70.1	20.3	−78.6	22.6	−87.6	25.0	−97.1
	1	100	11.4	−43.9	13.0	−43.9	14.8	−57.3	16.7	−64.7	18.8	−72.5	20.9	−80.8	23.2	−89.5
	1′	10	14.3	−32.3	16.5	−32.3	18.7	−42.1	21.1	−47.6	23.7	−53.3	26.4	−59.4	29.3	−65.9
	1′	20	13.4	−32.3	15.4	−32.3	17.6	−42.1	19.8	−47.6	22.2	−53.3	24.8	−59.4	27.4	−65.9
	1′	50	12.3	−32.3	14.1	−32.3	16.0	−42.1	18.1	−47.6	20.3	−53.3	22.6	−59.4	25.0	−65.9
	1′	100	11.4	−32.3	13.0	−32.3	14.8	−42.1	16.7	−47.6	18.8	−53.3	20.9	−59.4	23.2	−65.9
	2	10	14.3	−74.1	16.5	−74.1	18.7	−96.8	21.1	−109.3	23.7	−122.5	26.4	−136.5	29.3	−151.2
	2	20	13.4	−69.3	15.4	−69.3	17.6	−90.6	19.8	−102.2	22.2	−114.6	24.8	−127.7	27.4	−141.5
	2	50	12.3	−63.0	14.1	−63.0	16.0	−82.3	18.1	−92.9	20.3	−104.2	22.6	−116.1	25.0	−128.7
	2	100	11.4	−58.3	13.0	−58.3	14.8	−76.1	16.7	−85.9	18.8	−96.3	20.9	−107.3	23.2	−118.9
	3	10	14.3	−101.0	16.5	−101.0	18.7	−131.9	21.1	−148.9	23.7	−166.9	26.4	−186.0	29.3	−206.1
	3	20	13.4	−91.5	15.4	−91.5	17.6	−119.5	19.8	−134.9	22.2	−151.2	24.8	−168.5	27.4	−186.7
	3	50	12.3	−78.9	14.1	−78.9	16.0	−103.0	18.1	−116.3	20.3	−130.4	22.6	−145.3	25.0	−161.0
	3	100	11.4	−69.3	13.0	−69.3	14.8	−90.6	16.7	−102.2	18.8	−114.6	20.9	−127.7	23.2	−141.5
Gable Roof > 7 to 20 Degrees	1	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	1	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	1	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	1	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2e	10	21.4	−65.1	24.5	−65.1	27.9	−85.1	31.5	−96.0	35.3	−107.7	39.4	−120.0	43.6	−132.9
	2e	20	19.3	−65.1	22.1	−65.1	25.2	−85.1	28.4	−96.0	31.8	−107.7	35.5	−120.0	39.3	−132.9
	2e	50	16.5	−39.6	18.9	−39.6	21.5	−51.8	24.3	−58.4	27.2	−65.5	30.3	−73.0	33.6	−80.9
	2e	100	14.3	−20.3	16.5	−20.3	18.7	−26.5	21.1	−30.0	23.7	−33.6	26.4	−37.4	29.3	−41.5
	2n	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2n	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2n	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2n	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	2r	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	2r	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	2r	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	2r	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3e	10	21.4	−95.0	24.5	−95.0	27.9	−124.1	31.5	−140.1	35.3	−157.1	39.4	−175.0	43.6	−193.9
	3e	20	19.3	−82.1	22.1	−82.1	25.2	−107.3	28.4	−121.1	31.8	−135.8	35.5	−151.3	39.3	−167.7
	3e	50	16.5	−65.1	18.9	−65.1	21.5	−85.1	24.3	−96.0	27.2	−107.7	30.3	−120.0	33.6	−132.9
	3e	100	14.3	−52.3	16.5	−52.3	18.7	−68.3	21.1	−77.1	23.7	−86.4	26.4	−96.3	29.3	−106.7
	3r	10	21.4	−112.9	24.5	−112.9	27.9	−147.5	31.5	−166.5	35.3	−186.7	39.4	−208.0	43.6	−230.5
	3r	20	19.3	−96.8	22.1	−96.8	25.2	−126.4	28.4	−142.7	31.8	−159.9	35.5	−178.2	39.3	−197.5
	3r	50	16.5	−75.4	18.9	−75.4	21.5	−98.4	24.3	−111.1	27.2	−124.6	30.3	−138.8	33.6	−153.8
	3r	100	14.3	−59.2	16.5	−59.2	18.7	−77.3	21.1	−87.2	23.7	−97.8	26.4	−109.0	29.3	−120.7

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

Metricconversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2; 1.0 lb/ft^2 = 0.0479 kN/m^2.

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \le 60$ ft ($h \le 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Net Design Wind Pressure for Roof Overhang, p_{net30}, in lb/ft², for Exposure B at h = 30 ft, V= 95–200 mph

	Zone	Effective Wind Area (ft²)	Wind Speed (mph)												
			95	100	105	110	115	120	130	140	150	160	170	180	190
Hip Roof > 27 to 45 Degrees	1	10	–31.6	–35.1	–38.7	–42.4	–46.4	–50.5	–59.3	–68.7	–78.9	–89.8	–101.3	–113.6	–126.6
	1	20	–29.1	–32.2	–35.5	–39.0	–42.6	–46.4	–54.5	–63.2	–72.5	–82.5	–93.2	–104.5	–116.4
	1	50	–25.7	–28.5	–31.4	–34.5	–37.7	–41.1	–48.2	–55.9	–64.1	–73.0	–82.4	–92.4	–102.9
	1	100	–23.2	–25.7	–28.3	–31.1	–34.0	–37.0	–43.4	–50.4	–57.8	–65.8	–74.2	–83.2	–92.7
	2e	10	–38.1	–42.3	–46.6	–51.1	–55.9	–60.9	–71.4	–82.8	–95.1	–108.2	–122.1	–136.9	–152.6
	2e	20	–31.6	–35.0	–38.6	–42.3	–46.3	–50.4	–59.1	–68.6	–78.7	–89.6	–101.1	–113.4	–126.3
	2e	50	–22.9	–25.4	–28.0	–30.7	–33.6	–36.6	–42.9	–49.8	–57.1	–65.0	–73.4	–82.3	–91.7
	2e	100	–22.0	–24.4	–26.9	–29.5	–32.3	–35.1	–41.2	–47.8	–54.9	–62.4	–70.5	–79.0	–88.1
	2r	10	–46.1	–51.1	–56.3	–61.8	–67.5	–73.5	–86.3	–100.1	–114.9	–130.7	–147.6	–165.5	–184.4
	2r	20	–39.7	–44.0	–48.5	–53.2	–58.1	–63.3	–74.3	–86.2	–98.9	–112.5	–127.0	–142.4	–158.7
	2r	50	–31.2	–34.6	–38.1	–41.8	–45.7	–49.8	–58.4	–67.7	–77.7	–88.5	–99.9	–112.0	–124.7
	2r	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	10	–45.2	–50.1	–55.3	–60.6	–66.3	–72.2	–84.7	–98.2	–112.8	–128.3	–144.8	–162.4	–180.9
	3	20	–36.4	–40.3	–44.5	–48.8	–53.4	–58.1	–68.2	–79.1	–90.8	–103.3	–116.6	–130.7	–145.7
	3	50	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1
	3	100	–24.8	–27.4	–30.3	–33.2	–36.3	–39.5	–46.4	–53.8	–61.7	–70.2	–79.3	–88.9	–99.1

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

Adjustment Factor for Building Height and Exposure, λ

Mean Roof Height (ft)	Exposure		
	B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.09	1.49	1.74
45	1.12	1.53	1.78
50	1.16	1.56	1.81
55	1.19	1.59	1.84
60	1.22	1.62	1.87

Note: Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m².

FIGURE 30.4-1 (*Continued*). Components and Cladding, Part 2 [$h \leq 60$ ft ($h \leq 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

Table 30.5-1 Steps to Determine C&C Wind Loads for Enclosed or Partially Enclosed Building with $h > 60$ ft ($h > 18.3$ m)

Step 1: Determine risk category; see Table 1.5-1.
Step 2: Determine the basic wind speed, V, for applicable risk category; see Figs. 26.5-1 and 26.5-2.
Step 3: Determine wind load parameters:
- Wind directionality factor, K_d; see Section 26.6 and Table 26.6-1.
- Exposure category B, C, or D; see Section 26.7.
- Topographic factor, K_{zt}; see Section 26.8 and Fig. 26.8-1.
- Ground elevation factor, K_e; see Section 26.9 and Table 26.9-1
- Enclosure classification; see Section 26.12.
- Internal pressure coefficient, (GC_{pi}); see Section 26.13 and Table 26.13-1.

Step 4: Determine velocity pressure exposure coefficient, K_z or K_h; see Table 26.10-1.
Step 5: Determine velocity pressure, q, Eq. (26.10-1).
Step 6: Determine external pressure coefficient, (GC_p):
- Walls and flat roofs ($\theta < 10°$), see Fig. 30.5-1
- Gable and hip roofs, see Fig. 30.3-2 per Note 6 of Fig. 30.5-1
- Arched roofs, see Fig. 27.3-3, Note 4
- Domed roofs, see Fig. 30.3-7

Step 7: Calculate wind pressure, p, Eq. (30.5-1).

American Test Lab, Inc
1122 Calvert Road Brevard, NC 28712
828-884-3700
atli@comporium.net atlnc.com

ATLNC # 0321.01-17 Report Date: 04/05/17

Test Dates: 03/21/17 – 03/23/17

Miami Dade Certification # 16-0526.01
FL Organizational # TST 1555
IAS Certification # TL-423

Test Requested By: Steel Building And Structures Inc.
820 Reeves Drive
Mount Airy, NC 27030
Phone 877-272-8276, Fax 336-551-3449

Test Standard: ASTM E 1592-05

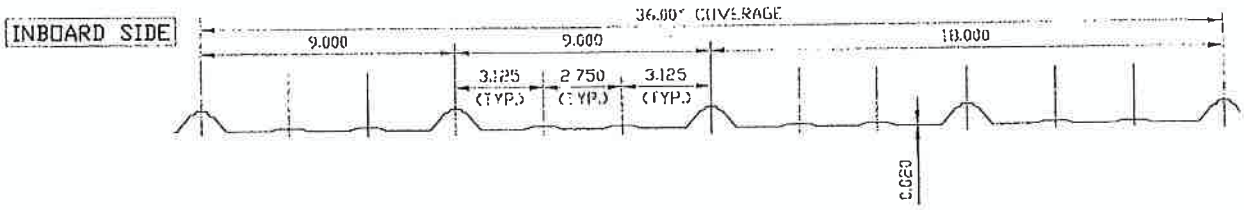
Test Conditions: 65 - 75 degrees F

Description of products tested:

Specimens A, F 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawings SK-1, SK-3, SK-4, SK-5, SK-6. Panels attached to 2-1/2" x 2-1/2" x 14 ga. rafters/ post with 12-14" x 3/4" self drilling screws at 6" oc.

Specimen B, D 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6 over 2-5/16" wide Hat Channel attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Hat Channel was attached to each rafter with (2) 12-14 x 3/4" self drilling screws, panels to Hat Channels with 12-14 x 3/4" self drilling screws at 6" OC.

Specimen C, E 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel Building and Structures drawing SK-1, SK-3, SK-4, SK-5, SK-6.over 2-1/2" x 14 ga sq galvanized steel girth attached to 2-1/2" x 2-1/2" x 14 ga. rafter/post. Girth was attached to each rafter with 2" x 2" x 14 ga angle with (4) 12-14 x 3/4" self drilling screws, panels attached to girth with 12-14 x 3/4" self drilling screws at 6" OC.



Configuration:

Specimen A, (3) 4' purlin spans, 3 panels wide mounted horizontally.

Specimen B, (3) 4' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen C, (3) 4' purlin spans, 4' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen D, 5' purlin spans, 4' Hat Channel spans 3 panels wide mounted horizontally.

Specimen E, (3) 5' purlin spans, 5' girth spans with 2-1/2" tubes, 3 panels wide mounted horizontally.

Specimen F, (3) 5' purlin spans, 3 panels wide mounted horizontally.

Rafter/Post/Girth Construction- 2-1/2" x 2-1/2" x 14 ga tube

Rafter Spacing- Specimen A B, C, 3 spans 48" OC with 12" overhang.
Specimen D, E, F, 3 spans 60" OC, with 12" overhang.

Hat Channel Spacing: Specimen B, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 48" OC with 12" overhang, rafter spacing 60" OC.

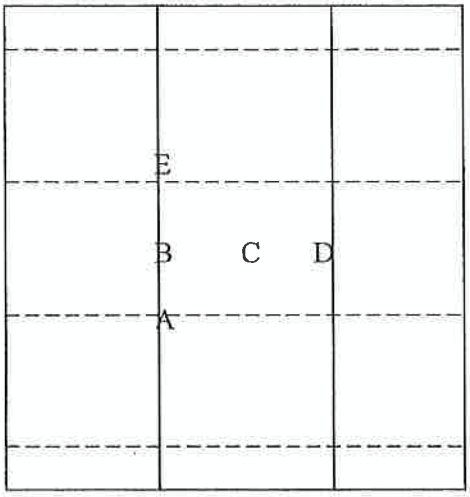
2-1/2" Tube Girth Spacing: Specimen C, 3 spans 48" OC with 12" overhang, rafter spacing 48" OC.
Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC.

Rafter/Post Attachment- Each rafter/post was attached the chamber.

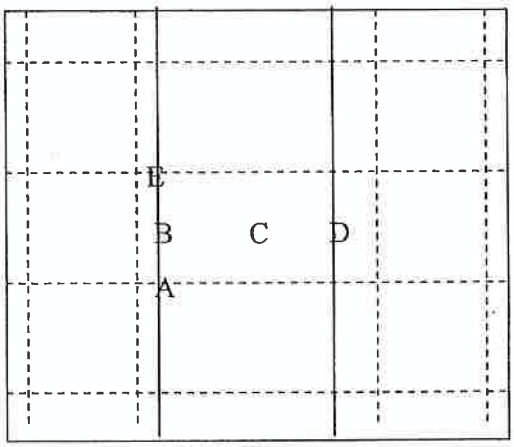
Test Specimens

Indicator Locations

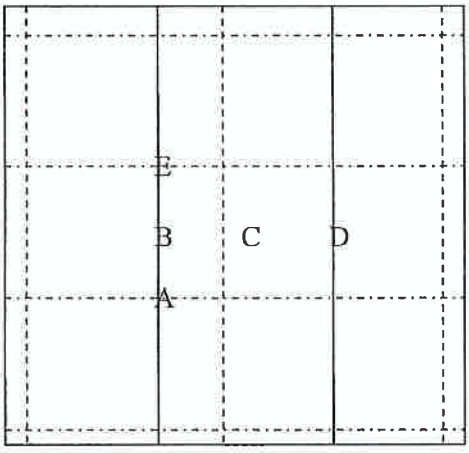
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

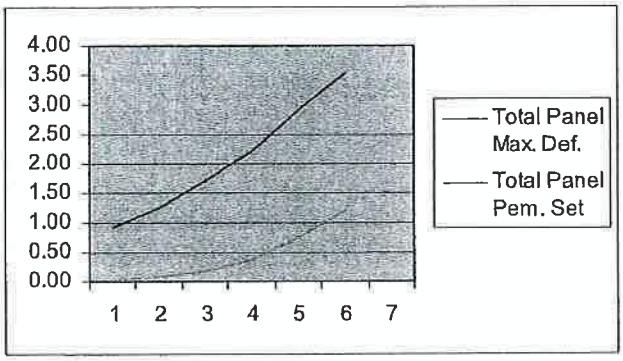
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
20	60	.75"	.02"	.83"	.03"	.93"	.03"
30	60	1.04"	.05"	1.12"	.07"	1.26"	.08"
40	60	1.45"	.15"	1.52"	.17"	1.73"	.20"
50	60	1.84"	.30"	1.92"	.33"	2.22"	.39"
60	60	2.35"	.55"	2.47"	.64"	2.90"	.76"
70	60	2.86"	.84"	2.97"	.99"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
20	60	.80"	.02"	.81"	.02"	.93"	.03"
30	60	1.09"	.06"	1.06"	.06"	1.26"	.08"
40	60	1.50"	.17"	1.47"	.16"	1.73"	.20"
50	60	1.90"	.32"	1.86"	30"	2.22"	.39"
60	60	2.46"	.63"	2.40"	.58"	2.90"	.76"
70	60	2.97"	.97"	2.87"	.89"	3.53"	1.22"
80	60						
90	60						
100	60						
110	60						
120	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 124 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen B

Deflections in inches

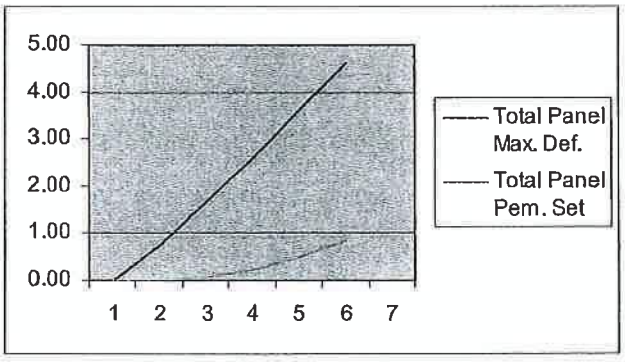
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.58"	.01"	.60"	0.0	.75"	.01"
30	60	1.34"	.07"	1.45"	.08"	.169"	.08"
40	60	2.07"	.21"	2.29"	.21"	2.57"	.22"
50	60	2.97"	.44"	3.03"	.46"	3.58"	.49"
60	60	3.89"	.75"	4.36"	.80"	4.62"	.86"
70	60						
80	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
20	60	.61"	0.0	.56"	0.0	.75"	.01"
30	60	1.60"	.08"	1.30"	.06"	.169"	.08"
40	60	2.37"	.24"	2.06"	.18"	2.57"	.22"
50	60	3.36"	.48"	2.92"	.39"	3.58"	.49"
60	60	4.38"	.83"	3.83"	.69"	4.62"	.86"
70	60						
80	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 70 psf to prevent damage. Failure occurred at approximately 82 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Hat channel screws disengaged from rafter/post.

Specimen C

Deflections in inches

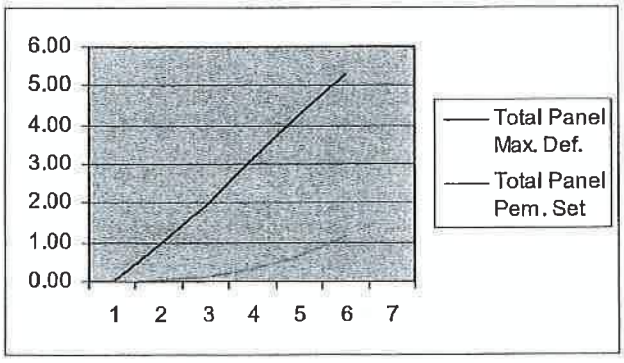
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.70"	.04"	.82"	.05"	.96"	.06"
20	60	1.53"	.08"	1.72"	.10"	1.99"	.12"
30	60	2.41"	.22"	2.68"	.24"	3.15"	.32"
40	60	3.18"	.44"	3.57"	.49"	4.26"	.66"
50	60	3.97"	.75"	4.41"	.84"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	.93"	.05"	.71"	.03"	.96"	.06"
20	60	1.90"	.11"	1.49"	.07"	1.99"	.12"
30	60	2.94"	.28"	2.36"	.20"	3.15"	.32"
40	60	3.89"	.56"	3.10"	.44"	4.26"	.66"
50	60	4.79"	.96"	3.92	.78"	5.30	1.16"
60	60						
70	60						
80	60						
90	60						
100	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 50 psf to prevent damage. Failure occurred at approximately 105 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen D

Deflections in inches

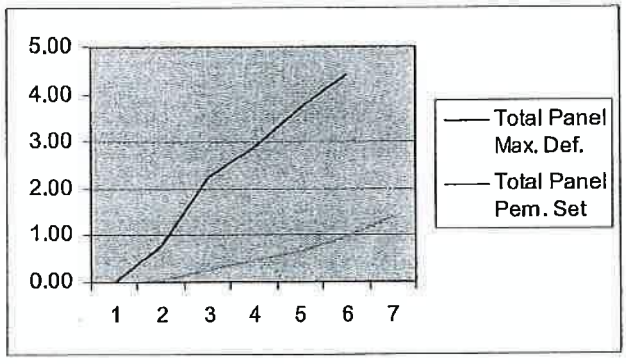
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.54"	.02"	.69"	.02".	.78"	.02"
14	60	1.70"	.29"	2.18"	36"	2.26"	.28"
21	60	2.20"	.47"	2.81"	.57"	2.90"	.45"
28	60	2.83"	.63"	3.61"	.78"	3.72"	.67"
35	60	3.32"	.88"	4.27"	1.13"	4.43"	.99"
42	60	4.11"	1.22"	5.14"	1.56"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.76"	.02"	.75"	.02"	.78"	.02"
14	60	2.08"	.22"	2.35"	.37"	2.26"	.28"
21	60	2.65"	.37"	3.01"	.58"	2.90"	.45"
28	60	3.37"	.56"	3.89"	.81"	3.72"	.67"
35	60	3.88"	.81"	4.62"	1.20"	4.43"	.99"
42	60	4.56"	1.10"	5.63"	1.71"	5.28"	1.40"
49	60						
56	60						
63	60						
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 42 psf to prevent damage. Failure occurred at approximately 73 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen E

Deflections in inches

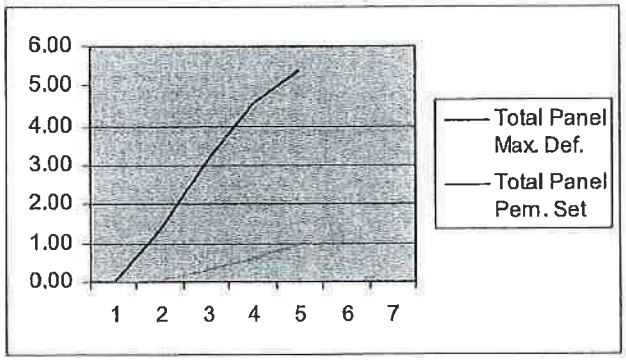
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.13"	.10"	1.22"	.07"	1.38"	.07"
20	60	2.49"	.30"	2.72"	.30"	3.12"	.31"
30	60	3.56"	.51"	3.90"	.53"	4.56"	.60"
40	60	4.45"	.80"	4.71"	.87"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Deflections in inches

Pressure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
10	60	1.40"	.08"	1.09"	.07"	1.38"	.07"
20	60	3.08"	.30"	2.42"	.25"	3.12"	.31"
30	60	4.46"	.59"	3.44"	.42"	4.56"	.60"
40	60	5.43"	.99"	4.33"	.71"	5.37"	.98"
50	60						
60	60						
70	60						
80	60						
90	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 40 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Specimen F

Deflections in inches

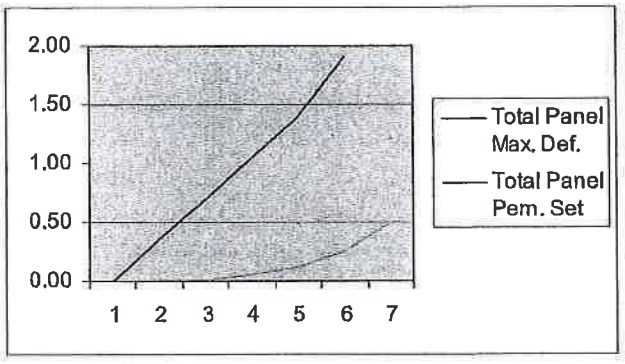
Pressure Increments psf Negative	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib (B)	Perm. Set	Mid-Span (C)	Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.23"	.0"	.27"	.01"	.36"	.02"
14	60	.49"	.0"	.56"	.02"	.71"	.02"
21	60	.74"	.03"	.84"	.04"	1.05"	.06"
28	60	1.06"	.09"	1.12"	.10"	1.39"	.13"
25	60	1.41"	.20"	1.52"	.21"	1.90"	.27"
42	60	1.77"	.37"	1.52"	.40"	2.40"	.50"
49	60	2.27"	.63"	2.40"	.70"	2.93"	.86"
56	60	2.81"	1.00"	2.99"	1.11"	3.66"	1.38"
63	60	3.43"	1.48"	3.79"	1.61"	4.70"	2.06"
70	60						
77							
84							

Deflections in inches

Pre91ssure Increments psf Negative	Time (sec)	Mid Span Rib (D)	Perm Set	Purlin Rib (E)	Perm. Set	Total Panel Deflection	Total Panel Perm. Set
0	60	0"	0"	0"	0"	0"	0"
7	60	.28"	.01"	.24"	.0"	.36"	.02"
14	60	.60"	.02"	.52"	.01"	.71"	.02"
21	60	.90"	.05"	.80"	.04"	1.05"	.06"
28	60	1.19"	.11"	1.09"	.09"	1.39"	.13"
25	60	1.59"	.23"	1.44"	.19"	1.90"	.27"
42	60	2.01"	.41"	1.81"	.35"	2.40"	.50"
49	60	2.49"	.70"	2.26"	.60"	2.93"	.86"
56	60	3.08"	1.12"	2.78"	.98"	3.66"	1.38"
63	60	3.87"	1.64"	3.39"	1.45"	4.70"	2.06"
70	60						

Note: C indicator reading is used as Total Panel Deflection and Permanent Set. Indicators removed after 63 psf to prevent damage. Failure occurred at approximately 95 psf.

Negative Side Graph



Observations- Deflections increased as pressure increased. Screws pulled through panel.

Note: 2 mil or 4 mil polyethylene film was used for the ASTM 1592 test, it is the opinion of the undersigned that it had no influence on the results of the test.

Technician: Keith Owen

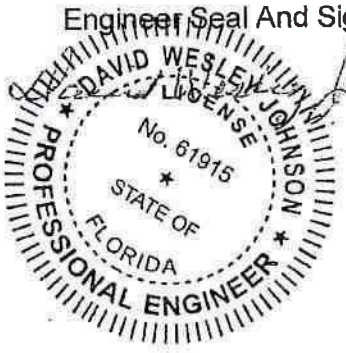
Observers-

Keith Owen, Ashley Poplin, / ATL
Sam Poplin, Keith Owen Jr., Ronald Anders / ATL
David W. Johnson, P.E

Keith Owen, Lab Director
American Test Lab, Inc.
Keith Owen
4/5/17

All Tests Witnessed and Certified by:
David Johnson P. E.
1122 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 61915

Engineer Seal And Signature



4/5/17

Certificate of Independence: The witnessing engineer has no equity interest in American Test Lab of North Carolina, Steel Building and Structures or their parts vendors. Witnessing engineer is in complete compliance of Florida Statue 9B-72, Section 72.110

Disclaimer:

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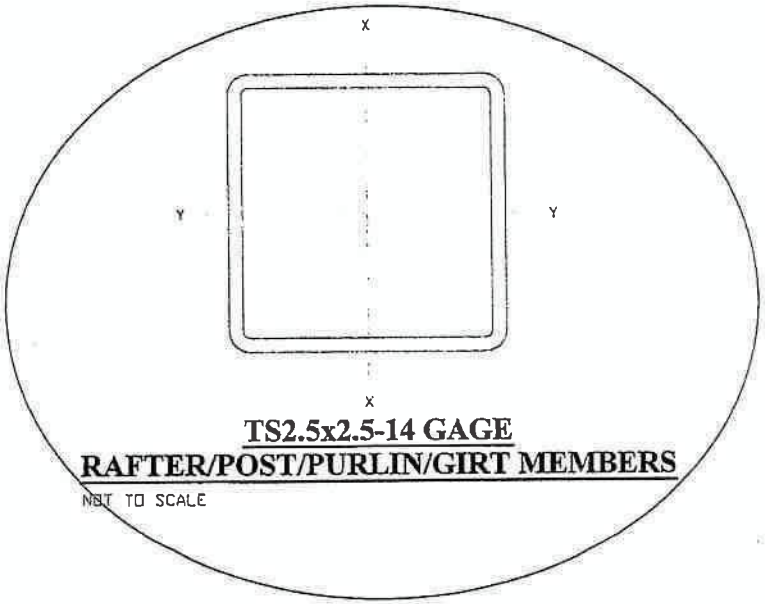


TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/16/17

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

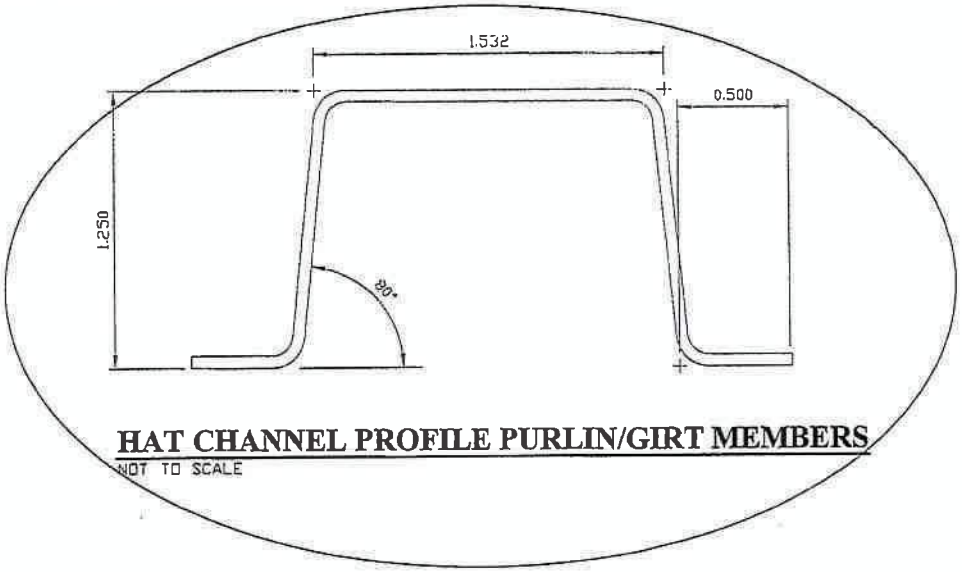
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
TS2.5X2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

SHEET NO. **SK-1**
REV. 0
DATE: 3-14-17
SCALE: AS NOTED
DRAWN BY: JRS
M&A JOB NO. 161925
CHECKED BY: PDH



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

WAYNE S. MOORE LICENSE No. 57470 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/16/17

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH:	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 278-3848
www.MandA-inc.com

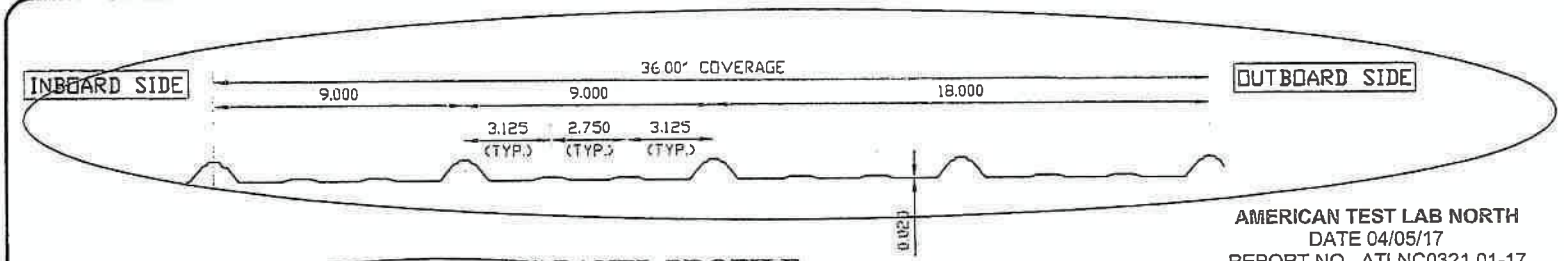
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PBH	WSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

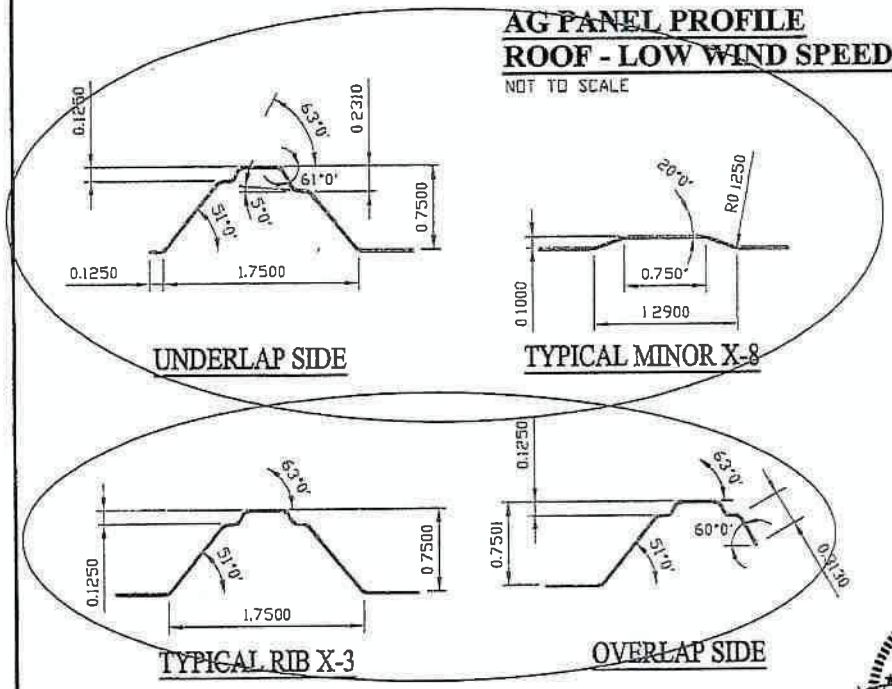
SHEET NO. SK-2

REV. 0 | SCALE: AS NOTED | M&A JOB NO. 161925 | CHECKED BY: PBH
DATE: 3-14-17 | DRAWN BY: JRS



AG PANEL PROFILE
ROOF - LOW WIND SPEED

NOT TO SCALE



AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Owen
ATL INSPECTOR

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 50 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD)
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/22/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -28.2 PSF

MOORE AND ASSOCIATES
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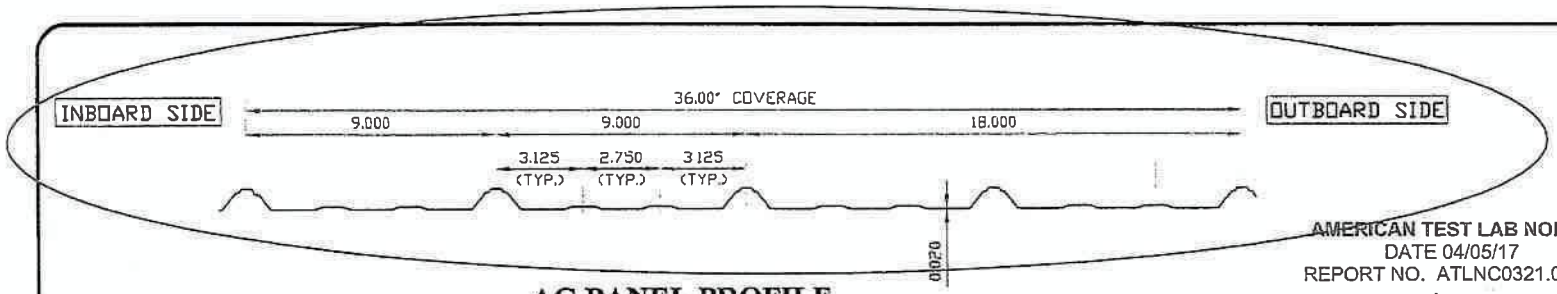
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GRB AG PANEL ROOF
LOW WIND SPEED

M&A JOB NO. 16193S
SCALE: AS NOTED
DRAWN BY: JRS
CHECKED BY: PDH
REV. 0
DATE: 3-14-17
SHEET NO. **SK-3**

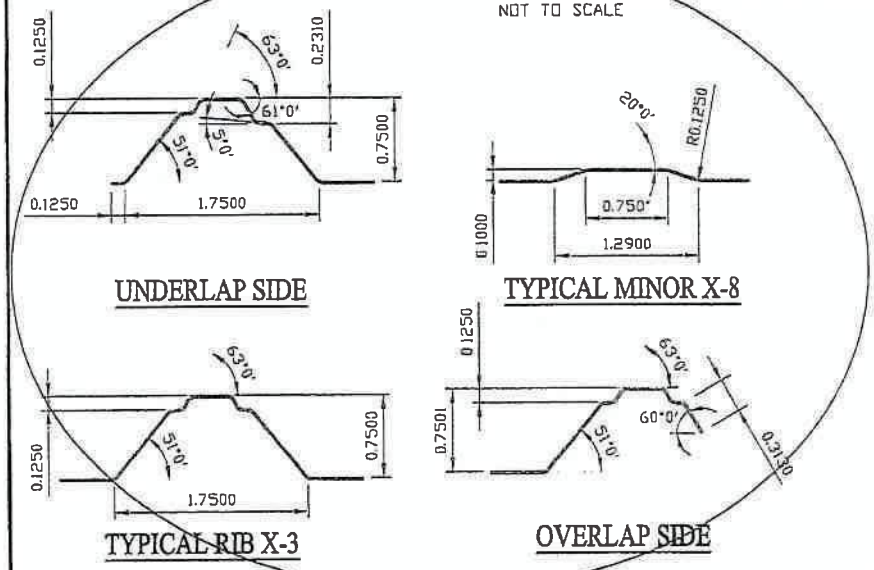


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

Keith Clarke
ATL INSPECTOR

AG PANEL PROFILE
ROOF - HIGH WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD)
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57470 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/23/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET

POSITIVE ROOF PRESSURE: 21.2 PSF
SUCTION ROOF PRESSURE: -39.4 PSF

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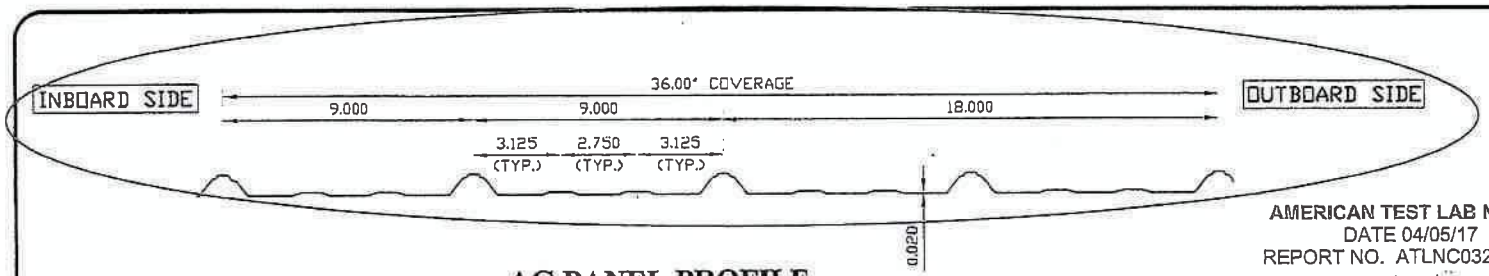
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSN

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

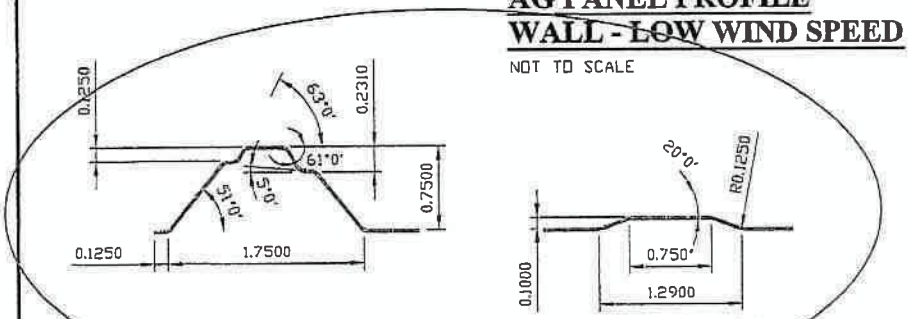
STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
HIGH WIND SPEED

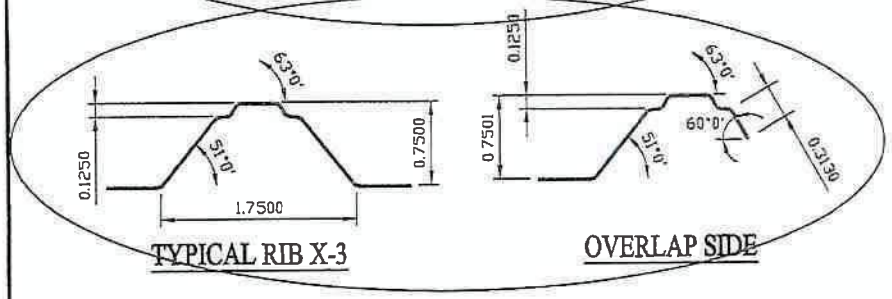
SHEET NO.	M&A JOB NO. 16192S	CHECKED BY: PDH
SK-4	SCALE: AS NOTED	DRAWN BY: JRS
	REV. 0	DATE: 3-14-17



AG PANEL PROFILE
WALL - LOW WIND SPEED

NOT TO SCALE





TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 18.5 PSF
NEGATIVE WALL PRESSURE: -24.1 PSF

AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD)
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 5/16/17

29 GAGE
CALCULATED COIL WIDTH 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSN

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GRB AG PANEL WALL
LOW WIND SPEED

M&A JOB NO. 161925

SCALE: AS NOTED

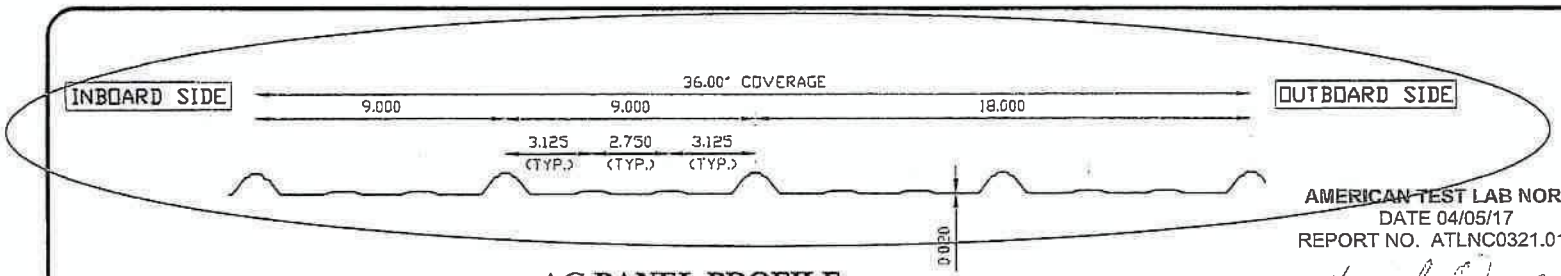
DRAWN BY: JRS

CHECKED BY: PDH

REV. 0

DATE: 3-14-17

SHEET NO. **SK-5**

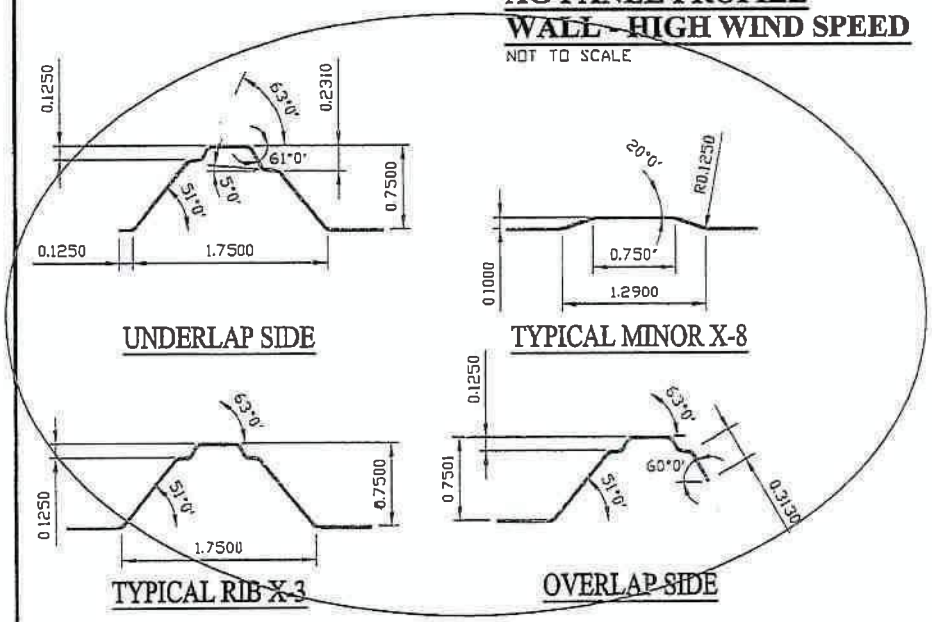


AMERICAN TEST LAB NORTH
DATE 04/05/17
REPORT NO. ATLNC0321.01-17

ATL INSPECTOR

AG PANEL PROFILE
WALL - HIGH WIND SPEED

NOT TO SCALE



GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2014 FLORIDA BUILDING CODE, 5TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF 1/4"-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

WAYNE S. MOORE LICENSE No. 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/16/17

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 27.3 PSF
SUCTION WALL PRESSURE: -35.5 PSF

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
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North Augusta, South Carolina 29841
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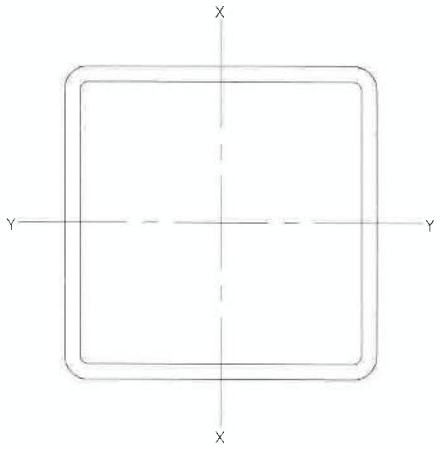
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSH

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
HIGH WIND SPEED

SHEET NO. SK-6	SCALE: AS NOTED	M&A JOB NO. 161925
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		



TS2.5x2.5-14 GAGE
RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

PROPERTIES

AREA = 0.727 IN.^{2}
Sx = 0.570 IN.^{3}
SY = 0.570 IN.^{3}
Ix = 0.713 IN.^{4}
IY = 0.713 IN.^{4}
rx = 0.990 IN.
ry = 0.990 IN.

APPLICATION:

ALL 30'-0", 40'-0", 50'-0" AND 60'-0" WIDE STRUCTURES

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

CALCULATED COIL WIDTH:	3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH:	4.00" @ t = 0.052"
METAL THICKNESS:	0.052"
MATERIAL GRADE:	50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION ---- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/16 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
DIVE ----------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

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www.MandA-Inc.com

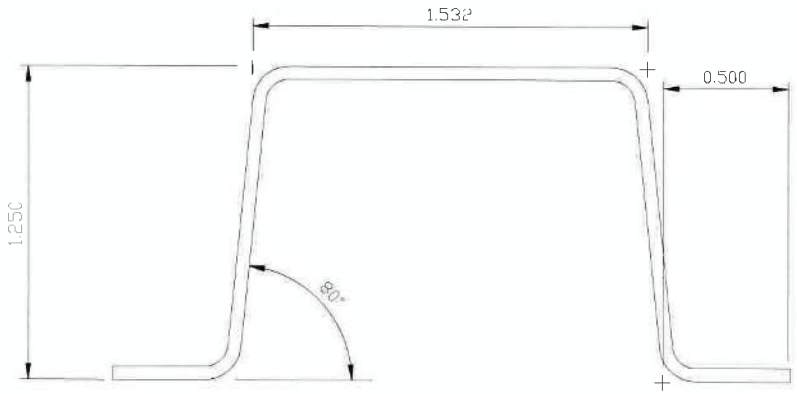
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
TS2.5x2.5
RAFTER/POST/PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

SHEET NO.
SK-1

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE

CALCULATED COIL WIDTH: 3.81" @ t = 0.052"
CUSTOMER SPECIFIED WIDTH: 4.00" @ t = 0.052"
METAL THICKNESS: 0.052"
MATERIAL GRADE: 50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH --- (+ OR -) 1/16 IN
RADII --- (+ OR -) 1/32 IN
ANGLES --- (+ OR -) 2 DEGREES
CAMBER --- (+ OR -) 1/8 IN IN 10 FT
SKI --- (+ OR -) 1/8 IN IN 10 FT
DIVE --- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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www.MandA-Inc.com

NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	WSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	WSM

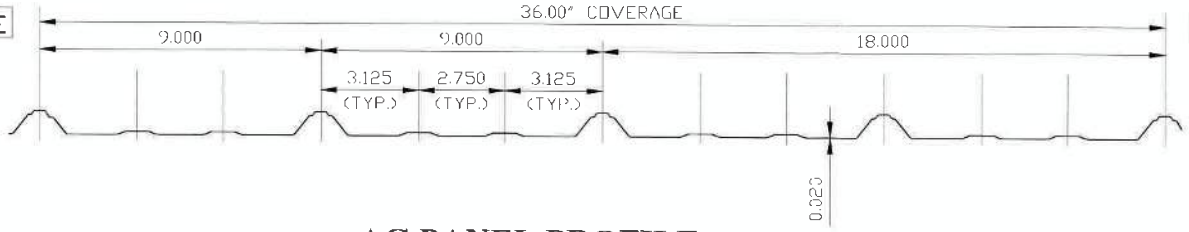
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND SPEED

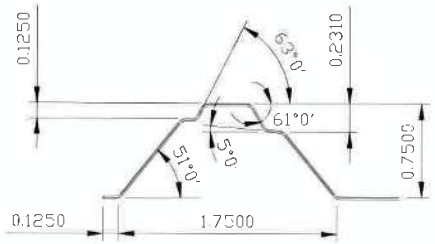
SHEET NO.
SK-2

REV. 0	SCALE: AS NOTED	M&A JOB NO. 16192S
DATE: 3-14-17	DRAWN BY: JRS	CHECKED BY: PDH

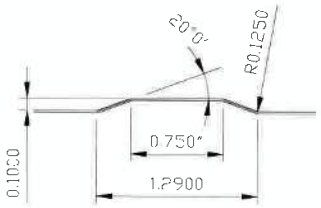


AG PANEL PROFILE
ROOF - LOW WIND SPEED

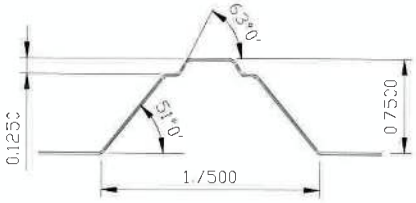
NOT TO SCALE



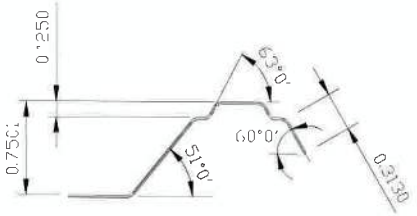
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B.
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12 14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKLST METAL:

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVL	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE ROOF PRESSURE: 16.0 PSF
NEGATIVE ROOF PRESSURE: -39.9 PSF

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East Avenue
North Augusta, South Carolina 29841
(803) 279-7799 / FAX (803) 279-3848
www.MandA-inc.com

WAYNE G. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER 1/12/21

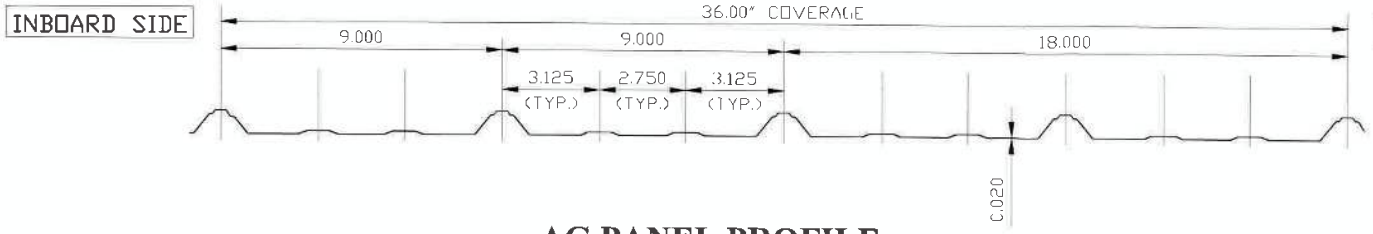
NO.	DATE	REVISION	BY	CK.	APVD.
0	3/16/17	ISSUED FOR PRODUCT TESTING/APPROVAL	JRS	PDH	VSM
1	1/12/21	REVISED FOR 2020 FBC, 7TH EDITION	JS	JB	VSM

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.

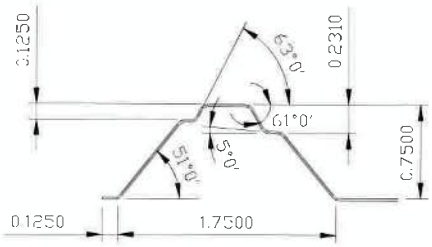
ASC STANDARD GR8 AG PANEL ROOF
LOW WIND SPEED

SHEET NO. SK-3	SCALE: AS NOTED	M&A JOB NO. 16192S
REV. 0	DRAWN BY: JRS	CHECKED BY: PDH
DATE: 3-14-17		

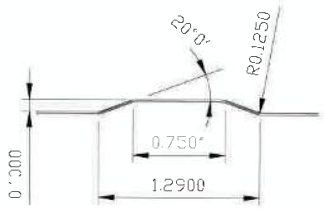


AG PANEL PROFILE
ROOF - HIGH WIND SPEED

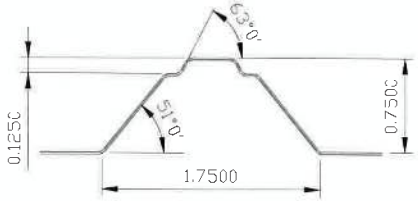
NOT TO SCALE



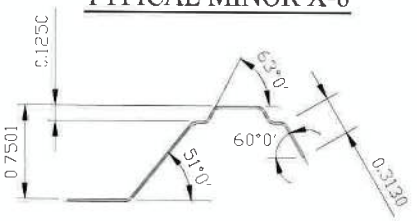
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

1. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE, 7TH EDITION.
2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
5. RISK CATEGORY I.
6. WIND EXPOSURE CATEGORY B
7. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, (INTERIOR OR END) = 6 INCHES.
8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING SCREWS WITH CONTROL SEAL WASHER. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

TOOLING STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:
*ACCUMULATION --- (+ OR -) 1/16 IN
DEPTH ---------- (+ OR -) 1/32 IN
RADII ---------- (+ OR -) 1/32 IN
ANGLES --------- (+ OR -) 2 DEGREES
CAMBER --------- (+ OR -) 1/8 IN IN 10 FT
SKI ------------ (+ OR -) 1/8 IN IN 10 FT
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*NET VARIATION FOR COMBINED DIMENSIONS

NOTE:

1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
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POSITIVE ROOF PRESSURE: 16.0 PSF
SUCTION ROOF PRESSURE: -59.7 PSF

WAYNE S. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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www.MandA-Inc.com

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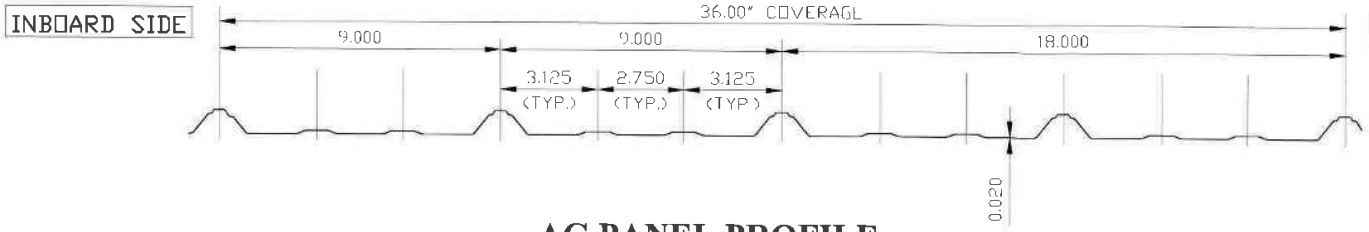
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL ROOF
HIGH WIND SPEED

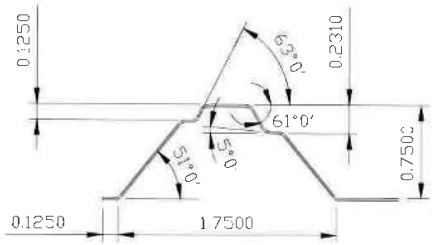
M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17

SHEET NO.
SK-4

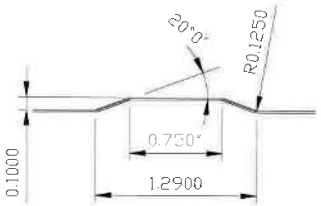


AG PANEL PROFILE
WALL - LOW WIND SPEED

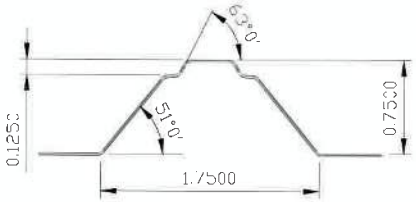
NOT TO SCALE



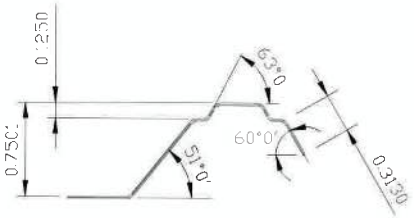
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

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   A) DEAD LOAD = 1.5 PSF
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3. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 50 FEET.
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7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
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NOTE:

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3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL:

*ACCUMULATION - - (+ OR -) 1/16 IN
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RADII ---------- (+ OR -) 1/32 IN
ANGLES ---------- (+ OR -) 2 DEGREES
CAMBER ---------- (+ OR -) 1/8 IN IN 10 FT
SKI ---------- (+ OR -) 1/8 IN IN 10 FT
DIVE ---------- (+ OR -) 1/8 IN IN 10 FT
*NET VARIATION FOR COMBINED DIMENSIONS

POSITIVE WALL PRESSURE: 17.8 PSF
NEGATIVE WALL PRESSURE: -23.4 PSF

WAYNE B. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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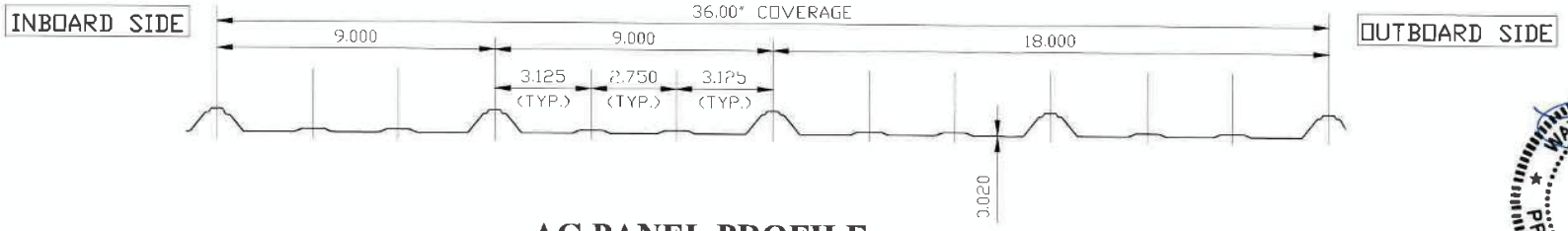
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
LOW WIND SPEED

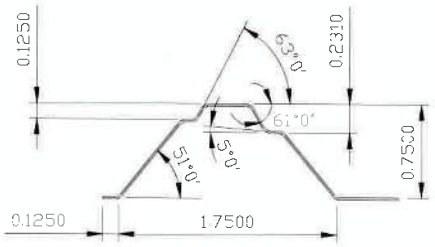
M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17

SHEET NO.
SK-5

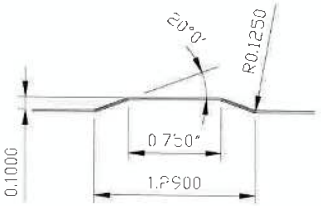


AG PANEL PROFILE
WALL - HIGH WIND SPEED

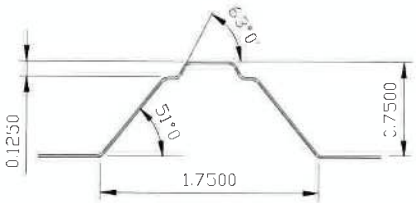
NOT TO SCALE



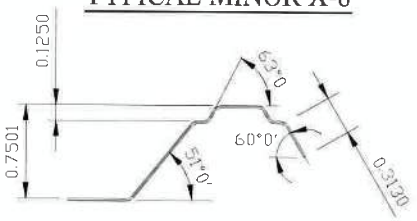
UNDERLAP SIDE



TYPICAL MINOR X-8



TYPICAL RIB X-3



OVERLAP SIDE

GENERAL NOTES

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2. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
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3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
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7. AVERAGE FASTENER SPACING ON-CENTERS ALONG POSTS AND GIRTS (INTERIOR OR END) = 6 INCHES.
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29 GAGE
CALCULATED COIL WIDTH: 43-13/16" @ t = 0.020"
DESIGN THICKNESS: 0.0135"
GRADE OF MATERIAL: 80 KSI MIN

TOLERANCE STANDARDS FOR THICKEST METAL

*ACCUMULATION	(+ OR -) 1/16 IN
DEPTH	(+ OR -) 1/32 IN
RADII	(+ OR -) 1/32 IN
ANGLES	(+ OR -) 2 DEGREES
CAMBER	(+ OR -) 1/8 IN IN 10 FT
SKI	(+ OR -) 1/8 IN IN 10 FT
DIVE	(+ OR -) 1/8 IN IN 10 FT

*NET VARIATION FOR COMBINED DIMENSIONS

TOOLING: STANDARD ASC SET WITH
44" TOOL SPACE (22" CENTER LINE)
3" BORE AND 6.026" PITCH DIAMETER

NOTE:
1. ALL INSIDE BEND RADII ARE 0.062" EXCEPT WHERE NOTED.
2. DIMENSIONS ARE BASED ON 0.020" MATERIAL.
3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET TO TOP OF SHEET.

POSITIVE WALL PRESSURE: 26.6 PSF
SUCTION WALL PRESSURE: -34.9 PSF

WAYNE B. MOORE LICENSE No 57170 1/12/21 STATE OF FLORIDA PROFESSIONAL ENGINEER

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MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

STEEL BUILDINGS AND STRUCTURES, INC.
ASC STANDARD GR8 AG PANEL WALL
HIGH WIND SPEED

M&A JOB NO. 16192S
SCALE: AS NOTED
CHECKED BY: PDH
DRAWN BY: JRS
REV. 0
DATE: 3-14-17
SHEET NO. SK-6

ELIXIR DOOR & METALS CO.
MODEL 407 NON-IMPACT OUTSWING
VINYL LAMINATED STEEL DOOR
INSTALLATION ANCHORAGE DRAWING

GENERAL NOTES:

1. THE PRODUCT ANCHORAGE SHOWN HEREIN IS DESIGNED TO COMPLY WITH THE CURRENT EDITION OF THE FLORIDA BUILDING CODE (FBC) EXCLUDING HIGH VELOCITY HURRICANE ZONE AND THE DESIGN PRESSURE(S) STATED HEREIN.

1a. THE PRODUCT DETAILS CONTAINED HEREIN ARE BASED UPON SIGNED AND SEALED TEST REPORT CONSTRUCTION CONSULTING LABORATORY REPORT # CCL-19-167 AND ASSOCIATED LABORATORY STAMPED DRAWINGS.
1b. TESTED TO ASTM E330-14.

2. ADEQUACY OF THE EXISTING STRUCTURAL 2X FRAMING OR STEEL FRAMING AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE FOUNDATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD.

3. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED AND ANCHORED TO PROPERLY TRANSFER ALL LOADS TO THE STRUCTURE. BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD.

4. THE INSTALLATION DETAILS DESCRIBED HEREIN ARE GENERIC AND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIFIC SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIATE FROM THE REQUIREMENTS DETAILED HEREIN, A LICENSED ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE WITH THIS DOCUMENT.

5. IN AREAS WHERE WINDBORNE DEBRIS PROTECTION REQUIREMENTS EXIST, USE OF AN IMPACT PROTECTIVE SYSTEM COMPLYING WITH THE FBC REQUIREMENTS FOR WINDBORNE DEBRIS REGIONS IS MANDATORY FOR THE PRODUCT HEREIN.

6. FRAME MATERIAL: ALUMINUM ALLOY 6063-T6
DOOR PANEL MATERIAL: .09 MIL VINYL LAMINATED GALVANIZED STEEL.015" SKIN W/ URETHANE FOAM CORE.

7. GLASS MEETS THE REQUIREMENTS OF ASTM E1300-12AE1.

8. DESIGNATIONS "X" STAND FOR THE FOLLOWING:
X: OPERABLE PANEL
O: FIXED PANEL

9. HARDWARE:
A. HALF HINGES: (4) 6063-T6 EXTRUDED ALUMINUM
B. LATCH LOCK: KEYED
C. DEAD BOLT: SINGLE CYLINDER

10. SEE SHEET1 FOR DESIGN PRESSURE CHART.

11. IF WATER INFILTRATION REQUIREMENT EXISTS, UNIT MUST BE INSTALLED BENEATH AN OVERHANG MEETING THE CURRENT EDITION OF THE FLORIDA BUILDING CODE - BUILDING AND RESIDENTIAL VOLUMES.

INSTALLATION NOTES:

1. ONE (1) INSTALLATION ANCHOR IS REQUIRED AT EACH ANCHOR LOCATION.

2. THE INSTALLATION ANCHORS AT THE SPACINGS SHOWN ARE THE MINIMUM NUMBER OF ANCHORS AND MAXIMUM SPACINGS TO BE USED FOR PRODUCT INSTALLATION.

3. SHIM AS REQUIRED AT EACH INSTALLATION ANCHOR WITH LOAD BEARING SHIM(S). MAXIMUM ALLOWABLE SHIM SIZE OF 1/4 INCH. SHIM WHERE SPACE OF 1/16 INCH OR GREATER OCCURS. SHIM(S) SHALL BE CONSTRUCTED OF HIGH DENSITY PLASTIC OR BETTER.

4. ANCHORS FOR INSTALLATION INTO WOOD FRAMING OR 14GA. MINIMUM STEEL FRAMING SHALL BE AS SHOWN IN "ANCHOR SCHEDULE" THIS SHEET.

5. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDE WALL FINISHES, INCLUDING BUT NOT LIMITED TO STUCCO, FOAM, BRICK VENEER AND SIDING.

6. INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED IN THE "ANCHOR SCHEDULE" THIS SHEET.

7. INSTALLATION ANCHORS AND ASSOCIATED HARDWARE MUST BE MADE OF CORROSION RESISTANT MATERIAL OR HAVE A CORROSION RESISTANT COATING.

DESIGN PRESSURE RATING (PSF)		IMPACT RATING
WHERE WATER INFILTRATION REQUIREMENT IS NEEDED	WHERE WATER INFILTRATION REQUIREMENT IS NOT NEEDED	NONE
SEE GENERAL NOTE 11	+50 / -50	

TABLE OF CONTENT

ANCHOR SCHEDULE

SUBSTRATE	DOOR FRAME TYPE	TYPE	SIZE	MANUFACTURER AND/OR SPECIFICATION	EMBEDMENT (IN) (1)	EDGE DISTANCE (IN) (1) (2)	ANCHOR CAPACITIES BASED ON
SHEET METAL/STEEL TUBING 14 GA. MIN. THICKNESS	FIN (Z-BAR)	PAN HEAD	NO. 8	ASME B18.6.4 (TAPPING SCREW)	MIN. 3 THREADS PAST INSIDE SURFACE OF SUBSTRATE	3/8"	MIN. 33 KSI YIELD STRNEGTH
2X WOOD FRAMING	FIN (Z-BAR)	PAN HEAD	NO. 8	ANSI B18.6.1 (WOOD SCREW) OR ASME B18.6.4 (TAPPING SCREW)	1"	1/2"	WOOD WITH A MINIMUM SPECIFIC GRAVITY OF 0.42.

NOTES:
1) FOR WOOD OR TAPPING SCREWS IF SPLITTING IS A CONCERN, DRILL 0.082" PILOT HOLE (DRILL SIZE 45).
2) EDGE DISTANCE MEASURED FROM EITHER SIDE OF ANCHOR TO EDGE OF SUBSTRATE.

PROJECT NUMBER: 419-0903

REV	DESCRIPTION	DATE	BY
B	UPDATE TO CURRENT EDITION FBC	1/25/21	RJA

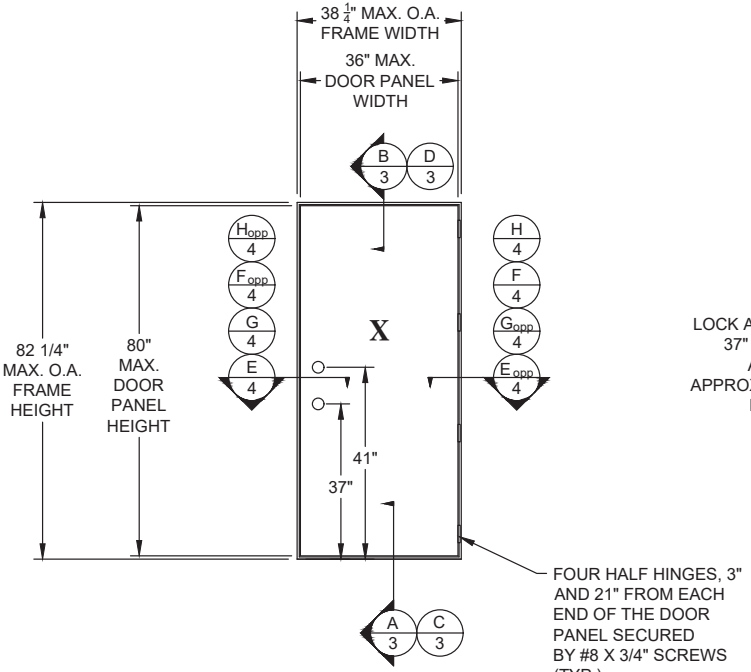
ELIXIR DOOR & METALS CO.
1215 POPE DRIVE
DOUGLAS, GEORGIA 31533

TITLE: MODEL 407 NON-IMPACT OUTSWING VINYL LAMINATED STEEL DOOR GENERAL AND INSTALLATION NOTES

DRAWN BY: TJH | DATE: 02/29/12
SCALE: N.T.S. | DRAWING NO: ELIX0052
REV: B | SHEET: 1 OF 4

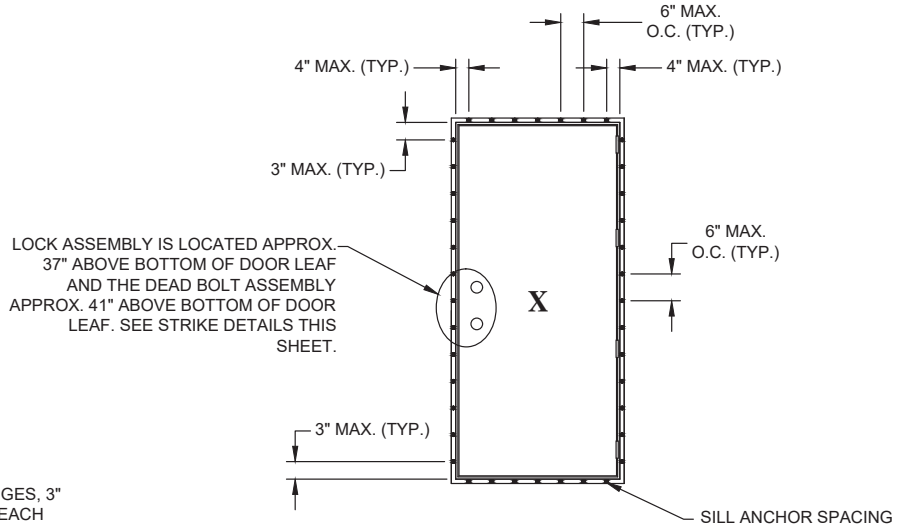
PREPARED BY:
PTC PRODUCT DESIGN GROUP, LLC
PO BOX 920775
LONGWOOD, FLORIDA 32752
FBPE CA NO. 29935
Phone 321.690.1788
Fax 321.690.1789
Email info@ptc-pdg.com

Robert J. Amoruso, P.E.
FL P.E. No. 49752



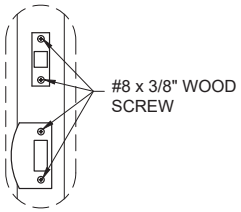
ELEVATION

EXTERIOR VIEW

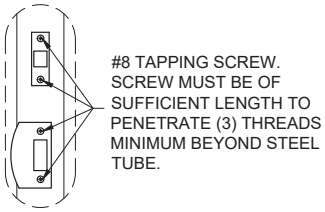


ANCHOR LAYOUT

EXTERIOR VIEW



ENTRY DOOR STRIKE DETAIL
WOOD FRAME SUBSTRATE



ENTRY DOOR STRIKE DETAIL
STEEL TUBING SUBSTRATE

ANCHORING NOTES:

1. MINIMUM NUMBER OF ANCHORS IN JAMBS IS 14. ANCHOR SPACING VARIES, BUT NOT TO EXCEED 6" MAXIMUM O.C.
2. MINIMUM NUMBER OF ANCHORS IN HEAD AND SILL IS 6. ANCHOR SPACING VARIES, BUT NOT TO EXCEED 6" MAXIMUM O.C.

PROJECT NUMBER: 419-0903

REV	DESCRIPTION	DATE	BY
B	UPDATE TO CURRENT EDITION FBC	1/25/21	RJA

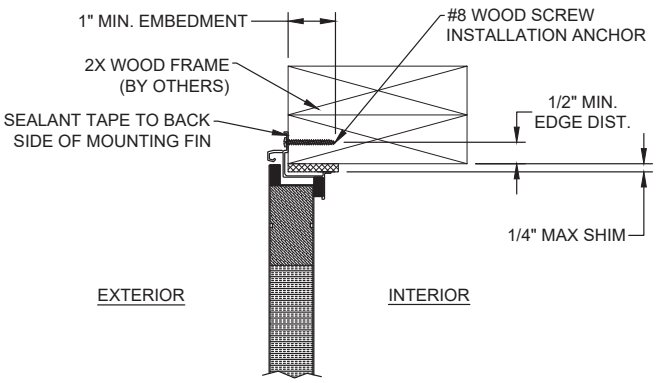
ELIXIR DOOR & METALS CO.
1215 POPE DRIVE
DOUGLAS, GEORGIA 31533

TITLE: MODEL 407 NON-IMPACT OUTSWING VINYL LAMINATED STEEL DOOR ELEVATION AND ANCHOR LAYOUT

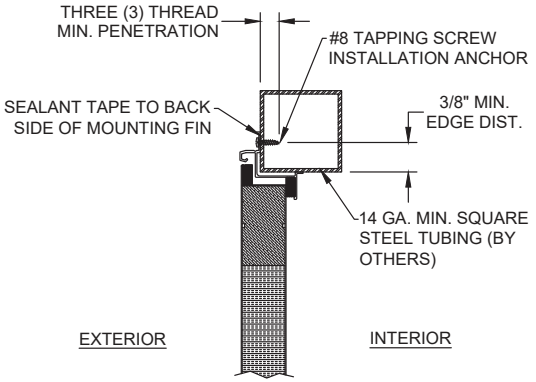
DRAWN BY: TJH
DATE: 02/29/12
SCALE: N.T.S.
DRAWING NO: ELIX0052
REV: B
SHEET: 2 OF 4

PREPARED BY:
PTC PRODUCT DESIGN GROUP, LLC
PO BOX 520775
LONGWOOD, FLORIDA 32752
FLPE CA NO. 29935
Phone 321.690.1788
Fax 321.690.1789
Email info@ptc-pdg.com

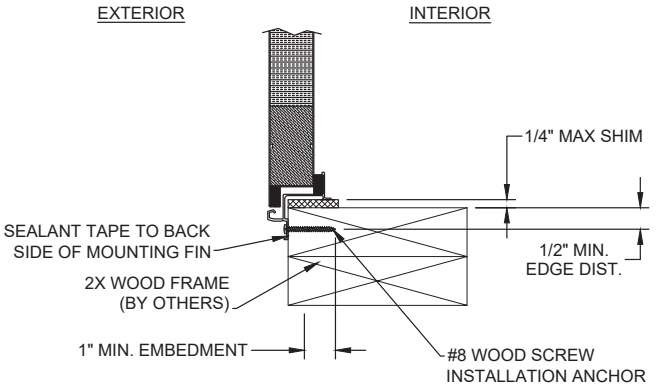
Robert J. Amoruso, P.E.
FL P.E. No. 49752



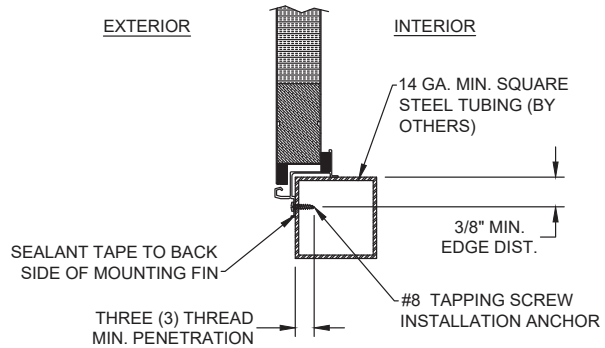
B **VERTICAL SECTION**
WOOD FRAME SUBSTRATE



D **VERTICAL SECTION**
STEEL TUBING SUBSTRATE



A **VERTICAL SECTION**
WOOD FRAME SUBSTRATE



C **VERTICAL SECTION**
STEEL TUBING SUBSTRATE

PROJECT NUMBER: 419-0903

REV	DESCRIPTION	DATE	BY
B	UPDATE TO CURRENT EDITION FBC	1/25/21	RJA

ELIXIR DOOR & METALS CO.
1215 POPE DRIVE
DOUGLAS, GEORGIA 31533

TITLE: MODEL 407 NON-IMPACT OUTSWING
VINYL LAMINATED STEEL DOOR
VERTICAL CROSS SECTIONS

DRAWN BY: TJH
DATE: 02/29/12
SCALE: N.T.S.
DRAWING NO: ELIX0052
REV: B
SHEET: 3 OF 4

PREPARED BY:

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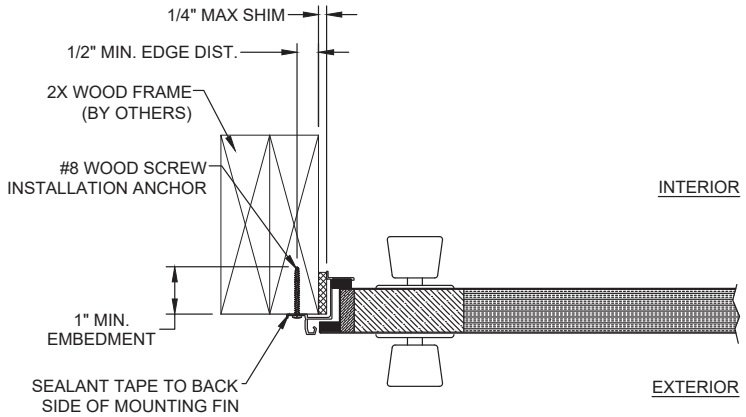
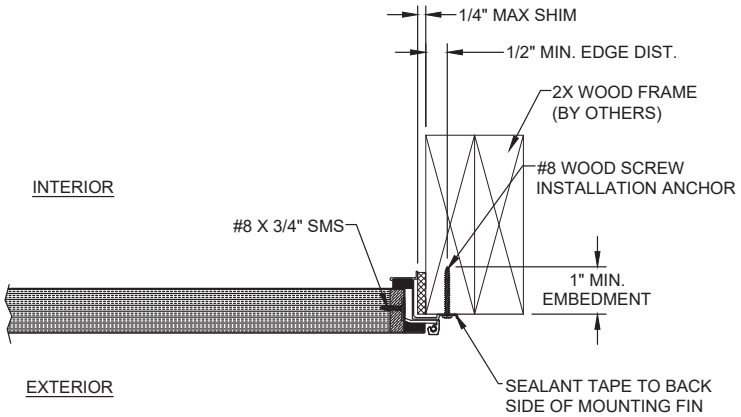
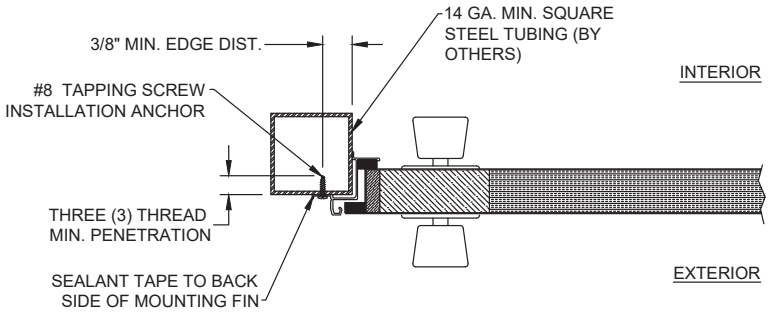
FL P.E. No. 49752



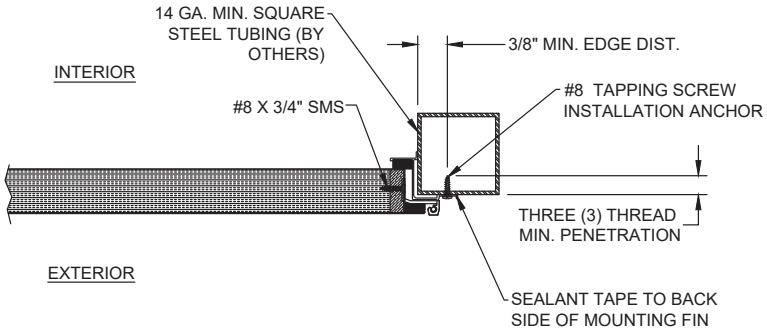
E **HORIZONTAL SECTION**
WOOD FRAME SUBSTRATE



F **HORIZONTAL SECTION**
WOOD FRAME SUBSTRATE



G **HORIZONTAL SECTION**
STEEL TUBING SUBSTRATE



H **HORIZONTAL SECTION**
STEEL TUBING SUBSTRATE

PROJECT NUMBER: 419-0903

REV	DESCRIPTION	DATE	BY
B	UPDATE TO CURRENT EDITION FBC	1/25/21	RJA

ELIXIR DOOR & METALS CO.
1215 POPE DRIVE
DOUGLAS, GEORGIA 31533

TITLE: MODEL 407 NON-IMPACT OUTSWING VINYL LAMINATED STEEL DOOR VERTICAL CROSS SECTIONS

DRAWN BY: TJH | DATE: 02/29/12
SCALE: N.T.S. | DRAWING NO: ELIX0052
REV: B | SHEET: 4 OF 4

PREPARED BY:
PTC PRODUCT DESIGN GROUP, LLC
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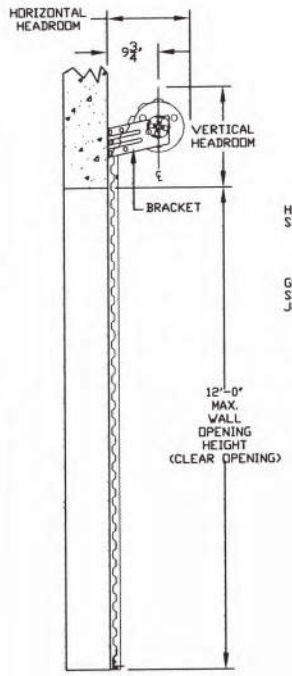
Email: info@ptc-pdg.com

Robert J. Amoruso, P.E.
FL P.E. No. 49752

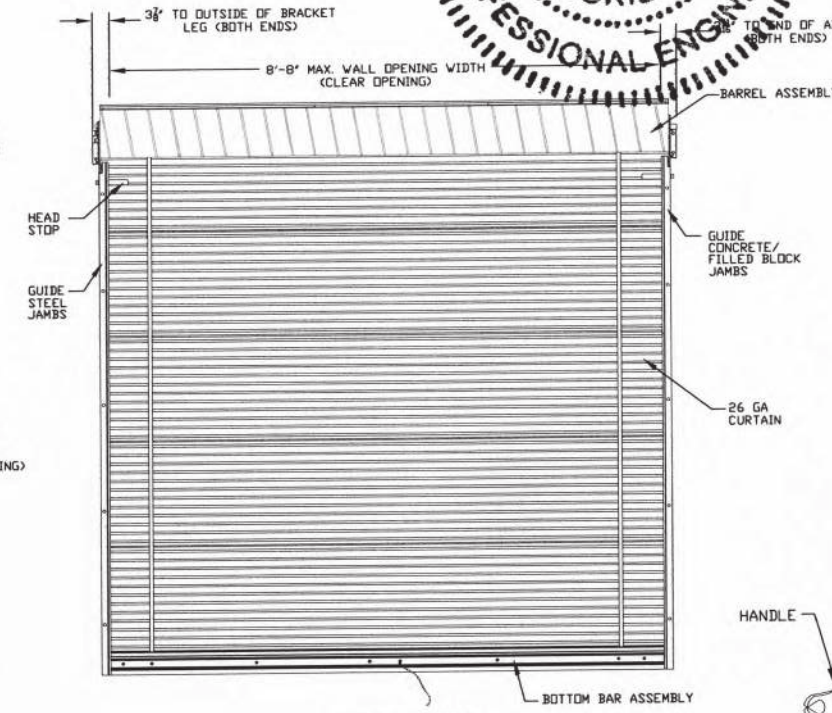
JOSEPH H. DIXON, JR. LICENSE No. 7768 STATE OF FLORIDA PROFESSIONAL ENGINEER

2/16/12

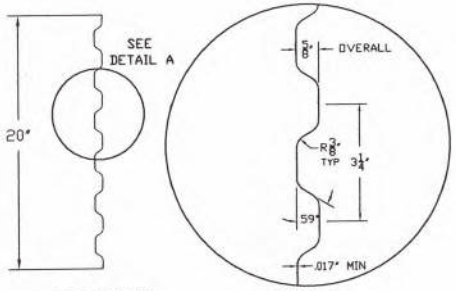
REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



SIDE VIEW



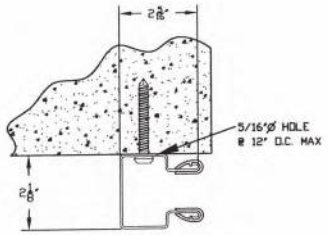
INSIDE ELEVATION



CURTAIN PANEL
ASTM A653 GR 80 ZINC COATED STEEL PRE-PAINTED WITH FULL COAT OF PRIMER AND BAKED SILICONIZED POLYESTER FINISH COAT

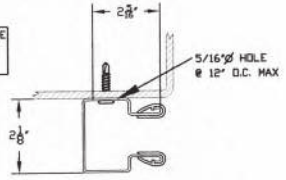
DETAIL A

26 GA CURTAIN DETAIL



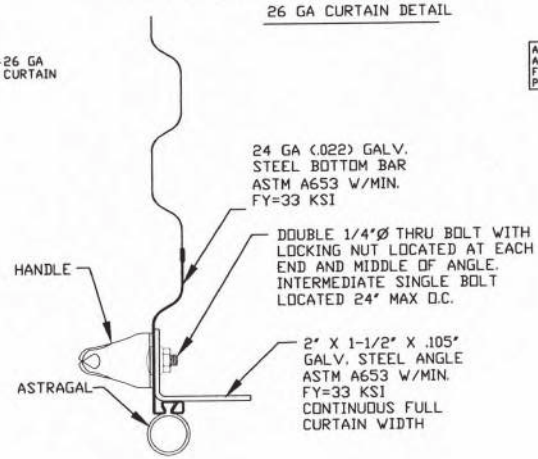
CONCRETE/FILLED BLOCK JAMBS
USING 5/16" X 2-1/4" TAPCON XL

ALL COMPONENTS SHALL BE ASTM A653 STEEL W/MIN FY=33 KSI GALVANIZED PER ASTM A653 G-90



STEEL JAMBS
USING #12-14 X 1" TEKS PANCAKE HEAD

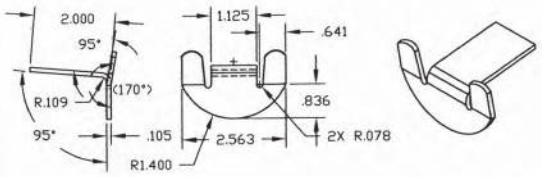
16 GA (.063) GUIDE MOUNTING DETAIL

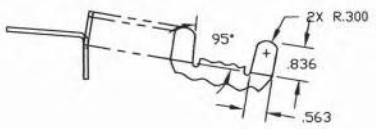


BOTTOM BAR ASSEMBLY

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 7'-4"	15-1/2"	17-1/2"
OVER 7'-4" THRU 8'-8"	16"	18"
OVER 8'-8" THRU 10'-0"	17"	18-1/4"

HEADROOM REQUIRED





WINDLOCK
GALV. STEEL, ASTM A653 WITH MIN. FY=33KSI

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 −.003 .251 to .500 +.006 −.003 OVER .500 +.008 −.003

PART NUMBER:	
MATERIAL:	
APPLIED FINISH:	
UNIT OF MEASURE:	

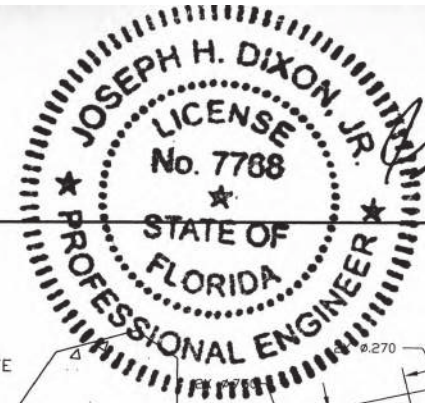
APPROVALS	DATE
DRAWN: BECKY NELSON	11-14-02
CHECKED: DON MILLS	11-14-02
APPROVED: DON MILLS	11-14-02

JANUS INTERNATIONAL CORPORATION
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179
770-562-2850/Fax 770-562-2264

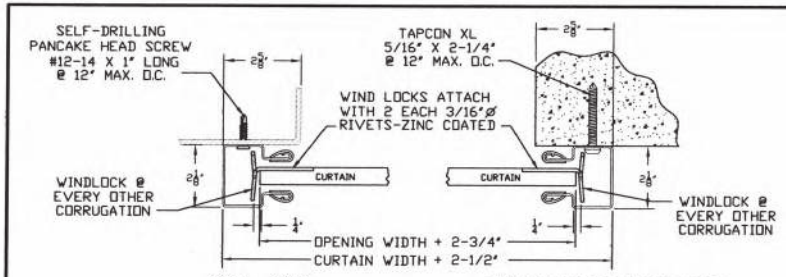
CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 8'-8" X 12'-0"

SIZE	DRAWING NUMBER:	REV:
B	T1002	B

SCALE: NONE SHEET: 1 OF: 2

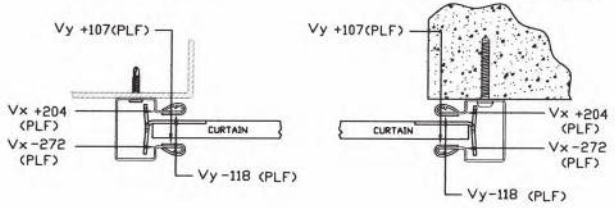


REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



STEEL JAMBS
LH GUIDE MOUNT SHOWN

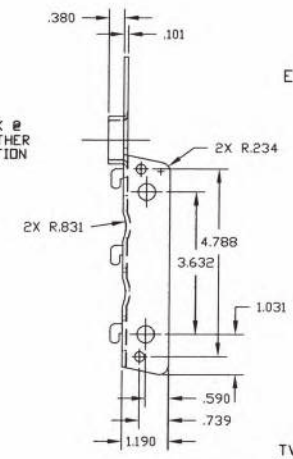
CONCRETE/FILLED BLOCK JAMBS
RH GUIDE MOUNT SHOWN



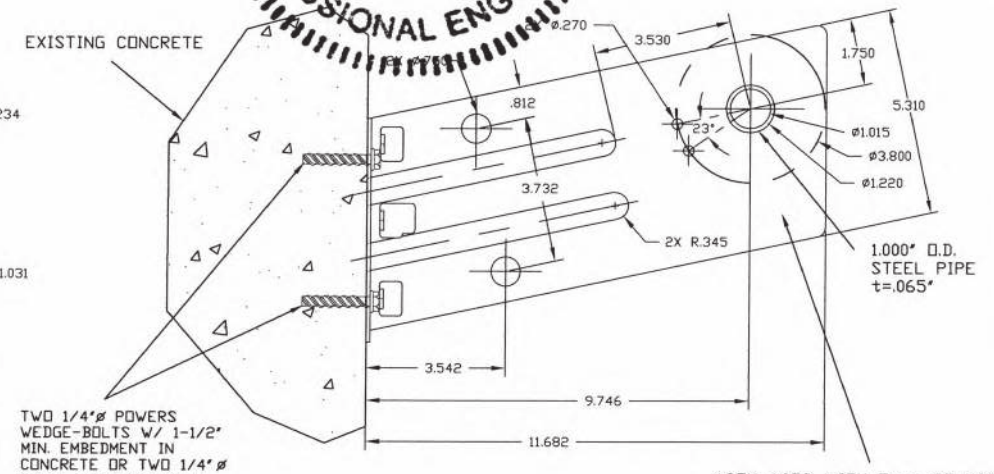
STEEL JAMBS
LH GUIDE MOUNT SHOWN

CONCRETE/FILLED BLOCK JAMBS
RH GUIDE MOUNT SHOWN

SUPERIMPOSED LOAD DIAGRAM



REAR VIEW



SIDE VIEW

DOOR MOUNTING BRACKET DETAIL

GENERAL NOTES

1. THIS ROLL-UP DOOR SYSTEM IS DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
2. THIS ROLL-UP DOOR HAS BEEN TESTED IN ACCORDANCE WITH ASTM E-330 AND COMPLIES WITH ANSI/DASMA 108.

DESIGN LOAD = $^{+24.4}_{-27.0}$ PSF

3. WIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE WIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHERE THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING.
4. SUPERIMPOSED LOADS ON THE JAMBS FROM THIS DOOR ARE DESIGNED AS Vx AND Vy HEREIN. CONTRACTORS SHALL HAVE BUILDING ENGINEER VERIFY ADEQUACY OF BUILDING STRUCTURE TO RESIST SUPERIMPOSED LOADS Vx, Vy AND BRACKET LOADS SHOWN.
5. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S. A5.1 GRADE E-70.
6. DOORS SHALL BE PROVIDED WITH LOCK MECHANISMS AT THE OPTION OF THE OWNER.
7. ALL BOLTS AND WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL WITH A MINIMUM TENSILE STRENGTH OF 60 KSI.
8. DESIGN BASED ON CERTIFIED TESTING LABORATORIES, INC., TEST REPORT NO. CTLA - 983W-2
9. ANCHOR NOTES:
   A. EMBEDMENT LENGTH DOES NOT INCLUDE STUCCO FINISH.
   B. FOR HOLLOW MASONRY, FILL ALL CELLS @ ANCHOR WITH 2500 PSI GROUT.
   C. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
10. DOOR OPERATION TYPE TO BE PUSH-UP.
11. GUIDE TO JAMB ATTACHMENT FASTENERS BEGIN 4" FROM FLOOR AND END 3-1/2" BELOW TOP OF WALL OPENING.
12. TEST DOOR WALL OPENING SIZE: 8'-8" x 8'-0".

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 -.003 .251 to .500 +.006 -.003 OVER .500 +.008 -.003

PART NUMBER:
MATERIAL:
APPLIED FINISH:
UNIT OF MEASURE:

APPROVALS	DATE
DRAWN: BECKY NELSON	11-14-02
CHECKED: DON MILLS	11-14-02
APPROVED: DON MILLS	11-14-02

JANUS INTERNATIONAL CORPORATION
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179
770-562-2850/Fax 770-562-2264

CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 8'-8" X 12'-0"

SIZE	DRAWING NUMBER	REV
B	T1002	B

SCALE: NONE SHEET: 2 OF: 2

Joseph H. Dixon, Jr. P.E.
Product Design Consultant *Florida No. 7768* 3952 Lake Mira Ct.
407-671-0169 Orlando, FL 32817

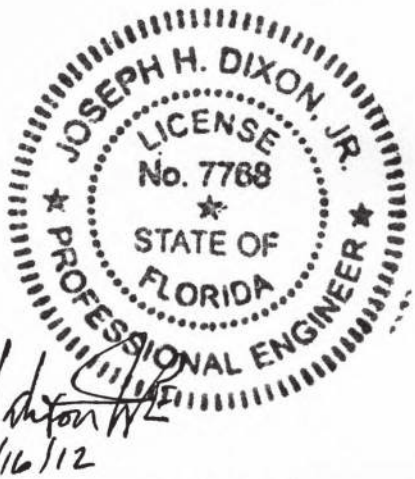
June 22, 2009
Rev. 02/15/12

EVALUATION REPORT No.: **ER-09-0007-R**

Reference No.: 29018_32003

Product: Exterior Doors - Rolling Overhead Doors
Series 750, Series 3100, Series 850-S

Manufacturer: Janus International Corporation
134 Janus International Blvd.
Temple, GA 30179-4435



Statement of Compliance:

The Rolling Doors, Series 750 and Series 3100 described in this report were evaluated to be in compliance with the 2010 Florida Building Code. Series 850-S was evaluated to be in compliance with the 2010 Florida Building Code "High Velocity Hurricane Zones" Sections in Chapters 16 and 17, and may be considered impact resistant. The doors are, for the purpose intended, at least equivalent to that required by the Code when manufactured and installed as described below.

Description of the Product:

All doors consist of a corrugated steel sheet curtain suspended from a drum roller. The curtain on all models is suspended from a drum roller. Coiling around the drum raises the curtain. The sides of the curtain are constrained from lateral movement along their vertical edges by steel guides that are attached to the door jambs. This constraint provides resistance to lateral wind forces. Various guide configurations are used for the different door styles included in this report. The lateral wind forces are transferred from the curtain to the guides and then through the attachment elements to the door jamb. The door jambs are part of the main wind frame resisting system and usually are constructed of steel, concrete, or concrete masonry units.

Series 750 (Mini Door)

Door curtains have a thickness of 26 gage (min. 0.017 in.) and are made of ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a full coat of primer and baked siliconized polyester finish coat The corrugated sheets are interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on center vertically in the installed door. The corrugation height is approximately 5/8 inches and the corrugation pitch is 3.25 in. Style variations include door width, windlocks, and wind load rating. Maximum door height is limited to 12'-0". Various door widths are described in detail on drawings T1000 (3'-0" wide), T1001 (6'-0" wide), T1002 (8'-8" wide) and T1003 (10'-0" wide). Tests were conducted on each of the four width doors shown on these drawings. A comparative an analysis was used to determine the design pressures on doors between 3'-0" and 6'-0" wide. Doors greater than 6'-0" wide having opening widths between those shown on drawings T1001, T1002, and T1003 may be used for the same design wind pressure as

the next larger width door provided all other requirements on the larger width door drawing remain unchanged. Doors shown on drawings T1000 and T1001 do not have windlocks. Doors shown on drawings T1002 and T1003 have windlocks. The guide geometry and attachment method is fully described on the drawings.

Series 3100 (Commercial Door)

Door curtains have a thickness of 26 gage (min. 0.017 in.) and are made of ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a full coat of primer and baked siliconized polyester finish coat The corrugated sheets are interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on center vertically in the installed door. The corrugation height is approximately 5/8 inches and the corrugation pitch is 3.25 in. Style variations include door width, and wind load rating. Maximum door height is limited to 20'-0". Two door widths are described in detail on drawings T1004 (12'-0" wide), and T1005 (16'-0" wide). Two complete tests were conducted on each of these two width doors. One test used the Option 1 Guide and the other used the Option 2 Guide for attachment to the steel jamb. Doors having opening widths less than 12'-0" may be used for the same design wind pressure as the 12'-0" wide door provided all other requirements on that drawing remain unchanged. Doors having opening widths less than 16'-0" may be used for the same design wind pressure as the 16'-0" wide door provided all other requirements on that drawing remain unchanged. All doors shown on drawings T1004 and T1005 have windlocks.

Series 850-S (Florida State Mini Door) Impact Resistant

Door curtains may have a thickness of either 24 gage (min. 0.022 in.) or 26 gage (min. 0.017 in.). The curtain steel is ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a full coat of primer and baked siliconized polyester finish coat The corrugated sheets are interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on center vertically in the installed door. The corrugation height is approximately 5/8 inches and the corrugation pitch is 3.25 inches. Maximum door height is limited to 12'-0". Only the 8'-8" wide door is qualified as impact resistant and it is described in detail on drawing T1006-S. Doors having opening widths less than 8'-8" may be used for the same design wind pressure as the 8'-8" wide door provided all other requirements on that drawing remain unchanged. The door shown on drawing T1006-S has windlocks. Tests in accordance with Florida Building Code Test Protocols TAS 201, TAS 202, and TAS 203 were conducted on this door.

All Series

Maximum door widths and heights are shown in Table 1. The pressures shown in Table 1 are the maximum allowable design wind load values. These design pressures may be used for narrower width doors of the same Series provided all other requirements of the wider door remain unchanged.

Drawings

The Door Series covered by this report are described in detail on the following Janus International Corporation drawings:

JOSEPH H. DIXON, JR. LICENSE No. 7768 STATE OF FLORIDA PROFESSIONAL ENGINEER
2/16/12

Drawing T1000: 3'-0" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1001: 6'-0" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1002: 8'-8" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1003: 10'-0" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012
Drawing T1004: 12'-0" wide max. x 20'-0" high max., shts 1 and 2 of 2, revised 01/20/12 ©2012
Drawing T1005: 16'-0" wide max. x 20'-0" high max., shts 1 and 2 of 2, revised 01/20/12 ©2012
Drawing T1006-S: 8'-8" wide max. x 12'-0" high max., shts 1 and 2 of 2, revised 06/17/09 ©2012

Technical Documentation:

All testing was done at Certified Testing Laboratories, Orlando, Florida. Tests for Series 750 and Series 3100 were conducted following the procedures of ASTM E330, Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference. The following test reports, signed and sealed by R. Patel, P.E. cover the Series 750 and Series 3100 doors contained in this report:

- Test Report No.: CTLA-983W, date: November 7, 2002, (Series 750, T1000), 3'-0" wide x 8'-0" high, +35 / -45 psf design pressure
- Test Report No.: CTLA-983W-1, date: November 7, 2002, (Series 750, T1001), 6'-0" wide x 8'-0" high, +19.9 / -24.4 psf design pressure
- Test Report No.: CTLA-983W-2, date: December 2, 2002, (Series 750, T1002), 8'-8" wide x 8'-0" high, +24.4 / -27.0 psf design pressure
- Test Report No.: CTLA-983W-3, date: November 7, 2002, (Series 750, T1003), 10'-0" wide x 8'-0" high, +19.4 / -22.7 psf design pressure
- Test Report No.: CTLA-1024W, date: February 20, 2003, (Series 3100, T1004) 12'-0" wide x 8'-0" high, +36.0 / -41.0 psf design pressure
- Test Report No.: CTLA-1194W, date: December 2, 2003, (Series 3100, T1004) 12'-0" wide x 8'-0" high, +36.0 / -41.0 psf design pressure, (Option 1 guide for steel)
- Test Report No.: CTLA-1432W, date: November 3, 2005, (Series 3100, T1005) 16'-0" wide x 8'-0" high, +35.0 / -38.0 psf design pressure
- Test Report No.: CTLA-1432W-1, date: November 3, 2005, (Series 3100, T1005) 16'-0" wide x 8'-0" high, +35.0 / -38.0 psf design pressure, (Option 1 guide for steel)

Calculations prepared by Joseph H. Dixon, Jr. P.E.:

- Series 750, no windlocks, Summary of Design Wind Pressures based on comparative analysis for doors 3'-4" to 5'-6" wide, 1 page, revised 4/10/04.
- Series 3100, dwg. T1004, attachment of guide, Option 3, to 14 gage minimum steel jamb thickness, 6 pages dated 6/18/09, plus drawing JI-3100G1-2SP and drawing JI-3100G1-2SN, both dated 4/07/04.
- Series 750 and 3100 verification of compliance with ANSI/DASMA 108

Impact Resistant Doors

Tests for Series 850-S were conducted following the procedures of the Florida Building Code Test Protocols TAS 201, TAS 202, and TAS 203. The following test reports, signed and sealed by R. Patel, P.E. cover the Series 850-S doors contained in this report:

- Test Report No.: CTLA-1115W, date: August 20, 2003, (Series 850-S, T1006-S) 8'-8" wide x 8'-0" high, +46 / -54 psf design pressure

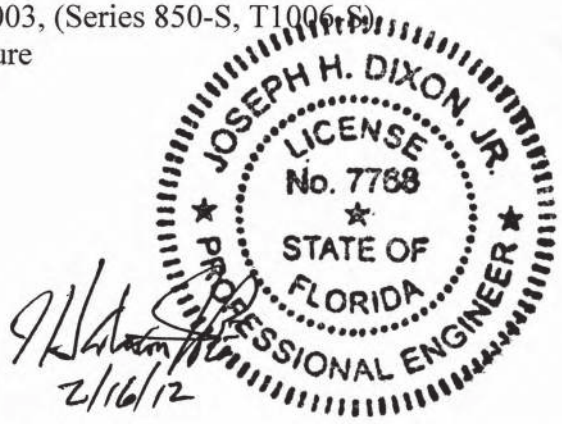


TABLE 1
Allowable Transverse Design Wind Loads (psf)

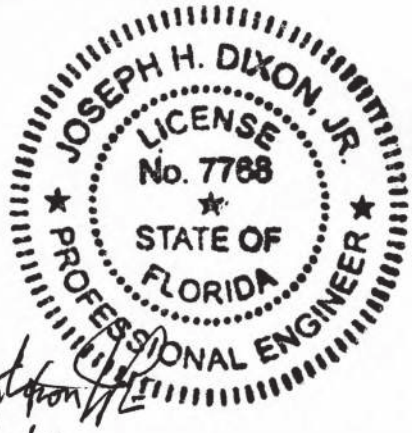
Series	Max. Door Width	Max. Door Height	Drawing Number	Design Load Positive	Design Load Negative
750	3'-0"	12'-0"	T1000	35.0	45.0
750	3'-4"	12'-0"	T1001	35.6	43.7
750	3'-6"	12'-0"	T1001	33.9	41.6
750	3'-8"	12'-0"	T1001	32.4	39.8
750	4'-0"	12'-0"	T1001	29.7	36.5
750	5'-0"	12'-0"	T1001	23.8	29.2
750	5'-6"	12'-0"	T1001	21.7	26.6
750	6'-0"	12'-0"	T1001	19.9	24.4
750	8'-8"	12'-0"	T1002	24.4	27.0
750	10'-0"	12'-0"	T1003	19.4	22.7
3100	12'-0"	20'-0"	T1004	36.0	41.0
3100	16'-0"	20'-0"	T1005	35.0	38.0
850-S	8'-8"	12'-0"	T1006-S	46.0	54.0

Design values used for the tests are shown in the boxed shaded values.
Maximum test load was 150% of design load.
Unshaded design wind loads were determined by comparative analyses using test results.

Installation Requirements:

Installation requirements are described in the Janus International Corporation Installation Instructions as follows:

- Series 750: 4 pages, Mini Door Installation Instructions Series 750
- Series 3100: 8 pages, Commercial Door Installation Instructions Series 3100
- Series 850: 4 pages, Mini Door Installation Instructions Series 850



2/16/12

Limitations and Conditions of use:

The use of any door is limited to buildings for which the design wind loads for wall components and cladding, determined in accordance with Section 1609 of the 2010 Florida Building Code, do not exceed the rated design wind loads of the door as shown in Table 1.

Series 850-S is qualified as impact resistant. This door has been tested and met the additional requirements of Sections 1625 and 1626 of the 2010 Florida Building Code.

The maximum width and height limitations for each Series are shown in Table 1.

Doors are to be assembled as shown on the appropriate drawing referenced above, and the doors are to be installed in accordance with the installation instructions referenced above.

Door manufacturing is limited to those plants that have met the 2010 Florida Building Code Product Approval quality assurance requirements.

The doors covered by this report are not for use in the Florida High-Velocity Hurricane Zone.

Certification of Independence:

I, Joseph H. Dixon, Jr., certify that I am self-employed and operate as an independent contractor providing professional engineering services. I have no financial interest in nor will I acquire any financial interest in any company manufacturing or distributing products for which evaluation or validation reports have been issued by me.

Likewise, I have no financial interest in nor will I acquire any financial interest in any other entity involved in the approval process of those products for which I have issued reports.

Joseph H. Dixon, Jr. P.E.

2/16/12

JANUS INTERNATIONAL CORPORATION

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TEMPLE, GA 30179-4435

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JOSEPH K. DIXON JR. LICENSE [illegible] STATE OF FLORIDA PROFESSIONAL ENGINEER
FL 08/9/07

DOOR INSTALLATION INSTRUCTIONS SERIES 750/1000/1100

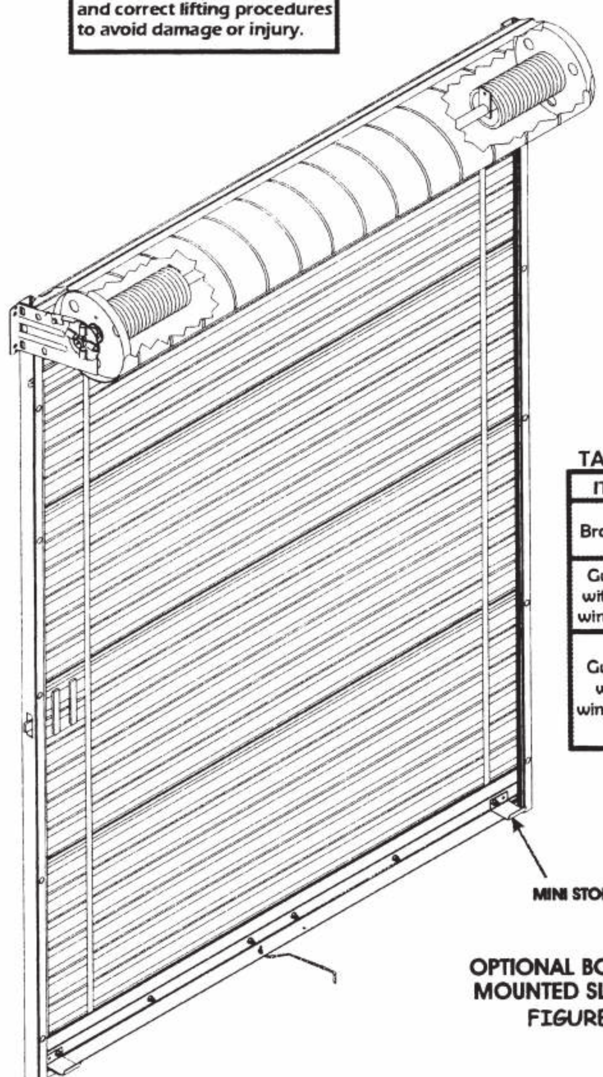
⚠ CAUTION
Use proper lifting equipment and correct lifting procedures to avoid damage or injury.

⚠ WARNING!
A rolling door is a large heavy object that moves with the help of springs under extreme tension. Moving objects and springs under tension can cause serious injuries or death. For your safety and the safety of others, follow these instructions.

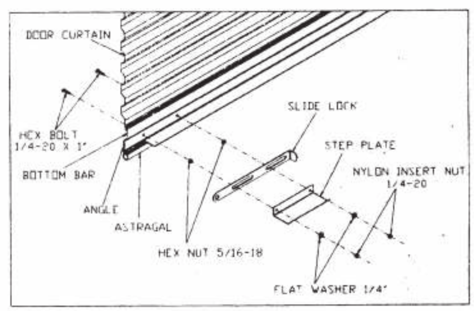
POTENTIAL HAZARD	EFFECT	PREVENTION
	CAN CAUSE SERIOUS INJURY OR DEATH	DO NOT stand or walk under moving door. Keep door in full view and free of obstructions while operating. DO NOT allow children to operate the door.
	CAN CAUSE SERIOUS INJURY OR DEATH	Installation, repairs and adjustments must be made by a trained rolling service door systems technician using proper tools and instructions. DOOR MUST BE FULLY OPENED WHEN MAKING ADJUSTMENTS.

TABLE 1: Wall Fasteners - for jamb attachment of Brackets and Guides

ITEM	JAMB	FASTENERS	DRILL SIZE
Brackets	Steel	1/4-14 x 1" TEKS Screw	None
	Concrete or Filled Block	1/4" x 1-3/4" Powers Wedge-Bolt	Powers 01314
Guides without windlocks	Steel	1/4-14 x 1" TEKS Screw	None
	Concrete or Filled Block	1/4" x 1-3/4" Powers Wedge-Bolt	Powers 01314
Guides with windlocks	Steel	#12-14 x 1" PSD Pancake Head TEKS Screw	None
	Concrete or Filled Block	5/16" x 2-1/4" Tapcon XL (TORX T-40 drive)	1/4" Masonry



OPTIONAL BOTTOM BAR MOUNTED SLIDE LOCKS
FIGURE 1 →



IMPORTANT NOTE: Do not cut tape and plastic wrap that holds the door in a roll until you are directed to do so in step 6B. Janus International Corporation cannot guarantee or accept responsibility for doors that are not installed as directed. Please read and understand all instructions before beginning the installation process.

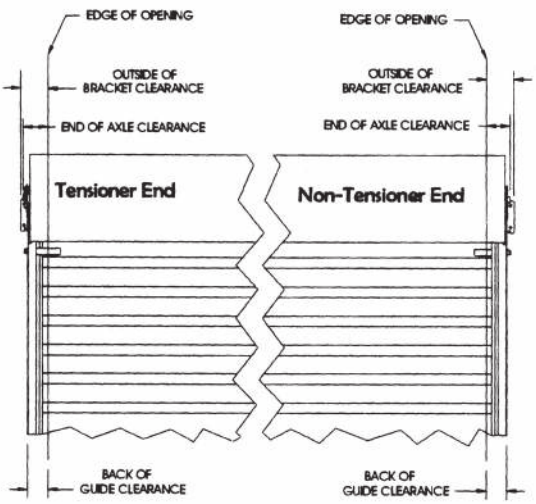
6-1-07

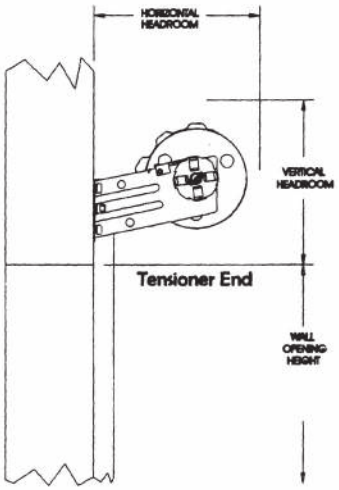
SERIES 750/1000/1100
CLEARANCE CHARTS FIGURE 2

SIDE ROOM REQUIRED*

	GUIDE	OUTSIDE OF EACH BRACKET LEG	EACH END OF AXLE
WITHOUT WINDLOCKS	2-1/4"	3-3/8"	3-1/4"
WITH WINDLOCKS	2-7/8"	4-1/8"	4"

*Dimensions are taken from edge of opening





SERIES 750 HEADROOM REQUIRED

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 7'-4"	15-1/2"	17"
OVER 7'-4" THRU 8'-8"	16"	17-1/2"
OVER 8'-8" THRU 10'-0"	17"	18-1/4"

SERIES 1000/1100 HEADROOM REQUIRED

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 8'-0"	18"	17-1/2"
OVER 8'-0" THRU 10'-0"	18-1/2"	17-3/4"
OVER 10'-0" THRU 12'-0"	18-3/4"	18"
OVER 12'-0" THRU 14'-0"	19"	18-1/2"

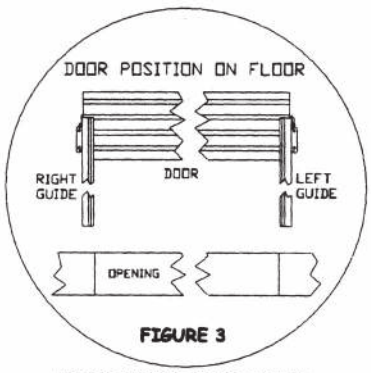


FIGURE 3

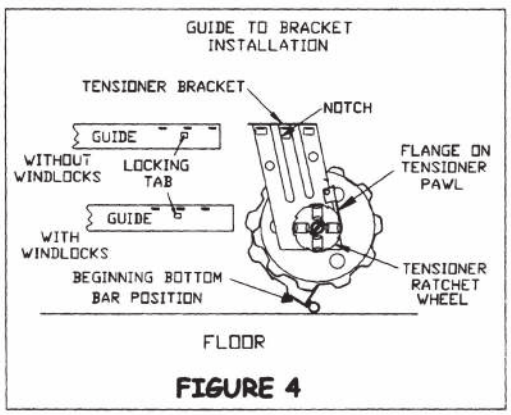


FIGURE 4

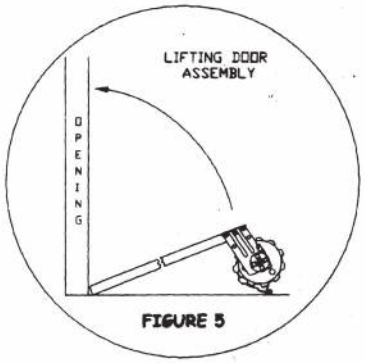


FIGURE 5

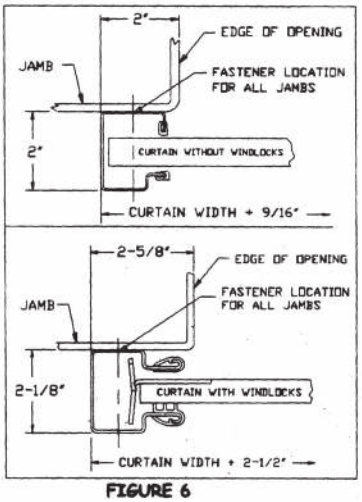


FIGURE 6

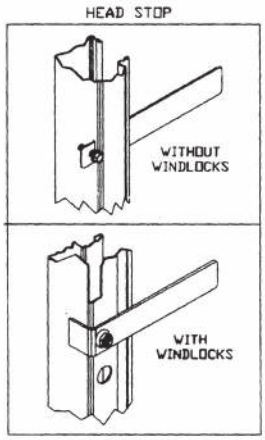


FIGURE 7

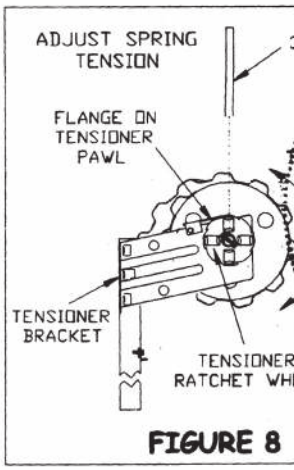


FIGURE 8

STEP 1: WALL OPENING

A. Check wall opening width and height and verify these measurements against size of door to be installed.
B. Verify that jambs are plumb.
C. Check floor and header for level.
D. Check for adequate side clearance at jambs and clearance above and at sides of header. See clearance charts figure 2 for minimum requirements.
E. Verify that the guide mounting surface on the jamb is flush.
F. Make sure all parts required for installation are with the door.

STEP 2: POSITION DOOR AND PARTS

A. Make sure floor is clean in order to prevent damage to curtain.
B. On inside of building, place left guide on floor perpendicular to opening with guide bottom close to the left jamb and the top toward inside of building. Do the same with the right guide to the right jamb. See figure 3.
C. Place door on floor at top of and between guides. Rotate door as necessary to locate bottom bar against floor. See figures 3 and 4.
D. Distribute hardware parts to appropriate areas.

NOTE: Brackets, tensioner, spring(s) and curtain mounted latch are pre-assembled to the door at the factory. Do not remove.

STEP 3: GUIDES TO BRACKETS INSTALLATION

A. At tensioner end of door, lift flange on tensioner pawl until end of the pawl clears the tensioner ratchet wheel. Rotate bracket in order to position short leg end upward. Release flange on pawl and allow end to engage with the nearest tooth on the ratchet wheel. See figure 4.
B. Bring top end of guide in alignment with bracket and insert hooks on bracket into slots in guide.
C. Slide bracket and guide together until locking tab in guide fully engages notch in bracket.
D. If locking tab does not fully engage with bracket notch, use a hammer and punch to bend tab into bracket notch.
E. Repeat steps 3B through 3D for other bracket and guide. This bracket will require being held in position.

NOTE: For non-windlock doors with opening heights over 8'-8", clamp bottom of brackets to guides with locking pliers in order to ensure rigidity of top of guide while lifting. Remove pliers after securing brackets to jambs.

⚠ WARNING!
Locking tab in guide must fully engage with notch in bracket. Failure to do so may allow the door to fall during installation, which can cause serious injury or death and/or damage to door.

STEP 4: GUIDES AND BRACKETS TO JAMB

A. Brackets and guides will be attached to jambs using fasteners shown in table 1.
B. The guides should be mounted centered about the opening and spaced curtain width + 9/16" apart for non-windlock doors and curtain width + 2-1/2"for windlock doors. This spacing is measured from back of guide to back of guide. See figure 6. Both guides must be plumb.
C. The appropriate fastener must be installed at each hole location in brackets and guides. See table 1.

⚠ WARNING!
Door can fall if both brackets are not securely fastened to the jambs. All fasteners attaching brackets to jambs must fit securely into a structural member or surface. If door falls, serious injury or death and/or damage to door can result.

STEP 5: LIFTING DOOR ASSEMBLY

A. Move door and guide assemblies toward wall opening with bottom of guides resting next to jambs.
B. Lift door assembly evenly, pivoting around bottom of guides. See figure 5.
C. Attach brackets and guides to jambs, according to step 4.

⚠ WARNING!
Two installers are required to lift door assembly into position against jambs. The guides are not designed to support the curtain weight during a one man installation. Attempting to make installation with only one installer can result in serious injury and/or damage to door. Do not leave door unattended until it is securely attached to jambs.

NOTE: Welding of guides to the jambs is not recommended.

STEP 6: SETTING SPRING INITIAL TENSION

⚠ WARNING!
Extreme spring tension can cause serious injury or death. Installation, repairs and adjustments must be made by a trained rolling service door systems technician using proper tools and instructions. Door must be fully opened when making adjustments.

A. Rotate door 1-1/2 revolutions in the direction that would send the bottom bar down through the guides.
B. While firmly holding the door at the bottom bar, cut the tape and plastic wrap that holds the door in a coil. Direct the bottom bar down into the guides, stopping just past the head stop area.

STEP 7: HEAD STOPS

A. For doors without windlocks, slide head stop from inside of each guide. Secure with 1/4-20 x 3/4" thread cutting type F hex screw. See figure 7.
B. For doors with windlocks, place head stop over outside of each guide. Secure with 1/4-20 x 1/2" carriage bolt and 1/4-20 serrated flange nut. Install carriage bolt from inside of guide. See figure 7.

STEP 8: MINI STOP CLIPS, HANDLE(S) AND PULL ROPE

A. Install mini stop clip at each end on inside of bottom bar using existing single 1/4-20 x 1/2" carriage bolt.
B. Install handle(s) on outside of bottom bar using 1/4-20 x 1/2" carriage bolts.
C. Install rope in one of the holes at the center of the horizontal leg of the bottom bar angle.

OPTIONAL: BOTTOM BAR MOUNTED SLIDE LOCKS - SEE FIGURE 1 FOR INSTALLATION.

STEP 9: CHECK DOOR OPERATION

A. Lower and raise the door to test the door balance.
B. If door is easy to close, but hard to open; increase spring tension.
C. If door is hard to close, but easy to open; decrease spring tension.

STEP 10: ADJUST SPRING TENSION

⚠ WARNING!
DOOR MUST BE FULLY OPENED WHEN MAKING ADJUSTMENTS.

A. Place 3/8" diameter winding bar in tensioner ratchet wheel. See figure 8.
B. Rotate winding bar in the down direction to increase spring tension. Each engagement of a tooth equals 1/8 turn.
C. To decrease spring tension, pull down slightly on winding bar until pawl disengages tooth. Lift flange on pawl and move winding bar up until past the pawl/tooth engagement. Allow pawl to rest on ratchet wheel and continue moving winding bar up until the pawl is fully engaged with the tooth.
D. Remove winding bar and operate door.
E. Repeat steps 10A through 10D as necessary.

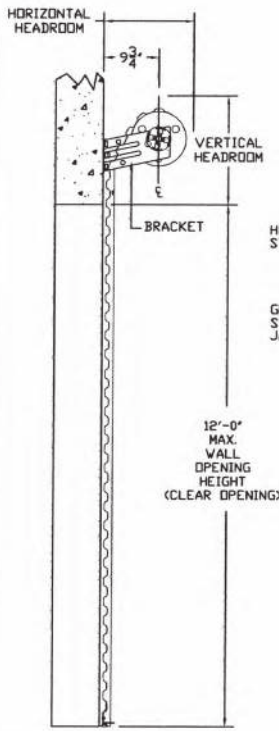
NOTE: Latch side slot in the guide may require adjusting after door installation due to variances in manufacturing and/or site conditions.

JOSEPH M. DIXON LICENSED FL 72766 STATE OF FLORIDA PROFESSIONAL ENGINEER

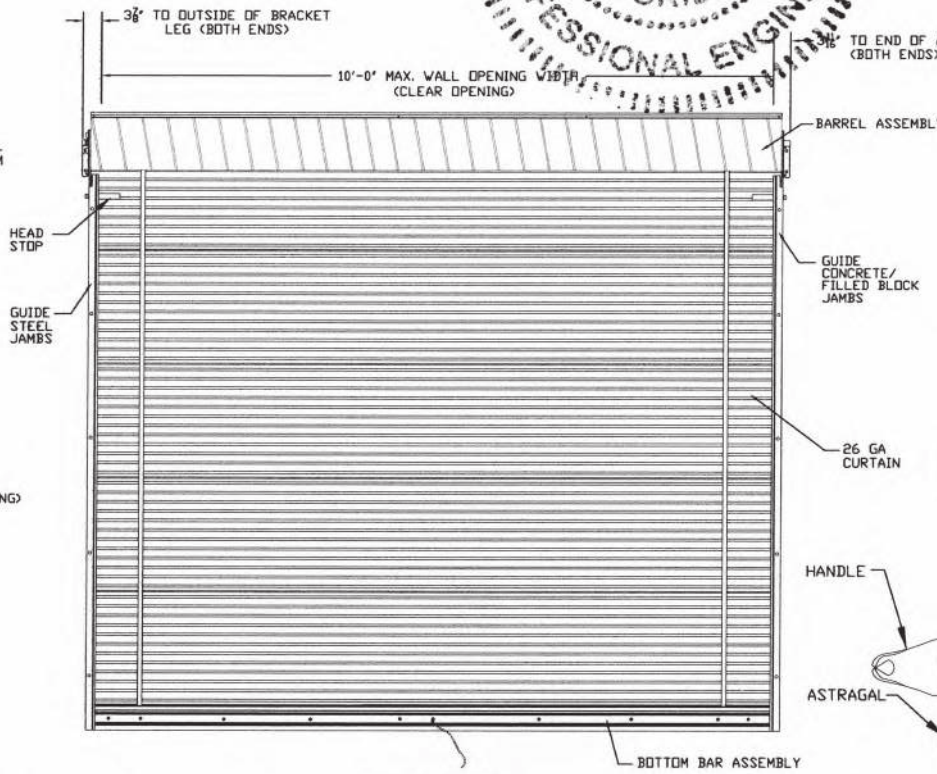
JOSEPH H. DIXON, JR. LICENSE No. 7788 STATE OF FLORIDA PROFESSIONAL ENGINEER

2/16/12

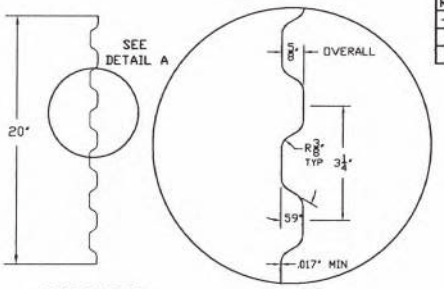
REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
—	DRAWING RELEASE	11-14-02	DM
A	NOTE REVISIONS	4-16-04	DM
B	NOTE REVISIONS	6-17-09	CS



SIDE VIEW



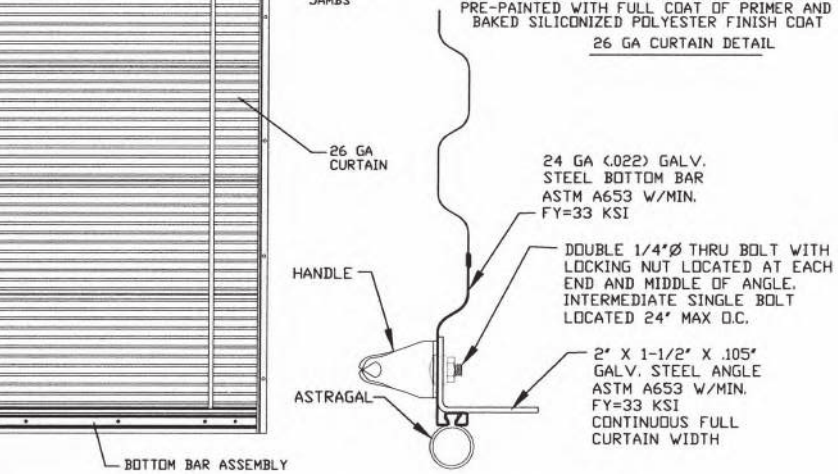
INSIDE ELEVATION



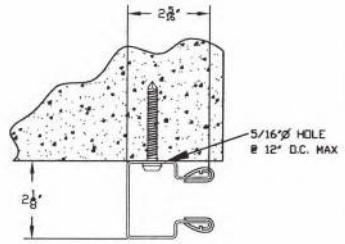
CURTAIN PANEL — DETAIL A

ASTM A653 GR 80 ZINC COATED STEEL PRE-PAINTED WITH FULL COAT OF PRIMER AND BAKED SILICONIZED POLYESTER FINISH COAT

26 GA CURTAIN DETAIL

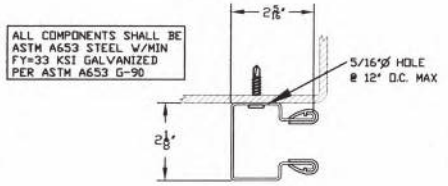


BOTTOM BAR ASSEMBLY



CONCRETE/FILLED BLOCK JAMBS

USING 5/16" X 2-1/4" TAPCON XL



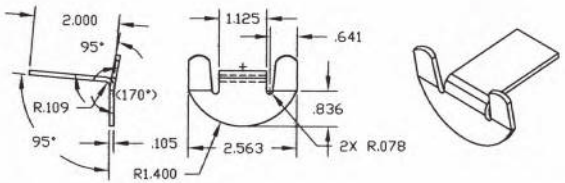
STEEL JAMBS

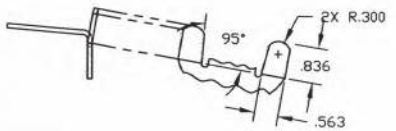
USING #12-14 X 1" TEKS PANCAKE HEAD

16 GA (.063) GUIDE MOUNTING DETAIL

OPENING HEIGHT	VERTICAL HEADROOM	HORIZONTAL HEADROOM
THRU 7'-4"	15-1/2"	17-1/2"
OVER 7'-4" THRU 8'-8"	16"	18"
OVER 8'-8" THRU 10'-0"	17"	18-1/4"

HEADROOM REQUIRED





WINDLOCK
GALV. STEEL, ASTM A653 WITH MIN. FY=33KSI

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 -.003 .251 to .500 +.006 -.003 OVER .500 +.008 -.003

PART NUMBER:	
MATERIAL:	
APPLIED FINISH:	
UNIT OF MEASURE:	

APPROVALS	DATE
DRAWN: BECKY NELSON	11-14-02
CHECKED: DON MILLS	11-14-02
APPROVED: DON MILLS	11-14-02

JANUS INTERNATIONAL CORPORATION

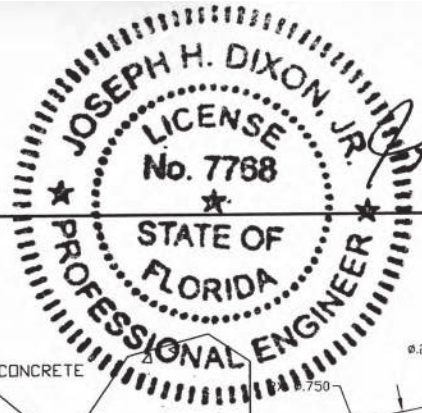
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179

770-562-2850/Fax 770-562-2264

CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 10'-0" X 12'-0"

SIZE	DRAWING NUMBER	REV
B	T1003	B

SCALE: NONE SHEET: 1 OF: 2



2/16/12

REVISIONS			
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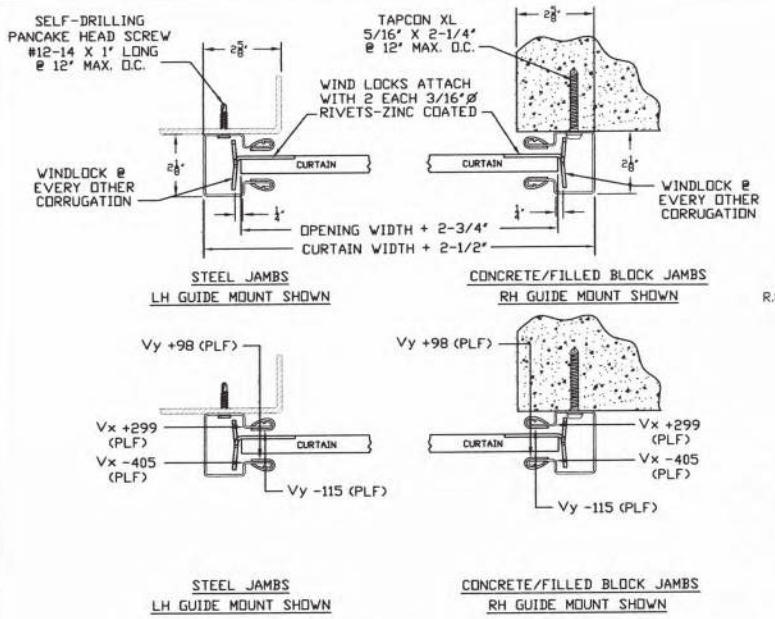
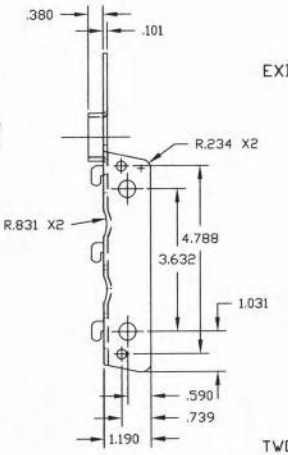
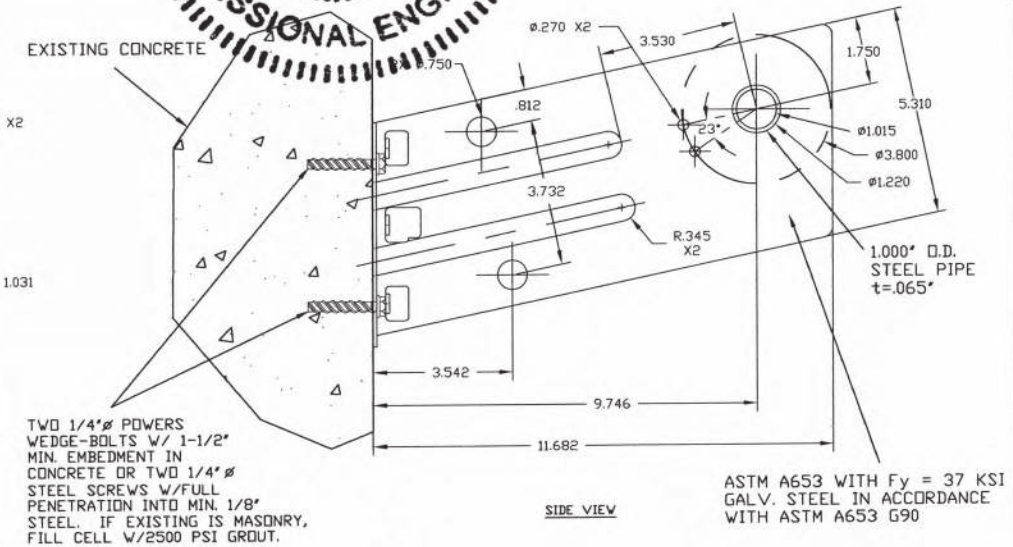


SUPERIMPOSED LOAD DIAGRAM



REAR VIEW



SIDE VIEW

DOOR MOUNTING BRACKET DETAIL

GENERAL NOTES

1. THIS ROLL-UP DOOR SYSTEM IS DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
2. THIS ROLL-UP DOOR HAS BEEN TESTED IN ACCORDANCE WITH ASTM E-330 AND COMPLIES WITH ANSI/DASMA 108.

   DESIGN LOAD = $^{+19.4}_{-22.7}$ PSF

3. WIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE WIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHERE THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING.
4. SUPERIMPOSED LOADS ON THE JAMBS FROM THIS DOOR ARE DESIGNED AS Vx AND Vy HEREIN. CONTRACTORS SHALL HAVE BUILDING ENGINEER VERIFY ADEQUACY OF BUILDING STRUCTURE TO RESIST SUPERIMPOSED LOADS Vx, Vy AND BRACKET LOADS SHOWN.
5. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S. A5.1 GRADE E-70.
6. DOORS SHALL BE PROVIDED WITH LOCK MECHANISMS AT THE OPTION OF THE OWNER.
7. ALL BOLTS AND WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL WITH A MINIMUM TENSILE STRENGTH OF 60 KSI.
8. DESIGN BASED ON CERTIFIED TESTING LABORATORIES, INC., TEST REPORT NO. CTLA - 983W-3
9. ANCHOR NOTES:
   A. EMBEDMENT LENGTH DOES NOT INCLUDE STUCCO FINISH.
   B. FOR HOLLOW MASONRY, FILL ALL CELLS @ ANCHOR WITH 2500 PSI GROUT.
   C. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
10. DOOR OPERATION TYPE TO BE PUSH-UP.
11. GUIDE TO JAMB ATTACHMENT FASTENERS BEGIN 4" FROM FLOOR AND END 3-1/2" BELOW TOP OF WALL OPENING.
12. TEST DOOR WALL OPENING SIZE: 10'-0" x 8'-0".

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE:

DECIMAL	FRACTIONS	ANGLES	HOLE DIAMETERS
.XX ±.03 .XXX ±.005	± 1/16	± 0° 30'	UNDER .251 +.004 -.003 .251 to .500 +.006 -.003 OVER .500 +.008 -.003

PART NUMBER:		
MATERIAL:		
APPLIED FINISH:		
UNIT OF MEASURE:		
APPROVALS		DATE
DRAWN: BECKY NELSON		11-14-02
CHECKED: DON MILLS		11-14-02
APPROVED: DON MILLS		11-14-02

JANUS INTERNATIONAL CORPORATION
134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179
770-562-2850/Fax 770-562-2264

CERTIFIED WIND LOAD RATED
26 GA SERIES 750 DOOR ASSEMBLY
MAX. SIZE 10'-0" X 12'-0"

SIZE	DRAWING NUMBER:	REV:
B	T1003	B

SCALE:		SHEET: 2 OF: 2
NONE		