

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

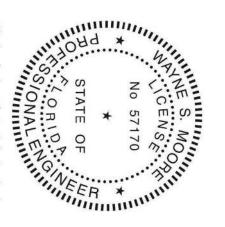
Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue North Augusta, SC 29841

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





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	DATE: 3-2-21 S	LAKI 30'-0"x20'-0"	BEST N 484 I	Printed copic considered s signature mu copies.	This item ha sealed by W. using a Digit	HOHd *		
1	SCALE: NTS JDB ND: 19294S/ 21025S	LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE	METAL BUILDINGS, LLC NW TURNER AVENUE	Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.	SONAL ENGINEERS ON ALEMAN IN THIS item has been electronically signed and sealed by Wayne S. Moore, PE. using a Digital Signature and date.	No 57170 * * * * * * * * * * * * * * * * * *		

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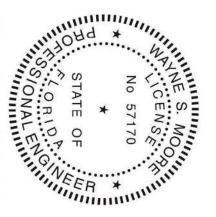
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- SHEET CONNECTION DETAILS
- SHEET 1 ω $B\square X$ EAVE RAFTER LEAN-TO **OPTIONS**
- SHEET 13A BUX EAVE RAFTER LEAN-TO OPTIONS
- SHEET 14 $B\square \bigvee$ RAFTER LEAN-TO OPTIONS
- SHEET 14A BOW RAFTER LEAN-TO OPTIONS
- SHEET 15 EAVE RAFTER EXTRA SIDE PANEL **DPTIONS**
- SHEET 16 RAFTER EXTRA SIDE PANEL OPTIONS
- EAVE RAFTER VERTICAL ROOF OPTION



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CLIENT: BMB	PROJECT MGRI WSM		CHECKED BY: PDH		DRAWN BYI JG	
SHT. 2	DATE: 3-2-21 SCALE: NTS 21025S		30'-0"x20'-	LA	48	は出る
DWG, NO: SK-1 REV.: 1	SCALE: NTS		30'-0"x20'-0" SP FULLY OPEN STRUCTURE	LAKE CITY, FLORIDA 32055	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	JOB NO: 19294S/ 21025S	OF COMPANY OF STREET,	N STRUCTURE	DA 32055	VENUE	INGS, LLC

INSTALLATION NOTES AND SPECIFICATIONS

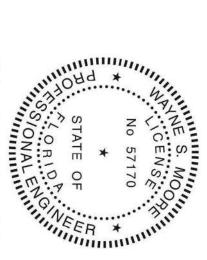
- DESIGN IS FOR MAXIMUM 30'-0' WIDE x 20'-0' EAVE HEIGHT OPEN CARPORT STRUCTURES.
- 'nώ DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2015 IBC, AND 2012 IBC
- DESIGN LUADS ARE AS FULLOWS
- DEAD LOAD
- C) GROUND SNOW LOAD = 1.5 PSF = 10 PSF (UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED).
- 4 LOV ULTIMATE WIND SPEED (LW) = $105\ TO\ 140\ MPH$ (NOMINAL SPACING = $5.0\ FEET.$ WIND SPEED = 81 TO 108 MPHD: MAXIMUM RAFTER/POST AND END COLUMN
- HIGH ULTIMATE WIND SPEED (HW) = 141 TO 170 MPH (NOMINAL WIND SPEED = 109 TO 132 SPACING = 4.0 FEET. MPH): MAXIMUM RAFTER/POST AND END COLUMN
- END WALL COLUMNS (POST) ARE EQUIVALENT IN SIZE AND SPACING TO SIDE WALL POSTS (UNLESS NOTED OTHERWISE)
- RISK CATEGORY I.
- WIND EXPOSURE CATEGORY B.
- 9 SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY FRAMING MEMBERS (UNLESS NOTED OTHERWISE). WHERE TS 2 $1/2^*\times2$ $1/2^*-12$ GAUGE MAY BE USED AS AN OPTION. TO 2 1/2"x2 14 GAUGE IS 1/2"-14 GAUGE TUBE STEEL (TS) SPECIFIED, TS 2 1/4" × 2 1/4"
- 10. AVERAGE FASTENER SPACING DN-CENTERS ALDNG RAFTERS DR HAT CHANNELS, AND COLUMNS (INTERIOR DISTANCE OR EDGE DISTANCE) = 10° D.C. (MAX.) FOR LOV VIND AND 6° D.C. (MAX.) FOR HIGH WIND.
- Ε FASTENERS CONSIST OF #12-14×3/4' SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL VASHER VITH 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.
- ī 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 × 36' LONG IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS & 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 ARES SOIL SITE CLASS = D RISK CATEGORY I

S_{DS}= 2.039 g S_{DI}= 1.258 g

R= 3.25 Sps= 2.0

 $I_E=1.0$ V= C_SW



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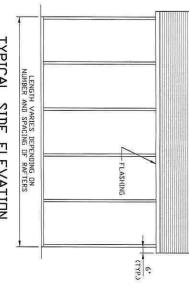
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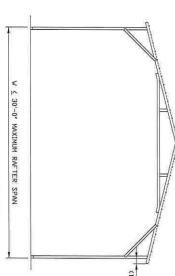
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	REV. 1	JOB NO: 19294S/ 21025S	N STRUCTURE	VENUE	

BOX EAVE FRAME RAFTER STRUCTURE

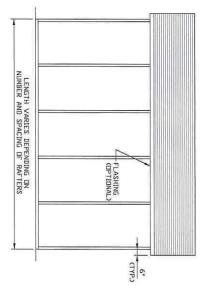


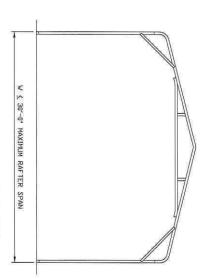


TYPICAL SIDE ELEVATION

TYPICAL END ELEVATION

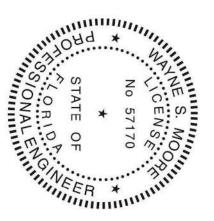
BOW FRAME RAFTER STRUCTURE





TYPICAL END ELEVATION
SCALE: NTS

TYPICAL SIDE ELEVATION



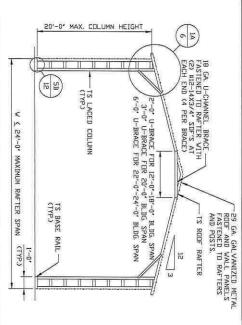
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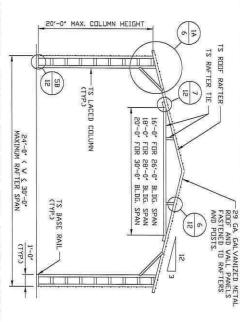
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	REV. 1	210258	JDB ND: 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	IDA 32055	AVENUE	JINGS, LLC



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS 16'-0" MAX. COLUMN HEIGHT (\$ E IB GA, U-CHANNEL BRACE — FASTENED TO RAFTER WITH (2) #12-14X3/4' SDF'S AT EACH END (4 PER BRACE) 15 P CTYP.) 2'-0' U-BRACE FOR 20'-0' BLDG. SPAN
6'-0' U-BRACE FOR 20'-0' BLDG. SPAN ≤ 24'-0' MAXIMUM RAFTER SPAN TS BASE RAIL 29 GA. GALVANIZED METAL ROOF PANELS FASTENED TO RAFTERS. TS ROOF RAFTER



TYPICAL RAFTER/COLUMN END FRAME SECTION

TYPICAL SCALE: NTS 16'-0' MAX. COLUMN HEIGHT (8 B) 15 SA TS DOUBLE COLUMN (10) 24'-0' < ₩ < 30'-0' MAXIMUM RAFTER SPAN 16'-0' 무무무 30, 58, 29 GA. GALVANIZED METAL ROOF FASTENED TO RAFTERS. 000 TS RAFTER TIE BLDG, SPAN BLDG, SPAN BLDG, SPAN TS ROOF TS BASE RAIL (TYP.) 15 6 RAFTER SECTION L PANELS

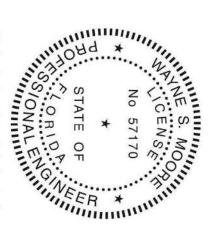
RAFTER/COLUMN END FRAME

SCALE: NTS

SCALE: NTS TYPICAL

RAFTER/COLUMN END FRAME

SECTION



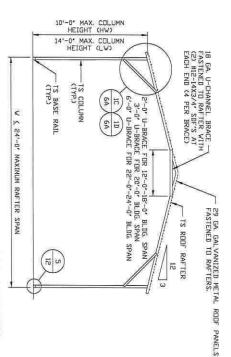
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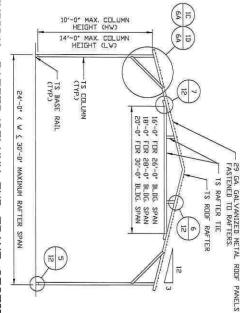
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DWG, NO SK-1	SCALE: NTS	0" SP FULLY OF	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE
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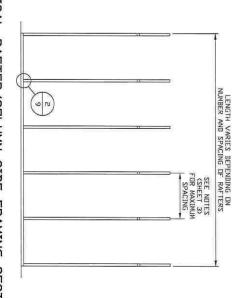
TYPICAL SCALE: NTS RAFTER/COLUMN END FRAME SECTION



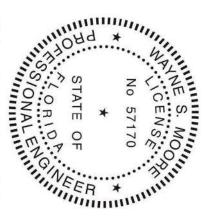
ROOF

PANELS

TYPICAL SCALE: NTS RAFTER/COLUMN END FRAME SECTION



TYPICAL SCALE: NTS RAFTER/COLUMN SIDE FRAMING SECTION



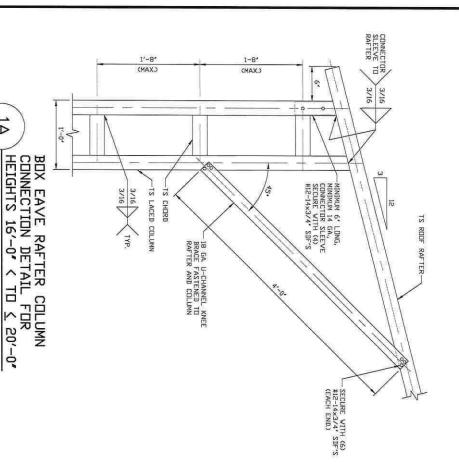
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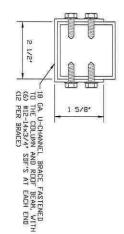
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DWG. NO SK-1	1	SP FULLY OPE	484 NW TURNER AVENUE
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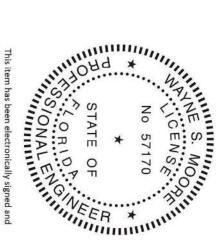


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SCALE: NTS

T□ ≤ 20'-0"

BRACE SECTION
SCALE NTS



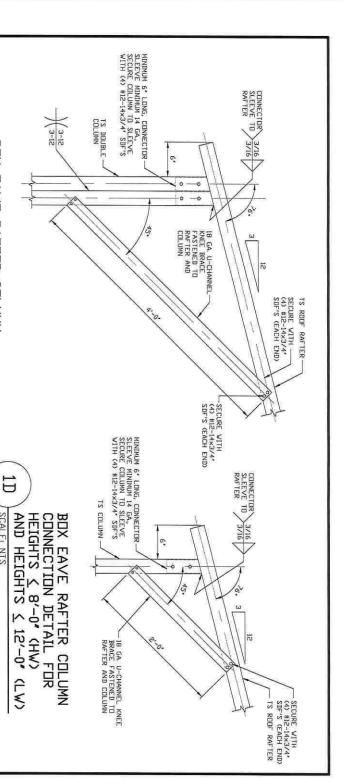
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BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO < 16'-C AND HEIGHTS 14'-0" < TO < SCALE: NTS (LW)

SCALE: NTS

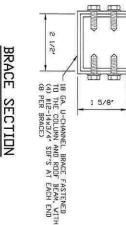
1 B ≤ 16'-0" (HW)

← T□ ≤ 16'-0"

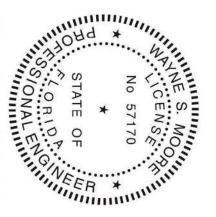
MINIMUM 6' LONG, CONNECTOR SLEEVE MINIMUM 14 GA. SECURE COLUMN TO SLEEVE WITH (4) #12-14x3/4' SDF'S SLEEVE TO 3/16
RAFTER 3/16 TS COLUMN 6 -0-SECURE WITH (4) #12-14×3/4'
SDF'S (EACH END) TS ROOF RAFTER

AND BOX EAVE RAFTER (CONNECTION DETAIL HEIGHTS 8'-0" < TO HEIGHTS 12'-0" RAFTER COLUMN N DETAIL FOR 14'-0" **YH** £\ S

10 SCALE: NTS



SCALE: NTS



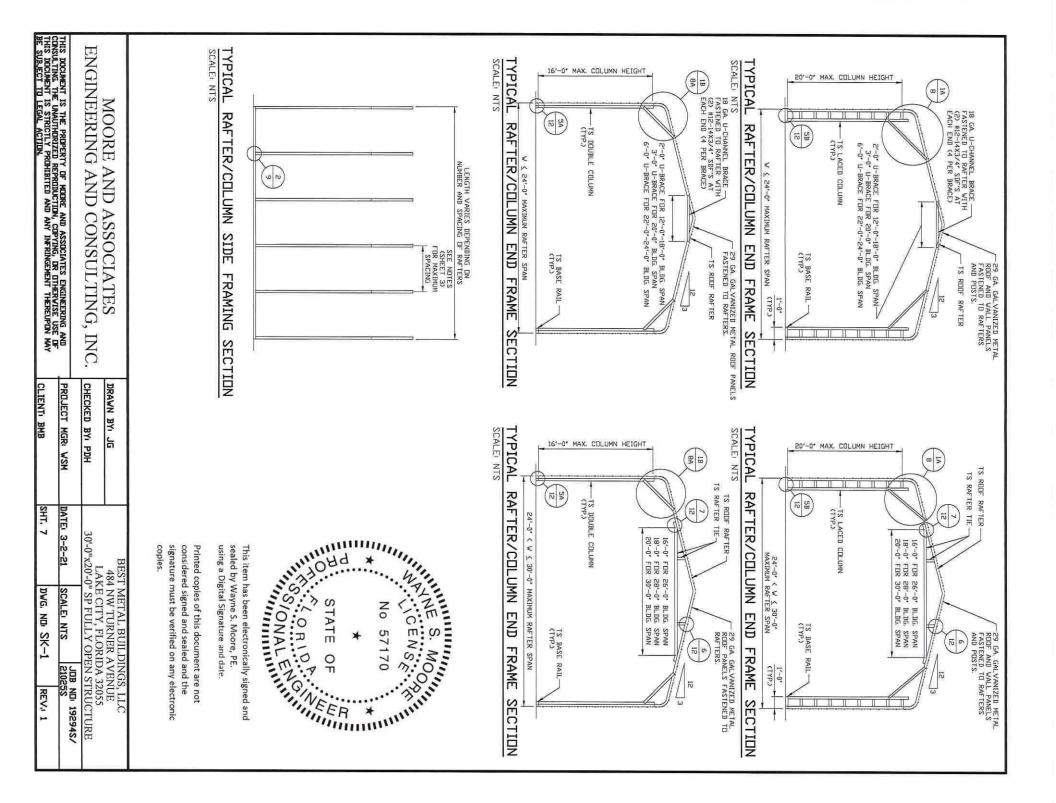
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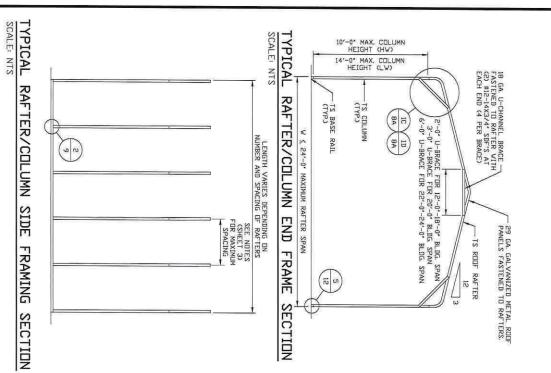
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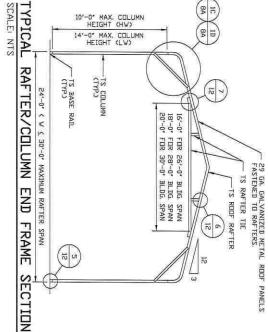
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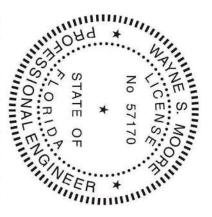
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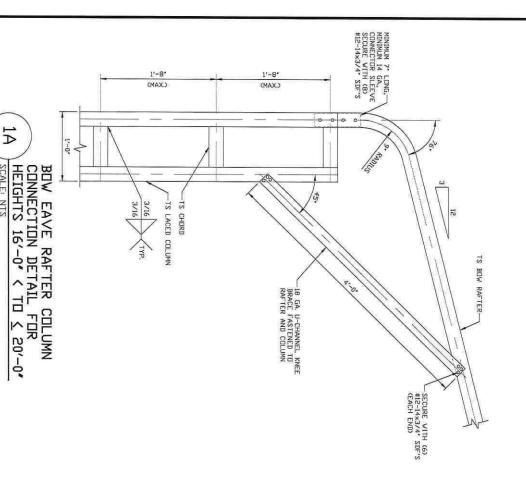
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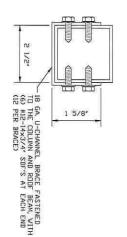
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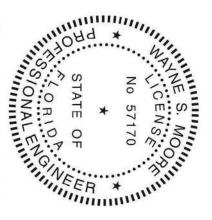
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DWG. NO SK-1	SCALE: NTS		0" SP FULLY OP	KE CITY, FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	210258	JOB NO 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	DA 32055	AVENUE	JINGS, LLC





SCALE: NTS

BRACE SECTION
SCALE NTS



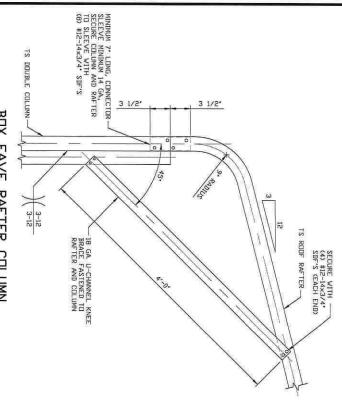
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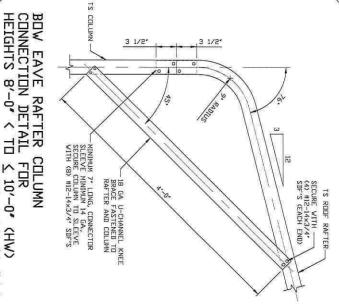
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CLIENT: BMB	PROJECT MGR: WSM		CHECKED BY: PDH		DRAWN BYI JG	
SHT. B	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-	LA	48	515
DWG, ND SK-1	i i		0" SP FULLY OP	KE CITY, FLORI	484 NW TURNER AVENUE	TATO DO LOTE
REV. 1	210258	IDB ND 1929487	EN STRUCTURE	LAKE CITY, FLORIDA 32055	AVENUE	ארוועט, דדר



BOX EAVE RAFTER CONNECTION DETAIL HEIGHTS 10'-0" < TI HEIGHTS 0" < TE CELUMN 급 16'-0" 16'-0" C S

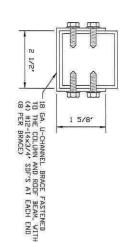
1B



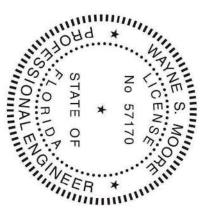
TS COLUMN 3 1/2* 3 1/2" TS ROOF RAFTER-SECURE WITH — (4) #12-14×3/4* SDF'S (EACH END) 15 — MINIMUM 7' LONG, CONNECTOR
SLEEVE MINIMUM 14 GA.,
SECURE COLUMN AND RAFTER
TO SLEEVE WITH
(8) #12-14×3/4' SDF'S 18 GA, U-CHANNEL KNEE BRACE FASTENED TO RAFTER AND COLUMN w

BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS & 8'-0" (HW) AND HEIGHTS & 12'-0" (LW) SCALE: NTS

11



RRACE SECTION



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NTS

AND HEIGHTS 12'-0"

≤ 10'-0" (HW)
< T□ ≤ 14'-0"</p>

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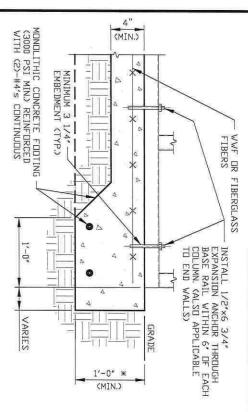
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Maria Cara Cara Cara Cara Cara Cara Cara	CLIENT: BMB	PROJECT MGRI WSM		CHECKED BY: PDH		DRAWN BY: JG	
	SHT. BA	DATE: 3-2-21		30'-0"x20'-	IA	48	BES
	DWG, ND; SK-1	SCALE: NTS		30'-0"x20'-0" SP FULLY OPEN STRUCTURE	KECITY FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
	REV. 1	210258	JOB NO: 19294S/	EN STRUCTURE	DA 32055	AVENUE	DINGS, LLC
		1					

BASE RAIL ANCHORAGE OPTIONS



BASE RAIL SCALE NTS MONOLITHIC ANCHURAGE SLAB

2A

MINIMUM ANCHUR EDGE DISTANCE IS

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

SOIL GENERAL NOTES BEARING CAPACITY OF 1,500 PSF. DN MINIMUM

CONCRETE

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

COVER OVER REINFORCING STEEL

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

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.

SHOP OR THE FIELD PROVIDED: BENT IN 計

- REINFORCEMENT IS BENT COLD.

 THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.

 REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL
- BE FIELD BENT NOT

HELIX ANCHOR NOTES

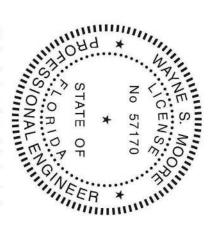
- I. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELICADED SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 'n FOR CORAL USE MINIMUM (2) 4' HELICES WITH MINIMUM 30' EMBEDMENT OR SINGLE 6' HELIX WITH MINIMUM 50' EMBEDMENT.
- ω 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 EMBEDMENT.
- 4 FOR LODSE TO MEDIUM DENSE SANDS, FIRM SILTS ALLUVIAL FILL, USE MINIMUM (2) 6'50' EMBEDMENT. TO STIFF CLAYS AND HELICES WITH MINIMUM
- Ò FOR VERY LODSE TO MEDIUM DENSE SANDS, FIRM CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM WITH MINIMUM 60° EMBEDMENT. 69 8" HELICES

(SEE NOTES BELOW) TS CONTINUOUS BASE RAIL DRILL 5/8" DIAMETER HOLE — THROUGH THE BASE RAIL AND SECURE TO ANCHOR EYE WITH 1/2" DIAMETER THROUGH BOLT WASHERS - TOP OF ASPHALT PAVEMENT OR GROUND SURFACE

GROUND BASE (CAN HELIX. ANCHURAGE

B

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



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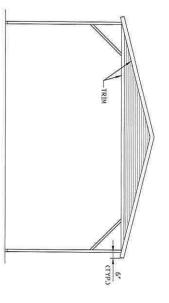
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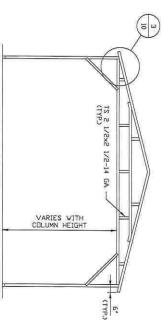
LIENT BMB	ROJECT MGR: WSM	НЕСКЕВ ВУ РВН	RAWN BY: JG
SHT. 9	DATE: 3-2-21	LAI 30'-0"x20'-(484 484
DWG. NO SK-1	SCALE: NTS	KE CITY, FLORI)" SP FULLY OPI	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE
	"	[1]	

BOX EAVE RAFTER GABLE END OPTION



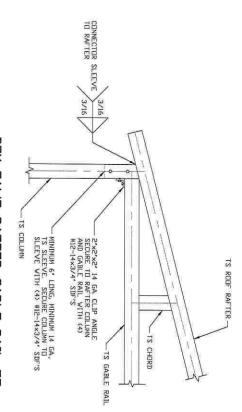
TYPICAL BOX EAVE RAFTER GABLE END ELEVATION

SCALE: NTS



TYPICAL BOX EAVE RAFTER GABLE END FRAMING SECTION

SCALE: NTS

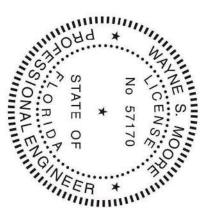


BOX EAVE RAFTER GABLE RAIL TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

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NOTE: KNEE BRACE NOT SHOWN FOR CLARITY



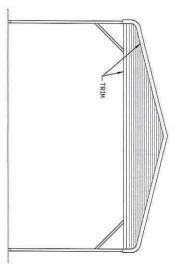
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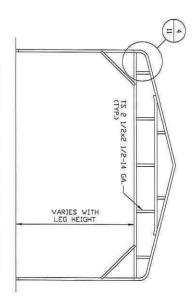
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CLIENT: BMB	PROJECT MGR: WSM	СНЕСКЕВ ВУ: РВН	DRAWN BY: JG
SHT. 10	DATE: 3-2-21 SCALE: N	LA 30'-0''x20'	BES 41
DWG, ND: SK-1	SCALE: NTS	LAKE CITY, FLORIDA 320 30'-0"x20'-0" SP FULLY OPEN STR	BEST METAL BUILDINGS, I 484 NW TURNER AVENUI
REV. 1	JOB NO: 19294S/ 21025S	NA 32055 N STRUCTURE	VENUE

BOW RAFTER GABLE END OPTION

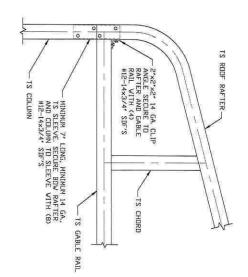


TYPICAL BOW RAFTER GABLE END ELEVATION

SCALE: NTS



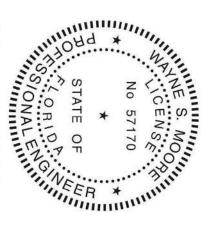
TYPICAL BOW RAFTER SECTION GABLE



BOW RAFTER GABLE RAIL TO RAFTER/COLUMN CONNECTION SCALE NTS DETAIL

4

NOTE: KNEE BRACE NOT SHOWN FOR CLARITY



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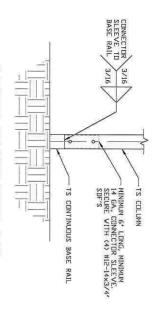
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CLIENT: BMB	PROJECT MGR: WSM		CHECKED BY: PDH		DRAWN BY: JG	
SHT. 11	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-(LA	48	BEST
DWG. NO SK-1			30'-0"x20'-0" SP FULLY OPEN STRUCTURE	LAKE CITY, FLORIDA 32055	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	21025S	ומה אות. מססמה	EN STRUCTURE	DA 32055	VVENUE	INGS, LLC

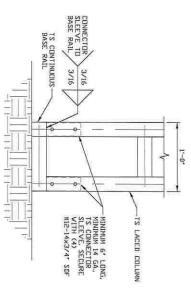
CONNECTION DETAILS



RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

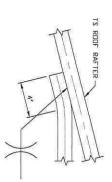
SCALE: NTS

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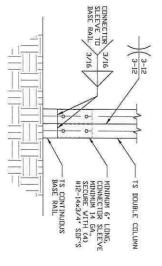
RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

5B CLINNEC



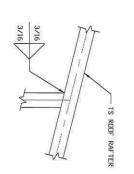
7 CONNECTION DETAIL

SCALE NES



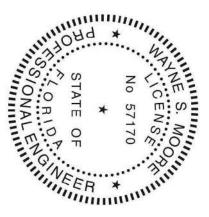
RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

5A) SCALE: NTS



RAFTER TO CHORD CONNECTION DETAIL

SCALE NTS



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CLIENT: BMB	PROJECT MGR: WSM	СНЕСКЕВ ВУ РВН	DRAWN BY: JG		
SHT. 12	DATE: 3-2-21	30'-0"x20'-	BES:		
DWG, ND; SK-1	SCALE: NTS	0" SP FULLY OP	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE		
REV, 1	JDB ND: 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE		

12 5 (6 -SHEET 13 & 1 FOR MAX. EAN-TO SPAN EXTENSION OPTION 13 13A 13A BOX EAVE RAFTER 8 13A (s 9 10 30'-0' MAXIMUM RAFTER SPAN MAIN STRUCTURE LEAN-TO OPTIONS 15 5 9 13A 10 E SEE SHEET 13A FOR MAX. LEAN-TO SPAN LEAN-TO OPTIO F2 05 9 0

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

LACED COLUMNS

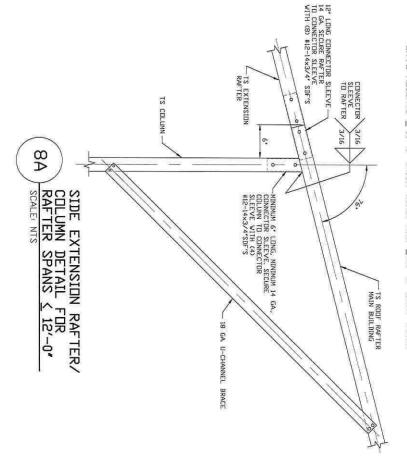
SCALE: NTS

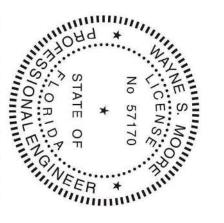
(MAXIMUM VIDTH OF SINGLE MEMBER ROOF EXTENSION LEAN-TO IS 12'-0')

(MAXIMUM VIDTH OF DOUBLE MEMBER ROOF EXTENSION LEAN-TO IS 16'-0')

(MAXIMUM VIDTH OF DOUBLE MEMBER ROOF EXTENSION ATTACHED ARE REQUIRED TO BE MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE EAVE HEIGHTS 10'-0' (TO \(\left \) 6'-0' (HIGH WIND) AND 14'-0' (TO \(\left \) 16'-0' (LOW WIND).

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE EAVE HEIGHTS 10'-0' (HIGH WIND) AND \(\left \) 14'-0' (LOW WIND). SINGLE COLUMNS FOR DOUBLE COLUMNS





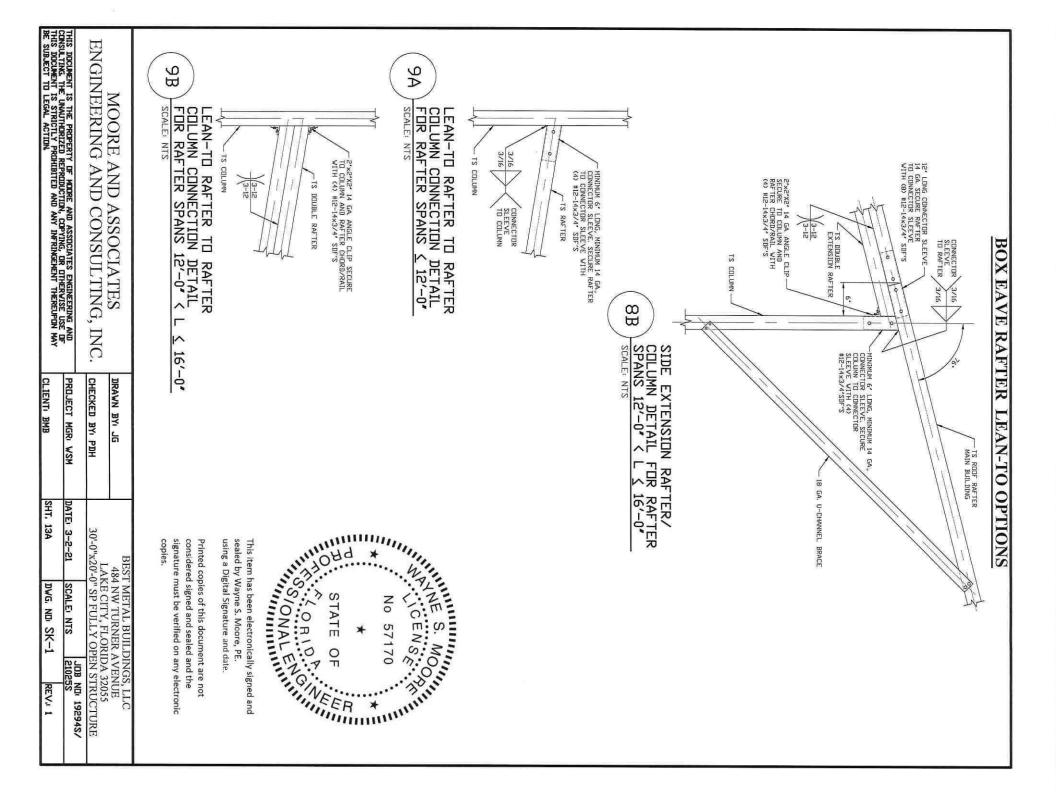
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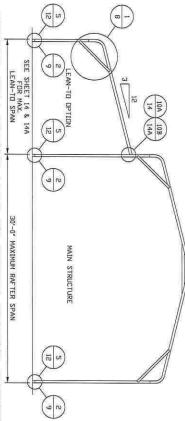
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CLIENT: BMB	PROJECT MGR: WSM	CHECKED BY: PDH	DRAWN BY: JG
SHT. 13	DATE: 3-2-21 SCALE: NTS	30'-0"x20'-	48 48
DWG. NO SK-1	ľ	0" SP FULLY OF	484 NW TURNER AVENUE
REV. 1	JDB ND: 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE



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 16'-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'.

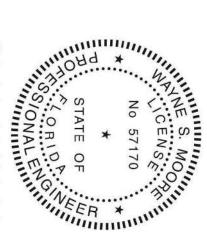
MAIN BUILDING COLUMNS FOR EAVE HEIGHTS 10'-0' < TO < 16'-0' < HIGH WIND) AND 14'-0' < TO < 16'-0' < LOW WIND).

MAIN BUILDING COLUMNS FOR EAVE HEIGHTS 10'-0' < HIGH WIND) AND < 14'-0' < TO < 15'-0' < LOW WIND).

MAIN BUILDING COLUMNS FOR EAVE HEIGHTS (10'-0' < HIGH WIND) AND < 14'-0' < LOW WIND). WIND).

MINIMUM 7' LDNG, MINIMUM 14 GA,— CONNECTOR SLEEVE SECURE ROOF RAFTER AND COLUMN TO CONNECTOR WITH (8) #12-14×3/4' SDF'S MINIMUM 6' LIDNG, MINIMUM—
14 GA, CONNECTOR SLEEVE
SECURE RAFTER TO
CONNECTOR SLEEVE WITH
(4) #12-14×3/4' SDF'S CONNECTOR SLEEVE TO COLUMN TS RAFTER 3/16 3/16 TS COLUMN 3 1/2*

10A LEAN-TO RAFTER TO COLUMN CONNECTION FOR RAFTER SPANS SCALE: NIS ✓ 12'-0" RAFTER



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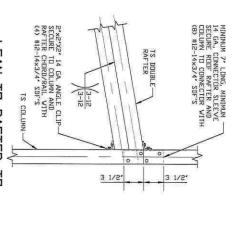
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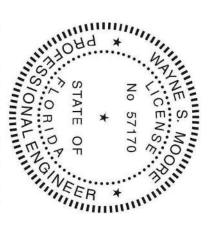
RING AND	G, INC.	J 2
PROJECT MGR: WSM	CHECKED BY: PDH	DRAWN BY: JG
DATE: 3-2-21	30'-0"x20'	BES
SCALE: NTS	-0" SP FULLY O	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE
JDB ND: 19294S/ 21025S	PEN STRUCTURE	AVENUE
	PROJECT MGR: WSM DATE: 3-2-21 SCALE: NTS	C. CHECKED BY: PDH 30'-0"x20'-0" SP FULLY OF PROJECT MGR: WSM DATE: 3-2-21 SCALE: NTS

BOW RAFTER LEAN-TO OPTIONS



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

10B



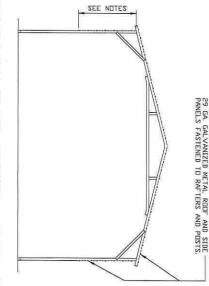
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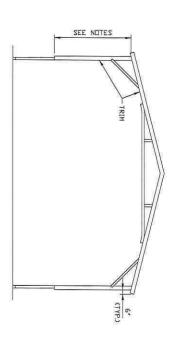
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CLIENT: BMB	PROJECT MGR. WSM DATE: 3-2-21 SCALE: NTS 21025S	СНЕСКЕВ ВУ: РВН	DRAWN BY: JG
SHT. 14A	DATE: 3-2-21	30'-0"x20'	BES 4
DWG, ND: SK-1 REV. 1	SCALE: NTS	130'-0"x20'-0" SP FULLY OPEN STRUCTURE	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	EN STRUCTURE	AVENUE

BOX EAVE RAFTER **EXTRA SIDE PANEL OPTIONS**



TYPICAL RAFTER/COLUMN FRAME SECTION 1 EXTRA SIDE PANELS

SCALE: NTS



NOTES

- (<u>LW)</u>:

 * 3'-0' MAX, (FOR EAVE HEIGHT ≤ 12'-0')

 * NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"

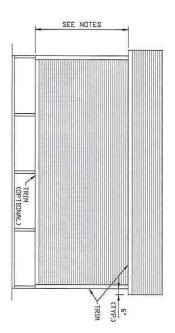
 * 16'-0" MAX, (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")

 * 20'-0" MAX, (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")

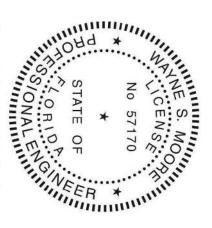
- H < 14′-0"
- (HW):
 * 3'-0' MAX. (FOR EAVE HEIGHT \(\) 12'-0'\)
 * NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0' < 1
 * 9'-0' MAX. (FOR EAVE HEIGHT 14'-0' < TO \(\) 16'-0'\)
 * 20'-0' MAX. (FOR EAVE HEIGHT 16'-0' < TO \(\) 20'-0'\)</pre>

TYPICAL END ELEVATION EXTRA SIDE PANELS

SCALE: NTS



TYPICAL SIDE ELEVATION EXTRA SIDE PANELS



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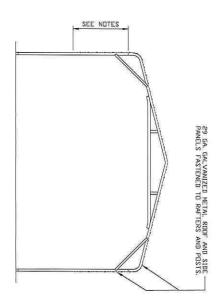
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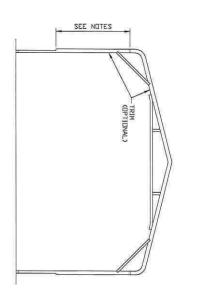
	$\dot{\mathbf{c}}$			
PROJECT MGR: WSM	CHECKED BY PDH	DRAWN BY: JG		
DATE: 3-2-21	30'-0"x20'	BES 4		
SCALE: NTS	-0" SP FULLY OI	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE		
JOB NO 19294S/ 21025S	PEN STRUCTURE	AVENUE		
	DATE: 3-2-21 SCALE: NTS	30'-0"x20'-0" SP FULLY OPI		

BOW RAFTER EXTRA SIDE PANEL OPTIONS



TYPICAL RAFTER/COLUMN FRAME SECTION **EXTRA** SIDE PANELS

SCALE: NTS

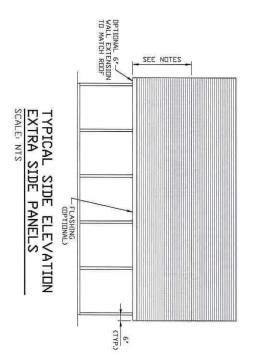


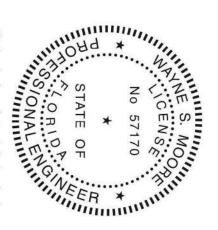
NOTES

- (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")

- (HV):
 * 3'-0' MAX. (FOR EAVE HEIGHT \(\leq \) 12'-0'\
 * NO PANELING ALLOWED FOR EAVE HEIGHTS \(\leq \) 12'-0' \(\tau \) \(\leq \) 14'-0'
 * 9'-0" MAX. (FOR EAVE HEIGHT \(\leq \) 16'-0' \(\tau \) \(\leq \) 20'-0"\)
 * 20'-0" MAX. (FOR EAVE HEIGHT \(\leq \) 16'-0' \(\tau \) \(\leq \) 20'-0"\)

TYPICAL END ELEVATION EXTRA SIDE PANELS SCALE NTS





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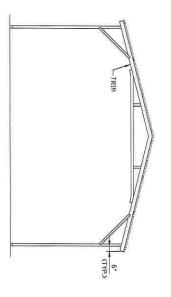
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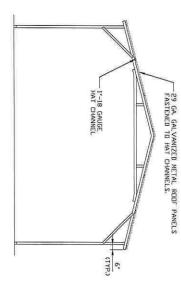
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CLIENT: BMB	PROJECT MGR: WSM		CHECKED BY PDH		DRAWN BY: JG	
SHT. 16	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-1	N.I	48	BES
DWG, ND: SK-1			0" SP FULLY OP	KECITY FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV., 1	210258	JOB NO. 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	IDA 32055	AVENUE	JINGS, LLC

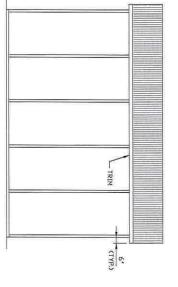
BOX EAVE RAFTER VERTICAL ROOF OPTION



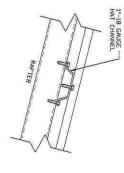
TYPICAL END ELEVATION VERTICAL ROOF



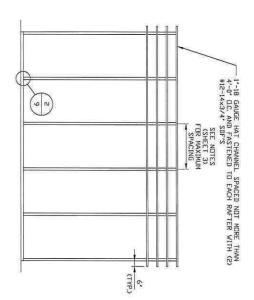
TYPICAL S VERTICAL SCALE: NTS SECTION L ROOF OPTION



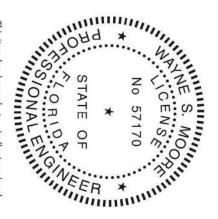
TYPICAL S VERTICAL SCALE: NTS SIDE ELEVATION _ ROOF



PANEL ATTACHMENT
CALTERNATE FOR VERTICAL
SCALE: NTS ROOF PANELS)



TYPICAL FRAMING SECTION VERTICAL ROOF OPTION SCALE NTS



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	INC.					
CLIENT: BMB	דאםטבנין שנאי אטח	מפון ודכיד ערם. נופע	CHECKED BY: PDH		DRAWN BY: JG	
SHT. 17	DAIE 3-2-21		30'-0"x20'-	LA	BES 48	
DWG, ND: SK-1	DATE: 3-2-21 SCALE: NTS SHT. 17 DWG, ND: SK-1		30'-0"x20'-0" SP FULLY OPEN STRUCTURE	KE CITY, FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV, 1	210238	JOB NO 19294S/	EN STRUCTURE	DA 32055	AVENUE	MGS, LLC

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.
- 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

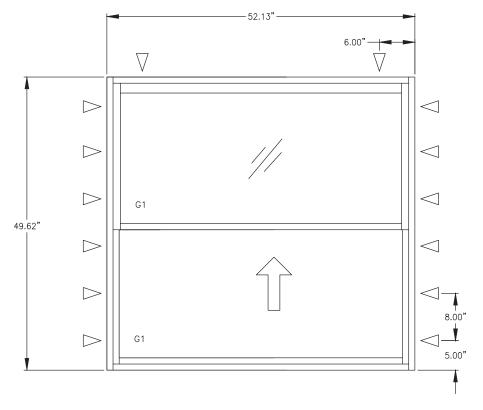
CONTENTS:

Sheet 1 Notes and Elevations Sheets 2-5 Frame Installations Sheet 6 Glazing Details

Sheet Sections and Bill of Materials

Sheet 8 Components

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



717-846-1200

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact Notes and Elevations

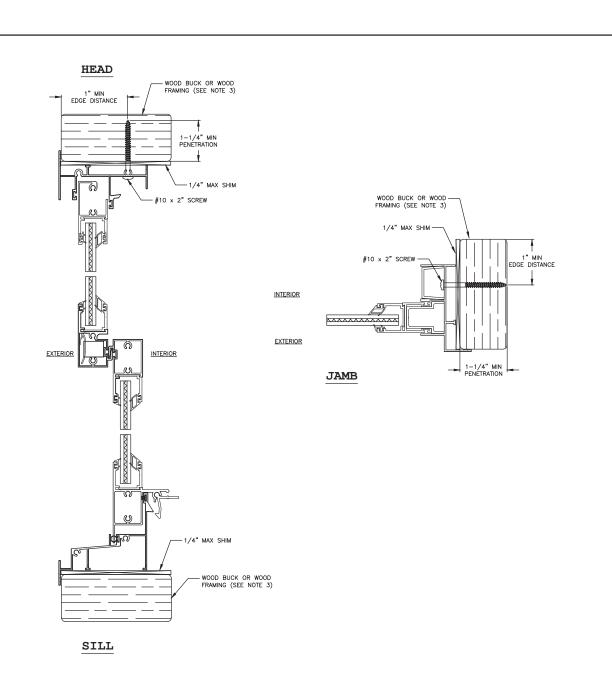
TAFCO Corporation 1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 1 of 8





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

FL PE 58920

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact Through Frame Installations Wood

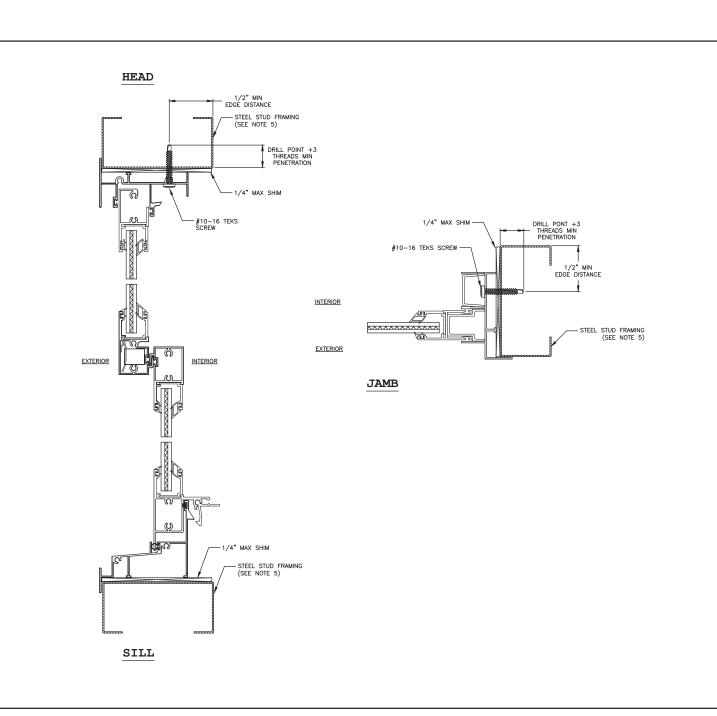
TAFCO Corporation 1953 North 17th Avenue

Melrose Park, IL 60160

Drawing No.: 23824-1-1001 Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 2 of 8





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

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47000 Single Hung - ImpactThrough Frame Installations

Steel Stud

TAFCO Corporation

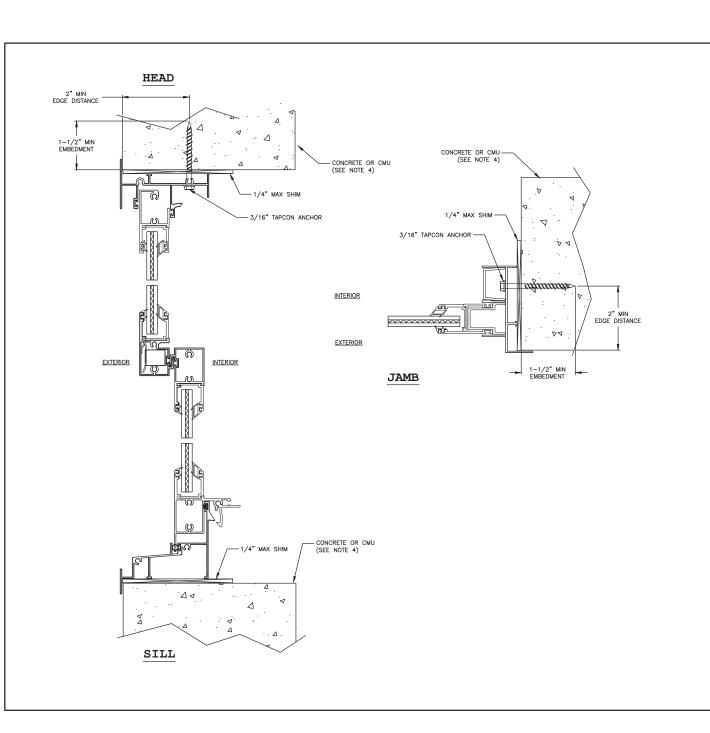
1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 3 of 8





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

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47000 Single Hung - ImpactThrough Frame Installations

Concrete or CMU

TAFCO Corporation 1953 North 17th Avenue

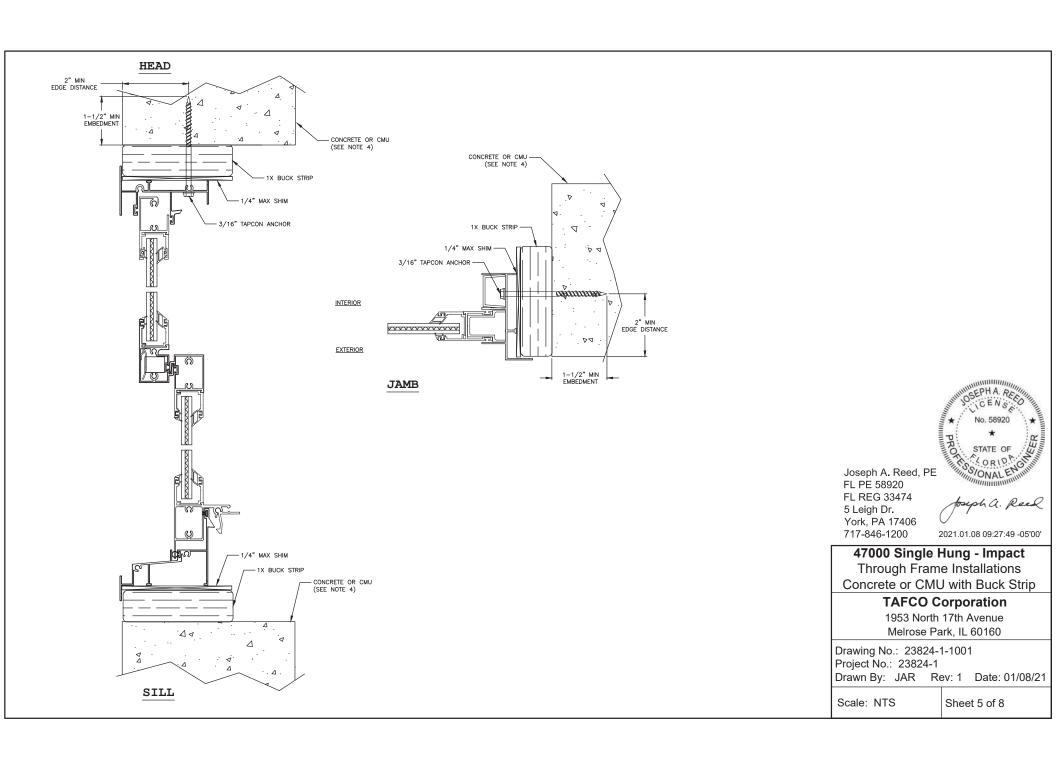
1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

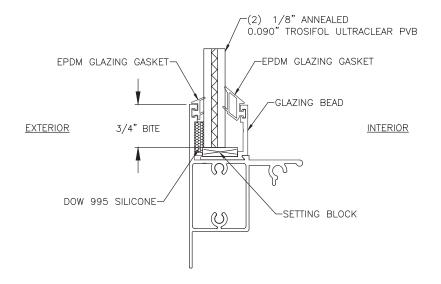
Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 4 of 8



GLAZING DETAIL G1 - LAMINATED GLASS



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47000 Single Hung - Impact Glazing Details

TAFCO Corporation

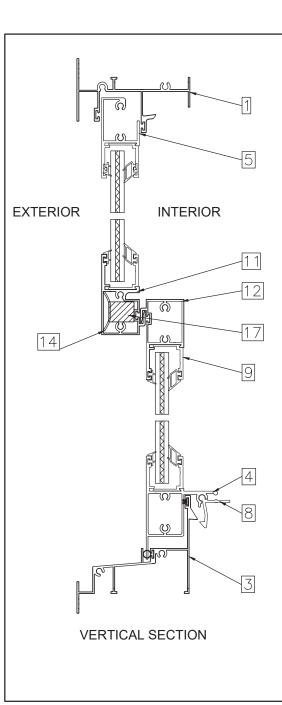
1953 North 17th Avenue Melrose Park, IL 60160

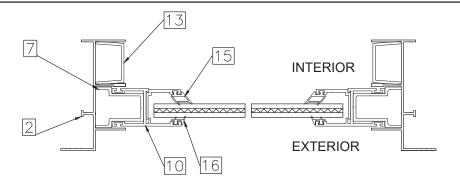
Drawing No.: 23824-1-1001 Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

Sheet 6 of 8

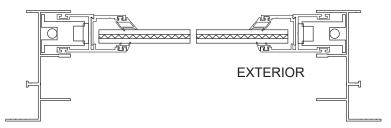




HORIZONTAL SECTION AT TOP SASH

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	Fixed Sash Support 6063-T5		
8	Pinch Lock	Pinch Lock 6063-T5		
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	nforcement Retainer PA6		
15	Wedge Gasket EPDM RUB		EXTRUSION	
16	Wedge Gasket EPDM RUBI		EXTRUSION	
17	1/2" x 5/8" Reinforcement ST		FLAT BAR STOCK	





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				

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

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717-846-1200 2021.01.08 09:27:49 -05'00'

47000 Single Hung - ImpactSections and Bill of Material

TAFCO Corporation

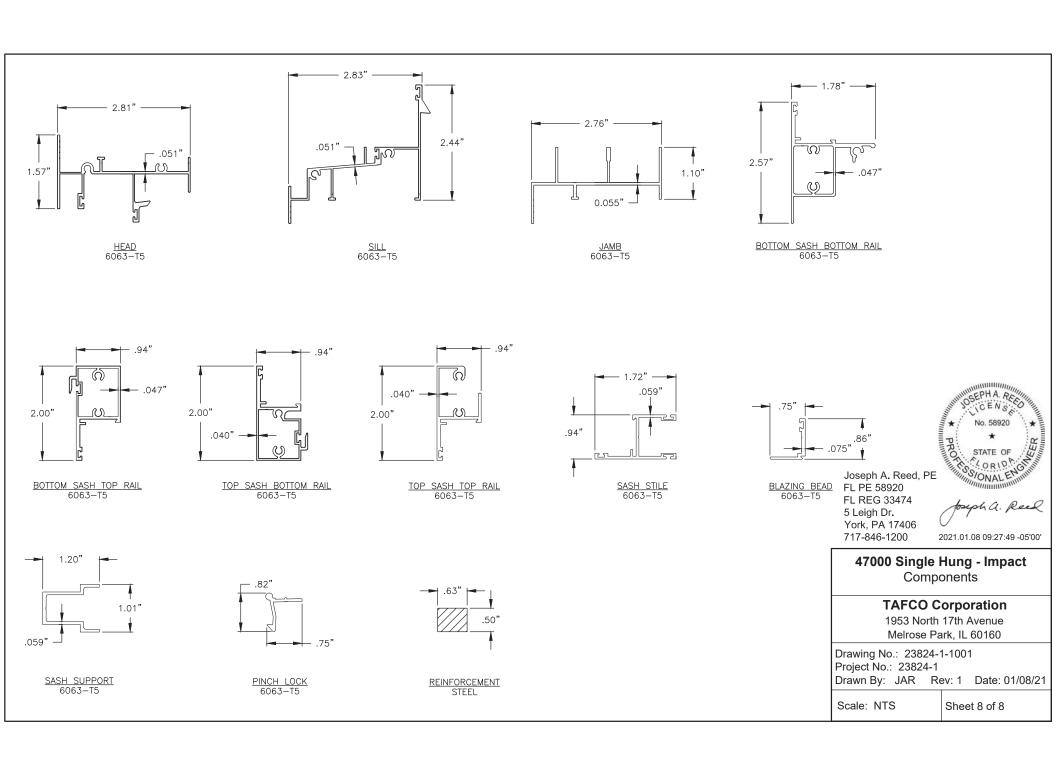
1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 7 of 8





401 S. Main Street

Airy, NC 27030 Suite 200

Phone: (336) 415-3540 Fax: (336) 719-2020

> North Augusta, SC 29841 Phone: (803) 279-7799 Fax: (803) 279-3848 1009 East Avenue

www.MandA-inc.com

15 April 2021

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

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:

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

Certificate of Independence:

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



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:

to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports Structural calculations were performed in accordance with the 2020 FBC, 7th Edition and and attachment fasteners. compared to test results performed under previous FBC given that testing of panel was performed

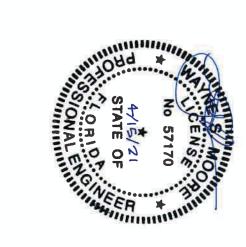
- Maximum allowable design pressure shall be as indicated on plans for each configuration.
- 3 12 This product is for use outside of the High Velocity Hurricane Zone (HVHZ).
- 4 of 80 ksi. This product shall be minimum 29 gauge thick galvalume coated steel with minimum yield stress
- 5 Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
- 6 this product. All supporting structural members shall be capable of supporting superimposed loads applied to
- .7 Fasteners must consist of minimum 12-14 x 3/4" self-drilling fasteners (SDFs) with control seal
- ∞ slope of 3:12 (14 degrees) or less. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof
- 9 Product shall be installed into substrates shown on installation drawings and shall not exceed
- 10. spacing limitations.

 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:

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

Signature/Seal:



Client: SBSI

Job Name: Keystone FPC Update Design (Exp. B)

> Job No. 20300S

Date: 1/12/21

> Computed By: Checked By: Sheet No.

AG Metal Wall Calc Set

Design Loads:

$$space_1 = 5 \cdot ft$$
 o.c.

$$space_2 := 4 \cdot ft$$
 o.c.

 $Ht_{roof} :=$

N

 $\frac{width}{0.25=1.875} ft$

High Wind Spacing

 $width := 180 \cdot in$ Exposure B Risk Cat. I

Ht := 120 in

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

 $FS \coloneqq 1.5$

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

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

 $\lambda = 0.89$

Adjustment Factor

 $mean_{rf}ht = 20 ft$

(Based on 2018 IBC (ASCE 7-16), Pg. 362)

Wall (Wind Area = 20 square ft):

(Based on 2018 IBC (ASCE 7-16), Pg. 352-353)

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

 $Pw_{net30pos108} := 20.04 \ psf \cdot \lambda = 17.836 \ psf$

 $Pw_{net30neg108} := -26.24 \ psf \cdot \lambda = -23.354 \ psf$ Note: Used Zone 5 (more conservative)

Client: Job Name: Keystone FPC Update SBSI

Design (Exp. B)

Date: 1/12/21

Job No. 20300S

Sheet No. ____Computed By: ___Checked By: ___

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

 $\lambda := 0.89$ $mean_{rf}ht = 20 ft$

(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)

conservative. Note: Used Zone 5 to be

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

Note: Highlighted values indicate input.

CHAPTER 30

WIND LOADS: COMPONENTS AND CLADDING

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 $h \le 60$ ft (18.3 m).

and the wind pressures are calculated from a wind pressure roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, The building has a flat roof, gable roof, multispan gable

- Part 2 is a simplified approach and is applicable to an enclosed
- Low-rise building (see definition in Section 26.2); or
- Building with $h \le 60$ ft (18.3 m)

the wind pressures are determined directly from a table The building has a flat roof, gable roof, or hip roof, and

က Part 3 is applicable to an enclosed or partially enclosed

Building with h > 60 ft (18.3 m).

roof, mansard roof, arched roof, or domed roof, and the wind pressures are calculated from a wind pressure equation. The building has a flat roof, pitched roof, gable roof, hip

- 4. Part 4 is a simplified approach and is applicable to an enclosed
- Building with 60 ft < $h \le 160$ ft (18.3 m < $h \le 48.8$ m)

determined directly from a table. The building has a flat roof, gable roof, hip roof, monoor mansard roof, and the wind pressures are

- 9 5. Part 5 is applicable to an open building of all heights that has a Part 6 is applicable to building appurtenances such as roof pitched free roof, monoslope free roof, or troughed free roof.
- 7. Part 7 is applicable to non-building structures - circular bins overhangs, parapets, and rooftop equipment.

silos and tanks; and rooftop solar panels

- Circular Bins, Silos and Tanks: $h \le 120 \,\text{ft}$ (38.6 m). Rooftop Solar Panels: Buildings of all heights with flat equal to 7 degrees roofs or Gable or Hip Roofs with roof slopes less than or
- all of the following conditions: determined in accordance with this chapter shall comply with 30.1.2 Conditions. A building that has design wind loads
- The building is a regular-shaped building as defined in Section 26.2; and
- The building does not have response characteristics that make bility caused by galloping or flutter; nor does it have a site it subject to across-wind loading, vortex shedding, or insta-

of upwind obstructions warrant special consideration. location for which channeling effects or buffeting in the wake

- characteristics shall be determined using recognized literature documenting such wind load effects or shall use the wind tunnel 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 procedure specified in Chapter 31. Section 30.1.2 or that have unusual shapes 9
- 30.1.4 Shielding. There shall be no reductions in velocity and other structures or terrain features pressure caused by apparent shielding afforded by buildings
- claddings, including modular vegetative roof assemblies, unless approved test data or recognized literature demonstrates lower 30.1.5 Air-Permeable loads for the type of air-permeable cladding being considered Air-Permeable Cladding. Design from Chapter 30 shall be used wind loads deterfor air-permeable

30.2 GENERAL REQUIREMENTS

- following wind load parameters are specified in Chapter 26: 30.2.1 Wind Load Parameters 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_{v} (Section 26.8).
- Ground elevation factor, K_e (Section 26.9)
- Velocity pressure exposure coefficient, K_7 or K_h (Section 26.10.1); Velocity pressure, q_7 (Section 26.10.2)
- Gust-effect factor (Section 26.11).
- Enclosure classification (Section 26.12).
- Internal pressure coefficient, (GC_{pi}) (Section 26.13).
- pressure for C&C of buildings shall not be less than a net pressure of 16 lb/ft² (0.77 kN/m²) acting in either direction normal to the 30.2.2 Minimum Design Wind Pressures. The design wind
- for main wind force resisting systems (MWFRS). C&C elements with tributary areas greater than 700 ft² (65 m²) shall be permitted to be designed using the provisions 30.2.3 Tributary Areas Greater than 700 ft² (65 m^2) 700 ft²
- 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. 30.2.4 External Pressure Coefficients. Combined gust-effect

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Net Design Wind Pressure, p_{net30} , in lb/ft², for Exposure B at h = 30 ft, V = 95-130 mph

Note.								Ga	ble	e R	.00	f >	7 t	o 2	о г)eg	гес	es										Fla	t/I	lip/	'Ga	ıble	R	oof	0 t	o 7	De	gre	es					W	alls					
s: Plus a	3 r	3_{Γ}	31	31	3e	3e	မှု	3e	2r	21	2r	2r	Zn	211	2.1	2-	2 5) i) t) _e	2e	_	-	-	-	ş	w	w	ω	2	2	2	2	7	٦,	7,	1	-	-518 fee	i ta	. 5	5	S	5	4	4	4	4	Zone	
Notes: Plus and minus signs signify	100	50	20	10	100	50	20	10	100	50	20	10	001)C	20	3 5	150	100	500	70 10	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	<u>3</u> 8	\$ C	20	100	50	20	10	100	50	20	10	Wind Area	Effective
ns signif	6.6	7.6	89	9.8	6.6	7.6	8.9	9.8	6.6	7.6	8.9	9.8	0.0	1.0	0.9	2,0	0.0	7.0	7.5	20	86	6.6	7.6	8.9	8.6	5.2	5.6	6.2	6.6	5.2	5.6	6.2	6.6	5.2	5.6	62	99	5.2	7.0	6.6	13.8	14.5	15.5	16.2	13.8	14.5	15.5	16.2	95	
y pressu	-27.2	-34.7	44.6	-52.0	-24.1	-30.0	-37 ×	43.8	-24.1	-30.0	-37.8	43.8	-24.1	-30.0	-3/.8	43.8	4.4	-10.2	10.0	0.00	-30.0	-9.4	-18.2	-30.0	-30.0	-31.9	-36.3	42.1	46.5	-26.8	-29.0	-31.9	-34.1	-14.9	-14.9	-14.9	-149	-20.7	24.2	-25.9	-16.9	-18.3	-20.3	-21.7	-15.2	-15.9	-16.9	-17.6	y.	
res actir	73	84	9.8	10.9	7.3	8 4	9.8	- 10.9	7,3	8.4	9,8	10.9	73	874	8.6	10.9	0.0	0 0	0 4 0	0.0	10.0	7.3	8.4	9.8	10,9	5.8	63	6.9	7.3	5.8	6.3	6.3	7.3	5.00	63	69	73	4 0	6.0	7.3	15.3	16.1	17.2	18.0	15.3	16.1	17.2	18.0	1	
e toward	-302	-38.4	-49.4	-57.6	-26.7	-33.2	41 9	1	Ī-	-33.2	41.9	1	L	1	,	1	1				. 1		-20.2			-35.4	7	,		-29.7	1		. 1		1		. 1		-26.8	-	Τ.	-20.3	-22.5	-24.1	-16.8	-17.6	-18.7	-19.5	00	
and aw		9.3	10.8	12.0	œ —	93	10.8	12.0	 	9.3	10.8	12.0	8.1	9.3	10.8	0.21	0.1	0.0	10.0	100	130	20	93	8.01	12.0	6.4	6.9	7.6	8.1	6.4	6.9	7.6	8	6.4	6.9	76	2 5	6.0	7.6	28	16.9	17.8	18.9	19.8	16.9	17.8	18.9	19.8		
av from t	ا د د	42.4	-54.4	-63.5	-29.4	-36.6	462	-53.4	-29.4	-36.6	46.2	-53.4	-29.4	-30.6	16.2	-53.4	-114	-22.3	0.00	36.6	-366	-11.4	-22.3	-36.6	-36.6	-39.0	44.4	-51.4	-56.8	-32.8	-35.5	-39.0	41.7	-18.2	-18.2	-18.2	187	-20.6 -24.7	-29.5	-31.6	-20.6	-22.4	-24.8	-26.6	-18.5	-19.4	-20.6	-21.5	05	Bas
he surfac	80	102	119	13.2	8.9	10.2	110	13.2	8.9	10.2	-11.9	13.2	8.9	102	11.9	15.2	0.9	10.2	7	110	113	8.9	102	6.117	13.2	7.0	7.6	6.8	8.9	7.0	7.6	8	8.9	7.0	7.6	ه د د	80	70	3 00	8.9	18.5	19.5	20.8	21.8	18.5	19.5	20.8	21.8		Basic Wind Speed (mph)
es, respe	- 36 5	46.5	-59.7	-69.7	-32.3	40.2	-50.7	-58.7	-32.3	40.2	-50.7	-58.7	-32.3	40.2	-50.7	-58.7	C.21-	124.3) i	40.6	403	-12.5	-24.5	40.2	-40.2	42.8	-48.7	-56.5	-62.3	-36.0	-38.9	42.8	45.7	-19.9	-19.9	-199	199	-27.1	-32.4	-34.7	-22.6	-24.6	-27.2	-29.1	-20.4	-21.3	-22.6	-23.6	0	Speed (n
ctively	0.7	111	13.0	14.4	9.7	111	13.0	14.4	9.7	11.1	13.0	14.4	. 9.7	11:1	13.0	14.4	9.7	2 - 2	0,01	120	144	9.7	E	13.0	14.4	7.7	8:3-	T.6	9.7	7.7	83	9.1	9.7	7.7	و در در	٥	07.	10.0	9.1	9.7	20.2	21.3	22.7	23.8	20.2	21.3	22.7	23.8		nph)
For effec	- 10 p	-50.8	-65.3	-76.2	-35.3	4.0	155 4	4	-35.3	44.0	-55.4	-64.1	-35.3	-44.0	-55.4	-04.	-13./	-20.7	2 1	440	440	-137	-26.7	0.44	44.0	46.8	-53.2	-61.7	-68.1	-39.3	42.5	46.8	-50.0	-21.8	-21.8	1218	-21.8	1.70-	-35.4	-37.9	-24.7	-26.9	-29.7	-31.9	-22.2	-23.3	-24.7	-25.8	20	
tive win	105	121	14.7	157	105	19.1	12	15.7	10.5	12.1	14.1	15.7	10.5	171	142	13.7	LOD		1.4.1	14.	157	10.5	12.1	14.1	15.7	8.3	9.0	9.9	10.5	. 8.3	9.0	9.9	10.5	88	9.0	0.0	10.5	8.0	9.9	10.5	22.0	23.2	24.7	25.9	22.0	23.2	24.7	25.0	-	
d areas h	475	-55.4	-71.1	-83.0	-38.4	47.9	-60.4	-69.8	-38.4	47.9	-60.4	-69.8	-38.4	47.9	-60.4	-69.8	-14.9	-29.1	30.1	47.0	479	-14.9	-29.1	47.9	-47.9	-50.9	-57.9	-67.2	-74.2	-42.8	46.3	-50.9	-54.4	-23.7	-23.7	-23.7	-23.7	-34.9	-38.5	41.3	-26.9	-29.3	-32.4	-34.7	-24.2	-25.4	-26.9	30	8	
etween	19.4	, 14.2	16.6	18.4	12.4	14.2	166	18.4	12.4	14.2	16.6	18.4	12.4	14.2	16.6	18.4	. PZ/95	14.6	10.0	10.4	18.4	12.4	14.2	16.6	18.4	9.8	10.6	11.6	12.4	100	10.6	9 H	124	9 8	5	100	500	10.0	U 6	12.43	25.9	27.2	29.0	30 4	250	77 7	30.4			3
9	_51.0	65.0	-83.4	-97.4	45.1	-56.2	-70.8	-81.9	45.1	56.2	-70.8	-81.9	45.1	2-50.2	-/0.8		1	7.4.2		2.00-	. 1	-17.5	1	1	-56.2	-59.8:	68.0	-78.9	-87	-50.5	544	500	61.4	20.8	-2/2	-27.8	-37.8	410	1	A S		9 0					9			

Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m². that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2. those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates *Notes:* Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between

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/ft², for Exposure B at h = 30 ft, V = 140-200 mph

Г		_	_	_	_	Ca	ble l	Pos		7 +	20	De	ore	es	-				-	I]	Flat	/Hi	p/G	abl	e R	oof	0 to	7 D	egr	ees					Wa	lls					_
ي	3r	31	31	30	ب ع م			21	_		2n	2n) _e	2e	_	<u> </u>		- 4	, ω	w	w	٥, ١	دم د	2	Τ,	_ ·	ζ -	-	_		- 0	S	S	2	4	4 .	4 4		Zone	
100		_	1		50		100	50	30 10	100	50	20	10	100	50	0.0	100	50	20	10	50	20	10	5 5	S 0	10	100	50	3 5	100	50	20	100	50	20	10	100	50	20	(R*)	Area	Effective
14.3	100	19.3	21.4	14.3	16.5	21.4	143	16.5	19.3	21.4	16.5	19.3	21.4	14.3	16.5	103	14,3	16.5	19.3	21.4	12,3	13.4	14.3	11.4	15.4	14.3	11.4	12.3	17.4	11.4	12.3	13.4	14.3	31.0	33.7 -	. 7	30.0 -	1	33.7	140	;	
-39.2	I.	-96.8		-52.3	-65.1	_95.0	-52.3	-65.1	_82.1	-95.0	50.1	-82.1	-95.0	-20.3	-39,6	65.1	-20.3	-39.6	-65.1	65.1	-78.9 60.3	-91.5	-101.0	-58.3	63.0	-74.1	-32.3	-32.3	-32.3	25.9	47.6	-52.5	-56.2	367	4.0	47.2	-33.0	-34.6	-36.7	1	_	
2 10.5				Ē		24.5					16.5	22.1	24.5	16.5	18.9	24.5	16.5	18.9	22.1	24.5	3 14.	15.4	16.5	13.0	<u> </u>	16.5	13.0	14.1	15.4	10.0	14.1	15,4	16.5	344	38.7	40.5	34.4	36.2 -	38.7 -	40.5	100	11
<u>}</u> .	-/5.4	1	-112.9	-52.3	-65.1	-95.0 -83.1	-52.3	-65.1	-82.1	-95.0	-52.3	-82.1	-95.0	-20.3	-39.6	65.1	-20.3	-39.6	-65.1	-65.1	-/8.9	-91.5	-101.0	-58.3	63.0	_74.1 _60.3	-32.3	-32.3	-32.3	1773	47.6	-52.5	-56.2	-36.7	30.5	47.2	-33.0	-34.6		38.2		-
	187			-		25.2		_	_	1	18.7	21.5	27.9	18.7	21.5	25.2	18.7	21.5	25.2	27.9	14.8	17.6	18.7	14.8	16.0	18.7	14.8	16.0	17.6	18.7	16.0	17.6	18.7	39.2	41.0	46.1	39.2	41.2	_	46.1	160	
		-120.4	ı	1	-85.1	-124.1 -107.3	-68.3	-85.1	-107.3	-124.1	-68.3	-85.1	-124.1	-26.5	-51.8	-85.1	-20.5	-51.8	-85.1	-85.1	-90.6	103.0	-131.9	-76.1	-82.3	_90.6	42.1	42.1	42.1	42.1	62.1	-68.5	-73.4	47.9	52.0	61.7	43.1	45.1	47.9	50.0	_	Basic V
om the s	3 21.1		31.5	3 21.1	-	28.4			_	31.5	21.1	24.3	31.3	21.1	24.3	28.4	21.1	24.3	28.4	31.5	16.7	18.1	21.1	16.7	18.1	19.8	16.7	18.1	19.8	21.1	16.7	19.8	21.1	44.2	46.6	52.0 ·	44.2	46.6		52.0	170	Basic Wind Speed (mph)
urfaces,	-87.		-160.5	-11.	-96.0	-121.1	177.1	-96.0	-121.1	-140.1	_77.1	-96.0	-140.1	-30.0	-58.4	-96.0	-96.0	-58.4 30.0	_96.0	-96.0	-102.2	-134.9 -116.3	124.9	-85.9	-92.9	-102.2	1003	47.6	47.6	47.6	-64.7	77.4	82.8	-54.1	58.7	64.9			54.1			ed (mpi
respecti	2 23.7		31.8	+			25.1		_	35.3	-		31.8 81.8	25.7	27.2	31.8	35.3	22.7	31.8	35.3	18.8	20.3	23.7	18.8		,	23.7	20.3	22.2	23.7	18.8	22.2	23.7	49.6	52.2	55.7	50.2	52.2			180	3
vely. Fo	7 -97.8	1	()	1867	1,	-135.8	-80.4	-10/./	-135.8	-157.1	-86.4	-107.7	-135.8	-157.1	22 6	-107.7	-107.7	133.6	-10/./	-107.7	-114.6	-130.4	-160.9 -151.2	-96.3	-104.2	-114.6	-122.5	63.3	-53.3	-53.3	-72.5	78.6	-92.9	60.6	-65.8	72.8	78.0	54.5		-	_	_
r effective	8 26.4			1	7 30.3		+	26.0			T	30.3	35.5	39.4	30.3	35.5	39.4	26.4	20.C	39.4			24.8			•	26.4	0.00	24.8	26.4		24.° 22.6	1	55.2			64.9	55.2	62.0	64.9	190	Ì
away from the surfaces, respectively. For effective wind areas between	4 -109.0				_120.0		1	-120.0	-151.3	-175.0	-96.3	-120.0	-151.3	-175.0	-374	-120.0	-120.0	-37.4	_73.0	0.021	-127.7	-145.3	-168.5	1860	-116.1 107.3	-127.7	-136.5	59.4	59.4	-59.4	-80.8	-87.6	06.6	67.5		-81.1	7	_	63.7	70.4		_
areas be	0 29.3	8 33.6			3 29.3				33.6						29.3		43.6			45.0	23.2	25.0	27.4	29.3	23.0		29.3 -	23.2	27.4	29.3			29.5 -		64.4		72.0	61.2	64.4	72.0 -	200	
tween	3 -120.7	-153.		- 1	-132.9 -106.7		. 1		_132.9	-1677	-106.7	-132.9	-167.7	-193.9	41.5	-132.9	-132.9	41.5	_80.9	-132.9	-141.5	-161.0	-186.7	-206.1	_118.9	-141.5	-151.2	-65.9	65.9	-65.9	-89.5	-97.1	107.1	114.8	-81.3	89.9	-96.3	67.3	-70.5	74.8		

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 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

continues

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Net Design Wind Pressure for Roof Overhang, p_{0030} , in lb/ft², for Exposure B at h = 30 ft, V = 95-200 mph

			Н	in ¹	Roz	of >	27	te	45	De	gre	ees					
w	ω	ω	ω	Ì			2r	Ī	26		_	-	-	_	_	Zone	
100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	(n ²)	Effective Wind Area
-24.8	-24.8	-36.4	-45.2	-24.8	-31.2	-39.7	-46.1	-22.0	-22.9	-31.6	-38.1	-23.2	-25.7	-29.1	-31.6	95	
-27.4	-27.4	40.3	-50.1	-27.4	-34.6	-44.0	-51.1	-24.4	-25.4	-35.0	42.3	-25.7	-28.5	-32.2	-35.1	100	
-30.3	-30.3	44.5	-55.3	-30.3	-38.1	48.5	-56.3	-26.9	-28.0	-38.6	46.6	-28.3	-31.4	-35.5	-38.7	105	
-33.2	-33.2	48.8	-60.6	-33.2	41.8	-53.2	-61.8	-29.5	-30.7	42.3	-51.1	-31.1	-34.5		-42.4	110	
-36.3	-36.3	-53.4	-66.3	-36.3	45.7	-58.1	-67.5	-32.3	-33.6	46.3	-55.9	-34.0	-37.7	42.6	46.4	115	
-39.5	-39.5	-58.1	-72.2	-39.5	49.8	-63.3	-73.5	-35.1	-36.6	-50.4	-60.9	-37.0	41.1	-46.4	-50.5	120	
-46.4	-46.4	-68.2	-84.7	-46.4	-58.4	-74.3	-86.3	41.2	42.9	-59.1	-71.4	43.4	48.2	-54.5	-59.3	130	ind Spe
-53.8	-53.8	-79.1	-98.2	-53.8	-67.7	-86.2	-100.1	47.8	49.8	-68.6	-82.8	-50.4	-55.9	-63.2	-68.7	140	Vind Speed (mph
-61.7	-61.7	-90.8	-112.8		-77.7	-98.9	-114.9	-54.9	-57.1	-78.7	-95.1	-57.8	<u>k</u> 1.	-72.5	-78.9	150	
-70.2	-70.2	-103.3	-128.3	-70.2	-88.5	-112.5 -	[-130.7]-	-62.4	-65.0	-89.6	-108.2	-65.8	-73.0	-82.5	-89.8	160	
-79.3	79.3	-116.6	-144.8	-79.3	_99.9	-127.0	-147.6	-70.5	-73.4	-101.1	-122.1	-74.2	-82.4	-93.2	-101.3	170	
-88.9	-88.9	-130.7	-162.4	-88.9	-112.0	-142.4	-165.5	-79.0	-82.3	-113.4	-136.9	-83.2	-92.4	-104.5	-113.6	180	
-99.1	-99.1	-145.7	-180.9		-124.7	-158.7	-184.4		_	_		-927	1	-1164	-1266	105	
1	1	<u>_</u>	2		-	4	اوا	1	1					T Y	·		

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. Metric conversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$.

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Adjustment Factor for Building Height and Exposure, λ

Mean		Exposure	
Koor Height (ft)	В	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; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$

FIGURE 30.4-1 (Continued). Components and Cladding, Part 2 [$h \le 60 \text{ ft}$ ($h \le 18.3 \text{ m}$)]: Design Wind Pressures for Enclosed **Bulldings—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 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_{σ} ; 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 (θ < 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

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



ATLNC # 0321,01-17

Report Date: 04/05/17

Test Dates: 03/21/17 - 03/23/17

Miami Dade Certification # 16-0526.01 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:

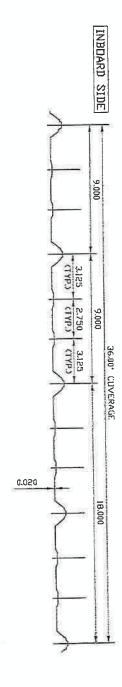
ASTM E 1592-05

Test Conditions: 65 - 75 degrees F

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" \times 2-1/2" \times 14 ga. rafters/ post with 12-14" \times 3/4" self drilling screws at 6" oc.

6" OC. 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) Specimen B, D 12-14 x 3/4" self drilling screws, panels to Hat Channels with 12-14 x 3/4" self drilling screws at 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel

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.

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

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.

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

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.

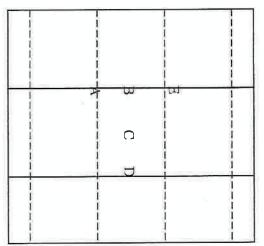
2-1/2" Tube Girth Spacing: Specimen C, Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC. 3 spans 48" OC with 12" overhang, rafter spacing 48"

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

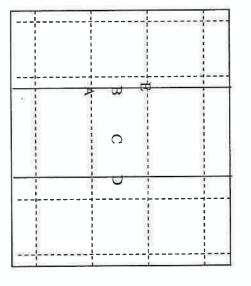
Test Specimens

Indicator Locations

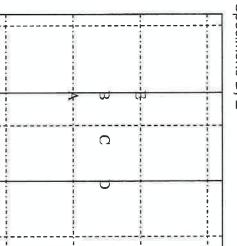
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

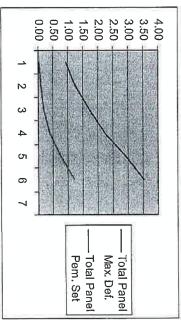
120	110	100	90	80	70	60	05	40	30	20	psf Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60		60		(sec)	Time
					2.86"	2.35"	1.84"	1.45"	1.04"	.75"		€	Purlin Rib
					.84"	.55"	.30"	.15"	.05"	.02"			Perm.
					2.97"	2.47"	1.92"	1.52"	1.12"	.83	(B)	먕	Mid-Span
					.99"	.64"	.သ	.17"	.07"	.03"		Set	Perm.
					3.53	2.90"	2.22"	1.73"	1.26"	00 20 2		(C)	Mid-Span
					1.22"	.76"	.39	.20"	.08	.03		Set	Perm.

Deflections in inches

120 60	110	100	90	80	70	60	50	40	30	20	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					2.97"	2.46"	1.90"	1.50"	1.09"	.80"		(D)	Rib	Mid Span
					.97"	.63"	.32"	.17"	.06"	.02"			Set	Perm
					2.87"	2.40"	1.86"	1.47"	1.06"	.81"			(E)	Purlin Rib
					.89	.55	30"	.16"	.06"	.02"			Set	Perm.
					3.53	2.90"	2.22"	1.73"	1.26"	.93			Deflection	Total Panel
					1.22"	.76"	.39	.20"	.08"	.03	Set	Perm.	Panel	Total

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



Specimen B

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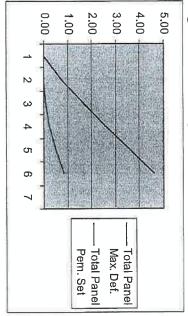
Pressure Time	Time	Purlin Rib	Perm.	Mid-Span	Perm.	Mid-Span	Perm.
Increments	(sec)	€	Set	Rib	Set	(C)	Set
psf				(B)			
Negative							
0	60	0,,	0,,	0,,	0"	0	O,
20	60	.58"	.01"	.60"	0.0	.75"	.01"
30	60	1.34"	.07"	1.45"	.08"	.169"	.08"
40	60	2.07"	.21"	2.29"	.21"	2,57"	.22"
50	60	2.97"	.44"	3.03"	.46"	3.58"	.49"
60	60	3.89"	.75"	4.36"	.80"	4.62"	,86,
70	60						
80	60						

Deflections in inches

Pressure Time	Time	Mid Span	Perm	Purlin Rib	Perm.	Total Panel	Total
Increments	(sec)	Rib	Set	(E)	Set	Deflection	Panel
psf		(D)					Perm.
Negative		· ·					Set
0	60	0"	O,	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 ₁
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

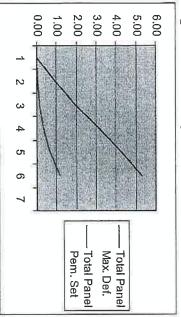
100	90	80	70	60	50	40	30	20	10	0	Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60		(sec)	Time
					3.97"	3.18"	2.41"	1.53"	.70"	0"		(A)	Purlin Rib
					.75"	.44"	.22"	.08"	.04"	0"		Set	Perm.
					4.41"	3.57"	2.68"	1.72"	.82"	0"	(0)	(B)	Mid-Span
					.84"	.49"	.24"	.10"	.05	O _I		Set	Perm.
					5.30	4.26"	3.15 ₁	1.99"	.96"	0,		(C)	Mid-Span
					1.16"	.66	.32	.12	.06"	Q			Perm.

Deflections in inches

Make: O had	100	90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
and and	60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
المحمد أم المحمل						4.79"	3.89"	2.94"	1.90"	.93"	0"	,	(D)	Rib	Mid Span
SS Total			\$5			.96"	.56"	.28"	.11"	.05"	0"			Set	Perm
Note: O indicator in cond on Total Depol Defloation and Dermanant Set Indicators						3.92	3.10"	2.36"	1.49"	71"	0"			(E)	Purlin Rib
2000						.78"	.44"	.20"	.07"	.03"	0"			Set	Perm.
ormonent Sot						5.30	4.26"	3.15"	1.99"	.96"	0"			Deflection	Total Panel
Indicators						1.16"	.66"	32	.12"	.06"	O ₃	Set	Perm.	Panel	Total

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



Specimen D Deflections in inches

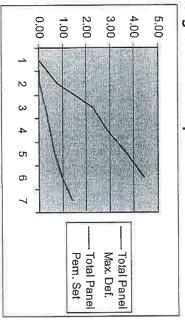
70	63	56	49	42	35	28	21	14	7	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			s (sec)	Time
				4.11"	3.32"	2.83"	2.20"	1.70"	.54"	0"			€	Purlin Rib
				1.22"	.88	.63 ₃	.47"	.29"	.02"	O ₃			Set	Perm.
				5.14"	4.27"	3.61"	2.81"	2.18"	.69"	0"		(B)	Rib	Mid-Span
				1.56"	1.13"	.78"	.57"	36"	.02"	O _i			Set	Perm.
				5,28"	4.43"	3.72"	2.90"	2.26"	.78"	0,1			(C)	Mid-Span
				1.40"	.99"	.67"	.45"	.28"	.02"	0,			Set	Perm

Deflections in inches

	70	63	56	49	42	35	28	21	14	7	0	Negative	psf	Increments	Pressure
Handan ma	60	60	60	60	60	60	60	60	60	60	60				Time
المراجعة المحادث					4.56"	3.88"	3.37"	2.65"	2.08"	.76"	0"		(D)	Rib	Mid Span
Total					1.10"	.81"	.56"	.37"	.22"	.02"	O _E			Set	Perm
Note: C indicate: and in mode of Total Bonal Deflection and Bormanent Set Indicators					5.63"	4.62"	3.89"	3.01"	2.35"	.75"	Q			(FI)	Purlin Rib
200					1.71"	1.20"	.81	.58"	.37"	.02"	0,			Set	Perm.
formanent Sel					5.28"	4.43"	3.72"	2.90"	2.26"	.78"	Q			Deflection	Total Panel
naigutors					1.40"	.99"	.67"	.45	.28	.02"	Q	Set	Perm.	Panel	Total

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



Specimen E Deflections in inches

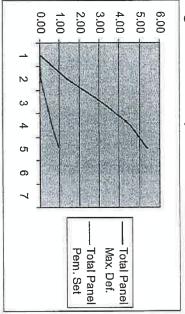
90	80	70	60	50	40	30	20	10	0	pst Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60	60		(sec)	Time
					4.45"	3.56"	2.49"	1.13"	0"		(2)	Purlin Rib
					.80"	.51	.30"	.10"	Q			Perm.
					4.71"	3.90"	2.72"	1.22"	Q.	(B)	R S	Mid-Span
					.87"	.53	.30"	.07"	0,1			Perm.
					5.37"	4.56"	3.12"	1.38"	O ₁		(C)	Mid-Span
					.98	.60"		.07"	0,		Set	Perm.

Deflections in inches

90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60			(sec)	Time
					5.43"	4.46"	3.08"	1.40"	0"		(D)	Rib	Mid Span
					.99"	.59"	.30"	.08"	0"			Set	Perm
			6	35	4.33"	3.44"	2.42"	1.09"	0"			(E)	Purlin Rib
					.71"	.42"	.25"	.07"	O,			Set	Perm.
					5.37"	4.56"	3.12"	1.38"	O ₃			Deflection	Total Panel
					.98"	.60"	.31	.07"	0,	Set	Perm.	Panel	Total

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



Specimen F

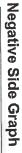
Deflections in inches

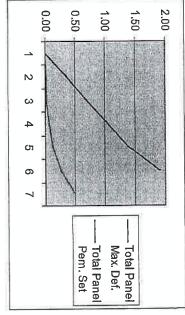
Pressure Time Increments (sec)	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib	Perm. Set	ج ÷	m. Mid-Span
psf	,			(B)			
Negative							
0	60	0,,	0"	0,1		0"	
7	60	.23"	.0"	.27"			
14	60	.49"	.0.	.56"			.02"
21	60	.74"	.03"	.84"	,	-	.04"
28	60	1.06"	.09"	1.12	2	" 10"	.10"
25	60	1.41"	.20"	1.52	=		.21"
42	60	1.77"	.37"	1.52"			
49	60	2.27"	.63	2.40"		.70"	
56	60	2.81"	1.00"	2,99"			
63	60	3.43"	1.48"	3.79"		1.61"	1.61" 4.70"
70	60						
77							
84							

Deflections in inches

Pre91ssur Time	Time	Mid Span	Perm	Purlin Rib	Perm. Set		Total Panel Deflection
e Increments	(sec)	(D) R	Set	(E		Set	
psf Negative		1799					
0	60	0"	0"	0		0"	0" 0"
7	60	.28"	.01"	.24"		.0"	
14	60	.60"	.02"	.52"		.01"	
21	60	.90"	.05"	.80"		.04"	
28	60	1.19"	.41	1.09"		.09"	
25	60	1.59"	.23	1.44"		.19"	
42	60	2.01"	.41"	1.81"		.35"	
49	60	2.49"	.70"	2.26"		.60"	
56	60	3.08"	1.12"	2.78"		.98"	
63	60	3.87"	1.64"	3.39"	1 3	1.45"	1.45" 4.70"
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.





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

Technician: Keith Owen

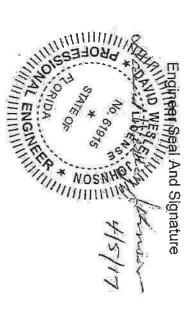
Observers-

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

American Keith Owen, Lab Director

Test Lab, Inc.

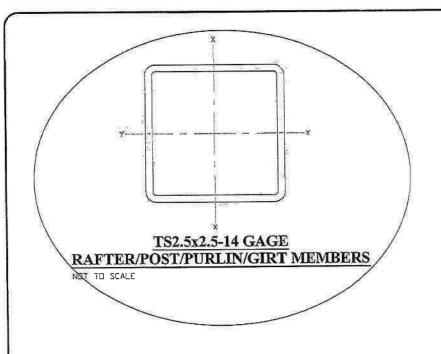
All Tests Witnessed and Certified by: 1122 Calvert Rd. Brevard, NC 28712 David Johnson P. E. Florida P.E. # 61915



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 engine is in complete compliance of Florida Statue 9B-72, Section 72.110 Witnessing engineer

Disclaimer:

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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 $IX = 0.713 \text{ IN.}^4$ $IY = 0.713 \text{ IN.}^4$ rx = 0.990 IN. ry = 0.990 IN.

APPLICATION:

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

CALCULATED CDIL WIDTH: 3.81' e t=0.052' CUSTOMER SPECIFIED WIDTH: 4.00' e t=0.052'

0.052* 50-80 KZI

METAL THICKNESS: MATERIAL GRADE:

> TOLERANCE STANDARDS FOR THICKEST METAL: *ACCUMULATION --- (+ DR -> 1/15 IN DEPTH ----- (+ OR -) 1/15 IN RADII ----- (+ OR -) 1/32 IN ANGLES ----- (+ DR -> 2 DEGREES

Will College	STEEL BUILDINGS AND STRUCTURES, INC.	RAFTER/POST/PURLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND ENGINEERING AND CONSULTIN	NOTED HEA JOD NO. 161925 This document is the property of
	STEE	RAFTER/PO HIGH WIN	SCALE:

SHEET HO.

SK-1

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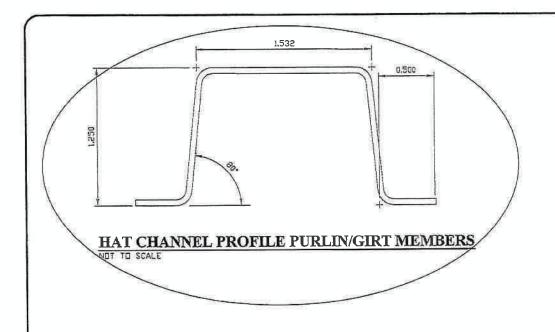
DRAVN BYE.

DATE: 3-14-17

REV.



MOORE AND ASSOCIATES (803) ZIP-1199 / TAX (803) ZIP-2000 ENGINEERING AND CONSULTING			
THE DESCRIPTION OF MILE DATE REVISION	BY	BY CK.	APVD.
ANATOMIC TESTING/APPROVAL JRS PDH	APPROVAL JRS	PDH	HSA.



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

ATL INSPECTOR

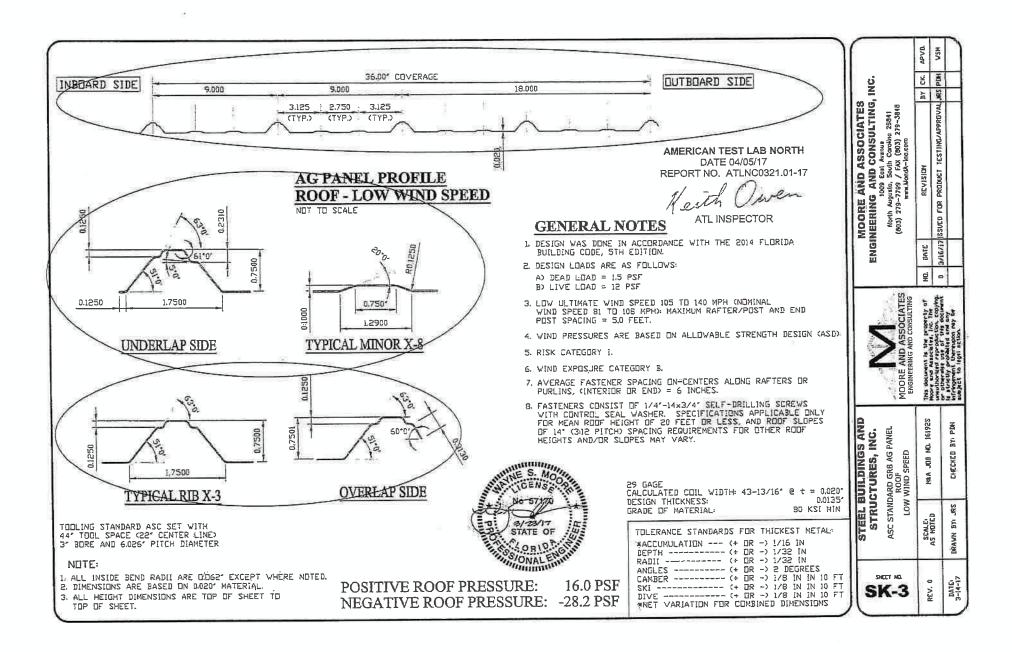
CALCULATED COIL WIDTH: 3.81' @ t = 0.052'
CUSTOMER SPECIFIED WIDTH: 4.00' @ t = 0.052'
METAL THICKNESS: 0.052'
MATERIAL GRADE: 50-80' KSI

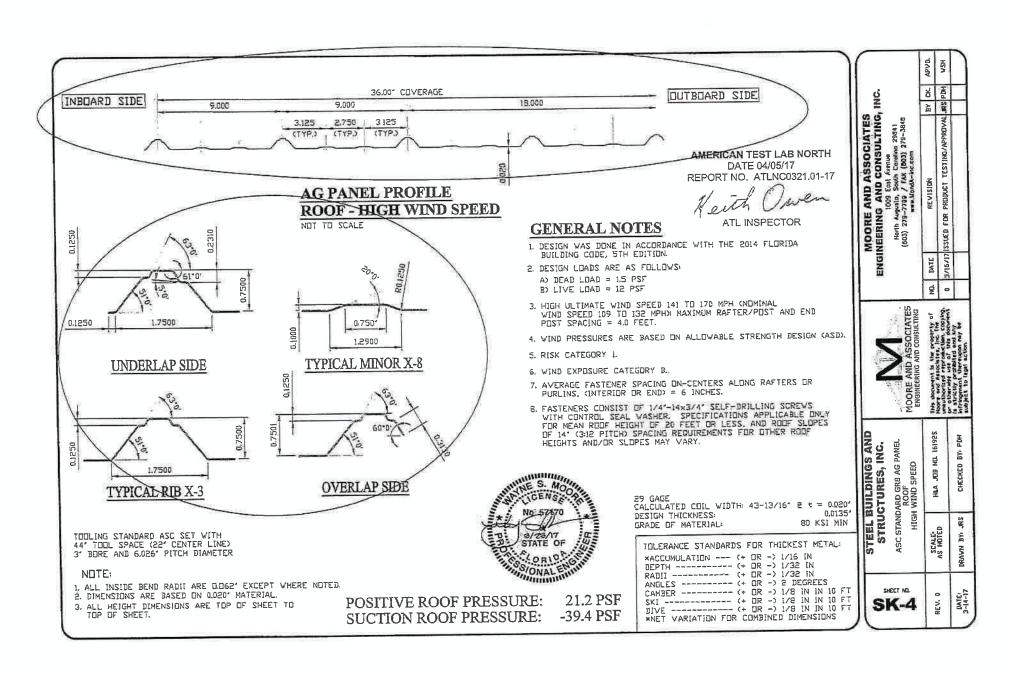
TOLERANCE STANDARDS FOR THICKEST METAL:
**ACCUMULATION --- (+ DR -> 1/15 IN
DEPTH ----- (+ DR -> 1/16 IN
RADII ----- (+ DR -> 1/32 IN
ANGLES ---- (+ DR -> 1/32 IN
ANGLES ---- (+ DR -> 1/3 IN IN 10 FT
SKI ----- (+ DR -> 1/8 IN IN 10 FT
DIVE ----- (+ DR -> 1/8 IN IN 10 FT
DIVE ----- (+ DR -> 1/8 IN IN 10 FT
XNET VARIATION FOR COMBINED DIMENSIONS

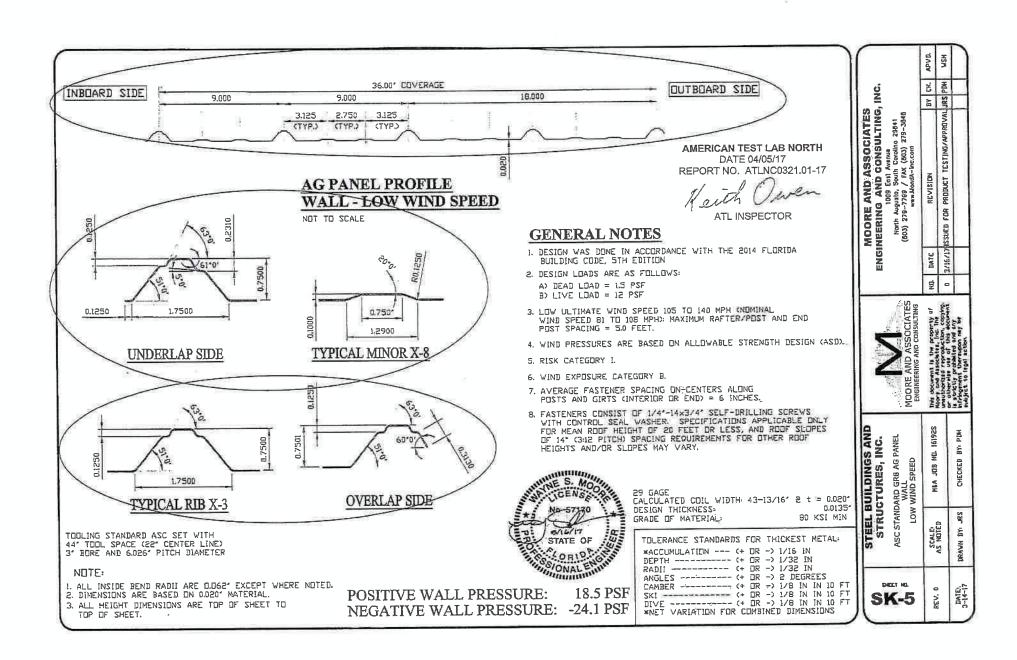
	MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. 103 501 Averland Souls Cordin 22841 (803) 279-7799 / FXX (803) 279-3848 www.kendA-lies.com	BY CK. APVD.	3/16/17 SSUED FOR PRODUCT TESTING/APPROVALURS PIDH WSH	
	MOORE AND ASSOCIATES NEERING AND CONSULTING, 1009 501 Armus Nerth Augusto, South Coroline 22841 (803) 279-7799 / FXX (803) 279-3948 www.MondA-inc.com	REVISION	SSUED FOR PRODUCT	
	ENGE	DATE	3/16/17	
П		털	0	

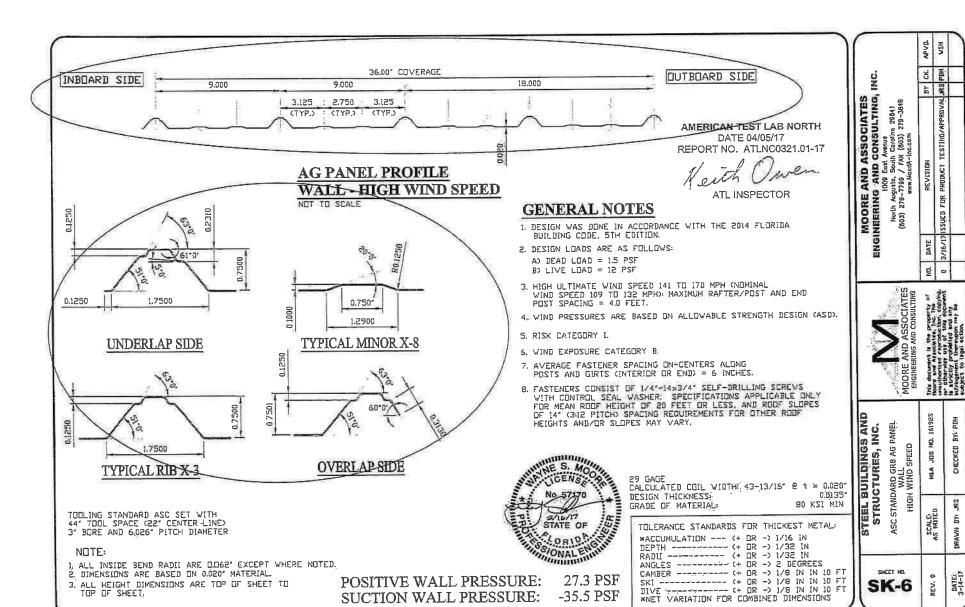
١	_	ή,Σ	225	1
	FEEL BUILDINGS AND STRUCTURES, INC.	HAT CHANNEL PURLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND SPEED	HLA JOB NO. 161925	CHECKED BY PDH
	STEEL E STRU	HA PURLIN HIGH WIND 9	SCALEY AS NOTED	DRAVN BY: JRS
		(-2	REV. 0	DATE 3-14-17
,				100

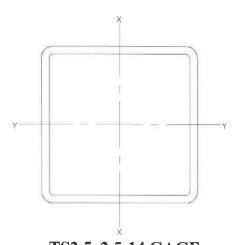












TS2.5x2.5-14 GAGE RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

PROPERTIES AREA = 0.727 [N.2

 $Sx = 0.570 \text{ IN.} \frac{3}{2}$ SY = 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 CDI WIDTH: 3.81" @ t = 0.052" CUSTOMER SPECIFIED WIDTH: 4.00" @ t - 0.052" METAL THICKNESS: MATERIAI GRADE:

0.052* 50-80 KSI

IDLERANCE STANDARDS FOR THICKES! METAL *ACCUMULATION --- (+ OR -) 1/16 IN

SKI - (+ DR -) 1/8 IN IN 10 FT DIVE (+ DR -) 1/8 IN IN 10 FT *NET VARIATION FOR COMBINED DIMENSIONS

ENGINEERING AND CONSULTING, INC. 1008 East Avenue North August, South Caroline 29841 (803) 279–7789 / FX (803) 279–3848 www.MandA-Inc.com

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

DATE

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APVD. **MSM**

쏤 H

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

TS2.5x2.5 RAFTER/POST/PORLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND SPEED NO. 16192S Β¥ CHECKED 8 M&A SS SCALE: AS NOTED DRAWN BY

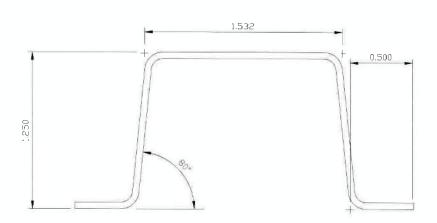
DATE: 3-14-17

REV. 0

SK-1

STEEL BUILDINGS AND STRUCTURES, INC.

B STATE OF S



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE



CALCULATED CUIL WIDTH: CUSTOMER SPECIFIED WIDTH METAL THICKNESS:

MATERIAL GRADE

3.81" @ t = 0.052" 4.00" @ t - 0.052* 0.052" 50 80 KSI

THLERANCE STANDARDS FOR THICKEST METAL: DIVE ---- (+ DR -) 1/8 IN IN 10 FT *NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, IN 1008 East Avenue North Augusta, South Carolina 28441 (803) 279—7739 / FAX (803) 279—3848 www.Marok-inc.com

NSW W

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JRS PDH JS JB

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL REVISED FOR 2020 FBC, 7TH EDITION

1/12/21

Ä CHECKED

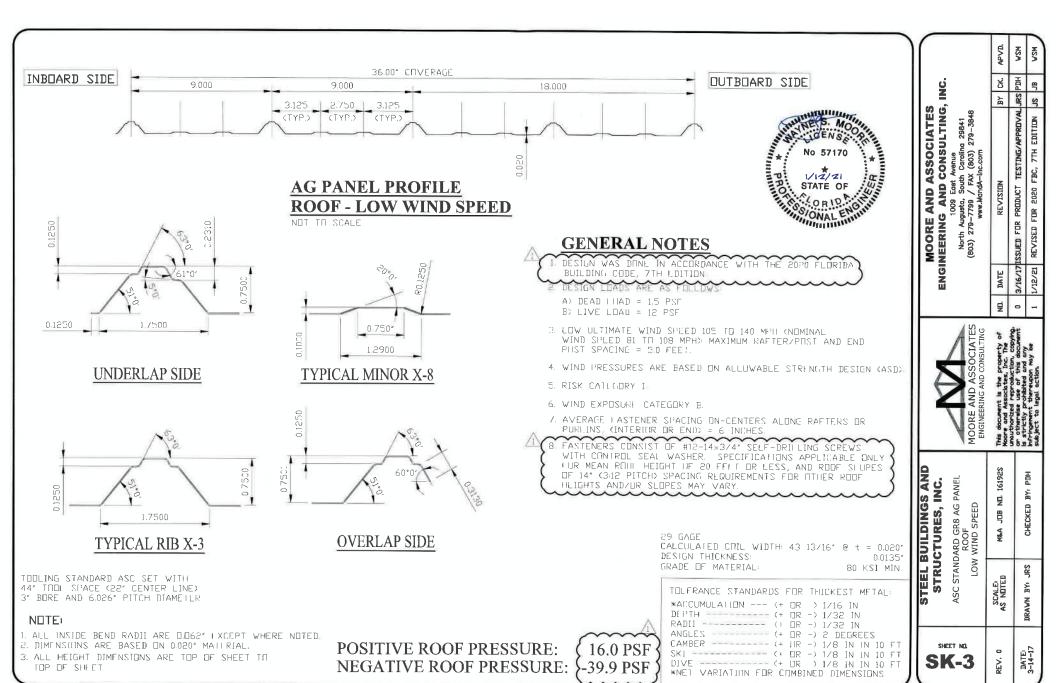
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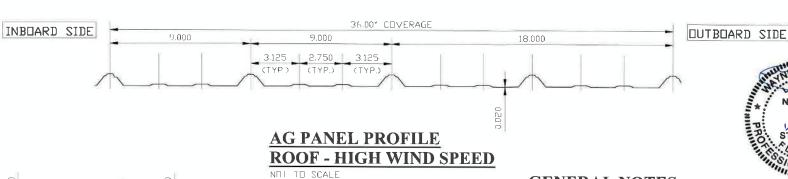
DATE

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND
SPEED STEEL BUILDINGS AND ND. 16192S STRUCTURES, INC. M&A SCALE AS NOTED

DRAWN BY SHEET NO. DATE: 3-14-17 SK-2 REV.





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GENERAL NOTES

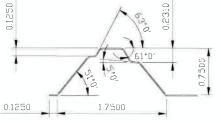
SIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CUDE, 7TH EDITION.

A) DEAD LOAD = 1.5 PSF B) LIVE LUAD = 12 PSF

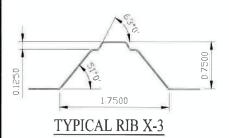
- 3 HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 10 132 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FILT.
- 4. WIND PRESSURFS ARE BASED UN ALLOWABLE STRENGTH DESIGN (ASD)
- 5. RISK CATEGORY I
- 6. WIND EXPHSURE CATECHRY B.
- 7. AVERALE FASTENER SPACING (IN-CENTERS ALONG RAFTERS HR PURLINS, (INTERIOR OR END) = 6 INCHES.
- 8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILITING SCREWS WITH CUNTROL SEAL WASHER. SPECIFICATIONS APPLICABLE UNLY FOR MEAN RODI HEIGHT DE 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING RIQUIREMENTS FOR OTHER ROLL HEIGHTS AND/OR SLOPES MAY VARY.

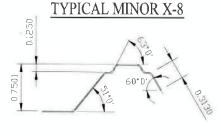
DESIGN THICKNESS:

GRADE DE MATERIAL



UNDERLAP SIDE





0.750*

1.2900

OVERLAP SIDE

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

NOTE:

- 1. ALL INSIDE BEND RADII ARF N.062" LXCLPT WHERE NOTED.
- 2. DIMENSIONS ARE BASED ON 0.020" MAILRIAL.
- 3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET HI

POSITIVE ROOF PRESSURE: SUCTION ROOF PRESSURE:

16.0 PSF -59.7 PSF

IDLERANCE STANDARDS FOR THICKEST METALI *ACCUMULATION === (+ OR -) 1/16 IN DEPTH ----- (+ OR -) 1/32 IN RADII ---- (+ DR -) 1/32 IN ANGLES ---- (+ ER -) 2 DEGREES CAMBER ----- (+ DR -) 1/8 IN IN 10 FT SKI ---- (+ DR -) 1/8 IN IN 10 FT DIVF ---- (+ DR -) 1/8 IN IN 10 FT *NET VARIATION FOR COMBINED DIMENSIONS

CALCULATED CUIL WIDTH: 43-13/16" @ t = 0.020"

BUILDINGS AND 161923 ASC STANDARD GR8 AG PANEL ROOF HIGH WIND SPEED STRUCTURES, INC. 녖 8 MEA SCALE AS NOTED ΒŢ DRAWN

0.01354

80 KSI MIN

SHEET NO. DATE: 3-14-17 SK-4 REV.

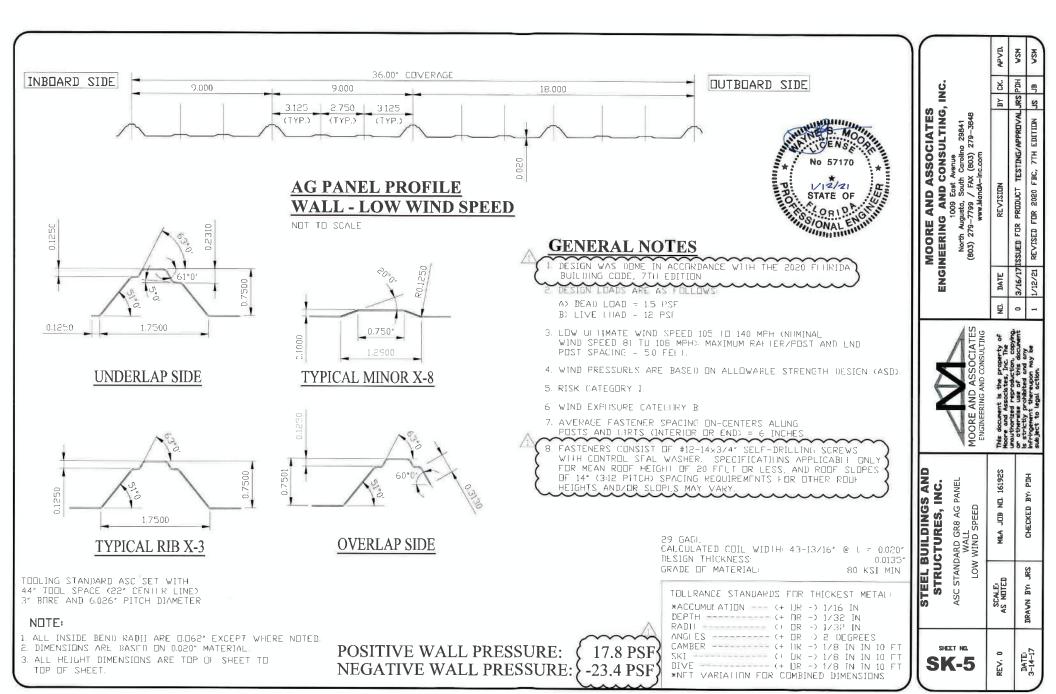
INEERING AND CONSULTING, II
1009 East Avenue
North Augusts, South Carolina 28841
(803) 279–7799 / FAX (803) 279–3848
www.MandA-inc.com PRODUCT TESTING/APPROVAL 2020 띰 ENGINEERING 3/16/17 ISSUED FOR REVISED DATE 0

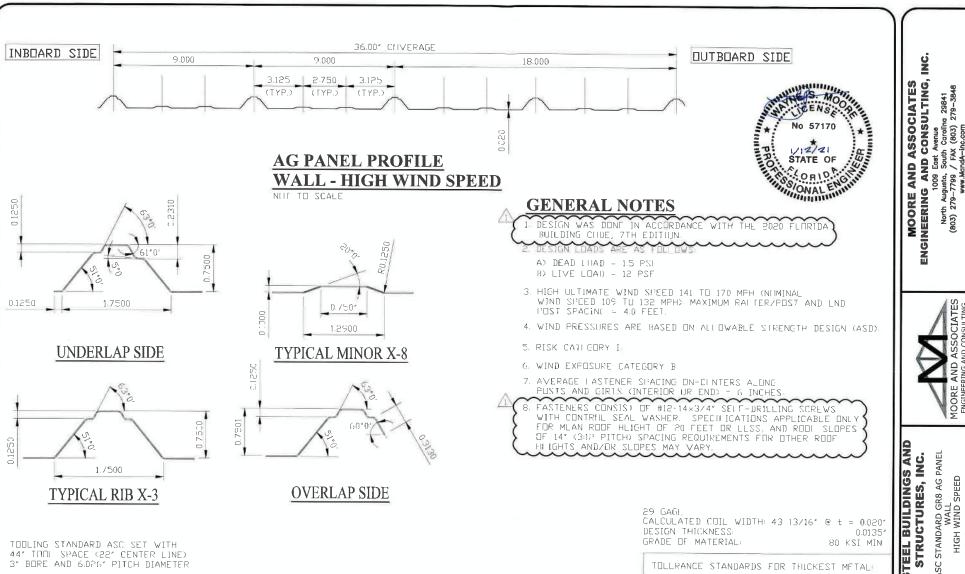
VSM

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JRS

EDITION 7TH





NOTE:

- 1. ALL INSIDE BEND RADII ARE 0.062* EXCLPT WHERE NOTED
- 2. DIMENSIONS ARE BASID ON 0.020" MATERIAL.
- 3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET IN TOP OF SHIFT.

POSITIVE WALL PRESSURE: SUCTION WALL PRESSURE:

26.6 PSF -34.9 PSF *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 FUR COMBINED DIMENSIONS

SK-6 SHEET WIT SHEET WAS AS A SHEET WIT SHEET WIT SHEET SHEE	STEEL B STRUC ASC STAND HIGH SCALE AS NOTED	STEEL BUILDINGS AND STRUCTURES, INC. ASC STANDARD GR8 AG PANEL WALL HIGH WIND SPEED SCALE NA JUB NO. 161928 AN BY JRS CHECKED BY DDH	MOORE AND ASSOCIATES MIGNIERING AND CONSULTING This document is the property of Moore and Associates, Inc. The Moore and Associates, Inc. The Total Associates are of this document or offerwise use of this document is strictly prohibited and any which opening and any be	Ö o	ENG! DATE 3/16/17	MOORE AND ASSOCIATES	호 용 된	
			subject to legal action.	7	1/12/21/	REVISED FOR 2020 FBC, 7TH EDITION US	9	VSM
	AWN BY JRS	CHECKED BY: PDH	Infringement thereupon may be subject to legal action.	1	1/12/21	1/12/21 REVISED FOR 2020 FBC, 7TH EDITION JS JB	9	



401 S. Main Street Suite 200

Phone: Mt. Airy, NC 27030 (336) 415-3540

Fax: (336) 719-2020

North Augusta, SC 29841 Phone: (803) 279-7799 Fax: (803) 279-3848 www.MandA-inc.com 1009 East Avenue

15 April 2021

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

Prepared By: Wayne S. Moore, P.E.

M&A COA No. 8966 FL PE No. 57170

Manufacturer:

820 Reeves Drive

Steel Buildings and Structures, Inc.

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:

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

Certificate of Independence:

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



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.

ATLNC #0321.01-17 test report dated 04/05/2017 and signed/sealed by David

Johnson, P.E.

Limitations and Conditions of Use

and attachment fasteners. to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports compared to test results performed under previous FBC given that testing of panel was performed Structural calculations were performed in accordance with the 2020 FBC, , 7th Edition and

- Maximum allowable design pressure shall be as indicated on plans for each configuration
- SIN 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
- 6.5 Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
- this product. All supporting structural members shall be capable of supporting superimposed loads applied to
- 7. Fasteners must consist of minimum 12-14 x 3/4" self-drilling fasteners (SDFs) with control seal
- 00 slope of 3:12 (14 degrees) or less. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof
- 9. spacing limitations. Product shall be installed into substrates shown on installation drawings and shall not exceed
- 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

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

Signature/Seal:





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www.MandA-Inc.com

Structural Analysis/Design Calculations Project Data Sheet

Client: Client Project/ PO Number: Project Name: Project Location:	SBSI - Keystone FPC (FL22561.1)
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	- Abr	ACCOUNT OF THE PARTY OF THE PAR
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

Client: SBSI

Job Name: Keystone FPC Update Design (Exp. B)

> Job No. 20300S

Date: 1/12/21

Checked By: Sheet No. Computed By:

AG Metal Roof Calc Set

Design Loads:

$$space_1 := 5 \cdot ft$$
 o.c.

$$space_2 \coloneqq 4 \cdot ft$$
 o.c.

Ht = 120 in

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

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

$$FS := 1.5$$

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

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

 $\lambda := 0.89$

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

Adjustment Factor

Roof (Wind Area = 50 square ft):

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

$$net30pos108 = 9.84 \ psf \cdot \lambda = 8.758 \ psf$$

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

 $Ppd_{net30pos108} := \max (16 \ psf, Ppd_{net30pos108}) = 16 \ psf$ **Note:** Used Zone 3r (most conservative) Vasd wind speeds since structure is Risk I.

Note: Values found from interpolation using

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

Roof (Wind Area = 50 square ft):

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

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

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

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

Client: SBSI

Job Name: Keystone FPC Update Design (Exp. B)

> Rev. Job No. 20300S

Date: 1/12/21

Checked By: Sheet No. Computed By:

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

 $\lambda := 0.89$ $mean_{rf}ht = 20 ft$

(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):

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

Note: Used Zone 3r (most

conservative)

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

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

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

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

Roof (Wind Area = 50 square ft):

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

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

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

CHAPTER 30

WIND LOADS: COMPONENTS AND CLADDING

SCOPE

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

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

and the wind pressures are calculated from a wind pressure roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, The building has a flat roof, gable roof, multispan gable

- 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 $h \le 60$ ft (18.3 m).

the wind pressures are determined directly from a table.

3. Part 3 is applicable to an enclosed or partially enclosed The building has a flat roof, gable roof, or hip roof, and

Building with h > 60 ft (18.3 m).

pressures are calculated from a wind pressure equation. Part 4 is a simplified approach and is applicable to an enclosed roof, mansard roof, arched roof, or domed roof, and the wind The building has a flat roof, pitched roof, gable roof, hip

- Building with 60 ft < $h \le 160$ ft (18.3 m < $h \le 48.8$ m). The building has a flat roof, gable roof, hip roof, mono-
- Part 5 is applicable to an open building of all heights that has a slope roof, or mansard roof, and the wind pressures are determined directly from a table.
- Part 6 is applicable to building appurtenances such as roof pitched free roof, monoslope free roof, or troughed free 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: $h \le 120\,\mathrm{ft}$ (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
- determined in accordance with this chapter shall comply with 30.1.2 Conditions. A building that has design wind loads all of the following conditions:
- The building is a regular-shaped building as defined in Section 26.2; and
- The building does not have response characteristics that make bility caused by galloping or flutter; nor does it have a site it subject to across-wind loading, vortex shedding, or insta-

of upwind obstructions warrant special consideration. location for which channeling effects or buffeting in the wake

- procedure specified in Chapter 31. documenting such wind load effects or shall use the wind tunnel characteristics shall be determined using recognized literature consideration the load magnification effect caused by gusts in resonance with along-wind vibrations of flexible buildings. Section 30.1.2 or The loads on buildings that do not meet the requirements of 30.1.3 Limitations. The provisions of this chapter take into that have unusual shapes
- pressure caused by apparent shielding afforded by buildings and other structures or terrain features. 30.1.4 Shielding. There shall be no reductions in velocity
- 30.1.5 Air-Permeable Cladding. Design wind loads determined from Chapter 30 shall be used for air-permeable approved test data or recognized literature demonstrates lower claddings, including modular vegetative roof assemblies, unless loads for the type of air-permeable cladding being considered

30.2 GENERAL REQUIREMENTS

- following wind load parameters are specified in Chapter 26: 30.2.1 Wind Load Parameters Specified in Chapter 26. The
- Basic wind speed, V (Section 26.5).
- Wind directionality factor, K_d (Section 26.6)
- Exposure category (Section 26.7).
- Topographic factor, K_{v} (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/ft² (0.77 kN/m²) acting in either direction normal to the
- for main wind force resisting systems (MWFRS). C&C elements with tributary areas greater than 700 ft² (65 m²) shall be permitted to be designed using the provisions 30.2.3 Tributary Areas Greater than 700 ft² (65 m^2) .
- given in the figures associated with this chapter. The pressure coefficient values and gust-effect factor shall not be separated. factor and external pressure coefficients for C&C, 30.2.4 External Pressure Coefficients. Combined gust-effect (GC_p) , are

Net Design Wind Pressure, p_{nei30} , in lb/ft², for Exposure B at h = 30 ft, V = 95-130 mph

Notes								Ga	ble	e R	001	ſ >	7 t	20	D D	egr	ees										Fla	t/I	lip/	'Ga	ble	Ro	of 0	to	7 D	egr	ees					w	alls				
: Plus a	ၾ	3r	3_{Γ}	3r	3e	3е	3e	3e	2r	21	21	2r	2n	2n	2n	2n	2e	2e	2e	2e	-	i -	-	-	ω	w	w	w	2	2	2	ء ا	; -		; –;	-	i tord	-	_	лU	n U	· O	4	4	4	4	Zone
Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	100	50	20	10	100	50	20	10	3 2	20	10	100	50	20	10 (fr)	Effective Wind Area
ns signif	6.6	7.6	8.9	9.8	6.6	36	8,9	8.6	6.6	7.6	8.9	9.8	6.6	7.6	8.9	9.8	66	7.6	8.9	9.8	6.6	7.6	8.9	9.8	5,2	5.6	62	6.6	5.2	5.6	6.2	2.6	. 5.6	6.2	6.6	5.2	5.6	6.2	66	120	15.5	16.2	13.8	14.5	15.5	16.2	
y pressu	-27.2	-34.7	44.6	-52.0	-24.1	-30.0	-37.8	43.8	-24.1	-30.0	-37.8	43.8	-24.1	-30.0	-37.8	43.8	-9.4	-18.2	-30.0	-30.0	-9,4	-18.2	-30.0	-30.0	-31.9	-36.3	42.1	46.5	-26.8	-29.0	-34.1	-14.9	-14.9	-14.9	-14.9	-20.2	-21.9	-24.2	-25.9	16.5	-20.3	-21.7	-15.2	-15.9	-16.9	100	
res actin	79	8.4	9,8	10.9	7.3	8.4	9.8	-10.9	7.3	8.4	9,8	10.9	7,3	8.4	9.8	10.9	7.3	8.4	9.8	10.9	7.3	00i 4	9.8	6.01	5.8	6.3	6,9	7.3	5.8	6.3	, o	3.8	6:3	6.9	7.3	5.8	6.3	6.9	772	16.1	17.2	18.0	15.3	16.1	17.2	180	
g towar	-302	-38.4	-49.4	-57.6	-26.7	-33.2	41.9	-48.5	-26.7	-33.2	419	48.5	-26.7	-33.2	41.9	-48.5	-10.4	-20.2	-33.2	-33.2	,	-20.2	ï		-35.4	<i>-</i> 40.2	-46.7	-51.5	-29.7	-32.2	-37.8 -35.4	-16.5	-16.5	-16.5	-16.5	_22.4	-24.3	-26.8	-10.7	-20.3	-22.5	-24.1	-16.8	-17.6	-18.7	105	
d and aw		9.3	10.8	12.0	%	9.3	8.01	12.0	00 1	9.3	10.8	12.0	8.1	.93	10.8	12:0	1.8	9.3	10.8	12.0	8.1	9.3	10.8	12.0	6.4	-6.9	7.6	8.1	6.4	6.9	7 0	0.4	6.9	7.6	8.1	6.4	6.9	7.6	10.9	17.8	18.9	19.8	16.9	17.8	18.9	10.6	
ay from	ا بر بر	-42.4	-54.4	1000	203	ALCOHOL:	(SH)	-53.4	90.07	863	-46.2	355		-36.6	46.2	-53.4	-11.4	alera V	-36.6	-36.6	No.	-22,3	-36.6	1970	_39.0	1995	=01	-56.8	-32.8	-35.5	10 DE-	-18.2	156	1 5000	CORRE	Mor	NEW R	-29.5	21.6	1		-26.6	1		-20.6	21.5	
the surfa	90	10.2	11.9	13.2	8.9	102	. 11.9	13.2	8.9	10.2	11.9	13.2	8.9	10.2	11.9	13.2	89	10.2	6.11	: 13.2	8.9	10.2	91.9	13.2	7.0	7.6	8.3	8.9	7.0	7.6	200	7.0	7.6	8.3	8.9	7.0	7.6	ر د د	10.0	19.5	20.8	21.8	18.5	19.5	20.8	ا د	Basic Wind Speed (mph)
ces, resp	- 36 S	-46.5	-59.7	-69.7	-32.3	40.2	-50.7		1000	HOST I	-50.7	-58.7	-32.3	SCORE.	-50.7	I	-	-24.5	40.2	-40.2	-12.5	-24.5	40.2	40.2	42.8	48.7	-56.5	-62.3	-36.0	-38.9	ر د د اد د	-19.9	-19.9	-19.9	-19.9	-27.1	-29.4	-32.4	247	-24.6	-27.2	-29.1	-20.4	-21.3	-22.6	22 6	Speed (
ectively.	07		13.0	14.4	9.7	11.1	13,0	14.4	9.7	LH	13.0	144	9.7	17.1	13.0	14.4	9.7	11.1	13,0	14.4	9.7	11.1	13.0	14.4	7.7	8:3	T-6	9.7	7.7	20	9/	7.7	8.3	9.1	9.7	7.7	 	9 4	20.2	21.3	22.7	23.8	20.2	21.3	22.7	33 0	mph)
For effe	300	-50.8	-65.3	: -76.2	-35.3	1	1	42	_35.3	ales L	-55.4	THE S	-35.3	44.0	-55.4	-64.1	-13.7	1	44.0	44.0	Pess	-26.7	44.0	44.0	inet:	Miles	-61.7	-68.1	-39.3	42.5	-50.0		-21.8	-21.8	CALTURE.	-	-32.1	1	27.0	-26.9	-29.7	-31.9	-22.2	-23.3	-24.7	25.0	
ctive wi		5	114	15			145	157		100	4	157	10%	(C.C.)		15	10.4	12.	Total Park	15.7	10.5	121	**		8.3	9.0	9.9	10.5	8.3	9.0	0.0		9.0	9.5	10.5	媳	N.S.	00	7.77	23.2	24.7	25.9	22.0	23.2	24.7	2	
nd areas	17.	-55,4	<u>-</u> 71.	-83.0					750. 		€ -60.4	-69.8	-38.4		-60.4	_69.8	-14.9	-29.1	1	47.9	Brett	_29.1	47.9	1000	-50.9	600	150	200	SHEET CO	田村日	-50.9 -50.9	100	e moy	-23.7	(CERT	-32.2	COR II	27 25	٩,	1	J	, 1) -24.2		-26.1	120	
betweer	7	N.	_		12.4		4 16.6	1		9 14.2	_	_	12.4	9 142	4 16.6			14.2	Ť			1 14.2		9 18.4	9	. 01	2 113	2	9	5	12	9	10.	11	12	9		I WILL	8	-	_	30.4	25.0	0,67	30.4		2
1	gral Q	1		4 -97.4	nae s	l l	1	. 1	art at	2 -56.2	.6 -70.8		1	2 -56.2		4 -81.9				1	C C WALL	1	6 -56.2	4 -56.	8 -59	5 681	5 -78	-87	100	KKC SK	6	-27	-27 8	-27.9	-27	73	去	上	-31							20	

wores: rius 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 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 Bulldings—Walls and Roofs

continues

STANDARD ASCE/SEI 7-16 👬

Net Design Wind Pressure, p_{net30} , in lb/ft², for Exposure B at h = 30 ft, V = 140-200 mph

_	_	_	_	_	_	_		- D	6	. 7	7 40	20	Deg	rec							T		Fla	t/H	ip/C	abl	e R	oof	0 to	71	Deg	rees					W	alls						
3	ω	3r	3r	မှ မှ	ی د		22	21	_	^ 2r				316	200	2e	2e	<u>_</u>			- 0	س	w	w	2 1	s 12	2	Ξ,	٦				_	_ \	'nО	n U	, 5,	4	4	4	4	Zone	1	
r 100	r 50		+		50 02	-	100	50	20	10	100	50	20	10	120	50	10	100	50	20	10	50	20	10	100	O. 20	10	100	50	20	100	50	20	10	3 5	50	10	100	50	20	10	Area (n²)	Wind	1
14.3	16.5	19.3	21.4	14.3	16.5	193	14.3	16.5	19.3	21.4	14.3	16.5	19.3	21.4	143	16.5	21.4	14.3	16.5	19.3	21.4	12.3	134	14.3	11.4	15.4	14.3	11.4	[2.3	13.4	143	12,3	13.4	14.3	30.0	31.6	35.3	30.0	31.6 -	33.7 -	35.3 -	140		
-59.2	1	-96.8	-112.9	-52.3	_65.1	-95.0 -82.1	-02.3	5 b	-82.1	_95.0	-52.3	-65.1	-82.1	-95.0	-20.3	-39.6	-65.1	-20.3	-39.6	-65.1	65.1	-/8.9	-91.5	-101.0	-58.3	63.0	-74.1	-32.3	-32.3	-32.3	-32.3	47.0	-52.5	-56.2	36.7	30.8	4/.2	33.0	-34.6	-36.7	38.2		-	
2 16.5		-	9 24.5		-	1 22.1			-		1				16.5	18.9	24.5	16.5	18.9	22.1	24.5	13.0	15.4	16.5	13.0	[4. [4.	100	13.0	14.1	15.4	16.5	13.0	15.4	16.5	34.4	36.2	40.5 78.7	34.4	36.2	38.7	40.5	150		
5 -59.2	1	1	1			-82.1	1.	-62.1		93.0	-52.3	65.	-82.1	-95.0	-20.3	-39.6	65.1	-20.3	-39.6	-65.1	-65.1	-69.3	-91.5 78.0	-101.0	-58.3	-63.0	-/4.1	-32.3	-32.3	-32.3	-32.3	0.0	-52.5	-56.2	-36.7	-39.8	41.4	33.0	-34.6	-36.7	-38.2			
1.2 18.7			_	.3 18.7	_		1	3 18.7			1		_	27.9	_		27.9	1		25.2	27.9	14.8	160	18.7	14.8	16.0	17.6	14.8	16.0	17.6	18.7	14.8	17.6	18.7	39.2	41.2	44.0	39.2	41.2	44.0	46.1	160		1
	1	j	ı			1				0 -1073	1	,	ı	1			-85.1	١.	-51.8	,	-85.1	-90.6	-103.0	-131.9	-76.1	-82.3	-90.6	42.1	42.1	42.1	-42.1	-57.3	68.5	-73.4	47.9	-52.0	-57.5	43.1	45.1	47.9	-50.0			Basic
v from th					5.1 24.3		7				315				1	-	1 28.4	t		_	-	-		108		-	19.8	1	18.1	19.8	21.1	16.7	19.8	21.1	44.2	46.6	49.6	50 5	40.0	49.6	52.0	17		Wind S
e surface			1			1	1					3 -90.0	1	ı	1			960	a .	,			-116.3	-134.9	-85.9	-92.9	-102.2	1003	47.0	47.6	47.6	-64.7	-70.1	-82.8	-54.1	-58.7	-64.9	-69.6	78 K	51.0	-56.4			Basic Wind Speed (niph)
s, respe	72 2	1111 2	70	1	-	-	1	_				1 23.7	-	-		_			0 23.7	×				22.2		-		7	18 8	-	0	18.8	20.3	23.7	49.6	52.2	55.7	58.3	496	53.7	58.3	18		ıph)
ctively.	3.7	72 - 1	318 -1	1	1					ī	1				1		ı	d	7 -33.6	1		1		-151.2		1		-122.5	_53.3	-53.3	-53.3	-72.5	-78.6	-92.9	-60.6	-65.8	-72.8	-78.0	-54.5	-57	-60 K	3		
For effe	_		150.7	+		-		-	_	-	1				+		-	+	.6 26.4	-	_	T			0 26.4	-		7		2 24.6		1		20.4	1	13.			55.2	58.1	62.0	640		
ctive w				394 -			39.4 - 1	1	1	35.5 -1			30.3 -12		1		1	. 1		ı	1	1		1	. 1			1 -136.5		5 -59.4		١.	-87.6	. 1	102	-73.4	-81.1	-87.0	-60.7	_63.7	-67.5	190 -70 4		
respectively. For effective wind areas between	-109.0	-138.8				-151.3			_	_		-				-73.0 3			_37.4 2			7	3	01	7	_	-			-	.4 29.3	1			201.2			72.0		-		72.0		1
is betwe	29.3			. 1	20.00			1	1		١,	1			43.6 -			43.6 -1			45.0 -1 10 3 -1	1	1	1		$\frac{25.0}{23.0} - \frac{11}{2}$	1	ы		,	1 1	1.		1	3 -1146		1	1			ı	200 -78.1	2	
en:	-120.7	-153.8	-197.5	-230.5	106.7	-167.7 -132 9	-193.9	106.7	-132.9	167.7	-193.9	-106.7	-132.9	-167.7	-193.9	41.5	-132.9	-132.9	41.5	-80.9	132.9	141.5	161.0	-186.7	206.1	118.9	-141.5	151.2	65.9	65.9	65.9	29.5	7.1	7.1	2 2	<u>ه</u> آد	3.9	نن	سَا	Ĺ,	00		-	1

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 Metricconversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$. that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

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_{acco} , in lb/ft², for Exposure B at h=30 ft, V=95-200 mph

			Н	ip l	Roc	of >	27	to	45	De	gre	ees					
w	W	Lυ	W	2r	2r	2r	21	2e	2e	2e	2e	-	_	_		Zone	
100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	(R²)	Effective Wind Area
-24.8	-24.8	-36.4	45.2	-24.8	-31.2	-39.7	46.1	-	$\overline{}$	-31.6	-38.1	-23.2	-25.7	-29.1	-31.6	95	
-27.4	-27.4	40.3	-50.1	-27.4	-34.6	44.0	-51.1	_	-25.4	-35.0	42.3	-25.7	-28.5	-32.2	-35.1	100	
-30.3	-30.3	-44.5	-55.3	-30.3	-38.1		-56.3	-26.9	-28.0		46.6	-28.3	-31.4	-35.5	-38.7	105	
-33.2	-33.2	48.8	-60.6	-33.2	41.8	-53.2				-42.3	-51.1	-31.1	-34.5	-39.0	-42.4	110	
-36.3	-36.3	-53.4	-66.3	-36.3	-45.7	-58.1	-67.5	-32.3	-33.6	-46.3	-55.9	-34.0	-37.7	-42.6	-46.4	115	
-39.5			-72.2	_39.5	49.8	-63.3	-73.5	-35.1	-36.6	-50.4	-60.9	-37.0	41.1	-46.4	-50.5	120	_
46.4	46.4	-68.2			-58.4	-74.3	-86.3	41.2	-42.9	-59.1		1	48.2	-54.5	-59.3	130	Wind Speed (mph
-53.8	-53.8	-79.1	-98.2	-53.8	-67.7	-86.2	-100.1	47.8	49.8	-68.6	-82.8	-50.4	-55.9	-63.2	-68.7	140	ed (mpl
-61.7	-61.7	-90.8	-112.8	-61.7	1.77.7	-98.9	-114.9	-54.9	-57.1	-78.7	-95.1	1		-72.5	-78.9	150	=
-70.2	-70.2	-103.3	-128.3	-70.2	-88.5	-112.5	-130.7	-62.4	-65.0	-89.6	-108.2	-65.8	-73.0	-82.5	-89.8	160	
-79.3	-79.3	-116.6	-144.8	-79.3	-99.9	-127.0	-147.6	-70.5	-73.4	-101.1	-122.1	-74.2	-82.4	-93.2	-101.3	170	
-88.9	_88.9	-130.7	-162.4	-88.9	-112.0	-142.4		-79.0	-82.3	-113.4	-136.9	1000		-104.5	-113.6	180	
-99.1	-99.1	-145.7	-180.9	-99.1	-124.7	1-158.7	-184.4		-91.7	-126.3	-152.6	-92.7	-102.9	-1164	-1266	9	
-109.8	-109.8	-1614	200 5	-109 8	-1385	-1750	-2043	07.0	T COLUMN	1				V (6	le le	級	

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. Metric conversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$.

Adjustment Factor for Building Height and Exposure, λ

Mean		Exposure	,
Height (ft)	В	С	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
Mada Make		100	0 2010

Note: Metric conversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$

FIGURE 30.4-1 (Continued). Components and Cladding, Part 2 [$h \le 60 \text{ ft } (h \le 18.3 \text{ m})$]: 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 ($h\!>\!18.3$

3

Step 1: Determine risk category; see Table 1.5-1.

2: Determine the basic wind speed, V, for applicable risk category; see Figs. 26.5-1 and 26.5-2

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_{σ} ; 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 Ų, Determine velocity pressure, q, Eq. (26.10-1).

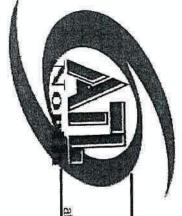
Step 6: Determine external pressure coefficient, (GC_p) :

Walls and flat roofs (θ < 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-

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



American Test Lab, Inc 1122 Calvert Road Brevard, NC 28712

828-884-3700 atli@comporium.net

ating 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

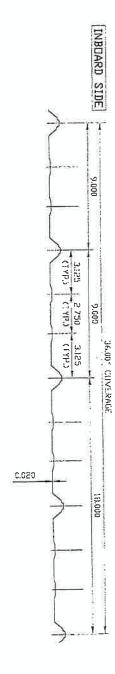
Test Conditions: 65 - 75 degrees F

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.

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

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

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

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

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

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.

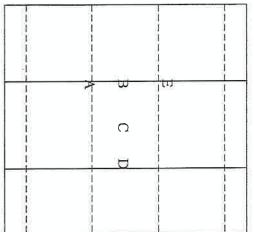
2-1/2" Tube Girth Spacing: Specimen C, 3 spans 48" OC with 12" overhang, rafter spacing 48" Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC.

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

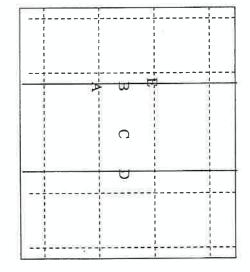
Test Specimens

Indicator Locations

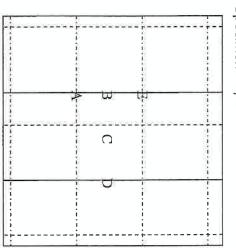
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

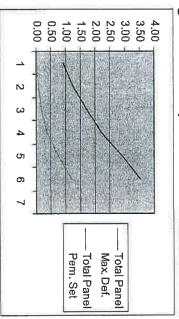
120	110	100	90	80	70	60	50	40	30	20	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					2.86"	2.35"	1.84"	1.45"	1.04"	.75"			()	Purlin Rib
					.84"	.55"	.30"	. 15	.05"	02"				Perm.
					2.97"	2.47"	1.92"	1.52"	1.12"	.83 ₂		(B)	Rib	Mid-Span
					.99"	.64"	.33	.17"	.07"	.03"			Set	Perm.
					ය. ගැ	2.90"	2.22"	1.73"	1.26"	.93			(C)	Mid-Span
					1.22"	.76"	.39"	.20"	.08"	.03"			Set	Perm.

Deflections in inches

120	110	100	90	80	70	60	50	40	30	20	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					2.97"	2.46"	1.90"	1.50"	1.09"	.80"	(=)	<u>D</u>	Rib	Mid Span
					.97"	.63	.32"	.17"	.06"	.02"			Set	Perm
		No.			2.87"	2.40"	1.86"	1.47"	1.06"	.81"	225		(E)	Purlin Rib
					.89"	.58	30	.16"	.06	.02"			Set	Perm.
					3.53"	2.90"	2.22"	1.73"	1.26"	.93			Deflection	Total Panel
					1.22"	.76"	.39	.20"	.08	.03	Set	Perm.	Panel	Total

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

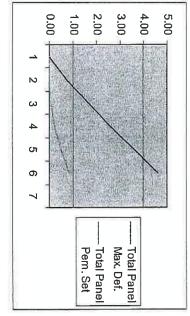
Pressure Increments psf Negative 0 20	Time (sec) 60 60	Purlin Rib (A) 0" .58"	Perm. Set 0" .01"	Mid-Span Rib (B) 0" .60"		Perm. Set 0.0	Perm. Mid-Span Set (C) 0" 0" 0" 0.0 ,75" .169"
20	60	.58"	.01"	.60"	0.0	0	
30	60	1.34"	.07"	1.45"	.08	- 5	-11-
40	60	2.07"	.21"	2.29"	.2	<u>"</u>	
50	60	2.97"	.44"	3.03"		16"	
60	60	3.89"	.75"	4.36"		80"	
70	60						
80	60				ī		

Deflections in inches

Pressure Time	Time	Mid Span	Perm	Purlin Rib	Perm.	Total Panel	Total
Increments	(sec)	Rib	Set	(E)	Set	Deflection	Panel
psf		(D)					Perm.
Negative							Set
0	60	0,	0"	0"	0"	O"	O ₁
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 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



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

Specimen C

Deflections in inches

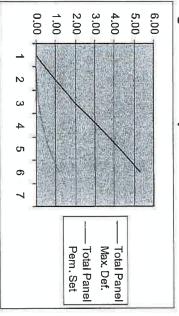
100	90	80	70	60	50	40	30	20	10	0	psf Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60		(sec)	Time
					3.97"	3.18"	2.41"	1.53"	.70"	O,		(A)	Purlin Rib
					.75"	.44"	.22"	.08"	.04"	O.		Set	Perm.
					4.41"	3.57"	2.68"	1.72"	.82"	O,	(B)) R	Mid-Span
					.84"	.49"	.24"	.10"	.05"	Q		Set	Perm.
					5.30	4.26"	3.15	1.99"	.96"	Q		(C)	Mid-Span
					1.16"	.66"	.32"	.12"	.06"	O ₃		Set	Perm.

Deflections in inches

100	90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					4.79"	3.89"	2.94"	1.90"	.93"	0"		(D)	Rib	Mid Span
					.96"	.56"	.28"	.11"	.05"	0"			Set	Perm
					3.92	3.10"	2.36"	1.49"	.71°	0"			(E)	Purlin Rib
					.78"	.44"	.20"	.07"	.03"	Q.			Set	Perm.
					5.30	4.26"	3.15"	1.99"	.96"	O"			Deflection	Total Panel
					1.16"	.66"	.32"	.12"	.06"	O ₂	Set	Perm.	Panel	Total

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

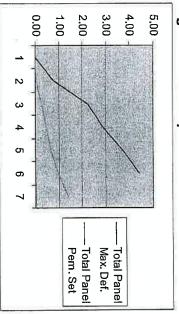
Deflections in inches

70	63	56	49	42	35	28	21	14	7	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	
				4.11"	3.32"	2.83"	2.20"	1.70"	.54"	O,			€	Purlin Rib
				1.22"	.88	.63"	.47"	.29"	.02"	O,			Set	Perm.
				5.14"	4.27"	3.61"	2.81"	2.18"	.69"	o _a		(B)	Rib	Mid-Span
				1.56"	1.13	.78"	.57"	36"	.02".	Q			Set	Perm.
				5.28"	4.43"	3.72"	2.90"	2.26"	.78"	O ₃			(3)	Mid-Span
				1.40"	.99	.67"	.45	.28	.02"	Ç			Set	Perm.

70	63	56	49	42	35	28	21	14	7	0	psf Negative	Increments	Pressure	מוסכווסכווס ווי וויסווסס
60	60	60	60	60	60	60	60	60	60	60		(sec)	Time	110100
				4.56"	3.88"	3.37"	2.65"	2.08"	.76"	0"	(D)	Rib	Mid Span	
				1.10"	.8 <u>1</u>	.56	.37"	.22"	.02"	0"		Set	Perm	
				5.63"	4.62"	3.89"	3.01"	2.35"	.75"	0"		Ē	Purlin Rib	
				1.71"	1.20"	.81	.58	.37"	.02"	O ₃		Set	Perm.	
				5.28"	4.43"	3.72"	2.90"	2.26"	.78"	Q		Deflection	Total Panel	-
				1.40"	.99	.67"	.45	.28"	.02"	0	Set	Panel	otal	1

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

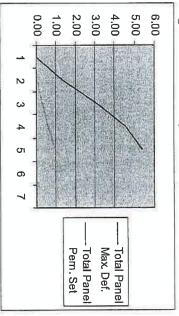
90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60			(sec)	Time
					4.45"	3.56"	2.49"	1.13"	O,			(A)	Purlin Rib
					.80"	.51"	.30"	.10"	0"			Set	Perm.
					4.71"	3.90"	2.72"	1.22"	0"		(B)	Rib	Mid-Span
					.87"	.55	30	.07"	Q			Set	Perm.
					5.37"	4.56"	3.12	1.38"	Q			(0)	Mid-Span
					.98"	.60	<u>:</u>	.07"	O ₃			Set	Perm.

Deflections in inches

	90	80	70	60	50	40	30	20	10	0	Negative	Increments	Pressure	001001010
	60	60	60	60	60	60	60	60	60	60		(sec)	Time	
						5.43"	4.46"	3.08"	1.40"	0"	(3)	∂ §	Mid Span	
1						.99"	.63.	.30"	.08"	0"		Set	Perm	
						4.33"	3.44"	2.42"	1.09"	0"		(F	Purlin Rib	
						.71"	.42"	.25"	.07"	o,		Set	Perm.	
Temponent Cot						5.37"	4.56"	3.12"	1.38"	0"		Deflection	Total Panel	-
indicators.			34			.98"	.60"	:01	.07"	0"	Set	Perm	lotal	-

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

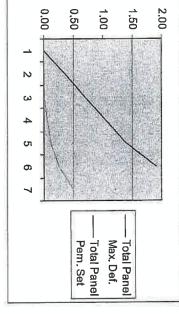
Pressure Time	Time	Purlin Rib	Perm.	Mid-Span	Perm.	Mid-Span	Perm.
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2] ;; -	2).	20
Increments	(sec)	(A)	Set	지금 당	Set	()	Jec.
psf				(B)			
Negative							
0	60	0"	0,	0,"	0"	O ₃	O ₃
7	60	.23"	.0"	.27"	.01"	.36"	.02"
14	60	.49"	O _"	.56"	.02"	.71"	.02"
21	60	.74"	.03"	.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

70	63	56	49	42	25	28	21	14	7	0	Negative	psf	Increments	е	Pre91ssur
60	60	60	60	60	60	60	60	60	60	60				(sec)	Time
	3.87"	3.08"	2.49"	2.01"	1.59"	1.19"	.90"	.60"	.28"	0"			(D)	Rib	Mid Span
	1.64"	1.12"	.70"	.41"	.23"	.11"	.05"	.02"	.01"	O _i				Set	Perm
	3.39"	2.78"	2.26"	1.81"	1.44"	1.09"	.80"	.52"	.24"	0"				(E)	Purlin Rib
	1.45"	.98"	.60"	.35	.19"	.09"	.04"	.01"	.o.	Q.				Set	Perm.
	4.70"	3.66"	2.93"	2.40"	1.90"	1.39"	1.05"	.71"	.36"	O ₂				Deflection	Total Panel
	2.06"	1.38	.86	.50"	.27"		.06"	.02"	.02"	Q		Set	Perm.	Panel	lotal

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.





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

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

Technician: Keith Owen

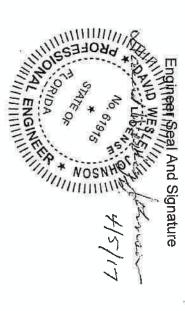
Observers-

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.

Huch Cons

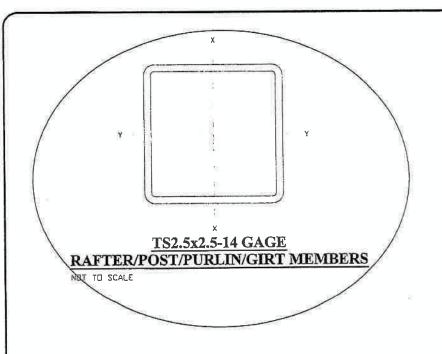
All Tests Witnessed and Certified by:
David Johnson P. E.
1122 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 61915



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:

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



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

ATL INSPECTOR

PROPERTIES

AREA = 0.727 IN.2 SX = 0.727 IN.3 SX = 0.570 IN.3 SY = 0.570 IN.3 IX = 0.713 IN.4 IY = 0.713 IN.4 CX = 0.990 IN. ry = 0.990 IN.

APPLICATION:

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

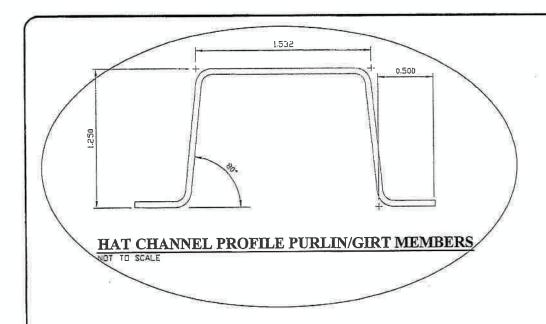
CALCULATED COIL WIDTH: 3.81' @ t = 0.052' CUSTOMER SPECIFIED WIDTH 4.00' @ t = 0.052' METAL THICKNESS: MATERIAL GRADE:

0.052°

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	No 57170	1
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	XACCU	JMULA	TION		ζ+	OR	-)	1/16	IN			
	DEPTH	1			(+	ΦR	->	1/16	IN			
	CAMB	R										
	SKI =											
												FT
	XNET	VAR	ATION	FOR	s c	DMB	INE:	D DI	MEN	210	ZИ	
П												95

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MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. 1008 End Annue North Augusto, South Corolina 28841 (802) 279-7799 / FM (802) 279-3848	REVISION	3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL JRS PDH	
ENG	DATE	3/16/17	
	호	0	
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING	This document is the property of	unsultarized reproduct	is strictly prohitted an infringement thereupon subject to legal action
STEEL BUILDINGS AND STRUCTURES, INC. 152.5x2.5 RAFTER/POST/PURLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND SPEED	NEA JOB NO. 161925	Science Strate Department and Control	CHECKED BY PDH
STEEL B STRUC STRUC T RAFTER/POST/I	SCALE	AS NOTED	DRAWN BY JRS
SHCET HO.	0.730		DATE: 3-14-17



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

ATL INSPECTOR



MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East America
North August, South Conding 28811
(503) 279-7799 / FM (603) 279-3848
www.Mondol-inc.com

VSH

PDH Ç. BY BY

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL REVISION

DATE

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CHECKED

DRAWN BY JRS

3-14-17 REV. 0

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SCALE, AS NOTED

\$26191 JOB HO.

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

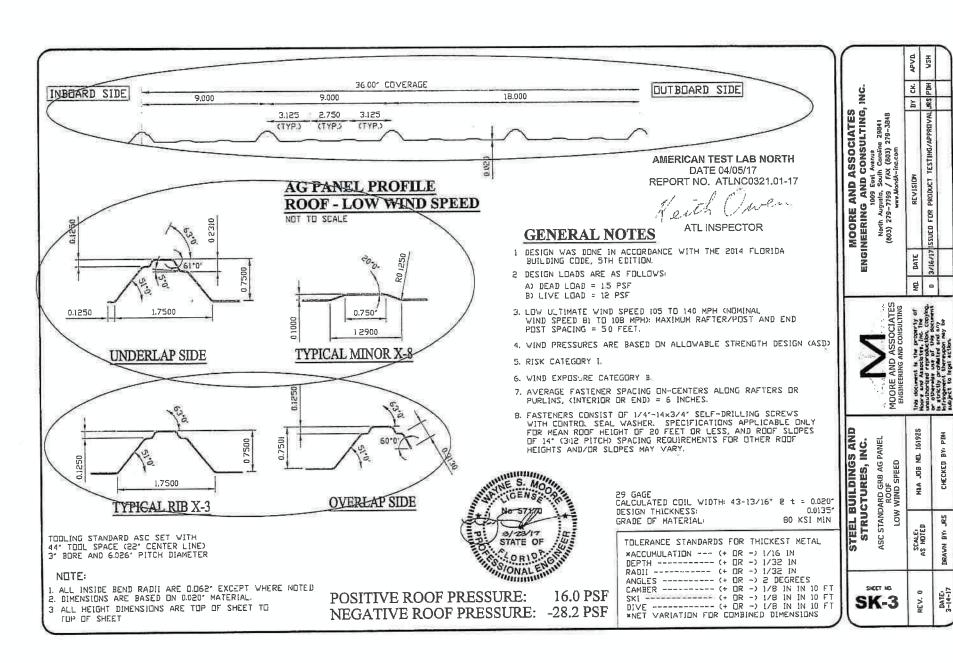
SHEET HO.

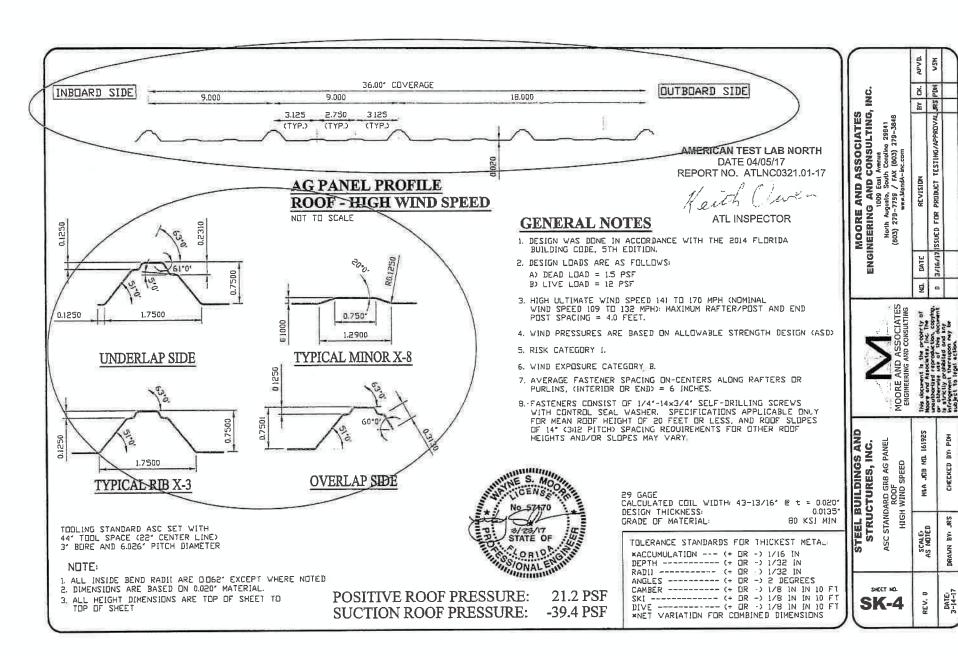
CALCULATED COIL WIDTH: CUSTOMER SPECIFIED WIDTH: METAL THICKNESS: MATERIAL GRADE:

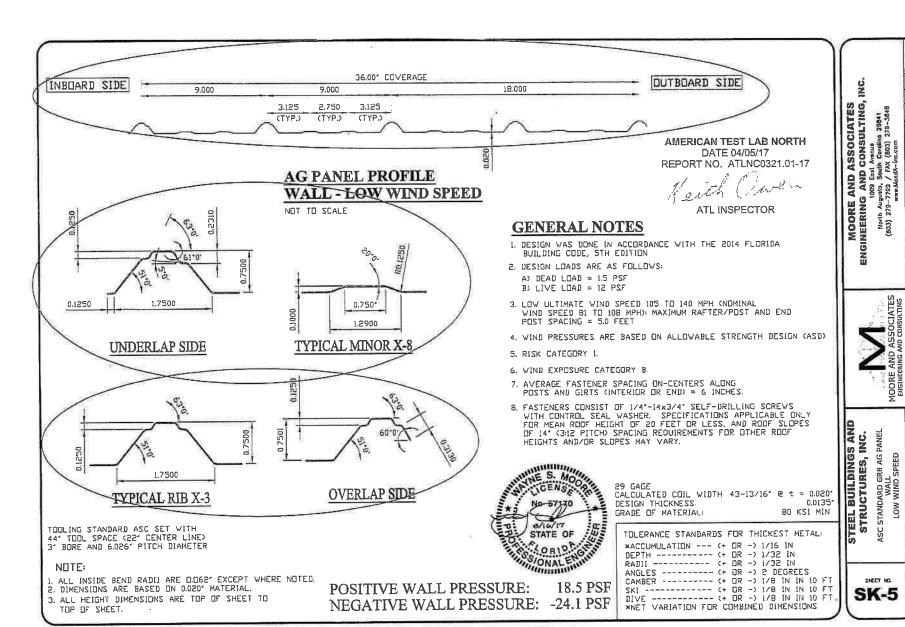
3.81' @ t = 0.052' 4.00' @ t = 0.052' 0.052* 50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:
WACCUMULATION (+ DR -) 1/16 IN
DEPTH (+ QR -> 1/16 IN
RADII (+ DR -) 1/32 IN
ANGLES (+ DR -) 2 DEGREES
CAMBER (+ OR -) 1/8 IN IN 10 F
SKI (+ OR -) 1/8 IN IN 10 F
DIVE (+ DR -) 1/8 IN IN 10 F
WNET VARIATION FOR COMBINED DIMENSIONS

WINE S. MOON	
No. 57470	
STATE OF	







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REVISION PRODUCT

DATE

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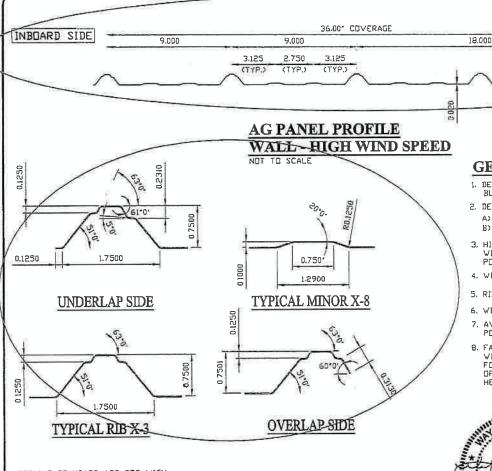
SCALE AS HOTED BY

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CHECKED ED4

DRAVN

DATE: 3-14-17



DUTBOARD SIDE

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. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPHD: MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
- 4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
- 5. RISK CATEGORY I.

S. More

STATE OF

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JE S. MOO

- 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.

29 GAGE CALCULATED CDIL WIDTH: 43-13/16' @ t = 0.020' DESIGN THICKNESS: GRADE OF MATERIAL

80 KSI MIN TOLERANCE STANDARDS FOR THICKEST METAL: WACCUMULATION --- (+ DR -> 1/16 IN DEPTH ----- (+ OR -> 1/32 IN N 35/1 ------ (+ DR -> 1/32 IN ANGLES ----- (+ OR -) 2 DEGREES CAMBER ----- (+ DR -) 1/8 IN IN 10 FT SKI ----- (+ DR -) 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 America 28041
(903) 278-7789 / FXX (903) 279-3408
Text Algorithmicson

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VSH

JRS BY

PRODUCT TESTING/APPROVAL

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SSUED

3/16/17 DATE

REVISION

ASC STANDARD GR8 AG PANEL. WALL. HIGH WIND SPEED STRUCTURES, INC. BUILDINGS 旦 CHECKED 8 ¥ STEEL SCALE! AS MOTED ΒŸ DRAVN ZHEET NE DATE: 3-14-17

SK-6

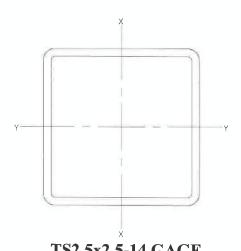
REV.

0.0135

TOOLING STANDARD ASC SET WITH 44" TOOL SPACE (22" CENTER LINE) 3' BORE AND 6 026' PITCH DIAMETER

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

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



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 IY - 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: MATERIAL GRADE:

0.052* 50-80 KSI

TULERANCE STANDARDS FOR THICKEST METAL: *ACCUMULATION --- (+ |JR -) 1/16 IN ANOLES (1 DR -) 2 DECREES

SKI (+ DR -) 1/8 IN IN 10 FT

DIVE (+ TIR -) 1/8 IN IN 10 FT

*NET VARIATION | TIR COMBINED DIMENSIONS



MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. 1009 East Avenue North August, Sorth Carolina 29841 (803) 279–7799 / FX (803) 279–3848 www.MondA-inc.com

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JRS PDH

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL REVISED FOR 2020 FBC, 7TH EDITION

1/12/21

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REVISION

DATE



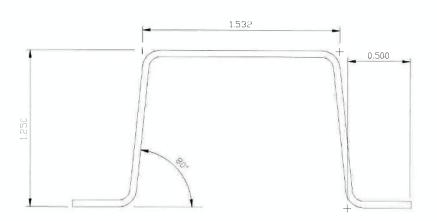
TS2.5x2.5 RAFTER/POST/PURLIN/GIRT MEMBERS HIGH WIND SPEED SPEED STEEL BUILDINGS AND STRUCTURES, INC. 161928 ΒŸ ġ CHECKED Me.A JRS SCALE: AS NOTED DRAWN BY

DATE: 3-14-17

REV.

SHEET NO.

SK-1



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TIL SCALE



CALCULATED COIL WIDTH: 3.81" @ t = 0.052" CUSTOMFR SPECIFIED WIDTH: 4.00" @ t = 0.052" MLTAL THICKNESS: MATERIAL GRADE:

0.052* 50-80 KSI

IDLERANCE STANDARDS FOR THICKEST METAL *ACCUMULATION -- (+ OR -) 1/16 IN
DEPTH -- (+ OR -) 1/16 IN
RADII -- (+ OR -) 1/32 IN
ANGLES -- (+ OR -) 2 DFGREES
CAMBER -- (1 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 August, South Carolina 29841 (803) 279–7799 / FAX (803) 279–3848 www.MondA-Inc.com

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL DATE 0 MOORE AND ASSOCIATES ENGINEERING AND CONSULTING

MSM

PJH

JRS

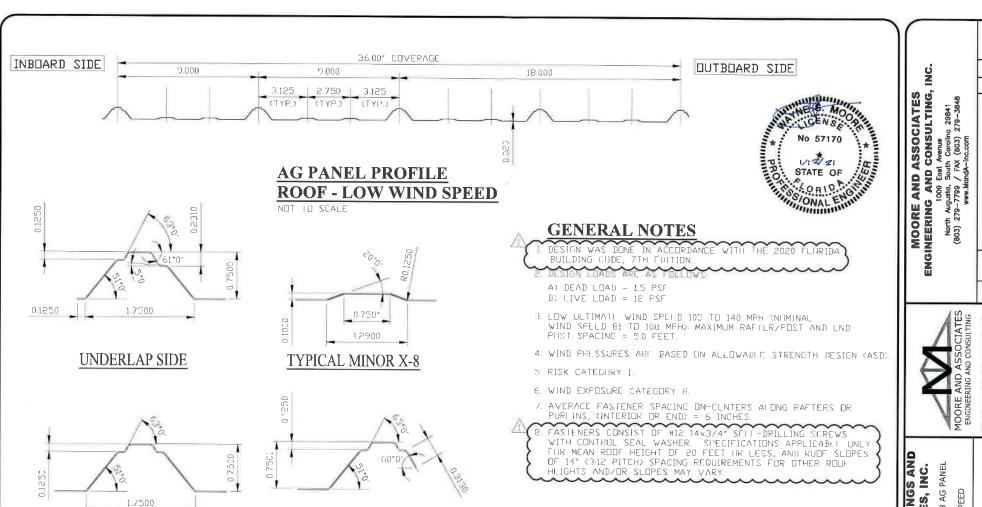
REVISED FOR 2020 FBC, 7TH EDITION

1/12/21

161925 딮 8 M&A

REV. 0 SK-2

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND
SPEED STEEL BUILDINGS AND STRUCTURES, INC. Β¥ CHECKED SCALE: AS NOTED DRAWN BY: SHEET NO. DATE: 3-14-17



29 GAGE
CALCULATED COIL WIDTH 43-13/16' @ t - 0.020'
DESIGN THICKNESS: 0.0135'
GRADL OF MATERIAL: 80 KS1 MIN

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

NIT I E

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

TYPICAL RIB X-3

POSITIVE ROOF PRESSURE: NEGATIVE ROOF PRESSURE:

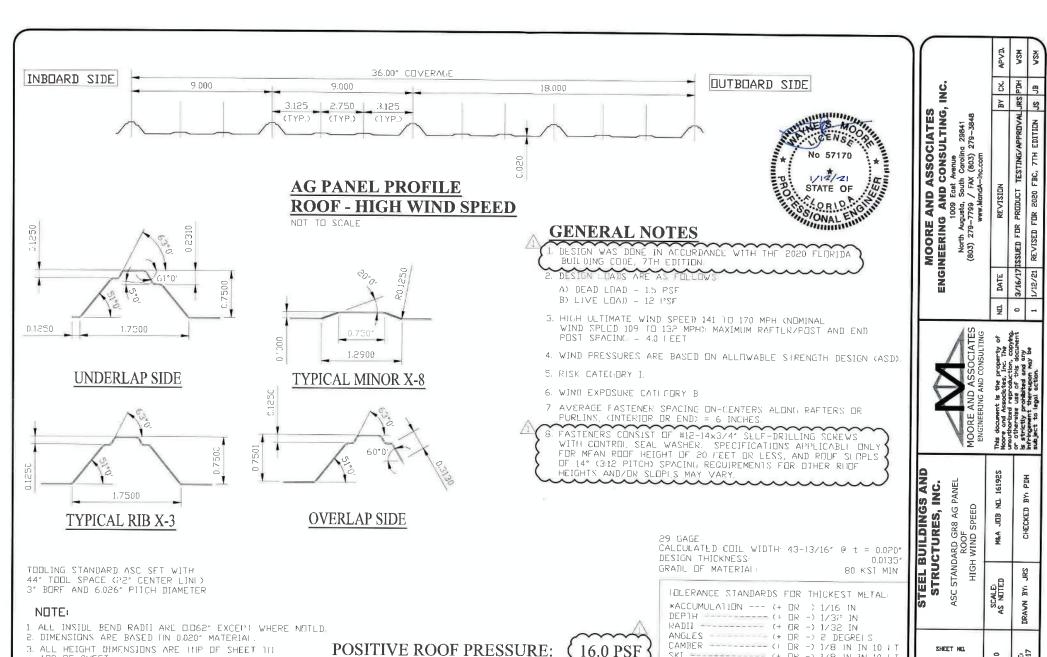
OVERLAP SIDE

16.0 PSF } -39.9 PSF } **ACCUMULATION --- (+ OR -> 1/16 IN DEPTH --- (+ OR -> 1/32 IN RADII --- (+ OR -> 1/32 IN IN 10 II II IN 10 II II IN 10 II II IN 10 II II IN 10 III

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL DATE ġ 0 161928 STANDARD GR8 AG PANEL ROOF LOW WIND SPEED STRUCTURES, INC. į 8 Mg.A SCALE AS NOTED DRAWN SHEET NO. DATE: 3-14-17 SK-3

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JRS



-59.7 PSF

SUCTION ROOF PRESSURE:

10P OF SHEET.

SKI ----- (+ DR -) 1/8 IN IN 10 FT

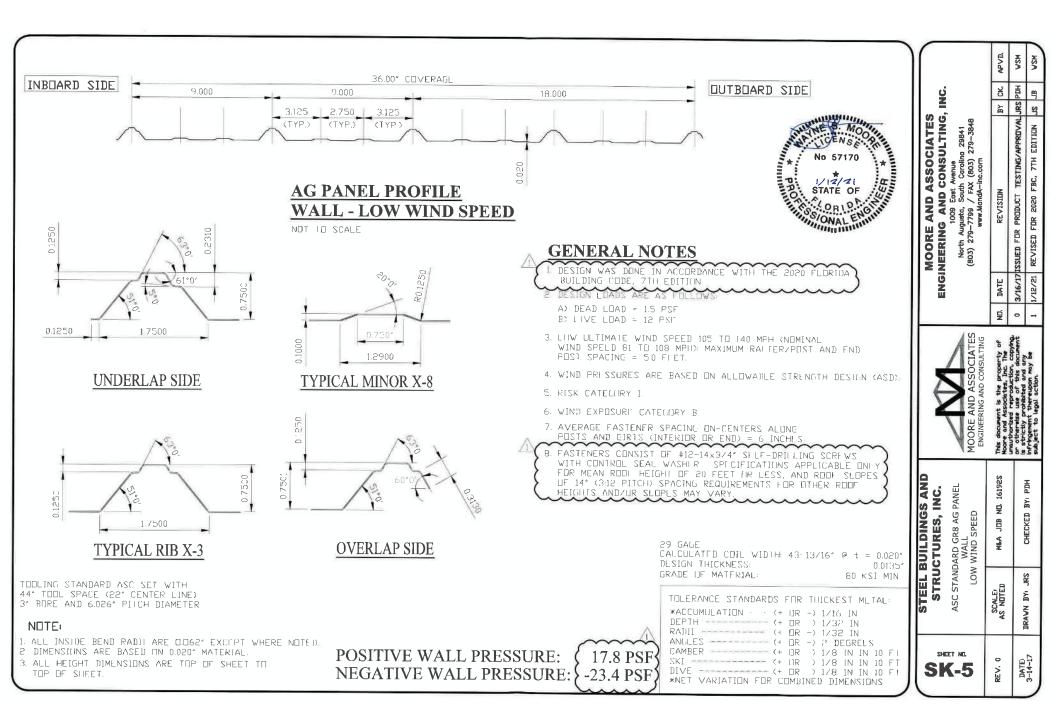
DIVL ---- (+ FIR -) 1/8 IN IN 10 FT

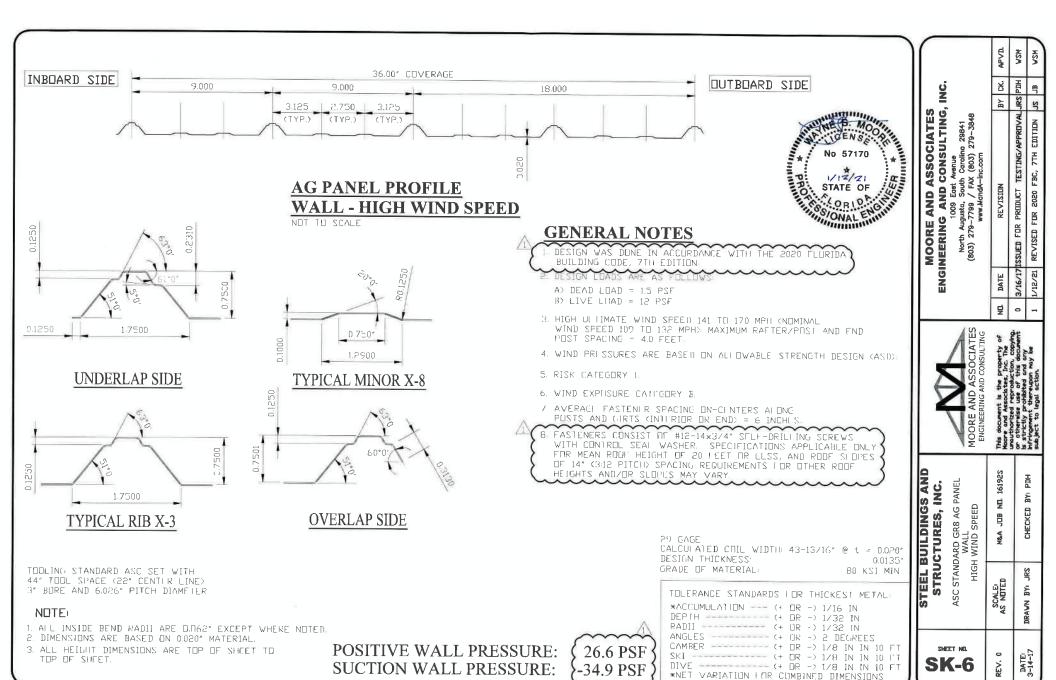
*NET VARIATION FOR CLIMBINED DIMENSIONS

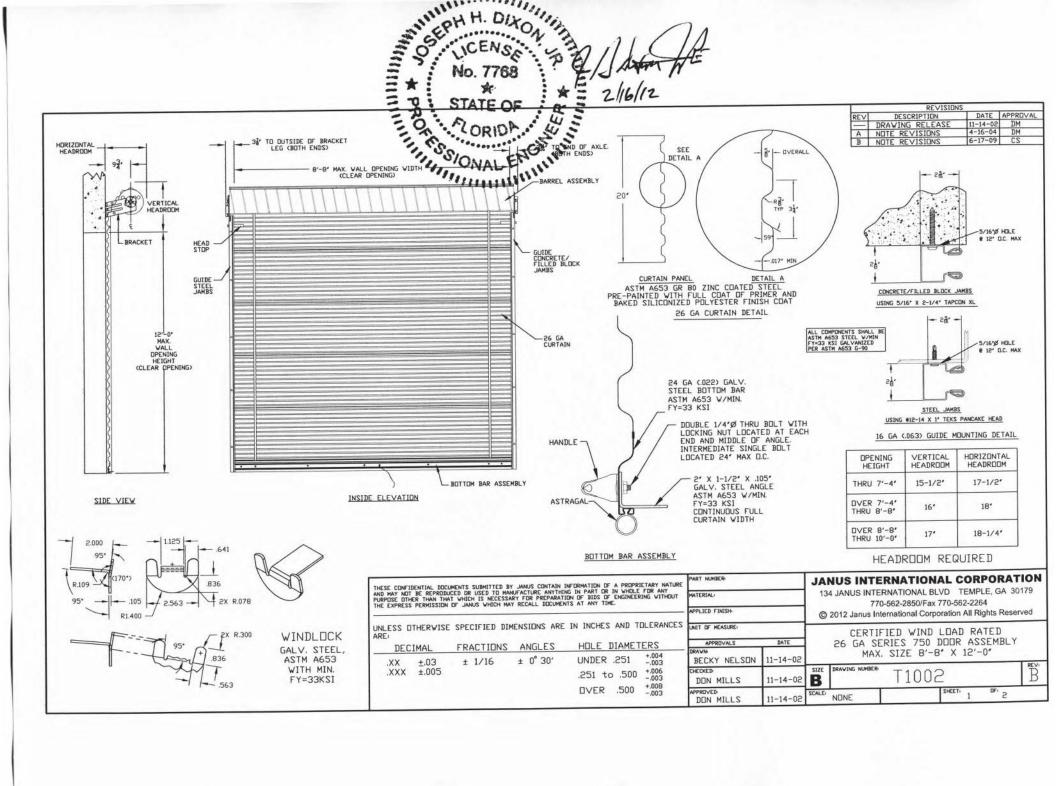
DATE: 3-14-17

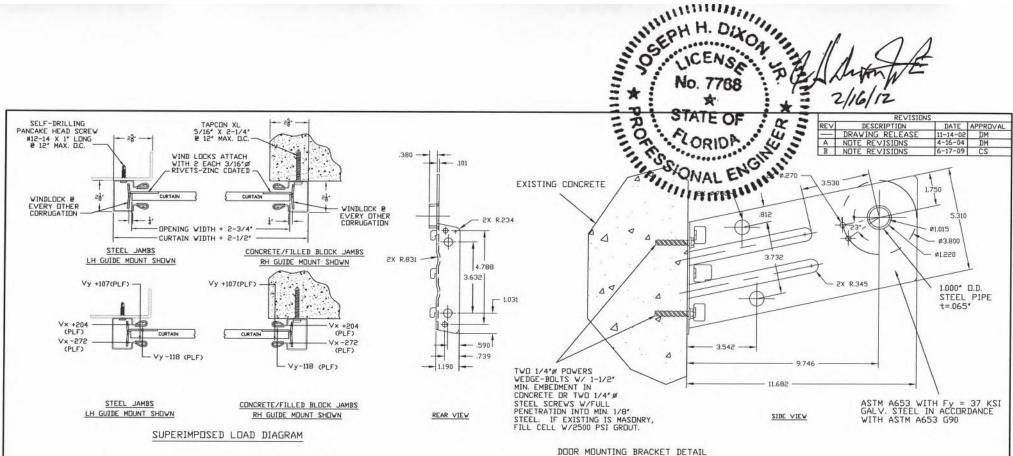
REV.

SK-4









GENERAL NOTES

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

DESIGN LOAD =+24.4 PSF -27.0

- 3. VIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE VIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHER THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING
- SUPERIMPOSED LOADS ON THE JAMBS FROM THIS DOOR ARE DESIGNED AS $\vee x$ AND $\vee y$ HEREIN. CONTRACTORS SHALL HAVE BUILDING ENGINEER VERIFY ADEQUACY OF BUILDING STRUCTURE TO RESIST SUPERIMPOSED LOADS $\vee x$, $\vee y$ AND BRACKET LOADS SHOWN.
- ALL VELDING SHALL BE PERFORMED BY QUALIFIED VELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. ALL VELDING 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
- 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
- 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'.

		MENTS SUBMITTED BY	TURE PART NUMBER	PART NUMBER			JANUS INTERNATIONAL CORPORATION					
PURPOSE OTH	ER THAN THA	CED OR USED TO MAN T WHICH IS NECESSA OF JANUS WHICH MA	OUT MATERIAL:		13	134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179 770-562-2850/Fax 770-562-2264						
	TUED! (ICE	SDECIFIED DI	F. 101010 40F	W 100150 AND 10150AN	APPLIED FINISH		©		0-562-2850/Fax ternational Corp		s Reserv	red
AKLI				LES UNIT OF MEASURE	UNIT OF MEASURE			CERTIFIED WIND LOAD RATED				
DEC	IMAL	FRACTIONS	ANGLES	HDLE DIAMETERS	APPROVALS	DATE	1	26 GA SI	ERIES 750	DOOR ASSE	MRI Y	- 1
.xx	±.03	± 1/16	± 0° 30′	UNDER .251 +.004 003	BECKY NELSON	11-14-02			. SIZE 8'-8			
.XXX ±.005 .251 to .500 +.006	DDN MILLS	11-14-02	B	T1000				B				
			APPROVED DON MILLS	11-14-02	SCALE	NONE		SHEET: 2	F 2			

Joseph H. Dixon, Jr. P.E

407-671-0169 Product Design Consultant

Florida No. 7768

3952 Lake Mira Ct. Orlando, FL 32817

DA VOCKOH H. DIA ON TORS June 22, 2009

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

Temple, GA 30179-4435 134 Janus International Blvd.

STATE OF RESIDENCE OF THE STATE OF THE STATE

Statement of Compliance:

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

Description of the Product

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

(Mini Door)

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

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

Series 3100 (Commercial Door)

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

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

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 doons In your 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 shows in Table ITALE maximum allowable design wind load values. These design pressures may be used to parrower unchanged.

Drawings

The Door Series covered by this report are described in detail on the following door is qualified as impact resistant and it is described in detail on drawing T1006-S. Doors corrugation pitch is 3.25 inches. Maximum door height is limited to 12'-0". Only the 8'-8" wide center vertically in the installed door. The corrugation height is approximately 5/8 inches and the interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on full coat of primer and baked siliconized polyester finish coat The corrugated sheets are The curtain steel is ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a Door curtains may have a thickness of either 24 gage (min. 0.022 in.) or 26 gage (min. 0.017 in.).

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

2/6

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

Technical Documentation:

doors contained in this report: following test reports, signed and sealed by R. Patel, P.E. cover the Series 750 and Series 3100 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 All testing was done at Certified Testing Laboratories, Orlando, Florida. Tests for Series 750 and

- 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)

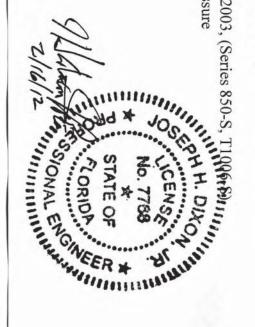
Calculations prepared by Joseph H. Dixon, Jr. P.E.

- 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

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

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



Page 3 of 5

TABLE 1
Allowable Transverse Design Wind Loads (psf)

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

Maximum test load was 150% of design load. Design values used for the tests are shown in the boxed shaded values.

Unshaded design wind loads were determined by comparative analyses using test results.

Installation Requirements:

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

- 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



Limitations and Conditions of use:

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

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

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

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

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

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

Certification of Independence:

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

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

Joseph H. Dixon, Jr. P.E

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Page 5 of 5

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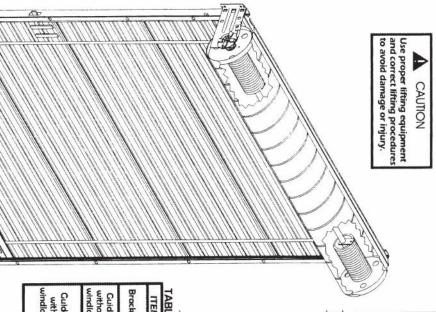
JANUS INTERNATIONAL CORPORATION

TEMPLE, GA 30179-4435 134 EAST LUKE ROAD

13374 WEST PEORIA AVENUE SURPRISE, AZ 85379-9724

PHONE 770-562-2850 www.janusintl.com FAX 770-562-2264

DOOR INSTALLATION INSTRUCTIONS SERIES 750/1000/1100 OROFE SON



WARNING

A rolling with the

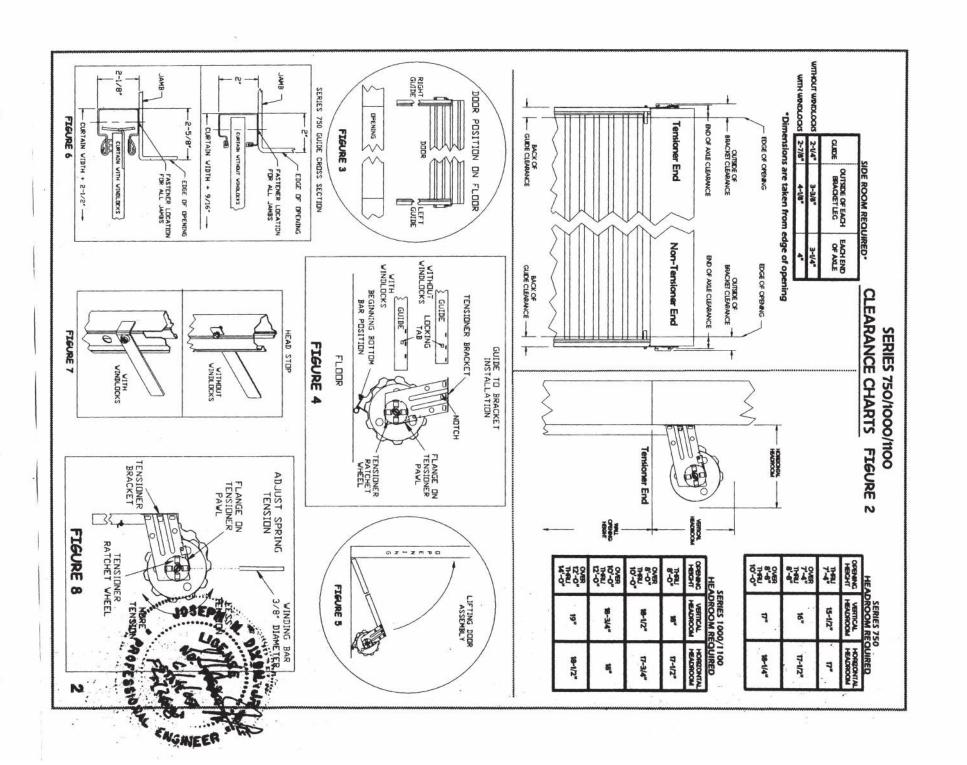
EXTREME SPRING TENSION	0	MOVING DOOR	1/4	POTENTIAL HAZARD
	CAN CAUSE SERIOUS		CAN CAUSE SERIOUS	EFFECT
DOOR MUST BE FULLY OPENED WHEN MAKING ADJUSTMENTS.	installation, repairs and adjustments must be made by a trained rolling service door systems technician using proper tools and instructions.	DO NOT allow children to operate the door.	DO NOT stand or walk under moving door. Keep door in full view and free of obstructions while operating.	PREVENTION

ABLE 1:	Wall Fasteners - for	TABLE 1: Wall Fasteners - for jamb attachment of Brackets and Guides	and Guides
ITEM	BMAF	FASTENERS	DRILL SIZE
Brackets	Steel Concrete or Filled Block	1/4-14 x 1" TEKS Screw 1/4" x 1-3/4" Powers Wedge-Bolt	None Powers 01314
Guides without vindlocks	Steel Concrete or Filled Block	1/4-14 x 1" TEKS Screw 1/4" x 1-3/4" Powers Wedge-Bolt	None Powers 01314
Guides with vindlocks	Steel Concrete or Filled Block	#12-14 x 1" PSD Pancake Head TEKS Screw 5/16" x 2-114" Tapcon XL (TORX T-40 drive)	None

OPTIONAL BOTTOM BAR MOUNTED SLIDE LOCKS 1/4-20 X BOTTOM BAR DCCR CURTAIN

MINI STOP CLIP

not installed as directed. Please read and understand all instructions before beginning the installation process BMPORTANT NOTE: <u>Do not cut tape and plastic urap</u> 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



STEP 1: WALL OPENING

SERIES 750/1000/1100

- Check wall opening width and height and verify these measurements against size of door to be installed: MON
 - Verify that jambs are plumb.
- Check floor and header for level.
- Ö Check for adequate side clearance at jambs and clearance above and at sides of header. charts figure 2 for minimum requirements.
- Verify that the guide mounting surface on the jamb is flush.
- 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.
- 5 floor. See figures 3 and 4. Place door on floor at top of and between guides. Rotate door as necessary to locate bottom bar against
- Ö Distribute hardware parts to appropriate areas

NOTE: Bruchet, tenioner, springs; the footory. Do not remove ioner, spring(s) and curtain mounted latch are pre-assembled to the door at

STEP 3: CUIDES 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.
- Bring top end of guide in alignment with bracket and insert hooks on bracket into slots in guide. Slide bracket and guide together until locking tab in guide fully engages notch in bracket.
- Ö bracket notch If locking tab does not fully engage with bracket notch, use a hammer and punch to bend tab into
- 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 6"4", damp bottom of broatest to guide with looking plien in order to insure rigidity of top of guide while lifting. Remove plien after active securing broatests to jurish.

TONING VA. T

olding tab in guide must fully engage with notch in bri ay allow the door to fall during installation, which can death and/or damage to door.

STEP 4: **GUIDES AND BRACKETS TO JAMB**

- Brackets and guides will be attached to jambs using fasteners shown in table 1.
- 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.
- The appropriate fastener must be installed at each hole location in brackets and guides. See table 1.

SERIES 750/1000/1100

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.
- Attach brackets and guides to jambs, according to step 4.

NOTE: Walding of guide to the lambs it not recorns

STEP 6: SETTING SPRING INITIAL TENSION

WARNING

Afterno spring tension can cause serious injury or death, installation, repairs and adjustments and be made by a trained colling services door systems technicism using proper tools and instruction or must be fully opered when making adjustments.

- Rotate door 1-1/2 revolutions in the direction that would send the bottom bar down through the guides.

 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. cutting type F hex screw. See figure 7. Secure with 1/4-20 x 3/4" thread
- 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 dip at each end on inside of bottom bar using existing single 1/4-20 × 1/2" carriage bolt.

 B. Install handle(s) on outside of bottom bar using 1/4-20 × 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

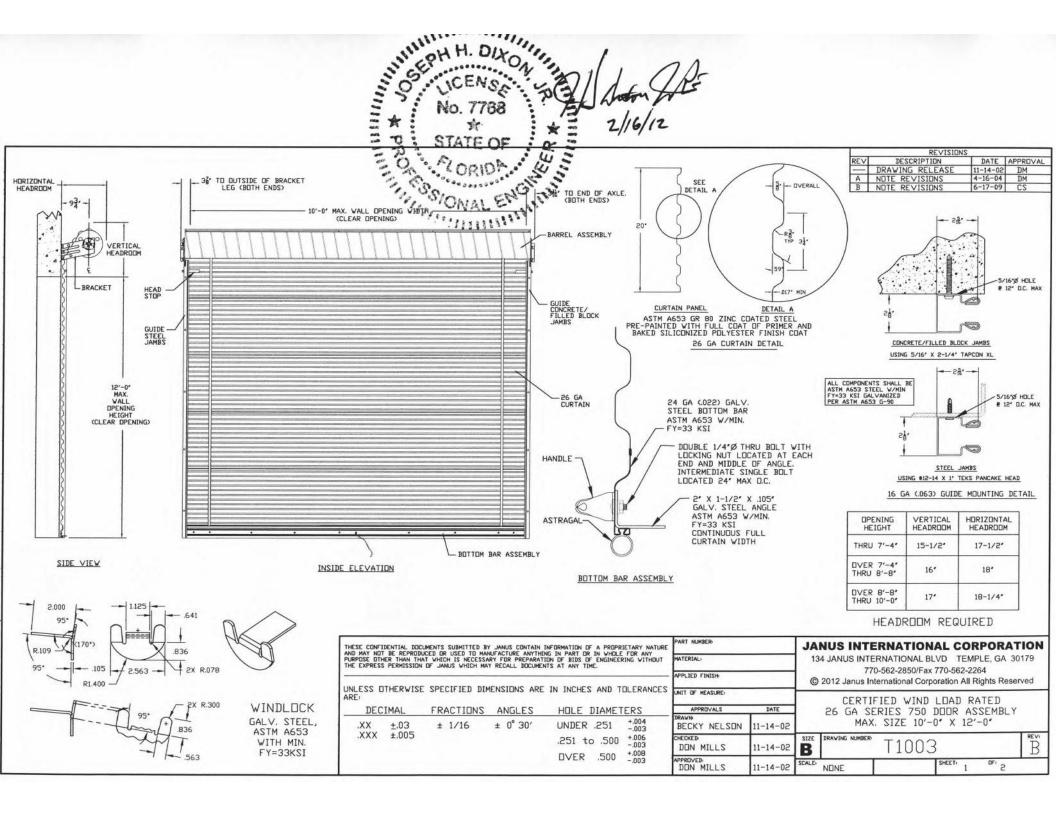
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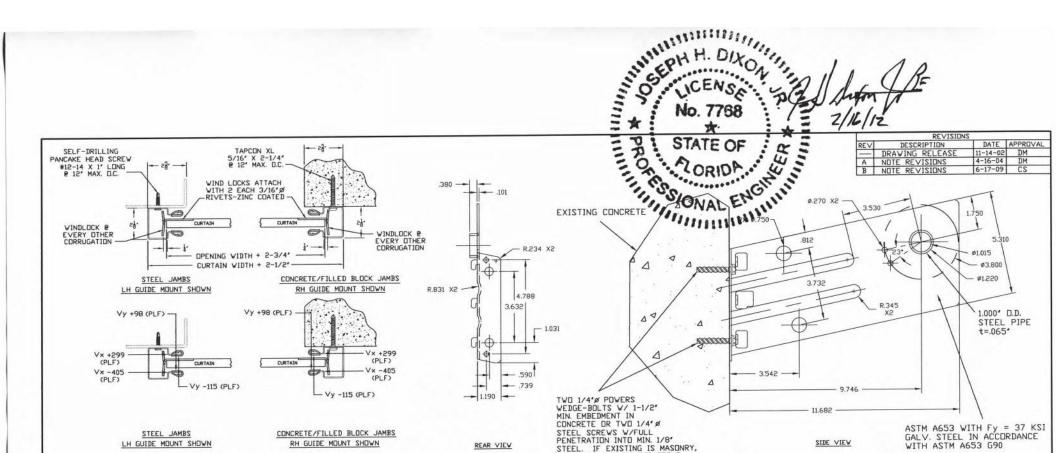
- Place 3/8" diarneter winding bar in tensioner ratchet wheel. See figure 8.
- Rotate winding bar in the down direction to increase spring tension. Each engagement of a tooth equals
- ? To decrease spring tension, pull down slightly on winding bar until pawl disengages tooth. Lift flange on pawl and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

Latch state dat in the guide may require orbitating other door due to variance in manufacturing and/or site conditions.



Portagion





GENERAL NOTES

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

SUPERIMPOSED LOAD DIAGRAM

- 3. VIND 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 DPENING.
- 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.
- 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. AS.1 GRADE E-70.
- 6 DOORS SHALL BE PROVIDED WITH LOCK MECHANISMS AT THE OPTION OF THE
- 7 ALL BOLTS AND WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL WITH A MINIMUM TENSILE STRENGTH OF 60 KSI.

- B 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.

DOOR MOUNTING BRACKET DETAIL

FILL CELL W/2500 PSI GROUT.

- 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".

AND MAY NOT BE REPRODUCE	TED OR LISED TO MANUFACTURE ANYTHI	ION OF BIDS OF ENGINEERING WITHOUT
UNLESS DTHERWISE	SPECIFIED DIMENSIONS ARE	IN INCHES AND TOLERANCES
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UNIT OF MEASURE			CERTIFIED WIND LOAD RATED 26 GA SERIES 750 DOOR ASSEMBLY					
APPROVALS	DATE		26 GA S	SERIES 150	DUNK W22FWRF	. T		
BECKY NELSON	11-14-02		MA	X. SIZE 10'-	0° X 12'-0"			
CHECKED DON MILLS	11-14-02	B	DRAVING NUMBER	* T1000	3	B		
APPROVED: DON MILLS	11-14-02	SCALE	NDNE		SHEET: 2 DF: 2			



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

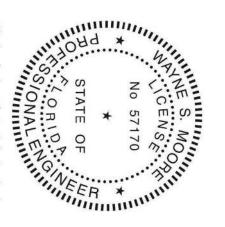
Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue North Augusta, SC 29841

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





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	PROJECT MGRI WSM DAT	СНЕСКЕВ ВУ: РВН	DRAWN BYI JG					
	DATE: 3-2-21 S	LAKI 30'-0"x20'-0"	BEST N 484 I	Printed copic considered s signature mu copies.	This item ha sealed by W. using a Digit	HOHd *		
1	SCALE: NTS JDB ND: 19294S/ 21025S	LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP FULLY OPEN STRUCTURE	METAL BUILDINGS, LLC NW TURNER AVENUE	Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.	SONAL ENGINEERS ON ALEMAN IN THIS item has been electronically signed and sealed by Wayne S. Moore, PE. using a Digital Signature and date.	No 57170 * * * * * * * * * * * * * * * * * *		

RAW INDE

- SHEET PE SEAL COVER SHEET
- SHEET DRAWING INDEX
- SHEET INSTALLATION NOTES AND SPECIFICATIONS
- SHEET TYPICAL SIDE AND END ELEVATIONS
- SHEET - GW 4 D TYPICAL RAFTER/COLUMN END AND SIDE (BOX EAVE RAFTER) FRAMING SECTIONS
- SHEET 5A TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTIONS
- (BOX EAVE RAFTER)
- SHEET 0 TYPICAL RAFTER/COLUMN MZU AND SIDE FRAMING CONNECTION DETAILS
- (BOX EAVE RAFTER)
- SHEET 6A TYPICAL RAFTER/COLUMN END AND SIDE FRAMING CONNECTION DETAILS
- (B□X EAVE RAFTER)
- SHEET / TYPICAL RAFTER/COLUMN (BOW RAFTER) FNU AND SIDE FRAMING SECTIONS
- SHEET 7A TYPICAL RAFTER/COLUMN (BOW RAFTER) END AND SIDE FRAMING SECTIONS
- SHEET ∞ TYPICAL RAFTER/COLUMN END AND SIDE FRAMING CONNECTION DETAILS
- (BOW RAF TER)
- SHEET 8A TYPICAL RAFTER/COLUMN MNU AND SIDE FRAMING CONNECTION DETAILS
- (BUW RAFTER)
- SHEET BASE RAIL ANCHURAGE UPTIONS
- SHEET $\stackrel{\rightharpoonup}{=}$ BOW RAFTER GABLE END OPTION RAFTER GABLE END OPTION

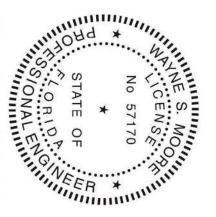
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- SHEET CONNECTION DETAILS
- SHEET 1 ω $B\square X$ EAVE RAFTER LEAN-TO **OPTIONS**
- SHEET 13A BUX EAVE RAFTER LEAN-TO OPTIONS
- SHEET 14 $B\square \bigvee$ RAFTER LEAN-TO OPTIONS
- SHEET 14A BOW RAFTER LEAN-TO OPTIONS
- SHEET 15 EAVE RAFTER EXTRA SIDE PANEL **DPTIONS**
- SHEET 16 RAFTER EXTRA SIDE PANEL OPTIONS
- EAVE RAFTER VERTICAL ROOF OPTION



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CLIENT: BMB	PROJECT MGRI WSM		CHECKED BY: PDH		DRAWN BYI JG	
SHT. 2	DATE: 3-2-21 SCALE: NTS 21025S		30'-0"x20'-	LA	48	は出る
DWG, NO: SK-1 REV.: 1	SCALE: NTS		30'-0"x20'-0" SP FULLY OPEN STRUCTURE	LAKE CITY, FLORIDA 32055	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	JOB NO: 19294S/ 21025S	OF COMPANY OF STREET,	N STRUCTURE	DA 32055	VENUE	INGS, LLC

INSTALLATION NOTES AND SPECIFICATIONS

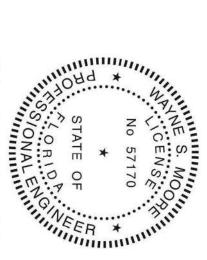
- DESIGN IS FOR MAXIMUM 30'-0' WIDE x 20'-0' EAVE HEIGHT OPEN CARPORT STRUCTURES.
- 'nώ DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2015 IBC, AND 2012 IBC
- DESIGN LUADS ARE AS FULLOWS
- DEAD LOAD
- C) GROUND SNOW LOAD = 1.5 PSF = 10 PSF (UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED).
- 4 LOV ULTIMATE WIND SPEED (LW) = $105\ TO\ 140\ MPH$ (NOMINAL SPACING = $5.0\ FEET.$ WIND SPEED = 81 TO 108 MPHD: MAXIMUM RAFTER/POST AND END COLUMN
- HIGH ULTIMATE WIND SPEED (HW) = 141 TO 170 MPH (NOMINAL WIND SPEED = 109 TO 132 SPACING = 4.0 FEET. MPH): MAXIMUM RAFTER/POST AND END COLUMN
- END WALL COLUMNS (POST) ARE EQUIVALENT IN SIZE AND SPACING TO SIDE WALL POSTS (UNLESS NOTED OTHERWISE)
- RISK CATEGORY I.
- WIND EXPOSURE CATEGORY B.
- 9 SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY FRAMING MEMBERS (UNLESS NOTED OTHERWISE). WHERE TS 2 $1/2^*\times2$ $1/2^*-12$ GAUGE MAY BE USED AS AN OPTION. TO 2 1/2"x2 14 GAUGE IS 1/2"-14 GAUGE TUBE STEEL (TS) SPECIFIED, TS 2 1/4" × 2 1/4"
- 10. AVERAGE FASTENER SPACING DN-CENTERS ALDNG RAFTERS DR HAT CHANNELS, AND COLUMNS (INTERIOR DISTANCE OR EDGE DISTANCE) = 10° D.C. (MAX.) FOR LOV VIND AND 6° D.C. (MAX.) FOR HIGH WIND.
- Ε FASTENERS CONSIST OF #12-14×3/4' SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL VASHER VITH 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.
- ī 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 × 36' LONG IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS & 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 ARES SOIL SITE CLASS = D RISK CATEGORY I

S_{DS}= 2.039 g S_{DI}= 1.258 g

R= 3.25 Sps= 2.0

 $I_E=1.0$ V= C_SW



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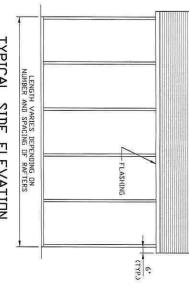
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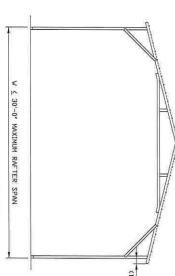
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	SHT. 3	DATE: 3-2-21 SCALE: NTS 21025S	30'-0"x20'-(48	
	DWG. ND: SK-1 REV.: 1	SCALE: NTS	JO'-0"X20'-0" SP FULLY OPEN STRUCTURE	484 NW TURNER AVENUE	
	REV. 1	JOB NO: 19294S/ 21025S	N STRUCTURE	VENUE	

BOX EAVE FRAME RAFTER STRUCTURE

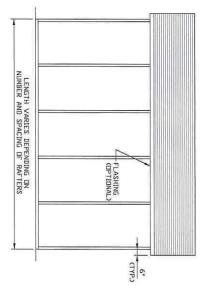


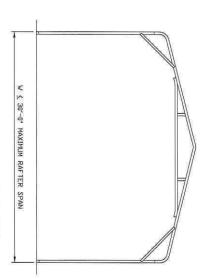


TYPICAL SIDE ELEVATION

TYPICAL END ELEVATION

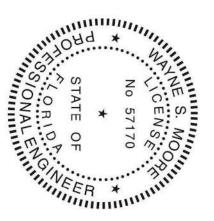
BOW FRAME RAFTER STRUCTURE





TYPICAL END ELEVATION
SCALE: NTS

TYPICAL SIDE ELEVATION



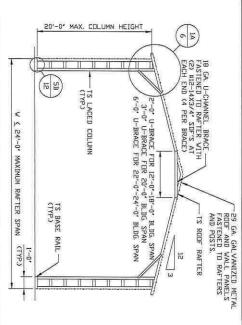
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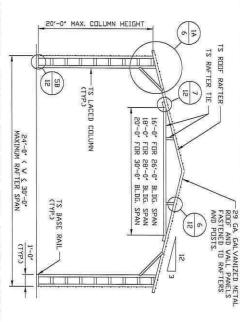
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	CLIENT: BMB	PROJECT MGR: WSM		СНЕСКЕВ ВУ: РВН		DRAWN BY: JG	
	SHT. 4	DATE: 3-2-21		30'-0"x20'-1	LA	48	BES
	DWG. NO SK-1	SCALE: NTS)" SP FULLY OP	KE CITY, FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
	REV. 1	210258	JDB ND: 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	IDA 32055	AVENUE	JINGS, LLC



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS 16'-0" MAX. COLUMN HEIGHT (\$ E IB GA, U-CHANNEL BRACE — FASTENED TO RAFTER WITH (2) #12-14X3/4' SDF'S AT EACH END (4 PER BRACE) 15 P CTYP.) 2'-0' U-BRACE FOR 20'-0' BLDG. SPAN
6'-0' U-BRACE FOR 20'-0' BLDG. SPAN ≤ 24'-0' MAXIMUM RAFTER SPAN TS BASE RAIL 29 GA. GALVANIZED METAL ROOF PANELS FASTENED TO RAFTERS. TS ROOF RAFTER



TYPICAL RAFTER/COLUMN END FRAME SECTION

TYPICAL SCALE: NTS 16'-0' MAX. COLUMN HEIGHT (8 B) 15 SA TS DOUBLE COLUMN (10) 24'-0' < ₩ < 30'-0' MAXIMUM RAFTER SPAN 16'-0' 무무무 30, 58, 29 GA. GALVANIZED METAL ROOF FASTENED TO RAFTERS. 000 TS RAFTER TIE BLDG, SPAN BLDG, SPAN BLDG, SPAN TS ROOF TS BASE RAIL (TYP.) 15 6 RAFTER SECTION L PANELS

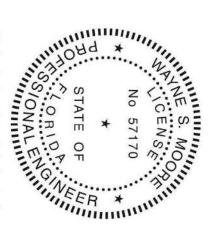
RAFTER/COLUMN END FRAME

SCALE: NTS

SCALE: NTS TYPICAL

RAFTER/COLUMN END FRAME

SECTION



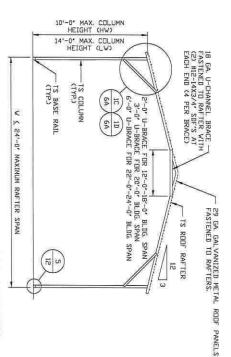
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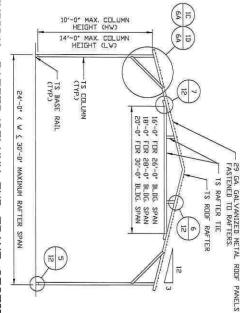
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DWG, NO SK-1	SCALE: NTS	0" SP FULLY OF	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE
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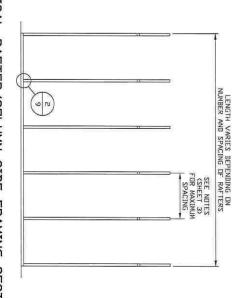
TYPICAL SCALE: NTS RAFTER/COLUMN END FRAME SECTION



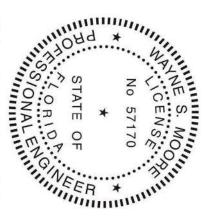
ROOF

PANELS

TYPICAL SCALE: NTS RAFTER/COLUMN END FRAME SECTION



TYPICAL SCALE: NTS RAFTER/COLUMN SIDE FRAMING SECTION



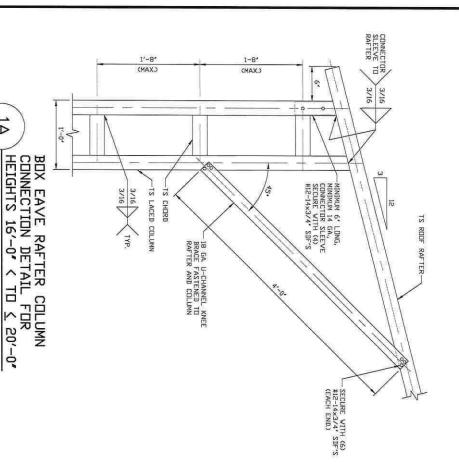
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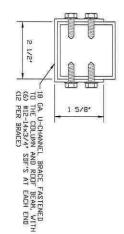
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	DATE: 3-2-21 SCALE: NTS	LAKE 30'-0"x20'-0" §	484 7
DWG. NO SK-1	1	SP FULLY OPE	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	VENUE
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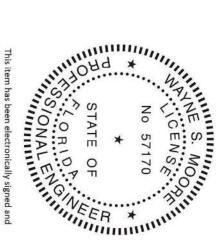


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SCALE: NTS

T□ ≤ 20'-0"

BRACE SECTION
SCALE NTS



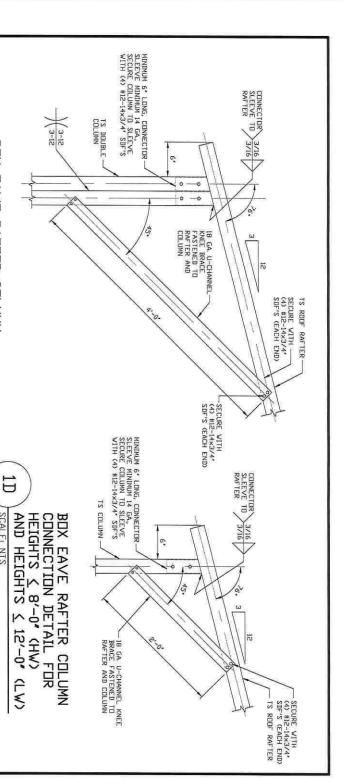
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REV, 1	JOB NO: 19294S/ 21025S	JO'-0"x20'-0" SP FULLY OPEN STRUCTURE	VENUE



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO < 16'-C AND HEIGHTS 14'-0" < TO < SCALE: NTS (LW)

SCALE: NTS

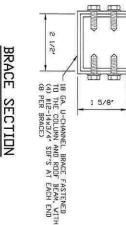
1 B ≤ 16'-0" (HW)

← T□ ≤ 16'-0"

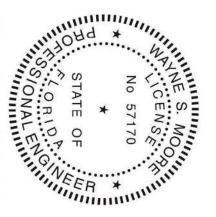
MINIMUM 6' LONG, CONNECTOR SLEEVE MINIMUM 14 GA. SECURE COLUMN TO SLEEVE WITH (4) #12-14x3/4' SDF'S SLEEVE TO 3/16
RAFTER 3/16 TS COLUMN 6 -0-SECURE WITH (4) #12-14×3/4'
SDF'S (EACH END) TS ROOF RAFTER

AND BOX EAVE RAFTER (CONNECTION DETAIL HEIGHTS 8'-0" < TO HEIGHTS 12'-0" RAFTER COLUMN N DETAIL FOR 14'-0" **YH** £\ S

10 SCALE: NTS



SCALE: NTS



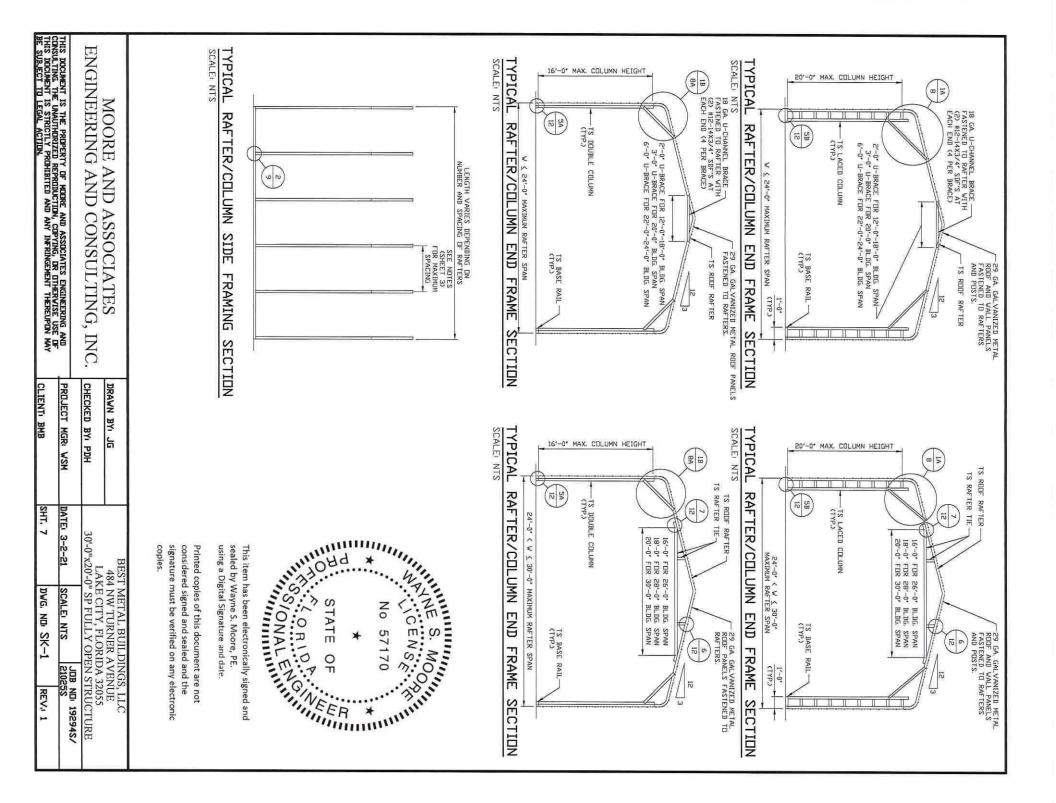
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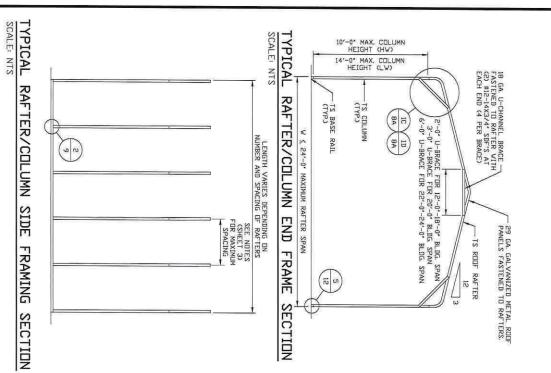
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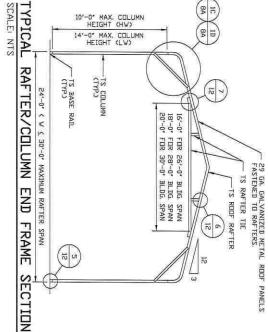
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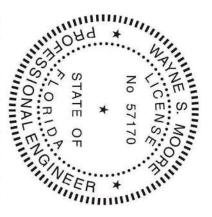
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DWG, NID: SK-1)" SP FULLY OPI	KE CITY, FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	210258	JOB NO: 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	DA 32055	AVENUE	INGS, LLC
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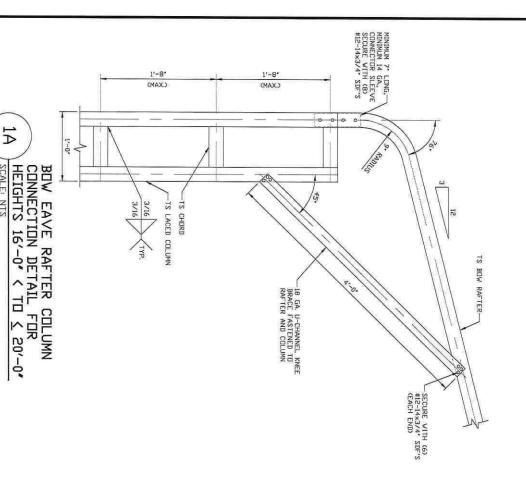
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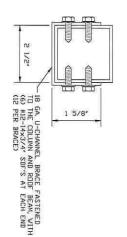
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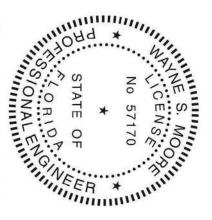
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CLIENT: BMB	PROJECT MGRI WSM		CHECKED BY: PDH		DRAWN BYI JG	
SHT. 7A	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-	LA	48	BES"
DWG. NO SK-1	SCALE: NTS		0" SP FULLY OP	KE CITY, FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	210258	JOB NO 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	DA 32055	AVENUE	JINGS, LLC





SCALE: NTS

BRACE SECTION
SCALE NTS



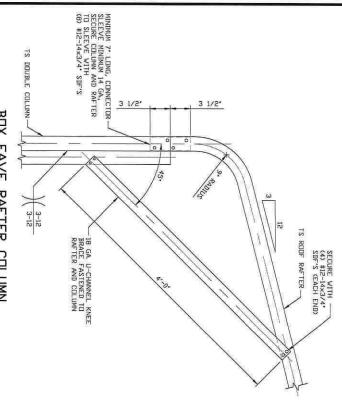
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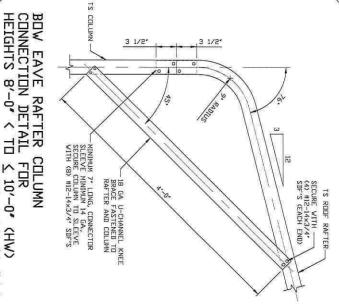
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SHT. B	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-	LA	48	515
DWG, ND SK-1	i i		0" SP FULLY OP	KE CITY, FLORI	484 NW TURNER AVENUE	TATO DO LOTE
REV. 1	210258	IDB ND 1929487	EN STRUCTURE	LAKE CITY, FLORIDA 32055	AVENUE	ארוועט, דדר



BOX EAVE RAFTER CONNECTION DETAIL HEIGHTS 10'-0" < TI HEIGHTS 0" < TE CELUMN 급 16'-0" 16'-0" C X

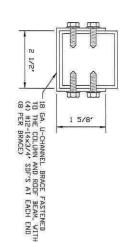
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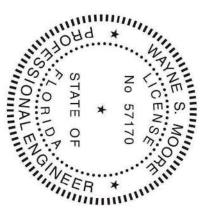
TS COLUMN 3 1/2* 3 1/2" TS ROOF RAFTER-SECURE WITH — (4) #12-14×3/4* SDF'S (EACH END) 15 — MINIMUM 7' LONG, CONNECTOR
SLEEVE MINIMUM 14 GA.,
SECURE COLUMN AND RAFTER
TO SLEEVE WITH
(8) #12-14×3/4' SDF'S 18 GA, U-CHANNEL KNEE BRACE FASTENED TO RAFTER AND COLUMN w

BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS & 8'-0" (HW) AND HEIGHTS & 12'-0" (LW) SCALE: NTS

11



RRACE SECTION



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NTS

AND HEIGHTS 12'-0"

≤ 10'-0" (HW)
< T□ ≤ 14'-0"</p>

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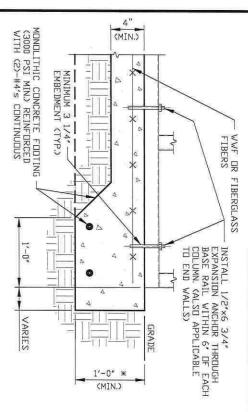
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Maria Cara Cara Cara Cara Cara Cara Cara	CLIENT: BMB	PROJECT MGRI WSM		CHECKED BY: PDH		DRAWN BY: JG	
	SHT. BA	DATE: 3-2-21		30'-0"x20'-	IA	48	BES
	DWG, ND; SK-1	SCALE: NTS		30'-0"x20'-0" SP FULLY OPEN STRUCTURE	KECITY FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
	REV. 1	210258	JOB NO: 19294S/	EN STRUCTURE	DA 32055	AVENUE	DINGS, LLC
		1					

BASE RAIL ANCHORAGE OPTIONS



BASE RAIL SCALE NTS MONOLITHIC ANCHURAGE SLAB

2A

MINIMUM ANCHUR EDGE DISTANCE IS

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

SOIL GENERAL NOTES BEARING CAPACITY OF 1,500 PSF. DN MINIMUM

CONCRETE

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

COVER OVER REINFORCING STEEL

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

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.

SHOP OR THE FIELD PROVIDED: BENT IN 計

- REINFORCEMENT IS BENT COLD.

 THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.

 REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL
- BE FIELD BENT NOT

HELIX ANCHOR NOTES

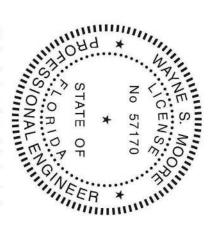
- I. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELICADED SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 'n FOR CORAL USE MINIMUM (2) 4' HELICES WITH MINIMUM 30' EMBEDMENT OR SINGLE 6' HELIX WITH MINIMUM 50' EMBEDMENT.
- ω 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 EMBEDMENT.
- 4 FOR LODSE TO MEDIUM DENSE SANDS, FIRM SILTS ALLUVIAL FILL, USE MINIMUM (2) 6'50' EMBEDMENT. TO STIFF CLAYS AND HELICES WITH MINIMUM
- Ò FOR VERY LODSE TO MEDIUM DENSE SANDS, FIRM CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM WITH MINIMUM 60° EMBEDMENT. 69 8" HELICES

(SEE NOTES BELOW) TS CONTINUOUS BASE RAIL DRILL 5/8" DIAMETER HOLE — THROUGH THE BASE RAIL AND SECURE TO ANCHOR EYE WITH 1/2" DIAMETER THROUGH BOLT WASHERS - TOP OF ASPHALT PAVEMENT OR GROUND SURFACE

GROUND BASE (CAN HELIX. ANCHURAGE

B

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



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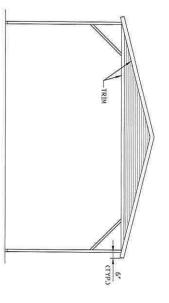
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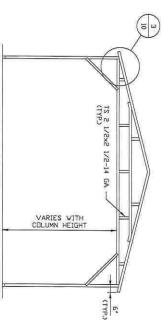
LIENT BMB	ROJECT MGR: WSM	НЕСКЕВ ВУ РВН	RAWN BY: JG
SHT. 9	DATE: 3-2-21	LAI 30'-0"x20'-(484 484
DWG. NO SK-1	SCALE: NTS	KE CITY, FLORI)" SP FULLY OPI	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE
	"	[1]	

BOX EAVE RAFTER GABLE END OPTION



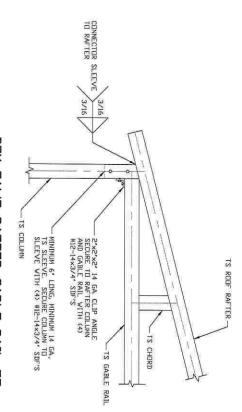
TYPICAL BOX EAVE RAFTER GABLE END ELEVATION

SCALE: NTS



TYPICAL BOX EAVE RAFTER GABLE END FRAMING SECTION

SCALE: NTS

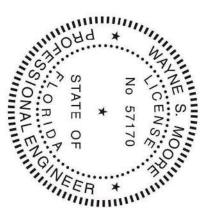


BOX EAVE RAFTER GABLE RAIL TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

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NOTE: KNEE BRACE NOT SHOWN FOR CLARITY



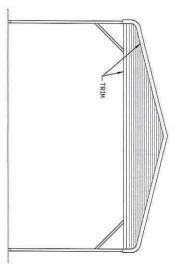
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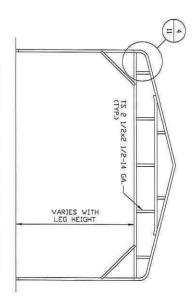
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CLIENT: BMB	PROJECT MGR: WSM	СНЕСКЕВ ВУ: РВН	DRAWN BY: JG
SHT. 10	DATE: 3-2-21 SCALE: N	LA 30'-0''x20'	BES 41
DWG, ND: SK-1	SCALE: NTS	LAKE CITY, FLORIDA 320 30'-0"x20'-0" SP FULLY OPEN STR	BEST METAL BUILDINGS, I 484 NW TURNER AVENUI
REV. 1	JOB NO: 19294S/ 21025S	NA 32055 N STRUCTURE	VENUE

BOW RAFTER GABLE END OPTION

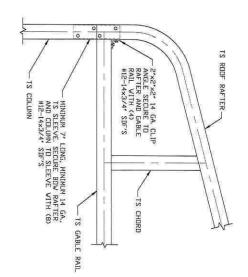


TYPICAL BOW RAFTER GABLE END ELEVATION

SCALE: NTS



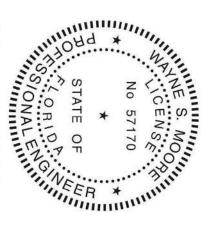
TYPICAL BOW RAFTER SECTION GABLE



BOW RAFTER GABLE RAIL TO RAFTER/COLUMN CONNECTION SCALE NTS DETAIL

4

NOTE: KNEE BRACE NOT SHOWN FOR CLARITY



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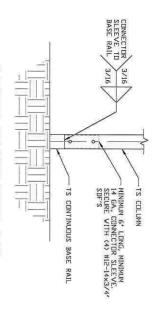
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CLIENT: BMB	PROJECT MGR: WSM		CHECKED BY: PDH		DRAWN BY: JG	
SHT. 11	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-(LA	48	BEST
DWG. NO SK-1			30'-0"x20'-0" SP FULLY OPEN STRUCTURE	LAKE CITY, FLORIDA 32055	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	21025S	ומה אות. מססמה	EN STRUCTURE	DA 32055	VVENUE	INGS, LLC

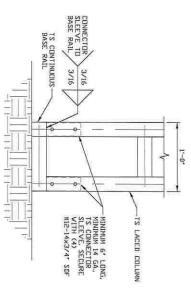
CONNECTION DETAILS



RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

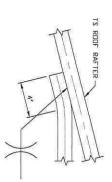
SCALE: NTS

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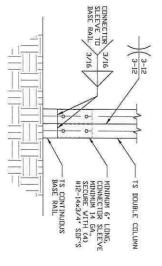
RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

5B CLINNEC



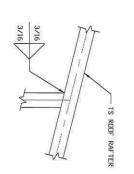
7 CONNECTION DETAIL

SCALE NES



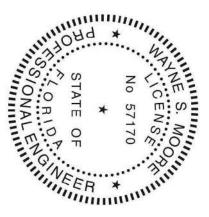
RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

5A) SCALE: NTS



RAFTER TO CHORD CONNECTION DETAIL

SCALE NTS



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CLIENT: BMB	PROJECT MGR: WSM	СНЕСКЕВ ВУ РВН	DRAWN BY: JG		
SHT. 12	DATE: 3-2-21	30'-0"x20'-	BES:		
DWG, ND; SK-1	SCALE: NTS	0" SP FULLY OP	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE		
REV, 1	JDB ND: 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE		

12 5 (6 -SHEET 13 & 1 FOR MAX. EAN-TO SPAN EXTENSION OPTION 13 13A 13A BOX EAVE RAFTER 8 13A (s 9 10 30'-0' MAXIMUM RAFTER SPAN MAIN STRUCTURE LEAN-TO OPTIONS 15 5 9 13A 10 E SEE SHEET 13A FOR MAX. LEAN-TO SPAN LEAN-TO OPTIO F2 05 9 0

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

LACED COLUMNS

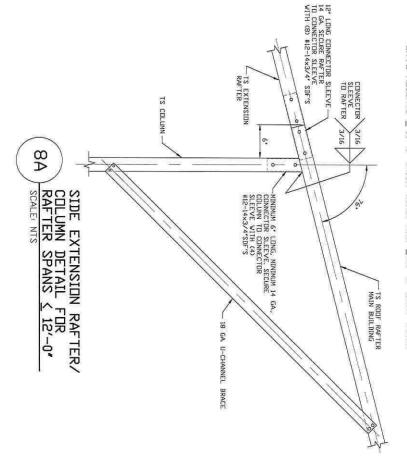
SCALE: NTS

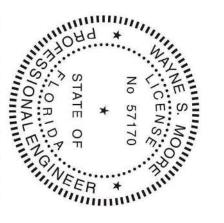
(MAXIMUM VIDTH OF SINGLE MEMBER ROOF EXTENSION LEAN-TO IS 12'-0')

(MAXIMUM VIDTH OF DOUBLE MEMBER ROOF EXTENSION LEAN-TO IS 16'-0')

(MAXIMUM VIDTH OF DOUBLE MEMBER ROOF EXTENSION ATTACHED ARE REQUIRED TO BE MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE EAVE HEIGHTS 10'-0' (TO \(\lefta \) 16'-0' (HIGH WIND) AND 14'-0' (TO \(\lefta \) 16'-0' (LOW WIND).

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE EAVE HEIGHTS 10'-0' (HIGH WIND) AND \(\lefta \) 14'-0' (LOW WIND). SINGLE COLUMNS FOR DOUBLE COLUMNS





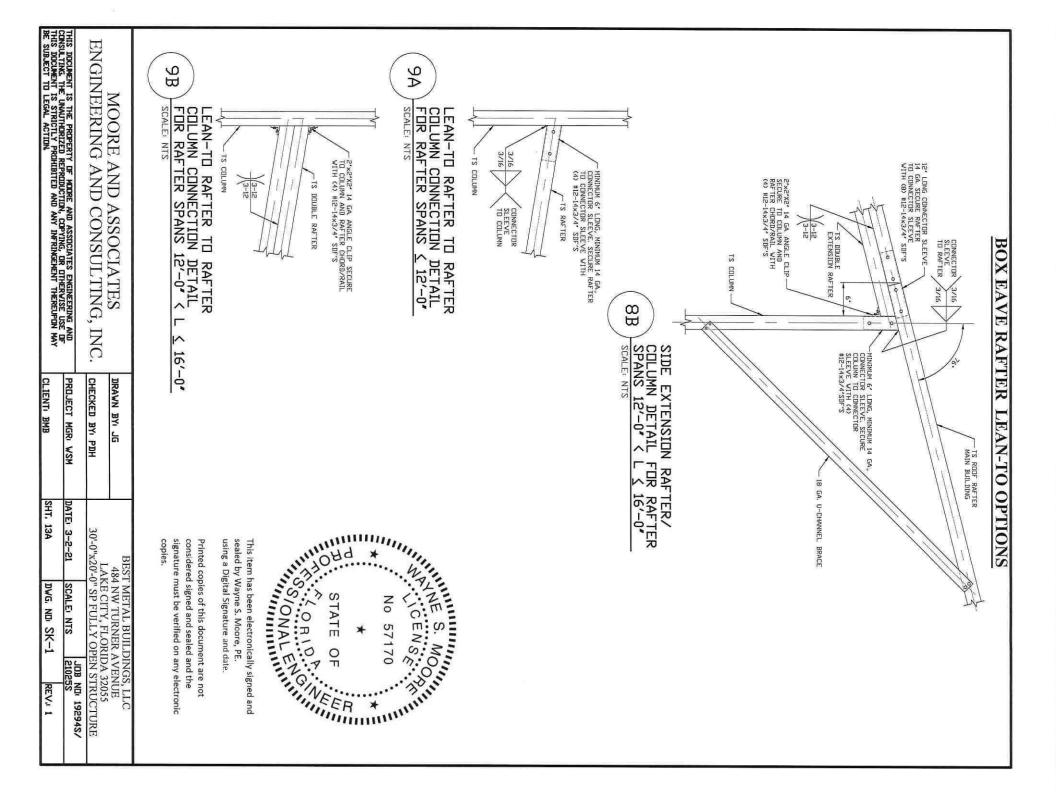
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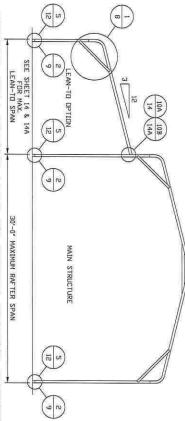
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CLIENT: BMB	PROJECT MGR: WSM	CHECKED BY: PDH	DRAWN BY: JG
SHT. 13	DATE: 3-2-21 SCALE: NTS	30'-0"x20'-	48 48
DWG. NO SK-1	ľ	0" SP FULLY OF	484 NW TURNER AVENUE
REV. 1	JDB ND: 19294S/ 21025S	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	AVENUE



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 16'-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'.

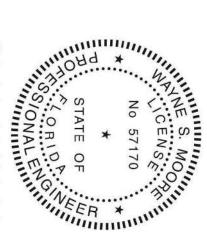
MAIN BUILDING COLUMNS FOR EAVE HEIGHTS 10'-0' < TO < 16'-0' < HIGH WIND) AND 14'-0' < TO < 16'-0' < LOW WIND).

MAIN BUILDING COLUMNS FOR EAVE HEIGHTS 10'-0' < HIGH WIND) AND < 14'-0' < TO < 15'-0' < LOW WIND).

MAIN BUILDING COLUMNS FOR EAVE HEIGHTS (10'-0' < HIGH WIND) AND < 14'-0' < LOW WIND). WIND).

MINIMUM 7' LDNG, MINIMUM 14 GA,— CONNECTOR SLEEVE SECURE ROOF RAFTER AND COLUMN TO CONNECTOR WITH (8) #12-14×3/4' SDF'S MINIMUM 6' LIDNG, MINIMUM—
14 GA, CONNECTOR SLEEVE
SECURE RAFTER TO
CONNECTOR SLEEVE WITH
(4) #12-14×3/4' SDF'S CONNECTOR SLEEVE TO COLUMN TS RAFTER 3/16 3/16 TS COLUMN 3 1/2*

10A LEAN-TO RAFTER TO COLUMN CONNECTION FOR RAFTER SPANS SCALE: NIS ✓ 12'-0" RAFTER



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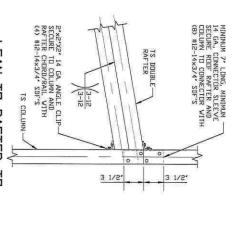
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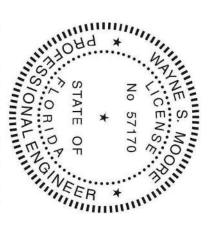
RING AND	G, INC.	J 2
PROJECT MGR: WSM	CHECKED BY: PDH	DRAWN BY: JG
DATE: 3-2-21	30'-0"x20'	BES
SCALE: NTS	-0" SP FULLY O	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE
JDB ND: 19294S/ 21025S	PEN STRUCTURE	AVENUE
	PROJECT MGR: WSM DATE: 3-2-21 SCALE: NTS	C. CHECKED BY: PDH 30'-0"x20'-0" SP FULLY OF PROJECT MGR: WSM DATE: 3-2-21 SCALE: NTS

BOW RAFTER LEAN-TO OPTIONS



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

10B



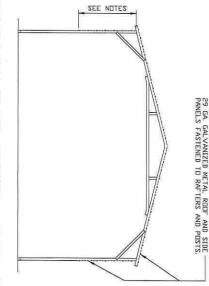
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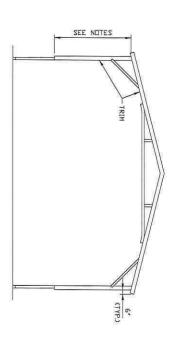
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CLIENT: BMB	PROJECT MGR. WSM DATE: 3-2-21 SCALE: NTS 21025S	СНЕСКЕВ ВУ: РВН	DRAWN BY: JG
SHT. 14A	DATE: 3-2-21	30'-0"x20'	BES 4
DWG, ND: SK-1 REV. 1	SCALE: NTS	130'-0"x20'-0" SP FULLY OPEN STRUCTURE	484 NW TURNER AVENUE
REV. 1	JOB NO 19294S/ 21025S	EN STRUCTURE	AVENUE

BOX EAVE RAFTER **EXTRA SIDE PANEL OPTIONS**



TYPICAL RAFTER/COLUMN FRAME SECTION 1 EXTRA SIDE PANELS

SCALE: NTS



NOTES

- (<u>LW)</u>:

 * 3'-0' MAX, (FOR EAVE HEIGHT ≤ 12'-0')

 * NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0" < TO ≤ 14'-0"

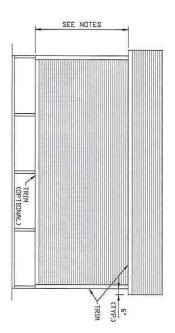
 * 16'-0" MAX, (FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0")

 * 20'-0" MAX, (FOR EAVE HEIGHT 16'-0" < TO ≤ 20'-0")

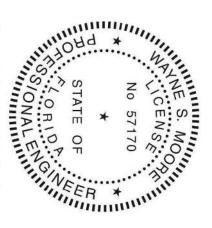
- H < 14′-0"
- (HW):
 * 3'-0' MAX. (FOR EAVE HEIGHT \(\) 12'-0'\)
 * NO PANELING ALLOWED FOR EAVE HEIGHTS 12'-0' < 1
 * 9'-0' MAX. (FOR EAVE HEIGHT 14'-0' < TO \(\) 16'-0'\)
 * 20'-0' MAX. (FOR EAVE HEIGHT 16'-0' < TO \(\) 20'-0'\)</pre>

TYPICAL END ELEVATION EXTRA SIDE PANELS

SCALE: NTS



TYPICAL SIDE ELEVATION EXTRA SIDE PANELS



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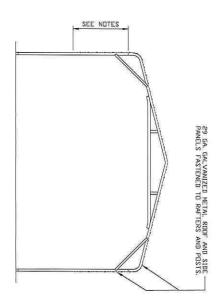
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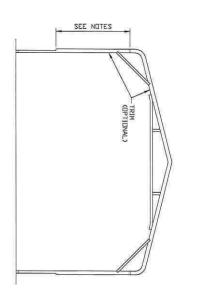
	$\dot{\mathbf{c}}$			
PROJECT MGR: WSM	CHECKED BY PDH	DRAWN BY: JG		
DATE: 3-2-21	30'-0"x20'	BES 4		
SCALE: NTS	-0" SP FULLY OI	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE		
JOB NO 19294S/ 21025S	PEN STRUCTURE	AVENUE		
	DATE: 3-2-21 SCALE: NTS	30'-0"x20'-0" SP FULLY OPI		

BOW RAFTER EXTRA SIDE PANEL OPTIONS



TYPICAL RAFTER/COLUMN FRAME SECTION **EXTRA** SIDE PANELS

SCALE: NTS

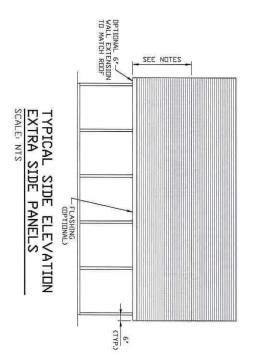


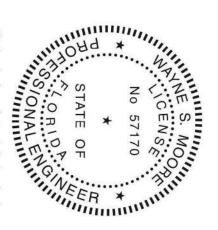
NOTES

- (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")

- (HV):
 * 3'-0' MAX. (FOR EAVE HEIGHT \(\leq \) 12'-0'\
 * NO PANELING ALLOWED FOR EAVE HEIGHTS \(\leq \) 12'-0' \(\tau \) \(\leq \) 14'-0'
 * 9'-0" MAX. (FOR EAVE HEIGHT \(\leq \) 16'-0' \(\tau \) \(\leq \) 20'-0"\)
 * 20'-0" MAX. (FOR EAVE HEIGHT \(\leq \) 16'-0' \(\tau \) \(\leq \) 20'-0"\)

TYPICAL END ELEVATION EXTRA SIDE PANELS SCALE NTS





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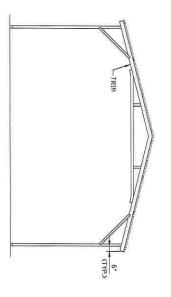
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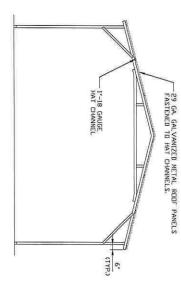
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CLIENT: BMB	PROJECT MGR: WSM		CHECKED BY PDH		DRAWN BY: JG	
SHT. 16	DATE: 3-2-21 SCALE: NTS		30'-0"x20'-1	N.I	48	BES
DWG, ND: SK-1			0" SP FULLY OP	KECITY FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV. 1	210258	JOB NO. 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	IDA 32055	AVENUE	JINGS, LLC

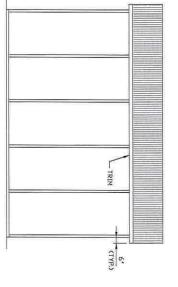
BOX EAVE RAFTER VERTICAL ROOF OPTION



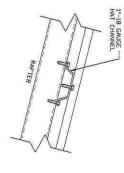
TYPICAL END ELEVATION VERTICAL ROOF



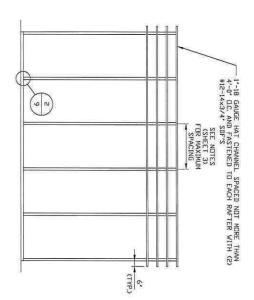
TYPICAL S VERTICAL SCALE: NTS SECTION L ROOF OPTION



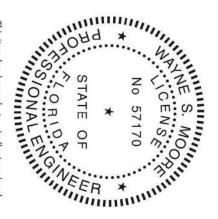
TYPICAL S VERTICAL SCALE: NTS SIDE ELEVATION _ ROOF



PANEL ATTACHMENT
CALTERNATE FOR VERTICAL
SCALE: NTS ROOF PANELS)



TYPICAL FRAMING SECTION VERTICAL ROOF OPTION SCALE NTS



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	INC.					
CLIENT: BMB	דאםטבנין שנאי אטח	מפון ודכיד ערם. נופע	CHECKED BY: PDH		DRAWN BY: JG	
SHT. 17	DAIE 3-2-21		30'-0"x20'-	LA	48	BES
DWG, ND: SK-1	DATE: 3-2-21 SCALE: NTS SHT. 17 DWG, ND: SK-1		-0" SP FULLY OP	KE CITY, FLORI	484 NW TURNER AVENUE	BEST METAL BUILDINGS, LLC
REV, 1	210238	JOB NO 19294S/	30'-0"x20'-0" SP FULLY OPEN STRUCTURE	DA 32055	AVENUE	DINGS, LLC

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.
- 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

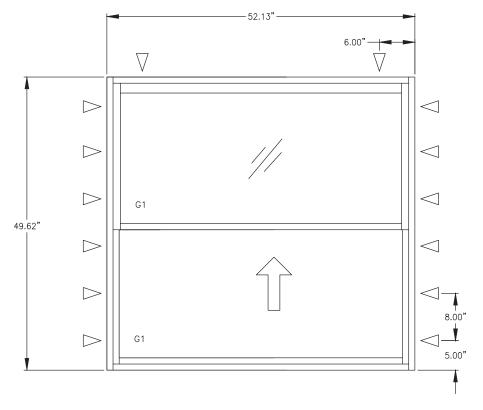
CONTENTS:

Sheet 1 Notes and Elevations Sheets 2-5 Frame Installations Sheet 6 Glazing Details

Sheet Sections and Bill of Materials

Sheet 8 Components

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



717-846-1200

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact Notes and Elevations

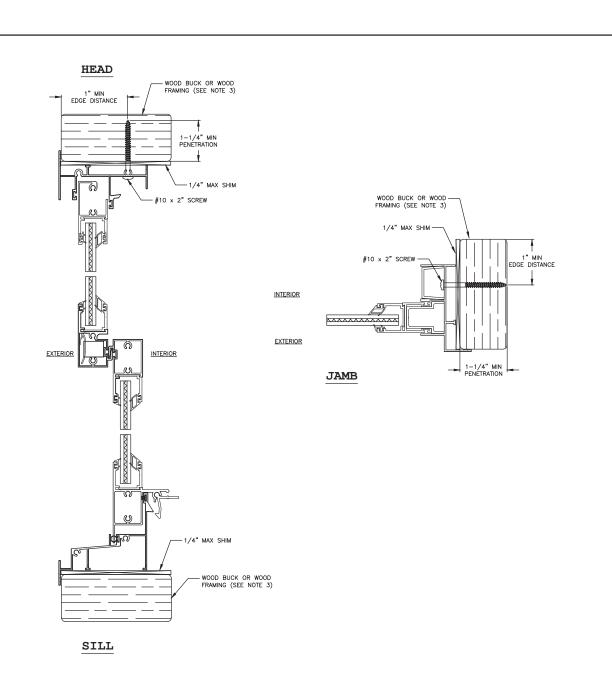
TAFCO Corporation 1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 1 of 8





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

FL PE 58920

2021.01.08 09:27:49 -05'00'

47000 Single Hung - Impact Through Frame Installations Wood

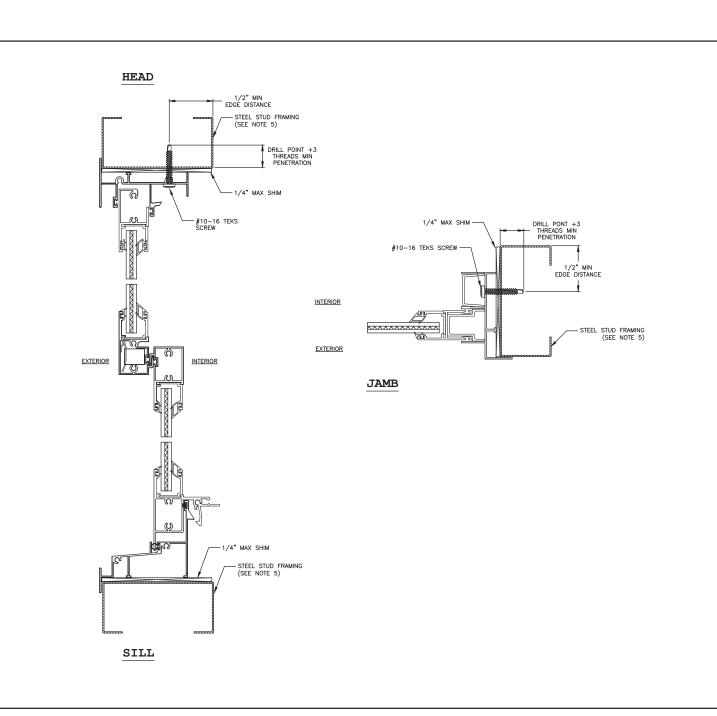
TAFCO Corporation 1953 North 17th Avenue

Melrose Park, IL 60160

Drawing No.: 23824-1-1001 Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 2 of 8





Joseph A. Reed, PE 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 - ImpactThrough Frame Installations

Steel Stud

TAFCO Corporation

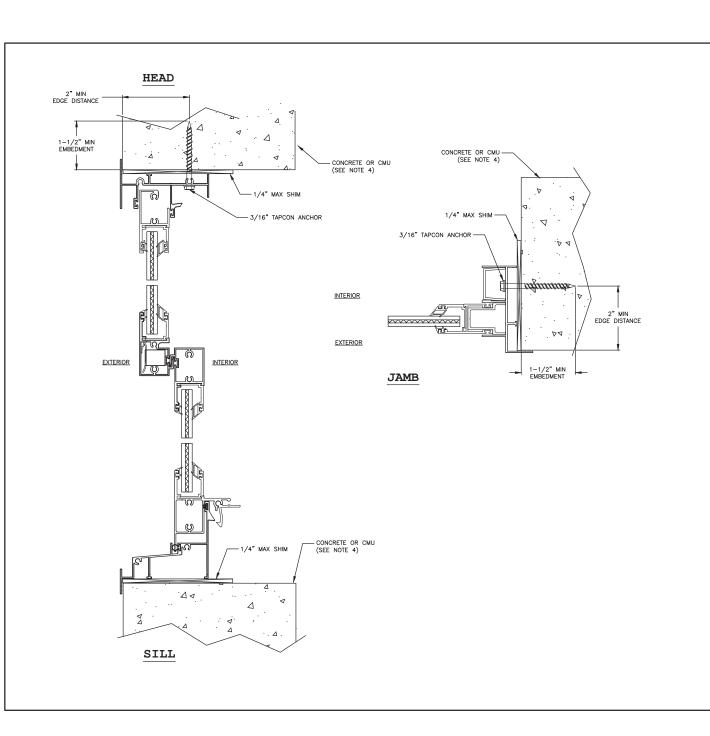
1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 3 of 8





York, PA 17406 717-846-1200 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

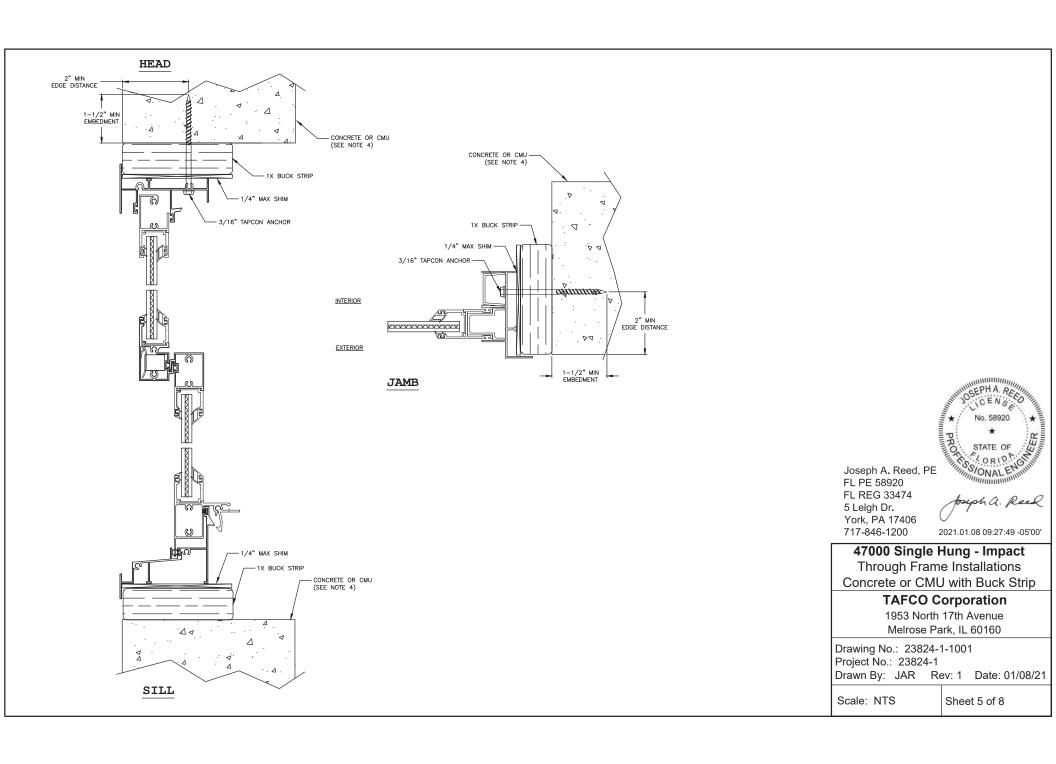
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Project No.: 23824-1

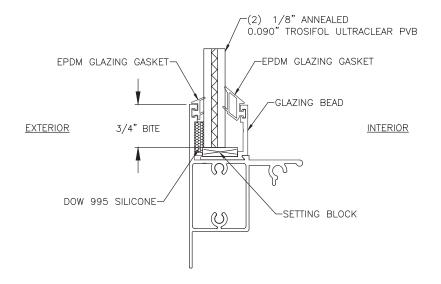
FL PE 58920 FL REG 33474 5 Leigh Dr.

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 4 of 8



GLAZING DETAIL G1 - LAMINATED GLASS



Joseph A. Reed, PE 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 Glazing Details

TAFCO Corporation

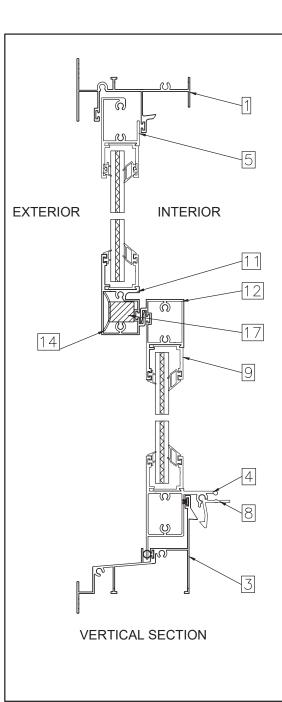
1953 North 17th Avenue Melrose Park, IL 60160

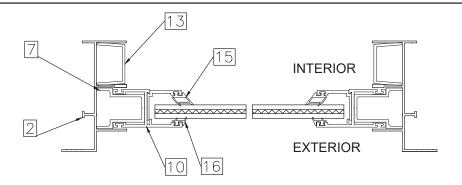
Drawing No.: 23824-1-1001 Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS

Sheet 6 of 8





HORIZONTAL SECTION AT TOP SASH

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	Fixed Sash Support 6063-T5	
8	Pinch Lock	Pinch Lock 6063-T5	
9	Glazing Bead	Glazing Bead 6063-T5	
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

MATERIAL

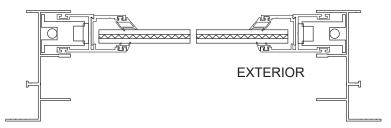
DESCRIP. EXTRUSION

NAME

Head

ITEM NO.





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				

Joseph A. Reed, PE 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 - ImpactSections and Bill of Material

TAFCO Corporation

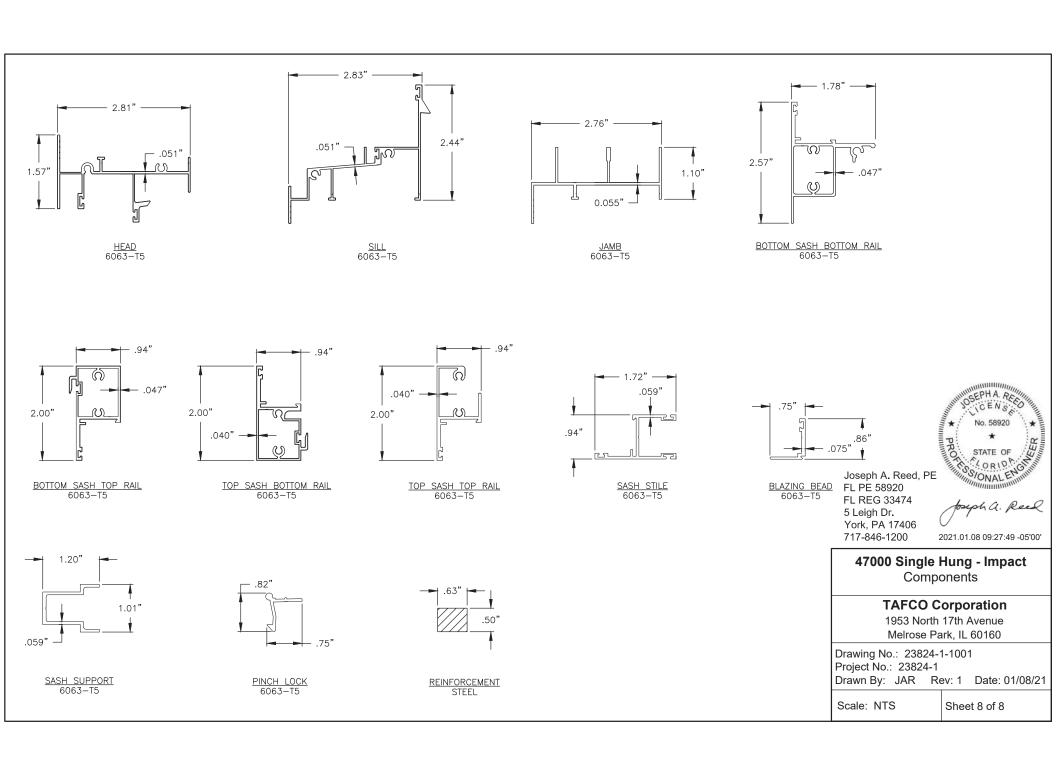
1953 North 17th Avenue Melrose Park, IL 60160

Drawing No.: 23824-1-1001

Project No.: 23824-1

Drawn By: JAR Rev: 1 Date: 01/08/21

Scale: NTS Sheet 7 of 8





401 S. Main Street

Airy, NC 27030 Suite 200

Phone: (336) 415-3540 Fax: (336) 719-2020

> North Augusta, SC 29841 Phone: (803) 279-7799 Fax: (803) 279-3848 1009 East Avenue

www.MandA-inc.com

15 April 2021

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

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:

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

Certificate of Independence:

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



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:

to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports Structural calculations were performed in accordance with the 2020 FBC, 7th Edition and and attachment fasteners. compared to test results performed under previous FBC given that testing of panel was performed

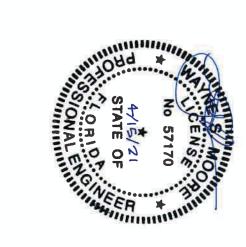
- Maximum allowable design pressure shall be as indicated on plans for each configuration.
- 3 12 This product is for use outside of the High Velocity Hurricane Zone (HVHZ).
- 4 of 80 ksi. This product shall be minimum 29 gauge thick galvalume coated steel with minimum yield stress
- 5 Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
- 6 this product. All supporting structural members shall be capable of supporting superimposed loads applied to
- .7 Fasteners must consist of minimum 12-14 x 3/4" self-drilling fasteners (SDFs) with control seal
- ∞ slope of 3:12 (14 degrees) or less. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof
- 9 Product shall be installed into substrates shown on installation drawings and shall not exceed
- 10. spacing limitations.

 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:

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

Signature/Seal:



Client: SBSI

Job Name: Keystone FPC Update Design (Exp. B)

> Job No. 20300S

Date: 1/12/21

> Computed By: Checked By: Sheet No.

AG Metal Wall Calc Set

Design Loads:

$$space_1 = 5 \cdot ft$$
 o.c.

$$space_2 := 4 \cdot ft$$
 o.c.

 $Ht_{roof} :=$

N

 $\frac{width}{0.25=1.875} ft$

High Wind Spacing

 $width := 180 \cdot in$ Exposure B Risk Cat. I

Ht := 120 in

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

 $FS \coloneqq 1.5$

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

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

 $\lambda = 0.89$

Adjustment Factor

 $mean_{rf}ht = 20 ft$

(Based on 2018 IBC (ASCE 7-16), Pg. 362)

Wall (Wind Area = 20 square ft):

(Based on 2018 IBC (ASCE 7-16), Pg. 352-353)

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

 $Pw_{net30pos108} := 20.04 \ psf \cdot \lambda = 17.836 \ psf$

 $Pw_{net30neg108} := -26.24 \ psf \cdot \lambda = -23.354 \ psf$ Note: Used Zone 5 (more conservative)

Client: Job Name: Keystone FPC Update SBSI

Design (Exp. B)

Date: 1/12/21

Job No. 20300S

Sheet No. ____Computed By: ___Checked By: ___

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

 $\lambda := 0.89$ $mean_{rf}ht = 20 ft$

(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)

conservative. Note: Used Zone 5 to be

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

Note: Highlighted values indicate input.

CHAPTER 30

WIND LOADS: COMPONENTS AND CLADDING

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 $h \le 60$ ft (18.3 m).

and the wind pressures are calculated from a wind pressure roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, The building has a flat roof, gable roof, multispan gable

- Part 2 is a simplified approach and is applicable to an enclosed
- Low-rise building (see definition in Section 26.2); or
- Building with $h \le 60$ ft (18.3 m)

the wind pressures are determined directly from a table The building has a flat roof, gable roof, or hip roof, and

က Part 3 is applicable to an enclosed or partially enclosed

Building with h > 60 ft (18.3 m).

roof, mansard roof, arched roof, or domed roof, and the wind pressures are calculated from a wind pressure equation. The building has a flat roof, pitched roof, gable roof, hip

- 4. Part 4 is a simplified approach and is applicable to an enclosed
- Building with 60 ft < $h \le 160$ ft (18.3 m < $h \le 48.8$ m)

determined directly from a table. The building has a flat roof, gable roof, hip roof, monoor mansard roof, and the wind pressures are

- 9 5. Part 5 is applicable to an open building of all heights that has a Part 6 is applicable to building appurtenances such as roof pitched free roof, monoslope free roof, or troughed free roof.
- 7. Part 7 is applicable to non-building structures - circular bins overhangs, parapets, and rooftop equipment.

silos and tanks; and rooftop solar panels

- Circular Bins, Silos and Tanks: $h \le 120 \,\text{ft}$ (38.6 m). Rooftop Solar Panels: Buildings of all heights with flat equal to 7 degrees roofs or Gable or Hip Roofs with roof slopes less than or
- all of the following conditions: determined in accordance with this chapter shall comply with 30.1.2 Conditions. A building that has design wind loads
- The building is a regular-shaped building as defined in Section 26.2; and
- The building does not have response characteristics that make bility caused by galloping or flutter; nor does it have a site it subject to across-wind loading, vortex shedding, or insta-

of upwind obstructions warrant special consideration. location for which channeling effects or buffeting in the wake

- characteristics shall be determined using recognized literature documenting such wind load effects or shall use the wind tunnel 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 procedure specified in Chapter 31. Section 30.1.2 or that have unusual shapes 9
- 30.1.4 Shielding. There shall be no reductions in velocity and other structures or terrain features pressure caused by apparent shielding afforded by buildings
- claddings, including modular vegetative roof assemblies, unless approved test data or recognized literature demonstrates lower 30.1.5 Air-Permeable loads for the type of air-permeable cladding being considered Air-Permeable Cladding. Design from Chapter 30 shall be used wind loads deterfor air-permeable

30.2 GENERAL REQUIREMENTS

- following wind load parameters are specified in Chapter 26: 30.2.1 Wind Load Parameters 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_{v} (Section 26.8).
- Ground elevation factor, K_e (Section 26.9)
- Velocity pressure exposure coefficient, K_7 or K_h (Section 26.10.1); Velocity pressure, q_7 (Section 26.10.2)
- Gust-effect factor (Section 26.11).
- Enclosure classification (Section 26.12).
- Internal pressure coefficient, (GC_{pi}) (Section 26.13).
- pressure for C&C of buildings shall not be less than a net pressure of 16 lb/ft² (0.77 kN/m²) acting in either direction normal to the 30.2.2 Minimum Design Wind Pressures. The design wind
- for main wind force resisting systems (MWFRS). C&C elements with tributary areas greater than 700 ft² (65 m²) shall be permitted to be designed using the provisions 30.2.3 Tributary Areas Greater than 700 ft² (65 m^2) 700 ft²
- 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. 30.2.4 External Pressure Coefficients. Combined gust-effect

.

Net Design Wind Pressure, p_{net30} , in lb/ft², for Exposure B at h = 30 ft, V = 95-130 mph

Note.								Ga	ble	e R	.00	f >	7 t	o 2	о г)eg	гес	es										Fla	t/I	lip/	'Ga	ıble	R	oof	0 t	o 7	De	gre	es					W	alls					
s: Plus a	3 r	3_{Γ}	31	31	3e	3e	မှု	3e	2r	21	2r	2r	Zn	211	2.1	2-	2 5) i) t) _e	2e	_	-	-	-	ş	w	w	ω	2	2	2	2	7	٦,	7,	1	-	-518 fee	i ta	. 5	5	S	5	4	4	4	4	Zone	
Notes: Plus and minus signs signify	100	50	20	10	100	50	20	10	100	50	20	10	001)C	20	3 5	150	100	500	70 10	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	<u>3</u> 8	\$ C	20	100	50	20	10	100	50	20	10	Wind Area	Effective
ns signif	6.6	7.6	89	9.8	6.6	7.6	8.9	9.8	6.6	7.6	8.9	9.8	0.0	1.0	0.9	2,0	0.0	7.0	7.5	20	86	6.6	7.6	8.9	8.6	5.2	5.6	6.2	6.6	5.2	5.6	6.2	6.6	5.2	5.6	62	99	5.2	7.0	6.6	13.8	14.5	15.5	16.2	13.8	14.5	15.5	16.2	95	
y pressu	-27.2	-34.7	44.6	-52.0	-24.1	-30.0	-37 ×	43.8	-24.1	-30.0	-37.8	43.8	-24.1	-30.0	-3/.8	43.8	4.4	-10.2	10.0	0.00	-30.0	-9.4	-18.2	-30.0	-30.0	-31.9	-36.3	42.1	46.5	-26.8	-29.0	-31.9	-34.1	-14.9	-14.9	-14.9	-149	-20.7	24.2	-25.9	-16.9	-18.3	-20.3	-21.7	-15.2	-15.9	-16.9	-17.6	y.	
res actir	73	84	9.8	10.9	7.3	8 4	9.8	- 10.9	7,3	8.4	9,8	10.9	73	874	8.6	10.9	0.0	0 0	0 4 0	0.0	10.0	7.3	8.4	9.8	10,9	5.8	63	6.9	7.3	5.8	6.3	6.3	7.3	5.00	63	69	73	4 0	6.0	7.3	15.3	16.1	17.2	18.0	15.3	16.1	17.2	18.0	1	
e toward	-302	-38.4	-49.4	-57.6	-26.7	-33.2	41 9	1	Ī-	-33.2	41.9	1	L	1	,	1	1				. 1		-20.2			-35.4	7	,		-29.7	1		. 1		1		. 1		-26.8	-	Τ.	-20.3	-22.5	-24.1	-16.8	-17.6	-18.7	-19.5	00	
and aw		9.3	10.8	12.0	œ —	93	10.8	12.0	 	9.3	10.8	12.0	8.1	9.3	10.8	0.21	0.1	0.0	10.0	100	130	20	93	8.01	12.0	6.4	6.9	7.6	8.1	6.4	6.9	7.6	8	6.4	6.9	76	2 5	6.0	7.6	28	16.9	17.8	18.9	19.8	16.9	17.8	18.9	19.8		
av from t	ا د د	42.4	-54.4	-63.5	-29.4	-36.6	462	-53.4	-29.4	-36.6	46.2	-53.4	-29.4	-30.6	16.2	-53.4	-114	-22.3	0.00	36.6	-366	-11.4	-22.3	-36.6	-36.6	-39.0	44.4	-51.4	-56.8	-32.8	-35.5	-39.0	41.7	-18.2	-18.2	-18.2	187	-20.6 -24.7	-29.5	-31.6	-20.6	-22.4	-24.8	-26.6	-18.5	-19.4	-20.6	-21.5	05	Bas
he surfac	80	102	119	13.2	8.9	10.2	110	13.2	8.9	10.2	-11.9	13.2	8.9	102	11.9	15.2	0.9	10.2	7	110	113	8.9	102	6.117	13.2	7.0	7.6	6.8	8.9	7.0	7.6	8	8.9	7.0	7.6	ه د د	80	70	3 00	8.9	18.5	19.5	20.8	21.8	18.5	19.5	20.8	21.8		Basic Wind Speed (mph)
es, respe	- 36 5	46.5	-59.7	-69.7	-32.3	40.2	-50.7	-58.7	-32.3	40.2	-50.7	-58.7	-32.3	40.2	-50.7	-58.7	C.21-	124.3) i	40.6	403	-12.5	-24.5	40.2	-40.2	42.8	-48.7	-56.5	-62.3	-36.0	-38.9	42.8	45.7	-19.9	-19.9	-199	199	-27.1	-32.4	-34.7	-22.6	-24.6	-27.2	-29.1	-20.4	-21.3	-22.6	-23.6	0	Speed (n
ctively	0.7	111	13.0	14.4	9.7	111	13.0	14.4	9.7	11.1	13.0	14.4	. 9.7	11:1	13.0	14.4	9.7	2 - 2	0,01	120	144	9.7	E	13.0	14.4	7.7	8:3-	T.6	9.7	7.7	83	9.1	9.7	7.7	و در در	٥	07.	10.0	9.1	9.7	20.2	21.3	22.7	23.8	20.2	21.3	22.7	23.8		nph)
For effec	- 10 p	-50.8	-65.3	-76.2	-35.3	4.0	155 4	4	-35.3	44.0	-55.4	-64.1	-35.3	-44.0	-55.4	-04.	-13./	-20.7	2 1	440	440	-137	-26.7	0.44	44.0	46.8	-53.2	-61.7	-68.1	-39.3	42.5	46.8	-50.0	-21.8	-21.8	1218	-21.8	1.70-	-35.4	-37.9	-24.7	-26.9	-29.7	-31.9	-22.2	-23.3	-24.7	-25.8	20	
tive win	105	121	14.7	157	105	19.1	12	15.7	10.5	12.1	14.1	15.7	10.5	171	142	13.7	LOD		1.4.1	14.	157	10.5	12.1	14.1	15.7	8.3	9.0	9.9	10.5	. 8.3	9.0	9.9	10.5	88	9.0	0.0	10.5	8.0	9.9	10.5	22.0	23.2	24.7	25.9	22.0	23.2	24.7	25.0	-	
d areas h	475	-55.4	-71.1	-83.0	-38.4	47.9	-60.4	-69.8	-38.4	47.9	-60.4	-69.8	-38.4	47.9	-60.4	-69.8	-14.9	-29.1	30.1	47.0	479	-14.9	-29.1	47.9	-47.9	-50.9	-57.9	-67.2	-74.2	-42.8	46.3	-50.9	-54.4	-23.7	-23.7	-23.7	-23.7	-34.9	-38.5	41.3	-26.9	-29.3	-32.4	-34.7	-24.2	-25.4	-26.9	30	8	
etween	19.4	, 14.2	16.6	18.4	12.4	14.2	166	18.4	12.4	14.2	16.6	18.4	12.4	14.2	16.6	18.4	. PZ/95	14.6	10.0	10.4	18.4	12.4	14.2	16.6	18.4	9.8	10.6	11.6	12.4	100	10.6	9 H	124	9 8	5	100	500	10.0	U 6	12.43	25.9	27.2	29.0	30 4	250	77 7	30.4			3
9	_51.0	65.0	-83.4	-97.4	45.1	-56.2	-70.8	-81.9	45.1	56.2	-70.8	-81.9	45.1	2-50.2	-/0.8		1	7.4.2		2.00-	. 1	-17.5	1	1	-56.2	-59.8:	68.0	-78.9	-87	-50.5	544	500	61.4	20.8	-2/2	-27.8	-37.8	410	1	A S		9 0					9			

Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft² = 0.0929 m²; 1.0 lb/ft² = 0.0479 kN/m². that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2. those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates *Notes:* Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between

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/ft², for Exposure B at h = 30 ft, V = 140-200 mph

Г		_	_	_	_	Ca	ble l	Pos		7 +	20	De	ore	es	-				-	I]	Flat	/Hi	p/G	abl	e R	oof	0 to	7 D	egr	ees					Wa	lls					_
ي	3r	31	31	30	ب ع م			21	_		2n	2n) _e	2e	_	<u> </u>		- 4	, ω	w	w	٥, ١	دم د	2	Τ,	_ ·	ζ -	-	_		- 0	S	S	2	4	4 .	4 4		Zone	
100		_	1		50		100	50	30 10	100	50	20	10	100	50	0.0	100	50	20	10	50	20	10	5 5	S 0	10	100	50	3 5	100	50	20	100	50	20	10	100	50	20	(R*)	Area	Effective
14.3	100	19.3	21.4	14.3	16.5	21.4	143	16.5	19.3	21.4	16.5	19.3	21.4	14.3	16.5	103	14,3	16.5	19.3	21.4	12,3	13.4	14.3	11.4	15.4	14.3	11.4	12.3	17.4	11.4	12.3	13.4	14.3	31.0	33.7 -	. 7	30.0 -	1	33.7	140	;	
-39.2	I.	-96.8		-52.3	-65.1	_95.0	-52.3	-65.1	_82.1	-95.0	50.1	-82.1	-95.0	-20.3	-39,6	65.1	-20.3	-39.6	-65.1	65.1	-78.9 60.3	-91.5	-101.0	-58.3	63.0	-74.1	-32.3	-32.3	-32.3	25.9	47.6	-52.5	-56.2	367	4.0	47.2	-33.0	-34.6	-36.7	1	_	
2 10.5				Ē		24.5					16.5	22.1	24.5	16.5	18.9	24.5	16.5	18.9	22.1	24.5	3 14.	15.4	16.5	13.0	<u> </u>	16.5	13.0	14.1	15.4	10.0	14.1	15,4	16.5	344	38.7	40.5	34.4	36.2 -	38.7 -	40.5	100	11
<u>}</u> .	-/5.4	1	-112.9	-52.3	-65.1	-95.0 -83.1	-52.3	-65.1	-82.1	-95.0	-52.3	-82.1	-95.0	-20.3	-39.6	65.1	-20.3	-39.6	-65.1	-65.1	-/8.9	-91.5	-101.0	-58.3	63.0	_74.1 _60.3	-32.3	-32.3	-32.3	1773	47.6	-52.5	-56.2	-36.7	30.5	47.2	-33.0	-34.6		38.2		-
	187			-		25.2		_	_	1	18.7	21.5	27.9	18.7	21.5	25.2	18.7	21.5	25.2	27.9	14.8	17.6	18.7	14.8	16.0	18.7	14.8	16.0	17.6	18.7	16.0	17.6	18.7	39.2	41.0	46.1	39.2	41.2	_	46.1	160	
		-120.4	ı	1	-85.1	-124.1 -107.3	-68.3	-85.1	-107.3	-124.1	-68.3	-85.1	-124.1	-26.5	-51.8	-85.1	-20.5	-51.8	-85.1	-85.1	-90.6	103.0	-131.9	-76.1	-82.3	_90.6	42.1	42.1	42.1	42.1	62.1	-68.5	-73.4	47.9	52.0	61.7	43.1	45.1	47.9	50.0	_	Basic V
om the s	3 21.1		31.5	3 21.1	-	28.4			_	31.5	21.1	24.3	31.3	21.1	24.3	28.4	21.1	24.3	28.4	31.5	16.7	18.1	21.1	16.7	18.1	19.8	16.7	18.1	19.8	21.1	16.7	19.8	21.1	44.2	46.6	52.0 ·	44.2	46.6		52.0	170	Basic Wind Speed (mph)
urfaces,	-87.		-160.5	-11.	-96.0	-121.1	177.1	-96.0	-121.1	-140.1	_77.1	-96.0	-140.1	-30.0	-58.4	-96.0	-96.0	-58.4 30.0	_96.0	-96.0	-102.2	-134.9 -116.3	124.9	-85.9	-92.9	-102.2	1003	47.6	47.6	47.6	-64.7	77.4	82.8	-54.1	58.7	64.9			54.1			ed (mpi
respecti	2 23.7		31.8	+			25.1		_	35.3	-		31.8 81.8	25.7	27.2	31.8	35.3	22.7	31.8	35.3	18.8	20.3	23.7	18.8		,	23.7	20.3	22.2	23.7	18.8	22.2	23.7	49.6	52.2	55.7	50.2	52.2			180	3
vely. Fo	7 -97.8	1	()	1867	1,	-135.8	-80.4	-10/./	-135.8	-157.1	-86.4	-107.7	-135.8	-157.1	22 6	-107.7	-107.7	133.6	-10/./	-107.7	-114.6	-130.4	-160.9 -151.2	-96.3	-104.2	-114.6	-122.5	63.3	-53.3	-53.3	-72.5	78.6	-92.9	60.6	-65.8	72.8	78.0	54.5		-	_	_
r effective	8 26.4			1	7 30.3		+	26.0			T	30.3	35.5	39.4	30.3	35.5	39.4	26.4	20.C	39.4			24.8			•	26.4	0.00	24.8	26.4		24.° 22.6	1	55.2			64.9	55.2	62.0	64.9	190	Ì
away from the surfaces, respectively. For effective wind areas between	4 -109.0				_120.0		1	-120.0	-151.3	-175.0	-96.3	-120.0	-151.3	-175.0	-374	-120.0	-120.0	-37.4	_73.0	0.021	-127.7	-145.3	-168.5	1860	-116.1 107.3	-127.7	-136.5	59.4	59.4	-59.4	-80.8	-87.6	06.6	67.5		-81.1	7	_	63.7	70.4		_
areas be	0 29.3	8 33.6			3 29.3				33.6						29.3		43.6			45.0	23.2	25.0	27.4	29.3	23.0		29.3 -	23.2	27.4	29.3			29.5 -		64.4		72.0	61.2	64.4	72.0 -	200	
tween	3 -120.7	-153.		- 1	-132.9 -106.7		. 1		_132.9	-1677	-106.7	-132.9	-167.7	-193.9	41.5	-132.9	-132.9	41.5	_80.9	-132.9	-141.5	-161.0	-186.7	-206.1	_118.9	-141.5	-151.2	-65.9	65.9	-65.9	-89.5	-97.1	107.1	114.8	-81.3	89.9	-96.3	67.3	-70.5	74.8		

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 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

continues

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Net Design Wind Pressure for Roof Overhang, p_{0030} , in lb/ft², for Exposure B at h = 30 ft, V = 95-200 mph

			Н	in ¹	Roz	of >	27	te	45	De	gre	ees					
w	ω	ω	ω	Ì			2r	Ī	26		_	-	-	_	_	Zone	
100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	(n ²)	Effective Wind Area
-24.8	-24.8	-36.4	-45.2	-24.8	-31.2	-39.7	-46.1	-22.0	-22.9	-31.6	-38.1	-23.2	-25.7	-29.1	-31.6	95	
-27.4	-27.4	40.3	-50.1	-27.4	-34.6	-44.0	-51.1	-24.4	-25.4	-35.0	42.3	-25.7	-28.5	-32.2	-35.1	100	
-30.3	-30.3	44.5	-55.3	-30.3	-38.1	48.5	-56.3	-26.9	-28.0	-38.6	46.6	-28.3	-31.4	-35.5	-38.7	105	
-33.2	-33.2	48.8	-60.6	-33.2	41.8	-53.2	-61.8	-29.5	-30.7	42.3	-51.1	-31.1	-34.5		-42.4	110	
-36.3	-36.3	-53.4	-66.3	-36.3	45.7	-58.1	-67.5	-32.3	-33.6	46.3	-55.9	-34.0	-37.7	42.6	46.4	115	
-39.5	-39.5	-58.1	-72.2	-39.5	49.8	-63.3	-73.5	-35.1	-36.6	-50.4	-60.9	-37.0	41.1	-46.4	-50.5	120	
-46.4	-46.4	-68.2	-84.7	-46.4	-58.4	-74.3	-86.3	41.2	42.9	-59.1	-71.4	43.4	48.2	-54.5	-59.3	130	ind Spe
-53.8	-53.8	-79.1	-98.2	-53.8	-67.7	-86.2	-100.1	47.8	49.8	-68.6	-82.8	-50.4	-55.9	-63.2	-68.7	140	Vind Speed (mph
-61.7	-61.7	-90.8	-112.8		-77.7	-98.9	-114.9	-54.9	-57.1	-78.7	-95.1	-57.8	<u>k</u> 1.	-72.5	-78.9	150	
-70.2	-70.2	-103.3	-128.3	-70.2	-88.5	-112.5 -	[-130.7]-	-62.4	-65.0	-89.6	-108.2	-65.8	-73.0	-82.5	-89.8	160	
-79.3	79.3	-116.6	-144.8	-79.3	_99.9	-127.0	-147.6	-70.5	-73.4	-101.1	-122.1	-74.2	-82.4	-93.2	-101.3	170	
-88.9	-88.9	-130.7	-162.4	-88.9	-112.0	-142.4	-165.5	-79.0	-82.3	-113.4	-136.9	-83.2	-92.4	-104.5	-113.6	180	
-99.1	-99.1	-145.7	-180.9		-124.7	-158.7	-184.4		_	_		-927	1	-1164	-1266	105	
1	1	<u>_</u>	2		-	4	اوا	1	1					T Y	·		

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. Metric conversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$.

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Adjustment Factor for Building Height and Exposure, λ

Mean		Exposure	
Koor Height (ft)	В	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; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$

FIGURE 30.4-1 (Continued). Components and Cladding, Part 2 [$h \le 60 \text{ ft}$ ($h \le 18.3 \text{ m}$)]: Design Wind Pressures for Enclosed **Bulldings—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 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_{σ} ; 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 (θ < 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

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



ATLNC # 0321,01-17

Report Date: 04/05/17

Test Dates: 03/21/17 - 03/23/17

Miami Dade Certification # 16-0526.01 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:

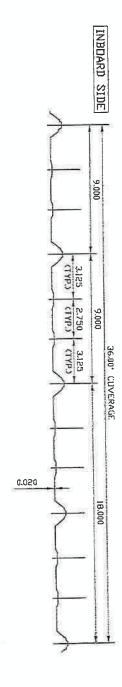
ASTM E 1592-05

Test Conditions: 65 - 75 degrees F

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" \times 2-1/2" \times 14 ga. rafters/ post with 12-14" \times 3/4" self drilling screws at 6" oc.

6" OC. 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) Specimen B, D 12-14 x 3/4" self drilling screws, panels to Hat Channels with 12-14 x 3/4" self drilling screws at 29 gauge Galvalume AG Metal Roof and Wall Panels as shown in Steel

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.

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

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.

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

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.

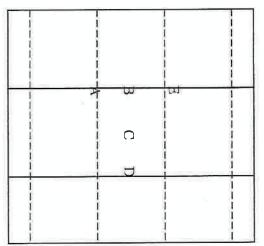
2-1/2" Tube Girth Spacing: Specimen C, Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC. 3 spans 48" OC with 12" overhang, rafter spacing 48"

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

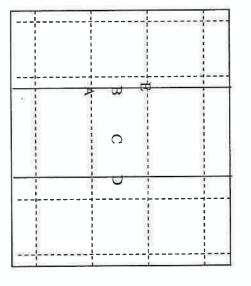
Test Specimens

Indicator Locations

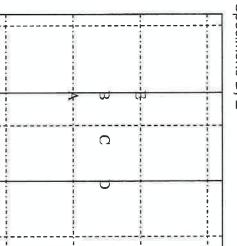
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

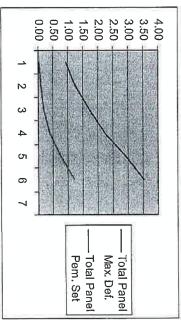
120	110	100	90	80	70	60	05	40	30	20	psf Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60		60		(sec)	Time
					2.86"	2.35"	1.84"	1.45"	1.04"	.75"		€	Purlin Rib
					.84"	.55"	.30"	.15"	.05"	.02"			Perm.
					2.97"	2.47"	1.92"	1.52"	1.12"	.83	(B)	먕	Mid-Span
					.99"	.64"	.သ	.17"	.07"	.03"		Set	Perm.
					3.53	2.90"	2.22"	1.73"	1.26"	00 20 2		(C)	Mid-Span
					1.22"	.76"	.39	.20"	.08	.03		Set	Perm.

Deflections in inches

120 60	110	100	90	80	70	60	50	40	30	20	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					2.97"	2.46"	1.90"	1.50"	1.09"	.80"		(D)	Rib	Mid Span
					.97"	.63"	.32"	.17"	.06"	.02"			Set	Perm
					2.87"	2.40"	1.86"	1.47"	1.06"	.81"			(E)	Purlin Rib
					.89	.55	30"	.16"	.06"	.02"			Set	Perm.
					3.53	2.90"	2.22"	1.73"	1.26"	.93			Deflection	Total Panel
					1.22"	.76"	.39	.20"	.08"	.03	Set	Perm.	Panel	Total

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



Specimen B

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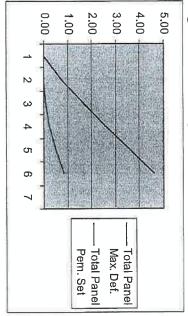
Pressure Time	Time	Purlin Rib	Perm.	Mid-Span	Perm.	Mid-Span	Perm.
Increments	(sec)	€	Set	Rib	Set	(C)	Set
psf				(B)			
Negative							
0	60	0,,	0,,	0,,	0"	0	O,
20	60	.58"	.01"	.60"	0.0	.75"	.01"
30	60	1.34"	.07"	1.45"	.08"	.169"	.08"
40	60	2.07"	.21"	2.29"	.21"	2,57"	.22"
50	60	2.97"	.44"	3.03"	.46"	3.58"	.49"
60	60	3.89"	.75"	4.36"	.80"	4.62"	,86,
70	60						
80	60						

Deflections in inches

Pressure Time	Time	Mid Span	Perm	Purlin Rib	Perm.	Total Panel	Total
Increments	(sec)	Rib	Set	(E)	Set	Deflection	Panel
psf		(D)					Perm.
Negative		· ·					Set
0	60	0"	O,	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 ₁
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

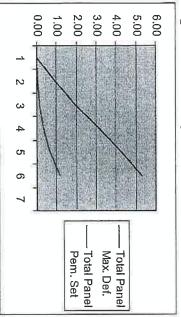
100	90	80	70	60	50	40	30	20	10	0	Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60		(sec)	Time
					3.97"	3.18"	2.41"	1.53"	.70"	0"		(A)	Purlin Rib
					.75"	.44"	.22"	.08"	.04"	0"		Set	Perm.
					4.41"	3.57"	2.68"	1.72"	.82"	0"	(0)	(B)	Mid-Span
					.84"	.49"	.24"	.10"	.05	O _I		Set	Perm.
					5.30	4.26"	3.15 ₁	1.99"	.96"	0,		(C)	Mid-Span
					1.16"	.66	.32	.12	.06"	Q			Perm.

Deflections in inches

Make: O had	100	90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
and and	60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
المحمد أم المحمل						4.79"	3.89"	2.94"	1.90"	.93"	0"	,	(D)	Rib	Mid Span
SS Total			\$5			.96"	.56"	.28"	.11"	.05"	0"			Set	Perm
Note: O indicator in cond on Total Depol Defloation and Dermanant Set Indicators						3.92	3.10"	2.36"	1.49"	71"	0"			(E)	Purlin Rib
2000						.78"	.44"	.20"	.07"	.03"	0"			Set	Perm.
ormonent Sot						5.30	4.26"	3.15"	1.99"	.96"	0"			Deflection	Total Panel
Indicators						1.16"	.66"	32	.12"	.06"	O ₃	Set	Perm.	Panel	Total

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



Specimen D Deflections in inches

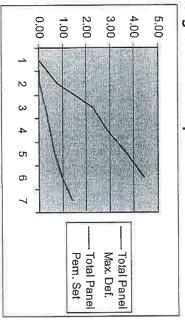
70	63	56	49	42	35	28	21	14	7	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			s (sec)	Time
				4.11"	3.32"	2.83"	2.20"	1.70"	.54"	0"			€	Purlin Rib
				1.22"	.88	.63 ₃	.47"	.29"	.02"	O ₃			Set	Perm.
				5.14"	4.27"	3.61"	2.81"	2.18"	.69"	0"		(B)	Rib	Mid-Span
				1.56"	1.13"	.78"	.57"	36"	.02"	O _i			Set	Perm.
				5,28"	4.43"	3.72"	2.90"	2.26"	.78"	0,1			(C)	Mid-Span
				1.40"	.99"	.67"	.45"	.28"	.02"	0,			Set	Perm

Deflections in inches

	70	63	56	49	42	35	28	21	14	7	0	Negative	psf	Increments	Pressure
Handan ma	60	60	60	60	60	60	60	60	60	60	60				Time
المراجعة المحادث					4.56"	3.88"	3.37"	2.65"	2.08"	.76"	0"		(D)	Rib	Mid Span
Total					1.10"	.81"	.56"	.37"	.22"	.02"	O _E			Set	Perm
Note: C indicate: and in mode of Total Bonal Deflection and Bormanent Set Indicators					5.63"	4.62"	3.89"	3.01"	2.35"	.75"	Q			(FI)	Purlin Rib
200					1.71"	1.20"	.81	.58"	.37"	.02"	0,			Set	Perm.
formanent Sel					5.28"	4.43"	3.72"	2.90"	2.26"	.78"	Q			Deflection	Total Panel
naigutors					1.40"	.99"	.67"	.45	.28	.02"	Q	Set	Perm.	Panel	Total

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



Specimen E Deflections in inches

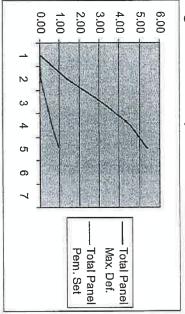
90	80	70	60	50	40	30	20	10	0	pst Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60	60		(sec)	Time
					4.45"	3.56"	2.49"	1.13"	0"		(2)	Purlin Rib
					.80"	.51	.30"	.10"	Q			Perm.
					4.71"	3.90"	2.72"	1.22"	Q.	(B)	R S	Mid-Span
					.87"	.53	.30"	.07"	0,1			Perm.
					5.37"	4.56"	3.12"	1.38"	O ₁		(C)	Mid-Span
					.98	.60"		.07"	0,		Set	Perm.

Deflections in inches

90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60			(sec)	Time
					5.43"	4.46"	3.08"	1.40"	0"		(D)	Rib	Mid Span
					.99"	.59"	.30"	.08"	0"			Set	Perm
			6	35	4.33"	3.44"	2.42"	1.09"	0"			(E)	Purlin Rib
					.71"	.42"	.25"	.07"	O,			Set	Perm.
					5.37"	4.56"	3.12"	1.38"	O ₃			Deflection	Total Panel
					.98"	.60"	.31	.07"	0,	Set	Perm.	Panel	Total

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



Specimen F

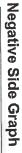
Deflections in inches

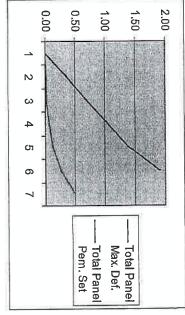
Pressure Time Increments (sec)	Time (sec)	Purlin Rib (A)	Perm. Set	Mid-Span Rib	Perm. Set	ج ÷	m. Mid-Span
psf	,			(B)			
Negative							
0	60	0,,	0"	0,1		0"	
7	60	.23"	.0"	.27"			
14	60	.49"	.0.	.56"			.02"
21	60	.74"	.03"	.84"	,	-	.04"
28	60	1.06"	.09"	1.12	2	" 10"	.10"
25	60	1.41"	.20"	1.52	=		.21"
42	60	1.77"	.37"	1.52"			
49	60	2.27"	.63	2.40"		.70"	
56	60	2.81"	1.00"	2,99"			
63	60	3.43"	1.48"	3.79"		1.61"	1.61" 4.70"
70	60						
77							
84							

Deflections in inches

Pre91ssur Time	Time	Mid Span	Perm	Purlin Rib	Perm. Set		Total Panel Deflection
e Increments	(sec)	(D) R	Set	(E		Set	
psf Negative		1799					
0	60	0"	0"	0		0"	0" 0"
7	60	.28"	.01"	.24"		.0"	
14	60	.60"	.02"	.52"		.01"	
21	60	.90"	.05"	.80"		.04"	
28	60	1.19"	.41	1.09"		.09"	
25	60	1.59"	.23	1.44"		.19"	
42	60	2.01"	.41"	1.81"		.35"	
49	60	2.49"	.70"	2.26"		.60"	
56	60	3.08"	1.12"	2.78"		.98"	
63	60	3.87"	1.64"	3.39"	1 3	1.45"	1.45" 4.70"
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.





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

Technician: Keith Owen

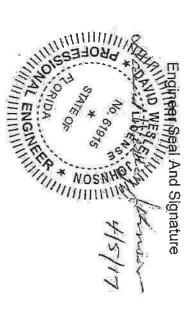
Observers-

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

American Keith Owen, Lab Director

Test Lab, Inc.

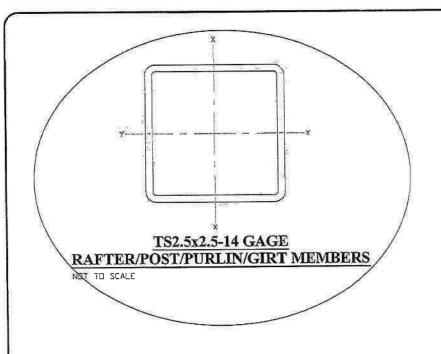
All Tests Witnessed and Certified by: 1122 Calvert Rd. Brevard, NC 28712 David Johnson P. E. Florida P.E. # 61915



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 engine is in complete compliance of Florida Statue 9B-72, Section 72.110 Witnessing engineer

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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 $IX = 0.713 \text{ IN.}^4$ $IY = 0.713 \text{ IN.}^4$ rx = 0.990 IN. ry = 0.990 IN.

APPLICATION:

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

CALCULATED CDIL WIDTH: 3.81' e t=0.052' CUSTOMER SPECIFIED WIDTH: 4.00' e t=0.052'

0.052* 50-80 KZI

METAL THICKNESS: MATERIAL GRADE:

> TOLERANCE STANDARDS FOR THICKEST METAL: *ACCUMULATION --- (+ DR -> 1/15 IN DEPTH ----- (+ OR -) 1/15 IN RADII ----- (+ OR -) 1/32 IN ANGLES ----- (+ DR -> 2 DEGREES

Will College	STEEL BUILDINGS AND STRUCTURES, INC.	RAFTER/POST/PURLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND ENGINEERING AND CONSULTIN	NOTED HEA JOD NO. 161925 This document is the property of
	STEE	RAFTER/PO HIGH WIN	SCALE:

SHEET HO.

SK-1

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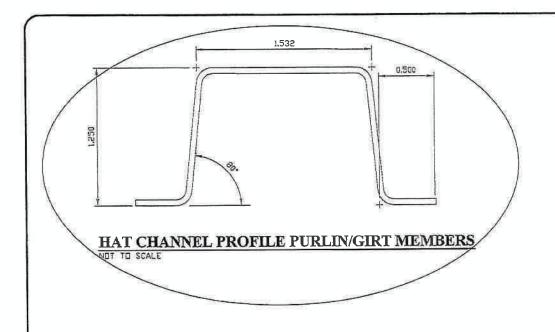
DRAVN BYE.

DATE: 3-14-17

REV.



MOORE AND ASSOCIATES (803) ZIP-1199 / TAX (803) ZIP-2000 ENGINEERING AND CONSULTING			
THE DESCRIPTION OF MILE DATE REVISION	BY	BY CK.	APVD.
ANATOMIC TESTING/APPROVAL JRS PDH	APPROVAL JRS	PDH	HSA.



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

ATL INSPECTOR

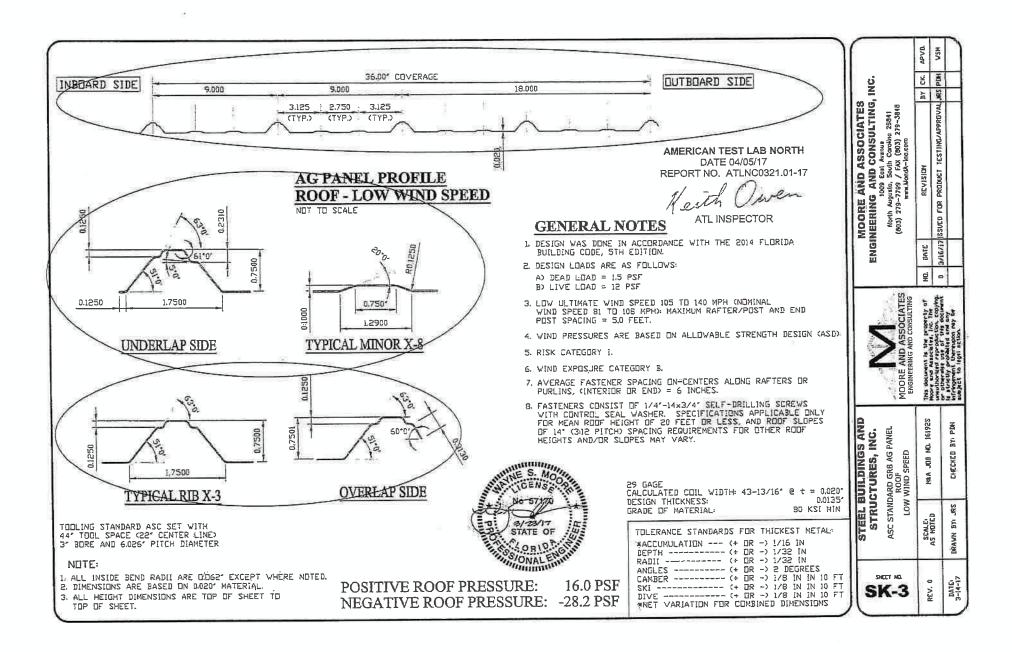
CALCULATED COIL WIDTH: 3.81' @ t = 0.052'
CUSTOMER SPECIFIED WIDTH: 4.00' @ t = 0.052'
METAL THICKNESS: 0.052'
MATERIAL GRADE: 50-80' KSI

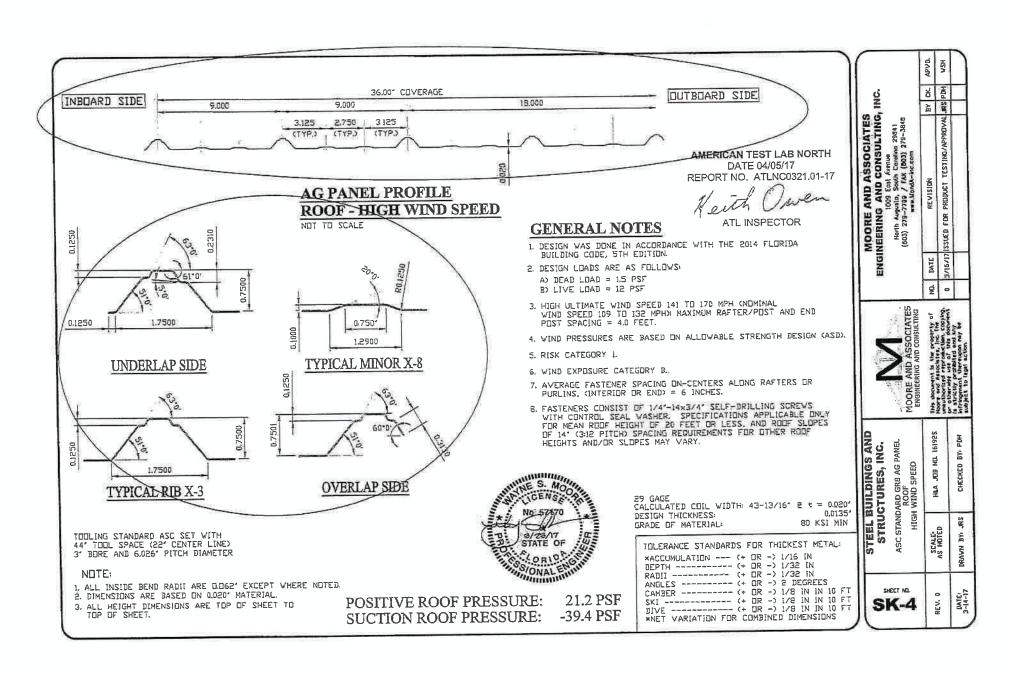
TOLERANCE STANDARDS FOR THICKEST METAL:
**ACCUMULATION --- (+ DR -> 1/15 IN
DEPTH ----- (+ DR -> 1/16 IN
RADII ----- (+ DR -> 1/32 IN
ANGLES ---- (+ DR -> 1/32 IN
ANGLES ---- (+ DR -> 1/3 IN IN 10 FT
SKI ----- (+ DR -> 1/8 IN IN 10 FT
DIVE ----- (+ DR -> 1/8 IN IN 10 FT
DIVE ----- (+ DR -> 1/8 IN IN 10 FT
XNET VARIATION FOR COMBINED DIMENSIONS

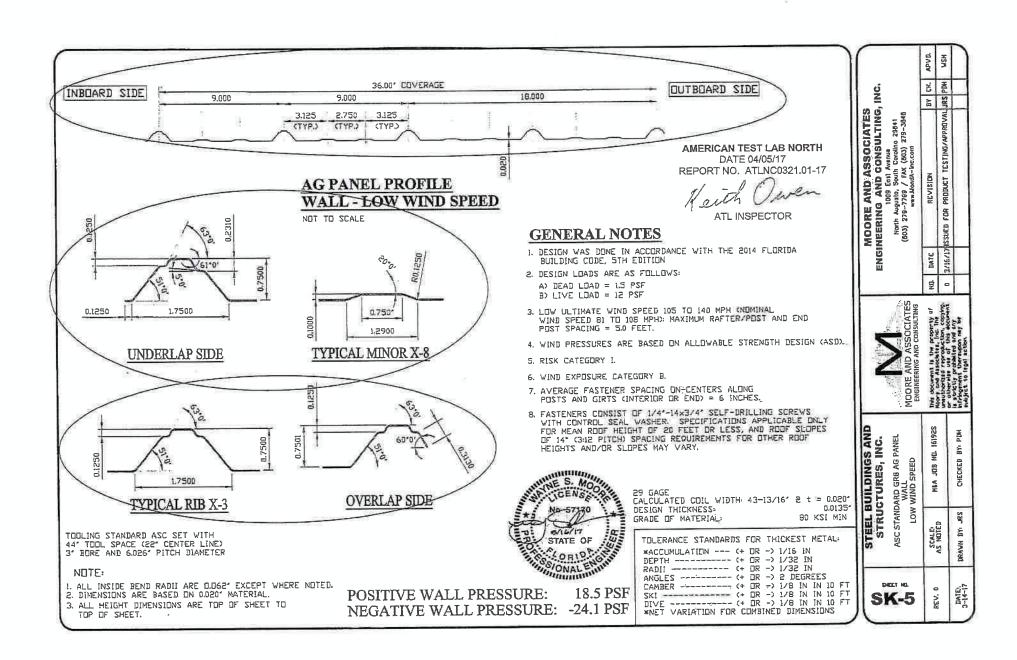
	MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. 103 501 Averland Souls Cordin 22841 (803) 279-7799 / FXX (803) 279-3848 www.kendA-lies.com	BY CK. APVD.	3/16/17 SSUED FOR PRODUCT TESTING/APPROVALURS PIDH WSH	
	MOORE AND ASSOCIATES NEERING AND CONSULTING, 1009 501 Armus Nerth Augusto, South Coroline 22841 (803) 279-7799 / FXX (803) 279-3948 www.MondA-inc.com	REVISION	SSUED FOR PRODUCT	
	ENGE	DATE	3/16/17	
П		털	0	

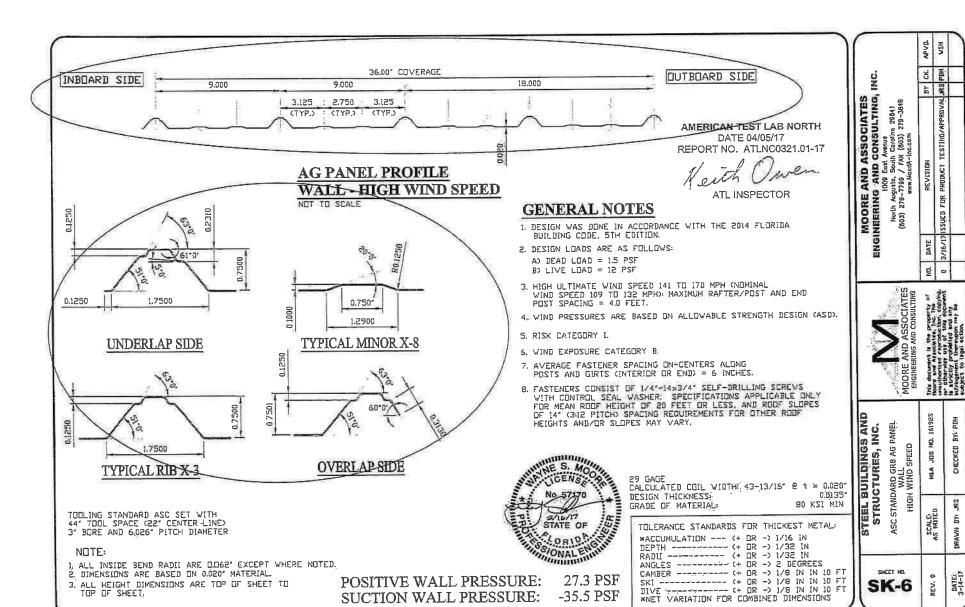
١	_	ή,Σ	225	1
	FEEL BUILDINGS AND STRUCTURES, INC.	HAT CHANNEL PURLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND SPEED	HLA JOB NO. 161925	CHECKED BY PDH
	STEEL E STRU	HA PURLIN HIGH WIND 9	SCALEY AS NOTED	DRAVN BY: JRS
		(-2	REV. 0	DATE 3-14-17
,				100

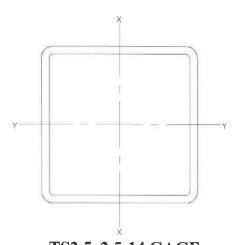












TS2.5x2.5-14 GAGE RAFTER/POST/PURLIN/GIRT MEMBERS

NOT TO SCALE

PROPERTIES AREA = 0.727 [N.2

 $Sx = 0.570 \text{ IN.} \frac{3}{2}$ SY = 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 CDI WIDTH: 3.81" @ t = 0.052" CUSTOMER SPECIFIED WIDTH: 4.00" @ t - 0.052" METAL THICKNESS: MATERIAI GRADE:

0.052* 50-80 KSI

IDLERANCE STANDARDS FOR THICKES! METAL *ACCUMULATION --- (+ OR -) 1/16 IN

SKI - (+ DR -) 1/8 IN IN 10 FT DIVE (+ DR -) 1/8 IN IN 10 FT *NET VARIATION FOR COMBINED DIMENSIONS

ENGINEERING AND CONSULTING, INC. 1008 East Avenue North August, South Caroline 29841 (803) 279–7789 / FX (803) 279–3848 www.MandA-Inc.com

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

DATE

0

APVD. **MSM**

쏤 H

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

TS2.5x2.5 RAFTER/POST/PORLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND SPEED NO. 16192S Β¥ CHECKED 8 M&A SS SCALE: AS NOTED DRAWN BY

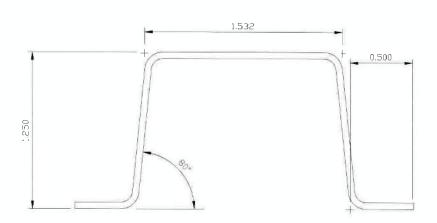
DATE: 3-14-17

REV. 0

SK-1

STEEL BUILDINGS AND STRUCTURES, INC.

B STATE OF S



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TO SCALE



CALCULATED CUIL WIDTH: CUSTOMER SPECIFIED WIDTH METAL THICKNESS:

MATERIAL GRADE

3.81" @ t = 0.052" 4.00" @ t - 0.052* 0.052" 50 80 KSI

THLERANCE STANDARDS FOR THICKEST METAL: DIVE ---- (+ DR -) 1/8 IN IN 10 FT *NET VARIATION FOR COMBINED DIMENSIONS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, IN 1008 East Avenue North Augusta, South Carolina 28441 (803) 279—7739 / FAX (803) 279—3848 www.Marok-inc.com

NSW W

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JRS PDH JS JB

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL REVISED FOR 2020 FBC, 7TH EDITION

1/12/21

Ä CHECKED

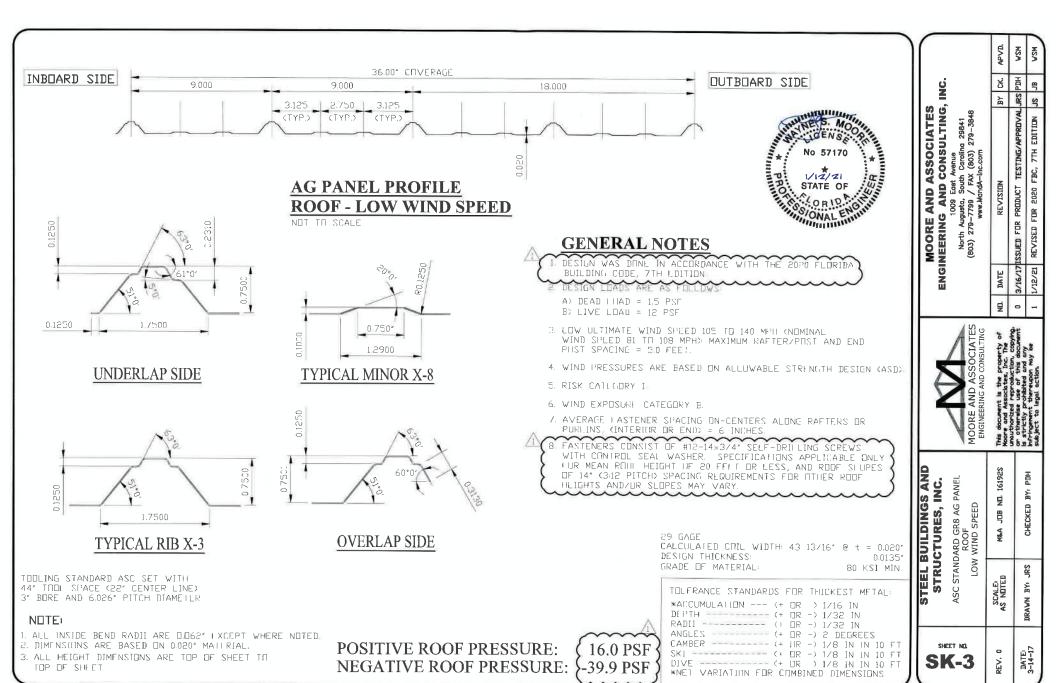
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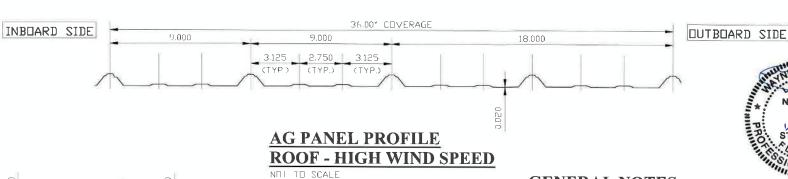
DATE

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND
SPEED STEEL BUILDINGS AND ND. 16192S STRUCTURES, INC. M&A SCALE AS NOTED

DRAWN BY SHEET NO. DATE: 3-14-17 SK-2 REV.





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GENERAL NOTES

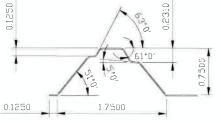
SIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CUDE, 7TH EDITION.

A) DEAD LOAD = 1.5 PSF B) LIVE LUAD = 12 PSF

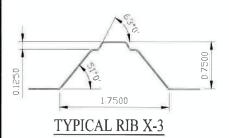
- 3 HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 10 132 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FILT.
- 4. WIND PRESSURFS ARE BASED UN ALLOWABLE STRENGTH DESIGN (ASD)
- 5. RISK CATEGORY I
- 6. WIND EXPHSURE CATECHRY B.
- 7. AVERALE FASTENER SPACING (IN-CENTERS ALONG RAFTERS HR PURLINS, (INTERIOR OR END) = 6 INCHES.
- 8. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILITING SCREWS WITH CUNTROL SEAL WASHER. SPECIFICATIONS APPLICABLE UNLY FOR MEAN RODI HEIGHT DE 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) SPACING RIQUIREMENTS FOR OTHER ROLL HEIGHTS AND/OR SLOPES MAY VARY.

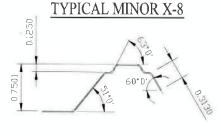
DESIGN THICKNESS:

GRADE DE MATERIAL



UNDERLAP SIDE





0.750*

1.2900

OVERLAP SIDE

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

NOTE:

- 1. ALL INSIDE BEND RADII ARF N.062" LXCLPT WHERE NOTED.
- 2. DIMENSIONS ARE BASED ON 0.020" MAILRIAL.
- 3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET HI

POSITIVE ROOF PRESSURE: SUCTION ROOF PRESSURE:

16.0 PSF -59.7 PSF

IDLERANCE STANDARDS FOR THICKEST METALI *ACCUMULATION === (+ OR -) 1/16 IN DEPTH ----- (+ OR -) 1/32 IN RADII ---- (+ DR -) 1/32 IN ANGLES ---- (+ ER -) 2 DEGREES CAMBER ----- (+ DR -) 1/8 IN IN 10 FT SKI ---- (+ DR -) 1/8 IN IN 10 FT DIVF ---- (+ DR -) 1/8 IN IN 10 FT *NET VARIATION FOR COMBINED DIMENSIONS

CALCULATED CUIL WIDTH: 43-13/16" @ t = 0.020"

BUILDINGS AND 161923 ASC STANDARD GR8 AG PANEL ROOF HIGH WIND SPEED STRUCTURES, INC. 녖 8 MEA SCALE AS NOTED ΒŢ DRAWN

0.01354

80 KSI MIN

SHEET NO. DATE: 3-14-17 SK-4 REV.

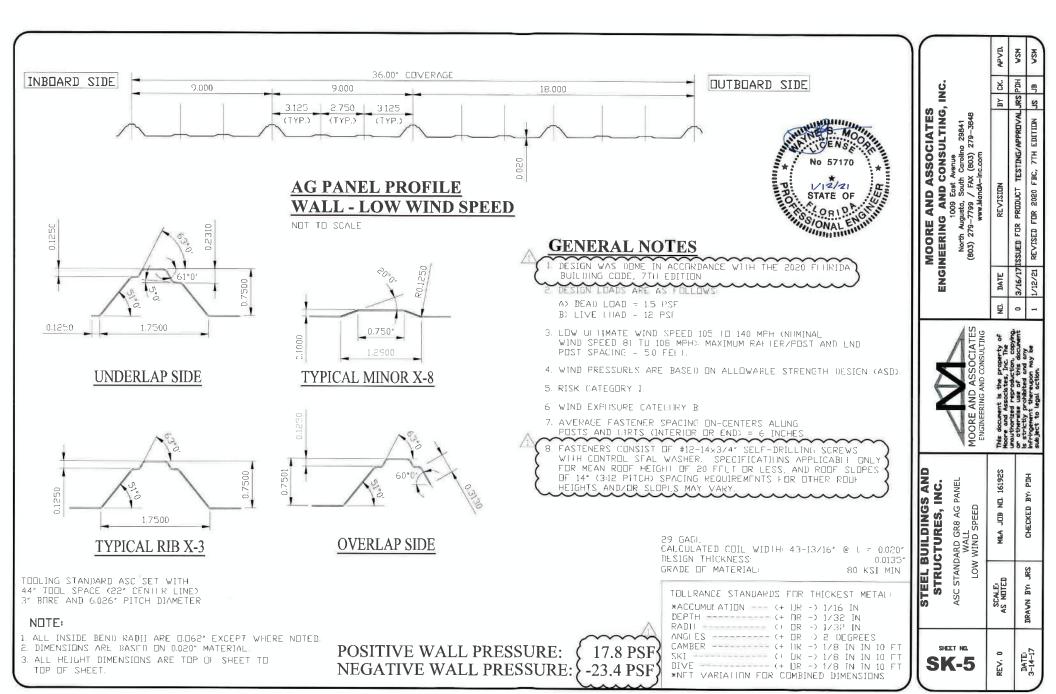
INEERING AND CONSULTING, II
1009 East Avenue
North Augusts, South Carolina 28841
(803) 279–7799 / FAX (803) 279–3848
www.MandA-inc.com PRODUCT TESTING/APPROVAL 2020 띰 ENGINEERING 3/16/17 ISSUED FOR REVISED DATE 0

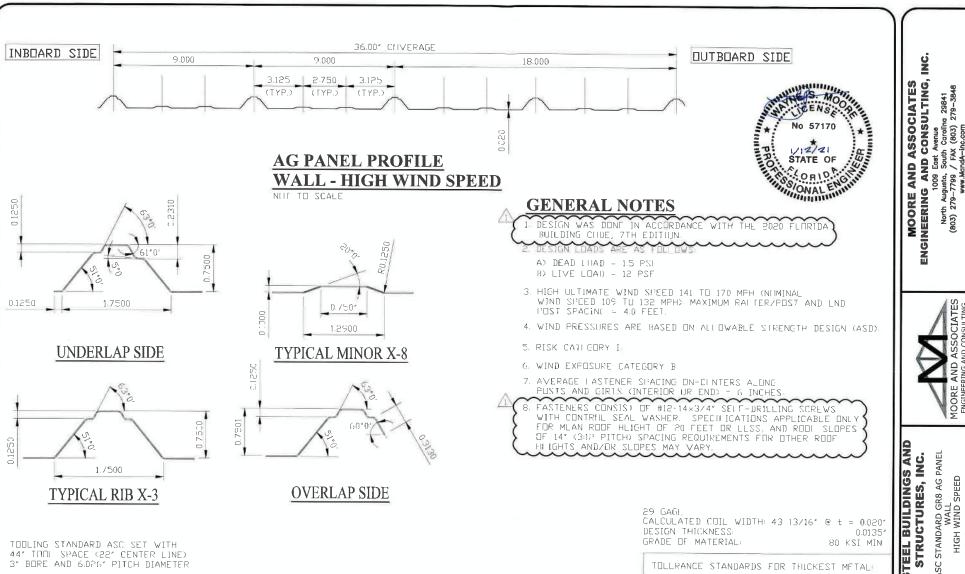
VSM

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JRS

EDITION 7TH





NOTE:

- 1. ALL INSIDE BEND RADII ARE 0.062* EXCLPT WHERE NOTED
- 2. DIMENSIONS ARE BASID ON 0.020" MATERIAL.
- 3. ALL HEIGHT DIMENSIONS ARE TOP OF SHEET IN TOP OF SHIFT.

POSITIVE WALL PRESSURE: SUCTION WALL PRESSURE:

26.6 PSF -34.9 PSF *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 FUR COMBINED DIMENSIONS

SK-6 SHEET WIT SHEET WAS AS A SHEET WIT SHEET WIT SHEET SHEE	STEEL B STRUC ASC STAND HIGH SCALE AS NOTED	STEEL BUILDINGS AND STRUCTURES, INC. ASC STANDARD GR8 AG PANEL WALL HIGH WIND SPEED SCALE NA JUB NO. 161928 AN BY JRS CHECKED BY DDH	MOORE AND ASSOCIATES MIGNIERING AND CONSULTING This document is the property of Moore and Associates, Inc. The Moore and Associates, Inc. The Total Associates are of this document or offerwise use of this document is strictly prohibited and any which opening and any be	Ö o	ENG! DATE 3/16/17	MOORE AND ASSOCIATES	호 용 된	
			subject to legal action.	7	1/12/21/	REVISED FOR 2020 FBC, 7TH EDITION US	9	VSM
	AWN BY JRS	CHECKED BY: PDH	Infringement thereupon may be subject to legal action.	1	1/12/21	1/12/21 REVISED FOR 2020 FBC, 7TH EDITION JS JB	9	



401 S. Main Street Suite 200

Phone: Mt. Airy, NC 27030 (336) 415-3540

Fax: (336) 719-2020

North Augusta, SC 29841 Phone: (803) 279-7799 Fax: (803) 279-3848 www.MandA-inc.com 1009 East Avenue

15 April 2021

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

Prepared By: Wayne S. Moore, P.E.

M&A COA No. 8966 FL PE No. 57170

Manufacturer:

820 Reeves Drive

Steel Buildings and Structures, Inc.

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:

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

Certificate of Independence:

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



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.

ATLNC #0321.01-17 test report dated 04/05/2017 and signed/sealed by David

Johnson, P.E.

Limitations and Conditions of Use

and attachment fasteners. to maximum deflection and ultimate failure and that manufacturer utilizes same panel, supports compared to test results performed under previous FBC given that testing of panel was performed Structural calculations were performed in accordance with the 2020 FBC, , 7th Edition and

- Maximum allowable design pressure shall be as indicated on plans for each configuration
- SIN 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
- 6.5 Panel material shall comply with 2020 FBC, 7th Edition Sections 1405.2, 1405.11 and 1405.17.
- this product. All supporting structural members shall be capable of supporting superimposed loads applied to
- 7. Fasteners must consist of minimum 12-14 x 3/4" self-drilling fasteners (SDFs) with control seal
- 00 slope of 3:12 (14 degrees) or less. Analysis/design was performed assuming a maximum mean roof height of 20'-0" and a roof
- 9. spacing limitations. Product shall be installed into substrates shown on installation drawings and shall not exceed
- 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

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

Signature/Seal:





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www.MandA-Inc.com

Structural Analysis/Design Calculations Project Data Sheet

Client: Client Project/ PO Number: Project Name: Project Location:	SBSI - Keystone FPC (FL22561.1)
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	- Abr	ACCOUNT OF THE PARTY OF THE PAR
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

Client: SBSI

Job Name: Keystone FPC Update Design (Exp. B)

> Job No. 20300S

Date: 1/12/21

Checked By: Sheet No. Computed By:

AG Metal Roof Calc Set

Design Loads:

$$space_1 := 5 \cdot ft$$
 o.c.

$$space_2 \coloneqq 4 \cdot ft$$
 o.c.

Ht = 120 in

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

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

$$FS := 1.5$$

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

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

 $\lambda := 0.89$

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

Adjustment Factor

Roof (Wind Area = 50 square ft):

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

$$net30pos108 = 9.84 \ psf \cdot \lambda = 8.758 \ psf$$

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

 $Ppd_{net30pos108} := \max (16 \ psf, Ppd_{net30pos108}) = 16 \ psf$ **Note:** Used Zone 3r (most conservative) Vasd wind speeds since structure is Risk I.

Note: Values found from interpolation using

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

Roof (Wind Area = 50 square ft):

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

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

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

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

Client: SBSI

Job Name: Keystone FPC Update Design (Exp. B)

> Rev. Job No. 20300S

Date: 1/12/21

Checked By: Sheet No. Computed By:

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

 $\lambda := 0.89$ $mean_{rf}ht = 20 ft$

(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):

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

Note: Used Zone 3r (most

conservative)

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

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

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

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

Roof (Wind Area = 50 square ft):

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

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

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

CHAPTER 30

WIND LOADS: COMPONENTS AND CLADDING

SCOPE

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

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

and the wind pressures are calculated from a wind pressure roof, hip roof, monoslope roof, stepped roof, or sawtooth roof, The building has a flat roof, gable roof, multispan gable

- 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 $h \le 60$ ft (18.3 m).

the wind pressures are determined directly from a table.

3. Part 3 is applicable to an enclosed or partially enclosed The building has a flat roof, gable roof, or hip roof, and

Building with h > 60 ft (18.3 m).

pressures are calculated from a wind pressure equation. Part 4 is a simplified approach and is applicable to an enclosed roof, mansard roof, arched roof, or domed roof, and the wind The building has a flat roof, pitched roof, gable roof, hip

- Building with 60 ft < $h \le 160$ ft (18.3 m < $h \le 48.8$ m). The building has a flat roof, gable roof, hip roof, mono-
- Part 5 is applicable to an open building of all heights that has a slope roof, or mansard roof, and the wind pressures are determined directly from a table.
- Part 6 is applicable to building appurtenances such as roof pitched free roof, monoslope free roof, or troughed free 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: $h \le 120\,\mathrm{ft}$ (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
- determined in accordance with this chapter shall comply with 30.1.2 Conditions. A building that has design wind loads all of the following conditions:
- The building is a regular-shaped building as defined in Section 26.2; and
- The building does not have response characteristics that make bility caused by galloping or flutter; nor does it have a site it subject to across-wind loading, vortex shedding, or insta-

of upwind obstructions warrant special consideration. location for which channeling effects or buffeting in the wake

- procedure specified in Chapter 31. documenting such wind load effects or shall use the wind tunnel characteristics shall be determined using recognized literature consideration the load magnification effect caused by gusts in resonance with along-wind vibrations of flexible buildings. Section 30.1.2 or The loads on buildings that do not meet the requirements of 30.1.3 Limitations. The provisions of this chapter take into that have unusual shapes
- pressure caused by apparent shielding afforded by buildings and other structures or terrain features. 30.1.4 Shielding. There shall be no reductions in velocity
- 30.1.5 Air-Permeable Cladding. Design wind loads determined from Chapter 30 shall be used for air-permeable approved test data or recognized literature demonstrates lower claddings, including modular vegetative roof assemblies, unless loads for the type of air-permeable cladding being considered

30.2 GENERAL REQUIREMENTS

- following wind load parameters are specified in Chapter 26: 30.2.1 Wind Load Parameters Specified in Chapter 26. The
- Basic wind speed, V (Section 26.5).
- Wind directionality factor, K_d (Section 26.6)
- Exposure category (Section 26.7).
- Topographic factor, K_{v} (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/ft² (0.77 kN/m²) acting in either direction normal to the
- for main wind force resisting systems (MWFRS). C&C elements with tributary areas greater than 700 ft² (65 m²) shall be permitted to be designed using the provisions 30.2.3 Tributary Areas Greater than 700 ft² (65 m^2) .
- given in the figures associated with this chapter. The pressure coefficient values and gust-effect factor shall not be separated. factor and external pressure coefficients for C&C, 30.2.4 External Pressure Coefficients. Combined gust-effect (GC_p) , are

Net Design Wind Pressure, p_{nei30} , in lb/ft², for Exposure B at h = 30 ft, V = 95-130 mph

Notes								Ga	ble	e R	001	ſ >	7 t	20	D D	egr	ees										Fla	t/I	lip/	'Ga	ble	Ro	of 0	to	7 D	egr	ees					w	alls				
: Plus a	ၾ	3r	3_{Γ}	3r	3e	3е	3e	3e	2r	21	21	2r	2n	2n	2n	2n	2e	2e	2e	2e	-	i -	-	-	ω	w	w	w	2	2	2	ء ا	; -		; –;	-	i tord	-	_	лU	n U	· O	4	4	4	4	Zone
Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	100	50	20	10	100	50	20	10	3 2	20	10	100	50	20	10 (fr)	Effective Wind Area
ns signif	6.6	7.6	8.9	9.8	6.6	36	8,9	8.6	6.6	7.6	8.9	9.8	6.6	7.6	8.9	9.8	66	7.6	8.9	9.8	6.6	7.6	8.9	9.8	5,2	5.6	62	6.6	5.2	5.6	6.2	2.6	. 5.6	6.2	6.6	5.2	5.6	6.2	66	120	15.5	16.2	13.8	14.5	15.5	16.2	
y pressu	-27.2	-34.7	44.6	-52.0	-24.1	-30.0	-37.8	43.8	-24.1	-30.0	-37.8	43.8	-24.1	-30.0	-37.8	43.8	-9.4	-18.2	-30.0	-30.0	-9,4	-18.2	-30.0	-30.0	-31.9	-36.3	42.1	46.5	-26.8	-29.0	-34.1	-14.9	-14.9	-14.9	-14.9	-20.2	-21.9	-24.2	-25.9	16.5	-20.3	-21.7	-15.2	-15.9	-16.9	100	
res actin	79	8.4	9,8	10.9	7.3	8.4	9.8	-10.9	7.3	8.4	9,8	10.9	7,3	8.4	9.8	10.9	7.3	8.4	9.8	10.9	7.3	00i 4	9.8	6.01	5.8	6.3	6,9	7.3	5.8	6.3	, o	3.8	6:3	6.9	7.3	5.8	6.3	6.9	772	16.1	17.2	18.0	15.3	16.1	17.2	180	
g towar	-302	-38.4	-49.4	-57.6	-26.7	-33.2	41.9	-48.5	-26.7	-33.2	419	48.5	-26.7	-33.2	41.9	-48.5	-10.4	-20.2	-33.2	-33.2	,	-20.2	ï		-35.4	<i>-</i> 40.2	-46.7	-51.5	-29.7	-32.2	-37.8 -35.4	-16.5	-16.5	-16.5	-16.5	_22.4	-24.3	-26.8	-10.7	-20.3	-22.5	-24.1	-16.8	-17.6	-18.7	105	
d and aw		9.3	10.8	12.0	%	9.3	8.01	12.0	00 1	9.3	10.8	12.0	8.1	.93	10.8	12:0	1.8	9.3	10.8	12.0	8.1	9.3	10.8	12.0	6.4	-6.9	7.6	8.1	6.4	6.9	7 0	0.4	6.9	7.6	8.1	6.4	6.9	7.6	10.9	17.8	18.9	19.8	16.9	17.8	18.9	10.6	
ay from	ا بر بر	-42.4	-54.4	1000	203	ALCOHOL:	(SH)	-53.4	90.07	863	-46.2	355		-36.6	46.2	-53.4	-11.4	alera V	-36.6	-36.6	No.	-22,3	-36.6	1970	_39.0	1995	=01	-56.8	-32.8	-35.5	10 DE-	-18.2	156	1 5000	CORRE	Mor	NEW R	-29.5	21.6	1		-26.6	1		-20.6	21.5	
the surfa	90	10.2	11.9	13.2	8.9	102	. 11.9	13.2	8.9	10.2	11.9	13.2	8.9	10.2	11.9	13.2	89	10.2	6.11	: 13.2	8.9	10.2	91.9	13.2	7.0	7.6	8.3	8.9	7.0	7.6	200	7.0	7.6	8.3	8.9	7.0	7.6	ر د د	10.0	19.5	20.8	21.8	18.5	19.5	20.8	ا د	Basic Wind Speed (mph)
ces, resp	- 36 S	-46.5	-59.7	-69.7	-32.3	40.2	-50.7		1000	HOST I	-50.7	-58.7	-32.3	SCORE.	-50.7	I	-	-24.5	40.2	-40.2	-12.5	-24.5	40.2	40.2	42.8	48.7	-56.5	-62.3	-36.0	-38.9	ر د د اد د	-19.9	-19.9	-19.9	-19.9	-27.1	-29.4	-32.4	247	-24.6	-27.2	-29.1	-20.4	-21.3	-22.6	22 6	Speed (
ectively.	07		13.0	14.4	9.7	11.1	13,0	14.4	9.7	LH	13.0	144	9.7	17.1	13.0	14.4	9.7	11.1	13,0	14.4	9.7	11.1	13.0	14.4	7.7	8:3	T-6	9.7	7.7	20	9/	7.7	8.3	9.1	9.7	7.7	 	9 4	20.2	21.3	22.7	23.8	20.2	21.3	22.7	33 0	mph)
For effe	300	-50.8	-65.3	: -76.2	-35.3	1	1	42	_35.3	ales L	-55.4	THE S	-35.3	44.0	-55.4	-64.1	-13.7	1	44.0	44.0	Pess	-26.7	44.0	44.0	inet:	Miles	-61.7	-68.1	-39.3	42.5	-50.0		-21.8	-21.8	CALTURE.	-	-32.1	1	27.0	-26.9	-29.7	-31.9	-22.2	-23.3	-24.7	25.0	
ctive wi		5	114	15			145	157		100	4	157	10%	(C.C.)		15	10.4	12.	Total Park	15.7	10.5	121	**		8.3	9.0	9.9	10.5	8.3	9.0	0.0		9.0	9.5	10.5	媳	N.S.	00	7.77	23.2	24.7	25.9	22.0	23.2	24.7	2	
nd areas	17.	-55,4	<u>-</u> 71.	-83.0					750. 		€ -60.4	-69.8	-38.4		-60.4	_69.8	-14.9	-29.1	1	47.9	Brett	_29.1	47.9	1000	-50.9	600	150	200	SHEET CO	田村日	-50.9 -50.9	100	e moy	-23.7	(CERT	-32.2	COR II	27 25	٩,	1	J	, 1) -24.2		-26.1	120	
betweer	7	N.	_		12.4		4 16.6	1		9 14.2	_	_	12.4	9 142	4 16.6			14.2	Ť			1 14.2		9 18.4	9	. 01	2 113	2	9	5	12	9	10.	11	12	9		I WILL	8	-	_	30.4	25.0	0,67	30.4		2
1	gral Q	1		4 -97.4	nae s	l l	1	. 1	art at	2 -56.2	.6 -70.8		1	2 -56.2		4 -81.9				1	C C WALL	1	6 -56.2	4 -56.	8 -59	5 681	5 -78	-87	100	KKC SK	6	-27	-27 8	-27.9	-27	73	去	上	-31							20	

wores: rius 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 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 Bulldings—Walls and Roofs

continues

STANDARD ASCE/SEI 7-16 👬

Net Design Wind Pressure, p_{net30} , in lb/ft², for Exposure B at h = 30 ft, V = 140-200 mph

_	_	_	_	_	_	_		- D	6	. 7	7 40	20	Deg	rec							T		Fla	t/H	ip/C	abl	e R	oof	0 to	71	Deg	rees					W	alls						
3	ω	3r	3r	မှ မှ	ی د		22	21	_	^ 2r				316	200	2e	2e	<u>_</u>			- 0	س	w	w	2 1	s 12	2	Ξ,	٦				_	_ \	'nО	n U	, 5,	4	4	4	4	Zone	1	
r 100	r 50		+		50 02	-	100	50	20	10	100	50	20	10	120	50	10	100	50	20	10	50	20	10	100	O. 20	10	100	50	20	100	50	20	10	3 5	50	10	100	50	20	10	Area (n²)	Wind	1
14.3	16.5	19.3	21.4	14.3	16.5	193	14.3	16.5	19.3	21.4	14.3	16.5	19.3	21.4	143	16.5	21.4	14.3	16.5	19.3	21.4	12.3	134	14.3	11.4	15.4	14.3	11.4	[2.3	13.4	143	12,3	13.4	14.3	30.0	31.6	35.3	30.0	31.6 -	33.7 -	35.3 -	140		
-59.2	1	-96.8	-112.9	-52.3	_65.1	-95.0 -82.1	-02.3	5 b	-82.1	_95.0	-52.3	-65.1	-82.1	-95.0	-20.3	-39.6	-65.1	-20.3	-39.6	-65.1	65.1	-/8.9	-91.5	-101.0	-58.3	63.0	-74.1	-32.3	-32.3	-32.3	-32.3	47.0	-52.5	-56.2	36.7	30.8	4/.2	33.0	-34.6	-36.7	38.2		-	
2 16.5		-	9 24.5		-	1 22.1			-		1				16.5	18.9	24.5	16.5	18.9	22.1	24.5	13.0	15.4	16.5	13.0	[4. [4.	100	13.0	14.1	15.4	16.5	13.0	15.4	16.5	34.4	36.2	40.5 78.7	34.4	36.2	38.7	40.5	150		
5 -59.2	1	1	1			-82.1	1.	-62.1		93.0	-52.3	65.	-82.1	-95.0	-20.3	-39.6	65.1	-20.3	-39.6	-65.1	-65.1	-69.3	-91.5 78.0	-101.0	-58.3	-63.0	-/4.1	-32.3	-32.3	-32.3	-32.3	0.0	-52.5	-56.2	-36.7	-39.8	41.4	33.0	-34.6	-36.7	-38.2			
1.2 18.7			_	.3 18.7	_		1	3 18.7			1		_	27.9	_		27.9	1		25.2	27.9	14.8	160	18.7	14.8	16.0	17.6	14.8	16.0	17.6	18.7	14.8	17.6	18.7	39.2	41.2	44.0	39.2	41.2	44.0	46.1	160		1
	1	j	ı			1				0 -1073	1	,	ı	1			-85.1	١.	-51.8	,	-85.1	-90.6	-103.0	-131.9	-76.1	-82.3	-90.6	42.1	42.1	42.1	-42.1	-57.3	68.5	-73.4	47.9	-52.0	-57.5	43.1	45.1	47.9	-50.0			Basic
v from th					5.1 24.3		7				315				1	-	1 28.4	t		_	-	-		108		-	19.8	1	18.1	19.8	21.1	16.7	19.8	21.1	44.2	46.6	49.6	50 5	40.0	49.6	52.0	17		Wind S
e surface			1			1	1					3 -90.0	1	ı	1			960	a .	,			-116.3	-134.9	-85.9	-92.9	-102.2	1003	47.0	47.6	47.6	-64.7	-70.1	-82.8	-54.1	-58.7	-64.9	-69.6	78 K	51.0	-56.4			Basic Wind Speed (niph)
s, respe	72 2	1111 2	70	1	-	-	1	_				1 23.7	-	-		_			0 23.7	×				22.2		-		7	18 8	-	0	18.8	20.3	23.7	49.6	52.2	55.7	58.3	496	53.7	58.3	18		ıph)
ctively.	3.7	72 - 1	318 -1	1	1					ī	1				1		ı	d	7 -33.6	1		1		-151.2		1		-122.5	_53.3	-53.3	-53.3	-72.5	-78.6	-92.9	-60.6	-65.8	-72.8	-78.0	-54.5	-57	-60 K	3		
For effe	_		150.7	+		-		-	_	-	1				+		-	+	.6 26.4	-	_	T			0 26.4	-		7		2 24.6		1		20.4	1	13.			55.2	58.1	62.0	640		
ctive w				394 -			39.4 - 1	1	1	35.5 -1			30.3 -12		1		1	. 1		ı	1	1		1	. 1			1 -136.5		5 -59.4		١.	-87.6	. 1	102	-73.4	-81.1	-87.0	-60.7	_63.7	-67.5	190 -70 4		
respectively. For effective wind areas between	-109.0	-138.8				-151.3			_	_		-				-73.0 3			_37.4 2			7	3	01	7	_	-			-	.4 29.3	1			201.2			72.0		-		72.0		1
is betwe	29.3			. 1	20.00			1	1		١,	1			43.6 -			43.6 -1			45.0 -1 10 3 -1	1	1	1		$\frac{25.0}{23.0} - \frac{11}{2}$	1	ы		,	1 1	1.		1	3 -1146		1	1			ı	200 -78.1	2	
en:	-120.7	-153.8	-197.5	-230.5	106.7	-167.7 -132 9	-193.9	106.7	-132.9	167.7	-193.9	-106.7	-132.9	-167.7	-193.9	41.5	-132.9	-132.9	41.5	-80.9	132.9	141.5	161.0	-186.7	206.1	118.9	-141.5	151.2	65.9	65.9	65.9	29.5	7.1	7.1	2 2	<u>ه</u> آد	3.9	نن	سَا	Ĺ,	00		-	1

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 Metricconversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$. that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

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_{acco} , in lb/ft², for Exposure B at h=30 ft, V=95-200 mph

			Н	ip l	Roc	of >	27	to	45	De	gre	ees					
w	W	Lυ	W	2r	2r	2r	21	2e	2e	2e	2e	-	_	_		Zone	
100	50	20	10	100	50	20	10	100	50	20	10	100	50	20	10	(R²)	Effective Wind Area
-24.8	-24.8	-36.4	45.2	-24.8	-31.2	-39.7	46.1	-	$\overline{}$	-31.6	-38.1	-23.2	-25.7	-29.1	-31.6	95	
-27.4	-27.4	40.3	-50.1	-27.4	-34.6	44.0	-51.1	_	-25.4	-35.0	42.3	-25.7	-28.5	-32.2	-35.1	100	
-30.3	-30.3	-44.5	-55.3	-30.3	-38.1		-56.3	-26.9	-28.0		46.6	-28.3	-31.4	-35.5	-38.7	105	
-33.2	-33.2	48.8	-60.6	-33.2	41.8	-53.2				-42.3	-51.1	-31.1	-34.5	-39.0	-42.4	110	
-36.3	-36.3	-53.4	-66.3	-36.3	-45.7	-58.1	-67.5	-32.3	-33.6	-46.3	-55.9	-34.0	-37.7	-42.6	-46.4	115	
-39.5			-72.2	_39.5	49.8	-63.3	-73.5	-35.1	-36.6	-50.4	-60.9	-37.0	41.1	-46.4	-50.5	120	_
46.4	46.4	-68.2			-58.4	-74.3	-86.3	41.2	-42.9	-59.1		1	48.2	-54.5	-59.3	130	Wind Speed (mph
-53.8	-53.8	-79.1	-98.2	-53.8	-67.7	-86.2	-100.1	47.8	49.8	-68.6	-82.8	-50.4	-55.9	-63.2	-68.7	140	ed (mpl
-61.7	-61.7	-90.8	-112.8	-61.7	1.77.7	-98.9	-114.9	-54.9	-57.1	-78.7	-95.1	1		-72.5	-78.9	150	=
-70.2	-70.2	-103.3	-128.3	-70.2	-88.5	-112.5	-130.7	-62.4	-65.0	-89.6	-108.2	-65.8	-73.0	-82.5	-89.8	160	
-79.3	-79.3	-116.6	-144.8	-79.3	-99.9	-127.0	-147.6	-70.5	-73.4	-101.1	-122.1	-74.2	-82.4	-93.2	-101.3	170	
-88.9	_88.9	-130.7	-162.4	-88.9	-112.0	-142.4		-79.0	-82.3	-113.4	-136.9	1000		-104.5	-113.6	180	
-99.1	-99.1	-145.7	-180.9	-99.1	-124.7	1-158.7	-184.4		-91.7	-126.3	-152.6	-92.7	-102.9	-1164	-1266	9	
-109.8	-109.8	-1614	200 5	-109 8	-1385	-1750	-2043	07.0	T COLUMN	1				V (6	le le	級	

Note: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. Metric conversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$.

Adjustment Factor for Building Height and Exposure, λ

Mean		Exposure	,
Height (ft)	В	С	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
Mada Make		100	0 2010

Note: Metric conversions: 1.0 ft = 0.3048 m; $1.0 \text{ ft}^2 = 0.0929 \text{ m}^2$; $1.0 \text{ lb/ft}^2 = 0.0479 \text{ kN/m}^2$

FIGURE 30.4-1 (Continued). Components and Cladding, Part 2 [$h \le 60 \text{ ft } (h \le 18.3 \text{ m})$]: 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 ($h\!>\!18.3$

3

Step 1: Determine risk category; see Table 1.5-1.

2: Determine the basic wind speed, V, for applicable risk category; see Figs. 26.5-1 and 26.5-2

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_{σ} ; 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 Ų, Determine velocity pressure, q, Eq. (26.10-1).

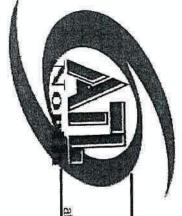
Step 6: Determine external pressure coefficient, (GC_p) :

Walls and flat roofs (θ < 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-

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



American Test Lab, Inc 1122 Calvert Road Brevard, NC 28712

828-884-3700 atli@comporium.net

ating 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

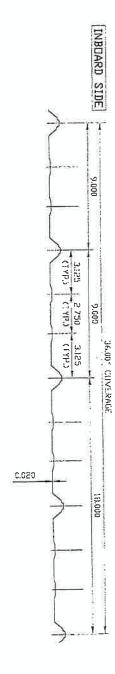
Test Conditions: 65 - 75 degrees F

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.

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

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

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

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

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

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.

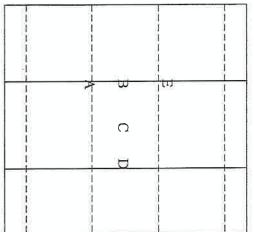
2-1/2" Tube Girth Spacing: Specimen C, 3 spans 48" OC with 12" overhang, rafter spacing 48" Specimen D, 3 spans 60" OC with 12" overhang, rafter spacing 60" OC.

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

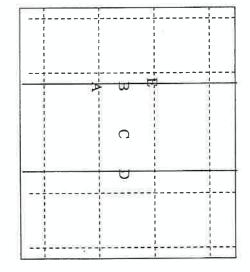
Test Specimens

Indicator Locations

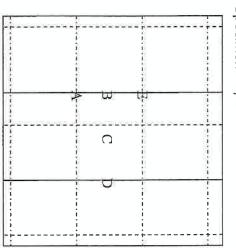
Specimens A, F



Specimens B, C,



Specimens D, E



Specimen A

Deflections in inches

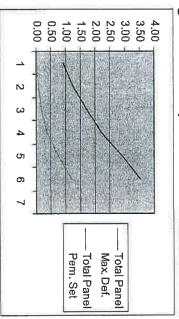
120	110	100	90	80	70	60	50	40	30	20	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					2.86"	2.35"	1.84"	1.45"	1.04"	.75"			()	Purlin Rib
					.84"	.55"	.30"	. 15	.05"	02"				Perm.
					2.97"	2.47"	1.92"	1.52"	1.12"	.83 ₂		(B)	Rib	Mid-Span
					.99"	.64"	.33	.17"	.07"	.03"			Set	Perm.
					ය. ගැ	2.90"	2.22"	1.73"	1.26"	.93			(C)	Mid-Span
					1.22"	.76"	.39"	.20"	.08"	.03"			Set	Perm.

Deflections in inches

120	110	100	90	80	70	60	50	40	30	20	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					2.97"	2.46"	1.90"	1.50"	1.09"	.80"	(=)	<u>D</u>	Rib	Mid Span
					.97"	.63	.32"	.17"	.06"	.02"			Set	Perm
		No.			2.87"	2.40"	1.86"	1.47"	1.06"	.81"	225		(E)	Purlin Rib
					.89"	.58	30	.16"	.06	.02"			Set	Perm.
					3.53"	2.90"	2.22"	1.73"	1.26"	.93			Deflection	Total Panel
					1.22"	.76"	.39	.20"	.08	.03	Set	Perm.	Panel	Total

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

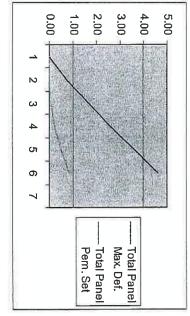
Pressure Increments psf Negative 0 20	Time (sec) 60 60	Purlin Rib (A) 0" .58"	Perm. Set 0" .01"	Mid-Span Rib (B) 0" .60"		Perm. Set 0.0	Perm. Mid-Span Set (C) 0" 0" 0" 0.0 ,75" .169"
0 20	60	.58"	.01"	.60"	0.0	0	
30	60	1.34"	.07"	1.45"	.08	- 5	-11-
40	60	2.07"	.21"	2.29"	.2	<u>"</u>	
50	60	2.97"	.44"	3.03"		16"	
60	60	3.89"	.75"	4.36"		80"	
70	60						
80	60				ī		

Deflections in inches

Pressure Time	Time	Mid Span	Perm	Purlin Rib	Perm.	Total Panel	Total
Increments	(sec)	Rib	Set	(E)	Set	Deflection	Panel
psf		(D)					Perm.
Negative							Set
0	60	0,	0"	0"	0"	O"	O ₁
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 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



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

Specimen C

Deflections in inches

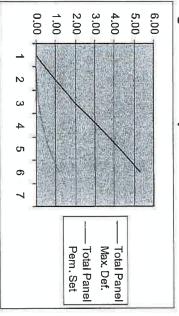
100	90	80	70	60	50	40	30	20	10	0	psf Negative	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60		(sec)	Time
					3.97"	3.18"	2.41"	1.53"	.70"	O,		(A)	Purlin Rib
					.75"	.44"	.22"	.08"	.04"	O.		Set	Perm.
					4.41"	3.57"	2.68"	1.72"	.82"	O,	(в)) R	Mid-Span
					.84"	.49"	.24"	.10"	.05"	Q		Set	Perm.
					5.30	4.26"	3.15	1.99"	.96"	Q		(C)	Mid-Span
					1.16"	.66"	.32"	.12"	.06"	O ₃		Set	Perm.

Deflections in inches

100	90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	Time
					4.79"	3.89"	2.94"	1.90"	.93"	0"		(D)	Rib	Mid Span
					.96"	.56"	.28"	.11"	.05"	0"			Set	Perm
					3.92	3.10"	2.36"	1.49"	.71°	0"			(E)	Purlin Rib
					.78"	.44"	.20"	.07"	.03"	Q.			Set	Perm.
					5.30	4.26"	3.15"	1.99"	.96"	O"			Deflection	Total Panel
					1.16"	.66"	.32"	.12"	.06"	O ₂	Set	Perm.	Panel	Total

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

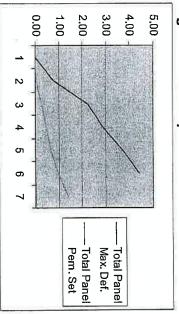
Deflections in inches

70	63	56	49	42	35	28	21	14	7	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60	60			(sec)	
				4.11"	3.32"	2.83"	2.20"	1.70"	.54"	O,			€	Purlin Rib
				1.22"	.88	.63"	.47"	.29"	.02"	O,			Set	Perm.
				5.14"	4.27"	3.61"	2.81"	2.18"	.69"	o _a		(B)	Rib	Mid-Span
				1.56"	1.13	.78"	.57"	36"	.02".	Q			Set	Perm.
				5.28"	4.43"	3.72"	2.90"	2.26"	.78"	O ₃			(3)	Mid-Span
				1.40"	.99	.67"	.45	.28	.02"	Ç			Set	Perm.

70	63	56	49	42	35	28	21	14	7	0	psf Negative	Increments	Pressure	מוסכווסכווס ווי וויסווסס
60	60	60	60	60	60	60	60	60	60	60		(sec)	Time	110100
				4.56"	3.88"	3.37"	2.65"	2.08"	.76"	0"	(D)	Rib	Mid Span	
				1.10"	.8 <u>1</u>	.56	.37"	.22"	.02"	0"		Set	Perm	
				5.63"	4.62"	3.89"	3.01"	2.35"	.75"	0"		Ē	Purlin Rib	
				1.71"	1.20"	.81	.58	.37"	.02"	O ₃		Set	Perm.	
				5.28"	4.43"	3.72"	2.90"	2.26"	.78"	Q		Deflection	Total Panel	-
				1.40"	.99	.67"	.45	.28"	.02"	0	Set	Panel	otal	1

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

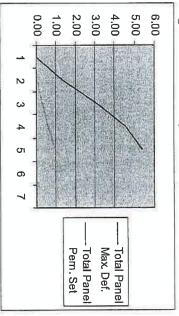
90	80	70	60	50	40	30	20	10	0	Negative	psf	Increments	Pressure
60	60	60	60	60	60	60	60	60	60			(sec)	Time
					4.45"	3.56"	2.49"	1.13"	O,			(A)	Purlin Rib
					.80"	.51"	.30"	.10"	0"			Set	Perm.
					4.71"	3.90"	2.72"	1.22"	0"		(B)	Rib	Mid-Span
					.87"	.55	30	.07"	Q			Set	Perm.
					5.37"	4.56"	3.12	1.38"	Q			(0)	Mid-Span
					.98"	.60	<u>:</u>	.07"	O ₃			Set	Perm.

Deflections in inches

	90	80	70	60	50	40	30	20	10	0	Negative	Increments	Pressure	001001010
	60	60	60	60	60	60	60	60	60	60		(sec)	Time	
						5.43"	4.46"	3.08"	1.40"	0"	(3)	∂ §	Mid Span	
1						.99"	.63.	.30"	.08"	0"		Set	Perm	
						4.33"	3.44"	2.42"	1.09"	0"		(F	Purlin Rib	
						.71"	.42"	.25"	.07"	o,		Set	Perm.	
Temponent Cot						5.37"	4.56"	3.12"	1.38"	0"		Deflection	Total Panel	-
indicators.			34			.98"	.60"	:01	.07"	0"	Set	Perm	lotal	-

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

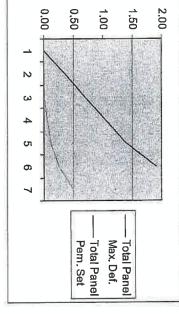
Pressure Time	Time	Purlin Rib	Perm.	Mid-Span	Perm.	Mid-Span	Perm.
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2] ;; -	2).	20
Increments	(sec)	(A)	Set	지금 당	Set	()	Jec.
psf				(B)			
Negative							
0	60	0"	0,	0,"	0"	O ₃	O ₃
7	60	.23"	.0"	.27"	.01"	.36"	.02"
14	60	.49"	O _"	.56"	.02"	.71"	.02"
21	60	.74"	.03"	.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

70	63	56	49	42	25	28	21	14	7	0	Negative	psf	Increments	е	Pre91ssur
60	60	60	60	60	60	60	60	60	60	60				(sec)	Time
	3.87"	3.08"	2.49"	2.01"	1.59"	1.19"	.90"	.60"	.28"	0"			(D)	Rib	Mid Span
	1.64"	1.12"	.70"	.41"	.23"	.11"	.05"	.02"	.01"	O _i				Set	Perm
	3.39"	2.78"	2.26"	1.81"	1.44"	1.09"	.80"	.52"	.24"	0"				(E)	Purlin Rib
	1.45"	.98"	.60"	.35	.19"	.09"	.04"	.01"	.o.	O,				Set	Perm.
	4.70"	3.66"	2.93"	2.40"	1.90"	1.39"	1.05"	.71"	.36"	O ₂				Deflection	Total Panel
	2.06"	1.38	.86	.50"	.27"		.06"	.02"	.02"	Q		Set	Perm.	Panel	lotal

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.





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

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

Technician: Keith Owen

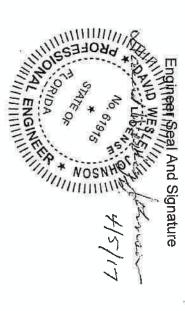
Observers-

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.

Huch Cons

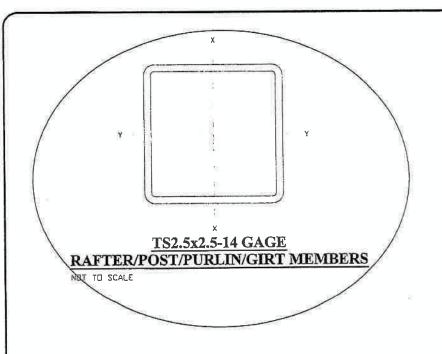
All Tests Witnessed and Certified by:
David Johnson P. E.
1122 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 61915



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:

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



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

ATL INSPECTOR

PROPERTIES

AREA = 0.727 IN.2 SX = 0.727 IN.3 SX = 0.570 IN.3 SY = 0.570 IN.3 IX = 0.713 IN.4 IY = 0.713 IN.4 CX = 0.990 IN. ry = 0.990 IN.

APPLICATION:

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

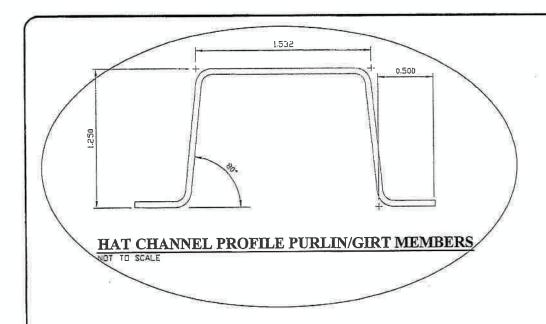
CALCULATED COIL WIDTH: 3.81' @ t = 0.052' CUSTOMER SPECIFIED WIDTH 4.00' @ t = 0.052' METAL THICKNESS: MATERIAL GRADE:

0.052°

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	No 57170	1
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	XACCU	JMULA	TION		ζ+	OR	-)	1/16	IN			
	DEPTH	1			(+	ΦR	->	1/16	IN			
	CAMB	R										
	SKI =											
												FT
	XNET	VAR	ATION	FOR	s c	DMB	INE:	D DI	MEN	210	ZИ	
П												95

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MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. 1008 End Annue North Augusto, South Corolina 28841 (802) 279-7799 / FM (802) 279-3848	REVISION	3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL JRS PDH		
ENG	DATE	3/16/17		
	호	0		
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING	This document is the property of	unsultarized reproduct	is strictly prohitted an infringement thereupon subject to legal action	
STEEL BUILDINGS AND STRUCTURES, INC. 152.5x2.5 RAFTER/POST/PURLIN/GIRT MEMBERS HIGH WIND SPEED AND LOW WIND SPEED	NEA JOB NO. 161925	Science Strate Department and Control	CHECKED BY: PDH	
STEEL B STRUC STRUC T RAFTER/POST/I	SCALE	AS NOTED	DRAWN BY JRS	
SHCET HO.	0.730		DATE: 3-14-17	



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

ATL INSPECTOR



MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
1009 East America
North August, South Conding 28811
(503) 279-7799 / FM (603) 279-3848
www.Mondol-inc.com

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PDH Ç. BY BY

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL REVISION

DATE

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CHECKED

DRAWN BY JRS

3-14-17 REV. 0

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SCALE, AS NOTED

\$26191 JOB HO.

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

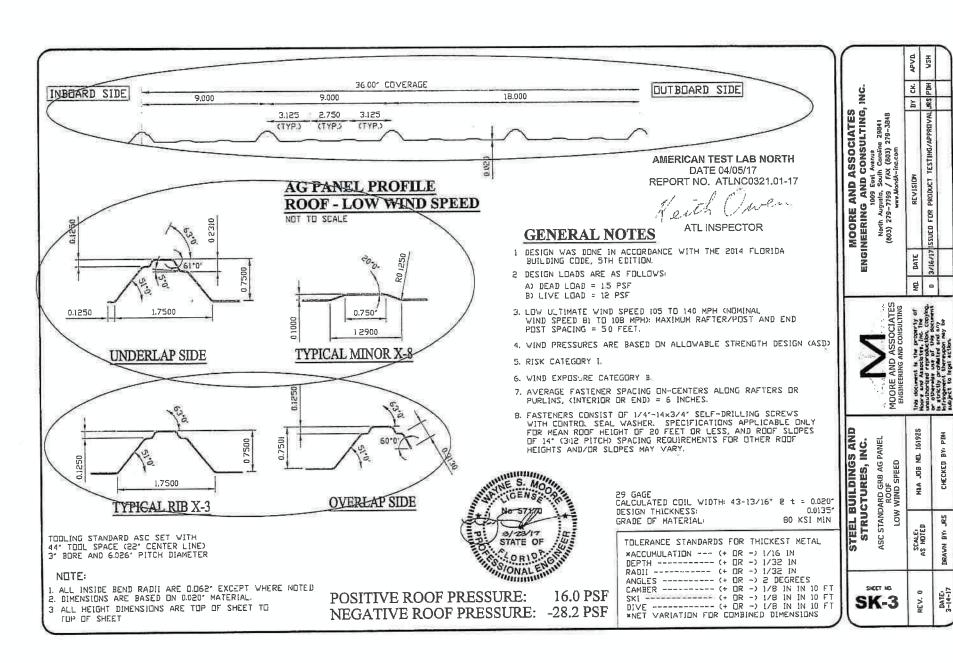
SHEET HO.

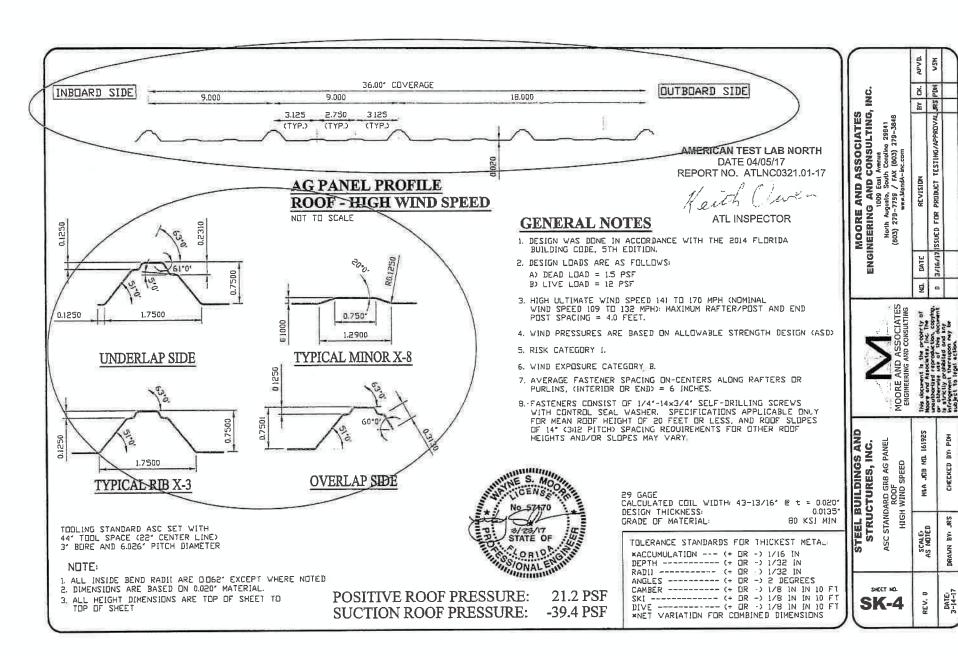
CALCULATED COIL WIDTH: CUSTOMER SPECIFIED WIDTH: METAL THICKNESS: MATERIAL GRADE:

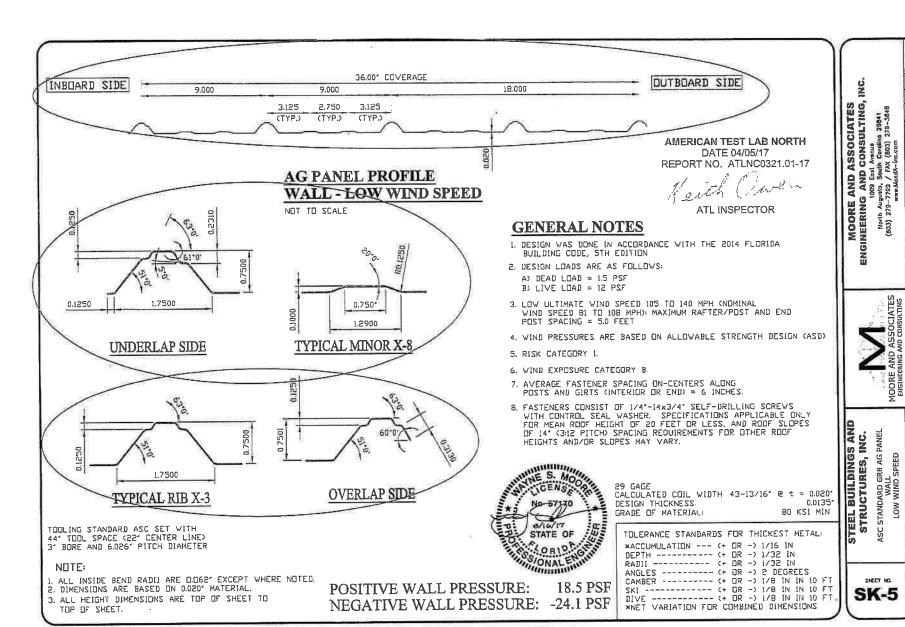
3.81' @ t = 0.052' 4.00' @ t = 0.052' 0.052* 50-80 KSI

TOLERANCE STANDARDS FOR THICKEST METAL:
WACCUMULATION (+ DR -) 1/16 IN
DEPTH (+ QR -> 1/16 IN
RADII (+ DR -) 1/32 IN
ANGLES (+ DR -) 2 DEGREES
CAMBER (+ OR -) 1/8 IN IN 10 F
SKI (+ OR -) 1/8 IN IN 10 F
DIVE (+ DR -) 1/8 IN IN 10 F
WNET VARIATION FOR COMBINED DIMENSIONS

WINE S. MOON	
No. 57470	
STATE OF	







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TESTING/APPROVAL

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BY RS

REVISION PRODUCT

DATE

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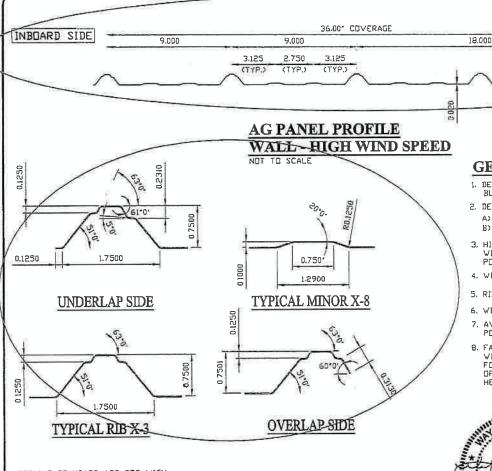
SCALE AS HOTED BY

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CHECKED ED4

DRAVN

DATE: 3-14-17



DUTBOARD SIDE

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 LBAD = 1.5 PSF B) LIVE LOAD = 12 PSF
- 3. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPHD: MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
- 4. WIND PRESSURES ARE BASED ON ALLOWABLE STRENGTH DESIGN (ASD).
- 5. RISK CATEGORY I.

S. More

STATE OF

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JE S. MOO

- 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.

29 GAGE CALCULATED CDIL WIDTH: 43-13/16' @ t = 0.020' DESIGN THICKNESS: GRADE OF MATERIAL

80 KSI MIN TOLERANCE STANDARDS FOR THICKEST METAL: WACCUMULATION --- (+ DR -> 1/16 IN DEPTH ----- (+ OR -> 1/32 IN N 35/1 ------ (+ DR -> 1/32 IN ANGLES ----- (+ OR -) 2 DEGREES CAMBER ----- (+ DR -) 1/8 IN IN 10 FT SKI ----- (+ DR -) 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 America 28041
(903) 278-7789 / FXX (903) 279-3408
Text Algorithmicson

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VSH

JRS BY

PRODUCT TESTING/APPROVAL

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SSUED

3/16/17 DATE

REVISION

ASC STANDARD GR8 AG PANEL. WALL. HIGH WIND SPEED STRUCTURES, INC. BUILDINGS 旦 CHECKED 8 ¥ STEEL SCALE! AS MOTED ΒŸ DRAVN ZHEET NE DATE: 3-14-17

SK-6

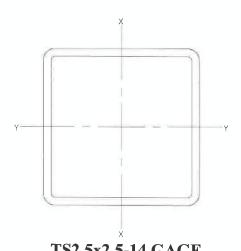
REV.

0.0135

TOOLING STANDARD ASC SET WITH 44" TOOL SPACE (22" CENTER LINE) 3' BORE AND 6 026' PITCH DIAMETER

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

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



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 IY - 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: MATERIAL GRADE:

0.052* 50-80 KSI

TULERANCE STANDARDS FOR THICKEST METAL: *ACCUMULATION --- (+ |JR -) 1/16 IN ANOLES (1 DR -) 2 DECREES

SKI (+ DR -) 1/8 IN IN 10 FT

DIVE (+ TIR -) 1/8 IN IN 10 FT

*NET VARIATION | TIR COMBINED DIMENSIONS



MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. 1009 East Avenue North August, Sorth Carolina 29841 (803) 279–7799 / FX (803) 279–3848 www.MondA-inc.com

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JRS PDH

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL REVISED FOR 2020 FBC, 7TH EDITION

1/12/21

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REVISION

DATE



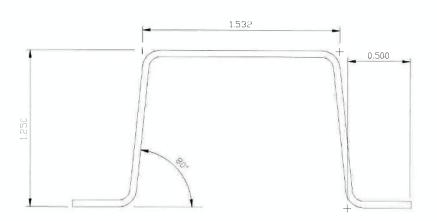
TS2.5x2.5 RAFTER/POST/PURLIN/GIRT MEMBERS HIGH WIND SPEED SPEED STEEL BUILDINGS AND STRUCTURES, INC. 161928 ΒŸ ġ CHECKED Me.A JRS SCALE: AS NOTED DRAWN BY

DATE: 3-14-17

REV.

SHEET NO.

SK-1



HAT CHANNEL PROFILE PURLIN/GIRT MEMBERS

NOT TIL SCALE



CALCULATED COIL WIDTH: 3.81" @ t = 0.052" CUSTOMFR SPECIFIED WIDTH: 4.00" @ t = 0.052" MLTAL THICKNESS: MATERIAL GRADE:

0.052* 50-80 KSI

IDLERANCE STANDARDS FOR THICKEST METAL *ACCUMULATION -- (+ OR -) 1/16 IN
DEPTH -- (+ OR -) 1/16 IN
RADII -- (+ OR -) 1/32 IN
ANGLES -- (+ OR -) 2 DFGREES
CAMBER -- (1 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 August, South Carolina 29841 (803) 279–7799 / FAX (803) 279–3848 www.MondA-Inc.com

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL DATE 0 MOORE AND ASSOCIATES ENGINEERING AND CONSULTING

MSM

PJH

JRS

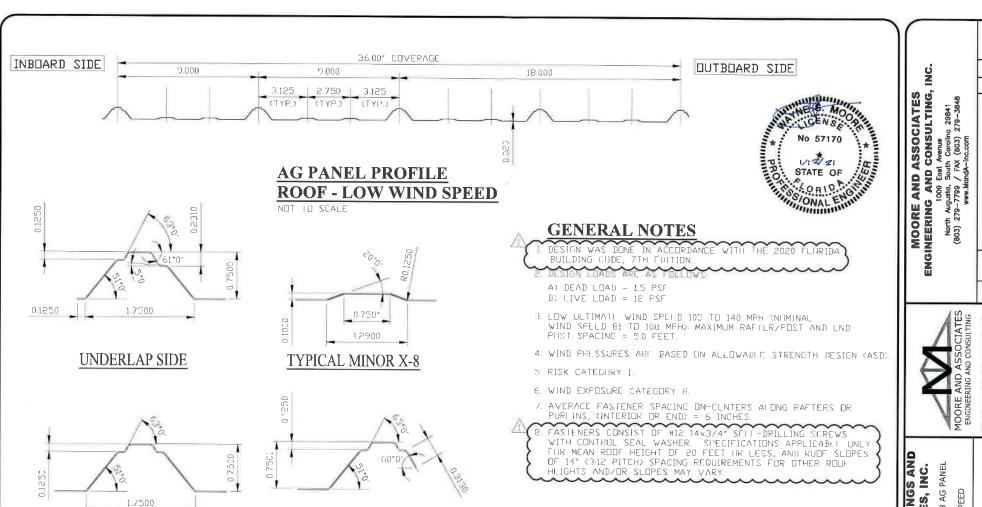
REVISED FOR 2020 FBC, 7TH EDITION

1/12/21

161925 딮 8 M&A

REV. 0 SK-2

HAT CHANNEL
PURLIN/GIRT MEMBERS
HIGH WIND SPEED AND LOW WIND
SPEED STEEL BUILDINGS AND STRUCTURES, INC. Β¥ CHECKED SCALE: AS NOTED DRAWN BY: SHEET NO. DATE: 3-14-17



29 GAGE
CALCULATED COIL WIDTH 43-13/16' @ t - 0.020'
DESIGN THICKNESS: 0.0135'
GRADL OF MATERIAL: 80 KS1 MIN

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

NIT I E

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

TYPICAL RIB X-3

POSITIVE ROOF PRESSURE: NEGATIVE ROOF PRESSURE:

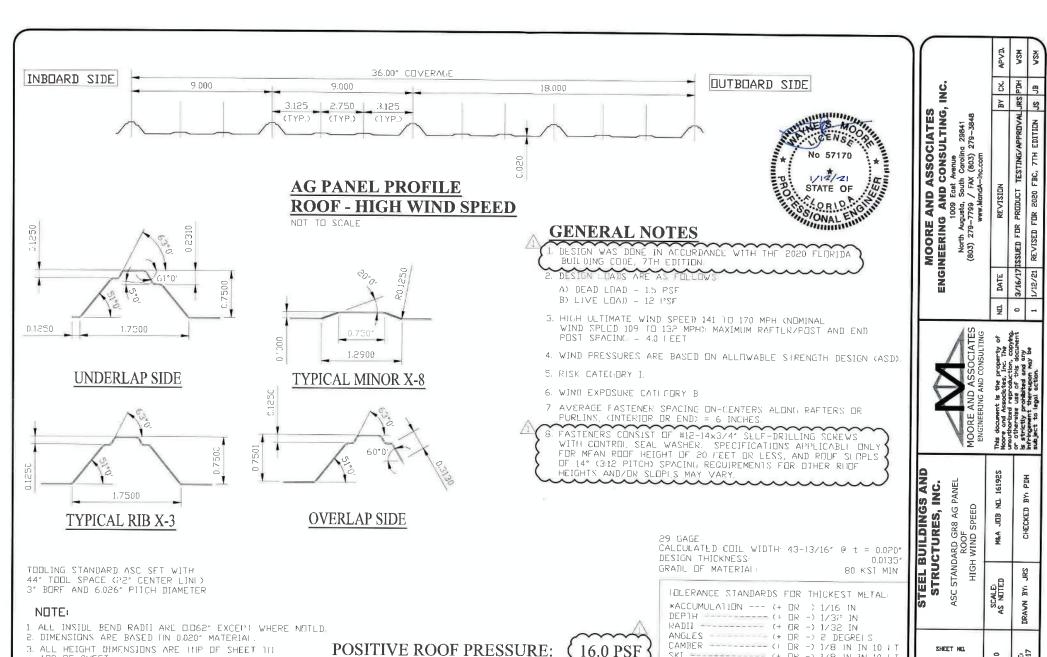
OVERLAP SIDE

16.0 PSF } -39.9 PSF } **ACCUMULATION --- (+ OR -> 1/16 IN DEPTH --- (+ OR -> 1/32 IN RADII --- (+ OR -> 1/32 IN IN 10 II II IN 10 II II IN 10 II II IN 10 II II IN 10 III

3/16/17 ISSUED FOR PRODUCT TESTING/APPROVAL DATE ġ 0 161928 STANDARD GR8 AG PANEL ROOF LOW WIND SPEED STRUCTURES, INC. į 8 Mg.A SCALE AS NOTED DRAWN SHEET NO. DATE: 3-14-17 SK-3

臣

JRS



-59.7 PSF

SUCTION ROOF PRESSURE:

10P OF SHEET.

SKI ----- (+ DR -) 1/8 IN IN 10 FT

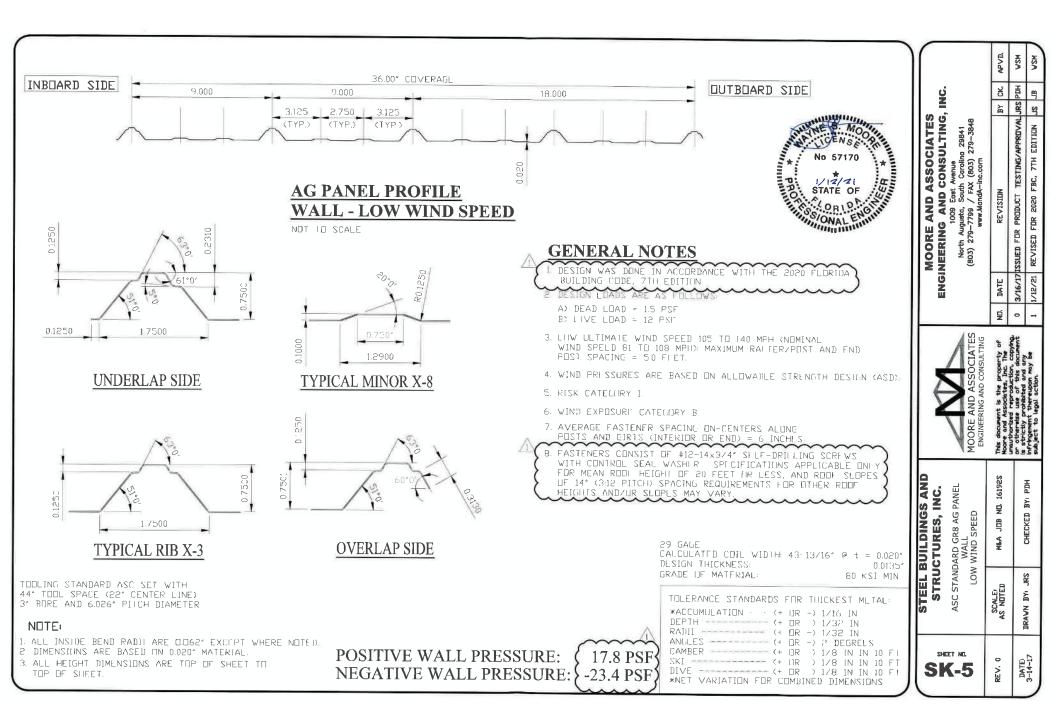
DIVL ---- (+ FIR -) 1/8 IN IN 10 FT

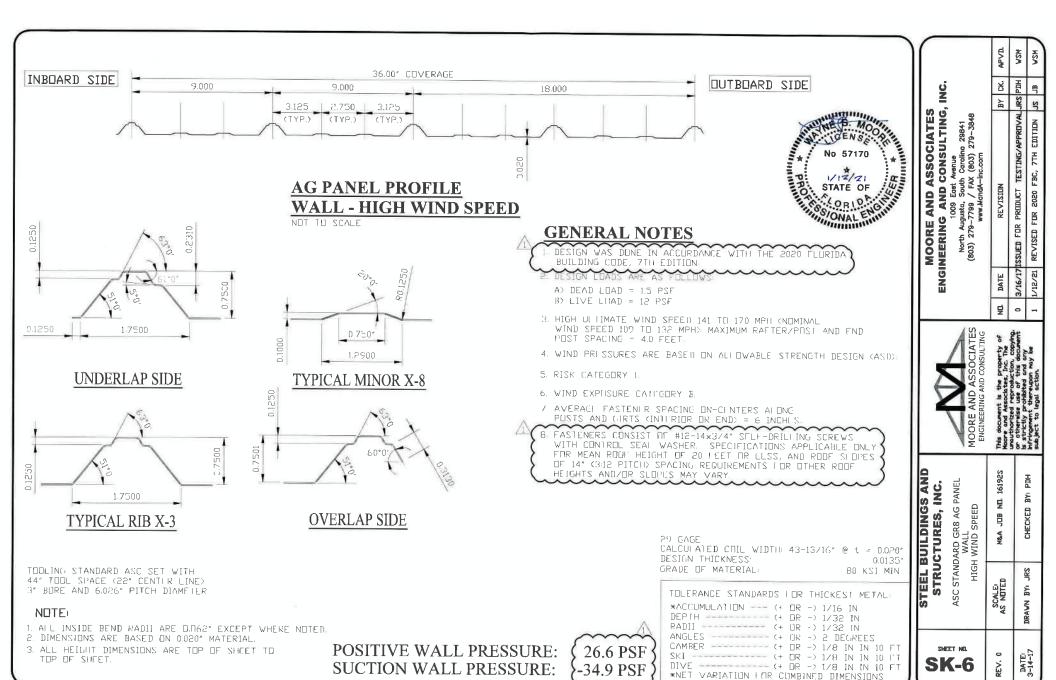
*NET VARIATION FOR CLIMBINED DIMENSIONS

DATE: 3-14-17

REV.

SK-4





ELIXIR DOOR & METALS CO. MODEL 407 NON-IMPACT OUTSWING VINYL LAMINATED STEEL DOOR

INSTALLATION ANCHORAGE DRAWING

GENERAL NOTES:

- 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
- A. HALF HINGES: (4) 6063-T6 EXTRUDED ALUMINUM
- 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:

- 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 PRESSU	RE 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
SHEET	DESCRIPTION
1	GENERAL AND INSTALLATION NOTES
2	ELEVATION, ANCHORING LAYOUT
3	VERTICAL CROSS SECTIONS
4	HORIZONTAL CROSS SECTIONS

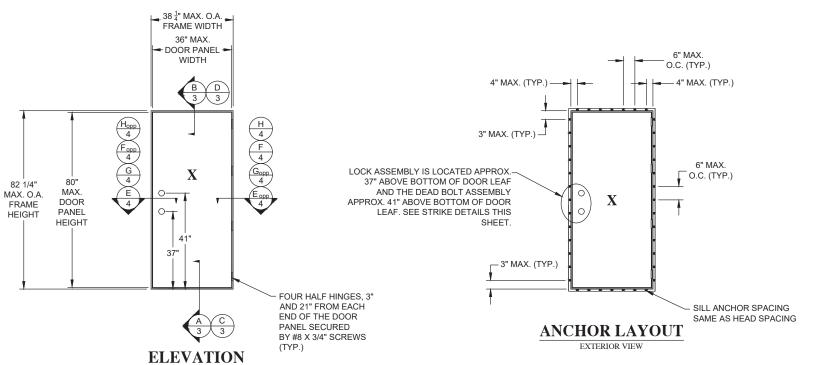
SUBSTRATE	DOOR FRAME TYPE	TYPE	SIZE	MANUFACTURER AND/OR SPECIFICATION	EMBEDMENT (IN) (1)	EDGE DISTANCE (IN) (1) (2)	ANCHOR CAPACITIES BASED ON
SHEET METAL/STEEL TUBING 14 GA MIN. THICKNESS	FIN (Z-BAR)	PAN HEAD	NO. 8	ASME B18.6.4 (TAPPING SCREW)	MIN. 3 THREADS PAST INSIDE SURFACE OF SUBSTRATE	3/8"	MIN. 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)	t'	1/2"	WOOD WITH A MINIMUM SPECIFIC GRAVITY OF 0.42.

OTES:

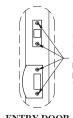
- 1) FOR WOOD OR TAPPING SCREWS IF SPLITTING IS A CONCERN, DRILL 0.082" PILOT HOLE (DRILL SIZE 45).
- 2) EDGE DISTANCE MEASURED FROM EITHER SIDE OF ANCHOR TO EDGE OF SUBSTRATE.

	Ļ	SHEET	BEV.	PO BOX 520775 Phone: 321.690.1788
EDITION FBC	,	ELIX0052	N.T.S.	PTC PRODUCT DESIGN GROUP, LLC
UPDATE TO CURRENT		DRAWING NO:	SCALE:	
		02/29/12	HCT	
	_	DATE:	DRAWN BY:	PREPARED BY:
		NOTES	NSTALL ATION	GENERAL AND INSTALLATION NOTES
		OOR	TED STEEL D	VINYL LAMINATED STEEL DOOR
		TOWING	-IMPACT OII	TILE MODEL AD7 NON-IMPACT OLITSWING
	Ļ	33	DOUGLAS, GEORGIA 31533	DOUGLAS, C
			JE DNIVE	O LAI
			1915 POPF DRIVE	1915 PC
PROJECT NUMBER: 419—090.	ĭ	ALS CO.	& MET	ELIXIR DOOR & METALS CO.

Robert J. Amoruso, P.E. FL P.E. No. 49752







EXTERIOR VIEW

#8 TAPPING SCREW. SCREW MUST BE OF SUFFICIENT LENGTH TO PENETRATE (3) THREADS MINIMUM BEYOND STEEL TUBE.

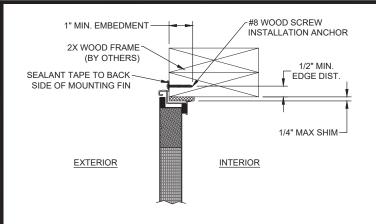
ENTRY DOOR STRIKE DETAIL

ANCHORING NOTES:

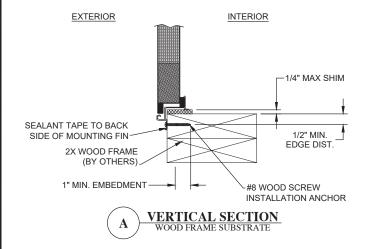
- MINIMUM NUMBER OF ANCHORS IN JAMBS IS 14. ANCHOR SPACING VARIES, BUT NOT TO EXCEED 6" MAXIMUM O.C.
- MINIMUM NUMBER OF ANCHORS IN HEAD AND SILL IS 6. ANCHOR SPACING VARIES, BUT NOT TO EXCEED 6" MAXIMUM O.C.

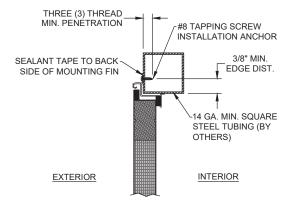
ELIXIR DOOR & METALS CO.	00R	& MET	ALS CO.	PROJ	PROJECT NUMBER: 419-0903	903	
	1215 PC	1215 POPE DRIVE	ļ				
DOO	UGLAS, G	DOUGLAS, GEORGIA 31533	33				
TITLE: MODE!	AO7 NON	-IMPACT OII	CWINC				
	L LAMINAT	VINYL LAMINATED STEEL DOOR	JOR N				
FLEVA	TION AND	FLEVATION AND ANCHOR LAYOUT	YOUT				
PREPARED BY:		DRAWN BY:	DATE:				
		TCH.	02/29/12				
		SCALE:	DRAWING NO:	٥	UPDATE TO CURRENT	,0, ,0, ,	:
NOUP, LLC		N.T.S.	ELIX0052	۵	EDITION FBC	1/25/21 RJA	KJA
	Phone: 321.690.1788	REV	SHEET:				

Robert J. Amoruso, P.E. FL P.E. No. 49752

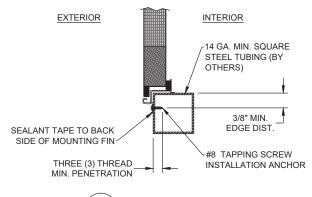








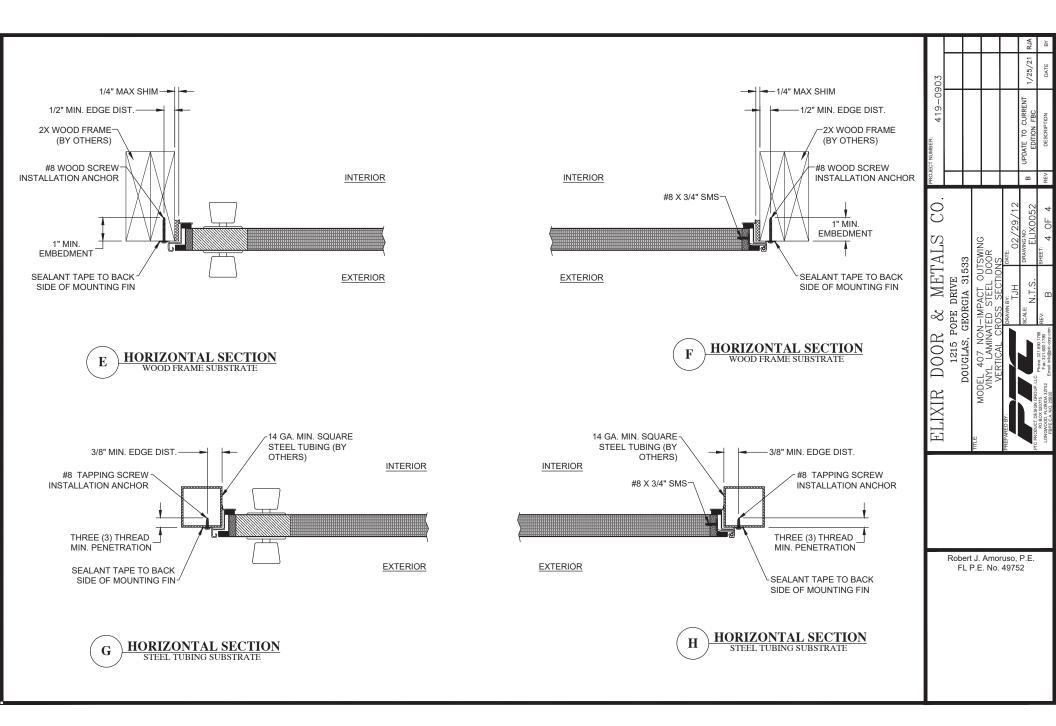


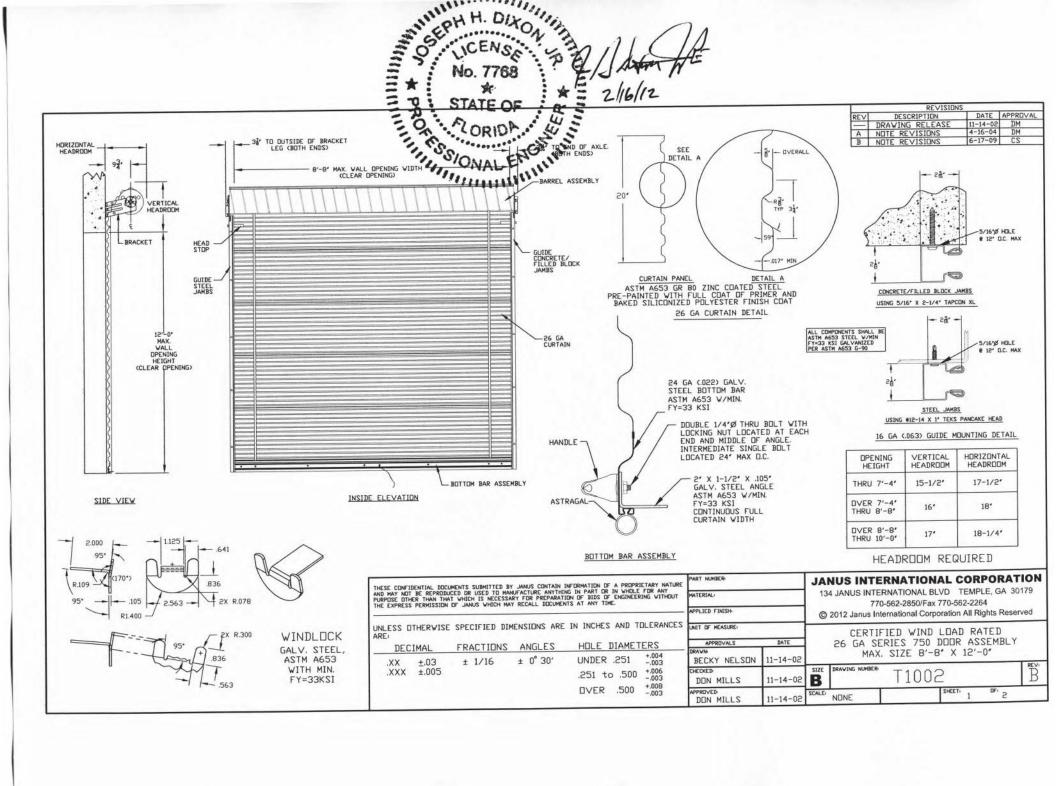


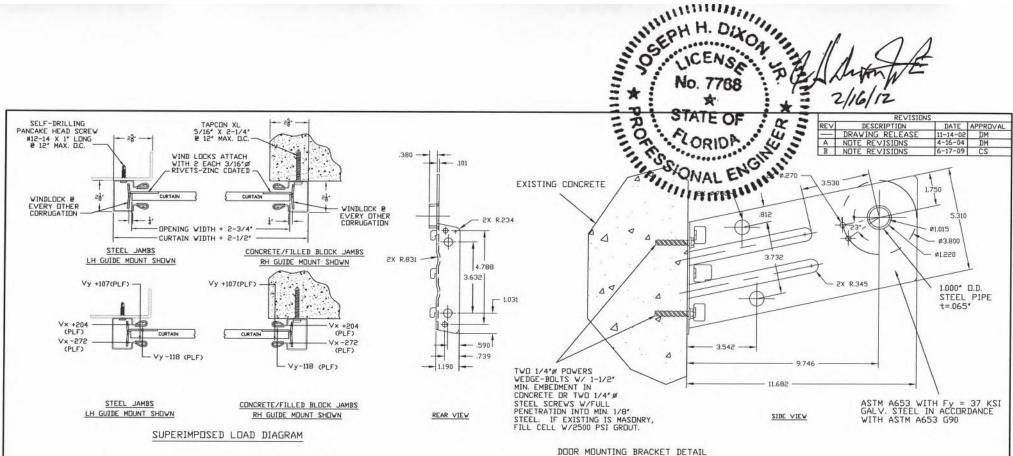
C VERTICAL SECTION
STEEL TUBING SUBSTRATE

ì	L	NOTEGIGOGE	700	PO BOX 220775 Phane: 321,690,1789 REV: SHEET:	
KJA	1/25/21 KJA	EDITION FBC	۵	PTC PRODUCT DESIGN GROUP, LLC N.T.S. ELIX0052	
:	,0,10,	UPDATE TO CURRENT	٥	SCALE: DRAWING NO:	
				PREPARED BY: DATE: 02/29/12	
				VINYL LAMINATED STEEL DOOR VERTICAL CROSS SECTIONS	
				TITLE: MODEL 407 NON-IMPACT OUTSWING	
				DOUGLAS, GEORGIA 31533	
				1215 POPE DRIVE	
	903	419-0903	Ź	ELIXIR DOOR & METALS CO.	
I		CHOT WINDER	000		

Robert J. Amoruso, P.E. FL P.E. No. 49752







GENERAL NOTES

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

DESIGN LOAD =+24.4 PSF -27.0

- 3. VIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE VIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHER THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING
- SUPERIMPOSED LOADS ON THE JAMBS FROM THIS DOOR ARE DESIGNED AS $\vee x$ AND $\vee y$ HEREIN. CONTRACTORS SHALL HAVE BUILDING ENGINEER VERIFY ADEQUACY OF BUILDING STRUCTURE TO RESIST SUPERIMPOSED LOADS $\vee x$, $\vee y$ AND BRACKET LOADS SHOWN.
- ALL VELDING SHALL BE PERFORMED BY QUALIFIED VELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. ALL VELDING 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
- 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
- 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'.

				NFORMATION OF A PROPRIETARY NA	TURE PART NUMBER		JA	NUS INTI	ERNATION	AL CORPO	DRAT	ION
PURPOSE OTH	ER THAN THA		RY FOR PREPARATI	NG IN PART OR IN WHOLE FOR ANY ON OF BIDS OF ENGINEERING WITH ITS AT ANY TIME.	OUT MATERIAL:		13		RNATIONAL BI		GA 301	79
	TUED! (ICE	SDECIFIED DI	F. 101010 40F	W 100150 AND 10150AN	APPLIED FINISH		©		0-562-2850/Fax ternational Corp		s Reserv	red
ARE:	IHEKM12F	SPECIFIED DIM	TENSIONS ARE	IN INCHES AND TOLERAN	LES UNIT OF MEASURE			CERTI	FIED WIND	LOAD RATE	D	
DEC	IMAL	FRACTIONS	ANGLES	HDLE DIAMETERS	APPROVALS	DATE	1	26 GA SI	ERIES 750	DOOR ASSE	MRI Y	- 1
.xx	±.03	± 1/16	± 0° 30′	UNDER .251 +.004 003	BECKY NELSON	11-14-02			. SIZE 8'-8			
.XXX	±.005			.251 to .500 +.006	DDN MILLS	11-14-02	B	T1000			B	
				DVER .500003	APPROVED DON MILLS	11-14-02	SCALE	NONE		SHEET: 2	F 2	

Joseph H. Dixon, Jr. P.E

407-671-0169 Product Design Consultant

Florida No. 7768

3952 Lake Mira Ct. Orlando, FL 32817

DA VOCKOH H. DIA ON TORS June 22, 2009

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

Temple, GA 30179-4435 134 Janus International Blvd.

STATE OF RESIDENCE OF THE STATE OF THE STATE

Statement of Compliance:

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

Description of the Product

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

(Mini Door)

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

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

Series 3100 (Commercial Door)

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

<u>Series 850-S</u> (Florida State Mini Door) Impact Resistant

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 doons In your 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 shows in Table ITALE maximum allowable design wind load values. These design pressures may be used to parrower unchanged.

Drawings

The Door Series covered by this report are described in detail on the following door is qualified as impact resistant and it is described in detail on drawing T1006-S. Doors corrugation pitch is 3.25 inches. Maximum door height is limited to 12'-0". Only the 8'-8" wide center vertically in the installed door. The corrugation height is approximately 5/8 inches and the interlocked mechanically to form the curtain. Lap splices are at approximately 20 inches on full coat of primer and baked siliconized polyester finish coat The corrugated sheets are The curtain steel is ASTM A653 structural steel, grade 80, pre-painted, galvanized steel with a Door curtains may have a thickness of either 24 gage (min. 0.022 in.) or 26 gage (min. 0.017 in.).

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

2/6

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

Technical Documentation:

doors contained in this report: following test reports, signed and sealed by R. Patel, P.E. cover the Series 750 and Series 3100 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 All testing was done at Certified Testing Laboratories, Orlando, Florida. Tests for Series 750 and

- 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)

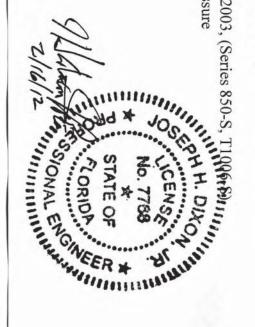
Calculations prepared by Joseph H. Dixon, Jr. P.E.

- 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

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

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



Page 3 of 5

TABLE 1
Allowable Transverse Design Wind Loads (psf)

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

Maximum test load was 150% of design load. Design values used for the tests are shown in the boxed shaded values.

Unshaded design wind loads were determined by comparative analyses using test results.

Installation Requirements:

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

- 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



Limitations and Conditions of use:

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

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

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

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

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

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

Certification of Independence:

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

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

Joseph H. Dixon, Jr. P.E

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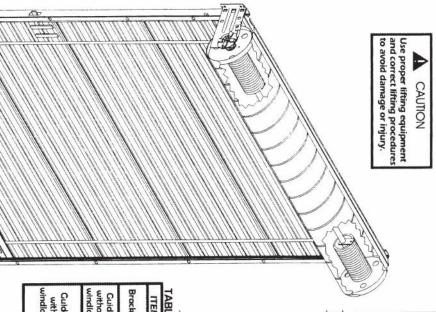
JANUS INTERNATIONAL CORPORATION

TEMPLE, GA 30179-4435 134 EAST LUKE ROAD

13374 WEST PEORIA AVENUE SURPRISE, AZ 85379-9724

PHONE 770-562-2850 www.janusintl.com FAX 770-562-2264

DOOR INSTALLATION INSTRUCTIONS SERIES 750/1000/1100 OROFE SON



WARNING

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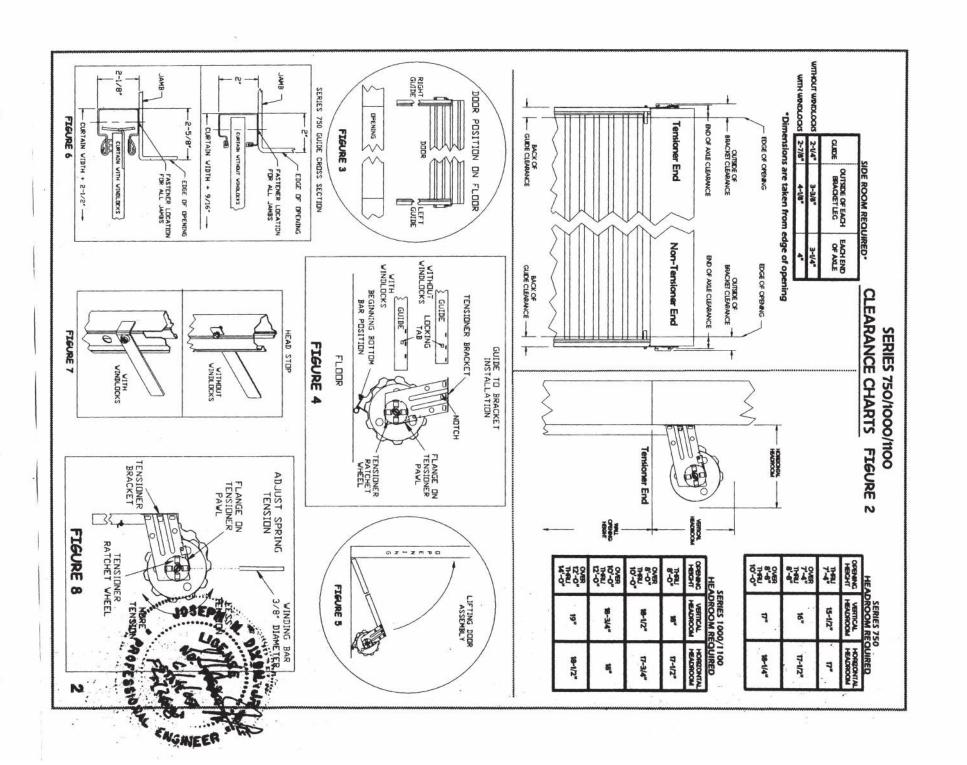
EXTREME SPRING TENSION	0	MOVING DOOR	1/4	POTENTIAL HAZARD
	CAN CAUSE SERIOUS		CAN CAUSE SERIOUS	EFFECT
DOOR MUST BE FULLY OPENED WHEN MAKING ADJUSTMENTS.	installation, repairs and adjustments must be made by a trained rolling service door systems technician using proper tools and instructions.	DO NOT allow children to operate the door.	DO NOT stand or walk under moving door. Keep door in full view and free of obstructions while operating.	PREVENTION

ABLE 1:	Wall Fasteners - for	TABLE 1: Wall Fasteners - for jamb attachment of Brackets and Guides	and Guides
ITEM	BWAF	FASTENERS	DRILL SIZE
Brackets	Steel Concrete or Filled Block	1/4-14 x 1" TEKS Screw 1/4" x 1-3/4" Powers Wedge-Bolt	None Powers 01314
Guides without vindlocks	Steel Concrete or Filled Block	1/4-14 x 1" TEKS Screw 1/4" x 1-3/4" Powers Wedge-Bolt	None Powers 01314
Guides with vindlocks	Steel Concrete or Filled Block	#12-14 x 1" PSD Pancake Head TEKS Screw 5/16" x 2-114" Tapcon XL (TORX T-40 drive)	None

OPTIONAL BOTTOM BAR MOUNTED SLIDE LOCKS 1/4-20 X BOTTOM BAR DCCR CURTAIN

MINI STOP CLIP

not installed as directed. Please read and understand all instructions before beginning the installation process BMPORTANT NOTE: <u>Do not cut tape and plastic urap</u> 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



STEP 1: WALL OPENING

SERIES 750/1000/1100

- Check wall opening width and height and verify these measurements against size of door to be installed: MON
 - Verify that jambs are plumb.
- Check floor and header for level.
- Ö Check for adequate side clearance at jambs and clearance above and at sides of header. charts figure 2 for minimum requirements.
- Verify that the guide mounting surface on the jamb is flush.
- 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.
- 5 floor. See figures 3 and 4. Place door on floor at top of and between guides. Rotate door as necessary to locate bottom bar against
- Ö Distribute hardware parts to appropriate areas

NOTE: Bruchet, tenioner, springs; the footory. Do not remove ioner, spring(s) and curtain mounted latch are pre-assembled to the door at

STEP 3: CUIDES 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.
- Bring top end of guide in alignment with bracket and insert hooks on bracket into slots in guide. Slide bracket and guide together until locking tab in guide fully engages notch in bracket.
- Ö bracket notch If locking tab does not fully engage with bracket notch, use a hammer and punch to bend tab into
- 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 6"4", damp bottom of broatest to guide with looking plien in order to insure rigidity of top of guide while lifting. Remove plien after active securing broatests to jurish.

TONING YAR

olding tab in guide must fully engage with notch in bri ay allow the door to fall during installation, which can death and/or damage to door.

STEP 4: **GUIDES AND BRACKETS TO JAMB**

- Brackets and guides will be attached to jambs using fasteners shown in table 1.
- 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.
- The appropriate fastener must be installed at each hole location in brackets and guides. See table 1.

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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.
- Attach brackets and guides to jambs, according to step 4.

NOTE: Walding of guide to the lambs & not recorns

STEP 6: SETTING SPRING INITIAL TENSION

WARNING

Afterno spring tension can cause serious injury or death, installation, repairs and adjustments and be made by a trained colling services door systems technicism using proper tools and instruction or must be fully opered when making adjustments.

- Rotate door 1-1/2 revolutions in the direction that would send the bottom bar down through the guides.

 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. cutting type F hex screw. See figure 7. Secure with 1/4-20 x 3/4" thread
- 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 dip at each end on inside of bottom bar using existing single 1/4-20 × 1/2" carriage bolt.

 B. Install handle(s) on outside of bottom bar using 1/4-20 × 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

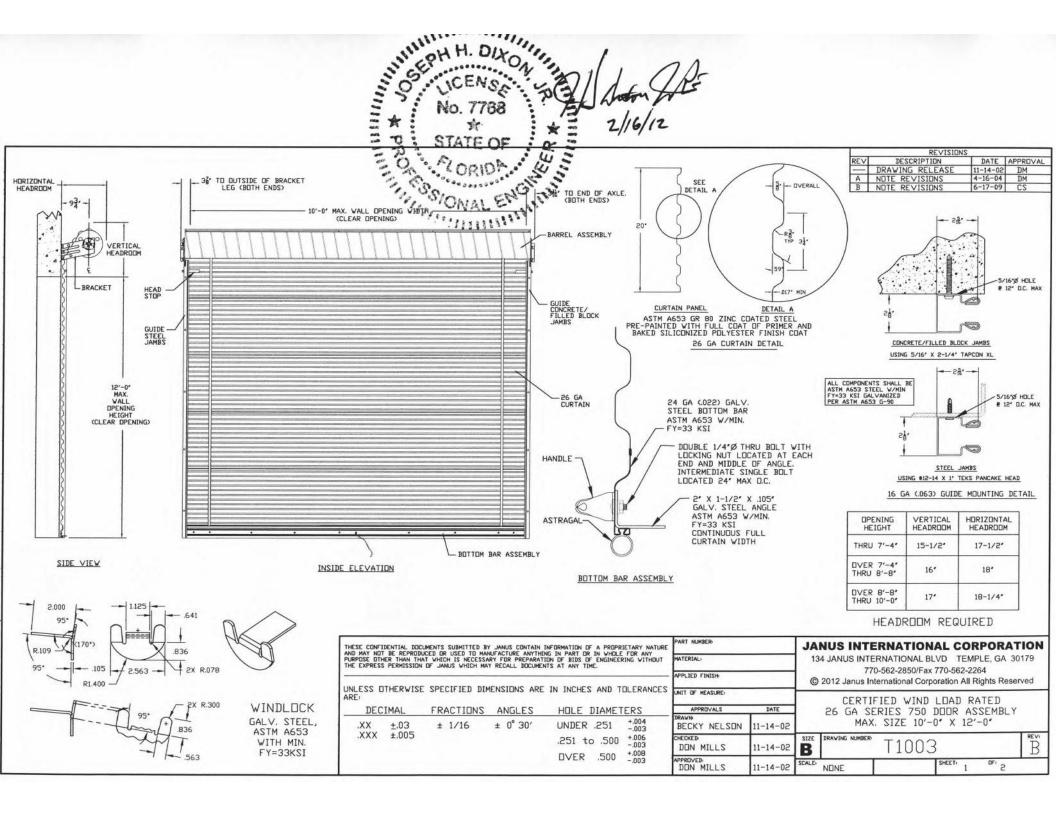
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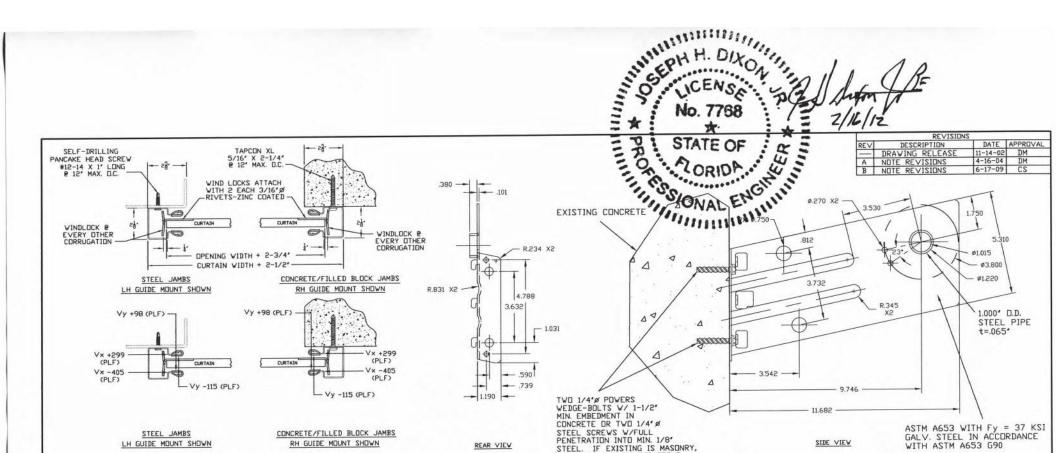
- Place 3/8" diarneter winding bar in tensioner ratchet wheel. See figure 8.
- Rotate winding bar in the down direction to increase spring tension. Each engagement of a tooth equals
- ? To decrease spring tension, pull down slightly on winding bar until pawl disengages tooth. Lift flange on pawl and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

Latch state dat in the guide may require orbitating other door due to variance in manufacturing and/or site conditions.



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GENERAL NOTES

 THIS ROLL-UP DOOR SYSTEM IS DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.

SUPERIMPOSED LOAD DIAGRAM

 THIS ROLL-UP DOOR HAS BEEN TESTED IN ACCORDANCE VITH ASTM E-330 AND COMPLIES WITH ANSI/DASMA 108.

- VIND LOADS FOR BUILDING OPENINGS SHALL BE DETERMINED BY A PROFESSIONAL ENGINEER USING APPROPRIATE VIND SPEED AND DESIGN CRITERIA. THIS DOOR MAY BE USED WHERE THE DESIGN LOAD MEETS OR EXCEEDS THE DESIGN LOAD FOR THE BUILDING OPENING.
- 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.
- 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. AS.1 GRADE E-70.
- 6 DOORS SHALL BE PROVIDED WITH LOCK MECHANISMS AT THE OPTION OF THE DWNER.
- 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 983V-3
- 9 ANCHOR NOTES
 - A. EMBEDMENT LENGTH DOES NOT INCLUDE STUCCO FINISH.
 - B. FOR HOLLOW MASONRY, FILL ALL CELLS @ ANCHOR WITH 2500 PSI GROUT.

FILL CELL W/2500 PSI GROUT.

DVER .500

- C. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- 10. DOOR OPERATION TYPE TO BE PUSH-UP.

DOOR MOUNTING BRACKET DETAIL

 GUIDE TO JAMB ATTACHMENT FASTENERS BEGIN 4" FROM FLOOR AND END 3-1/2" BELOW TOP OF WALL OPENING.

SCALE

NONE

11-14-02

SHEET! 2

12. TEST DOOR WALL OPENING SIZE: 10'-0" x 8'-0".

THESE CONFI	DENTIAL DOC	MENTS SUBMITTED BY	JANUS CONTAIN	INFORMATION OF A PROPRIETARY NATURE	PART NUMBER		JANUS INTERNATIONAL CORPORATION		
AND MAY NOT	BE REPRODU	MAN DE DISER TO MAN	NUFACTURE ANYTHIN ARY FOR PREPARATI	NG IN PART OR IN WHOLE FOR ANY ION OF BIDS OF ENGINEERING WITHOUT	MATERIAL		134 JANUS INTERNATIONAL BLVD TEMPLE, GA 30179 770-562-2850/Fax 770-562-2264		
1000					APPLIED FINISH		© 2012 Janus International Corporation All Rights Reserved		
UNLESS DTHERWISE ARE: DECIMAL		SPECIFIED DIM	ENSIONS ARE	IN INCHES AND TOLERANCES	UNIT OF MEASURE		CERTIFIED WIND LOAD RATED		
		FRACTIONS	ANGLES	HOLE DIAMETERS	APPROVALS DATE		26 GA SERIES 750 DOOR ASSEMBLY		
.xx	+ DO4 DRAWN		11-14-02						
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APPROVED:

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