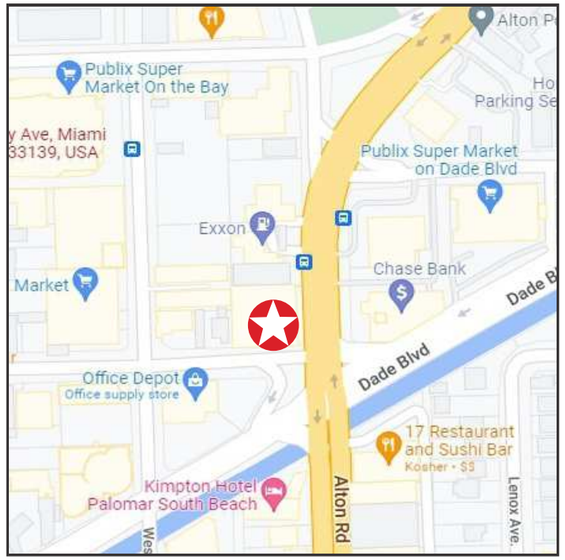
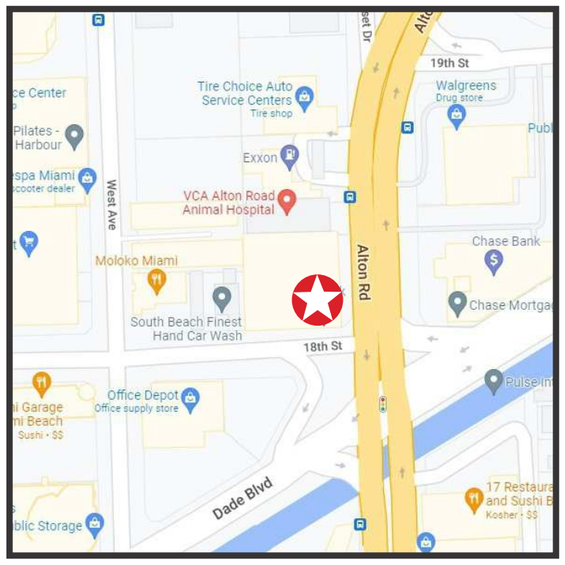


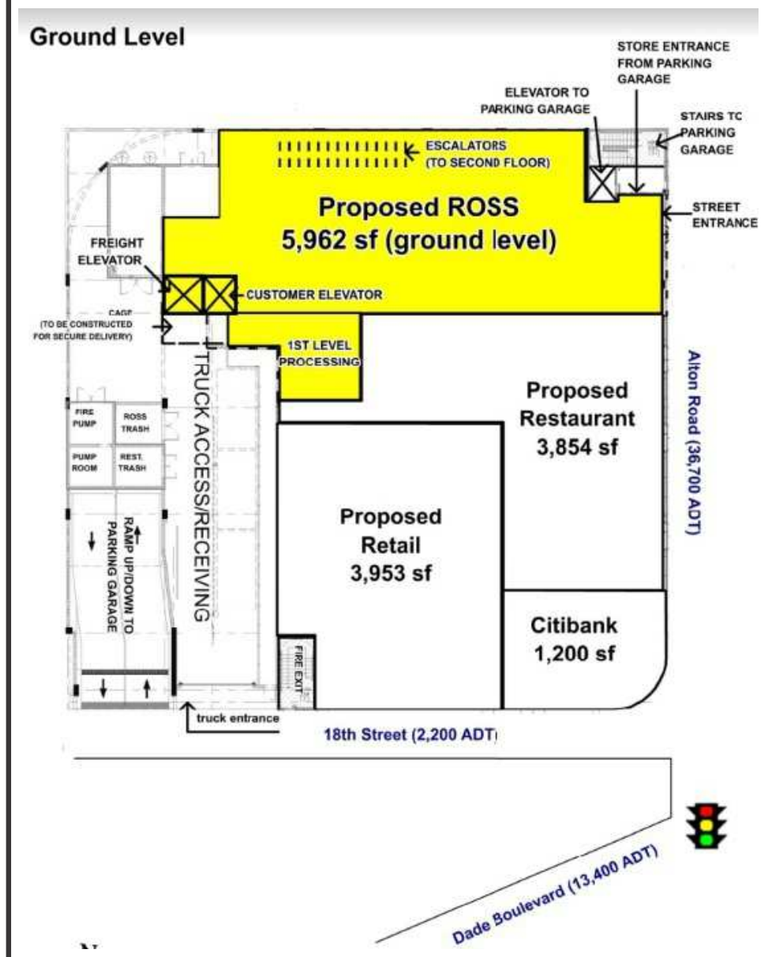


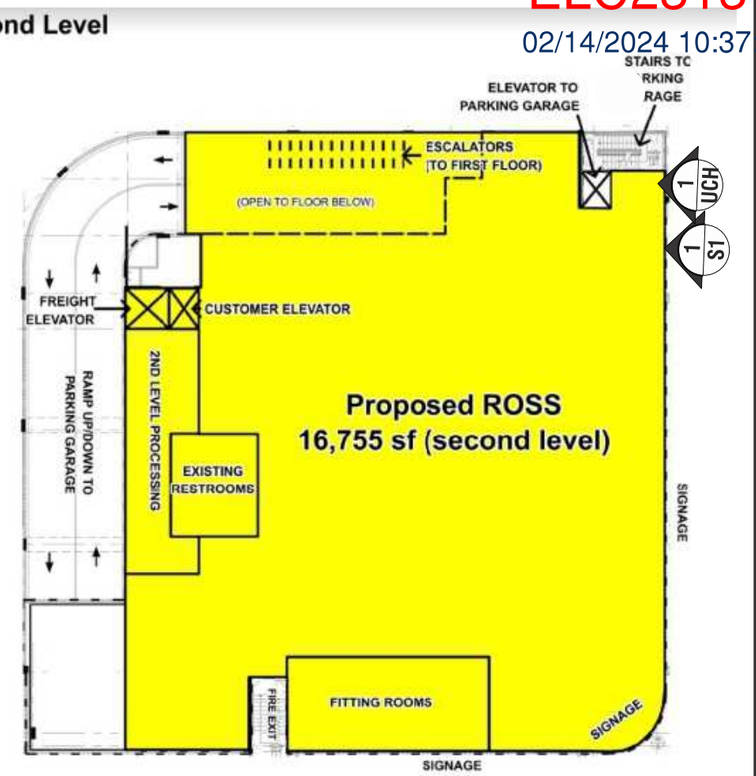
NORTH

VICINITY MAP

NOT TO SCALE

THE EXPRESSED INTENT OF THIS DRAWING HAVING AN ENGINEER'S SEAL IS FOR INFORMATIONAL PURPOSES TO SUPPORT THE ENGINEERING DESIGN WORK FOUND ON SUBSEQUENT SHEETS ONLY. THIS ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OR OVERSIGHT OF THE INFORMATION CONTAINED.





SEAN M. McFARLAND LICENSE No. 61049 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sean McFarland
2024.01.31
15:56:37 -05'00'

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NORTH

SITE PLAN

NOT TO SCALE

RB-E

AD-RSS100412

blair IMAGE ELEMENTS

ROSS DRESS FOR LESS

#2541 SUNSET HARBOUR
NWC Alton Rd & Dade Blvd
Miami Beach, FL 33139

drawn 01/30/24

SHEET K

NOTES:

ROSS CONTRACTOR TO PROVIDE:

- ADEQUATE ACCESS BEHIND LOGO LETTER AND CABINET FOR INSTALLATION AND MAINTENANCE, PER ARTICLE 600 OF THE N.E.C.
- ONE (1) 20 AMP 120V ISOLATED SIGN CIRCUIT AND JUNCTION BOXES TO AREA BEHIND SIGN LETTERS CONNECTED TO THE ENERGY MANAGEMENT SYSTEM.
- AT LEAST 1/2" THICK PLYWOOD BACKING BEHIND ALL E.I.F.S. WALL SYSTEM FOR SIGN AND BANNER SUPPORT.

COLOR APPEARANCE MAY BE ALTERED BY PRINTING, SEE APPROVED FINAL CONSTRUCTION DRAWINGS FOR COLOR SPECIFICATIONS.

Ⓐ 22"H INDIVIDUAL "ROSS" PAN CHANNEL LETTER-LOK LOGO LETTERS:
FACES: .177 PLASKOLITE OPTIX LD (LIGHT DIFFUSING) 2406 WHITE WITH 3M 3730-167L BLUE VINYL FILM OVERLAY
RETURNS: 4"D ALUM. W/ WHITE FINISH
TRIM CAP: 2" WHITE JEWELITE
LETTER BACKS: ALUMINUM
LEDS: PRINCIPAL M-SFHW3-90 STREETFIGHTER HEAVYWEIGHT MODULES
MOUNTING: 1/4"-20 GALV. THRU BOLTS
PEG OFF: 1/2" SPACERS

Ⓑ 9"H INDIVIDUAL "DFL" LOGO LETTERS:
ALL CALLOUTS SAME AS "ROSS" EXCEPT:
RETURNS: 4"D ALUM. W/ WHITE FINISH
TRIM CAP 1" WHITE JEWELITE :

Ⓒ 12"x 36"x 10"D DOUBLE-FACE NON-ILLUMINATED UNDER CANOPY SIGN, SEE SHEET UC FOR DETAILS.

Ⓓ N/A

Ⓔ N/A

1 EXISTING SIGN FASCIA SEE NOTES.

2 CLEAR ANODIZED ALUMINUM STOREFRONT & DOORS BY ROSS CONTRACTOR.

3 STORE HOURS; INCLUDES STORE HOURS, OPERATIONAL DECAL, EBT, GUARD & RESERVE LTR. 55 & OVER AND EXIT/ENTER DECALS. SEE SHEET SH FOR DETAILS.

4 N/A

5 N/A

6 N/A

7 N/A

8 N/A

9 N/A

10 N/A

11 N/A

12 N/A

MIAMIBEACH
BUILDING DEPARTMENT
Reviewed For Compliance
ELC2313428
02/14/2024 10:37:18 AM

SEAN M. McFARLAND LICENSE No. 61049 STATE OF FLORIDA PROFESSIONAL ENGINEER
Sean McFarland
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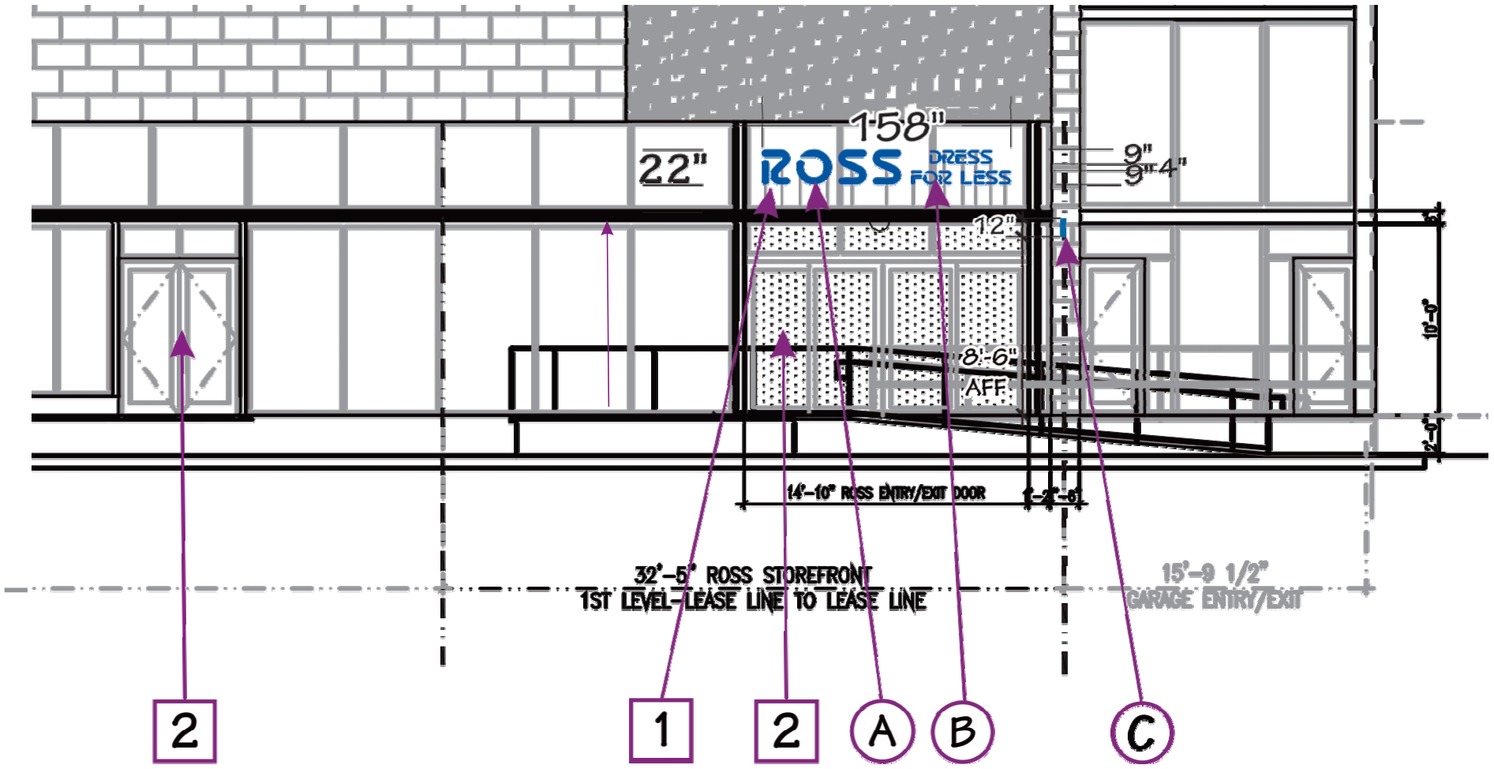
Sean McFarland
2024.01.31
15:57:35 -05'00'



Blade Sign to be installed 8'-6" above finished floor

Sign= 22"x158"=3476/144=24.14 SQ.FT.

1 STOREFRONT • SOUTH • ALTON RD • ELEVATION

Scale: 1/8" = 1'

RB-E VE

FOR INFORMATIONAL PURPOSES ONLY

AD-RSS100412

c UL us LISTED

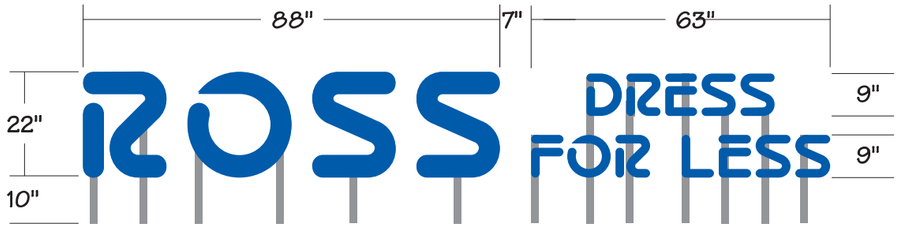
blair IMAGE ELEMENTS

ROSS DRESS FOR LESS

#2541 SUNSET HARBOUR
NWC Alton Rd & Dade Blvd
Miami Beach, FL 33139

drawn 01/30/24

SHEET S1



FRONT VIEW

SIDE VIEW
SEE LETTER DETAIL

BACK SIDE PAINTED
ALUM. P11

2" X 2" X 1/8" AL
AND WIRING TO BE HIDDEN.

BACK VIEW

LED ILLUMINATED LO-PROFILE CHANNEL LETTERS
22" ROSS LETTERS w/ 9" DFL LETTERS (24.14 SQ. FT.)

NOTE: FIELD VERIFY PRIOR FABRICATION

SCALE: 3/8"=1'-0"

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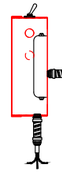
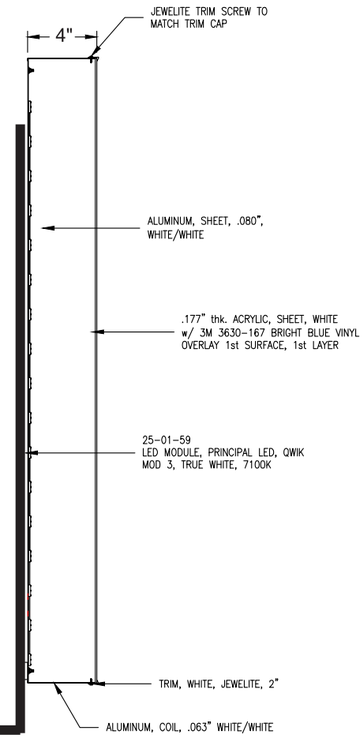
Sean McFarland
2024.01.31
15:58:10 -05'00'

Signs shall be handle using an astronomical timer or photocell as per FBC C405.2.6.4.
Signs shall be grounding and bonding as per nec 600.7
The power supply for signs shall have compliance with nec 600.21 (class 2)
A lockable disconnect is required per nec 600.6(a)(2)

1-20 AMP disconnect switch enclosed in weather proof junction box with lock-able cover before entering sign



Primary electrical (120v) to be supplied by GC



MIAMIBEACH
BUILDING DEPARTMENT
Reviewed For Compliance
ELC2313428
02/14/2024 10:37:18 AM

RB-E VE

FOR INFORMATIONAL PURPOSES ONLY

AD-RSS100412

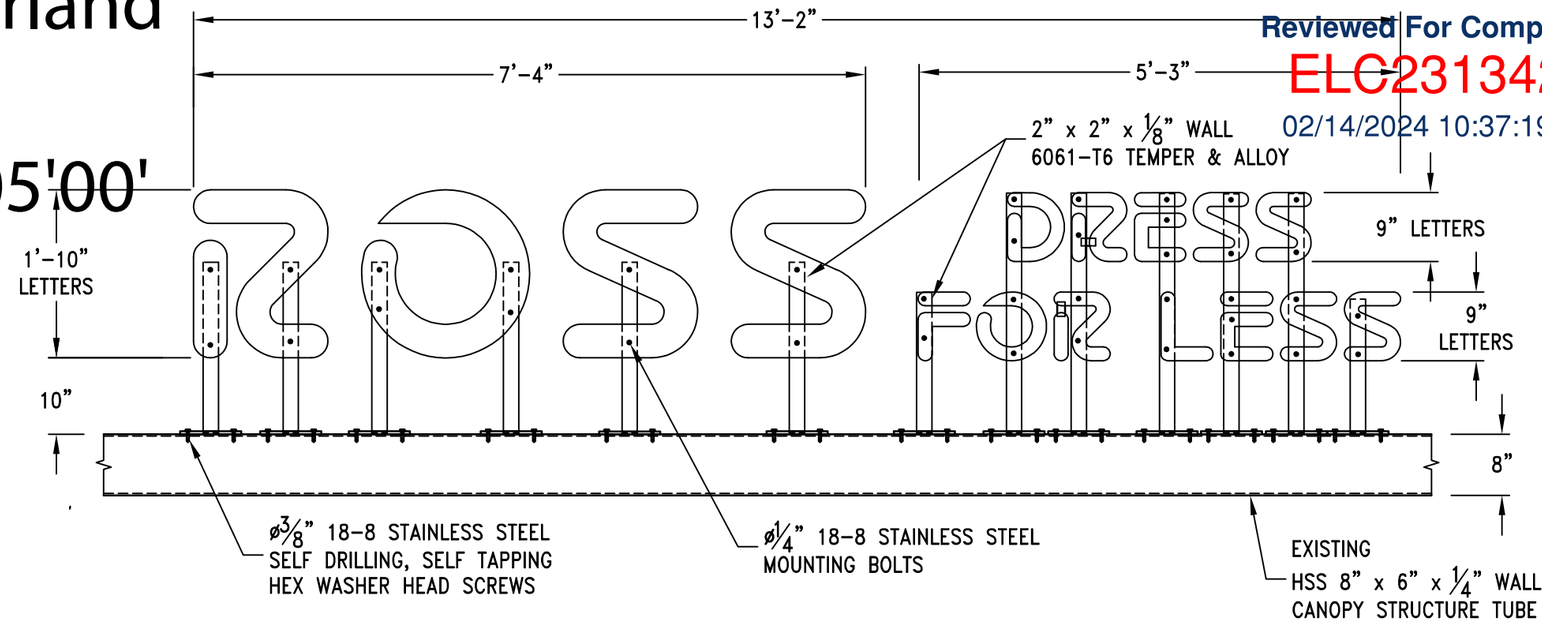
blair IMAGE ELEMENTS

ROSS DRESS FOR LESS

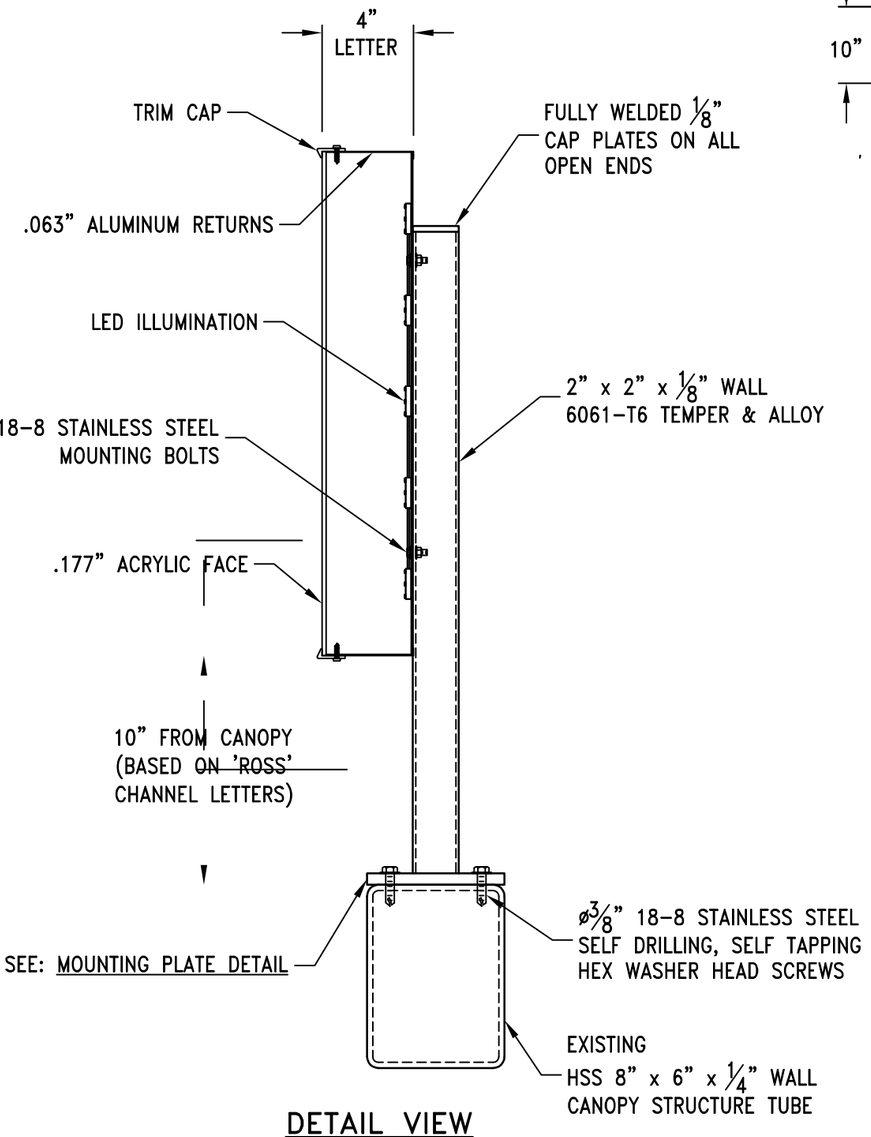
#2541 SUNSET HARBOUR
NWC Alton Rd & Dade Blvd
Miami Beach, FL 33139

drawn 01/30/24

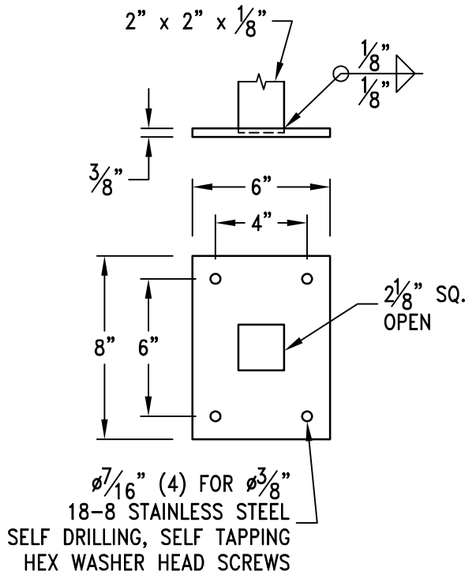
SHEET
S1



ELEVATION VIEW



DETAIL VIEW



MOUNTING PLATE DETAIL
3/8" ASTM A-36 STEEL

DESIGN WIND LOAD:
Based on the 2023 Florida Building Code, 8th Edition (ASCE 7-22) using Risk Category II, Exposure D and 175 mph wind speed.

NOTE:
All electrical to be in accordance with U.L., the NEC and local code.

SITE:
Ross Dress for Less
1824 Alton Road
Miami Beach, Florida 33139

REV	DATE	DESCRIPTION	APPROVED
A	31 Jan 24	RELEASED FOR PERMITTING	J. HOGAN

Robert-James & Associates, Inc.
12255 West 187th Street, Mokena Illinois 60448-9737
phone: 708-479-8385 fax: 708-479-8395 email: rja37@comcast.net

TITLE: 4" DEEP LED CHANNEL LETTERS FOR INSTALLATION ON BUILDING CANOPY

DRAWN BY	DATE	SCALE	DRAWING NUMBER	SHEET	REV.
A. KLOTZKE	31 Jan 24	NONE	2401228	1 OF 1	A
CHECKED BY J. HOGAN	DATE 31 Jan 24				

ROBERT-JAMES & ASSOCIATES, Inc.
12255 West 187th Street
Mokena, Illinois 60448
(708) 479-8385

File : BlairSgnCo1132e1.mcd

Site : Ross Dress for Less
1824 Alton Road
Miami Beach, Florida 33139

Sign Type : 1'-10" tall x 4" deep 'ROSS' LED channel letters to the left of 9" tall x 4" deep 'DRESS' LED channel letters centered over 9" tall x 4" deep 'FOR LESS' LED channel letters with a combined overall length of 13'-2". Letters will be mounted on individual poles for installation on existing building canopy.
Drawing No. 2401228 rev. A

Design loads are based on the 2023 Florida Building Code, 8th Edition (ASCE 7-22) using Exposure D and 175 mph wind speed.

Design Wind Speed : (mph.) $V := 175.0$ Based on Risk Category II

Velocity Pressure Coefficient at a Height of Less Than 15', Exposure D : $Kz := 1.03$ Based on Table 30.3-1

Topographic Factor : $Kzt := 1.00$ Based on Table 26.8-1

Wind Directionality Factor : $Kd := 0.85$ Based on Table 26.6-1

Velocity Pressure : (PSF) $qz := 0.00256 \cdot Kz \cdot Kzt \cdot Kd \cdot V^2$ $qz = 68.639$ Based on 30.3-1

Combined External Pressure GCp (30.4-1) minus Internal Pressure GCpi (26.11-1) : $GC_{Comb} := 1.65$

ASD Conversion Factor : $LCF := 0.60$

Design Pressure : (PSF) $F := qz \cdot GC_{Comb} \cdot LCF$ $F = 67.953$ Use : $WL := 68.0$

Reference : 2020 Aluminum Design Manual, The Aluminum Association

Tube and Plate : 6061-T6 Temper and Alloy Fy = 35.0 ksi. ; Fb = 14.67 ksi. ; Fv = 12.54 ksi.

Reference : Manual of Steel Construction, AISC 13th Edition.

Mounting Bolts : 18-8 Stainless Steel Fu = 60.0 ksi. ; Ft = 20.00 ksi. ; Fv = 10.00 ksi.

Sean McFarland 2024.01.31 15:59:05 -05'00'

Design Loads at the Top of the Canopy :

Based on the letter 'S' - Largest tributary area on a single support pole.

Shear : $ShrWL := (1.83 \cdot 1.49) \cdot WL$ $ShrWL = 185.416$ lbs.

Moment : $MtWL := ShrWL \cdot \left(\left(\frac{1.83}{2} \right) + 0.83 \right)$ $MtWL = 323.55$ ft.lbs.

Design of Support Tubes :

Section Modulus of Tube : (in.3) 2" x 2" x 1/8" wall - $TubeSM := 0.563$

Bending Stress : (psi.) $f_b := \frac{MtWL \cdot 12}{TubeSM}$ $f_b = 6896.275$

Area of Tube : (in.2) 2" x 2" x 1/8" wall - $TubeArea := 0.951$

Shear Stress : (psi.) $f_v := \frac{ShrWL}{TubeArea}$ $f_v = 194.969$

Unity Check : Support Tubes $UCSprtTube := \frac{f_b}{14670} + \frac{f_v}{12540}$ $UCSprtTube = 0.486$ < 1.00 OK

Design of Mounting Bolts at the Top of the Canopy :

Mounting Bolt Diameter : (in.) $MntBltDia := 0.375$

Stress Area : (in.2) (Based on nominal diameter per AISC 4-3) $MntBltArea := \frac{\pi \cdot MntBltDia^2}{4}$ $MntBltArea = 0.11$

Allowable Tension : (lbs.) $AllwTen := 20000 \cdot MntBltArea$ $AllwTen = 2209$

Allowable Shear : (lbs.) $AllwShr := 10000 \cdot MntBltArea$ $AllwShr = 1104$

Number of Mounting Bolts in Tension per Support : $NoTen := 2$

Front to Back Distance Between Mounting Bolts : (in.) $LvrArm := 4.0$

Tension Load per Mounting Bolt : (lbs.) $TenMntBlt := \frac{MtWL \cdot 12}{NoTen \cdot LvrArm}$ $TenMntBlt = 485.33$

Number of Mounting Bolts in Shear per Support : $NoShr := 4$

Shear Load per Mounting Bolt : (lbs.) $ShrMntBlt := \frac{ShrWL}{NoShr}$ $ShrMntBlt = 46.35$

Unity Check : Mounting Bolts $UCMntBlt := \frac{TenMntBlt}{AllwTen} + \frac{ShrMntBlt}{AllwShr}$ $UCMntBlt = 0.262$ < 1.00 OK

Use : 3/8" diameter 18-8 stainless steel Self drilling. self tapping hex washer head screws

Check Capacity of HSS 8" x 6" x 1/4" wall Tube for the TEK screws : (Per AISI E4)

Diameter of Screw : (in.) $d := 0.375$

Diameter of Screw Head : (in.) $dh := 0.5625$

Steel Thickness : (in.) $t_1 := 0.233$ (Material in contact with screw head.)

Steel Thickness : (in.) $t_2 := 0.233$ (Material not in contact with screw head.)

Material Strength : (ksi.) $Fu_1 := 58.0$ (Material not in contact with screw head.)

Material Strength : (ksi.) $Fu_2 := 58.0$ (Material not in contact with screw head.)

Factor of Safety : (ksi.) $FS := 3.0$ (ASD)

Sean McFarland
2024.01.31
15:59:31 -05'00'

Output - Shear :

$\frac{t_2}{t_1} = 1$

$P_{ns} := 4.2 \cdot \sqrt{(t_2^3 \cdot d)} \cdot Fu_2$ $P_{ns} = 16.777$ $\frac{P_{ns}}{FS} = 5.592$ kips.

$P_{ns} := 2.7 \cdot t_1 \cdot d \cdot Fu_1$ $P_{ns} = 13.683$ $\frac{P_{ns}}{FS} = 4.561$ kips.

$P_{ns} := 2.7 \cdot t_2 \cdot d \cdot Fu_2$ $P_{ns} = 13.683$ $\frac{P_{ns}}{FS} = 4.561$ kips. - CONTROLS

Output : Tension - Pullout :

$P_{not} := 0.85 \cdot t_2 \cdot d \cdot Fu_2$ $P_{not} = 4.308$ $\frac{P_{not}}{FS} = 1.436$ kips.

Output : Tension - Pullover :

$P_{nov} := 1.5 \cdot t_1 \cdot dh \cdot Fu_1$ $P_{nov} = 11.402$ $\frac{P_{nov}}{FS} = 3.801$ kips.

Unity Check - Canopy Tube Capacity :

$UCCnpyCpcty := \frac{ShrMntBlt}{4561} + \frac{TenMntBlt}{1436}$ $UCCnpyCpcty = 0.348$ < 1.00 OK

Design of Mounting Plates at the Top of the Canopy :

Plate Thickness : (in.) $PltThk := 0.375$ Plate Width : (in.) $PltWdth := 8.0$

Side to Side Distance Between Outer Mounting Bolts : (in.) $BltSprd := 6.0$

Transfer Distance : (in.) $PLS := \frac{\sqrt{((LvrArm - 3.0)^2 + (BltSprd - 3.0)^2)}}{2}$

$PLS = 1.581$

Minimum Thickness Required : (in.) $ReqdThk := \sqrt{\left(\frac{TenMntBlt \cdot NoTen \cdot PLS \cdot 6}{(PltWdth \cdot 14670)}\right)}$

$ReqdThk = 0.28$

Unity Check : Mounting Plate $UCMntPlt := \frac{ReqdThk}{PltThk}$ $UCMntPlt = 0.747$ < 1.00 OK

Use : 3/8" thick x 8" x 6" plate with four (4) 7/16" diameter holes on a 6" x 4" bolt pattern.

Note:
SEE SHEET S1 FOR UNDER-CANOPY SIGN LOCATION.

General Contractor to provide:
- ADEQUATE CANOPY STRUCTURE TO SUPPORT SIGN
- ACCESS ABOVE CEILIG FOR SIGN INSTALLATION

Sign is Non-Illuminated

Ⓐ CABINET: 12"x 36"x 10" DOUBLE-FACED ALUMINUM PRIMED W/ ZINC CHROMATE; CABINET EDGE AND 1" RETAINERS PAINTED TO MATCH SULTAN BLUE (PMS 286).

Ⓑ 1/4" DIA. DRAIN HOLE AT BOTTOM OF CABINET (TYP.)

Ⓒ WEATHERPROOF SILICONE SEALANT AROUND PIPE PENETRATIONS INTO CABINET (TYP.)

Ⓓ FACES: 3/16" L7328 SOLAR GRADE WHITE LEXAN FACE WITH 9 1/4"H "ROSS" COPY AND 3/4" WHITE OUTLINE REVERSED OUT OF 3M 3630-157 SULTAN BLUE TRANSLUCENT VINYL FILM OVERLAY

SEAN M. McFARLAND LICENSE No. 61049 STATE OF FLORIDA PROFESSIONAL ENGINEER
Sean McFarland

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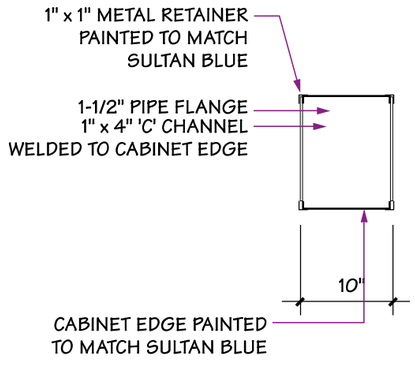
2024.01.31
16:00:21 -05'00'

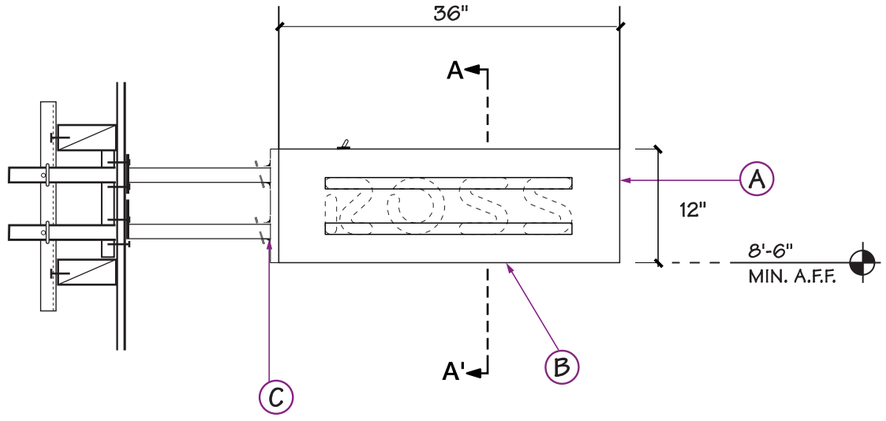
MIAMIBEACH
BUILDING DEPARTMENT
Reviewed For Compliance
ELC2313428
02/14/2024 10:37:19 AM

Fabricator to provide:
- ONE (1) DOUBLE-FACE UNDER-CANOPY SIGN CABINET COMPLETE WITH FACES, DECORATION AND DRAIN HOLE
- TWO (2) 5'-0" LENGTHS OF 1 1/2" PIPE, THREADED AT ONE END TO THREAD INTO PIPE-FLANGES INSIDE CABINET, PRIMED AND PAINTED TO MATCH SHERWIN WILLIAMS SW 6385 DOVER WHITE**
- ONE (1) 4'-0" LENGTH OF 2" X 2" X 3/16" ALUMINUM ANGLE
- TWO (2) 1/4" DIA. U-BOLT ASSEMBLIES - TO FIT 1 1/2" PIPE
- TWO (2) 4" DIA. X 1/8" ALUMINUM ESCUTCHEON PLATES AND (4) #10 X 1 1/4" FLAT-HEAD SCREWS. PLATES DRILLED THROUGH FOR 1 1/2" PIPE AND COUNTER-SUNK FOR SCREWS PLATES AND SCREWS PRIMED AND PAINTED TO MATCH SHERWIN WILLIAMS SW 6385 DOVER WHITE**

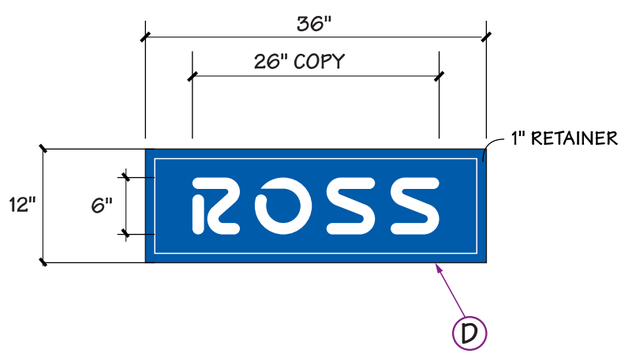
Installer to provide:
- ADDITIONAL BLOCKING ABOVE CEILING AS NECESSARY TO INSURE ADEQUATE STRUCTURE FOR SIGN ATTACHMENT
- WEATHER-PROOF CLEAR SILICONE SEALANT
- PAINT FOR PIPES AND ESCUTCHEON PLATES TO MATCH COLOR OF CEILING **ONLY IF DIFFERENT FROM PRE-FINISHED SHERWIN WILLIAMS SW 6385 DOVER WHITE COLOR



③ SECTION A-A'
SCALE: 3/4" = 1'- 0"



② D/F UNDER-CANOPY FRAMING ELEVATION
SCALE: 3/4" = 1'- 0"



① D/F UNDER-CANOPY FACE DETAIL
SCALE: 3/4" = 1'- 0"

AD-RSS100412

blair IMAGE ELEMENTS

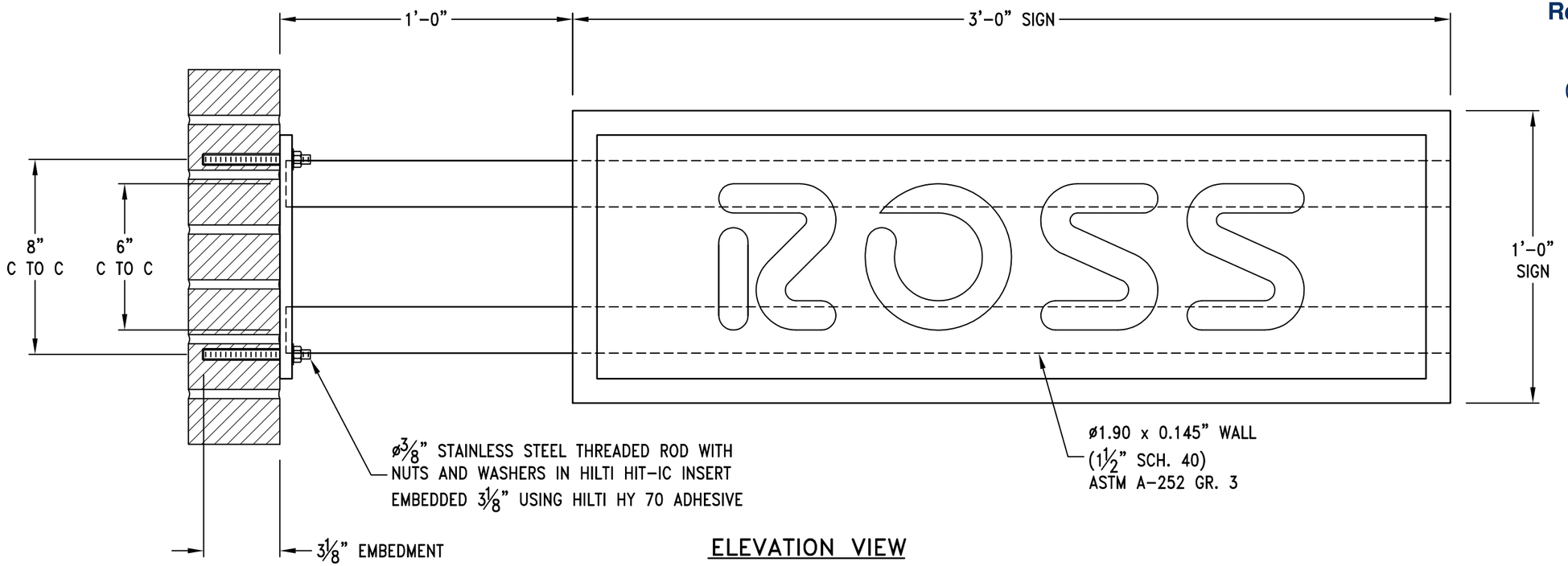
ROSS DRESS FOR LESS

#2541 SUNSET HARBOUR
NWC Alton Rd & Dade Blvd
Miami Beach, FL 33139

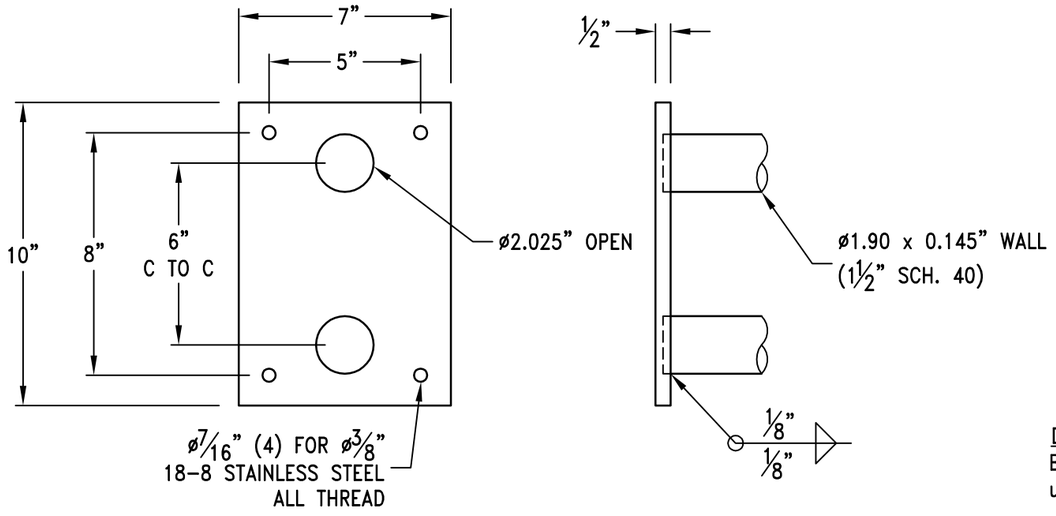
drawn 01/30/24

RB-E

SHEET
UCH



ELEVATION VIEW



MOUNTING PLATE DETAIL
1/2" 5052-H34 ALUMINUM

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Sean McFarland
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Sean McFarland
2024.01.31
16:00:52 -05'00'

DESIGN WIND LOAD:
Based on the 2023 Florida Building Code, 8th Edition (ASCE 7-22) using Risk Category II, Exposure D and 175 mph wind speed.

SITE:
Ross Dress for Less
1824 Alton Road
Miami Beach, Florida 33139

REV	DATE	DESCRIPTION	APPROVED
B	31 Jan 24	REVISED TO NON-ILLUMINATED	J. HOGAN
A	19 Dec 23	RELEASED FOR PERMITTING	J. HOGAN

Robert-James & Associates, Inc.
12255 West 187th Street, Mokena Illinois 60448-9737
phone: 708-479-8385 fax: 708-479-8395 email: rja37@comcast.net

B

TITLE: 1'-0" x 3'-0" NON-ILLUMINATED ID SIGN FLAG MOUNTED 12" FROM WALL

DRAWN BY	DATE	SCALE	DRAWING NUMBER	SHEET	REV.
A. HOGAN	19 Dec 23	NONE	2312124	1 OF 1	A
CHECKED BY J. HOGAN	DATE 19 Dec 23				

1-30-24

ROBERT-JAMES & ASSOCIATES, Inc.
12255 West 187th Street
Mokena, Illinois 60448
(708) 479-8385

File : BlairSgnCo1132f1.mcd

Site : Ross Dress for Less
1824 Alton Road
Miami Beach, Florida 33139

Sign Type : 1'-0" x 3'-0" x 10" deep double faced, non-illuminated ID sign flag mounted 1'-0" from building wall on twin poles with mounting plate.
Drawing No. 2312124 rev. B

Design loads are based on the 2023 Florida Building Code, 8th Edition (ASCE 7-22) using Exposure D and 175 mph wind speed.

Design Wind Speed : (mph.) $V := 175.0$ Based on Risk Category II

Velocity Pressure Coefficient at a Height of Less Than 15', Exposure D : $Kz := 1.03$ Based on Table 30.3-1

Topographic Factor : $Kzt := 1.00$ Based on Table 26.8-1

Wind Directionality Factor : $Kd := 0.85$ Based on Table 26.6-1

Velocity Pressure : (PSF) $qz := 0.00256 \cdot Kz \cdot Kzt \cdot Kd \cdot V^2$ $qz = 68.639$ Based on 30.3-1

Combined External Pressure GCp (30.4-1) minus Internal Pressure GCpi (26.11-1) : $GC_{Comb} := 1.65$

ASD Conversion Factor : $LCF := 0.60$

Design Pressure : (PSF) $F := qz \cdot GC_{Comb} \cdot LCF$ $F = 67.953$ Use : $WL := 68.0$

Design Snow Load : (PSF) $SL := 0.0$ N/A

Reference : Manual of Steel Construction, AISC 13th Edition.

Pipe : ASTM A-252 Gr. 3 Fy = 42.0 ksi. ; Fb = 27.72 ksi. ; Fv = 16.80 ksi.

Plate : ASTM A-36 Fy = 36.0 ksi. ; Fb = 27.00 ksi. ; Fv = 14.40 ksi.

Reference : Manual of Steel Construction, AISC 13th Edition.

Mounting Bolts : 18-8 Stainless Steel Fu = 60.0 ksi. ; Ft = 20.00 ksi. ; Fv = 10.00 ksi.

Reference : Hilti North American Product Technical Guide, Volume 2, Edition 16.1

3.2.9 HIT HY 70 Hybrid for Masonry Construction and Threaded HIT-IC Inserts

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Design Loads at Building Wall :

Wind Load :

ID Sign : $IDSgn := (1.0 \cdot 3.0 \cdot WL) \cdot \left(\left(\frac{3.0}{2}\right) + 1.0\right)$ $IDSgn = 510$ ft.lbs.

Poles : $Poles := \left(2 \cdot 1.0 \cdot \left(\frac{1.90}{12}\right) \cdot WL\right) \cdot \left(\frac{1.0}{2}\right)$ $Poles = 10.767$ ft.lbs.

Moment : (ft.lbs.) $MtWL := IDSgn + Poles$ $MtWL = 520.767$

Shear : (lbs.) $ShrWL := (1.0 \cdot 3.0 \cdot WL) + \left(2 \cdot 1.0 \cdot \left(\frac{1.90}{12}\right) \cdot WL\right)$ $ShrWL = 225.533$

Dead Load :

ID Sign : $IDSgn := (1.0 \cdot 3.0 \cdot 6.5) \cdot \left(\left(\frac{3.0}{2}\right) + 1.0\right)$ $IDSgn = 48.75$ ft.lbs.

Poles : $Poles := (2 \cdot 4.0 \cdot 2.72) \cdot \left(\frac{4.0}{2}\right)$ $Poles = 43.52$ ft.lbs.

Moment : (ft.lbs.) $MtDL := IDSgn + Poles$ $MtDL = 92.27$

Shear : (lbs.) $ShrDL := (1.0 \cdot 3.0 \cdot 6.5) + (2 \cdot 4.0 \cdot 2.72)$ $ShrDL = 41.26$

Snow Load :

Shear : (lbs.) $ShrSL := (3.0 \cdot 0.83 \cdot SL)$ $ShrSL = 0$

Moment : (ft.lbs.) $MtSL := ShrSL \cdot \left(\left(\frac{3.0}{2}\right) + 1.0\right)$ $MtSL = 0$

Combined Shear :

Summation : (lbs.) $ShrBldg := ShrWL + ShrDL + ShrSL$ $ShrBldg = 266.793$

Design of Sign Pole Structures at Building :

Section Modulus of Pipe : (in.3) 1.90" Dia. x 0.145" wall - (1-1/2" Sch. 40) $PipeSM := 0.309$

Moment per Pole - X Axis : (ft.lbs.) $MtPole_{xaxis} := \frac{MtWL}{2}$ $MtPole_{xaxis} = 260.383$

Bending Stress - X Axis : (psi.) $f_{bxaxis} := \frac{MtPole_{xaxis} \cdot 12}{PipeSM}$ $f_{bxaxis} = 10111.974$

Moment per Pole - Y Axis : (ft.lbs.) $MtPole_{yaxis} := \frac{MtDL + MtSL}{2}$ $MtPole_{yaxis} = 46.135$

Bending Stress - Y Axis : (psi.) $f_{byaxis} := \frac{MtPole_{yaxis} \cdot 12}{PipeSM}$ $f_{byaxis} = 1791.65$

Area of Pipe : (in.2) 1.90" Dia. x 0.145" wall - (1-1/2" Sch. 40) $PipeArea := 0.75$

Shear per Pole : (lbs.) $ShrPole := \frac{ShrBldg}{2}$ $ShrPole = 133.397$

Shear Stress : (psi.) $f_v := \frac{ShrPole}{PipeArea}$ $f_v = 177.862$

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Unity Check - Poles : $UCPoles := \frac{f_{bxaxis}}{27720} + \frac{f_{byaxis}}{27720} + \frac{f_v}{16800}$ $UCPoles = 0.44$ < 1.00 OK

Design of Mounting Bolts :

Mounting Bolt Diameter : (in.) $MntBltDia := 0.375$

Stress Area : (in.2) $MntBltArea := \frac{\pi \cdot MntBltDia^2}{4}$ $MntBltArea = 0.11$
(Based on nominal diameter per AISC 4-3)

Allowable Tension : (lbs.) $AllwTen := 20000 \cdot MntBltArea$ $AllwTen = 2209$

Allowable Shear : (lbs.) $AllwShr := 10000 \cdot MntBltArea$ $AllwShr = 1104$

Number of Mounting Bolts in Tension Side to Side : $NoTenSS := 2$

Side to Side Mounting Bolt Centerlines : (in.) $SSLvrArm := 5.0$

Wind Load per Mounting Bolts : (lbs.) $WLMntBlt := \frac{MtWL \cdot 12}{NoTenSS \cdot SSLvrArm}$

$WLMntBlt = 624.92$

Number of Mounting Bolts in Tension Top to Bottom : $NoTenTB := 2$

Top to Bottom Mounting Bolt Centerlines : (in.) $TBLvrArm := 8.0$

Dead Load per Mounting Bolt : (lbs.) $DLMntBlt := \frac{(MtDL + MtSL) \cdot 12}{NoTenTB \cdot TBLvrArm}$

$DLMntBlt = 69.2$

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Number of Mounting Bolts in Shear : $NoShr := 4$

Shear Load per Mounting Bolt : (lbs.) $ShrMntBlt := \frac{ShrBldg}{NoShr}$ $ShrMntBlt = 66.698$

Unity Check - Mounting Bolts :

$UCMntBlts := \frac{WLMntBlt + DLMntBlt}{AllwTen} + \frac{ShrMntBlt}{AllwShr}$ $UCMntBlts = 0.375$ < 1.00 OK

Use : 3/8" diameter 18-8 stainless steel all thread rod, nuts and washers.

Design of Hilti Adhesive and Inserts for Brick :

Based on allowable load data from Table 11 for hollow brick.

Nominal Anchor Diameter : 3/8"

Embedment Depth : 3-1/8"

Allowable Tension Load of Adhesive / Insert : (lbs.) $AllwTenAdhInsrt := 880$

Allowable Shear Load of Adhesive / Insert : (lbs.) $AllwShrAdhInsrt := 1290$

Unity Check : Hilti Adhesive / Inserts $UCHiltiAdhInsrt := \frac{WLMntBlt + DLMntBlt}{AllwTenAdhInsrt} + \frac{ShrMntBlt}{AllwShrAdhInsrt}$

$UCHiltiAdhInsrt = 0.84 \quad < \quad 1.00$ OK

Use : 3/8" diameter 18-8 stainless steel bolts with Hilti HIT-IC Insert embedded 3-1/8" in Hilti HY-70 Adhesive.

Design of Mounting Plate at Building :

Plate Thickness : (in.) $PltThk := 0.50$ Plate Width : (in.) $PltWdth := 7.0$

Transfer Distance : (in.) $PLS := \frac{\sqrt{(SSLvrArm^2 + TBLvrArm^2)} - (1.90 + (2 \cdot 1.75))}{2}$

$PLS = 2.017$

Number of Mounting Bolts in Tension at Transfer Distance : $NoPLS := 2$

Minimum Thickness Required : (in.) $ReqdThk := \sqrt{\left(\frac{(WLMntBlt + DLMntBlt) \cdot NoPLS \cdot PLS \cdot 6}{(PltWdth \cdot 19500)}\right)}$

$ReqdThk = 0.351$

Unity Check : Mounting Plate $UCMntPlt := \frac{ReqdThk}{PltThk}$ $UCMntPlt = 0.702 \quad < \quad 1.00$ OK

Use : 1/2" thick x 7" x 10" mounting plate with four (4) 7/16" diameter holes on a 5" x 8" bolt pattern.

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