

ORDINANCE NO.: 2019-092

Granting an encroachment to Central Midlands Transit Authority – The COMET for the use of the right of way areas of the 1300 block of Bower Parkway adjacent to 350 Harbison Boulevard, 2300 block of Elmwood Avenue adjacent to 2325 Elmwood Avenue, and 5300 Block of Forest Drive adjacent to 5340 Forest Drive for the installation and maintenance of bus Shelters, Lexington County TMS#002898-01-031, and Richland County TMS#11505-05-01 and 16706-04-09

ORIGINAL
STAMPED IN RED

WHEREAS, the Central Midlands Transit Authority – The COMET (hereinafter "Grantee") desires to utilize a portion of the right of way area of the 1300 block of Bower Parkway adjacent to Sam's at 350 Harbison Boulevard, Lexington County TMS#002898-01-031, for the installation and maintenance of a concrete pad measuring approximately eleven (11') feet in width eighteen (18') feet in length, an enclosed aluminum bus shelter approximately five (5') feet in width, sixteen (16') feet in length and eight (8') feet in height, a bench approximately six (6') feet in length two (2') feet in width, and a trash receptacle; the right of way area of the 2300 block of Elmwood Avenue adjacent to 2325 Elmwood Avenue, Richland County TMS#11505-05-01, for the installation and maintenance of a concrete pad measuring approximately eleven (11') feet in width and eighteen (18') feet in length, an enclosed aluminum bus shelter approximately five (5') feet in width, sixteen (16') feet in length and eight (8') feet in height, a bench approximately six (6') feet in length two (2') feet in width, and a trash receptacle; and the right of way area of the 5300 Block of Forest Drive adjacent to Wendy's at 5340 Forest Drive, Richland County TMS#16706-04-09, for the installation and maintenance of a concrete pad measuring approximately nine (9') feet in width and twelve (12') feet in length, a concrete ramp approximately six (6') feet in width and twenty (20') feet in length, a bench approximately six (6') feet in length and two (2') feet in width, and a trash receptacle, as shown on the attached drawings; and,

WHEREAS, it appears that the encroachment will not interfere with the use of the medians or street for traffic, utility locations or other uses within the foreseeable future; NOW, THEREFORE,

BE IT ORDAINED by the Mayor and City Council of the City of Columbia, South Carolina, this 3rd day of December, 2019, that Grantee is hereby granted the right to use the right of way areas of the 1300 block of Bower Parkway adjacent to Sam's at 350 Harbison Boulevard, Lexington County TMS#002898-01-031, for the installation and maintenance of a concrete pad measuring approximately eleven (11') feet in width eighteen (18') feet in length, an enclosed aluminum bus shelter approximately five (5') feet in width, sixteen (16') feet in length and eight (8') feet in height, a bench approximately six (6') feet in length two (2') feet in width, and a trash receptacle; the right of way area of the 2300 block of Elmwood Avenue adjacent to 2325 Elmwood Avenue, Richland County TMS#11505-05-01, for the installation and maintenance of a concrete pad measuring approximately eleven (11') feet in width and eighteen (18') feet in length, an enclosed aluminum bus shelter approximately five (5') feet in width, sixteen (16') feet in length and eight (8') feet in height, a bench approximately six (6') feet in length two (2') feet in width, and a trash receptacle; and the right of way area of the 5300 Block of Forest Drive adjacent to Wendy's at 5340 Forest Drive, Richland County TMS#16706-04-09, for the installation and maintenance of a concrete pad measuring approximately nine (9') feet in width and twelve (12') feet in length, a concrete ramp approximately six (6') feet in width and twenty (20') feet in length, a bench approximately six (6') feet in length and two (2') feet in width, and a trash receptacle, as shown on the attached drawings.

ALL WORK SHALL COMPLY with the requirements of The City of Columbia, South Carolina Department of Transportation (SCDOT) and Federal Emergency Management Agency (FEMA) now in existence or hereafter enacted. The materials and type of finish to be used are to be approved by the City Engineer prior to installation. Any damage to the street or sidewalk caused by construction shall be repaired to the satisfaction of the City Manager. Improvements within the encroachment shall be maintained by the grantee at no cost to the City in a manner approved by the City Manager.

ORIGINAL
STAMPED IN RED

PROVIDED FURTHER that the privilege granted hereby is subject to the Grantee complying with the following conditions, restrictions or limitations:

1. No item, including landscaping, shall be placed, planted or allowed to grow such that it creates a visual impediment to persons safely entering or exiting the driveway or to persons safely walking along the sidewalk. The City reserves the right to remove or cut any item located within the right of way which it deems to be a safety hazard.
2. Grantee is responsible for all maintenance and assuring that all accessibility and ADA requirements are met and maintained.
3. Landscaping to be maintained by property owner.
4. Existing irrigation should not spray walkways, sidewalks and streets and/or creating hazardous conditions upon the walkways, sidewalks and streets.
5. Obstructions of more than be four (4') feet in height are prohibited within the sight-visibility triangle.
6. Forestry and Beautification shall be provided access to trees within the right of way for maintenance purposes.
7. All trees shall be protected and no large tree roots shall be removed from any existing trees.
8. Applicant shall coordinate with Traffic Engineering and Street Division to determine exact locations of the shelters in an effort to avoid stacking issues at adjacent intersections.

PROVIDED FURTHER that the privilege granted hereby may be modified or terminated by Columbia City Council at any time without notice to the Grantee, its successors and assigns.

BE IT FURTHER ORDAINED that Grantee, in consideration of the above privilege, shall at its expense provide for protection and relocation of all utilities that might be within this area to the satisfaction of the City Manager.


Requested by:

Assistant City Manager Shealy _____



Mayor

Approved by:

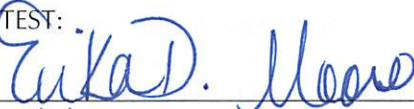


City Manager

Approved as to form:

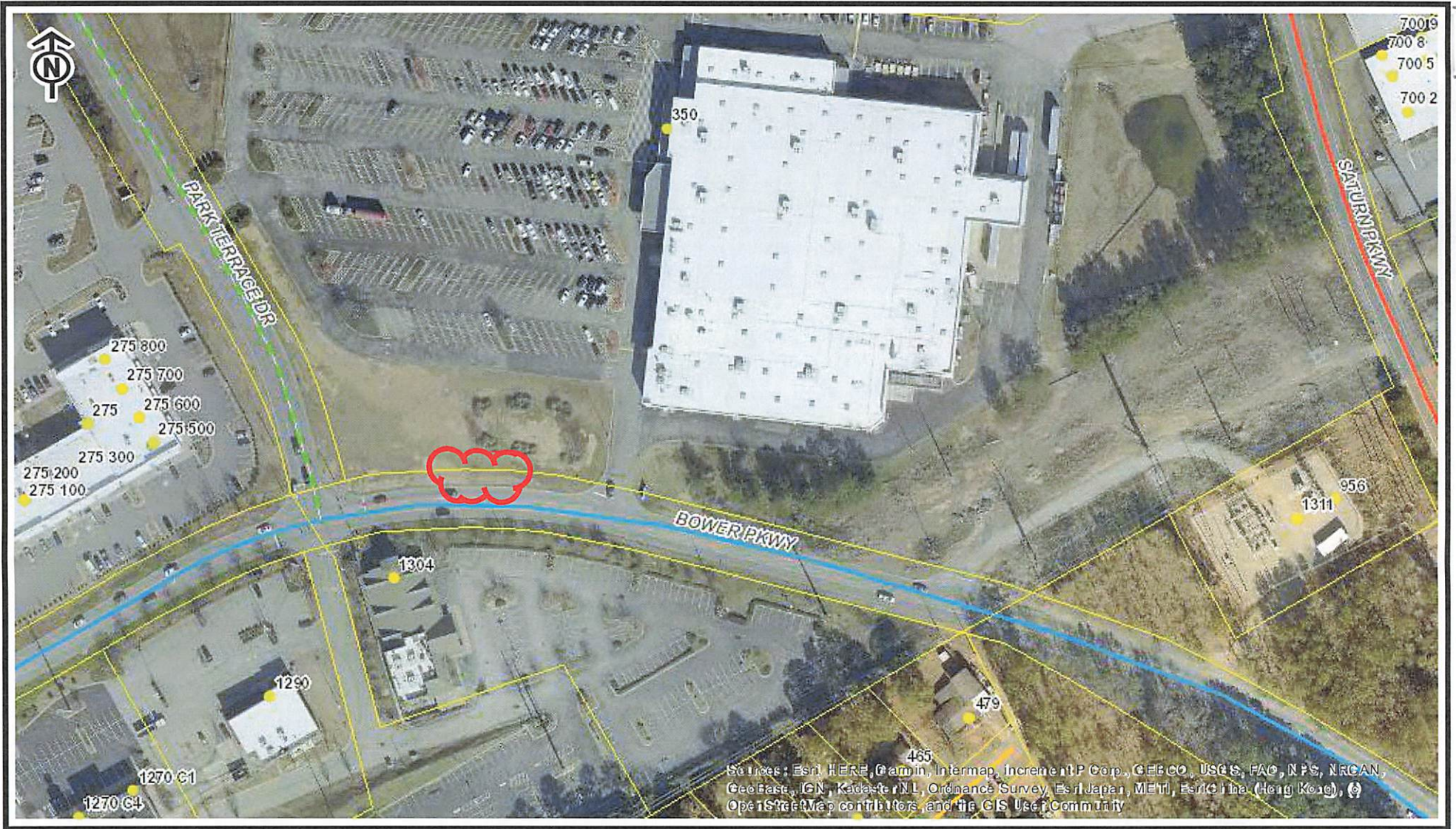


City Attorney

ATTEST:


City Clerk

Introduced: 11/25/2019
Final Reading: 12/3/2019



Comet Bus Shelter

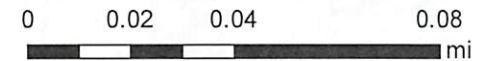
City of Columbia



This map was prepared using the City GIS Viewer:

City of Columbia - GIS Division
Friday, September 27, 2019

- | | | |
|-------------------------|--------------------------------|------------------------|
| ● Address Point | — Private | — Arterial Streets |
| □ Tax Parcel | — University of South Carolina | □ Columbia City Limits |
| Street Ownership | | |
| — City of Columbia | — Working | ■ Red: Red |
| — State | — Interstates | ■ Green: Green |
| — County | | ■ Blue: Blue |
| — Federal | | |
| Highways | | |
| — US | | |
| — SC | | |

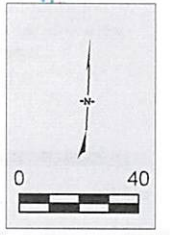
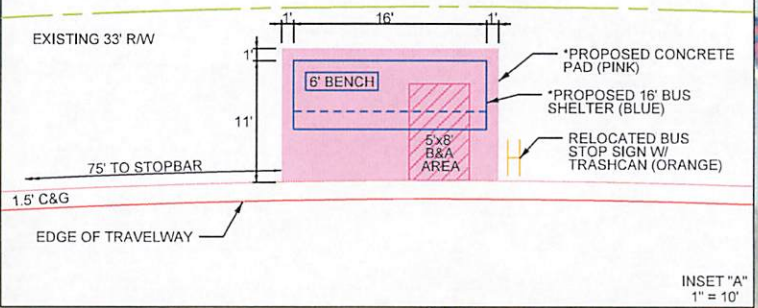


CITY OF COLUMBIA GIS DATA DISCLAIMER:

The City of Columbia GIS data represented on this map or plan is the product of the compilation of data produced by others. It is provided for informational purposes only and the City of Columbia makes no representation as to its accuracy. Its use without field verification is at the sole risk of the user.

**BUS STOP #385
BOWER PARKWAY &
PARK TERRACE DRIVE**

- TIE THE PROPOSED CONCRETE PAD FLUSH WITH THE BACK OF THE EXISTING SIDEWALK. PAD MUST HAVE A TRANSVERSE SLOPE NO LESS THAN 50:1 AND NO GREATER THAN 12:1. THE LONGITUDINAL SLOPE OF THE NEW PAD SHALL MATCH THE LONGITUDINAL SLOPE OF THE EXISTING SIDEWALK.
- CONCRETE PAD SHALL BE 6" THICK.
- SEE SHOP DRAWINGS FOR ALL DETAILS AND DIMENSIONS OF SHELTER, CONCRETE PAD, AND TRASH CAN.
- BUS SHELTER AND TRASH CAN TO BE MAINTAINED BY THE COMET.
- MOUNT NEW TRASH CAN TO NEW BUS STOP SIGN.



INSET "A"
1" = 10'

CL PARK TERRACE DRIVE

PROPOSED 16' BUS SHELTER (SEE INSET "A")

15 FT FROM EDGE OF TRAVELWAY

335 FT REQUIRED SIGHT DISTANCE FOR VEHICLES APPROACHING FROM THE LEFT FOR 35 MPH DESIGN SPEED AND PASSENGER CAR DESIGN VEHICLE

15 FT FROM EDGE OF TRAVELWAY

CL BOWER PARKWAY

390 FT REQUIRED SIGHT DISTANCE FOR VEHICLES APPROACHING FROM THE RIGHT FOR 35 MPH DESIGN SPEED AND PASSENGER CAR DESIGN VEHICLE

EXISTING 33' R/W

DATE: 4/20/19
PREPARED BY: COMET P&E
SCALE: 1/8" = 10' (PLAN)
SCALE: 1/4" = 10' (SECTION)

**REQUEST FOR A PERMANENT COMMERCIAL ENCROACHMENT ORDINANCE
(INCLUDING OUTDOOR DINING/LANDSCAPING/STUDENT HOUSING)**

For a continuing encroachment on any type of property in which the City has an interest (i.e., rights of way, tree zone, sidewalk, streets), the person or entity is required to have an encroachment ordinance enacted by City Council permitting the encroachment. Encroachment ordinances are required for but not limited to: irrigation systems; landscaping; fencing; walls; pavers; walkways; outdoor dining items (chairs, tables, umbrellas, etc.); awnings; bollards and directional signs (i.e., churches) Business signs are NOT permitted via an encroachment. Encroachments must comply with all existing City codes, rules and regulations, the Americans with Disabilities Act, if applicable, and are subject to review and approval by City staff. Enactment of the encroachment ordinance by a majority vote of City Council, which is a discretionary legislative act, is also required. In order to obtain an encroachment ordinance from the City of Columbia, it will be necessary for the City of Columbia to be named as an additional insured on your insurance policy with limits being increased to \$600,000 as required by Sec. 11-71. It is recommended that you contact your insurance provider to determine if it will name the City of Columbia as an additional insured prior to submitting your request for an encroachment ordinance. If you have any questions concerning these requirements, please contact Chip Timmons with Risk Management, (803) 733-8306 or catimmons@columbiasc.net.

Please complete and submit this form along with photographs and drawings or site plan drawn to scale (including a 8-1/2 x11) to Johnathan Chambers by e-mail at jechambers@columbiasc.net; fax at 803-343-8779; or mail to Johnathan Chambers, Development Services, POB 147 Columbia, SC 29217, for preparation of an encroachment ordinance. Copies to City departments should be directed to the contact person for that department as shown below.

All work shall comply with the requirements of the City of Columbia and South Carolina Department of Transportation now in existence or hereafter enacted. The materials and type of finish to be used are to be approved by the City Engineer prior to installation. Any damage to the street or sidewalk caused by construction shall be repaired to the satisfaction of the City Manager. Improvements within the encroachment shall be maintained by the grantee at no cost to the City in a manner approved by the City Manager. Property owned, operated and maintained by SCDOT shall comply with SCDOT encroachment requirements.

Date: 05/29/2019 Property Owner: City of Columbia
 Applicant's Name if different from Property Owner: Central Midlands Transit Authority-The COMET
 Contact Information: Telephone Number: 803-255-7087 Fax Number: _____
 Mailing address: 3613 Lucius Road, Columbia, SC 29204 E-mail address: zmcghee@davisfloyd.com
 Business Name/Development Name for Encroachment: Central Midlands Transit Authority-The COMET

Encroachment type: Wall Fence Columns Steps Irrigation System Landscaping Driveway Pavers Sidewalk/Walkway
 Planters Awning Underground Utilities Other: Bus Shelter

Dimensions (height/width/length): 6'x12'x18' Concrete Pad
 (i.e. 6'x42' wooden privacy fence; 9'x6'x16' Bus Shelter
 two 12'x4'x3' concrete steps)

Construction material: Shelter-Aluminum Frame with Safety Glass Panels

OUTDOOR DINING: The Fire Marshal's posted capacity allowed within the business at the time of enactment of the outdoor dining encroachment ordinance shall include the total number of patron seating approved for the outdoor dining encroachment area, if not already included in the posted capacity allowance, so that patrons relocating from inside to the outside or from outside to the inside do not cause the posted capacity to be exceeded.

Hours/days of operation for outdoor dining: N/A

Posted Maximum Capacity Allowance (inside/outside combined): N/A No. of chairs outdoors: N/A No. of Tables Outdoors: N/A

Do you serve: Wine Beer Liquor SCDOR ABL No.: N/A If not, do you intend to apply for an ABL license? N/A

I acknowledge that the adjoining property owners and businesses have been contacted and approve the addition of outdoor dining at this location to include the service of beer, wine and/or liquor if applicable during the business hours noted above, and that any changes made to the business hours, use of the encroachment area or items allowed within the encroachment area will require an amendment to the encroachment ordinance.

Name/Title: _____
 Date: _____

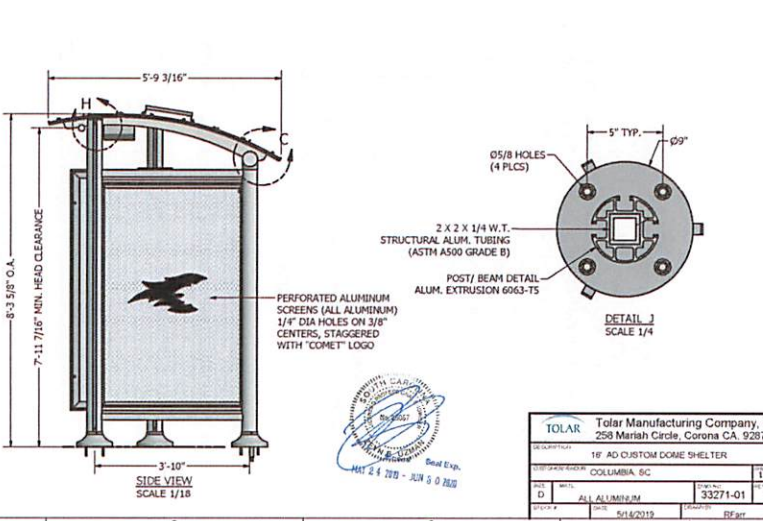
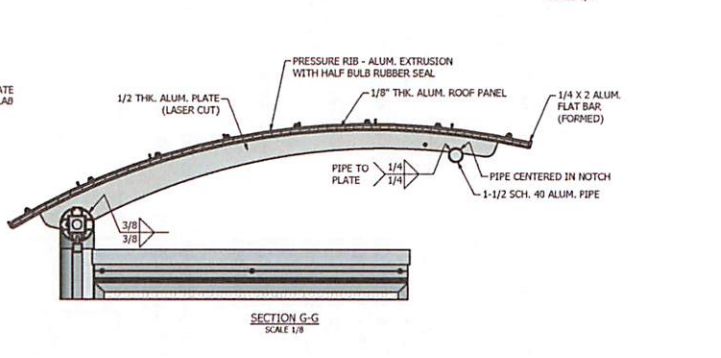
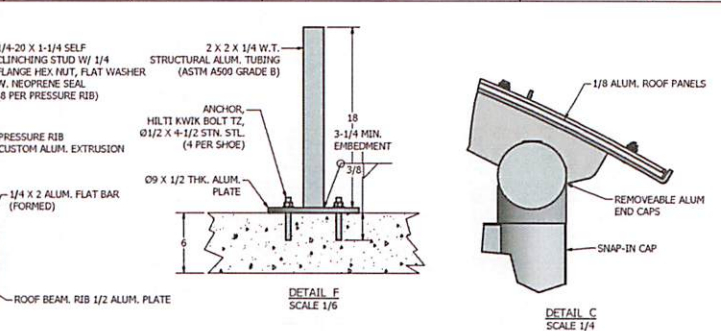
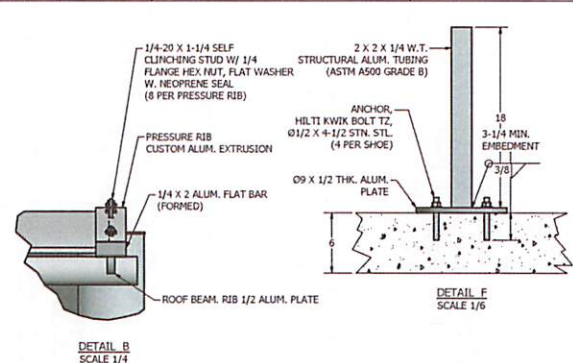
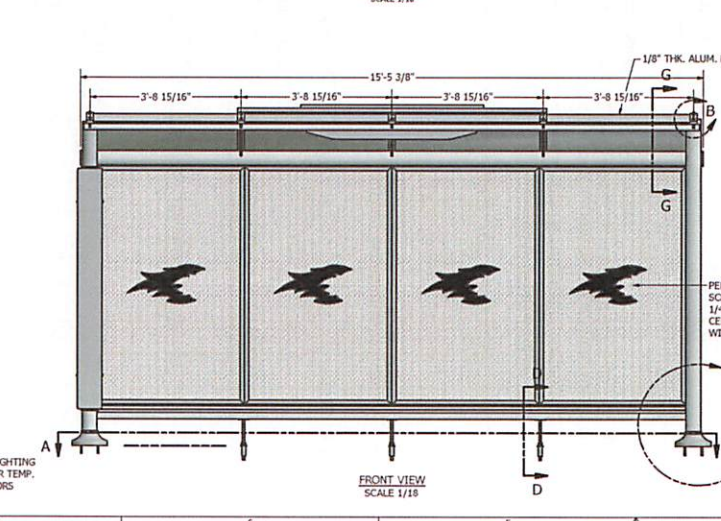
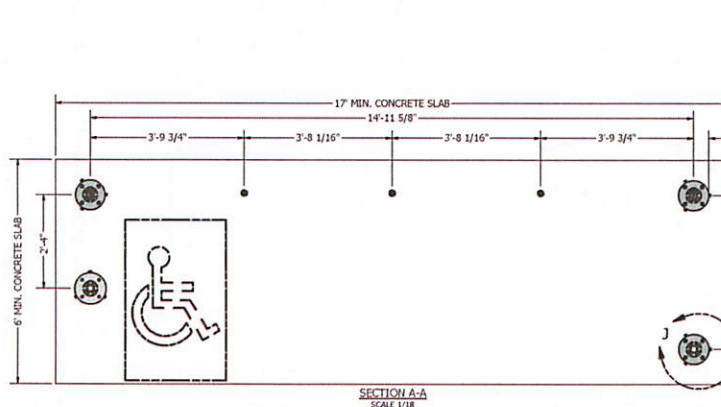
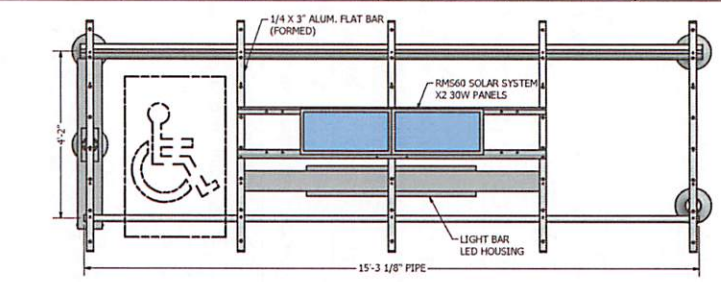
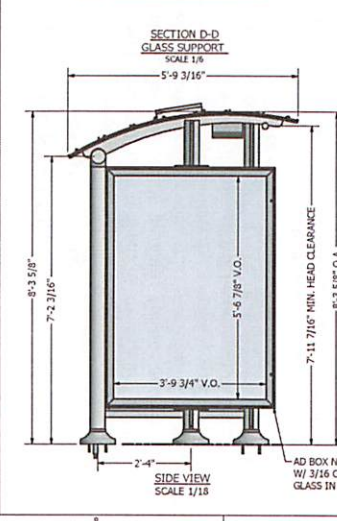
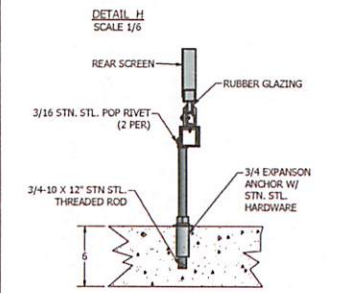
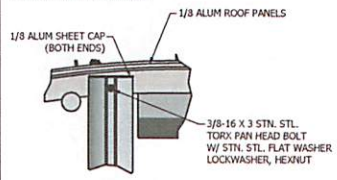
I acknowledge that any changes made to the business, hours, use of the encroachment area, or items allowed within the encroachment area, to include obtaining a license to sell beer, wine and/or liquor will require an amendment to the encroachment ordinance.

Name/Title: _____
 Date: _____

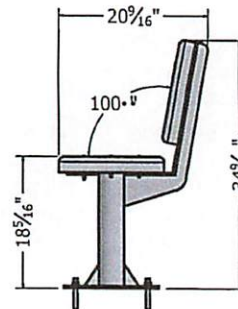
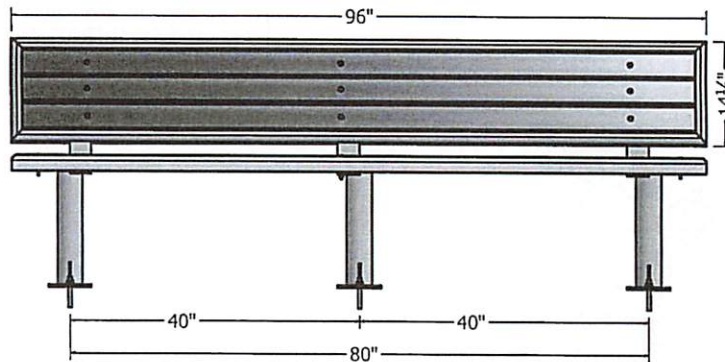
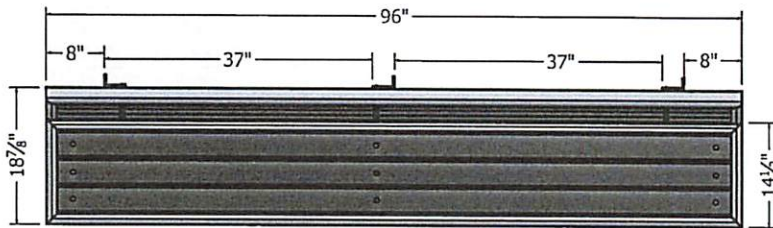
The proposed ordinance will be sent to the requesting party and City offices for review and approval. Johnathan Chambers will compile the recommendations and forward them to the City Clerk for scheduling before City Council. This process may take from 30-90 days.

CONTACT	DEPARTMENT	PHONE	FAX	E-MAIL
Johnathan Chambers	Development Services (Land Development)	803-545-3333	803-343-8779	jechambers@columbiasc.net
John Fellows	Development Services (Planning)	803-545-3222	803-733-8647	jsfellows@columbiasc.net
Brian Cook	Development Services (Zoning)	803-545-3332	803-733-8647	kbcook@columbiasc.net
Jerry Thompson	Development Services (Building Inspections)	803-545-3420	803-733-8699	jthompson@columbiasc.net
Fanessa Pinckney	Development Services (Permits)	803-545-3420	803-733-8699	fcpinckney@columbiasc.net
Amy Moore	Development Services (Historic Preservation)	803-545-3222	803-733-8647	aemoore@columbiasc.net
Robert Harkins	Development Services (Plans Review)	803-545-3420	803-733-8647	rlharkins@columbiasc.net
Denny Daniels	Utilities & Engineering (Construction Management)	803-545-3400	803-988-8199	jddaniels@columbiasc.net
Robert Anderson	Public Works (Administration)	803-545-3780	803-733-8648	raanderson@columbiasc.net
Robert Sweat	Public Works (Street Division)	803-545-3790	803-545-3785	rgsweatt@columbiasc.net
David Brewer	Public Works (Traffic Engineering)	803-545-3850	803-733-8648	ddbrewer@columbiasc.net
Sara Hollar	Public Works (Forestry & Beautification)	803-545-3860	803-733-8648	sehollar@columbiasc.net
John Hooks	Public Works (Solid Waste)	803-545-3800	803-733-8648	jphooks@columbiasc.net
Chip Timmons	Risk Management	803-733-8306	803-733-8245	catimmons@columbiasc.net
David Koon	Fire Department	803-545-3701	803-401-8839	cdkgoon@columbiasc.net
John David Spade	Parking Services	803-545-3070	803-733-8523	spade@columbiasc.net

- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
 3. ALL HOLES TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1, 1-10. ELECTRODES SHALL CONFORM TO AWS 5.1, CLASS E70S-5.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1, 2-08. ELECTRODES SHALL CONFORM TO AWS A5.10 CLASS ER4043.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.
 7. ALL CORPORATE PROCEDURES, INCLUDING FABRICATION, MUST BE IN COMPLIANCE WITH TOLAR MANUFACTURING CO. INC'S QUALITY CONTROL MANUAL.



TOLAR Tolar Manufacturing Company, Inc 258 Marsh Circle, Corona CA, 92879	
PROJECT	11' AD CUSTOM DOME SHELTER
LOCATION	COLUMBIA, SC
DATE	02/14/2019
SCALE	1" = 1'
REV	01
DATE	02/14/2019
BY	RF/mt



CONFIGURATION A	
1	PLANT 1
2	PLANT 2

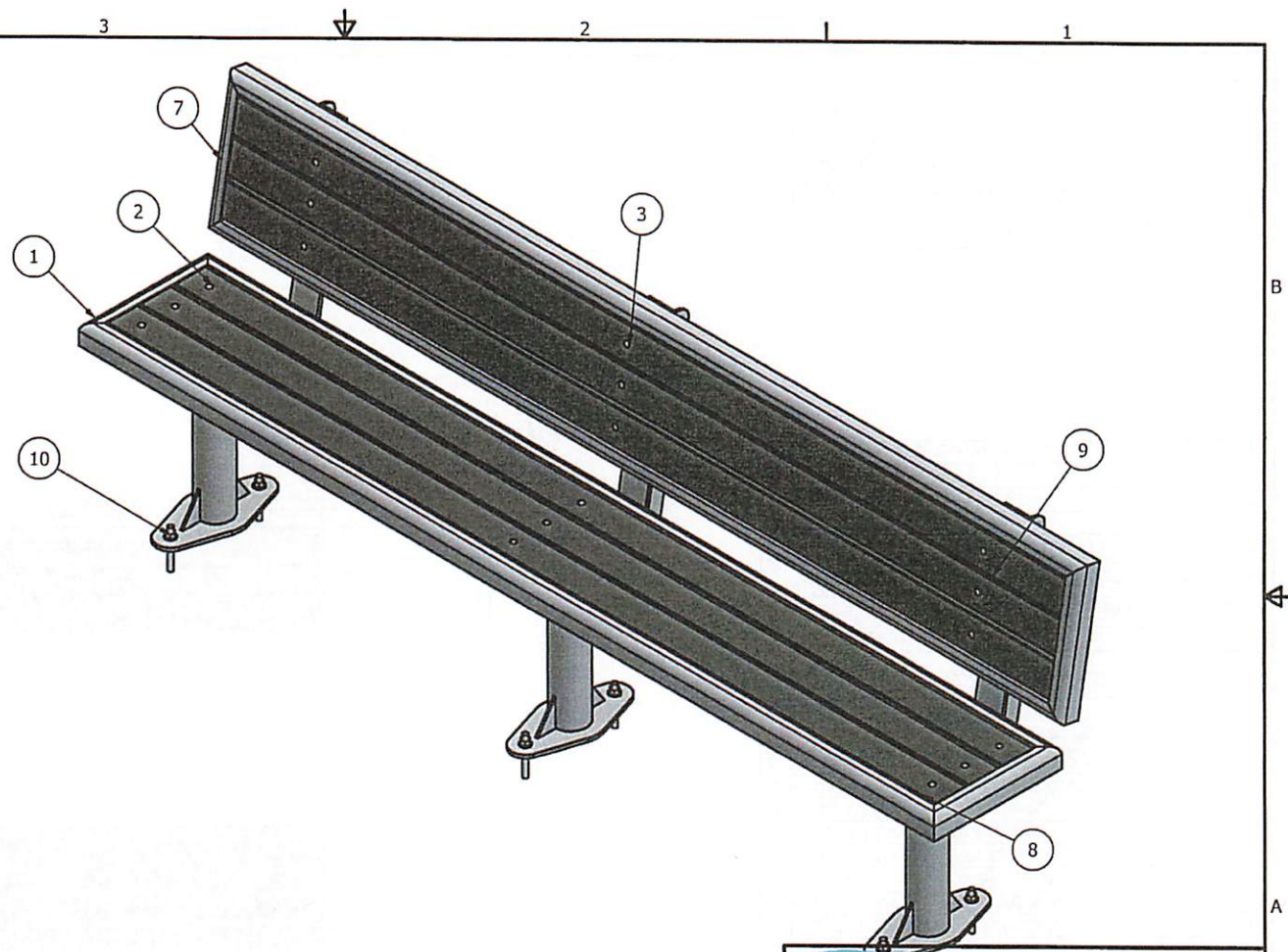
CONFIGURATION B - ANCHORS	
0	NO ANCHORS
1	1/2" X 3 3/4" SUP-R ANCHORS, ZINC
2	1/2" X 3 3/4" SUP-R ANCHORS, STN STL
3	1/2" X 4 1/4" SUP-R ANCHORS, ZINC
4	1/2" X 4 1/4" SUP-R ANCHORS, STN STL
5	1/2" X 3 3/4" HILTI TZ ANCHORS, ZINC
6	1/2" X 3 3/4" HILTI TZ ANCHORS, STN STL
7	1/2" X 4 1/2" HILTI TZ ANCHORS, ZINC
8	1/2" X 4 1/2" HILTI TZ ANCHORS, STN STL
9	SPECIAL - SPECIFIED ON SALES ORDER

CONFIGURATION C - FINISH	
0	NONE
1	STANDARD POWDER COAT
2	STANDARD POWDER COAT WITH CLEAR COAT
3	PREMIUM POWDER COAT
4	PREMIUM POWDER COAT WITH CLEAR COAT
5	TBD
6	TBD
7	TBD
8	TBD
9	SPECIAL - SPECIFIED ON SALES ORDER

EXAMPLE: 30827 - 1 2 1

DRAWING NUMBER CONFIGURATION A CONFIGURATION B CONFIGURATION C

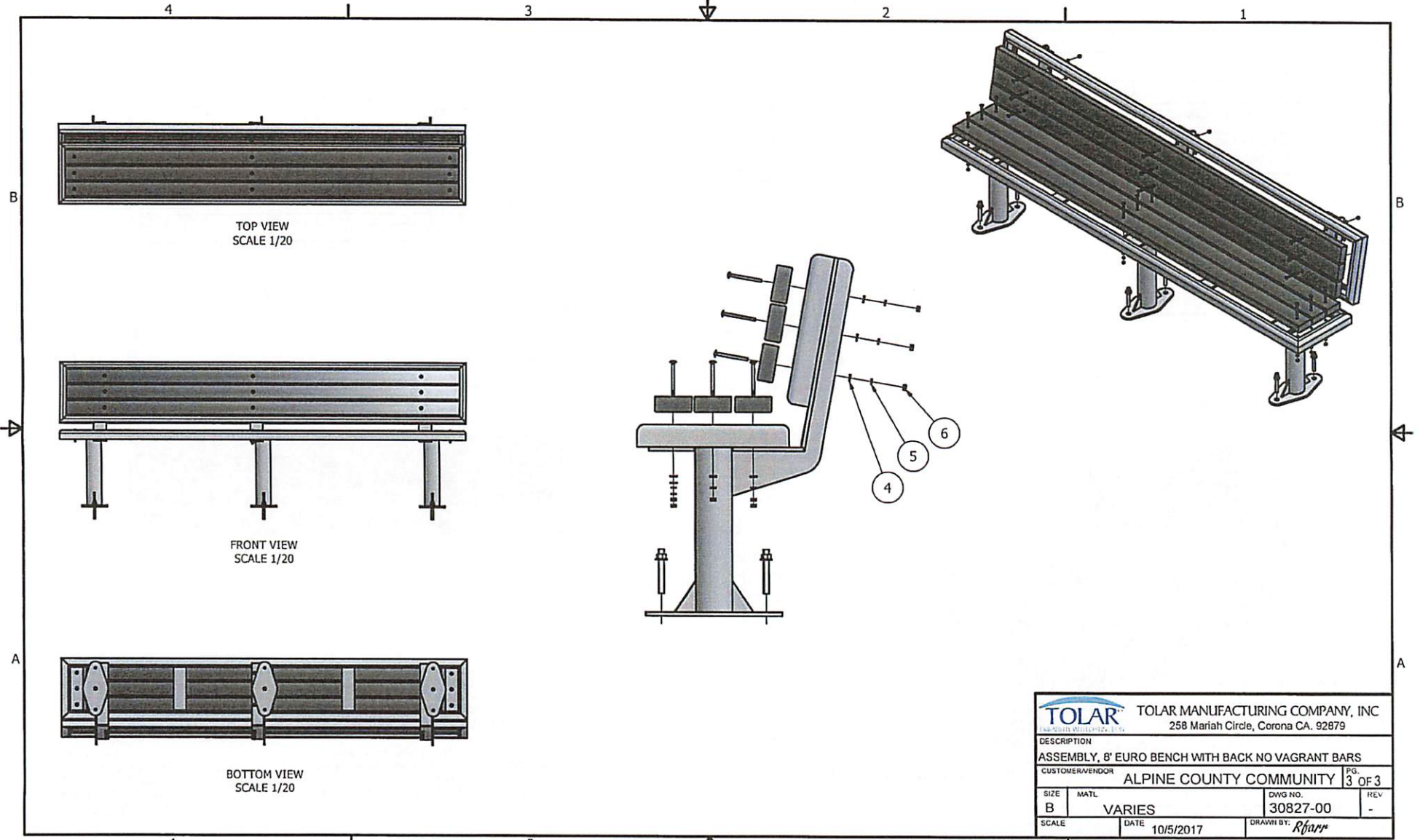
TOLAR TOLAR MANUFACTURING COMPANY, INC 258 Mariah Circle, Corona CA. 92879	
DESCRIPTION ASSEMBLY, 8" EURO BENCH WITH BACK NO VAGRANT BARS	
CUSTOMER/VENDOR TOLAR STD.	PG. 1 OF 3
SIZE B	MATL VARIES
DWG NO. 30827-00	RELV -
SCALE	DATE 10/5/2017
DRAWN BY: <i>Rfarr</i>	



PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	30826-00	WELDMENT, 8' EURO BENCH W/ BACK NO VAGRANT BARS
2	6	8124250	BOLT, CARRIAGE 1/4-20 x 2 1/2" STN STL
3	12	8124300	BOLT, CARRIAGE 1/4-20 x 3" STN STL
4	18	8684053	1/4" FLAT WASHER STN. STL.
5	18	8703049	1/4" LOCK WASHER SS, SPRING LOCK
6	18	8155036	HEX NUT, 1/4-20 STN. STL.
7	1	30828-00	WELDMENT, 8' EURO BENCH BACK BAR
8	3	30829-00	RECYCLED MATERIAL BENCH SLAT SEAT
9	3	30831-00	RECYCLED MATERIAL BENCH SLAT BACK REST
10	6	8037450	ANCHOR KWIK BOLT TZ 1/2 X 4 1/2 STN. STL.

TOLAR		TOLAR MANUFACTURING COMPANY, INC	
258 Mariah Circle, Corona CA. 92879			
DESCRIPTION			
ASSEMBLY, 8' EURO BENCH WITH BACK NO VAGRANT BARS			
CUSTOMER/VENDOR		ALPINE COUNTY COMMUNITY	PG. 2 OF 3
SIZE	MATL.	DWG NO.	REV.
B	VARIES	30827-00	-
SCALE	DATE	DRAWN BY: <i>Rharr</i>	
	10/5/2017		



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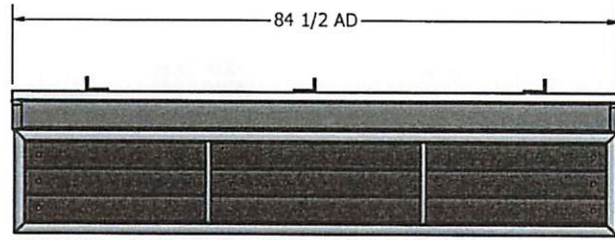
TOLAR <small>EST. 1983 • 9511 WILSON ST. • FT. COCKERILL, CA 92025</small>		TOLAR MANUFACTURING COMPANY, INC 258 Mariah Circle, Corona CA. 92879	
DESCRIPTION			
ASSEMBLY, 8' EURO BENCH WITH BACK NO VAGRANT BARS			
CUSTOMER/VENDOR			PG.
ALPINE COUNTY COMMUNITY			3 OF 3
SIZE	MATL.	DWG NO.	REV.
B	VARIES	30827-00	-
SCALE	DATE	DRAWN BY:	
	10/5/2017	Rfury	

GENERAL NOTES:

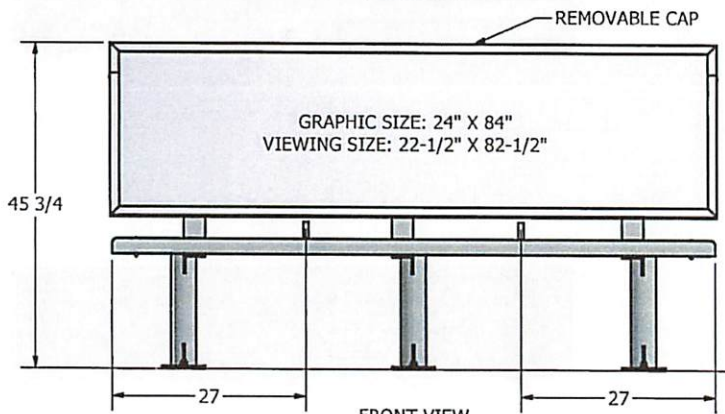
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2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-10. ELECTRODES SHALL CONFORM

- TO AWS 5.1, CLASS E70S-5.5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-08. ELECTRODES SHALL CONFORM TO AWS/SFA 5.10 CLASS ER4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.
7. ALL CORPORATE PROCEDURES, INCLUDING FABRICATION, MUST BE IN COMPLIANCE WITH TOLAR MANUFACTURING CO. INC'S QUALITY CONTROL MANUAL

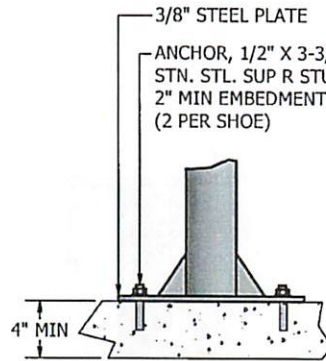
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED



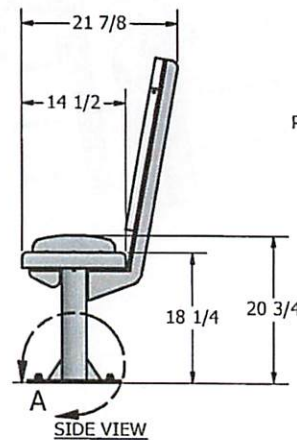
TOP VIEW



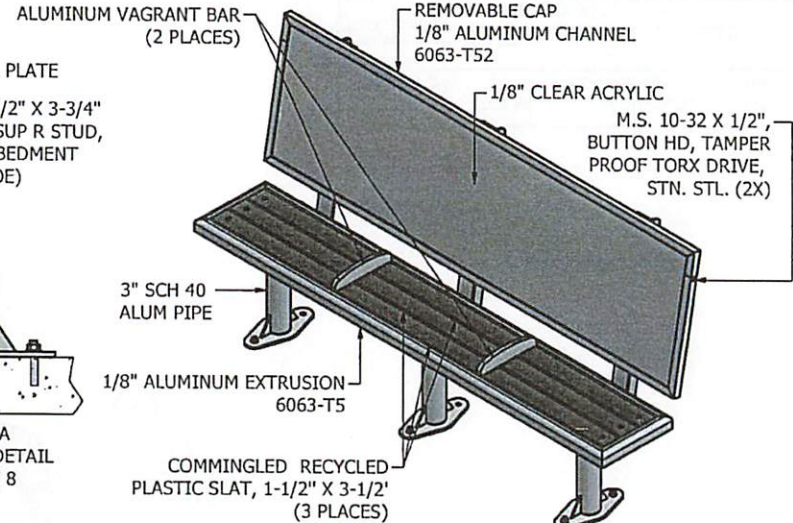
FRONT VIEW



DETAIL A
ANCHORING DETAIL
SCALE 1 / 8



SIDE VIEW



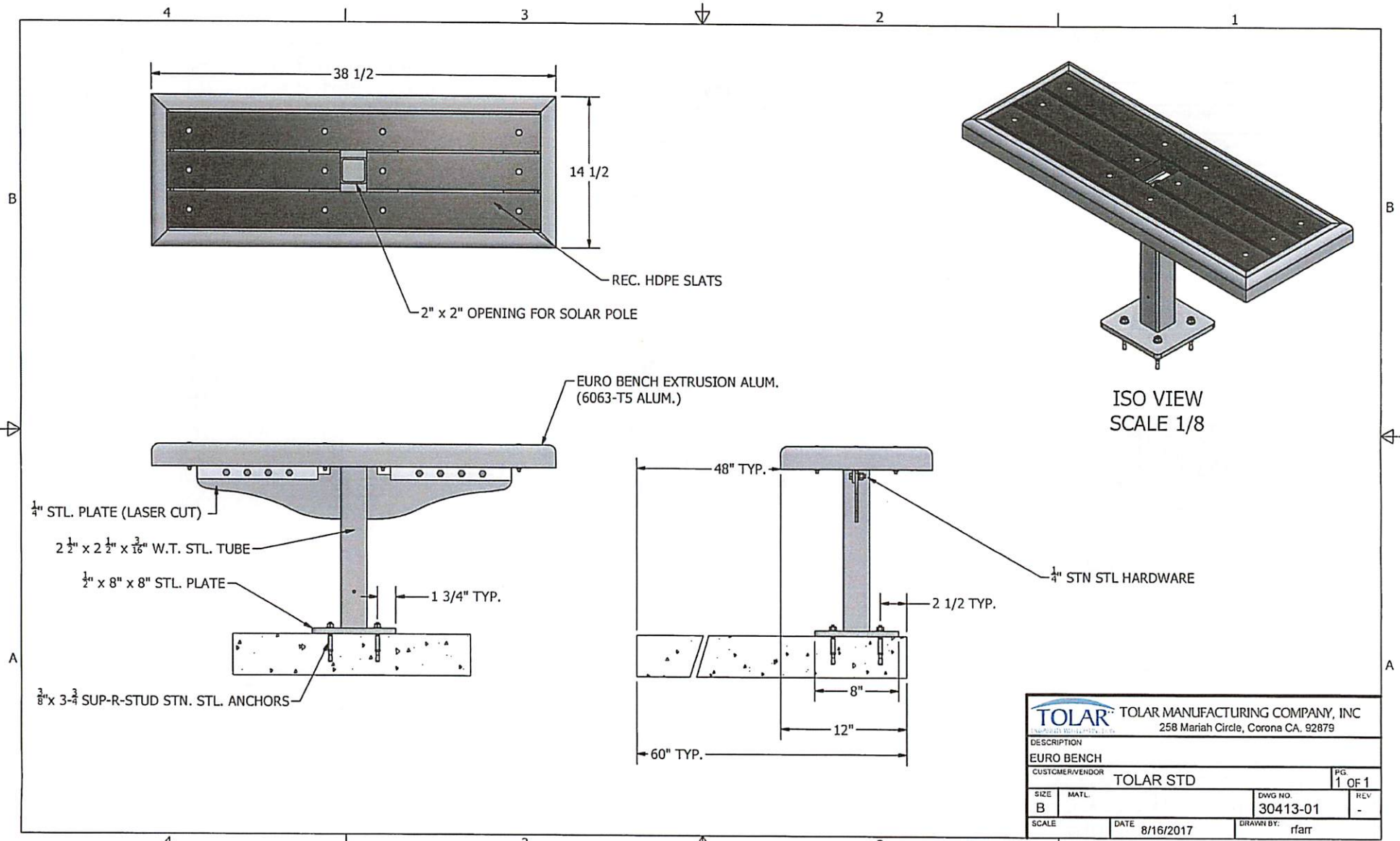
M.S., 1/4"-20 X 1-3/4", FLAT HD, TAMPER PROOF TORX DRIVE STN. STL. (6 PLACES)

PAINTED PLYWOOD, ACX

BACK OF AD SHOWN FOR DETAIL
SCALE 1/8

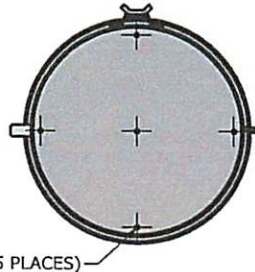
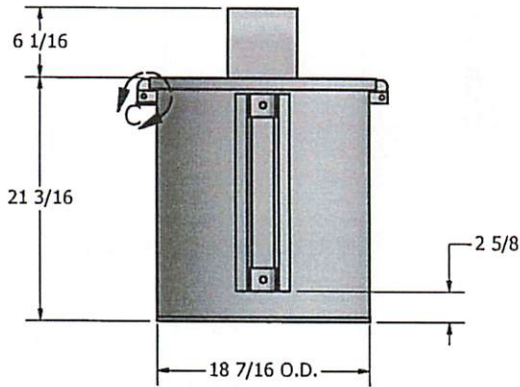
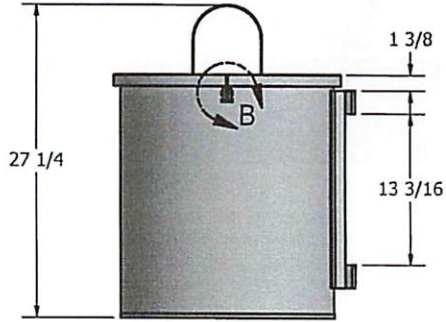
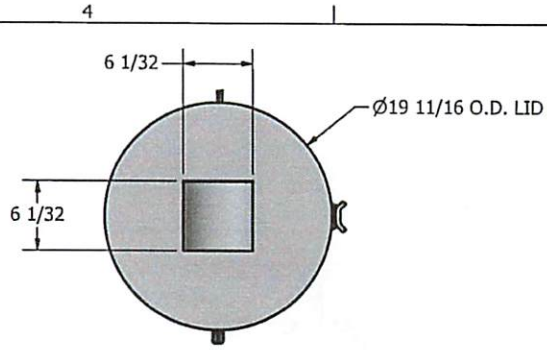
TOLAR		Tolar Manufacturing Company, Inc 258 Mariah Circle, Corona CA. 92879		
DESCRIPTION 7' MESA AD BENCH WITH 2 V-BARS				
CUSTOMER/VENDOR MTS		DHWG NO. 25659-00		SHEET NO. 1 OF 1
SIZE B	MATL.	DATE 7/23/2015	REV. NO.	
SCALE 1/16	DRAWN BY: MFUENTES			

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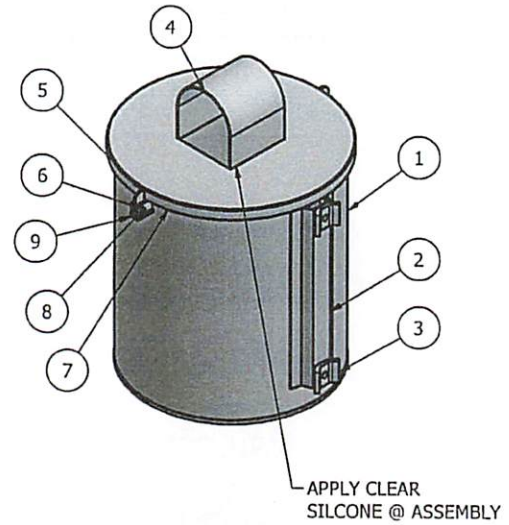


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		TOLAR MANUFACTURING COMPANY, INC 258 Mariah Circle, Corona CA. 92879	
DESCRIPTION			
EURO BENCH			
CUSTOMER/VENDOR			PG.
TOLAR STD			1 OF 1
SIZE	MATL.	DWG NO.	REV
B		30413-01	-
SCALE	DATE	DRAWN BY:	
	8/16/2017	rfarr	



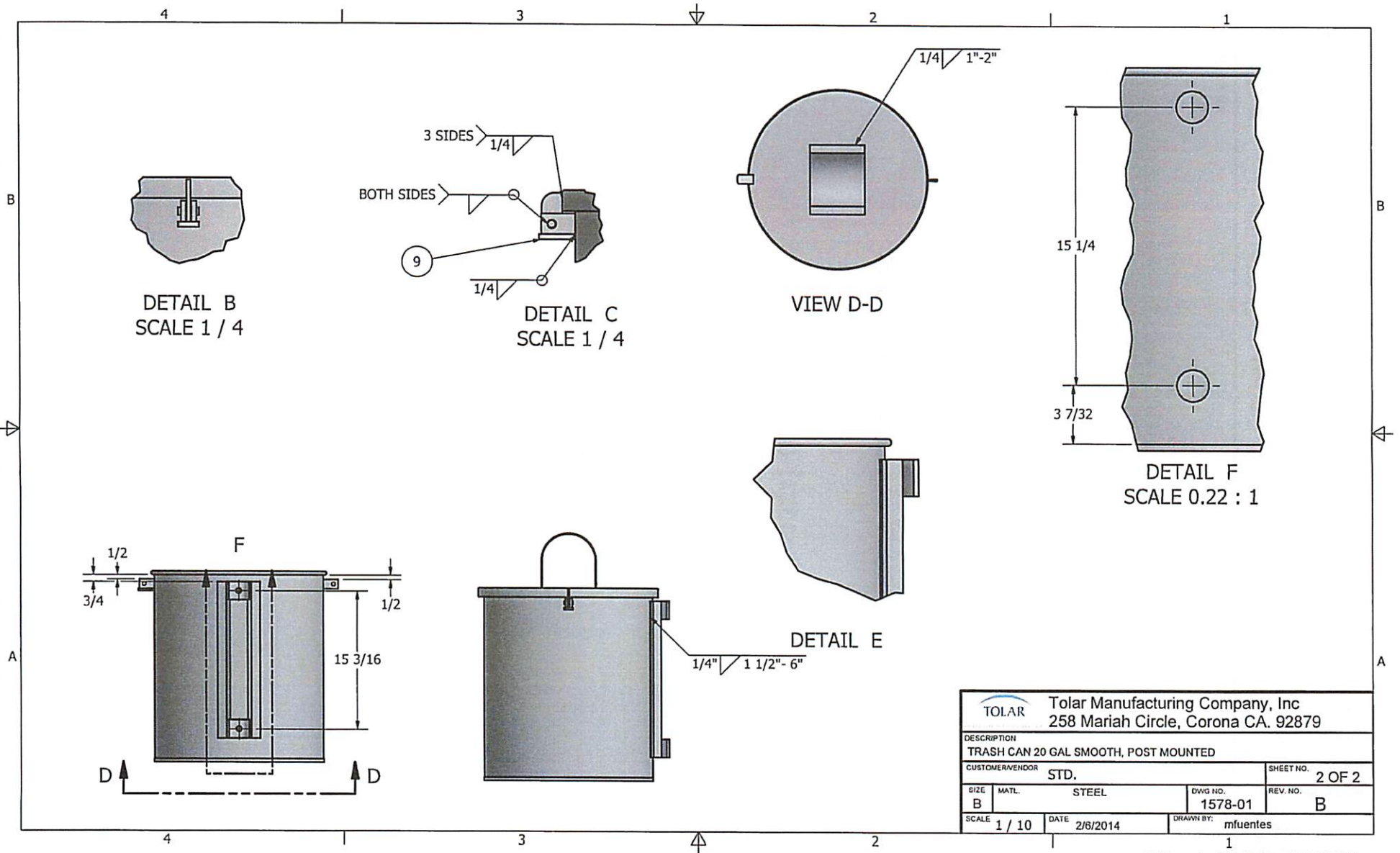
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
		SUPERCEDES DWG #1578 REV. B	6/4/07	
	A	ADDED REF. DWG'S	1/17/08	
	B	SIZE CHANGE (REF. #E0270)	8/18/10	VB



PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1115020	STEEL DRUM, 20 GAL, 21" HIGH
2	1	1823-01	BRACKET, TRASH CAN CHANNEL
3	2	1824-00	BRACKET, TRASH CAN
4	1	7736-00	WATER DEFLECTOR, TRASH
5	2	7345-00	TOP TRASH CAN LOCK PLATE
6	3	7346-00	BOTTOM TRASH CAN LOCK PLATE
7	1	1345-00	TOP, TRASH RECEPT, 20 GAL.
8	1	4030020	ROD, 3/8" O.D., STEEL, 20' LONG HR
9	1	20136-00	TAB, FOR LID SUPPORT

TOLAR		Tolar Manufacturing Company, Inc 258 Mariah Circle, Corona CA. 92879		
DESCRIPTION TRASH CAN 20 GAL SMOOTH, POST MOUNTED				
CUSTOMER/VENDOR STD.			SHEET NO. 1 OF 2	
SIZE B	MATL. STEEL	DWG NO. 1578-01	REV. NO. B	
SCALE 1 / 10	DATE 2/6/2014	DRAWN BY: mfuentes		

T:\Inventor\Trash Cans\1578-01.idw



Tolar Manufacturing Company, Inc 258 Mariah Circle, Corona CA. 92879			
DESCRIPTION TRASH CAN 20 GAL SMOOTH, POST MOUNTED			
CUSTOMER/VENDOR STD.		SHEET NO. 2 OF 2	
SIZE B	MATL. STEEL	DWG NO. 1578-01	REV. NO. B
SCALE 1 / 10	DATE 2/8/2014	DRAWN BY: mfuentes	

STRUCTURAL CALCULATIONS

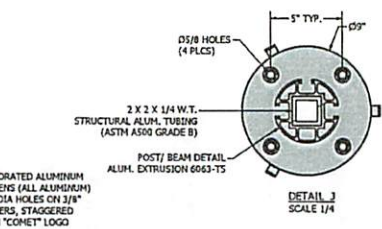
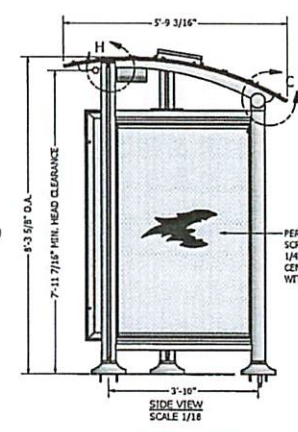
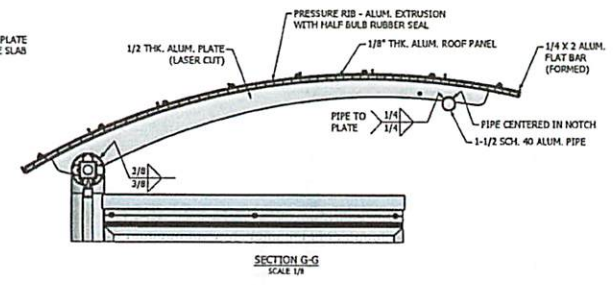
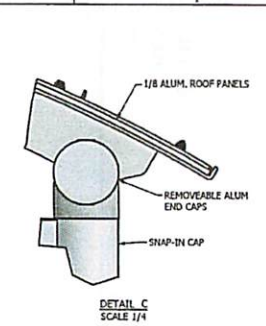
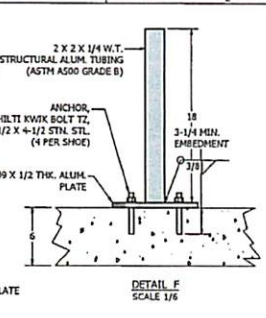
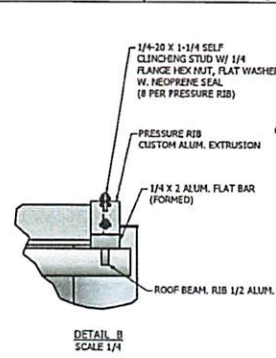
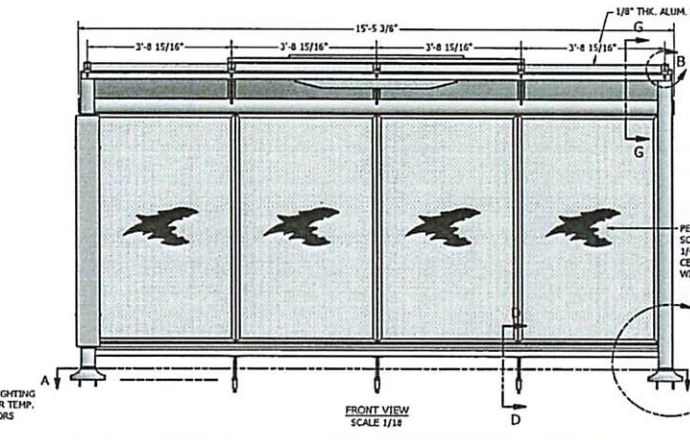
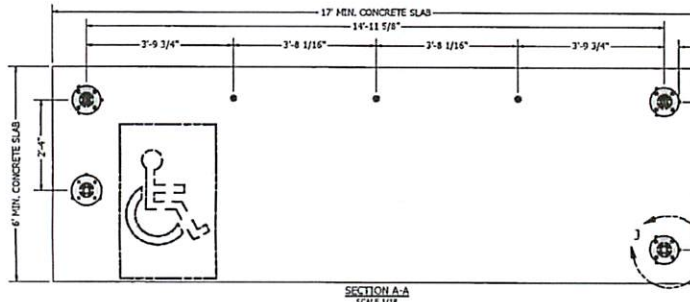
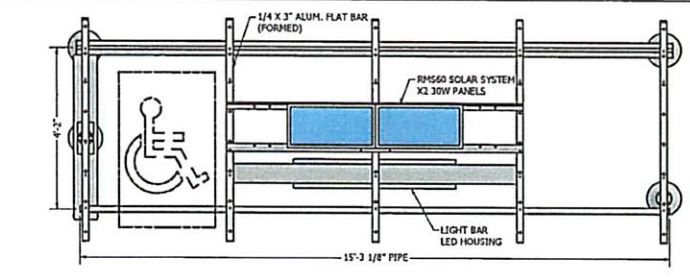
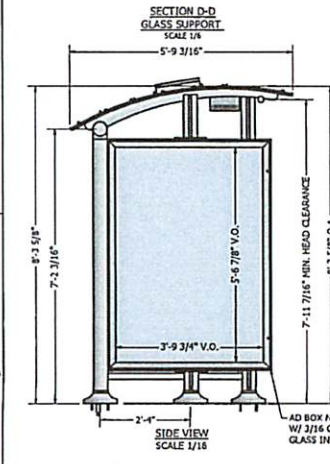
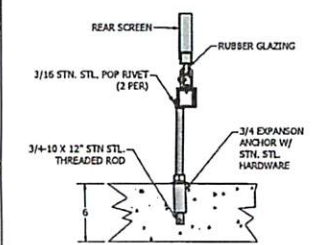
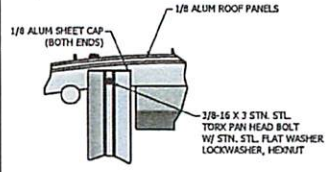
FOR

33271-00 Shelter

Columbia, South Carolina



- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
 3. ALL HOLES TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-1/8". ELECTRODES SHALL CONFORM TO AWS 5.1, CLASS E70S-5.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-08". ELECTRODES SHALL CONFORM TO AWS/SAF 5.10 CLASS ER 4043.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.
 7. ALL CORPORATE PROCEDURES, INCLUDING FABRICATION, MUST BE IN COMPLIANCE WITH TOLAR MANUFACTURING CO. INCS QUALITY CONTROL MANUAL.



TOLAR		Tolar Manufacturing Company, Inc	
258 Marsh Circle, Corona, CA, 92879			
PROJECT	18' AD CUSTOM DOME SHELTER	DATE	11/17
LOCATION	COLUMBIA, SC	REV	-
DRAWN BY	ALL ALUMINUM	PROJECT NO.	33271-01
CHECKED BY	5/16/2019	DATE	
SCALE		BY	DF

Code Search

Code: International Building Code 2015

Occupancy:

Occupancy Group = U Utility & Miscellaneous

Risk Category & Importance Factors:

Risk Category = II
Wind factor = 1.00
Snow factor = 1.00
Seismic factor = 1.00

Type of Construction:

Fire Rating:
Roof = 0.0 hr
Floor = 0.0 hr

Building Geometry:

Roof angle (θ) 0.00 / 12 0.0 deg
Building length (L) 15.0 ft
Least width (B) 5.0 ft
Mean Roof Ht (h) 7.0 ft
Parapet ht above grd 0.0 ft
Minimum parapet ht 0.0 ft

Live Loads:

Roof 0 to 200 sf: 20 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12 psf

Floor:

Typical Floor
Partitions N/A

Wind Loads : ASCE 7- 10

Ultimate Wind Speed	116 mph
Nominal Wind Speed	89.9 mph
Risk Category	II
Exposure Category	C
Enclosure Classif.	Partially Enclosed
Internal pressure	+/-0.55
Directionality (Kd)	0.85
Kh case 1	0.849
Kh case 2	0.849
Type of roof	Monoslope

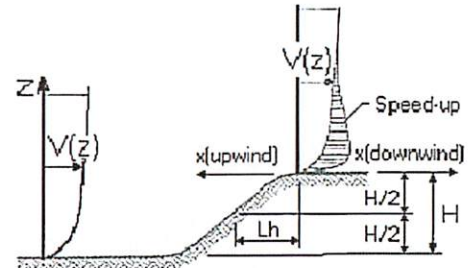
Topographic Factor (Kzt)

Topography	Flat
Hill Height (H)	80.0 ft
Half Hill Length (Lh)	100.0 ft
Actual H/Lh =	0.80
Use H/Lh =	0.50
Modified Lh =	160.0 ft
From top of crest: x =	50.0 ft
Bldg up/down wind?	downwind

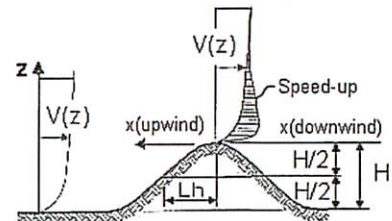
H/Lh = 0.50	K ₁ = 0.000
x/Lh = 0.31	K ₂ = 0.792
z/Lh = 0.09	K ₃ = 1.000

At Mean Roof Ht:

$$K_{zt} = (1 + K_1 K_2 K_3)^2 = 1.00$$



ESCARPMENT



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	7.0 ft
B =	5.0 ft
/z (0.6h) =	15.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
If building h/B > 4 then may be flexible and should be investigated.
h/B = 1.40

G = 0.85 Using rigid structure default

Rigid Structure

\bar{e} =	0.20
ℓ =	500 ft
Z _{min} =	15 ft
c =	0.20
g _Q , g _v =	3.4
L _z =	427.1 ft
Q =	0.97
I _z =	0.23
G =	0.91 use G = 0.85

Flexible or Dynamically Sensitive Structure

34 rcy (η ₁) =	0.0 Hz
Damping ratio (β) =	0
/b =	0.65
/α =	0.15
V _z =	98.0
N ₁ =	0.00
R _n =	0.000
R _h =	28.282
R _B =	28.282
R _L =	28.282
g _R =	0.000
R =	0.000
G _f =	0.000
η =	0.000
η =	0.000
η =	0.000
h =	7.0 ft

Enclosure Classification

Test for Enclosed Building: A building that does not qualify as open or partially enclosed.

Test for Open Building: All walls are at least 80% open.
 $A_o \geq 0.8A_g$

Test for Partially Enclosed Building: Predominately open on one side only

Input		Test		
Ao	500.0 sf	$A_o \geq 1.1A_{oi}$	NO	Building is NOT Partially Enclosed
Ag	600.0 sf	$A_o > 4'$ or $0.01A_g$	YES	
Aoi	1000.0 sf	$A_{oi} / A_{gi} \leq 0.20$	YES	
Agi	10000.0 sf			

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:

- $A_o \geq 1.1A_{oi}$
- $A_o >$ smaller of 4' or $0.01 A_g$
- $A_{oi} / A_{gi} \leq 0.20$

Where:

- A_o = the total area of openings in a wall that receives positive external pressure.
- A_g = the gross area of that wall in which A_o is identified.
- A_{oi} = the sum of the areas of openings in the building envelope (walls and roof) not including A_o .
- A_{gi} = the sum of the gross surface areas of the building envelope (walls and roof) not including A_g .

Reduction Factor for large volume partially enclosed buildings (Ri) :

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog): 0 sf
 Unpartitioned internal volume (Vi) : 0 cf
 Ri = 1.00

Altitude adjustment to constant 0.00256 (caution - see code) :

Grd level above sea level = 0.0 ft Average Air Density = 0.0765 lbm/ft3
 Constant = 0.00256 Adj Constant = 0.00256

Wind Loads - MWFRS all h (Except for Open Buildings)

Kh (case 2) = 0.85 h = 7.0 ft GCpi = +/-0.55
 Base pressure (qh) = 24.9 psf ridge ht = 7.0 ft G = 0.85
 Roof Angle (θ) = 0.0 deg L = 15.0 ft z for qi : 7.0 ft
 Roof tributary area - (h/2)*L: 53 sf B = 5.0 ft qi = 24.9 psf for positive internal pressures
 (h/2)*B: 18 sf

Ultimate Wind Surface Pressures (psf)

Surface	Wind Normal to Ridge				Wind Parallel to Ridge				
	B/L = 0.33		h/L = 1.40		L/B = 3.00		h/L = 0.47		
	Cp	qhGCp	w/+qiGCpi	w/-qhGCpi	Dist.*	Cp	qhGCp	w/+qiGCpi	w/-qhGCpi
Windward Wall (WW)	0.80	16.9	see table below			0.80	16.9	see table below	
Leeward Wall (LW)	-0.50	-10.6	-24.2	3.1		-0.25	-5.3	-19.0	8.4
Side Wall (SW)	-0.70	-14.8	-28.5	-1.1		-0.70	-14.8	-28.5	-1.1
Leeward Roof (LR)	**				Included in windward roof				
Neg Windward Roof: 0 to h/2*	-1.30	-27.5	-41.1	-13.8	0 to h/2*	-0.90	-19.0	-32.7	-5.3
> h/2*	-0.70	-14.8	-28.5	-1.1	h/2 to h*	-0.90	-19.0	-32.7	-5.3
					h to 2h*	-0.50	-10.6	-24.2	3.1
					> 2h*	-0.30	-6.3	-20.0	7.3
Pos/min windward roof press.	-0.18	-3.8	-17.5	9.9	Min press.	-0.18	-3.8	-17.5	9.9

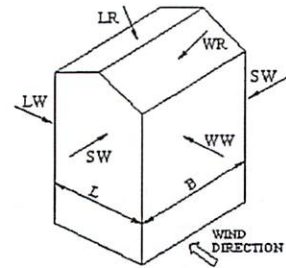
**Roof angle < 10 degrees. Therefore, leeward roof is included in windward roof pressure zones.

*Horizontal distance from windward edge

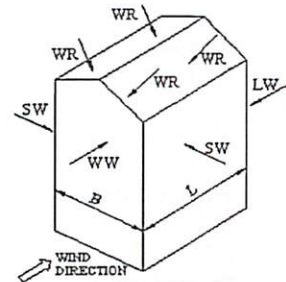
For monoslope roofs, entire roof surface is either windward or leeward surface.

Windward Wall Pressures at "z" (psf)

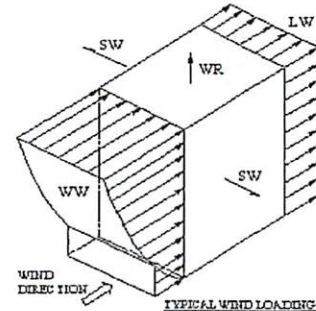
z	Kz	Kzt	Windward Wall			Combined WW + LW	
			qzGCp	w/+qiGCpi	w/-qhGCpi	Normal to Ridge	Parallel to Ridge
h= 0 to 15'	0.85	1.00	16.9	3.2	30.6	27.5	22.2



WIND NORMAL TO RIDGE



WIND PARALLEL TO RIDGE



TYPICAL WIND LOADING

NOTE:
See figure in ASCE7 for the application of full and partial loading of the above wind pressures. There are 4 different loading cases.

Parapet

z	Kz	Kzt	qp (psf)
0.0 ft	0.85	1.00	0.0

Windward parapet: 0.0 psf (GCpn = +1.5)
 Leeward parapet: 0.0 psf (GCpn = -1.0)

Windward roof overhangs (add to windward roof pressure) : 16.9 psf (upward)

Snow Loads : ASCE 7-10

Nominal Snow Forces

Roof slope	=	0.0 deg
Horiz. eave to ridge dist (W)	=	5.0 ft
Roof length parallel to ridge (L)	=	15.0 ft
Type of Roof		Monoslope
Ground Snow Load	Pg =	10.0 psf
Risk Category		II
Importance Factor	I =	1.0
Thermal Factor	Ct =	1.20
Exposure Factor	Ce =	1.2
Pf = 0.7*Ce*Ct*I*Pg	=	10.1 psf
Unobstructed Slippery Surface		no
Sloped-roof Factor	Cs =	1.00
Balanced Snow Load	=	10.1 psf
Rain on Snow Surcharge Angle		0.10 deg
Code Maximum Rain Surcharge		5.0 psf
Rain on Snow Surcharge	=	5.0 psf
Ps plus rain surcharge	=	15.1 psf
Minimum Snow Load	Pm =	10.0 psf
Uniform Roof Design Snow Load	=	15.1 psf

Near ground level surface balanced snow load = 10.0 psf

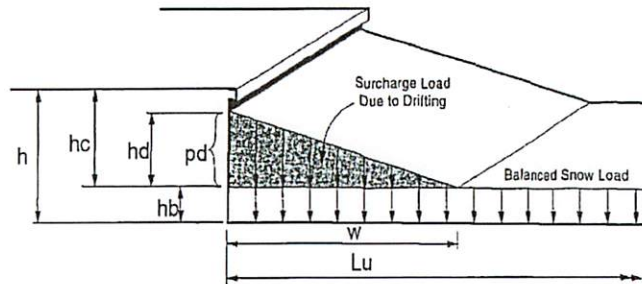
NOTE: Alternate spans of continuous beams shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code for loading diagrams and exceptions for gable roofs..

Windward Snow Drifts 1 - Against walls, parapets, etc

Upwind fetch	lu =	0.0 ft
Projection height	h =	0.0 ft
Snow density	g =	15.3 pcf
Balanced snow height	hb =	0.66 ft
	hd =	0.73 ft
	hc =	-0.66 ft
hc/hb < 0.2 = -1.0	lu < 15', drift not req'd	
Drift height (hc)	=	0.00 ft
Drift width	w =	-5.27 ft
Surcharge load:	pd = $\gamma \cdot hd$ =	0.0 psf
Balanced Snow load:	=	10.1 psf

Windward Snow Drifts 2 - Against walls, parapets, etc

Upwind fetch	lu =	0.0 ft
Projection height	h =	0.0 ft
Snow density	g =	15.3 pcf
Balanced snow height	hb =	0.66 ft
	hd =	0.73 ft
	hc =	-0.66 ft
hc/hb < 0.2 = -1.0	lu < 15', drift not req'd	
Drift height (hc)	=	0.00 ft
Drift width	w =	-5.27 ft
Surcharge load:	pd = $\gamma \cdot hd$ =	0.0 psf
Balanced Snow load:	=	10.1 psf



Design Loads:

D = 10 psf
 Lr = 20 psf
 S = 15 psf
 W = -32.7 psf

Aluminium Type:

6061-T6
 $F_y = 35,000$ psi
 $E = \text{#####}$ psi

Load Combinations:

D+Lr = 30.0 psf
 D+S = 25.1 psf
 D+0.6W = -9.6 psf
 D+0.75Lr+0.45W = 10.3 psf
 D+0.75S+0.45W = 6.6 psf
 0.6D+0.6W = -13.6 psf

Decking

L = 4.00 ft
 Trib Width = 1.00 ft
 Mmax = 60.00 ft-lb
 Vmax = 60.00 lb
 $I = 0.0492$ in⁴
 $y = 0.125$ in
 $S = 0.39323$ in³

$F_y = 3021.1$ psi OK

Limit = 0.274 in L/175
 D = 0.145 in OK

Section = 1/8" Aluminium panel System

Rear Header:

L = 15 ft
 Trib Width = 2.50 ft
 Mmax = 2109.38 ft-lb
 Vmax = 562.50 lb
 $I = 28.1$ in⁴
 $y = 3$ in
 $S = 9.36667$ in³

$F_y = 4459.0$ psi OK

Limit = 1.029 in L/175
 D = 0.301 in OK

Section = 6" Tube

Front Header:

L = 15 ft
Trib Width = 2.50 ft

Mmax = 2109.38 ft-lb
Vmax = 562.50 lb
I = 7.23 in⁴
y = 2 in
S = 3.615 in³

Fy = 11553.4 psi OK

Limit = 1.500 in L/120

D = 1.170 in OK

Section = 4" Tube



A: 116 E King Street, Malvern, PA 19355
 O: 610.320.2100

4" Tube

Height = 7.1 ft
 Trib Width = 7.5 ft
 Trib Depth = 2.500 ft
 Defl Limit = $L/120 = 0.71$ in
 DL = 0 psf
 WL = 18 psf
 W_{total} = 138 psf
 End Rxn's = 487 lbs
 Moment = 863 ft-lb = 10354 in-lb
 Provided OK?
 S_x >= 0.2 in³ 3.21 in³ OK
 I_x >= 0.7 in⁴ 7.23 in⁴ OK
 Axial Force = 563 lb
 Moment M_x = 863 lb-ft
 Moment M_y = 288 lb-ft

k = 1 F_{ex} = 31458 psi
 L_x = 7.083 ft λ = 56
 L_y = 7.083 ft F_{cy} = 35000 psi
 r_x = 1.51 in B_c = 307222
 r_y = 1.51 in D_c = 5358
 kL/r_x = 56 C_c = 24
 kL/r_y = 56 λ₁ = 51
 λ₂ = 24

Limit State = YIELDING
 F_c = 35000 psi
 A_g = 3.2 in²
 P_{nc} = 67242.4 lb
 F_b = 21212 psi
 S_{xc} = 3.21 in³
 M_{nx} = 5674 lb-ft
 S_{yc} = 3.21 in³
 M_{ny} = 5674 lb-ft

Interaction 0.21 <= 1 OK

Base Plate Design:

P = 563 lb Area = 18.75 ft²
 Bearing Area = 64.0 in² Uplift = -255.2 lb
 f_{brg} = 9 psi OK t = 0.06 in
 F_{brg} = 1,000 psi Actual t = 0.5 in OK

www.hilti.us

 Company:
 Specifier:
 Address:
 Phone | Fax: |
 E-Mail:

 Page: 1
 Project:
 Sub-Project | Pos. No.:
 Date: 5/24/2019

Specifier's comments:

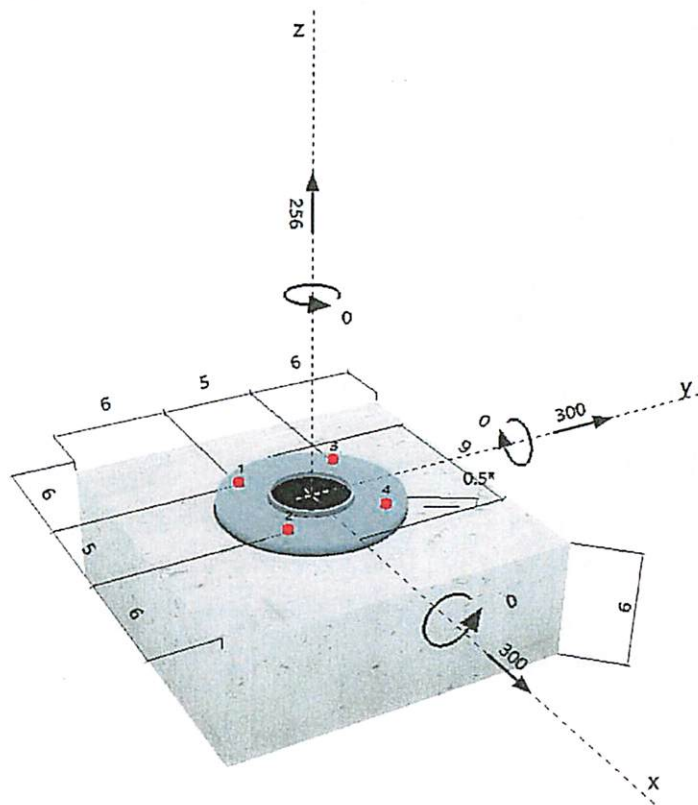
1 Input data

Anchor type and diameter:	Kwik Bolt TZ - SS 304 1/2 (2)
Effective embedment depth:	$h_{ef} = 2.000$ in., $h_{nom} = 2.375$ in.
Material:	AISI 304
Evaluation Service Report:	ESR-1917
Issued Valid:	4/1/2018 5/1/2019
Proof:	Design method ACI 318 / AC193
Stand-off installation:	$e_b = 0.000$ in. (no stand-off); $t = 0.500$ in.
Anchor plate:	$l_x \times l_y \times t = 9.000$ in. \times 9.000 in. \times 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	Round HSS, Steel pipe (AISC); (L x W x T) = 4.000 in. \times 4.000 in. \times 0.125 in.
Base material:	cracked concrete, 2500 , $f_c' = 2,500$ psi; $h = 6.000$ in.
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or $<$ No. 4 bar
Seismic loads (cat. C, D, E, or F)	no



^R - The anchor calculation is based on a rigid baseplate assumption.

Geometry [in.] & Loading [lb, in.lb]





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Specifier:
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E-Mail:

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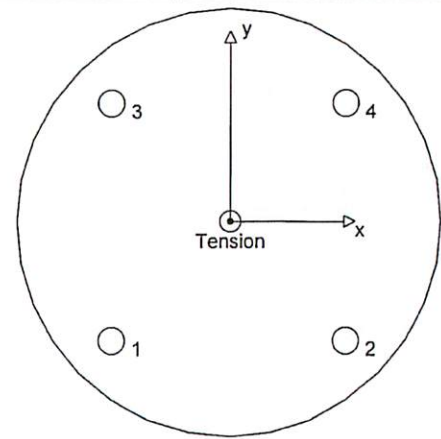
2 Load case/Resulting anchor forces

Load case: Design loads

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	64	106	75	75
2	64	106	75	75
3	64	106	75	75
4	64	106	75	75



max. concrete compressive strain: - [%]
 max. concrete compressive stress: - [psi]
 resulting tension force in (x/y)=(0.000/0.000): 256 [lb]
 resulting compression force in (x/y)=(0.000/0.000): 0 [lb]

Anchor forces are calculated based on the assumption of a rigid baseplate.

3 Tension load

	Load N_{ua} [lb]	Capacity ϕN_n [lb]	Utilization $\beta_n = N_{ua}/\phi N_n$	Status
Steel Strength*	64	8,665	1	OK
Pullout Strength*	64	1,749	4	OK
Concrete Breakout Strength**	256	6,274	5	OK

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

N_{sa} = ESR value refer to ICC-ES ESR-1917
 $\phi N_{sa} \geq N_{ua}$ ACI 318-08 Eq. (D-1)

Variables

$A_{se,N}$ [in. ²]	f_{ua} [psi]
0.10	115,000

Calculations

N_{sa} [lb]
11,554

Results

N_{sa} [lb]	ϕ_{steel}	ϕN_{sa} [lb]	N_{ua} [lb]
11,554	0.750	8,665	64

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3.2 Pullout Strength

$$N_{pn,f_c} = N_{p,2500} \sqrt{\frac{f_c}{2500}} \quad \text{refer to ICC-ES ESR-1917}$$

$$\phi N_{pn,f_c} \geq N_{ua} \quad \text{ACI 318-08 Eq. (D-1)}$$

Variables

f_c [psi]	$N_{p,2500}$ [lb]
2,500	3,180

Calculations

$$\frac{\sqrt{\frac{f_c}{2500}}}{1.000}$$

Results

N_{pn,f_c} [lb]	ϕ concrete	$\phi N_{pn,f_c}$ [lb]	N_{ua} [lb]
3,180	0.550	1,749	64

3.3 Concrete Breakout Strength

$$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \quad \text{ACI 318-08 Eq. (D-5)}$$

$$\phi N_{cbg} \geq N_{ua} \quad \text{ACI 318-08 Eq. (D-1)}$$

$$A_{Nc} \text{ see ACI 318-08, Part D.5.2.1, Fig. RD.5.2.1(b)}$$

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-08 Eq. (D-6)}$$

$$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-9)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-11)}$$

$$\psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-13)}$$

$$N_b = k_c \lambda \sqrt{f_c} h_{ef}^{1.5} \quad \text{ACI 318-08 Eq. (D-7)}$$

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
2.000	0.000	0.000	6.000	1.000

c_{ac} [in.]	k_c	λ	f_c [psi]
4.500	24	1	2,500

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
121.00	36.00	1.000	1.000	1.000	1.000	3,394

Results

N_{cbg} [lb]	ϕ concrete	ϕN_{cbg} [lb]	N_{ua} [lb]
11,408	0.550	6,274	256

4 Shear load

	Load V_{ua} [lb]	Capacity ϕV_n [lb]	Utilization $\beta_v = V_{ua}/\phi V_n$	Status
Steel Strength*	106	4,472	3	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	424	7,986	6	OK
Concrete edge failure in direction x+**	424	2,591	17	OK

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength

V_{sa} = ESR value refer to ICC-ES ESR-1917
 $\phi V_{steel} \geq V_{ua}$ ACI 318-08 Eq. (D-2)

Variables

$A_{se,V}$ [in. ²]	f_{uta} [psi]
0.10	115,000

Calculations

V_{sa} [lb]
6,880

Results

V_{sa} [lb]	ϕ_{steel}	ϕV_{sa} [lb]	V_{ua} [lb]
6,880	0.650	4,472	106

4.2 Pryout Strength

$$V_{cp,g} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right] \quad \text{ACI 318-08 Eq. (D-31)}$$

$$\phi V_{cp,g} \geq V_{ua} \quad \text{ACI 318-08 Eq. (D-2)}$$

$$A_{Nc} \text{ see ACI 318-08, Part D.5.2.1, Fig. RD.5.2.1(b)}$$

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-08 Eq. (D-6)}$$

$$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-9)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{C_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-11)}$$

$$\psi_{cp,N} = \text{MAX} \left(\frac{C_{a,min}}{C_{ac}}, \frac{1.5 h_{ef}}{C_{ac}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-13)}$$

$$N_b = k_c \lambda \sqrt{f_c} h_{ef}^{1.5} \quad \text{ACI 318-08 Eq. (D-7)}$$

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$C_{a,min}$ [in.]
1	2.000	0.000	0.000	6.000

$\psi_{c,N}$	C_{ac} [in.]	k_c	λ	f_c [psi]
1.000	4.500	24	1	2,500

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
121.00	36.00	1.000	1.000	1.000	1.000	3,394

Results

$V_{cp,g}$ [lb]	$\phi_{concrete}$	$\phi V_{cp,g}$ [lb]	V_{ua} [lb]
11,408	0.700	7,986	424

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4.3 Concrete edge failure in direction x+

$$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}} \right) \psi_{ec,V} \psi_{ed,V} \psi_{c,v} \psi_{h,v} \psi_{parallel,V} V_b \quad \text{ACI 318-08 Eq. (D-22)}$$

$$\phi V_{cbg} \geq V_{ua} \quad \text{ACI 318-08 Eq. (D-2)}$$

$$A_{Vc} \text{ see ACI 318-08, Part D.6.2.1, Fig. RD.6.2.1(b)}$$

$$A_{Vc0} = 4.5 c_{a1}^2 \quad \text{ACI 318-08 Eq. (D-23)}$$

$$\psi_{ec,v} = \left(\frac{1}{1 + \frac{2e_v}{3c_{a1}}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-26)}$$

$$\psi_{ed,v} = 0.7 + 0.3 \left(\frac{c_{a2}}{1.5c_{a1}} \right) \leq 1.0 \quad \text{ACI 318-08 Eq. (D-28)}$$

$$\psi_{h,v} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0 \quad \text{ACI 318-08 Eq. (D-29)}$$

$$V_b = \left(7 \left(\frac{l_e}{d_a} \right)^{0.2} \sqrt{d_a} \right) \lambda \sqrt{f_c} c_{a1}^{1.5} \quad \text{ACI 318-08 Eq. (D-24)}$$

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cv} [in.]	$\psi_{c,v}$	h_a [in.]
4.000	6.000	0.000	1.000	6.000
l_e [in.]	λ	d_a [in.]	f_c [psi]	$\psi_{parallel,V}$
2.000	1.000	0.500	2,500	1.000

Calculations

A_{Vc} [in. ²]	A_{Vc0} [in. ²]	$\psi_{ec,v}$	$\psi_{ed,v}$	$\psi_{h,v}$	V_b [lb]
102.00	72.00	1.000	1.000	1.000	2,612

Results

V_{cbg} [lb]	$\phi_{concrete}$	ϕV_{cbg} [lb]	V_{ua} [lb]
3,701	0.700	2,591	424

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.041	0.164	5/3	6	OK

$$\beta_{NV} = \beta_N^2 + \beta_V^2 \leq 1$$

6 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies when supplementary reinforcement is used. The Φ factor is increased for non-steel Design Strengths except Pullout Strength and Pryout strength. Condition B applies when supplementary reinforcement is not used and for Pullout Strength and Pryout Strength. Refer to your local standard.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- Checking the transfer of loads into the base material and the shear resistance are required in accordance with ACI 318 or the relevant standard!

Fastening meets the design criteria!

7 Installation data

Anchor plate, steel: -

Profile: Round HSS, Steel pipe (AISC); 4.000 x 4.000 x 0.125 in.

 Hole diameter in the fixture: $d_f = 0.563$ in.

Plate thickness (input): 0.500 in.

Recommended plate thickness: not calculated

Drilling method: Hammer drilled

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Anchor type and diameter: Kwik Bolt TZ - SS 304 1/2 (2)

Installation torque: 480.001 in.lb

Hole diameter in the base material: 0.500 in.

Hole depth in the base material: 2.625 in.

Minimum thickness of the base material: 6.000 in.

7.1 Recommended accessories

Drilling

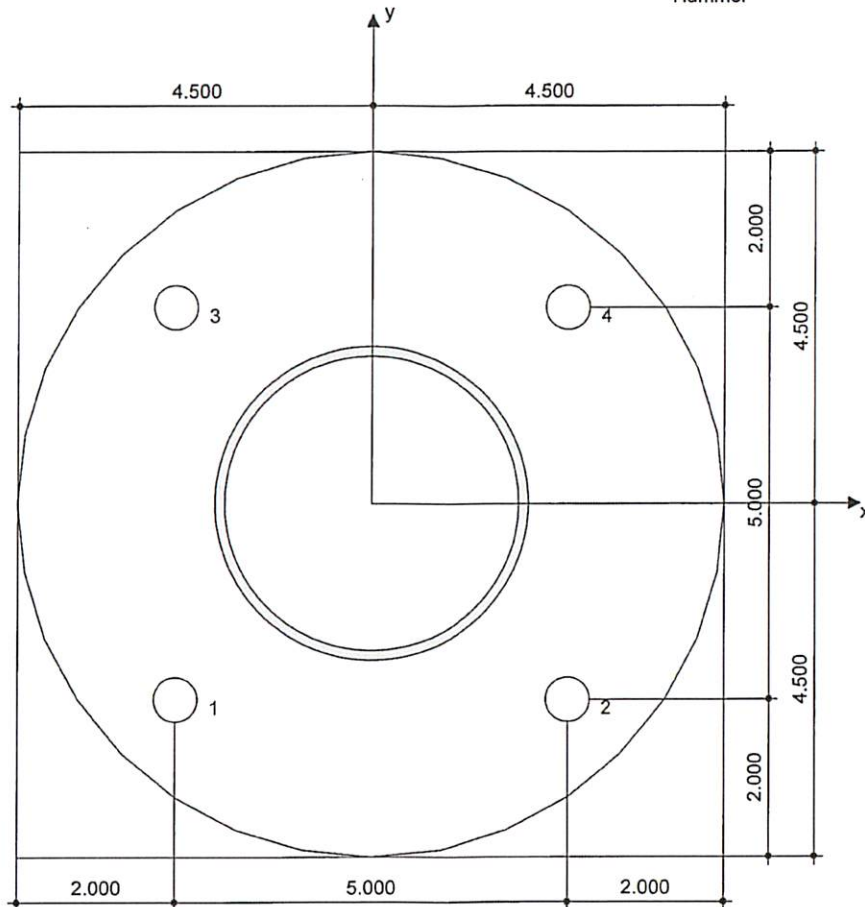
- Suitable Rotary Hammer
- Properly sized drill bit

Cleaning

- Manual blow-out pump

Setting

- Torque controlled cordless impact tool (Hilti Safeset System)
- Torque wrench
- Hammer



Coordinates Anchor in.

Anchor	x	y	C _x	C _{+x}	C _y	C _{+y}
1	-2.500	-2.500	6.000	11.000	6.000	11.000
2	2.500	-2.500	11.000	6.000	6.000	11.000
3	-2.500	2.500	6.000	11.000	11.000	6.000
4	2.500	2.500	11.000	6.000	11.000	6.000



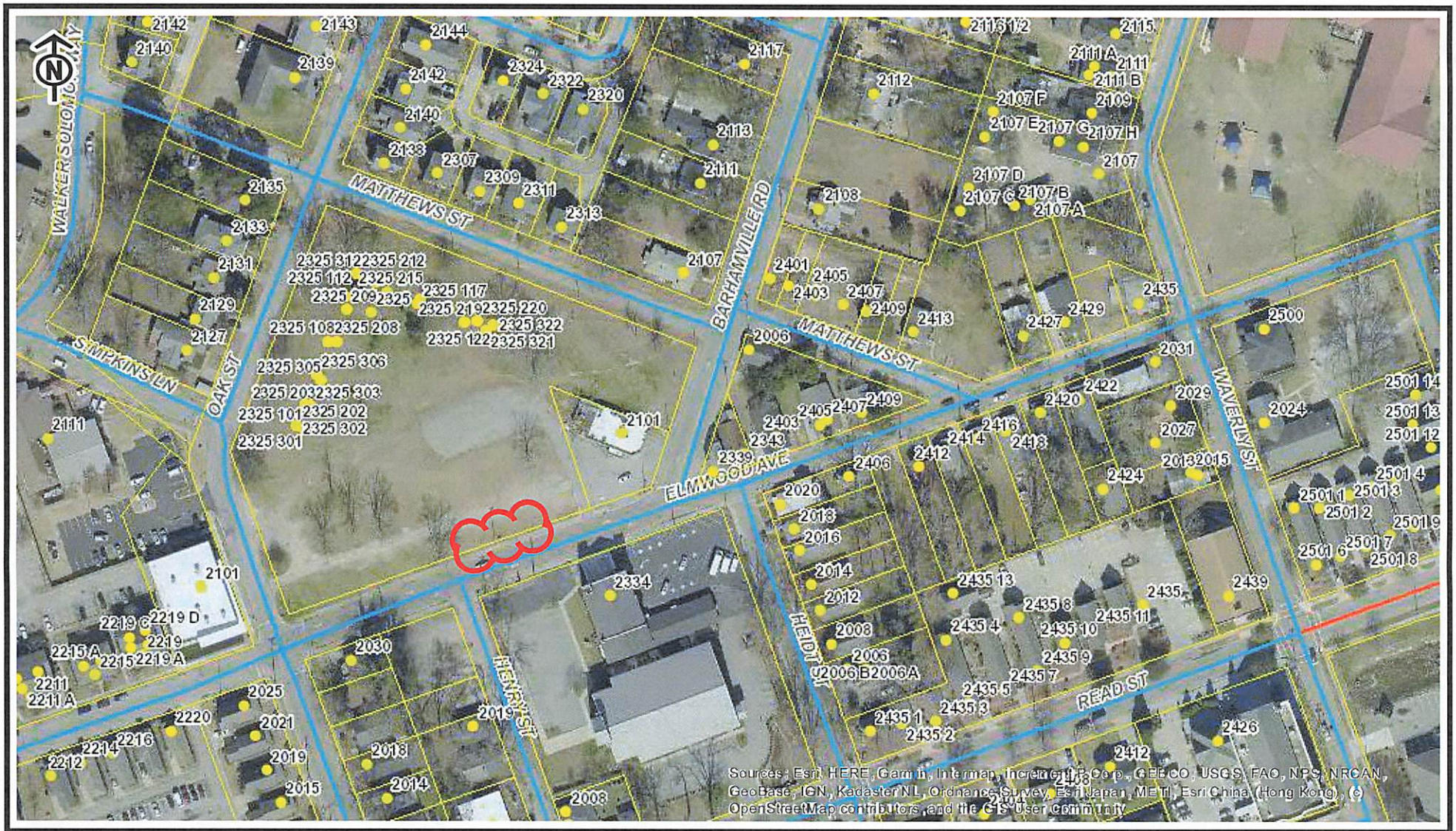
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8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, OpenStreetMap contributors, and the GIS User Community



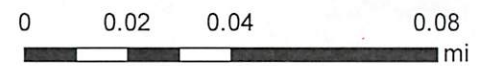
Comet Bus Shelter

City of Columbia



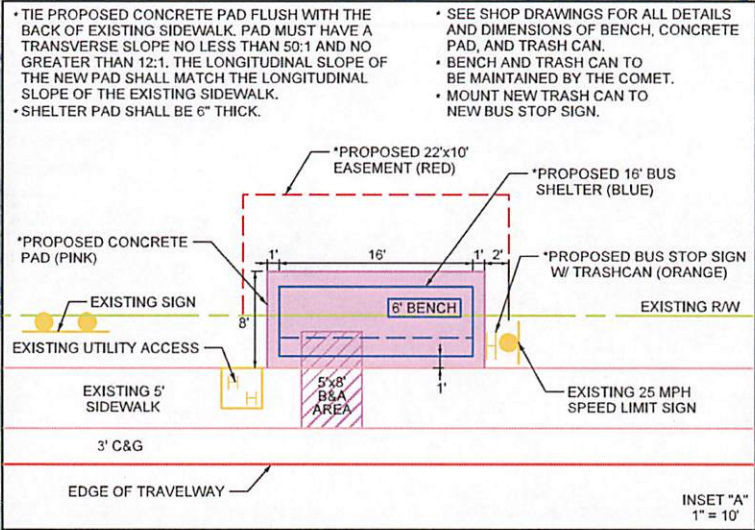
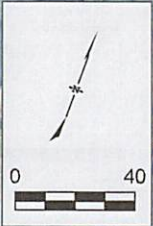
This map was prepared using the City GIS Viewer:
 City of Columbia - GIS Division
 Friday, September 27, 2019

- Address Point
- Tax Parcel
- Street Ownership**
- City of Columbia
- State
- County
- Federal
- Private
- University of South Carolina
- Working
- Interstates
- Highways**
- US
- SC
- Arterial Streets
- Columbia City Limits
- Red: Red
- Green: Green
- Blue: Blue



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**BUS STOP #304
BARHAMVILLE ROAD
AND ELMWOOD AVENUE**



- TIE THE PROPOSED CONCRETE PAD FLUSH WITH THE BACK OF EXISTING SIDEWALK. PAD MUST HAVE A TRANSVERSE SLOPE NO LESS THAN 50:1 AND NO GREATER THAN 12:1. THE LONGITUDINAL SLOPE OF THE NEW PAD SHALL MATCH THE LONGITUDINAL SLOPE OF THE EXISTING SIDEWALK.
- SHELTER PAD SHALL BE 6" THICK.

- SEE SHOP DRAWINGS FOR ALL DETAILS AND DIMENSIONS OF BENCH, CONCRETE PAD, AND TRASH CAN.
- BENCH AND TRASH CAN TO BE MAINTAINED BY THE COMET.
- MOUNT NEW TRASH CAN TO NEW BUS STOP SIGN.

☉ OAK STREET

EXISTING 5' SIDEWALK
DELETED BY THIS PROJECT

PROPOSED 16' BUS SHELTER W/ TRASH CAN (SEE INSET "A")

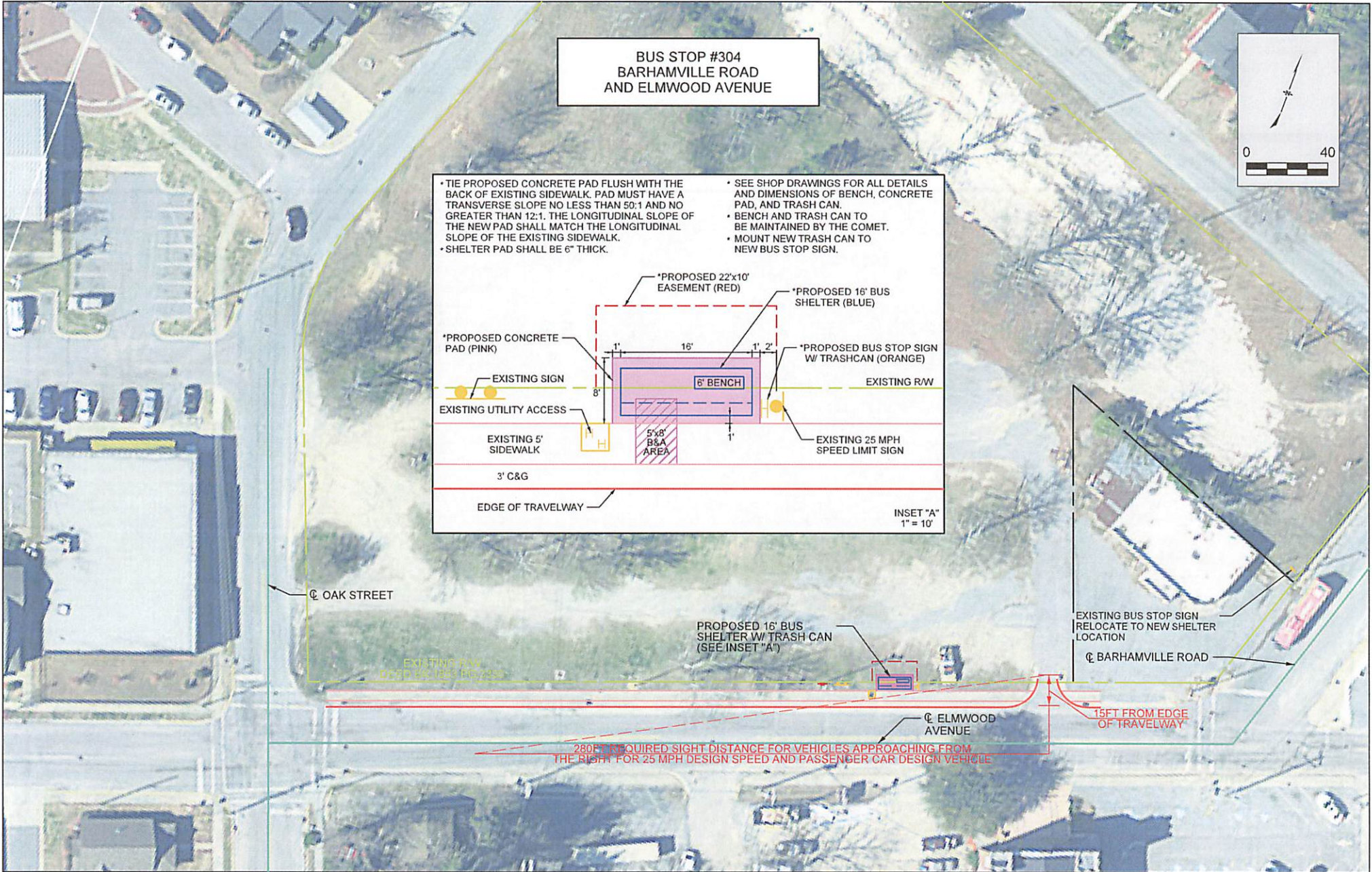
EXISTING BUS STOP SIGN RELOCATE TO NEW SHELTER LOCATION

☉ BARHAMVILLE ROAD

☉ ELMWOOD AVENUE

15FT FROM EDGE OF TRAVELWAY

280FT REQUIRED SIGHT DISTANCE FOR VEHICLES APPROACHING FROM THE RIGHT FOR 25 MPH DESIGN SPEED AND PASSENGER CAR DESIGN VEHICLE



**REQUEST FOR A PERMANENT COMMERCIAL ENCROACHMENT ORDINANCE
(INCLUDING OUTDOOR DINING/LANDSCAPING/STUDENT HOUSING)**

For a continuing encroachment on any type of property in which the City has an interest (i.e., rights of way, tree zone, sidewalk, streets), the person or entity is required to have an encroachment ordinance enacted by City Council permitting the encroachment. Encroachment ordinances are required for but not limited to: irrigation systems; landscaping; fencing; walls; pavers; walkways; outdoor dining items (chairs, tables, umbrellas, etc.); awnings; bollards and directional signs (i.e., churches) Business signs are NOT permitted via an encroachment. Encroachments must comply with all existing City codes, rules and regulations, the Americans with Disabilities Act, if applicable, and are subject to review and approval by City staff. Enactment of the encroachment ordinance by a majority vote of City Council, which is a discretionary legislative act, is also required. In order to obtain an encroachment ordinance from the City of Columbia, it will be necessary for the City of Columbia to be named as an additional insured on your insurance policy with limits being increased to \$600,000 as required by Sec. 11-71. It is recommended that you contact your insurance provider to determine if it will name the City of Columbia as an additional insured prior to submitting your request for an encroachment ordinance. If you have any questions concerning these requirements, please contact Chip Timmons with Risk Management, (803) 733-8306 or catimmons@columbiasc.net.

Please complete and submit this form along with photographs and drawings or site plan drawn to scale (including a 8-1/2 x11) to Johnathan Chambers by e-mail at jechambers@columbiasc.net; fax at 803-343-8779; or mail to Johnathan Chambers, Development Services, POB 147 Columbia, SC 29217, for preparation of an encroachment ordinance. Copies to City departments should be directed to the contact person for that department as shown below.

All work shall comply with the requirements of the City of Columbia and South Carolina Department of Transportation now in existence or hereafter enacted. The materials and type of finish to be used are to be approved by the City Engineer prior to installation. Any damage to the street or sidewalk caused by construction shall be repaired to the satisfaction of the City Manager. Improvements within the encroachment shall be maintained by the grantee at no cost to the City in a manner approved by the City Manager. Property owned, operated and maintained by SCDOT shall comply with SCDOT encroachment requirements.

Date: 3/7/2019 Property Owner: Second Nazareth Baptist Church
 Applicant's Name if different from Property Owner: Central Midlands Transit Authority-The COMET
 Contact Information: Telephone Number: 803-255-7136 Fax Number: _____
 Mailing address: 3613 Lucius Road, Columbia, SC 29204 E-mail address: zmcghee@davisfloyd.com

Business Name/Development Name for Encroachment: Central Midlands Transit Authority- The COMET
 Encroachment type: Wall Fence Columns Steps Irrigation System Landscaping Driveway Pavers Sidewalk/Walkway
 Planters Awning Underground Utilities Other: Bus Shelter

Dimensions (height/width/length): 6"x7'x18' Concrete Pad
 (i.e. 6'x42' wooden privacy fence; 9'x6'x16' Bus Shelter
 two 12'x4'x3' concrete steps)

Construction material: Shelter-Aluminum Frame with Safety Glass Panels

OUTDOOR DINING: The Fire Marshal's posted capacity allowed within the business at the time of enactment of the outdoor dining encroachment ordinance shall include the total number of patron seating approved for the outdoor dining encroachment area, if not already included in the posted capacity allowance, so that patrons relocating from inside to the outside or from outside to the inside do not cause the posted capacity to be exceeded.

Hours/days of operation for outdoor dining: N/A
 Posted Maximum Capacity Allowance (inside/outside combined): N/A No. of chairs outdoors: N/A No. of Tables Outdoors: N/A
 Do you serve: Wine Beer Liquor SCDOR ABL No.: N/A If not, do you intend to apply for an ABL license? N/A

I acknowledge that the adjoining property owners and businesses have been contacted and approve the addition of outdoor dining at this location to include the service of beer, wine and/or liquor if applicable during the business hours noted above, and that any changes made to the business hours, use of the encroachment area or items allowed within the encroachment area will require an amendment to the encroachment ordinance.

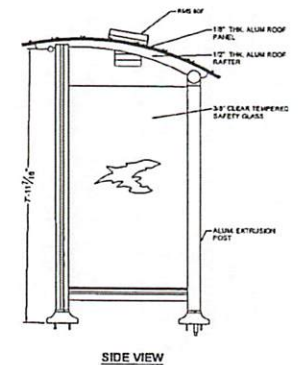
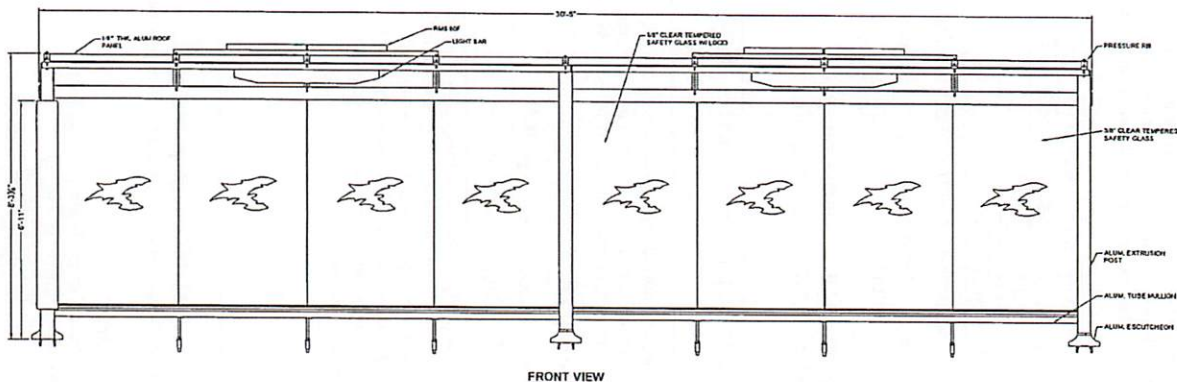
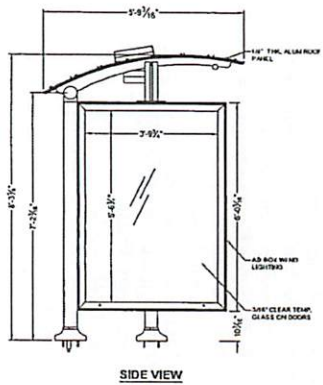
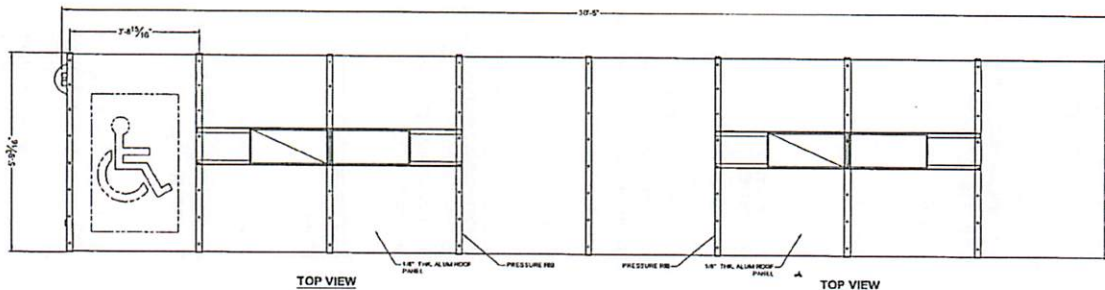
Name/Title: _____
 Date: _____

I acknowledge that any changes made to the business, hours, use of the encroachment area, or items allowed within the encroachment area, to include obtaining a license to sell beer, wine and/or liquor will require an amendment to the encroachment ordinance.

Name/Title: _____
 Date: _____

The proposed ordinance will be sent to the requesting party and City offices for review and approval. Johnathan Chambers will compile the recommendations and forward them to the City Clerk for scheduling before City Council. This process may take from 30-90 days.

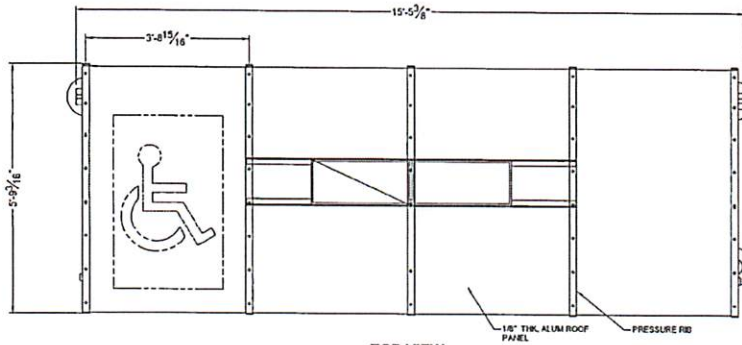
CONTACT	DEPARTMENT	PHONE	FAX	E-MAIL
Johnathan Chambers	Development Services (Land Development)	803-545-3333	803-343-8779	jechambers@columbiasc.net
John Fellows	Development Services (Planning)	803-545-3222	803-733-8647	jsfellows@columbiasc.net
Brian Cook	Development Services (Zoning)	803-545-3332	803-733-8647	kbcook@columbiasc.net
Jerry Thompson	Development Services (Building Inspections)	803-545-3420	803-733-8699	jlthompson@columbiasc.net
Fanessa Pinckney	Development Services (Permits)	803-545-3420	803-733-8699	fcpinckney@columbiasc.net
Amy Moore	Development Services (Historic Preservation)	803-545-3222	803-733-8647	aemoore@columbiasc.net
Robert Harkins	Development Services (Plans Review)	803-545-3420	803-733-8647	rlharkins@columbiasc.net
Denny Daniels	Utilities & Engineering (Construction Management)	803-545-3400	803-988-8199	rdaniels@columbiasc.net
Robert Anderson	Public Works (Administration)	803-545-3780	803-733-8648	raanderson@columbiasc.net
Robert Sweat	Public Works (Street Division)	803-545-3790	803-545-3785	rgsweatt@columbiasc.net
David Brewer	Public Works (Traffic Engineering)	803-545-3850	803-733-8648	ddbrewer@columbiasc.net
Sara Hollar	Public Works (Forestry & Beautification)	803-545-3860	803-733-8648	sehollar@columbiasc.net
John Hooks	Public Works (Solid Waste)	803-545-3800	803-733-8648	jphooks@columbiasc.net
Chip Timmons	Risk Management	803-733-8306	803-733-8245	catimmons@columbiasc.net
David Koon	Fire Department	803-545-3701	803-401-8839	cdgkoon@columbiasc.net
John David Spade	Parking Services	803-545-3070	803-733-8523	spade@columbiasc.net



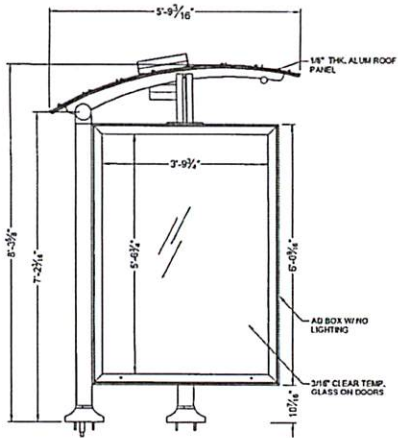
- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE 6063-T5 OR GREATER.
 3. ALL WELDS TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-15. ELECTRODES SHALL CONFORM TO AWS E60 CLASS E60XX.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.3-15. ELECTRODES SHALL CONFORM TO AWS S48 CLASS EN80L.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THIS DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR MFG. COMPANY, INC. ANY REUSE, REPRODUCTION OR USE FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION FROM TOLAR MFG. COMPANY, INC. IS STRICTLY PROHIBITED. ALL DOCUMENTS TO BE RETURNED TO TOLAR MFG. AT COMPLETION OF WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS AND DIMENSIONS AND REPORT ANY AND ALL DISCREPANCIES TO TOLAR MFG. BEFORE COMMENCING WITH THAT RELATED PORTION OF THE WORK.

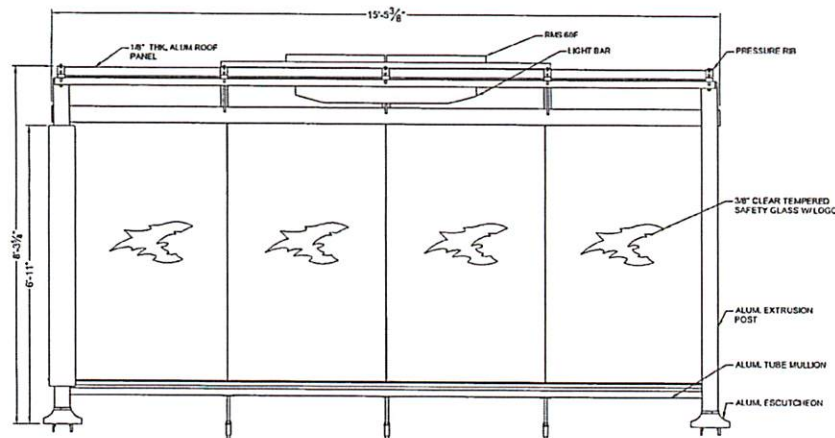
TOLAR TOLAR MANUFACTURING COMPANY, INC. 258 Main Circle, Columbia, SC 29203	
PROJECT: 037 AD CUSTOM SUPPORT SHELF TRS	
LOCATION: COLUMBIA, SC	
DATE: 10/9/2018	REV: 1
SCALE: NOTED	PROJECT: 13272-00
DATE: 10/9/2018	PROJECT: 13272-00



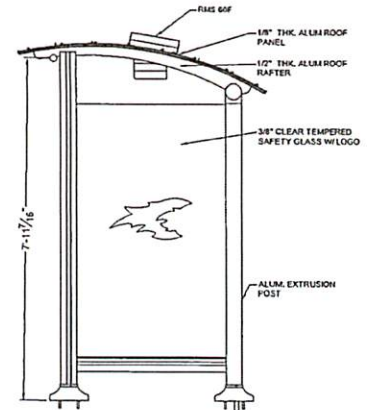
TOP VIEW



SIDE VIEW



FRONT VIEW



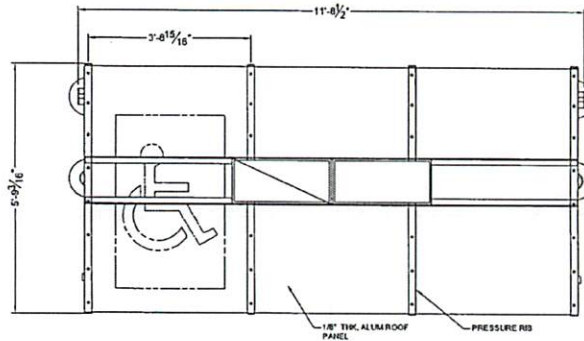
SIDE VIEW

GENERAL NOTES:

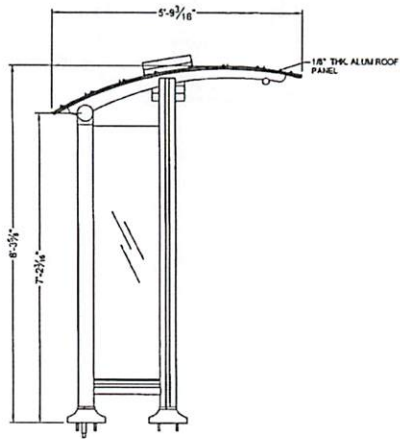
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-10. ELECTRODES SHALL CONFORM TO AWS E1 CLASS E70S-5.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-G8. ELECTRODES SHALL CONFORM TO AWS/SAF A.10 CLASS ER4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THE DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR AND ARE PROTECTED BY LAW. THEY MAY NOT BE REPRODUCED OR USED FOR FABRICATION WITHOUT WRITTEN CONSENT FROM TOLAR WITH TOLAR'S ACCEPTANCE OF WORK. CONTRACTOR TO BE RESPONSIBLE FOR ALL SETBACKS AND UNDERLIES AND BEFORE ANY AND ALL DISCREPANCIES WITH TOLAR'S AND ALL OTHER DOCUMENTS WITH THAT RELATED PARTS OF THE WORK.

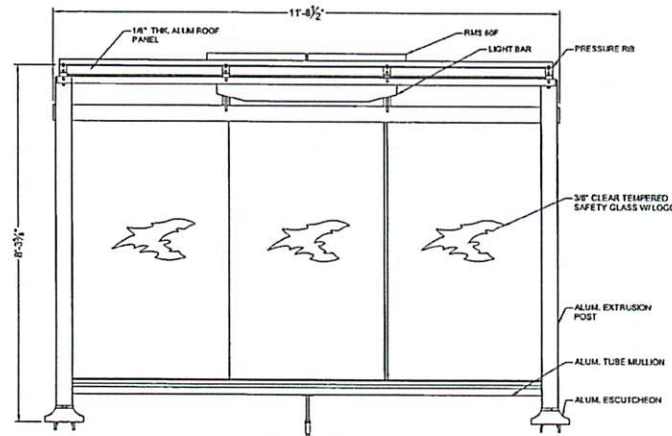
TOLAR TOLAR MANUFACTURING COMPANY, INC	
234 Market Circle, Corona, CA, 92679	
PROJECT: IF AD CUSTOM SUNSET SHELTER	
LOCATION: COLUMBIA, SC	
DATE: D	DATE: 3/27/00
SCALE: NOTED	SCALE: 1/8"=1'-0"
DATE: 10/20/18	DATE: 10/20/18



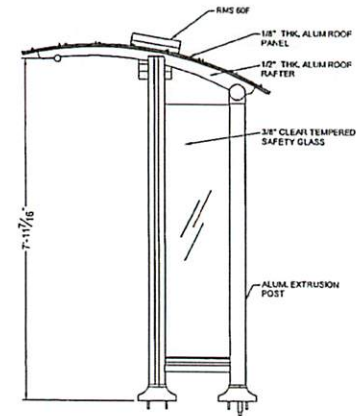
TOP VIEW



SIDE VIEW



FRONT VIEW



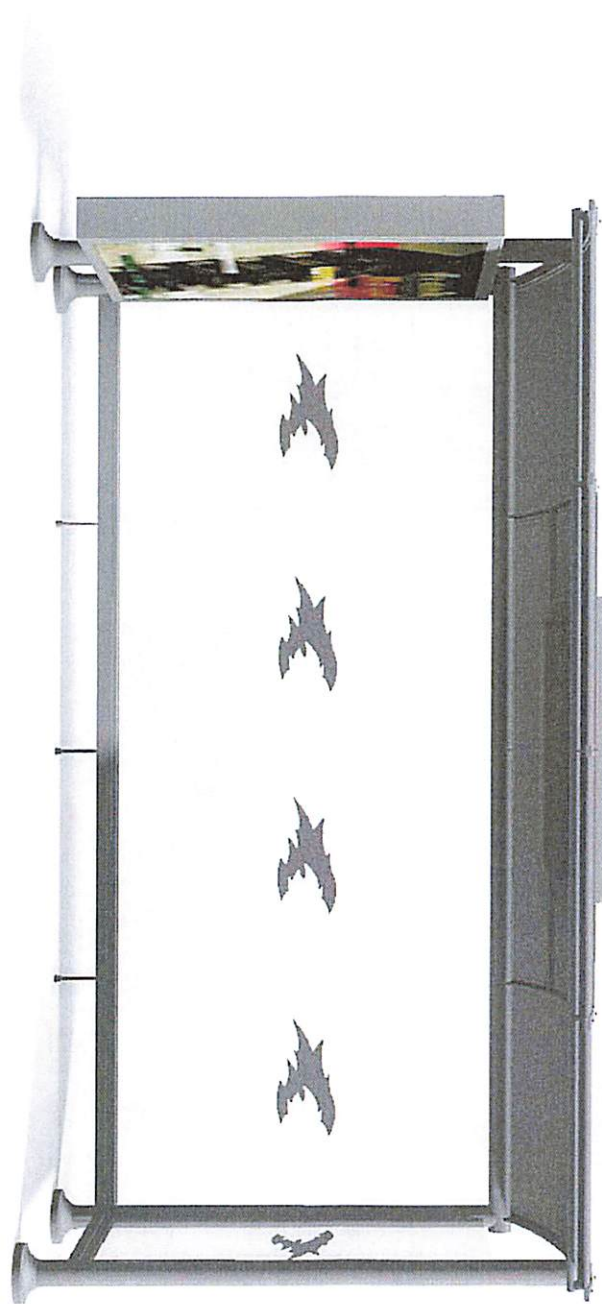
SIDE VIEW

GENERAL NOTES:

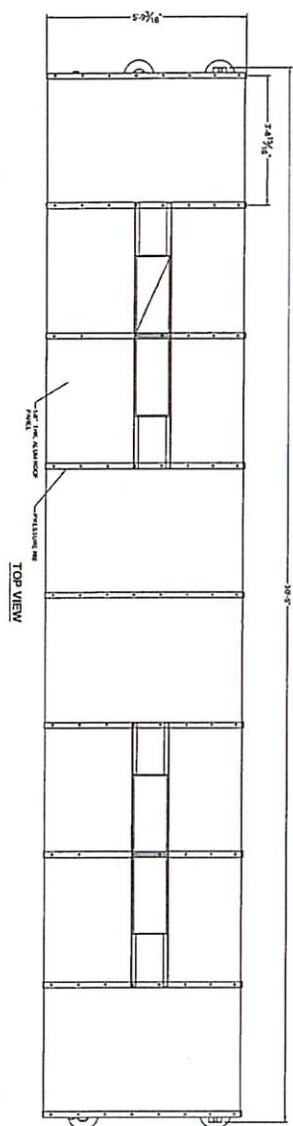
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-10. ELECTRODES SHALL CONFORM TO AWS E1. CLASS E70S-5.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-08. ELECTRODES SHALL CONFORM TO AWS/SPA S.10 CLASS ER 4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

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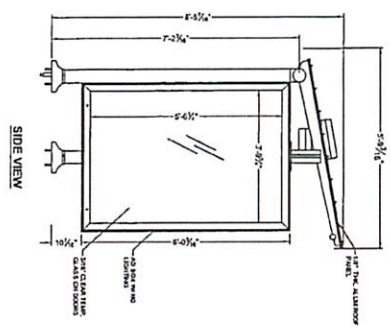
TOLAR TOLAR MANUFACTURING COMPANY, INC.		254 Market Circle, Columbia, SC 29212	
17' HIGH AD CUSTOM SUNSET SHELL PER			
COLUMBIA, SC			
REV	DATE	ISSUE NO.	BY
D		33273-00	
NOTED	10/9/2018		RAM/SCB



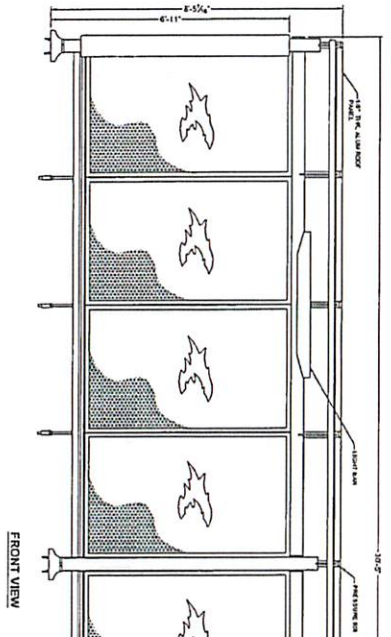




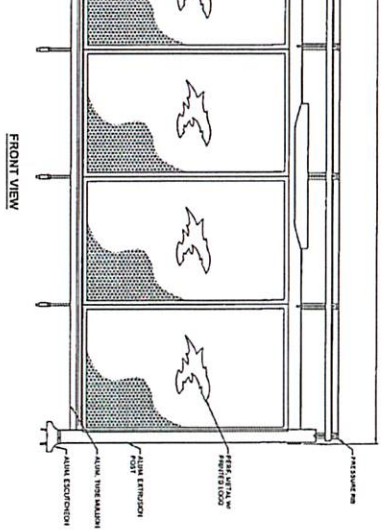
TOP VIEW



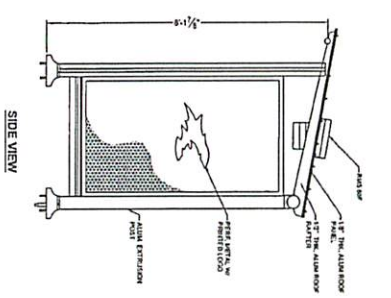
SIDE VIEW



FRONT VIEW



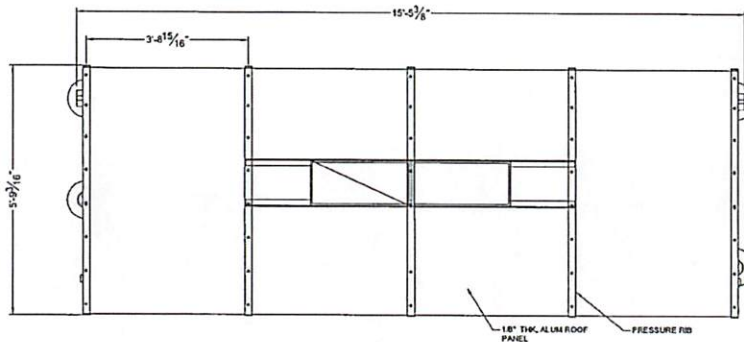
FRONT VIEW



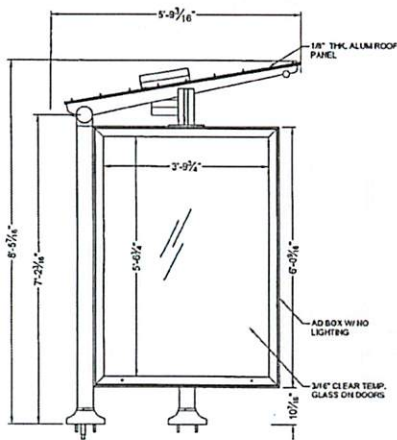
SIDE VIEW

GENERAL NOTES:
 1. ALL DIMENSIONS SHALL BE AS SHOWN UNLESS OTHERWISE NOTED.
 2. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
 3. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
 4. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
 5. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
 6. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
 7. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
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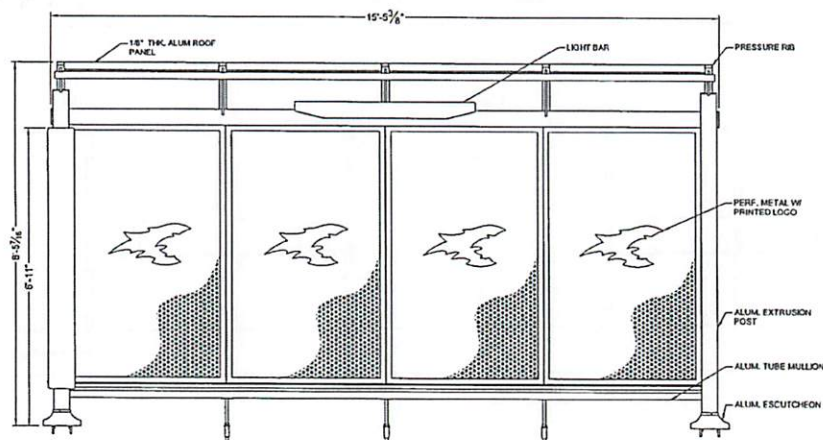
TOLAR MANUFACTURING COMPANY, INC. 2245 COLLETT DRIVE, SUITE 100 COLUMBIA, SC 29204 TEL: 803/737-5000 FAX: 803/737-5001	
DRAWING NO. 13277-5-00	DATE 12/11/03
PROJECT 13277-5-00	SHEET NO. 1 OF 1



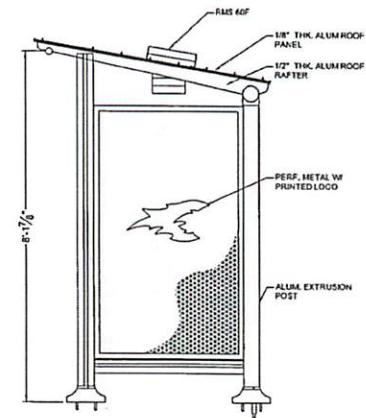
TOP VIEW



SIDE VIEW



FRONT VIEW



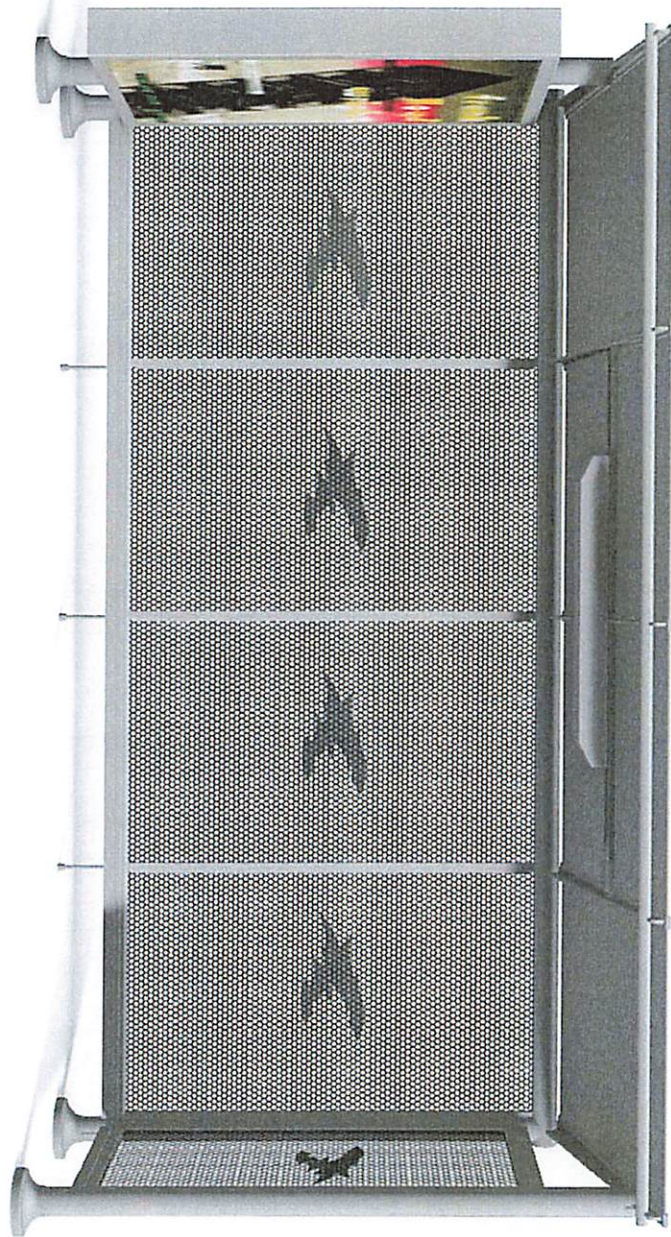
SIDE VIEW

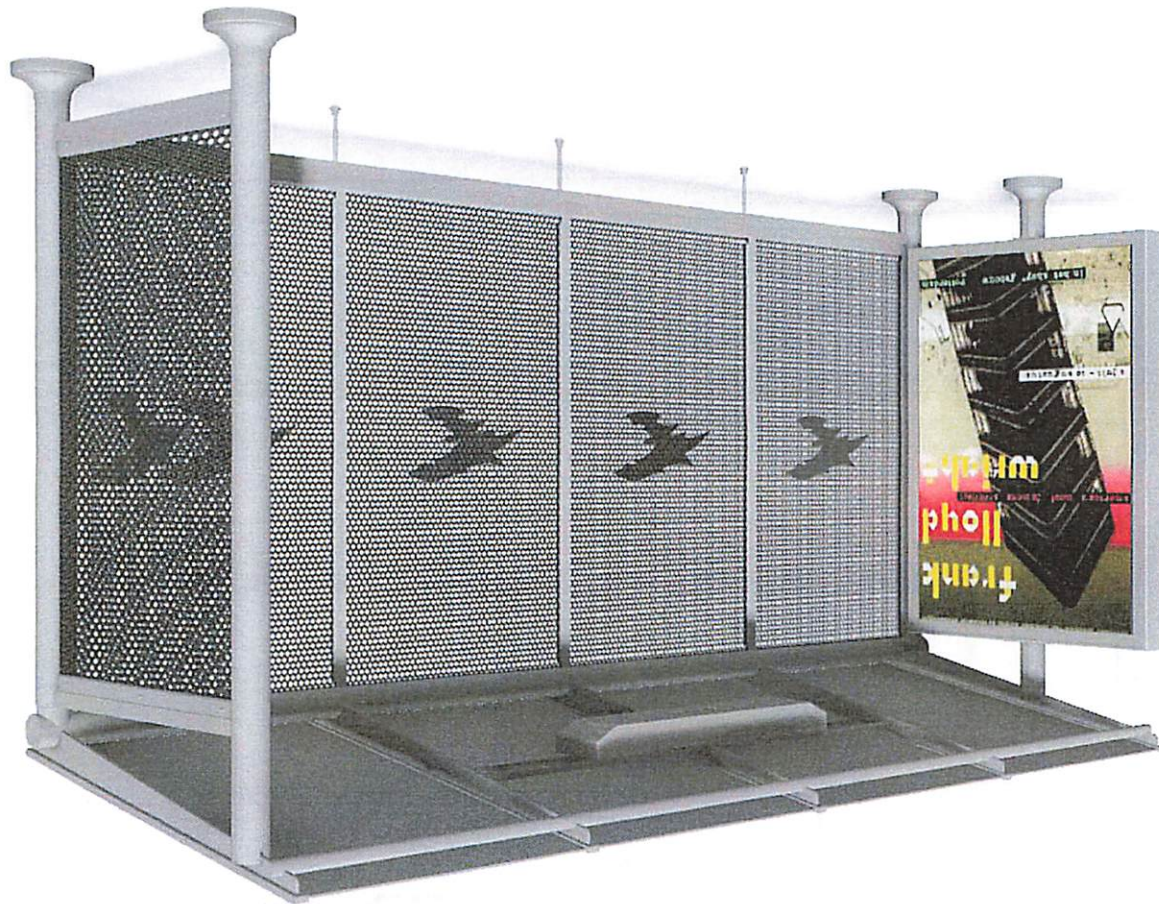
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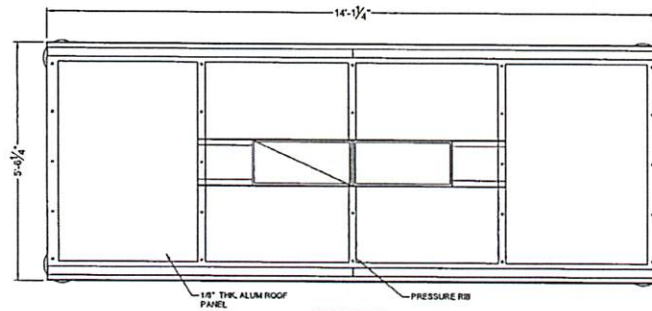
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.
- 1-10. ELECTRODES SHALL CONFORM TO AWS E1, CLASS E70S-A.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.
- 2-10. ELECTRODES SHALL CONFORM TO AWS/SFA 5.10 CLASS ER90-3.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

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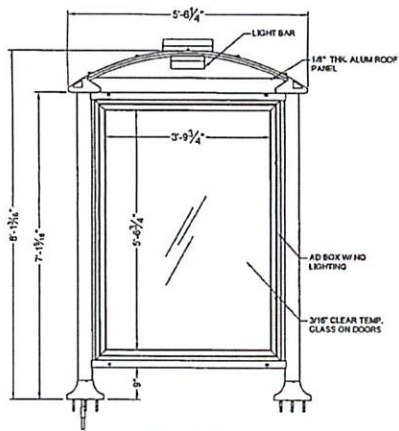
TOLAR TOLAR MANUFACTURING COMPANY, INC. 258 Marsh Circle, Columbia, SC 29203	
PROJECT #	33274-00
DATE	10/11/2018
BY	raj@tolar



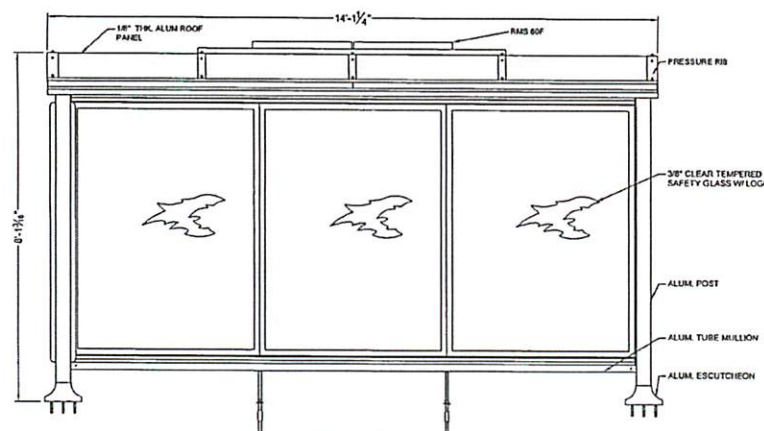




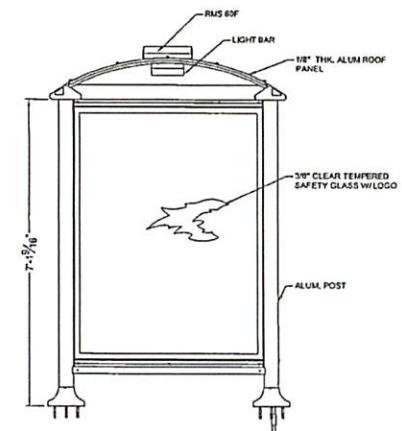
TOP VIEW



SIDE VIEW



FRONT VIEW



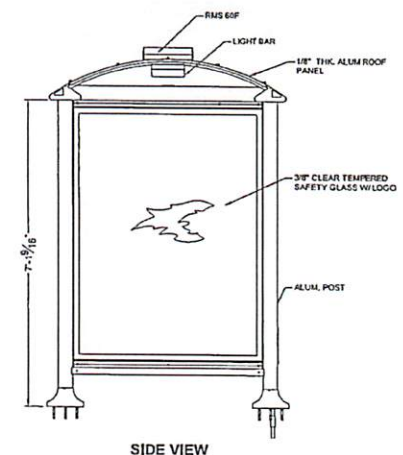
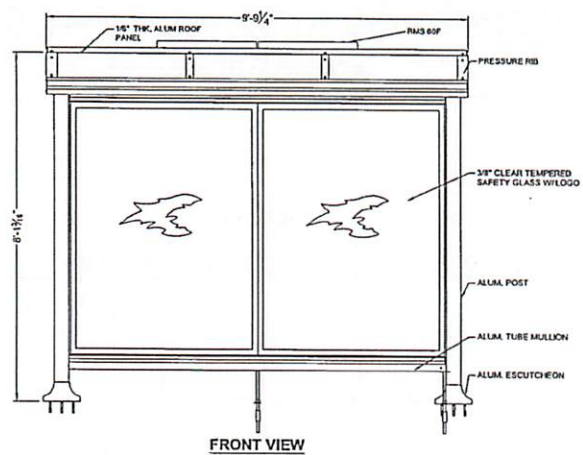
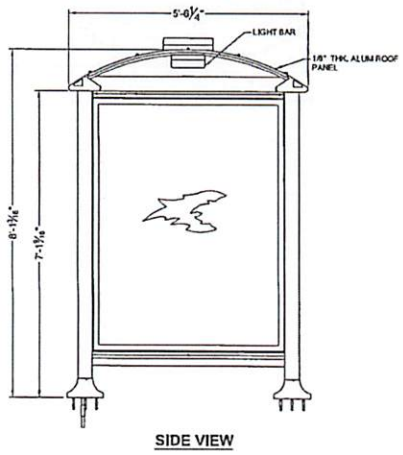
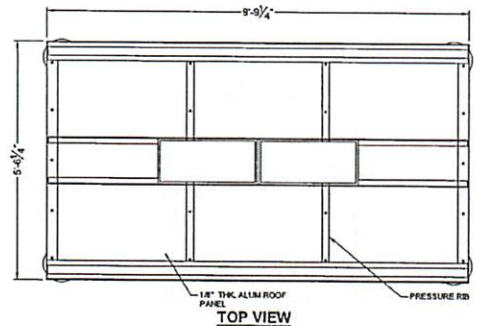
SIDE VIEW

GENERAL NOTES:

1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6061-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-10. ELECTRODES SHALL CONFORM TO AWS E1, CLASS E70S-5.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.2-08. ELECTRODES SHALL CONFORM TO AWS/SFA 5.10 CLASS ER4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

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 COMPANY, INC. NO PART OF THIS DRAWING
 OR ANY INFORMATION HEREON SHALL BE
 REPRODUCED OR TRANSMITTED IN ANY
 FORM OR BY ANY MEANS, ELECTRONIC
 MECHANICAL, PHOTOCOPYING, RECORDING,
 OR BY ANY INFORMATION STORAGE AND
 RETRIEVAL SYSTEM, WITHOUT THE WRITTEN
 CONSENT OF TOLAR MFG. COMPANY, INC.
 ALL DIMENSIONS TO BE SHOWN UNLESS
 OTHERWISE NOTED. CONTRACTOR TO VERIFY ALL
 DIMENSIONS AND REPORT ANY DISCREPANCIES
 TO TOLAR MFG. COMPANY, INC. BEFORE
 COMMENCING WORK. THIS DRAWING IS TO BE
 USED IN CONJUNCTION WITH THE RELATED
 PORTION OF THE WORK.

TOLAR		TOLAR MANUFACTURING COMPANY, INC.	
254 Marshall Circle, Columbia, SC 29209			
COLUMBIA, SC			
DATE	REV.	DATE	REV.
D		3/27/18	1
NOTED	10/11/2018	REVISED	randrade



- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
 3. ALL HOLES TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-10. ELECTRODES SHALL CONFORM TO AWS E.J. CLASS E70S-5.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-08. ELECTRODES SHALL CONFORM TO AWS/SFA 5.10 CLASS ER4043.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

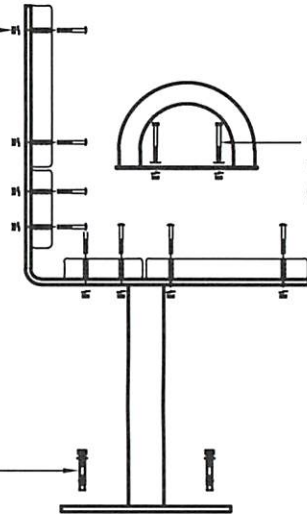
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TOLAR TOLAR MANUFACTURING COMPANY, INC. 224 Marlin Circle, Columbia, SC 29210	
PROJECT NO. 157 HOME AD CUSTOM ELIRO SHELTER	
COLUMBIA, SC	
DATE: 10/11/2018	SCALE: 3/32" = 1'-0"
NOTED:	DATE: 10/11/2018
DESIGNED BY: [blank]	DRAWN BY: [blank]
CHECKED BY: [blank]	DATE: [blank]
PROJECT NO.:	33279-00
SCALE:	3/32" = 1'-0"
DATE:	10/11/2018
NOTED:	DATE: [blank]
DESIGNED BY:	[blank]
CHECKED BY:	[blank]
PROJECT NO.:	33279-00
SCALE:	3/32" = 1'-0"
DATE:	10/11/2018
NOTED:	DATE: [blank]





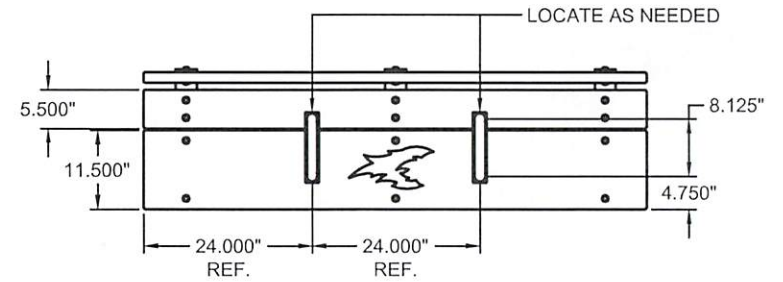
1/4-20 x 2" S.S. CARRIAGE BOLT WITH LOCKWASHER & HEX NUT - (6) PER SLAT



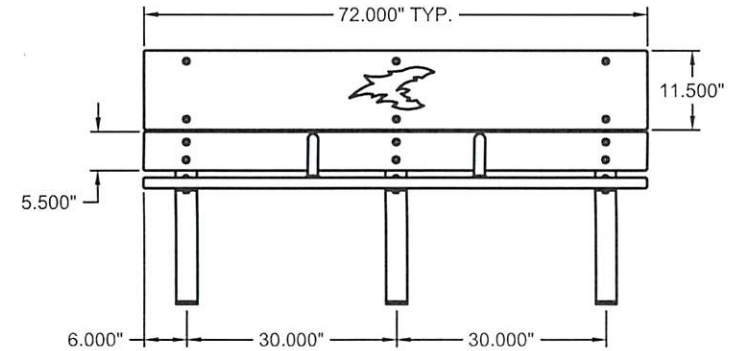
1/4-20 x 2 1/2" S.S. HEX HEAD BOLT WASHER, LOCKWASHER, & HEX NUT (2) PER ARMREST CONNECTION

3/8-16 x 2 3/4" S.S. WEDGE ANCHOR (2) PER PEDESTAL FOOT

DRILL A Ø3/8" - 2 1/2" DEEP FOR INSTALL FOLLOW INSTRUCTIONS FOR ANCHOR BOOTS FOR LOCATING AND PREPPING WEDGE ANCHOR HOLES



PLAN VIEW



FRONT ELEVATION

-- BENCH LAYOUT.

BRASCO INTERNATIONAL, INC.
 32400 INDUSTRIAL DRIVE
 MADISON HEIGHTS, MICHIGAN 48071
 1-800-893-3665 WWW.BRASCO.COM

THIS DRAWING IS PROPRIETARY AND IS FOR THE SOLE USE OF OUR CUSTOMERS AND MAY NOT BE REPRODUCED OR COPIED WITHOUT WRITTEN PERMISSION FROM BRASCO INTERNATIONAL. LEAD TIME BEGINS UPON RECEIPT OF SIGNED APPROVAL.

SIGNED: _____ DATE: _____

CUSTOMER:	CENTRAL MIDLANDS TRANSIT	ENGINEER:	HAUS
		DATE:	7-21-14
PROJECT:	INSTALLATION INSTRUCTIONS	CHECKER:	BDH
		DATE:	7-22-14
MODEL:	LEAN RAIL INSTALL	JOB #	3763
		SHEET #:	INSTALL-9

BR-1022 Bracket Kit for WR-10/22

For Pole or Wall Mount Applications

Bracket Kit Includes:

Qty. Description

- (1) - Large pole / wall bracket
- (2) - "2" brackets
- (4) - 1/4-20" x 1/2" hex head bolts
- (4) - 1/4-20" hex "kep" nuts
- (2) - Stainless steel straps

Mounting

- Decide proper height for basket, and mount large bracket to pole or wall. Bottom of bracket should be positioned 3/4" higher than final height to bottom of basket.

For Pole Mount

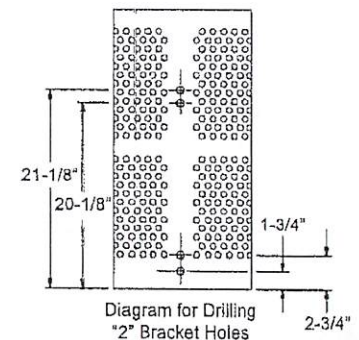
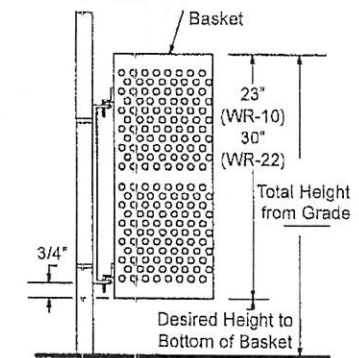
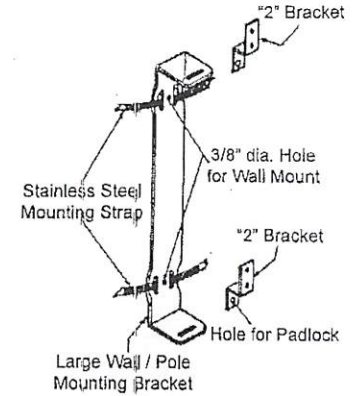
- Insert straps as shown through the top and bottom of large bracket, and tighten onto pole. Cut off any unused portion of the strap. (Approx. 2" beyond the clip).

For Wall Mount

- Screw or bolt the large bracket using the recommended hardware for your particular substrate, through the two large hole (3/8" dia.) located between the strap mounting slots on the large bracket.

To Mount "2" Brackets

- Drill (4) 4/16" dia. holes in the basket adjacent to the seam in the back of the basket.
(See sketch for dimensional layout).
- Mount both "2" brackets on the baskets with the pad lock hole flange pointing down, using (2) 1/4-10 x 1/2" hex head bolts and hex "kep" nuts per bracket.



From: Johnny Ray Noble <revnoble@aol.com>
Sent: Monday, March 4, 2019 10:28 AM
To: Todd Warren <twarren@davisfloyd.com>
Cc: luke@aossc.org; luis.ortiz@catchthecomet.org
Subject: RE: COMET Bus Stop - Barhamville Elmwood SB

Todd,

Please proceed with the shelter on our easement. We are in agreement and give our approval. Paperwork to follow when I return. Thank you for all of your help.

Johnny Ray Noble, PhD

On Monday, March 4, 2019 Todd Warren <twarren@davisfloyd.com> wrote:

Pastor Noble,

Per our conversation this morning, We understand that the Church is in favor of the COMET placing a new shelter across from the Church. We understand that you guys have signed the easement agreement but that you are currently out of town. Please respond with your approval to this email and we will get the construction scheduled while we wait for the receipt of the easement document. Thank you for your help with this project.

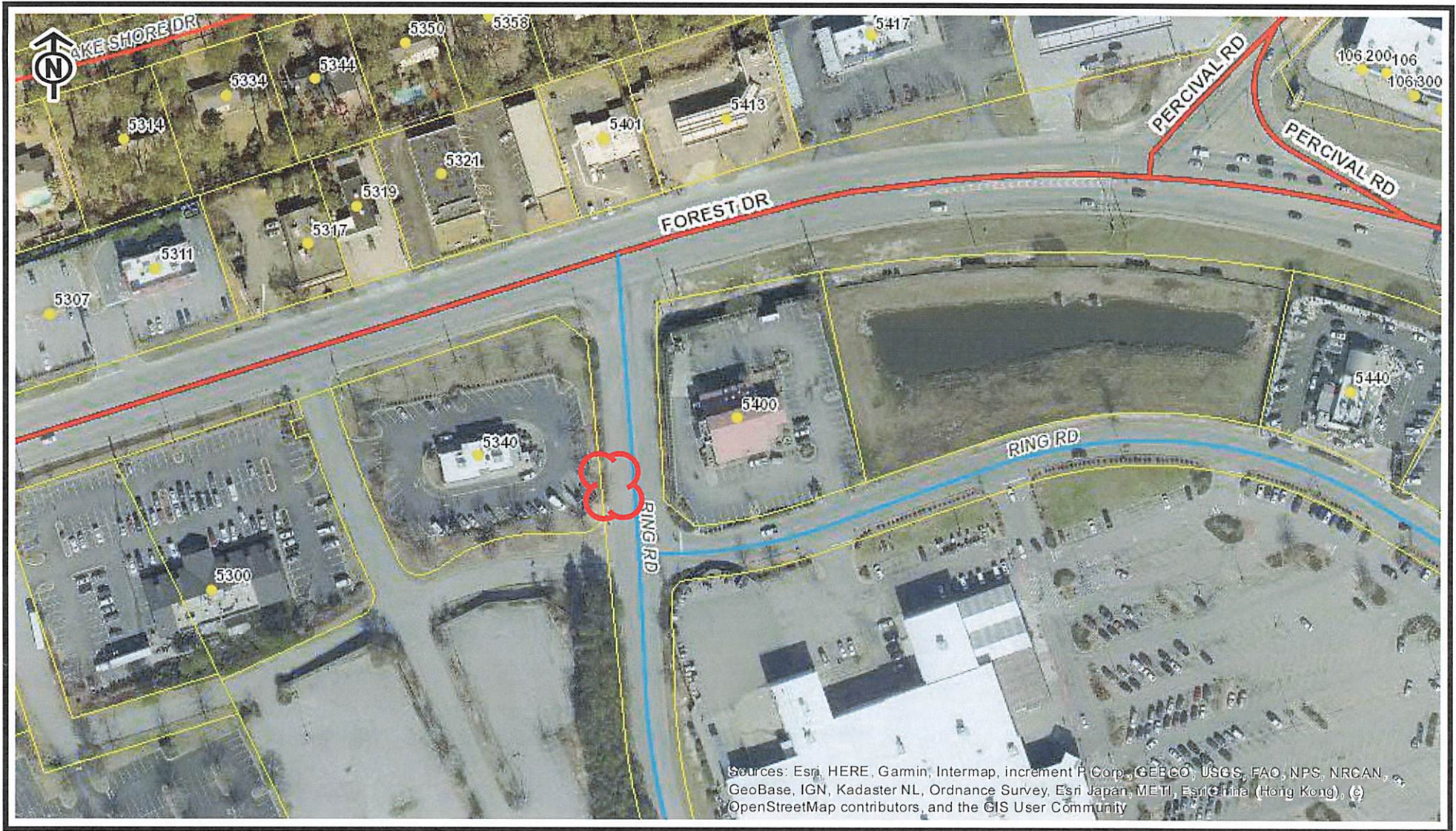
Thanks,

Todd Warren, PE
ASSOCIATE | PROJECT MANAGER

240 Stoneridge Drive, Suite 305, Columbia, SC 29210
O. (803) 256-4121 | F. (803) 254-4549
E. twarren@davisfloyd.com | www.davisfloyd.com

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Comet Bus Shelter

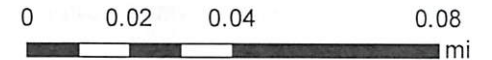
City of Columbia



This map was prepared using the City GIS Viewer:

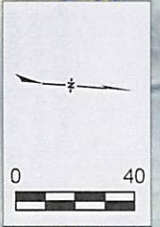
City of Columbia - GIS Division
Friday, September 27, 2019

- | | | |
|-------------------------|--------------------------------|------------------------|
| ● Address Point | — Private | — Arterial Streets |
| □ Tax Parcel | — University of South Carolina | — Columbia City Limits |
| Street Ownership | — Working | ■ Red: Red |
| — City of Columbia | — Interstates | ■ Green: Green |
| — State | Highways | ■ Blue: Blue |
| — County | — US | |
| — Federal | — SC | |



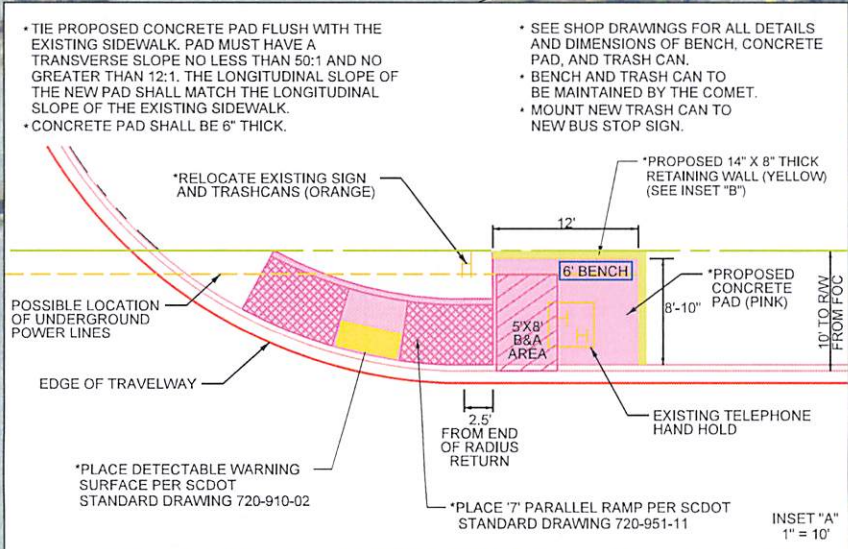
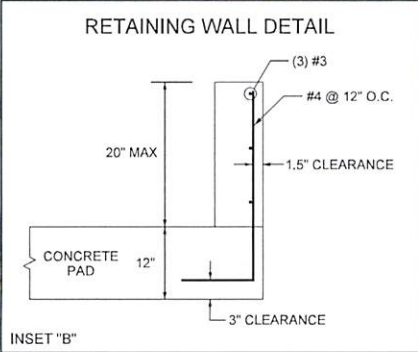
**CITY OF COLUMBIA
GIS DATA DISCLAIMER:**
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**BUS STOP #1043
GREGG STREET AND
LITTLE ROAD**



- TIE PROPOSED CONCRETE PAD FLUSH WITH THE EXISTING SIDEWALK. PAD MUST HAVE A TRANSVERSE SLOPE NO LESS THAN 50:1 AND NO GREATER THAN 12:1. THE LONGITUDINAL SLOPE OF THE NEW PAD SHALL MATCH THE LONGITUDINAL SLOPE OF THE EXISTING SIDEWALK.
- CONCRETE PAD SHALL BE 6" THICK.

- SEE SHOP DRAWINGS FOR ALL DETAILS AND DIMENSIONS OF BENCH, CONCRETE PAD, AND TRASH CAN.
- BENCH AND TRASH CAN TO BE MAINTAINED BY THE COMET.
- MOUNT NEW TRASH CAN TO NEW BUS STOP SIGN.



EXISTING 40' RW

14.5 FT FROM EDGE OF TRAVELWAY

EXISTING 40' RW

℄ GREGG STREET

℄ LITTLE ROAD

**REQUEST FOR A PERMANENT COMMERCIAL ENCROACHMENT ORDINANCE
(INCLUDING OUTDOOR DINING/LANDSCAPING/STUDENT HOUSING)**

For a continuing encroachment on any type of property in which the City has an interest (i.e., rights of way, tree zone, sidewalk, streets), the person or entity is required to have an encroachment ordinance enacted by City Council permitting the encroachment. Encroachment ordinances are required for but not limited to: irrigation systems; landscaping; fencing; walls; pavers; walkways; outdoor dining items (chairs, tables, umbrellas, etc.); awnings; bollards and directional signs (i.e., churches) Business signs are NOT permitted via an encroachment. Encroachments must comply with all existing City codes, rules and regulations, the Americans with Disabilities Act, if applicable, and are subject to review and approval by City staff. Enactment of the encroachment ordinance by a majority vote of City Council, which is a discretionary legislative act, is also required. In order to obtain an encroachment ordinance from the City of Columbia, it will be necessary for the City of Columbia to be named as an additional insured on your insurance policy with limits being increased to \$600,000 as required by Sec. 11-71. It is recommended that you contact your insurance provider to determine if it will name the City of Columbia as an additional insured prior to submitting your request for an encroachment ordinance. If you have any questions concerning these requirements, please contact Chip Timmons with Risk Management, (803) 733-8306 or catimmons@columbiasc.net.

Please complete and submit this form along with photographs and drawings or site plan drawn to scale (including a 8-1/2 x11) to Johnathan Chambers by e-mail at jechambers@columbiasc.net; fax at 803-343-8779; or mail to Johnathan Chambers, Development Services, POB 147 Columbia, SC 29217, for preparation of an encroachment ordinance. Copies to City departments should be directed to the contact person for that department as shown below.

All work shall comply with the requirements of the City of Columbia and South Carolina Department of Transportation now in existence or hereafter enacted. The materials and type of finish to be used are to be approved by the City Engineer prior to installation. Any damage to the street or sidewalk caused by construction shall be repaired to the satisfaction of the City Manager. Improvements within the encroachment shall be maintained by the grantee at no cost to the City in a manner approved by the City Manager. Property owned, operated and maintained by SCDOT shall comply with SCDOT encroachment requirements.

Date: 10/15/2019 Property Owner: City of Columbia
 Applicant's Name if different from Property Owner: Central Midlands Transit Authority-The COMET
 Contact Information: Telephone Number: 803-255-7087 Fax Number: _____
 Mailing address: 3613 Lucius Road, Columbia, SC 29204 E-mail address: zmcghee@davisfloyd.com
 Business Name/Development Name for Encroachment: Central Midlands Transit Authority-The COMET

Encroachment type: Wall Fence Columns Steps Irrigation System Landscaping Driveway Pavers Sidewalk/Walkway
 Planters Awning Underground Utilities Other: Bus Shelter

Dimensions (height/width/length): 6"x12'x8'-10" Concrete Pad
 (i.e. 6'x42' wooden privacy fence; 14"x8"x12' Concrete Retaining Wall
 two 12'x4'x3' concrete steps) 6' Bench

Construction material: Bench-Aluminum Frame with Composite boards

OUTDOOR DINING: The Fire Marshal's posted capacity allowed within the business at the time of enactment of the outdoor dining encroachment ordinance shall include the total number of patron seating approved for the outdoor dining encroachment area, if not already included in the posted capacity allowance, so that patrons relocating from inside to the outside or from outside to the inside do not cause the posted capacity to be exceeded.

Hours/days of operation for outdoor dining: N/A

Posted Maximum Capacity Allowance (inside/outside combined): N/A No. of chairs outdoors: N/A No. of Tables Outdoors: N/A

Do you serve: Wine Beer Liquor SCDOR ABL No.: N/A If not, do you intend to apply for an ABL license? N/A

I acknowledge that the adjoining property owners and businesses have been contacted and approve the addition of outdoor dining at this location to include the service of beer, wine and/or liquor if applicable during the business hours noted above, and that any changes made to the business hours, use of the encroachment area or items allowed within the encroachment area will require an amendment to the encroachment ordinance.

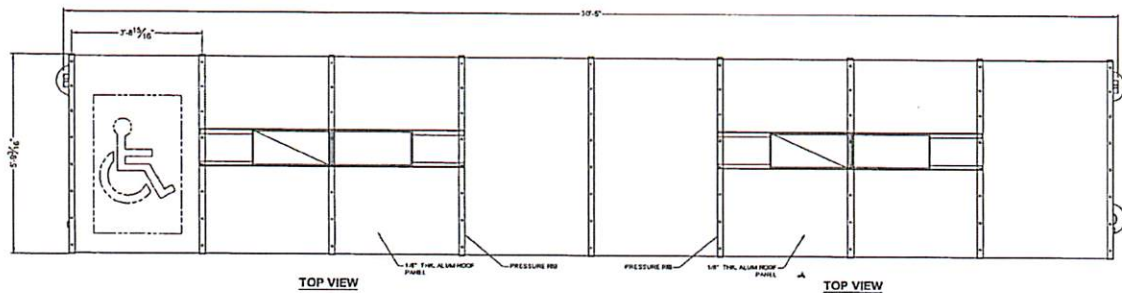
Name/Title: _____
 Date: _____

I acknowledge that any changes made to the business, hours, use of the encroachment area, or items allowed within the encroachment area, to include obtaining a license to sell beer, wine and/or liquor will require an amendment to the encroachment ordinance.

Name/Title: _____
 Date: _____

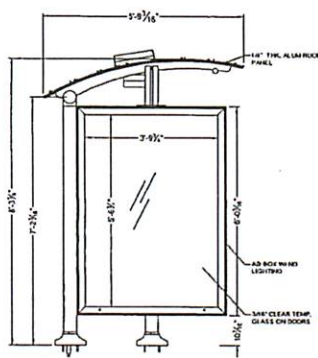
The proposed ordinance will be sent to the requesting party and City offices for review and approval. Johnathan Chambers will compile the recommendations and forward them to the City Clerk for scheduling before City Council. This process may take from 30-90 days.

CONTACT	DEPARTMENT	PHONE	FAX	E-MAIL
Johnathan Chambers	Development Services (Land Development)	803-545-3333	803-343-8779	jechambers@columbiasc.net
John Fellows	Development Services (Planning)	803-545-3222	803-733-8647	jsfellows@columbiasc.net
Brian Cook	Development Services (Zoning)	803-545-3332	803-733-8647	kbcook@columbiasc.net
Jerry Thompson	Development Services (Building Inspections)	803-545-3420	803-733-8699	jthompson@columbiasc.net
Fanessa Pinckney	Development Services (Permits)	803-545-3420	803-733-8699	fcpinckney@columbiasc.net
Amy Moore	Development Services (Historic Preservation)	803-545-3222	803-733-8647	aemoore@columbiasc.net
Robert Harkins	Development Services (Plans Review)	803-545-3420	803-733-8647	rlharkins@columbiasc.net
Denny Daniels	Utilities & Engineering (Construction Management)	803-545-3400	803-988-8199	jddaniels@columbiasc.net
Robert Anderson	Public Works (Administration)	803-545-3780	803-733-8648	raanderson@columbiasc.net
Robert Sweat	Public Works (Street Division)	803-545-3790	803-545-3785	rgsweatt@columbiasc.net
David Brewer	Public Works (Traffic Engineering)	803-545-3850	803-733-8648	ddbrewer@columbiasc.net
Sara Hollar	Public Works (Forestry & Beautification)	803-545-3860	803-733-8648	sehollar@columbiasc.net
John Hooks	Public Works (Solid Waste)	803-545-3800	803-733-8648	jphooks@columbiasc.net
Chip Timmons	Risk Management	803-733-8306	803-733-8245	catimmons@columbiasc.net
David Koon	Fire Department	803-545-3701	803-401-8839	cfdgkoon@columbiasc.net
John David Spade	Parking Services	803-545-3070	803-733-8523	spade@columbiasc.net

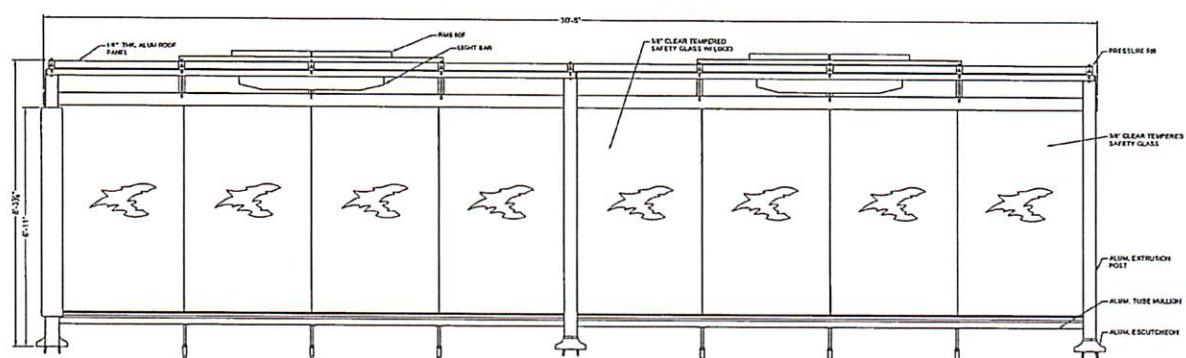


TOP VIEW

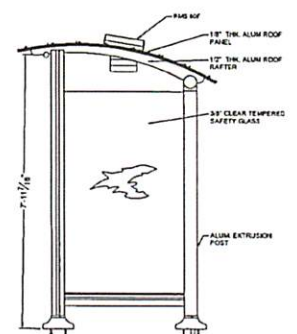
TOP VIEW



SIDE VIEW



FRONT VIEW

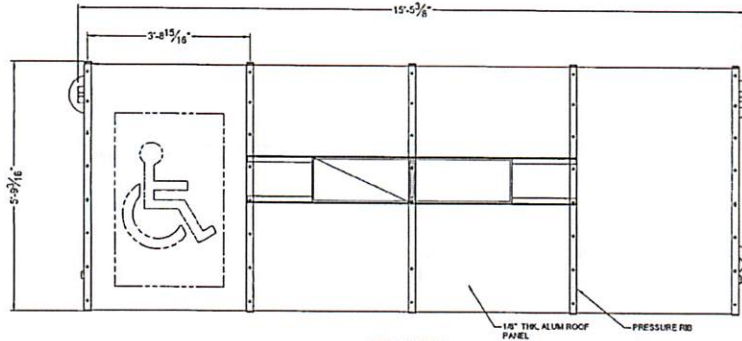


SIDE VIEW

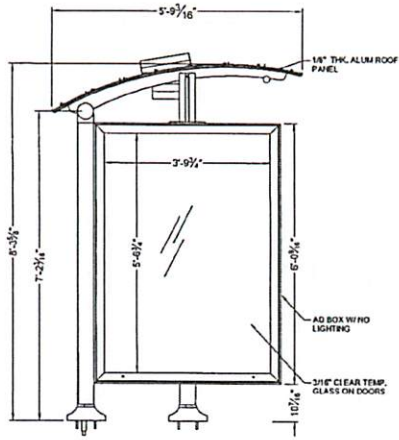
- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6061-T3 OR GREATER.
 3. ALL HOLES TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-05. ELECTRODES SHALL CONFORM TO AWS E1.1 CLASS E70XX.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.2-05. ELECTRODES SHALL CONFORM TO AWS/ENR A1.1 CLASS ER40XX.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THE DESIGN AND DIMENSIONS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR MFG. AND ARE PROTECTED BY LAW. THEY MAY NOT BE ALTERED, REPRODUCED OR USED FOR FABRICATION WITHOUT EXPRESS WRITTEN CONSENT FROM TOLAR MFG. ALL DIMENSIONS TO BE SHOWN TO TOLAR MFG. ALL CORNER TIE-INS CONTRACTOR TO SITE VERIFY ALL SETBACKS AND DIMENSIONS AND REPORT ANY AND ALL DISCREPANCIES TO TOLAR MFG. BEFORE COMMENCING WITH THAT RELATED PORTION OF THE WORK.

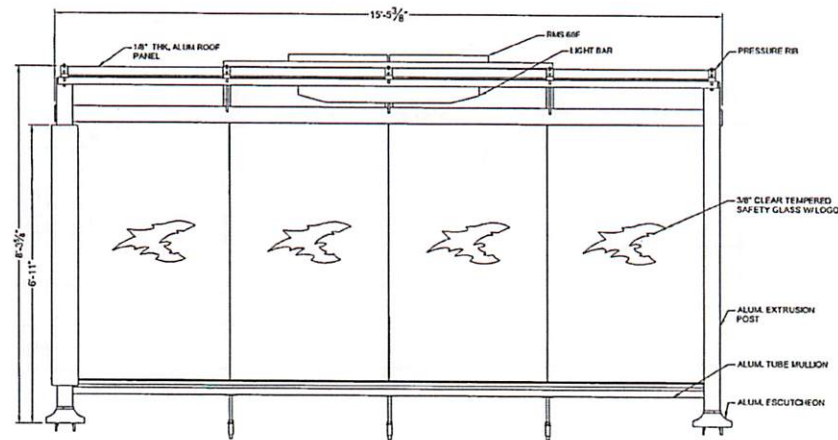
TOLAR TOLAR MANUFACTURING COMPANY, INC.		324 Marsh Creek, Cumma, GA, 30527	
307 AND CUSTOM SUPERSET SHEET TITLE			
COLUMBIA, SC			
DATE	REV.	ISSUE NO.	REV.
D		33272-00	1
SCALE	NOTED	DATE	10/5/2018
		PROJECT	ENDSIDE



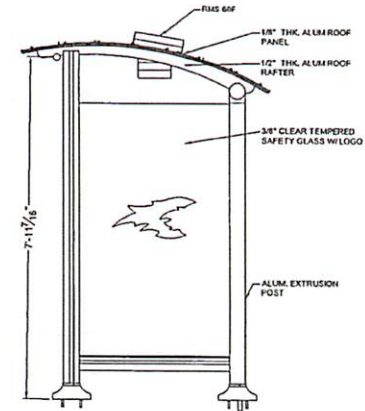
TOP VIEW



SIDE VIEW



FRONT VIEW

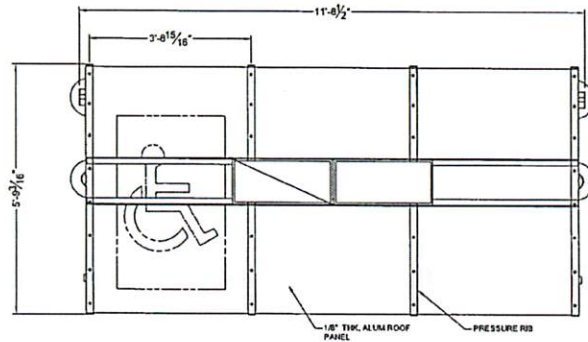


SIDE VIEW

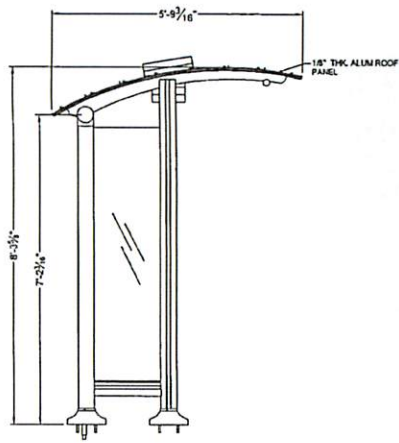
- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
 3. ALL HOLES TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-10. ELECTRODES SHALL CONFORM TO AWS E70S-5.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.2-C8. ELECTRODES SHALL CONFORM TO AWS/SAFSA 5.10 CLASS ER4043.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THE DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR MFG. AND ARE PROTECTED BY LAW. THEY MAY NOT BE REPRODUCED, COPIED, EITHER WHOLLY OR IN PART, WITHOUT THE WRITTEN CONSENT FROM TOLAR MFG. ALL DOCUMENTS TO BE RETURNED TO TOLAR MFG. AT COMPLETE WORK. ALL DIMENSIONS AND WEIGHTS ARE AND ALL DIMENSIONS ARE TO TOLAR MFG. BEING CONSIDERED WITH THAT RELATED PORTION OF THE WORK.

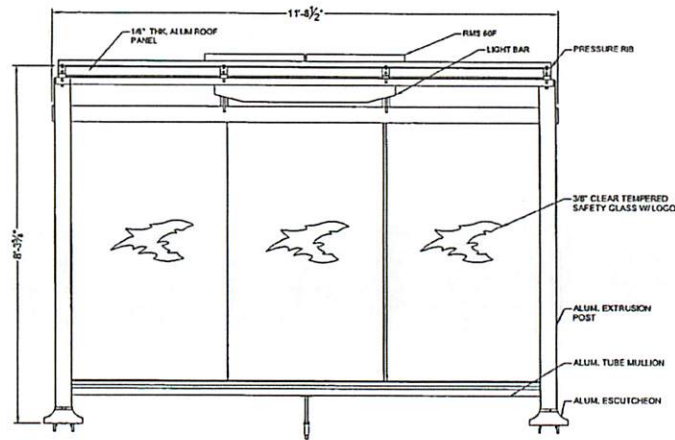
TOLAR TOLAR MANUFACTURING COMPANY, INC.	
234 Markon Circle, Columbia, SC 29209	
PROJECT: HIF AD CUSTOM SUNSET SHELTER	
COLUMBIA, SC	
DATE: 10/9/2018	SCALE: 1/8\"/>
NOTED: 10/9/2018	DESIGNED: rambada



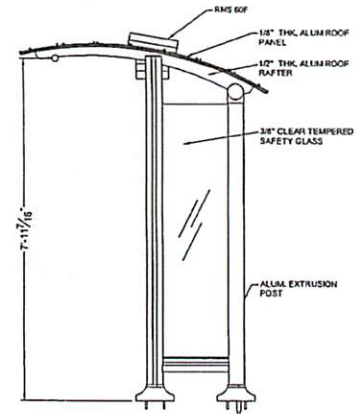
TOP VIEW



SIDE VIEW



FRONT VIEW



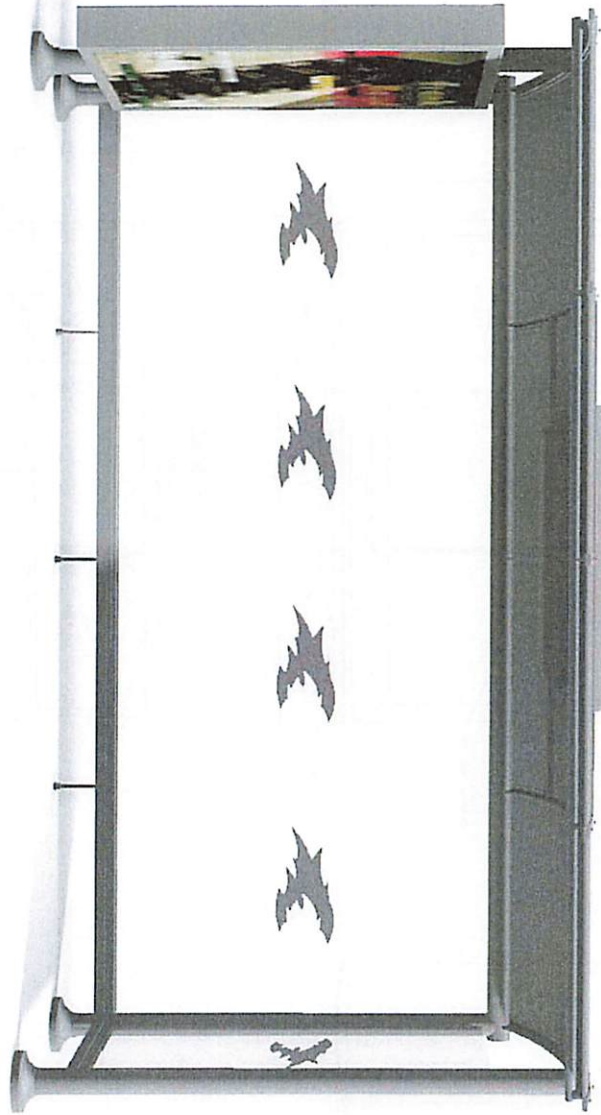
SIDE VIEW

GENERAL NOTES:

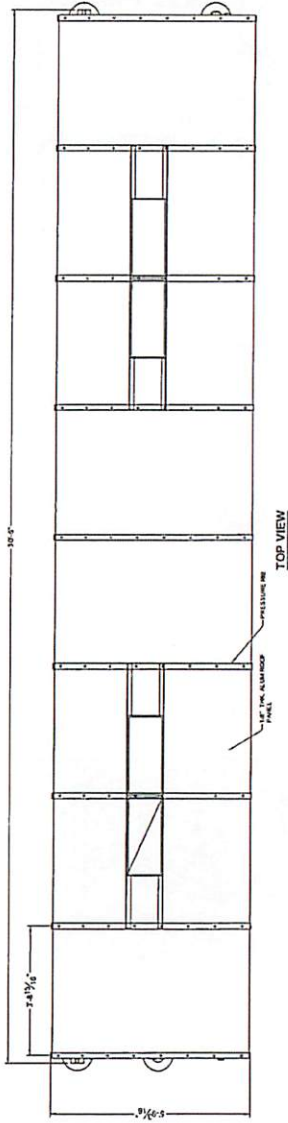
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-4B. ELECTRODES SHALL CONFORM TO AWS/AFA 5.10 CLASS ER4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THE DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR MFG. AND ARE PROTECTED BY LAW. THEY MAY NOT BE ALTERED, REPRODUCED OR USED FOR FABRICATION WITHOUT EXPRESS WRITTEN CONSENT FROM TOLAR MFG. CONTRACTOR TO SITE VERIFY ALL DETAILS AND DIMENSIONS AND REPORT AND HOLD ALL DISCREPANCIES TO TOLAR MFG. BEFORE COMMENCING WITH THAT RELATED PORTION OF THE WORK.

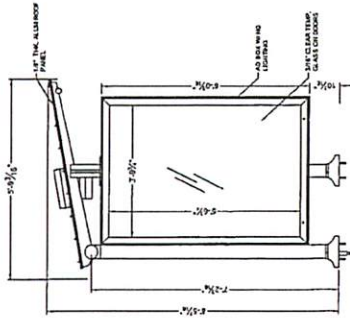
TOLAR TOLAR MANUFACTURING COMPANY, INC. 224 Main Street, Corona CA, 92529	
17' HIGH AD CUSTOM BUNNET SHUTTER	
COLUMBIA, SC	
DATE	REV
D	1
3/27/16	33273-00
SCALE	NOTED
DATE	10/9/2018
REVISION	REVISION



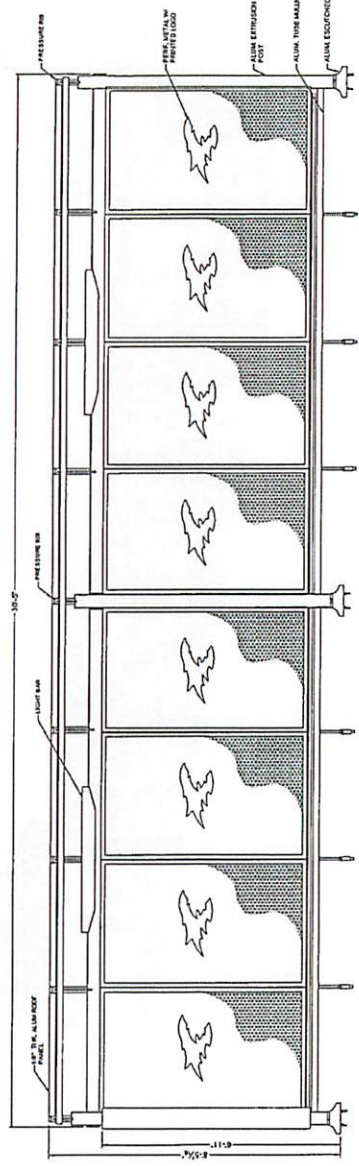




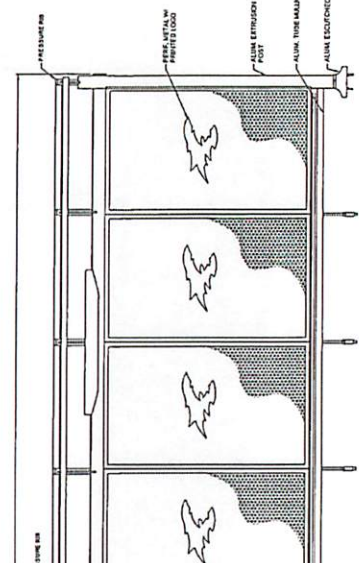
TOP VIEW



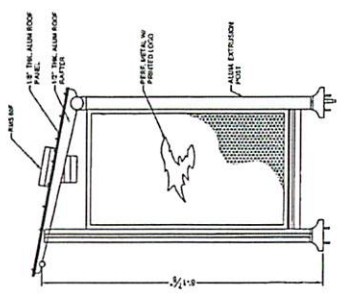
SIDE VIEW



FRONT VIEW



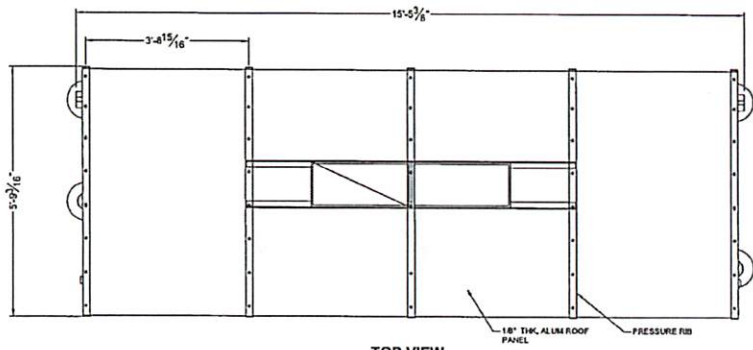
FRONT VIEW



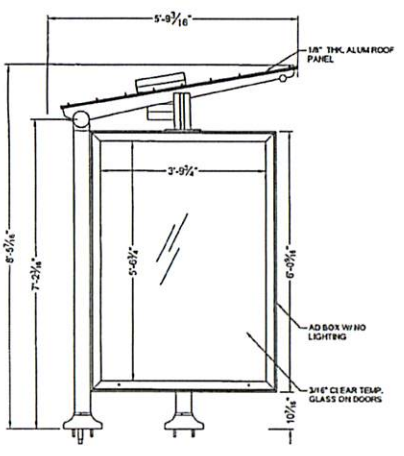
SIDE VIEW

GENERAL NOTES:
 1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A36, RIPPED-UP FIELD LENGTH.
 2. ALL STRUCTURAL ALUMINUM FINISHES, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6061-T6.
 3. ALL FINISHES SHALL BE AS NOTED.
 4. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 5. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 6. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 7. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 8. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 9. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 10. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 11. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.
 12. ALL GLASS SHALL BE SUPPLIED BY ANOTHER MANUFACTURER.

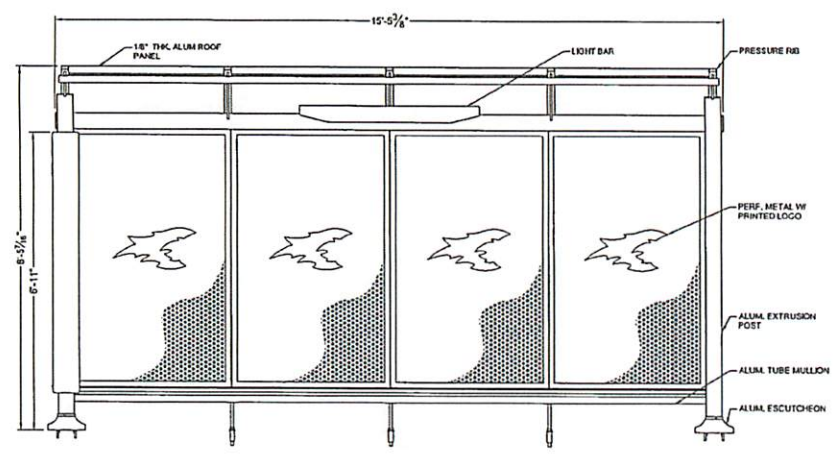
TOLAR MANUFACTURING COMPANY, INC.	
238 W. Main Street, Columbia, SC 29201	
BY AS CUSTOMER'S SKETCHES	
DATE	11/11/2018
SCALE	AS SHOWN
PROJECT	133775-00
REV.	0
DATE	11/11/2018
BY	REVISED
DATE	11/11/2018
BY	REVISED



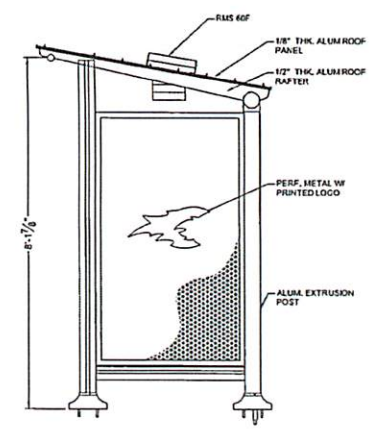
TOP VIEW



SIDE VIEW



FRONT VIEW

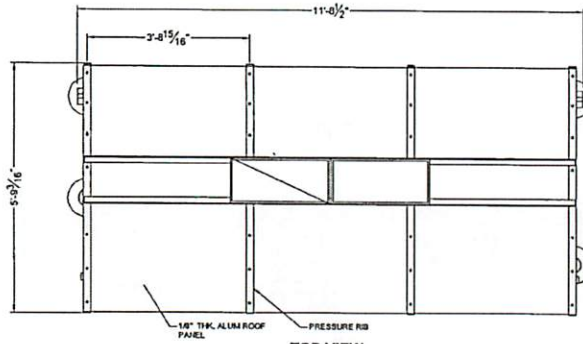


SIDE VIEW

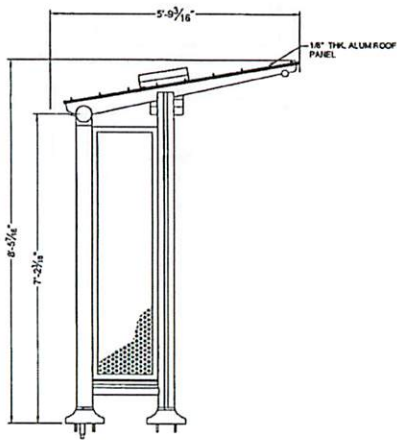
- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A36, MINIMUM YIELD STRENGTH 24,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
 3. ALL HOLES TO BE DRILLED OR PUNCHED.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-10. ELECTRODES SHALL CONFORM TO AWS E1.1, CLASS E70-F5.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.2-08. ELECTRODES SHALL CONFORM TO AWS/SA 5.10 CLASS ER40-3.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THE DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR MFG. AND ARE PROTECTED BY LAW. THEY MAY NOT BE REPRODUCED OR USED FOR FABRICATING WITHOUT THE WRITTEN CONSENT OF TOLAR MFG. CONTRACTOR TO SITE VERIFY ALL DETAILS AND DIMENSIONS AND REPORT ANY AND ALL DISCREPANCIES TO TOLAR MFG. BEFORE COMMENCING WITH THAT RELATED PORTION OF THE WORK.

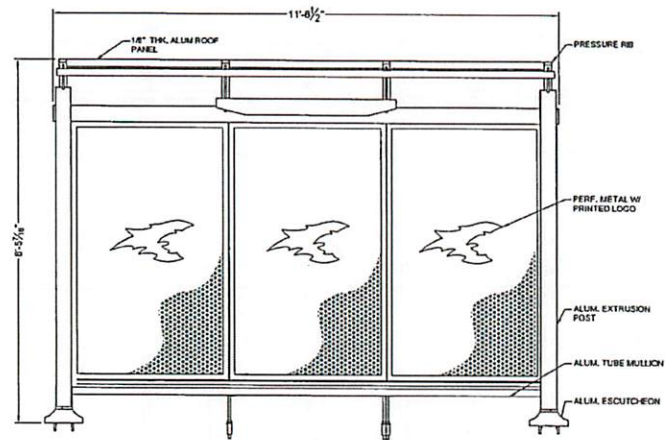
TOLAR TOLAR MANUFACTURING COMPANY, INC. 228 Main Street, Columbia, GA, 32201	
WE AG CUSTOMER SERVICE CENTER	
COLUMBIA, SC	
DATE	ISSUE NO.
D	33274-00
REV	
NOTED	10/11/2013
DATE	ISSUE NO.
	33274-00
REV	



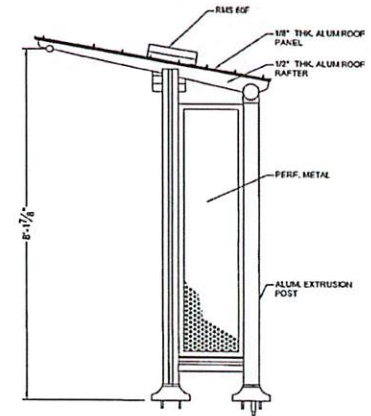
TOP VIEW



SIDE VIEW



FRONT VIEW



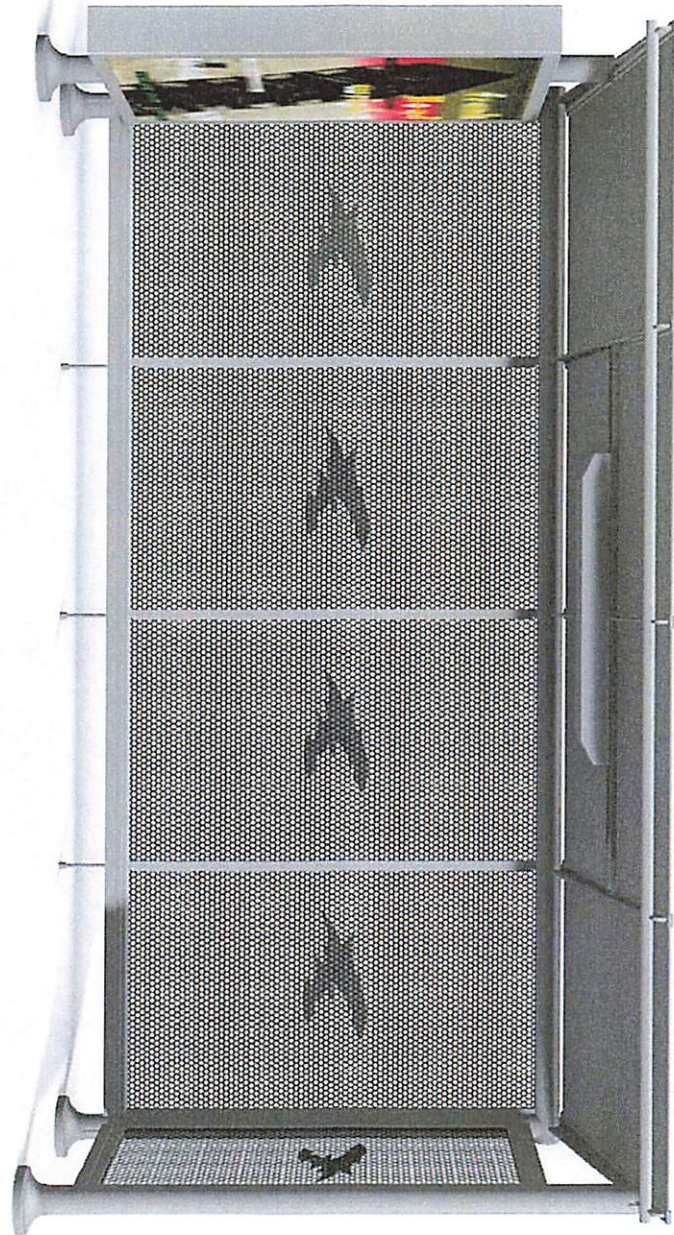
SIDE VIEW

GENERAL NOTES:

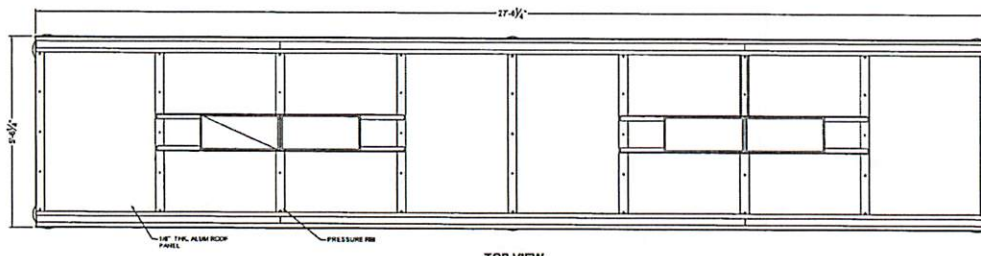
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, HIGHEST YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.
- 1-10. ELECTRODES SHALL CONFORM TO AWS E-1 CLASS E70S-5.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1, 2-08. ELECTRODES SHALL CONFORM TO AWS/SFA 5.10 CLASS ER40J.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

THE DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF TOLAR MFG. AND ARE PROTECTED BY LAW. THEY MAY NOT BE REPRODUCED OR COPIED FOR FABRICATION WITHOUT EXPRESS WRITTEN CONSENT FROM TOLAR MFG. ALL DIMENSIONS TO BE NEAREST 1/16\"/>

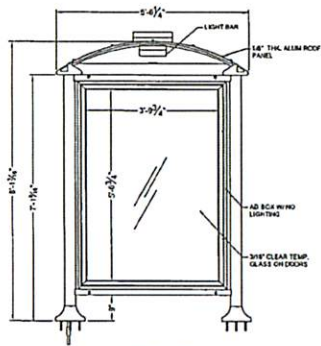
TOLAR TOLAR MANUFACTURING COMPANY, INC.		224 Market Circle, Columbia, SC 29279	
PROJECT NO. 17 FROM AID CUSTOM EMPIRE SHELTER			
COLUMBIA, SC			
DATE	REV.	FIG. NO.	REV.
D		33278-00	-
DATE NOTED	DATE	DATE	DATE
	10/11/2018		rand004



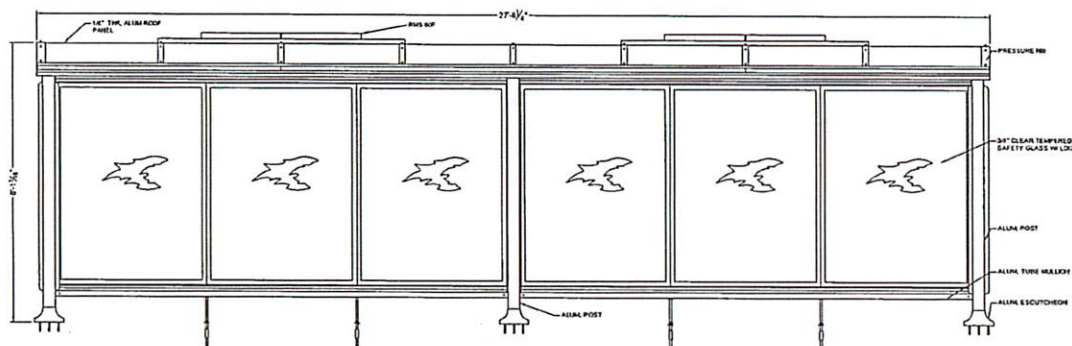




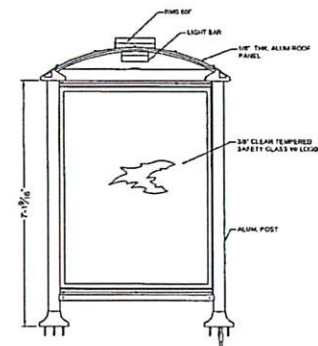
TOP VIEW



SIDE VIEW



FRONT VIEW



SIDE VIEW

- GENERAL NOTES:**
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE A572-A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6061-T6 OR GREATER.
 3. ALL WELDS TO BE PERFORMED BY WELDER.
 4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-01. ELECTRODES SHALL CONFORM TO AWS E, CLASS E80C.
 5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.10-01. ELECTRODES SHALL CONFORM TO AWS, CLASS 4043.
 6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

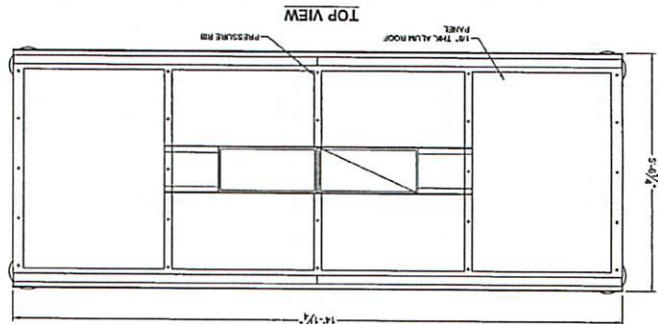
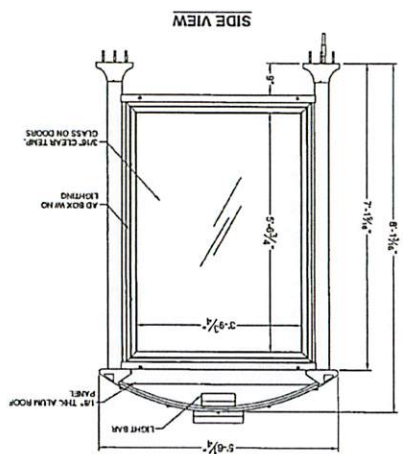
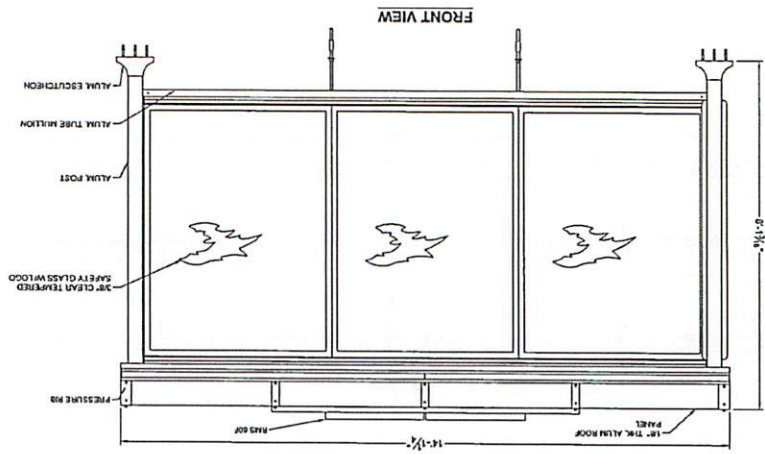
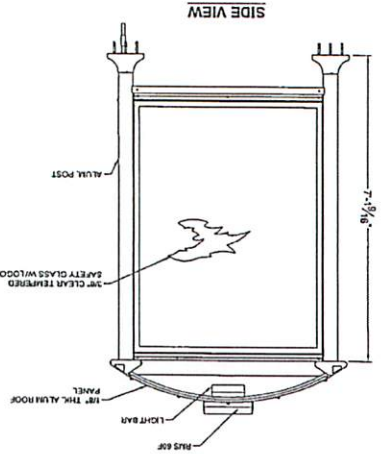
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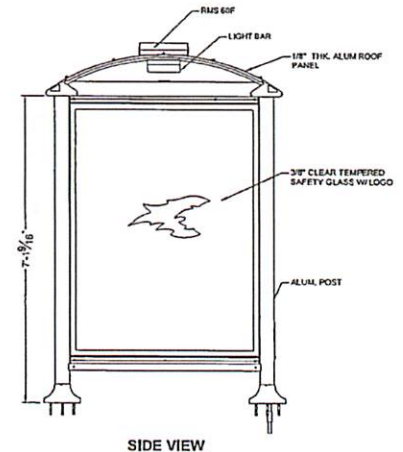
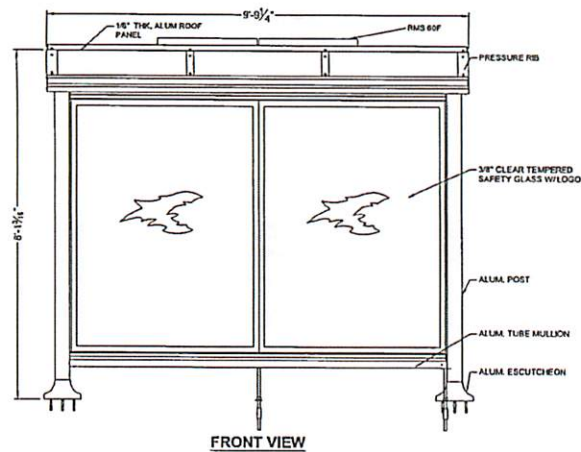
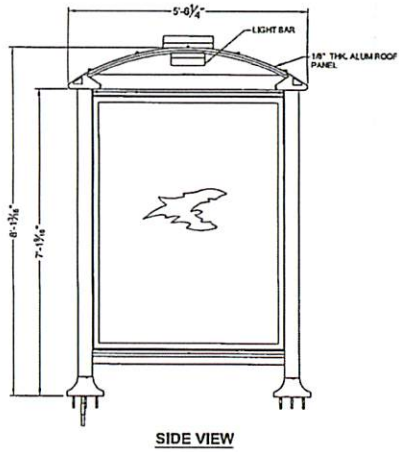
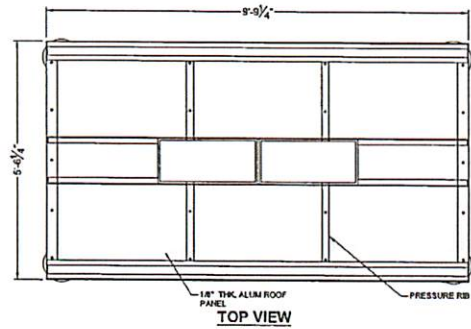
CONTRACTOR TO SEE TO IT THAT ALL DETAILS AND DIMENSIONS AND ACCEPTANCE AND ALL SPECIFICATIONS TO TOLAR MFG. BE DONE IN CONFORMANCE WITH THAT RELATED PORTION OF THE WORK.

TOLAR TOLAR MANUFACTURING COMPANY, INC.		258 Main Circle, Canaan, GA, 30529	
DRAWING NO. 332278-00			
DATE	NOTED	DATE	10/11/2018
BY		BY	

REV	DATE	DESCRIPTION
1	10/11/2018	REVISED
<p>TOYAR MANUFACTURING COMPANY, INC. 228 Main Street, Chino, CA 91710 TEL: 909.401.1111 FAX: 909.401.1112 WWW.TOLAR.COM</p>		
PROJECT NO.	3377-00	
CLIENT	COLUMBIA, SC	

GENERAL NOTES:
 1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36.
 2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF 6061-T6 OR EQUAL.
 3. ALL WELDING SHALL BE DONE AT TOYAR MANUFACTURING COMPANY, INC. FACILITY.
 4. ALL WELDING SHALL CONFORM TO AWS D1.1 CLASS E7018.
 5. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.1.
 6. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.2.
 7. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.3.
 8. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.4.
 9. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.5.
 10. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.6.
 11. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.7.
 12. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.8.
 13. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.9.
 14. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.10.
 15. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.11.
 16. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.12.
 17. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.13.
 18. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.14.
 19. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.15.
 20. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.16.
 21. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.17.
 22. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.18.
 23. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.19.
 24. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D11.20.





GENERAL NOTES:

1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-10. ELECTRODES SHALL CONFORM TO AWS E1 CLASS E70S-6.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-08. ELECTRODES SHALL CONFORM TO AWS/SAF A 5.10 CLASS ER4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.

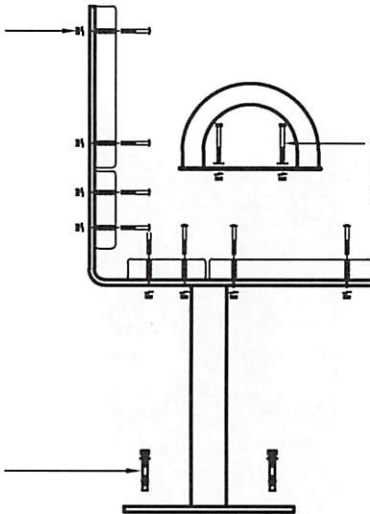
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TOLAR		TOLAR MANUFACTURING COMPANY, INC.	
254 Marlow Circle, Columbia, SC 29279			
SIP MCM AND CUSTOM EURO SHELTER			
COLUMBIA, SC			
DATE	REV.	DATE	REV.
D		3/27/00	
NOTED		10/11/2018	REV 004





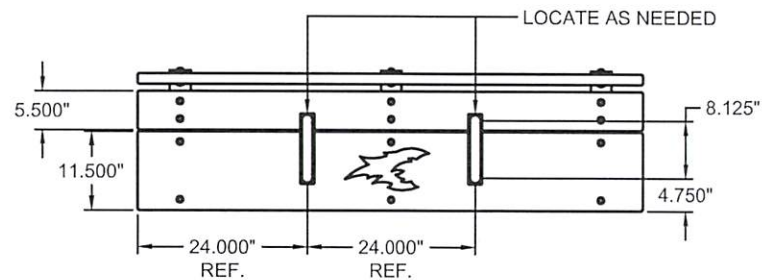
1/4-20 x 2" S.S. CARRIAGE BOLT WITH LOCKWASHER & HEX NUT - (6) PER SLAT



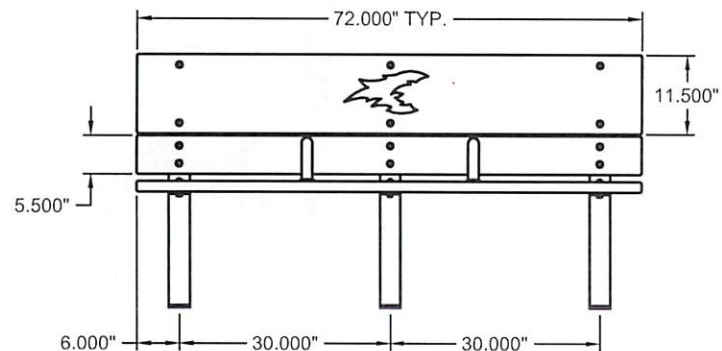
1/4-20 x 2 1/2" S.S. HEX HEAD BOLT WASHER, LOCKWASHER, & HEX NUT (2) PER ARMREST CONNECTION

3/8-16 x 2 3/4" S.S. WEDGE ANCHOR (2) PER PEDESTAL FOOT

DRILL A Ø3/8" - 2 1/2" DEEP FOR INSTALL FOLLOW INSTRUCTIONS FOR ANCHOR BOOTS FOR LOCATING AND PREPPING WEDGE ANCHOR HOLES



PLAN VIEW



FRONT ELEVATION

-- BENCH LAYOUT.

BRASCO INTERNATIONAL, INC.

32400 INDUSTRIAL DRIVE
MADISON HEIGHTS, MICHIGAN 48071
1-800-893-3665 WWW.BRASCO.COM

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SIGNED: _____ DATE: _____

CUSTOMER:	CENTRAL MIDLANDS TRANSIT	ENGINEER:	HAUS
PROJECT:	INSTALLATION INSTRUCTIONS	DATE:	7-21-14
MODEL:	LEAN RAIL INSTALL	CHECKER:	BDH
		DATE:	7-22-14
		JOB #	3763
		SHEET #:	INSTALL-9