ENGINEERINGEXPRESS.COM
POSTAL ADDRESS: 401 WEST ATLANTIC AVENUE R10
#219 DELRAY BEACH, FL 33444

Technical Evaluation Report

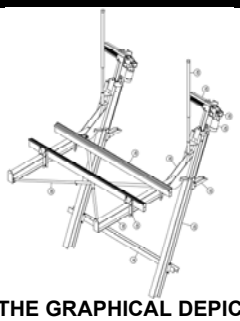
THIS DOCUMENT CONTAINS (4) PAGES: THE FIRST PAGE MUST BEAR AN ORIGINAL SIGNATURE & SEAL OF THE CERTIFYING PE TO BE VALID FOR USE

(Subject to Renew November 1, 2022 or next code

EVALUATION SUBJECT: CATEGORY 3, ELEVATOR BOAT LIFT (3,000LB – 24,000LB CAPACITY)

TER-21-46280

REPORT HOLDER:
HURRICANE BOAT LIFTS
3301 SE SLATER STREET
STUART, FL 34997 USA
(772)-781-2556 | HURRICANEBOATLIFTS.COM



Florida Building Code 7th Edition (2020)
International Building Code (2015, & 2018)

SCOPE OF EVALUATION (compliance with the following codes):

THIS IS A STRUCTURAL (WIND & GRAVITY) PERFORMANCE EVALUATION ONLY. NO ELECTRICAL OR OTHER PERFORMANCE RATINGS OR CERTIFICATIONS ARE OFFERED OR IMPLIED HEREIN.

This Product Evaluation Report is being issued in accordance with the requirements of the **Florida Building Code Seventh Edition (2020) and the International building Code (2015 & 2018)**. The product noted on this report has been tested and/or evaluated as summarized herein. **IN ACCORDANCE WITH THESE CODES EACH OF THESE REPORTS MUST BEAR THE ORIGINAL SIGNATURE & RAISED SEAL OF THE EVALUATING ENGINEER.**

SUBSTANTIATING DATA:
• Product Evaluation Documents
Substantiating documentation has been submitted to provide this TER and is summarized in the sections below.
• Structural Engineering Calculations
Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

- Maximum allowable gravity loads
- Maximum allowable wind loads

Calculation summary is included in this TER and appears below.
NOTE: No 33% increase in allowable stress has been used in the design of this product.

INSTALLATION:
The product(s) listed above shall be installed in strict compliance with this TER & manufacturer-provided model specifications.
The product components shall be of the material specified in the manufacturer-provided product specifications. All screws must be installed in accordance with the applicable provisions & anchor manufacturer's published installation instructions.

LIMITATIONS & CONDITIONS OF USE:
Use of this product shall be in strict accordance with this TER as noted herein. See final page for complete limitations and conditions of use.
Note: The unit included in this TER has been analyzed for wind and gravity loads only. This does not include any verification that involves moving or transporting the unit or the movement of the unit components. Data on relocation by crane or other lifting methods must be certified per separate engineering. Pilings described herein are considered to be part of the host structure and are not part of this certification. Attachment of lift assembly to host structure shall be certified by others.

All members in contact with dissimilar metals shall be insulated to prevent electrolysis.

NOTE: THE GRAPHICAL DEPICTIONS IN THIS REPORT ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER IN APPEARANCE.

MATERIAL:
Aluminum (6061-T6 or 6005-T5 minimum unless noted otherwise)
Wood (Southern Yellow Pine, P.T #1 unless noted otherwise)
Stainless Steel wire rope (304 SS minimum)

OPTIONS:
This evaluation is valid for all models that appear in the tables within this report.

STRUCTURAL PERFORMANCE:
Models referenced herein are subject to the following design limitations:

ASCE 7-16
$V_{ULTIMATE}$ wind speed=50 MPH (with boat), $V_{ULTIMATE}$ wind speed=180 MPH (without boat) Exposure 'D' Risk Category II, on flat terrain (Kzt=1.0)
Dock/Seawall application & integrity per site-specific installation instructions (not included in this report).
- Valid for use inside and outside the High-Velocity Hurricane Zone (HVHZ).
- Maximum lift capacities as noted in design tables herein.

MAX WIND 50 MPH SUSTAINED
REMOVE BOAT WHEN WINDS APPROACH THIS SPEED OR FOR ANY NAMED STORM

VISIT ECALC.IO/46280
FOR ENGINEER CERTIFIED ORIGINALS
& MORE INFORMATION ABOUT THIS DOCUMENT
OR SCAN THIS QR CODE
VISIT ENGINEERINGEXPRESS.COM/STORE FOR ADDITIONAL PLANS, REPORTS & RESOURCES

ORIGINAL SIGNATURE AND RAISED SEAL
OR DIGITAL SEAL REQUIRED TO BE VALID PER CODE:

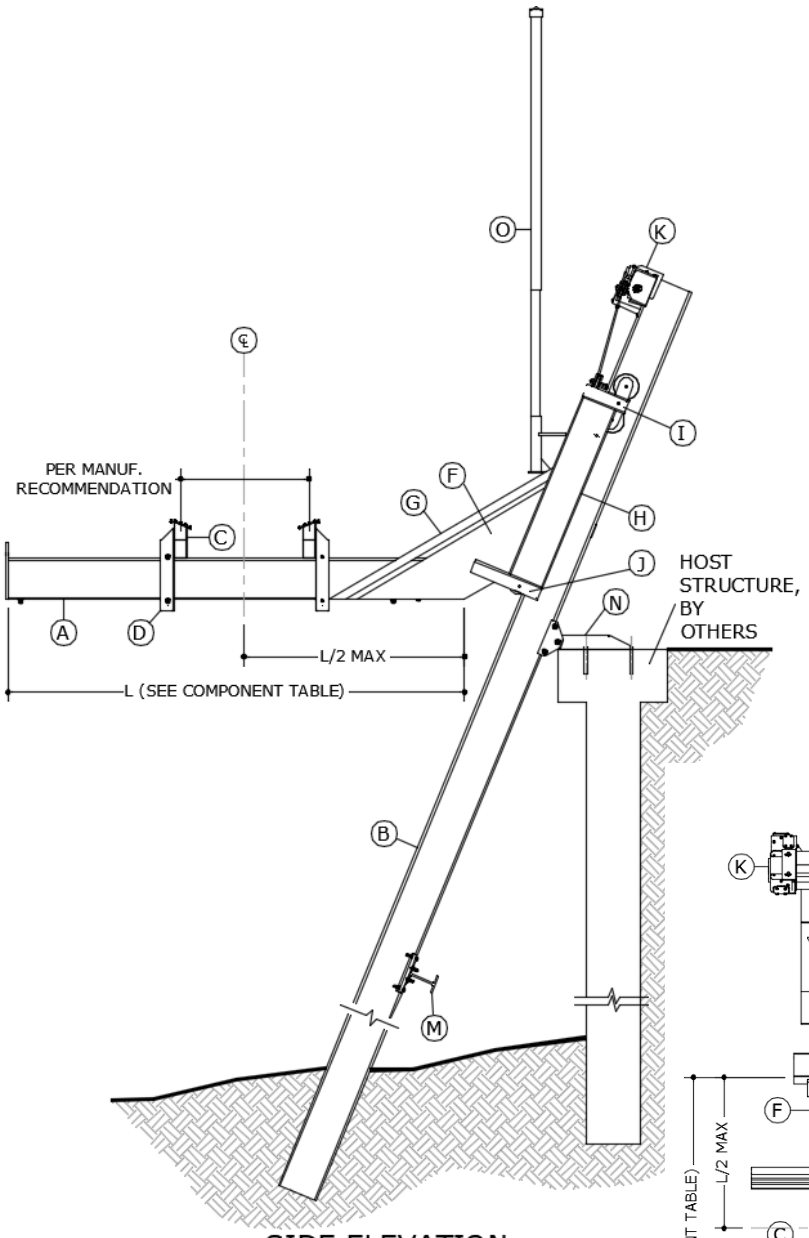
FRANK L. BENNARDO LICENSE No 0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Frank Bennardo
Reason: Printed copies of this document are not considered signed and sealed; The signature must be verified on any electronic copies.
Date: 2022.03.07 09:47:50 -05'00'

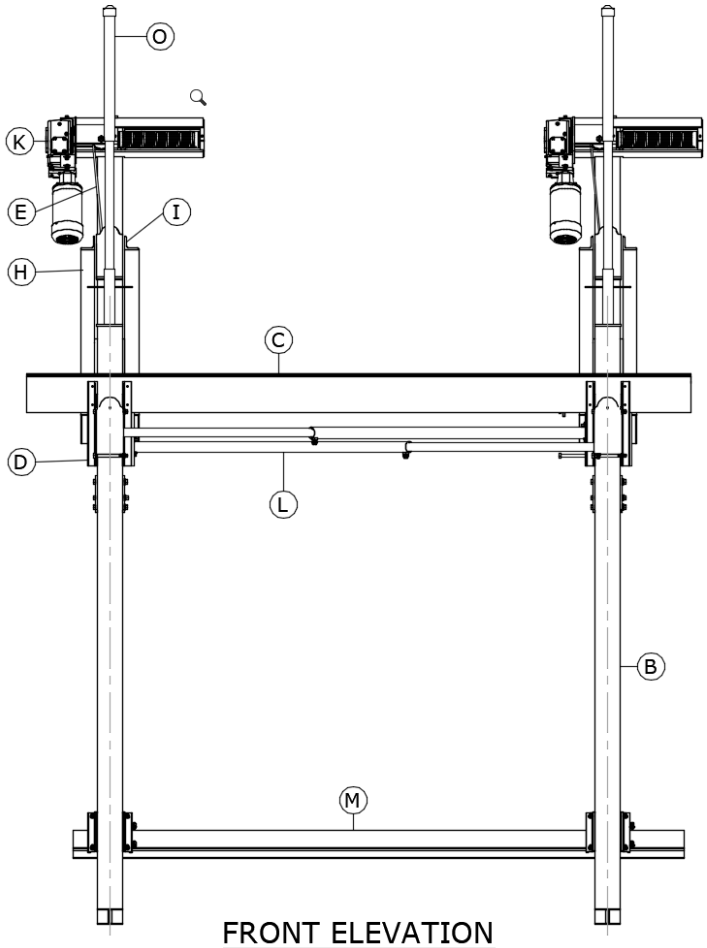
VALID ONLY FOR ZIP CODE: 33487
VALID ONLY FOR: David Joseph
FOR PERMIT USE WITHIN 14 DAYS OF DIGITAL SEAL
PE0046549 CA-9885

DIGITAL SEAL NOTICE: IF THIS DOCUMENT IS DIGITALLY SIGNED, THIS SHEET IS PART OF A DIGITALLY SIGNED FILE. IT SHALL REMAIN IN DIGITAL FORMAT, SHALL BE VERIFIED BY ELECTRONIC MEANS, & **PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED**. VISIT ECALC.IO/DS TO LEARN MORE.
PRINTED DOCUMENT NOTICE: IF THIS DOCUMENT IS PRINTED **& DOES NOT CONTAIN AN ENGINEER'S ORIGINAL SIGNATURE & SEAL, THIS DOCUMENT IS VOID & NOT VALID FOR USE. PHOTOCOPIES ARE NOT PERMITTED FOR USE.**

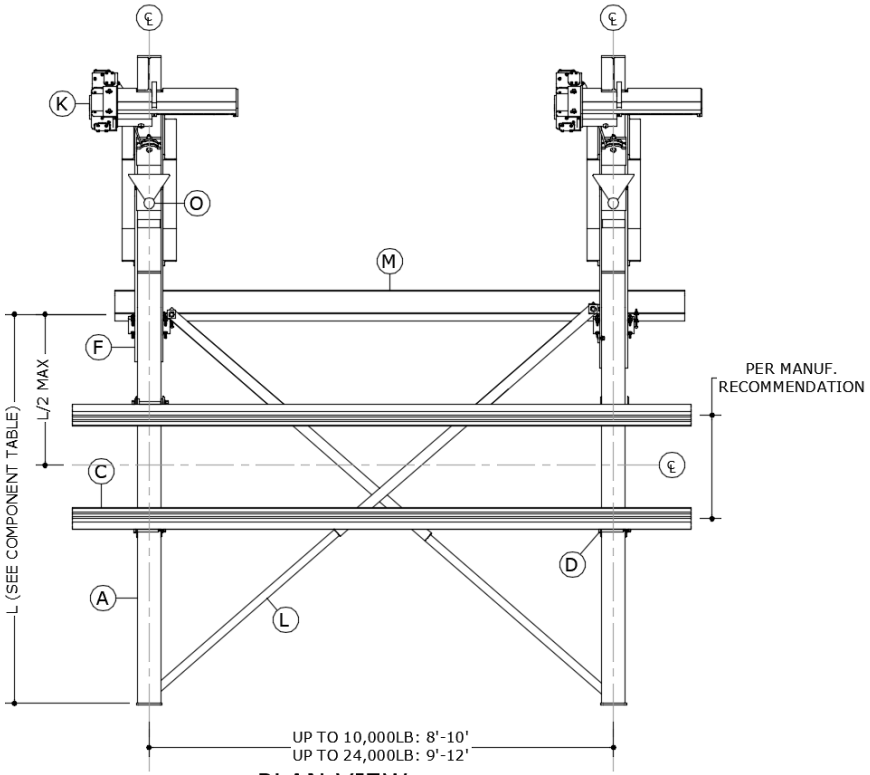
SECTION 2 – ILLUSTRATIONS & DIMENSIONS



SIDE ELEVATION

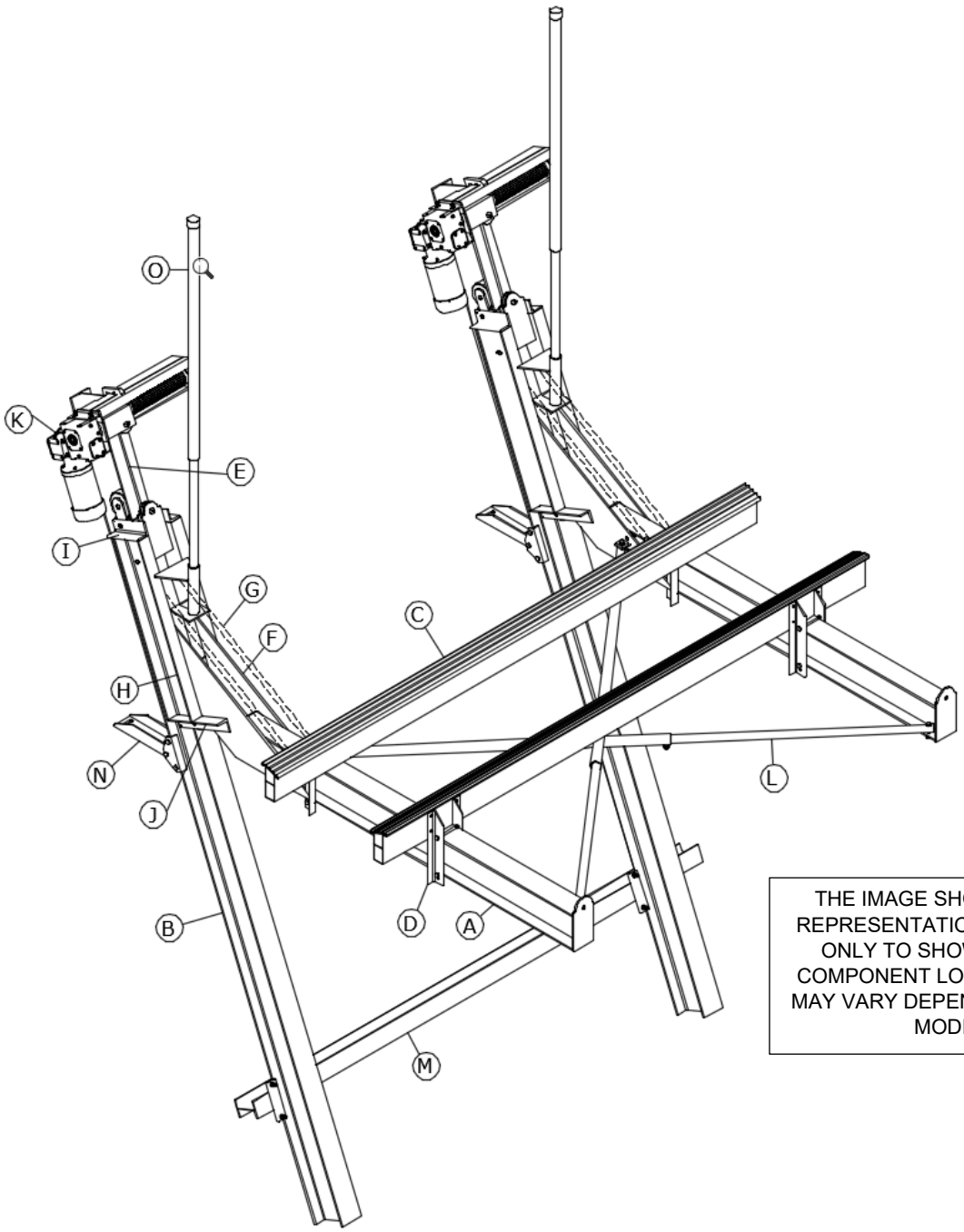


FRONT ELEVATION



PLAN VIEW

SECTION 2 – CONTINUED



THE IMAGE SHOWN IS FOR REPRESENTATION PURPOSES ONLY TO SHOW CRITICAL COMPONENT LOCATIONS AND MAY VARY DEPENDING ON LIFT MODEL

ISOMETRIC VIEW

LIMITATIONS & CONDITIONS OF USE:

Use of this product shall be in strict accordance with this TER as noted herein.
The supporting host structure shall be designed to resist all superimposed loads as determined by others on a site specific basis as may be required by the Authority Having Jurisdiction. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed on a site-specific basis by a registered professional engineer. No evaluation is offered for the host supporting structure by use of this document; Adjustment factors noted herein and the applicable codes must be considered, where applicable. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. Fasteners must penetrate the supporting members such that the full length of the threaded portion is embedded within the main member. All anchors, screws, straps, clips, and attachment part can be substituted for equivalent parts, as long as the capacities of the equivalent parts are equal or stronger.
This evaluation does not offer any evaluation to meet large missile impact debris requirements which typically are not required for this type of product. Yearly inspections, during equipment maintenance or after a named storm; all components shall remain undamaged and in original condition. All damaged components, loose, corroded, broken screws or anchor bolts shall be replaced to ensure structural integrity.

SECTION 3 – PRODUCT COMPONENTS

No.	Component	Description								
		Lift Capacity: 3,000lb	Lift Capacity: 5,000lb	Lift Capacity: 7,000lb	Lift Capacity: 10,000lb	Lift Capacity: 12,000lb	Lift Capacity: 15,000lb	Lift Capacity: 17,000lb	Lift Capacity: 20,000lb	Lift Capacity: 24,000lb
A	CRADLE BEAM (ExMxS/T1)**	6.0"X4.0"X0.29"/ 0.19" (8' LONG)	8.0"X5.0"X0.35"/ 0.23" (8'-4" LONG)	8.0"X5.0"X0.41"/ 0.25" (8'-4" LONG)	9.0"X5.5"X0.44"/ 0.27" (8'-4" LONG)	10.0"X6.0"X0.41"/ 0.25" (8'-4" LONG)	10.0"X6.0"X0.50"/ 0.29" (8'-4" LONG)	12.0"X7.0"X0.47"/ 0.29" (10' LONG)	12.0"X7.0"X0.62"/ 0.31" (10' LONG)	12.0"X7.0"X0.62"/ 0.31" (10' LONG)
B	LIFT BEAM (ExMxS/T1)**	6.0"X4.0"X0.29"/ 0.19" (25' LONG)	8.0"X5.0"X0.35"/ 0.23" (25' LONG)	8.0"X5.0"X0.41"/ 0.25" (25' LONG)	9.0"X5.5"X0.44"/ 0.27" (25' LONG)	10.0"X6.0"X0.41"/ 0.25" (25' LONG)	10.0"X6.0"X0.50"/ 0.29" (25' LONG)	12.0"X7.0"X0.47"/ 0.29" (25' LONG)	12.0"X7.0"X0.62"/ 0.31" (25' LONG)	12.0"X7.0"X0.62"/ 0.31" (25' LONG)
C	BUNK	2"X8"X12' P.T. SYP #1 CARPETED				3"X8"X14' P.T. SYP #1 CARPETED	3"X8"X16' P.T. SYP #1 CARPETED			
D	BUNK BRACKET SUPPORT	2"X2"X1/4" ANGLE				2"X3"X1/4" ANGLE		3"X3"X3/8" ANGLE		
E	SS WIRE ROPE	(2) 5/16"X30' 7X19 SS 304 (2 PART)			(2) 3/8"X30' 7X19 SS 304 (2 PART)	(2) 3/8"X45' 7X19 SS 304 (3 PART)				(2) 3/8"X60' 7X19 SS 304 (4 PART)
F	PLATE GUSSET (2 PER BEAM)	10"X3/8" PLATE			12"X1/2" PLATE			12"X3/4" PLATE		
G	PLATE ARM (2 PER BEAM)	N/A	3"X3/8" PLATE		3"X1/2" PLATE			3"X3/4" PLATE		4"X3/4" PLATE
H	UPPER CHANNEL (2 PER BEAM) (ExMxS)*** (EXMXS/W)****	C6X1.945X0.20 C-CHANNEL***	C8X3.0X0.35/0.19 C-CHANNEL****			C10X2.6X0.240 C-CHANNEL***		C12X2.96X0.30 C-CHANNEL***		
I	UPPER ROLLER SUPPORT (2 PER SIDE)	3"X3"X3/8"X8" LONG ANGLE			3"X3"X3/8"X9" LONG ANGLE	3"X3"X3/8"X10" LONG ANGLE		3"X3"X1/4"X12" LONG ANGLE W/ STIFFENER TUBE		
J	LOWER ROLLER SUPPORT (2 PER SIDE)	3"X3"X3/8"X14" LONG ANGLE			3"X3"X3/8"X16" LONG ANGLE	3"X3"X3/8"X16" LONG ANGLE		4"X4"X1/2"X23.75" LONG ANGLE		
* K	MOTOR AND GEAR BOX	(BY OTHERS)								
L	CROSS BRACE ASSEMBLY	N/A				OUTER: 2.375"ØX0.218 PIPE / INNER: 1.90"ØX0.20 PIPE				
M	LOWER STIFFENER	N/A				I-BEAM 3"X2.5"X0.26"/0.15"				
* N	ATTACHMENT BRACKET	(BY OTHERS)								
* O	GUIDE POST	60" HEIGHT				120" HEIGHT				
*	MAX BOAT BEAM (WIDTH)	8'	8'-6"		11'		12'		12'-6"	

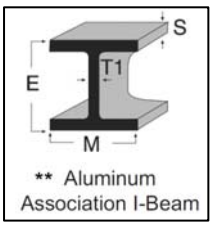
* REPRESENTS COMPONENTS AS PROVIDED BY MANUFACTURER THAT ARE NOT PART OF THIS CERTIFICATION. THESE COMPONENTS SHALL BE CERTIFIED BY OTHERS TO RESIST ALL IMPOSED LOADS

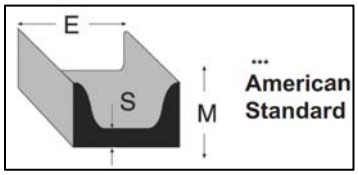
** I-BEAM CROSS SECTIONAL DIMENSIONS, SEE BELOW:

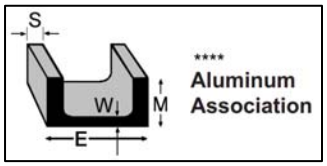
*** C-CHANNEL CROSS SECTIONAL DIMENSIONS NOTED AS FOLLOWS (AMERICAN STANDARD), SEE BELOW:

**** C-CHANNEL CROSS SECTIONAL DIMENSIONS NOTED AS FOLLOWS (ALUMINUM ASSOCIATION), SEE BELOW:

NOTE: THIS TABLE AND CORRESPONDING DRAWINGS HEREIN ARE INTENDED TO SUMMARIZE THE MAIN STRUCTURAL COMPONENTS OF THE LIFT SYSTEMS AND ARE NOT INTENDED TO BE FULL ASSEMBLY DRAWINGS. FOR FULL ASSEMBLY DRAWINGS, SEE INDIVIDUAL LIFT DRAWING SPECIFICATION PACKAGES WHICH CAN BE PROVIDED BY MANUFACTURER OR BY THIS OFFICE







Proj. #	Remarks	By	Checked	Date
21-46280	Initial Issue	RWN	FLB	10/29/2021

Aluminum welding shall be performed in accordance with the FBC section 2003.8.1.3 with weld filler alloys meeting ANSI/AWS a5.10 standards to achieve ultimate design strength in accordance with the Aluminum Design Manual. Use weld filler 5556 or better electrodes. All aluminum construction shall be in conformance with the tolerances, quality and methods of construction as set forth in FBC/IBC and the American Welding Society's Structural Welding Code-Aluminum. Minimum weld is 3/8" throat full perimeter fillet weld unless otherwise noted in drawing specification package.