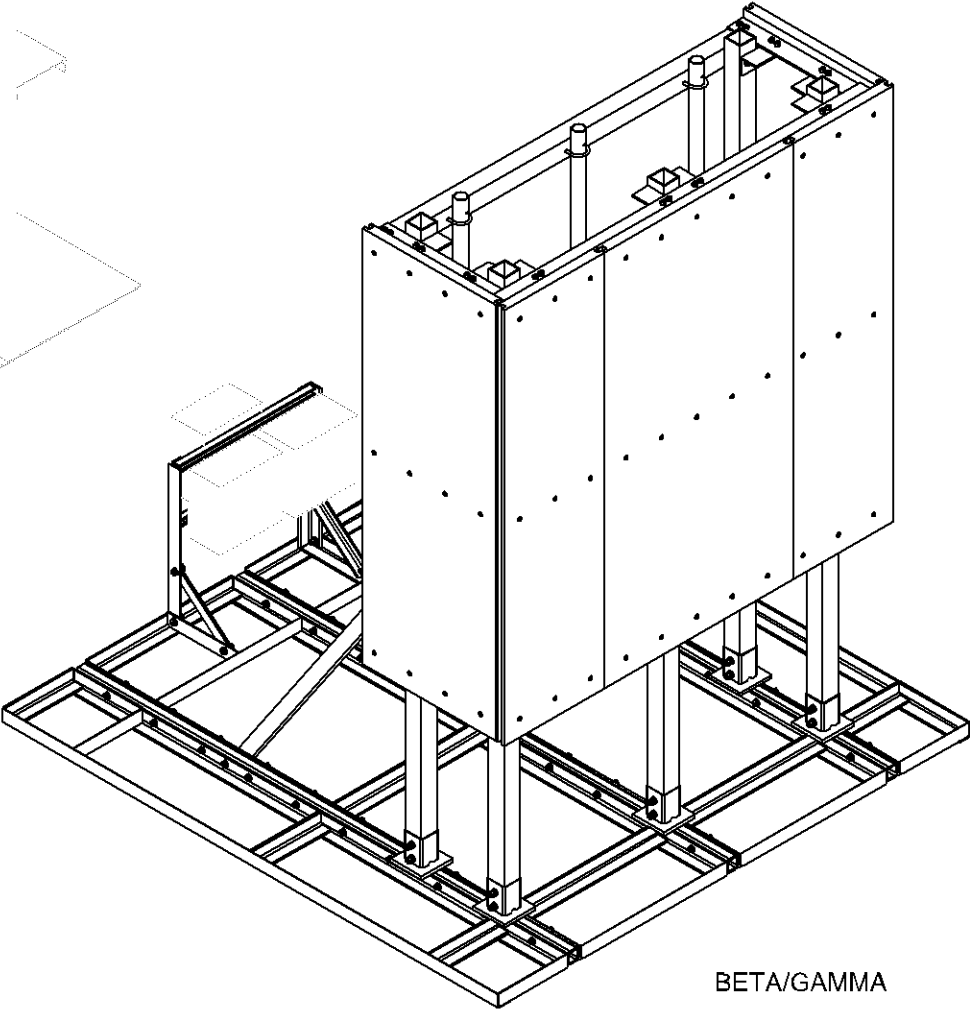
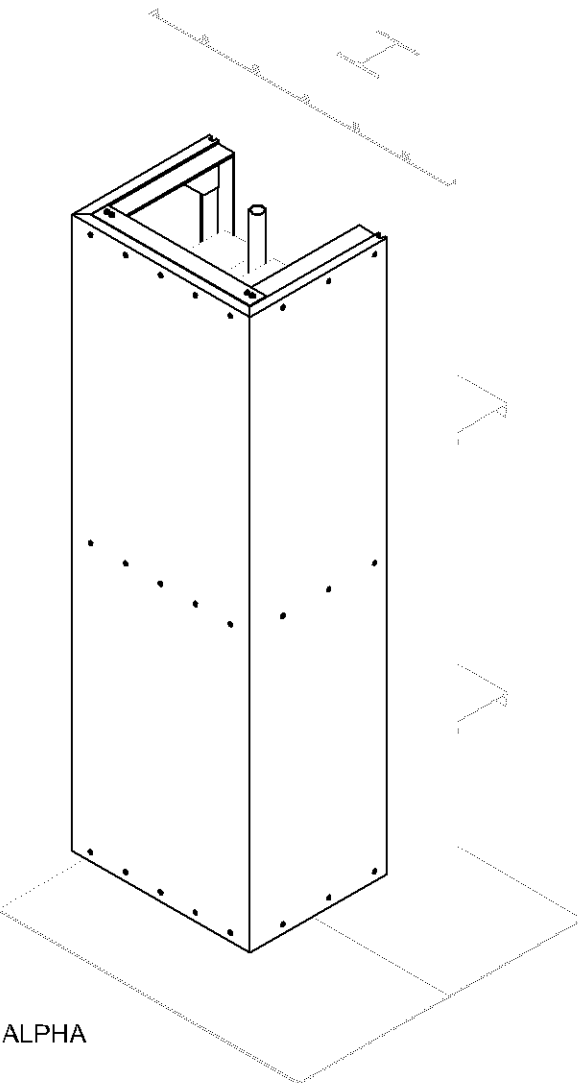


PL202300142



7555-A PALMETTO COMMERCE PARKWAY

NORTH CHARLESTON, SC 29420 USA

P: (800)-755-0689 / F: (843)-207-0207

WWW.RAYCAP.COM

PROJECT MANAGER: EVAN NELSON ; 843-473-6562

FINAL ENGINEERING

TRILEAF CORPORATION
MNMSP00388A
4000 SW COURT
BLOOMINGTON, MN 55425

RAYCAP #: DW23-00846H-35R0

DRAWING INDEX

T1	TITLE SHEET
N1-N2	NOTES & SPECIFICATIONS
S1	ASSEMBLY - LAYOUT
S2-S4	ASSEMBLY - ELEVATIONS
S5-S7	STEEL DETAILS

I hereby certify that this plan, specification,
or report was prepared by me or under my
direct supervision and that I am a duly
Licensed Professional Engineer under the
laws of the State of Minnesota.

Print Name: BRADLEY R. NEWMAN

Signature: [Signature]

Date: 06-21-2023 License #: 50753

GENERAL

PL202300142

- THIS PRODUCT IS SOLD PURSUANT TO RAYCAP, INC. TERMS AND CONDITIONS, WHICH ARE INCORPORATED HEREIN BY REFERENCE.
- THESE SHALL APPLY FOR ALL CASES UNLESS NOTED OTHERWISE (U.N.O.).
- ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN. HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
- IN THE CASE WHERE DIMENSIONS CONTAINED WITHIN ARE LABELED TO BE VERIFIED IN FIELD (V.I.F.), THEY MUST BE FIELD VERIFIED AND/OR CUSTOMER APPROVED PRIOR TO FABRICATION OF MATERIALS.
- IN THE CASE THAT THE PROPOSED IS TO BE PLACED ON AN EXISTING STRUCTURE, THE MODIFICATIONS DEPICTED IN THESE DRAWINGS ARE INTENDED TO PROVIDE STRUCTURAL SUPPORT FOR THE ADDITION OF THE TELECOM STRUCTURE OUTLINED WITHIN. THE EXISTING STRUCTURE, WHETHER IT BE A FOUNDATION, POLE, OR BUILDING (IF APPLICABLE) SHALL BE ANALYZED AND RETROFITTED AS REQUIRED, BY OTHERS, TO WITHSTAND THE LOADS IMPOSED BY THE NEW RAYCAP STRUCTURE SHOWN ON THE DRAWINGS.
- TELECOM PRODUCTS SHALL BE INSTALLED BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK. CARE SHALL BE TAKEN IN THE INSTALLATION OF ANY AND ALL MEMBERS IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES. ALL APPLICABLE OSHA SAFETY GUIDELINES ARE TO BE FOLLOWED. RAYCAP IS NOT PROVIDING FIELD INSTALLATION SUPERVISION.
- NOTES FOR CONTRACTOR/INSTALLER: ALL BIDS FOR THE INSTALLATION/ERECTION OF THIS PRODUCT SHALL INCLUDE, BUT NOT LIMITED TO THE FOLLOWING MINIMUM REQUIRED TRADES: RIGGING, STEEL ERECTION, STEEL FABRICATION/MODIFICATION, WELDING, ELECTRICAL, CONCRETE, EXCAVATION AND WATERPROOFING. CONTRACTOR MAY, IN CONTRACTOR'S SOLE AND ABSOLUTE DISCRETION, DETERMINE ADDITIONAL TRADES ARE NECESSARY TO INSTALL/ERECT THE PRODUCT.
- THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FIELD PROBLEMS.
- PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN ITS COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- THE PLANS AND DETAILS WITHIN DO NOT INCLUDE DETAILS OR DESIGN FOR DRAINAGE FROM OR WATERPROOFING OF EXTERIOR OR INTERIOR SURFACES OF THE STRUCTURE. THESE DETAILS MUST BE COMPLETED BY OTHERS.
- CONTRACTOR TO SHIM BASE PLATES AND MATING FLANGES AS REQUIRED TO ENSURE LEVEL SURFACE.

STRUCTURAL STEEL AND ALUMINUM

- STEEL FABRICATION AND INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL AND SPECIFICATIONS.
- STEEL I-SHAPE, ANGLE, CHANNEL, AND MISCELLANEOUS MEMBERS SHALL CONFORM TO ASTM A36 (36 KSI MIN. YIELD STRENGTH) STEEL SPECIFICATIONS, U.N.O.
- STEEL PLATE MEMBERS SHALL CONFORM TO MINIMUM ASTM A36 (36 KSI MIN. YIELD STRENGTH) STEEL SPECIFICATIONS U.N.O.
- STEEL PIPE AND ROUND TUBE MEMBERS SHALL CONFORM TO ASTM A500 GRADE B (42 KSI MIN. YIELD STRENGTH) STEEL SPECIFICATIONS, U.N.O.
- STEEL RECTANGULAR AND SQUARE TUBE MEMBERS SHALL CONFORM TO ASTM A500 GRADE B (46 KSI MIN. YIELD STRENGTH) STEEL SPECIFICATIONS, U.N.O.
- STEEL WIDEFLANGE MEMBERS SHALL CONFORM TO ASTM A992 (50 KSI MIN, YIELD STRENGTH) STEEL SPECIFICATIONS U.N.O.
- STEEL TAPERED POLES SHALL CONFORM TO ASTM A572 GR50 FOR 11 GA AND ASTM A572 GR65 FOR .188" and .25" WALL THICKNESS.
- ALUMINUM PLATE MEMBERS SHALL BE GRADE 5052-H34. EXCEPTION FOR 3/8" OR THICKER UNBENT MEMBERS TO BE GRADE 6061-T6.
- ALUMINUM PIPE TO BE GRADE 6061-T6.
- ALUMINUM TAPERED POLES TO BE GRADE 6063-T6.
- ALL STRUCTURAL BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325 SPECIFICATIONS, U.N.O. A325N AND A325X ALLOWED. ALL BOLTS ARE RECOMMENDED TO BE ORIENTED WITH THREADS UP AND OUT UNLESS SITE SPECIFIC CONDITIONS WARRANT OTHERWISE.
- STRUCTURAL BOLTS SHALL BE TIGHTENED PER THE "TURN OF THE NUT" METHOD.
- STRUCTURAL BOLT HOLE EDGE DISTANCES SHALL BE PER AISC SECTION J3
- ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES OF THE AMERICAN WELDING SOCIETY (AWS) BY CERTIFIED WELDERS PER AWS D1.1 FOR STEEL, AWS D1.2 FOR ALUMINUM AND AWS D1.6 FOR STAINLESS STEEL. STEEL WELDS SHALL BE BY E70XX, LOW HYDROGEN ELECTRODE. ALUMINUM WELDS SHALL UTILIZE 4043 FILLER OR APPROVED ALTERNATIVES. VERIFY FILLER MATERIAL IS COMPATIBLE WITH BASE METAL FOR EACH WELDED JOINT.
- UNCOATED STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123 SPECIFICATIONS AFTER FABRICATION OR PAINTED WITH RUST INHIBITIVE PRIMER.
- STEEL HARDWARE SHALL BE HOT DIP GALVANIZED PER ASTM F2329, U.N.O.
- AFTER ANY FIELD HOLE PUNCHING / DRILLING OR CUTTING HAS BEEN COMPLETED, OR FOR ANY DAMAGED STRUCTURAL MEMBER, THE GALVANIZING MUST BE REPAIRED ACCORDING TO ASTM A780.
- ALL WELDED STEEL ASSEMBLIES AND INDIVIDUAL STEEL PARTS SHOULD HAVE THE PART NUMBER WELDED OR TAGGED ONTO THE PART OR ASSEMBLY. IF WELDED, THE PART NUMBERS SHOULD BE LOCATED CONSISTENTLY AND AWAY FROM ANY CONNECTION POINT TO AVOID ANY INTERFERENCE ISSUES WITH THE WELD.
- DISSIMILAR METALS IN CONTACT SHALL BE INSULATED WITH PAINT OR OTHER APPROVED COATING TO PREVENT GALVANIC CORROSION.

BALLASTED CONCEALMENTS

- ROOF MUST BE CLEAN AND FREE OF DEBRIS.
- THE BALLAST FRAME IS TO BEAR ON A NEOPRENE PAD PROVIDED BY OTHERS, PLACED BETWEEN THE NEW BALLAST FRAME AND ROOF.
- DESIGN ASSUMES CONTRACTOR IS RESPONSIBLE FOR LEVELING THE PLATFORM ON ROOF AND PROVIDING APPROPRIATE SHIM METHOD IF ROOF IS SLOPED.

STEALTHSKIN PANELS:

- FASTENER HOLES IN STEALTHSKIN FOAM COMPOSITE PANELS ARE NOT FACTORY DRILLED AND MUST BE DRILLED IN THE FIELD.
- PANEL FASTENERS TO BE SPACED 12" O.C. MAX. AND LOCATED 6" MAX. HORIZONTALLY FROM EACH EDGE AT TOP AND BOTTOM OF PANEL, UNLESS NOTED OTHERWISE. MAINTAIN 1 1/2" MIN. EDGE DISTANCE FROM ALL EDGES. 4' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. 5' WIDE PANELS REQUIRE (5) FASTENERS TOP AND BOTTOM.
- WHEN FASTENER BOLT HEAD OR NUT BEARS DIRECTLY ON SURFACE OF STEALTHSKIN PANEL, TIGHTEN PANEL BOLTS ONLY 1/2 TURN PAST SNUG. APPLY THREAD LOCK COMPOUND TO THE THREADS OF METAL BOLTS. USE THIN BEAD OF EPOXY TO LOCK THE NUTS OF FRP BOLTS AND STEALTH} STAINLESS STEEL PANEL BOLTS. USE WASHER OR FLANGED HEAD BOLT, OR FASTENER WITH LARGE BEARING SURFACE.
- PANELS WILL EXPAND AND CONTRACT DUE TO TEMPERATURE. WHEN INSTALLING PANELS IN COLD TEMPERATURES, EVENLY SPACE PANELS ALONG LENGTH OF SCREEN WALL WITH EQUAL GAPS BETWEEN PANELS TO ALLOW FOR EXPANSION DURING WARM TEMPERATURES.
- ADJACENT FLAT PANELS ARE JOINED BY A VERTICAL FOAM SPLINE THAT IS INSERTED INTO GROOVES CUT INTO THE SIDE OF EACH PANEL. DO NOT LIFT PANELS BY GROOVES. PANELS MUST BE LIFTED WITH FORCE DIRECTED ONTO PANEL SURFACE.
- ADJACENT RADIUS PANELS ARE JOINED BY A VERTICAL H-CHANNEL. INSERT PANELS INTO EACH SIDE OF H-CHANNEL.
- RADIUS PANELS MUST BE EVENLY SPACED ALONG RADIUS SUPPORT. CONTRACTOR TO MEASURE LENGTH OF RADIUS SUPPORT AND DIVIDE BY THE NUMBER OF RADIUS PANELS TO DETERMINE PROPER SPACING. H-CHANNEL CONNECTORS ARE USED TO COVER THE GAP BETWEEN PANELS AND TO ALLOW FOR PANEL EXPANSION AND CONTRACTION.
- SURFACES OF PANELS SHALL BE COATED WITH SUITABLE PAINT FOR UV PROTECTION. TOP EDGE OF PANEL MUST BE COVERED TO PREVENT WATER TRAVEL BETWEEN PANELS. USE SHERWIN WILLIAMS "COROTHANE II" OR PRE APPROVED EQUIVALENT.
- EXPOSED TOP AND SIDE FOAM EDGES OF PANELS MUST BE COVERED OR COATED FOR UV PROTECTION. RAYCAP, INC. WILL PROVIDE PANEL EDGE CAPS (VERTICAL AND HORIZONTAL) TO BE FIELD APPLIED FOR THIS PURPOSE FOR MOST APPLICATIONS. HORIZONTAL AND VERTICAL PANEL EDGE CAPS TO BE SECURED TO THE EXPOSED EDGES OF THE PANELS WITH PROVIDED TEK SCREWS INSTALLED @ 12" MAXIMUM SPACING ON THE INSIDE FACE OF THE PANEL. IN RF SENSITIVE LOCATIONS, CONTRACTOR WILL APPLY (2) BEADS OF ADHESIVE TO EACH INSIDE CORNER OF THE EDGE CAP AND SECURE CAP TO PANEL WITH TAPE WHILE ADHESIVE CURES.
- AT CORNER APPLICATIONS, VERTICAL PANEL EDGE CAPS ARE TO BE USED TO CAP BOTH EXPOSED EDGES (1 PER CUT EDGE OF PANELS). THESE EDGE CAPS ARE TO BE CUT 1" SHORTER THAN THE PANEL AND LEAVE 1" GAP AT THE TOP TO ALLOW ROOM FOR THE THE HORIZONTAL PANEL EDGE CAP AT THE TOP. CONTRACTOR TO APPLY (2) BEADS OF ADHESIVE TO EACH EDGE CAP (INSIDE CORNERS OF CAP), AND SECURE WITH TAPE AND/OR PROVIDED SCREWS (16 TOTAL PER CORNER) WHILE THE ADHESIVE CURES. IF CORNERS ARE IN NON-RF AREAS, EDGE CAP SCREWS CAN BE LEFT IN PLACE.
- AT CORNER APPLICATIONS WITH SSV PANEL ONLY, CORNER CHANNELS ARE TO BE USED TO JOIN PANELS TOGETHER. BOTH ADJOINING PANELS WILL BE INSERTED INTO THE CORNER CHANNEL AND SECURED USING PROVIDED NYLON PUSHINS. THE PUSHINS ARE TO BE PLACED ON THE INSIDE OF ONE OF THE PANELS ONLY @ 12" MAXIMUM SPACING.

DISCLAIMERS:

- ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATILITY PROBLEMS AFTER PARTIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.
- SOME TELECOMMUNICATION STRUCTURES ARE SUSCEPTIBLE TO WIND-INDUCED OSCILLATIONS. OSCILLATIONS MAY OCCUR AT LOW OR MODERATE WIND SPEEDS AND MAY CAUSE STRUCTURAL DAMAGE. TIA PROVIDES NO PRACTICAL ANALYTICAL METHOD TO PREDICT AND PREVENT WIND-INDUCED STRUCTURAL OSCILLATIONS. RAYCAP, INC. RECOMMENDS FREQUENT MONITORING TO IDENTIFY WIND-INDUCED OSCILLATION AND REGULAR CONDITION ASSESSMENTS TO IDENTIFY FATIGUE CRACKING, LOOSE OR MISSING BOLTS, AND ANY OTHER STRUCTURAL DEFECTS. ANY OSCILLATION OR DEFECTS OBSERVED SHALL BE IMMEDIATELY REPORTED TO RAYCAP, INC. FOR FURTHER EVALUATION AND POSSIBLE REPAIRS OR MODIFICATIONS WHICH MAY BE REQUIRED AT THE OWNERS EXPENSE.
- WHERE EFFECTIVE PROJECTED AREAS (EPA) ARE USED, IT IS THE RESPONSIBILITY OF OTHERS TO VERIFY INSTALLED EQUIPMENT DOES NOT EXCEED LISTED EPA.

SPECIAL INSPECTIONS & STRUCTURAL OBSERVATION:

- STEEL FABRICATION SHALL BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED AS REQUIRED BY THE BUILDING CODE TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. ALTERNATIVELY, SPECIAL INSPECTION OF MATERIALS, WELDING, AND FABRICATION PROCEDURES SHALL BE REQUIRED FOR FABRICATION BY AN UNAPPROVED FABRICATOR.
- NO FIELD WELDING SHALL BE PERMITTED.
- THE FOLLOWING SPECIAL INSPECTIONS (WHERE APPLICABLE) SHALL BE REQUIRED PER CHAPTER 17 OF THE BUILDING CODE.
 - SPECIAL INSPECTION OF HIGH-STRENGTH BOLTING (WHEN APPLICABLE):
 - PERIODIC SPECIAL INSPECTION IF BOLTS ARE PRETENSIONED WITH MATCH-MARKING TECHNIQUES.
 - CONTINUOUS SPECIAL INSPECTION OF ALL OTHER HIGH-STRENGTH BOLTING.
 - SPECIAL INSPECTION IS NOT REQUIRED FOR WORK OF A MINOR NATURE OR AS WARRANTED BY CONDITIONS IN THE JURISDICTION AS APPROVED BY THE BUILDING OFFICIAL. THUS, SPECIAL INSPECTION ITEMS ABOVE MAY BE WAIVED AS DEEMED APPROPRIATE BY THE BUILDING OFFICIAL.
 - NO STRUCTURAL OBSERVATION IS REQUIRED.

FRP

- FRP STRUCTURAL SHAPES SHALL BE BEDFORD FRP SERIES 1525, MANUFACTURED USING THE PULTRUSION PROCESS
- IF PREFABRICATED MEMBERS DO NOT ASSEMBLE PER PLAN, CONTACT RAYCAP, INC. BEFORE CUTTING OR ALTERING FABRICATED MEMBERS.
- FRP STRUCTURAL MEMBERS SHALL BE FABRICATED AND ASSEMBLED AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL PROTECT THE FRP STRUCTURAL MEMBERS FROM ABUSE TO PREVENT BREAKAGE, NICKS, GOUGES, ETC. DURING FABRICATION, HANDLING, AND INSTALLATION.
- FRP BOLTS SHOULD BE TIGHTENED 1/2 TURN PAST SNUG AND LOCKED WITH EPOXY.
- FRP OR STEEL BOLTS THROUGH FRP MEMBERS SHALL MEET THE FOLLOWING SPACING AND EDGE DISTANCE REQUIREMENTS, MEASURED FROM BOLT CENTERS:

MIN. BOLT SPACING = 4 TIMES BOLT DIA
MIN. EDGE DIST = 3 TIMES BOLT DIA. IN DIRECTION OF PULTRUSION
MIN. EDGE DIST = 2 TIMES BOLT DIA. PERPENDICULAR TO DIRECTION OF PULTRUSION

DESIGN NOTES:

STRUCTURAL DESIGN IS BASED ON THE 2018 IBC CODE & ASCE 7-16

SITE LOCATION:

BLOOMINGTON, MN

DESIGN LOADS:

WIND:

ULTIMATE WIND SPEED: 109 MPH (3-SEC GUST)

RISK CATEGORY: II

EXPOSURE: C

SEISMIC:

IMPORTANCE FACTOR: 1.0

RISK CATEGORY: II

SITE CLASS: D

MAPPED SPECTRAL RESPONSE ACCELERATIONS: Ss = 0.048g S1 = 0.03g

SEISMIC DESIGN CATEGORY: A

SPECTRAL RESPONSE COEFFICIENTS: Sds = 0.051g Sd1 = 0.048g

DESIGN WIND PRESSURE: 28.26 psf (0.6W)

COLUMN REACTIONS:

SHEAR REACTION: V= 700 lbs

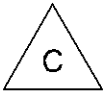
AXIAL REACTION: R= 1000 lbs

MOMENT: M= 1200 lbs-ft

WALL CONNECTION REACTIONS:

SHEAR REACTION: V= 300 lbs

AXIAL REACTION: R= 200 lbs



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: BRADLEY R. NEWMAN

Signature: _____

Date: 06-21-2023 License # 50753

DRAWN		DSP	
DESIGNED		ARS	
REVISED		NB+C	
DRAWING NOT TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TOLERANCES: DECIMAL: .X ± 0.1 .XX ±0.03 .XXX ±0.01 ANGLES ±.5°	
ALL BENDING TOLERANCES: ± 1.0"		THIRD ANGLE PROJECTION	
		PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED	
TRILEAF CORPORATION MNMSPO0388A 4000 SW COURT BLOOMINGTON, MN 55425		NOTES & SPECIFICATIONS	
RAYCAP #DW23-00846H-35R0		SHEET #	REVISION
		N1	C
		DATE: 06-21-2023	



REVISION TABLE			
REVISION	DESIGNER	DATE	SCOPE OF REVISION
A	TW	06-08-2023	PRELIMINARY DRAWINGS RELEASED
B	TW	06-14-2023	UPDATED PER CUSTOMER COMMENTS DATED 06-14-2023
C	NB+C	06-21-2023	FINAL ENGINEERING

PL202300142

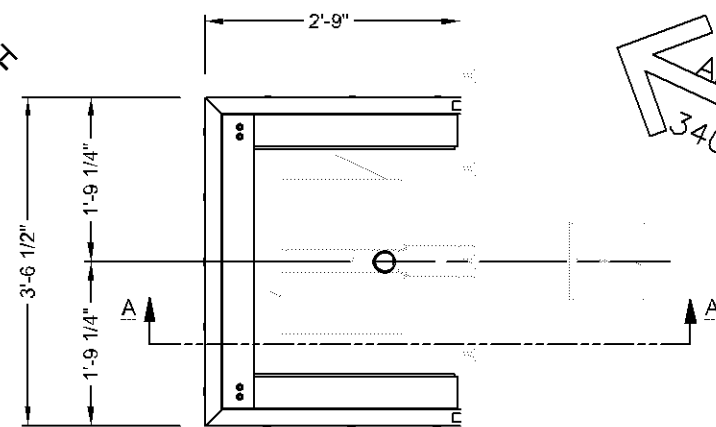
DRAWN	DSP	Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA	
DESIGNED	ARS		
REVISED	NB+C		
DRAWING NOT TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425	
TOLERANCES: DECIMAL: FRACTIONAL: .X ± 0.1 X/X ± 1/16 .XX ±0.03 .XXX ±0.01 ANGLES ±.5°			
ALL BENDING TOLERANCES: ± 1.0°			
THIRD ANGLE PROJECTION			
		NOTES & SPECIFICATIONS	SHEET #
			REVISION
		N2	C
		RAYCAP #DW23-00846H-35R0	DATE: 06-21-2023
PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED			

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8090 MARSHALEE DRIVE, SUITE 500
FARMINGTON, MN 55021
410-719-7080



NORTH

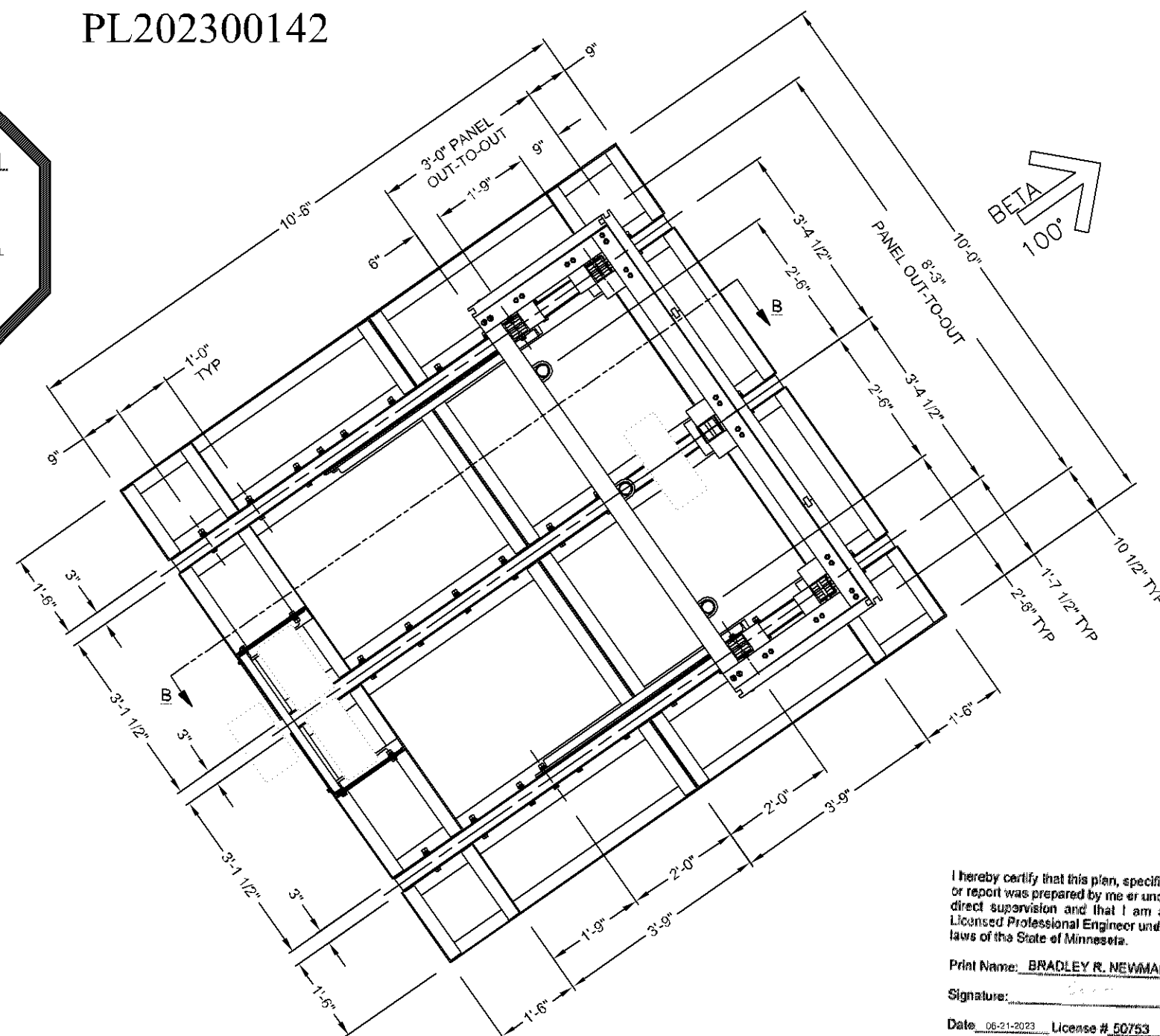


ALPHA
340°

DIMENSION CRITICAL DESIGN

THE DIMENSIONS OF EXISTING CONDITIONS
REFERENCED IN THESE DRAWINGS ARE CRITICAL
TO THE SUCCESS OF THE PROJECT.
PLEASE VERIFY THAT THE DIMENSIONS
LISTED ARE ACCURATE BEFORE APPROVING.

PL202300142

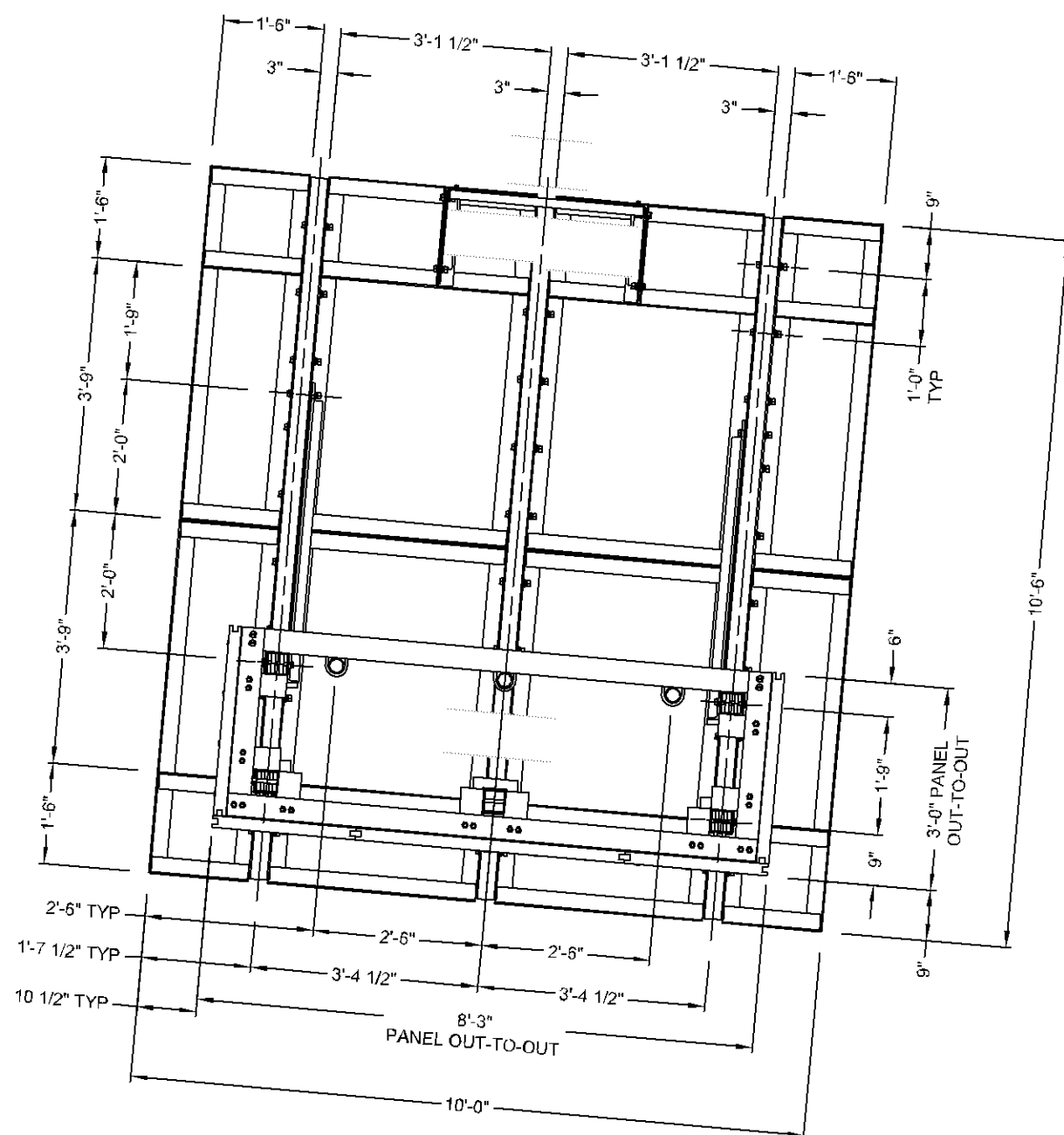


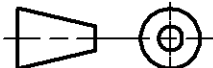
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

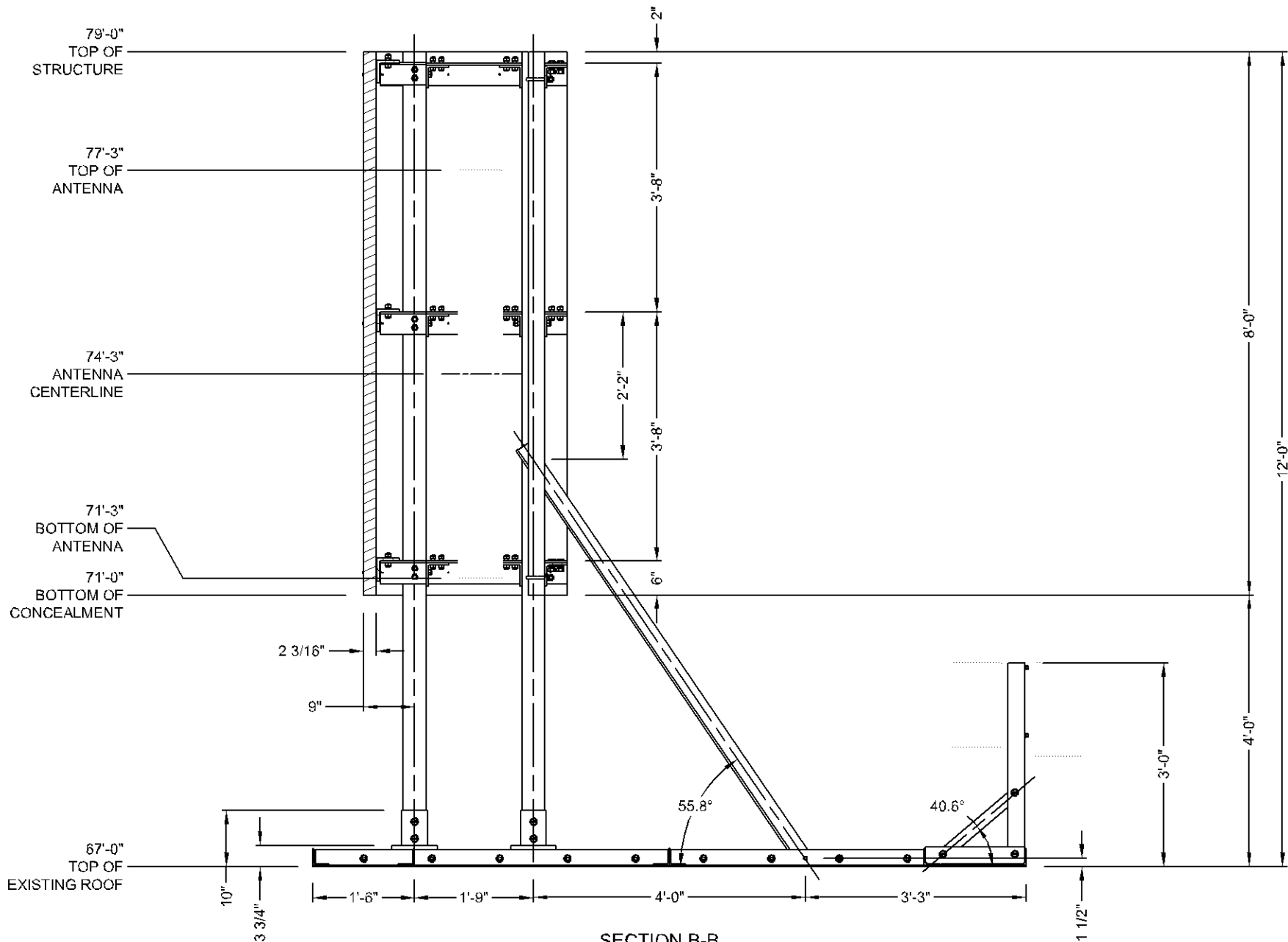
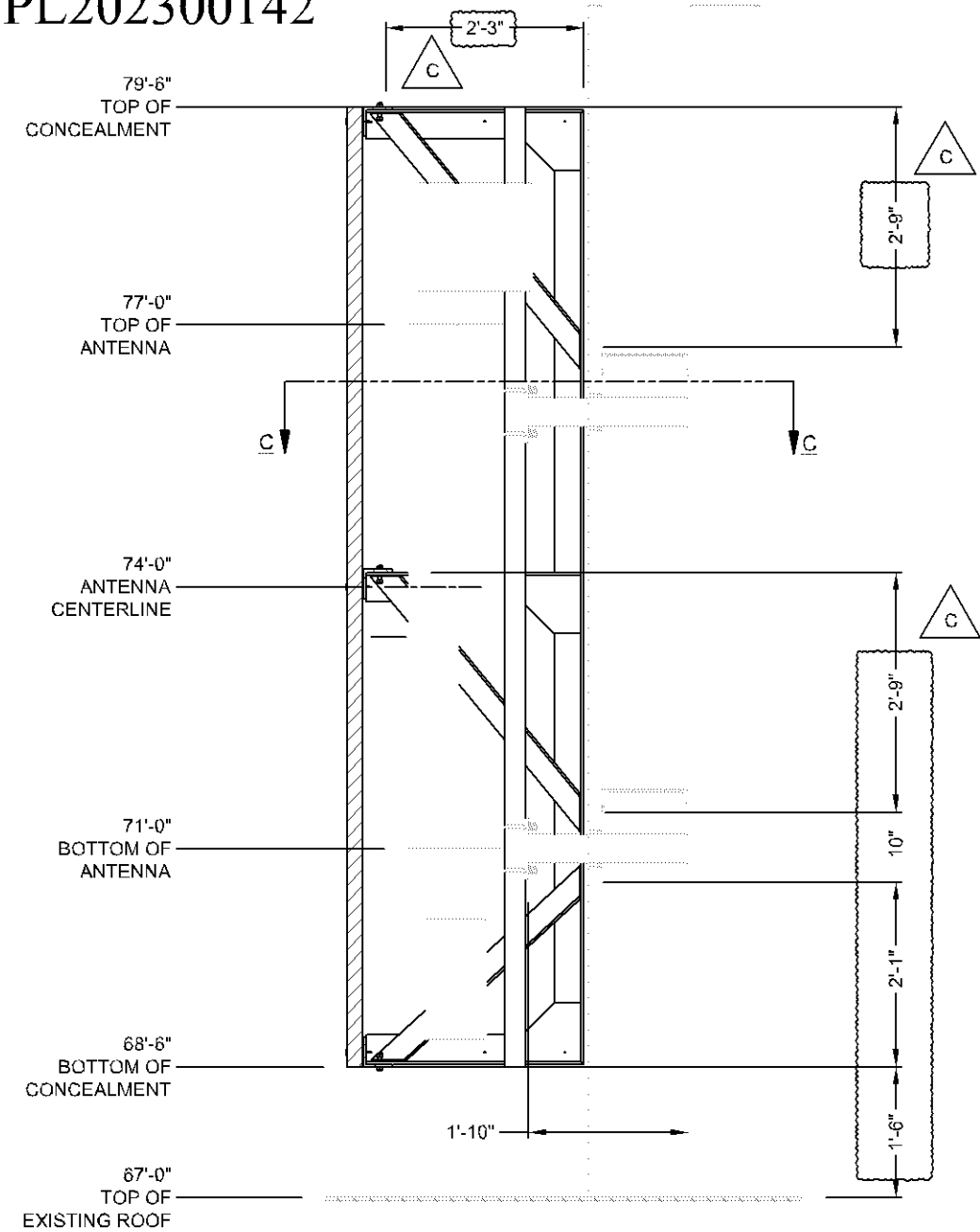
Print Name: BRADLEY R. NEWMAN

Signature: _____

Date: 06-21-2023 License # 50753



DRAWN	DSP	Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA		
DESIGNED	ARS			
REVISED	NB+C			
DRAWING NOT TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425		
TOLERANCES: DECIMAL: FRACTIONAL: .X ± 0.1 X/X ± 1/16 .XX ± 0.03 .XXX ± 0.01 ANGLES ±.5°				
ALL BENDING TOLERANCES: ± 1.0°				
THIRD ANGLE PROJECTION				
		ASSEMBLY - LAYOUT	SHEET #	REVISION
RAYCAP #DW23-00846H-35R0			S1	C
DATE: 06-21-2023		PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED		



- NOTES:
- THE INTEGRITY OF THE EXISTING STRUCTURE MUST BE VERIFIED BY OTHERS.
 - DIMENSIONS OF THE EXISTING STRUCTURE ARE BASED UPON DRAWINGS BY TRILEAF CORPORATION DATED 04-11-2023 AND HAVE NOT BEEN PHYSICALLY VERIFIED BY RAYCAP. VERIFICATION OF THESE DIMENSIONS IS THE RESPONSIBILITY OF THE CUSTOMER.
 - THE ATTACHMENT TO EXISTING (DESIGN AND FASTENERS) MUST BE PROVIDED BY OTHERS. RAYCAP WILL ONLY SUPPLY FASTENER SIZE AND QUANTITY REQUIRED, FOR ATTACHMENT TO EXISTING.
 - THE PANELS ARE TO BE PAINTED / TEXTURED ACCORDING TO THE CUSTOMER APPROVED SAMPLE(S).
 - THIS CONCEALMENT WAS DESIGNED TO ACCEPT THE FOLLOWING ANTENNA COMMSCOPE FFVV-65B-R2. IT IS THE CUSTOMERS RESPONSIBILITY TO ENSURE THE FIT OF THE ANTENNA AND COAX WITH THEIR SPECIFIC MOUNTING EQUIPMENT.
 - IT IS STRONGLY RECOMMENDED THAT THE CUSTOMER REVIEWS THE RF CONSIDERATIONS IN THIS DESIGN.
 - DUE TO THE USE OF NON-CONVENTIONAL MATERIALS FOR RF PERFORMANCE, THIS CONCEALMENT WAS NOT DESIGNED TO BE WATERPROOF. A WATERPROOF MEMBRANE OR CONNECTION METHOD MUST BE INSTALLED BELOW CONCEALMENT BY CONTRACTOR TO PREVENT WATER INTRUSION TO THE EXISTING STRUCTURE IS REQUIRED.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: **BRADLEY A. NEWMAN**

Signature: _____

Date: 06-21-2023 License # 50753

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
6962 MARSHLEE DRIVE, SUITE 300
ELK RIDGE, MN 55125
±10/17/19/20

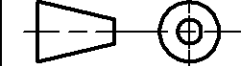
DRAWN	DSP
DESIGNED	ARS
REVISED	NB+C

DRAWING NOT TO SCALE.
ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE SPECIFIED

TOLERANCES:
DECIMAL: FRACTIONAL:
.X ± 0.1 X/X ± 1/16
.XX ± 0.03
.XXX ± 0.01
ANGLES ± .5°

ALL BENDING TOLERANCES:
± 1.0°

THIRD ANGLE PROJECTION



PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED

Raycap
7555-A PALMETTO COMMERCE PARKWAY
NORTH CHARLESTON, SC 29420 USA

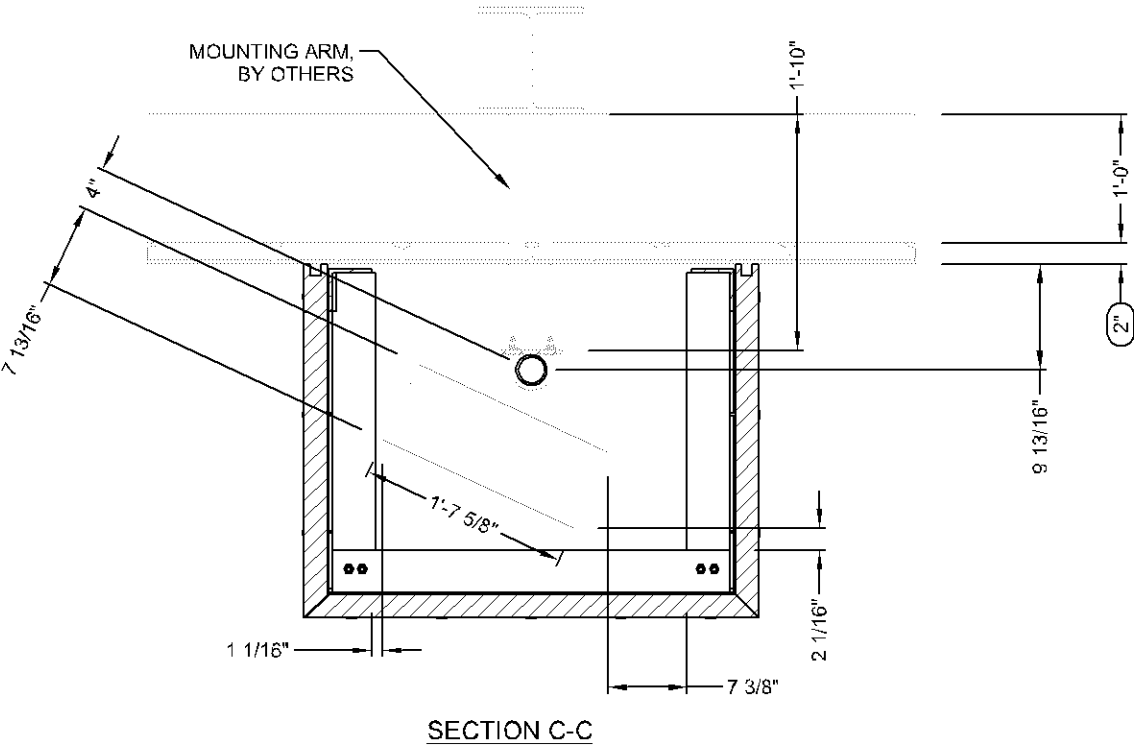
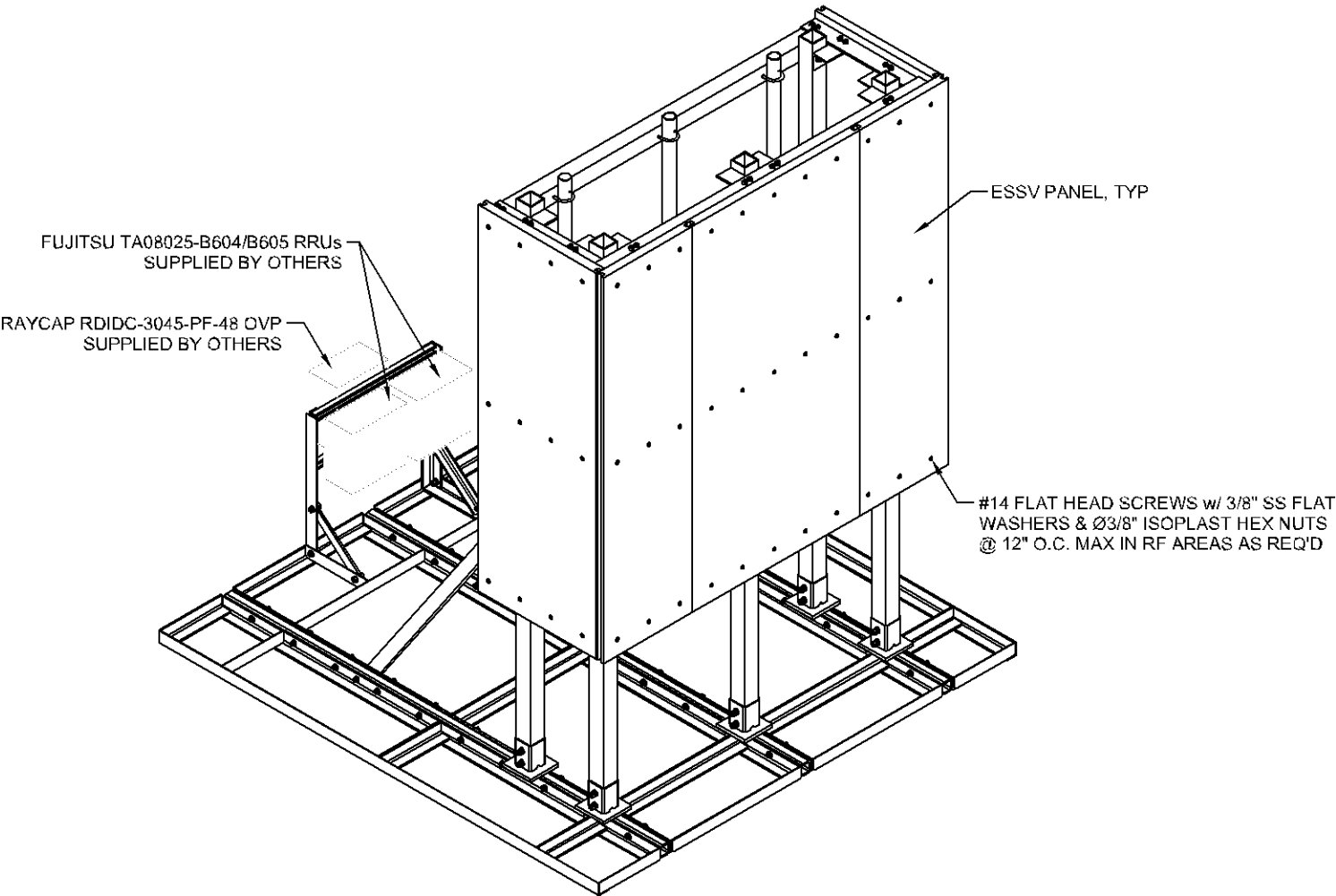
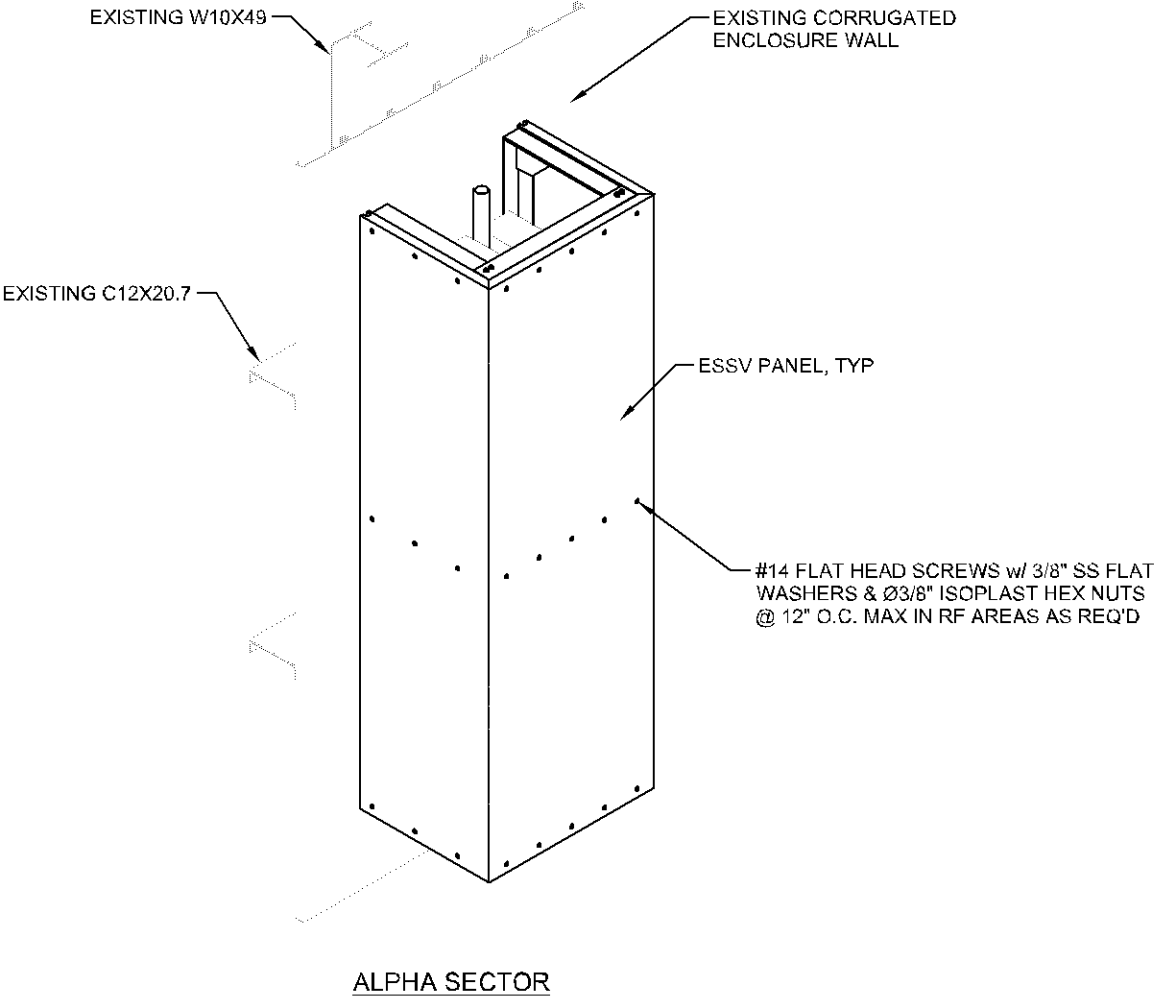
TRILEAF CORPORATION
MNMSP00388A
4000 SW COURT
BLOOMINGTON, MN 55425

ASSEMBLY - ELEVATIONS

RAYCAP #DW23-00846H-35R0

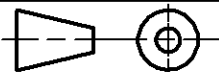
SHEET #	REVISION
S2	C

DATE: 06-21-2023



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

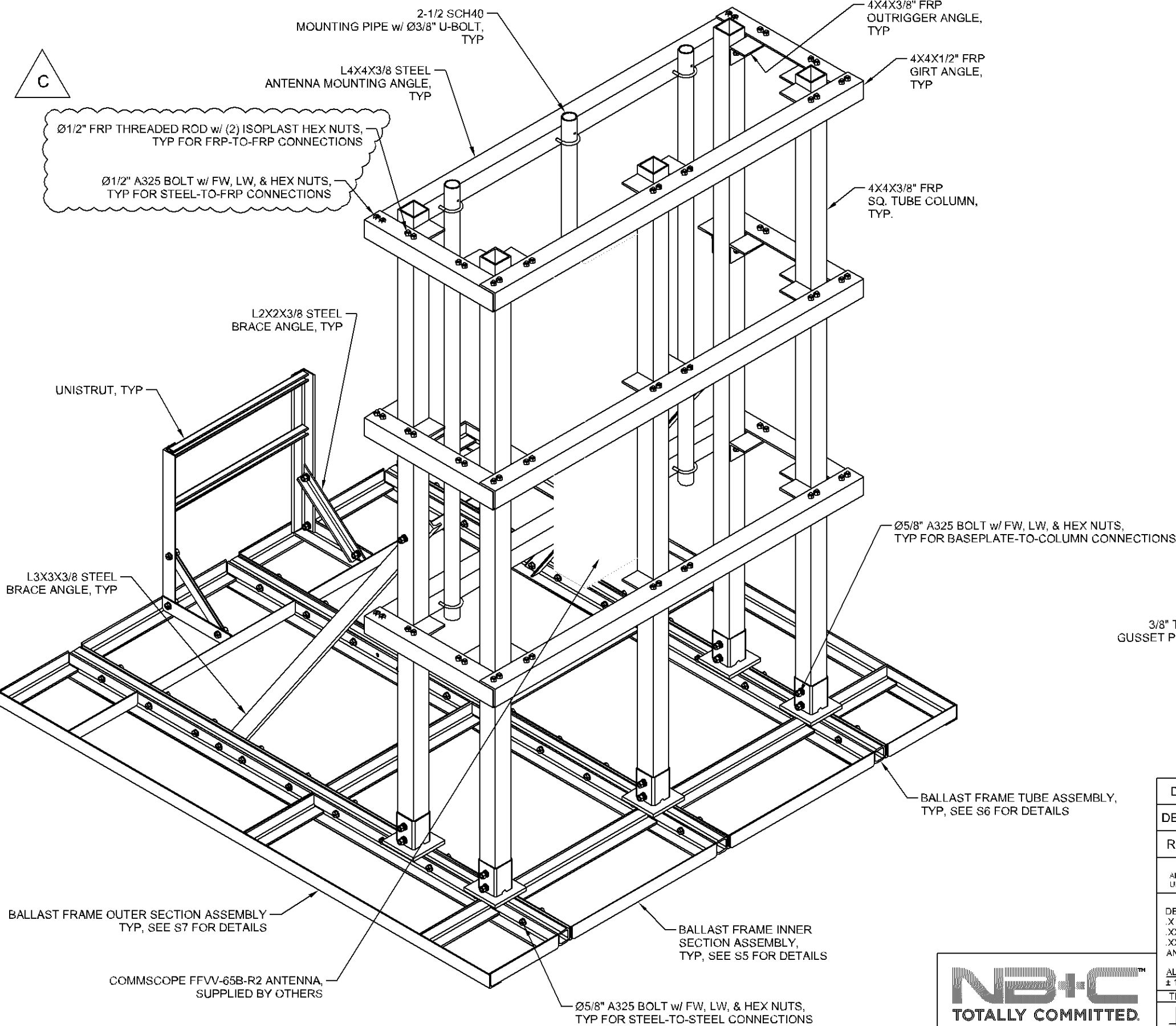
Print Name: BRADLEY R. NEWMAN
Signature: _____
Date: 06-21-2023 License # 50753

DRAWN	DSP	Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA		
DESIGNED	ARS			
REVISED	NB+C			
DRAWING NOT TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425		
TOLERANCES: DECIMAL: FRACTIONAL: .X ±0.1 X/X ± 1/16 .XX ±0.03 .XXX ±0.01 ANGLES ±.5°				
<u>ALL BENDING TOLERANCES:</u> ± 1.0°				
THIRD ANGLE PROJECTION		ASSEMBLY - ELEVATIONS	SHEET #	REVISION
			S3	C
RAYCAP #DW23-00846H-35R0		DATE: 06-21-2023		
PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED				

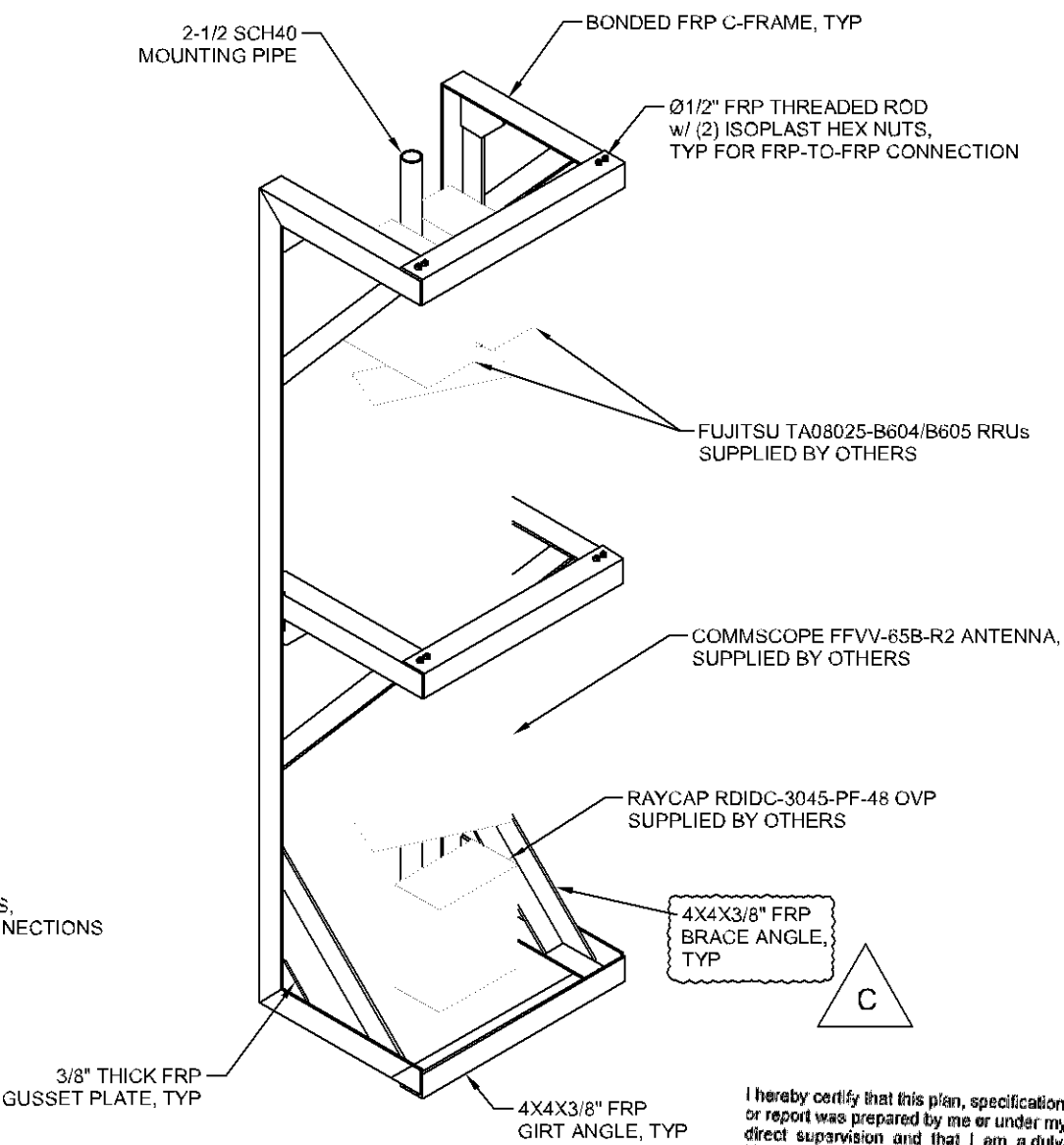
NB+C

TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
6025 MARSHLEE DRIVE, SUITE 300
ELFREDGE, ND 58015
410-112-0592



SECTORS BETA & GAMMA



SECTOR ALPHA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: BRADLEY R. NEWMAN

Signature: [Signature]

Date: 06-21-2023 License # 50753



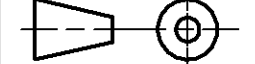
DRAWN	DSP
DESIGNED	ARS
REVISED	NB+C

DRAWING NOT TO SCALE.
ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE SPECIFIED

DECIMAL:	FRACTIONAL:
.X ±0.1	X/X ±1/16
.XX ±0.03	
.XXX ±0.01	
ANGLES ±.5°	

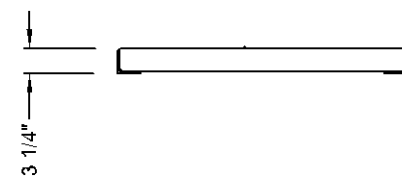
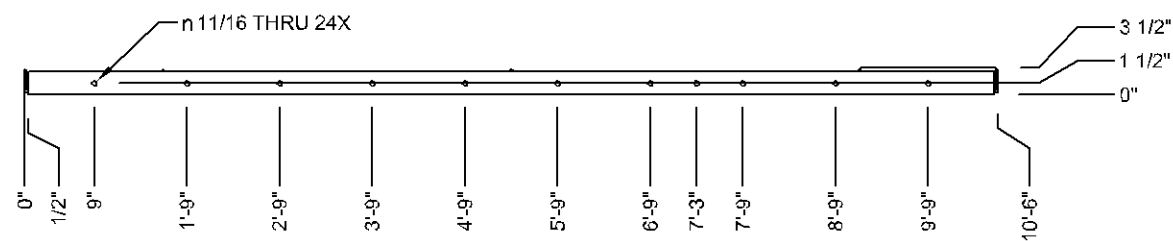
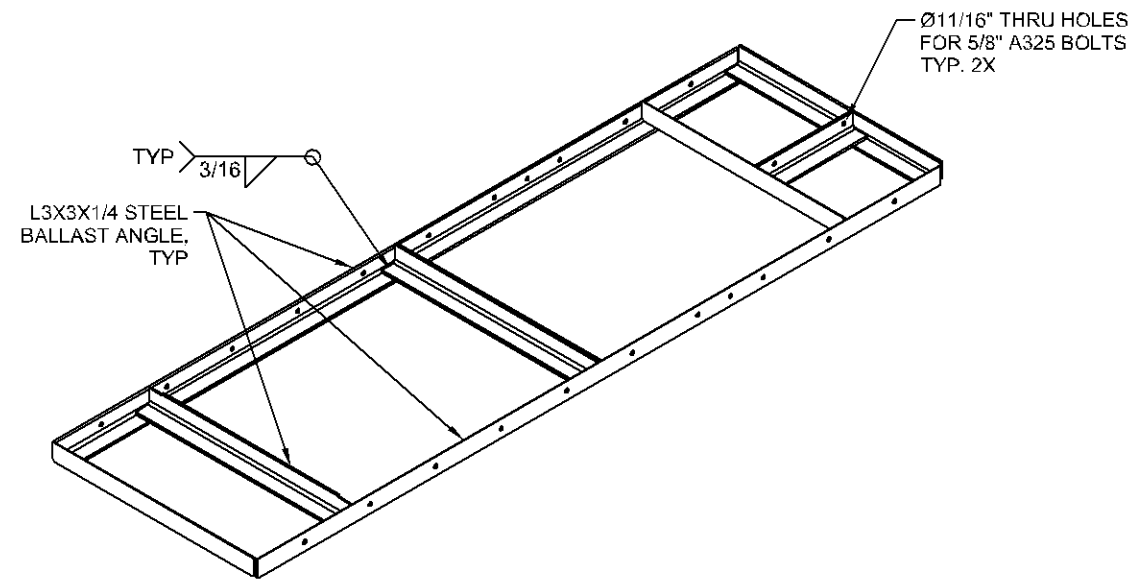
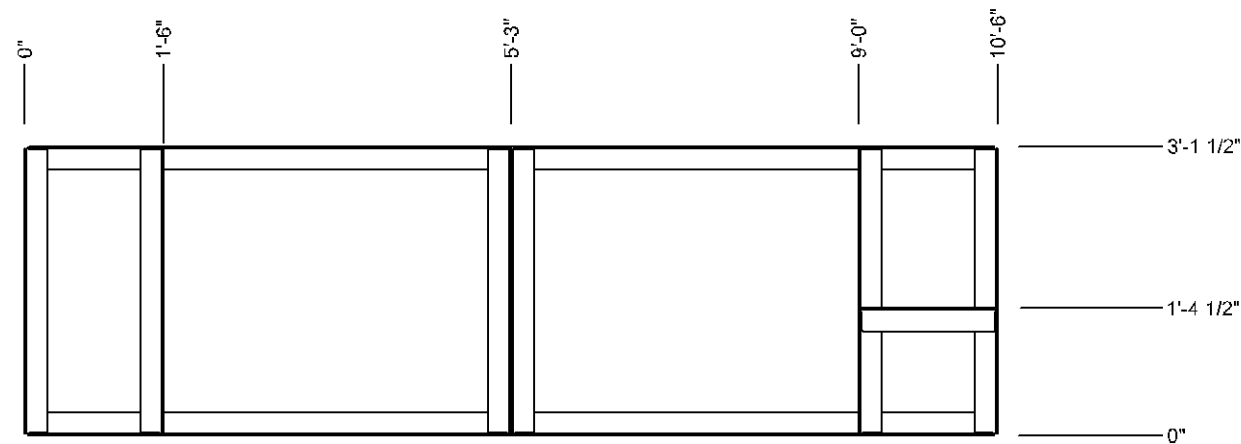
ALL BENDING TOLERANCES:
± 1.0"

THIRD ANGLE PROJECTION



PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED.
COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED

Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA		
TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425		
ASSEMBLY - ELEVATIONS	SHEET #	REVISION
	S4	C
RAYCAP #DW23-00846H-35R0		DATE: 06-21-2023



BALLAST FRAME INNER SECTION EXAMPLE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

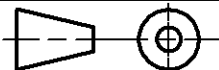
Print Name: **BRADLEY R. NEWMAN**

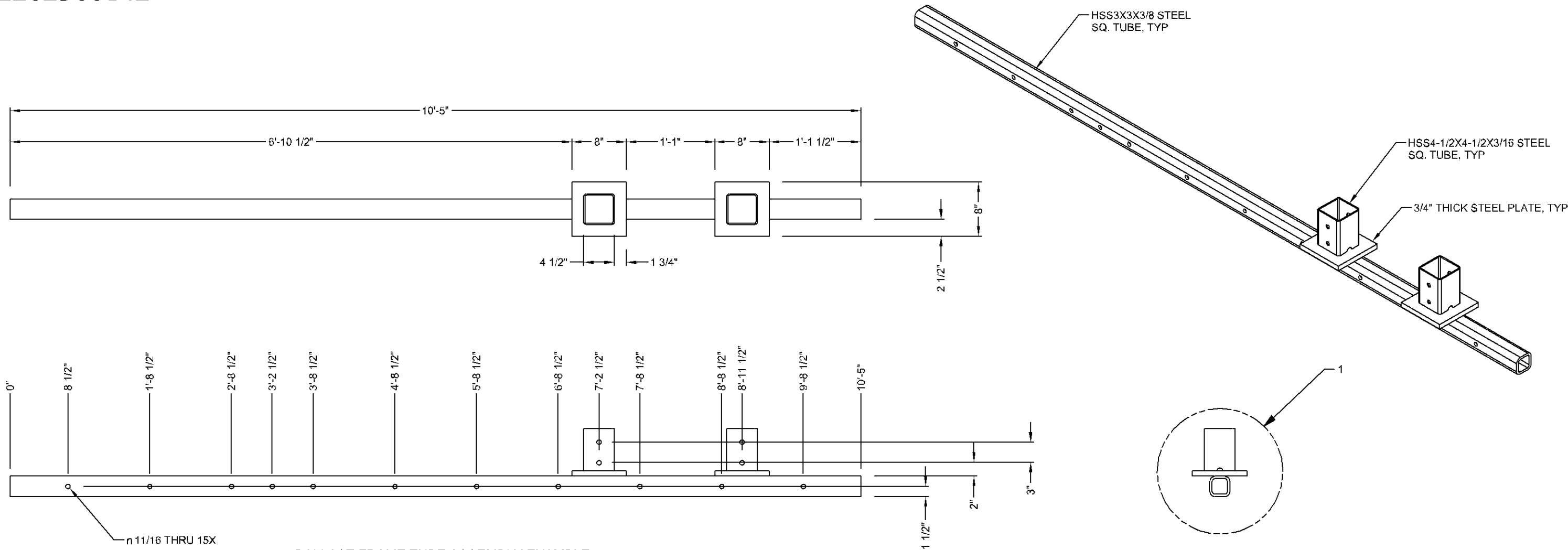
Signature: _____

Date: 06-21-2023 License # 50753

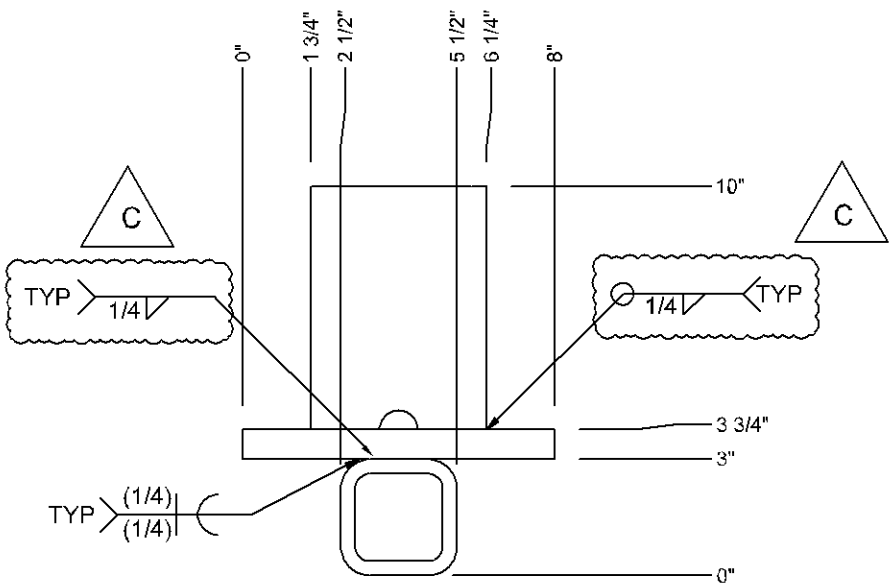
NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
6055 MARSHALEE DRIVE, SUITE 300
BLAIRIDGE, MD 21075
410-712-7022

DRAWN	DSP	Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA	
DESIGNED	ARS		
REVISED	NB+C		
DRAWING <u>NOT</u> TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425	
TOLERANCES: DECIMAL: FRACTIONAL: .X ±0.1 X/X ± 1/16 .XX ±0.03 .XXX ±0.01 ANGLES ±5°			
ALL BENDING TOLERANCES: ± 1.0°			
THIRD ANGLE PROJECTION		STEEL DETAILS	
			
RAYCAP #DW23-00846H-35R0		SHEET #	REVISION
		S5	C
PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED		DATE: 06-21-2023	



BALLAST FRAME TUBE ASSEMBLY EXAMPLE



DETAIL 1

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

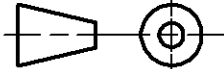
Print Name: BRADLEY R. NEWMAN

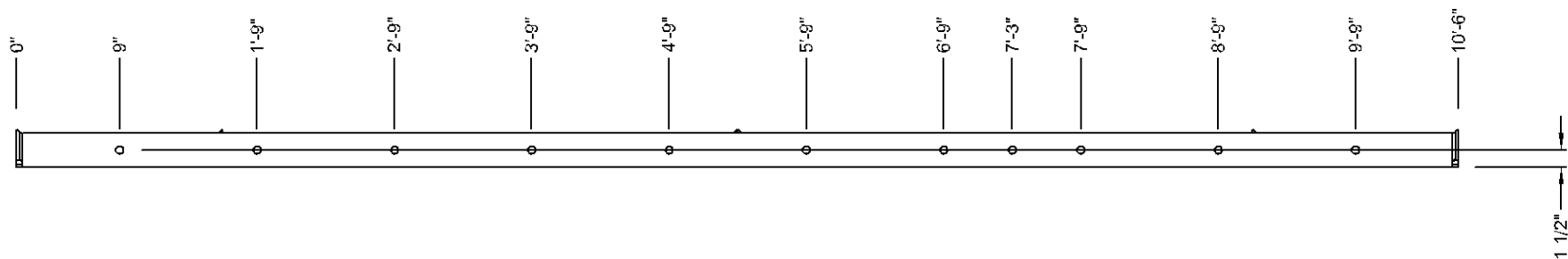
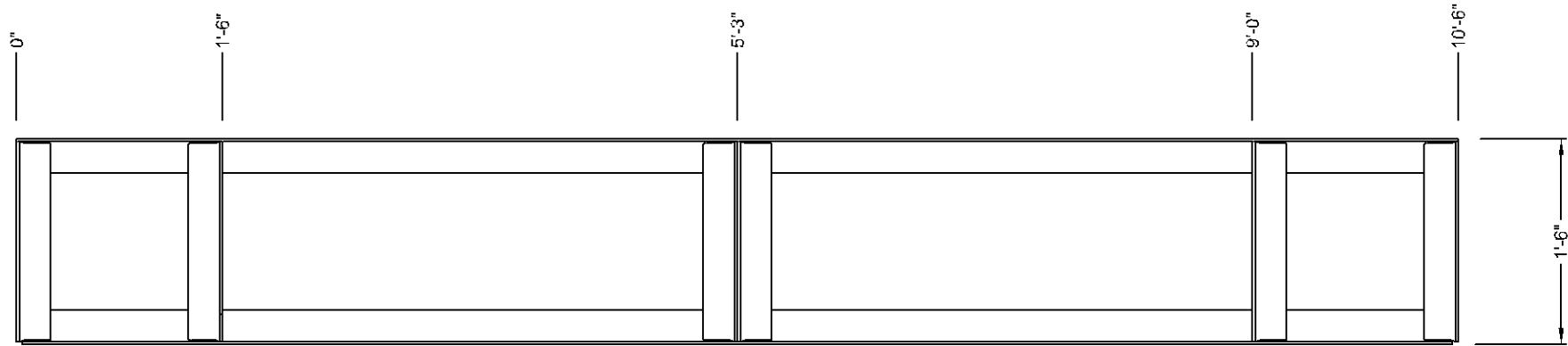
Signature: _____

Date 06-21-2023 License # 50753

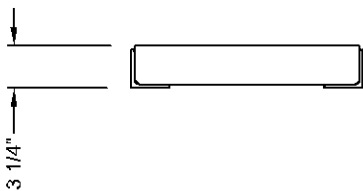
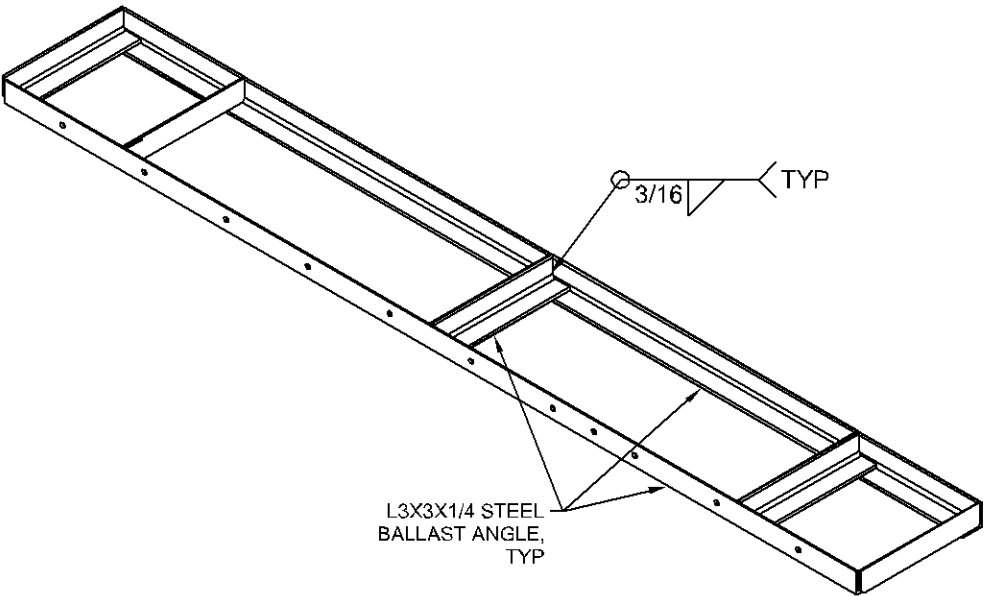
NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
6080 MARSHLEE DRIVE, SUITE 200
ELK RIDGE, MD 21075
410-712-7022

DRAWN	DSP	Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA		
DESIGNED	ARS			
REVISED	NB+C			
DRAWING NOT TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425		
TOLERANCES: DECIMAL: FRACTIONAL: .X ±0.1 X/X ± 1/16 .XX ±0.03 .XXX ±0.01 ANGLES ±5°				
ALL BENDING TOLERANCES: ± 1.0°				
THIRD ANGLE PROJECTION				
		STEEL DETAILS	SHEET #	REVISION
			S6	C
		RAYCAP #DW23-00846H-35R0	DATE: 06-21-2023	
PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED				



BALLAST FRAME OUTER SECTION EXAMPLE



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: BRADLEY R. NEWMAN

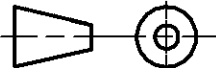
Signature: _____

Date: 06-21-2023 License # 50753

NB+C

TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8085 MARSHALLEE DRIVE, SUITE 300
LUXFORD, NJ 07025
417-712-7092

DRAWN	DSP	Raycap 7555-A PALMETTO COMMERCE PARKWAY NORTH CHARLESTON, SC 29420 USA			
DESIGNED	ARS				
REVISED	NB+C				
DRAWING NOT TO SCALE. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		TRILEAF CORPORATION MNMSP00388A 4000 SW COURT BLOOMINGTON, MN 55425			
TOLERANCES: DECIMAL: X ± 0.1 XX ± 0.03 XXX ± 0.01 ANGLES ± 5°					
ALL BENDING TOLERANCES: ± 1.0°		STEEL DETAILS		SHEET #	REVISION
THIRD ANGLE PROJECTION				S7	C
		RAYCAP #DW23-00846H-35R0		DATE: 06-21-2023	
PROPRIETARY INFORMATION: THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO RAYCAP, INC. IS STRICTLY PROHIBITED. COPYRIGHT 2023 RAYCAP INC. ALL RIGHTS RESERVED					