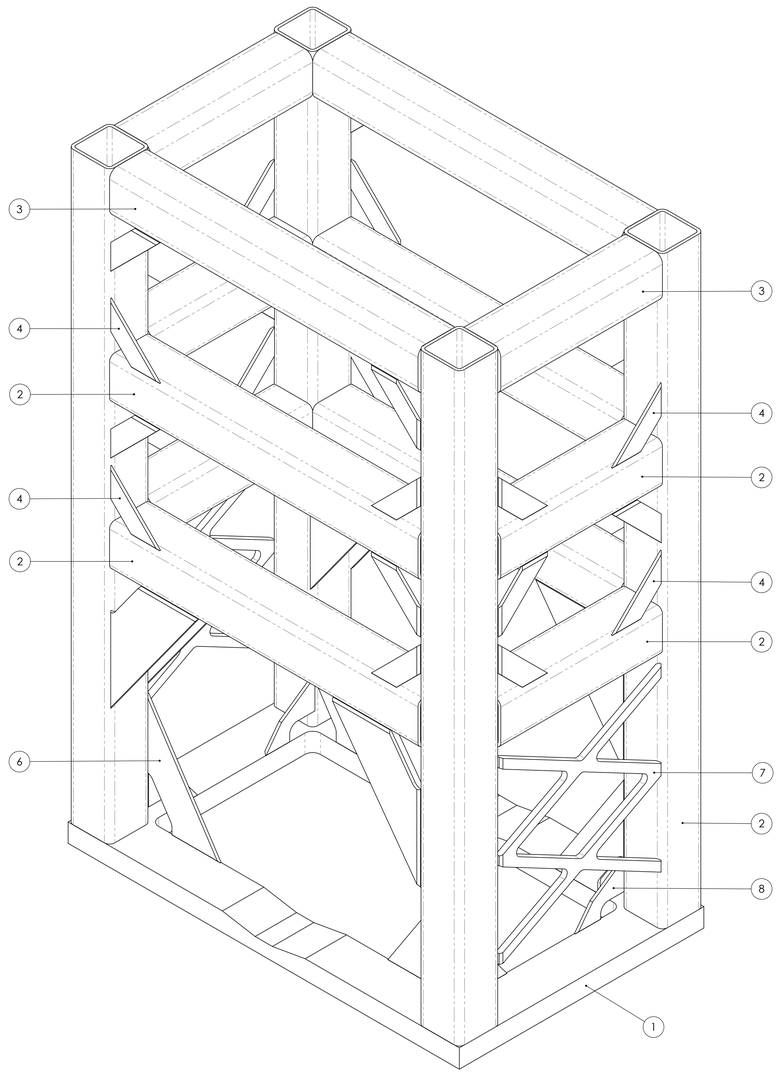
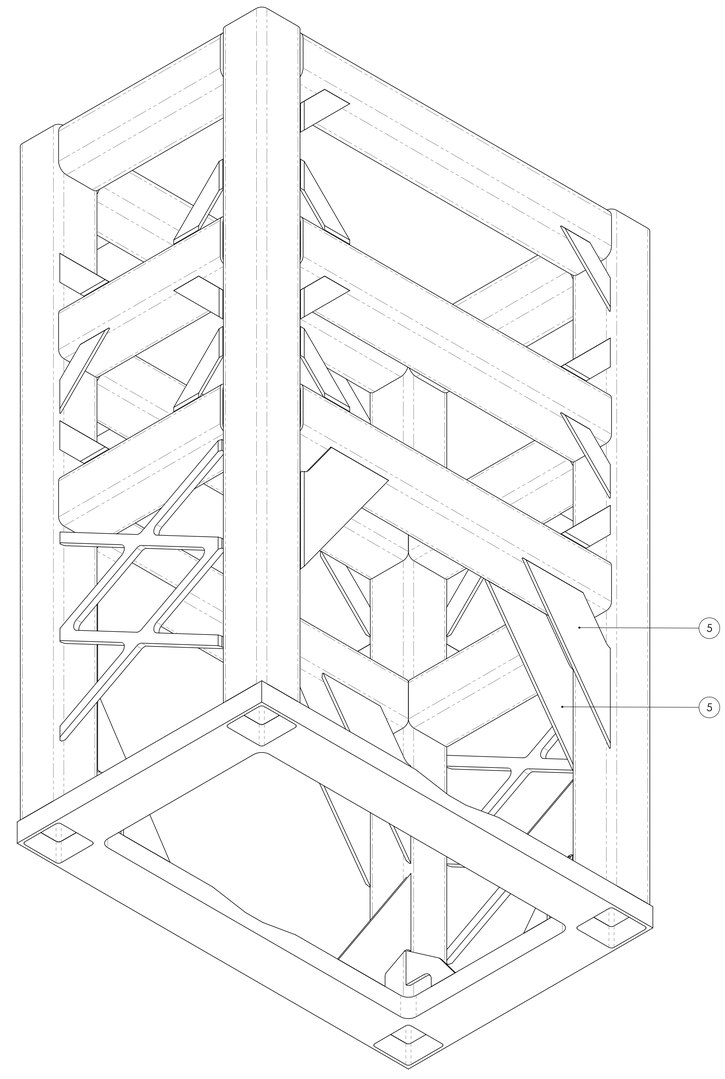
NOTES CONTINUED:

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR 'TYPE' IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE: DXXXXXXX-VY, TYPE-XX, S/N XXX
6. ALL SURFACES OF ALL PARTS ARE TO BE MACHINED (NO AS RECEIVED, AS ROLLED, AS MILLED SURFACES WILL BE ACCEPTED), EXCEPT INNER SURFACES AND OUTER RADIUS OF TUBING. NO GRINDING OR LAPPING WITH ABRASIVE WHEELS, CLOTH OR STONES IS PERMITTED. NO PARTS SHALL BE CAST OR MOLDED (NO TOOLING PLATE IS PERMITTED). BLANCHARD GRINDING IS ACCEPTABLE IF ALL GROUND SURFACES ARE MACHINED AFTERWARDS.
7. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH LIGO SPECIFICATION E0900048.
8. TUBING IS 2.00" SQUARE WITH WALL THICKNESS OF .12" ± .01".
9. TUBING IS 2.00" SQUARE WITH WALL THICKNESS OF .188" ± .01".
10. AFTER WELDING, STRESS RELIEF AND HEAT TREATMENT, FLY-CUT INDICATED SURFACE TO MEET REQUIRED DIMENSION.
11. INDICATED FEATURES ARE TO BE ADDED AFTER ALL WELDING, HEAT TREATMENT AND ALL OTHER MACHINING OPERATIONS, INCLUDING FLY-CUTTING, ARE COMPLETED.
12. SCRIBE LINE WHERE INDICATED. LINE SHOULD BE .04" WIDE X .02" DEEP AND RUN THE LENGTH OF THE FACE AS SHOWN.
13. HOLE THROUGH OUTER WALL OF TUBE ONLY.
14. HOLE THROUGH BOTH WALLS OF TUBE.
15. HOLE THROUGH INNER WALL OF TUBE ONLY.
16. ALL HELICOIL HOLES TO BE PREPARED IN ACCORDANCE WITH EMHART HELICOIL PRODUCT CATALOG, HC2000, REV. 4.
17. ALL HELICOILS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY. CLEANING AND BAKING OF FINISHED PARTS.

REV.	DATE	DCN #	DRAWING TREE #
v1	03 MAR 2009	E080446	E080191
v2	02 DEC 2009	E0900446	E080191
v3	-	INTERNAL REVISION	-
v4	29 AUG 2010	E1000371	E080191





WELDMENT ISOMETRIC VIEWS

ITEM NO.	PART NUMBER	DESCRIPTION	TOTAL
8	D070577	SIDE GUSSET	4
7	D070578	SIDE STRUT	2
6	D070576	LOWER FRONT GUSSET	4
5	D070579	UPPER FRONT GUSSET	8
4	D070580	TOP GUSSET	28
3	-	2.00" SQUARE TUBE - .188" WALL THICKNESS (9)	-
2	-	2.00" SQUARE TUBE - .12" WALL THICKNESS (8)	-
1	D070575	BASE PLATE	1

PARTS LIST

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES [MM]

TOLERANCES:
.XX ± .01
.XXX ± .005

ANGULAR ± 0.5°

1. INTERPRET DRAWING PER ASME Y14.5-1994.
2. REMOVE ALL SHARP EDGES, R.02 MIN.
3. DO NOT SCALE FROM DRAWING.
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

MATERIAL: 304 OR 304L SSTL
FINISH: N/A µinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

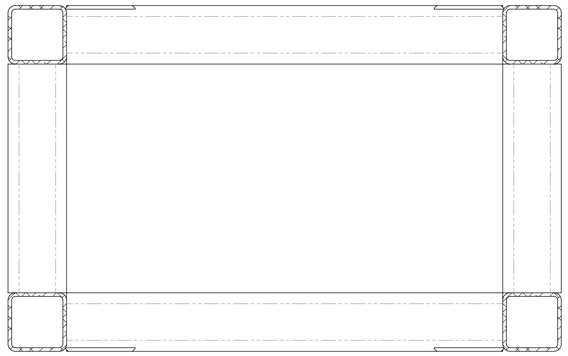
SYSTEM: ADVANCED LIGO
SUB-SYSTEM: SUS
NEXT ASSY: STRUCTURE, HLTS

PART NAME: STRUCTURAL WELDMENT, HLTS

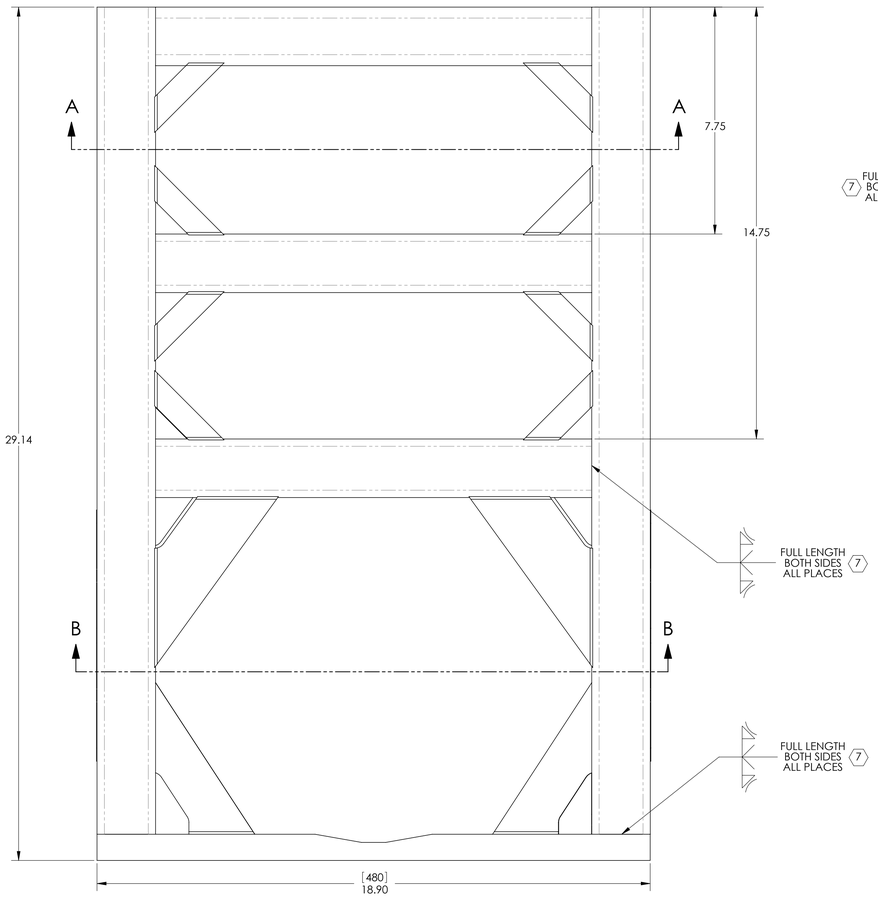
DESIGNER	D. BRIDGES	26 AUG 2010
DRAFTER	D. BRIDGES	27 AUG 2010
CHECKER	M. MEYER	31 AUG 2010
APPROVAL		

SIZE: E
DWG. NO.: D070442
REV.: v4
SCALE: 1:2
PROJECTION:
SHEET 1 OF 8

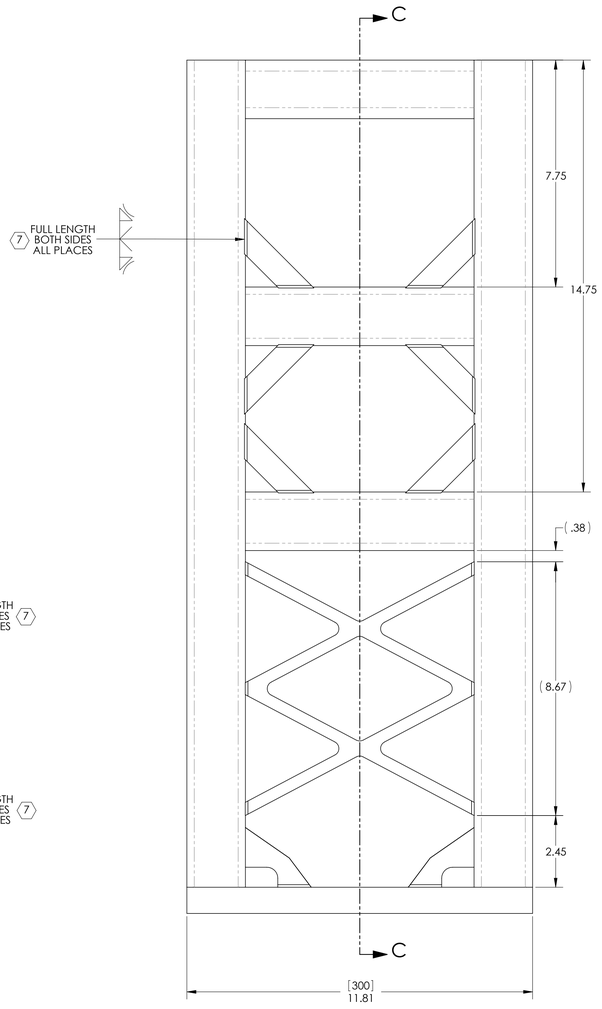
D070442_Advanced_LIGO_SUS_HLTS_Structural_Weldment PART FROM REV: V2.0DS, DRAWING FROM REV: V2.006



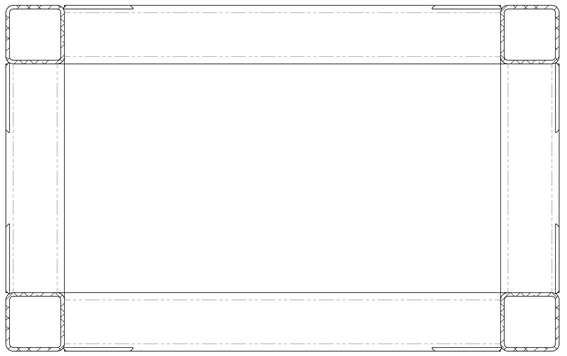
SECTION A-A



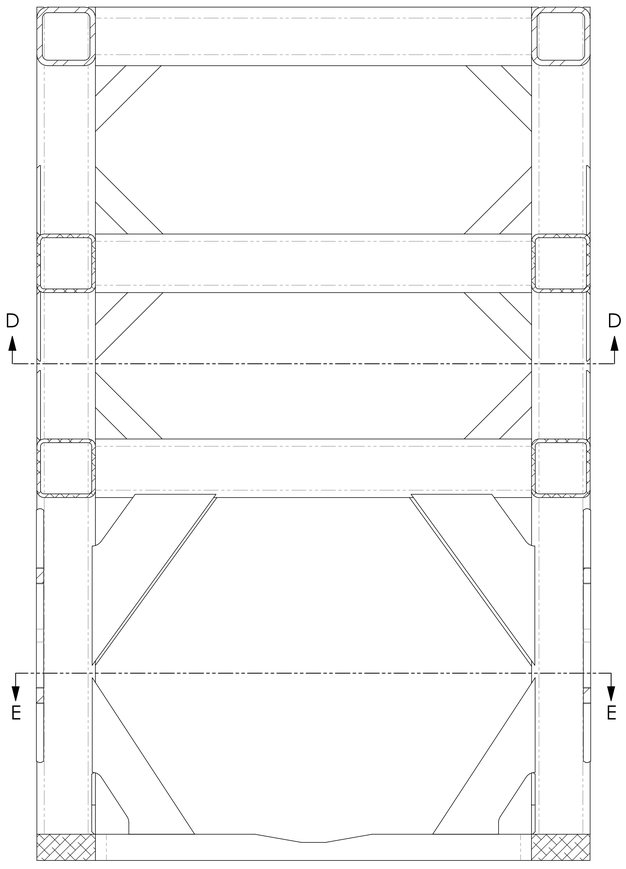
SECTION B-B



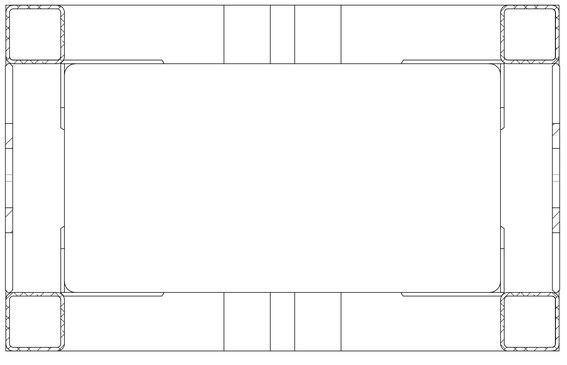
WELDMENT LAYOUT



SECTION D-D



SECTION C-C



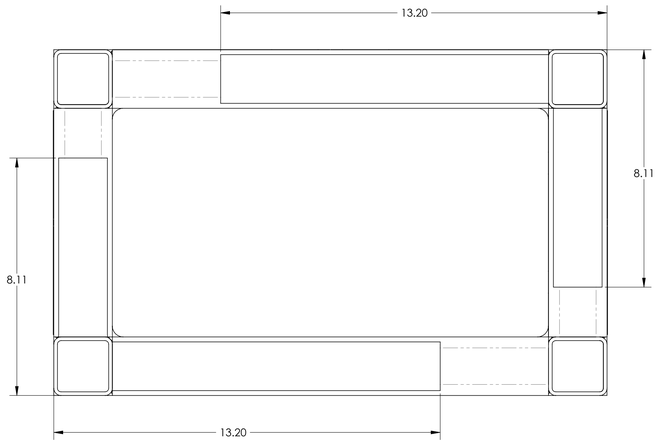
SECTION E-E

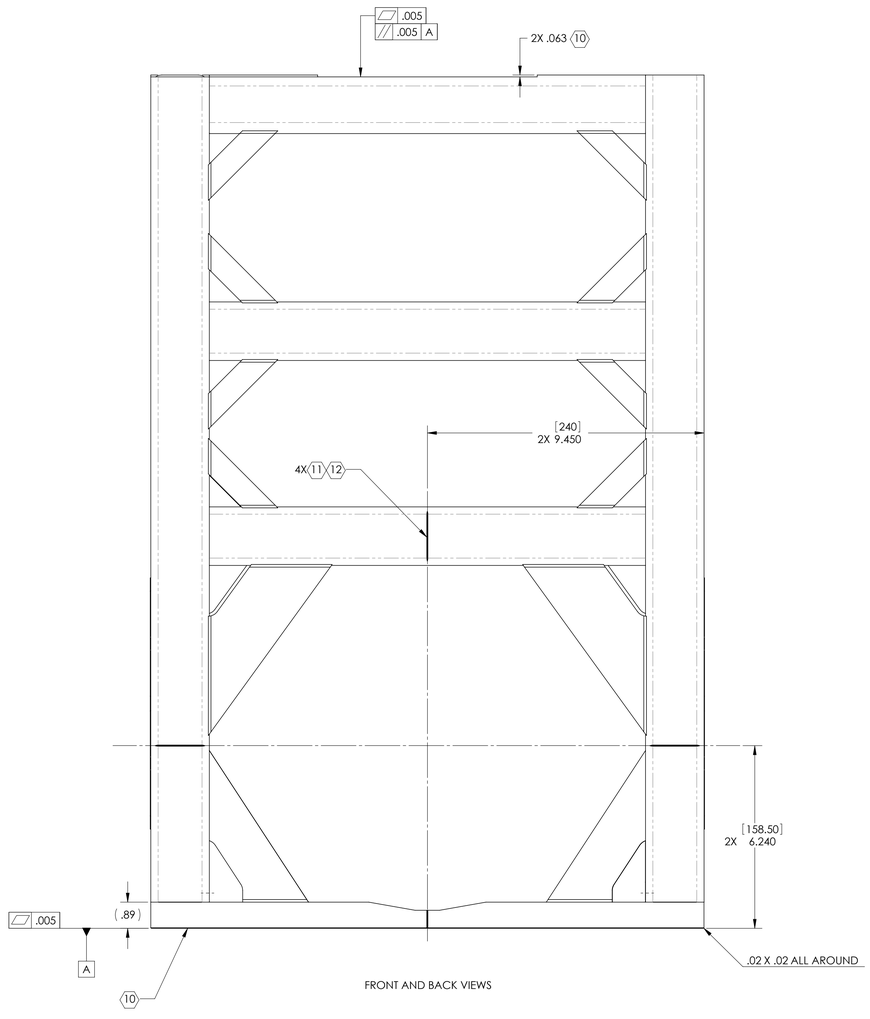
D070442_Advanced_LIGO_SUS_NLTS_Structural_Weldment_PART FDM REV= V2-0SS, DRAWING FDM REV= V2-006

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

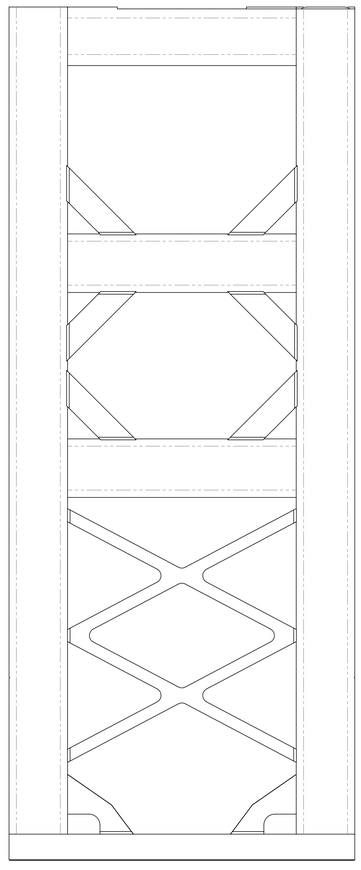
SIZE	DWG. NO.	REV.
E	D070442	v4

SCALE: 1:2 PROJECTION: SHEET 2 OF 8

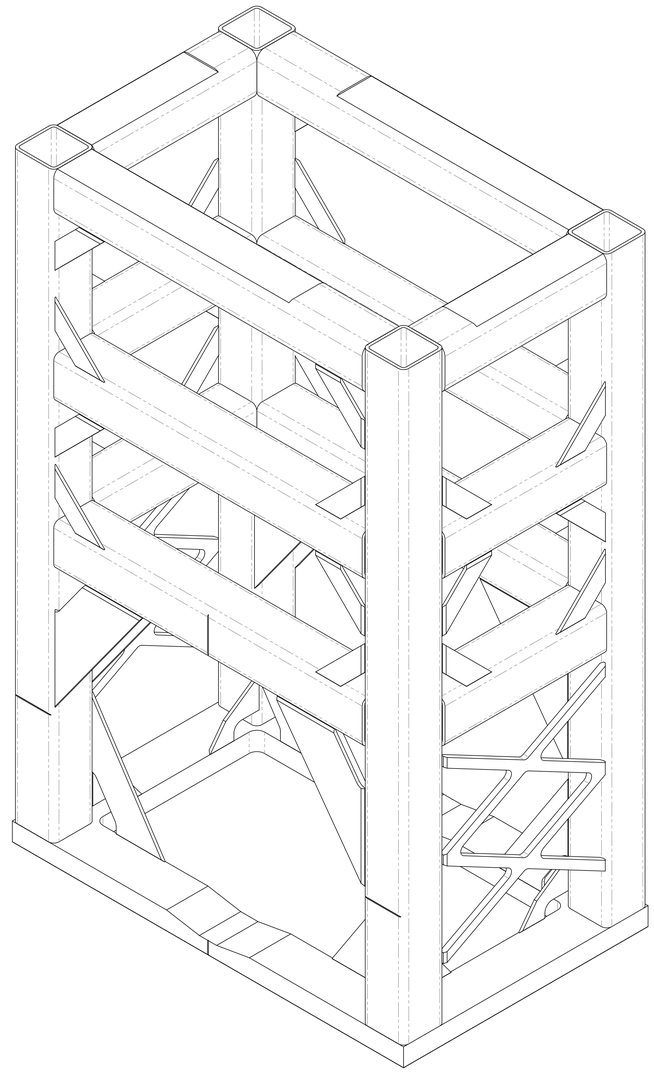




FRONT AND BACK VIEWS



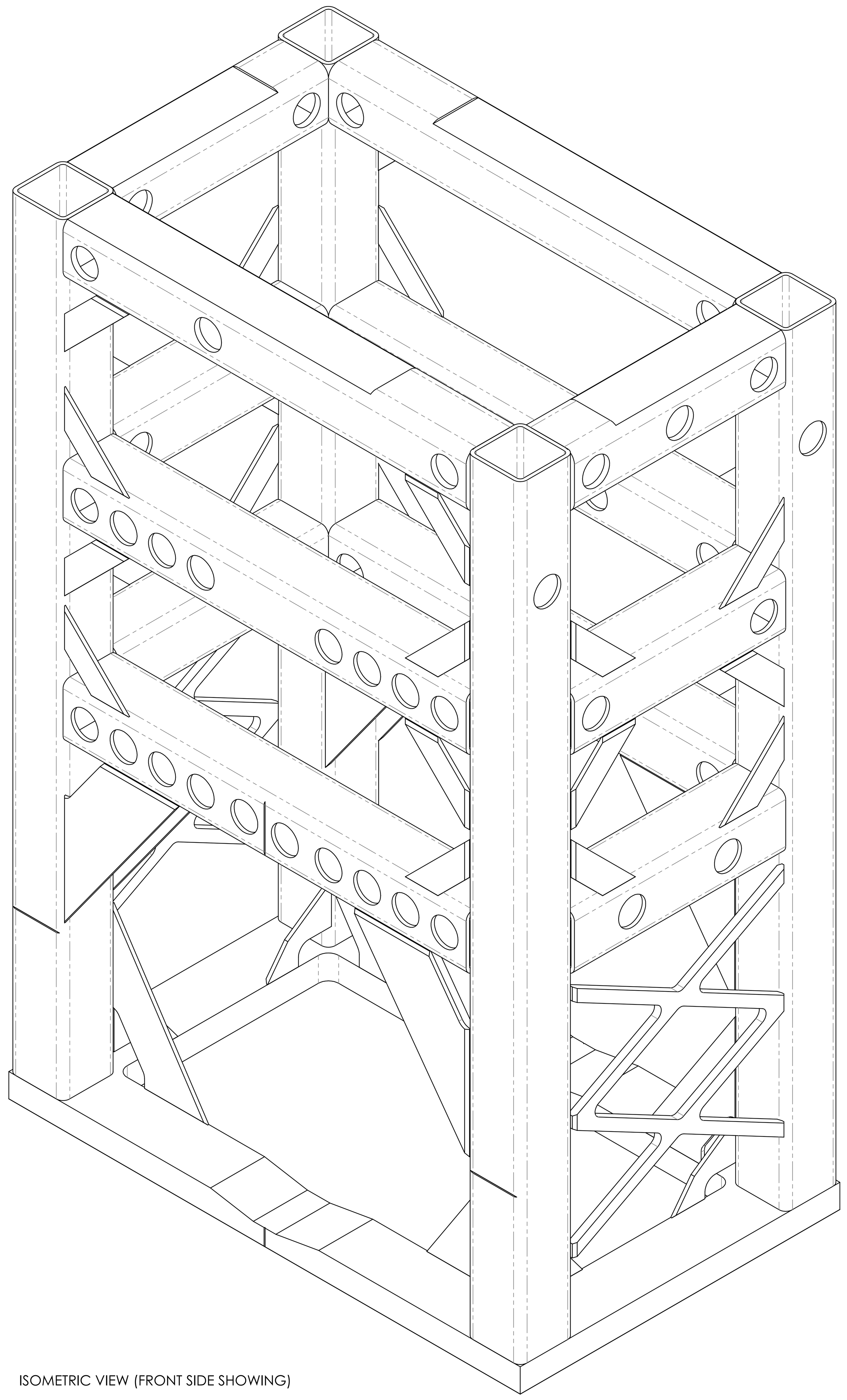
RIGHT AND LEFT VIEWS



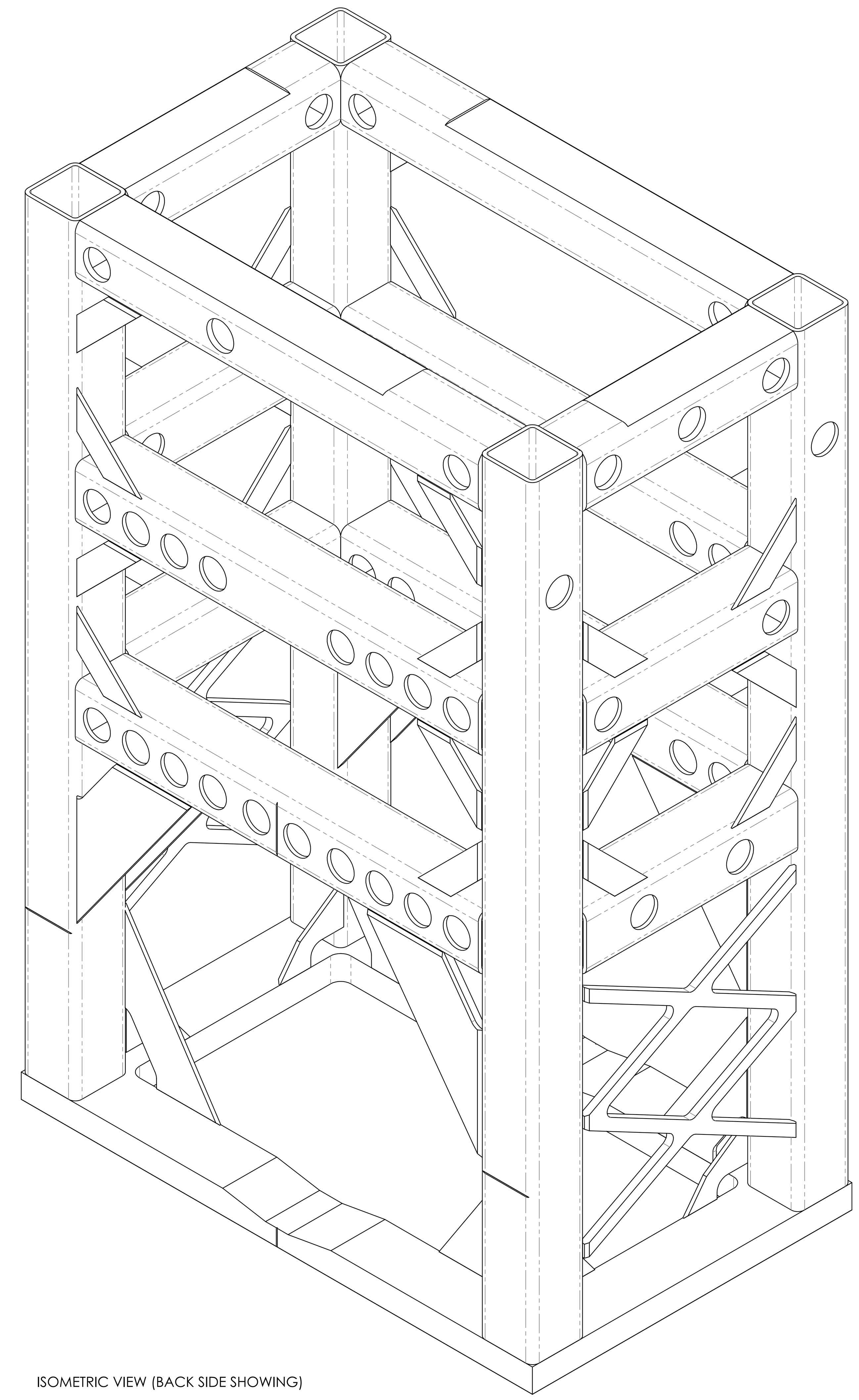
MACHINING LAYOUT

LIGO	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE	DWG. NO.		REV.
E	D070442		v4
SCALE: 1:2	PROJECTION:		SHEET 3 OF 8

D070442_Advanced_LIGO_SUS_HLTS_Structural_Weldment_PART FDM REV-V2-003, DRAWING FDM REV-V2-006



ISOMETRIC VIEW (FRONT SIDE SHOWING)

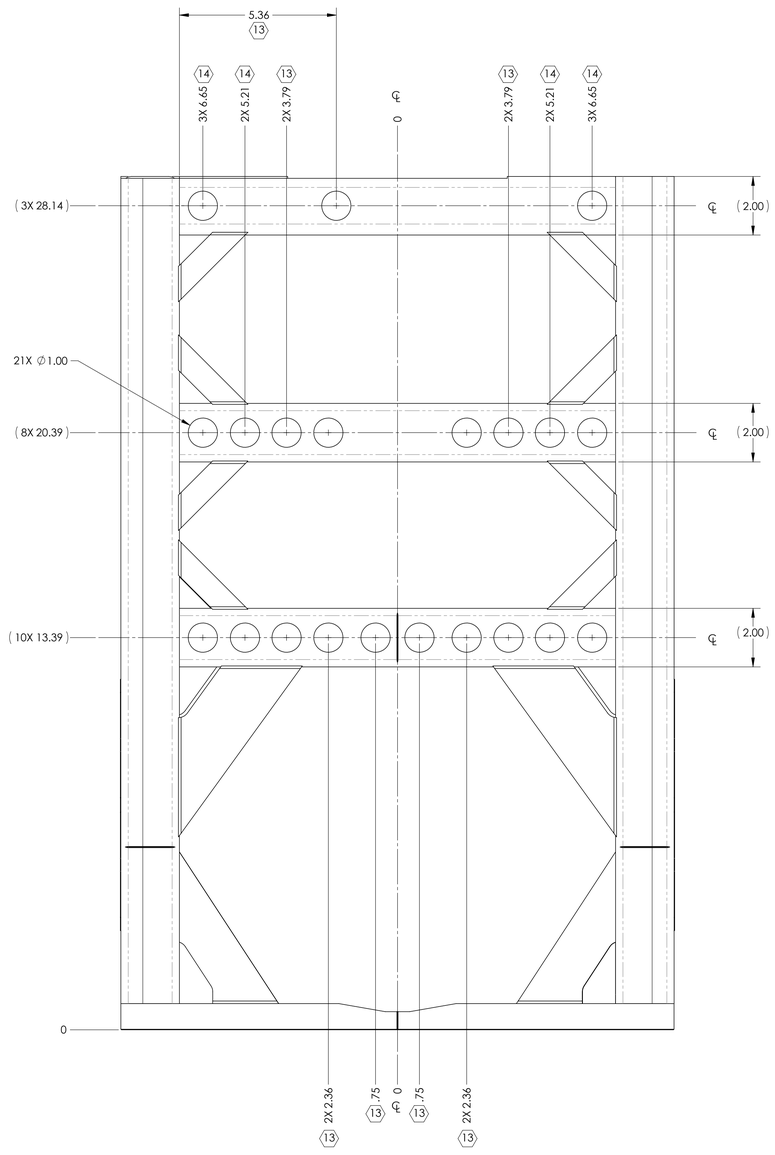


ISOMETRIC VIEW (BACK SIDE SHOWING)

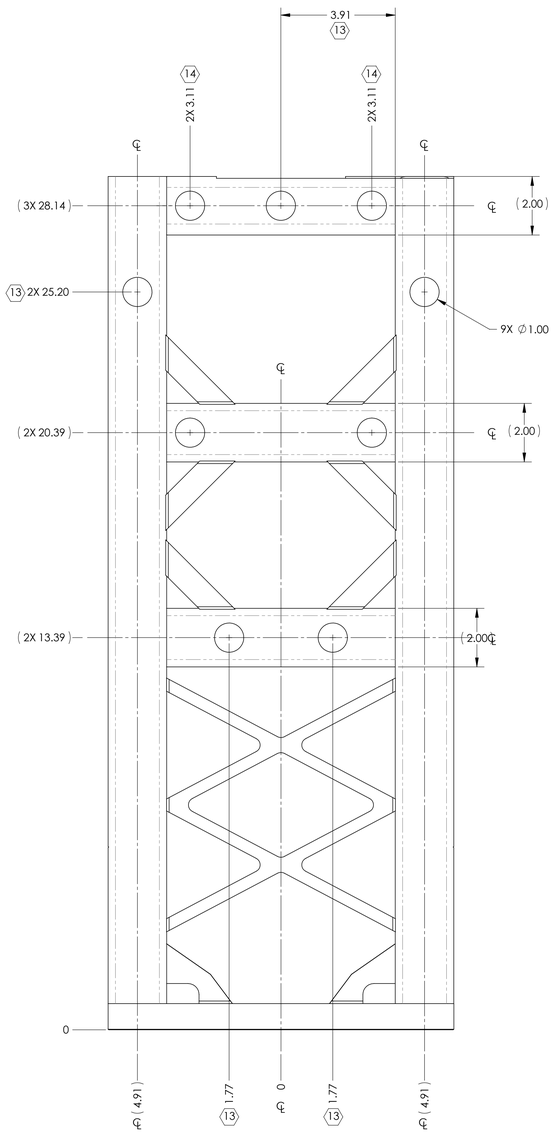
ISOMETRIC VIEWS FOR LARGE HOLE PLACMENT

D070442_Advanced_LIGO_SUS_HLTS_Structural_Weldment, PART PDM REV: V2-033, DRAWING PDM REV: V2-006

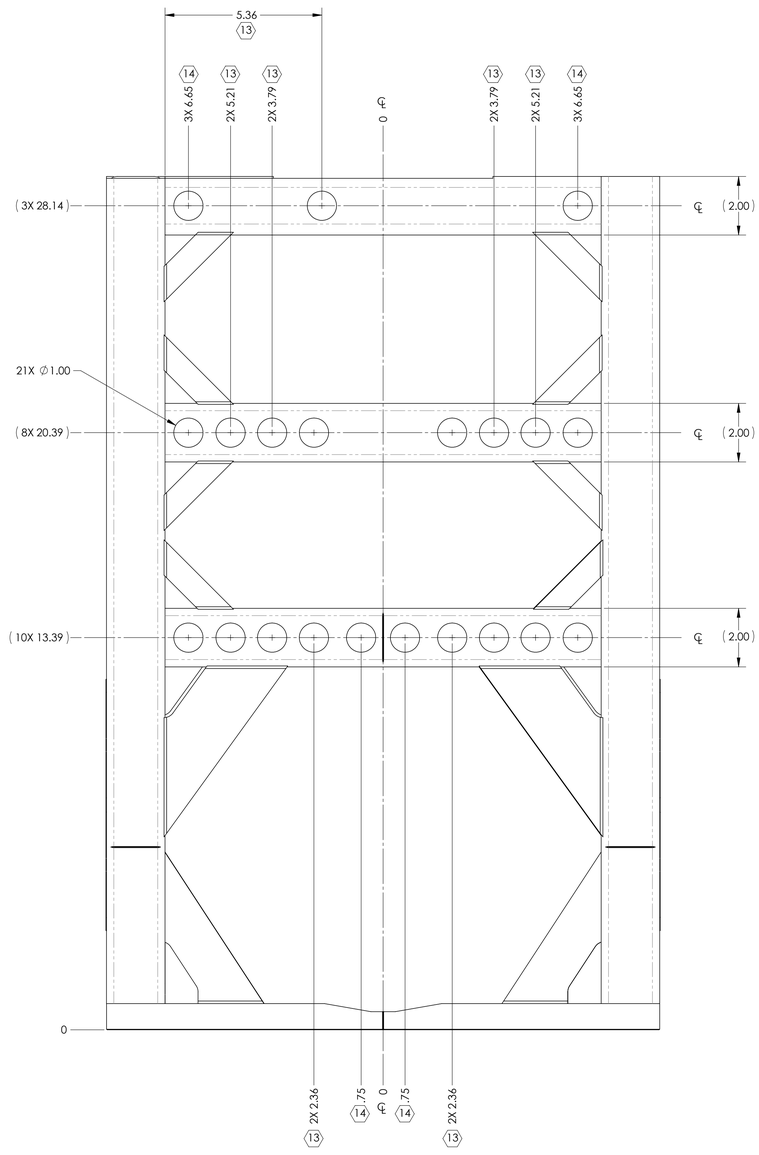
LIGO	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SIZE E	DWG. NO. D070442	REV. V4
SCALE: 1:2	PROJECTION:	SHEET 4 OF 8



FRONT VIEW



RIGHT AND LEFT VIEWS

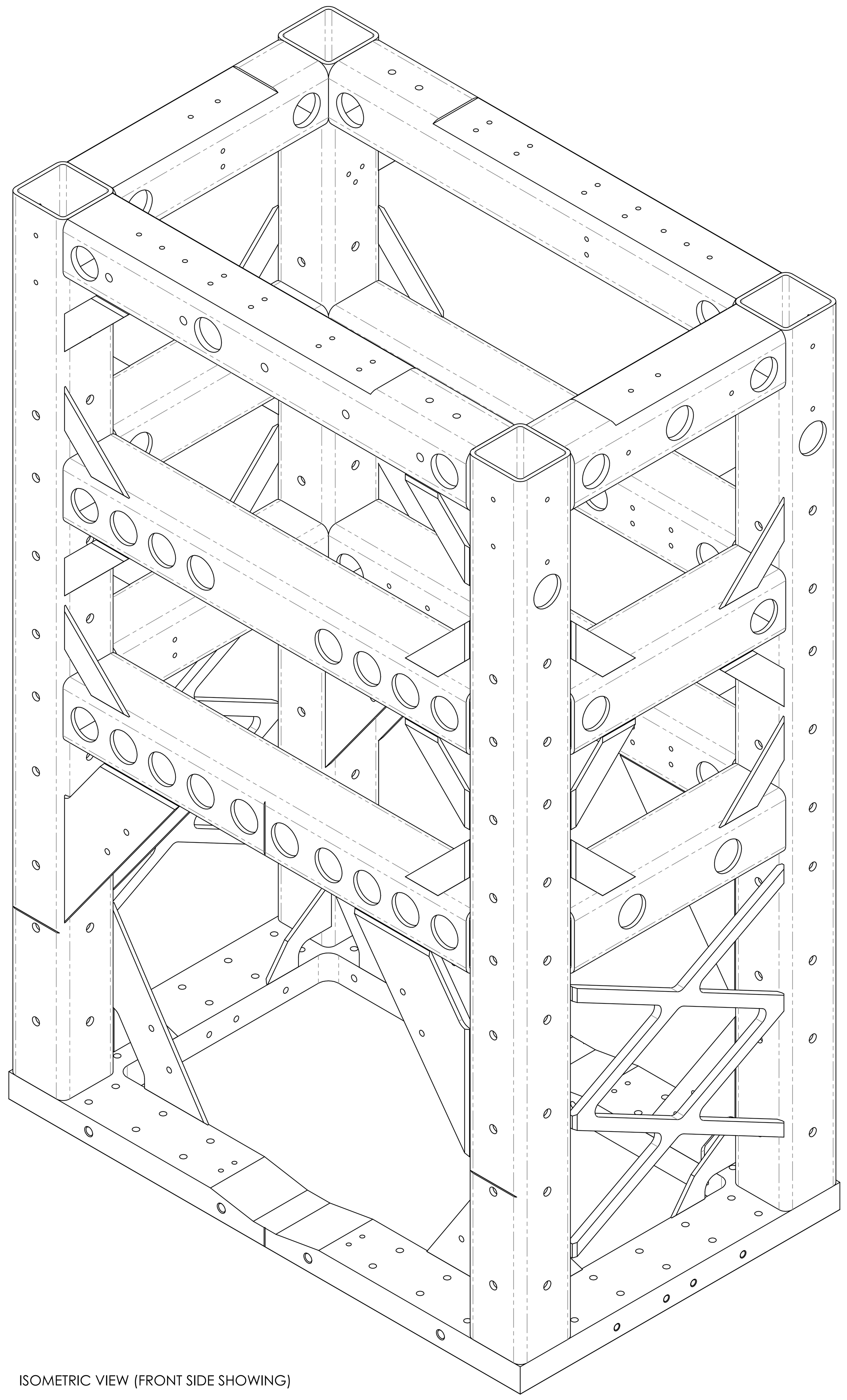


BACK VIEW

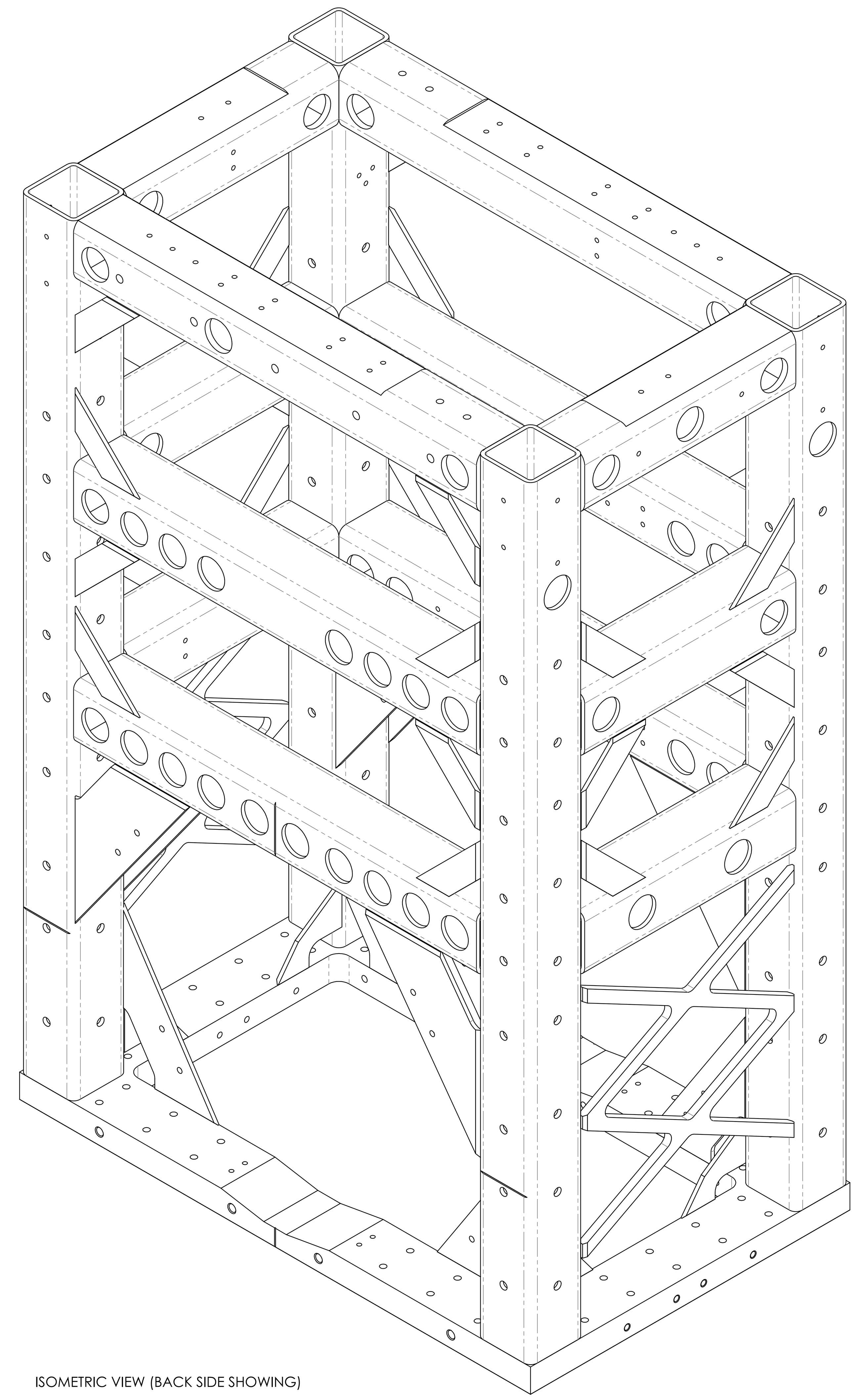
LARGE HOLE LAYOUT

D070442_Advanced_LIGO_SUS_HTS_Structural_Weldment_PART PDM REV: V2.003, DRAWING PDM REV: V2.006

LIGO	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE	DWG. NO.		REV.
E	D070442		v4
SCALE: 1:2	PROJECTION:		SHEET 5 OF 8



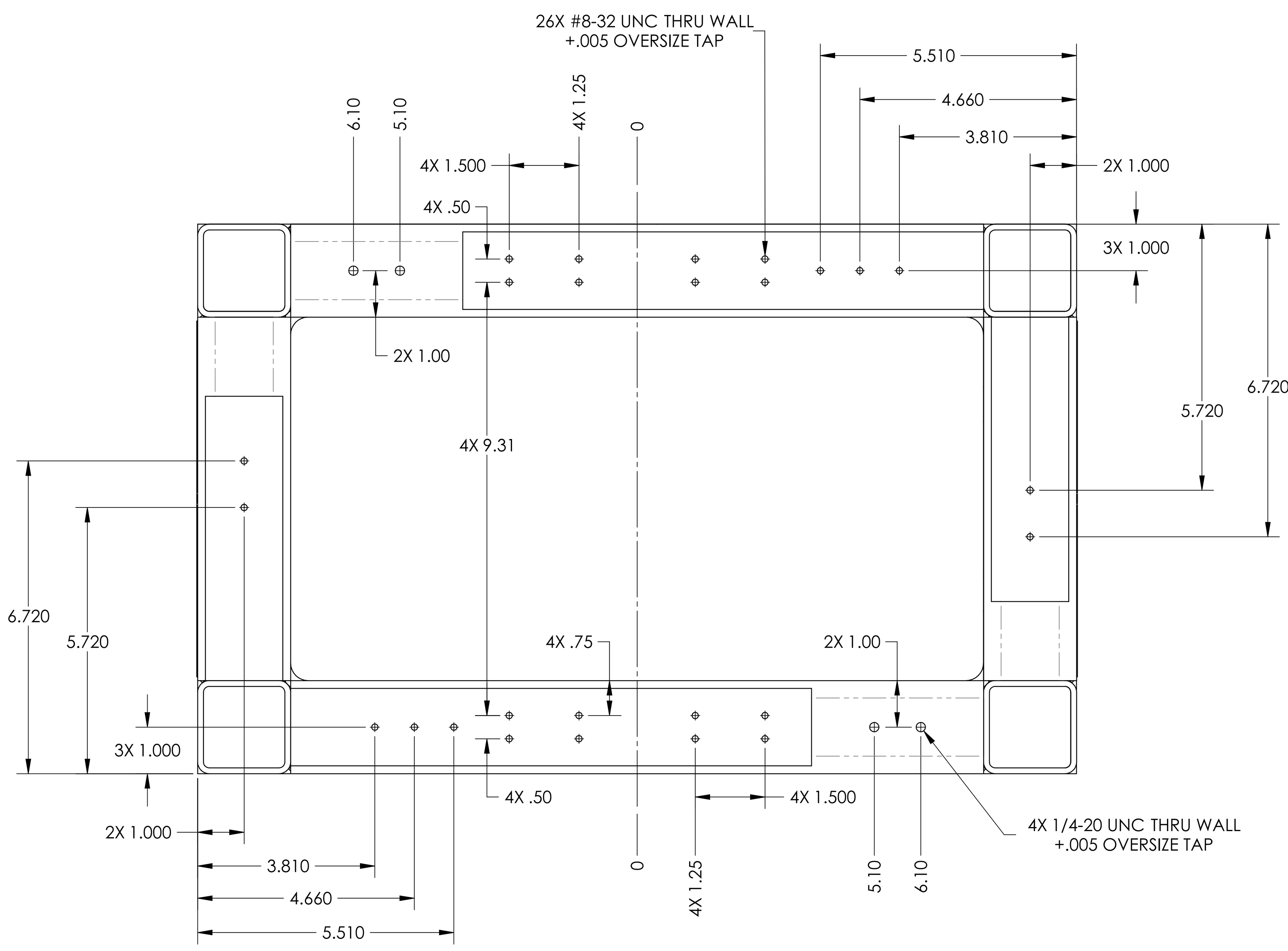
ISOMETRIC VIEW (FRONT SIDE SHOWING)

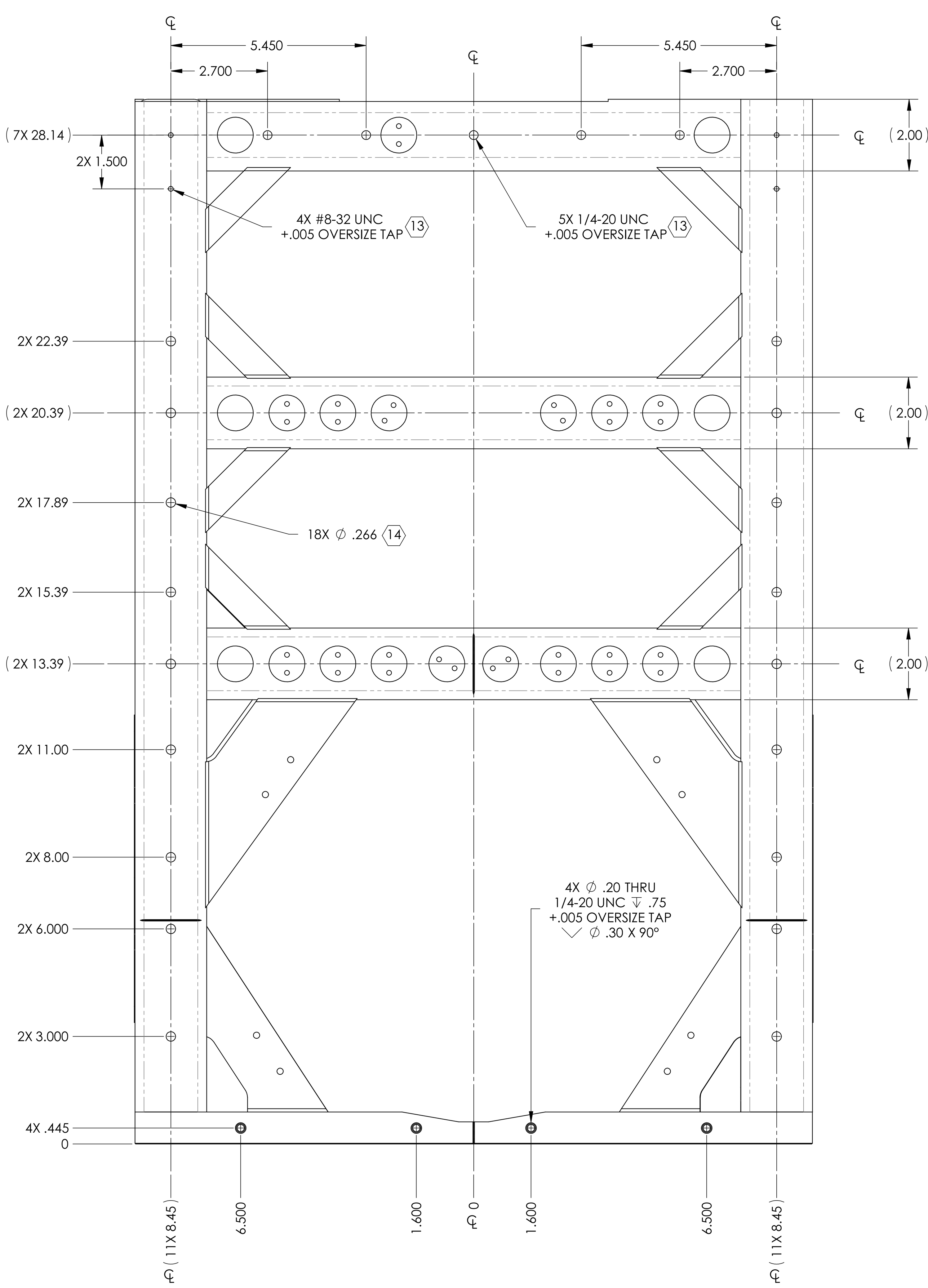


ISOMETRIC VIEW (BACK SIDE SHOWING)

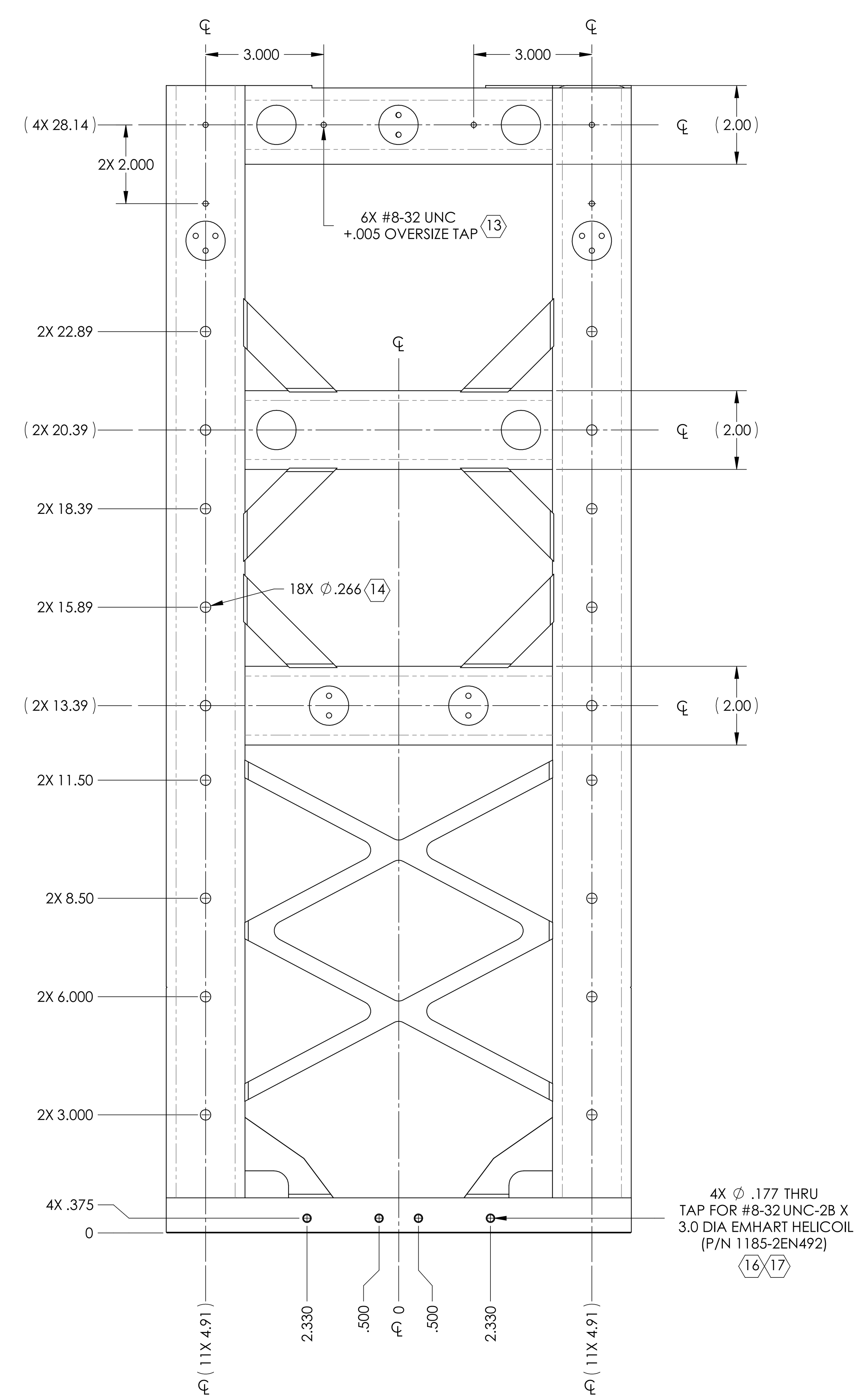
ISOMETRIC VIEWS FOR LARGE HOLE PLACMENT

LIGO	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SIZE E	DWG. NO. D070442	REV. v4
SCALE: 1:2	PROJECTION:	SHEET 6 OF 8

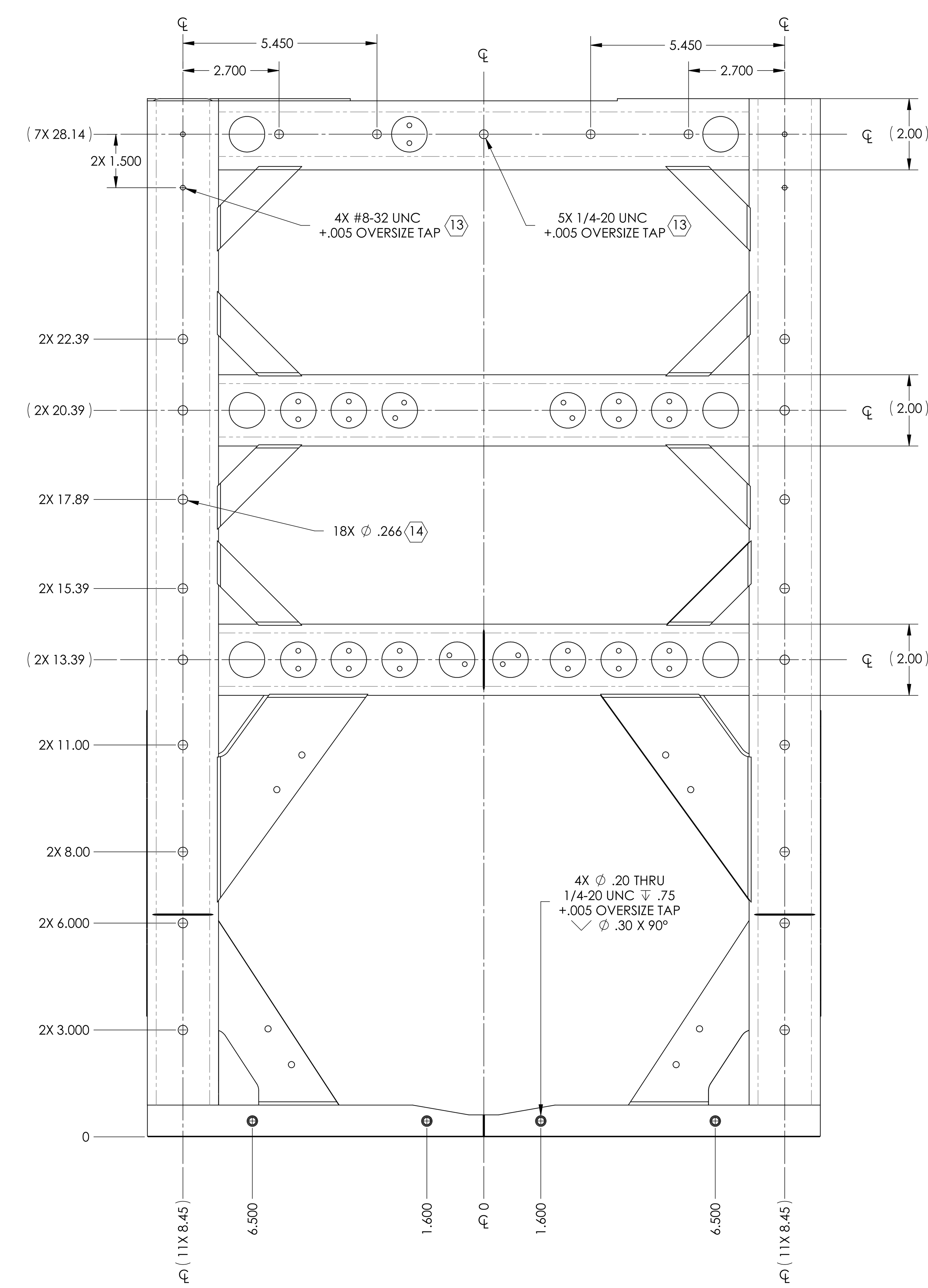




FRONT VIEW



RIGHT AND LEFT VIEWS



BACK VIEW

SMALL HOLE LAYOUT

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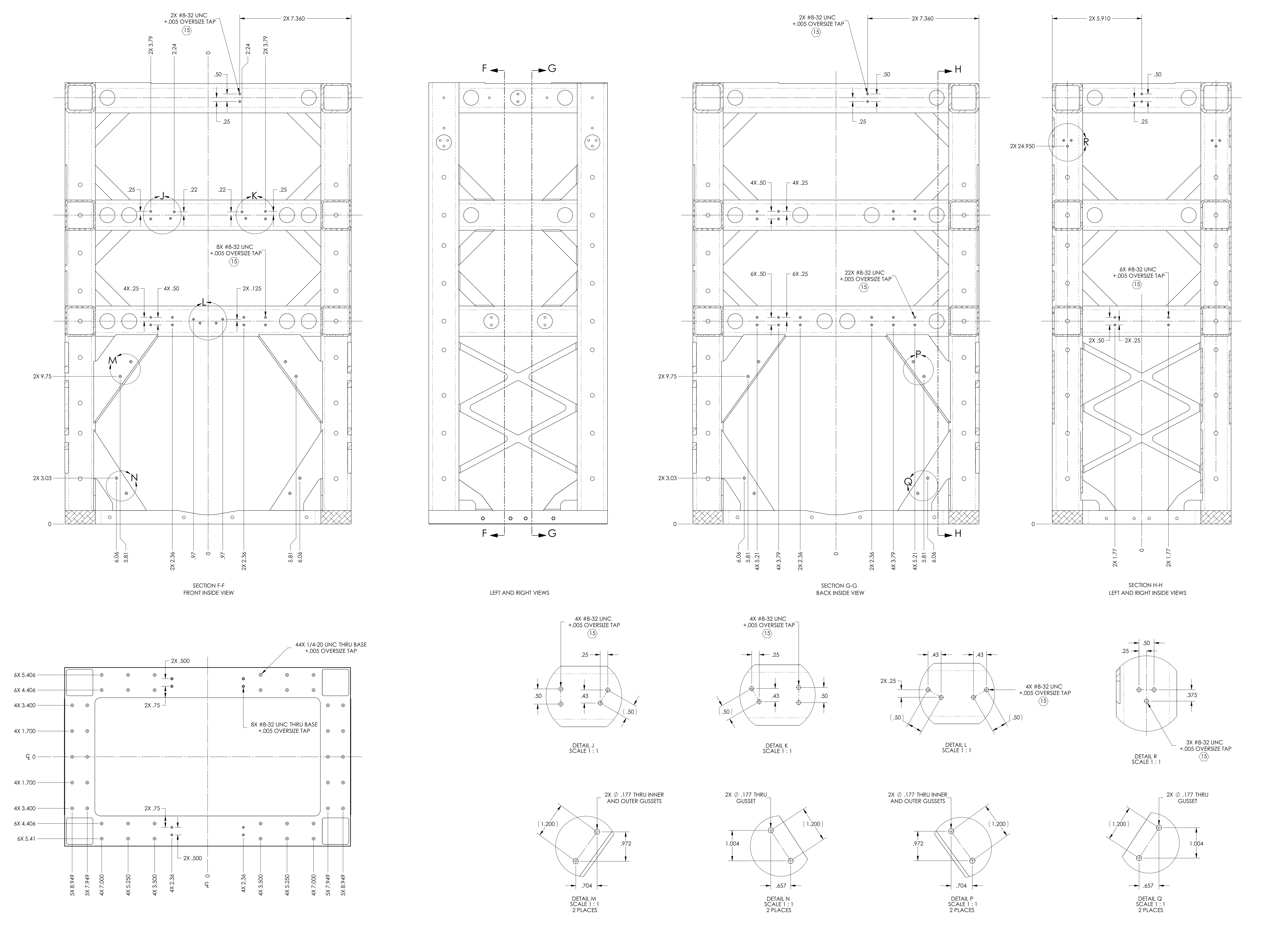
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE	DWG. NO.	REV.
E	D070442	v4

SCALE: 1:2 PROJECTION: SHEET 7 OF 8


2X #8-32 UNC
+.005 OVERSIZE TAP
15
2X 7.360
2X 3.79
2.24
0
.50
.25
.22
J
K
L
M
N
8X #8-32 UNC
+.005 OVERSIZE TAP
4X .25
4X .50
2X .125
2X 9.75
2X 3.03
6.06
5.81
2X 2.36
.97
SECTION F-F
FRONT INSIDE VIEW
F
G
LEFT AND RIGHT VIEWS
H
4X .50
4X .25
6X .50
6X .25
22X #8-32 UNC
+.005 OVERSIZE TAP
P
Q
4X 5.21
4X 3.79
SECTION G-G
BACK INSIDE VIEW
2X 5.910
2X 24.950
R
6X #8-32 UNC
+.005 OVERSIZE TAP
2X .50
2X .25
2X 1.77
SECTION H-H
LEFT AND RIGHT INSIDE VIEWS
44X 1/4-20 UNC THRU BASE
+.005 OVERSIZE TAP
2X .500
2X .75
8X #8-32 UNC THRU BASE
+.005 OVERSIZE TAP
6X 5.406
6X 4.406
4X 3.400
4X 1.700
℄ 0
6X 5.41
5X 8.949
5X 7.949
4X 7.000
4X 5.250
4X 3.500
4X 2.36
4X #8-32 UNC
+.005 OVERSIZE TAP
.43
(.50)
DETAIL J
SCALE 1 : 1
DETAIL K
SCALE 1 : 1
DETAIL L
SCALE 1 : 1
3X #8-32 UNC
+.005 OVERSIZE TAP
.375
DETAIL R
SCALE 1 : 1
2X ∅ .177 THRU INNER
AND OUTER GUSSETS
(1.200)
.972
.704
DETAIL M
SCALE 1 : 1
2 PLACES
2X ∅ .177 THRU
GUSSET
1.004
.657
DETAIL N
SCALE 1 : 1
2 PLACES
DETAIL P
SCALE 1 : 1
2 PLACES
DETAIL Q
SCALE 1 : 1
2 PLACES

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE	DWG. NO.	REV.
E	D070442	v4

SCALE: 1:2 PROJECTION: