



2007 SOLAR DECATHLON

UNIVERSIDAD DE PUERTO RICO

theCELL

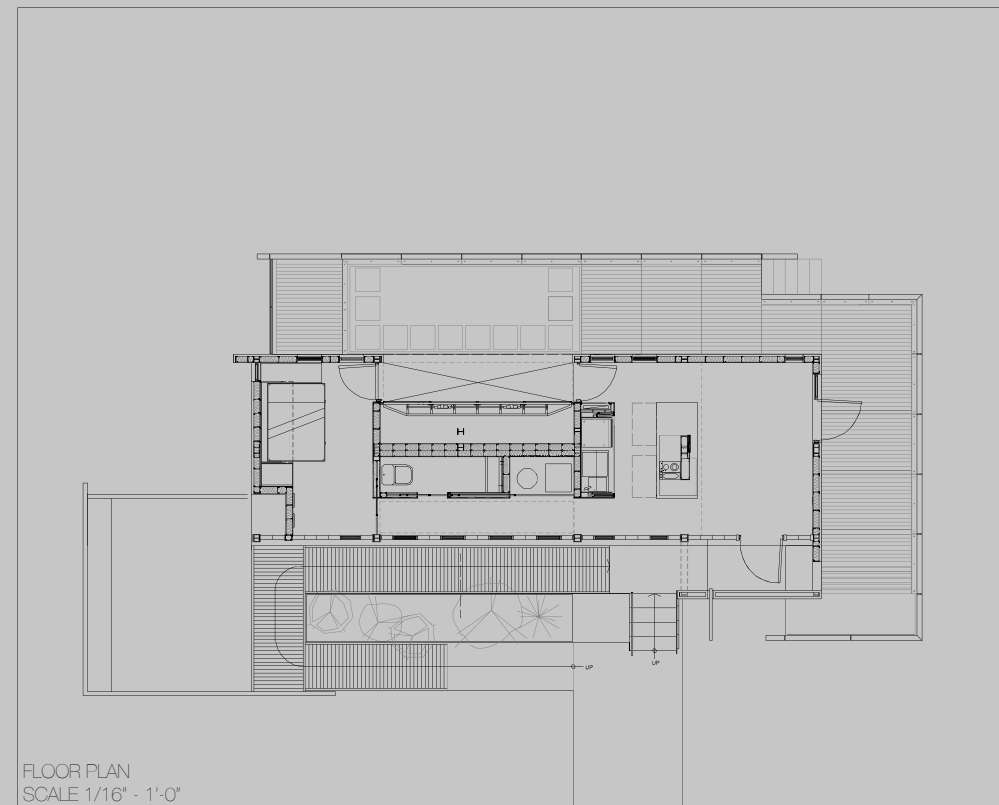
CELL: The cell is the simplest unit of a living organism that is able to grow and function independently.

The design we have created for 2007 is similar to a living cell. It is not only a solar house or a space, but a living system as well. In itself, a cell is a dwelling; a scientific and architectural marvel that houses everything it needs to survive. A cell can adapt to changing conditions, nourish itself, produce energy, and exchange information with other cells. To accomplish its task, our house (our cell) is nourished by the sun and interacts with its neighbor, the photovoltaic cell.

Just like the nucleus of a cell, the house's nucleus contains all of its genetic information. The nucleus is the control center for the entire house, which enables a variety of different functions. With this central core, the house will adapt to the fluctuating needs of its inhabitants and its environment, much like how cellular parts adapt to variables in their surroundings.

The cell membrane surrounds and protects its structure by acting as a barrier between the interior and the exterior of the dwelling. Cell membranes also allow for the passage of essential elements such as light and ventilation to maintain the cell's vital functions. Just as the cell membrane acts as a barrier, the walls of the solar house protect the interior from the exterior elements, and facilitate the passage of light and ventilation.

With all of these elements, our solar house, our cell, is completely self-sufficient. From Washington DC to Puerto Rico, our design is able to adapt and acclimatize to its various surroundings.



FLOOR PLAN
SCALE 1/16" = 1'-0"

119	117	115	113	111	109	107	105	103	101
120	118	116	114	112	110	108	106	104	102

ARCHITECTURE

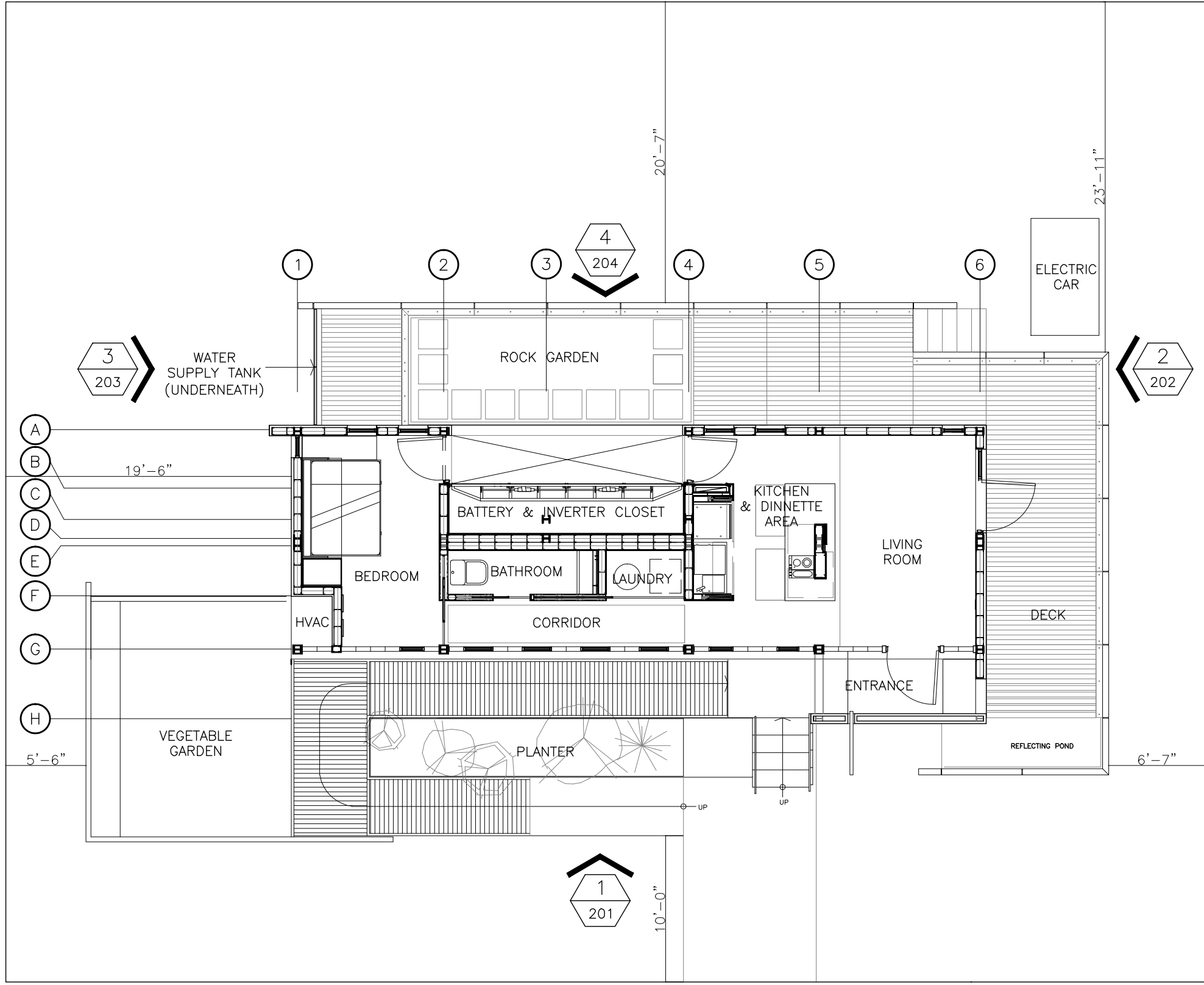
T-1	TITLE SHEET
T-2	DRAWING INDEX
A-001	SITE PLAN
A-101	FLOOR PLAN
A-102	REFLECTED CEILING
A-103	ROOF PLAN WITH PANEL STRUCTURE
A-104	ROOF PLAN
A-201	SOUTH ELEVATION
A-202	EAST ELEVATION
A-203	WEST ELEVATION
A-204	NORTH ELEVATION
A-205	SOLAR ENVELOPE
A-206	SOLAR ENVELOPE
A-301	SECTION A
A-302	SECTION B
A-303	SECTION C
A-304	SECTION D
A-305	SECTION E
A-306	SECTION F
A-307	SECTION G
A-308	SECTION H
A-309	SECTION J
A-310	SECTION K
A-311	SECTION L
A-312	SECTION M
A-313	SECTION N
A-314	SECTION P
A-315	WALL SECTION
A-316	WALL SECTION
A-317	WALL SECTION
A-318	WALL SECTION
A-319	WALL SECTION
A-320	WALL SECTION
A-321	WALL SECTION
A-322	WALL SECTION
A-323	WALL SECTION
A-324	WALL SECTION
A-325	ISONOMETRIC DETAIL VIEW
A-326	ISONOMETRIC DETAIL VIEW
A-401	CORE 3-D MODEL VIEW
A-402	BATHROOM DETAILS AND SCHEDULE
A-403	BATHROOM 3-D MODEL VIEWS
A-404	KITCHEN DETAILS AND SCHEDULE
A-405	KITCHEN DETAILS
A-406	KITCHEN 3-D MODEL VIEWS
A-407	BEDROOM DETAILS AND SCHEDULE
A-408	BEDROOM DETAILS
A-409	BEDROOM 3-D MODEL VIEWS
A-501	PV STRUCTURE
A-502	PV MECHANISM DETAILS
A-601	RAMP AND DECK PLAN
A-602	RAMP DETAILS
A-603	RAMP DETAILS
A-604	DECK DETAILS
A-605	DECK DETAILS
A-606	DECK DETAILS
A-701	GENERAL FINISHES AND DETAILS
A-702	WINDOWS SCHEDULE
A-703	DOOR SCHEDULE
A-704	DOOR SCHEDULE
A-801	ASSEMBLY PROCESS
A-802	ASSEMBLY PROCESS
A-803	ASSEMBLY PROCESS
A-804	ASSEMBLY PROCESS

A-805	DISASSEMBLY PROCESS
A-806	DISASSEMBLY PROCESS
A-807	DISASSEMBLY PROCESS
A-808	DISASSEMBLY PROCESS
A-901	FURNITURE AND TOUR ROUTE
A-902	FOOTPRINT AND AIR CONDITIONED AREA
P-101	PERSPECTIVE VIEW
P-102	PERSPECTIVE VIEW
P-103	PERSPECTIVE VIEW
P-104	PERSPECTIVE VIEW
STRUCTURAL	
S-1	FOUNDATION PLAN
S-2A	FOUNDATION DETAILS
S-2B	FOUNDATION DETAILS
S-3	STRUCTURAL PLAN
S-4A	STRUCTURAL DETAILS
S-4B	STRUCTURAL DETAILS
S-4C	STRUCTURAL DETAILS
S-4D	STRUCTURAL DETAILS
S-4E	STRUCTURAL DETAILS
S-4F	STRUCTURAL DETAILS
S-4G	STRUCTURAL DETAILS
S-4H	STRUCTURAL DETAILS
S-4J	STRUCTURAL DETAILS
S-5	STRUCTURAL SECOND FLOOR PLANE
S-6A	STRUCTURAL DETAILS
S-6B	STRUCTURAL DETAILS
S-6C	STRUCTURAL DETAILS
S-6D	STRUCTURAL DETAILS
S-6E	STRUCTURAL DETAILS
S-6F	STRUCTURAL DETAILS
S-7	STRUCTURAL THIRD FLOOR PLANE
S-8A	STRUCTURAL DETAILS
S-8B	STRUCTURAL DETAILS
S-8C	STRUCTURAL DETAILS
S-8D	STRUCTURAL DETAILS
S-9	STRUCTURAL DETAILS
S-10	STRUCTURAL SECTION
S-11	STRUCTURAL SECTION
S-12	STRUCTURAL SECTION
S-13	STRUCTURAL SECTION
S-14	STRUCTURAL SECTION
S-15	STRUCTURAL SECTION
S-16	STRUCTURAL SECTION
S-17	FOUNDATION DETAILS
S-15	FOUNDATION DETAILS
MECHANICAL	
M-101	HOT WATER PROCESS FLOW DIAGRAM
M-102	MAIN WATER LINES
M-103	WATER TANK SPECS
M-104	REFRIGERATED LINE
M-105	HVAC SYSTEMS
M-106	HVAC DIAGRAM
M-107	AIR HANDLING UNIT
ELECTRICAL	
E-101	ELECTRICAL LEGENDS
E-102	CIRCUIT PLAN
E-103	CONTROL PLAN
E-104	PV AND BATTERY SYSTEMS
E-105	LIGHTING SCHEDULE
E-106	AC FUNCTION BOXES
E-107	ELECTRICAL DATA
E-108	ELECTRICAL DATA
E-109	SECTION



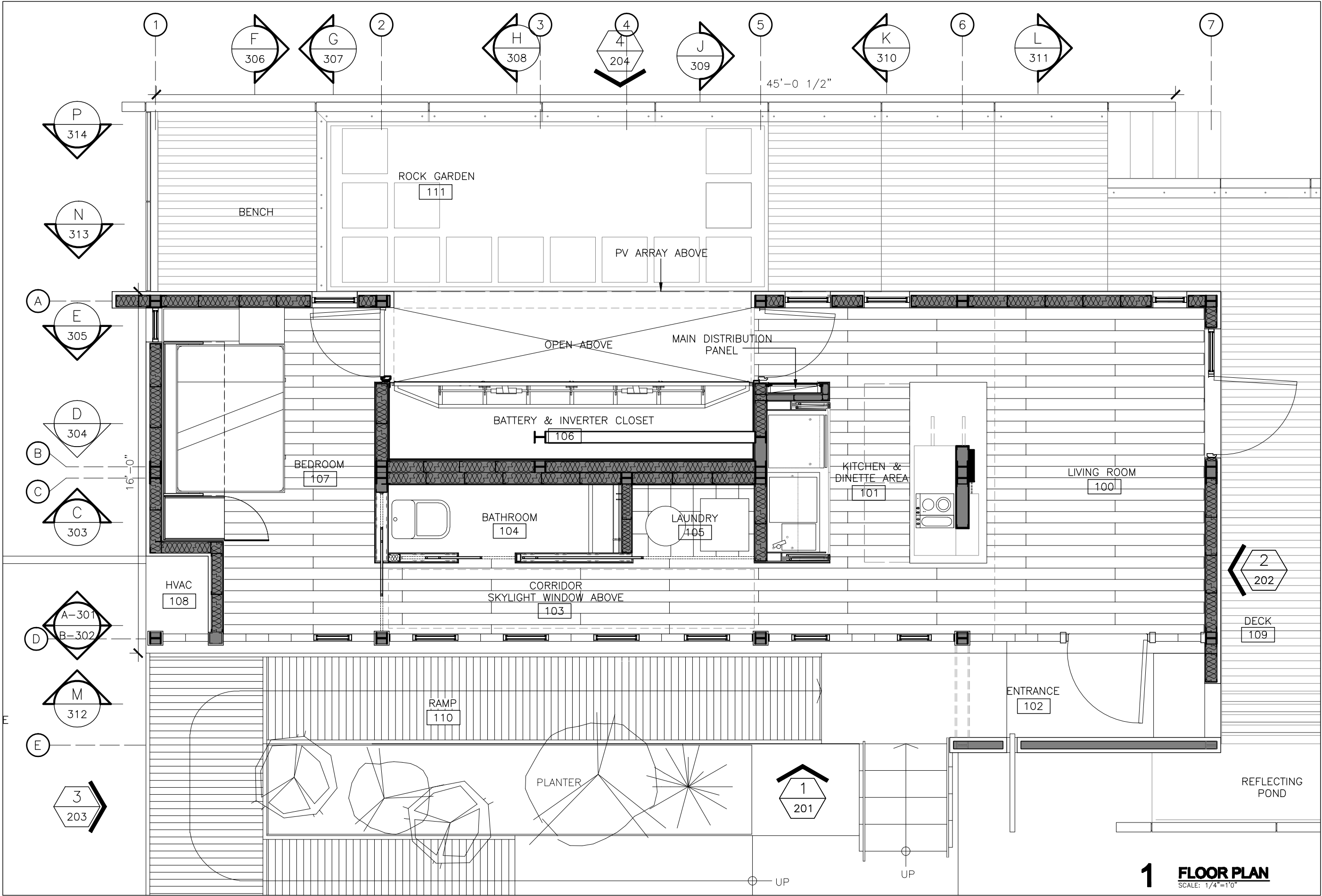
LEGEND

- EXTERIOR WALL
- INTERIOR WALL
- ELEVATION SHEET REFERENCE
- SECTION SHEET REFERENCE
- DETAIL SHEET REFERENCE
- DOOR IDENTIFICATION HARDWARE SET
- WINDOW IDENTIFICATION
- LEVEL LINE
- KEY NOTES
- CEILING HEIGHT
- G.L. GROUND LEVEL
- F.F.L. FINISHED FLOOR LEVEL
- T.O.C. TOP OF CEILING
- T.O.P. TOP OF PARAPET



1 SITE PLAN
 SCALE: 1/8"=1'0"





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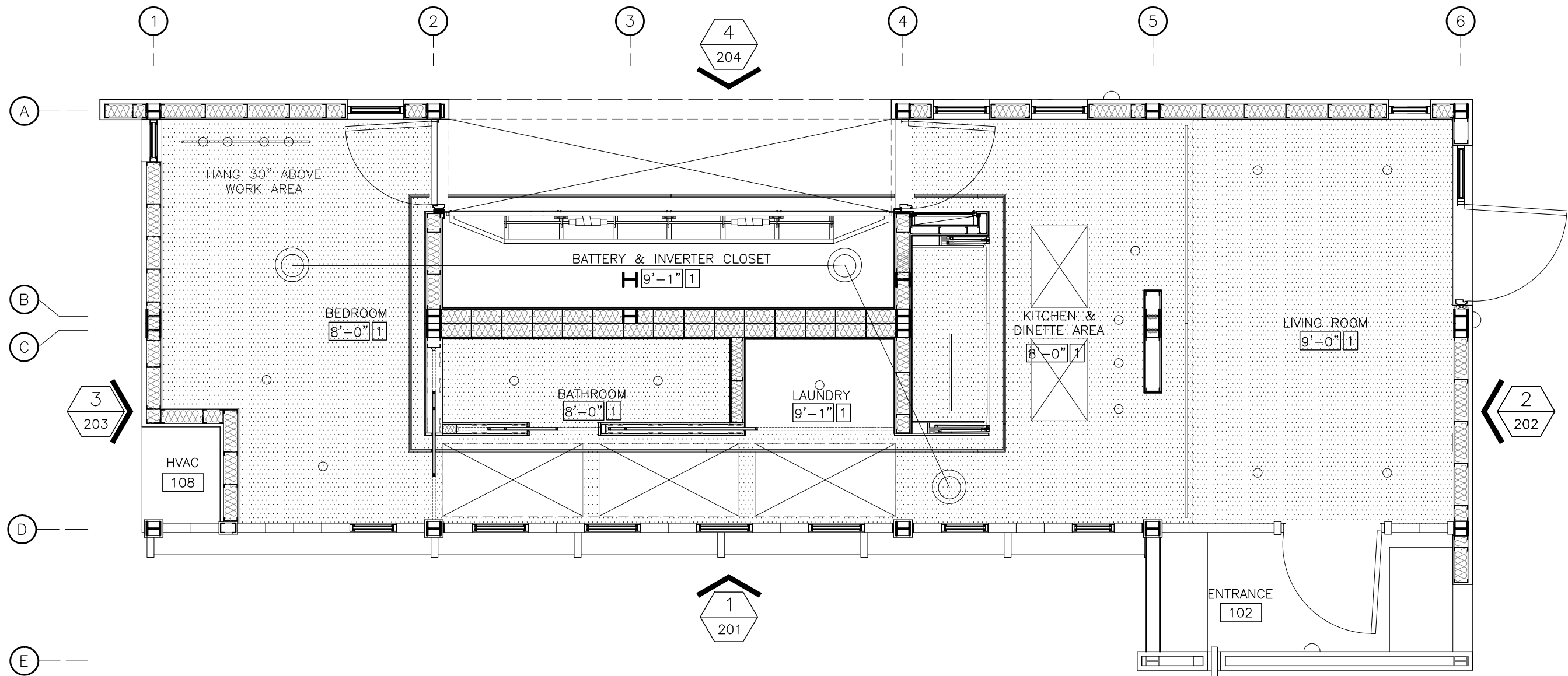
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FLOOR PLAN

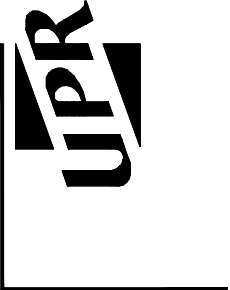
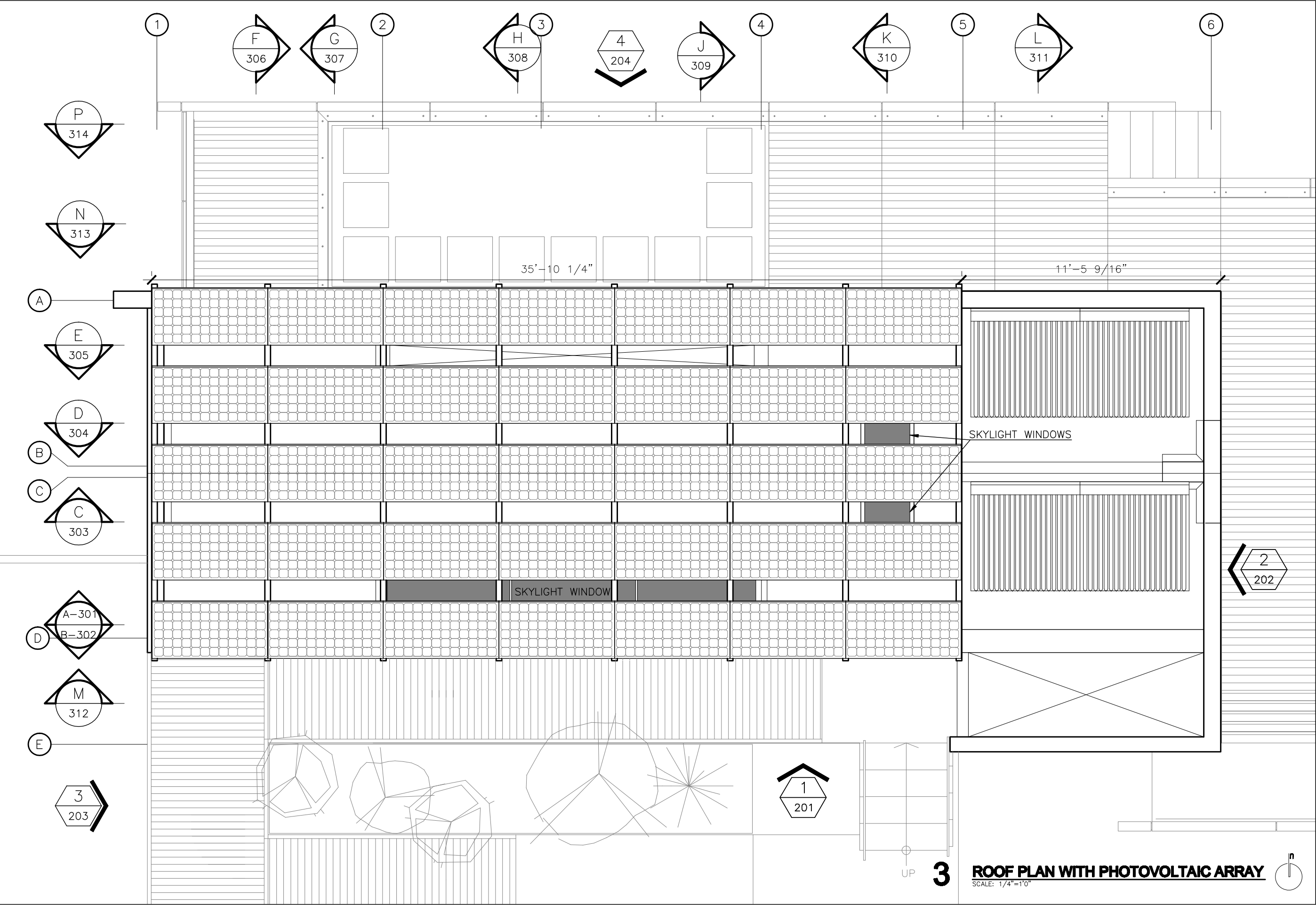
1 FLOOR PLAN
SCALE: 1/4"=1'0"

A-101



LEGEND			
	GYPSUM BOARD SUSPENDED CEILING		CEILING HEIGHT
	GYPSUM BOARD PANEL		DOWNLIGHT FIXTURE
	SENSOR, L10 ACTIVATES WHEN MOVEMENT.		SPOTLIGHT FIXTURES
			FLOOR WSLIGHT
			WALL LIGHT FIXTURE
			FLUORECENT TUBE 1"
			IO LINE SERIES .75
			SMOKE DETECTOR



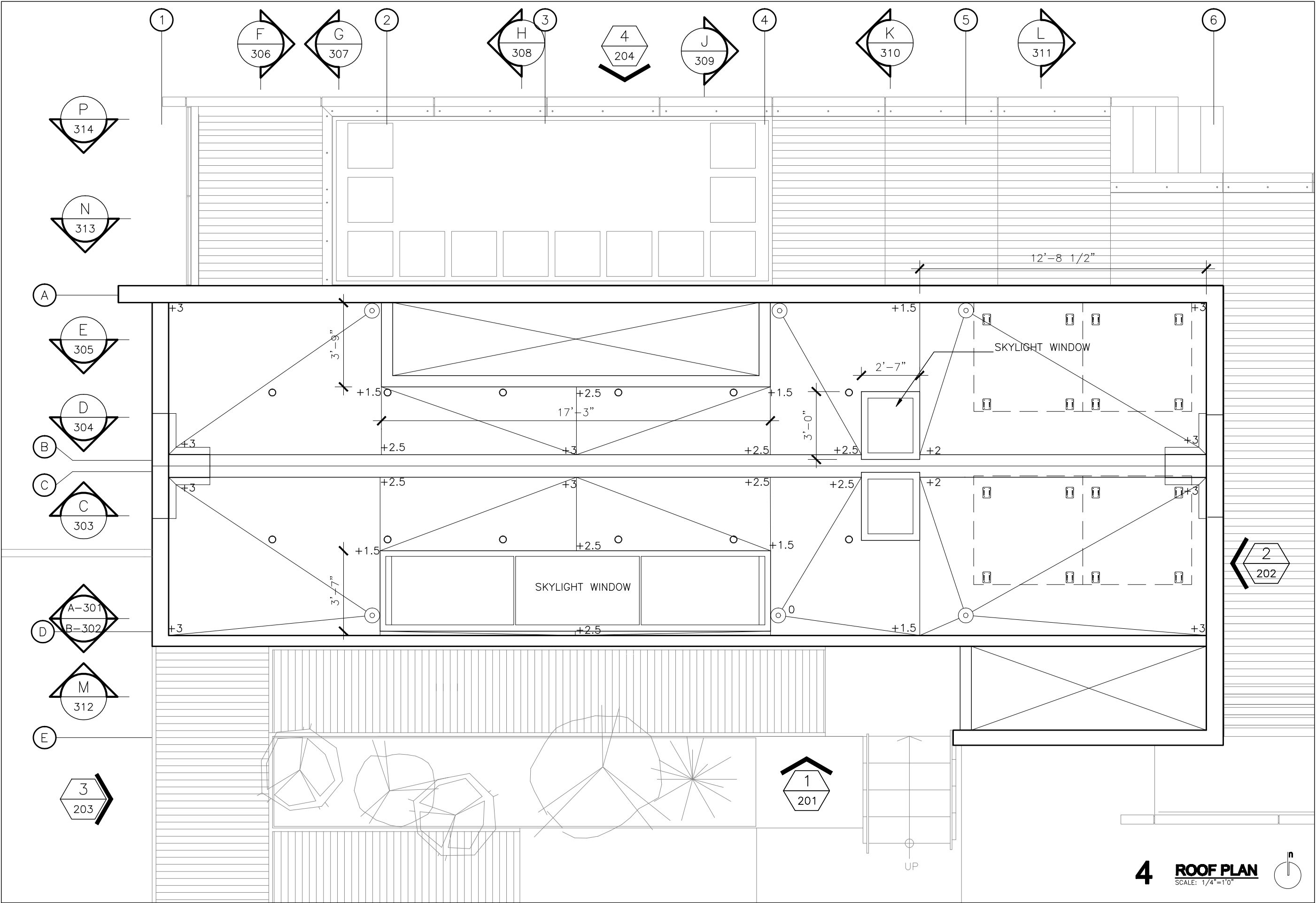


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ROOF PLAN
(WITH PHOTOVOLTAIC PANELS)

DATE: JUN/01/07
NO. 6





12'

8'

4'

3'

2'

1'

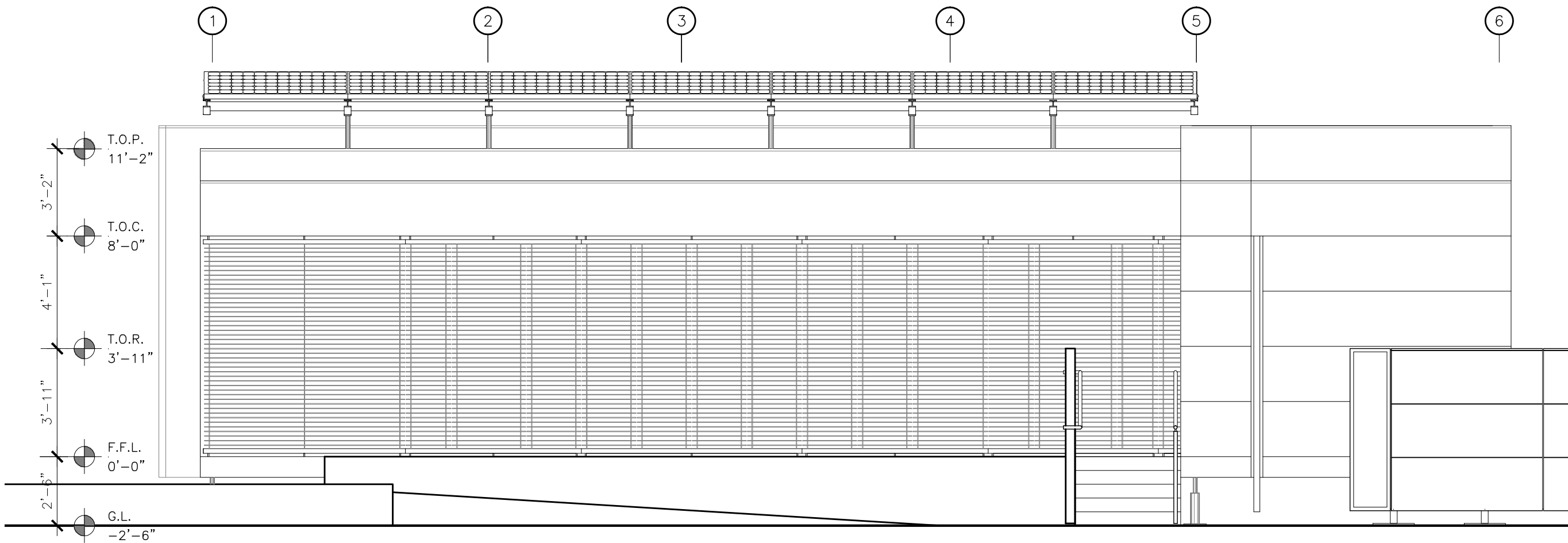
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SOUTH ELEVATION

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A-201



1 SOUTH ELEVATION
SCALE: 1/4"=1'0"

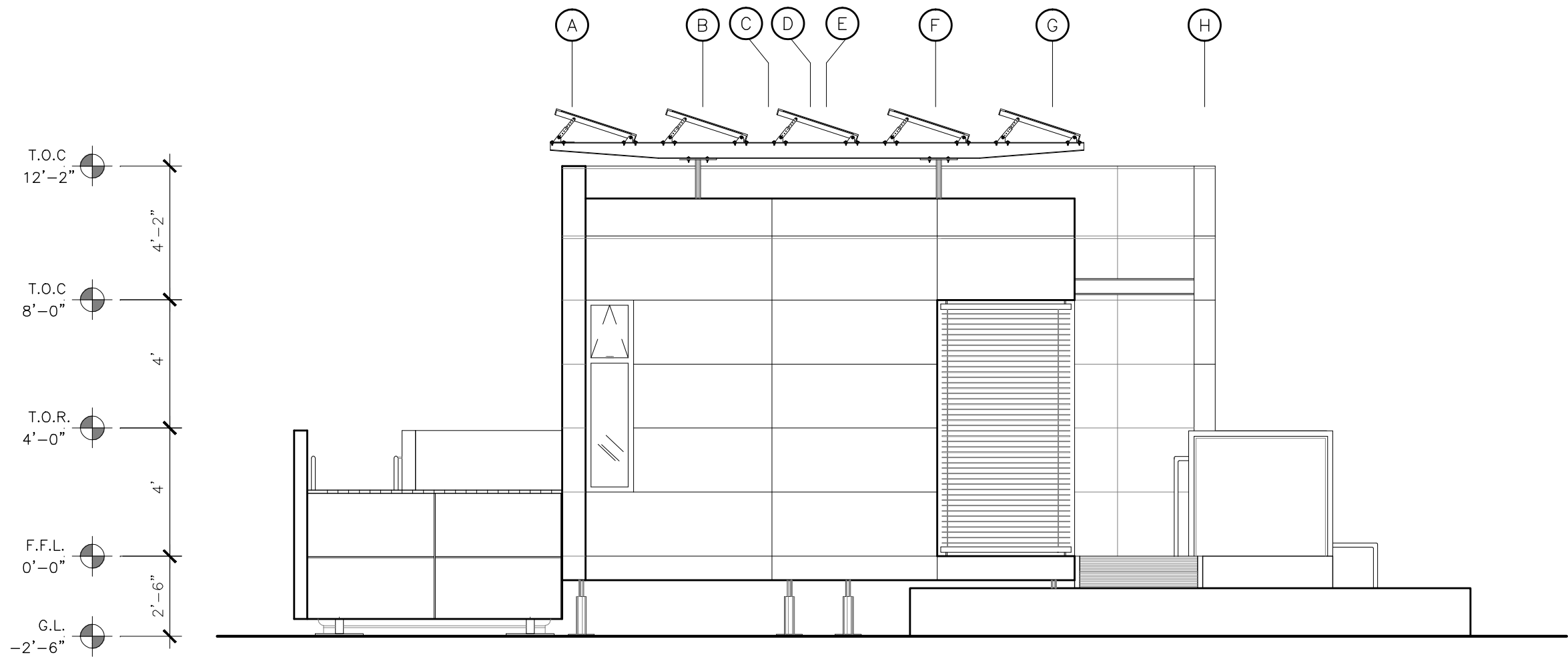


EAST ELEVATION

A-202

2 EAST ELEVATION

SCALE: 1/4"=1'0"



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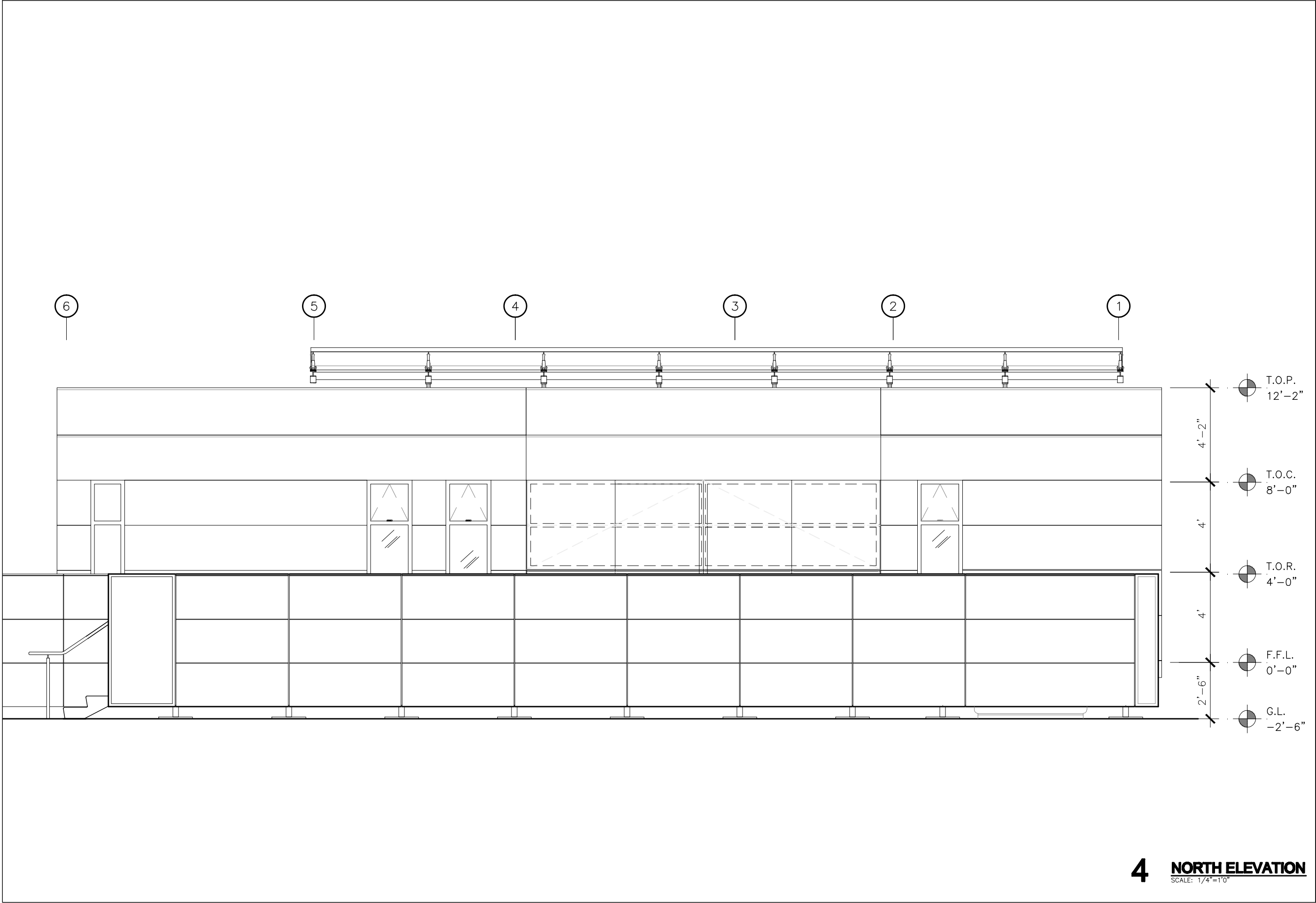
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WEST ELEVATION

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3 WEST ELEVATION
SCALE: 1/4"=1'0"

A-203



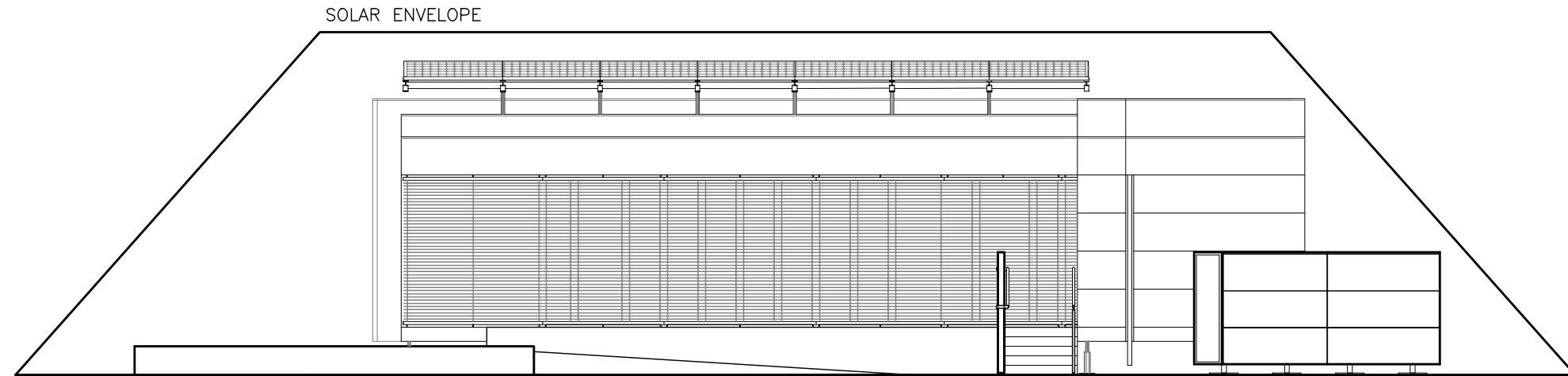
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NORTH ELEVATION	
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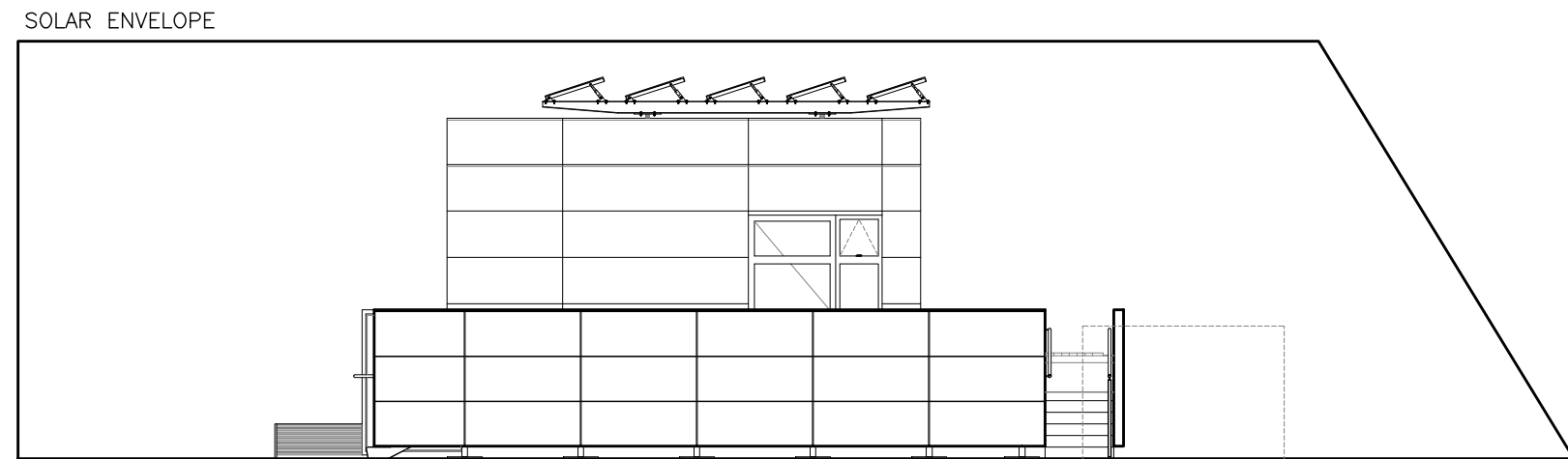
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NO. 11

4 NORTH ELEVATION
SCALE: 1/4"=1'0"

A-204



1 SOUTH ELEVATION
SCALE: 1/8"=1'0"



ELECTRIC CAR
PARKING AREA

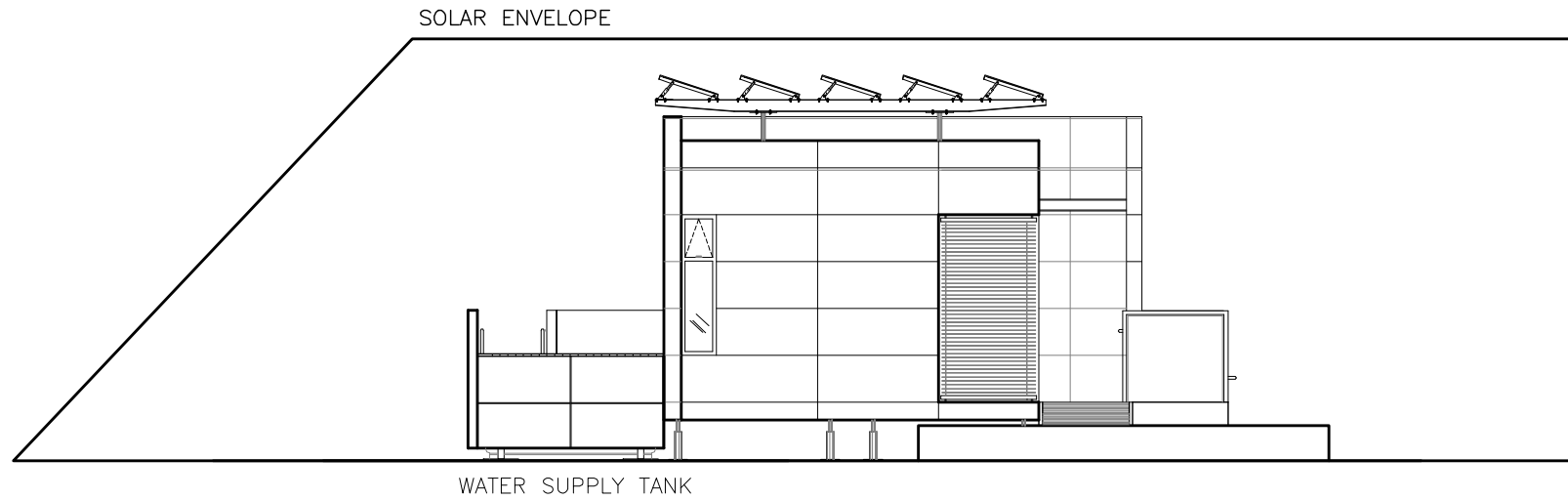
2 EAST ELEVATION
SCALE: 1/8"=1'0"

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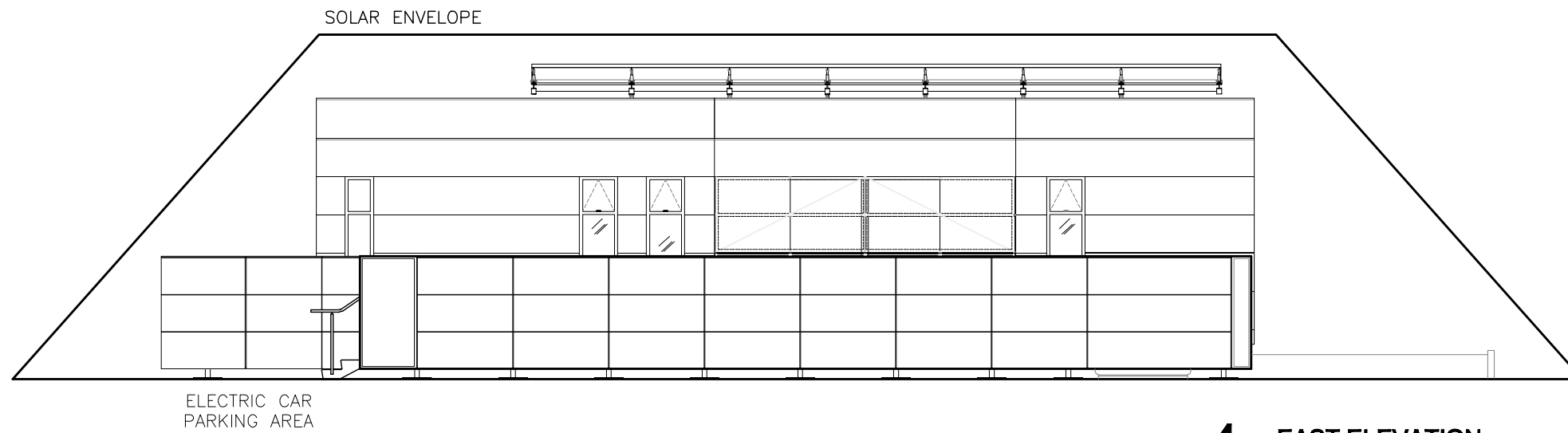
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SOLAR ENVELOPE

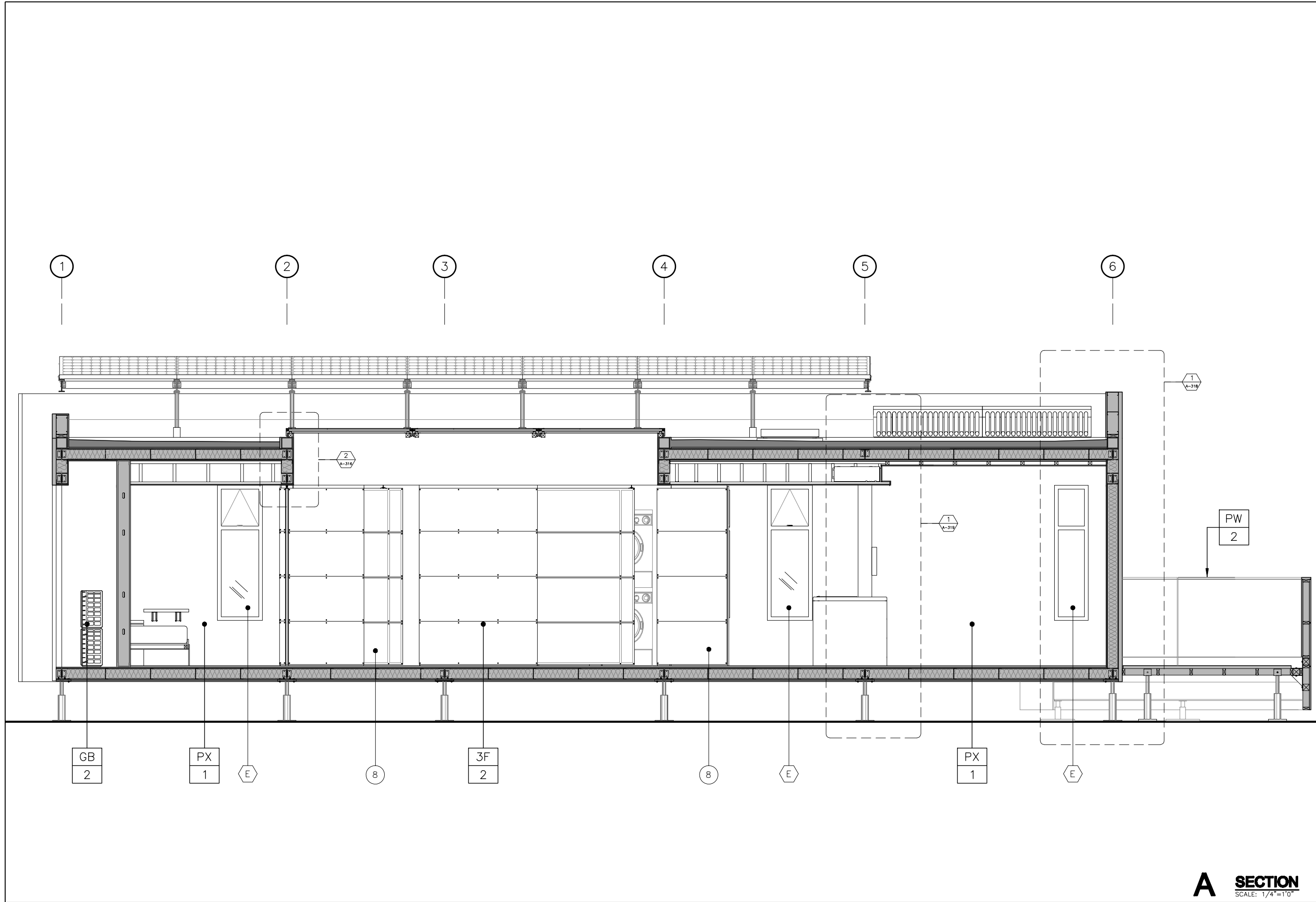
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NO. 12



3 SOUTH ELEVATION
SCALE: 1/8"=1'0"



4 EAST ELEVATION
SCALE: 1/8"=1'0"



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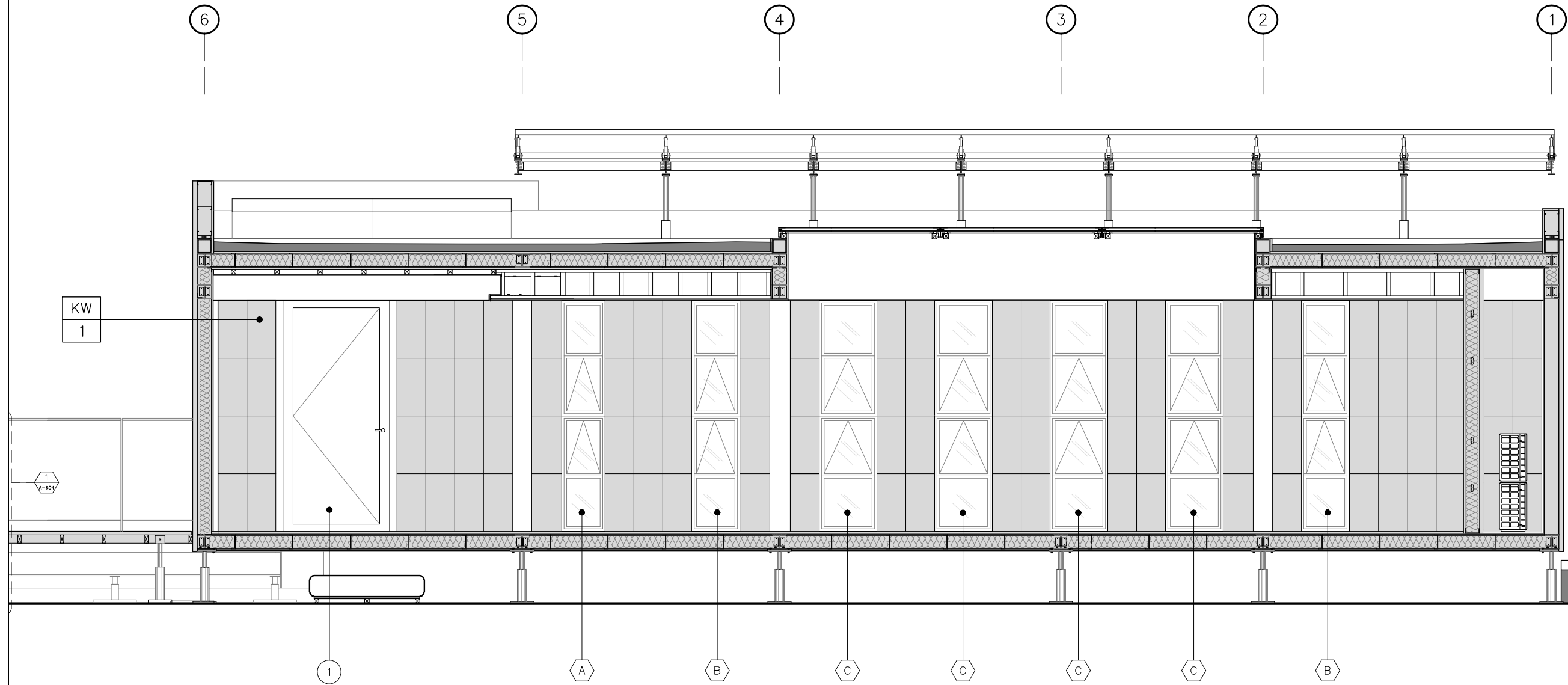
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NO. 14

A **SECTION**
SCALE: 1/4"=1'0"

A-301



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B SECTION
SCALE: 1/4"=1'0"

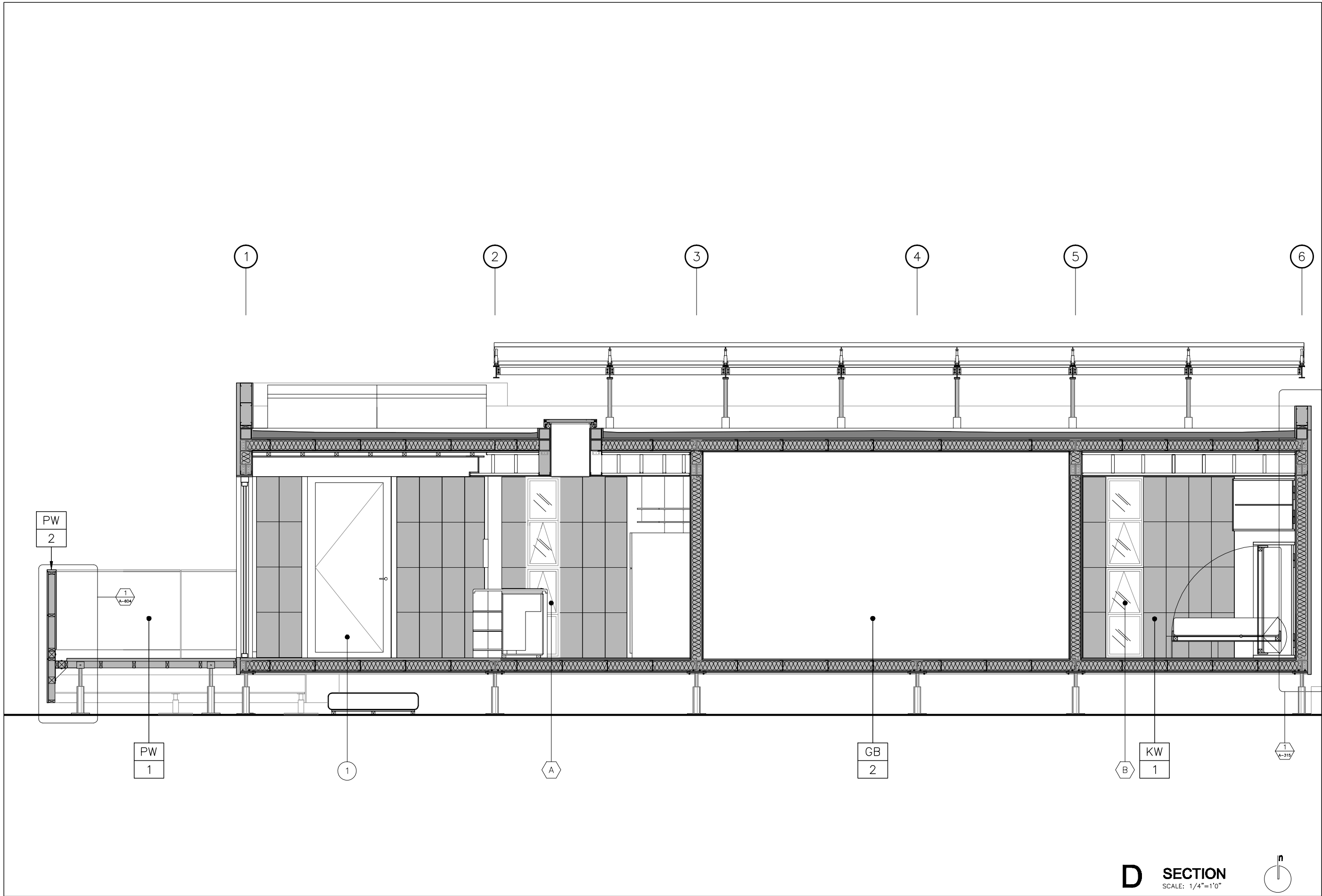
A-302



SECTION

A-303 |

C **SECTION**
SCALE: 1/4"=1'0"



D SECTION
SCALE: 1/4"=1'0"



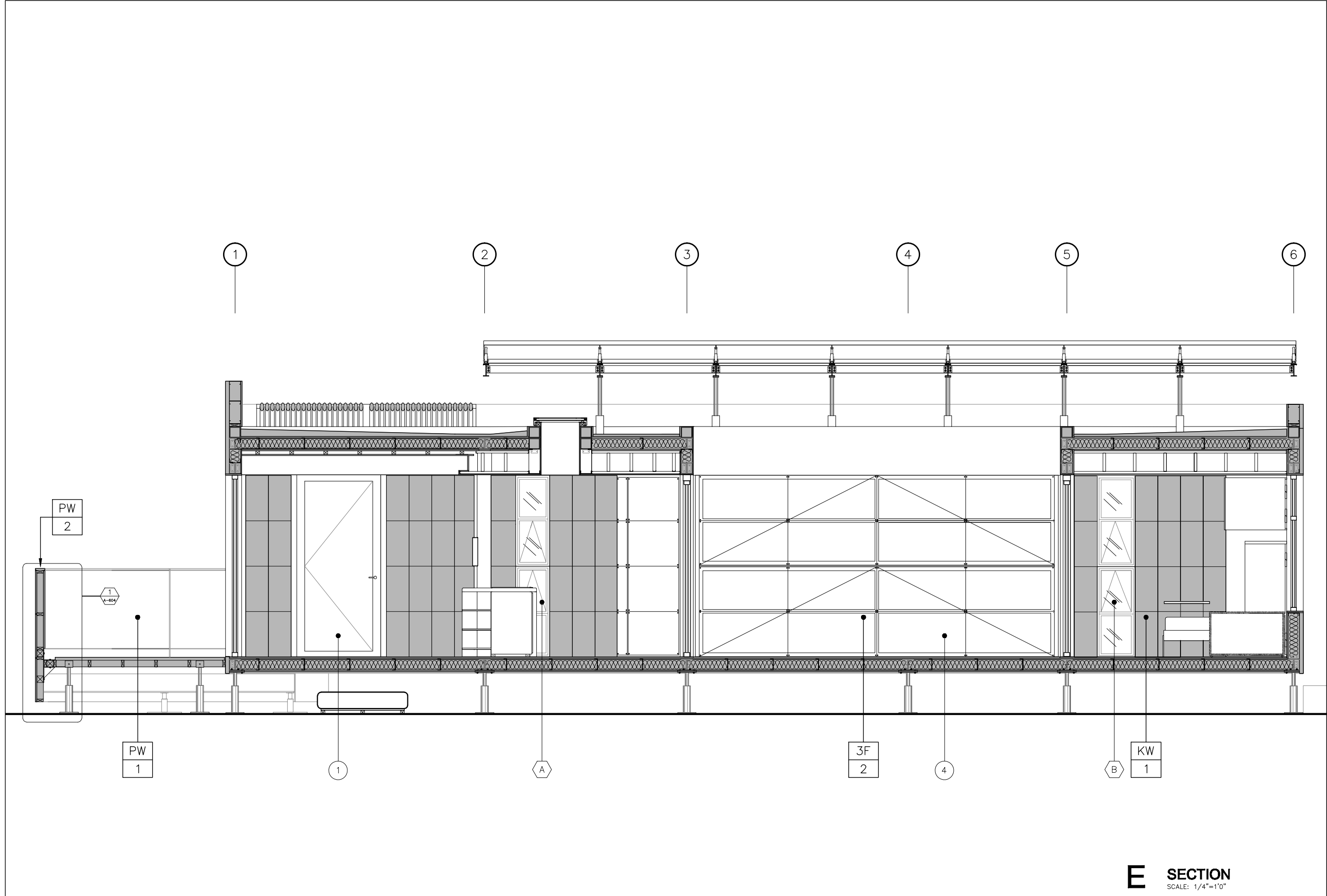
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A-304



12'
8'
4'
3'
2'
1'

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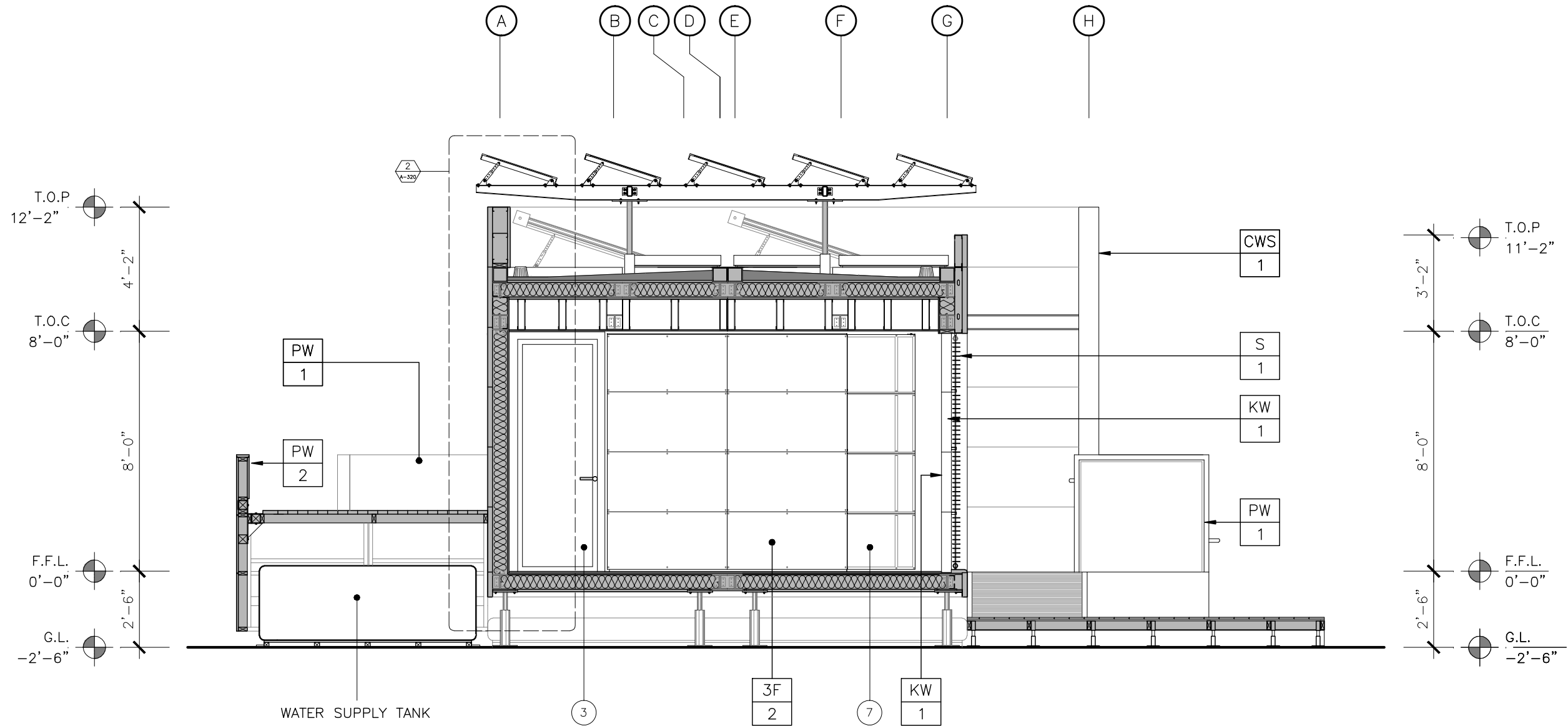
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NO. 18

E SECTION
SCALE: 1/4"=1'0"

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A-305



F SECTION
SCALE: 1/4"=1'-0"

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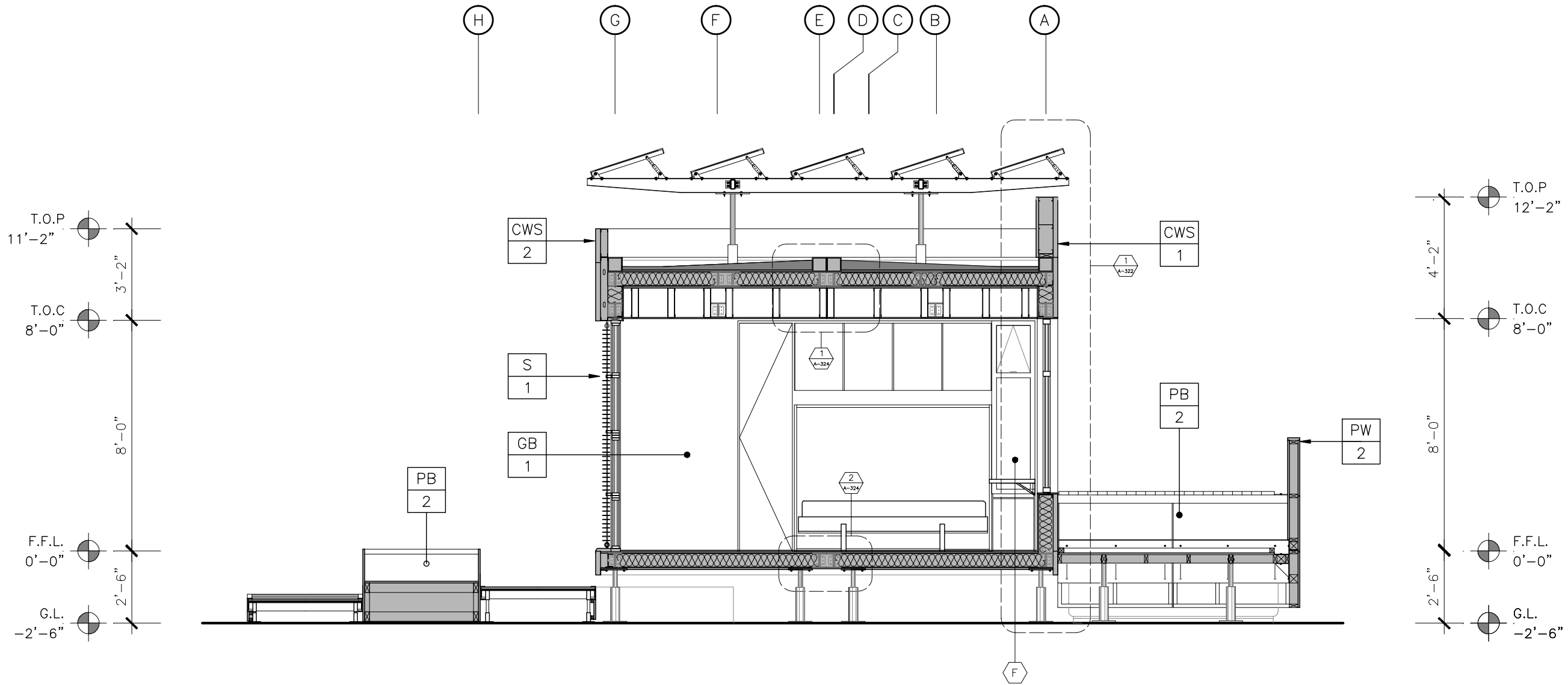
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	DATE	DESCRIPTION

DATE: JUN/01/07
NO. 19

A-306



12'
8'
4'
3'
2'
1'



G SECTION
SCALE: 1/4"=1'-0"

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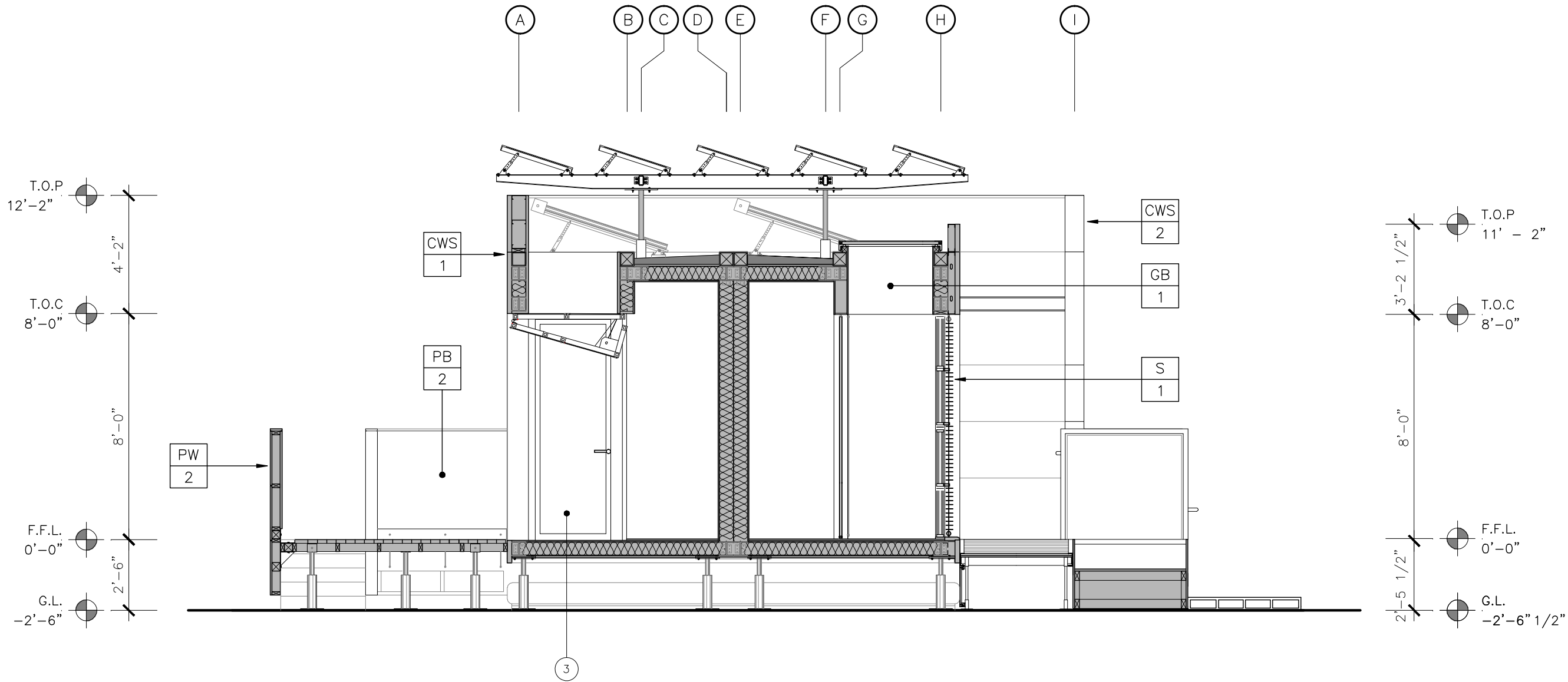
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A-308



J SECTION
SCALE: 1/4"=1'-0"

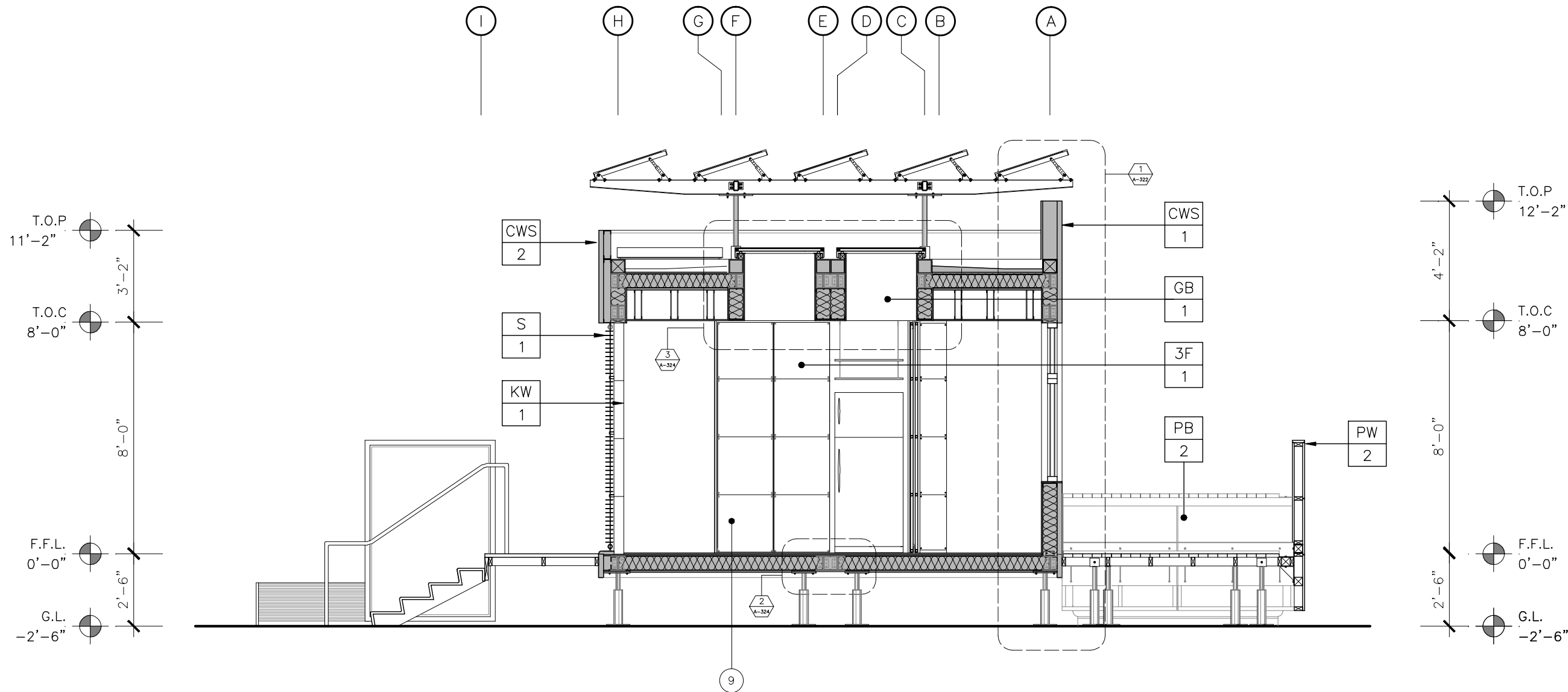
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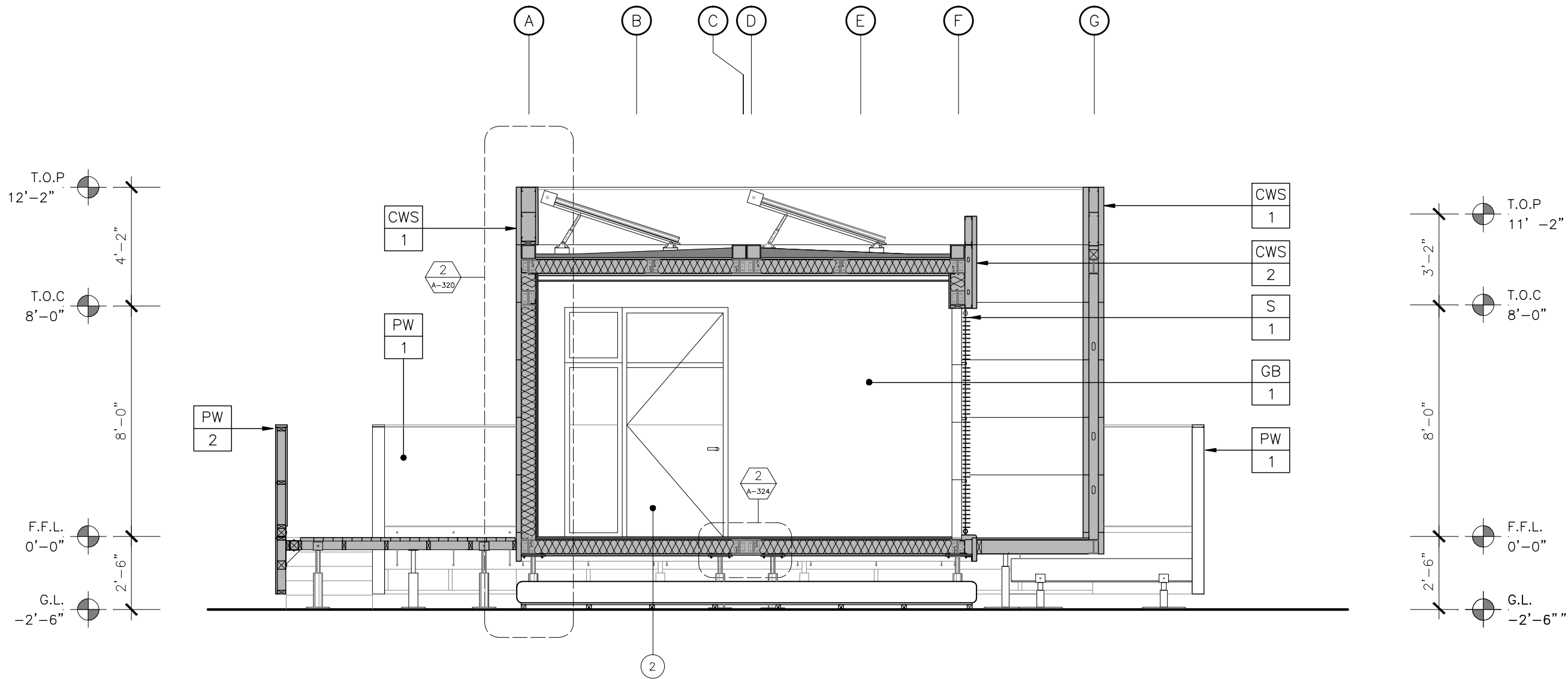
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NO. 22

A-309





12'
8'
4'
3'
2'
1'



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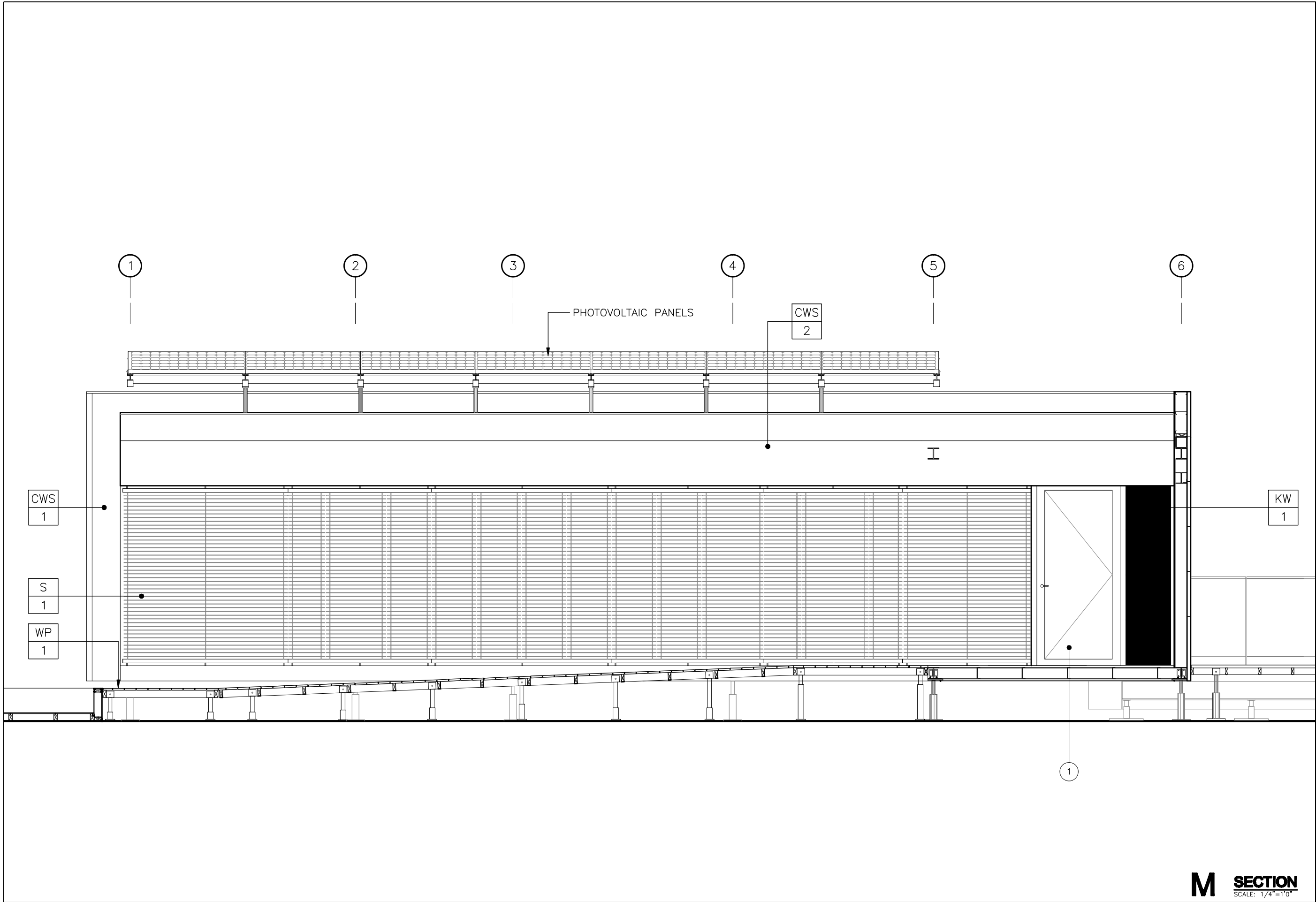
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NO. 24

SECTION
SCALE: 1/4"=1'-0"

A-311



12'

8'

4'

3'

2'

1'

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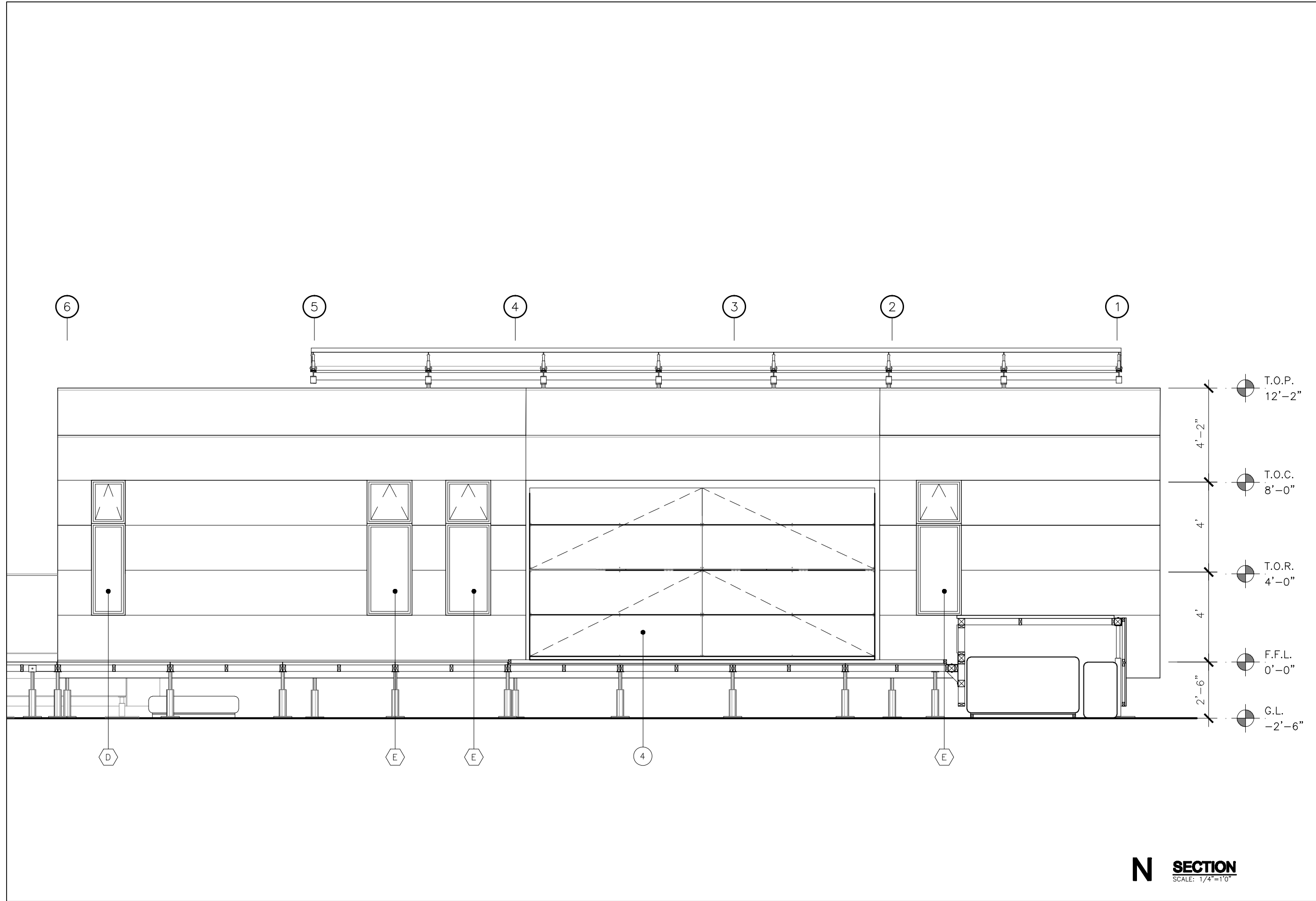
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M

SECTION
SCALE: 1/4"=1'0"

A-312



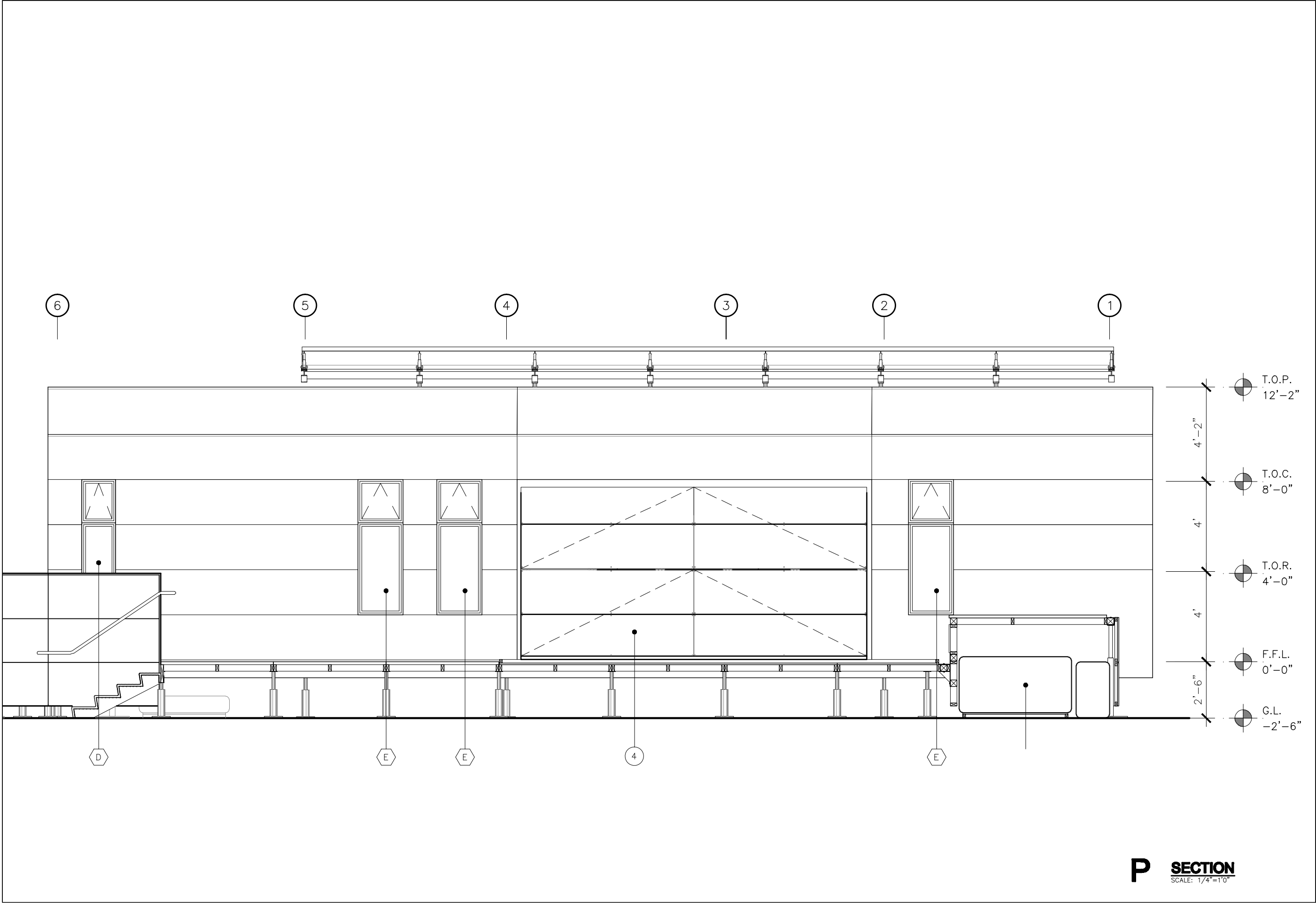
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A-313



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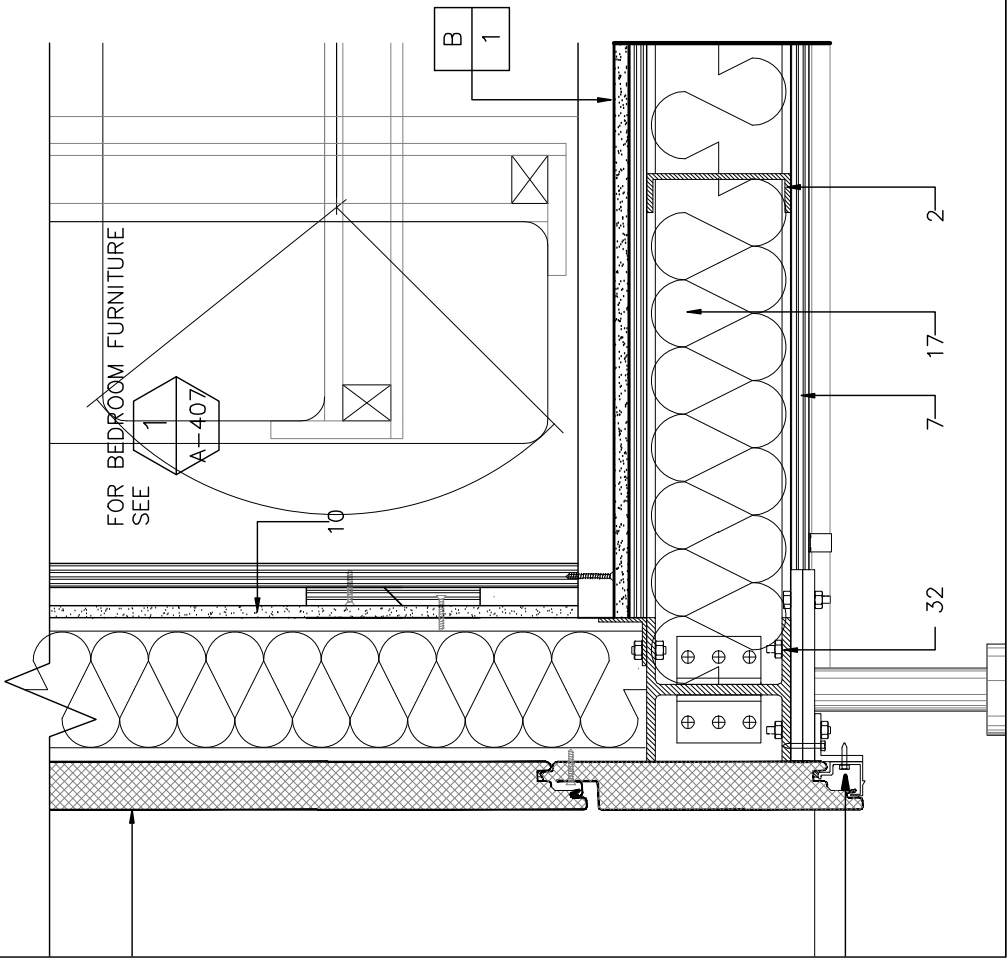
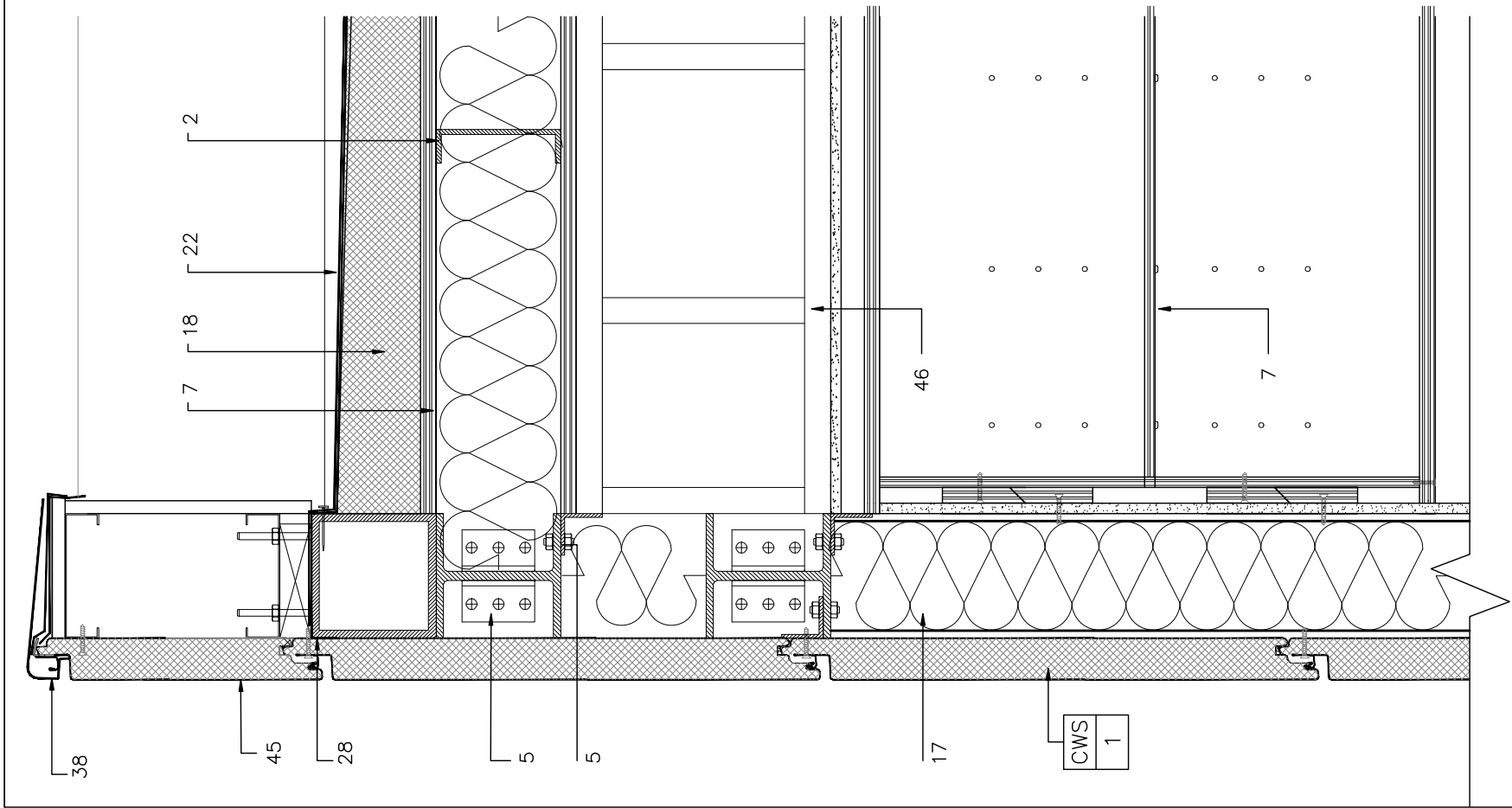
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NO. 27

A-314

P **SECTION**
SCALE: 1/4"=1'0"



LEYEND

- 01. STRUCTURAL FIBERGLASS COLUMN (SEE. STRUCTURAL DWGS)
- 02. STRUCTURAL ALUMINUM C-CHANNEL (SEE STRUCTURAL DWGS)
- 03. FIBERGLASS C-CHANNEL (NON STRUCTURAL)
- 04. 6"x6" STRUCTURAL FIBERGLASS FRAME
- 05. STRONGWELL FIBERGLASS 90 ANGLE (BOLTED TO STRUCTURE)
- 06. WOOD BLOCK
- 07. TREATED PLYWOOD SHEET
- 08. SINTRA 3" X 1/4"
- 09. WOOD LEDGER
- 10. 1/2" TYPE X GYPSUM BOARD
- 11. GRC STAIR (SEE DECK DWGS)
- 12. STEEL JOINT (SEE DECK DWGS)
- 13. KALWALL
- 14. HYDRAULIC FOUNDATION SYSTEM (SEE CIVIL DWGS)
- 15. 2" STEEL PIPE
- 16. ALUMINUM AND GLASS WINDOW (SEE DOOR AND WINDOW SCHEDULES)
- 17. 8" INSULATION
- 18. RIGID INSULATION
- 19. 5/8" PLYCEM BOARD
- 20. 1/2" GRC PANEL
- 21. POTABLE WATER STORAGE TANK
- 22. ROOF MEMBRANE
- 23. SKYLIGHT WINDOW (SEE DOOR & WINDOW SCHEDULE)
- 24. LAMP (SEE ELECTRICAL DWGS.)
- 25. TUMBLED GLASS
- 26. WATER
- 27. HAFELE FUTURA POCKET DOOR JUNIOR 40Z
- 28. NEOPRENE SEPARATOR
- 29. ALUMINUM 1" FRAMING
- 30. PV PANELS
- 31. EVACUATED TUBES
- 32. 3/4" Ø ROD
- 33. WALL REVEAL
- 34. CORNER REINFORCEMENT
- 35. DRYWALL CORNER BEAD.
- 36. FOUNDATION BOLT
- 37. CENTRIA GUTTERED BASE EXTRUSION (SP-1745)
- 38. ALUMINUM FLASHING
- 39. PARAPET JOIN BOLT
- 40. RUNNER CHANNEL
- 41. REVEAL BASE
- 42. WATER PIPES (SEE MECHANICAL DWGS)
- 43. PIPE SUPPORT
- 44. A/C EVAPORATOR (SEE MECHANICAL DWGS)
- 45. CENTRIA WALL SYSTEM INSULATED FLAT PANEL
- 46. 3" X 1" ALUMINUM TUBE
- 47. FLYREGLET CORNER DETAIL
- 48. 1 1/2" X 1 1/2" STEEL ANGLE
- 49. 5" X 2" FIBERGLASS CHANNEL
- 50. 3" SCREW
- 51. 4" X 4" WOOD STUD
- 52. 2" X 4" WOOD STUD
- 53. 2" X 10" WOOD STUD

1 WALL SECTION

SCALE: 1/2"=1'-0"

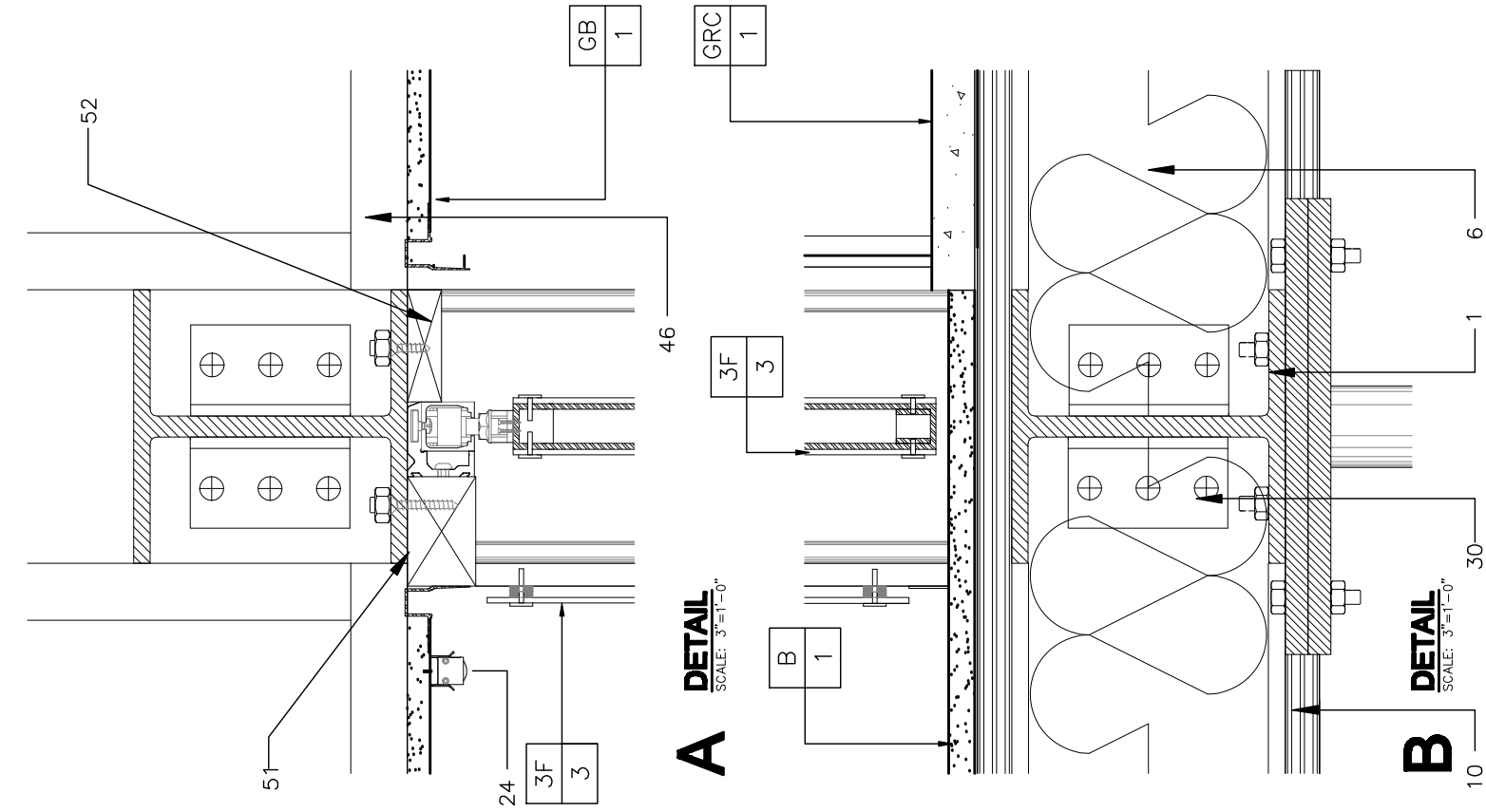


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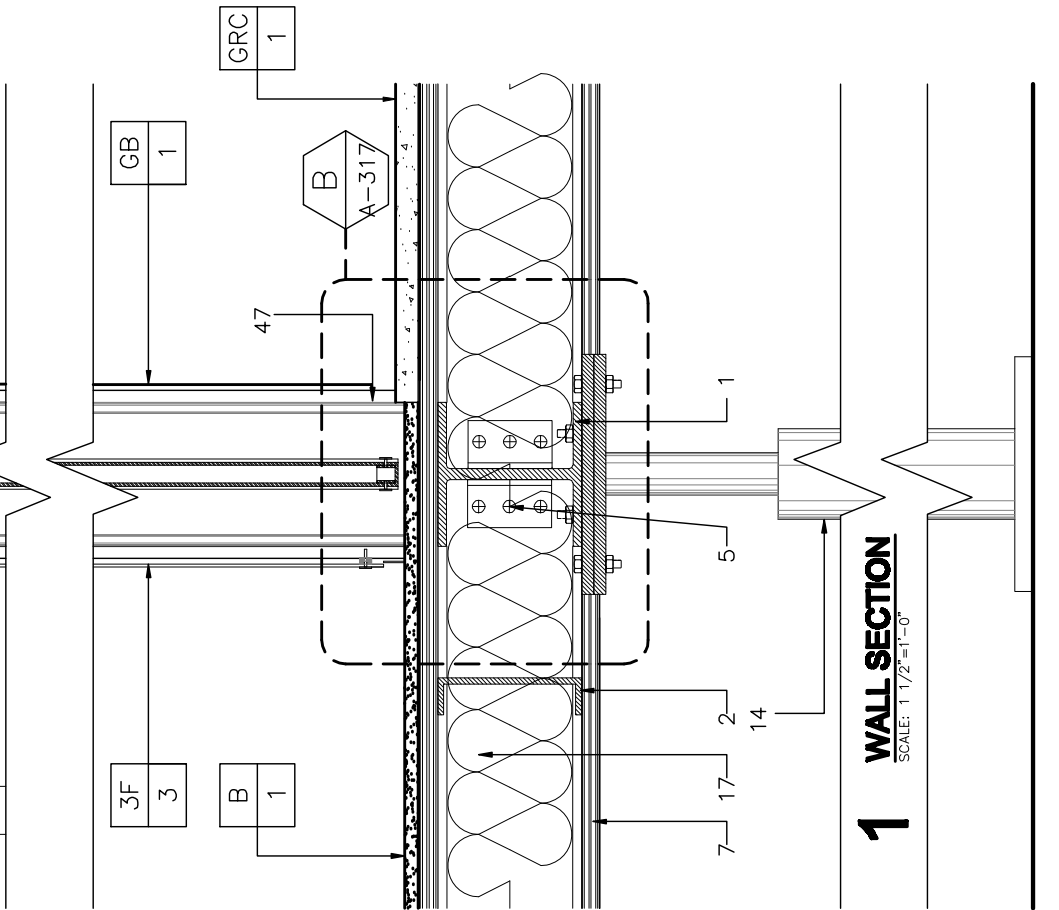
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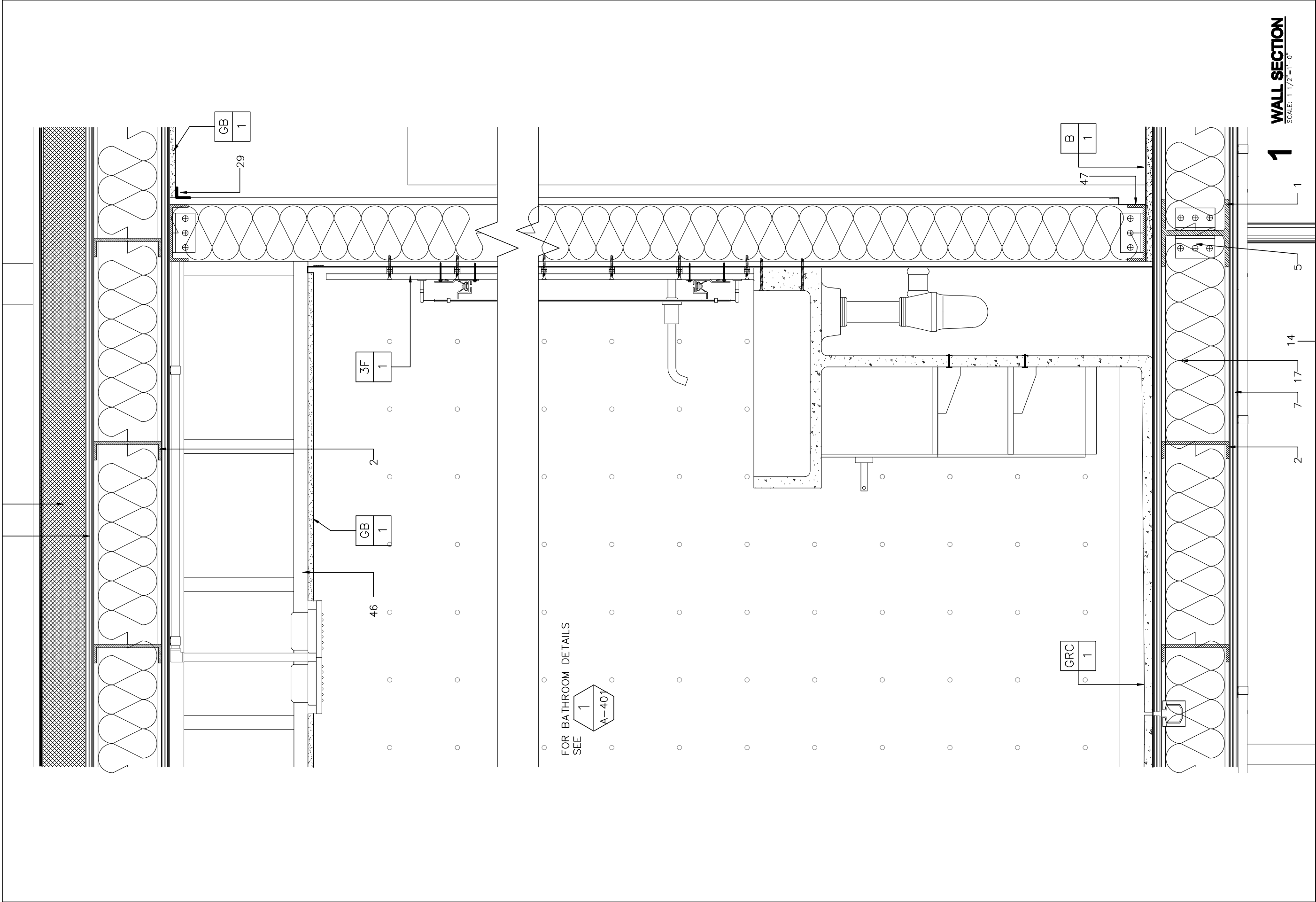
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WALL SECTION
SCALE: 1 1/2" = 1'-0"





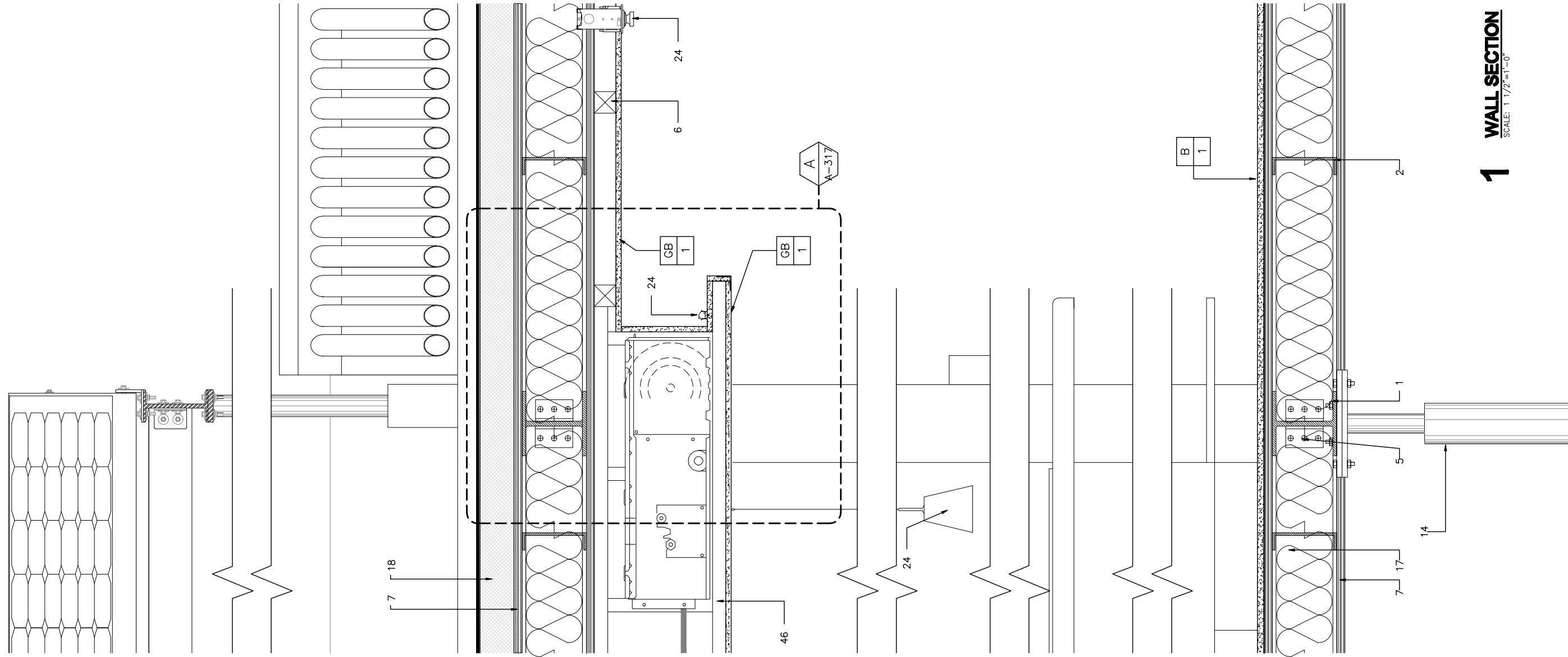
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WALL SECTION

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1 **WALL SECTION**
SCALE: 1 1/2"=1'-0"

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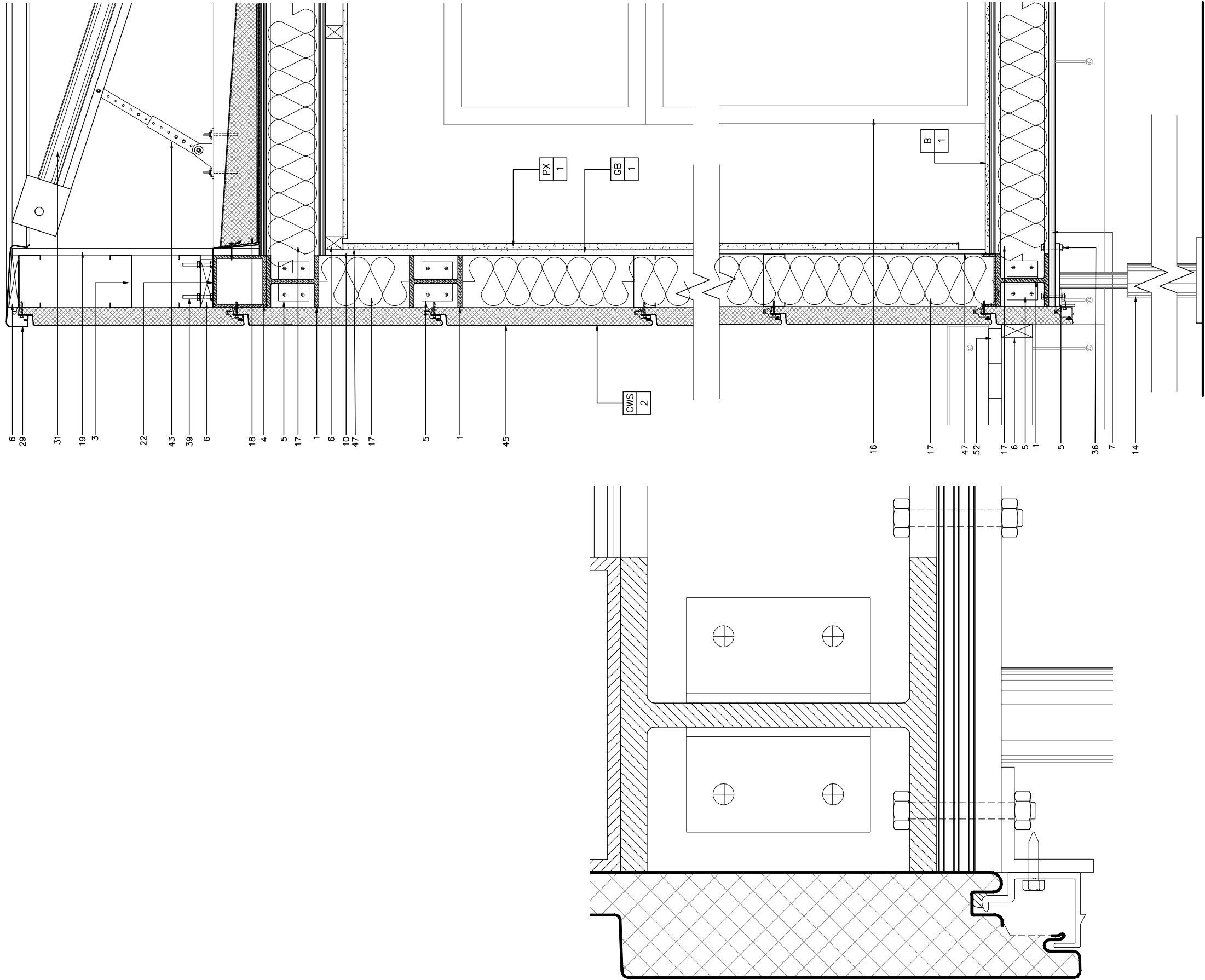
WALL SECTION

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NO. 32

A-319





WALL SECTION DETAIL
SCALE: 1"=1'0"

2

DETAIL
SCALE: 6"=1'0"

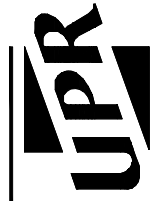
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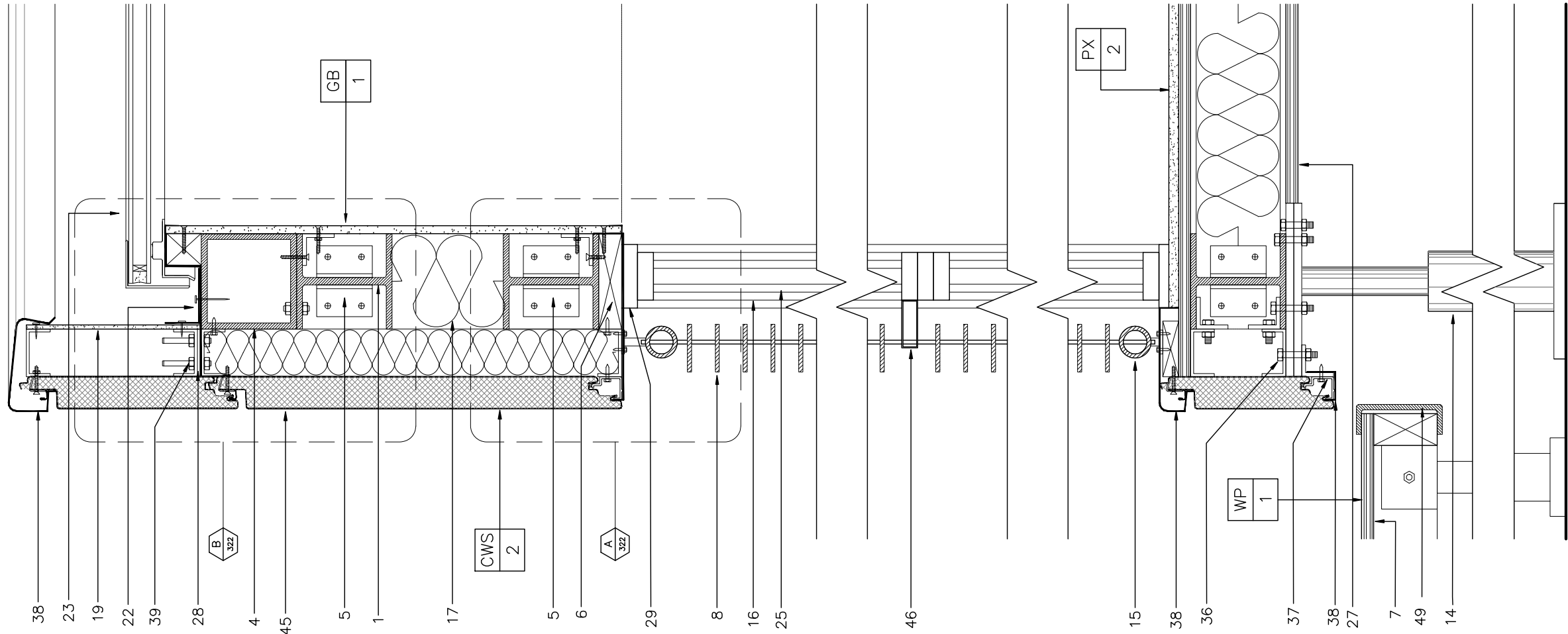
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LOT 103, WASHINGTON, D.C.

DATE: JUN/01/07
NO. 33

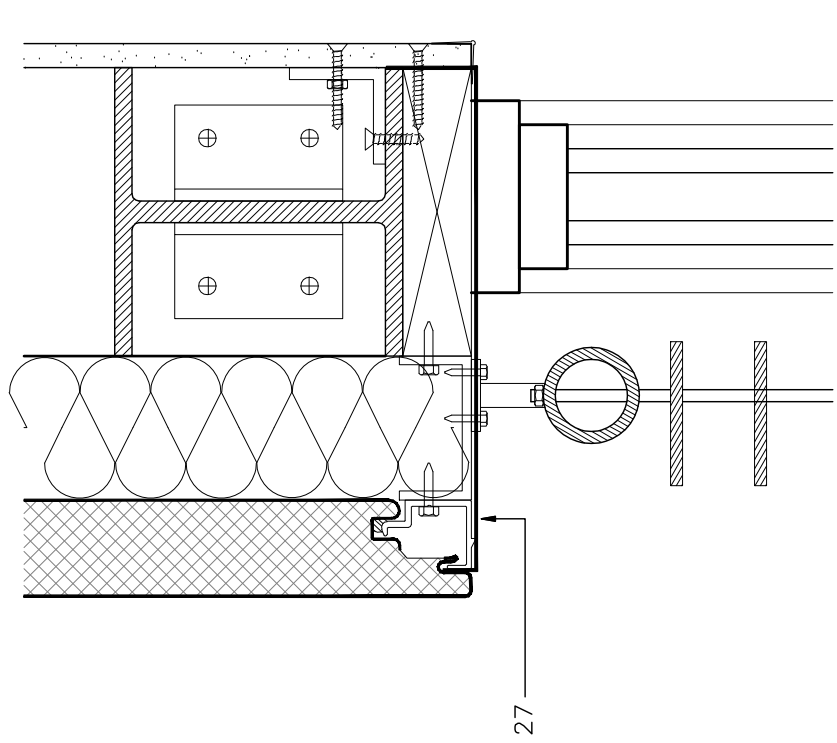
WALL SECTION DETAIL

ISSUE/REVISIONS
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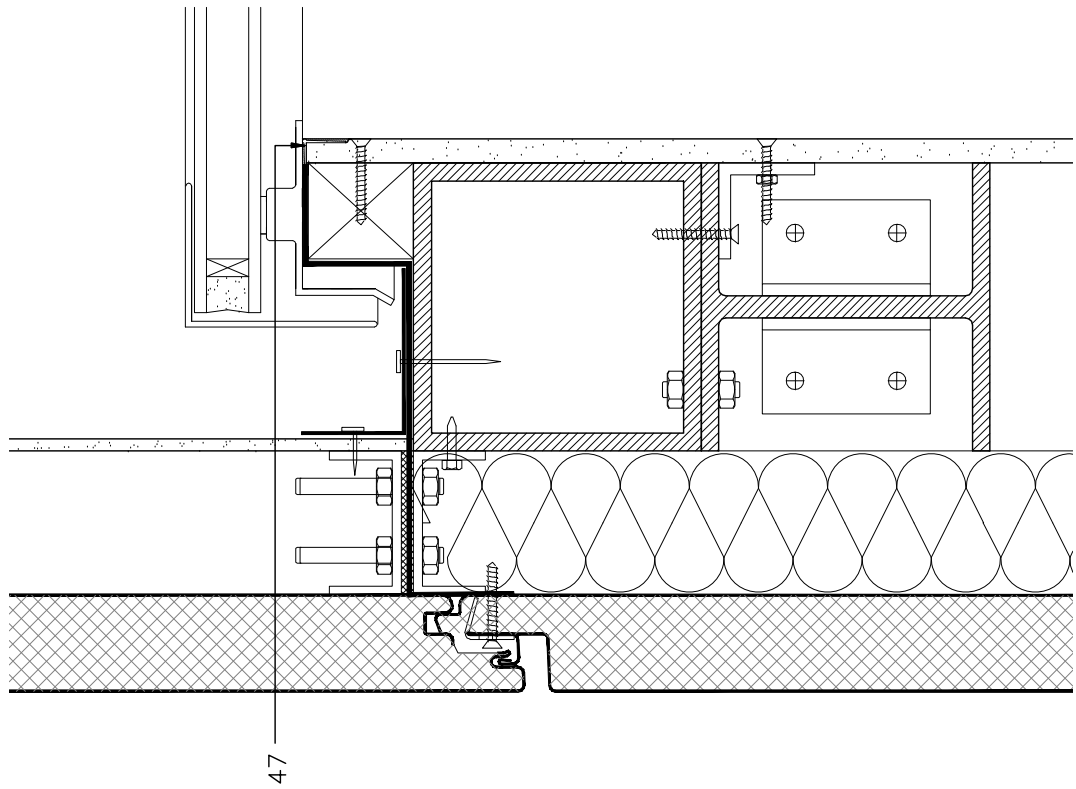




1 SECTION
SCALE: 1 1/2"=1'-0"



A DETAIL
SCALE: 3"=1'-0"



B DETAIL
SCALE: 3"=1'-0"

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LOT 103, WASHINGTON, D.C.

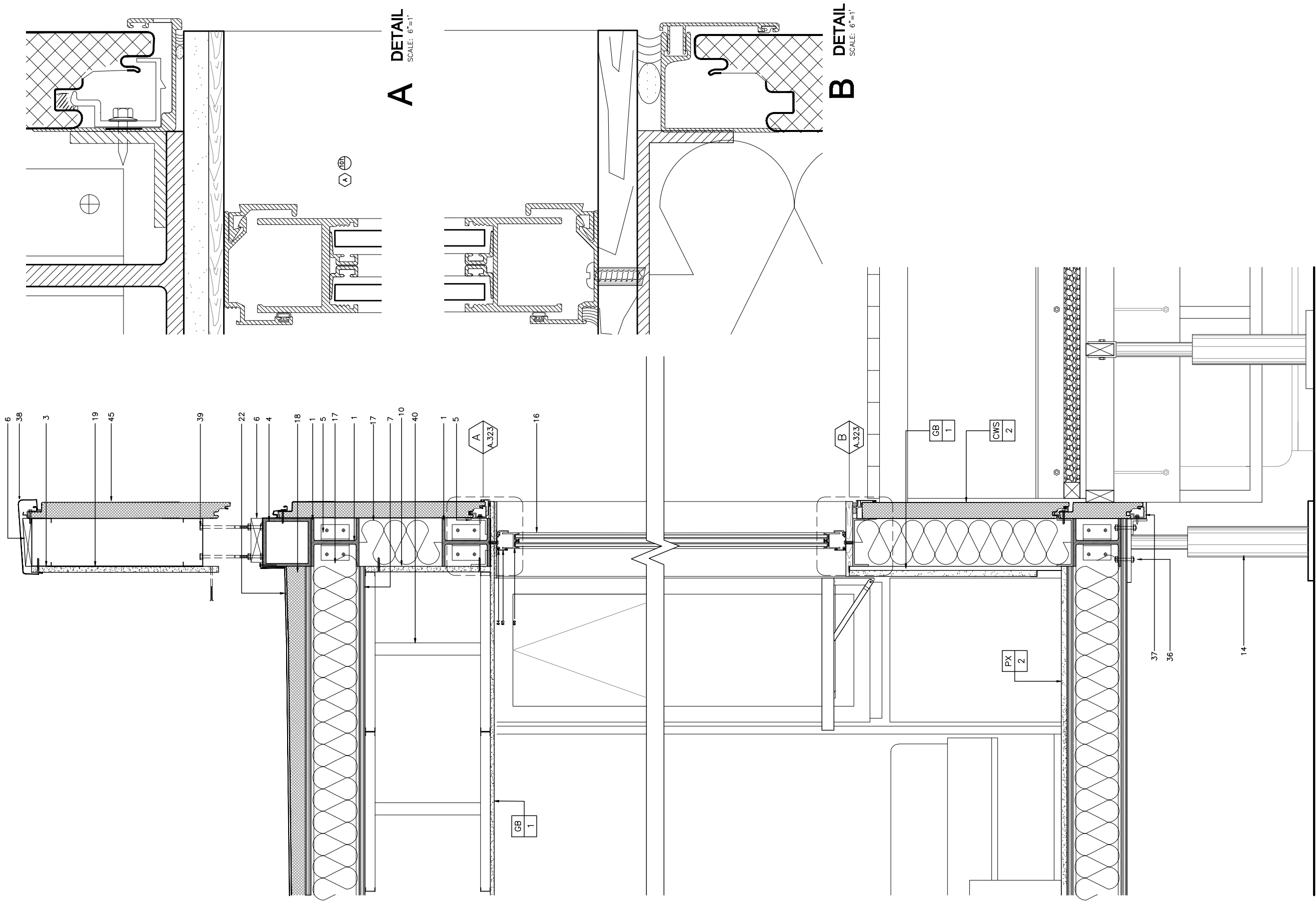
DATE: JUN/01/07
NO. 34

WALL SECTION

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A-321





3 WALL SECTION 3

SCALE: 1"=1'

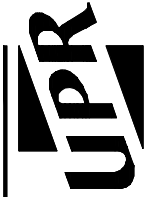
2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO

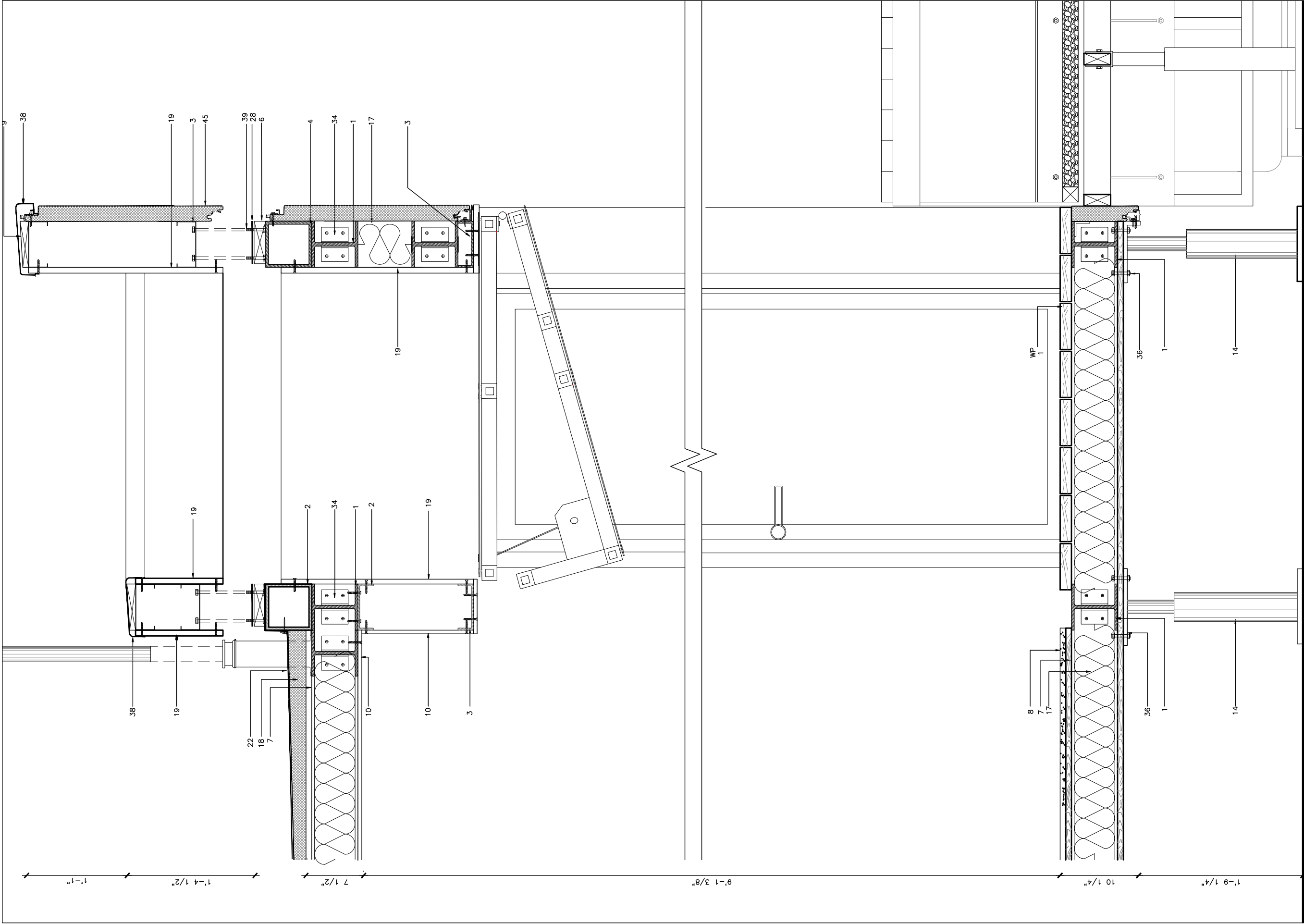
LOT 103, WASHINGTON, D.C.

WALL SECTION

DATE: JUN/01/07
NO. 35

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1 WALL SECTION 3

SCALE: 1"=1'

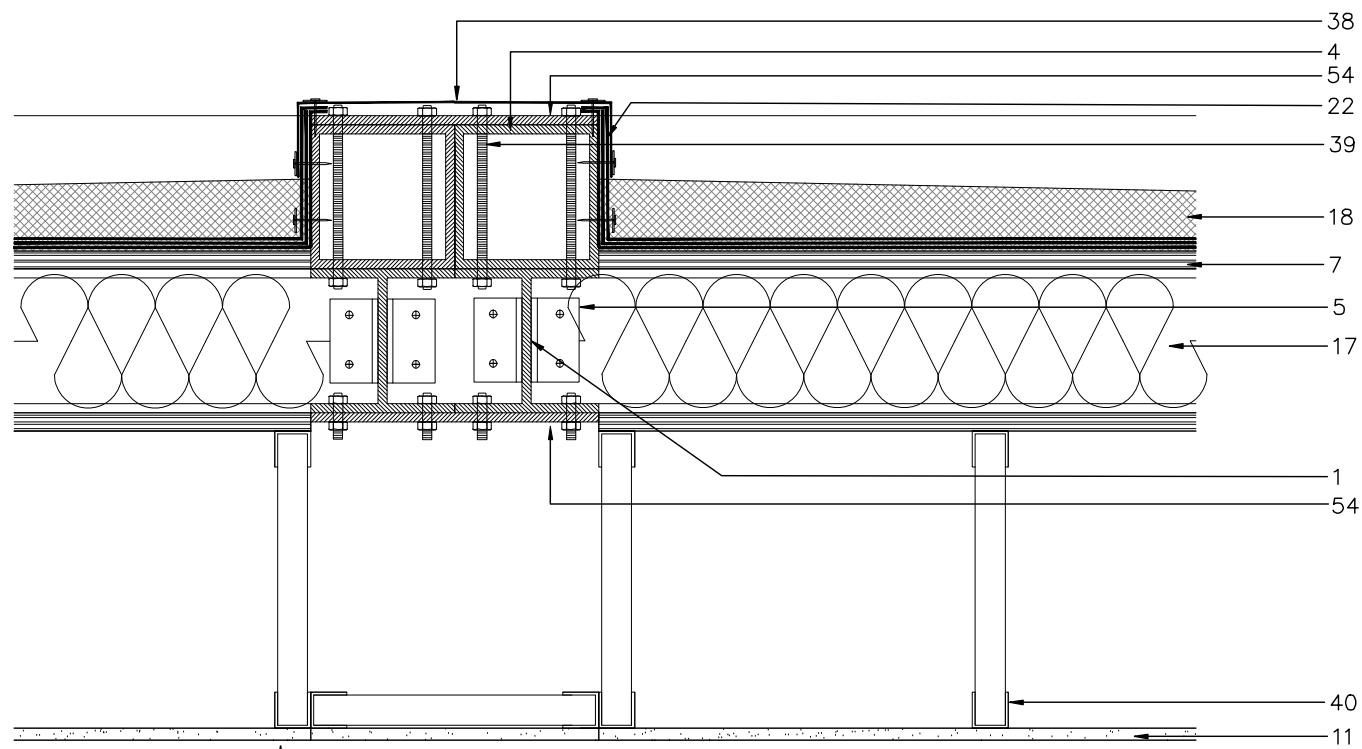
2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

DATE: JUN/01/07
NO. 36

WALLSECTION#?

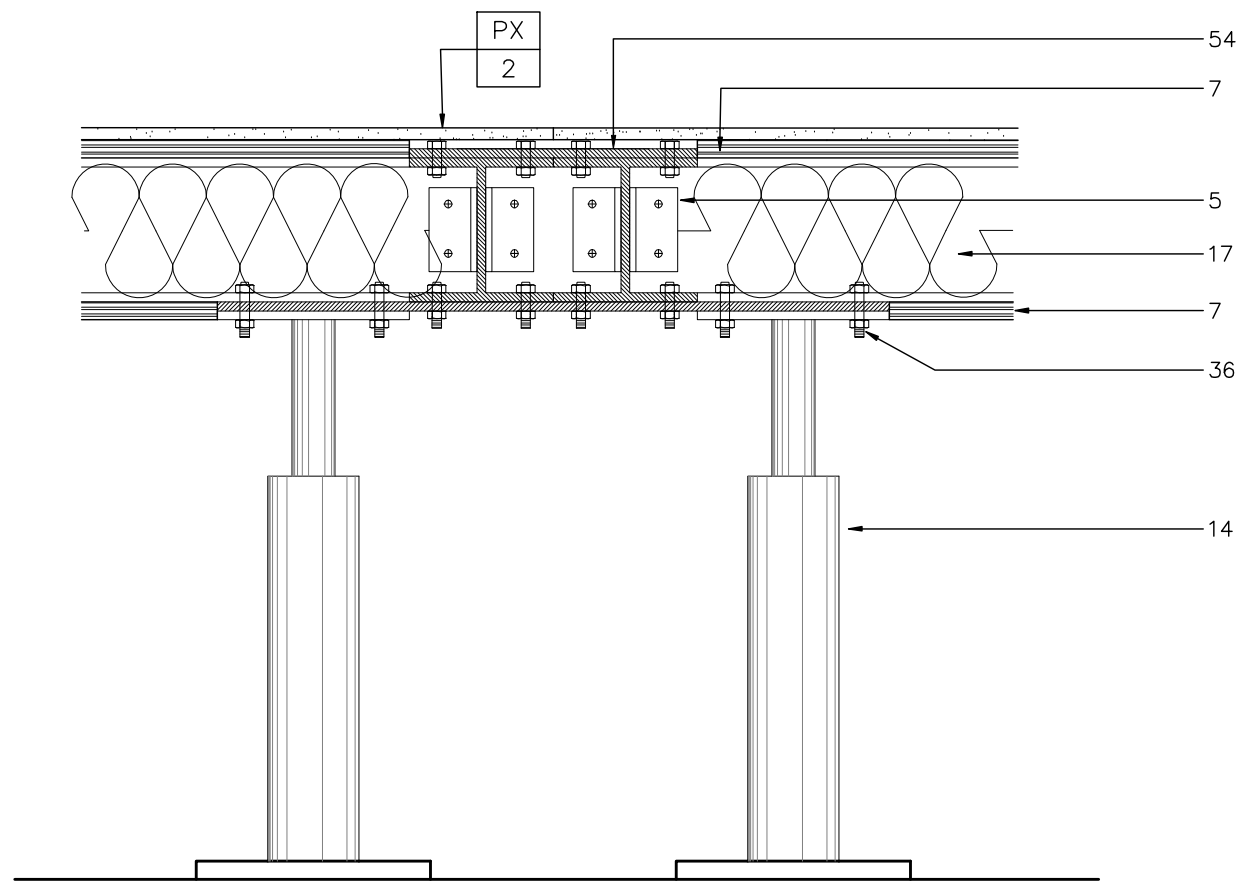
ISSUE /REVISIONS
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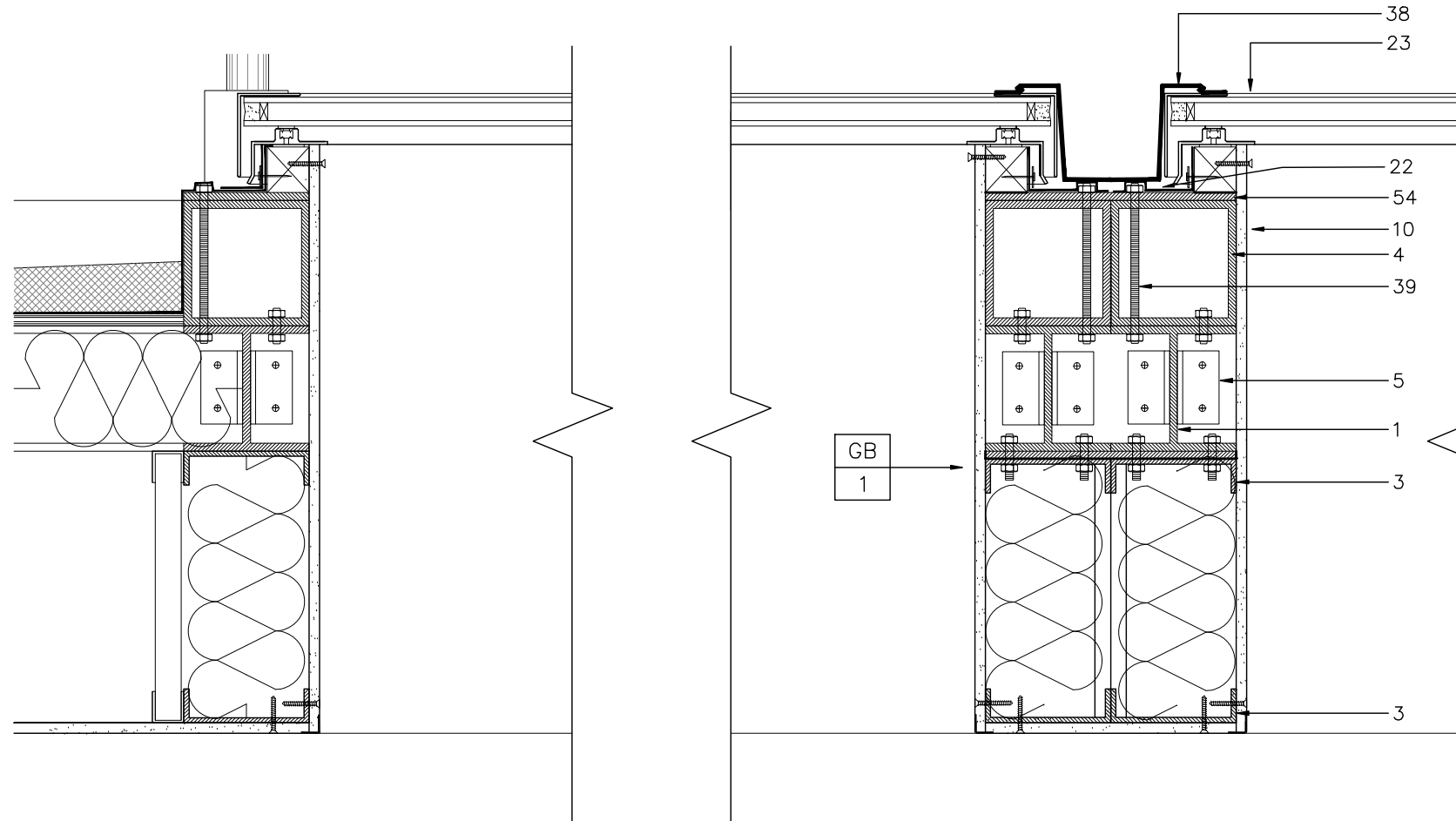
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WALL SECTION DETAIL
SCALE: 1-1/2"=1'0"



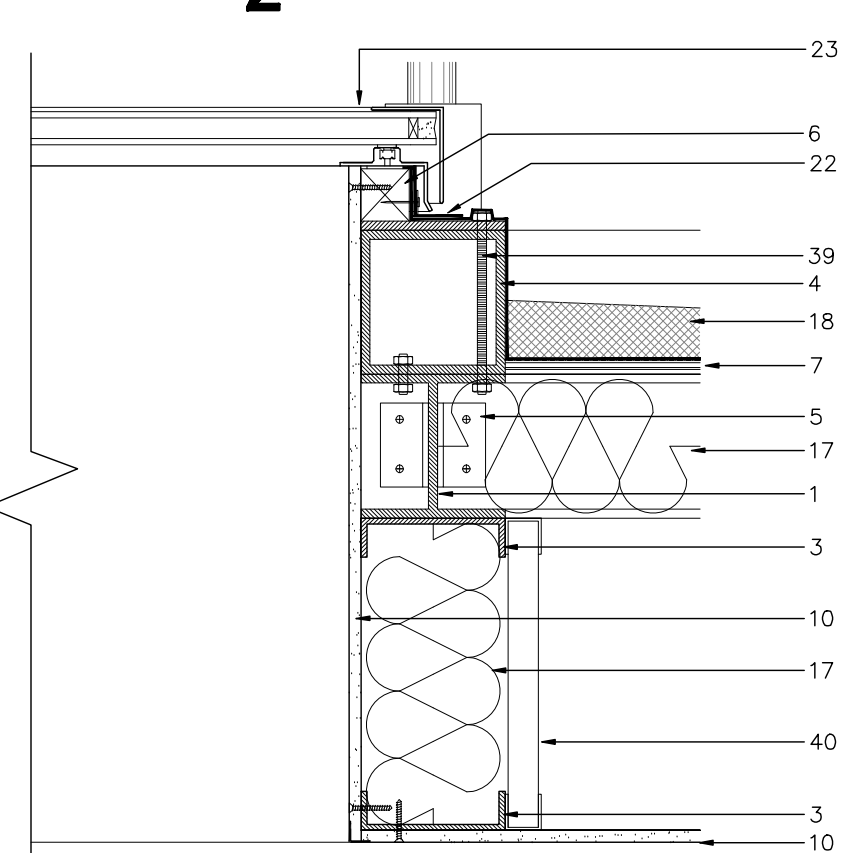
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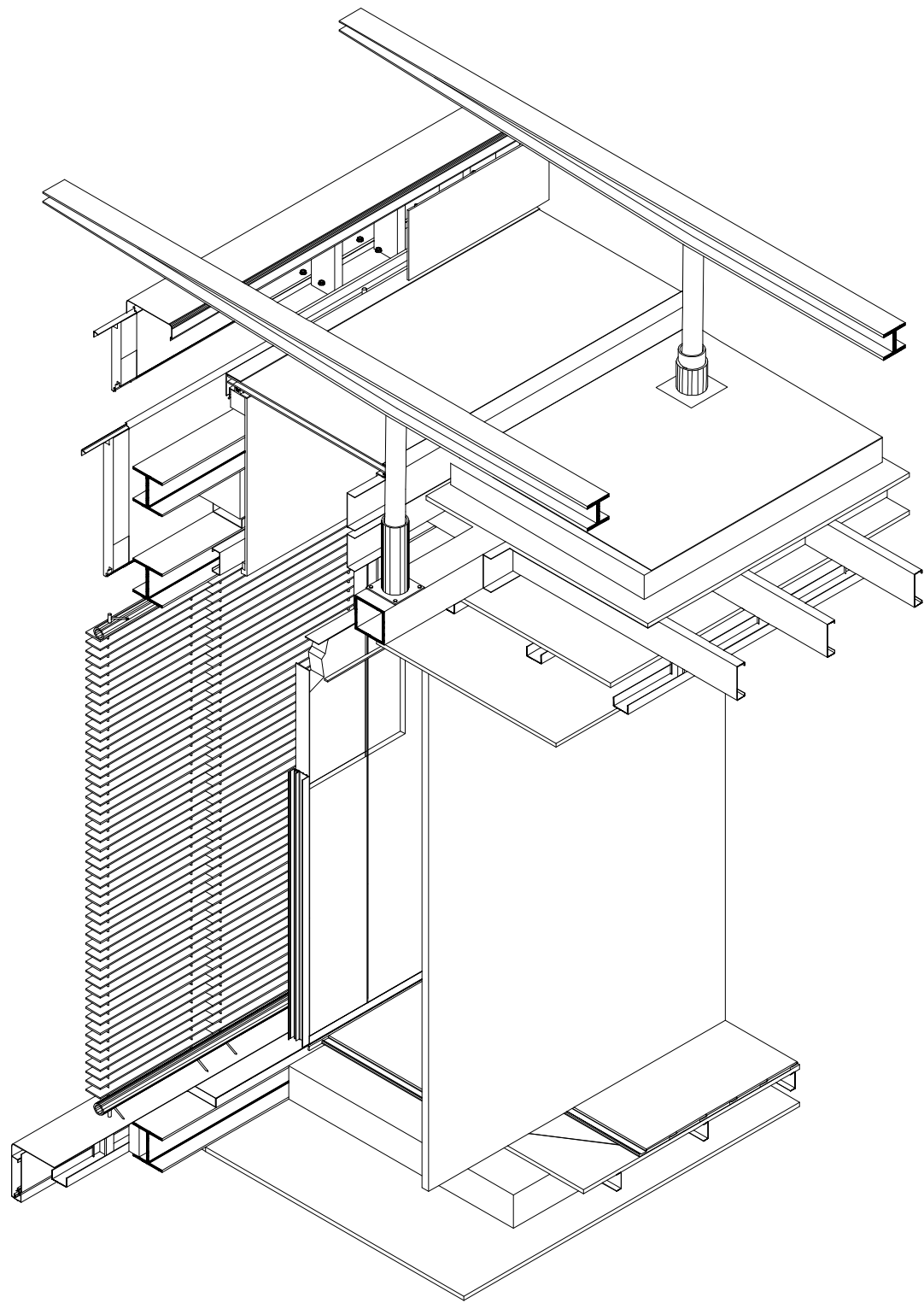
WALL SECTION DETAIL
SCALE: 1-1/2"=1'0"



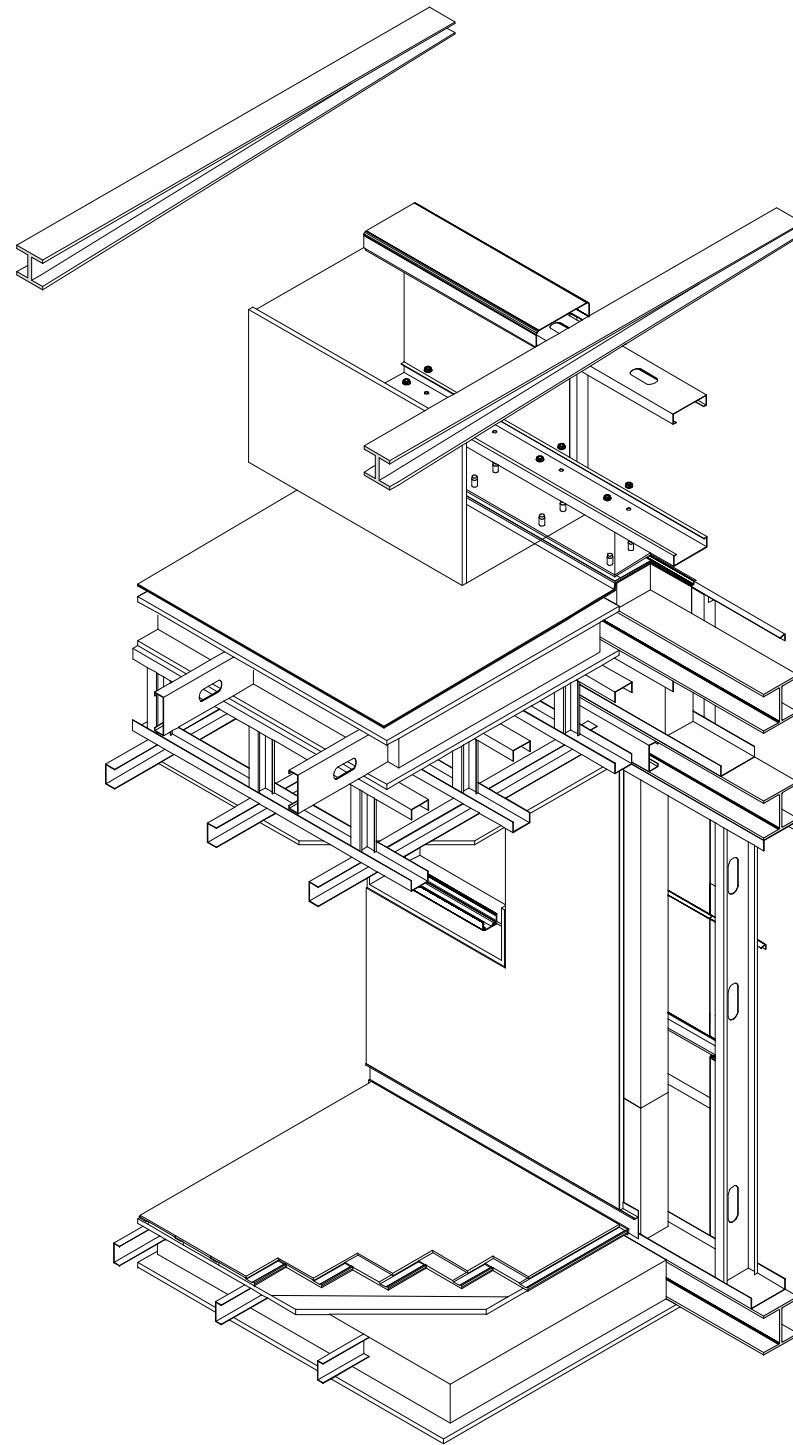
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WALL SECTION DETAIL
SCALE: 1-1/2"=1'0"





1 **AXONOMETRIC WALL SECTION**
SCALE: 1/2" = 1'-0"

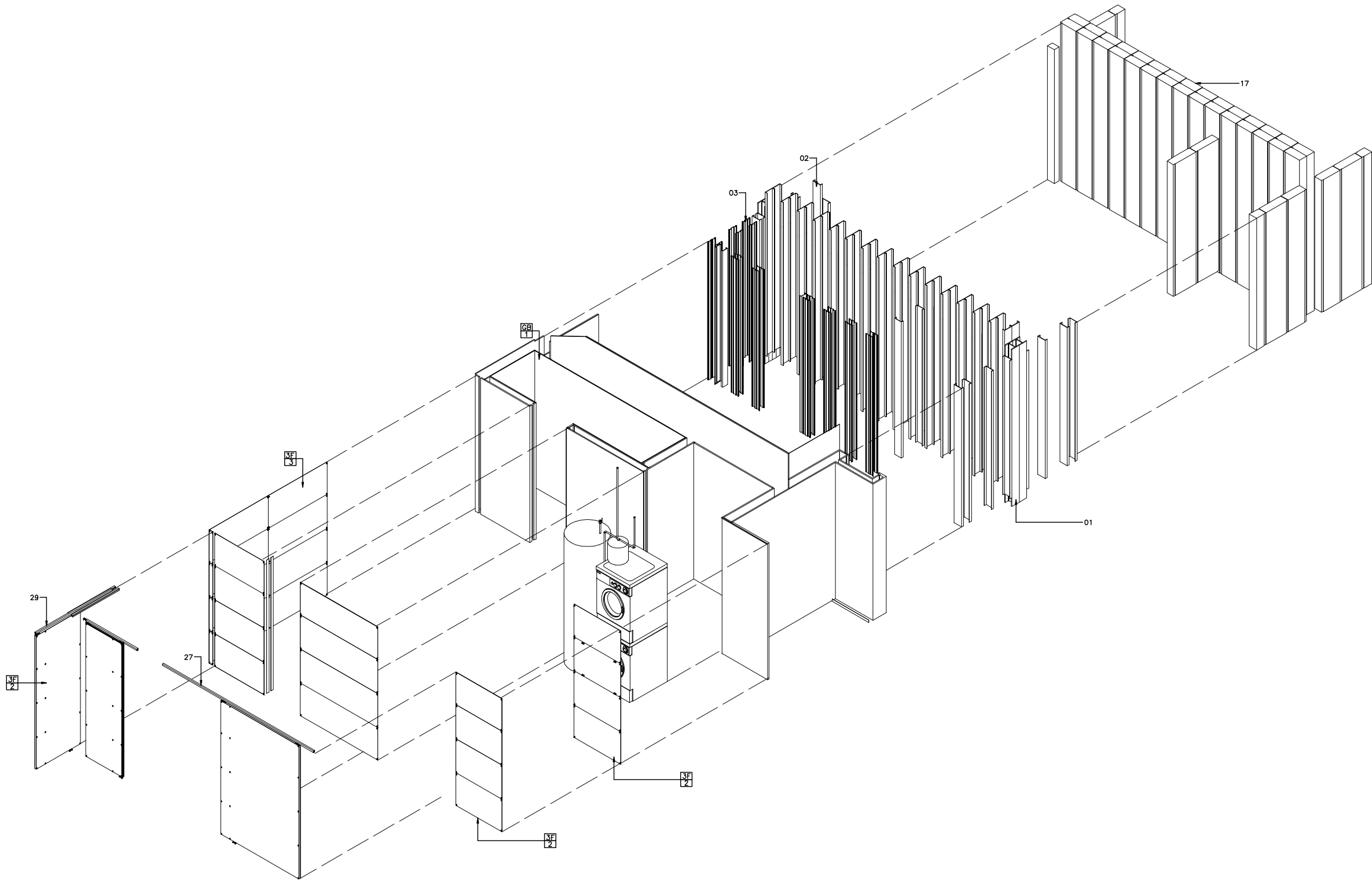


2 **AXONOMETRIC WALL SECTION**
SCALE: 1/2" = 1'-0"



SOME TRIC VIEW

A-326|



1 CORE 3-D MODEL VIEW
SCALE: 3/16"=1'0"

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CORE 3-D MODEL VIEW

DATE: JUN/01/07
NO. 40



DATA ROOM DE FAULTS AND SCHEDULE

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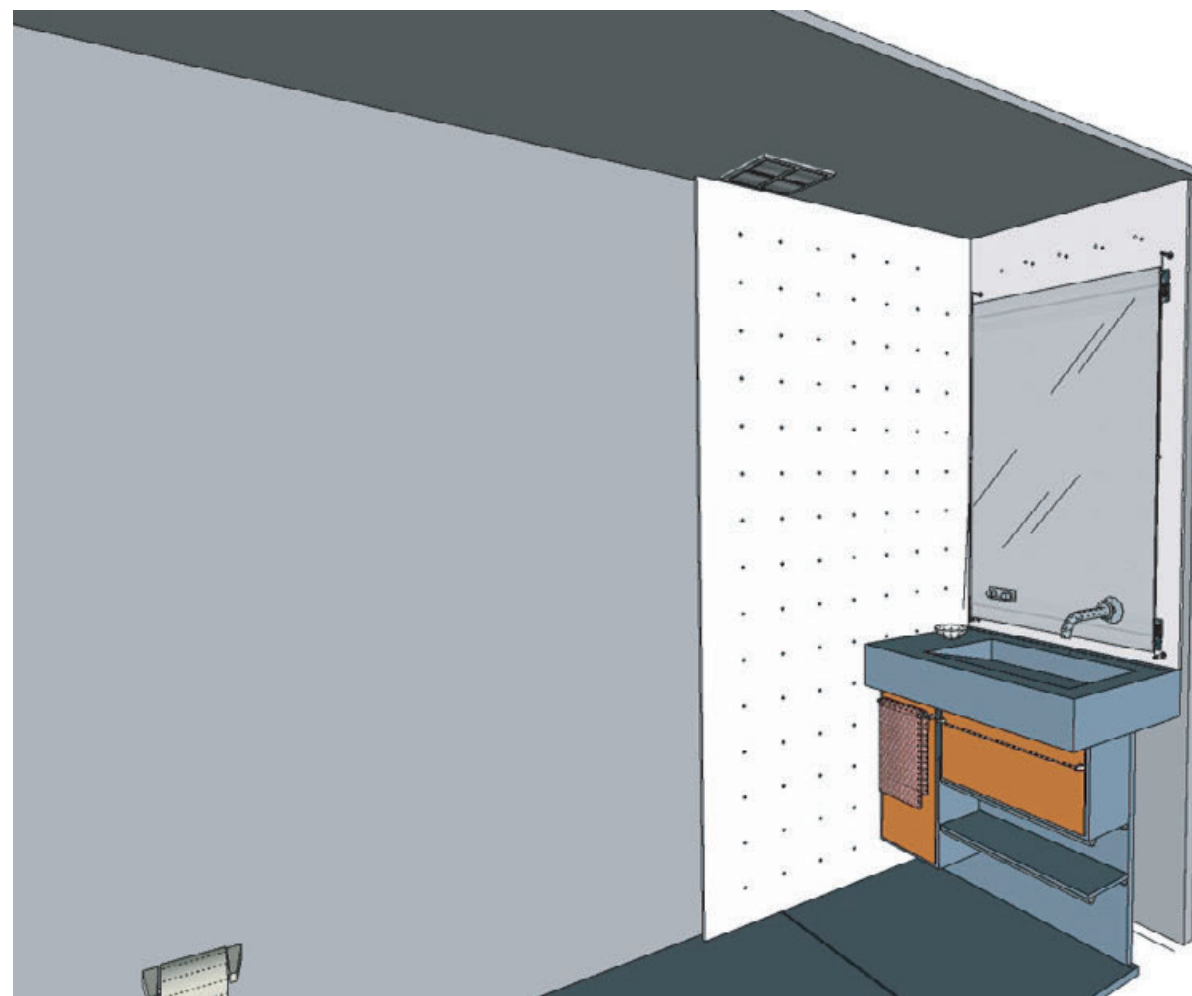
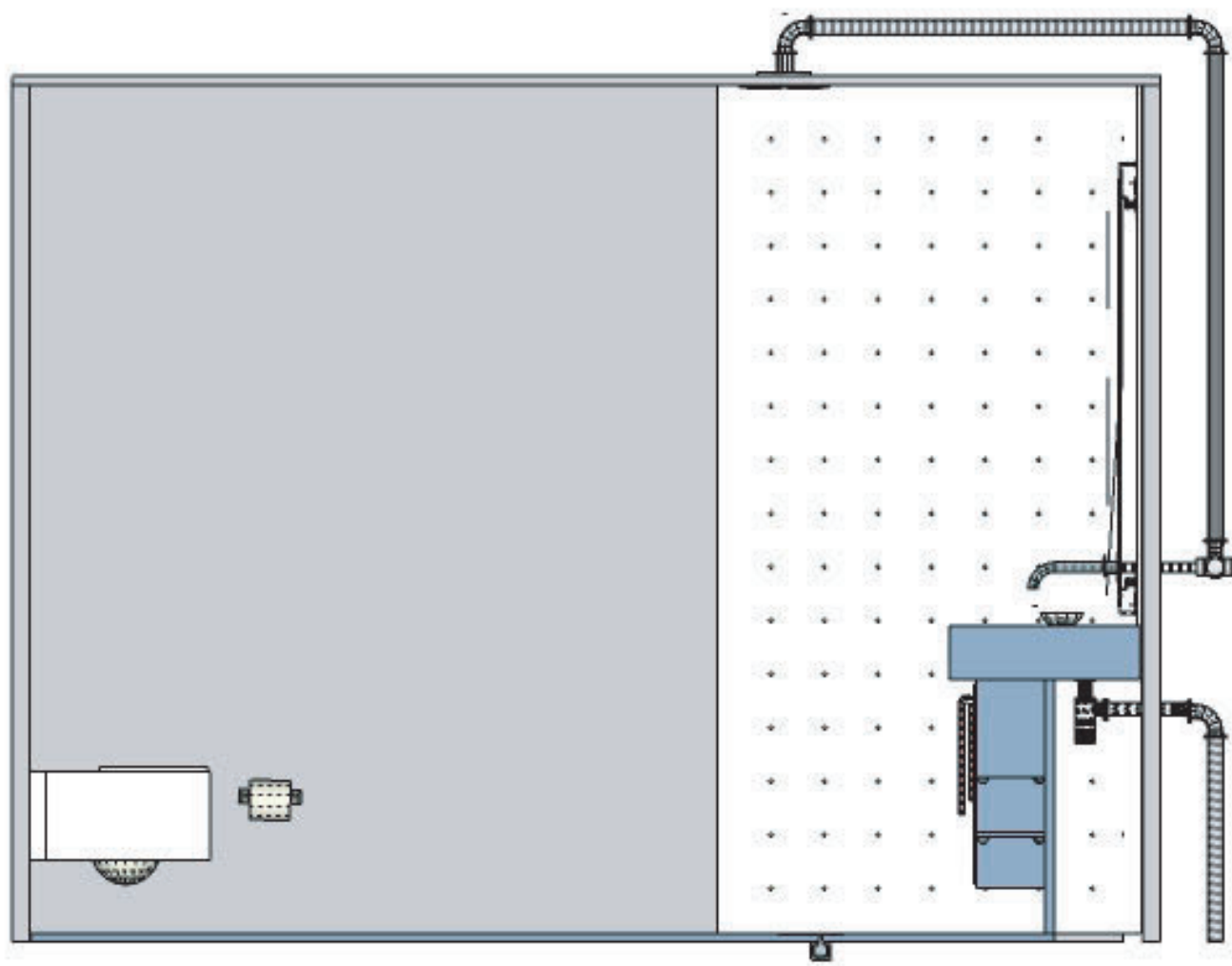
DATE: JUN/01/07
NO. 41

A-402|



BATHROOM EQUIPMENT SCHEDULE			
MK.	ITEM	M.F.R.	CAT.NO.
1	WC	ROCA	ELEMENT, WALL-HUNG WC PAN
2	SHOWER FAUCET	KÖHLER	WATERTILE RAIN, FOUR 54-NOZZLE SPRAYHEADS
3	SINK	CUSTOM	GLASS REINFORCED CONCRETE (GRC)
4	SINK FAUCET	ROCA	STAINLESS STEEL FAUCET RF. 5A6462C00
5	SANITARY PAPEL HOLDER	ROCA	VERANDA ACCESORIES
6	SHELF	CUSTOM	TO BE SPECIFIED
7	HANGING MIRROR	CUSTOM	1/4" CLEAR PANEL FOR MIRROR
8	TOWEL HOLDER	ROCA	VERANDA ACCESORIES
9	HANGING MIRROR SYSTEM	CUSTOM	TO BE SPECIFIED





1 BATHROOM

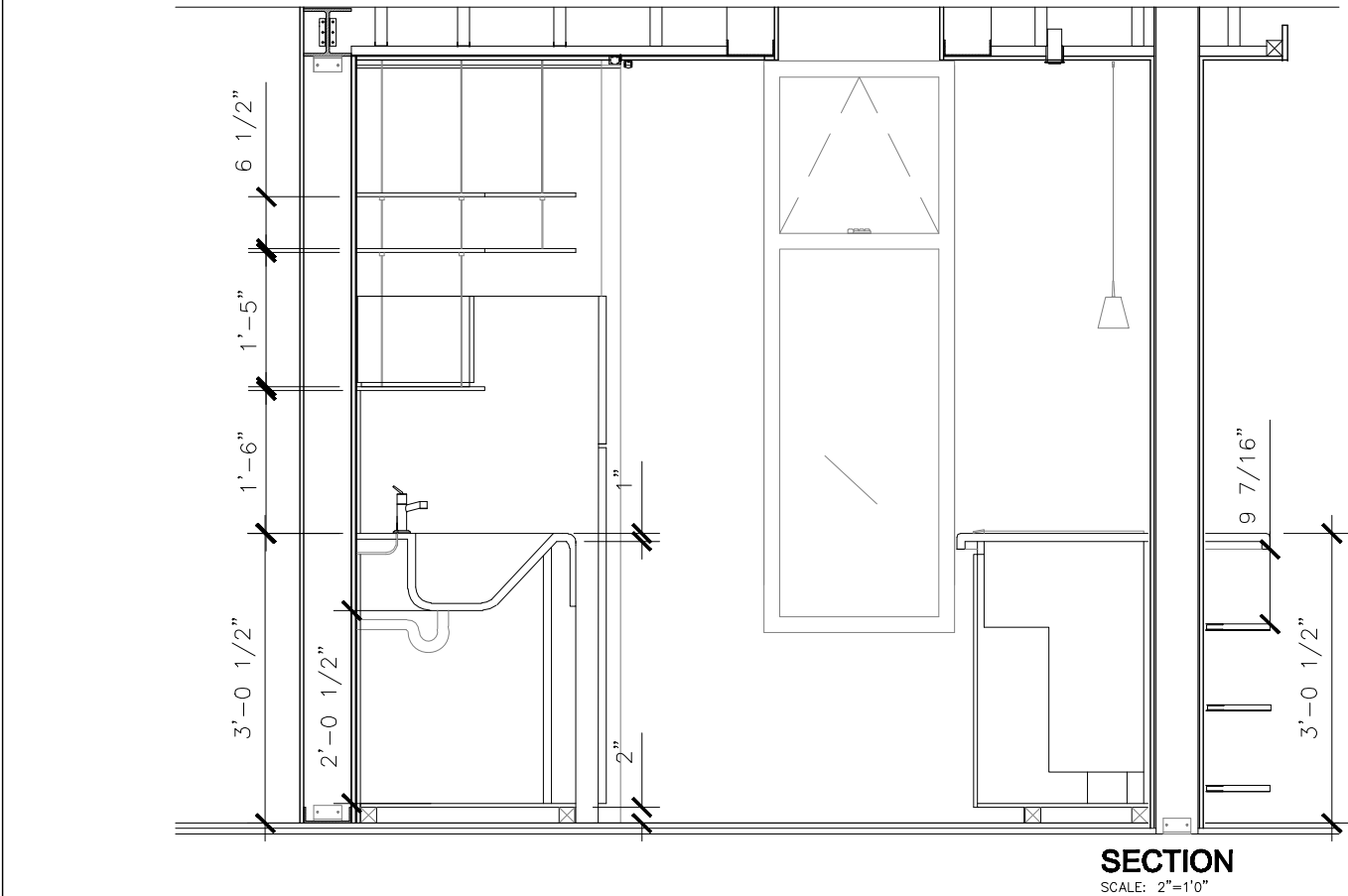
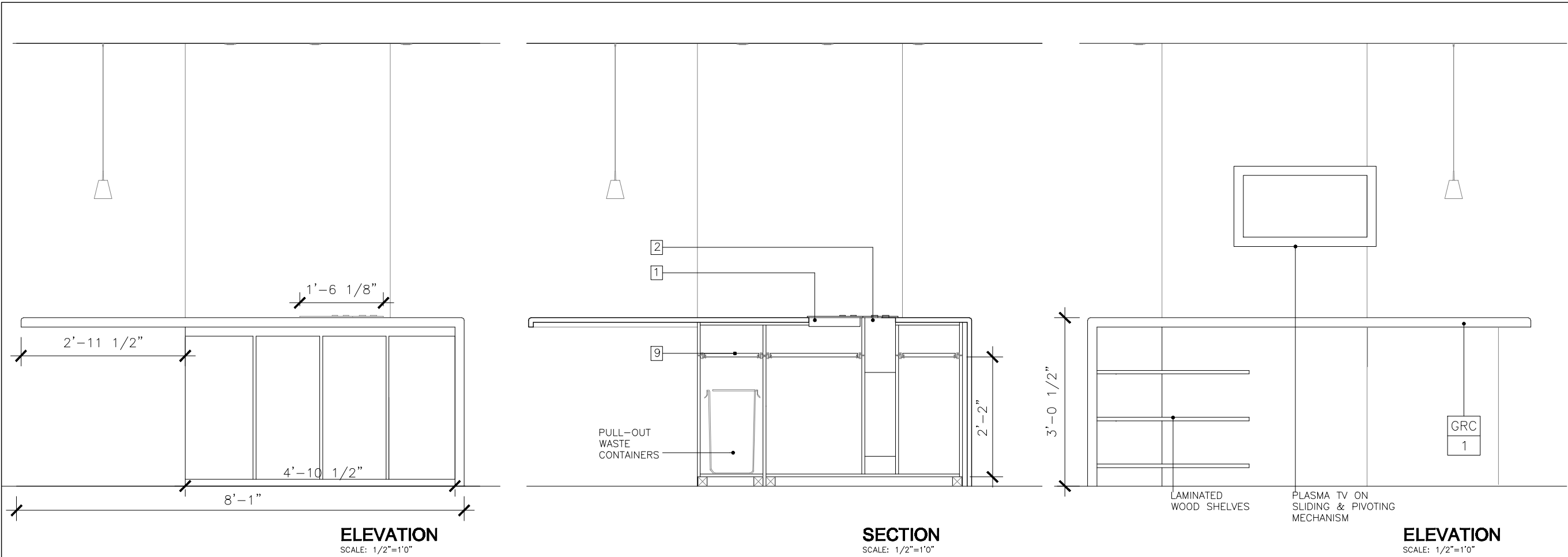
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BATHROOM 3D MODEL VIEWS

ISSUE / REVISIONS

DATE: JUN/01/07
NO. 42

A-403



KITCHEN EQUIPMENT SCHEDULE			
MK.	ITEM	M.F.R.	CAT.NO.
1	COOKTOP	GAGGENAU	VARIO GLASS CERAMIC COOKTOP VC 230-613
2	VENTILATOR	GAGGENAU	TELESCOPIC SWIVEL DOWNDRAFT VENTILATION SYSTEM
3	SINK FAUCET	ELKAY	ALLURE SINGLE HANDLE PULL OUT KITCHEN FAUCET
4	SINK	GRC	GRC SCULPTED SINK
5	DISHWASHER	G.E.	PROFILE STAINLESS BUILT-IN DISHWASHER #PDW8400JWW
6	MICROWAVE OVEN	SHARP	SHARP R-230 800 WATTS MICROWAVE OVEN
7	REFRIGERATOR/ FREEZER	G.E.	ENERGY STAR 15.7 Cu.Ft. TOP FREEZER REFRIGERATOR #GTH16BBSLWW
8	PIVOT SLIDING DOOR	HAFELE 3FORM	HAWA-TURNAWAY 35X3 + FOLDING TURNAWAY 15/20 MOD 1" SLIDING DOOR W/ 1/8" 3FORM ORANGE TANG PANEL
9	DRAWERS SLIDES	HAFELE	22" BOTTOM MOUNTED 3/4" EXTENSION SELF CLOSING
10	SHELVES SUPPORT	JAKOB	S.STEEL STRANDED WIRE 1/8", LIGHT 2-PART CLAMP RING COUNTER SUNK HEAD, SREWED INTERNAL TREAD ENDS
11	ISLAND SHELVES AND COUNTERTOP SUPPORTS	-	TO BE SPECIFIED

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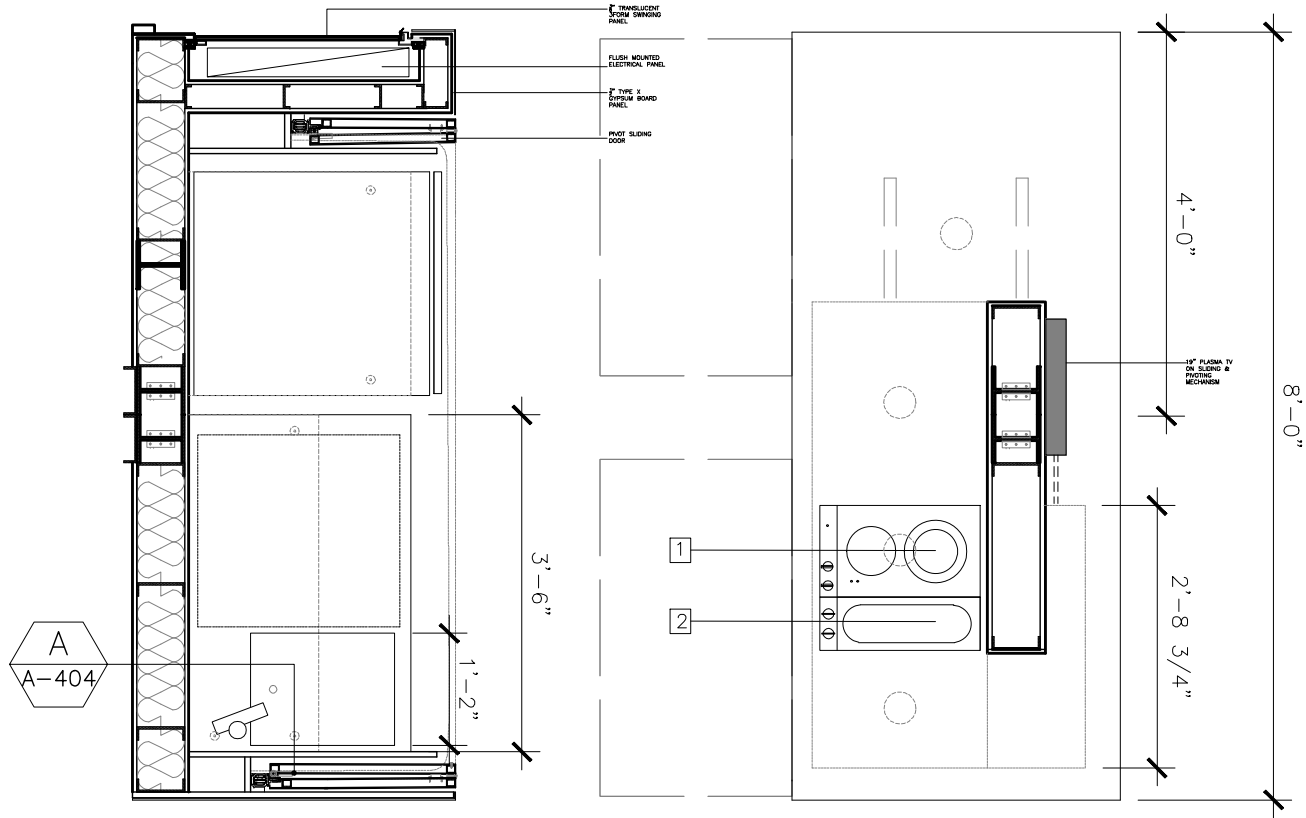
DATE: JUN/01/07
NO. 43

A-404

ISSUE/REVISIONS

NO.	DESCRIPTION
1	ISSUED FOR PERMIT
2	REVISION: CORRECTED DIMENSIONS
3	REVISION: ADDED MATERIALS
4	REVISION: FINAL REVISIONS

KITCHEN DETAILS AND SCHEDULE

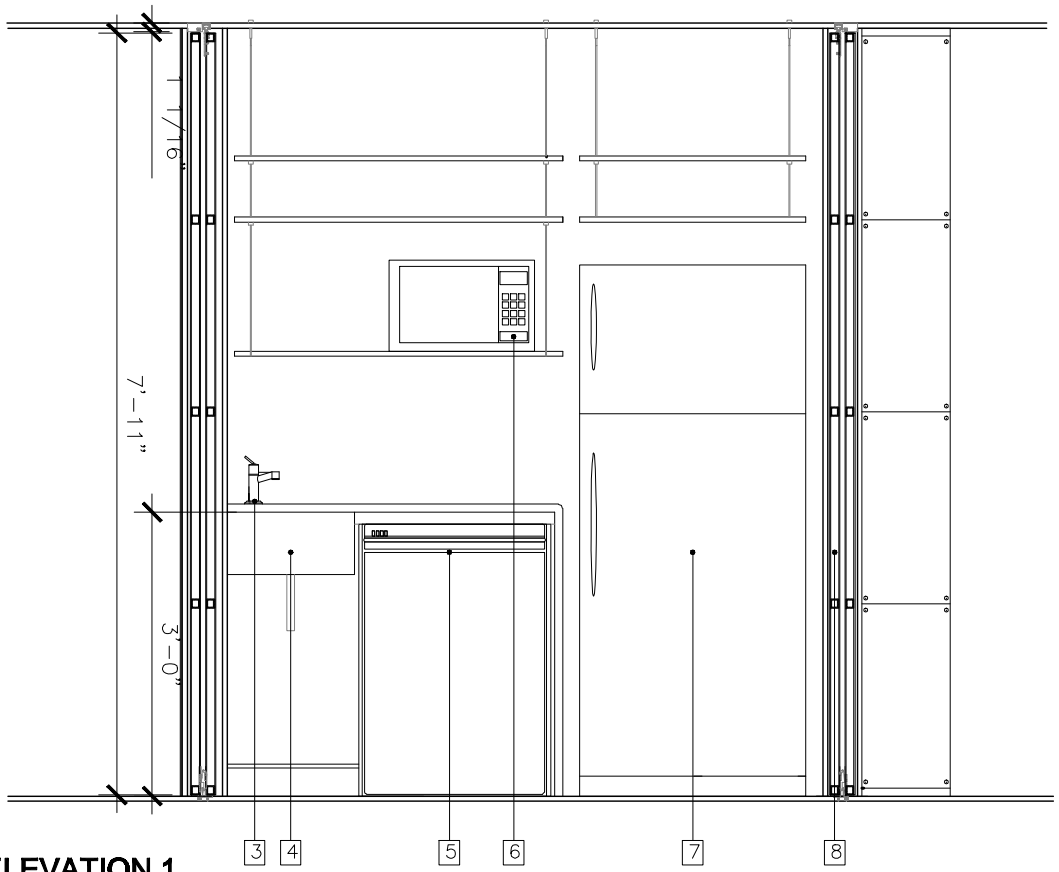
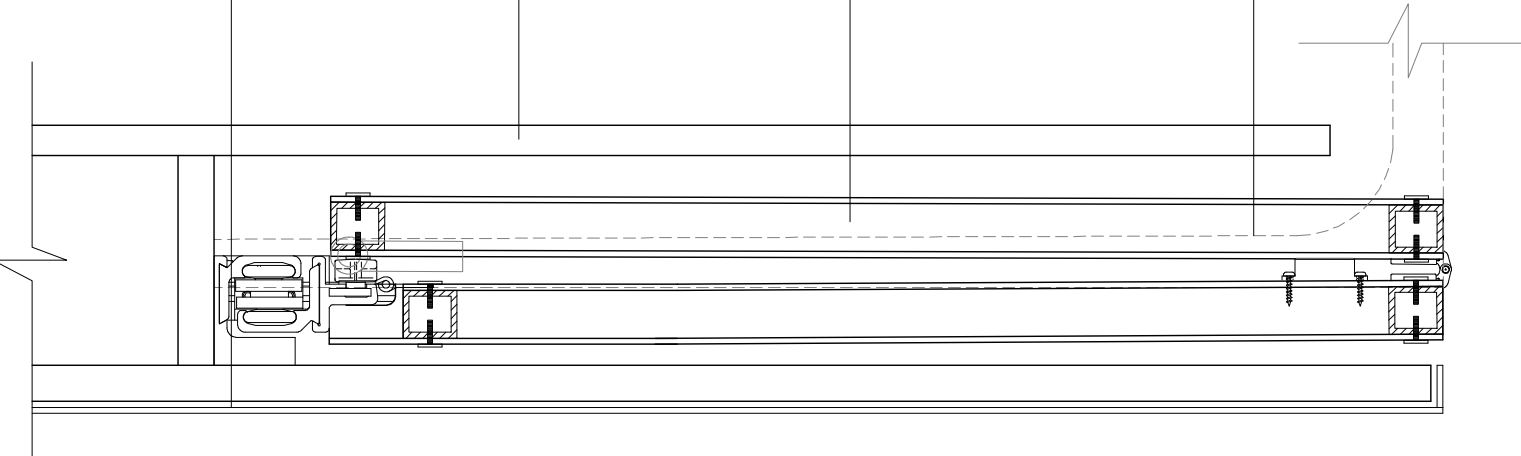


1/8" TRANSLUCENT
3FORM SWINGING
PANEL

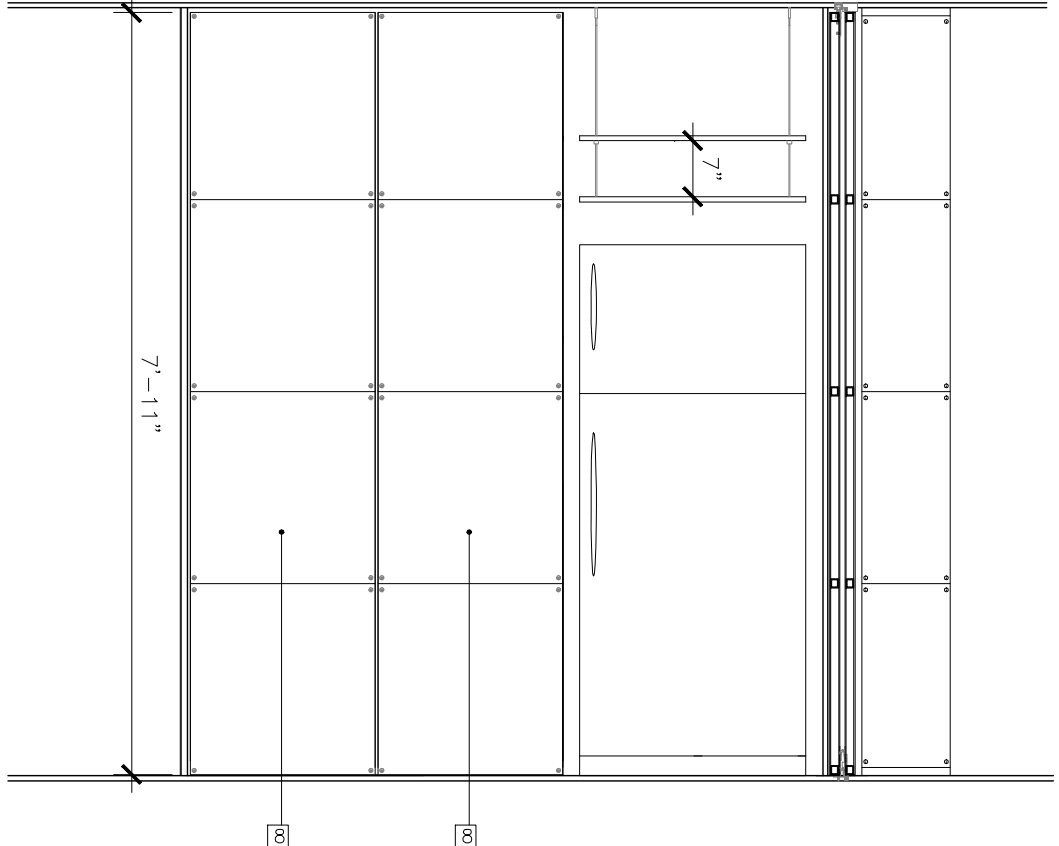
3/4" TYPE X
GYPSUM BOARD
PANEL

1" SLIDING DOOR
W/ 1/8" 3FORM
ORANGE PANEL

HAWA-TURNAWAY 35X3
+ FOLDING TURNAWAY
15/20 MOD MECHANISM



ELEVATION 1
SCALE: 2"=1'0"



1 ELEVATION WITH DOOR
SCALE: 1/2"=1'0"



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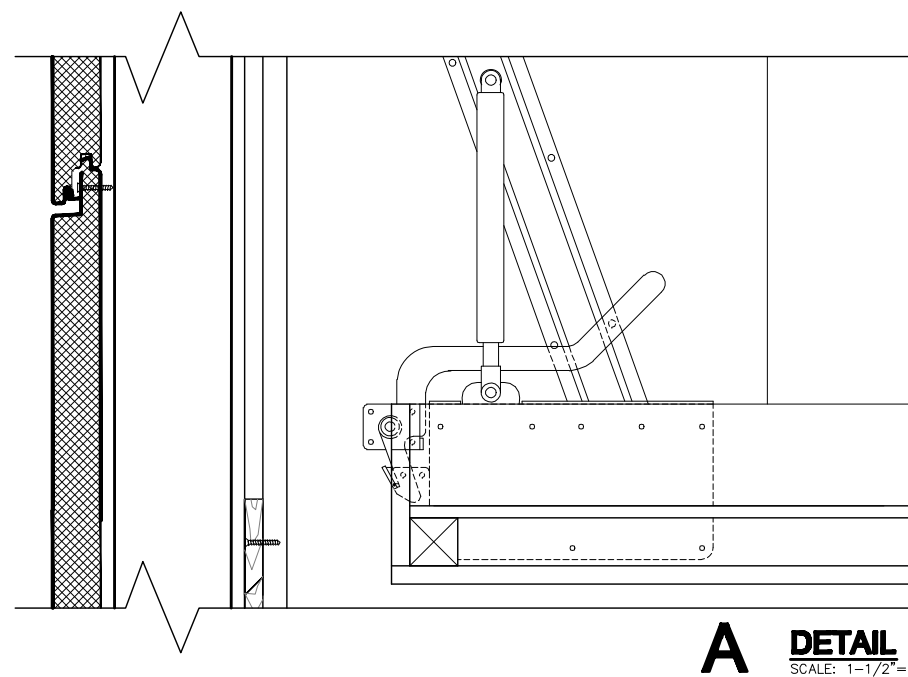
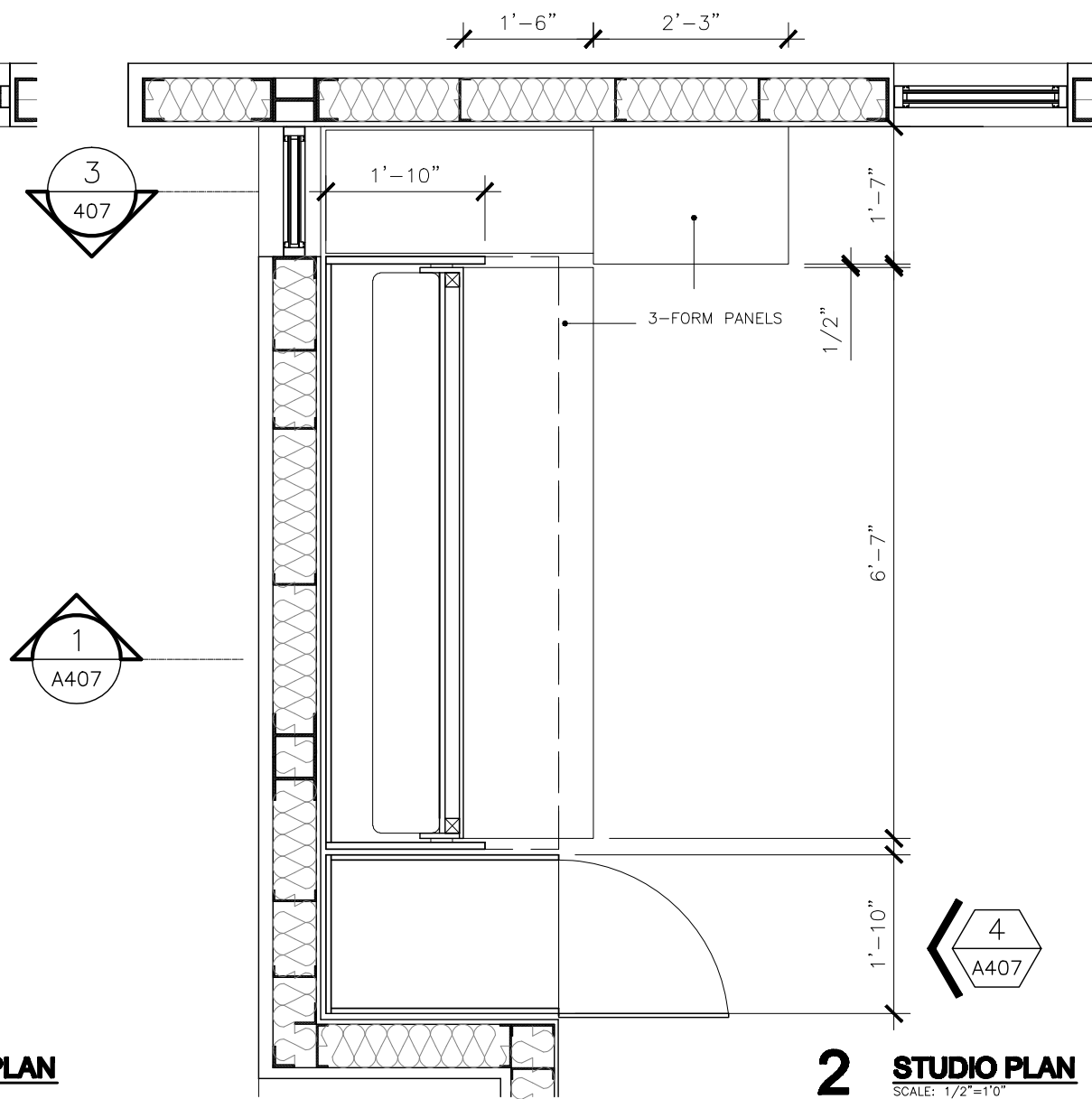
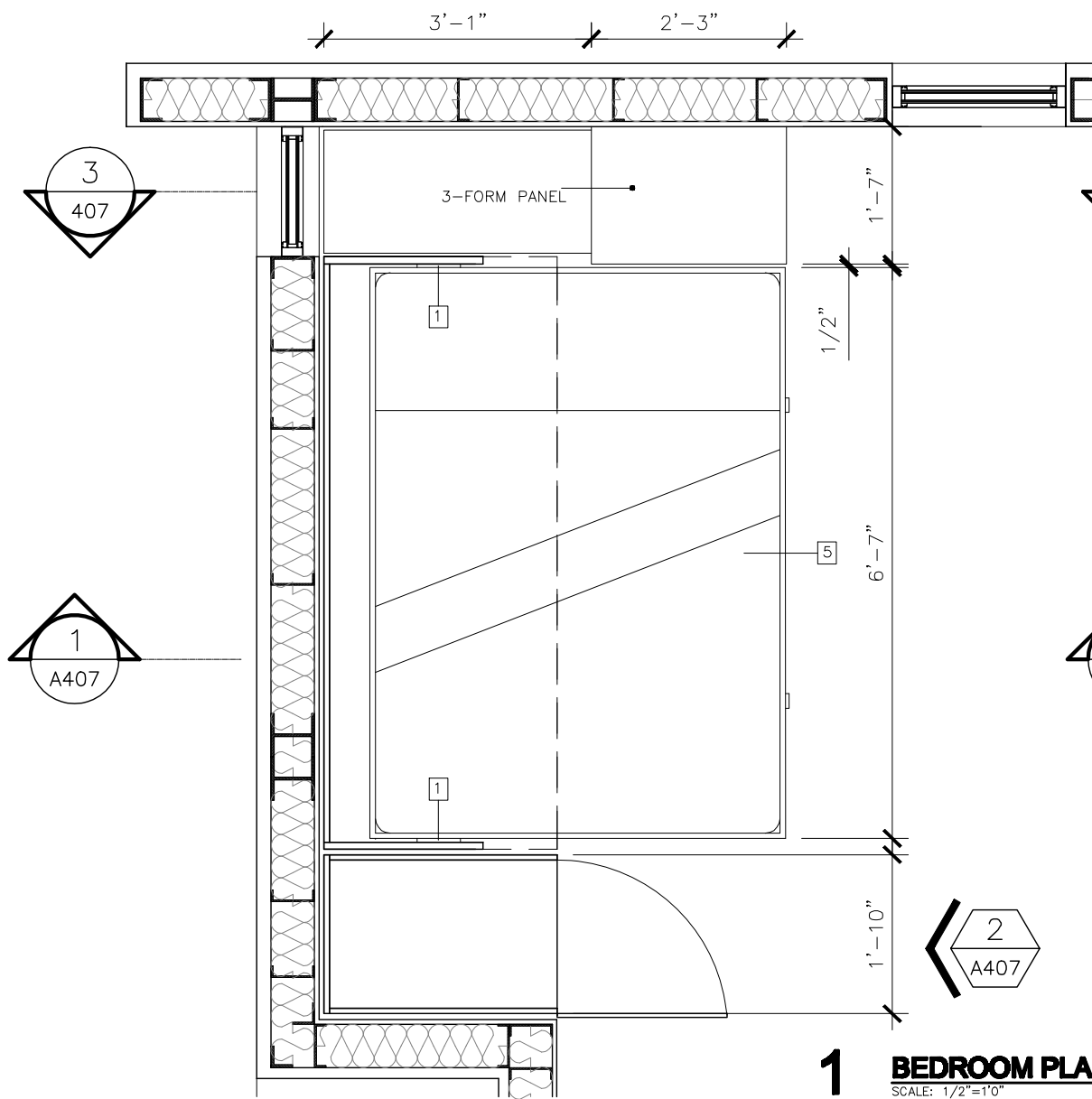
KITCHEN DETAILS

DATE: JUN/01/07
NO. 44

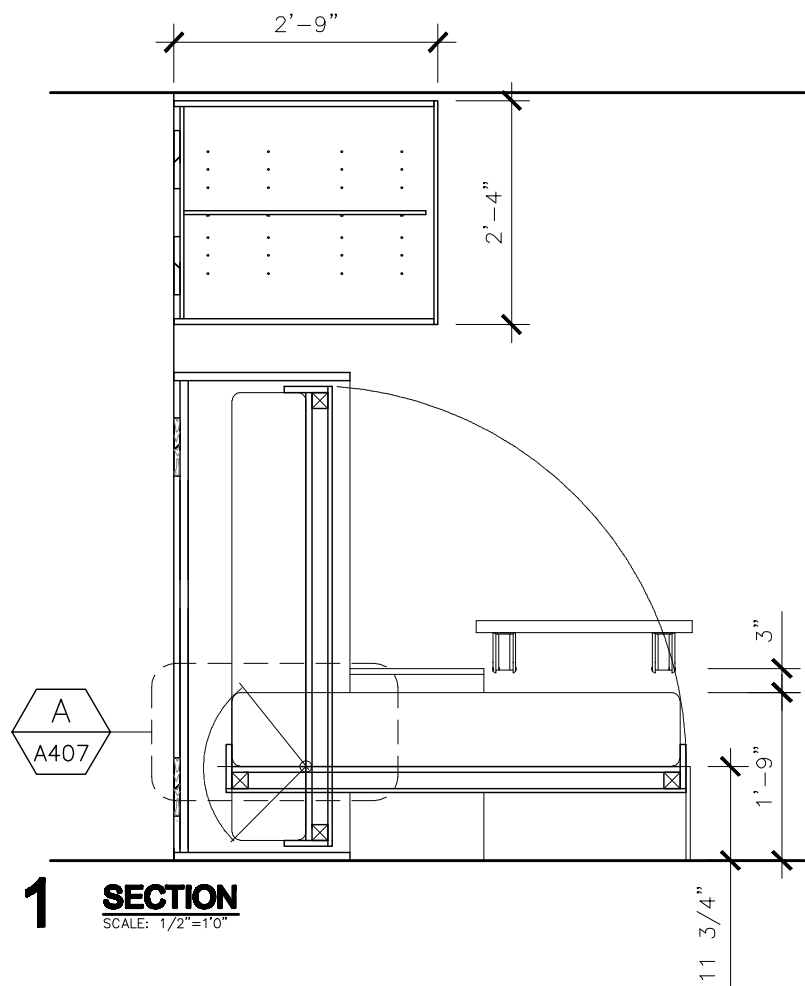
ISSUE/REVISIONS

A-405

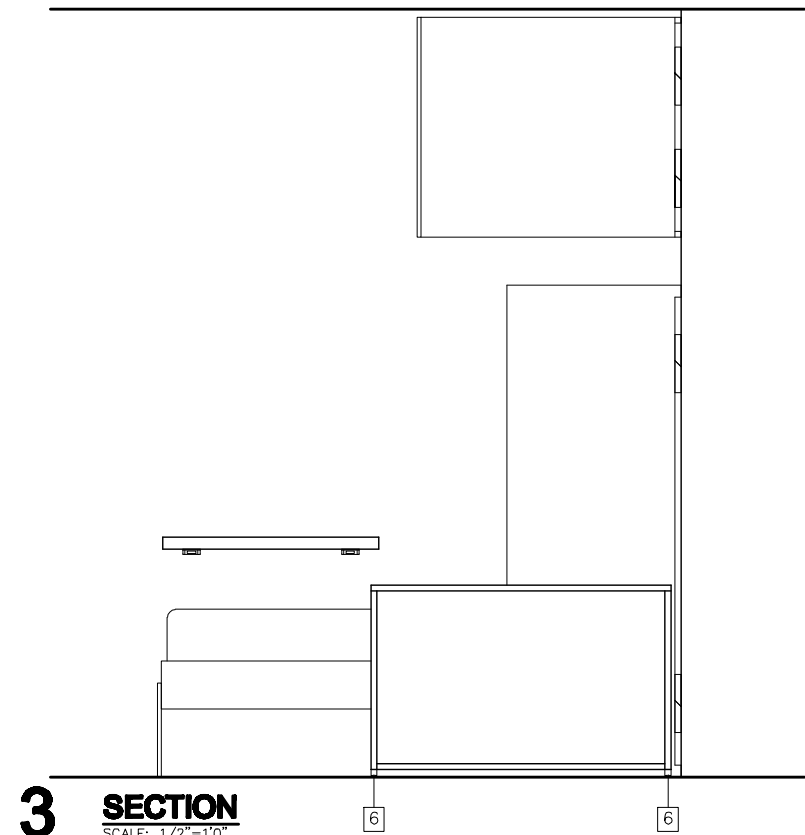




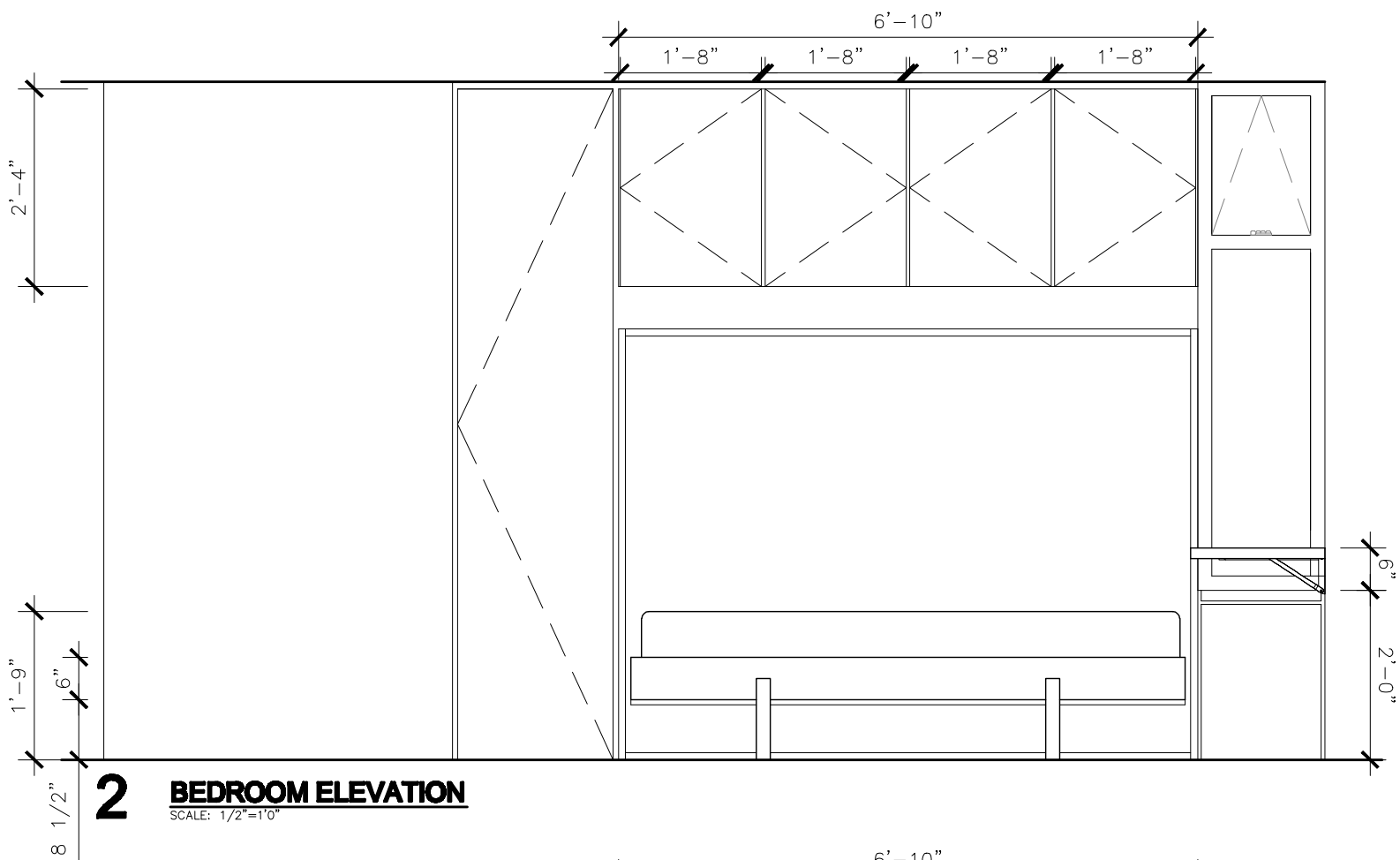
BEDROOM HARDWARE SCHEDULE			
MK.	ITEM	M.F.R.	CAT.NO.
1	FOLDING BED	HAFELE	BEDLIFT FOLDAWAY BED FITTING/WIDTHWISE MOUNTING 271.95.201
2	DESK SHELF SUPPORT	HAFELE	HINGED SPRING BRACKET 287.41.610
3	SHELF SUPPORT	HAFELE	SHELF SUPPORT 7 MM DIAMETER 282.01.701
4	TABLE TOPS	3-FORM	1" VARIA MODERNA SPIDER PANEL, COLOR N/A, PATINA FINISH
5	FULL MATTRESS		
6	CASTERS	HAFELE	ROLLING STARS RIGID CASTERS, COLOR WHITE, 661.03.008



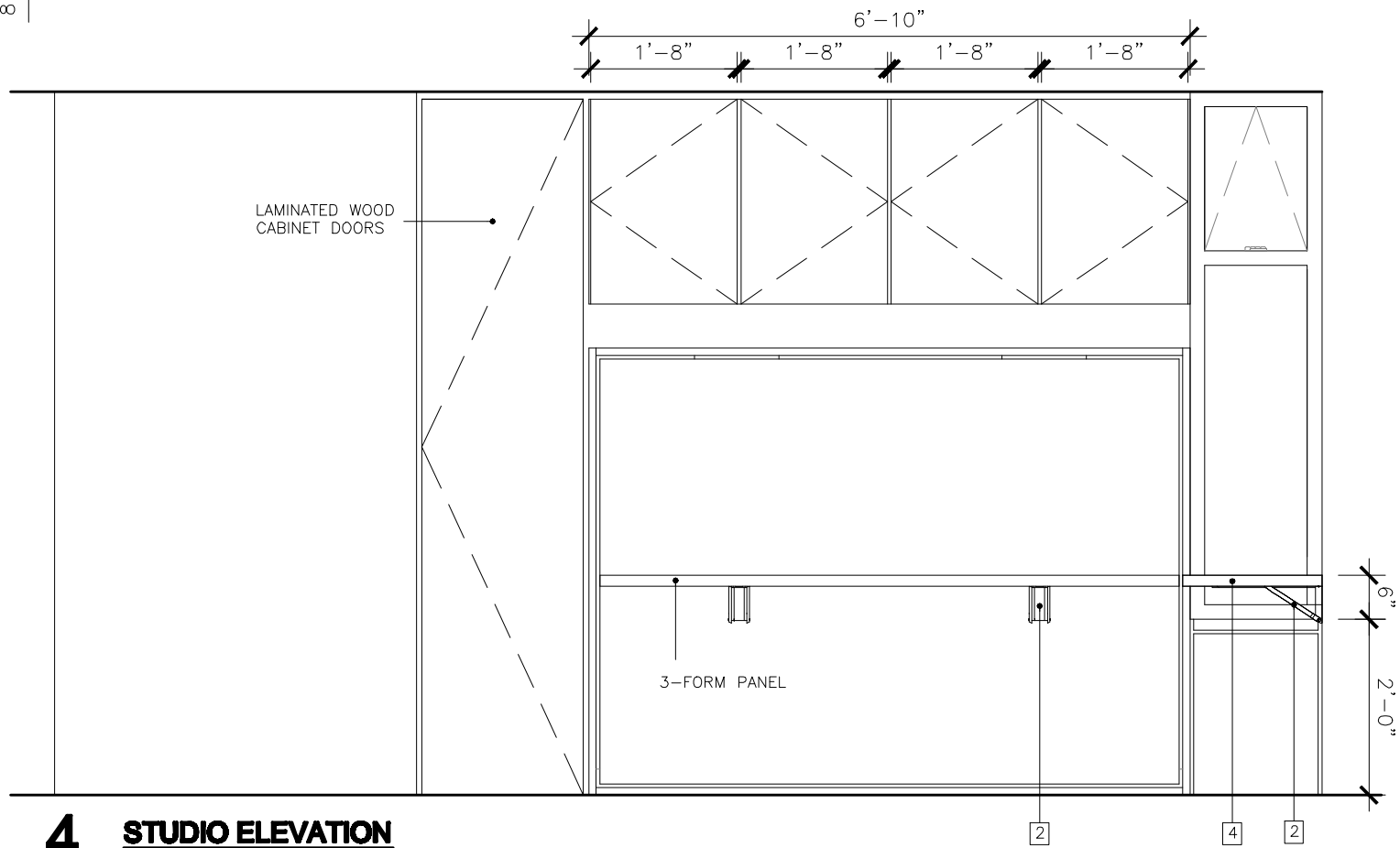
1 SECTION
SCALE: 1/2"=1'0"



3 SECTION
SCALE: 1/2"=1'0"



2 BEDROOM ELEVATION
SCALE: 1/2"=1'0"



4 STUDIO ELEVATION
SCALE: 1/2"=1'0"



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BEDROOM DETAILS

DATE: JUN/01/07
NO. 47

A-408



1 BEDROOM

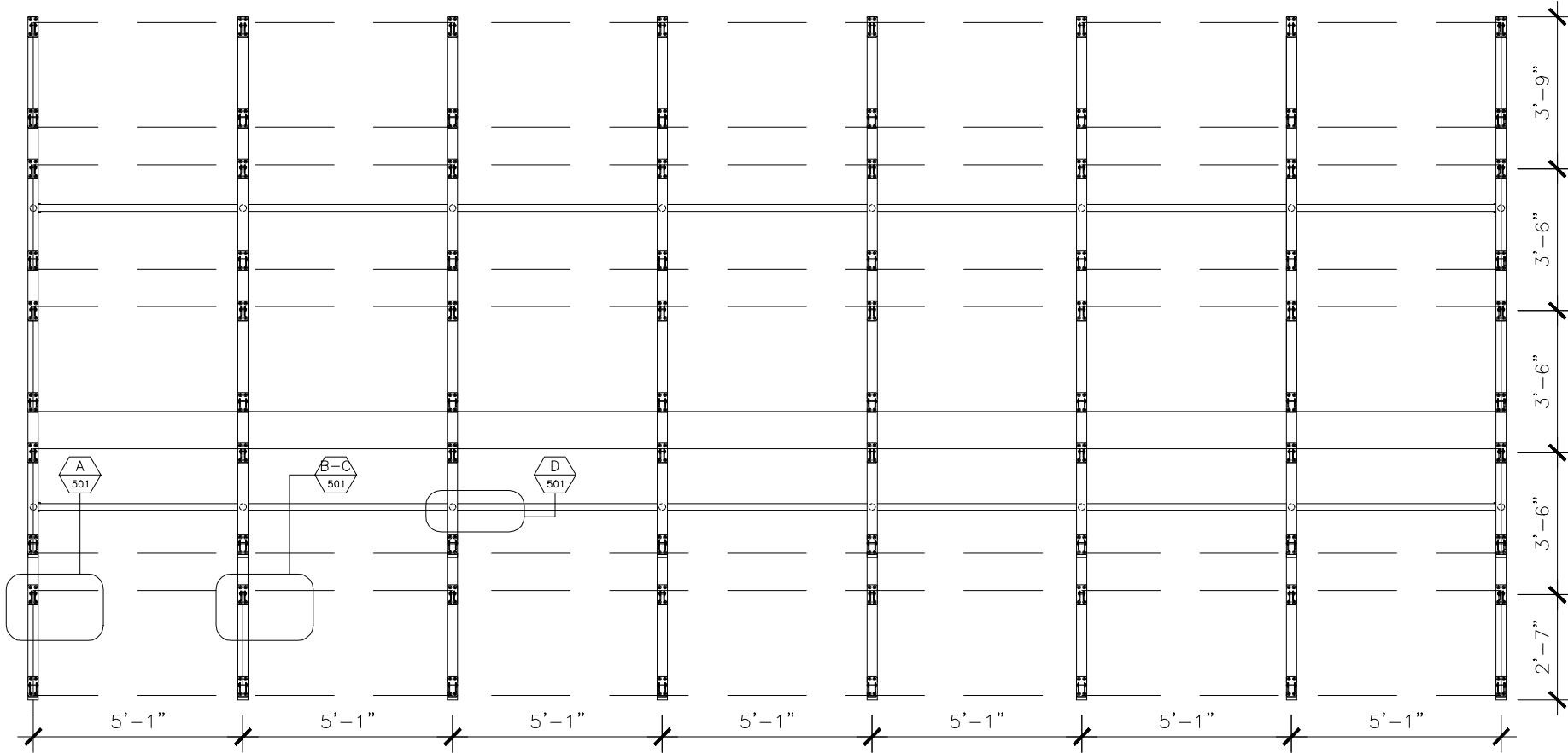
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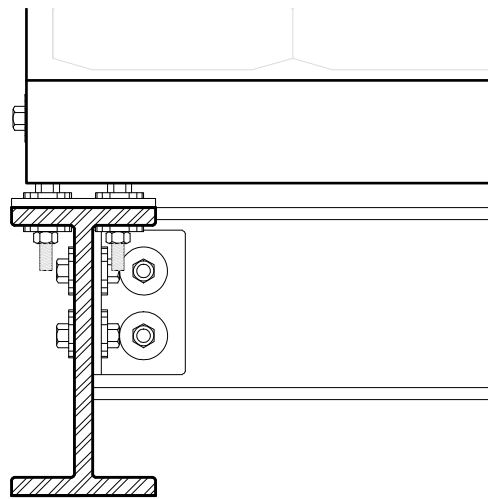
BEDROOM 3D MODEL VIEWS

DATE: JUN/01/07
NO. 48

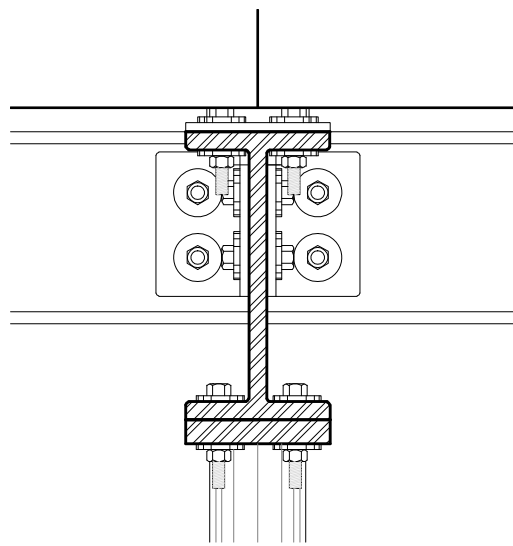
A-409



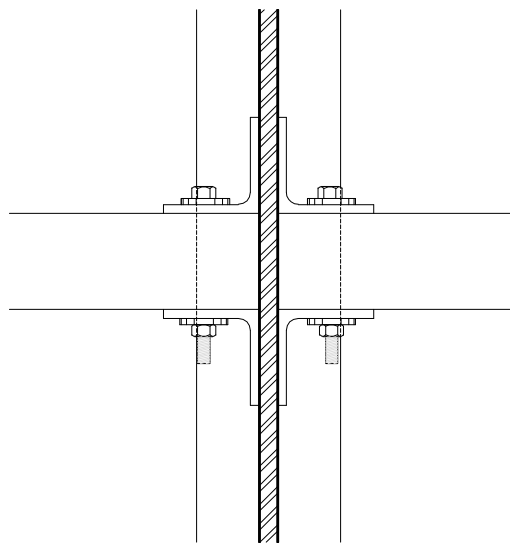
1 **PV ARRAY FRAME**
SCALE: 1/4" = 1'-0"



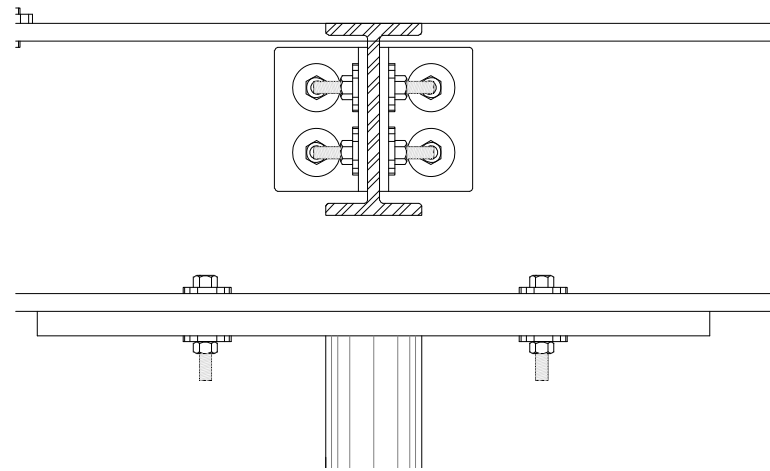
A **DETAIL**
SCALE: 3" = 1'-0"



B **DETAIL**
SCALE: 3" = 1'-0"



C **DETAIL**
SCALE: 3" = 1'-0"



D **DETAIL**
SCALE: 3" = 1'-0"



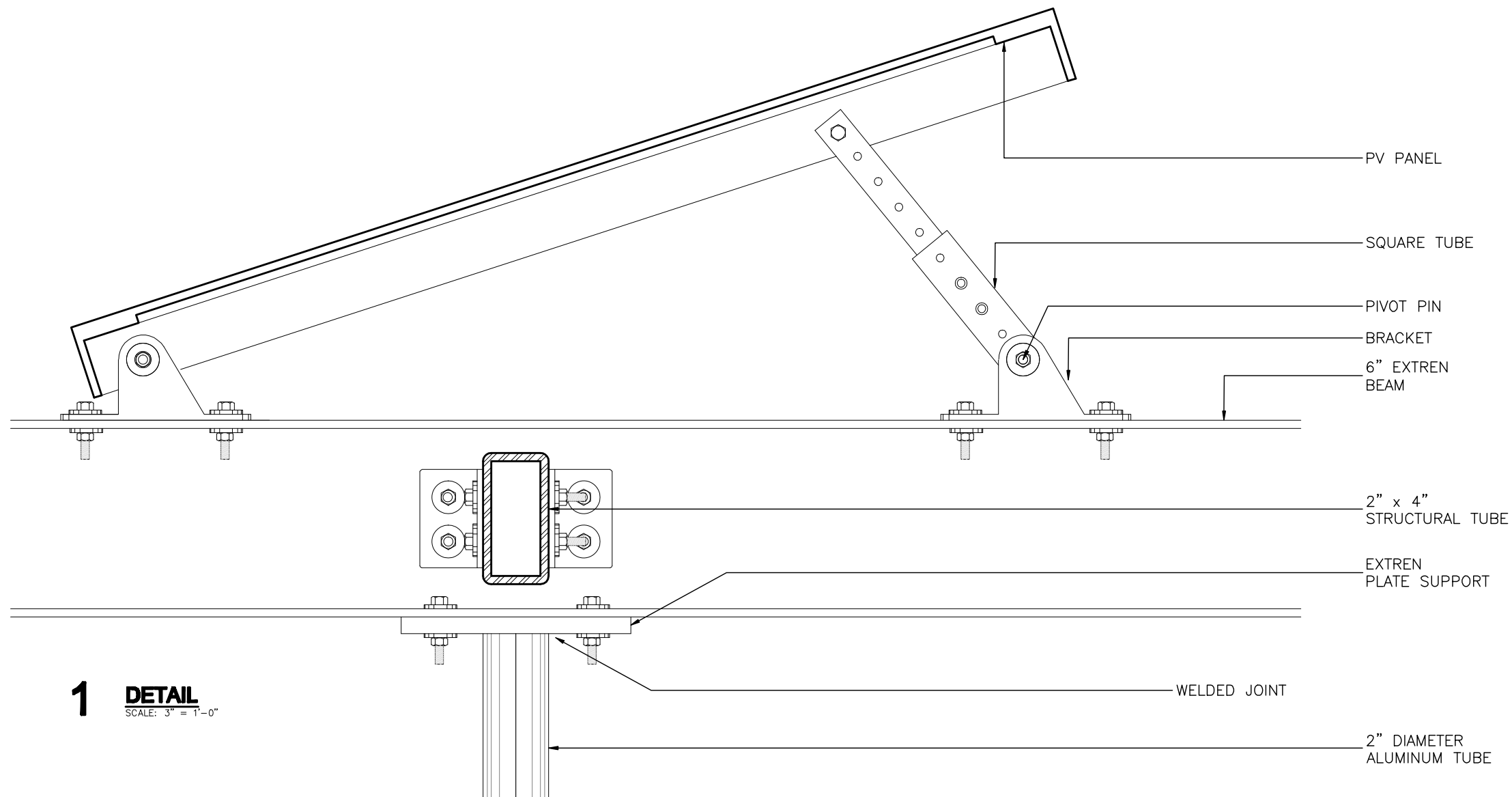
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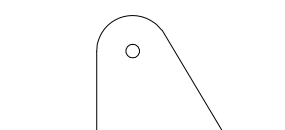
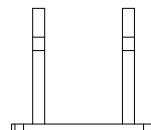
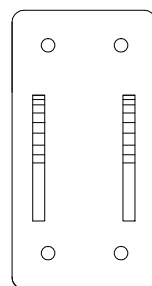
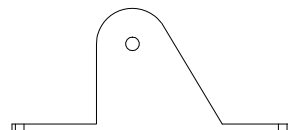
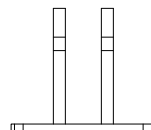
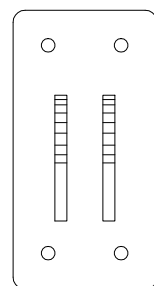
PV STRUCTURE

DATE: JUN/01/07
NO. 49

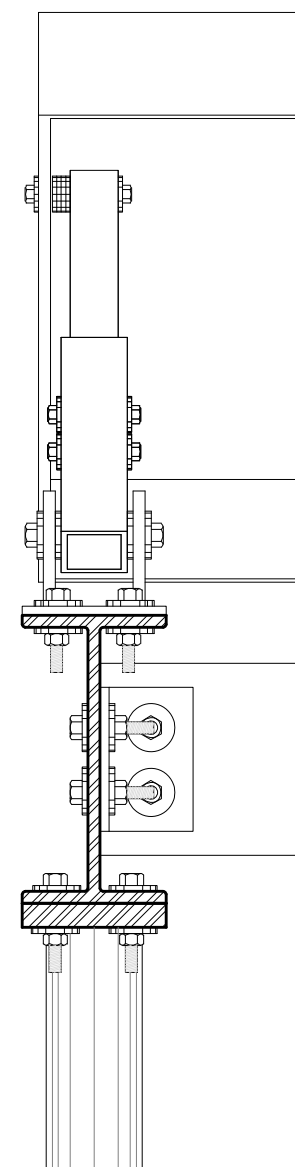
A-501



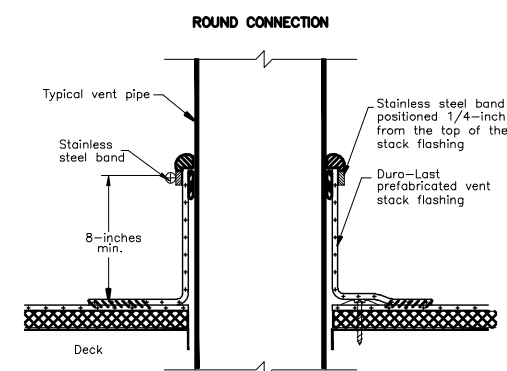
1 DETAIL
SCALE: 3" = 1'-0"



2 BRACKET DETAIL
SCALE: 3" = 1'-0"



3 ROOF CONNECTION ANCHOR
SCALE: 3" = 1'-0"



Note 1: If a lead flashing is present on the pipe, it must be removed before a Duro-Las stack flashing is installed.

Note 2: Membrane attachment around the connection will be the same as the deck membrane, max. 18-inches on center, and a minimum one plate/fastener per flashing.

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LOT 103, WASHINGTON, D.C.

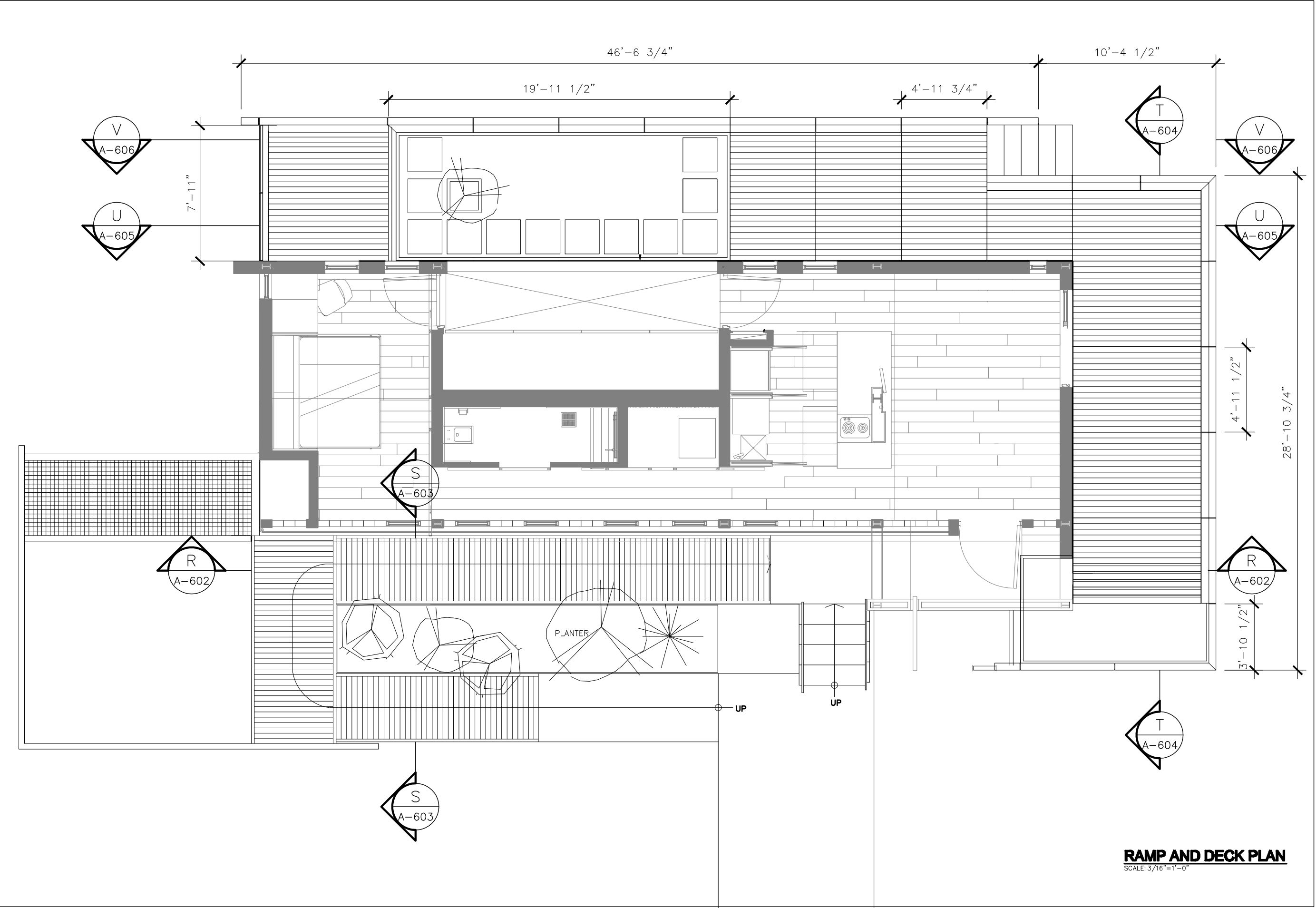
PV STRUCTURE

DATE: JUN/01/07
NO. 50

A-502

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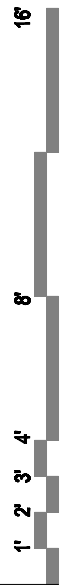
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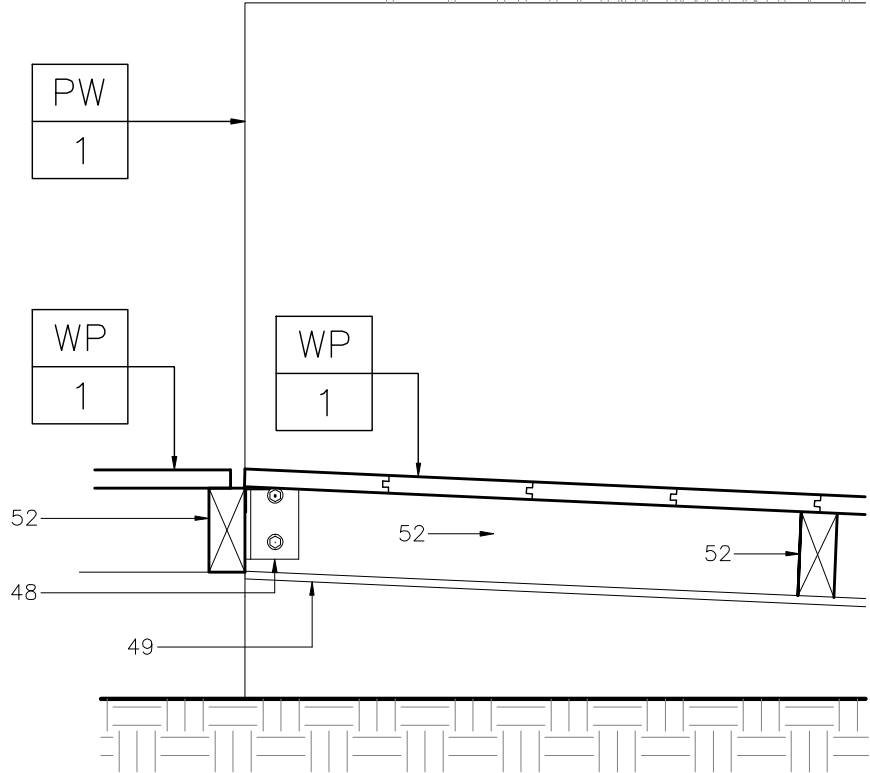
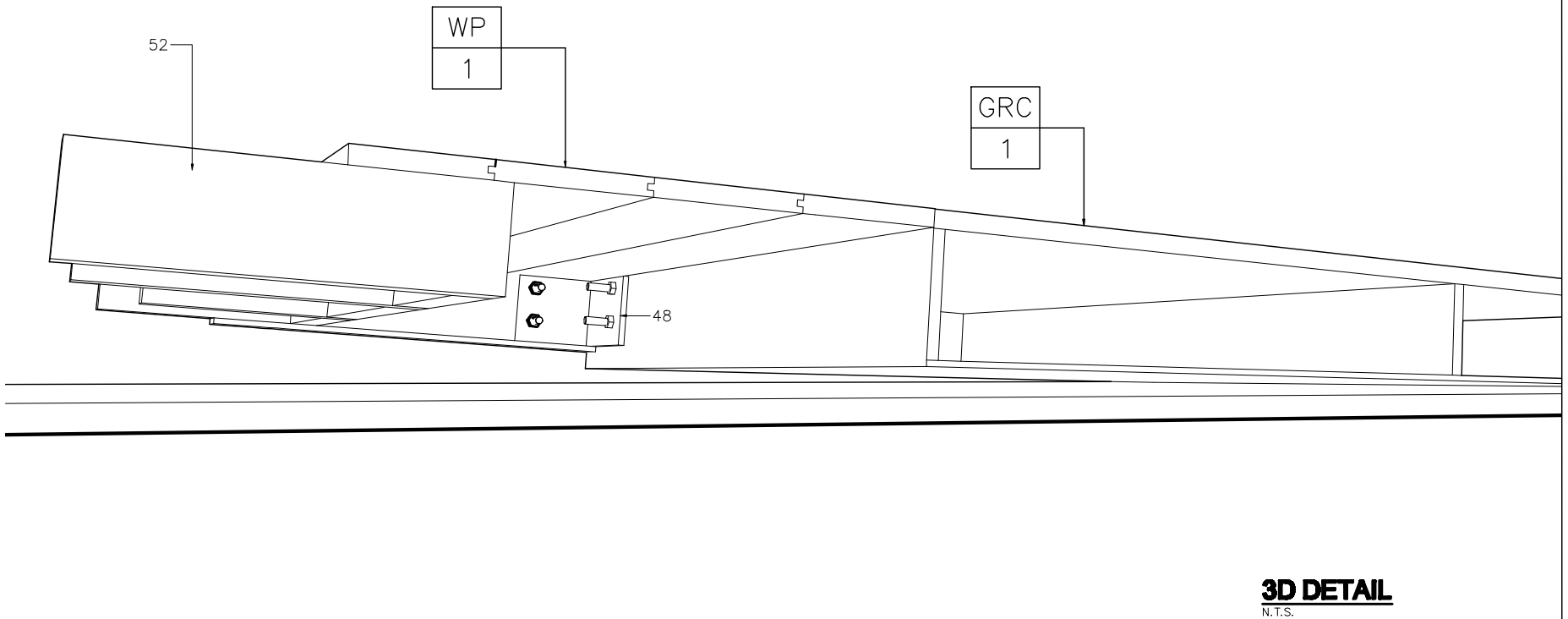
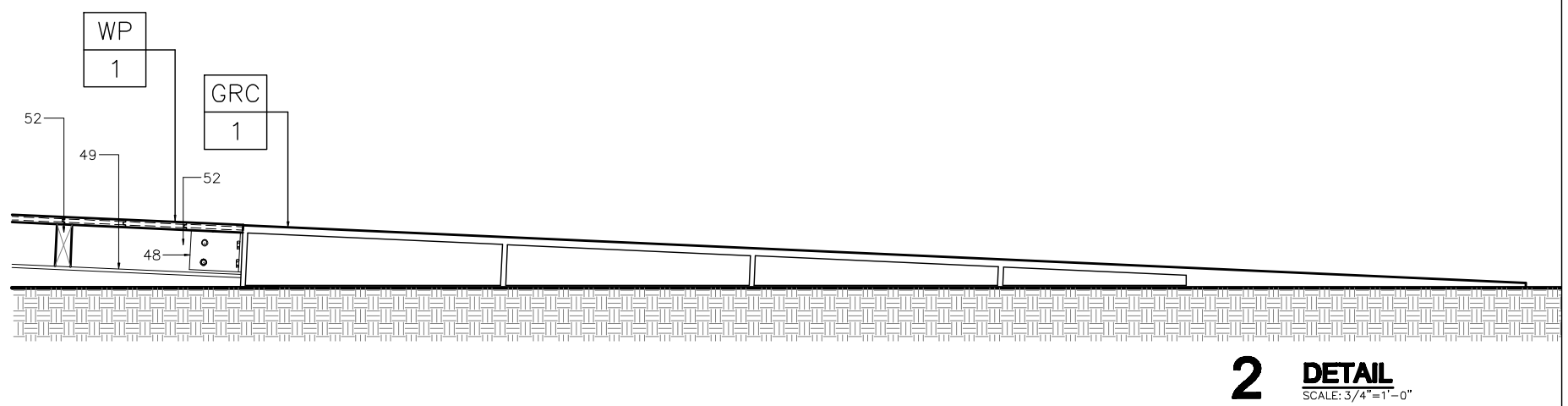
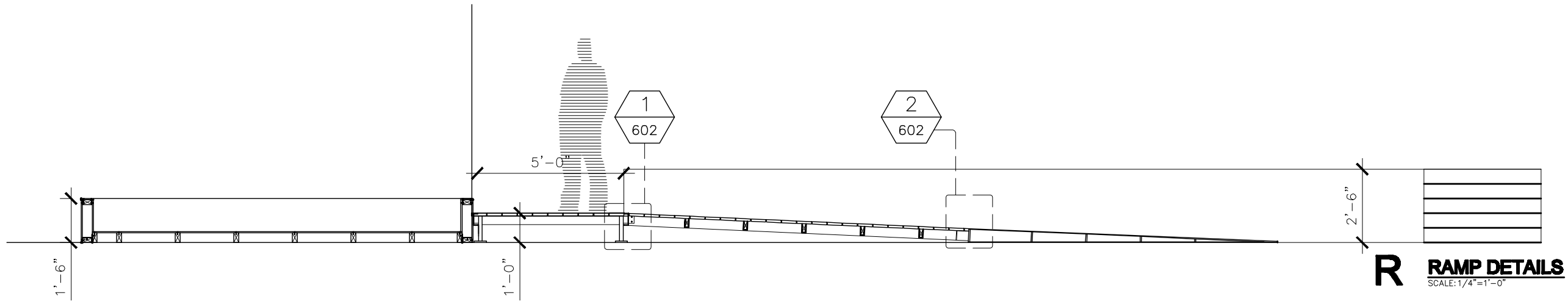
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NO. 51

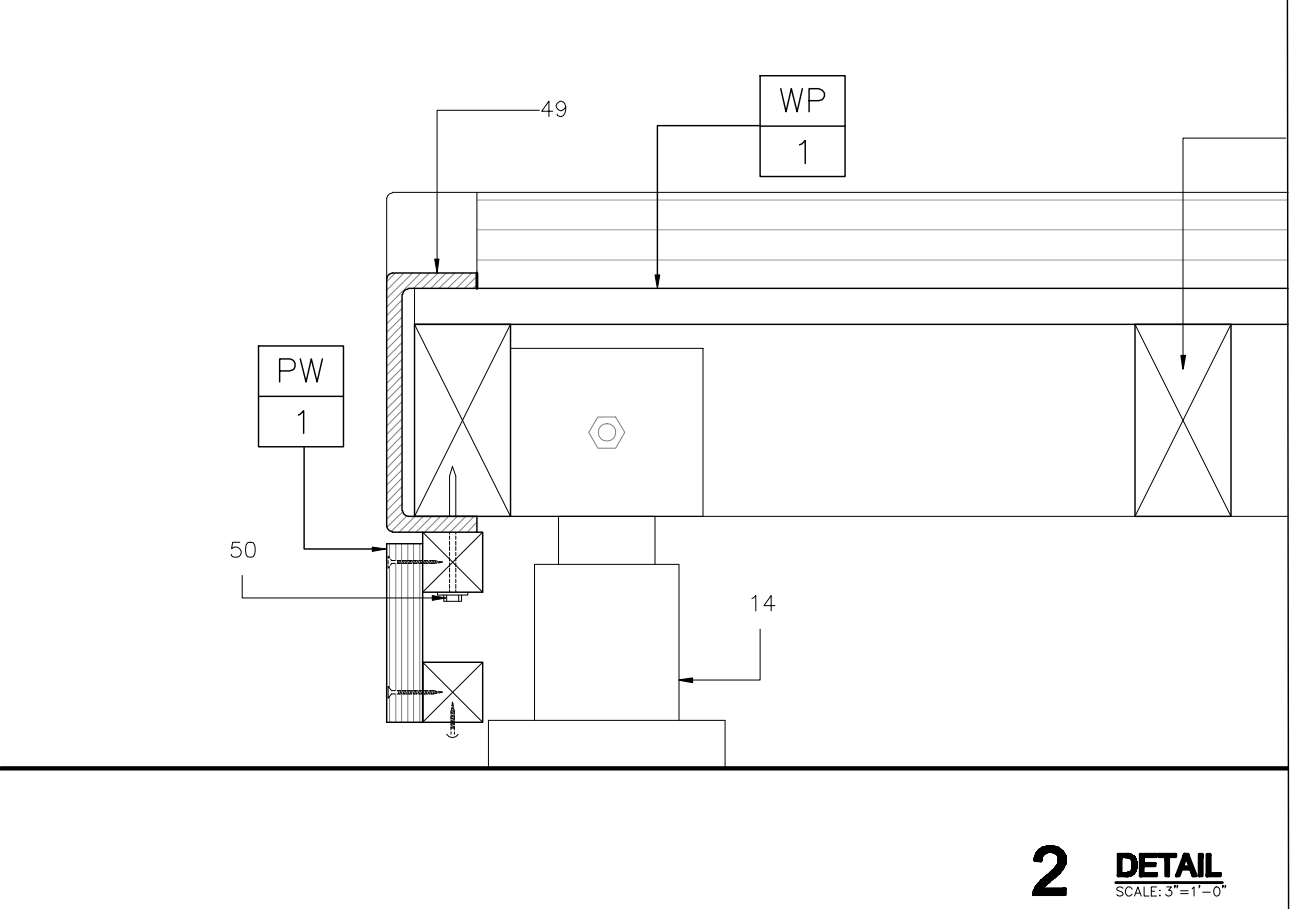
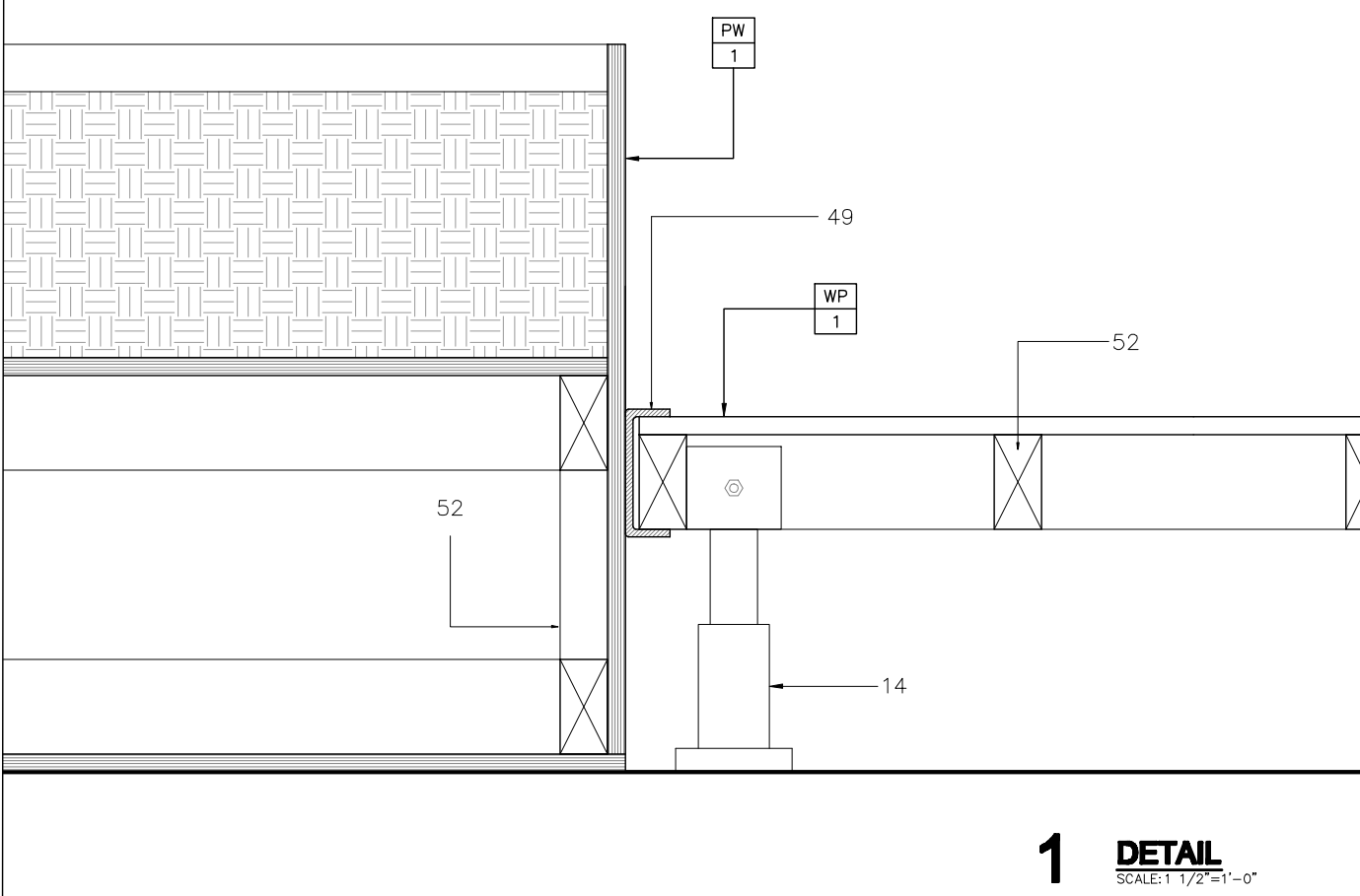
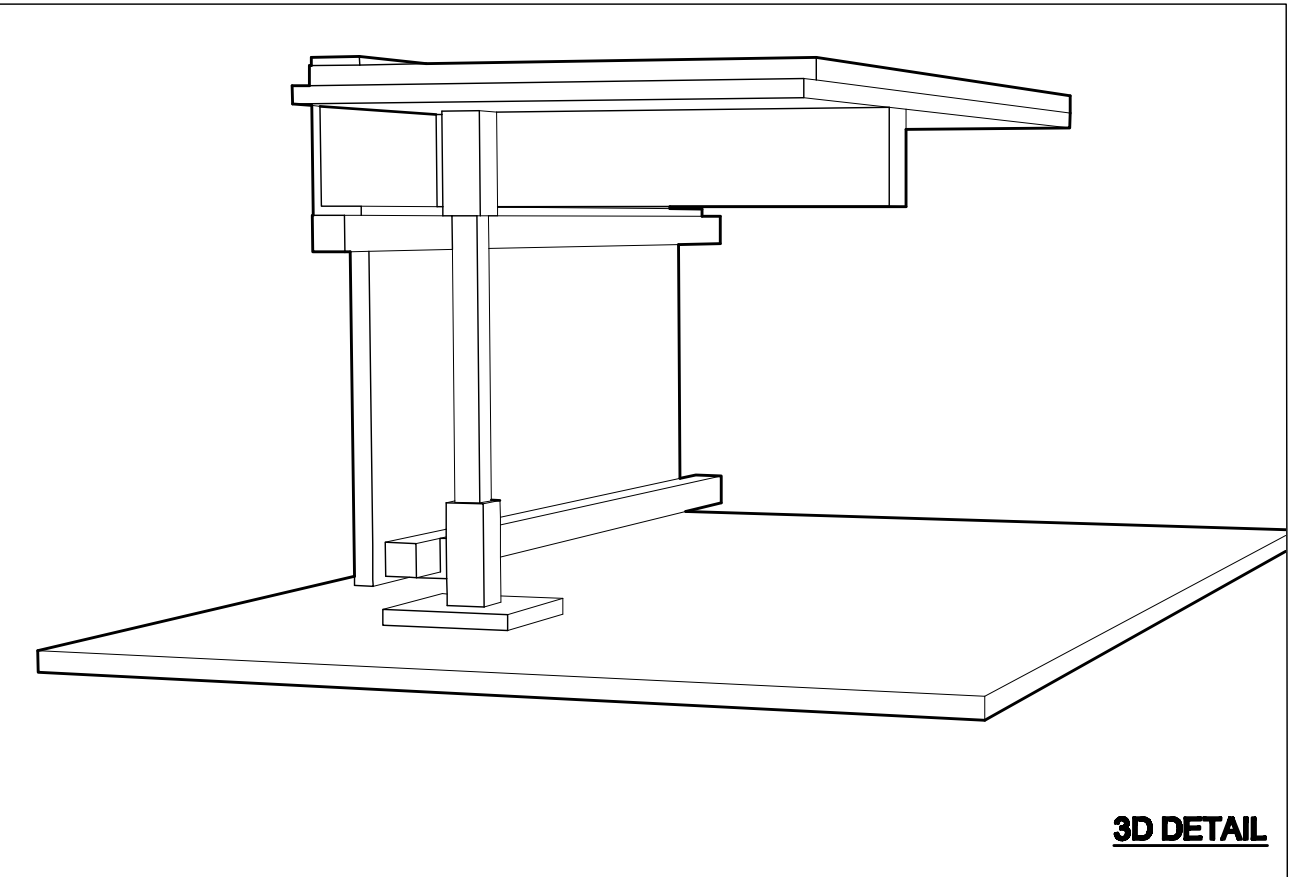
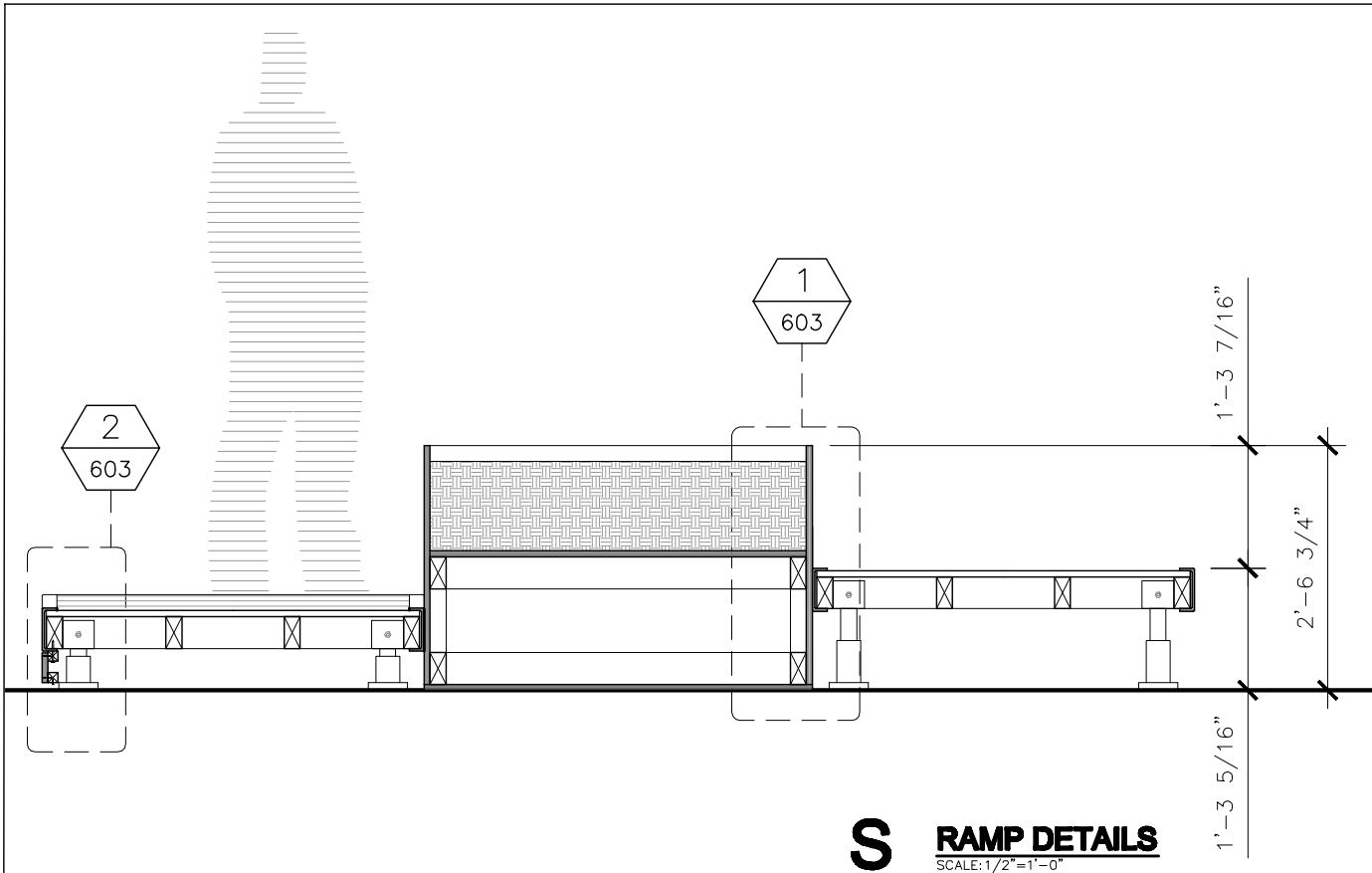
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RAMP AND DECK PLAN

A-601







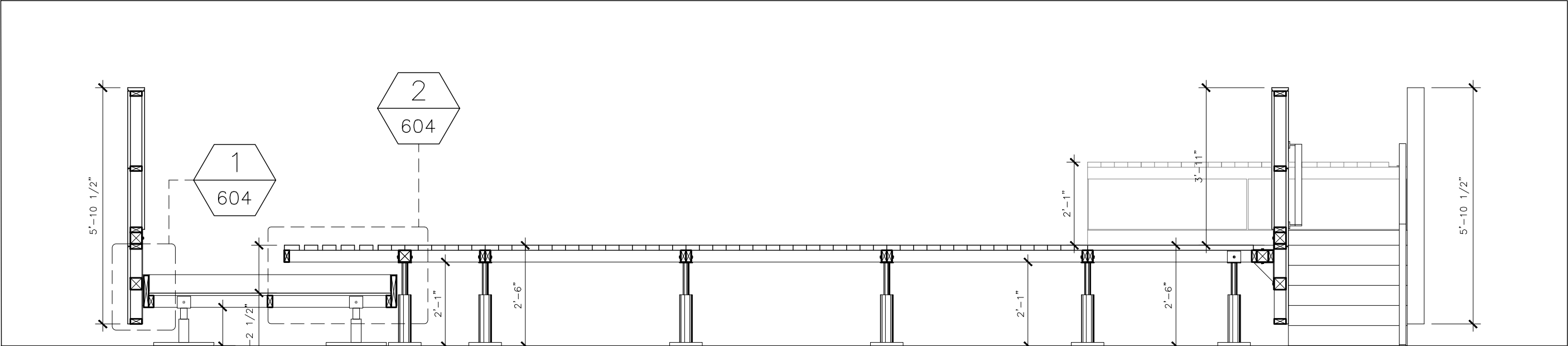
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RAMP DETAILS

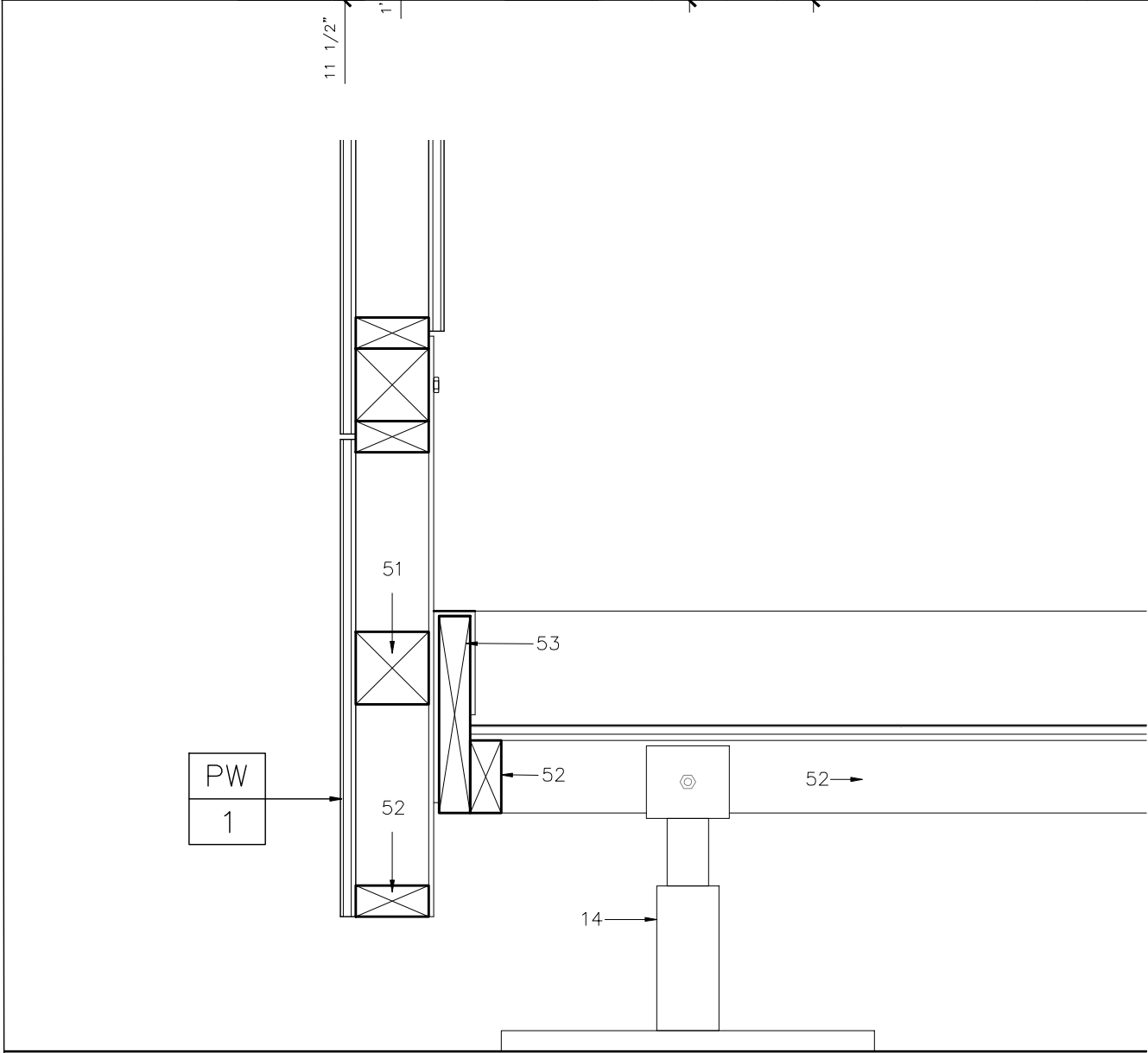
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DATE: JUN/01/07
NO.53

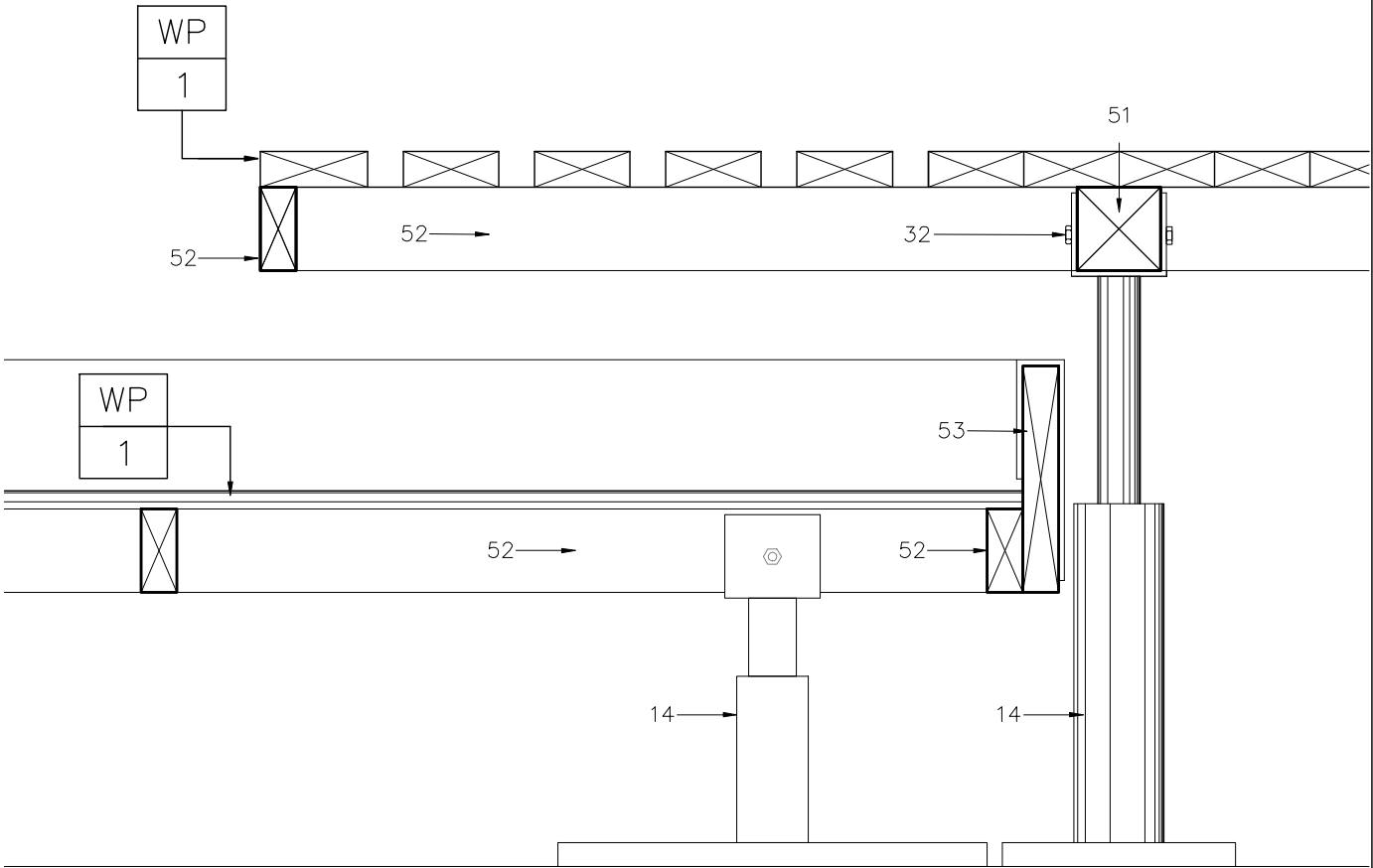
A-603



T DECK DETAILS
SCALE: 3/8"=1'-0"



1 DETAIL
SCALE: 1 1/2"=1'-0"



2 DETAIL
SCALE: 1 1/2"=1'-0"



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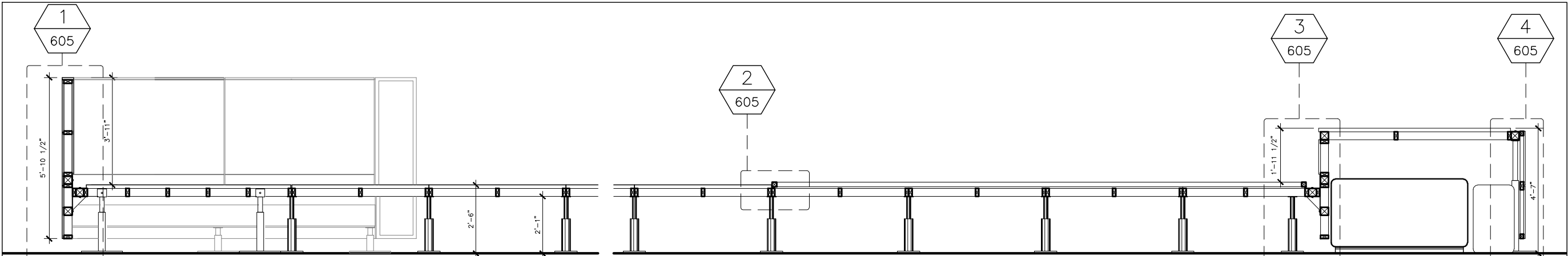
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DECK DETAILS

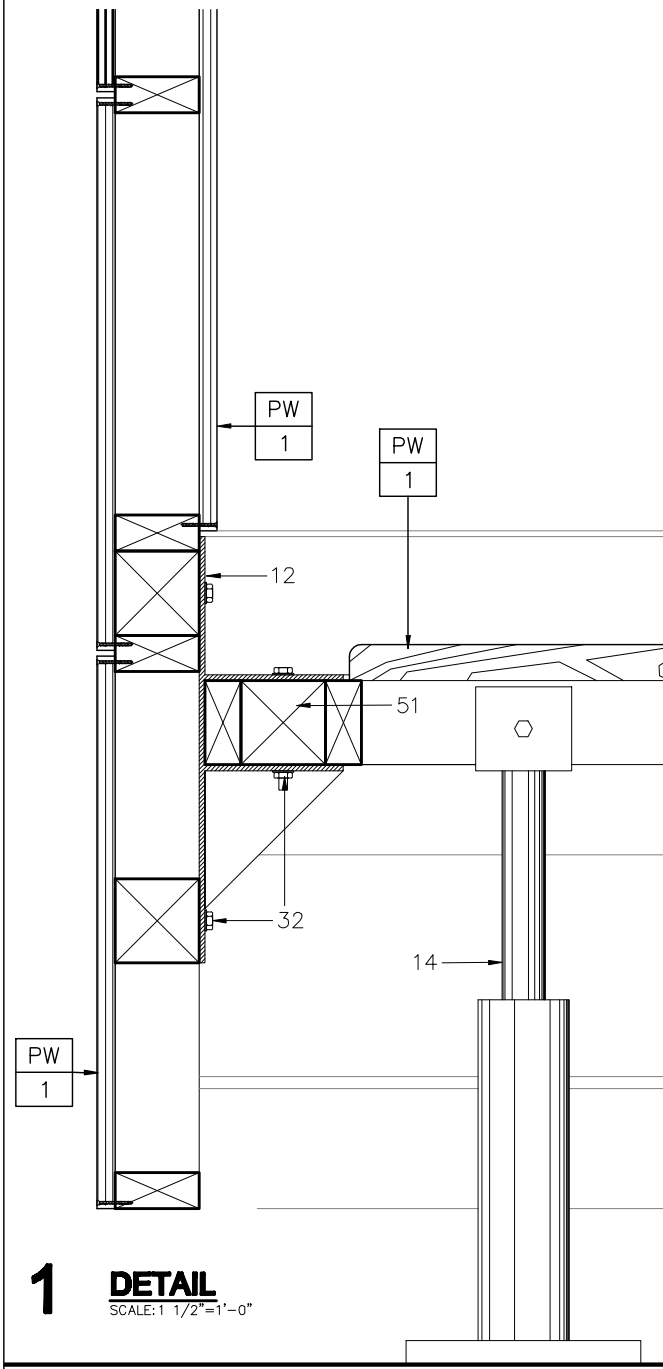
DATE: JUN/01/07
NO. 54

A-604

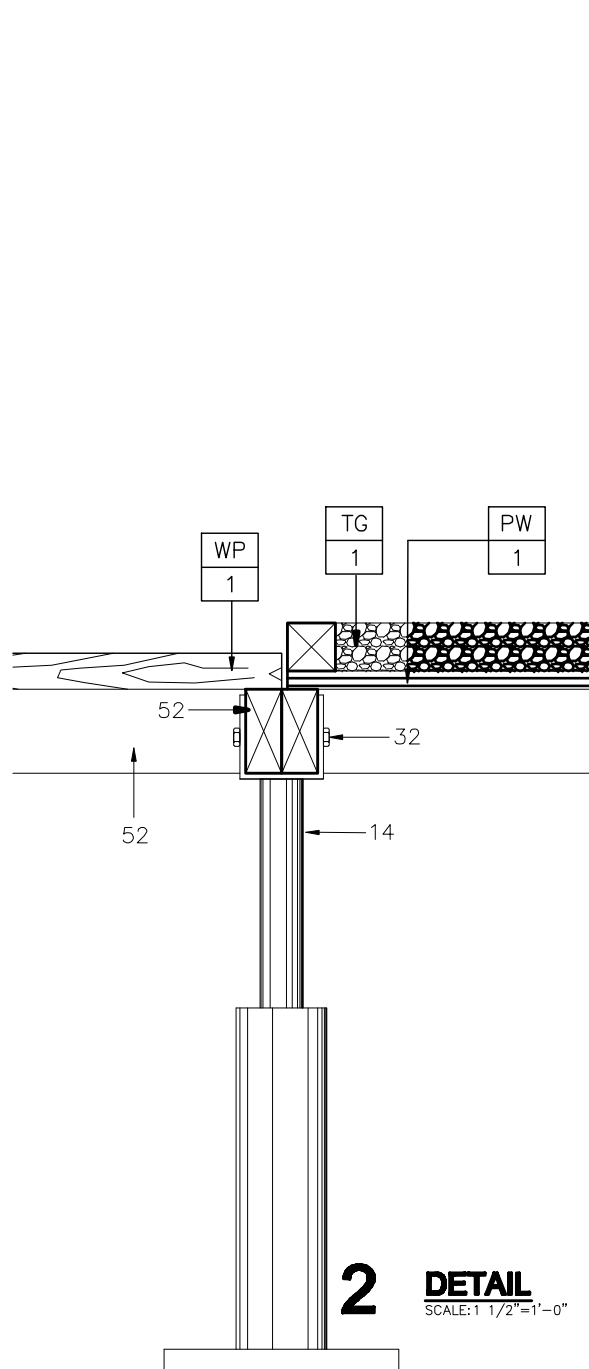




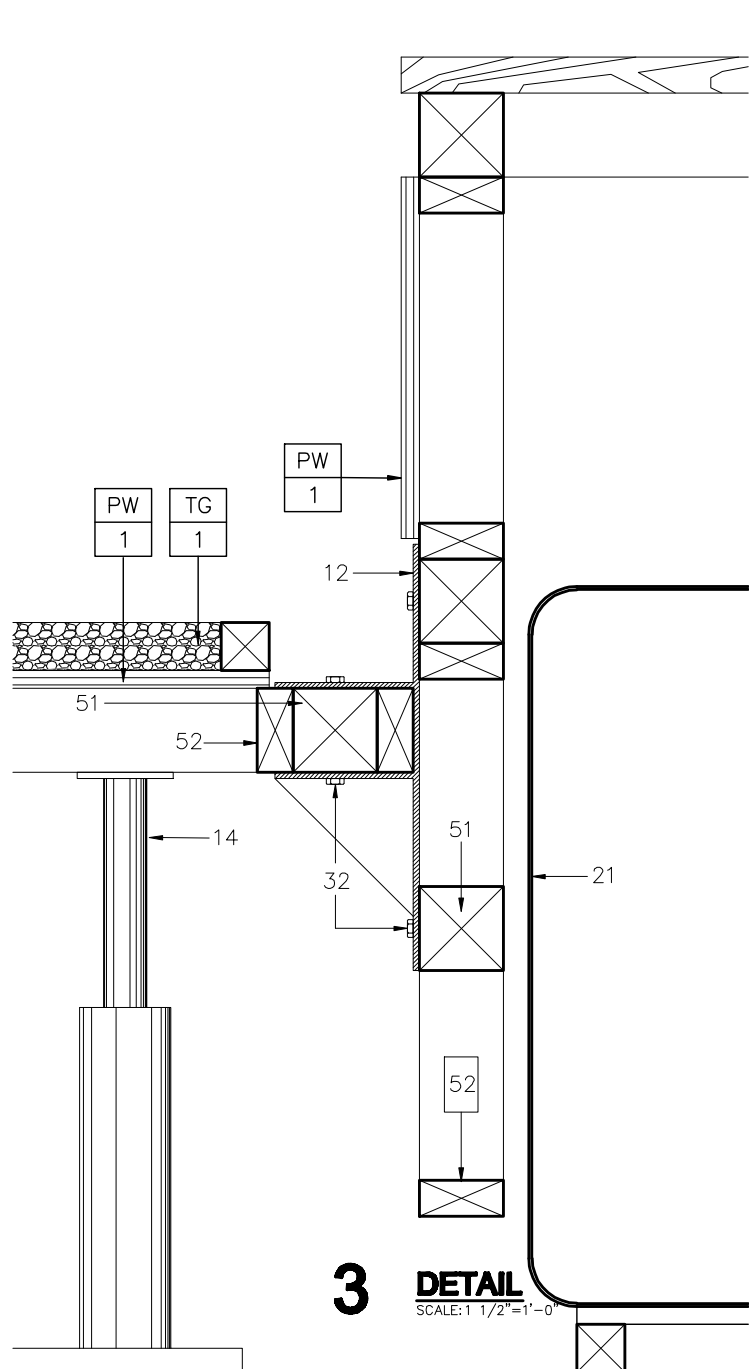
U DECK DETAILS
SCALE: 1/4"=1'-0"



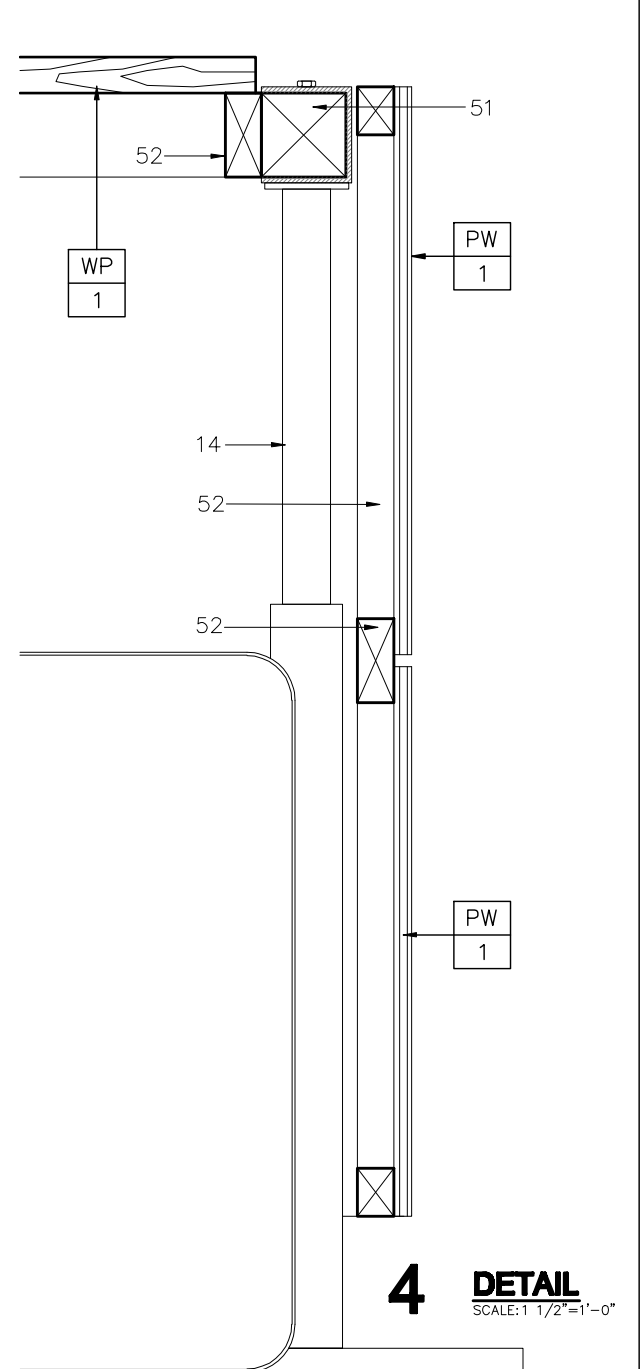
1 **DETAIL**
SCALE: 1 1/2"=1'-0"



2 **DETAIL**
SCALE: 1 1/2"=1'-0"



3 **DETAIL**
SCALE: 1 1/2"=1'-0"



4 **DETAIL**
SCALE: 1 1/2"=1'-0"



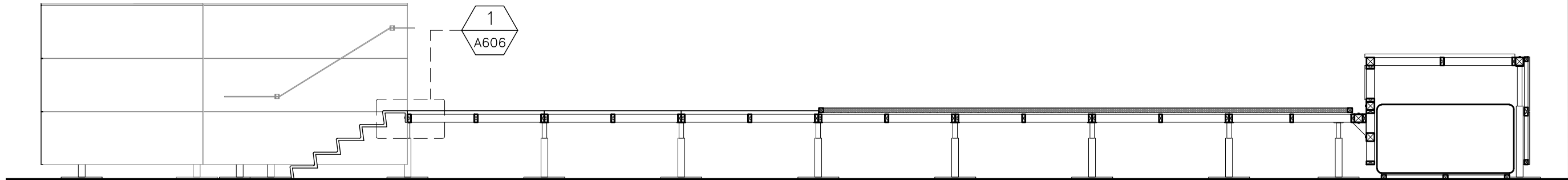
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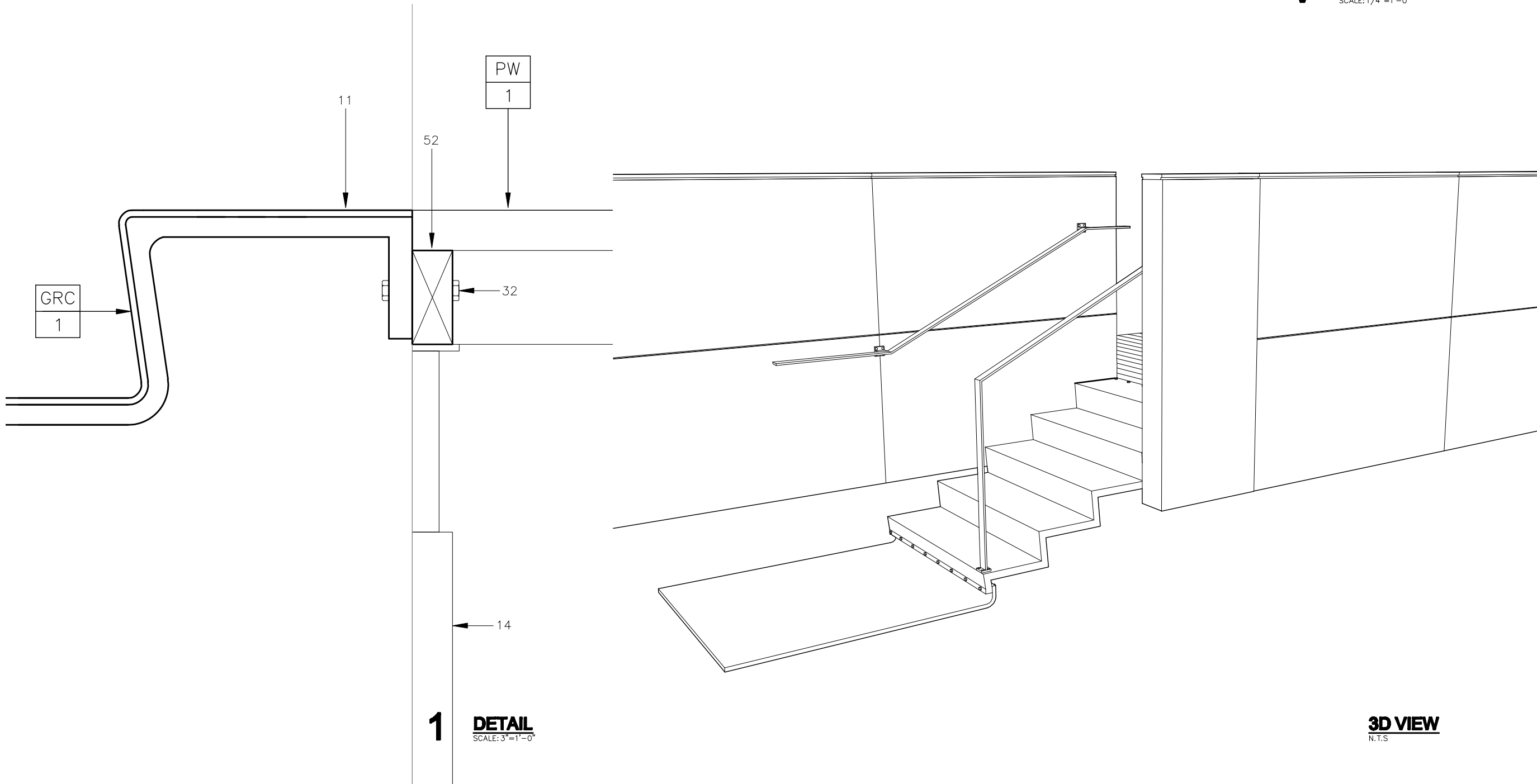
DECK DETAILS

DATE: JUN/01/07
NO. 55

A-605



V DECK DETAILS
SCALE: 1/4"=1'-0"



1 DETAIL
SCALE: 3"=1'-0"

3D VIEW
N.T.S

12'
8'
4'
3'
2'
1'

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DECK DETAILS

2007 SOLAR DECATHLON
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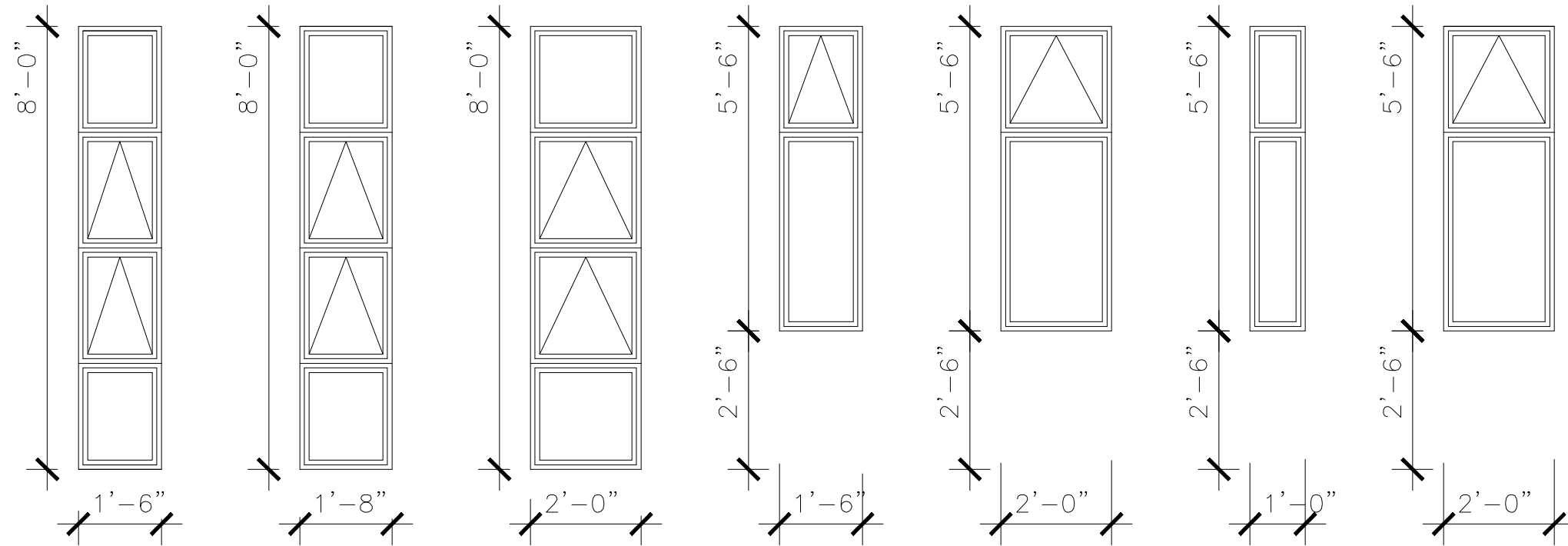
DATE: JUN/01/07
NO. 56

R O O M F I N I S H S C H E D U L E				
ROOM #	ROOM	FLOOR	WALLS	CEILING
<div><div></div></div>				
100	LIVING ROOM	PX-2	KW-1,GB-2,PX-1	GB-1
101	KITCHEN	PX-2	KW-1,GB-2,PX-1	GB-1
102	ENTRANCE	WP-1	KW-1,PB-1	—
103	CORRIDOR	PX-2	KW-1, 3F-1, 3F-2	SKYLIGHT
104	BATHROOM	GRC-1	3F-1, PB-1	GB-1
105	LAUNDRY	PX-2	3F-2, GB-2	GB-1
106	BATTERY CLOSET	PX-2	—	GB-1
107	BEDROOM	PX-2	KW-1,GB-2,PX-1	GB-1
108	MECHANICAL CLOSET	PX-2	KW-1,GB-2, R-1	GB-1
109	DECK	WP-1	PW-1, PW-2	—
110	RAMP	WP-1	R-1, KW-1, PB-1	—
111	ROCK GARDEN	TG-1	CWS-1, PW-2	—

E X T E R I O R F I N I S H E S S C H E D U L E				
MK	MATERIAL	MANUFACTURER	COLOR	DIMENSION
AL-1	ACRYLIC LEXAN SHEET	GENERAL ELECTRIC	FROSTED	—
CWS-1	FORMAWALL	CENTRIA	181 SLATE GRAY	—
CWS-2	FORMAWALL	CENTRIA	179 REGAL WHITE	—
PB-1	PLYCEM FIBER CEMENT BOARD	PLYCEM	WHITE	—
PB-2	PLYCEM FIBER CEMENT BOARD	PLYCEM	GRAY	—
PW-1	PLYWOOD PANEL	—	—	3/4”x4’x8’
PW-2	PLYWOOD PANEL	—	—	1/2”x4’x8’
S-1	SINTRA	—	BLACK	1’x3’x1/4”
TG-1	TUMBLED GLASS	—	—	—
WP-1	WOOD PLANKS	—	—	—

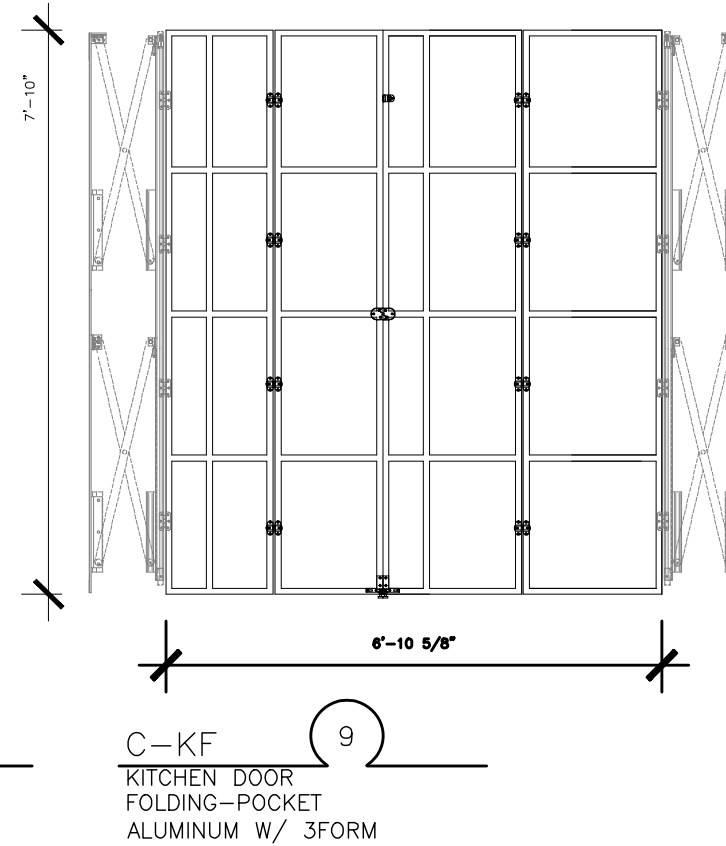
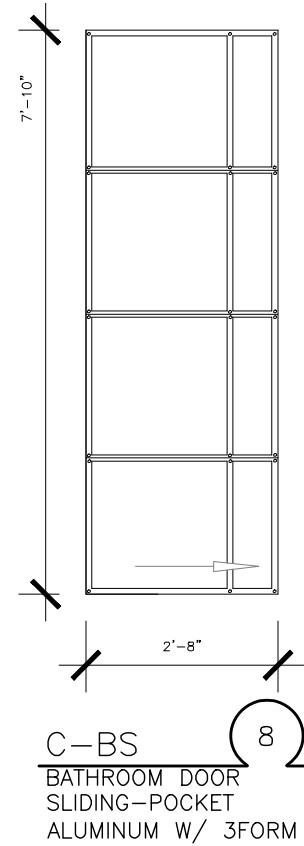
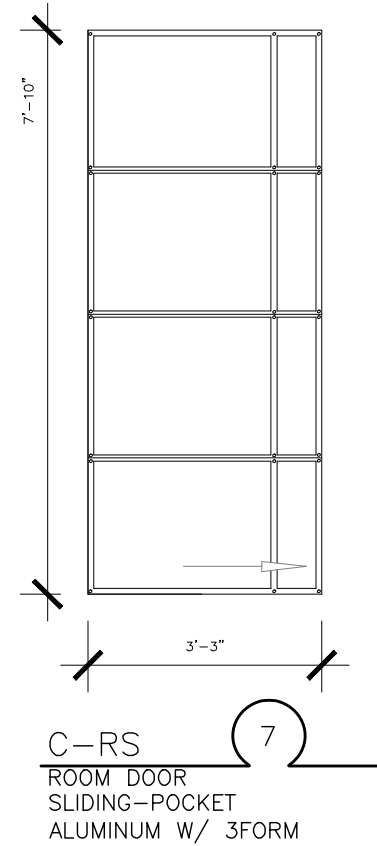
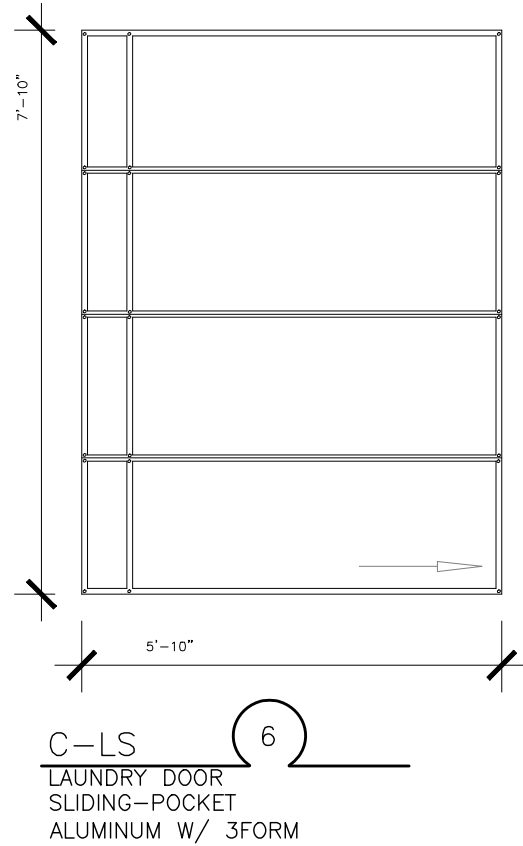
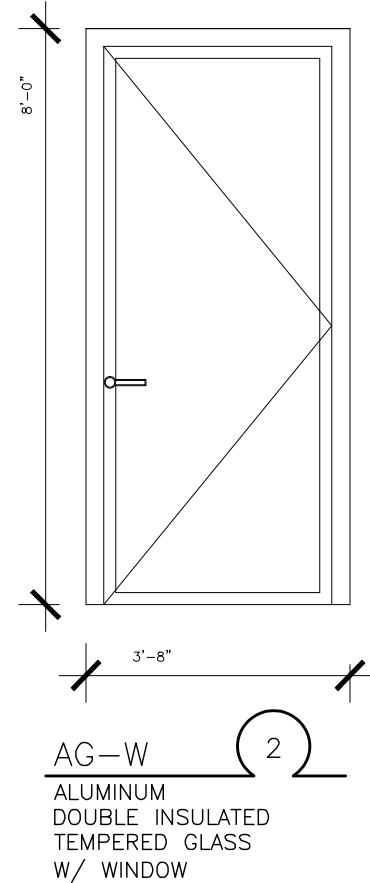
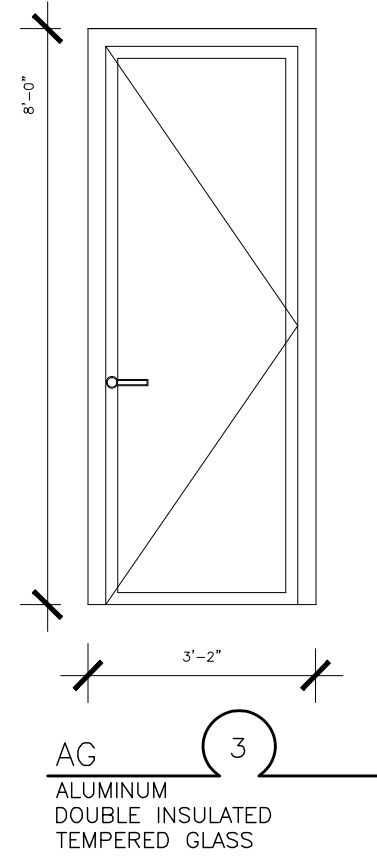
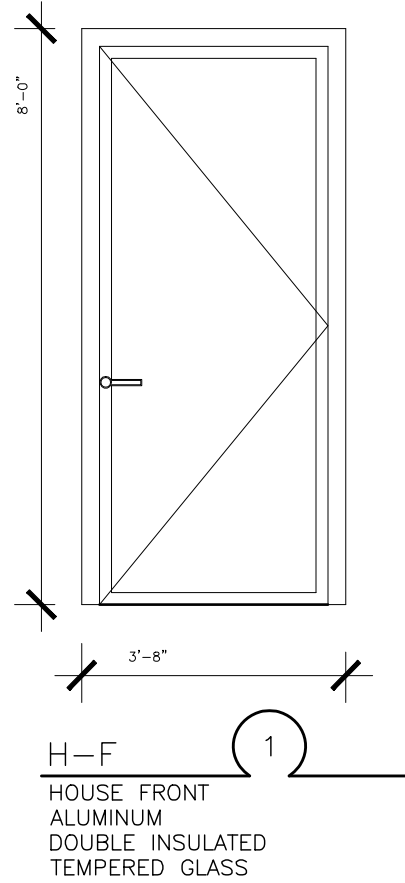
I N T E R I O R F I N I S H E S S C H E D U L E				
MK	MATERIAL	MANUFACTURER	COLOR	DIMENSION
3F-1	RENEWABLE MATTE PANEL	3 FORM	TRANSLUCENT ZIRCON	1/2”
3F-2	SOLID PANEL	3 FORM	ORANGE TANG	1/8”
3F-3	TRANSLUCENT PANEL	3 FORM	ORANGE TANG	1/8”
B-1	BAMBOO FLOORING	TERAGREN	CARAMELIZED FLAT GRAIN	7-11/16”x86-1/2”x5/8”
C-1	CORIAN ACRYLIC SURFACE	DUPONT	ICE WHITE	1”
GB-1	GYPSUM BOARD		WHITE	1/2”
GB-2	GYPSUM BOARD		GRAY	1/2”
GRC-1	GLASS REINFORCED CONCRETE	INNOVATIVE BUILDING SYSTEMS	—	1”
KW-1	KALWALL	STRUCTURES UNLIMITED	TRANSLUCENT	1’x8’0”x2-3/4”
PB-1	PLYCEM FIBER CEMENT BOARD	PLYCEM	WHITE	—
PX-1	PLEXWOOD	PLEXWOOD	—	1”
PX-2	PLEXWOOD	PLEXWOOD	—	—
WP-1	WOOD PLANKS	—	—	—





WINDOW  G
DOUBLE INSULATED
TEMPERED GLASS

WINDOW SCHEDULE											
TYPE	ROUGH OPENING		WINDOW UNIT		MATERIAL					QTY	COMMENTS
	WIDTH	HEIGHT	WIDTH	HEIGHT	WINDOW	FINISH	FRAME	FINISH	COLOR		
A	1'-6"	8'-0"	1'-6"	8'-0"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	1	
B	1'-8"	8'-0"	1'-8"	8'-0"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	2	
C	2'-0"	8'-0"	2'-0"	8'-0"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	4	
D	1'-6"	5'-6"	1'-6"	5'-6"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	1	
E	2'-0"	5'-6"	2'-0"	5'-6"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	4	
F	1'-0"	5'-6"	1'-0"	5'-6"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	1	
G	2'-0"	5'-6"	2'-0"	5'-6"	FIBERGLASS/T.GLASS	—	FIBERGLASS	—	WHITE	1	



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DOOR SCHEDULE

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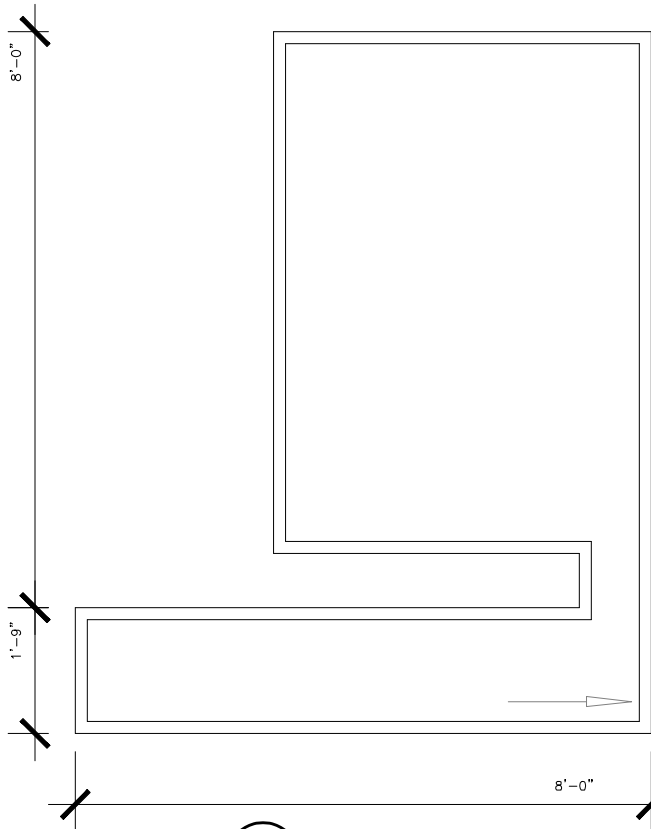
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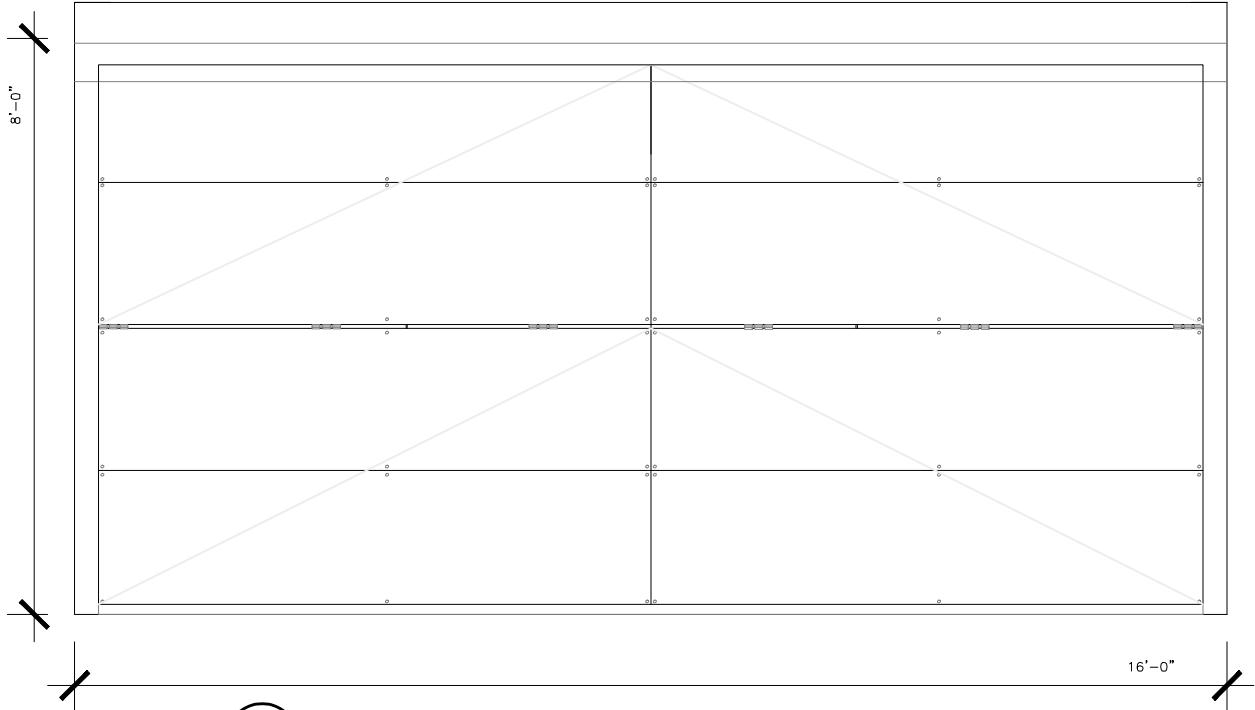
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DATE: JUN/01/07
NO. 59



HF-S
HOUSE FRONT
SLINDING DOOR



BC-D
BATTERY CLOSET DOOR
BI-FOLD SYSTEM
ALUMINUM W/ 3FORM
& LOUVER VENTS

DOOR SCHEDULE

DOOR SCHEDULE															
MRK'D	TYPE	DOOR									FRAME			QTY	COMMENTS
		NO. OF LEAVES	ACTIVE LEAF	ROUGH OPENING		DOOR		MATERIAL			MATERIAL				
				WIDTH	HEIGHT	WIDTH	HEIGHT	DOOR	FINISH	COLOR	FRAME	FINISH	COLOR		
1	H-F	1	1	3'-8"	8'-0"	3'-4"	7'-10"	FIBERGLASS/T.GLASS	—	WHITE	FIBERGLASS	—	WHITE	1	
2	AG-W	1	1	3'-8"	8'-0"	3'-4"	7'-10"	FIBERGLASS/T.GLASS	—	WHITE	FIBERGLASS	—	WHITE	1	W/ WINDOW 
3	AG	1	1	3'-2"	8'-0"	2'-10"	7'-10"	FIBERGLASS/T.GLASS	—	WHITE	FIBERGLASS	—	WHITE	2	
4	BC-D	2	2	16'-0"	8'-0"	16'-10"	7'-10"	ALUMINUM	3FORM	ORANGE	ALUMINUM	—	—	1	
5	HF-S	1	1	0'-6"	8'-0"	8'-0"	10'-3"	ALUMINUM	—	—	ALUMINUM	—	—	1	CUSTOM
6	C-LS	1	1	4'-10"	8'-0"	5'-10"	7'-10 "	ALUMINUM	3FORM	ORANGE		—		1	
7	C-RS	1	1	3'-0"	8'-0"	3'-3"	7'-10 "	ALUMINUM	3FORM	ORANGE		—		1	
8	C-BS	1	1	2'-5"	8'-0"	2'-8"	7'-10 "	ALUMINUM	3FORM	ORANGE		—		1	
9	C-KF	4	4			6'-10 5/8"	7'-10 "	ALUMINUM	3FORM	ORANGE		—		1	

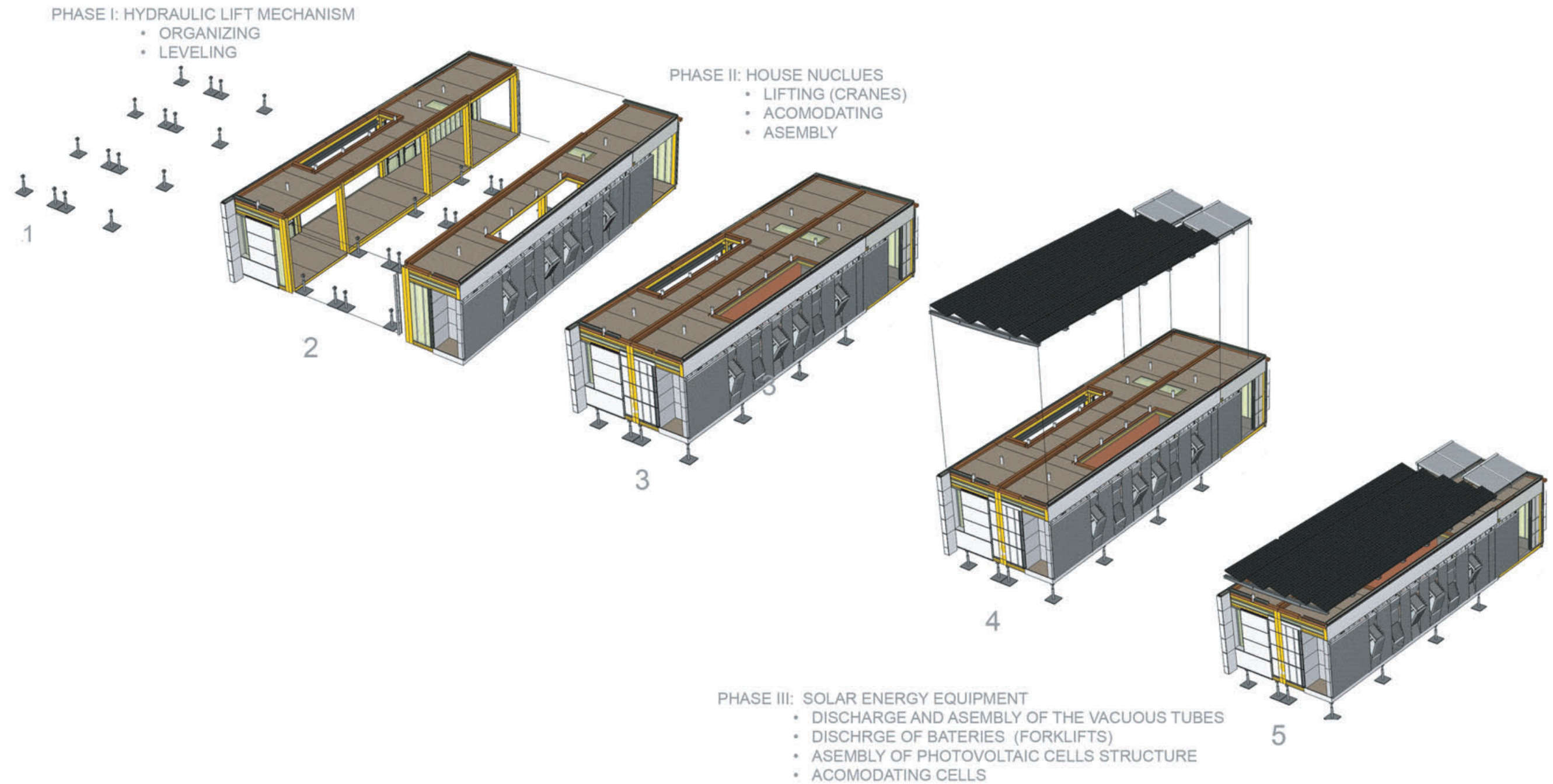


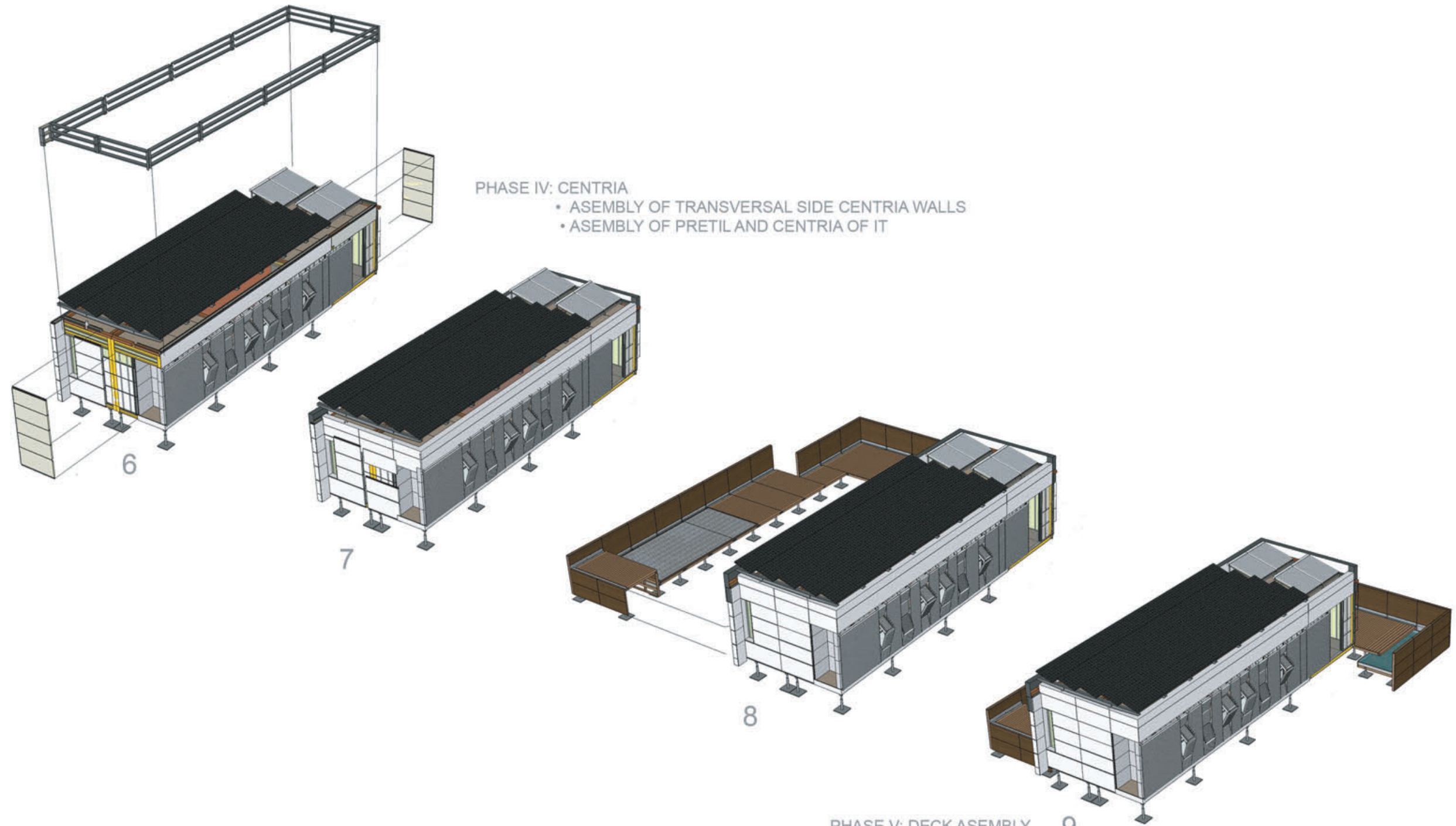
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NO. 60



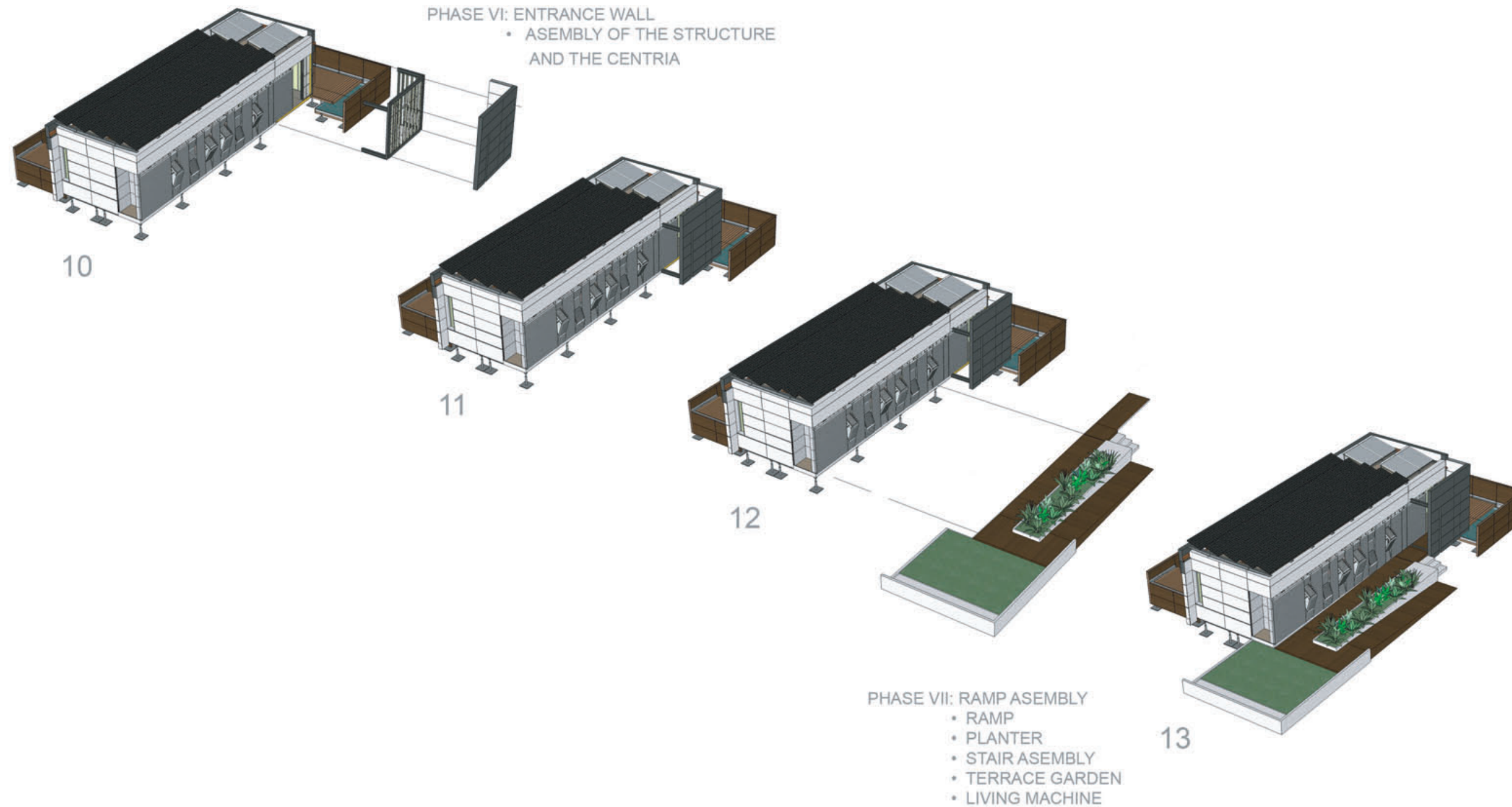


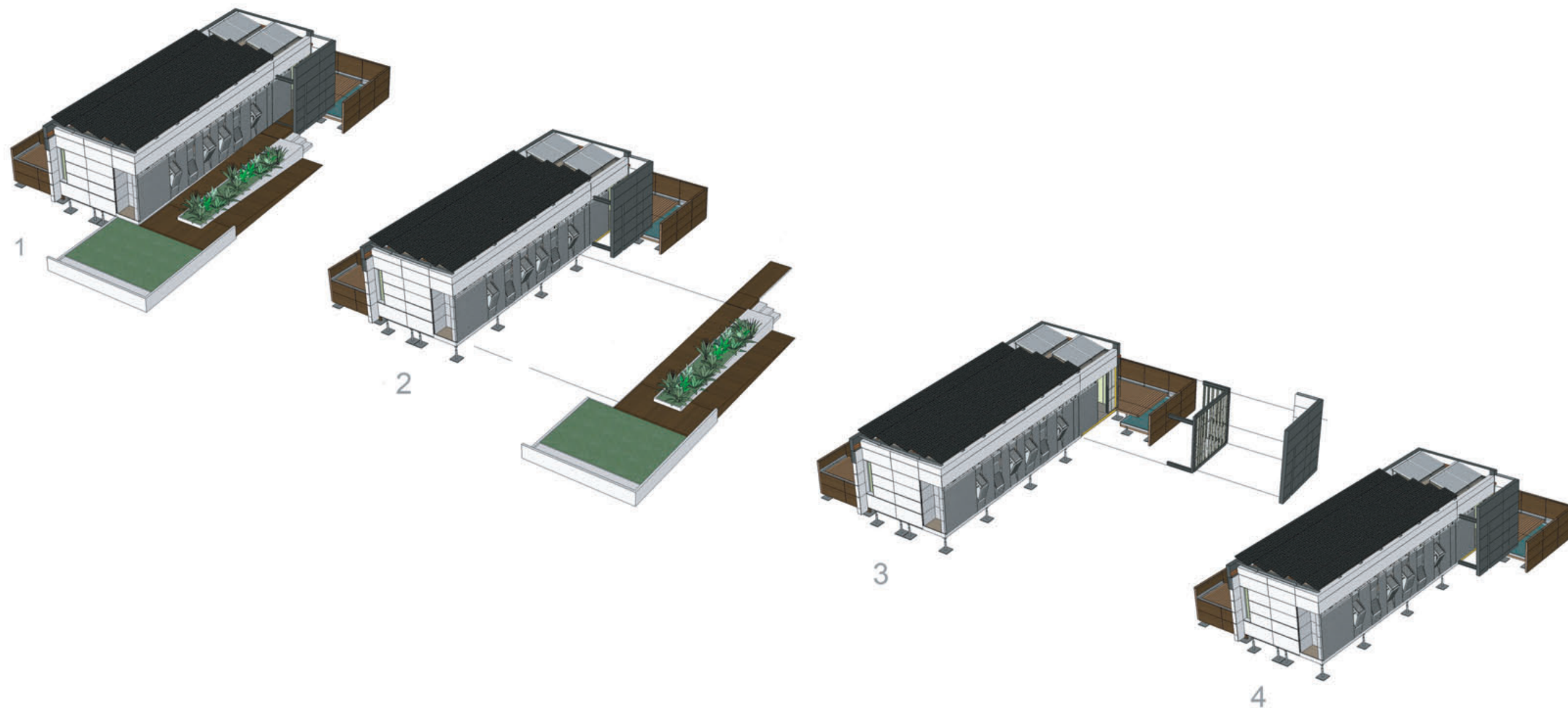
PHASE IV: CENTRIA

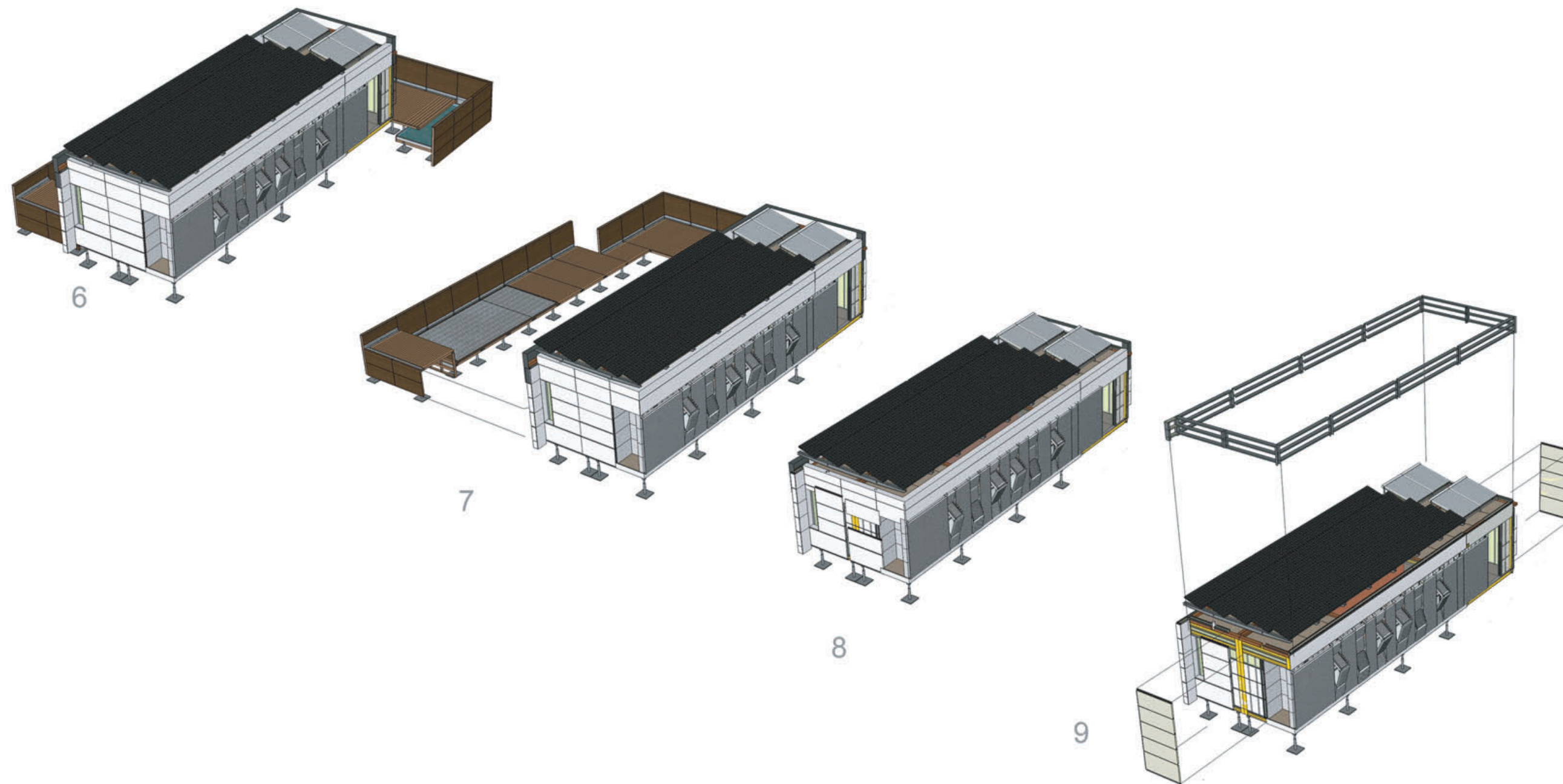
- ASEMBLY OF TRANSVERSAL SIDE CENTRIA WALLS
- ASEMBLY OF PRETIL AND CENTRIA OF IT

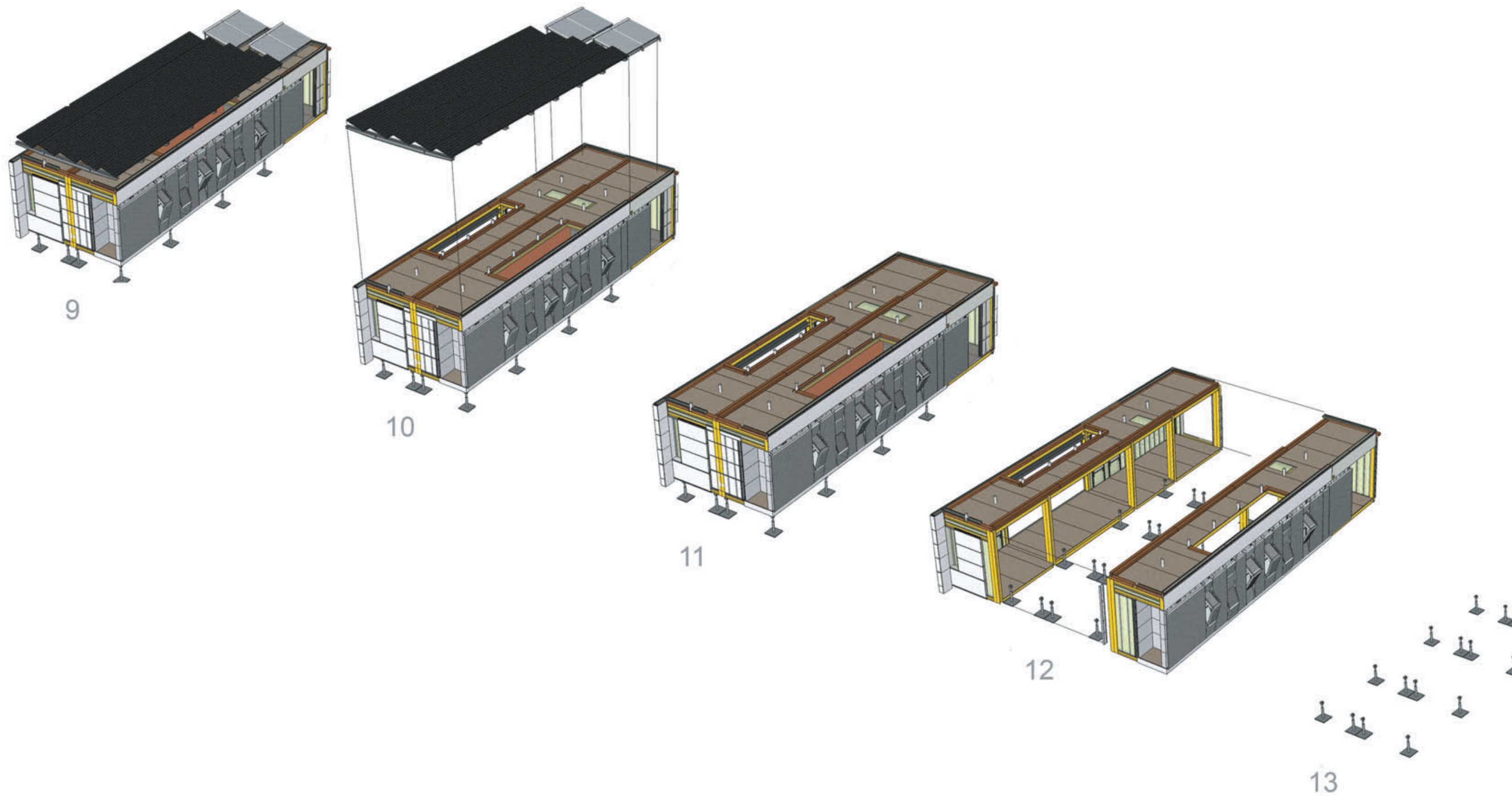
PHASE V: DECK ASEMBLY

- DECK
- STAIR
- ROCK GARDEN
- TO PLANT TREE THAT GOES IN IT
- REFLECTING POND







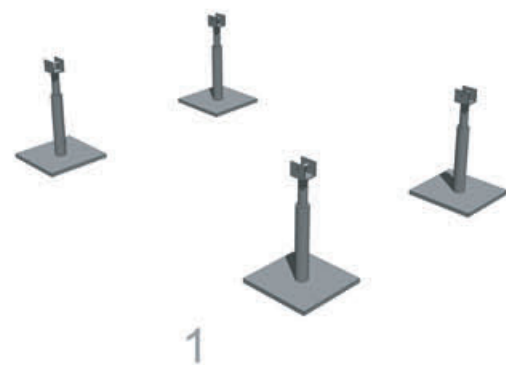


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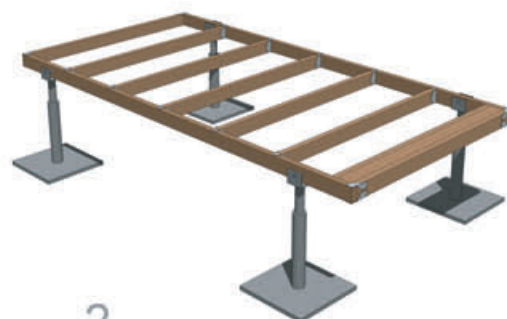
DISASSEMBLY PROCESS

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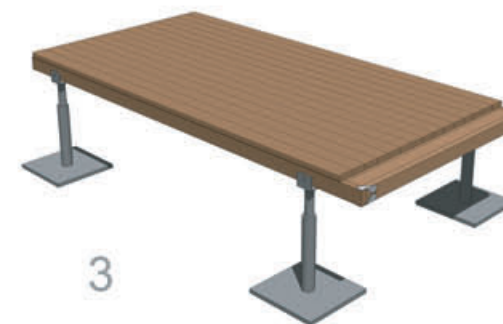
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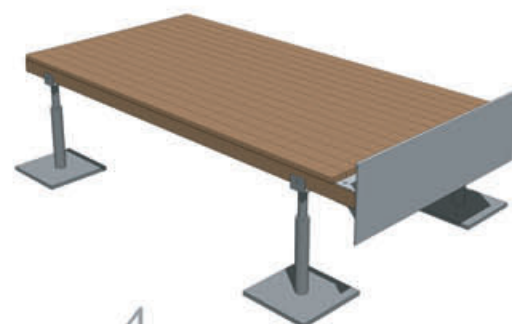
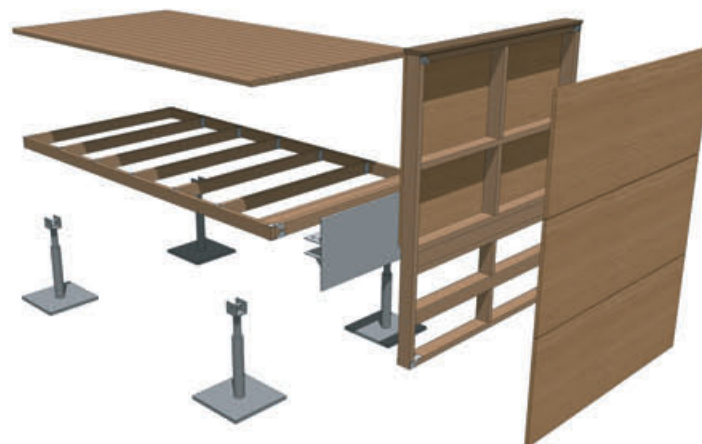
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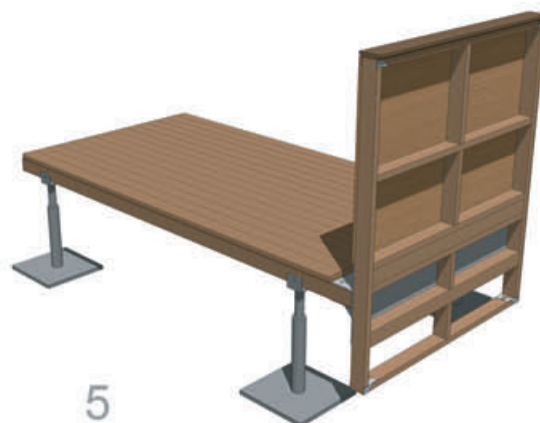
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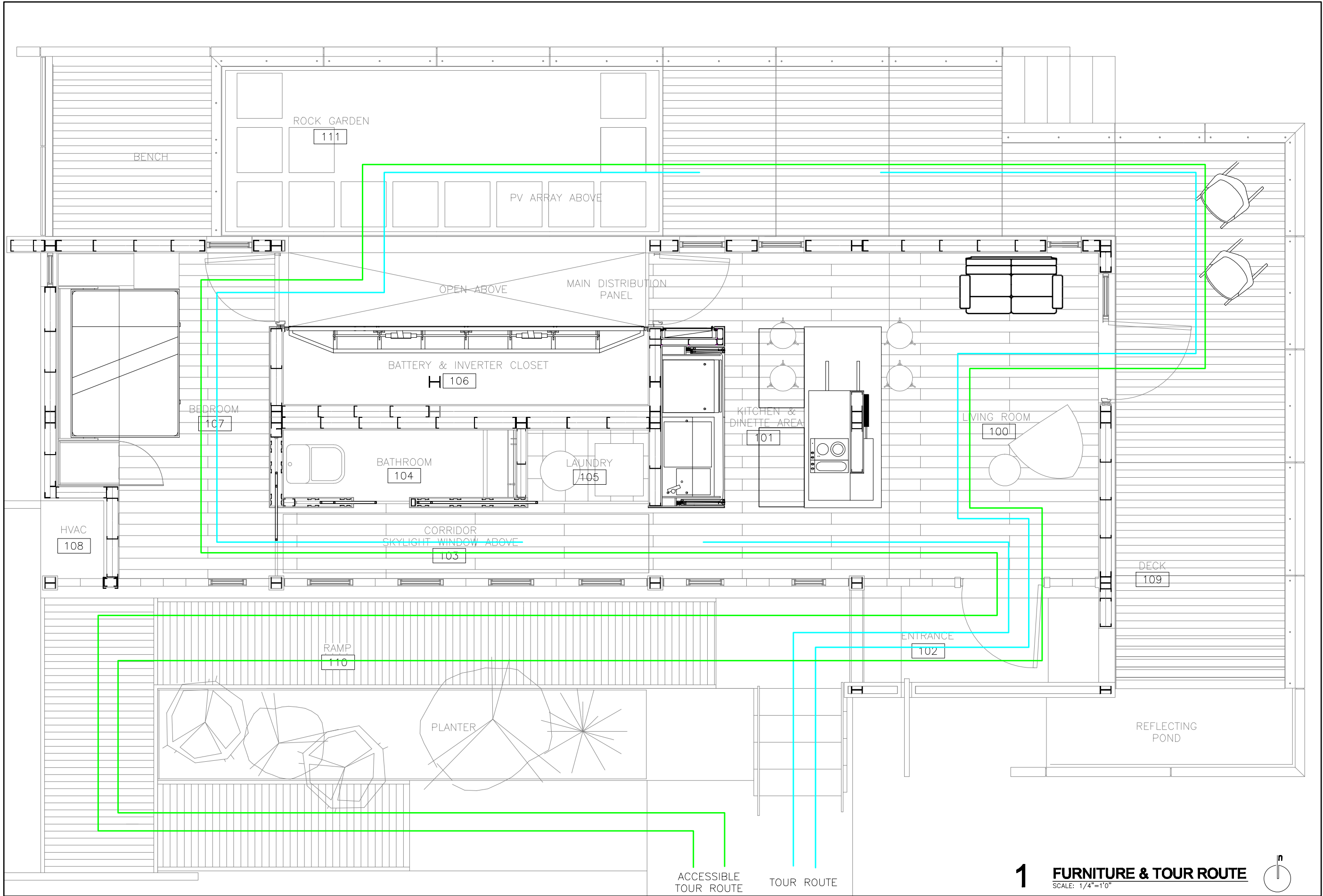


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6

DECK MODULE



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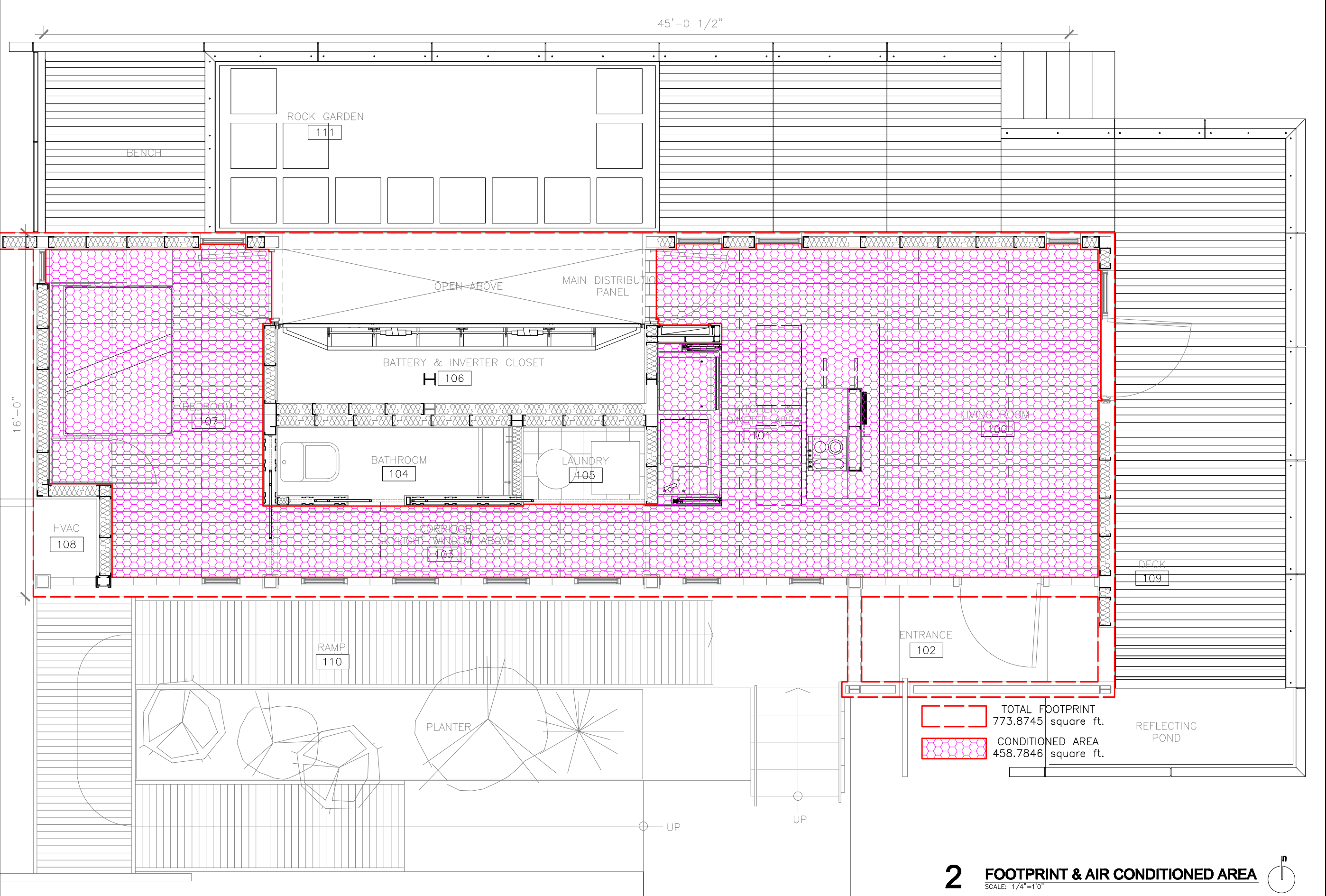
DATE: JUN/01/07
NO. 69

A-901

12'
8'
4'
3'
2'
1'

1 FURNITURE & TOUR ROUTE
SCALE: 1/4"=1'0"





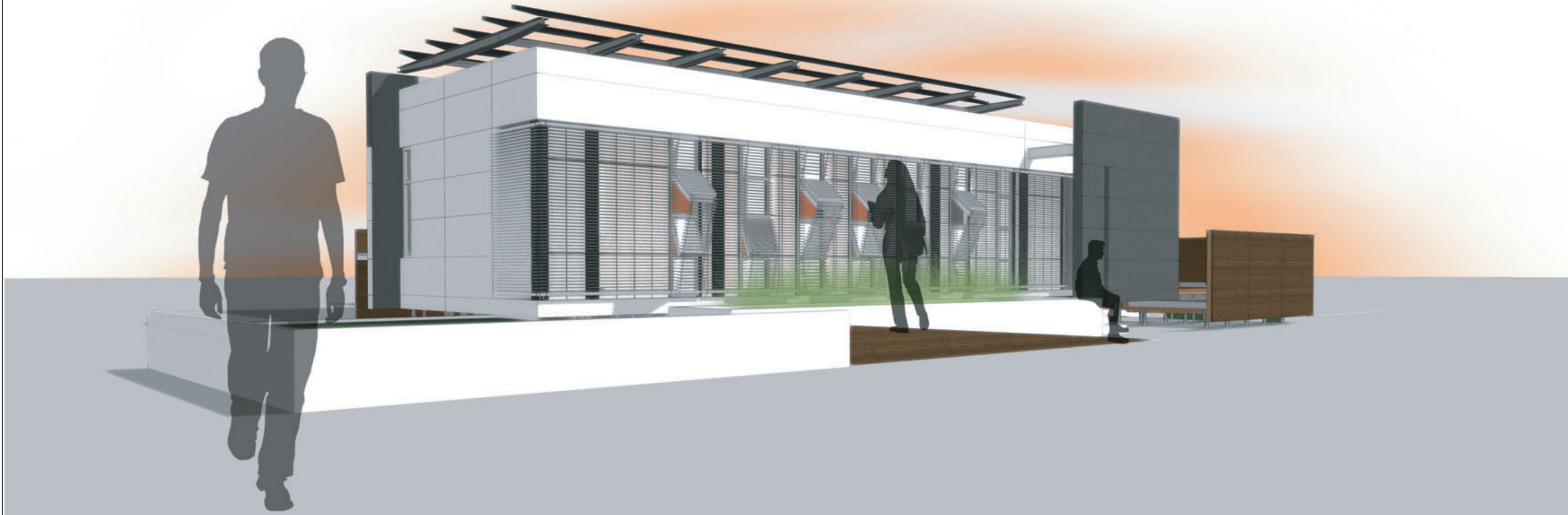
12'
8'
4'
3'
2'
1'

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FOOTPRINT / AIR CONDITIONED AREA

DATE: JUN/01/07
NO. 70

A-902



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PERSPECTIVE VIEW

DATE: MAR/06/07
NO. 2
OF 2

1 EXTERIOR

P-101



2 EXTERIOR



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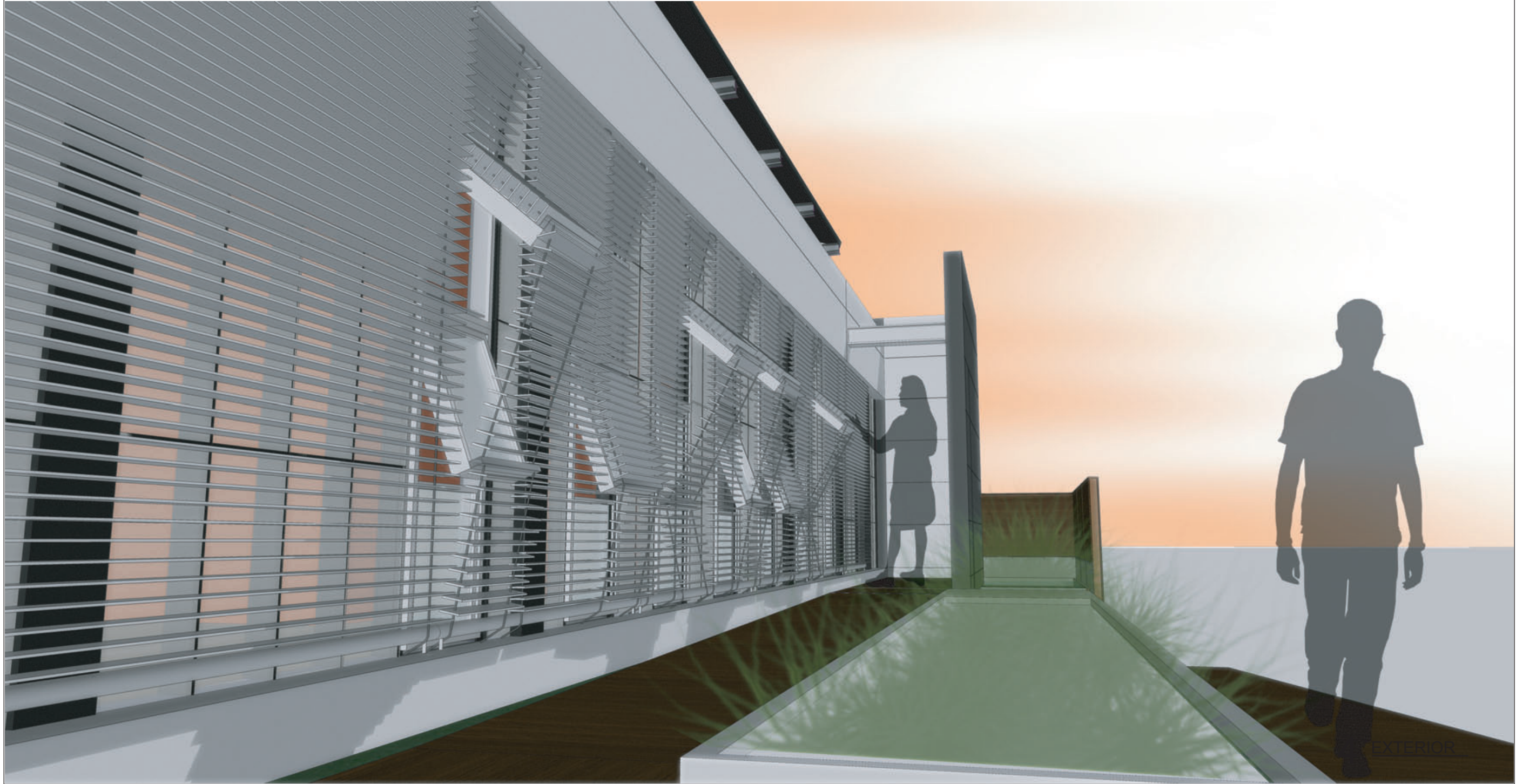
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DATE: MAR/06/07
NO. 2
OF 2

P-102





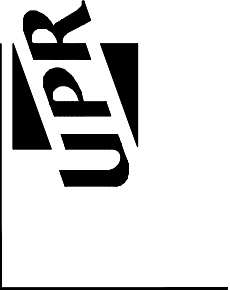
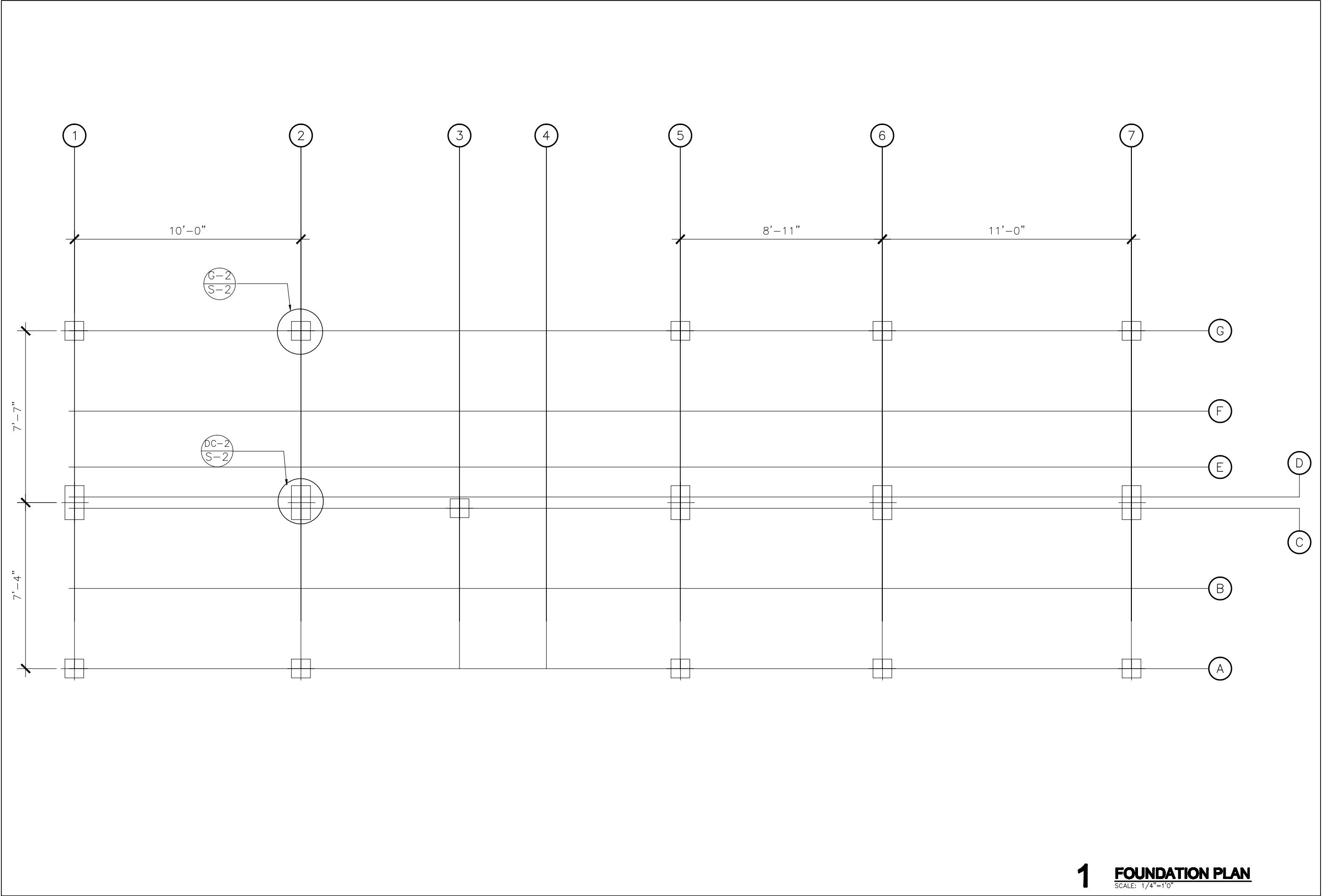
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P-104



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FOUNDATION PLAN

DATE: JUN/01/07
NO. 75



1 **FOUNDATION PLAN**
SCALE: 1/4"=1'0"

STRUCTURAL NOTES

GENERAL:

- 1 - UNLESS OTHERWISE INDICATED, THESE NOTES APPLY TO ALL STRUCTURAL DRAWINGS OF THIS SET OF PLANS.
- 2 - IN CASE OF DISCREPANCY BETWEEN THESE NOTES AND THE CONSTRUCTION DRAWINGS, SPECIFICATIONS OR ANY REFERRED STANDARD, THE MORE RESTRICTIVE PROVISION SHALL APPLY.
- 3 - STRUCTURAL DRAWINGS SHALL BE COORDINATED AND SUPPLEMENTED BY ARCHITECTURAL, ELECTRICAL, MECHANICAL AND ANY OTHER BUILDING DRAWINGS.
- 4 - CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND BEFORE ORDERING ANY MATERIAL. DIFFERENCES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF ENGINEER AND NO ACTION SHALL BE TAKEN UNTIL APPROVED BY ENGINEER.
- 5 - CONTRACTOR SHALL SUBMIT FOR APPROVAL ANY DETAIL OR DIMENSION THAT IS OMITTED OR NOT SPECIFICALLY SHOWN ON PLANS.
- 6 - CONTRACTOR SHALL PROTECT ALL PROPERTY FROM DAMAGE. ANY DAMAGED PROPERTY SHALL BE PROMPTLY REPLACED BY EQUAL AND/OR BETTER QUALITY.
- 7 - ALL CONSTRUCTION, DEMOLITION AND / OR EXCAVATION WORK SHALL BE PERFORMED IN SUCH A WAY AS NOT TO IMPAIR THE SAFETY OF ADJOINING EXISTING STRUCTURES.
- 8 - ALL SOIL BELOW NEW FOOTINGS SHALL BE COMPACTED IN 8 INCHES THICK LAYERS AND EACH LAYER SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM SPECIFICATION D-1557).

FIBERGLASS REINFORCED POLYMER (FRP):

- 1 - FRP SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:
FRP BEAMS ULTIMATE FLEXURAL STRESS 30,000 PSI
ALLOWABLE FLEXURAL STRESS 12,000 PSI
ALLOWABLE SHEAR STRESS=1500 PSI
MODULUS OF ELASTICITY E=2,500,000 PSI

FRP COLUMNS ULTIMATE COMPRESSIVE STRESS <30,000 PSI
SHORT COLUMN MODE $F_u=0.5E/(b/t)^2 \times 1.5$
LONG COLUMN MODE $F_u=4.9E/(kl/r)^2 \times 1.7$
- 2. STRUCTURAL SHAPES SHALL BE MADE OF ISOPHTHALIC POLYESTER WITH FIRE RETARDANT
- 3 - CONTRACTOR SHALL SUPPLY, ASSEMBLY AND CONSTRUCT ALL STEEL ELEMENTS CALLED FOR IN THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL ALSO SUBMIT FOR APPROVAL SHOP DRAWINGS OF ALL STRUCTURAL STEEL, JOINT PLATES, INSERTS AND FITTINGS BEFORE ORDERING IT.
- 3 - THE REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL IN NO CASE RELIEVE CONTRACTOR OF RESPONSIBILITIES FOR ERRORS, OMISSIONS, FURNISHINGS OF UNSUITABLE MATERIALS AND TIME DELAYS ARISING DIRECTLY FROM A DIVERSION FROM PLANS AND SPECIFICATIONS BROUGHT BY THE CONTRACTOR IN THE SHOP DRAWINGS.
- 4 - COMBINED MECHANICAL AND ADHESIVE JOINTS WILL BE USED
THREADED ROD AND NUTS WILL BE FIBREBOLT
- 6 - CONNECTIONS, WHEN NOT SHOWN ON PLANS, SHALL BE DESIGNED TO TRANSMIT THE MAXIMUM STRESS ALLOWED FOR THE CONNECTED MEMBERS.
- 7 - THE ERECTION OF FRP STRUCTURAL ELEMENTS SHALL STRICTLY FOLLOW SPECIFICATIONS INCLUDED WITH THE CONSTRUCTION DRAWINGS
- 8 - DIMENSIONS OF FRP STRUCTURAL ELEMENTS SHALL BE WITHIN THE DIMENSIONAL TOLERANCES SET FOR FORTH IN SECTION 6 OF THE CODE OF STANDARD PRACTICE OF THE STRONGWELL MANUAL OF FRP CONSTRUCTION.
- 9 - NO LOADS SHALL BE PLACED OVER ANY STEEL STRUCTURE UNTIL ALL STUDS, PURLINS, BEAMS, FRP PURLINS AND COLUMNS ARE PROPERLY BRACED.
- 10 - ALL FRP ROOF MEMBERS SHALL RECEIVE ONE SHOP COAT OF PRIMER THAT SHALL BE APPROVED BY ENGINEER OR ARCHITECT
- 11 - DESIGN, FABRICATION AND ERECTION OF FRP STRUCTURAL ELEMENTS SHALL BE IN ACCORDANCE WITH STRONGWELL MANUAL CONSTRUCTION
- 12 - MATERIAL SHALL MEET THE REQUIREMENTS OF THE FOLLOWING :
STRUCTURAL SHAPES AND PLATES SHALL BE MADE FROM ISOPHTHALIC POLYESTER OR VINYL ESTER RESIN WITH FIRE RETARDANT ADDITIVES TO MEET A FLAME RATING OF LESS THAN 25 PER ASTM E-84 AND MEET THE SELF EXTINGUISHING REQUIREMENTS OF ASTM D-635.
ALL MEMBERS SHALL CONTAIN A U.V. INHIBITOR
- 13 - ALL SHOP CONNECTIONS SHALL BE MADE WITH MECHANICAL AND ADHESIVE CONNECTIONS

- 16 - DESIGN LOADS ARE AS FOLLOWS:
LIVE LOAD
FLOORS: ALL FLOORS, RAMPS,DECKS 50 PSF MIN., ROOF=20 PSF., HALLWAYS=100 PSF
- 17 - SNOW LOADS: 20 PSF
- 18 - THE CONTRACTOR SHALL SUPPLY ALL TEMPORARY BRACING REQUIRED TO MAINTAIN PLUMBNESS AND STABILITY DURING ERECTION. BRACING SHALL NOT BE REMOVED UNTIL ALL PERMANENT BRACING HAS BEEN INSTALLED, ALL WELDING HAS BEEN COMPLETED, ALL BOLTS HAVE BEEN PROPERLY TIGHTENED, AND TOP SUPPORTING ROOF DECK AND CONCRETE FLOOR SLAB HAVE BEEN PROPERLY PLACED.
- 19 - NO OPENINGS SHALL BE CUT IN STRUCTURAL MEMBERS UNLESS SHOWN ON THE DRAWINGS, OR APPROVAL IS RECEIVED FORM THE ENGINEER.
- 20 - ALL ELEVATIONS ARE GIVEN WITH RESPECT TO FINISH FIRST FLOOR DATUM ELEVATION: (REF. ELEV. 0'-0").
- 21 - PROVISIONS FOR DETAILS NOT SPECIFICALLY DRAWN SHALL BE MADE BY THE CONTRACTOR IN ACCORDANCE AISC SPECIFICATIONS AND CLARIFIED WITH THE DESIGNER.
- 22- MINIMUM FRP THICKNESS FOR ALL CONNECTIONS, STIFFENER PLATES ETC., SHALL BE 3/8 ".
- 23 - WORKING POINTS FOR VERTICAL BRACING SHALL BE AT INTERSECTION OF CENTERLINE OF COLUMN AND CENTERLINE OF BEAMS (U.N.O) ON DWGS.
- 24 - STAIRWAY AND PLATFORMS SHALL COMPLY WITH THE DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH STANDARDS AND ALL APPLICABLE LOCAL AND STATE CODES.
- 25 - GRATING WHEN APPLICABLE, SHALL BE ALL WELDED OPEN CONSTRUCTION, WITH 1 1/4 " x 3/16 " BEARING BARS ON 1 3/16 " O.C. (U.N.O). GRATING SHALL BE FRP OR AS OTHERWISE NOTED. GRATING SHALL BE SECURED TO SUPPORTING MEMBERS WITH SADDLE CLIPS. PROVIDE 2" CLEARANCE AROUND ALL EQUIPMENT, TANKS, ETC., THAT PENETRATE GRATING FLOORS. BAND ALL GRATING OPENINGS 8" AND LARGER WITH 1/4 " x 5 1/4 " PLATE ADHESIVE BONDED TO GRATING AND EXTENDING 4" ABOVE TOP SURFACE OF GRATING.
- 26 - HANDRAILS SHALL BE FRP MEMBERS UNLESS OTHERWISE SPECIFIED 1 1/2" NOMINAL DIA. STANDARD FRP PIPE, REFER TO DETAILS IN ARCHITECTURAL DRAWING.
- 27 - GROUT SHALL BE NON-SHRINK, NON-METALLIC, SIKA GROUT BY SIKA CORP OR APPROVED FOR PURPOSE REQUESTED. A/E SHALL APPROVE TYPE PRIOR TO USE.
- 28 - FLOOR PLYWOOD SHALL BE 3/4" THICKNESS, PAINTED AND SHALL BE ATTACHED TO SUPPORTING PURLINS BY FASTERNES AT 6" OC. SPACING

CODES:

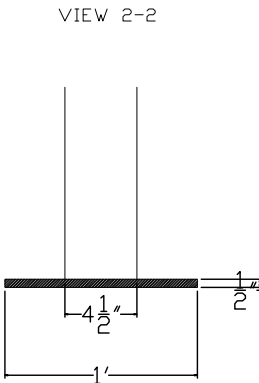
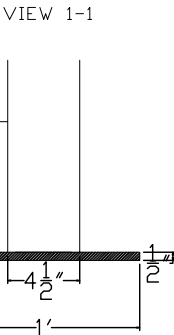
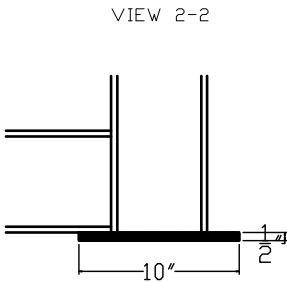
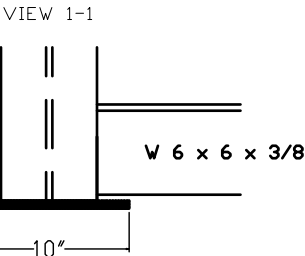
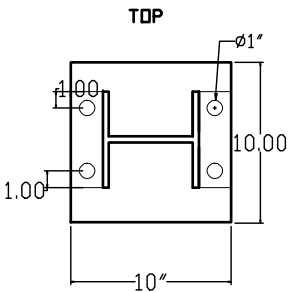
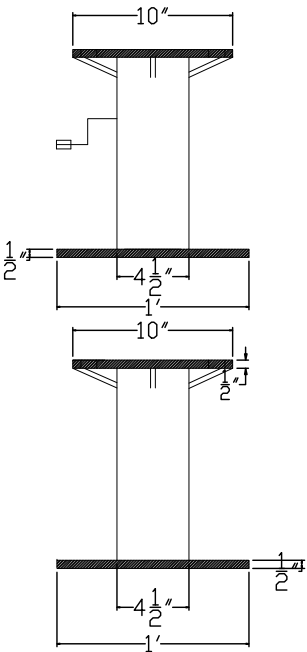
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SOLAR DECATHLON 2007 RULES AND REGULATIONS

ABBREVIATIONS:

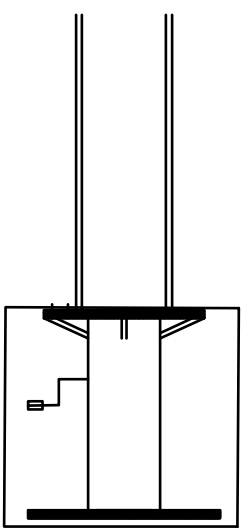
ADD.....ADDITIONAL
B.....BOTTOM
E.W.....EACH WAYS
C.C.....CENTER TO CENTER
CL.....CLEAR
COL.....COLUMN
CONC.....CONCRETE
CONST.....CONSTRUCTION
CONT.....CONTINUOUS
C.S.....CARBON STEEL
DTL.....DETAIL
DWG.....DRAWING
EA.....EACH
E.E.....EACH END
ELEV.....ELEVATION
F.B.E.....FOOTING BOTTOM ELEVATION

F.F.E.....FINISH FLOOR ELEVATION
FT.....FEET
FRP.....FIBERGLASS REINFORCED POLYMER
L.G.....LONG
L.L.....LOWER LAYER
MAX.....MAXIMUM
MECH.....MECHANICAL
MIN.....MINIMUM
REINF.....REINFORCEMENT
SPECS.....SPECIFICATIONS
S.S.....STAINLESS STEEL
STD.....STANDARD
STL.....STEEL
SUP.....SUPPLEMENTARY
T.....TOP
TYP.....TYPICAL
U.N.O.....UNLESS NOTED OTHERWISE

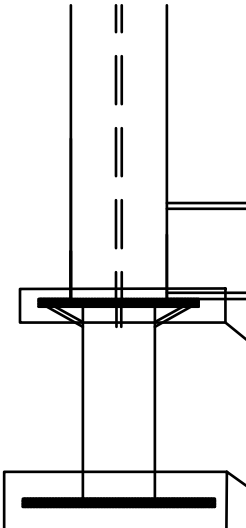
DETAIL E-4
JACK 2" SQUARE TUBE



FRONT VIEW



SIDE VIEW



SEE DETAIL E-4

SEE DETAIL E-1

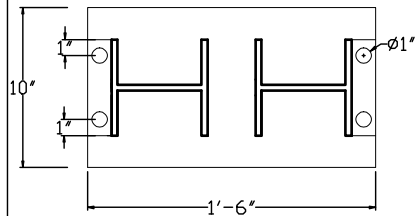
SEE DETAIL E-2

DETAIL

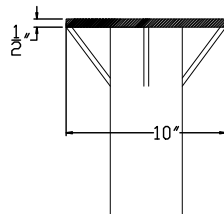
DC-2
S-2

DETAIL E-11 PLATE FROM JACK TO HOUSE COLUMN
10" x 18"

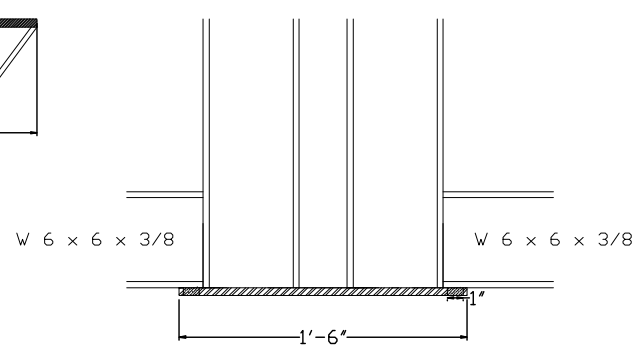
Top View



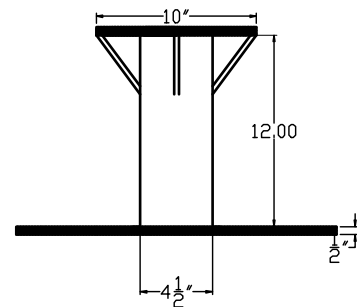
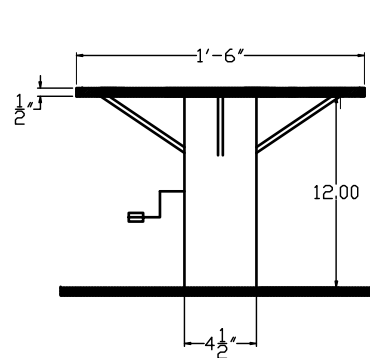
VIEW 2-2



VIEW 1-1

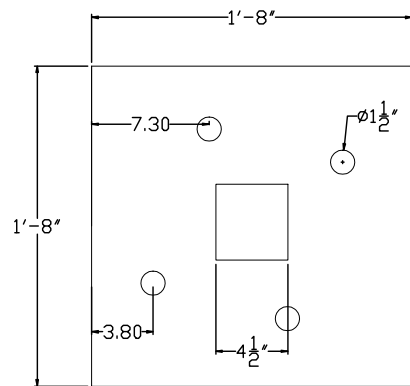


DETAIL E-14 JACK 4.5' SQUARE TUBE

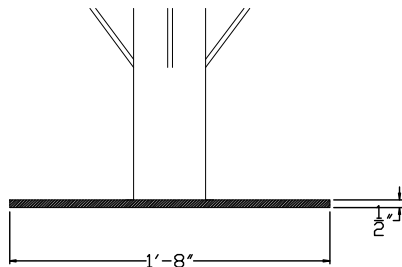


DETAIL E-12

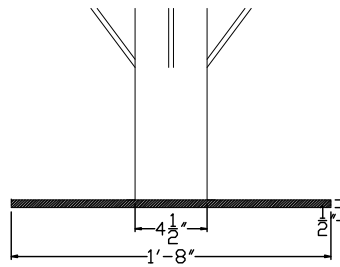
Top View



VIEW 2-2

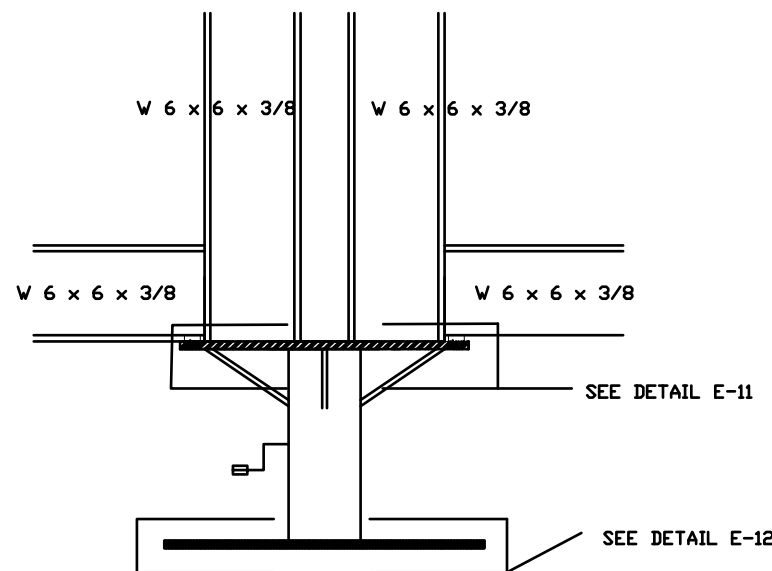


VIEW 1-1

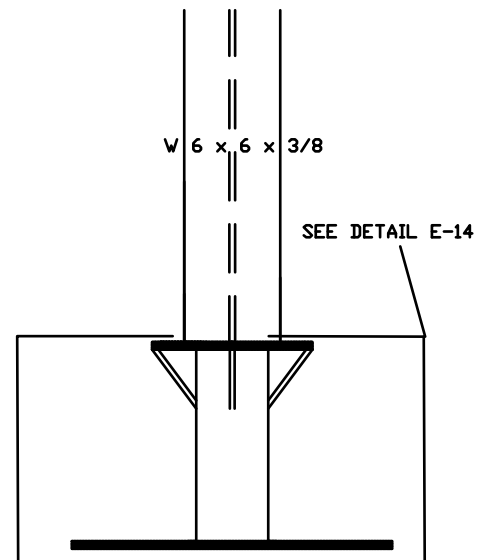


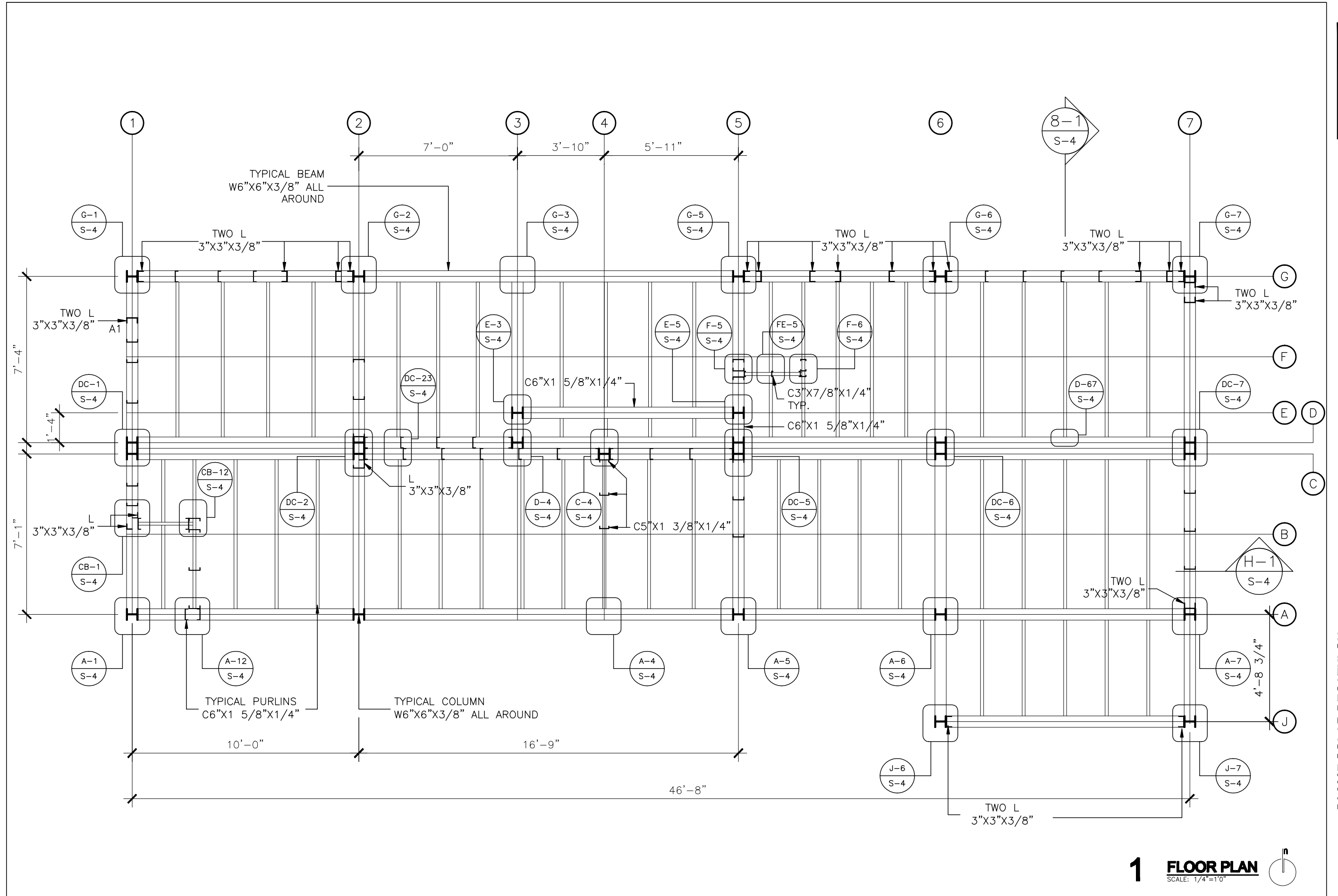
FOUNDATION PLATE
20" x 20"

FRONT VIEW



SIDE VIEW





1 FLOOR PLAN
SCALE: 1/4"=1'0"

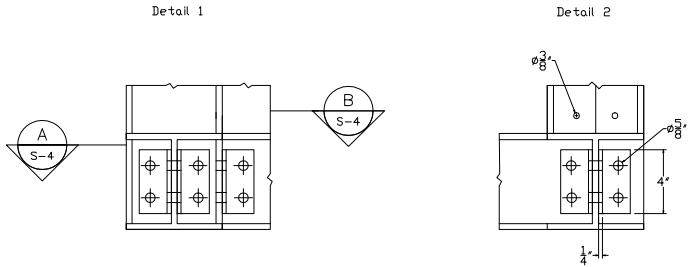
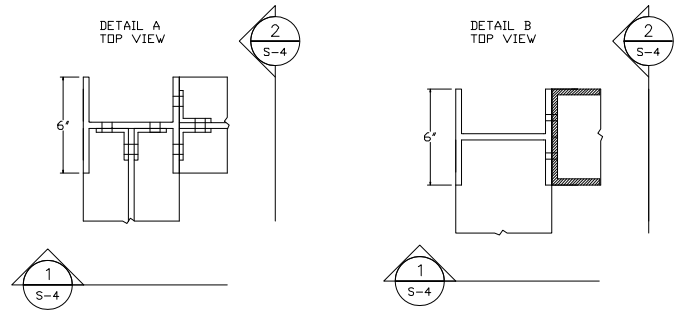
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STRUCTURAL PLAN

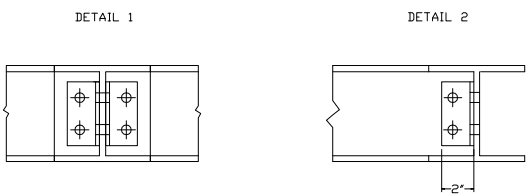
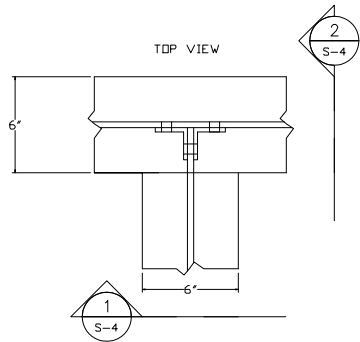
ISSUE/REVISIONS

DATE: MAR/06/07
NO. 77
OF 114

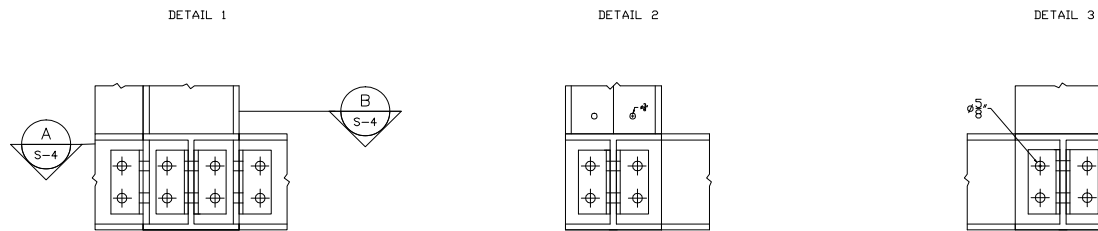
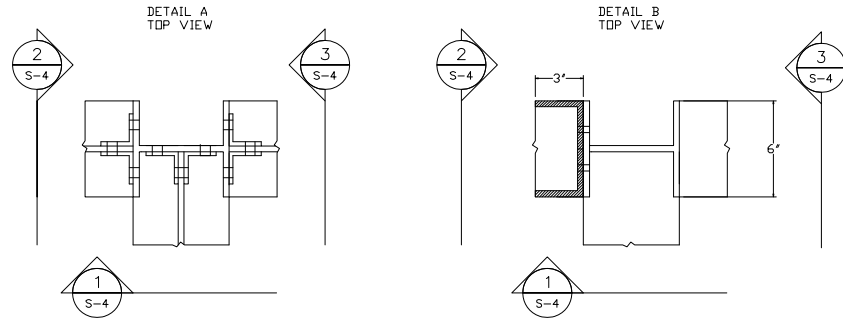
DETAIL G-1



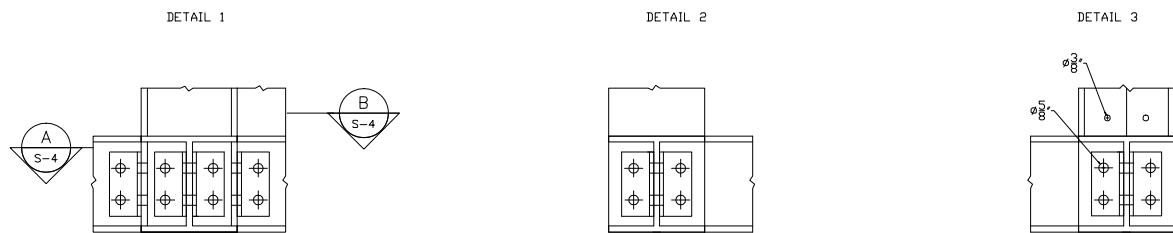
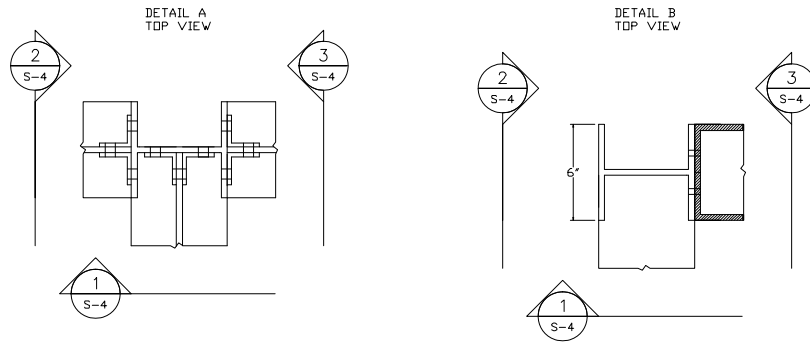
DETAIL G-3



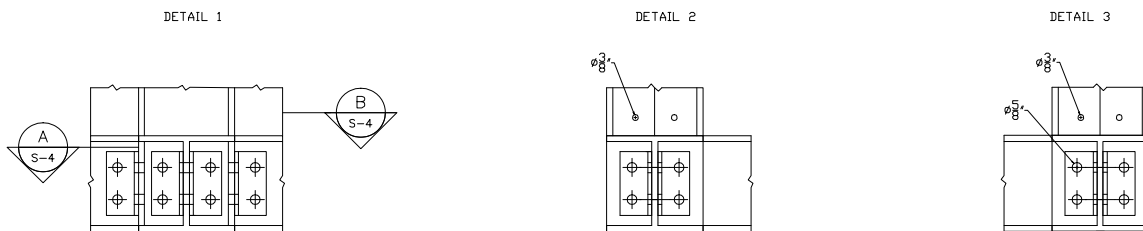
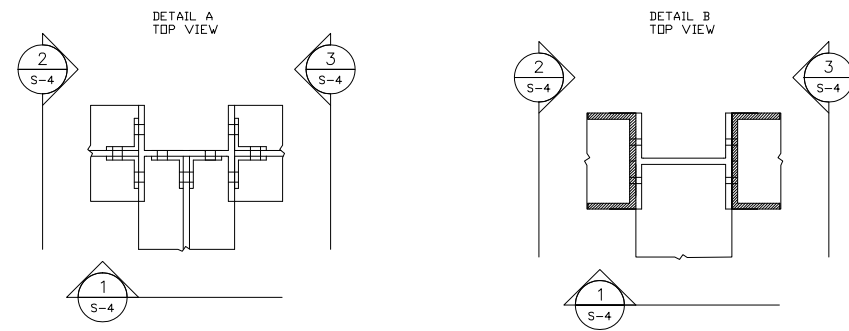
DETAIL G-2



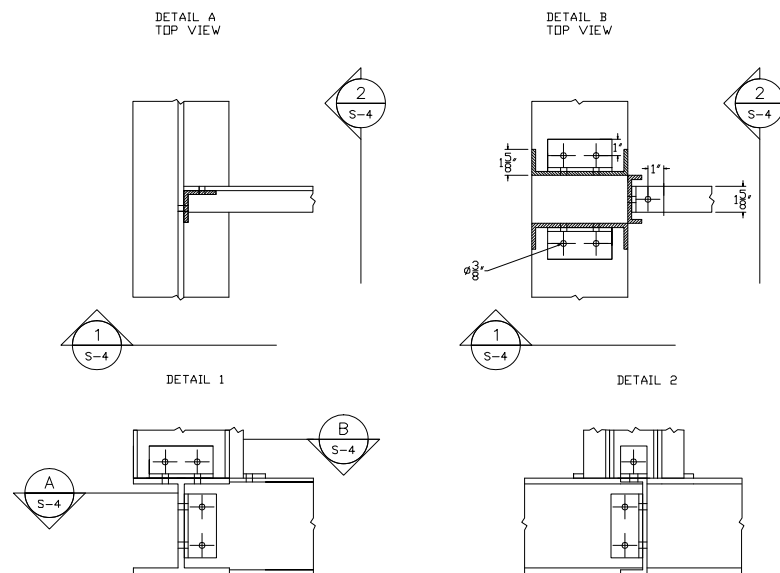
DETAIL G-5



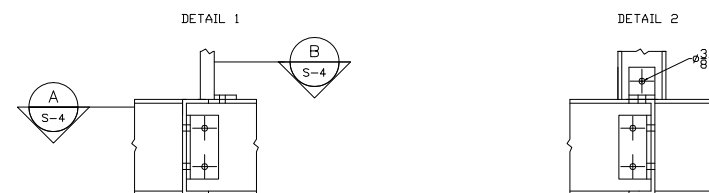
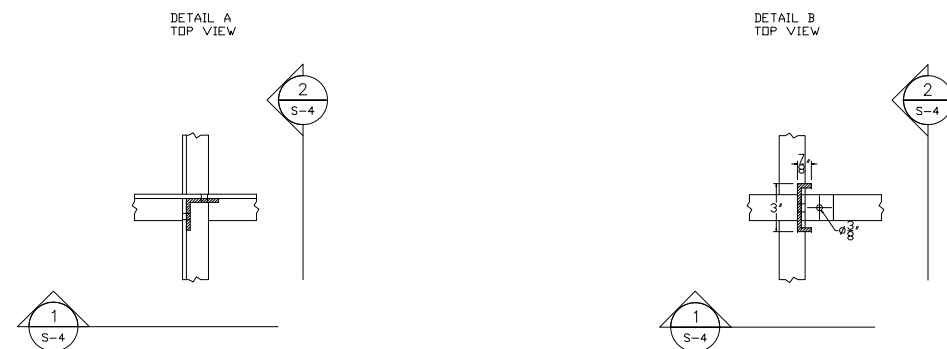
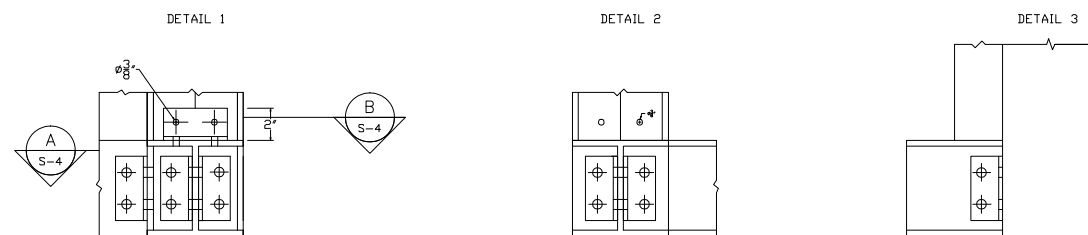
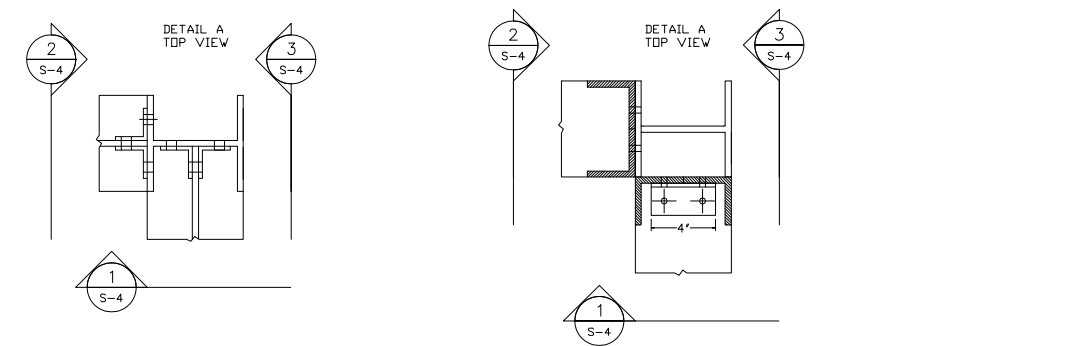
DETAIL G-6



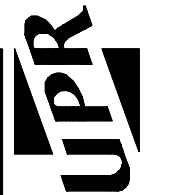
DETAIL F-5



DETAIL G-7



DETAIL FE-5



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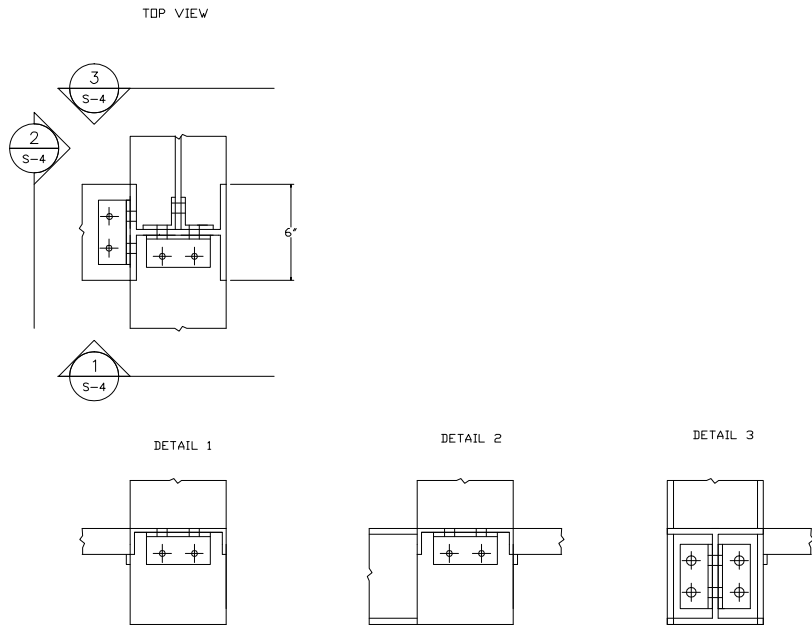
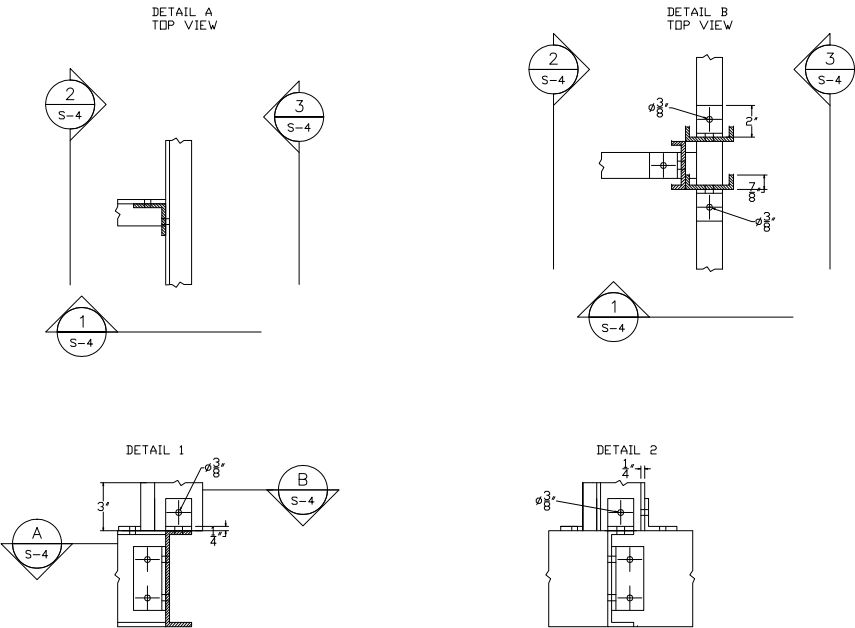
ISSUE/REVISIONS

STRUCTURAL DETAILS

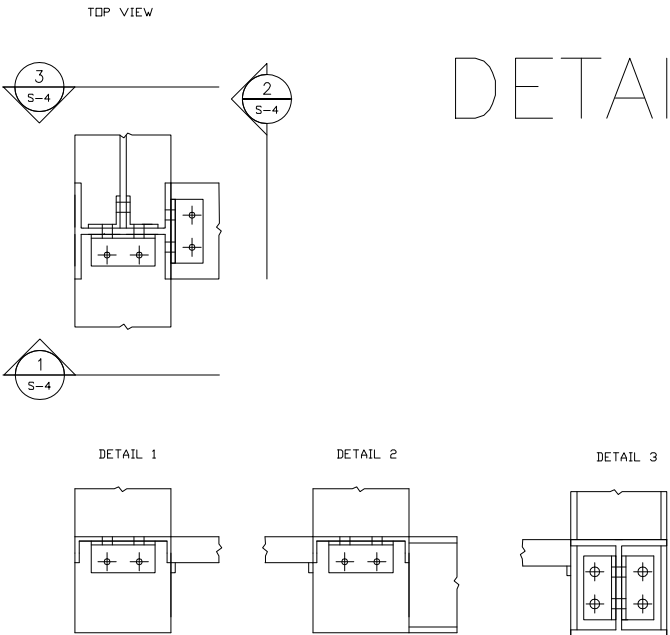
DATE: JUN/01/
NO. 80

S-4E

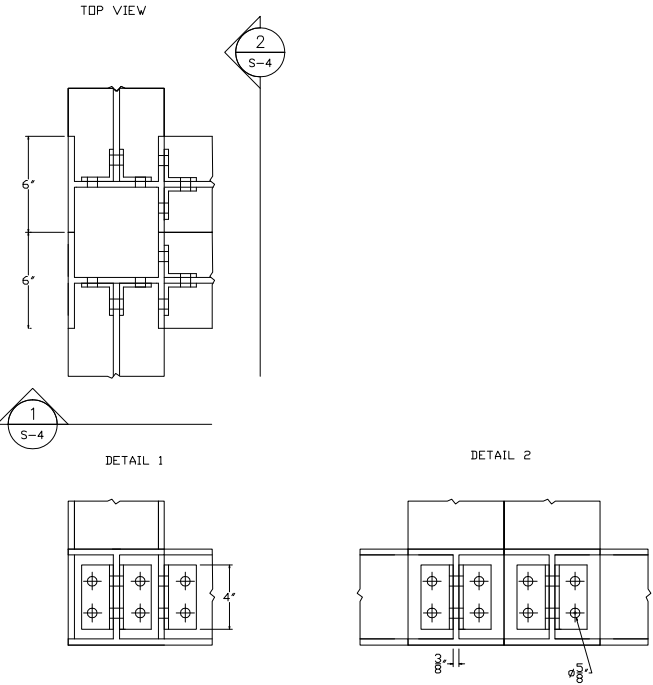
DETAIL FE-6



DETAIL E-5

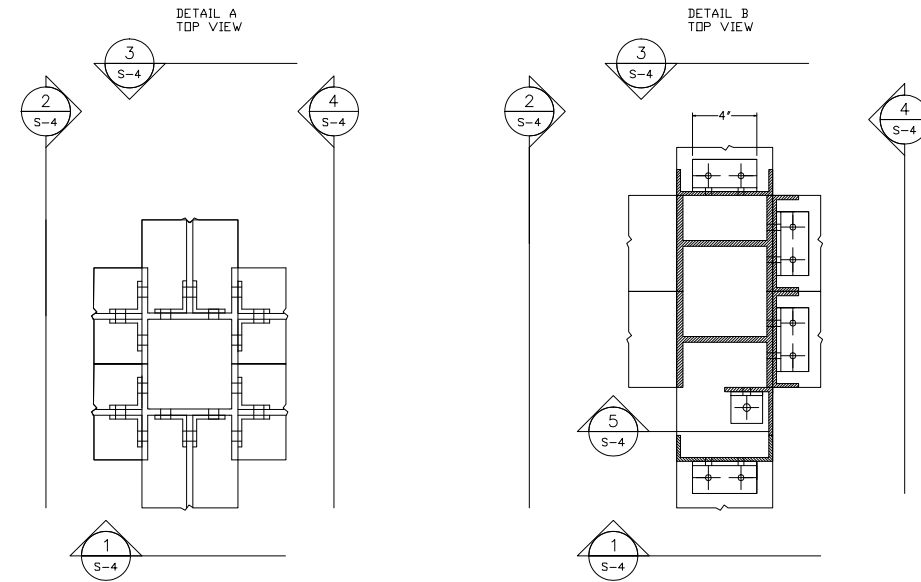


DETAIL E-3

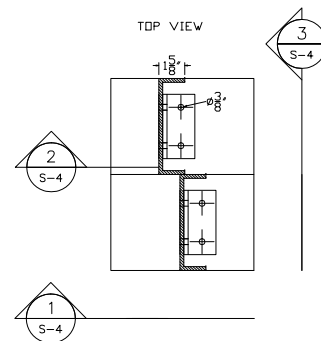
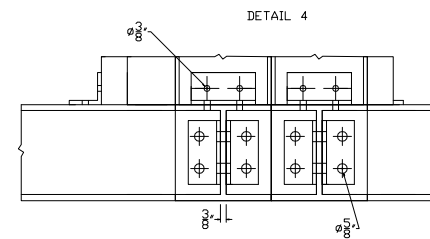
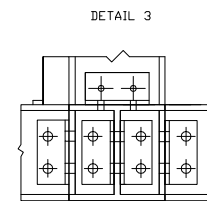
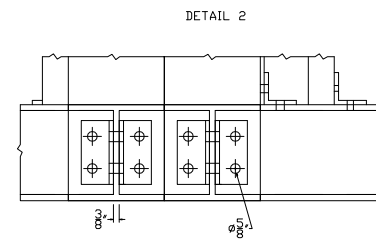
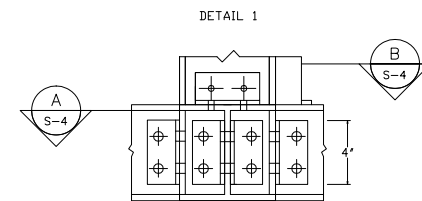


DETAIL DC-1

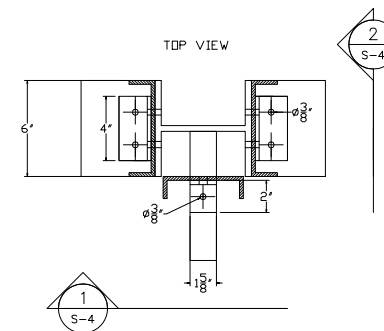




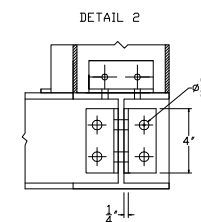
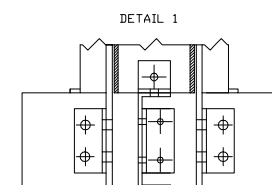
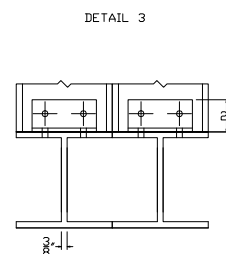
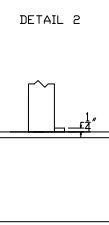
DETAIL DC-2



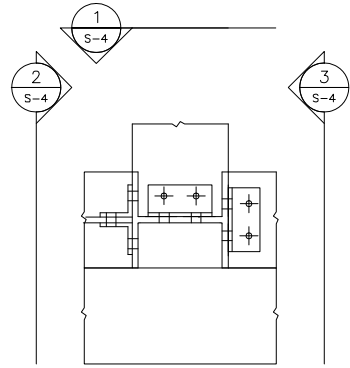
DETAIL DC-23



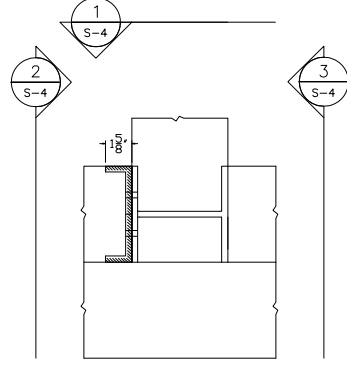
DETAIL C-4



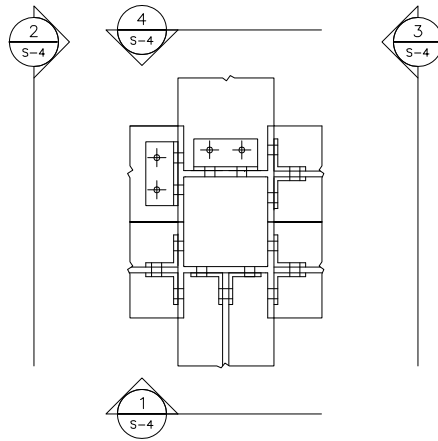
DETAIL A
TOP VIEW



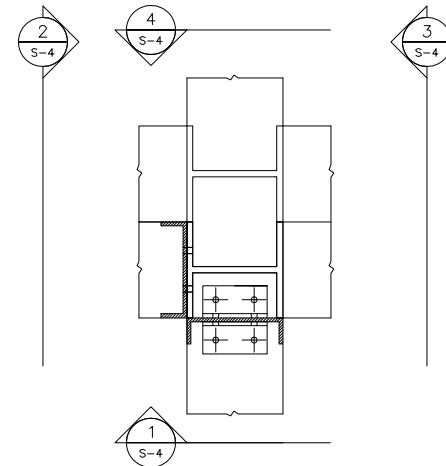
DETAIL B
TOP VIEW



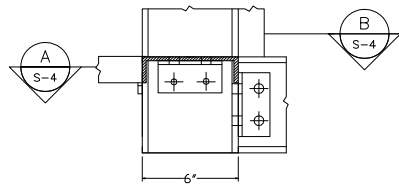
DETAIL A
TOP VIEW



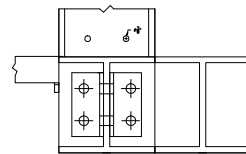
DETAIL B
TOP VIEW



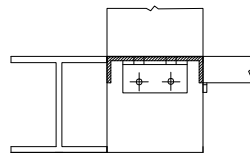
DETAIL 1



DETAIL 2

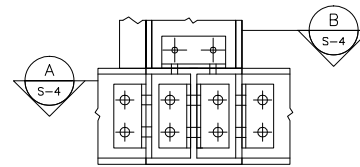


DETAIL 3

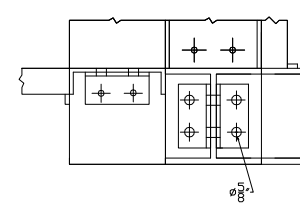


DETAIL D-4

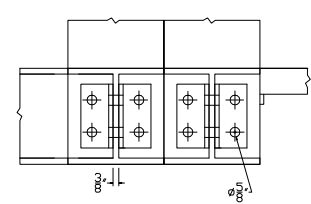
DETAIL 1



DETAIL 2

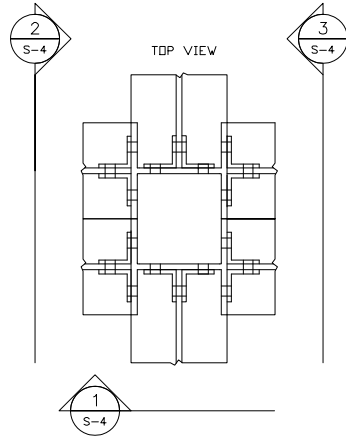


DETAIL 3



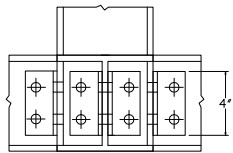
DETAIL DC-5

TOP VIEW

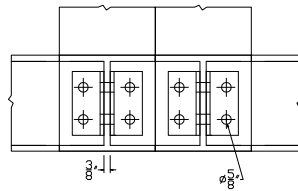


DETAIL DC-6

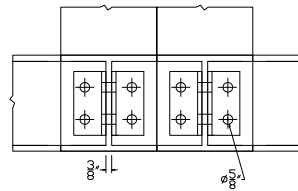
DETAIL 1



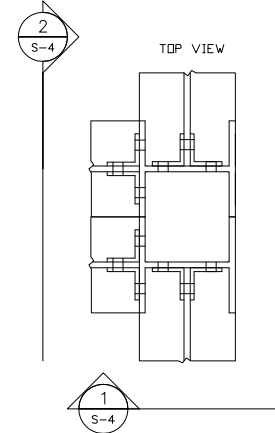
DETAIL 2



DETAIL 3

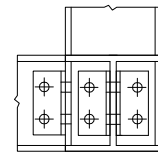


TOP VIEW

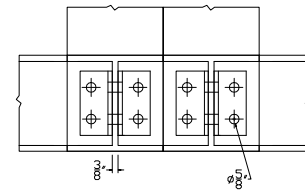


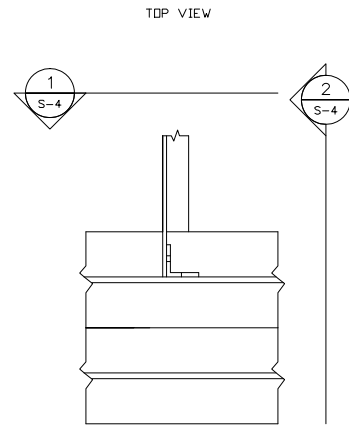
DETAIL DC-7

DETAIL 1



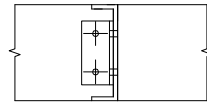
DETAIL 2



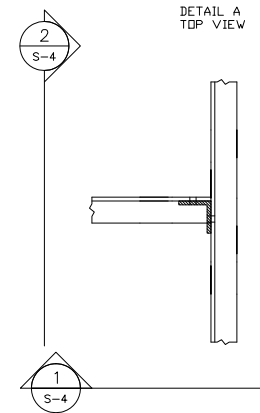
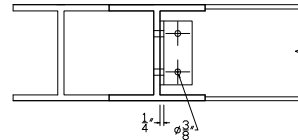


DETAIL D-67

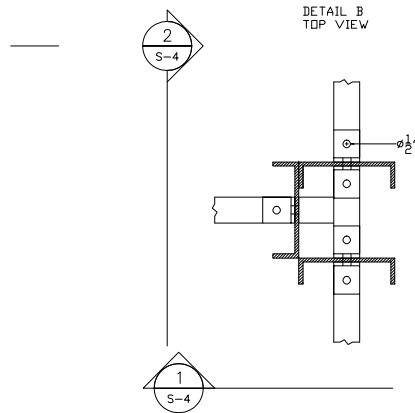
DETAIL 1



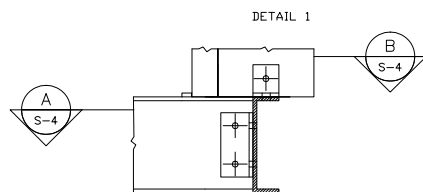
DETAIL 2



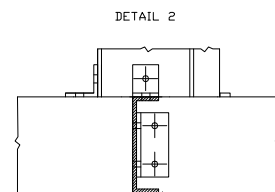
DETAIL A
TOP VIEW



DETAIL B
TOP VIEW



DETAIL 1

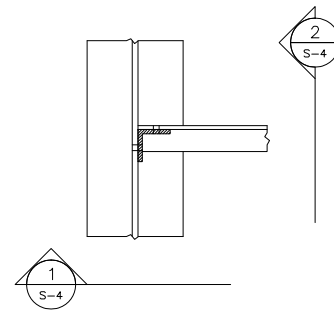


DETAIL 2

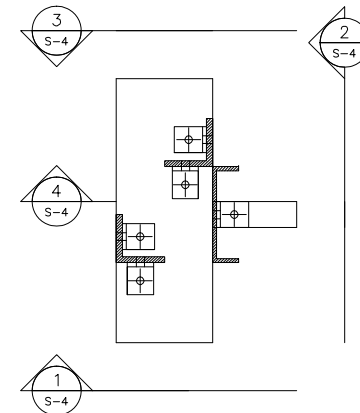
DETAIL CB-12

DETAIL CB-1

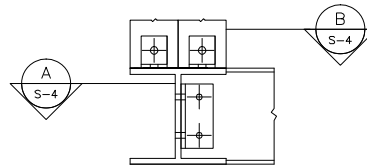
DETAIL A
TOP VIEW



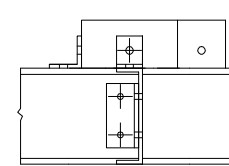
DETAIL B
TOP VIEW



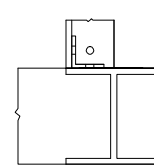
DETAIL 1



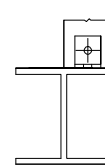
DETAIL 2



DETAIL 3

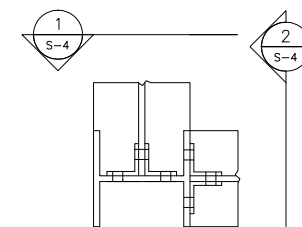


DETAIL 4

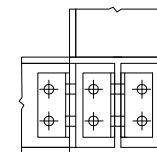


DETAIL A-1

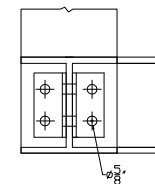
TOP VIEW



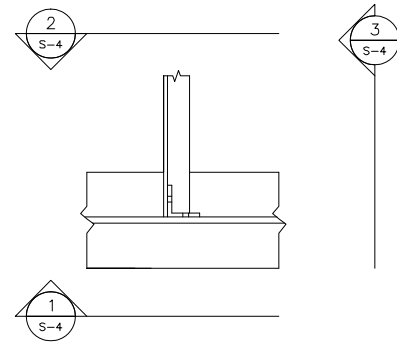
DETAIL 1



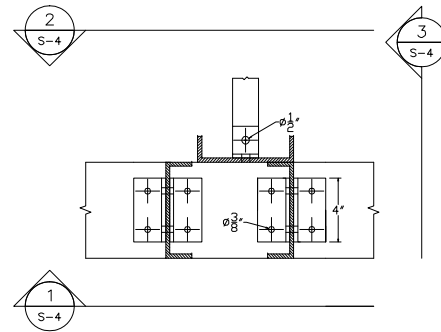
Detail 2



DETAIL A
TOP VIEW

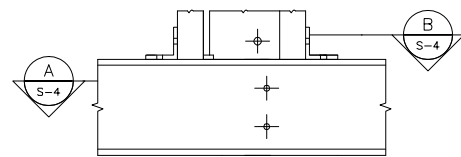


DETAIL B
TOP VIEW

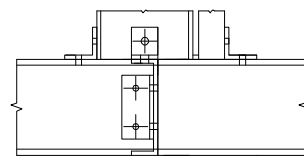


DETAIL A-12

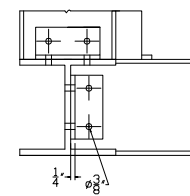
DETAIL 1



DETAIL 2

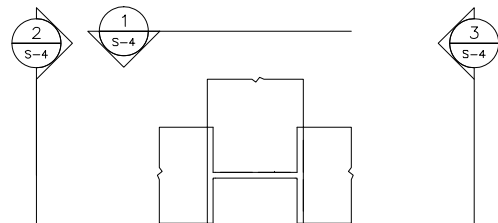


DETAIL 3

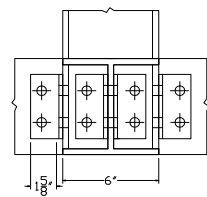


DETAIL A-5

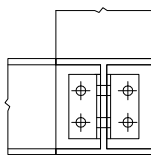
TOP VIEW



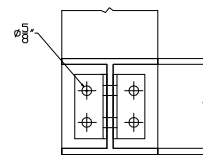
DETAIL 1



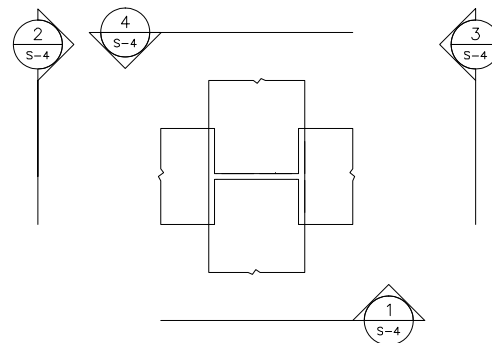
DETAIL 2



DETAIL 3

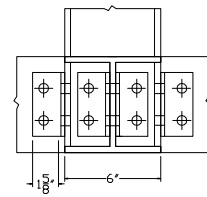


TOP VIEW

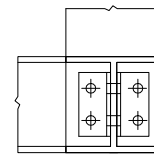


DETAIL A-6

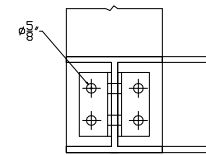
DETAIL 1



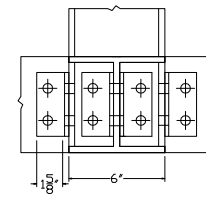
DETAIL 2



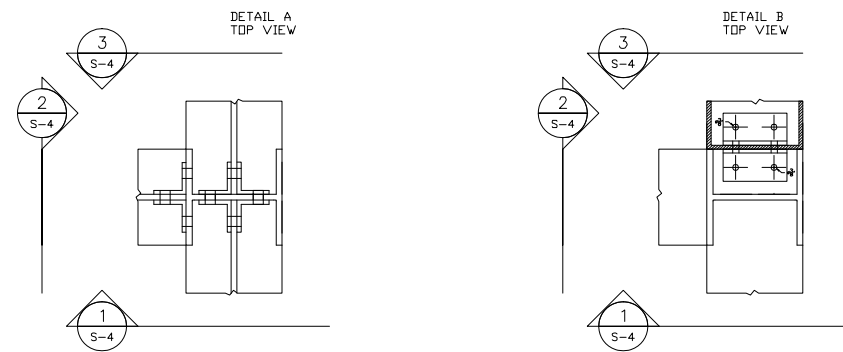
DETAIL 3



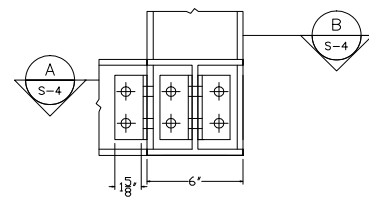
DETAIL 4



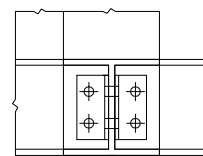
DETAIL A-7



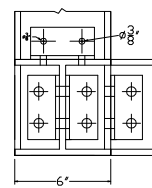
DETAIL 1



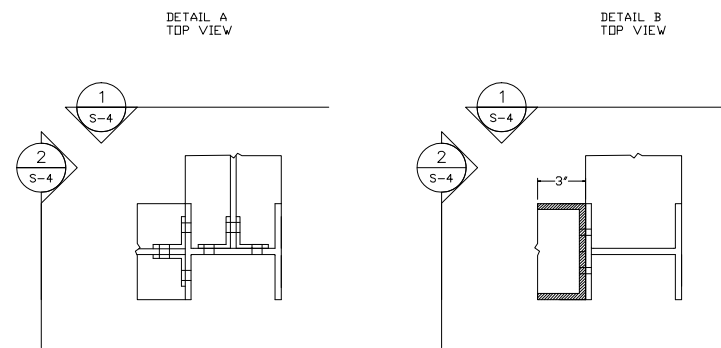
DETAIL 2



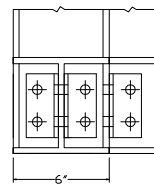
DETAIL 3



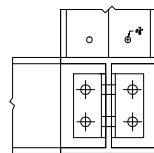
DETAIL J-7



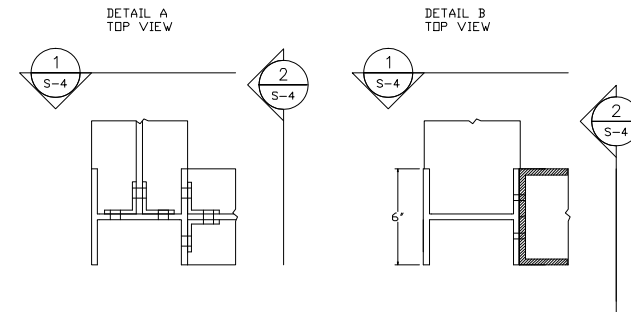
DETAIL 1



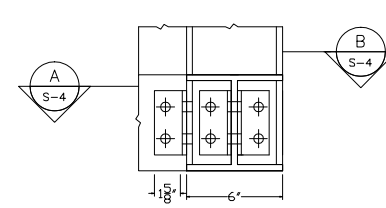
DETAIL 2



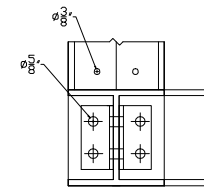
DETAIL J-6



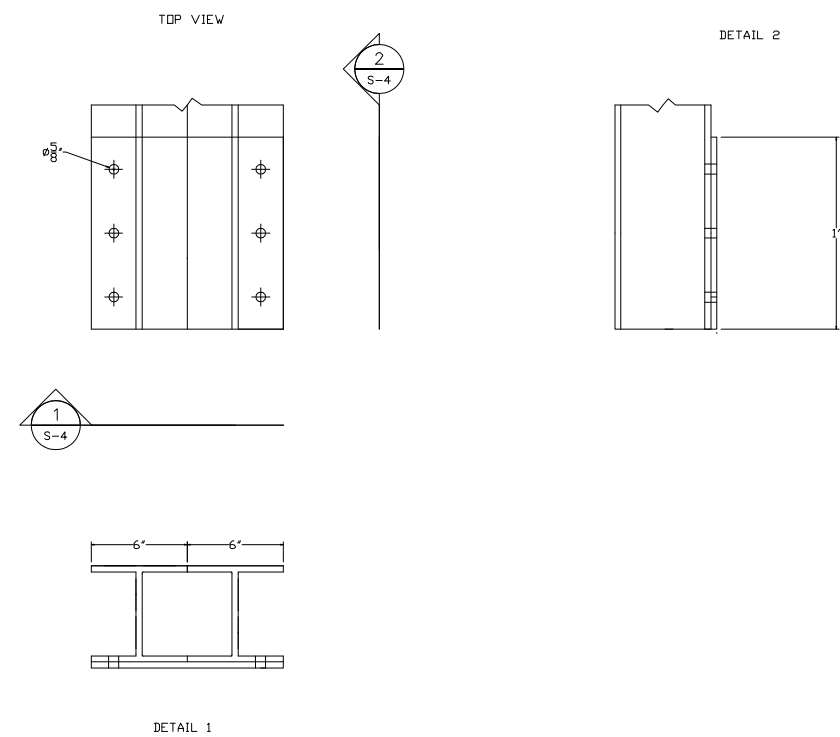
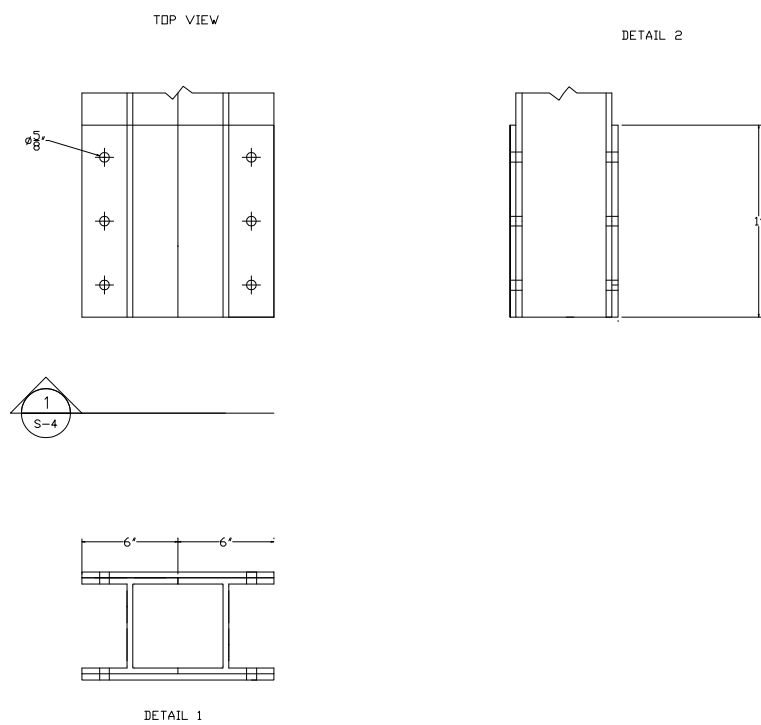
DETAIL 1

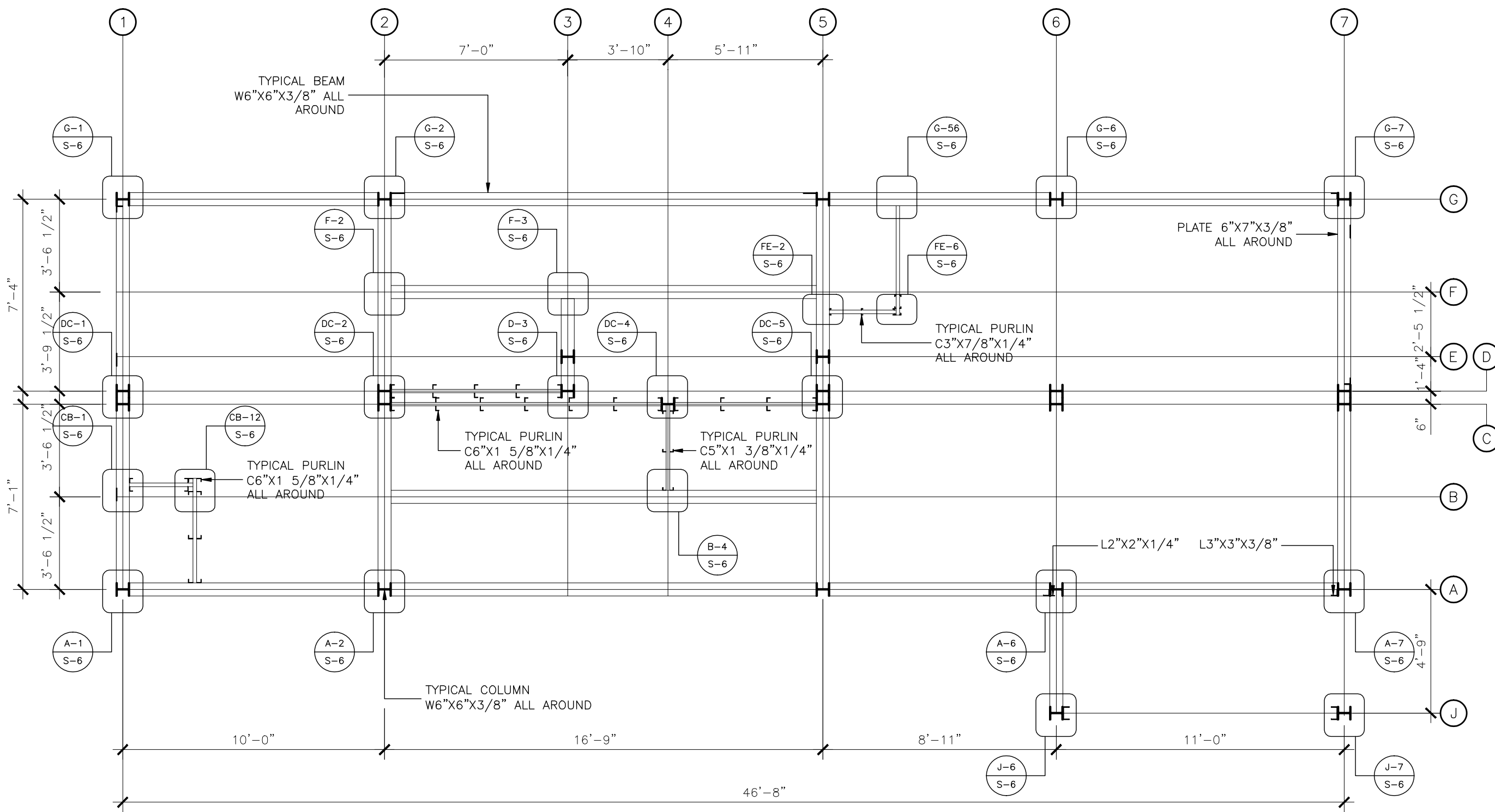


DETAIL 2



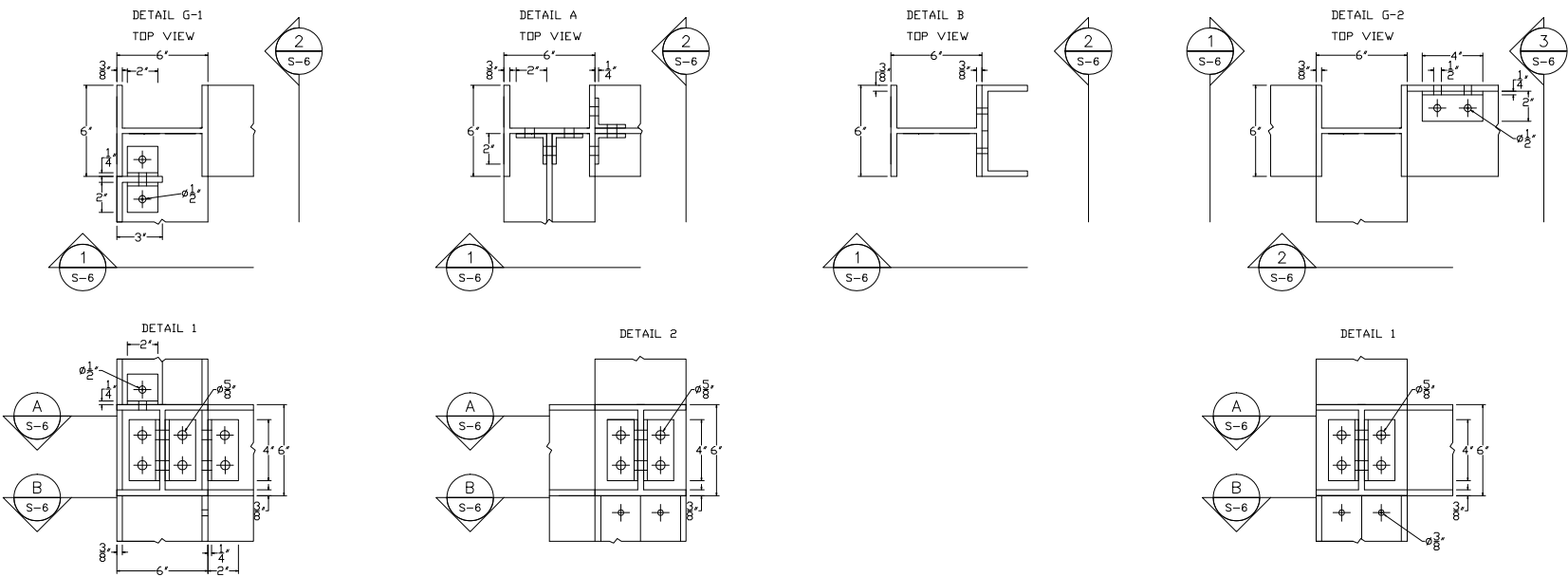
Conection between beams in edges DC



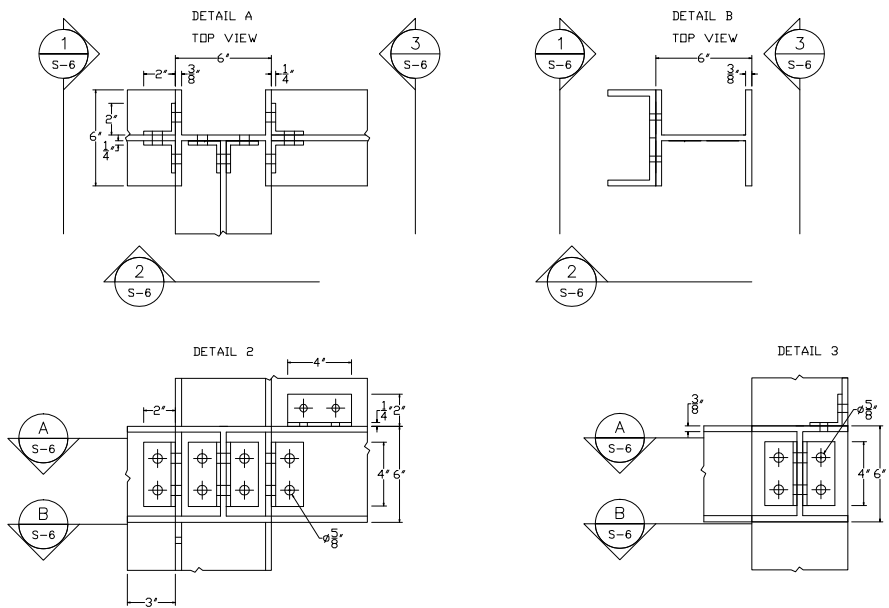


2 STRUCTURAL SECOND FLOOR PLANE
SCALE: 1/4"=1'-0"

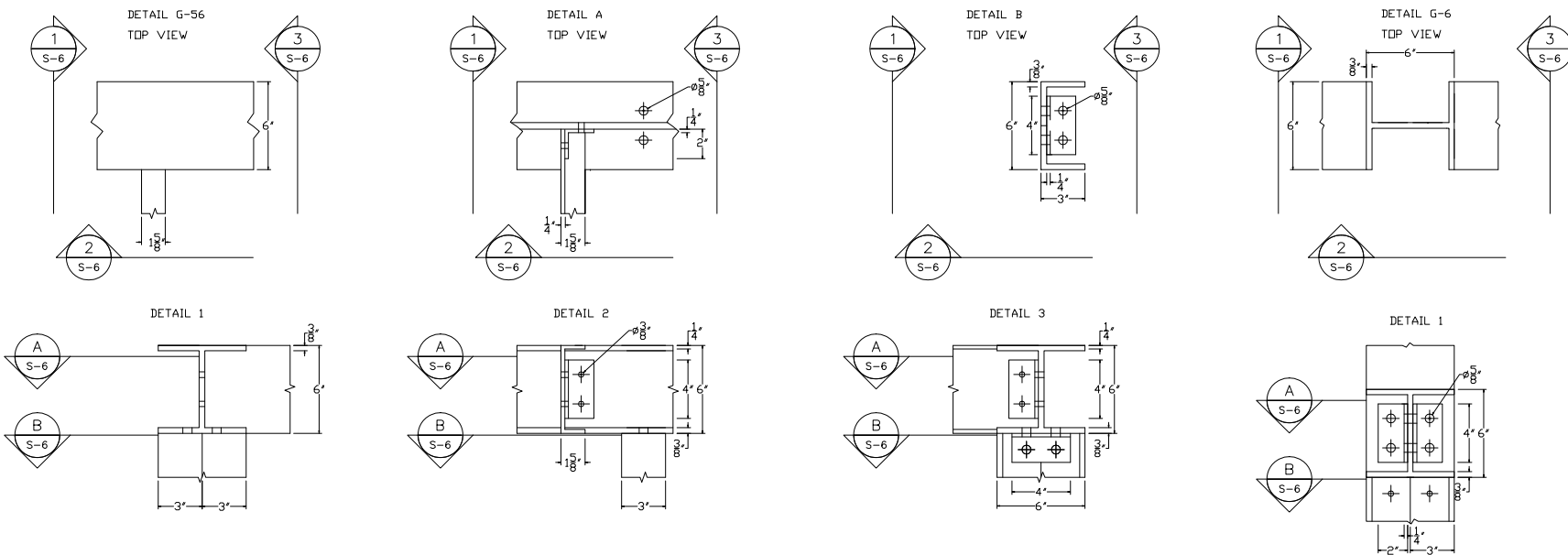
DETAIL G-1



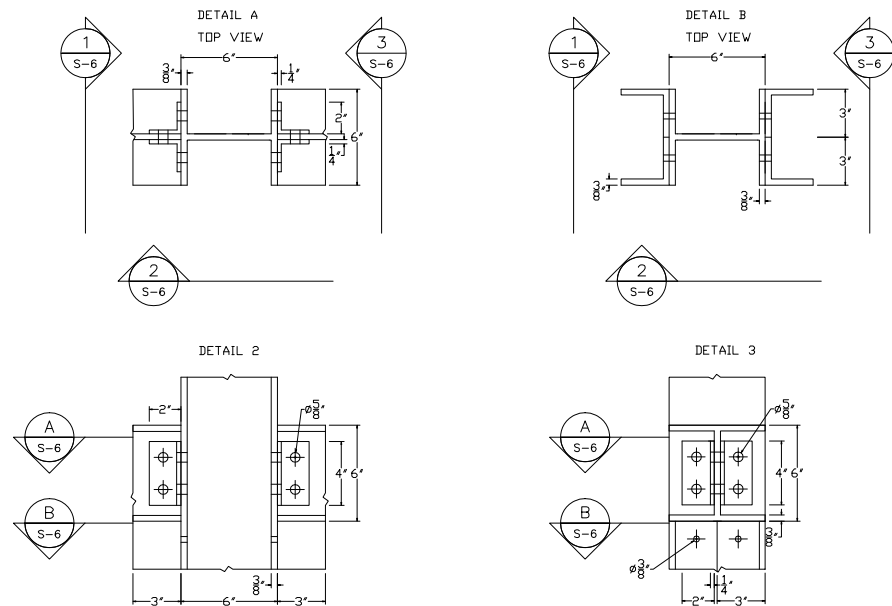
DETAIL G-2



DETAIL G-56



DETAIL G-6



2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

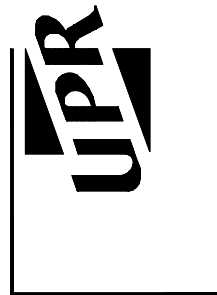
ISSUE/REVISIONS

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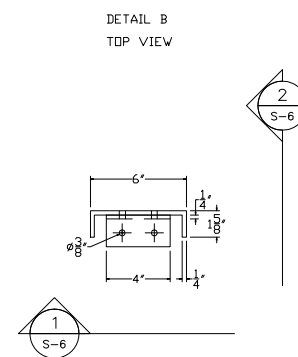
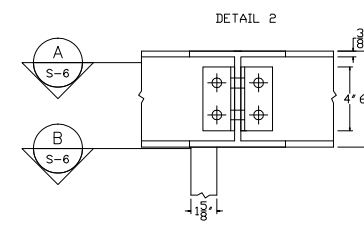
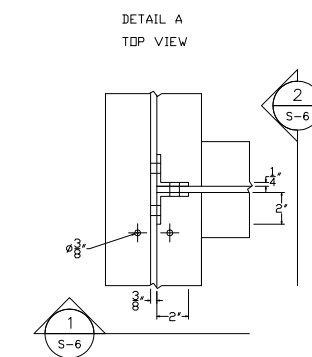
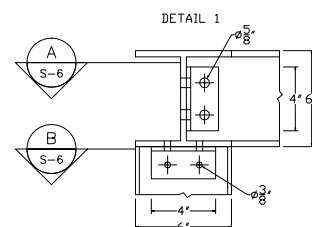
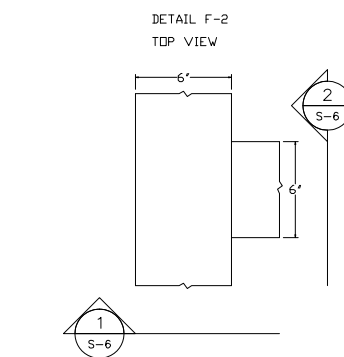
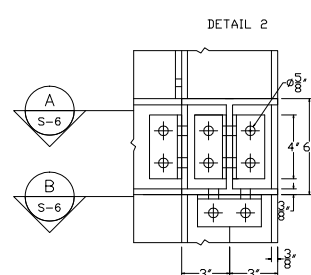
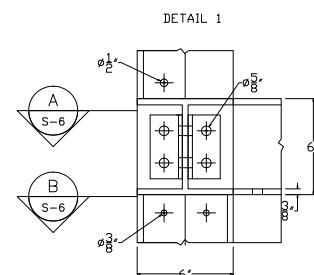
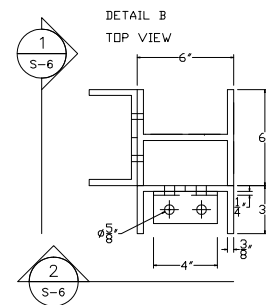
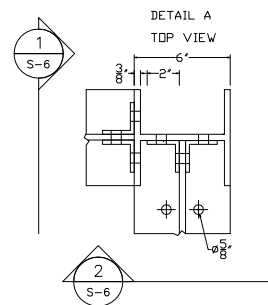
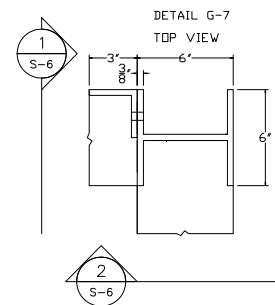
STRUCTURAL DETAILS

DATE: JUN/01/07
NO. 89

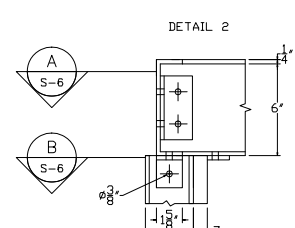
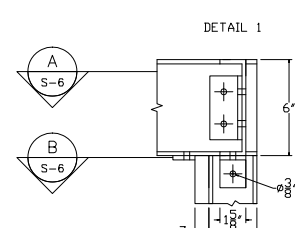
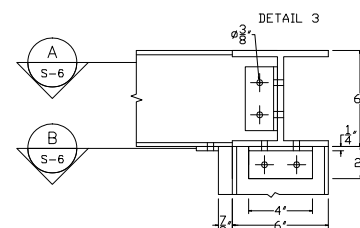
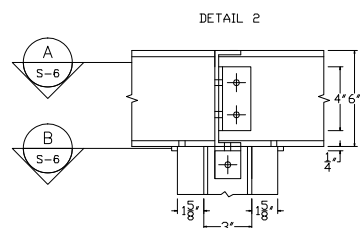
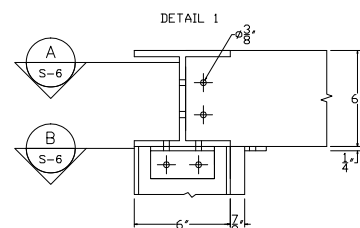
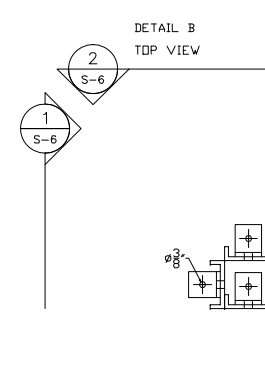
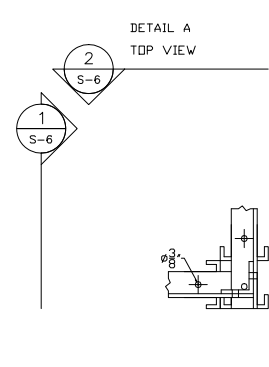
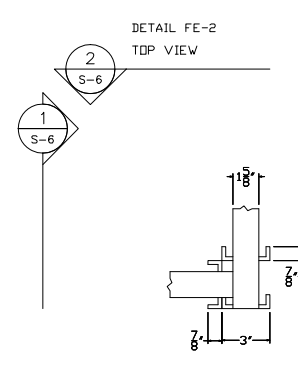
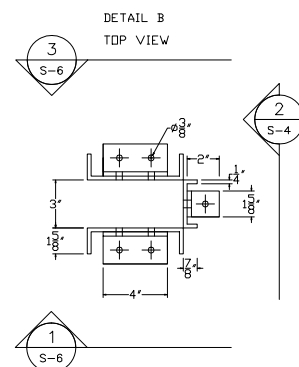
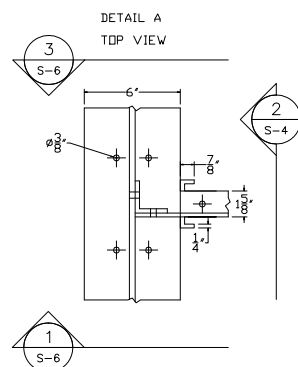
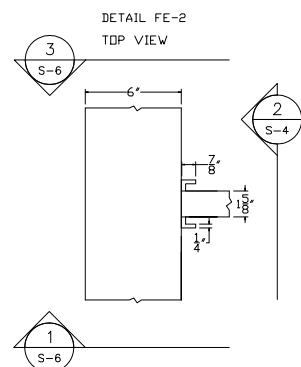
S-6A



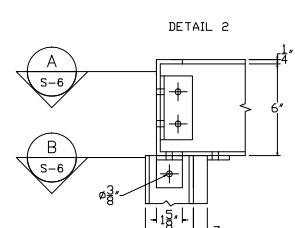
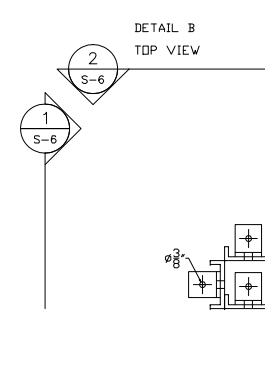
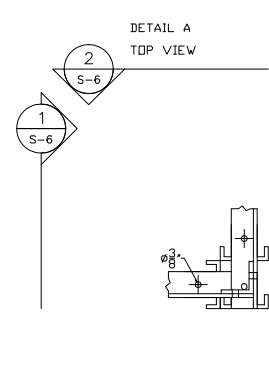
DETAIL G-7



DETAIL FE-2



DETAIL FE-6



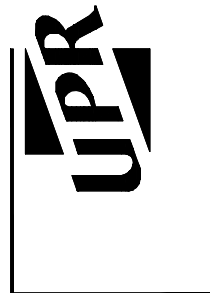
2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

ISSUE/REVISIONS

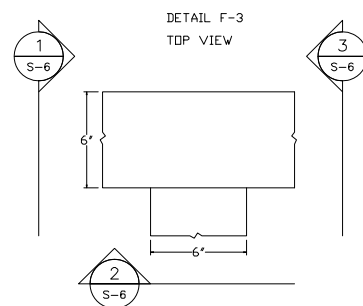
STRUCTURAL DETAILS

DATE: JUN/01/07
NO. 90

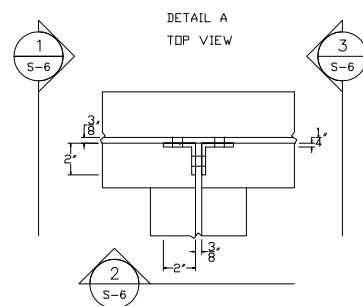
S-6B



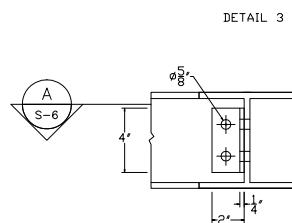
DETAIL F-3



DETAIL 1

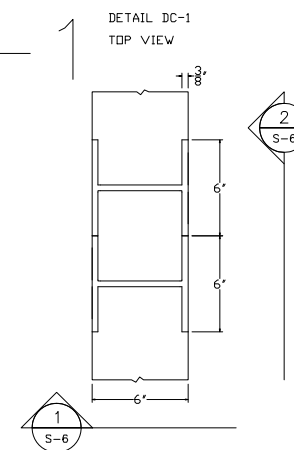


DETAIL 2

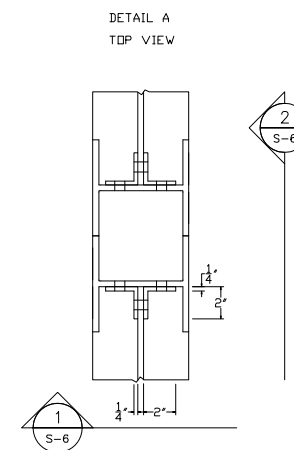


DETAIL 3

DETAIL DC-1

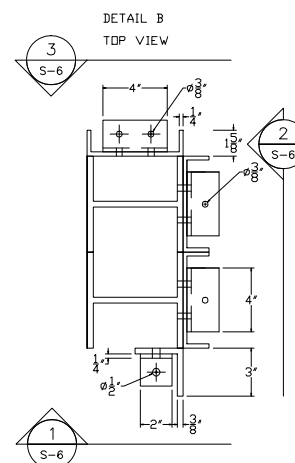
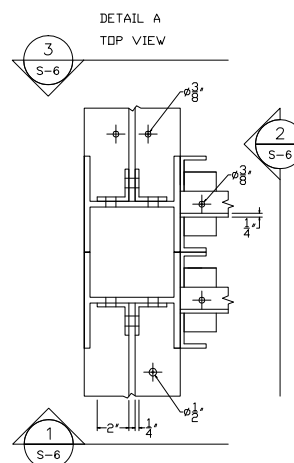
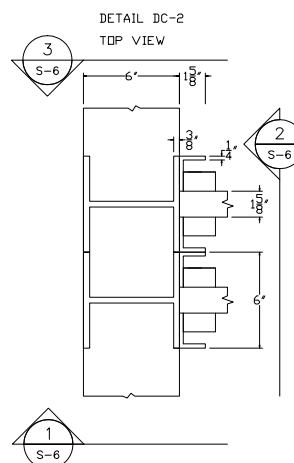


DETAIL 1

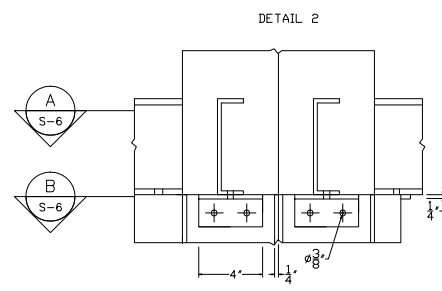
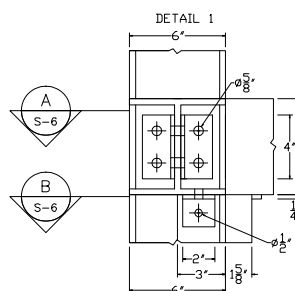


DETAIL 2

DETAIL DC-2

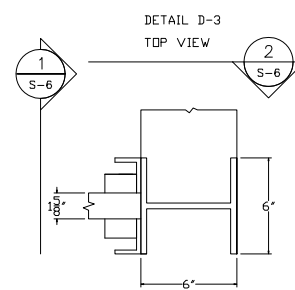


DETAIL 3

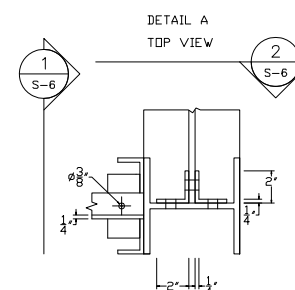


DETAIL 3

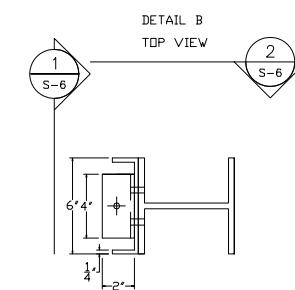
DETAIL D-3



DETAIL 1



DETAIL 2



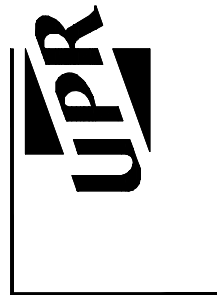
ISSUE/REVISIONS

2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

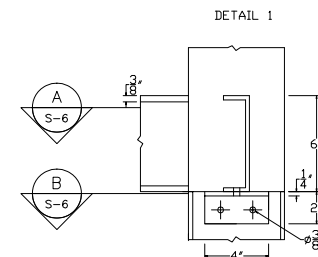
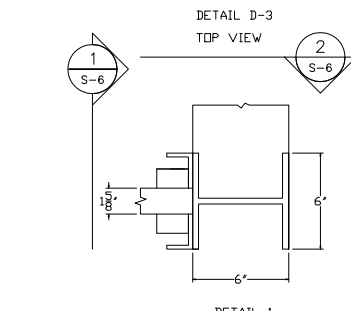
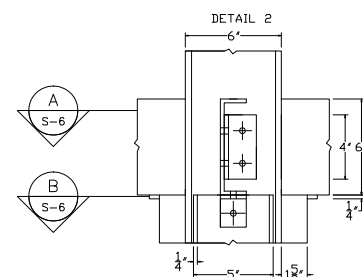
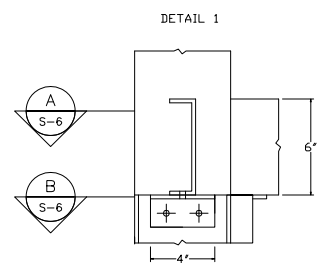
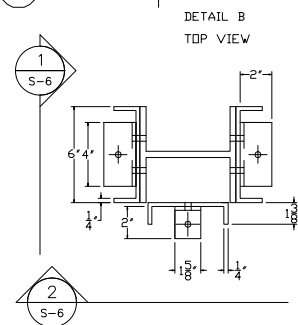
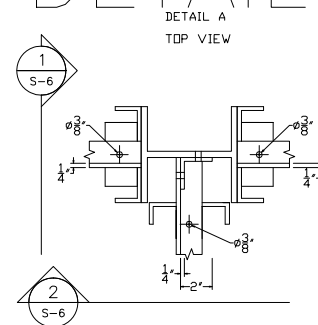
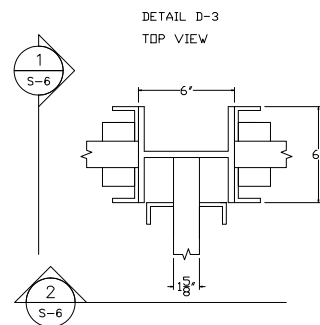
STRUCTURAL DETAILS

DATE: JUN/01/07
NO. 90

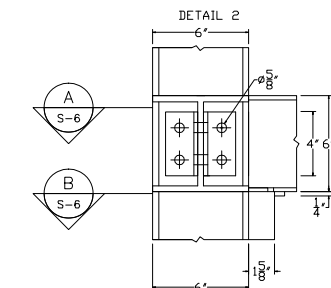
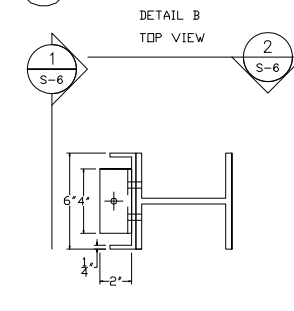
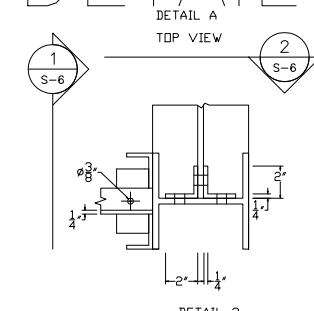
S-6C



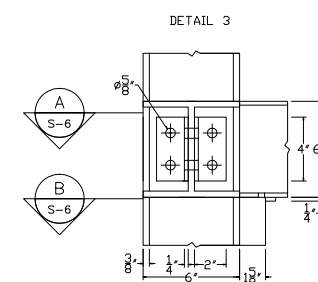
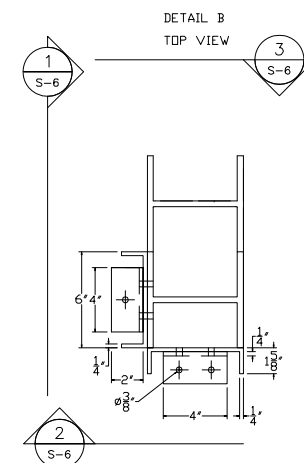
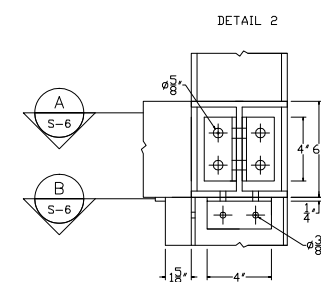
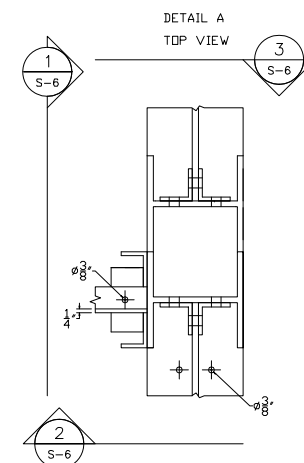
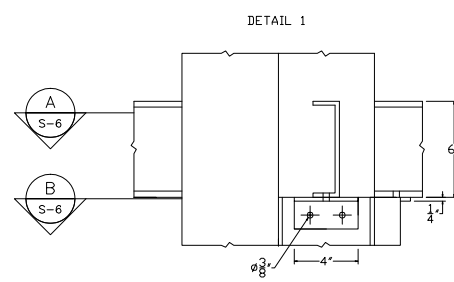
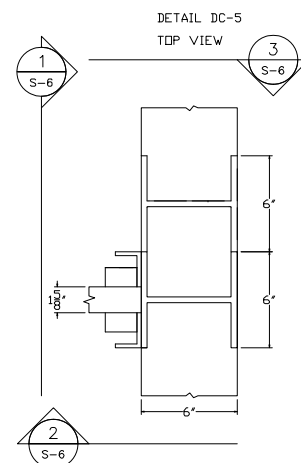
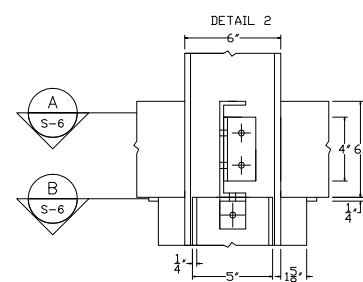
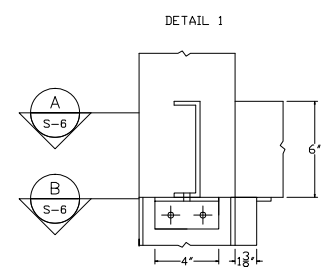
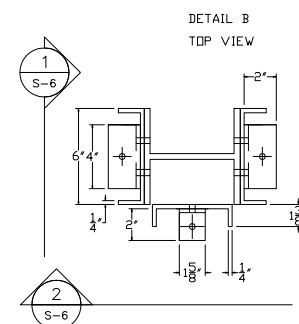
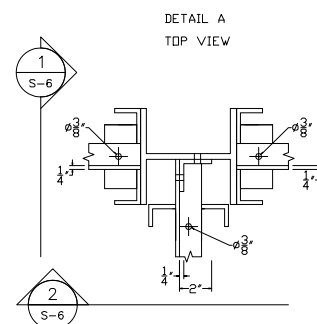
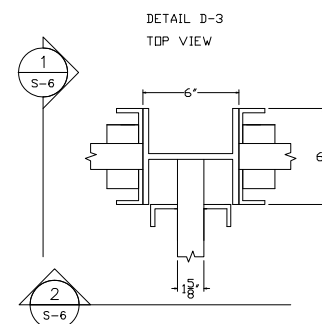
DETAIL DC-4



DETAIL D-3



DETAIL DC-4



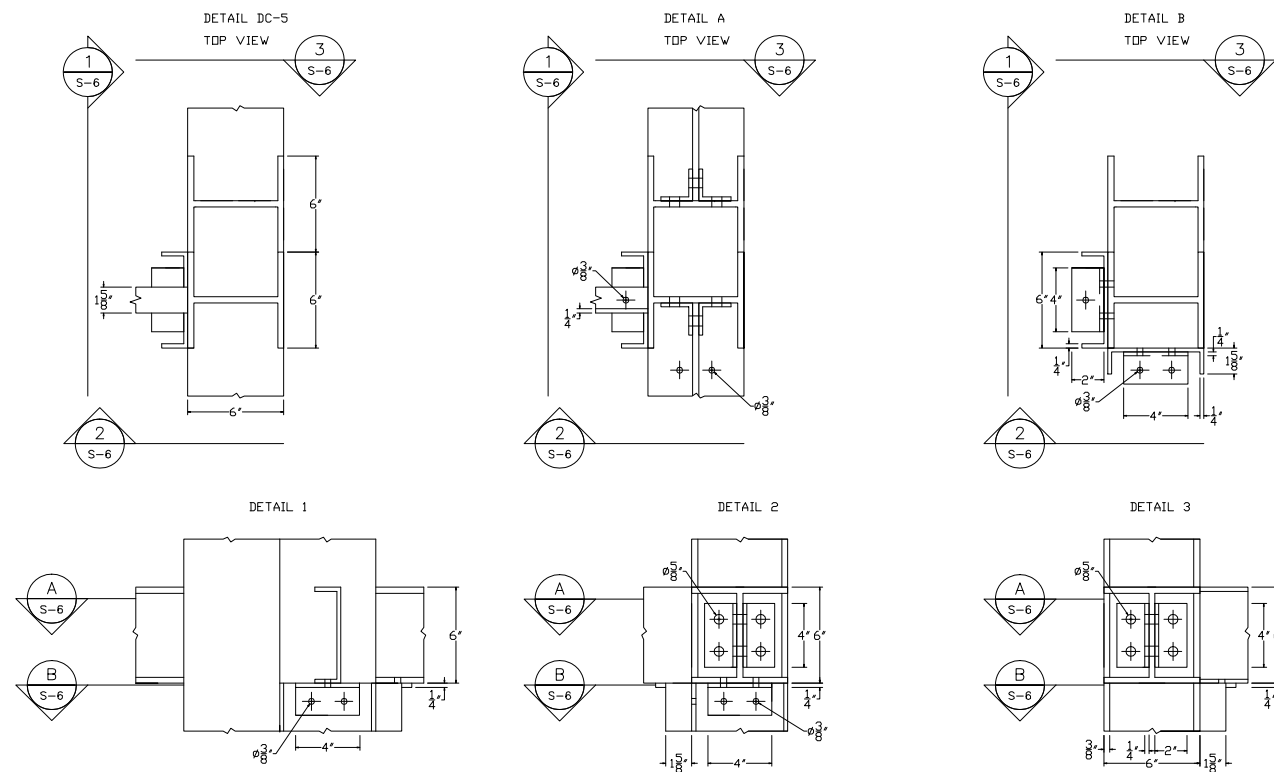
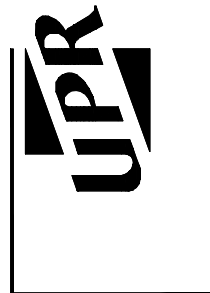
2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

ISSUE/REVISIONS

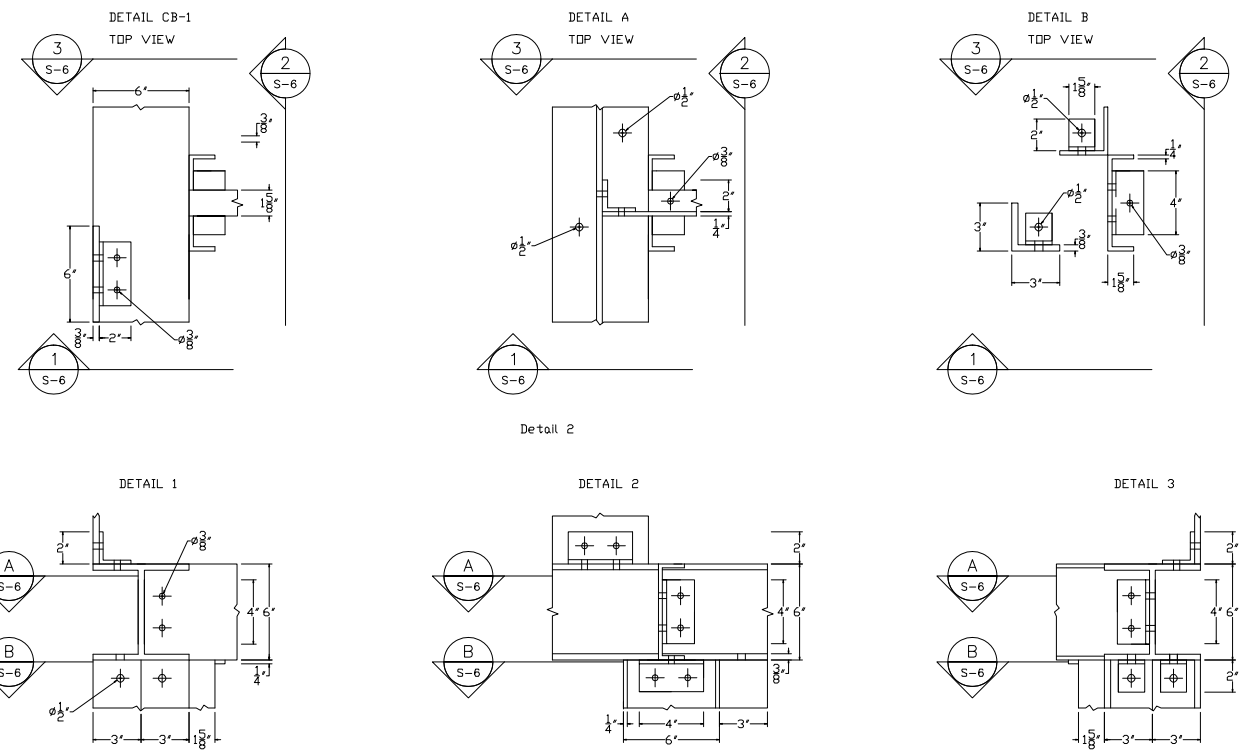
STRUCTURAL DETAILS

DATE: JUN/01/07
NO. 92

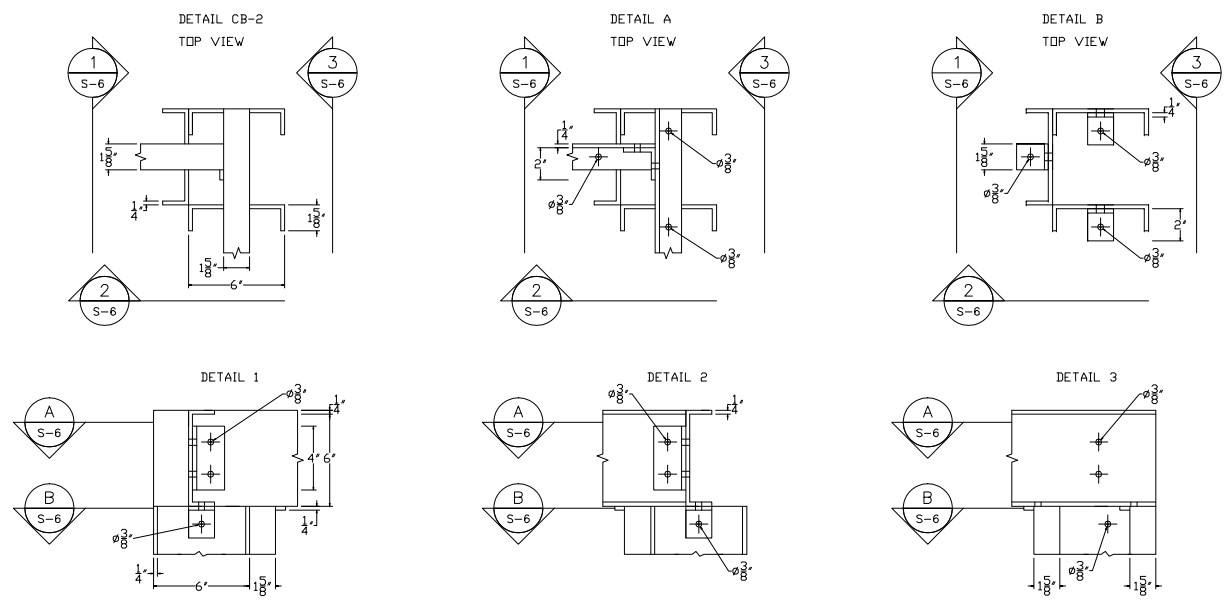
S-6D



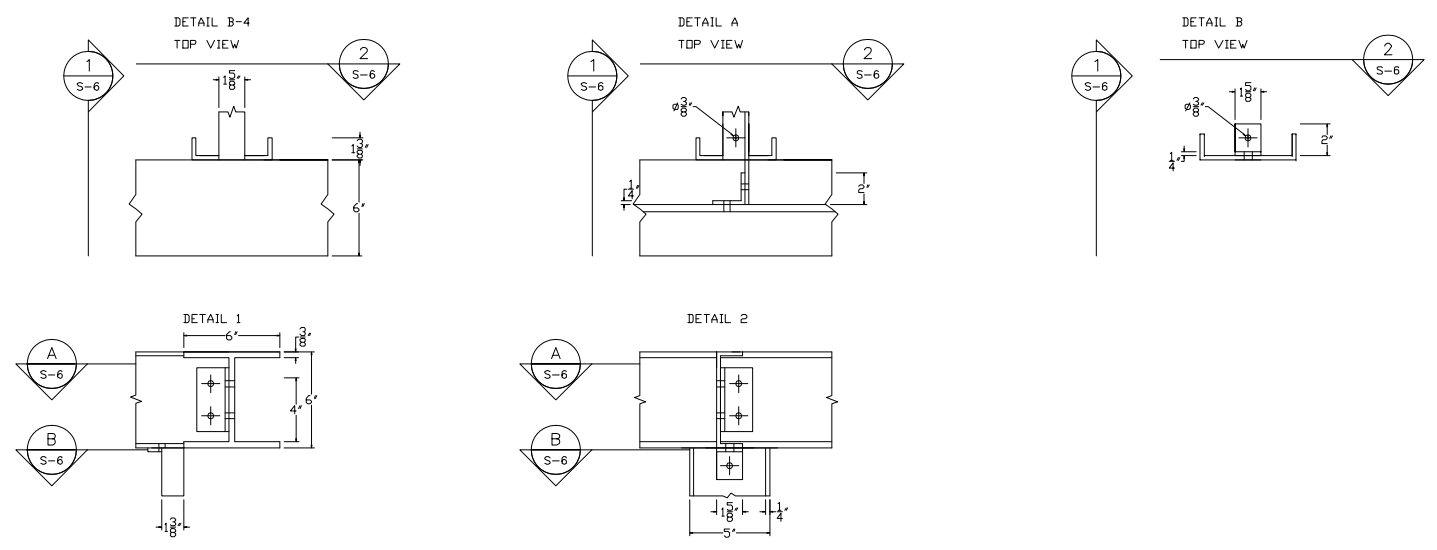
DETAIL DC-5



DETAIL CB-1



DETAIL CB-2



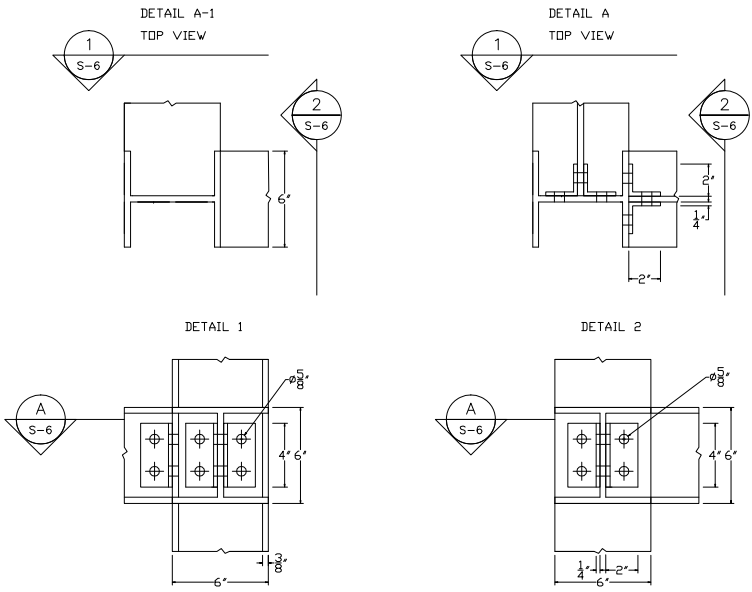
DETAIL B-4

2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

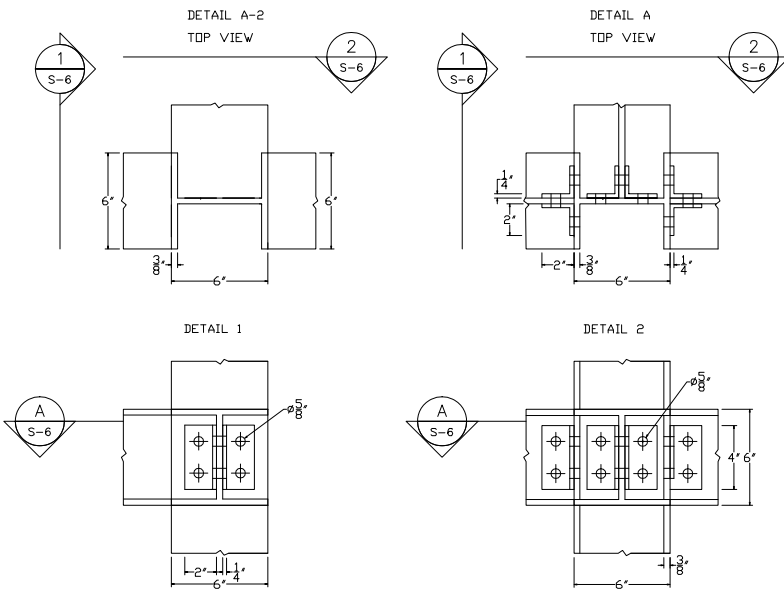
STRUCTURAL DETAILS
ISSUE/REVISIONS . . .

DATE: JUN/01/07
NO. 93

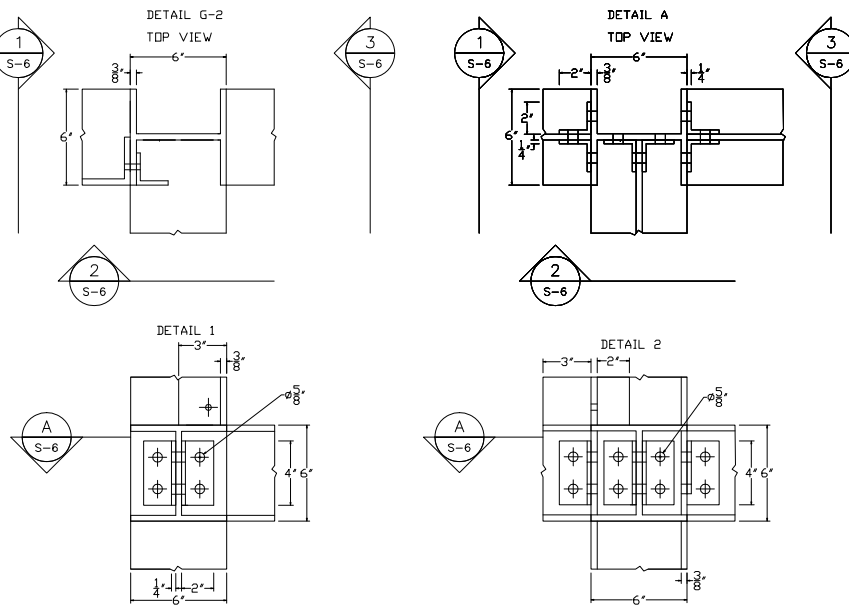
DETAIL A-1



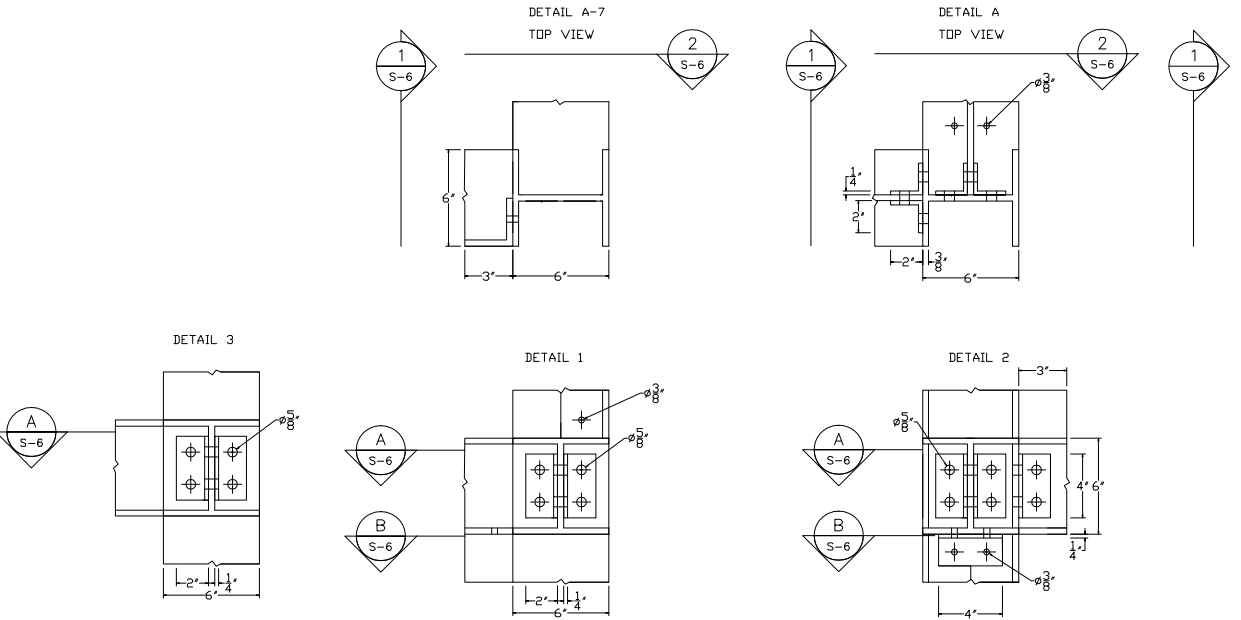
DETAIL A-2



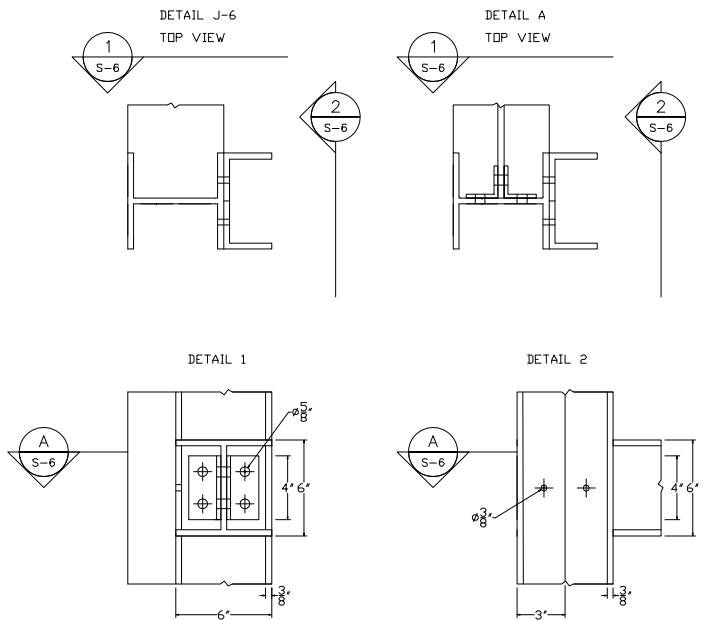
DETAIL A-6



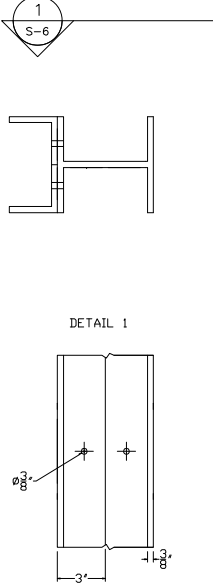
DETAIL A-7



DETAIL J-6



DETAIL J-7



2007 SOLAR DECATHLON
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ISSUE/REVISIONS
.....
STRUCTURAL DETAILS

DATE: JUN/01/07
NO. 94



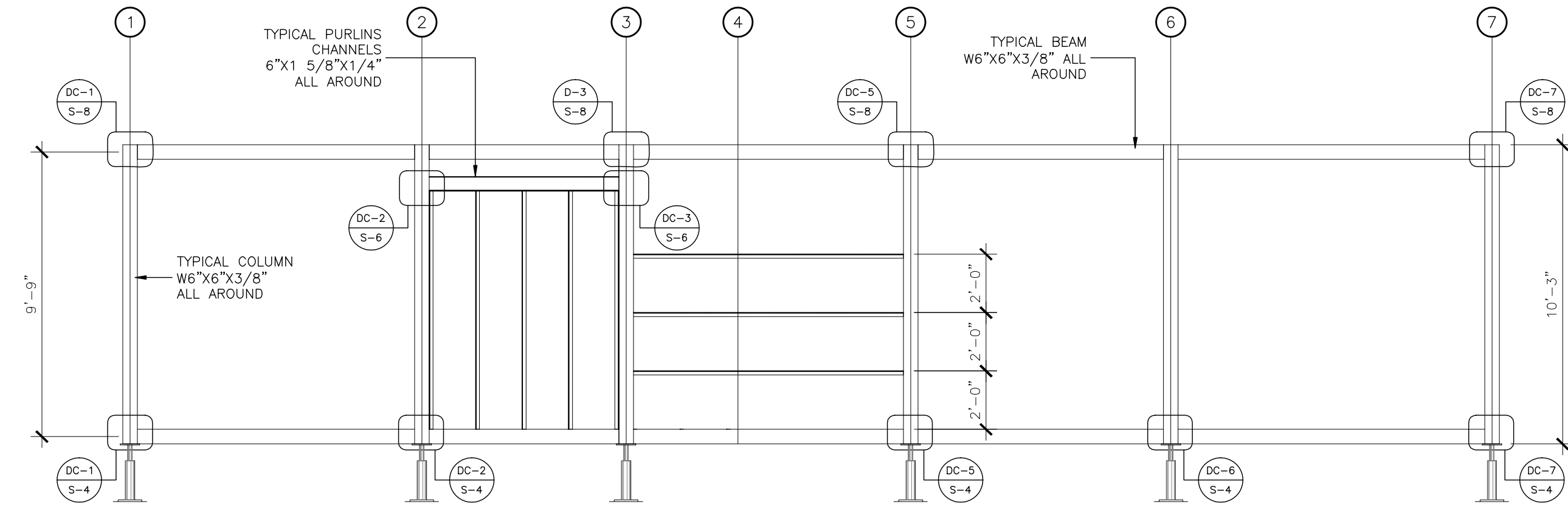
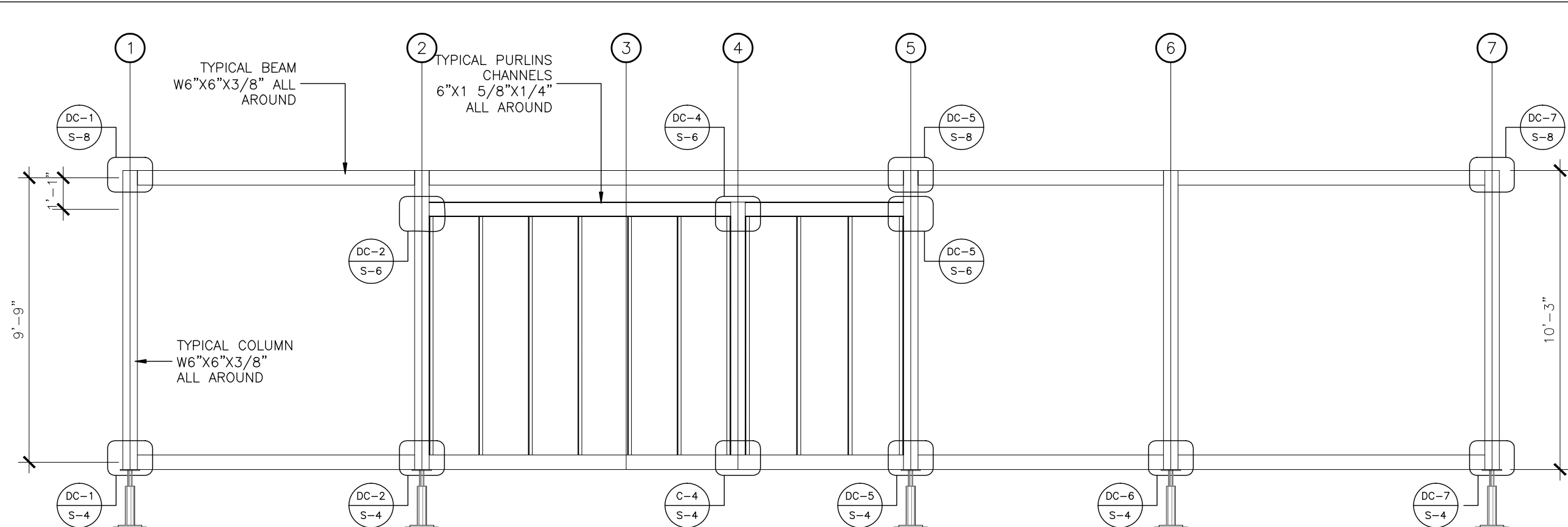
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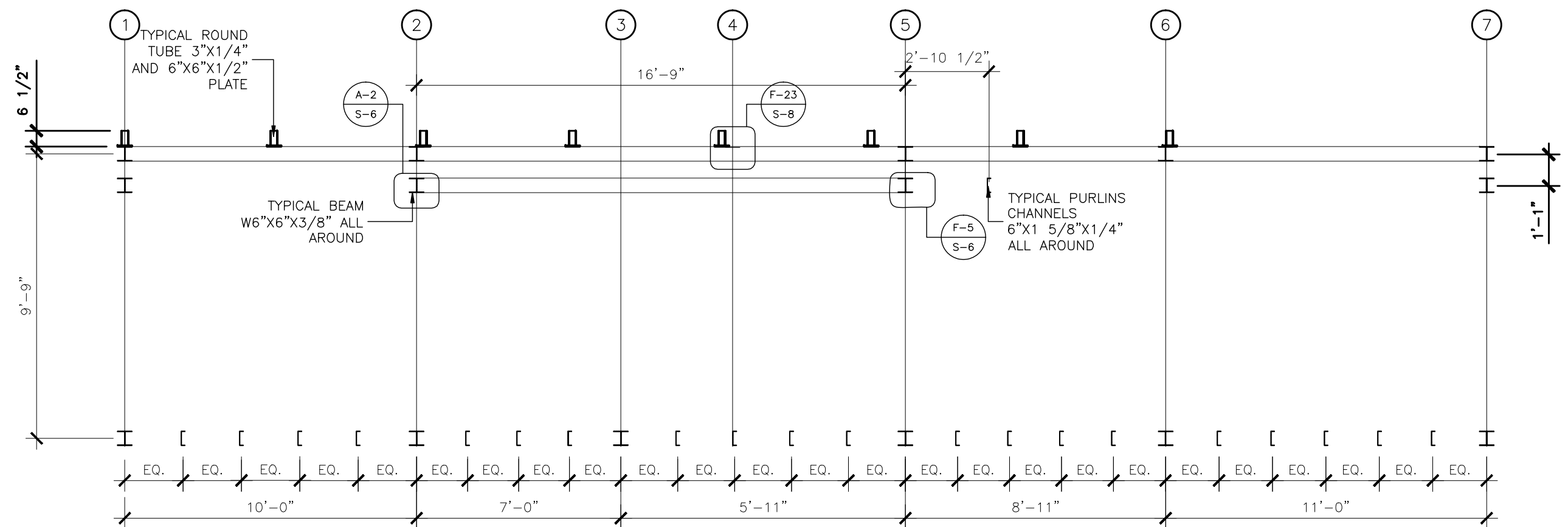
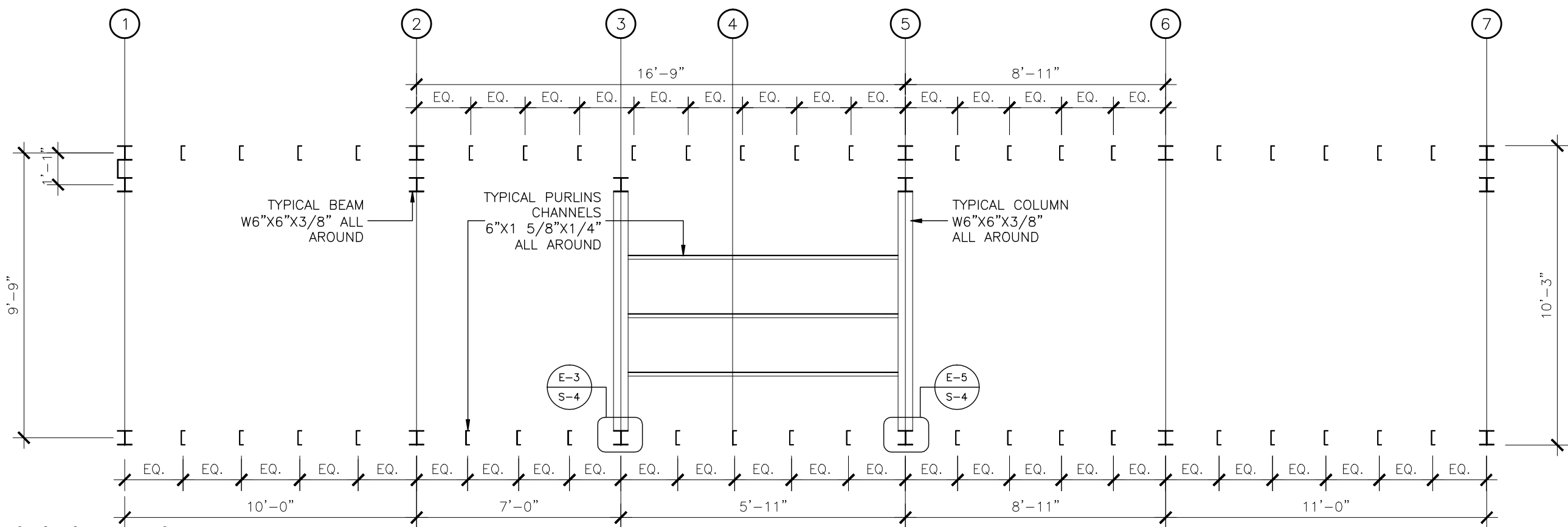


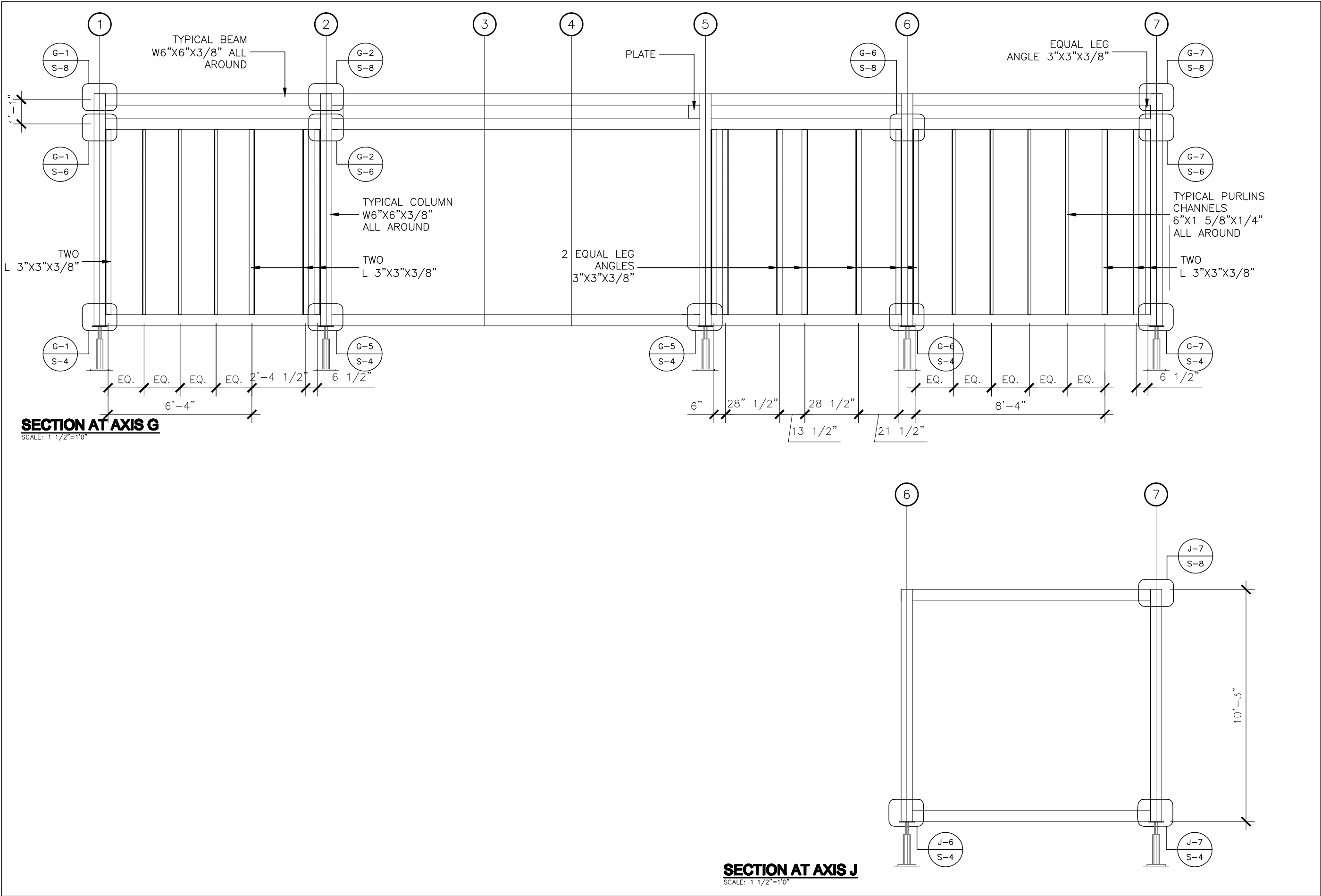
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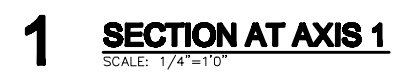
ESTIMATED FUNDING

DATE: MAR/6/07
0.98



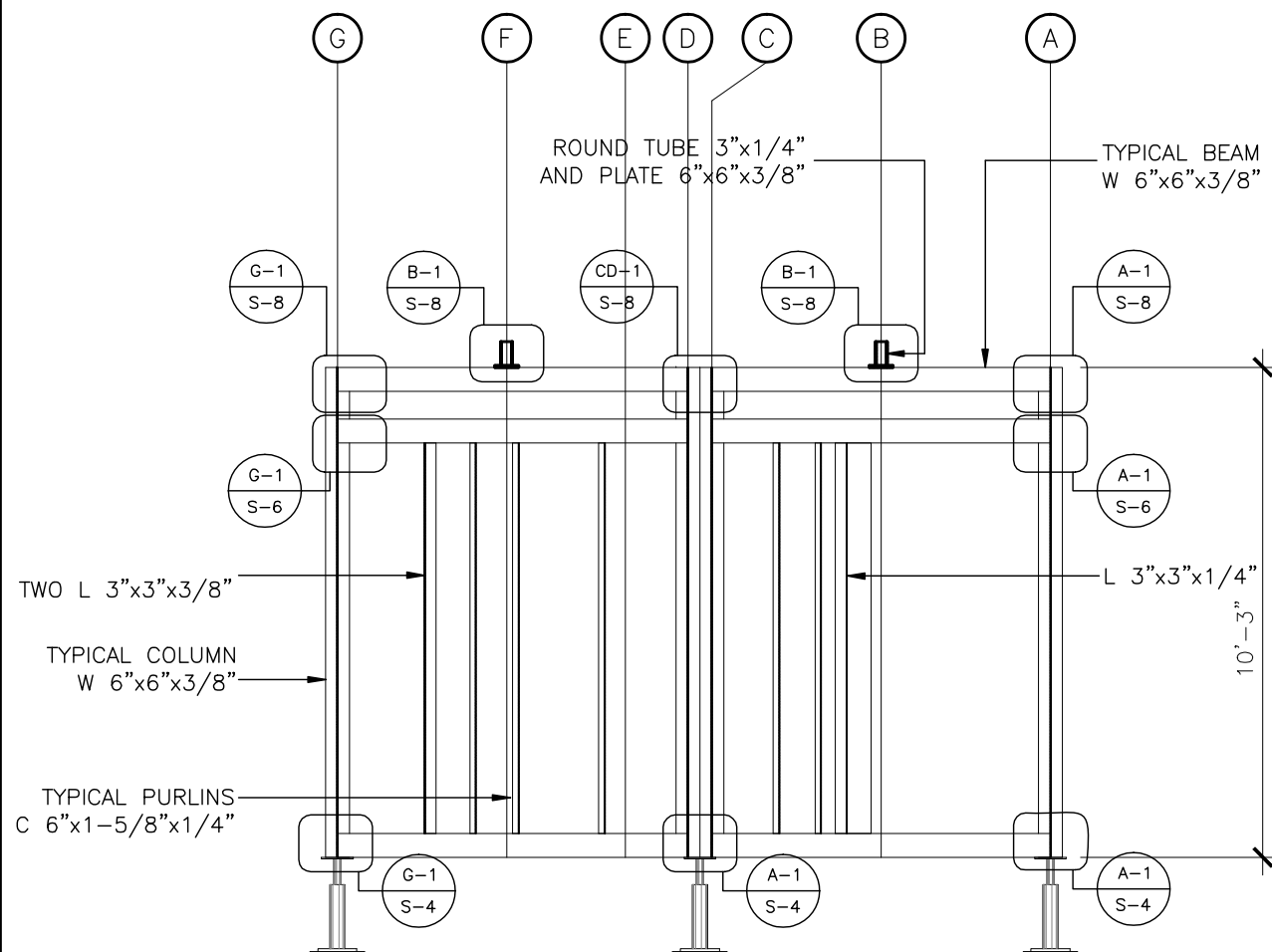




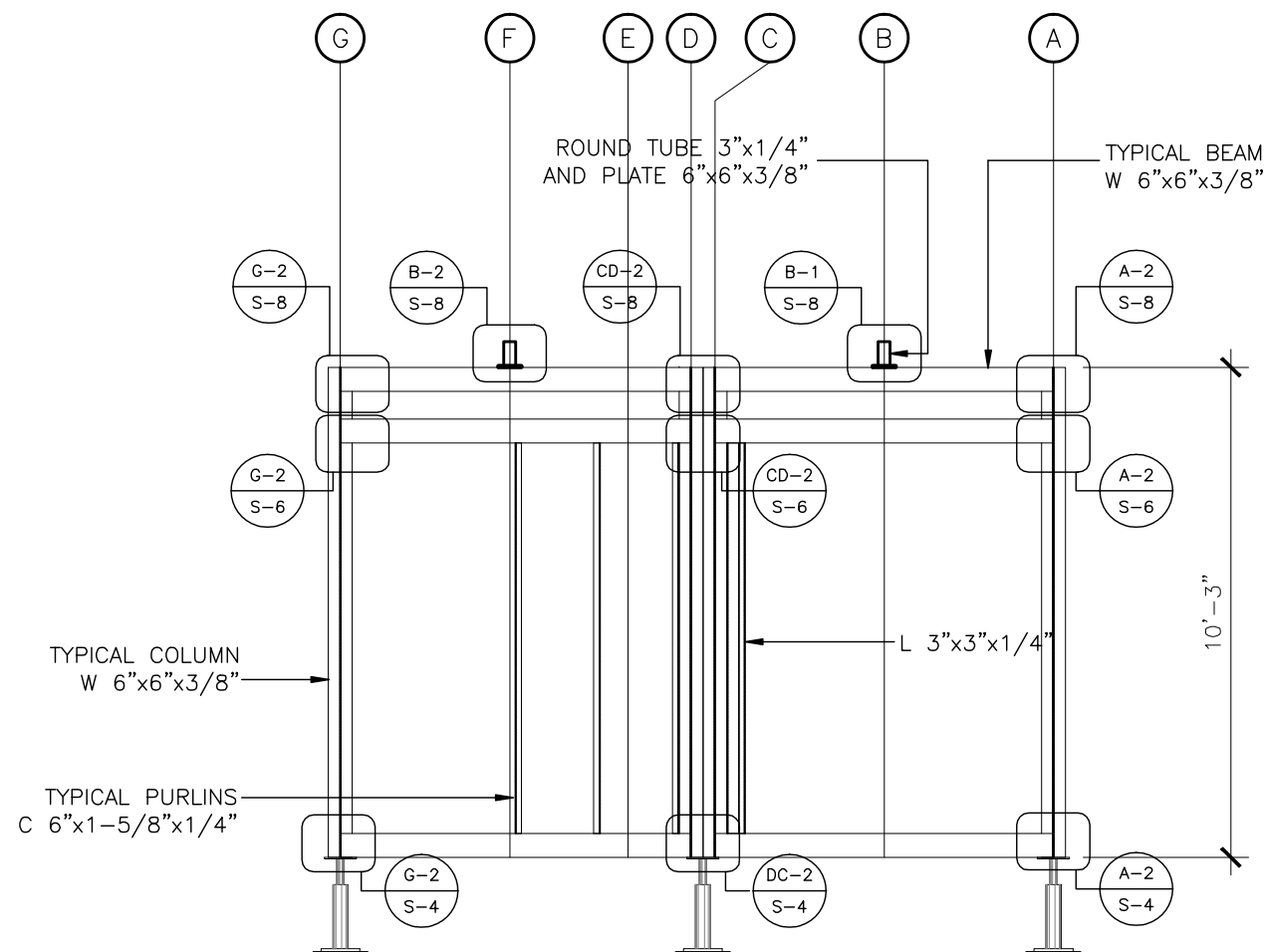


WILKES TOWNION

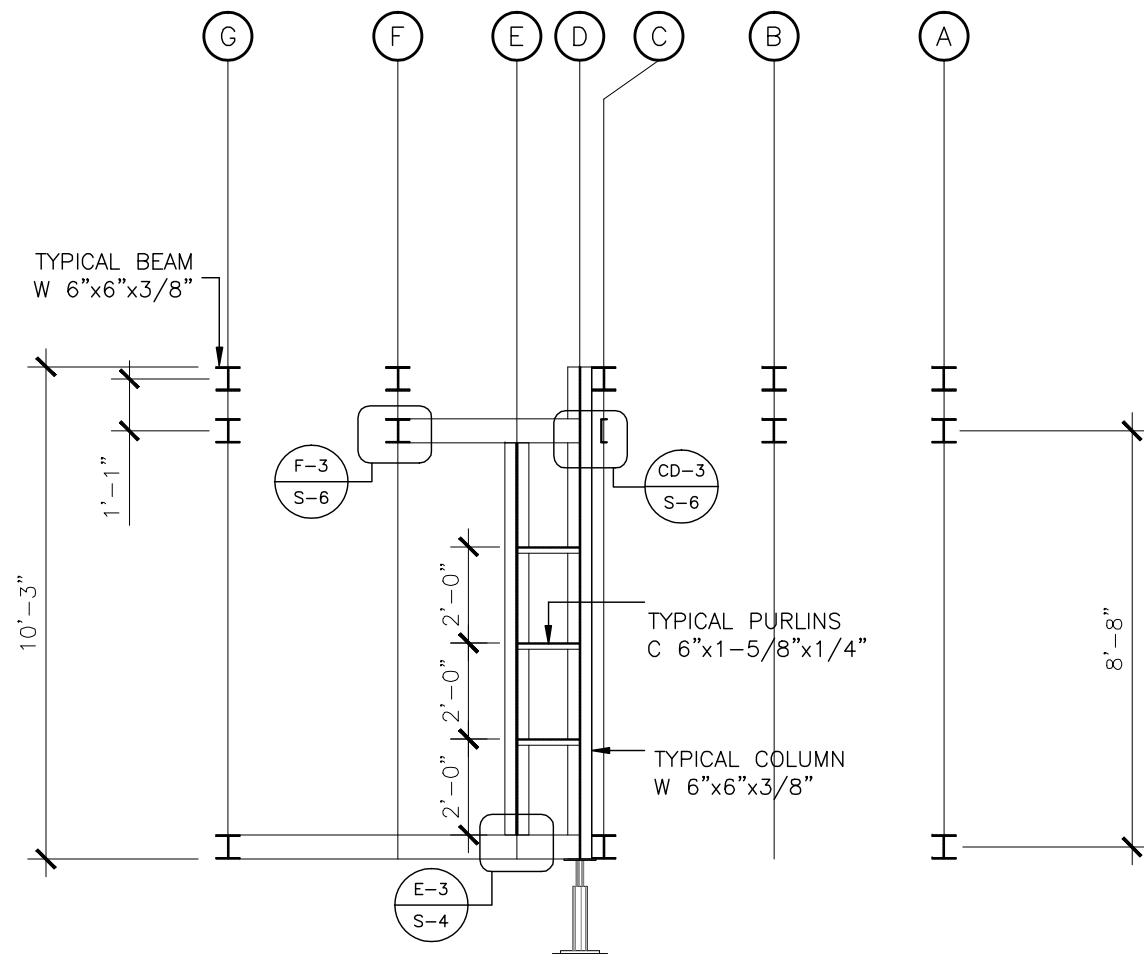
DATE: JUN/01/07
o. 101



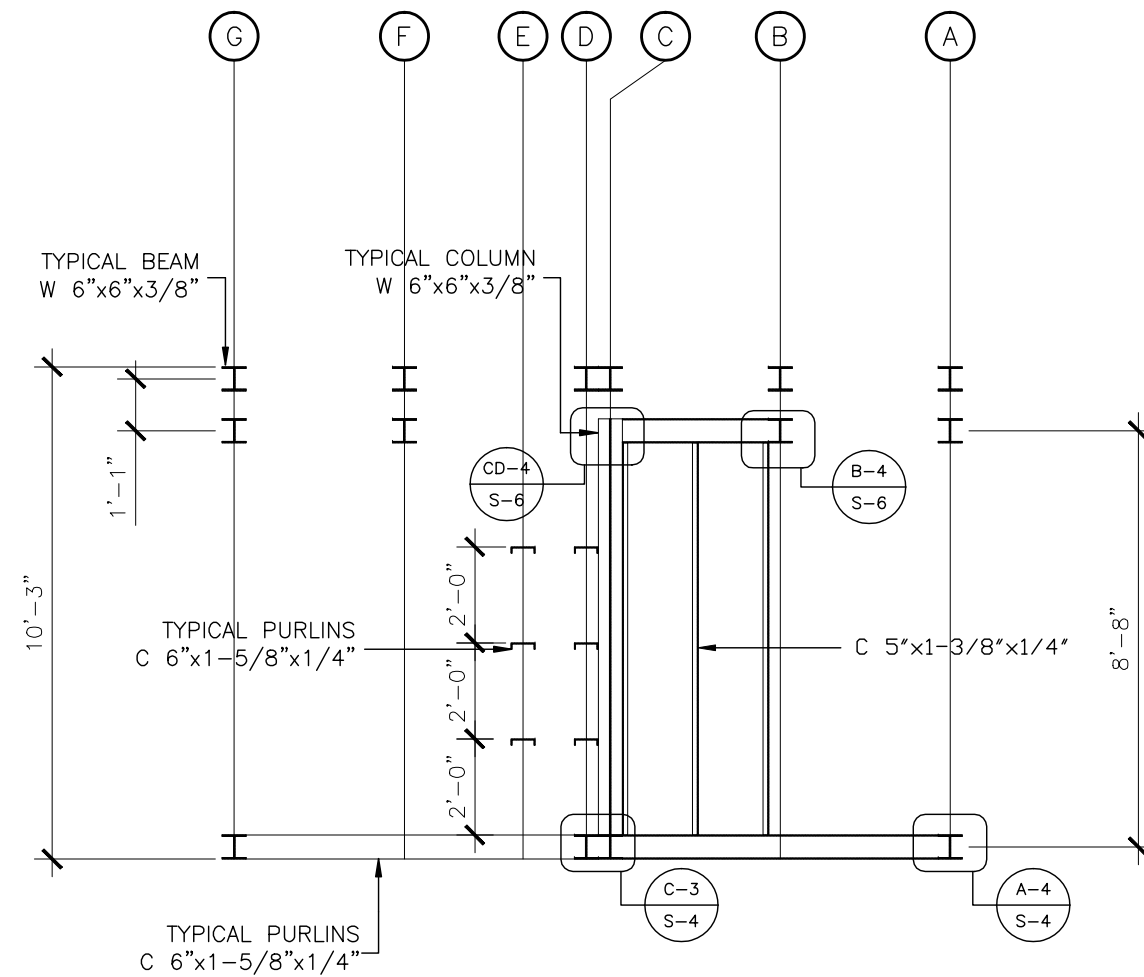
3 **SECTION AT AXIS 3**
SCALE: 1/4"=1'0"



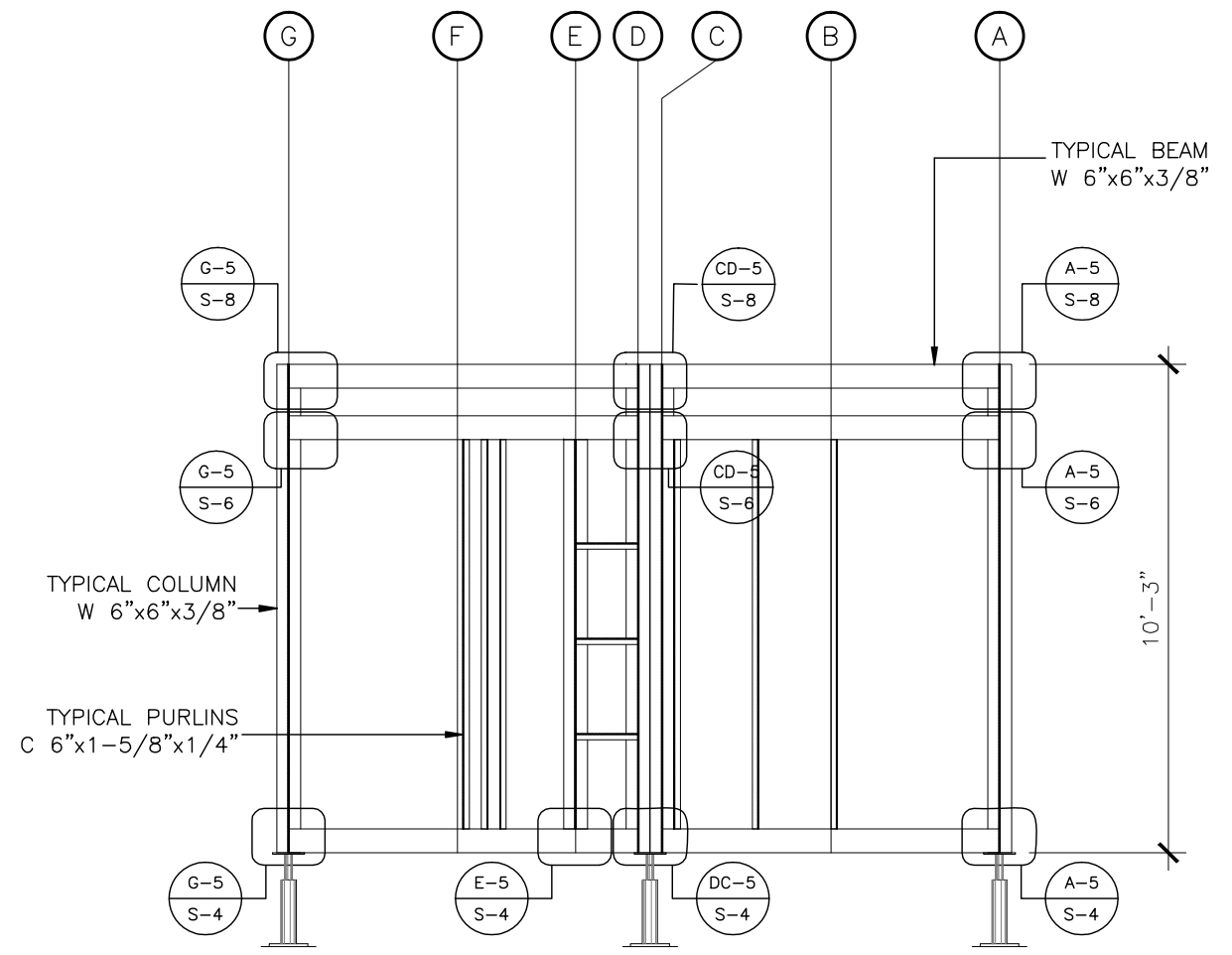
4 **SECTION AT AXIS 4**
SCALE: 1/4"=1'0"



5 SECTION AT AXIS 5
SCALE: 1/4"=1'0"



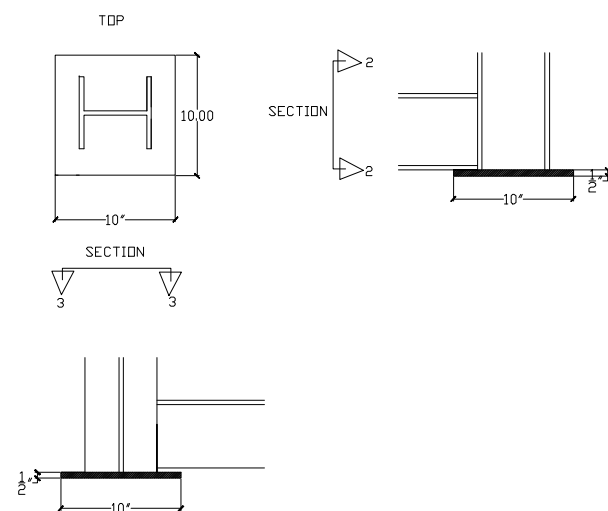
6 SECTION AT AXIS 6
SCALE: 1/4"=1'0"



7 **SECTION AT AXIS 7**
SCALE: 1/4"=1'0"

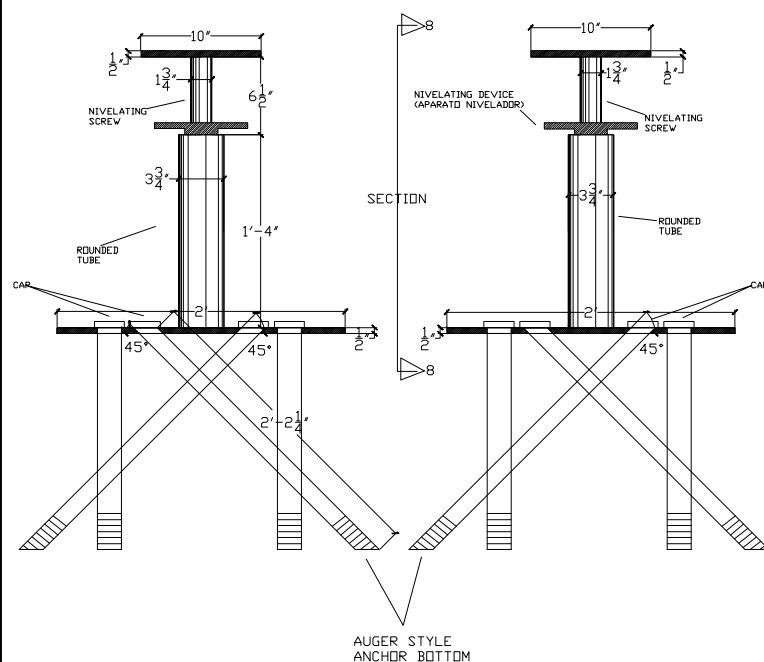
DETAIL E-1

TOP PLATE

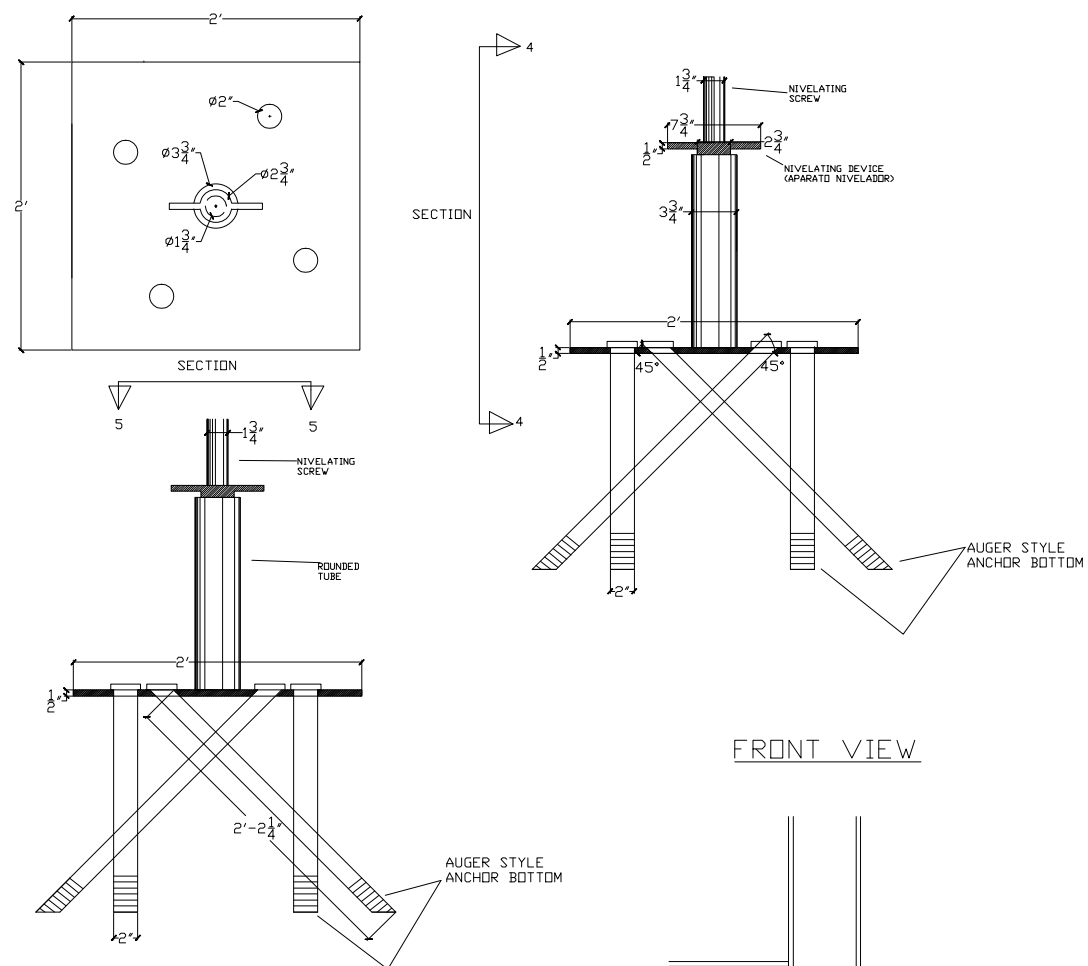


DETAIL E-4

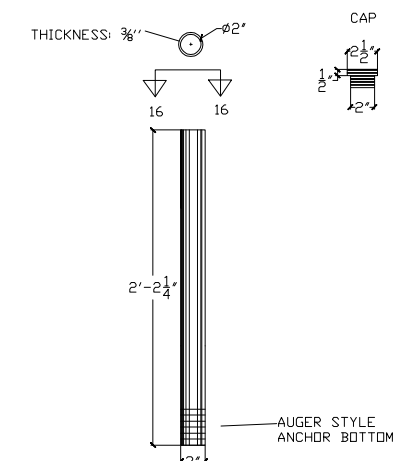
ROUNDED JACK WITH TOP AND BOTTOM PLATE



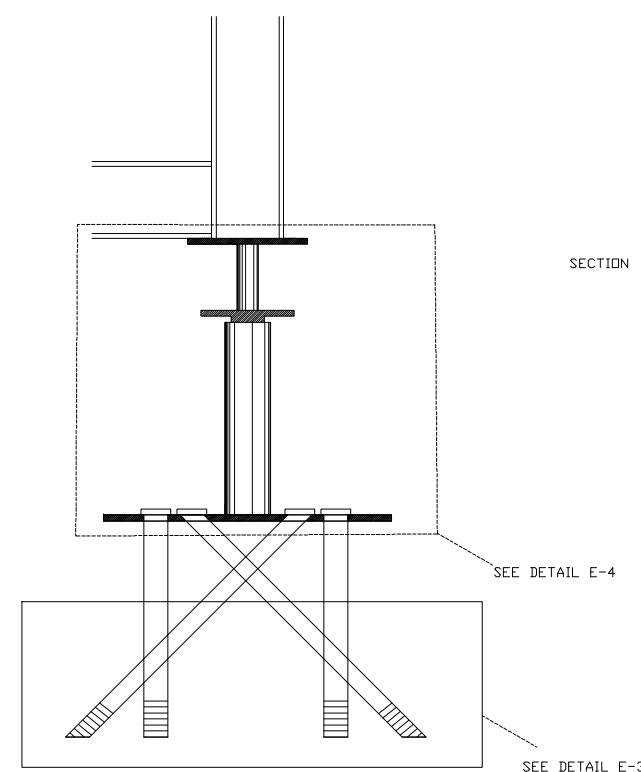
DETAIL E-2
ROUNDED JACK WITH BOTTOM PLATE



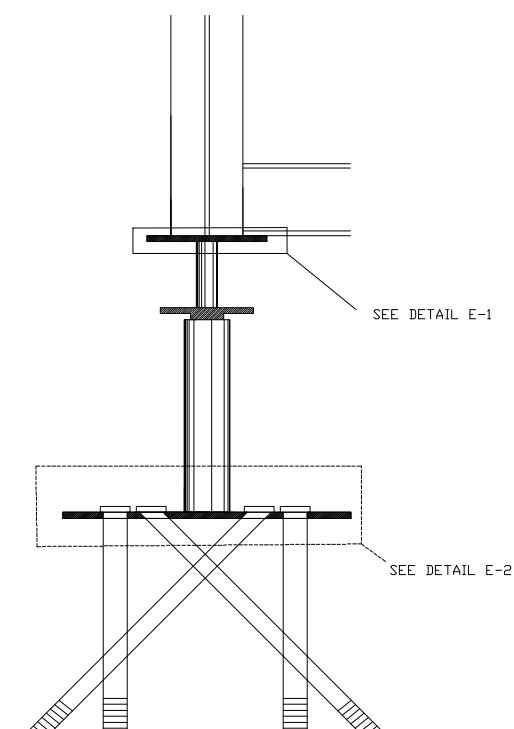
DETAIL E-3
2'' ROUNDED TUBE AS ANCHORS



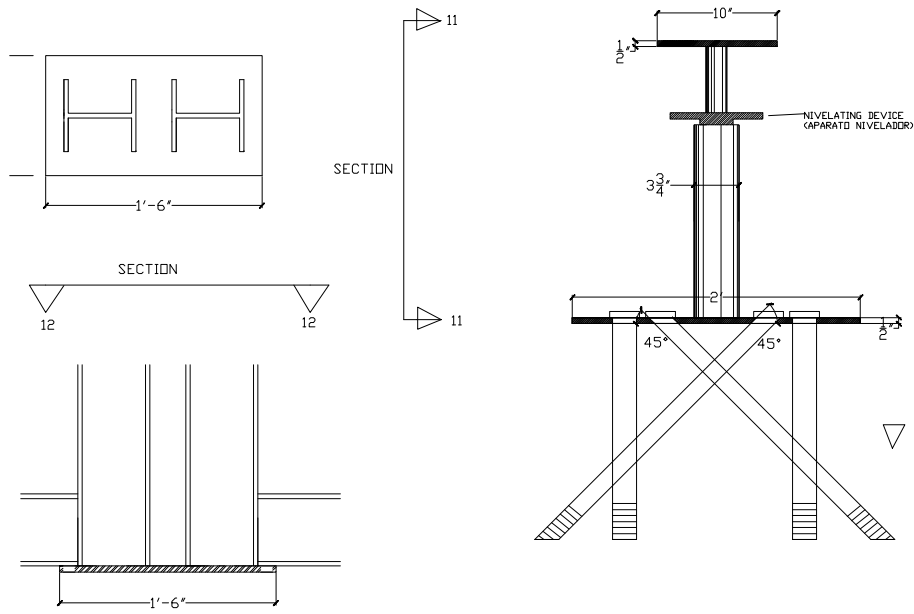
FRONT VIEW



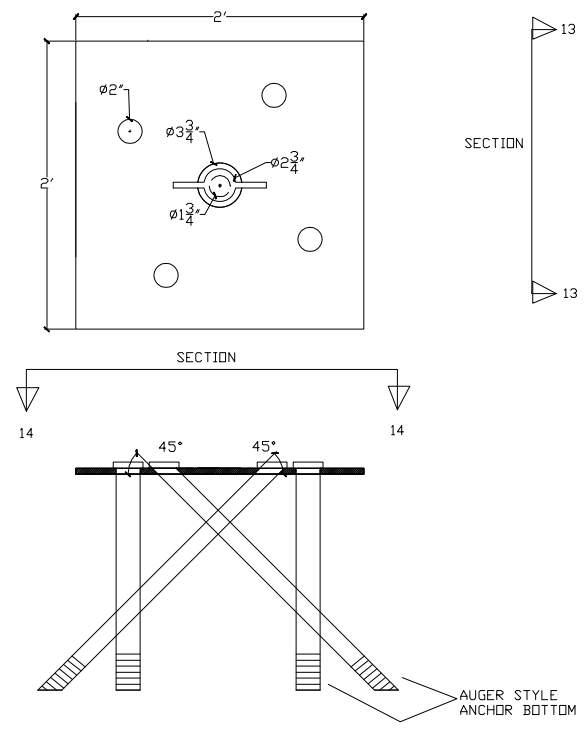
SIDE VIEW



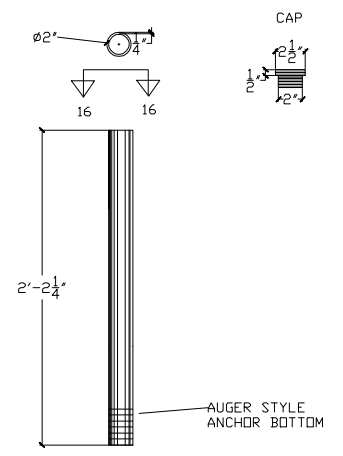
DETAIL E-11
PLATE FROM JACK TO
HOUSE COLUMN
10" x 18"



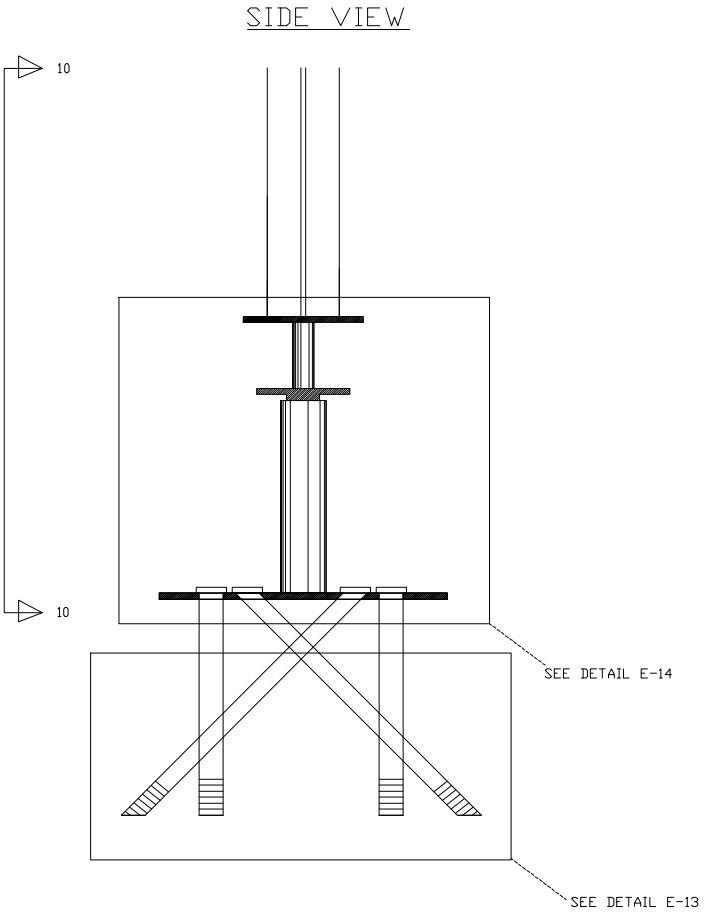
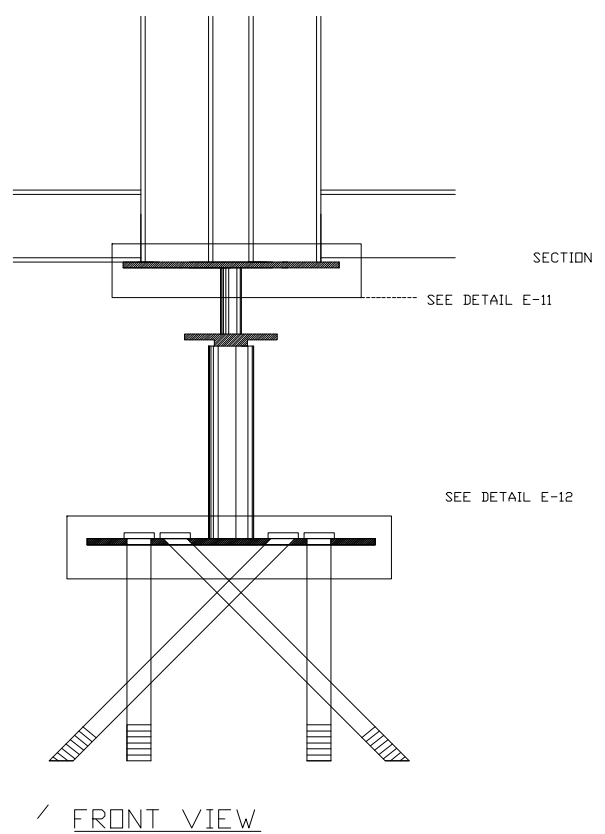
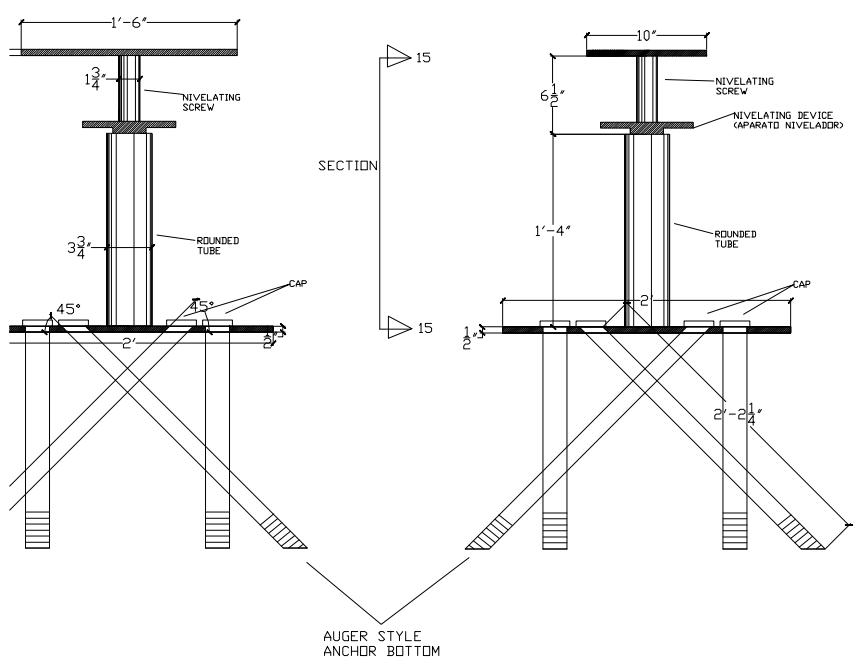
DETAIL E-12
FOUNDATION PLATE
24" x 24"

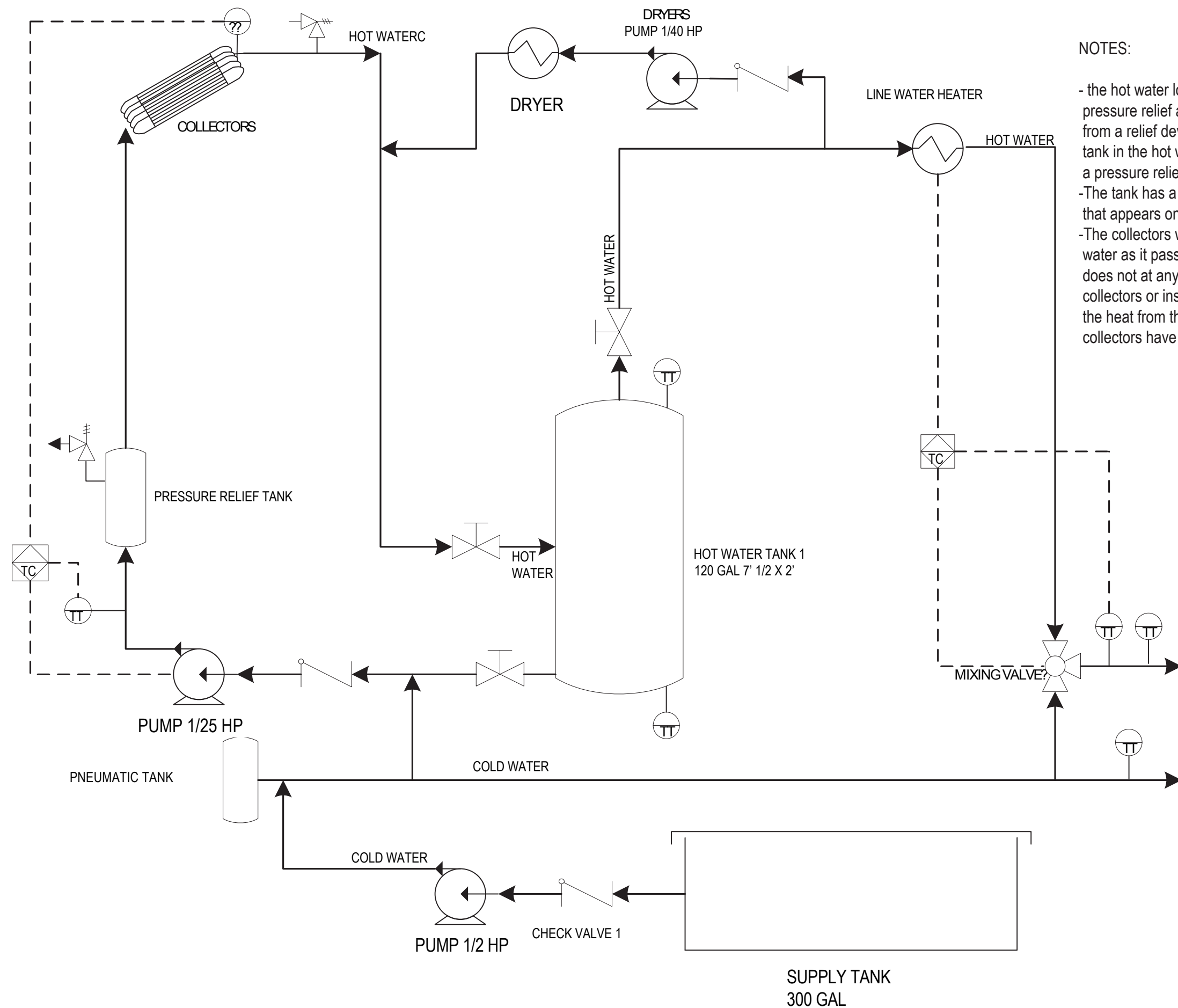


DETAIL E-13
2" ROUNDED TUBE AS ANCHOR

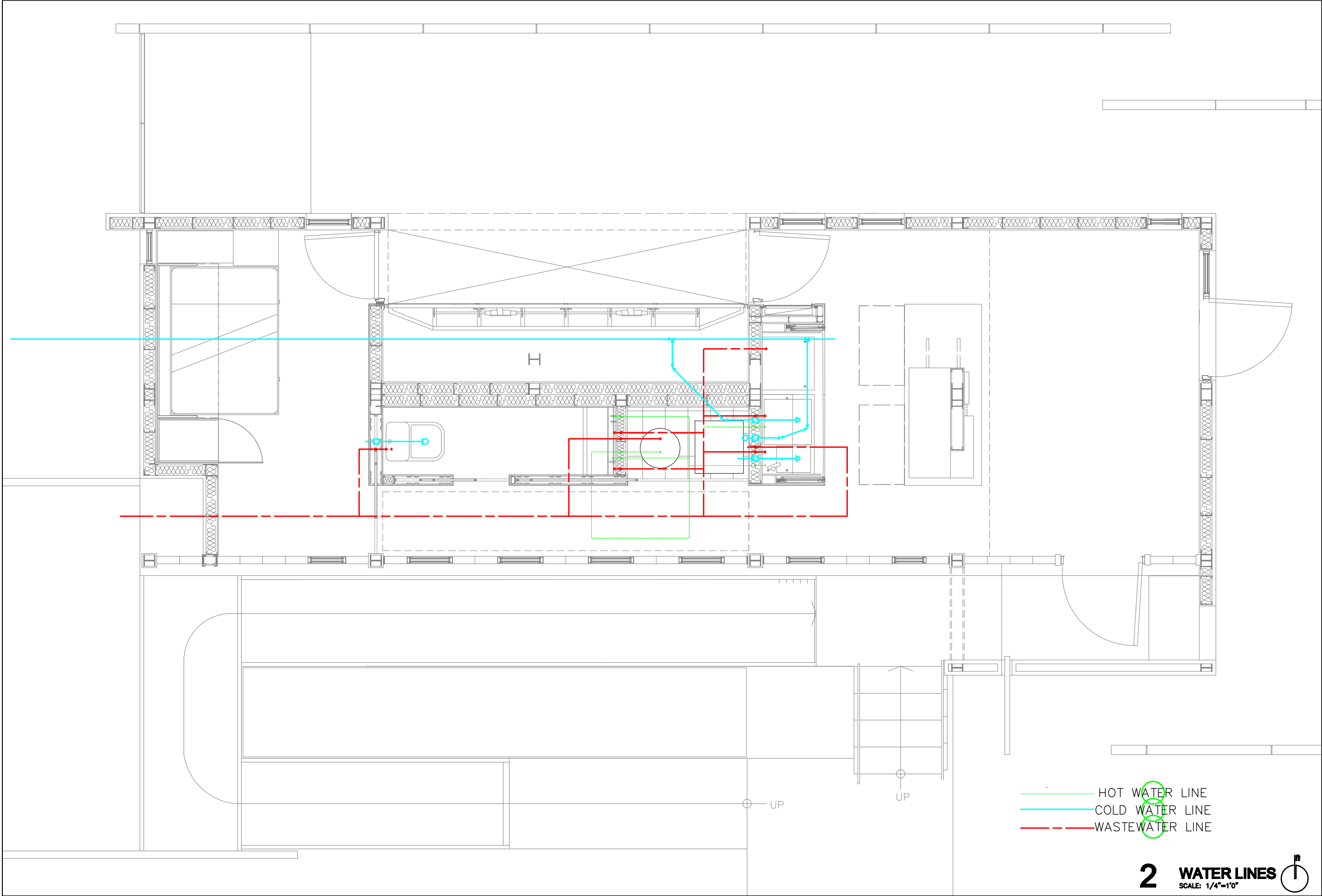


DETAIL E-14
3 3/4" ROUNDED TUBE JACK





- NOTES:
- the hot water loop provides for pressure relief and no section remains isolated from a relief device. There is a pressure relief tank in the hot water loop and the tank itself has a pressure relief device.
 - The tank has a relief valve so the shutoff valve that appears on the diagram should be ok.
 - The collectors we are proposing to use heat the water as it passes through a manifold. The water does not at any moment pass through the collectors or inside them. What heats the water is the heat from the metal appendage that the collectors have



2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

ISSUE/REVISIONS

MAIN WATER LINES

DATE: JUN/01/07
NO. 120

M-102



12'

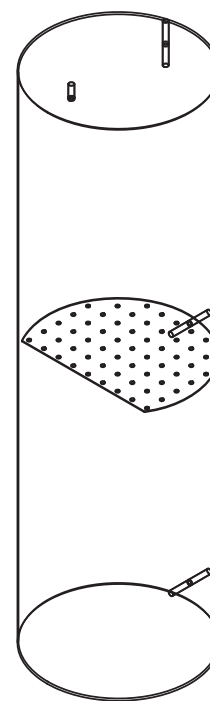
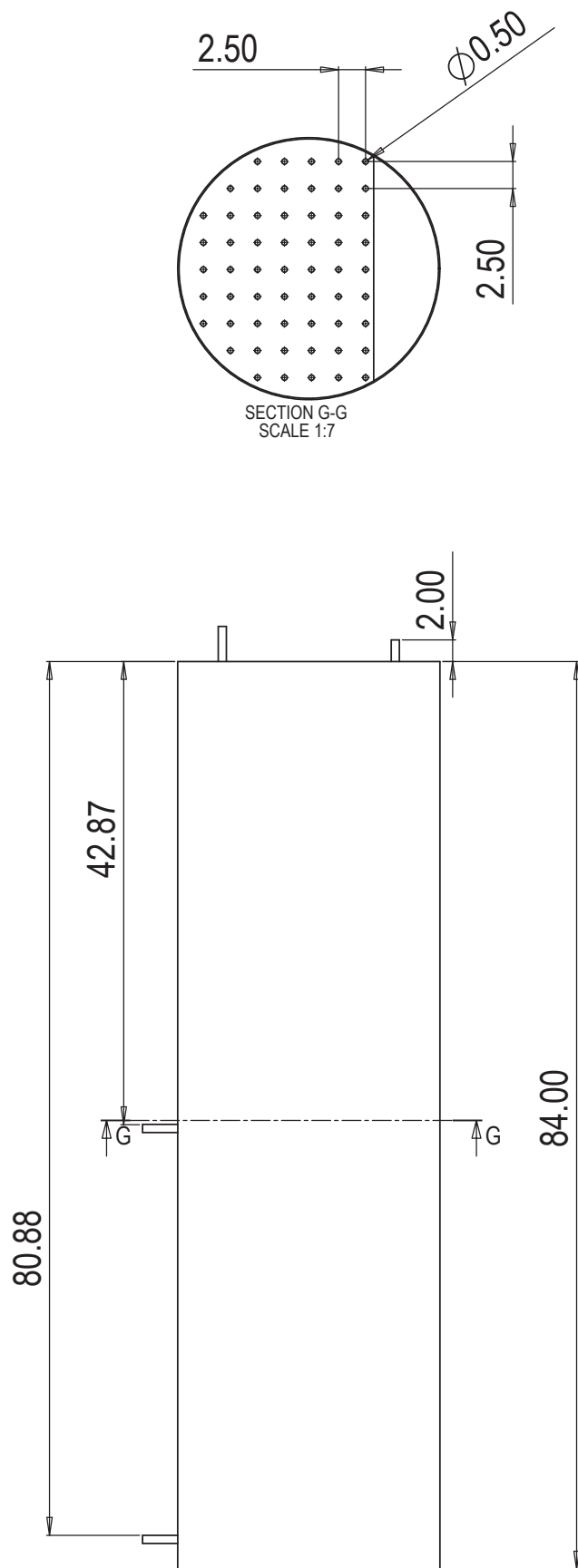
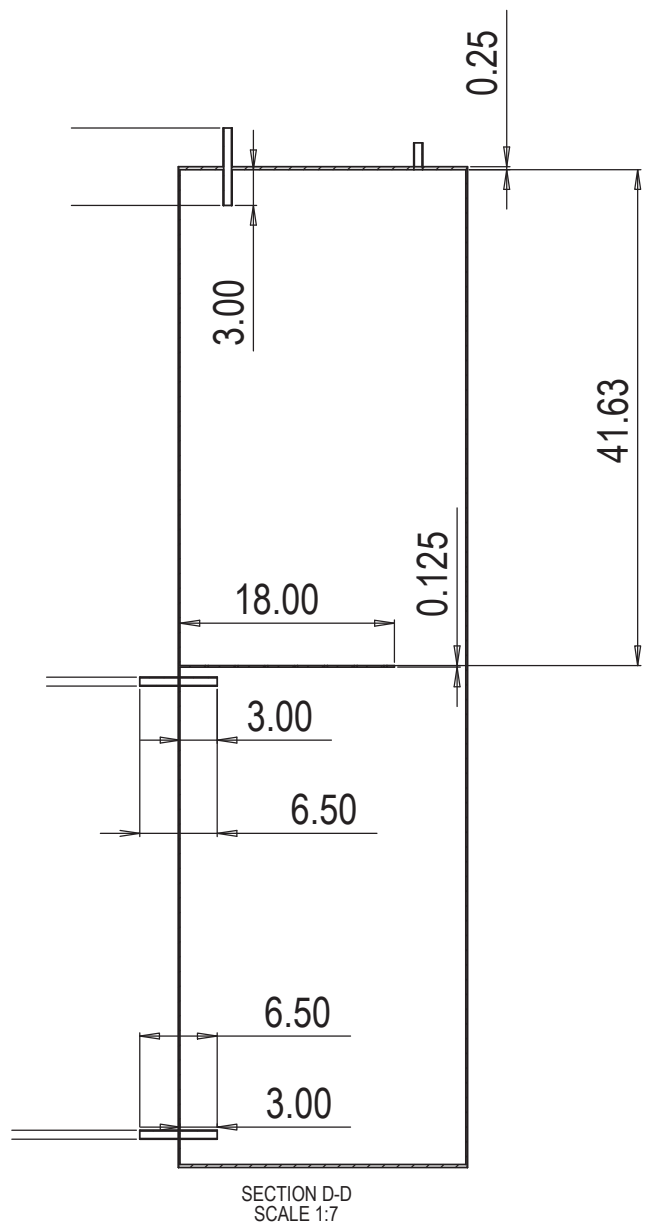
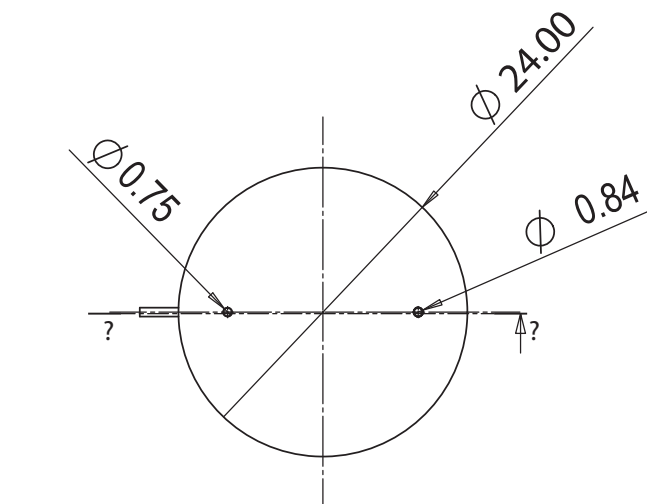
8'

4'

3'

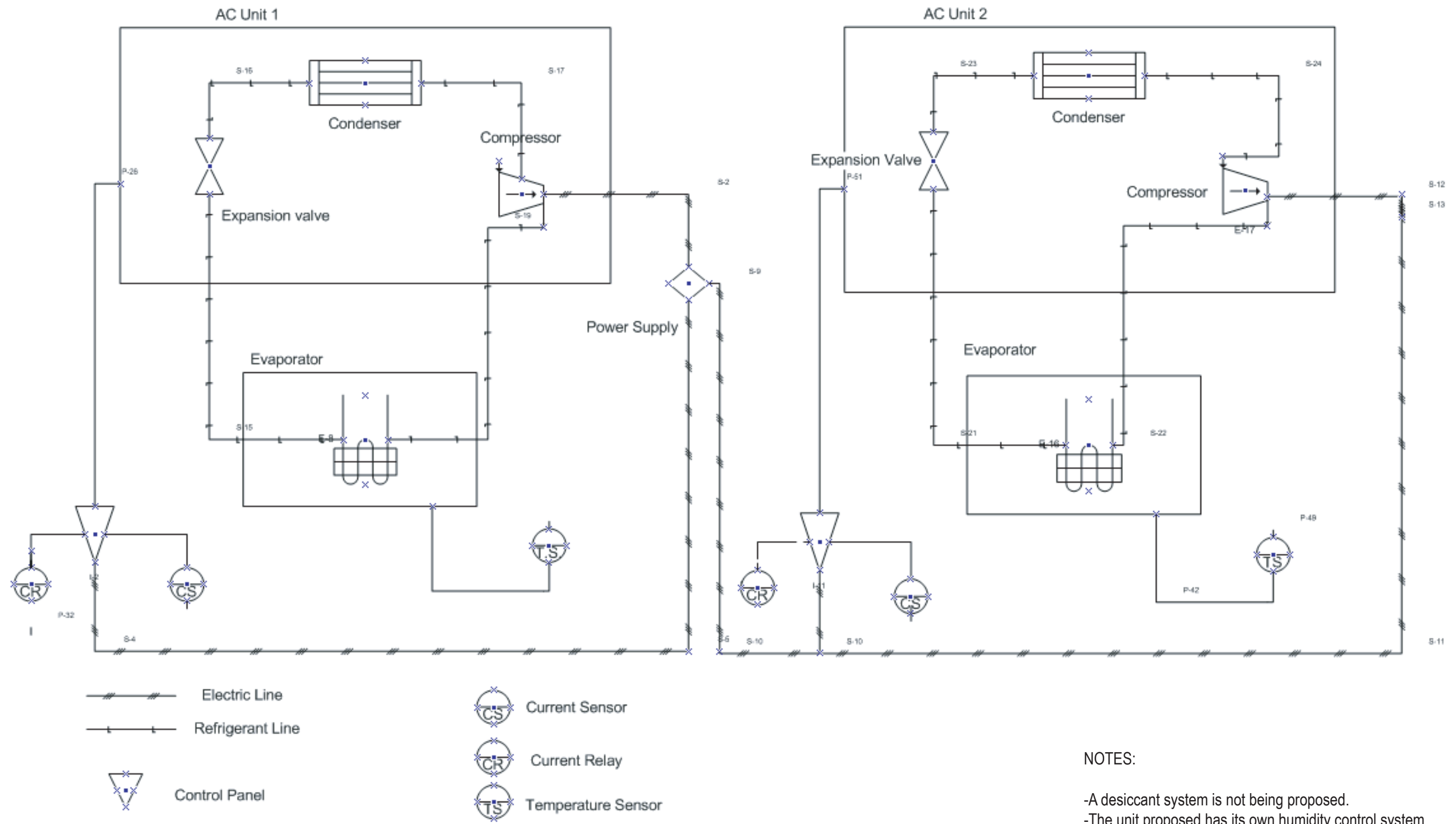
2'

1'



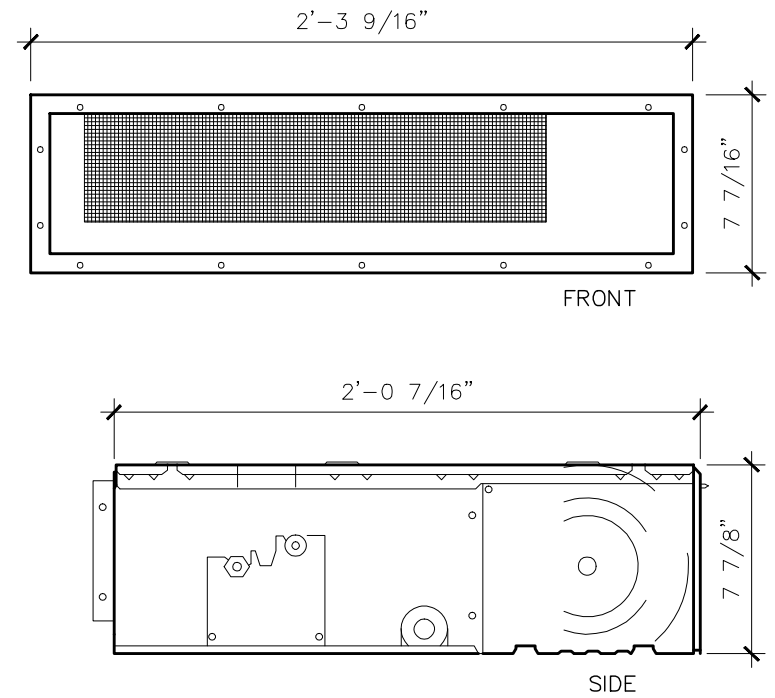
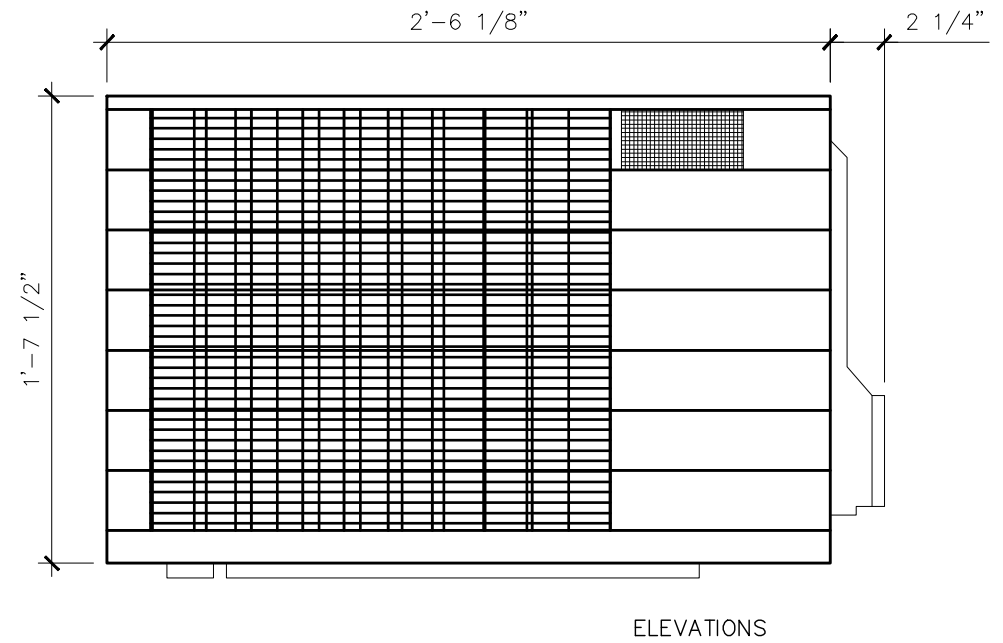
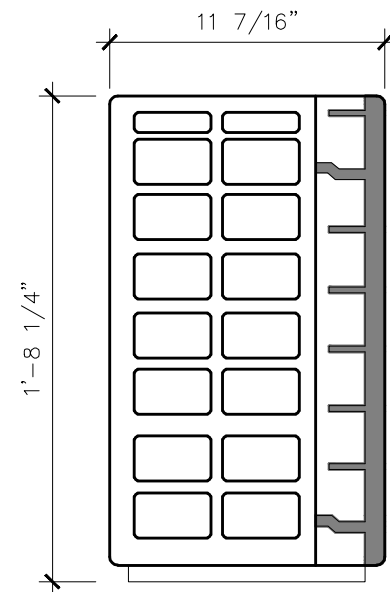
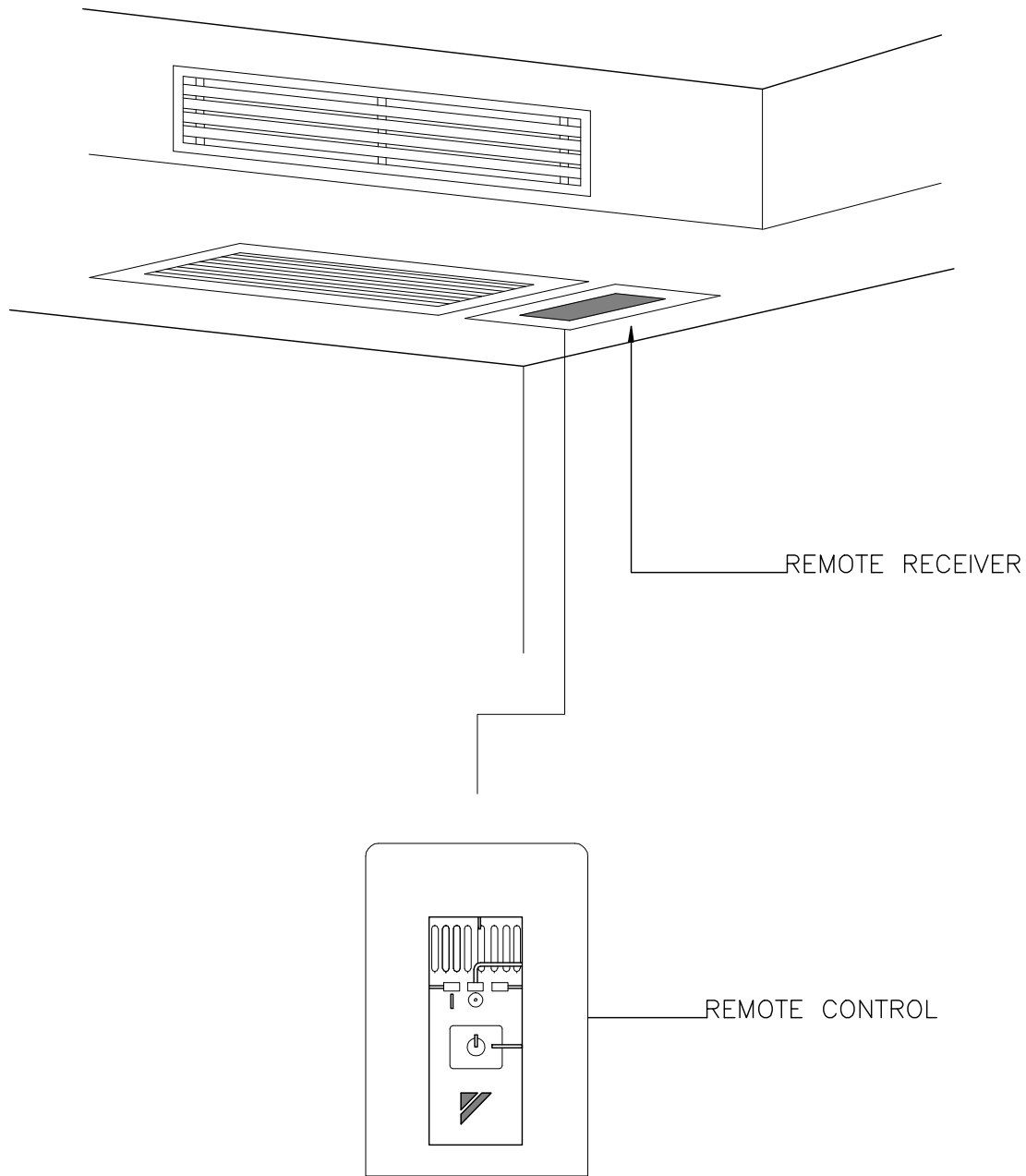
NOTES:

-The water tank to be used is a commercially available one.



NOTES:

- A desiccant system is not being proposed.
- The unit proposed has its own humidity control system.



HVAC SYSTEMS

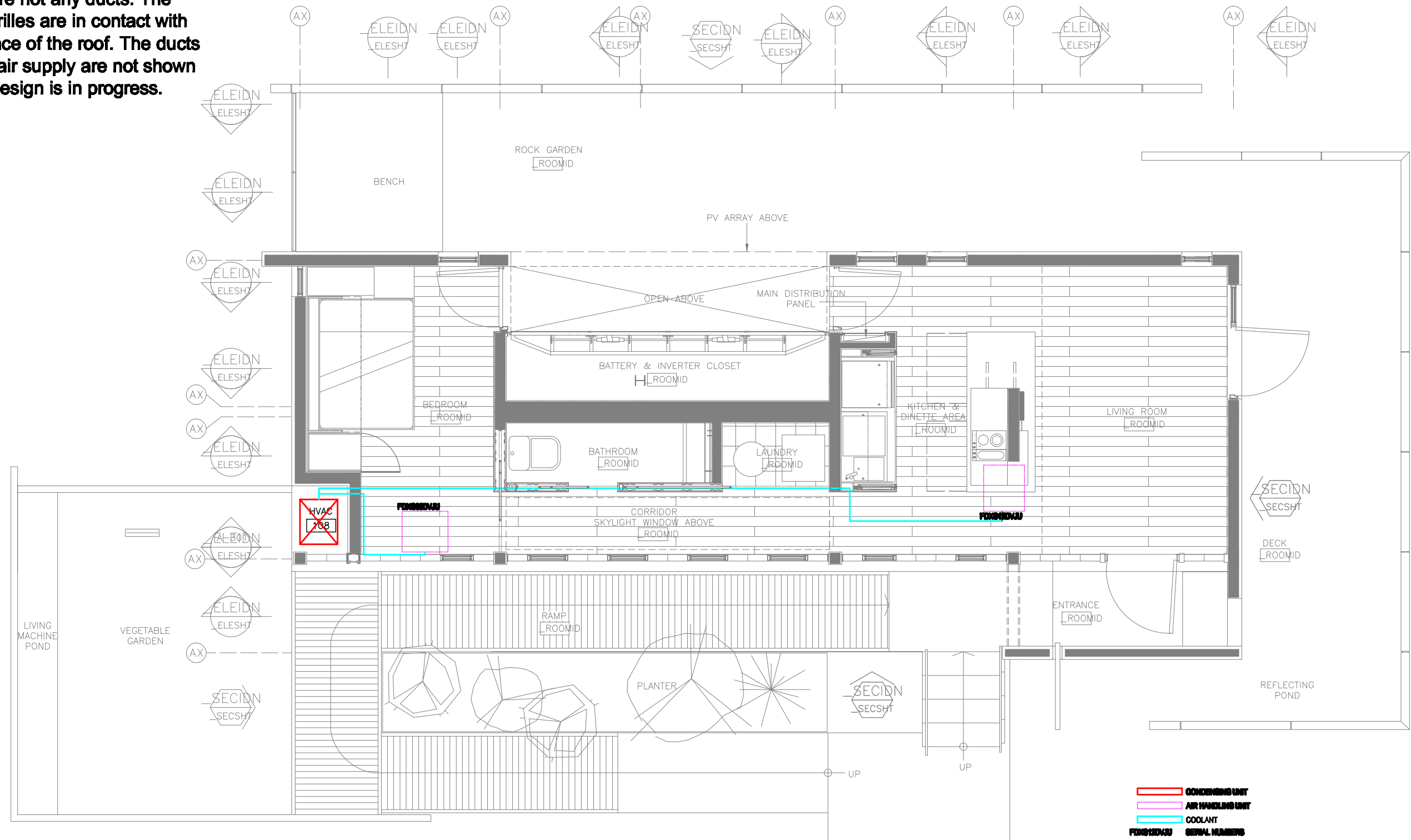
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UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

HVAC SYSTEMS
ISSUE/REVISIONS

DATE: JUN/01/07
NO. 123

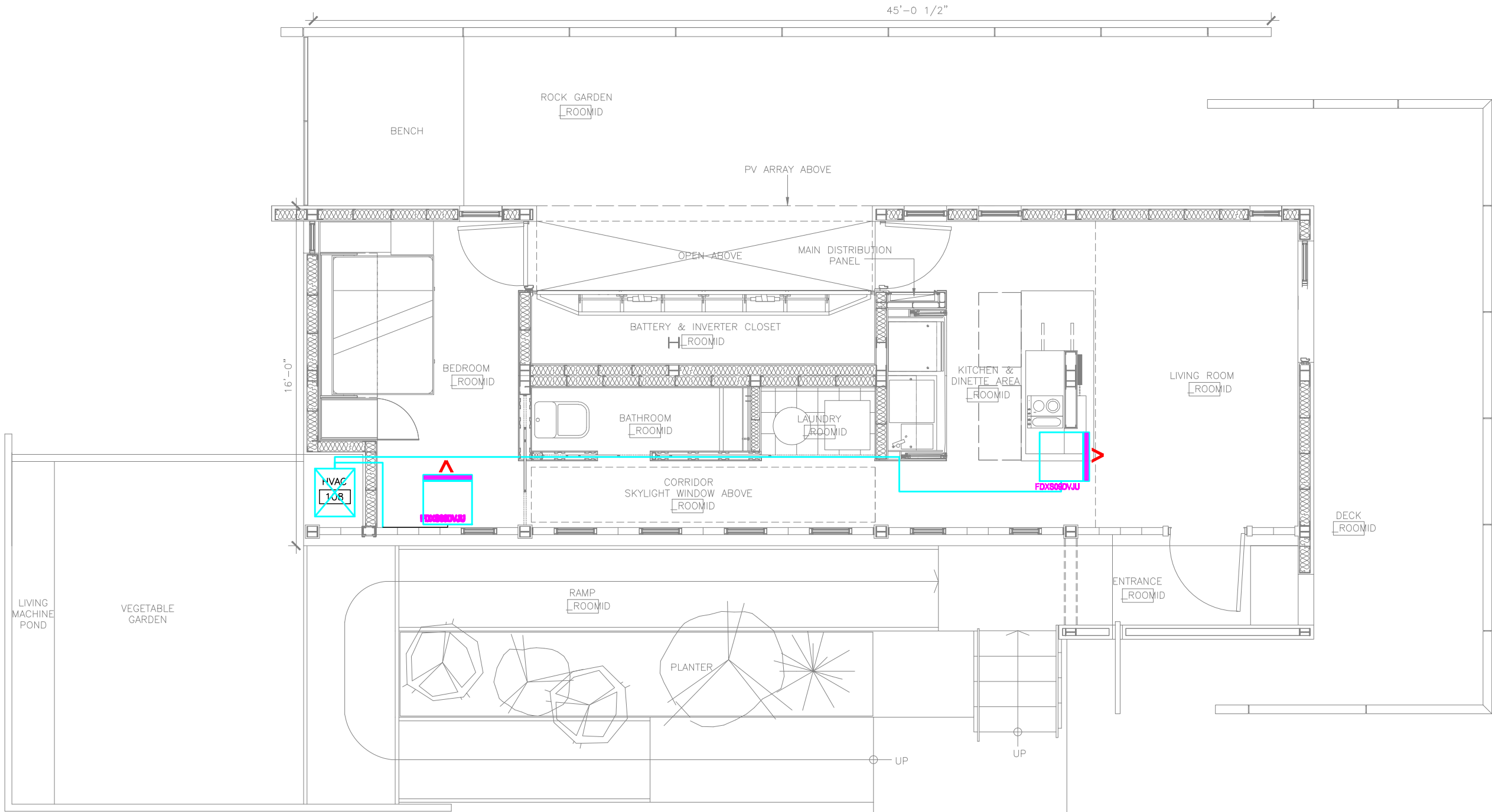
NOTES:

-There are not any ducts. The output grilles are in contact with the surface of the roof. The ducts of fresh air supply are not shown and its design is in progress.












CONDENSING UNIT
AIR HANDLING UNIT
COOLANT
SERIAL NUMBERS

1 HVAC DIAGRAM
SCALE: 3/16"=1'-0"
















1 AIR HANDLING UNIT
SCALE: 3/16"=1'-0"











CIRCUIT LEGEND:

-  –DUPLEX CONVENIENCE RECEPTACLE 15A, 125V, 3W, GROUNDING TYPE, AT 1’–6” A.F.F.
-  –WALL OUTLET FOR CABLE T.V., AT 1’–6” A.F.F.
-  –SINGLE RECEPTACLE 50A, 125/250, 1 PHASE, 3 POLE, 4 WIRE, GROUNDING TYPE, AT 1’–6” A.F.F.
-  –DITTO, BUT INSTALLED AT 3’–6” A.F.F.
-  –RUN TO PANELBOARD
-  –CONDUCT RUN ENBEDDED IN ROOF SLAB OR WALLS
-  –ELECTRICAL PANELBOARD, AT 6’–6” A.F.F. TO TOP
-  –GROUND FAULT CIRCUIT INTERRUPTER
-  –DENOTES WEATHER PROOF

ELECTRICAL LEGEND:

-  –FLOOR WASHLIGHT
-  –DOWNLIGHT FIXTURE
-  –SPOTLIGHT FIXTURE
-  –WALL LIGHT FIXTURE
-  –FLUORECENT TUBE 1”
-  –10 LINE SERIES .75
-  –SINGLE POLE SWITCH 10A, 125V, QUIET TYPE, AT 4’–0” A.F.F.
-  –DITTO, BUT 3 WAY
-  –DITTO, BUT 4 WAY
-  –SENSOR,L10 ACTIVATES WHEN MOVEMENT.
-  –DISCONNECTING MEAN
-  –A/C CONDENSER
-  –A/C FAN COIL

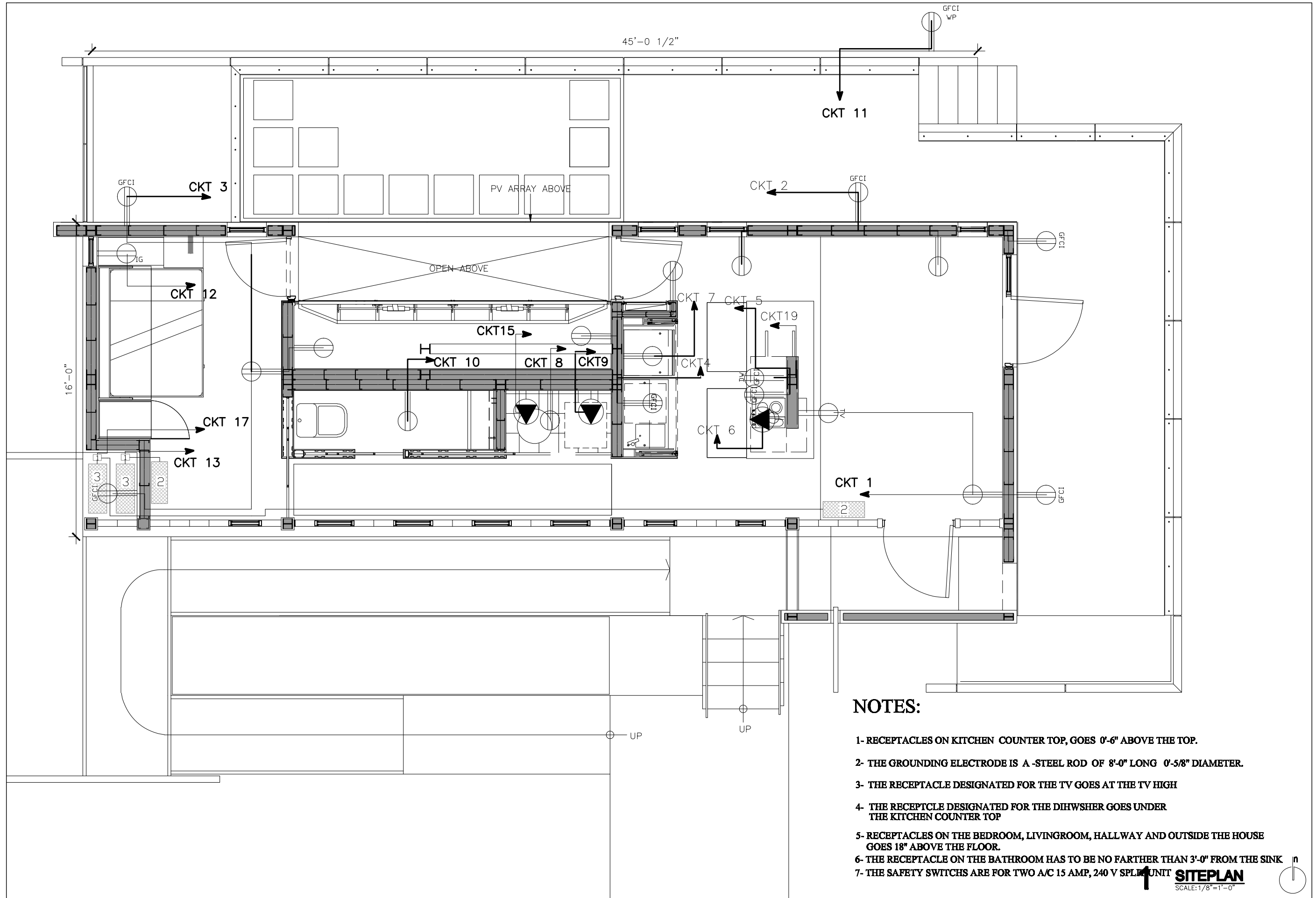
CONTROL LEGEND:

-  –SENSOR COMMUNICATION LINE– CONNECT ALL SENSORS TO THE DATA LOGGER
-  –INDOOR TEMPERATURE AND RH – THIS SENSOR WILL BE IN THE LIVING ROOM AND NEAR THE KITCHEN ROOM. WILL BE 4 FEET FROM THE FLOOR
-  –MAIN BATTERY SHUNT– OUR DC PANEL ALREADY HAVE THIS MEASURE INSTRUMENT.
-  –LIGHT SENSOR – THIS SENSOR WILL BE PLACE ON THE WORKSTATION SURFACE.
-  –DATA LOGGER – THIS SYSTEM WILL BE ESTABLISH INSIDE OF THE INVERTER AND BATTERY ROOM. IT WILL NEAR THE MAIN AC BRAEKER PANEL AND NEAR TO THE DC PANEL(IN THE SAME WALL)
THE DATA LOGGER WILL BE GROUNDED WITH THE SAME GROUND EARTH OF THE BATTERY. IT WILL HAVE A 120VAC WITHIN 5 FEET OF THE SYSTEM .
-  –DUPLEX OUTLET 120 VAC @ 15 FOR THE DATA LOGGER.
-  –PYRANOMETER – WILL MESURE THE SOLAR RADIATION
-  –THERMOCOUPLE – WILL BE INSIDE THE REFRIGERATOR AND FREEZER
-  –WATTNODE – WILL BE USED TO MESURE POWER CONSUMPTION
-  –VOLTAGE DIVIDER – WILL BE USED TO MEASURE DC VOLTAGE IN THE BATTERIES

NOTES:

ABOUT THE WIRNG ROUTING OF THE SENSORS, WILL BE RUNNING UP OR DOWN BORDER WALLS UNTIL THE DATA LOGGER. THE WIRING ROUTING CAN SEE IN YELLOW COLOR ON THE PLATE.

THE THERMOCOUPLE WIRING, WILL BE RUNNING OF THE DATA LOGGER TOTHE REFRIGERATOR THROUGH THE WALL IN A EMT 1/2” CONDUIT NO MORE THAN 6” LONG.



NOTES:

- 1- RECEPTACLES ON KITCHEN COUNTER TOP, GOES 0'-6" ABOVE THE TOP.
- 2- THE GROUNDING ELECTRODE IS A -STEEL ROD OF 8'-0" LONG 0'-5/8" DIAMETER.
- 3- THE RECEPTACLE DESIGNATED FOR THE TV GOES AT THE TV HIGH
- 4- THE RECEPTACLE DESIGNATED FOR THE DIHWASHER GOES UNDER THE KITCHEN COUNTER TOP
- 5- RECEPTACLES ON THE BEDROOM, LIVINGROOM, HALLWAY AND OUTSIDE THE HOUSE GOES 18" ABOVE THE FLOOR.
- 6- THE RECEPTACLE ON THE BATHROOM HAS TO BE NO FARTHER THAN 3'-0" FROM THE SINK
- 7- THE SAFETY SWITCHES ARE FOR TWO A/C 15 AMP, 240 V SPLM UNIT

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

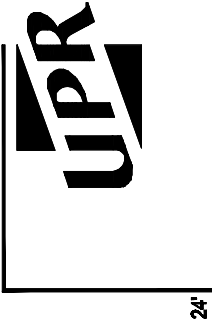
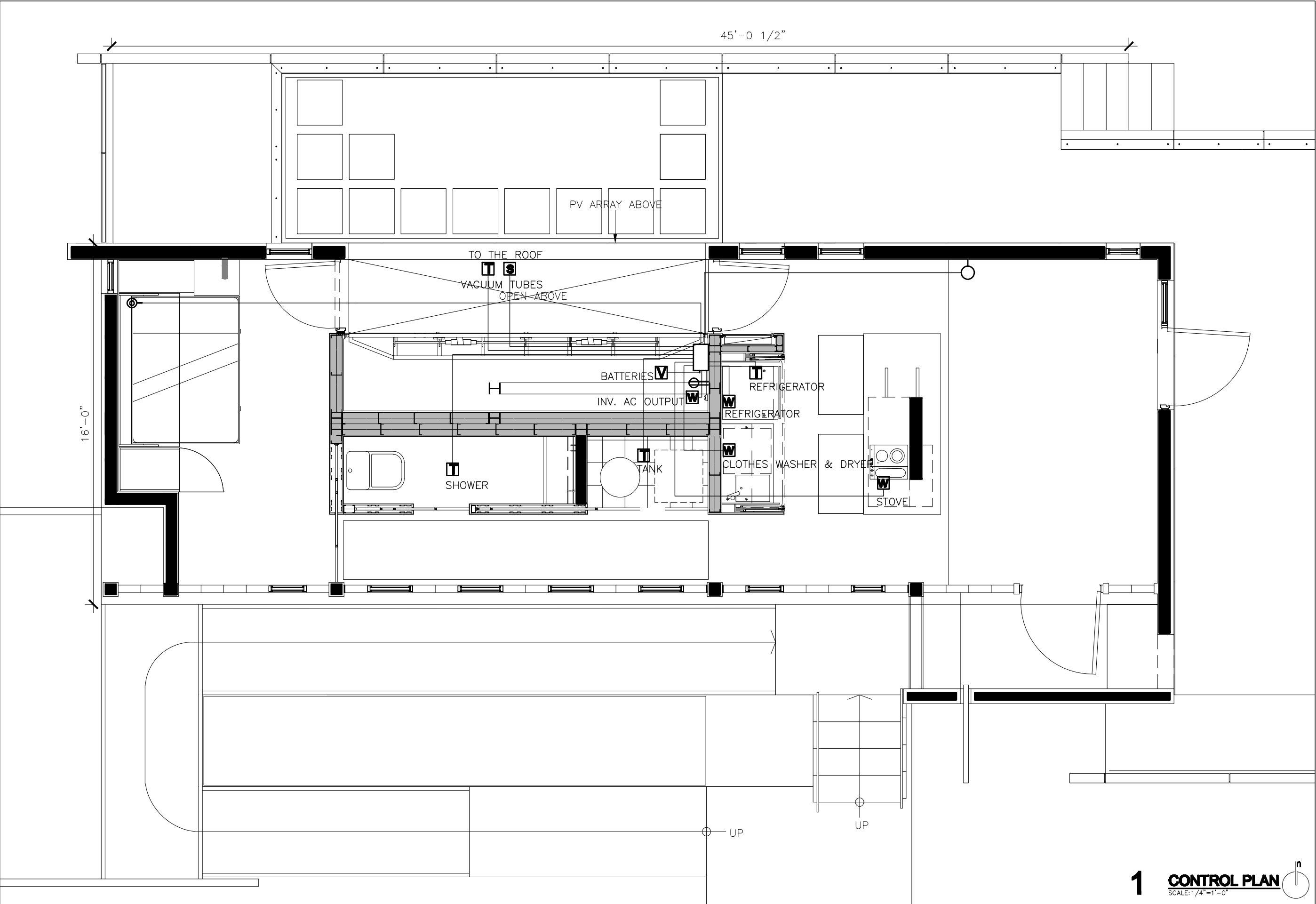
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RECEPTACLE WIRING DIAGRAM

ISSUE / REVISIONS

DATE: JUN/01/07





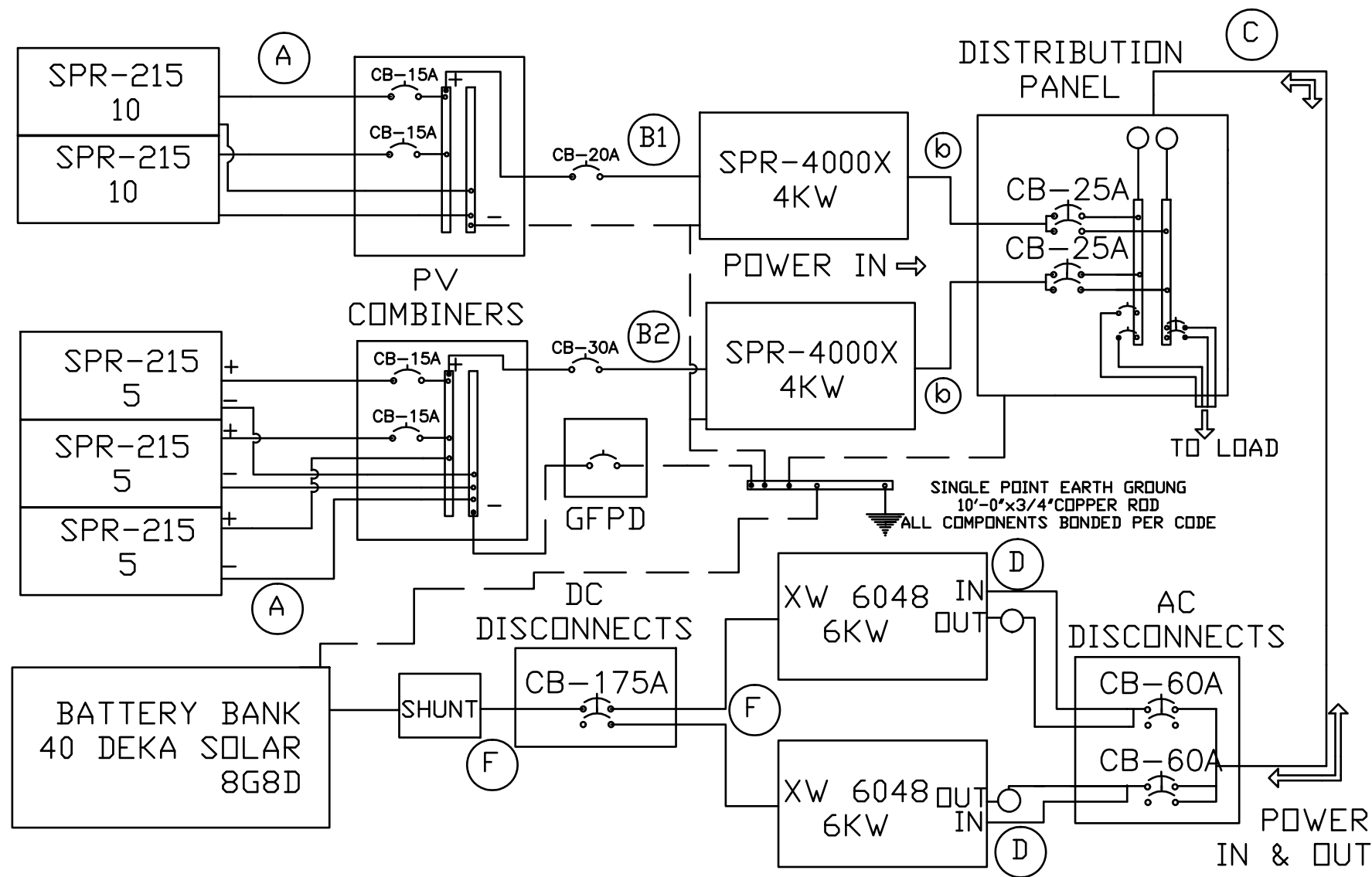
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CONTROL PLAN

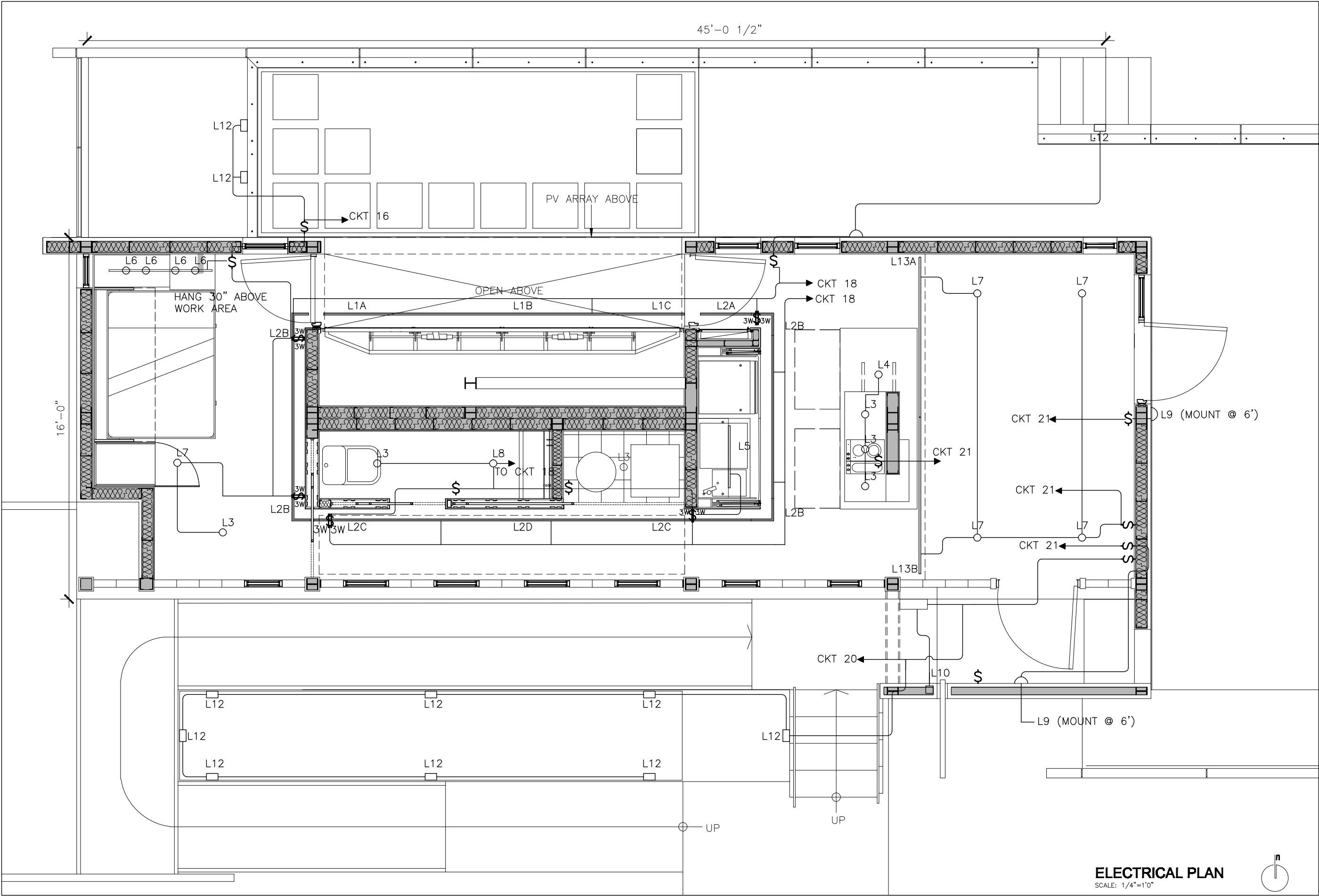
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DATE: JUN/01/07
 NO. 107

1 CONTROL PLAN
 SCALE: 1/4" = 1'-0"



WIRE SCHEDULE	
(A)	#12 USE-2,2 COND,#14G
(B1)	#12THW-2, 2 COND,#10G
(B2)	#10THW-2, 2 COND,#10G
(b)	#10THW-2, 3 COND,#10G
(C)	#4THW-2, 3 COND,#4G
(D)	#6THW, 2 COND,#10G
(E)	#2 THW, 1 COND
(F)	4/0 THHN, 2COND,#4G
**USE #4 WIRE GROUNDING ROD BUS SECTION	

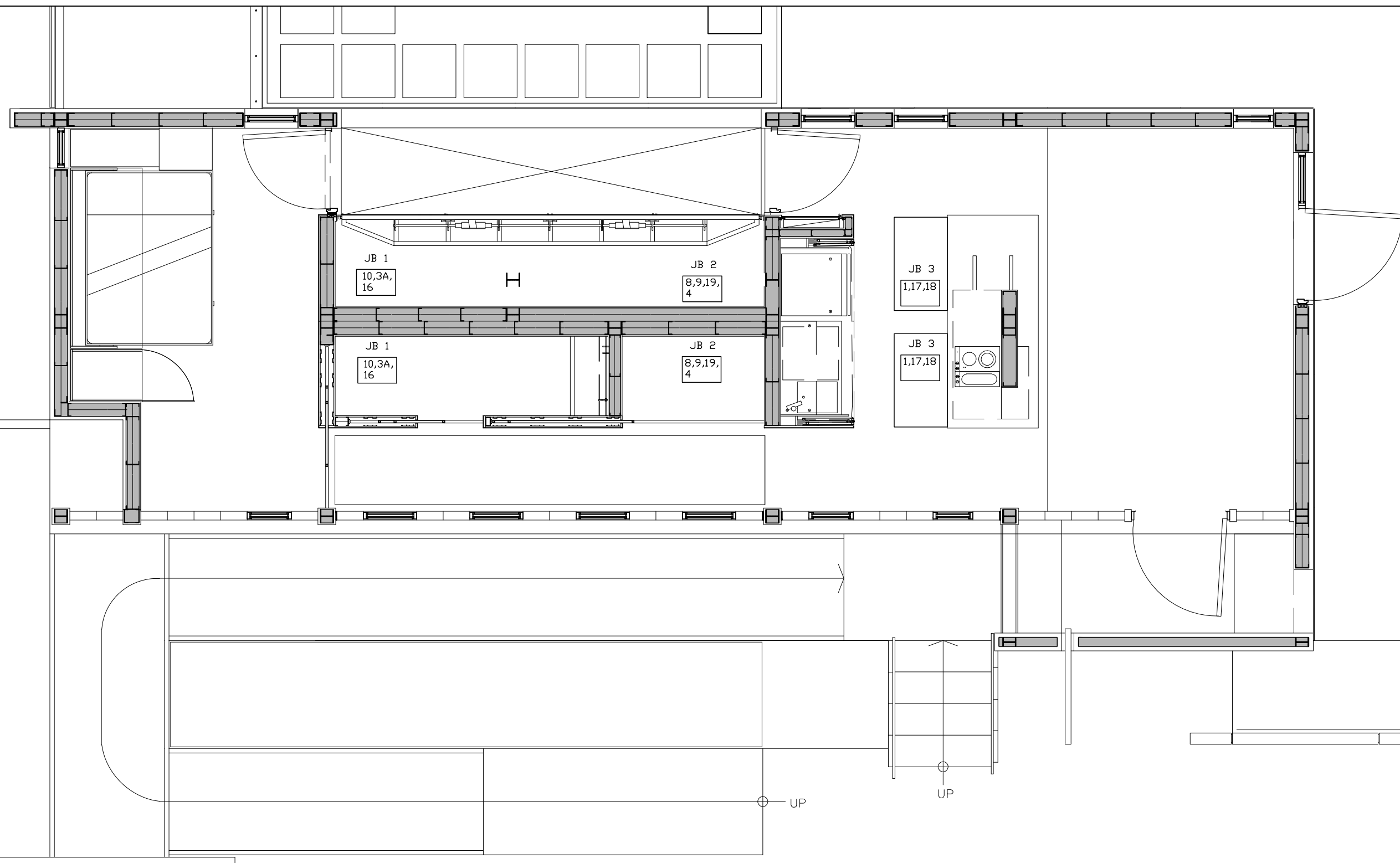


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LIGHTING SCHEDULE

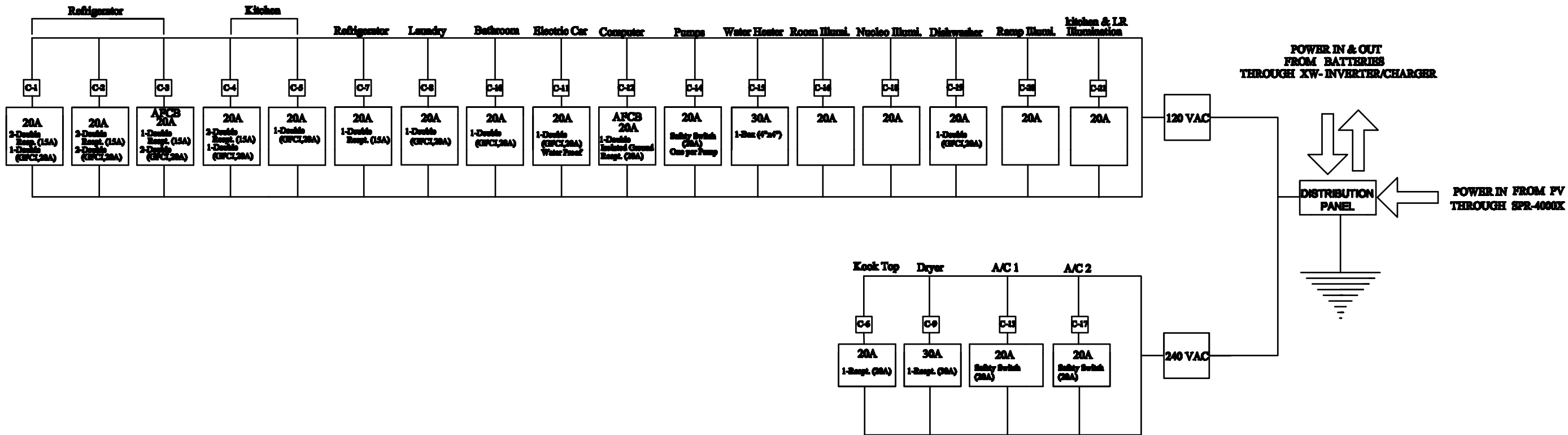
ISSUE/REVISIONS

DATE: MAR/06/07
NO. 111
OF 114

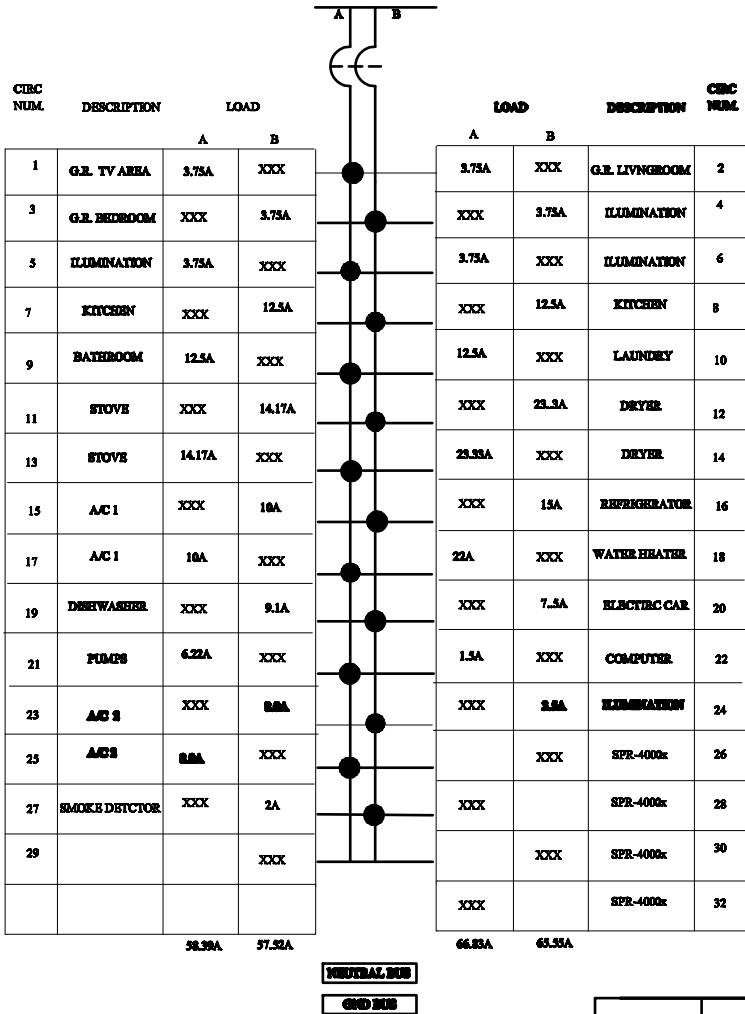


ALL THE JUNCTION BOXES WILL BE INTERCONNECTED WITH A MULTICONNECTORS TO GET ONE CONECTION BETWEEN EACH PAIR OF JB. ALL THE JUNCTION BOXES WILL BE CONNECTED TO CONDUICTS IN THE DISTRIBUTION THAT CROOS THE ROOF OF THE HOUSE.

AC JUNCTION BOXES



DISTRIBUTION PANEL DESIGN OR LOADS



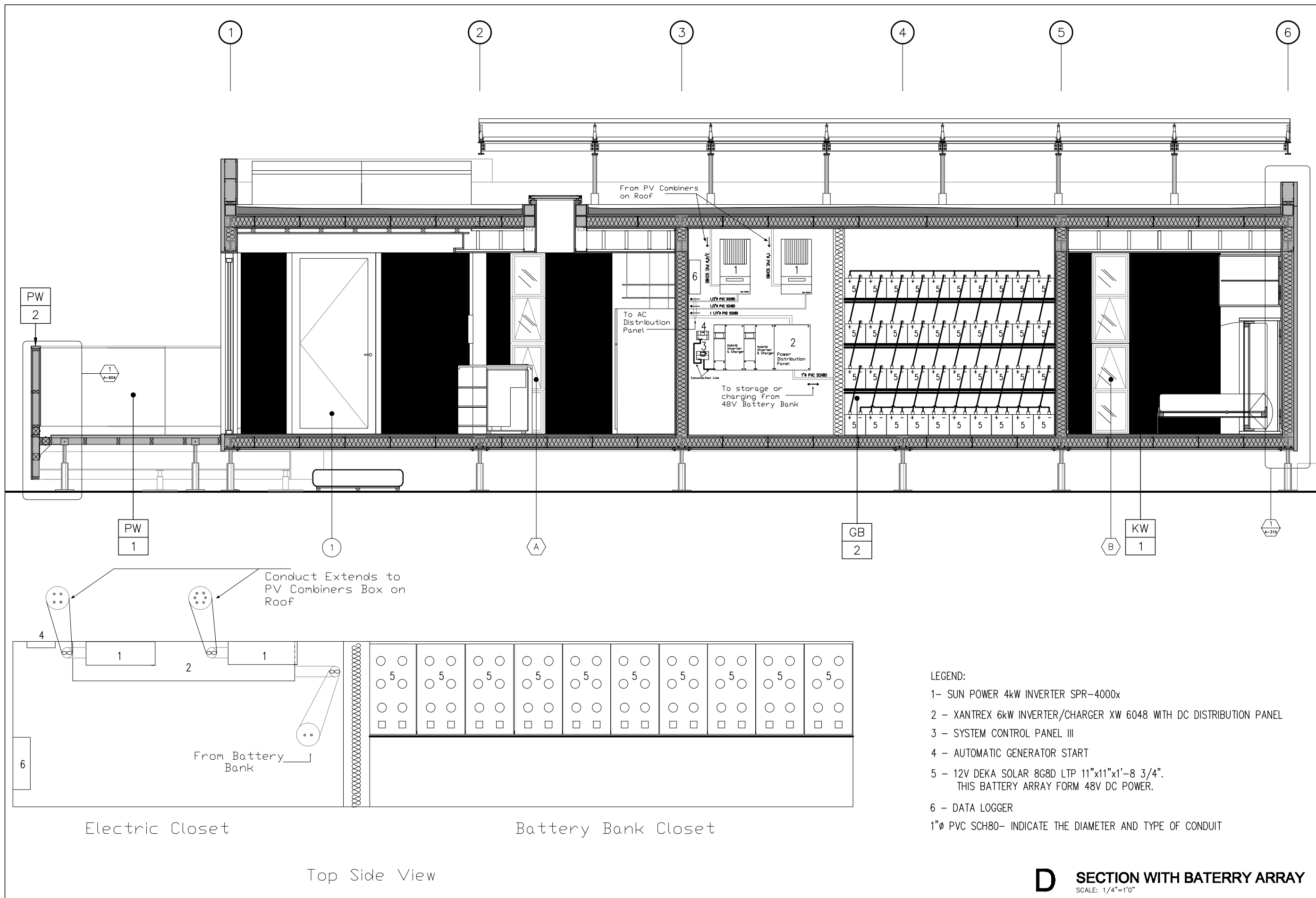
AVERAGE LOAD 124.15 A

DEVIATION 125.22 - 124.15 = 1.08

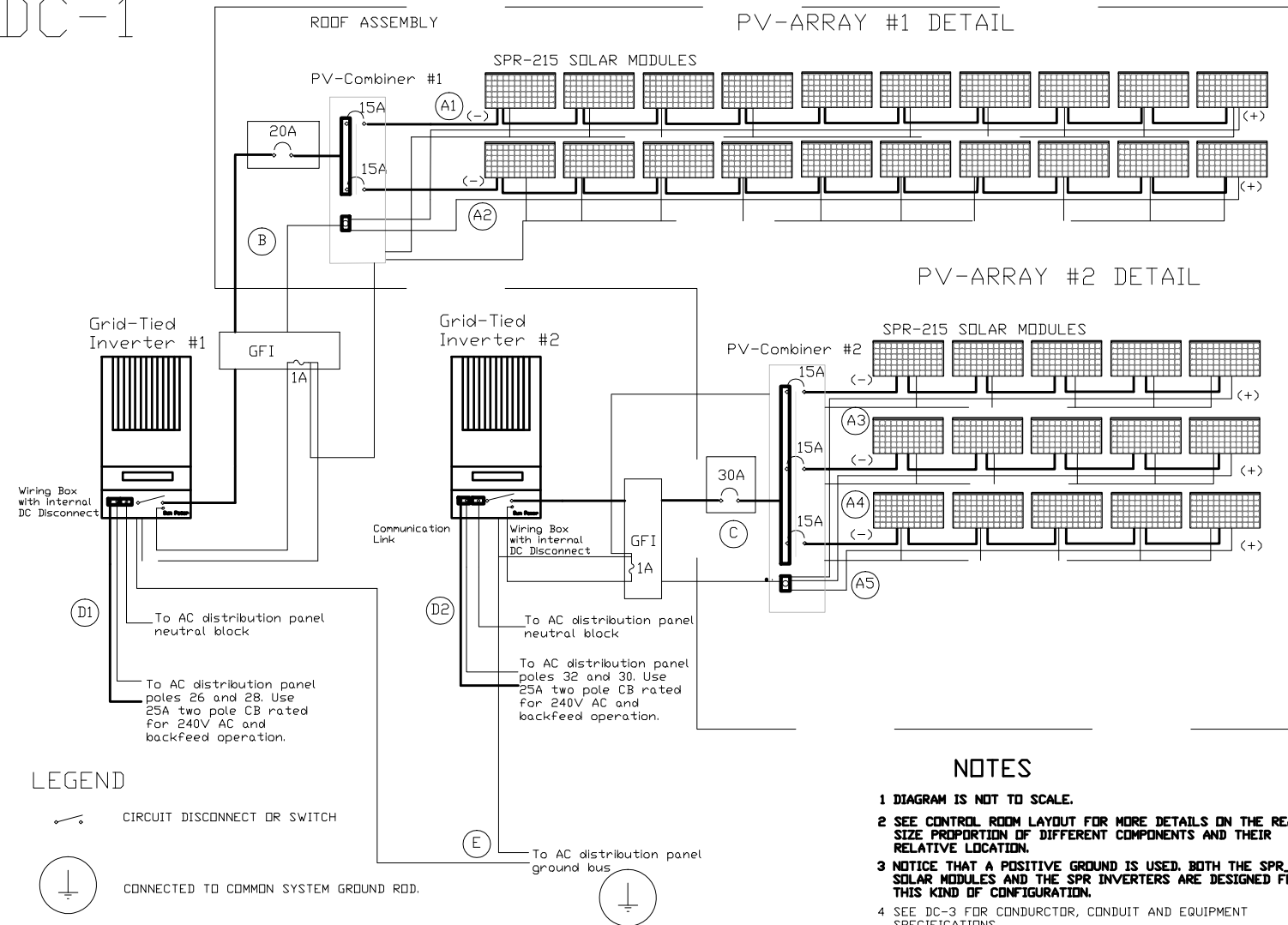
% DEVI (1.08/124.15) x 100 = 0.87%

GRAND TOTAL	A=125.22 A
	B=123.67 A

ID	LDP		DISTRIBUTION PANEL SCHEDULE								DISTRIBUTION PANEL SCHEDULE				
AMPS	125														
PHASES	1														
CONDUCTORS	3														
OVERCURRENT	N/A														
TYPE	INDOOR														
POLES	24														
BREAKER			BRANCH CIRCUITS		LOAD SERVED	NOTES		BREAKER		BRANCH CIRCUITS		LOAD SERVED	NOTES		
NO.	POLES	TRIP	CONDUIT	BRANCH CIRCUIT			NO.	POLES	TRIP	CONDUIT	BRANCH CIRCUIT				
1	1	20	3/4" Ø EMT	2#12 CU THHN	GENERAL RECEPTACLES TV AREA		2	1	20	3/4" Ø EMT	2#12 CU THHN	GENERAL RECEPTACLES LIVNGROOM			
3	1	20	3/4" Ø EMT	2#12 CU THHN	GENERAL RECEPTACLES BEDROOM		4	1	20	3/4" Ø EMT	2#12 CU THHN	ILUMINATIN			
5	1	20	3/4" Ø EMT	2#12 CU THHN	ILUMINATION		6	2	20	3/4" Ø EMT	2#12 CU THHN	ILUMINATION			
7	1	20	3/4" Ø EMT	2#12 CU THHN	kiTCHEN RECEPTACLES	B	8			3/4" Ø EMT	2#12 CU THHN	KITCHEN RECEPTACLES	B		
9	1	20	3/4" Ø EMT	2#12 CU THHN	BATHROOM	B	10	1	20	3/4" Ø EMT	2#12 CU THHN	LAUNDRY RECEPTACLES	B		
11	2	20	3/4" Ø EMT	3#12 CU THHN	STOVE RECEPTACLE		12	2	30	3/4" Ø EMT	3#10 CU THHN	DRYER RECPTACLE			
13						14									
15	2	20	3/4" Ø EMT	3#12 CU THHN	A/C 1		16	1	20	3/4" Ø EMT	2#12 CU THHN	REFRIGERATOR RECEPTACLE			
17						18	1	30	3/4" Ø EMT	2#12 CU THHN	WATER HEATER				
19	1	20	3/4" Ø EMT	2#12 CU THHN	DISHWASHER RECEPTACLE		20	1	20	3/4" Ø EMT	2#12 CU THHN	ELECTRIC CAR RECEPTACLE			
21	1	20	3/4" Ø EMT	2#12 CU THHN	PUMPS		22	1	20	3/4" Ø EMT	2#12 CU THHN	COMPUTER	A		
23	2	20	3/4" Ø EMT	3#12 CU THHN	A/C 2		24	1	20	3/4" Ø EMT	2#12 CU THHN	ILLUMINATION			
25						26	1	25	3/4" Ø EMT	2#12 CU THHN	SPR_400X				
27	1	15	3/4" Ø EMT	2#12 CU THHN	SMOKE DETECTOR		28	1	25	3/4" Ø EMT	2#12 CU THHN	SPR-400X			
							30	1	25	3/4" Ø EMT	2#12 CU THHN	SPR-400X			
							32	1	25	3/4" Ø EMT	2#12 CU THHN	SPR-400X			
NOTES: A) THIS RECEPTACLE IS GROUND ISOLATED							NOTES: B) THESE CIRCUITS MUST HAVE ARC-FAULT PROTECTION								



DC-1



LEGEND

- CIRCUIT DISCONNECT OR SWITCH
- CONNECTED TO COMMON SYSTEM GROUND ROD.
- OVERCURRENT PROTECTION (CIRCUIT BREAKER)
- GFI GROUND FAULT INTERRUPT DEVICE (INTERNALLY MOUNTED IN THE GRID TIED INVERTERS)

NOTES

- 1 DIAGRAM IS NOT TO SCALE.
- 2 SEE CONTROL ROOM LAYOUT FOR MORE DETAILS ON THE REAL SIZE PROPORTION OF DIFFERENT COMPONENTS AND THEIR RELATIVE LOCATION.
- 3 NOTICE THAT A POSITIVE GROUND IS USED. BOTH THE SPR_215 SOLAR MODULES AND THE SPR INVERTERS ARE DESIGNED FOR THIS KIND OF CONFIGURATION.
- 4 SEE DC-3 FOR CONDUCTOR, CONDUIT AND EQUIPMENT SPECIFICATIONS.
- 5 USE CIRCUIT BREAKERS RATED FOR DC OPERATION AT 600V BEFORE AT THE DC SIDE.
- 6 USE BACKFEED RATED AC CIRCUIT BREAKERS.



2007 SOLAR DECATHLON
UNIVERSIDAD DE PUERTO RICO
LOT 103, WASHINGTON, D.C.

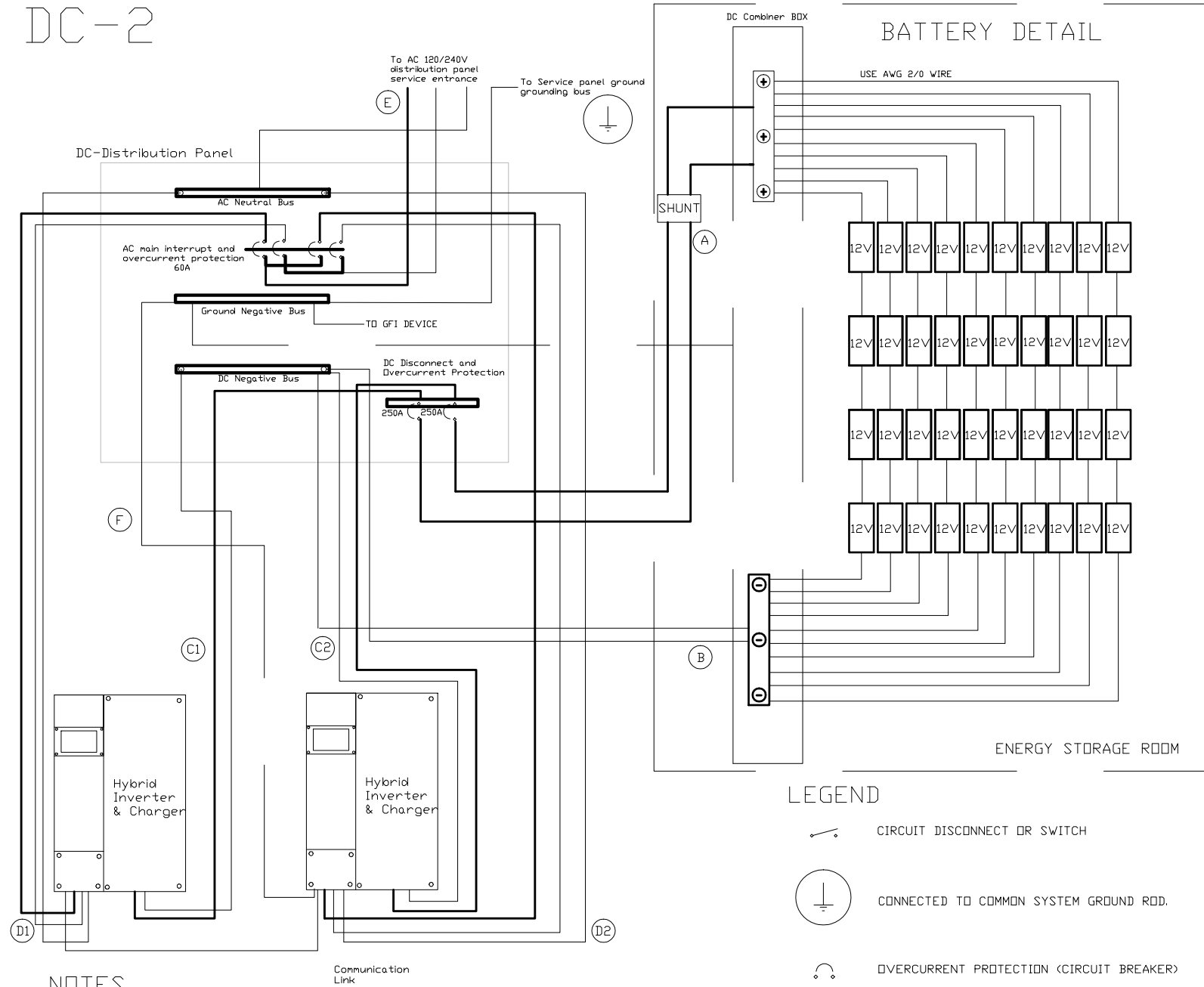
DC SYSTEM

DATE: JUN/01/07

ISSUE/REVISIONS

12'
8'
4'
3'
1'

DC-2



NOTES

1 THIS SYSTEM IS ELECTRICALLY ISOLATED FROM THE PV SYSTEM IN DC-1. THEREFORE NEGATIVE GROUNDING IS BEING IMPLEMENTED. SEE DC-3 FOR FURTHER DETAILS.

2 USE BACKFEED RATED AC CIRCUIT BREAKERS.

3 USE CIRCUIT BREAKERS MODEL XANTREX GJ250A AT THE DC DISCONNECT/OVERCURRENT DEVICE.



DC-3

DC-1 WIRE AND CONDUIT SCHEDULE				
SECTIONS	INSULATION	GAGE	CONDUIT	SIZE
A1,A2,A3,A4,A5	USE-2	12 AWG	Exposed	N/A
B	THW-2	12 AWG	EMT	¾"
C	THW-2	10 AWG	EMT	¾"
D1,D2	THW-2	10 AWG	EMT	¾"
E	USE-2	14 AWG	A sections	Grounding wire can and shall be installed in the provided conduits described above where applicable
	THW-2	10 AWG	Section B	
	THW-2	10 AWG	Section C	
	THW-2	10 AWG	D sections	

DC-2 WIRE AND CONDUIT SCHEDULE				
SECTIONS	INSULATION	GAGE	CONDUIT	SIZE
A,B	USE-2	4/0 AWG	Exposed	N/A
C1,C2	THW-2	4/0 AWG	Enclosed in DC distribution panel.	N/A
D1,D2 (no individual routing required)	THW-2	4 AWG	Enclosed in DC distribution panel.	N/A
E	THW-2	4 AWG	EMT	1.5"
F	THW-2	4 AWG	Section A,B	Grounding wire can and shall be installed in the provided conduits described above where applicable
	THW-2	10 AWG	D sections	
	THW-2	4 AWG	Section E	

Grid-Tied Inverters	
SPR-4000x	
Max. Power Output	4000W
AC Nominal Voltage	240V
Max. Continuous Output Current	16.7 A
Max. DC Current	22.1 A
DC Voltage Range	195-550V
Efficiency	95%
Grounding	Positive ground for Sun-Power Modules
Integrated AC/DC Disconnect and GFI	

Solar Modules	
SPR-215	
Peak Power	215W
Vp	39.8V
Ip	5.4A
Voc	48.3V
Isc	5.8A
Series Fuse rating	15A
Max. System Voltage	600V

Inverter/Charger	
XW6048-120/240-60	
Max. Power Output	6086W
AC Voltage	120/240V
AC Output	60A
Rated DC current	127A
Continuous Charge Rate	100A
Nominal DC Voltage	48V

DC-4 BATTERY CALCULATIONS

SPC Battery Calculator

Input: 270.0 Ah and 270.0 Ah @ 12.8V

SPC Battery Output Calculator

8) Input: 270.0 Ah @ 12.8V
9) Input: 270.0 Ah @ 12.8V

NOTES

- 1 Conductor Insulation followed by -2 is suitable for 90 degree operation.
- 2 Grounding conductors selected according to table 250.122 of the National Electric Code 2005.
- 3 Were no ampacity calculations are provided conductor and overcurrent protection sizing was based on equipment ratings.
- 4 Conduits were selected according to table C.1 of the National Electric Code 2005.
- 4 THE MANUFACTURER RECOMMENDS 4/0 WIRE TO CONNECT THE XW INVERTERS TO THE BATTERY BANK.

12'

8'

4'

3'

2'

1'

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