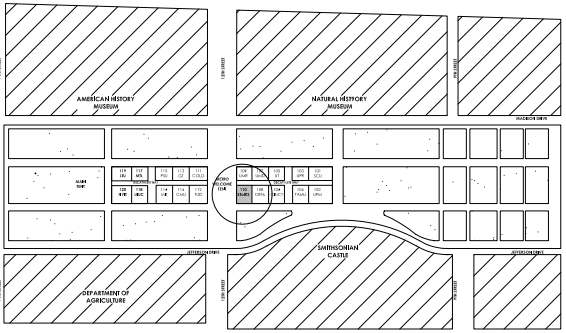


project solarhouse_state of kansas

Celebrate this place. Redirect expectations. Look ahead. Go mobile. Multiply. We know that the world cannot sustain itself forever simply on fossil fuels and we understand that the time to change that is now. Not “now” as in 50 years, but “now” as in today. Kansas has never been known for its liberal ideas and radical changes, but hopefully we can at least educate not only the citizens of Kansas and the Midwest, but show America how easy and beautiful sustainable design can be.

Our primary design priority is to capture the essence of Kansas by using regional materials inherent to Kansas and optimizing our natural resources: wind and sun. We then looked towards changing the way people think about their homes. We wanted to educate and demonstrate that a comfortable lifestyle doesn't only exist in 4,000 square foot homes. By allowing the living room to open up to the outside and minimizing the interior partitions, we have allowed for space and comfort in a footprint of less than 800sf. By redirecting expectations, we chose to look ahead to the future and design for how life might be rather than continue designing for an over consumptive society. We focused our budget around environmental, energy efficient materials and appliances rather than directing those monies to flashy, non-conductive that didn't achieve anything. We also wanted to change the way people thought of modular homes. This no longer simply means a trailer house, but rather a home that could be mobile and modularized. We foresee that our design could be modified to various needs and climates, but the soul of the object would be the same.

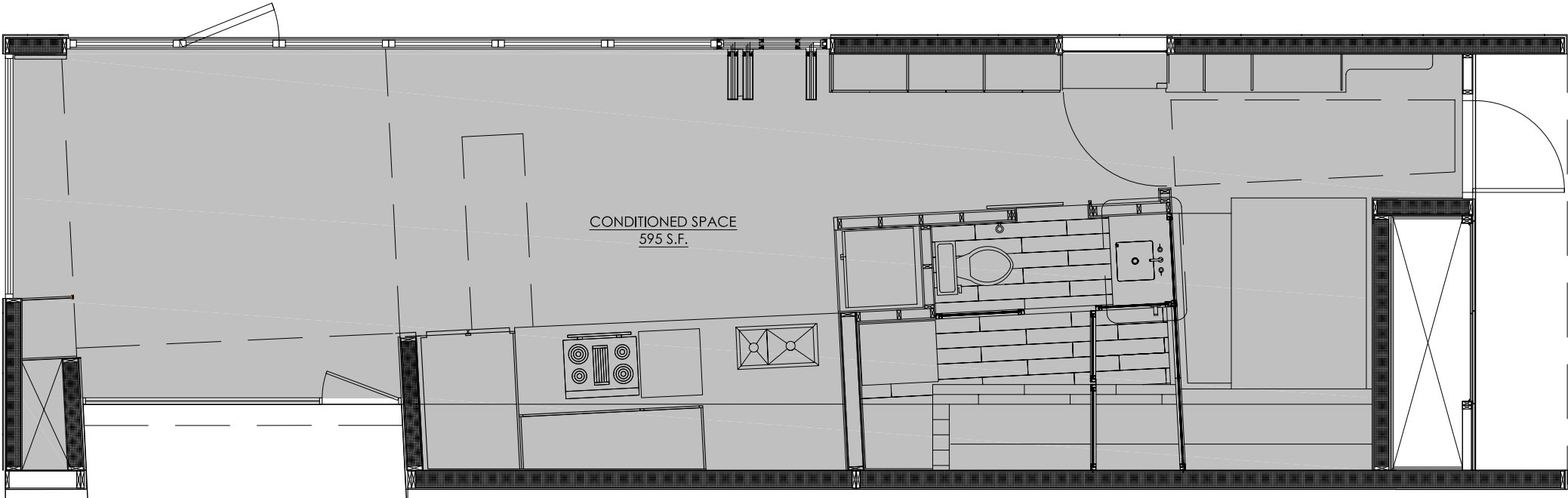
Our house represents a turning point in our history. This project represents so much more than simply a home. It represents new possibilities: for Kansas as well as the rest of the world.



SITE LOCATION PLAN
NO SCALE 3



EXTERIOR RENDERING
NO SCALE 2



CONDITIONED SPACE
NO SCALE 1

- PROJECT: SOLAR HOUSE
108 SEATON HALL
MANHATTAN, KS 66502
- NOTES AND LEGEND
- (A) UNIVERSITY OF MISSOURI ROLLA
 - (B) UNIVERSITY OF MARYLAND
 - (C) VIRGINIA TECH
 - (D) STATE OF KANSAS
 - (E) CORNELL
 - (F) UNIVERSITY OF CINCINNATI
 - (G) METRO WELCOME TENT

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- G0.2 GENERAL NOTES + DRAWING INDEX
- G0.3 HORIZONTAL PROJECTION
- G1.1 TOUR ROUTE
- G2.1 FIRE SAFETY
- G3.1 CONSTRUCTION ASSEMBLY/DISASSEMBLY

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- C2.1 SOLAR ENVELOPE
- C3.1 MALL FOOTPRINT
- C4.1 MAIN DECK PLAN
- C4.2 MAIN DECK FRAMING
- C4.3 MAIN DECK FRAMING
- C4.4 MAIN DECK SECTION

- C5.1 DECK PLAN/FRAMING
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- C7.4 RAIN WATER BASIN DETAIL
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- A3.2 BUILDING SECTIONS
- A3.3 BUILDING SECTIONS
- A3.3 BUILDING SECTIONS
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- A5.1 WALL SECTIONS
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- A5.4 WALL SECTIONS
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- A6.1 DETAILS
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- P1.1 SUPPLY WASTE ROUTING PLAN
- P1.2 PLUMBING PLAN
- P1.4 SCHEMATIC DIAGRAMS
- P1.5 TANK DETAILS
- P1.6 PLUMBING SCHEDULES

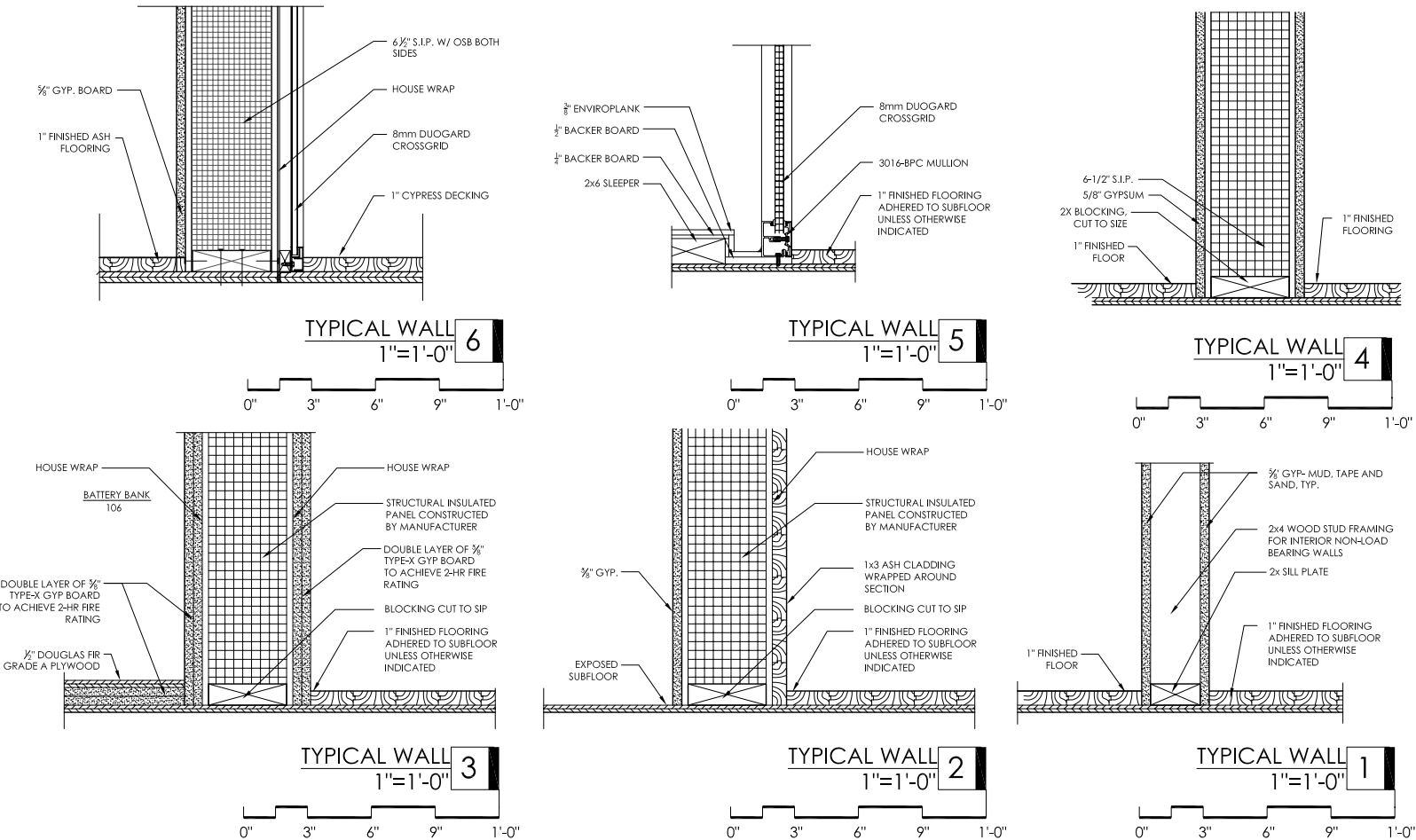
GENERAL NOTES

- ALL NEW CONSTRUCTION SHALL MEET LATEST EDITIONS OF ALL OF ALL APPLICABLE NATIONAL, STATE, AND LOCAL BLDG. CODES.
- BUILDING PERMIT WILL BE REQUIRED FOR THE PROJECT. ALL CONTRACTORS WILL BE REQUIRED TO OBTAIN AN OCCUPATIONAL LICENSE FROM THE CITY OF KANSAS CITY, MISSOURI.
- WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY. QUALITY MATERIALS SHALL BE USED THROUGHOUT. ALL WORK SHALL BE DONE IN A MANNER SO AS TO MATCH ADJACENT WORK AND FINISHES AND SHALL BE APPROVED BY OWNER.
- ALL CUTTING AND PATCHING DONE UNDER THIS CONTRACT SHALL BE ONLY AS NECESSARY FOR THIS WORK.
- CONTRACTORS SHALL BE RESPONSIBLE FOR CONTAINING THEIR WORK WITHIN THE WORK AREA AND TO PROTECT THE PUBLIC FROM INJURIES AT ALL TIMES. CONTRACTOR SHALL SECURE THE WORK AT THE END OF EACH WORK DAY.
- KEEP PREMISES BROOMED CLEAN AT ALL TIMES FROM FOREIGN MATERIAL CREATED UNDER THIS CONTRACT. PROVIDE TARPAULINS TO PROTECT ALL FINISHES, SURFACES AND EQUIPMENT.
- AREAS FOR MATERIAL STORAGE, TRASH DISPOSAL, WORKMAN'S PARKING, ETC. SHALL BE COORDINATED WITH THE OWNER'S REP.
- CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS. ALL CONSTRUCTION DEBRIS SHALL BE CONTAINED WITHIN THE SPACE.
- ALL GYP. BD. SHALL BE 5/8" THICK WITH TAPERED EDGES. OUTSIDE CORNERS AND EDGES SHALL HAVE SCREEDS AND CASING BEADS OR CORNER BEADS AS REQUIRED.
- THE ARCHITECT HAS INFORMED THE OWNER OF ALL REQUIREMENTS AND REGULATIONS REGARDING THE AMERICANS WITH DISABILITIES ACT. THE OWNER IS RESPONSIBLE FOR COMPLIANCE WITH THESE REGULATIONS. THEREFORE THE ARCHITECT ACCEPTS NO RESPONSIBILITY FOR COMPLIANCE.
- CONTRACTOR SHALL USE ADA COMPLIANT DOORS WITH THE APPROPRIATE HARDWARE.
- CONTRACTOR SHALL SUBMIT PRODUCT LITERATURE ON ALL FIXTURE TYPES TO ARCHITECT FOR APPROVAL.
- CONTRACTOR SHALL SUBMIT SAMPLES OF STAINED WOOD TRIM AND PANELS TO ARCHITECT FOR APPROVAL.
- ALL DIMENSIONS TO BE VERIFIED BY CONTRACTOR.
- PROVIDE SUBMITTAL OF ALL FINISH MATERIALS FOR APPROVAL PRIOR TO PURCHASE ORDERS.
- THE CONTRACTOR OR HIS SURITIES SHALL REMEDY ANY DEFECTS IN THE WORK AND PAY FOR ANY DAMAGE OR OTHER WORK RESULTING THERE FROM WHICH SHALL APPEAR WITHIN A PERIOD OF ONE (1) YR. FROM THE DATE OF FINAL ACCEPTANCE UNLESS A LONGER PERIOD IS OTHERWISE SPECIFIED OR A DIFFERENT WARRANTY PERIOD HAS BEEN ESTABLISHED IN THE SUBSTANTIAL COMPLETION CERTIFICATION.
- THE CONTRACTORS SHALL REFER TO ALL ARCHITECTURAL DRAWINGS FOR DETAILS OF BUILDING CONSTRUCTION TO INSURE SPACE AND SATISFACTORY ARRANGEMENT FOR THEIR WORK. THE VARIOUS DRAWINGS COMPRISING THE SET ARE INTERDEPENDENT AND MUST BE USED JOINTLY AT ALL TIMES. EACH CONTRACTOR SHOULD REFER TO THE GENERAL REQUIREMENTS OF THE CONTRACT. THESE NOTES AND SYMBOLS SET DOWN ON THE DRAWINGS ARE FOR THE GUIDANCE OF ALL TRADES INVOLVED IN THE PROJECT AND MUST BE FOLLOWED TO EXECUTE THE WORK AS INTENDED. IF DISCREPANCIES OCCUR, CONTACT THE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING.
- DIMENSIONS ARE TYPICALLY INDICATED TO THE FINISHED FACE OF WALLS OR PARTITIONS AND CENTER LINES OF COLUMNS UNLESS NOTED OTHERWISE.
- ANY STRUCTURAL, MECHANICAL, ELECTRICAL, FIRE PROTECTION, OR PLUMBING INFORMATION INDICATED ON THE ARCHITECTURAL DRAWINGS IS FOR REFERENCE PURPOSES ONLY UNLESS NOTED OTHERWISE.

ABBREVIATIONS

A.F.F.	above finished floor	MIN.	minimum
C.J.	control joint	MICRO.	microwave
C.L.	center line	M.O.	masonry opening
C.L.G.	ceiling	NO.	number
C.O.	cased opening	NOM.	nominal
CONT.	continuous	N.T.S.	not to scale
C.T.	ceramic tile	O.C.	on center
D.	dryer	O.D.	outside diameter
DIA.	diameter	O.H.	overhead/overhung
DN.	down	OPP.	opposite
D.S.	downspout	PR.	pair
D.W.	dishwasher	P.S.I.	pounds square inch
EA.	each	P.S.F.	pounds square foot
E.J.	expansion joint	R.	riser
ELEV.	elevation	RE:	refer (to)
EQ.	equal	REQD.	required
E.W.	each way	REF.	refrigerator
F.B.O.	furnished by owner	RM.	room
F.D.	floor drain	R.O.	rough opening
F.O.C.	face of concrete	S.C.	solid core
F.O.S.	face of stud	S.D.	smoke detector
F.R.	fire-retardant	S.F.	square feet
GA.	gauge	SIM.	similar
GYP. BD.	gypsum board	S.I.P.	structural insulated pan
H.B.	hose bibb	SQ.	square
H.C.	hollow core	S.S.	stainless steel
H.M.	hollow metal	STD.	standard
HT.	height	T.	tread
I.D.	inside diameter	T.O.B.	top of beam
JT.	joint	T.O.W.	top of wall
KS.	knee space	T.V.	television
LAV.	lavatory	TYP.	typical
LB(#)	pound	U.N.O.	unless noted otherwise
L.V.L.	laminated veneer lumber	W.	washer
MAX.	maximum	W/	with
MECH.	mechanical	W.H.	water heater
MFR.	manufacturer	W.R.	water resistant
		1ST	first
		2ND	second

TYPICAL WALL TYPES



PROJECT: SOLAR HOUSE
108 SEATON HALL
MANHATTAN, KS 66502

SYMBOLS LEGEND

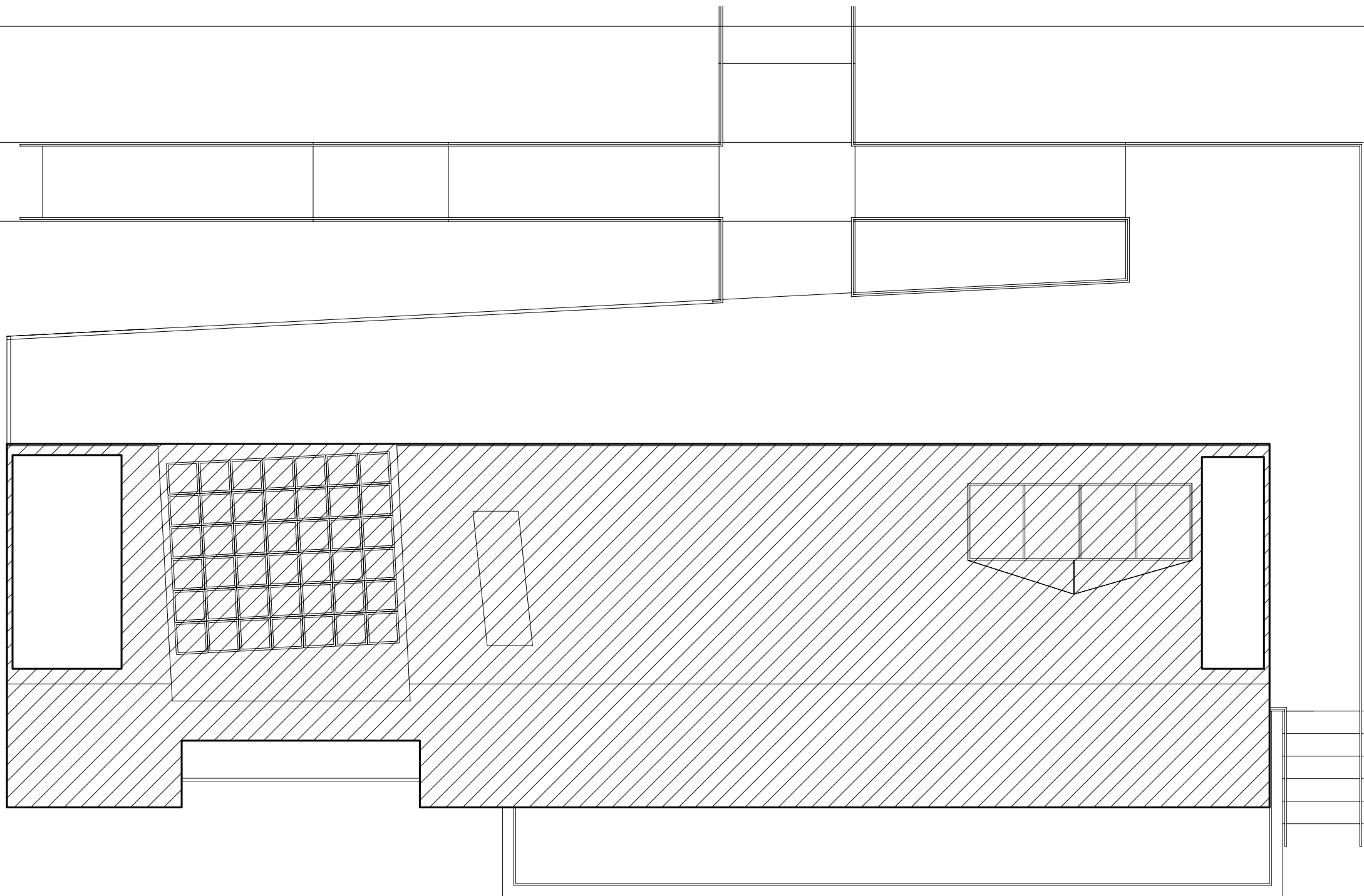
	WINDOW TYPE
	SECTION MARKER
	INTERIOR ELEVATION
	WALL TYPE
	DOOR TYPE/NUMBER

Project solarhouse
2007 kansas solar decathlon entry

DRAWN BY_ PSH
DATE_ 27 APRIL 2007
CHECKED BY_

GENERAL INFORMATION



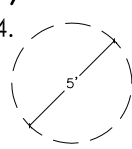

G0.2



THREE SIXTEENTH
 $\frac{3}{16}'' = 1'-0''$ 1" IN
0' 1'-0" 3'-0" 5'-0" 7'-0"

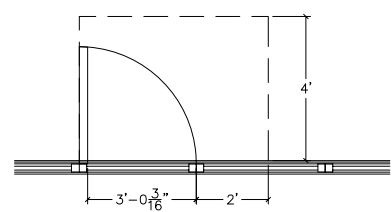
 Total Horizontal Projection: 799.8 sqft

LEGEND

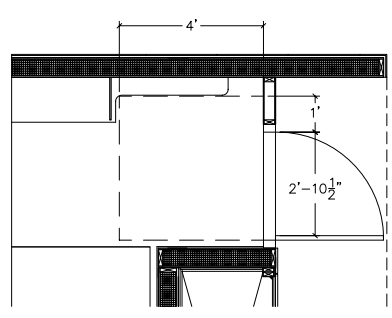
- 2.  TOUR ROUTE
- 3.  ADA COMPLIANT TOUR EXIT
- 4.  5' DIAMETER TURN AROUND
-  ACCESSIBLE INTERIOR SPACE

ACCESSIBILITY NOTES:

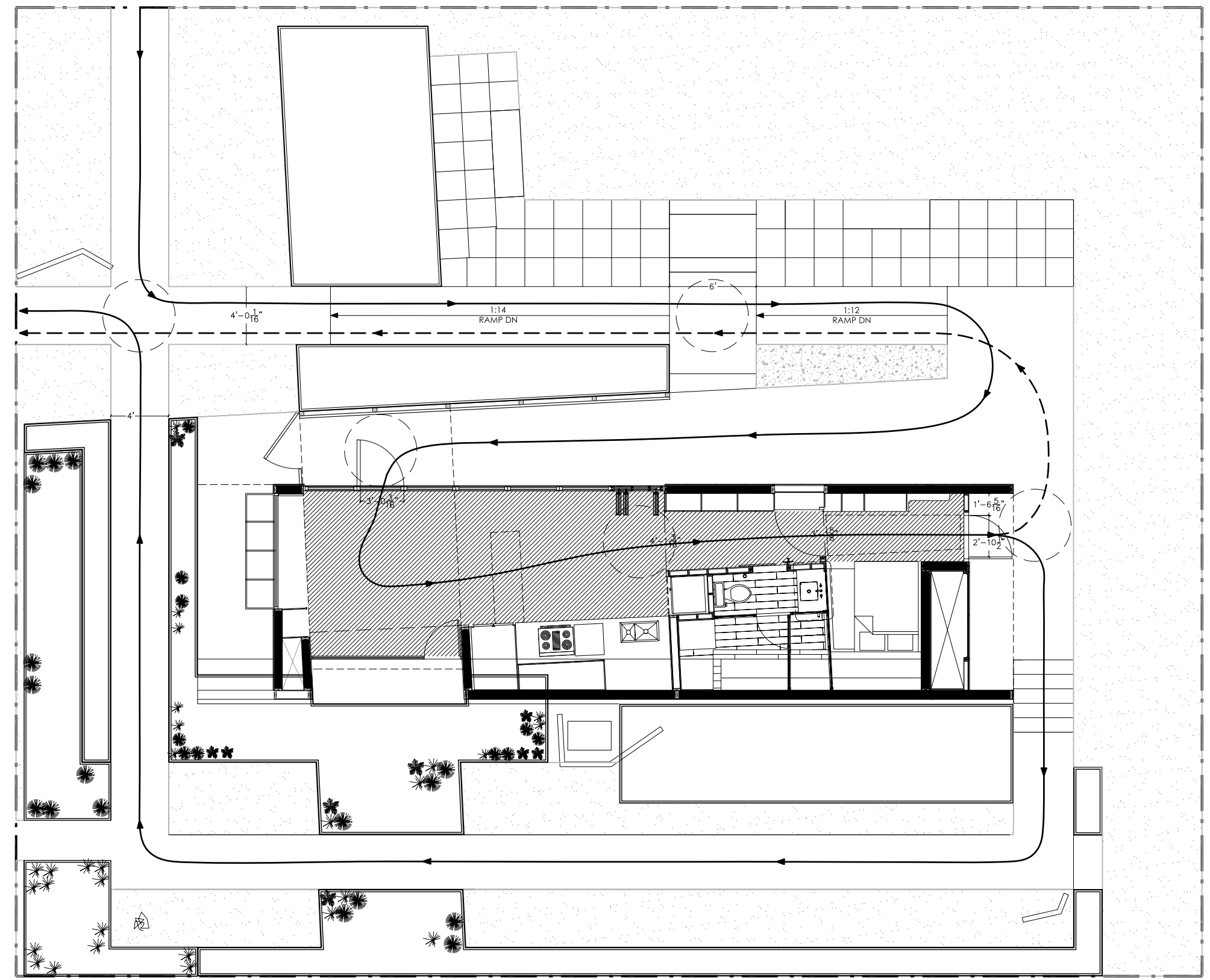
MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 8.5 POUNDS FOR EXTERIOR DOORS AND 5 POUNDS FOR INTERIOR DOORS.
REQUIRED EXIT DOORWAYS SHALL HAVE A MINIMUM 32" CLEAR OPENING WITH THE DOOR AT 90 TO THE CLOSED POSITION.
MAXIMUM HEIGHT OF THRESHOLD TO BE 1/2".
MAXIMUM VERTICAL CHANGE AT EDGE IS 1/4" WITH A MAXIMUM BEVEL OF 45.
EXTERIOR PATHWAYS TO BE PROVIDED BY NREL



LATCH APPROACH
NO SCALE 3






FRONT APPROACH
NO SCALE 2



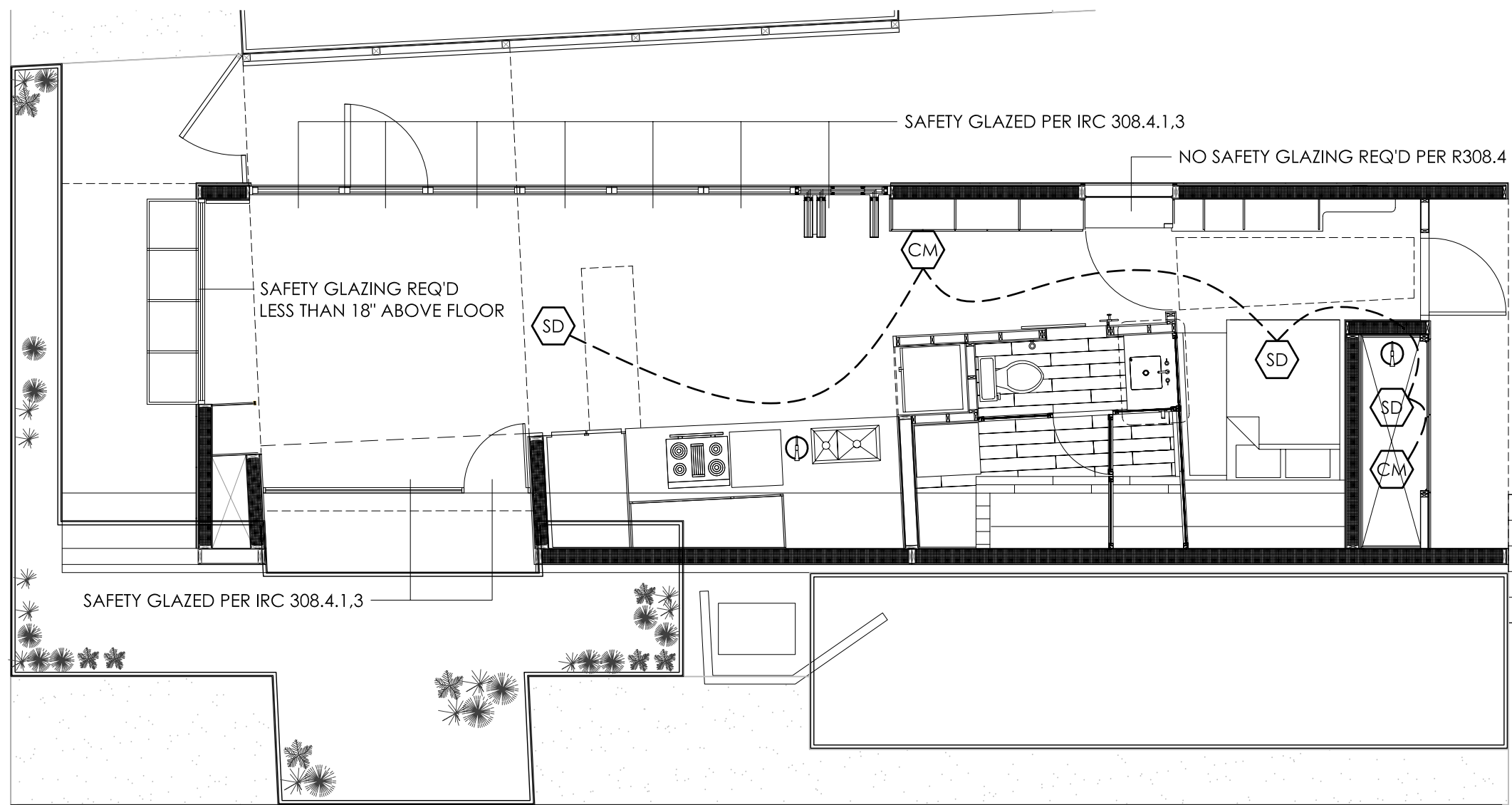
TOUR ROUTE ACCESSIBILITY
1/8"=1'-0" 1
0' 1'-0" 4'-0" 6'-0" 10'-0"

FIRE ALARM SCHEDULE

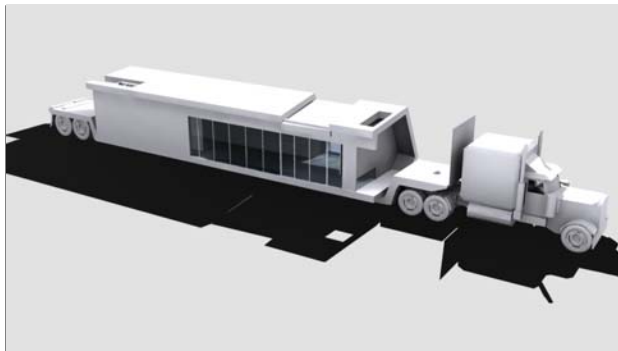
-  SMOKE DETECTOR
-  CARBON MONOXIDE DETECTOR
-  FIRE EXTINGUISHER

FIRE PROTECTION NOTES:

- UNLESS OTHERWISE NOTED, FIRE EXTINGUISHERS SHALL HAVE A MINIMUM U.L. RATING OF 2A-10BC.



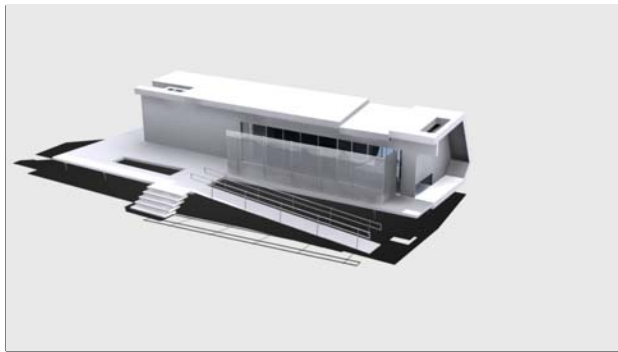
FIRE SAFETY PLAN
3/16"=1'-0"
0' 1'-0" 3'-0" 5'-0" 7'-0"



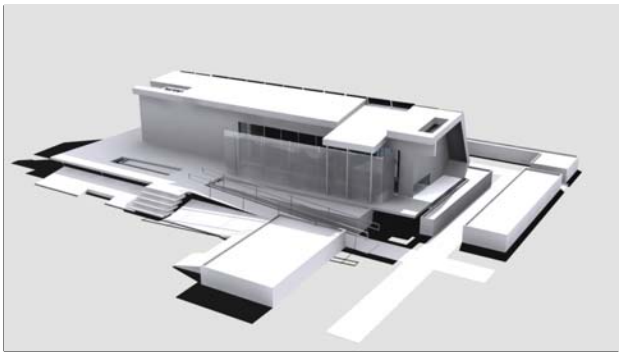
On the house's arrival to the site, the national mall will be protected by plywood sheeting while the house is being positioning on its site. The house will be raised off of the trailer by a mechanical jacking system. Next the foundation system will be put into place. The truck and trailer will leave the site and the house will be lowered and leveled in place onto its foundation system.



The Photovoltaic panels, connectors and the batteries are transported to the site. The solar panels are then attached and connected to the standing seam roof along the southern canted wall. The batteries are then installed and wired into the batteriy bank located in the east wall. The PV system is then turned on and tested for efficiency.



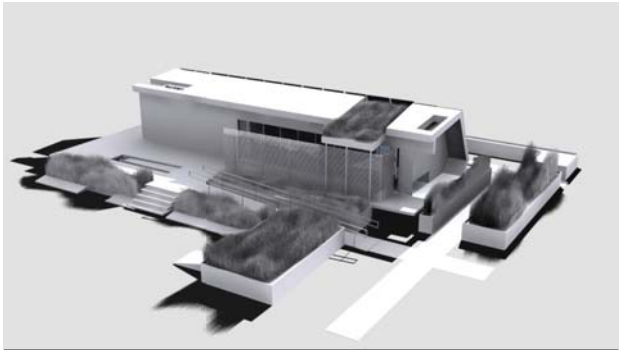
The foundation for the decks is put into place after the house is lifted of the trailer. A secondary vehicle will be driven onto the site to deliver the decks on its foundation. The decks are then bolted to the foundation system and attached the house. An exterior screen on the north side of the house is attached to the deck. The screen is supported by columns which also help support the green roof.



There are several water systems that are integrated into the site. These systems are transported to the site and set in place. The water storage systems are plumbed and fixtures are connected to the house and checked for leaks. The water storage tanks and grey water systems are then filled to desired amounts. The planter boxes are then arranged on site and braced for structural support.



Transported to the site along with the columns and screening system is the green roof. The green roof is a prefabricated structure that is lifted and bolted to the existing roof structure. The structural frame is fastened to the columns creating a canopy of the entrance to the house. Some flashing will be required to seal the envelope. Following, the bio-degradable tray roofing system is laid into place.



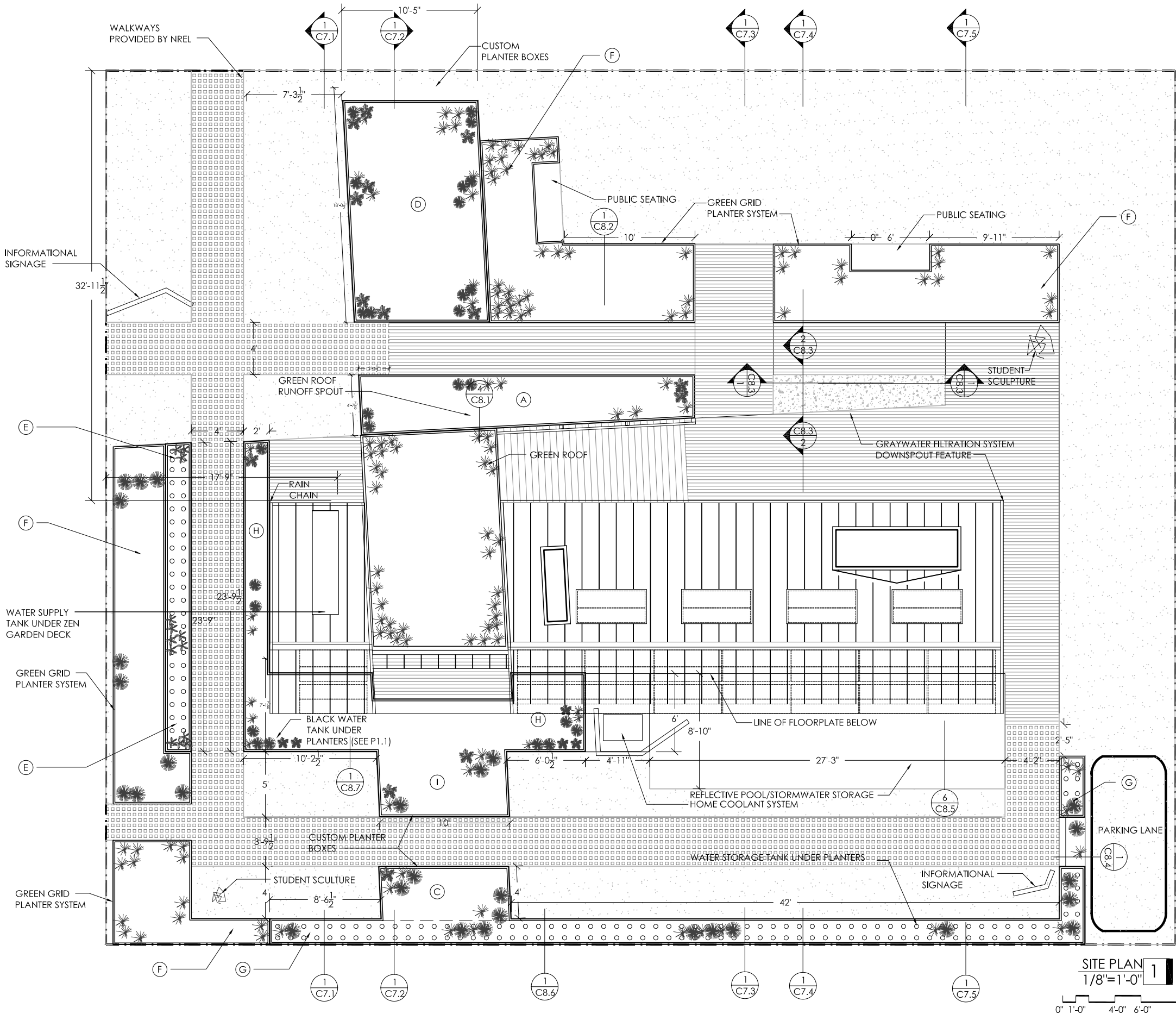
The interior of the house is inspected for damages and for any stresses that were endured during shipping. Any repairs will be made to the house so that it is ready for the tours. All systems and appliances are tested to ensure that the house is in working order. The landscaping is delivered on a truck to the site and the vegetation is then installed and placed with in the planter boxes.

NOTE: For House Disassembly,
Follow Directions in Reverse Order

GROUP	ABBR.	SCIENTIFIC NAME	COMMON NAME
(A)	Dp	<i>Dalea purpurea</i>	Purple Prairie Clover
	Ls	<i>Lobelia siphilitica</i>	Blue Lobelia
	Pb	<i>Polygonatum biflorum</i>	Soloman's Seal
	Ra	<i>Rhus aromatica</i>	Smooth Sumac
(B)	Al	<i>Aster laevis</i>	Smooth Aster
	Ep	<i>Echinacea purpurea</i>	Purple Coneflower
	Kc	<i>Koeleria cristata</i>	June Grass
	Sh	<i>Sporobolus heterolepis</i>	Prairie Dropseed
(C)	Ss	<i>Solidago rigida</i>	Showy Goldenrod
	Ssp	<i>Schizachyrium scoparium</i>	Little Bluestem
	Ag	<i>Andropogon gerardi</i>	Big Bluestem
	Rp	<i>Ratibida pinnata</i>	Yellow Coneflower
(D)	Ssp	<i>Schizachyrium scoparium</i>	Little Bluestem
	Ae	<i>Aster ericoides</i>	Heath Aster
	Ci	<i>Callirhoe involucrata</i>	Purple Poppy Mallow
	Ep	<i>Echinacea purpurea</i>	Purple Coneflower
(E)	Lp	<i>Liatris pycnostachya</i>	Purple Gnatcatcher
	Pv	<i>Panicum virgatum</i>	Switchgrass
	Ra	<i>Rhus aromatica</i>	Smooth Sumac
	Rg	<i>Rhus glabra</i>	Smooth Sumac
(F)	Sh	<i>Sporobolus heterolepis</i>	Prairie Dropseed
	Sr	<i>Solidago rigida</i>	Stiff Goldenrod
	Ss	<i>Solidago speciosa</i>	Showy Goldenrod
	Hm	<i>Helianthus x maximiliani</i>	Maximilian Sunflower
(G)	Bd	<i>Buchloe dactyloides</i>	Buffalograss
	Hm	<i>Helianthus x maximiliani</i>	Maximilian Sunflower
	Ms	<i>Medicago sativa</i>	Alfalfa
	Kg	<i>Kitchen Garden</i>	Vegetables
(I)	Ep	<i>Echinacea purpurea</i>	Purple Coneflower
	Sh	<i>Sporobolus heterolepis</i>	Prairie Dropseed

PLANTING SCHEDULE
NO SCALE

2



PROJECT SOLAR HOUSE
108 SEATON HALL
MANHATTAN, KS 66502

NOTES:

1. SITE LOCATED ON LOT #110 OF THE SOLAR DECATHLON.
2. FIELD VERIFY ALL DIMENSION AND LOCATION OF SITE ELEMENTS TO NOT INTRUDE ON THE SOLAR ENVELOPE
3. ALL WATER TANKS AND SITE OBJECTS TO SIT ON 2x4 SLEEPERS OR OTHER SUPPORTS PER SECTION 3.8 OF THE SOLAR

LEGEND

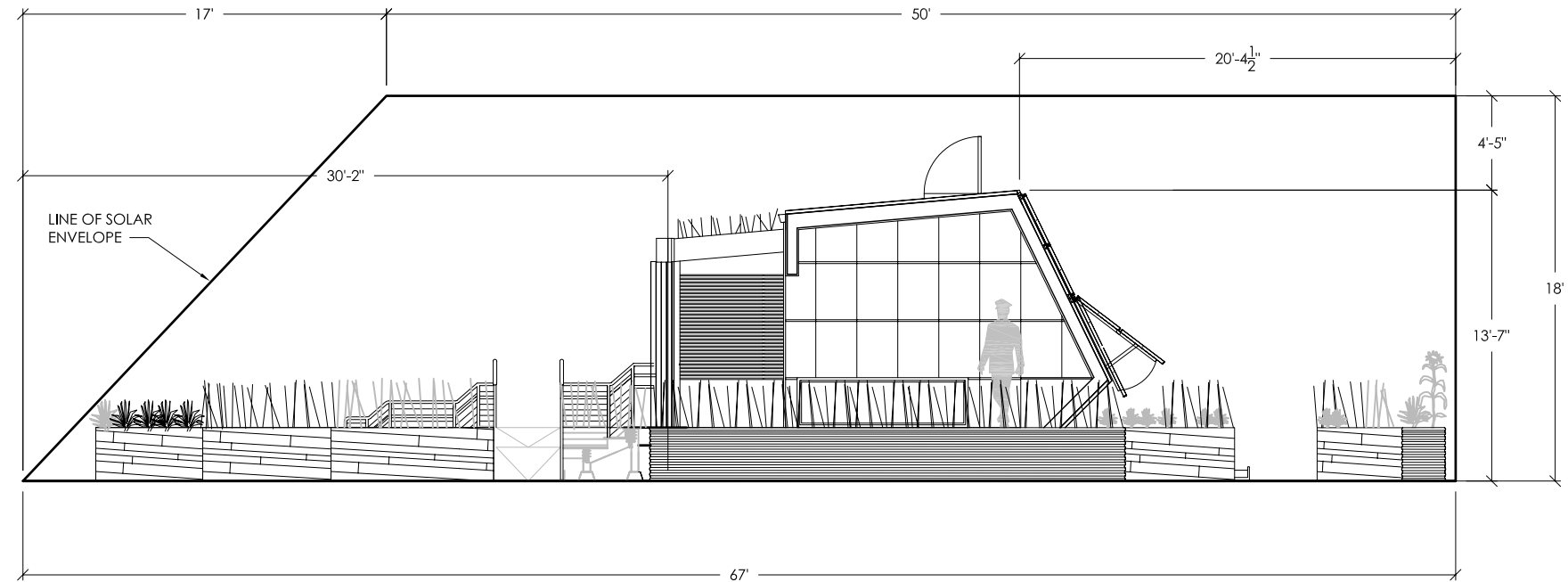
--- SITE/SOLAR ENVELOPE BOUNDARY

Project solarhouse
2007 kansas solar decathlon entry

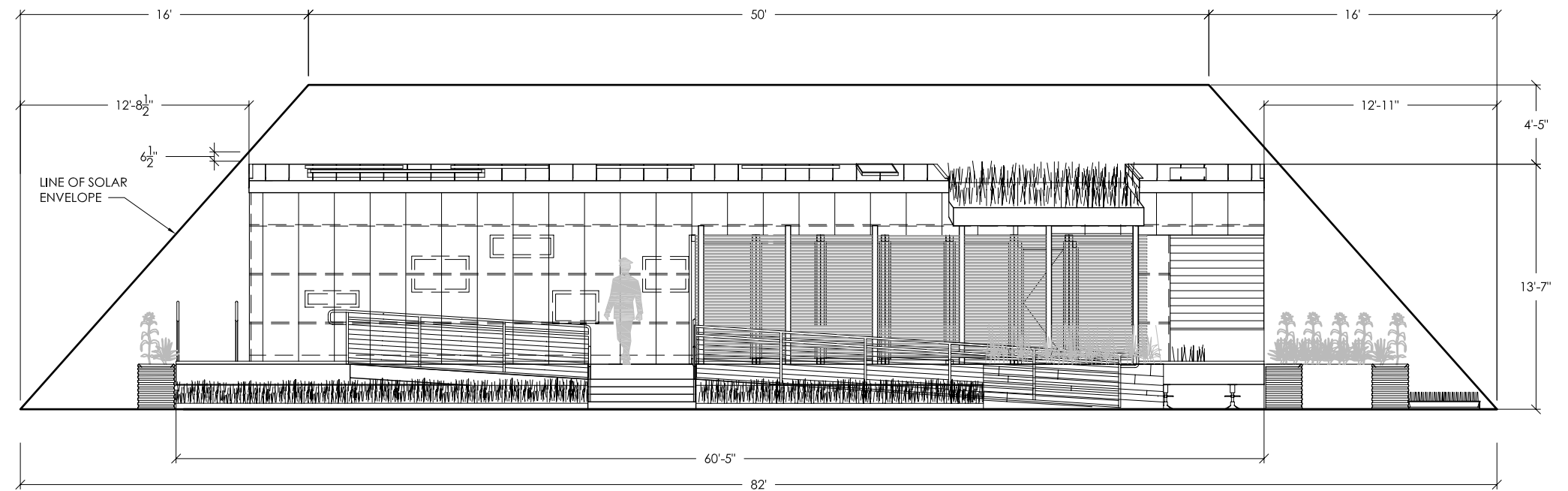
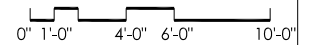
DRAWN BY: PSH
DATE: 3 MAY 2007
CHECKED BY:

SITE PLAN

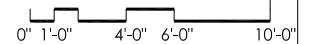
C1.1

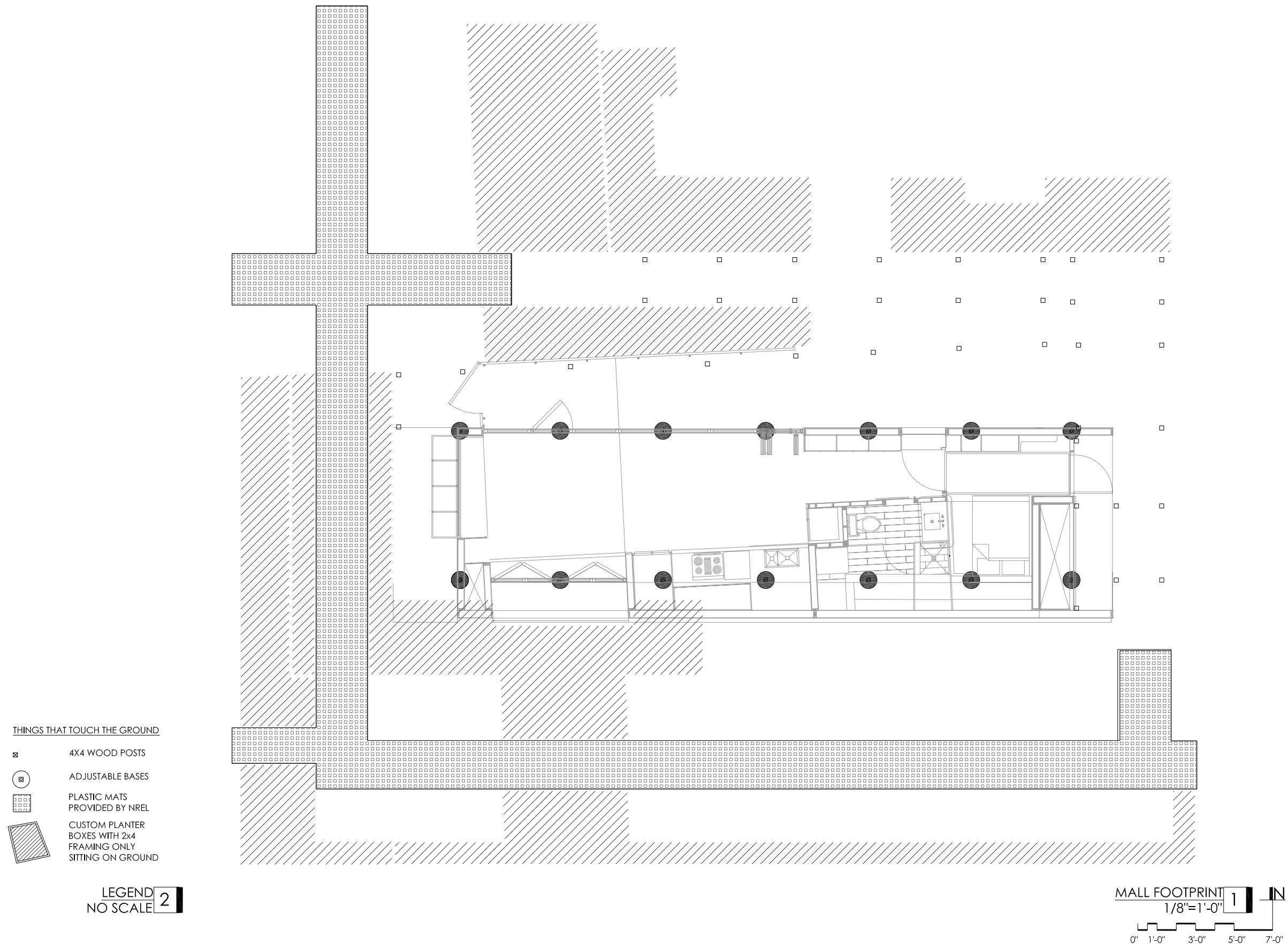


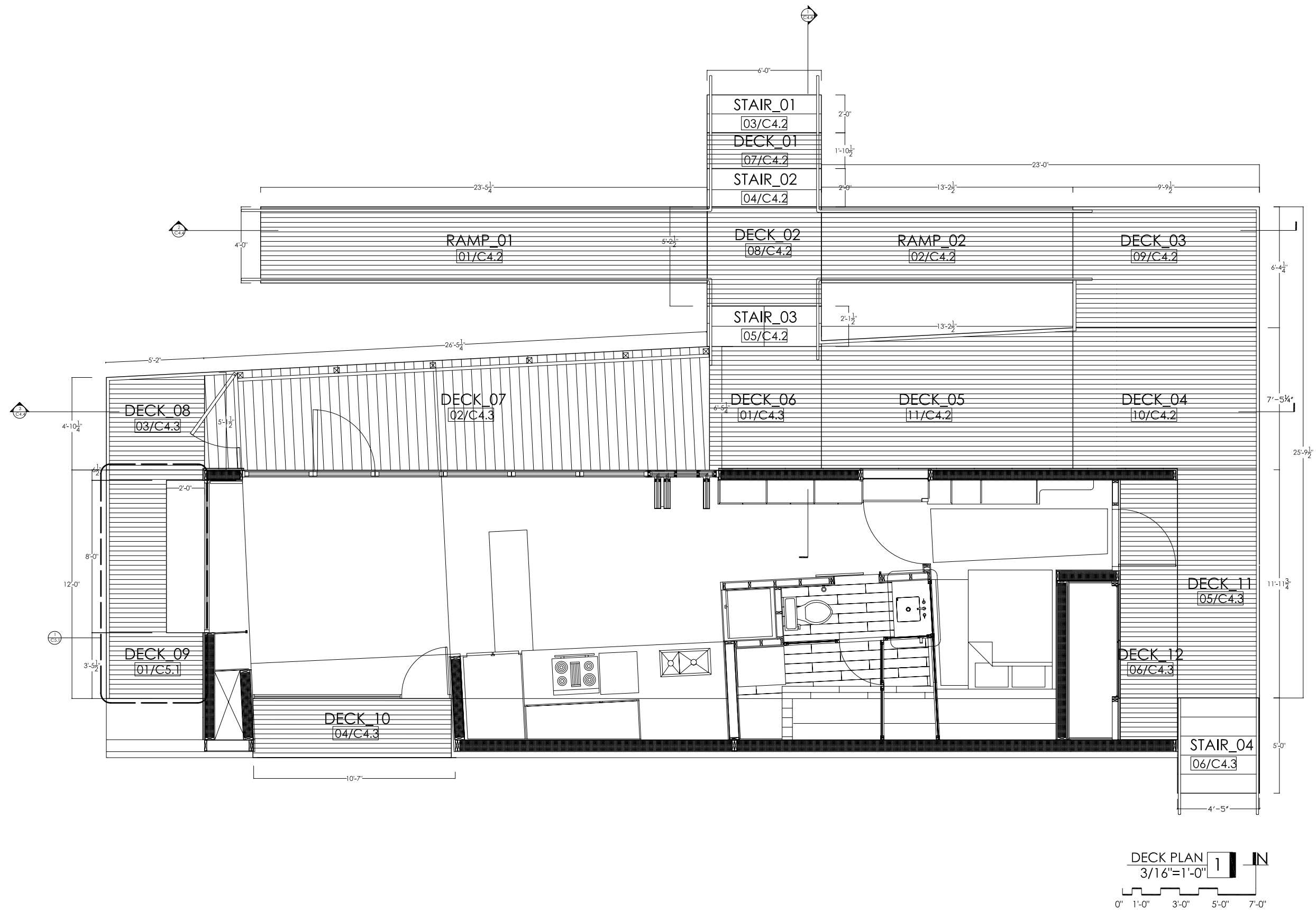
WEST ELEVATION WITH SOLAR ENVELOPE 2
1/8"=1'-0"



NORTH ELEVATION WITH SOLAR ENVELOPE 1
1/8"=1'-0"

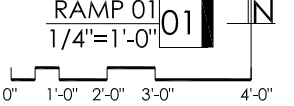
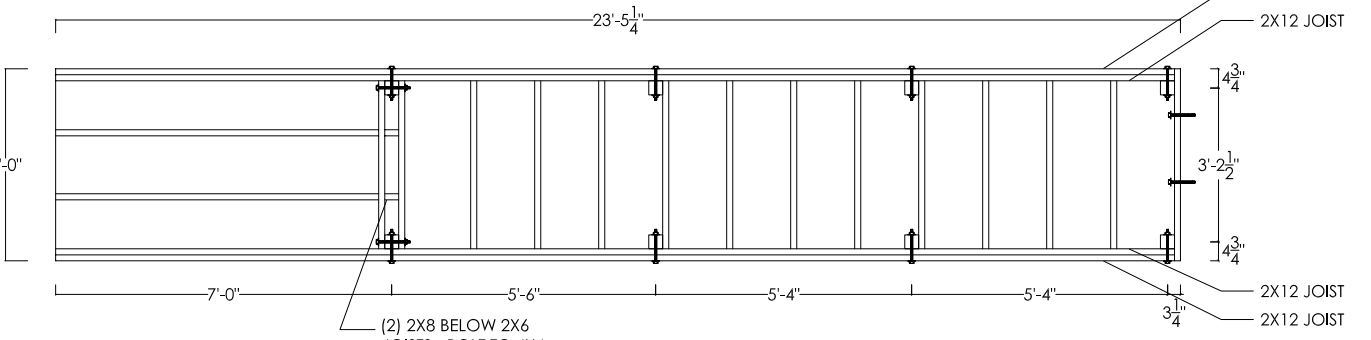
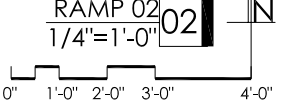
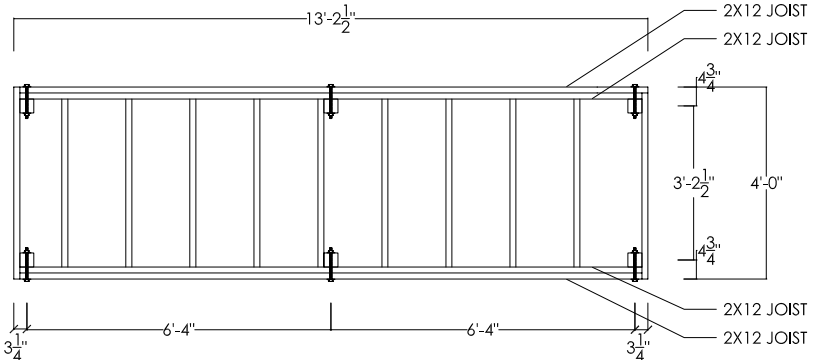
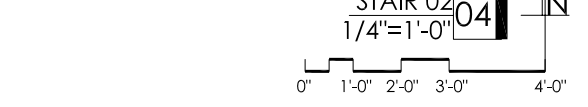
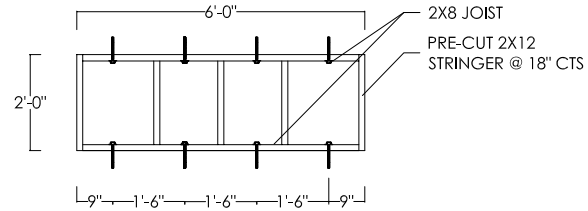
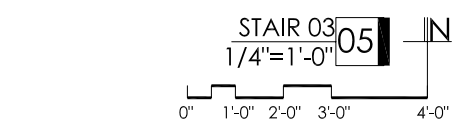
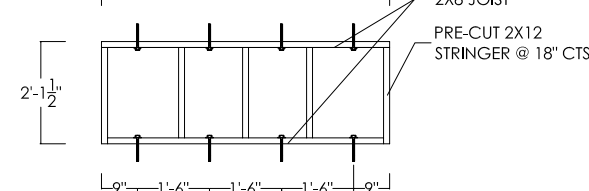
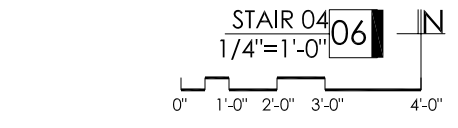
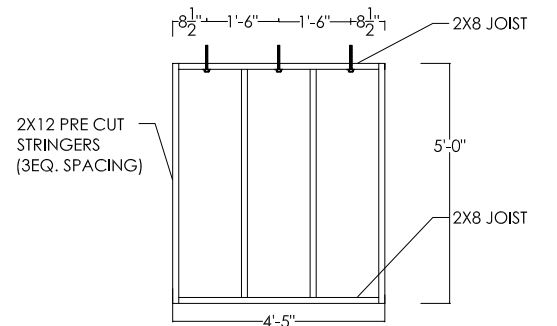
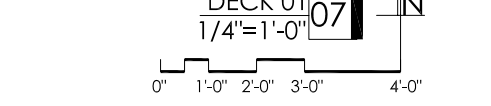
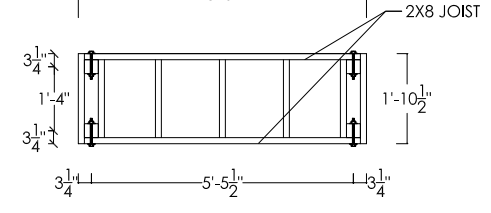
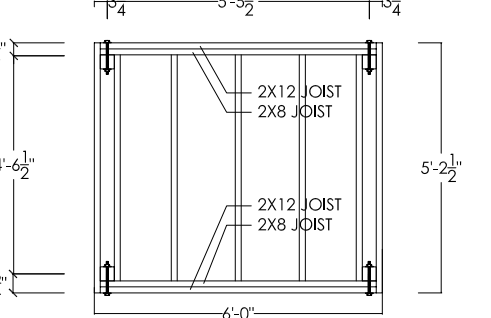
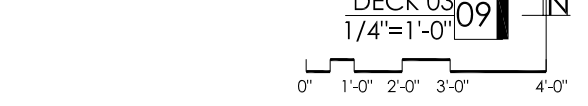
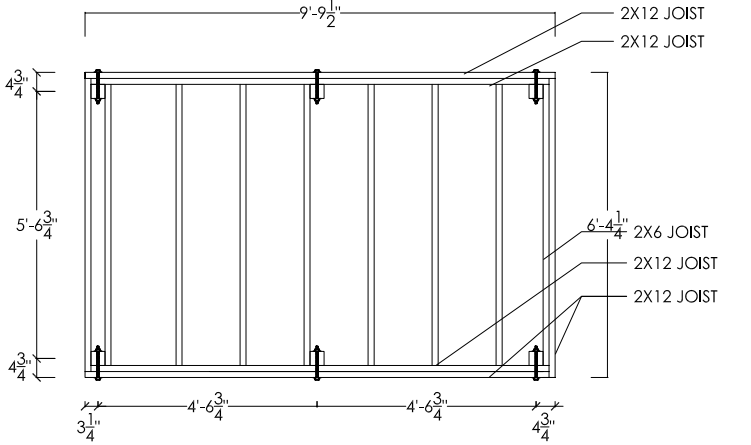
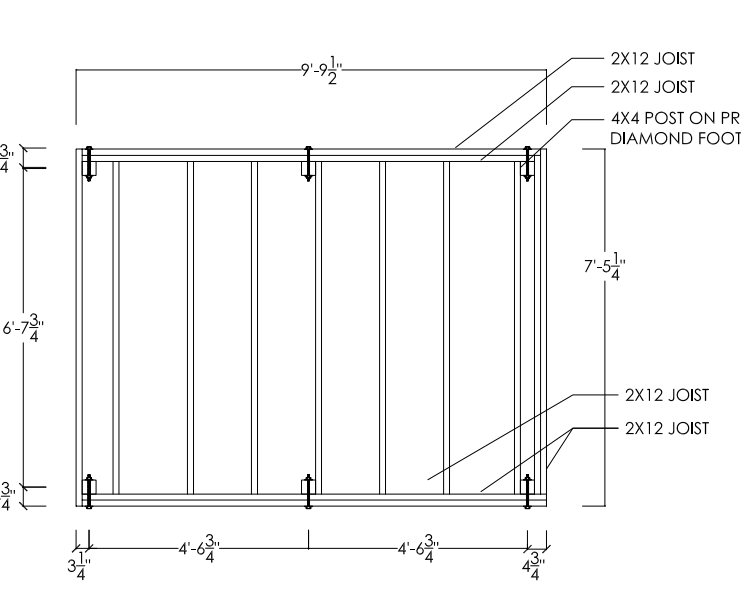
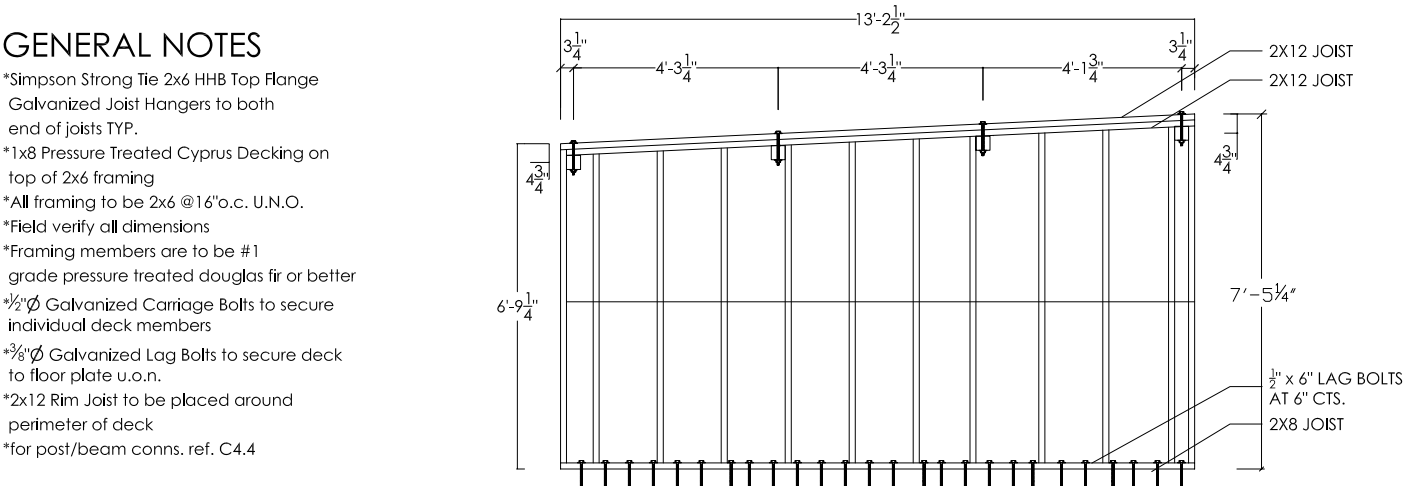






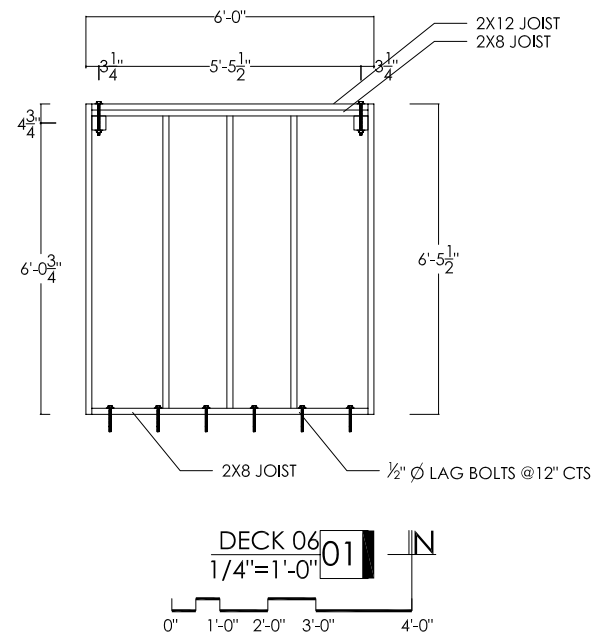
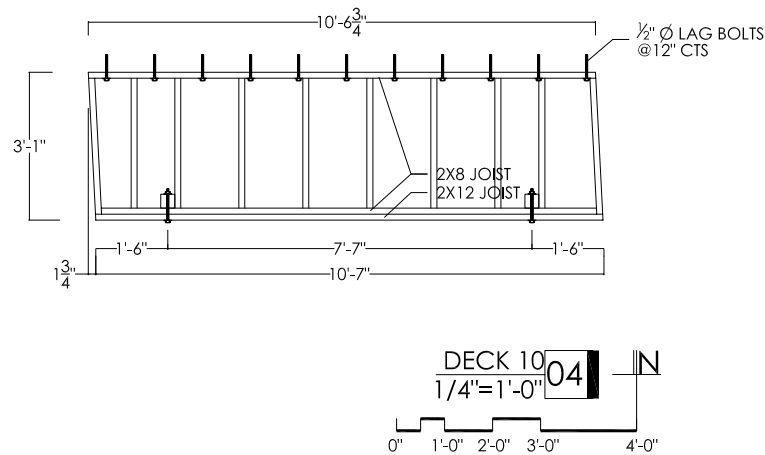
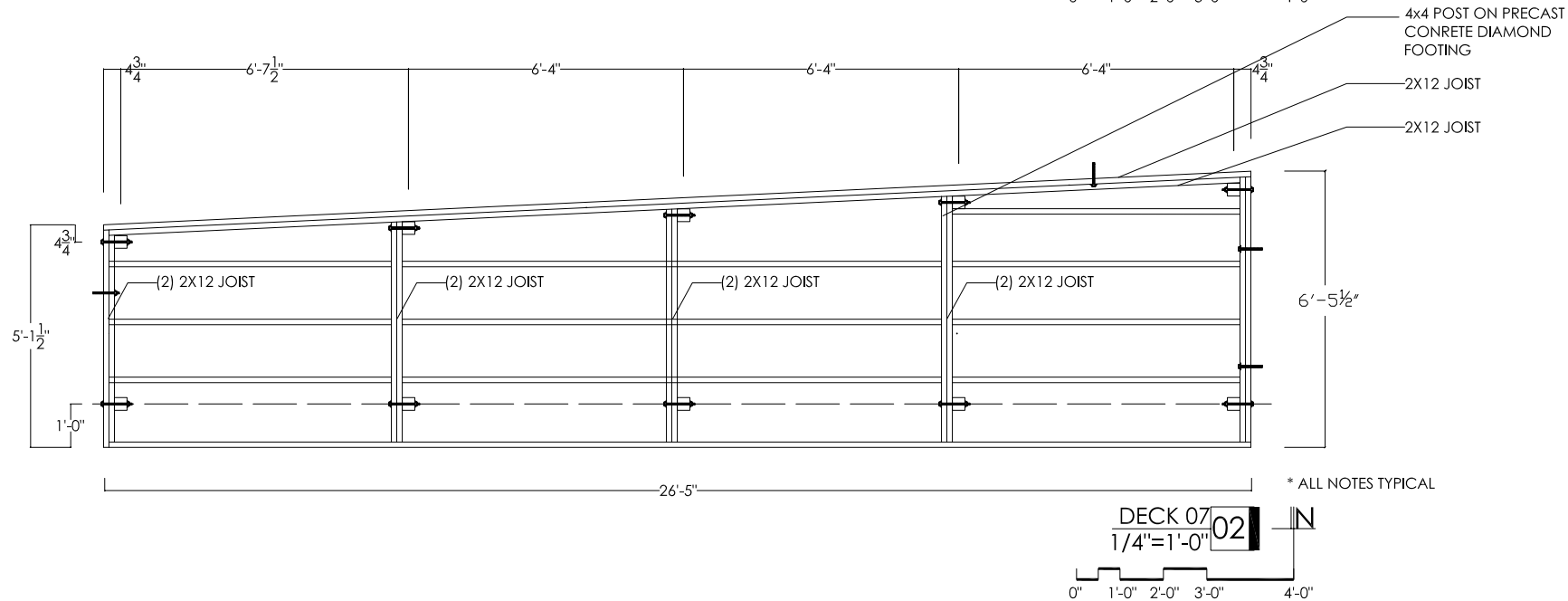
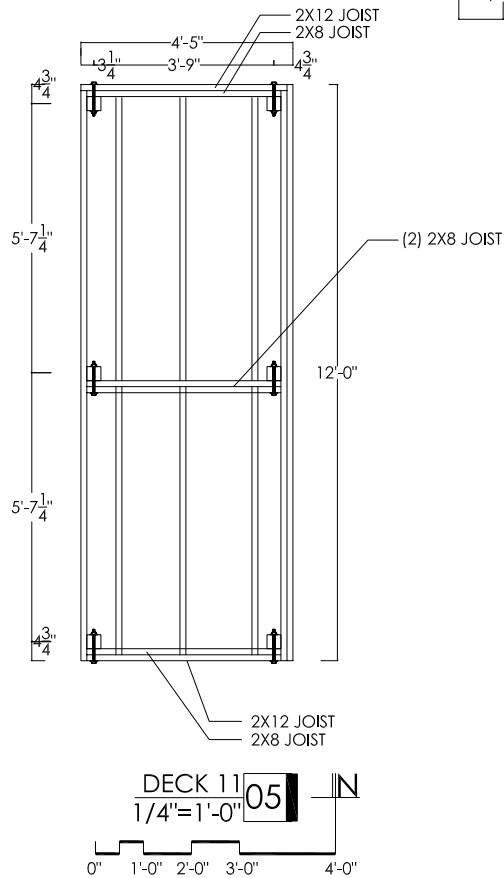
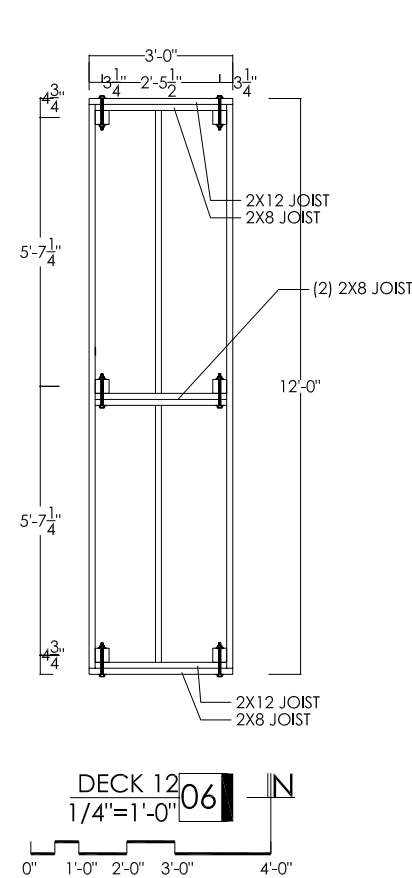
GENERAL NOTES

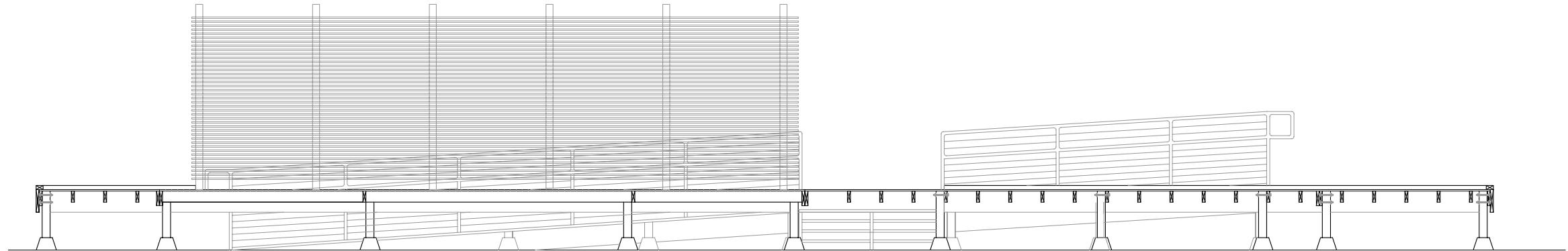
- *Simpson Strong Tie 2x6 HHB Top Flange Galvanized Joist Hangers to both end of joists TYP.
- *1x8 Pressure Treated Cyprus Decking on top of 2x6 framing
- *All framing to be 2x6 @16"o.c. U.N.O.
- *Field verify all dimensions
- *Framing members are to be #1 grade pressure treated douglas fir or better
- * $\frac{1}{2}$ " \varnothing Galvanized Carriage Bolts to secure individual deck members
- * $\frac{3}{8}$ " \varnothing Galvanized Lag Bolts to secure deck to floor plate u.o.n.
- *2x12 Rim Joist to be placed around perimeter of deck
- *for post/beam conns. ref. C4.4



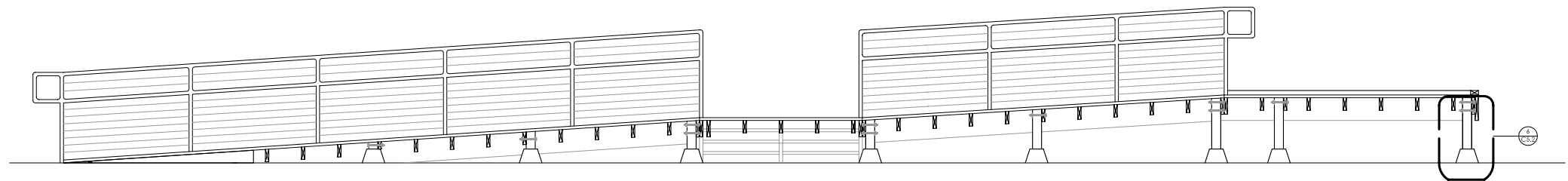
GENERAL NOTES

- *Simpson Strong Tie 2x6 HHB Top Flange Galvanized Joist Hangers to both end of joists TYP.
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- *for post/beam conns. ref. C4.4

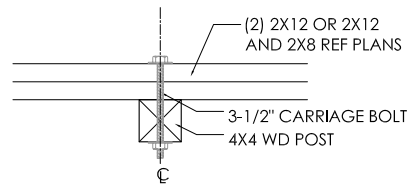




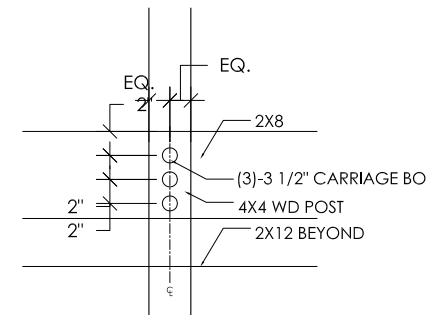
LONGITUDINAL SECTION 3
3/16"=1'-0"



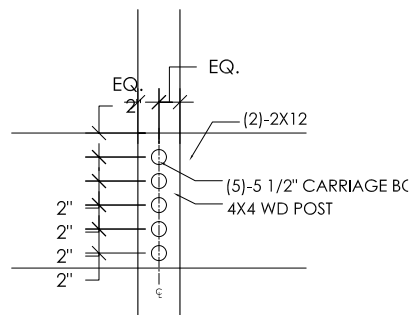
LONGITUDINAL SECTION 2
3/16"=1'-0"



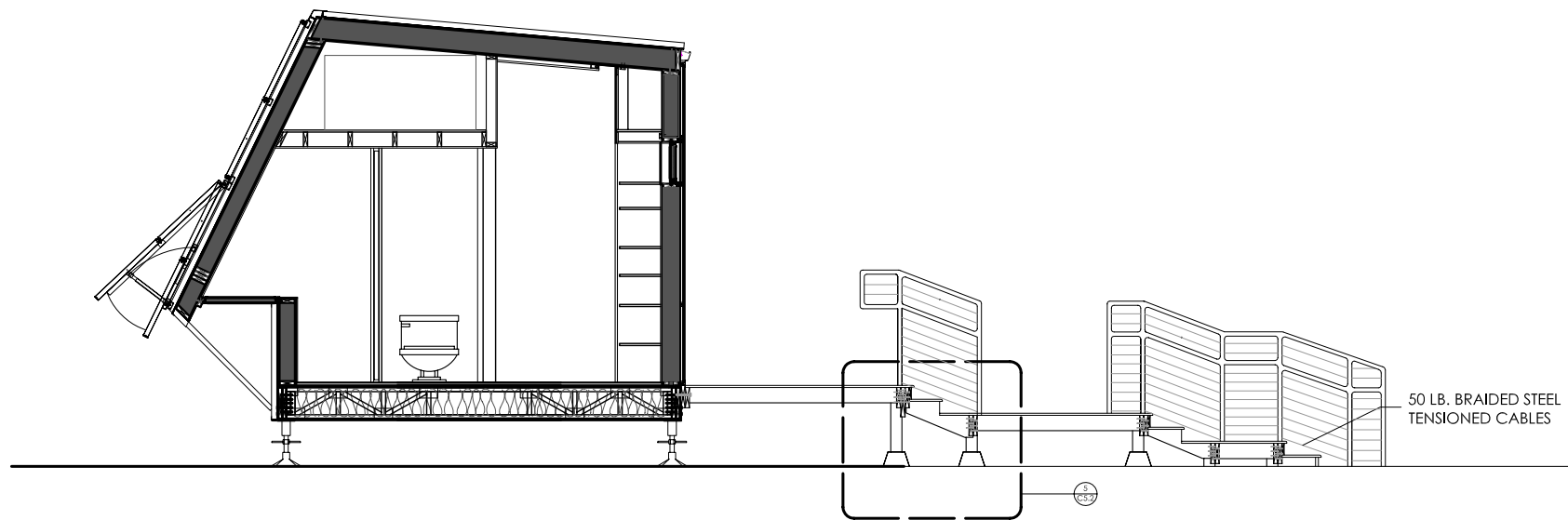
POST/BM CONN PLAN 6
3/4"=1'-0"



POST/BM CONN. ELEVATION 5
3/4"=1'-0"



POST/BM CONN. ELEVATION 4
3/4"=1'-0"



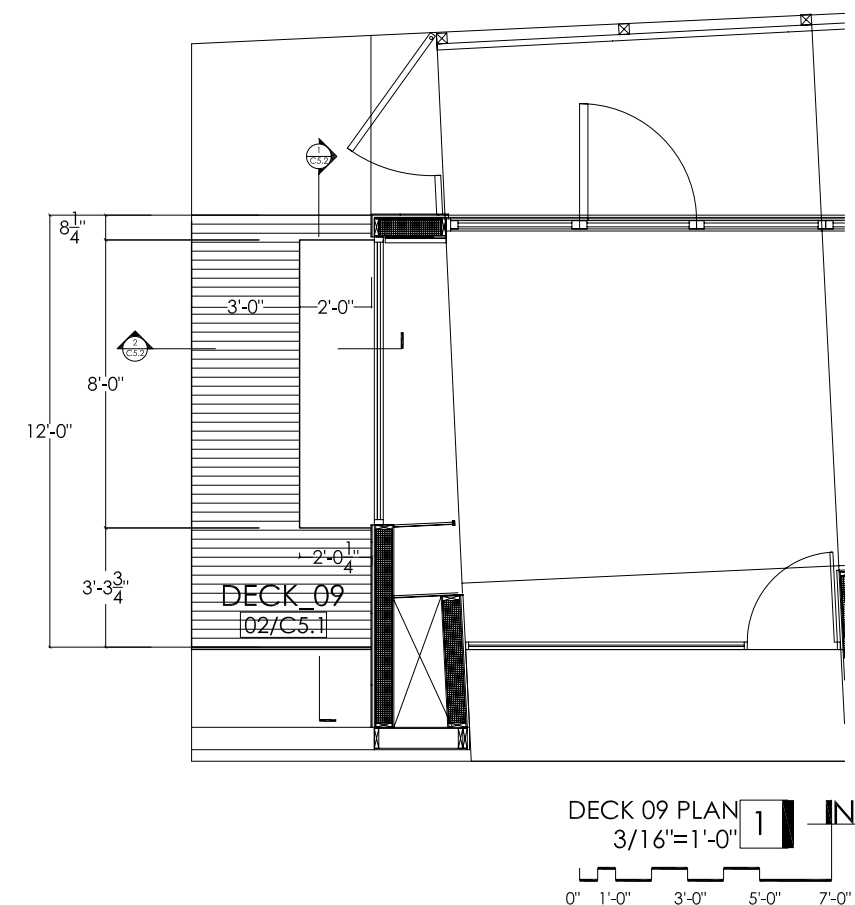
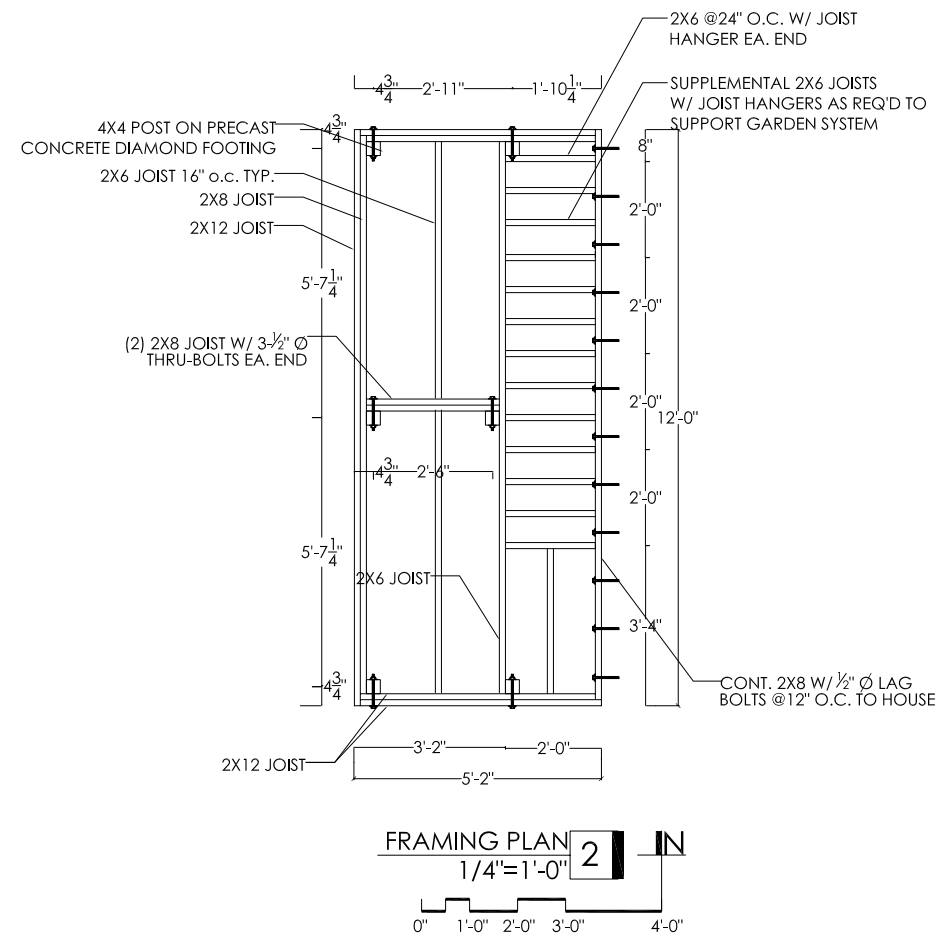
TRANSVERSE SECTION 1
3/16"=1'-0"

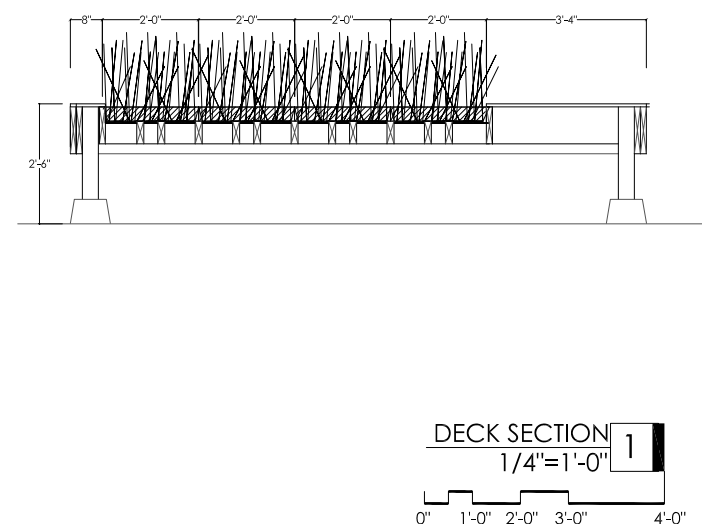
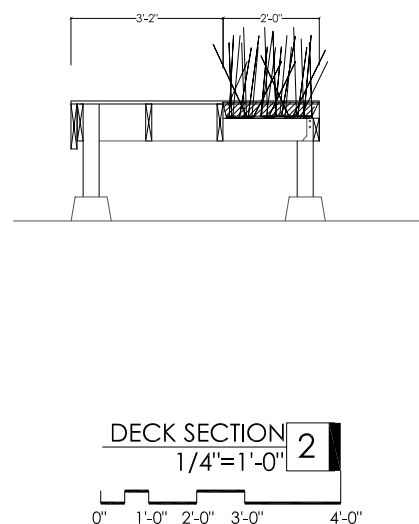
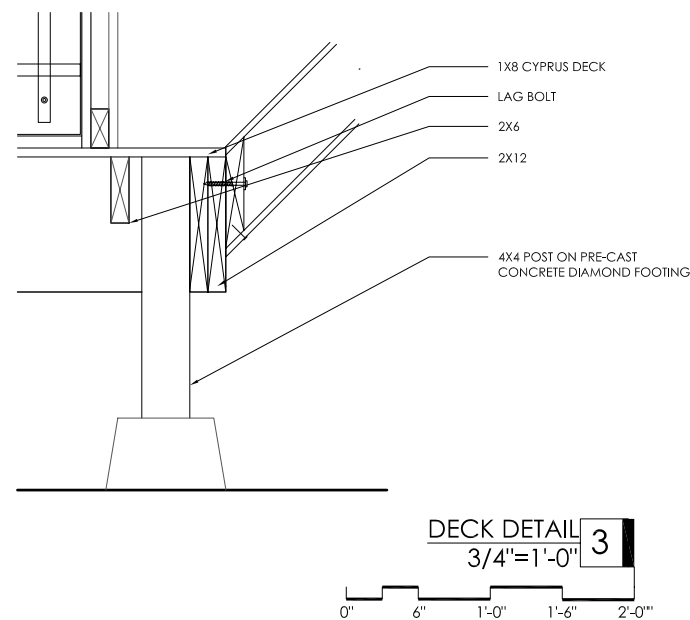
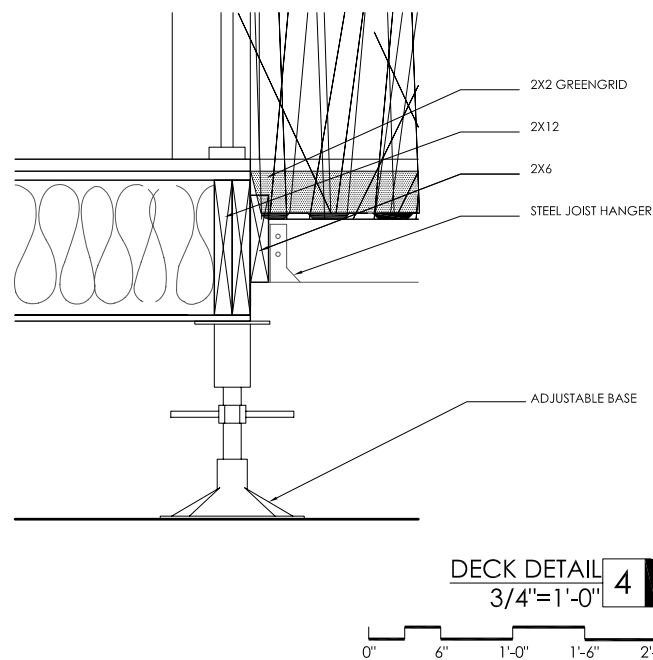
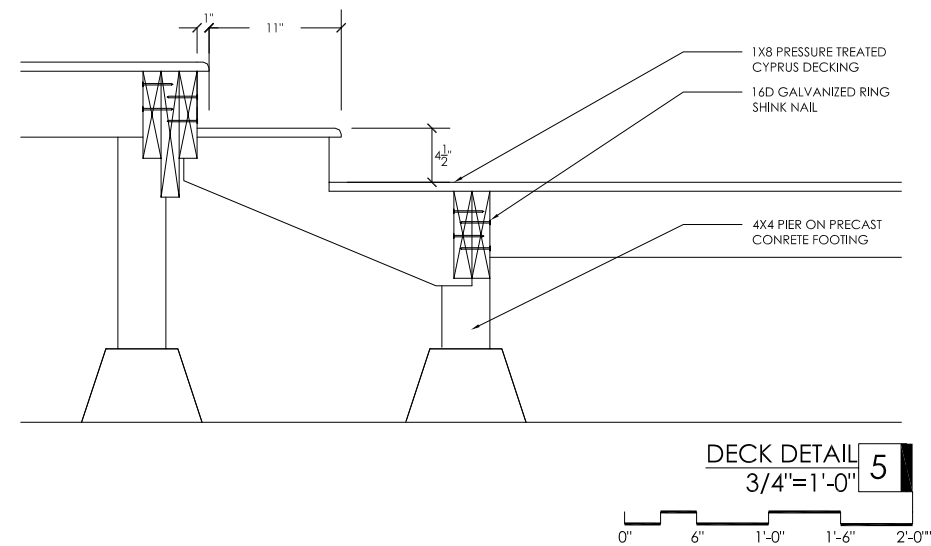
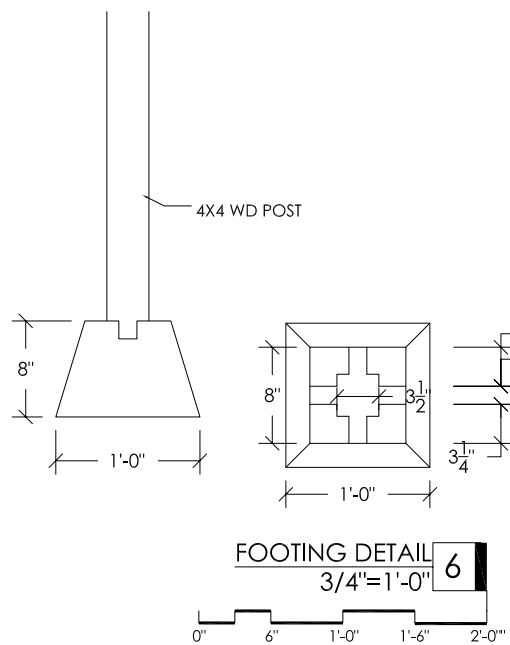
50 LB. BRAIDED STEEL
TENSIONED CABLES

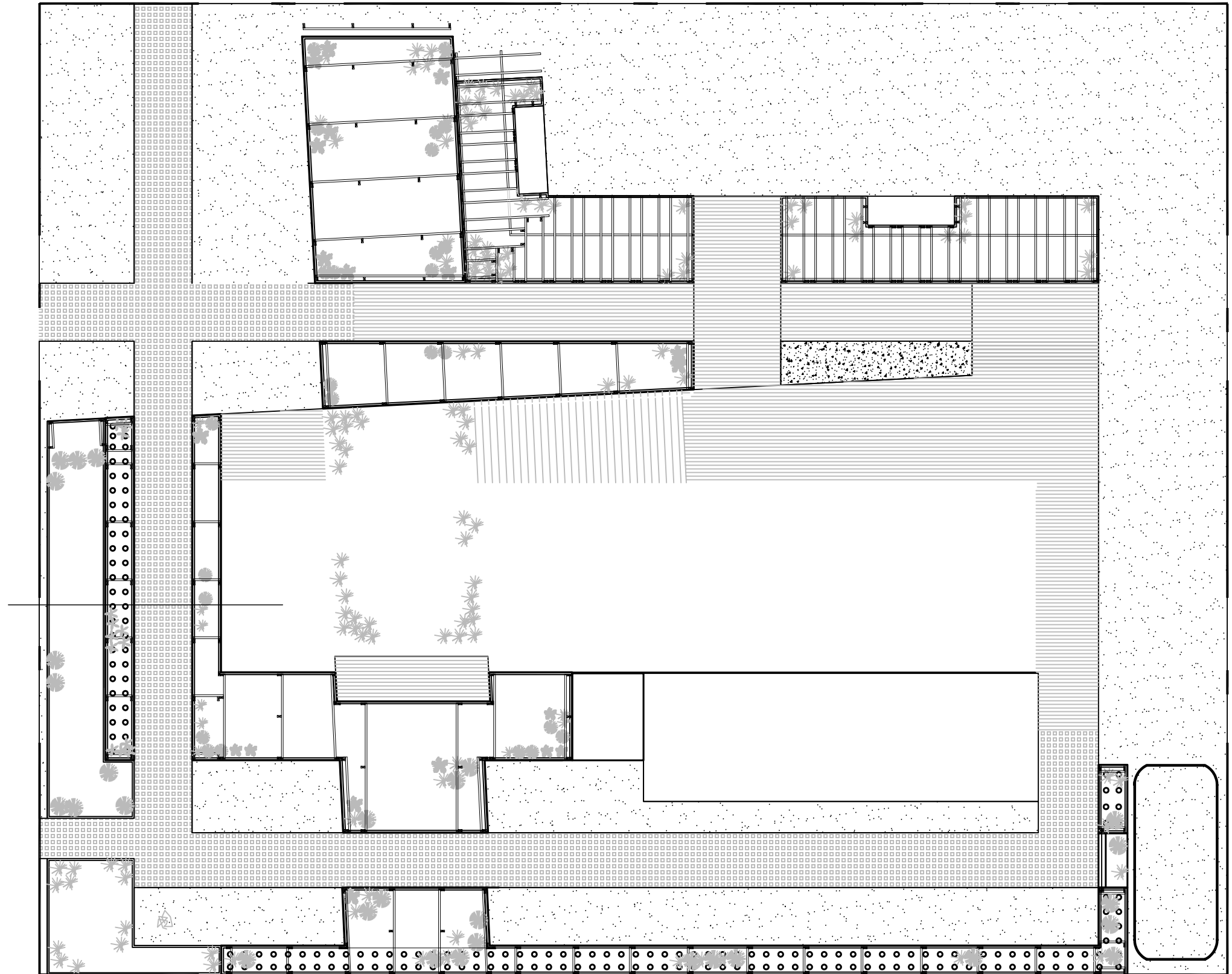
DRAWN BY_ PSH
DATE_ 3 MAY 2007
CHECKED BY_ AEG

DECK FRAMING
PLAN

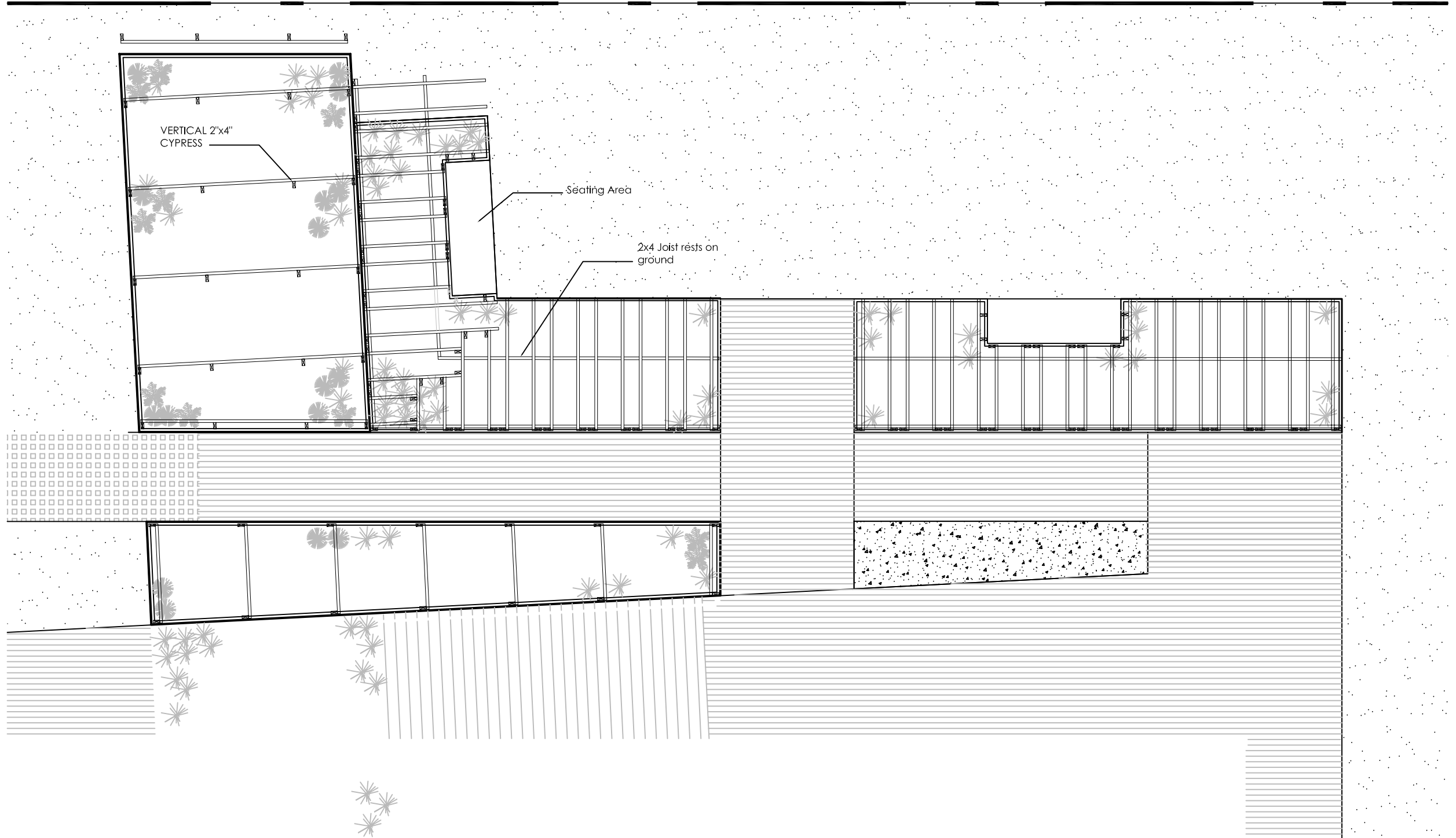
C5.1







PLANTER RIB PLAN 1 IN
1/8"=1.0'
0" 1'-0" 3'-0" 5'-0" 7'-0"



NORTH PLANTER RIBS
3/16"=1.0'



VERTICAL 2"x4"
CYPRESS

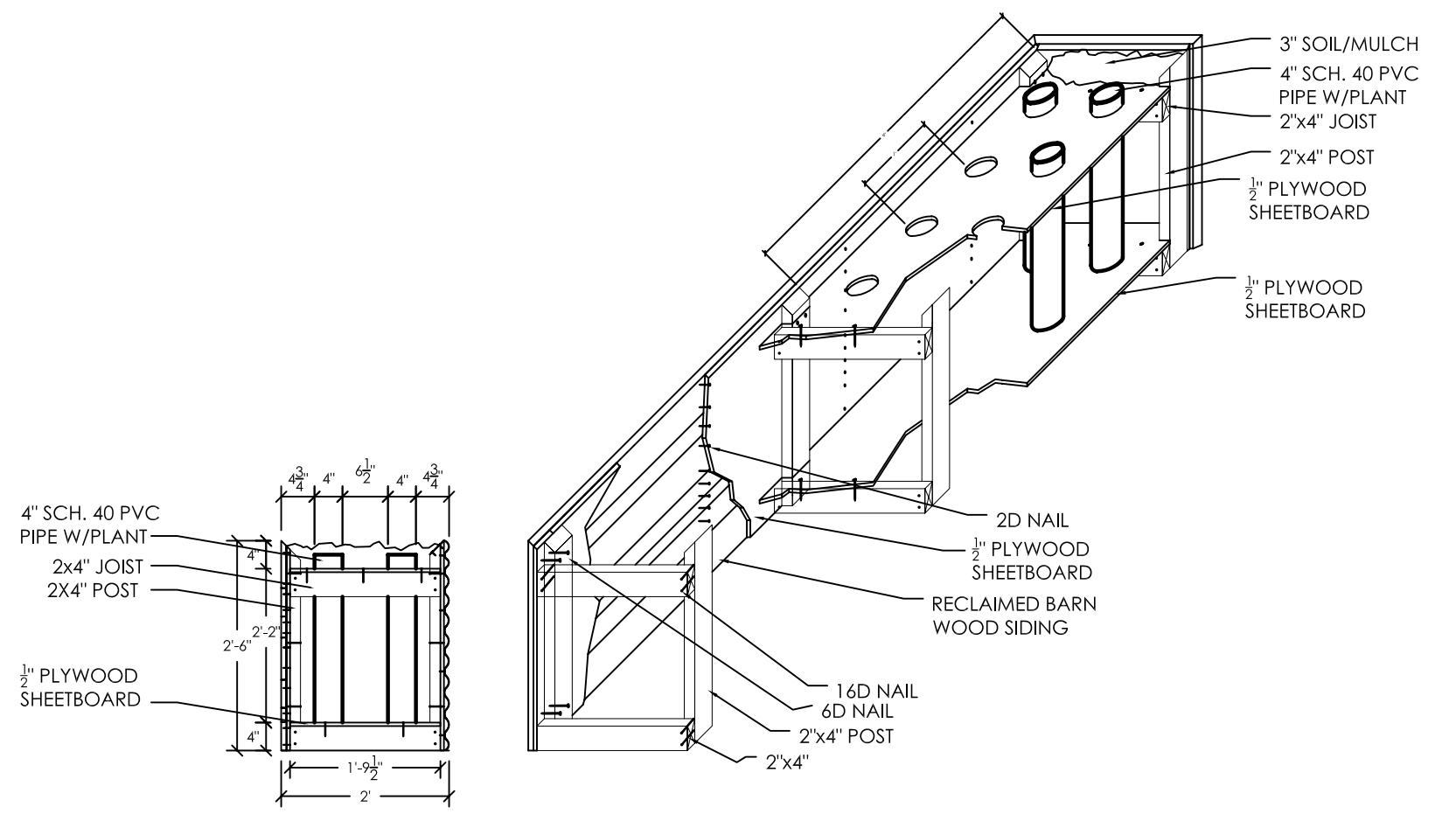
WEST PLANTER RIBS
3/16"=1.0'
0" 1'-0" 3'-0" 5'-0" 7'-0"

NOTES:

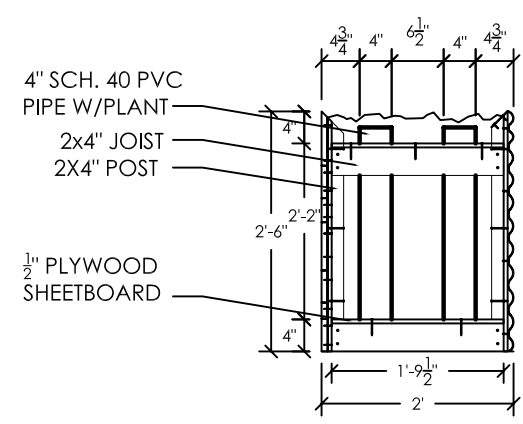
1. USE 2x4 FRAMING FOR ALL STRUCTURAL WOOD MEMBERS
 2. 10 GAUGE GALVANIZED 3" COUNTERSUNK SQUARE DRIVE HEADS TO BE USED TO SECURE ALL WOOD FORMS
 3. GREEG GRIDS TO BE PLACED WHERE SPECIFIED ON PLANTER PLANS
 4. TRUSSES FORMED AT 12 DEGREE ANGLE AND SHALL BE PREASSEMBLED BEFORE ARRIVING TO SITE
- PLANT MATERIAL SHALL NOT BE SHORTER THAN 6"

DRAWN BY: PSH
DATE: 03 MAY 2007
CHECKED BY:

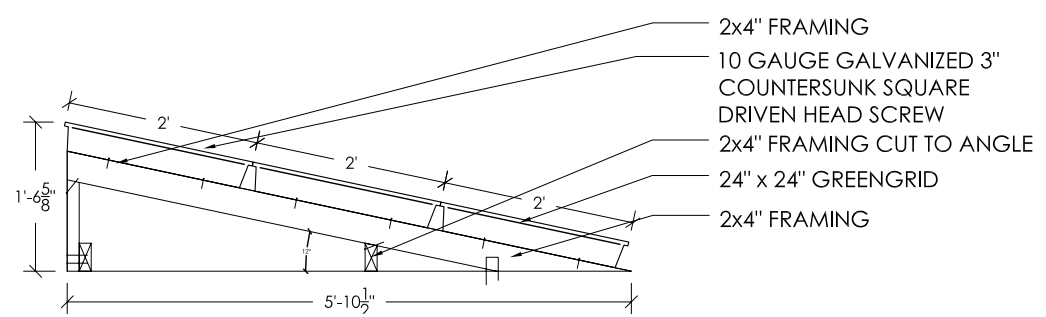
DETAILS



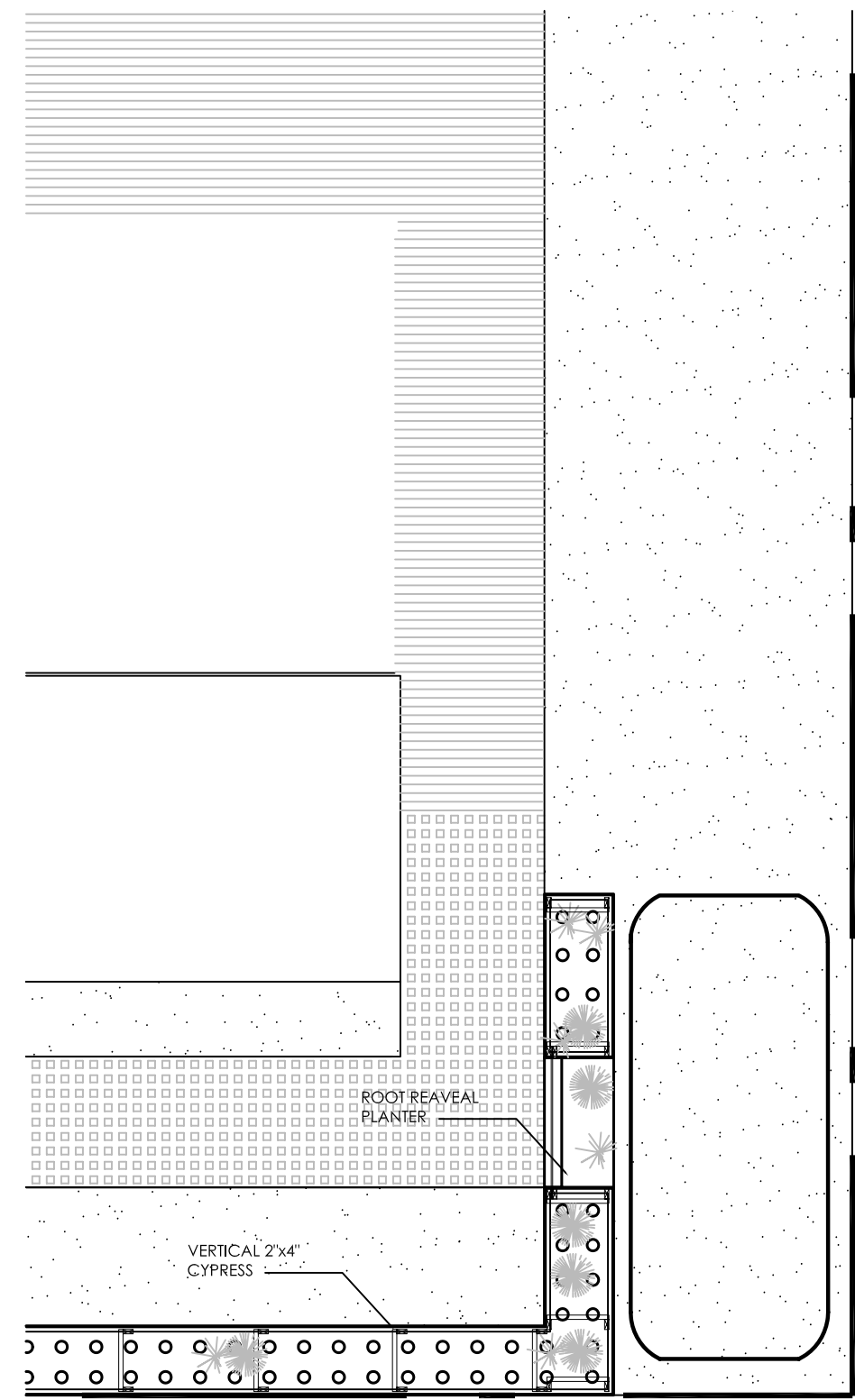
PLANTER DETAIL 4
1/2"=1.0'



PLANTER DETAIL 3
1/4"=1.0'



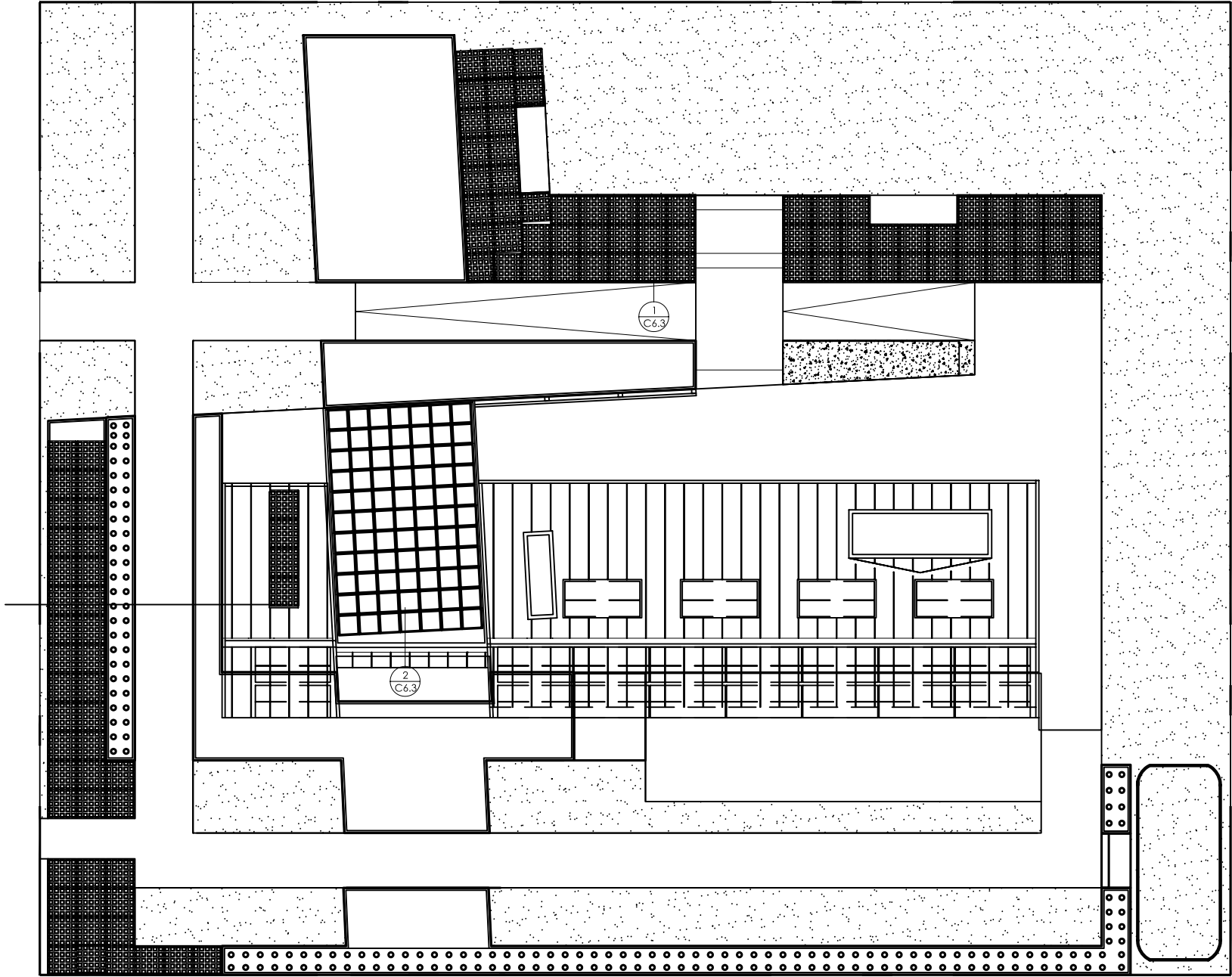
PLANTER DETAIL 2
1/2"=1.0'



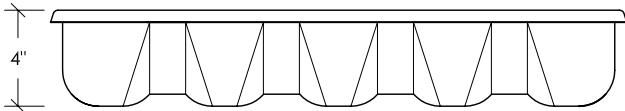
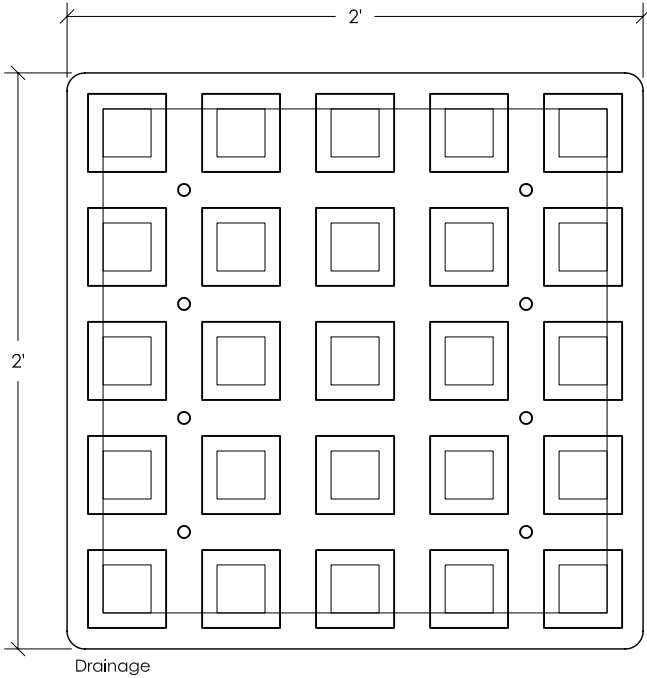
SITE PLAN 1
1/8"=1.0'

Notes:

- 1. All edible vegetation must be watered by potable water.

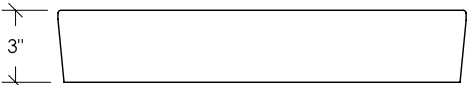
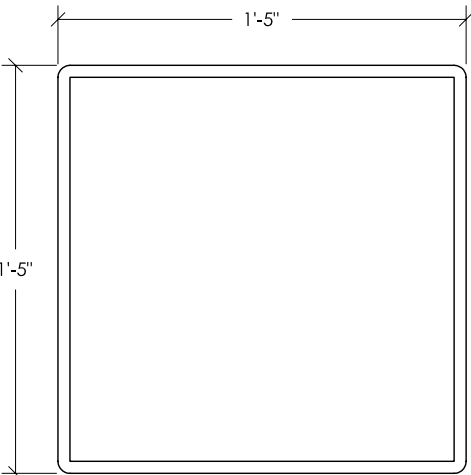


1 Greengrid in Plan
10"=1.0'



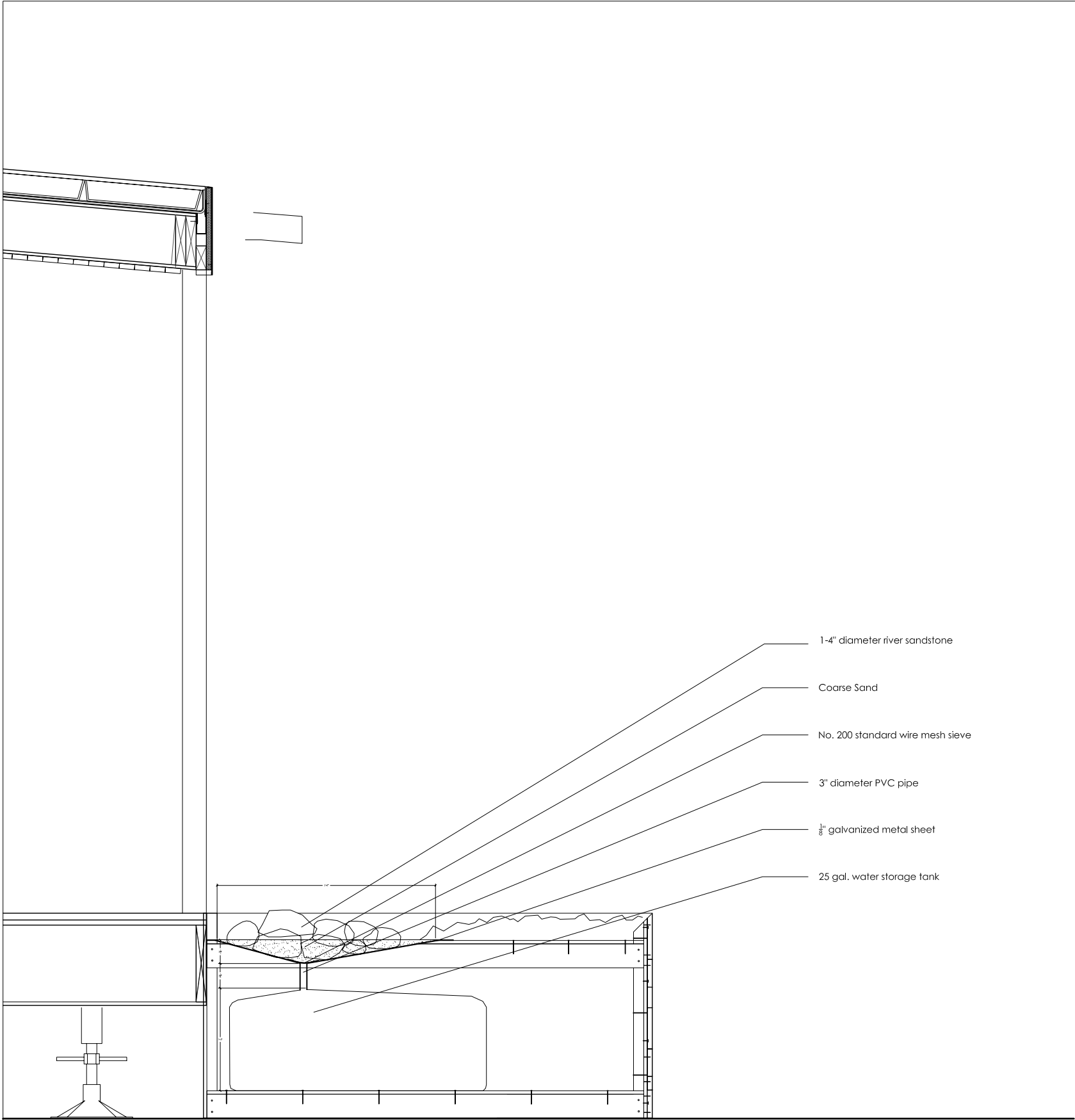
GreenGrid unit: recycled plastic

1 GreenGrid Detail
3/4"=1.0'



Bio Tray unit: organic fibrous mat

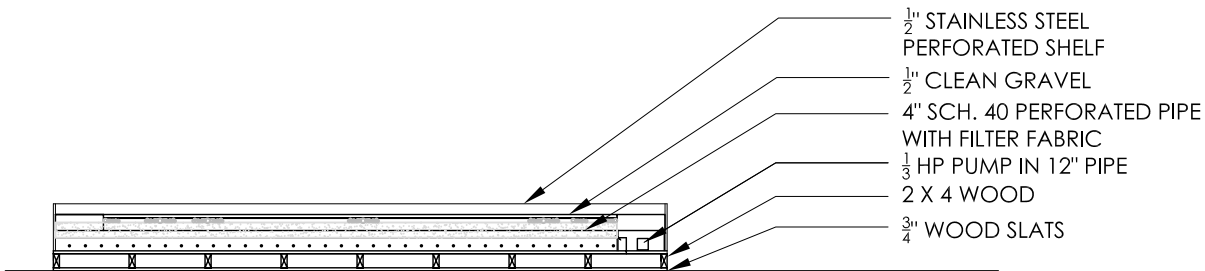
2 Bio Tray Detail
3/4"=1.0'



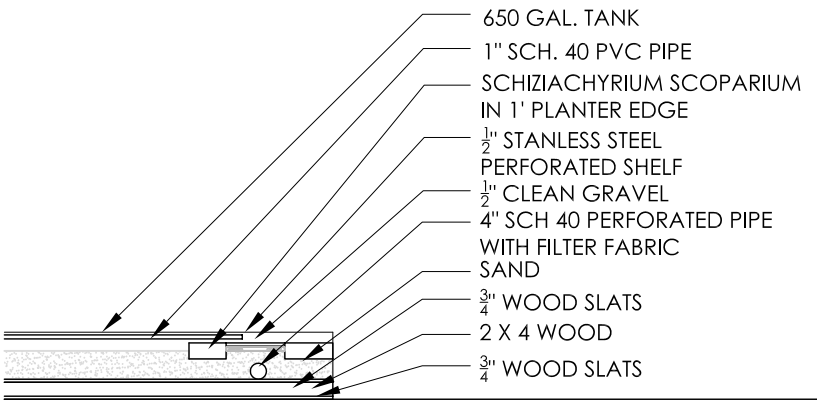
1 Rainwater Capture Basin Detail
1 1/2"=1.0'

GENERAL NOTES

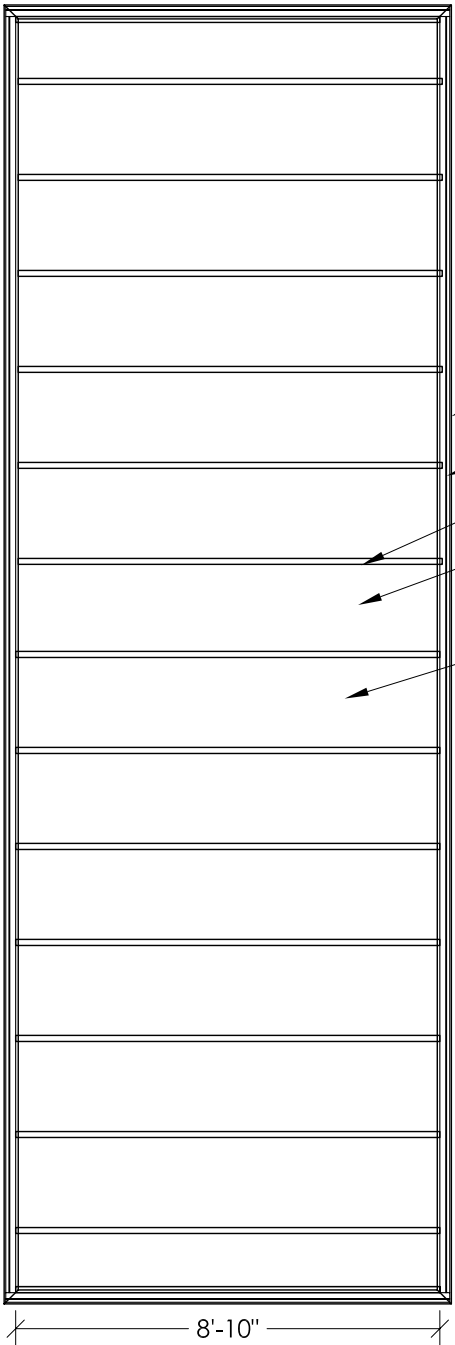
- *2X4" Joists connect to 2x8" cypress perimeter.
- *10 gauge galvanized 3" countersunk screws with square-driven heads.
- *Reclaimed corrugated metal siding to be placed with ribs arranged vertically and attached with 3/4" ring shank zinc coated nail.
- *1/2" plywood sheeting placed top of joists.
- *10 mil black plastic to be placed top of plywood and then draped over 2x8 cypress perimeter before filling with water
- *As trough is being filled, the inside corners shall be neatly folded.
- *Once filled with water, the corrugated edging can be secured.
- *Top edging to be 3/4" rough-cut cedar wood with 5/8" inside overhang.
- *Do not stretch plastic or cause stain due to possible leaking.



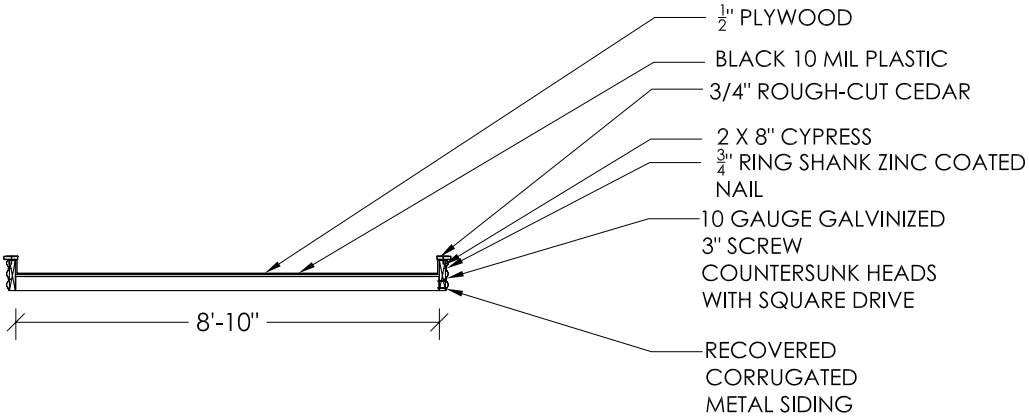
GREYWATER DETAIL 3
1/4"=1.0'



GREYWATER DETAIL 2
1/4"=1.0'

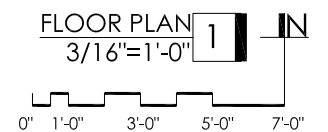
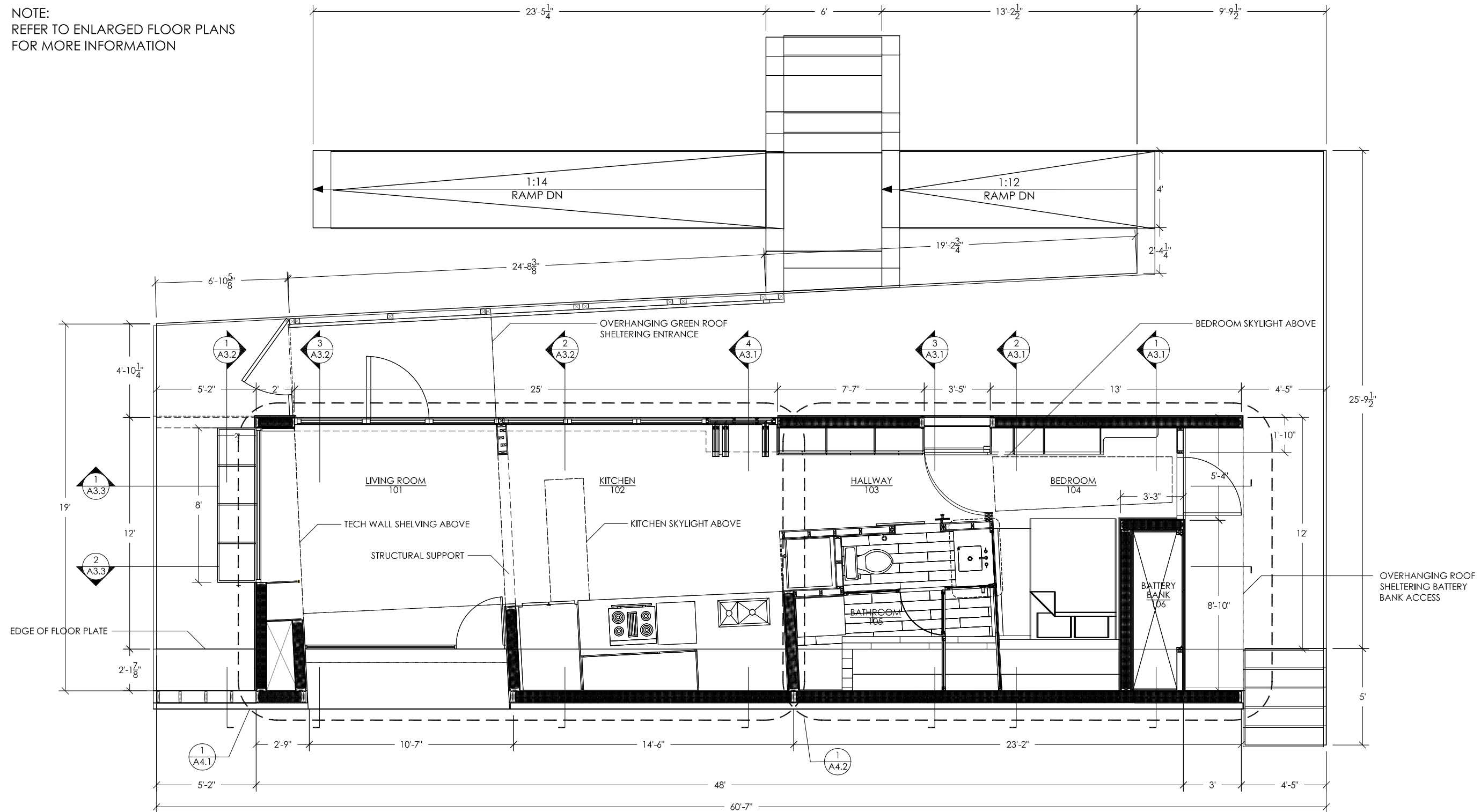


- RECOVERED CORRUGATED METAL SIDING
- 2X8" CYPRESS FRAME
- 2X4" JOIST @ 24" O.C.
- 1/2" PLYWOOD PLACED ABOVE JOIST, UNDER PLASTIC COVERING
- 10 MIL BLACT PLASTIC COVERING



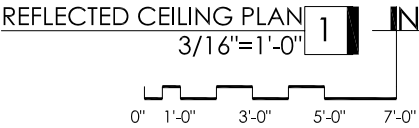
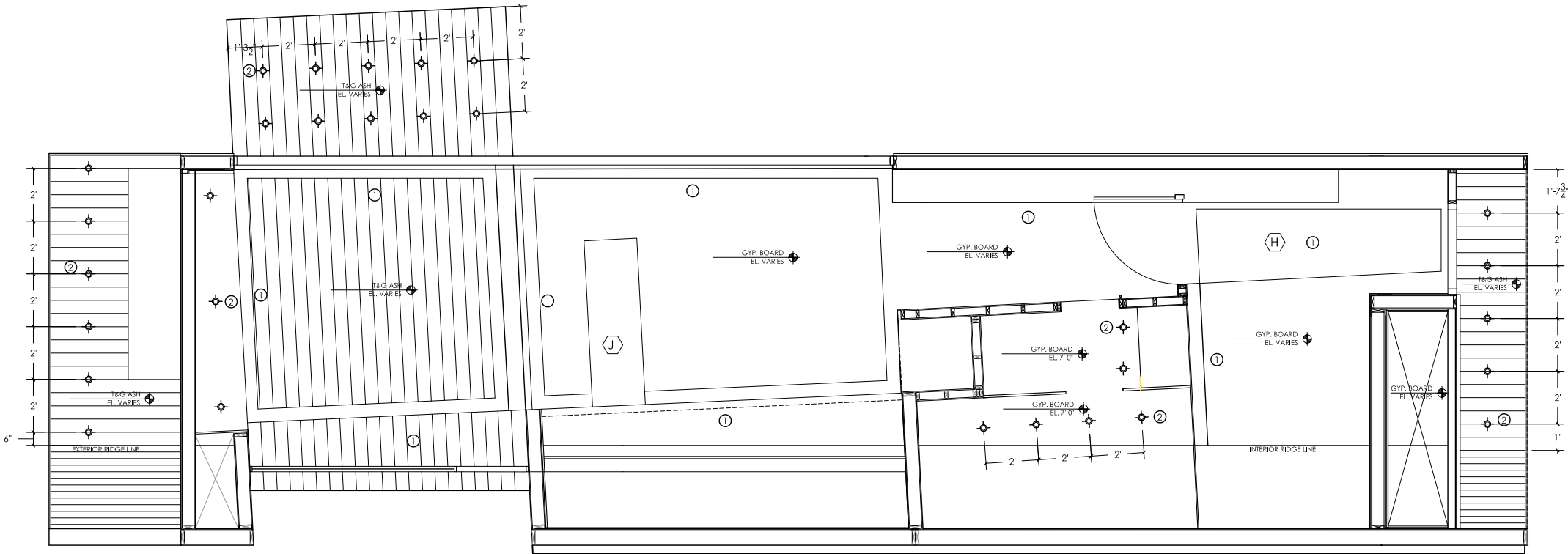
REFLECTION POOL DETAIL 1
1/4"=1.0'

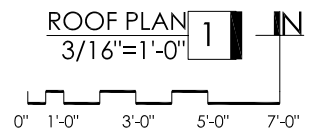
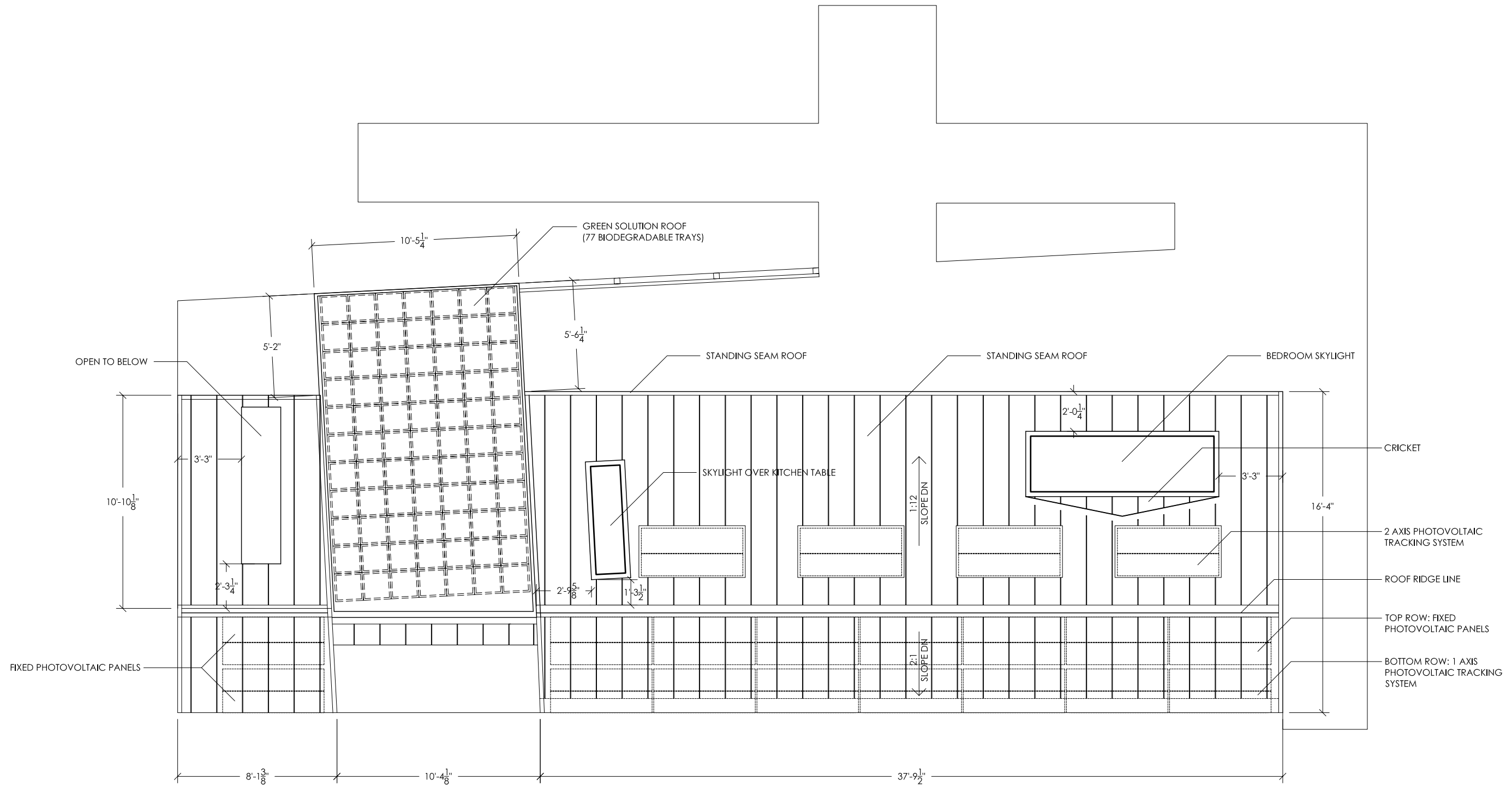
NOTE:
REFER TO ENLARGED FLOOR PLANS
FOR MORE INFORMATION

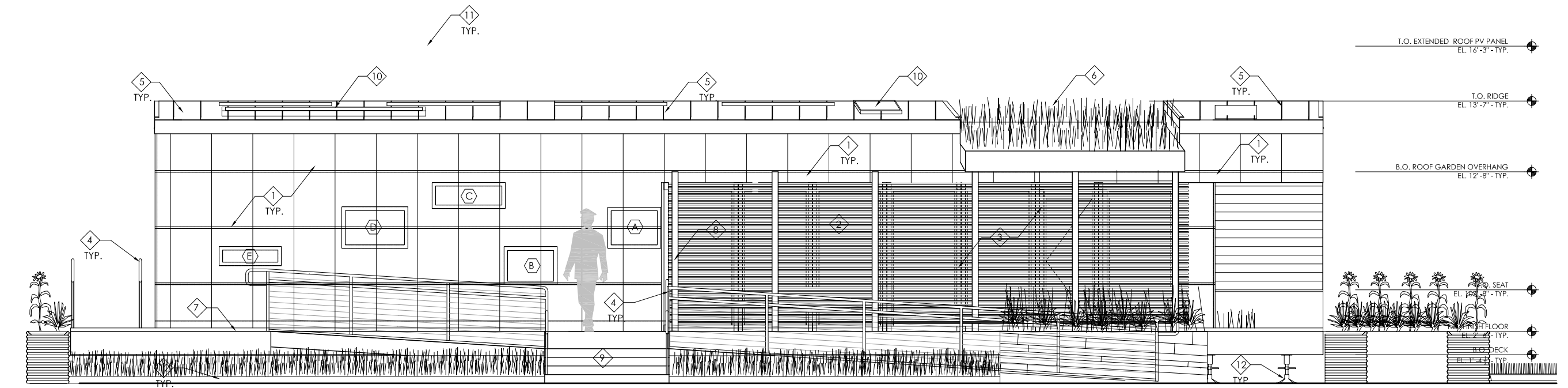


LIGHTING SCHEDULE						
SYSTEM	TYPE	MANUFACTURER	PRODUCT	WATTS	MOUNT	REMARKS
1	FLUORESCENT	PHILIPS	PHILIPS ENERGY ADVANTAGE T8 LAMP	25W	FLUSH	W/ LUTRON 25 W DIMMING BALLAST
2	LED	PHILIPS	AURELLE LED DECK LIGHT WHITE	N/A	RECESSED	NONE

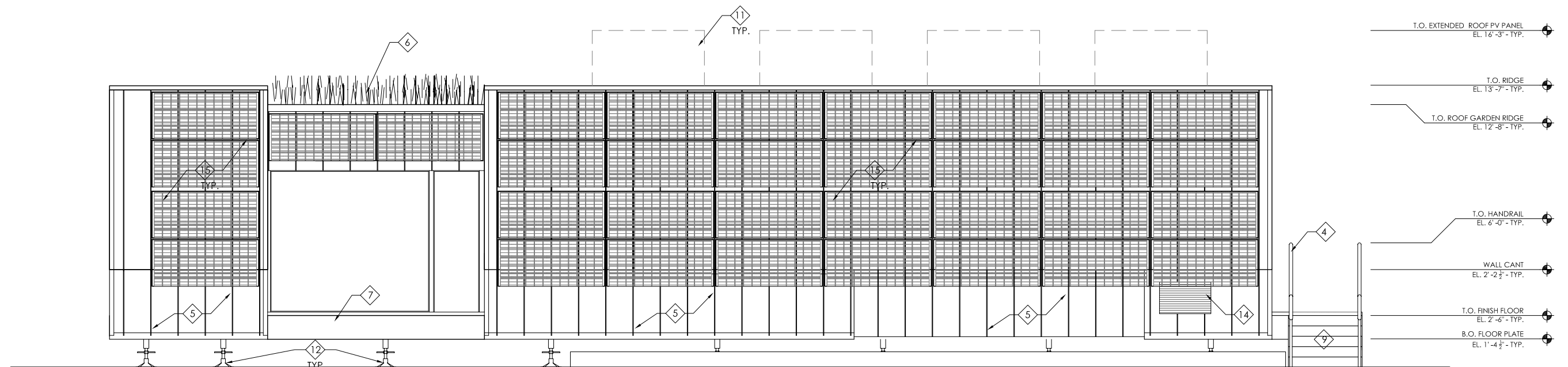
NOTE:
CEILING HEIGHTS FROM F.F.E.







NORTH ELEVATION
3/16"=1'-0" 2
0" 1'-0" 3'-0" 5'-0" 7'-0"



SOUTH ELEVATION
3/16"=1'-0" 1
0" 1'-0" 3'-0" 5'-0" 7'-0"

KEYED NOTES

- | | | | | |
|-------------------------------|-----------------|-------------------|--------------------------|--------------------|
| 1 Polycarbonate Ext. Cladding | 4 Hand Rails | 7 Deck/Ramp | 10 skylight | 13 reflective pool |
| 2 Nana Wall Behind | 5 Standing Seam | 8 4X4 Wood Column | 11 Solar Tracking System | 14 grated vent |
| 3 Reclaimed Barn Lumber | 6 Green Roof | 9 Stairs | 12 Adjustable Base | 15 solar panel |

KEYED NOTES

- 1

Polycarbonate Ext. Cladding
- 2

Nana Wall Behind
- 3

Reclaimed Barn Lumber
- 4

Hand Rails
- 5

Standing Seam
- 6

Green Roof
- 7

Deck/Ramp
- 8

4X4 Wood Column
- 9

Stairs
- 10

skylight
- 11

Solar Tracking System
- 12

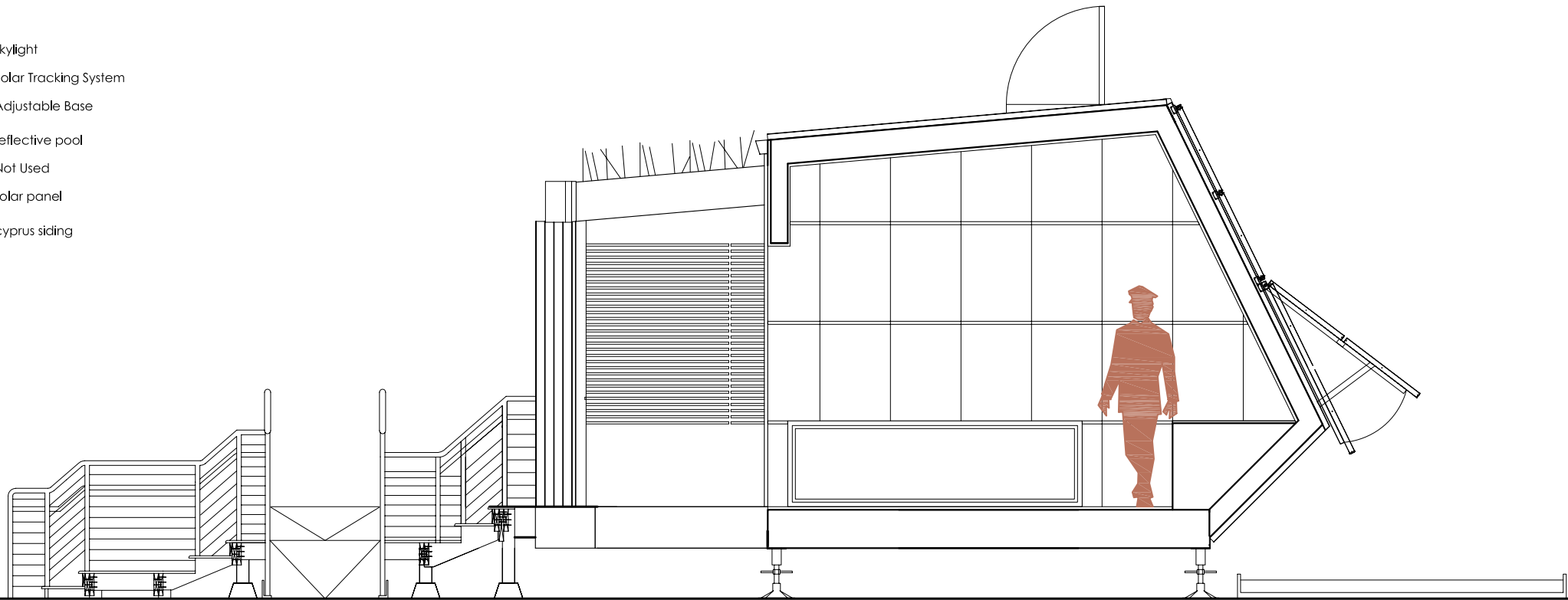
Adjustable Base
- 13

reflective pool
- 14

Not Used
- 15

solar panel
- 16

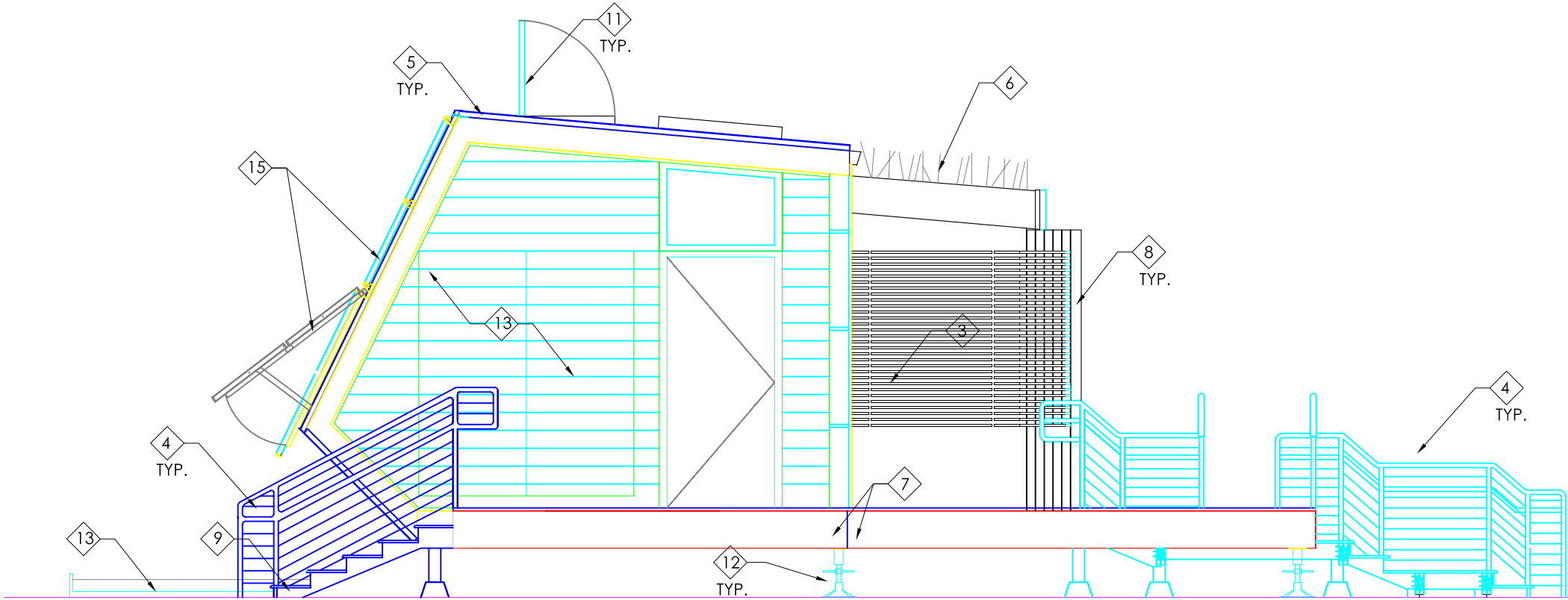
cyprus siding



WEST ELEVATION
1/4"=1'-0" 2

- T.O. EXTENDED ROOF PV PANEL
EL. 16'-3" - TYP.
- T.O. RIDGE
EL. 13'-7" - TYP.
- B.O. ROOF GARDEN OVERHANG
EL. 12'-8" - TYP.
- T.O. HANDRAIL
EL. 6'-0" - TYP.
- WALL CANT
EL. 2'-2 1/2" - TYP.
- T.O. FINISH FLOOR
EL. 2'-6" - TYP.
- B.O. FLOOR PLATE
EL. 1'-4 1/2" - TYP.

EAST ELEVATION
1/4"=1'-0" 1



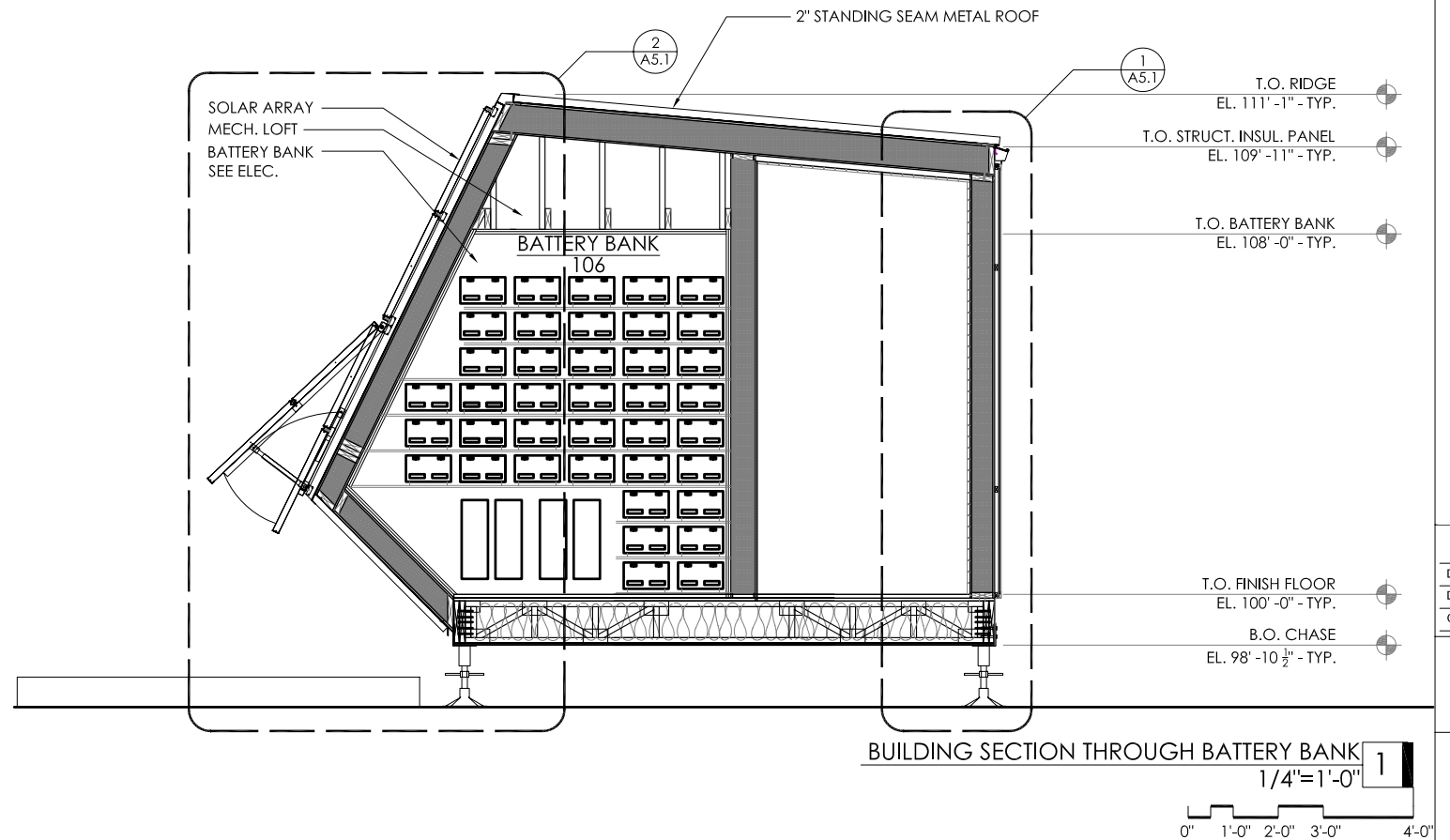
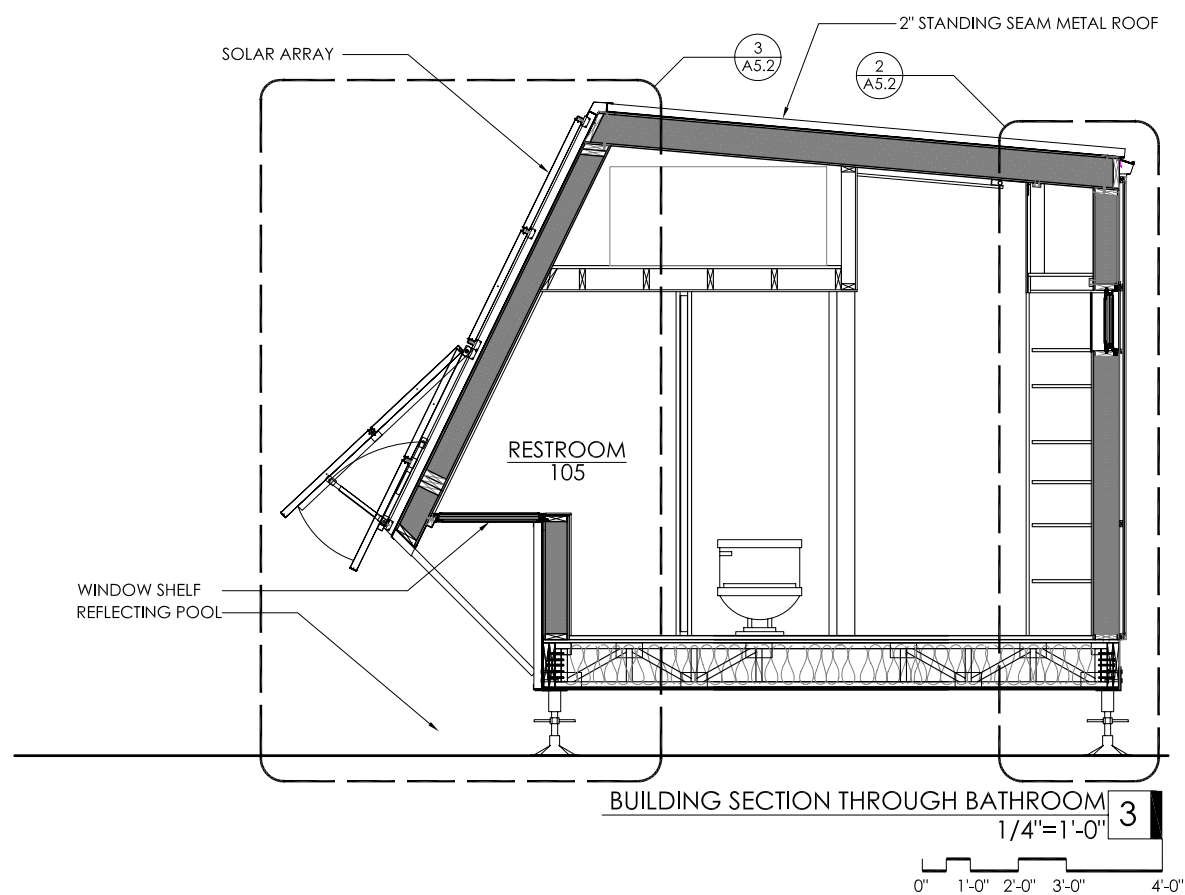
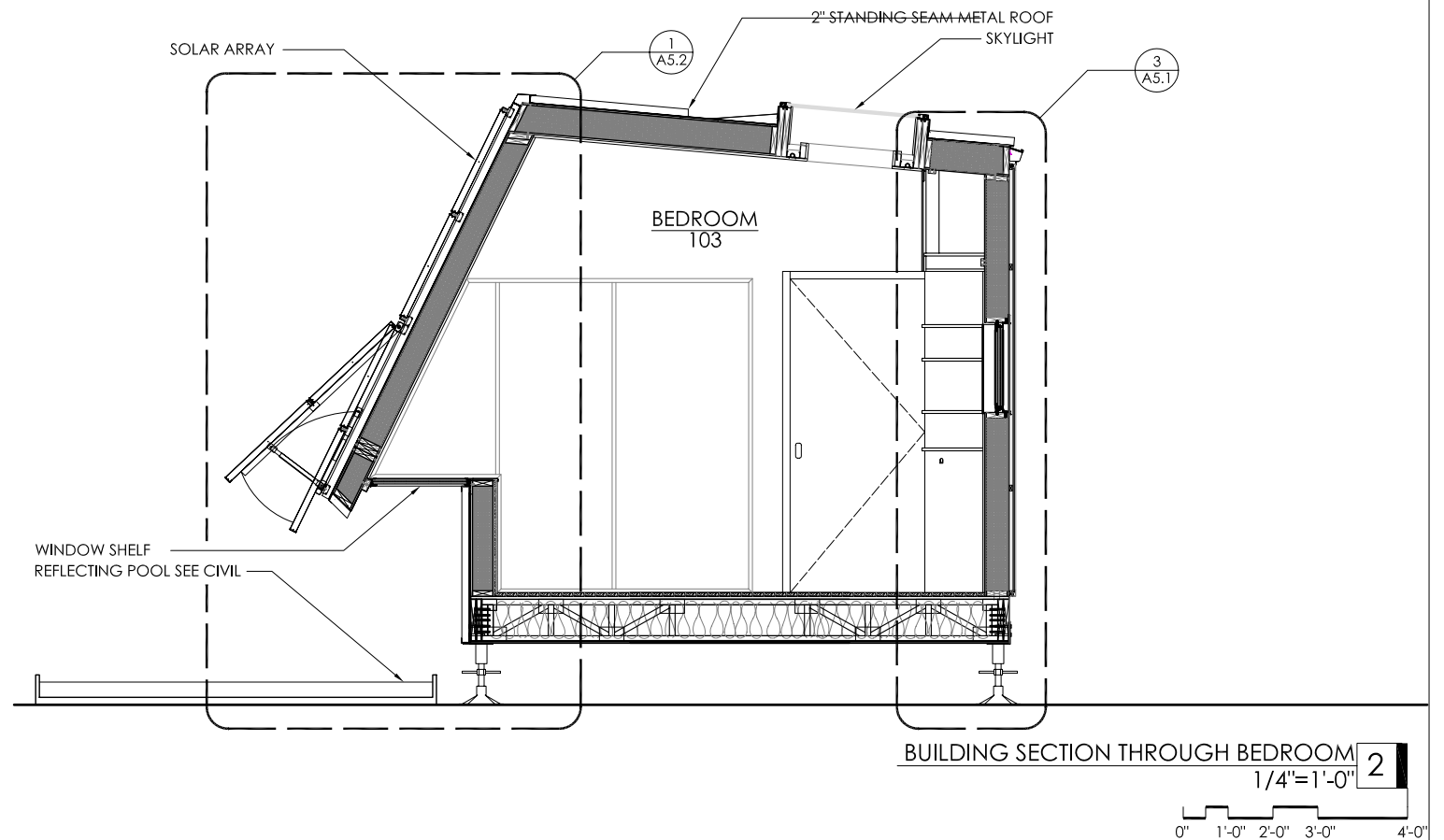
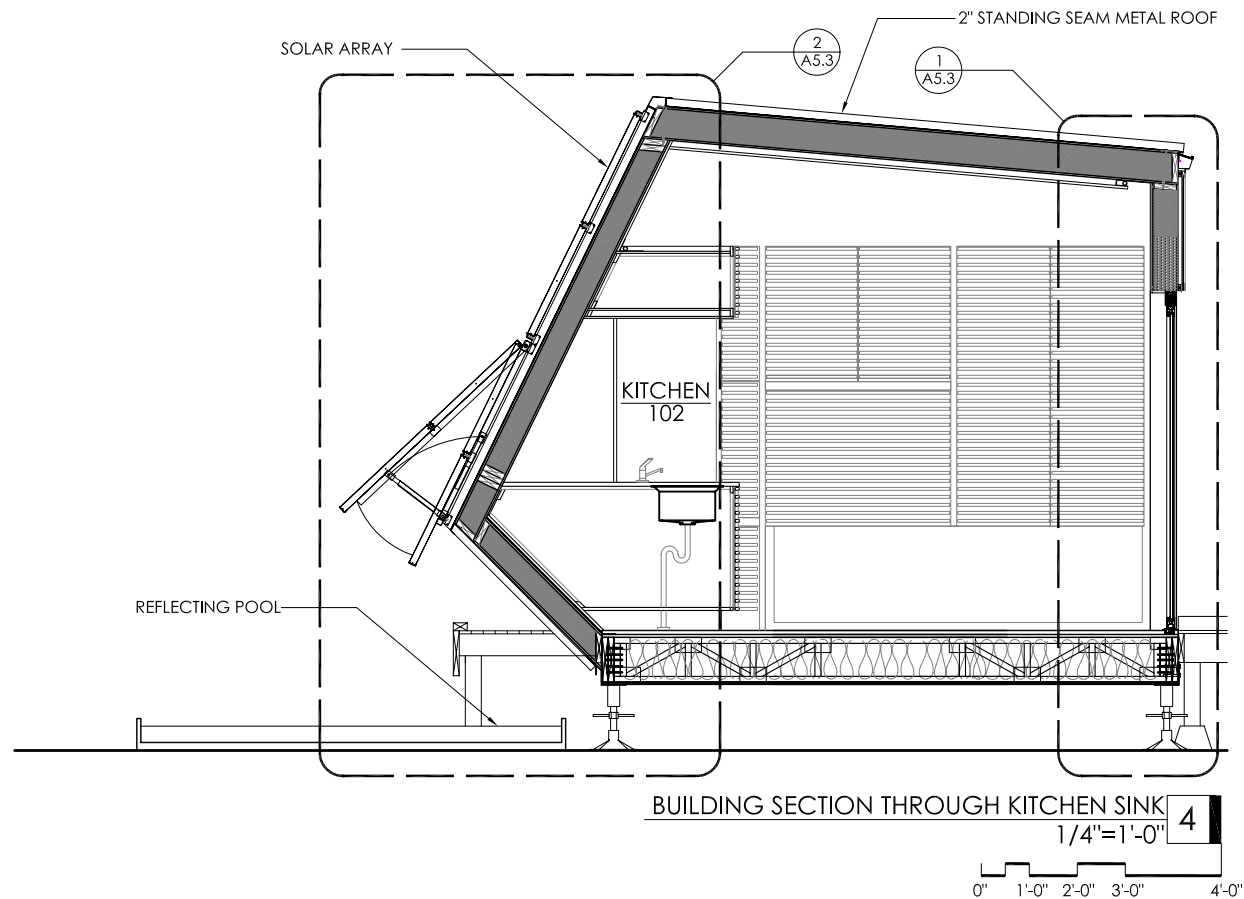
PROJECT SOLAR HOUSE
108 SEATON HALL
MANHATTAN, KS 66502

Project solarhouse
2007 kansas solar decathlon entry

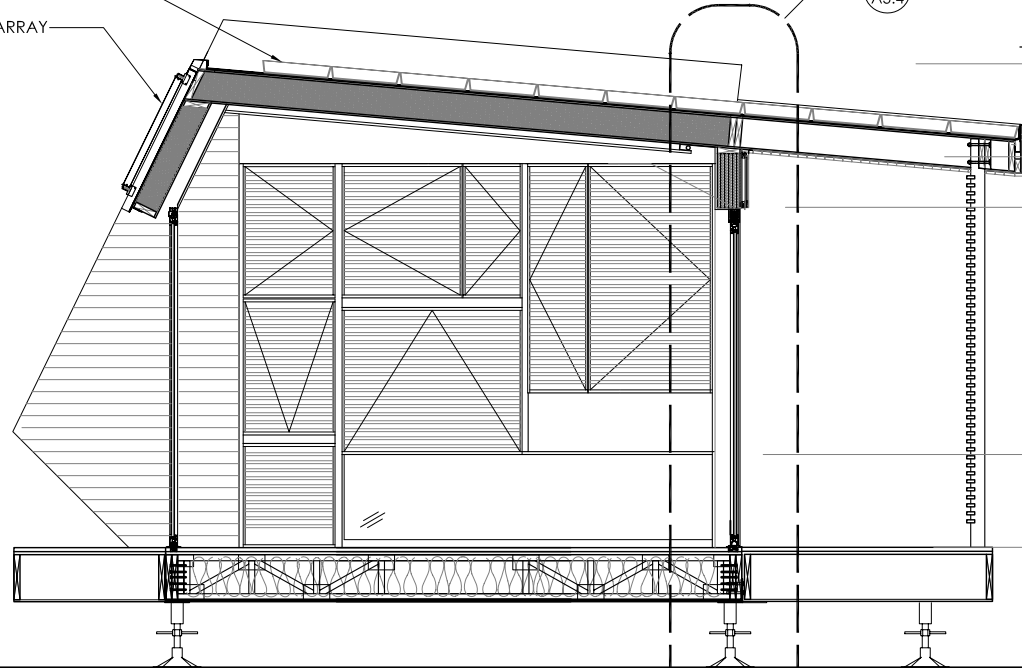
DRAWN BY_ PSH
DATE_ 03 MAY 2007
CHECKED BY_

ELEVATIONS

A2.2



GREEN ROOF
SOLAR ARRAY



T.O. STRUCT. BEAM
EL. 110'-1"

ROOF FRAME
EL. 108'-2"
B.O. BEAM
EL. 107'-1"

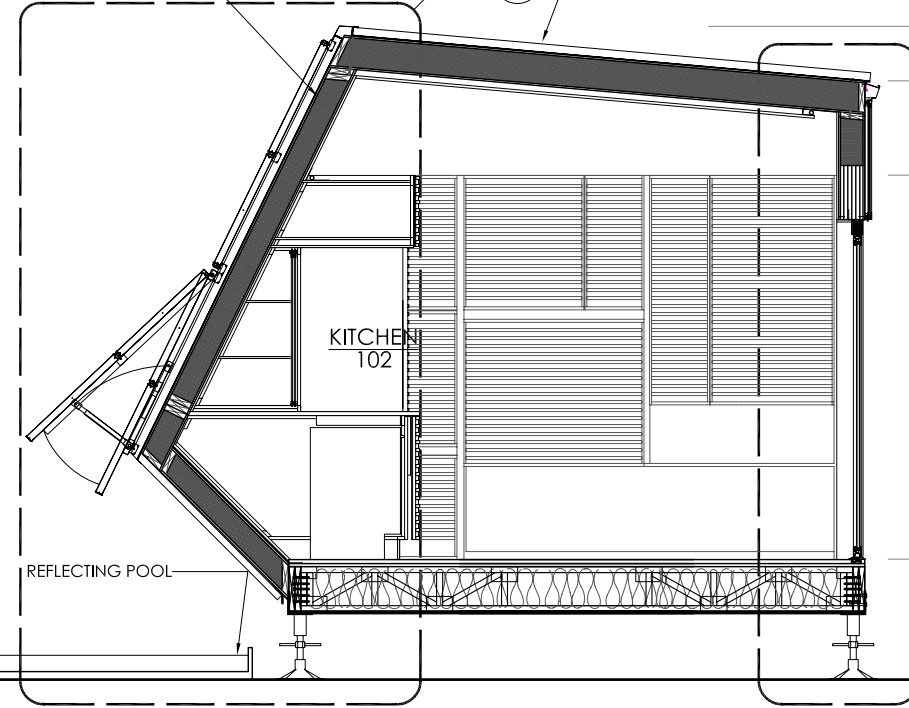
B.O. CABINET
EL. 101'-11 1/4"

T.O. FINISH FLOOR
EL. 100'-0"

BUILDING SECTION THROUGH LIVING ROOM 3
1/4"=1'-0"

0" 1'-0" 2'-0" 3'-0" 4'-0"

SOLAR ARRAY 2" STANDING SEAM METAL ROOF



T.O. RIDGE
EL. 111'-1"

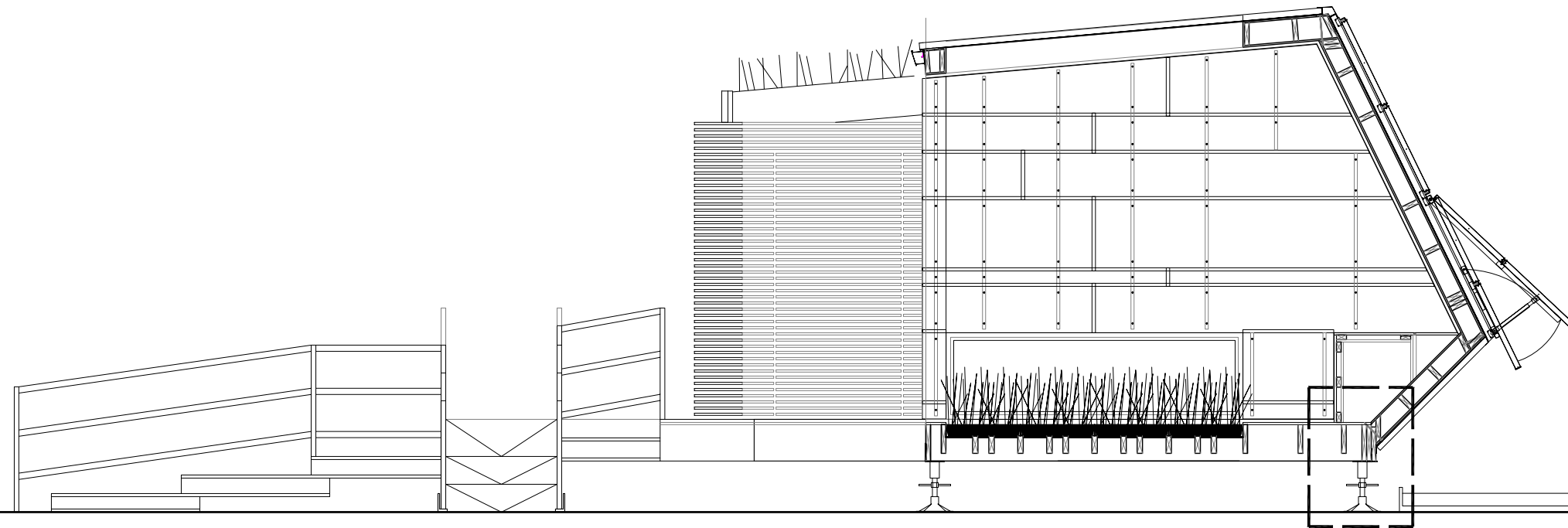
T.O. STRUCT. INSUL. PANEL
EL. 109'-11" - TYP.

T.O. CABINET
EL. 108'-0" - TYP.

T.O. FINISH FLOOR
EL. 100'-0" - TYP.

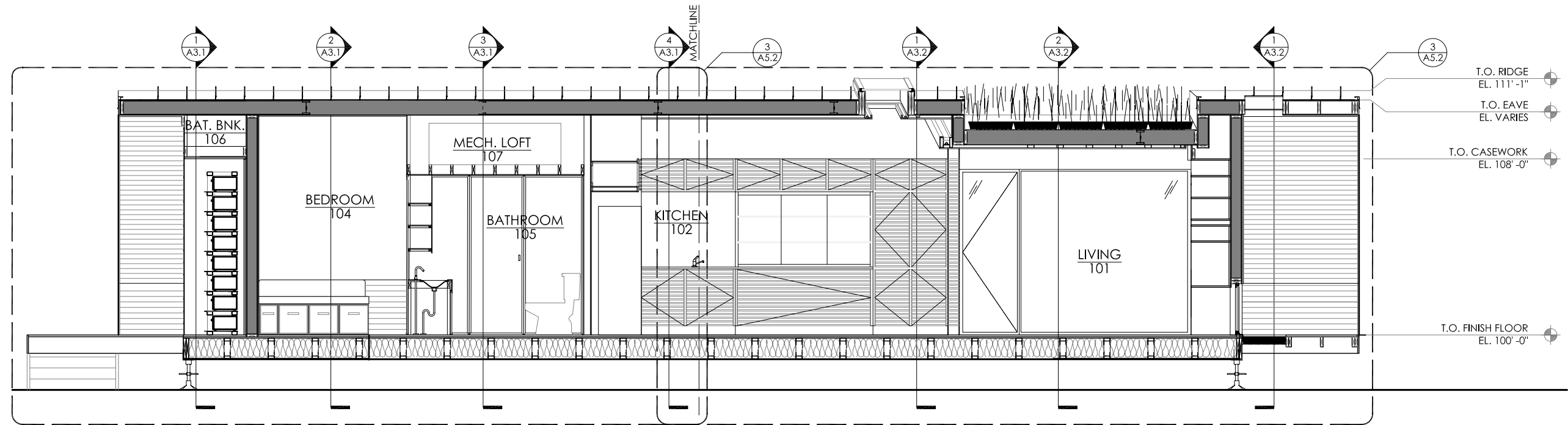
BUILDING SECTION THROUGH KITCHEN 2
1/4"=1'-0"

0" 1'-0" 2'-0" 3'-0" 4'-0"

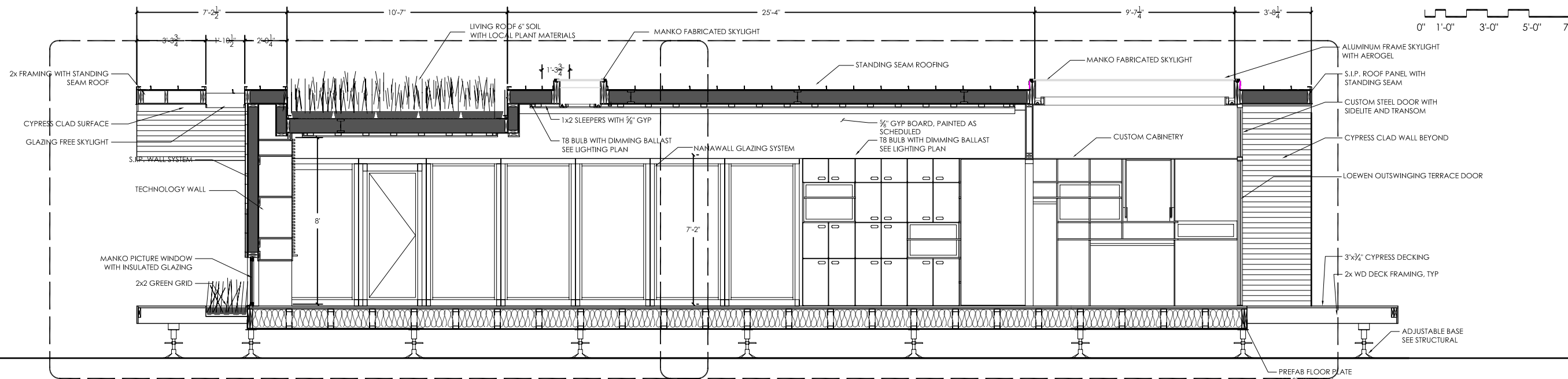
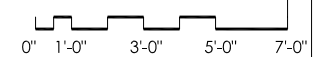


BUILDING SECTION THROUGH ZEN GARDEN 1
1/4"=1'-0"

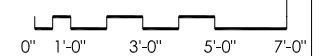
0" 1'-0" 2'-0" 3'-0" 4'-0"

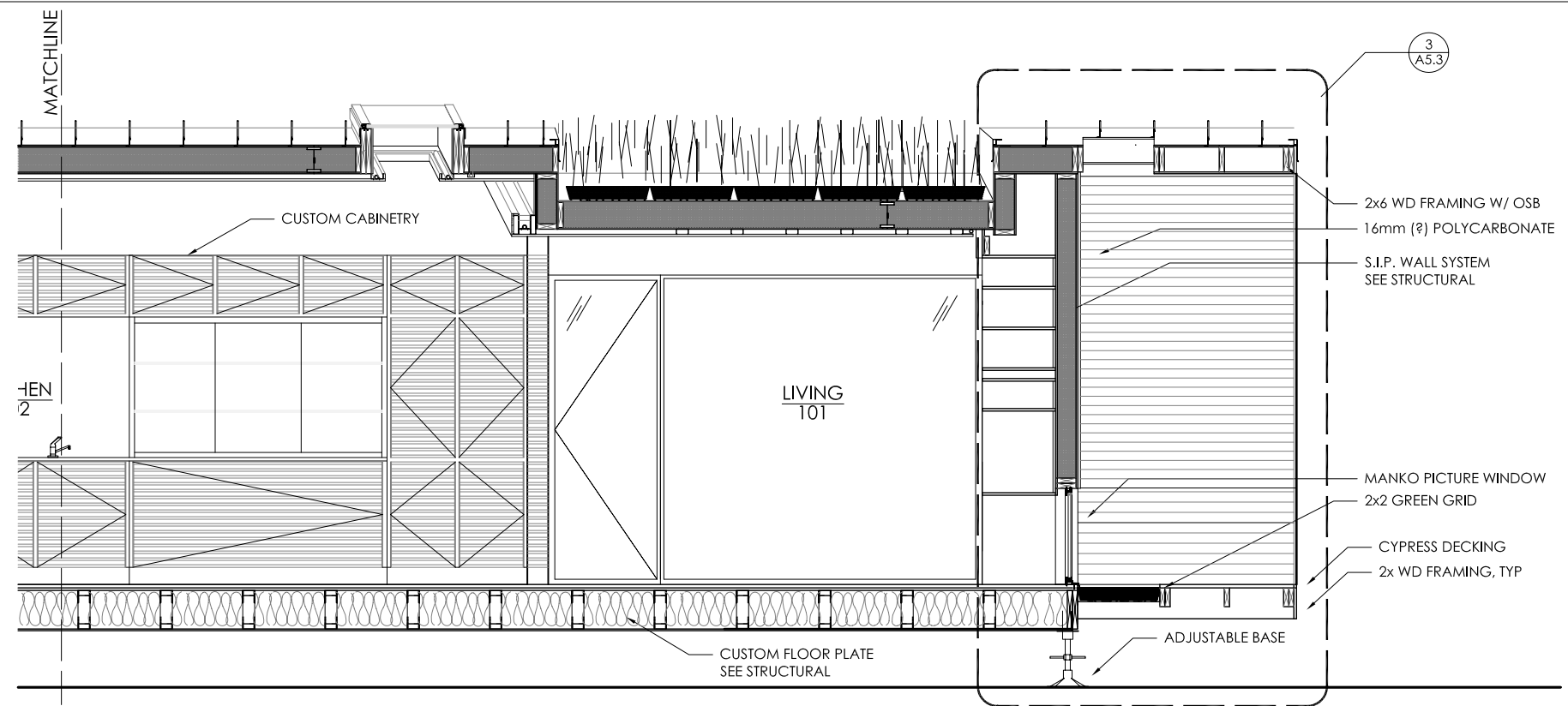


LONGITUDINAL SECTION LOOKING SOUTH
3/16"=1'-0" 2



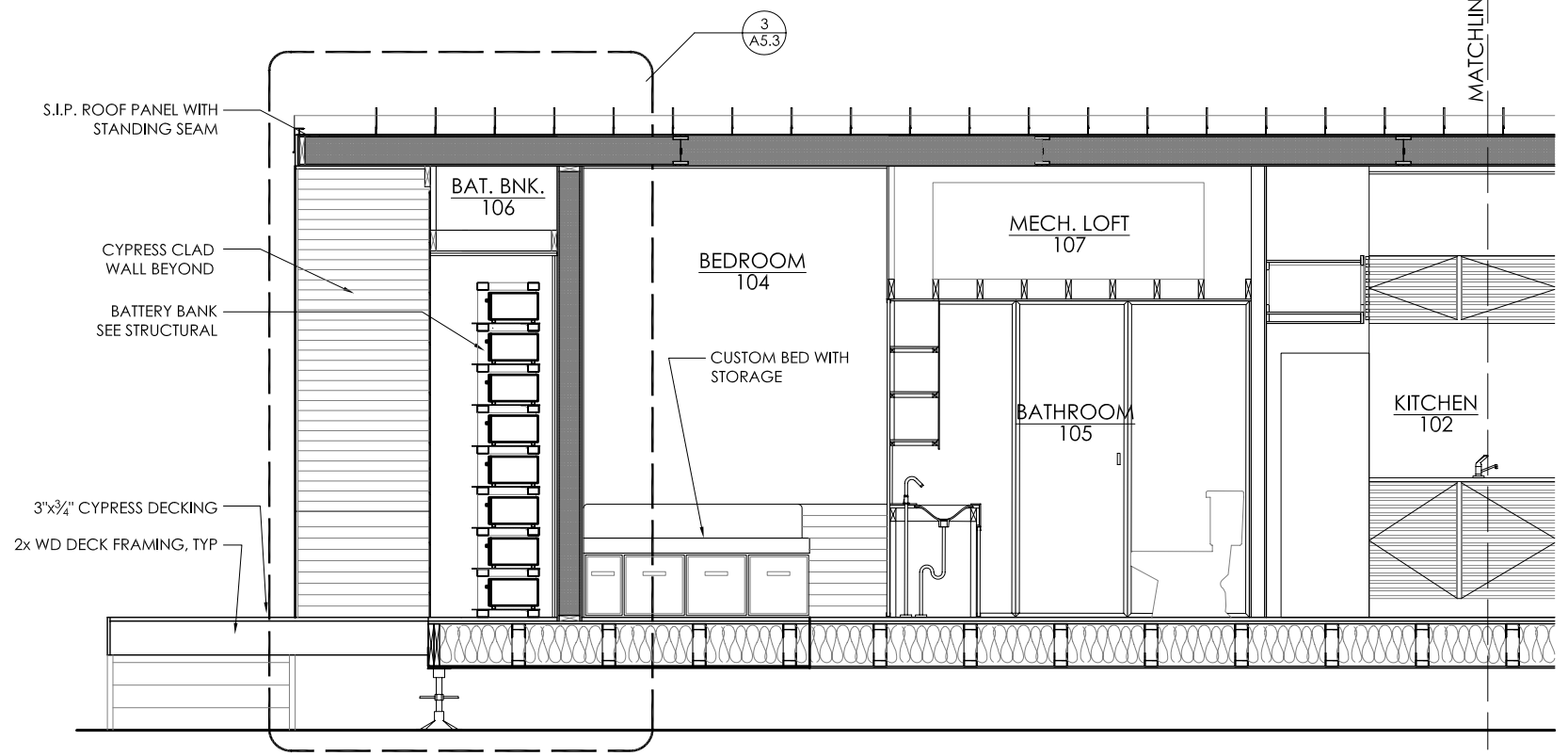
LONGITUDINAL SECTION LOOKING NORTH
3/16"=1'-0" 1





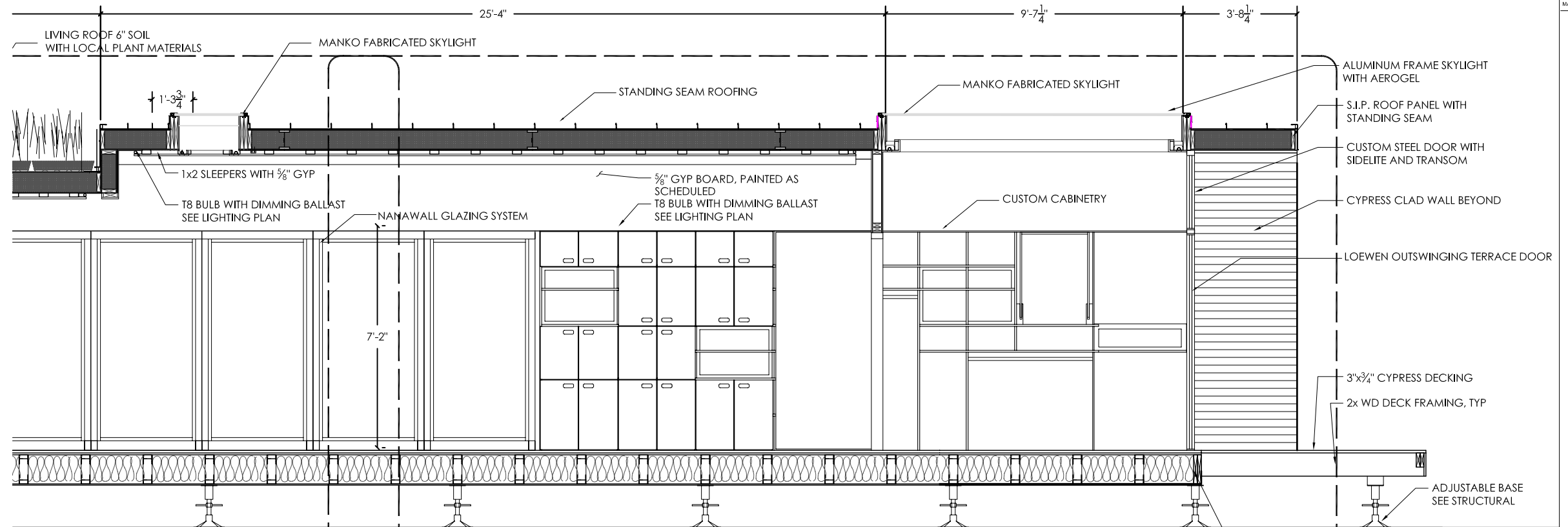
BUILDING SECTION 2
1/4"=1'-0"

0" 1'-0" 2'-0" 3'-0" 4'-0"



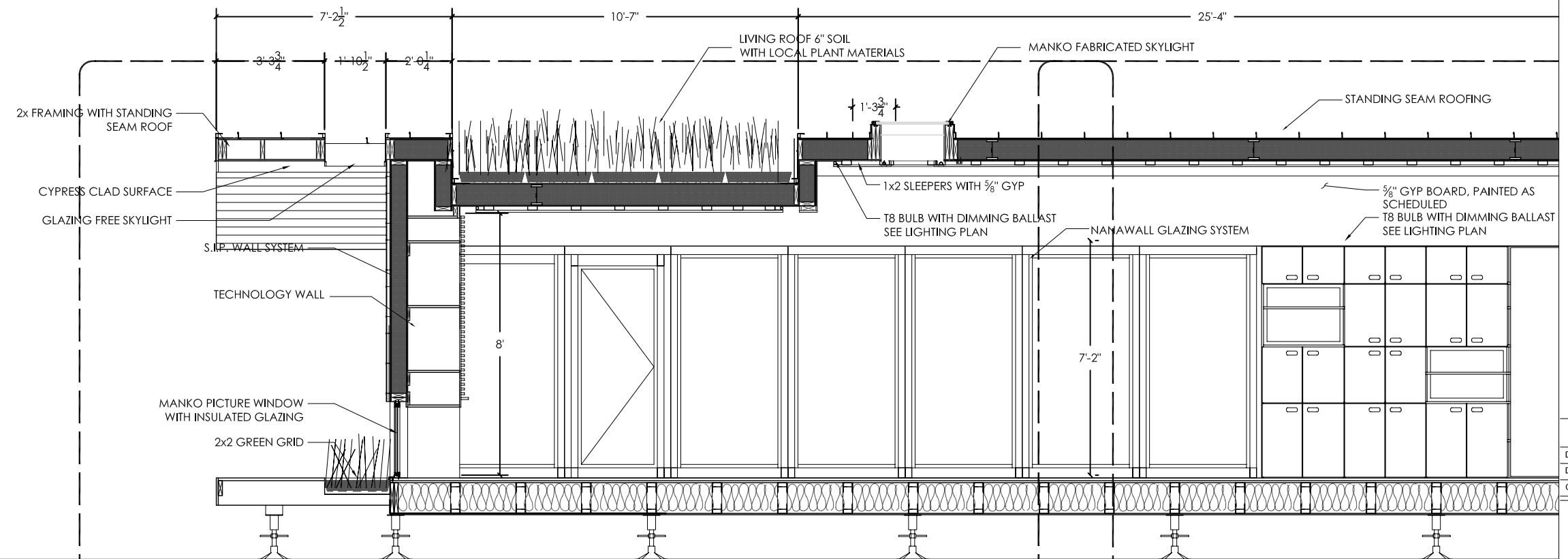
BUILDING SECTION 1
1/4"=1'-0"

0" 1'-0" 2'-0" 3'-0" 4'-0"



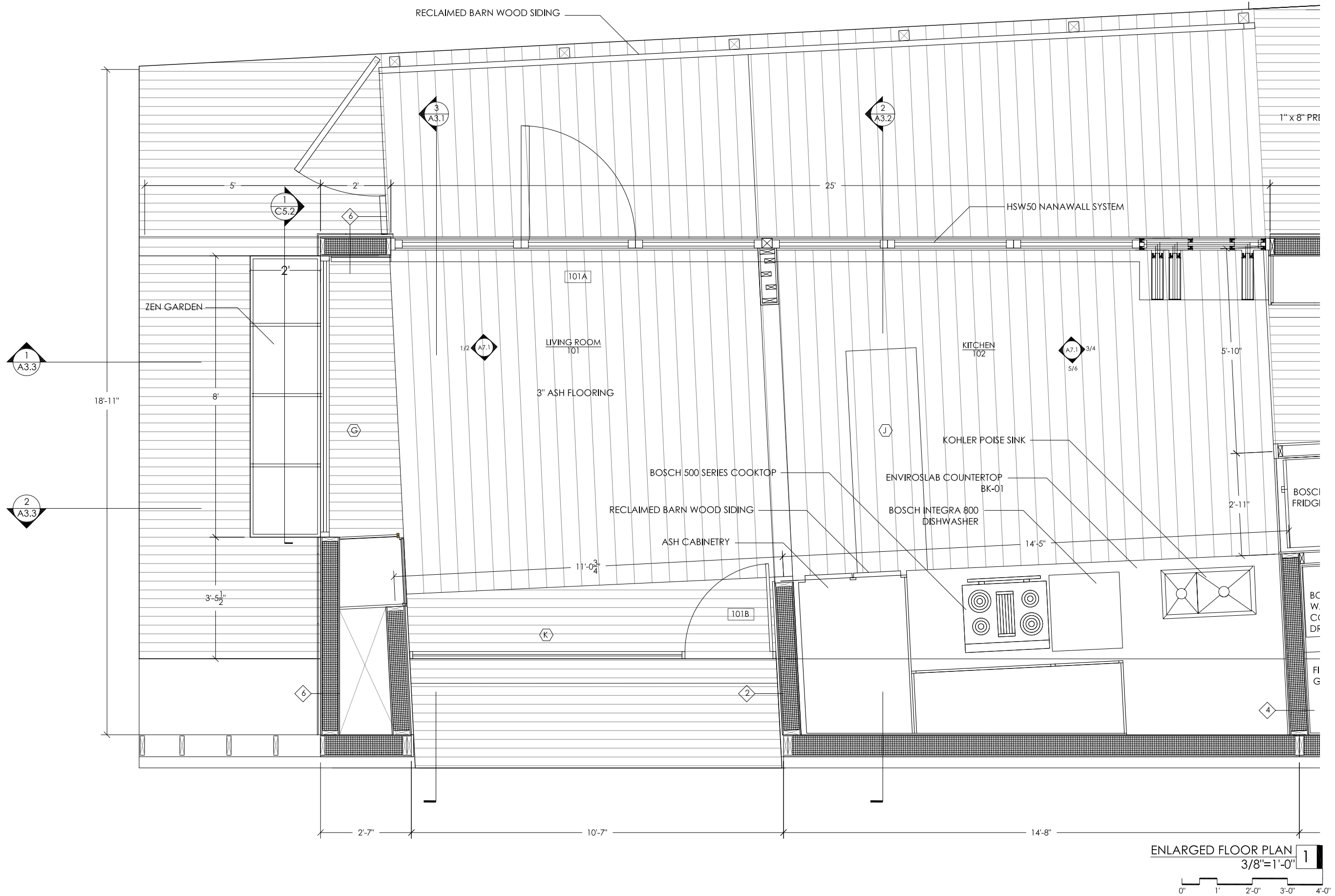
BUILDING SECTION LOOKING NORTH
1/4"=1'-0"

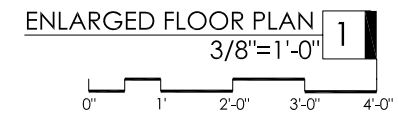
0" 1'-0" 2'-0" 3'-0" 4'-0"

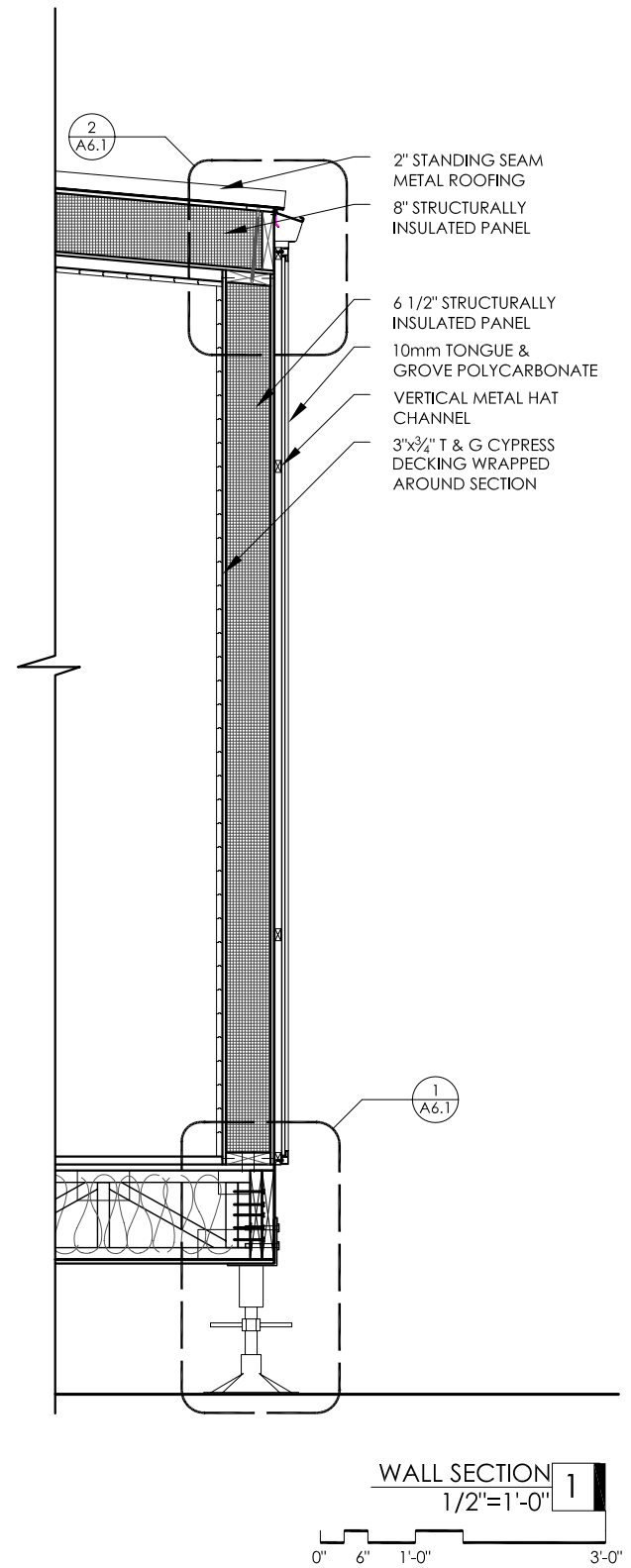
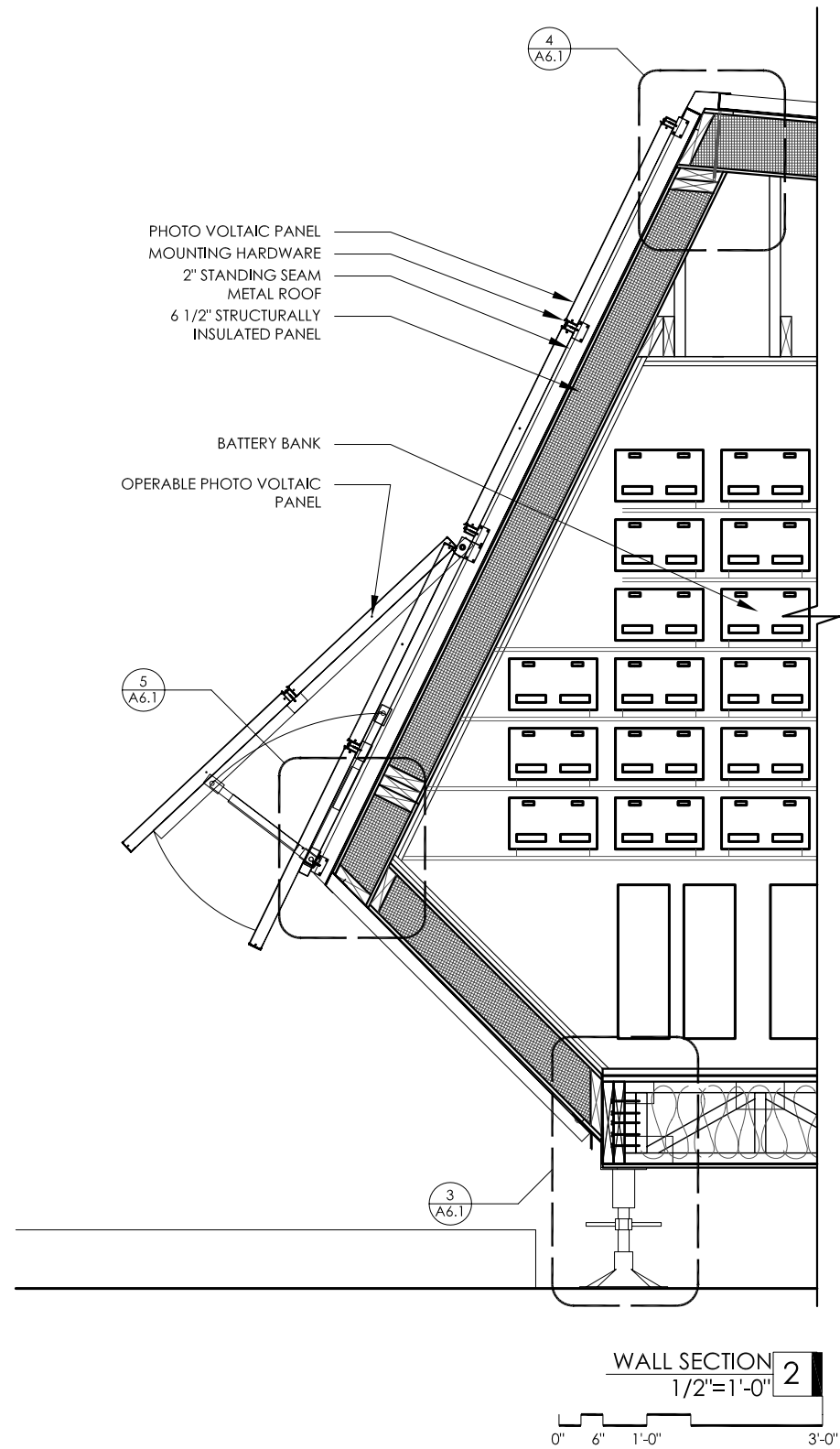
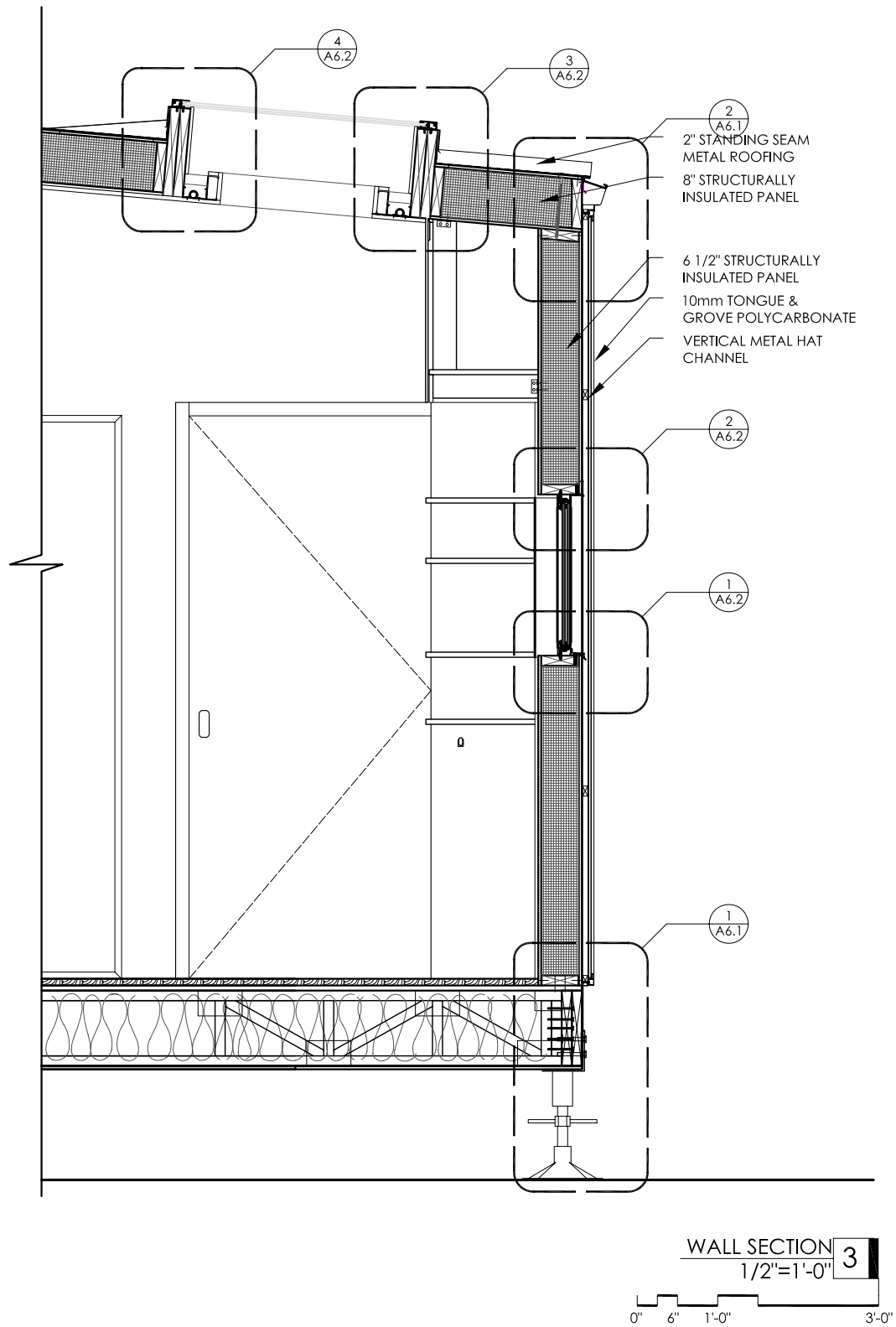


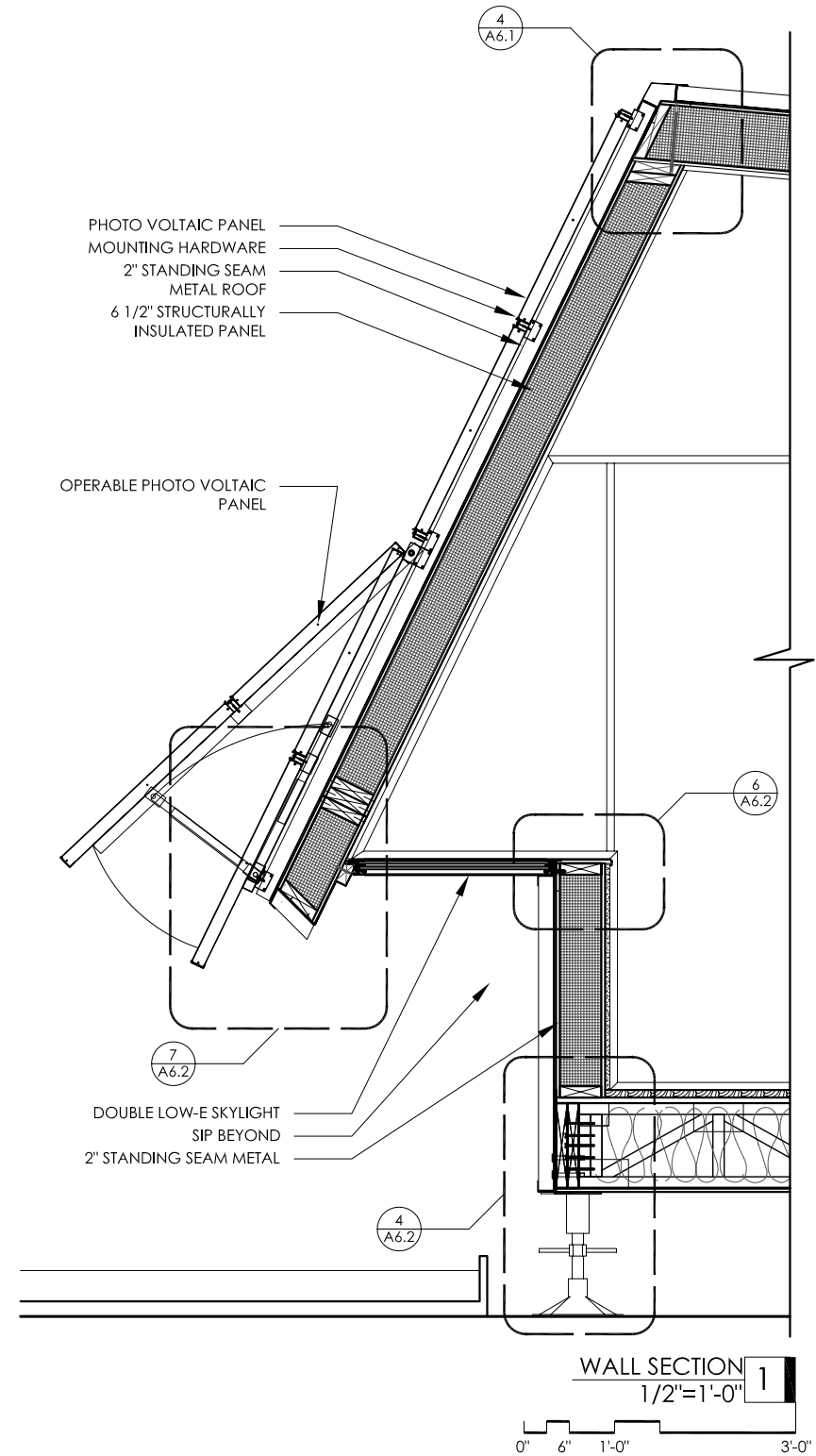
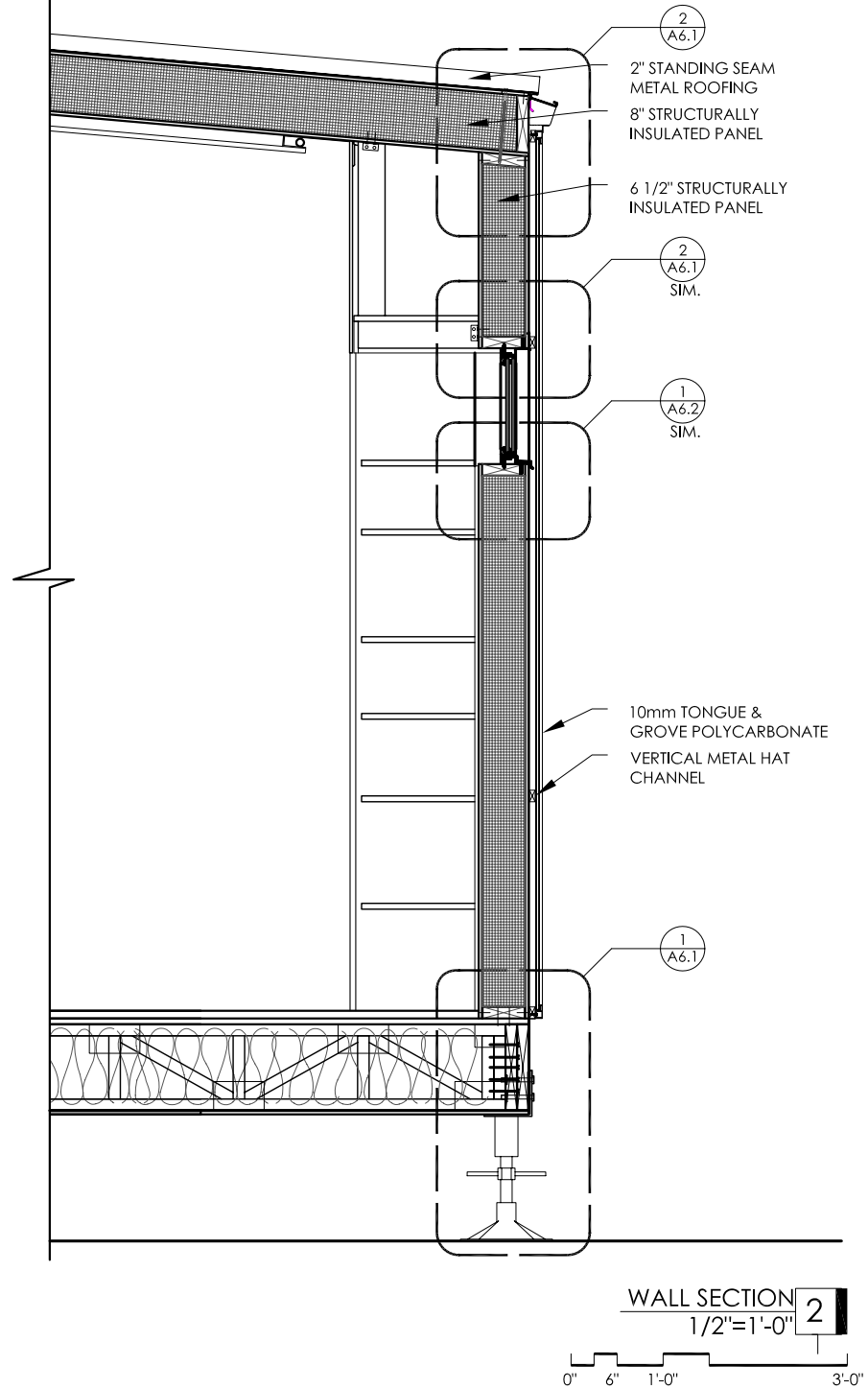
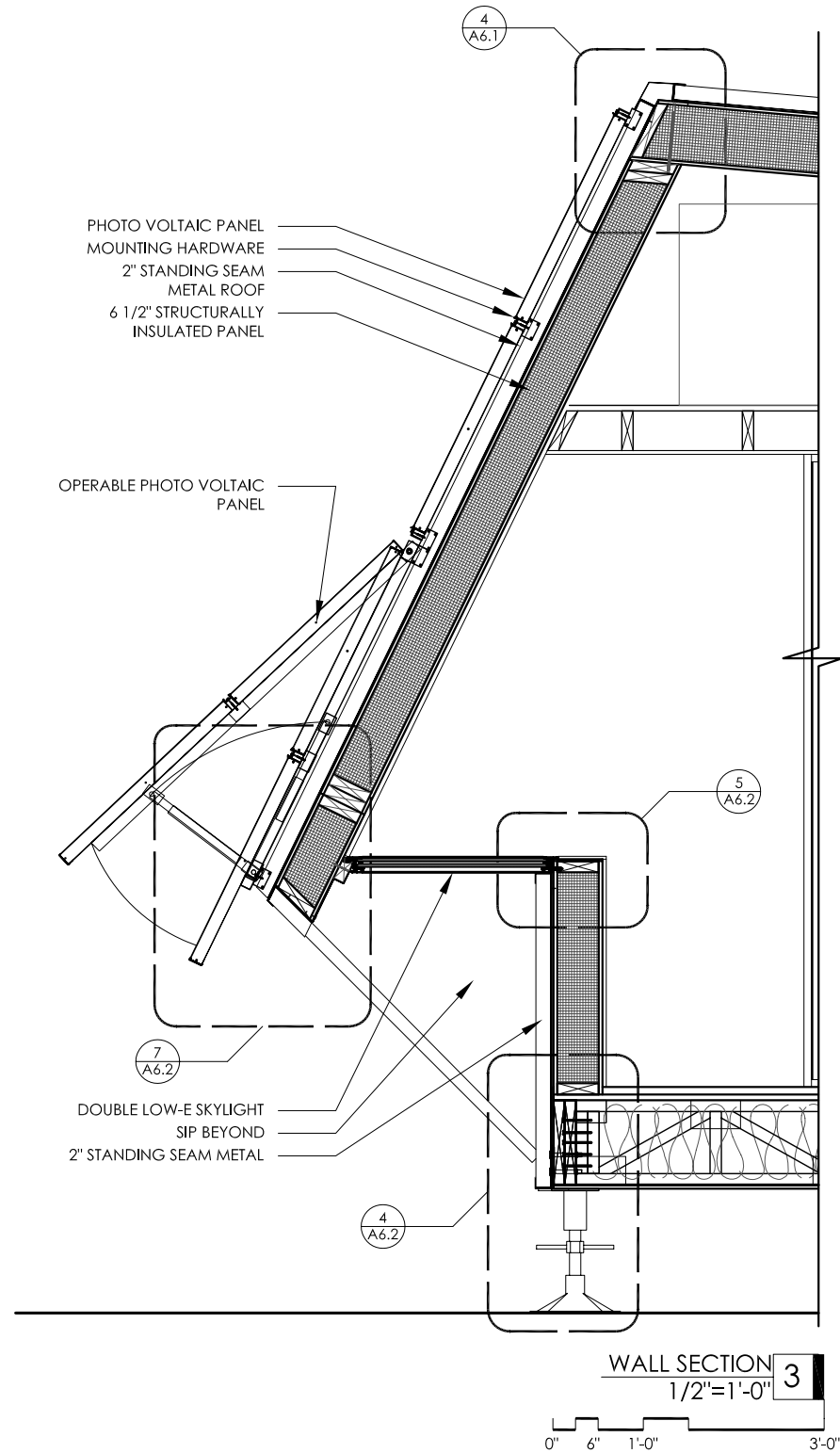
BUILDING SECTION LOOKING NORTH
1/4"=1'-0"

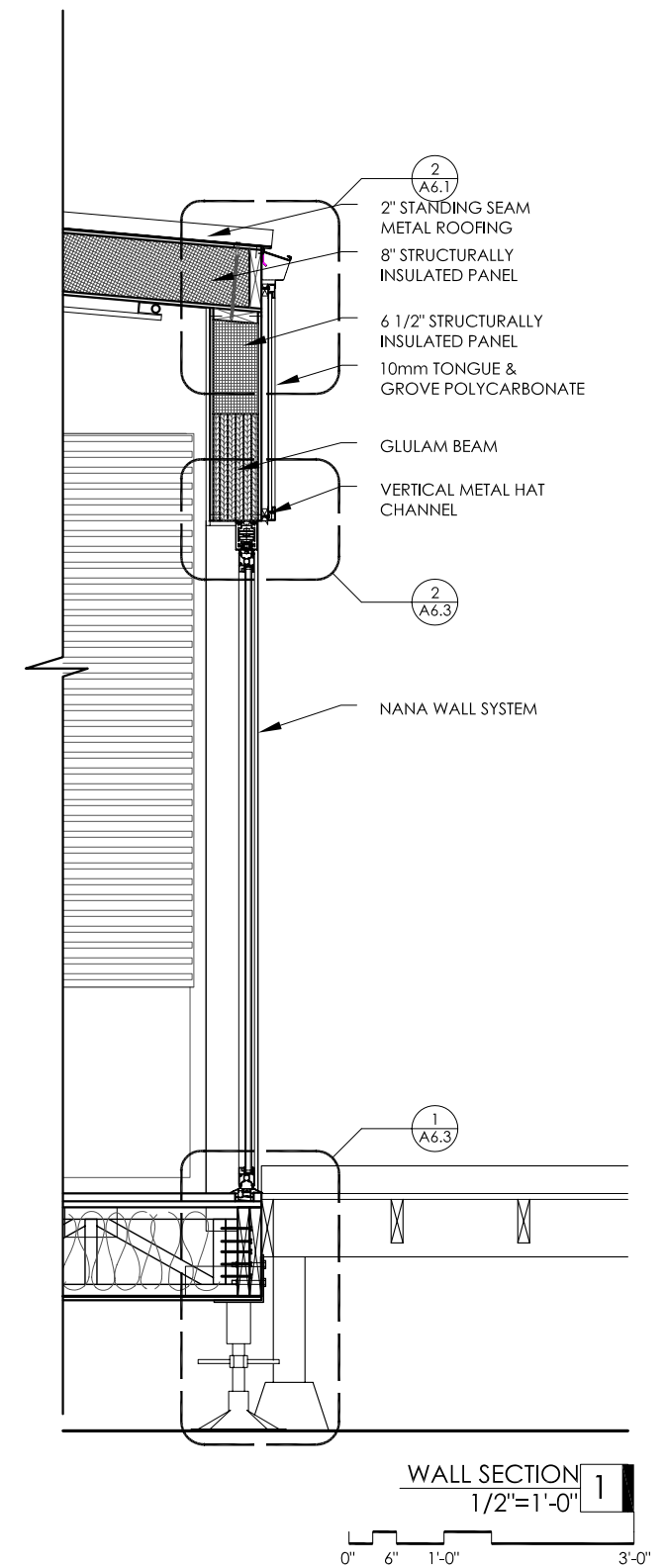
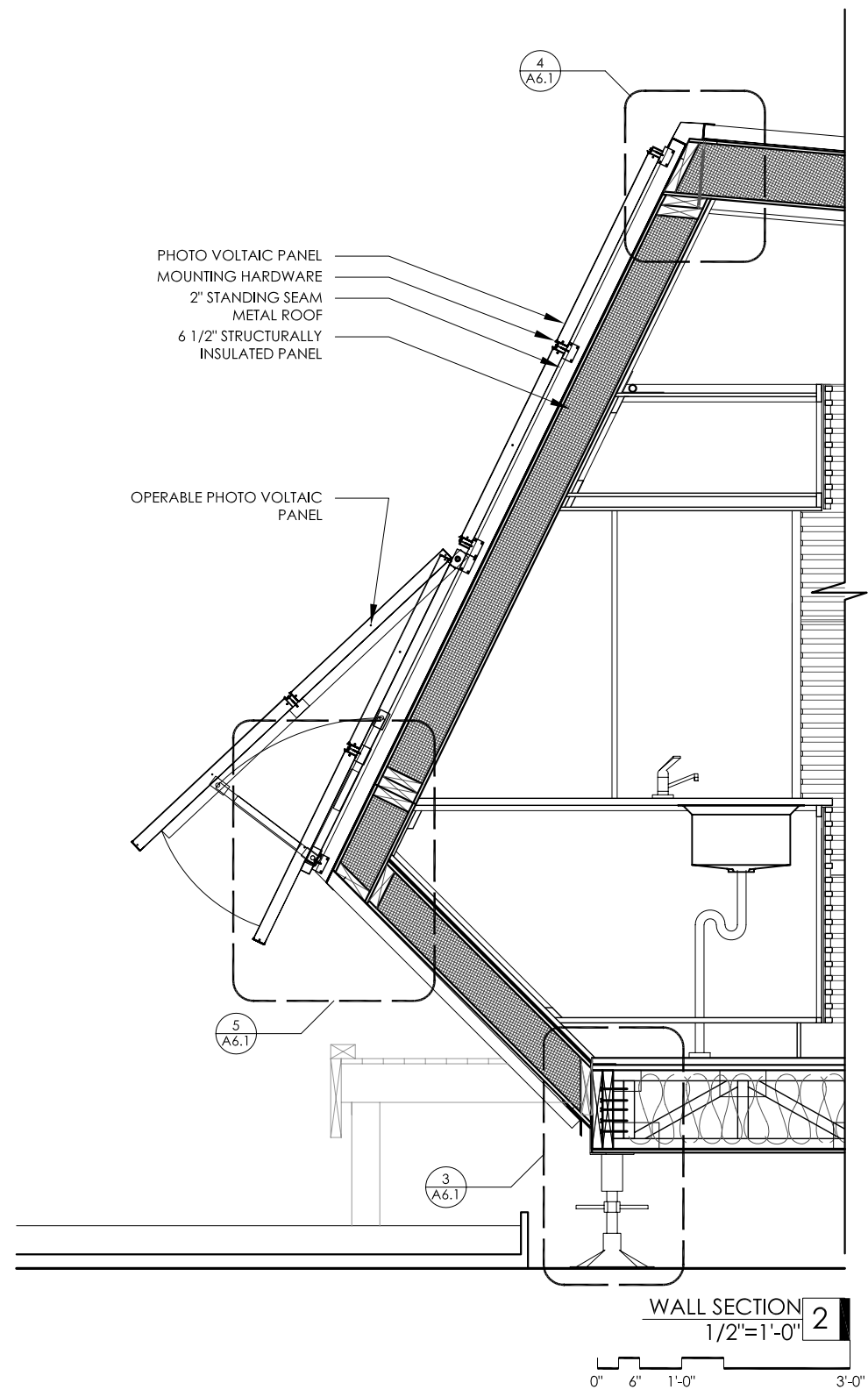
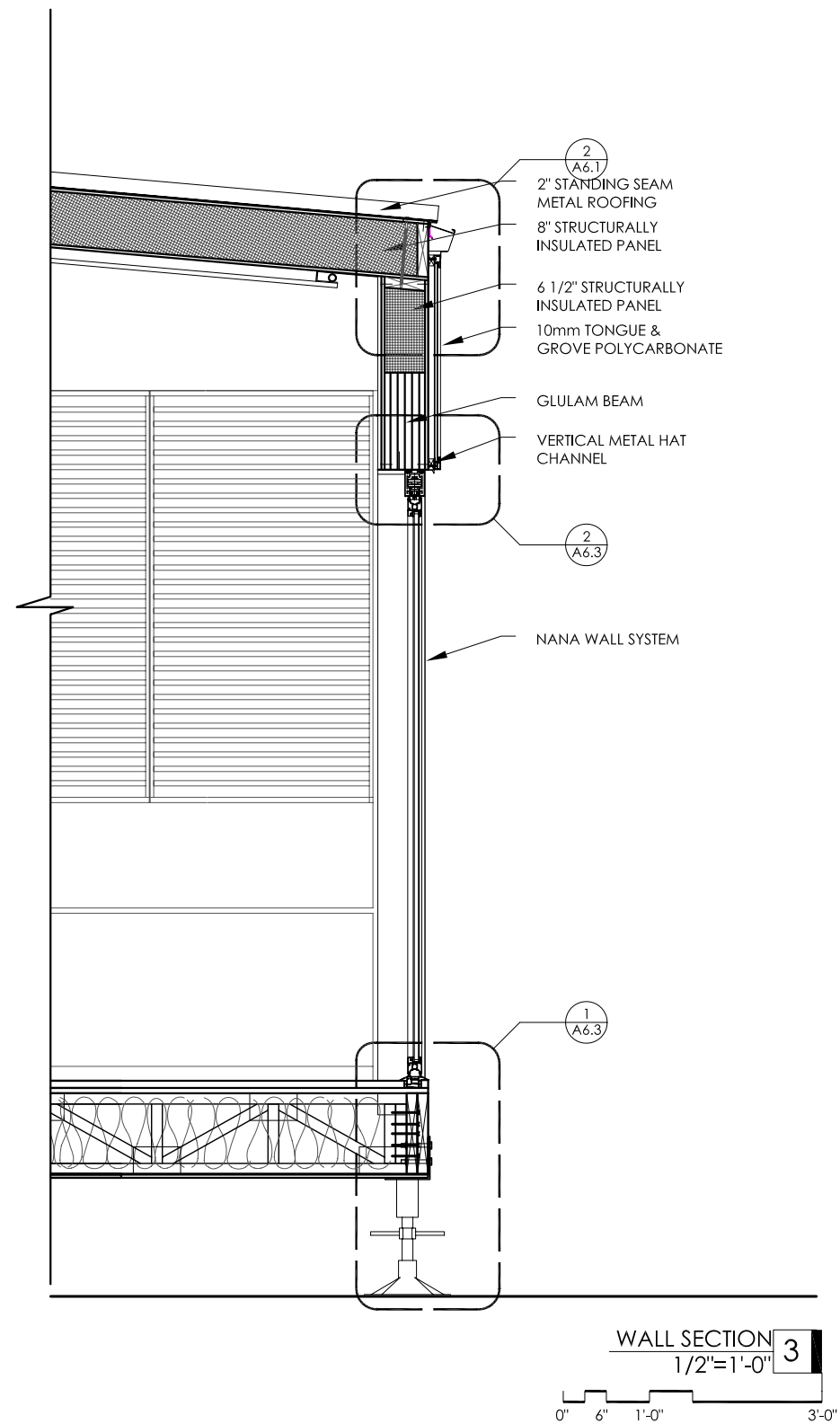
0" 1'-0" 2'-0" 3'-0" 4'-0"

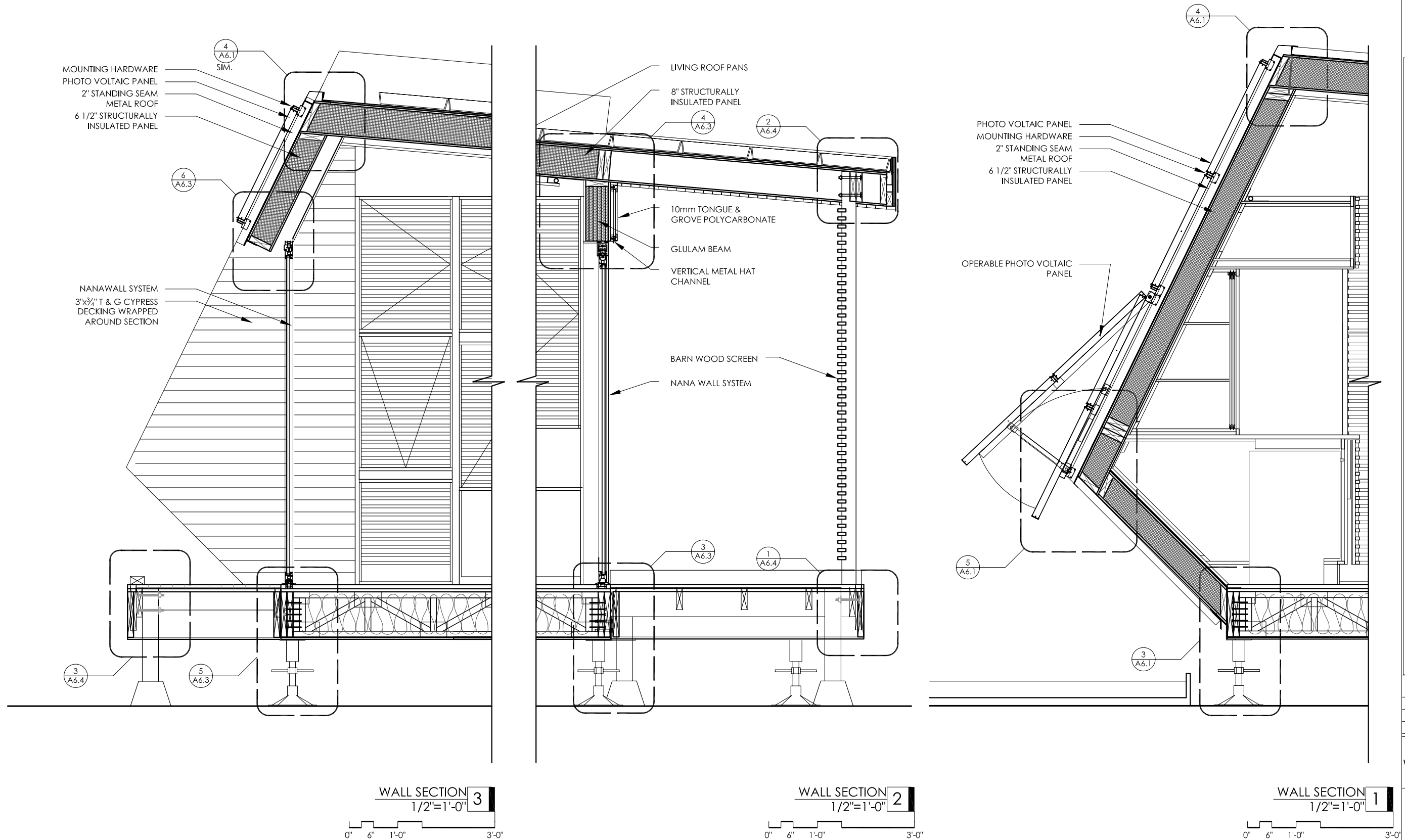


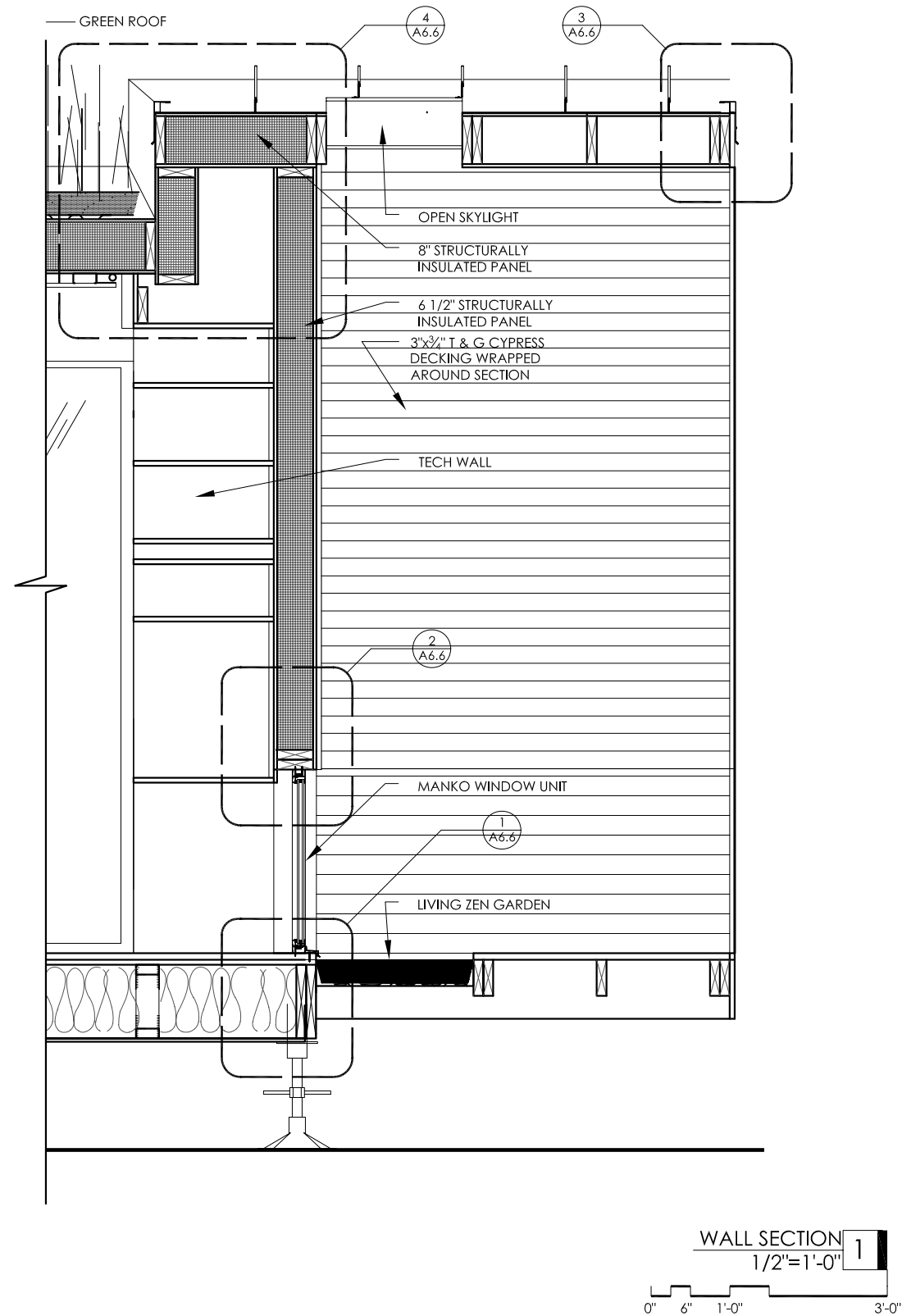
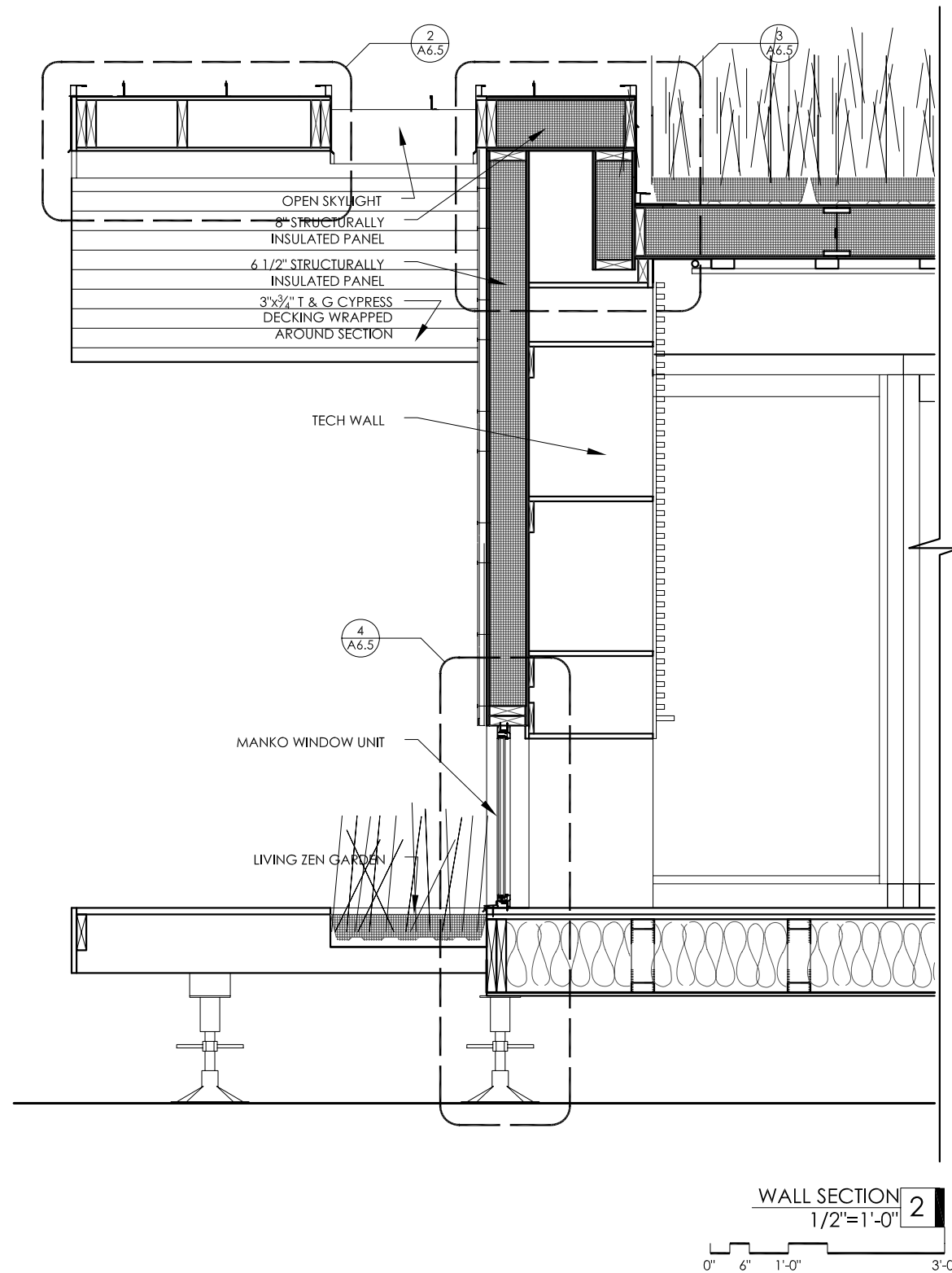


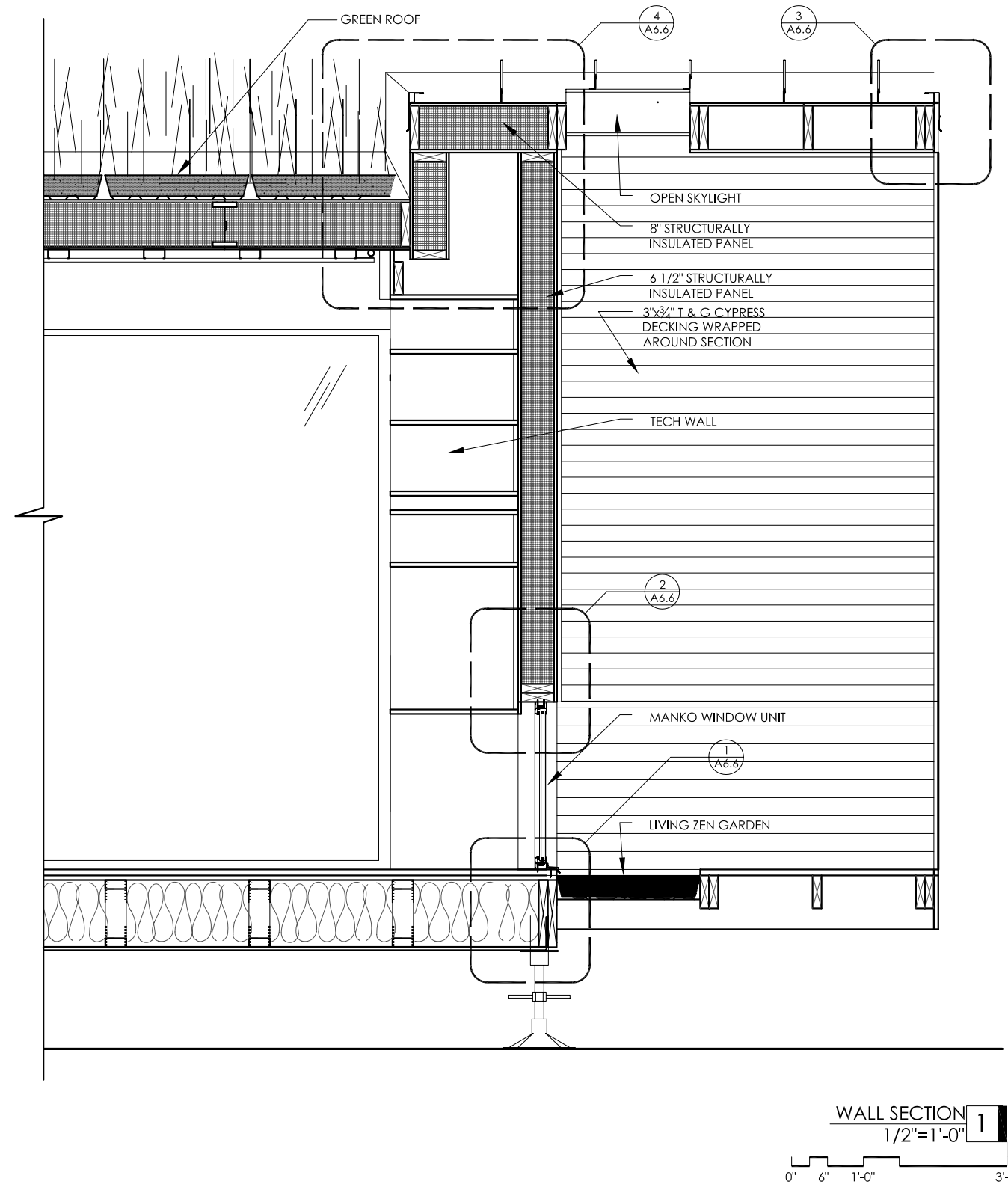
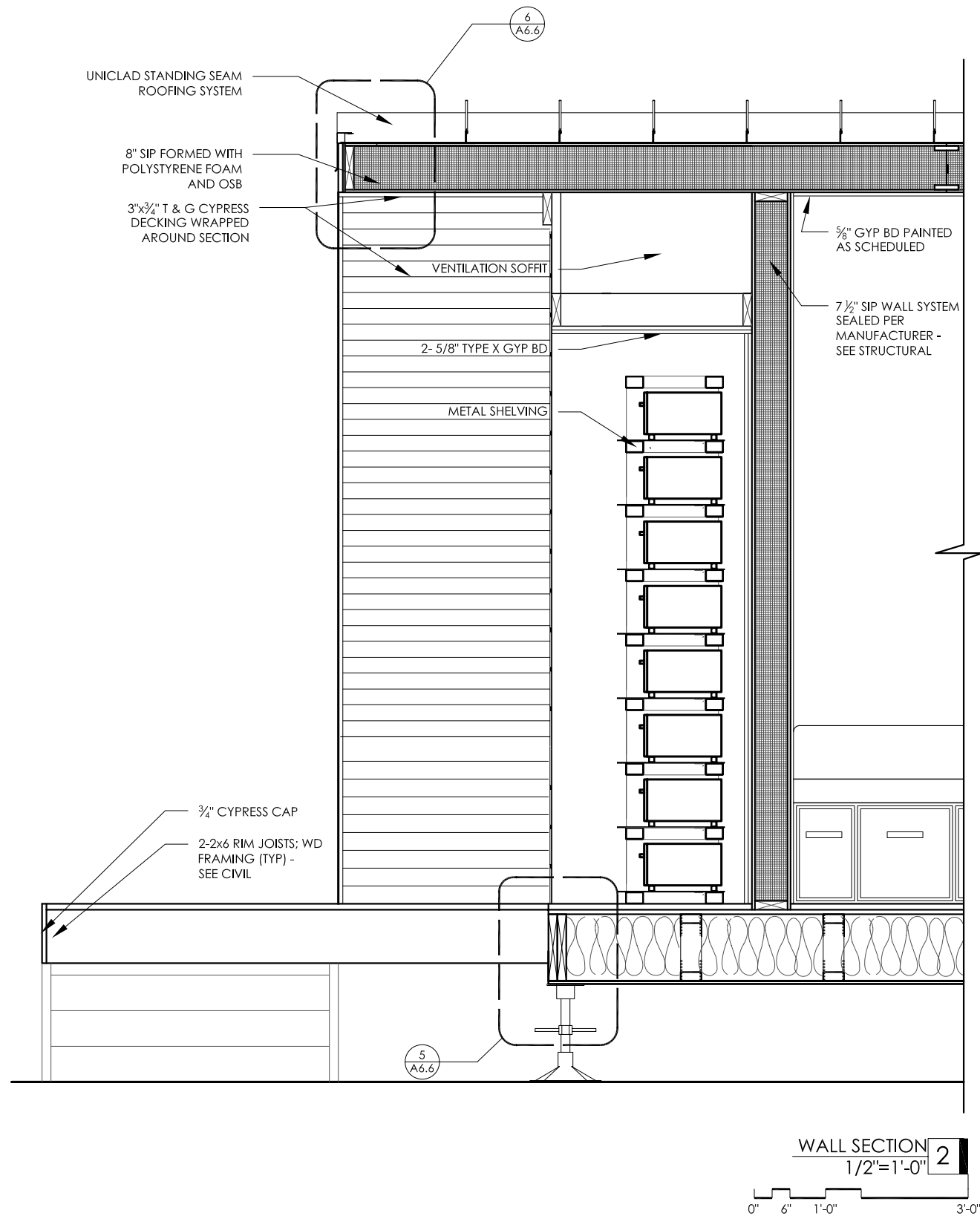


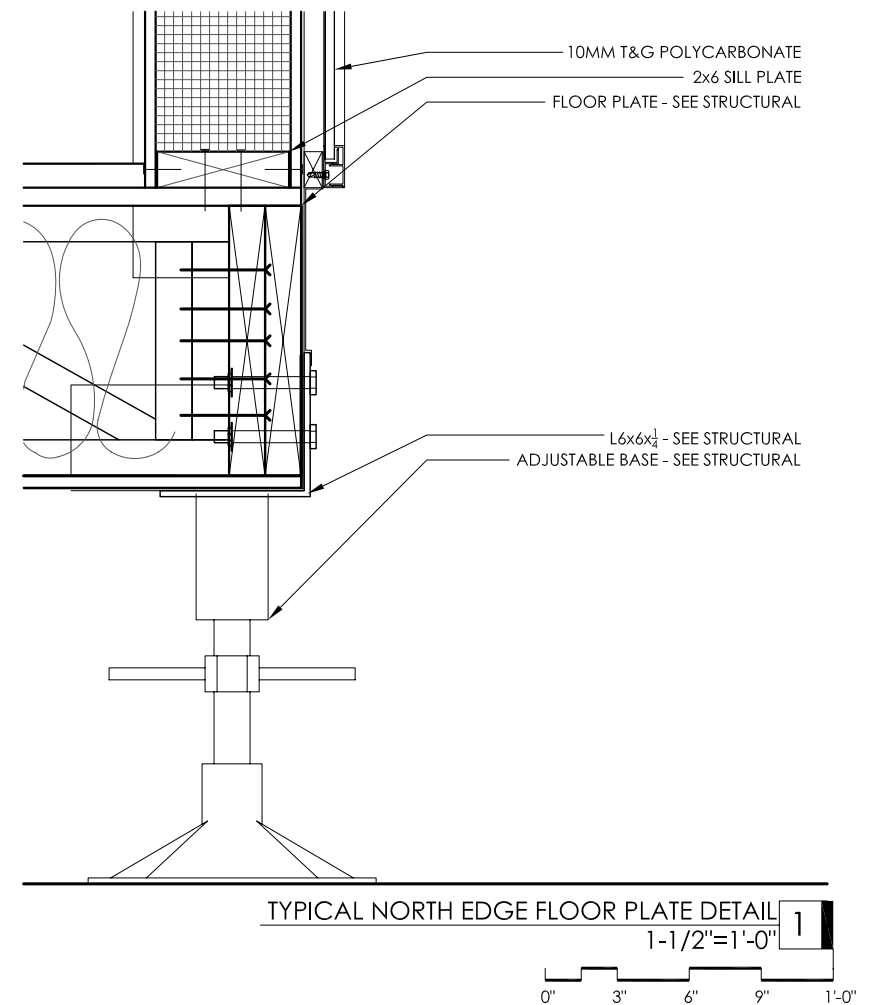
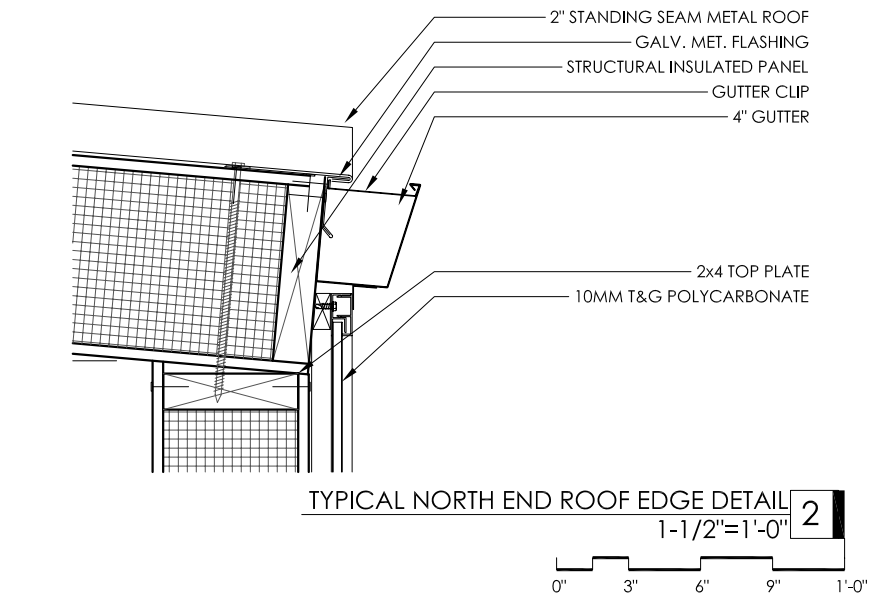
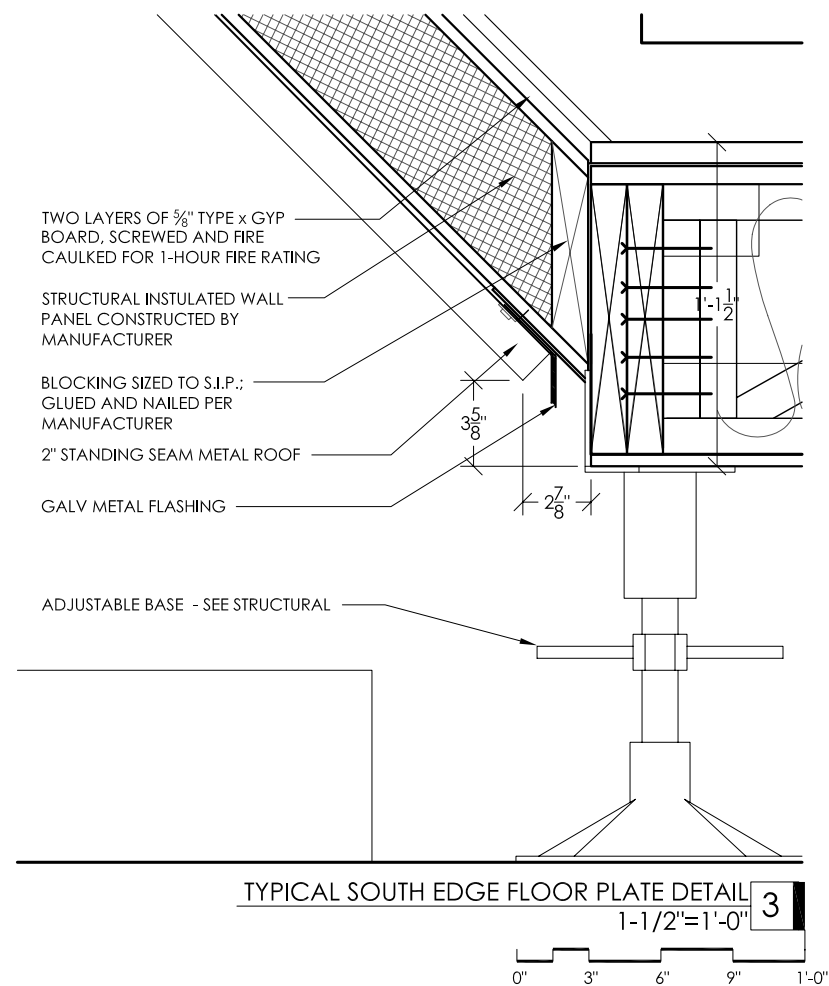
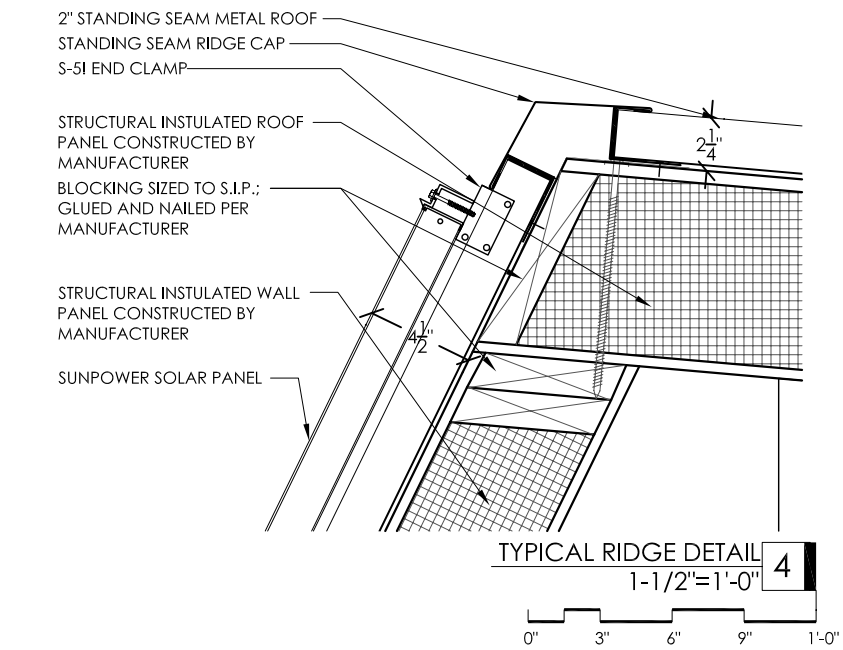
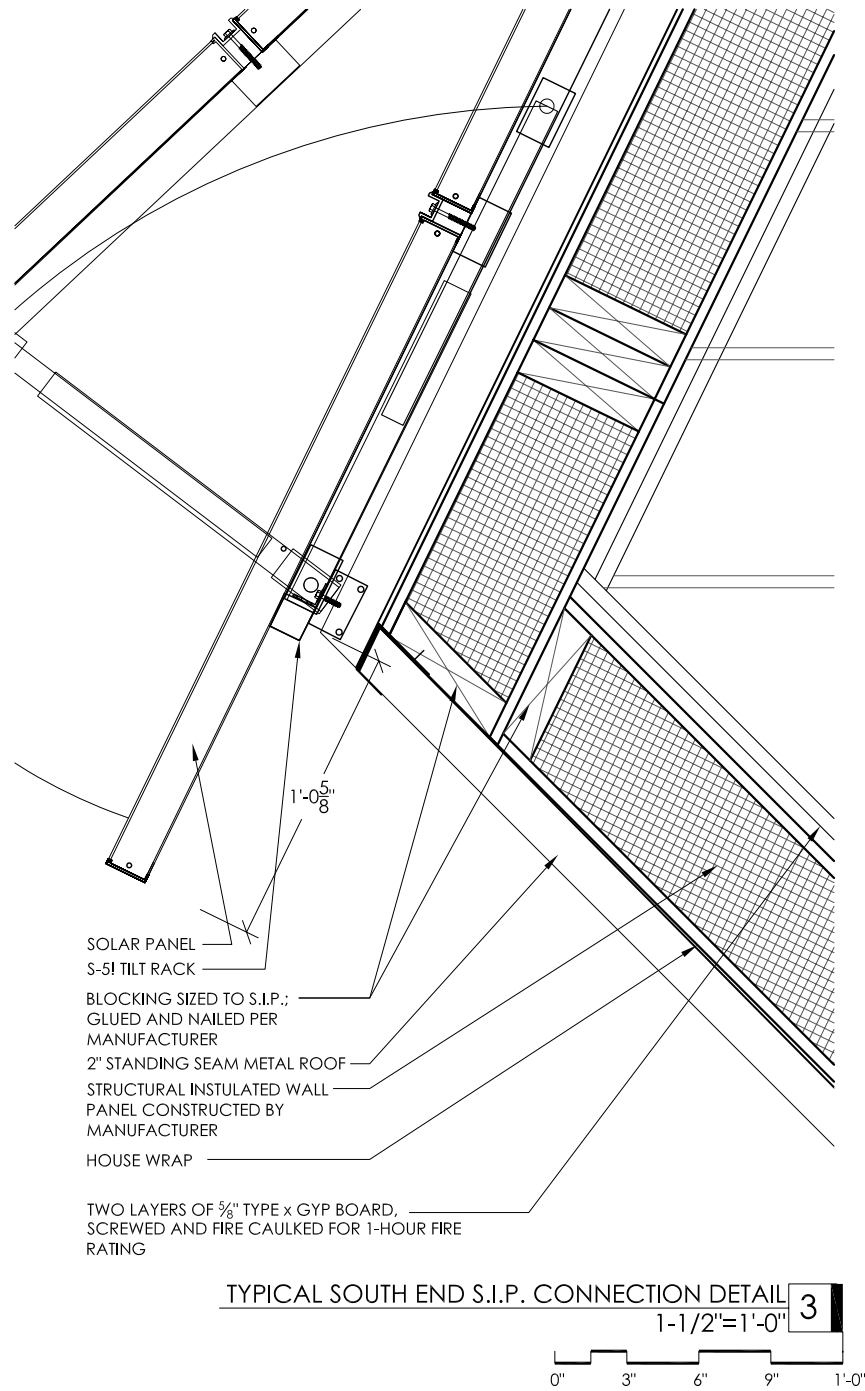


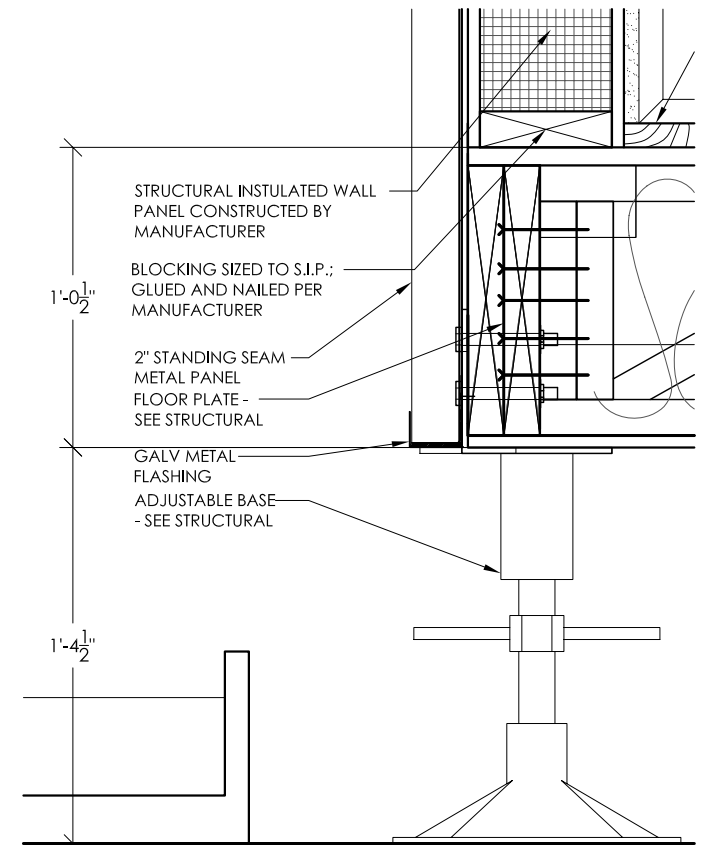
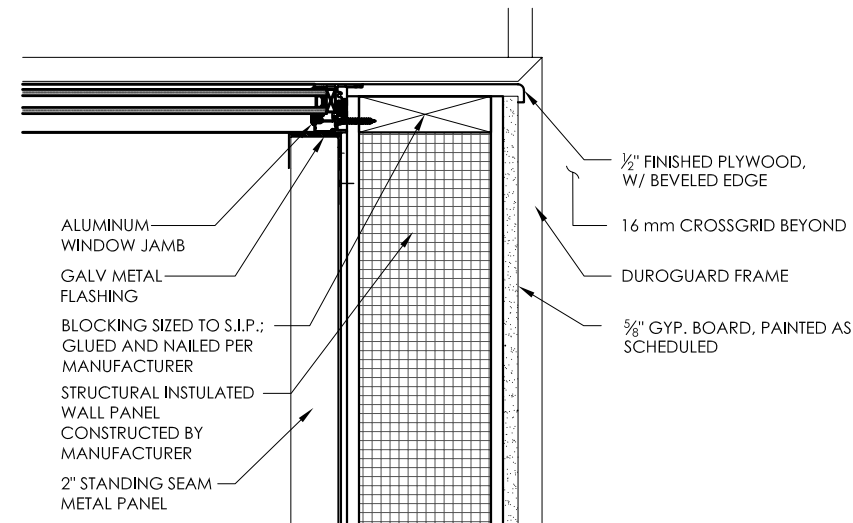
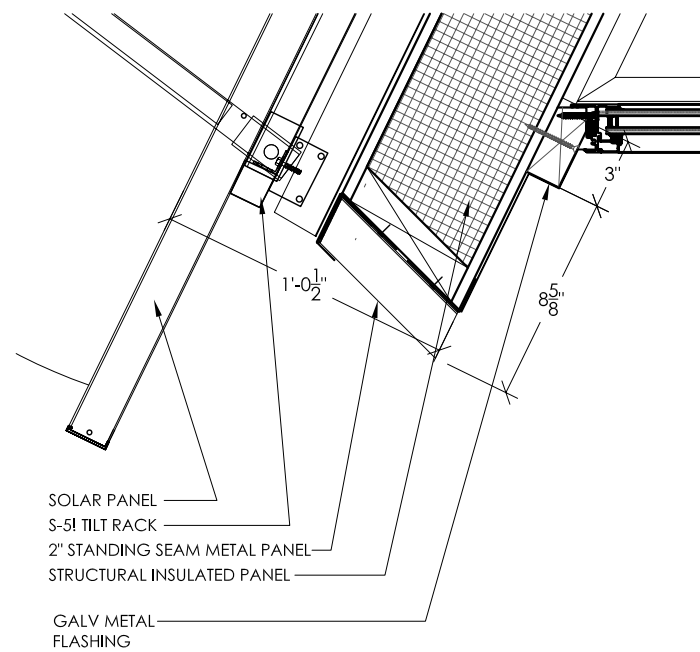
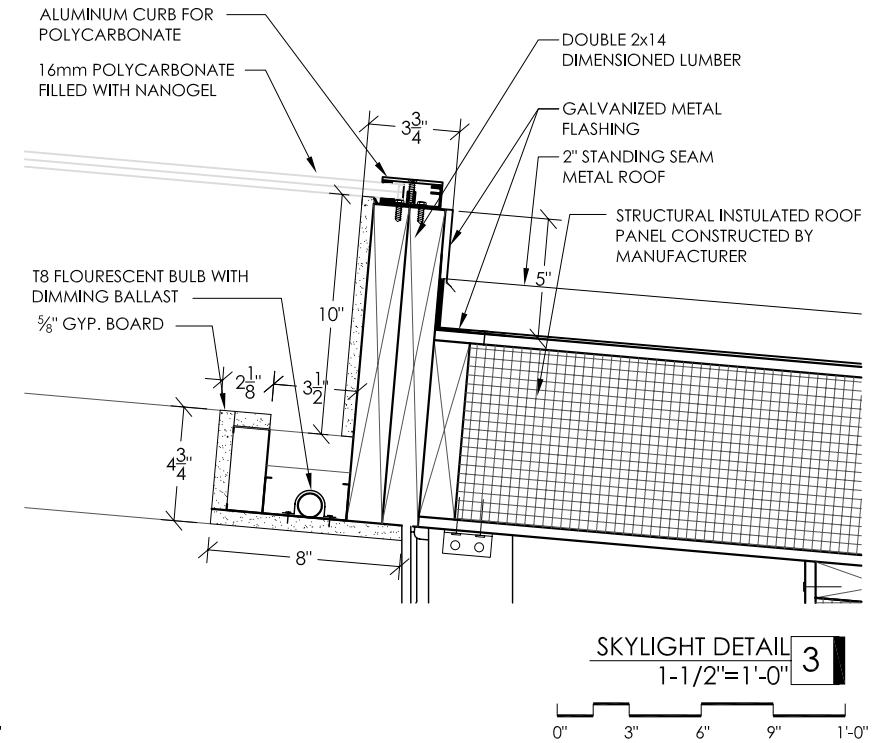
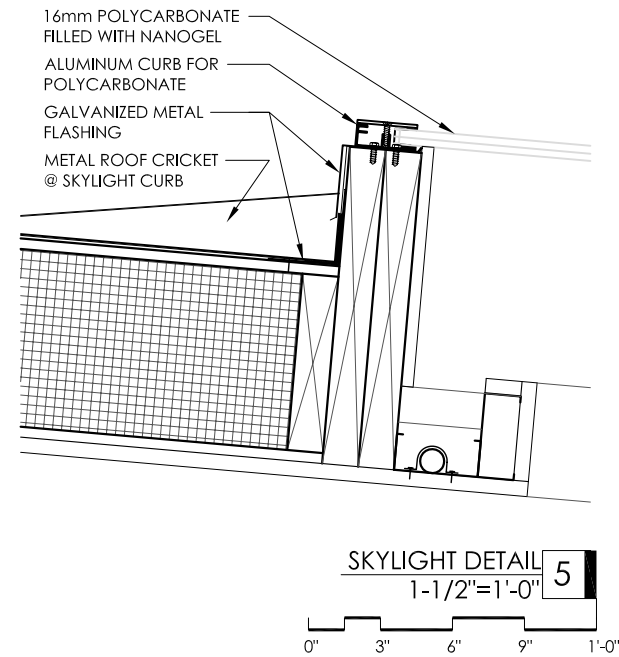
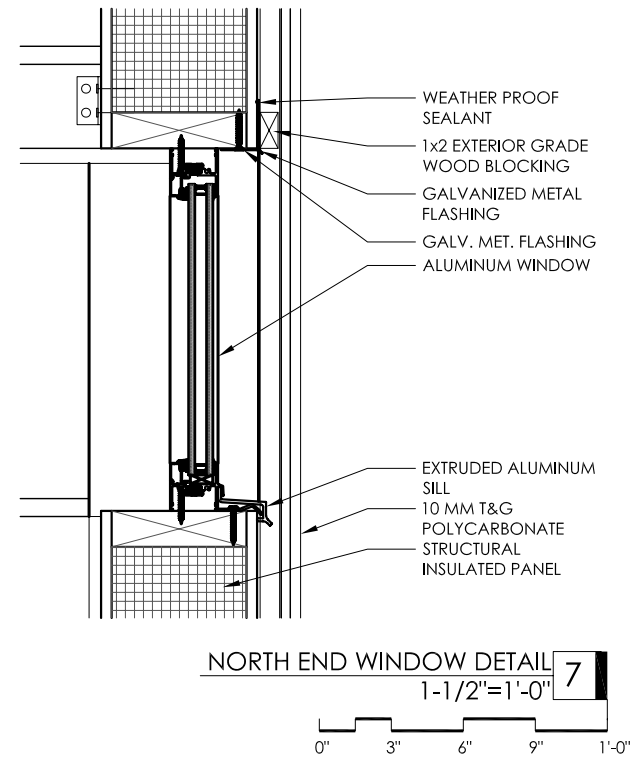








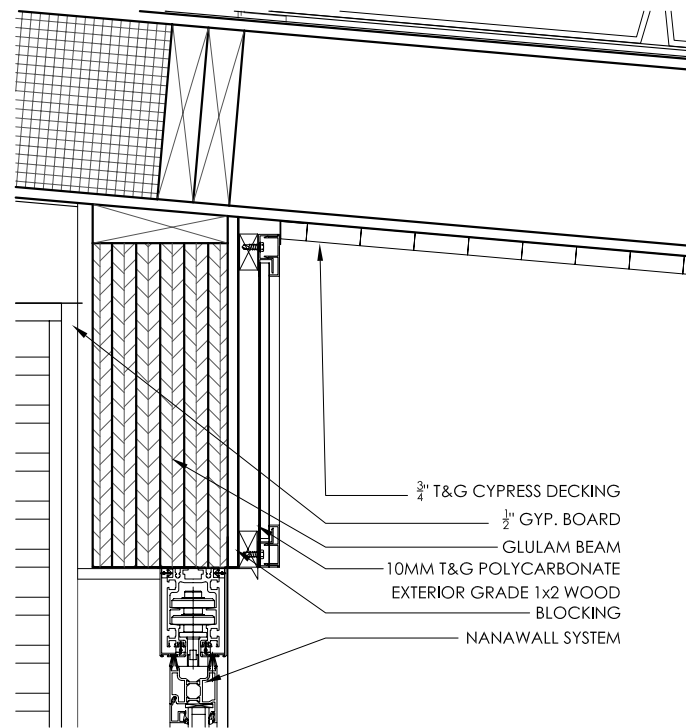




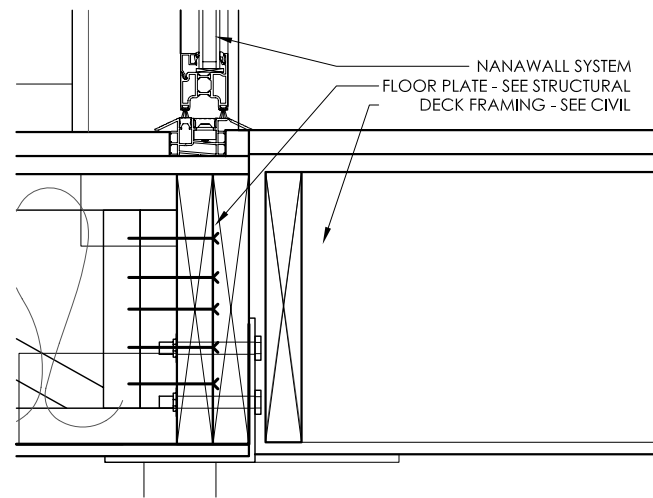
DRAWN BY_ PSH
DATE_ 06 MARCH 2007
CHECKED BY_

DETAILS

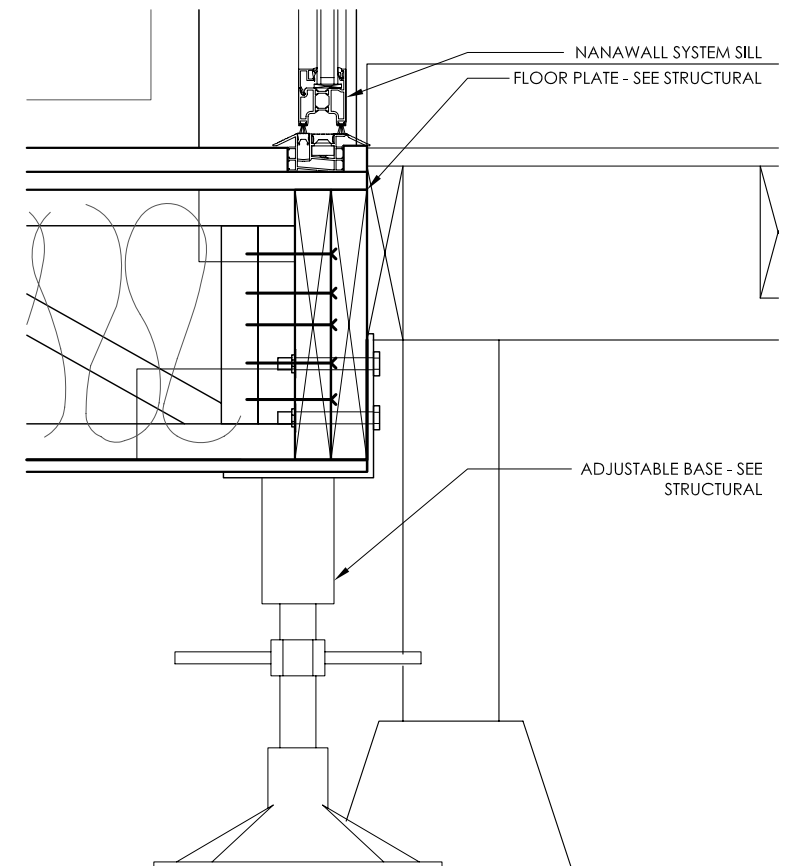
A6.3



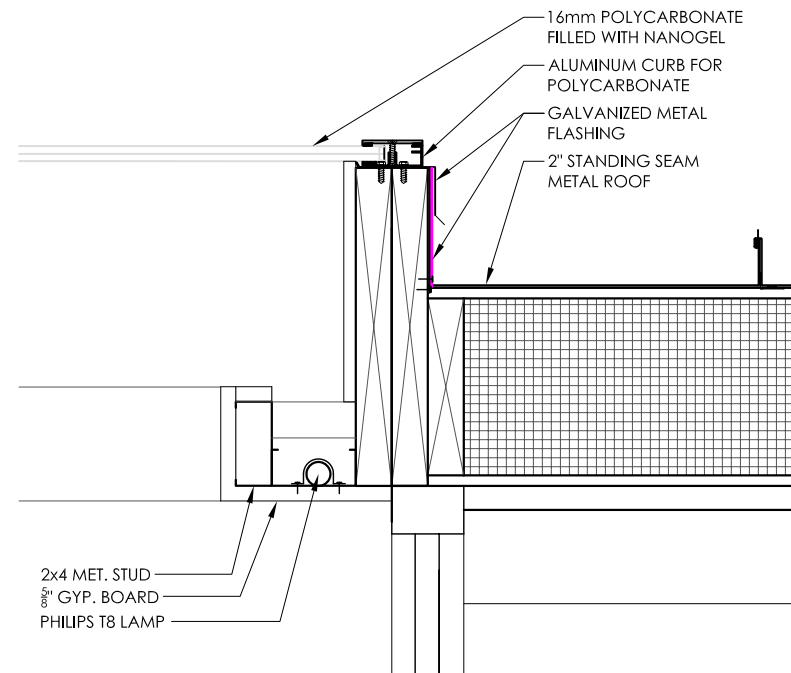
NANAWALL HEAD DETAIL
1-1/2"=1'-0" **4**



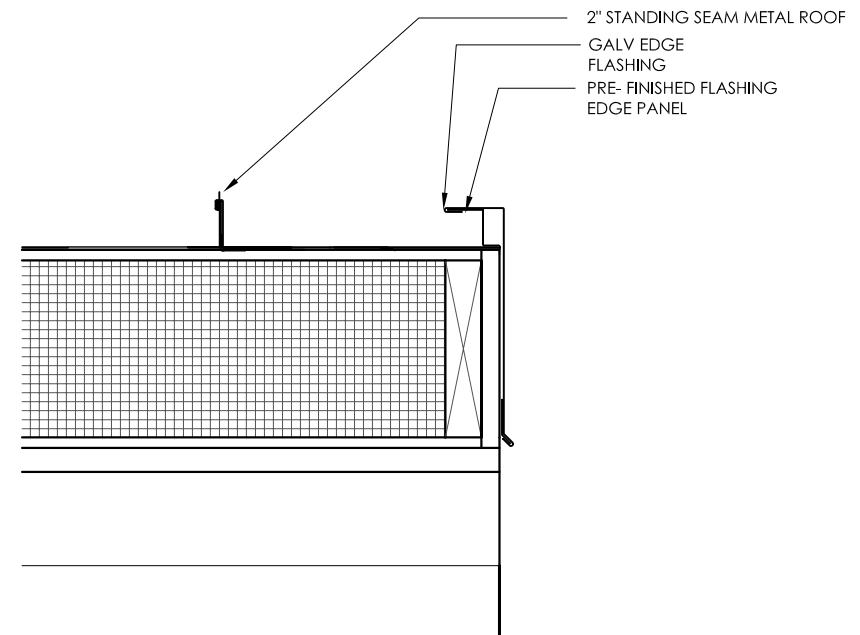
NANAWALL SILL DETAIL @ DECK
1-1/2"=1'-0" **3**



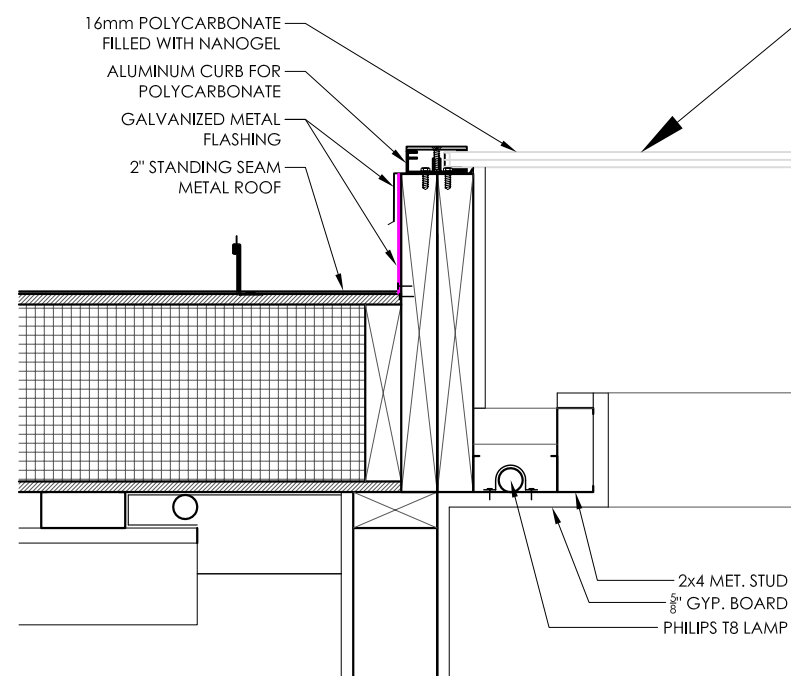
NANAWALL SILL DETAIL
1-1/2"=1'-0" **1**



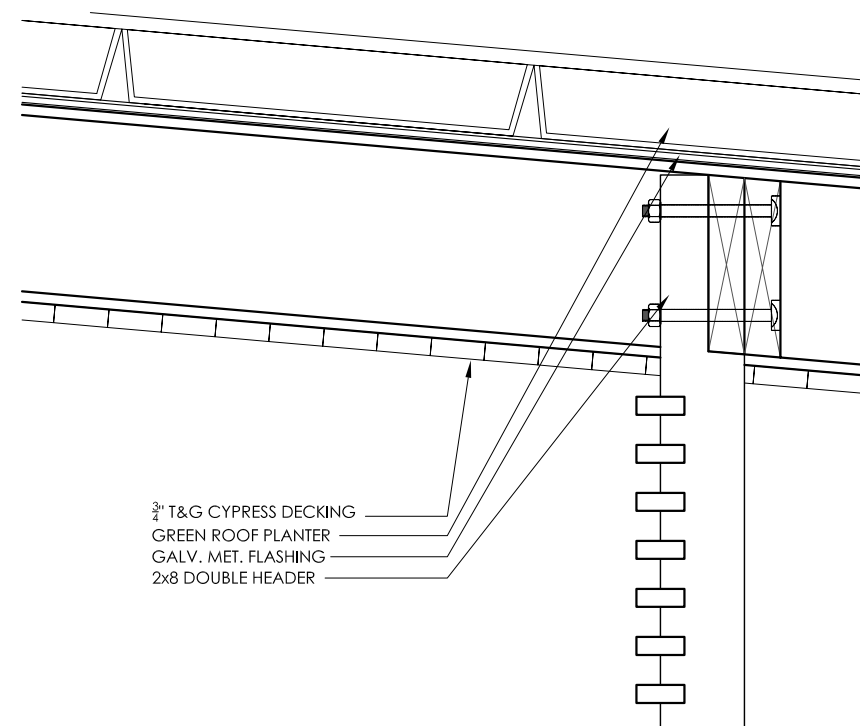
SKYLIGHT DETAIL 6
1-1/2"=1'-0"



ROOF EDGE DETAIL 4
1-1/2"=1'-0"

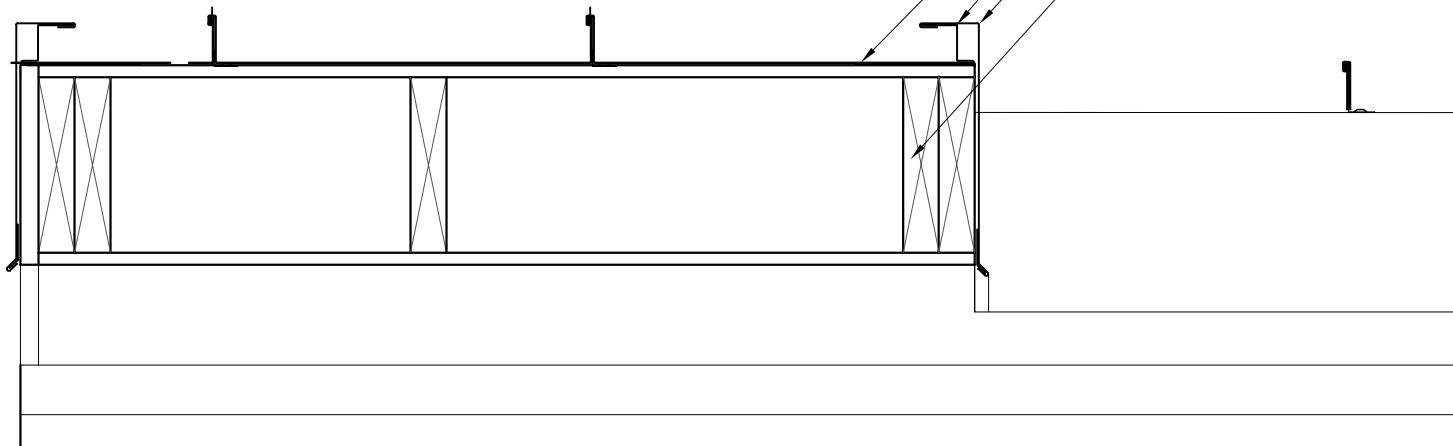


SKYLIGHT DETAIL 5
1-1/2"=1'-0"



ROOF EDGE DETAIL @ OVERHANG 2
1-1/2"=1'-0"

ROOF DETAIL 2
1-1/2"=1'-0"



STRUCTURAL INSULATED PANEL
ALUMINUM WINDOW

EXTRUDED ALUMINUM SILL
FLOOR PLATE - SEE STRUCT.
ZEN GARDEN PLANTER

ZEN GARDEN WINDOW DETAIL 4
1-1/2"=1'-0"

0" 3" 6" 9" 1'-0"

2" STANDING SEAM METAL ROOF
GALV EDGE FLASHING
PRE- FINISHED FLASHING
EDGE PANEL
2x8 HEADER

PHILIPS T8 LAMP
MET. REFLECTOR
2x4 MET. STUD
3/4" GYP. BOARD

ROOF DETAIL 3
1-1/2"=1'-0"

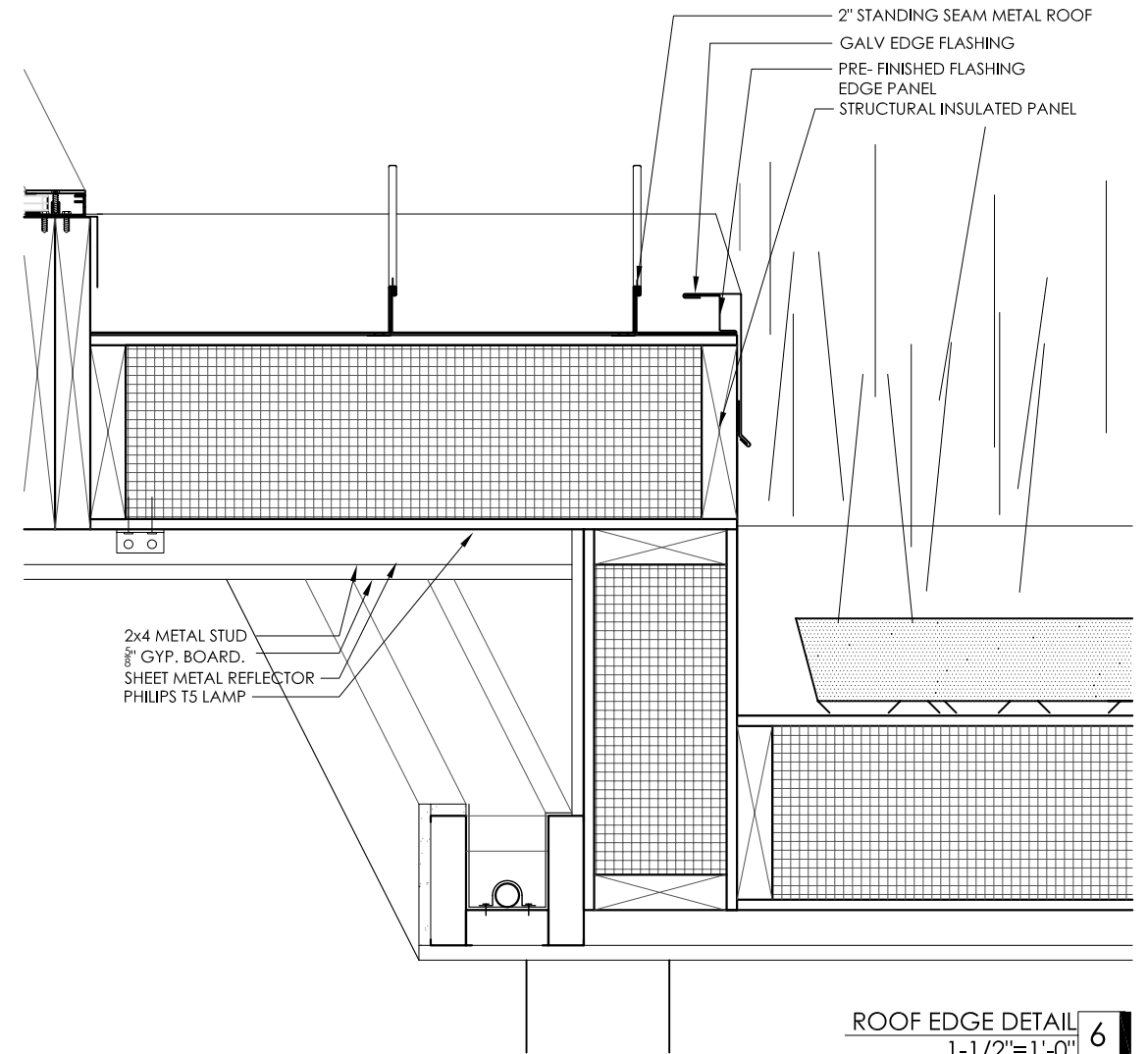
0" 3" 6" 9" 1'-0"

STRUCTURAL INSULATED PANEL
2" STANDING SEAM METAL ROOF
GALV EDGE FLASHING
PRE- FINISHED FLASHING
EDGE PANEL

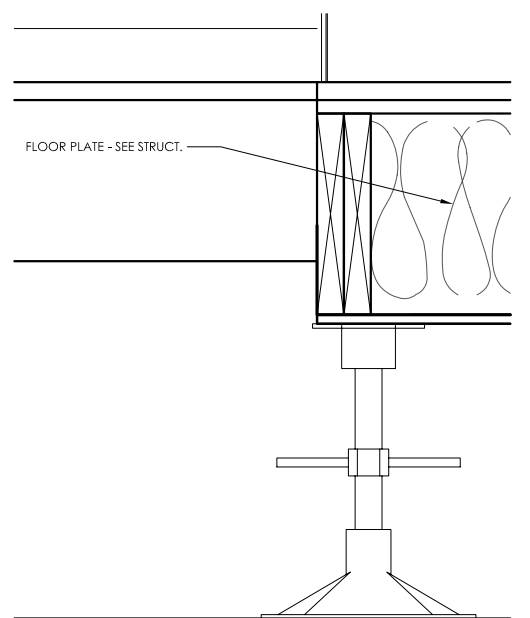
2x4 MET. STUD
3/4" GYP. BOARD
PHILIPS T8 LAMP
MET. REFLECTOR
3/4" GYP. BOARD
2x BLOCKING

ROOF DETAIL 1
1-1/2"=1'-0"

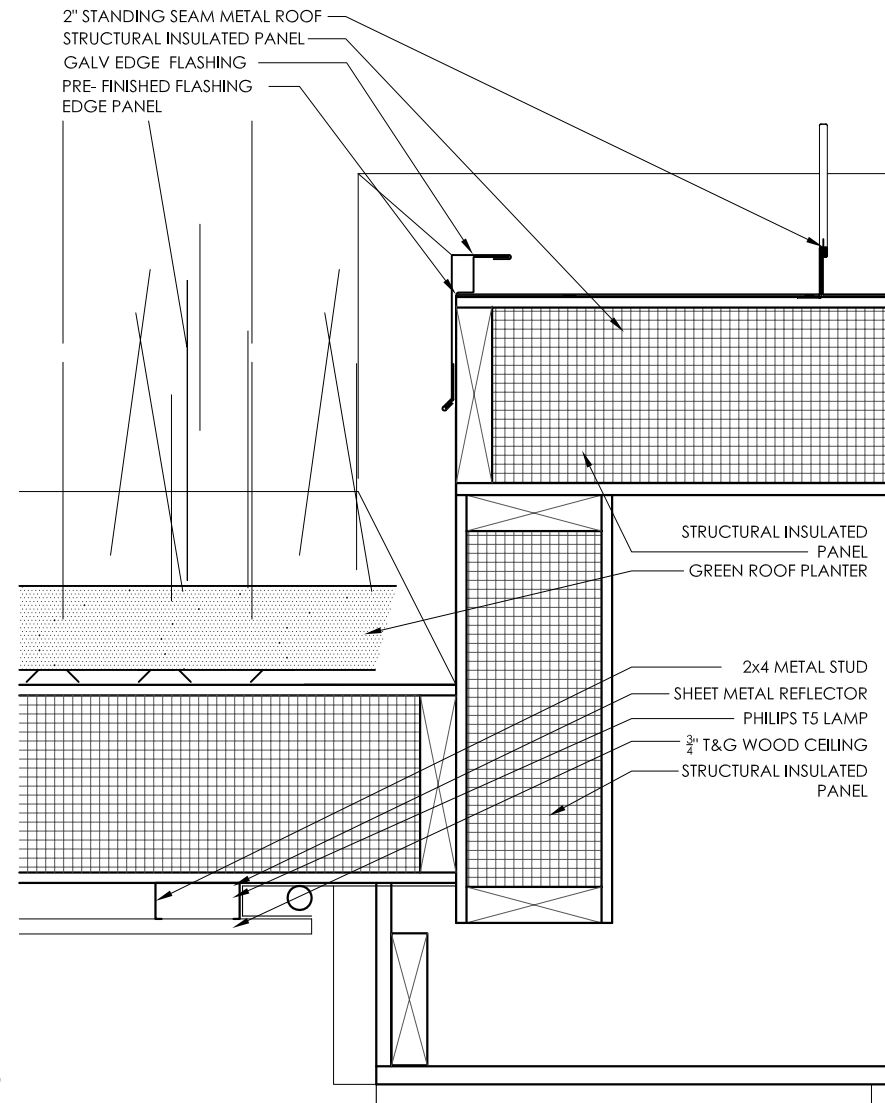
0" 3" 6" 9" 1'-0"



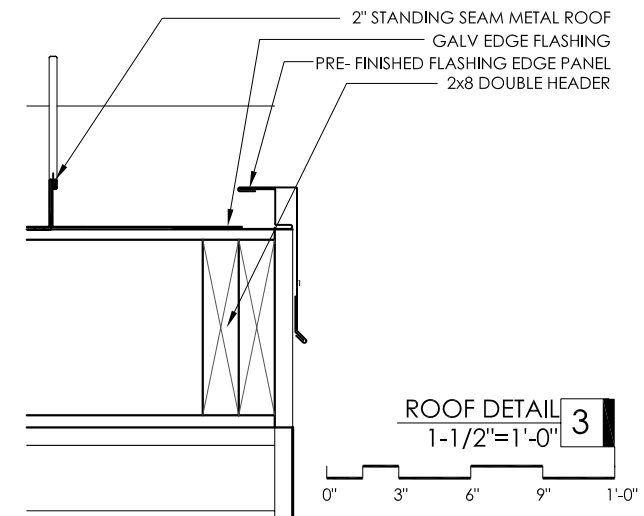
ROOF EDGE DETAIL 6
1-1/2"=1'-0"



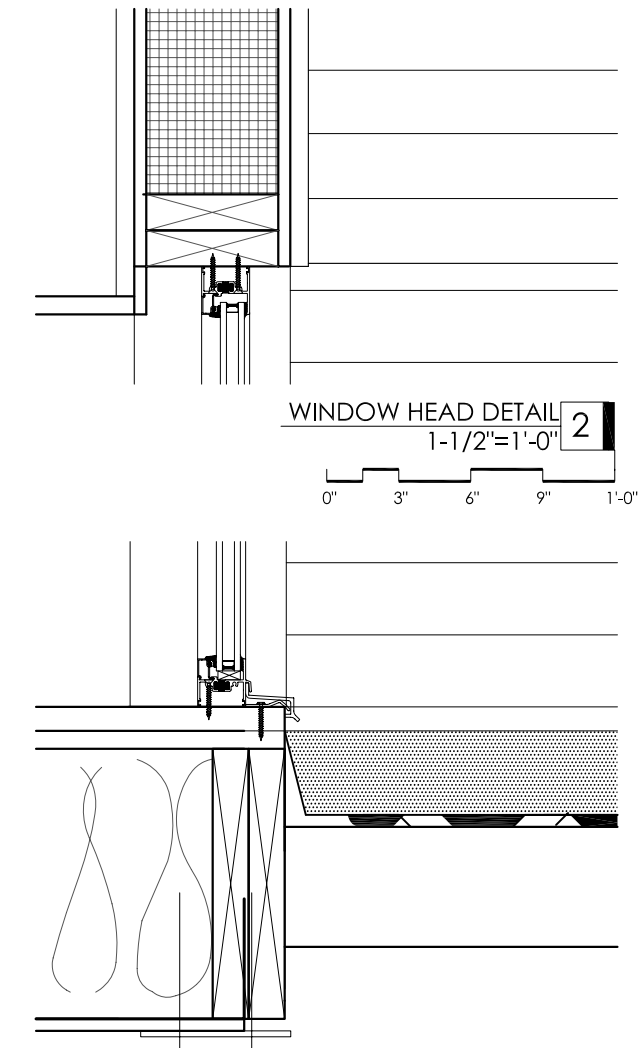
FLOOR PLATE DETAIL 5
1-1/2"=1'-0"



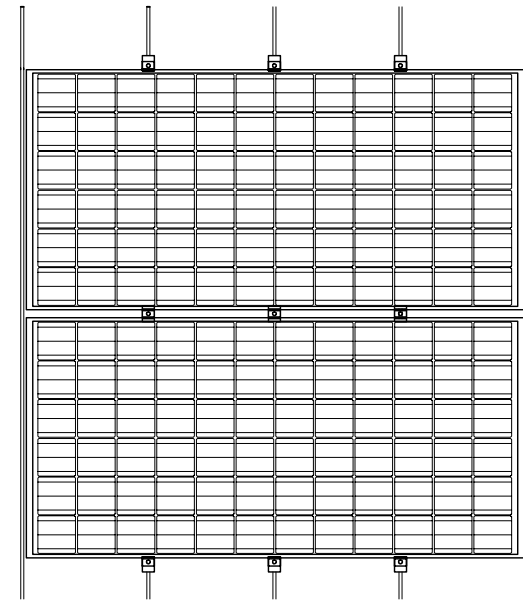
ROOF DETAIL 4
1-1/2"=1'-0"



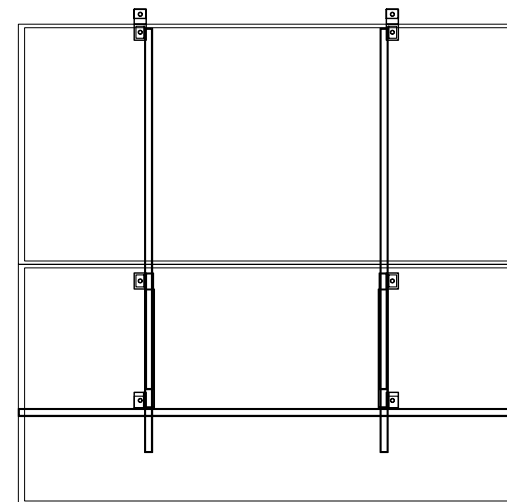
WINDOW HEAD DETAIL 2
1-1/2"=1'-0"



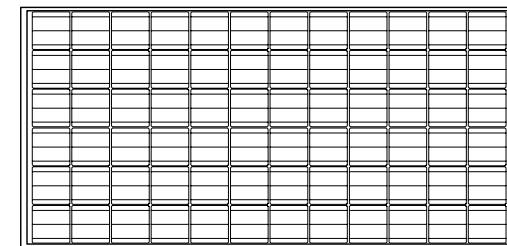
WINDOW SILL DETAIL 1
1-1/2"=1'-0"



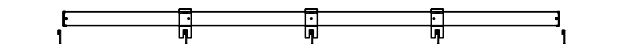
SOLAR PANEL S-51 SYSTEM DETAIL 3
1/2"=1'-0"
0" 6" 1'-0" 3'-0"



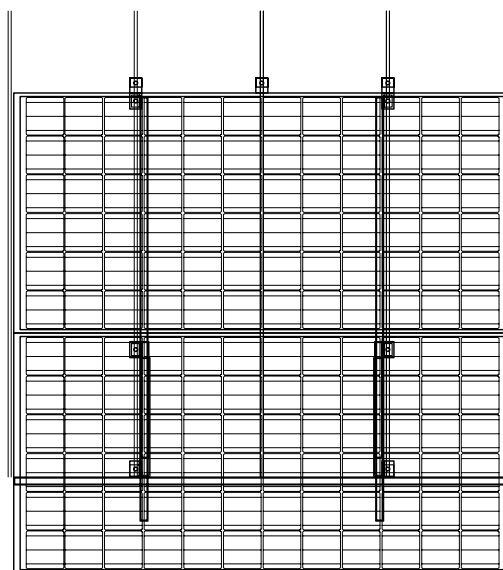
HIGH TILT RACK ELEVATION 2
1/2"=1'-0"
0" 6" 1'-0" 3'-0"



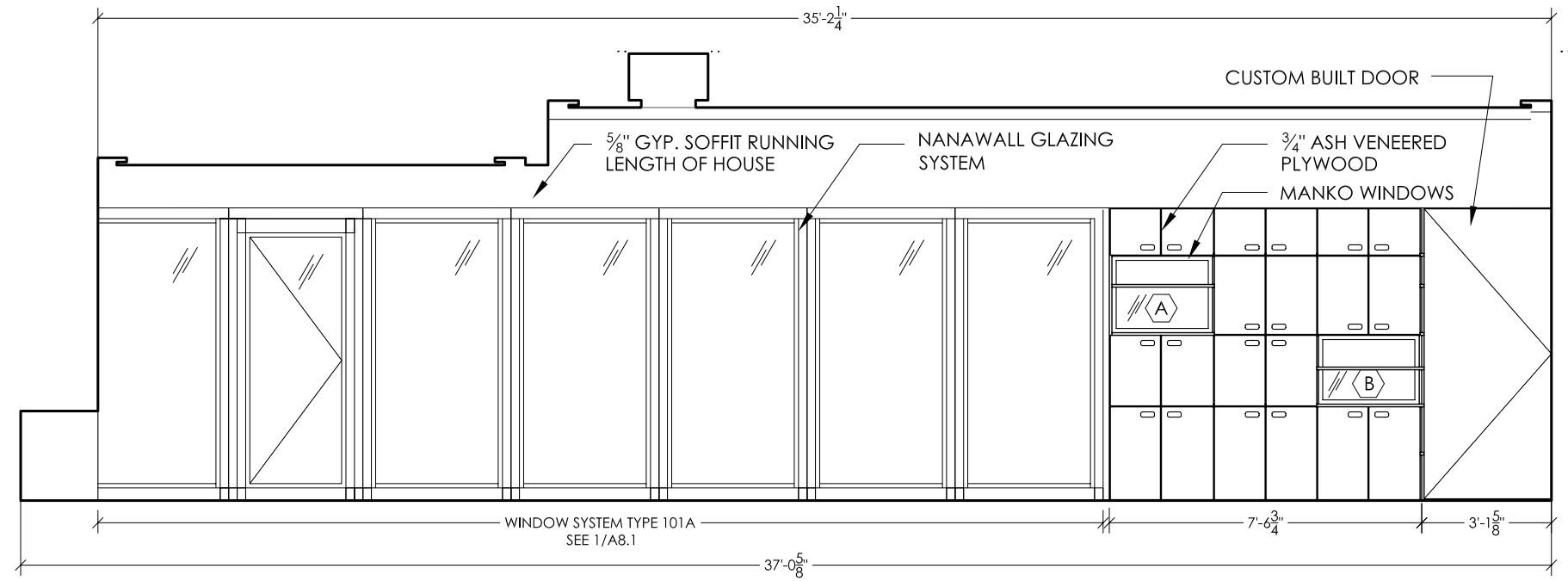
TYPICAL SOLAR PANEL DETAIL 1
1/2"=1'-0"
0" 6" 1'-0" 3'-0"



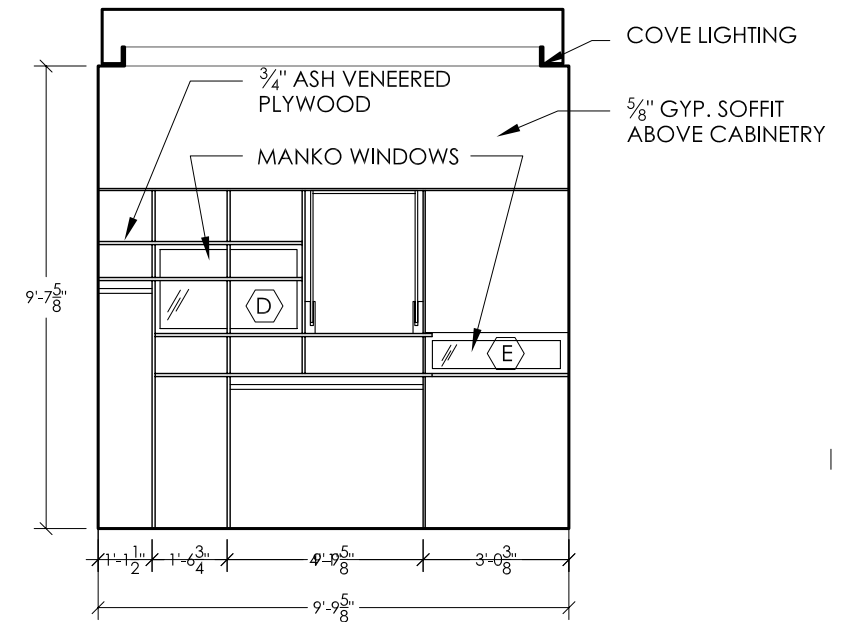
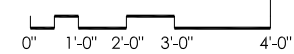
TYP. SOLAR PANEL SECTION 5
1/2"=1'-0"
0" 6" 1'-0" 3'-0"



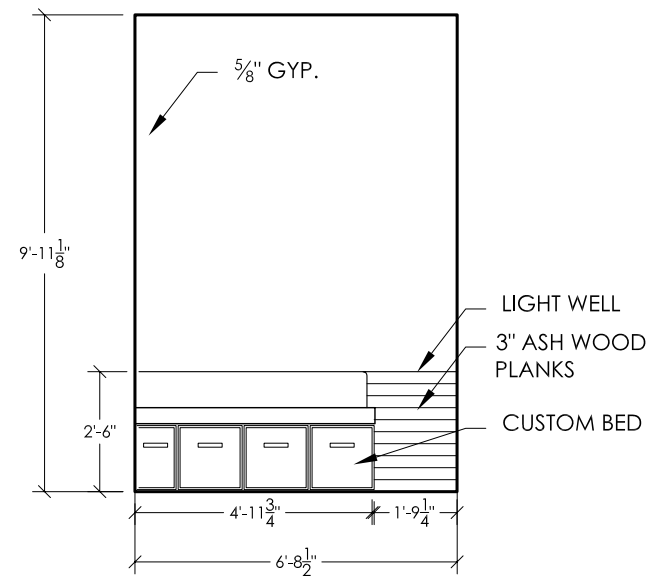
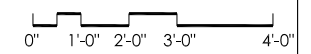
SOLAR PANEL HIGH TILT SYSTEM 4
1/2"=1'-0"
0" 6" 1'-0" 3'-0"



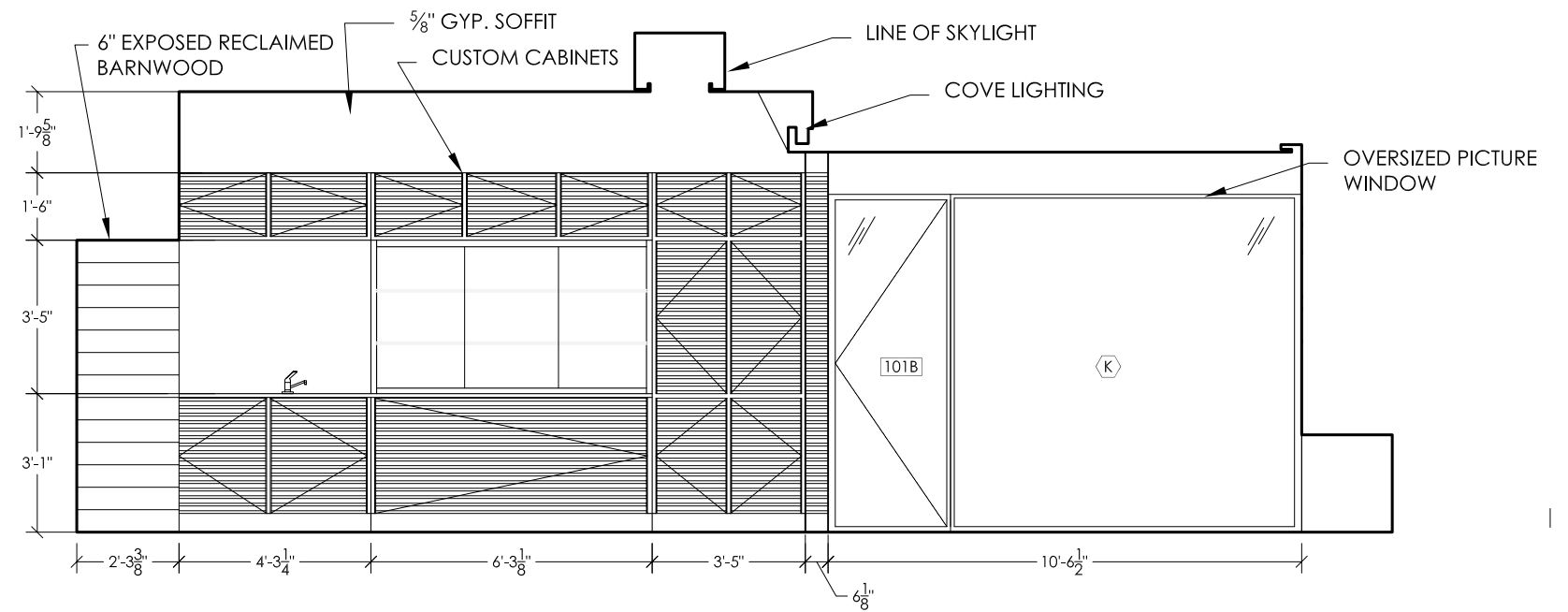
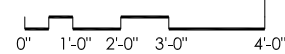
INTERIOR LIVING ROOM ELEVATION 3
1/4"=1'-0"



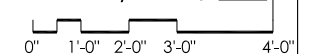
INTERIOR BEDROOM ELEVATION 2
1/4"=1'-0"

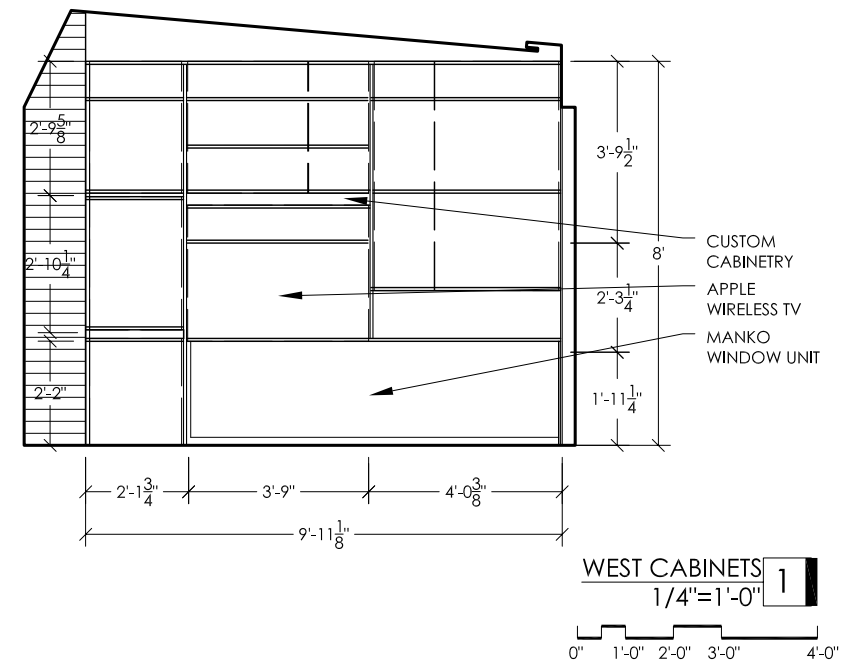
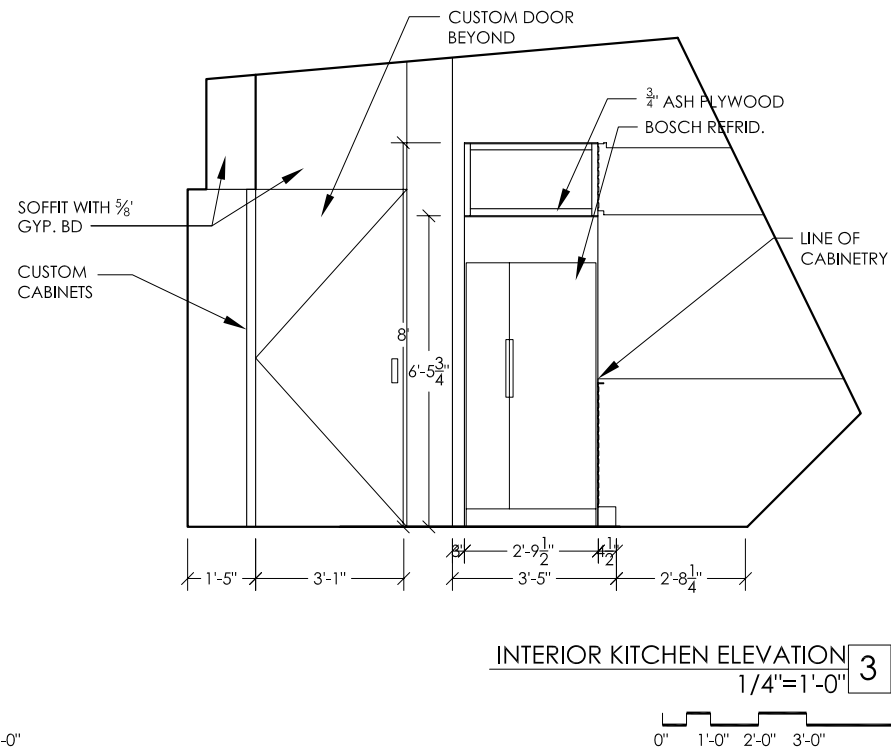
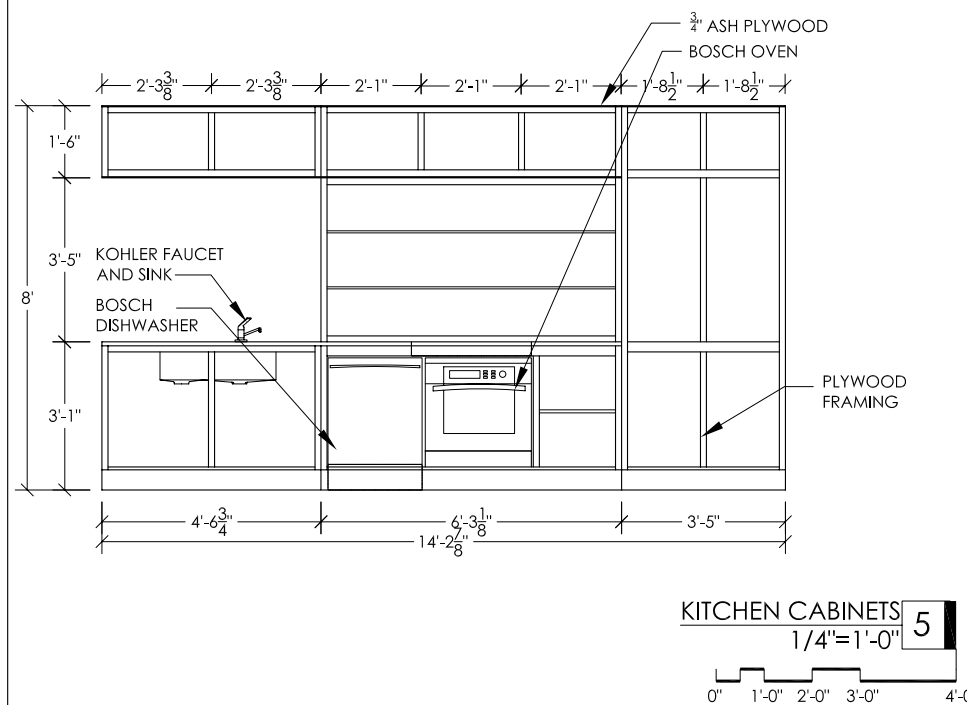
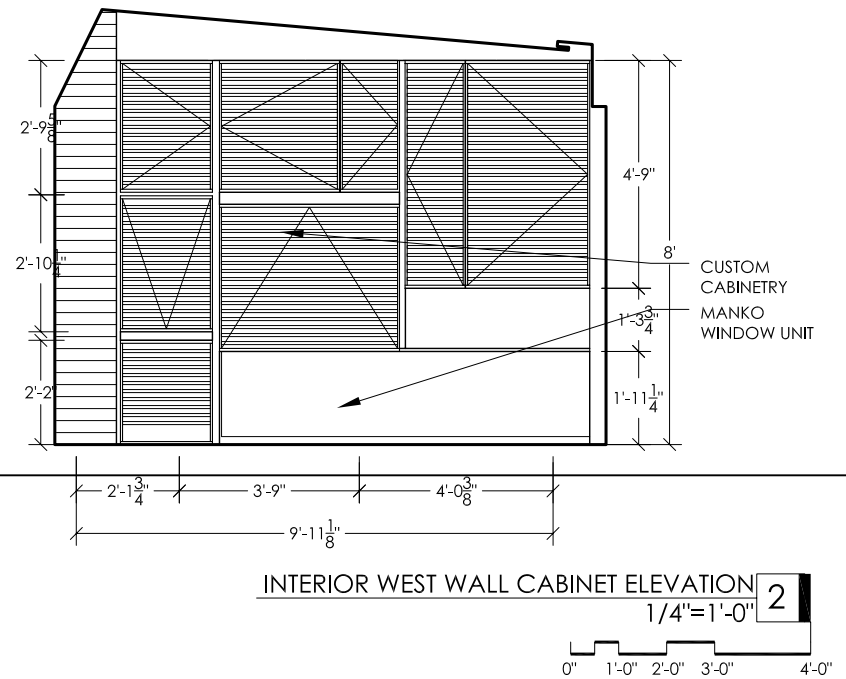
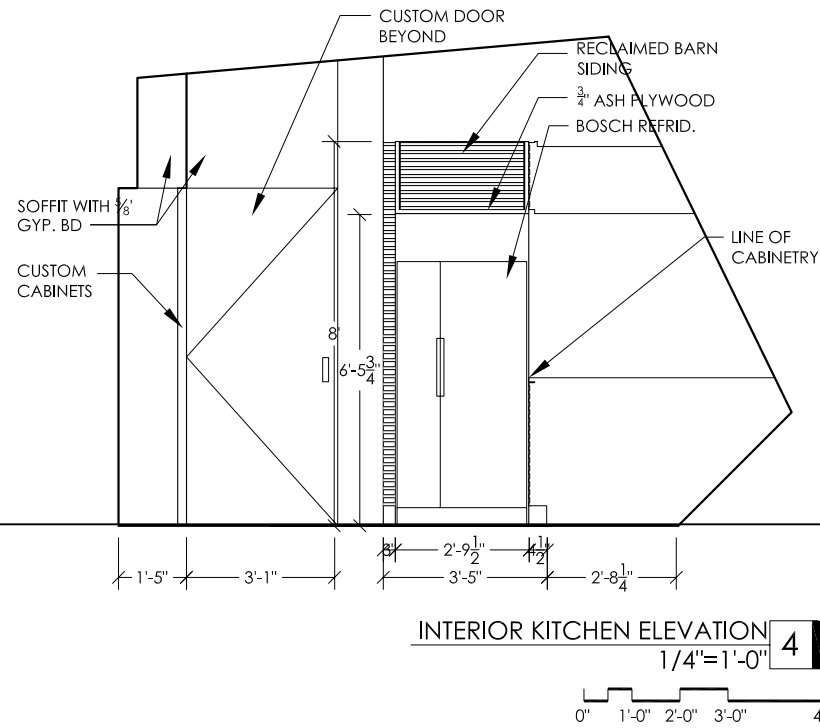
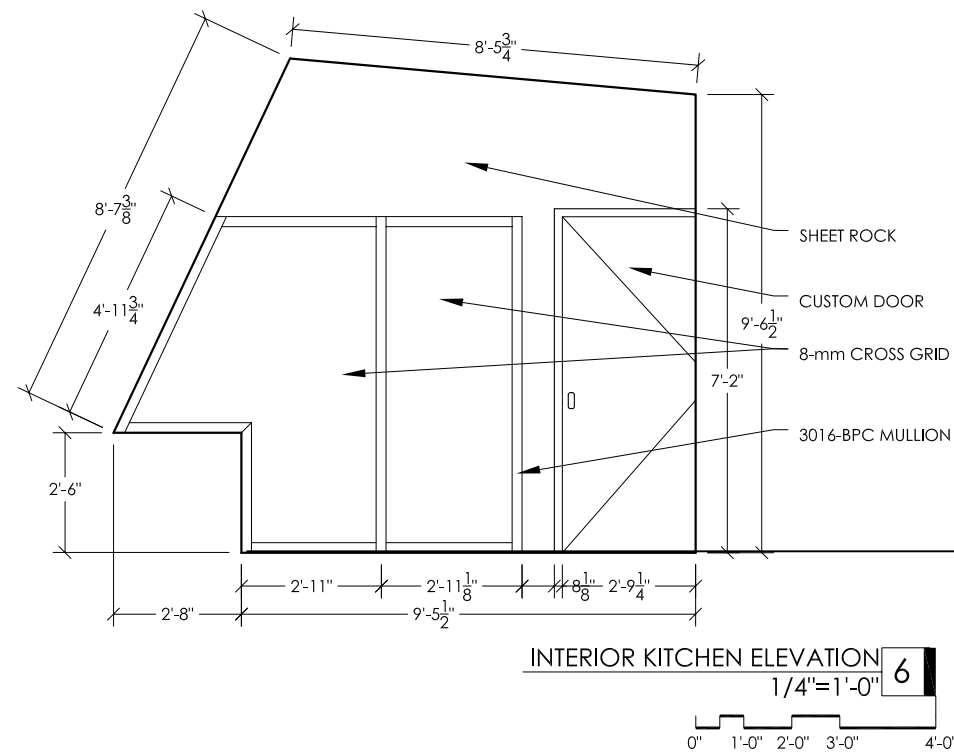


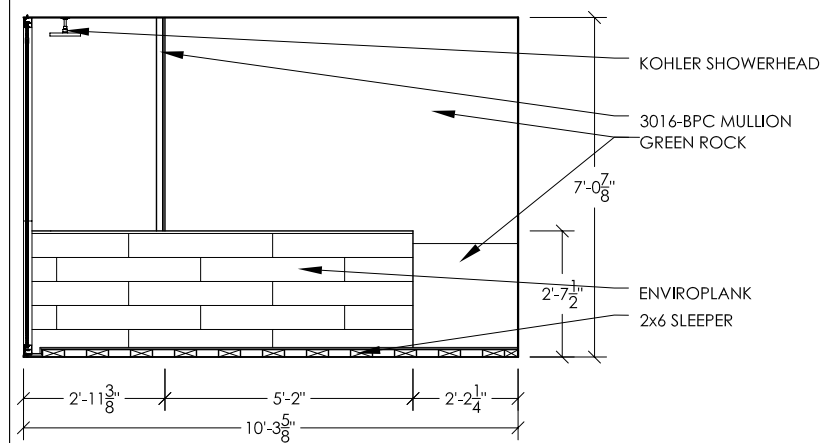
INTERIOR BEDROOM ELEVATION 3
1/4"=1'-0"



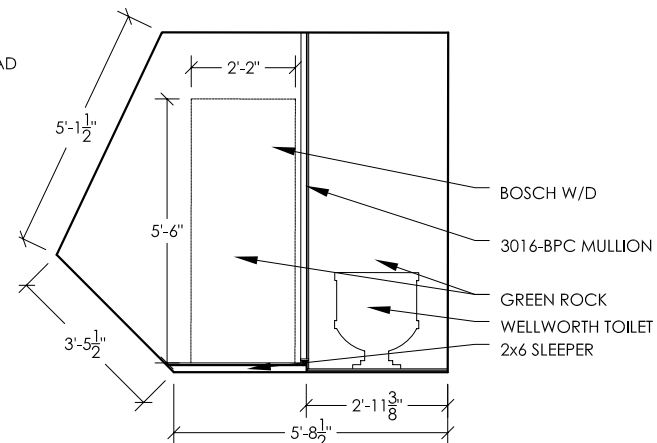
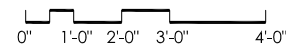
INTERIOR BEDROOM ELEVATION 2
1/4"=1'-0"



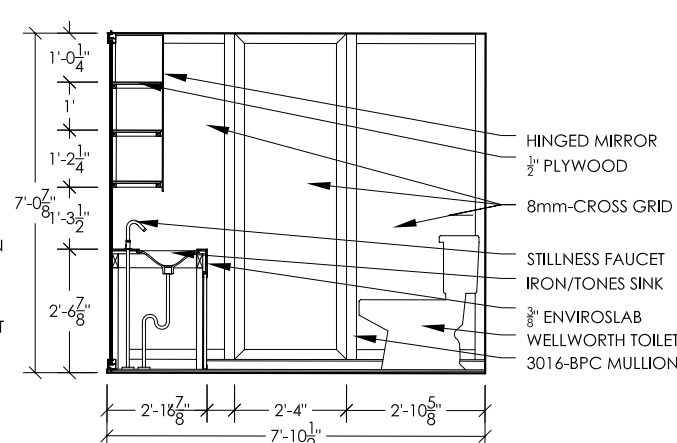
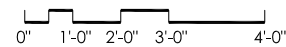




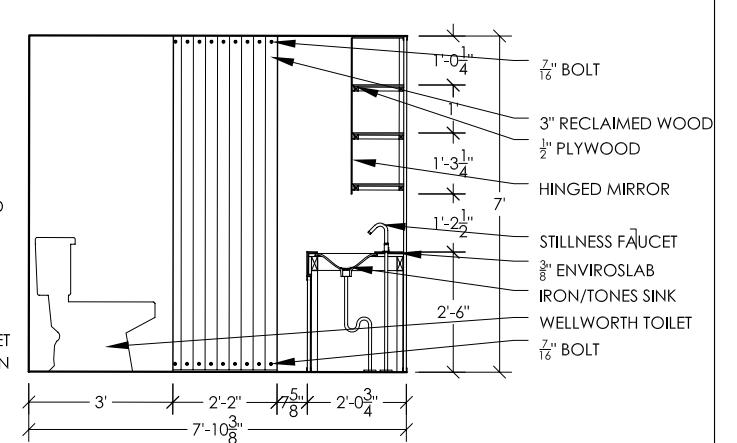
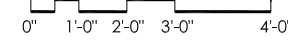
INTERIOR BATHROOM ELEVATION 7
1/4"=1'-0"



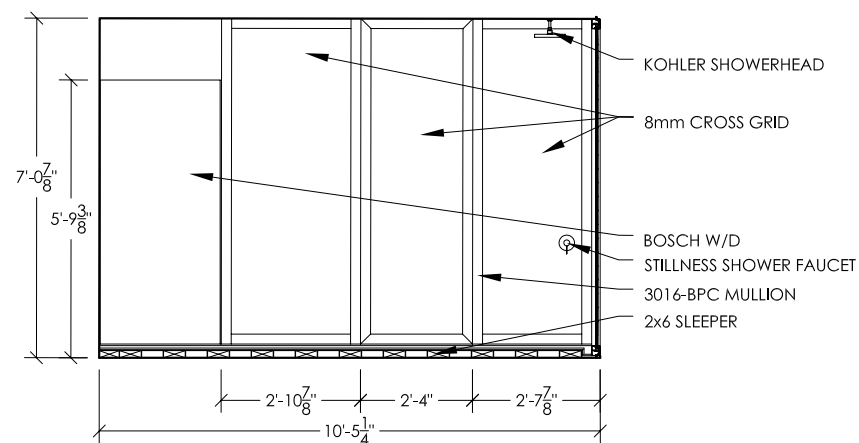
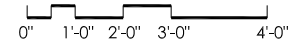
INTERIOR BATHROOM ELEVATION 5
1/4"=1'-0"



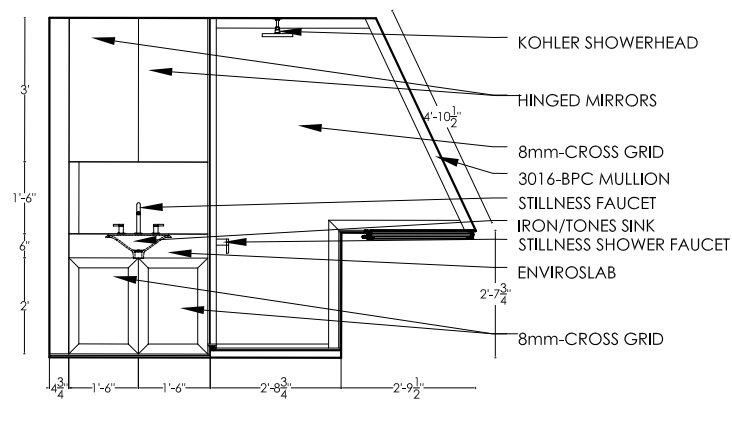
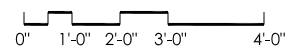
INTERIOR BATHROOM ELEVATION 4
1/4"=1'-0"



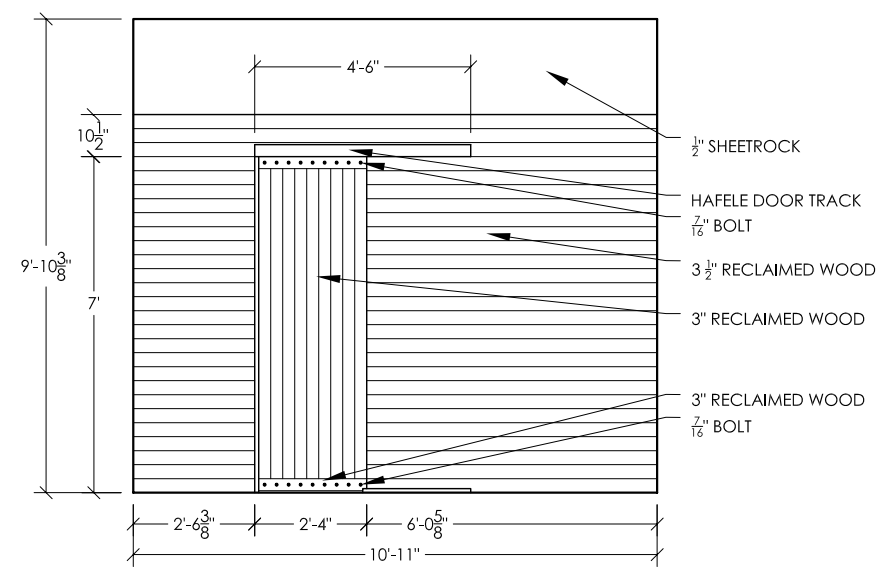
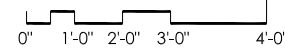
INTERIOR BATHROOM ELEVATION 2
1/4"=1'-0"



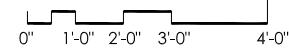
INTERIOR BATHROOM ELEVATION 6
1/4"=1'-0"



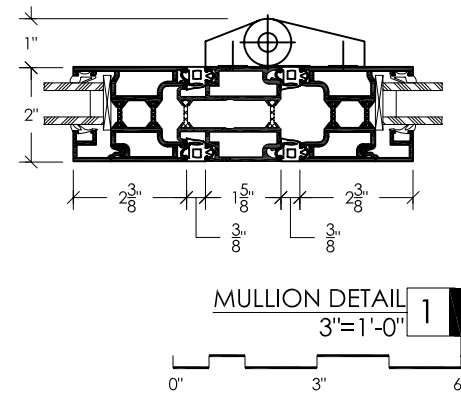
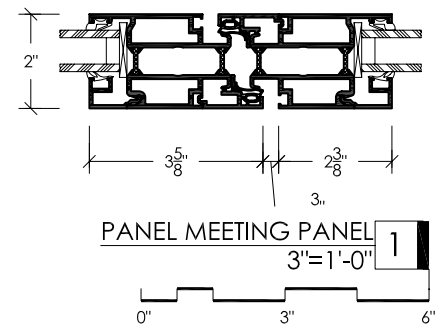
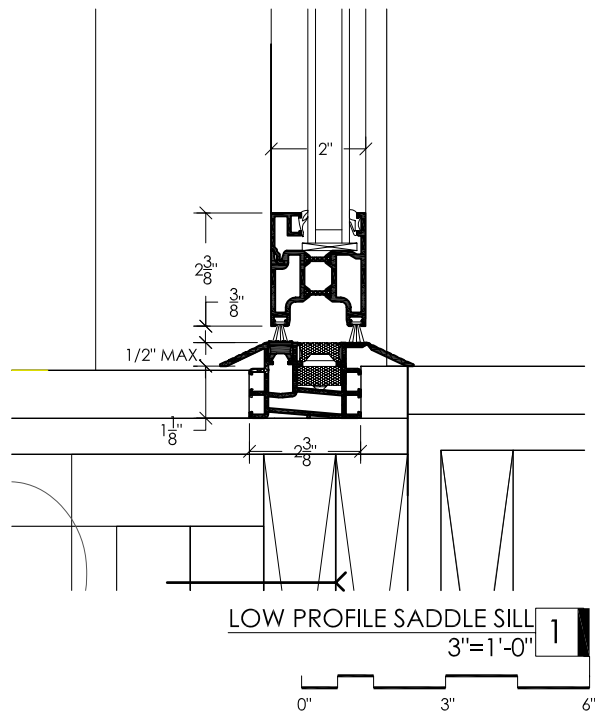
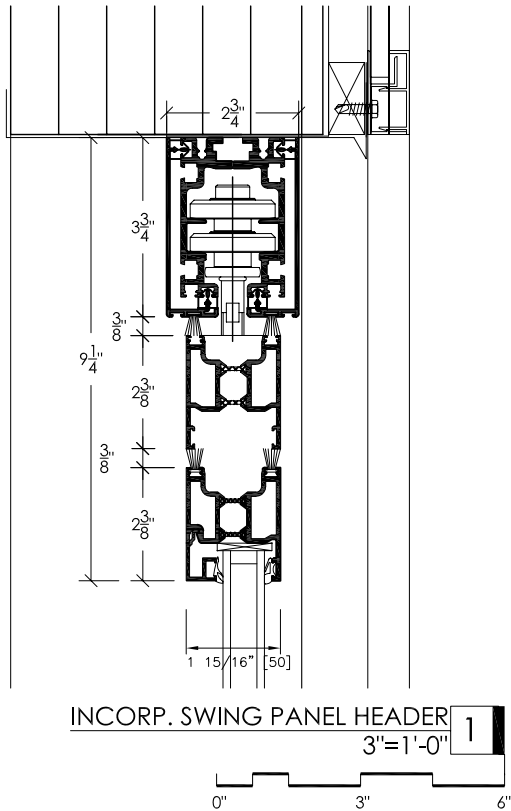
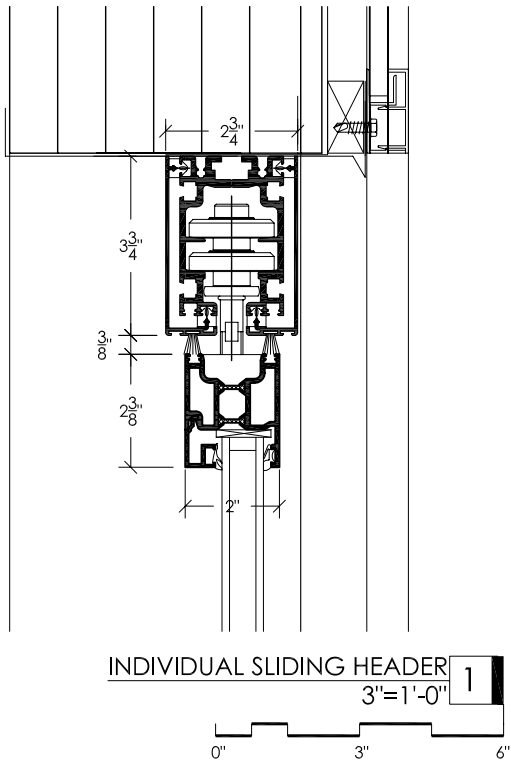
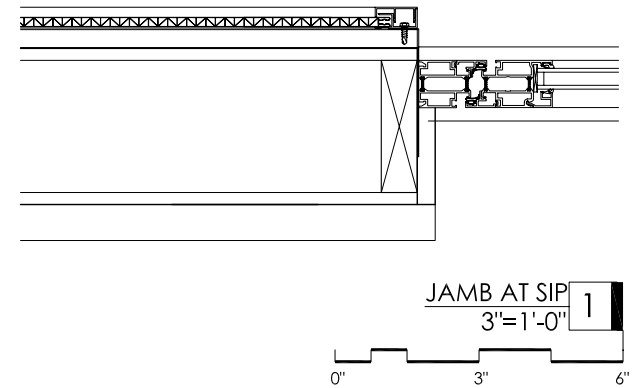
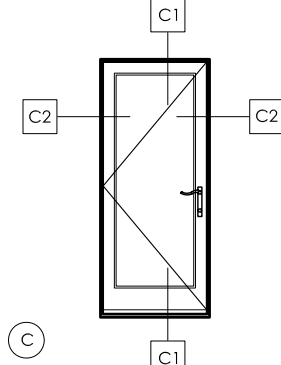
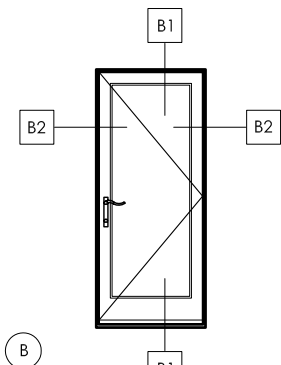
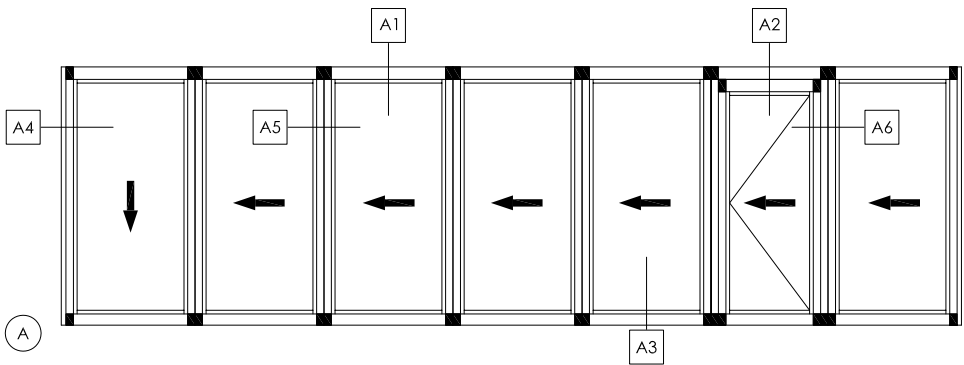
INTERIOR BATHROOM ELEVATION 3
1/4"=1'-0"



INTERIOR BATHROOM ELEVATION 1
1/4"=1'-0"

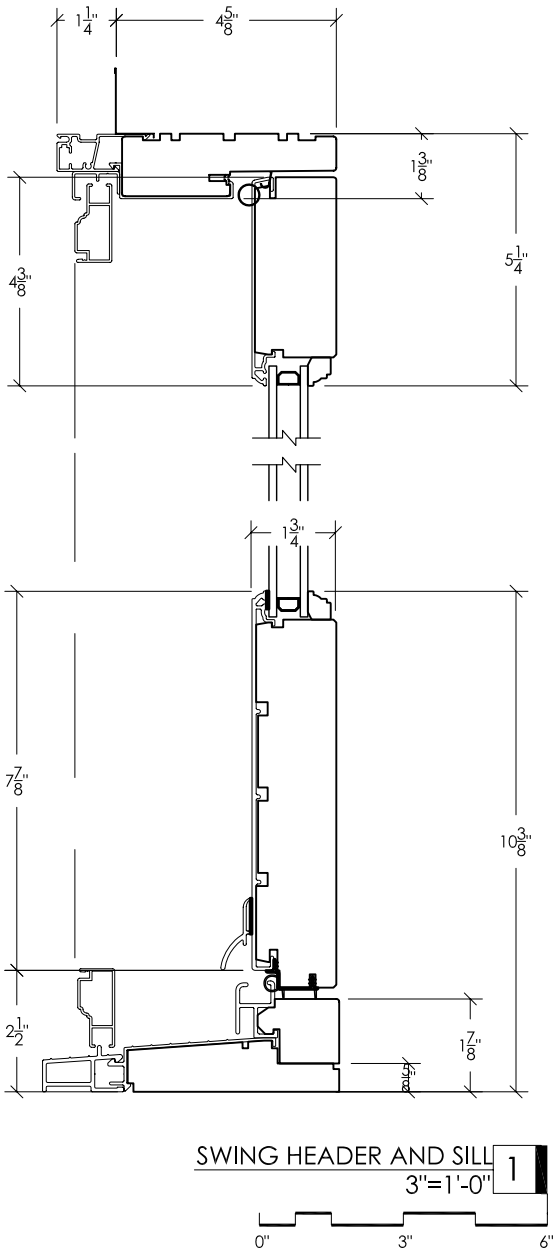
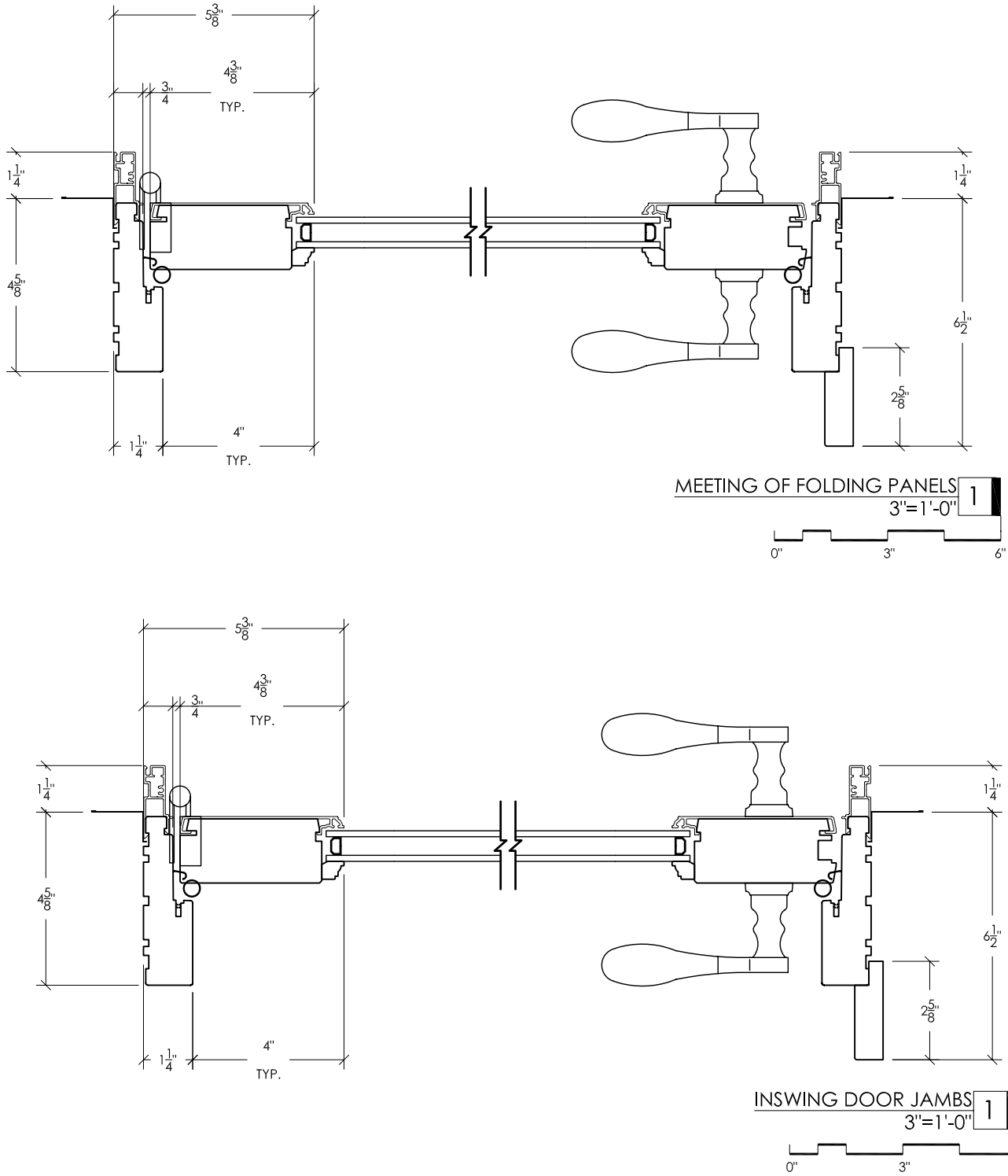
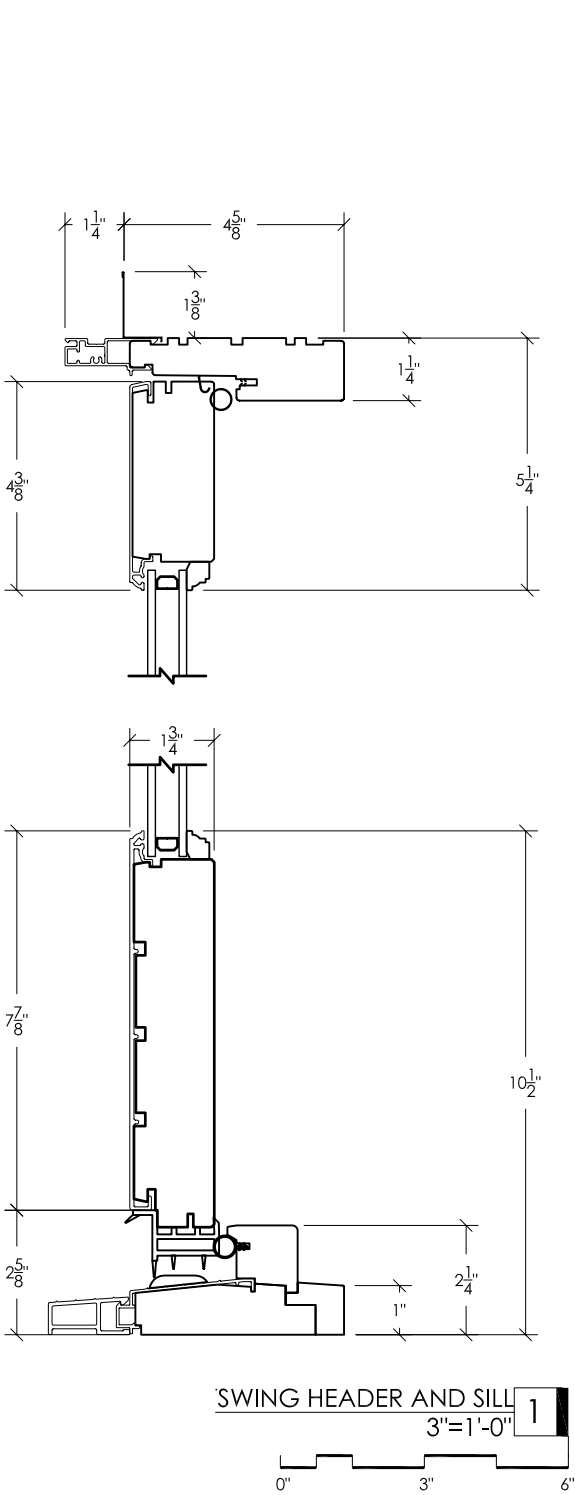


DOOR SCHEDULE							
SYSTEM	WIDTH	HEIGHT	THK.	TYPE	MATERIAL	ELEV.	REMARKS
101A	25'-0"	7'-2"	1 15⁄16"	HSW50 NANAWALL- INDIVIDUAL SLIDING PANELS WITH INCORPORATED SWING PANEL	THERMALLY BROKEN ALUMINUM FRAME	(A)	LOW PROFILE SADDLE SILL, ADA COMPLIANT SWING DOOR
101B	3'-0"	7'-2"	1 3⁄4"	LOEWEN INSWINGING TERRACE DOOR	METAL CLAD WOOD DOOR	(B)	SOUTHERN LIVING ROOM EXTERIOR
103A	3'-0"	7'-2"	1 3⁄4"	LOEWEN OUTSWINGING TERRACE DOOR	METAL CLAD WOOD DOOR	(C)	EXTERIOR BEDROOM
103B	0'-0"	7'-0"	1 1⁄2"	MAGNETIC	WOOD	(D)	INTERIOR BEDROOM
104A	2'-4"	7'-0"	1 1⁄2"	CUSTOM COMPOSITE GLASS	GLASS/ STEEL	(E)	CUSTOM COMPOSITE GLASS
105A	2'-4"	6'-9"	5⁄8"	DUO-GAURD	POLYCARBONATE	(F)	DUO-GAURD SHOWER

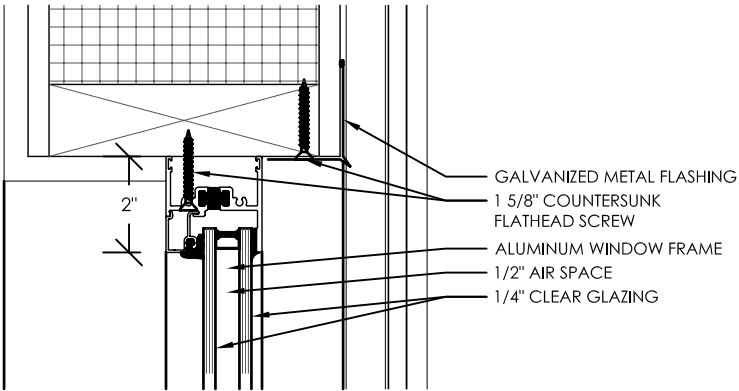
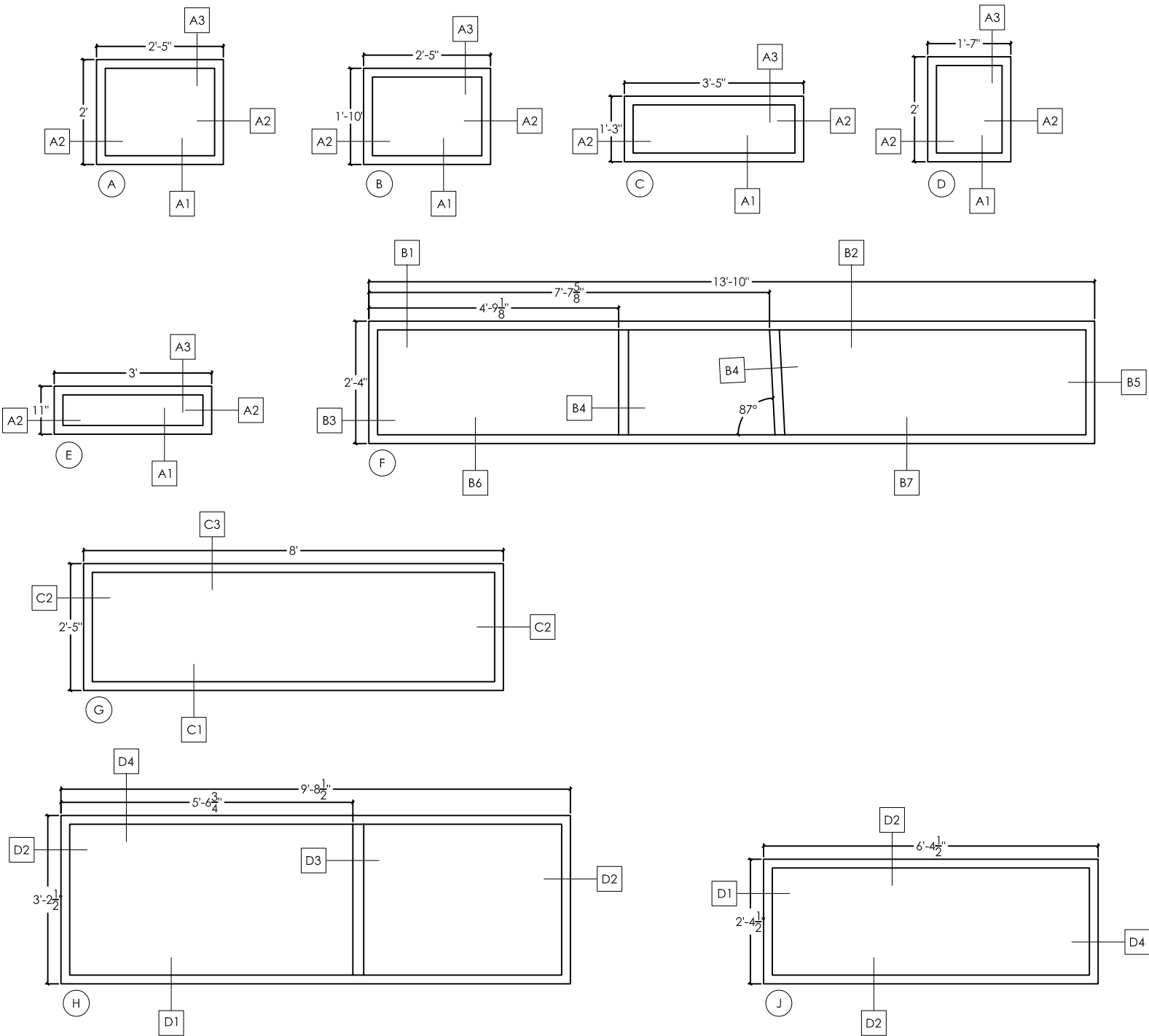


INTERIOR FINISH SCHEDULE										
ROOM	ROOM NAME	FLOORING	WALL FINISH				FINISHED CEILING			COMMENTS
			N	E	S	W	LOW ELEV	HIGH ELEV	MATERIAL	
101	LIVING ROOM	6" WIDE ASH PLANK	(1) 5/8" GYP, PAINTED	N/A	(1) 5/8" GYP, PAINTED	(1) 5/8" GYP, PAINTED	8'-2 5/16"	9'-0 3/4"	(1) 5/8" GYP, PAINTED	1. ALL GYPBOARD IS TO BE PRIMED WITH SAFECOAT NEW WALLBOARD PRIMECOAT HPV AND THEN COVERED WITH SAFECOAT SEMIGLOSS OF COLOR INDICATED 2. ALL GYPBOARD IS TO BE PAINTED SAFECOAT COLOR OW36-1P, VIOLET WHISPER UNLESS OTHERWISE INDICATED
102	KITCHEN	6" WIDE ASH PLANK	(1) 5/8" GYP, PAINTED	(1) 5/8" GYP, PAINTED	(1) 5/8" GYP, PAINTED	N/A	9'-2 5/16"	10-0 3/8"	(1) 5/8" GYP, PAINTED	
103	HALLWAY	3" WIDE ASH PLANK	(1) 5/8" GYP, PAINTED	N/A	3-1/2" BARNWOOD	(1) 5/8" GYP, PAINTED	9'-3 3/4"	9'-6 15/16"	(1) 5/8" GYP, PAINTED	
104	BEDROOM	3" WIDE ASH PLANK	(1) 5/8" GYP, PAINTED	(1) 5/8" GYP, PAINTED	(1) 5/8" GYP, PAINTED	16 mm CROSSGRID	7'-0"	7'-0"	(1) 5/8" GYP, PAINTED	
105	BATHROOM	6" X 3' ENVIROPLANK	(1) 5/8" GREENBOARD	(1) 5/8" GREENBOARD	(1) 5/8" FIBERGLASS FINISH GYP. BD.	16 mm CROSSGRID	9'-4 3/4"	10-1 13/16"	(1) 5/8" GYP, PAINTED	
106	BATTERY BANK	PLYWOOD SUBFLOOR	(2) 5/8" GYP, PAINTED	1/2" PLYWOOD, UNFINISHED	(2) 5/8" GYP, PAINTED	(2) 5/8" GYP, PAINTED	8'-0"	8'-0"	(1) 5/8" GYP, PAINTED	

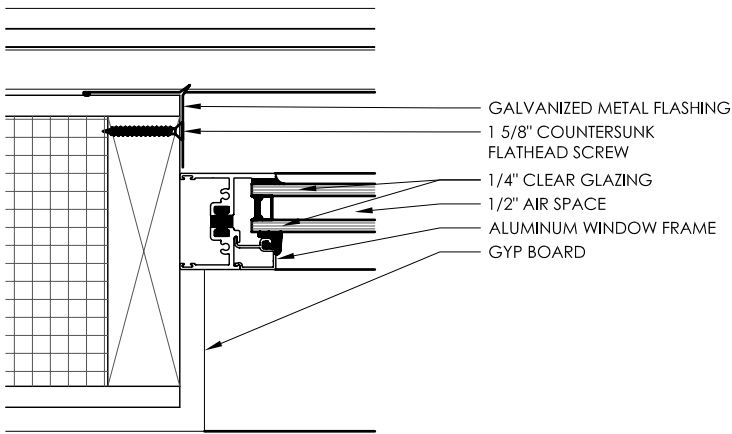
NOTE:
1. ALL S.I.P.s TO BE SHEATHED IN 5/8" GYP, TAPED, SANDED, PRIMED, AND PAINTED AS SCHEDULED
2. A SMALL AREA RUG EXISTS IN THE BEDROOM, TO BE SPECIFIED AND CHOSEN BYARCHITECT



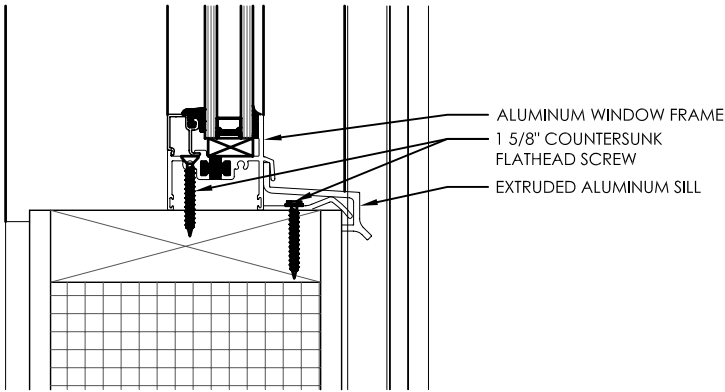
WINDOW SCHEDULE					
WINDOW	GLAZING TYPE	ROUGH OPENING		FILLING	REMARKS
		HEIGHT	WIDTH		
A	1/4" DOUBLE GLAZING- CLEAR	2' 0"	2' 5"	AIR SPACE	
B	1/4" DOUBLE GLAZING- CLEAR	1' 10"	2' 5"	AIR SPACE	
C	1/4" DOUBLE GLAZING- CLEAR	1' 3"	3' 5"	AIR SPACE	
D	1/4" DOUBLE GLAZING- CLEAR	2' 0"	1' 7"	AIR SPACE	
E	1/4" DOUBLE GLAZING- CLEAR	11"	3' 0"	AIR SPACE	
F	1/4" DOUBLE GLAZING	2' 2 3/4"	13' 7"	AIR SPACE	
G	1/4" DOUBLE GLAZING- CLEAR	2' 5"	8' 0"	AIR SPACE	
H	16mm TRIPLE PRISM POLYCARBONATE - CLEAR	2' 10"	9' 4"		
J	16mm TRIPLE PRISM POLYCARBONATE - CLEAR	6' 0"	2' 0"		



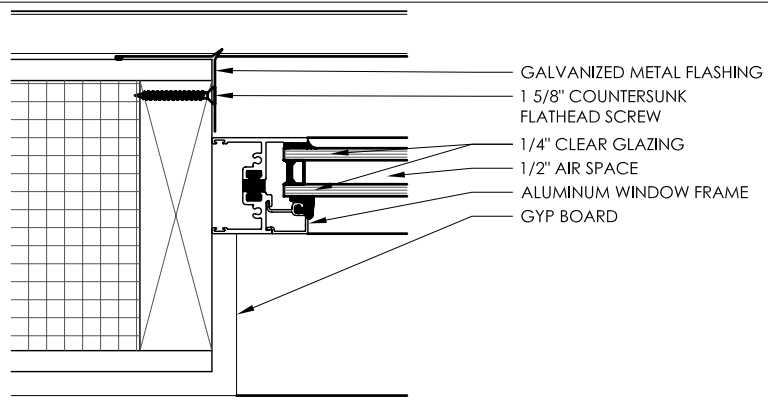
HEAD DETAIL AT S.I.P. WALL TYP. A3
3"=1'-0"



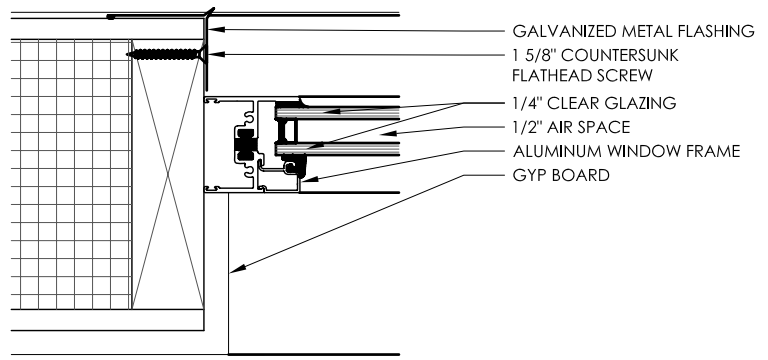
JAMB DETAIL AT S.I.P. WALL TYP. A2
3"=1'-0"



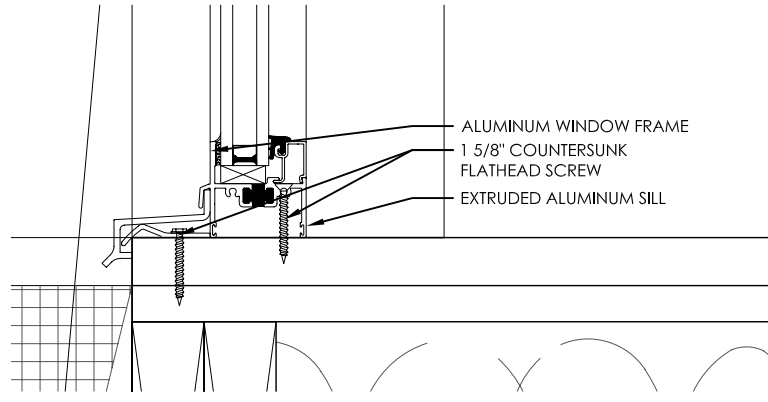
SILL DETAIL AT S.I.P. WALL TYP. A1
3"=1'-0"



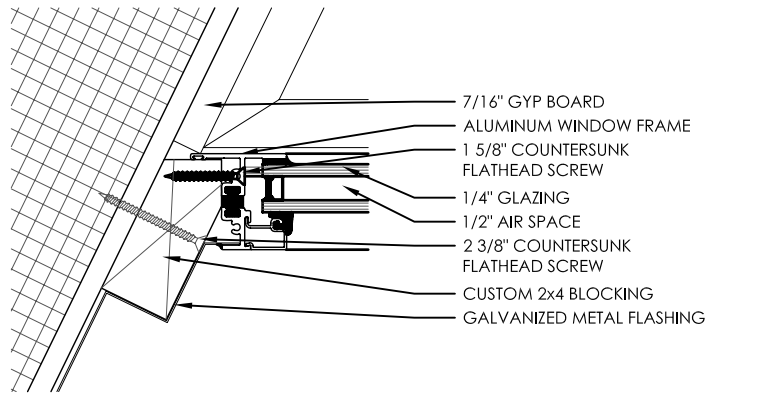
HEAD DETAIL AT WEST WALL C3
3"=1'-0"



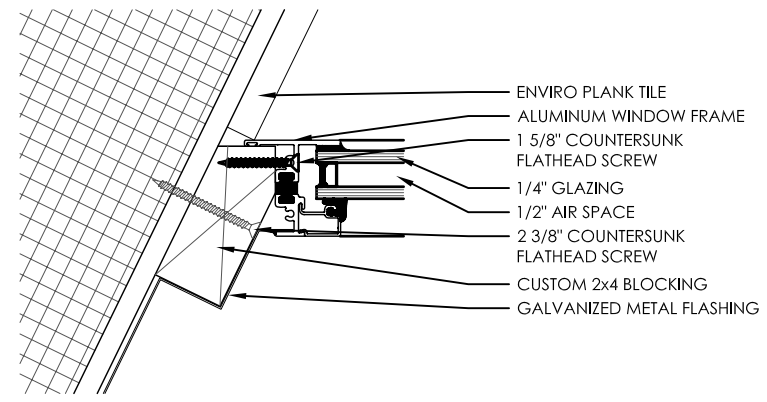
JAMB DETAIL AT WEST WALL C2
3"=1'-0"



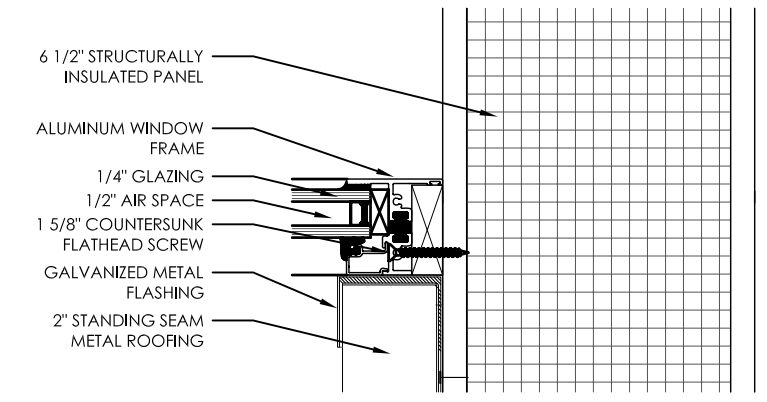
SILL DETAIL AT WEST WALL C1
3"=1'-0"



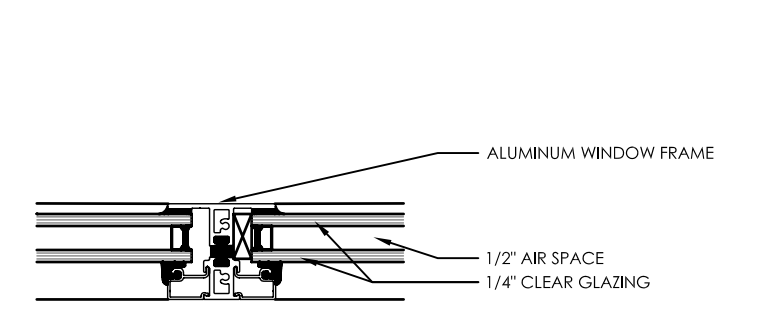
JAMB DETAIL AT BEDROOM B8
3"=1'-0"



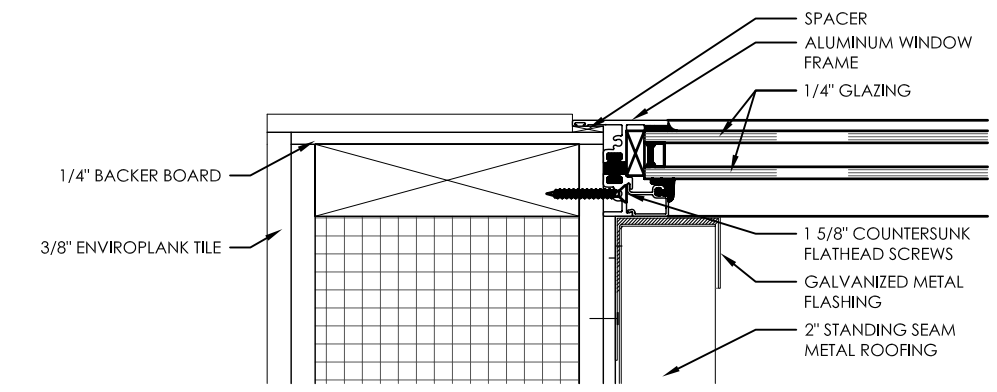
JAMB DETAIL AT BATHROOM B7
3"=1'-0"



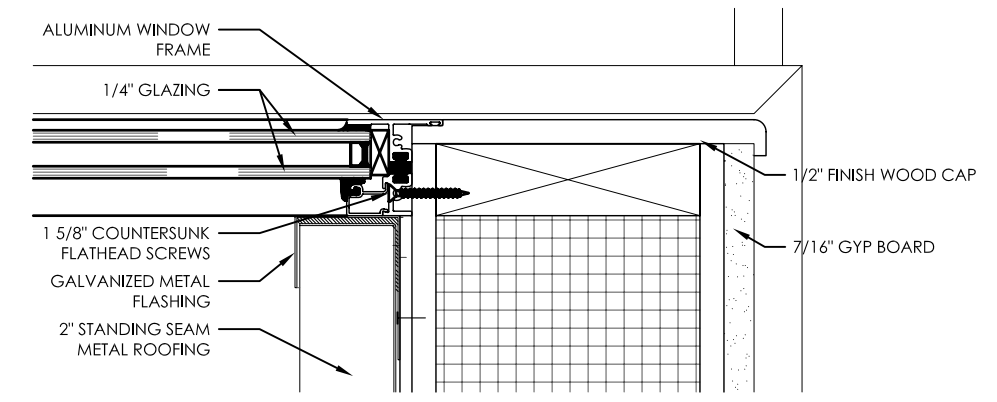
JAMB DETAIL AT BEDROOM B6
3"=1'-0"



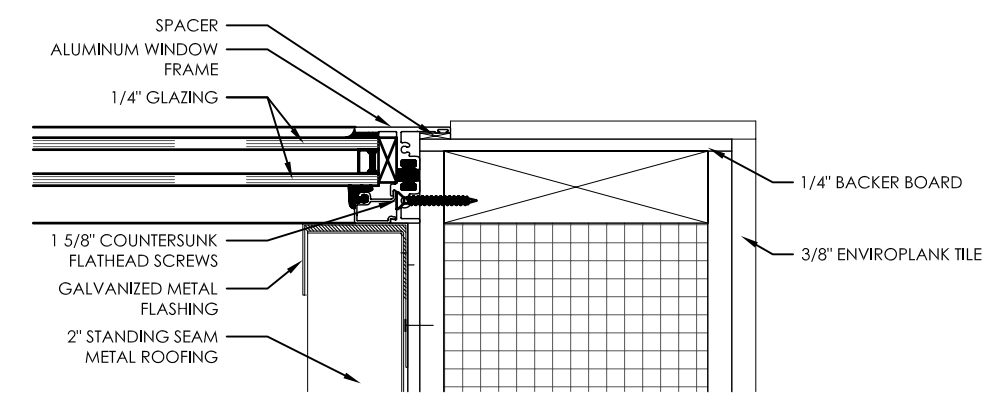
MULLIAN DETAIL AT BATHROOM B4
3"=1'-0"



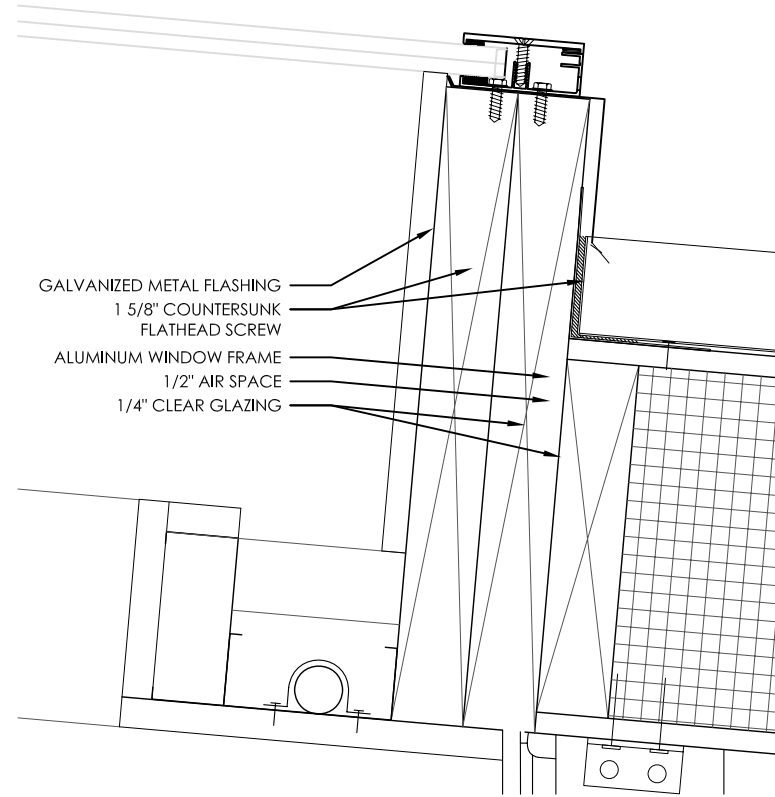
JAMB DETAIL AT BATHROOM B3
3"=1'-0"



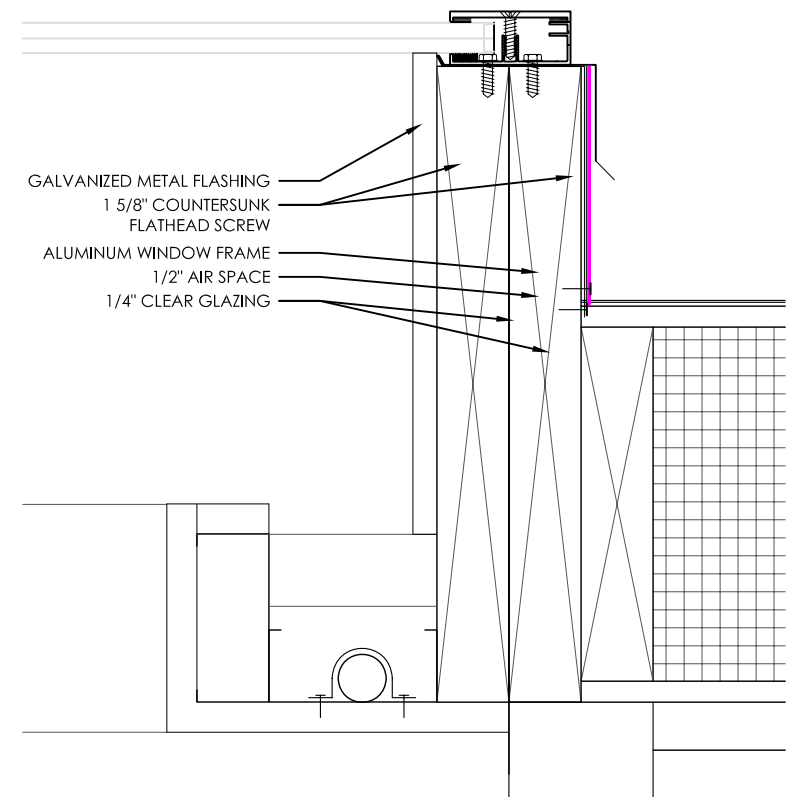
JAMB DETAIL AT BEDROOM B2
3"=1'-0"



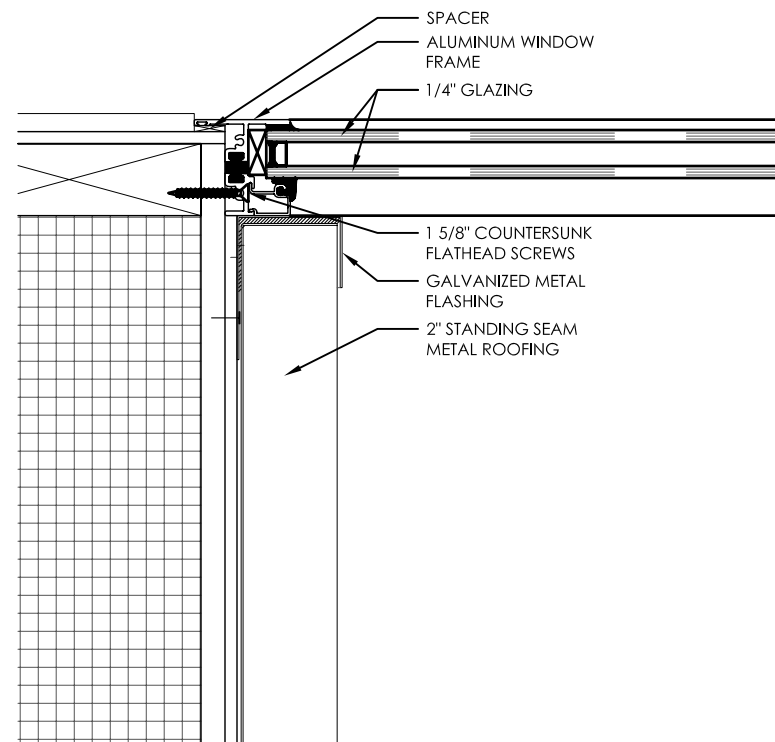
JAMB DETAIL AT BATHROOM B1
3"=1'-0"



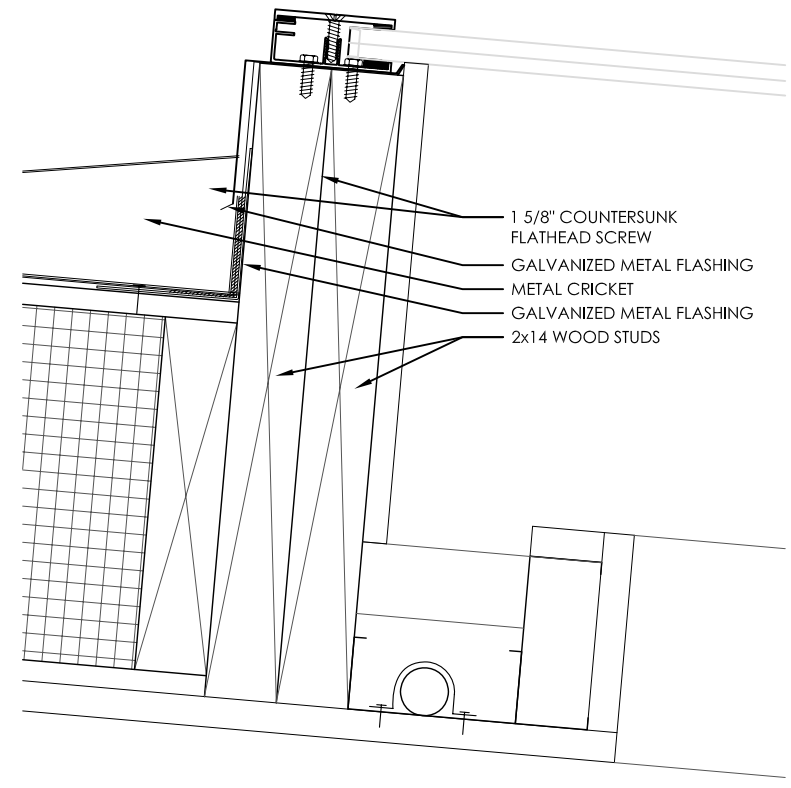
SKYLIGHT CURB DETAIL AT BEDROOM D4
3"=1'-0"



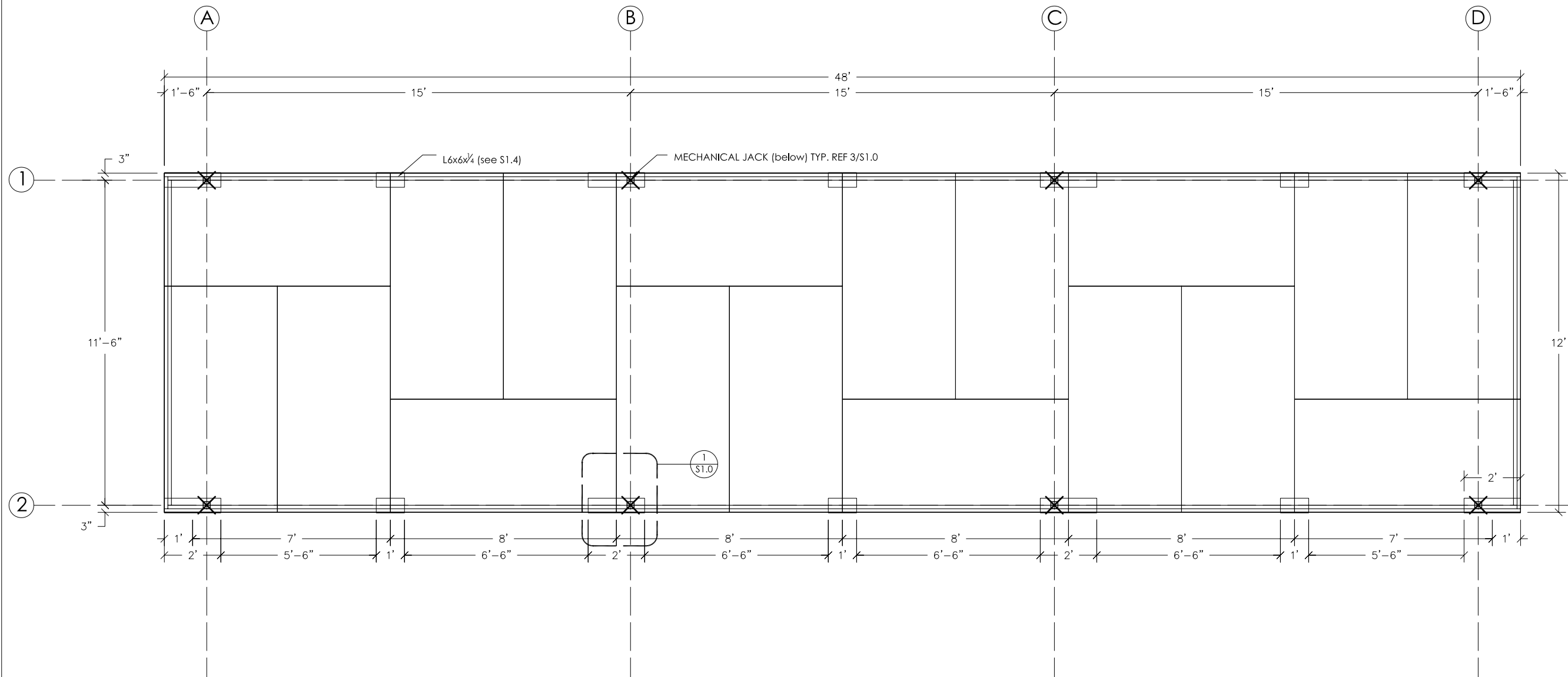
SKYLIGHT CURB DETAIL AT BEDROOM D2
3"=1'-0"



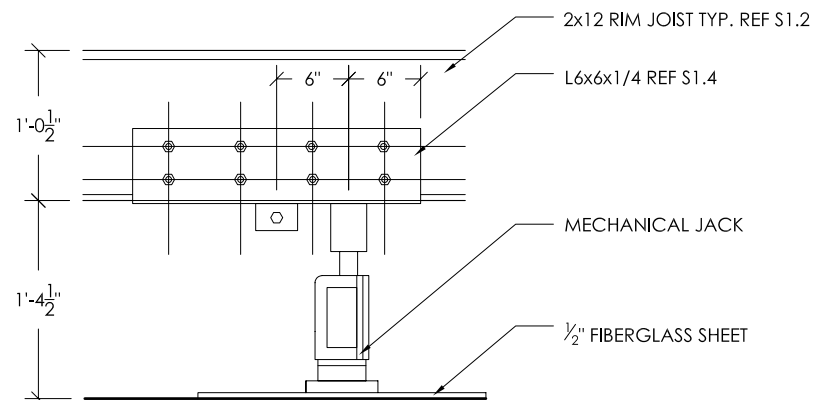
SKYLIGHT MULLIAN DETAIL AT BEDROOM D3
3"=1'-0"



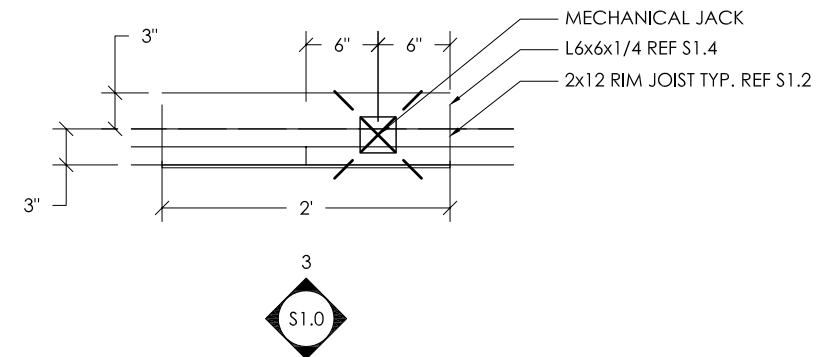
SKYLIGHT CURB DETAIL AT BEDROOM D1
3"=1'-0"



LIFTING PLAN
1/4"=1'-0" 2



MECHANICAL JACK ELEVATION
3/4"=1'-0" 3



MECHANICAL JACK DETAIL
3/4"=1'-0" 1

GENERAL NOTES

- *structure will be supported temporarily by exterior mounted mechanical jacks with 2'-0" x 2'-0" fiberglass sheets
- *mechanical jacks will be placed at 6" from center of steel angles in the longitudinal direction, and at the center of steel angles in the transverse direction for lifting and lowering ref 1/S1.0
- *floor plate will be lowered using mechanical jacks until 1/8" clearance above adjustable bases
- *adjustable bases will be adjusted accordingly to ensure that the house is level; at which point the house will remain on adjustable bases until removal from site

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DATE_ 3 MAY 2007
CHECKED BY_ AEG

FOUNDATION
PLAN

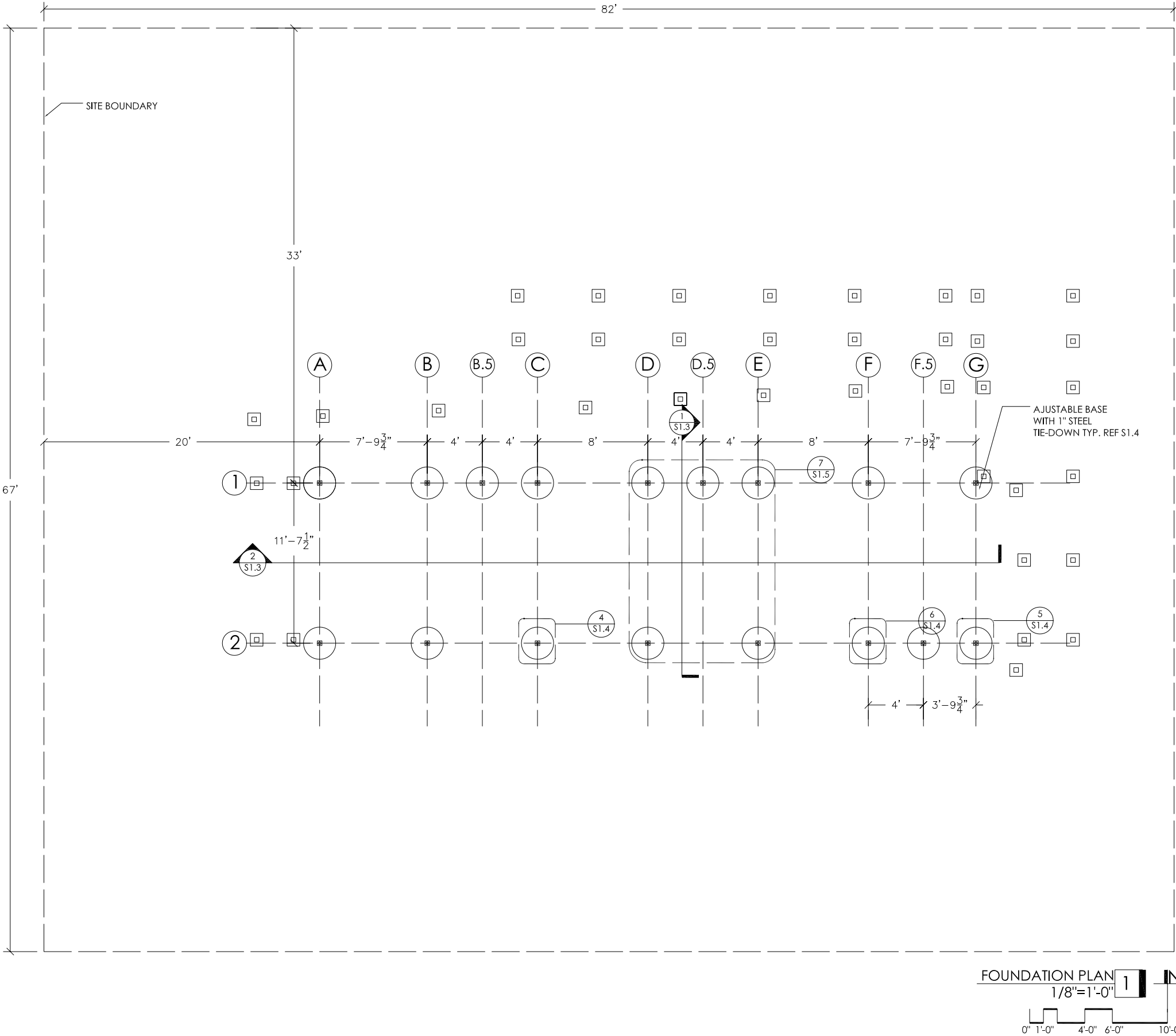
S1.1

LEGEND

- 11" x 11" concrete footing with 4x4 pressure-treated southern pine grade a for exterior site-built construction (see C5.2 for details)
- 28" diameter adjustable base with 1" tie-down stake (see S1.4 for details)

DESIGN LOADS

Dead Load: 15psf for floor/ 10 psf for roof
Live Load: 50psf for living areas
Roof Live Load: 20psf
Wind Load: Exposure category C, 60mph
Increased Dead Load: 5000lbs concentrated load in battery bank



FOUNDATION PLAN
1/8"=1'-0"
1

GENERAL NOTES

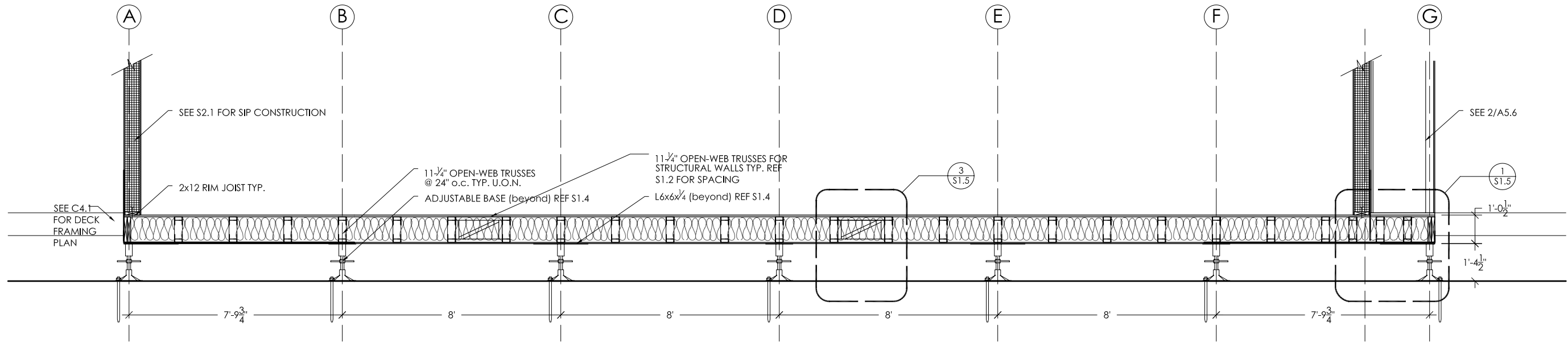
- *house will be brought to site completed on the bed of a semi-truck, and lowered into position with mechanical jacks (see S1.0)
- *all building elements will be elevated off the ground 18" with adjustable bases to satisfy low-impact regulations
- *take measurements from northwest corner of site



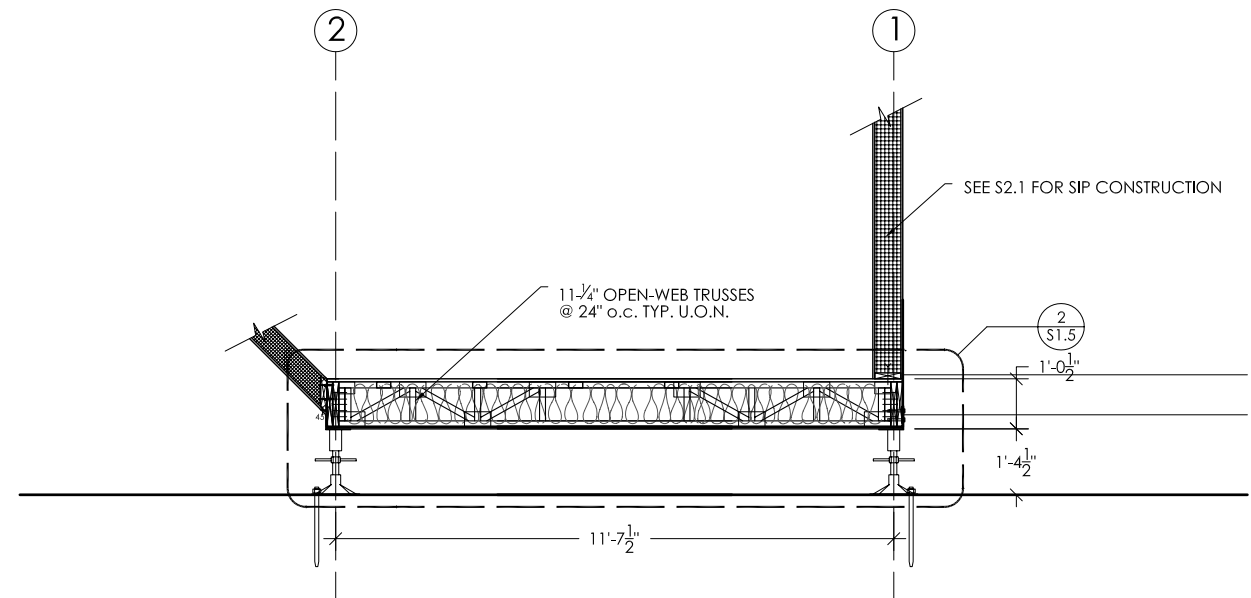
- FLOOR FRAMING PLAN**
- 1/4"=1'-0"
- 0" 1'-0" 2'-0" 3'-0" 4'-0"
- N
-

FLOOR
FRAMING
PLAN

S1.2



LONGITUDINAL SECTION 2
1/4"=1'-0"

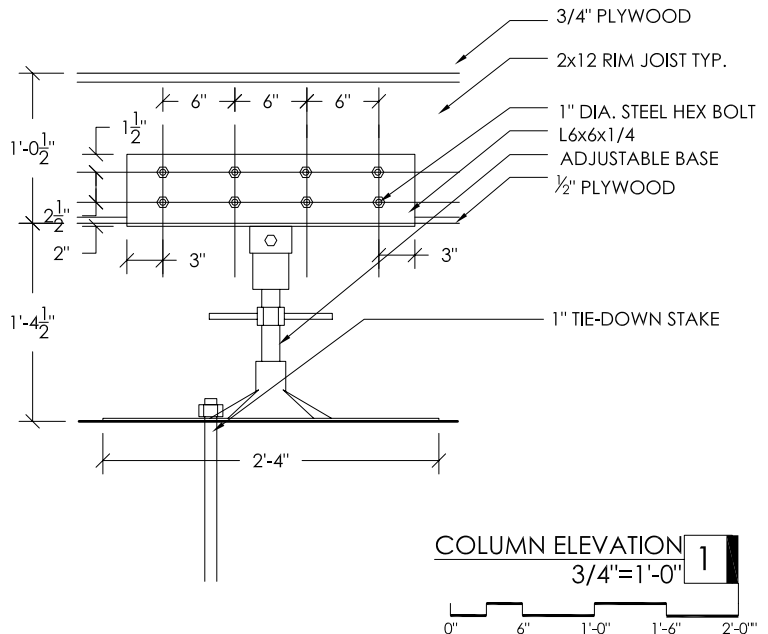
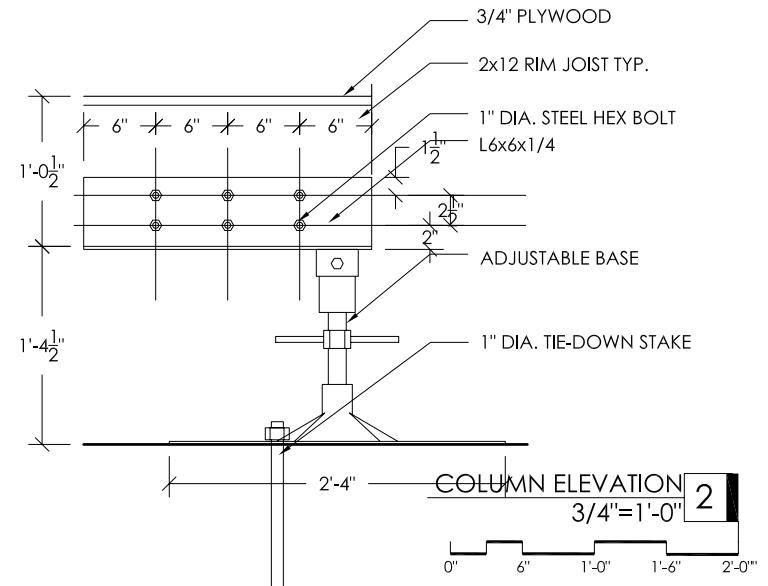
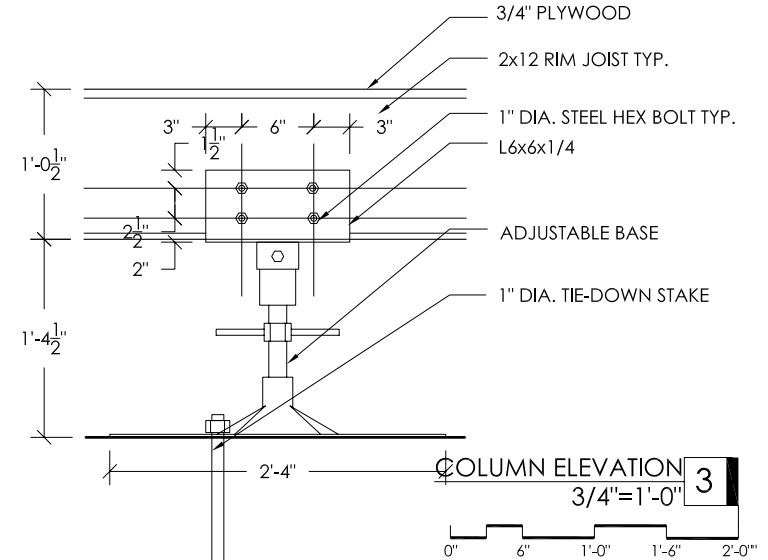
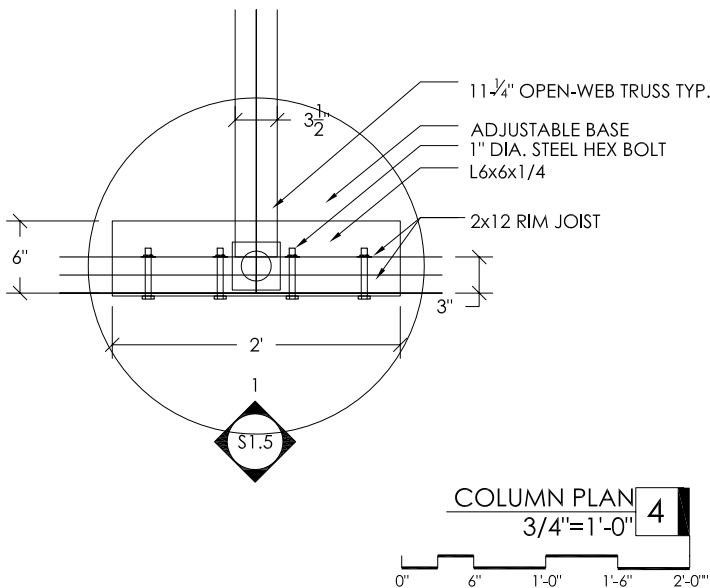
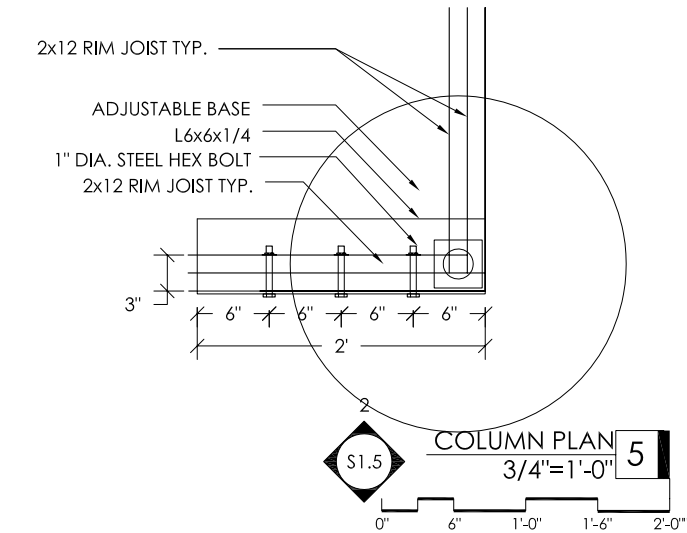
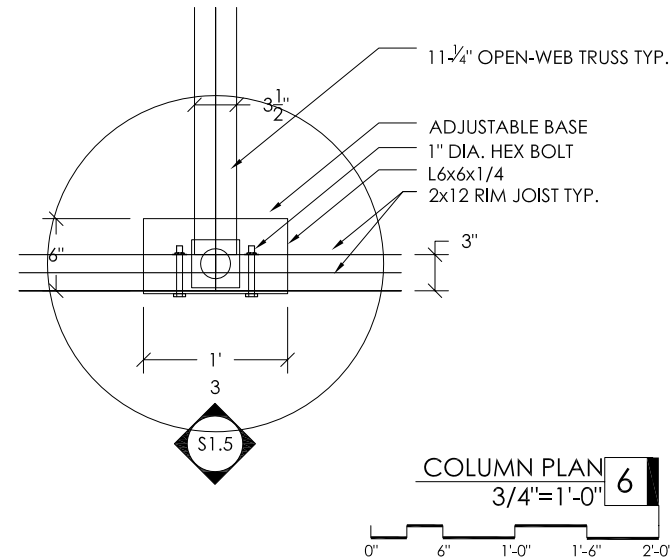
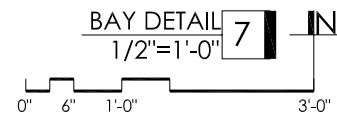
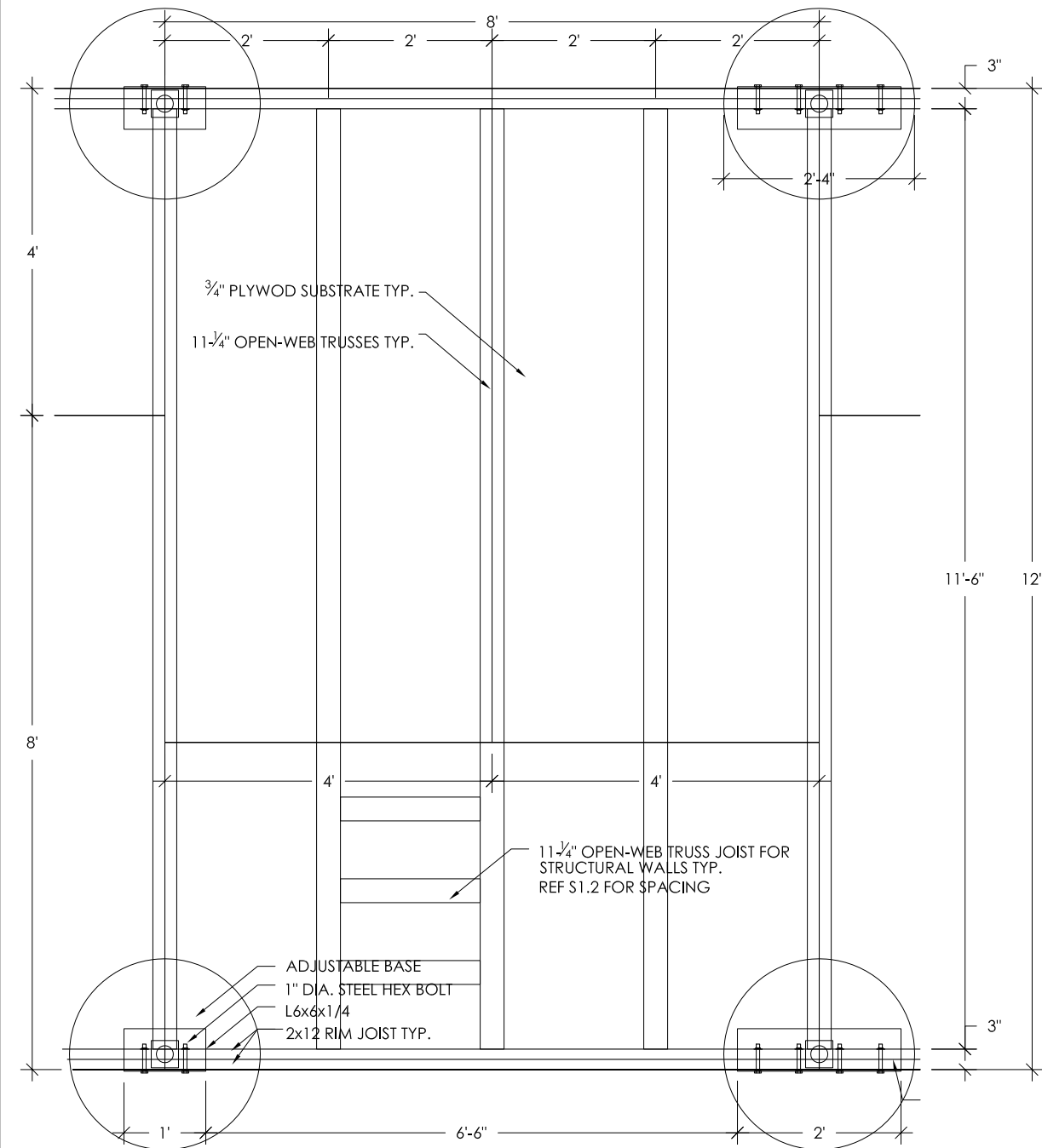


TRANSVERSE SECTION 1
1/4"=1'-0"

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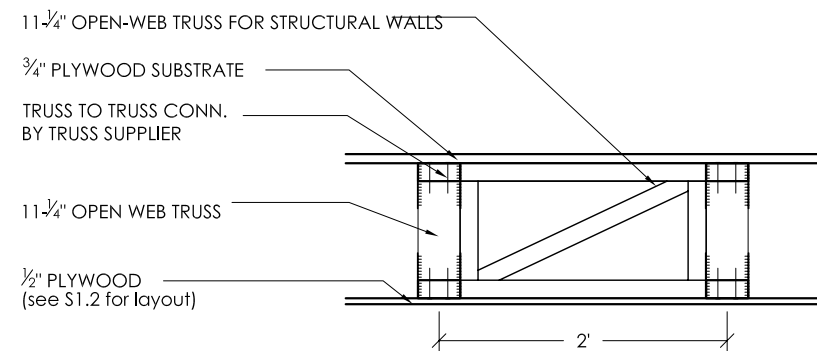
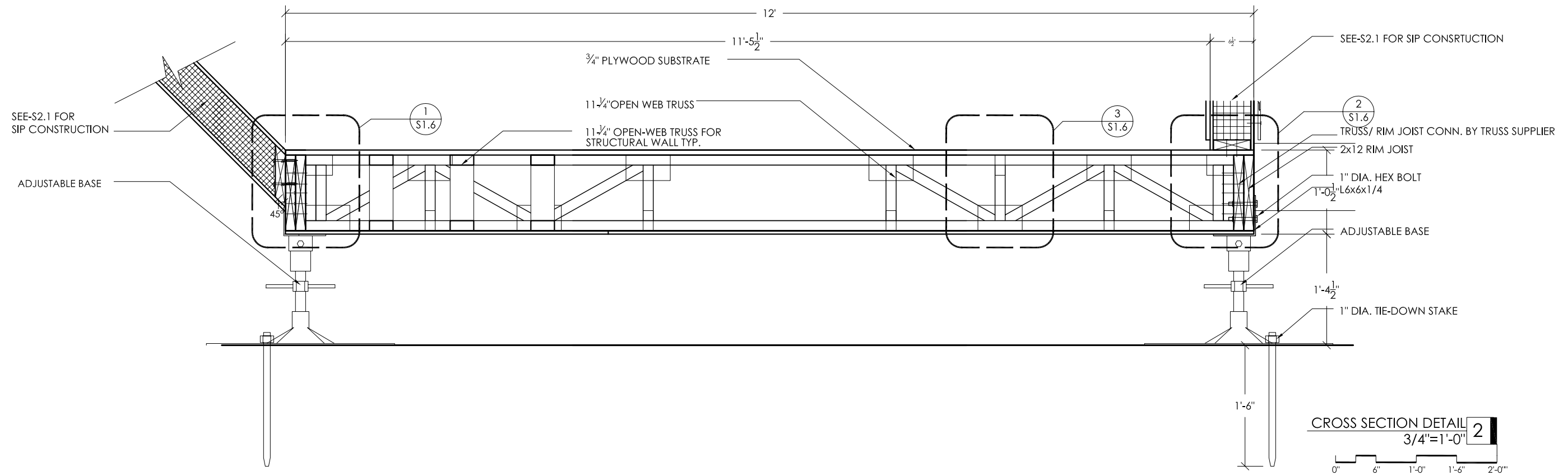
COLUMN
DETAILS

S1.4



GENERAL NOTES

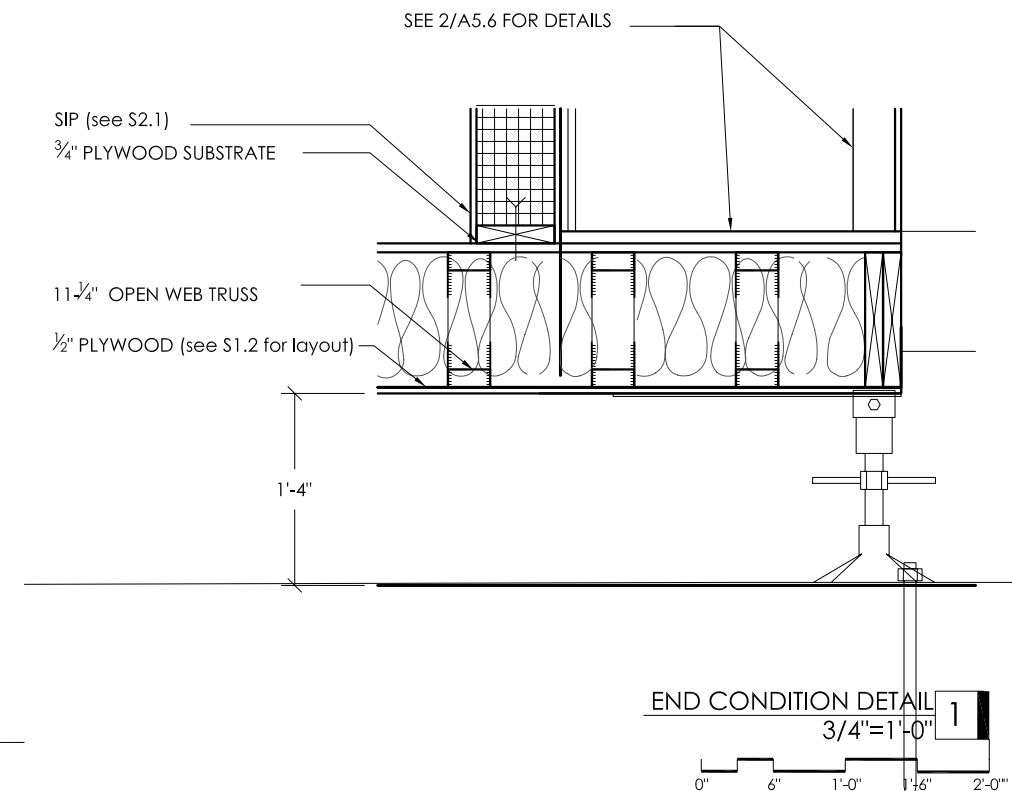
- *1" diameter tie-down stakes will be driven into the ground the maximum 18" to resist overturning
- *adjustable bases will be welded to L6x6x1/4 steel angle by approved certified welders using filler metal conforming to E70XX
- *welds shall develop the full strength of the materials being welded, unless noted otherwise. fillet welds shall be a minimum of 1/4"



OPEN-WEB TRUSS DETAIL 3

3/4"=1'-0"

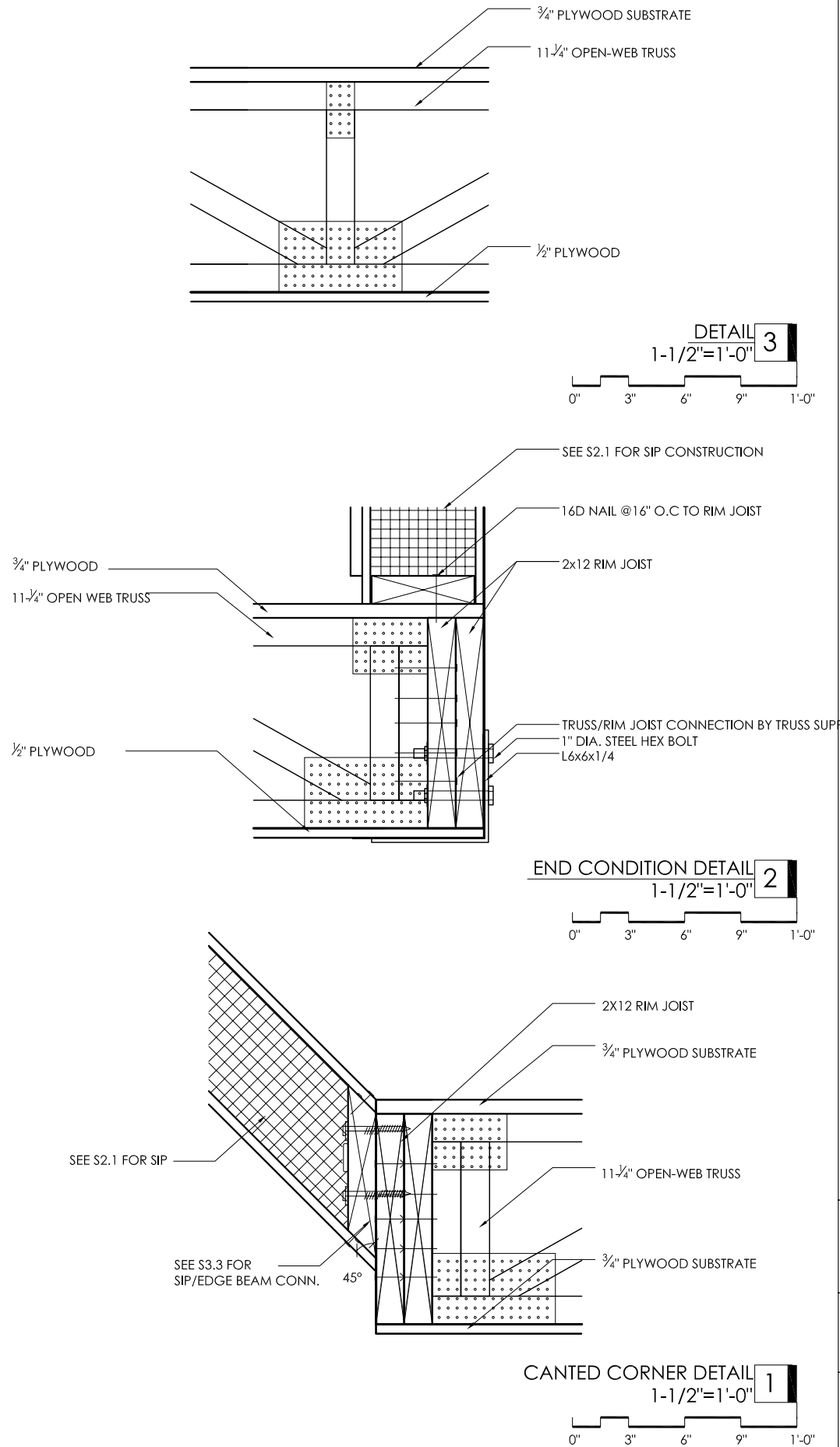
0" 6" 1'-0" 1'-6" 2'-0"

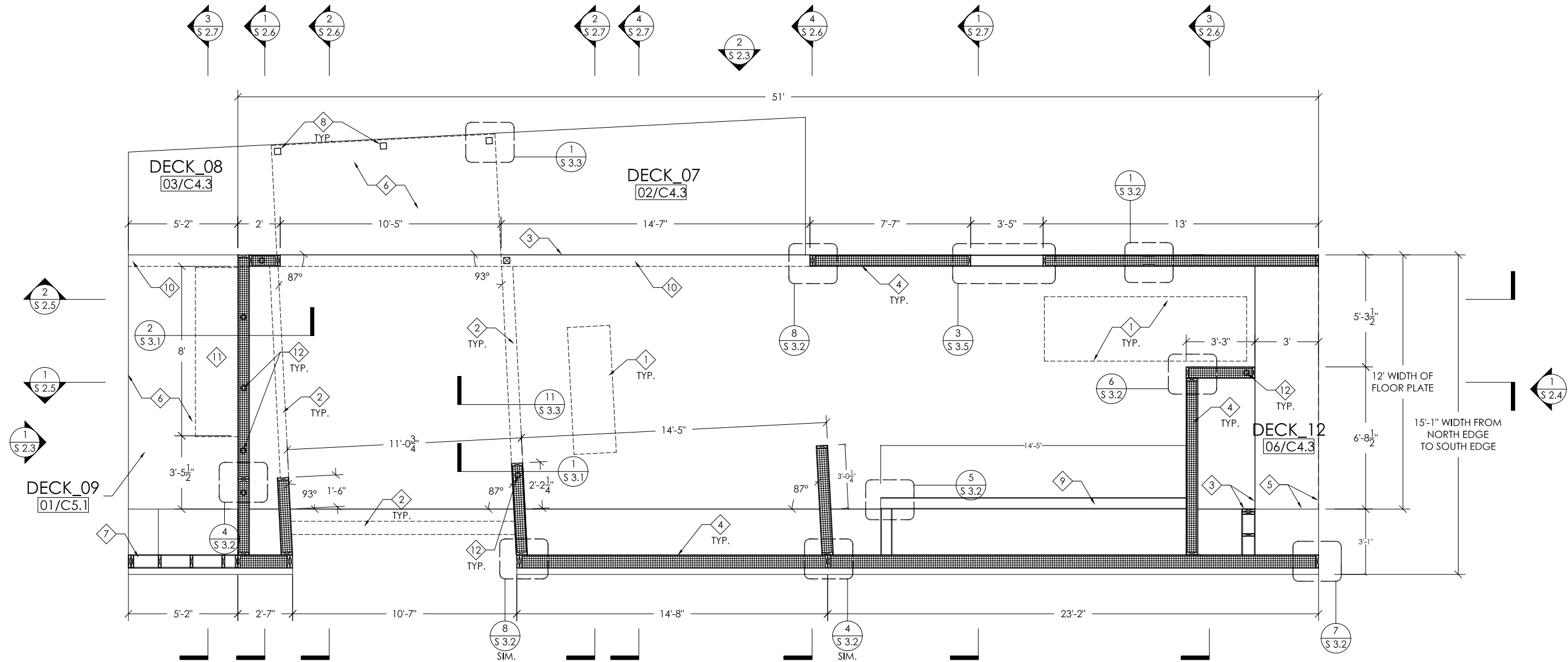


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DATE_ 3 MAY 2007
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FLOOR PLATE
DETAILS

S1.6





GENERAL NOTES

*sip panels are manufactured by Extreme Panel and individually identified by a letter-number combination
*all measurements are taken from outside edge of structural elements
*the deck to the east must be permanently attached prior to attaching wall panels to the floor structure
*all wall panels are 6 1/2" sips REF 3/S3.2
*8" panel screws w/ washers shall be used in securing wall panels to adjacent wall panels u.o.n.
*panel screws shall penetrate top/end plate a minimum of 1" u.o.n.
*predrill 1 3/4" dia. holes in bottom plates to align w/ electrical chases prior to securing bottom plate to floor plate
*detailed dimensions and information for individual SIP panels can be found on sheets S 4.2 - S 4.3

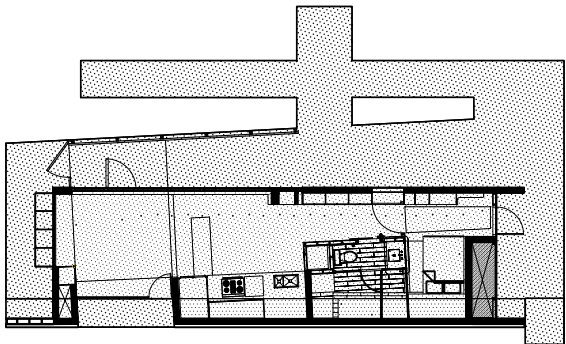
KEYED NOTES

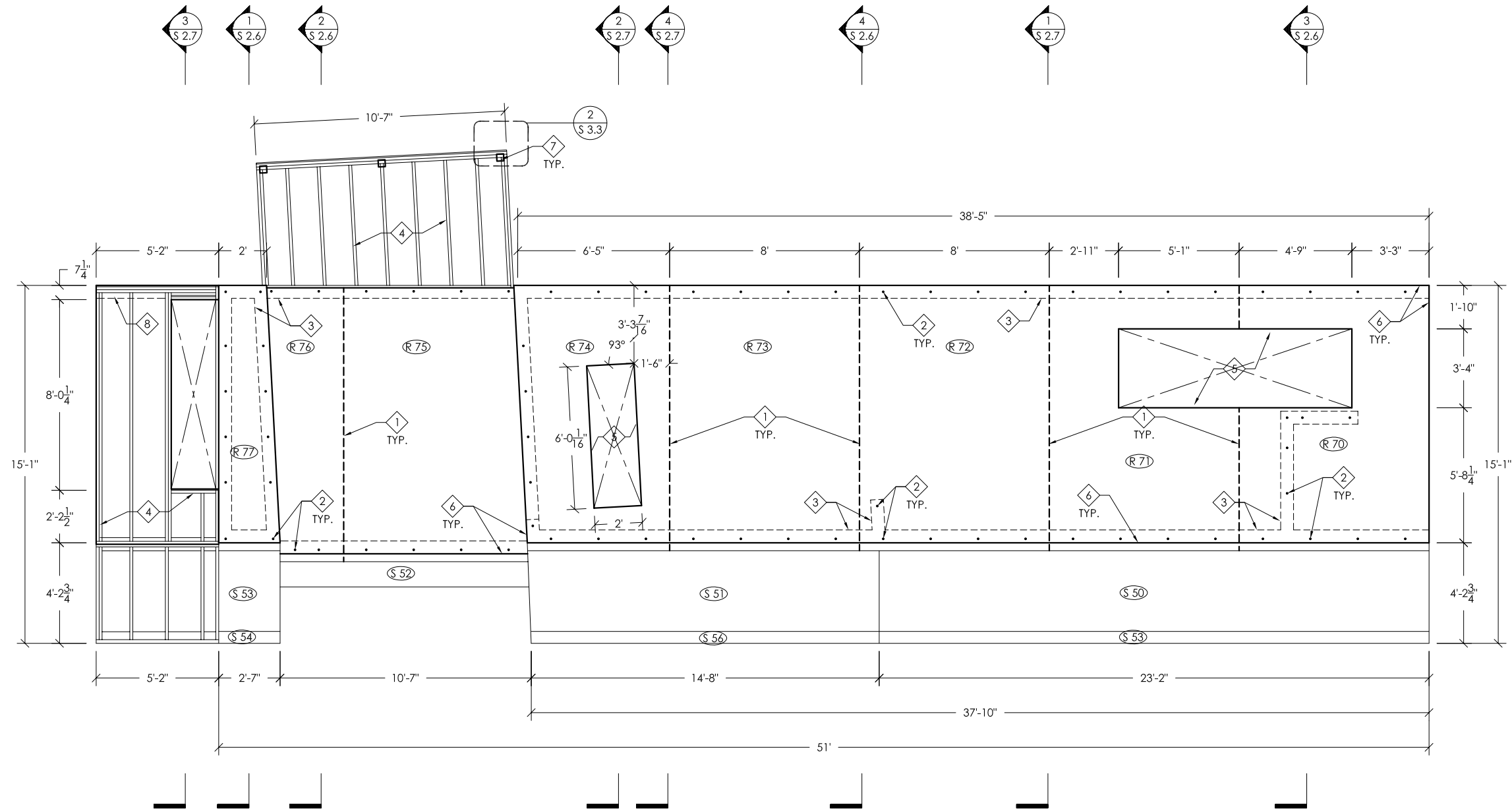
- 1 Rough Opening for Skylight Above
- 2 6 1/2" SIP Above REF 3/S3.2
- 3 Edge of Floor Plate
- 4 6 1/2" SIP REF 3/S3.2
- 5 Edge of Permanent Deck
- 6 Framed Roof Structure Above
- 7 Framed Wall Structure
- 8 4 x 4 Wood Column
- 9 6 1/2" SIP Knee-wall REF 3/S3.2
- 10 Glulam Beam Above
- 11 Framed Opening Above
- 12 Vert. Elec. Chase

LOADING CONDITIONS

Battery Bank DL + LL 40psf + 5000lb concentrated load	
Exterior Means of Egress DL + LL 10psf + 100psf	
Floor Plate DL + LL 15psf + 50psf	

STRUCTURAL PLAN
3/16"=1'-0"
0' 1'-0" 3'-0" 5'-0" 7'-0"





GENERAL NOTES

- *sip panels are manufactured by Extreme Panel and individually identified by a letter-number combination
- *the roof slopes from the north @ 1:12 pitch
- *all measurements are taken from edge of structural elements
- *all roof panels are 8' x 8' sips REF 2/S3.2
- *10" panel screws w/ washers shall be used in securing roof panels to structure below
- *panel screws shall penetrate underlying top plate a minimum of 1"
- *detailed dimensions and information for individual roof panels can be found on sheet S 4.2
- *detailed dimensions and information for 2x8 framed roof structures can be found on sheet S 4.1
- *roof panels shall receive end plates on exposed edges, see sections and details for types and nailing information
- *roof panels are joined by means of spline connections, see sections and details for nailing information
- *2X framed structures are shown w/o OSB sheathing in-order to clarify distinction between SIPs and framing construction
- *while standing SIPs, brace all panels until they are tied together with the top plates

KEYED NOTES

- 1 Spline Connection
 - 2 10" Panel Screw w/ Washer
 - 3 Edge of Underlying SIPs
 - 4 2 x 8 Framed Roof Structure REF. S4.1
 - 5 Rough Opening for Skylight
 - 6 SIP End Plate
 - 7 4 x 4 Column Below V.I.F.
 - 8 Glulam & Structure Below
- REF 2/S3.5 AND 4/S3.5

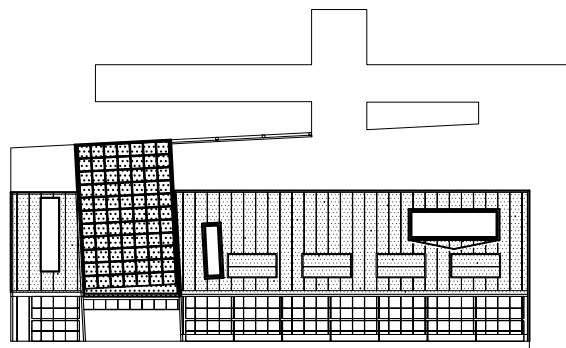
LEGEND

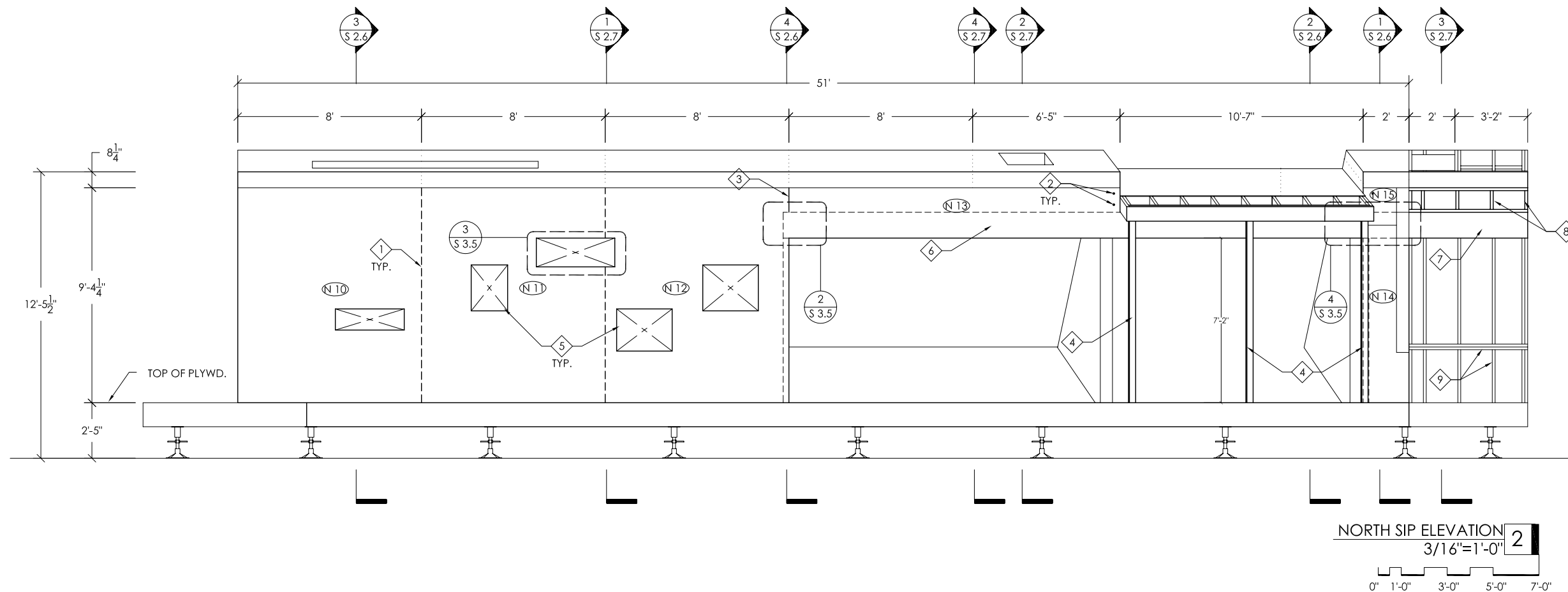
Spline Connection	---
Structure Below	---
Top Edge of Panel	---
Bottom Edge of Panel	---
Panel Tag	○

LOADING CONDITIONS

Green Roof see structural calculations	■
Roof DL + LL 10psf + 20psf live load	■

STRUCTURAL ROOF PLAN
3/16"=1'-0"





LEGEND

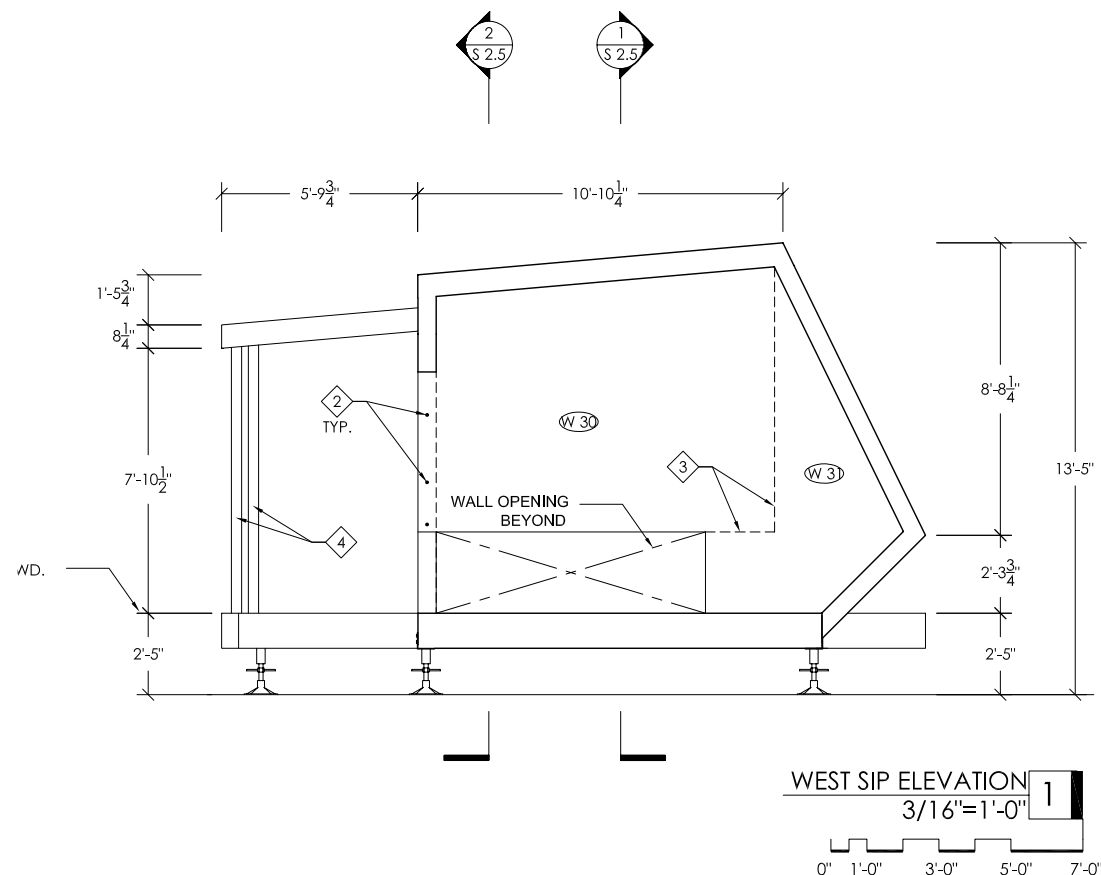
Spline Connection	---
Structural Elements within SIPs	---
Joint Between Roof & Wall SIPs	---
Edge of Panel	---
Panel Tag	○

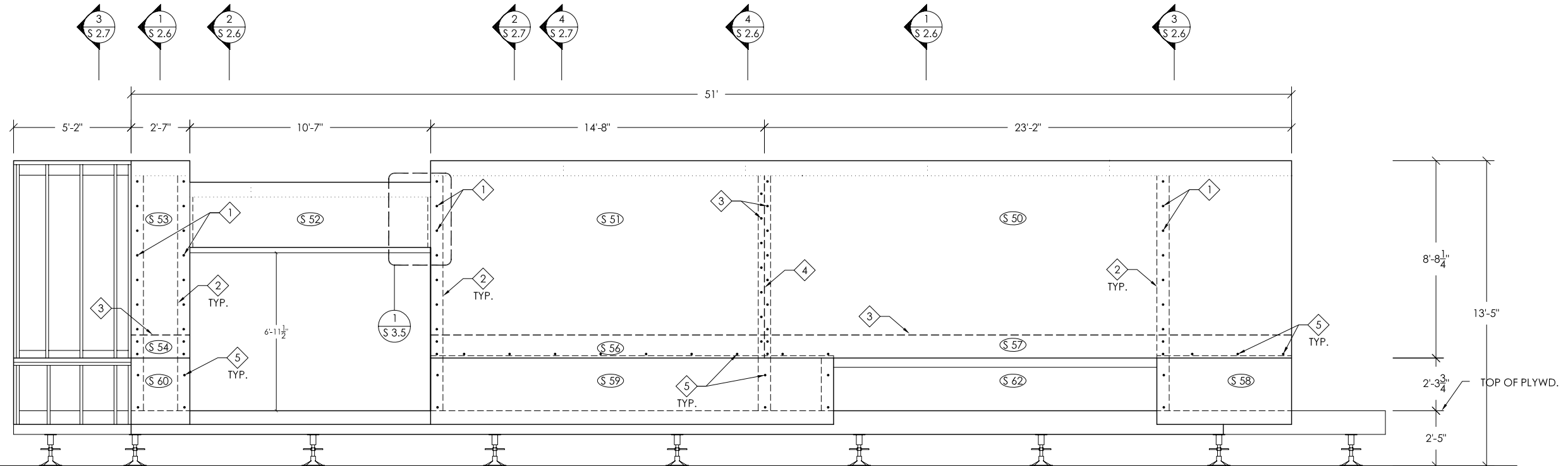
GENERAL NOTES

*sip panels are manufactured by Extreme Panel and individually identified by a letter-number combination
*all measurements are taken from edge of structural elements
*the deck to the east must be permanently attached prior to attaching wall panels to the floor structure
*all wall panels are 6 1/2" sips
*8" panel screws w/ washers shall be used in securing wall panels to adjacent wall panels
*panel screws shall penetrate top/end plate a minimum of 1"
*2X framed structures are shown w/o OSB sheathing in-order to clarify distinction between SIPs and framing construction
*detailed dimensions and information for individual panels and 2X framing can be found on sheets S 4.1 - S 4.3

KEYED NOTES

- 1 Spline Connection
- 2 8" Panel Screw w/ Washer @ 24" O.C.
- 3 Double 2x Connection
- 4 4x4 Column
- 5 Rough Opening for Window
- 6 Glulam Beam within SIP
- 7 Glulam Beam w/ OSB Facings
- 8 2x6 Framing Above Glulam Beam
- 9 2x6 Framing Beyond





SOUTH SIP ELEVATION
3/16"=1'-0" 2

LEGEND

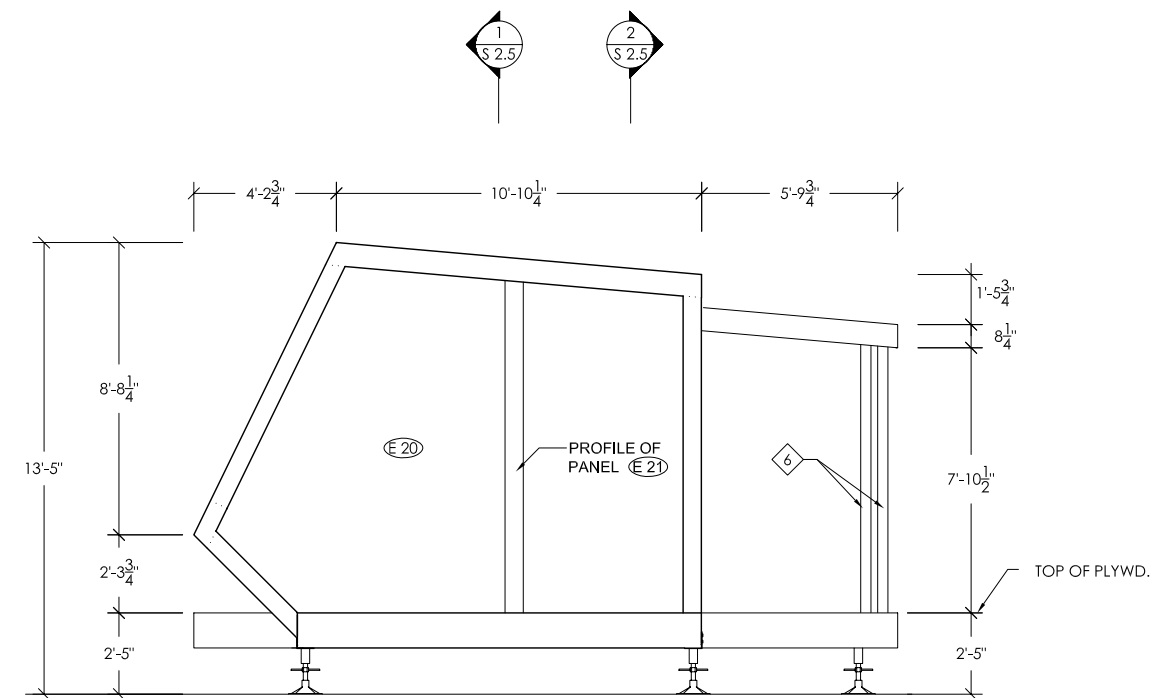
Double 2x Connection	---
Structural Elements Beyond	---
Joint Between Roof & Wall SIPs
Edge of Panel	---
Panel Tag	○

GENERAL NOTES

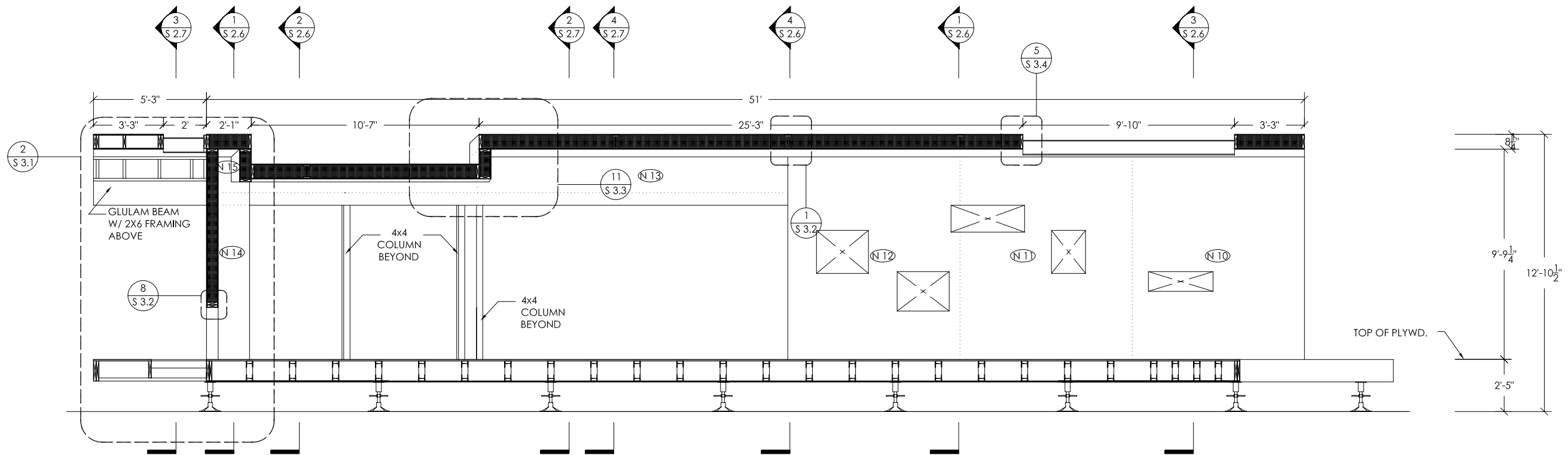
*sip panels are manufactured by Extreme Panel and individually identified by a letter-number combination
*all measurements are taken from edge of structural elements
*the deck to the east must be permanently attached prior to attaching wall panels to the floor structure
*all wall panels are 6 1/2" sips
*8" panel screws w/ washers shall be used in securing wall panels to adjacent wall panels
*panel screws shall penetrate top/end plate a minimum of 1"
*2X framed structures are shown w/o OSB sheathing in-order to clarify distinction between SIPs and framing construction
*detailed dimensions and information for individual panels and 2X framing can be found on sheets S 4.1 - S 4.3

KEYED NOTES

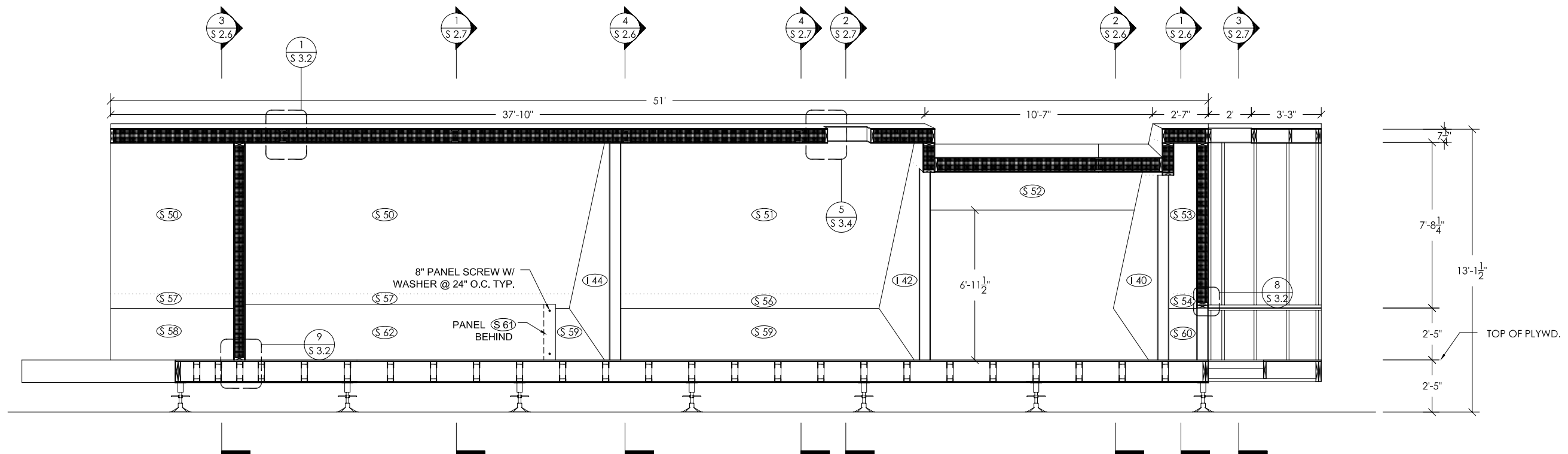
- 1 8" Panel Screw w/ Washer @ 14" O.C.
- 2 Edge of Underlying SIPs
- 3 8" Panel Screw w/ Washer @ 14" O.C. stagger along joint
- 4 Double 2x Connection
- 5 8" Panel Screw w/ Washer @ 24" O.C.
- 6 4x4 Column Beyond



EAST SIP ELEVATION
3/16"=1'-0" 1



SECTION LOOKING NORTH
3/16"=1'-0" **2**

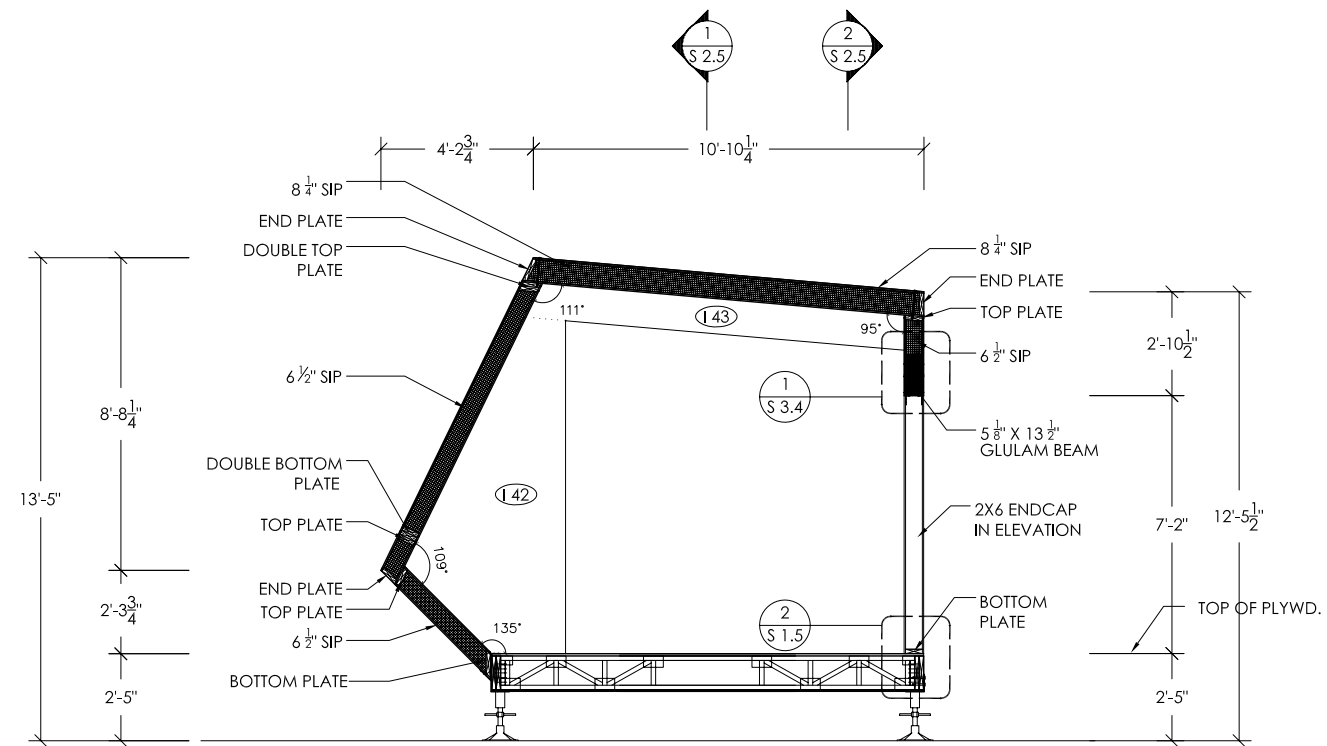


SECTION LOOKING SOUTH
3/16"=1'-0" **1**

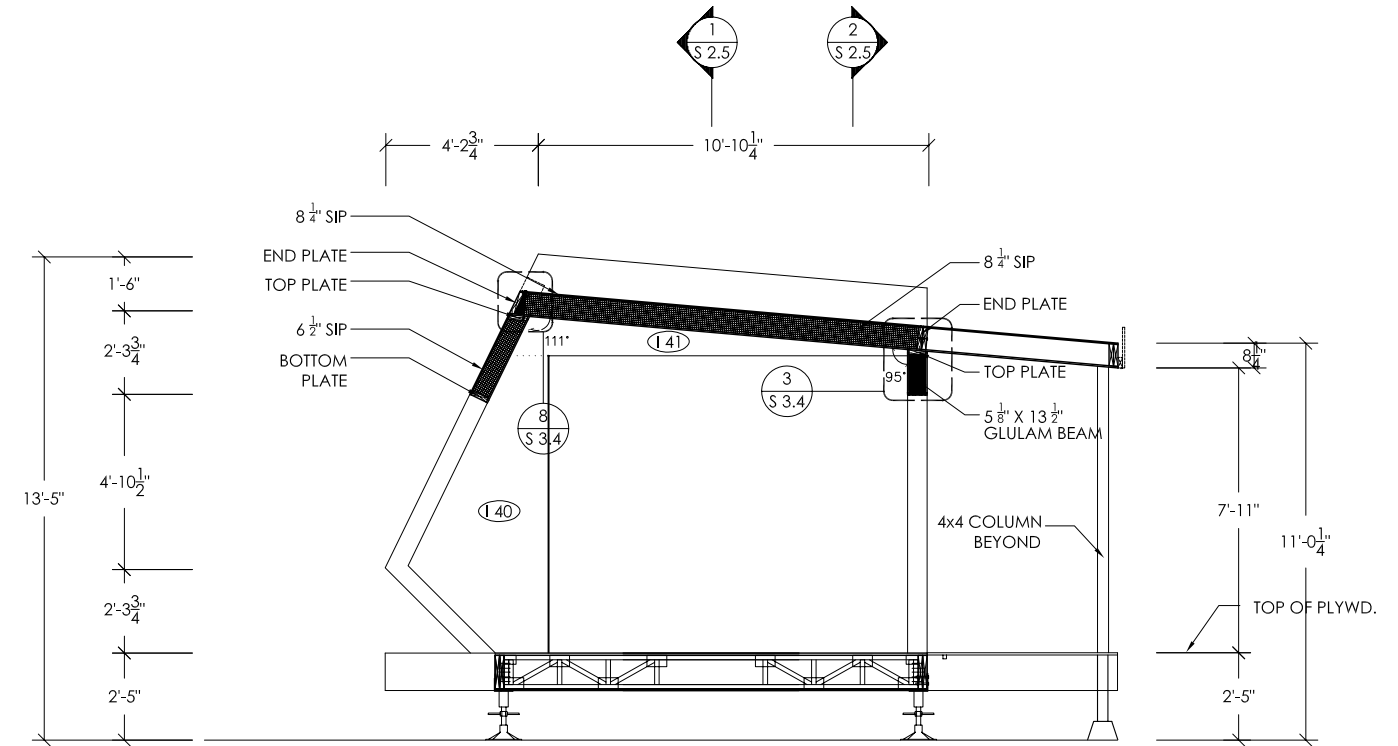
DRAWN BY_ PSH
DATE_ 3 MAY 2007
CHECKED BY_ AEG

STRUCTURAL
CROSS
SECTIONS

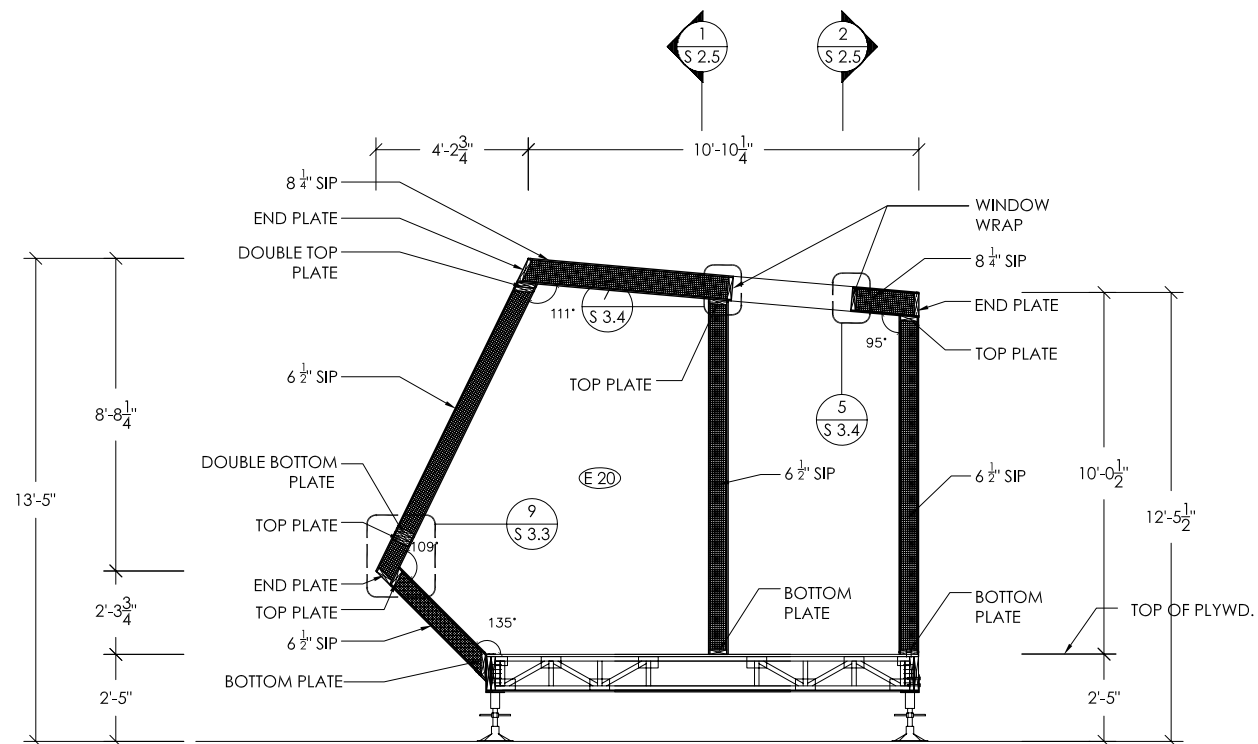
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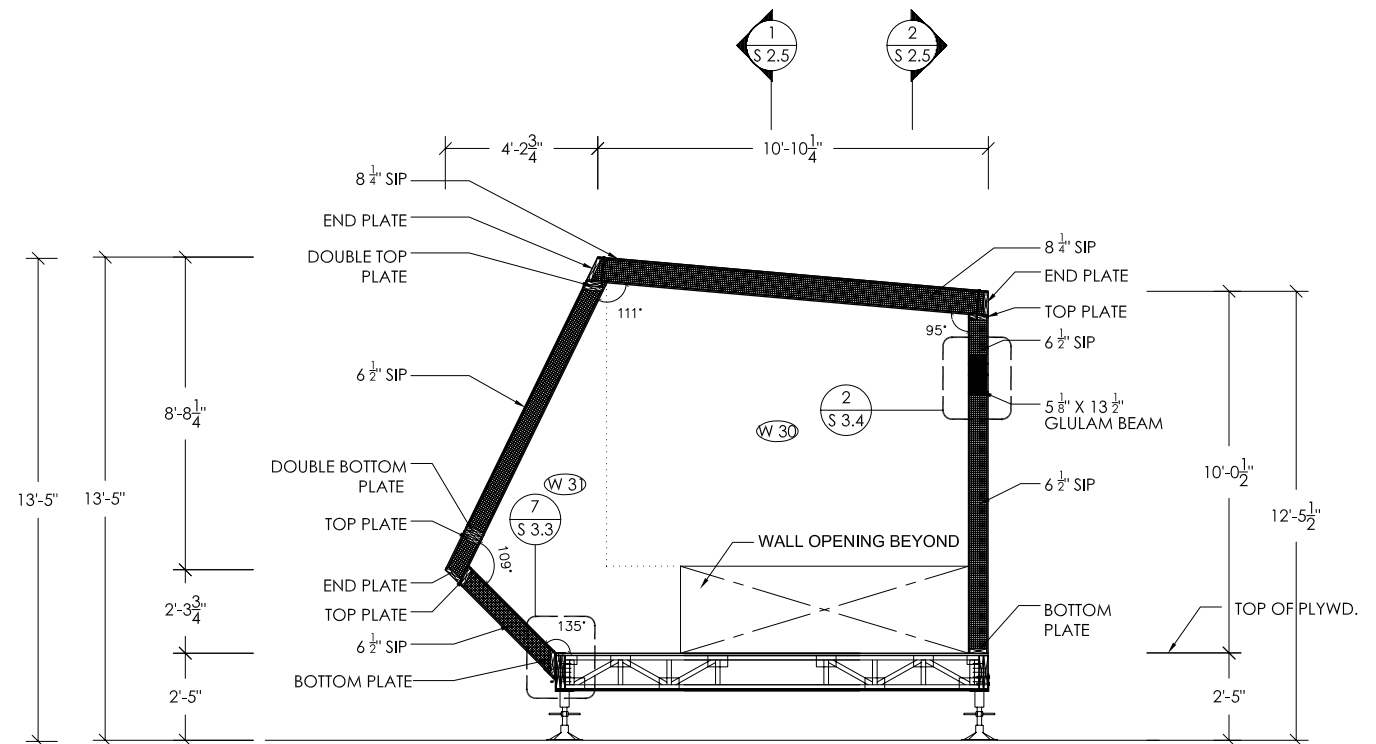
CROSS SECTION 4
3/16"=1'-0"



CROSS SECTION 2
3/16"=1'-0"



CROSS SECTION 3
3/16"=1'-0"

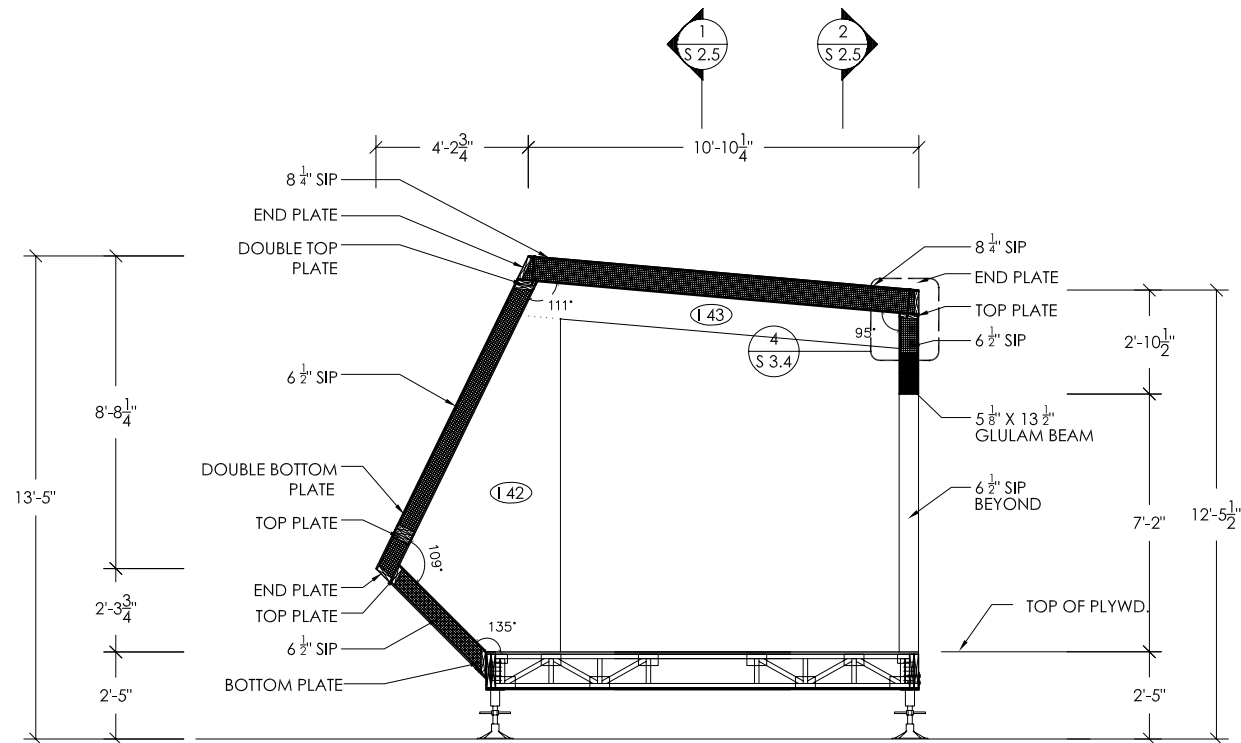


CROSS SECTION 1
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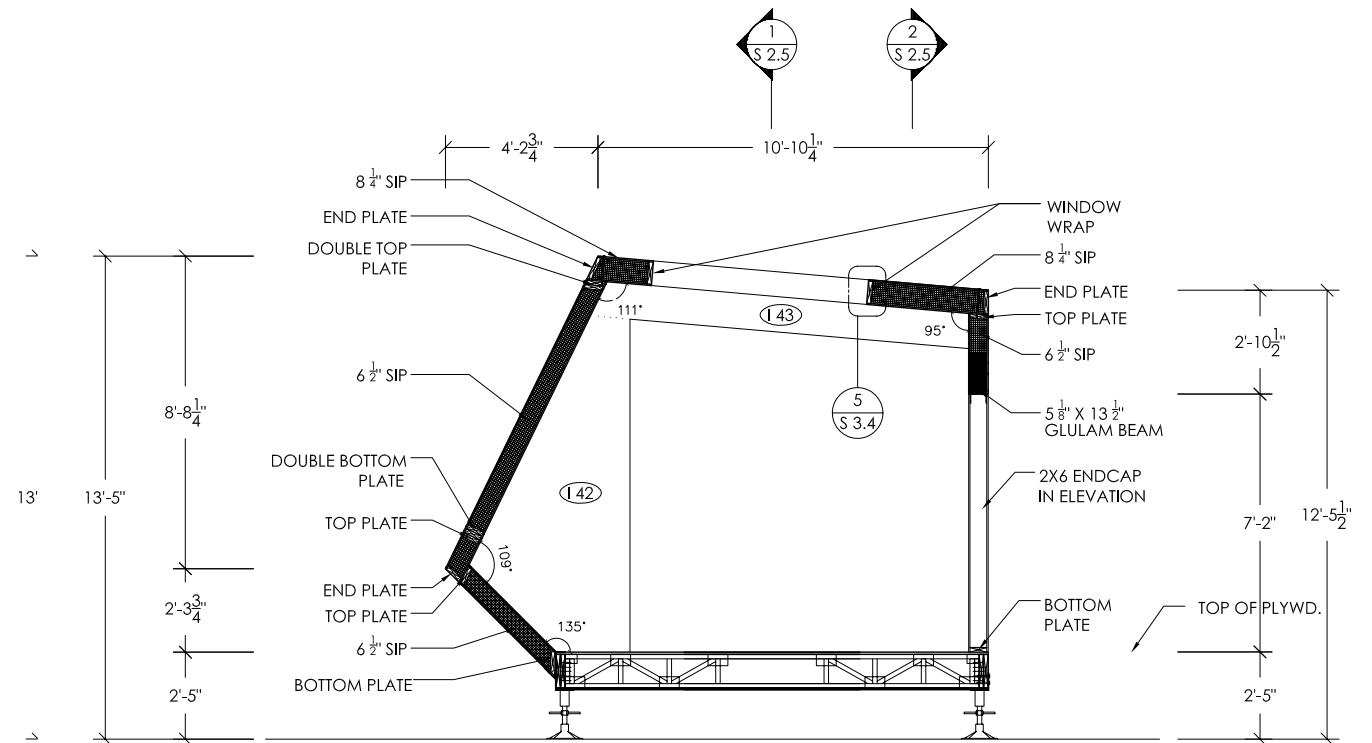
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DATE_ 3 MAY 2007
CHECKED BY_ AEG

STRUCTURAL
CROSS
SECTIONS

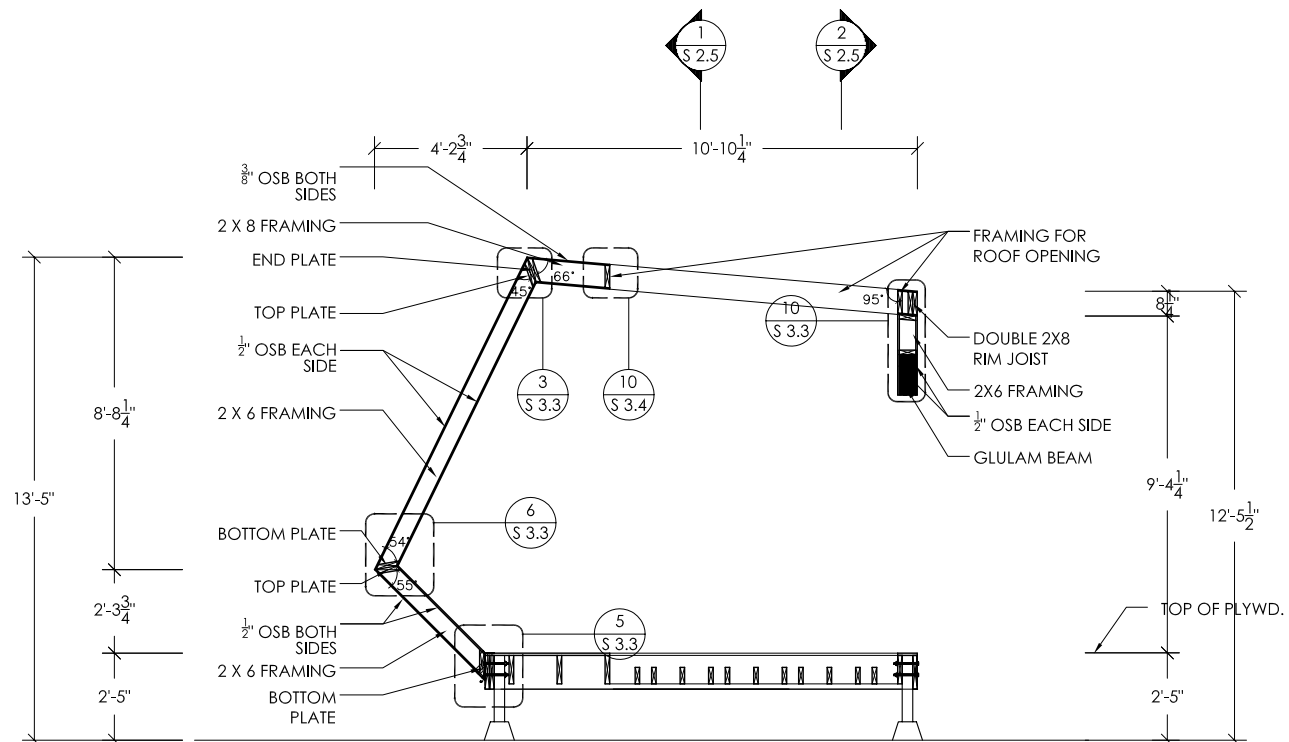
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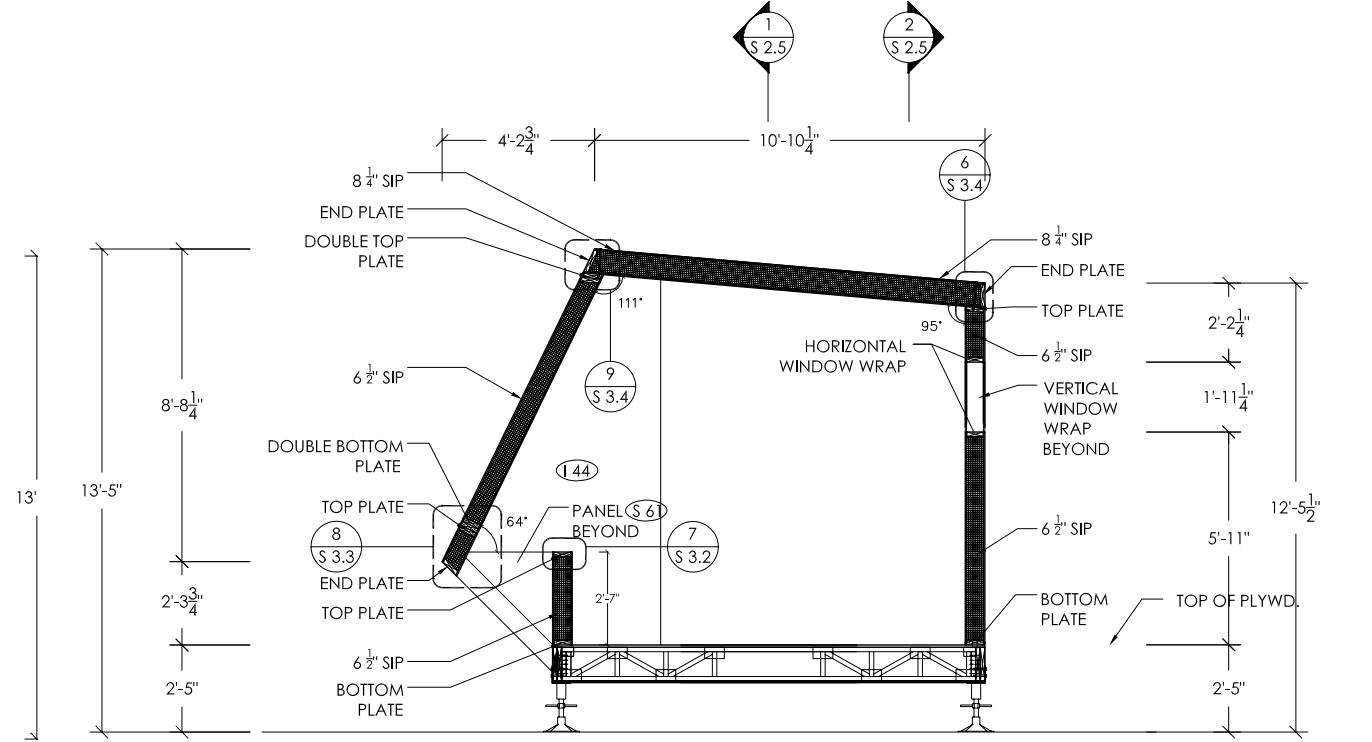
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3/16"=1'-0"



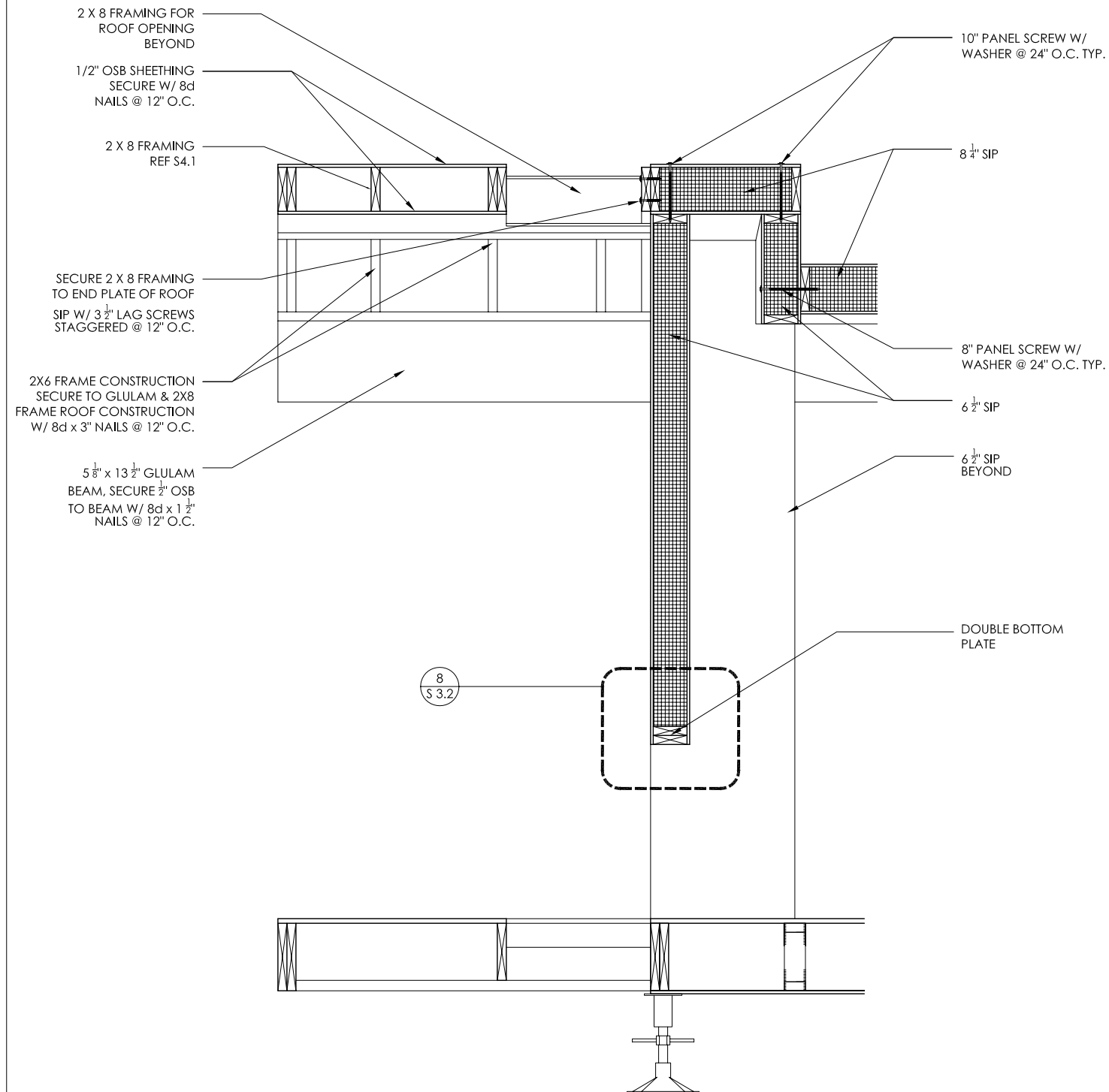
CROSS SECTION 2
3/16"=1'-0"



CROSS SECTION 3
3/16"=1'-0"

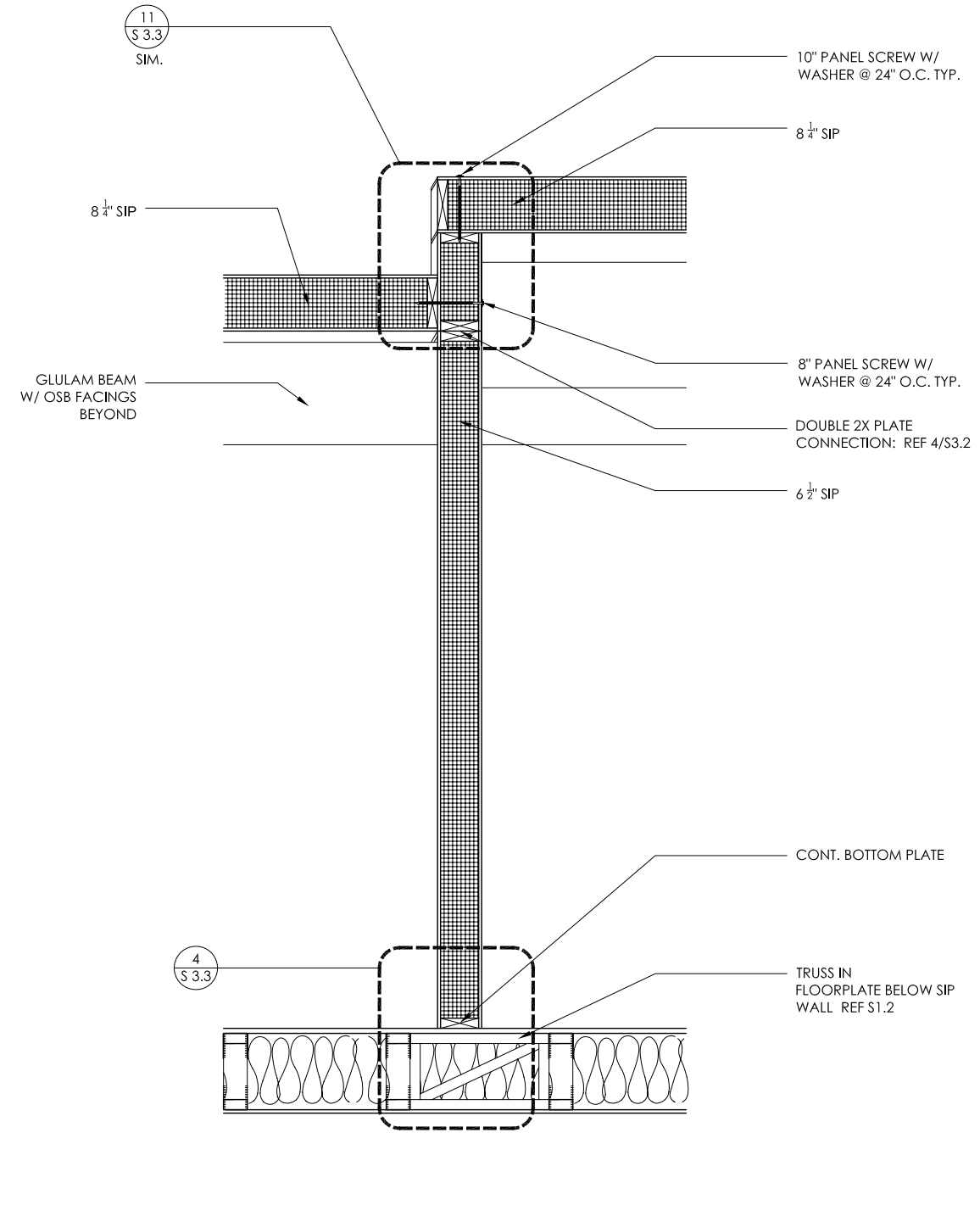


CROSS SECTION 1
3/16"=1'-0"



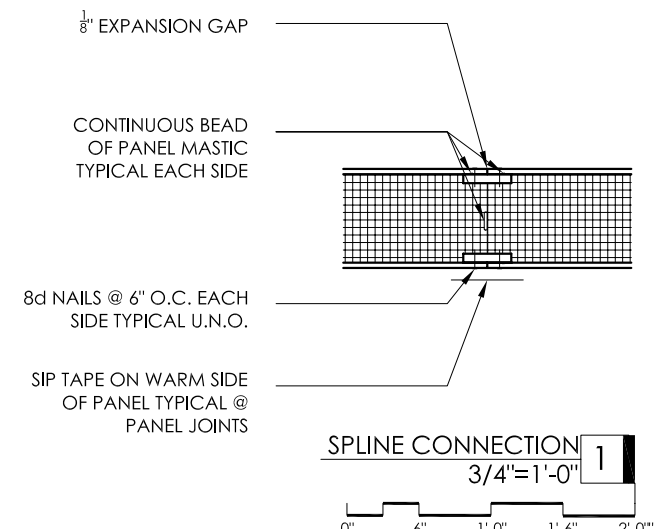
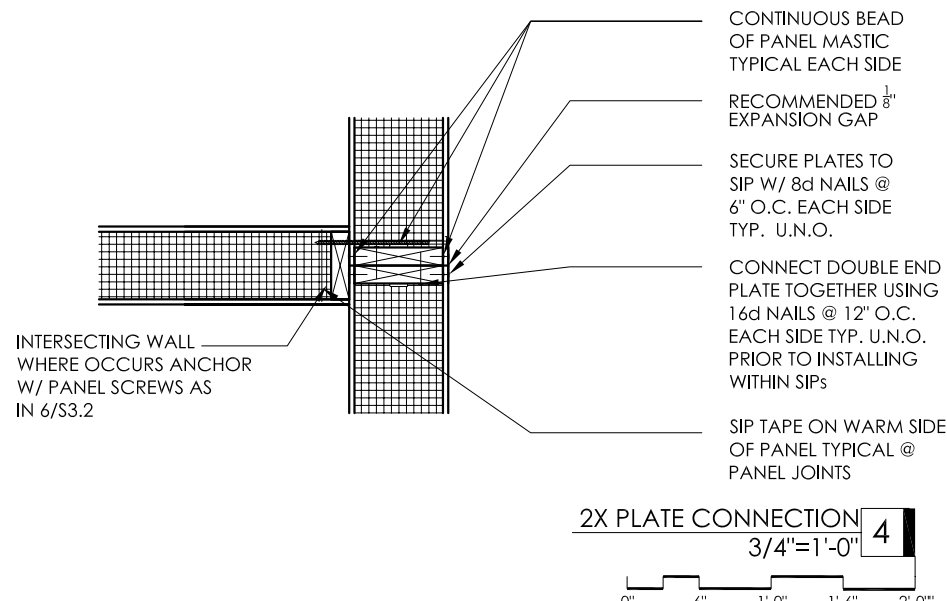
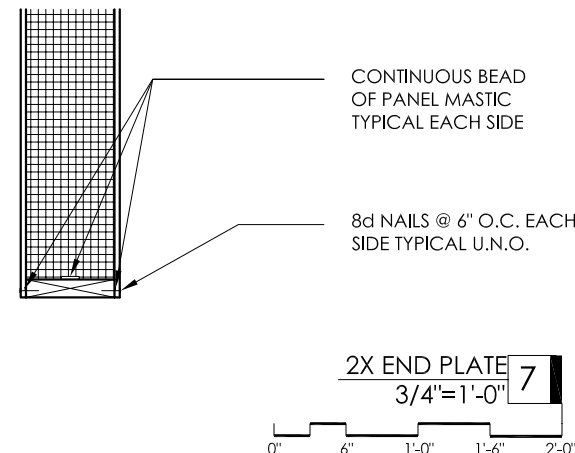
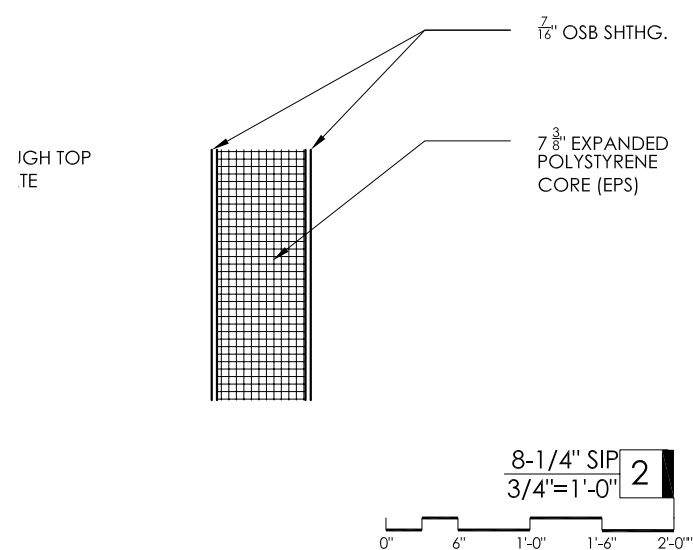
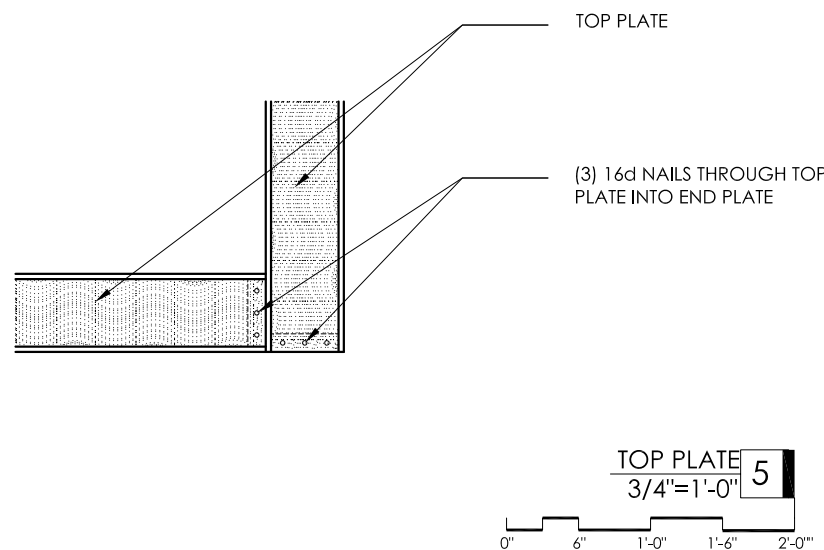
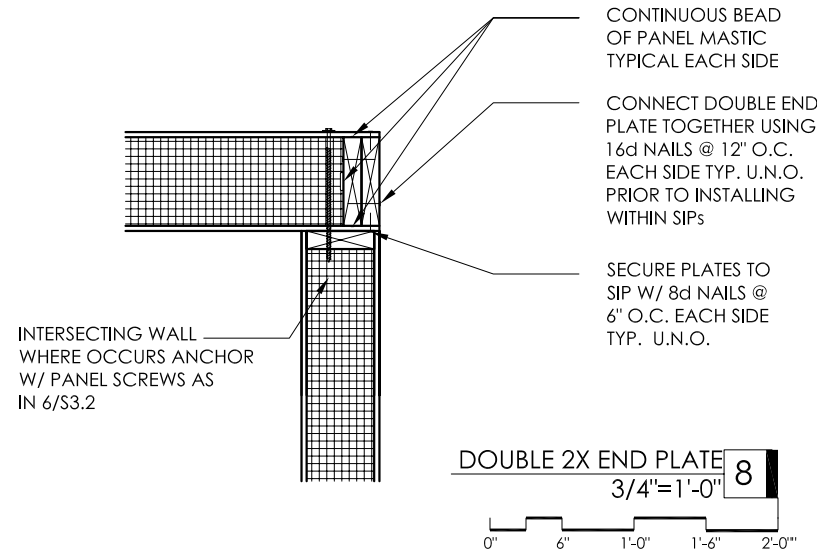
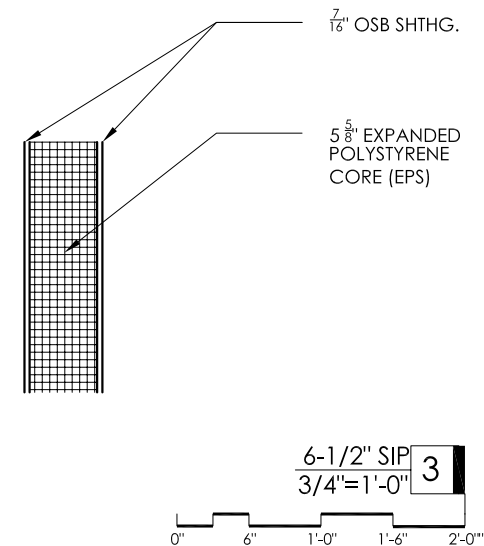
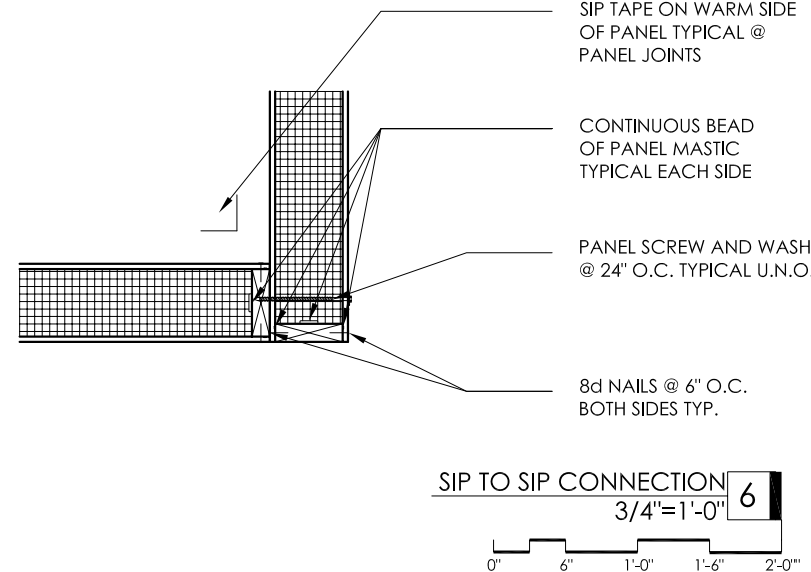
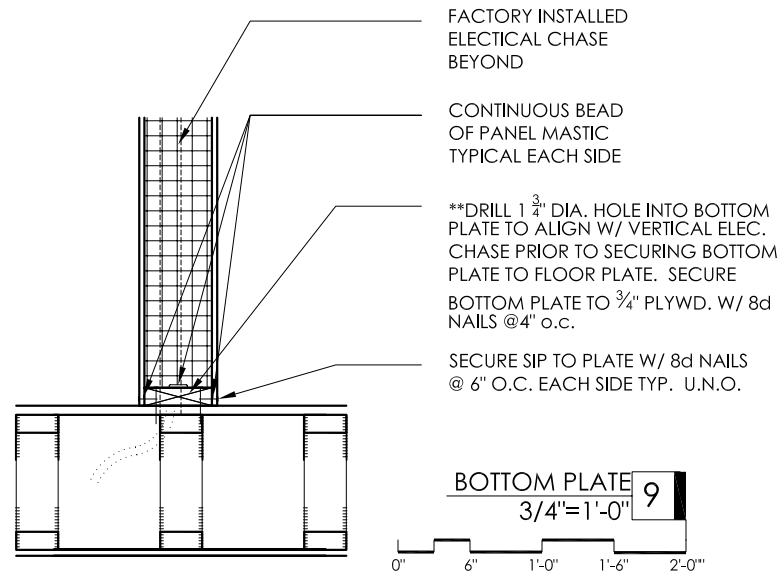
SECTION THROUGH WEST WALL
1/2"=1'-0" 2

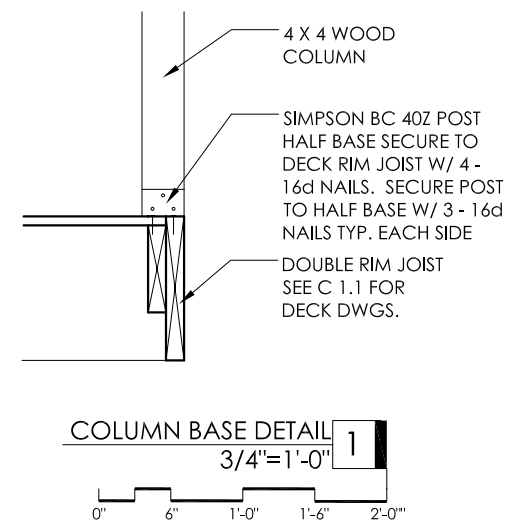
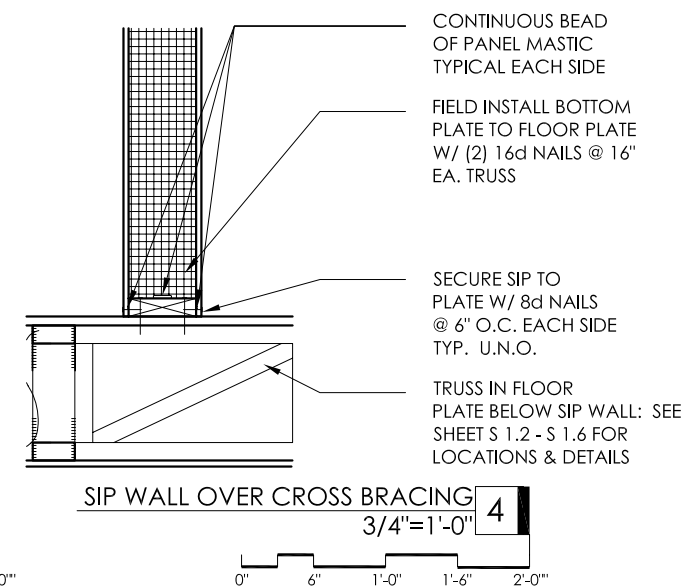
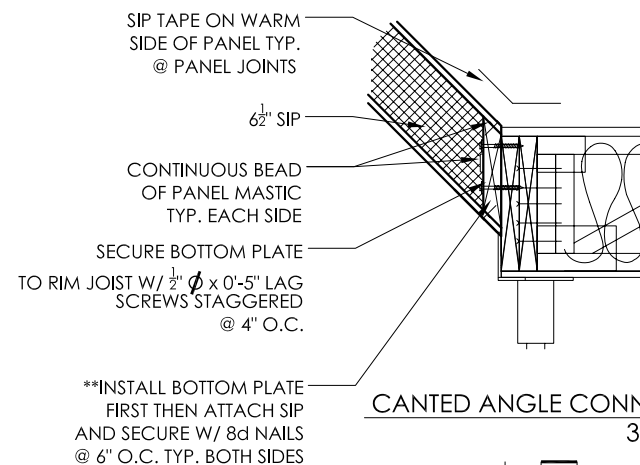
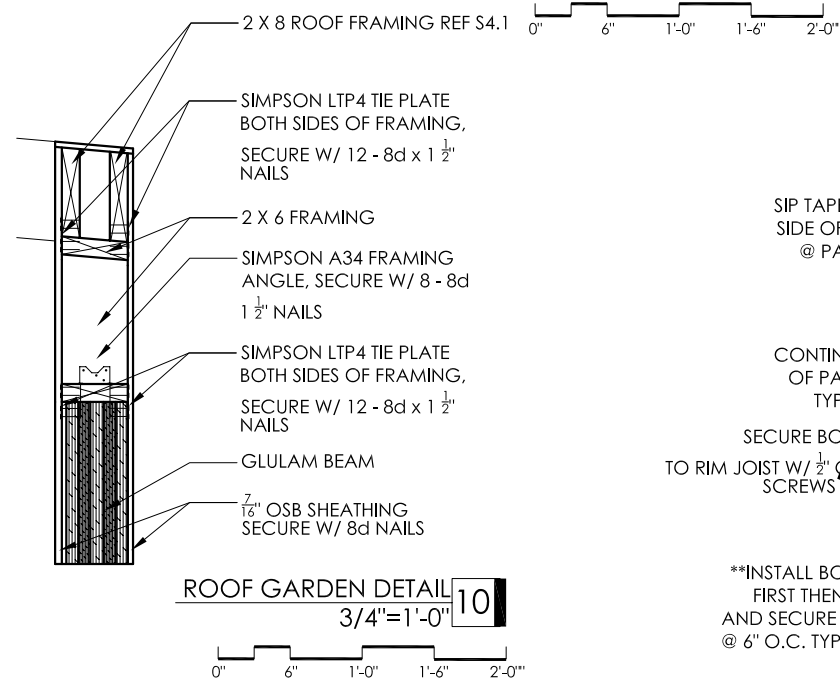
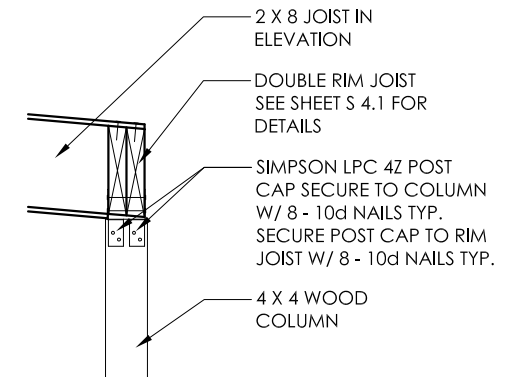
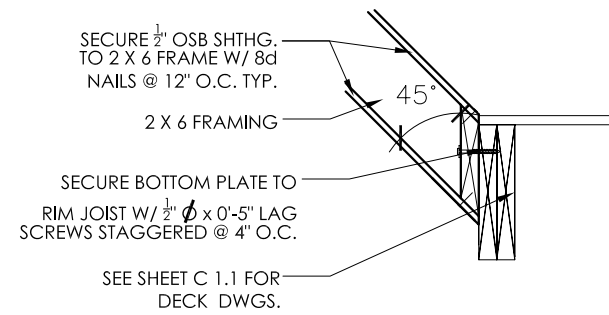
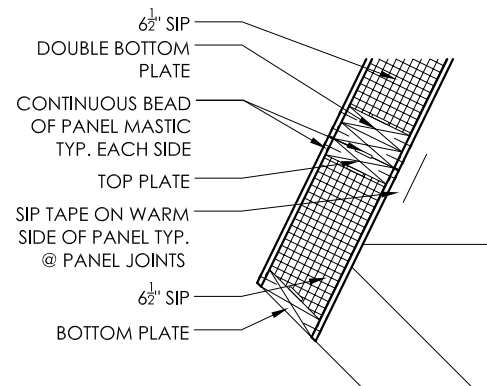
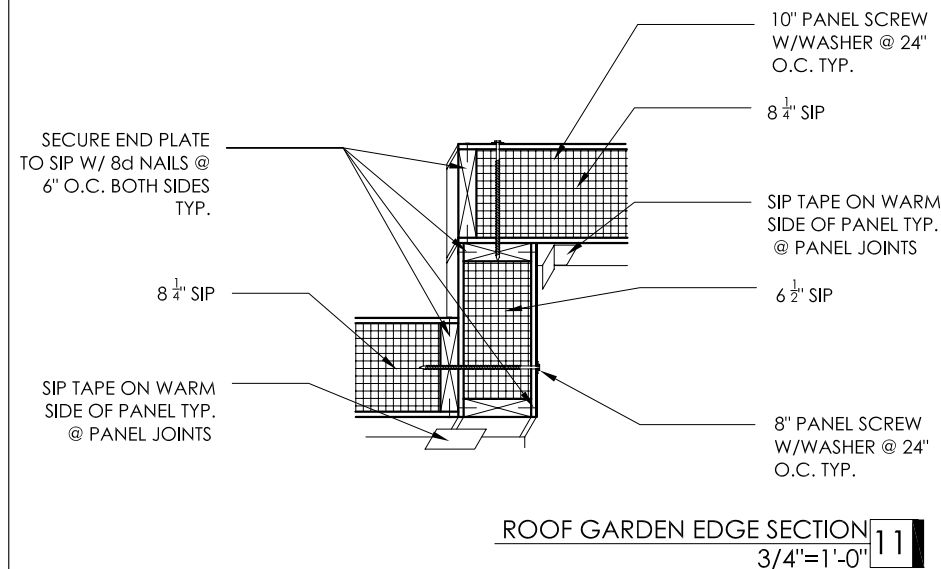
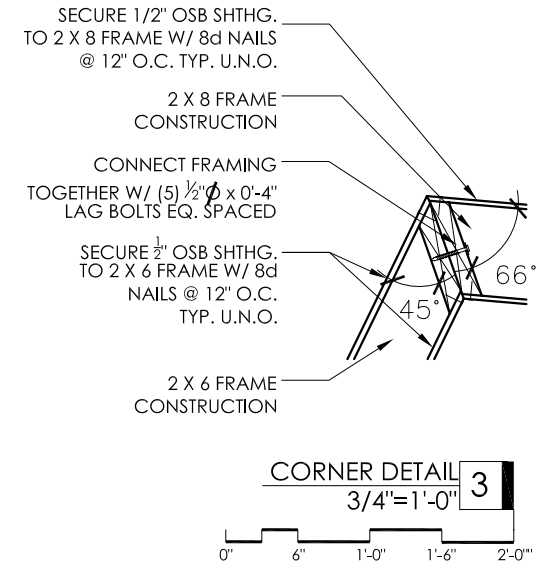
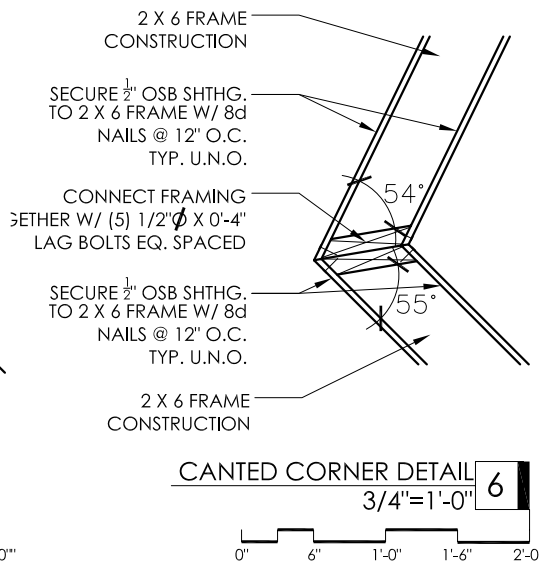
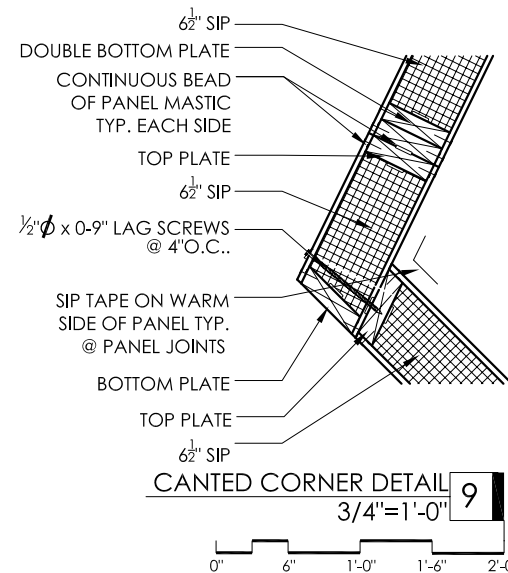
0" 6" 1'-0" 3'-0"

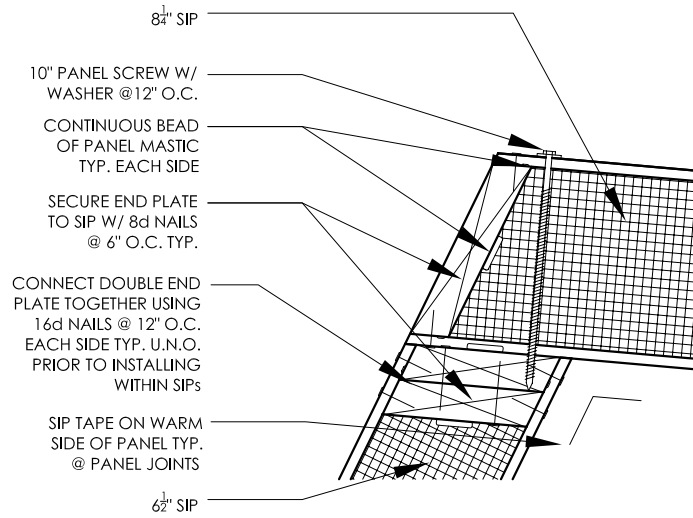


SECTION THROUGH ROOF GARDEN
1/2"=1'-0" 1

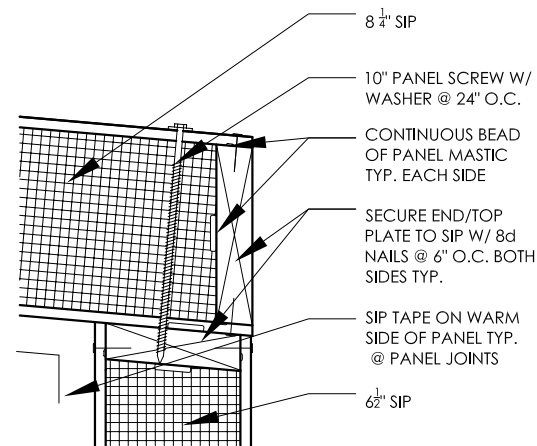
0" 6" 1'-0" 3'-0"



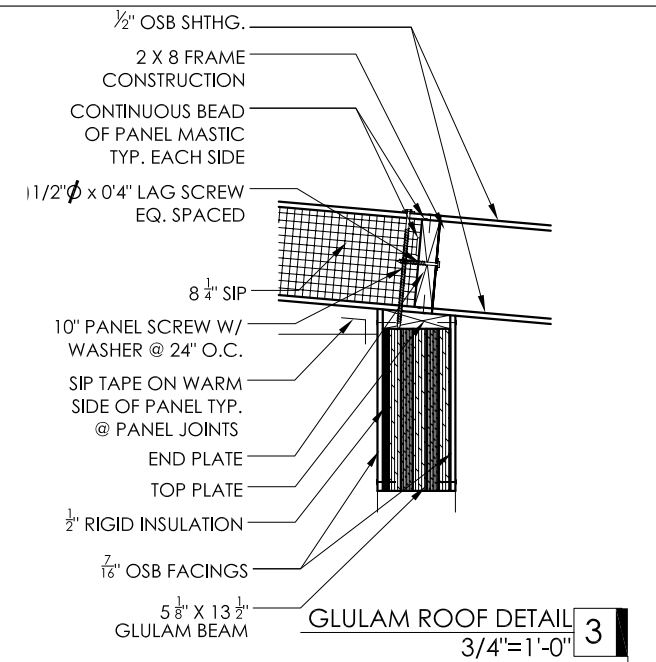




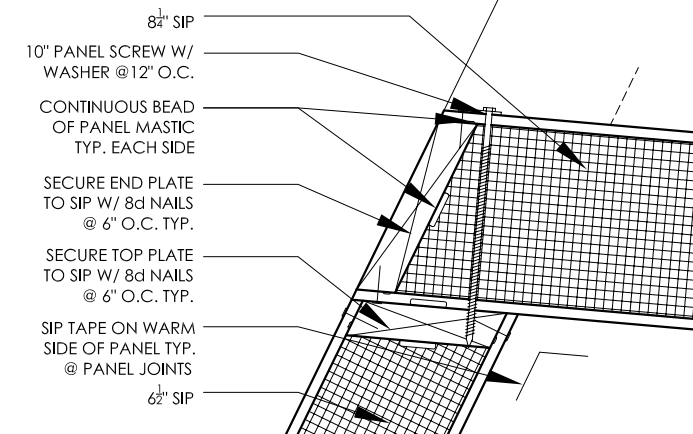
ROOF CORNER DETAIL 9
1-1/2"=1'-0"



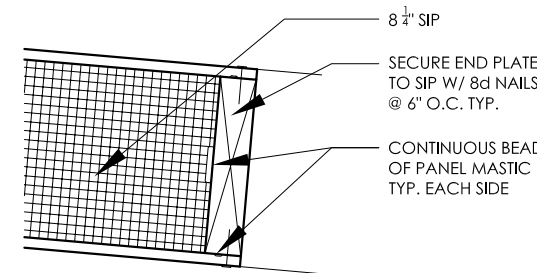
ROOF CORNER DETAIL 6
1-1/2"=1'-0"



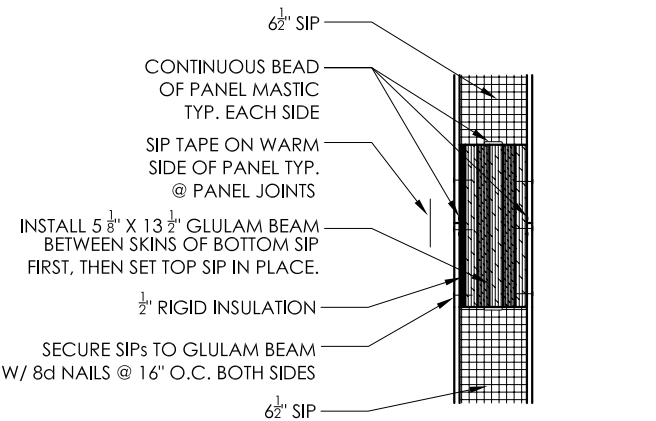
GLULAM ROOF DETAIL 3
3/4"=1'-0"



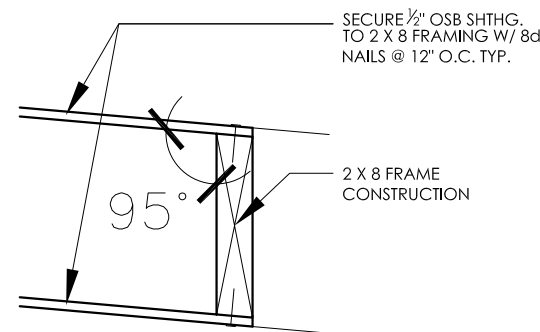
ROOF GARDEN DETAIL 8
1-1/2"=1'-0"



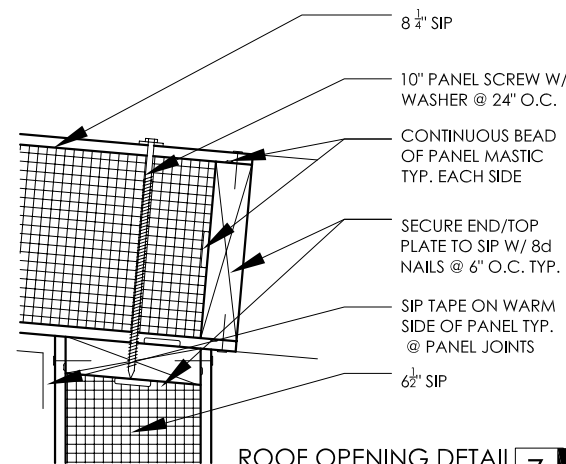
ROOF OPENING DETAIL 5
1-1/2"=1'-0"



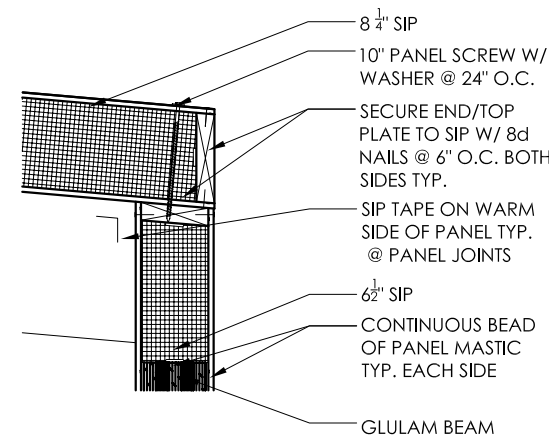
GLULAM IN SIP DETAIL 2
3/4"=1'-0"



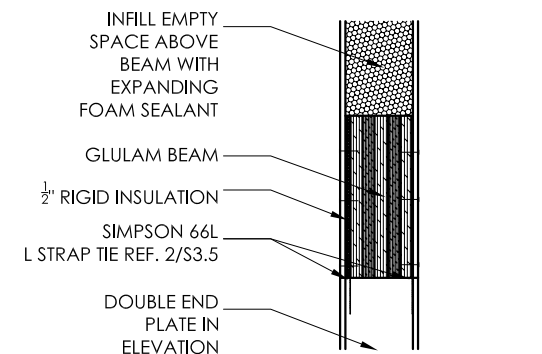
ROOF OPENING DETAIL 10
1-1/2"=1'-0"



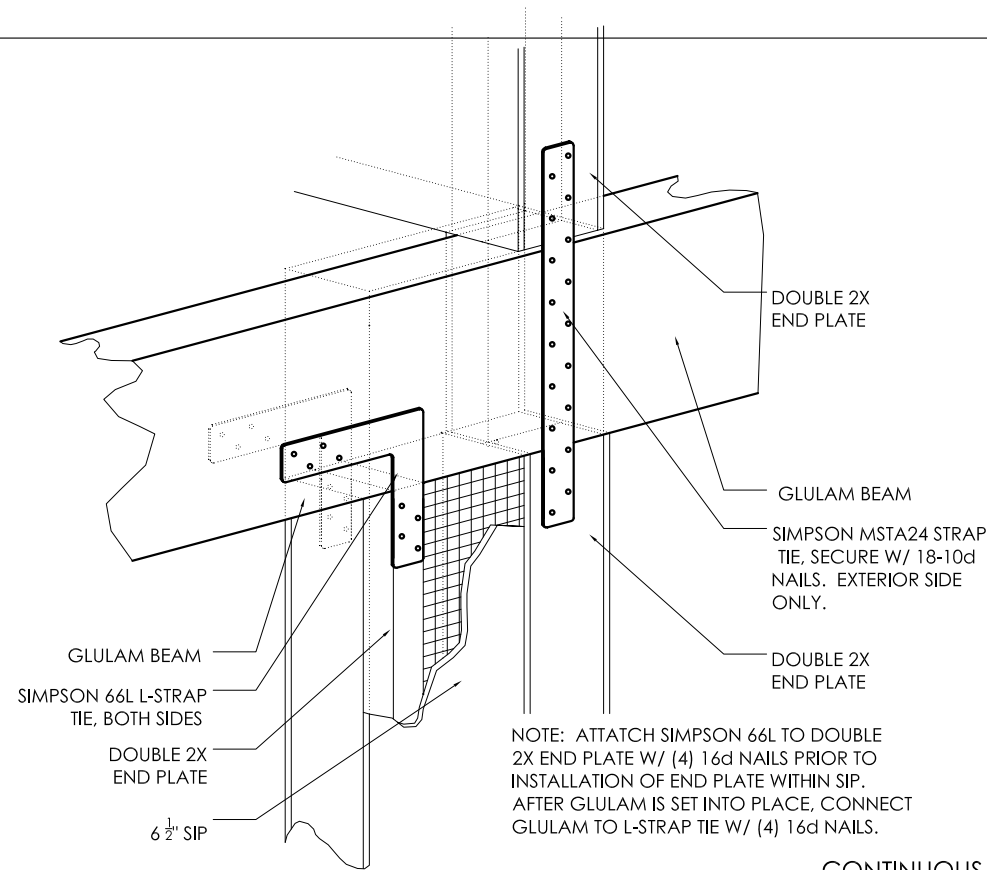
ROOF OPENING DETAIL 7
1-1/2"=1'-0"



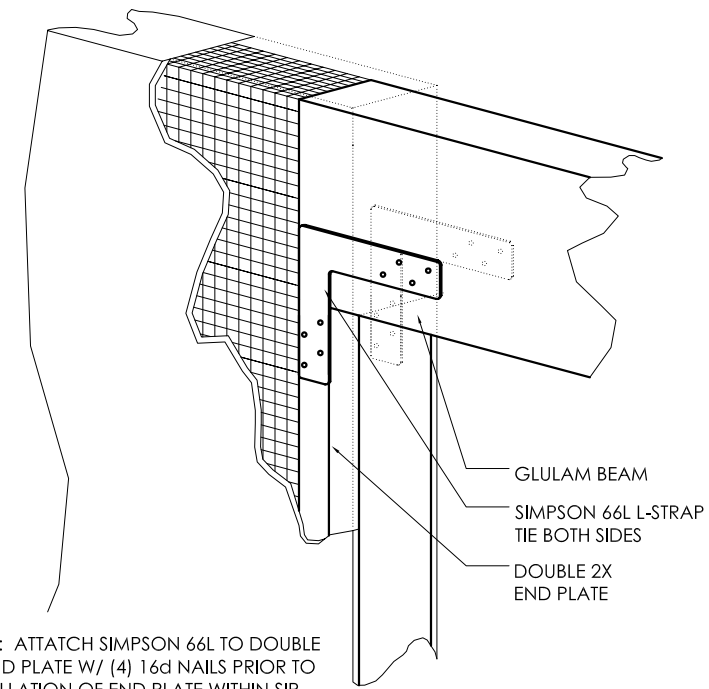
ROOF CORNER DETAIL 4
3/4"=1'-0"



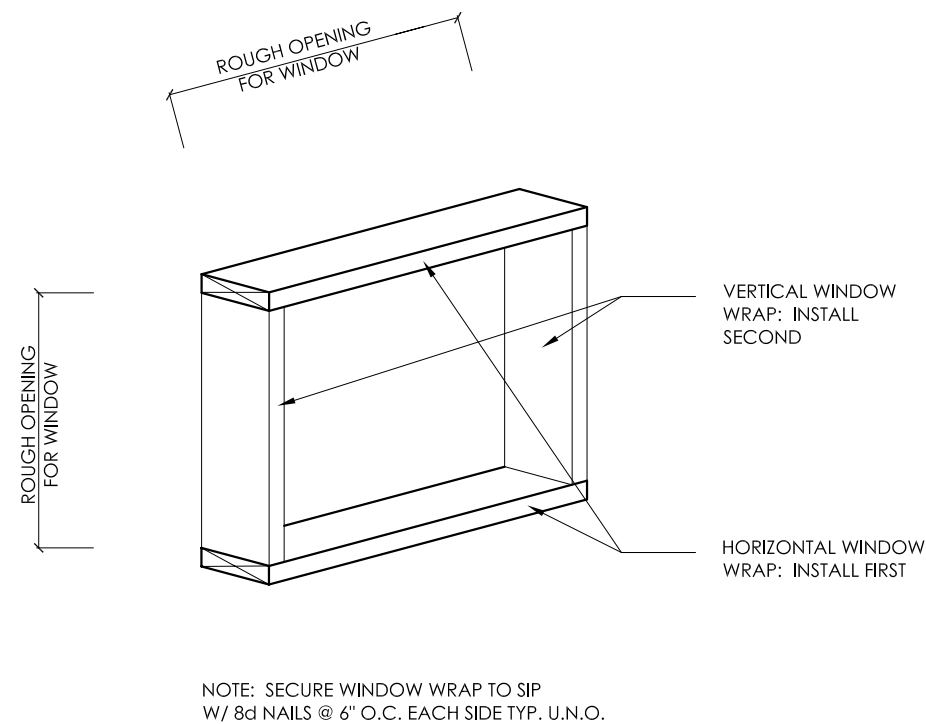
GLULAM BEARING DETAIL 1
3/4"=1'-0"



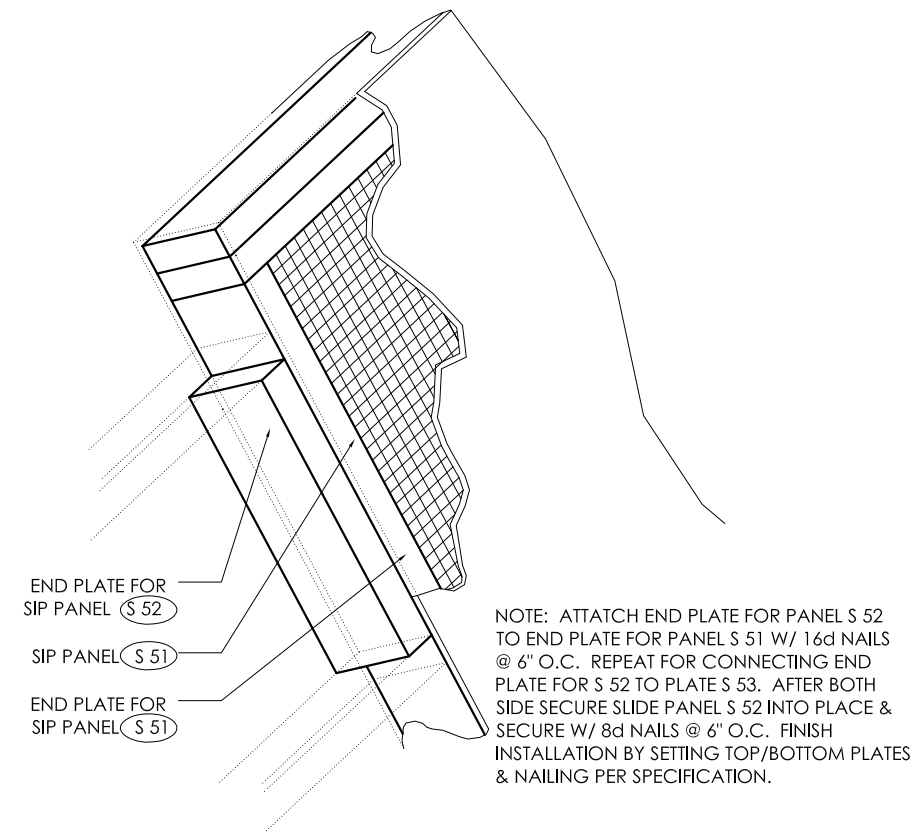
CONTINUOUS GLULAM DETAIL 4
NOT TO SCALE



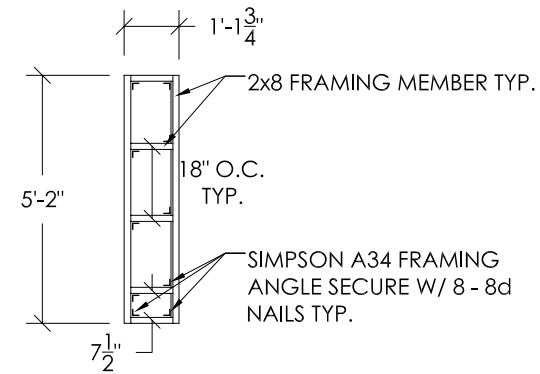
GLULAM BEARING DETAIL 2
NOT TO SCALE



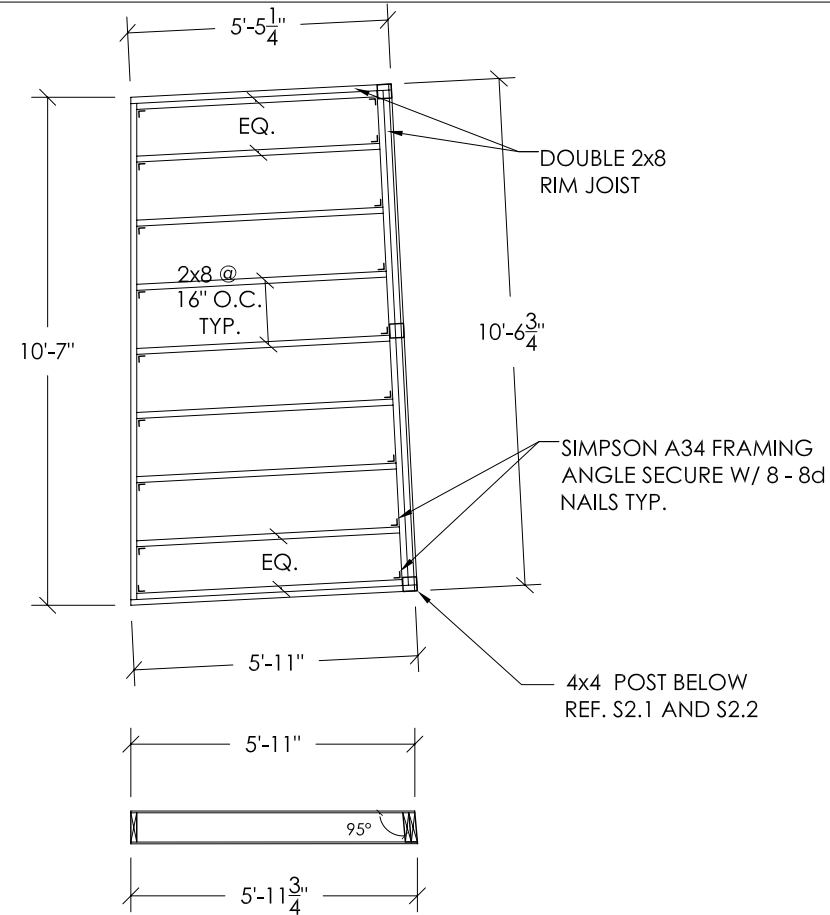
PUNCHED OPENING DETAIL 3
NOT TO SCALE



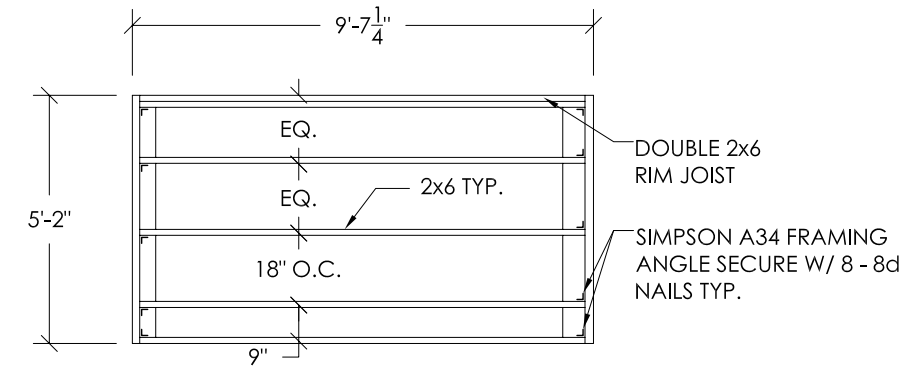
PANEL CONSTRUCTION 1
NOT TO SCALE



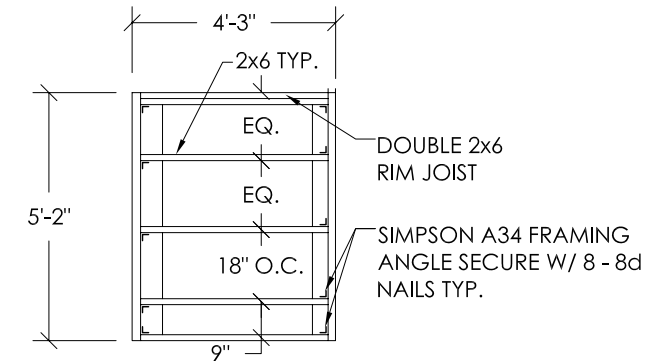
FRAMING ABOVE GLULAM 5
1/8"=1'-0"



GREEN ROOF FRAMING 4
1/8"=1'-0"



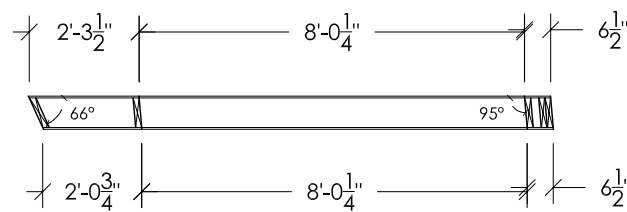
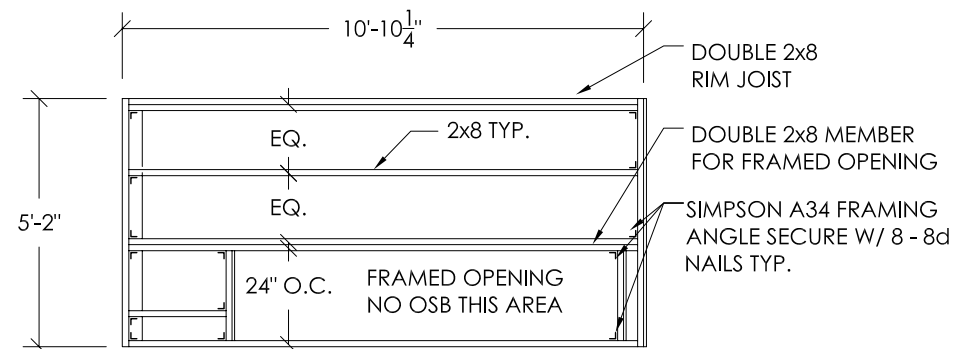
UPPER CANTED WALL FRAMING 2
1/8"=1'-0"



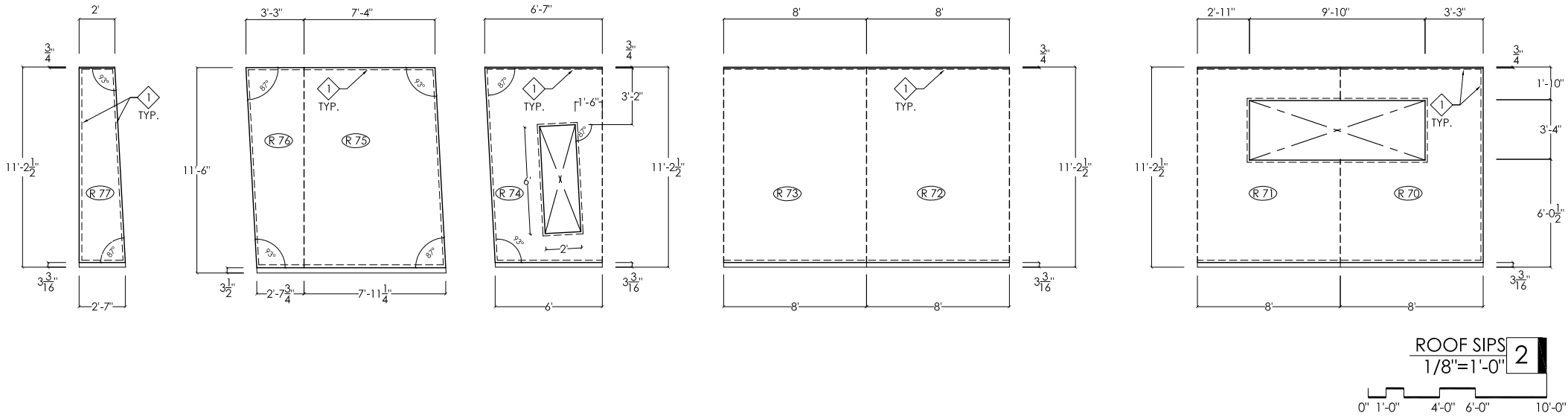
LOWER CANTED WALL FRAMING 1
1/8"=1'-0"

GENERAL NOTES

- *Simpson A34 Framing Angles shall be installed on one side of all structural framing members w/ 8 - 8d x 1 1/2" nails
- *2x8 roof frames shall be sheathed with 3/8" OSB using 8d x 1 1/2" nails @ 12" O.C.
- *2x6 frames shall be sheathed with 1/2" OSB using 8d nails @ 12" O.C.
- *overall dimensions are taken from the outside edges of the framing members, NOT from the edges of OSB
- *framing members shall be #1 grade, pressure treated douglas fir or better
- *fasteners shall be hot-dipped zinc coated



ROOF FRAMING OVER WEST END DECK 3
1/8"=1'-0"



LEGEND

Spline Relief	---
Foam Relief	---
Top/Front OSB Skin of Panel	---
Bottom/Rear OSB Skin of Panel	---
Elec. Chase	---
Panel Tag	○

GENERAL NOTES

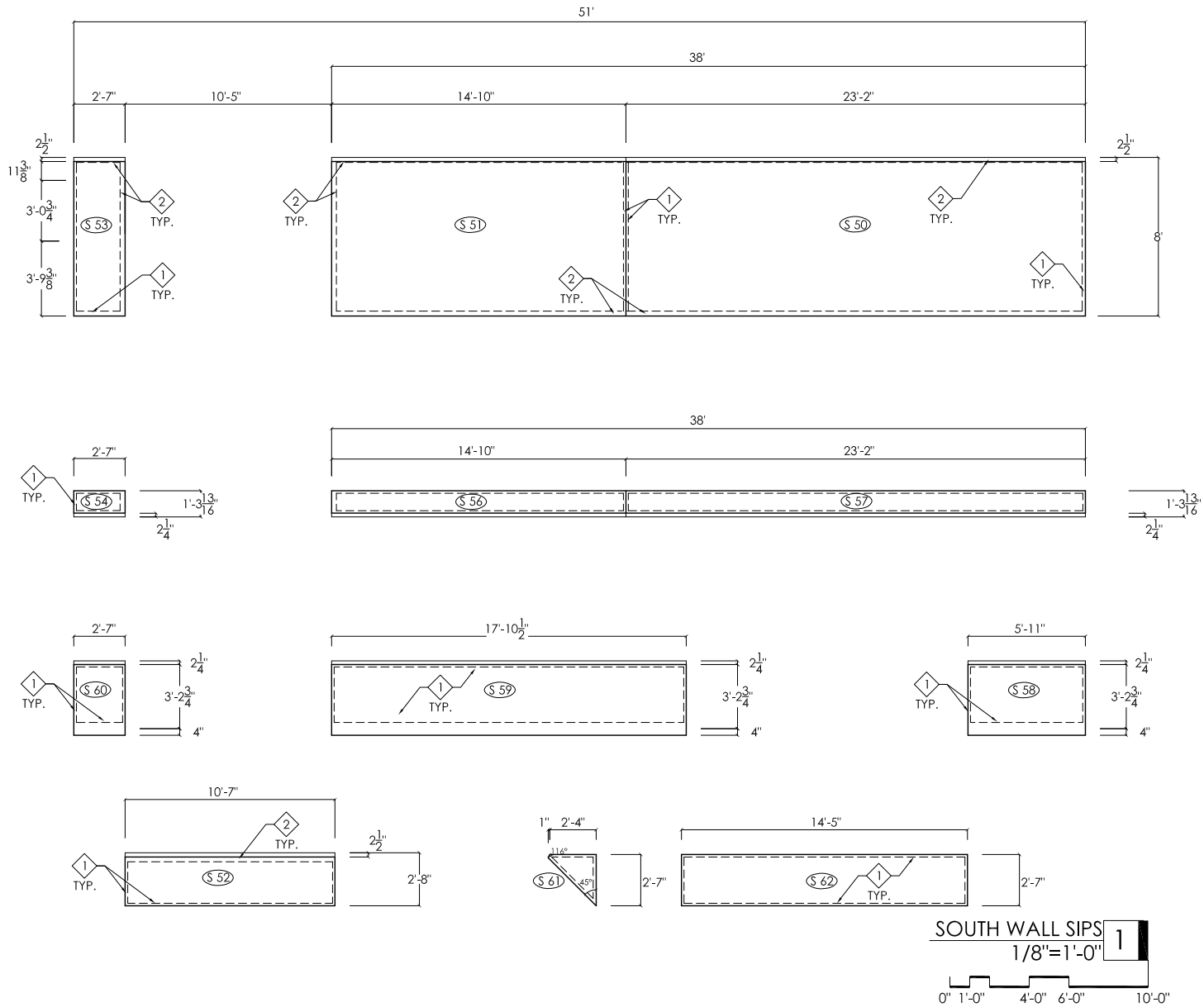
*SIP panels are manufactured by Extreme Panel and individually identified by a letter-number combination
*Extreme Panel will also provide specified quantities of:
2x4, 2x6 MSR 1650 or better grade lumber
2x8 SPF or better lumber (no wains or knots)
5/8" regular grade plywood for spline connections
7/16" OSB structural grade facings for SIP panels
8" & 10" panel screws w/ washers
panel mastic
Sip tape
foam sealant

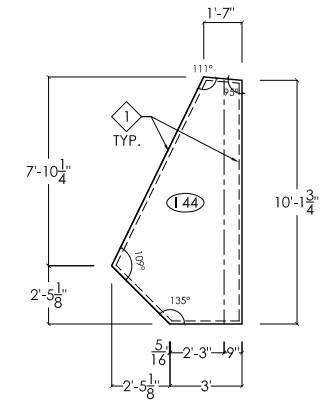
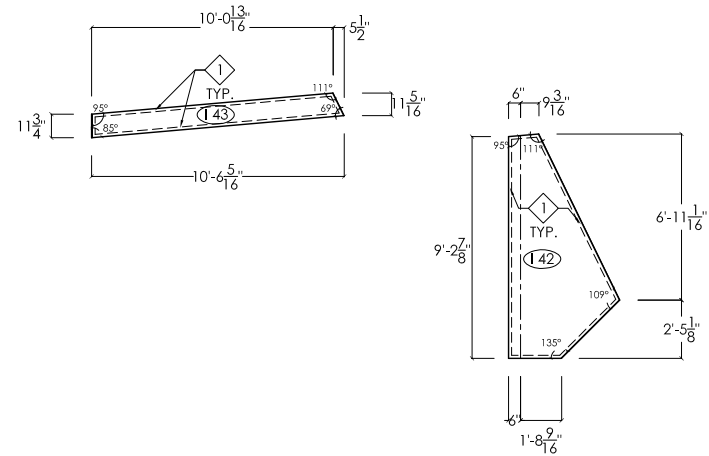
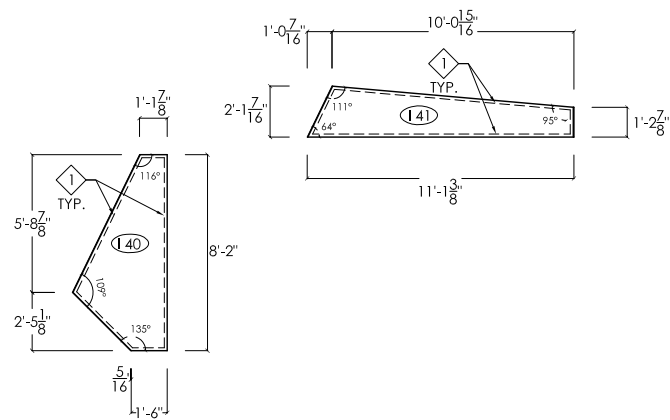
*the 13 1/2" x 5 1/8" x 32'-6" is manufactured by Gruen-wald Engineered Laminates and will ship thru Extreme Panel

*all wall panels are 6 1/2" SIPs
*all roof panels are 8 1/4" SIPs
*all punched opening have a single 2x foam relief
*fasteners shall be hot-dipped zinc coated
*all measurements are taken from outside edge of structural elements

KEYED NOTES

- 1 Single 2x Foam Relief
2 Double 2x Foam Relief





INTERIOR WALL SIPS 6

$1/8"=1'-0"$

0' 1'-0" 4'-0" 6'-0" 10'-0"

INTERIOR WALL SIPS 5
1/8"=1'-0"


0' 1'-0" 4'-0" 6'-0" 10'-0"

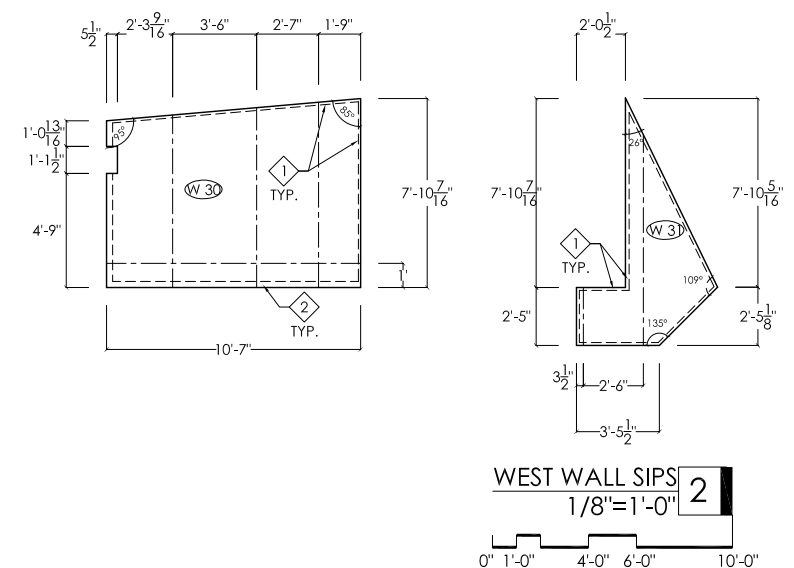
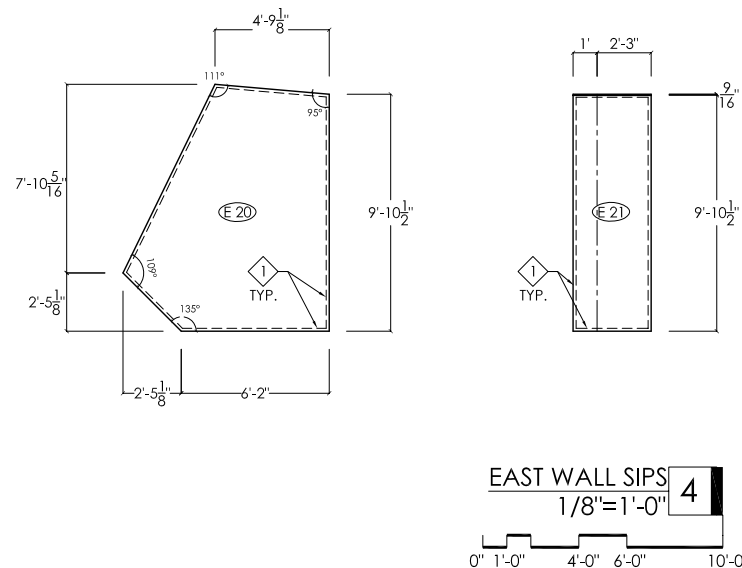
INTERIOR WALL SIPS 3

$1/8" = 1'-0"$

0' 1'-0" 4'-0" 6'-0" 10'-0"

LEGEND

Spline Relief	-----
Foam Relief	-----
Top/Front OSB Skin of Panel	_____
Bottom/Rear OSB Skin of Panel	_____
Elec. Chase	-----
Panel Tag	



GENERAL NOTES

- *SIP panels are manufactured by Extreme Panel and individually identified by a letter-number combination
- *Extreme Panel will also provide specified quantities of:
 - 2x4, 2x6 MSR 1650 or better grade lumber
 - 2x8 SPF or better lumber (no wains or knots)
 - $\frac{5}{8}$ " regular grade plywood for spline connections
 - $\frac{1}{2}$ " OSB structural grade facings for SIP panels
 - 8" & 10" panel screws w/ washers
 - panel mastic
 - Sip tape
 - foam sealant

*the 13 1/2" x 5 1/8" x 32'-6" is manufactured by Gruen-wald Engineered Laminates and will ship thru Extreme Panel

*all wall panels are 6 1/2" SIPs

*all roof panels are 8 $\frac{1}{4}$ " SIPs

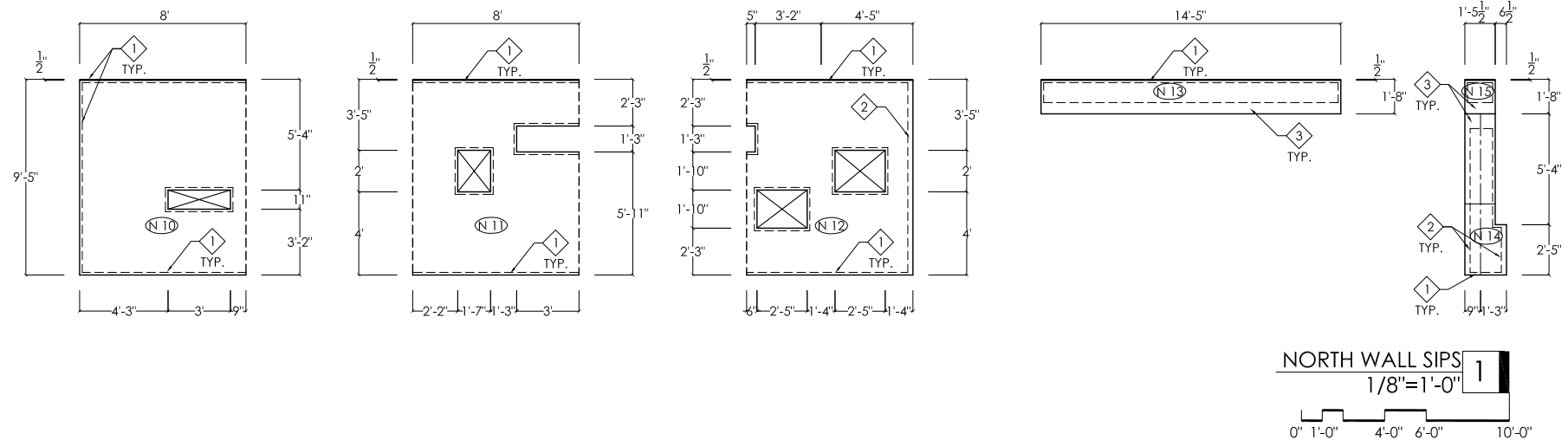
*all punched opening have a single 2x foam relief

*fasteners shall be hot-dipped zinc coated

*all measurements are taken from outside edge of structural elements

KEYED NOTES

- 1 Single 2x Foam Relief
- 2 Double 2x Foam Relief
- 3 Foam Relief for Glulam Beam















ProjectSolarhouse
2007 kansas solar decathlon entry

DRAWN BY_ PSH
DATE_ 3 MAY 2007
CHECKED BY_ AEG

SIP SCHEDULE

S4.3

SYMBOLS LIST

-  FLOOR MOUNTED DUPLEX
-  WALL MOUNTED DUPLEX
-  GFCI DUPLEX MOUNTED @ 42" OFF
-  FLOOR MOUNTED 240V
-  WALL MOUNTED LIGHT SWITCH
-  120V STUBBED OUT ELECTRICAL FROM FLOOR PLATE
-  240V STUBBED OUT ELECTRICAL FROM FLOOR PLATE TO MESAINE
-  DEDICATED CONDUIT RUN
-  CIRCUIT LINE
-  SMOKE DETECTOR
-  CARBON MONOXIDE DETECTOR
-  ELECTRICAL SERVICE RUN TAG

SYSTEMS COMPONENTS SOLAR ELECTRONICS AND DATA ACQUSIIION

- INVERTER: XANTREX XW4548 (REF SPEC)
- CHARGE CONTROLLER: XW SOLAR CHARGE CONTROLLER (REF SPEC)
- DC AND AC BREAKER BOX: XW POWER DISTRIBUTION PANEL (REF SPEC)
- SYSTEM CONTROL PANEL: XW SYSTEM CONTROL PANEL (REF SPEC)
- DATA ACQUISITION: LEVITON 47606-BTP FOR COAX AND PHONE (REF SPEC)
- PANEL TRACKING CONTROL: CONTROL SYSTEM FOR 2-AXIS AND 1-AXIS TRACKING PANELS (IN-HOUSE DESIGN)

SYSTEM INTEGRATION NOTES

1. BATTERY WIRES ARE RUN THROUGH CEILING AND HOUSE WIRES ARE RUN THROUGH FLOORING
2. WIRES FROM COMBINER BOXES WILL BE RUN FROM ROOF
3. WIRES WILL BE SIZED FOR MAXIMUM CURRENT LOADS
4. BREAKER SIZES ARE FOR MAXIMUM CURRENTS THROUGH DEVICES
5. MULTIPLE CHARGE CONTROLERS AND COMBINERS ARE NEEDED FOR DIFFERENT PANEL TRACKING SYSTEMS

PV PANEL NOTES

1. PV PANELS CONNECTED AS SHOWN ON DRAWING REPRESENT A SERIES CONNECTION
2. LIGHTNING PROTECTION: ALL PANELS GROUNDED

PV PANEL TRACKING TYPES

- F - FIXED
- 1 - 1 AXIS (ALTITUDE)
- 2 - 2 AXIS (ALTITUDE AND AZIMUTH)

SYSTEM COMPONENTS SOLAR ARRAY

- PV PANELS: BP 7190 (REF SPEC)
- COMBINER BOX: OUTBACK PSPV (REF SPEC)

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY THE RULES OF THE NATIONAL ELECTRICAL CODE AND ANY APPLICABLE CODES.
2. THE MINIMUM SIZE WIRE SHALL BE #12 COPPER AND ALL WIRE NOT ROUTED IN WALLS OR FLOORS ALL BE ENCLOSED IN CONDUIT WITH A MINIMUM SIZE OF 3/4".
3. WIRING FOR 48V DC FIXTURES SHALL BE SIZED FOR VOLTAGE DROP, #10 AWG MINIMUM, INSTALLED IN RIGID ALUMINUM CONDUIT.
4. FOR A TWO-WIRE PV SYSTEM OVER 50 VOLTS (125% OF OPEN-CIRCUIT PV-OUTPUT VOLTAGE), ONE DC CURRENT-CARRYING CONDUCTOR SHALL BE GROUNDED.
5. A PERMANENT LABEL SHALL BE APPLIED NEAR THE PV DISCONNECT SWITCH THAT CONTAINS: OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, SHORT-CIRCUIT CURRENT
6. DISCONNECT SWITCH SHALL ADHERE TO MAXIMUM HEIGHT REQUIREMENT FOR OPERATION.
7. ALL FIRE-RATED WALL PENETRATIONS MUST BE FIRE STOPPED, INCLUDING ANY PIPING CONDUIT, CABLE TRAYS, SUPER STRUCTURE, ETC.
8. PROVIDE ALL REQUIRED PULLBOXES AND MISCELLANEOUS HARDWARE FOR ALL CONDUIT RUNS. ALL CONDUIT SHALL BE PROPERLY SUPPORTED.
9. UNLESS NOTED OTHERWISE, ALL EQUIPMENT INSTALLED INDOORS SHALL HAVE NEMA 1 ENCLOSURES AND ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE NEMA 3R ENCLOSURES.
10. UNLESS NOTED OTHERWISE, ALL CONDUIT RUN WITHIN OR THROUGH DC POWER ROOMS SHALL BE RIGID ALUMINUM.
11. PROVIDE FLEXIBLE CONDUIT CONNECTION AT ALL EQUIPMENT SUBJECT TO VIBRATION.
12. ALL PANELBOARDS AND ELECTRICAL DISTRIBUTION EQUIPMENT FURNISHED OR UTILIZED UNDER THIS PROJECT SHALL BE PROVIDED WITH THE PHENOLIC NAMEPLATES INDICATING THE PANEL NAME AND WHERE IT IS FED FROM.
13. UNLESS NOTED OTHERWISE, ALL PANELBOARDS, CONTROL PANELS, JUNCTION BOXES, DEVICES, CONDUIT, ETC SHALL BE SURFACE MOUNTED.

GROUNDING NOTES

- G1. GROUND ALL ELECTRICAL WORK IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
- G2. ALL GROUND CABLE SHALL BE STRANDED COPPER WITH TYPE RHW INSULATION AND GREEN OR GRAY OUTER TEXTILE OR COTTON BRAID JACKET IN ACCORDANCE WITH VERIZON GROUNDING STANDARDS.
- G3. GROUND CONDUCTORS LARGER THAN #6 SHALL HAVE A MINIMUM BENDING RADIUS OF 12". GROUNDING CONDUCTORS #6 AND SMALLER SHALL HAVE A MINIMUM BENDING RADIUS OF 8".
- G.4 ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDICTIONS.
- G.5 ALL GROUND CONNECTIONS SHALL BE CLEANED & BRIGHTENED METALLIC SURFACE. UTILIZE STAR WASHERS AT GROUND CONNECTIONS.
- G.6 PROVIDE A #1/0 GROUND LOOP AWG GREEN OR GRAY INSULATED COPPER GROUND WIRE, CCGC, FROM THE EXSISTING COGB AND DEAD END AS SHOWN. PROVIDE A HEAT SHRINK BOOT AT END.
- G.7 ALL CONDUITS TO BE GROUNDED USING BONDING BUSHINGS AT EACH END.

SYSTEM COMPONENTS

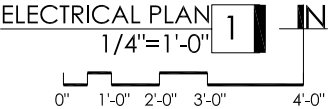
- BATTERY: CONCORDE PVX-9150T. 2V, 915AH @ C/24 (REF SPEC)

ELECTRICAL PANEL 240V 1P - 100 AMP MAIN

CKT	SIZE	SERVICE
ER1	1P - 20 AMP	TECH WALL & EXT. WEST WALL
ER2	1P - 20 AMP	LIVING ROOM SERVICES
ER3	2P - 20 AMP	A.H.U.
ER4	2P - 30 AMP	HEAT STRIP
ER5	2P - 20 AMP	OVEN
ER6	2P - 20 AMP	RANGE
ER7	2P - 50 AMP	A.C. CONDENSER
ER8	2P - 20 AMP	DISHWASHER
ER9	1P - 20 AMP	KITCHEN SERVICES
ER10	1P - 15 AMP	REFRIDGERATOR
ER11	2P - 30 AMP	WASHER
ER12	2P - 30 AMP	DRYER
ER13	2P - 60 AMP	INSTANT HOT WATER HEATER
ER14	1P - 15 AMP	EXT. PUMP
ER15	1P - 15 AMP	BATHROOM SERVICES
ER16	1P - 20 AMP	BEDROOM SERVICES
ER17	1P - 15 AMP	CAR PLUG
ER18	1P - 15 AMP	GREY WATER PUMP
ER19	1P - 15 AMP	MICROWAVE
ER20	1P - 15 AMP	SMOKE DETECTOR 1
ER21	1P - 15 AMP	CARBON MONOXIDE DETECTOR
ER22	1P - 15 AMP	WEST TECK WALL L.E.D.S
ER23	1P - 15 AMP	ZEN GARDEN L..E.D.S
ER24	1P - 15 AMP	ENTRY L.E.D.S
ER25	1P - 15 AMP	LIVING FLUORESCENT
ER26	1P - 15 AMP	KITCHEN FLUORESCENT
ER27	1P - 15 AMP	BATH L.E.D.S
ER28	1P - 15 AMP	HALLWAY FLUORESCENT
ER29	1P - 15 AMP	BEDROOM FLUORESCENT
ER30	1P - 15 AMP	EAST DECK EXT. L.E.D.S

SYSTEMS COMPONENTS SOLAR ELECTRONICS

- INVERTER: XANTREX XW4548 (REF SPEC)
- CHARGE CONTROLLER: XW SOLAR CHARGE CONTROLLER (REF SPEC)
- DC AND AC BREAKER BOX: XW POWER DISTRIBUTION PANEL (REF SPEC)
- SYSTEM CONTROL PANEL: XW SYSTEM CONTROL PANEL (REF SPEC)



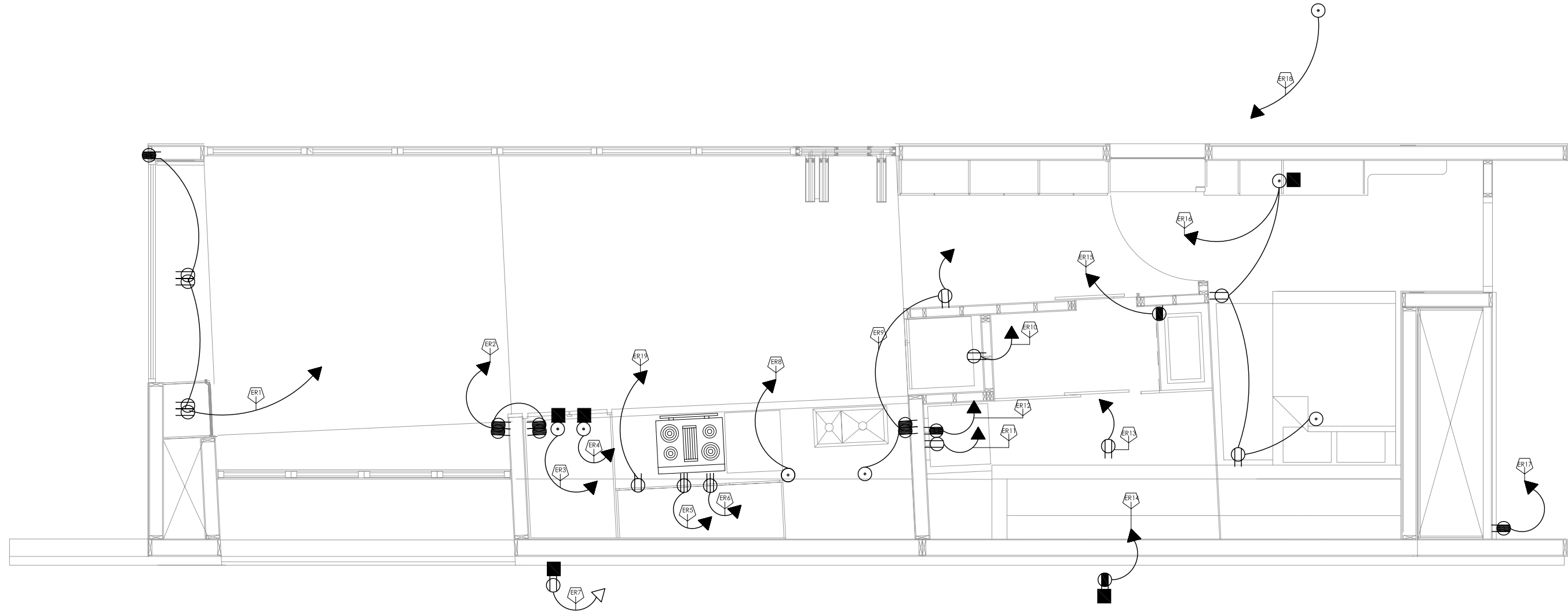
PROJECT SOLAR HOUSE
109 SEATON HALL
MANHATTAN, KS 66502



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GENERAL
NOTES

E0.1



ELECTRICAL PLAN 1
1/4"=1'-0"

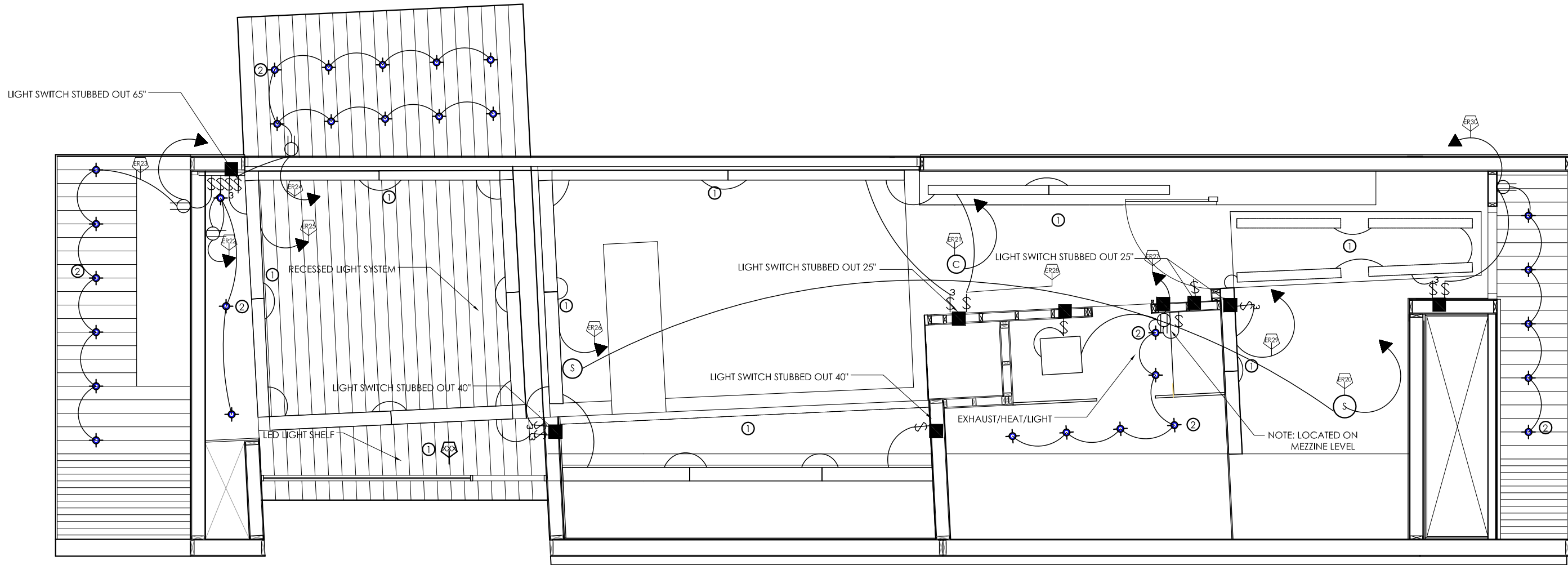
SYMBOLS LIST

- FLOOR MOUNTED DUPLEX
- WALL MOUNTED DUPLEX
- GFCI DUPLEX MOUNTED @ 42" OFF
- FLOOR MOUNTED 240V
- WALL MOUNTED LIGHT SWITCH
- 120V STUBBED OUT ELECTRICAL FROM FLOOR PLATE
- 240V STUBBED OUT ELECTRICAL FROM FLOOR PLATE TO MESAINÉ
- DEDICATED CONDUIT RUN
- CIRCUIT LINE
- SMOKE DETECTOR
- CARBON MONOXIDE DETECTOR
- ELECTRICAL SERVICE RUN TAG

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ELECTRICAL
PLANS

E1.2



LIGHTING REFLECTED CEILING PLAN
1/4"=1'-0"

SYMBOLS LIST

- FLOOR MOUNTED DUPLEX
- WALL MOUNTED DUPLEX
-
- FLOOR MOUNTED 240V
- WALL MOUNTED LIGHT SWITCH
- 120V STUBBED OUT ELECTRICAL FROM FLOOR PLATE
- 240V STUBBED OUT ELECTRICAL FROM FLOOR PLATE TO MEZSAINE
- DEDICATED CONDUIT RUN
- CIRCUIT LINE
- SMOKE DETECTOR
- CARBON MONOXIDE DETECTOR
- ELECTRICAL SERVICE RUN TAG

SYSTEMS COMPONENTS SOLAR
ELECTRONICS AND DATA ACQUSIITION

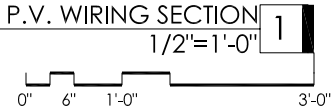
- INVERTER: XANTREX XW4548 (REF SPEC)
- CHARGE CONTROLLER: XW SOLAR CHARGE CONTROLLER (REF SPEC)
- DC AND AC BREAKER BOX: XW POWER DISTRIBUTION PANEL (REF SPEC)
- SYSTEM CONTROL PANEL: XW SYSTEM CONTROL PANEL (REF SPEC)
- DATA ACQUISITION: LEVITON 47606-BTP FOR COAX AND PHONE (REF SPEC)
- PANEL TRACKING CONTROL: CONTROL SYSTEM FOR 2-AXIS AND 1-AXIS TRACKING PANELS (IN-HOUSE DESIGN)

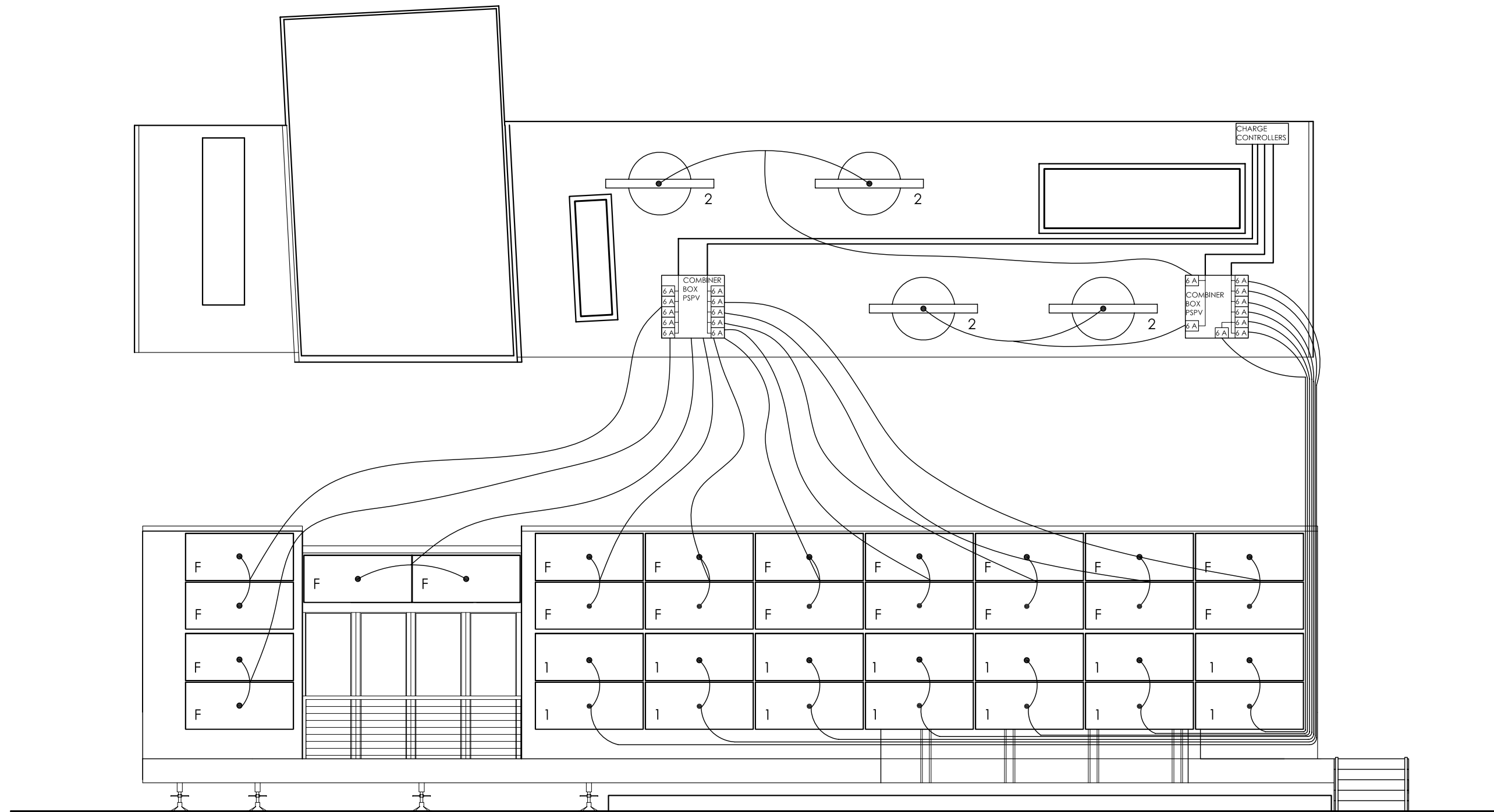


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P.V. WIRING
SECTION

E1.3





 SOLAR PANEL

SYSTEM COMPONENTS SOLAR ARRAY

- PV PANELS: BP 7190 (REF SPEC)
- COMBINER BOX: OUTBACK PSPV (REF SPEC)

PV PANEL NOTES

1. PV PANELS CONNECTED AS SHOWN ON DRAWING REPRESENT A SERIES CONNECTION
2. LIGHTNING PROTECTION: ALL PANELS GROUNDED

PV PANEL TRACKING TYPES

- F - FIXED
- 1 - 1 AXIS (ALTITUDE)
- 2 - 2 AXIS (ALTITUDE AND AZIMUTH)

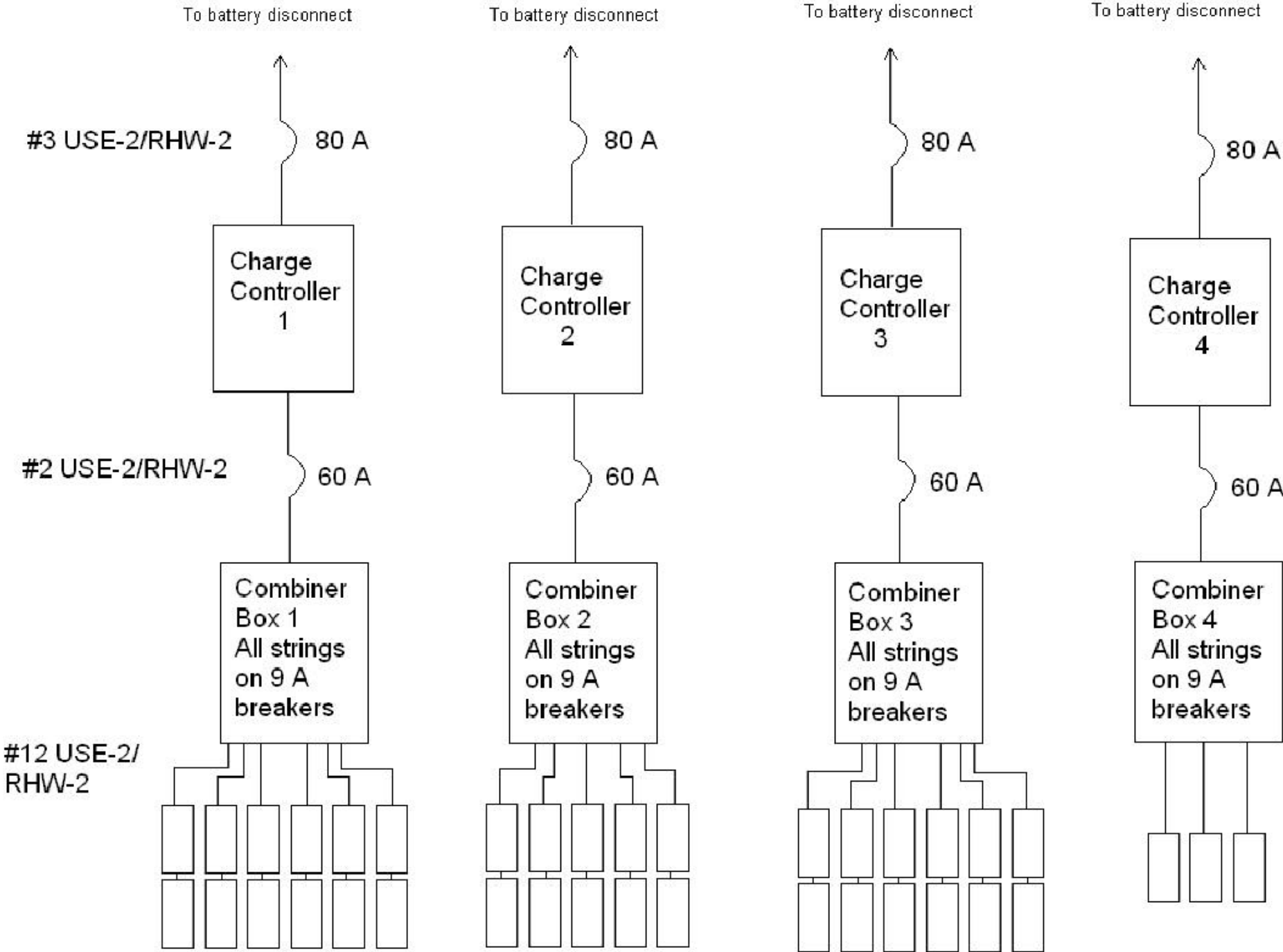
SOLAR ARRAY ONE LINE DRAWING
1/2"=1'-0"

0" 6" 1'-0" 3'-0"

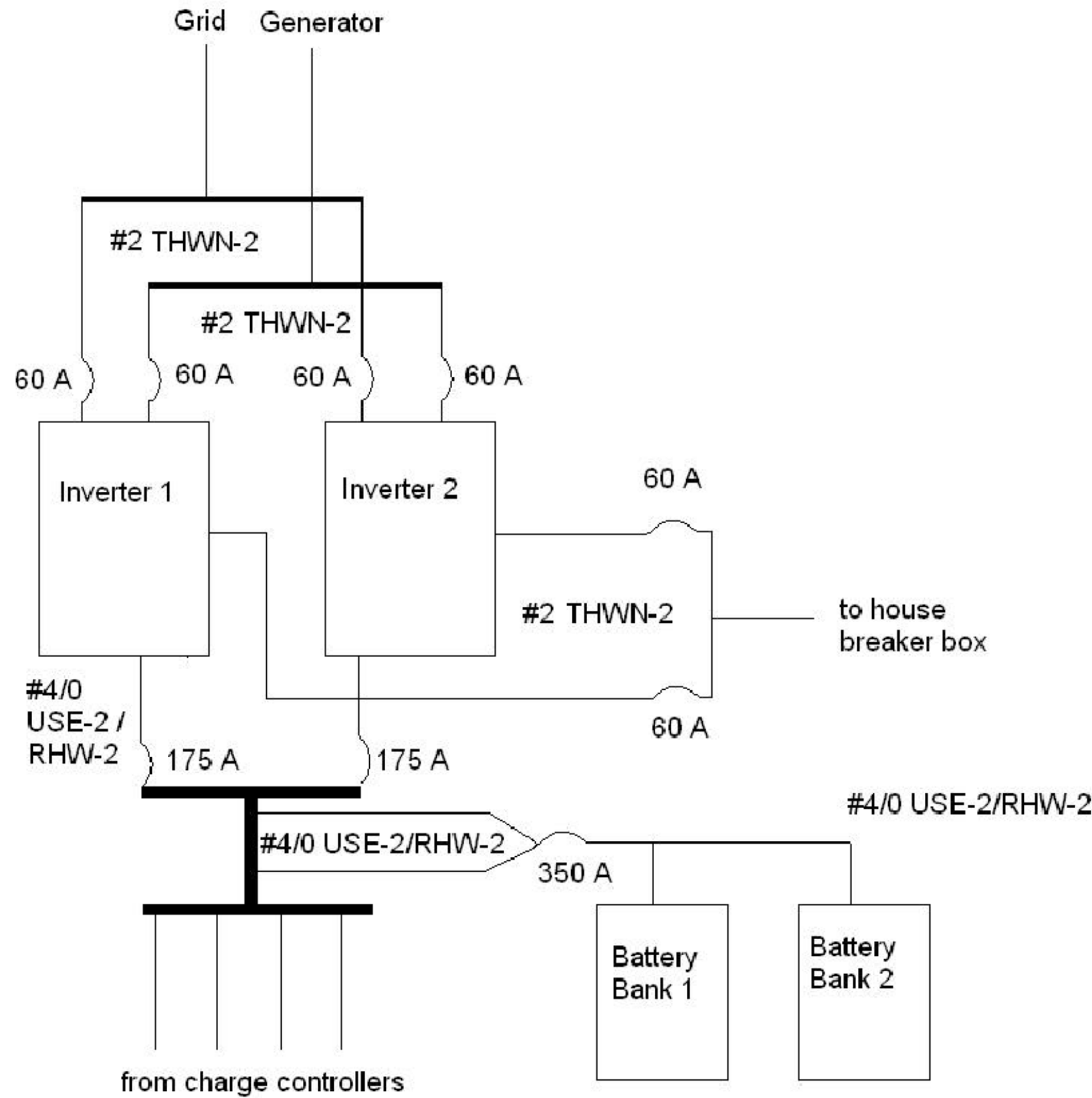
PV Array to Battery Disconnect Conductors and Overcurrent Protection

SYSTEMS COMPONENTS SOLAR ELECTRONICS

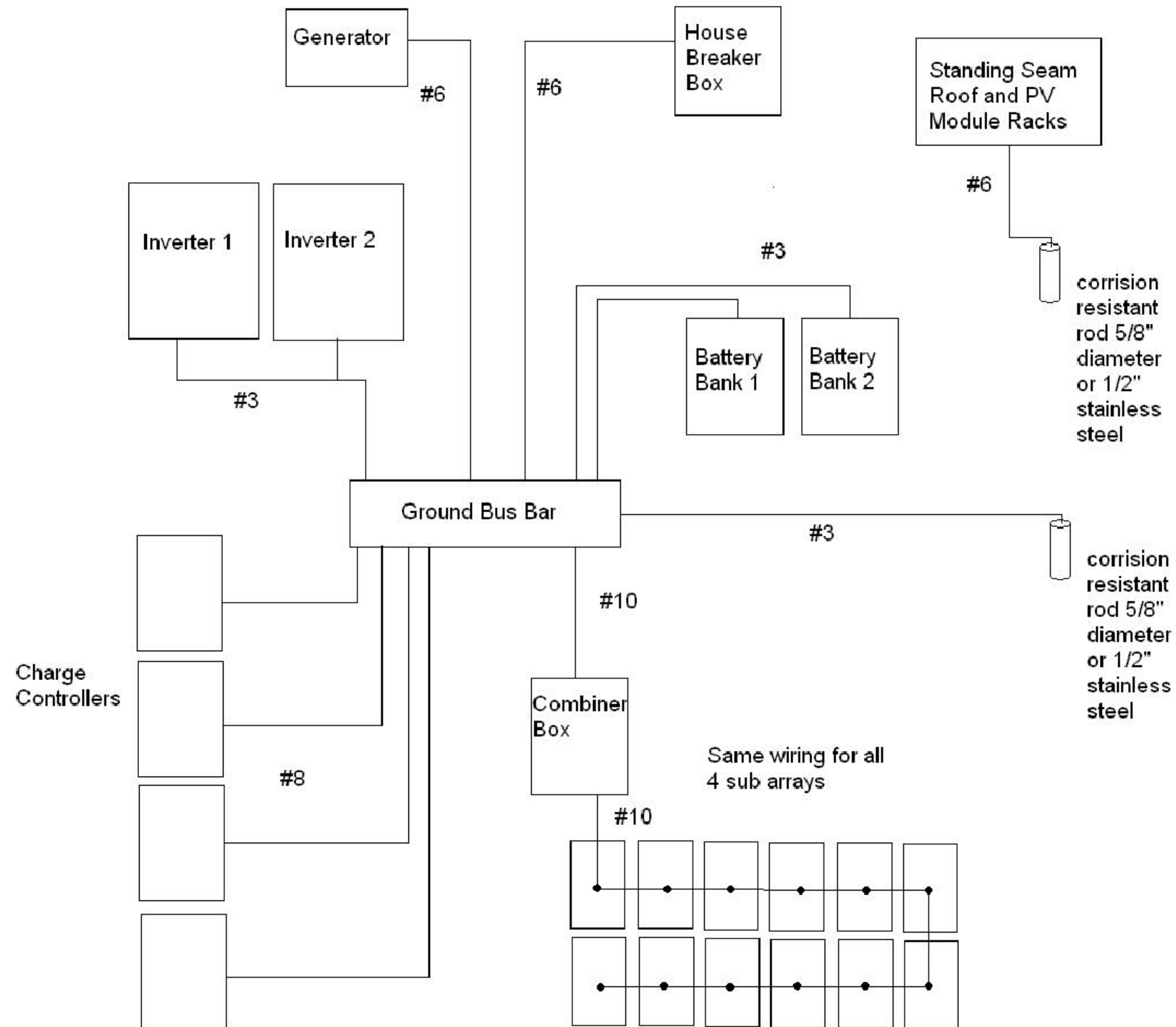
- INVERTER: XANTREX XW4548 (REF SPEC)
- CHARGE CONTROLLER: XW SOLAR CHARGE CONTROLLER (REF SPEC)
- DC AND AC BREAKER BOX: XW POWER DISTRIBUTION PANEL (REF SPEC)
- SYSTEM CONTROL PANEL: XW SYSTEM CONTROL PANEL (REF SPEC)



Inverters and Battery Wiring and Overcurrent Protection



INVERTERS
NOT TO SCALE 1

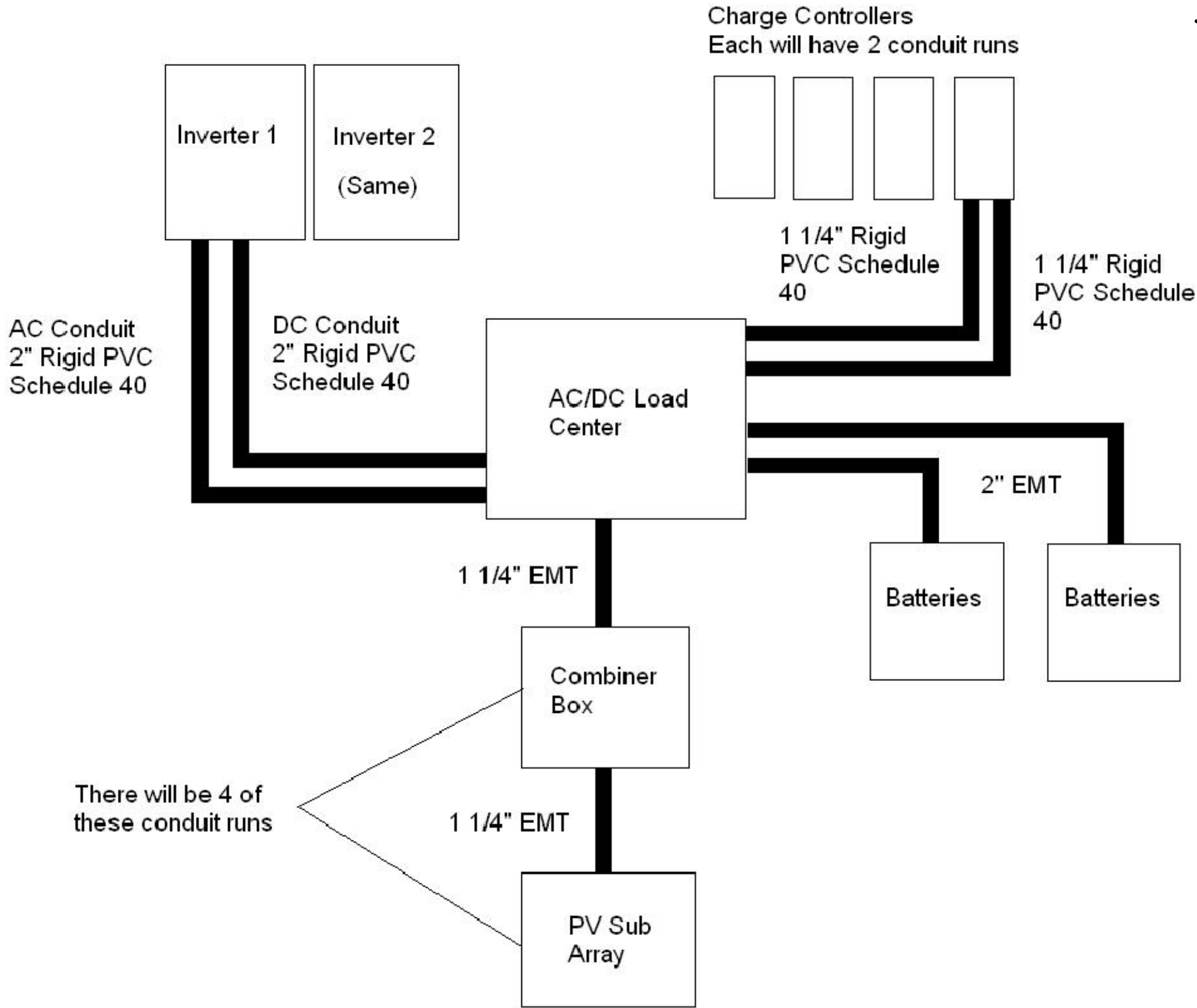


GROUNDING
NOT TO SCALE

1

SYSTEM COMPONENTS

- BATTERY: CONCORDE PVX-9150T. 2V, 915AH @ C/24 (REF SPEC)

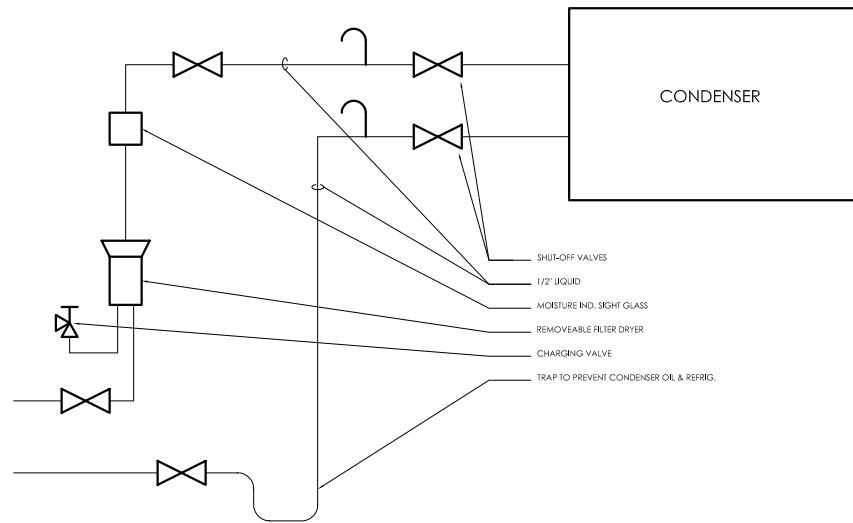
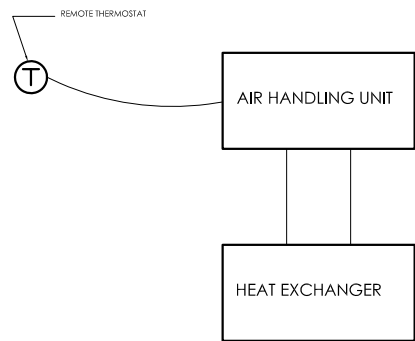


CONDUIT 1
NOT TO SCALE

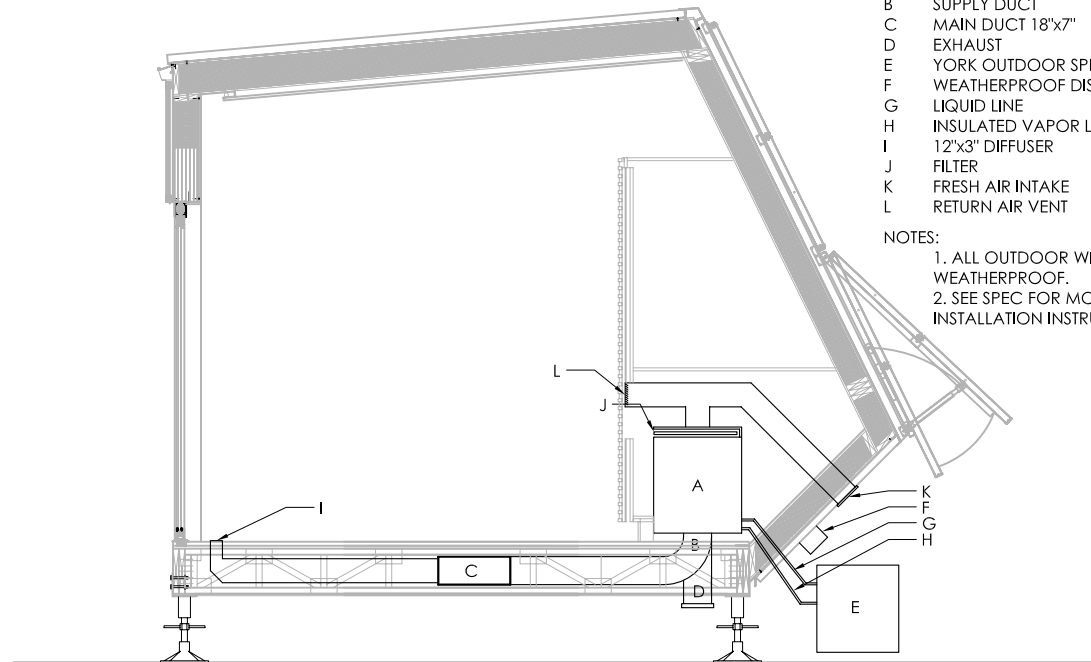
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MECHANICAL
PLANS/
DIAGRAMS

M1.1

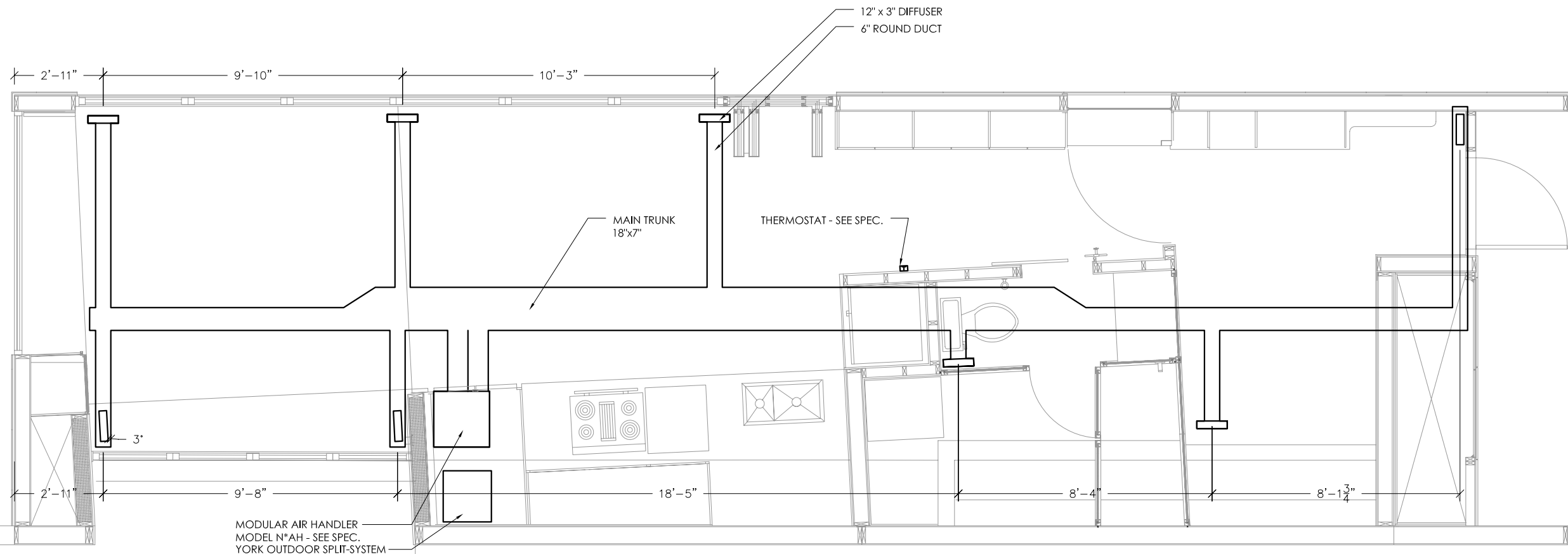


AC SCHEMATIC DIAGRAM
N.T.S. 3



- A MODULAR AIR HANDLER - MODEL N*AH
B SUPPLY DUCT
C MAIN DUCT 18"x7"
D EXHAUST
E YORK OUTDOOR SPLIT-SYSTEM HEAT PUMP
F WEATHERPROOF DISCONNECT SWITCH
G LIQUID LINE
H INSULATED VAPOR LINE
I 12"x3" DIFFUSER
J FILTER
K FRESH AIR INTAKE
L RETURN AIR VENT
- NOTES:
1. ALL OUTDOOR WIRING MUST BE WEATHERPROOF.
2. SEE SPEC FOR MODEL NUMBERS AND INSTALLATION INSTRUCTIONS.

DIAGRAMATIC SECTION THROUGH MECHANICAL CLOSET
1/4"=1'-0" 2



DUCT/DIFFUSER PLAN
1/4"=1'-0" 1

0" 1'-0" 2'-0" 3'-0" 4'-0"

GENERAL NOTES

- * all ductwork to be installed after completion of floor plate
- * fresh air intake occurs atleast a minimum of 12' from and exhaust air
- * all secondary lines will be 6" in diameter

MECHANICAL SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL #	SUPPLYING	VOLTAGE	CAPACITY	PHASE	REMARKS
M 1	AIR HANDLING UNIT	UNITARY PRODUCTS GROUPS	N*AH	ENTIRE HOUSE	198-264	SEE AIRFLOW TABLE	1	HARDWIRED TO A 220 V LINE
M 2	OUTDOOR SPLIT SYSTEM HEAT PUMP	UNITARY PRODUCTS GROUPS	12	ENTIRE HOUSE	220	SEE AIRFLOW TABLE	1	HARDWIRED TO A 220 V LINE
M 3	PEX TUBING - QPEXBAR	ZURN	QH3P	ENTIRE HOUSE	N/A	.0092 GAL/FT	1	

EXHAUST FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL #	TYPE	SERVING	CFM	VOLT-PH	MAX SONES
EF 1	TAMARACK TECHNOLOGIES	WASTON	DUCTED	BATHROOM, KITCHEN	115	115-1	53 DB

GRILLE SCHEDULE

SYMBOL	MANUFACTURER	MATERIAL	FINISH	MOUNTING	REMARKS
G 1	CUSTOM BY BUILDER	3/4" ASH PLYWOOD	CLEAR COAT	SURFACE	DETAILS THIS PAGE

TOTAL HOUSING LOADS

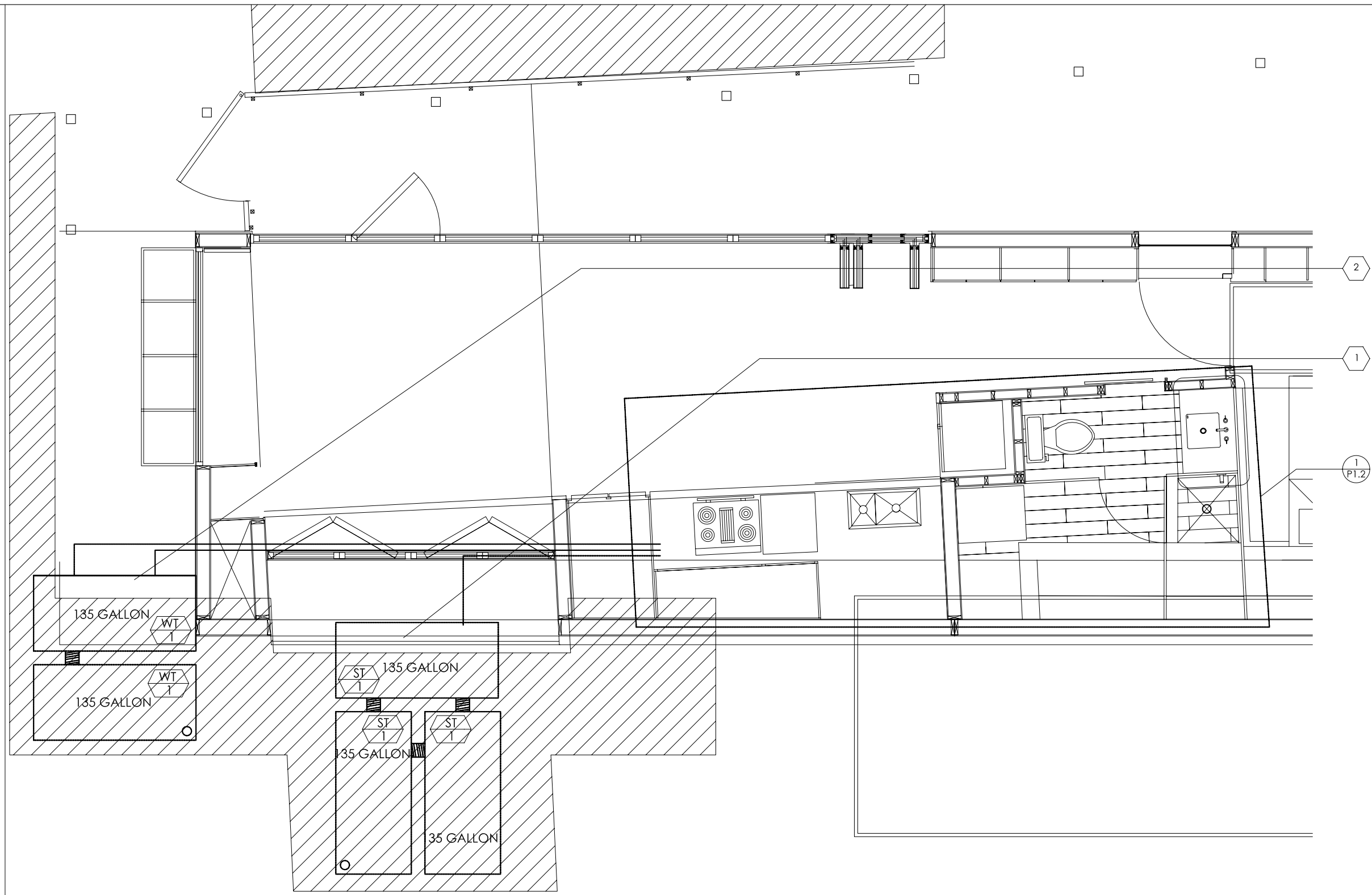
	Btu/H	TONS
BATHROOM	2626	0.2
CORRIDOR	222	0.0
LIVING ROOM	7131	0.6
BEDROOM	5489	0.5
KITCHEN	7386	0.6
HOUSE TOTAL	22850	1.9

AIRFLOW FOR EACH ROOM

	TONS	FRACTION	CFM
BATHROOM	0.2	0.105	84
CORRIDOR	0.0	0.000	0
LIVING ROOM	0.6	0.316	253
BEDROOM	0.5	0.263	211
KITCHEN	0.6	0.316	253

NOTES AND LEGEND

- 01 WATER SUPPLY TANK TO BE COMPRISED OF 3 135 GALLON TANKS. 4" FILL CAP DIAMETER IS LOCATED 4' FROM SOUTH-WESTERN CORNER AT 15" HIGH. TOTAL SUPPLY TANK SIZE TO BE NO LESS THAN 350 GALLONS
- 02 270 GALLON WASTEWATER TANK TO BE COMPRISED OF 2 135 GALLON TANKS. 4" FILL PORT DIAMETER SHALL BE LOCATED IN THE SOUTHEASTERN CORNER AT 15" HIGH. DRAIN PIPING SHALL BE ROUTED TO THE TANK. WC WASTE LINE SHALL NOT BE CONNECTED TO MAIN WASTE LINE BEFORE REACHING WASTE TANK.



SUPPLY AND WASTE TANK ROUTING PLAN 1
1/4"=1'-0"

0" 1'-0" 2'-0" 3'-0" 4'-0"

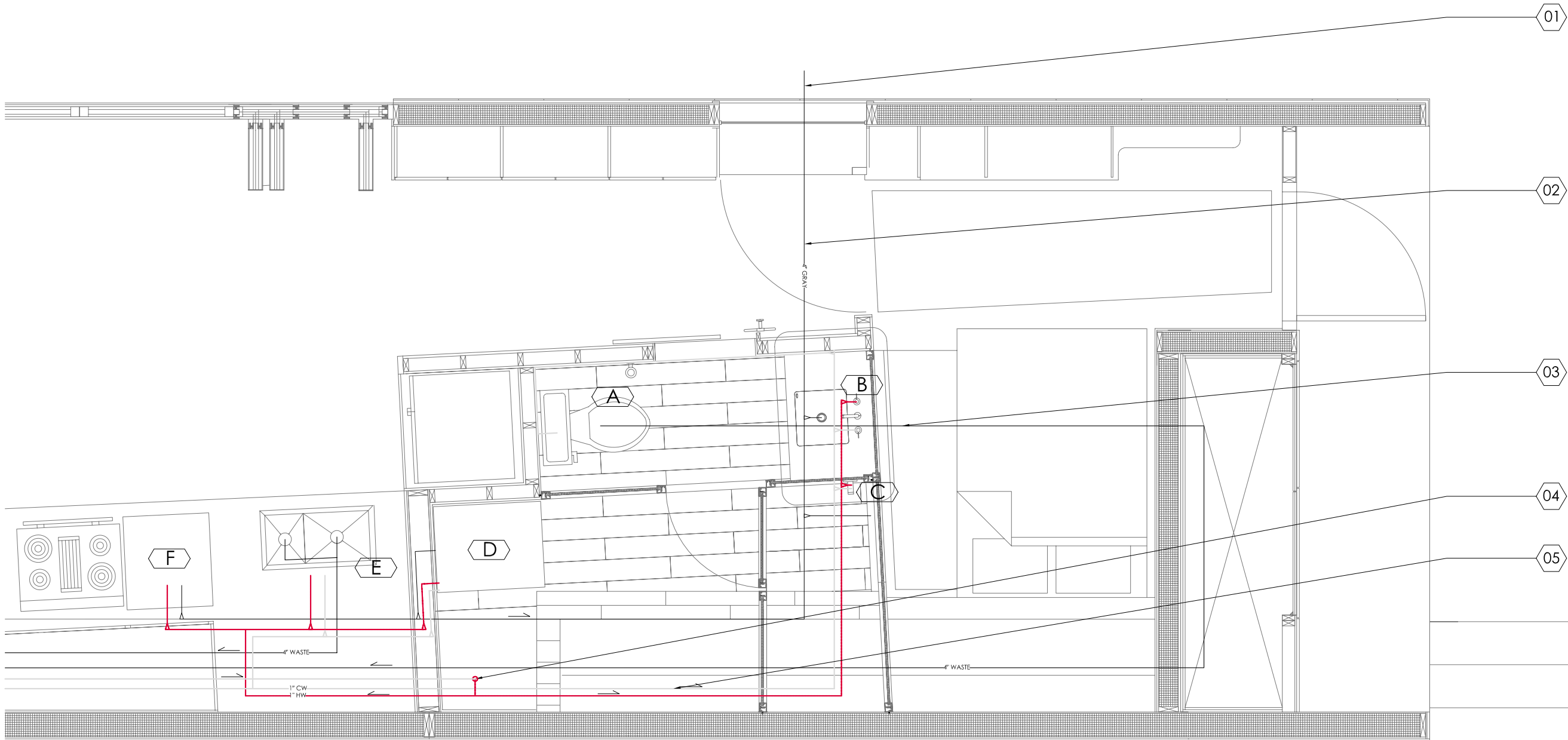
NOTES AND LEGEND

- 01 STUBBED OUT PVC PIPE 6"
- 02 GRAY WATER PIPE TO GRAY WATER COLLECTION SYSTEM LOCATED TO NORTH OF HOUSE
- 03 WASTE WATER PIPE TO WASTE WATER TANK LOCATED TO SOUTH OF HOUSE
- 04 HOT WATER FROM DOMESTIC HOT WATER TANK AND POINT-OF-USE HEATER LOCATED ABOVE BATHROOM
- 05 COLD WATER FROM SUPPLY TANK LOCATED TO SOUTH OF HOUSE
- A PLUMBING SCHEDULE REFERENCE SEE P1.6

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DATE_ 3 MAR 2007
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PLUMBING
PLAN

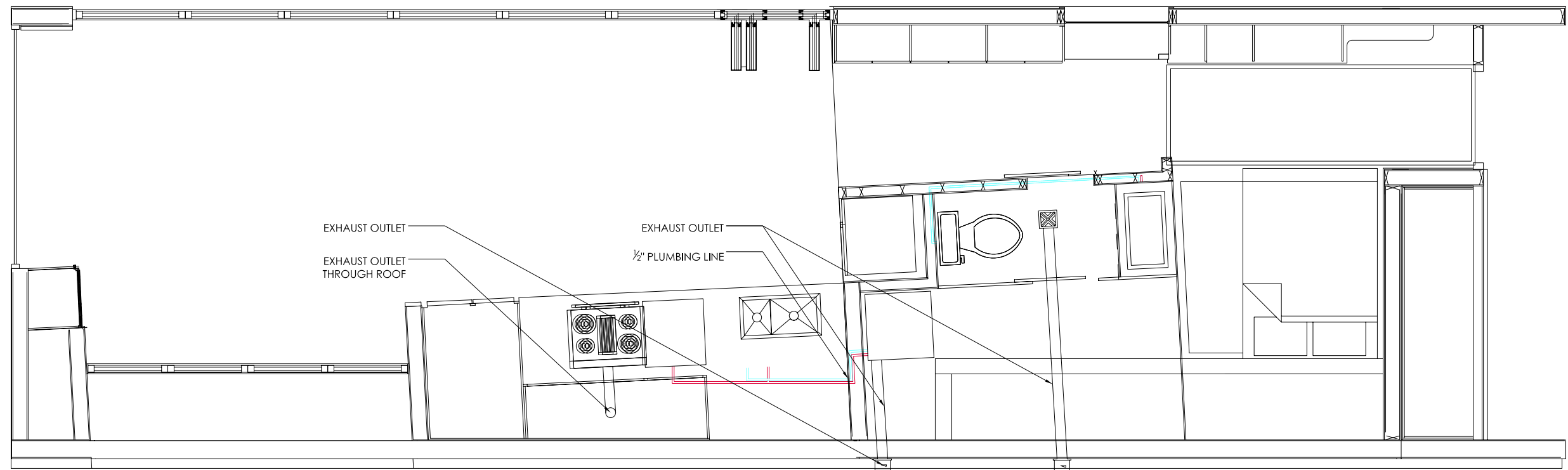
P1.2



PLUMBING PLAN 1
3/8"=1'-0"
0" 1'-0" 2'-0" 3'-0" 4'-0"

NOTES AND LEGEND

- 01 STUBBED OUT PVC PIPE 6"
- 02 GRAY WATER PIPE TO GRAY WATER COLLECTION SYSTEM LOCATED TO NORTH OF HOUSE
- 03 WASTE WATER PIPE TO WASTE WATER TANK LOCATED TO SOUTH OF HOUSE
- 04 HOT WATER FROM DOMESTIC HOT WATER TANK AND POINT-OF-USE HEATER LOCATED ABOVE BATHROOM
- 05 COLD WATER FROM SUPPLY TANK LOCATE TO SOUTH OF HOUSE
- A PLUMBING SCHEDULE REFERENCE SEE P1.4



EXHAUST OUTLET

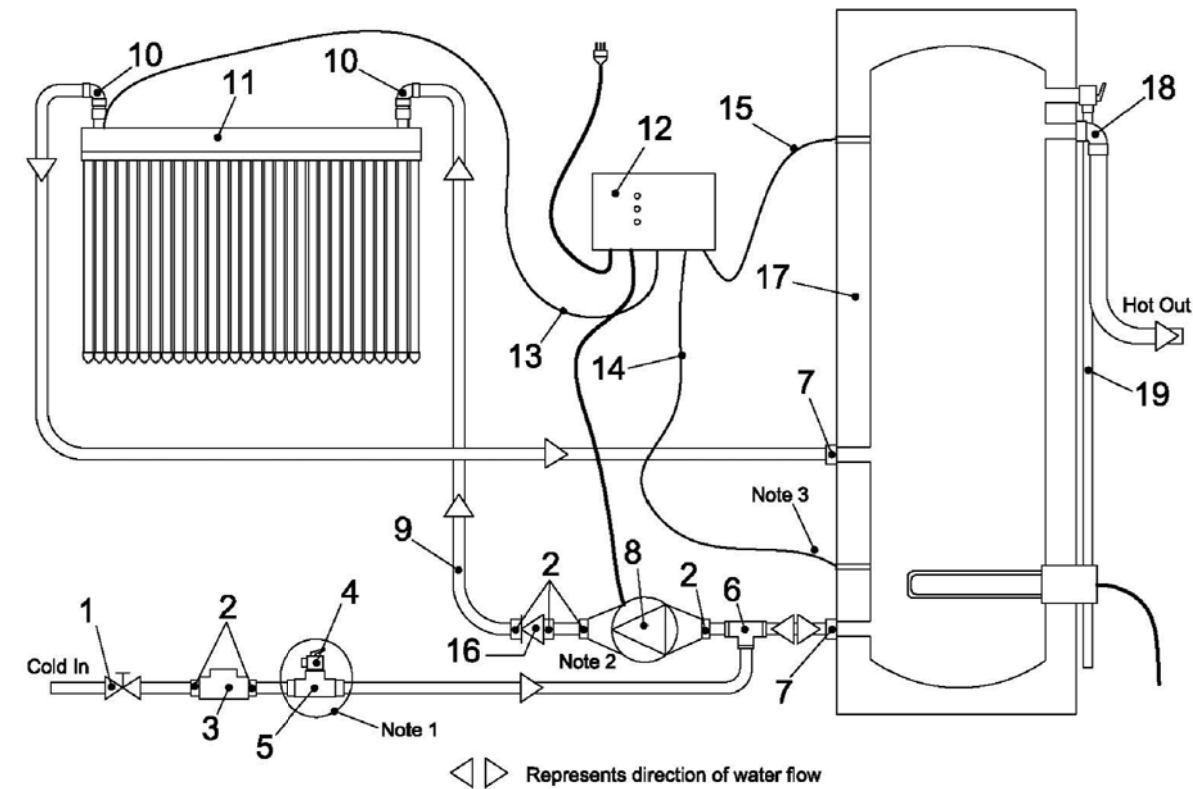
EXHAUST OUTLET
THROUGH ROOF

EXHAUST OUTLET

1/2" PLUMBING LINE

EXHAUST PLAN 1
1/4"=1'-0" IN
0' 1'-0" 2'-0" 3'-0" 4'-0"

Apricus Electric Solar Water Heating System
(using Apricus Solar Tanks)



- Notes:**
- Optional inclusion, compulsory in some states.
 - For one or two storey building the UP15-14B may be used. For 3 storey or taller building use Grundfos UPS-20-60B. For all installations, speed setting may need to be adjusted to match the pressure drop of the pipe run.
 - Place sensor probes into sensor ports on tank. Sensor probes should be coated with thermal paste to ensure optimal heat transfer.

Bill of Materials*

No.	Component Name	Part Number
1	Non-Return Isolating Valve	Duo Valve NR 115FL
2	Union Male 15C x 15M	OO18
3	Pressure Limiting Valve 700kPa 15mm	PLF700F
4	Expansion Control Valve	ECV700
5	Tee F1 centre 15F1 x 15C x 15C	1600
6	Tee 15C all ends	1003
7	Union Male 20M1 x 15C	OO22
8	Grundfos Circulating Pump	See Note 2
9	Tube Cu Lagged 15mm	T47171
10	Elbow Female 15F1 x 15C	OS10
11	Apricus AP Solar Collector	AP-10, 22, 30
12	Reol/Deitasol AX Controller / Apricus Sentinel-B	Reol: 115 211 30 Apricus: Sentinel-B
13	Collector Sensor Cable	
14	Bottom of Tank Sensor Cable	
15	Top of Tank Sensor Cable (Sentinel-B only)	
16	Swing non-return valve 15mm (inline)	RMC 103340
17	Apricus Solar Tank 250L	250GLES
18	Elbow Male 20M1 x 20C	OA18
19	20mm Copper PTRV Drain Pipe	T 83356

*Refer to AS-1.1.20.1 for full component details and AS-1.1.20.2 for complete list of models.



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CONTENDER SOLAR SE
WITH SOLAR PANEL

