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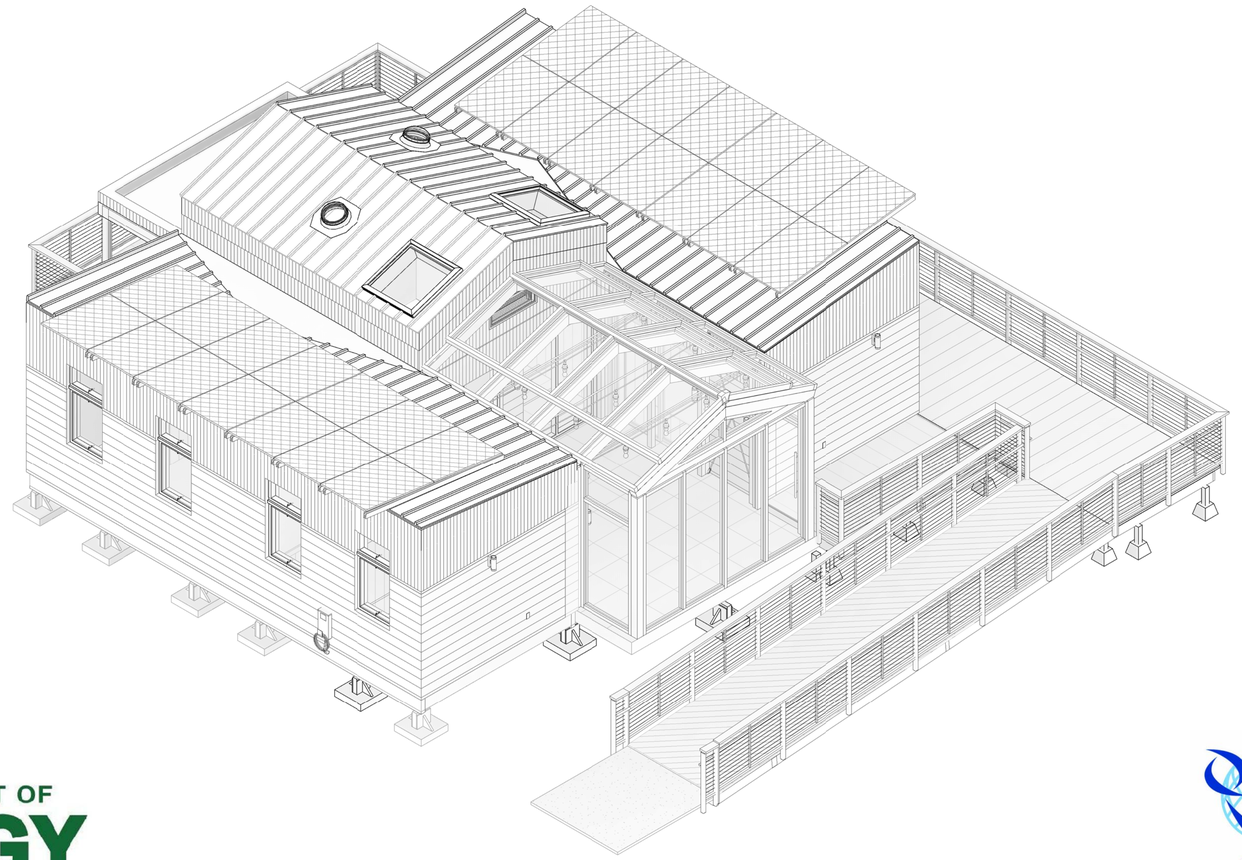
U.S. DEPARTMENT OF ENERGY - SOLAR DECATHLON 2017 SUBMISSION



U.S. DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY SOLAR DECATHLON

PROJECT ARCHITECT

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PROJECT NO.	001
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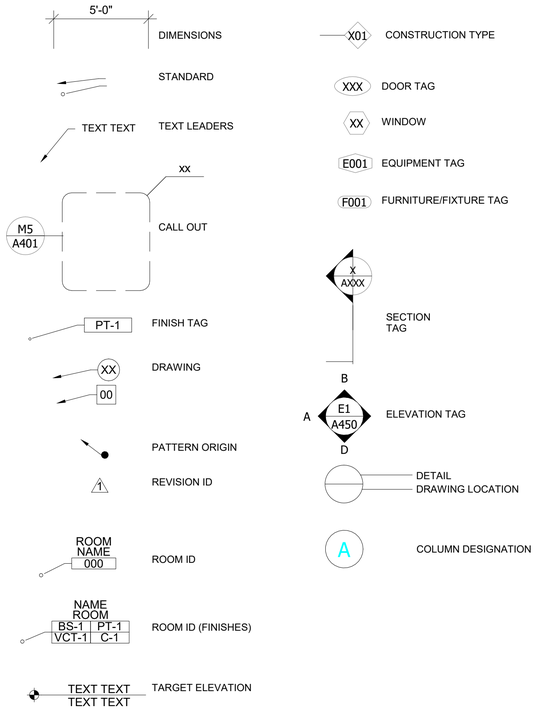
COVER SHEET

G-001

GENERAL NOTES

1. ALL PARTITIONS ARE DIMENSIONED TO FACE OF WALL FINISH, UNLESS NOTED OTHERWISE.
2. ALL FLOORS SHALL BE LEVELED AND FREE FROM IRREGULARITIES TO ASSURE A CONSTANT FLOOR HEIGHT.
3. ALL CONTRACTORS ARE RESPONSIBLE FOR LAYING OUT EQUIPMENT RUNS TO AVOID INTERFERENCE.
4. IF CEILING DIFFUSERS, LIGHT FIXTURES OR OTHER ELEMENTS ON OR ABOVE THE CEILING CANNOT BE LOCATED AS SHOWN ON PLAN DUE TO OBSTRUCTIONS, GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT PRIOR TO COMMENCING WORK.
5. ALL WORK SHALL CONFORM TO TO ALL APPLICABLE CODES: FEDERAL, STATE AND LOCAL BUILDING CODES.
6. AFTER THE JOB IS IN PROGRESS, "CHANGE ORDERS" MUST BE APPROVED BY THE ARCHITECT IN WRITING PRIOR TO COMMENCING WORK.
7. INTERIOR ROOMS SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH STATE AND LOCAL BUILDING CODES.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR BRACING PARTITION WALLS AS REQUIRED AND AT ALL DOOR OPENINGS.
9. ALL MISCELLANEOUS WOOD BLOCKING, SILLS, PLYWOOD, ETC. TO BE FIRE RETARDANT TREATED.
10. ALL MATERIALS ARE TO BE STORED PROPERLY. GENERAL CONTRACTOR IS RESPONSIBLE FOR THE SAFEKEEPING OF MATERIALS.
11. GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF SPECIAL SHIPPING ITEMS. CONTRACTOR SHALL PROVIDE ARCHITECT WITH REASONABLE CONSTRUCTION SCHEDULE TO ARRANGE SHIPPING.
12. THE GENERAL CONTRACTOR SHALL SUBSTITUTE MATERIALS, FINISHES, AND OR EQUIPMENT UPON WRITTEN SUBMITTAL AND APPROVAL TO THE PROJECT MANUAL.
13. NO SUBSTITUTIONS SHALL BE ALLOWED DURING THE CONSTRUCTION PROCESS UNLESS APPROVED BY THE ARCHITECT.
14. DIMENSIONS NOTED 'CLEAR' SHALL NOT BE ADJUSTED WITHOUT PRIOR APPROVAL BY THE ARCHITECT.
15. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL FIRE DAMPERS, SMOKE DETECTORS, AND SPRINKLER HEADS AS REQUIRED BY FIRE MARSHALL AND LOCAL CODES.
16. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL CONSTRUCTION DEBRIS AND REFUSE.
17. UPON SUBSTANTIAL COMPLETION OF WORK, CONTRACTOR SHALL PREPARE A PUNCH LIST AND NOTIFY ARCHITECT TO REVIEW AND VERIFY PUNCH-LIST FOR CORRECTIONS.
18. ALL DOOR JAMBS SHALL BE INSTALLED PLUMB AND SQUARE.

SYMBOL LEGEND



Sheet List		
Sheet Type	Sheet Number	Sheet Name
00 - GENERAL	G-001	COVER SHEET
00 - GENERAL	G-002	DRAWING INDEX
00 - GENERAL	G-101	FINISHED SQUARE FOOTAGE COMPLIANCE PLAN
00 - GENERAL	G-102	SITE PLAN & VICINTIY PLAN
00 - GENERAL	G-103	EGRESS & EVACUATION PLAN
00 - GENERAL	G-104	PUBLIC EXHIBIT LAYOUT AND TOUR PATH PLAN
10 - LANDSCAPE	L-101	LANDSCAPE PLAN
10 - LANDSCAPE	L-200	LANDSCAPE ELEVATIONS
10 - LANDSCAPE	L-500	PLANTING DETAIL
10 - LANDSCAPE	L-501	VGP GREEN WALL DETAIL
10 - LANDSCAPE	L-600	PLANT SCHEDULE
20 - STRUCTURAL	S-001	STRUCTURAL NOTES
20 - STRUCTURAL	S-002	SIP PANEL LAYOUT
20 - STRUCTURAL	S-100	FOUNDATION PLAN
20 - STRUCTURAL	S-101	FLOOR FRAMING PLANS
20 - STRUCTURAL	S-102	ROOF FRAMING PLANS
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20 - STRUCTURAL	S-410	GREENHOUSE PLANS & SECTIONS
20 - STRUCTURAL	S-501	WALL CONNECTION DETAILS
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20 - STRUCTURAL	S-503	ATTIC DETAILS
20 - STRUCTURAL	S-506	DECK DETAILS
20 - STRUCTURAL	S-510	GREENHOUSE FRAMING DETAILS
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40 - FIRE PROTECTION	F-102	FIRE SUPPRESSION COVERAGE
40 - FIRE PROTECTION	F-600	FIRE PROTECTION SCHEDULES
40 - FIRE PROTECTION	F-901	SPRINKLER ISOMETRIC
50 - PLUMBING	P-001	PLUMBING SYMBOLS AND NOTES
50 - PLUMBING	P-005	DOMESTIC SANITARY
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60 - MECHANICAL	M-001	MECHANICAL SYMBOLS AND NOTES
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80 - OPERATIONS	O-100	COMPETITION SITE PLAN
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80 - OPERATIONS	O-102	TRANSPORT DETAILS
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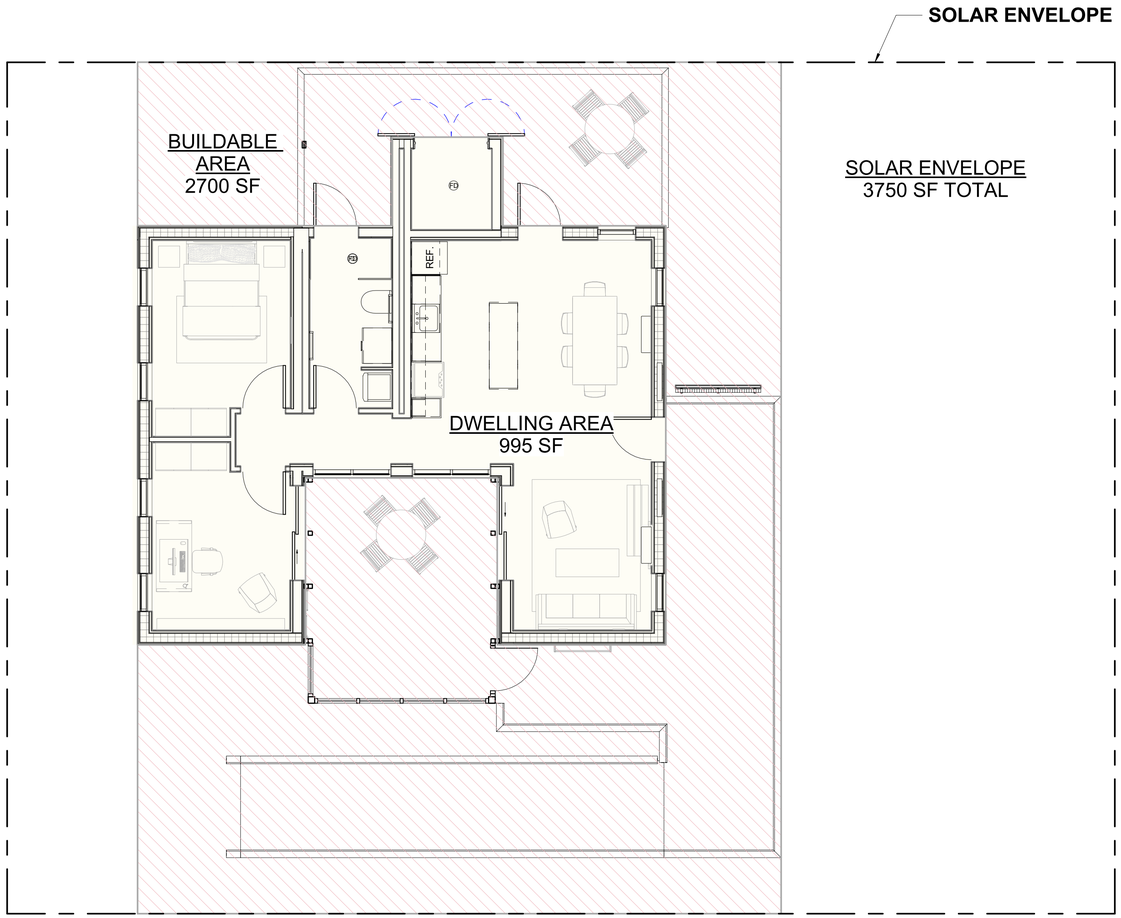
DRAWING INDEX

G-002



1 SQUARE FOOT AGE COMPLIANCE PLAN
3/16" = 1'-0"

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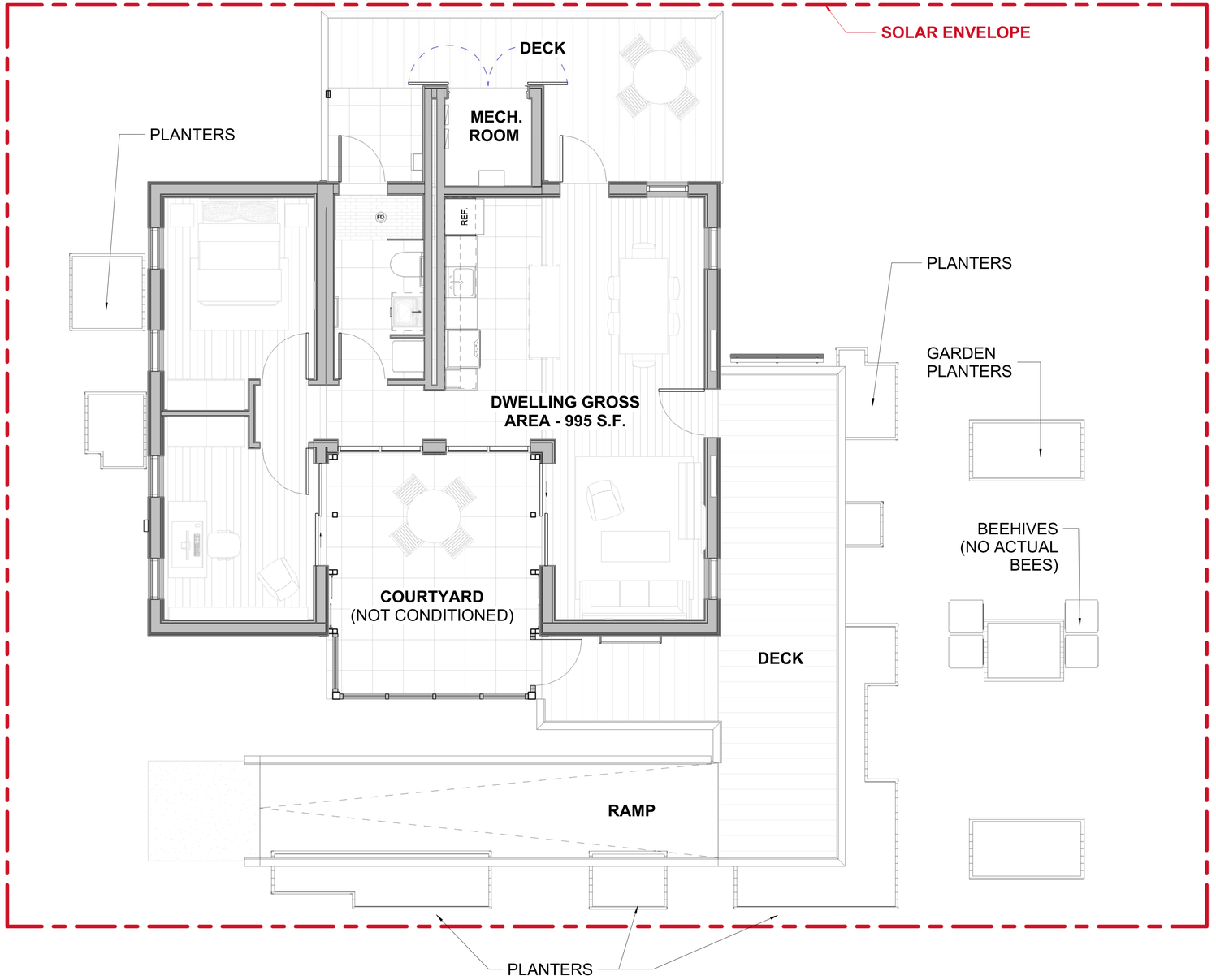
FINISHED SQUARE FOOTAGE COMPLIANCE PLAN

G-101

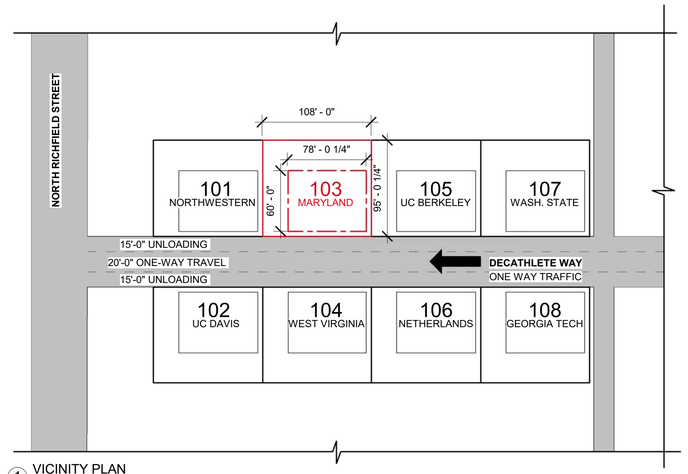
SITE PLAN NOTES

MARYLAND CONTEST SPACE: 108'-0" x 95'-0"

TOTAL DISTANCE: 60'-0" x 78'-0"



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



1 VICINITY PLAN
1" = 75'-0"

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SITE PLAN & VICINTIY PLAN

G-102

LIFE SAFETY NOTES

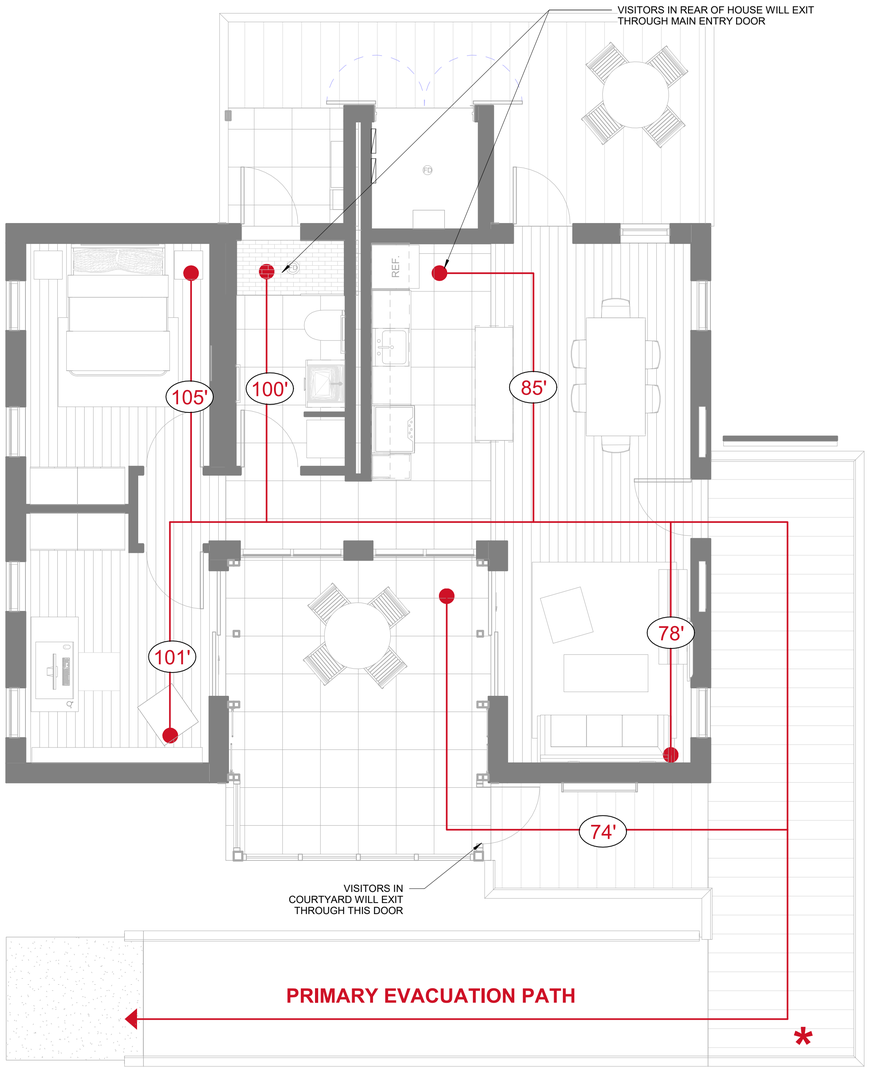
MARYLAND CONTEST SPACE: 108'-0" x 95'-0"

TOTAL DISTANCE: 60'-0" x 78'-0"

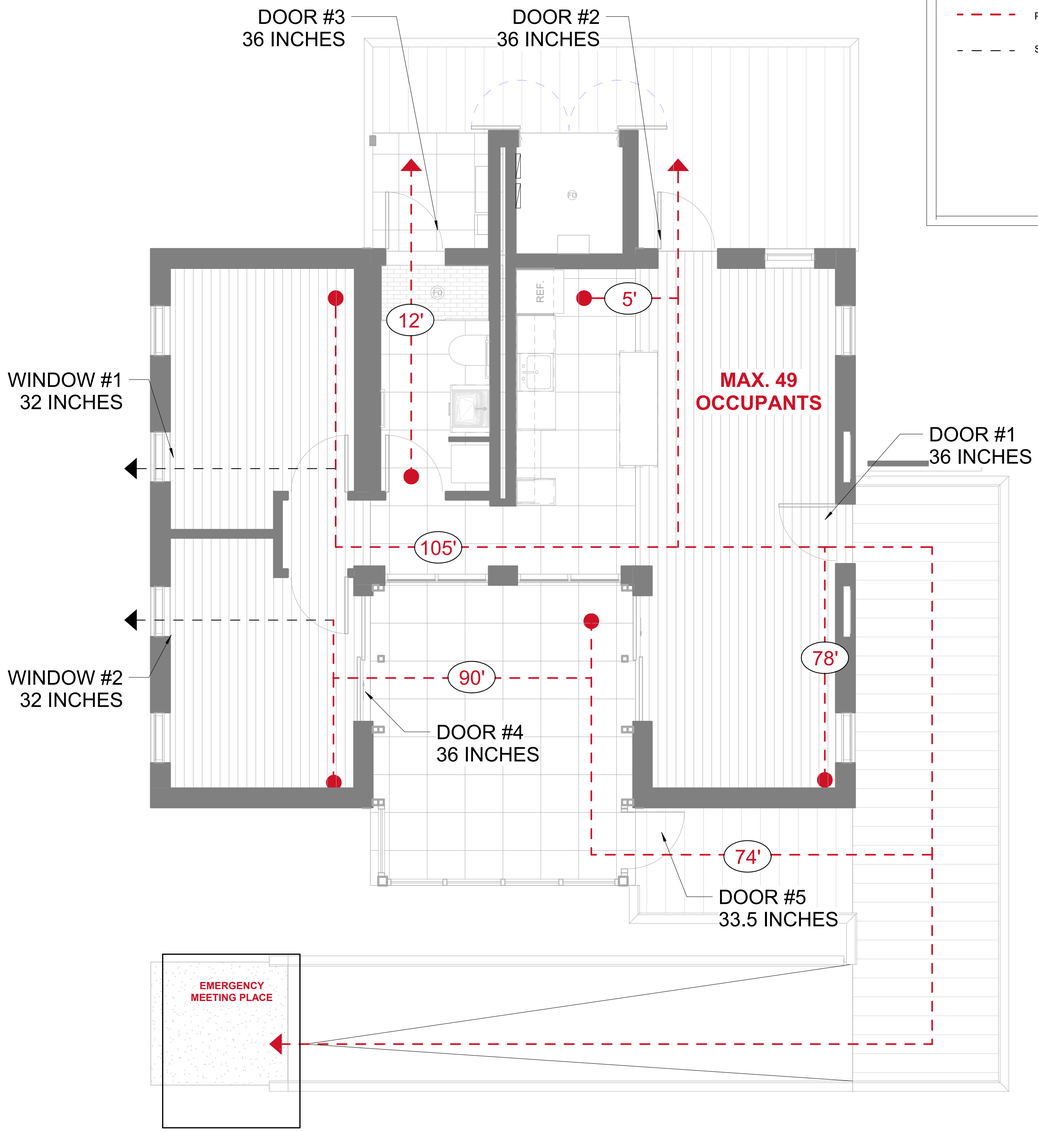
MAXIMUM OCCUPANCY: 49 OCCUPANTS

LIFE SAFETY LEGEND

- COMMON PATH OF TRAVEL
- PRIMARY EGRESS PATH
- SECONDARY EGRESS PATH



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



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

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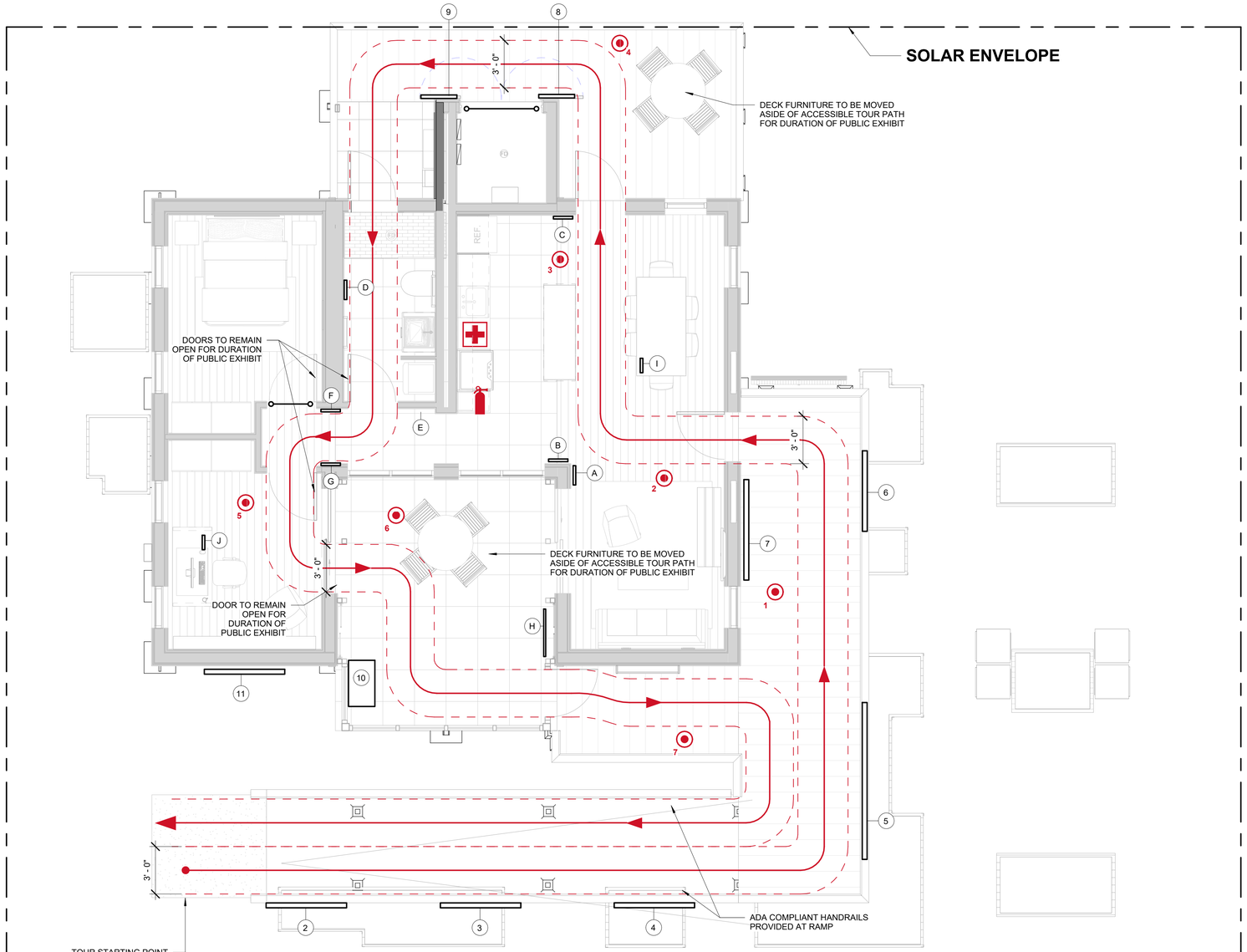
EGRESS & EVACUATION PLAN

G-103



1 TOUR LAYOUT PLAN
1/4" = 1'-0"

ACCESSIBILITY NOTES

1. THE ACCESSIBLE ROUTE INDICATED SHALL COMPLY WITH THE 2010 STANDARD FOR ACESSIBLE DESIGN.
2. THE RUNNING SLOPE OF ALL WALKING SUFACES SHALL NOT BE STEEPER THAN 1:20.
3. HANDRAILS COMPLIANT WITH ALL ADA REQUIREMENTS SHALL BE PROVIDED AT THE ENTRY RAMP.
4. RAILING CABLES SHALL BE INSTALLED SO AS TO PREVENT THE PASSAGE OF A 4 INCH DIAMETER SPHERE WITHIN 4 INCHES OF THE GROUND SURFACE.
5. HANDRAIL HEIGHT IS TO BE WITHIN 34 - 38 INCHES ABOVE WALKING SURFACE. HANDRAIL DIAMETER IS TO BE WITHIN 1-1/2 TO 2 INCHES, AND MOUNTED AT LEAST 1-1/2" INCHES AWAY FROM MAIN RAILING.

EXHIBIT NOTES

1. ALL EXTERIOR SIGNS TO BE WEATHER RESISTANT.
2. EXTERIOR SIGNAGE TO INCLUDE GENERAL FACTS ABOUT WATER AND/OR ENERGY CONSERVATION, USAGE, AND OTHER HOUSEHOLD FACTS.
3. EXTERIOR DOORS TO REMAIN OPEN FOR DURATION OF PUBLIC EXHIBIT, WEATHER PERMISSABLE

TOUR PLAN LEGEND

- TOUR PATH OF TRAVEL
- ACCESSIBLE PATH CLEARANCE
- FIRST AID KIT LOCATION - IN CABINET
- FIRE EXTINGUISHER LOCATION - IN CABINET
- TOUR GUIDE LOCATION
- DOOR BARRIER

EXTERIOR SIGNAGE

1. WELCOME SIGN
2. ARCHITECTURE
3. ENGINEERING
4. CONSTRUCTION
5. CONSTRUCTION SEQUENCE
6. CULTURAL CONNECTIONS
7. REGENERATIVE SYSTEMS
8. WATER SYSTEM
9. MECH/ELEC SYSTEMS
10. WALL MOCK-UP (3D EXHIBIT)
11. INTERACTIVE STATION

INTERIOR SIGNAGE

- A LIVING AREA
- B ATTIC
- C KITCHEN & DINING
- D BATHROOM
- E INTERACTIVE PANEL
- F BEDROOM
- G STUDY
- H COURTYARD
- I J RECONFIGURABLE FURNITURE

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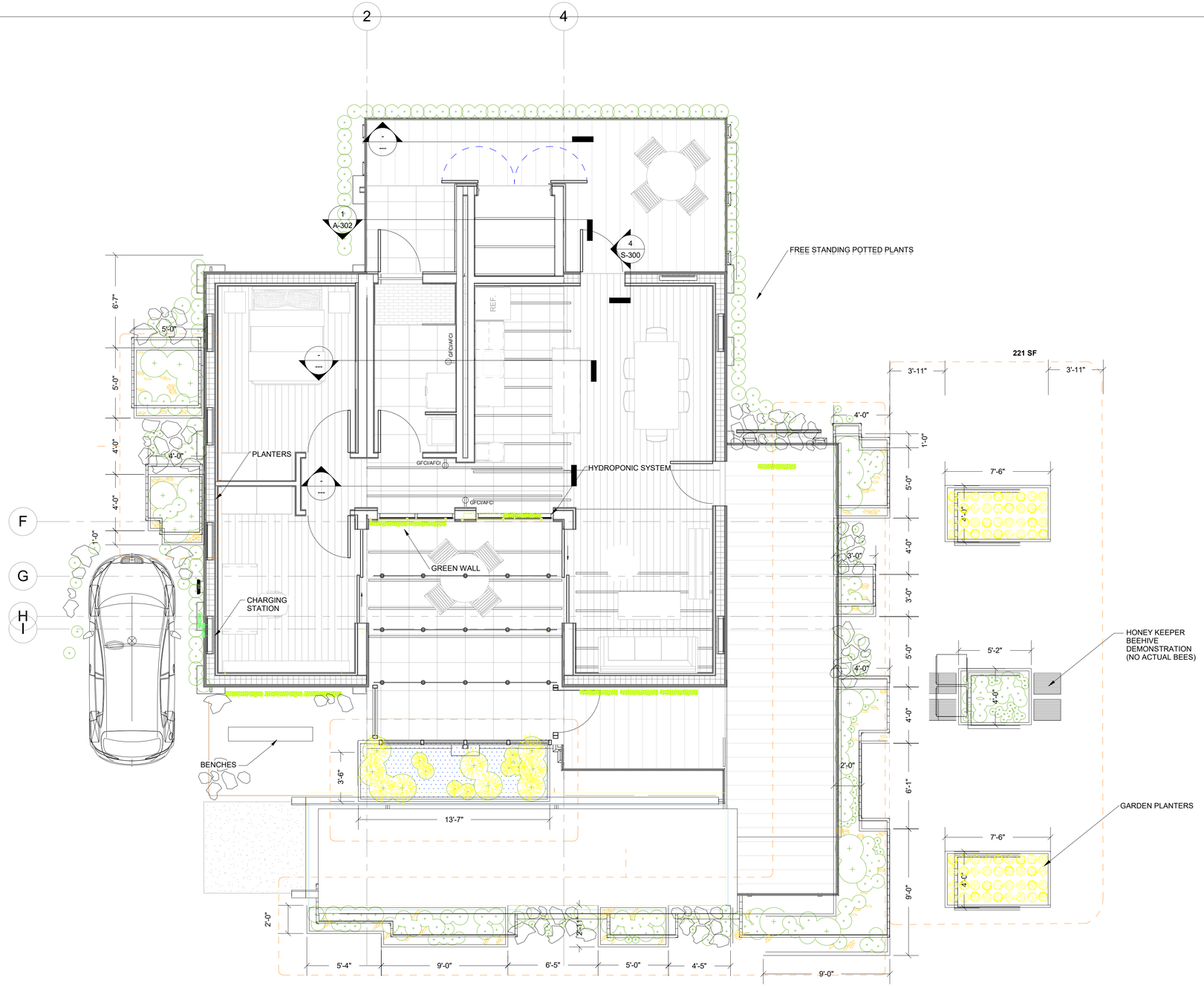
PUBLIC EXHIBIT LAYOUT AND TOUR PATH PLAN

G-104



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

LANDSCAPE PLAN GENERAL NOTES

A.

B.

C.

D.

LANDSCAPE PLAN SHEET NOTES

A. TOTAL SQUARE FOOTAGE OF PLANTERS: 490SF

LANDSCAPE PLAN LEGEND

- SMALL BOULDER
- BOULDER
- VEGETABLES
- GRASS
- HERBACEOUS
- WETLANDS
- SHRUBS
- TREES

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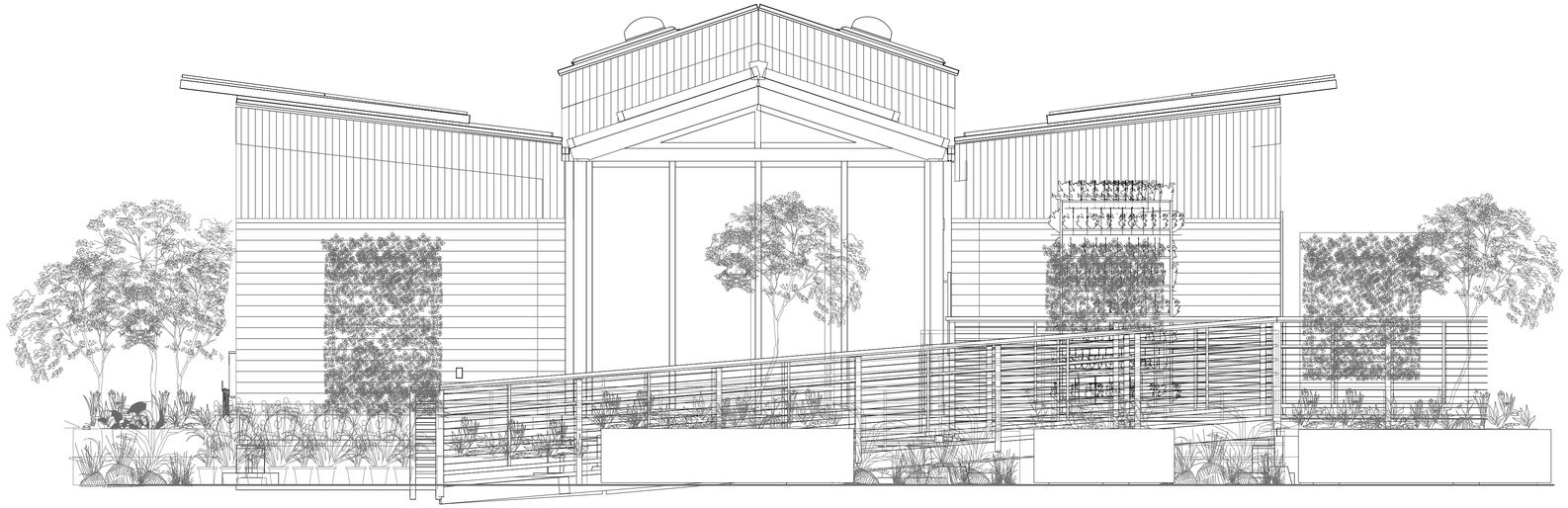
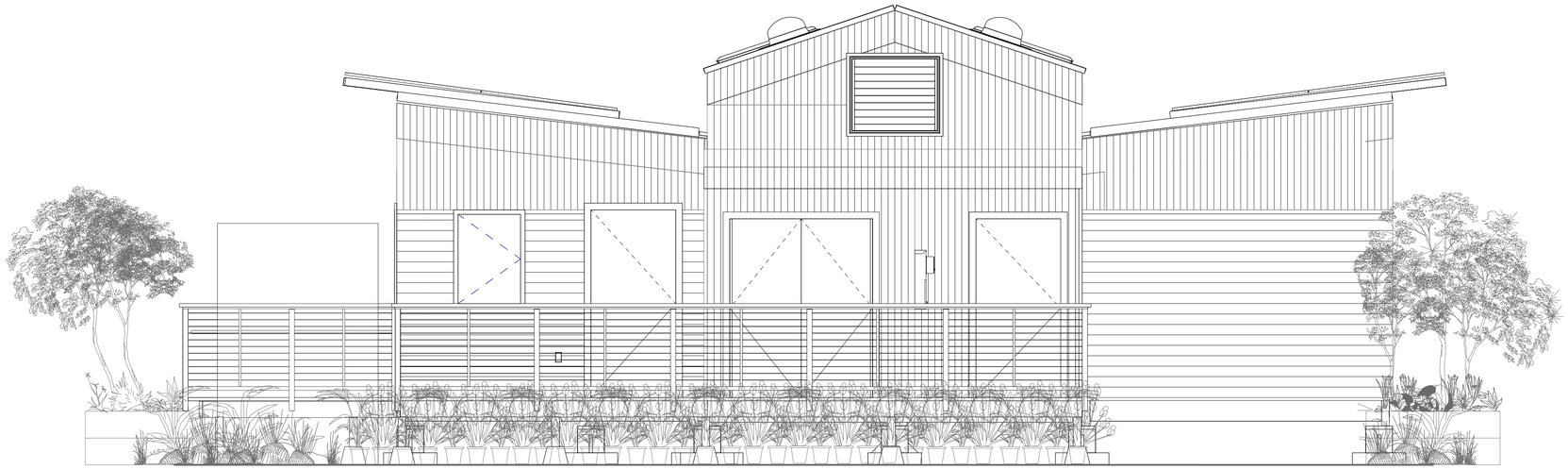
LANDSCAPE PLAN

L-101



1 LANDSCAPING SOUTH ELEVATION
3/8" = 1'-0"



4 Landscape North Elevation
3/8" = 1'-0"

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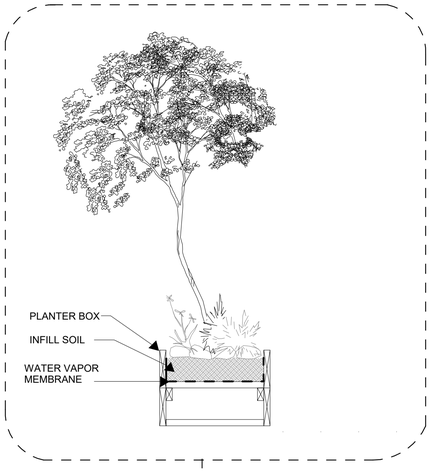
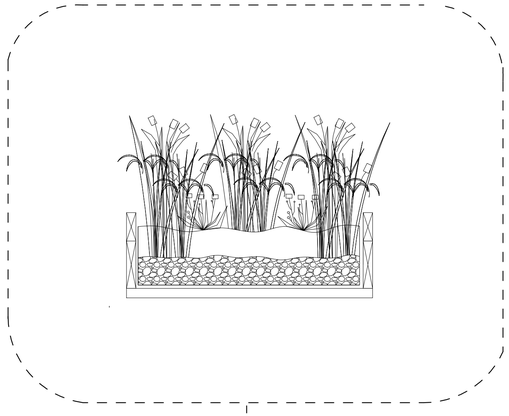
LANDSCAPE ELEVATIONS

L-200





2 PLANTER ASSEMBLY EAST ELEVATION
3/8" = 1'-0"

1 West Elevation Landscape
3/8" = 1'-0"

PLANTING DETAIL GENERAL NOTES

PLANTING DETAIL PLAN SHEET NOTES

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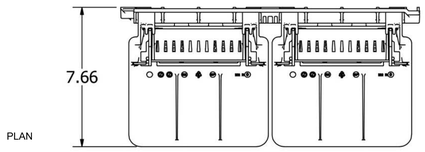
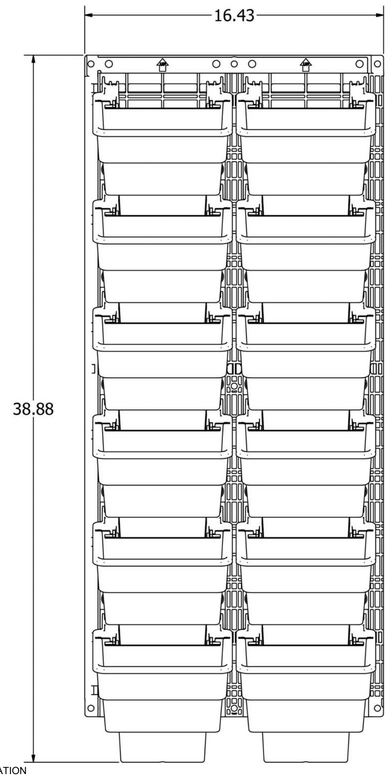
PLANTING DETAIL

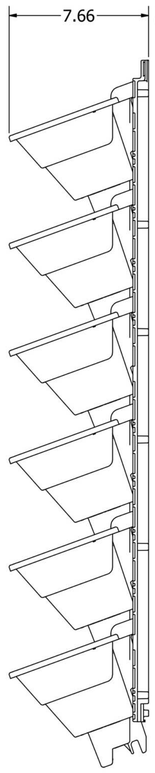
L-500



PLAN

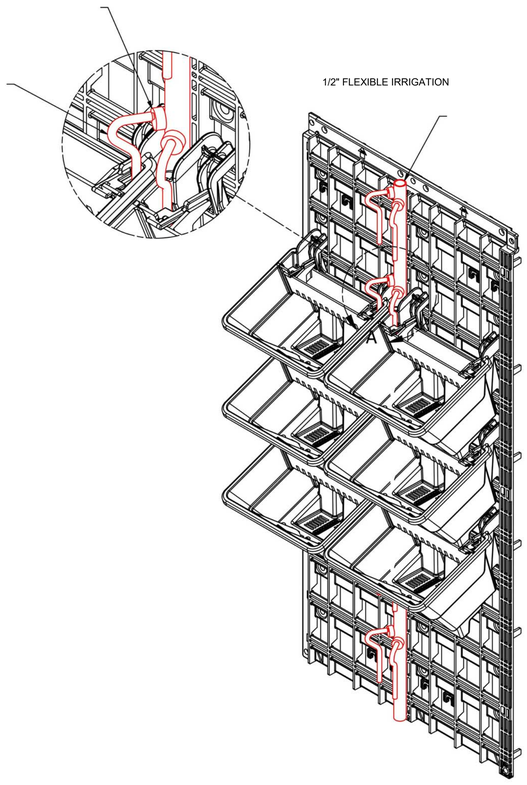


ELEVATION

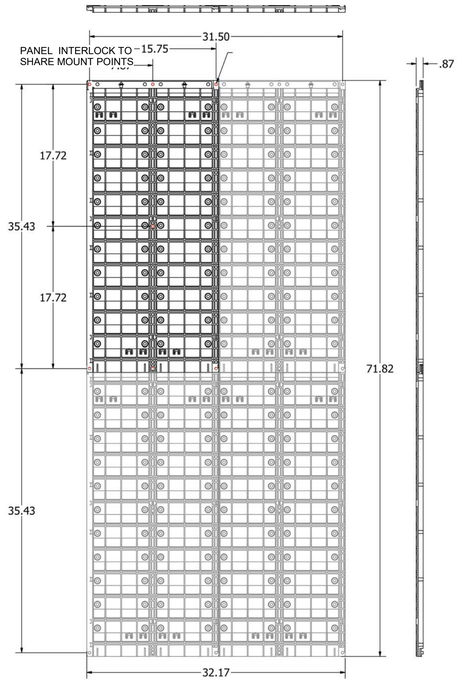


SECTION

EMITTER

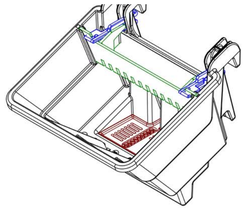


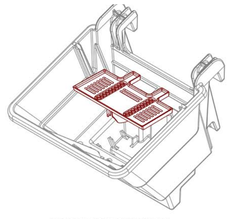
SAMPLE IRRIGATION



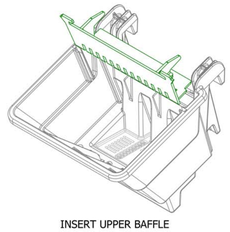
2 X 2 PANEL PATTERN SHOWN

(SECURE WITH 1/4" HARDWARE)
(7 PLACEPER PANEL)

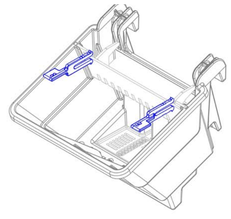




INSERT BOTTOM BAFFLE



INSERT UPPER BAFFLE



INSERT SAFETY CLIPS
(TO LOCK TO WALL PANEL)

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VGP GREEN WALL DETAIL

L-501

LATIN NAME	COMMON NAME	EDIBILTIY	TYPE OF VEGETATION	SOIL	DESCRIPTION	HEIGHT	SPREAD	WATER	WILDLIFE	BLOOM TIME
Allium brevistylum	Shortstyle onion	Yes								
Amorpha canescens Pursh	Lead plant flowers	Yes								
				Medium to wet soil, need	requires extra care and preperation					
Arisaema triphyllum	Jack in the Pulpit	Yes		moisture	in order to use for culinary purposes	1-2'	1-1.5'	medium to wet		April top May
Asclepias speciosa	Showy milk weed	Yes	Herbaceous perennial			1-3'	1-1.5'	dry to medium	hummingbirds, butterflies	May to June
Calochortus gunnisonii	Mariposa lily, sego lily	Yes								May to July
Cedrus atlantica 'Glauca Pendula'	Blue atlas cedar	Yes/No			used for braising					
Dryopteris erythrosoa	Wood autnm fern	No								
Epilobium angustifolium	Fireweed	Yes			Entire plant is basically edible	4'		Wet medium to Dry		Jun to Aug
					Tolerates wet soil, deer, medicinal					
Lobelia cardinalis	Cardinal Flower	Yes	Herbaceous perennial		properties, low maintenance	2-4'	1-2'	Medium to Wet	Hummingbirds, Butterflies	July to Sept
Matteeuccia struthiopteris	Ostrich Fern	Yes								
Monarda fistulosa	Amaranth, Red root pigweed	Yes	Herbaceous Pernnial	makes a great spice for me	Tends to self seed tolerates drought	2-4'	2-3'	Dry to Medium	Hummingbirds, Butterflies	July to September
Monarda fistulosa	Wild bergmot	Yes								
					Prickly pear coulis, edible fruits &					
				Easily grown in dry, sandy,	petals, easily propogated, good for					
Opuntia compressa	Prickly pear	Yes	Herbaceous perennial	gravelly, well-drained soils	winter	.5-1'	1-1.5'	Dry		June to July
populus tremuloids	Quaking aspen	Yes	Tree							
Prunus virginiana	Chokecherries	Yes	Tree			20-30'	15-20'	Dry to Medium	Birds, butterflies	April to May
				Medium moisture, well						
Ribes uva-crispa	Gooseberry	Yes	Fruit	drained soil	Protect from wind and frost	2-5'	3-6'	Medium	Birds, Butterflies	April
Scutellaria incana	downy skullcap	No	Herbaceous perennial		Used for medicinal purposes only	2-3'	1.5-2'	Dry ot Medium		July to September
Typha latifolia	Common Cattail	Yes	Herbaceous perennial	Wet	Native to marshes, swamps	4-6'	4-6'	Wet	Birds	June to July
					Roots mized with tepid water drunk					
					for stomachache, root used to make				Nesting for small mammals,	
Yucca glauca	Soapweed yucca	Yes	Perennial		soap	4'	3-4'	Low	birds and reptiles	Jun to Aug
	Zucchini		Herbaceous perennial			2-4'	1-3'	Medium		April to September
	Eggplant	Yes				1-2'	2-3'			July to September
	Alfalfa		Garden/Green Wall							
	Bay		Garden/Green Wall							
	Beans		Garden/Green Wall							
	Buffalo berries		Garden/Green Wall							
	Cilantro		Garden/Green Wall							
	Cotton		Garden/Green Wall							
	Garlic		Garden/Green Wall							
	Grains		Garden/Green Wall							
	Grapes		Garden/Green Wall							
	Guayule		Garden/Green Wall							
	Juniper		Garden/Green Wall							
	Melons		Garden/Green Wall							
	Navajo robin's egg		Garden/Green Wall							
	Onion		Garden/Green Wall							
	Peaches		Garden/Green Wall							
	Pueblo Chiles		Garden/Green Wall							
	purslane		Garden/Green Wall							
	Seed crops		Garden/Green Wall							
	Spinach		Garden/Green Wall							
	Squash		Garden/Green Wall							
	Squash blossom		Garden/Green Wall							
	Strawberries		Garden/Green Wall							
	Sweet potatoes		Garden/Green Wall							

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PLANT SCHEDULE

L-600

STRUCTURAL SPECIFICATIONS AND GENERAL CONDITIONS GENERAL

1. WHERE THESE SPECIFICATIONS CONFLICT WITH OTHER PROJECT SPECIFICATIONS, THESE SPECIFICATIONS SHALL GOVERN.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL APPLICABLE CODES AND REGULATIONS. APPROPRIATE SAFETY MEASURES WHICH SATISFY LOCAL AND OSHA REQUIREMENTS SHALL BE PROVIDED.
3. PROPER TEMPORARY BRACING OF ALL CONSTRUCTION WORK IN PROGRESS IS THE CONTRACTOR'S RESPONSIBILITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION AND THE REPAIR OF ANY DAMAGED FACILITIES.
5. SECTIONS AND DETAILS SHOWN, WHILE DRAWN FOR SPECIFIC LOCATIONS, ARE INTENDED TO ESTABLISH THE GENERAL TYPES OF DETAILS TO BE USED THROUGHOUT.
6. DRAWINGS SHOULD NOT BE SCALED. CONTACT THE ENGINEER FOR CLARIFICATION OF ANY DIMENSION IN QUESTION.
7. ALL DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR. LAYOUT SHALL BE CHECKED AND COORDINATED BETWEEN ALL CONSTRUCTION DOCUMENTS AND SPECIFICATIONS PRIOR TO START OF WORK.
8. SHOP DRAWINGS PREPARED BY THE SUBCONTRACTORS, SUPPLIERS, ETC. SHALL BE REVIEWED BY THE ENGINEER FOR CONFORMANCE WITH DESIGN CONCEPT ONLY. EACH SHOP DRAWING SUBMITTED SHALL BE STAMPED, INITIALED AND DATED AS BEING REVIEWED BY THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR. WORK SHALL NOT BEGIN WITHOUT THE REVIEW BY THE ENGINEER.
9. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW OR RECORD SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WEST VIRGINIA.

DESIGN DATA

1. BUILDING CODE = 2015 INTERNATIONAL BUILDING CODE.

2. FLOOR LOAD:
2.1 DEAD LOAD = 15 PSF
2.2 LIVE LOADS = 50 PSF

3. ROOF LOAD:
3.1. DEAD LOAD = 5,625 PSF (ROOF JOIST LOCATIONS); 25 PSF (ROOF TRUSS LOCATIONS)
3.2. LIVE LOAD = 30 PSF

4. SNOW LOAD:
4.1. GROUND SNOW LOAD, PG = 35 PSF

6. WIND LOAD:
6.1. BASIC WIND SPEED (3-SECOND GUST) = 115 MPH
6.2. WIND IMPORTANCE FACTOR, IW = 1.0
6.3. BUILDING CATEGORY = II
6.4. EXPOSURE CATEGORY = C

7. SEISMIC DESIGN:
7.1 SITE CLASS : B
7.2 SOIL CLASS : D

9. WOOD FRAMING DESIGN METHOD:
9.1. DESIGN PER LRFD
9.2. LOADS INDICATED ARE LRFD LOADS

SPECIAL INSPECTION REQUIREMENTS

1. THE FOLLOWING TYPES OF WORK REQUIRE SPECIAL INSPECTION BASED ON SECTION 1704 OF THE 2012 INTERNATIONAL BUILDING CODE. THE OWNER WILL EMPLOY SPECIAL INSPECTORS WHO SHALL PROVIDE SPECIAL INSPECTIONS FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS AND OTHER REFERENCES NOTED. REPORTS SHALL BE SUBMITTED TO THE ENGINEER AND BUILDING OFFICIAL ON A PERIODIC BASIS. A FINAL REPORT SHALL BE SUBMITTED DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES PRIOR TO THE END OF CONSTRUCTION.
2. WOOD CONSTRUCTION
2.1. INSPECT WOOD STRUCTURAL PANEL SHEATHING FOR HIGH-LOAD DIAPHRAGMS TO ENSURE CORRECT GRADE AND THICKNESS.
2.2. VERIFY NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES.
2.3. VERIFY FASTENER DIAMETER AND LENGTH, NUMBER OF FASTENER LINES, AND SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE MARGINS.

CONSTRUCTION PROCEDURES AND SAFETY REQUIREMENTS

1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE INDICATED, THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION.
2. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE WORKMEN AND OTHER PERSONS DURING CONSTRUCTION. PROVIDE ALL NECESSARY MEASURES TO AVOID EXCESSIVE STRESSES AND HOLD THE STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT AND EARTHEN BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT/BRACING FOR CRANES AND HOISTS, GUYING, ETC.
3. ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES SHALL BE USED. OBSERVATIONAL VISITS TO THE SITE BY STRUCTURAL ENGINEER'S FIELD REPRESENTATIVE SHALL NOT INCLUDE THE ITEMS NOTED ABOVE.
4. SUPERVISE AND DIRECT THE WORK SO AS TO MAINTAIN SOLE RESPONSIBILITY FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. RETAIN THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND TO DESIGN AND SUPERVISE ANY SCAFFOLDING FOR WORKMEN, AND ALL SHORING OF FORMS AND ELEMENTS OF THE CONSTRUCTION.

FOUNDATION CONSTRUCTION
1. ALLOWABLE SOIL BEARING PRESSURE (NET) ASSUMED IN DESIGN IS 2,500 PSF (POUNDS PER SQUARE FOOT) BASED ON THE SOLAR DECATHLON COMPETITION RULES.

STRUCTURAL STEEL
1. ALL STEEL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, MARCH 9, 2005 (AISC 360), THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004, THE CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, MARCH 18, 2008 (AISC 303) AND THE AISC STEEL CONSTRUCTION MANUAL, 13TH EDITION.
2. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AWS D1.1 STRUCTURAL WELDING CODE – STEEL, LATEST EDITION, AND AISC SPECIFICATIONS USING THE PROPER ELECTRODE FROM AWS D1.1 TABLE 3.1 AND PERFORMED ONLY BY QUALIFIED WELDERS.
3. STRUCTURAL STEEL PLATES AND ANGLES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36, WITH A MINIMUM YIELD STRESS OF 36 KSI.
4. SQUARE OR RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500, GRADE B, WITH A MINIMUM YIELD STRESS OF 46 KSI.
5. SHOP DRAWINGS FOR THE FABRICATION AND ERECTION OF ALL STRUCTURAL STEEL SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE FIELD CORRECTIONS ARE MADE.
7. ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1554, WITH A MINIMUM YIELD STRENGTH OF 36 KSI, UNLESS NOTED OTHERWISE. BOLTS SHALL BE 5/8" IN DIAMETER UNLESS NOTED OTHERWISE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY BRACING OF ALL STEEL DURING ERECTION AND UNTIL CONSTRUCTION IS COMPLETE.
9. THE CONTRACTOR SHALL FURNISH ALL PLATES, CLIP AND SEAT ANGLES, AND CONNECTIONS FOR COMPLETION OF THE STRUCTURE, EVEN IF SUCH ITEMS ARE NOT SPECIFICALLY CALLED FOR ON THE STRUCTURAL DRAWINGS.
10. STEEL FABRICATORS SHALL BE RESPONSIBLE FOR OBTAINING ALL FIELD DIMENSIONS NECESSARY FOR THE COMPLETION OF THEIR WORK.
11. MINIMUM SIZE OF FILLET WELDS, UNLESS OTHERWISE NOTED, IS TO BE 3/16-INCH FILLET. CHIP, WIRE BRUSH CLEAN AND PRIME PAINT ALL FIELD WELDS.
12. ALL STEEL MEMBERS ARE CONCEALED WITHIN WALLS AND THUS ONLY REQUIRE PRIMER COATING:
12.1. REFERENCE STEEL STRUCTURES PAINTING COUNCIL (SSPC) – A GUIDE TO THE SHOP PAINTING OF STRUCTURAL STEEL
12.2. SURFACE PREPARATION = SSPC-SP 2
12.3. PRE-TREAT = NONE REQUIRED
12.4. PRIMER = SSPC-PAINT 15
12.5. TOUCH-UP = AS PER MANUFACTURER SPECIFICATIONS
12.6. SURFACES WITHIN 2 INCHES OF WELDS SHALL BE FREE OF MATERIAL THAT WOULD PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES WHILE WELDING IS BEING DONE.

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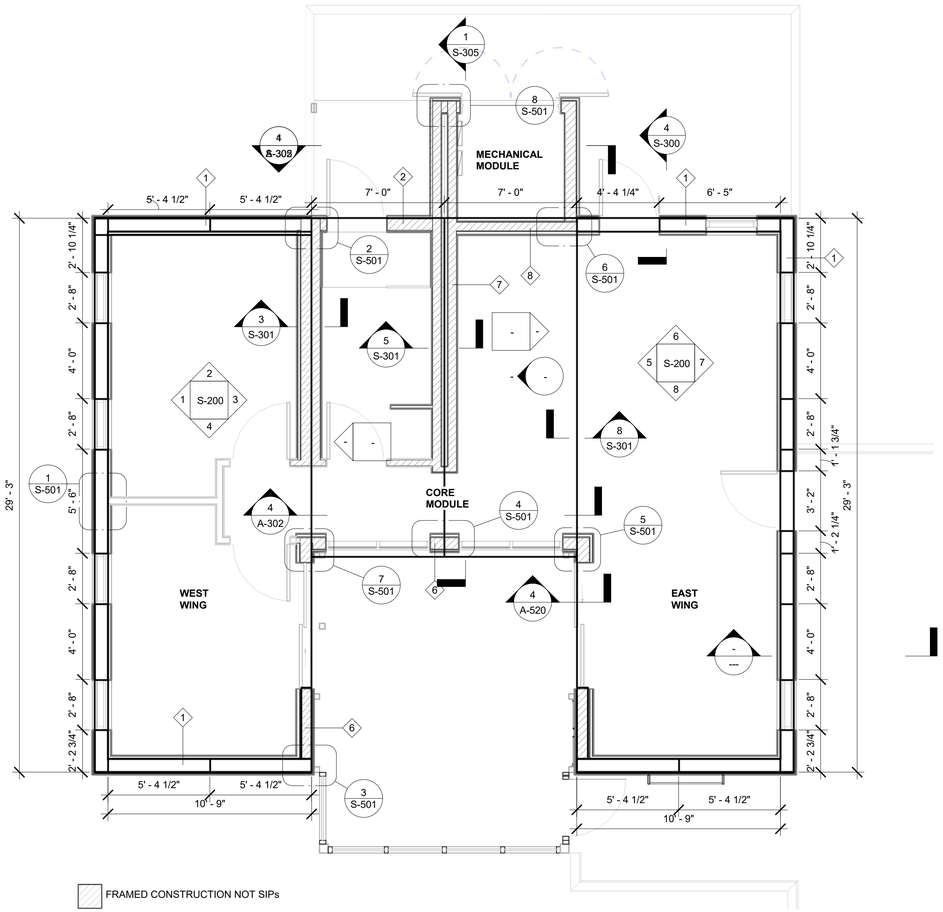
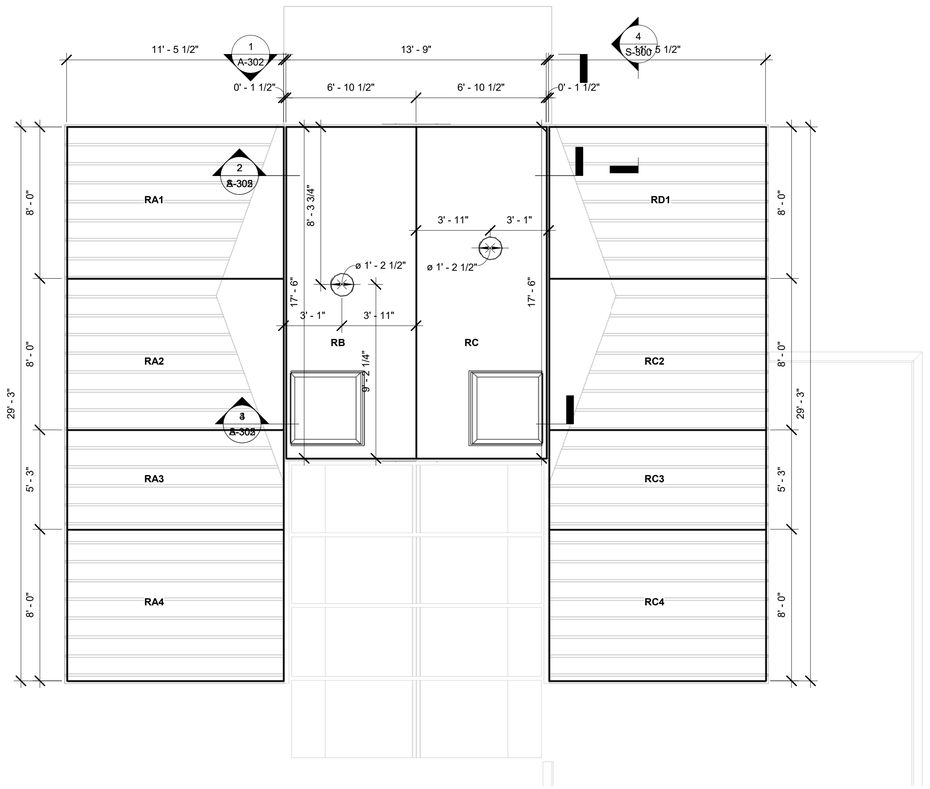
STRUCTURAL NOTES

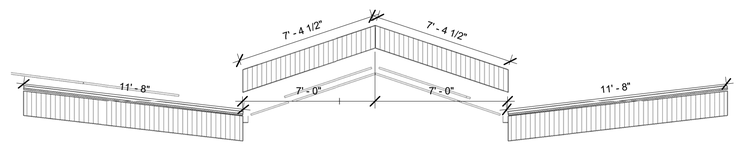
S-001



1 MAIN FLOOR PANEL PLAN
1/4" = 1'-0"



2 ROOF PANEL PLAN
1/4" = 1'-0"



3 ROOF PANEL ELEVATIONS
1/4" = 1'-0"

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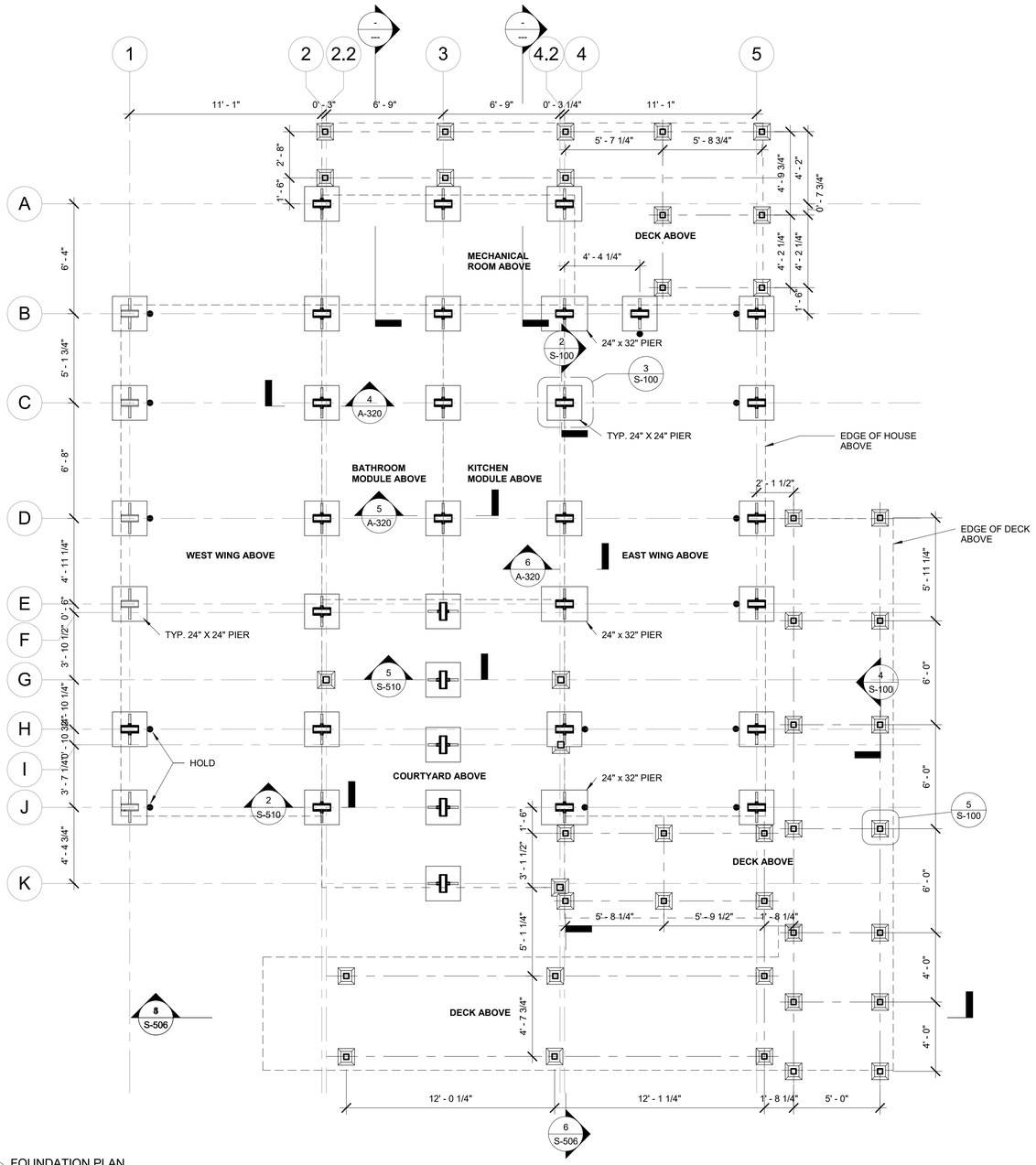
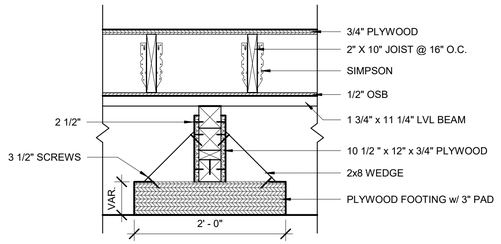
SIP PANEL LAYOUT

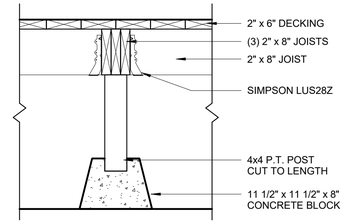
S-002



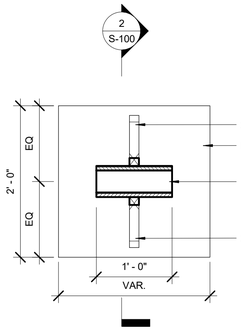
1 FOUNDATION PLAN
1/4" = 1'-0"



2 TYPICAL PIER SECTION
1" = 1'-0"



4 TYPICAL POST FOOTING
1" = 1'-0"



3 TYPICAL PIER PLAN
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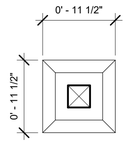

5 TYPICAL DECK POST PLAN
1" = 1'-0"

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FOUNDATION PLAN

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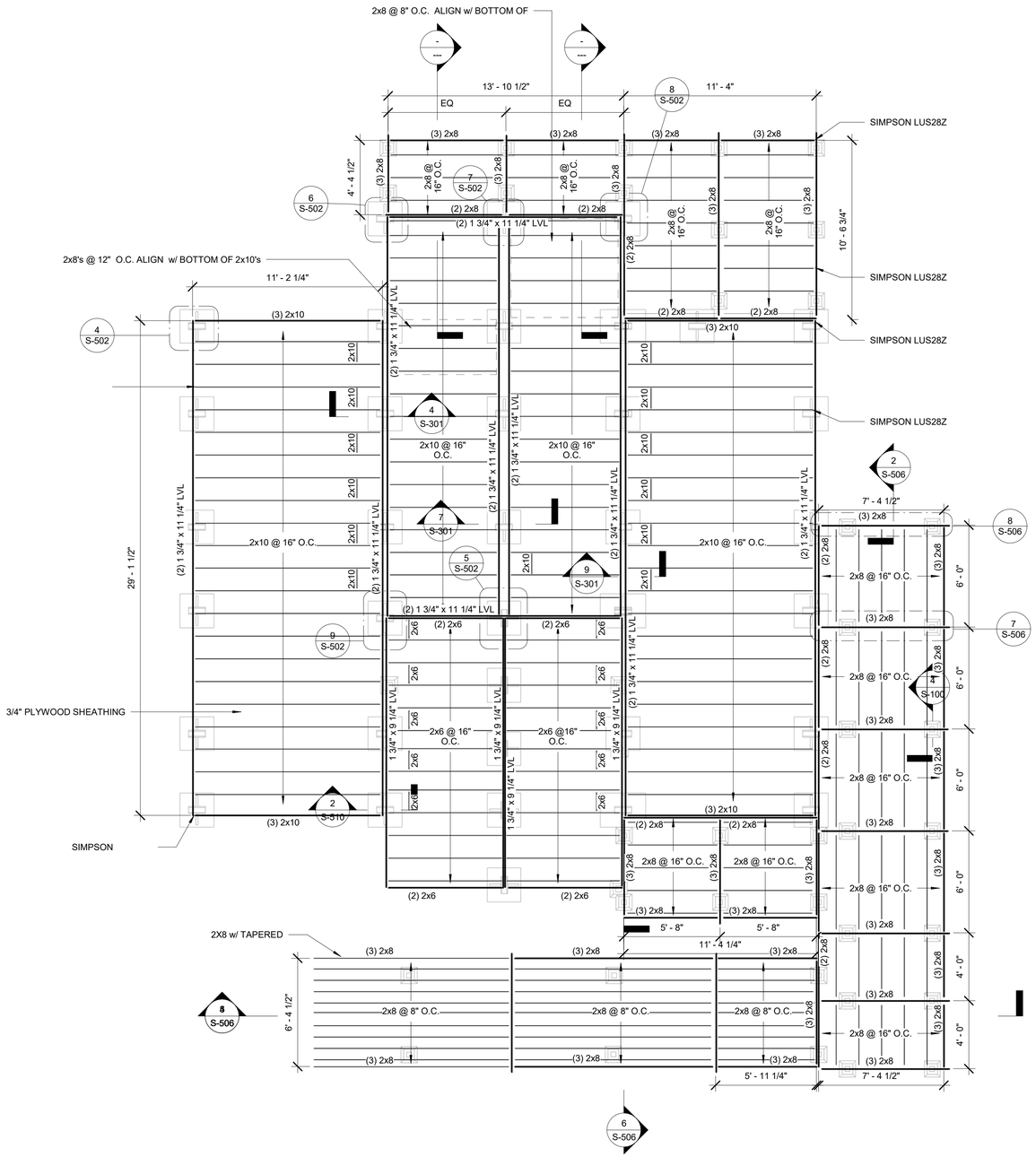
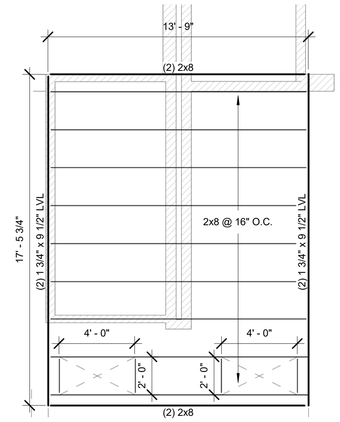
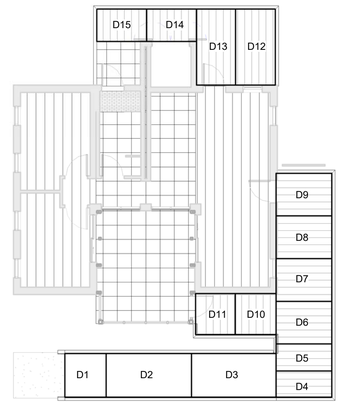


1 FLOOR FRAMING PLAN
1/4" = 1'-0"



2 ATTIC FLOOR FRAMING
1/4" = 1'-0"



3 DECK MODULE PLAN
3/32" = 1'-0"

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FLOOR FRAMING PLANS

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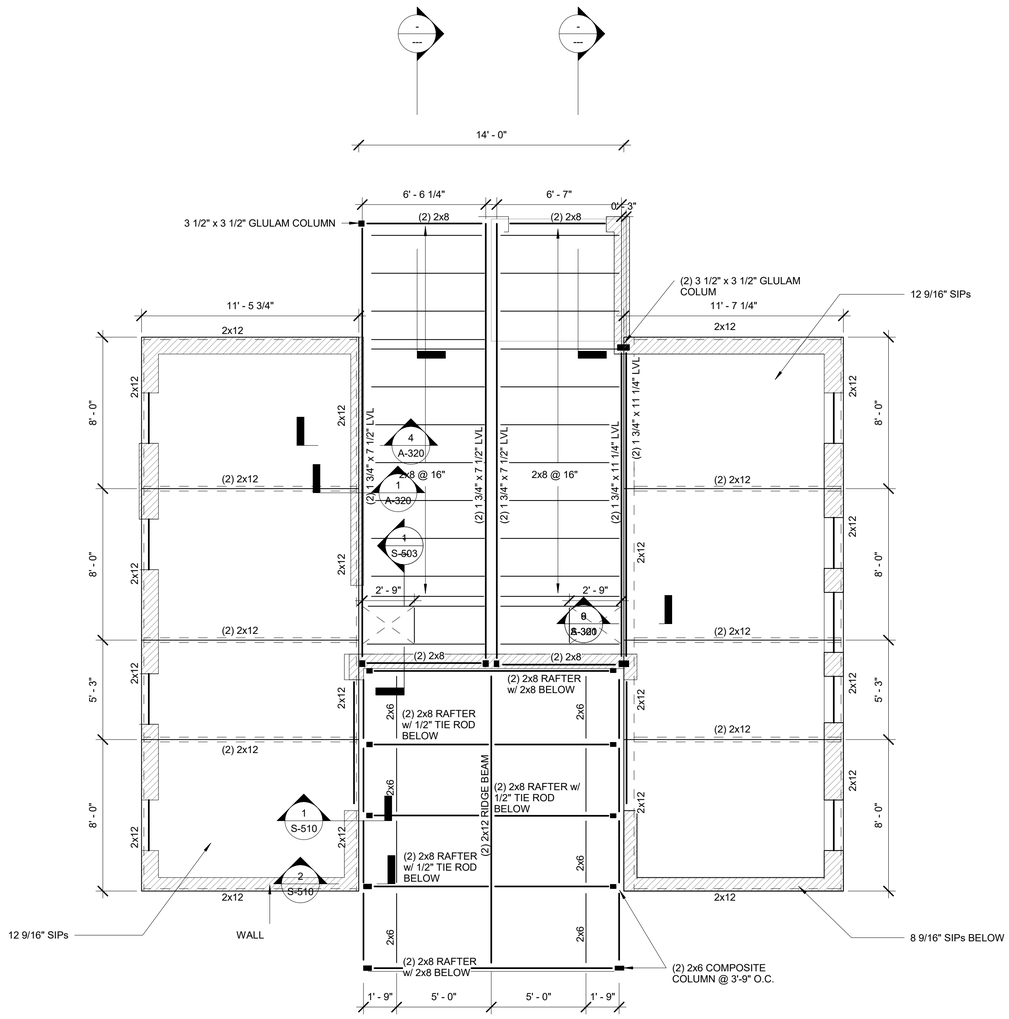
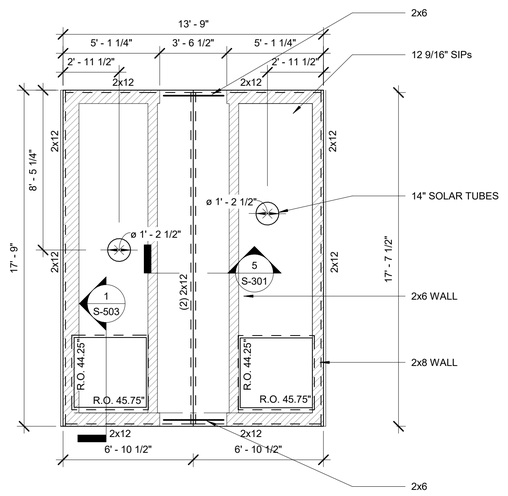


1 MODULE & WINGS ROOF FRAMING PLAN
1/4" = 1'-0"



2 ATTIC ROOF FRAMING
1/4" = 1'-0"

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ROOF FRAMING PLANS

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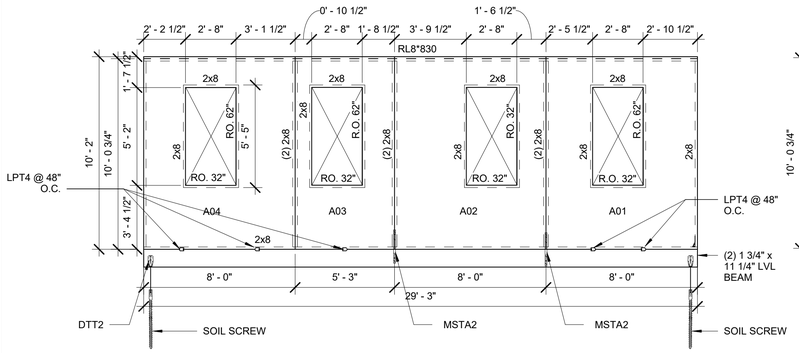
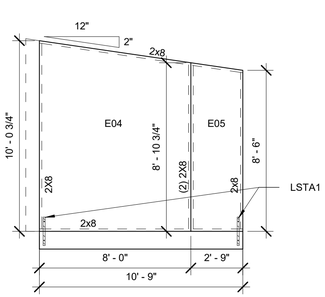
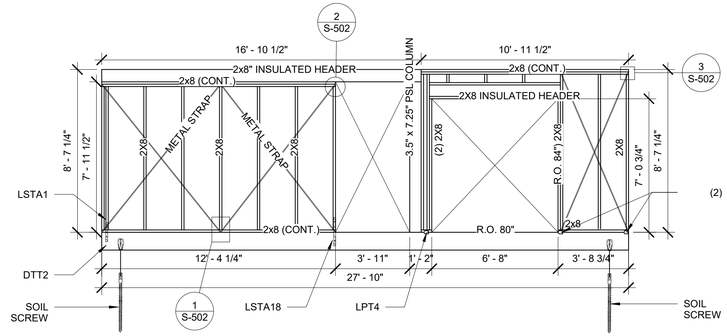
NOTES:
1. SOIL SCREWS SHOULD BE INSTALLED WITHIN 12 INCHES OF THE END OF FLOOR BEAM.
2. SOIL SCREWS MAY BE INSTALLED ON THE OUTSIDE OR INSIDE OF FLOOR BEAM.
3. ALL MSTA AND LSTA STRAPS ARE INSTALLED CENTERED ON THE FLOOR PLYWOOD.
4. SIP PANEL STRAPS ATTACH TO SPLINES OR WOOD STUDS AT EDGE OF OPENINGS



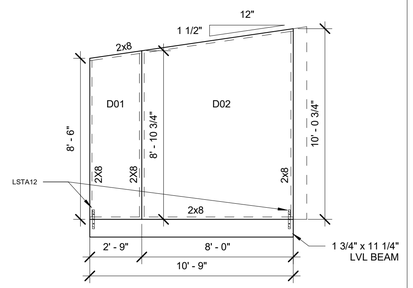
1 WALL PROFILE - A
1/4" = 1'-0"



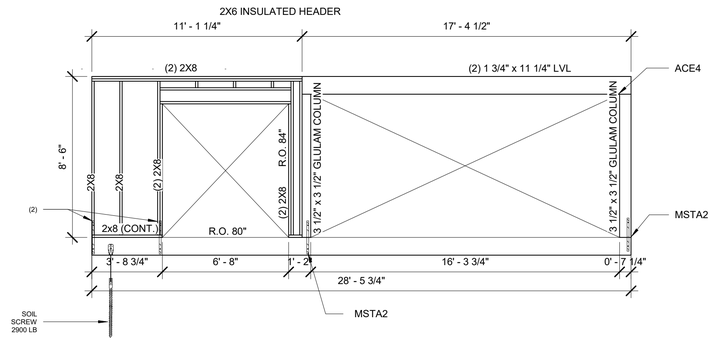
2 WALL PROFILE - B
1/4" = 1'-0"



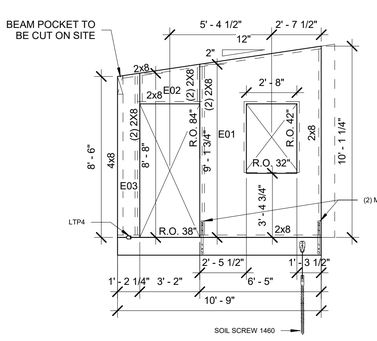
3 WALL PROFILE - C
1/4" = 1'-0"



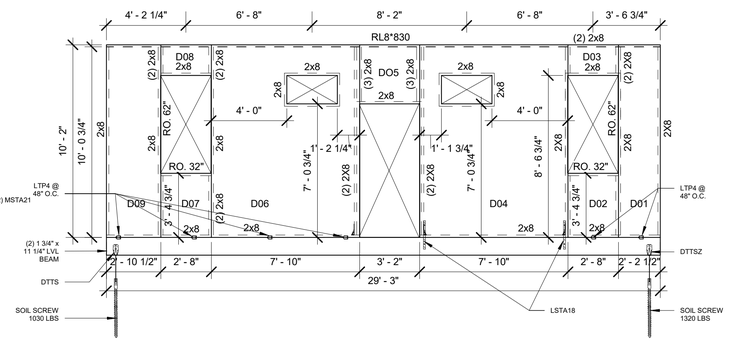
4 WALL PROFILE - D
1/4" = 1'-0"



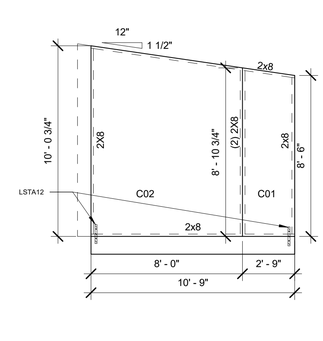
5 WALL PROFILE - E
1/4" = 1'-0"



6 WALL PROFILE - F
1/4" = 1'-0"



7 WALL PROFILE - G
1/4" = 1'-0"



8 WALL PROFILE - H
1/4" = 1'-0"

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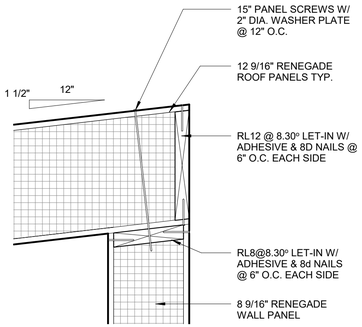
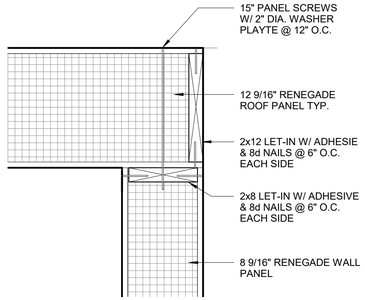
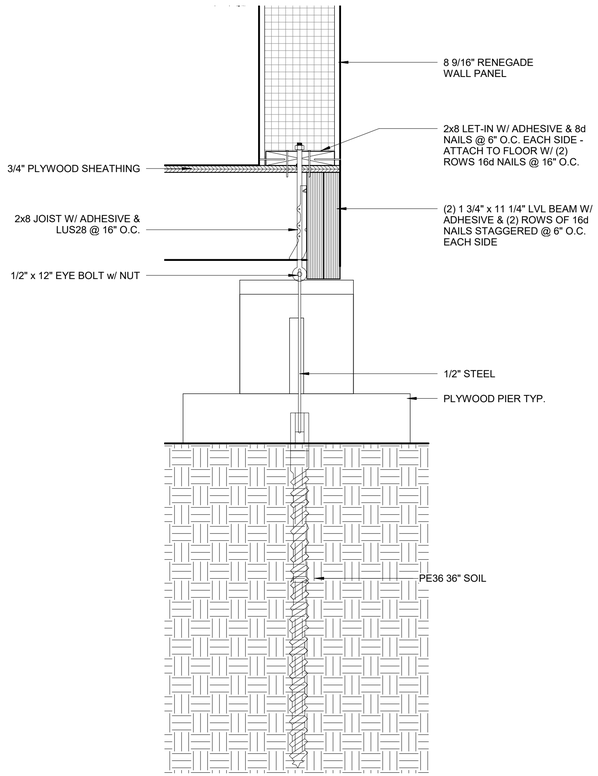
WING WALL PROFILES

S-200







2 EXTERIOR WALL SECTION AT EAVE
1 1/2" = 1'-0"

4 EXTERIOR WALL SECTION AT RAKE
1 1/2" = 1'-0"

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EXTERIOR WALL SECTIONS

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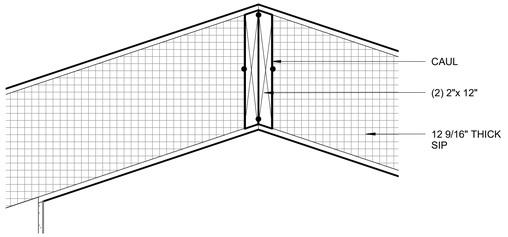
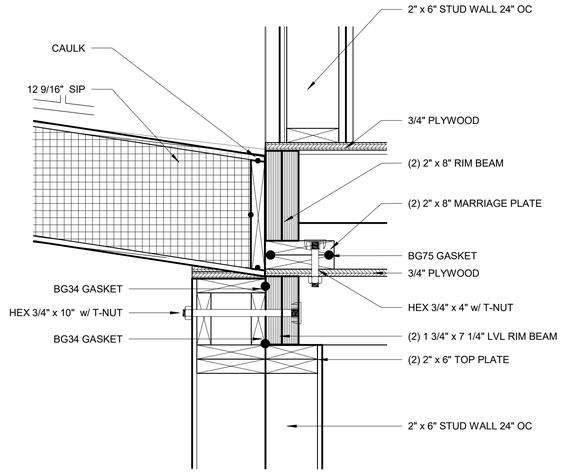
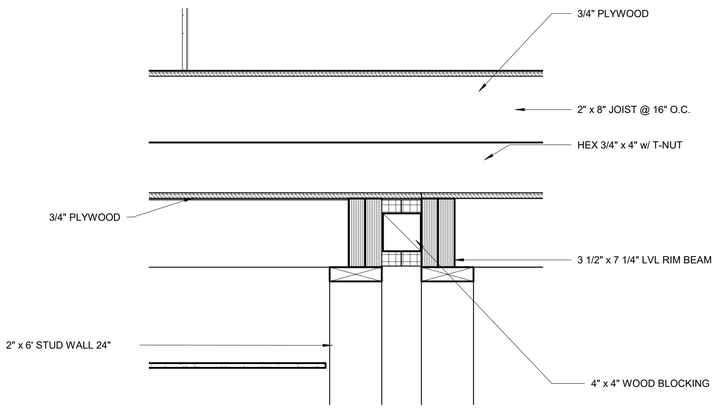


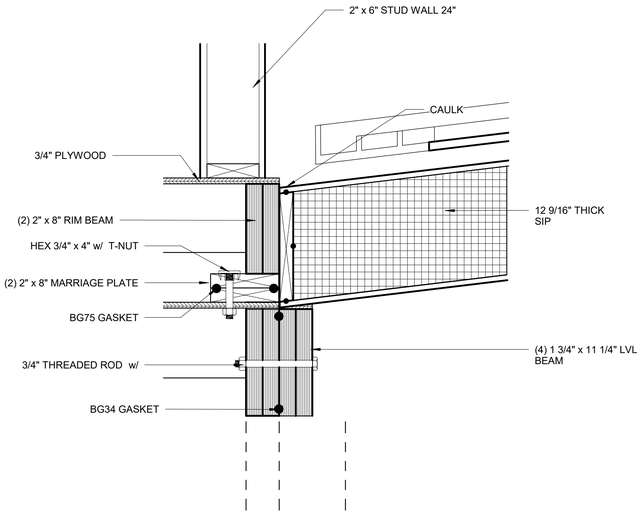
5 WALL FRAMING AT SPINE WALL - ROOF 2
1 1/2" = 1'-0"



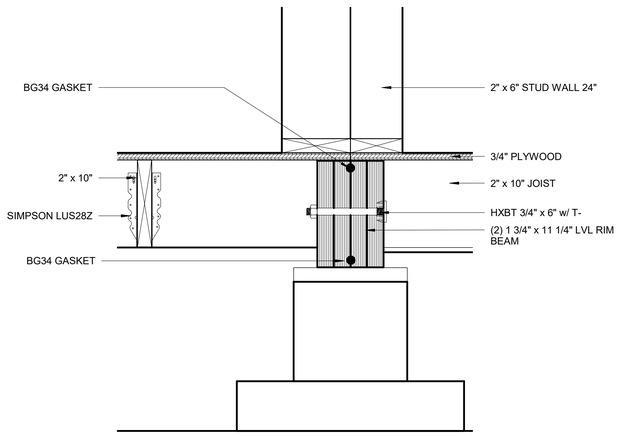
3 WALL FRAMING AT BEDROOM - ROOF
1 1/2" = 1'-0"



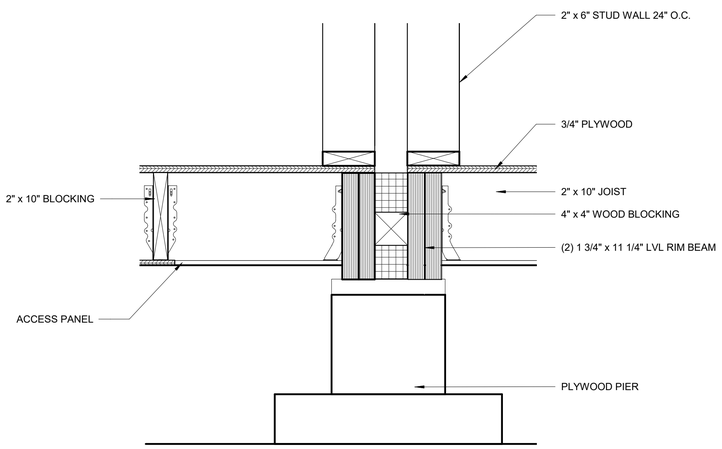
6 WALL FRAMING AT SPINE WALL - ROOF 1
1 1/2" = 1'-0"



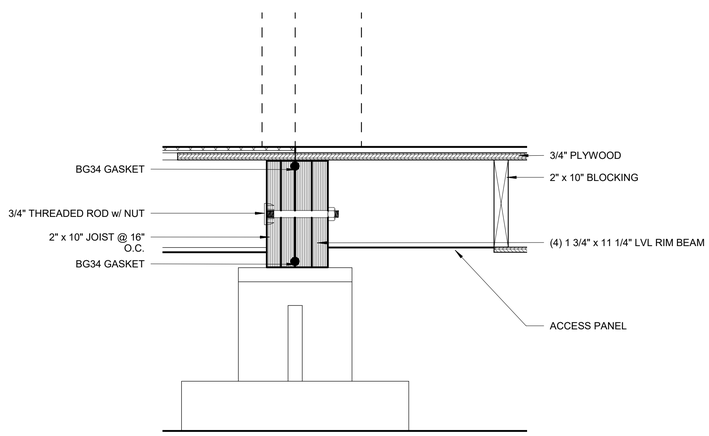
8 FRAMING AT DINING ROOM - ROOF
1 1/2" = 1'-0"



4 WALL FRAMING AT BEDROOM - FLOOR
1 1/2" = 1'-0"



7 WALL FRAMING AT SPINE WALL - FLOOR
1 1/2" = 1'-0"



9 FRAMING AT DINING ROOM - FLOOR
1 1/2" = 1'-0"

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MODULE TO MODULE CONNECTIONS

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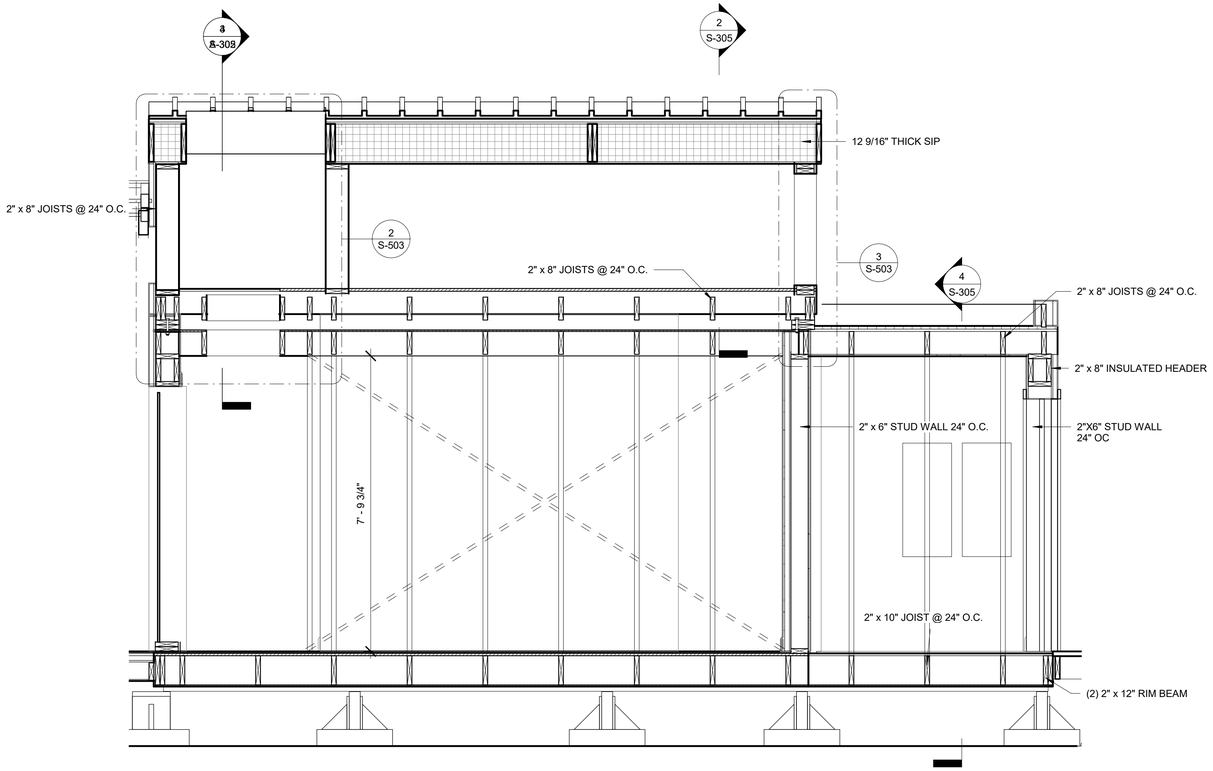
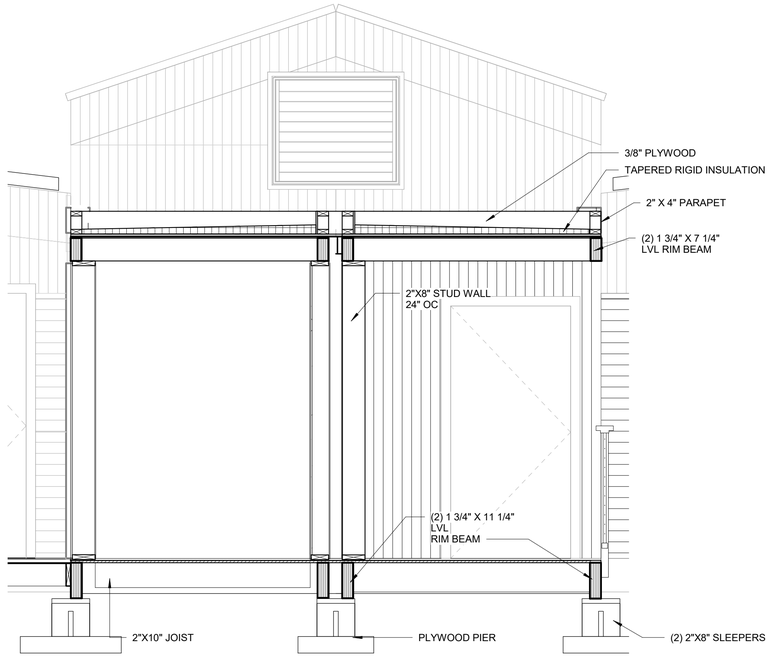
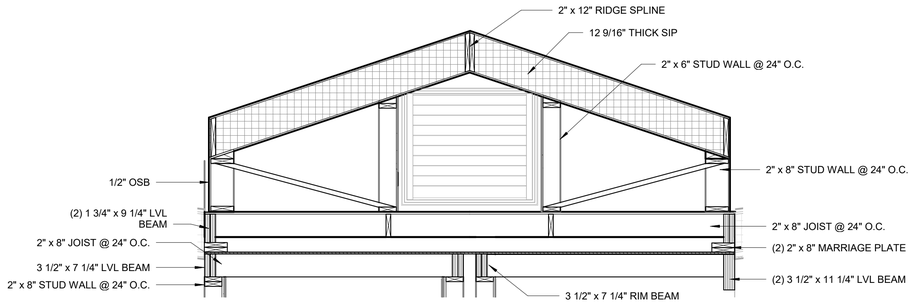


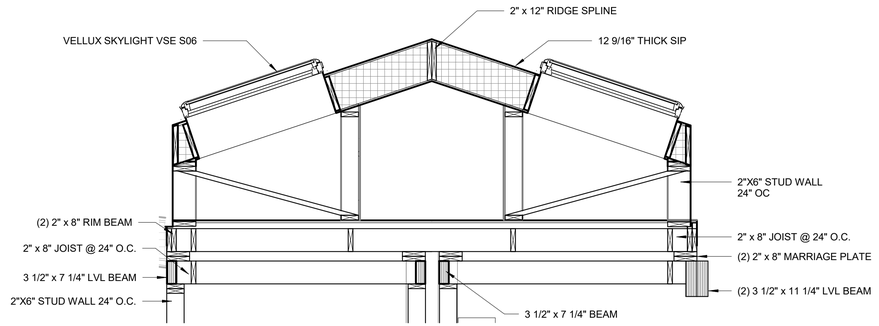
1 SECTION THROUGH CORE
1/2" = 1'-0"



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



2 SECTION THROUGH ATTIC
1/2" = 1'-0"



3 SECTION THROUGH SOLAR DRYERS A
1/2" = 1'-0"

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CORE FRAMING SECTIONS

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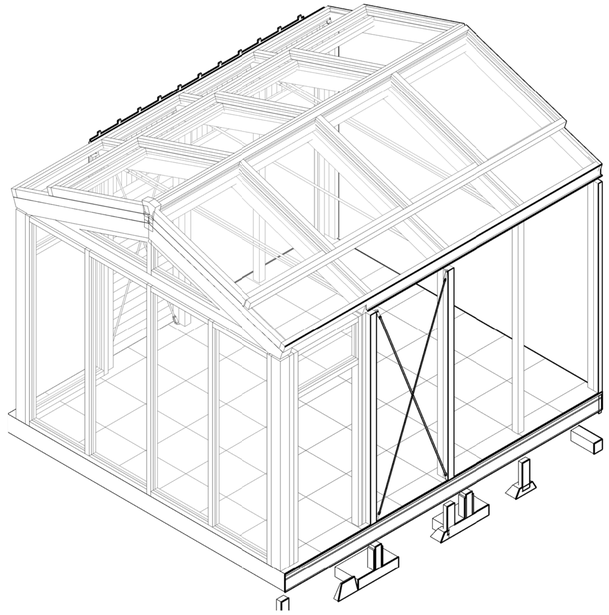
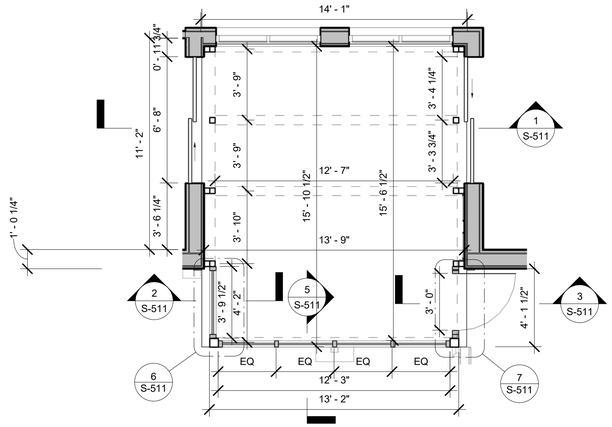
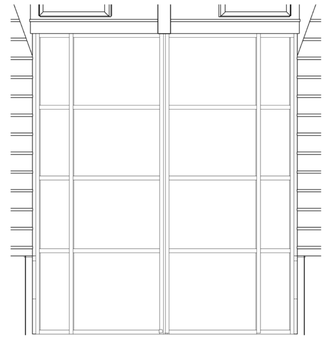


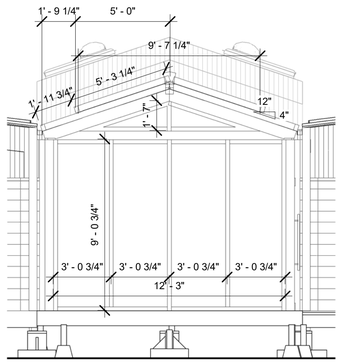
1 GREENHOUSE ISOMETRIC



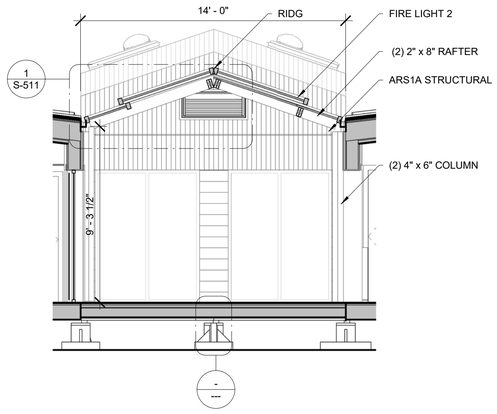
2 GREENHOUSE FLOOR PLAN
1/4" = 1'-0"



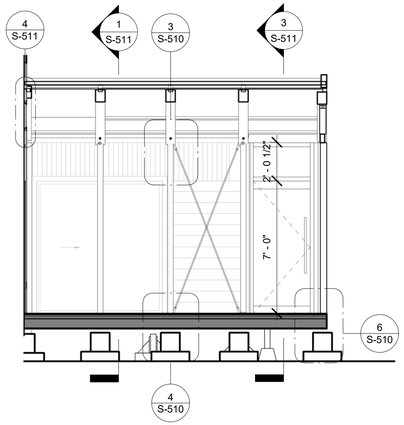
3 GREENHOUSE ROOF PLAN
1/4" = 1'-0"



6 COURTYARD SOUTH ELEVATION
1/4" = 1'-0"



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



5 LONGITUDINAL SECTION THROUGH COURTYARD
1/4" = 1'-0"

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GREENHOUSE PLANS & SECTIONS

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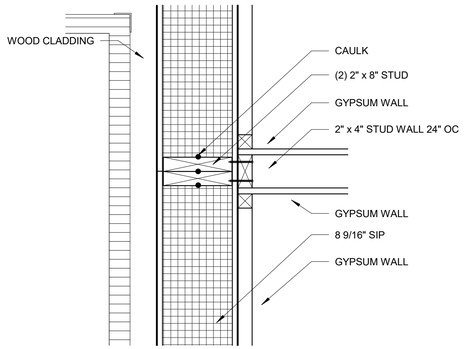
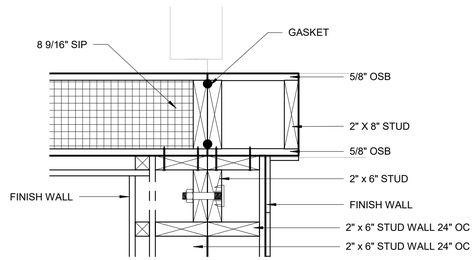
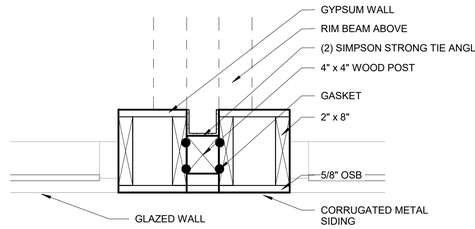


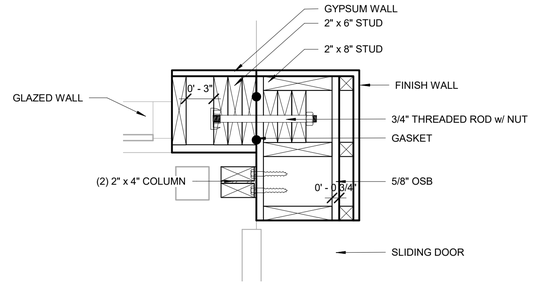
1 INTERIOR WALL TO SIP
1 1/2" = 1'-0"



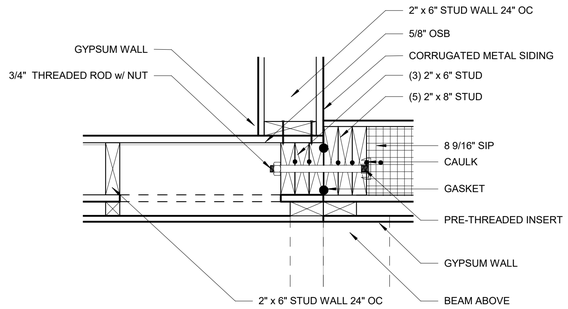
2 MODULE TO WING AT BEDROOM
1 1/2" = 1'-0"



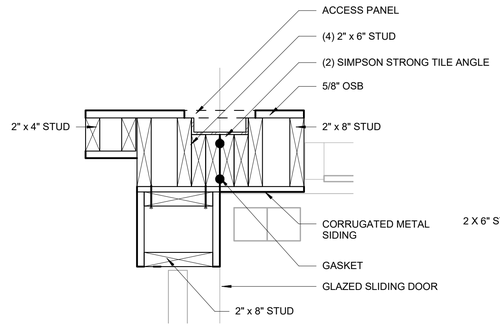
4 MODULE CONNECTION AT CORE
1 1/2" = 1'-0"



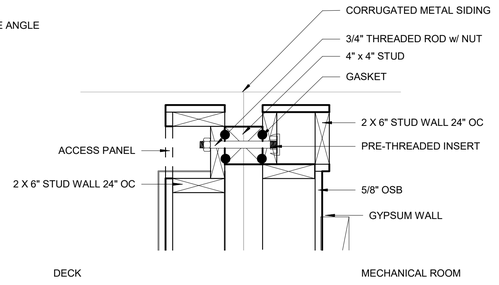
5 MODULE TO WING AT CORNER
1 1/2" = 1'-0"



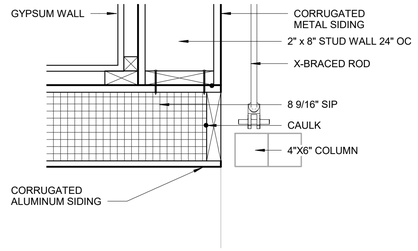
6 MODULE TO WING AT KITCHEN
1 1/2" = 1'-0"



7 MODULE CONNECTION OFFICE TO CORE
1 1/2" = 1'-0"



8 MODULE TO MODULE AT SPINE 2
1 1/2" = 1'-0"



3 SIP CORNER DETAIL
1 1/2" = 1'-0"

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WALL CONNECTION DETAILS

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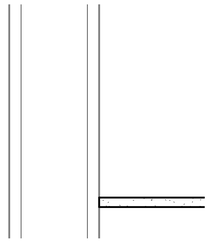
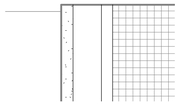
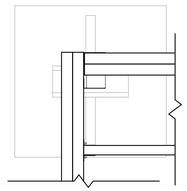
1 METAL STRAP AT SILL
3" = 1'-0"



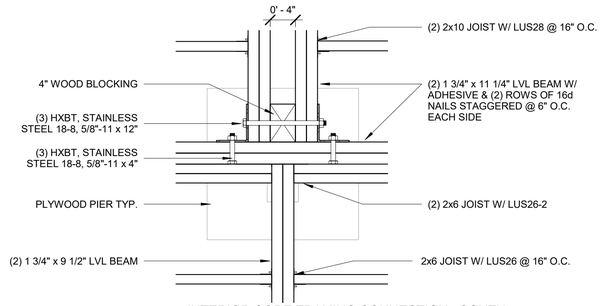
2 METAL STRAP AT HEADER A
3" = 1'-0"



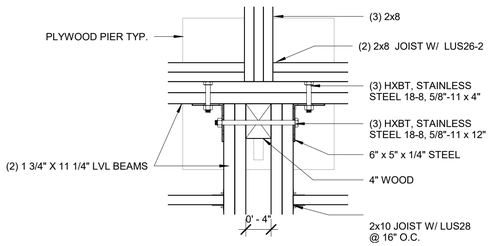
3 METAL STRAP AT HEADER B
3" = 1'-0"



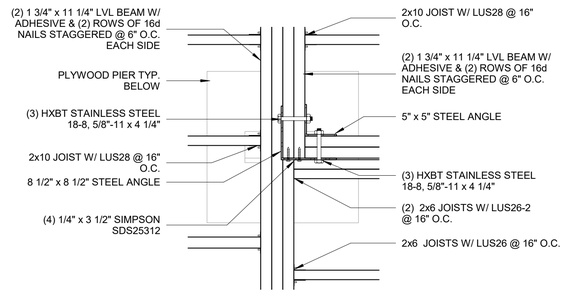
4 FLOOR FRAMING PLAN DETAIL A
1" = 1'-0"



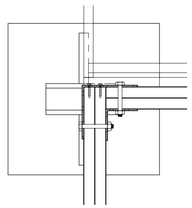
5 INTERIOR CORE FRAMING CONNECTION - SOUTH
1" = 1'-0"



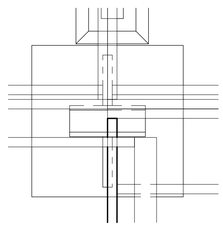
7 INTERIOR CORE FRAMING CONNECTION - NORTH
1" = 1'-0"



9 EXTERIOR CORE FRAMING CONNECTION - SOUTH
1" = 1'-0"



6 FLOOR FRAMING PLAN - Callout 1
1" = 1'-0"



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FRAMING DETAILS

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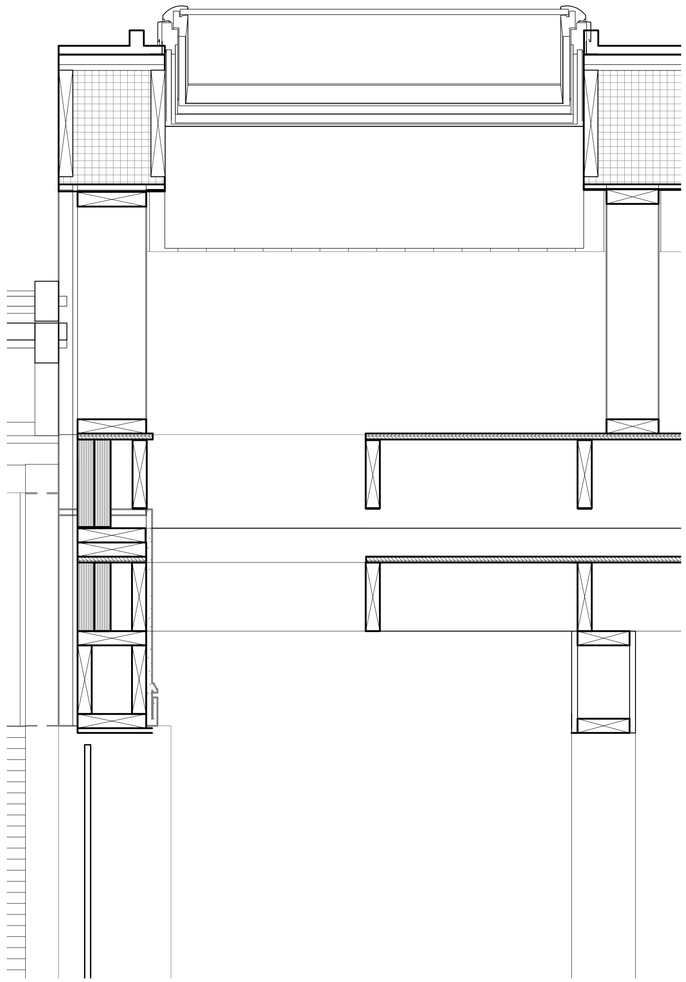
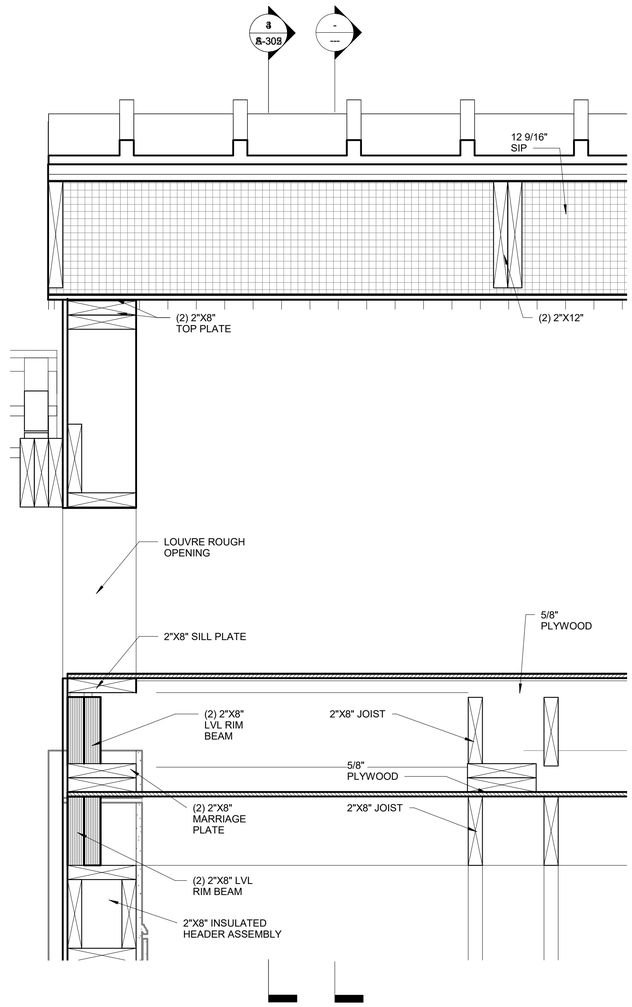
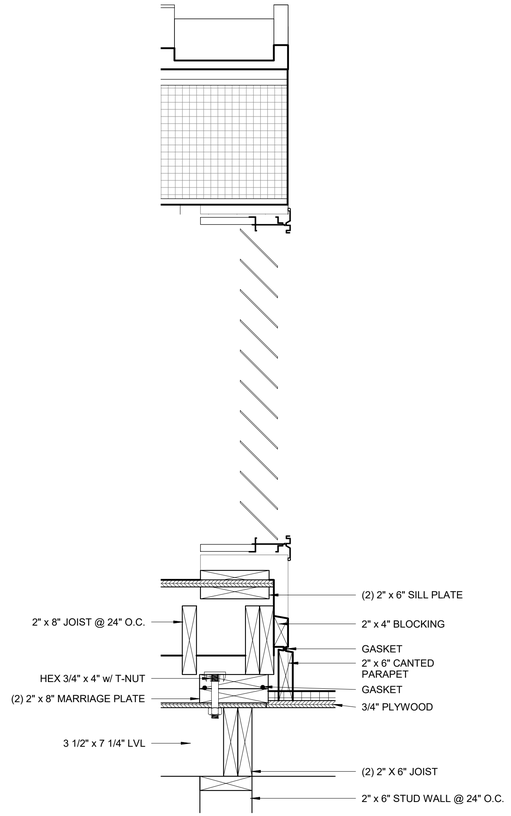


1 SECTION THROUGH SOLAR DRYERS
1 1/2" = 1'-0"



2 SECTION THROUGH ATTIC SOUTH
1 1/2" = 1'-0"



3 ATTIC FLOOR TO NORTH
1 1/2" = 1'-0"

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ATTIC DETAILS

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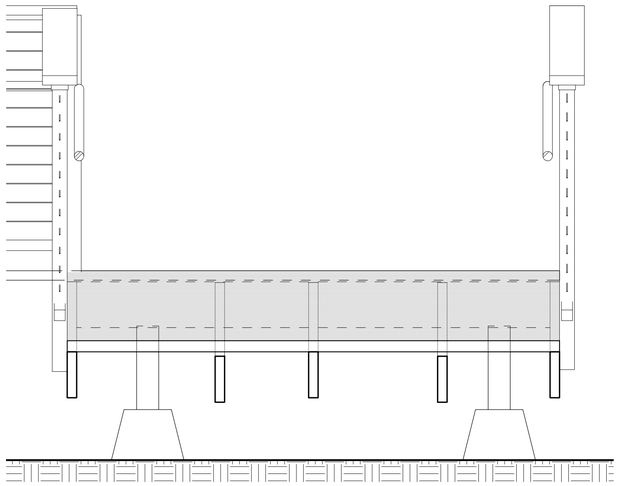
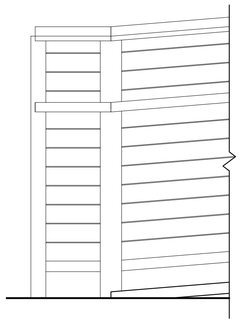
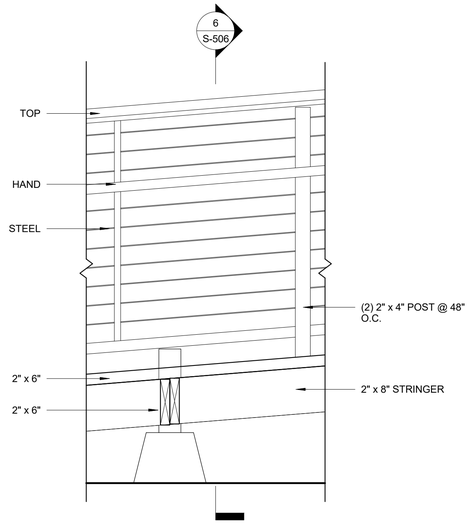


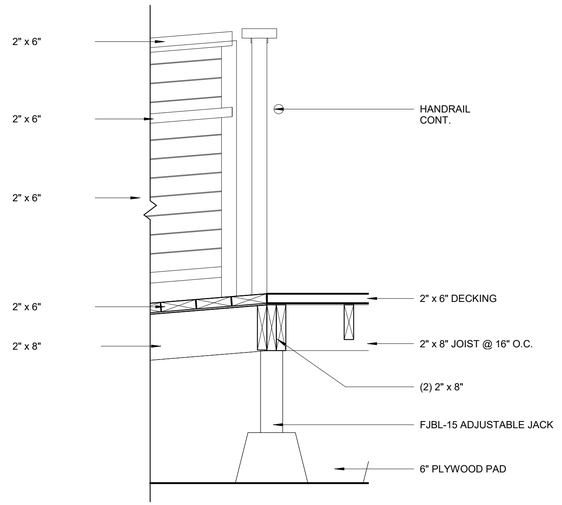
6 TRANSVERSE SECTION THROUGH RAMP
1" = 1'-0"



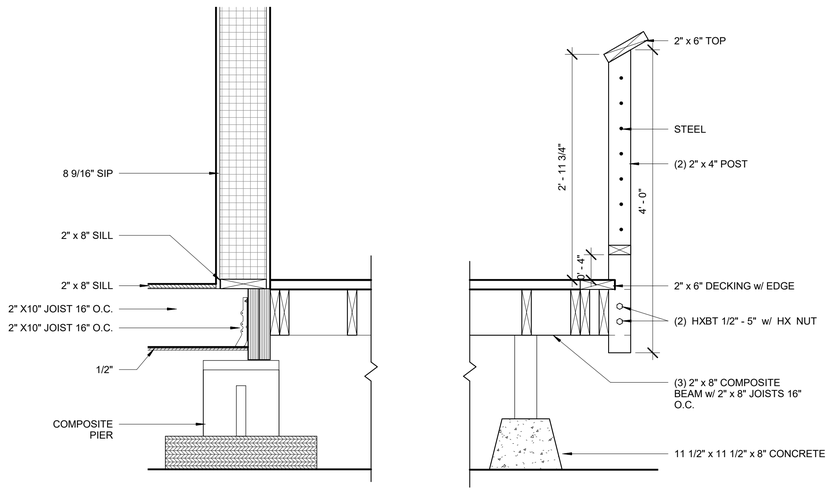
5 SECTION THROUGH RAMP - BOTTOM
1" = 1'-0"



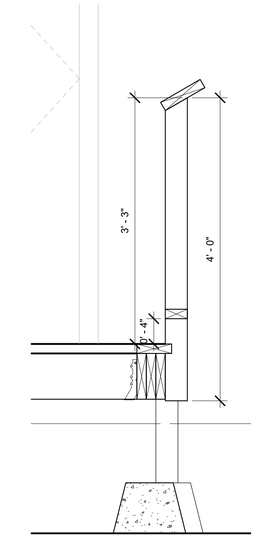
3 SECTION THROUGH RAMP
1" = 1'-0"



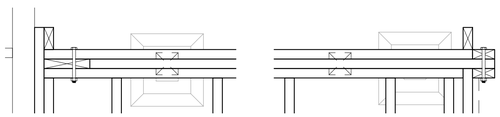
4 SECTION THROUGH RAMP - TOP
1" = 1'-0"



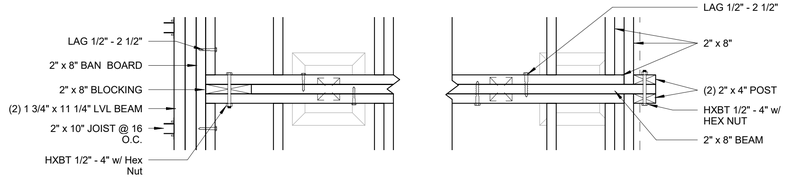
1 SECTION THROUGH RAILING A
1" = 1'-0"



2 SECTION THROUGH RAILING B
1" = 1'-0"



7 DECK FRAMING DETAIL
1" = 1'-0"



8 FLOOR FRAMING PLAN - Callout 2
1" = 1'-0"

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DECK DETAILS

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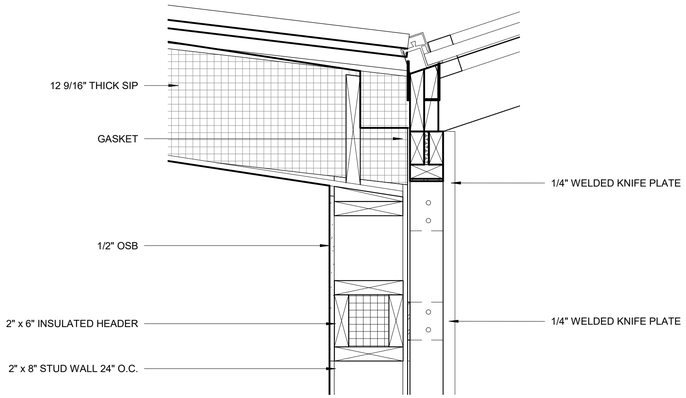
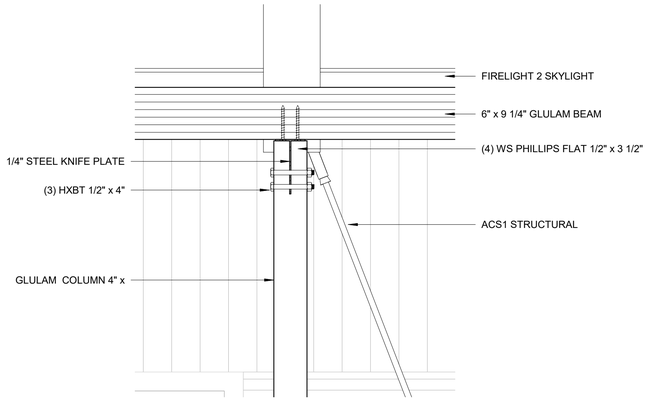
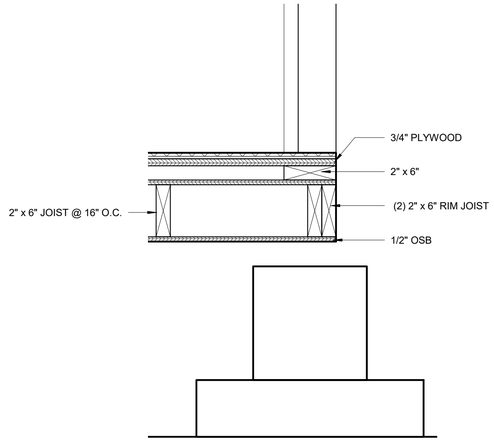


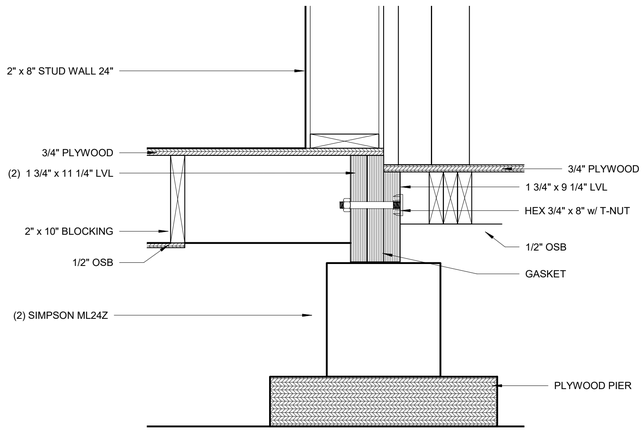
1 FRAMING AT COURTYARD - ROOF A
1 1/2" = 1'-0"



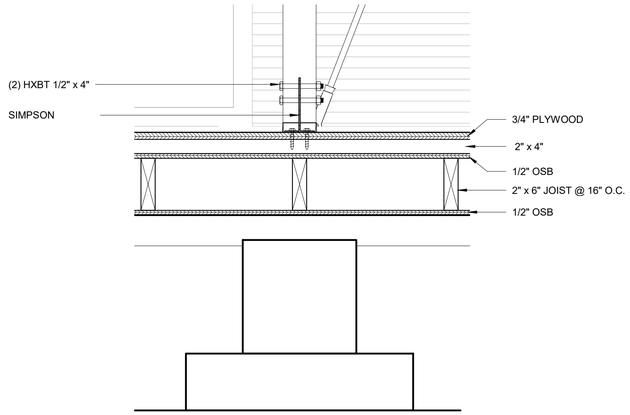
3 FRAMING AT COURTYARD - ROOF B
1 1/2" = 1'-0"



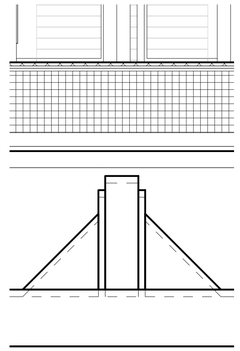
6 COURTYARD AT FACADE
1 1/2" = 1'-0"



2 FRAMING AT COURTYARD - FLOOR A
1 1/2" = 1'-0"



4 FRAMING AT COURTYARD - FLOOR B
1 1/2" = 1'-0"



5 FLOOR SECTION AT CENTER OF COURTYARD
1 1/2" = 1'-0"

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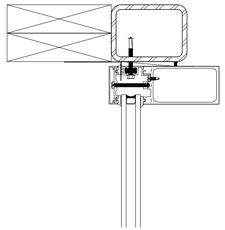
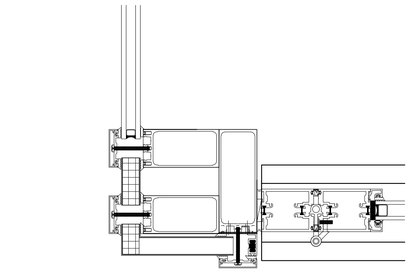
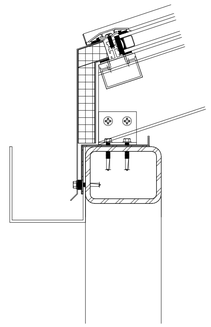
GREENHOUSE FRAMING DETAILS

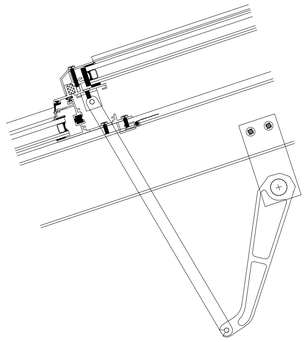
S-510

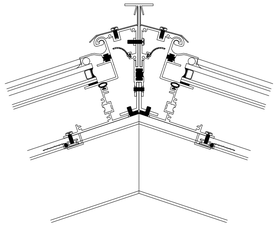




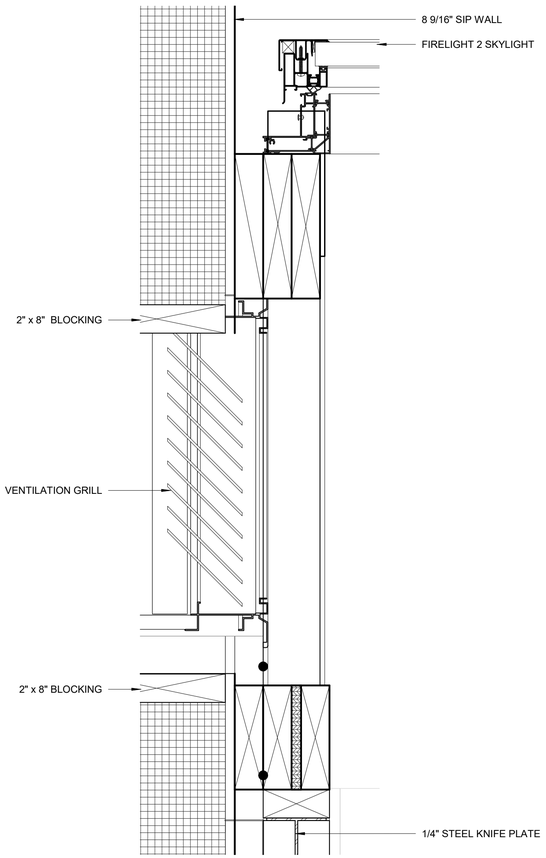
6 GREENHOUSE EXTERIOR CORNER DETAIL
3" = 1'-0"



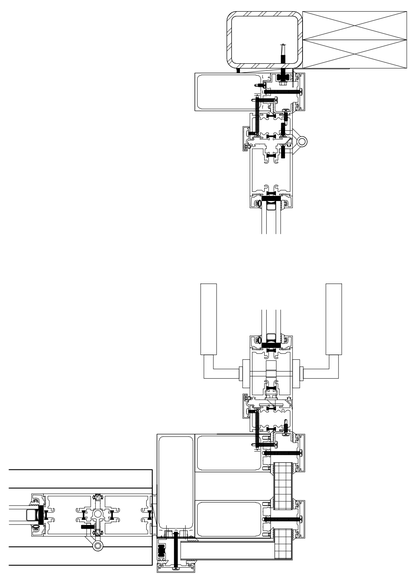




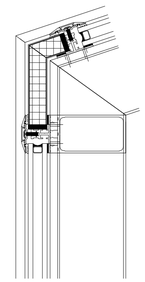
1 SKYLIGHT SECTION
3" = 1'-0"



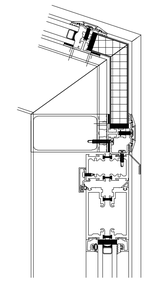
4 SKYLIGHT DETAIL AT WALL
3" = 1'-0"



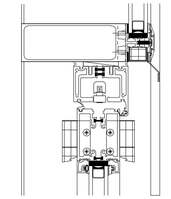
7 GREENHOUSE TERRACE DOOR PLAN DETAIL
3" = 1'-0"



2 CURTAIN WALL SECTION
3" = 1'-0"



3 TERRACE DOOR SECTION
3" = 1'-0"



5 FOLDING GLASS WALL SECTION
3" = 1'-0"

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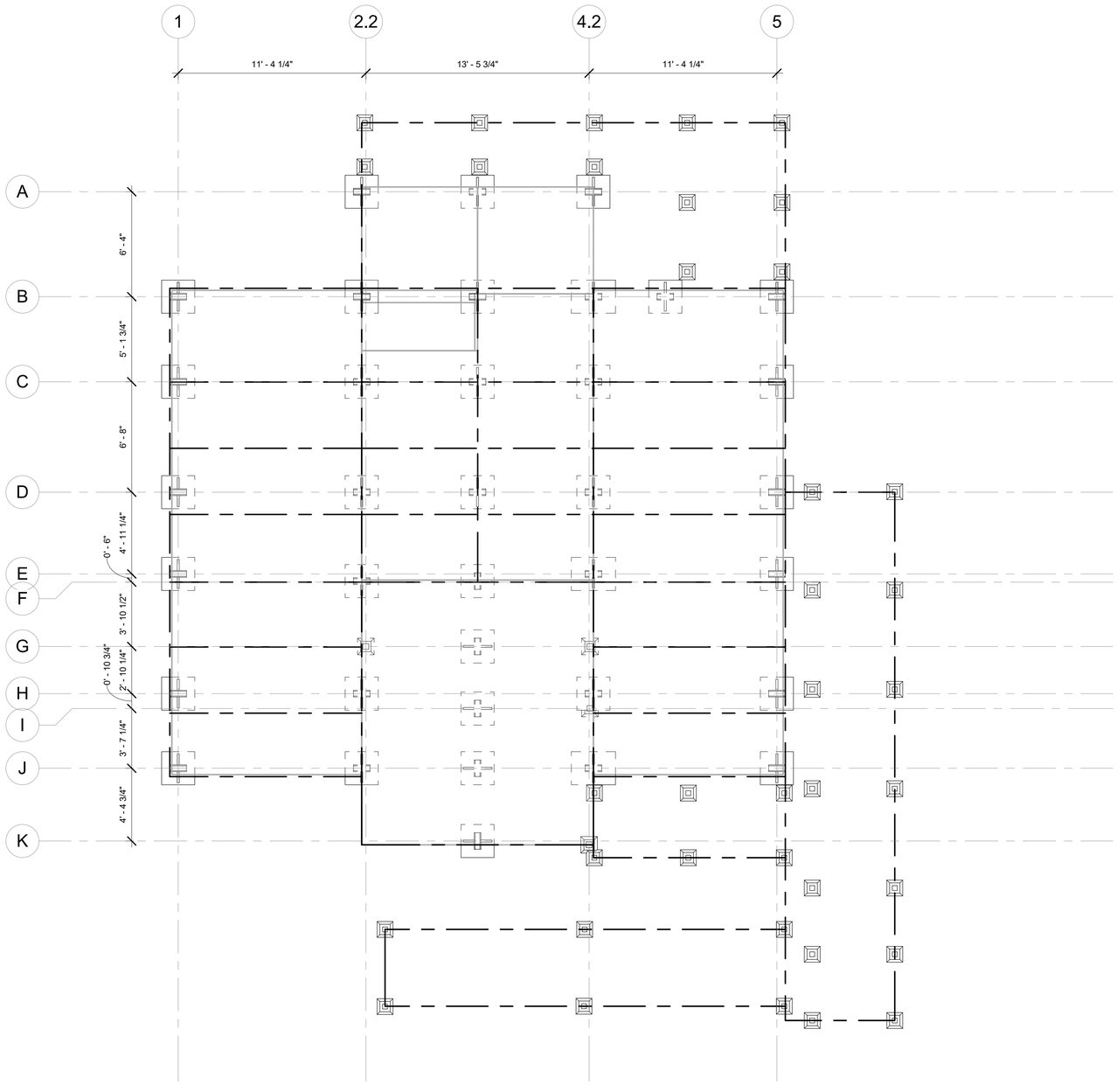
GREENHOUSE SKYLIGHT DETAILS

S-511



1 GROUND CONTACT PLAN
1/4" = 1'-0"

GENERAL NOTES

A. SLEEPERS FOR PLANTERS, TYPICAL

B. THRESHOLD PLATE

C. SEE SPEC NO.093040 FOR PERMEABLE PAVERS FOR WALKING AND DRIVING

D. SLEEPERS FOR FILTERED WASTE TANK, TYPICAL

E. SLEEPERS FOR GREYWATER TANK, TYPICAL

F. ALL FOUNDATION AND AUDLIARY ELEMENTS RESIDING ON GRADE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SOIL LOAD OF 2000 PSF AND SHALL COMPLT WITH WITH RULE XXX FOUNDATION

G. FOR FOOING DETAIL REFER TO S-500 SERIES

H. FOR ADJUSTABLE JACK REFER TO SPEC NO.109000

LEGEND

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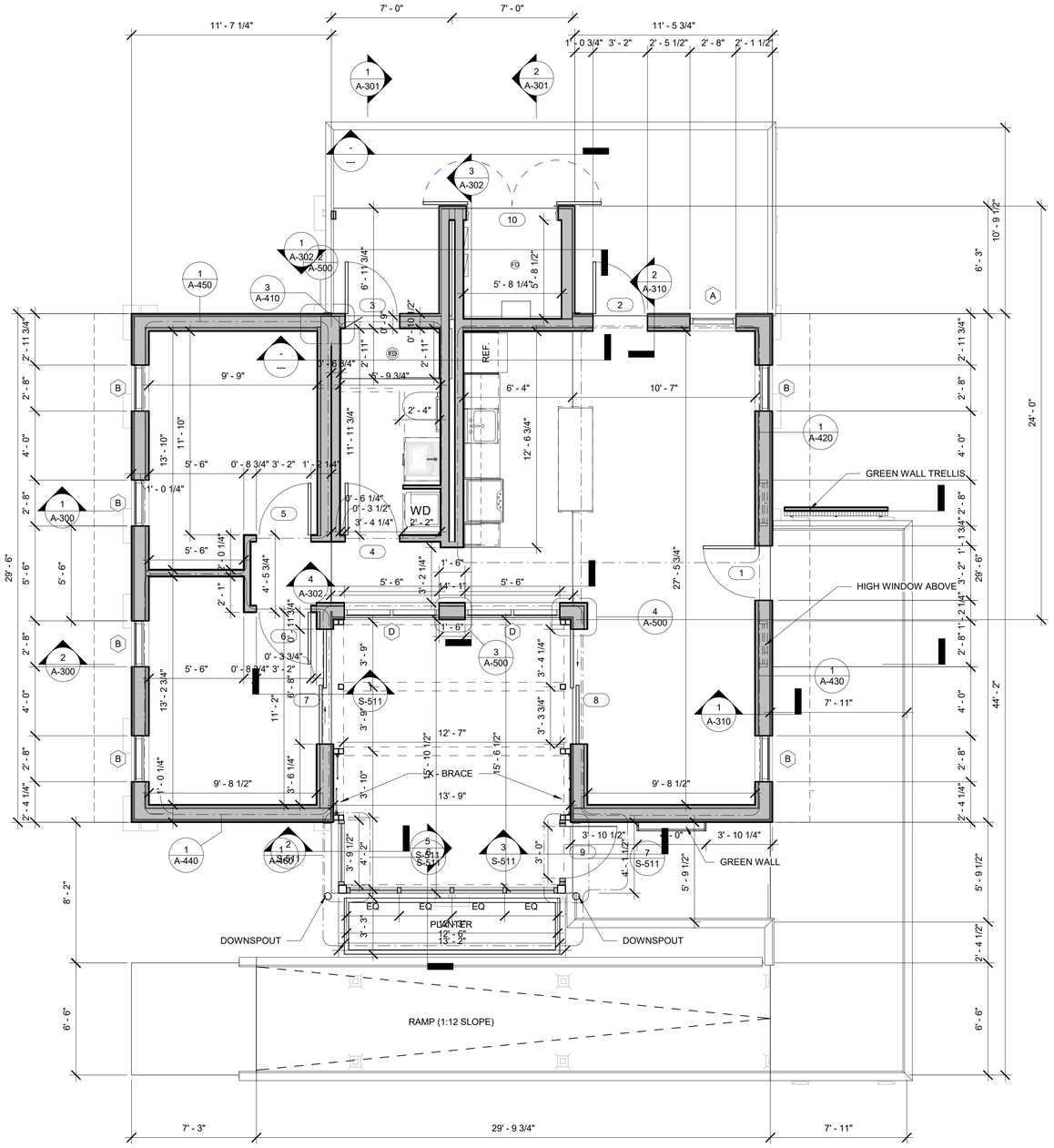
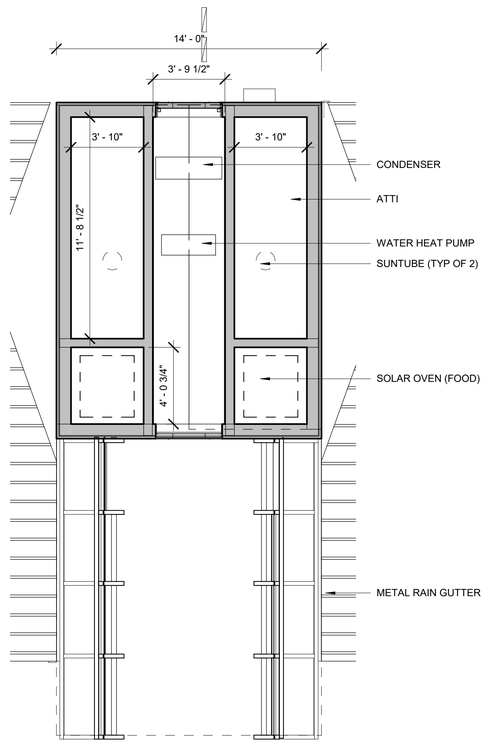
GROUND CONTACT PLAN

A-100



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



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

GENERAL NOTES

A. FOR FINISH LEGEND REFER TO A-103

B. FOR ADDITIONAL FINISH INFORMATION REFER TO A-400 SERIES - ENLARGED PLANS AND ELEVATIONS

C. FOR ADDITIONAL FINISH INFORMATION REFER TO A-104 FOR FINISH FLOOR PLAN

D. FOR FINISH OF DOOR & FRAMES & THRESHOLD DETAILS REFER TO A-600 SERIES - DOOR AND WINDOW SCHEDULES

E. WHERE MULTIPLE FINISHES ARE SHOWN AT WALLS REFER TO INTERIOR ELEVATIONS OR ENLARGED DETAILS FOR CLARIFICATION

F. INTERIOR FINISHES AND MATERIALS REFER TO ARCHITECTURAL SPECIFICATIONS

LEGEND

FD FLOOR DRAIN

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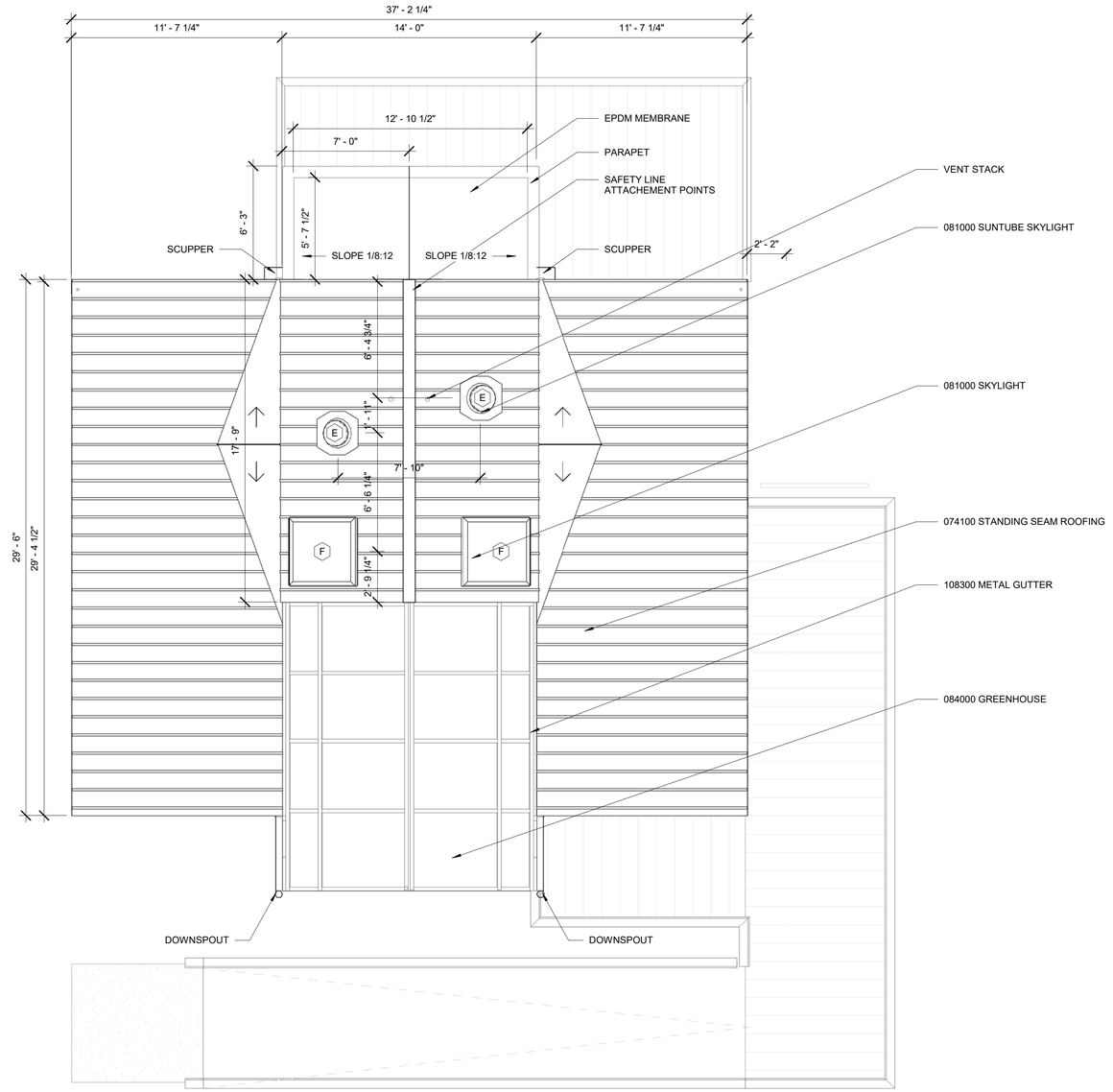
FLOOR PLAN

A-101



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

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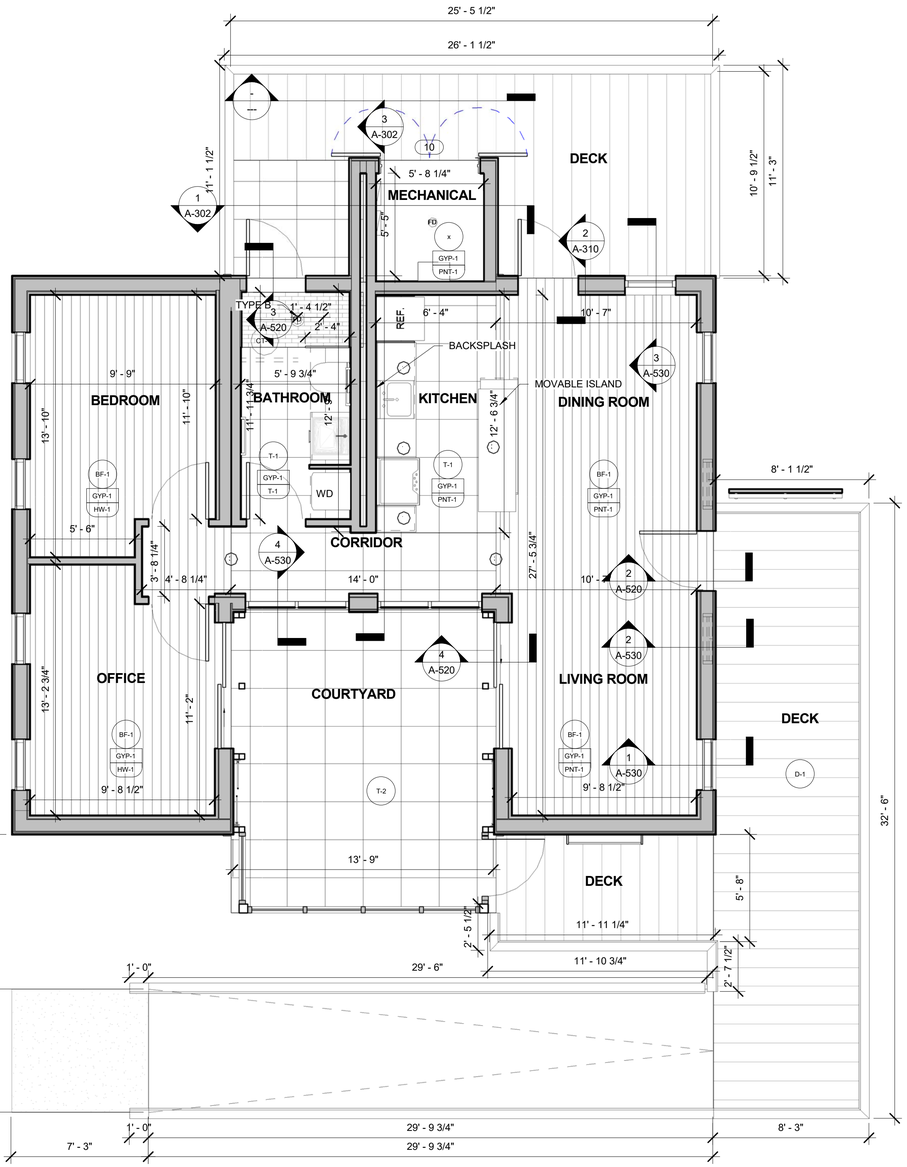
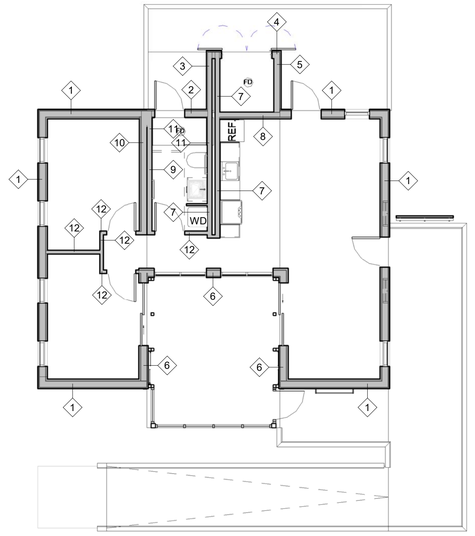
ROOF PLAN

A-102



1 FLOOR FINISH PLAN
1/4" = 1'-0"



2 FINISH WALL TYPES
1/8" = 1'-0"

Wall Schedule		
Type Mark	Width	Type
1	1' - 0 3/16"	Exterior - 8" SIP w/ Wood Siding
1	1' - 0 3/16"	Exterior - 8" SIP w/ Wood Siding
1	1' - 0 3/16"	Exterior - 8" SIP w/ Wood Siding
1	1' - 0 3/16"	Exterior - 8" SIP w/ Wood Siding
1	1' - 0 3/16"	Exterior - 8" SIP w/ Wood Siding
1	1' - 0 3/16"	Exterior - 8" SIP w/ Wood Siding
2	0' - 10 3/8"	Exterior - 8" Stud - Corrugated/Shower
3	0' - 7"	Exterior - 5.5" Stud, 1.5" Corrugated
4	0' - 9 7/8"	Exterior - 8" Stud - Corrugated
4	0' - 9 7/8"	Exterior - 8" Stud - Corrugated
4	0' - 9 7/8"	Exterior - 8" Stud - Corrugated
4	0' - 9 7/8"	Exterior - 8" Stud - Corrugated
5	0' - 9 1/4"	Exterior - 8" Stud - Mech 2
6	0' - 11 7/8"	Exterior - 8" Stud - Wood w/ Furring
6	0' - 11 7/8"	Exterior - 8" Stud - Wood w/ Furring
6	0' - 11 7/8"	Exterior - 8" Stud - Wood w/ Furring
7	0' - 6 1/8"	Interior - 5.5" Stud, 5/8" Gyp
7	0' - 6 1/8"	Interior - 5.5" Stud, 5/8" Gyp
8	0' - 8 3/4"	Interior - 6" Stud, (2) 5/8" GWB w/ Furring
9	0' - 6 1/8"	Interior - 6" Stud Wall
10	0' - 9 7/8"	Interior - 8" Stud Wall w/ Furring
11	0' - 6 5/8"	Interior - 5.5" Stud w/ Tile
11	0' - 6 5/8"	Interior - 5.5" Stud w/ Tile
12	0' - 4 3/4"	Interior - 3.5" Stud, (2) 5/8" Gyp
12	0' - 4 3/4"	Interior - 3.5" Stud, (2) 5/8" Gyp
12	0' - 4 3/4"	Interior - 3.5" Stud, (2) 5/8" Gyp
12	0' - 4 3/4"	Interior - 3.5" Stud, (2) 5/8" Gyp
12	0' - 4 3/4"	Interior - 3.5" Stud, (2) 5/8" Gyp

GENERAL NOTES

A. TRANSITIONS FROM TILE TO WOOD SHALL INCLUDE AN WOODEN TRANSITION STRIP

B. FLOOR DRAIN TO BE CENTERED TO SHOWER

C. GYPSUM WALLBOARDS SHALL BE FINSIHED WITH PNT-1. REFER TO A-601 FOR MATERIAL SCHEDULE

FINISH FLOOR PLAN SHEET NOTES

1. CO-1: COUNTERTOP
2. WD-1 WOOD
3. TS-1: TRANSITION STRIP

FINISH FLOOR PLAN FINISH LEGEND

- BF-1: BAMBOO FLOORING (SEE FINISH SCHEDULE)
- T-1: CERAMIC TILE (24" x 24" x 3/8")
- CT-1: CERAMIC TILE
- T-2: CERAMIC PAVERS
- GYP-1: GYPSUM BOARD

FINISH TAG

Floor Finish
Wall Finish
Base Finish

- FLOOR FINISH
- WALL FINISH
- BASE FINISH

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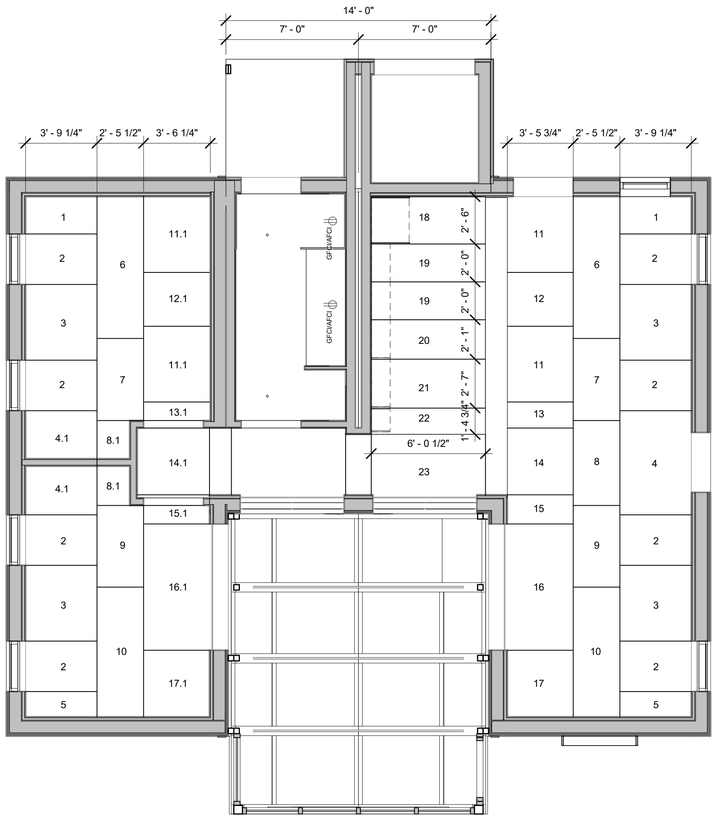
FINISH FLOOR PLAN

A-103



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

INTERIOR CEILING PANEL SCHEDULE			
TYPE MARK	**QUANTITY**	**WIDTH**	**LENGTH**
1	2	3' - 9 1/4"	1' - 11 3/4"
2	8	3' - 9 1/4"	2' - 8"
3	4	3' - 9 1/4"	4' - 0"
4	1	3' - 9 1/4"	5' - 6"
4.1	2	3' - 9 1/4"	2' - 6 3/4"
5	2	3' - 9 1/4"	1' - 4"
6	2	2' - 5 1/2"	7' - 6"
7	2	2' - 5 1/2"	4' - 4"
8	1	2' - 5 1/2"	4' - 5 3/4"
8.1	2	1' - 8 3/4"	2' - 1"
9	2	2' - 5 1/2"	4' - 3 3/4"
10	2	2' - 5 1/2"	6' - 10 1/4"
11	2	3' - 5 3/4"	4' - 0"
11.1	2	3' - 6 1/4"	4' - 0"
12	1	3' - 5 3/4"	2' - 10 1/4"
12.1	1	3' - 6 1/4"	2' - 10 1/4"
13	1	3' - 5 3/4"	1' - 4 1/2"
13.1	1	3' - 6 1/4"	11 3/4"
14	1	3' - 5 3/4"	3' - 6 1/4"
14.1	1	3' - 6 1/4"	3' - 6 1/4"
15	1	3' - 5 3/4"	1' - 6 1/2"
15.1	1	3' - 6 1/4"	11 3/4"
16	1	3' - 5 3/4"	6' - 8"
16.1	1	3' - 6 1/4"	6' - 8"
17	1	3' - 5 3/4"	3' - 6 1/4"
17.1	1	3' - 6 1/4"	3' - 6 1/4"
18	1	3' - 5 3/4"	
19	2	6' - 0 1/2"	
20	1	6' - 0 1/2"	
21	1	6' - 0 1/2"	
22	2	6' - 0 1/2"	
23	1	6' - 0 1/2"	

**All Dimesions should be verified in field

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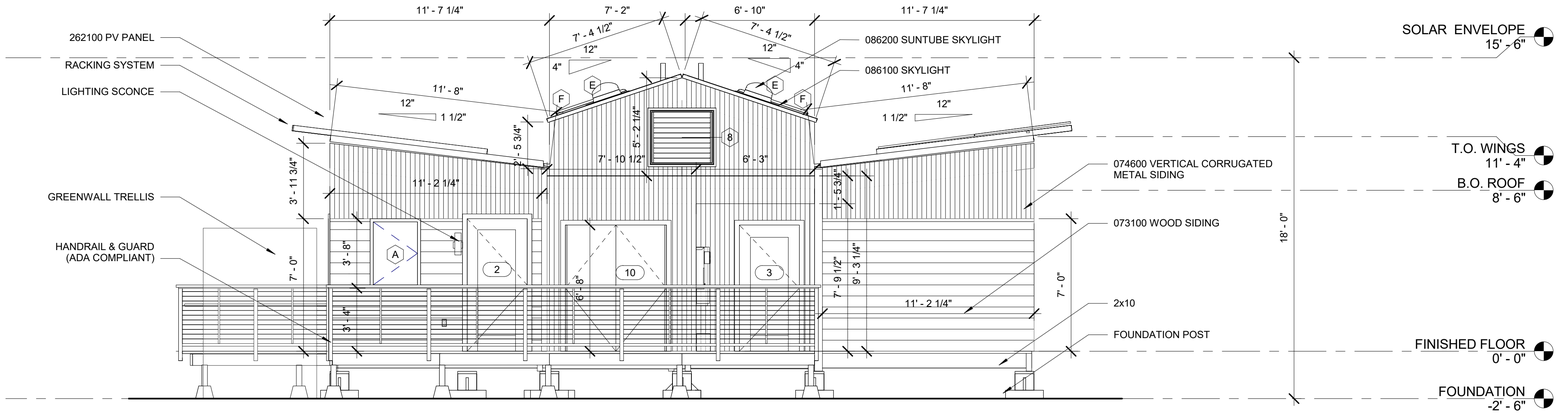
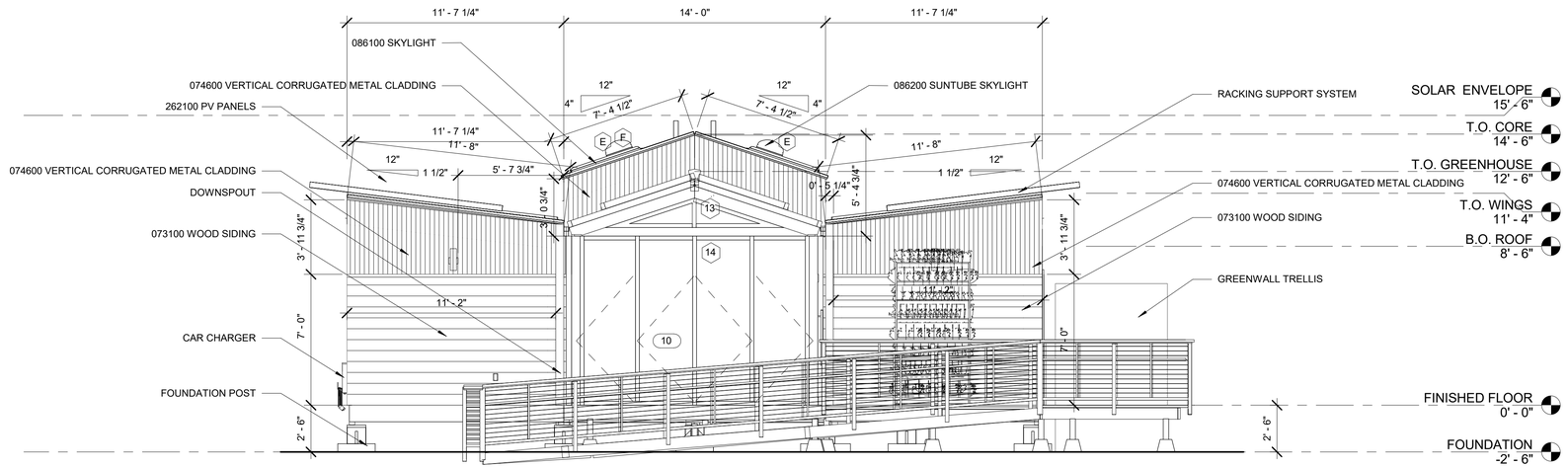
REFLECTED CEILING PLAN

A-104



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



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

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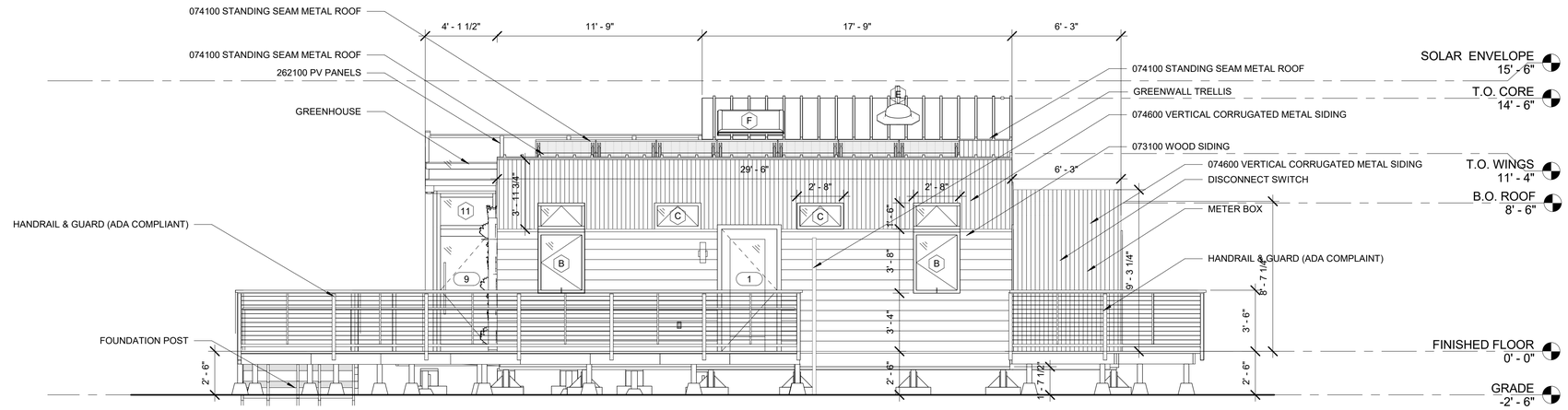
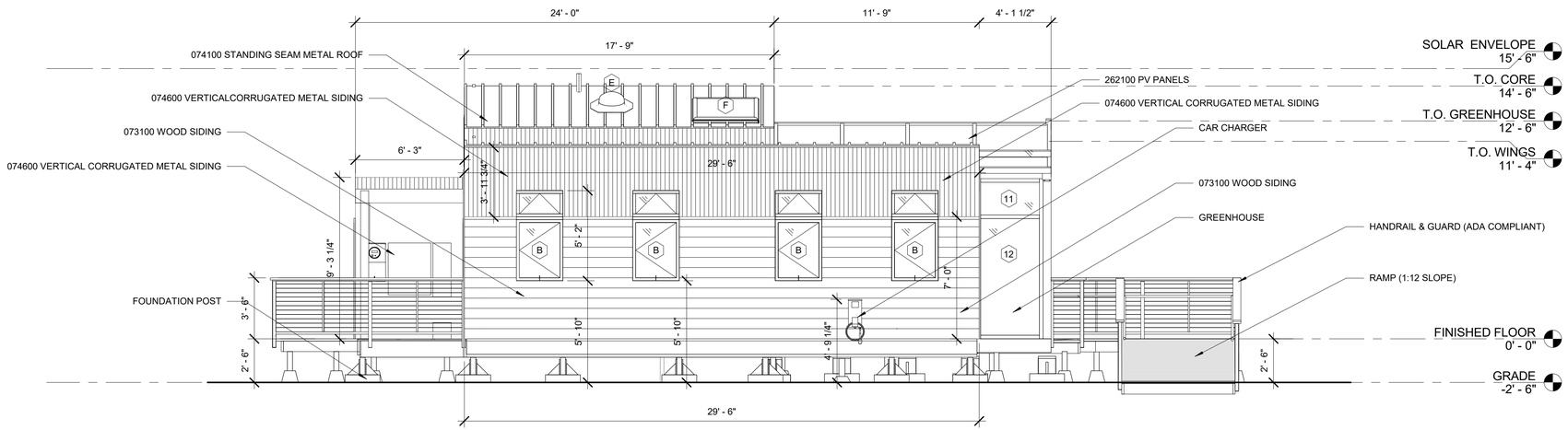
NORTH & SOUTH EXTERIOR ELEVATIONS

A-200



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



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

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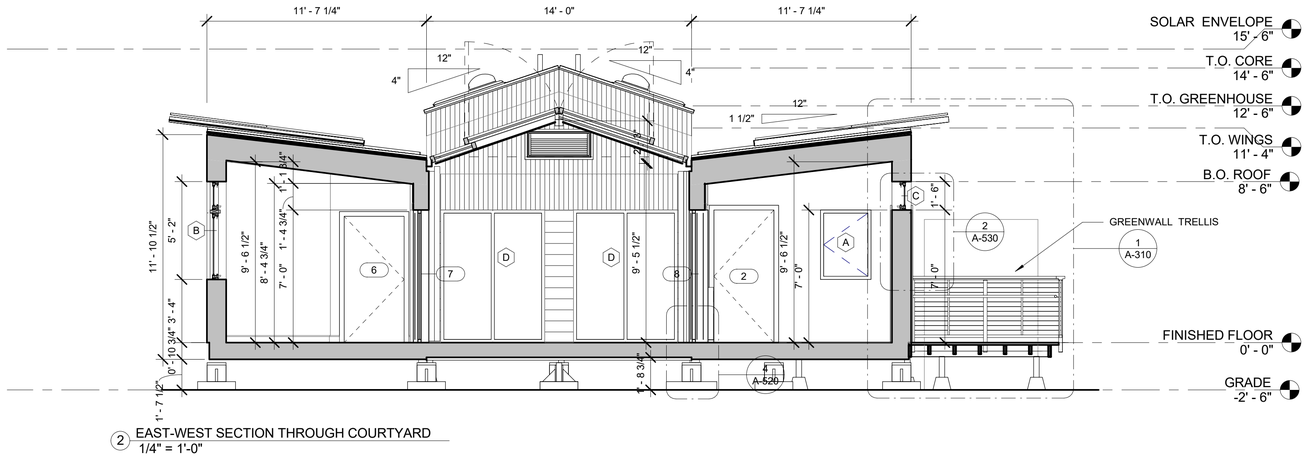
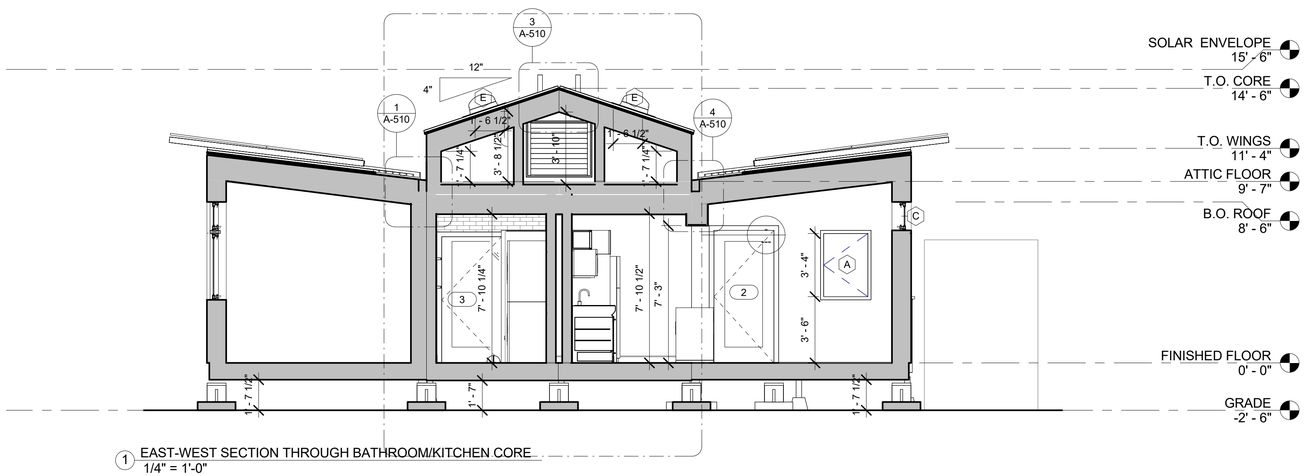
EAST & WEST EXTERIOR ELEVATIONS

A-201



2 EAST-WEST SECTION THROUGH COURTYARD
1/4" = 1'-0"



1 EAST-WEST SECTION THROUGH BATHROOM/KITCHEN CORE
1/4" = 1'-0"

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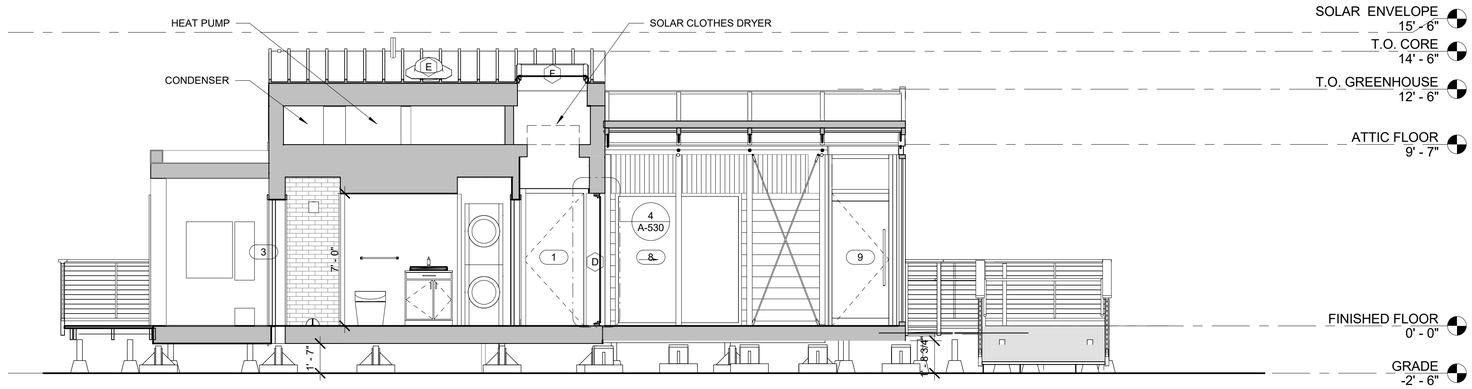
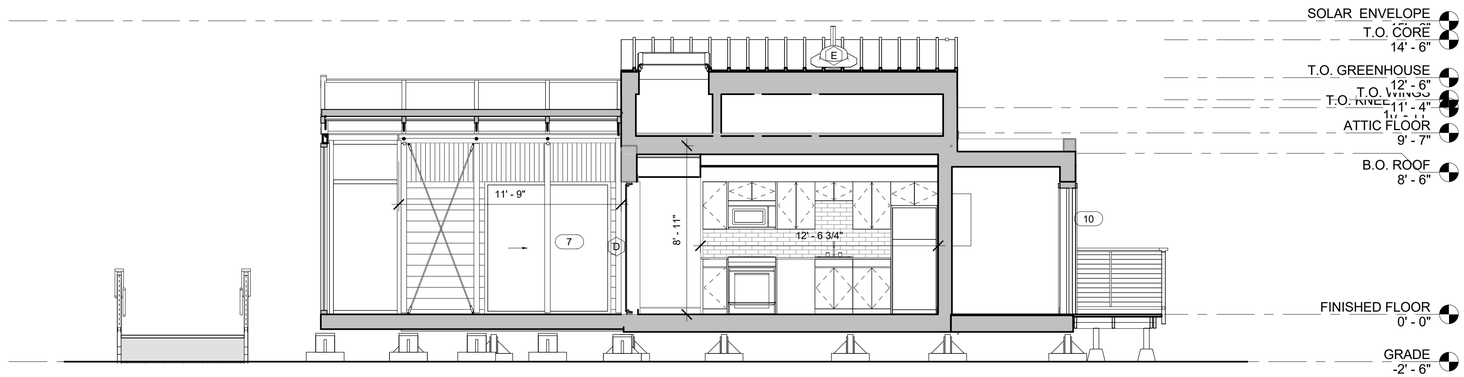
BUILDING SECTIONS

A-300



1 NORTH-SOUTH SECTION THROUGH BATHROOM/COURTYARD
1/4" = 1'-0"



2 NORTH-SOUTH SECTION THROUGH KITCHEN/COURTYARD
1/4" = 1'-0"

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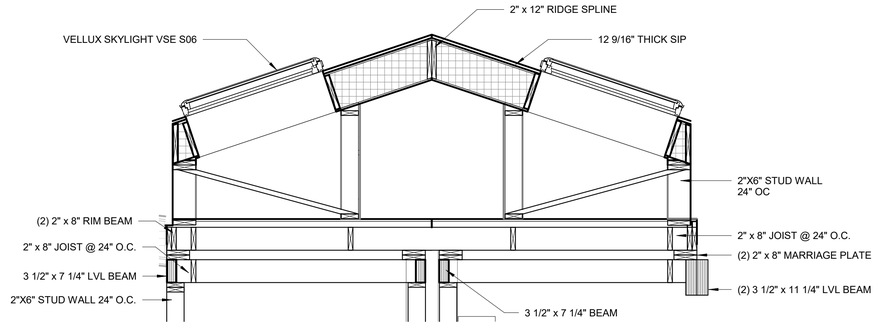
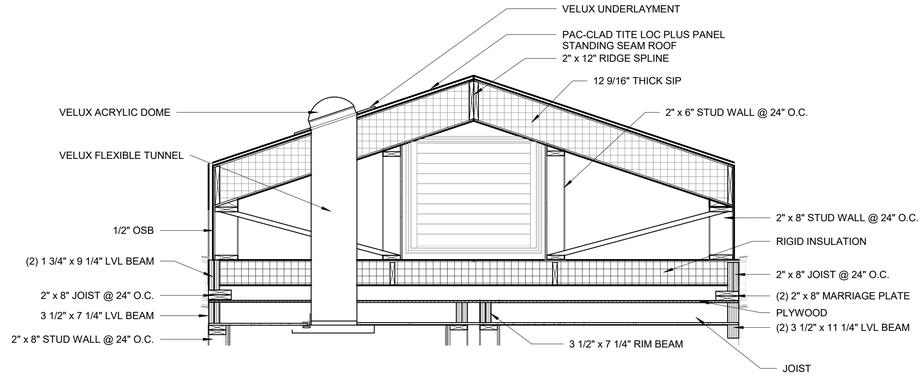
BUILDING SECTIONS

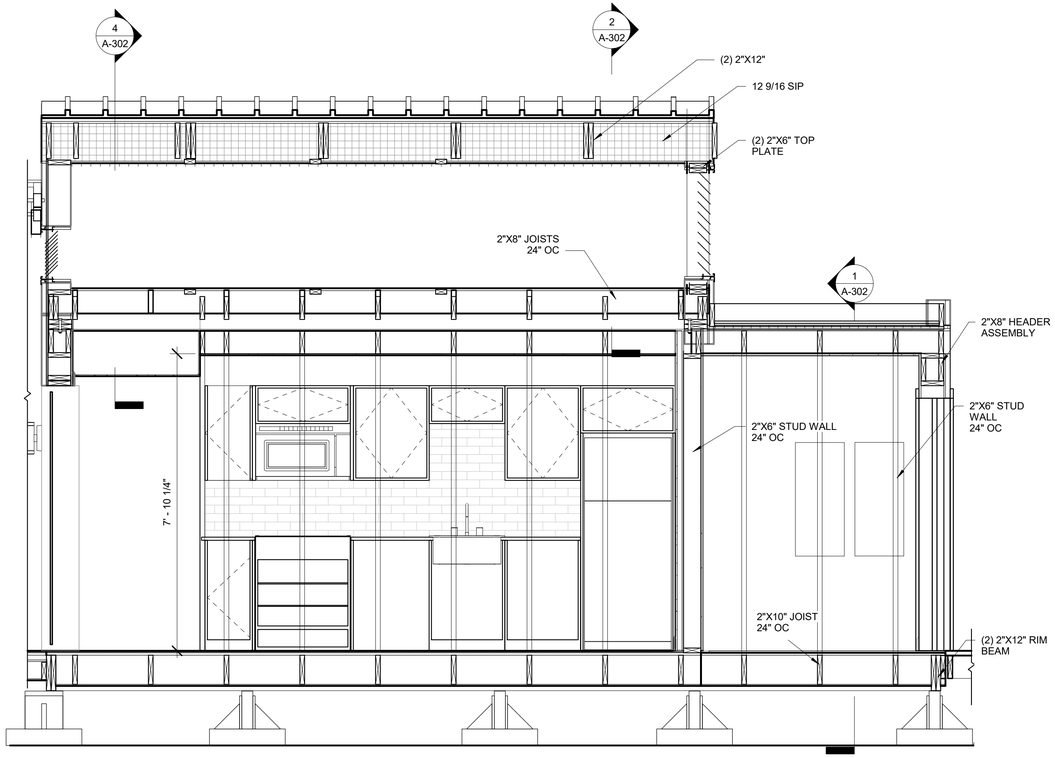
A-301



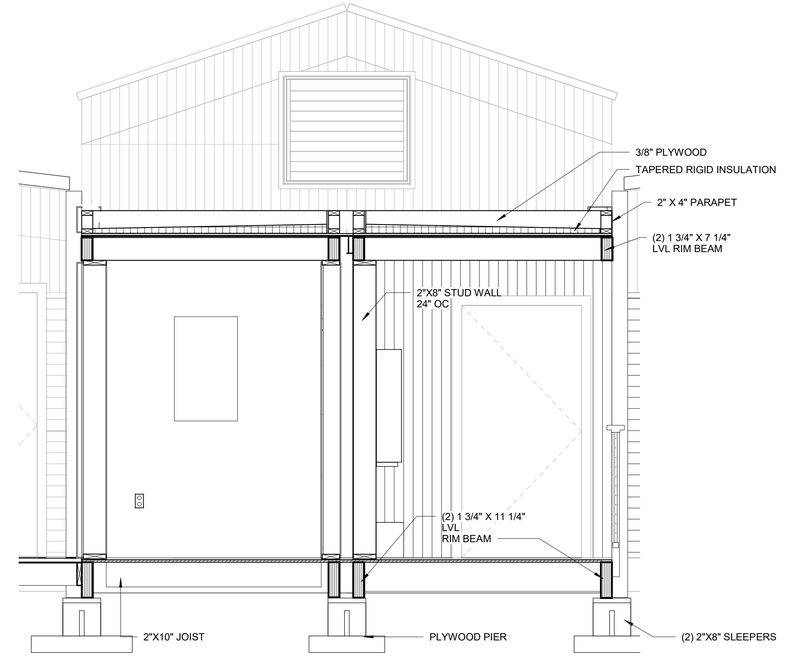
4 SECTION THROUGH SOLAR DRYERS A-ARCH
1/2" = 1'-0"



2 SECTION THROUGH ATTIC-ARCH
1/2" = 1'-0"



3 SECTION THROUGH CORE ARCH
1/2" = 1'-0"



1 SECTION THROUGH /MECHANICAL ROOM-ARCH
1/2" = 1'-0"

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BUILDING SECTIONS

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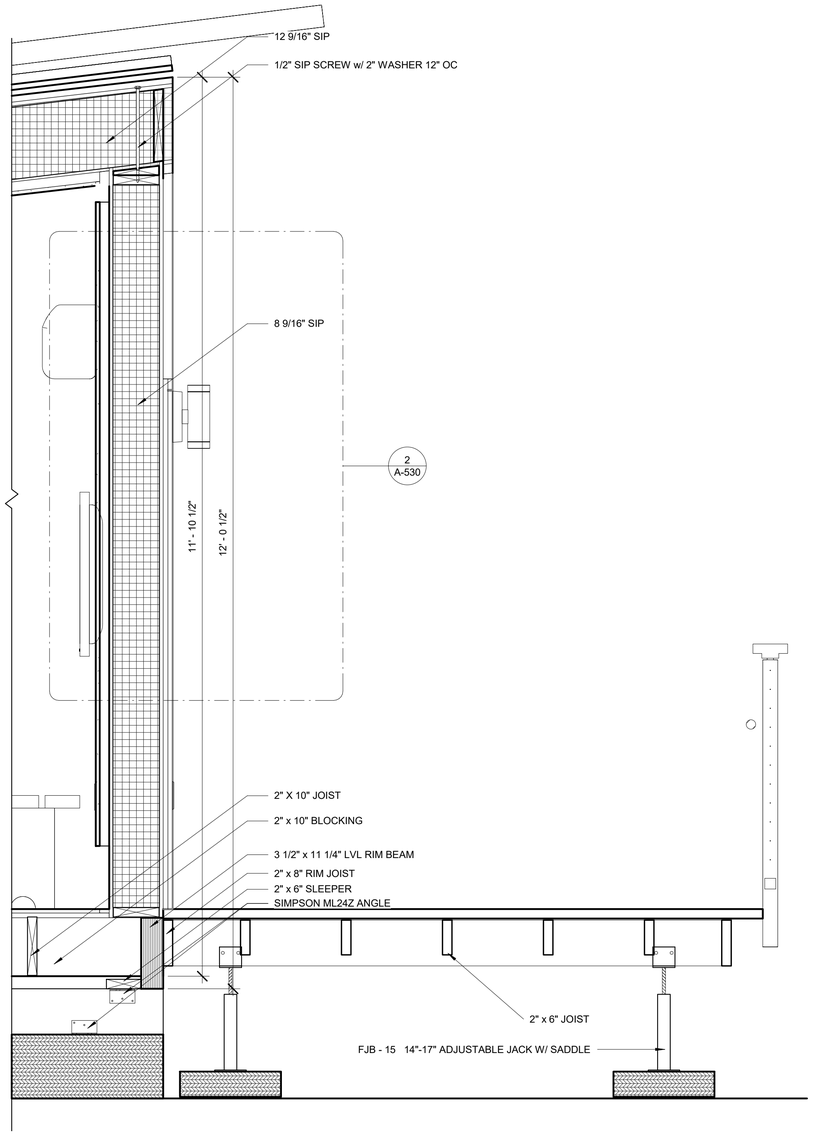
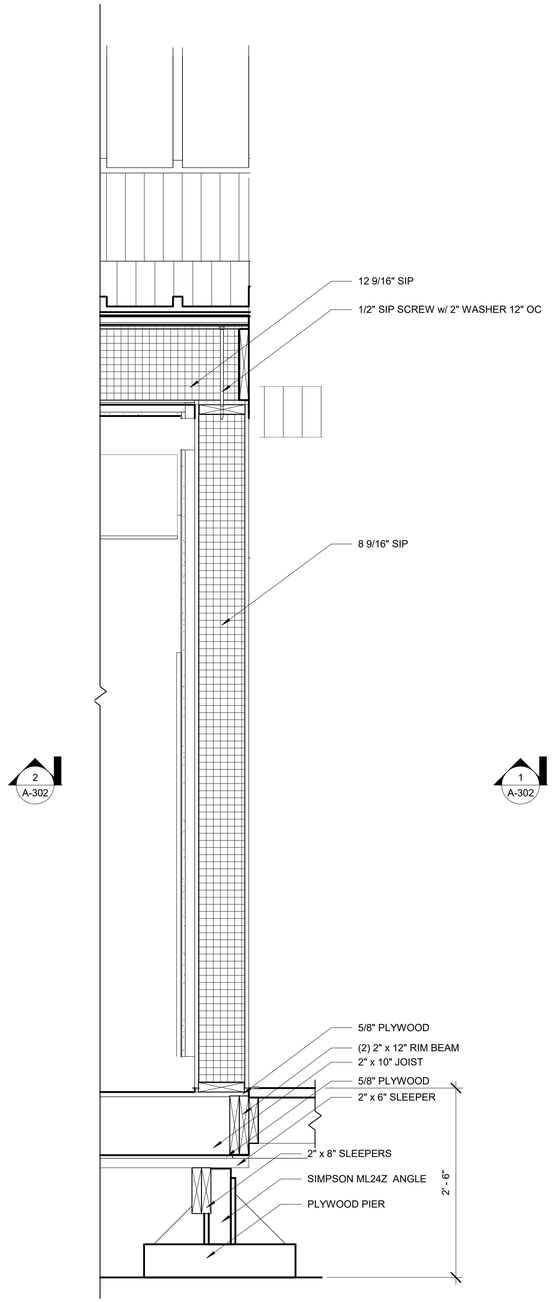


1 EXTERIOR WALL SECTION AT DECK ARCH
1" = 1'-0"



2 EXTERIOR WALL SECTION ALONG SLOPE ARCH
1" = 1'-0"

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EXTERIOR WALL SECTIONS

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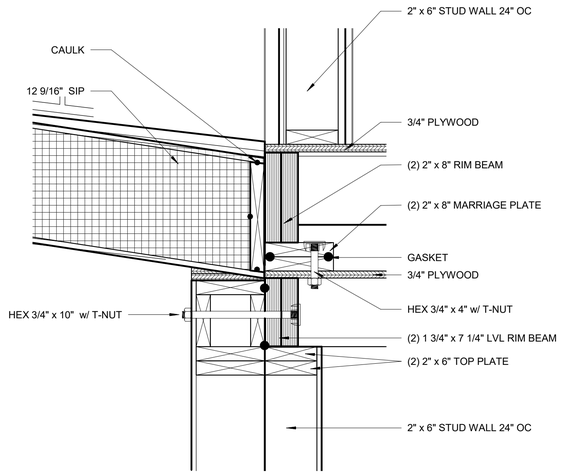
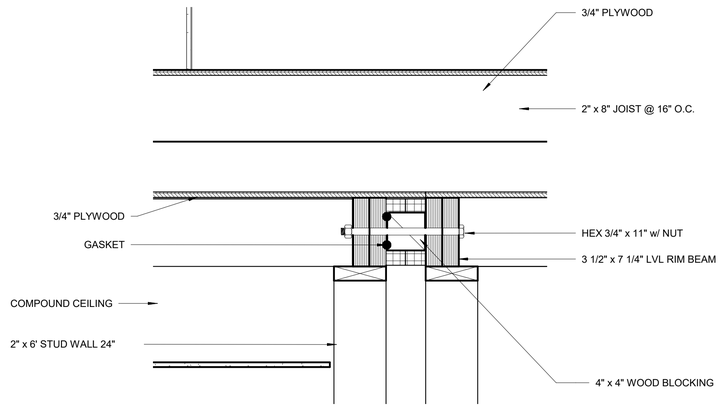
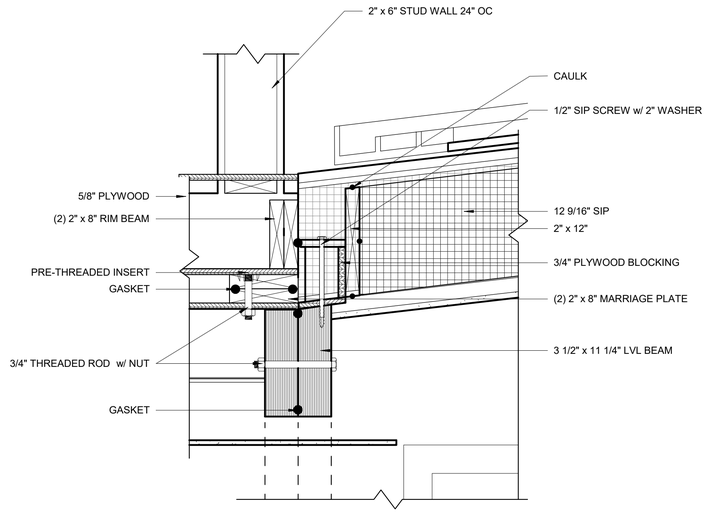


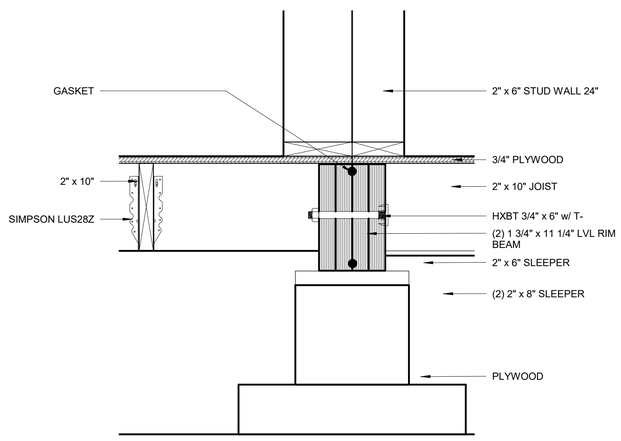
1 WALL FRAMING AT BEDROOM - ROOF -ARCH
1 1/2" = 1'-0"



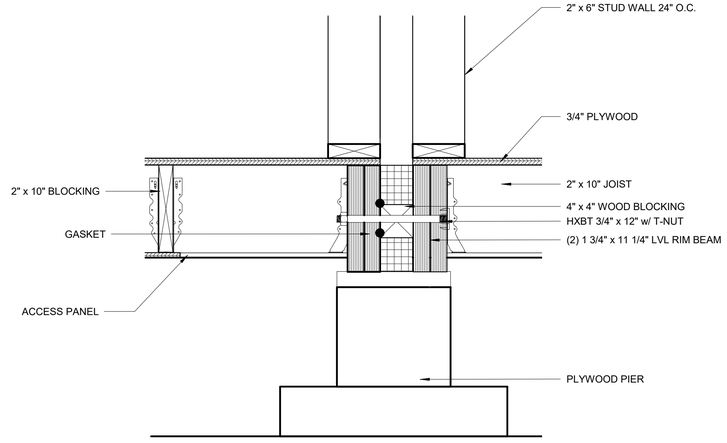
2 WALL FRAMING AT SPINE WALL - ROOF 1-ARCH
1 1/2" = 1'-0"



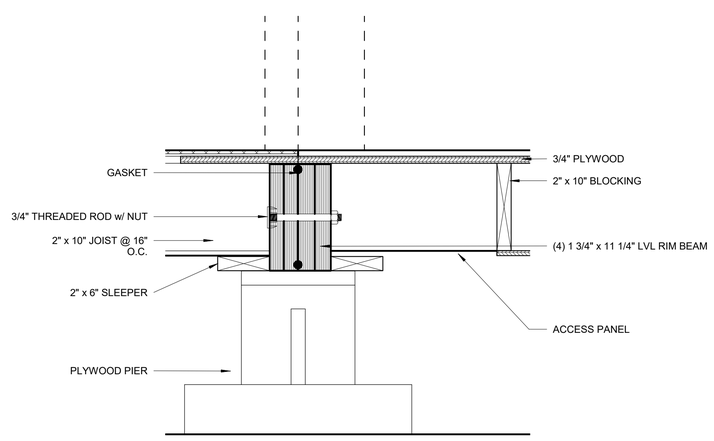
3 FRAMING AT DINING ROOM - ROOF ARCH 1
1 1/2" = 1'-0"



4 WALL FRAMING AT BEDROOM - FLOOR-ARCH
1 1/2" = 1'-0"



5 WALL FRAMING AT SPINE WALL - FLOOR-ARCH
1 1/2" = 1'-0"



6 FRAMING AT DINING ROOM - FLOOR-ARCH
1 1/2" = 1'-0"

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INTERIOR WALL SECTIONS

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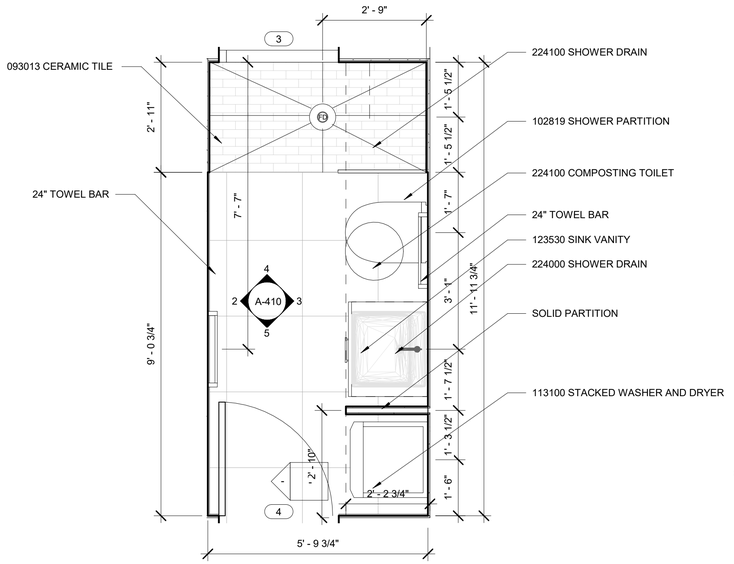
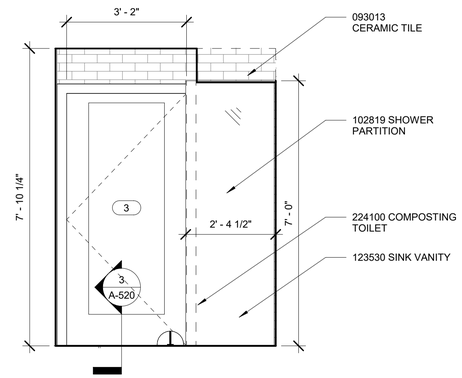
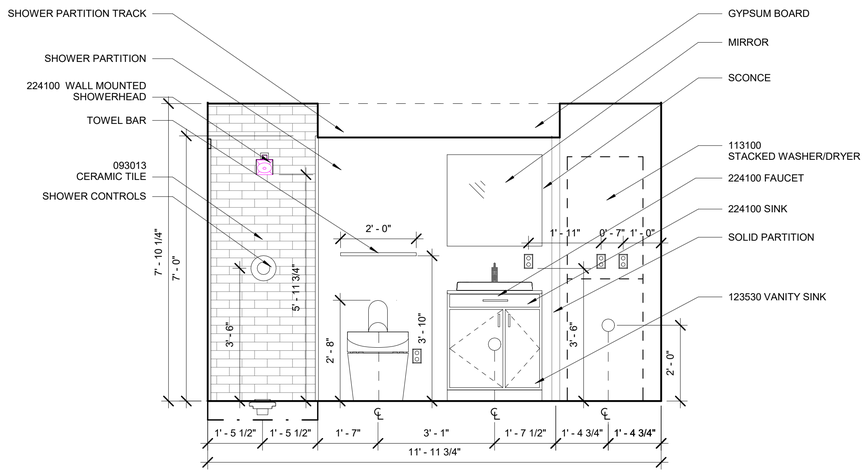


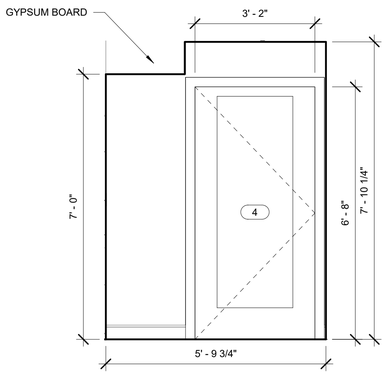
3 ENLARGED BATHROOM PLAN
1/2" = 1'-0"



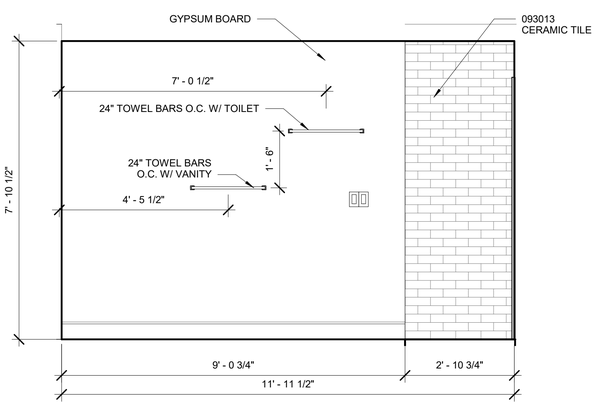
4 BATHROOM A
1/2" = 1'-0"



1 BATHROOM B (VANITY WALL)
1/2" = 1'-0"



5 BATHROOM C
1/2" = 1'-0"



2 BATHROOM D
1/2" = 1'-0"

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ENLARGED BATHROOM PLANS & ELEVATIONS

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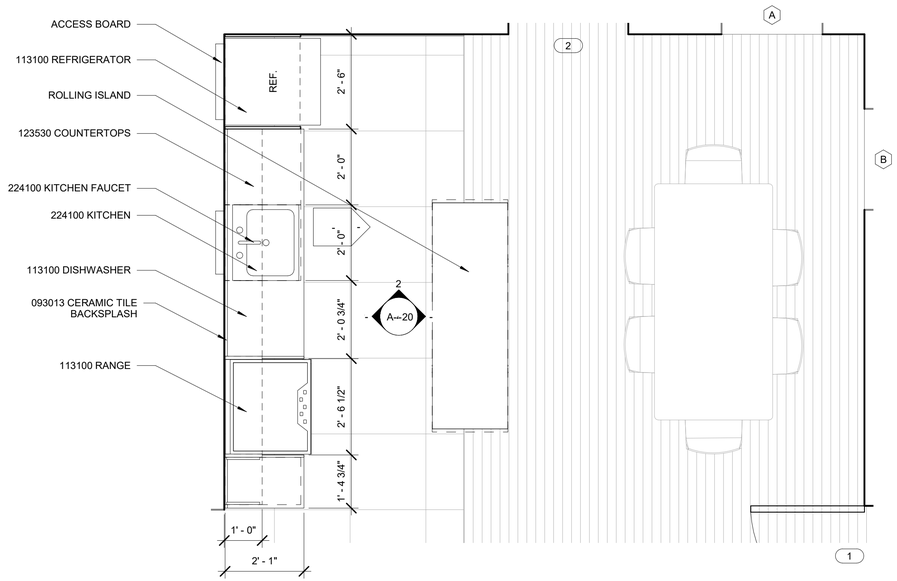
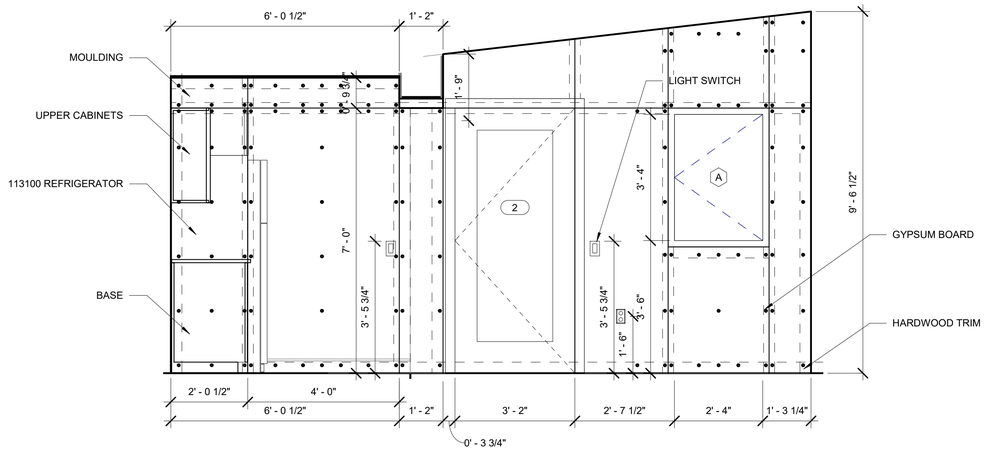
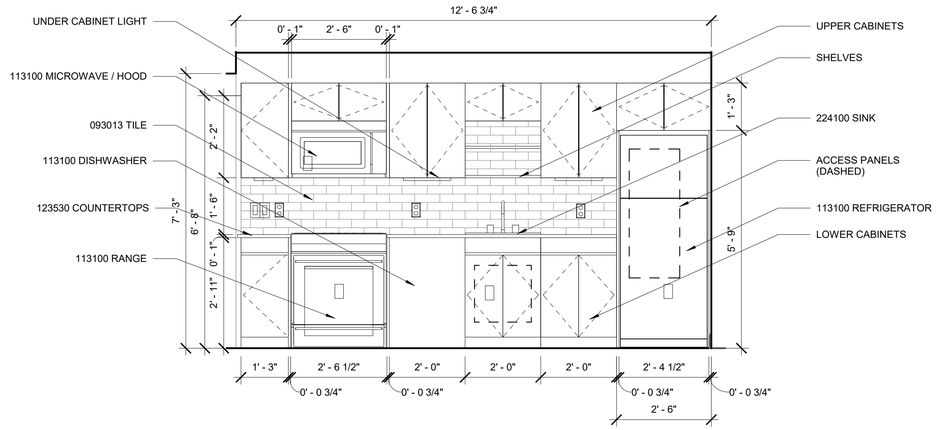


1 ENLARGED KITCHEN PLAN
1/2" = 1'-0"



2 KITCHEN A
1/2" = 1'-0"



3 KITCHEN D
1/2" = 1'-0"

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ENLARGED KITCHEN PLANS & ELEVATIONS

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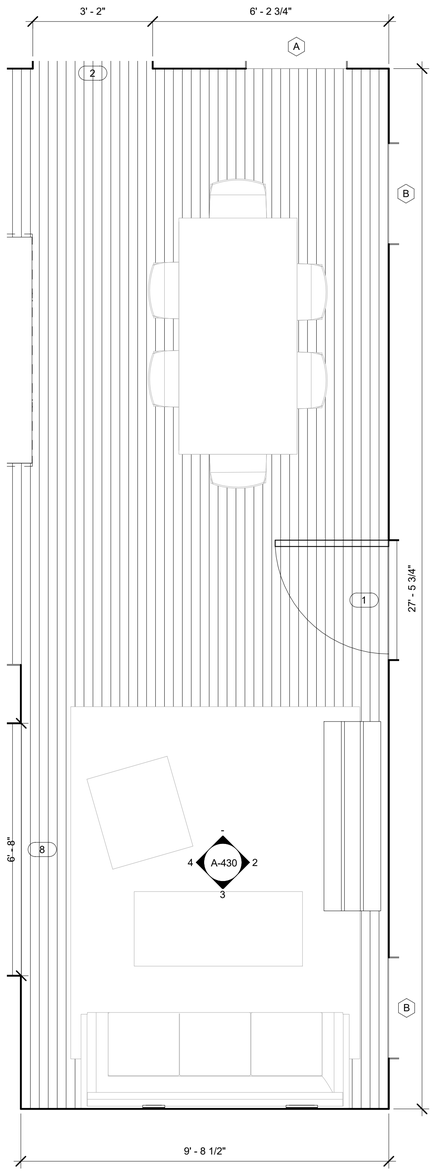
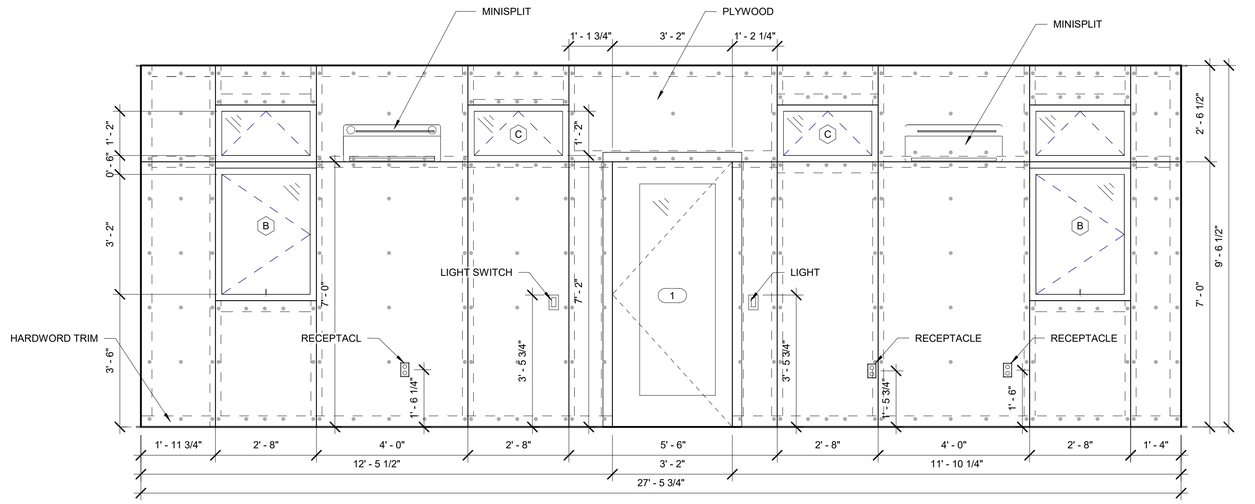
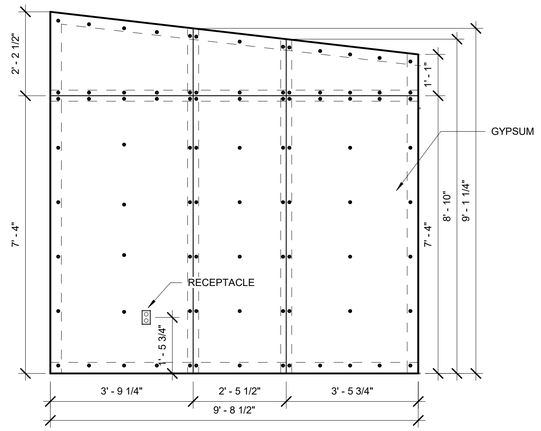


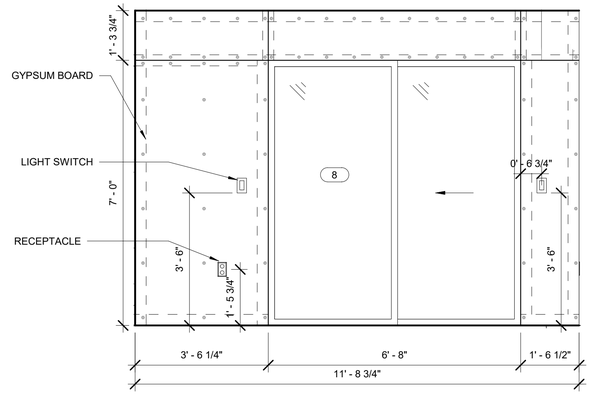
1 ENLARGED LIVING ROOM PLAN
1/2" = 1'-0"



2 LIVING ROOM B
1/2" = 1'-0"



3 LIVING ROOM C
1/2" = 1'-0"



4 LIVING ROOM D
1/2" = 1'-0"

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ENLARGED LIVING ROOM PLAN & ELEVATIONS

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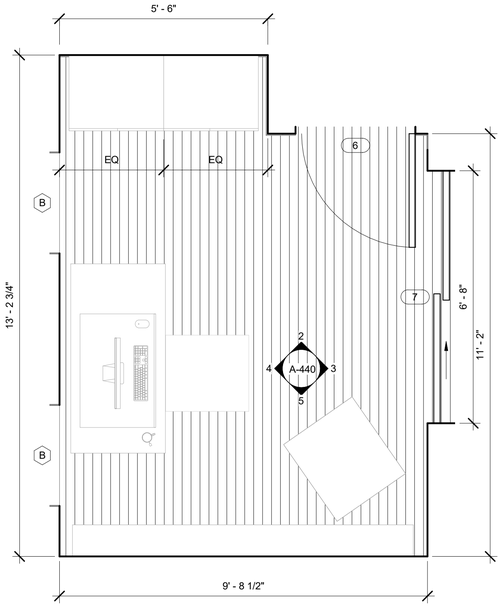
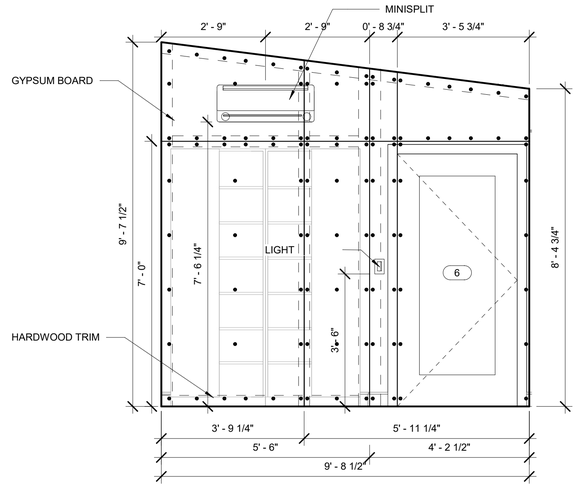
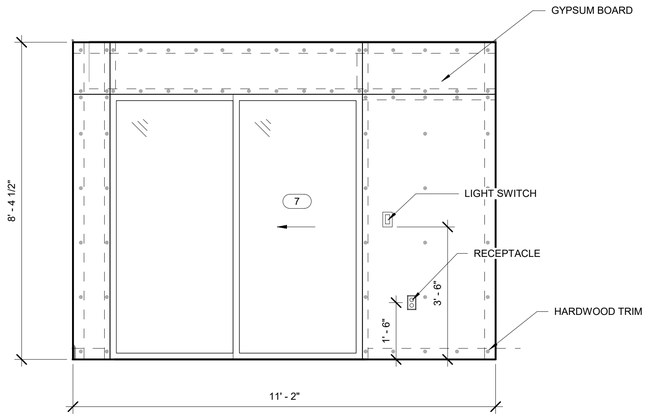


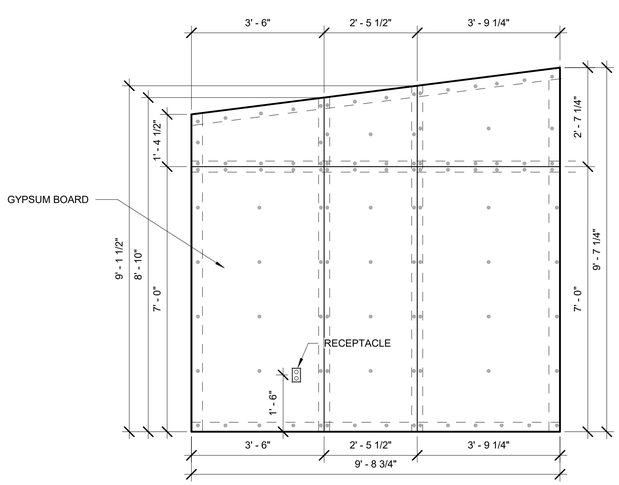
1 ENLARGED STUDY ROOM PLAN
1/2" = 1'-0"



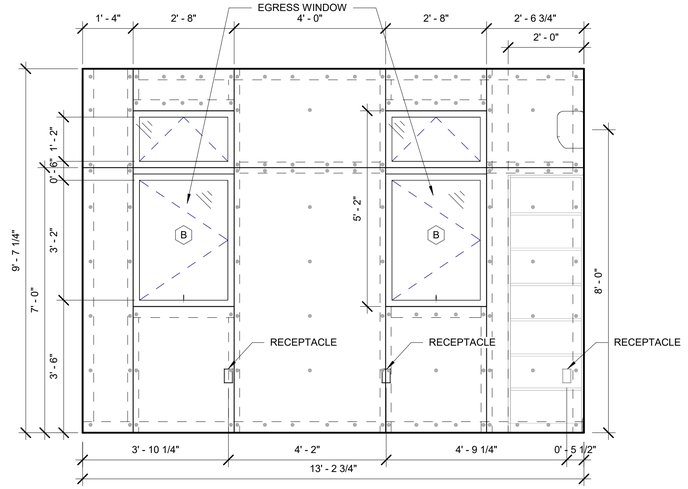
2 STUDY A
1/2" = 1'-0"



3 STUDY B
1/2" = 1'-0"



5 STUDY D
1/2" = 1'-0"



4 STUDY C
1/2" = 1'-0"

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ENLARGED BEDROOM/STUDY PLAN & ELEVATIONS

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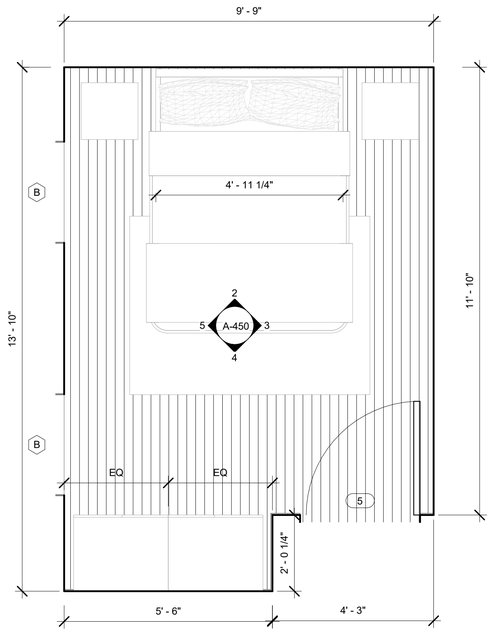
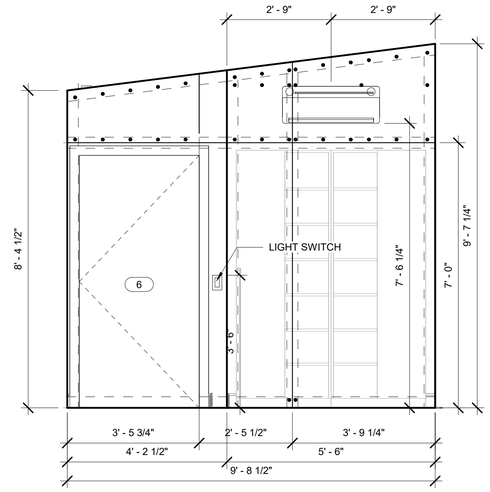
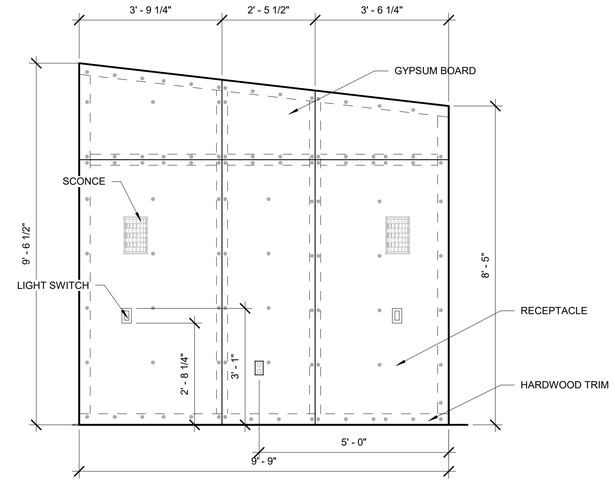


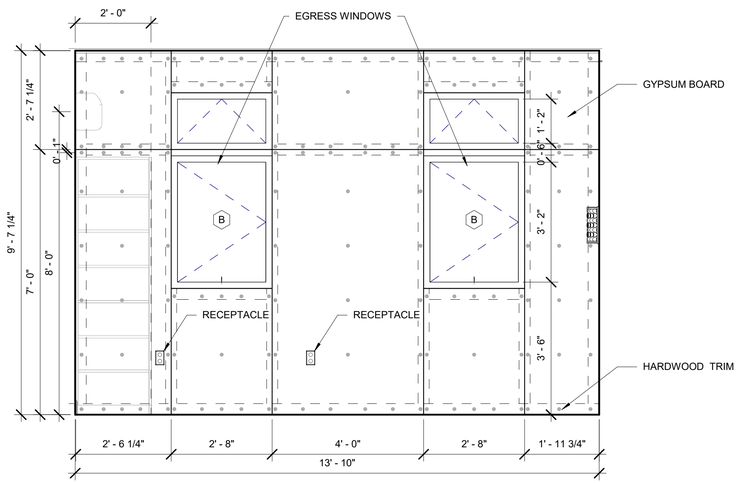
1 ENLARGED BEDROOM PLAN
1/2" = 1'-0"



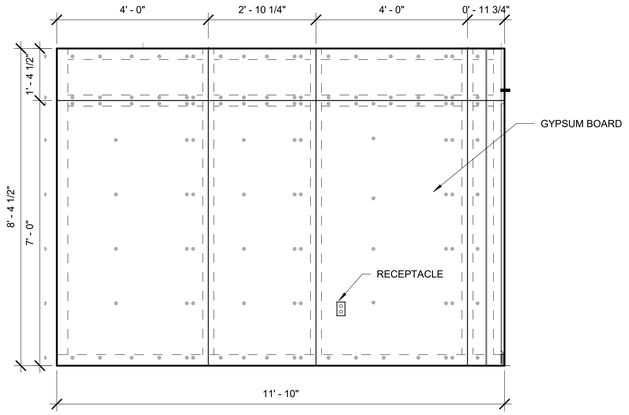
4 BEDROOM C
1/2" = 1'-0"



2 BEDROOM A
1/2" = 1'-0"



5 BEDROOM D
1/2" = 1'-0"



3 BEDROOM B
1/2" = 1'-0"

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ENLARGED BEDROOM PLAN & ELEVATIONS

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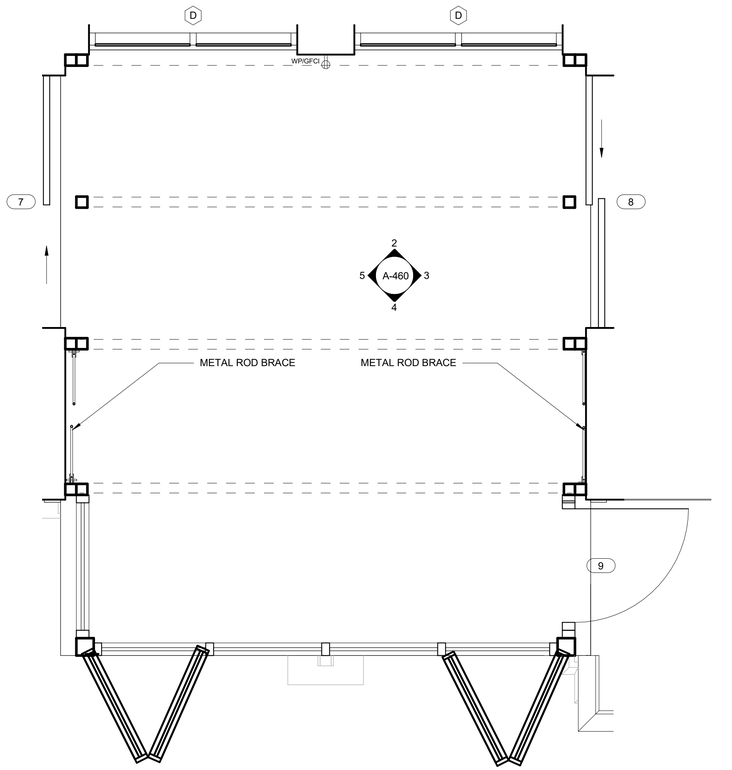
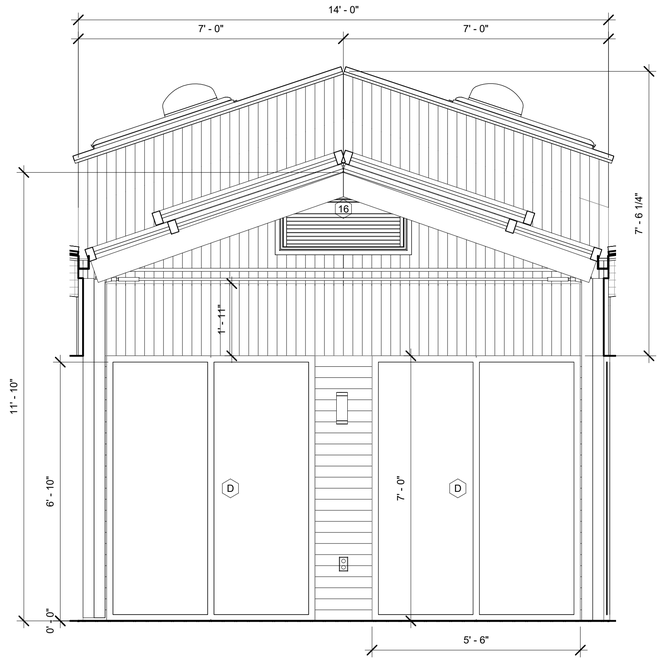
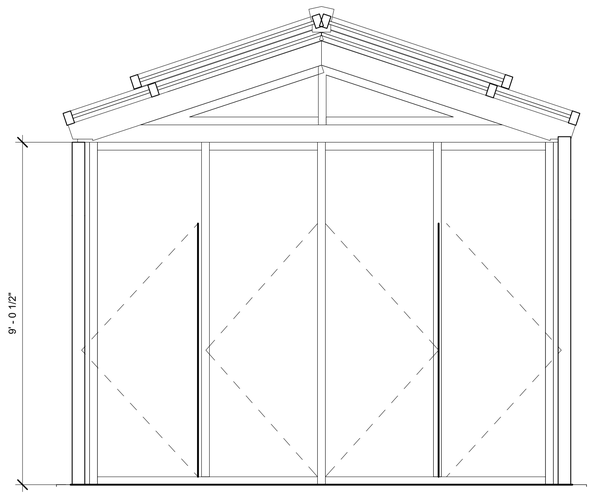


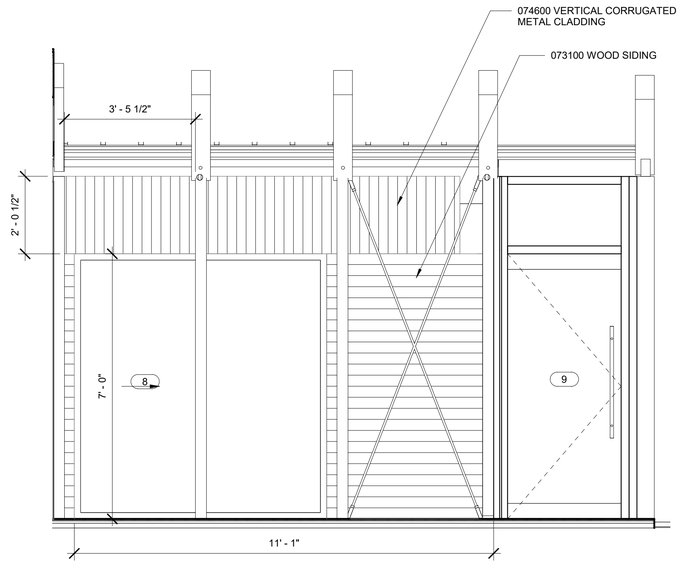
1 ENLARGED COURTYARD PLAN
1/2" = 1'-0"



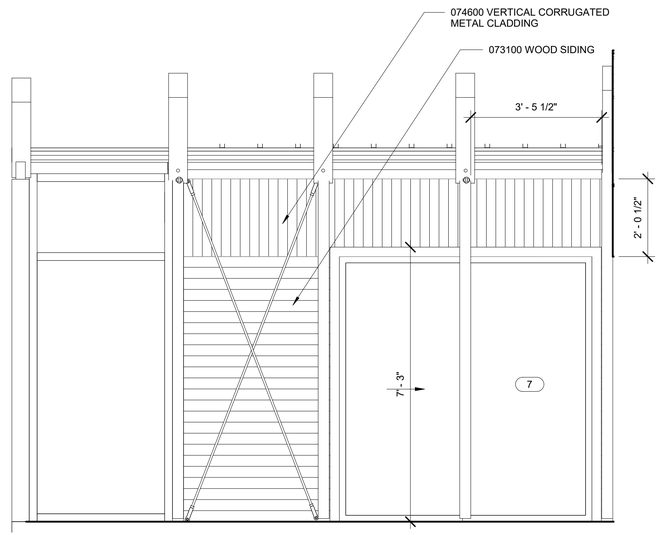
2 COURTYARD A - LOOKING NORTH
1/2" = 1'-0"



4 COURTYARD C - LOOKING SOUTH
1/2" = 1'-0"



3 COURTYARD B - LOOKING EAST
1/2" = 1'-0"



5 COURTYARD D - LOOKING WEST
1/2" = 1'-0"

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ENLARGED COURTYARD PLAN & ELEVATIONS

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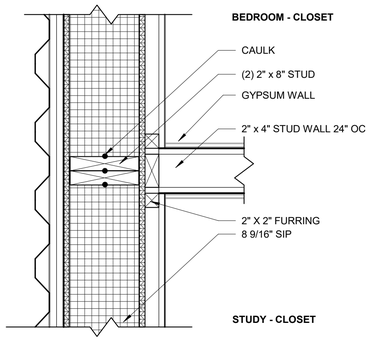
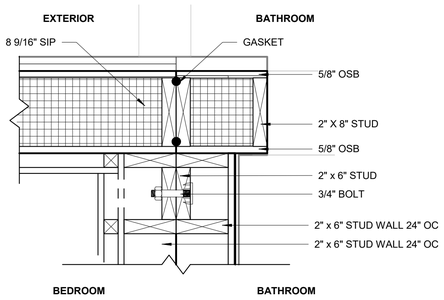
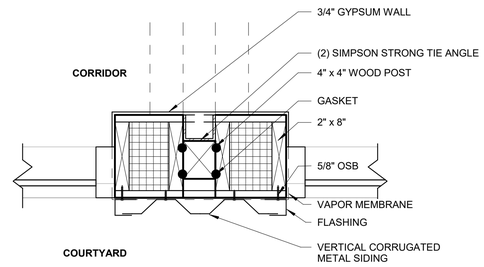


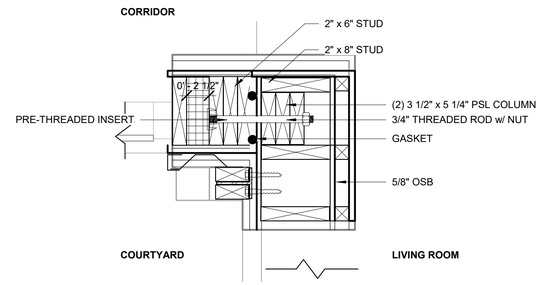
1 INTERIOR WALL TO SIP ARCH
1 1/2" = 1'-0"



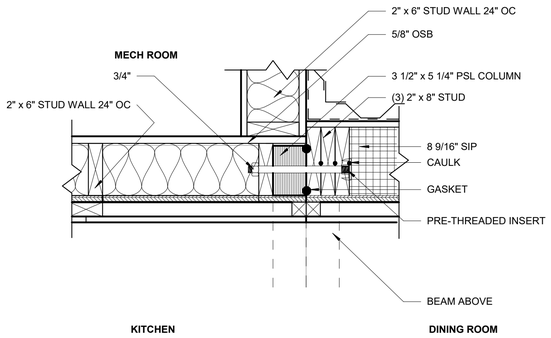
2 MODULE TO WING AT BEDROOM ARCH
1 1/2" = 1'-0"



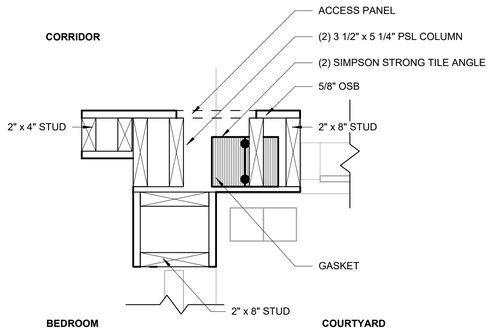
3 MODULE CONNECTION AT CORE ARCH
1 1/2" = 1'-0"



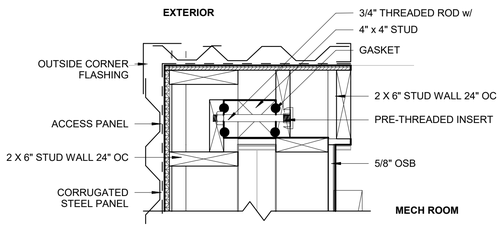
4 MODULE TO WING AT CORNER ARCH
1 1/2" = 1'-0"



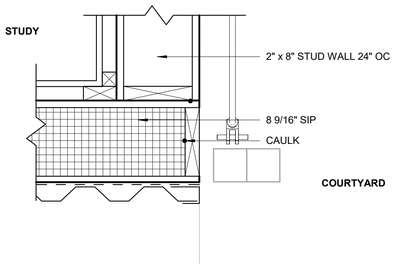
5 MODULE TO WING AT KITCHEN ARCH
1 1/2" = 1'-0"



6 MODULE CONNECTION OFFICE TO CORE ARCH
1 1/2" = 1'-0"



7 MODULE TO MODULE AT SPINE 2 ARCH
1 1/2" = 1'-0"



8 SIP CORNER DETAIL ARCH
1 1/2" = 1'-0"

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PLAN DETAILS

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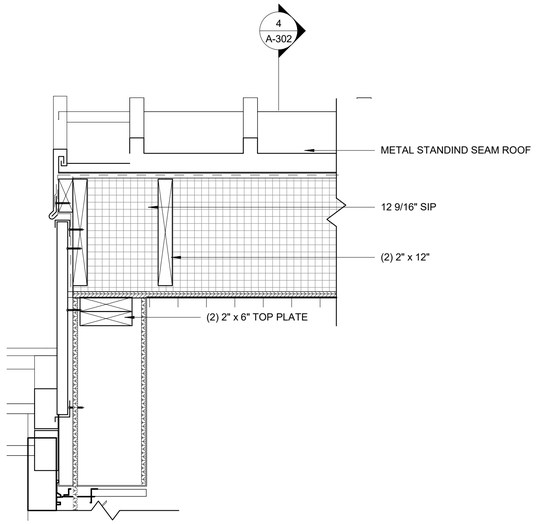
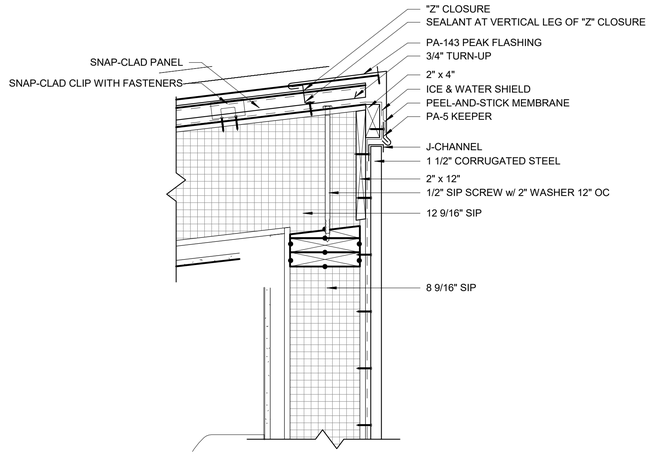
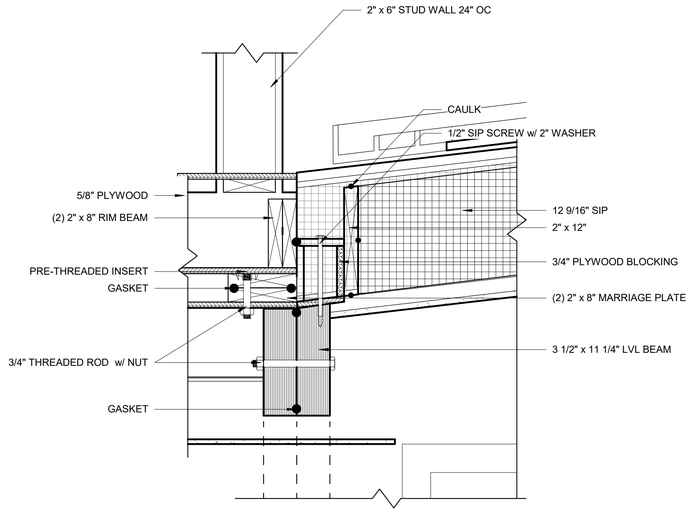


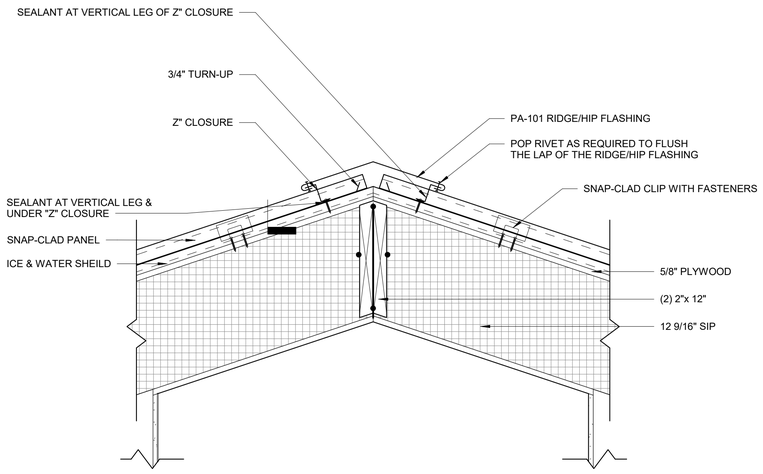
5 SECTION THROUGH SOLAR DRYERS B ARCH
1 1/2" = 1'-0"



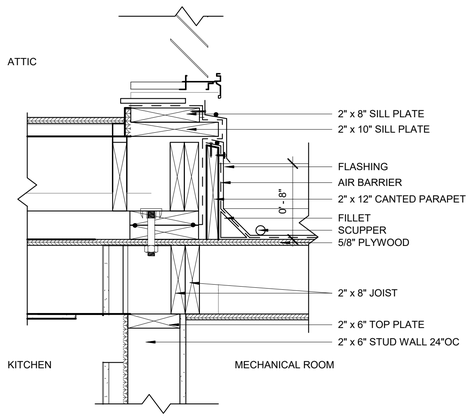
6 PEAK DETAIL
1 1/2" = 1'-0"



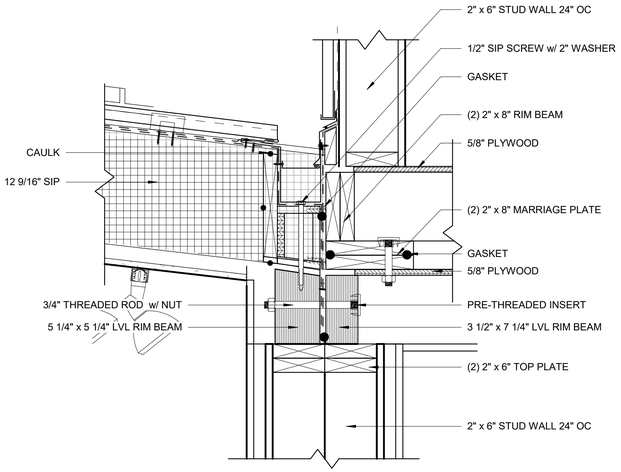
4 FRAMING AT DINING ROOM - ROOF ARCH
1 1/2" = 1'-0"



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



2 ATTIC FLOOR TO MECHANICAL ROOF ARCH
1 1/2" = 1'-0"



1 WALL FRAMING AT BEDROOM - ROOF ARCH
1 1/2" = 1'-0"

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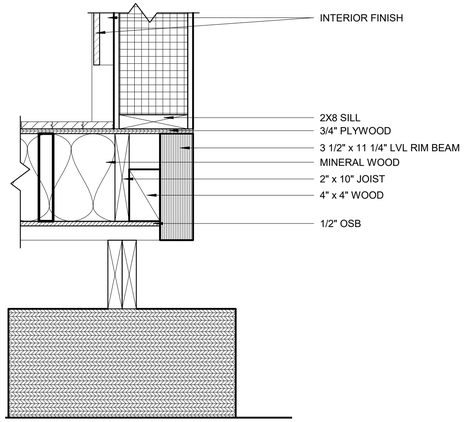
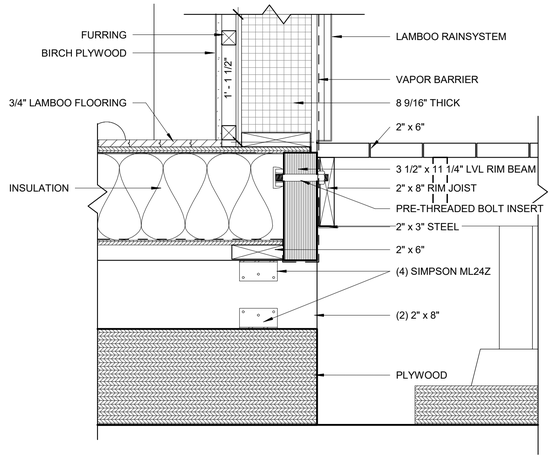
ROOF SECTION DETAILS

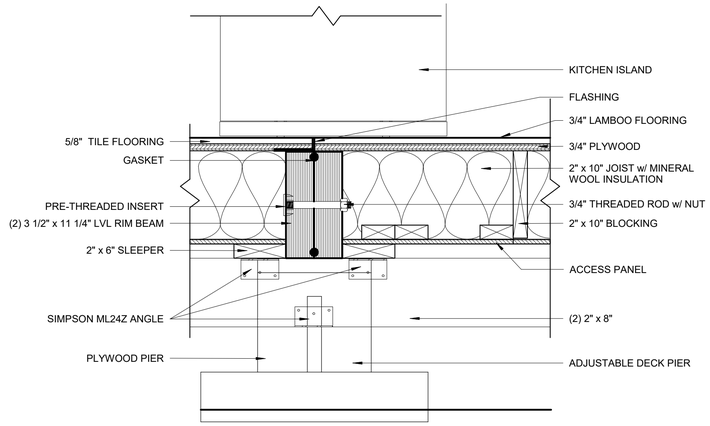
A-510



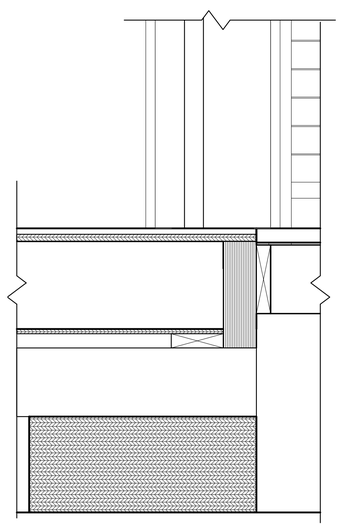
5 FLOOR TO WALL DETAIL
1 1/2" = 1'-0"



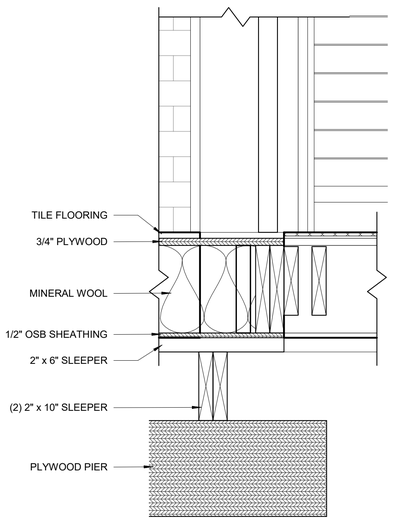
6 FLOOR & WALL TO EXTERIOR DECK DETAIL
1 1/2" = 1'-0"



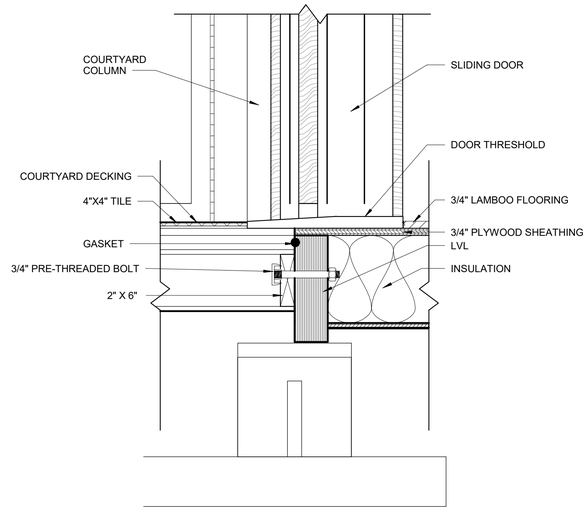
1 TILE TO HARDWOOD DETAIL BETWEEN TWO MODULES
1 1/2" = 1'-0"



2 HARDWOOD TO EXTERIOR DECK
1 1/2" = 1'-0"



3 SHOWER TILE TO EXTERIOR DECK
1 1/2" = 1'-0"



4 HARDWOOD TO COURTYARD TILE
1 1/2" = 1'-0"

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FLOOR SECTION DETAILS

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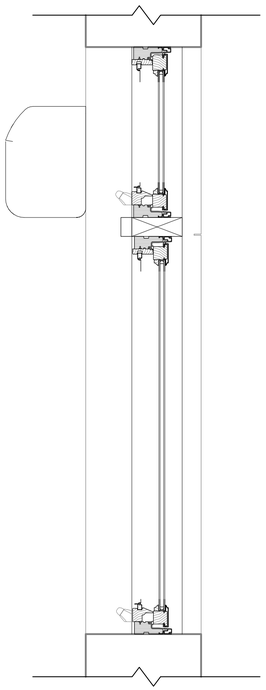
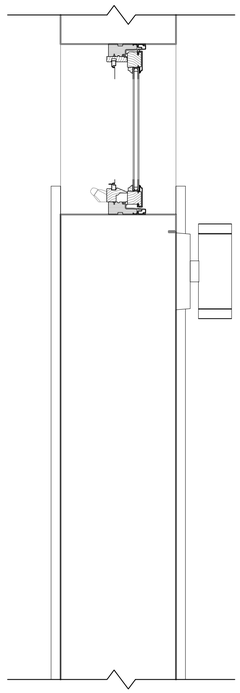
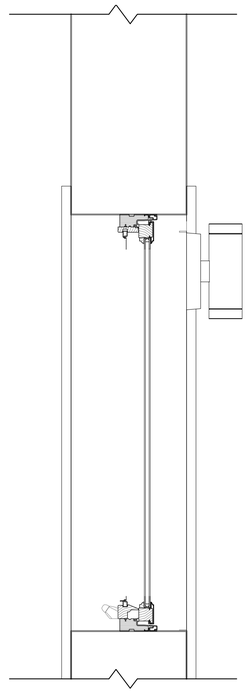


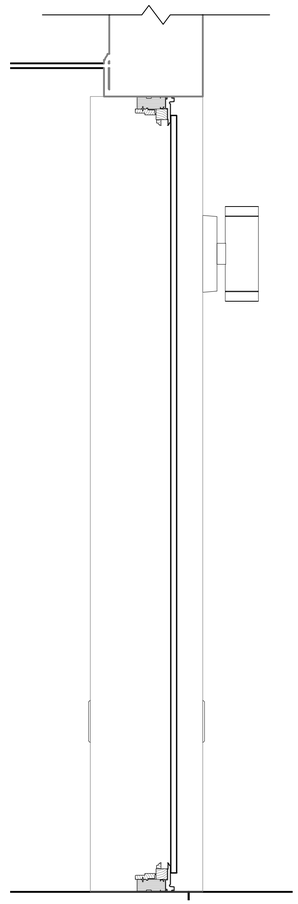
1 CASEMENT/EGRESS WINDOW DETAIL
1 1/2" = 1'-0"



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



3 CASEMENT WINDOW DETAIL
1 1/2" = 1'-0"



4 WINDOW DETAIL (NOT OPERABLE)
1 1/2" = 1'-0"

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WINDOW DETAILS

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DOOR SCHEDULE

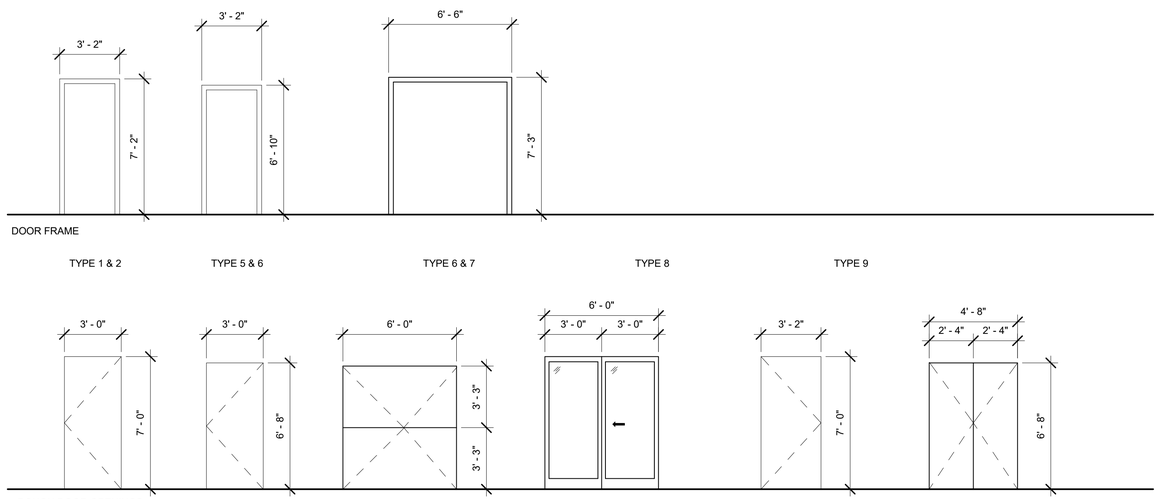
Type Mark	Location	Manufacturer	Model	Height	Width	Thickness	Finish	Frame Material	Operation	Count	Function	Fire Rating	Comments
1	Living Room	ANDERSEN		7' - 0"	3' - 2"	0' - 2"			RIGHT HAND	1	Exterior		
2	Kitchen	ANDERSEN		7' - 0"	3' - 2"	0' - 2"			LEFT HAND	1	Exterior		
3	Bathroom	ANDERSEN		6' - 8"	3' - 2"	0' - 2"			LEFT HAND	1	Interior		
4	Bedroom	ANDERSEN		6' - 8"	3' - 2"	0' - 2"			RIGHT HAND	1	Interior		
5	Study	ANDERSEN		6' - 8"	3' - 2"	0' - 2"			LEFT HAND	1	Interior		
6	Study/Courtyard			7' - 0"	6' - 8"	0' - 2"			SLIDING	1	Exterior		
7	Living Room/Courtyard			7' - 0"	6' - 8"	0' - 2"			SLIDING	1	Exterior		
8	Courtyard			7' - 0"	3' - 0"				LEFT HAND	1	Exterior		
9	Mechanical Room			6' - 8"	5' - 4"	0' - 2"				1	Exterior	1 Hour	
10	Bathroom Deck 2	ANDERSEN		6' - 8"	3' - 2"	0' - 2"				1	Exterior		

WINDOW SCHEDULE

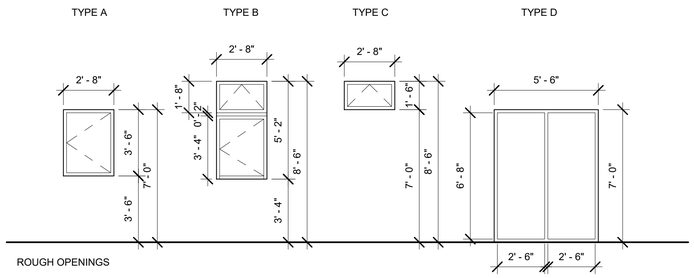
TYPE MARK	QNTY.	WINDOW TYPE	MANUFACTURER	MODEL	MATERIAL	ROUGH WIDTH	ROUGH HEIGHT	Sill Height	Head Height	Type	Comments
A	1	CASEMENT	ANDERSON			2' - 8"	3' - 8"	3' - 4"	8' - 6"	ANDERSON E SERIES casement	
B	6	CASEMENT	ANDERSON			2' - 8"	5' - 2"	3' - 4"	8' - 6"	ANDERSON E SERIES AWNING & CASEMENT	
C	2	PUSH OUT AWNING	ANDERSON			2' - 8"	1' - 6"	7' - 0"	8' - 6"	ANDERSON E SERIES AWNING	
D	2	FIXED	ANDERSON					0' - 0"	7' - 0"	anderson tall fixed casement	
E	2	SUNTUBE	VELUX	TGF 014		1' - 2 1/2"	12' - 0"			VELUX TGF 014	The VELUX TGF utilizes low profile flashing & flexible tunnel construction.
F	2	SKYLIGHT	VELUX	VSE		3' - 8 1/4"	3' - 9 3/4"			S06	Electric venting deck mounted skylight

COURTYARD WINDOW SCHEDULE

TYPE MARK	QNTY.	WINDOW TYPE	MANUFACTUR...	MODEL	MATERIAL	ROUGH WIDTH	ROUGH HEIGHT	SILL HEIGHT	HEAD HEIGHT	TYPE	COMMENTS



1 DOOR ELEVATIONS
1/4" = 1'-0"



2 WINDOW ELEVATIONS
1/4" = 1'-0"

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DOOR & WINDOW SCHEDULE

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MATERIAL SCHEDULE

SYMBOL	ITEM	MANUFACTURER	NAME	COLOR/FINISH	SIZE	COMMENTS
INTERIOR MATERIALS						
FLOORING						
BF-1	BAMBOO FLOORING	LAMBOO TECHNOLOGIES	LAMBOO FLOORING SYSTEM	CHERRY		
T-1	CERAMIC TILE	MOSA TILES			24" x 24"	
T-2	CERAMIC TILE	MOSA TILES			2" x 2"	MOSAIC
T-3	CERAMIC TILE	MOSA TILES			3" x 8"	SUBWAY TILE
BASE						
B-1						
B-2						
TRANSITIONS						
FT-1						
WALLS						
CT-1						
GYP-1						
PNT-1						
CEILINGS						
GYP-1						
PNT-1						
CASEWORK						
C-1	COUNTERTOP					
C-2	COUNTERTOP					
EXTERIOR MATERIALS						
ROOF						
SS-1	STANDING SEAM	PETERSEN PAC-CLAD	TITE LOC PLUS PANEL	SILVER		
WALLS						
CS-1	CORRUGATED STEEL	PETERSEN PAC-CLAD	7.2 PANEL	SILVER		
BC-1	BAMBOO CLADDING	LAMBOO TECHNOLOGIES	LAMBOO RAINSCREEN SYSTEM	MODERN BUFF		
DECK						
D-1						

INTERIOR FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	CEILING	COMMENTS
100	BEDROOM								
101	STUDY								
102	BATHROOM								
103	KITCHEN								
104	DINING ROOM								
105	LIVING ROOM								
106	CORRIDOR								
107	COURTYARD								
108	MECH ROOM								

EXTERIOR MATERIAL SCHEDULE

ELEVATION	WALL	DECK	COMMENTS
NORTH			
EAST			
SOUTH			
WEST			

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MATERIAL SCHEDULE

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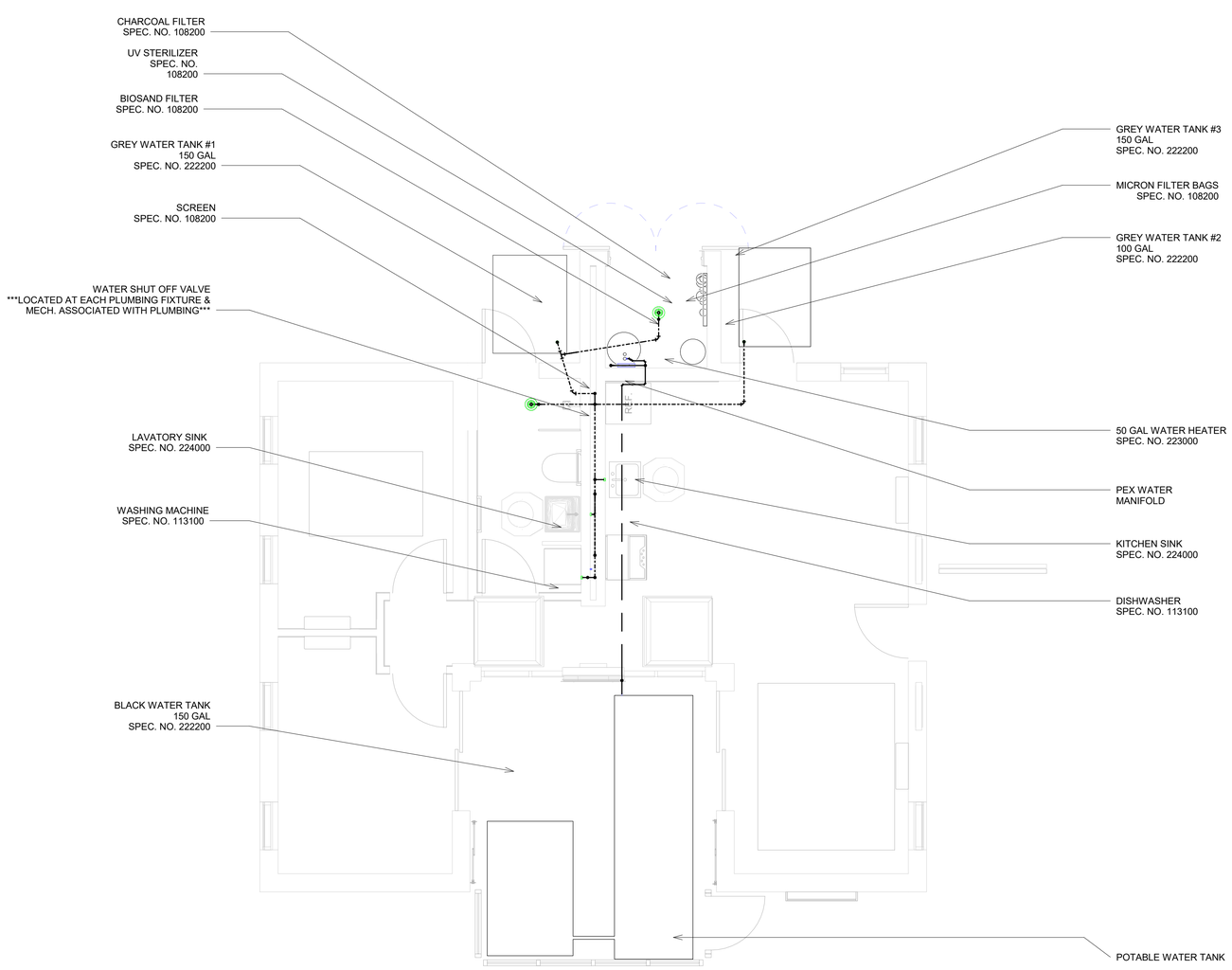

1 PLUMBING
1/4" = 1'-0"

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DOMESTIC SUPPLY

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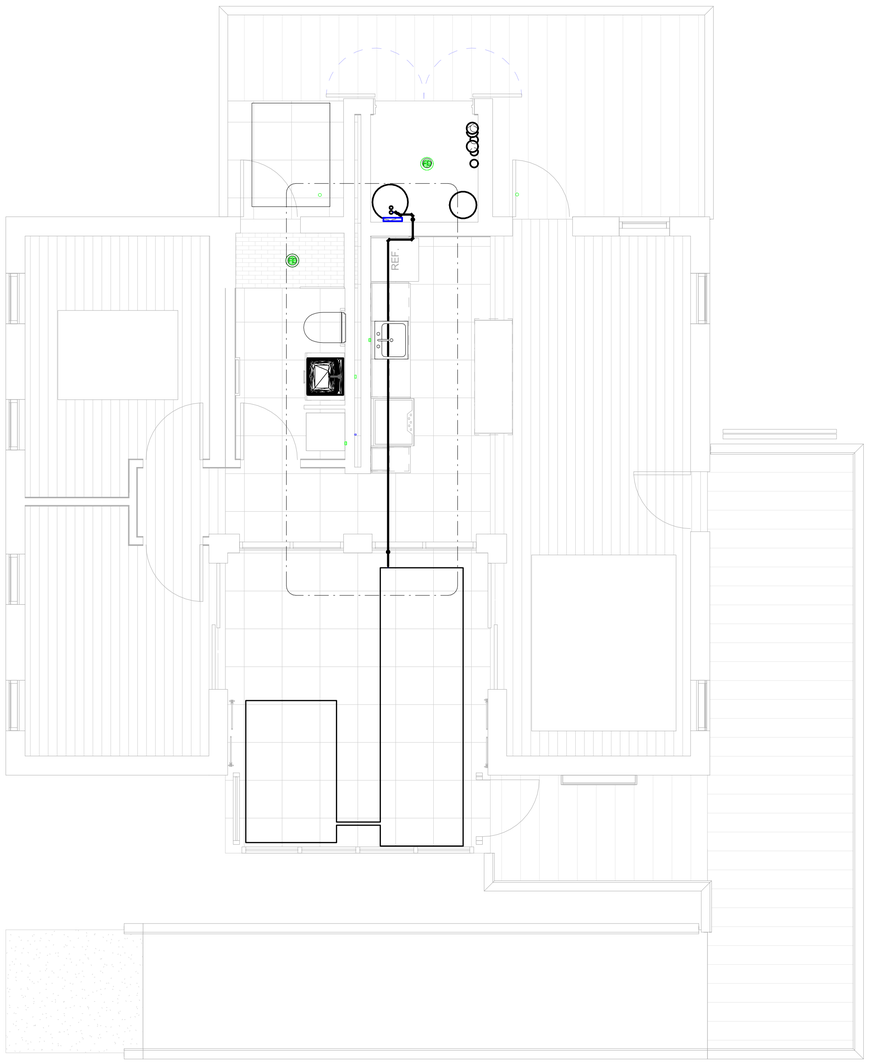
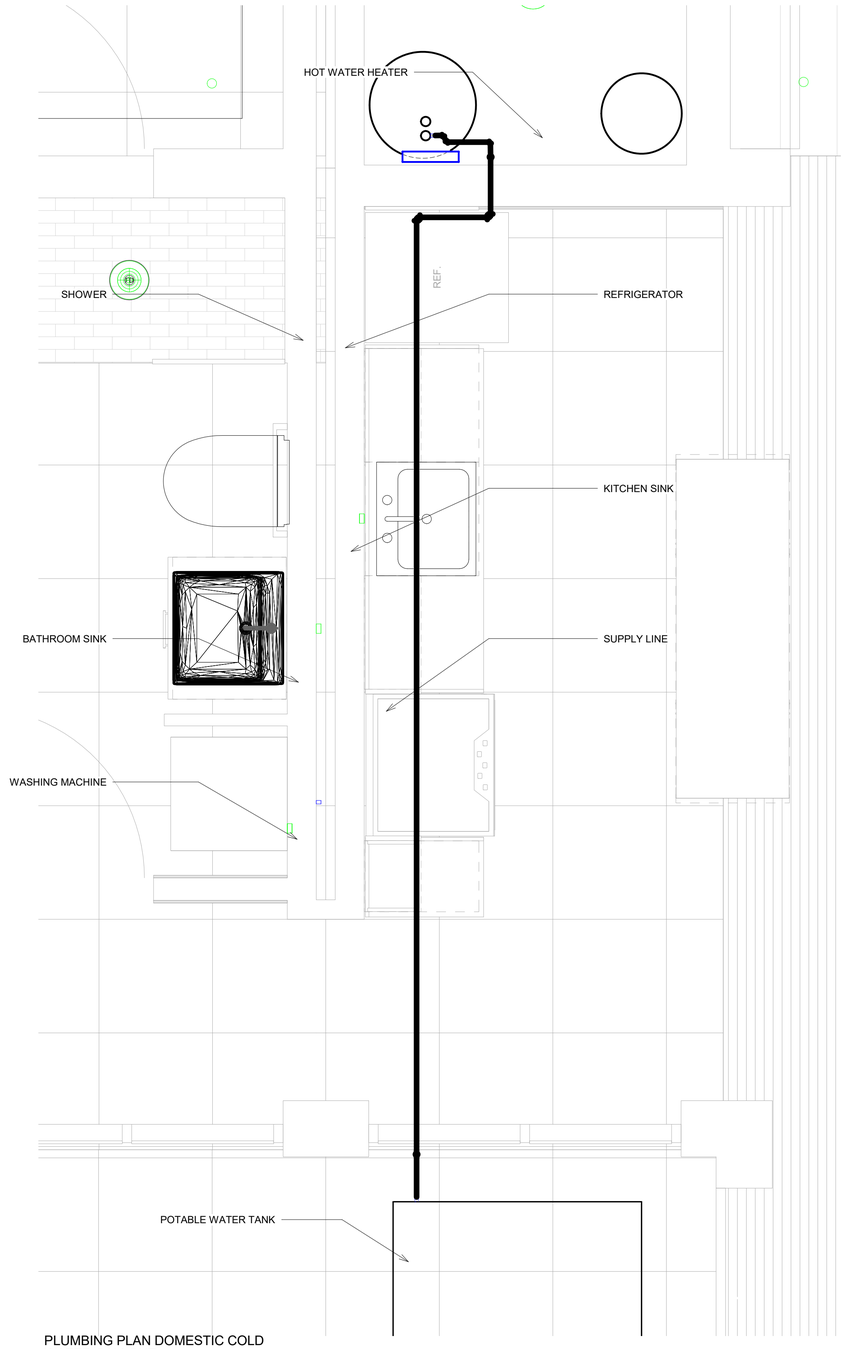


1 PLUMBING PLAN DOMESTIC COLD WATER
1/4" = 1'-0"



2 PLUMBING PLAN DOMESTIC COLD WATER CALLOUT
3/4" = 1'-0"

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DOMESTIC COLD

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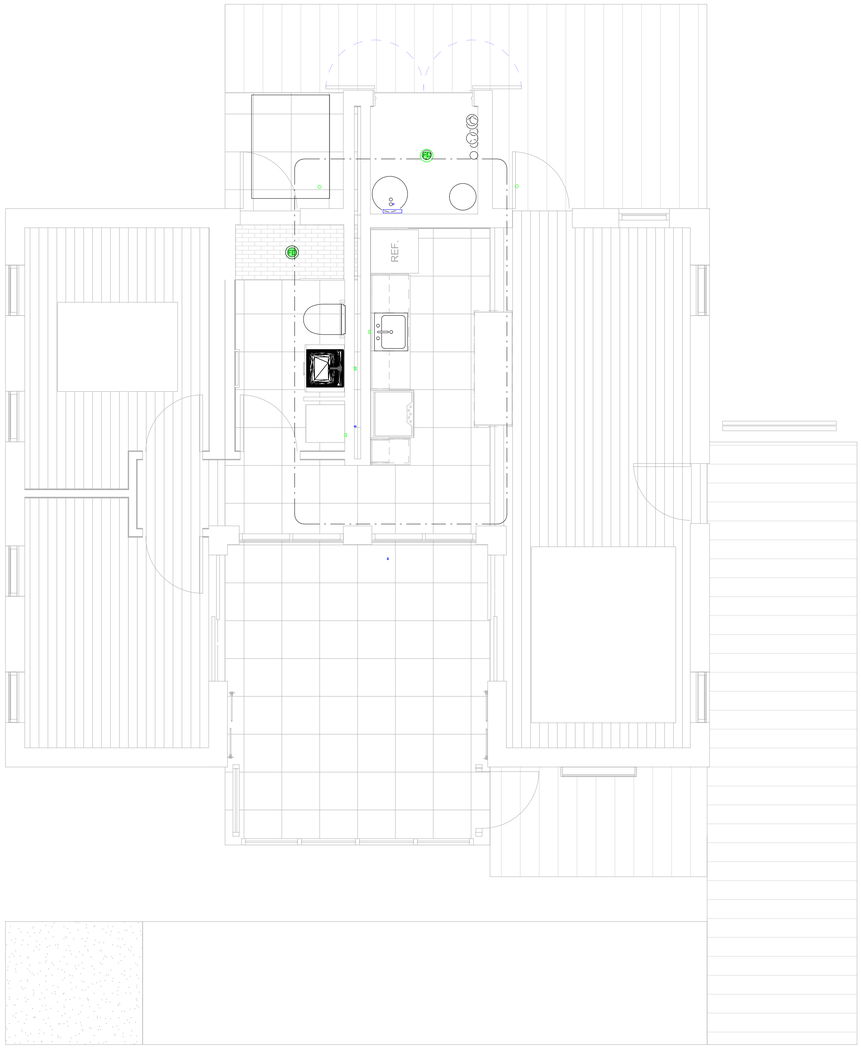
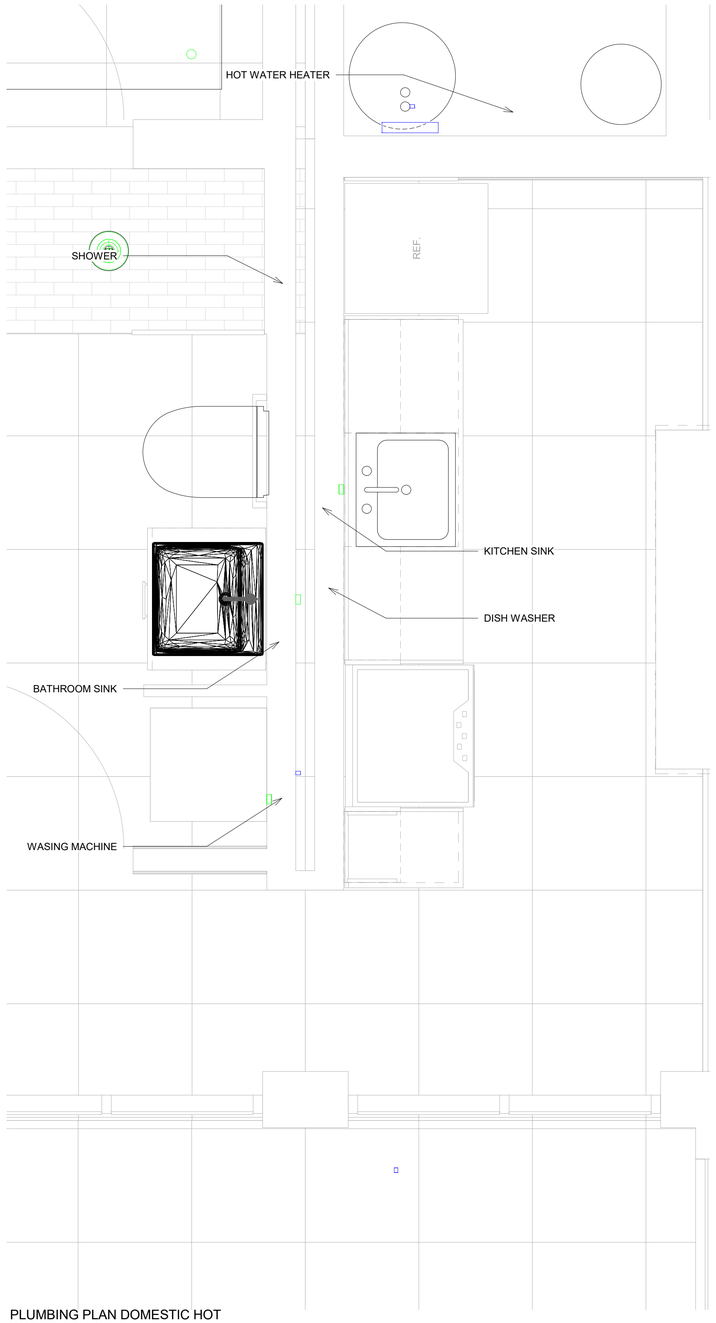


PLUMBING PLAN DOMESTIC HOT WATER
1/4" = 1'-0"



PLUMBING PLAN DOMESTIC HOT WATER CALLOUT
3/4" = 1'-0"

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DOMESTIC HOT

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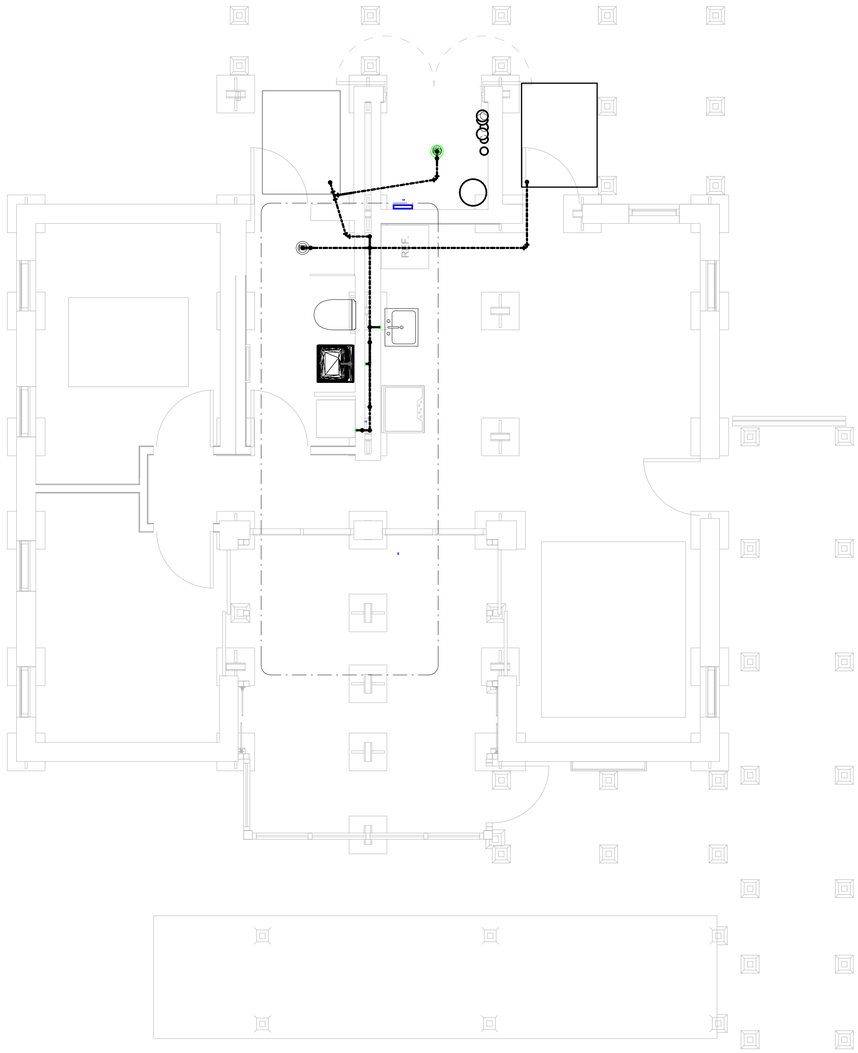
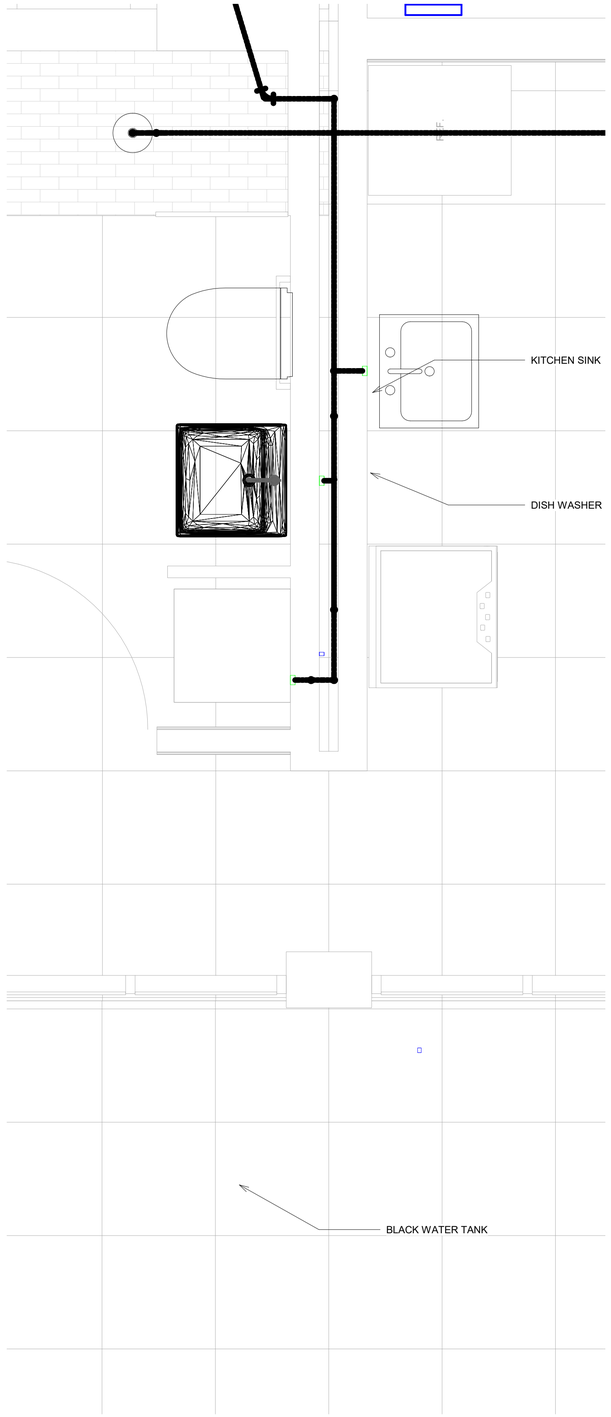


1 PLUMBING PLAN SANITARY
1/4" = 1'-0"



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

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DOMESTIC SANITARY

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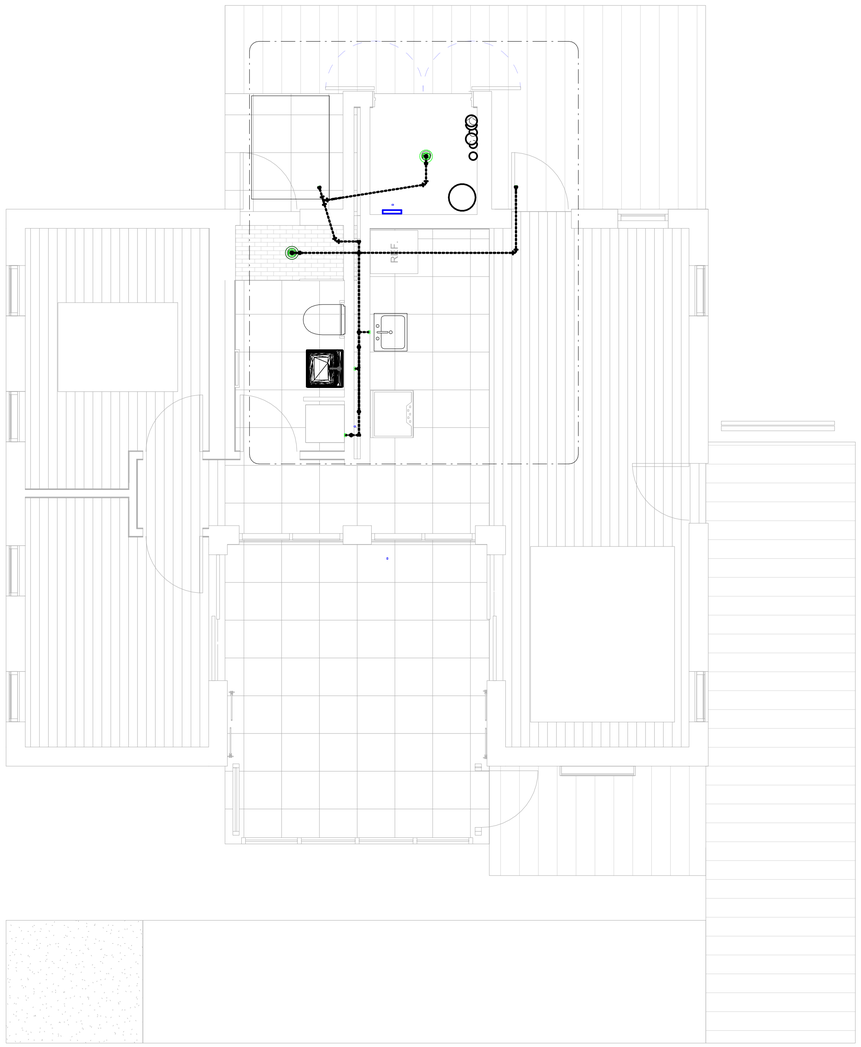
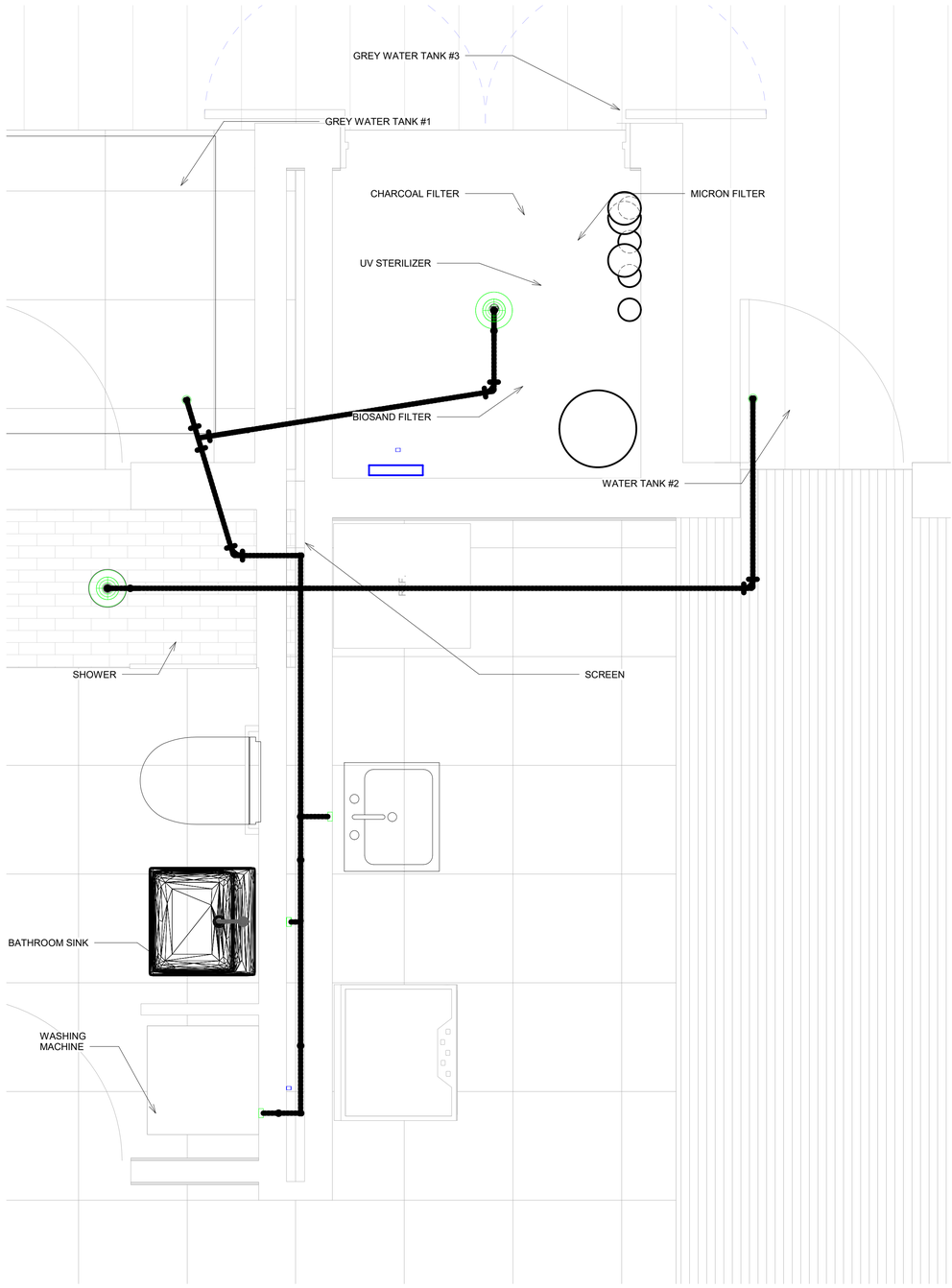


1 PLUMBING PLAN GREY
1/4" = 1'-0"



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

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DOMESTIC GREY

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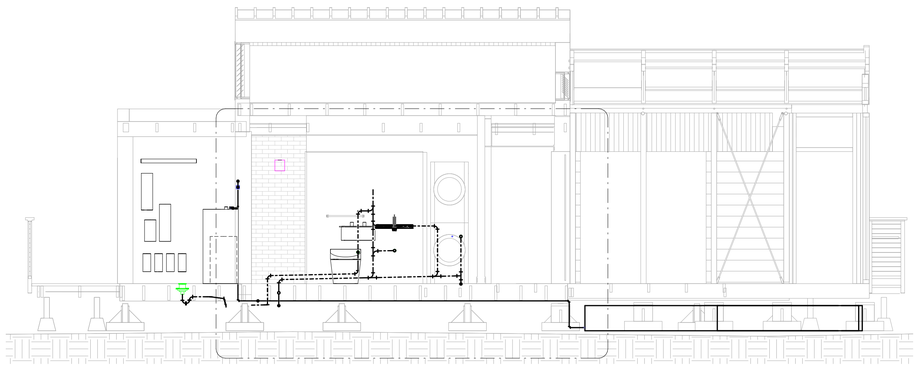
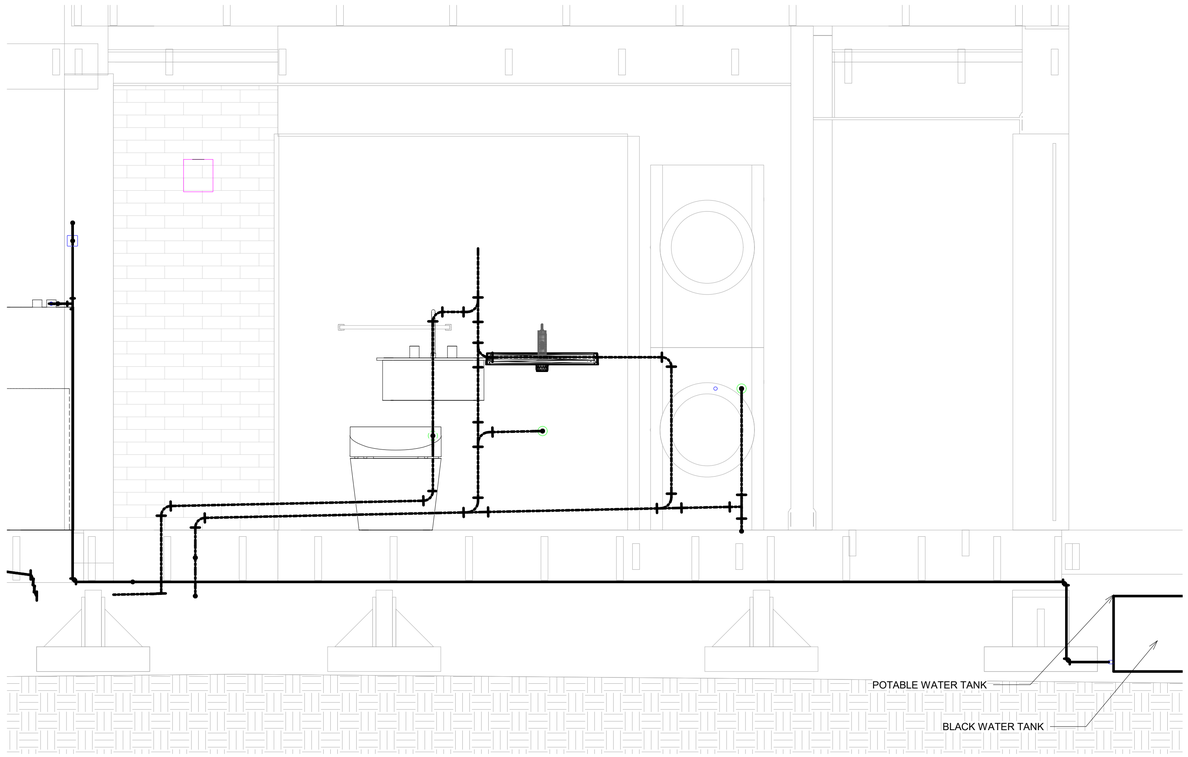


1 PLUMBING SECTION EAST
1/4" = 1'-0"



2 PLUMBING SECTION EAST CALLOUT
3/4" = 1'-0"

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SPINE SECTION EAST

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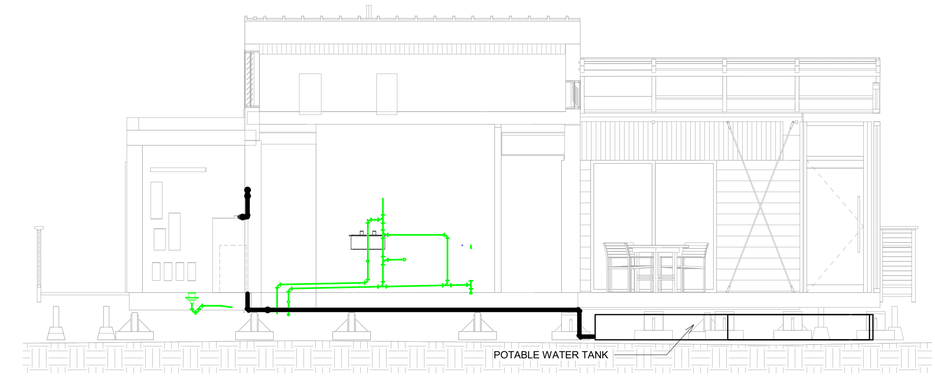
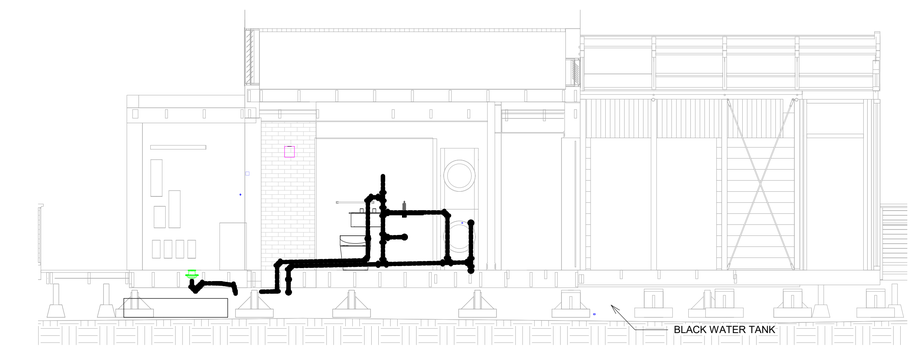


1 PLUMBING SECTION EAST COLD WATER
1/4" = 1'-0"

2 PLUMBING SECTION EAST HOT WATER
1/4" = 1'-0"



3 PLUMBING SECTION EAST SANITARY
1/4" = 1'-0"

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SPINE SECTION EAST - HOT, COLD, SANITARY

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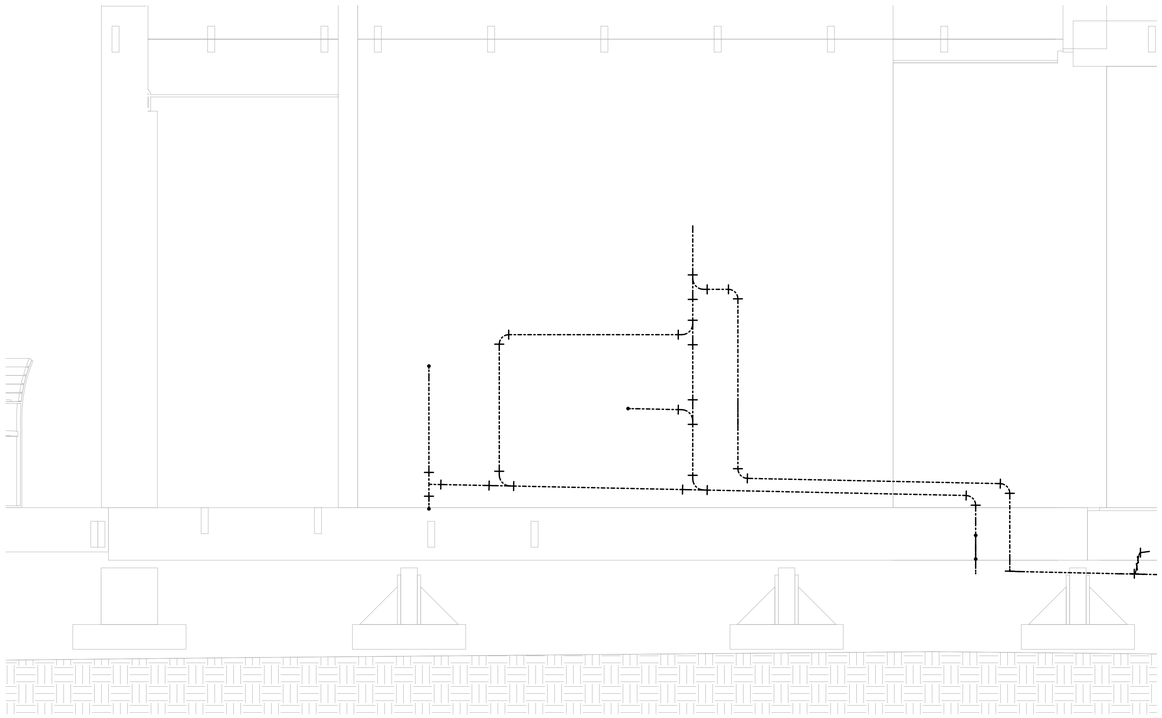
1 PLUMBING SECTION WEST
1/4" = 1'-0"



2 PLUMBING SECTION WEST CALLOUT
3/4" = 1'-0"

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SPINE SECTION WEST

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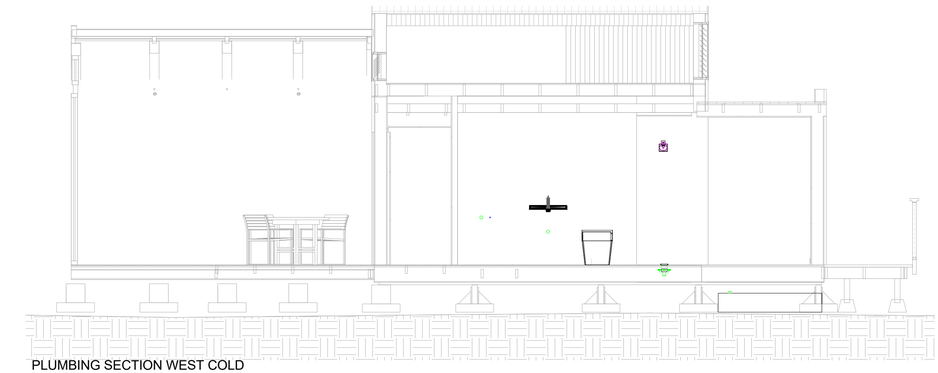
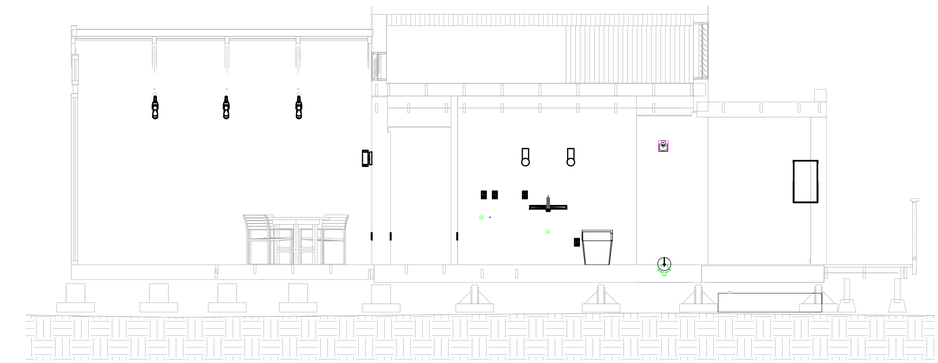
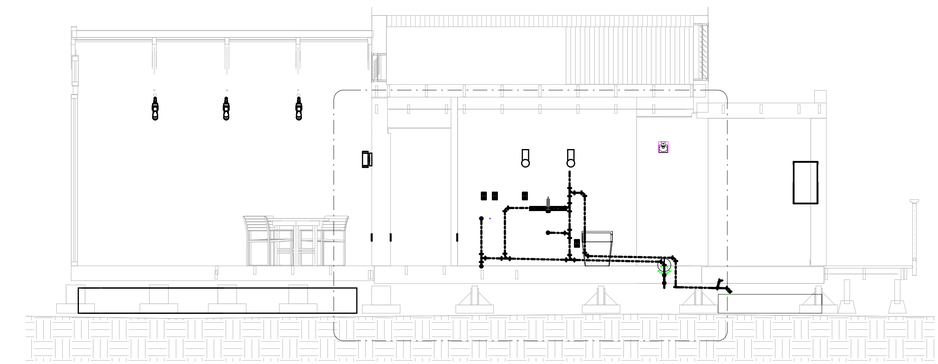


1 PLUMBING SECTION WEST COLD WATER
1/4" = 1'-0"



2 PLUMBING SECTION WEST HOT WATER
1/4" = 1'-0"



3 Plumbing Section WEST Grey
1/4" = 1'-0"

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SPINE SECTION WEST - HOT, COLD, GREY

P-303

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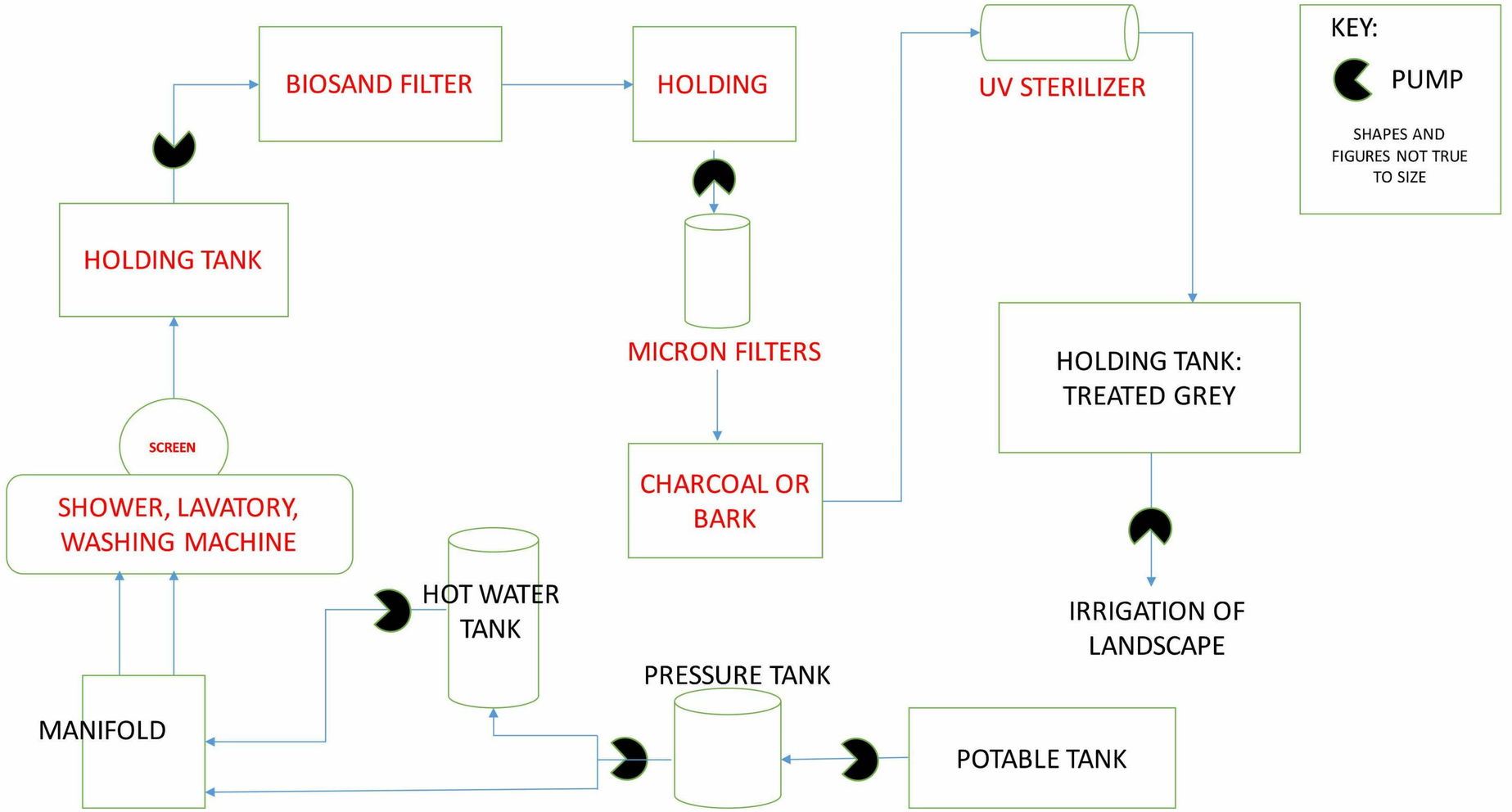
PLUMBING SCHEDULE

P-600



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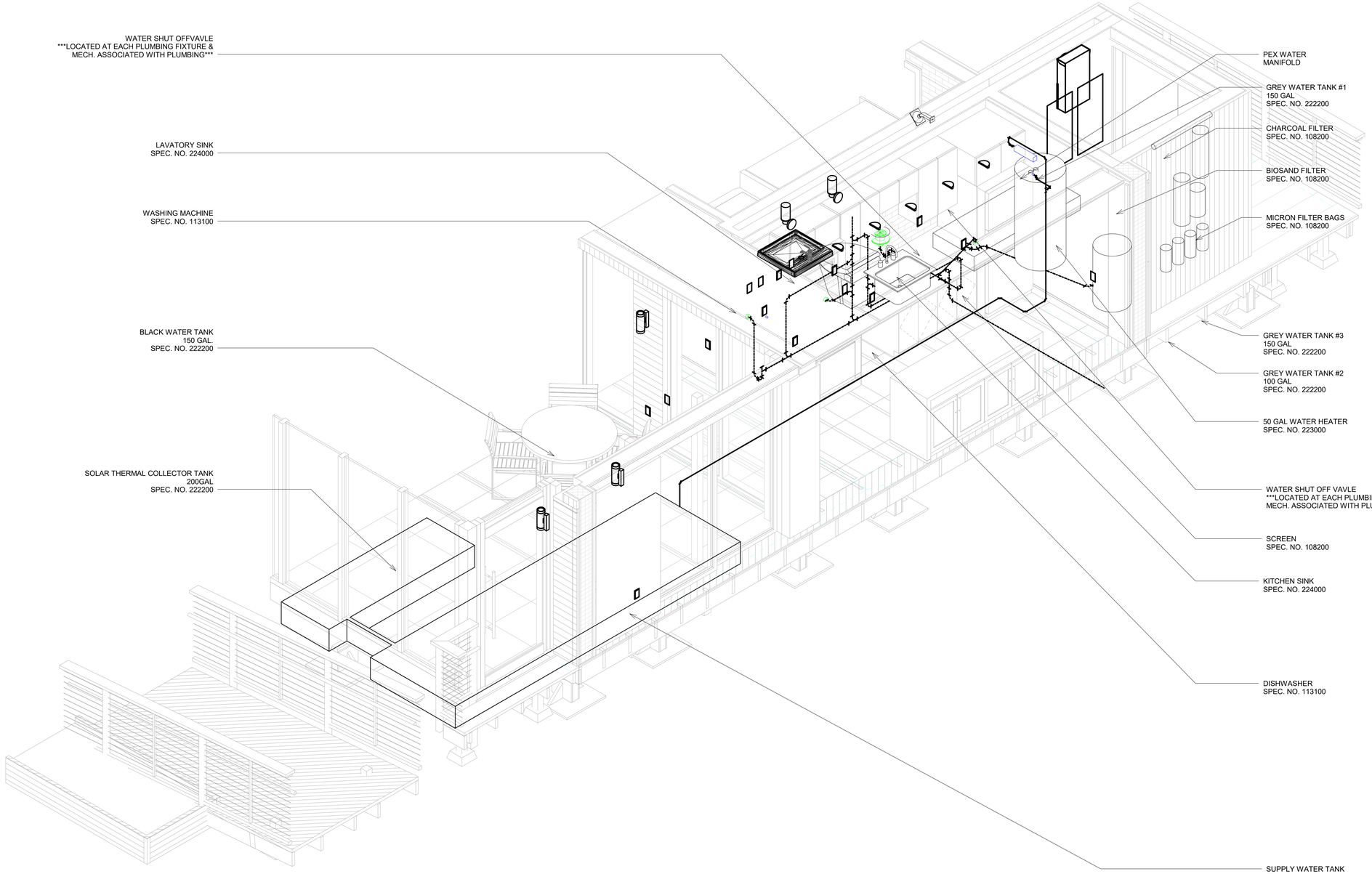
DOMESTIC SUPPLY & RETURN DIAGRAM

P-700



1 PLUMBING AXON

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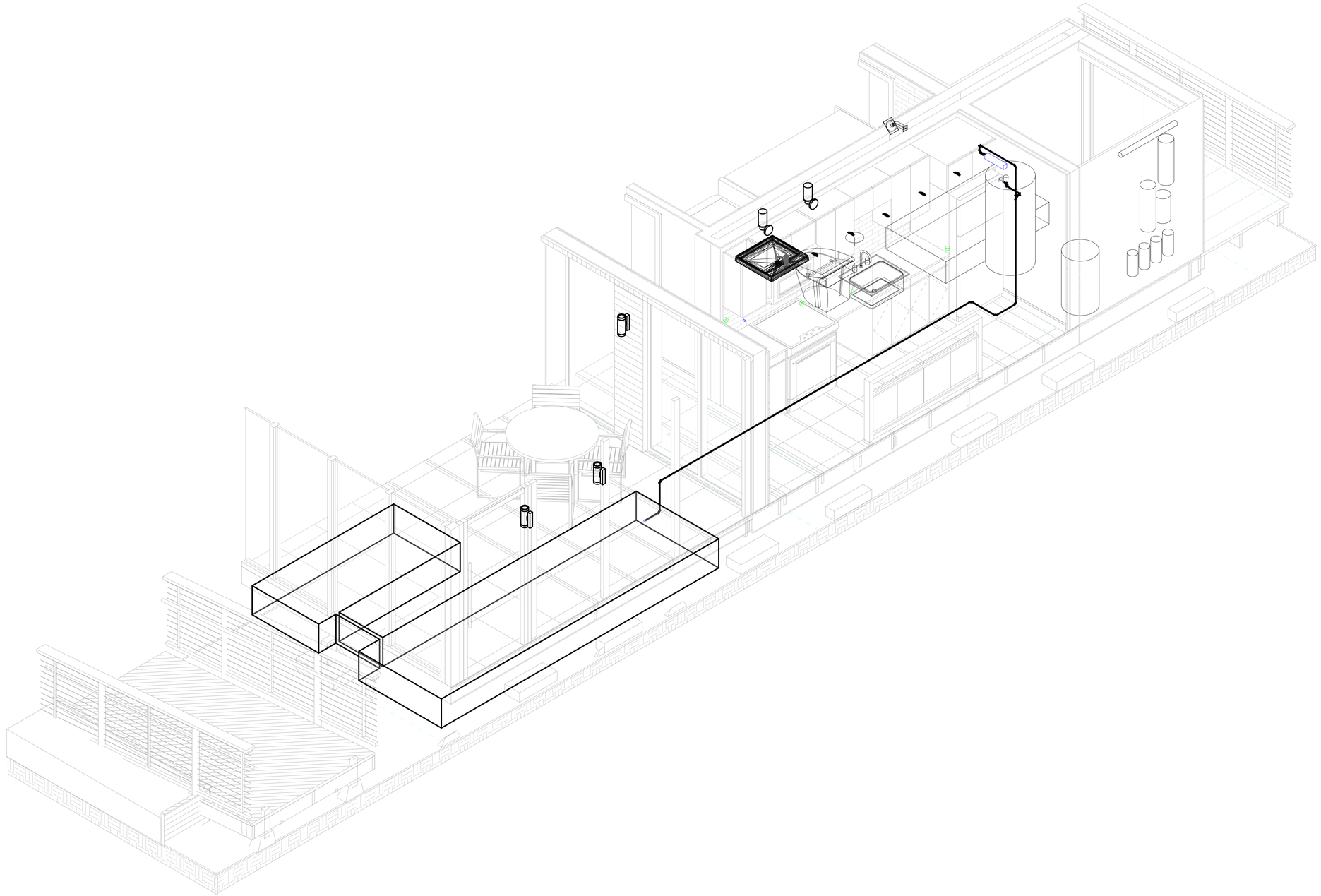
SUPPLY ISOMETRIC

P-901



1 PLUMBING AXON DOMESTIC COLD

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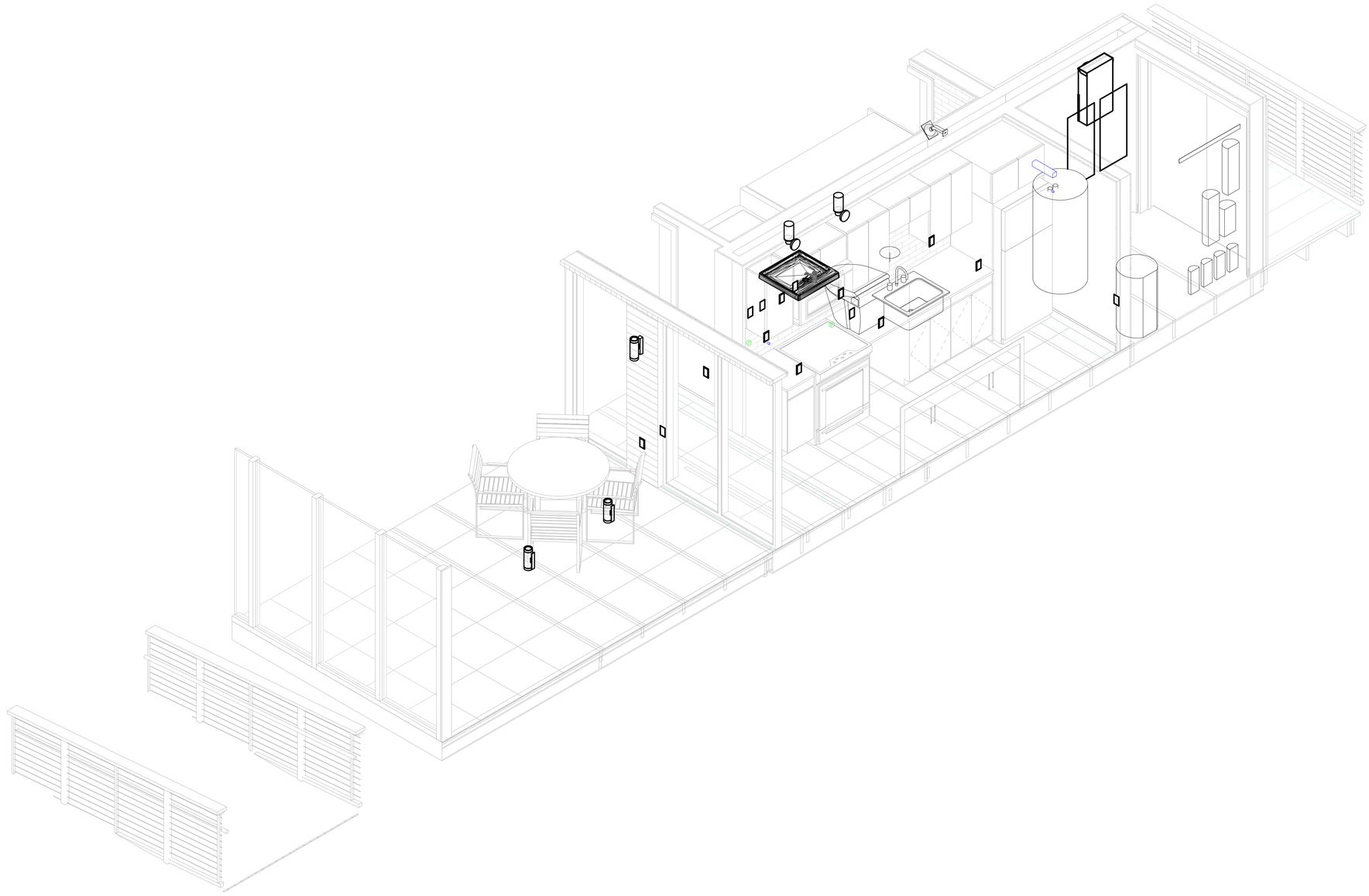
DOMESTIC COLD ISOMETRIC

P-902



1 PLUMBING PLAN DOMESTIC HOT

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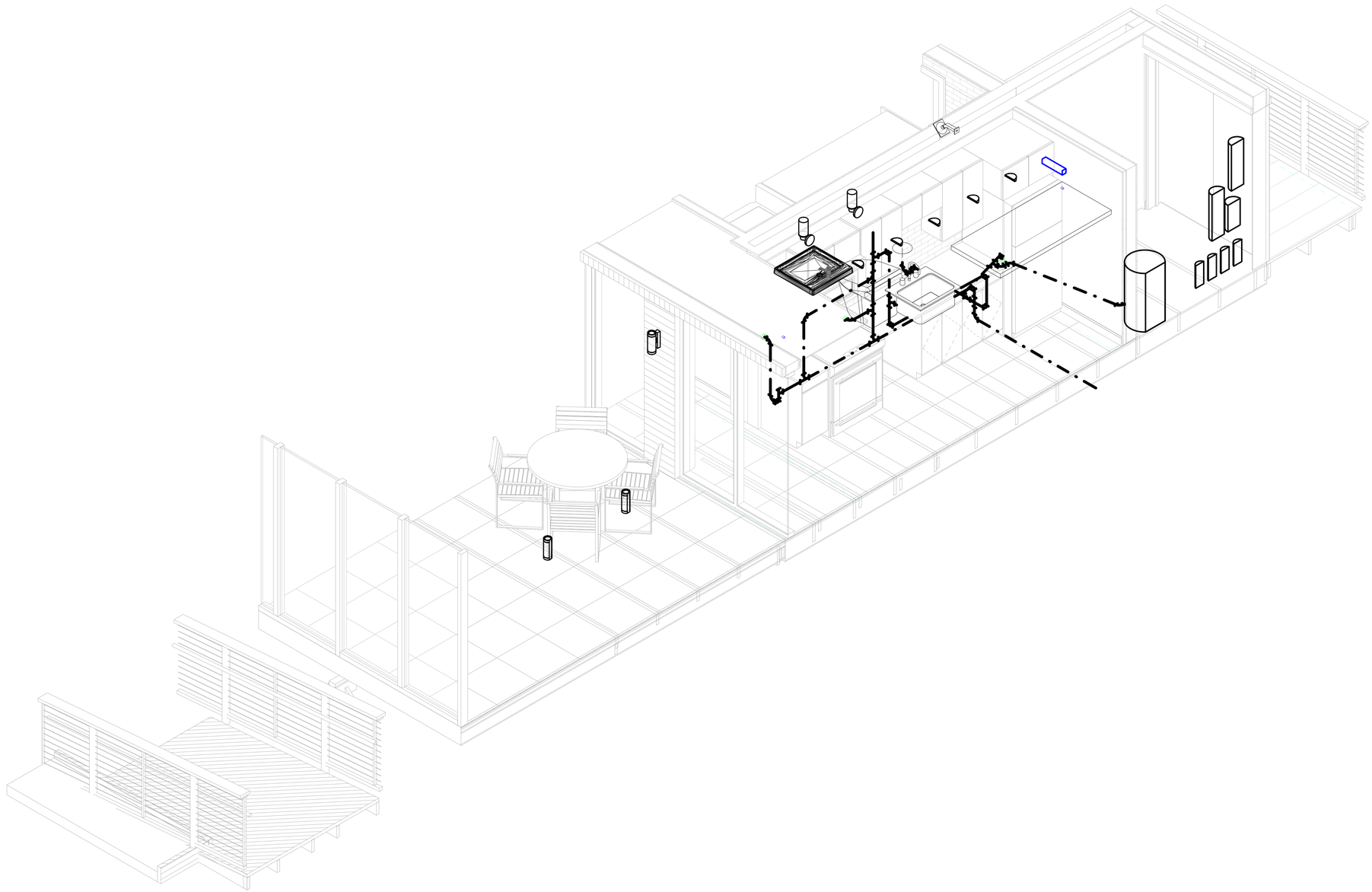
DOMESTIC HOT ISOMETRIC

P-903



1 PLUMBING AXON SANITARY

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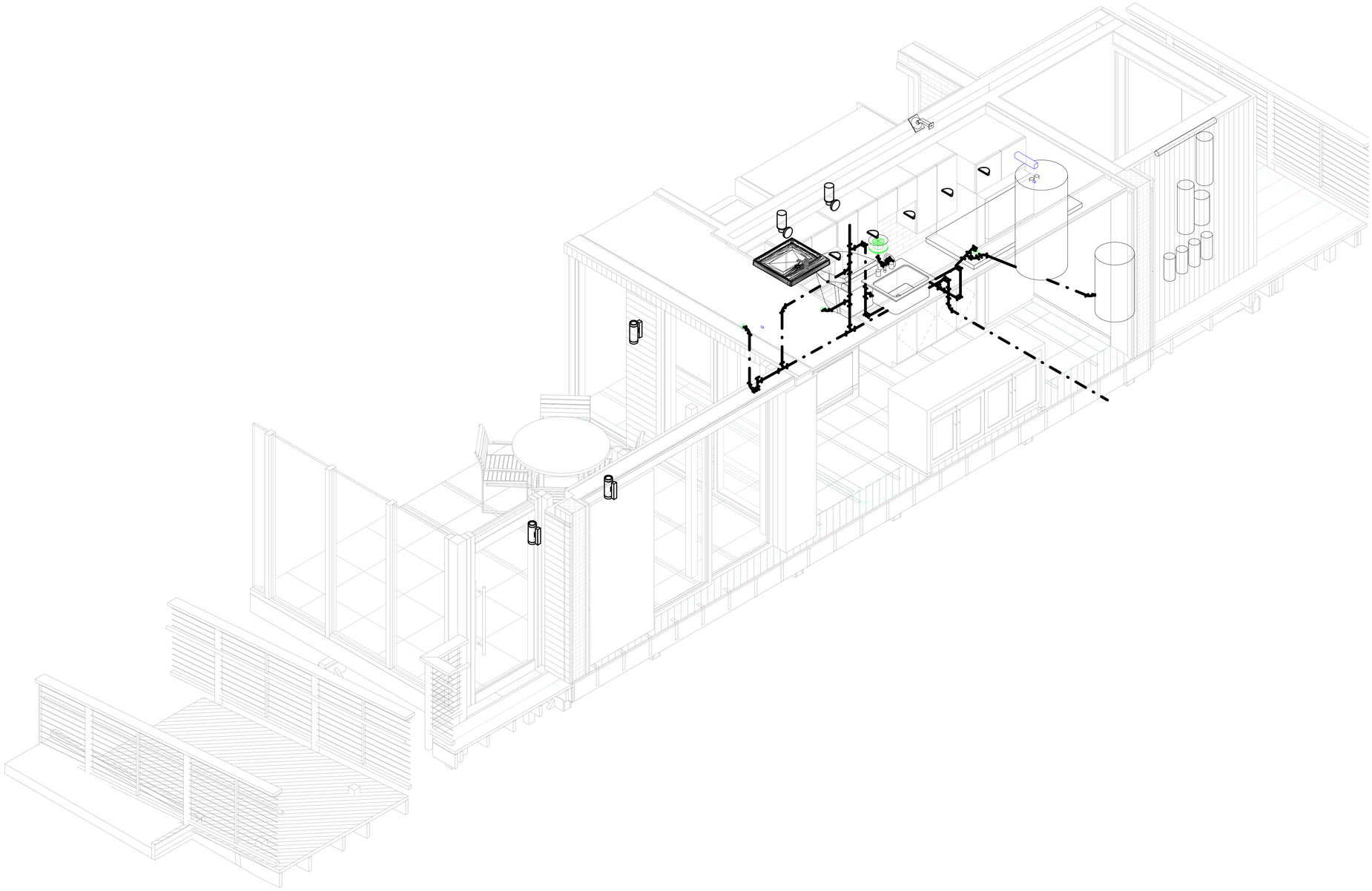
DOMESTIC SANITARY ISOMETRIC

P-904



1 PLUMBING AXON GREY

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DOMESTIC GREY ISOMETRIC

P-905

SECTION R106.1.1
INFORMATION ON CONSTRUCTION DOCUMENTS

CONSTRUCTION DOCUMENTS SHALL BE DRAWN UPON SUITABLE MATERIAL. ELECTRONIC MEDIA DOCUMENTS ARE PERMITTED TO BE SUBMITTED WHEN APPROVED BY THE BUILDING OFFICIAL. CONSTRUCTION DOCUMENTS SHALL BE OF SUFFICIENT CLARITY TO INDICATE THE LOCATION, NATURE AND EXTENT OF THE WORK PROPOSED AND SHOW IN DETAIL THAT IT WILL CONFORM TO THE PROVISIONS OF THE CODE AND RELEVANT LAWS, ORDINANCES, RULES AND REGULATIONS, AS DETERMINED BY THE BUILDING OFFICIAL. WHERE REQUIRED BY THE BUILDING OFFICIAL, ALL BRACED WALL LINES, SHALL BE IDENTIFIED ON THE CONSTRUCTION DOCUMENTS AND ALL PERTINENT INFORMATION INCLUDING, BUT NOT LIMITED TO, BRACING METHODS, LOCATION AND LENGTH OF BRACED PANELS, FOUNDATION REQUIREMENTS OF BRACED WALL PANELS AT TOP AND BOTTOM SHALL BE PROVIDED.

SECTION M1307
APPLIANCE INSTALLATION

M1307.1 GENERAL.
INSTALLATION OF APPLIANCES SHALL CONFORM TO THE CONDITIONS OF THEIR LISTING AND LABEL AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE MANUFACTURER'S OPERATING AND INSTALLATION INSTRUCTIONS SHALL REMAIN ATTACHED TO THE APPLIANCE.

M1307.2 ANCHORAGE OF APPLIANCES.
APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE FASTENED OR ANCHORED IN AN APPROVED MANNER. IN SEISMIC DESIGN CATEGORIES D1 AND D2, WATER HEATERS SHALL BE ANCHORED OR STRAPPED TO RESIST HORIZONTAL DISPLACEMENT CAUSED BY EARTHQUAKE MOTION. STRAPPING SHALL BE AT POINTS WITHIN THE UPPER ONE-THIRD AND LOWER ONE-THIRD OF THE APPLIANCE'S VERTICAL DIMENSIONS. AT THE LOWER POINT, THE STRAPPING SHALL MAINTAIN A MINIMUM DISTANCE OF 4 INCHES ABOVE THE CONTROLS.
M1307.5 ELECTRICAL APPLIANCES
ELECTRICAL APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH CHAPTERS 14, 15, 19, 20 AND 34 THROUGH 43 OF THIS CODE.
M1307.6 PLUMBING CONNECTIONS
POTABLE WATER AND DRAINAGE SYSTEM CONNECTIONS TO EQUIPMENT AND APPLIANCES REGULATED BY THIS CODE SHALL BE IN ACCORDANCE WITH CHAPTER 29 AND 30.

SECTION M1308
MECHANICAL SYSTEMS INSTALLATION

M1308.1 DRILLING AND NOTCHING.
WOOD-FRAMED STRUCTURAL MEMBERS SHALL BE DRILLED, NOTCHED OR ALTERED IN ACCORDANCE WITH THE PROVISIONS OF SECTIONS R502.8, R602.6, R602.6.1 AND R802.7. HOLES IN LOAD-BEARING MEMBERS OF COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION SHALL BE PERMITTED ONLY IN ACCORDANCE WITH SECTIONS R505.2.5, R603.2.5 AND R804.2.5. IN ACCORDANCE WITH THE PROVISIONS OF SECTIONS R505.3.5, R603.3.4 AND R804.3.4, CUTTING AND NOTCHING OF FLANGES AND LIPS OF LOAD-BEARING MEMBERS OF COLD FORMED STEEL LIGHT FRAME CONSTRUCTION SHALL NOT BE PERMITTED. STRUCTURAL INSULATED PANELS (SIPS) SHALL BE DRILLED AND NOTCHED OR ALTERED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R613.7.

M1308.2 PROTECTION AGAINST PHYSICAL DAMAGE.
IN CONCEALED LOCATIONS WHERE PIPING, OTHER THAN CAST-IRON OR GALVANIZED STEEL, IS INSTALLED THROUGH HOLES OR NOTCHES IN STUDS, JOISTS, RAFTERS OR SIMILAR MEMBERS LESS THAN 1.5 INCHES FROM THE NEAREST EDGE OF THE MEMBER, THE PIPE SHALL BE PROTECTED BY SHIELD PLATES. PROTECTIVE STEEL SHIELD PLATES HAVING A MINIMUM THICKNESS OF 0.0575-INCH, SHALL COVER THE AREA OF THE PIPE WHERE THE MEMBER IS NOTCHED OR BORED, AND SHALL EXTEND MINIMUM OF 2 INCHES ABOVE SOLE PLATES AND BELOW TOP PLATES.

SECTION M1401
GENERAL

M1401.1 INSTALLATION.
HEATING AND COOLING EQUIPMENT AND APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE REQUIREMENTS OF THIS CODE.

M1401.2 ACCESS.
HEATING AND COOLING EQUIPMENT AND APPLIANCES SHALL BE LOCATED WITH RESPECT TO BUILDING CONSTRUCTION AND OTHER EQUIPMENT AND APPLIANCES TO PERMIT MAINTENANCE, SERVICING AND REPLACEMENT. CLEARANCES SHALL BE MAINTAINED TO PERMIT CLEANING OF HEATING AND COOLING SURFACES; REPLACEMENT OF FILTERS, BLOWERS, MOTORS, CONTROLS AND VENT CONNECTIONS; LUBRICATION OF MOVING PARTS; AND ADJUSTMENTS.

EXCEPTION: ACCESS SHALL NOT BE REQUIRED FOR DUCTS, PIPING, OR OTHER COMPONENTS APPROVED FOR CONCEALMENT.

M1401.3 SIZING
HEATING AND COOLING EQUIPMENT AND APPLIANCES SHALL BE SIZED IN ACCORDANCE WITH ACCA MANUAL S BASED ON BUILDING LOADS CALCULATED IN ACCORDANCE WITH ACCA MANUAL J OR OTHER APPROVED HEATING AND COOLING CALCULATION METHODOLOGIES.

M1401.4 EXTERIOR INSTALLATIONS.
EQUIPMENT AND APPLIANCES INSTALLED OUTDOORS SHALL BE LISTED AND LABELED FOR OUTDOOR INSTALLATION. SUPPORTS AND FOUNDATIONS SHALL PREVENT EXCESSIVE VIBRATION, SETTLEMENT OR MOVEMENT OF THE EQUIPMENT. SUPPORTS AND FOUNDATIONS SHALL BE IN ACCORDANCE WITH SECTION M1305.1.4.1.

M1401.5 FLOOD HAZARD.
IN FLOOD HAZARD AREAS AS ESTABLISHED BY TABLE R301.2(1), HEATING AND COOLING EQUIPMENT AND APPLIANCES SHALL BE LOCATED OR INSTALLED IN ACCORDANCE WITH SECTION R322.1.6.

SECTION M1403
HEAT PUMP EQUIPMENT

M1403.1 HEAT PUMPS.
THE MINIMUM UNOBSTRUCTED TOTAL AREA OF THE OUTSIDE AND RETURN AIR DUCTS OR OPENINGS TO A HEAT PUMP SHALL BE NOT LESS THAN 6 SQUARE INCHES PER 1,000 BTUH OUTPUT RATING OR AS INDICATED BY THE CONDITIONS OF THE LISTING OF THE HEAT PUMP. ELECTRICAL HEAT PUMPS SHALL CONFORM TO UL 1995.

M1403.2 FOUNDATIONS AND SUPPORTS
SUPPORTS AND FOUNDATIONS FOR THE OUTDOOR UNIT OF A HEAT PUMP SHALL BE RAISED AT LEAST 3 INCHES ABOVE THE GROUND TO PERMIT FREE DRAINAGE OF DEFROST WATER, AND SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION INSTRUCTION.

SECTION M1411
HEATING AND COOLING EQUIPMENT

M1411.1 APPROVED REFRIGERANTS.
REFRIGERANTS USED IN DIRECT REFRIGERATING SYSTEMS SHALL CONFORM TO THE APPLICABLE PROVISIONS OF ANSI/ASHRAE 34.

M1411.3 CONDENSATE DISPOSAL.
CONDENSATE FROM ALL COOLING COILS OR EVAPORATORS SHALL BE CONVEYED FROM THE DRAIN PAN OUTLET TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF DISCHARGE OF NOT LESS THAN ¼ UNIT VERTICAL IN 12 UNITS HORIZONTAL (1-PERCENT SLOPE). CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS WHERE IT WOULD CAUSE A NUISANCE.

M1411.3.1 AUXILIARY AND SECONDARY DRAIN SYSTEMS.
IN ADDITION TO THE REQUIREMENTS OF SECTION M1411.3, A SECONDARY DRAIN OR AUXILIARY DRAIN PAN SHALL BE REQUIRED FOR EACH COOLING OR EVAPORATOR COIL WHERE DAMAGE TO ANY BUILDING COMPONENTS WILL OCCUR AS A RESULT OF OVERFLOW FROM THE EQUIPMENT DRAIN PAN OR STOPPAGE IN THE CONDENSATE DRAIN PIPING. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF DISCHARGE OF NOT LESS THAN 1/8 UNIT VERTICAL IN 12 UNITS HORIZONTAL (1-PERCENT SLOPE). DRAIN PIPING SHALL BE A MINIMUM OF 3/4-INCH NOMINAL PIPE SIZE. ONE OF THE FOLLOWING METHODS SHALL BE USED:

1. AN AUXILIARY DRAIN PAN WITH A SEPARATE DRAIN SHALL BE INSTALLED UNDER THE COILS ON WHICH CONDENSATION WILL OCCUR. THE AUXILIARY PAN DRAIN SHALL DISCHARGE TO A CONSPICUOUS POINT OF DISPOSAL TO ALERT OCCUPANTS IN THE DEPTH OF 1.5 INCHES (38 MM), SHALL NOT BE LESS THAN 3 INCHES LARGER THAN THE UNIT OR THE COIL DIMENSIONS IN WIDTH AND LENGTH AND SHALL BE CONSTRUCTED OF CORROSION-RESISTANT MATERIAL. GALVANIZED SHEET STEEL PANS SHALL HAVE A MINIMUM THICKNESS OF NOT LESS THAN 0.0236-INCH (NO. 24 GAGE). NONMETALLIC PANS SHALL HAVE A MINIMUM THICKNESS OF NOT LESS THAN 0.0625 INCH.
2. A SEPARATE OVERFLOW DRAIN LINE SHALL BE CONNECTED TO THE DRAIN PAN INSTALLED WITH THE EQUIPMENT. THIS OVERFLOW DRAIN SHALL DISCHARGE TO A CONSPICUOUS POINT OF DISPOSAL TO ALERT OCCUPANTS IN THE EVENT OF A STOPPAGE OF THE PRIMARY DRAIN. THE OVERFLOW DRAIN LINE SHALL CONNECT TO THE DRAIN PAN AT A HIGHER LEVEL THAN THE PRIMARY DRAIN CONNECTION.
3. AN AUXILIARY DRAIN PAN WITHOUT A SEPARATE DRAIN LINE SHALL BE INSTALLED UNDER THE COILS ON WHICH CONDENSATION WILL OCCUR. THIS PAN SHALL BE EQUIPPED WITH A WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT OFF THE EQUIPMENT SERVED PRIOR TO OVERFLOW OF THE PAN. THE PAN SHALL BE EQUIPPED WITH A FITTING TO ALLOW FOR DRAINAGE. THE AUXILIARY DRAIN PAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 1 OF THIS SECTION.
4. A WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 SHALL BE INSTALLED THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE, THE OVERFLOW DRAIN LINE OR THE EQUIPMENT-SUPPLIED DRAIN PAN, LOCATED AT A POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN.

M1411.3.1.1 WATER-LEVEL MONITORING DEVICES.
ON DOWN-FLOW UNITS AND ALL OTHER COILS THAT HAVE NO SECONDARY DRAIN OR PROVISIONS TO INSTALL A SECONDARY OR AUXILIARY DRAIN PAN, A WATER-LEVEL MONITORING DEVICE SHALL BE INSTALLED INSIDE THE PRIMARY DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN BECOMES RESTRICTED. DEVICES SHALL NOT BE INSTALLED IN THE DRAIN LINE.

M1411.3.2 DRAIN PIPE MATERIALS AND SIZES.
COMPONENTS OF THE CONDENSATE DISPOSAL SYSTEM SHALL BE CAST IRON, GALVANIZED STEEL, COPPER, POLYBUTYLENE, POLYETHYLENE, ABS, CPVC OR PVC PIPE OR TUBING. ALL COMPONENTS SHALL BE SELECTED FOR THE PRESSURE AND TEMPERATURE RATING OF THE INSTALLATION. JOINTS AND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MATERIALS SPECIFIED IN CHAPTER 30. CONDENSATE WASTE AND DRAIN LINE SIZE SHALL BE NOT LESS THAN 3/4-INCH (19 MM) INTERNAL DIAMETER AND SHALL NOT DECREASE IN SIZE FROM THE DRAIN PAN CONNECTION TO THE PLACE OF CONDENSATE DISPOSAL. WHERE THE DRAIN PIPES FROM MORE THAN ONE UNIT ARE MANIFOLDED TOGETHER FOR CONDENSATE DRAINAGE, THE PIPE OR TUBING SHALL BE SIZED IN ACCORDANCE WITH AN APPROVED METHOD.

M1411.3.3 APPLIANCES, EQUIPMENT AND INSULATION IN PANS.
WHERE APPLIANCES, EQUIPMENT OR INSULATION ARE SUBJECT TO WATER DAMAGE WHEN AUXILIARY DRAIN PANS FILL, THOSE PORTIONS OF THE APPLIANCES, EQUIPMENT AND INSULATION SHALL BE INSTALLED ABOVE THE FLOOD LEVEL RIM OF THE PAN. SUPPORTS LOCATED INSIDE OF THE PAN TO SUPPORT THE APPLIANCE OR EQUIPMENT SHALL BE WATER RESISTANT AND APPROVED.

M1411.4 AUXILIARY DRAIN PAN.
CATEGORY IV CONDENSING APPLIANCE SHALL HAVE AN AUXILIARY DRAIN PAN WHERE DAMAGE TO ANY BUILDING COMPONENT WILL OCCUR AS A RESULT OF STOPPAGE IN THE CONDENSATION DRAINAGE SYSTEM. THESE PANS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF T=SECTION M1411.3.

EXCEPTION: FUEL-FIRED APPLIANCES THAT AUTOMATICALLY SHUT DOWN OPERATION IN THE EVENT OF A STOPPAGE IN THE CONDENSATE DRAINAGE SYSTEM.

M1411.5 INSULATION OF REFRIGERANT PIPING.
PIPING AND FITTINGS FOR REFRIGERANT VAPOR (SUCTION) LINES SHALL BE INSULATED WITH INSULATION HAVING A THERMAL RESISTIVITY OF AT LEAST R-4 AND HAVING EXTERNAL SURFACE PERMEANCE NOT EXCEEDING 0.05 PERM WHEN TESTED IN ACCORDANCE WITH ASTM E 96.

M1411.6 LOCKING ACCESS PORT CAPS.
REFRIGERANT CIRCUIT ACCESS PORTS LOCATED OUTDOORS SHALL BE FITTED WITH LOCKING-TYPE TAMPER-RESISTANT CAPS OR SHALL BE OTHERWISE SECURED TO PREVENT UNAUTHORIZED ACCESS.

SECTION M1503
RANGE HOODS

M1503.1 GENERAL
RANGE HOODS SHALL DISCHARGE TO THE OUTDOORS THROUGH A SINGLE-WALL DUCT. THE DUCT SERVING THE HOOD SHALL HAVE A SMOOTH INTERIOR SURFACE, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACK-DRAFT DAMPER, AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS. DUCTS SERVING RANGE HOODS SHALL NOT TERMINATE IN AN ATTIC OR CRAWL SPACE OR AREAS INSIDE THE BUILDING.

EXCEPTION: WHERE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND WHERE MECHANICAL OR NATURAL VENTILATION IS OTHERWISE PROVIDED, LISTED AND LABELED DUCTLESS RANGE HOODS SHALL NOT BE REQUIRED TO DISCHARGE TO THE OUTDOORS.

SECTION M1506
EXHAUST DUCTS AND EXHAUST OPENINGS

M1506.1 DUCTS.

WHERE EXHAUST DUCT CONSTRUCTION IS NOT SPECIFIED IN THIS CHAPTER, CONSTRUCTION SHALL COMPLY WITH CHAPTER 16.

M1506.2 EXHAUST OPENINGS.
AIR EXHAUST OPENINGS SHALL TERMINATE NOT LESS THAN 3 FEET FROM PROPERTY LINES; 3 FEET FROM OPERABLE AND NONOPERABLE OPENINGS INTO THE BUILDING AND 10 FEET FROM MECHANICAL AIR INTAKES EXCEPT WHERE THE OPENING IS LOCATED 3 FEET ABOVE THE AIR INTAKE. OPENINGS SHALL COMPLY WITH SECTIONS R303.5.2 AND R303.6.

SECTION M1601
DUCT CONSTRUCTION

M1601.1 DUCT DESIGN.
DUCT SYSTEMS SERVING HEATING, COOLING AND VENTILATION EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION AND ACCA MANUAL D OR OTHER APPROVED METHODS.

M1601.1.1 ABOVE-GROUND DUCT SYSTEMS.
ABOVE-GROUND DUCT SYSTEMS SHALL CONFORM TO THE FOLLOWING:

1.EQUIPMENT CONNECTED TO DUCT SYSTEMS SHALL BE DESIGNED TO LIMIT DISCHARGE AIR TEMPERATURE TO A MAXIMUM OF 250°F.

2. FACTORY-MADE AIR DUCTS SHALL BE CONSTRUCTED OF CLASS 0 OR CLASS 1 MATERIALS AS DESIGNATED IN TABLE M1601.1.1(1).

3.FIBROUS DUCT CONSTRUCTION SHALL CONFORM TO THE SMACNA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS OR NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS.

4. MINIMUM THICKNESS OF METAL DUCT MATERIAL SHALL BE AS LISTED IN TABLE M1601.1.1(2). GALVANIZED STEEL SHALL CONFORM TO ASTM A 653. METALLIC DUCTS SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE.

5.USE OF GYPSUM PRODUCTS TO CONSTRUCT RETURN AIR DUCTS OR PLENUMS IS PERMITTED, PROVIDED THAT THE AIR TEMPERATURE DOES NOT EXCEED 125°F AND EXPOSED SURFACES ARE NOT SUBJECT TO CONDENSATION.

6. DUCT SYSTEMS SHALL BE CONSTRUCTED OF MATERIALS HAVING A FLAME SPREAD INDEX NOT GREATER THAN 200.

7. STUD WALL CAVITIES AND THE SPACES BETWEEN SOLID FLOOR JOISTS TO BE USED AS AIR PLENUMS SHALL COMPLY WITH THE FOLLOWING CONDITIONS:

7.1. THESE CAVITIES OR SPACES SHALL NOT BE USED AS A PLENUM FOR SUPPLY AIR.

7.2. THESE CAVITIES OR SPACES SHALL NOT BE PART OF A REQUIRED FIRE-RESISTANCE-RATED ASSEMBLY.

7.3 STUD WALL CAVITIES SHALL NOT CONVEY AIR FROM MORE THAN ONE FLOOR LEVEL.

7.4. STUD WALL CAVITIES AND JOIST-SPACE PLENUMS SHALL BE ISOLATED FROM ADJACENT CONCEALED SPACED SPACES BY TIGHT-FITTING FIREBLOCKING IN ACCORDANCE WITH SECTION R602.8.

7.5 STUD WALL CAVITIES IN THE OUTSIDE WALLS OF BUILDING ENVELOPE ASSEMBLIES SHALL NOT BE UTILIZED AS AIR PLENUMS.

M1601.2 FACTORY-MADE DUCTS.
FACTORY-MADE AIR DUCTS OR DUCT MATERIAL SHALL BE APPROVED FOR THE USE INTENDED, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. EACH PORTION OF A FACTORY-MADE AIR DUCT SYSTEM SHALL BEAR A LISTING AND LABEL INDICATING COMPLIANCE WITH UL 181 AND UL 181A OR UL 181B.

M1601.2.1 VIBRATION ISOLATORS.
VIBRATION ISOLATORS INSTALLED BETWEEN MECHANICAL EQUIPMENT AND METAL DUCTS SHALL BE FABRICATED FROM APPROVED MATERIALS AND SHALL NOT EXCEED 10 INCHES IN LENGTH.

M1601.3 DUCT INSULATION MATERIALS.
DUCT INSULATION MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: 1. DUCT COVERINGS AND LININGS, INCLUDING ADHESIVES WHERE USED, SHALL HAVE A FLAME NOT HIGHER THAN 25, AND A SMOKE-DEVELOPED INDEX NOT OVER 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723, USING THE SPECIMEN PREPARATION AND MOUNTING PROCEDURES OF ASTM E 2231.

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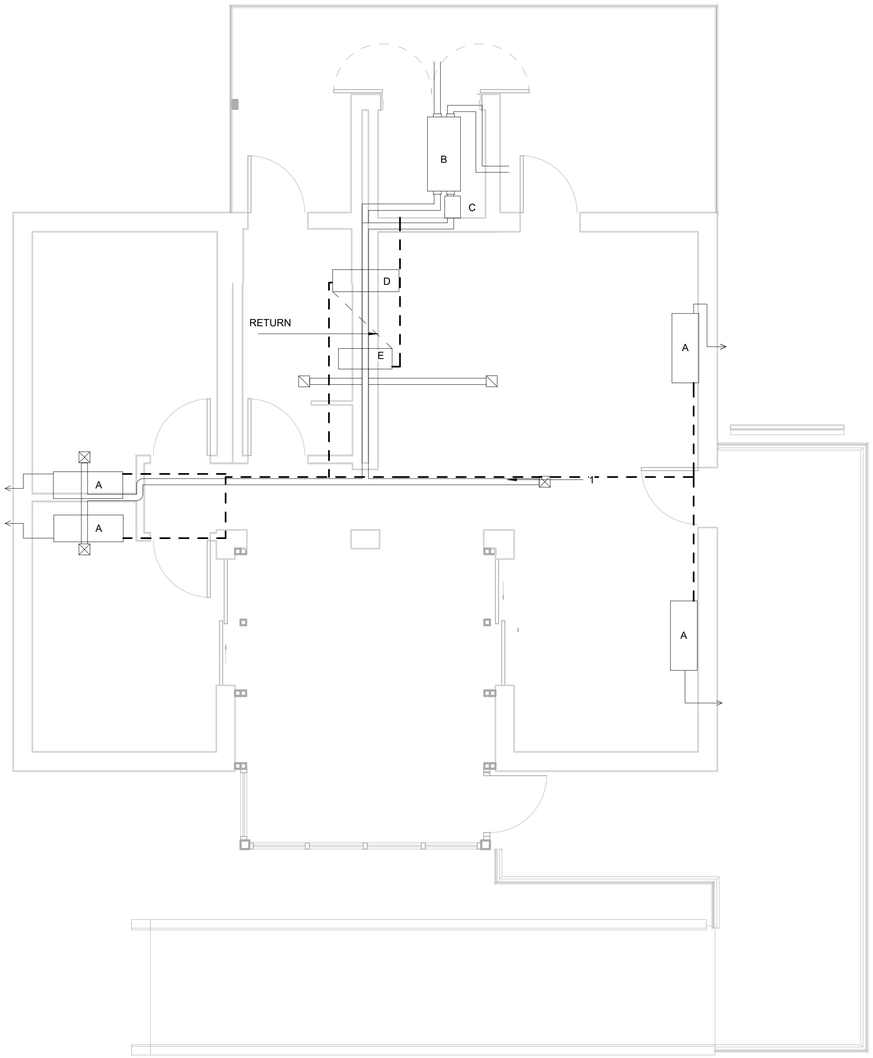
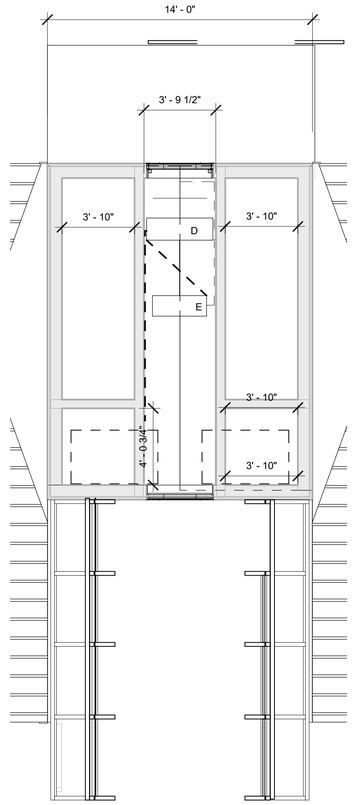
MECHANICAL SYMBOLS AND NOTES

M-001



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



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

HVAC EQUIPMENT AND DISTRIBUTION PLAN GENERAL NOTES

REFRENCE E-600 FOR LOAD CALCULATIONS

HVAC EQUIPMENT AND DISTRIBUTION SHEET NOTES

1. REFRIGERANT LINE FROM MINI SPLIT VARIABLE REFRIGERANT FLOW SYSTEM
2. FRESH AIR SUPPLY
3. 3" DUCT FROM FRESH AIR INTAKE TO ERV.
4. EXHAUST
5. CONDENSING UNIT TO BE PLACED IN ATTIC SPACE; NOTE THAT NO OTHER EQUIPMENT SHOULD BE PLACED WITHIN 3' IN FRONT OF THE FAN.

HVAC EQUIPMENT AND DISTRIBUTION ABREIATIONS LEGEND

- A — MINI SPLIT UNITS
- B — ERV
- C — HUMIDIFER
- D — CONDENSOR UNIT (LOCATED IN ATTIC)
- E — HEAT PUMP (LOCATED IN ATTIC)
- FRESH AIR SUPPLY
- EXHAUST GRILLE (RETURN)
- REFRIGERANT LINE
- DUCT

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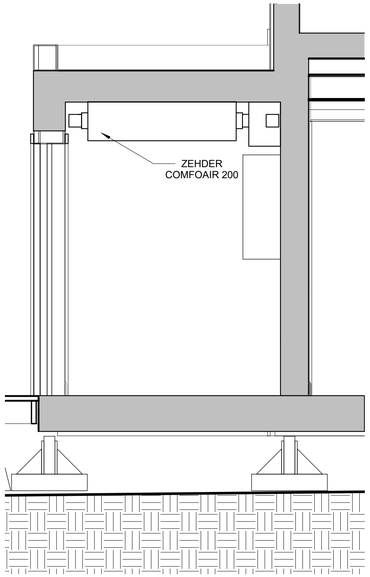
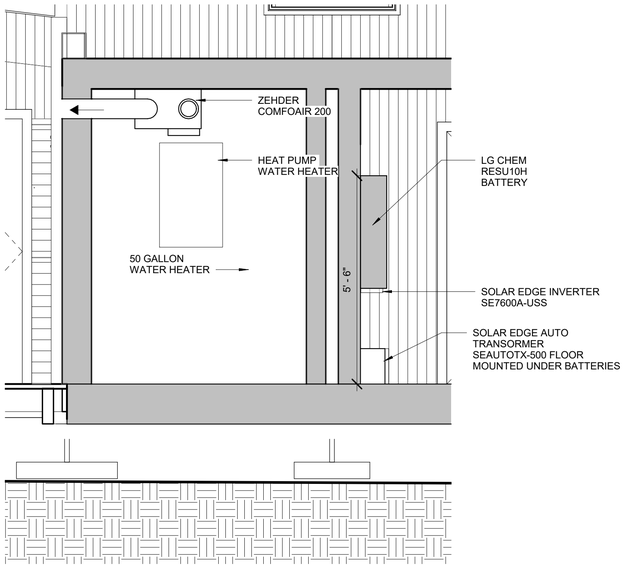
HVAC EQUIPMENT AND DISTRIBUTION PLAN

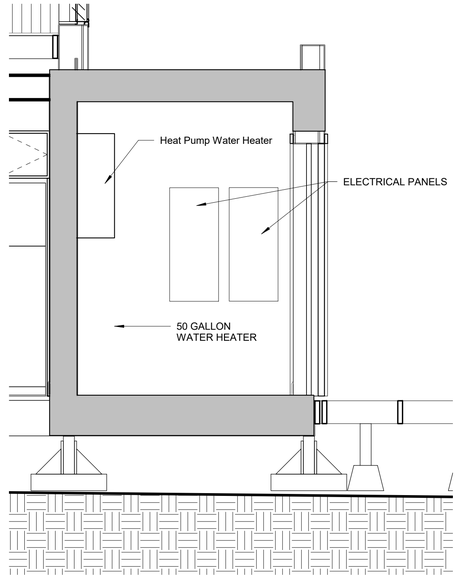
M-100



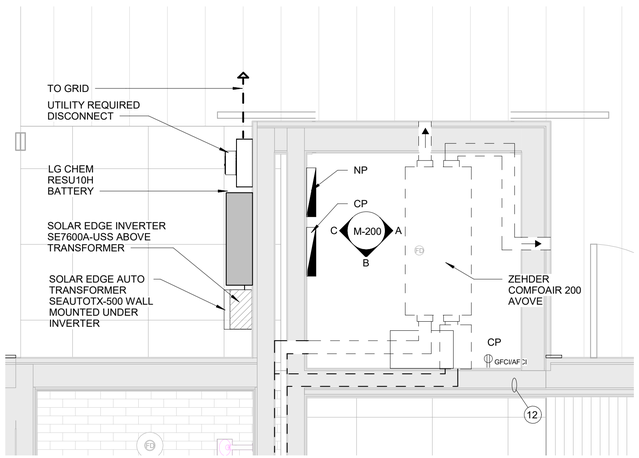
A MECHANICAL A
1/2" = 1'-0"



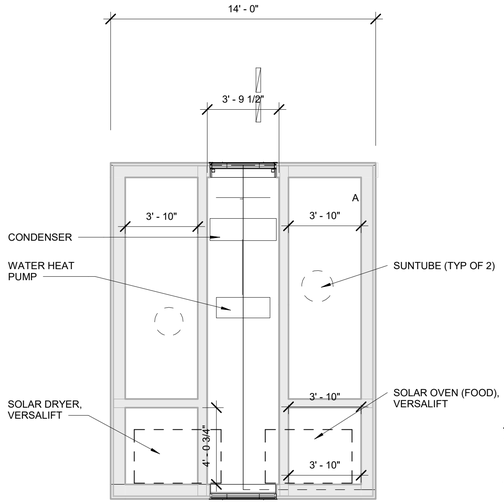
B MECHANICAL B
1/2" = 1'-0"



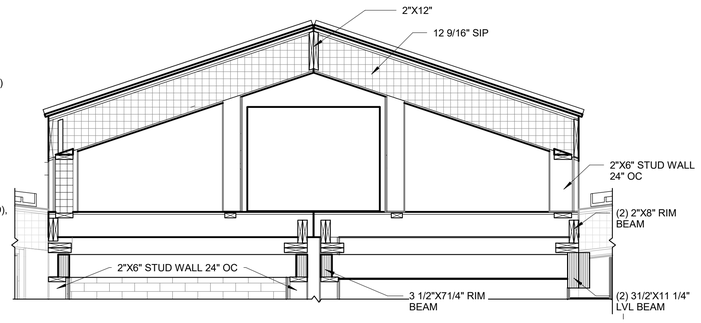
C MECHANICAL C
1/2" = 1'-0"



1 MECHANICAL ROOM PLAN
1/2" = 1'-0"



3 ATTIC PLAN
1/4" = 1'-0"



2 SECTION THROUGH ATTIC ARCH Copy 1
1/2" = 1'-0"

MECHANICAL ELEVATIONS GENERAL NOTES

MECHANICAL ELEVATIONS SHEET NOTES

1. #6 AWG PV WIRE
2. TESLA POWER WALL 1
3. SOLAREDGE INVERTER SE7600A-USS
4. SOLAREDGE AUTO TRANSFORMER SEAUTO-TX-5000 WALL MOUNTED UNDER INVERTER
5. CONDENSING UNIT
6. ERV
7. 50 GAL WATER HEATER SPEC. NO. 223000
8. GRAY WATER TANK NO. 1 150 GALLONS SPEC. NO. 222200
9. CHARCOAL FILTER SPEC. 108200
10. MICRON FILTER BAGS SPEC. 108200
11. UVA STERILIZER SPEC. NO. 108200
12. 3 #8 AWG THHN, 1 #10 GND, 1" EMT CONDUIT

MECHANICAL ELEVATION PLAN LEGEND

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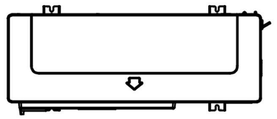
MECHANICAL ELEVATION

M-200

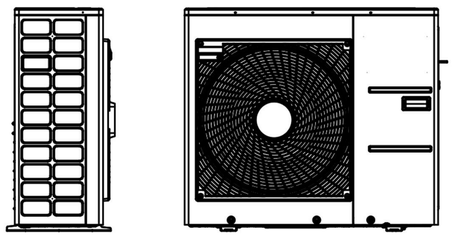
HVAC EQUIPMENT SCHEDULE									
MARK	DESCRIPTION	MANUFACTURER	MODEL	ROOM NAME	COUNT	DESCRIPTION	WIDTH	HEIGHT	DEPTH
A	INDOOR MINI SPLIT UNITS	LG	LMN078HVT	BEDROOM/STUDY/LIVING/DININ(	4	VRF MINI SPLIT WALL MOUNTED UNIT	37.40625"	32 27/32"	15.65625"
B	CONDENSOR UNIT	LG	LMU30CHV	ATTIC	1	VRF MINI SPLIT CONDENSOR	37.4"	32.8"	15.7"
C	HUMIDIFIER	HONEYWELL	HE 120	MECHANICAL ROOM	1	INSTALL WITHIN ERV TO ENABLE EASY DISTRIBUTION OF HUMIDITY TO ALL PARTS OF HOUSE	9.2"	10.9"	12.8"
D	ERV	ZENEHDER	COMOFOAir 200	MECHANICAL ROOM	1	ENERGY RECOVERY VENTILATOR INTEGRATED WITH HUMIDIFIER TO PROVIDE MOISTURE FOR T	21.40"	47.25"	12.50"
	HEAT PUMP WATER HEATER – INDOOR UNIT	LG	HU031.UE2	ATTIC	1	THIS WILL BE CONNECTED TO THE OUTDOOR UNIT FOR OPERATION AS HEAT PUMP. THE WATER IN HOT WATER TANK WILL HEATED BY THIS UNIT.	12.40"	33.46"	19.29"

HVAC EQUIPMENT DETAILS



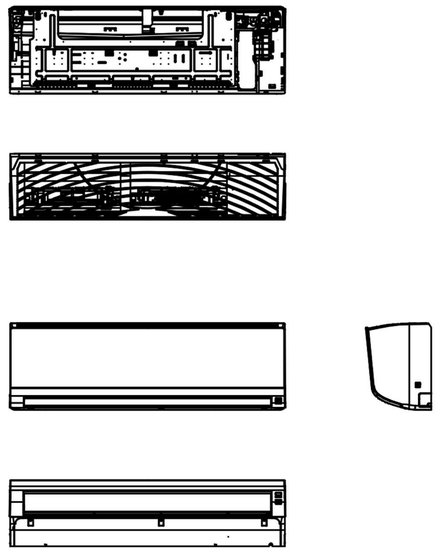
■ Note

1. For more information,
   Refer to product Data Book. (PDB)
2. This drawing is made for CAD working of spec - in.
   For Product Specification, Installation, Service,
   Refer to the related manuals.



■ DIMENSIONS

Dimensions (W x H x D)	mm	950 x 834 x 330
	inch	37-13/32 x 32-27/32 x 13



■ DIMENSIONS

Dimensions (W x H x D)	mm	1030 × 325 × 245
	inch	40-9/16 × 12-13/16 × 9-11/16

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MECHANICAL SCHEDULES

M-600

GENERAL ELECTRICAL NOTES

1. INSTALLATION OF ELECTRICAL CONDUCTORS, RACEWAYS, AND DEVICES SHALL CONFORM TO THE 2014 NATIONAL ELECTRIC CODE AND THE 2017 SOLAR DECATHLON BUILDING CODE.
2. ALL ELECTRICAL EQUIPMENT SHALL CARRY AN APPROVED TESTING AGENCY LISTING IN ACCORDANCE WITH IRC SECTION 140.11 AND SECTION 110.2 OF THE NEC, OR SHALL HAVE BEEN APPROVED BY THE SOLAR DECATHLON BUILDING OFFICIAL AND SOLAR DECATHLON ELECTRICAL INSPECTORS FOR EMPORARY USE DURING THE SOLAR DECATHLON 2017 EVENT.
3. THE GROUNDING ELECTRODE CONDUCTOR FROM THE MAIN SERVICE EQUIPMENT TO THE SOLAR DECATHLON 2017 RGANIZER UTILITY PANEL SHALL BE A MINIMUM SIZE OF 4 AWG COPPER AND SHALL BE BONDED BY QUALIFIED ELECTRICAL PERSONNEL TO THE ORGANIZER GROUNDING ELECTRODE SYSTEM AT THE ORGANIZER UTILITY PANEL LOCATION.
4. THE EQUIPMENT GROUNDING ELECTRODE CONDUCTOR SHALL BE THE FIRST TO BE CONNECTED AND LAST TO DISCONNECTED DURING INSTALLATION, DE-INSTALLATION, OR SERVICING OF PHOTOVOLTAIC MODULES AND INVERTERS.
5. BRANCH CIRCUIT CONDUCTORS SHALL HAVE AN AMPACITY NOT LESS THAN THE MAXIMUM LOAD TO BE SERVED. CONDUCTORS SHALL BE SIZED TO CARRY NOT LESS THAN THE LARGER OF NEC 210.19(A)(1)(a) OR (b). CONDUCTORS SPECIFIED IN THE ELECTRICAL PLAN SHALL BE SIZED IN COMPLIANCE WITH NEC TABLE 310.15(B)(16). MINIMUM AC CONDUCTOR SIZE SHALL BE #14 AWG. MINIMUM DC CONDUCTOR SIZE SHALL BE #12 AWG.
6. EXCEPT WHERE OTHERWISE NOTED, CONDUCTORS SHALL BE COPPER WITH 600 VOLT INSULATION.
7. RACEWAYS BETWEEN PULL BOXES SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL).
8. EXTERIOR RACEWAYS AND WIRING DEVICES BELOW THE FIRST LEVEL FLOOR SHALL BE SELECTED FOR MECHANICAL PROTECTION. EXTERIOR FITTINGS FOR RACEWAYS SHALL BE COMPRESSION TYPE AND LIQUIDTIGHT.
9. ALL PANELBOARDS SHALL BE PROVIDED WITH A FACTORY-INSTALLED GROUND BUS FOR CONNECTING TO GROUND THE GREEN OR BARE GROUND WIRE IN ALL BRANCH CIRCUITS.
10. PLUG-IN TYPE OVERCURRENT PROTECTION DEVICES OR PLUG-IN TYPE MAIN LUG ASSEMBLIES THAT ARE BACKFED SHALL BE SECURED IN PLACE BY AN ADDITIONAL FASTENER THAT REQUIRES OTHER THAN A PULL TO RELEASE THE DEVICE FROM THE MOUNTING MEANS ON THE PANEL PER NEC 408.37(D).
11. PROVIDE IDENTIFICATION OF ALL BRANCH CIRCUITS ON A TYPEWRITTEN DIRECTORY CARD IN THE PANELBOARD DOOR.
12. FOR MECHANICAL EQUIPMENT DETAIL REFER TO MECHANICAL DRAWINGS AND EQUIPMENT SPECIFICATIONS IN THE PROJECT MANUAL.
13. ALL EXTERIOR 125V BRANCH CIRCUIT RECEPTACLES SHALL BE LISTED AS WEATHER-RESISTANT, GROUND FAULT PROTECTED, AND EQUIPPED WITH "IN-USE" TYPE WEATHER PROTECTION.
14. ALL INTERIOR NON-LOCKING 125V BRANCH CIRCUIT RECEPTACLES SHALL BE TAMPER RESISTANT PER NEC 406.12.
15. ALL 120V SINGLE PHASE 15 AMP AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN THE LOCATIONS SPECIFIED IN NEC SECTION 210.12(A) SHALL INCLUDE ARC FAULT CIRCUIT INTERRUPTER PROTECTION BY ANY OF THE MEANS SPECIFIED IN NEC 210.12(A) NUMBERS (1) THROUGH (6). ARC FAULT CIRCUIT INTERRUPTER PROTECTION SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION.
16. ALL 125V SINGLE PHASE 15 AMP AND 20 AMP RECEPTACLES INSTALLED IN THE LOCATIONS SPECIFIED IN NEC SECTION 210.8(A) NUMBERS (1) THROUGH (10) SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION FOR PERSONNEL.
17. AN OUTLET INSTALLED FOR THE PURPOSE OF CHARGING ELECTRIC VEHICLES SHALL BE SUPPLIED BY A SEPARATE BRANCH CIRCUIT HAVING NO OTHER OUTLETS PER NEC 210.17.

TEAM SHALL PROVIDE A CLEAR INSTALLATION ROUTE FOR ORGANIZER ETHERNET AND POWER CABLES FROM THE ORGANIZER UTILITY PANEL TO THE ORGANIZER ENCLOSURE.

TEAM SHALL SUPPLY A DEDICATED 15A 2P BRANCH CIRCUIT BREAKER AND ADEQUATE GROUND AND NEUTRAL BUS BAR TERMINALS IN THE TEAM PANEL BOARD FOR VOLTAGE SENSE CIRCUITRY CONNECTIONS TO THE ORGANIZER PV MONITORING METER TO BE CONNECTED BY ORGANIZER'S QUALIFIED ELECTRICAL PERSONNEL.

TEAM SHALL PROVIDE AN ORGANIZER ENCLOSURE OF REQUIRED SPECIFICATIONS PER SOLAR DECATHLON 2017 TEAM INTERCONNECTION CHECKLIST WITH ADEQUATE CONDUIT FILL AND PULL BOX ACCESS FOR ENTRANCE OF ORGANIZER SENSOR WIRES.

ELECTRICAL SYMBOLS

	DUPLEX RECEPTACLE
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
WP	WEATHERPROOF IN-USE 120V DUPLEX RECEPTACLE
R	GROUND-FAULT CIRCUIT INTERRUPTER 250V DUPLEX RECEPTACLE
D	GROUND-FAULT CIRCUIT INTERRUPTER 250V DRYER RECEPTACLE
	WALL MOUNTED DATA OUTLET
TV	TELEVISION OUTLET
	DISCONNECT SWITCH
	METER BOX
	CAR CHARGING STATION
NP	NON-CRITICAL PANEL
CP	CRITICAL PANEL

ELECTRICAL ABBRIVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
CT	CURRENT TRANSFORMER SENSOR
DHW	DOMESTIC HOT WATER
DSC	DC DISCONNECT
DW	DISHWASHER
DX	LIGHT DRIVER
ERV	ENERGY RECOVERY VENTILATOR
EV	ELECTRIC VEHICLE CHARGER
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY PANELBOARD
REF	REFRIGERATOR
W/D	WASHER/DRYER

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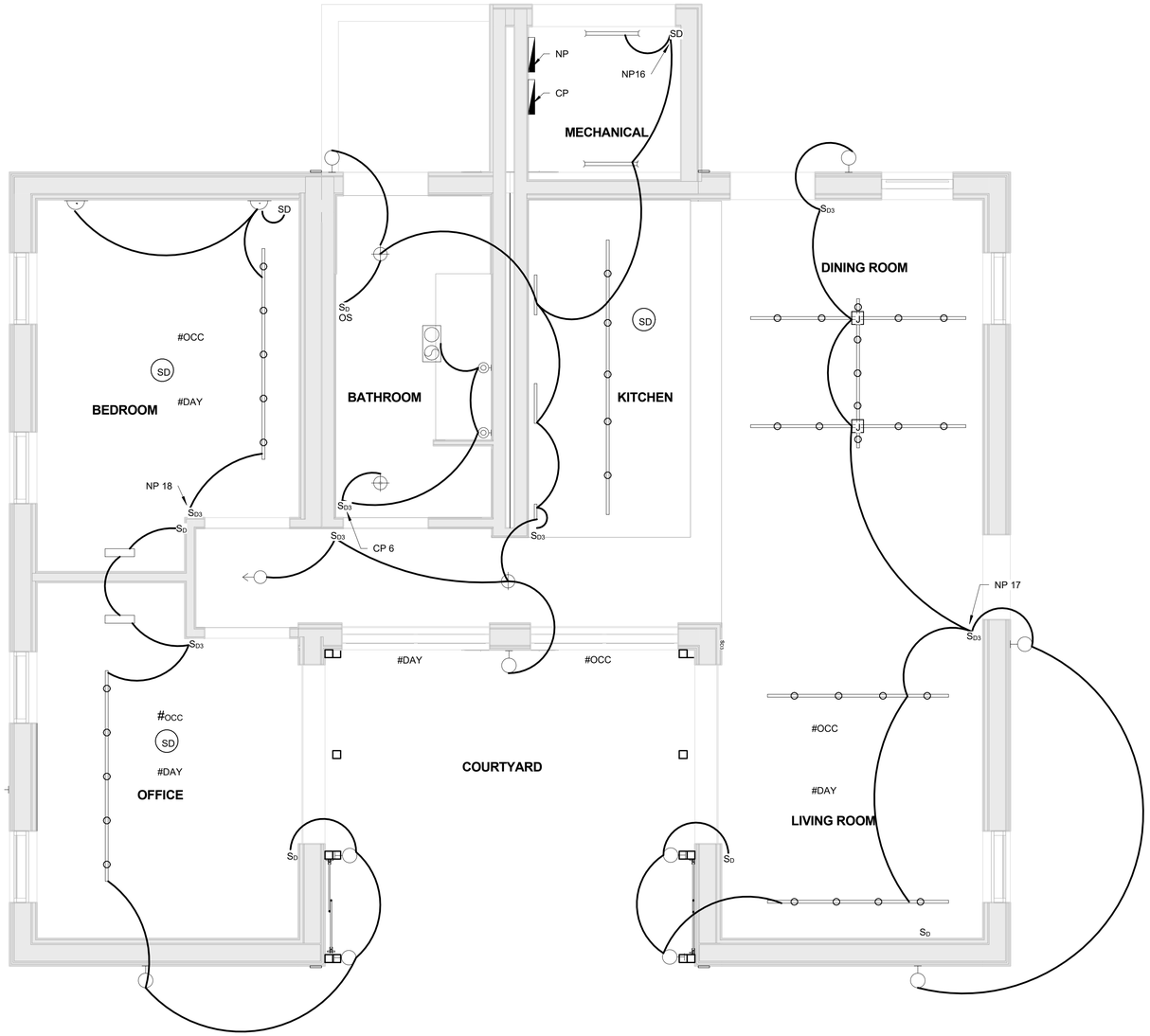
ELECTRICAL SYMBOLS & NOTES

E-001



1 LIGHTING
3/8" = 1'-0"

LIGHTING PLAN GENERAL NOTES

LIGHTING PLAN SHEET NOTES

REFRENCE SHEET E-600 FOR LIGHTING SCHEDULE AND CIRCUIT SCHEDULE

EXAMPLE

A_1

A: FIXTURE TYPE 1: CIRCUIT

1. LED INTERIOR LIGHTING, SPEC #265119
2. LED EXTERIOR LIGHTING, SPEC #265619
3. VENT DAMPERS, SPEC #235113.16

LIGHTING PLAN SYMBOLS LEGEND

	TRACK LIGHTING
	WALL MOUNTED EXTERIOR LIGHTING
	RECESSED (DIRECTIONAL) LIGHTING
	CEILING MOUNTED LIGHTING
	WARDROBE LIGHTING
	WALL SCONCES
	FAN/LIGHT COMBINATION
	UNDERCABINET LIGHTING
S_D	DIMMER SWITCH
S_{D3}	3-WAY DIMMER SWITCH
SD	SMOKE ALARM
J	JUNCTION BOX
NP	NON - CRITICAL PANEL
CP	CRITICAL PANEL
	VANITY LIGHT
$\#_{DAY}$	DAY SENSOR
$\#_{OCC}$	OCCUPANCY SENSOR
	RASPBERRY PI + TABLET

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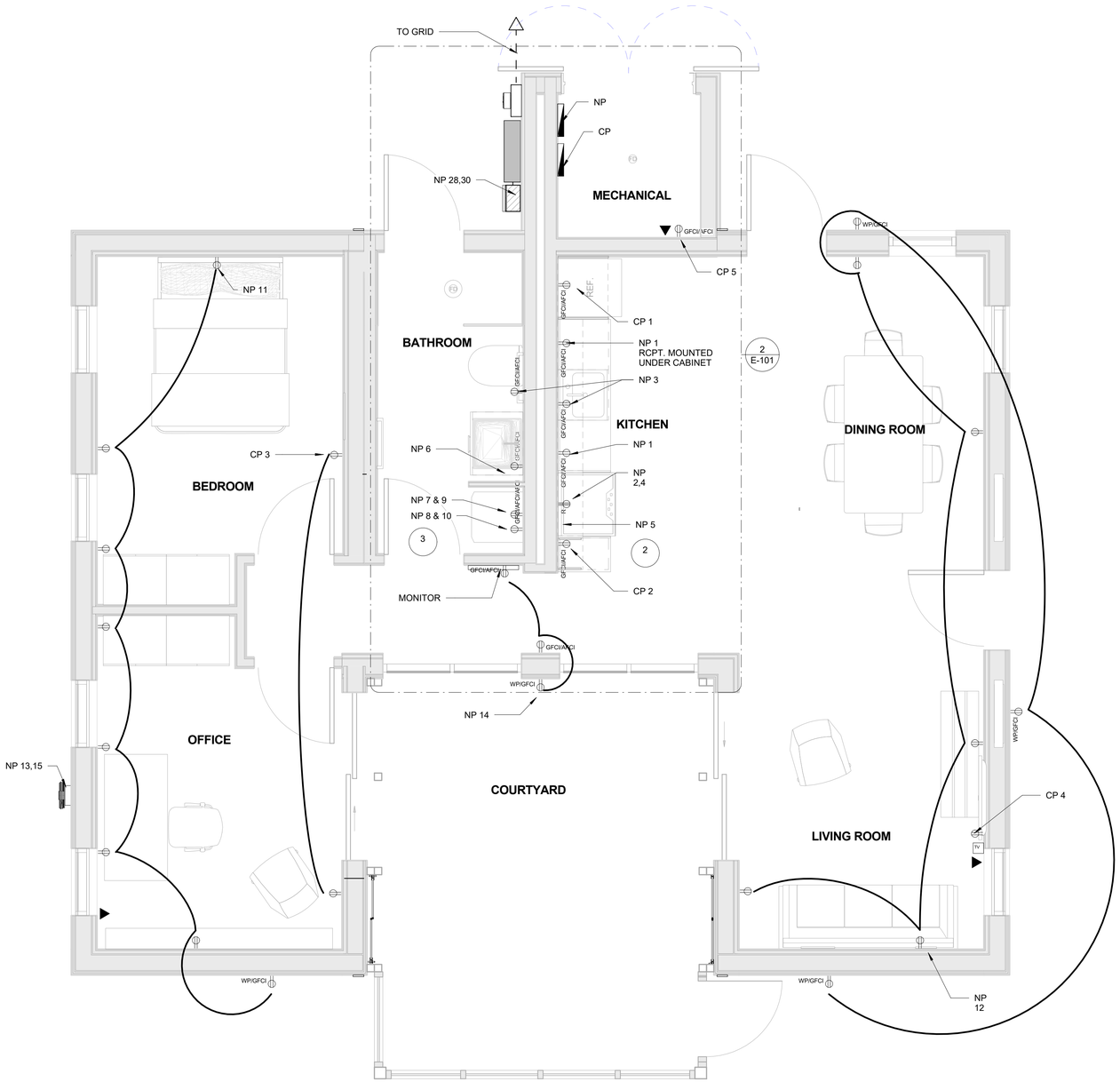
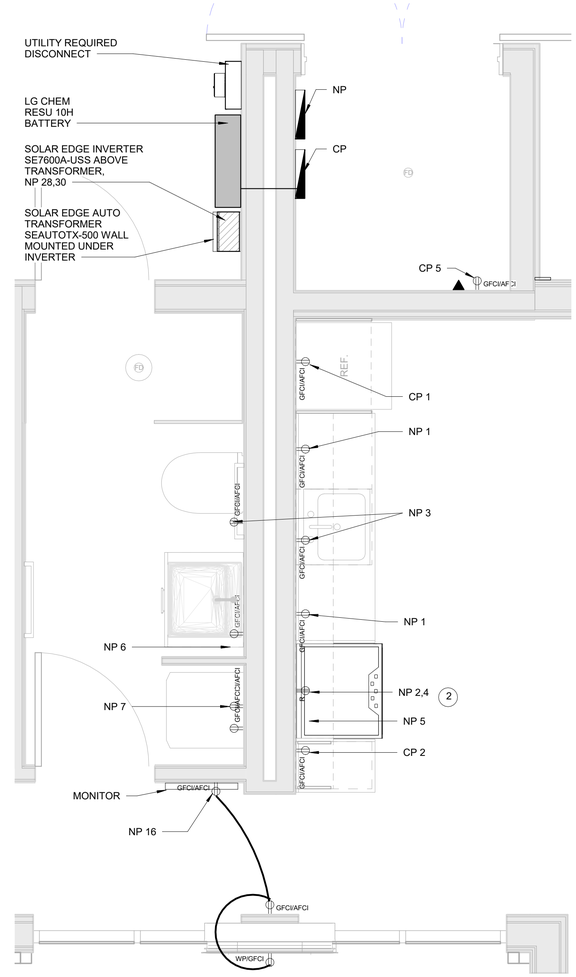
LIGHTING PLAN

E-100



1 ELECTRICAL DISTRIBUTION
3/8" = 1'-0"



2 ELECTRICAL DISTRIBUTION - Callout 1
1/2" = 1'-0"

ELECTRICAL POWER PLAN GENERAL NOTES

ELECTRICAL POWER PLAN SHEET NOTES

1. REFER TO PANEL SCHEDULES ON E-600 FOR MORE INFORMATION
2. RANGE IS A 50 AMP 250 VOLT RECEPTACLE NEMA 14-50R. SHOWN AS NP 2,4. 6-3 NM WIRE TO RECEPTACLE FROM PANEL
3. WASHER/DRYER USE 30 AMP 250 VOLT RECEPTACLE NEMA 14-30R. SHOWN AS NP 7. 10-5 NM WIRE TO RECEPTACLE FROM PANEL.

1. PANEL BOARD (JUNCTION BOX), SPEC #262416
2. ENCLOSED SWITCHES AND CIRCUIT BREAKER, SPEC #262816

ELECTRICAL POWER LEGEND

- DUPLEX RECEPTACLE
- GFCI, AFCI — GROUND FAULT CIRCUIT INTERRUPTERS/ ARC-FAULT CIRCUIT INTERRUPTER
- WP — GFCI WEATHER PROOF RECEPTACLE
- R — RANGE RECEPTACLE
- WALL MOUNTED DATA OUTLET
- TV — TELEVISION OUTLET
- METER BOX
- CAR CHARGING STATION
- NP — NORMAL PANEL
- CP — CRITICAL PANEL

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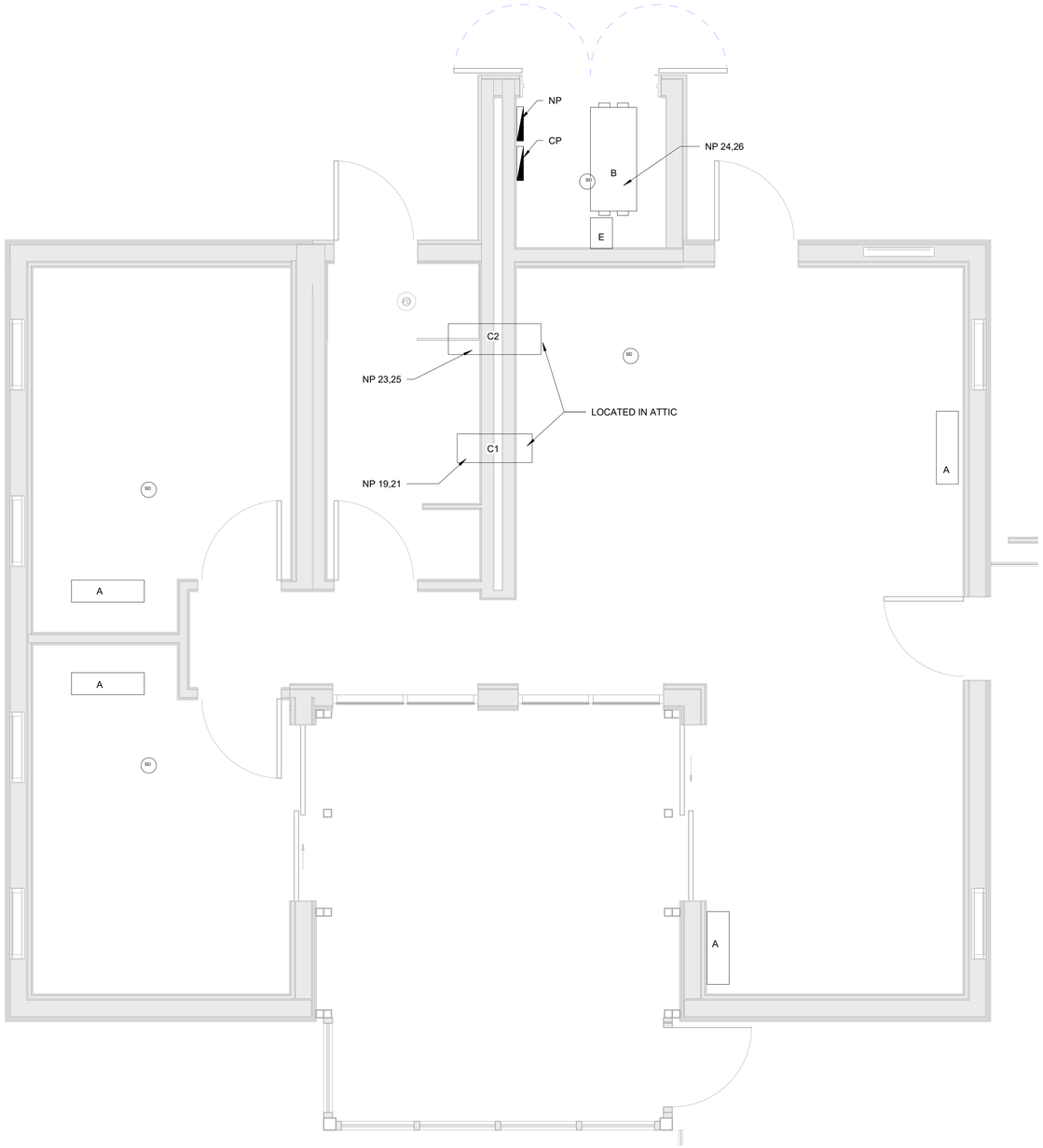
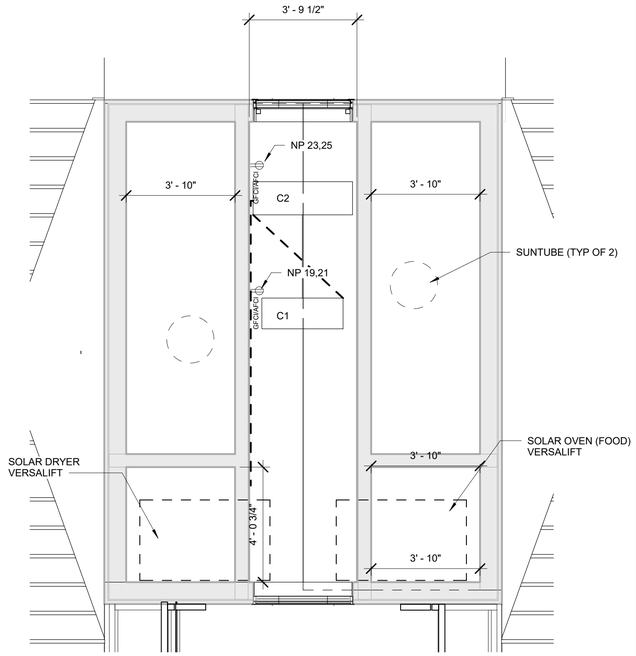
ELECTRICAL POWER PLAN

E-101



1 ELECTRIC HARD-WIRED EQUIPMENT
3/8" = 1'-0"



2 ATTIC PLAN
3/8" = 1'-0"

HARD-WIRED EQUIPMENT PLAN GENERAL NOTES

HARD-WIRED EQUIPMENT PLAN SHEET NOTES

A. SYSTEM AIR CONDITIONERS, SPEC #
B. ENERGY RECOVERY VENTAILATOR (ERV), SPEC
C_1. CONDENSOR - HOT WATER HEATER, SPEC
C_2. CONDENSOR - AIR, SPEC
D. DAMPER ALONG AIR DUCT, SPEC
E. HUMIDIFIER, SPEC
F. EXHAUST FAN, SPEC

1. PANEL BOARD (JUNCTION BOX), SPEC #262416
2. WATER PUMP, SPEC #222400
3. SPLIT SYSTEM AIR CONDITIONS, SPEC #238126

HARD-WIRED EQUIPMENT PLAN ABREIATIONS LEGEND

A	MINI SPLIT SYSTEM
B	ERV
C_1	CONDENSOR - HOT WATER
C_2	CONDENSER - AIR
D	DAMPER ALONG AIR DUCT
E	HUMIDIFIER
F	EXHAUST FAN
NP	NORMAL PANEL
CP	CRITICAL PANEL
SD	SMOKE DETECTOR

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HARD-WIRED EQUIPMENT PLAN

E-102

PV MODULE RATINGS @ STC	
MODULE MAKE	Sunpower
MODULE MODEL	SPR-X21-335-BLK
MAX POWER-POINT CURRENT IMP	5.83A
MAX POWER-POINT VOLTAGE VMP	57.3V
OPEN CIRCUIT VOLTAGE VOC	67.9V
SHORT CIRCUIT CURRENT ISC	6.23A
MAX SERIES FUSE (OCPD)	20A
MAXIMUM POWER PMAX	335W
MAX VOLTAGE (TYP 600VDC)	600V UL
VOC TEMPERATURE COEFFICIENT(mV/c)	-167 mV/C

SIGNS (for warning etc.)	
RATED MPP CURRENT	17.49A
RATED MPP VOLTAGE	573V
MAX SYSTEM VOLTAGE	1143.67V

OPERATING CONDITION AND MECHANICAL DATA	
TEMPERATURE	– 40°F to +185°F (– 40°C to +85°C)
MAX LOAD	Wind: 50 psf, 2400 Pa, 245 kg/m² front & back Snow: 112 psf, 5400 Pa, 550kg/m² front
IMPACT RESISTANCE	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
SOLAR CELL TYPE	96 Monocrystalline Maxeon Gen III Cells
WEIGHT	41 lb (18.6 kg)
DIMENSIONS (in)	61.24 x 41.18 x 1.81

AUTO TRANSFORMER RATINGS	
TRANSFORMER MAKE	SolarEdge
MODEL	SEAUTO-TX-5000
MAX RATED POWER (PEAK)	7600VA for 10sec
RATED POWER (CONTINUOUS)	5000VA
SPLIT PHASE IMBALANCE(@RATED POWER)	Upto 25A
NOMINAL AC VOLTAGE	240V
MAX AC CURRENT	25A
OPERATING CONDITION AND MECHANICAL DATA	
TEMPERATURE	– 13°F to +140°F (– 25°C to +60°C)
WEIGHT	29.7 lb (13.5 kg)
PROTECTION RATING	NEMA 3R
DIMENSIONS (in)	6.7 x 7.9 x 5.5 (wall mounted)

INVERTER RATINGS	
INVERTER MAKE	SolarEdge
INVERTER MODEL	SE7600A-USS
MAX DC VOLT RATING	500V
MAX POWER @ 40C	5000W @STC
NOMINAL AC VOLTAGE	240V
MAX AC CURRENT	32A
OPERATING CONDITION AND MECHANICAL DATA	
TEMPERATURE	– 13°F to +140°F (– 25°C to +60°C)
WEIGHT	58.5 lb (26.5 kg)
DIMENSIONS (in)	37 x 12.5 x 7.2

DC-DC OPTIMIZER RATINGS	
OPTIMIZER MAKE	SolarEdge
OPTIMIZER MODEL	P400
MAX DC INPUT VOLTAGE	80V
MAX DC INPUT CURRENT	10A
MAX INPUT POWER @ 40C	400W @STC
MAXIMUM OUTPUT VOLTAGE	60V
MAXIMUM OUTPUT CURRENT	15A
MAX OCPD RATING	20A
OPERATING CONDITION AND MECHANICAL DATA	
TEMPERATURE	– 40°F to +185°F (– 40°C to +85°C)
WEIGHT	1.5 lb (700g)
DIMENSIONS (in)	8.2 x 6.1 x 1.16

BATTERY RATINGS (POWERWALL 1)	
BATTERY MAKE	TESLA
BATTERY MODEL	Daily Powerwall Home Battery
DC VOLT RATING	350V-450V
POWER continuous and peak	3.3kW
ENERGY @ 25C, 2kW charge/discharge power	6.4 kWh
DC CURRENT, continuous and peak	9.5A

BATTERY RATINGS (POWERWALL 2)	
BATTERY MAKE	TESLA
BATTERY MODEL	POWERWALL 2 AC
AC VOLT (Nominal)	208 V, 220 V, 230 V, 277 V, 100/200 V, 120/240 V
AC ENERGY 1	13.2kWh
REAL POWER, max continuous	5 kW (charge and discharge)
REAL POWER PEAK	7 kW (discharge only)
INTERNAL BATTERY DC VOLTAGE	50V

1 Values provided for 25°C (77°F), 3.3 kW charge/discharge power

OPERATING CONDITION AND MECHANICAL DATA (PowerWall 2)	
TEMPERATURE	Operating: – 4°F to +122°F (– 20°C to +50°C) Storage: -22F to 140F (-30C to 60C)
WEIGHT	269 lb (122kg) Floor or Wall Mount
DIMENSIONS (in)	45.3 x 29.7 x 6.1

OPERATING CONDITION AND MECHANICAL DATA (Powerwall 1)	
TEMPERATURE	Operating: – 4°F to +122°F (– 20°C to +50°C) Storage: -22F to 140F (-20C to 30C)
WEIGHT	209.439 lb (95kg)
DIMENSIONS (in)	51.18 x 33.85 x 7.08

PHOTOVOLTAIC SYSTEMS INFORMATION GENERAL NOTES

PHOTOVOLTAIC MOUNTING DETAIL SHEET NOTES

THE SYSTEM USED (P400 + STORRDGE INVERTERS) HAS A BUILT IN CONTROL MECHANISM THAT MAINTAINS THE STRING VOLTAGE AT A CONSTANT MAXIMUM OF 350V AND THE PER MODULE VOLTAGE AT A MAXIMUM OF 60V. THIS NEGATES THE NEED FOR ANY SEPERATE CONCERNS OVER THE FLUCTUATION OF VOLTAGES WITH THE LOCATION TEMPERATE.

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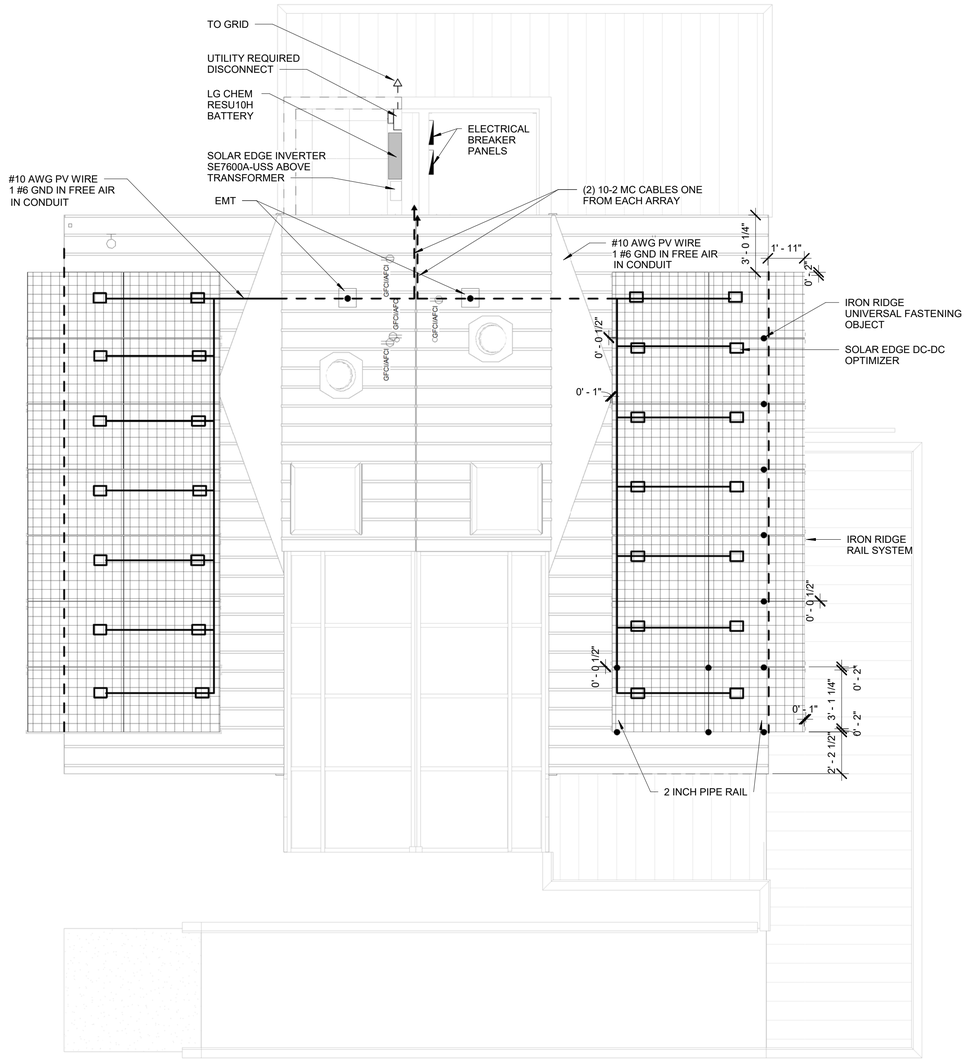
PHOTOVOLTAIC SYSTEMS INFORMATION

E-103



1 SOLAR ARRAY PLAN
1/4" = 1'-0"

PHOTOVOLTAIC ARRAY ROOF PLAN GENERAL NOTES

A. REFER TO SHEET E-500 FOR PANEL INSTALLATION.

PHOTOVOLTAIC ARRAY ROOF PLAN SHEET NOTES

A. REFER TO SHEET E-601 ADN E-602 FOR MORE INFORMATION

B. REFER TO SHEET E-104 FOR PHOTOVOLTAIC SYSTEMS INFORMATION

C. PV MODULE SPEC. #263100

D. WEATHER STATION SPEC. #230923-43

SUNPOWER X21-355 BLK PC MODULE

SOLAR EDGE, P400 DC-DC OPTIMIZER

10 AWG PV WIRE

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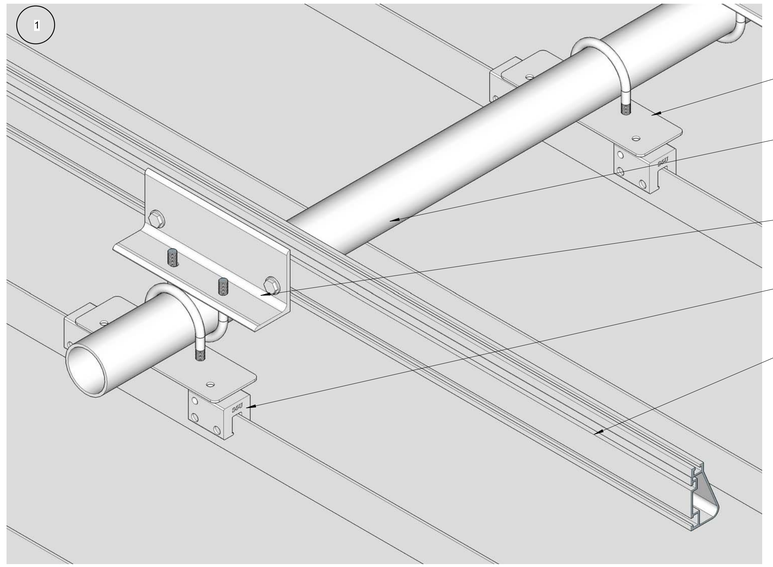
PHOTVOLTAIC ARRAY ROOF PLAN

E-104

1



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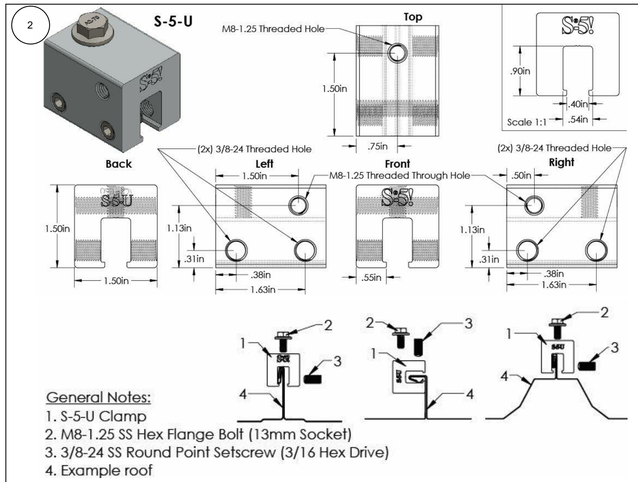
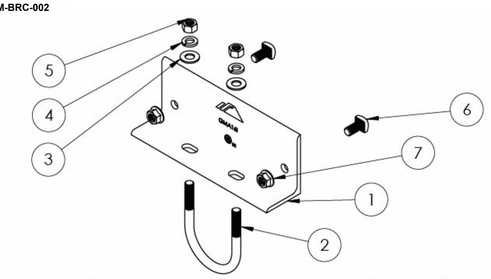
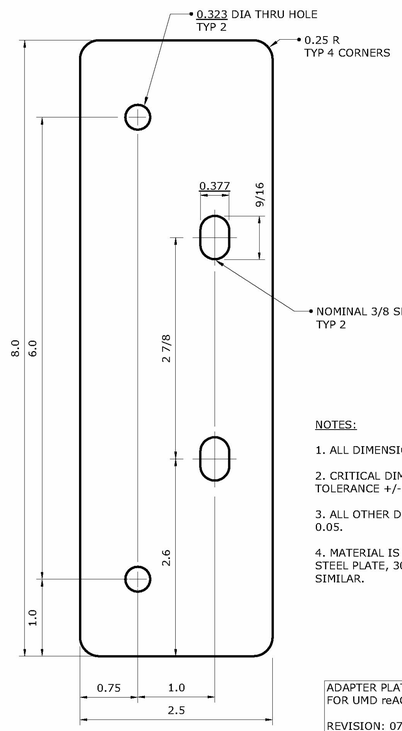


BONDED RAIL CONNECTOR IRONRIDGE GM-BRC-002



Item Number	Component	Qty in Kit
1	RAIL, 2" PIPE ATTACHING BRKT	1
2	UBOLT, CUSTOM SGA PIPE	1
3	WASHER, FLAT 3/8 GALV	2
4	WASHER, LOCK 3/8 GALV	2
5	NUT, HEX 3/8-16 GALV	2
6	BOLT, BOND 3/8-16 X .75 LG SQ HEAD	2
7	NUT, FLANGE HEX 3/8-16 SS	2



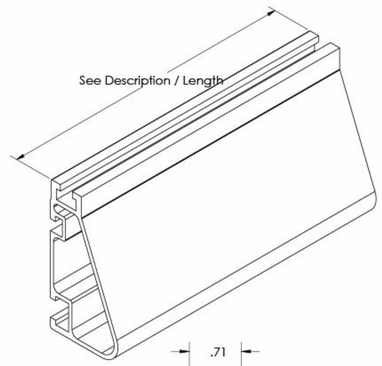
NOTES:

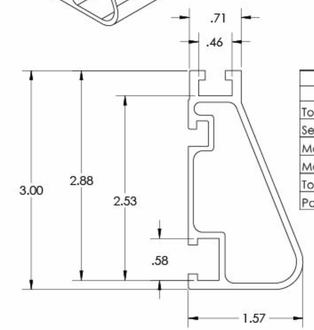
1. ALL DIMENSIONS ARE IN INCHES.
2. CRITICAL DIMENSIONS ARE UNDERLINED, TOLERANCE +/- 0.002.
3. ALL OTHER DIMENSIONS TOLERANCE +/- 0.05.
4. MATERIAL IS 12 GAUGE STAINLESS STEEL PLATE, 304 STAINLESS STEEL OR SIMILAR.

ADAPTER PLATE FOR S-5! CLAMPS
FOR UMD reACT SOLAR DECATHLON 2017

REVISION: 07-29-2017

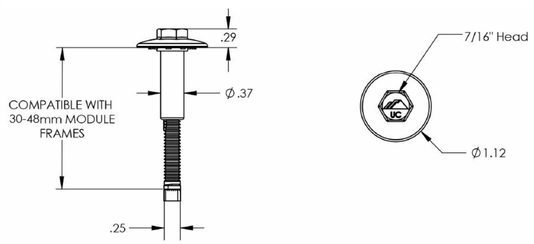
IRON RIDGE XR-1000-132A RAIL



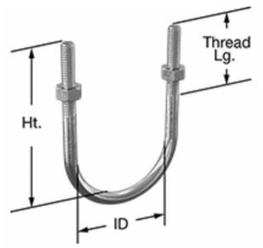


Rail Section Properties	
Property	Value
Total Cross-Sectional Area	0.807 in^2
Section Modulus (X-axis)	0.530 in^3
Moment of Inertia (X-axis)	0.843 in^4
Moment of Inertia (Y-axis)	0.182 in^4
Torsional Constant	0.436 in^3
Polar Moment of Inertia	0.330 in^4

UNIVERSAL MODULE CLAMP, UFO-CL-001



U BOLT FOR 2 IN SCH 40 PIPE,SS
McMASTER-CARR, 8896T26



PHOTOVOLTAIC MOUNTING DETAIL GENERAL NOTES

PHOTOVOLTAIC MOUNTING DETAIL SHEET NOTES

1. IRON RIDGE RACK MOUNTED UNTO S-5-E SEAM CAMP, PV ASSEMBLY SYSTEM.
2. S-5-E SEAM CLAMP FOR STANDING SEAM METAL ROOF PANELS.

UNIVERSITY OF MARYLAND
COLLEGE PARK, MD 20742

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UNIVERSITY OF MARYLAND, COLLEGE PARK
SOLAR DECATHLON 2017 SUBMISSION

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PHOTOVOLTAIC MOUNTING DETAILS

E-500

LOAD TYPE	LOAD VALUE (VA)	MULTIPLIER/DEMAND	TOTAL (STANDARD METHOD)	OPTIONAL METHOD	NEC ref.
General Lighting Small Appliance branch circuit Laundry Circuit	1166 sq ft. x 3VA = 3498 VA min. 2 x 1500VA = 3000VA 1 circuit @ 1500 VA	3000@ 100% 4998@ 35%	4750 VA	Total of 45,704VA: 10,000VA @ 100% 35,704VA @ 40%	220.12+220.42 220.11(C)(1)+220.52(A) 220.11(C)(2)+220.52(B)
Electric Dryer	1 Dryer @ max(5000 VA, nameplate rating)	5000@ 100%	5000 VA		220.54
Hot water heater Dishwasher EV charger UV Lamp	Fixed-appliance loads total = 1400 (for dishwasher) + 7200 (for EV charger) +16 (for UV lamp) + 5020 (for water heater) = 13,636VA	Total of 4 fixed appliances @ 75%	10227 VA		220.53
Electric Range Pump (SCALA) Pump (BMQ) Mini-split condenser unit Mini split indoor units (x4) ERV unit + Drum Humidifier Highest motor load	1 range @ 13300 VA 550 VA 2400 VA max(2490 W for heating, 2310W for cooling) = 2490W 184VA 143W+3VA 2400VA	8000 VA + 5%(8000) = 8400VA 550 VA@ 100% 2400 VA@ 100% 2490VA 184VA 146VA 2400@25%	8400 VA 550 VA 2400 VA 2490VA 184VA 146VA 600VA		Table 220.19 220.14(C)
	TOTAL = 45,704 VA		**Total = 34,747VA**	**Total = 24,281VA**	
			MAIN BREAKER RATING = 150A	**MAIN BREAKER RATING = 100A**	
			WIRE SIZE: 2/0 AWG Alu or 1 AWG copper		

Neutral Loads:

LOAD TYPE	CONTRIBUTION (100%unless otherwise indicated)	TOTAL (STANDARD METHOD)
General Lighting Small Appliance branch circuit Laundry Circuit	7998	7998 VA
Hot water heater Dishwasher EV charger UV Lamp	Total of 4 fixed appliances = 8616 VA	8616 VA
Pump (SCALA)	550 VA	550 VA
Pump (BMQ)	2400 VA	2400 VA
Mini-split condenser unit	2490VA	2490VA
Mini split indooe units (x4)	184VA	184VA
ERV unit + Drum Humidifier	146VA	146VA
Highest motor load	2400@25%	600VA
		Total = 22,984VA Neutral conductor size = #4 cu or #2 al

LIGHTING FIXTURE SCHEDULE

LETTER	DESCRIPTION	TYPE	COUNT	WATTAGE	MOUNTING	NOTES
A	TRACK LIGHTING DINING ROOM (3)	LED	15	105W (7W PER BULB)	CEILING 2" SUSPENSION	FIXTURE: TECH LIGHTING 800CBL5PN BULB: MAXLITE LED GU5.3 7MR16 LAMPS INCLUDING A JUNCTION BOX
B	TRACK LIGHTING LIVING ROOM (2)	LED	10	70W (7W PER BULB)	CEILING 2" SUSPENSION	FIXTURE: TECH LIGHTING 800CBL5PN BULB: MAXLITE LED GU5.3 7MR16 LAMPS INCLUDING A JUNCTION BOX
C	HALLWAY	LED	1	22W	SPINE WALL	FIXTURE: QB LED WALL SCONCE, FINISH: BLACK, BRUSHED CHROME, OPTION: DIMMABLE
D	HALLWAY	LED	1	75W	CEILING	FIXTURE: TM603 RECESSED LIGHTING 6" LINE VOLTAGE TRIMS, 30DEGREE ADJUSTABLE FROM VERTICA, PAR30 LED LIGHT BULB
E	BATHROOM MOISTURE RESISTANT	LED	1	6W	CEILING	FIXTURE: TITANIUM LED SERIES 4.0 MR16 - MAY REQUIRE HOUSING SUCH AS WAC LIGHTING HR-8401E RECESSED LOW VOLTAGE WITH AN ELECTRIC TRANSFORMER BULB: MR16 12V 6W DIMMABLE
F	BATHROOM VANITY LIGHT	LED	2	6W (3W PER BULB)	INTERNAL WALL (SPINE)	FIXTURE: UNILUME LED MICRO CHANNEL BULB: BUILT IN - CAN BE REPLACED WITH A 3W REPLACEMENT - LED LIGHT BULB - FESTOON BASE - BULBRITE"
G	EXHAUST FAN LIGHT	LED	1	11.5W	CEILING	FIXTURE: BROAN 0.7 SONES 110-CFM WHITE BATHROOM FAN GU24 WITH LIGHT ENERGY STARBULB: SATCO A19 LED LAM
H	KITCHEN UNDERCABINET	LED	3	9W (3W PER BULB)	UNDER KITCHEN CABINETS	FIXTURE: UNILUME LED MICRO CHANNEL BULB: BUILT IN - CAN BE REPLACED WITH A 3W REPLACEMENT - LED LIGHT BULB - FESTOON BASE - BULBRITE
I	WARDROBE LIGHTS	LED	2	-	MOUNTED ON CEILING ON WARDROBE	FIXTURE: LED LIGHT STRIP, ALUMINUM COLOR BUILT IN LED EMITTS 340 LUMENS
J	BEDROOM SCONCES	LED	2	22W (11W PER BULB)	NORTH FACING WALL	FIXTURE: KOVACS P4308-084 BULB: MAXLITE 11A19DLED30/G4
K	TRACK LIGHTING BEDROOM (1)	LED	5	35W (7W PER BULB)	CEILING 2" SUSPENSION	FIXTURE: TECH LIGHTING 800CBL5PN BULB: MAXLITE LED GU5.3 7MR16 LAMPS
L	WALL SCONCES COURTYARD	LED	5	100W (20W PER BULB)	MOUNTED ALONG CHANNELS	FIXTURE: WINDFALL EXTERIOR WALL SCONCES STAINLESS STEEL, MOUNTED VERTICALLY, BULB: MAXLITE 7W LED MR16 LAMP
M	EXTERIOR LIGHTING	LED	5	30W (6W PER BULB)	MOUNTED ALONG CHANNELS	FIXTURE: PROGRESS LIGHTING P5675-20/30K BULB: GU10 6W DIMMABLE
N	MECHANICAL ROOM LIGHTING	LED	2	70W(35 P34 BULB)	CEILING MOUNTED	FIXTURE: LITHONIA LIGHTING FMLL 9 30840 WHITE LITEPUFF" FLUSH MOUNT 4000K LED CEILING

SCHEDULES GENERAL NOTES

SCHEDULES SHEET NOTES

SCHEDULES LEGEND

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SOLAR DECATHLON 2017 SUBMISSION

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LOAD SCHEDULES

E-600

Critical Panel Schedule

PANEL NO. CP					Bus: 1Ø 3 Wire	MAIN LUGS ONLY				AMP:125
LOCATION: MECHANICAL ROOM										
A.I.C. RATING:10 K	SERIES RATED				FLUSH				TOP FEED	
LOAD TYPE	CIRCUIT DESCRIPTION	CIRCUIT BREAKER AMP	POLE	CKT	PHASE	CIRCUIT BREAKER CKT	Pole	AMP	CIRCUIT DESCRIPTION	LOAD TYPE
	REFRIDGERATOR RCPT.	15	1	1	A	2	1	20	KITCHEN RCPT.	
	BEDROOM/STUDY RCPT.	20	1	3	B	4	1	15	LIVING ROOM RCPT.	
	MECH ROOM	15	1	5	A	6	1	20	BATHROOM LIGHT	
	FIRE SUPP. PUMP	15	1	7	B	8	1	15	GREEN HOUSE SKYLIGHT?	
	SPARE	15	1	9	A	10	1	15	SPARE	
	SPARE	15	2	11	B	12	1	15	SPARE	
	SPARE	15	2	13	A	14	1	15	SPARE	
	SPARE	15	1	15	B	16	1	15	SPARE	

NORMAL PANEL

PANEL NO. NP					Bus: 1Ø 3 Wire	Main C.B.				AMP:150
LOCATION: MECHANICAL ROOM		SERVING:								
A.I.C. Rating :10 K	SERIES RATED				FLUSH				TOP FEED	
	CIRCUIT DESCRIPTION	Circuit Breaker AMP	POLE	CKT	PHASE	Circuit Breaker CKT	Pole	AMP	CIRCUIT DESCRIPTION	
	KITCHEN RCPTS.	20	1	1	A	2	2	50	RANGE RCPT.	
	DISHWASHER/TOILET RCPT.	15	1	3	B	4		50	RANGE RCPT.	
	MICROWAVE RCPT.	20	1	5	A	6	1	20	BATHROOM RCPT.	
	WASHER RCPT.	15	2	7	B	8	2	30	DRYER RCPT.	
	WASHER RCPT.			9	A	10		30	DRYER RCPT.	
	BEDROOM/STUDY/WEST WING EXT. RECPT.	15	1	11	B	12	1	15	LIVING RM/DININING RM/EAST WING EXT. RCPT.	
	CAR CHARGER RCPT.	40	2	13	A	14	1	15	COURTYARD/ HALLWAY RCPT.	
	CAR CHARGER RCPT.			15	B	16	1	15	MECH RM/KITCHEN LIGHT	
	LIVING ROOM/DINING RM LIGHT	15	1	17	A	18	1	15	BEDROOM/STUDY LIGHT	
	VRF AIR COND. OUTDOOR RCP	25	2	19	B	20	2	25	HEAT PUMP WATER HEATER RCPT.	
	VRF AIR COND. OUTDOOR RCP	25		21	A	22		25	HEAT PUMP WATER HEATER RCPT.	
	HEAT PUMP WATER HEATER HYDROKIT	25	2	23	B	24	2	20	ERV	
	HEAT PUMP WATER HEATER HYDROKIT	25		25	A	26		20	ERV	
	VERSALIFT/VELUX	15	1	27	B	28	2	40	INVERTER	
		15	1	29	A	30			INVERTER	

NOTE:

WIRES TO FEED NORMAL PANEL:

ALUMINUM: 2/0-2/0-2/0-1 GRAY STRANDED AI SER CABLE

COPER: 1-1-1-3 GRAY STRANDED CU SER CABLE

MAIN PANEL 150 AMP RATED WITH 150 AMP MAIN BREAKER

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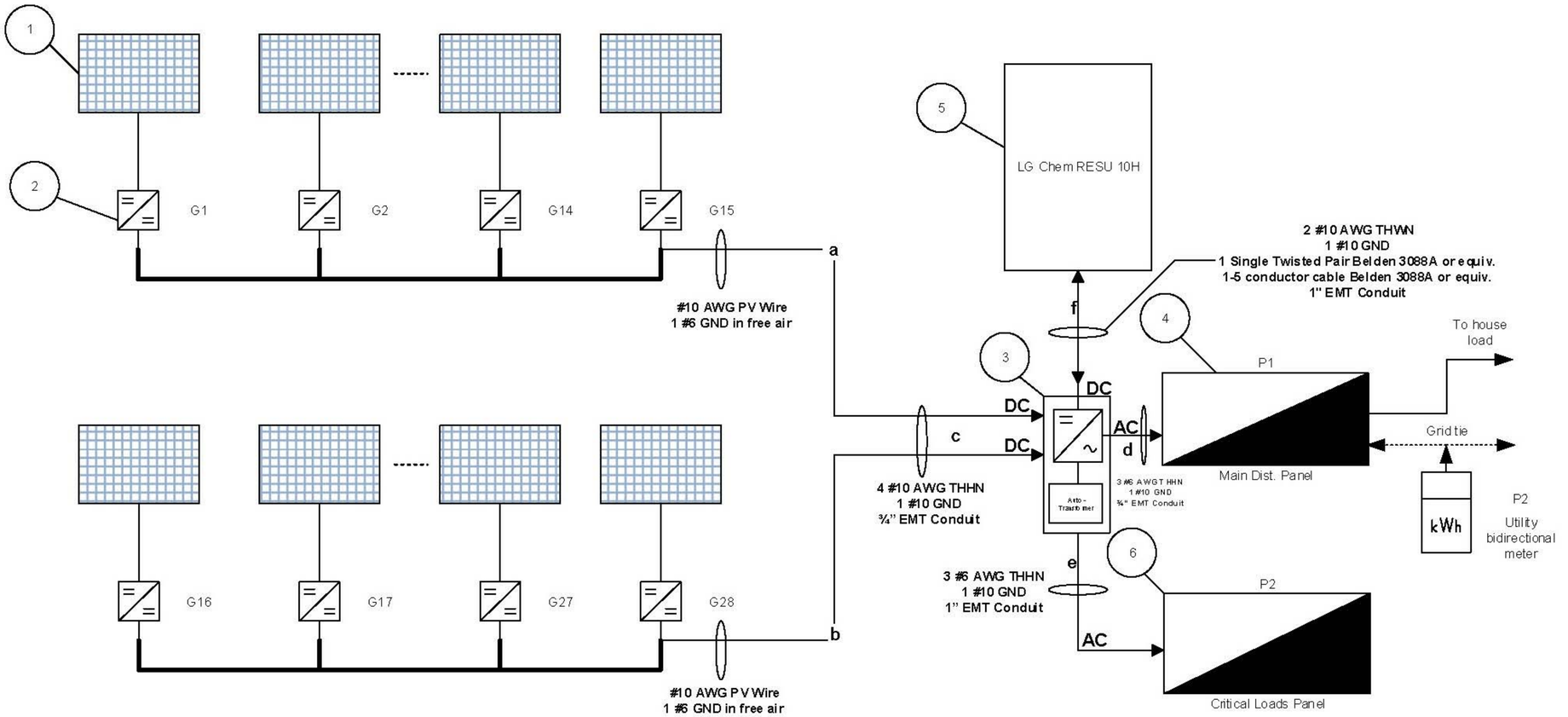
PANEL SCHEDULES

E-601

One Wire Diagram: StorEdge GridTie (with battery backup)



S no.	Max Amps	No. of wires	Wire guage	Location
a	23A	3	3 - 10 AWG wire 1 - #6 AWG GND	Roof (String 1)
b	23A	3	3 - #10 AWG wire 1 - #6 AWG GND	Roof (String 2)
c	23A	5	5 - #10 AWG wire 1 - #10 AWG GND	3/4" EMT Conduit
d	32A	3	2 - #6 AWG wire 1 - #10 AWG GND	3/4" EMT Conduit
e	32A	3	2 - #6 AWG wire 1 - #10 AWG GND	1" EMT Conduit
f	25A	3	2 - #10 AWG wire 1 - #10 AWG GND	1" EMT Conduit

Tag	Description	Part Number	Notes
1	PV module	X21-335 BLK	SunPower, Quantity - 28 modules
2	DC-DC optimizer	P400	SolarEdge, Quantity - 28 units
3 a)	DC-AC String Inverter	SE7600A-USS	SolarEdge, Quantity - 1 units
3 b)	Auto Transformer	SEAUTO-TX-5000	SolarEdge, Quantity -1 units, Connected to the inverter with 3 #8 AWG THHN, 1 #10 GND, 1 Single twisted Pair Belden 3099 or equiv. 3/4" EMT Conduit
4	Main Service Panel	HOM3060M150PCVP	SquareD Homeline 150A, 30 space, 60 Circuit
5	Battery Pack	LG CHEM RESU 10H	LG, integrated with StorEdge inverter
6	Emergency Sub-Panel	HOM1224L125PGCVP	Square D Homeline 125A, 12 Space, 24 Circuit

NOTES

1. ALL CONDUCTORS ARE COPPER.
2. THE SOLAREDGE OPTIMIZERS, INVERTER, AUTOTRANSFORMER AND BATTERY SHALL BE INSTALLED, WIRED, GROUNDED AND COMMISSIONED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. MAIN DISTRIBUTION PANEL (NP PANEL) GROUND, THE CRITICAL LOADS PANEL (CP PANEL) GROUND AND THE PV ARRAY EQUIPMENT GROUND SHALL BE BONDED TO THE PREMISES GROUND ROD USING A 6 AWG GEC AS A MININUM.

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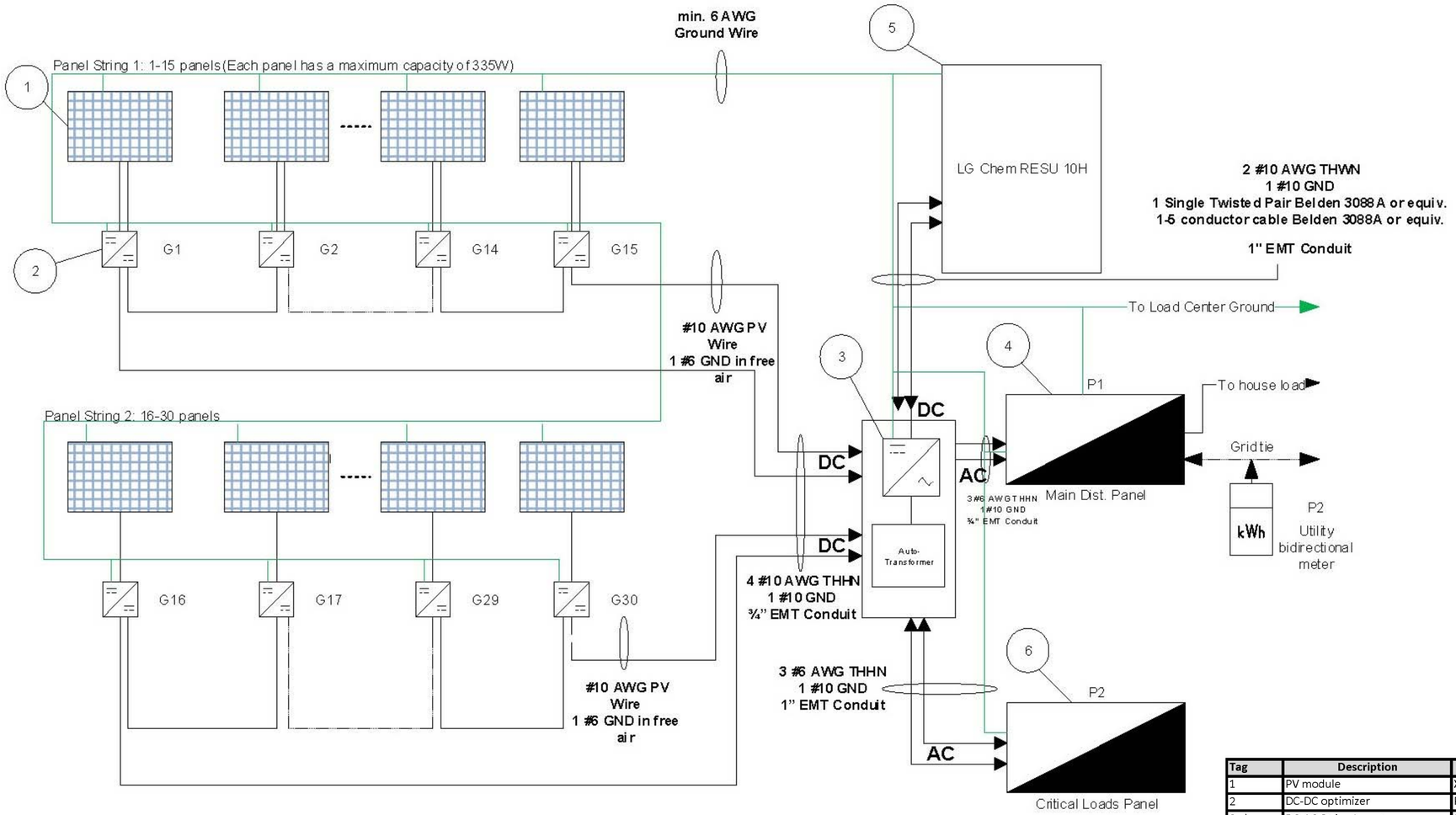
PV ONE LINE WIRE DIAGRAM

E-602

Three Line Diagram: StorEdge GridTie (with battery backup)



NOTES

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6	Emergency Sub-Panel	HOM1224L125PGCVP	Square D Homeline 125A, 12 Space, 24 Circuit

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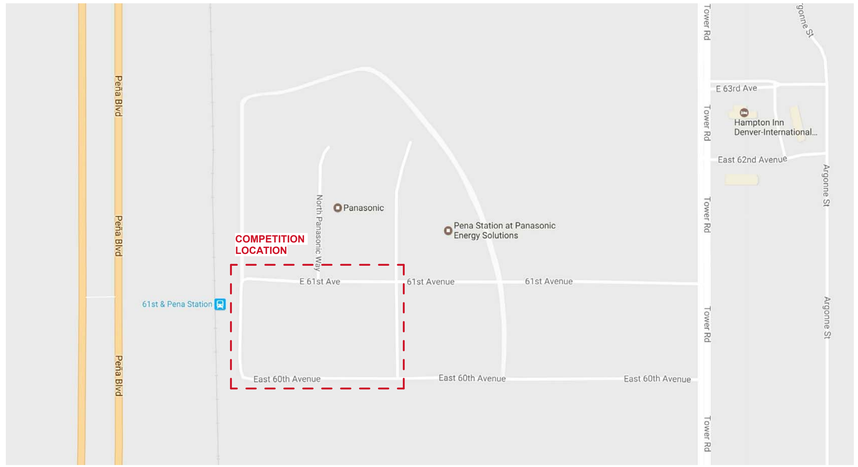
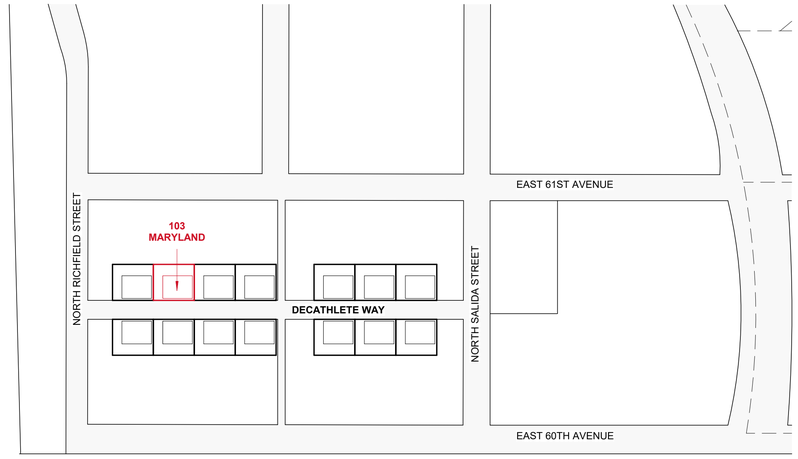
PV THREE LINE WIRE DIAGRAM

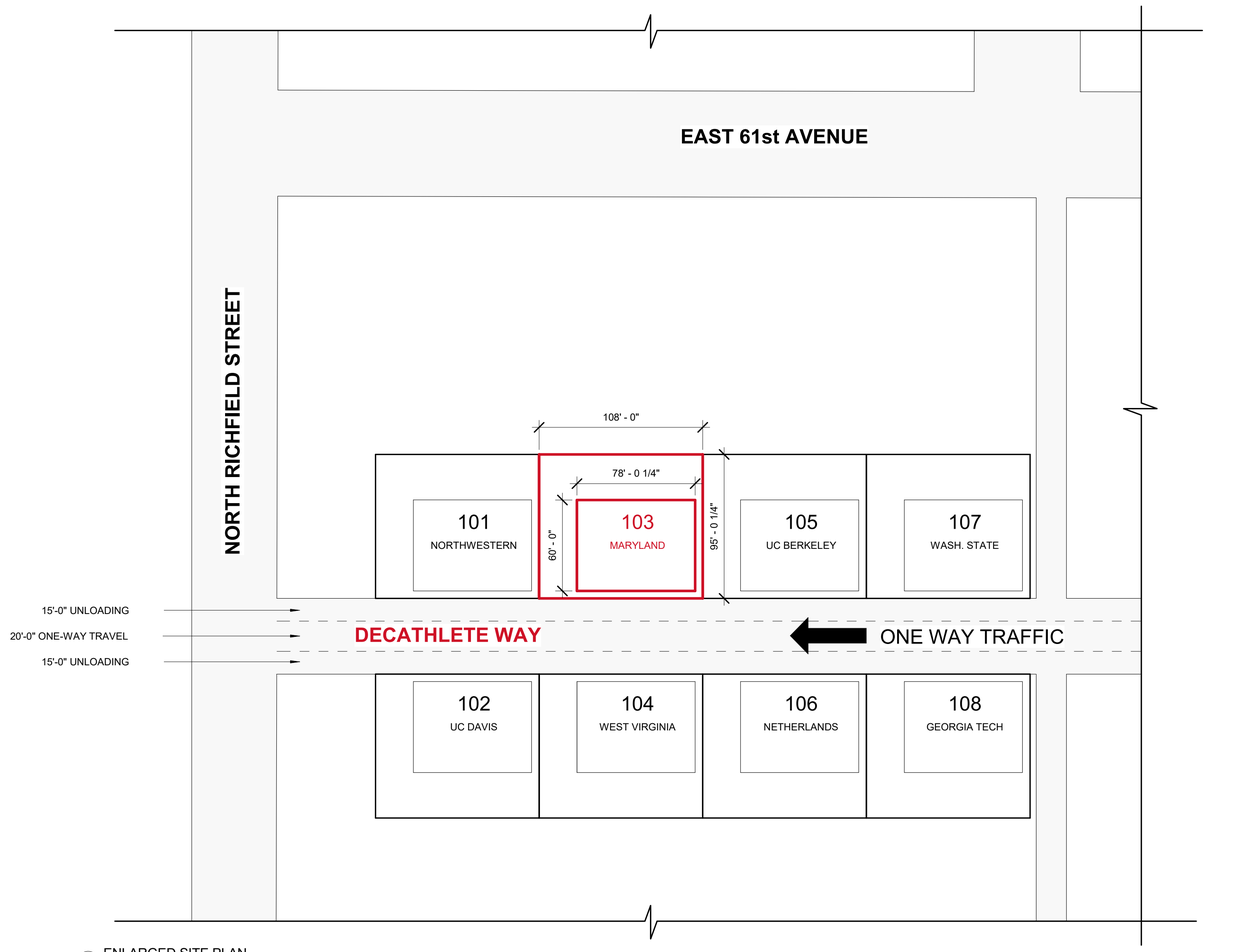
E-603



1 COMPETITION SITE KEY PLAN
1/4" = 1'-0"



2 COMPETITION SITE PLAN
1" = 200'-0"



3 ENLARGED SITE PLAN
1" = 50'-0"

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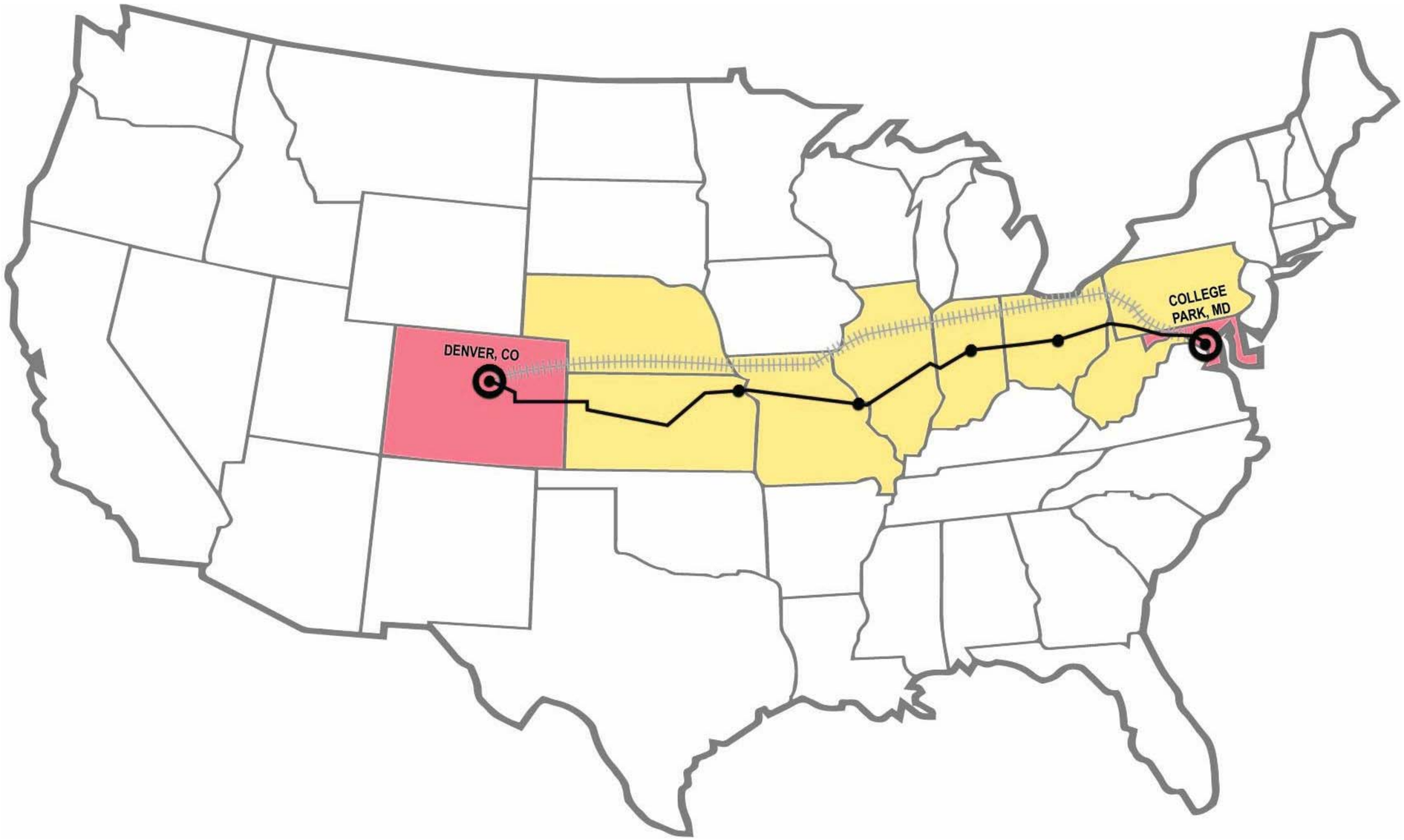
COMPETITION SITE PLAN

O-100



TRANSPORT NOTES

DEPARTURE POINT: UNIVERSITY OF MARYLAND
COLLEGE PARK, MD 20742

TOTAL DISTANCE: 1,658 MILES

ESTIMATED TRAVEL TIME: TRUCK - 25 HOURS
RAIL - 14 HOURS

SITE LOCATION: RTD 61ST & PEÑA STATION
6045 N RICHFIELD ST.
DENVER, CO 80249

STATES WHICH MAY REQUIRE TRUCK TRANSPORATION PERMITS:

1. MARYLAND
2. WEST VIRGINIA
3. PENNSYLVANIA
4. OHIO
5. INDIANA
6. ILLINOIS
7. MISSOURI
8. KANSAS
9. COLORADO

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TRANSPORT PLAN

O-101

TRANSPORTATION ANALYSIS

TYPE	SMALL TRUCK (SM)	MEDIUM TRUCK (MD)	LARGE TRUCK (LG)	SELECTED TRUCK (LG)	RAILCAR	AIR
LOAD DIMENSIONS (LENGTH x WIDTH x HEIGHT)	16'-0" x 8'-6" x 9'-2"	26'-0" x 8'-6" x 9'-2"	48'-0" x 8'-6" x 12'	48'-0" x 8'-6" x 12'	44'-4" x 8'-6" x 8'-10"	65,000 ft^3
MAXIMUM LOAD CAPACITY (LB.)	7,000	15,000	80,000	80,000	200,000	250,000
FUEL PER DISTANCE TRAVELED	7.9mpg	6.5mpg	5.8mpg	5.8mpg	476 ton-mpg	1.6mpg
ESTIMATED CO^2 PRODUCED FROM COLLEGE PARK TO DENVER (TONS)	2.097	2.549	2.857	2.857	0.313	10.356

AMOUNT OF VEHICLES REQUIRED FOR HOUSE TRANSPORTATION

	SMALL TRUCK (SM)	MEDIUM TRUCK (MD)	LARGE TRUCK (LG)	SELECTED TRUCK (LG)	RAILCAR	AIR
TOTAL NUMBER OF VEHICLE TYPES	6	4	2	1	2	1
ESTIMATED CO^2 PRODUCED FROM COLLEGE PARK TO DENVER (TONS)	12.582	10.196	5.714	2.857	0.313	10.356

TRUCK WEIGHT AND SIZE LIMITS

	WIDTH	HEIGHT	SEMI-TRAILER	FULL TRAILER (EACH)	GVW (LB.)
INTERSTATES / U.S. NUMBERED ROUTES	8'-6"	13'-6"	***48'-0"	***28'-0"	80,000
MARYLAND	*8'-0"	13'-6"	48'-0"	28'-0"	80,000
COLORADO	8'-0"	**13'-0"	57'-4"	28'-6"	85,000

*8'-6" ON ALL INTERSTATE AND CERTAIN DESIGNATED STATE HIGHWAYS
**14'-6" ON STATE DESIGNATED HIGHWAYS ONLY
*** THE FEDERAL LENGTH LIMITS ARE PRINCIPALLY MINIMUMS THAT STATES MUST ALLOW FOR ON INTERSTATES/U.S. NUMBERED ROUTES

DIMENSIONS PER RAILCAR/TRUCK TRAILER

	LENGTH	WIDTH	HEIGHT	AMOUNT NEEDED
***TRUCK**	48'-0"	8'-6"	12'-0"	2
RAIL	44'-4"	8'-6"	8'-10"	2

*CUSTOM TRUCK OUTFITTED AS TANDEM LOWBOY WITH 40'-0" OF THE TRAILER ALLOWING CARGO HEIGHT UP TO 12'-0", WITH 4' IN FRONT AND BACK ONLY ALLOWING 10'-4" WITH BUILT-IN CRANE AND ONE ADDITIONAL LOWBOY TRAILER, IN TOTAL NOT EXCEEDING 95'-0" IN LENGTH. SEE SHEET O-102 FOR IMAGE.

OPTIMAL ROUTE OPTIONS

FACTORS	TRUCK ROUTE	RAIL ROUTE
MILES	1,657	1,667
HOURS	25	14
ESTIMATED CO^2 PRODUCED FROM COLLEGE PARK TO DENVER (TONS)	2.857	0.317

*BOTH OPTIONS ARE STILL BEING CONSIDERED

TRANSPORT ANALYSIS NOTES

1. TRUCK DIMENSIONS BASED ON AVERAGE ESTIMATES
2. 2CO/2 TRUCK ESTIMATES BASED ON ESTIMATE OF 20LBS OF CO/2 PRODUCED PER GALLON OF GASOLINE AND ROUTE OF 1657 MILES
3. RAILCAR DIMENSIONS BASED 45' HIGH INTERMODAL SHIPPING CONTAINER INTERIOR DIMENSIONS
4. RAILCAR FUEL PER DISTANCE TRAVELED TAKEN FROM ASSOCIATION OF AMERICAN RAILROADS AVERAGE
5. CO/2 RAIL ESTIMATE BASED ON OF AN ESTIMATED HOUSE WEIGHT OF 9 TONS HAULED BY ONE TRAIN
6. AIR DIMENSIONS BASED ON BOEING 747 DREAMLIFTER
7. CO/2 AIR ESTIMATE BASED ON ONE PLANE CARRYING 11 HOMES AT 9 TONS PER HOME
8. CUSTOM TRUCK CAN OUTFITTED AS A TANDEM (TWO TRAILERS), LOWBOY (TRAILER ABLE TO CARRY ITEMS 12' TALL), AND WITH A BUILT-IN CRANE WITH A BOOM LENGTH BETWEEN 60-160' AND BOOM CAPACITY BETWEEN 15-40 TONS
9. OVERSIZED LOADS CAN BE ACCOMMODATED FOR TRUCKS CARRYING LOADS WITH WIDTHS GREATER THAN 8'6". SPECIAL PERMITS ARE REQUIRED. TYPICALLY A PILOT CAR WOULD NEED TO ACCOMPANY THE TRUCK.

OPTIMAL ROUTE DETAILS

TRUCK ROUTE

START: UNIVERSITY OF MARYLAND

Take BALTIMORE AVE. > I-495 WEST
I-495 W > I-70 WEST
I-70 W > I-68 WEST
I-68 W > US-40 WEST
US-40W > I-70 WEST
I-70 W > US-287 WEST
US-297W > US-40 WEST
US-40W > EXIT INTO DENVER

END: RTD 61ST & PEÑA STATION

RAIL ROUTE

START: UNIVERSITY OF MARYLAND

Take Baltimore Ave. > I-495 WEST
I-495 W > US-50 WEST
US-50 W > NEW CARROLTON TRAIN STATION

TRANSFER TO RAIL, TRANSPORT TO DENVER INTERMODAL FACILITY

TRANSFER TO TRUCK > RTD 61ST & PEÑA STATION

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UNIVERSITY OF MARYLAND, COLLEGE PARK
SOLAR DECATHLON 2017 SUBMISSION

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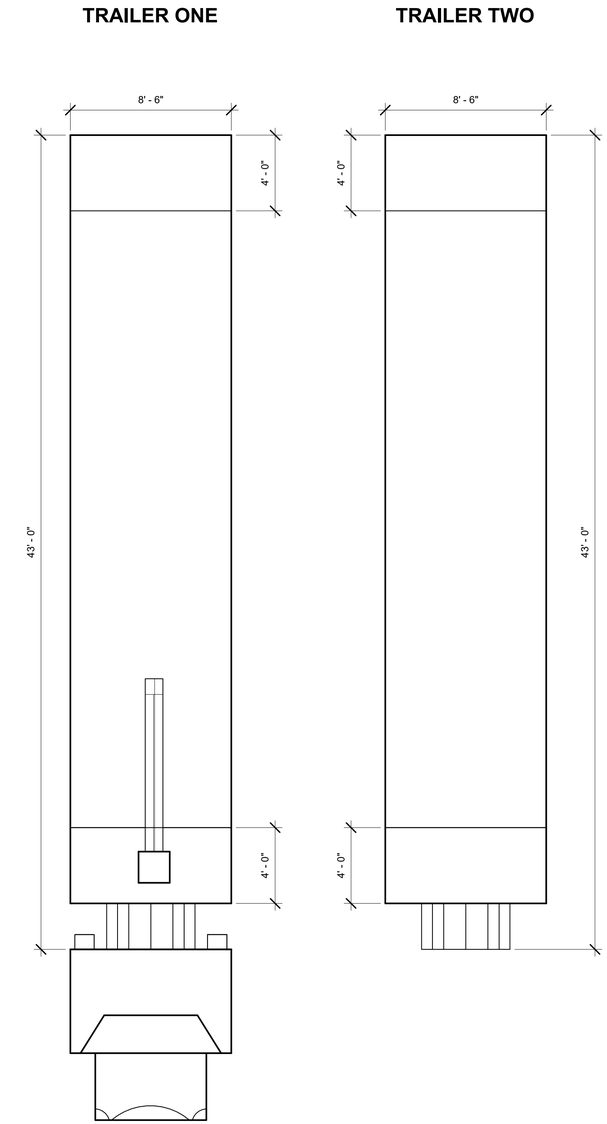
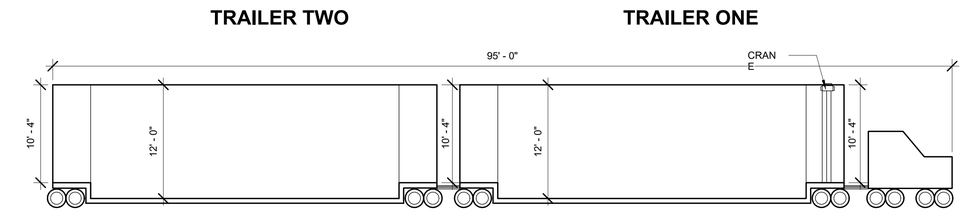
PROJECT NO.	001
DESIGNED	Author
CHECKED	Checker

TRANSPORT DETAILS

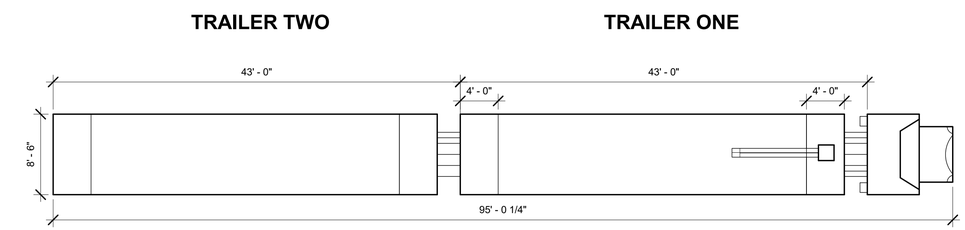
O-102



1 TRUCK PLAN DETAIL
1/4" = 1'-0"



3 TANDEM TRUCK PLAN
1/8" = 1'-0"



2 TANDEM TRUCK PLAN
1/8" = 1'-0"

TRUCK DETAILS

1. TRAILER ONE CONTENTS: FOUNDATIONS, CORE MODULES, FLOOR PANELS, DECKING, RAILINGS, SIPS, ROOF PANELS
2. TRAILER TWO CONTENTS: STRUCTURAL FRAME, PV PANELS, COURTYARD WALLS, COURTYARD ROOF, TRUSS', ADDITIONAL ROOF PANELS, TOOLS, FURNITURE, MECHANICAL EQUIPMENT, VEGETATION
3. CUSTOM TRUCK OUTFITTED AS TANDEM LOWBOY WITH 40' OF THE TRAILER, ALLOWING CARGO HEIGHT UP TO 12' WITH 4' IN FRONT AND BACK ONLY ALLOWING 10'4" WITH BUILT-IN CRANE AND ONE ADDITIONAL LOWBOY TRAILER, IN TOTAL NOT EXCEEDING 95' IN LENGTH
4. TRAILERS TO BE FLATBEDS TO MAXIMIZE DIMENSIONS FOR HOUSE COMPONENTS
5. CRANE EQUIPPED WITH 80' BOOM WITH BOOM CAPACITY OF 15 TONS. EXTENSION LENGTH 70' FROM EDGE OF EITHER SIDE OF EXTENDED OUTRIGGERS. CRANE'S WEIGHT AND WEIGHT OF THE OBJECTS PICKED UP ARE DISTRIBUTED TO THE OUTRIGGERS RESTING ON 6'-0" X 6'-0" REINFORCED CRIBBING.

PHASING

PHASE ONE:	DISASSEMBLE CONSTRUCTED HOUSE IN COLLEGE PARK
PHASE TWO:	WEATHERPROOF AND PROTECT COMPONENTS FOR TRANSPORT
PHASE THREE:	PACK COMPONENTS ONTO THEIR DESIGNATED TRAILER
PHASE FOUR:	SECURE ITEMS FOR TRANSPORT
PHASE FIVE:	ATTACH TRAILERS AND DEPART

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SOLAR DECATHLON 2017 SUBMISSION

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PROJECT NO.	001
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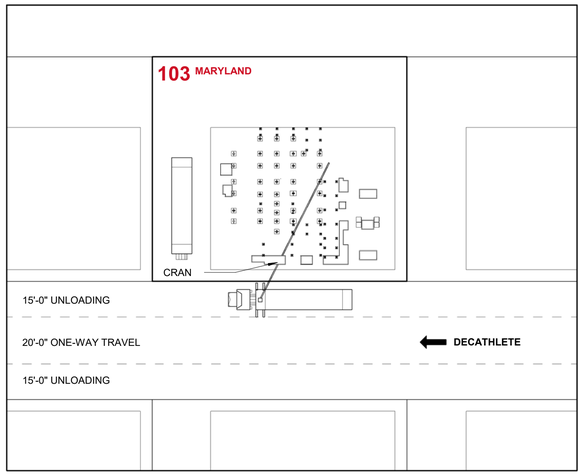
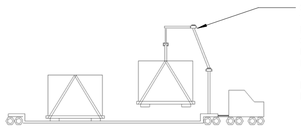
CARRIER LOADING SEQUENCE

O-103



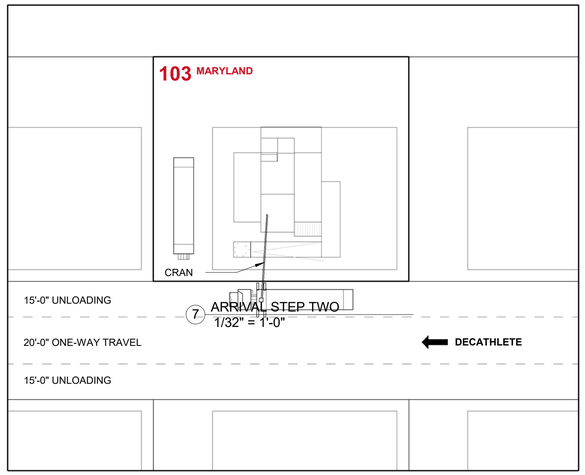
PHASE ONE:

TEAM ARRIVES AND TRAILER 1 WITH CRANE IS SITUATED SOUTH OF SOLAR ENVELOPE. TRAILER TWO IS TEMPORARILY PARKED WEST OF THE HOUSE WITHIN THE MARYLAND TEAM SITE CONTEST AREA TO BE ACCESSED BY THE TEAM AND CRANE. FOUNDATIONS ARE PLACED FOR THE HOUSE AND DECK USING THE CRANE.



*NOT TO SCALE

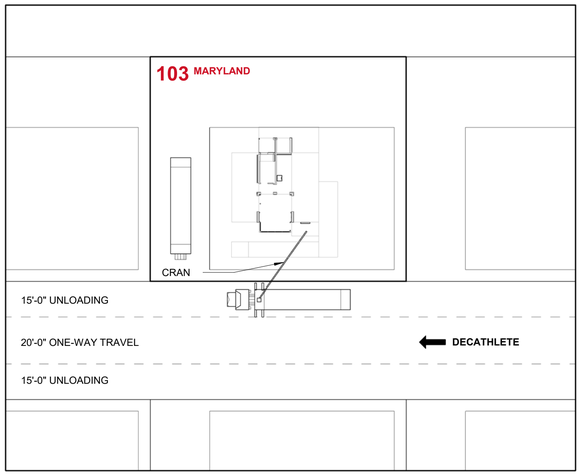
CRANE'S CABLES ARE ATTACHED TO THE CARRIERS OF THE CHASSIS MODULES, LIFTS EACH AND PLACES THE CARRIER CRADLE MODULE INTO POSITION AND IT IS LOWERED, THE MODULE RESTS UPON THE PREPLACED, LEVELED FOUNDATIONS AND THE CARRIERS DROP BELOW THE MODULE WITH MINIMAL CLEARANCE SO AS TO BE PULLED WITH A RUBBER TRACK OR RUBBER TIRE LOADER. CRIBBING SHALL BE USED IF NEEDED IN ORDER TO SLIDE THE CARRIERS WITHOUT DISTURBING THE EARTH. THE CARRIER MAY BE PULLED TOWARDS THE CRANE AS GRADE ALLOWS. THE CRANE'S OUTRIGGERS WOULD BE TEMPORARILY RETRACTED GIVING CLEARANCE FOR THE CARRIER TO EXIT FROM BELOW THE MODULE. ESTIMATED TIME TO REMOVE OBSTRUCTION FROM GHENT IS APPROXIMATELY 20 TO 30 MINUTES. THE EMPTY CARRIER IS TEMPORARILY PLACED OUT OF THE WAY NEXT TO THE CRANE IN THE UNLOADING LANE.



7 ARRIVAL STEP TWO
1/32" = 1'-0"

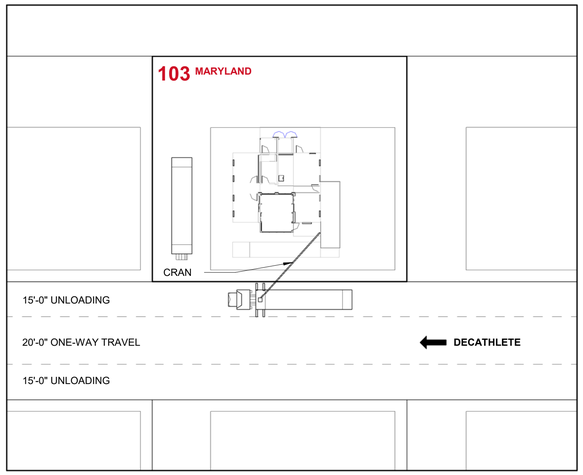
PHASE TWO:

ASSEMBLE FLOOR PANELS AND DECKING ON TOP OF FOUNDATIONS. PROFESSIONAL TEAM CREW DIRECTS CRANE WHICH ASSISTS IN MOVING HOUSE COMPONENTS.



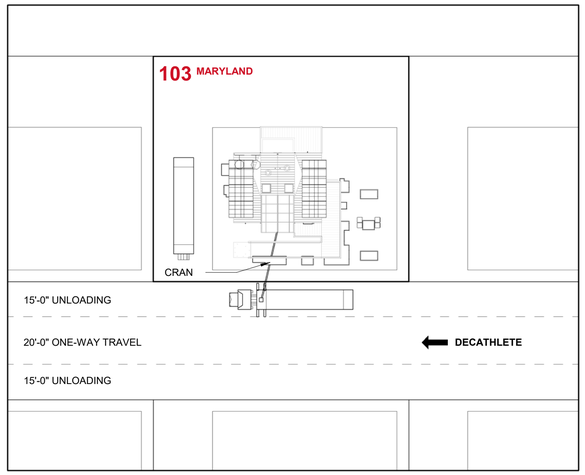
PHASE THREE:

SIP PANELS ARE PUT INTO PLACE AND SECURED. CRANE ASSISTS WHERE NECESSARY.



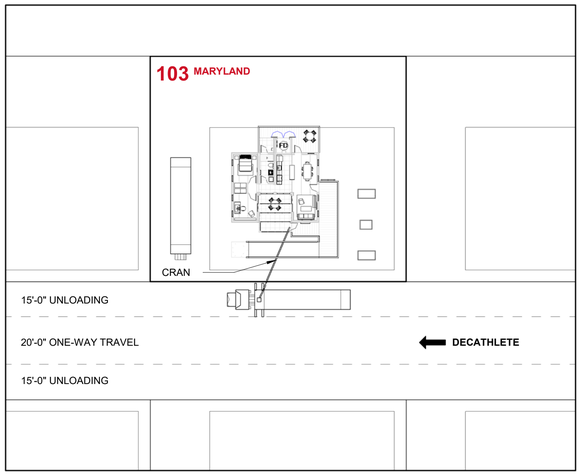
PHASE FOUR:

ASSEMBLE COURTYARD STRUCTURE. INSTALL ALL DOORS AND WINDOWS. CRANE ASSISTS WHERE NECESSARY.



PHASE FIVE:

ROOF PANELS ARE LIFTED BY THE CRANE AND SECURED INTO PLACE. PV PANELS ARE INSTALLED ON FINISHED ROOF.



PHASE SIX:

INSTALL ALL DOORS AND WINDOWS. VEGETATIVE BEDS AND PLANTINGS ARE PUT IN PLACE AROUND THE HOUSE. ELECTRIC CAR CHARGING STATION INSTALLED. FURNITURE AND OTHER ACCESSORIES ARE TAKEN IN TO THE HOUSE AND PUT INTO PLACE.

1 ARRIVAL PLAN
1/32" = 1'-0"

ARRIVAL NOTES

1. SEQUENCING IS BASED ON MOST RECENT SITE INFORMATION PROVIDED BY COMPETITION ORGANIZERS. ALL SEQUENCING IS SUBJECT TO CHANGE PENDING FURTHER REGULATION ADJUSTMENTS AND SITE CONDITIONS
2. TRAILER ONE CONTENTS: FOUNDATIONS, CORE MODULES, FLOOR PANELS, DECKING, RAILINGS, SIPS, ROOF PANELS
3. TRAILER TWO CONTENTS: STRUCTURAL FRAME, PV PANELS, COURTYARD WALLS, COURTYARD ROOF, TRUSS', ADDITIONAL ROOF PANELS, TOOLS, FURNITURE, MECHANICAL EQUIPMENT, VEGETATION.

CONSTRUCTION EQUIPMENT SCHEDULE

ARRIVAL/ DEPARTURE EQUIPMENT	COMPETITION SITE	CAMPUS SITE
CUSTOM TRUCK W/CRANE	X	X
SKID STEER LOADER	X	X
HYDRAULIC JACK STANDS	X	X
GENERAL CONSTRUCTION EQUIPMENT		
(2) GAS GENERATOR	X	X
LULL (BOOM-ARM ARTICULATED FORKLIFT)	X	X
PORTABLE TOILET		X
(2) SHIPPING CONTAINER 40'-0" x 8'-0" x 8'-0"		X
20 CU. YARD DUMPSTER		X
20 CU. YARD RECYCLING CONTAINER		X
SITE LIGHTING	X	X
(3-4) MOUNTED SPOT LIGHTS	X	X
TASK LIGHTING	X	X
GENERAL HAND & POWER TOOLS	X	X
STAGING/SCAFFOLDING		X
GRAVEL PAD		X
SITE FENCING		X
OFFICE TRAILER		X
24" MATERIAL TRANSPORTATION VEHICLE	X	X
SOLAR GENERATOR	X	X

NOTES AND SPECS

1. CRANE EQUIPPED WITH 80' BOOM WITH BOOM CAPACITY OF 15 TONS. EXTENSION LENGTH 70' FROM EDGE OF EITHER SIDE OFEXTENDED OUTRIGGERS. CRANE'S WEIGHT AND WEIGHT OF THE OBJECTS PICKED ARE DISTRIBUTED TO THE OUTRIGGERS.
2. RUBBER TRACK LOADER GROUND CLEARANCE-12", 6.4' IN HEIGHT, 10.7' IN LENGTH X 5' IN WIDTH, WEIGHING 6200 POUNDS DISPERSING WEIGHT VIA WIDE 15" RUBBER TRACKS RESULTING IN GROUND PRESSURE OF 3.5 PSI.
3. ACTUAL SITE CONDITIONS WILL DICTATE THE FINAL ELEVATIONS OF THE SUPPORT BEAMS, AS SPACE FOR THE TANKS UNDER THE MODULES AND ADEQUATE FLOW INTO THESE TANKS ARE IMPERATIVE. THUS, REMOVAL OF THE CARRIERS WHEELS MAY NOT BE NECESSARY AND CLEARANCE TO REMOVE THE CARRIERS MAY SIMPLY BE ACHIEVED BY DEFLATING THE TIRES SOMEWHAT. IN EITHER CASE, THE PROFESSIONAL TEAM CREW WILL BE ON-HAND TO DETERMINE, COORDINATE AND PERFORM THESE TASKS.

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DESIGNED	Author
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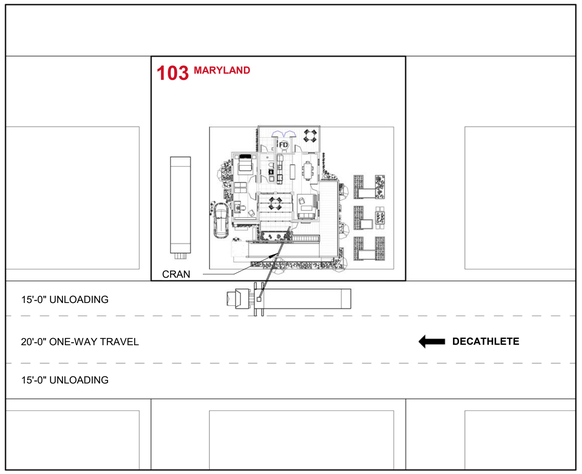
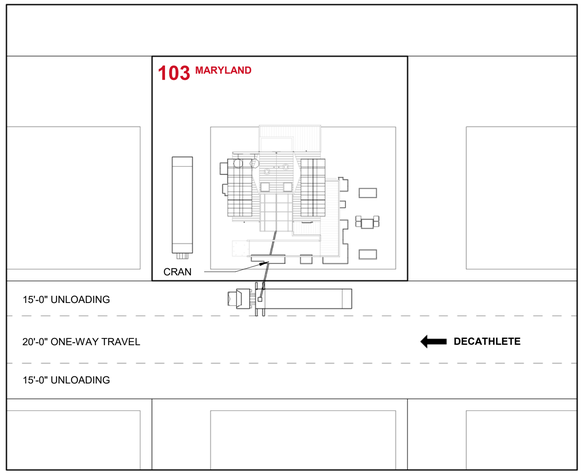
ARRIVAL SEQUENCE

O-105



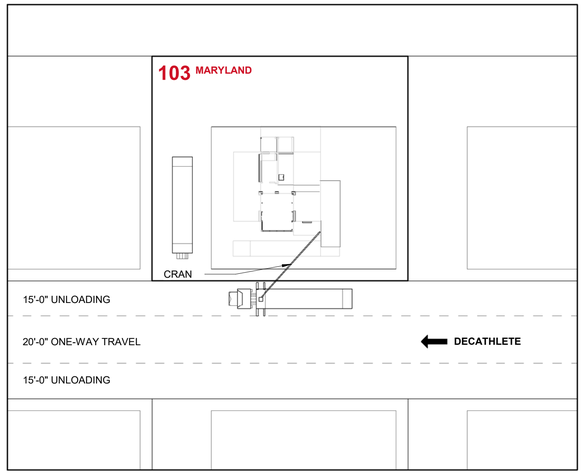
PHASE ONE:

VEGETATIVE BEDS AND FURNITURE ARE PACKED UP AND LOADED INTO TRAILER 2. REMOVE ALL DOORS AND WINDOWS.



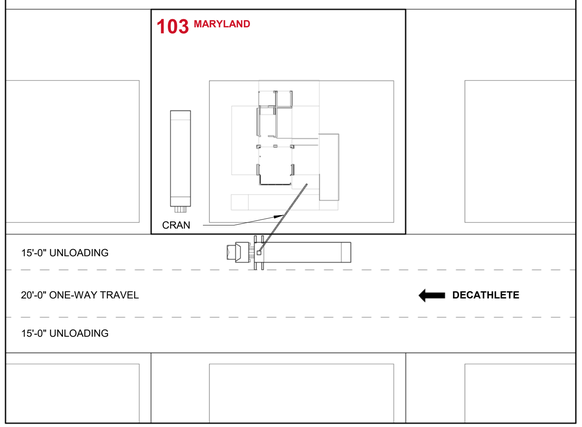
PHASE TWO:

ROOF PANELS AND PHOTOVOLTAIC PANELS ARE DETACHED AND LIFTED BY CRANE INTO TRAILER 2 BED.



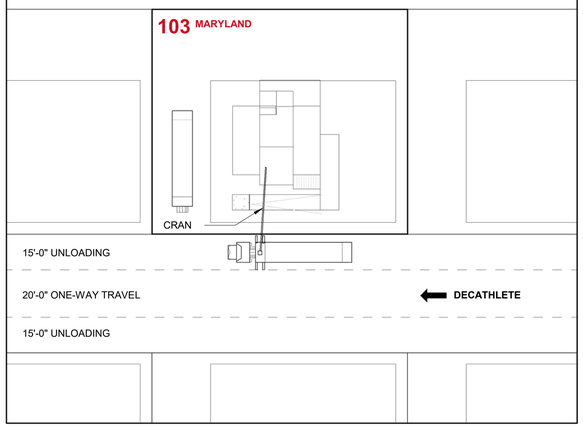
PHASE THREE:

COURTYARD STRUCTURE AND DOORS REMOVED USING THE CRANE'S ASSISTANCE WHERE NECESSARY.



PHASE FOUR:

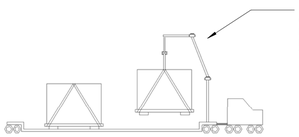
SIP PANELS ARE DETACHED AND REMOVED FROM STRUCTURAL FRAME USING THE CRANES ASSISTANCE WHERE NECESSARY.



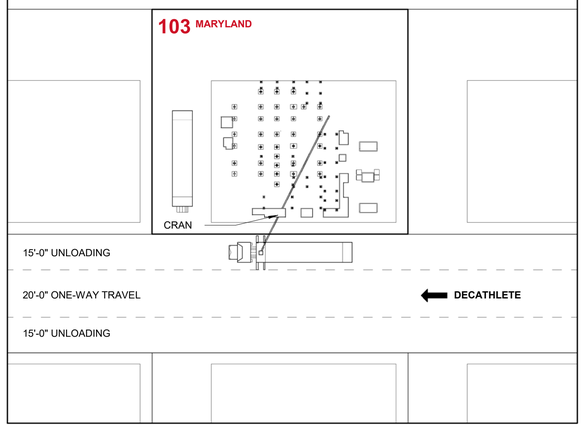
PHASE FIVE:

FLOOR, DECK, AND RAILING COMPONENTS ARE DISASSEMBLED AND LOADED ONTO THE TRAILER BED USING CRANE ASSISTANCE WHERE NECESSARY.

ONCE FLOOR AROUND CHASSIS MODULES HAVE BEEN REMOVED, THE CARRIERS OF THE MODULES ARE PLACED UNDER THEM. CRANE'S CABLES ARE ATTACHED TO THE CARRIERS OF THE CHASSIS MODULES, LIFTS EACH AND PLACES THE CARRIER CRADLE MODULE INTO POSITION AND IS LOWERED INTO TRUCK TRAILER 1.



*NOT TO SCALE



PHASE SIX:

FOUNDATIONS ARE REMOVED AND LOADED INTO TRAILER BED.

1 DEPARTURE PLAN
1/32" = 1'-0"

DEPARTURE NOTES

1. SEQUENCING IS BASED ON MOST RECENT SITE INFORMATION PROVIDED BY COMPETITION ORGANIZERS. ALL SEQUENCING IS SUBJECT TO CHANGE PENDING FURTHER REGULATION ADJUSTMENTS AND SITE CONDITIONS
2. TRAILER ONE CONTENTS: FOUNDATIONS, CORE MODULES, FLOOR PANELS, DECKING, RAILINGS, SIPS, ROOF PANELS
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CONSTRUCTION EQUIPMENT SCHEDULE

ARRIVAL/ DEPARTURE EQUIPMENT	COMPETITION SITE	CAMPUS SITE
CUSTOM TRUCK W/CRANE	X	X
SKID STEER LOADER	X	X
HYDRAULIC JACK STANDS	X	X
GENERAL CONSTRUCTION EQUIPMENT		
(2) GAS GENERATOR	X	X
LULL (BOOM-ARM ARTICULATED FORKLIFT)	X	X
PORTABLE TOILET		X
(2) SHIPPING CONTAINER 40'-0" x 8'-0" x 8'-0"		X
20 CU. YARD DUMPSTER		X
20 CU. YARD RECYCLING CONTAINER		X
SITE LIGHTING	X	X
(3-4) MOUNTED SPOT LIGHTS	X	X
TASK LIGHTING	X	X
GENERAL HAND & POWER TOOLS	X	X
STAGING/SCAFFOLDING		X
GRAVEL PAD		X
SITE FENCING		X
OFFICE TRAILER		X
24" MATERIAL TRANSPORTATION VEHICLE	X	X
SOLAR GENERATOR	X	X

NOTES AND SPECS

1. CRANE EQUIPPED WITH 80' BOOM WITH BOOM CAPACITY OF 15 TONS. EXTENSION LENGTH 70' FROM EDGE OF EITHER SIDE OF EXTENDED OUTRIGGERS. CRANE'S WEIGHT AND WEIGHT OF THE OBJECTS PICKED ARE DISTRIBUTED TO THE OUTRIGGERS.
2. RUBBER TRACK LOADER GROUND CLEARANCE-12", 6.4' IN HEIGHT, 10.7' IN LENGTH X 5' IN WIDTH, WEIGHING 6200 POUNDS DISPERSING WEIGHT VIA WIDE 15" RUBBER TRACKS RESULTING IN GROUND PRESSURE OF 3.5 PSI.
3. ACTUAL SITE CONDITIONS WILL DICTATE THE FINAL ELEVATIONS OF THE SUPPORT BEAMS AS SPACE FOR THE TANKS UNDER THE MODULES AND ADEQUATE FLOW INTO THESE TANKS ARE IMPERATIVE. THUS, REMOVAL OF THE CARRIERS WHEELS MAY NOT BE NECESSARY AND CLEARANCE TO REMOVE THE CARRIERS MAY SIMPLY BE ACHIEVED BY DEFLATING THE TIRES SOMEWHAT. IN EITHER CASE, THE PROFESSIONAL TEAM CREW WILL BE ON-HAND TO DETERMINE, COORDINATE AND PERFORM THESE TASKS.

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PROJECT NO. 001
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DEPARTURE SEQUENCE

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