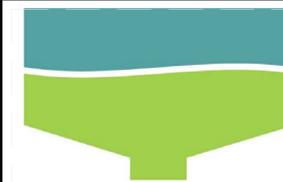


# WaterShed AT THE UNIVERSITY OF MARYLAND

SOLAR DECATHLON 2011

AS-BUILT DRAWING SET

11 AUGUST 2011



**WaterShed**  
AT THE UNIVERSITY OF MARYLAND

TEAM NAME: TEAM MARYLAND

ADDRESS: UNIVERSITY OF MARYLAND  
SCHOOL OF ARCHITECTURE,  
PLANNING & PRESERVATION  
BLDG 145, COLLEGE PARK, MD 20742

CONTACT: [HTTP://2011.SOLARTEAM.ORG](http://2011.solarteam.org)

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**CLIENT**

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SOLAR DECATHLON 2011  
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01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

**MARK DATE DESCRIPTION**

ISSUE DATE:	11 AUGUST 2011
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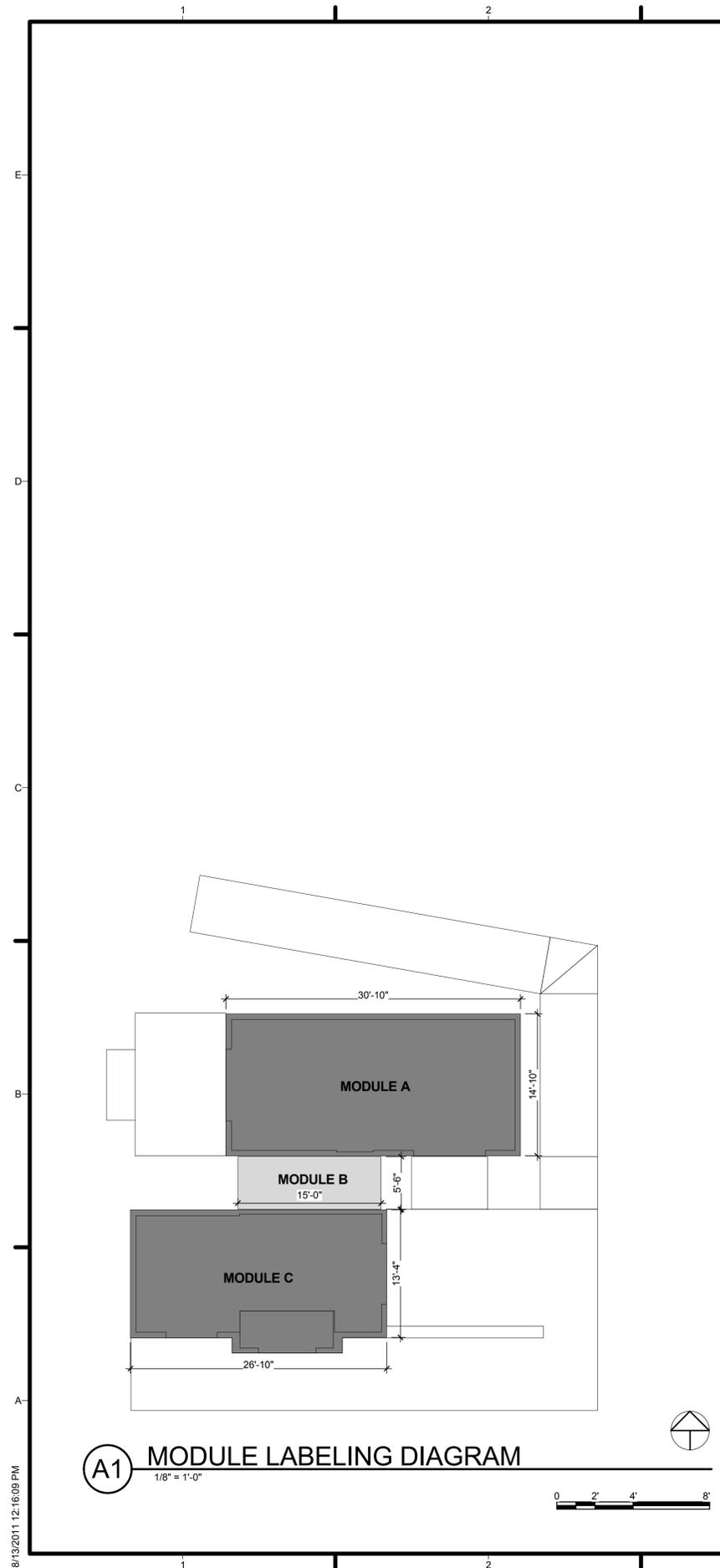
**SHEET TITLE**

COVER

**G-001**







SYMBOL LEGEND	
MARK	DESCRIPTION
ROOM NAME 150 SF	AREA TAG
1 A101	CALL OUT TAG
℄	CENTERLINE
5'-0"	DIMENSION LINE
101	DOOR TAG
NAME ELEVATION	ELEVATION MARKER
A101 1	EXTERIOR ELEVATION TAG
0 2' 4' 8'	GRAPHIC SCALE
1 Ref A101 1 Ref	INTERIOR ELEVATION TAG
---	MODULE BREAK LINE
⊕	NORTH ARROW
12 21 31 A2	REFERENCE KEYNOTE TAG
07	REVISION TAG
ROOM NAME 101	ROOM TAG
A101 1	SECTION TAG
1	SHEET KEYNOTE TAG
⊙	SPOT ELEVATION
1	STRUCTURAL GRID TAG
<b>C4</b> DRAWING BLOCK TITLE 1 1/2" = 1'-0"	VIEW TITLE
1L	WALL TAG
1T	WINDOW TAG
---	SOLAR ENVELOPE

ABBREVIATIONS LEGEND	
A	AREA
A/C	AIR CONDITIONING
ADA	AMERICANS WITH DISABILITIES ACT
AH	AIR HANDLER (INDOOR UNIT)
ALUM	ALUMINUM
B.O.	BOTTOM OF
BRD	BOARD
BS	BUTTON STATION
CAB	CABINET
CL	CENTER LINE
CSWK	CASEWORK
CW	CLOTHES WASHER
CW	COLD WATER
DR	DOOR
DS	DOWNSPOUT
DT	DESICCANT TANK
DW	DISHWASHER
EQ	EQUAL
ERV	ENERGY RECOVERY VENTILATOR
EXT	EXTERIOR
FIN	FINISH
FL	FLOOR
FRZ	FREEZER
FSW	FLOW SWITCH
FTG	FOOTING
GALV	GALVANIZED
GEN	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEIGHT
HP	HEAT PUMP
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HX	HEAT EXCHANGER
HXEST	HEAT EXCHANGER FOR EXCESS SOLAR THERMAL
HW	HOT WATER
IN	INCHES
INSUL	INSULATION
INT	INTERIOR
JB	JUNCTION BOX
L	LENGTH
LDW	LIQUID DESICCANT WALL
LICL	LITHIUM CHLORIDE
MAT	MATERIAL
MAX	MAXIMUM
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MI	MICROINVERTER
NO	NUMBER
OPP	OPPOSITE
PE	PLUMBING EQUIPMENT
PFAS	PERSONAL FALL ARREST SYSTEM
PLBG	PLUMBING
PLWD	PLYWOOD
PM	PEX MANIFOLD
PSF	POUNDS PER SQUARE FOOT
PV	PHOTOVOLTAIC
R/A	RETURN AIR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFRIGERATOR
RET	RETURN
RG	REGENERATOR
RM	ROOM
S/A	SUPPLY AIR
SF	SQUARE FEET
SH	HUMIDITY SENSOR
SHAC	SMART HOUSE ADAPTIVE CONTROL
SHT	SHEET
SHWR	SHOWER
SIM	SIMILAR
SYS	SYSTEM
THK	THICK
T.O.	TOP OF
TPO	THERMOPLASTIC POLYOLEFIN
TV	TELEVISION
UM	UTILITY METER
V	VALVE
VSF	VARIABLE SPEED FAN CONTROL INPUT
W	WIDTH
W/	WITH
WC	TOILET
WDW	WINDOW
WH	WATER HEATER
WT	WATER TANK
WT	WEIGHT

**GENERAL SHEET NOTES**

1. MODULE DIAGRAM EXPLAINS LABELING CONVENTION USED THROUGHOUT DRAWING SET. SPATIAL SEPARATION REFLECTS MODULAR DIVISION OF COMPONENTS DURING CONSTRUCTION AND ASSEMBLY

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SHEET TITLE  
**GENERAL NOTES, SYMBOLS AND ABBREVIATIONS**  
**G-003**



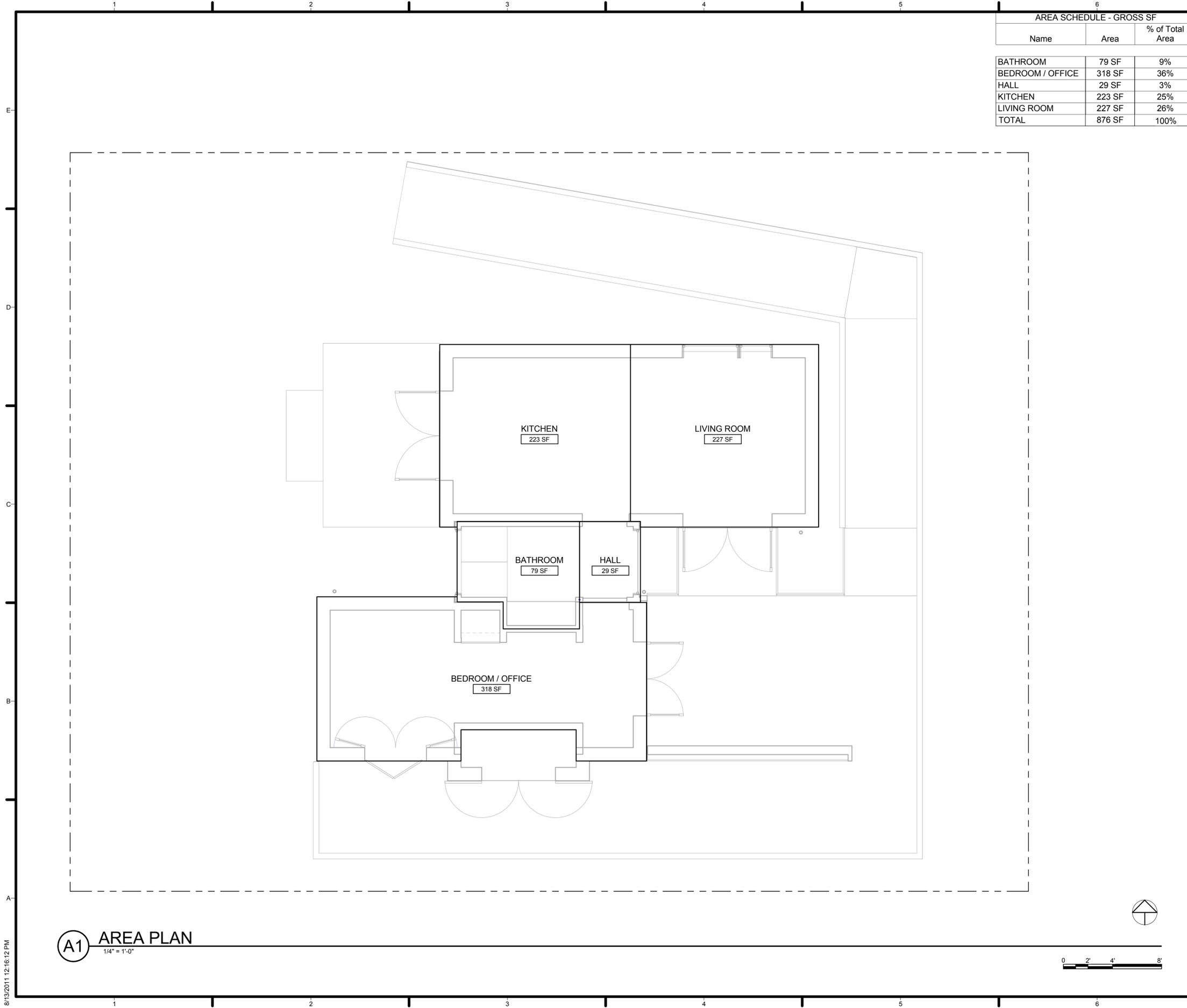
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AREA SCHEDULE - GROSS SF

Name	Area	% of Total Area
BATHROOM	79 SF	9%
BEDROOM / OFFICE	318 SF	36%
HALL	29 SF	3%
KITCHEN	223 SF	25%
LIVING ROOM	227 SF	26%
TOTAL	876 SF	100%

**GENERAL SHEET NOTES**

1. THE FINISHED AREA OF THE HOUSE HAS BEEN CALCULATED IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARD FOR DETACHED SINGLE-FAMILY RESIDENTIAL BUILDING Z765-2003.
2. SQUARE FOOTAGE OF MECHANICAL ROOM NOT INCLUDED IN FINAL SQUARE FOOTAGE OF HOUSE PER ANSI REQUIREMENTS.
3. FINISHED SQUARE FOOTAGE CALCULATIONS FOR THIS HOUSE WERE MADE BASED ON PLAN DIMENSIONS ONLY AND MAY VARY FROM THE FINISHED SQUARE FOOTAGE OF THE HOUSE AS BUILT.
4. FOR FINISHED AREAS ADJACENT TO UNFINISHED AREAS, THE FINISHED SQUARE FOOTAGE IS CALCULATED TO EXTERIOR EDGE OR UNFINISHED SURFACE OF ANY INTERIOR PARTITION BETWEEN SPACES IN COMPLIANCE WITH ANSI-Z765 2003.
5. ALL MEASUREMENTS ARE ROUNDED TO THE NEAREST WHOLE SQUARE FOOT IN ACCORDANCE WITH ANSI Z765-2003.
6. TOTAL AREA CALCULATED ACCORDING TO ANSI Z765-2003 IS 876 SQUARE FEET WHICH DEMONSTRATES COMPLIANCE WITH RULE 6-2: FINISHED SQUARE FOOTAGE.

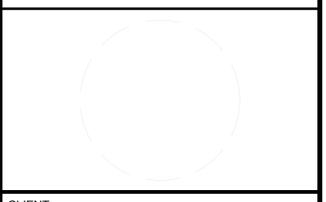
**REFERENCE KEYNOTES**

**SHEET KEYNOTES**



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SHEET TITLE  
**FINISHED SQUARE FOOTAGE COMPLIANCE PLAN**

**G-101**

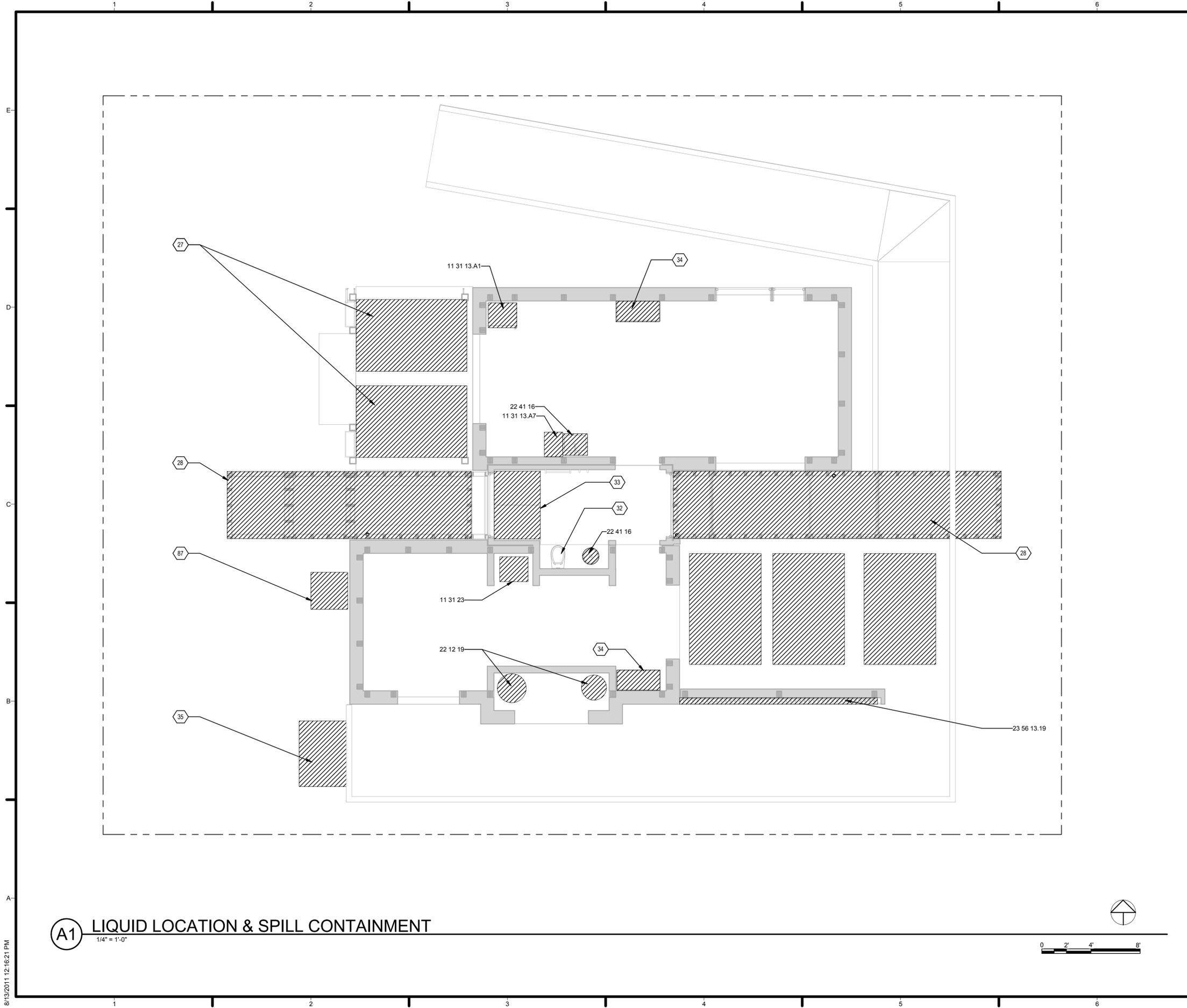
**A1 AREA PLAN**  
 1/4" = 1'-0"



8/13/2011 12:16:12 PM







**A1 LIQUID LOCATION & SPILL CONTAINMENT**  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

1. HATCH PATTERN INDICATES ALL CONTAINERS, EQUIPMENT, AND FIXTURES THAT WILL CONTAIN LIQUID ON SITE AT ANY POINT DURING COMPETITION. IN COMPLIANCE WITH RULE 4-6 SPILL CONTAINMENT
2. ALL PRESSURIZED WATER SYSTEMS SHALL HAVE PROPER CONTAINMENT AND SHALL BE EQUIPPED WITH AN OVERFLOW PAN OR VALVE AND DRAIN BELOW UNIT
3. IN THE EVENT OF A SPILL, TEAM TO CONSULT SAFETY PLAN AND CONTACT EVENT ORGANIZERS FOR A SCHEDULE OF LIQUID CONTAINMENT DEVICES AND FIXTURES REFER TO P-SERIES

**REFERENCE KEYNOTES**

11 31 13.A1	REFRIGERATOR
11 31 13.A7	DISHWASHER
11 31 23	RESIDENTIAL LAUNDRY APPLIANCES
22 12 19	FACILITY POTABLE WATER STORAGE TANKS
22 41 16	RESIDENTIAL LAVATORIES AND SINKS
23 56 13.19	HEATING SOLAR VACUUM-TUBE COLLECTORS

**SHEET KEYNOTES**

27	500 GALLON BLACK WATER PILLOW TANK
28	CONSTRUCTED WETLANDS ARE TO HAVE SEPARATE OVERFLOW VALVE TO CONTROL WATER; RECIRCULATION PUMPS WILL BE USED TO REMOVE WATER AT END OF COMPETITION
32	WALL HUNG TOILET CAPPED PER COMPETITION REQUIREMENTS
33	SHOWER
34	LIQUID DESICCANT WALL (SEE P-103)
35	LIQUID DESICCANT REGENERATOR TO HAVE SECONDARY CONTAINMENT SYSTEM
87	GREY WATER PREFILTRATION TANK



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SHEET TITLE  
**LIQUID LOCATION AND SPILL CONTAINMENT PLAN**

**H-101**

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**(A1) SITE LOCATION**  
1" = 50'-0"

**GENERAL SHEET NOTES**

1. SITE INFORMATION SHOWN FOR INFORMATIONAL PURPOSES ONLY AND IS SUBJECT TO CHANGE.
2. ORGANIZERS TO PROVIDE LIMITS OF LOT AND ACCESS TO THE NATIONAL MALL PRIOR TO CONSTRUCTION.
3. TEAM HOUSES ARE TO REMAIN WITHIN SOLAR ENVELOPE PROPERTY LINES ESTABLISHED BY COMPETITION ORGANIZERS.
4. SITE LOCATION MAP REFLECTS UPDATED VILLAGE LAYOUT PER SITE CHANGE.

**REFERENCE KEYNOTES**

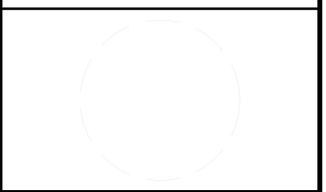
**SHEET KEYNOTES**

- 1 SOLAR ENVELOPE
- 8 LOT DESIGNATED FOR UNIVERSITY OF MARYLAND'S WATERSHED



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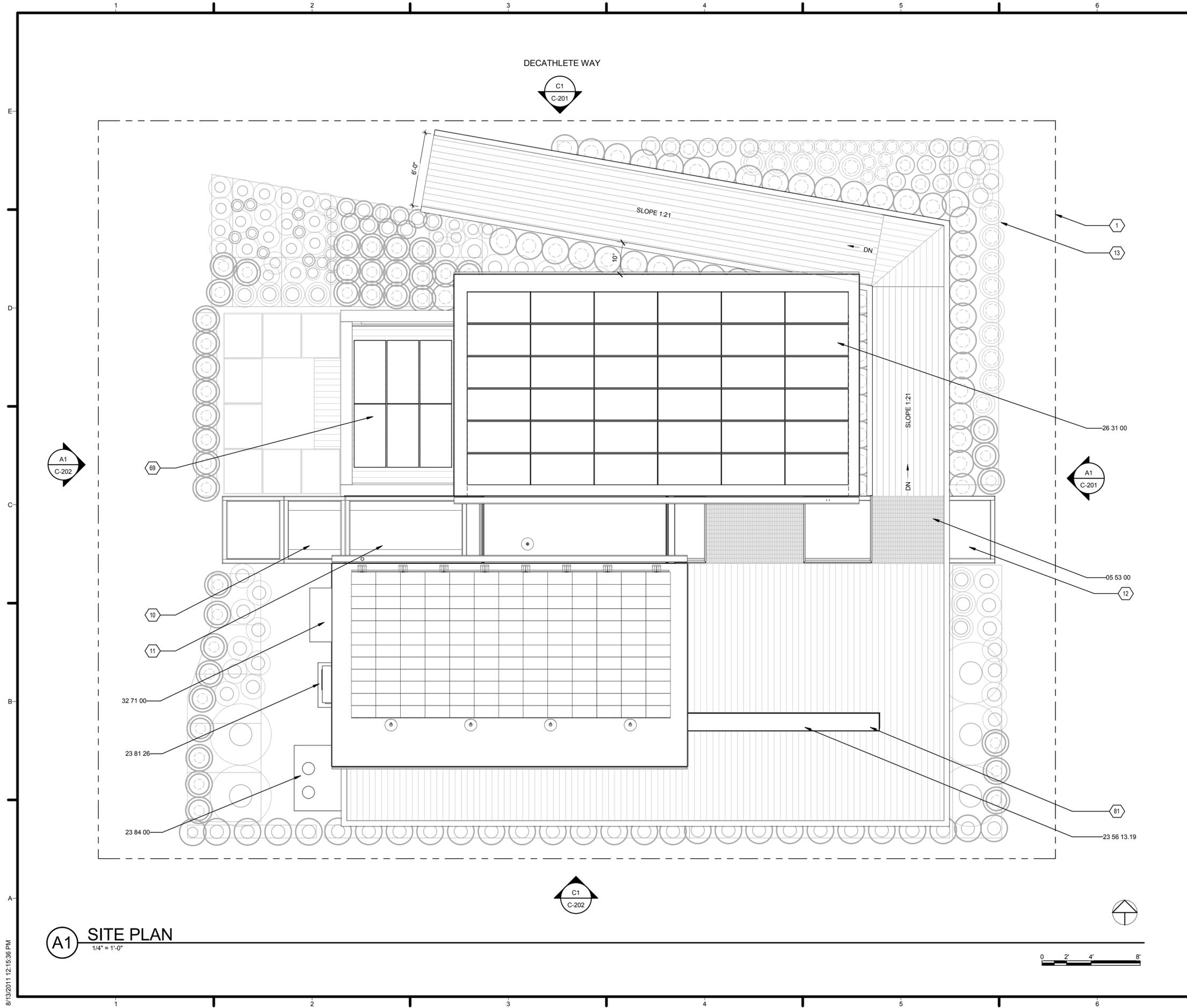
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SHEET TITLE  
**SITE LOCATION**

**C-101**

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**GENERAL SHEET NOTES**

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2. TEAM HOUSES ARE TO REMAIN WITHIN SOLAR ENVELOPE PROPERTY LINES ESTABLISHED BY COMPETITION ORGANIZERS

**REFERENCE KEYNOTES**

05 53 00	METAL GRATINGS
23 56 13.19	HEATING SOLAR VACUUM-TUBE COLLECTORS
23 81 26	SPLIT SYSTEM AIR CONDITIONERS
23 84 00	HUMIDITY CONTROL EQUIPMENT
26 31 00	PHOTOVOLTAIC COLLECTORS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

- 1 SOLAR ENVELOPE
- 10 CONSTRUCTED WETLANDS FOR GREY WATER FILTRATION (SEE A-412)
- 11 CONSTRUCTED WETLANDS FOR GREEN ROOF RUNOFF (SEE A-412)
- 12 CONSTRUCTED WETLANDS RAINWATER HARVESTING AND FILTRATION SYSTEM (SEE A-411)
- 13 POTTED PLANTS (SEE L-SERIES)
- 69 PERGOLA STRUCTURE WITH INTEGRATED PV PANELS
- 81 REFER TO ELEVATION (A-202) FOR INFORMATION ON PROTECTIVE MEASURES ASSOCIATED WITH SOLAR THERMAL



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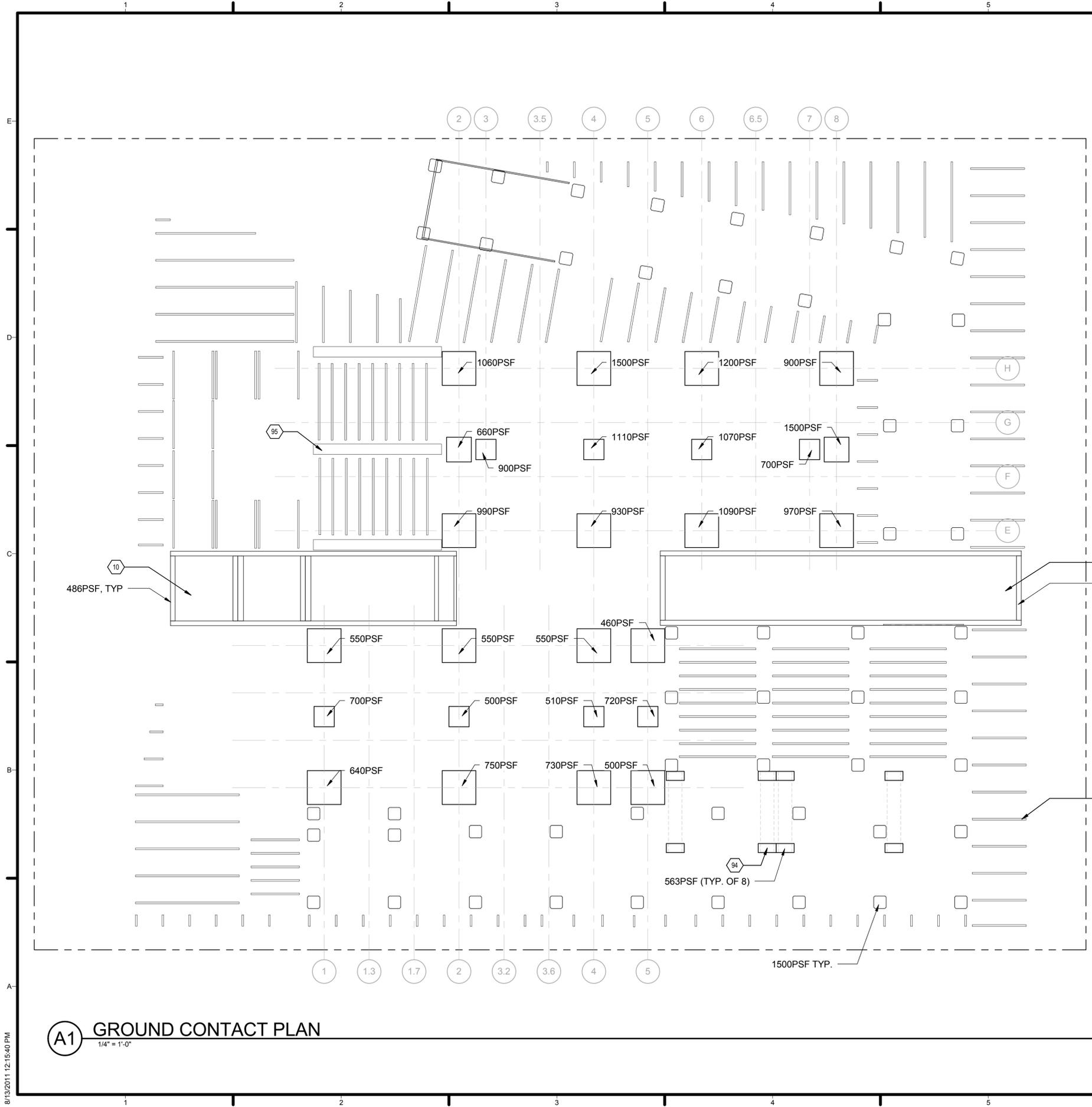
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SHEET TITLE  
**SITE PLAN**

**C-102**

**A1 SITE PLAN**  
 1/4" = 1'-0"

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### LEGEND

- 2'-6" x 2'-6" FOUNDATION PAD
- 1'-10" x 1'-10" FOUNDATION PAD
- 1'-6" x 1'-6" FOUNDATION PAD
- 11" x 11" PRECAST CONCRETE DECK FOOTING
- 8" x 16" CONCRETE SOUTH WALL FOOTING
- 2 X 4 WOOD RISERS

### GENERAL SHEET NOTES

- ALL FOUNDATION AND AUXILIARY ELEMENTS RESIDING ON GRADE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SOIL LOAD OF 1500 PSF AND SHALL COMPLY WITH RULE 4-3: GROUND PENETRATION AND 4-4: IMPACT ON TURF WHILE WETLAND CONSTRUCTION CONSISTS OF SERIES OF TRUSSES. THE TRUSS POINT LOADS ARE DISTRIBUTED OVER BOTTOM GROUND PLATES AND THEREFORE DISTRIBUTED LOAD REMAINS LESS THAN 1500 PSF IN ALL CONDITIONS.

### REFERENCE KEYNOTES

### SHEET KEYNOTES

- 10 CONSTRUCTED WETLANDS FOR GREY WATER FILTRATION (SEE A-412)
- 12 CONSTRUCTED WETLANDS RAINWATER HARVESTING AND FILTRATION SYSTEM (SEE A-411)
- 94 STRUCTURAL FOUNDATIONS FOR SOLAR THERMAL "SOUTH WALL" (SEE S-500 FOR MORE INFORMATION, INCLUDING LIGHT GAGE HOLD DOWN HARDWARE)
- 95 CONTINUOUS (2)X10 FOUNDATIONS FOR PERGOLA FRAMING (SEE S-500 FOR MORE INFORMATION)
- 96 ALL STAND ALONE SITE AND BUILDING COMPONENTS TO BE ELEVATED ON 2x4 SLEEPERS PER COMPETITION REQUIREMENTS

AT THE UNIVERSITY OF MARYLAND

---

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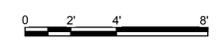
## GROUND CONTACT PLAN

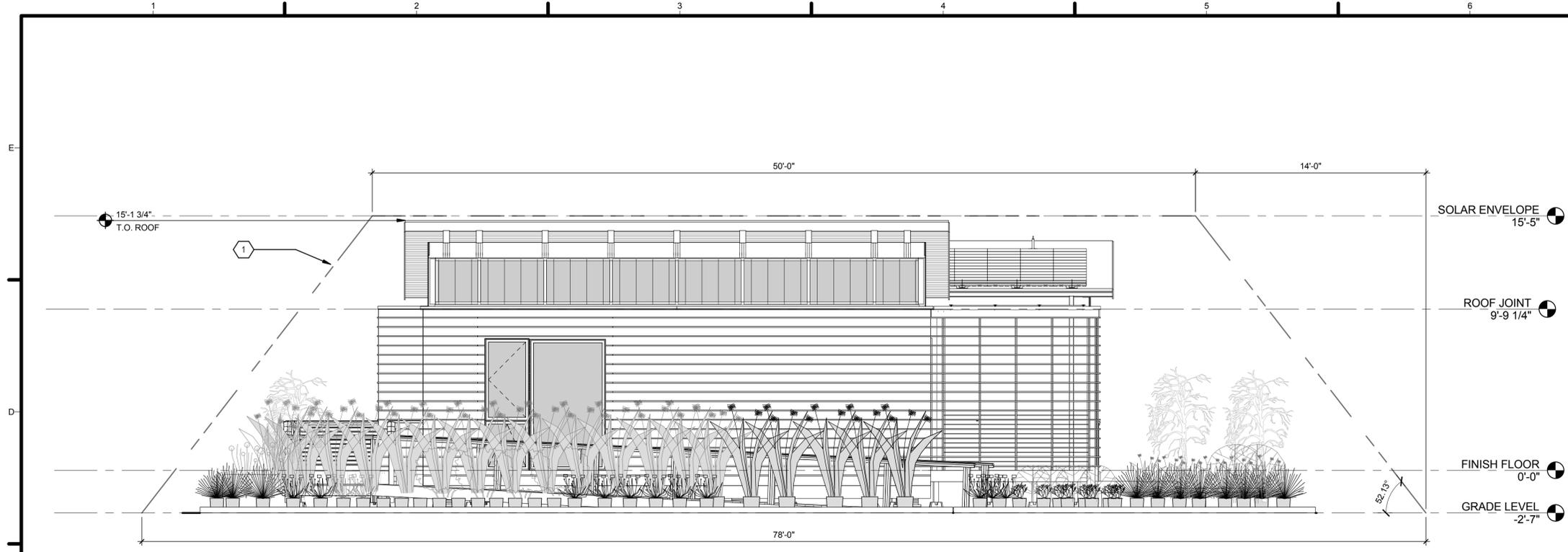
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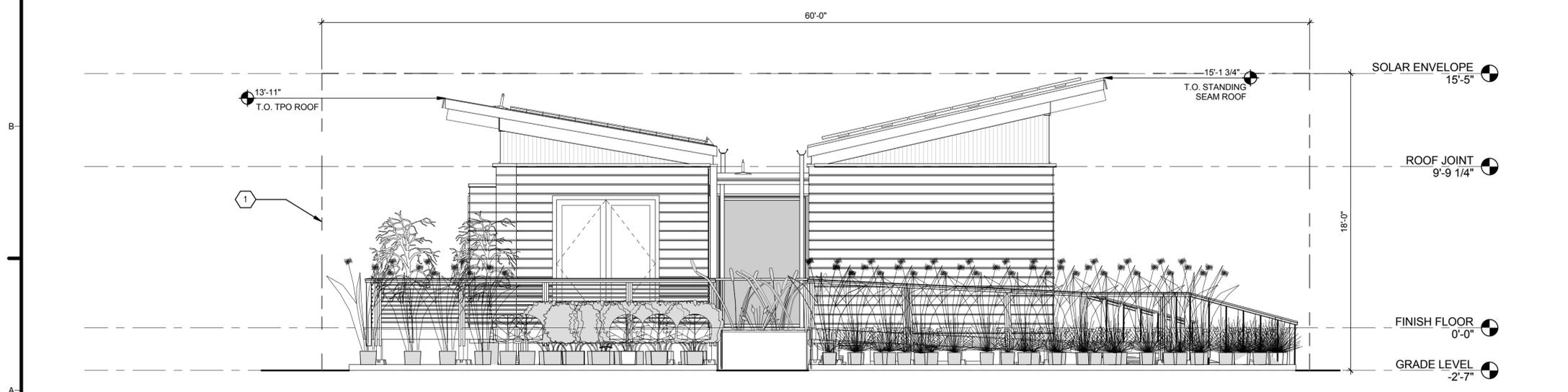
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**A1** GROUND CONTACT PLAN  
1/4" = 1'-0"





**(C1) NORTH**  
1/4" = 1'-0"



**(A1) EAST**  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

1. ALL ELEMENTS OF HOUSE AND ASSOCIATED COMPONENTS HAVE BEEN DESIGNED TO REMAIN WITHIN SOLAR ENVELOPE CONSTRAINTS IMPLEMENTED BY COMPETITION ORGANIZERS. IF ELEMENTS EXCEED DIMENSIONS OF SOLAR ENVELOPE, ADJUSTMENTS MAY BE MADE TO PLANT QUANTITY OR FOLIAGE PRIOR TO PROCEEDING TO COMPETITION SITE DRAWINGS TO INDICATE SOLAR ENVELOPE COMPLIANCE
2. FOR FURTHER INFORMATION ON PLANT LAYOUT, SEE LANDSCAPE SERIES (L-101)
3. ALL EXTERIOR DECKING ABOVE 30" FROM GRADE, OR ADJACENT LANDING, TO HAVE GUARDRAILS PER IRC 2009 STANDARDS

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

- 1 SOLAR ENVELOPE



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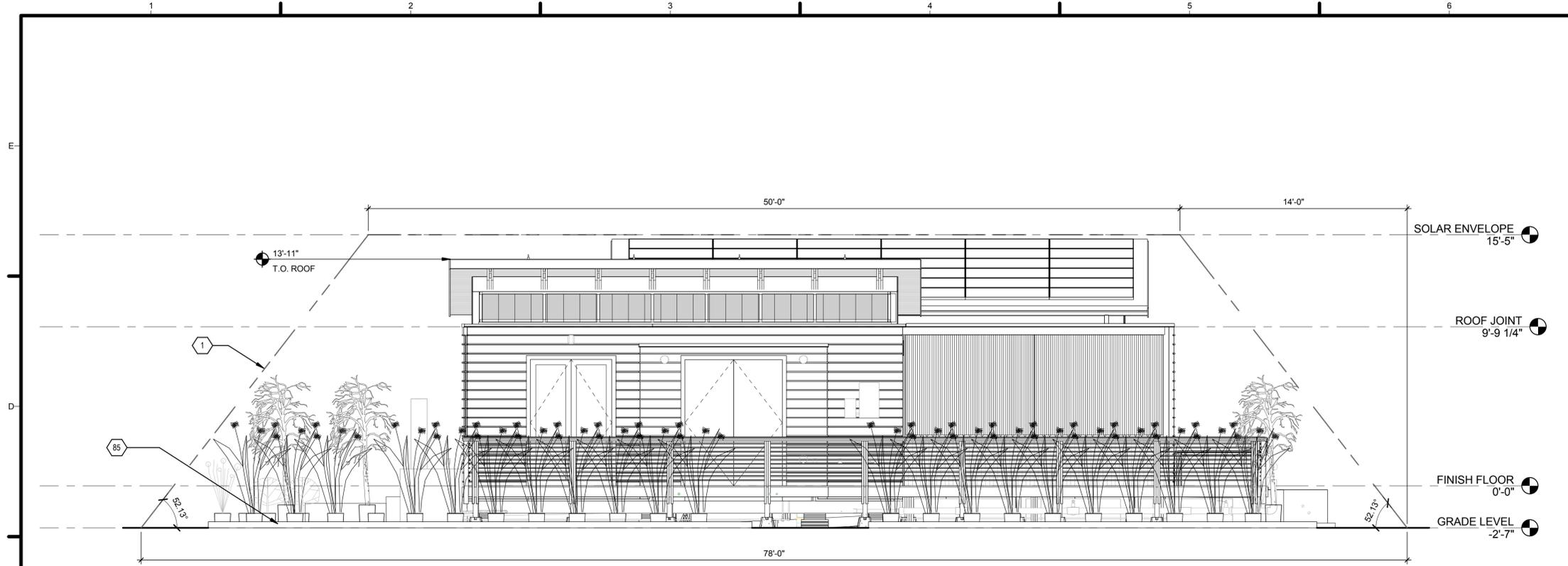


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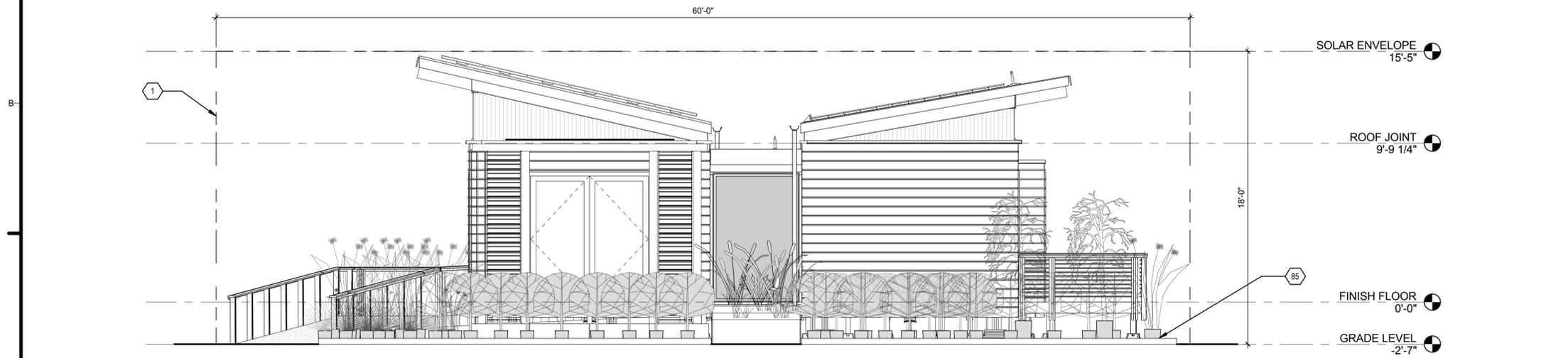
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SHEET TITLE  
**SOLAR ENVELOPE AND SITE ELEVATIONS**

**C-201**



**C1 SOUTH**  
1/4" = 1'-0"



**A1 WEST**  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

1. ALL ELEMENTS OF HOUSE AND ASSOCIATED COMPONENTS HAVE BEEN DESIGNED TO REMAIN WITHIN SOLAR ENVELOPE CONSTRAINTS IMPLEMENTED BY COMPETITION ORGANIZERS. IF ELEMENTS EXCEED DIMENSIONS OF SOLAR ENVELOPE, ADJUSTMENTS MAY BE MADE TO PLANT QUANTITY OR FOLIAGE PRIOR TO PROCEEDING TO COMPETITION SITE.
2. DRAWINGS TO INDICATE SOLAR ENVELOPE COMPLIANCE.
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**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

- 1 SOLAR ENVELOPE
- 85 POTS CONTAINING LANDSCAPE TO SIT 3 1/2" OFF GRADE (ON PLYWOOD AND RISERS) PER COMPETITION GROUND CONTACT REQUIREMENTS



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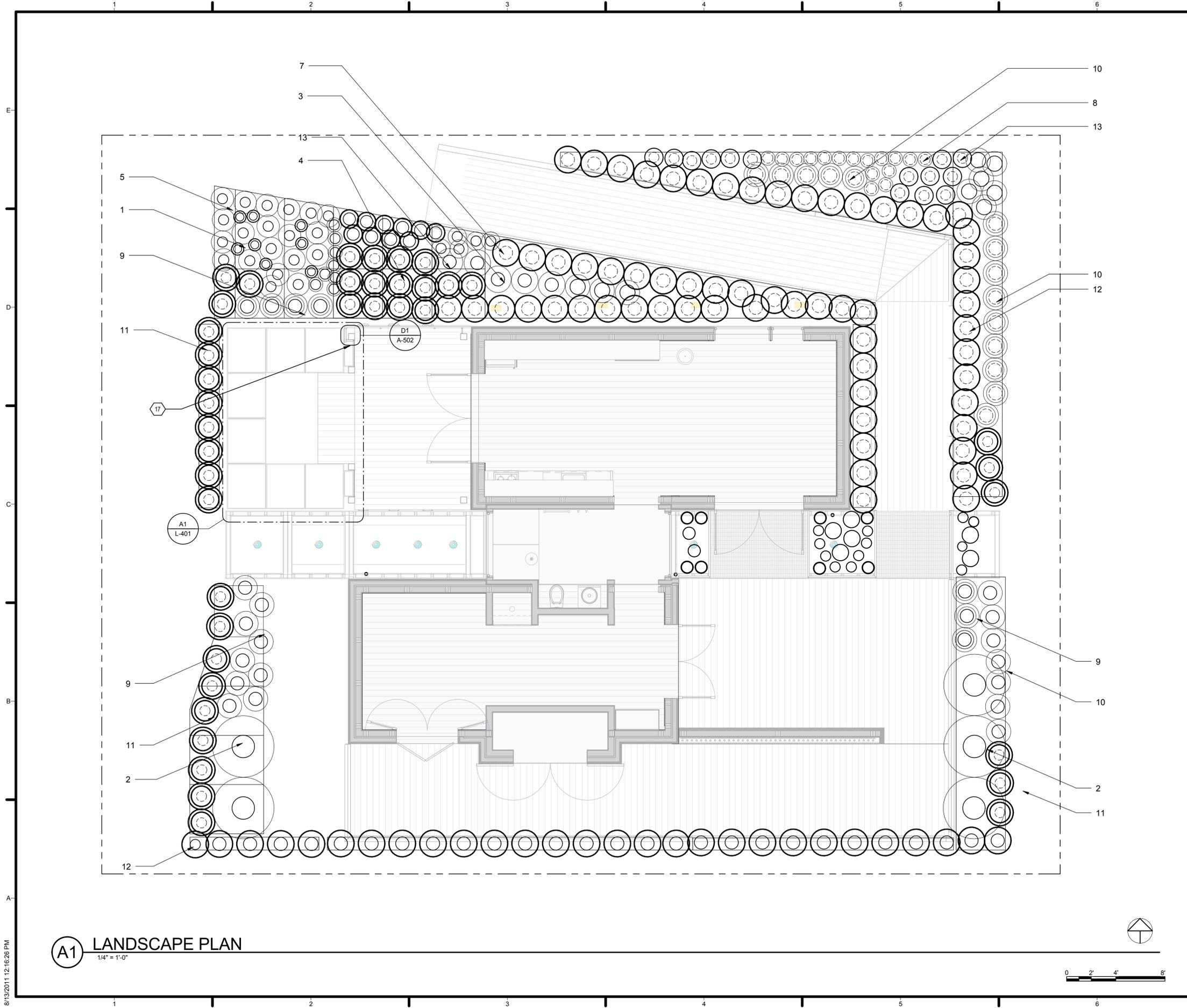


MARK	DATE	DESCRIPTION
01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

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SHEET TITLE  
**SOLAR ENVELOPE AND  
 SITE ELEVATIONS**

**C-202**



**A1** LANDSCAPE PLAN  
1/4" = 1'-0"

8/13/2011 12:16:26 PM

**GENERAL SHEET NOTES**

1. PLACEMENT OF ALL POTS WILL BE FIXED IN RESPONSE TO RULE 7-1: PLACEMENT. ALL POTTED PLANTS ARE TO FIT WITHIN SECONDARY POT FIXED TO PLYWOOD BASE ON 2X4 SLEEPERS TO REMAIN 3" (MIN) OFF GRADE FOR PLANT TYPE SCHEDULE SEE L-401
- 2.

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

- 17 GREEN WALL WITH ATTACHED PLANTER AS AN EXTENSION OF EDIBLE GARDEN; CONSTRUCTION ASSEMBLY INCLUDES METAL FABRICATION, ALUM ROD AND PLANTER BOX



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SHEET TITLE  
**LANDSCAPE AND PLANTING SITE PLAN**

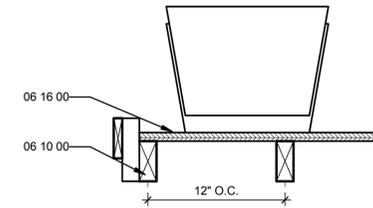
**L-101**

PLANT SCHEDULE					
MARK	LATIN NAME	COMMON NAME	TYPE	QUANTITY	POT SIZE
ACH	ACHELLIA MILLEFOLIA	COMMON YARROW	HERBACIOUS	8	3 GAL
BET	BETULA NIGRA 'BNMTF'	DURA-JEAT RIVERBIRCH	TREE	5	25 GAL
CHA	CHASMANTHIUM LATIFOLIUM	NORTHERN SEA OATS	GRASS	3	5 GAL
COR	COREOPSIS VERTICILLATA 'MOONBEAM'	MOONBEAM TICKSEED	HERBACIOUS	10	3 GAL
ERA	ERAGROSTIS SPECTIBALIS	PURPLE LOVEGRASS	GRASS	19	3 GAL
EUP	EUPATORIUM PURPUREUM	SWEET SCENTED JOE PYE WEED	HERBACIOUS	6	5 GAL
HEL	HELIANTHUS ANGUSTIFOLIUS	SWAMP SUNFLOWER	HERBACIOUS	5	5 GAL
HEU	HEUCHERA AMERICANA 'DALE'S STRAIN'	CORAL BELLS	HERBACIOUS	24	3 GAL
ILE	ILEX VERTICILLATA 'BERRY HEAVY'	BERRY HEAVY WINTERBERRY HOLLY	SHRUB	16	5 GAL
ITE	ITEA VIGINICA 'HENRY'S GARNET'	SWEET SPIRE	SHRUB	21	5 GAL
MUH	MUHLENBERGIA CAPILLARIS	PINK MUHLYGRASS	GRASS	40	3 GAL
PAN	PANICUM VIRGATUM 'CLOUD 9'	CLOUD 9 SWITCHGRASS	GRASS	90	5 GAL
RUB	RUDBECKIA FULGIDA	BLACK EYED SUSAN	HERBACIOUS	19	3 GAL

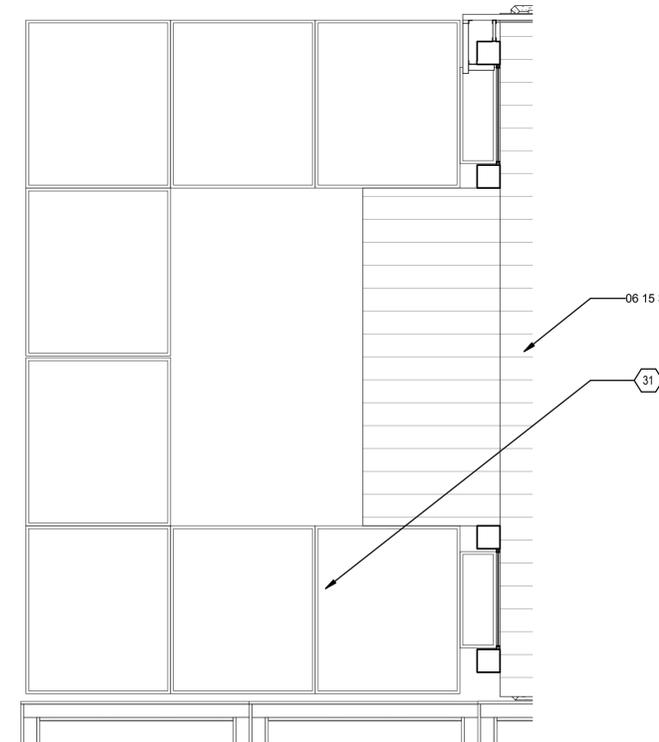
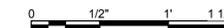
CONSTRUCTED WETLANDS PLANT SCHEDULE					
MARK	LATIN NAME	COMMON NAME	TYPE	QUANTITY	POT SIZE
NYM	NYMPHAEA ODORATA AITON	HARDY WATER LILY OR AMERICAN WHITE WATER	WETLAND	7	8" DIAMETER
IRI	IRIS VERSICOLOR	BLUE FLAG IRIS	WETLAND	60	8" DIAMETER
PEL	PELTANDRA VIRGINICA	ARROW ARRUM	WETLAND	60	8" DIAMETER
THY	THYPHA LATIFOLIA		WETLAND	80	8" DIAMETER
PON	PONTERDERIA CORDATA	PICKEREL WEED	WETLAND	20	8" DIAMETER
SCI	SCIRPUS PUNGENS	COMMON THREE SQUARE	WETLAND	35	8" DIAMETER
HIB	HIBISCUS COCCINEUS	SWAMP HIBISCUS	WETLAND	65	8" DIAMETER

PLANTER SCHEDULE					
MARK	LATIN NAME	COMMON NAME	TYPE	QUANTITY	SIZE
SMO	N/A	SMOOTH VORDGRASS	GRASS	5	N/A
LUR	N/A	LURID SEDGE	GRASS	5	N/A
GRE	N/A	GREEN BULRUSH	GRASS	5	N/A

EDIBLE GARDEN & GREEN WALL SCHEDULE					
MARK	LATIN NAME	COMMON NAME	TYPE	QUANTITY	POT SIZE
CAB	N/A	CABBAGE	VEGETABLE	8	N/A
CAR	N/A	CARROT	VEGETABLE	10	N/A
CON	N/A	CONCORD GRAPEVINE	VINE	2	N/A
LET	N/A	LETTUCE	VEGETABLE	8	N/A
PAS	N/A	PASSION FLOWER	VINE	2	N/A
POT	N/A	POTATOES	VEGETABLE	10	N/A
PUM	N/A	PUMPKIN	FRUIT	3	N/A
SEE	N/A	SEEDLESS THOMPSON GRAPEVINE	VINE	2	N/A
STR	N/A	STRING BEANS	FRUIT	10	N/A
SUM	N/A	SUMMER SQUASH	FRUIT	3	N/A
TOM	N/A	TOMATOE	FRUIT	5	N/A
TRU	N/A	TRUMPET CREEPER	VINE	2	N/A
WAT	N/A	WATERMELON	FRUIT	3	N/A



**(D1) TYP. POT DETAIL**  
1 1/2" = 1'-0"



**(A1) EDIBLE GARDEN**  
1/2" = 1'-0"



GENERAL SHEET NOTES

REFERENCE KEYNOTES

06 10 00 ROUGH CARPENTRY  
06 15 33 WOOD DECK  
06 16 00 SHEATHING

SHEET KEYNOTES

31 REMOVABLE PLYWOOD BOXES TO HOLD VEGETABLE PLANTS DURING COMPETITION



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SHEET TITLE  
**PLANTING DETAILS AND SCHEDULES**

**L-401**

**GENERAL SHEET NOTES**

1. ALL CONTENT IN S-SERIES DRAWINGS ARE A PRODUCT OF SILMAN ENGINEERS AND ARE NOT REQUIRED TO COMPLY WITH NATIONAL CAD STANDARDS. SEE EXTERNAL PDF FOR SIGNED AND SEALED DRAWINGS.



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05	07/27/2011	STRUCTURAL SUBMISSION
06	08/10/2011	AS-BUILT DRAWING SUBMISSION

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**SHEET TITLE**  
 GENERAL STRUCTURAL NOTES

**S-000**

GENERAL

- CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING, SHEETING AND MAKE SAFE ALL FLOORS, ROOFS, WALLS AND ADJACENT PROPERTY. AS PROJECT CONDITIONS REQUIRE, A PROFESSIONAL ENGINEER, LICENSED BY THE GOVERNING STATE IN WHICH THE PROJECT IS LOCATED AND HIRED BY THE CONTRACTOR, SHALL DESIGN ALL SHORING AND SHEETING AND SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE OWNER'S REVIEW.
- ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS, INCLUDING THE INTERNATIONAL RESIDENTIAL CODE (LATEST EDITION) AS MODIFIED BY THE GOVERNING LOCALITY.

FOUNDATIONS

- FOUNDATION SYSTEM IS DESIGNED TO BEAR ON UNDISTURBED SOIL HAVING A MINIMUM SAFE BEARING CAPACITY OF 1500 PSF. FOUNDATION ELEMENTS ARE DESIGN TO BE COMPLETELY REMOVED AFTER COMPETITION. SOIL ANCHORS SHALL NOT PENETRATE MORE THAN 18" INTO THE SOIL OF THE NATIONAL MALL.

PLYWOOD SHEATHING

- PROVIDE PLYWOOD SHEATHING COMPLYING WITH APA - EITHER C-D INTERIOR APA, STRUCTURAL I/II C-C INTERIOR APA, OR STRUCTURAL I/II C-C EXTERIOR APA, AS APPLICABLE.
- FLOOR SHEATHING: 1 1/2" THICK T & G 48/24 SPAN RATING ADVANTECH SUBFLOOR, GLUE AND SCREW SHEATHING TO FLOOR BEAMS.
- WALL SHEATHING: 1/2" THICK, 32/16 SPAN RATING.
- ROOF SHEATHING: 3/8" THICK, 48/24 SPAN RATING.
- ALL PLYWOOD SHALL BE GLUED AND SCREWED TO FLOOR JOISTS USING AN APA APPROVED ADHESIVE (B.F. GOODRICH PL400 OR EQUAL).
- LEAVE 1/8" SPACE AT ALL PLYWOOD PANEL END JOINTS AND 1/8" SPACE AT ALL PANEL EDGE JOINTS.
- UNLESS NOTED OTHERWISE, PLYWOOD WALL SHEATHING SHALL BE FASTENED TO SHEAR WALL STUD FRAMING WITH 8d COMMON NAILS @ 4" O.C. AT EACH SHEET PERIMETER AND 12" O.C. ELSEWHERE. PROVIDE 2x6 BLOCKING AT ALL FREE EDGES.

FRAMING LUMBER

- FRAMING LUMBER SHALL HAVE EACH PIECE GRADE STAMPED, SHALL BE SURFACED DRY (EXCEPT STUDS, WHICH SHALL BE KILN-DRIED) AND SHALL CONFORM TO THE FOLLOWING SPECIES AND GRADE:  
 RAFTERS AND JOISTS: SOUTHERN PINE #2  
 BEAMS, GIRDERS AND HEADERS: SOUTHERN PINE #1  
 STUDS AND PLATES: SOUTHERN PINE #1
- TIMBER LUMBER SHALL CONFORM TO THE FOLLOWING SPECIES AND GRADE:  
 POST AND TIMBER: SOUTHERN PINE #1  
 BEAMS AND STRINGERS: SOUTHERN PINE #1
- PRESERVATIVE-TREATED WOOD: PROVIDE TREATED LUMBER COMPLYING WITH ACO-D (CARBONATE), COPPER AZOLE (CA-B), OR SODIUM BORATE (SBX (DOT) WITH NEGOT ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY, OR AS OTHERWISE INDICATED ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. ACO2A TREATMENT IS NOT PERMITTED. TREATED LUMBER AND/OR PLYWOOD SHALL BEAR THE LABEL OF AN ACCREDITED AGENCY SHOWING 0.40 PCF RETENTION, WHERE LUMBER AND/OR PLYWOOD IS CUT OR DRILLED AFTER TREATMENT, THE TREATED SURFACE SHALL BE FIELD-TREATED WITH COPPER NAPHTHENE (THE CONCENTRATION OF WHICH SHALL CONTAIN A MINIMUM OF 2% COPPER METAL) BY REPEATED BRUSHING, DIPPING, OR SOAKING UNTIL THE WOOD ABSORBS NO MORE PRESERVATIVE.
- ALL WOOD FRAMING INCLUDING DETAILS FOR BRIDGING, BLOCKING, FIRE STOPPING, ETC., SHALL CONFORM TO THE LATEST EDITION OF THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" AND ITS SUPPLEMENTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE NFPA "MANUAL FOR HOUSE FRAMING".
- FASTENING SHALL BE IN ACCORDANCE WITH THE MOST RESTRICTIVE OF: THE INTERNATIONAL BUILDING CODE (LATEST EDITION), THE 1992 CABO FOR 1 AND 2 FAMILY DWELLINGS, OR THE MANUFACTURER'S RECOMMENDED FASTENING SCHEDULES.
- ALL FLUSH FRAMED CONNECTIONS SHALL BE MADE WITH APPROVED GALVANIZED STEEL JOIST OR BEAM HANGERS, MINIMUM 18 GAUGE, INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- WHERE FRAMING LUMBER IS FLUSH FRAMED TO MICROLLAM, STEEL OR FLITCH-PLATE GIRDER, SET THESE GIRDERS 1/4" CLEAR (MIN.) BELOW TOP OF FRAMING LUMBER, TO ALLOW FOR SHRINKAGE.
- STUD BEARING WALLS ARE TO BE CONSTRUCTED OF 2x4 @ 16" O.C. AT THE INTERIOR AND 2x6 @ 16" O.C. AT THE EXTERIOR, UNLESS NOTED OTHERWISE ON PLAN.
- LAP ALL PLATES AT CORNERS AND AT INTERSECTION OF PARTITIONS.
- STAGGER ALL TOP AND BOTTOM PLATE SPLICES A MINIMUM OF 32 INCHES.
- USE DOUBLE STUDS @ ENDS OF WALL AND ENDS OF WALL OPENINGS.
- AT THE ENDS OF ALL BEAMS, HEADERS AND GIRDERS PROVIDE A BUILT UP OR SOLID POST WHOSE WIDTH IS AT LEAST EQUAL TO THE WIDTH OF THE MEMBER IT IS SUPPORTING AND WHOSE DEPTH IS 4" (NOM.) AT INTERIOR WALLS AND 6" (NOM.) AT EXTERIOR WALLS.
- USE DOUBLE TRIMMERS AND HEADERS AT ALL FLOOR OPENINGS WHERE BEAMS ARE NOT DESIGNATED.
- BRIDGING FOR SPANS UP TO 14 FT., PROVIDE 1 ROW. BRIDGING FOR SPANS OVER 14 FT., PROVIDE 2 ROWS.
- BUILT-UP BEAMS LESS THAN 8" DEEP SHALL BE SPIKED TOGETHER WITH (2) 16d NAILS @ 16" O.C.
- BUILT-UP BEAMS GREATER THAN 8" DEEP SHALL BE SPIKED TOGETHER WITH (3) 16d NAILS @ 16" O.C.
- WHERE CANTILEVERED BEAMS ARE INDICATED, THE FAR CONNECTOR SHALL BE CAPABLE OF RESISTING AN UPLIFT OF 1000 LBS. MIN., U.N.O.
- NO JOISTS SHALL BE CUT OR NOTCHED WITHOUT APPROVAL.
- ALL LIGHT-GAGE HANGERS SUPPORTING PRESERVATIVE TREATED WOOD SHALL MEET OR EXCEED G185 (1.85 oz OF ZINC PER SQUARE FOOT). ALTERNATIVELY, STAINLESS STEEL CONNECTORS MAY BE USED. FASTENERS SHALL MATCH THE SELECTED HANGER FINISH AND MATERIAL.
- WHERE JOIST ORIENTATION IS PARALLEL TO EXTERIOR STUD OR FOUNDATION WALLS, PROVIDE FULL-SECTION BLOCKING FOR 3 BAYS @ 4'-0" O.C. MAX. WHERE SHEATHING IS NOT CONTINUOUSLY FASTENED TO TOP OR BOTTOM OF JOIST, PROVIDE 18 GA. x 1/2" x 12" (MIN.) FLAT TENSION STRAPS BETWEEN ALIGNED BLOCKING MEMBERS.
- ALL SILL PLATES SHALL BE P.T. AND ANCHORED TO FOUNDATION WALLS W/ 1/2" DIA. HEADED ANCHOR BOLTS (ASTM F1554) @ 4'-0" O.C. AND WITHIN 12" OF ALL SILL PLATE SPLICES. (MIN. 7" EMBED.)

WOOD HEADER SCHEDULE

- UNLESS NOTED OTHERWISE IN PLAN, PROVIDE HEADERS PER THE FOLLOWING:  
 ROUGH OPENING WIDTH: 2x4 WALL      HEADER:      2x6 WALL
- |                 |           |           |
|-----------------|-----------|-----------|
| LESS THAN 3'-0" | (2) 2x6   | (3) 2x6   |
| 3'-1 TO 4'-0"   | (2) 2x8   | (3) 2x8   |
| 4'-1 TO 6'-0"   | (2) 2x10  | (3) 2x10  |
| 6'-1 TO 8'-0"   | (2) 2x12  | (3) 2x12  |
| OVER 8'-0"      | SEE PLANS | SEE PLANS |

NOTE: PROVIDE

- JACK STUD FOR SPANS LESS THAN 4'-0" WIDE.
- JACK STUDS FOR SPANS LESS THAN 8'-0" WIDE.
- JACK STUDS FOR SPANS OVER 8'-0" WIDE.

ENGINEERED WOOD PRODUCTS

- RIM BOARDS: PROVIDE CONTINUOUS 1 1/2" THICK RIM BOARDS, MICROLLAM LVL AS MANUFACTURED BY TRUSJOIST MACMILLAN, OR APPROVED EQUAL. INSTALL IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AT THE PERIMETER OF ALL FLOOR PLATFORMS.
- MICROLLAM BEAMS: PROVIDE ENGINEERED BEAMS, SIZES AS SHOWN, MICROLLAM LVL (Fb=2600 PSI, E=1,900,000 PSI) OR PARALLAM PSL (Fb=2900 PSI, E=2,000,000 PSI) AS MANUFACTURED BY TRUSJOIST MACMILLAN OR APPROVED EQUAL. INSTALL IN STRICT COMPLIANCE WITH THE MANUFACTURER'S STANDARD RECOMMENDATIONS AND DETAILS.
- ENGINEERED TIMBER DECKING: PROVIDE CONTINUOUSLY SUPPORTED, RANDOM LENGTH LAMINATED DECKING IN ONE OF THE FOLLOWING SPECIES, DOUGLAS FIR, LARCH, OR SOUTHERN PINE (Fb=2640 PSI, E=1,800,000) AS MANUFACTURED BY "LOCK DECK", "FILLER KING", OR APPROVED EQUAL. INSTALL IN STRICT COMPLIANCE WITH THE MANUFACTURER'S STANDARD RECOMMENDATIONS AND DETAILS.

STRUCTURAL STEEL

- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS:  
 A. AISC "SPECIFICATION FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS," LATEST EDITION.  
 B. THE AMERICAN WELDING SOCIETY (AWS D1. 1) "CODE FOR WELDING IN BUILDING CONSTRUCTION," LATEST EDITION.
- ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:  
 A. ASTM A572 (Fy=50,000 PSI); STEEL COLUMNS AND BEAMS  
 ASTM A36; MISCELLANEOUS STEEL SHAPES, BASE PLATES, STIFFENERS, ETC.  
 ASTM A500, GRADE B; STRUCTURAL STEEL TUBULAR SHAPES  
 ASTM A-53, GRADE B; STRUCTURAL STEEL PIPE.  
 B. BOLTED CONNECTIONS OF BEAMS OR GIRDERS ARE TO BE MADE WITH ASTM A325-SC BOLTS ( 3/4" DIA. MIN.).  
 C. ANCHOR BOLTS: ASTM F1554.
- STEEL CONNECTIONS SHALL BE STANDARD AISC FRAMED BEAM CONNECTIONS  
 A. FOR NON-COMPOSITE MEMBERS, PROVIDE CONNECTIONS BASED ON REACTION AS DETERMINED FROM AISC UNIFORM LOAD TABLE. (U.N.O. ON PLANS.)  
 B. FOR COMPOSITE MEMBERS, PROVIDE CONNECTIONS BASED ON 1.5 x REACTION FROM AISC UNIFORM LOAD TABLE. (U.N.O. ON PLANS.)  
 C. REINFORCING IS TO BE PROVIDED AT CONNECTIONS WHERE CUTS REDUCE THE SHEAR OR MOMENT CAPACITY BELOW THAT REQUIRED TO SUSTAIN THE REACTION, FLANGES AND WEB ARE TO BE REINFORCED WHERE THE LOCAL CAPACITY TO SUSTAIN THE CONNECTION LOAD IS INADEQUATE.  
 D. CONNECTIONS SHALL BE DESIGNED FOR SHEAR AND ECCENTRICITY, CONSIDERING THAT THE CONNECTION IS AN EXTENSION OF THE BEAM AND GIRDER.  
 E. MOMENT CONNECTIONS SHALL BE TYPE 1 (FULL RIGIDITY), DESIGNED FOR THE CONNECTED ELEMENT'S YIELD MOMENT (U.N.O.)  
 F. PROVIDE MECHANICALLY GALVANIZED BOLTS FOR EXTERIOR APPLICATIONS.  
 G. MINIMUM SIZE WELD, UNLESS NOTED OTHERWISE, IS 3/8" FILLET.
- WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS LICENSED BY THE GOVERNING LOCALITY. WELDING ELECTRODES SHALL BE ASTM A233, CLASS E70XX (USE LOW HYDROGEN ELECTRODES FOR A572, GRADE 50 STEEL).
- GALVANIZE ALL STRUCTURAL STEEL EXPOSED TO WEATHER. SHOP PAINT STEEL MEMBERS NOT ENCASED IN CONCRETE NOR SPRAY FIREPROOFED, AND ALL STEEL MEMBERS AT THE EXTERIOR WALL AND EAVES WITH TENECK #99. FIELD PAINT AS PER ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
- ALL BEAMS EXCEPT CANTILEVER BEAMS SHALL BE FABRICATED WITH NATURAL CAMBER UP. CANTILEVER BEAMS SHALL BE FABRICATED SO THAT NATURAL CAMBER RAISES CANTILEVER END.
- SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. NO FABRICATION OF STEEL SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.

BSA STANDARD ABBREVIATIONS FOR WOOD

G-LAM	GLUE LAMINATED LUMBER	P.T.	PRESERVATIVE TREATED
LSL	LAMINATED STRAND LUMBER	R.O.	ROUGH OPENING
LVL	LAMINATED VENEER LUMBER	SQ.	SQUARE
NOM.	NOMINAL	T & G	TONGUE AND GROOVE
PSL	PARALLEL STRAND LUMBER		

BSA STANDARD ABBREVIATIONS

ADD'L	ADDITIONAL	L.F.	INSIDE FACE
ADJ.	ADJACENT	INFO.	INFORMATION
A/E	DESIGN TEAM OF RECORD	INTR.	INTERIOR
ALT.	ALTERNATE	JOINT	JOINT
ANC.	ANCHOR	K	KIPS
APPROX.	APPROXIMATE	LB.	POUND
ARCH.	ARCHITECTURAL/ARCHITECT	LL	LIVE LOAD
B/	BOTTOM OF	LLH	LONG LEG HORIZONTAL
BLDG.	BUILDING	LLV	LONG LEG VERTICAL
BM.	BEAM	L-W	LONG WAY
ROT.	ROTTOM	L.P.	LOW POINT
BRG.	BEARING	L.W.	LIGHTWEIGHT
CANT.	CANTILEVER	MAX.	MAXIMUM
C.J.P.	CAST IN PLACE	MECH.	MECHANICAL
C.J.	CONTROL JOINT	MEP	MECH., ELECT., PLUMBING, & F.P.
CLG.	CEILING	MFR.	MANUFACTURER
CLR.	CLEAR	MIN.	MINIMUM
CMU	CONCRETE MASONRY UNIT	MISC.	MISCELLANEOUS
COL.	COLUMN	N.F.	NEAR FACE
COMPS.	COMPOSITE	NO.	NUMBER
CONC.	CONCRETE	N.S.	NEAR SIDE
CONST.	CONSTRUCTION	N.T.S.	NOT TO SCALE
CONT.	CONTINUOUS	O.C.	ON CENTER
COORD.	COORDINATE	O.F.	OUTSIDE FACE
CONTR.	CONTRACTOR	OPNG.	OPENING
CTR.	CENTER	OPP.	OPPOSITE
DBL.	DOUBLE	PC.	PIECE
DTL.	DETAIL	PEDEST.	PERPENDICULAR
DIA.	DIAMETER	PERP.	PERPENDICULAR
DIAG.	DIAGONAL	PL.	PLATE
DIM.	DIMENSION	PREFAB.	PREFABRICATED
D.L.	DEAD LOAD	PSF	POUNDS PER SQUARE FOOT
DN.	DOWN	PSI	POUNDS PER SQUARE INCH
DWG(S)	DRAWING(S)	REINF.	REINFORCE(D), REINFORCEMENT
EA.	EACH	REQ'D	REQUIRED
E/	EDGE OF	REV.	REVISION
E.F.	EACH FACE	SCHED.	SCHEDULE
E.J.	EXPANSION JOINT	SECT.	SECTION
EL.	ELEVATION	SIM.	SIMILAR
ELEC.	ELECTRICAL	SPEC.	SPECIFICATION
ENGR.	ENGINEER	SQ.	SQUARE
E.O.R.	ENGINEER OF RECORD	S.S.	STAINLESS STEEL
EQ.	EQUAL	STD.	STANDARD
E.S.	EACH SIDE	STIFF.	STIFFENER
EXP.	EXPANSION	STL.	STEEL
EXT.	EXTERIOR	STRUC.	STRUCTURAL
E.W.	EACH WAY	SYM.	SYMMETRIC
FDN.	FOUNDATION	T/	TOP OF
FIN.	FINISH	T & B	TOP & BOTTOM
FLR.	FLOOR	TEMP.	TEMPORARY
FRMG.	FRAMING	THK.	THICK(NESS)
FT.	FEET	TYP.	TYPICAL
FTG.	FOOTING	U.N.O.	UNLESS NOTED OTHERWISE
GA.	GAGE	VERT.	VERTICAL
GALV.	GALVANIZED	W/	WITH
HDR.	HEADER	W-P	WORK POINT
HGR.	HANGER	W-P	WATERPROOFING
HORIZ.	HORIZONTAL	#	NUMBER/SIZE
H.P.	HIGH POINT	C	CENTERLINE
HT.	HEATING, VENTILATION, & AIR	Ø	DIAMETER
HVAC	CONDITIONING	PL.	PLATE

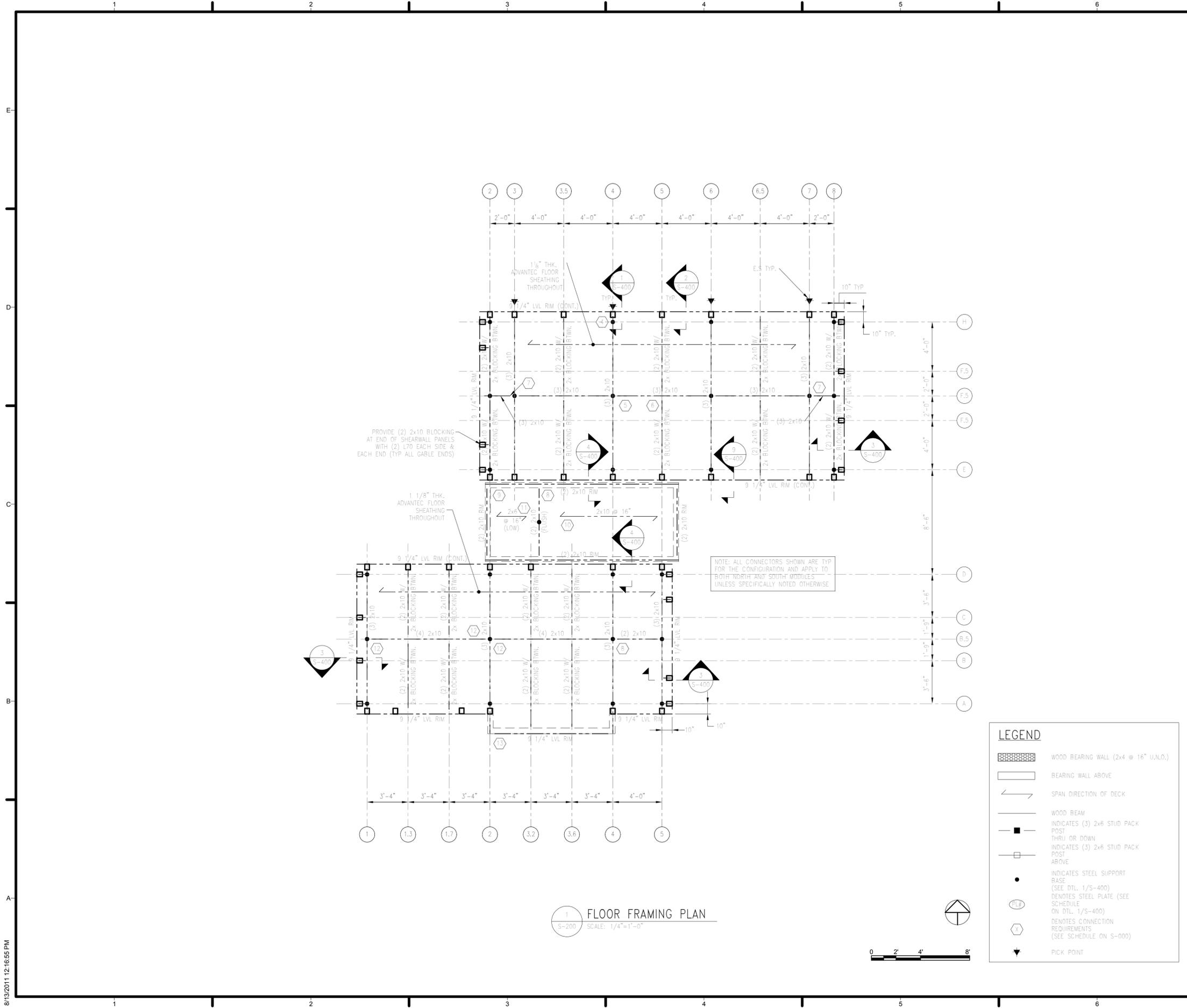
**DESIGN LOADS AND FACTORS**

DESIGN CODE: IRC 2009  
 AS MODIFIED BY COMAR 05.02.07

LIVE LOAD DATA		ROOF LOAD DATA		WIND LOAD DATA		EARTHQUAKE DESIGN DATA	
FLOOR OR ROOF AREA	LOAD (PSF)	LOAD TYPE	VALUE (PSF)	PARAMETER	VALUE	PARAMETER	VALUE
TYP. FLOOR (U.N.O.)	50	SNOW	31	COMPETITION WIND SPEED	60 MPH	SHORT PERIOD MAP VALUE (S <sub>s</sub> )	18.0% g
MEANS OF EGRESS	100	ROOF LIVE	20	PERMANENT WIND SPEED	90 MPH	1.0 SEC. PERIOD MAP VALUE (S <sub>s</sub> )	6.3% g
EXTERIOR BALCONIES	60	ROOF DEAD	15	WIND EXPOSURE	C	SOIL FACTOR FOR SITE CLASS D (F <sub>s</sub> )	1.60
RAILINGS (CONCENTRATED)	200#	GREEN ROOF MODULES	17	IMPORTANCE FACTOR	1.0	RESIDENTIAL SITE VALUE (S <sub>s</sub> )	19.2% g
		P.V. PANELS	2			RESIDENTIAL SEISMIC DESIGN CATEGORY	C
		PARAMETER	VALUE	SHEAR WALL TYPE			
		GROUND SNOW LOAD (P <sub>s</sub> )	40	CONT. 2x (NOM.) T&G TIMBER DECKING			
		CEILING APPLIED	YES				

NOTE:  
 CONNECTION DESIGNATIONS AS LISTED REFER TO SIMPSON STRONG-TIE WOOD CONSTRUCTION CONNECTORS. EQUIVALENT CONNECTORS MAY BE SUBSTITUTED WITH ENGINEER'S APPROVAL.





GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



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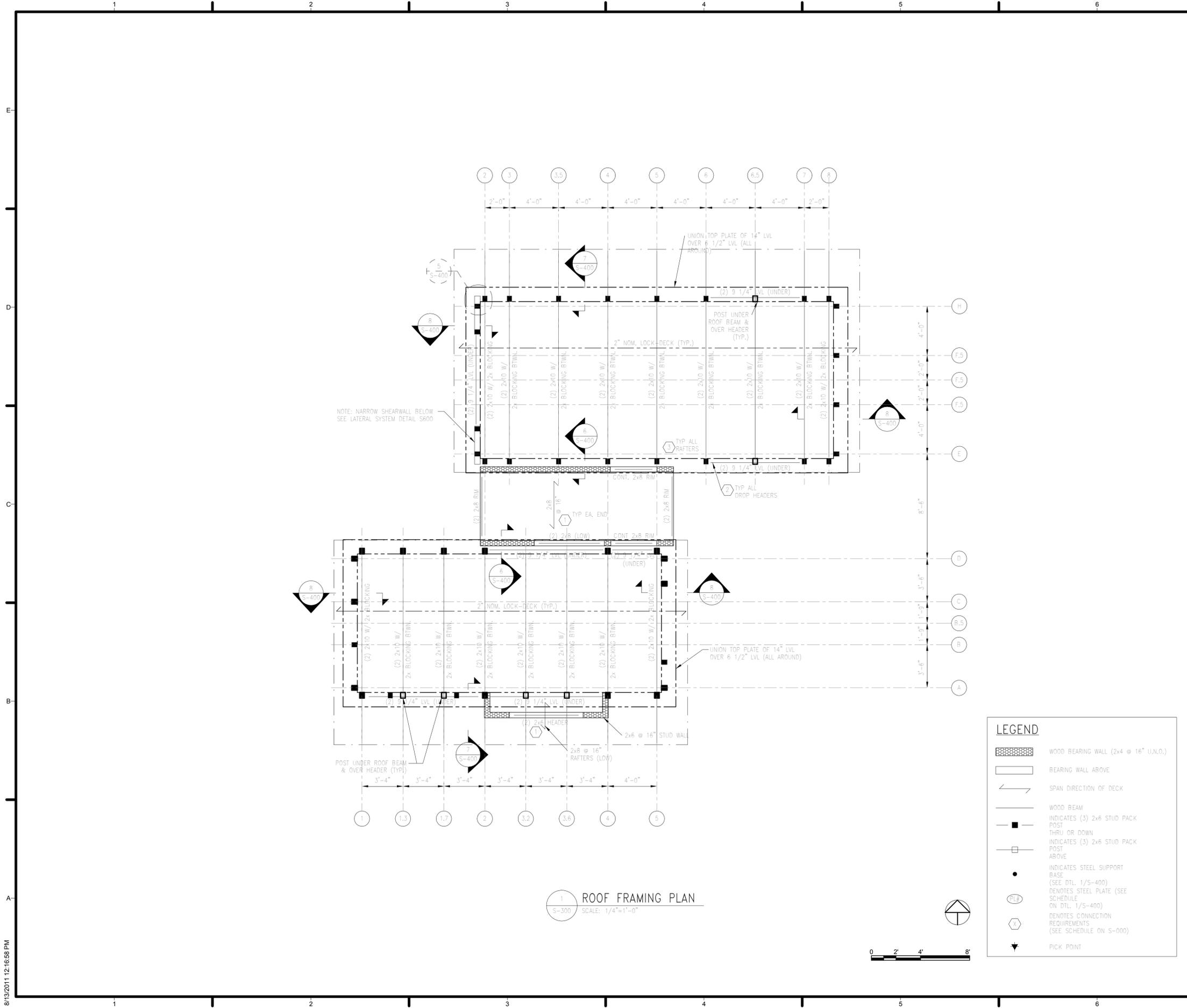
SHEET TITLE

FLOOR FRAMING PLAN

S-200

**LEGEND**

- WOOD BEARING WALL (2x4 @ 16" U.N.O.)
- BEARING WALL ABOVE
- SPAN DIRECTION OF DECK
- WOOD BEAM
- INDICATES (3) 2x6 STUD PACK POST THRU OR DOWN
- INDICATES (3) 2x6 STUD PACK POST ABOVE
- INDICATES STEEL SUPPORT BASE (SEE DTL. 1/S-400)
- DENOTES STEEL PLATE (SEE SCHEDULE ON DTL. 1/S-400)
- DENOTES CONNECTION REQUIREMENTS (SEE SCHEDULE ON S-000)
- PICK POINT



8/13/2011 12:16:58 PM

GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



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SHEET TITLE  
**ROOF FRAMING PLAN**

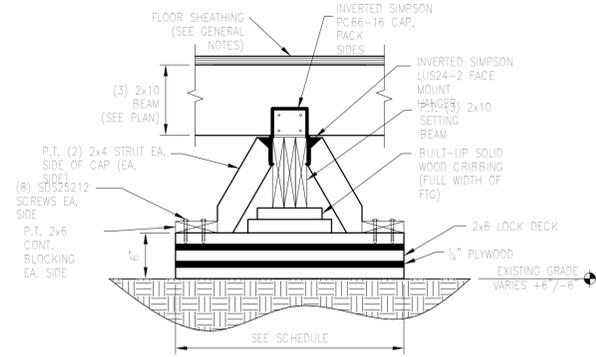
**S-300**

**LEGEND**

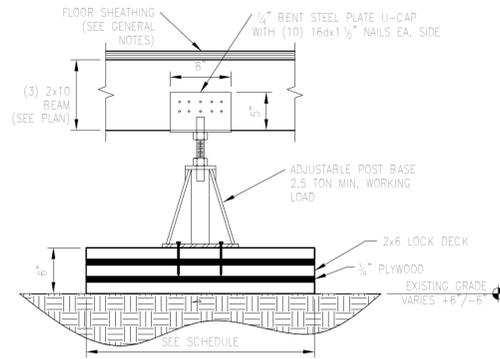
- WOOD BEARING WALL (2x4 @ 16" U.N.O.)
- BEARING WALL ABOVE
- SPAN DIRECTION OF DECK
- WOOD BEAM
- INDICATES (3) 2x6 STUD PACK POST THRU OR DOWN
- INDICATES (3) 2x6 STUD PACK POST ABOVE
- INDICATES STEEL SUPPORT BASE (SEE DTL. 1/S-400)
- DENOTES STEEL PLATE (SEE SCHEDULE ON DTL. 1/S-400)
- DENOTES CONNECTION REQUIREMENTS (SEE SCHEDULE ON S-000)
- PICK POINT



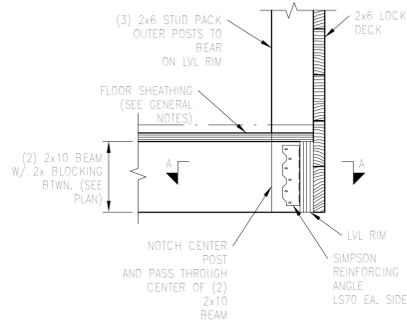
PLY-FOOTING SCHEDULE	
MARK	FOOTING SIZE LENGTH x WIDTH
PL1	2'-6" x 2'-6"
PL2	1'-10" x 1'-10"
PL3	1'-6" x 1'-6"



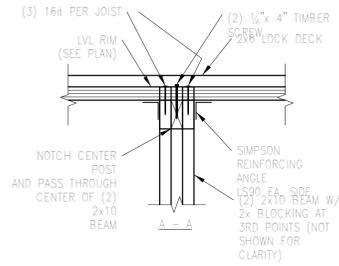
1A ADJUSTABLE FOUNDATION SECTION  
SCALE: 1"=1'-0"



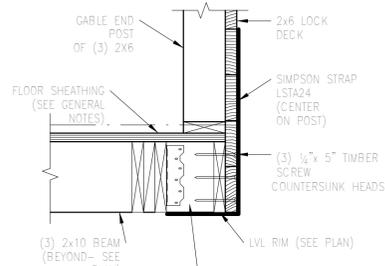
1B ADJUSTABLE FOUNDATION SECTION  
SCALE: 1"=1'-0"



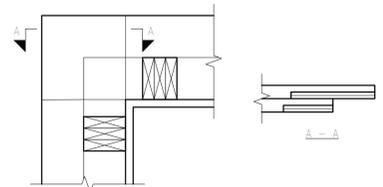
2 POST TO BEAM CONNECTION @ COLUMN LINES  
SCALE: 1"=1'-0"



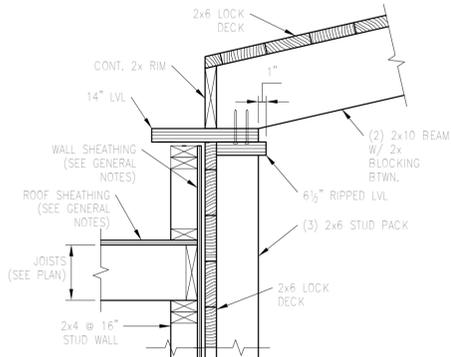
3 POST CONNECTION AT GABLES  
SCALE: 1"=1'-0"



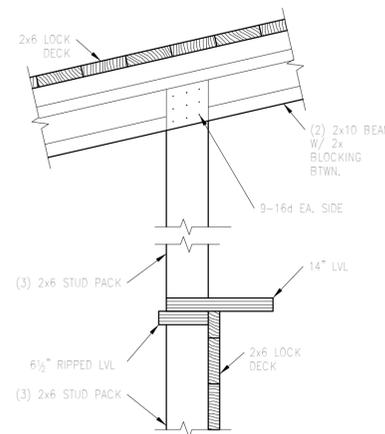
4 CONNECTION OF MODULE UNITS  
SCALE: 1"=1'-0"



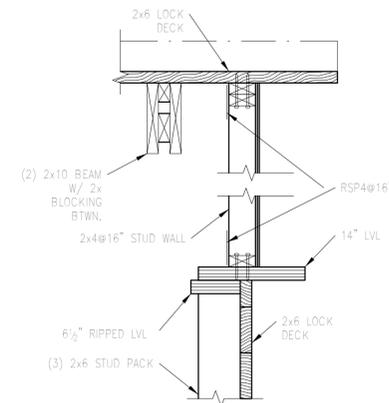
5 PLAN DETAIL @ CORNER CONNECTION OF GIRT LVLS  
SCALE: 1"=1'-0"



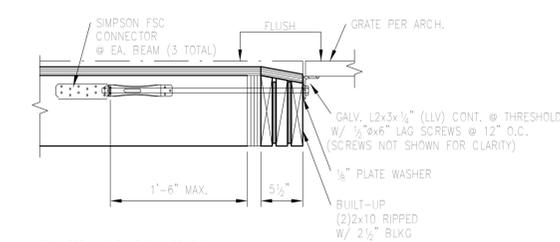
6 SECTION  
SCALE: 1"=1'-0"



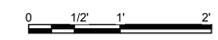
7 SECTION  
SCALE: 1"=1'-0"



8 SECTION  
SCALE: 1"=1'-0"



9 GRATE SUPPORT AT SILL  
SCALE: 1"=1'-0"



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SHEET TITLE  
SECTION & DETAILS

S-400



MINIMUM PANEL LENGTHS			
WALL HEIGHT	MAXIMUM OPENING HEIGHT (IN.)	TYPICAL	MIN. PANEL LENGTH (IN.)
9'-0"	72	TYPICAL WINDOW	27
9'-0"	84	TYPICAL DOOR	36
9'-0"	108	ADJ. TO CHIMNEY	54
10'-0"	72	TYPICAL WINDOW	30
10'-0"	96	TYPICAL DOOR	42
10'-0"	120	ADJ. TO CHIMNEY	60

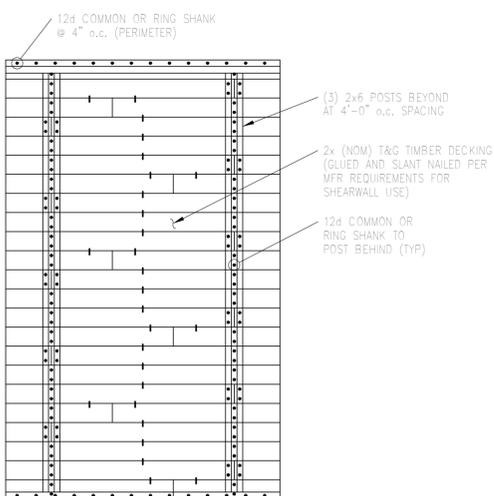
- NOTES:
1. REFER TO IRC 2009 TABLE R602.10.3.1
  2. SEISMIC CATEGORY: C
  3. WIND SPEED: 90 MPH
  4. ONE-STORY STRUCTURE

GENERAL WIND NOTES

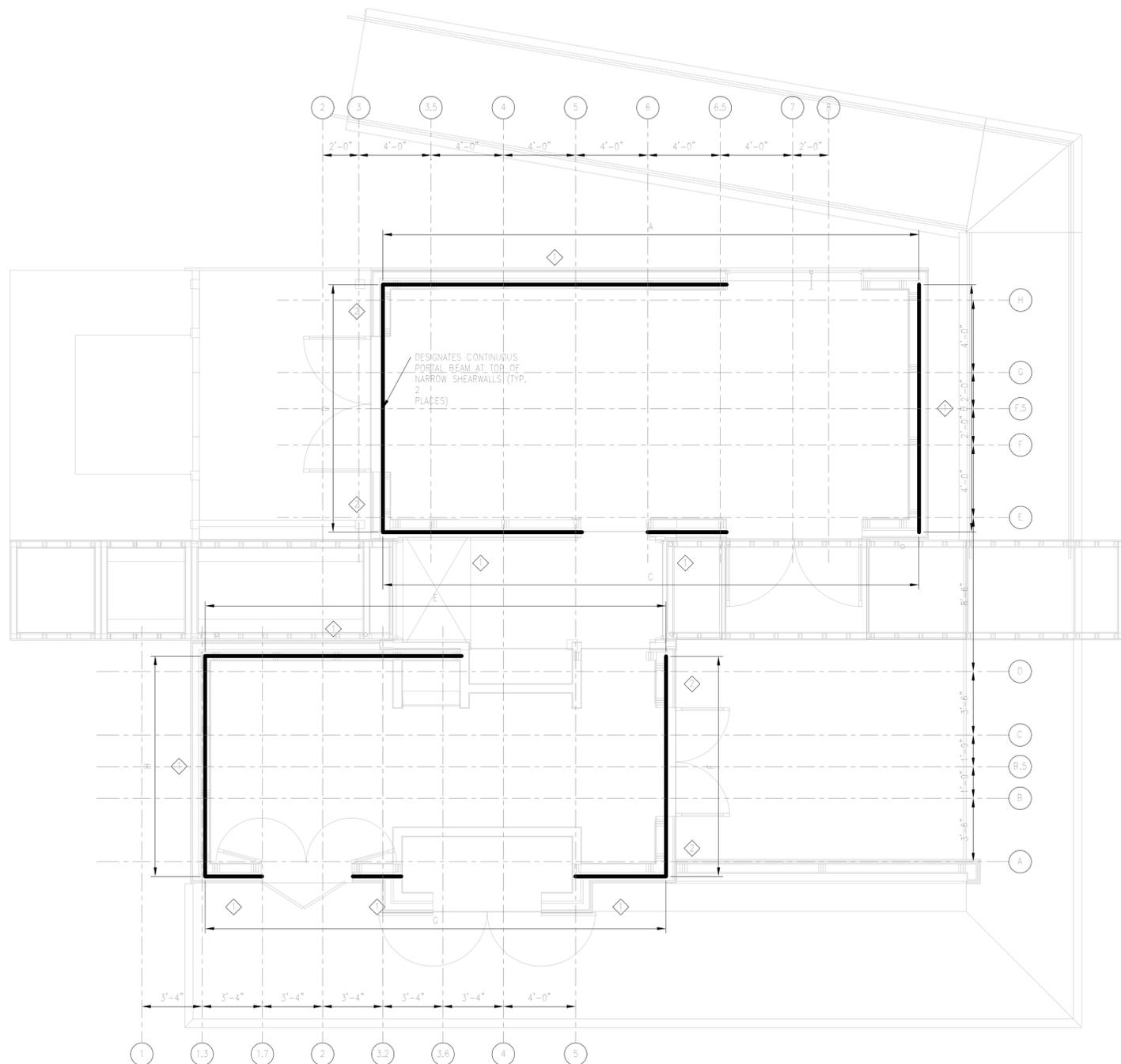
1. UNLESS NOTED OTHERWISE IN PLANS OR ELEVATIONS, ALL SHEAR WALL LINES MEET OR EXCEED EITHER:
  - A. PRESCRIPTIVE REQUIREMENTS OF IRC 2009 R602.10
  - B. PRESCRIPTIVE REQUIREMENTS OF APA NARROW WALL BRACING METHOD
2. WALLS NOT MEETING THE ABOVE REQUIREMENTS HAVE BEEN ENGINEERED AND DETAILED HEREIN TO RESIST WIND FORCES CALCULATED USING PARAMETERS DEFINED IN THE DRAWINGS.

BRACED WALL LINE SCHEDULE					
WALL LINE	MARK (SEE SCHED.)	AMOUNT OF BRACING		SUM OF END POSITIONS LESS THAN 12'-6"	LOCATED @ 2'-0" O.C.†
		REQUIRED	PROVIDED		
A	◇	2'-6"	19'-0" 1/4"	YES	YES
B	◇	6'-6"	13'-6"	YES	YES
C	◇	2'-6"	15'-4" 1/2"	YES	YES
D	◇	6'-6"	8'-0" (EQ.)	YES	YES
E	◇	2'-6"	14'-2"	YES	YES
F	◇	4'-9"	8'-0" (EQ.)	YES	YES
G	◇	2'-6"	10'-10"	YES	YES
H	◇	4'-9"	12'-1"	YES	YES

BRACED PANEL WALL TYPES		
MARK	CONSTRUCTION METHOD (IRC R602.10.2 AND R602.10.4)	INTERMITTENT BRACING METHOD?
◇	C.S.-WSP CONT. 2x (NOM) T&G TIMBER DECKING --- SEE DTL'S THIS SHEET	NO
◇	PFH INTERMITTENT PORTAL FRAME	YES



2 TYPICAL T&G TIMBER DECK SHEARWALL FASTENING PATTERN  
S-600 SCALE: N.T.S.



1 LATERAL SYSTEM PLAN  
S-600 SCALE: 1/4"=1'-0"



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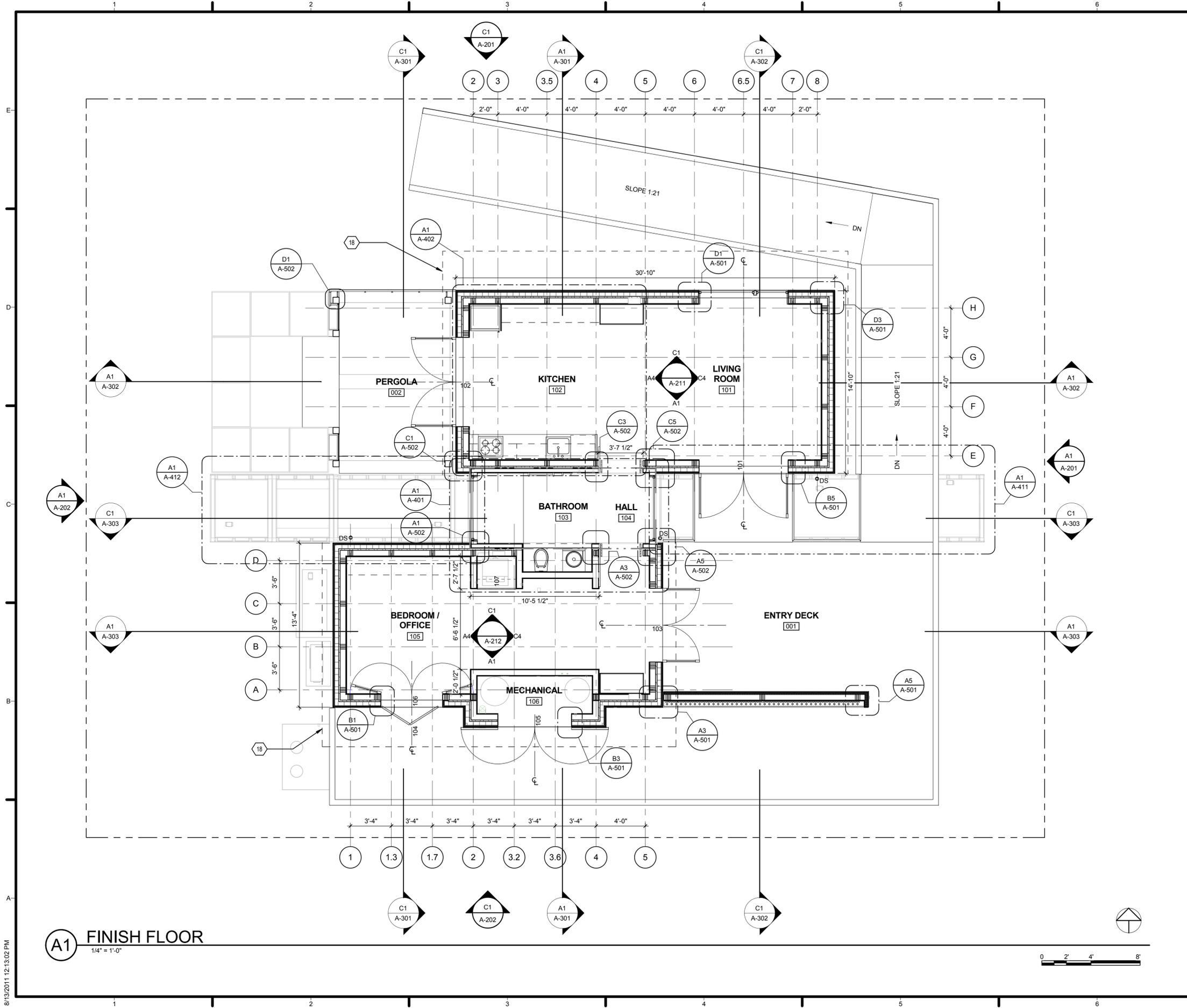


MARK	DATE	DESCRIPTION
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SHEET TITLE  
**LATERAL SYSTEM PLAN & DETAILS**

**S-600**



**A1** FINISH FLOOR  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

18 DASHED LINE INDICATES OVERHEAD ROOF STRUCTURE



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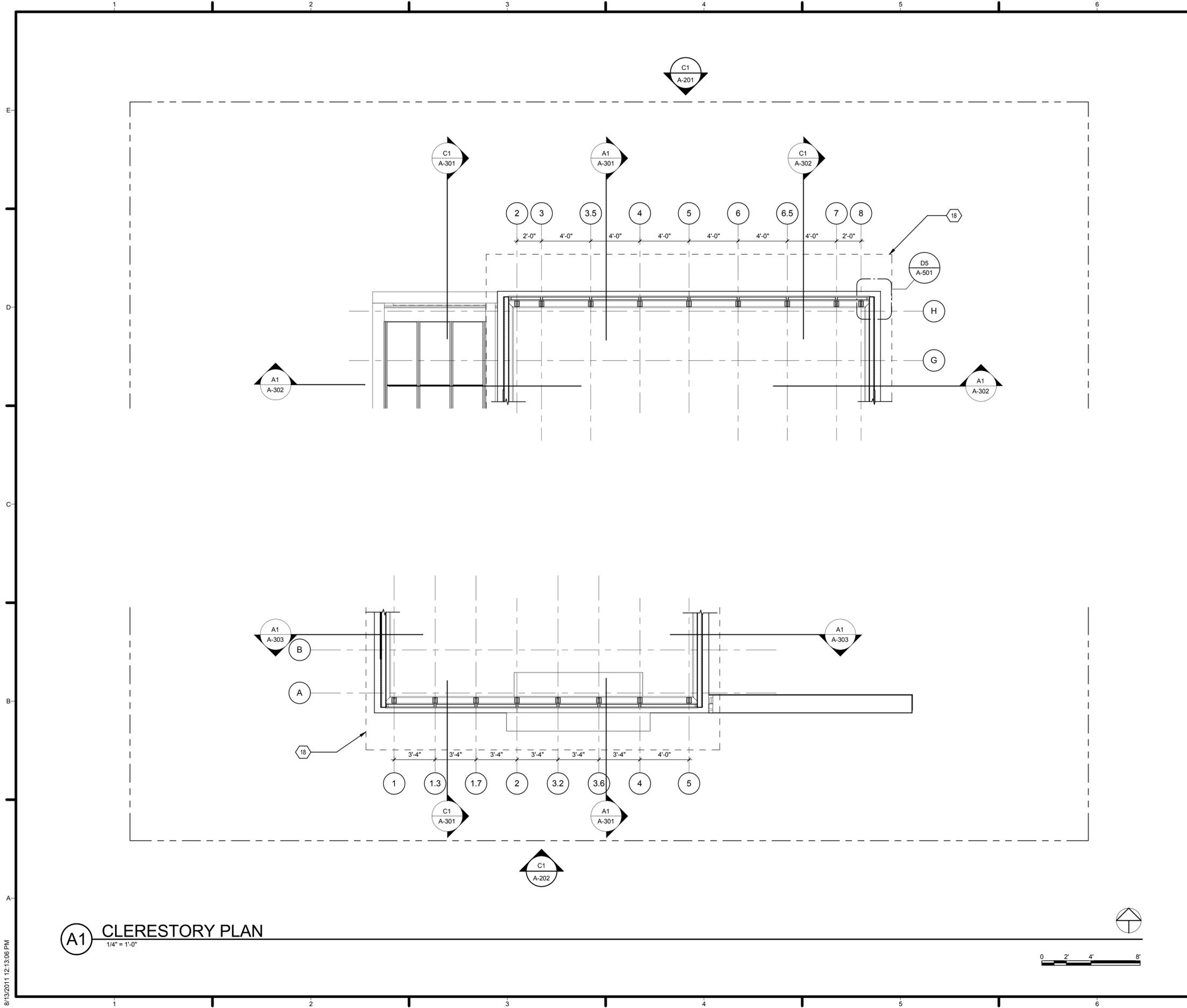
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SHEET TITLE  
**FIRST FLOOR PLAN**

**A-101**

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GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES

18 DASHED LINE INDICATES OVERHEAD ROOF STRUCTURE



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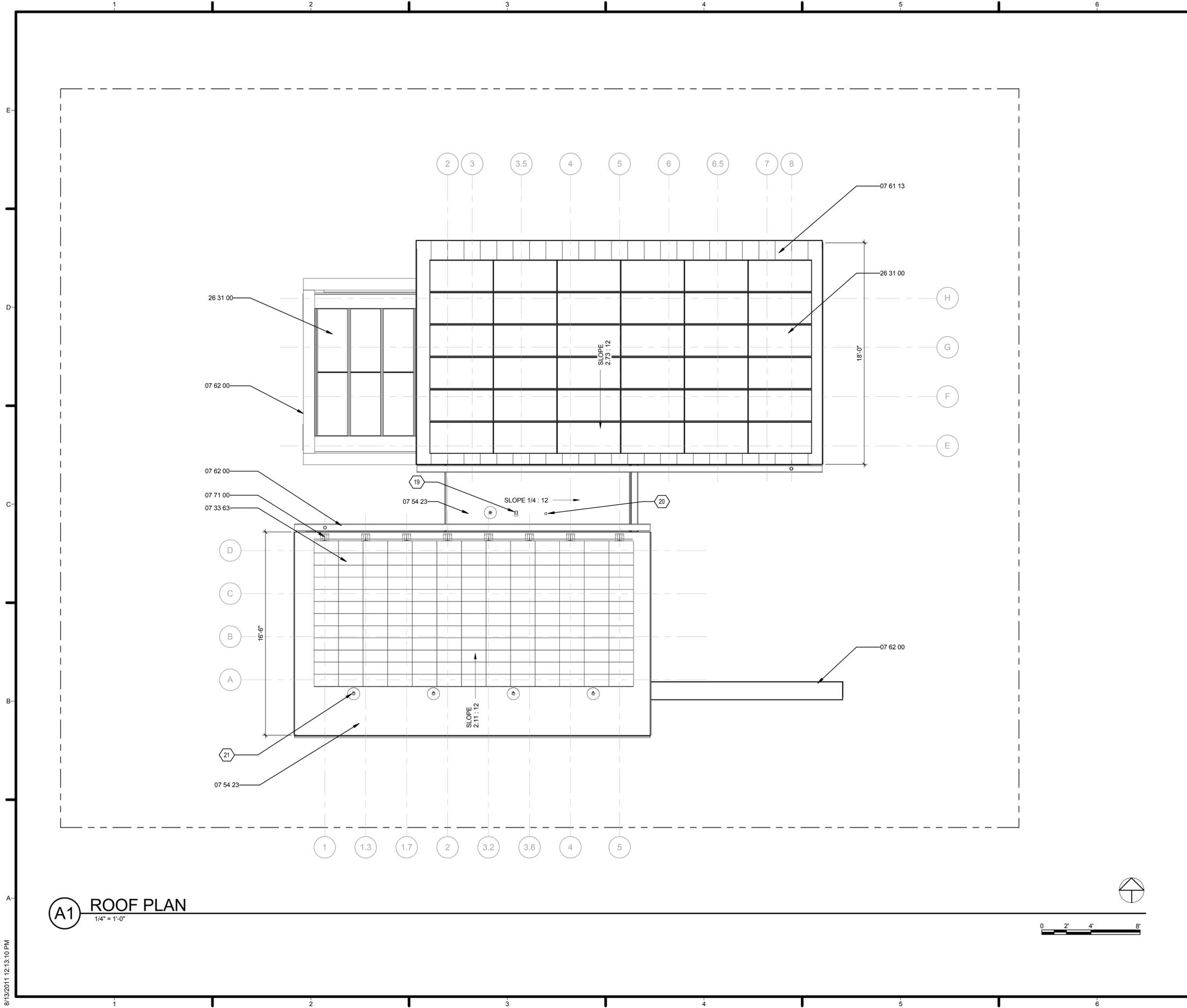
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SHEET TITLE  
 CLERESTORY PLAN

A-102

(A1) CLERESTORY PLAN  
 1/4" = 1'-0"

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**(A1) ROOF PLAN**  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

1. SLOPE OF ROOF IS SHOWN AS APPROXIMATE. REFER TO STRUCTURAL DRAWINGS FOR EXACT ANGLES.
2. ANY ELEVATED MAINTENANCE OR CONSTRUCTION WORK REQUIRES THE USE OF PFAS EQUIPMENT. USE OF NEAREST CONNECTION POINTS PROVIDED ON ROOF AND OUTLINED IN THE DRAWING SET ARE REQUIRED WITH THESE SYSTEMS PER SOLAR DECATHLON RULES

**REFERENCE KEYNOTES**

07 33 63	VEGETATED ROOFING
07 54 23	THERMOPLASTIC-POLYOLEFIN ROOFING
07 61 13	STANDING SEAM SHEET METAL ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
07 71 00	ROOF SPECIALTIES
26 31 00	PHOTOVOLTAIC COLLECTORS

**SHEET KEYNOTES**

19	WEATHERHEAD (SEE A-516)
20	STACK VENT (SEE A-516)
21	TIE OFF POINTS TO ANCHOR FOR FALL ARREST SYSTEM (PFAS) HARDWARE. (SEE A-516 FOR INSTALLATION)



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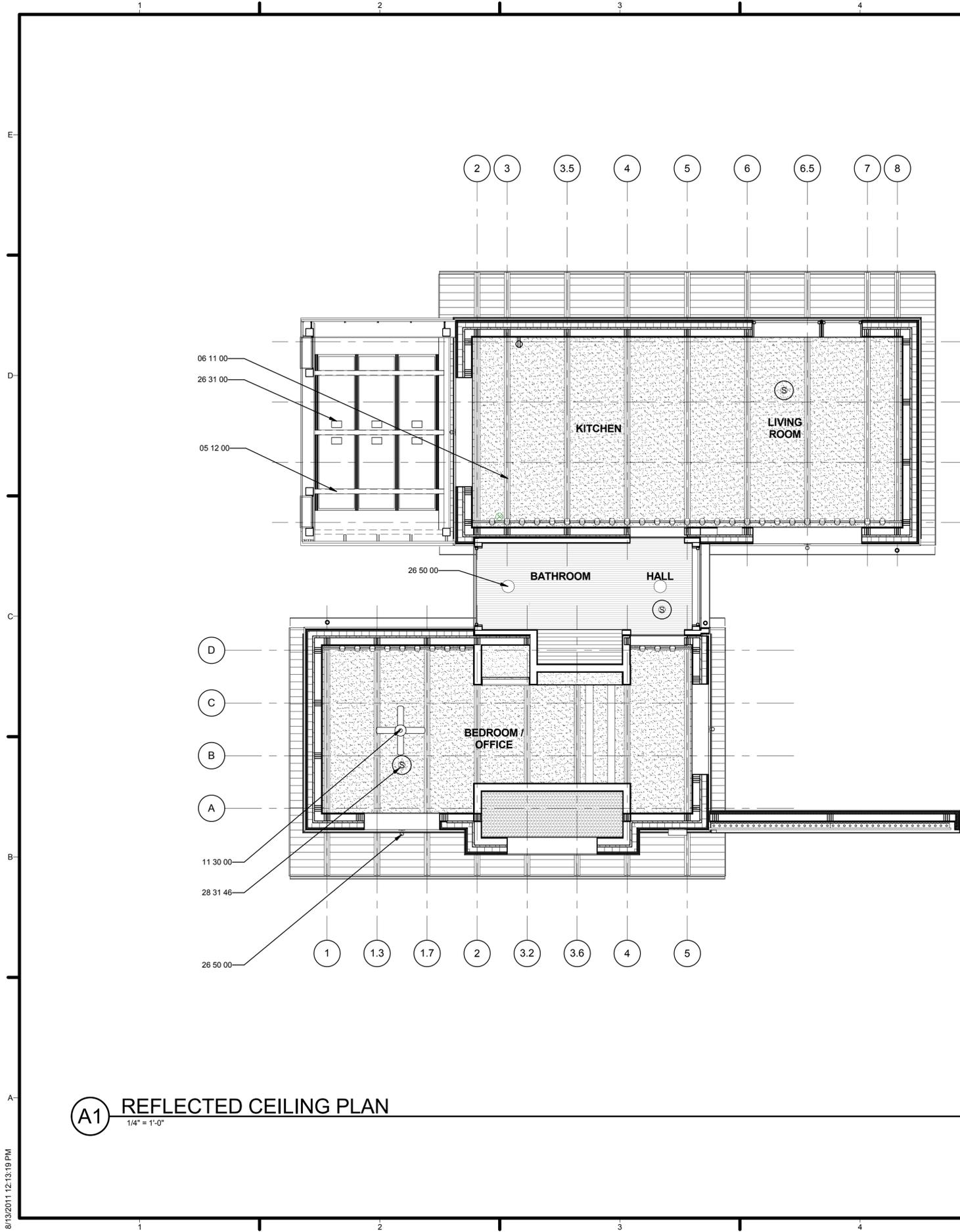


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SHEET TITLE  
**ROOF PLAN**

**A-103**



**FINISH LEGEND**

-  PTD GWB FINISH
-  EXPOSED TONGUE AND GROOVE DECKING
-  5/8" MDO PLYWOOD
-  BAMBOO
-  3/4" PLYWOOD

**GENERAL SHEET NOTES**

1. RCP TO REFLECT CEILING MOUNTED LIGHT FIXTURES ONLY. FOR COMPLETE LIGHTING PLAN REFER TO E-103
2. RCP TO LOCATE SMOKE DETECTORS ONLY. FOR COMPLETE FIRE SUPPRESSION SYSTEMS REFER TO F-101

**REFERENCE KEYNOTES**

05 12 00	STRUCTURAL STEEL FRAMING
06 11 00	WOOD FRAMING
11 30 00	RESIDENTIAL EQUIPMENT
26 31 00	PHOTOVOLTAIC COLLECTORS
26 50 00	LIGHTING
28 31 46	SMOKE DETECTION SENSORS

**SHEET KEYNOTES**



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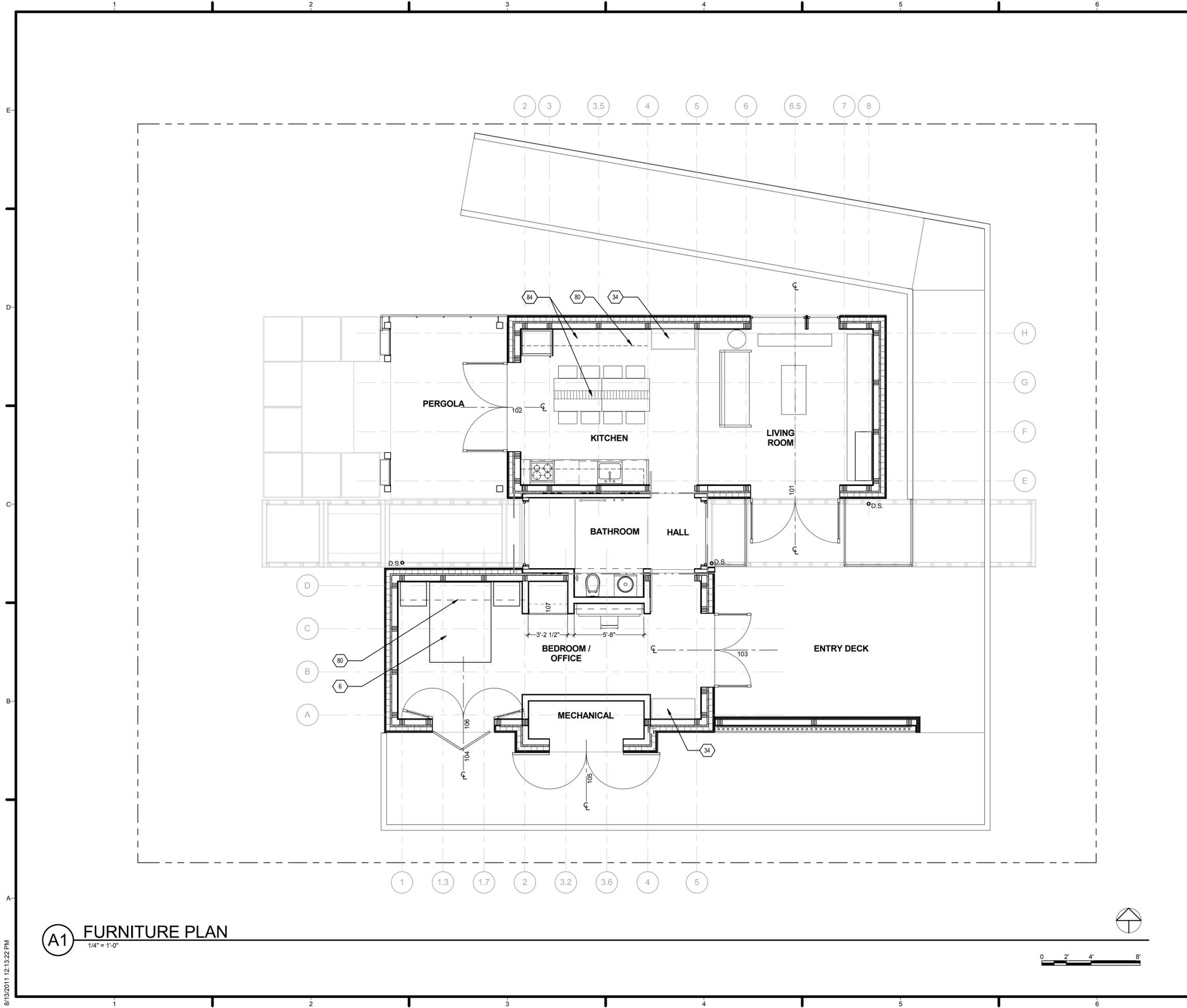
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SHEET TITLE  
**REFLECTED CEILING PLAN**

**A-111**

**A1 REFLECTED CEILING PLAN**  
 1/4" = 1'-0"

8/13/2011 12:13:19 PM



**A1 FURNITURE PLAN**  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

1. PLAN PORTRAYS ONE POSSIBLE CONFIGURATION OF FURNITURE. SEE PROJECT MANUAL FOR FURTHER DESCRIPTION OF TRANSFORMABLE COMPONENTS AND POSSIBLE CONFIGURATIONS

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

6 INTERIOR OF MODULE C WILL BE DISPLAYED IN OFFICE CONFIGURATION WITH RECONFIGURABLE TABLE DEPLOYED DURING TOUR; BED WILL REMAIN IN UP POSITION  
 34 LIQUID DESICCANT WALL (SEE P-103)  
 80 LINE OF CABINETRY AND SHELVING ABOVE  
 84 KITCHEN TABLE AND CHAIRS TO BE IN STATIONARY POSITION DURING ALL PUBLIC TOURS; TABLE SHOWN IN DINING CONFIGURATION IN FURNITURE PLAN ONLY



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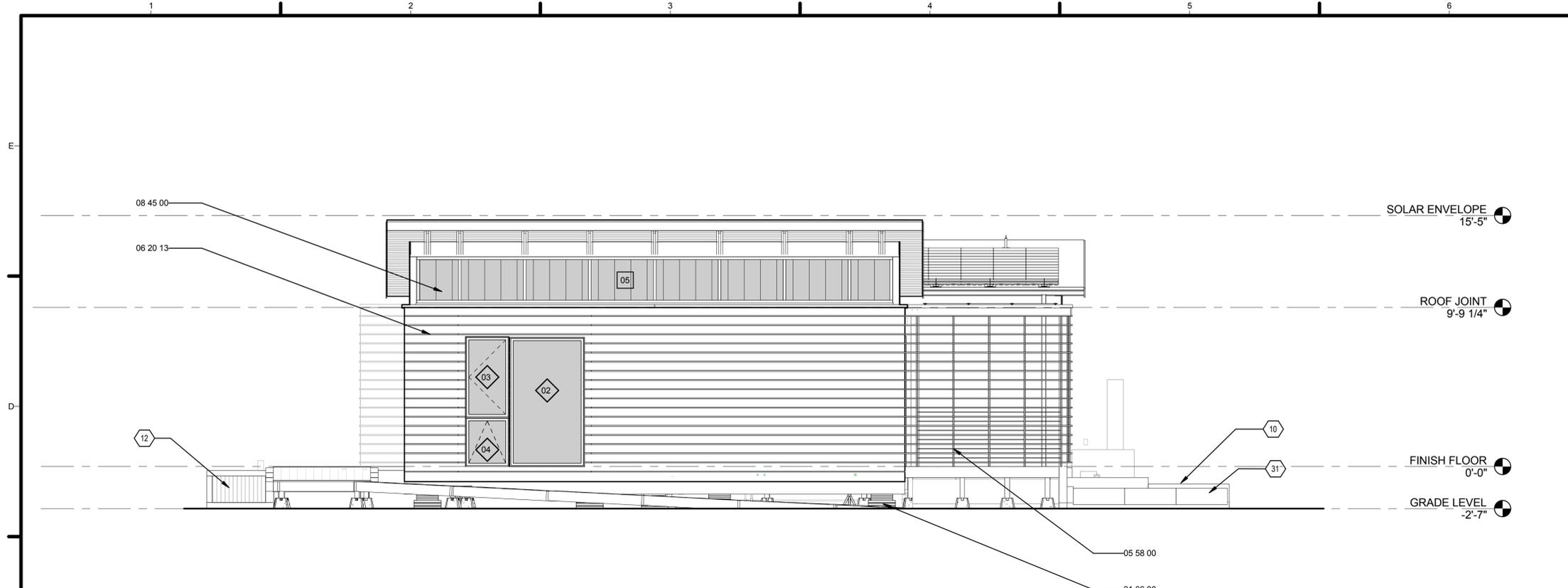
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03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

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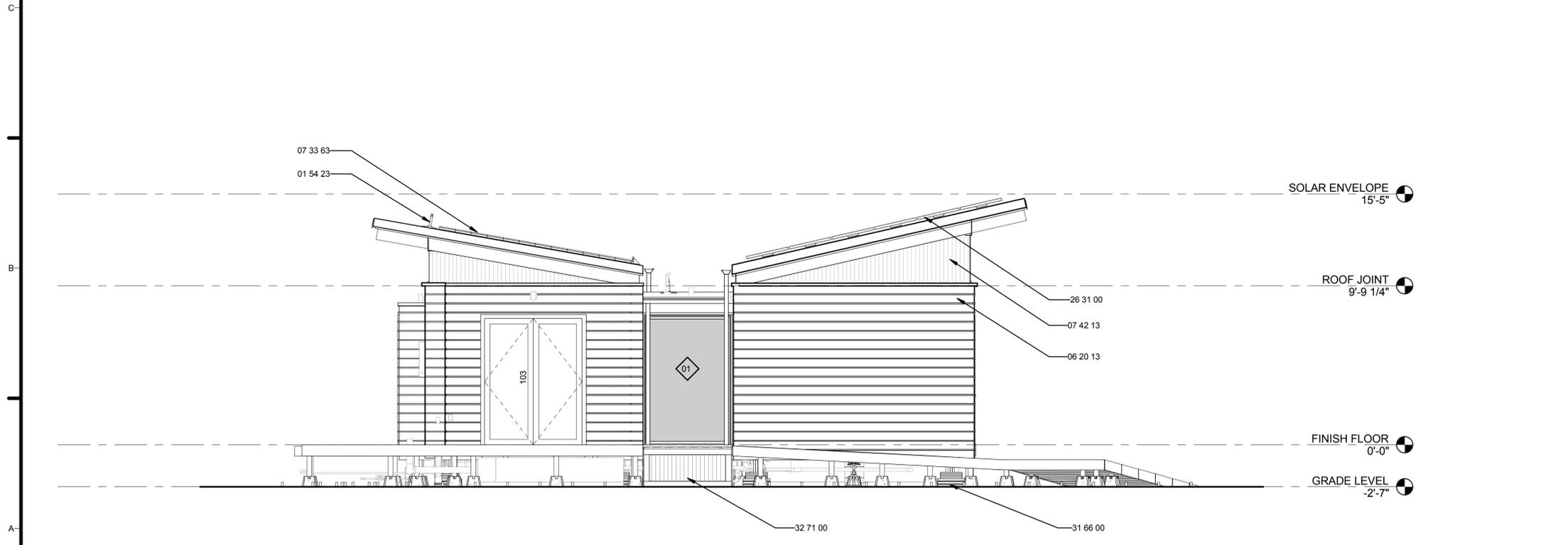
SHEET TITLE  
**FURNITURE PLAN**

**A-121**

8/13/2011 12:13:22 PM



**C1 NORTH ELEVATION**  
1/4" = 1'-0"



**A1 EAST ELEVATION**  
1/4" = 1'-0"



**GENERAL SHEET NOTES**

1. MAXIMUM ELEVATION DIFFERENCE BETWEEN HIGHEST GRADE POINT ON SITE AND TOP OF ROOF SHALL BE 18'-0"
2. BUILDING ELEVATIONS INCLUDE ALL COMPONENTS OF HOUSE ENVELOPE. DECK RAILINGS ARE NOT SHOWN FOR CLARITY.
3. WATER TANKS SHALL BE ELEVATED ON RISERS 3 1/2" ABOVE GRADE TO MEET COMPETITION REQUIREMENTS

**REFERENCE KEYNOTES**

01 54 23	TEMPORARY SCAFFOLDING AND PLATFORMS
05 58 00	FORMED METAL FABRICATIONS
06 20 13	EXTERIOR FINISH CARPENTRY
07 33 63	VEGETATED ROOFING
07 42 13	METAL WALL PANELS
08 45 00	TRANSLUCENT WALL AND ROOF ASSEMBLIES
26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

10	CONSTRUCTED WETLANDS FOR GREY WATER FILTRATION (SEE A-412)
12	CONSTRUCTED WETLANDS RAINWATER HARVESTING AND FILTRATION SYSTEM (SEE A-411)
31	REMOVABLE PLYWOOD BOXES TO HOLD VEGETABLE PLANTS DURING COMPETITION



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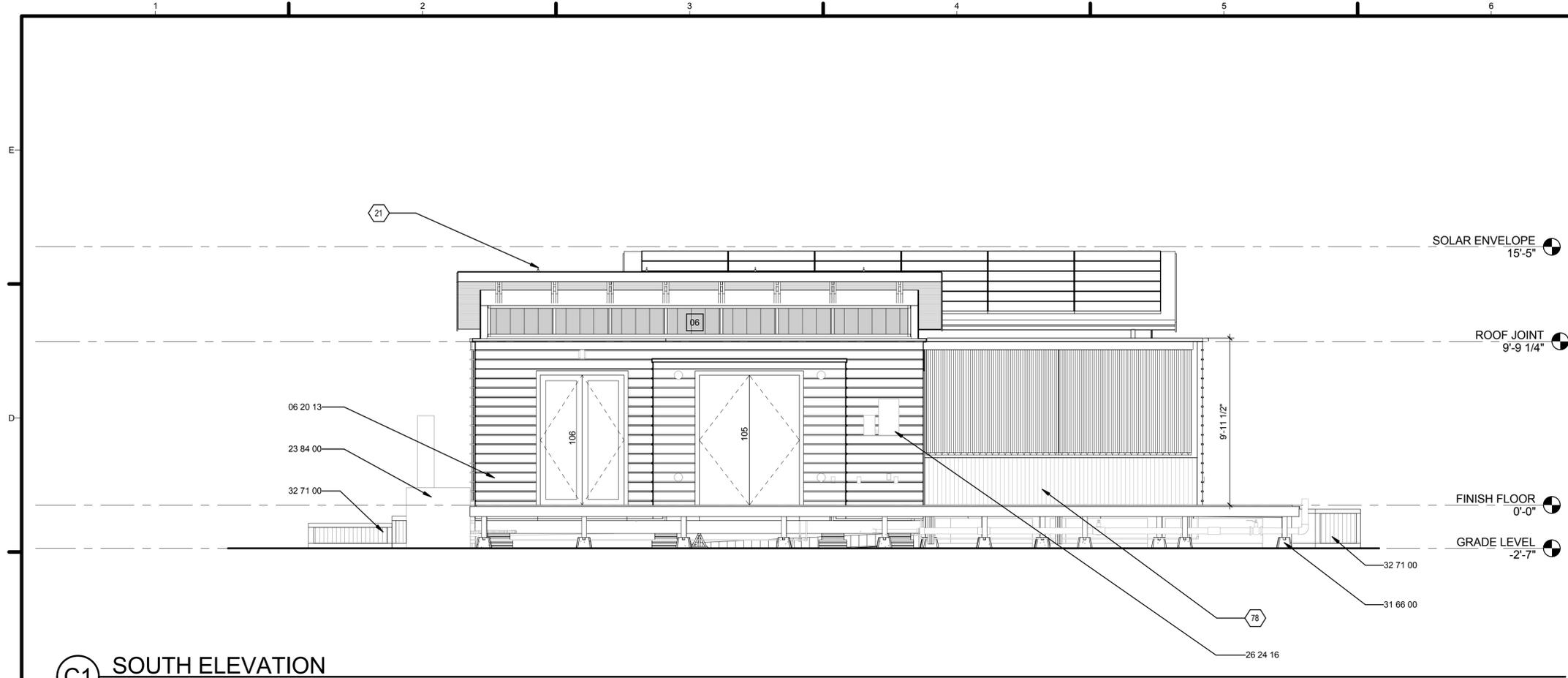


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02	01/18/2011	80% DOE/NREL RE-SUBMISSION
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04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

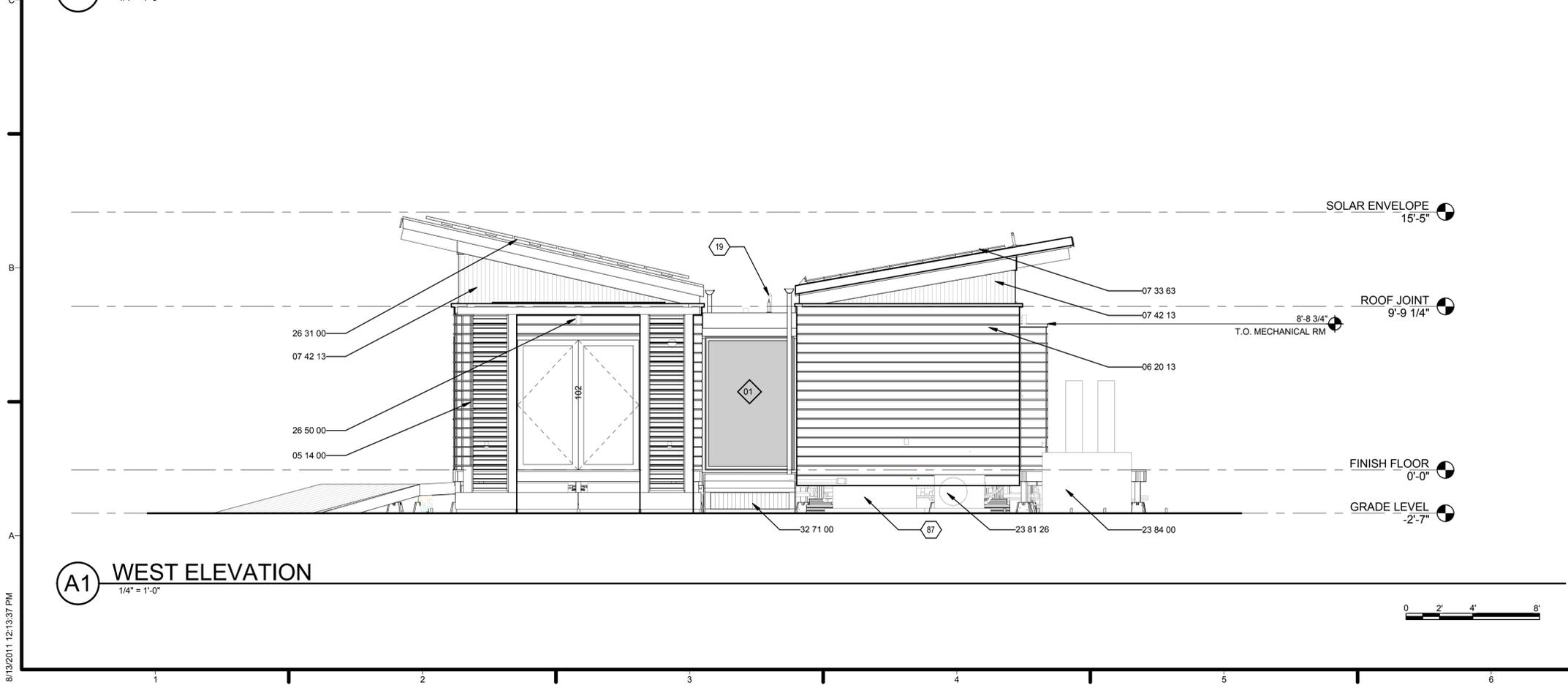
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SHEET TITLE  
**ELEVATIONS**

**A-201**



**C1 SOUTH ELEVATION**  
1/4" = 1'-0"



**A1 WEST ELEVATION**  
1/4" = 1'-0"



**GENERAL SHEET NOTES**

1. MAXIMUM ELEVATION DIFFERENCE BETWEEN HIGHEST GRADE POINT ON SITE AND TOP OF ROOF SHALL BE 18'-0"
2. BUILDING ELEVATIONS INCLUDE ALL COMPONENTS OF HOUSE ENVELOPE. DECK RAILINGS & GATE ARE NOT SHOWN FOR CLARITY.
3. WATER TANKS SHALL BE ELEVATED ON RISERS 3 1/2" ABOVE GRADE TO MEET COMPETITION REQUIREMENTS

**REFERENCE KEYNOTES**

05 14 00	STRUCTURAL ALUMINUM FRAMING
06 20 13	EXTERIOR FINISH CARPENTRY
07 33 63	VEGETATED ROOFING
07 42 13	METAL WALL PANELS
23 81 26	SPLIT SYSTEM AIR CONDITIONERS
23 84 00	HUMIDITY CONTROL EQUIPMENT
26 24 16	PANEL BOARDS
26 31 00	PHOTOVOLTAIC COLLECTORS
26 50 00	LIGHTING
31 66 00	SPECIAL FOUNDATIONS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

19	WEATHERHEAD (SEE A-516)
21	TIE OFF POINTS TO ANCHOR FOR FALL ARREST SYSTEM (PFAS) HARDWARE. (SEE A-516 FOR INSTALLATION)
78	CORRUGATED GALVALUME KICK PLATE
87	GREY WATER PREFILTRATION TANK



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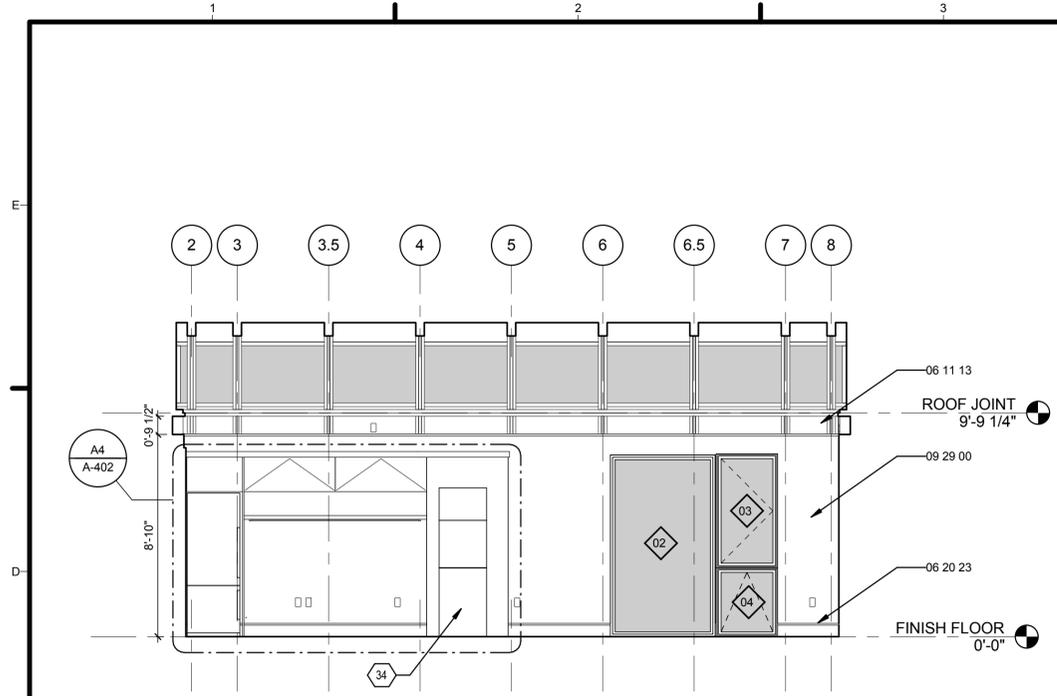


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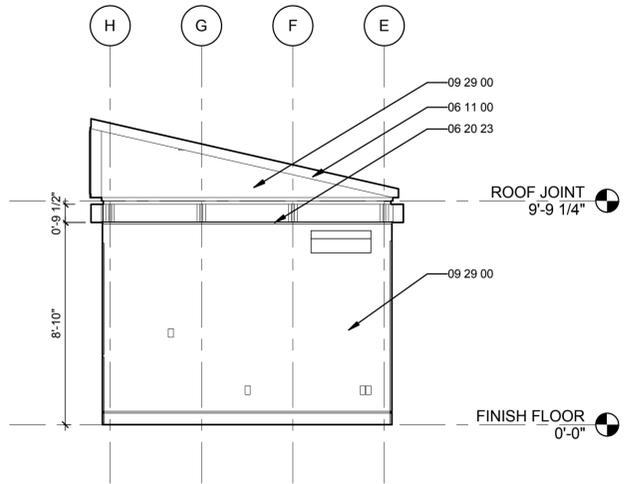
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SHEET TITLE  
**ELEVATIONS**

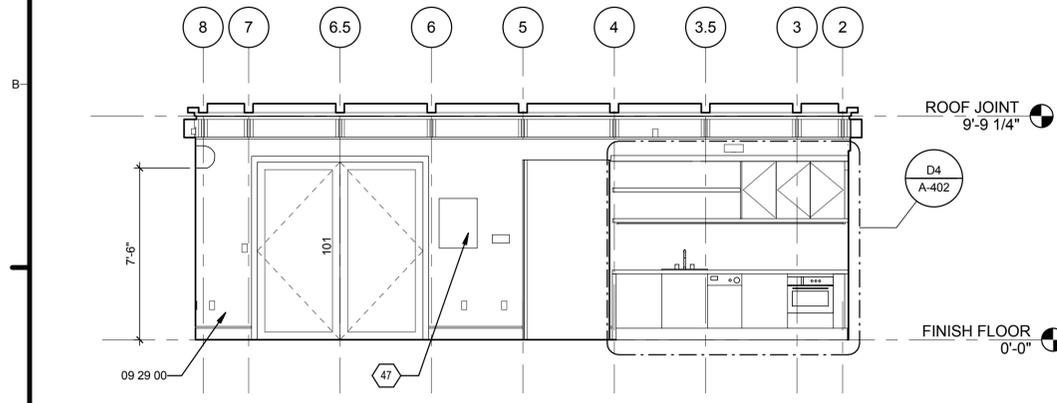
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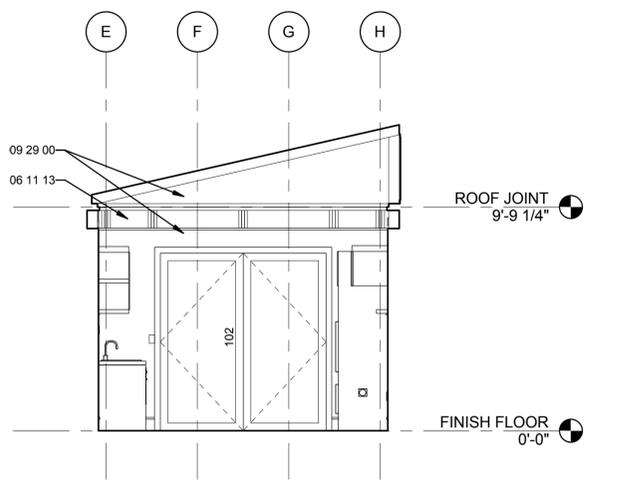
**C1** MODULE A NORTH  
1/4" = 1'-0"



**C4** MODULE A EAST  
1/4" = 1'-0"



**A1** MODULE A SOUTH  
1/4" = 1'-0"



**A4** MODULE A WEST  
1/4" = 1'-0"



**GENERAL SHEET NOTES**

1. ALL HEIGHT DIMENSIONS ARE RELATIVE TO THE TOP OF THE FINISH FLOOR.
2. SEE SCHEDULES FOR WALL FINISHES

**REFERENCE KEYNOTES**

06 11 00	WOOD FRAMING
06 11 13	ENGINEERED WOOD PRODUCTS
06 20 23	INTERIOR FINISH CARPENTRY
09 29 00	GYPSUM BOARD

**SHEET KEYNOTES**

34	LIQUID DESICCANT WALL (SEE P-103)
47	ELECTRICAL SUB PANEL (SEE E-401 FOR MORE INFORMATION)



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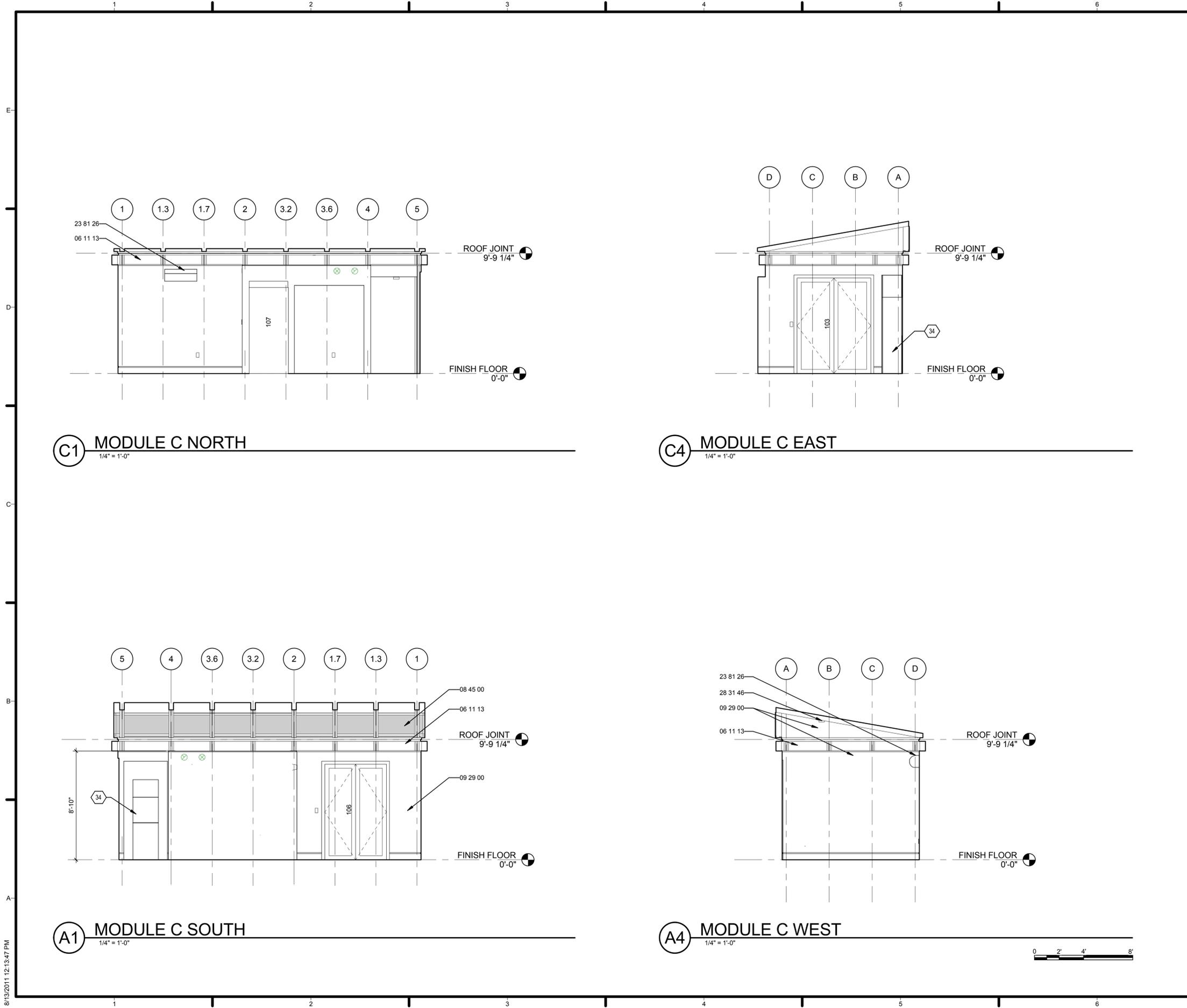


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SHEET TITLE  
**INTERIOR ELEVATIONS**

**A-211**



**C1** MODULE C NORTH  
1/4" = 1'-0"

**C4** MODULE C EAST  
1/4" = 1'-0"

**A1** MODULE C SOUTH  
1/4" = 1'-0"

**A4** MODULE C WEST  
1/4" = 1'-0"

**GENERAL SHEET NOTES**

1. ALL HEIGHT DIMENSIONS ARE RELATIVE TO THE TOP OF THE FINISH FLOOR.
2. SEE SCHEDULES FOR WALL FINISHES

**REFERENCE KEYNOTES**

06 11 13	ENGINEERED WOOD PRODUCTS
08 45 00	TRANSLUCENT WALL AND ROOF ASSEMBLIES
09 29 00	GYPSON BOARD
23 81 26	SPLIT SYSTEM AIR CONDITIONERS
28 31 46	SMOKE DETECTION SENSORS

**SHEET KEYNOTES**

34	LIQUID DESICCANT WALL (SEE P-103)
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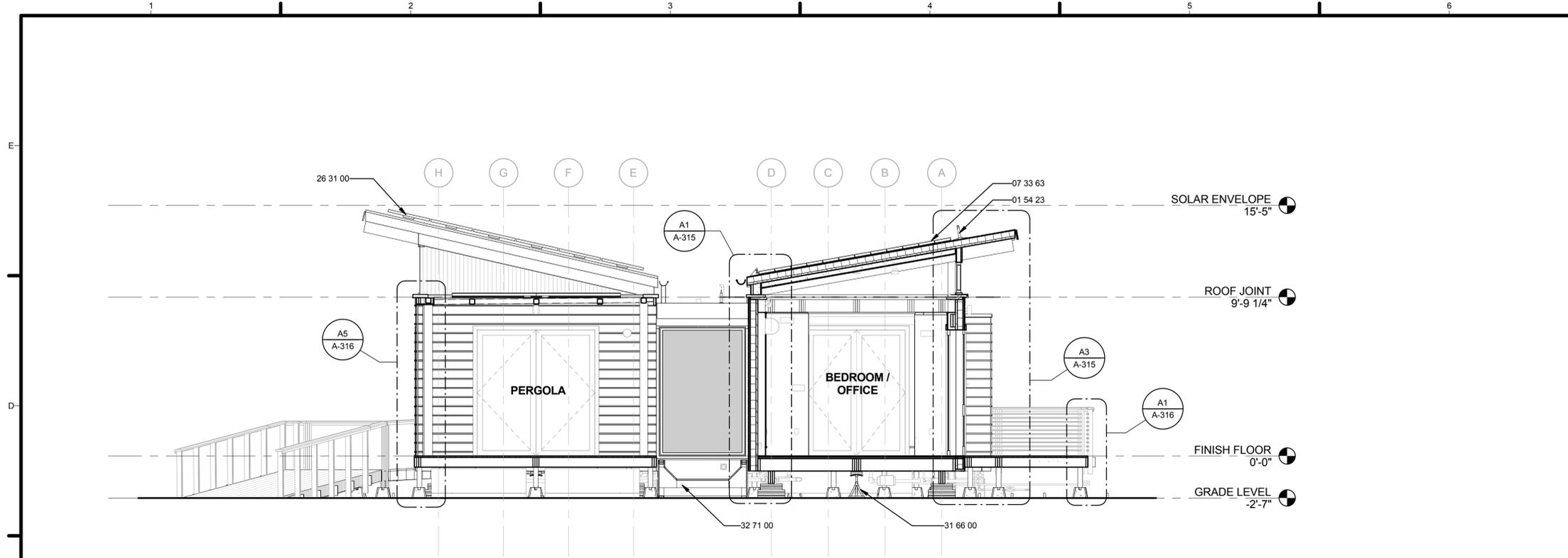
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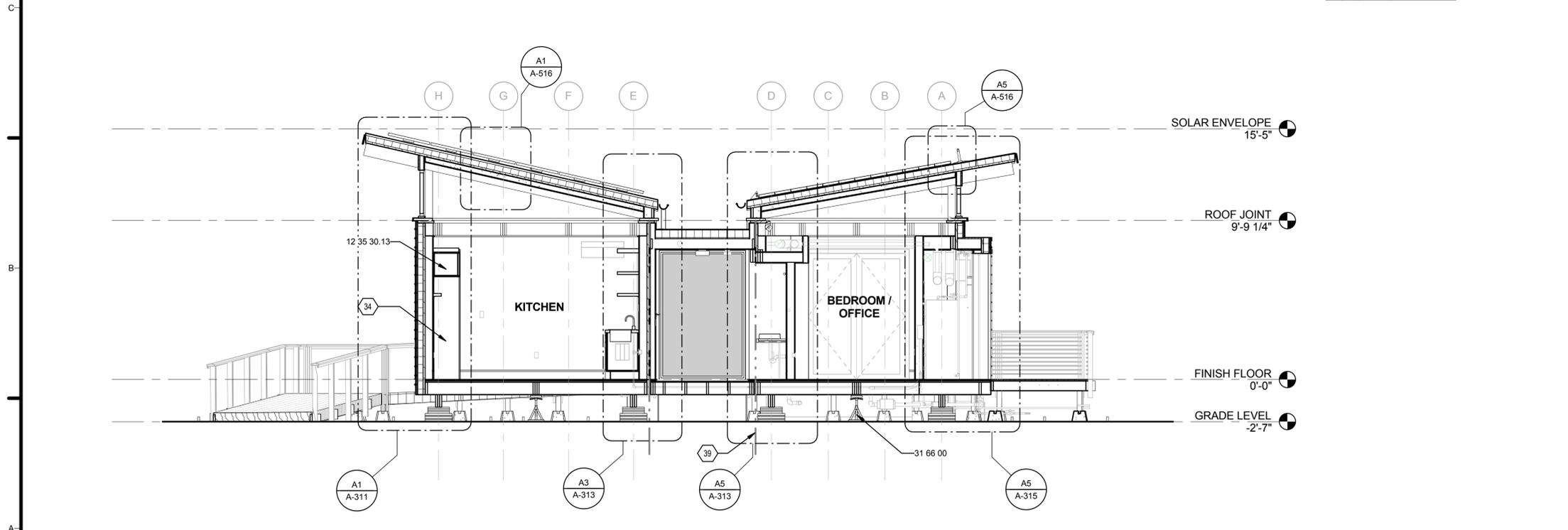
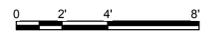
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**INTERIOR ELEVATIONS**

**A-212**

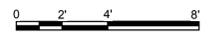
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**C1 BUILDING CROSS SECTION 1**  
1/4" = 1'-0"



**A1 BUILDING CROSS SECTION 2**  
1/4" = 1'-0"



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

01 54 23	TEMPORARY SCAFFOLDING AND PLATFORMS
07 33 63	VEGETATED ROOFING
12 35 30.13	KITCHEN CASEWORK
26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

34	LIQUID DESICCANT WALL (SEE P-103)
39	DASH-DOT-DOT LINE TO REPRESENT SEPARATION OF MODULES



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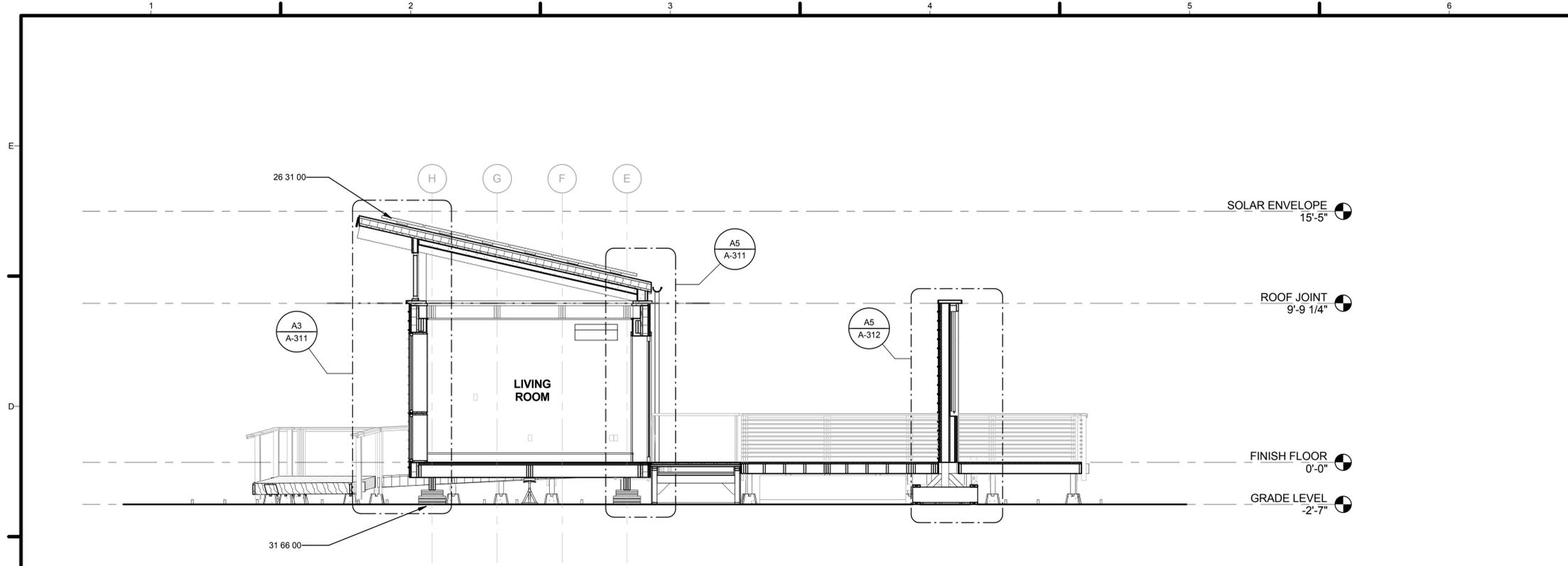


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05	08/11/2011	AS-BUILT DRAWING SUBMISSION

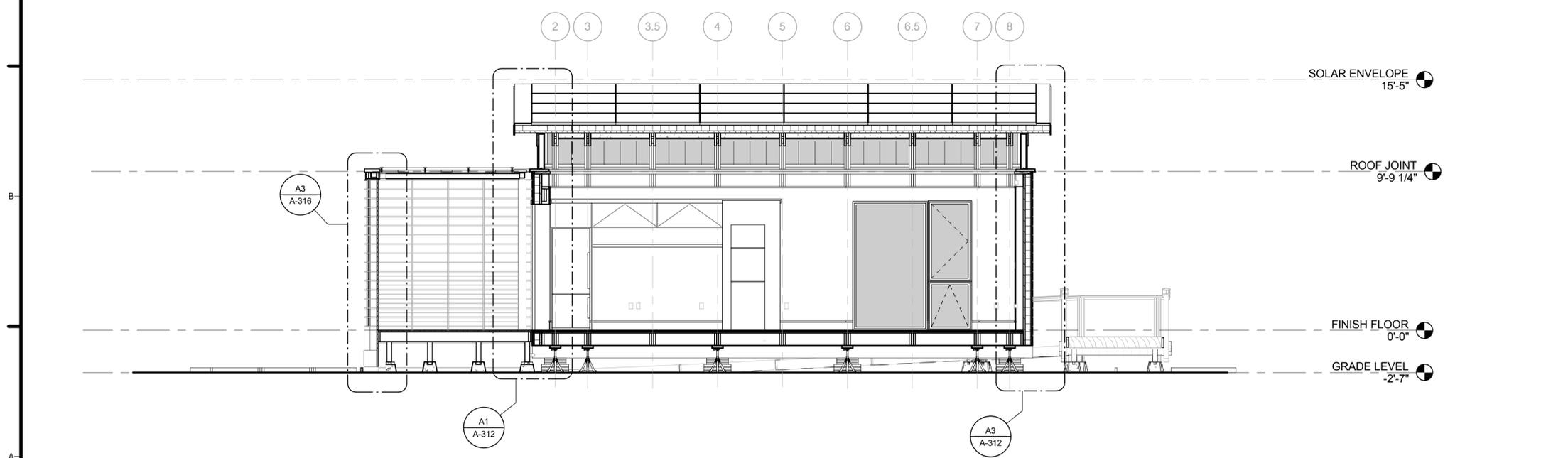
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**BUILDING SECTIONS**

**A-301**



**C1 BUILDING CROSS SECTION 3**  
1/4" = 1'-0"



**A1 LONGITUDINAL SECTION 1**  
1/4" = 1'-0"



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS

**SHEET KEYNOTES**



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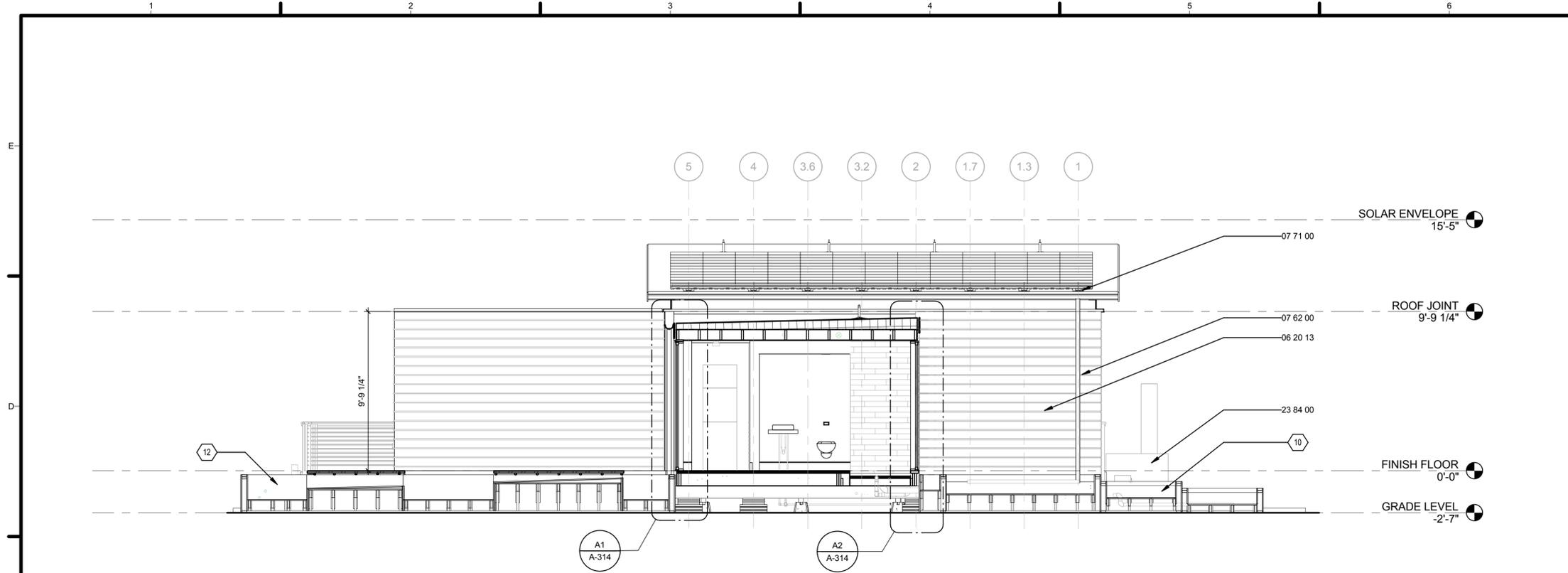


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05	08/11/2011	AS-BUILT DRAWING SUBMISSION

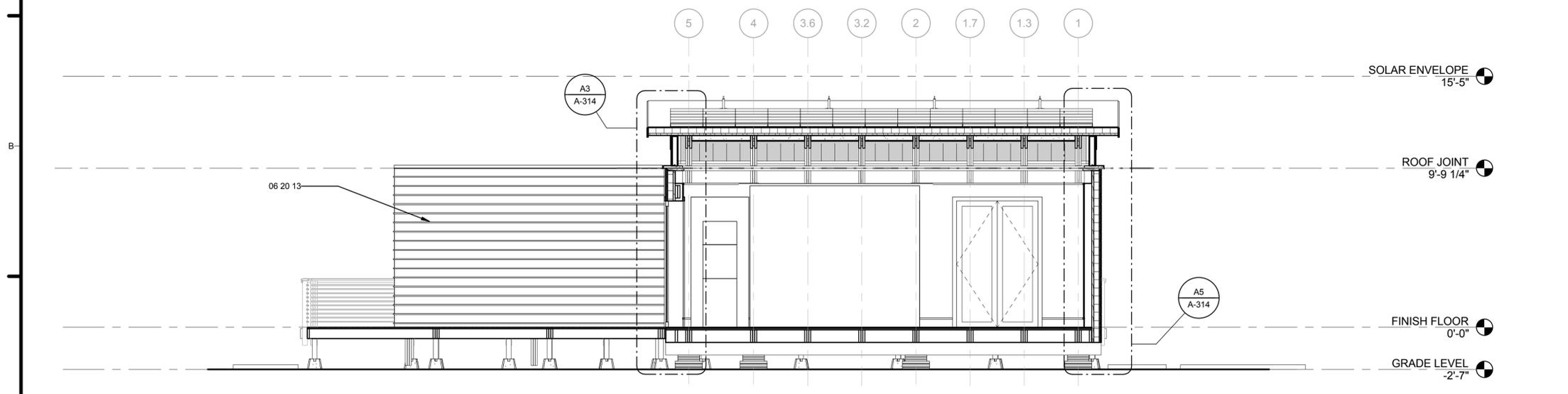
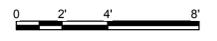
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**BUILDING SECTIONS**

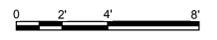
**A-302**



**C1** LONGITUDINAL SECTION 2  
1/4" = 1'-0"



**A1** LONGITUDINAL SECTION 3  
1/4" = 1'-0"



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

06 20 13	EXTERIOR FINISH CARPENTRY
07 62 00	SHEET METAL FLASHING AND TRIM
07 71 00	ROOF SPECIALTIES
23 84 00	HUMIDITY CONTROL EQUIPMENT

**SHEET KEYNOTES**

10	CONSTRUCTED WETLANDS FOR GREY WATER FILTRATION (SEE A-412)
12	CONSTRUCTED WETLANDS RAINWATER HARVESTING AND FILTRATION SYSTEM (SEE A-411)



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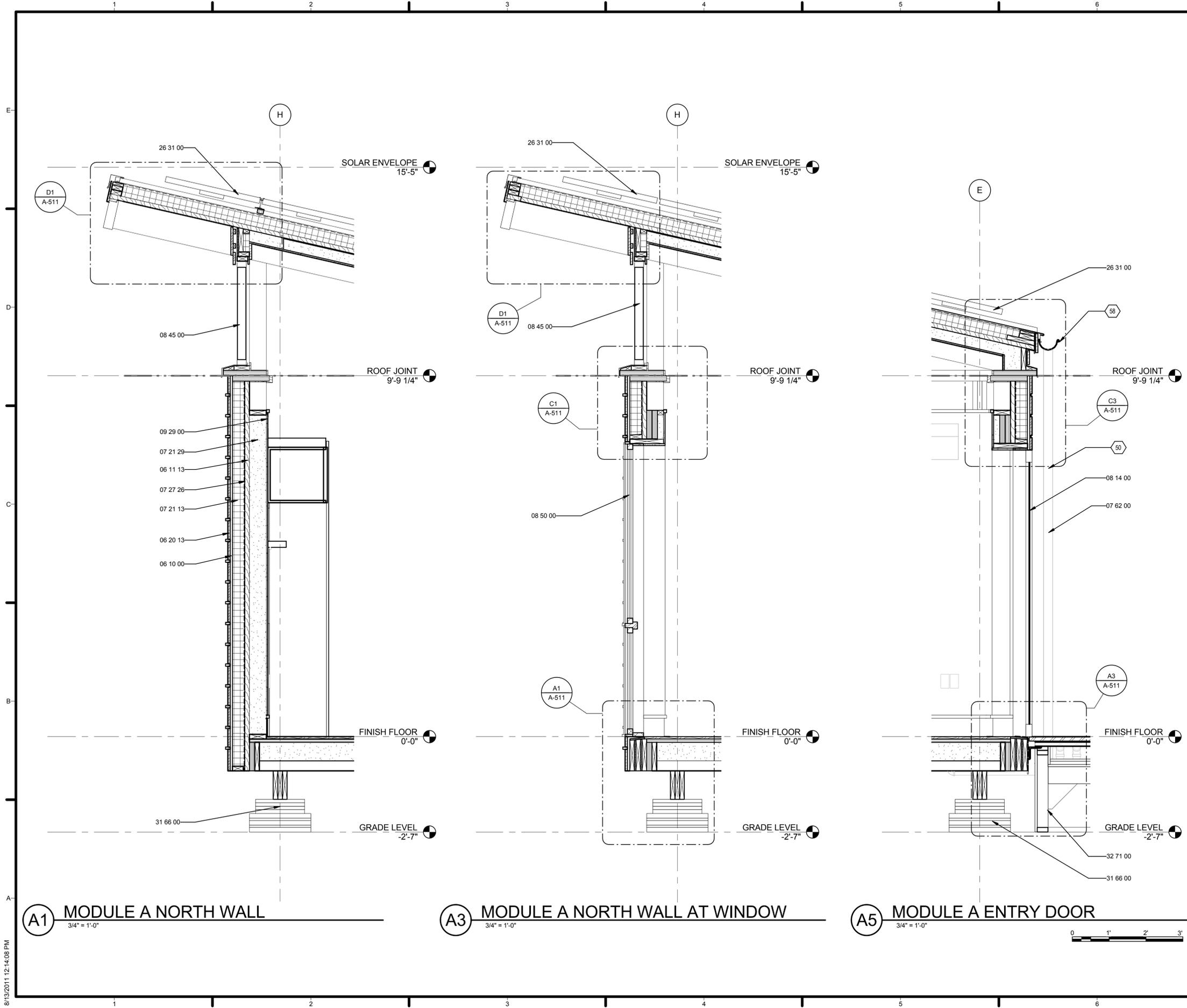


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SHEET TITLE  
**BUILDING SECTIONS**

**A-303**



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

- 06 10 00 ROUGH CARPENTRY
- 06 11 13 ENGINEERED WOOD PRODUCTS
- 06 20 13 EXTERIOR FINISH CARPENTRY
- 07 21 13 BOARD INSULATION
- 07 21 29 SPRAYED INSULATION
- 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 08 14 00 WOOD DOORS
- 08 45 00 TRANSLUCENT WALL AND ROOF ASSEMBLIES
- 08 50 00 WINDOWS
- 09 29 00 GYPSUM BOARD
- 26 31 00 PHOTOVOLTAIC COLLECTORS
- 31 66 00 SPECIAL FOUNDATIONS
- 32 71 00 CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

- 50 DOWNSPOUT TIED BACK TO WALL WITH BRACKETS AT 42" O.C.
- 58 GUTTERS TO BE REMOVED DURING TRANSPORT



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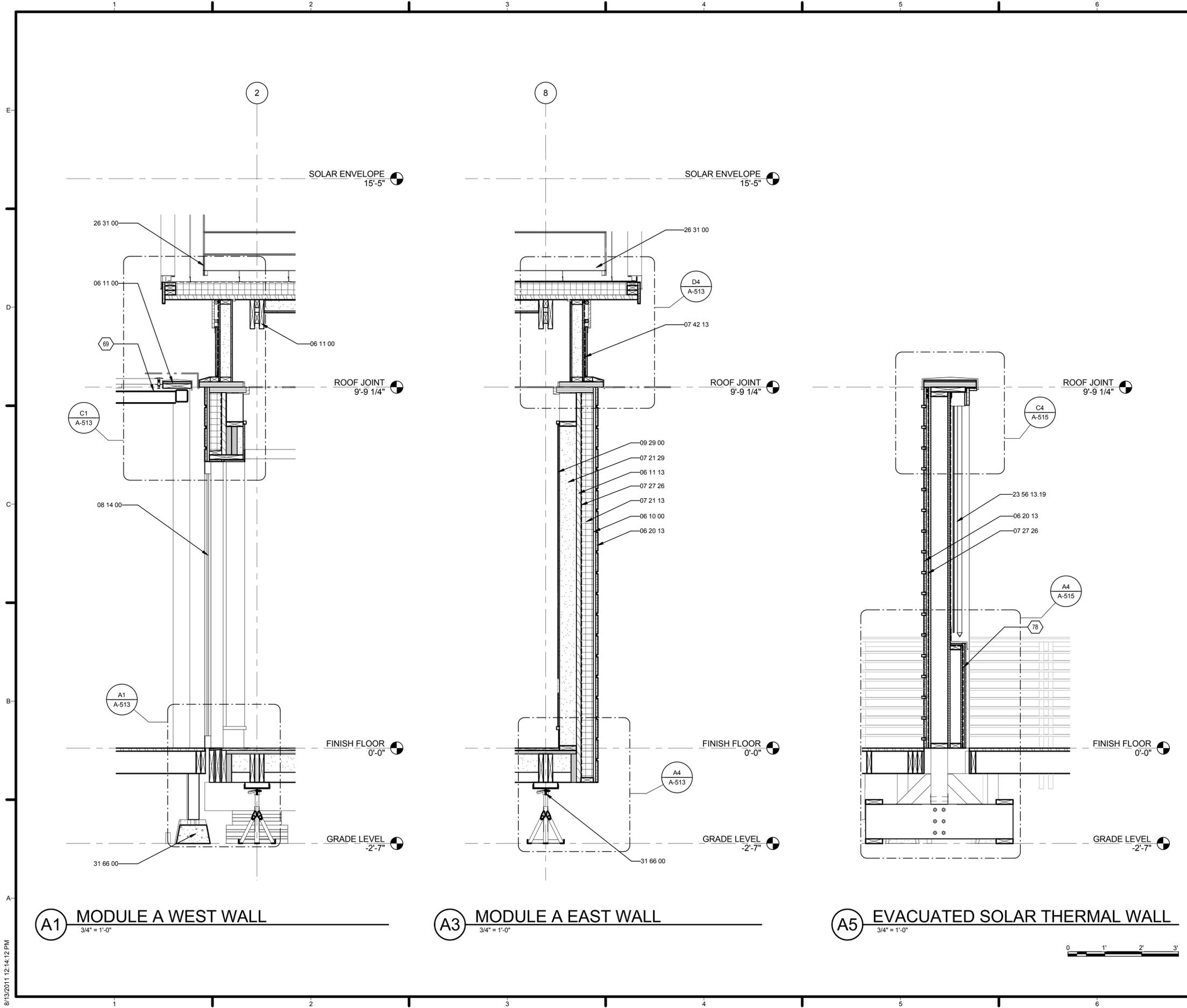


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**WALL SECTIONS**

**A-311**



**GENERAL SHEET NOTES**

- DIFFERENT FOUNDATION CONDITIONS REFLECT DIFFERENT LOAD CONDITIONS ON GRADE. SEE C-104, GROUND CONTACT PLAN, FOR LOADS

**REFERENCE KEYNOTES**

06 10 00	ROUGH CARPENTRY
06 11 00	WOOD FRAMING
06 11 13	ENGINEERED WOOD PRODUCTS
06 20 13	EXTERIOR FINISH CARPENTRY
07 21 13	BOARD INSULATION
07 21 29	SPRAYED INSULATION
07 27 26	FLUID-APPLIED MEMBRANE AIR BARRIERS
07 42 13	METAL WALL PANELS
08 14 00	WOOD DOORS
09 29 00	GYPSON BOARD
23 56 13.19	HEATING SOLAR VACUUM-TUBE COLLECTORS
26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS

**SHEET KEYNOTES**

69	PERGOLA STRUCTURE WITH INTEGRATED PV PANELS
78	CORRUGATED GALVALUME KICK PLATE



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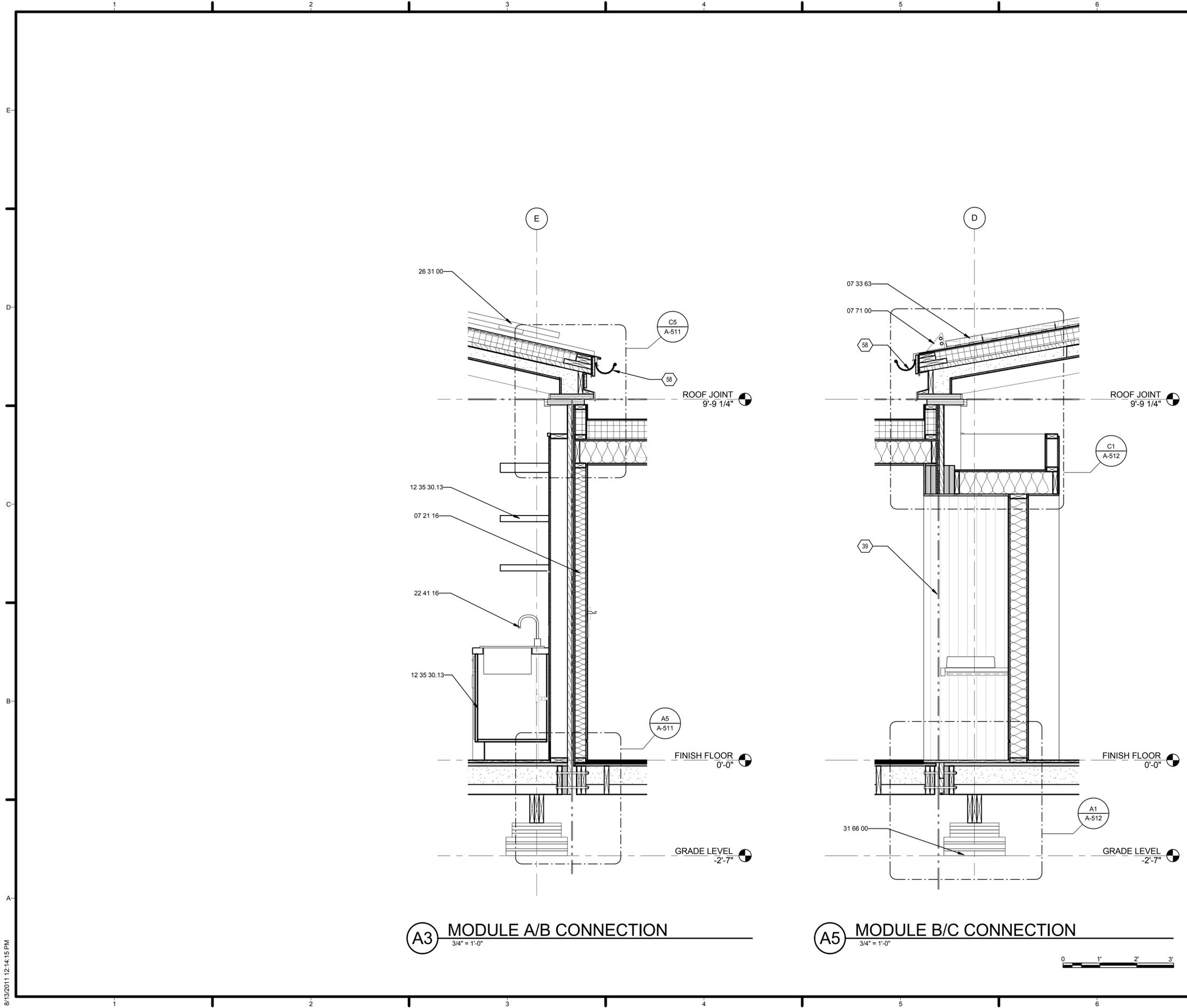
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SHEET TITLE  
**WALL SECTIONS**

**A-312**

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GENERAL SHEET NOTES

REFERENCE KEYNOTES

07 21 16	BLANKET INSULATION
07 33 63	VEGETATED ROOFING
07 71 00	ROOF SPECIALTIES
12 35 30.13	KITCHEN CASEWORK
22 41 16	RESIDENTIAL LAVATORIES AND SINKS
26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS

SHEET KEYNOTES

39	DASH-DOT-DOT LINE TO REPRESENT SEPARATION OF MODULES
58	GUTTERS TO BE REMOVED DURING TRANSPORT



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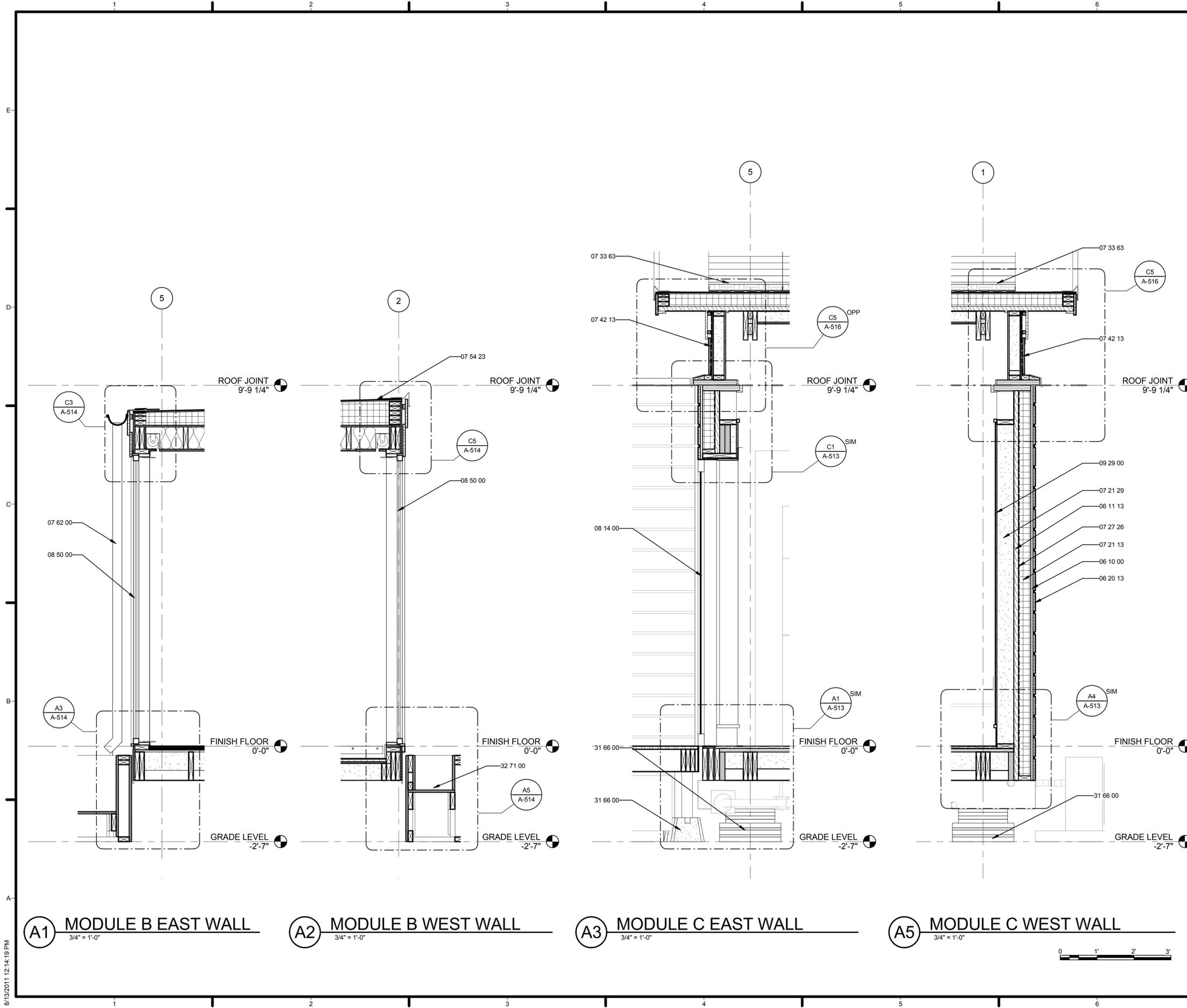
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02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
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SHEET TITLE  
 WALL SECTIONS

A-313

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GENERAL SHEET NOTES

REFERENCE KEYNOTES

- 06 10 00 ROUGH CARPENTRY
- 06 11 13 ENGINEERED WOOD PRODUCTS
- 06 20 13 EXTERIOR FINISH CARPENTRY
- 07 21 13 BOARD INSULATION
- 07 21 29 SPRAYED INSULATION
- 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
- 07 33 63 VEGETATED ROOFING
- 07 42 13 METAL WALL PANELS
- 07 54 23 THERMOPLASTIC-POLYOLEFIN ROOFING
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 08 14 00 WOOD DOORS
- 08 50 00 WINDOWS
- 09 29 00 GYPSUM BOARD
- 31 66 00 SPECIAL FOUNDATIONS
- 32 71 00 CONSTRUCTED WETLANDS

SHEET KEYNOTES



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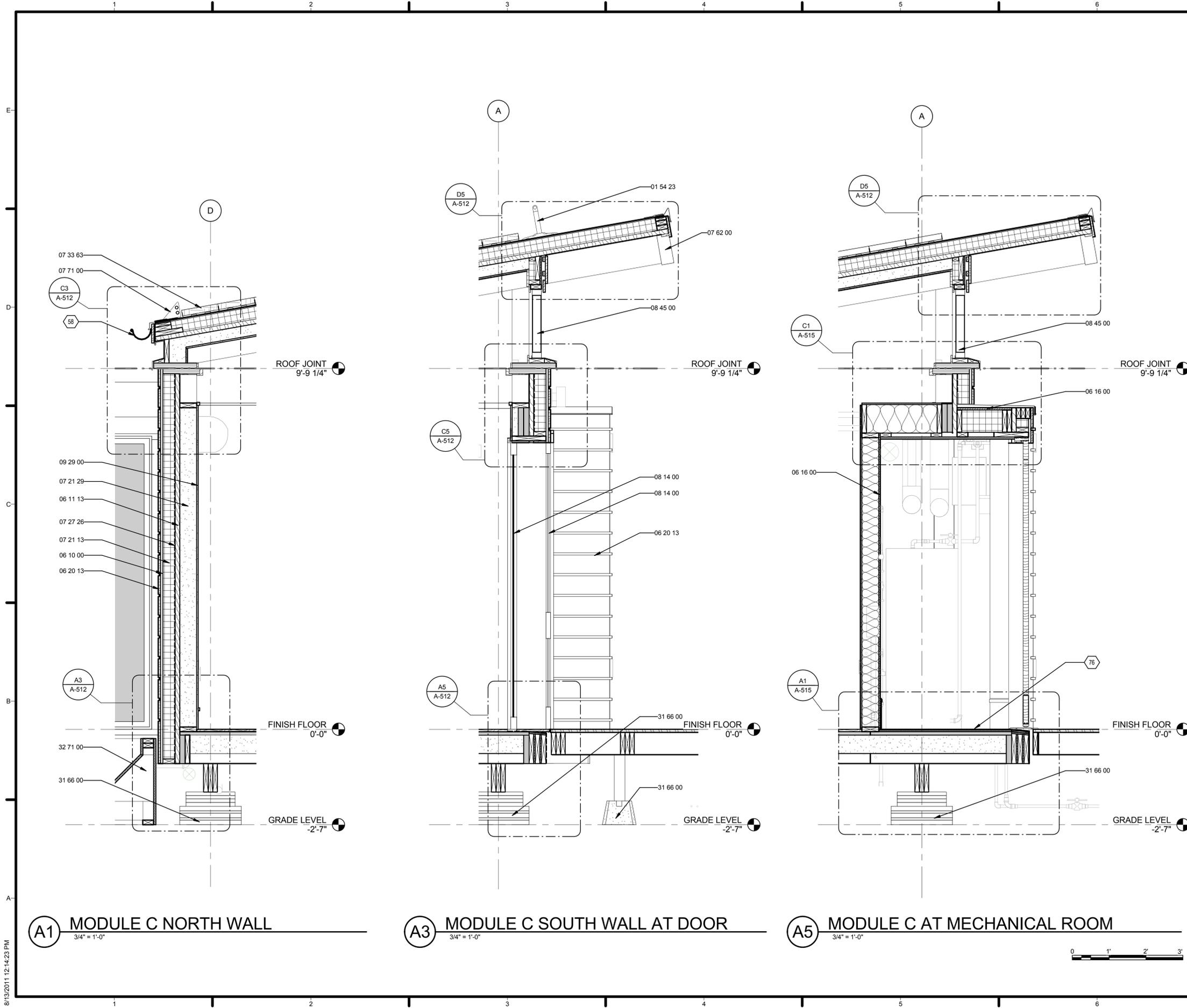
SHEET TITLE

WALL SECTIONS

A-314

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**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

01 54 23	TEMPORARY SCAFFOLDING AND PLATFORMS
06 10 00	ROUGH CARPENTRY
06 11 13	ENGINEERED WOOD PRODUCTS
06 16 00	SHEATHING
06 20 13	EXTERIOR FINISH CARPENTRY
07 21 13	BOARD INSULATION
07 21 29	SPRAYED INSULATION
07 27 26	FLUID-APPLIED MEMBRANE AIR BARRIERS
07 33 63	VEGETATED ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
07 71 00	ROOF SPECIALTIES
08 14 00	WOOD DOORS
08 45 00	TRANSLUCENT WALL AND ROOF ASSEMBLIES
09 29 00	GYPSUM BOARD
31 66 00	SPECIAL FOUNDATIONS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

40	SEE M-401 AND P-401 FOR CONTENTS OF MECHANICAL RM
58	GUTTERS TO BE REMOVED DURING TRANSPORT
76	TPO MEMBRANE TO PROVIDE WATERTIGHT MECHANICAL RM FLOOR SURFACE



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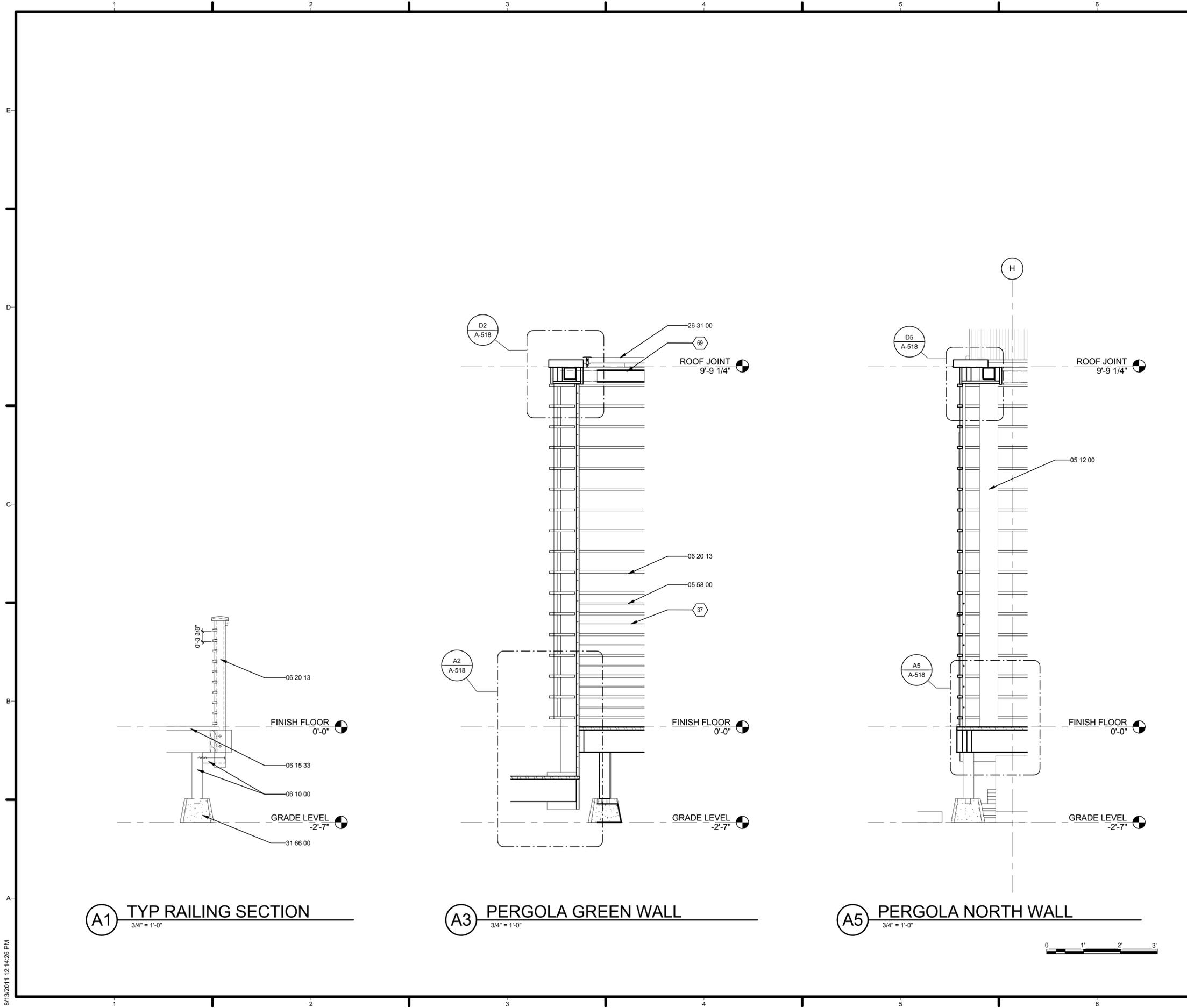
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SHEET TITLE  
**WALL SECTIONS**

**A-315**

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**A1** TYP RAILING SECTION  
3/4" = 1'-0"

**A3** PERGOLA GREEN WALL  
3/4" = 1'-0"

**A5** PERGOLA NORTH WALL  
3/4" = 1'-0"



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

05 12 00	STRUCTURAL STEEL FRAMING
05 58 00	FORMED METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
06 15 33	WOOD DECK
06 20 13	EXTERIOR FINISH CARPENTRY
26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS

**SHEET KEYNOTES**

37	ADDITIONAL ALUMINUM RODS, SPACED 3" O.C. TO SERVE AS A GUARDRAIL 40" ABOVE DECK HEIGHT
69	PERGOLA STRUCTURE WITH INTEGRATED PV PANELS



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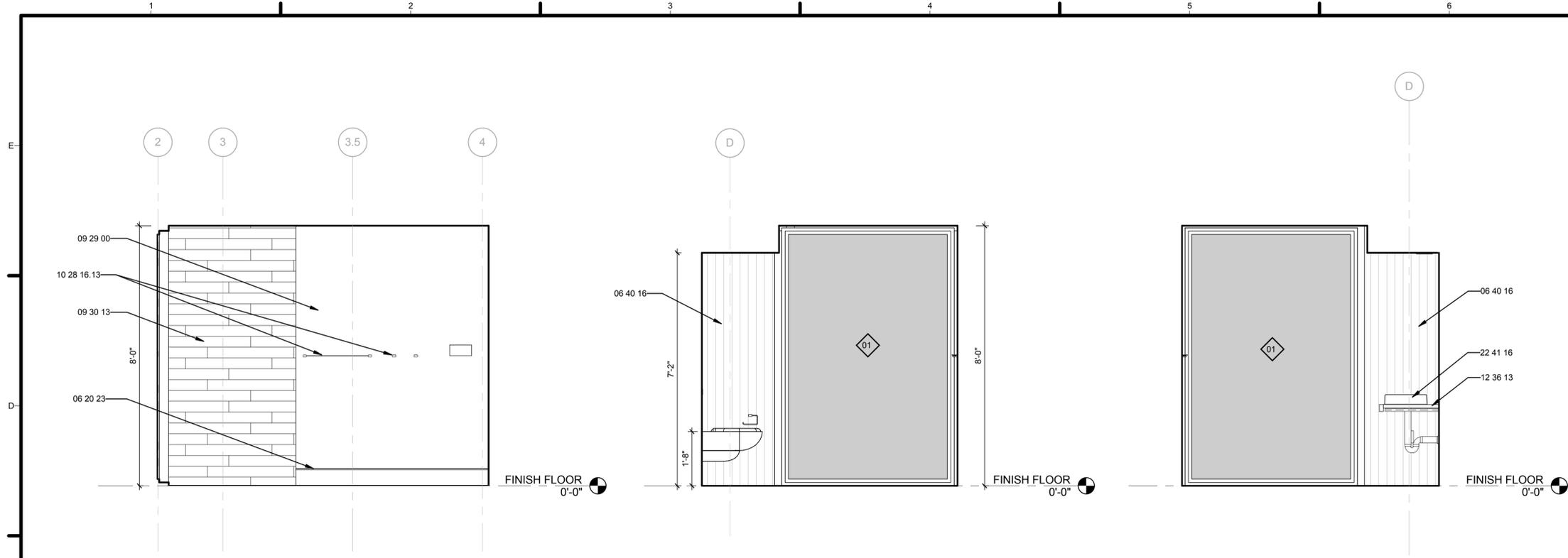


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**WALL SECTIONS**

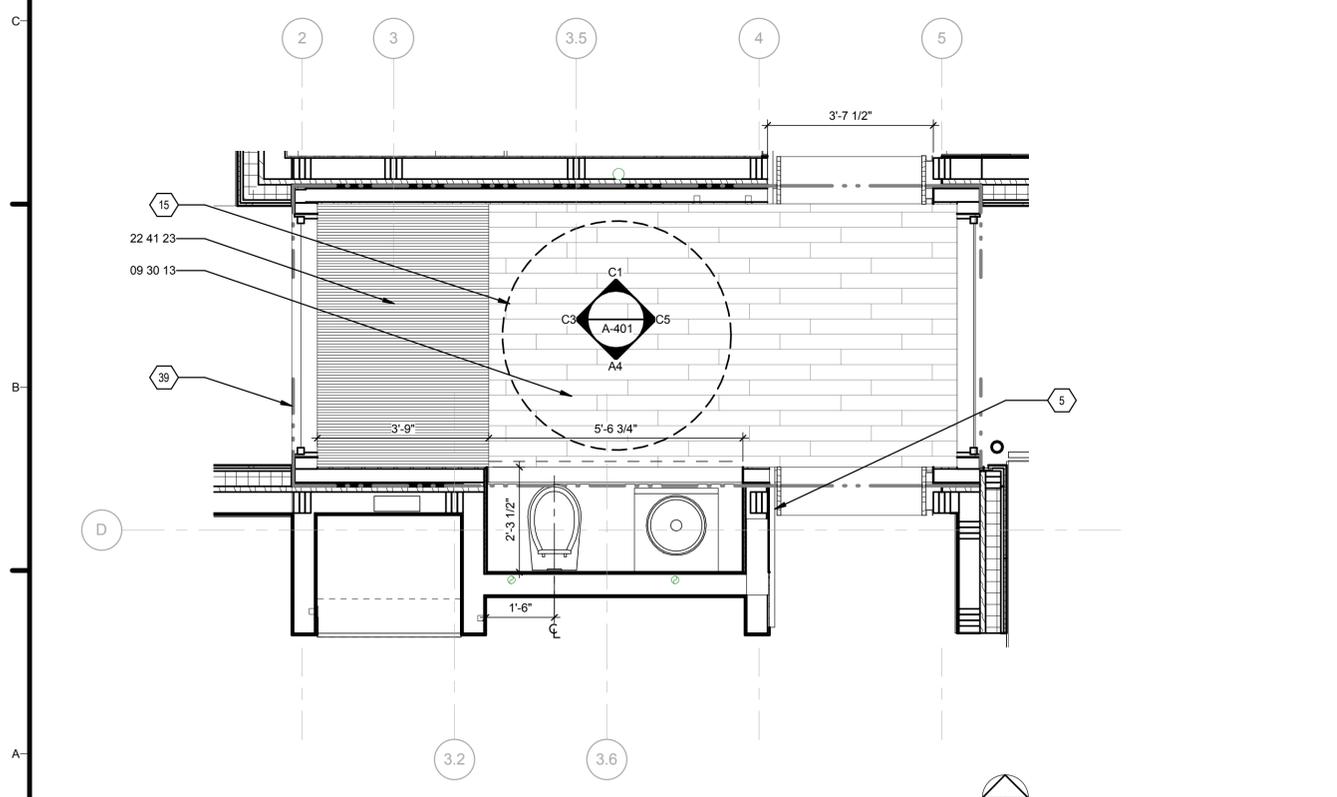
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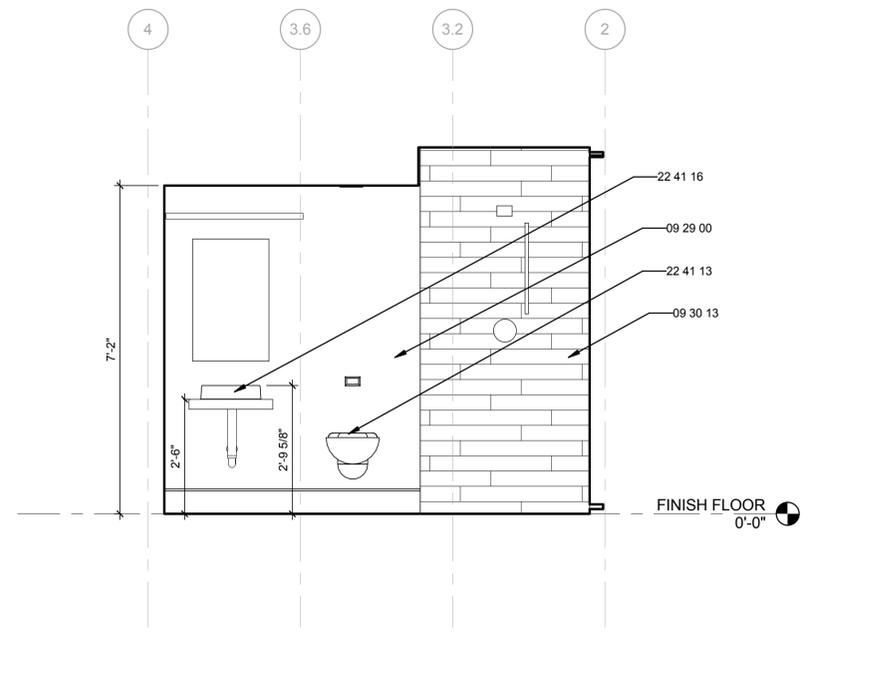
**C1 NORTH ELEVATION**  
1/2" = 1'-0"

**C3 WEST ELEVATION**  
1/2" = 1'-0"

**C5 EAST ELEVATION**  
1/2" = 1'-0"



**A1 PLAN**  
1/2" = 1'-0"



**A4 SOUTH ELEVATION**  
1/2" = 1'-0"

**GENERAL SHEET NOTES**

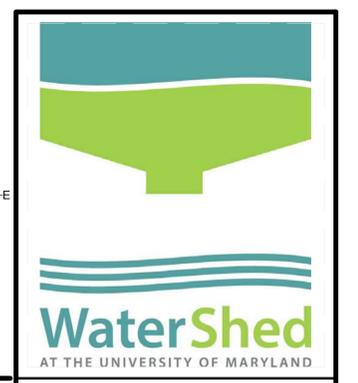
- BATHROOM TO COMPLY WITH OPTIONAL ACCESSIBILITY PATH: TYPE B - OPTIONAL; COMPLYING WITH REQUIREMENTS PROVIDED IN ICC A117.1-2003 SECTION 1004 AS "ADAPTABLE" FOR ACCESSIBLE ELEMENTS
- REFER TO PROJECT MANUAL SPECS AND FINISH SCHEDULE (A-602) FOR MORE INFORMATION REGARDING MATERIALS

**REFERENCE KEYNOTES**

06 20 23	INTERIOR FINISH CARPENTRY
06 40 16	INTERIOR ARCHITECTURAL WOODWORK
09 29 00	GYP SUM BOARD
09 30 13	CERAMIC TILING
10 28 16.13	RESIDENTIAL BATH ACCESSORIES
12 36 13	CONCRETE COUNTERTOPS
22 41 13	RESIDENTIAL WATER CLOSETS, URINALS, AND BIDETS
22 41 16	RESIDENTIAL LAVATORIES AND SINKS
22 41 23	RESIDENTIAL SHOWER RECEPTORS AND BASINS

**SHEET KEYNOTES**

- DOORS WILL REMAIN FIXED IN OPEN POSITION DURING PUBLIC TOURS
- 5'-0" DIAMETER ADA COMPLIANT TURNING AREA, TYP
- DASH-DOT-DOT LINE TO REPRESENT SEPARATION OF MODULES



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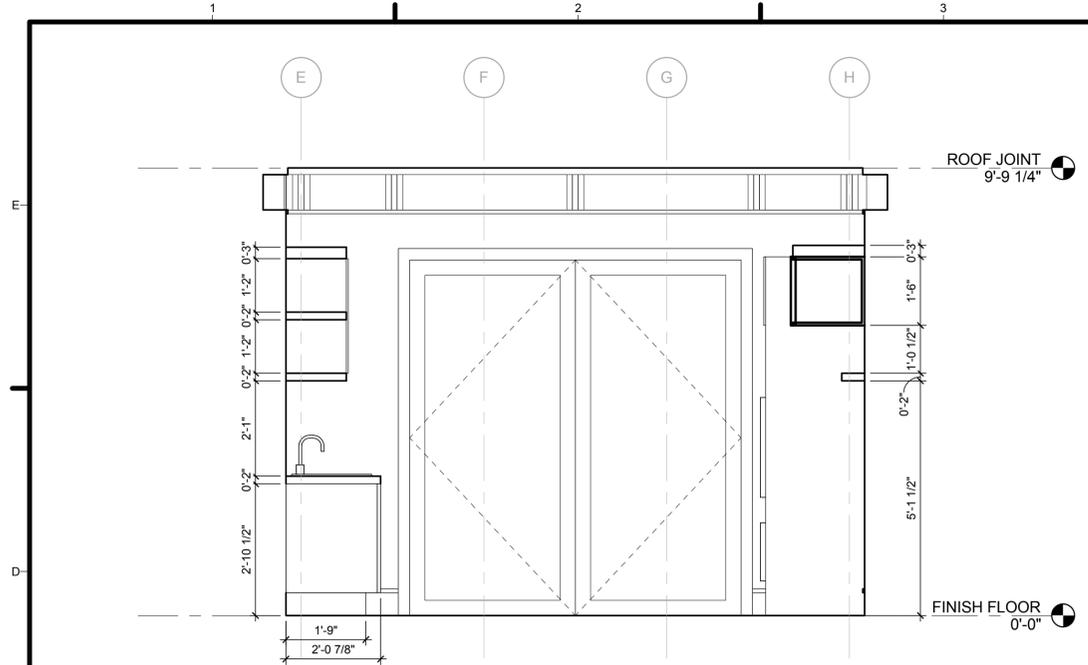


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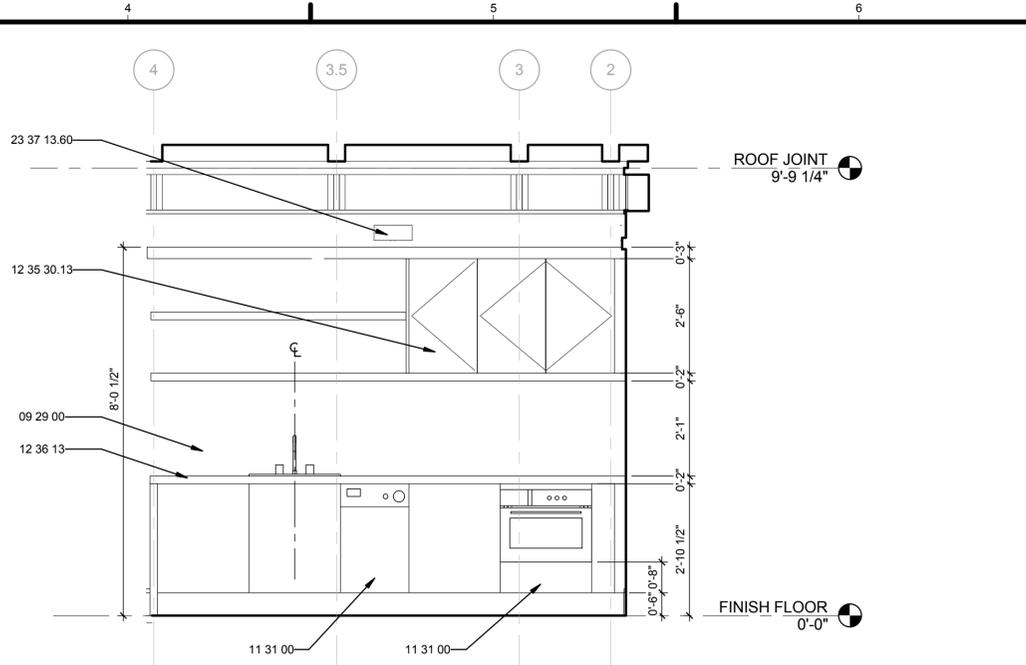
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SHEET TITLE  
**BATHROOM PLANS & ELEVATIONS**

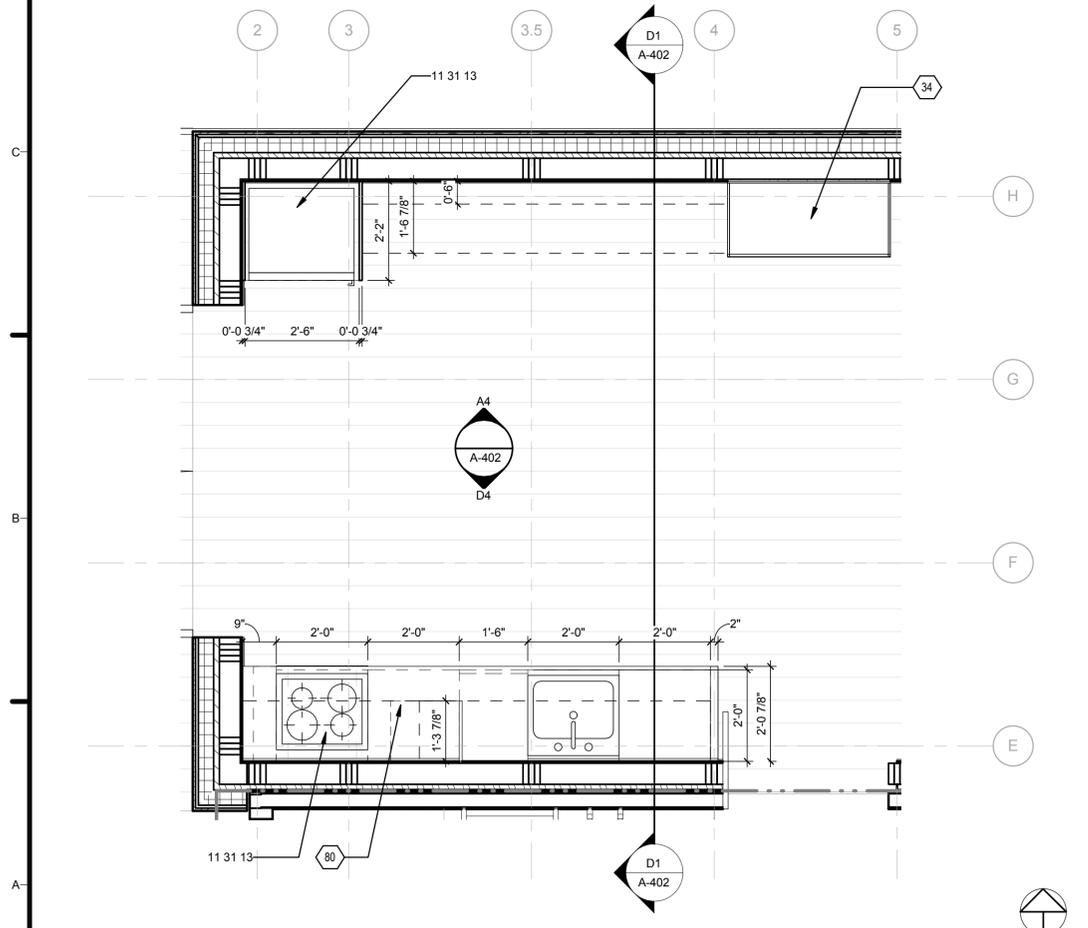
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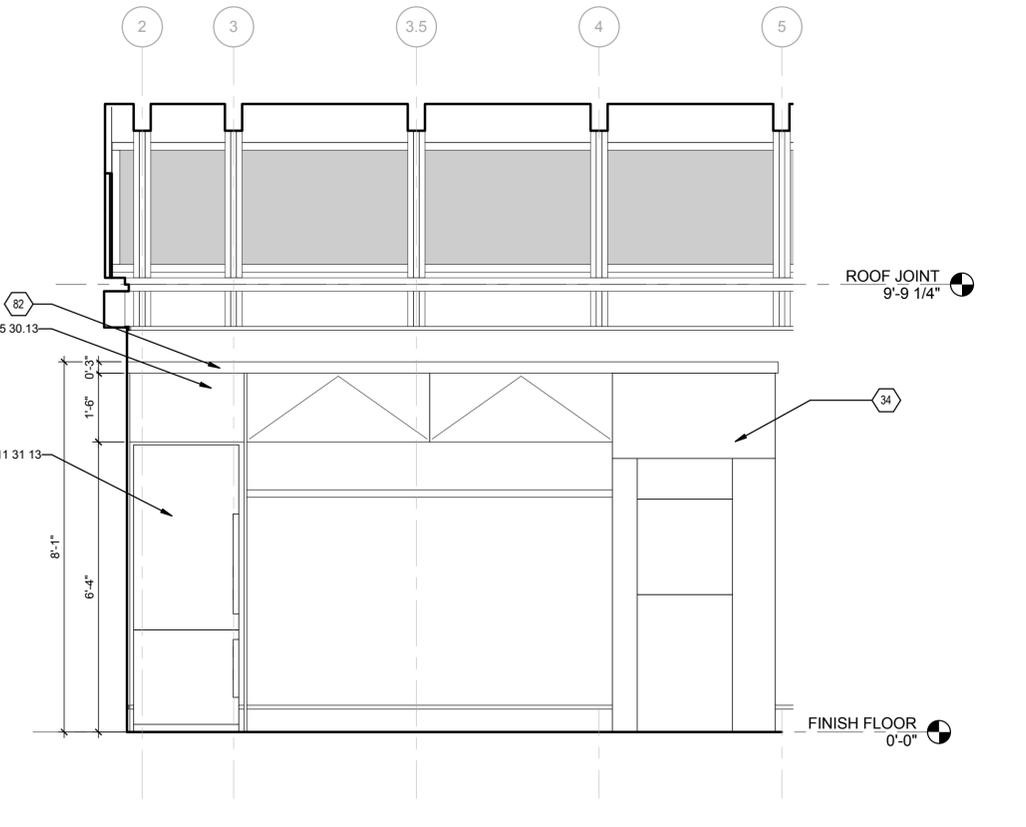
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1/2" = 1'-0"



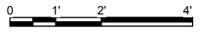
**D4 SOUTH ELEVATION**  
1/2" = 1'-0"



**A1 PLAN**  
1/2" = 1'-0"



**A4 NORTH ELEVATION**  
1/2" = 1'-0"



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

09 29 00	GYPSUM BOARD
11 31 00	RESIDENTIAL APPLIANCES
11 31 13	RESIDENTIAL KITCHEN APPLIANCES
12 35 30.13	KITCHEN CASEWORK
12 36 13	CONCRETE COUNTERTOPS
23 37 13.60	DIFFUSERS, REGISTERS, AND GRILLES

**SHEET KEYNOTES**

34	LIQUID DESICCANT WALL (SEE P-103)
80	LINE OF CABINERY AND SHELVING ABOVE
82	LOCATION OF COMPETITION REQUIRED DATALOGGER



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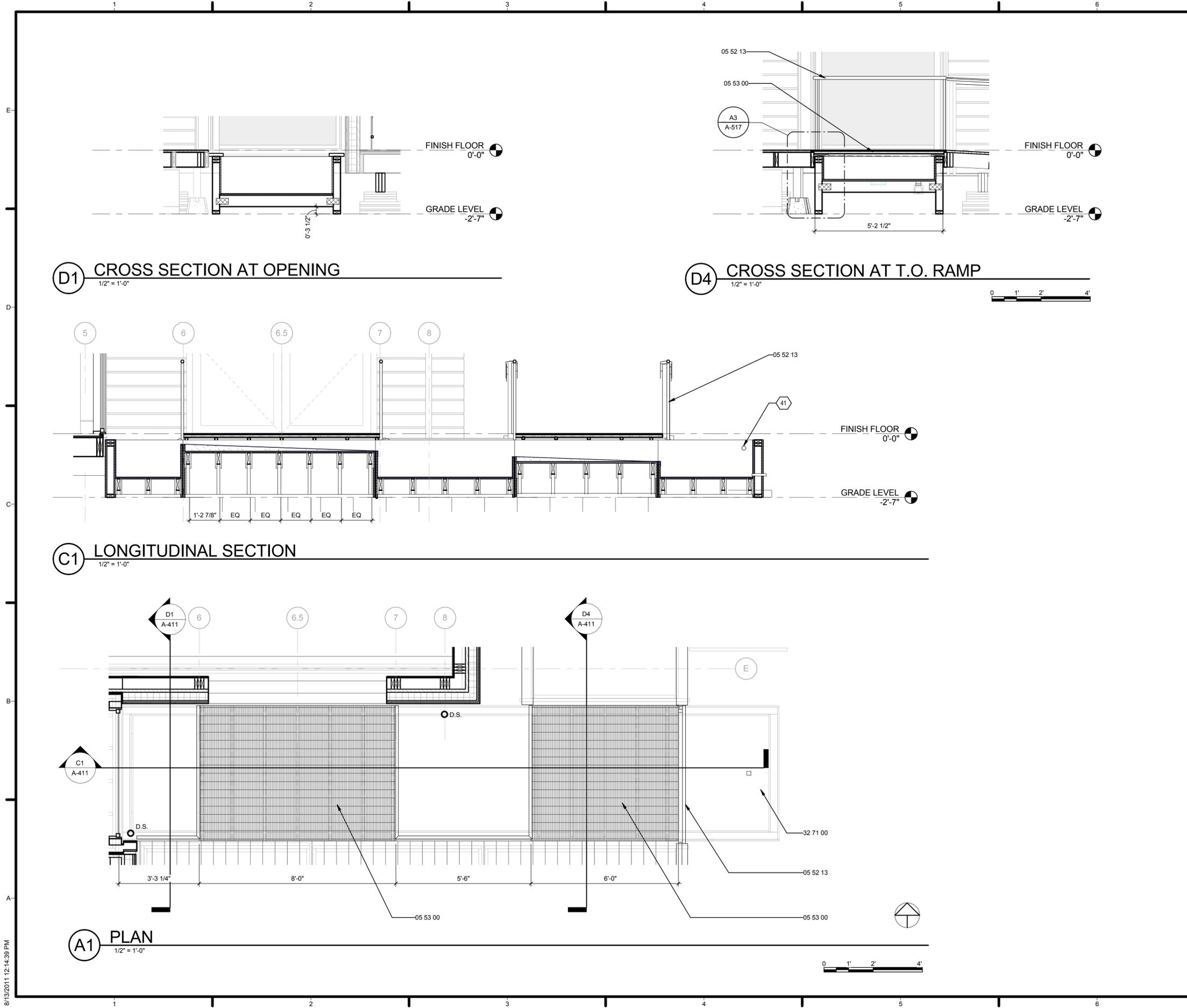


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**KITCHEN PLANS & ELEVATIONS**

**A-402**



**GENERAL SHEET NOTES**

1. EAST SIDE CONSTRUCTED WETLANDS AT ENTRY DOOR TO SERVE AS RAINWATER COLLECTION AND FILTRATION SYSTEM. RAIN WATER FROM PV ROOF WILL BE HARVESTED AND MANUALLY EXTRACTED FOR LANDSCAPE IRRIGATION PURPOSES
2. WETLANDS SHALL SIT MIN OF 3 1/2" OFF GRADE. MAX ELEVATION DIFFERENCE BETWEEN DECK AND BASE OF WETLANDS SHALL NOT EXCEED 18". HANDRAILS WILL ALLOW FOR ADDITIONAL PUBLIC SAFETY
3. METAL GRATE TO REPLACE DECKING MATERIAL OVER WETLANDS. BAR GRATING SHALL BE ADA COMPLIANT.
4. MAXIMUM WATER CAPACITY FOR RAIN WATER COLLECTION IN EAST WETLANDS IS 314 GALLONS. PLEASE SEE 0-111 FOR WATER REMOVAL.

**REFERENCE KEYNOTES**

05 52 13	PIPE AND TUBE RAILINGS
05 53 00	METAL GRATINGS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

- 41 OVERFLOW VALVE FOR DRAINAGE OF EXCESS RAINWATER. RECIRCULATION PUMP WILL BE USED TO REMOVE WATER AT END OF COMPETITION



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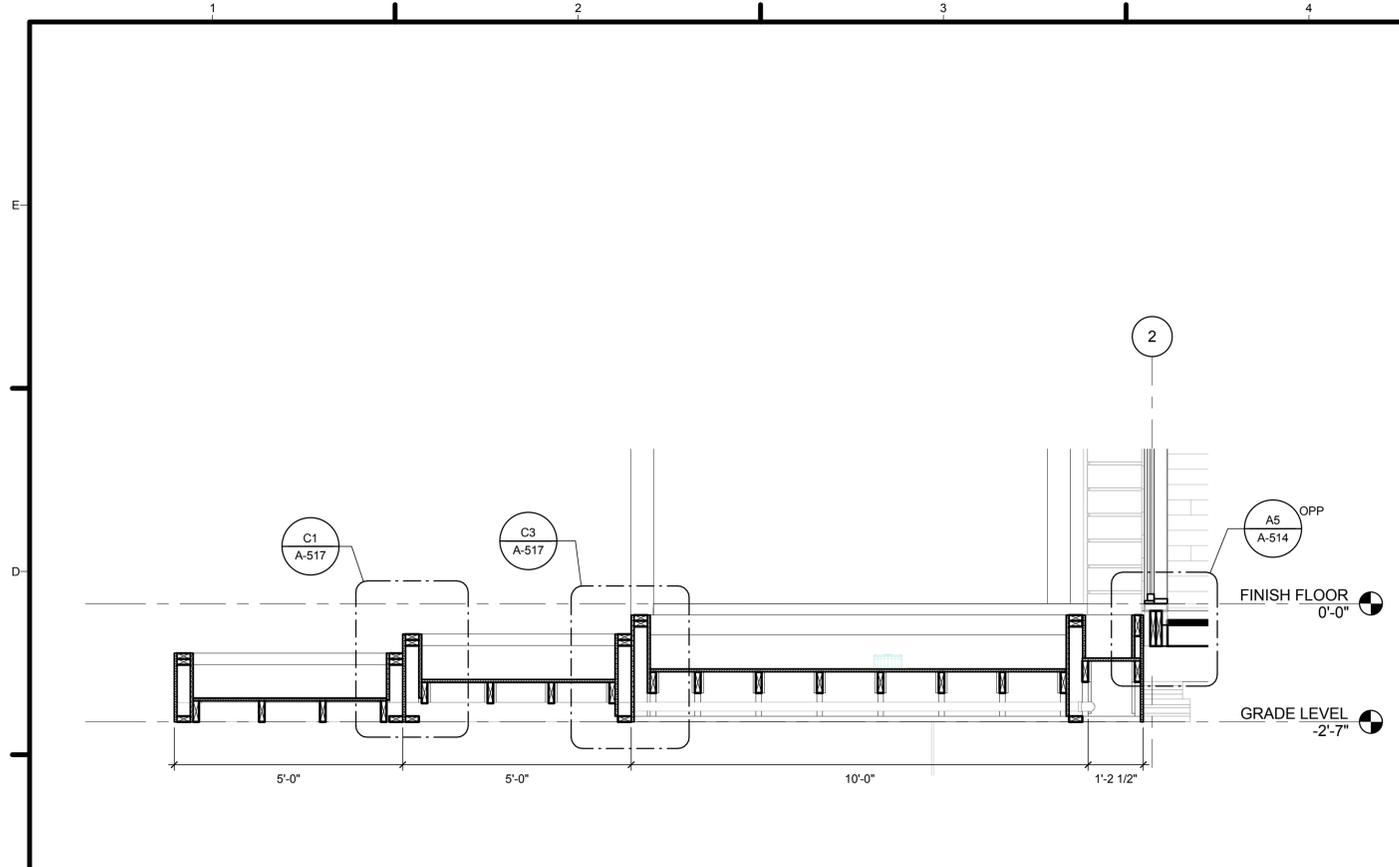


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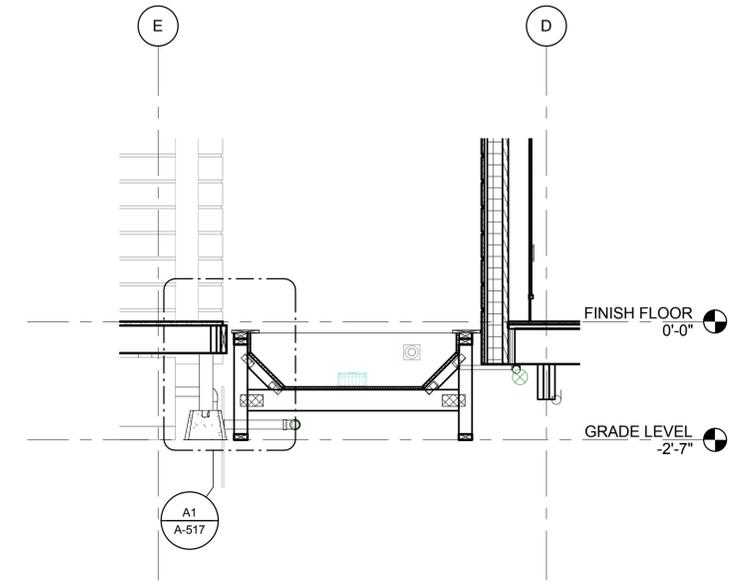
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**CONSTRUCTED WETLANDS (EAST)**

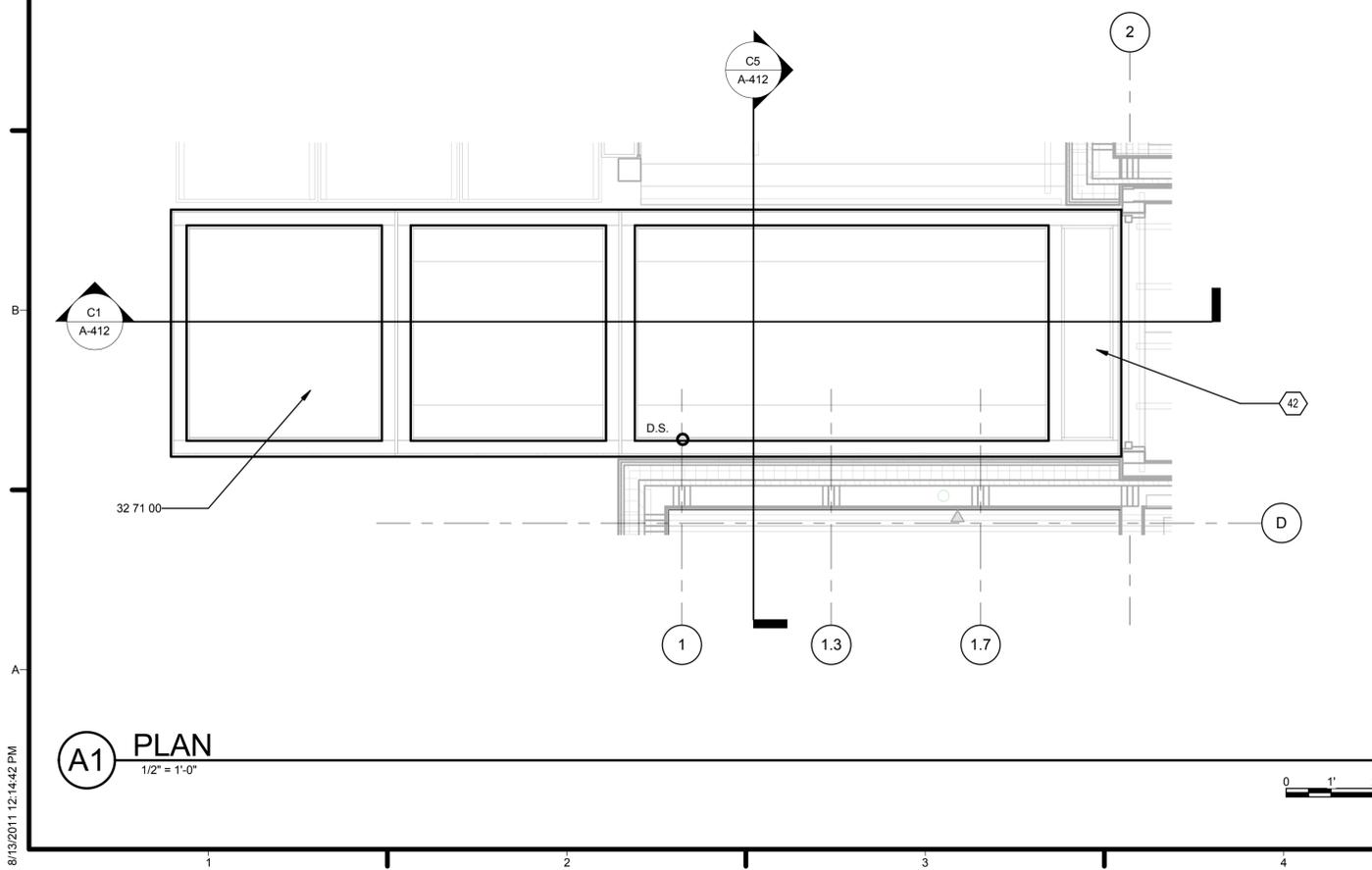
**A-411**



**C1** LONGITUDINAL SECTION  
1/2" = 1'-0"



**C5** CROSS SECTION AT DECK  
1/2" = 1'-0"



**A1** PLAN  
1/2" = 1'-0"

**GENERAL SHEET NOTES**

1. WEST SIDE CONSTRUCTED WETLANDS TO SERVE AS A TWO PART GREY WATER FILTRATION SYSTEM. 10' MODULE CLOSEST TO HOUSE SHALL COLLECT AND FILTER GREY WATER FROM GREEN ROOF. TWO 5'-0" MODULES WILL FILTER GREY WATER FROM HOUSE APPLIANCES.
2. WETLANDS SHALL SIT MIN OF 3 1/2" OFF GRADE. SEE P-SERIES FOR PLUMBING DETAILS.
3. MAXIMUM WATER CAPACITY FOR RAIN WATER COLLECTION IN WEST WETLANDS IS 394 GALLONS. MAX WATER CAPACITY FOR GREY WATER IN WEST WETLANDS IS 364 GALLONS. PLEASE SEE 0-111 FOR WATER REMOVAL.

**REFERENCE KEYNOTES**

32 71 00 CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

42 PLANTER BOX TO CONTAIN TALL GRASSES AS SCREENING DEVICE FOR SHWR



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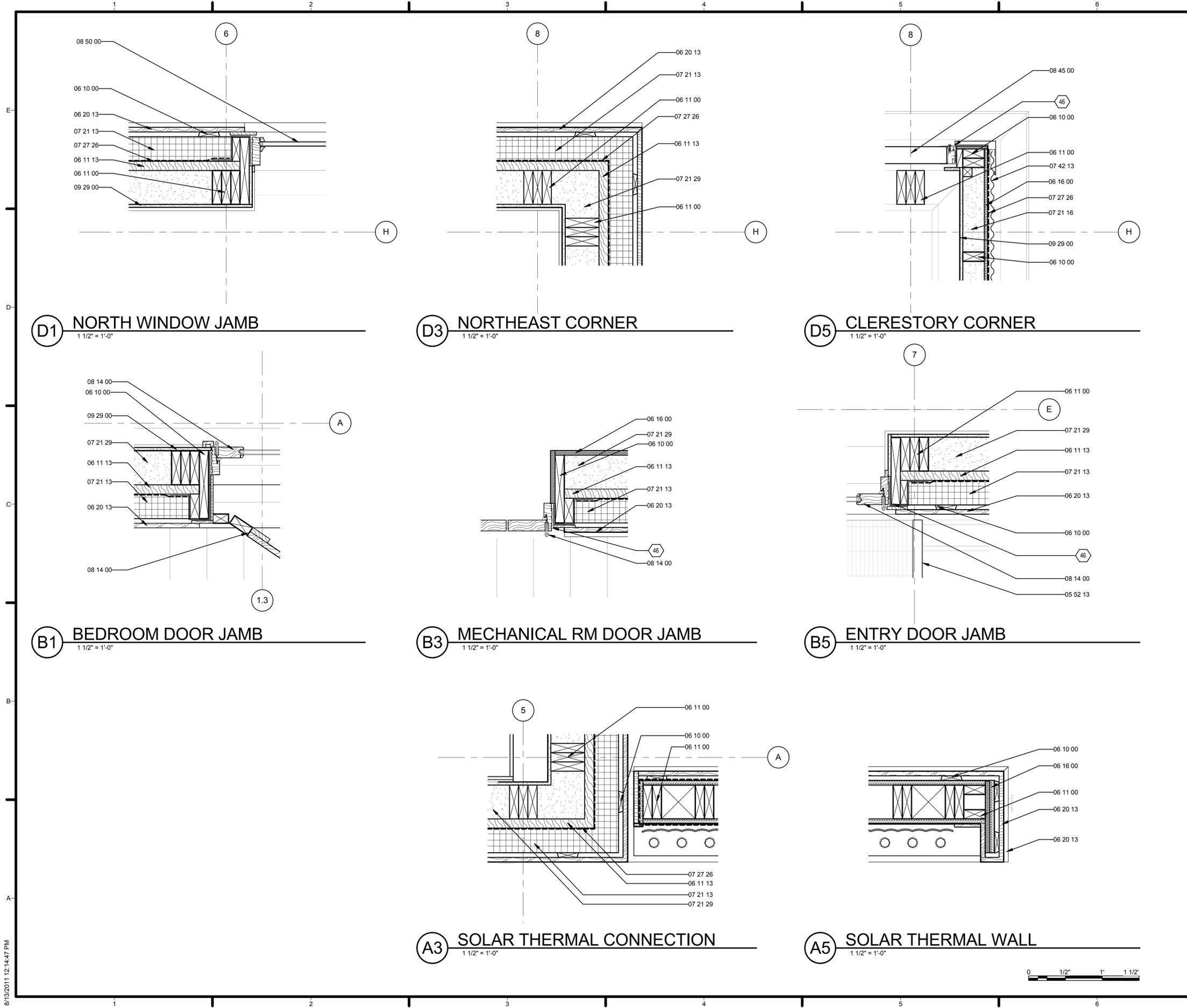


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**CONSTRUCTED WETLANDS (WEST)**

**A-412**



**GENERAL SHEET NOTES**

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

05 52 13	PIPE AND TUBE RAILINGS
06 10 00	ROUGH CARPENTRY
06 11 00	WOOD FRAMING
06 11 13	ENGINEERED WOOD PRODUCTS
06 16 00	SHEATHING
06 20 13	EXTERIOR FINISH CARPENTRY
07 21 13	BOARD INSULATION
07 21 16	BLANKET INSULATION
07 21 29	SPRAYED INSULATION
07 27 26	FLUID-APPLIED MEMBRANE AIR BARRIERS
07 42 13	METAL WALL PANELS
08 14 00	WOOD DOORS
08 45 00	TRANSLUCENT WALL AND ROOF ASSEMBLIES
08 50 00	WINDOWS
09 29 00	GYPSUM BOARD

**SHEET KEYNOTES**

46	SEALANT AND BACKER ROD TO PROVIDE WEATHERTIGHT SEAL
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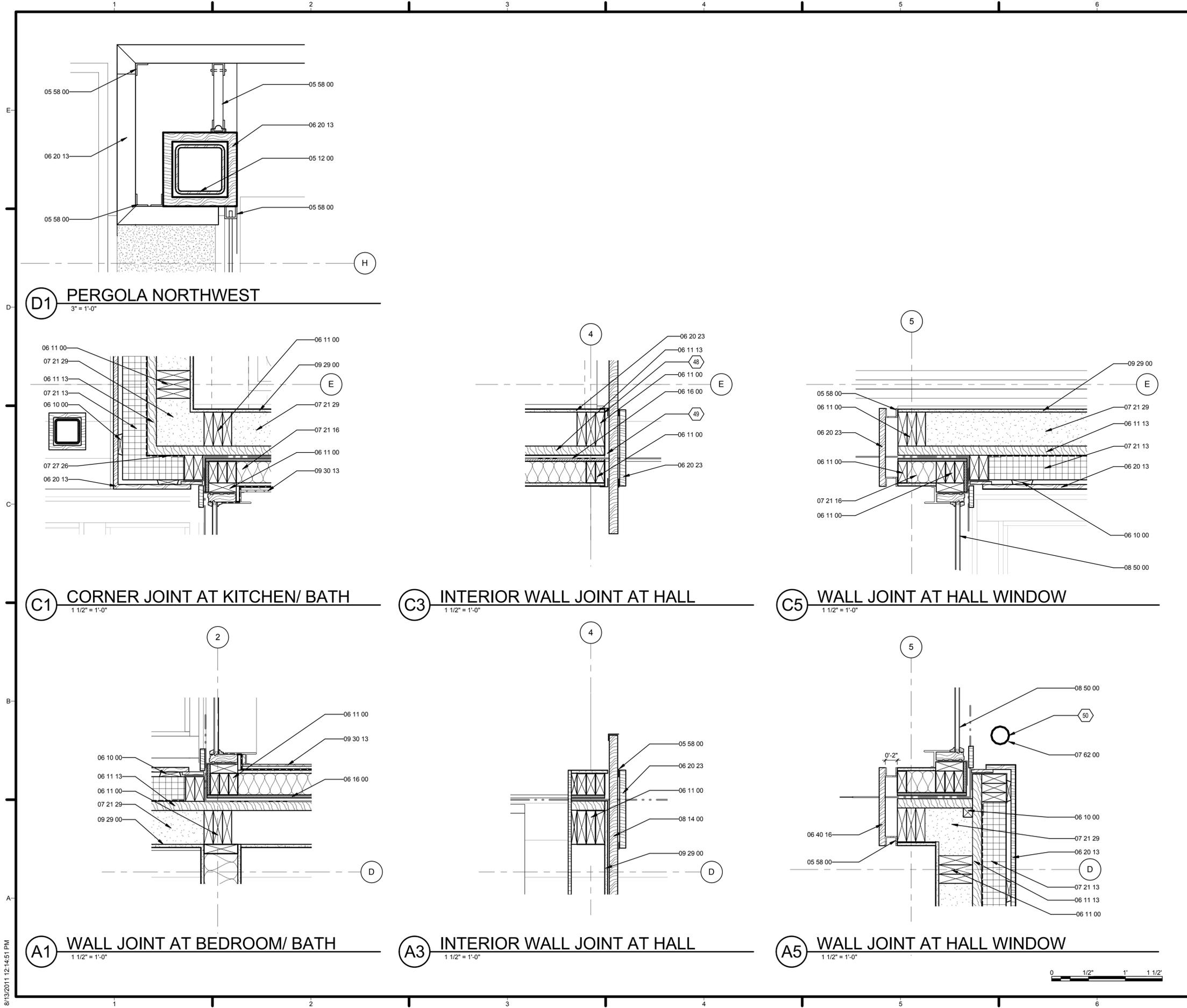
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**PLAN DETAILS**

**A-501**





**GENERAL SHEET NOTES**

1. ALL PLAN DETAILS EXISTING ON THIS SHEET TO EXPLAIN BATHROOM MODULE (B) CONNECTIONS TO OTHER TWO MODULES (A & C)
2. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

05 12 00	STRUCTURAL STEEL FRAMING
05 58 00	FORMED METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
06 11 00	WOOD FRAMING
06 11 13	ENGINEERED WOOD PRODUCTS
06 16 00	SHEATHING
06 20 13	EXTERIOR FINISH CARPENTRY
06 20 23	INTERIOR FINISH CARPENTRY
06 40 16	INTERIOR ARCHITECTURAL WOODWORK
07 21 13	BOARD INSULATION
07 21 16	BLANKET INSULATION
07 21 29	SPRAYED INSULATION
07 27 26	FLUID-APPLIED MEMBRANE AIR BARRIERS
07 62 00	SHEET METAL FLASHING AND TRIM
08 14 00	WOOD DOORS
08 50 00	WINDOWS
09 29 00	GYPSUM BOARD
09 30 13	CERAMIC TILING
12 36 13	CONCRETE COUNTERTOPS

**SHEET KEYNOTES**

- 48 FACE OF BLOCKING TO BE PAINTED BLACK
- 49 MODULE JOINT SPACE FILLED AND SEALED W/ BACKER ROD AND NEOPRENE SEALANT
- 50 DOWNSPOUT TIED BACK TO WALL WITH BRACKETS AT 42" O.C.



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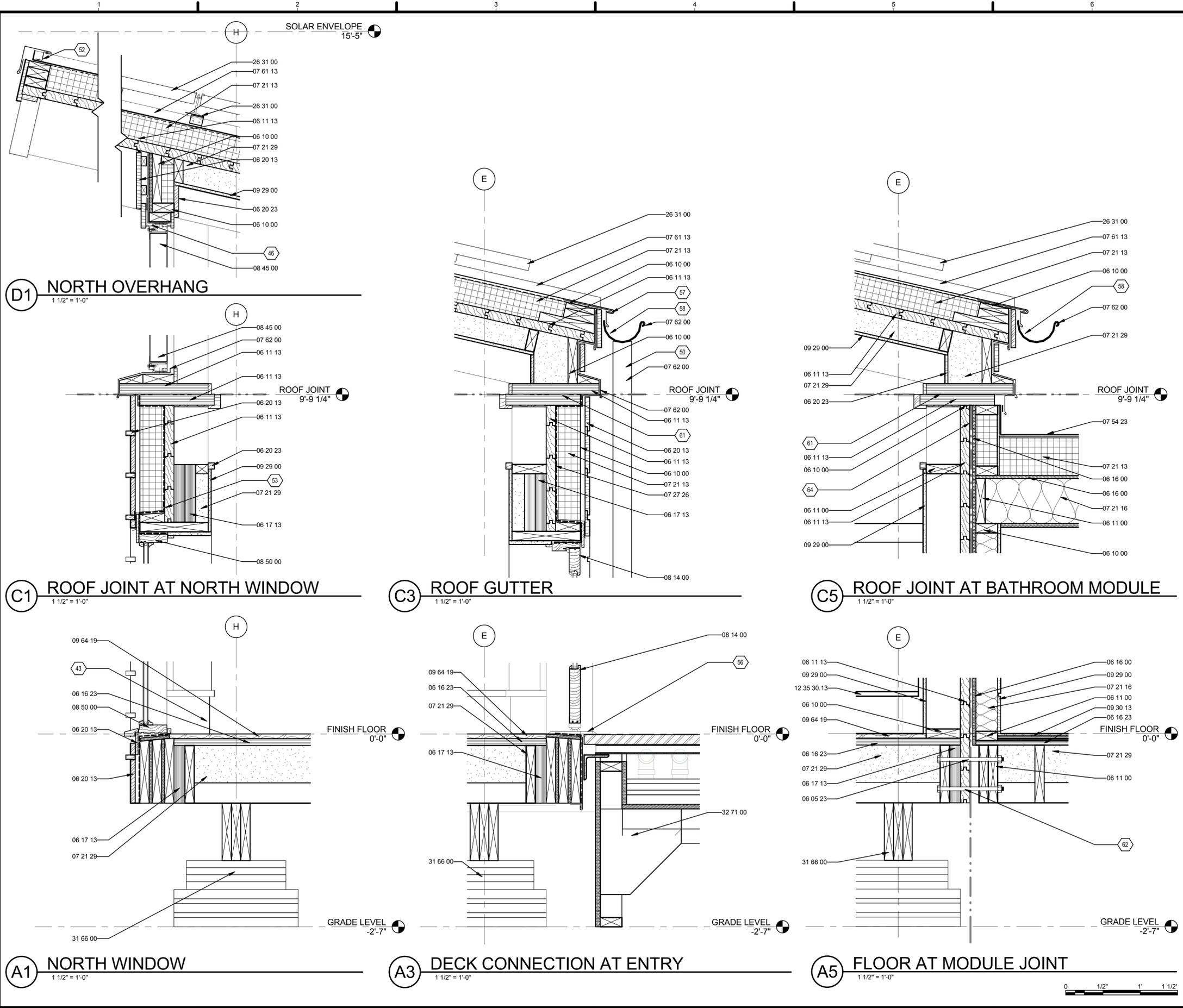
01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

MARK	DATE	DESCRIPTION
ISSUE DATE:	11 AUGUST 2011	
LOT NUMBER:	304	
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SHEET TITLE  
**PLAN DETAILS**

**A-502**

8/13/2011 12:14:51 PM



**GENERAL SHEET NOTES**

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

- 05 53 00 METAL GRATINGS
- 06 05 23 WOOD, PLASTIC, AND COMPOSITE FASTENINGS
- 06 10 00 ROUGH CARPENTRY
- 06 11 00 WOOD FRAMING
- 06 11 13 ENGINEERED WOOD PRODUCTS
- 06 16 00 SHEATHING
- 06 16 23 SUBFLOORING
- 06 17 13 LAMINATED VENEER LUMBER
- 06 20 13 EXTERIOR FINISH CARPENTRY
- 06 20 23 INTERIOR FINISH CARPENTRY
- 07 21 13 BOARD INSULATION
- 07 21 16 BLANKET INSULATION
- 07 21 29 SPRAYED INSULATION
- 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
- 07 54 23 THERMOPLASTIC-POLYOLEFIN ROOFING
- 07 61 13 STANDING SEAM SHEET METAL ROOFING
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 08 14 00 WOOD DOORS
- 08 45 00 TRANSLUCENT WALL AND ROOF ASSEMBLIES
- 08 50 00 WINDOWS
- 09 29 00 GYPSUM BOARD
- 09 30 13 CERAMIC TILING
- 09 64 19 WOOD COMPOSITION FLOORING
- 12 35 30.13 KITCHEN CASEWORK
- 26 31 00 PHOTOVOLTAIC COLLECTORS
- 31 66 00 SPECIAL FOUNDATIONS
- 32 71 00 CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

- 43 BASEBOARD BEYOND
- 46 SEALANT AND BACKER ROD TO PROVIDE WEATHERTIGHT SEAL
- 50 DOWNSPOUT TIED BACK TO WALL WITH BRACKETS AT 42" O.C.
- 52 CONTINUOUS ZEE CLIPS TO BE INSTALLED IN PANS AND SET IN BUTYL SEALANT
- 53 MEMBRANE FLASHING STRIP INSTALLED PRIOR TO APPLICATION OF FLUID APPLIED AIR BARRIER
- 56 ADA COMPLIANT DOOR THRESHOLD
- 57 BOTTOM OF PAN TO HOOK 3/4" ONTO DRIP EDGE
- 58 GUTTERS TO BE REMOVED DURING TRANSPORT
- 61 NEOPRENE GASKET SANDWICHED BETWEEN LVL'S AT MODULE JOINT.
- 62 THROUGH BOLTS TO ACT AS MECHANICAL CONNECTION BETWEEN MODULES
- 64 PACK INSULATION INTO JOINT SPACE



TEAM NAME: TEAM MARYLAND  
 ADDRESS: UNIVERSITY OF MARYLAND  
 SCHOOL OF ARCHITECTURE,  
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**MARK DATE DESCRIPTION**

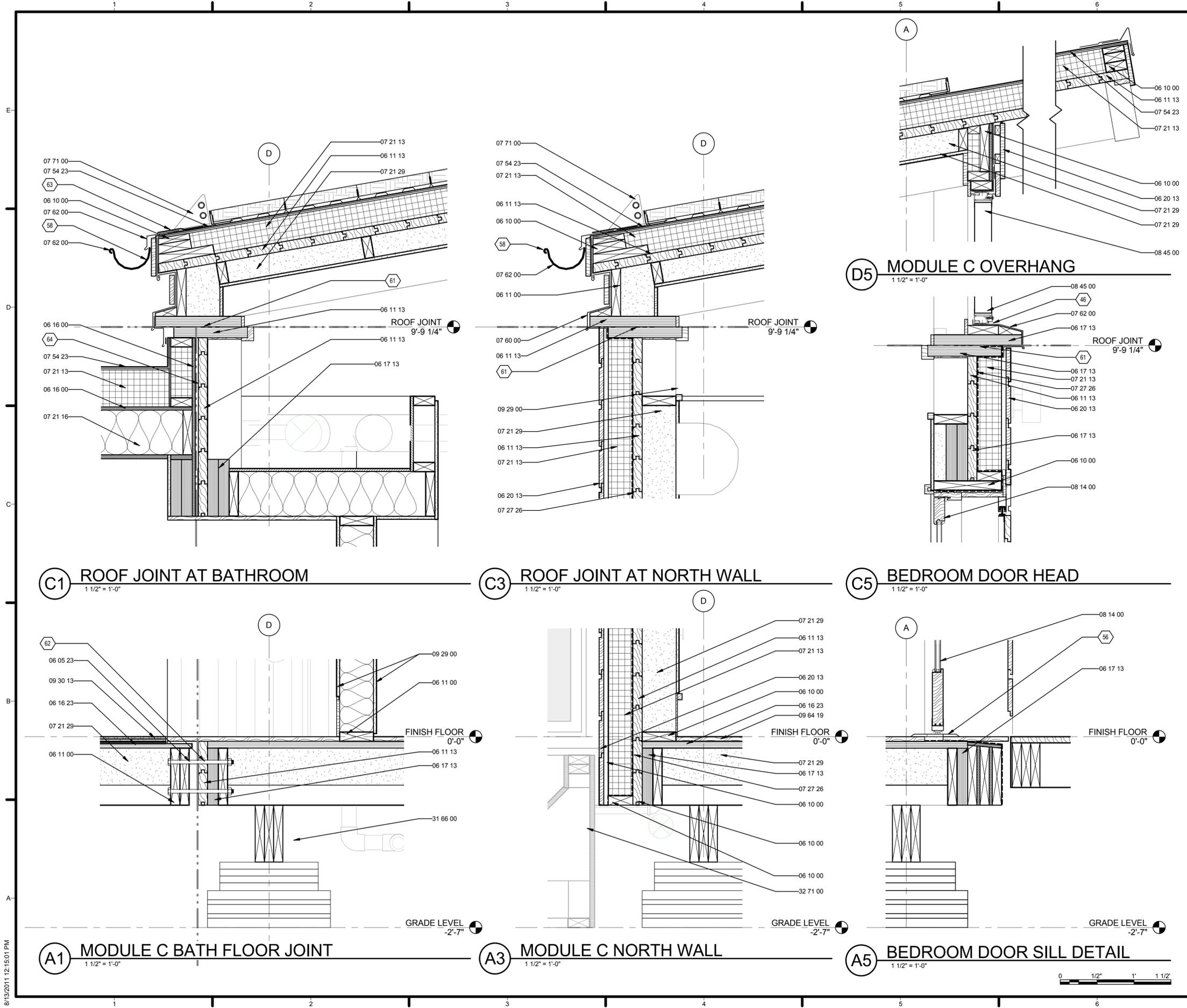
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**SECTION DETAILS**

**A-511**

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**GENERAL SHEET NOTES**

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

- 06 05 23 WOOD, PLASTIC, AND COMPOSITE FASTENINGS
- 06 10 00 ROUGH CARPENTRY
- 06 11 00 WOOD FRAMING
- 06 11 13 ENGINEERED WOOD PRODUCTS
- 06 16 00 SHEATHING
- 06 16 23 SUBFLOORING
- 06 17 13 LAMINATED VENEER LUMBER
- 06 20 13 EXTERIOR FINISH CARPENTRY
- 07 21 13 BOARD INSULATION
- 07 21 16 BLANKET INSULATION
- 07 21 29 SPRAYED INSULATION
- 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
- 07 54 23 THERMOPLASTIC-POLYOLEFIN ROOFING
- 07 60 00 FLASHING AND SHEET METAL
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 07 71 00 ROOF SPECIALTIES
- 08 14 00 WOOD DOORS
- 08 45 00 TRANSLUCENT WALL AND ROOF ASSEMBLIES
- 09 29 00 GYPSUM BOARD
- 09 30 13 CERAMIC TILING
- 09 64 19 WOOD COMPOSITION FLOORING
- 10 71 13 EXTERIOR SUN CONTROL DEVICES
- 31 66 00 SPECIAL FOUNDATIONS
- 32 71 00 CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

- 44 BIFOLD SCREEN TO OPERATE ON 90 DEGREE HINGE
- 46 SEALANT AND BACKER ROD TO PROVIDE WEATHERTIGHT SEAL
- 56 ADA COMPLIANT DOOR THRESHOLD
- 58 GUTTERS TO BE REMOVED DURING TRANSPORT
- 61 NEOPRENE GASKET SANDWICHED BETWEEN LVL'S AT MODULE JOINT.
- 62 THROUGH BOLTS TO ACT AS MECHANICAL CONNECTION BETWEEN MODULES
- 63 LAP TPO FLASHING OVER DRIP EDGE
- 64 PACK INSULATION INTO JOINT SPACE



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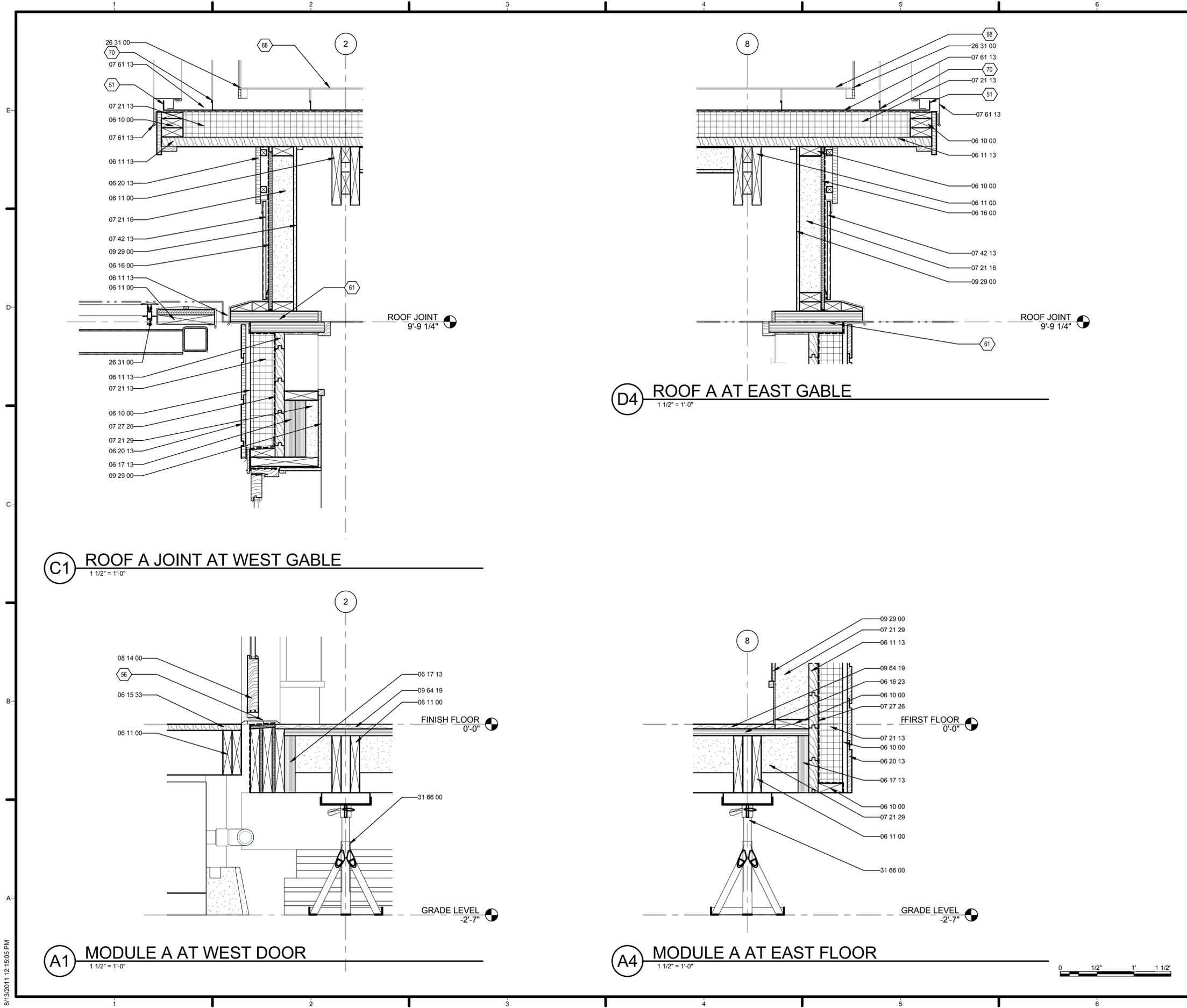
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**A-512**

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**GENERAL SHEET NOTES**

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

- 06 10 00 ROUGH CARPENTRY
- 06 11 00 WOOD FRAMING
- 06 11 13 ENGINEERED WOOD PRODUCTS
- 06 15 33 WOOD DECK
- 06 16 00 SHEATHING
- 06 16 23 SUBFLOORING
- 06 17 13 LAMINATED VENEER LUMBER
- 06 20 13 EXTERIOR FINISH CARPENTRY
- 07 21 13 BOARD INSULATION
- 07 21 16 BLANKET INSULATION
- 07 21 29 SPRAYED INSULATION
- 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
- 07 42 13 METAL WALL PANELS
- 07 61 13 STANDING SEAM SHEET METAL ROOFING
- 08 14 00 WOOD DOORS
- 09 29 00 GYPSUM BOARD
- 09 64 19 WOOD COMPOSITION FLOORING
- 22 13 53 FACILITY SEPTIC TANKS
- 26 31 00 PHOTOVOLTAIC COLLECTORS
- 31 66 00 SPECIAL FOUNDATIONS

**SHEET KEYNOTES**

- 51 TURN UP PANEL END 1 1/4"
- 56 ADA COMPLIANT DOOR THRESHOLD
- 61 NEOPRENE GASKET SANDWICHED BETWEEN LVL'S AT MODULE JOINT.
- 68 MIN. 2 PV ROOF CLAMPS AT T.O. AND B.O. PANELS
- 69 PERGOLA STRUCTURE WITH INTEGRATED PV PANELS
- 70 1 1/2" DOUBLE LOCK STANDING SEAM FASTENED W/ EXPANSION CLIPS AT 16" O.C.



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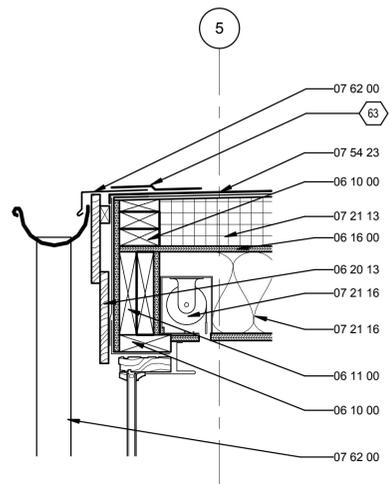
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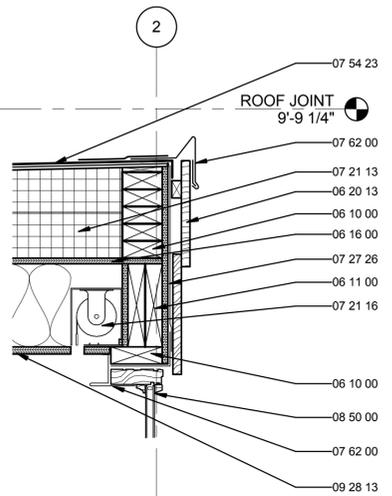
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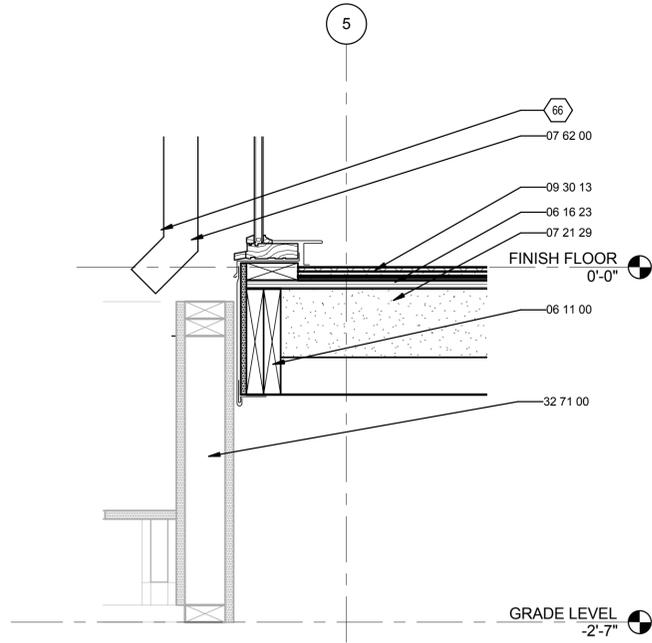




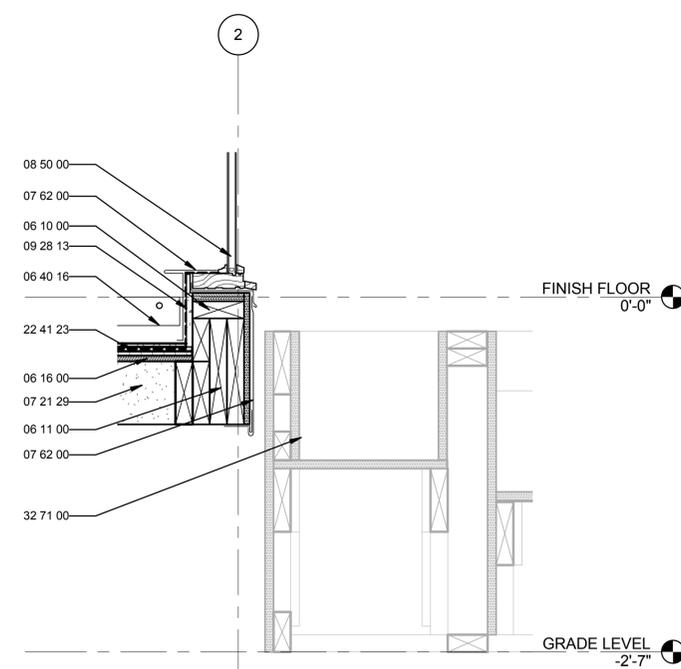
**C3** HALL WINDOW HEAD  
1 1/2" = 1'-0"



**C5** BATHROOM WINDOW HEAD  
1 1/2" = 1'-0"



**A3** HALL WINDOW SILL  
1 1/2" = 1'-0"



**A5** BATHROOM WINDOW SILL  
1 1/2" = 1'-0"



**GENERAL SHEET NOTES**

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

06 10 00	ROUGH CARPENTRY
06 11 00	WOOD FRAMING
06 16 00	SHEATHING
06 16 23	SUBFLOORING
06 20 13	EXTERIOR FINISH CARPENTRY
06 40 16	INTERIOR ARCHITECTURAL WOODWORK
07 21 13	BOARD INSULATION
07 21 16	BLANKET INSULATION
07 21 29	SPRAYED INSULATION
07 27 26	FLUID-APPLIED MEMBRANE AIR BARRIERS
07 54 23	THERMOPLASTIC-POLYOLEFIN ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
08 50 00	WINDOWS
09 28 13	CEMENTITIOUS BOARDS
09 30 13	CERAMIC TILING
22 41 23	RESIDENTIAL SHOWER RECEPTORS AND BASINS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

63	LAP TPO FLASHING OVER DRIP EDGE
66	45 DEGREE DOWNSPOUT ELBOW



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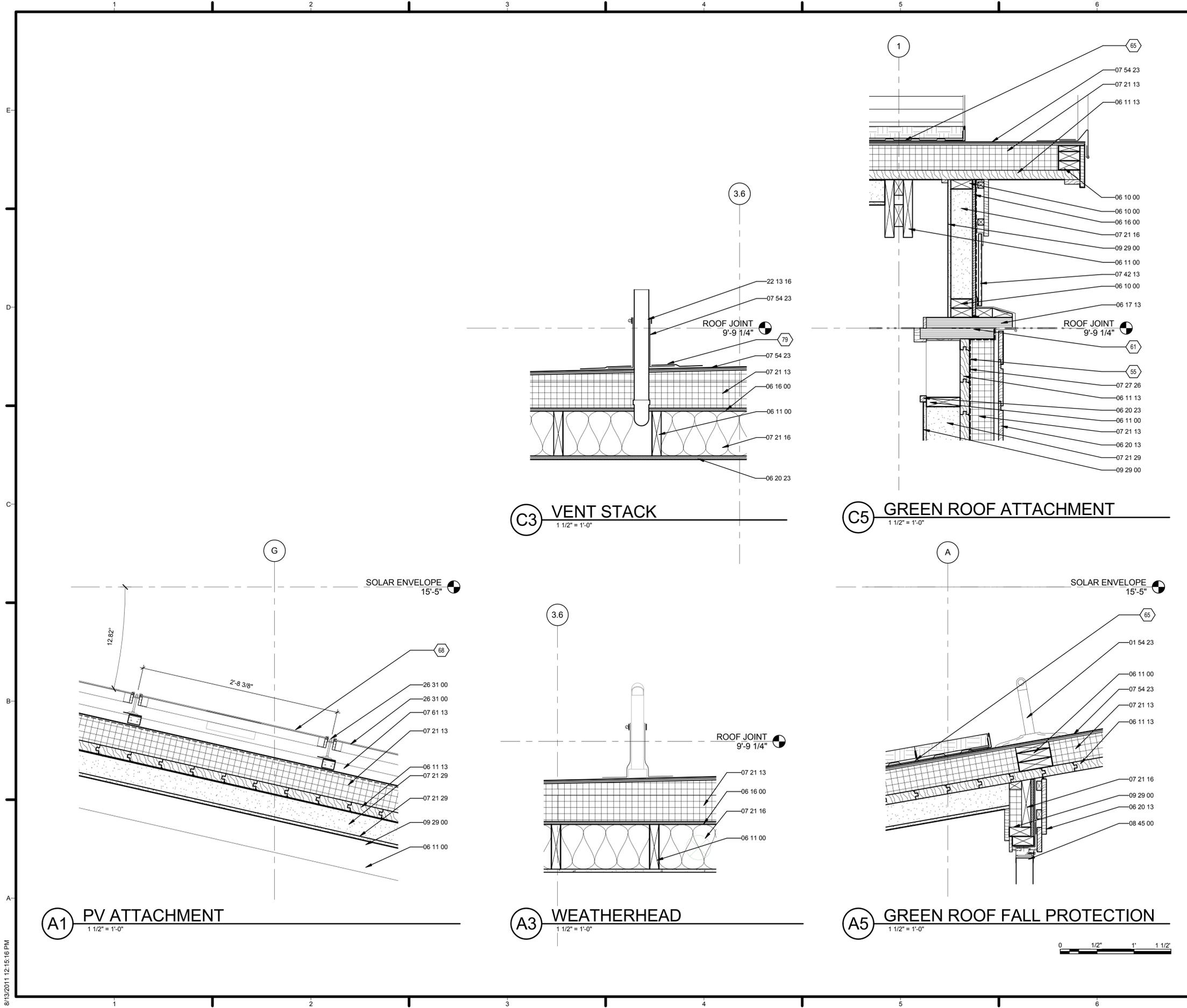
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**SECTION DETAILS**

**A-514**





**GENERAL SHEET NOTES**

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

- 01 54 23 TEMPORARY SCAFFOLDING AND PLATFORMS
- 06 10 00 ROUGH CARPENTRY
- 06 11 00 WOOD FRAMING
- 06 11 13 ENGINEERED WOOD PRODUCTS
- 06 16 00 SHEATHING
- 06 17 13 LAMINATED VENEER LUMBER
- 06 20 13 EXTERIOR FINISH CARPENTRY
- 06 20 23 INTERIOR FINISH CARPENTRY
- 07 21 13 BOARD INSULATION
- 07 21 16 BLANKET INSULATION
- 07 21 29 SPRAYED INSULATION
- 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
- 07 42 13 METAL WALL PANELS
- 07 54 23 THERMOPLASTIC-POLYOLEFIN ROOFING
- 07 61 13 STANDING SEAM SHEET METAL ROOFING
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 08 45 00 TRANSLUCENT WALL AND ROOF ASSEMBLIES
- 09 29 00 GYPSUM BOARD
- 22 13 16 SANITARY WASTE AND VENT PIPING
- 26 31 00 PHOTOVOLTAIC COLLECTORS

**SHEET KEYNOTES**

- 55 WEATHER BARRIER TO BE INSTALLED BETWEEN FLUID APPLIED AIR BARRIER AND BOARD INSULATION TO ACT AS BOND BREAKER, TYP.
- 61 NEOPRENE GASKET SANDWICHED BETWEEN LVL'S AT MODULE JOINT.
- 65 DRAINAGE MAT INSTALLED UNDER VEGETATED ROOFING TRAYS
- 68 MIN. 2 PV ROOF CLAMPS AT T.O. AND B.O. PANELS
- 79 TPO FLASHING TO LAP HORIZONTAL FLANGE OF ROOF PENETRATION FLASHING MIN. 4". HEAT WELD TPO FLASHING TO ROOF MEMBRANE.



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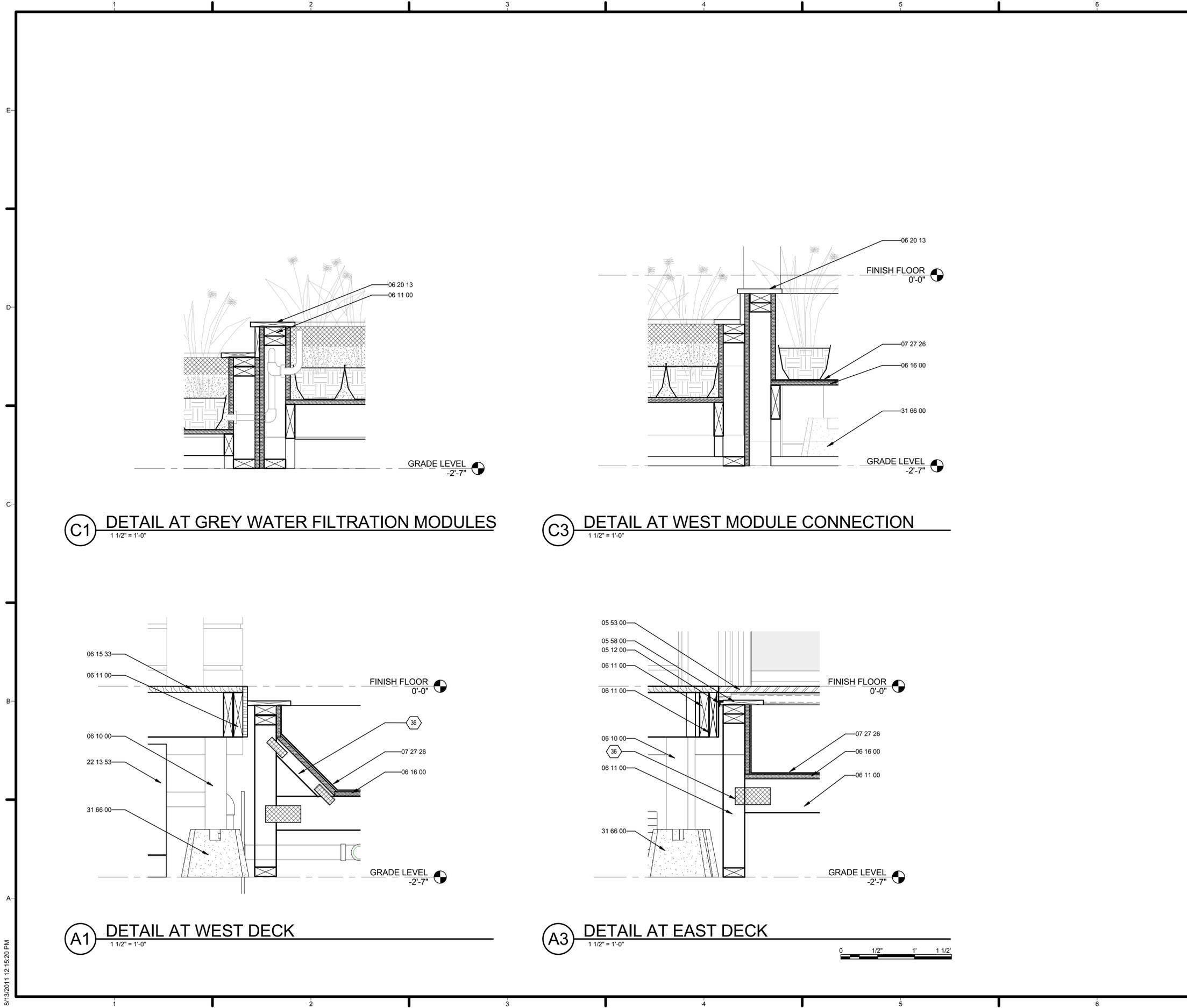


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SHEET TITLE  
**ROOF DETAILS**

**A-516**



**GENERAL SHEET NOTES**

1. WETLAND DESIGN IS A PRODUCT OF COMPETITION REQUIREMENTS AND WILL BE BUILT AT MODULAR TRUSS FABRICATION FOR EASY INSTALLATION AND DISASSEMBLY
2. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

05 12 00	STRUCTURAL STEEL FRAMING
05 53 00	METAL GRATINGS
05 58 00	FORMED METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
06 11 00	WOOD FRAMING
06 15 33	WOOD DECK
06 16 00	SHEATHING
06 20 13	EXTERIOR FINISH CARPENTRY
07 27 26	FLUID-APPLIED MEMBRANE AIR BARRIERS
22 13 53	FACILITY SEPTIC TANKS
31 66 00	SPECIAL FOUNDATIONS
32 71 00	CONSTRUCTED WETLANDS

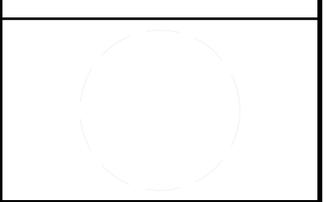
**SHEET KEYNOTES**

36 PREFABRICATED STRUCTURAL TRUSSES 16" O.C. (MAX) WITH VARYING CROSS MEMBER HEIGHTS PER WETLAND SECTION



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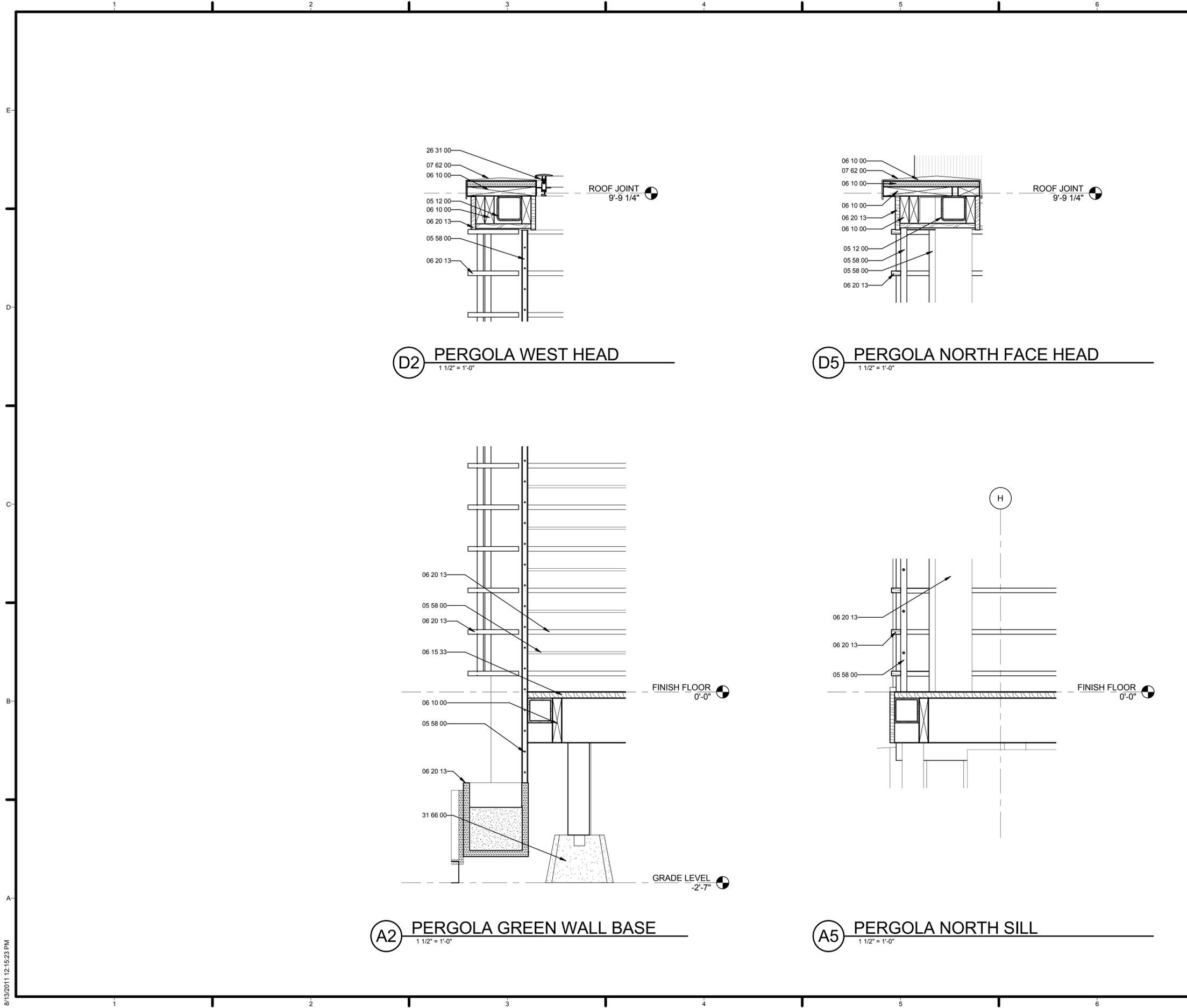
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**CONSTRUCTED WETLANDS DETAILS**

**A-517**

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**GENERAL SHEET NOTES**

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2. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION

**REFERENCE KEYNOTES**

05 12 00	STRUCTURAL STEEL FRAMING
05 58 00	FORMED METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
06 15 00	WOOD CARPENTRY
06 15 33	WOOD DECK
06 20 13	EXTERIOR FINISH CARPENTRY
07 62 00	SHEET METAL FLASHING AND TRIM
26 31 00	PHOTOVOLTAIC COLLECTORS
31 66 00	SPECIAL FOUNDATIONS

**SHEET KEYNOTES**



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**PERGOLA DETAILS**

**A-518**

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DOOR SCHEDULE													
MARK	DR TYPE	DR SIZE	MANUFACTURER	MODEL	FRAME TYPE	FIRE RATING	DETAILS			DESCRIPTION	FINISH		
							HEAD	JAMB	SILL		DOOR	FRAME	COMPONENTS
101	ENTRY/ KITCHEN	83 1/16"W x 93 1/8"H	LOEWEN	FD2 2224 LAR	WOOD		A-511	A-501	A-511	5/32" THK. ARGON FILLED DBL. GLAZED CLEAR LITE W/ WOOD INT. FINISH	WOOD	WOOD	BRUSHED CHROME OR ALUMINUM
102	ENTRY/ KITCHEN	83 1/16"W x 93 1/8"H	LOEWEN	FD2 2224 LAR	WOOD		A-513	A-501 SIM	A-513	5/32" THK. ARGON FILLED DBL. GLAZED CLEAR LITE W/ WOOD INT. FINISH	WOOD	WOOD	BRUSHED CHROME OR ALUMINUM
103	OFFICE	60"W x 93 1/8"H	LOEWEN	FDR 1824 LAR	WOOD		A-516	A-501 SIM	A-511 SIM	5/32" THK. ARGON FILLED DBL. GLAZED ETCHED LITE W/ WOOD INT. FINISH	WOOD	WOOD	BRUSHED CHROME OR ALUMINUM
104	BEDROOM SCREEN	SD_2011_60"W x 82"H	SHOP		WOOD		A-512	A-501	A-512	WOOD BIFOLD SCREEN	WOOD	WOOD	BRUSHED CHROME OR ALUMINUM
105	MECHANICAL ROOM	SD_2011_72"W x 93"H			WOOD		A-515	A-501	A-515	THERMALLY RATED PANELS W/ EXT FINISH TO MATCH WALL FINISH	METAL CLAD	METAL CLAD	BRUSHED CHROME OR ALUMINUM
106	BEDROOM DOOR	60 3/16"W x 78 5/32"H	LOEWEN	FD2 1520 LAR	WOOD		A-512	A-501	A-512	5/32" THK. ARGON FILLED DBL. GLAZED CLEAR LITE	WOOD	WOOD	BRUSHED CHROME OR ALUMINUM
107	LAUNDRY	SD_2011_35"W x 84"H			WOOD		N/A	N/A	N/A	ROLLING DOOR	WOOD	WOOD	BRUSHED CHROME OR ALUMINUM

WINDOW SCHEDULE														
MARK	ROUGH OPENING		TYPE	MANUFACTURER	MODEL	MATERIAL	FINISH	DETAIL			GLAZING		HEAD HEIGHT	COMMENTS
	WIDTH	HEIGHT						HEAD	JAMB	SILL	THICKNESS	TYPE		
01	5'-3 3/4"	7'-11 1/4"	FIXED	LOEWEN	PS1 1624	WOOD	WOOD	A-514	A-502	A-514	1/8"	LOW-E ARGON FILLED	7'-11 1/4"	THERMALLY SPACED DBL. PANE
02	4'-7 1/8"	7'-11 1/4"	FIXED	LOEWEN	PS1 1424	WOOD	WOOD	A-511	A-501	A-511	1/8"	LOW-E ARGON FILLED	7'-11 1/4"	THERMALLY SPACED DBL. PANE
03	2'-8 1/4"	4'-11 7/8"	CASEMENT W/ TRIM	LOEWEN	CA1 0815	WOOD	WOOD	A-511	A-XXX	A-511	1/8"	LOW-E ARGON FILLED	7'-11 7/8"	THERMALLY SPACED DBL. PANE
04	2'-8 1/4"	3'-0 1/4"	AWNING W/ TRIM	LOEWEN	AW1 0809	WOOD	WOOD	A-511	A-501	A-511	1/8"	LOW-E ARGON FILLED	3'-0 1/4"	THERMALLY SPACED DBL. PANE
05		3'-0"	SD_2011_TRANSLUCENT WALL PANEL A	MAJOR INDUSTRIES	GUARDIAN 275 WALL SYSTEM	FIBERGLASS CLERESTORY	Metal - Aluminum					2 3/4"	15'-6 3/4"	
06		2'-0"	SD_2011_TRANSLUCENT WALL PANEL B	MAJOR INDUSTRIES	GUARDIAN 275 WALL SYSTEM	FIBERGLASS CLERESTORY	Metal - Aluminum					2 3/4"	14'-6 1/2"	

GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



TEAM NAME: TEAM MARYLAND  
 ADDRESS: UNIVERSITY OF MARYLAND SCHOOL OF ARCHITECTURE, PLANNING & PRESERVATION BLDG 145, COLLEGE PARK, MD 20742  
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 T: 202.333.6230



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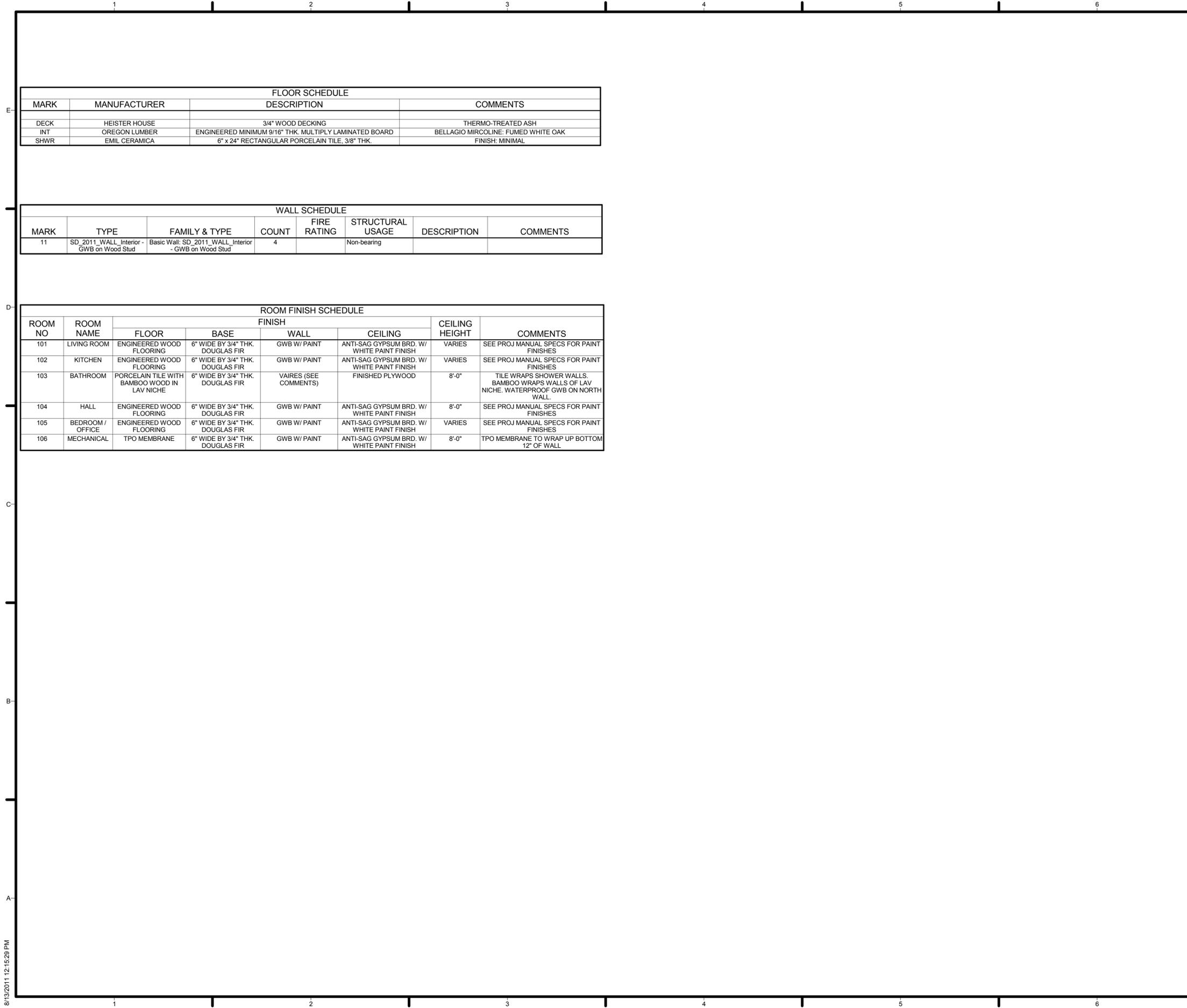


01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

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SHEET TITLE  
 DOOR AND WINDOW SCHEDULES

A-601



FLOOR SCHEDULE			
MARK	MANUFACTURER	DESCRIPTION	COMMENTS
DECK	HEISTER HOUSE	3/4" WOOD DECKING	THERMO-TREATED ASH
INT	OREGON LUMBER	ENGINEERED MINIMUM 9/16" THK. MULTIPLY LAMINATED BOARD	BELLAGIO MIRCOLINE; FUMED WHITE OAK
SHWR	EMIL CERAMICA	6" x 24" RECTANGULAR PORCELAIN TILE, 3/8" THK.	FINISH: MINIMAL

WALL SCHEDULE							
MARK	TYPE	FAMILY & TYPE	COUNT	FIRE RATING	STRUCTURAL USAGE	DESCRIPTION	COMMENTS
11	SD_2011_WALL_Interior - GWB on Wood Stud	Basic Wall: SD_2011_WALL_Interior - GWB on Wood Stud	4		Non-bearing		

ROOM FINISH SCHEDULE							
ROOM NO	ROOM NAME	FINISH				CEILING HEIGHT	COMMENTS
		FLOOR	BASE	WALL	CEILING		
101	LIVING ROOM	ENGINEERED WOOD FLOORING	6" WIDE BY 3/4" THK. DOUGLAS FIR	GWb W/ PAINT	ANTI-SAG GYPSUM BRD. W/ WHITE PAINT FINISH	VARIES	SEE PROJ MANUAL SPECS FOR PAINT FINISHES
102	KITCHEN	ENGINEERED WOOD FLOORING	6" WIDE BY 3/4" THK. DOUGLAS FIR	GWb W/ PAINT	ANTI-SAG GYPSUM BRD. W/ WHITE PAINT FINISH	VARIES	SEE PROJ MANUAL SPECS FOR PAINT FINISHES
103	BATHROOM	PORCELAIN TILE WITH BAMBOO WOOD IN LAV NICHE	6" WIDE BY 3/4" THK. DOUGLAS FIR	VAIRES (SEE COMMENTS)	FINISHED PLYWOOD	8'-0"	TILE WRAPS SHOWER WALLS. BAMBOO WRAPS WALLS OF LAV NICHE. WATERPROOF GWB ON NORTH WALL.
104	HALL	ENGINEERED WOOD FLOORING	6" WIDE BY 3/4" THK. DOUGLAS FIR	GWb W/ PAINT	ANTI-SAG GYPSUM BRD. W/ WHITE PAINT FINISH	8'-0"	SEE PROJ MANUAL SPECS FOR PAINT FINISHES
105	BEDROOM / OFFICE	ENGINEERED WOOD FLOORING	6" WIDE BY 3/4" THK. DOUGLAS FIR	GWb W/ PAINT	ANTI-SAG GYPSUM BRD. W/ WHITE PAINT FINISH	VARIES	SEE PROJ MANUAL SPECS FOR PAINT FINISHES
106	MECHANICAL	TPO MEMBRANE	6" WIDE BY 3/4" THK. DOUGLAS FIR	GWb W/ PAINT	ANTI-SAG GYPSUM BRD. W/ WHITE PAINT FINISH	8'-0"	TPO MEMBRANE TO WRAP UP BOTTOM 12" OF WALL

GENERAL SHEET NOTES

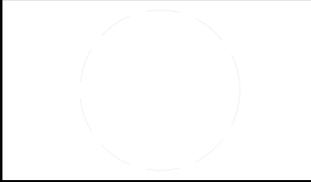
REFERENCE KEYNOTES

SHEET KEYNOTES



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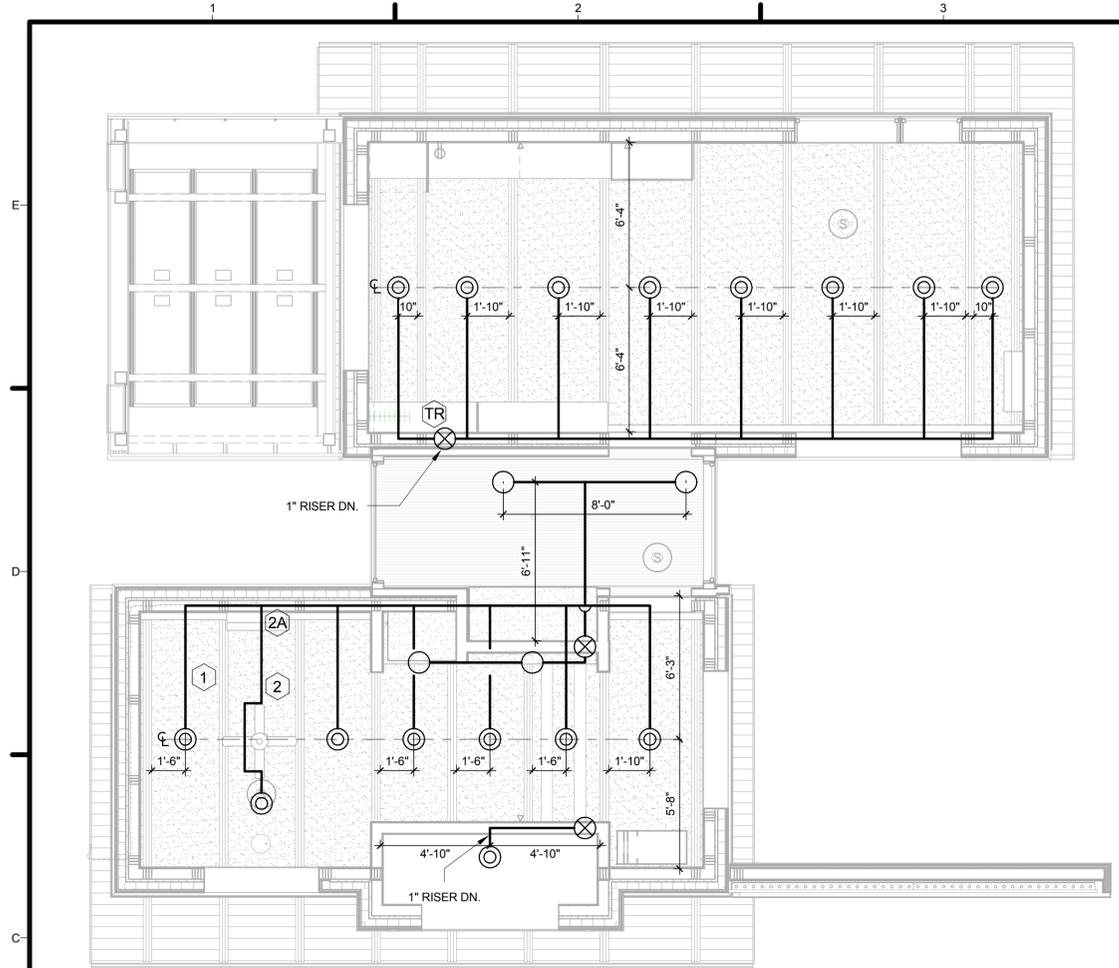


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03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

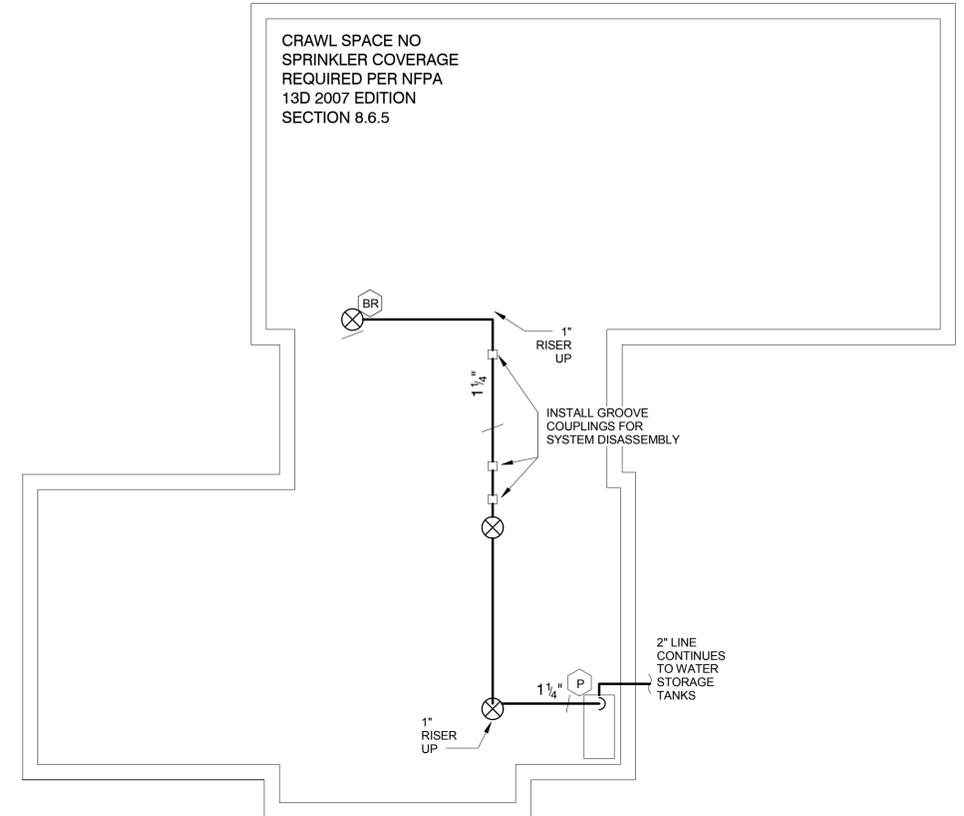
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ISSUE DATE: 11 AUGUST 2011		
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SHEET TITLE  
**FLOOR, WALL, AND FINISHES SCHEDULES**

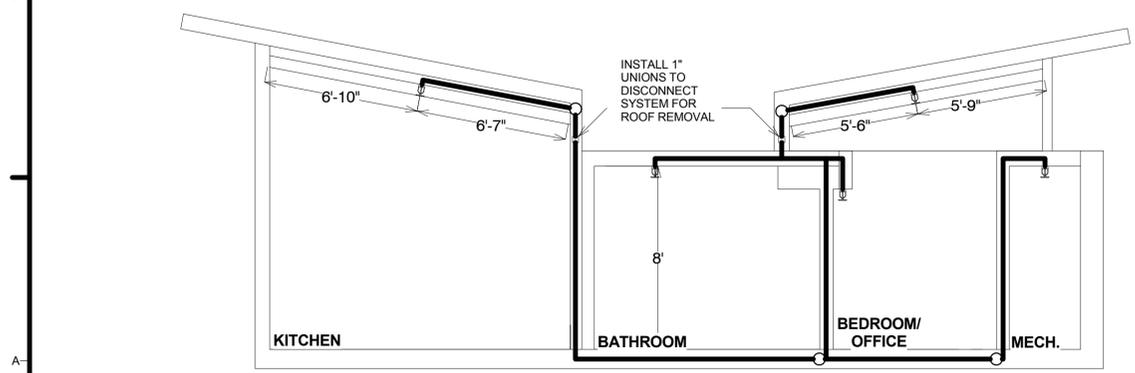
**A-602**



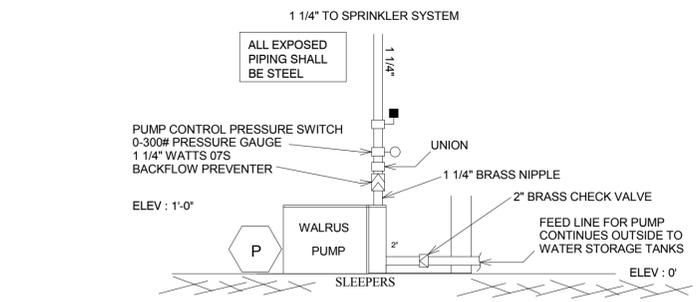
**C1 FIRE SUPPRESSION RCP**  
1/4" = 1'-0"



**C4 CRAWL SPACE PLAN DIAGRAM**  
1/4" = 1'-0"



**A1 FIRE SUPPRESSION SECTION**  
1/4" = 1'-0"



**B4 PUMP DETAIL**  
1/4" = 1'-0"

LEGEND											
SPRINKLER SYMBOL	THREAD SIZE	TYPE	MAKE	MODEL	NOTE	INSTALLATION ORIENTATION	K-FACTOR	TEMP	QR/SR	FINISH	QUANTITY
⊙	1/2"	PD	TYCO	LFII	FLUSH PENDENT		4.2	155°	QR	WHITE	15
⊖	1/2"	PD	VIKING	VK457	CONC. PENDENT		4.9	165°	QR	WHITE	4
⊗	1/2"	PD	VIKING	VK468	SEMI REC. PENDENT		4.9	175°	QR	WHITE	1

— NEW SPRINKLER PIPING WITH HANGER  
# HYDRAULIC REFERENCE NODE

**GENERAL SHEET NOTES**

- ALL CONTENT ON THIS SHEET IS A PRODUCT OF A THIRD PARTY ENGINEER RESPONSIBLE FOR ALL FIRE SUPPRESSION SYSTEMS: ABSOLUTE FIRE PROTECTION, INC.
- THE FOLLOWING ARE GENERAL NOTES FROM REPRESENTATIVE ENGINEER AND INSPECTOR.

**SCOPE:** THE SCOPE OF THIS PROJECT IS TO PROVIDE AN AUTOMATIC SPRINKLER SYSTEM FOR THE NEW RESIDENTIAL DWELLING AS SHOWN.

**CODES:** ALL WORK SHALL COMPLY WITH NFPA 13D - 2007 EDITION, AND THE BUILDING CODE OF THE AHJ. ALL WORK SHALL BE TO THE SATISFACTION OF AHJ.

**BUILDING CONSTRUCTION:** BUILDING CONSISTS OF ORDINARY WOOD CONSTRUCTION. WALLS CONSIST OF WOOD STUDS WITH GYPSUM SHEATHING. NEW CEILING CONSISTS OF WOOD TRUSSES WITH DRYWALL.

**SPRINKLER SYSTEM NOTES:**

- THE HOME SHALL BE PROVIDED WITH A HYDRAULICALLY DESIGNED, TREE-TYPE WET PIPE AUTOMATIC SPRINKLER SYSTEM.
- PIPING SHALL CONSIST OF BLAZEMASTER CPVC PLASTIC PIPING. ALL PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE UL LISTING. EXPOSED PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH DUCTILE THREADED FITTINGS.
- HANGERS SHALL SATISFY THE PLUMBING CODE PER NFPA 13D. HANGERS SHALL CONSIST OF TWO HOLE GALVANIZED PIPE STRAPS WITH SCREWS.
- INSULATION OF THE SPRINKLER PIPING IS NOT THE RESPONSIBILITY OF ABSOLUTE FIRE PROTECTION, INC. ABSOLUTE FIRE PROTECTION SHALL NOT BE HELD LIABLE FOR PIPING SUBJECT TO FREEZING.
- THE FOLLOWING DISTANCES MUST BE MAINTAINED BETWEEN A SPRINKLER AND A HEAT SOURCE: 1'-6" LATERALLY FROM THE SURFACES OF RANGES AND WALL OVENS. 3'-0" LATERALLY FROM THE EDGES OF FIRE PLACES AND 5'-0" FROM THE FRONT OF A FIREPLACE. 6" LATERALLY 2'-0" ABOVE THE SURFACES OF FURNACES, WATER HEATERS AND LIGHT FIXTURES. 1'-6" LATERALLY FROM THE SURFACES OF HOT AIR FLUES, UN-INSULATED HEATING DUCTS, AND UN-INSULATED WATER PIPES. 2'-0" LATERALLY FROM THE EDGES OF A CEILING MOUNTED HOT AIR DIFFUSER. LASTLY, A SPRINKLER SHALL NOT BE WITHIN THE RADIUS IF A MOUNTED CEILING FAN.
- MAXIMUM SPACING SHALL BE: TYCO LFII FLUSH PENDENT: 16' X 16' FOR TWO HEADS PER COMPARTMENT
- SPRINKLER SYSTEM PIPING SHALL BE INSPECTED AND TESTED AS REQUIRED BY THE AHJ.

**HYDRAULIC CALCULATION NOTES:**

PENDENT (2 HEAD CALC.) TYCO LFII FLUSH PENDENT K=4.2  
DEMAND AT "SC": 36.2 PSI @ 34.3 GPM...AVAIL: 48.3 PSI...SAFETY FACTOR: 33.4%

BLAZEMASTER CPVC PIPING SHALL BE INSTALLED IN ALL APPLICABLE AREAS IN ACCORDANCE TO ITS LISTING.

MAXIMUM SPACING SHALL BE: 16' X 16' FOR TWO HEADS PER COMPARTMENT.

INSULATION SHALL BE PROVIDED AND INSTALLED BY OTHERS. ABSOLUTE SHALL NOT BE HELD RESPONSIBLE FOR PIPES WHICH ARE ALLOWED TO FREEZE.

BLACK STEEL PIPING SHALL BE PROVIDED IN ALL EXPOSED AREAS.



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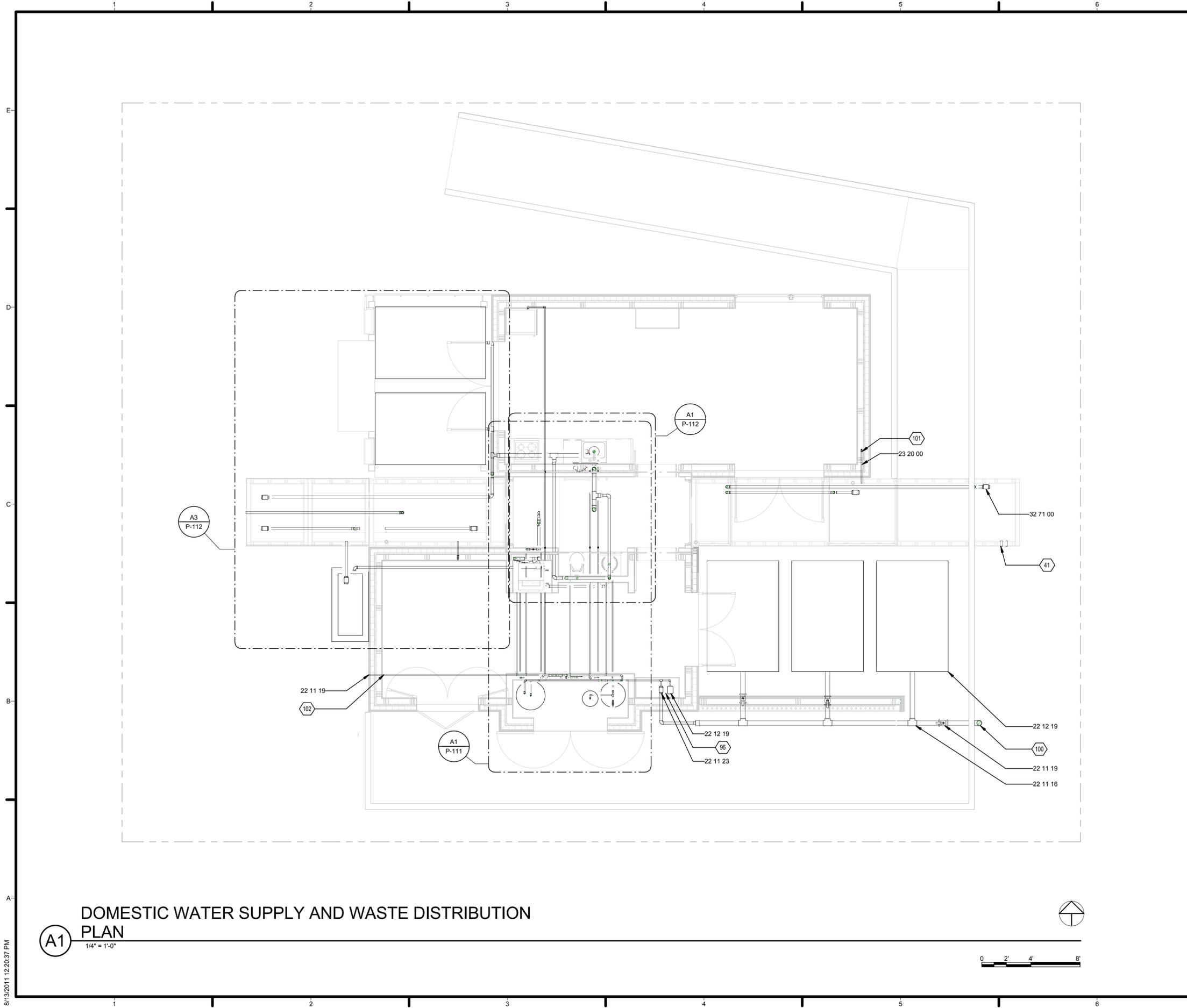
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01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION

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SHEET TITLE  
**FIRE PROTECTION**

**F-101**





**GENERAL SHEET NOTES**

1. ALL WASTE PIPE SLOPES MINIMUM 1/4 IN/FT PER 2009 IRC
2. ALL WASTE PIPE TO BE PVC PIPING.
3. ALL BLACKWATER PIPING TO BE 3" PVC UNLESS OTHERWISE SPECIFIED
4. ALL GREYWATER PIPING TO BE 2" PVC UNLESS OTHERWISE SPECIFIED
5. ALL PIPING FROM PEX MANIFOLD TO FIXTURES TO BE 1/2" PEX TUBING UNLESS OTHERWISE SPECIFIED

**REFERENCE KEYNOTES**

22 11 16	DOMESTIC WATER PIPING
22 11 19	DOMESTIC WATER PIPING SPECIALTIES
22 11 23	DOMESTIC WATER PUMPS
22 12 19	FACILITY POTABLE WATER STORAGE TANKS
23 20 00	HVAC PIPING AND PUMPS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

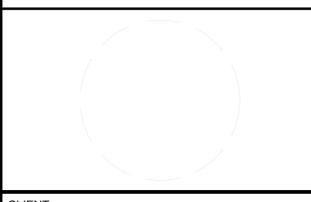
- |     |  |
|-----|--|
| 41  | OVERFLOW VALVE FOR DRAINAGE OF EXCESS RAINWATER. RECIRCULATION PUMP WILL BE USED TO REMOVE WATER AT END OF COMPETITION |
| 96  | ALL STAND ALONE SITE AND BUILDING COMPONENTS TO BE ELEVATED ON 2x4 SLEEPERS PER COMPETITION REQUIREMENTS               |
| 100 | 4" FILL VALVE FOR COMPETITION  |
| 101 | 1 1/2" CONDENSATE PIPE CONNECTED TO RAINWATER CISTERN  |
| 102 | SHARK BITE DISCONNECT FOR TRANSPORTATION   |



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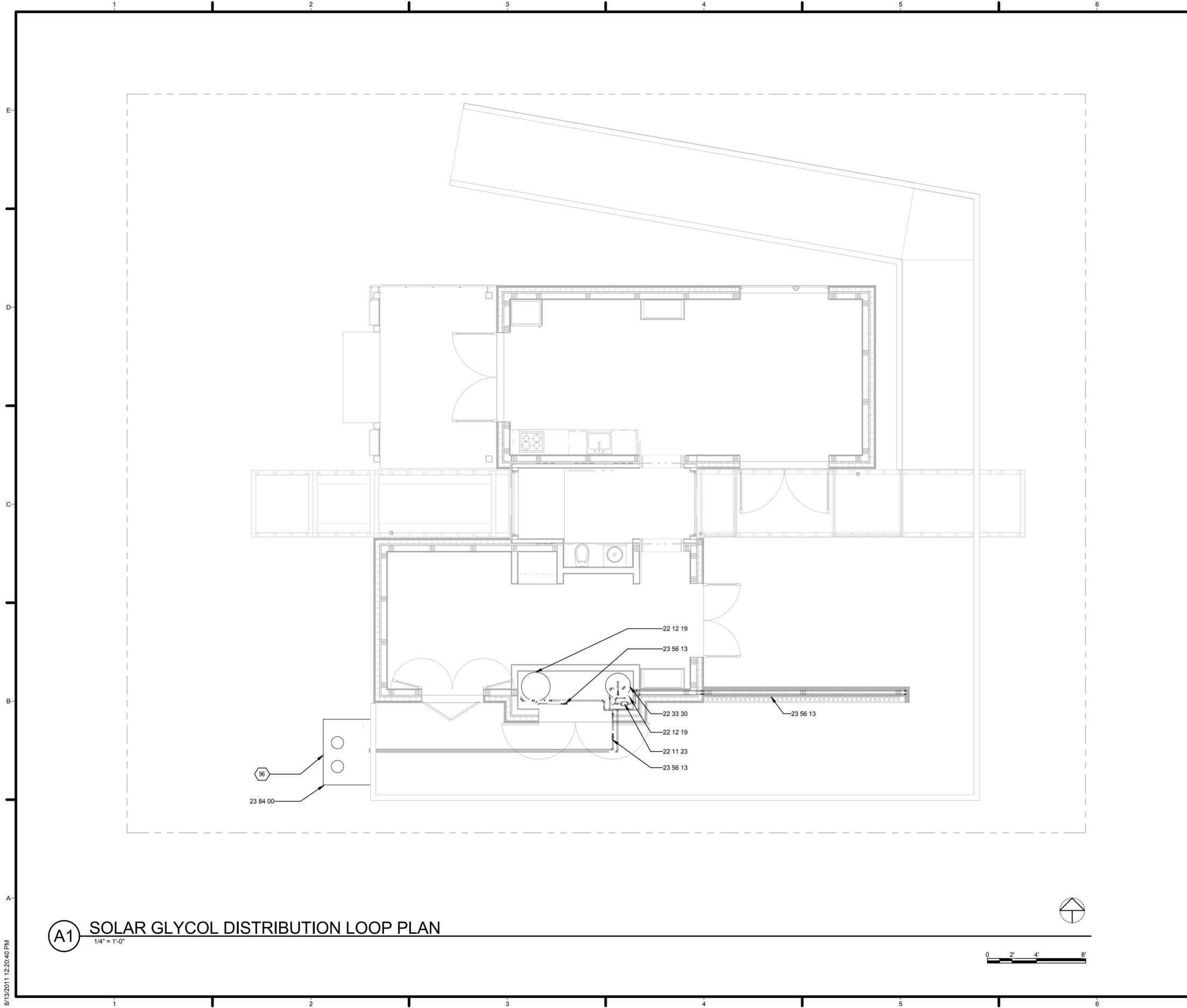
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SHEET TITLE  
**DOMESTIC WATER SUPPLY AND WASTE PLAN**

**P-101**

**(A1)**  
 1/4" = 1'-0"

8/13/2011 12:20:37 PM



**(A1) SOLAR GLYCOL DISTRIBUTION LOOP PLAN**  
 1/4" = 1'-0"

**GENERAL SHEET NOTES**

- 1/2"Ø COPPER PIPING FOR SOLAR GLYCOL LOOP.

**REFERENCE KEYNOTES**

- |          |  |
|----------|--|
| 22 11 23 | DOMESTIC WATER PUMPS                         |
| 22 12 19 | FACILITY POTABLE WATER STORAGE TANKS         |
| 22 33 30 | RESIDENTIAL, ELECTRIC DOMESTIC WATER HEATERS |
| 23 56 13 | HEATING SOLAR COLLECTORS                     |
| 23 84 00 | HUMIDITY CONTROL EQUIPMENT                   |

**SHEET KEYNOTES**

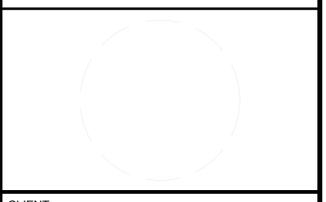
- 96 ALL STAND ALONE SITE AND BUILDING COMPONENTS TO BE ELEVATED ON 2x4 SLEEPERS PER COMPETITION REQUIREMENTS



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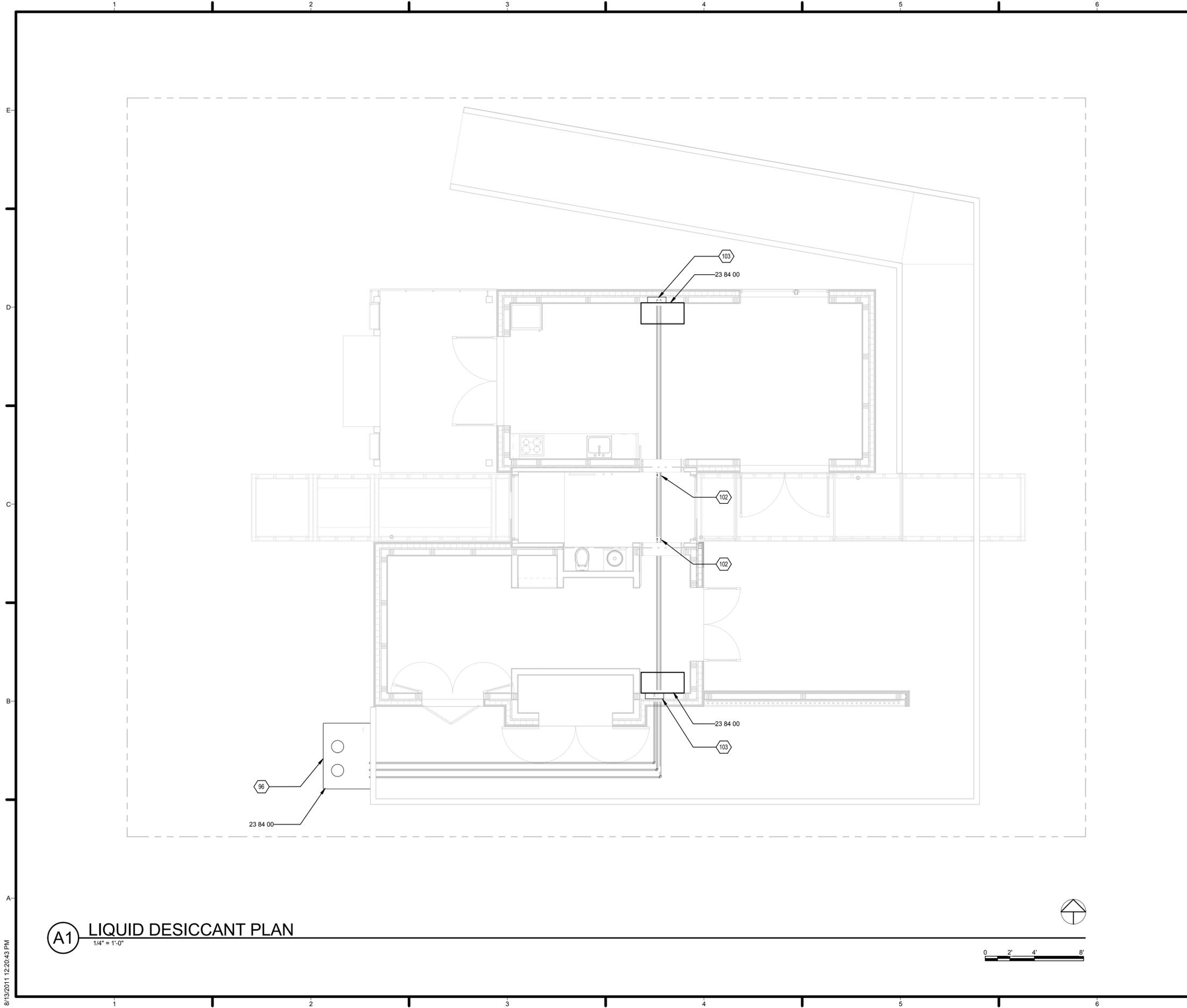
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05	08/11/2011	AS-BUILT DRAWING SUBMISSION

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SHEET TITLE  
**SOLAR GLYCOL LOOP PLAN**

**P-102**

8/13/2011 12:20:40 PM



**GENERAL SHEET NOTES**

- 3/4"Ø PEX PIPING INSTALLED FOR LIQUID DESICCANT WALL PIPING

**REFERENCE KEYNOTES**

23 84 00 HUMIDITY CONTROL EQUIPMENT

**SHEET KEYNOTES**

- 96 ALL STAND ALONE SITE AND BUILDING COMPONENTS TO BE ELEVATED ON 2x4 SLEEPERS PER COMPETITION REQUIREMENTS
- 102 SHARK BITE DISCONNECT FOR TRANSPORTATION
- 103 LIQUID DESICCANT WATERFALL ACCESS BOX WITH SHUTOFF VALVES FOR TRANSPORTATION



TEAM NAME: TEAM MARYLAND  
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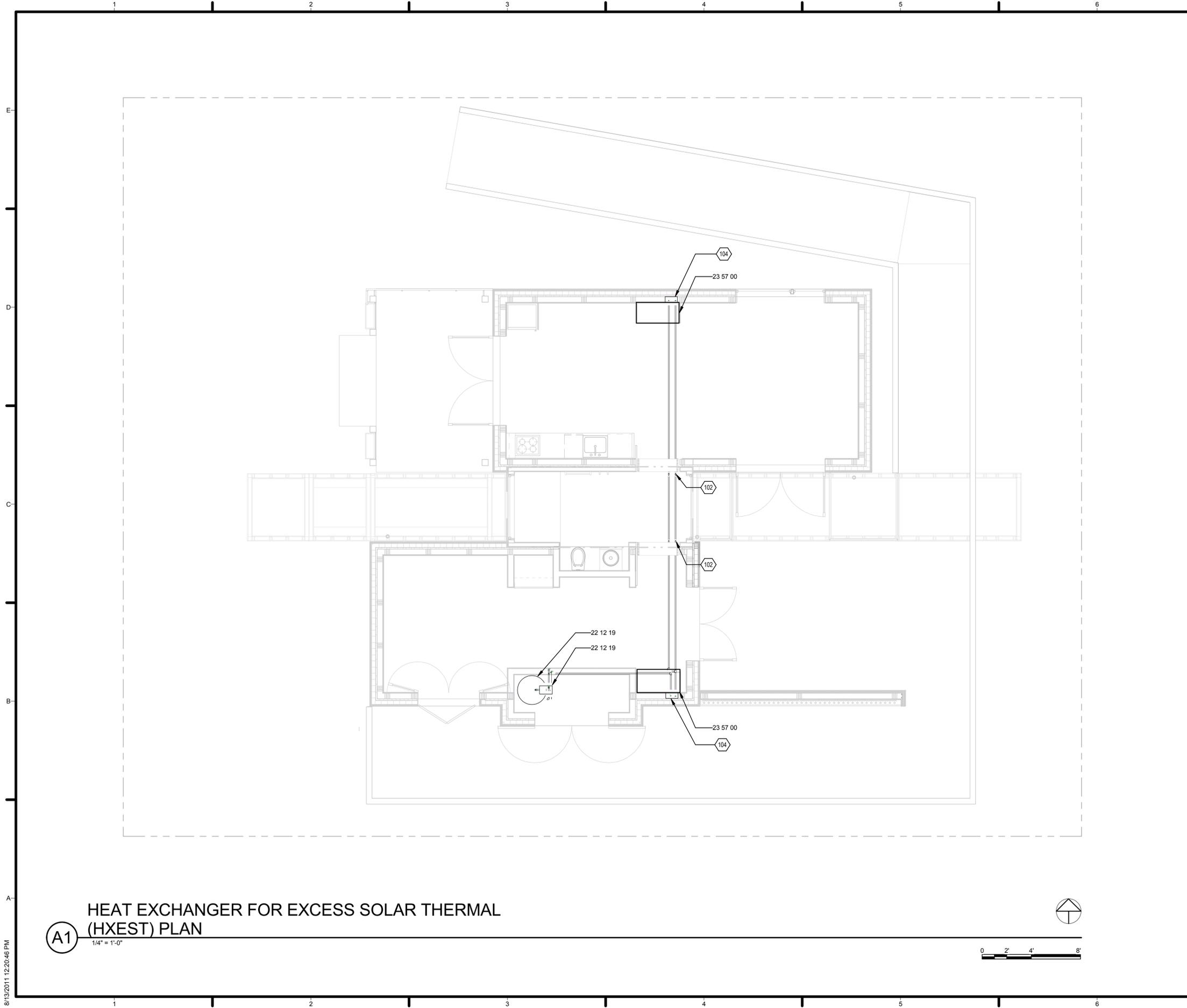
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SHEET TITLE  
**LIQUID DESICCANT DISTRIBUTION PLAN**

**P-103**

8/13/2011 12:20:43 PM



HEAT EXCHANGER FOR EXCESS SOLAR THERMAL  
(HXEST) PLAN

(A1) 1/4" = 1'-0"

8/13/2011 12:20:46 PM

GENERAL SHEET NOTES

- ALL HXEST SYSTEM RUNS WITHIN WALL STRUCTURE AND UNDER HOUSE TO BE PLUMBED WITH 3/4" PEX; ALL ALL EXPOSED HXEST RUNS TO BE 3/4" COPPER

REFERENCE KEYNOTES

- 22 12 19 FACILITY POTABLE WATER STORAGE TANKS  
23 57 00 HEAT EXCHANGERS FOR HVAC

SHEET KEYNOTES

- 102 SHARK BITE DISCONNECT FOR TRANSPORTATION  
104 HXEST ACCESS BOX WITH SHUTOFF VALVES FOR TRANSPORTATION



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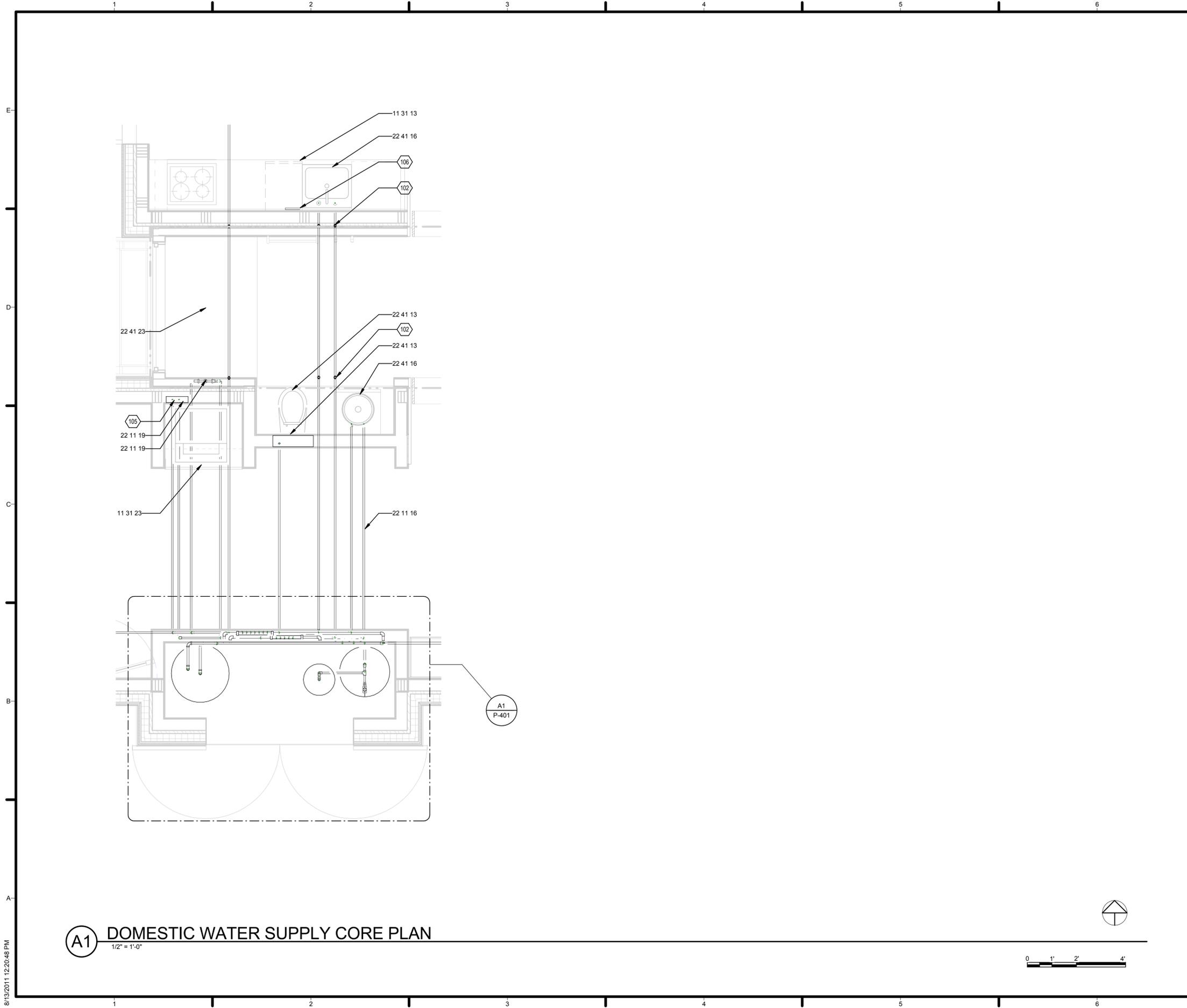


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02	01/18/2011	80% DOE/NREL RE-SUBMISSION
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SHEET TITLE  
HXEST DISTRIBUTION PLAN

P-104



**GENERAL SHEET NOTES**

1. 1/2"Ø PEX PIPING FROM PEX MANIFOLD TO DOMESTIC HOT AND COLD SUPPLY
2. 3/4"Ø COPPER PIPING IN MECHANICAL ROOM TO PEX MANIFOLD
3. 3/4"Ø PEX SUPPLY FROM STORAGE TANKS TO MECHANICAL ROOM

**REFERENCE KEYNOTES**

- |          |  |
|----------|--|
| 11 31 13 | RESIDENTIAL KITCHEN APPLIANCES                 |
| 11 31 23 | RESIDENTIAL LAUNDRY APPLIANCES                 |
| 22 11 16 | DOMESTIC WATER PIPING                          |
| 22 11 19 | DOMESTIC WATER PIPING SPECIALTIES              |
| 22 41 13 | RESIDENTIAL WATER CLOSETS, URINALS, AND BIDETS |
| 22 41 16 | RESIDENTIAL LAVATORIES AND SINKS               |
| 22 41 23 | RESIDENTIAL SHOWER RECEPTORS AND BASINS        |

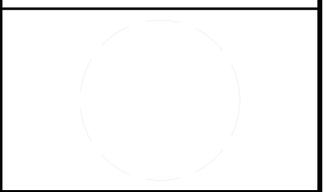
**SHEET KEYNOTES**

- |     |   |
|-----|---|
| 102 | SHARK BITE DISCONNECT FOR TRANSPORTATION                          |
| 105 | WASHER ACCESS BOX FOR PLUMBING CONNECTIONS                        |
| 106 | DISHWASHER HOT SUPPLY CONNECTION MADE FROM KITCHEN SINK HOT WATER |



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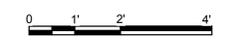
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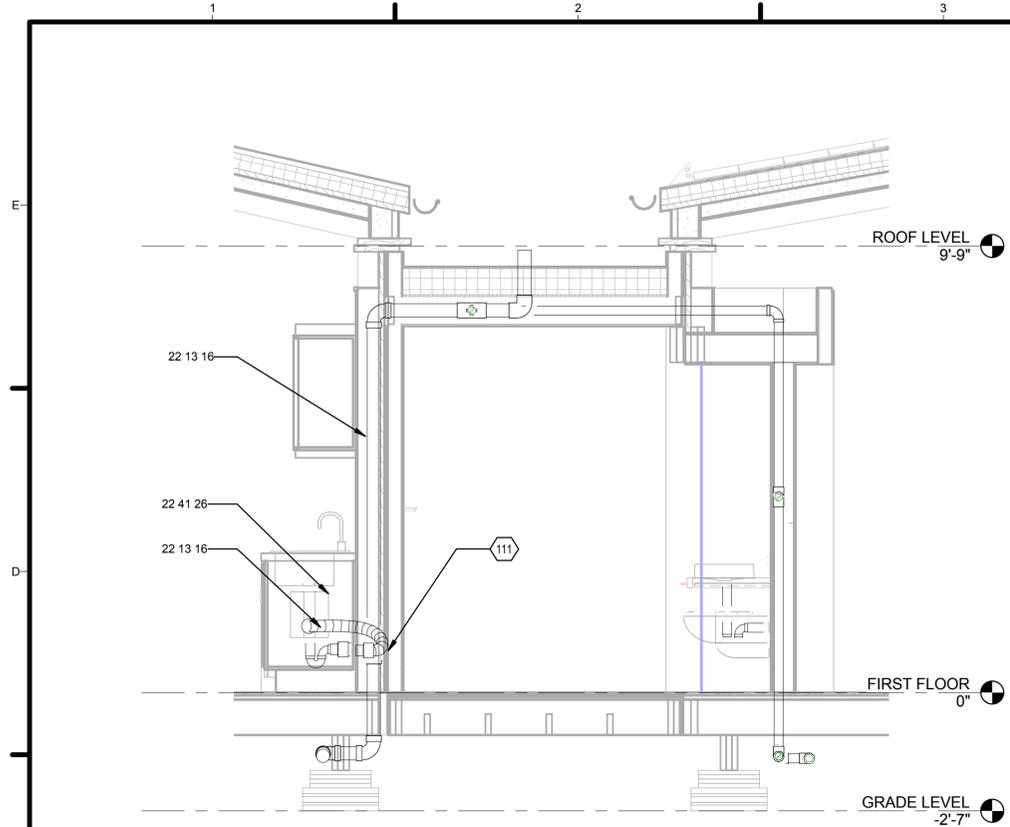
SHEET TITLE  
**DOMESTIC WATER SUPPLY CORE PLAN**

**P-111**

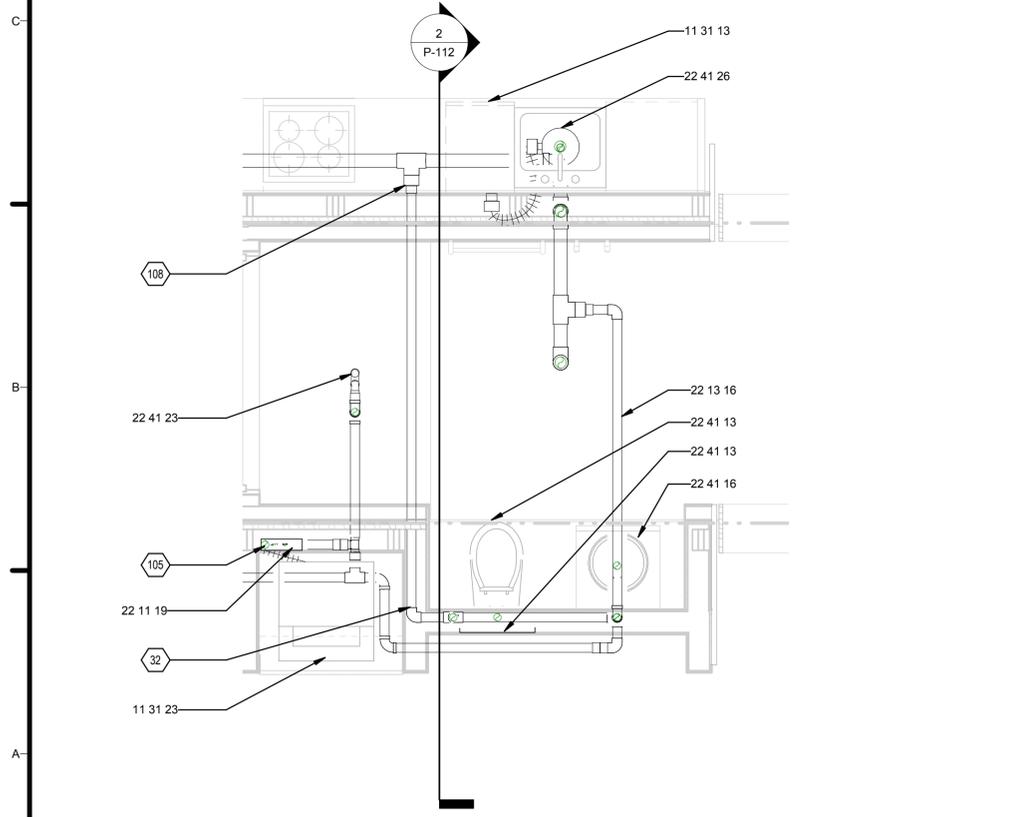
**A1 DOMESTIC WATER SUPPLY CORE PLAN**  
 1/2" = 1'-0"



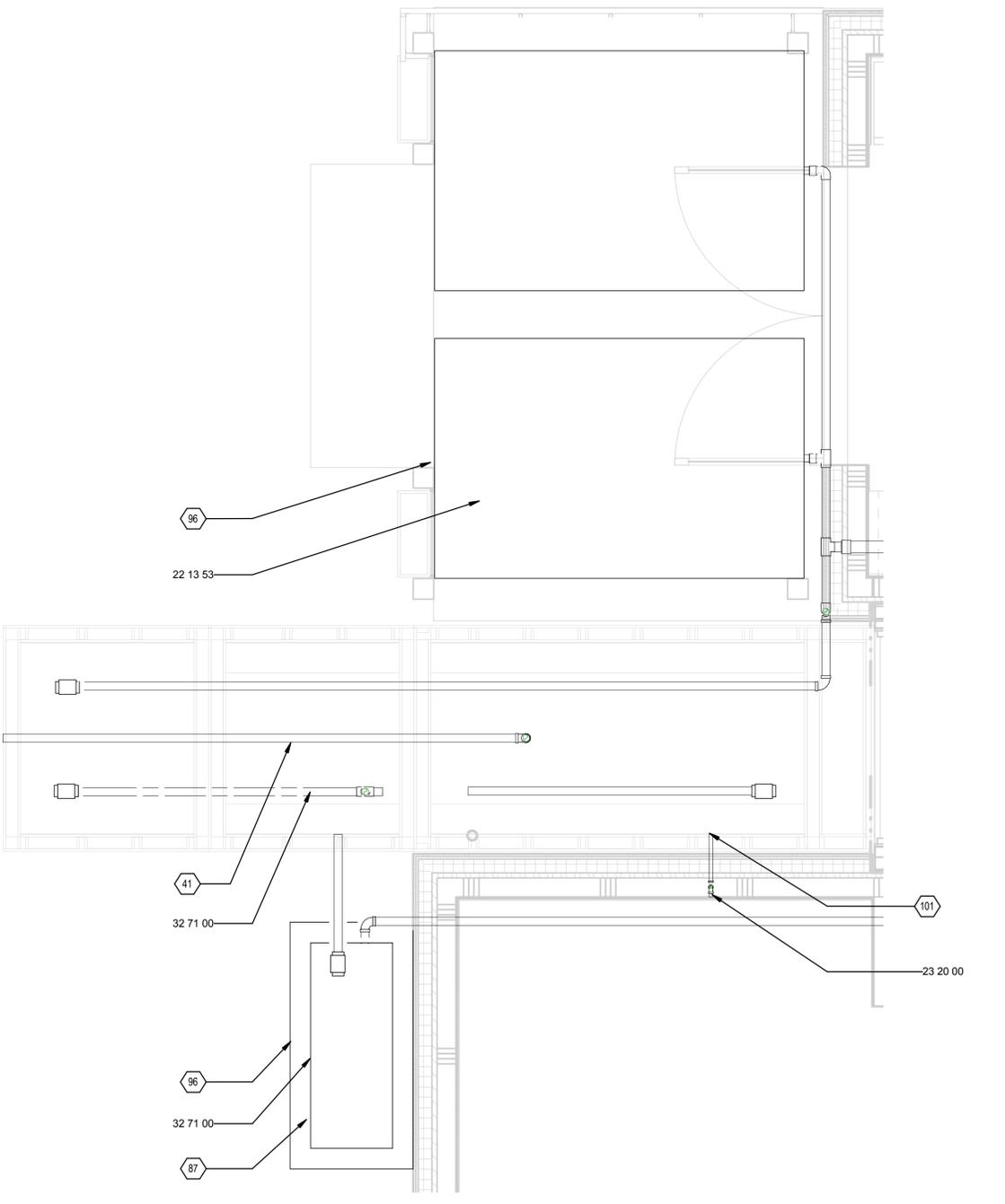
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**2 EAST CORE SECTION**  
1/2" = 1'-0"



**A1 WASTE WATER CORE PLAN**  
1/2" = 1'-0"



**A3 WASTE FILTRATION SYSTEM**  
1/2" = 1'-0"



**GENERAL SHEET NOTES**

- FOR ACRONYMS & ABBREVIATIONS REFER TO P-001
- ALL BLACKWATER TO BE 3" PVC UNLESS OTHERWISE SPECIFIED.
- ALL GREYWATER TO BE 2" PVC UNLESS OTHERWISE SPECIFIED
- ALL WASTE PIPES SLOPE 1/4" ACCORDING TO UPC OR IPC

**REFERENCE KEYNOTES**

11 31 13	RESIDENTIAL KITCHEN APPLIANCES
11 31 23	RESIDENTIAL LAUNDRY APPLIANCES
22 11 19	DOMESTIC WATER PIPING SPECIALTIES
22 13 16	SANITARY WASTE AND VENT PIPING
22 13 53	FACILITY SEPTIC TANKS
22 41 13	RESIDENTIAL WATER CLOSETS, URINALS, AND BIDETS
22 41 16	RESIDENTIAL LAVATORIES AND SINKS
22 41 23	RESIDENTIAL SHOWER RECEPTORS AND BASINS
22 41 26	RESIDENTIAL DISPOSERS
23 20 00	HVAC PIPING AND PUMPS
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

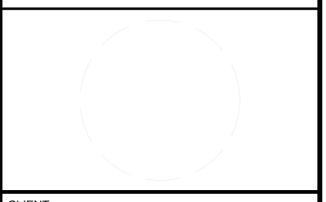
32	WALL HUNG TOILET CAPPED PER COMPETITION REQUIREMENTS
41	OVERFLOW VALVE FOR DRAINAGE OF EXCESS RAINWATER; RECIRCULATION PUMP WILL BE USED TO REMOVE WATER AT END OF COMPETITION
87	GREY WATER PREFILTRATION TANK
96	ALL STAND ALONE SITE AND BUILDING COMPONENTS TO BE ELEVATED ON 2x4 SLEEPERS PER COMPETITION REQUIREMENTS
101	1 1/2" Ø CONDENSATE PIPE CONNECTED TO RAINWATER CISTERN
105	WASHER ACCESS BOX FOR PLUMBING CONNECTIONS
108	KITCHEN WASTE PIPE CAPPED FOR COMPETITION
111	DISHWASHER CONNECTS TO GARBAGE DISPOSAL WITH 3/4" Ø FLEXIBLE HOSE



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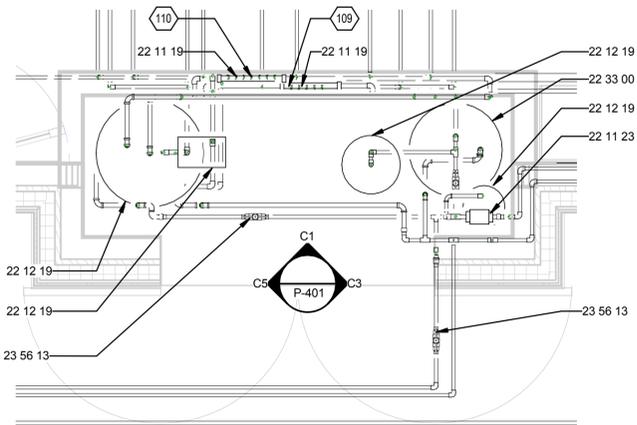
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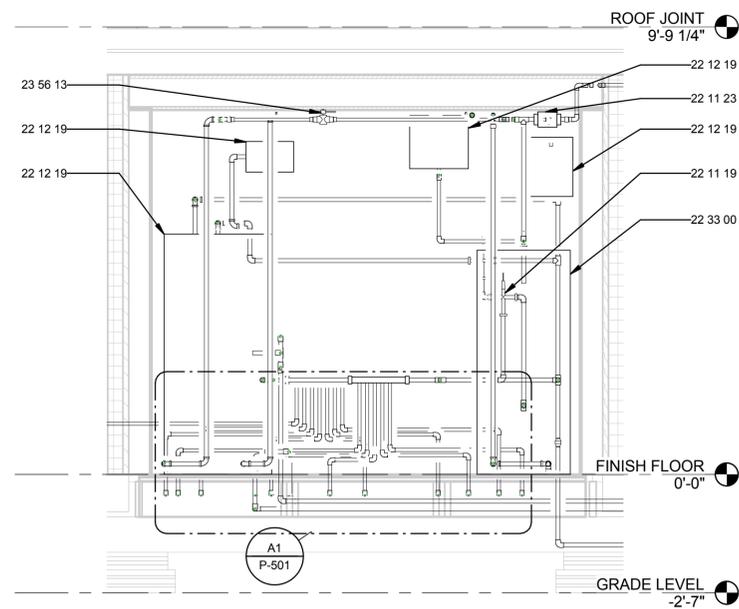
SHEET TITLE  
**WASTE WATER CORE AND FILTRATION SYSTEM**

**P-112**

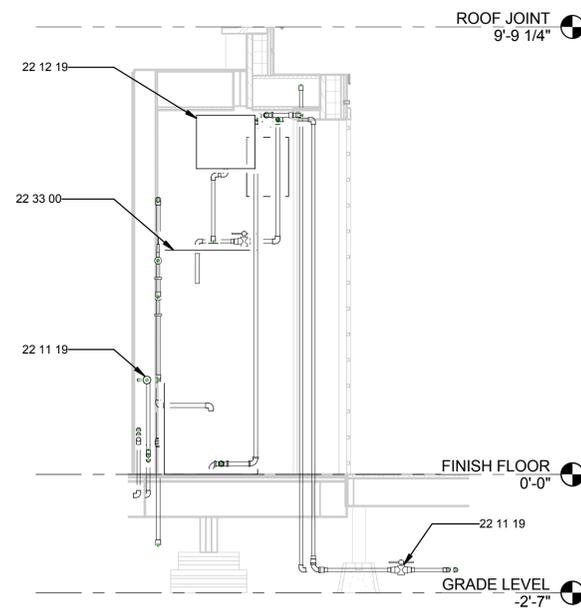
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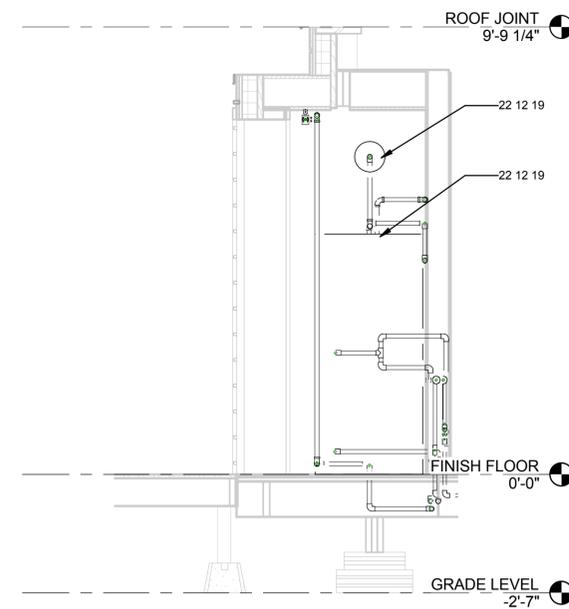
**A1 PLUMBING MECHANICAL ROOM PLAN**  
1/2" = 1'-0"



**C1 NORTH ELEVATION**  
1/2" = 1'-0"



**C3 EAST ELEVATION**  
1/2" = 1'-0"



**C5 WEST ELEVATION**  
1/2" = 1'-0"



**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

22 11 19	DOMESTIC WATER PIPING SPECIALTIES
22 11 23	DOMESTIC WATER PUMPS
22 12 19	FACILITY POTABLE WATER STORAGE TANKS
22 33 00	ELECTRIC DOMESTIC WATER HEATERS
23 56 13	HEATING SOLAR COLLECTORS

**SHEET KEYNOTES**

109	PEX MANIFOLD FOR HOT DOMESTIC WATER SUPPLY
110	PEX MANIFOLD FOR COLD DOMESTIC WATER SUPPLY
118	ALL VISIBLE PIPING IN MECHANICAL ROOM TO BE COPPER PIPING
153	ALL PIPING IN MECHANICAL WALLS AND FLOORS TO BE PEX TUBING



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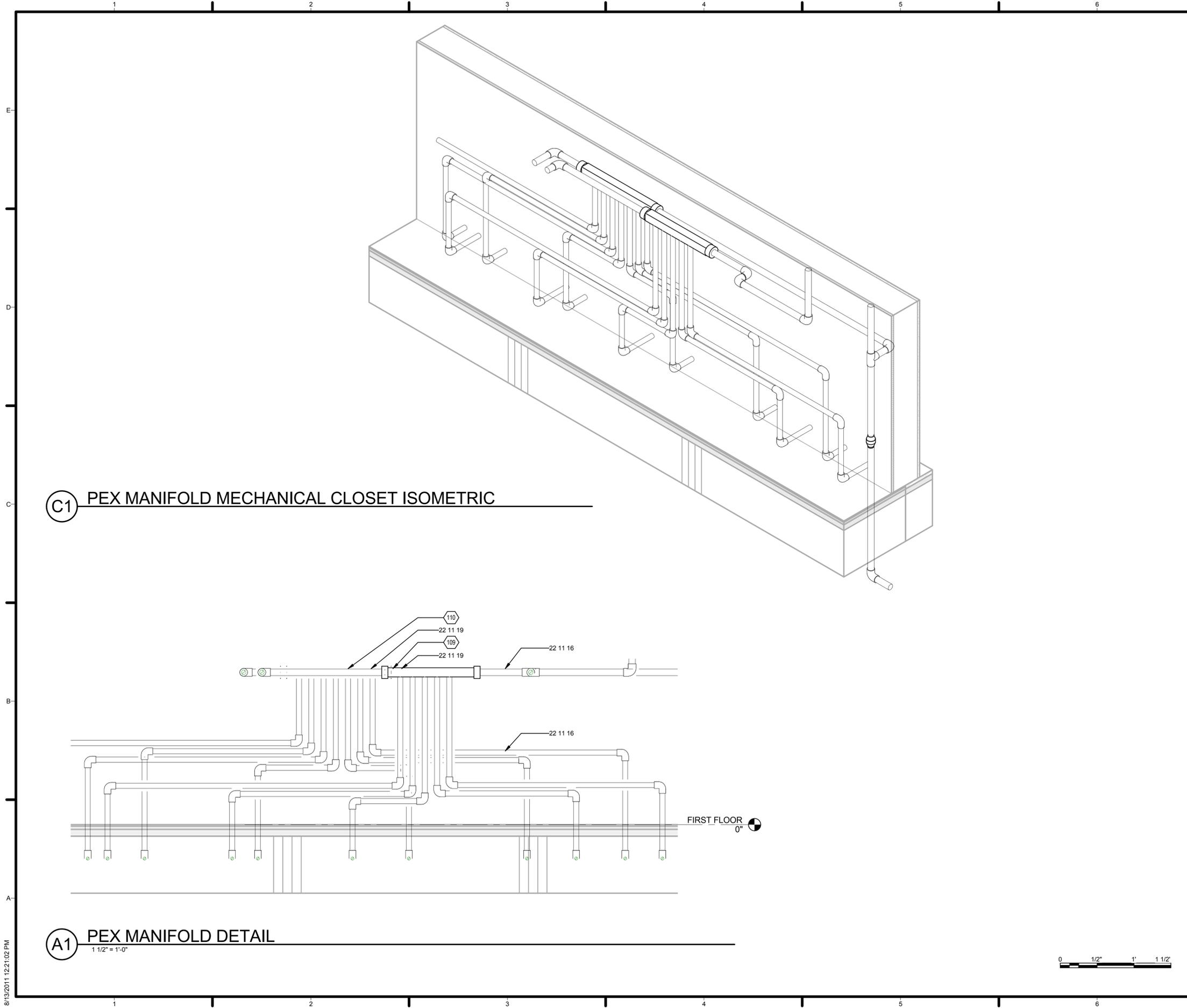
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**SHEET TITLE**

**MECHANICAL ROOM LAYOUT**

**P-401**



**C1** PEX MANIFOLD MECHANICAL CLOSET ISOMETRIC

**A1** PEX MANIFOLD DETAIL  
1 1/2" = 1'-0"

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

22 11 16 DOMESTIC WATER PIPING  
22 11 19 DOMESTIC WATER PIPING SPECIALTIES

**SHEET KEYNOTES**

109 PEX MANIFOLD FOR HOT DOMESTIC WATER SUPPLY  
110 PEX MANIFOLD FOR COLD DOMESTIC WATER SUPPLY



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SHEET TITLE  
**PEX MANIFOLD DETAIL AND ISOMETRIC**

**P-501**

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PLUMBING SCHEDULE								
MARK	REFERENCE NO.	DESCRIPTION	COUNT	MANUFACTURER	MODEL	SUPPLY FITTING	SUPPLY PIPE	DRAIN
<b>PIPE AND FITTINGS</b>								
1/2" Ø	22 11 16	1/2" PEX TUBING HOT	300	UPONOR	F2060500			
1/2" Ø	22 11 16	1/2" PEX TUBING COLD	300	UPONOR	F3060500			
3/4" Ø	22 11 16	3/4" PEX TUBING	200	UPONOR	F1060750			
3/4" Ø	23 20 00	3/4" PEX TUBING	200	UPONOR	0			
3/4" Ø	22 11 16	3/4" COPPER PIPE	100					
1/2" Ø	22 11 16	1/2" PROPEX RINGS	100	UPONOR	Q4690512			
3/4" Ø	22 11 16	3/4" PROPEX RINGS	100	UPONOR	Q4690756			
1/2" Ø	22 11 16	1/2" COPPER PIPE	150					
PM1	22 11 19	PEX MANIFOLD (HOT)	1	UPONOR	Q2500800	1" COPPER	3/4" COPPER	1/2" PROPEX
PM2	22 11 19	PEX MANIFOLD (COLD)	1	UPONOR	Q2500800	1" COPPER	3/4" Cu	1/2" PROPEX
PE2	23 37 13	AIR SEPERATOR	2	TACO	VRTX075-3	3/4" IPS FEMALE	3/4" PEX	3/4" IPS FEMALE
WM1	22 11 19	WASHING MACHINE OUTLET BOX	1	WEBSTONE	50963	1/2" NPT MALE	1/2" PEX	1/2" HOSE
U 1-1/2" Ø	22 13 16	U TRAP: 1 1/2"	1			1 1/2" PVC	2" PVC	
U 1-1/4" Ø	22 13 16	U TRAP: 1 1/4"	1			1 1/4" PVC	2" PVC	
U 2" Ø	22 13 16	U TRAP: 2"	3			2" PVC	2" PVC	
3/4" Ø	22 11 19	HOSE BIBB	2	WEBSTONE	30229	3/4" NPT MALE	1/2" PEX	3/4" HOSE
2" Ø	22 13 16	2" PVC PIPE	80					
3" Ø	22 13 16	3" PVC PIPE	50					
4" Ø	22 11 16	4" PVC PIPE	20					
<b>VALVES</b>								
V1	22 11 19	BALL VALVE: 3/4" PEX	3	WEBSTONE	40504	3/4" PROPEX	3/4" PEX	3/4" PROPEX
V2	22 11 19	BALL VALVE	10	VIEGA	22058	1/2" PROPPRESS	1/2" COPPER	1/2" PROPPRESS
V3	22 11 19	MIXING VALVE	2	C ALEFFI	521508A	3/4" SWEAT	3/4" COPPER	3/4" SWEAT
V4	22 11 19	BACKFLOW PREVENTER	1	WATTS	7UJ2-2	3/4" NPT FEMALE	3/4" COPPER	3/4" NPT FEMALE
V5	22 11 19	RELIEF VALVE	1	CASH ACME	15914A-0125	3/4" NPT MALE	3/4" COPPER	3/4" NPT FEMALE
V6	22 11 19	CHECK VALVE	2	UPONOR	10703	3/4" NPT FEMALE	3/4" COPPER	3/4" NPT FEMALE
V8	23 56 13	SOLENOID VALVE	4	CALEFFI	Z200412	1/2" NPT FEMALE	1/2" COPPER	1/2" NPT FEMALE
V9	23 84 00	LDW SOLENOID	3	HAYWARD	SV10050STV	1/2" NPT FEMALE	1/2" PVC TUBING	1/2" NPT FEMALE
V10	22 11 19	MAIN FILL VALVE	2	MATCO-NORCA	770S11N	4" PVC SOCKET	4" PVC	4" PVC SOCKET
V11	23 56 13	3-WAY SOLENOID VALVE	1	CALEFFI	Z307433	1/2" SWEAT	1/2" COPPER	1/2" SWEAT
V12	23 84 00	LDW SOLENOID II	1	HAYWARD	GVA-24	1-1/2" CPVC SOCKET	3/4" CPVC	1-1/2" CPVC SOCKET
V13	32 71 00	WETLANDS CHECK VALVE	5	MCMASER CARR	45275K42	1/2" NPT FEMALE	VARIOUS DIAMETER TUBING	1/2" NPT FEMALE
3/4" Ø	22 11 19	3/4" FLANGE VALVE WITH DRAIN	3	WEBSTONE	50413	3/4" COPPER SWEAT	1/2" COPPER	3/4" FLANGE
<b>GAUGES</b>								
PG1	22 11 23	PRESSURE GAUGE	4	UPONOR	E6122000	3/4" FNPS	3/4" PEX, 1/2" COPPER	
<b>PUMPS</b>								
PU1	22 11 23	MAIN PRESSURIZING PUMP	1	LITTLE GIANT	JPC-050-C	1-1/4" NPT FEMALE	1-1/2" PVC	1" NPT FEMALE
PU2	22 11 23	GLYCOL CIRCULATING PUMP	1	TACO	008	3/4" FLANGE	1/2" COPPER	3/4" FLANGE
PU3	21 41 00	FIRE SUPPRESSION PUMP	1				2" PVC	
PU4	22 11 23	HXEST PUMP	2	TACO	007	3/4" FLANGE	3/4" COPPER	3/4" FLANGE
PU5	23 84 00	DESICCANT PUMPS	4	MARCH	AC-2CP-MD	3/4" NPT MALE	1/2" PVC TUBING	1/4" NPT MALE
PU7	23 84 00	REGENERATOR PUMP	1	TOTTON	HPR6/11	1/2" OD TUBE	1/2" CPVC	1/2" OD TUBE
PU8	32 71 00	WETLAND PUMPS	2					
PU9	32 71 00	WETLAND PUMP	1					
<b>TANKS</b>								
WT1	22 12 19	ACCUMULATOR TANK	1	WATTS	PLT-12	1/2" NPT MALE	3/4" COPPER	
WT2	22 30 30	80 GALLON TANK	1	A O SMITH	SUNX-80	3/4" NPT MALE	COLD & HOT: 3/4" COPPER, GLYCOL: 1/2" COPPER	3/4" NPT MALE
WT3	22 12 19	105 GALLON TANK	1	SUNMAXX SOLAR	StorMaxxPTec-105-2HX	3/4" NPT MALE	COLD: 3/4" PEX, HOT: 3/4" COPPER, GLYCOL: 1/2" COPPER, HXEST: 3/4" PEX	3/4" NPT MALE
WT4	22 12 19	SUPPLY TANKS	3	FOL-DA-TANK	PW-525, GW-525	4" PVC	4" PVC	
WT5	22 13 53	WASTE TANKS	2	FOL-DA-TANK	PW-525, GW-525	4" PVC	4" PVC	
WT6	22 12 19	EXPANSION TANK	1	AMTROL	THERM-X-TROL ST-25V	3/4" NPT FEMALE	1/2" COPPER	
WT7	22 12 19	HXEST EXPANSION TANK	1	ProFlo	PFXT5	1/2" NPT MALE	1/2" PEX	
WT8	22 12 19	GLYCOL EXPANSION TANK	1	AMTROL	EXTROL 30	1/2" NPT MALE	1/2" COPPER	
<b>HEAT EXCHANGERS AND FLUIDS</b>								
STA	23 56 13	EVACUATED TUBE COLLECTORS	2	PARADIGMA	CPC 45 Star Azzurro	1/2" COMPRESSION FITTING	1/2" COPPER	1/2" COMPRESSION FITTING
HX1	23 57 00	WATER TO AIR HEAT EXCHANGER	3	EASTLAKE ALTERNATIVE ENERGY	12X12HX	1" COPPER	1/2" AND 3/4" COPPER	1" COPPER
HX2	23 84 00	DESICCANT HEAT EXCHANGER	1	OUTDOOR FURNACE SUPPLY	SPH-55K	1" NPT FEMALE	1/2" COPPER	1" NPT FEMALE
FN1	23 84 00	FAN	6	SUNON	A1175-HBL TC.GN			
FN2		SENSOR FAN	1					

GENERAL SHEET NOTES

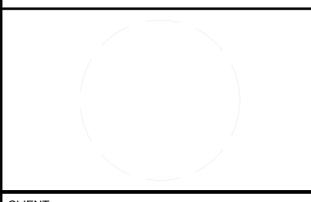
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SHEET TITLE  
**PLUMBING SCHEDULES**

**P-601**



**ABBREVIATIONS LEGEND**

CW	CLOTHES WASHER
DW	DISHWASHER
S	SINK
SH	SHOWER
WC	TOILET
WT	WATER TANK

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

113 WETLANDS RECIRCULATION LOOP



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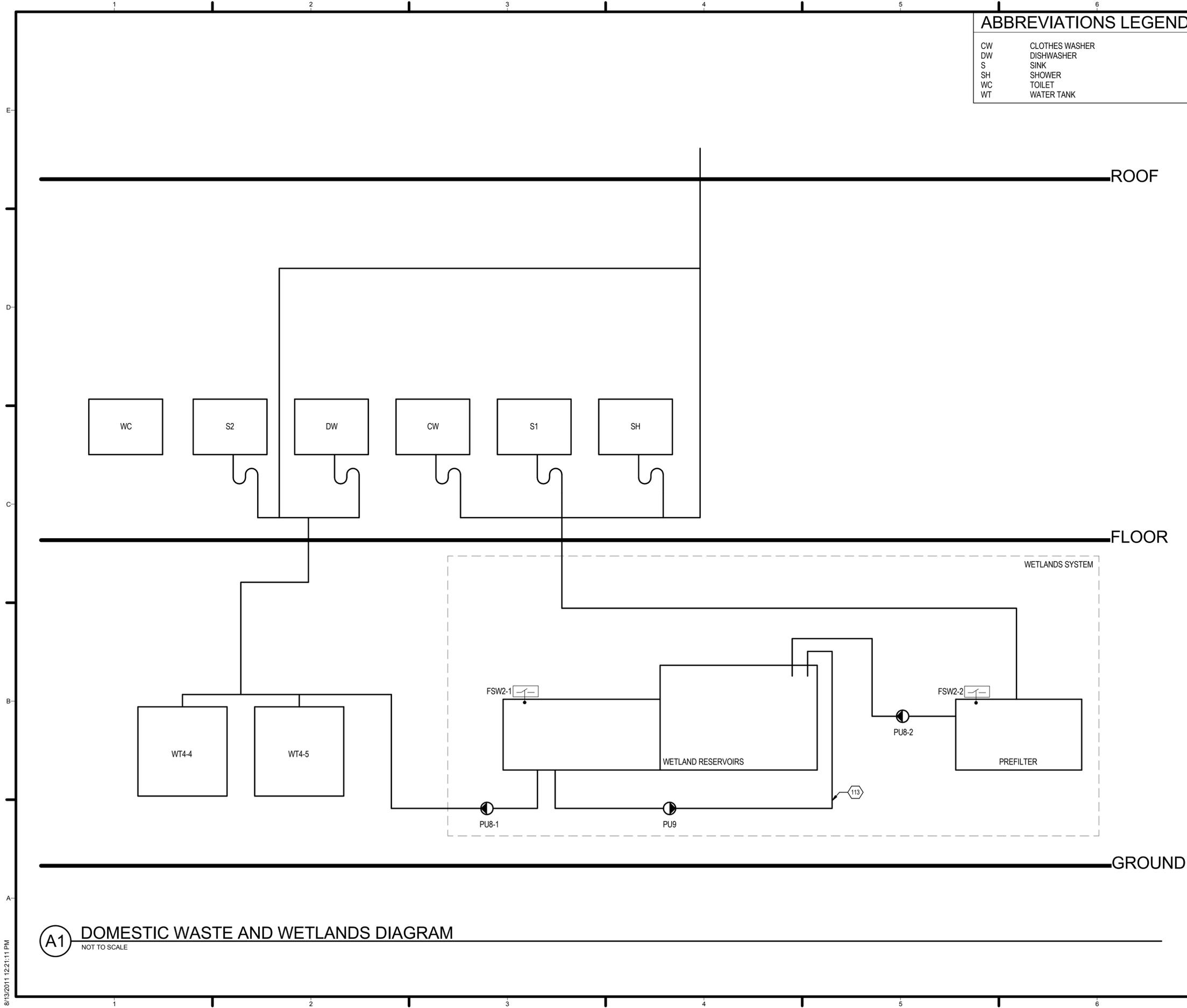


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SHEET TITLE  
**DOMESTIC WASTE AND WETLANDS DIAGRAM**

**P-612**



**(A1) DOMESTIC WASTE AND WETLANDS DIAGRAM**  
 NOT TO SCALE

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**ABBREVIATIONS LEGEND**

DT	DESICCANT TANK
FN	FAN
HX	HEAT EXCHANGER
HXEST	HEAT EXCHANGER FOR EXCESS SOLAR THERMAL LIQUID DESICCANT WALL
LDW	LIQUID DESICCANT WALL
PU	PUMP
SH	HUMIDITY SENSOR
SL	LIQUID LEVEL SENSOR
ST	TEMPERATURE SENSOR
STA	SOLAR THERMAL ARRAY
SW	SWITCH
V	VALVE
WT	WATER TANK

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**



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**SHEET KEYNOTES**

114 FILLED WITH TRI-PACKS PACKING MEDIA  
 115 GRAVITY FED



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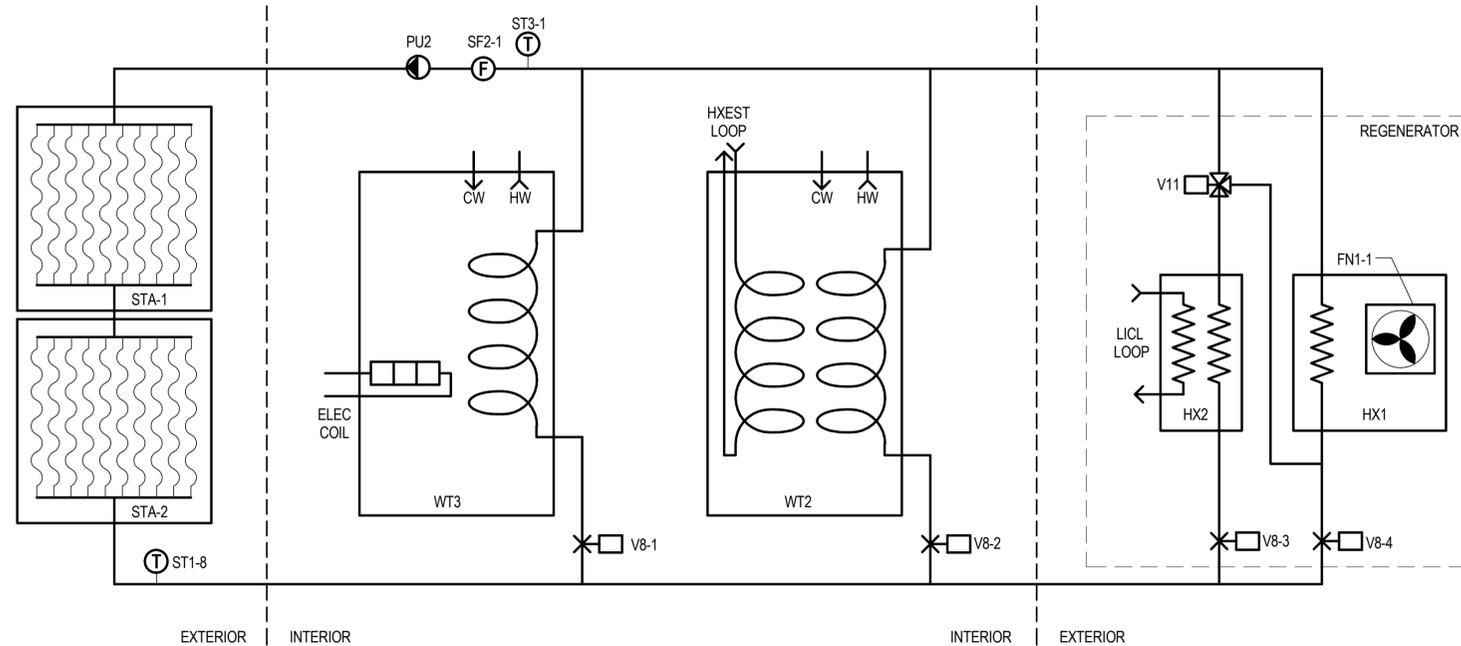
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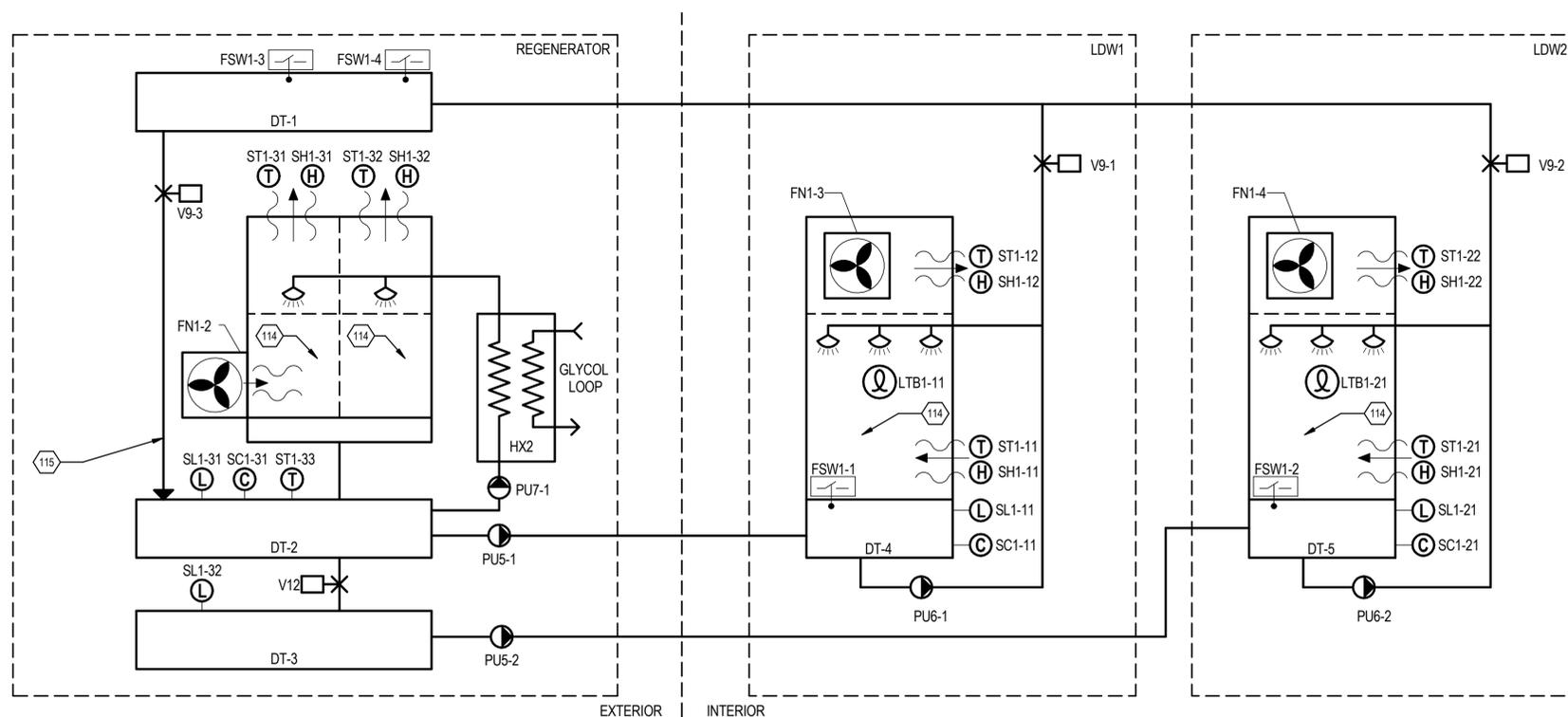
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**SOLAR THERMAL AND DESICCANT DIAGRAMS**

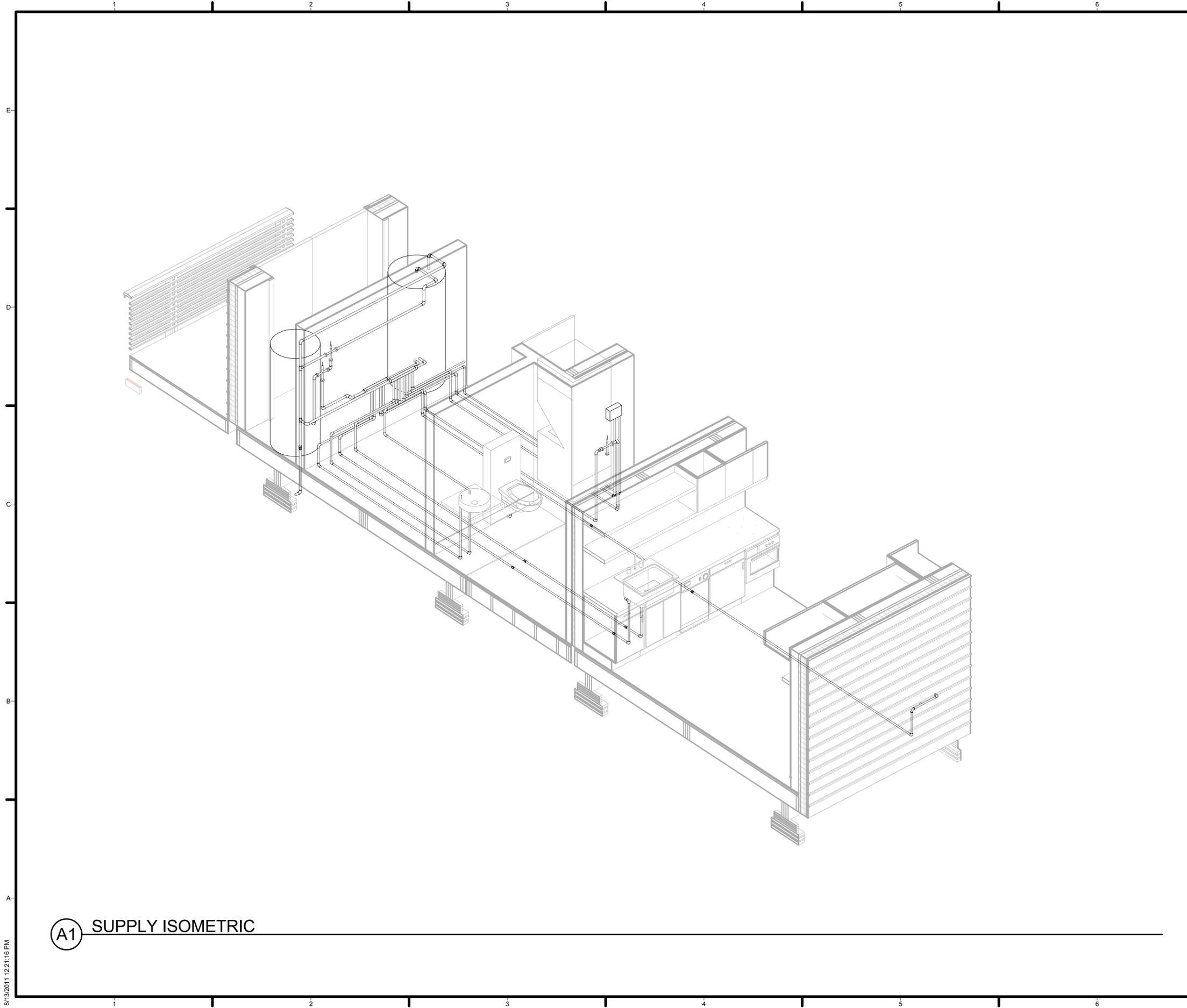
**P-613**



**C1 SOLAR THERMAL GLYCOL LOOP DIAGRAM**  
 NOT TO SCALE



**A1 DESICCANT (LiCl) PLUMBING DIAGRAM**  
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**(A1) SUPPLY ISOMETRIC**

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**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

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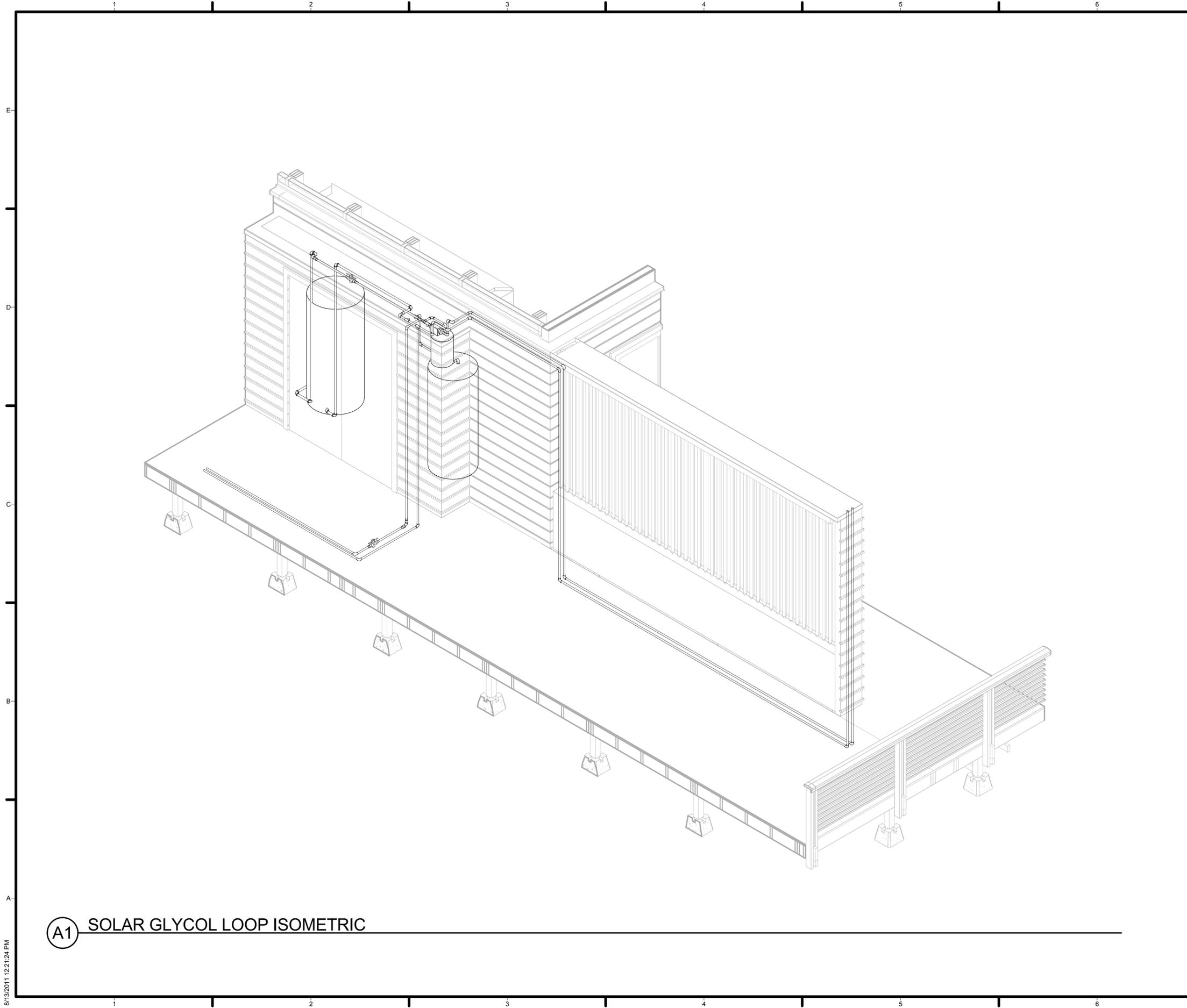
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**CORE SUPPLY ISOMETRIC**

**P-901**





**(A1) SOLAR GLYCOL LOOP ISOMETRIC**

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**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**



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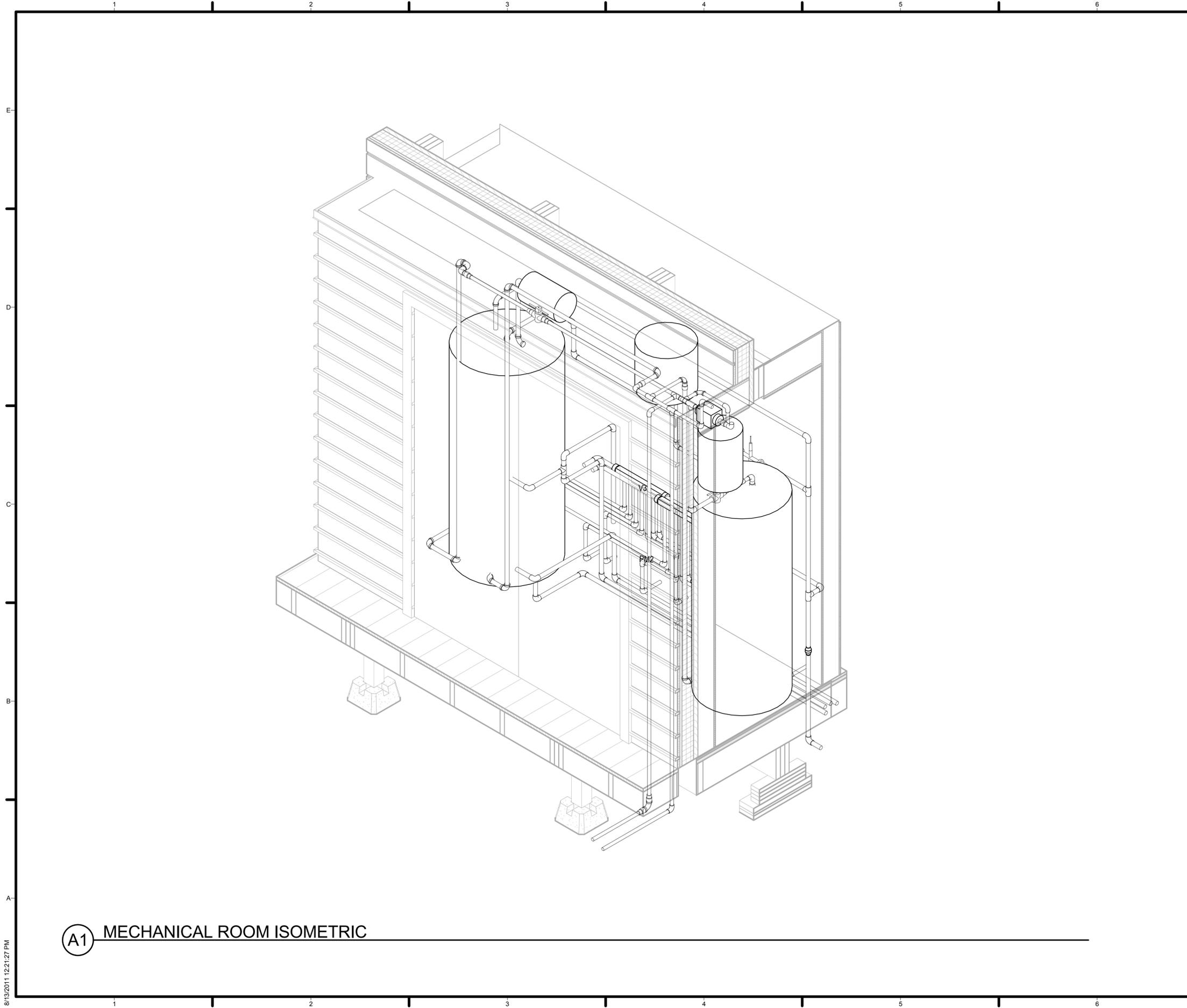


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**SOLAR GLYCOL LOOP ISOMETRIC**

**P-903**



GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



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01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

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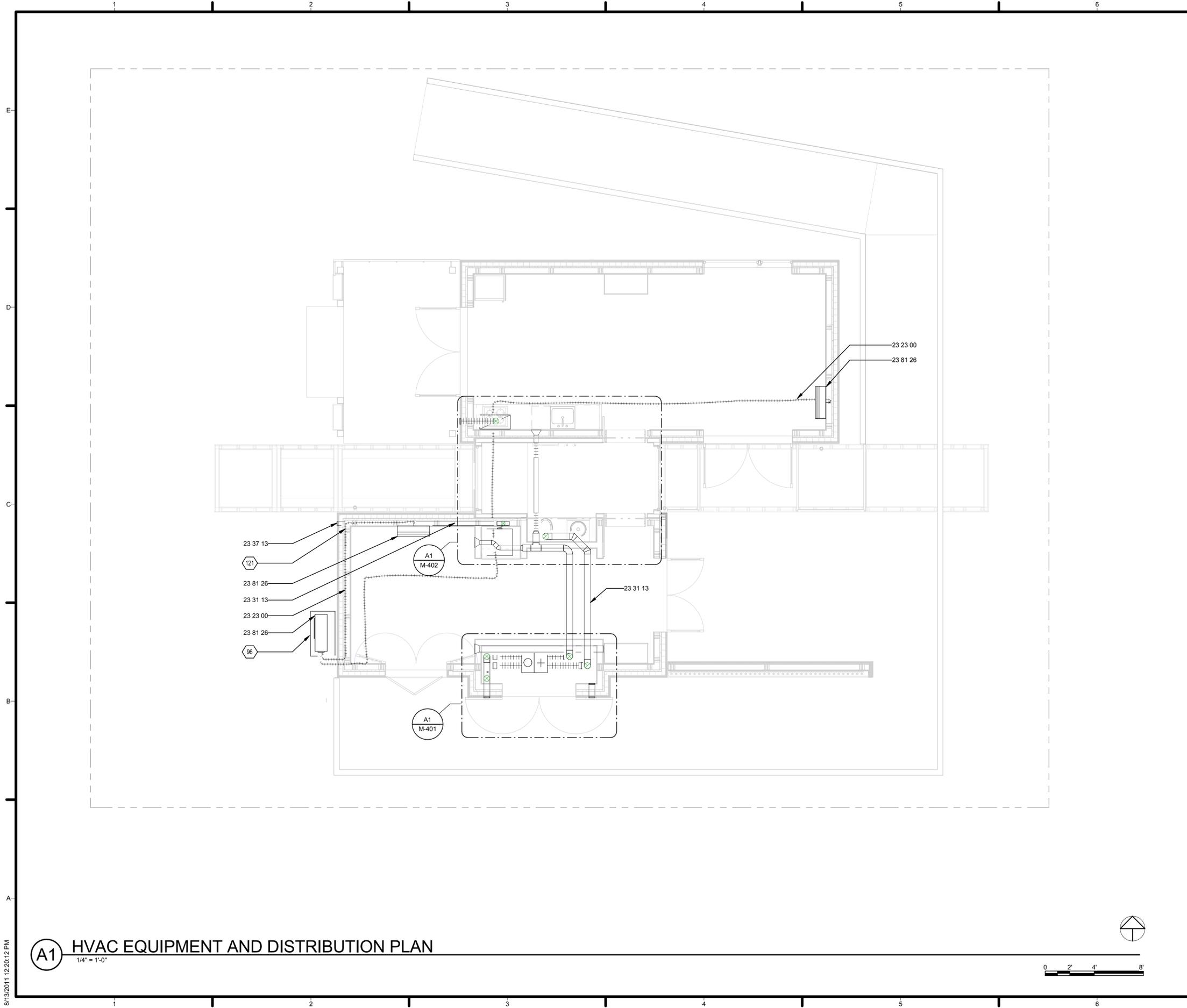
SHEET TITLE  
 MECHANICAL ROOM  
 ISOMETRIC

P-904

(A1) MECHANICAL ROOM ISOMETRIC

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GENERAL SHEET NOTES

REFERENCE KEYNOTES

- 23 23 00 REFRIGERANT PIPING
- 23 31 13 METAL DUCTS
- 23 37 13 DIFFUSERS, REGISTERS AND GRILLES
- 23 81 26 SPLIT SYSTEM AIR CONDITIONERS

SHEET KEYNOTES

- 96 ALL STAND ALONE SITE AND BUILDING COMPONENTS TO BE ELEVATED ON 2x4 SLEEPERS PER COMPETITION REQUIREMENTS
- 121 1/4" LIQUID WITH 5/16" INSULATION AND 3/8" GAS WITH 5/16" INSULATION BUNDLED AND INSTALLED WITH STRAPS TO BOTTOM OF FLOOR JOISTS



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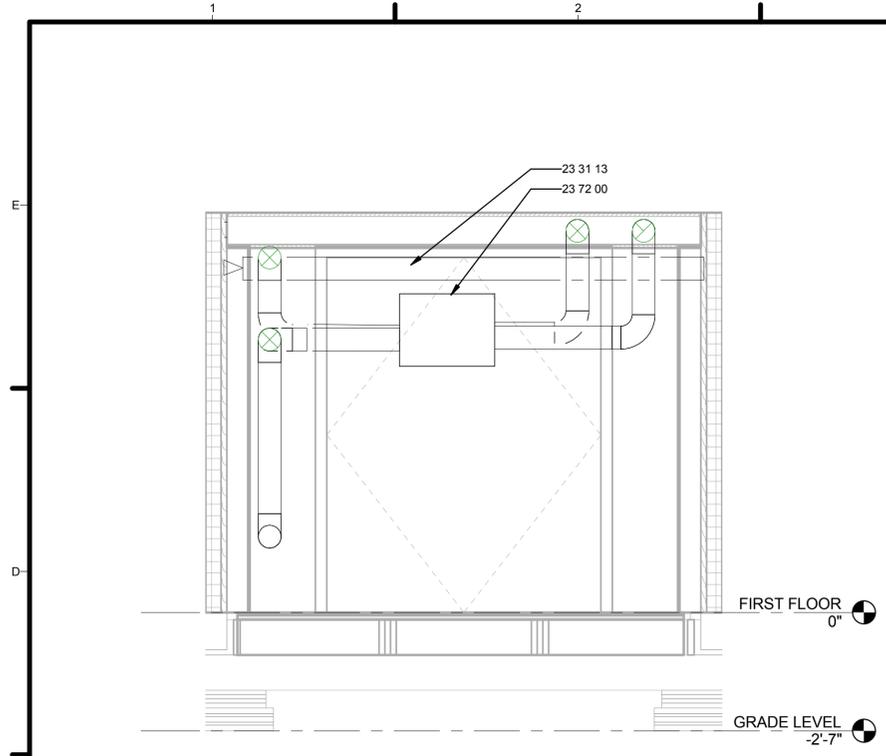
SHEET TITLE

HVAC PLAN

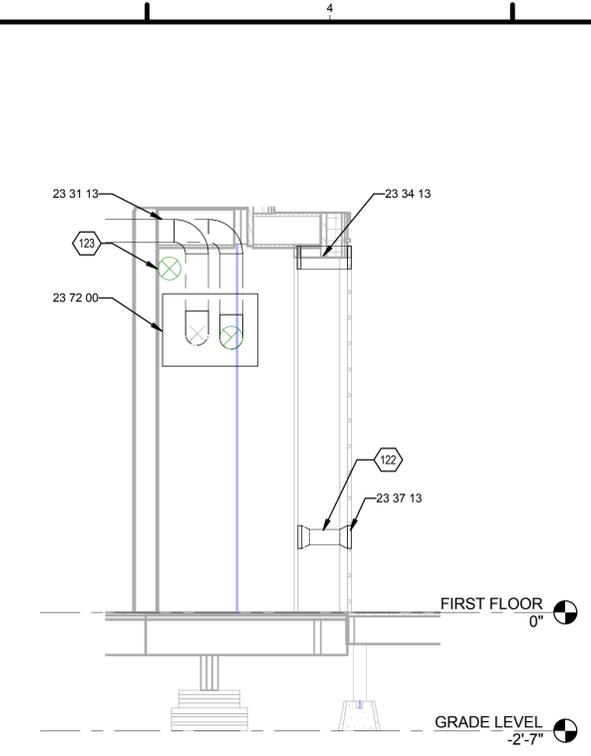
M-101

**A1** HVAC EQUIPMENT AND DISTRIBUTION PLAN  
 1/4" = 1'-0"

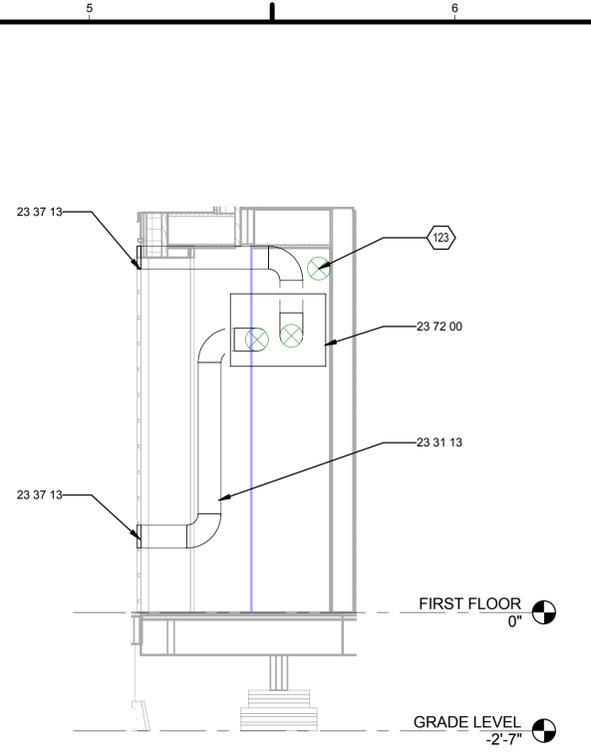
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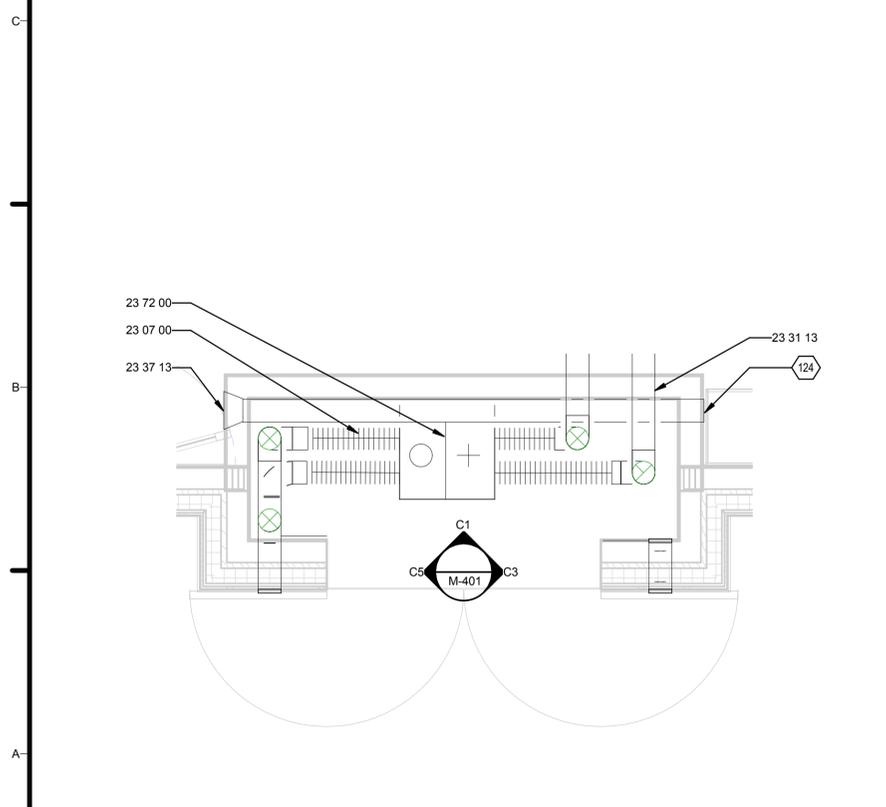
**C1 HVAC NORTH ELEVATION**  
1/2" = 1'-0"



**C3 HVAC EAST ELEVATION**  
1/2" = 1'-0"



**C5 HVAC WEST ELEVATION**  
1/2" = 1'-0"



**A1 HVAC MECHANICAL ROOM PLAN**  
1/2" = 1'-0"

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

- 23 07 00 HVAC INSULATION
- 23 31 13 METAL DUCTS
- 23 34 13 AXIAL HVAC FANS
- 23 37 13 DIFFUSERS, REGISTERS AND GRILLES
- 23 72 00 AIR-TO-AIR ENERGY RECOVERY EQUIPMENT

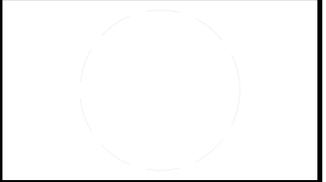
**SHEET KEYNOTES**

- 122 4"Ø BACKFLOW DAMPER
- 123 6"Ø SUPPLY DUCT TO LIQUID DESICCANT WATERFALL
- 124 FLEX DUCT UNION BETWEEN DESICCANT UNIT AND 6"Ø DESICCANT SUPPLY SPIRAL DUCT
- 165 ALL 6" HARD DUCTING TO BE SPIRAL DUCTS
- 178 ERV MAINTENANCE ACCESS LOCATED ON FRONT OF UNIT



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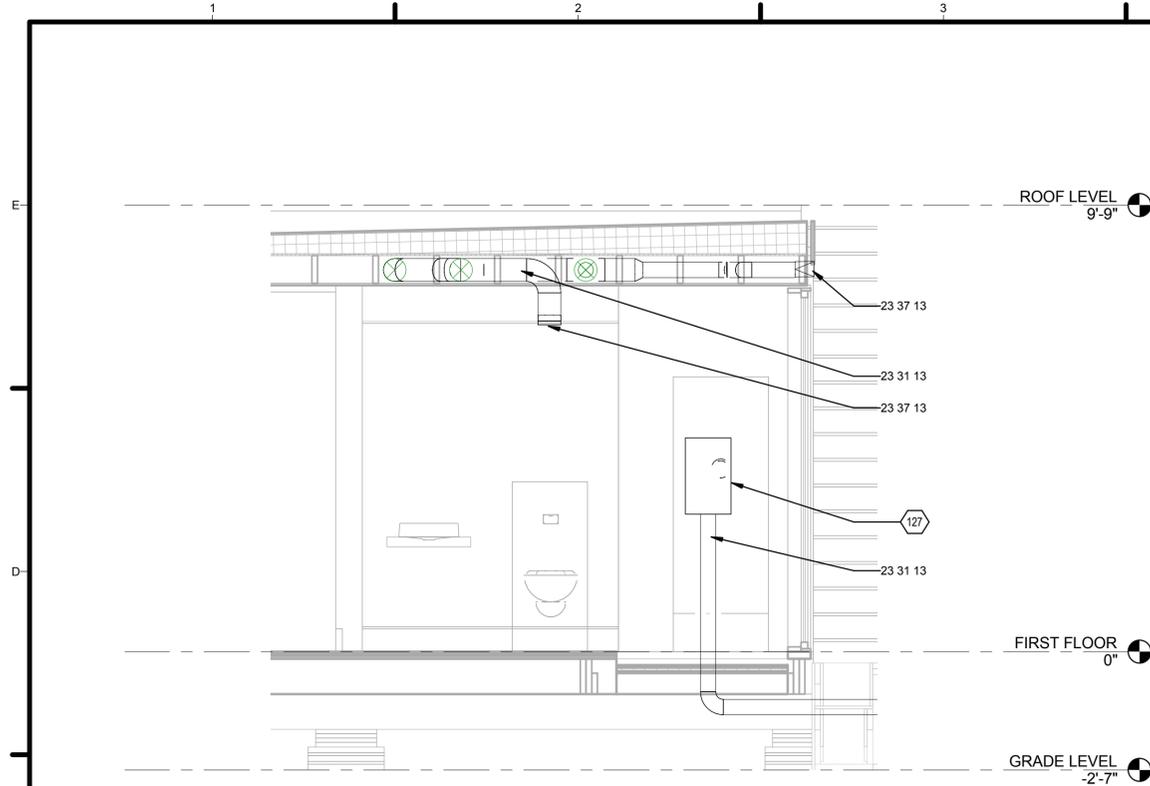


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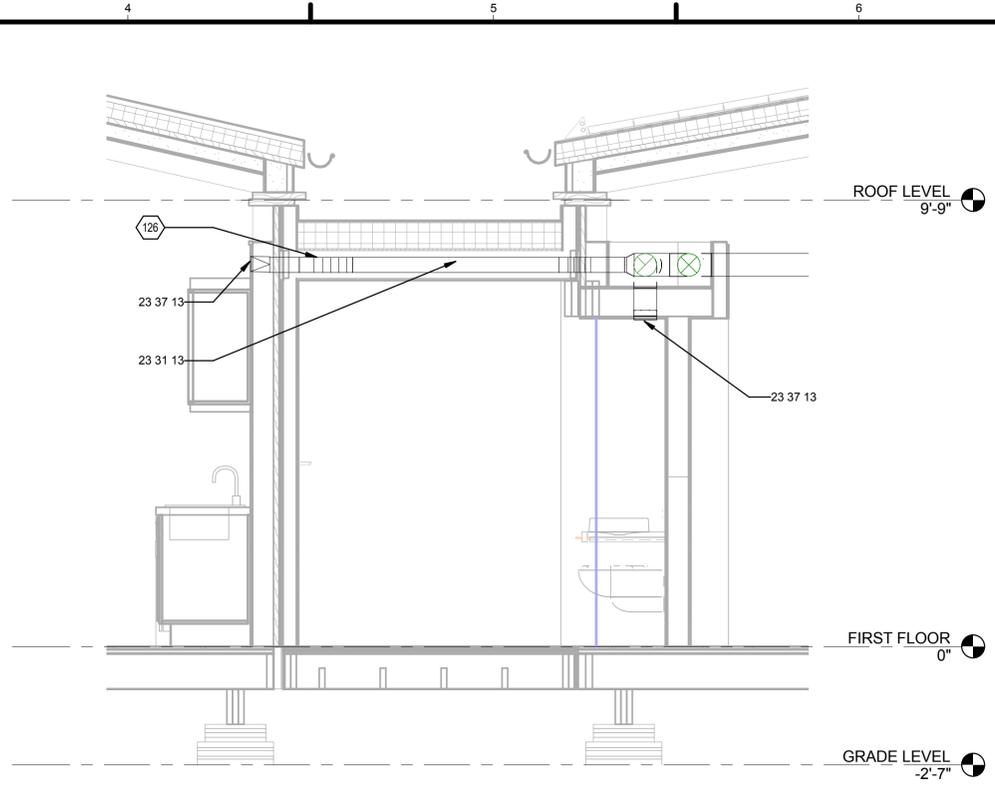
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SHEET TITLE  
**MECHANICAL ROOM  
 HVAC PLAN AND  
 ELEVATIONS**

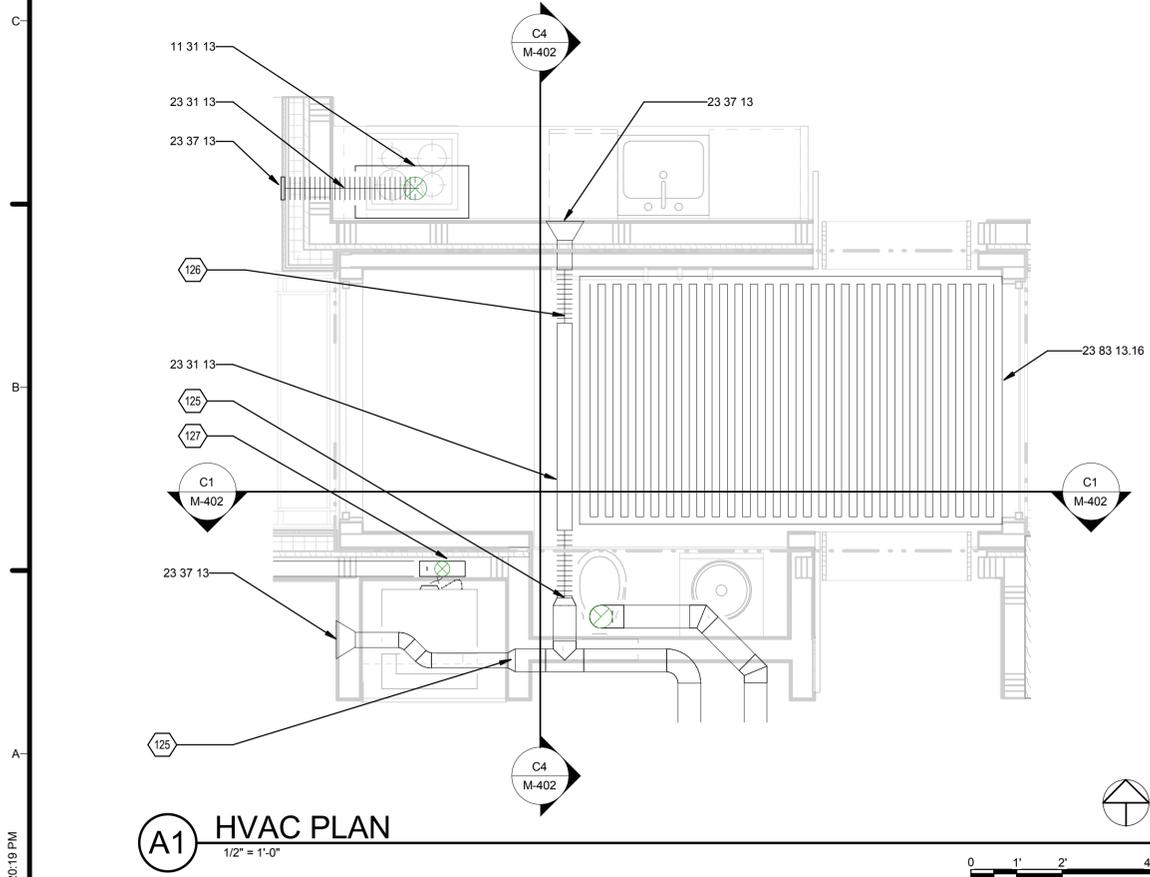
**M-401**



**C1 HVAC NORTH SECTION**  
1/2" = 1'-0"



**C4 WEST SECTION**  
1/2" = 1'-0"



**A1 HVAC PLAN**  
1/2" = 1'-0"

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

11 31 13	RESIDENTIAL KITCHEN APPLIANCES
23 31 13	METAL DUCTS
23 37 13	DIFFUSERS, REGISTERS AND GRILLES
23 83 13.16	RADIANT-HEATING UNITS

**SHEET KEYNOTES**

125	6"Ø TO 4"Ø REDUCER
126	4"Ø FLEX DUCT AT MODULE DISCONNECT FOR TRANSPORTATION
127	DRYER BOX CONNECTION FOR 4"Ø NON-INSULATED FLEX DUCT FROM DRYER AND 4"Ø HARD DUCT TO EXTERIOR



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SHEET TITLE  
**BATHROOM HVAC  
 PLAN AND SECTIONS**

**M-402**

GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



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SHEET TITLE  
**HVAC SCHEDULES**

**M-601**

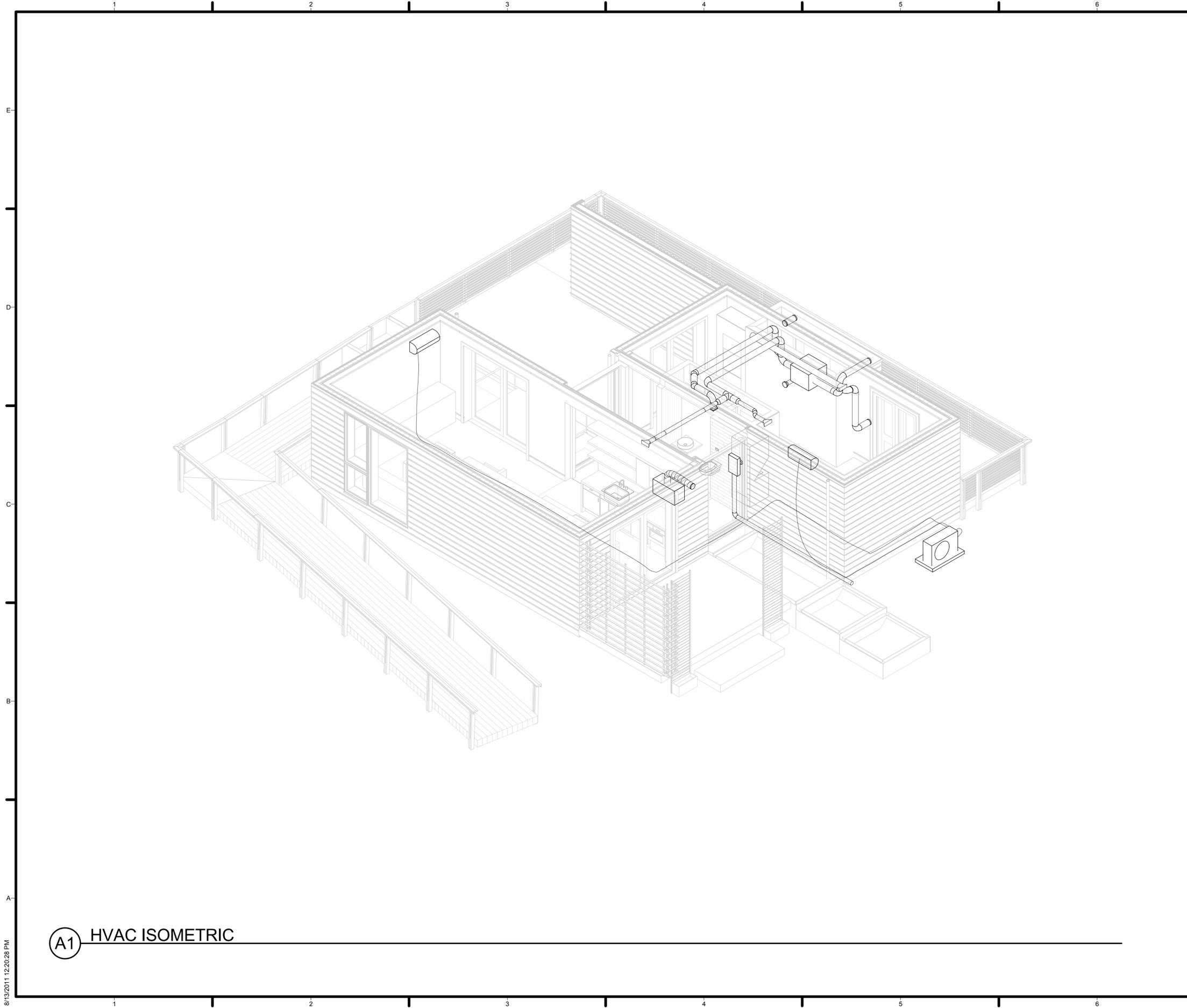
MECHANICAL EQUIPMENT SCHEDULE						
MARK	REFERENCE NO.	SYSTEM NAME	COUNT	MANUFACTURER	MODEL	COMMENTS
CU	23 81 26	OUTDOOR VARIABLE SPEED COMPRESSOR	1	mitsubishi	MXZ-2B20NA	
HP	23 81 26	INDOOR HEAT PUMP	2	MITSUBISHI	MSZ-FE09NA	
ERV	23 72 00	AIR TO AIR ENERGY RECOVERY VENTILAT	1	ULTIMATEAIR	RECOUPAERATOR 200DX	
1/2"Ø	23 23 00	COPPER REFRIGERANT LINE	80 FEET	MUELLER INDUSTRIES	RTC/RTB	
3/8"Ø-3/8"Ø	23 23 00	REFRIGERANT LINE INSULATION	80 FEET	FERGUSON	R6RX038038/R6RX038028	
SP	23 81 26	LIGHTWEIGHT EQUIPMENT PAD	1	DIVERSITECH	UC2436-2	
RF	23 83 00	ELECTRIC RADIANT FLOORING	30 SQUARE FEET	NUHEAT	NUHEAT MAT	
TH	23 34 13	MECHANICAL ROOM THERMOSTAT	1	HONEYWELL	T651A 3018	

DUCTING SCHEDULE						
MARK	REFERENCE NO.	SYSTEM NAME	COUNT	MANUFACTURER	MODEL	COMMENTS
6"Ø	23 31 13	6" ROUND SPIRAL DUCT	55 FEET	JEFF KOGOK	CUSTOM	
4"Ø	23 31 13	4" ROUND SPIRAL DUCT	25 FEET	JEFF KOGOK	CUSTOM	
6"Ø-4"Ø	23 31 13	6" TO 4" GASKETED REDUCER	2	PHOENIX METALS	GSPR	
6"Ø-4"Ø-6"Ø	23 31 13	FULL FLOW GASKETED TEE	1	PHOENIX METALS	GT-DST	
4"Ø	23 31 13	NON-INSULATED FLEX DUCT	6 FEET	ATCO	#050 NON-INSULATED F	
6"Ø	23 31 13	NON-INSULATED FLEX DUCT	6 FEET	ATCO	#050 NON-INSULATED F	
6"Ø-6"Ø	23 07 00	INSULATED DUCT	12 FEET	ATCO	#050 INSULATED	
6"Ø-6"Ø	23 31 13	ROUND ELBOW TURNS	11	ROYAL METAL PRODUCTS	#111	
4"Ø-4"Ø	23 31 13	ROUND ELBOW TURNS	3	ROYAL METAL PRODUCTS	#111	
4"Ø-6"Ø	23 31 13	STRAIGHT REGISTER BOOT	2	SHAPIRO AND DUNCAN	CUSTOM	
6"Ø-6"Ø	23 31 13	STRAIGHT REGISTER BOOT	2	SHAPIRO AND DUNCAN	CUSTOM	
6"Ø	23 31 13	45 DEGREE GASKETED TURN	2	PHOENIX METALS	GDSE45	
6"Ø	23 31 13	6" GASKETED DUCT COUPLING	10	PHOENIX METALS	GPC	
4"Ø	23 31 13	4" GASKETED DUCT COUPLING	2	PHOENIX METALS	GPC	
FL	23 31 13	ANGLE IRON FLANGE	9	MCMMASTER-CARR	1758K15	

GRILLE SCHEDULE						
MARK	REFERENCE NO.	SYSTEM NAME	COUNT	MANUFACTURER	MODEL	COMMENTS
G1	23 37 13	AIR SUPPLY WALL GRILLE	1	NAILOR	61CD (1A), 67PR-0	KITCHEN
G2	23 37 13	AIR SUPPLY WALL GRILLE	2	NAILOR	51CD (2B)	BEDROOM
G3	23 37 13	RETURN GRILLE	1	NAILOR	67PR (-O)	BATHROOM
G4	23 34 13	AXIAL HVAC FAN	1	BROAN	512M VENTILATOR	
G5	08 95 16	EXTRUDED ALUMINUM VENT	5	SEIHO	SX-N 6	EXTERIOR GRILLES
G6	08 95 16	EXTRUDED ALUMINUM VENT	1	SEIHO	SX 6	INTERIOR GRILLE
G7	08 95 16	ALUMINUM VENT CAP	1	SEIHO	SX 4	INTERIOR GRILLE
G8	08 95 16	ALUMINUM DRYER VENT	1	SEIHO	SB	EXTERIOR GRILLE



(A1) HVAC ISOMETRIC

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GENERAL SHEET NOTES

REFERENCE KEYNOTES

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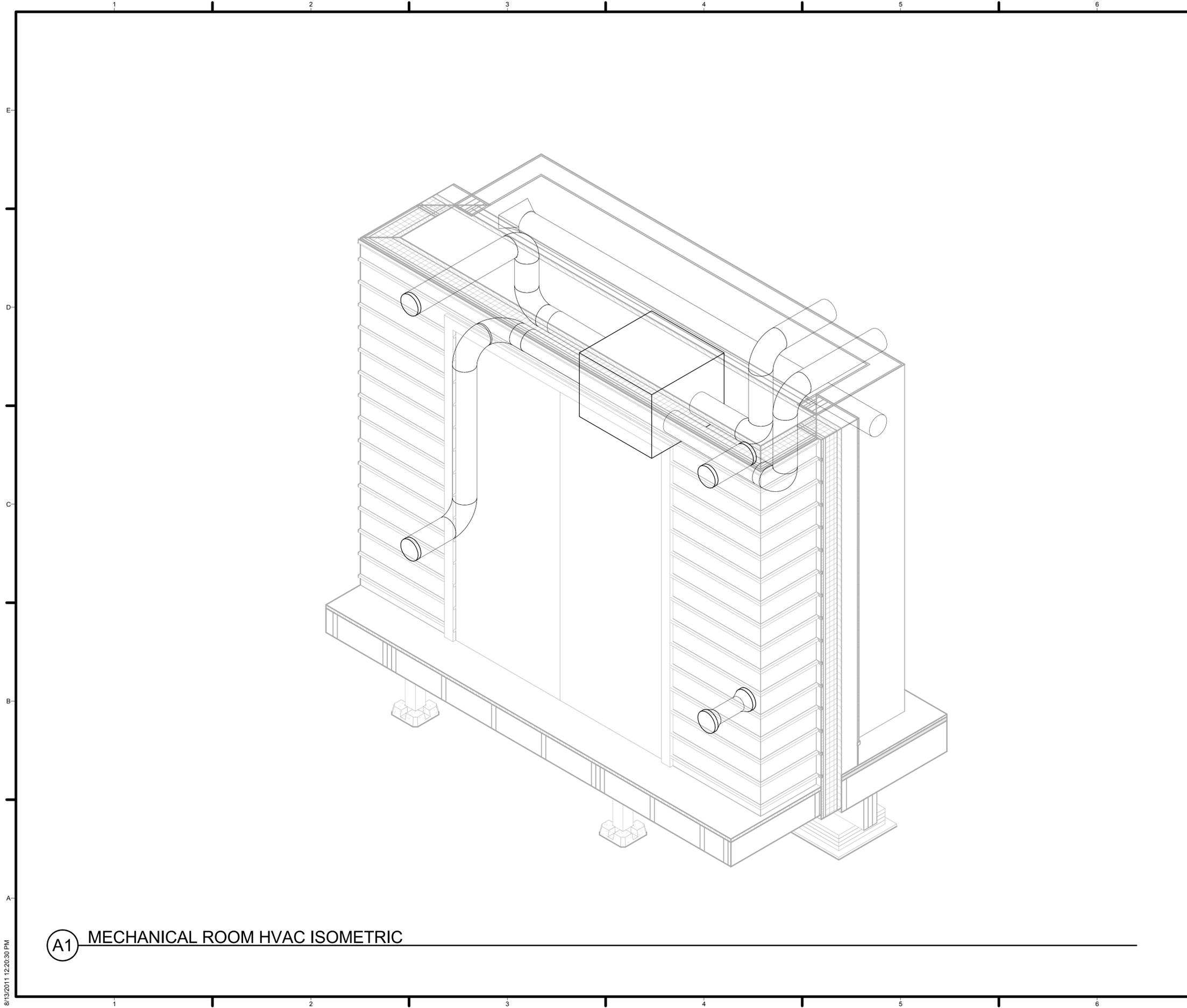


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SHEET TITLE  
 HVAC ISOMETRIC

M-901



(A1) MECHANICAL ROOM HVAC ISOMETRIC

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GENERAL SHEET NOTES

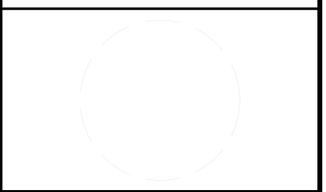
REFERENCE KEYNOTES

SHEET KEYNOTES



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SHEET TITLE  
 MECHANICAL ROOM  
 HVAC ISOMETRIC

M-902

SYMBOLS		SYMBOLS		SYMBOLS	
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION
	TAMPER-RESISTANT 220V RECEPTACLE	\$	BUTTON PANEL	---	UNUSED
	TAMPER-RESISTANT QUADRUPLEX RECEPTACLE	S	SWITCH	---	L1 HOT
	TAMPER-RESISTANT DUPLEX RECEPTACLE		CEILING FAN	---	L2 HOT
	TAMPER-RESISTANT DUPLEX RECEPTACLE GFCI		UNDER CABINET LIGHT	---	NEUTRAL
	TAMPER-RESISTANT WEATHER PROOF RECEPTACLE		CRESTRON DIMMER PANEL	---	INTERIOR NEUTRAL
	TAMPER-RESISTANT SWITCHED DUPLEX RECEPTACLE		CEILING LIGHT	---	GROUND
	TAMPER RESISTANT SWITCHED QUADRUPLEX RECEPTACLE		PUMP		
	TAMPER RESISTANT QUADRUPLEX GFCI RECEPTACLE		SMOKE DETECTOR		

GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



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SHEET TITLE  
**ELECTRICAL SYMBOLS AND NOTES**

**E-001**

**ABBREVIATIONS LEGEND**

GFCI	GROUND FAULT CIRCUIT INTERRUPTER
NSP	NORTH SUB PANEL
SSP	SOUTH SUB PANEL
MSP	MAIN SERVICE PANEL
WP	WEATHER PROOF

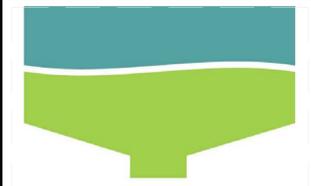
**GENERAL SHEET NOTES**

- REFER TO PANEL SCHEDULES ON E-601 FOR MORE INFORMATION

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

- 150 OUTLET DEDICATED TO LIGHTING PER DIMMER PANEL CONTROL
- 152 THHN/THWN WIRING INSTALLED PER 2008 NATIONAL ELECTRIC CODE
- 156 OUTLET DEDICATED TO HARDWIRED DEVICE



**WaterShed**  
AT THE UNIVERSITY OF MARYLAND

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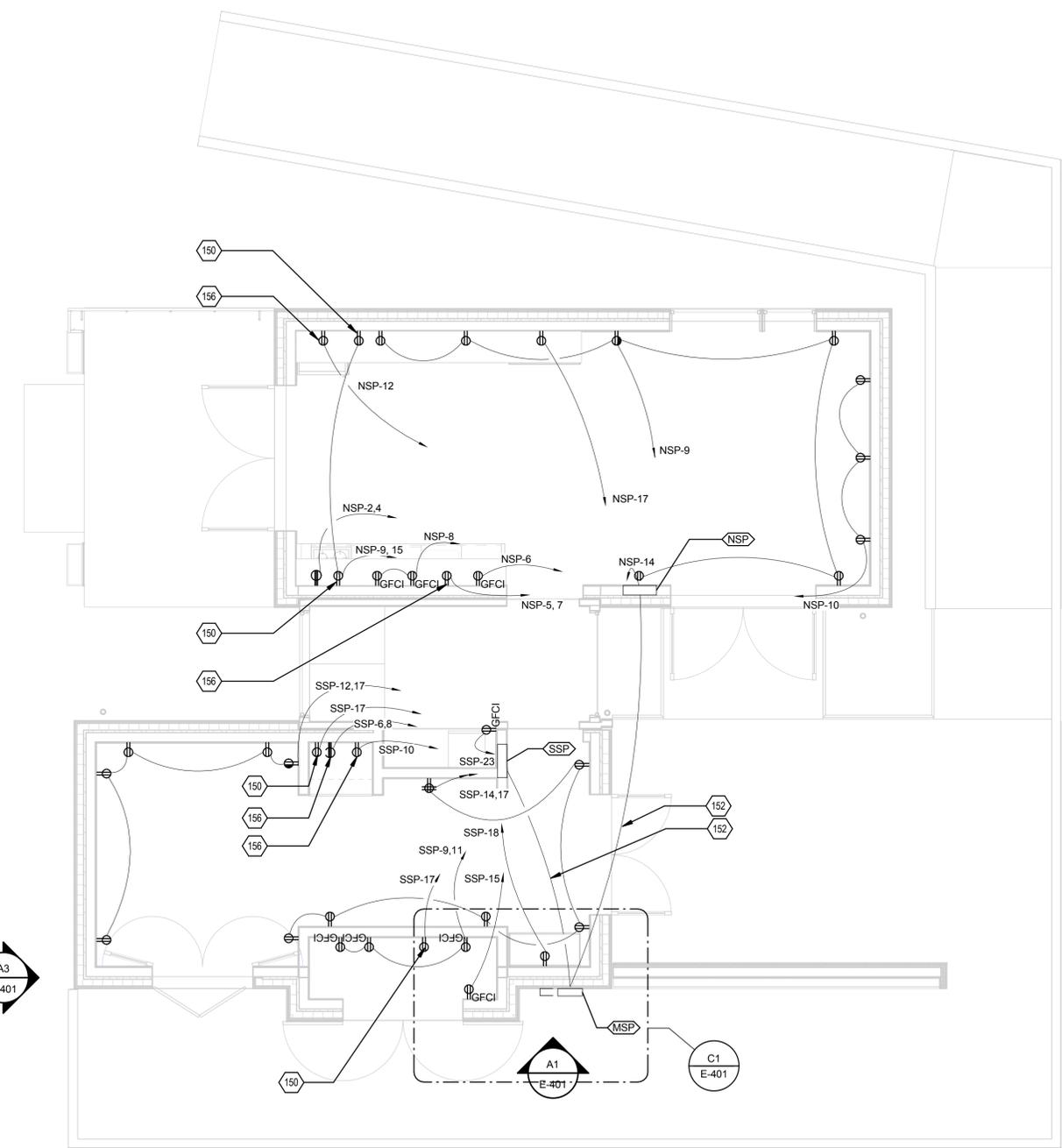
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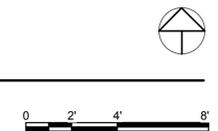
**SHEET TITLE**

**INTERIOR ELECTRICAL DISTRIBUTION PLAN**

**E-101**



**A1 INTERIOR ELECTRICAL DISTRIBUTION PLAN**  
1/4" = 1'-0"



8/13/2011 12:19:29 PM

**ABBREVIATIONS LEGEND**

GFCI	GROUND FAULT CIRCUIT INTERRUPTER
NSP	NORTH SUB PANEL
SSP	SOUTH SUB PANEL
MSP	MAIN SERVICE PANEL
WP	WEATHER PROOF

**GENERAL SHEET NOTES**

- REFER TO PANEL SCHEDULES ON E-601 FOR MORE INFORMATION
- ALL WP OUTLETS TO BE 18" ABOVE F.F.
- ALL GFCI OUTLETS TO BE MOUNTED ON UNDERSIDE OF HOUSE STRUCTURE

**REFERENCE KEYNOTES**

23 84 00	HUMIDITY CONTROL EQUIPMENT
32 71 00	CONSTRUCTED WETLANDS

**SHEET KEYNOTES**

150	OUTLET DEDICATED TO LIGHTING PER DIMMER PANEL CONTROL
-----	---



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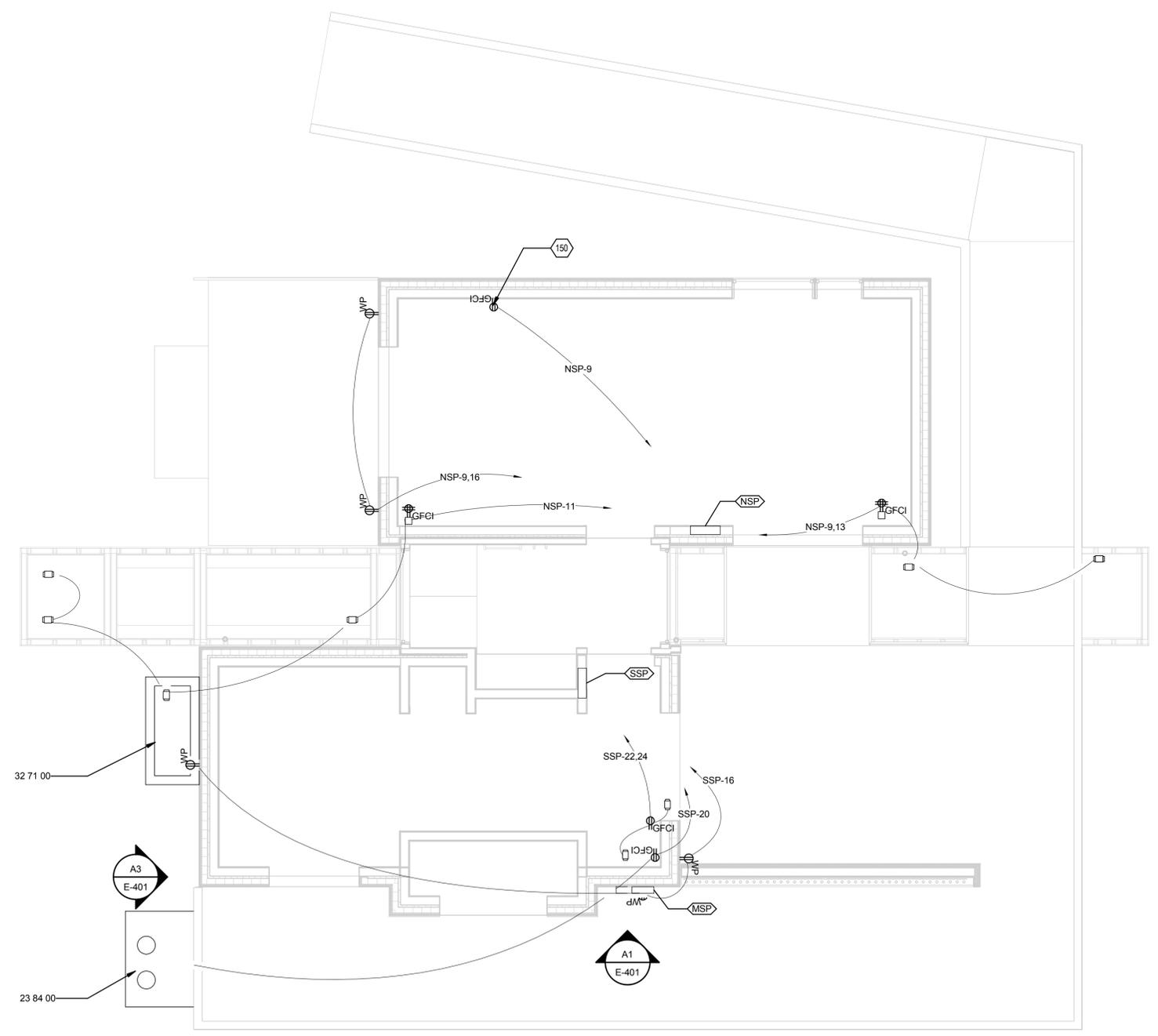
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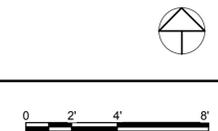
**SHEET TITLE**

**EXTERIOR ELECTRICAL DISTRIBUTION PLAN**

**E-102**



**A1 EXTERIOR ELECTRICAL DISTRIBUTION PLAN**  
 1/4" = 1'-0"



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PHOTOVOLTAIC SCHEDULE					
MARK	REFERENCE NO.	SYSTEM NAME	COUNT	MANUFACTURER	MODEL
	26 31 00	PHOTOVOLTAIC MODULE	42	SANYO	HIT-N220A01
	26 31 00	ROOF MOUNTING	216	S-51	S-5-PV-Kit
MI	48 19 16	MICROINVERTER	42	ENPHASE	M210-B4-240-S12
		GROUNDING WIRE	100 FT	-	AWG #6 BARE COPPER
		WIRING	4	ENPHASE	AC INTERCONNECT CABLE
		TRELLIS RACKING	4	UNIRAC	SUNFRAME #302012

### ABBREVIATIONS LEGEND

MI MICROINVERTER  
WH WEATHERHEAD

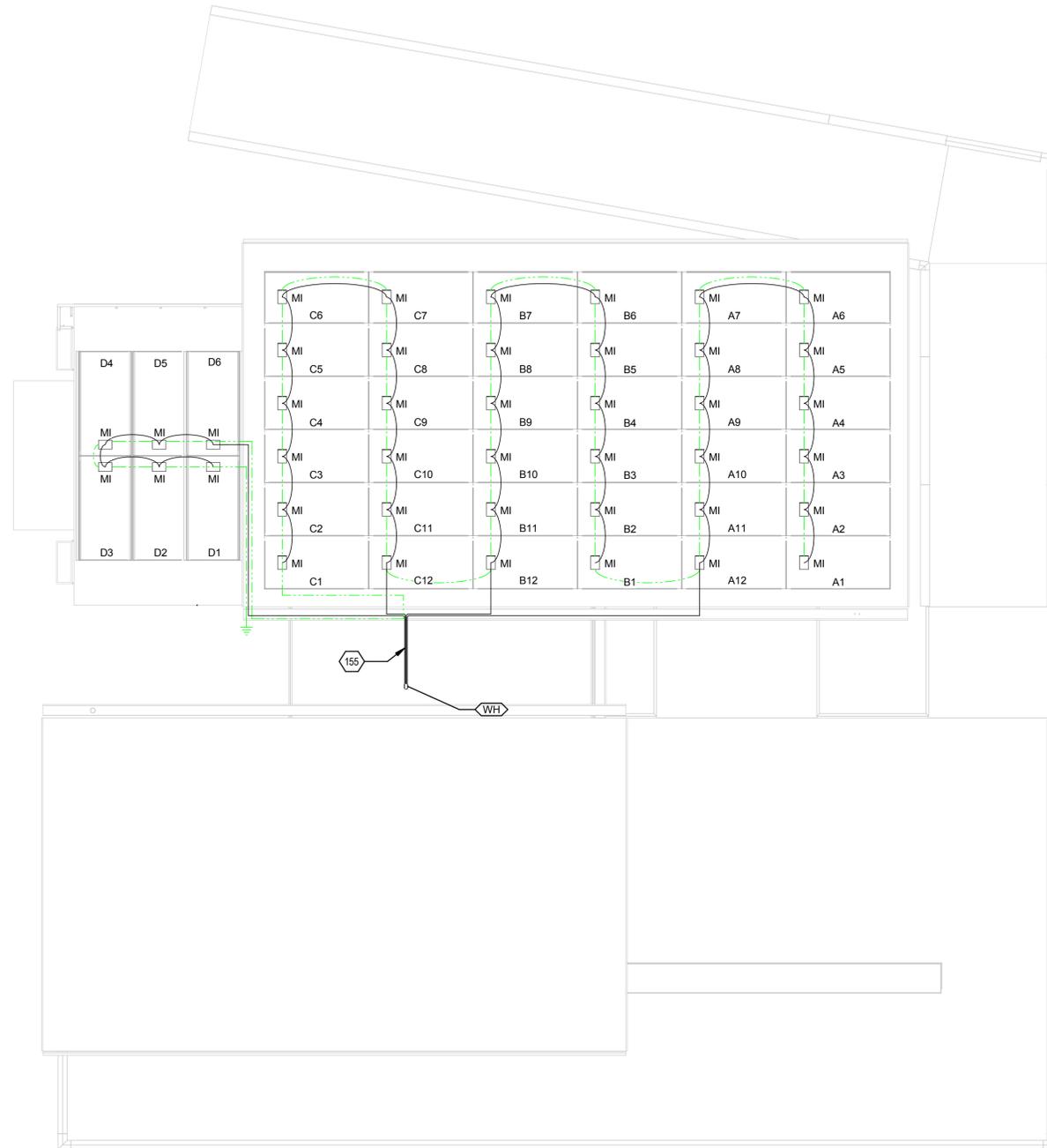
### GENERAL SHEET NOTES

- ALL WIRE SHOWN IN THIS SHEET IS 12 GAUGE UF WIRE
- REFER TO E-602, E-603 AND E-604 FOR LINE DIAGRAMS AND CALCULATIONS

### REFERENCE KEYNOTES

### SHEET KEYNOTES

155 ENPHASE CABLE INSTALLED PER 2008 NATIONAL ELECTRIC CODE



## A1 PHOTOVOLTAIC ARRAY PLAN

1/4" = 1'-0"



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MARK	DATE	DESCRIPTION
01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

MARK DATE DESCRIPTION

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SHEET TITLE

PHOTOVOLTAIC ARRAY PLAN

# E-103

LIGHTING SCHEDULE						NOTES
MARK	DESCRIPTION	TYPE	COUNT	WATTAGE	MOUNTING	
08	WALL PANEL LIGHT	LED	58 LF	1.5 W/FT	INT UNDER CAB	FIXTURE: CSL LRL-OD-20-WW TRANSFORMER: CSL D-111
01	FLOOD LIGHT	LED	4	6.4 W	EXT GROUND	FIXTURE: HADCO FLOODLYTE WAML1 W 3H TRANSFORMER: HADCO TC151-12
02	DOOR LIGHT	MR16	4	70 W	EXT WALL	FIXTURE: CSL SS2010A-SA
03	WETLAND LIGHT	T3	7	10 W	UNDER WATER	FIXTURE: HADCO UW1 A TRANSFORMER: HADCO TC151-12
04	CABLE LIGHT	MR16	2	37 W	INT WALL	FIXTURE: TECHLIGHTING 700KHELLO3 BULB: SYLVANIA 300BLV256 TRANSFORMER: TECHLIGHTING 700-AT300T
05	UNDER CABINET LIGHT	XENON	2	10 W	INT UNDER CABINET	FIXTURE: CSL AEB0 XL-22-SA/XL-16-SA BULB: CSL L-105 TRANSFORMER: CSL T-118
06	SHOWER LIGHT	LED	1	16 W	CEILING	FIXTURE: CSL EDL-ADJ-WW
07	HALL LIGHT	LED	1	16 W	CEILING	FIXTURE: CSL EDL-ADJ-WW
09	VANITY LIGHT	T5	1	12.1 W	INT WALL	FIXTURE: MILLENIUM 8090-01
10	MECHANICAL RM LIGHT	CFL	2	12.1 W	INT WALL	FIXTURE: STONCO VWXL11GCN
11	LAUNDRY RM LIGHT	CFL	1	12.1 W	CEILING	FIXTURE: LEVITON 9860-LHG
12	FLOOR LAMP	HALOGEN	1	60 W	STANDING	FIXTURE: IKEA ANTIFONI

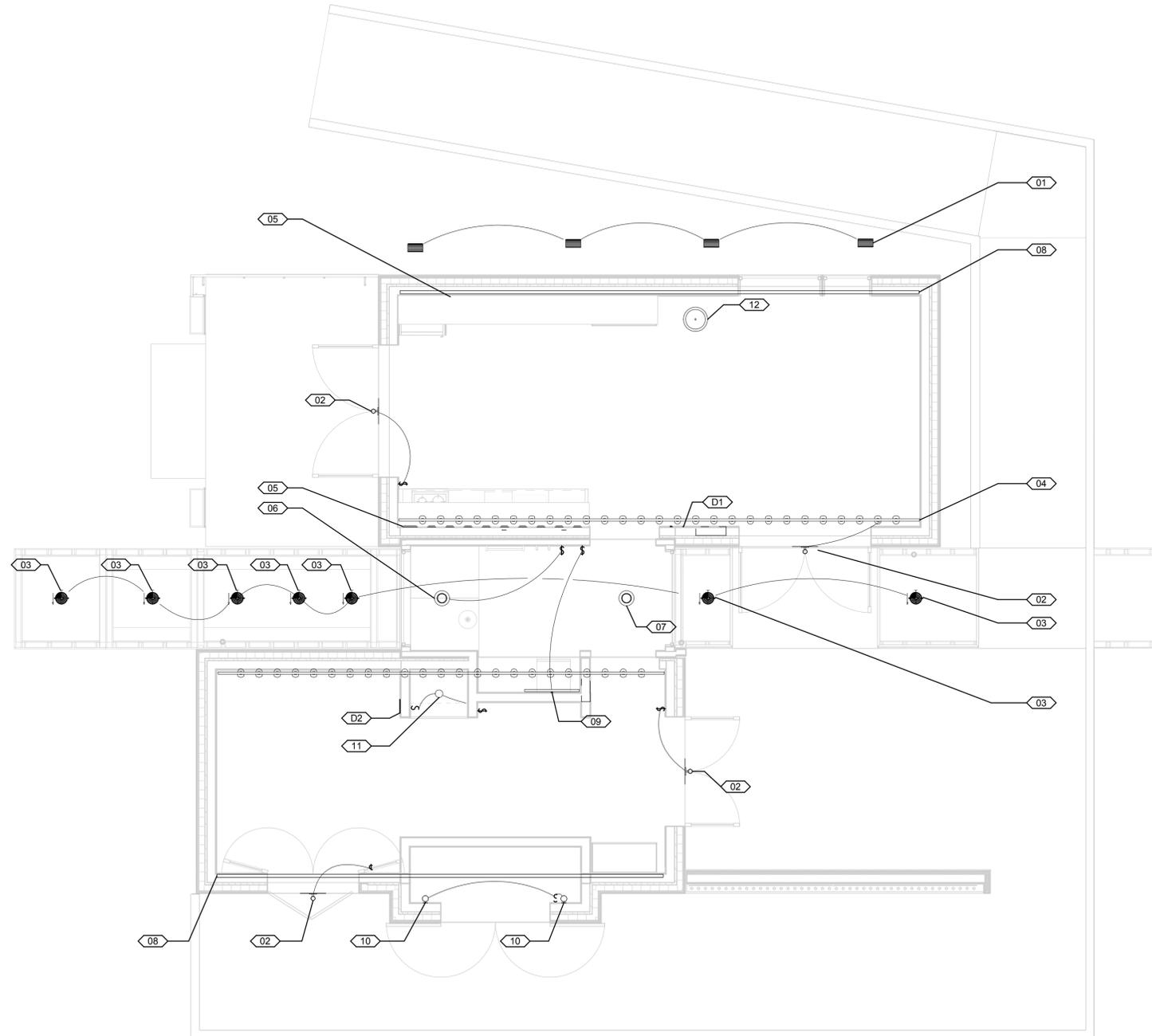
### ABBREVIATIONS LEGEND

D1 DIMMER PANEL 1  
D2 DIMMER PANEL 2

### GENERAL SHEET NOTES

### REFERENCE KEYNOTES

### SHEET KEYNOTES



**A1 LIGHTING PLAN**  
1/4" = 1'-0"



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SHEET TITLE  
**LIGHTING PLAN**

**E-104**

**ABBREVIATIONS LEGEND**

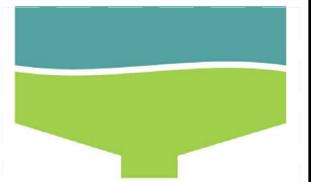
AH1	AIR HANDLER 1
AH2	AIR HANDLER 2
CU	COMPRESSOR UNIT
D1	DIMMER PANEL 1
D2	DIMMER PANEL 2
NSP	NORTH SUB PANEL
SSP	SOUTH SUB PANEL
T	RADIANT FLOOR HEATING THERMOSTAT

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

22 33 30	RESIDENTIAL, ELECTRIC DOMESTIC WATER HEATERS
23 34 13	AXIAL HVAC FANS
23 81 26	SPLIT SYSTEM AIR CONDITIONERS
23 83 13.16	RADIANT-HEATING UNITS

**SHEET KEYNOTES**



**WaterShed**  
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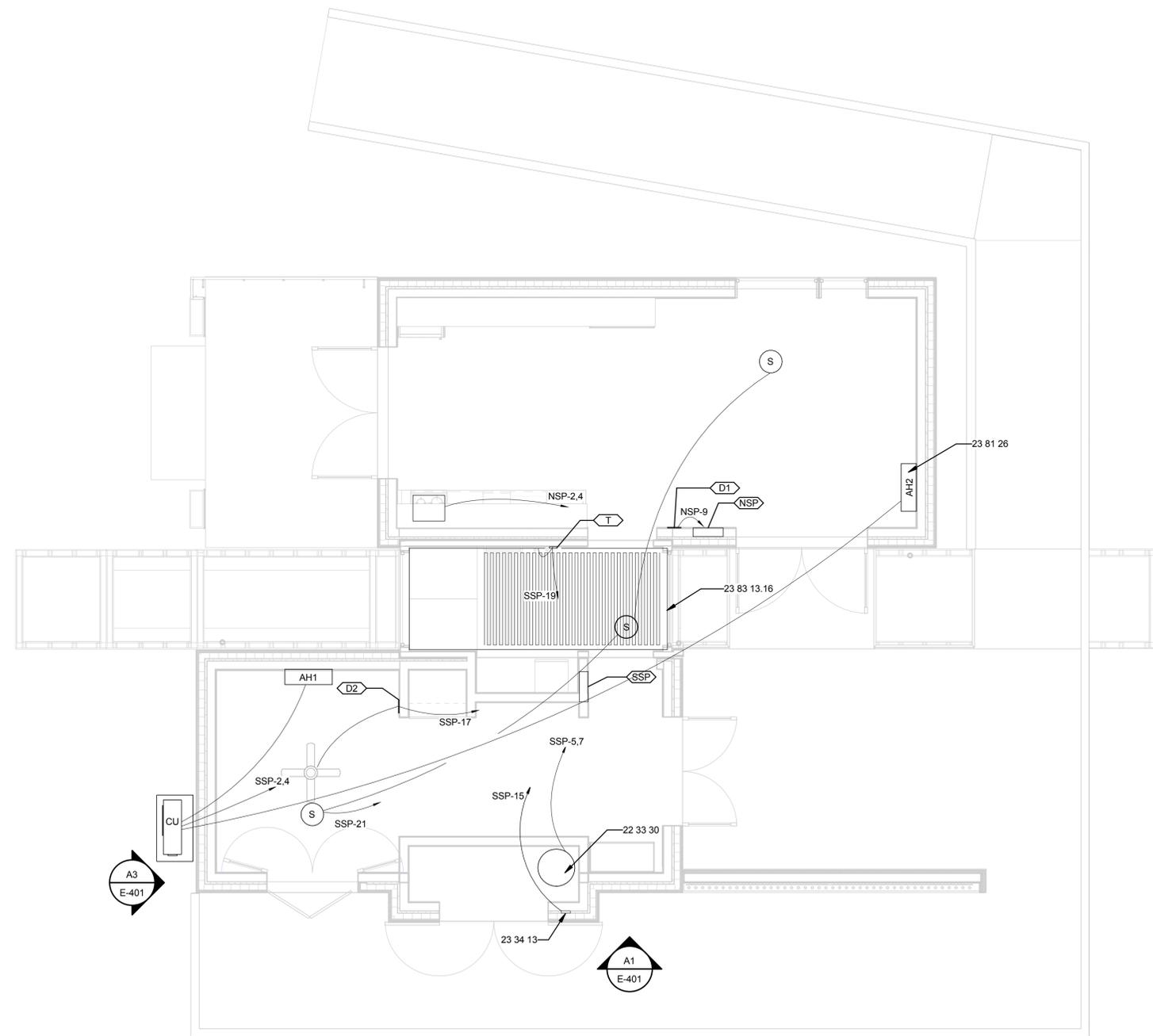
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**HARDWIRED EQUIPMENT ELECTRICAL PLAN**

**E-105**



**A1 HARDWIRED EQUIPMENT ELECTRICAL PLAN**

1/4" = 1'-0"



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**ABBREVIATIONS LEGEND**

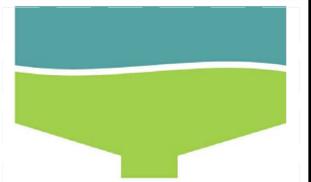
JB	JUNCTION BOX
MSP	MAIN SERVICE PANEL
OB	ORGANIZER BOX
WH	WEATHERHEAD
UM	UTILITY METER

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

151 GROUNDING ROD 8 FEET BELOW GROUND LEVEL



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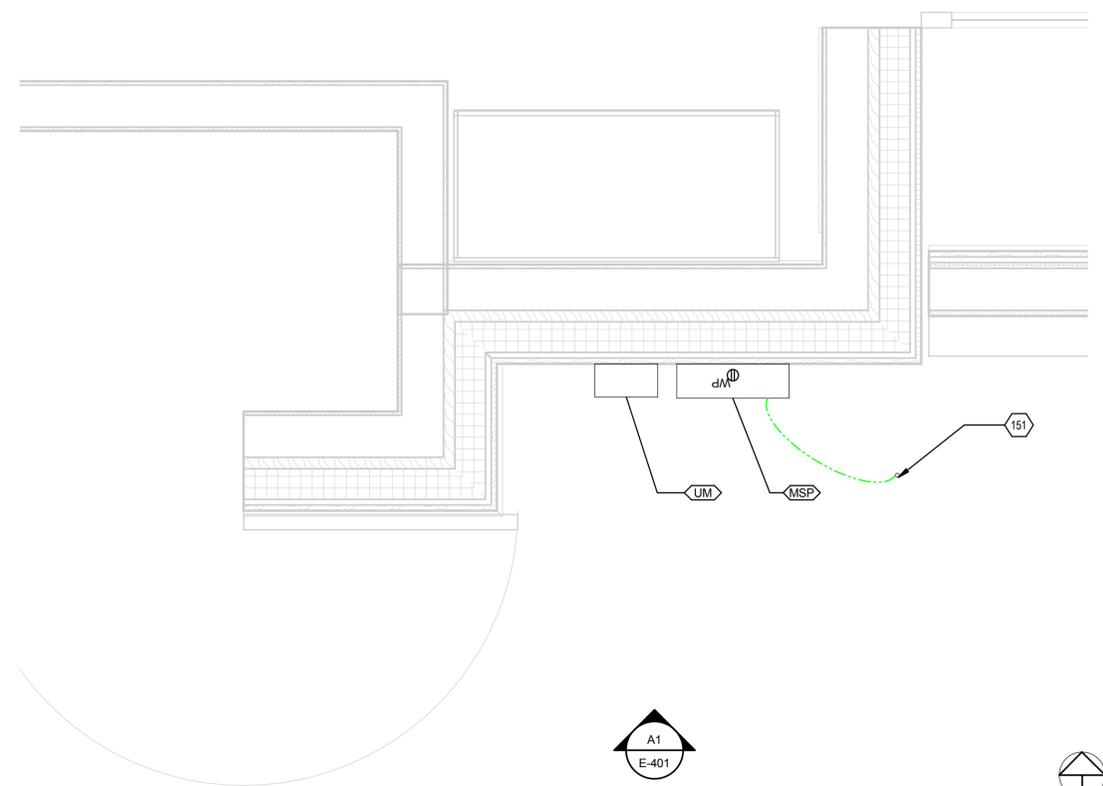
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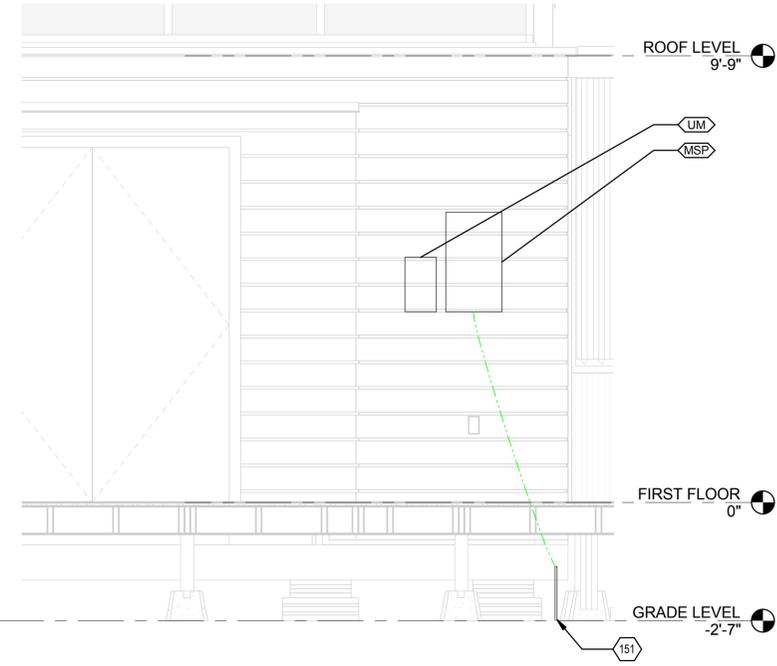
**SHEET TITLE**

**ELECTRICAL SERVICE**

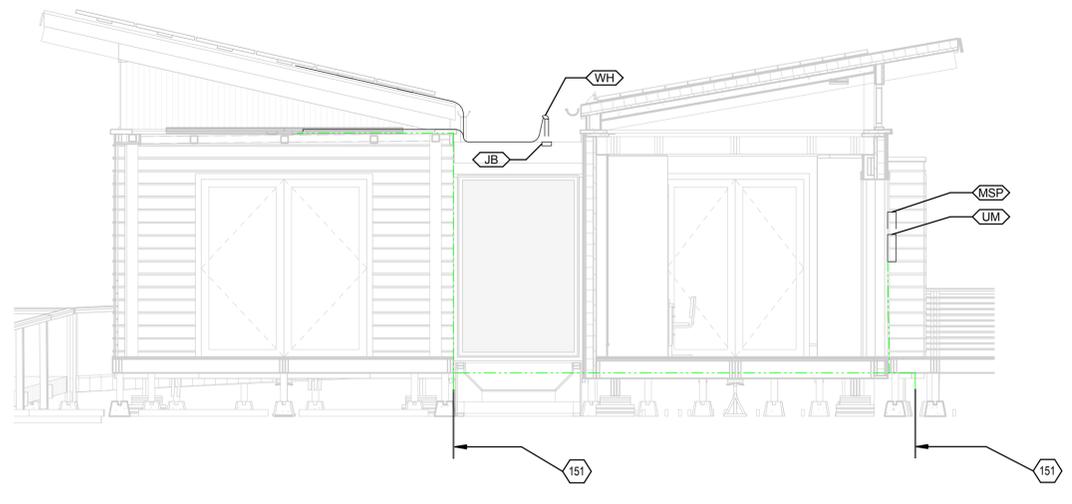
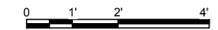
**E-401**



**C1 POWER EQUIPMENT PLAN**  
1" = 1'-0"



**A1 PV EQUIPMENT ELEVATION**  
1/2" = 1'-0"



**A3 PV CONNECTION ELEVATION**  
1/4" = 1'-0"



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GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES



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SHEET TITLE

SCHEDULES

E-601

SERVICE FEEDER CALCS

MAIN SERVICE PANEL			
<b>GENERAL LIGHTING AND RECEPTILES (NEC210.11(C))</b>			
GENERAL LIGHTING	876 SQFT X 3VA/SQFT	2628	VA
SMALL APPLIANCE CIRCUITS	2 CIRCUITS X 1500VA/CIRCUIT	3000	VA
LAUNDRY	1 CIRCUIT X 1500VA/CIRCUIT	1500	VA
<b>SUBTOTAL</b>	3000 VA AT 100% + 4128 VA AT 35%	<b>4445</b>	VA
<b>COOKING</b>			
COOKTOP	7700 VA AT 100%	7700	VA
WALL OVEN	2400 VA AT 100%	2400	VA
<b>SUBTOTAL (NEC TABLE 220.55 NOTE (4), COLUMN C)</b>	7700VA+2400VA=10100VA	<b>8000</b>	VA
<b>FIXED APPLIANCES</b>			
WATER HEATER (NEC 220.53)	4500 VA AT 75%	3375	VA
DISHWASHER (NEC 220.53)	1500 VA AT 75%	1125	VA
RANGE HOOD (NEC 220.53)	300 VA AT 75%	225	VA
DESSICANT REGENERATOR AND WALLS (NEC 220.53)	400 VA AT 75%	300	VA
RADIANT FLOOR (NEC 220.53)	360 VA AT 75%	270	VA
WATER TANK PUMP (NEC 430.24)	1150 VA AT 100%	1150	VA
GARBAGE DISPOSAL (NEC 430.24)	560 VA AT 100%	560	VA
SPRINKLER PUMP (NEC 430.24)	800 VA AT 100%	800	VA
LIVING SYSTEMS PUMPS (NEC 430.24)	(6) 45 VA AT 100%	270	VA
RADIANT FLOOR (NEC 220.51)	360 VA AT 100%	360	VA
<b>SUBTOTAL</b>		<b>8435</b>	VA
DRYER (W=VA FROM NEC 220.54)	7200 VA AT 100%	7200	VA
HVAC COMPRESSOR AND UNITS	1800 VA AT 100%	1800	VA
<b>LARGEST MOTOR (NEC 220.14(C))</b>	1150 VA AT 25%	<b>288</b>	VA
<b>TOTAL</b>		<b>30167</b>	VA
<b>TOTAL CURRENT</b>		<b>128</b>	A
<b>MAIN SERVICE PANEL BREAKER</b>		<b>150</b>	A
<b>NEUTRAL CONDUCTOR</b>			
GENERAL LIGHTING AND RECEPTILES (NEC220.61(A))	4445 VA AT 100%	4445	VA
COOKING (NEC 220.61(B))	8000 VA AT 70%	5600	VA
FIXED APPLIANCES (NEC 220.61(A))	8435 VA AT 100%	8165	VA
DRYER (NEC 220.619(B))	7200 VA AT 70%	5040	VA
<b>TOTAL</b>		<b>23250</b>	VA
<b>TOTAL CURRENT</b>		<b>97</b>	A

NORTH SUB SERVICE PANEL			
<b>GENERAL LIGHTING AND RECEPTILES (NEC210.11(C))</b>			
GENERAL LIGHTING	450 SQFT X 3VA/SQFT	1350	VA
SMALL APPLIANCE CIRCUITS	2 CIRCUITS X 1500 VA/CIRCUIT	3000	VA
<b>SUBTOTAL</b>	3000 VA AT 100% + 1350 VA AT 35%	<b>3473</b>	VA
<b>COOKING</b>			
COOKTOP	7700 VA AT 100%	7700	VA
WALL OVEN	2400 VA AT 100%	2400	VA
<b>SUBTOTAL (NEC TABLE 220.55 NOTE (4), COLUMN C)</b>	7700VA+2400VA=10100VA	<b>8000</b>	VA
<b>FIXED APPLIANCES</b>			
DISHWASHER (NEC 220.53)	1500 VA AT 100%	1500	VA
RANGE HOOD (NEC 220.53)	300 VA AT 100%	300	VA
DESSICANT WALL (NEC 220.53)	75 VA AT 100%	75	VA
GARBAGE DISPOSAL (NEC 430.24)	560 VA AT 100%	560	VA
LIVING SYSTEMS PUMPS (NEC 430.24)	(6) 45 VA AT 100%	270	VA
<b>SUBTOTAL</b>		<b>2705</b>	VA
<b>LARGEST MOTOR (NEC 220.14(C))</b>	560 VA AT 25%	<b>140</b>	VA
<b>TOTAL</b>		<b>14178</b>	VA
<b>TOTAL CURRENT</b>		<b>59</b>	A
<b>NORTH SUB SERVICE PANEL BREAKER</b>		<b>100</b>	A
<b>NEUTRAL CONDUCTOR</b>			
GENERAL LIGHTING AND RECEPTILES (NEC220.61(A))	3473 VA AT 100%	3473	VA
COOKING (NEC 220.61(B))	8000 VA AT 70%	5600	VA
FIXED APPLIANCES (NEC 220.61(A))	2705 VA AT 75%	2029	VA
<b>TOTAL</b>		<b>10595</b>	VA
<b>TOTAL CURRENT</b>		<b>44</b>	A

SOUTH SUB SERVICE PANEL			
<b>GENERAL LIGHTING AND RECEPTILES (NEC210.11(C))</b>			
GENERAL LIGHTING	426 SQFT X 3 VA/SQFT	1278	VA
SMALL APPLIANCE CIRCUITS	2 CIRCUITS X 1500 VA/CIRCUIT	3000	VA
LAUNDRY	1 CIRCUIT X 1500 VA/CIRCUIT	1500	VA
<b>SUBTOTAL (NEC TABLE 220.55 NOTE (4), COLUMN C)</b>	3000 VA AT 100% + 2778 VA AT 35%	<b>3525</b>	VA
<b>FIXED APPLIANCES</b>			
WATER HEATER (NEC 220.53)	4500 VA AT 100%	4500	VA
DESSICANT REGENERATOR AND WALL (NEC 220.53)	325 VA AT 100%	325	VA
WATER TANK PUMP (NEC 430.24)	1150 VA AT 100%	1150	VA
SPRINKLER PUMP (NEC 430.24)	800 VA AT 100%	800	VA
RADIANT FLOOR (NEC 220.51)	360 VA AT 100%	360	VA
<b>SUBTOTAL</b>		<b>7135</b>	VA
DRYER (W=VA FROM NEC 220.54)	7200 VA AT 100%	7200	VA
HVAC COMPRESSOR AND UNITS	1800 VA AT 100%	1800	VA
<b>LARGEST MOTOR (NEC 220.14(C))</b>	1150 VA AT 25%	<b>288</b>	VA
<b>TOTAL</b>		<b>19948</b>	VA
<b>TOTAL CURRENT</b>		<b>83</b>	A
<b>SOUTH SUB SERVICE PANEL BREAKER</b>		<b>100</b>	A
<b>NEUTRAL CONDUCTOR</b>			
GENERAL LIGHTING AND RECEPTILES (NEC220.61(A))	3525 VA AT 100%	3525	VA
FIXED APPLIANCES (NEC 220.61(A))	7135 VA AT 100%	7135	VA
DRYER (NEC 220.619(B))	7200 VA AT 70%	5040	VA
<b>TOTAL</b>		<b>15700</b>	VA
<b>TOTAL CURRENT</b>		<b>65</b>	A

NORTH SUB PANEL -NSP - RATED AT 125 A							
SLOT #	LOAD	C/B	AWG	SLOT #	C/B	LOAD	AWG
1	SURGE PROTECTOR			2	2P/50A	COOK TOP/OVEN	6
3				4			
5	DISHWASHER	1P/20A	12	6	1P/20A	KITCHEN APPLIANCES	12
7	GARBAGE DISPOSAL	1P/20A	12	8	1P/20A	KITCHEN APPLIANCES	12
9	DIMMER PANEL*	1P/15A	12	10	1P/20A	MEDIA*	12
11	WEST LIVING SYSTYEMS PUMP	1P/20A	12	12	1P/20A	REFRIGERATOR	12
13	EAST LIVING SYSTYEMS PUMP	1P/20A	12	14	1P/20A	LIVING ROOM*	12
15	RANGE HOOD	1P/20A	12	16	1P/20A	EXTERIOR OUTLETS	12
17	LDW*	1P/20A	12	18		UNUSED	
19	UNUSED			20		UNUSED	
21	UNUSED			22		UNUSED	
23	UNUSED			24		UNUSED	

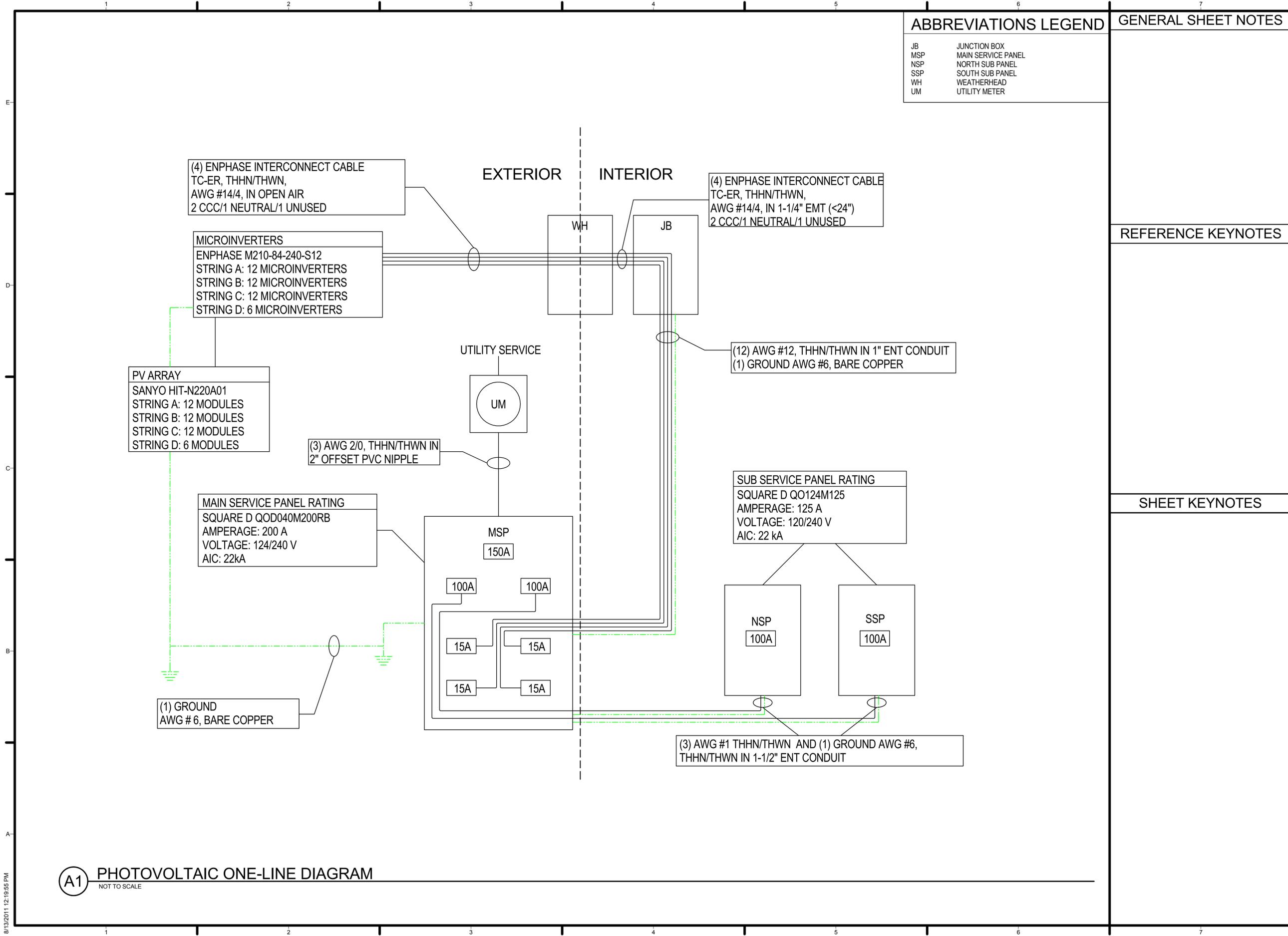
\* ARC FAULT CIRCUIT BREAKER

SOUTH SUB PANEL -NSP - RATED AT 125 A							
SLOT #	LOAD	C/B	AWG	SLOT #	C/B	LOAD	AWG
1	SURGE PROTECTOR			2	2P/20A	MINISPLIT CONDENSOR & UNIT	12
3				4			
5	80 GALLON HOT WATER HEATER	2P/30A	10	6	2P/30A	CLOTHES DRYER	10
7				8			
9	MECH ROOM RECEPTILES	1P/20A	12	10	1P/20A	CLOTHES WASHER	12
11	MECH ROOM RECEPTILES	1P/20A	12	12	1P/20A	BEDROOM RECEPTILES*	12
13	TACO BOXES	1P/20A	12	14	1P/20A	OFFICE RECEPTILES*	12
15	MECHROOM LIGHTING	1P/15A	14	16	1P/20A	EXTERIOR RECEPTILES	12
17	DIMMER PANEL*	1P/15A	12	18	1P/20A	LDW*	12
19	RADIANT FLOOR	1P/20A	12	20	1P/20A	DESSICANT REGENERATOR	12
21	SMOKE DETECTOR*	1P/20A	12	22	1P/20A	SPRINKLER SYSTEM PUMP	12
23	BATHROOM	1P/20A	12	24	1P/20A	MAIN WATER SUPPLY PUMP	12

\* ARC FAULT CIRCUIT BREAKER

MAIN SERVICE PANEL - RATED AT 200 A							
150 A MAIN BREAKER							
Slot #	Load	C/B	AWG	Slot #	C/B	Load	AWG
1	SURGE PROTECTOR			2	2P/100A	SOUTH SUB PANEL	1
3				4			
5	NORTH SUB PANEL	2P/100A		6		UNUSED	
7				8			
9	UNUSED			10		UNUSED	
11	UNUSED			12		UNUSED	
13	PV ARRAY STRING 1	2P/15A	12	14	2P/15A	PV ARRAY STRING 2	12
15				16			
17	PV ARRAY STRING 3	2P/15A	12	18	2P/15A	PV ARRAY STRING 4	12
19				20			

WARNING INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE



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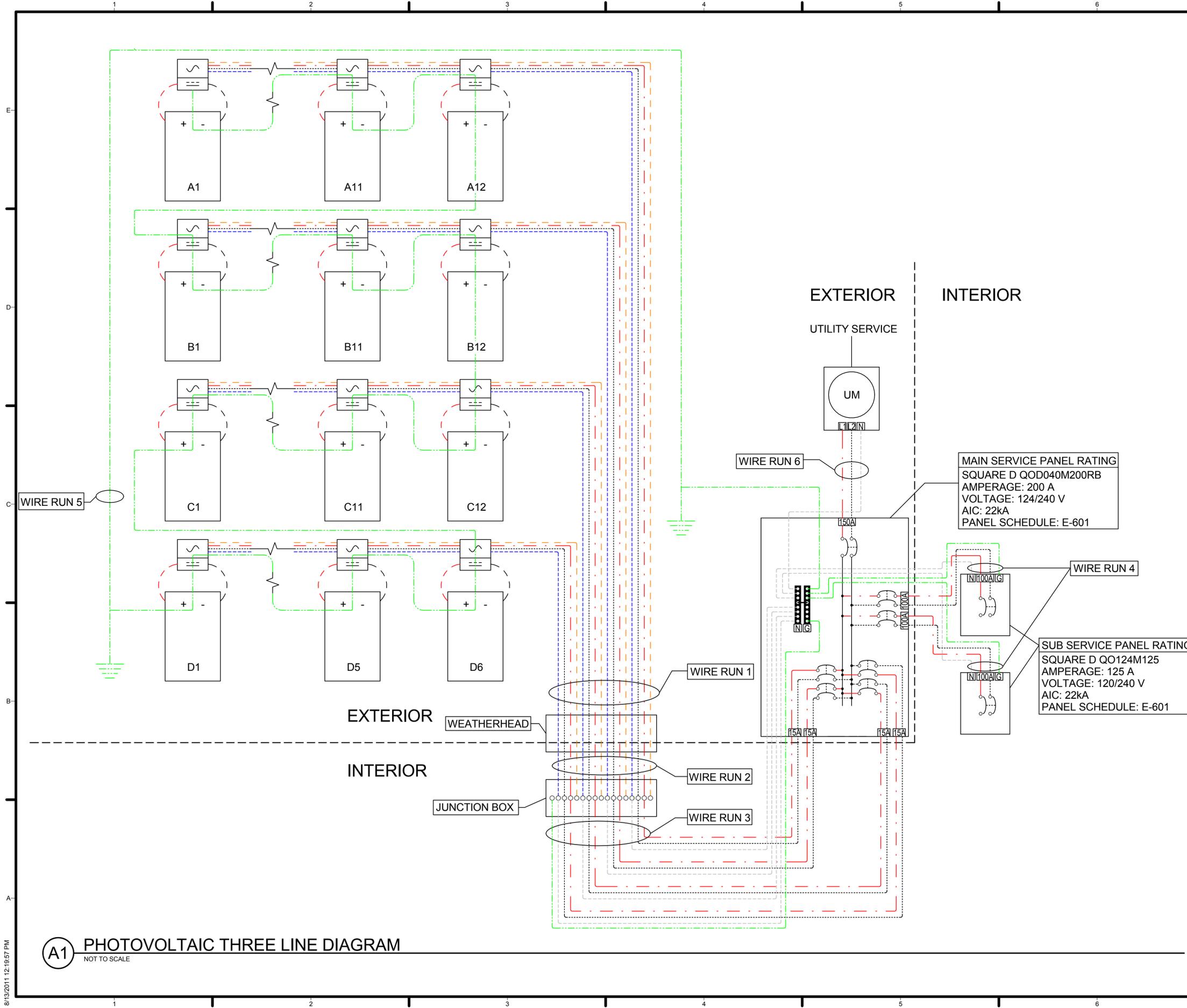
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SHEET TITLE  
**PV ONE-LINE DIAGRAM**

**E-602**

**A1 PHOTOVOLTAIC ONE-LINE DIAGRAM**  
 NOT TO SCALE

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GENERAL SHEET NOTES

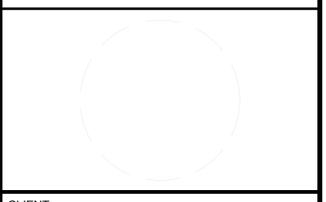
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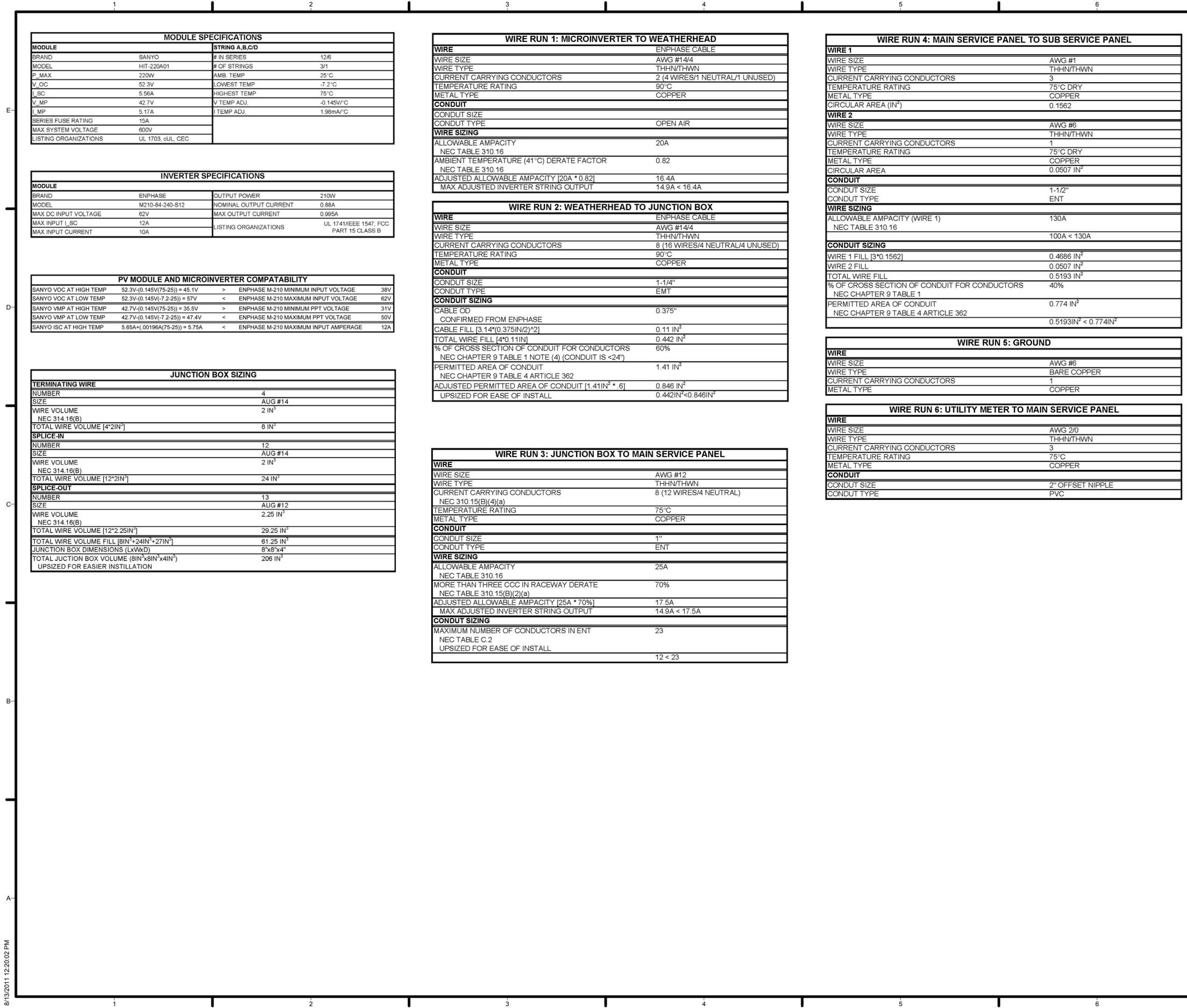
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SHEET TITLE  
**PV THREE LINE DIAGRAM**

**E-603**

**A1 PHOTOVOLTAIC THREE LINE DIAGRAM**  
 NOT TO SCALE

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MODULE SPECIFICATIONS			
MODULE	STRING A,B,C,D		
BRAND	SANYO	# IN SERIES	12/6
MODEL	HIT-220A01	# OF STRINGS	3/1
P_MAX	220W	AMB. TEMP	25°C
V_OC	52.3V	LOWEST TEMP	-7.2°C
I_SC	5.56A	HIGHEST TEMP	75°C
V_MP	42.7V	V TEMP ADJ.	-0.145V/°C
I_MP	5.17A	I TEMP ADJ.	1.98mA/°C
SERIES FUSE RATING	15A		
MAX SYSTEM VOLTAGE	600V		
LISTING ORGANIZATIONS	UL 1703, cUL, CEC		

INVERTER SPECIFICATIONS			
BRAND	ENPHASE	OUTPUT POWER	210W
MODEL	M210-84-240-S12	NOMINAL OUTPUT CURRENT	0.88A
MAX DC INPUT VOLTAGE	62V	MAX OUTPUT CURRENT	0.995A
MAX INPUT I_SC	12A	LISTING ORGANIZATIONS	UL 1741/IEEE 1547, FCC PART 15 CLASS B
MAX INPUT CURRENT	10A		

PV MODULE AND MICROINVERTER COMPATABILITY			
SANYO VOC AT HIGH TEMP	52.3V-(0.145V(75-25)) = 45.1V	>	ENPHASE M-210 MINIMUM INPUT VOLTAGE 38V
SANYO VOC AT LOW TEMP	52.3V-(0.145V(-7.2-25)) = 67V	<	ENPHASE M-210 MAXIMUM INPUT VOLTAGE 62V
SANYO VMP AT HIGH TEMP	42.7V-(0.145V(75-25)) = 35.5V	>	ENPHASE M-210 MINIMUM PPT VOLTAGE 31V
SANYO VMP AT LOW TEMP	42.7V-(0.145V(-7.2-25)) = 47.4V	<	ENPHASE M-210 MAXIMUM PPT VOLTAGE 50V
SANYO ISC AT HIGH TEMP	5.56A+(0.0196A(75-25)) = 5.75A	<	ENPHASE M-210 MAXIMUM INPUT AMPERAGE 12A

JUNCTION BOX SIZING	
<b>TERMINATING WIRE</b>	
NUMBER	4
SIZE	AUG #14
WIRE VOLUME	2 IN <sup>3</sup>
NEC 314.16(B)	
TOTAL WIRE VOLUME [4*2IN <sup>3</sup> ]	8 IN <sup>3</sup>
<b>SPLICE-IN</b>	
NUMBER	12
SIZE	AUG #14
WIRE VOLUME	2 IN <sup>3</sup>
NEC 314.16(B)	
TOTAL WIRE VOLUME [12*2IN <sup>3</sup> ]	24 IN <sup>3</sup>
<b>SPLICE-OUT</b>	
NUMBER	13
SIZE	AUG #12
WIRE VOLUME	2.25 IN <sup>3</sup>
NEC 314.16(B)	
TOTAL WIRE VOLUME [12*2.25IN <sup>3</sup> ]	29.25 IN <sup>3</sup>
TOTAL WIRE VOLUME FILL [8IN <sup>3</sup> +24IN <sup>3</sup> +27IN <sup>3</sup> ]	61.25 IN <sup>3</sup>
JUNCTION BOX DIMENSIONS (LxWxD)	8"x8"x4"
TOTAL JUNCTION BOX VOLUME (8IN <sup>3</sup> x8IN <sup>3</sup> x4IN <sup>3</sup> )	206 IN <sup>3</sup>
UPSIZED FOR EASIER INSTALLATION	

WIRE RUN 1: MICROINVERTER TO WEATHERHEAD	
WIRE	ENPHASE CABLE
WIRE SIZE	AWG #14/4
WIRE TYPE	THHN/THWN
CURRENT CARRYING CONDUCTORS	2 (4 WIRES/1 NEUTRAL/1 UNUSED)
TEMPERATURE RATING	90°C
METAL TYPE	COPPER
<b>CONDUIT</b>	
CONDUIT SIZE	
CONDUIT TYPE	OPEN AIR
<b>WIRE SIZING</b>	
ALLOWABLE AMPACITY	20A
NEC TABLE 310.16	
AMBIENT TEMPERATURE (41°C) DERATE FACTOR	0.82
NEC TABLE 310.16	
ADJUSTED ALLOWABLE AMPACITY [20A * 0.82]	16.4A
MAX ADJUSTED INVERTER STRING OUTPUT	14.9A < 16.4A

WIRE RUN 2: WEATHERHEAD TO JUNCTION BOX	
WIRE	ENPHASE CABLE
WIRE SIZE	AWG #14/4
WIRE TYPE	THHN/THWN
CURRENT CARRYING CONDUCTORS	8 (16 WIRES/4 NEUTRAL/4 UNUSED)
TEMPERATURE RATING	90°C
METAL TYPE	COPPER
<b>CONDUIT</b>	
CONDUIT SIZE	1-1/4"
CONDUIT TYPE	EMT
<b>CONDUIT SIZING</b>	
CABLE OD	0.375"
CONFIRMED FROM ENPHASE	
CABLE FILL [3.14*(0.375IN/2) <sup>2</sup> ]	0.11 IN <sup>2</sup>
TOTAL WIRE FILL [4*0.11IN <sup>2</sup> ]	0.442 IN <sup>2</sup>
% OF CROSS SECTION OF CONDUIT FOR CONDUCTORS	60%
NEC CHAPTER 9 TABLE 1 NOTE (4) (CONDUIT IS <24")	
PERMITTED AREA OF CONDUIT	1.41 IN <sup>2</sup>
NEC CHAPTER 9 TABLE 4 ARTICLE 362	
ADJUSTED PERMITTED AREA OF CONDUIT [1.41IN <sup>2</sup> * 6]	0.846 IN <sup>2</sup>
UPSIZED FOR EASE OF INSTALL	0.442IN <sup>2</sup> <0.846IN <sup>2</sup>

WIRE RUN 3: JUNCTION BOX TO MAIN SERVICE PANEL	
WIRE	
WIRE SIZE	AWG #12
WIRE TYPE	THHN/THWN
CURRENT CARRYING CONDUCTORS	8 (12 WIRES/4 NEUTRAL)
TEMPERATURE RATING	75°C
METAL TYPE	COPPER
<b>CONDUIT</b>	
CONDUIT SIZE	1"
CONDUIT TYPE	ENT
<b>WIRE SIZING</b>	
ALLOWABLE AMPACITY	25A
NEC TABLE 310.16	
MORE THAN THREE CCC IN RACEWAY DERATE	70%
NEC TABLE 310.15(B)(2)(a)	
ADJUSTED ALLOWABLE AMPACITY [25A * 70%]	17.5A
MAX ADJUSTED INVERTER STRING OUTPUT	14.9A < 17.5A
<b>CONDUIT SIZING</b>	
MAXIMUM NUMBER OF CONDUCTORS IN ENT	23
NEC TABLE C.2	
UPSIZED FOR EASE OF INSTALL	12 < 23

WIRE RUN 4: MAIN SERVICE PANEL TO SUB SERVICE PANEL		
<b>WIRE 1</b>		
WIRE SIZE	AWG #1	
WIRE TYPE	THHN/THWN	
CURRENT CARRYING CONDUCTORS	3	
TEMPERATURE RATING	75°C DRY	
METAL TYPE	COPPER	
CIRCULAR AREA (IN <sup>2</sup> )	0.1562	
<b>WIRE 2</b>		
WIRE SIZE	AWG #6	
WIRE TYPE	THHN/THWN	
CURRENT CARRYING CONDUCTORS	1	
TEMPERATURE RATING	75°C DRY	
METAL TYPE	COPPER	
CIRCULAR AREA	0.0507 IN <sup>2</sup>	
<b>CONDUIT</b>		
CONDUIT SIZE	1-1/2"	
CONDUIT TYPE	ENT	
<b>WIRE SIZING</b>		
ALLOWABLE AMPACITY (WIRE 1)	130A	
NEC TABLE 310.16		
<b>CONDUIT SIZING</b>		
WIRE 1 FILL [3*0.1562]	0.4686 IN <sup>2</sup>	
WIRE 2 FILL	0.0507 IN <sup>2</sup>	
TOTAL WIRE FILL	0.5193 IN <sup>2</sup>	
% OF CROSS SECTION OF CONDUIT FOR CONDUCTORS	40%	
NEC CHAPTER 9 TABLE 1		
PERMITTED AREA OF CONDUIT	0.774 IN <sup>2</sup>	
NEC CHAPTER 9 TABLE 4 ARTICLE 362		
	0.5193IN <sup>2</sup> < 0.774IN <sup>2</sup>	

WIRE RUN 5: GROUND	
WIRE	
WIRE SIZE	AWG #6
WIRE TYPE	BARE COPPER
CURRENT CARRYING CONDUCTORS	1
METAL TYPE	COPPER

WIRE RUN 6: UTILITY METER TO MAIN SERVICE PANEL	
WIRE	
WIRE SIZE	AWG 2/0
WIRE TYPE	THHN/THWN
CURRENT CARRYING CONDUCTORS	3
TEMPERATURE RATING	75°C
METAL TYPE	COPPER
<b>CONDUIT</b>	
CONDUIT SIZE	2" OFFSET NIPPLE
CONDUIT TYPE	PVC

GENERAL SHEET NOTES

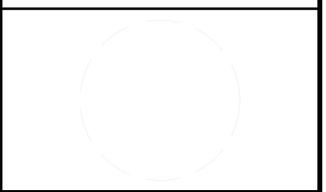
REFERENCE KEYNOTES

SHEET KEYNOTES



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01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

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LOT NUMBER:	304	
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SHEET TITLE  
 PV THREE LINE CALCULATIONS

E-604

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SYMBOLS	
MARK	DESCRIPTION
	HEAT EXCHANGER (ROTATED)
	THERMOMETER
	HUMIDITY METER
	VARIABLE SPEED FAN
	AIR CURRENTS (FROM FAN)
	SENSOR/RJ45 LOCATION
	BUTTON PANEL
	SPEAKER
	FAN
	FLOW SENSOR
	CURRENT SENSOR
	CONCENTRATION SENSOR
	LEVEL SENSOR
	VALVE

SYMBOLS	
MARK	DESCRIPTION
	FLOAT SWITCH
	PUMP
	LIQUID DESICCANT BACKLIGHT
	ETHERNET PORT
	USB PORT

GENERAL SHEET NOTES

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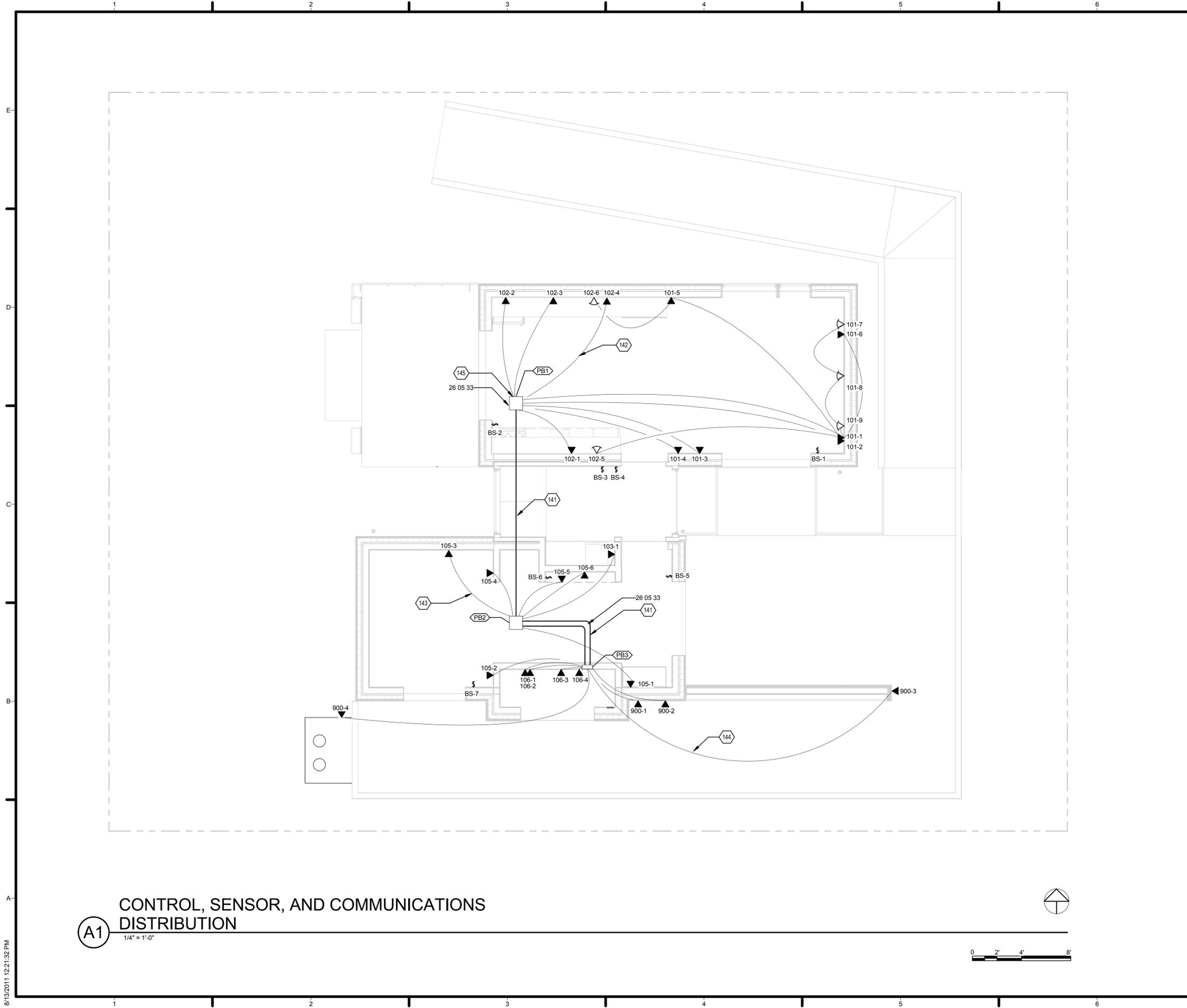


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SHEET TITLE  
**TELECOMMUNICATIONS  
 SYMBOLS AND NOTES**

**T-001**



GENERAL SHEET NOTES

REFERENCE KEYNOTES

26 05 33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

SHEET KEYNOTES

- 141 PB1, PB2, & PB3 INTERCONNECTED BY 1 1/2" FLEXIBLE CONDUIT
- 142 LOCATIONS 101-1 THROUGH 101-4 AND 102-1 THROUGH 102-6 CONNECT TO PB1 VIA 3/4" FLEXIBLE CONDUIT
- 143 LOCATIONS 101-5 THROUGH 101-9, 102-5, AND 102-6 CONNECT TO PB2 VIA 3/4" FLEXIBLE CONDUIT
- 144 EXTERIOR LOCATIONS 900-1 THROUGH 900-4 CONNECT TO PB3 VIA 3/4" FLEXIBLE CONDUIT
- 145 WIRING ORIGINATING IN MECHANICAL ROOM AND TERMINATING IN ROOMS 101 & 102 SPLICED IN PB1 TO ENABLE MODULE SEPARATION



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SHEET TITLE  
 CONTROL, SENSOR  
 AND COMMUNICATION  
 LOCATIONS

T-101

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SHEET TITLE  
**CONTROL EQUIPMENT  
 ELEVATION**

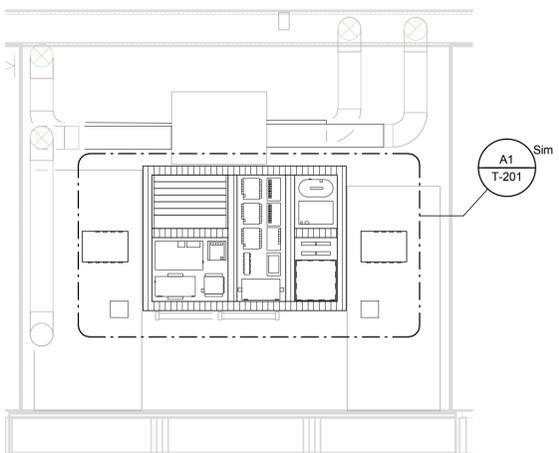
**T-201**

GENERAL SHEET NOTES

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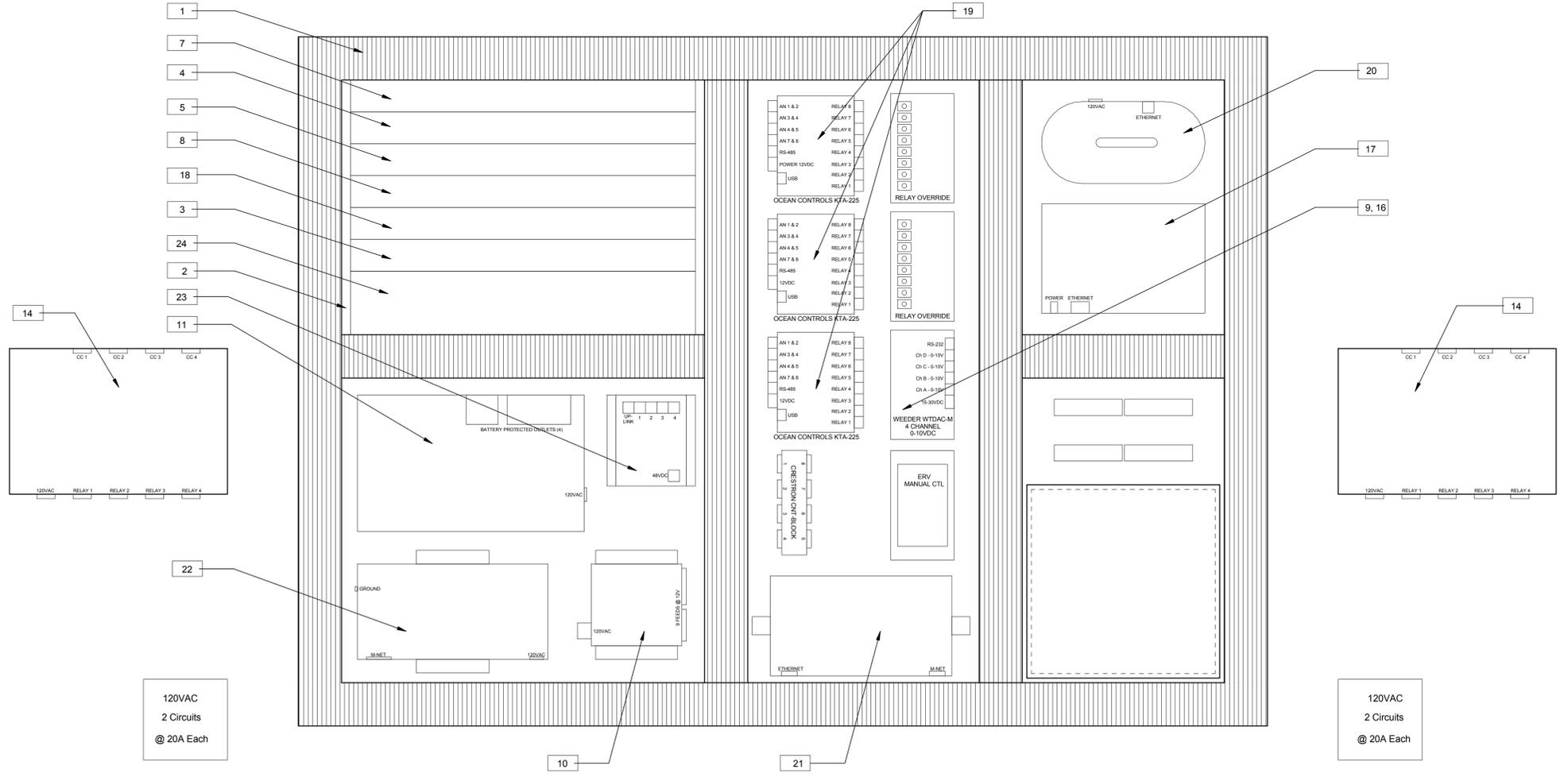
SHEET KEYNOTES

CONTROL SYSTEM EQUIPMENT					
MARK	DESCRIPTION	QTY	MANUFACTURER	PART #	NOTES
1	FINGER DUCT	4	MCMaster CARR	75835K83	NARROW FINGER 2.25 IN X 2.25 IN X 6.5 FT - GRAY
2	RACKS	2	MIDDLE ATLANTIC	HPM-4-915	4U 9-15" ADJUSTABLE DEPTH HINGED PANEL MOUNT
3	RACK SHELF	2	MIDDLE ATLANTIC	UTR1	1U DEVICE MOUNTING SHELF 10" DEEP
4	CABLE ORGANIZER	1	MIDDLE ATLANTIC	PHCM-1-2	1U CABLE MANGEMENT BRACKET
5	RACK POWER STRIP	1	GEIST	SPTN064-10	1U 6 OUTLET POWER STRIP
6	12 PORT PATCH PANEL	2	TRIPP LITE	N050-012	12 PORT CSE VERTICAL PATCH PANEL
7	24 PORT PATCH PANEL	1	TRIPP LITE	N052-024	24 PORT CSE 1U PATCH PANEL
8	NETWORK SWITCH	1	D-LINK	DSS-16+	16 PORT 1U 10/100 NETWORK SWITCH
9	RS232 -> 4CH 0-10V	1	WEEDER TECH	WTDAC-M	ANALOG OUTPUT MODULE
10	12V POWER SUPPLY	1	LTS	AT1207M-D09	9 CHANNEL 12V P/S
11	UPS	1	MINUTEMAN	EN-900	WALL MOUNT 500W UPS
12	LEVEL SENSOR	4	MILONE TECHNOLOGIES	PN-6573P-8	ETAPE LEVEL SENSOR
13	FLOAT SWITCH	5	OMEGA	LVK-131	LIQUID LEVEL SWITCH
14	TACO BOXES	4	TACO	SR504-2	STEP UP RELAY BOX .4 RELAY
15	TACO BOXES	1	TACO	SR506-2	STEP UP RELAY BOX .6 RELAY
16	COUNTER	1	WEEDER	WTPTC-M	COUNTER MODULE
17	COMPUTER	1	FOXCONN	NTA350-CHOW-B-A-NA	BAREBONES COMPUTER
18	FIREWALL/ROUTER	1	LINKSYS	WRT54GL	ROUTER
19	MICROCONTROLLERS	6	OCEAN CONTROLS	KTA-225	ARDUINO BOXES WITH 8 A/D AND 8 RELAYS
20	ENVOY	1	ENPHASE	ENVOY	PV SYSTEM COMMUNICATIONS GATEWAY
21	MITSUBISHI GB24	1	MITSUBISHI	GB-24	MINISPLIT CONTROLLER
22	MITSUBISHI POWER SUP	1	MITSUBISHI	PAC-SC51KUA	GB-24 CONTROLLER
23	CRESTRON SWITCH	1	CRESTRON	CEN-SW-POW-5	5-PORT ETHERNET SWITCH
24	CRESTRON PROCESSOR	1	CRESTRON	PRO2	MAIN CRESTRON COMPUTER



**D1 MECHANICAL RM NORTH ELEVATION**

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



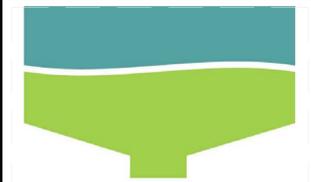
**A1 CONTROL PANEL LAYOUT**

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

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LOW VOLTAGE WIRE RUNS									
WIRE			ORIGIN				DESTINATION		
PURPOSE	SIGNAL	WIRE	DEVICE	PORT	TERMINATION	PATH	TERMINATION	PORT	DEVICE
INSTRUMENTATION	0-5VDC	1 X 22/4	CONTROLLER 2-1	AN 1/2	PHOENIX	106-2 ↔ 102-2	SCREW TERM	S1 (WHT) S2 (GRN)	REF/FRZ TEMPERATURE
INSTRUMENTATION	0-5VDC	1 X 22/4	CONTROLLER 1-1	AN 1/2	PHOENIX	106-3 ↔ 101-3	SCREW TERM	S1 (WHT) S2 (GRN)	EM-1-1 (TEMP AND HUMIDITY)
INSTRUMENTATION	0-5VDC	1 X 22/4	CONTROLLER 1-1	AN 5/6	PHOENIX	106-3 ↔ 103-1	SCREW TERM	S1 (WHT) S2 (GRN)	EM-1-2 (TEMP AND HUMIDITY)
INSTRUMENTATION	0-5VDC	1 X 22/4	CONTROLLER 1-1	AN 7/8	PHOENIX	106-3 ↔ 105-2	SCREW TERM	S1 (WHT) S2 (GRN)	EM-1-3 (TEMP AND HUMIDITY)
CONTROL & MONITORING	RS-485 COMM	22/2P OAS	CRESTRON PRO2	SERIAL 1	PHOENIX	106-3 ↔ 101-5	PHOENIX	RS-485	CONTROLLER 1-4
CONTROL & MONITORING	RS-485 COMM	22/2P OAS	CRESTRON PRO2	SERIAL 1	PHOENIX	106-3 ↔ 105-1	PHOENIX	RS-485	CONTROLLER 1-4
CONTROL & MONITORING	RS-485 COMM	22/2P OAS	CRESTRON PRO2	SERIAL 1	PHOENIX	106-3 ↔ 900-4	PHOENIX	RS-485	CONTROLLER 1-4
HVAC CONTROL/MONITORING	M-NET	18/2 OAS	GB-24 M-NET INTERFACE	M-NET	SREW	106-2 ↔ 101-2	SCREW TERM	M-NET	AH 1 - M-NET INTERFACE UNIT
HVAC CONTROL/MONITORING	M-NET	18/2 OAS	GB-24 M-NET INTERFACE	M-NET	SREW	106-2 ↔ 105-3	SCREW TERM	M-NET	AH 2 - M-NET INTERFACE UNIT
LIGHTING CONTROL	CRESNET	18/2 + 22/1PS	CRESNET DISTRIBUTION BLOCK	7	PHOENIX	106-4 ↔ 105-4	PHOENIX	NETWORK	CLS6 - DIMMER PANEL 2
LIGHTING CONTROL	CRESNET	18/2 + 22/1PS	CRESNET DISTRIBUTION BLOCK	8	PHOENIX	106-4 ↔ 101-4	PHOENIX	NETWORK	CLS6 - DIMMER PANEL 1
CONTROL	24VAC	18/2	RELAY OVERRIDE 1-1	2	REDBLK	106-1 ↔ 900-4	SCREW TERM	REDBLK	VALVE 11
CONTROL	24VAC	18/2	RELAY OVERRIDE 1-1	3	REDBLK	106-1 ↔ 900-4	SCREW TERM	REDBLK	VALVE 8-4
CONTROL	24VAC	18/2	RELAY OVERRIDE 1-1	4	REDBLK	106-1 ↔ 900-4	SCREW TERM	REDBLK	VALVE 8-3
OVERRIDE	24VAC	22/4	FLOAT SWITCH 1-1	BB1 1/2	REDBLK	900-4 ↔ 101-5	REDBLK	Z1	SUR 2-1
OVERRIDE	24VAC	22/4	FLOAT SWITCH 1-2	BB1 5/6	REDBLK	900-4 ↔ 105-1	REDBLK	Z1	SUR 2-2
OVERRIDE	24VAC	22/4	SUR 1-3	23	WHT/GRN	900-4 ↔ 101-5	WHT/GRN	BB1 3/4	FLOAT SWITCH 1-3
OVERRIDE	24VAC	22/4	SUR 1-4	23	WHT/GRN	900-4 ↔ 105-1	WHT/GRN	BB1 7/8	FLOAT SWITCH 1-4
LAN/WAN ACCESS/AV CONTROL	ETHERNET	CAT-5	PATCH PANEL	4	RJ45	106-1 ↔ 101-1	RJ45	ORG	IR CONTROL
LAN/WAN ACCESS/AV CONTROL	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	1/1	RJ45	106-1 ↔ 101-1	RJ45	WHT	AV RECIEVER
LAN/WAN ACCESS/AV CONTROL	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	2/2	RJ45	106-1 ↔ 101-1	RJ45	BLU	BR DVD
LAN/WAN ACCESS/AV CONTROL	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	3/3	RJ45	106-1 ↔ 101-1	RJ45	GRY	(FUTURE)
LAN/WAN ACCESS/AV CONTROL	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	5/4	RJ45	106-1 ↔ 101-6	RJ45	BLU	TV
LAN/WAN ACCESS	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	6/5	RJ45	106-3 ↔ 102-3	RJ45	WHT	GENERIC WIRED DEVICE
LAN/WAN ACCESS	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	7/6	RJ45	106-3 ↔ 102-3	RJ45	BLU	GENERIC WIRED DEVICE
LAN/WAN ACCESS	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	10/7	RJ45	106-3 ↔ 102-3	RJ45	WHT	GENERIC WIRED DEVICE
LAN/WAN ACCESS	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	11/8	RJ45	106-3 ↔ 102-3	RJ45	BLU	GENERIC WIRED DEVICE
LAN/WAN ACCESS	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	12/9	RJ45	106-3 ↔ 102-3	RJ45	GRY	GENERIC WIRED DEVICE
LAN/WAN ACCESS	ETHERNET	CAT-5	PATCH PANEL/ETHERNET SWITCH	13/10	RJ45	106-3 ↔ 102-3	RJ45	ORG	GENERIC WIRED DEVICE
WIRELESS ACCESS - INFINET-EX	ETHERNET/POE	CAT-5	PATCH PANEL/POE SWITCH	14/2	RJ45	106-3 ↔ 105-5	RJ45	BLU	INFINET-EX ACCESS POINT
WIRELESS ACCESS - LAN/WAN	ETHERNET/POE	CAT-5	PATCH PANEL/POE SWITCH	8/1	RJ45	106-3 ↔ 102-1	RJ45	BLU	WIRELESS ACCESS POINT
POWER	12VDC	18/2	RELAY OVERRIDE 2-1	2	SCREW TERM	106-3 ↔ 103-1	SCREW TERM	+	EM-1-2 (TEMP AND HUMIDITY)
POWER	12VDC	18/2	RELAY OVERRIDE 2-1	3	SCREW TERM	106-3 ↔ 105-2	SCREW TERM	+	EM-1-3 (TEMP AND HUMIDITY)
POWER	12VDC	18/2	12V POWER SUPPLY	4	PHOENIX	106-3 ↔ 101-5	PHOENIX	+	CONTROLLER 1-4
POWER	12VDC	18/2	12V POWER SUPPLY	4	PHOENIX	106-3 ↔ 900-4	PHOENIX	+	CONTROLLER 1-4
POWER	12VDC	18/2	RELAY OVERRIDE 2-1	5	SCREW TERM	106-3 ↔ 101-3	SCREW TERM	+	EM-1-1 (TEMP AND HUMIDITY)
POWER	12VDC	1 X 18/2	12V POWER SUPPLY	5	PHOENIX	106-3 ↔ 105-1	PHOENIX	+	CONTROLLER 1-4
AUDIO	LINE LEVEL	RG-6	AV RECEIVER	SUB	RCA	101-1 ↔ 101-5	RCA	SUBWOOFER	SPEAKER
AUDIO	SPEAKER	18/2	AV RECEIVER	FC	BANNANA	101-1 ↔ 101-8	BANNANA	FRONT CENTER	SPEAKER
AUDIO	SPEAKER	18/2	AV RECEIVER	FR	BANNANA	101-1 ↔ 101-7	BANNANA	FRONT RIGHT	SPEAKER
AUDIO	SPEAKER	18/2	AV RECEIVER	FR	BANNANA	101-1 ↔ 101-9	BANNANA	FRONT RIGHT	SPEAKER
AUDIO	SPEAKER	18/2	AV RECEIVER	RL	BANNANA	101-1 ↔ 102-6	BANNANA	REAR LEFT	SPEAKER
AUDIO	SPEAKER	18/2	AV RECEIVER	RR	BANNANA	101-1 ↔ 102-5	BANNANA	REAR RIGHT	SPEAKER
VIDEO	HDMI	HDMI	AV RECEIVER	HDMI OUT	HDMI	101-1 ↔ 101-6	HDMI	HDMI IN	TV
CABLE SERVICE	RF	RG-6	GROUND BLOCK	1	F-COIN	106-5 ↔ 100	F-COIN	WHT	CABLE BOX
SPARE	-	CAT-5	PATCH PANEL	9	RJ45	106-3 ↔ PB1	PATCH BLOCK	9	SPARE
SPARE	-	CAT-5	PATCH PANEL	15	RJ45	106-3 ↔ PB1	RJ45	PLUG	SPARE

CONTROLLER ANALOG PORT ASSIGNMENTS									
<b>ENV1 (UNIT ADDRESS 0)</b>									
PORT	LOCATION	TYPE	SYSTEM	NAME	DWG REF #	MANUFACTURER	PART #	SIGNAL TYPE	
1	LIVING ROOM WALL BOX	TEMP	ENVMT	LVG RM T	ST2-1	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
2	LIVING ROOM WALL BOX	HUMIDITY	ENVMT	LVG RM H	SH2-1	HONEYWELL	785-HIH-4010-001	0-5 VDC	
3	BATHROOM WALL BOX	TEMP	ENVMT	BATH T	ST2-2	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
4	BATHROOM WALL BOX	HUMIDITY	ENVMT	BATH H	SH2-2	HONEYWELL	785-HIH-4010-001	0-5 VDC	
5	BEDROOM WALL BOX	TEMP	ENVMT	BEDRM T	ST2-3	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
6	BEDROOM WALL BOX	HUMIDITY	ENVMT	BEDRM H	SH2-3	HONEYWELL	785-HIH-4010-001	0-5 VDC	
7	EXTERIOR	TEMP	ENVMT	OUTSIDE T	ST2-4	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
8	EXTERIOR	HUMIDITY	ENVMT	OUTSIDE H	SH2-4	HONEYWELL	785-HIH-4010-001	0-5 VDC	
<b>ENV2 (UNIT ADDRESS 1)</b>									
PORT	LOCATION	TYPE	SYSTEM	NAME	DWG REF #	MANUFACTURER	PART #	SIGNAL TYPE	
1	REFRIGERATOR	TEMP	ENVMT	REFRIG T	ST1-6	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
2	FREEZER	TEMP	ENVMT	FREEZER T	ST1-2	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
3	MECH RM	TEMP	ENVMT	MECH RM T	ST1-3	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
4	TANK PUMP	FLOW	WATER	WATER GPM	SF1-1			PULSE	
5	PRIMARY TANK	TEMP	WATER	PRI TANK T	ST1-4	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
6	SECONDARY TANK	TEMP	WATER	SEC TANK T	ST1-5	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
7	HEATING ELEMENT ACTIVE	CURRENT	WATER	HW EMG	SA1-1	EATON	EAC205SP	0-5 VDC	
<b>GLYCL (UNIT ADDRESS 2)</b>									
PORT	LOCATION	TYPE	SYSTEM	NAME	DWG REF #	MANUFACTURER	PART #	SIGNAL TYPE	
1	MECH RM ERV INTERIOR EXHAUST	TEMP	ERV	INTR EXHST T	ST1-6	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
2	MECH RM ERV EXTERIOR EXHAUST	TEMP	ERV	EXTR EXHST T	ST1-7	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
3	GLYCOL SUPPLY (AT ARRAY EXIT)	TEMP	GYCOL	SUPPLY T	ST1-8	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
4	GLYCOL RETURN	TEMP	GLYCOL	RETURN T	ST3-1	GRUNDFOS	VFS 5-100	0-5 VDC	
5	GLYCOL PUMP	FLOW	GLYCOL	GLYCOL GPM	SF2-1	GRUNDFOS	VFS 5-100	0-5 VDC	
<b>LDW1 (UNIT ADDRESS 3)</b>									
PORT	LOCATION	TYPE	SYSTEM	NAME	DWG REF #	MANUFACTURER	PART #	SIGNAL TYPE	
1	INTAKE	TEMP	LD WALL 1	INTAKE T	ST1-11	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
2	INTAKE	HUMIDITY	LD WALL 1	INTAKE H	SH1-11	HONEYWELL	785-HIH-4010-001	0-5 VDC	
3	EXHAUST	TEMP	LD WALL 1	EXHAUST T	ST1-12	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
4	EXHAUST	HUMIDITY	LD WALL 1	EXHAUST H	SH1-12	HONEYWELL	785-HIH-4010-001	0-5 VDC	
5	DESICCANT TANK	CONCENTRATION	LD WALL 1	CONC	SC1-11	CUSTOM	NA	0-5 VDC	
6	DESICCANT TANK	LEVEL	LD WALL 1	LEVEL	SL1-11	MILONE	PN-6573P-8	0-5 VDC	
7	HEXST 1 SUPPLY PIPE	TEMP	HXEST 1	SUPPLY T	ST1-13	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
8	HEXST 1 RETURN PIPE	TEMP	HXEST 1	RETURN T	ST1-14	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
<b>LDW2 (UNIT ADDRESS 4)</b>									
PORT	LOCATION	TYPE	SYSTEM	NAME	DWG REF #	MANUFACTURER	PART #	SIGNAL TYPE	
1	INTAKE	TEMP	LD WALL 2	INTAKE T	ST1-21	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
2	INTAKE	HUMIDITY	LD WALL 2	INTAKE H	SH1-21	HONEYWELL	785-HIH-4010-001	0-5 VDC	
3	EXHAUST	TEMP	LD WALL 2	EXHAUST T	ST1-22	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
4	EXHAUST	HUMIDITY	LD WALL 2	EXHAUST H	SH1-22	HONEYWELL	785-HIH-4010-001	0-5 VDC	
5	DESICCANT TANK	CONCENTRATION	LD WALL 2	CONC	SC1-21	CUSTOM	NA	0-5 VDC	
6	DESICCANT TANK	LEVEL	LD WALL 2	LEVEL	SL1-21	MILONE	PN-6573P-8	0-5 VDC	
7	HEXST 2 SUPPLY PIPE	TEMP	HXEST 2	SUPPLY T	ST1-23	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
8	HEXST 2 RETURN PIPE	TEMP	HXEST 2	RETURN T	ST1-24	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
<b>REGEN (UNIT ADDRESS 5)</b>									
PORT	LOCATION	TYPE	SYSTEM	NAME	DWG REF #	MANUFACTURER	PART #	SIGNAL TYPE	
1	EXHAUST	TEMP	LD REGEN	EXHAUST1 T	ST1-31	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
2	EXHAUST	HUMIDITY	LD REGEN	EXHAUST1 H	SH1-31	HONEYWELL	785-HIH-4010-001	0-5 VDC	
3	EXHAUST	TEMP	LD REGEN	EXHAUST2 T	ST1-32	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
4	EXHAUST	HUMIDITY	LD REGEN	EXHAUST2 H	SH1-32	HONEYWELL	785-HIH-4010-001	0-5 VDC	
5	DESICCANT TANK 1	TEMP	LD REGEN	TANK 1 T	ST1-33	ANALOG DEVICES	AD22100KTZ-ND	0-5 VDC	
6	DESICCANT TANK 1	CONCENTRATION	LD REGEN	TANK 1 CONC	SC1-31	CUSTOM	NA	0-5 VDC	
7	DESICCANT TANK 1	LEVEL	LD REGEN	TANK 1 LVL	SL1-31	MILONE	PN-6573P-8	0-5 VDC	
8	DESICCANT TANK 2	LEVEL	LD REGEN	TANK 2 LVL	ST1-32	MILONE	PN-6573P-8	0-5 VDC	



WaterShed  
AT THE UNIVERSITY OF MARYLAND

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04	05/02/2011	100% DOE/NREL RE SUBMISSION
05	08/11/2011	AS-BUILT DRAWING SUBMISSION

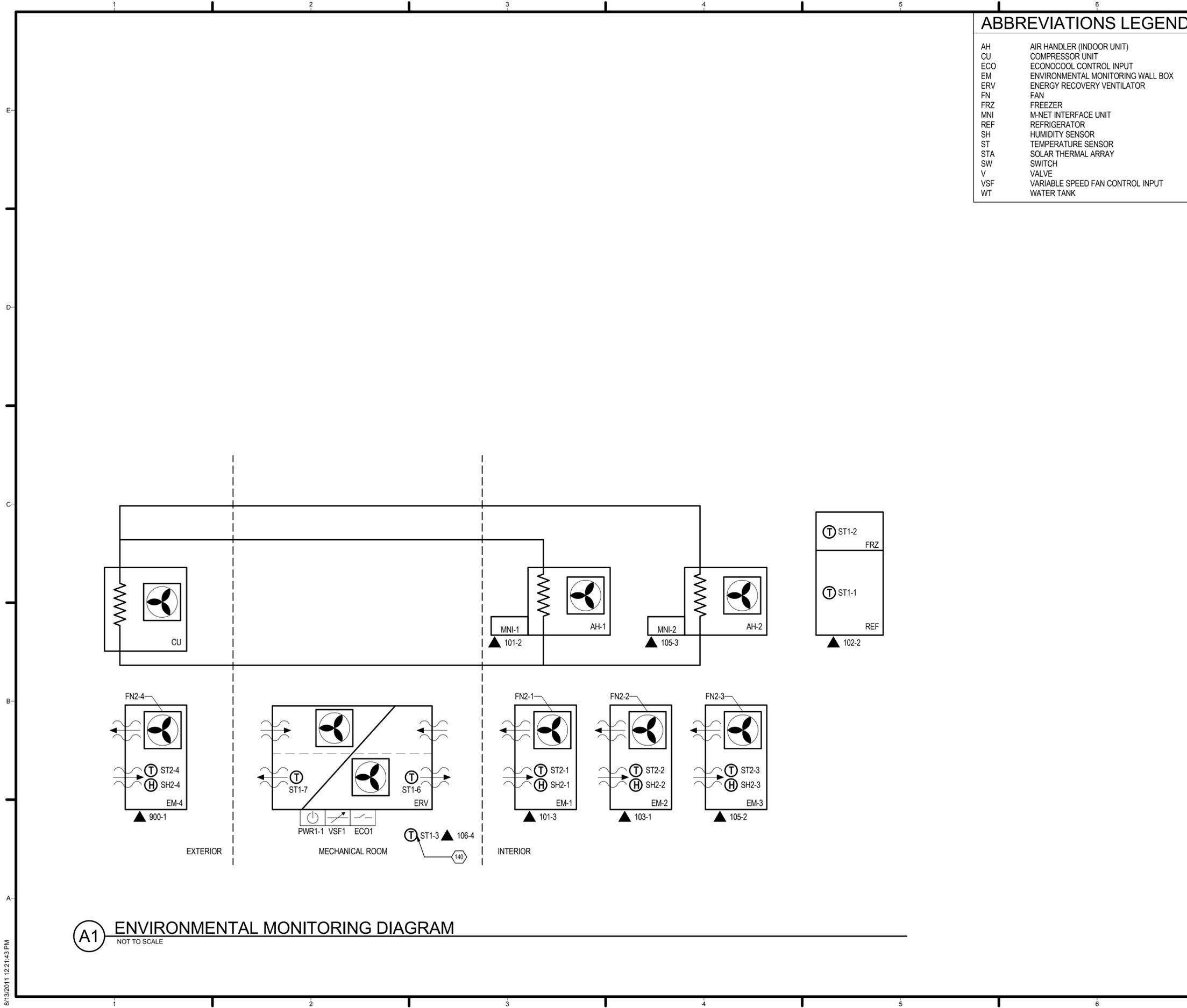
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SHEET TITLE

SCHEDULES

T-601



**ABBREVIATIONS LEGEND**

AH	AIR HANDLER (INDOOR UNIT)
CU	COMPRESSOR UNIT
ECO	ECONOCOOL CONTROL INPUT
EM	ENVIRONMENTAL MONITORING WALL BOX
ERV	ENERGY RECOVERY VENTILATOR
FN	FAN
FRZ	FREEZER
MNI	M-NET INTERFACE UNIT
REF	REFRIGERATOR
SH	HUMIDITY SENSOR
ST	TEMPERATURE SENSOR
STA	SOLAR THERMAL ARRAY
SW	SWITCH
V	VALVE
VSF	VARIABLE SPEED FAN CONTROL INPUT
WT	WATER TANK

**GENERAL SHEET NOTES**

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**

140 TEMPERATURE SENSOR INSTALLED IN MECHANICAL ROOM MOUNTED ON RACK



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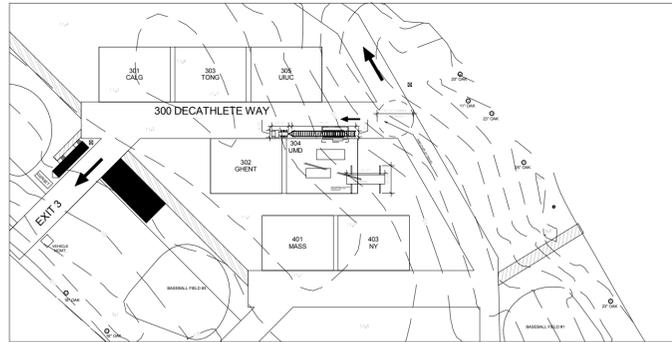
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**ENVIRONMENTAL MONITORING DIAGRAM**

**T-610**

**A1 ENVIRONMENTAL MONITORING DIAGRAM**  
 NOT TO SCALE

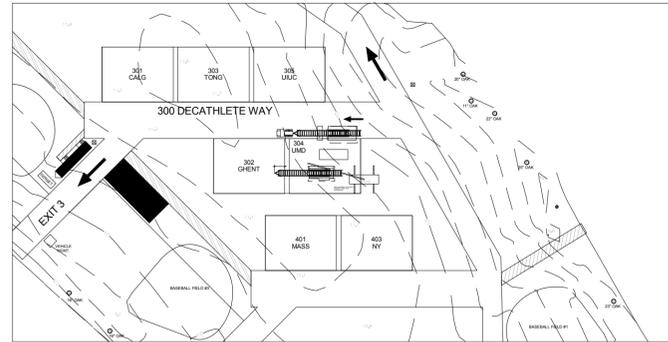




**PHASE 1**

TEAM SETS UP THE ENTIRE FOUNDATION SUPPORT BEAMS FOR THE NORTH AND SOUTH MODULES. LEVELED AND CROSS-BRACED INTO THE GROUND. THE SUPPORT BEAMS FOR THE MIDDLE MODULE IS ALSO IN PLACE HOWEVER WILL BE 4" LOWER IN ORDER TO BE ABLE TO LIFT INTO POSITION.

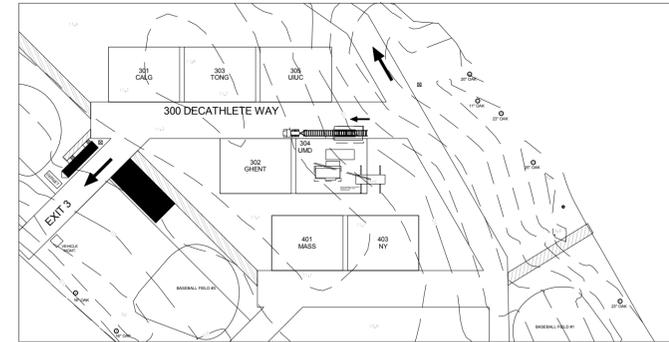
THE CRANE SETS UP AND EXTENDS OUTRIGGERS ACCORDINGLY PER THE SKETCH SHOWN. THE CARRIER WITH THE SOUTH MODULE PROCEEDS ALONG DECATHLETE WAY AND POSITIONS NEXT TO CRANE. ESTIMATED TIME TO SET UP CRANE IS 45 MINUTES.



**PHASE 2**

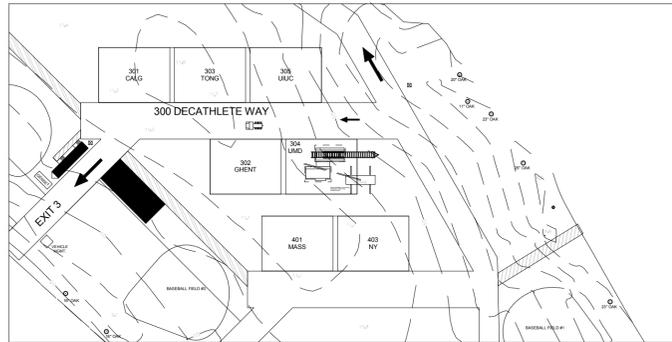
THE PROFESSIONAL TEAM CREW ATTACHES THE CRANE'S CABLES TO THE CARRIERS OF THE SOUTH MODULE. LIFTS IT AND PLACES THE CARRIER CRADLES MODULE INTO POSITION AND IT IS LOWERED. THE MODULE RESTS UPON THE PREPLACED, LEVELED FOUNDATION BEAMS AND THE CARRIERS DROP BELOW THE MODULE WITH MINIMAL CLEARANCE SO AS 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 GHEINT IS APPROXIMATELY 20 TO 30 MINUTES. THE EMPTY CARRIER IS TEMPORARILY PLACED OUT OF THE WAY NEXT TO THE CRANE BEHIND SITE 403.



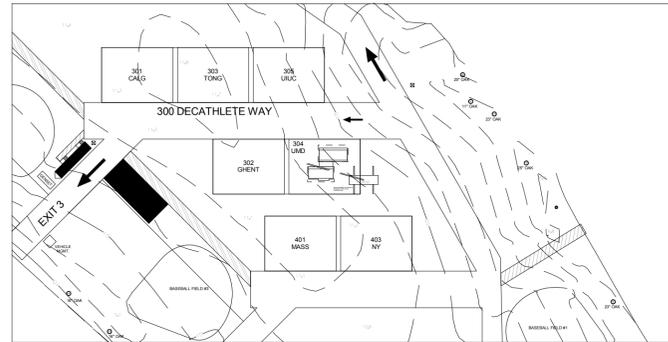
**PHASE 3**

AS THE TASKS OF PHASE 2 ARE BEING IMPLEMENTED, THE SMALL CARRIER WITH THE MIDDLE MODULE HAS BEEN POSITIONED INTO PLACE AND IS BEING READIED TO BE PICKED BY THE CRANE. SPREADER BARS HAVE BEEN ADJUSTED CORRECTLY FOR THE 14'-6" x 6'-0" MODULE. THE MODULE IS PICKED AND PLACED ON THE PREVIOUSLY SET SUPPORT BEAMS AT THE PREDETERMINED HEIGHT. THE SMALL CARRIER (NOW EMPTY) LEAVES DECATHLETE WAY. ESTIMATED TIME IS APPROXIMATELY 30 MINUTES.



**PHASE 4**

THE THIRD AND FINAL CARRIER WITH THE NORTH MODULE IS NOW IN PLACE NEAR THE CRANE ALONG DECATHLETE WAY AND IS BEING READIED TO PICK. ONCE THE SPREADER BARS HAVE BEEN READJUSTED TO 36'-0", THE CABLES ARE REATTACHED AND CONNECTED TO THE CARRIER. WHILE THIS PROCESS IS BEING PERFORMED, MISCELLANEOUS PARTS SUCH AS THE PERGOLA, SOUTH SOLAR THERMAL WALL, DECKS, ETC. ARE BEING UNLOADED OFF THE CARRIER ONTO THE UMD SITE. THE CARRIER IS LIFTED BY THE CRANE, ROTATED 180 DEGREES AND PLACED INTO POSITION. READJUSTMENT OF THE SPREADER BARS OCCURS TO PICK THE BATHROOM MODULE INTO ITS FINAL FINISHED HEIGHT AND SECURED TO BOTH NORTH AND SOUTH MODULES. ESTIMATED TIME IS APPROXIMATELY 45-60 MINUTES.



**PHASE 5**

THE CARRIER IS PULLED OUT FROM UNDERNEATH THE NORTH MODULE AND REATTACHED TO THE CRANE TO BE ROTATED 180 DEGREES BEHIND THE TRANSPORTER AND ATTACHED. THE REMAINING EMPTY CARRIER NEXT TO THE CRANE FROM THE SOUTH MODULE IS PICKED AND PLACED ON TOP OF THE AWAITING CARRIER ON DECATHLETE WAY (SEE ATTACHED SPECIFICATION FOR CARRIER STACKING) AND TAKEN AWAY TO COLLEGE PARK. ESTIMATED TIME IS 45 TO 60 MINUTES.

THE CRANE REMAINS TO PICK AND PLACE MISCELLANEOUS PARTS SUCH AS THE PERGOLA, SOUTH SOLAR THERMAL WALL, ETC. AND REMAINS OUT OF THE WAY FROM RIGHT OF WAY. ESTIMATED SETUP TIME FOR THE CRANE AND MODULES IS 4 1/2 TO 5 1/2 HOURS.

**NOTES AND SPECS:**

- CRANE SPECIFIED IS A 130 TON MEASURING 42' IN LENGTH AND 30' EDGE OF EITHER SIDE OF EXTENDED OUTRIGGERS. CRANE'S WEIGHT AND WEIGHT OF THE OBJECTS PICKED ARE DISTRIBUTED TO THE OUTRIGGERS RESTING ON 6'-0" x 6'-0" REINFORCED CRIBBING.
- RUBBER TRACK LOADER CLEARANCE-12', 8.4' 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.
- 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.

**B1 ARRIVAL SEQUENCE PLANS**

1" = 100'-0"



**CONSTRUCTION EQUIPMENT SCHEDULE**

ARRIVAL/DEPARTURE EQUIPMENT	COMPETITION SITE	CAMPUS SITE
1 120 TON CRANE	X	X
2 SKID STEER LOADER	X	X
3 HYDRAULIC JACK STANDS	X	X
<b>GENERAL CONSTRUCTION EQUIPMENT</b>		
1 (2) GAS GENERATOR	X	
2 (1) LULL (BOOM-ARM ARTICULATED FORKLIFT)	X	
3 (1) PORTABLE TOILET		X
4 (2) SHIPPING CONTAINER - 40'-0" X 8'-0" X 8'-0"		X
5 (1) 20 YARD DUMPSTER		X
6 (1) 20 YARD RECYCLING CONTAINER		X
7 SITE LIGHTING		X
7.1 (3-4) 12'-0" MOUNTED SPOT LIGHTS	X	
7.2 TASK LIGHTING	X	X
8 GENERAL HAND & POWER TOOLS	X	X
9 STAGING/SCAFFOLDING		X
10 GRAVEL PAD		X
11 SITE FENCING		X
12 OFFICE TRAILER		X
13 24' MATERIAL TRANSPORTATION VEHICLE	X	X
14 (1) SOLAR GENERATOR	X	X

**GENERAL SHEET NOTES**

- 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.
- ADDITIONAL MODULAR COMPONENTS SUCH AS PERGOLA, EXTERIOR DECKS AND SOLAR THERMAL ARRAY MAY ALSO REQUIRE 24 FOOT LONG FLAT BED TRUCK ACCESS AND CRANE OPERATIONS.

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**



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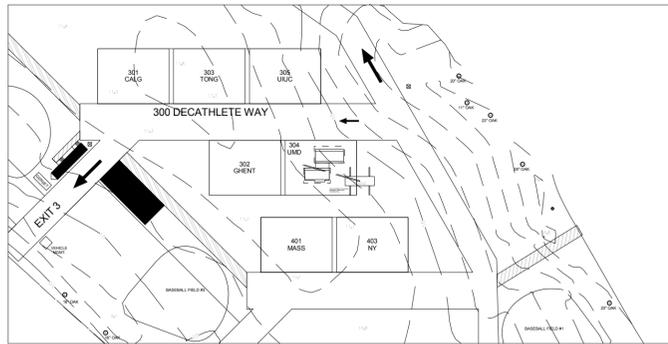
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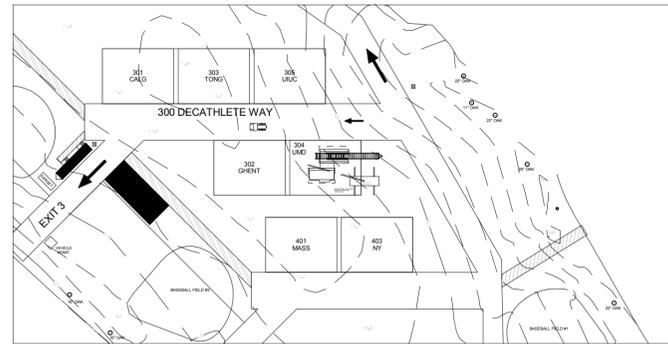
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**ARRIVAL SEQUENCE PLANS**

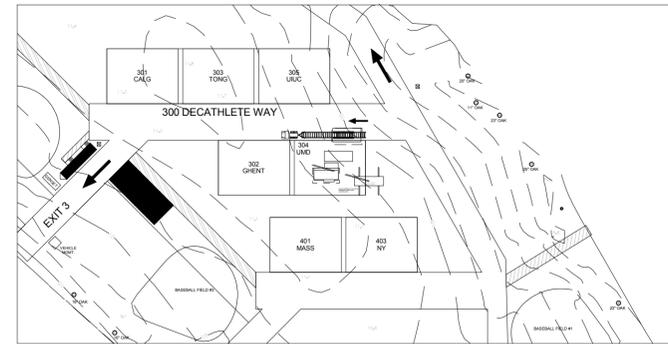
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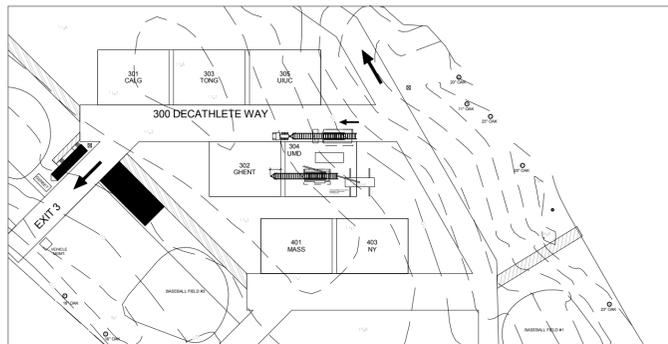
PHASE 1



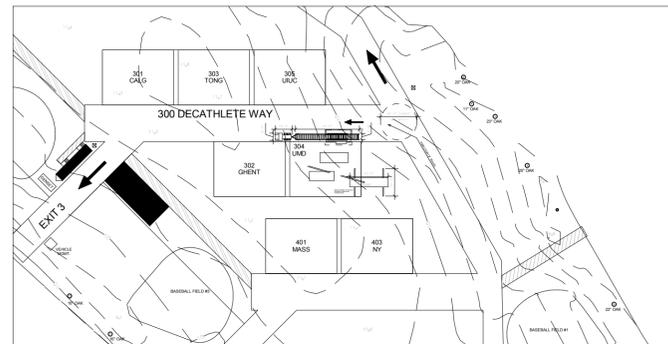
PHASE 2



PHASE 3



PHASE 4



PHASE 5

**B1 DEPARTURE SEQUENCE PLANS**  
1" = 100'-0"



CONSTRUCTION EQUIPMENT SCHEDULE		
ARRIVAL/DEPARTURE EQUIPMENT	COMPETITION SITE	CAMPUS SITE
1 120 TON CRANE	X	X
2 SKID STEER LOADER	X	X
3 HYDRAULIC JACK STANDS	X	X
<b>GENERAL CONSTRUCTION EQUIPMENT</b>		
1 (2) GAS GENERATOR	X	
2 (1) LULL (BOOM-ARM ARTICULATED FORKLIFT)	X	
3 (1) PORTABLE TOILET		X
4 (2) SHIPPING CONTAINER - 40'-0" X 8'-0" X 8'-0"		X
5 (1) 20 YARD DUMPSTER		X
6 (1) 20 YARD RECYCLING CONTAINER		X
7 SITE LIGHTING		X
7.1 (3-4) 12'-0" MOUNTED SPOT LIGHTS	X	
7.2 TASK LIGHTING	X	X
8 GENERAL HAND & POWER TOOLS	X	X
9 STAGING/SCAFFOLDING		X
10 GRAVEL PAD		X
11 SITE FENCING		X
12 OFFICE TRAILER		X
13 24' MATERIAL TRANSPORTATION VEHICLE	X	X
14 (1) SOLAR GENERATOR	X	X

**GENERAL SHEET NOTES**

- 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
- ADDITIONAL MODULAR COMPONENTS SUCH AS PERGOLA, EXTERIOR DECKS AND SOLAR THERMAL ARRAY MAY ALSO REQUIRE 24 FOOT LONG FLAT BED TRUCK ACCESS AND CRANE OPERATIONS

**REFERENCE KEYNOTES**

**SHEET KEYNOTES**



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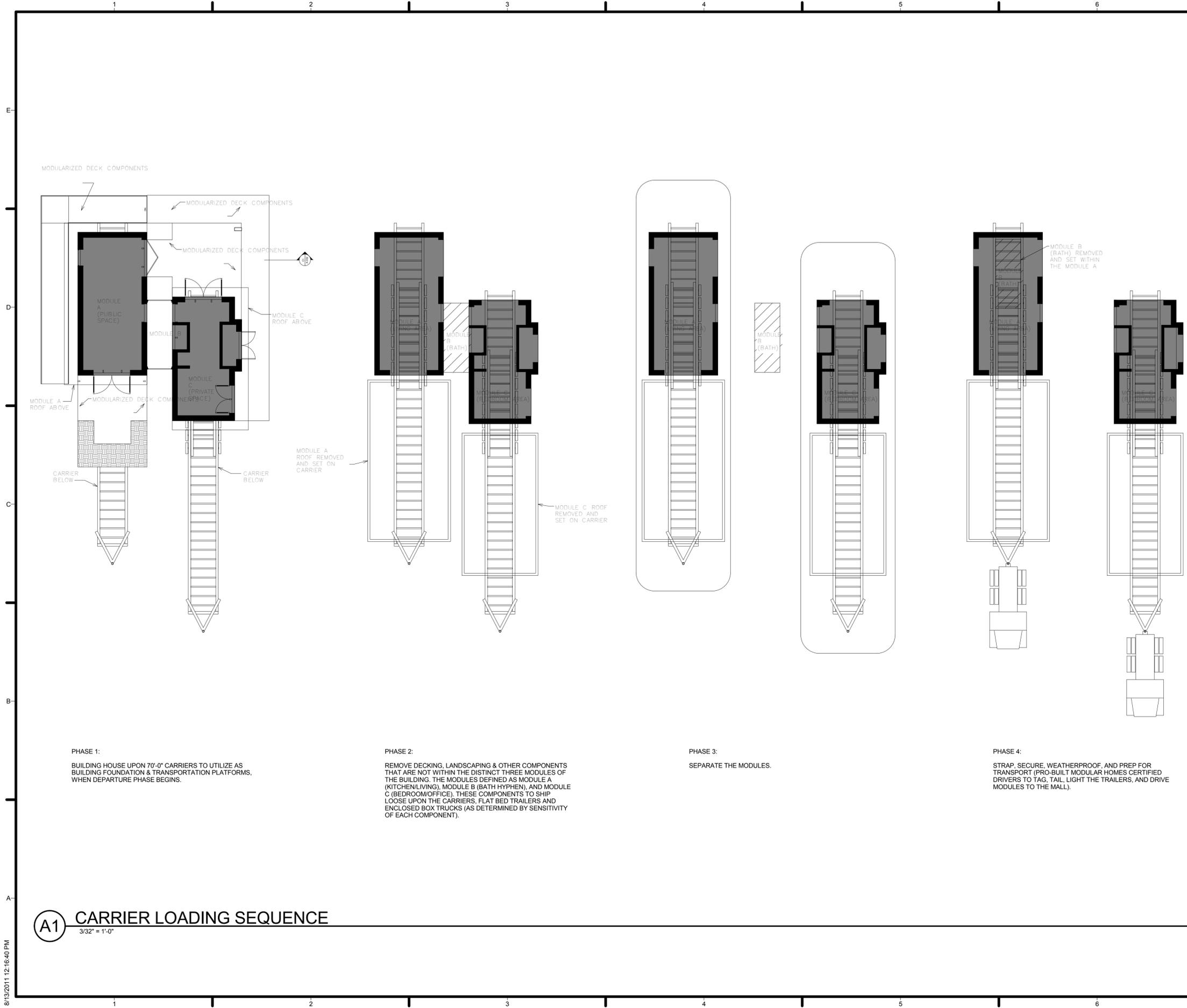
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**DEPARTURE SEQUENCE PLANS**

**O-102**



GENERAL SHEET NOTES

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SHEET KEYNOTES



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03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION

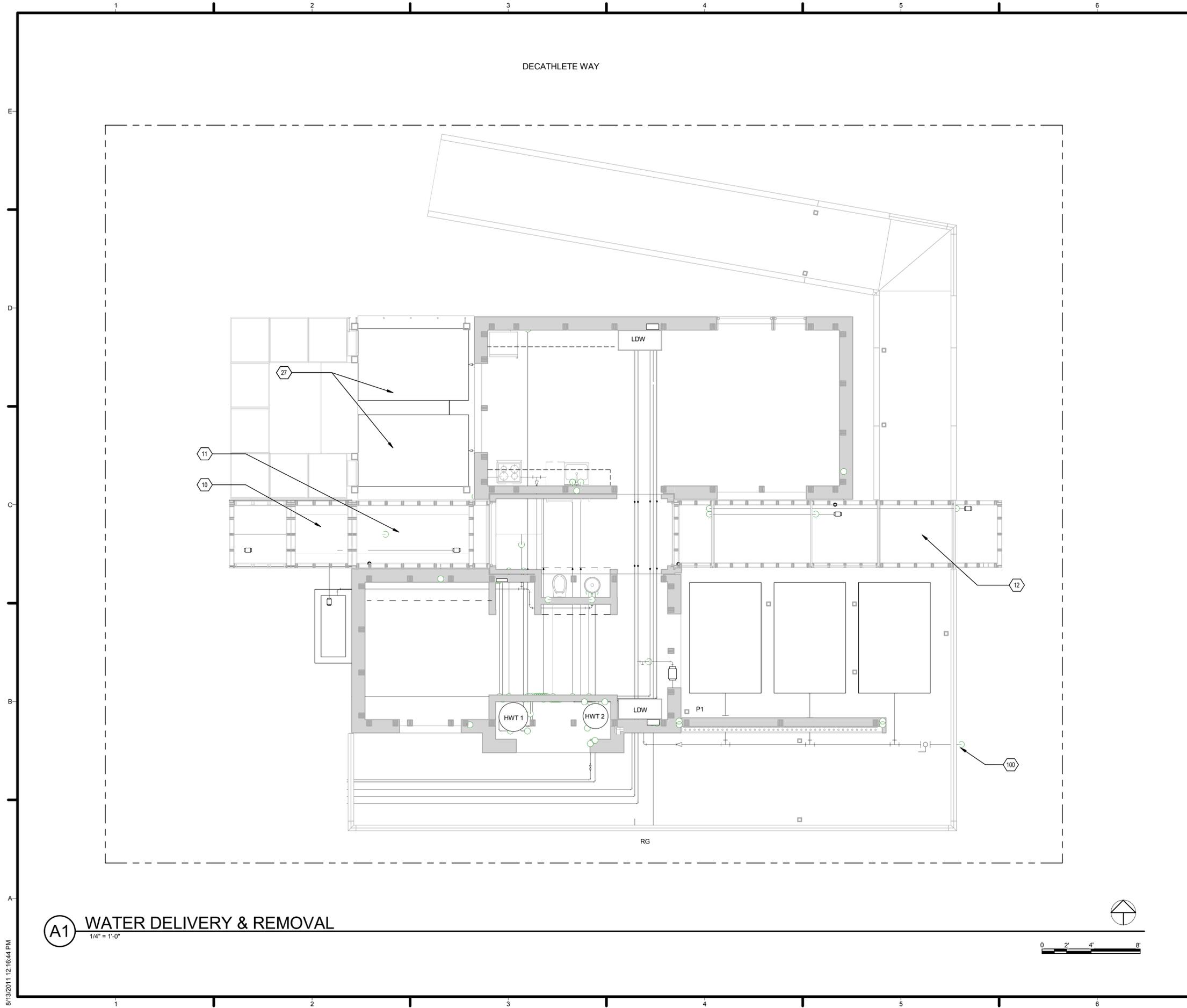
MARK	DATE	DESCRIPTION
ISSUE DATE:	02 MAY 2011	
LOT NUMBER:	304	
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SHEET TITLE  
**CARRIER LOADING DIAGRAM**

**O-103**

**A1 CARRIER LOADING SEQUENCE**  
 3/32" = 1'-0"

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**GENERAL SHEET NOTES**

1. WATER DELIVERY TO BE RECEIVED THROUGH ACCESS HATCH ON SOUTHEAST DECK; 1500 GALLONS REQUESTED
2. ACCESS HATCHES TO SUPPLY AND REMOVAL VALVES (SHOWN AS HATCHED LINES) TO BE MINIMUM OF 12" X 12" SQUARE, WITH AT LEAST 8 FEET OF CLEARANCE ABOVE WHEN HATCH IS OPEN
3. POTABLE WATER TANKS HAVE TOTAL CAPACITY OF 1500 GALLONS TOTAL
4. GREY WATER TANKS HAVE TOTAL CAPACITY OF 1000 GALLONS TOTAL
5. GREY WATER FILTRATION CONSTRUCTED WETLAND CAPACITY IS 364 GALLONS
6. CONSTRUCTED WETLAND RAINWATER CISTERN CAPACITY IS 708 GALLONS
7. REMAINING WATER IN POTABLE TANKS TO BE PUMPED TO GREY WATER TANKS FOR REMOVAL DAY
8. EXCESS GREY WATER IN GREY WATER FILTRATION CONSTRUCTED WETLAND TO BE PUMPED TO GREY WATER TANKS FOR REMOVAL DAY
9. WATER REMOVAL VALVE LOCATED ON NORTHWEST DECK. ESTIMATED QUANTITY TO BE REMOVED: APPROXIMATELY 1400 GALLONS

**REFERENCE KEYNOTES**

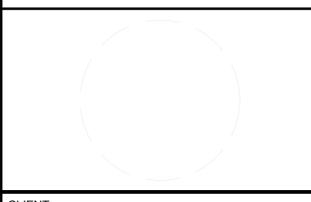

**SHEET KEYNOTES**

- |     |   |
|-----|---|
| 10  | CONSTRUCTED WETLANDS FOR GREY WATER FILTRATION (SEE A-412)                  |
| 11  | CONSTRUCTED WETLANDS FOR GREEN ROOF RUNOFF (SEE A-412)                      |
| 12  | CONSTRUCTED WETLANDS RAINWATER HARVESTING AND FILTRATION SYSTEM (SEE A-411) |
| 27  | 500 GALLON BLACK WATER PILLow TANK  |
| 100 | 4" FILL VALVE FOR COMPETITION   |



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CLIENT  
 U.S. DEPARTMENT OF ENERGY  
 SOLAR DECATHLON 2011  
 WWW.SOLARDECATHLON.GOV



01	11/19/2010	80% DOE/NREL DD SUBMISSION
02	01/18/2011	80% DOE/NREL RE-SUBMISSION
03	03/18/2011	100% DOE/NREL CD SUBMISSION
04	05/02/2011	100% DOE/NREL RE SUBMISSION

**MARK DATE DESCRIPTION**

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**SHEET TITLE**

**WATER DELIVERY & REMOVAL**

**O-111**

**A1 WATER DELIVERY & REMOVAL**  
 1/4" = 1'-0"

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