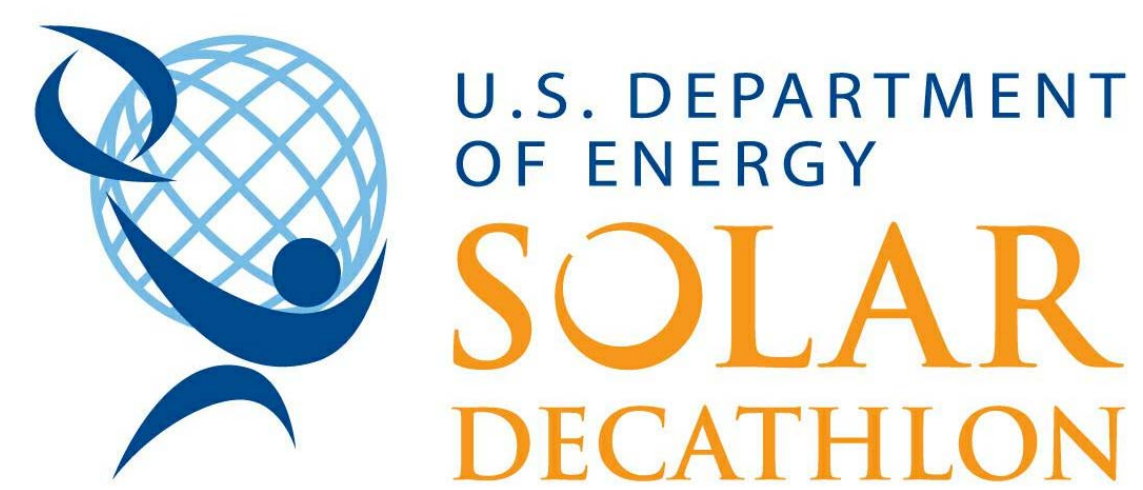


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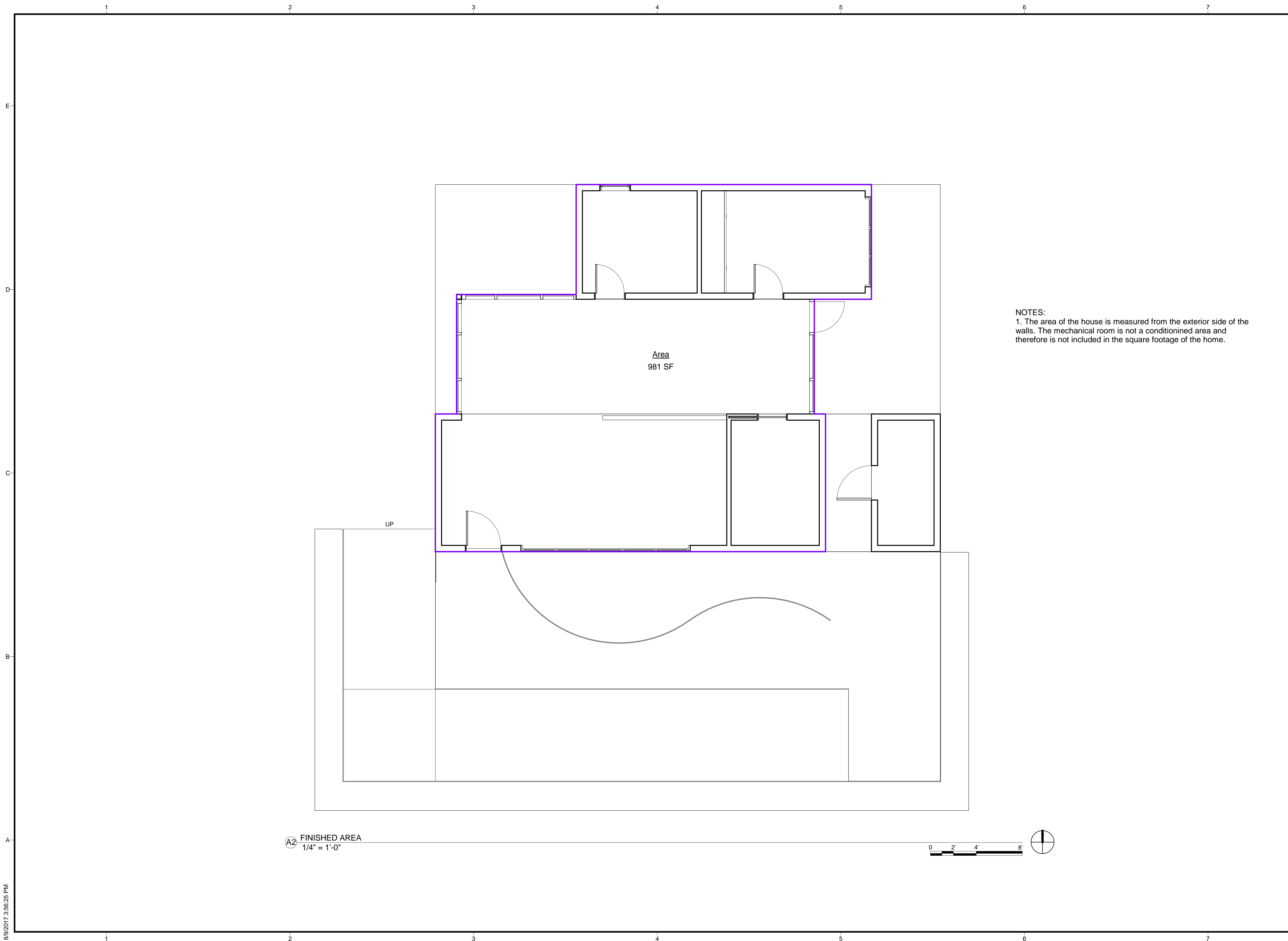
G-002

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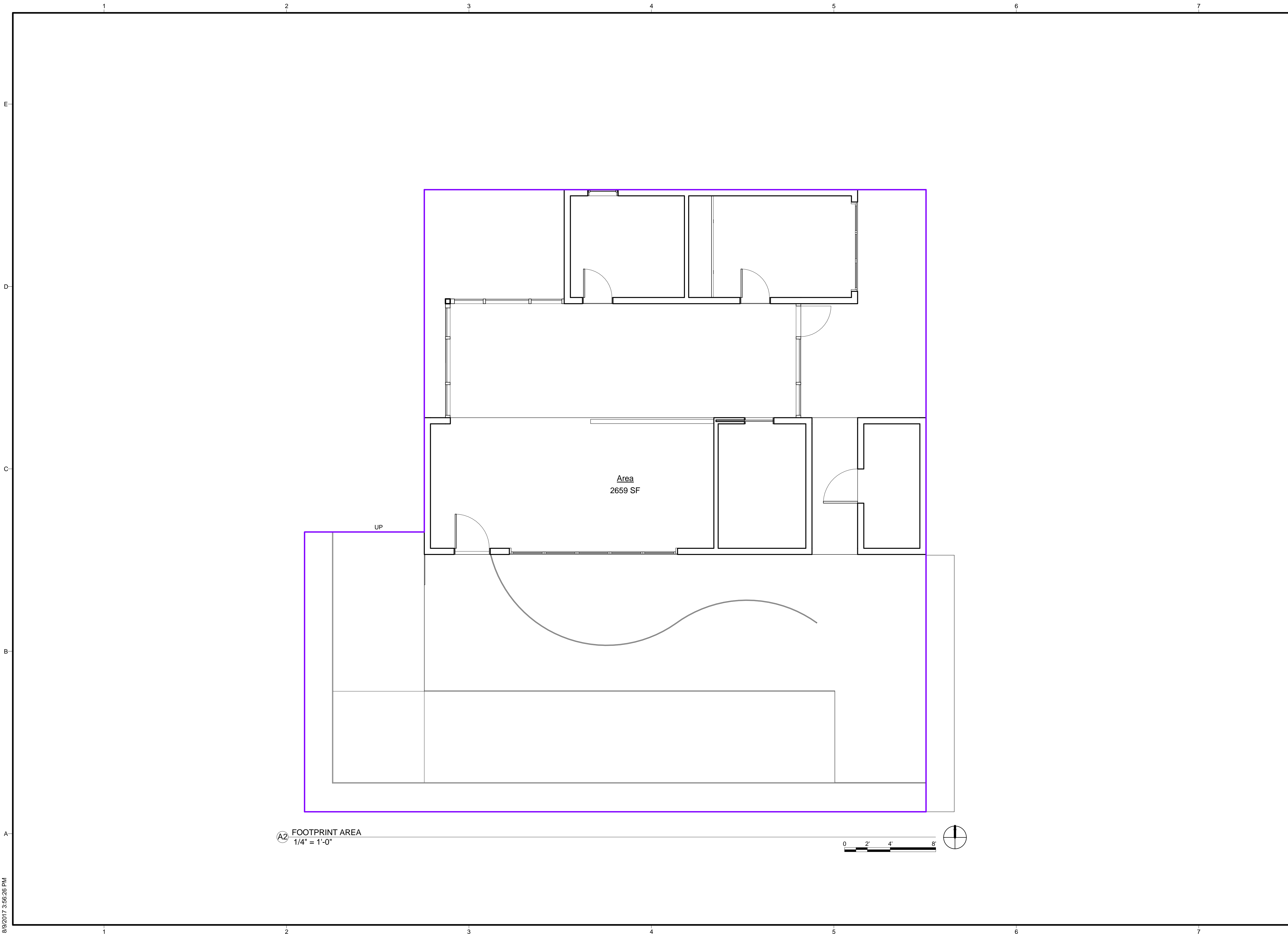
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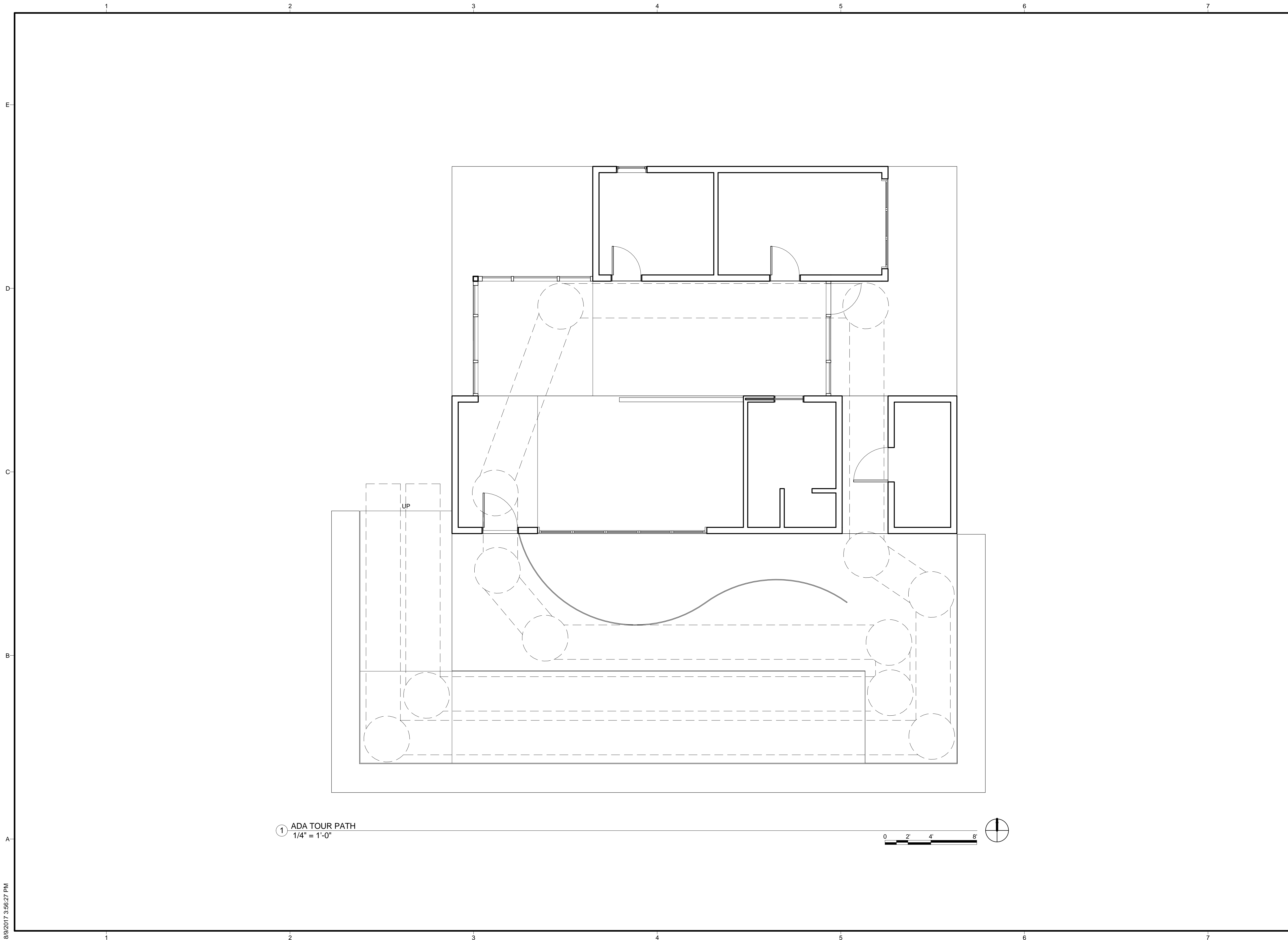
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**TOTAL FOOTPRINT**

**G-102**

8/9/2017 3:56:26 PM



① ADA TOUR PATH  
1/4" = 1'-0"



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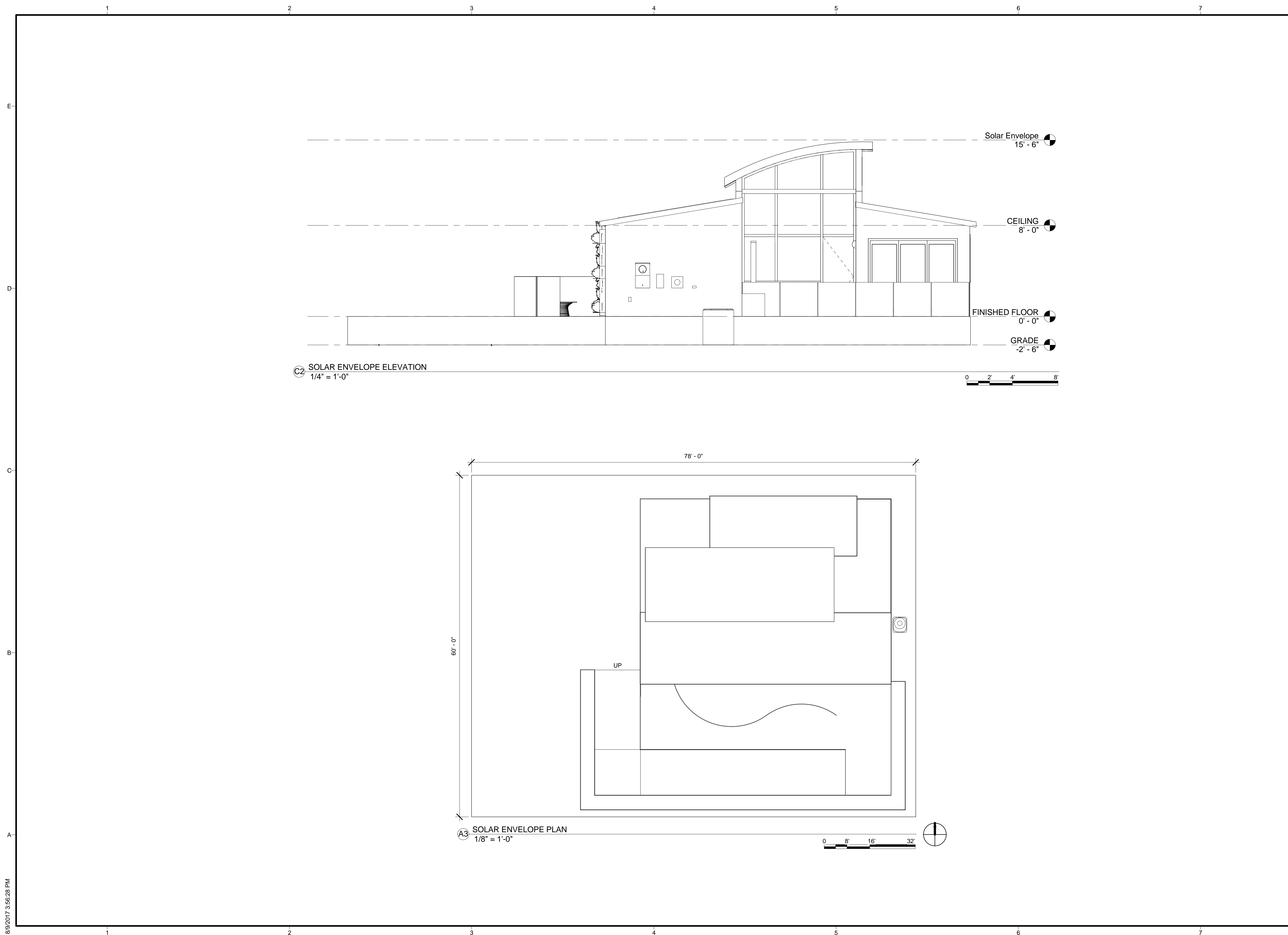
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**ADA TOUR PATH**

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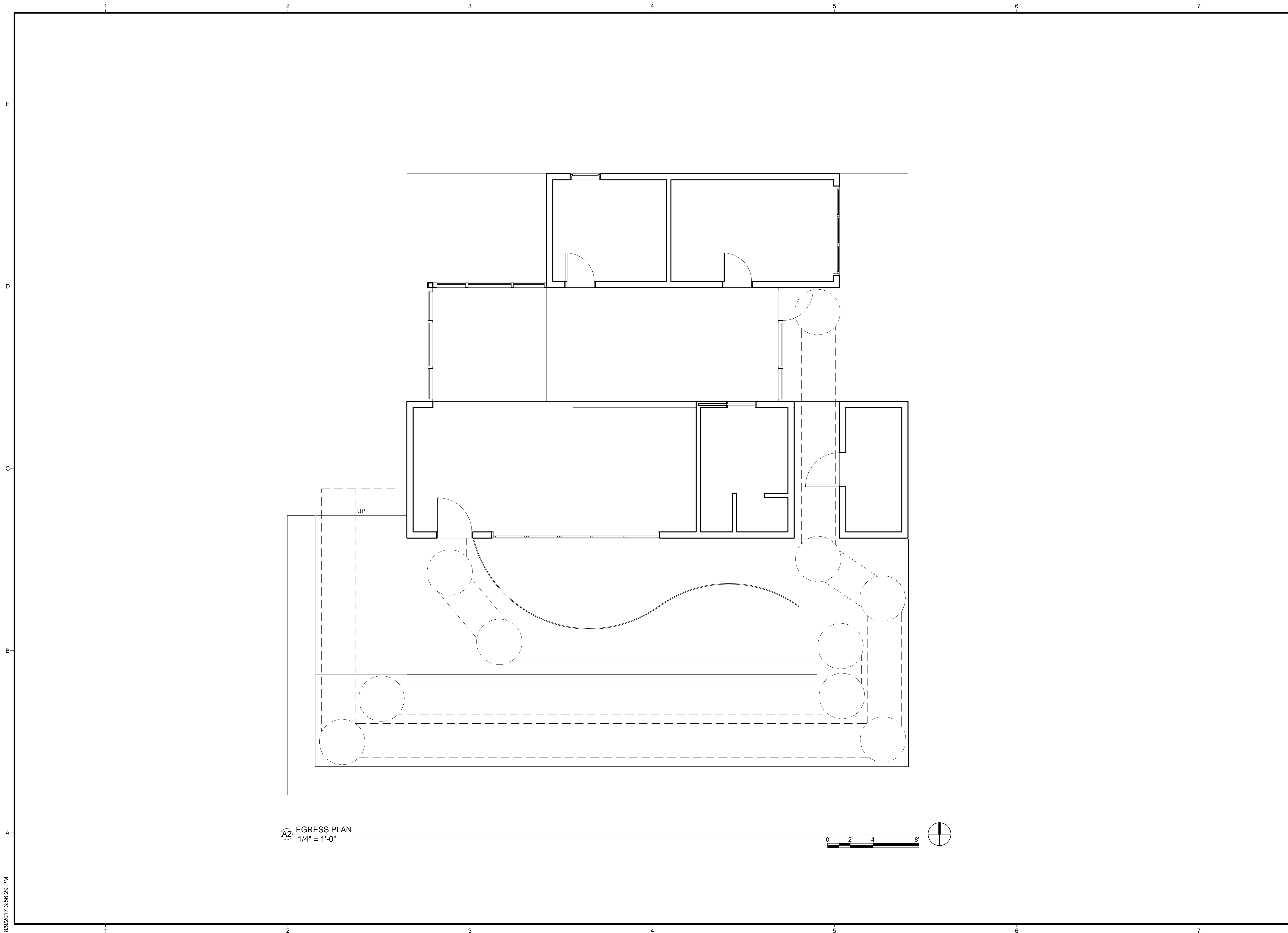


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SHEET TITLE  
 SOLAR ENVELOPE

**G-104**



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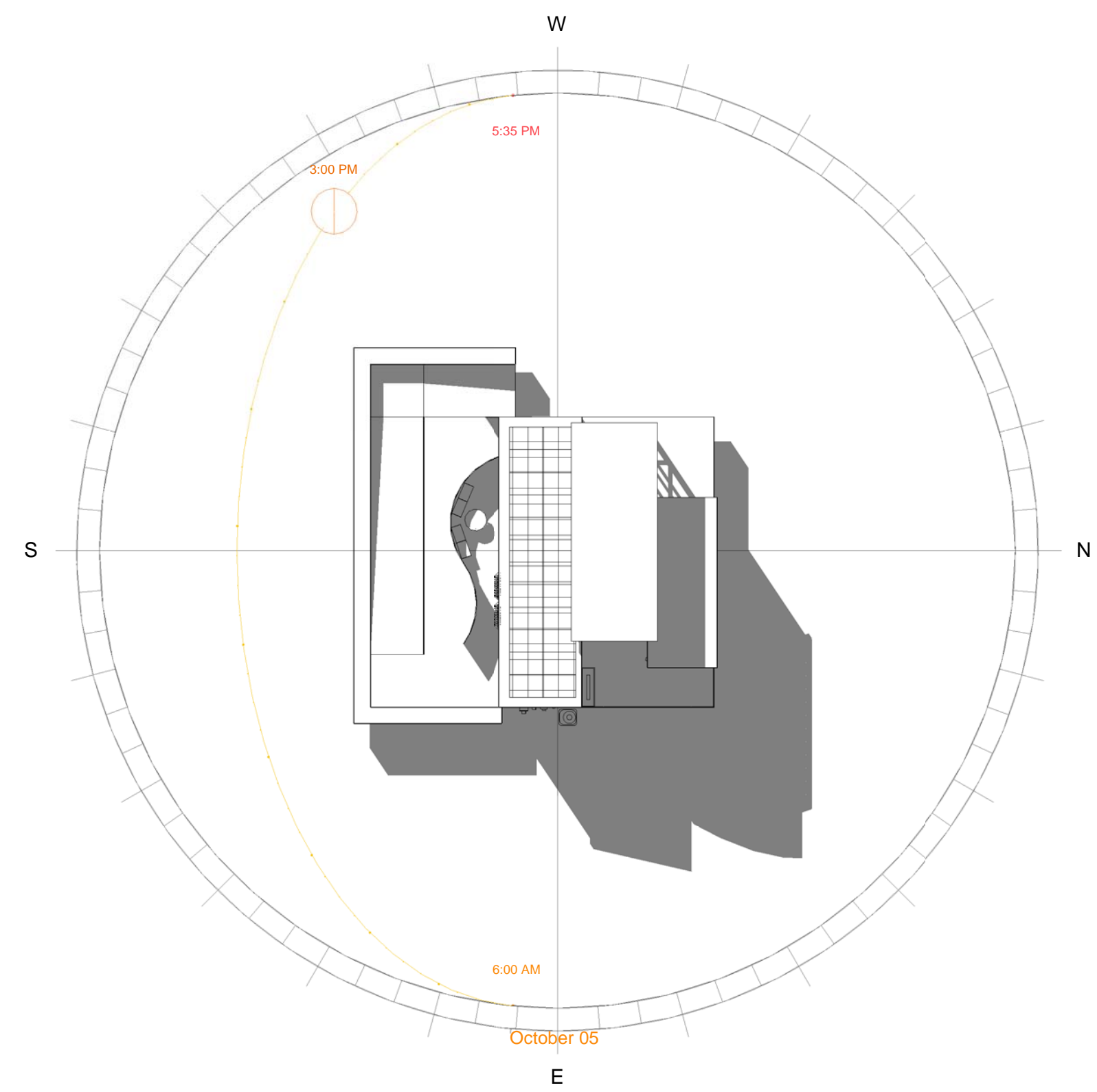
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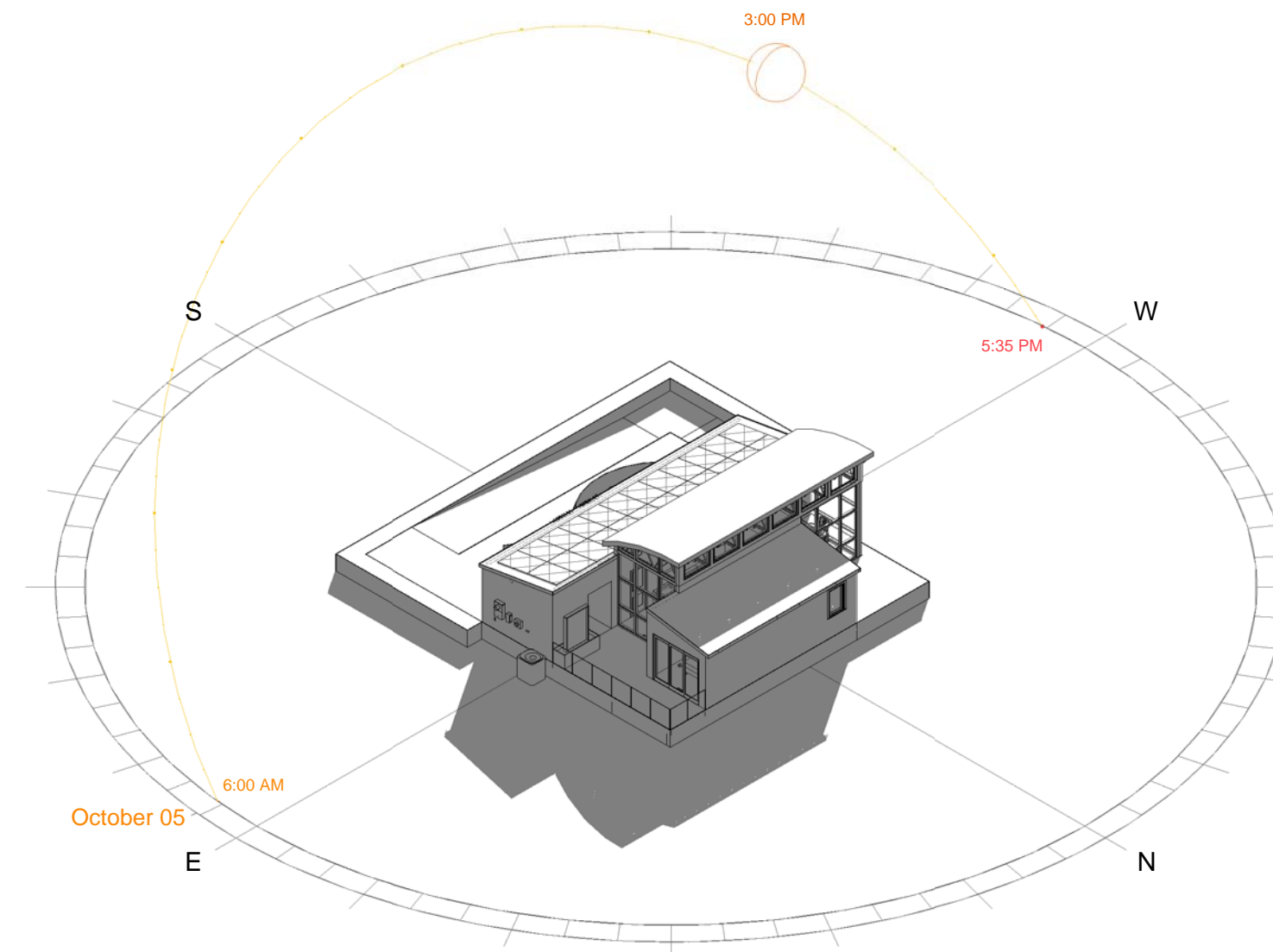
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**EGRESS PLAN**

**G-105**

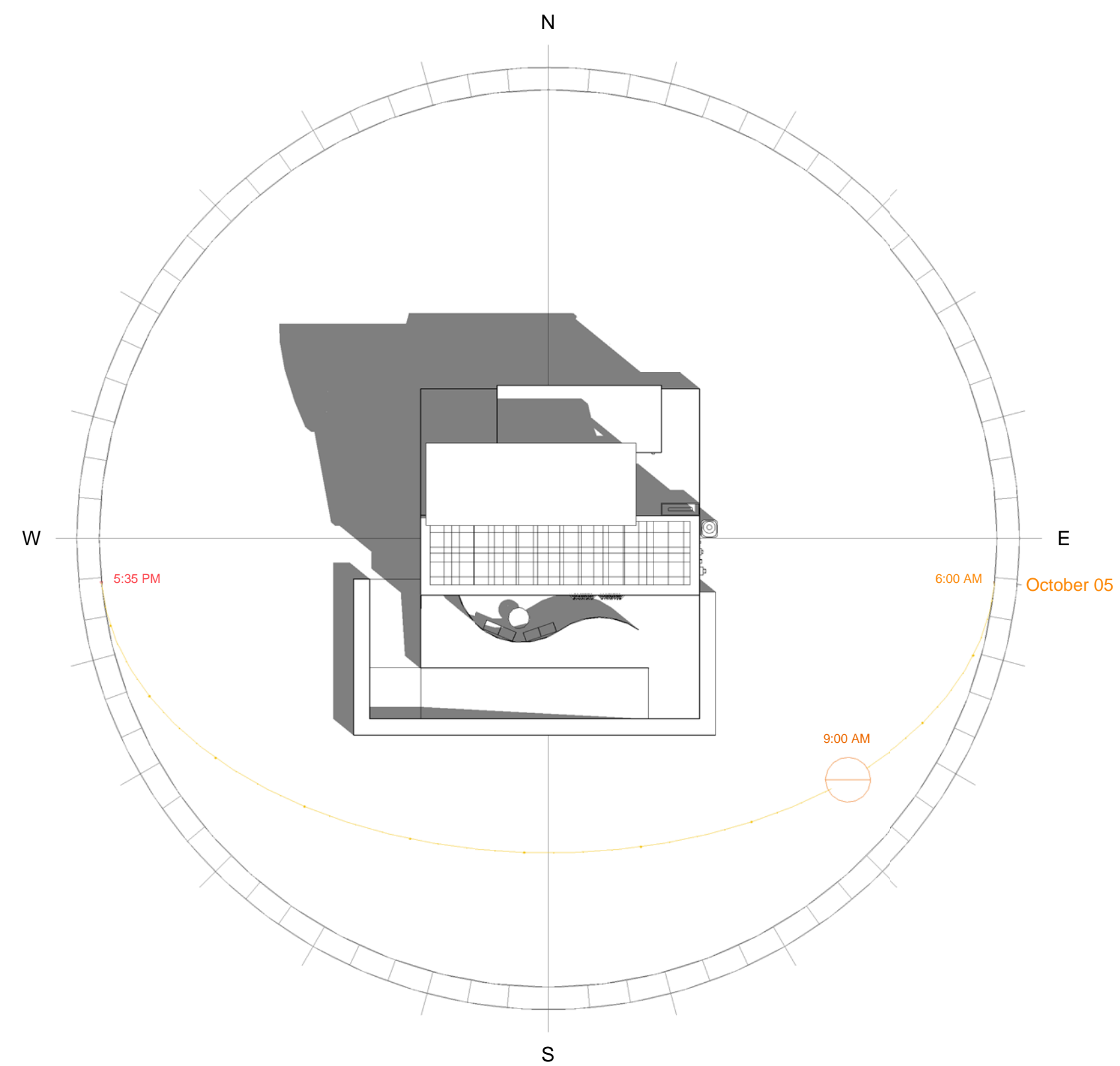
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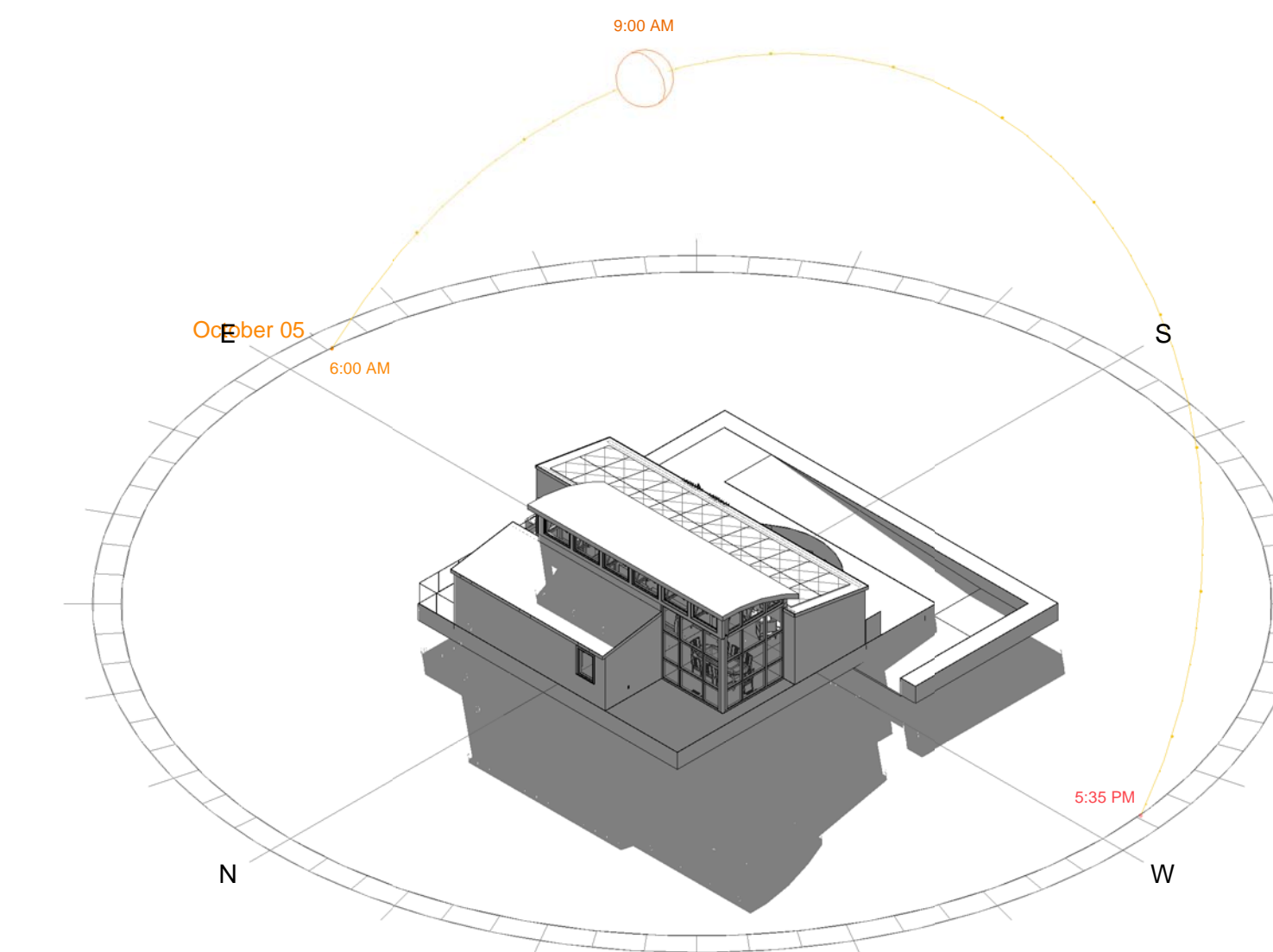
C1 SUNPATH - AFTERNOON



C4 SUNPATH - NE



A1 SUNPATH - MORNING



A4 SUNPATH - NW



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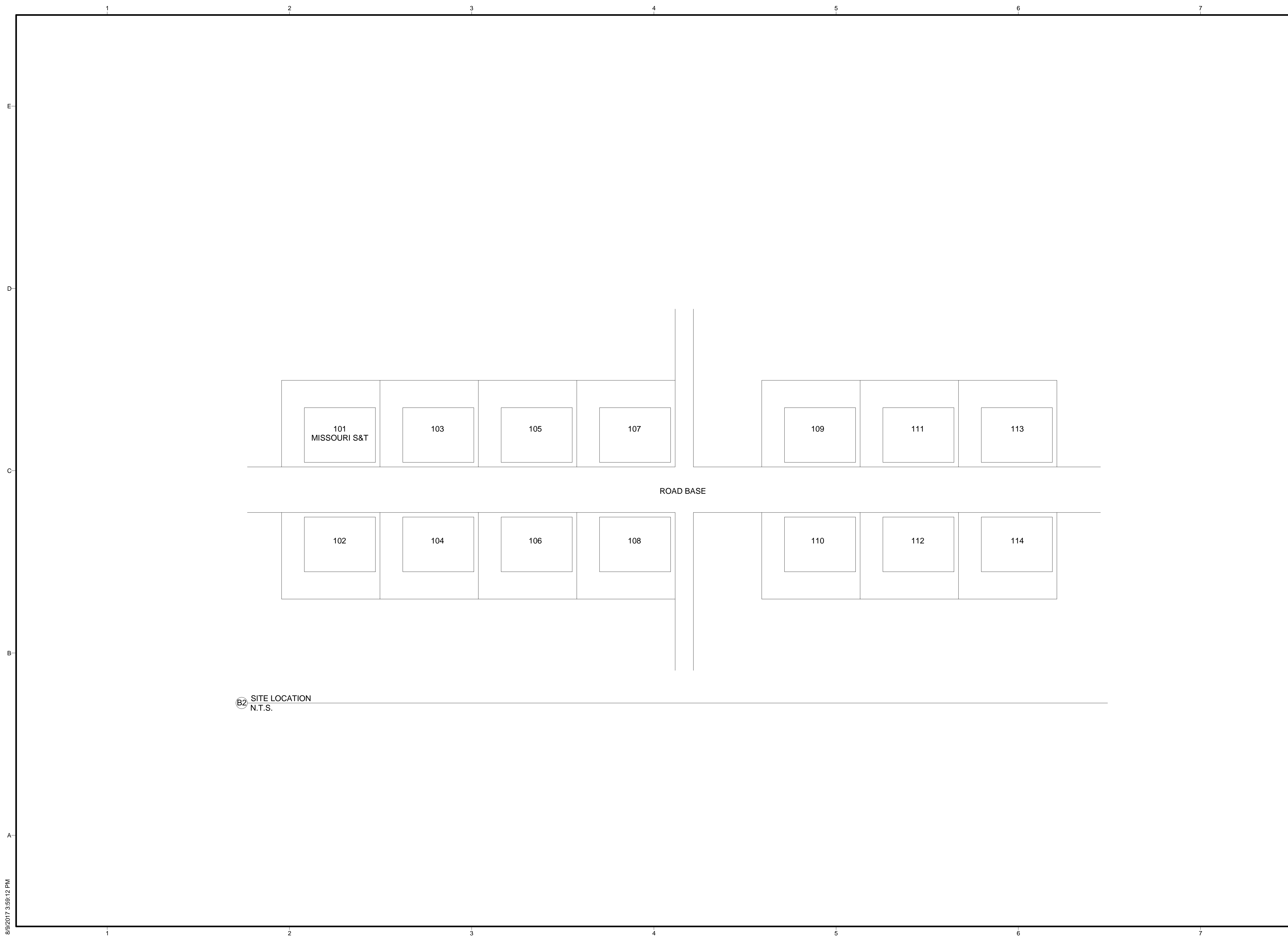


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SHEET TITLE  
**SUNPATH DIAGRAMS**

**G-601**





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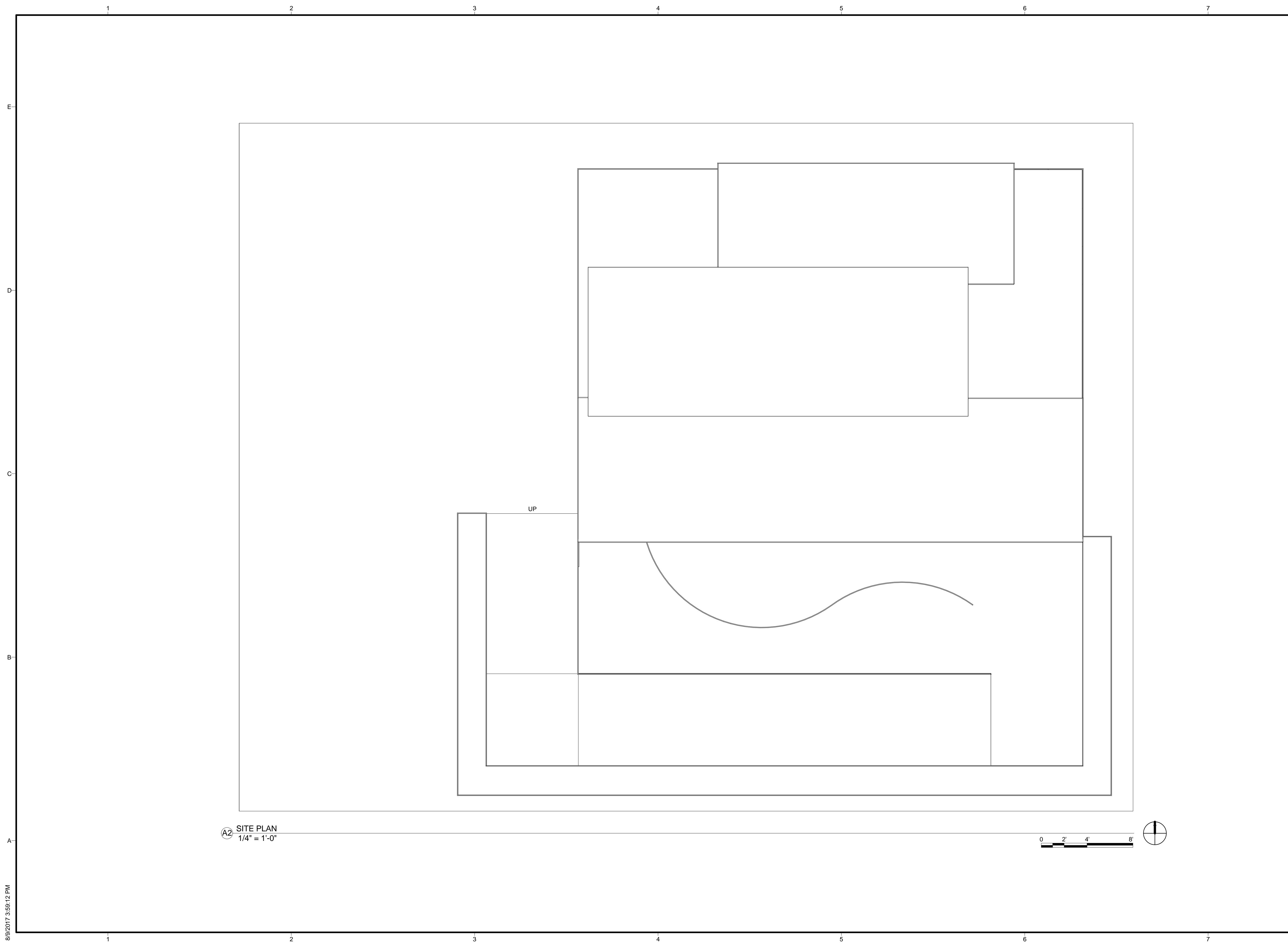


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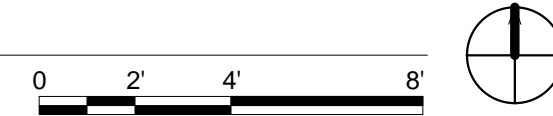
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SHEET TITLE  
SITE LOCATION

L-101



A2 SITE PLAN  
1/4" = 1'-0"



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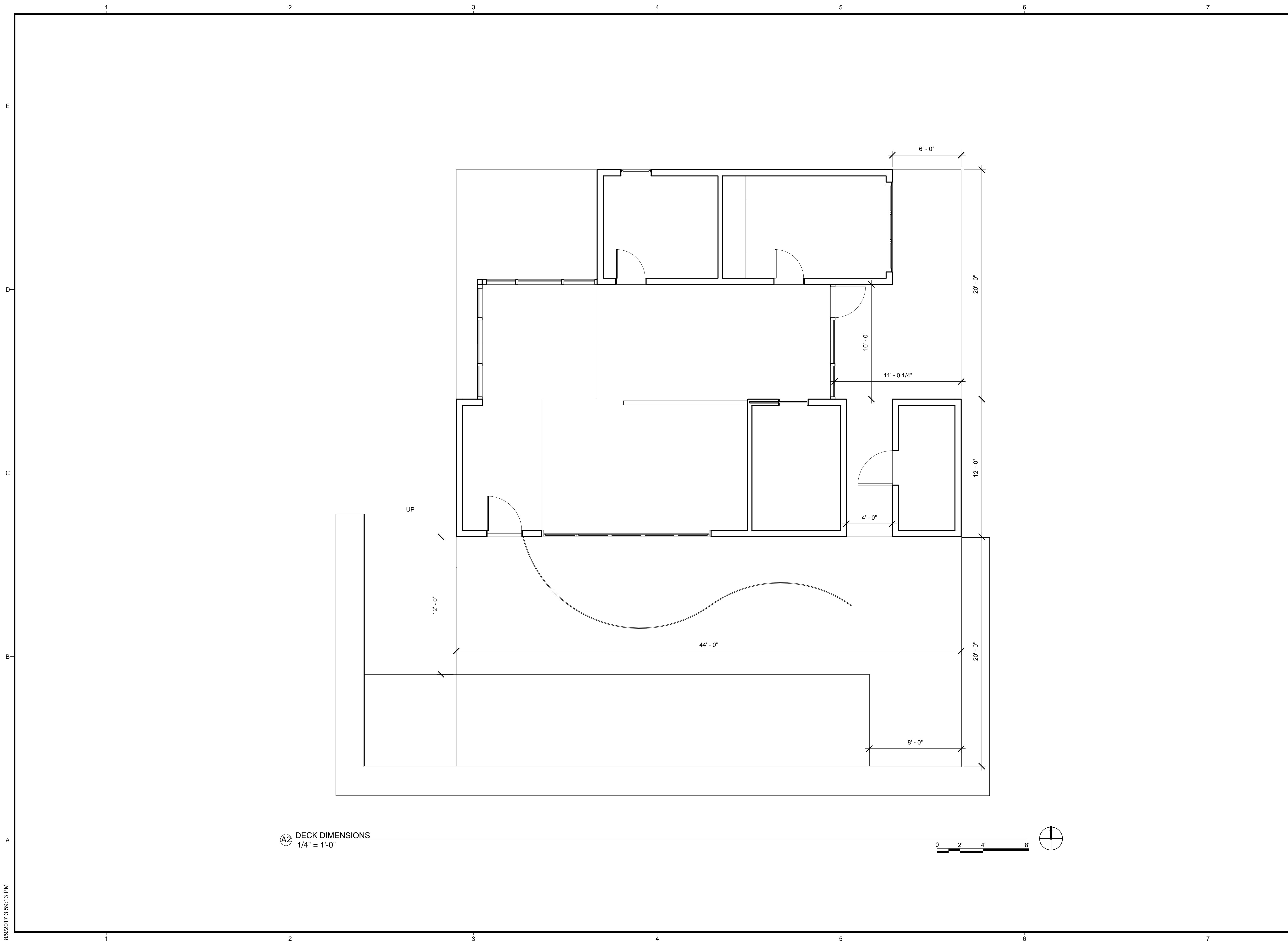

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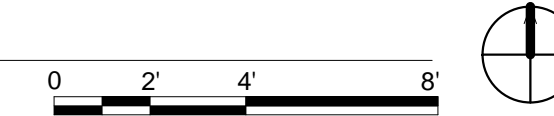
SHEET TITLE  
 SITE PLAN

L-102

8/9/2017 3:58:12 PM



A2 DECK DIMENSIONS  
1/4" = 1'-0"



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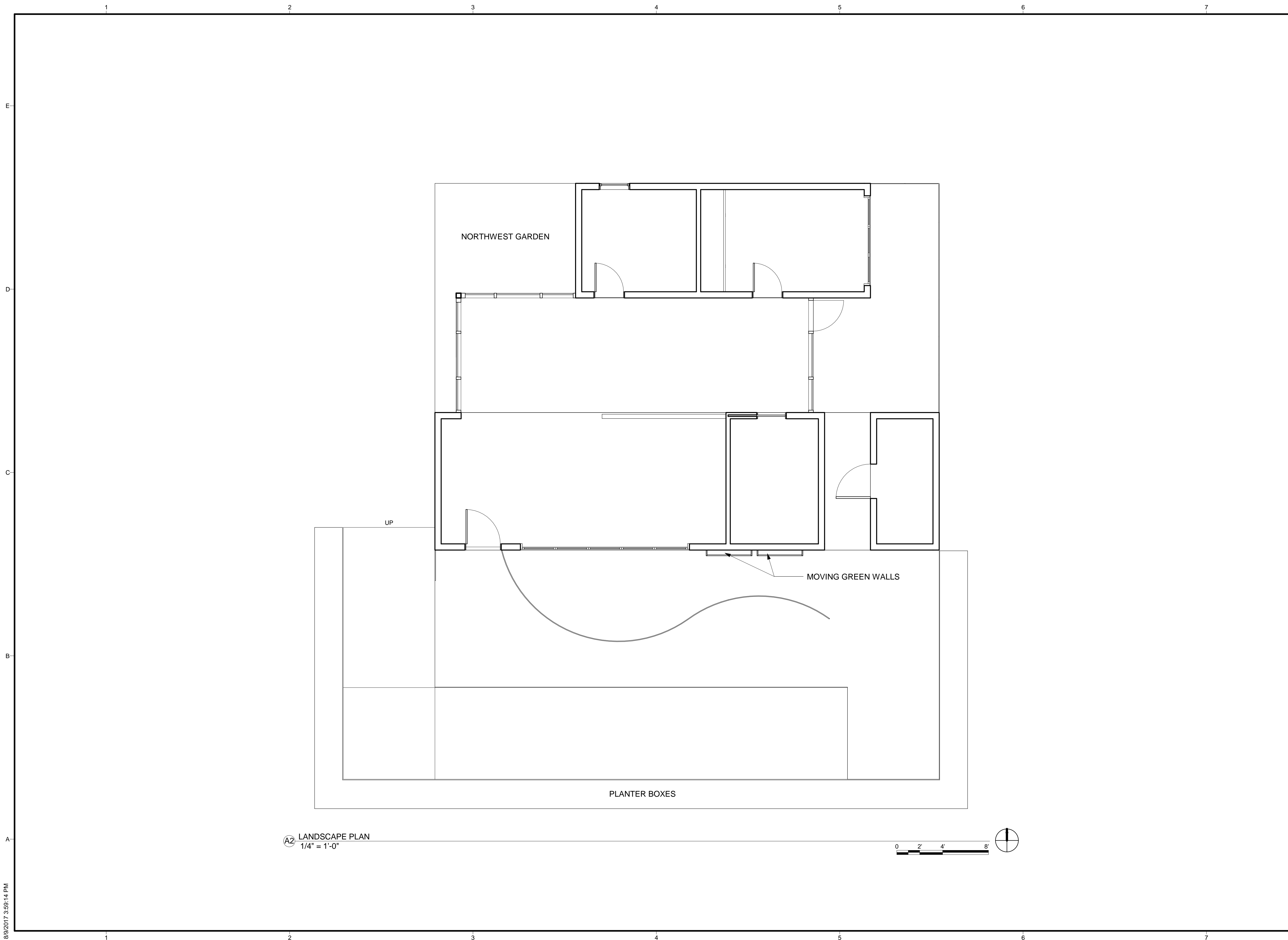


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SHEET TITLE  
 DECK DIMENSIONS

L-103



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SHEET TITLE  
 LANDSCAPE PLAN

L-104

- GENERAL**
- THE STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
  - THE STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2015 INTERNATIONAL RESIDENTIAL CODE AS MODIFIED BY THE LOCAL GOVERNMENT AND THE SOLAR DECATHLON.

- FOUNDATION**
- THE TEMPORARY FOUNDATION USED AT THE COMPETITION IS DESIGNED TO BEAR ON A DIRT SURFACE WITH A MAXIMUM BEARING CAPACITY OF 2500 PSF.

- SHEATHING**
- FLOOR SHEATHING SHALL BE 3/4" THICK ADVANTECH SUBFLOOR. PLYWOOD SHALL BE FASTENED TO FLOOR JOISTS WITH LIQUID NAILS GLUE AND SELF TAPPING SCREWS.
  - INTERIOR WALL SHEATHING SHALL BE 5/8" DRYWALL ATTACHED WITH SCREWS.
  - EXTERIOR SHEATHING SHALL BE 7/16" ZIP SYSTEM EXTERIOR SHEATHING WITH THE SEEMS TAPED TO PROVIDE THE VAPOR BARRIER.
  - ROOF SHEATHING SHALL BE 1/2" ZIP SYSTEM ROOF SHEATHING WITH THE SEEMS TAPED TO PROVIDE THE VAPOR BARRIER.
  - THE INTERIOR AND EXTERIOR SHEATHING ARE AN INTEGRAL SYSTEM THAT IS COMBINED TO MEET THE WIND AND SEISMIC CODE REQUIREMENTS.

- STRUCTURAL STEEL**
- ALL STEEL SHALL CONFORM TO THE FOLLOWING ATSM SPECIFICATIONS:
    - ATSM A992: W-SHAPE MEMBERS
    - ATSM A36: MISCELLANEOUS SHAPES, BASE PLATES AND STIFFENERS
    - ATSM A325: ALL BOLTS
    - ASTM A500 GRB: HSS RECT. SECTIONS
  - ALL STEEL THAT IS EXPOSED TO THE WEATHER SHALL BE GALVANIZED.
  - STEEL BAR JOISTS SHALL BE DESIGNED AND STAMPED BY THE MANUFACTURERS LICENCED PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW AND APPROVAL
  - ALL WELDING SHALL BE PROVIDED BY A LICENCED STRUCTURAL WELDER.
  - UNLESS NOTED ON DRAWINGS, STEEL BEAM SIZES ARE LISTED AS FOLLOWS:
    - 6" STL. JOIST SHALL REFER TO 6005250-68 STEEL JOIST.
    - 6" STL. TRACK SHALL REFER TO 600T250-68 STEEL JOIST TRACK.
    - 10" STL. BOX HEADER BEAM SHALL REFER TO BUILT UP BOX BEAM WITH 2 6005250-68 WELDED TOGETHER
    - 6" STL. BOX HEADER BEAM SHALL REFER TO BUILT UP BOX BEAM WITH 2 10005250-118 WELDED TOGETHER

- WOOD**
- WOOD MONOTRUSSES SHALL BE DESIGNED AND STAMPED BY THE MANUFACTURERS PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW AND APPROVAL
  - WOOD GIRDER TRUSS SHALL BE DESIGNED AND STAMPED BY THE MANUFACTURERS PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW AND APPROVAL
  - WOOD MONOTRUSS CONNECTION TO GIRDER TRUSS SHALL USE SIMPSON STRONG-TIE LUCZ JOIST HANGER
  - WOOD MONOTRUSS CONNECTION TO DOUBLE TOP PLATE SHALL USE SIMPSON STRONG-TIE H2.5AZ RAFTER CONNECTOR
  - 2X10 DECK JOIST CONNECTION TO 2X10 RIM JOIST SHALL USE SIMPSON STRONG-TIE LUCZ JOIST HANGER

- CONNECTIONS**
- CONNECTIONS SPECIFICATIONS UNLESS OTHERWISE NOTED IN THE PLANS:
    - WOOD TO STEEL: 1-1/2" #14 SELF TAPPING SCREW
    - WOOD TO WOOD: 3" #14 WOOD SCREW
    - STEEL TO STEEL BOLTED: 1/2" STEEL BOLT
    - STEEL TO STEEL WELD: MINIMUM 3/16" FILLET
    - SCREWJACK TO FOUNDATION: 1/2" STEEL BOLT
    - JOIST HANGER: 16D STAINLESS STEEL NAILS

DESIGN LOADS AND FACTORS (ROLLA, MO)							
LIVE LOAD DATA		ROOF LOAD DATA		WIND LOAD DATA		EARTHQUAKE DATA	
FLOOR OR ROOF AREA	LOAD (PSF)	LOAD TYPE	LOAD (PSF)	PARAMETER	VALUE	PARAMETER	VALUE
TYP. FLOOR	50	ROOF LIVE	20	WIND SPEED	115	SDs	0.315g
MEANS OF EGRESS	100	SNOW LOAD	35	WIND EXPOSURE	C	SD1	0.24g
RAILINGS (CONCENTRATED)	200 LBS			IMPORTANCE FACTOR	1	SOIL SITE CLASS	D
						SEISMIC DESIGN CATEGORY	B

**ABBREVIATIONS**

- |         |                        |
|---------|------------------------|
| ADJ.    | ADJACENT               |
| ALIGN   | ALIGNMENT              |
| ALT.    | ALTERNATE              |
| ANC.    | ANCHOR                 |
| APPROX. | APPROXIMATE            |
| ARCH.   | ARCHITECTURE           |
| BM.     | BEAM                   |
| BOT.    | BOTTOM                 |
| BRG.    | BEARING                |
| CANT.   | CANTILEVER             |
| CLG.    | CEILING                |
| COL.    | COLUMN                 |
| CONST.  | CONSTRUCTION           |
| CONT.   | CONTINUOUS             |
| CONTR.  | CONTRACTOR             |
| CTR.    | CENTER                 |
| DBL.    | DOUBLE                 |
| DTL.    | DETAIL                 |
| DIA.    | DIAMETER               |
| DIM.    | DIMENSION              |
| D.L.    | DEAD LOAD              |
| DN.     | DOWN                   |
| DWG.    | DRAWINGS               |
| EA.     | EACH                   |
| EL.     | ELEVATION              |
| ELEC.   | ELECTRICAL             |
| ENGR.   | ENGINEER               |
| EQ.     | EQUAL                  |
| EXT.    | EXTERIOR               |
| F.O.    | FINISHED OPENING       |
| FIN.    | FINISH                 |
| FLR.    | FLOOR                  |
| FND.    | FOUNDATION             |
| FRMG.   | FRAMING                |
| FT.     | FOOT/FEET              |
| FTG.    | FOOTING                |
| GA.     | GAUGE                  |
| GALV.   | GALVANIZED             |
| HDR.    | HEADER                 |
| INTR.   | INTERIOR               |
| L.L.    | LIVE LOAD              |
| MAX.    | MAXIMUM                |
| MIN.    | MINIMUM                |
| MISC.   | MISCELLANEOUS          |
| N.T.S.  | NOT TO SCALE           |
| O.C.    | ON CENTER              |
| OPNG.   | OPENING                |
| OPP.    | OPPOSITE               |
| PERP.   | PERPENDICULAR          |
| PL.     | PLATE                  |
| PREFAB. | PREFABRICATED          |
| PSF.    | POUNDS PER SQUARE FOOT |
| REINF.  | REINFORCED             |
| R.O.    | ROUGH OPENING          |
| SCHED.  | SCHEDULE               |
| SECT.   | SECTION                |
| STD.    | STANDARD               |
| STL.    | STEEL                  |
| STRUCT. | STRUCTURE              |
| THK.    | THICKNESS              |
| TYP.    | TYPICAL                |



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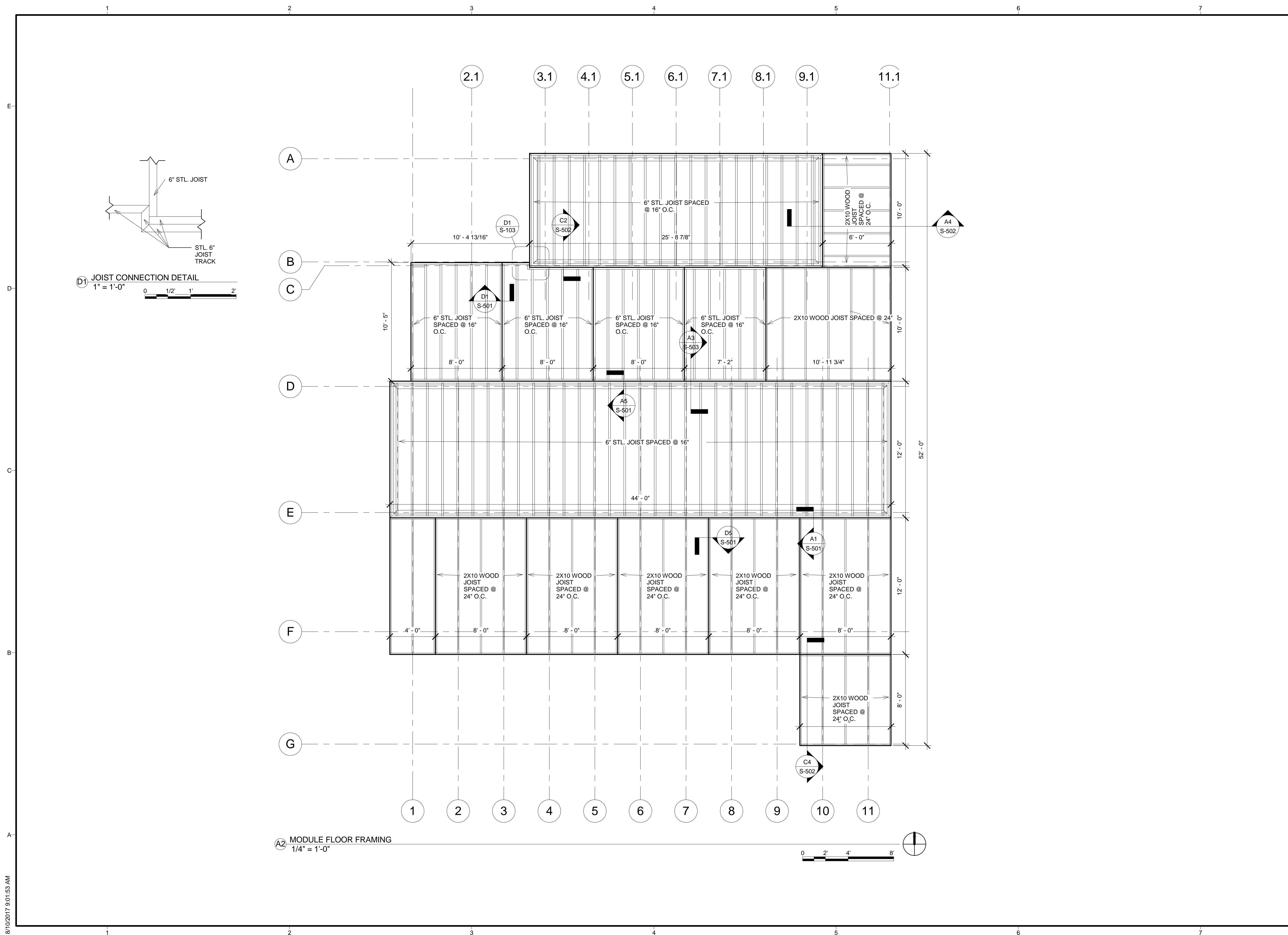
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**SHEET TITLE**  
 GENERAL SYMBOLS AND NOTES

**S-001**







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MICHAEL J. GRIFFIN  
 NUMBER E-29542  
 2-17-17  
 MICHAEL J. GRIFFIN  
 LICENSE NO. E-29542  
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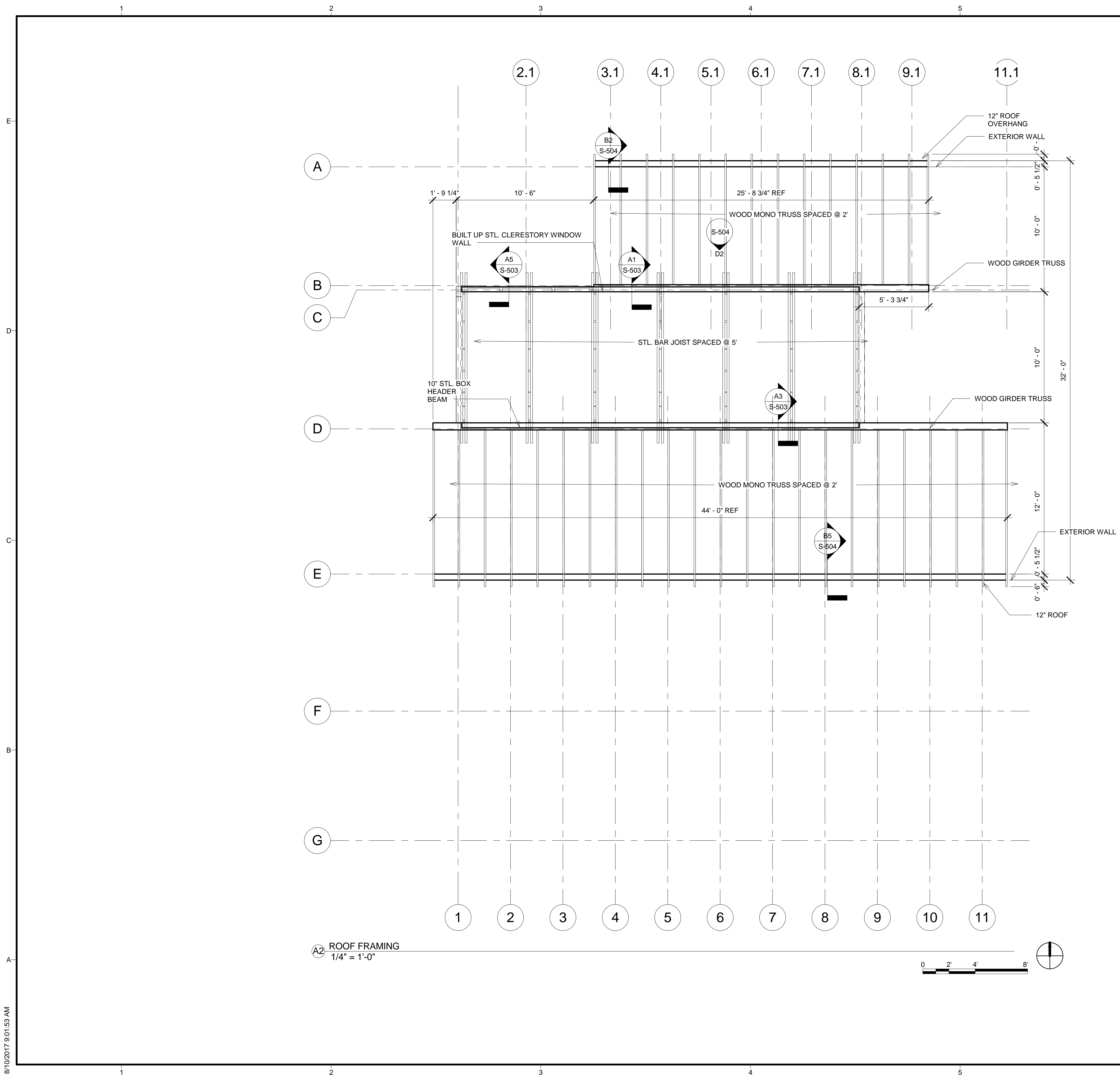
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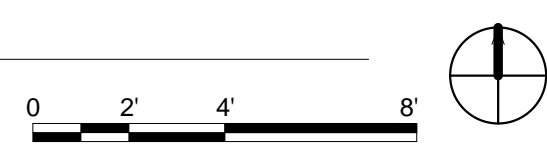
SHEET TITLE  
**MODULE FLOOR FRAMING**

**S-103**





**A2 ROOF FRAMING**  
1/4" = 1'-0"



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 116 KUMER STUDENT DESIGN CENTER  
 ROLLA, MO 65401-11410  
 CONTACT: LUKE MUELLER  
 sunhome@mst.edu

CCS GROUP, INC.  
 1415 ELDRIDGE PAYNE RD.  
 CHESTERFIELD, MO, 63017  
 MO COA: 2006012384



2-17-17  
 MICHAEL J. GRIFFIN  
 LICENSE NO. E-29542  
 STRUCTURAL

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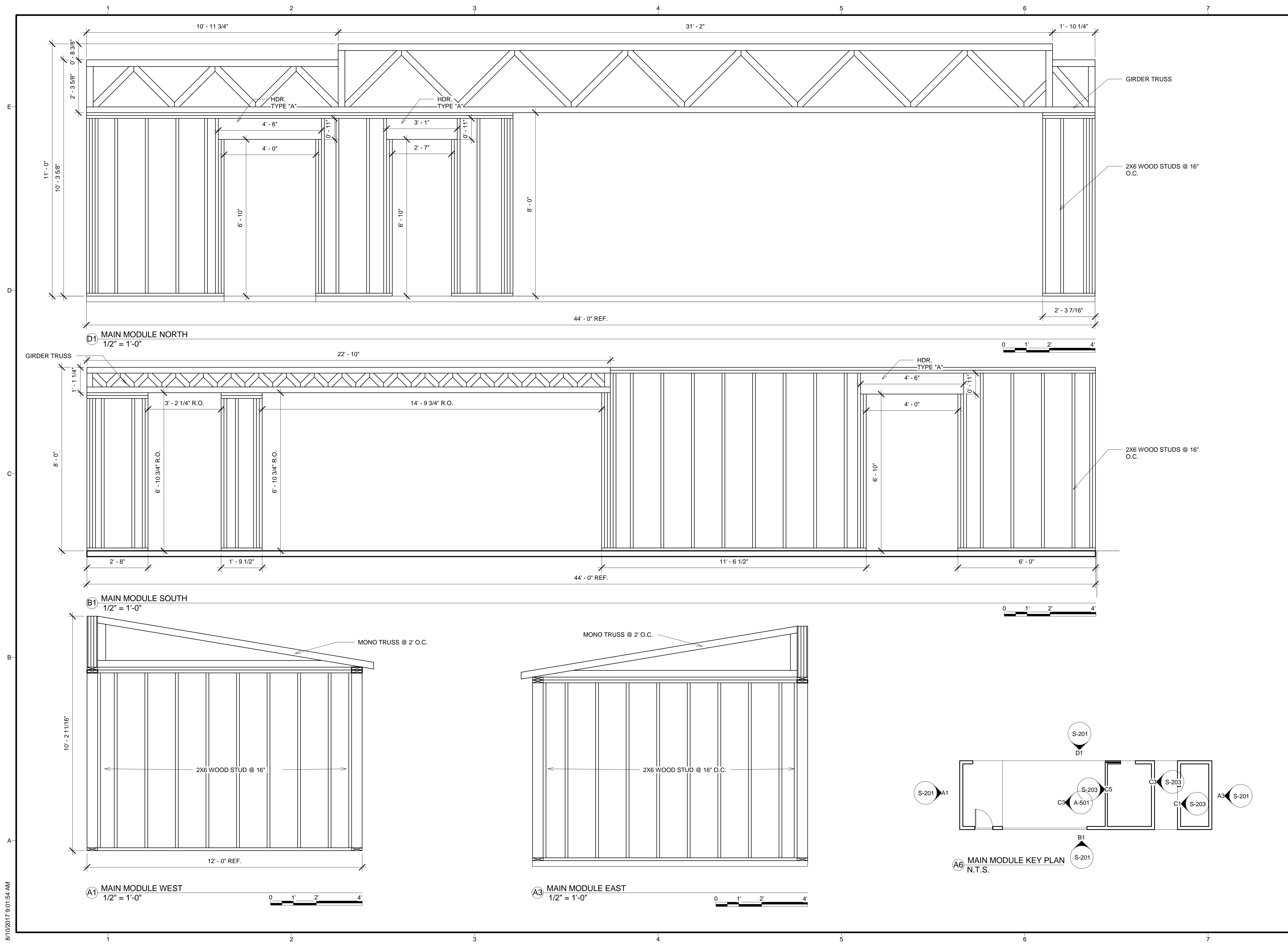


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SHEET TITLE  
**ROOF FRAMING**

**S-104**



8/10/2017 9:01:54 AM

**SILO**  
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MO COA: 2006012384

**STATE OF MISSOURI**  
REGISTERED PROFESSIONAL ENGINEER  
MICHAEL J. GRIFFIN  
NUMBER E-29542  
2-17-17  
MICHAEL J. GRIFFIN  
LICENSE NO. E-29542  
STRUCTURAL

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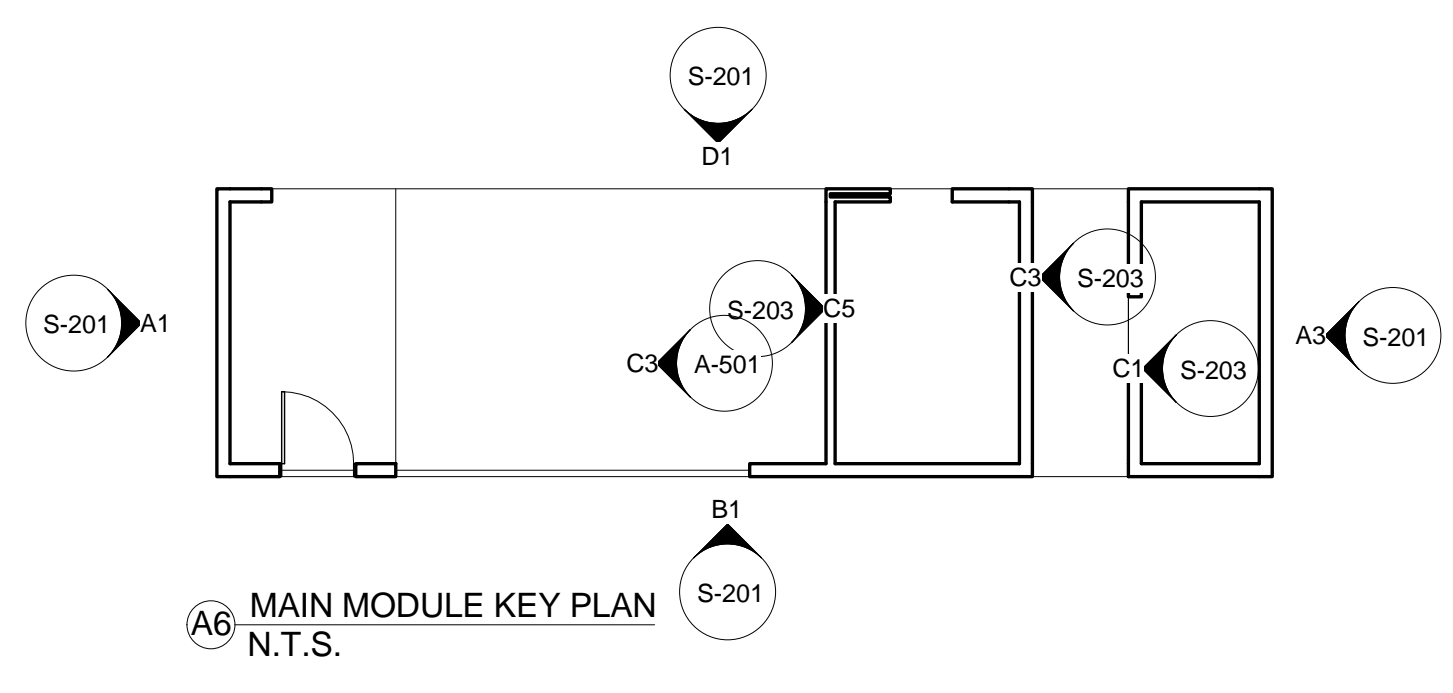
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SOLAR DECATHLON**

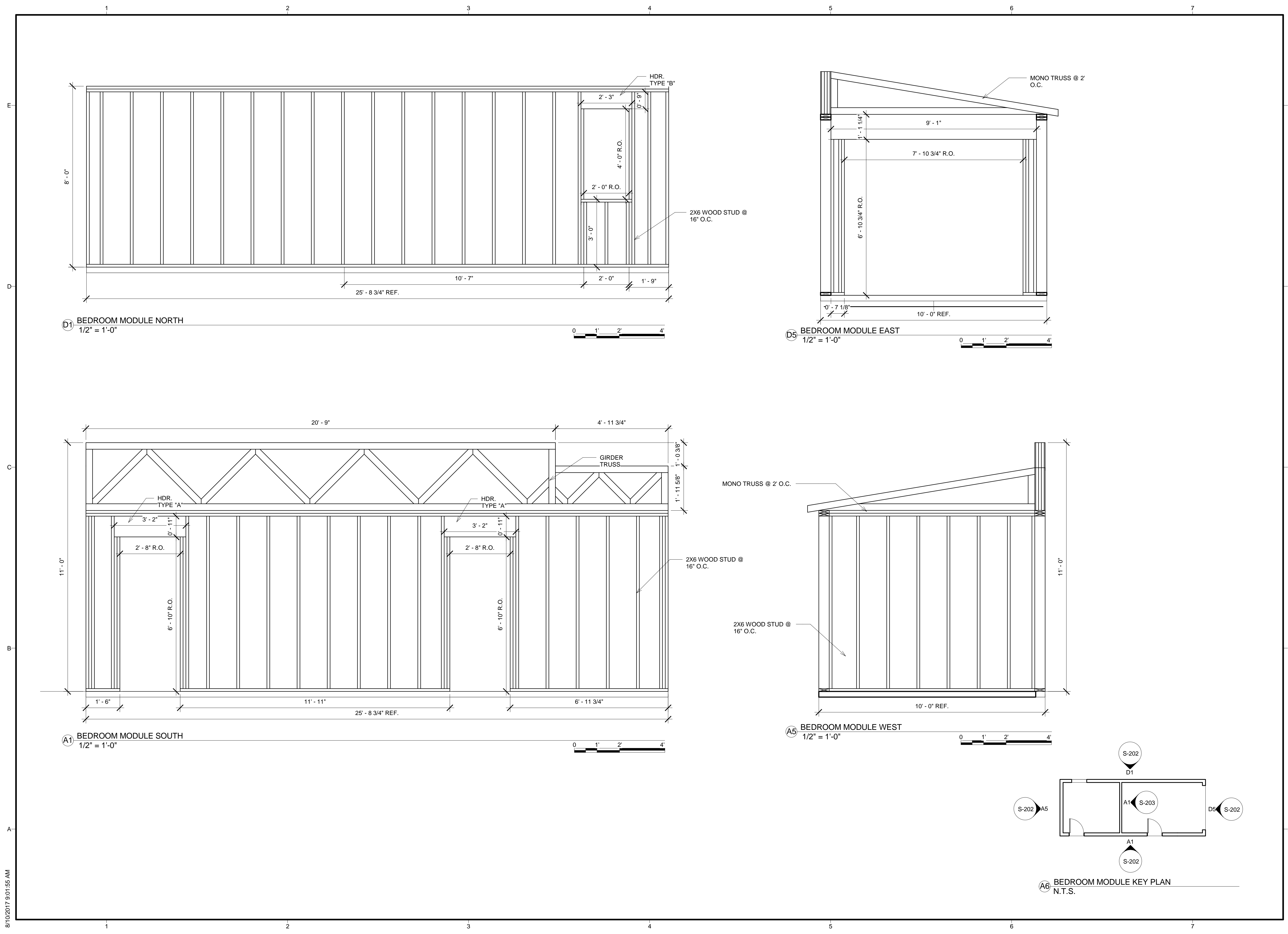
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SHEET TITLE  
**MAIN MODULE  
FRAMING**

S-201





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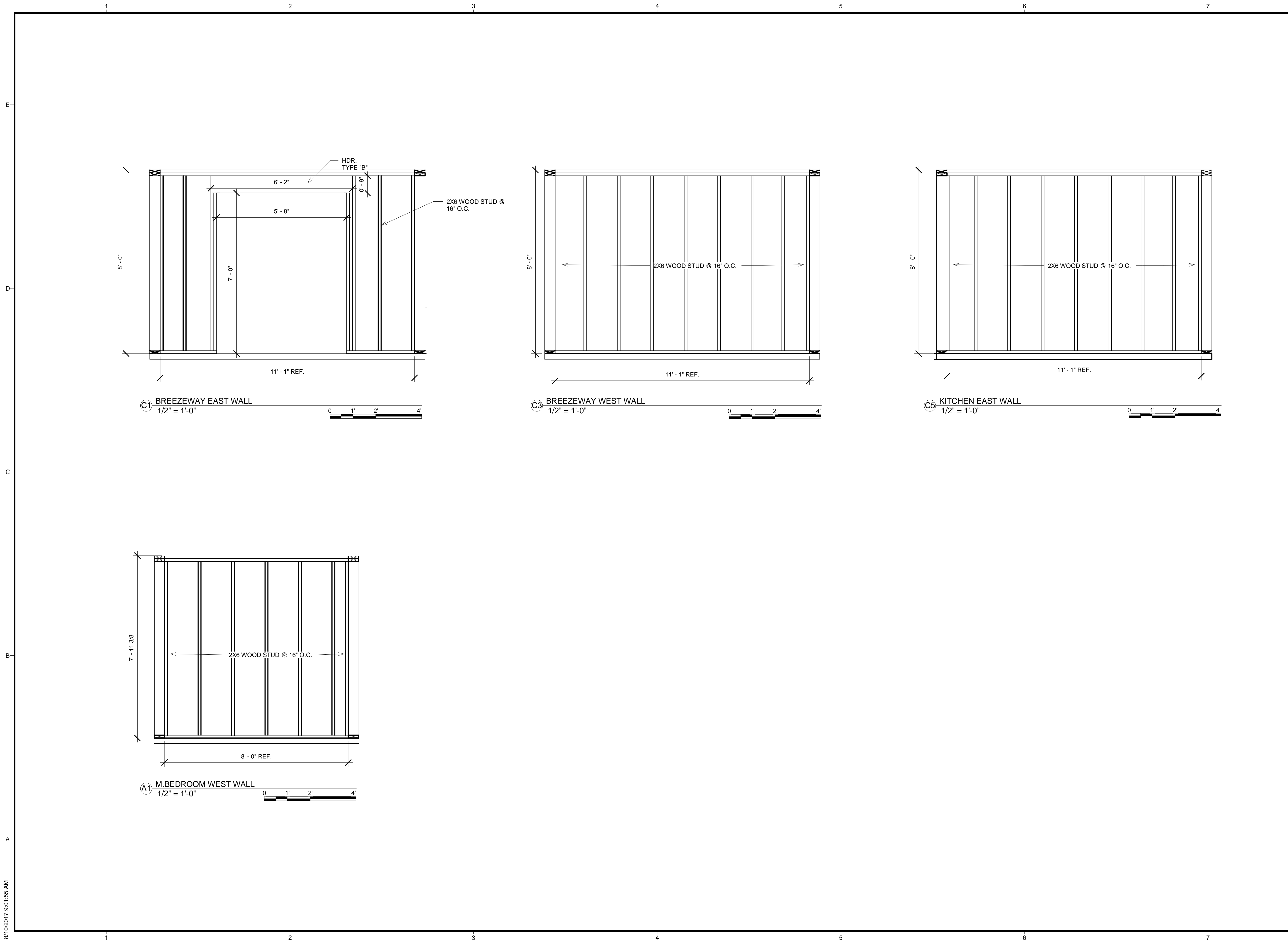
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SHEET TITLE  
**BEDROOM MODULE FRAMING**

**S-202**

8/10/2017 9:01:55 AM



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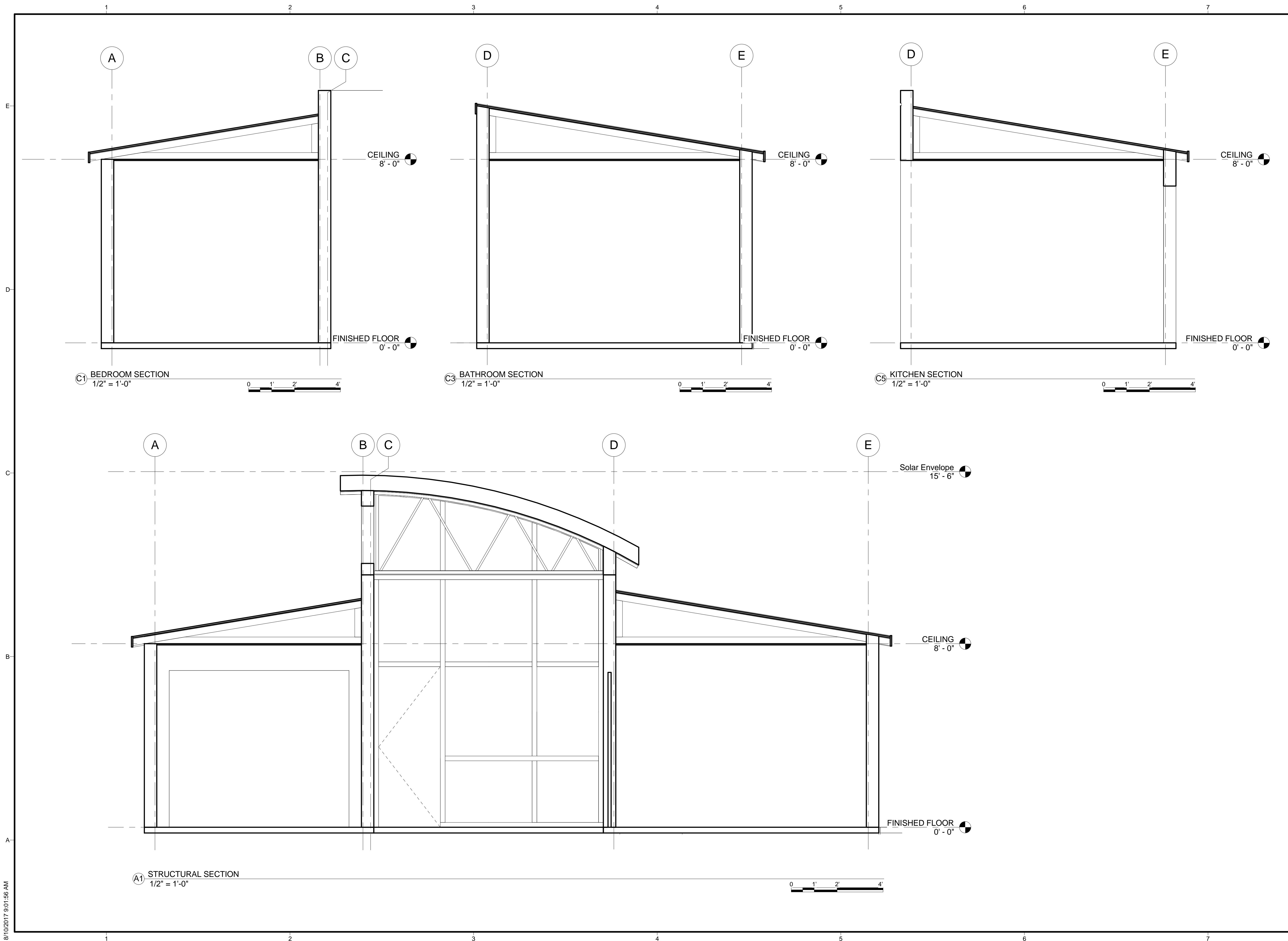
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SHEET TITLE  
**INTERIOR WALLS**

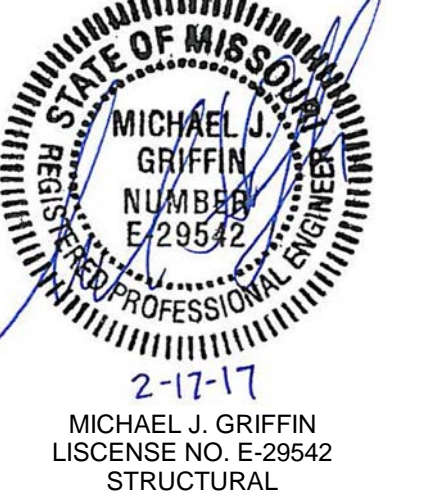
**S-203**

8/10/2017 9:01:55 AM



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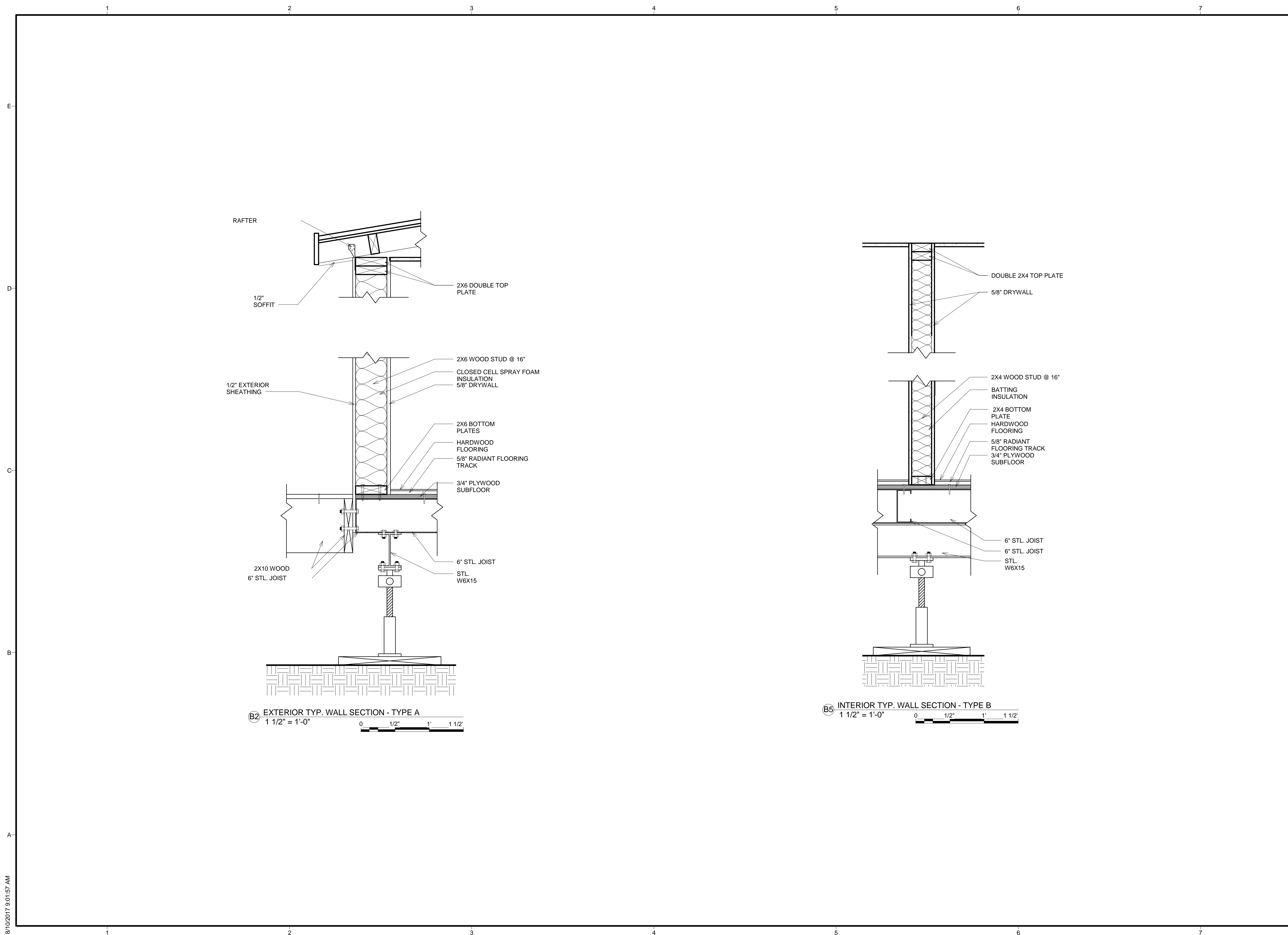


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SHEET TITLE  
**BUILDING SECTIONS**

**S-301**



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 LICENSE NO. E-29542  
 STRUCTURAL

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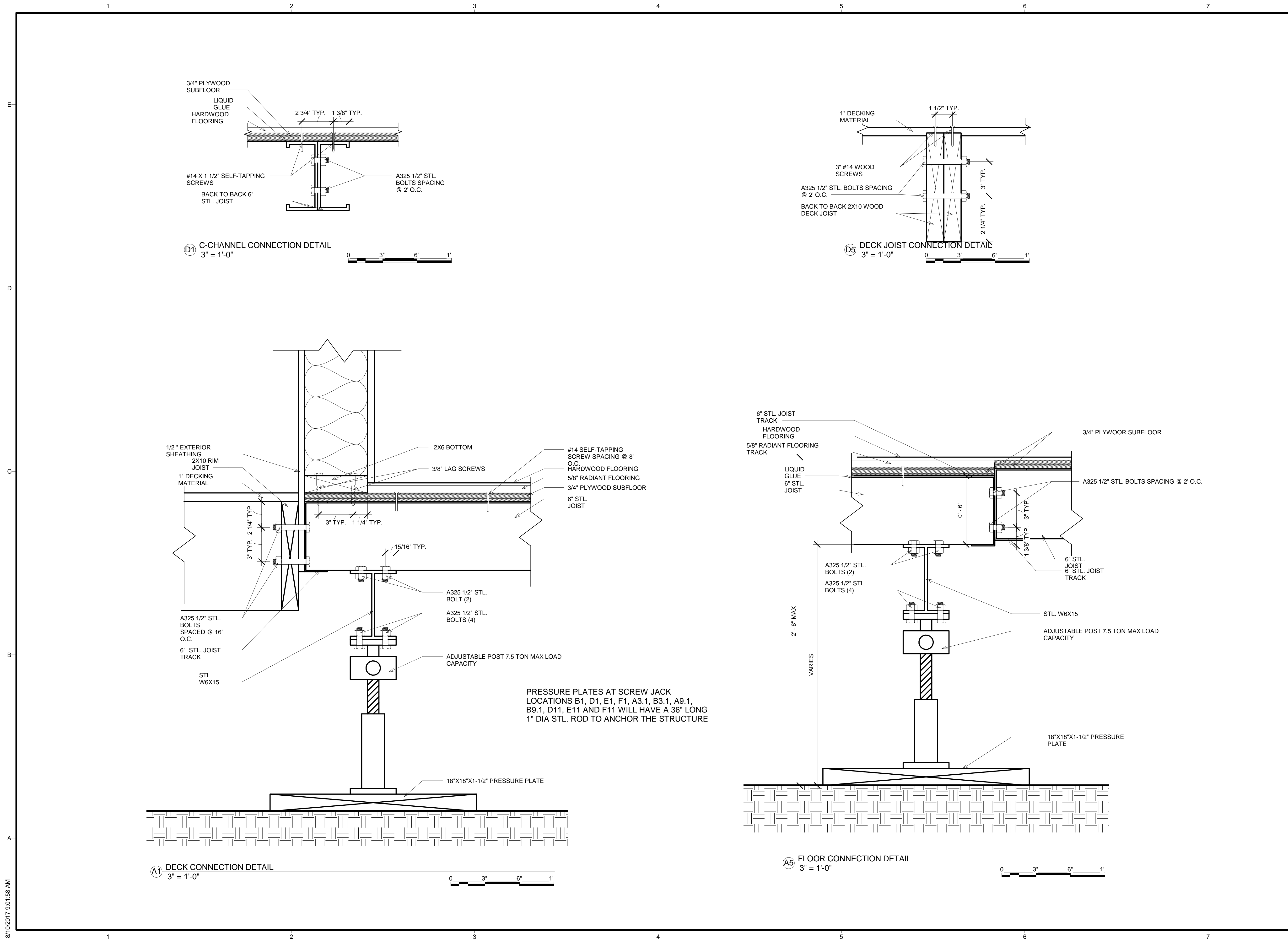
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SHEET TITLE  
**WALL SECTIONS**

**S-302**

8/10/2017 9:01:57 AM



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CHESTERFIELD, MO, 63017  
MO COA: 2006012384  
MICHAEL J. GRIFFIN  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER E-29542  
2-17-17  
MICHAEL J. GRIFFIN  
LICENSE NO. E-29542  
STRUCTURAL

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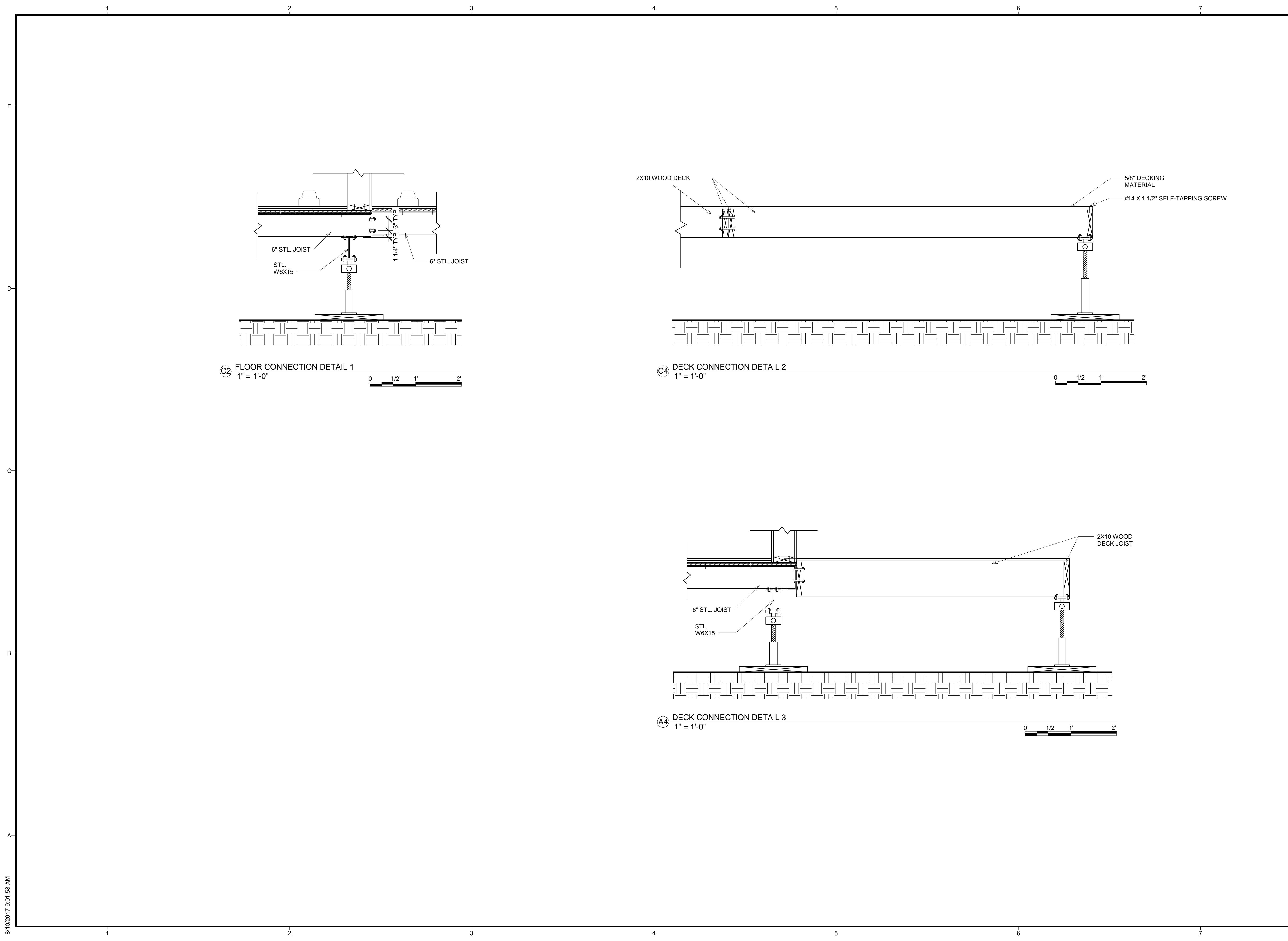
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SHEET TITLE  
**DETAILS**

**S-501**

8/10/2017 9:01:58 AM



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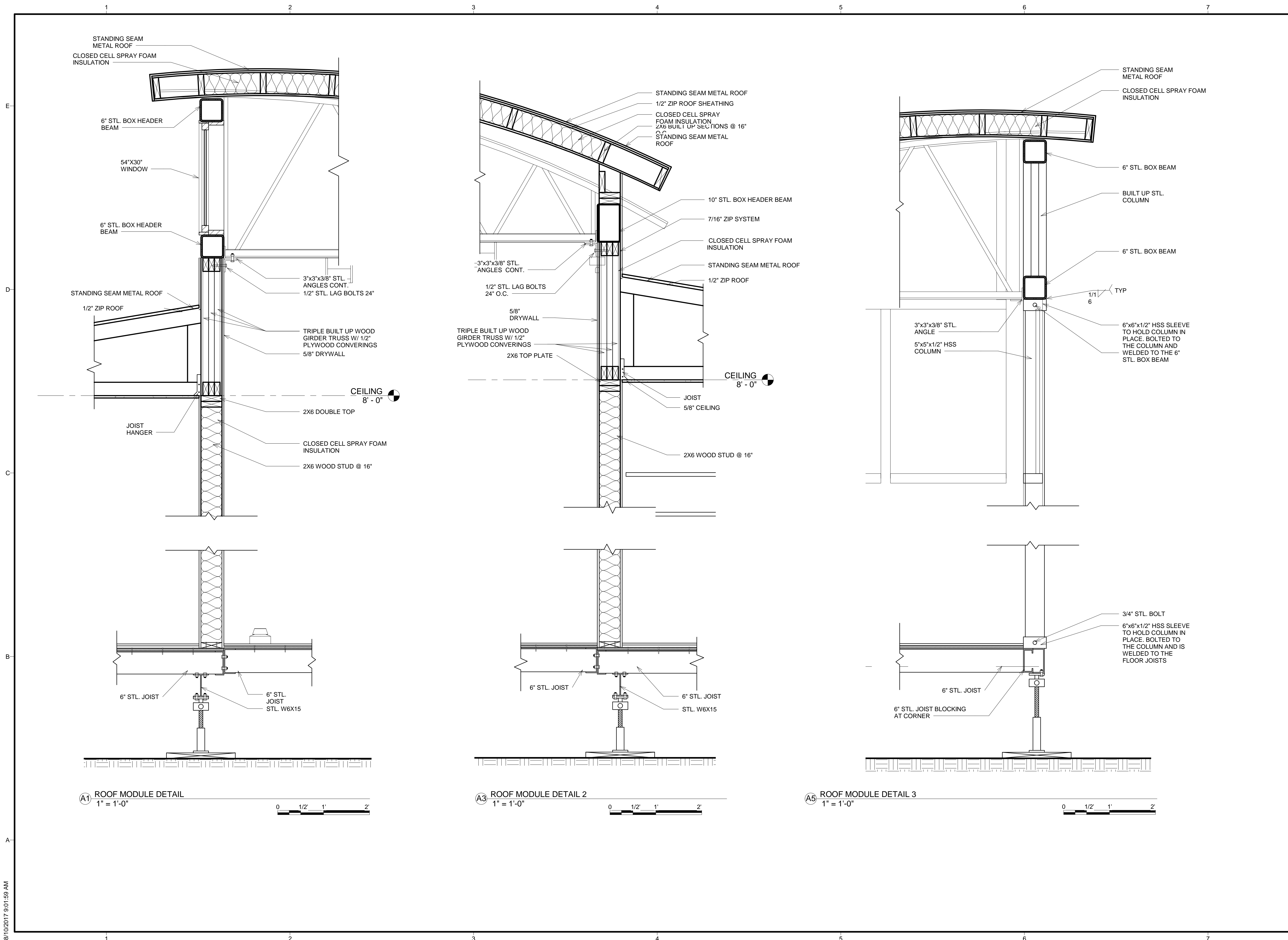
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**DETAILS**

**S-502**

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 1415 ELDRIDGE PAYNE RD.  
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 MO COA: 2006012384

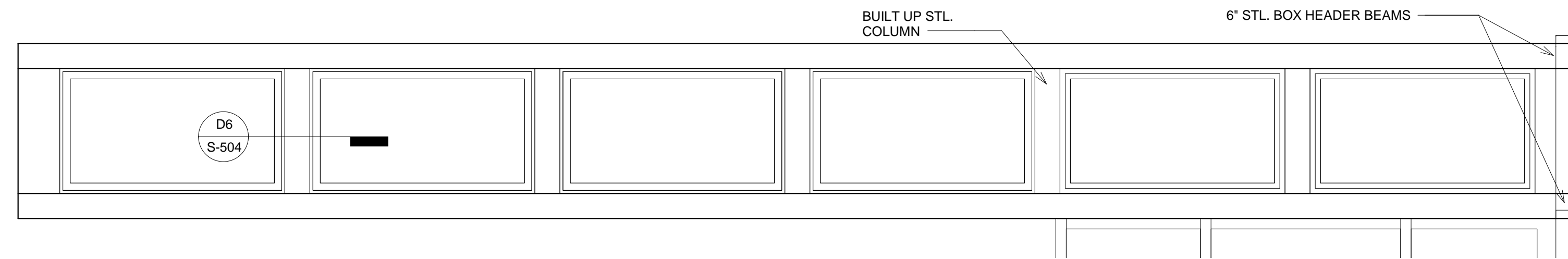
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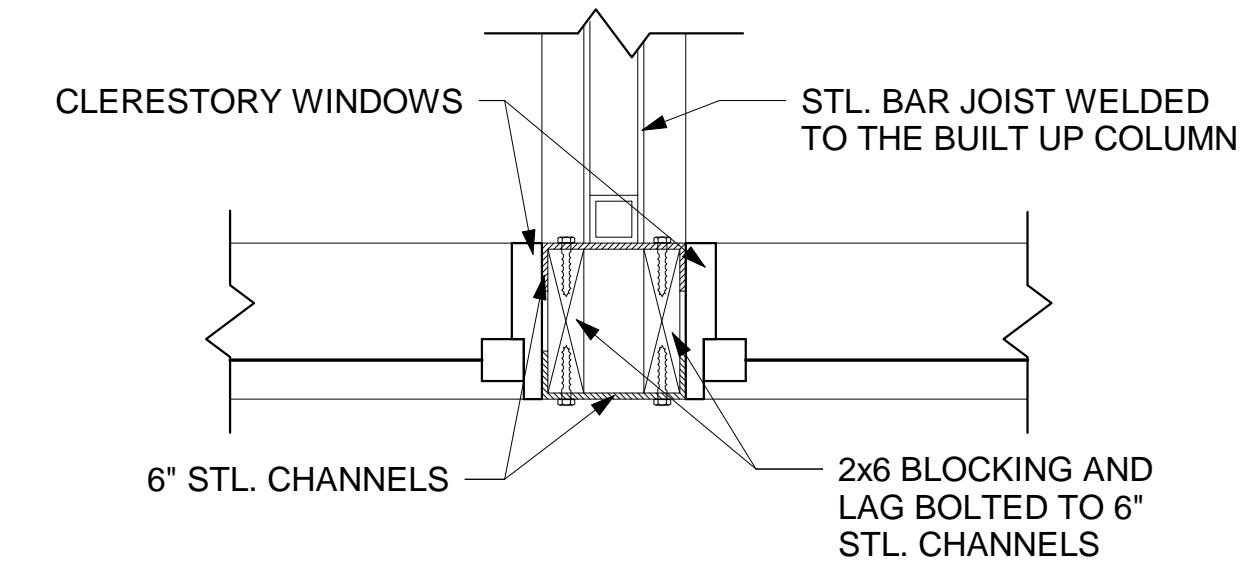
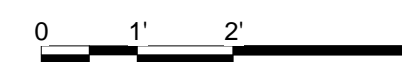


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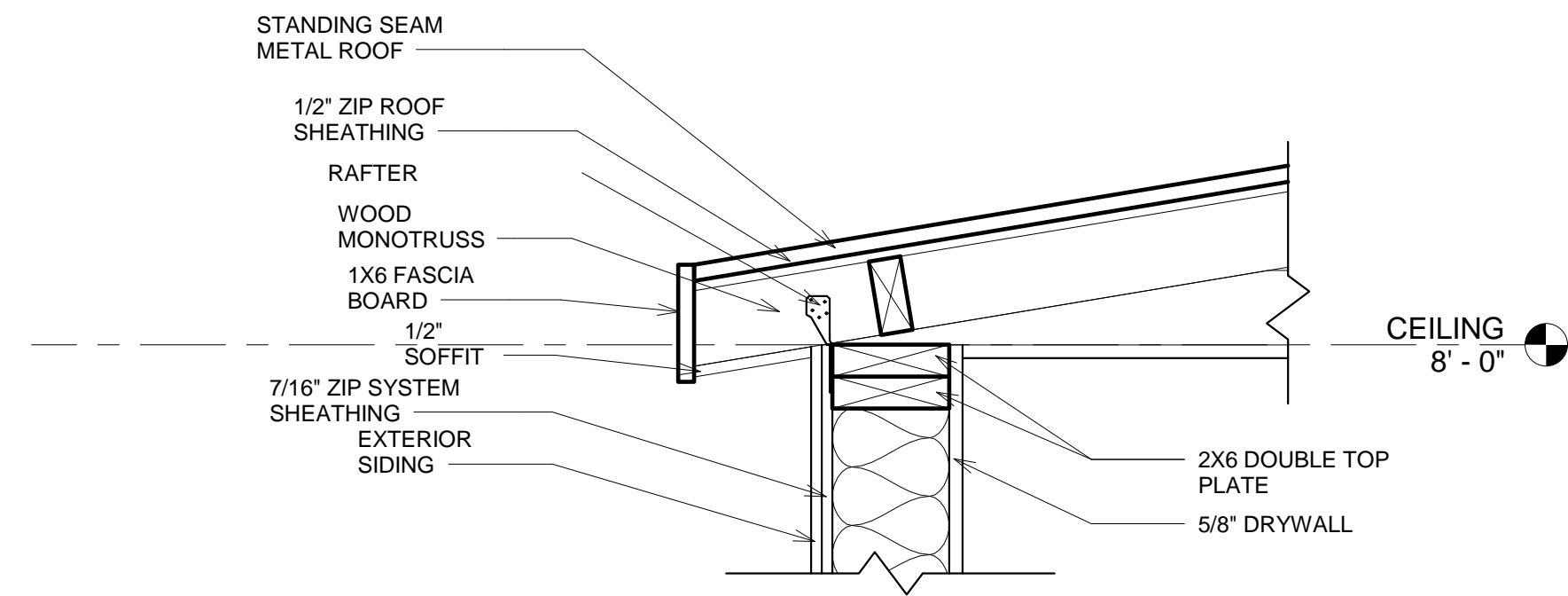
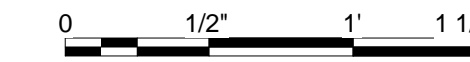
S-503



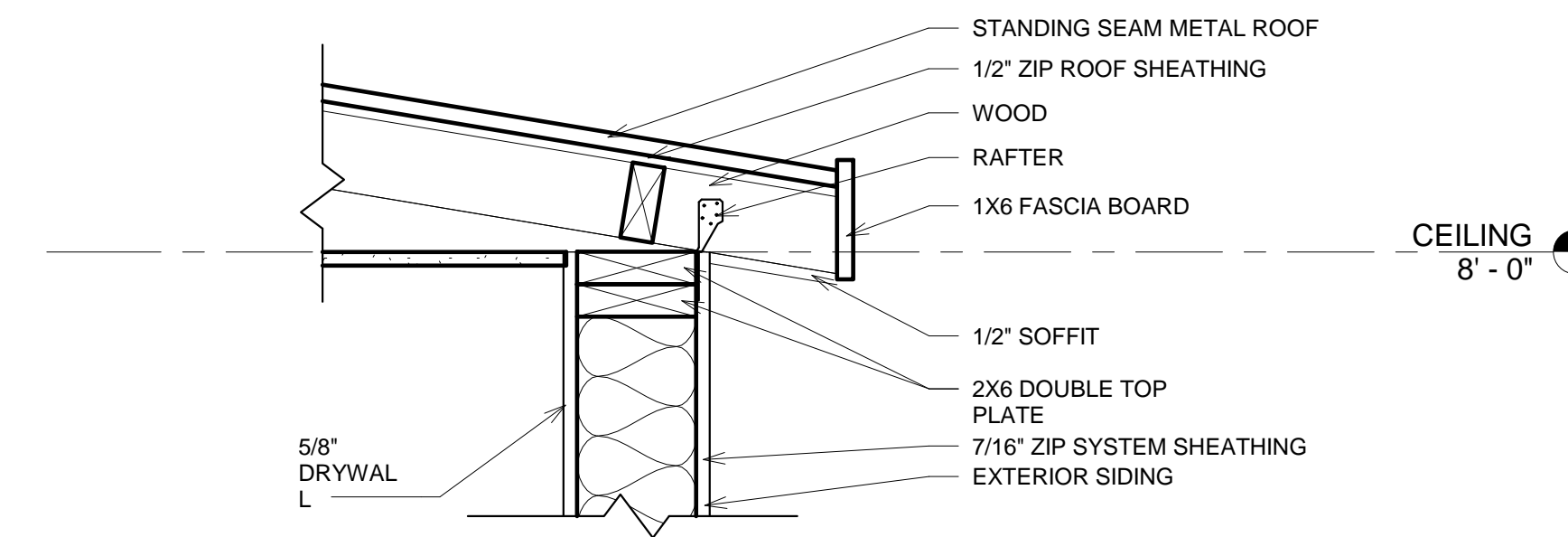
**D2 CLERESTORY WINDOW DETAIL**  
 1/2" = 1'-0"



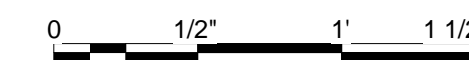
**D6 CLERESTORY COLUMN DETAIL**  
 1 1/2" = 1'-0"



**B2 MAIN MODULE ROOF DETAIL**  
 1 1/2" = 1'-0"



**B5 BEDROOM MODULE ROOF DETAIL**  
 1 1/2" = 1'-0"



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2-17-17  
 MICHAEL J. GRIFFIN  
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 STRUCTURAL

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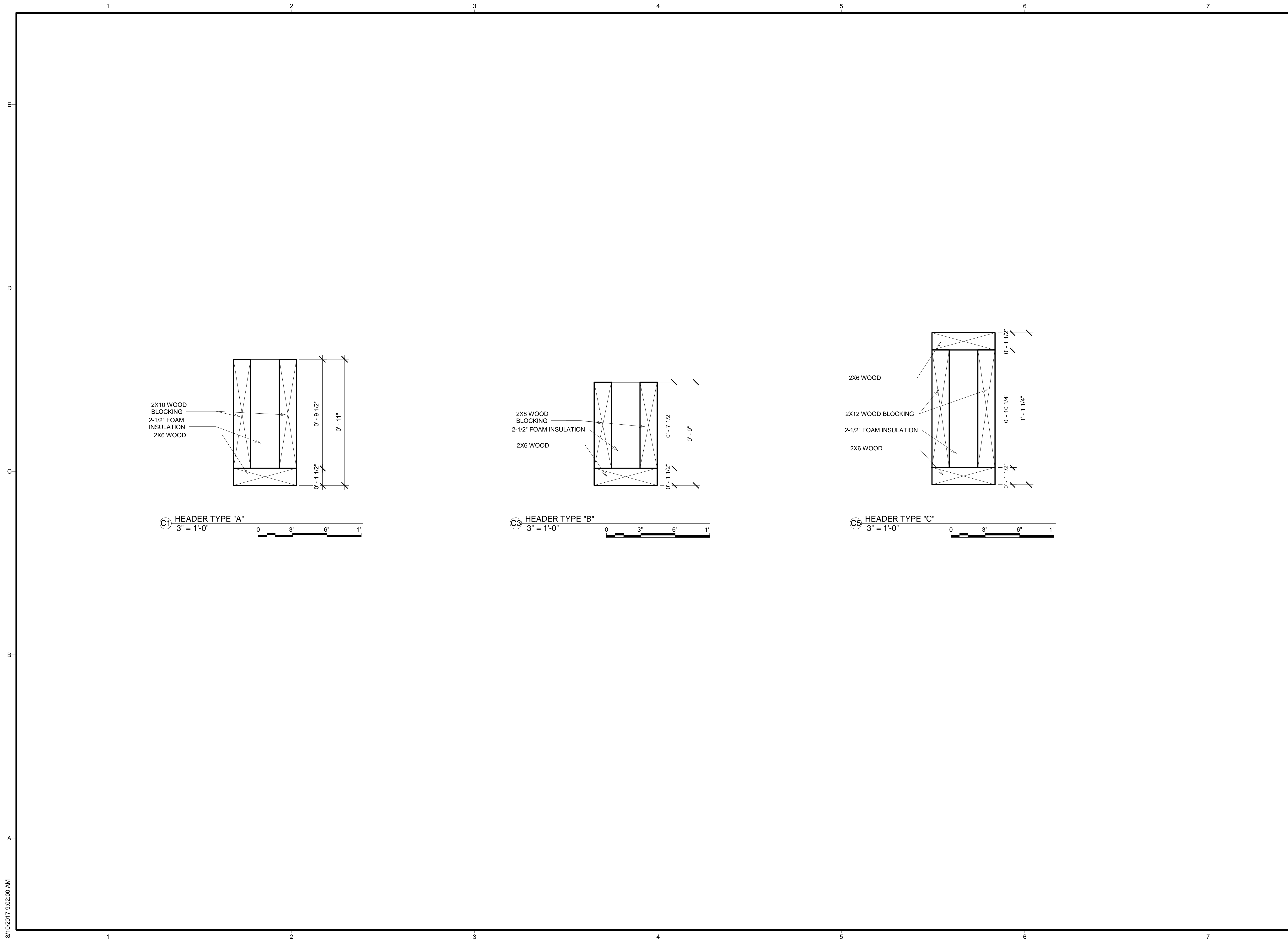


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SHEET TITLE  
**DETAILS**

**S-504**



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 LICENSE NO. E-29542  
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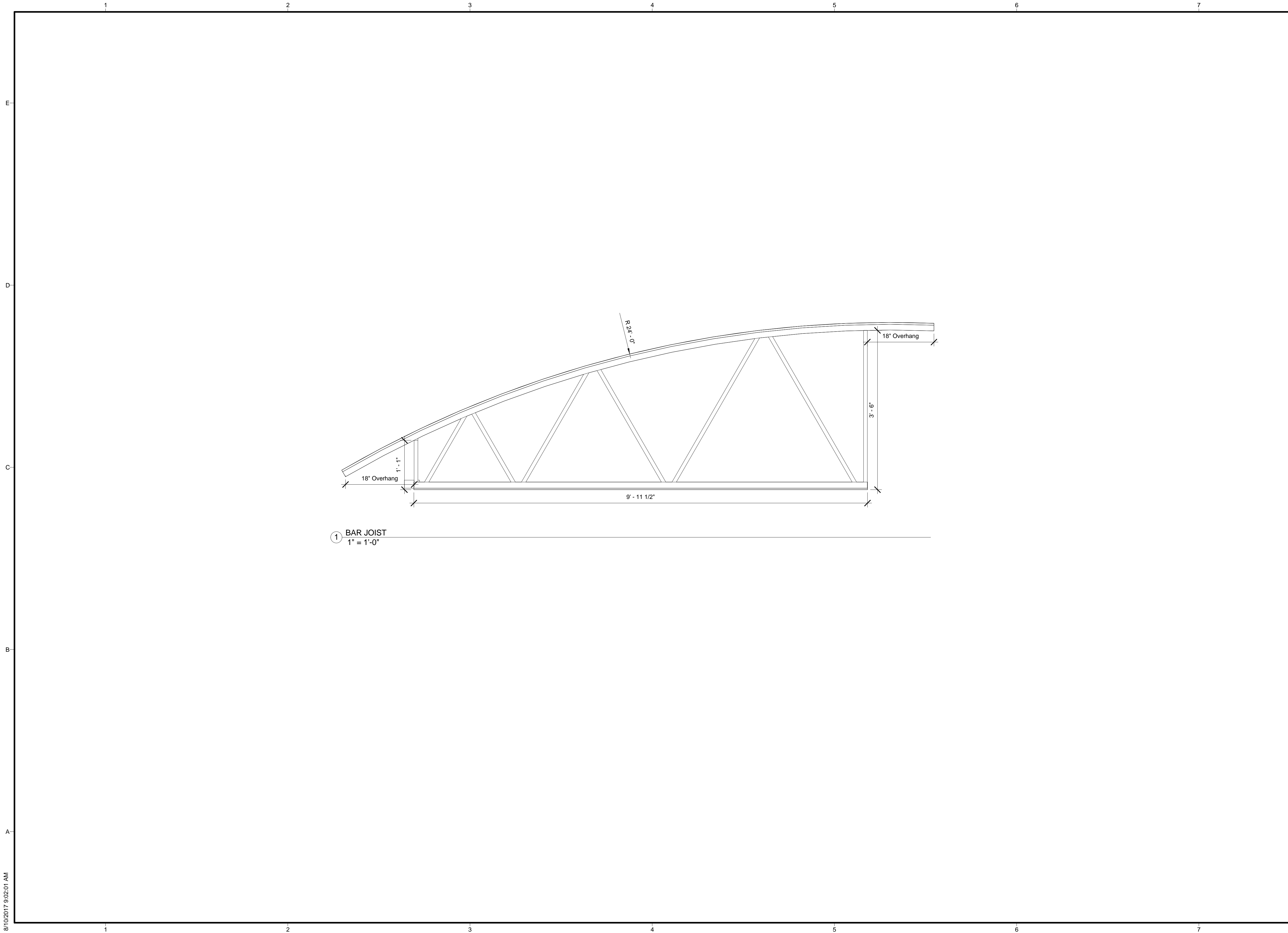
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SHEET TITLE

DETAILS

S-505



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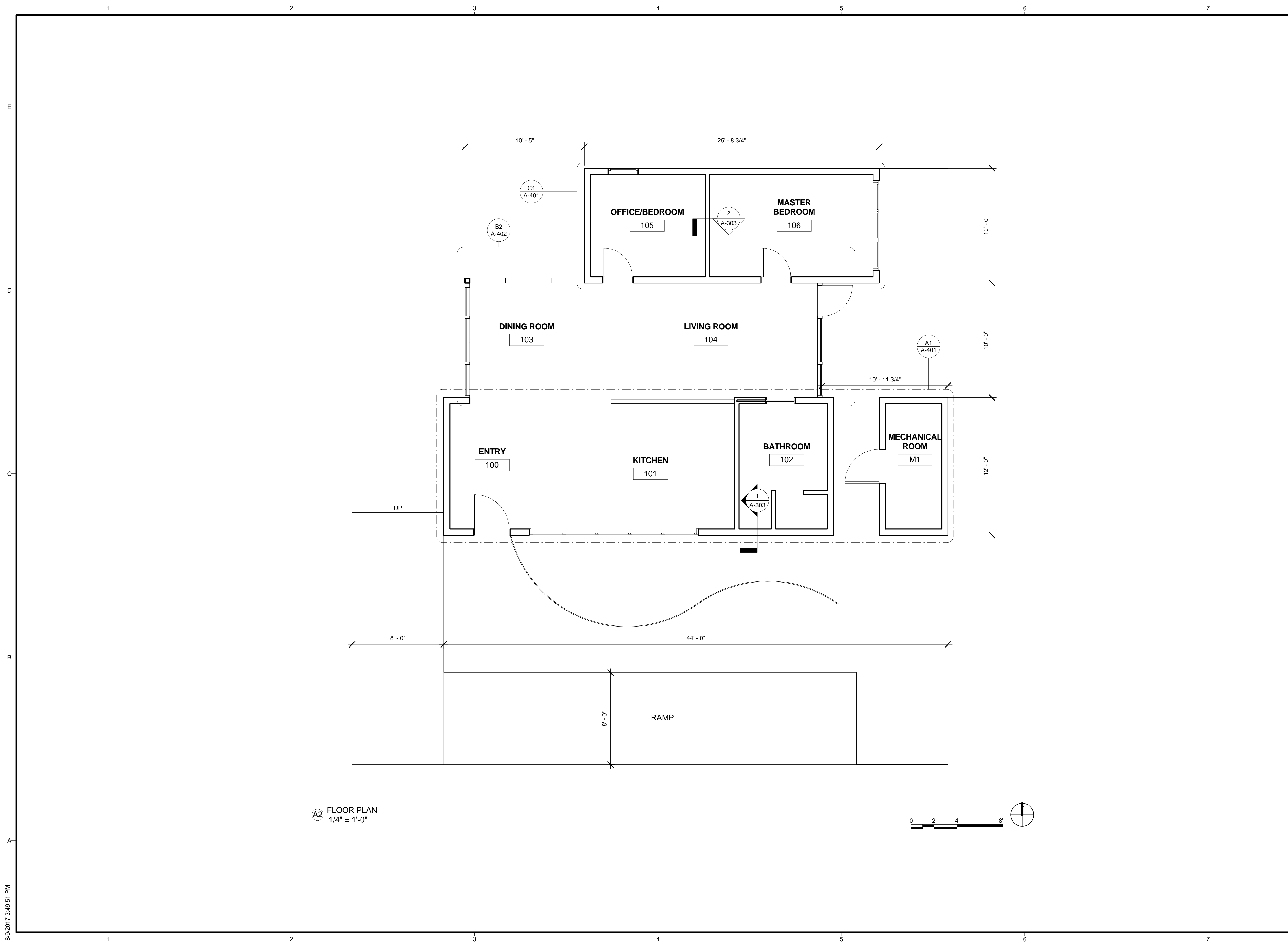


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SHEET TITLE  
 BAR JOIST

S-506



A2 FLOOR PLAN  
 1/4" = 1'-0"



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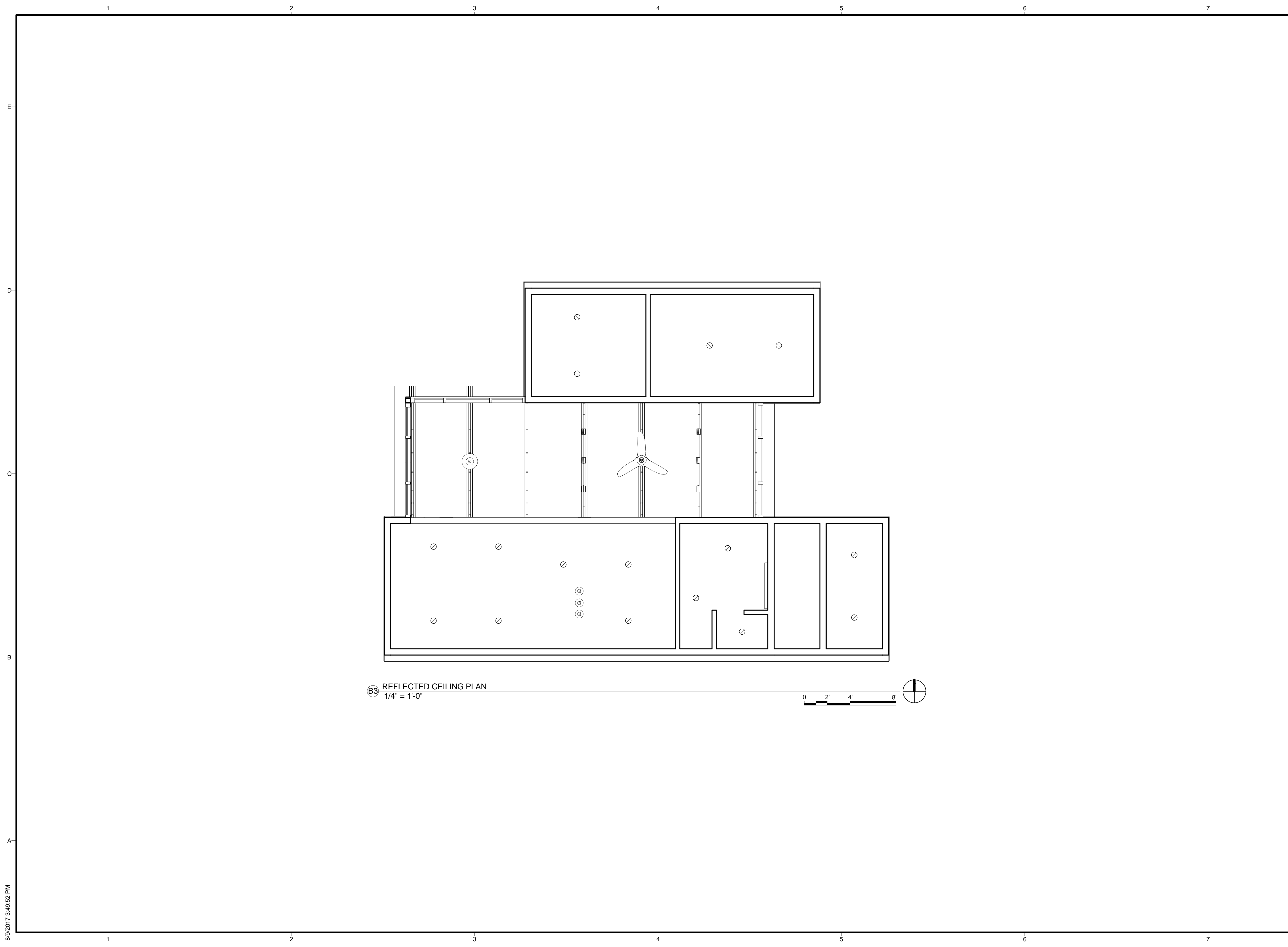
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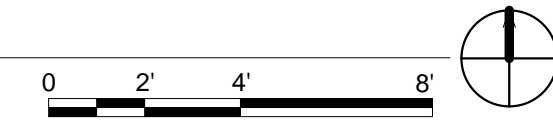
SHEET TITLE  
**FLOOR PLAN**

**A-101**

8/9/2017 3:49:51 PM



B3 REFLECTED CEILING PLAN  
1/4" = 1'-0"



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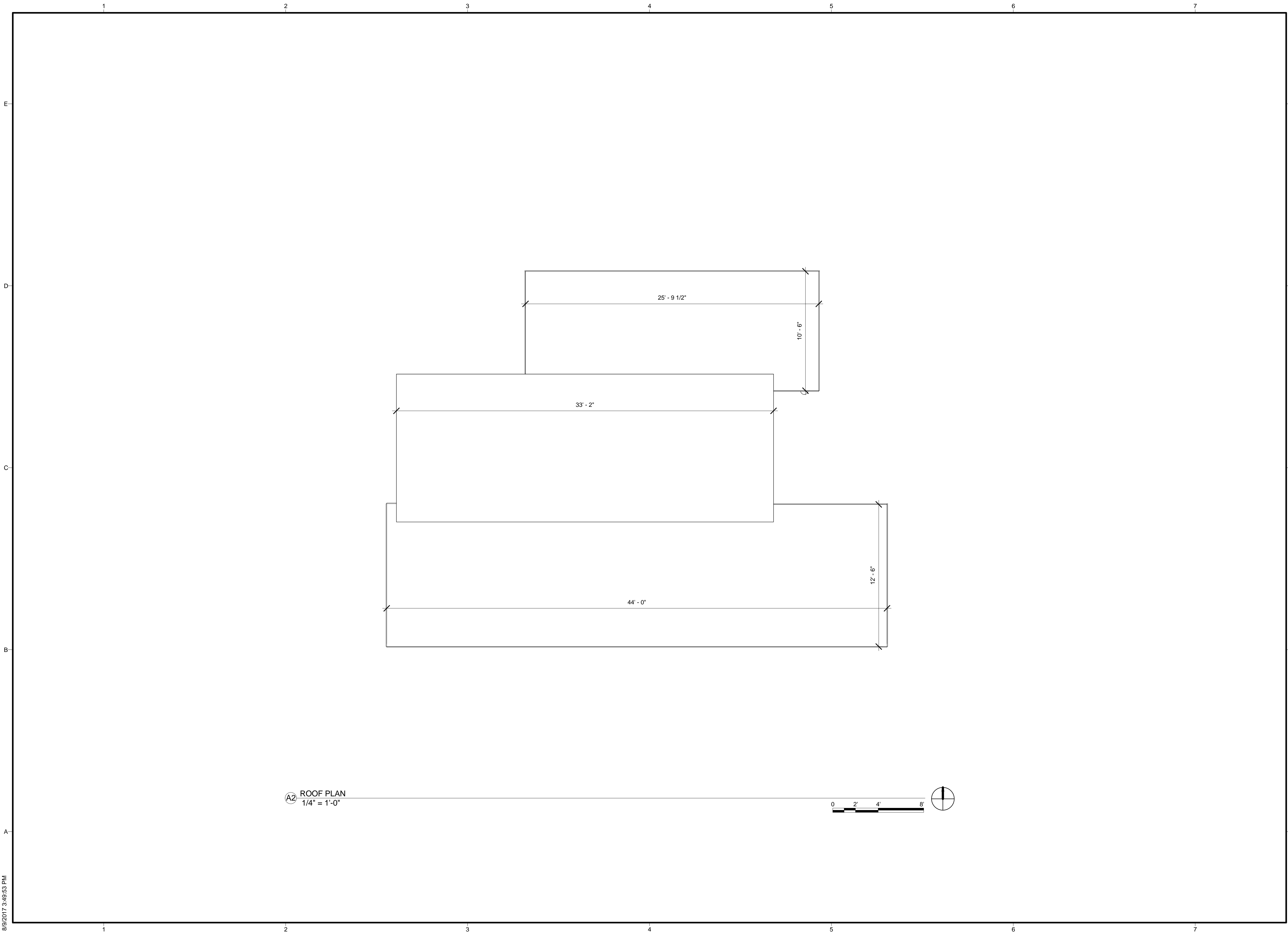
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SHEET TITLE  
 REFLECTED CEILING PLAN

A-102

8/9/2017 3:49:52 PM



**A2** ROOF PLAN  
1/4" = 1'-0"



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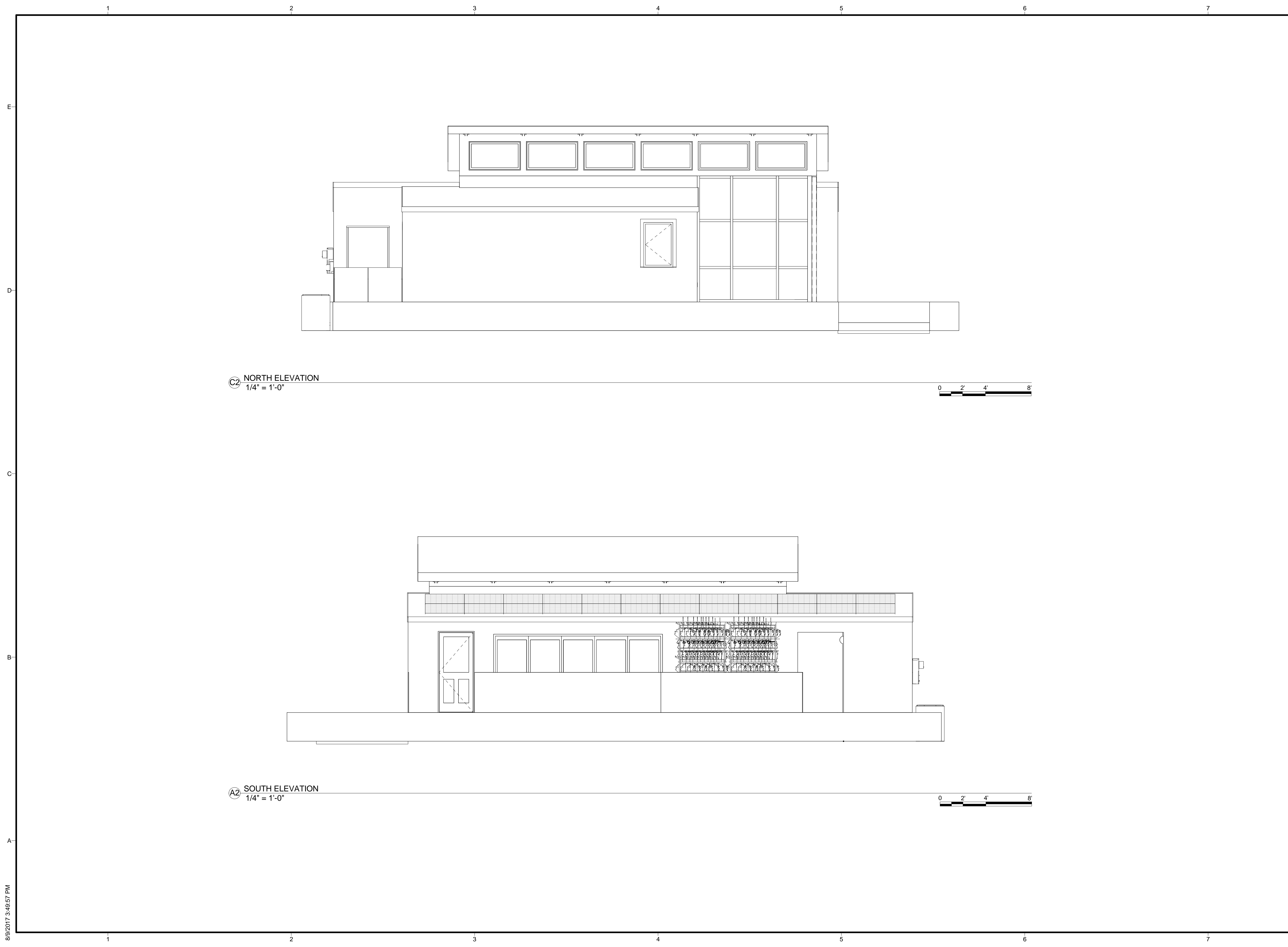


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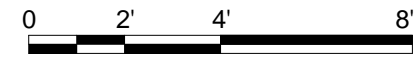
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SHEET TITLE  
ROOF PLAN

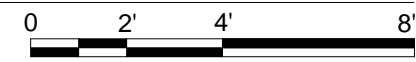
**A-103**



C2 NORTH ELEVATION  
1/4" = 1'-0"



A2 SOUTH ELEVATION  
1/4" = 1'-0"



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SHEET TITLE  
 EXTERIOR ELEVATIONS

A-201







1 2 3 4 5 6 7

ALL MATERIAL SHALL BE PROVIDED AS SPECIFIED BELOW

ALUMINUM

- 1) ALUMINUM STRUCTURE SHALL BE CLEAR ANODIZED
- 2) TWO PIECE HEAD, RECEPTOR, TOP AND SIDES
- 3) ALUMINUM SHALL HAVE THERMAL BREAKS EXCLUDING THE RADIUS PORTION

GLASS

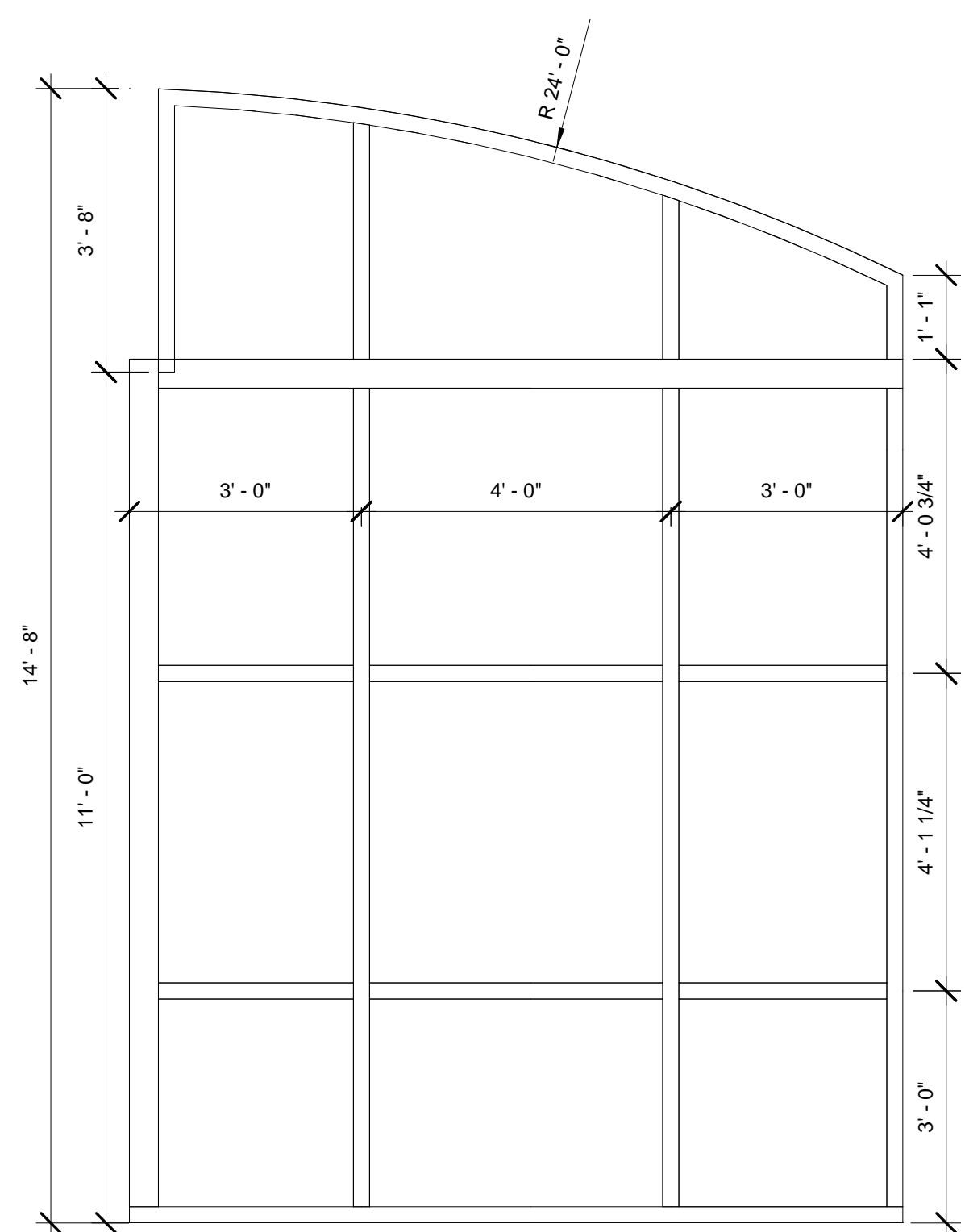
- 1) MAXIMUM U VALUE OF 0.3
- 2) MAXIMUM SHGC OF .25
- 3) LOW E
- 4) DOUBLE PANE AND TEMPERED
- 5) HAVE RELIEF VALVES (GLASS WILL BE TRANSPORTED TO DENVER AND BACK)
- 6) INSTALLED, DISASSEMBLED AND CRATED FOR TRANSPORTATION @ ROLLA SITE BY GLASS SHOP

DOOR

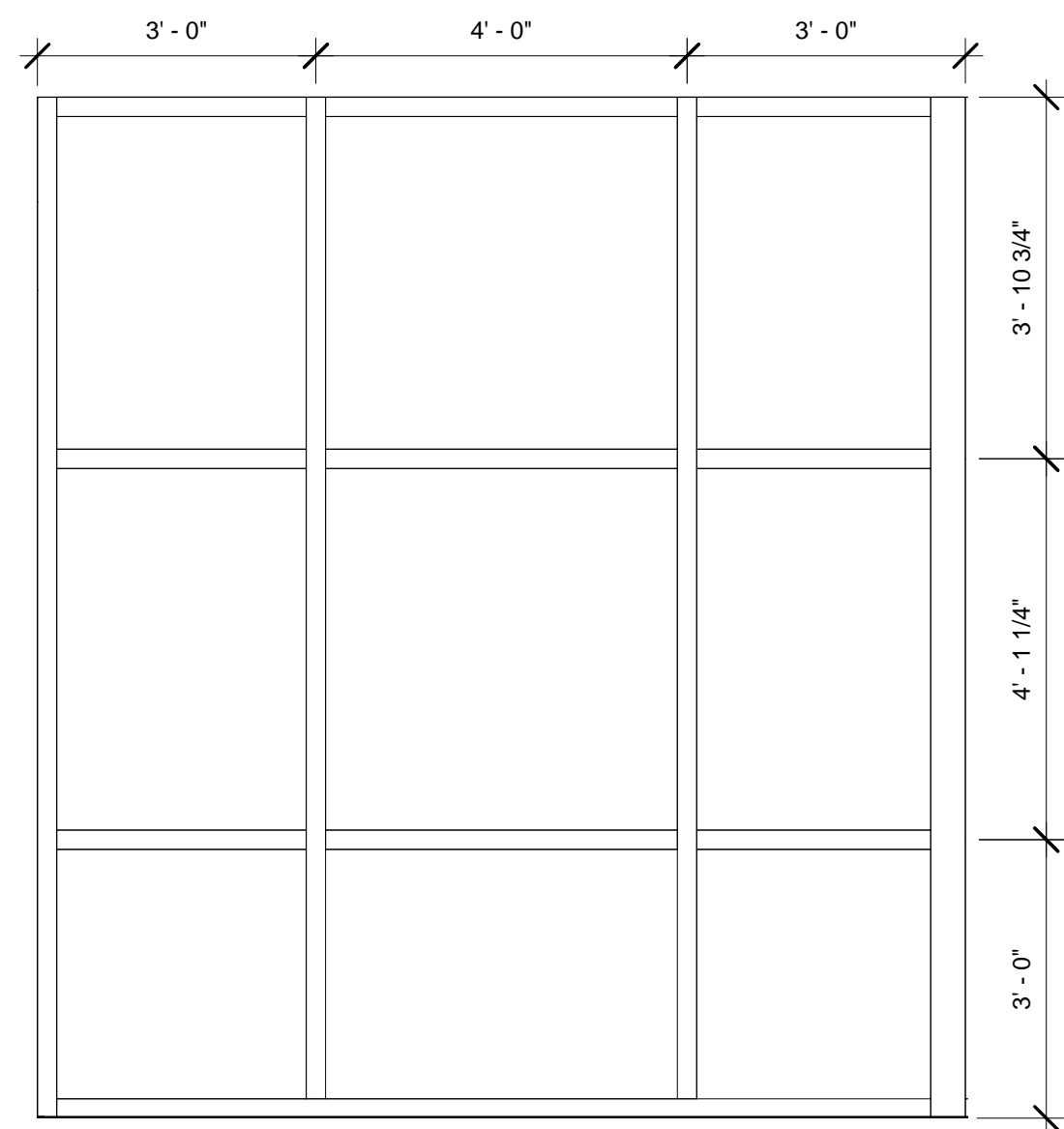
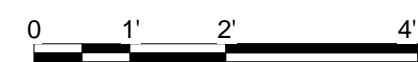
- 1) 10' BOTTOM RAIL
- 2) ADA THRESHOLD
- 3) PREPARED FOR BEST CYLINDRICAL LOCK SET
- 4) WIDE STILE DOOR

TERMS

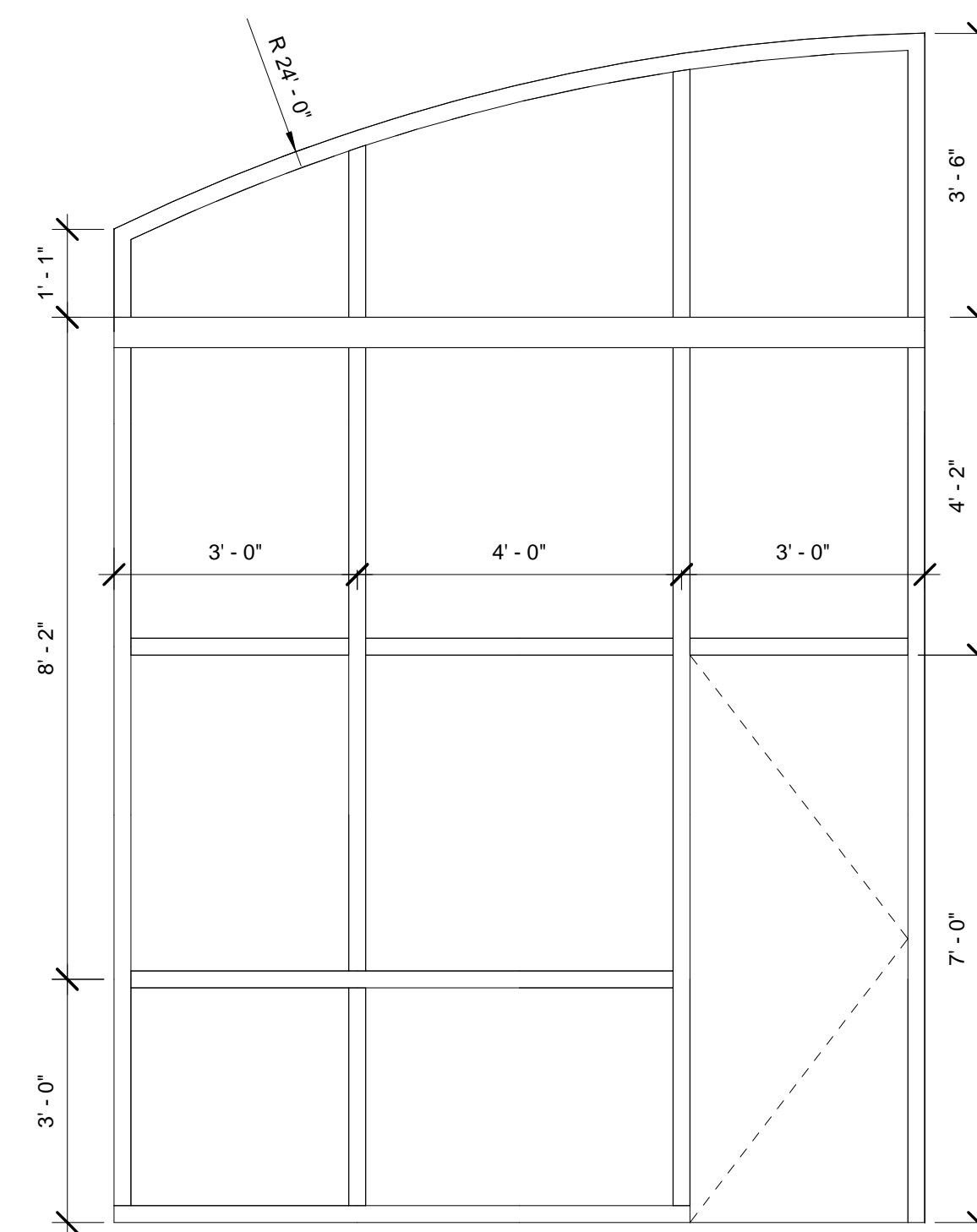
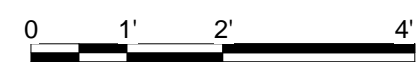
- 1) GLASS SHALL BE PROVIDED BY "MANCO" DENVER CO.
- 2) ALL MEASUREMENTS SHALL BE FIELD VERIFIED BY GLASS SHOP PRIOR TO GLASS ORDER
- 3) SEE INVITATION TO BID FOR GUIDELINES



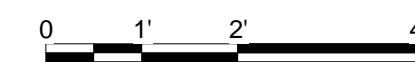
B1 WEST STOREFRONT ELEVATION  
1/2" = 1'-0"



B3 NORTH STOREFRONT ELEVATION  
1/2" = 1'-0"



B5 EAST STOREFRONT ELEVATION  
1/2" = 1'-0"



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 sunhome@mst.edu

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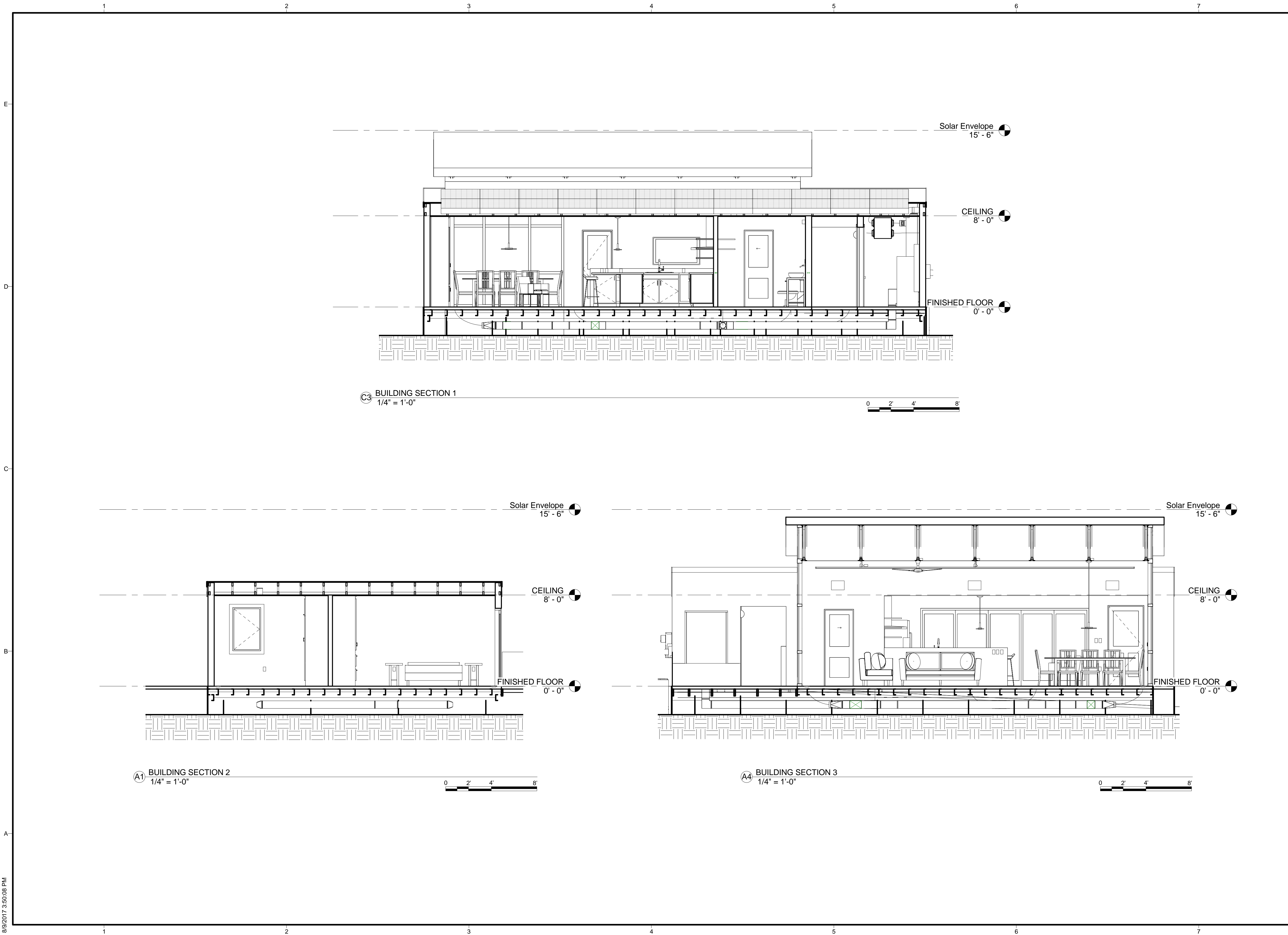
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SHEET TITLE  
 STOREFRONT ELEVATIONS

A-204

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1 2 3 4 5 6 7



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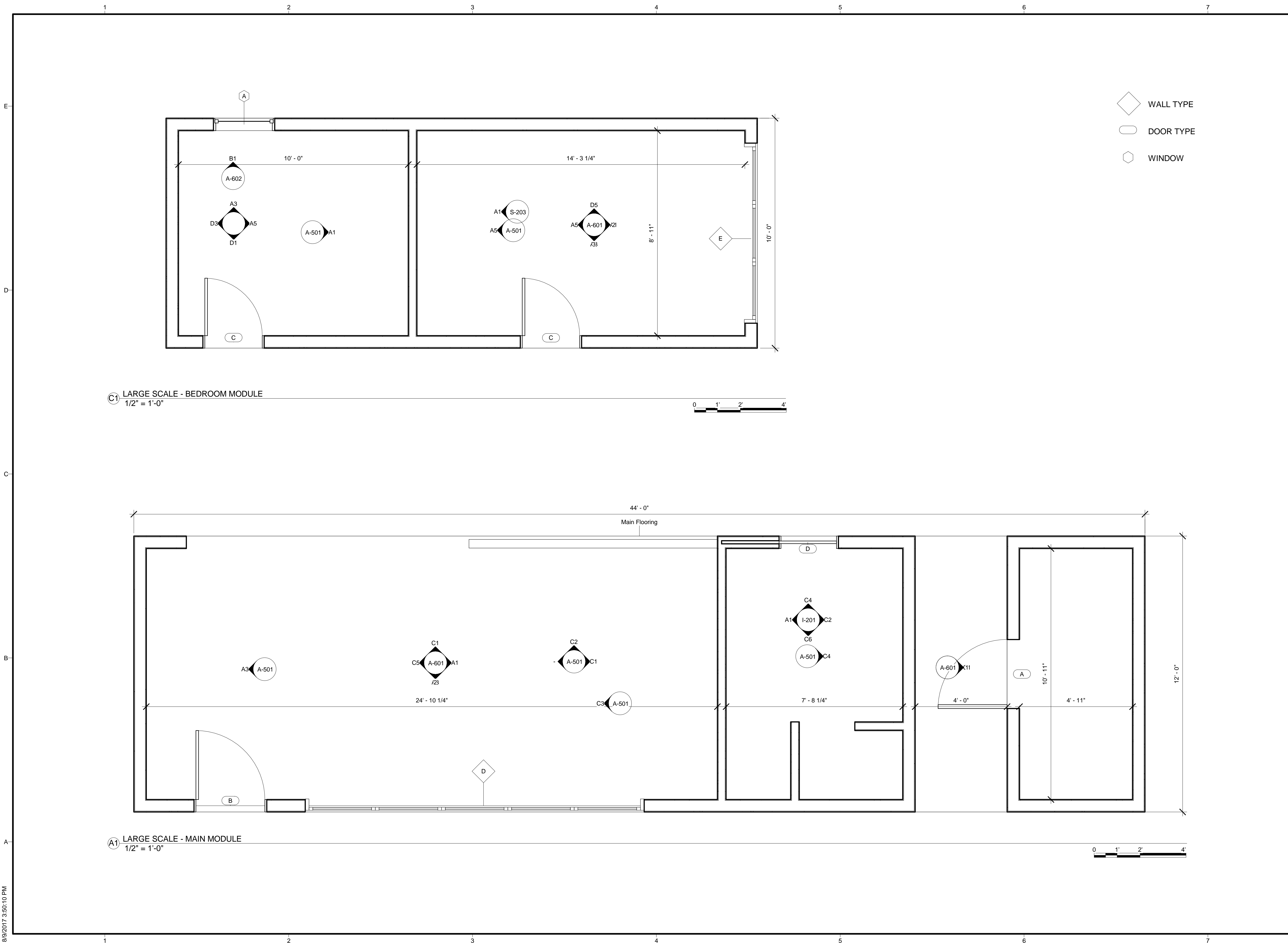
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SHEET TITLE  
**BUILDING SECTIONS**

**A-302**

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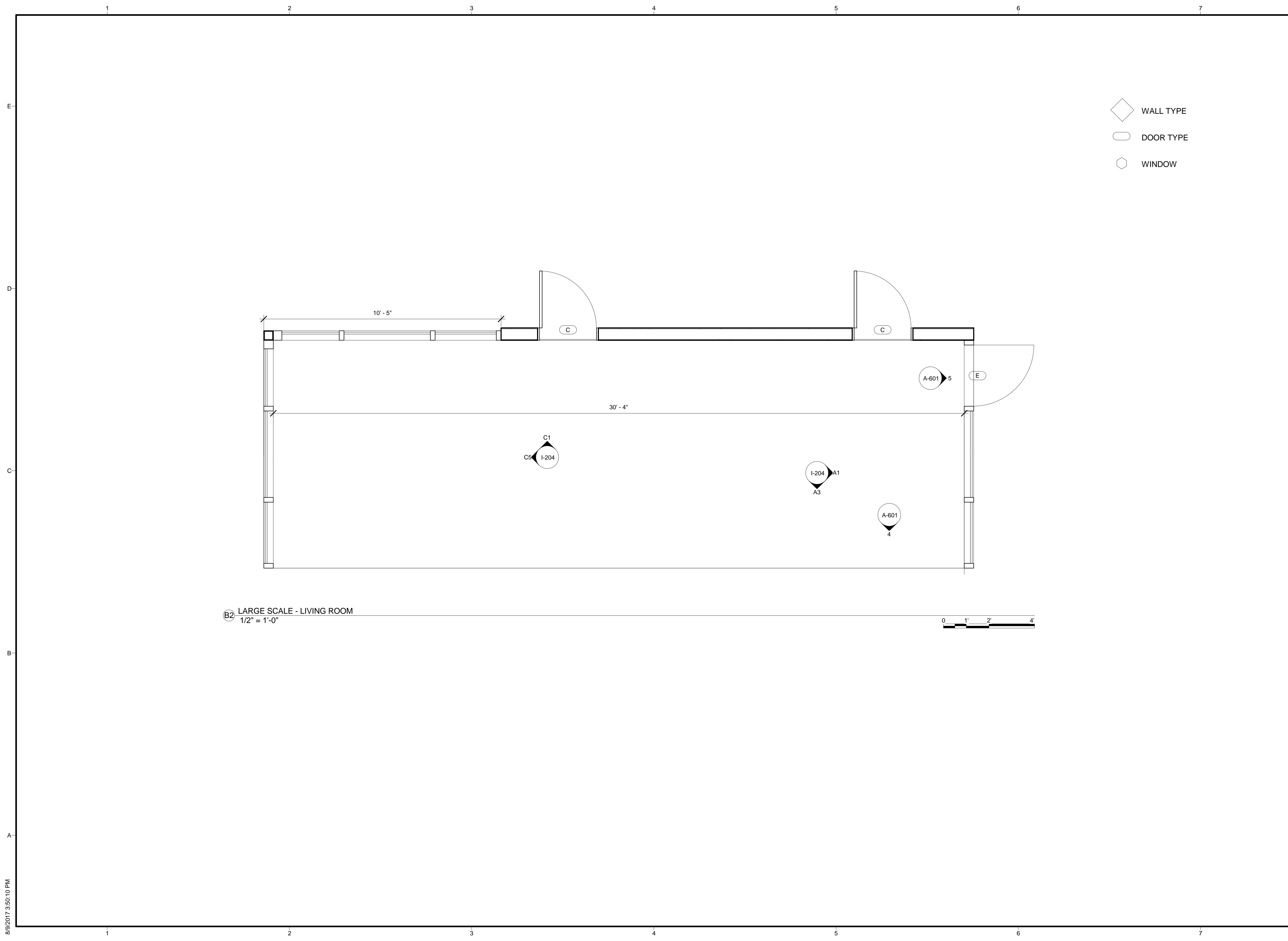
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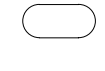
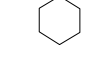
SHEET TITLE

LARGE SCALE ROOM VIEWS

**A-401**

8/9/2017 3:50:10 PM



-  WALL TYPE
-  DOOR TYPE
-  WINDOW



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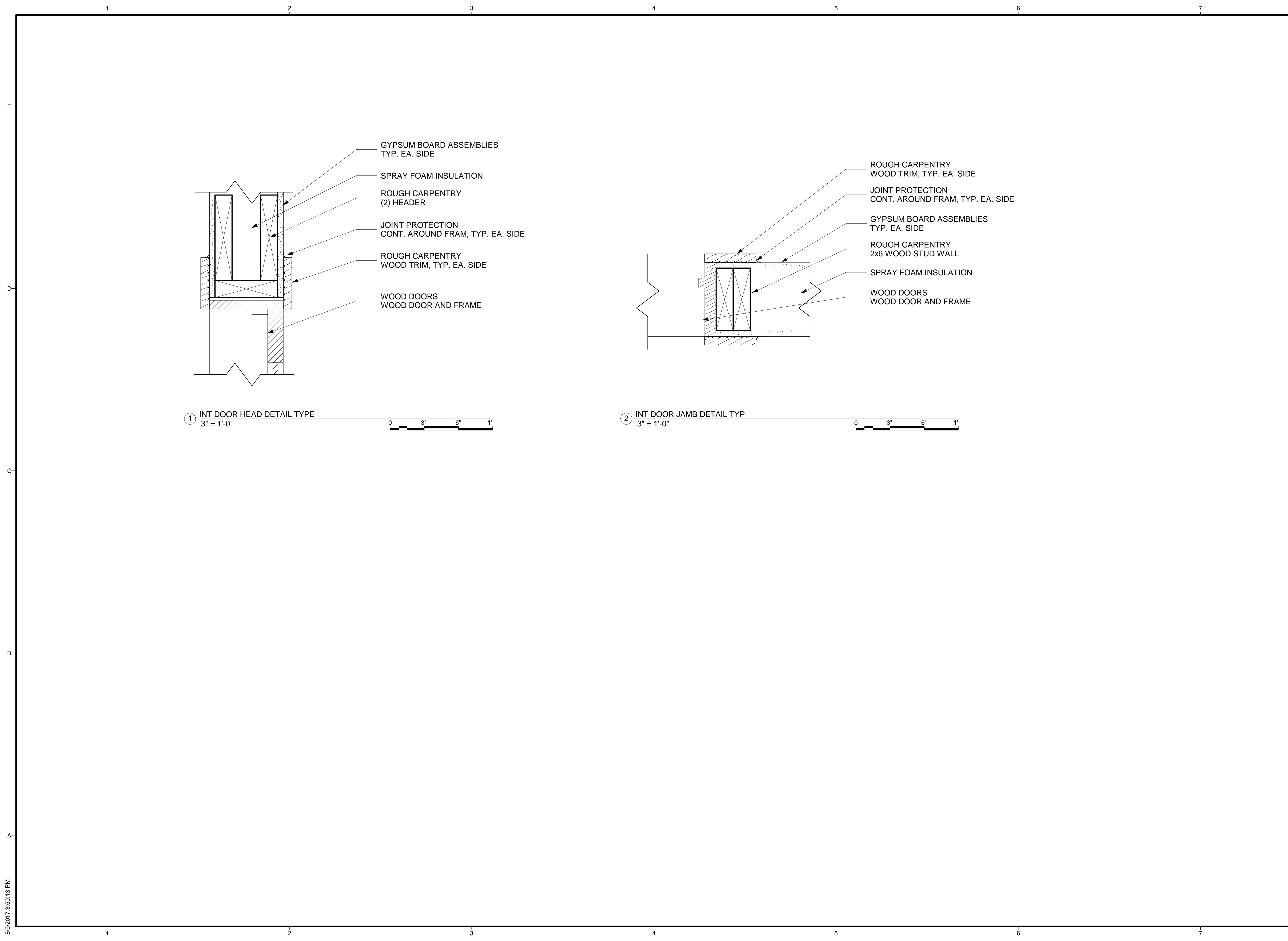
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**LARGE SCALE ROOM VIEWS**

**A-402**

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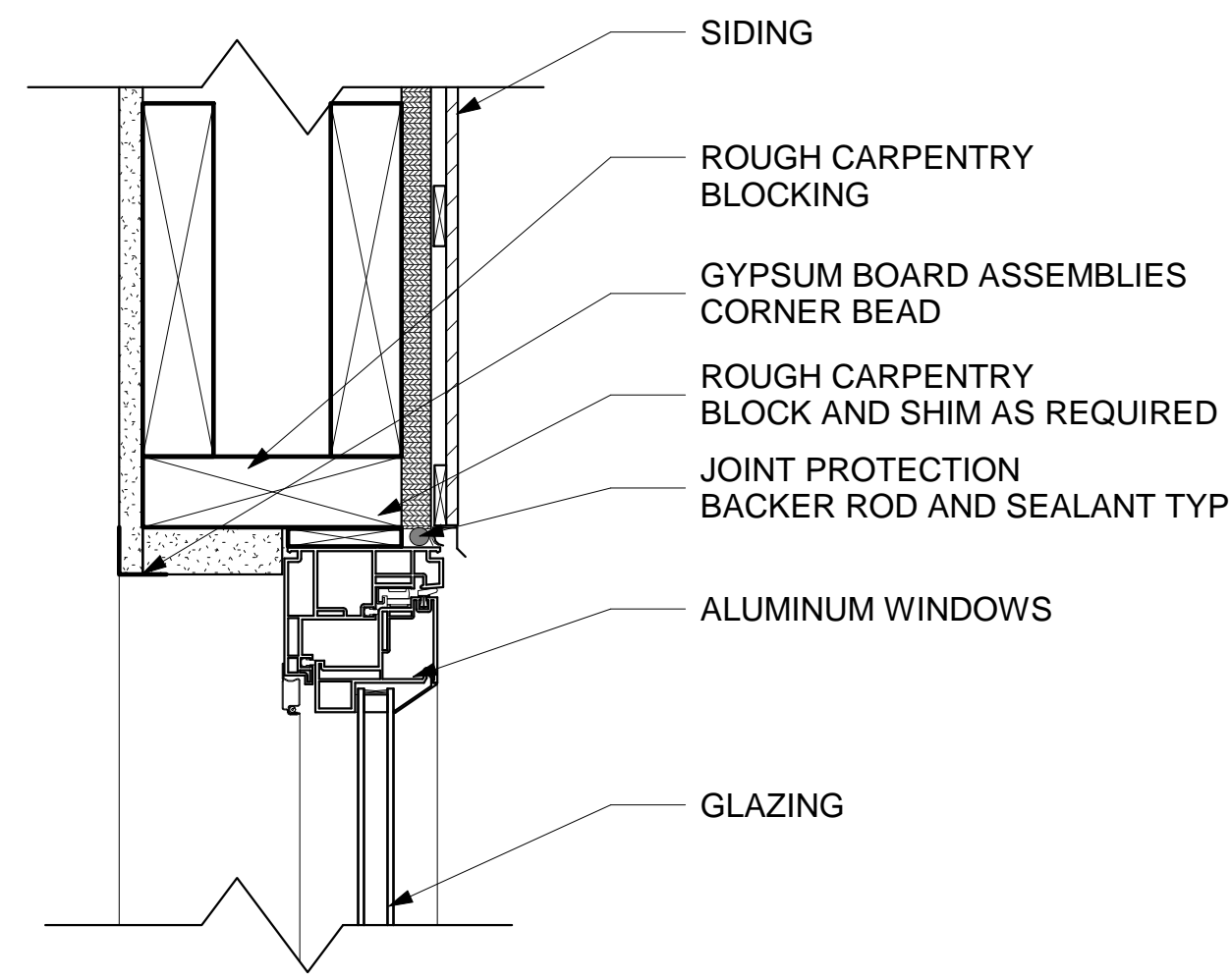


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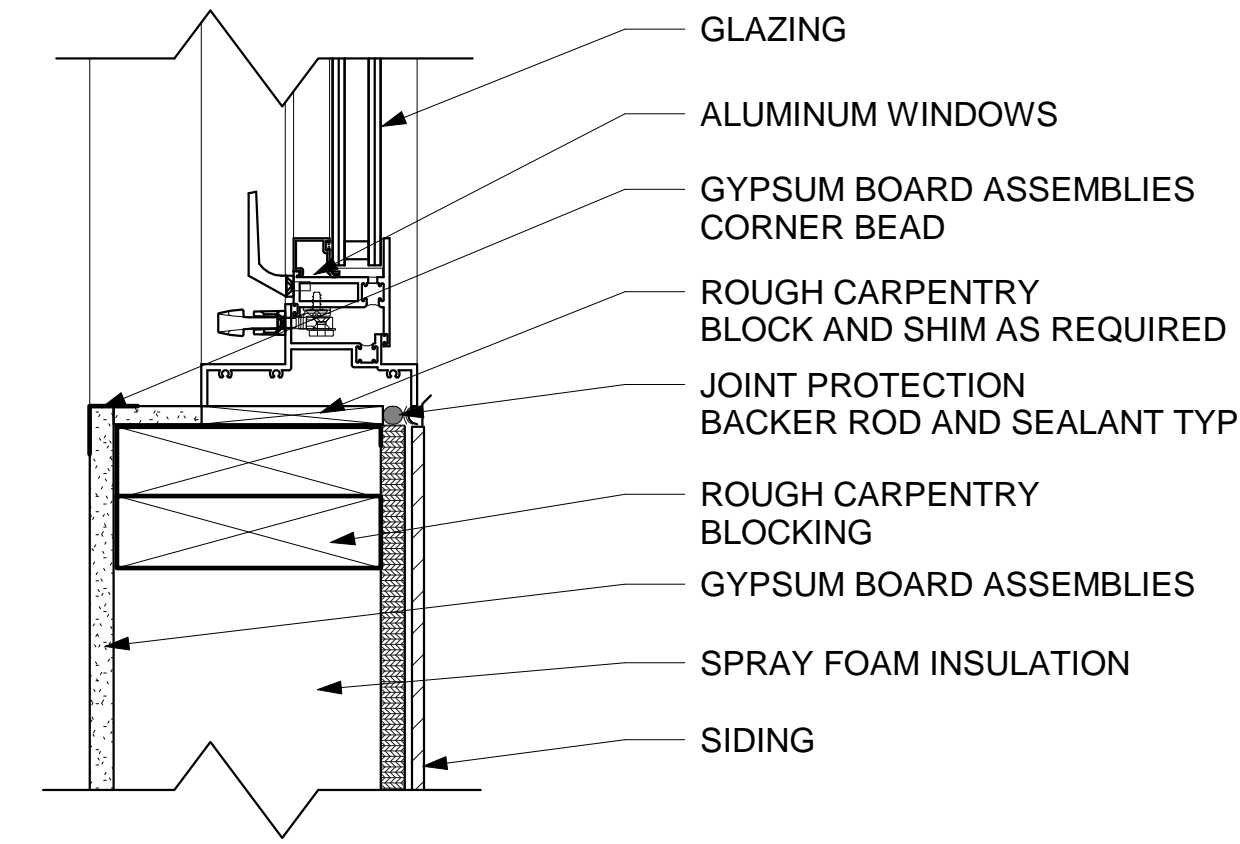
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SHEET TITLE  
**DOOR DETAILS**

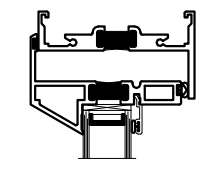
**A-502**



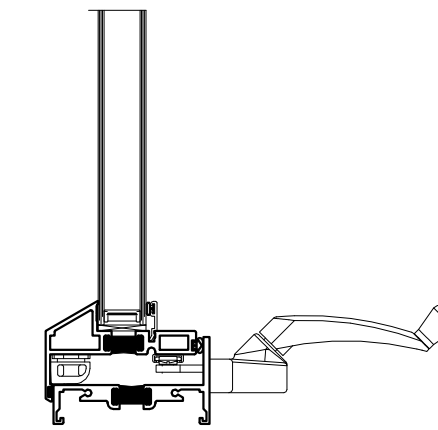
① CASEMENT WINDOW HEAD DETAIL TYP  
3" = 1'-0"



② CASEMENT WINDOW JAMB DETAIL TYP  
3" = 1'-0"



③ CASEMENT WINDOW DETAIL TYP  
3" = 1'-0"



④ CASEMENT WINDOW JAMB DETAIL TYP  
3" = 1'-0"



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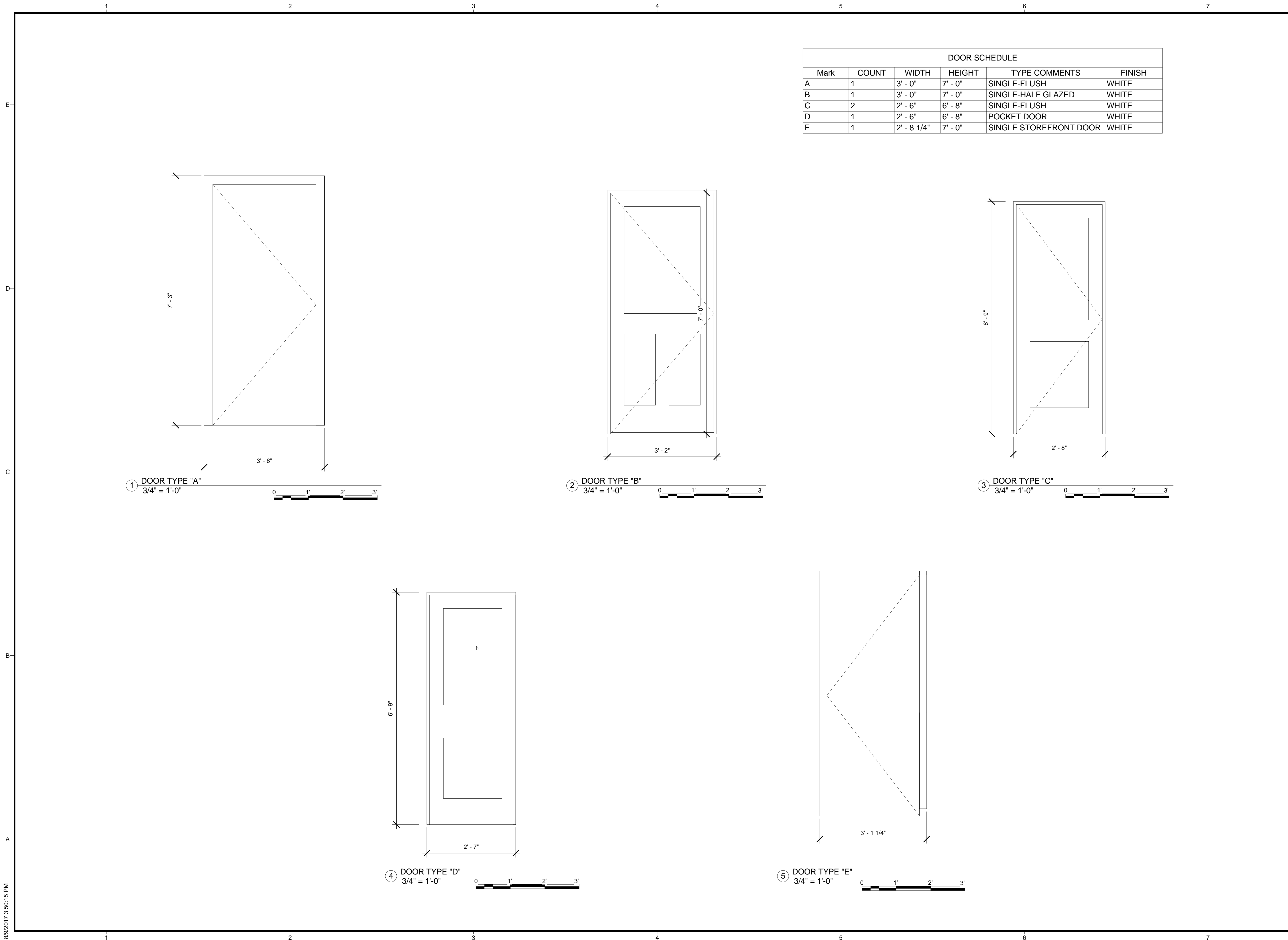


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SHEET TITLE  
 WINDOW DETAILS

A-503



DOOR SCHEDULE					
Mark	COUNT	WIDTH	HEIGHT	TYPE COMMENTS	FINISH
A	1	3' - 0"	7' - 0"	SINGLE-FLUSH	WHITE
B	1	3' - 0"	7' - 0"	SINGLE-HALF GLAZED	WHITE
C	2	2' - 6"	6' - 8"	SINGLE-FLUSH	WHITE
D	1	2' - 6"	6' - 8"	POCKET DOOR	WHITE
E	1	2' - 8 1/4"	7' - 0"	SINGLE STOREFRONT DOOR	WHITE



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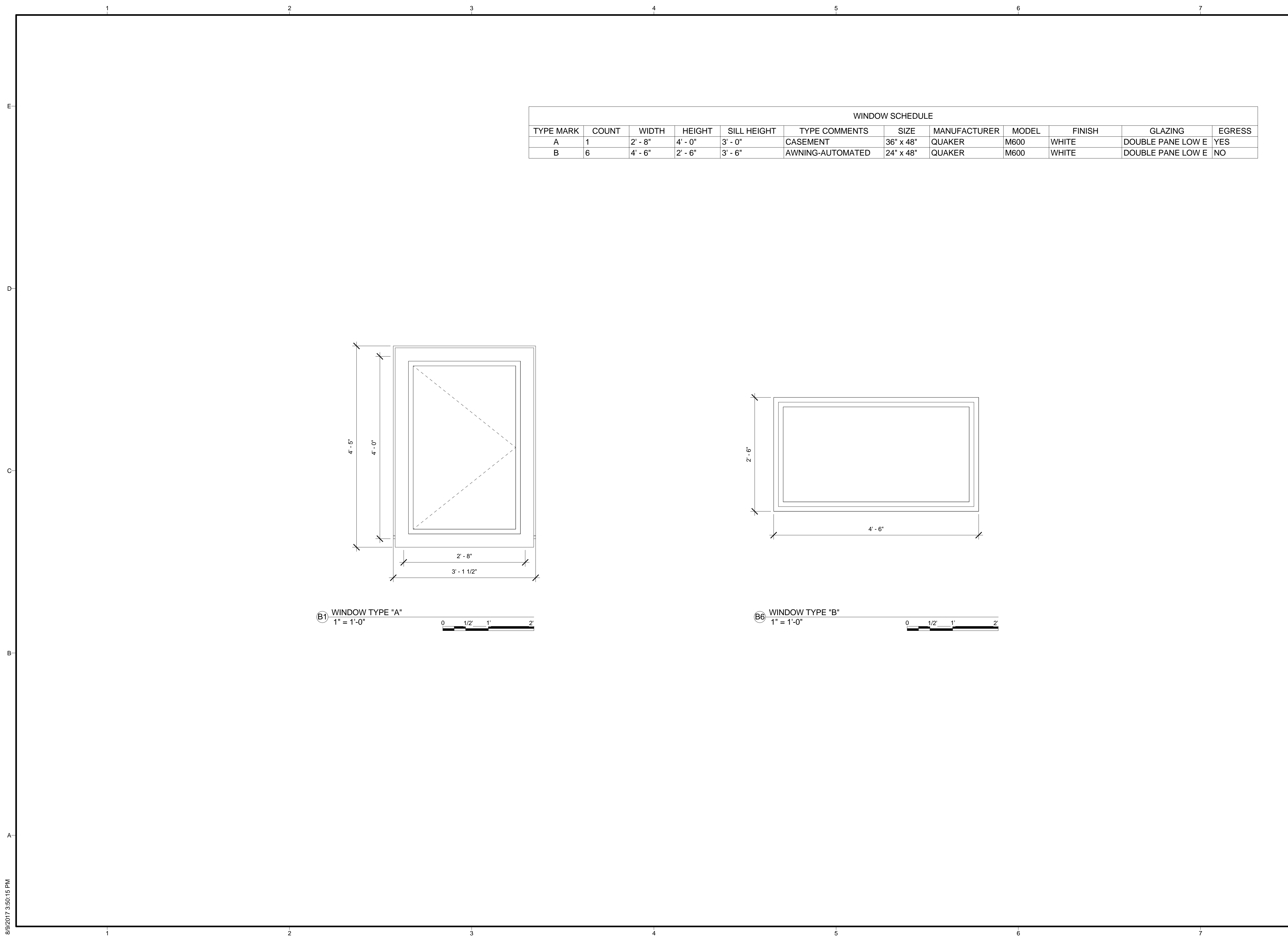


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SHEET TITLE  
**DOOR SCHEDULE**

**A-601**

8/9/2017 3:50:15 PM



WINDOW SCHEDULE											
TYPE MARK	COUNT	WIDTH	HEIGHT	SILL HEIGHT	TYPE COMMENTS	SIZE	MANUFACTURER	MODEL	FINISH	GLAZING	EGRESS
A	1	2' - 8"	4' - 0"	3' - 0"	CASEMENT	36" x 48"	QUAKER	M600	WHITE	DOUBLE PANE LOW E	YES
B	6	4' - 6"	2' - 6"	3' - 6"	AWNING-AUTOMATED	24" x 48"	QUAKER	M600	WHITE	DOUBLE PANE LOW E	NO



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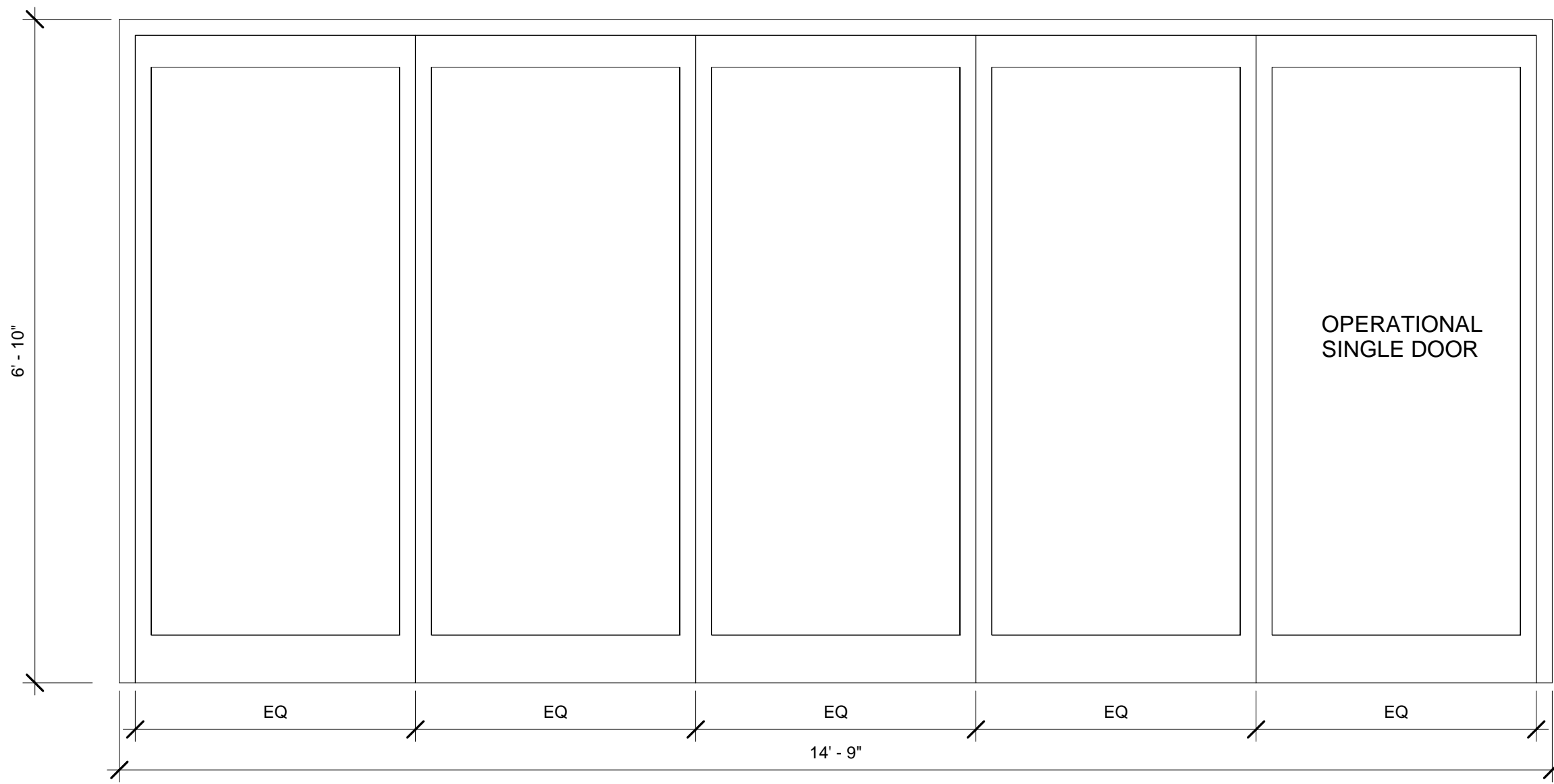
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SHEET TITLE  
**WINDOW SCHEDULE**

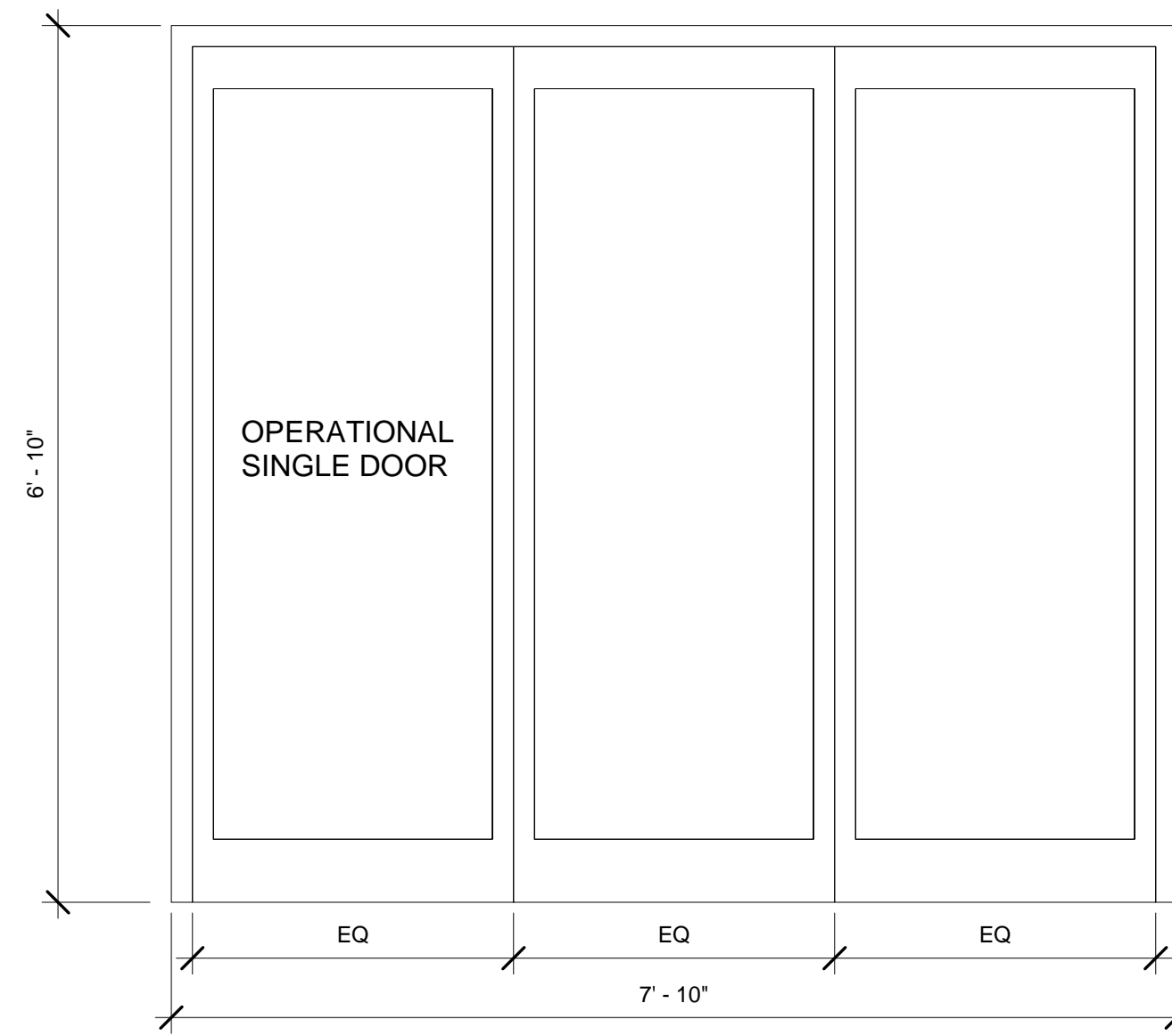
**A-602**

8/9/2017 3:50:15 PM

ACCORDIAN DOOR SCHEDULE							
TYPE	WIDTH	HEIGHT	MANUFACTURER	MODEL	TYPE FINISH	GLASS GLAZING	CONFIGURATION
D	14' - 9"	6' - 10"	NanaWall	SL60	WHITE	DOUBLE PANE LOW E	ø3L
E	7' - 10"	6' - 10"	NanaWall	SL60	WHITE	DOUBLE PANE LOW E	ø5R



① ACCORDIAN DOOR TYPE "D"  
3/4" = 1'-0"



② ACCORDIAN DOOR TYPE "E"  
3/4" = 1'-0"



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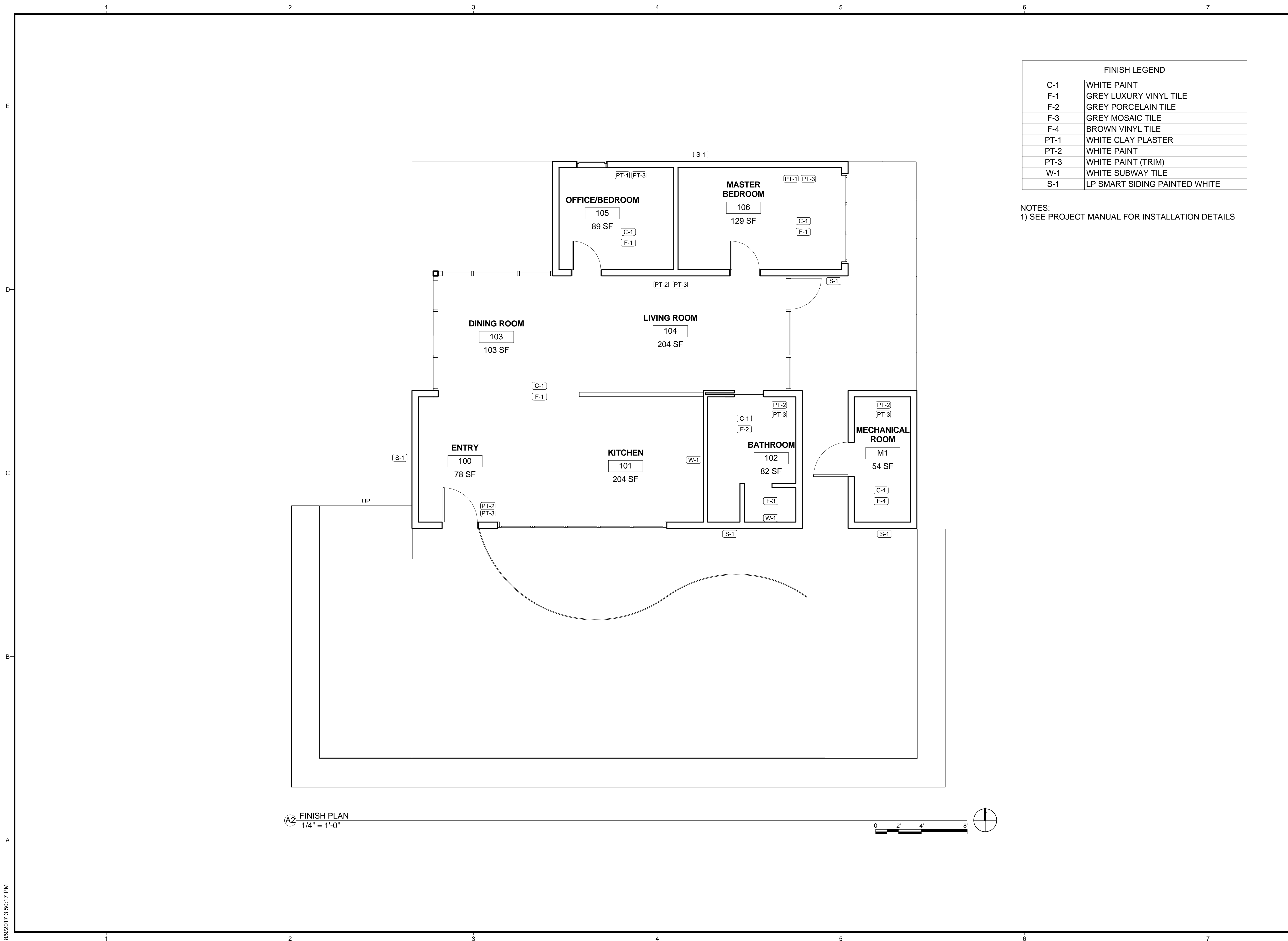


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SHEET TITLE  
 ACCORDIAN DOOR  
 SCHEDULE

A-603



FINISH LEGEND	
C-1	WHITE PAINT
F-1	GREY LUXURY VINYL TILE
F-2	GREY PORCELAIN TILE
F-3	GREY MOSAIC TILE
F-4	BROWN VINYL TILE
PT-1	WHITE CLAY PLASTER
PT-2	WHITE PAINT
PT-3	WHITE PAINT (TRIM)
W-1	WHITE SUBWAY TILE
S-1	LP SMART SIDING PAINTED WHITE

NOTES:  
1) SEE PROJECT MANUAL FOR INSTALLATION DETAILS



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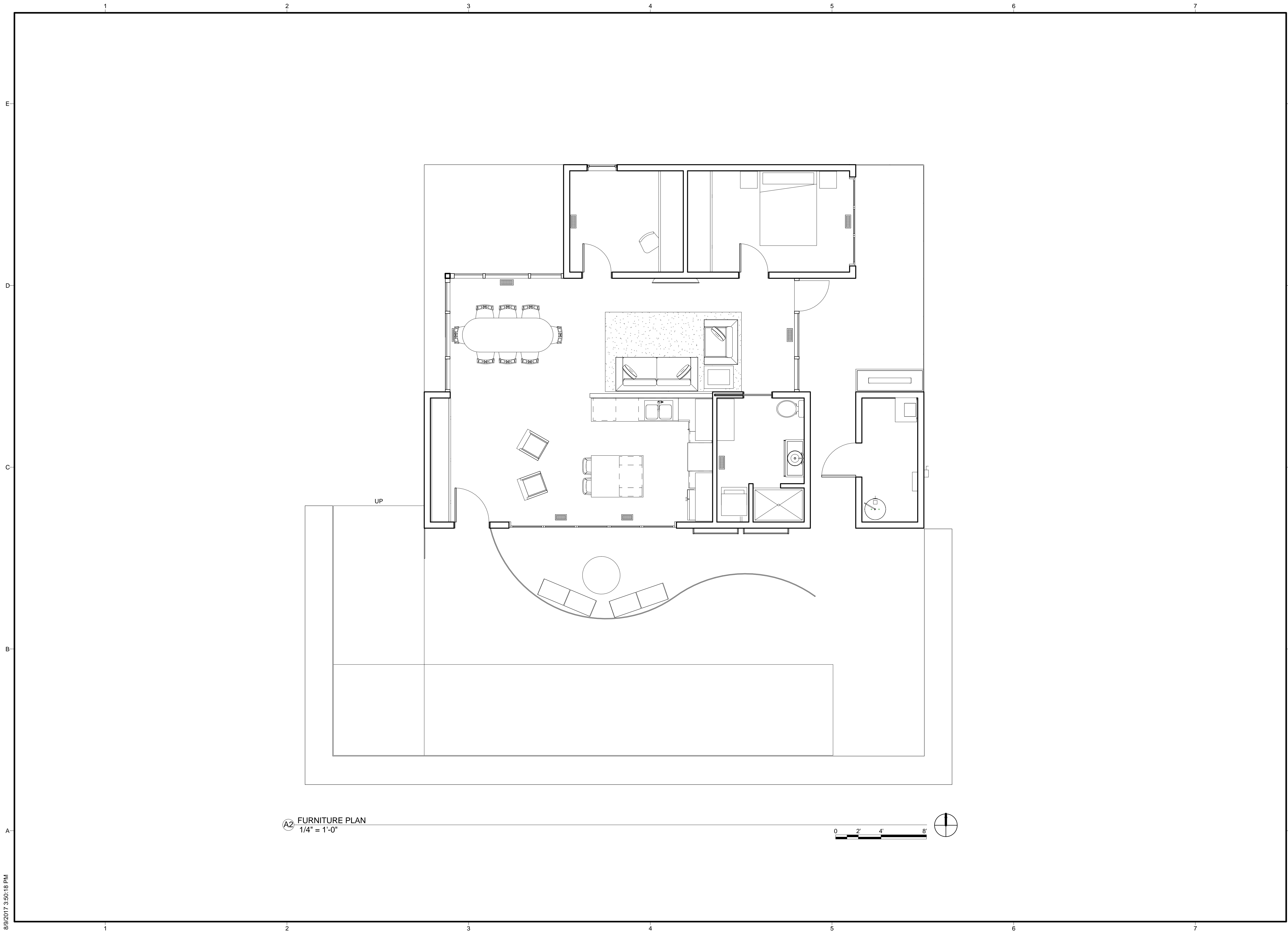
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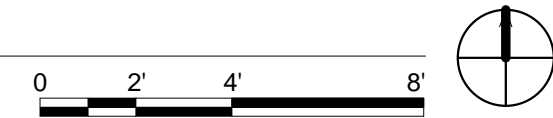
SHEET TITLE  
**FINISH PLAN**

**I-101**

8/9/2017 3:50:17 PM



Ⓐ FURNITURE PLAN  
1/4" = 1'-0"



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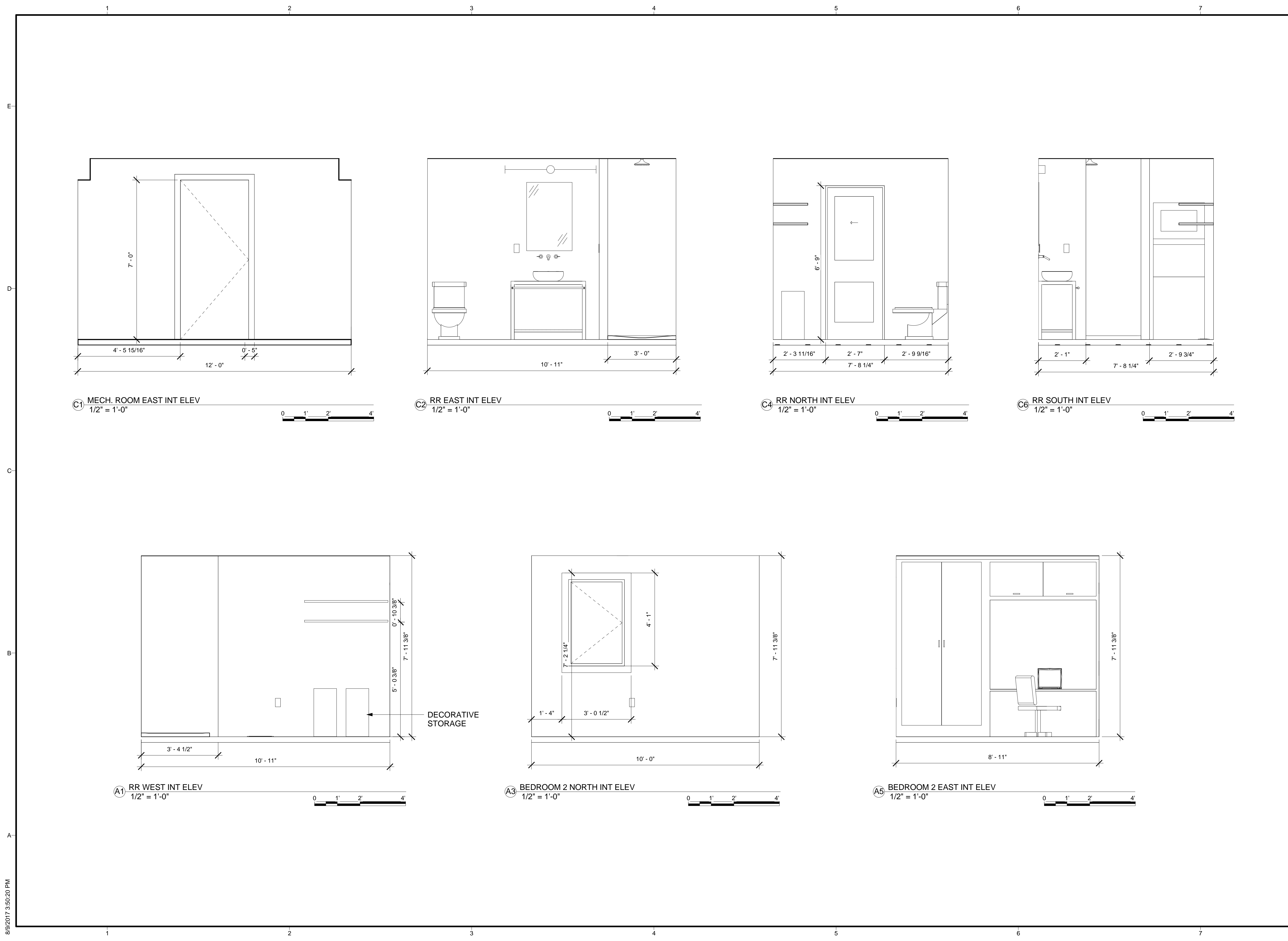
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SHEET TITLE  
 FURNITURE PLAN

I-102

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**INTERIOR ELEVATIONS**

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**INTERIOR ELEVATIONS**

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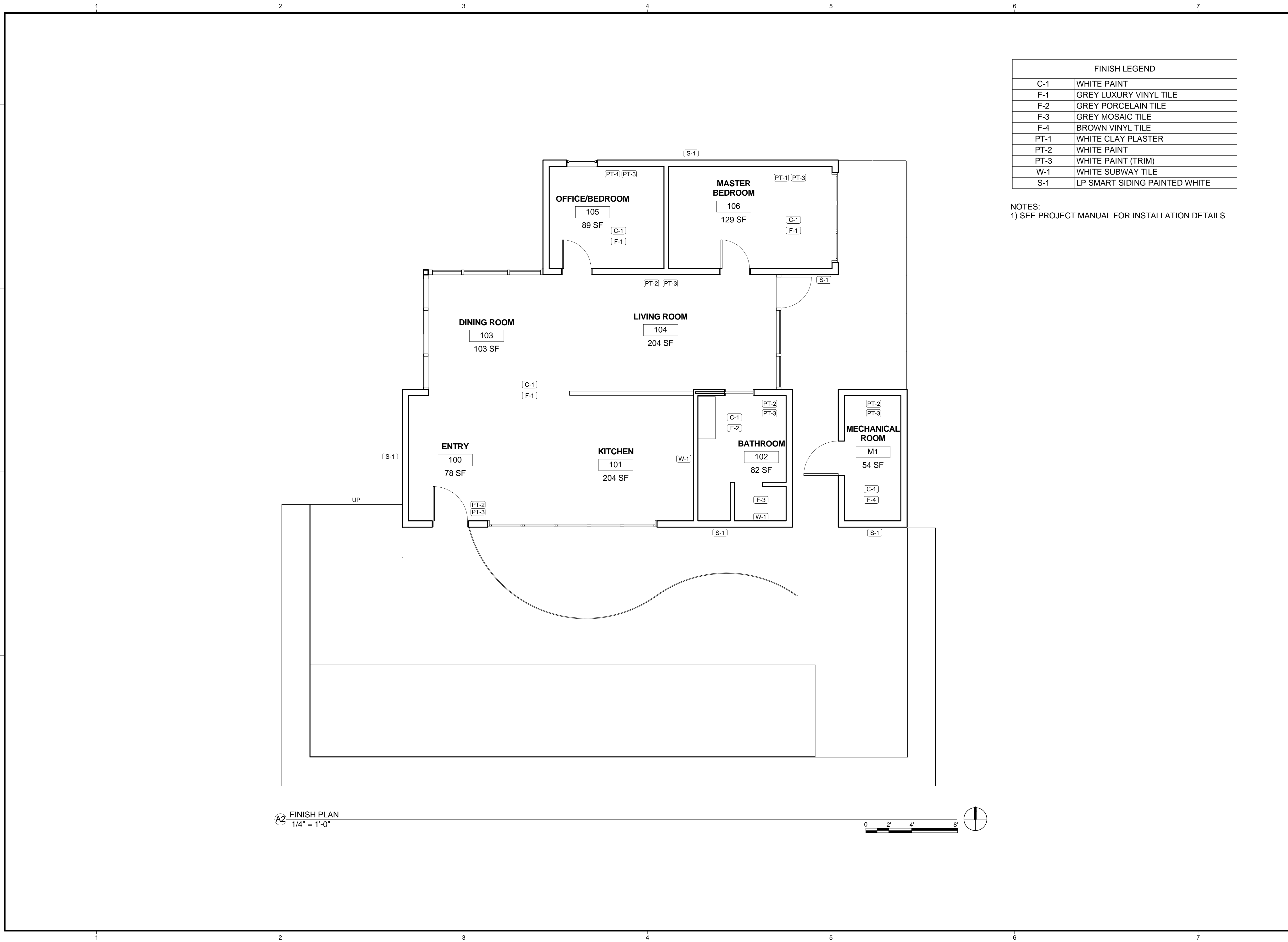
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**INTERIOR ELEVATION**

**I-204**



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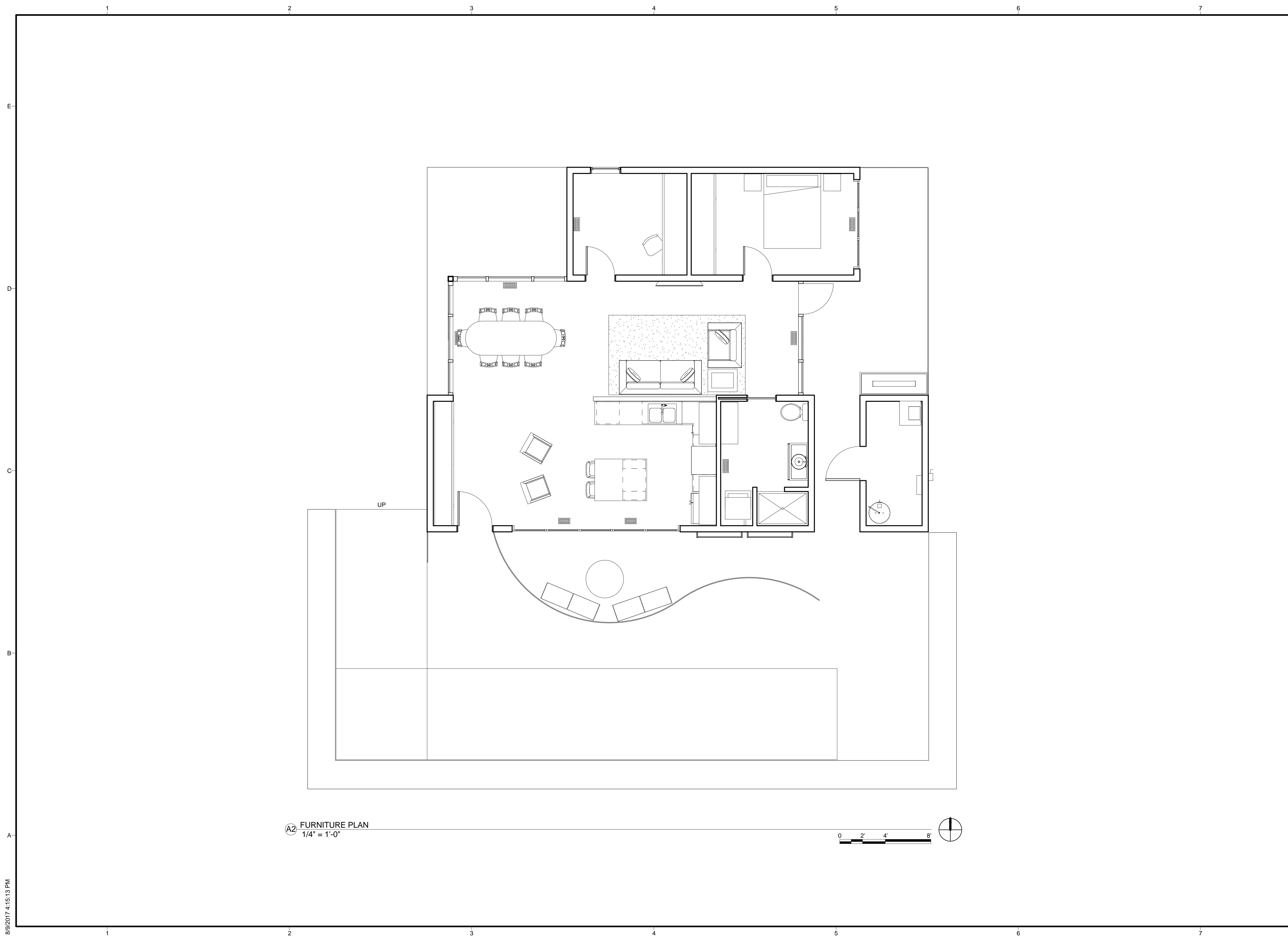
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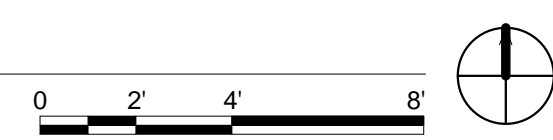
FINISH PLAN

I-101

8/9/2017 4:51:12 PM



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



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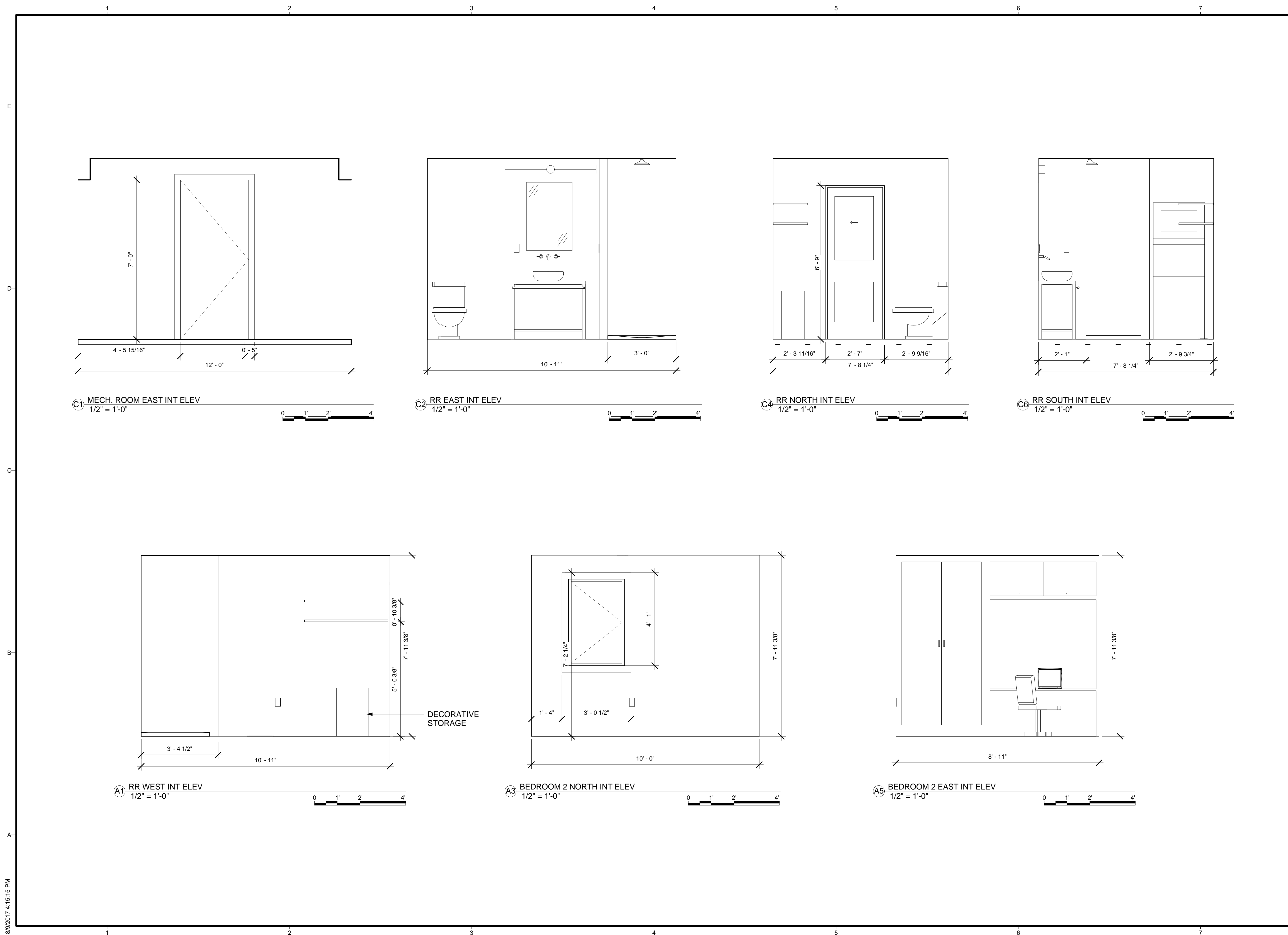


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**FURNITURE PLAN**

**I-102**



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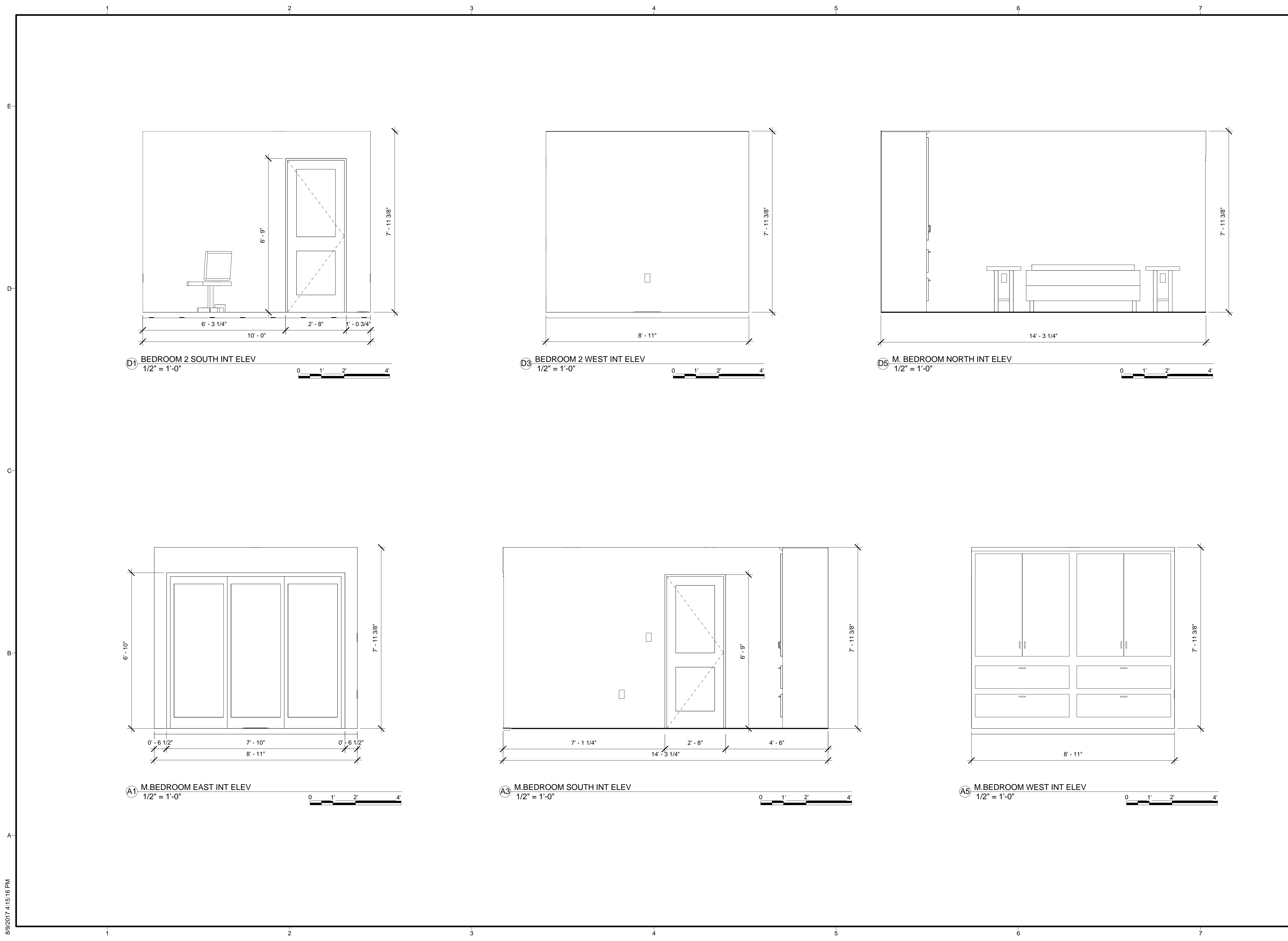


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**INTERIOR ELEVATIONS**

**I-202**

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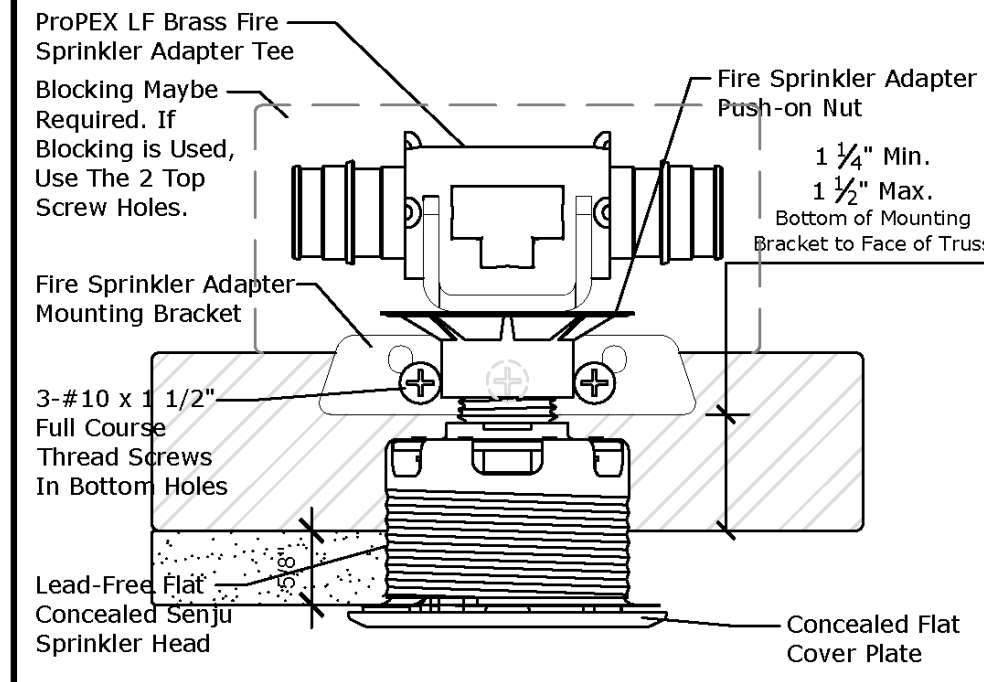
SHEET TITLE  
**INTERIOR ELEVATION**

**I-204**

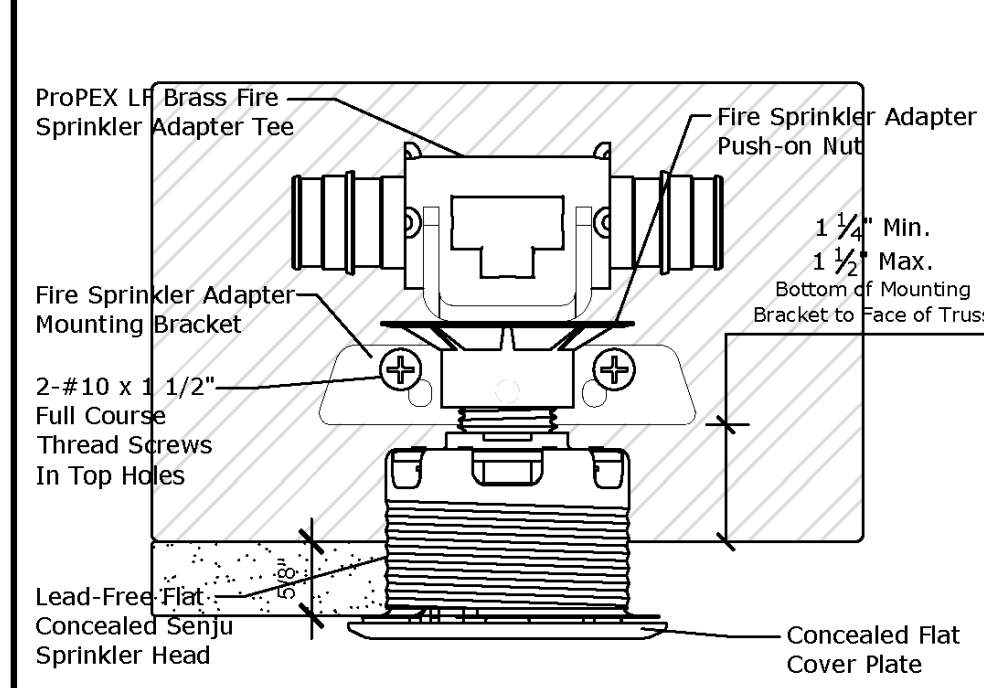
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- THIS SYSTEM AND THE ACCOMPANYING HYDRAULIC CALCULATIONS ARE DESIGNED IN COMPLIANCE WITH NFPA 13D 2016 EDITION.
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- MODIFICATIONS ARE PROHIBITED. SPRINKLERS THAT HAVE BEEN PAINTED, CAULKED, MODIFIED OR DAMAGED MUST BE REPLACED.
- WATER SHUT OFF VALVE IS NOT PERMITTED THAT ISOLATES THE SPRINKLER SYSTEM.
- OWNERS MANUAL MUST BE PROVIDED TO THE OWNER.
- AT THE MAIN SHUT OFF VALVE, A TAG OR A SIGN STATING THE FOLLOWING IS REQUIRED; "WARNING, THE WATER SYSTEM FOR THIS HOME SUPPLIES FIRE SPRINKLERS THAT REQUIRE CERTAIN FLOWS AND PRESSURES TO FIGHT A FIRE. DEVICES THAT RESTRICT THE FLOW OR DECREASE THE PRESSURE OR AUTOMATICALLY SHUT OFF THE WATER TO THE FIRE SPRINKLER SYSTEM, SUCH AS WATER SOFTENERS, FILTRATION SYSTEMS AND AUTOMATIC SHUT OFF VALVES, SHALL NOT BE ADDED TO THIS SYSTEM WITHOUT REVIEW OF THE FIRE SPRINKLER SYSTEM BY A FIRE PROTECTION SPECIALIST. DO NOT REMOVE THIS SIGN".
- ALL INTERIOR PIPING TO BE UPONOR "AquaPEX®" UNLESS NOTED.
- UPONOR "AquaPEX" TUBING TO BE SUPPORTED PER NFPA 13D AND MANUFACTURER'S RECOMMENDATIONS.
- MINIMUM SPACING BETWEEN SPRINKLERS IS 8'-0" REFER TO SPACING CHARTS FOR MAXIMUM SPACING BETWEEN SPRINKLERS AND FROM WALLS. SPRINKLER HEAD MANUFACTURERS MAY HAVE MORE RESTRICTIVE SPACING LIMITATIONS.
- SPRINKLERS ARE NOT NECESSARILY CENTERED IN ROOMS DUE TO LIGHT FIXTURES OR OTHER CEILING MOUNTED OBSTRUCTIONS.
- THIS SUGGESTED LAYOUT IS BASED UPON INFORMATION PROVIDED BY OTHERS. CHANGES IN CONSTRUCTION OR FIELD CONDITIONS MAY OCCUR WHICH MAY REQUIRE CHANGES TO THE LAYOUT. IT IS THE RESPONSIBILITY OF THE INSTALLER TO NOTIFY UPONOR TECHNICAL SERVICES OF SUCH CHANGES.
- IF STAND ALONE SYSTEM IS USED, BACKFLOW PREVENTION IS REQUIRED (DOUBLE CHECK VALVE).
- IF THE MAXIMUM STATIC PRESSURE FROM THE WATER SUPPLY IS GREATER THAN 80 PSI, A PRESSURE-REDUCING VALVE IS REQUIRED AND AN AUTOMATIC MEANS OF PRESSURE RELIEF SHALL BE INSTALLED ON THE SPRINKLER SYSTEM SIDE OF THE PRESSURE-REDUCING VALVE.
- NFPA 13D 8.2.5\* OBSTRUCTIONS TO RESIDENTIAL SPRINKLERS
  - 8.2.5.6\* SHADOW AREAS SHALL BE PERMITTED IN THE PROTECTION AREA OF A SPRINKLER AS LONG AS THE CUMULATIVE DRY AREAS DO NOT EXCEED 15 FT² PER SPRINKLER.
  - 8.2.5.7 SMALL AREAS CREATED BY ARCHITECTURAL FEATURES, SUCH AS PLANTER BOX WINDOWS, BAY WINDOWS, AND SIMILAR FEATURES, SHALL BE EVALUATED AS FOLLOWS:
    - WHERE NO ADDITIONAL FLOOR AREA IS CREATED BY THE ARCHITECTURAL FEATURE, NO ADDITIONAL SPRINKLER PROTECTION IS REQUIRED.
    - WHERE ADDITIONAL FLOOR AREA IS CREATED BY AN ARCHITECTURAL FEATURE, NO ADDITIONAL SPRINKLER PROTECTION IS REQUIRED, PROVIDED ALL OF THE FOLLOWING CONDITIONS ARE MET:
      - THE FLOOR AREA SHALL NOT EXCEED 18 FT² (1.7 M²)
      - THE FLOOR AREA SHALL NOT BE GREATER THAN 2 FT IN DEPTH AT THE DEEPEST POINT OF THE ARCHITECTURAL FEATURE TO THE PLANE OF THE PRIMARY WALL WHERE MEASURED ALONG THE FINISHED FLOOR.
      - THE FLOOR SHALL NOT BE GREATER THAN 9 FT IN LENGTH WHERE MEASURED ALONG THE PLANE OF THE PRIMARY WALL.
      - MEASURED FROM THE DEEPEST POINT OF THE ARCHITECTURAL FEATURE TO THE SPRINKLER SHALL NOT EXCEED THE MAXIMUM LISTED SPACING OF THE SPRINKLER.
    - THE HYDRAULIC DESIGN SHALL NOT BE REQUIRED TO CONSIDER THE AREA CREATED BY THE ARCHITECTURAL FEATURE.
- NFPA 13D 8.3 LOCATION OF SPRINKLERS.
  - 8.3.1 SPRINKLERS SHALL BE INSTALLED IN ALL AREAS EXCEPT WHERE OMISSION IS PERMITTED BY 8.3.2 THROUGH 8.3.8.
  - 8.3.2 SPRINKLERS SHALL NOT BE REQUIRED IN BATHROOMS OF 55 FT² (5.1 M²) AND LESS
  - 8.3.3 SPRINKLERS SHALL NOT BE REQUIRED IN CLOTHES CLOSETS, LINEN CLOSETS, AND PANTRIES THAT MEET ALL OF THE FOLLOWING CONDITIONS:
    - THE AREA OF THE SPACE DOES NOT EXCEED 24 FT² (2.2 M²).
    - THE WALLS AND CEILINGS ARE SURFACED WITH NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIALS AS DEFINED IN NFPA 220, STANDARD ON TYPES OF BUILDING CONSTRUCTION.
    - 8.3.4\* SPRINKLERS SHALL NOT BE REQUIRED IN GARAGES, OPEN ATTACHED PORCHES, CARPORTS, AND SIMILAR STRUCTURES
    - 8.3.5 SPRINKLERS SHALL NOT BE REQUIRED IN ATTICS WITH OR WITHOUT STORAGE, PENTHOUSE EQUIPMENT ROOMS, ELEVATOR MACHINE ROOMS, CONCEALED SPACES DEDICATED EXCLUSIVELY TO AND CONTAINING ONLY DWELLING UNIT VENTILATION EQUIPMENT, FLOOR/CEILING SPACES, ELEVATOR SHAFTS, CRAWL SPACES, AND OTHER CONCEALED SPACES THAT ARE NOT USED OR INTENDED FOR LIVING PURPOSES.
    - 8.3.5.1 SUCH SPACES THAT CONTAIN FUEL-FIRED EQUIPMENT SHALL ALSO COMPLY WITH 8.3.5.1.1 OR 8.3.5.1.2.
    - 8.3.5.1.1 WHERE THE FUEL-FIRED EQUIPMENT IS ABOVE ALL OF THE OCCUPIED AREAS OF THE DWELLING UNIT, NO SPRINKLER PROTECTION SHALL BE REQUIRED IN THE CONCEALED SPACE.
    - 8.3.5.1.2 WHERE FUEL-FIRED EQUIPMENT IS BELOW OR ON THE SAME LEVEL AS OCCUPIED AREAS OF THE DWELLING UNIT, AT LEAST ONE QUICK-RESPONSE INTERMEDIATE TEMPERATURE SPRINKLER SHALL BE INSTALLED ABOVE THE EQUIPMENT OR AT THE WALL SEPARATING THE SPACE WITH THE FUEL-FIRED EQUIPMENT FROM THE OCCUPIED SPACE.
    - 8.3.6 SPRINKLERS SHALL NOT BE REQUIRED IN COVERED, UNHEATED PROJECTIONS OF THE BUILDING AT ENTRANCES/EXITS AS LONG AS THE DWELLING UNIT HAS ANOTHER MEANS OF EGRESS.
    - 8.3.7 SPRINKLERS SHALL NOT BE REQUIRED FOR CEILING POCKETS THAT MEET THE FOLLOWING CONDITIONS:
      - THE TOTAL VOLUME OF ALL UNPROTECTED CEILING POCKETS IN A COMPARTMENT DOES NOT EXCEED 100 FT³ (2.83 M³).
      - THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY THE SPRINKLERS AT THE LOWER CEILING ELEVATION.
      - THE INTERIOR FINISH OF THE UNPROTECTED CEILING POCKET EXCLUDING DECORATIVE TREATMENTS IS NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL.
      - SKYLIGHTS NOT EXCEEDING 32 FT² (2.97 M²) SHALL BE PERMITTED TO HAVE A PLASTIC COVER.
    - 8.3.8 SPRINKLERS SHALL NOT BE REQUIRED IN CLOSETS IN GARAGES AND EXTERIOR CLOSETS (REGARDLESS OF SIZE) LOCATED ON EXTERIOR BALCONIES, EXTERIOR BREEZEWAYS/CORRIDORS, OR ACCESSED FROM OUTDOORS WHERE THE CLOSET DOES NOT HAVE DOORS OR UNPROTECTED PENETRATIONS DIRECTLY INTO THE DWELLING UNIT.
    - 8.3.9 SPRINKLERS SHALL BE INSTALLED IN ANY CLOSET USED FOR HEATING AND/OR AIR-CONDITIONING EQUIPMENT, WASHERS AND/OR DRYERS, OR WATER HEATERS EXCEPT AS ALLOWED BY 8.3.8.
- INSULATION GUIDE LINES PER NFPA 13D.
  - 9.1.1\* WET PIPE SYSTEMS IN AREAS ABOVE 40°F. A WET PIPE SYSTEM SHALL BE PERMITTED TO BE TO BE USED WHERE ALL PIPING IS INSTALLED IN AREAS MAINTAINED ABOVE 40°F, INCLUDING AREAS PROPERLY INSULATED TO MAINTAIN 40°F.
    - 9.1.1.1 IN AREAS SUBJECT TO FREEZING, CARE SHOULD BE TAKEN IN UNHEATED ATTIC SPACES TO COVER SPRINKLER PIPING COMPLETELY WITH INSULATION. INSTALLATION SHOULD FOLLOW THE GUIDELINES OF THE INSULATION MANUFACTURER, FIGURE A.9.1.1(A) THROUGH FIGURE A.9.1.1(F). SHOW SEVERAL METHODS THAT CAN BE CONSIDERED. THESE ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONSULTATION WITH THE GENERAL CONTRACTOR AND/OR OWNER IS RECOMMENDED TO ENSURE PROPER METHODS AND MATERIALS ARE USED TO MAKE SURE 40°F WILL BE MAINTAINED.

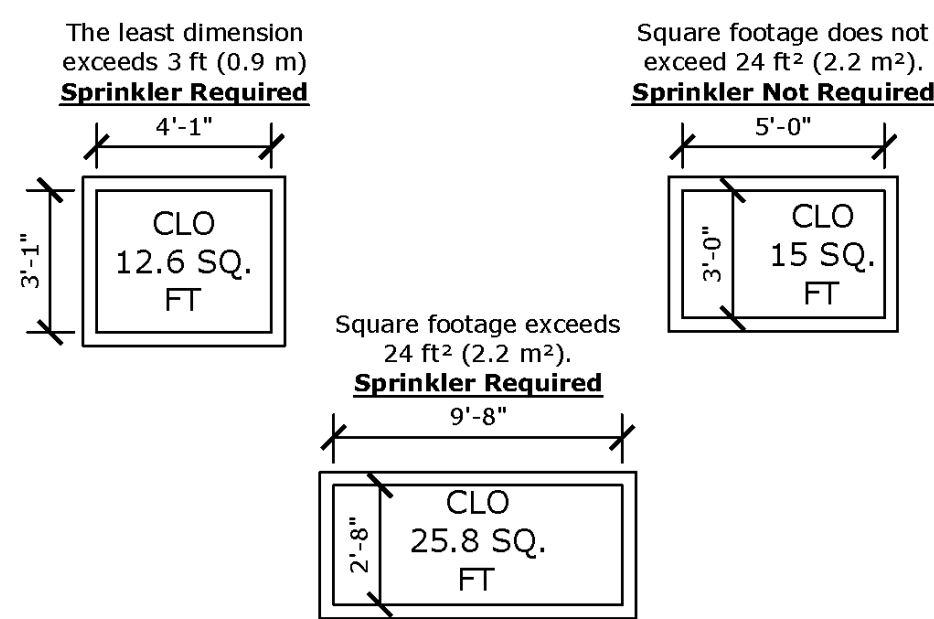
### Senju RC-RES: Open Web Truss/TJI Construction



### Senju RC-RES: Traditional Wood Framing Construction



### See General Notes 8.6.3 for Closet Requirements



### Insulation Recommendations

In areas subject to freezing, care should be taken in unheated attic spaces to cover Uponor AquaPEX tubing completely with insulation. Insulation should follow the guidelines of the insulation manufacturer. See Uponor Document "Uponor AquaSAFE Attic Insulation Guidelines" for attic installation guidelines (Provided in Contractors Documents package or online at [www.Uponorpro.com](http://www.Uponorpro.com)).

### Extreme Temperature Installations

AquaSAFE Residential Fire Safety systems are often installed in attics or other areas exposed to temperature extremes of heat and/or cold. Follow the recommended extreme weather installation instructions to isolate and protect system components from extreme temperatures. Because this system also delivers domestic cold water directly to plumbing fixtures, Uponor highly recommends that you protect the tubing with adequate insulation in warm weather areas to minimize heating of the cold water supply.

Installation methods include, but are not limited to:

- Tenting over the fire sprinkler piping.
- Additional layers of batt insulation.
- Increased depth of blown-in insulation.

Caution: If you will be installing spray foam insulation, make sure to protect all components during application. Consult with the spray foam manufacturer to ensure compatibility with all products before application. Consultation with local building officials is encouraged to ensure compliance with local building codes.

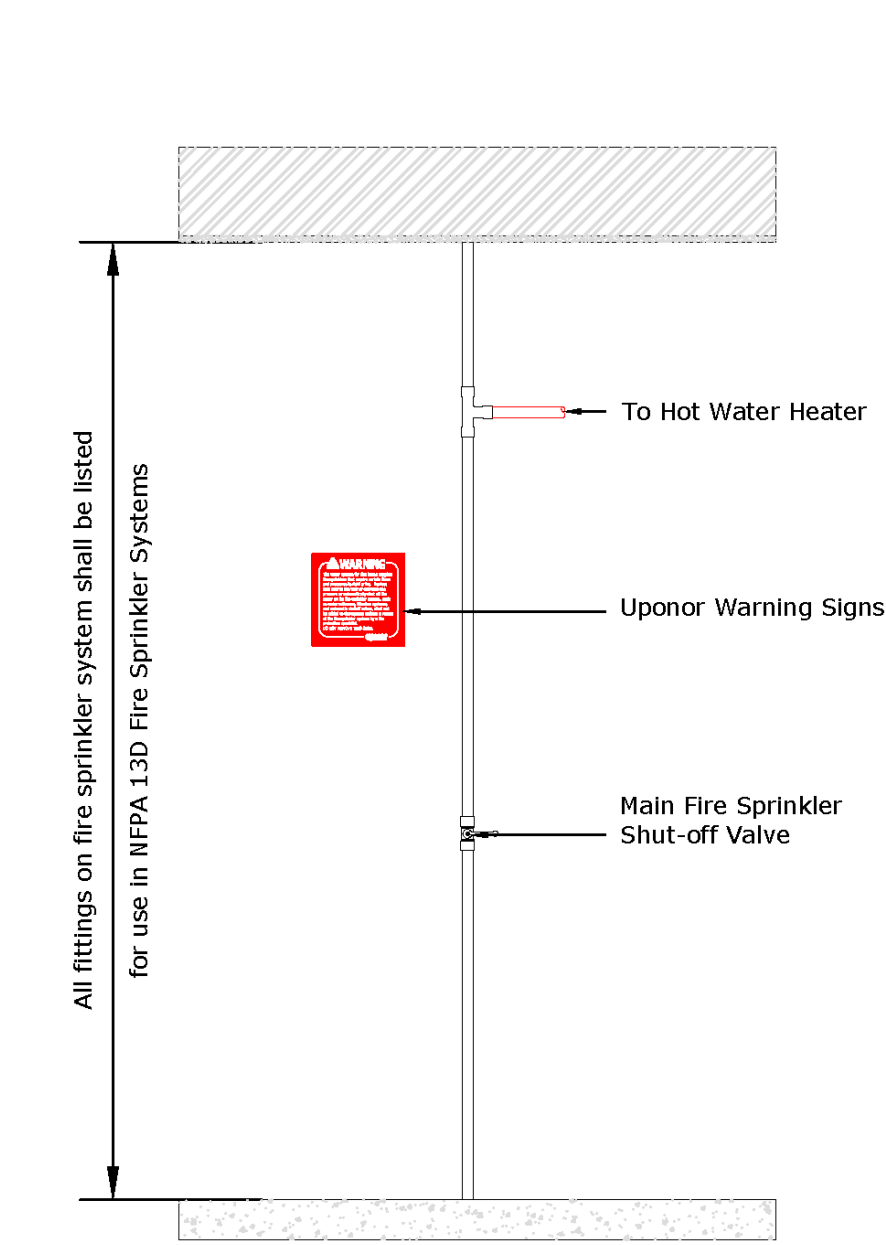
### Bending PEX Tubing

The minimum bend radius of Uponor PEX tubing in any direction is six times the outside diameter (6 x OD). Bend supports are available for 3/8", 1/2", 3/4" and 1" Uponor AquaPEX tubing to facilitate 90-degree rigid bends.

Recommended Tubing Length Between Fittings	
Fitting Size	Minimum Tubing Length
3/8" ProPEX Fitting	2"
1/2" ProPEX Fitting	2 1/2"
3/4" ProPEX Fitting	3 1/2"
1" ProPEX Fitting	4 1/2"
1 1/4" ProPEX Fitting	5 1/2"

### Standard Riser Assembly

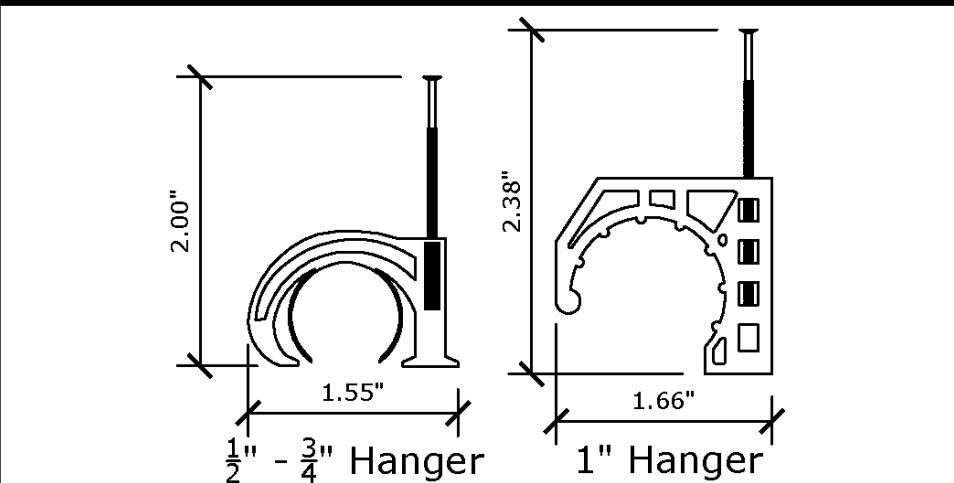
In a multi-purpose system a single control valve controls both domestic and fire safety needs.



Slope Guide			
Slope: Rise/Run	Pitch: Degrees	Slope: Rise/Run	Pitch: Degrees
0/12	0°	9/12	36.87°
1/12	4.76°	10/12	39.81°
2/12	9.46°	11/12	42.51°
3/12	14.04°	12/12	45°
4/12	18.43°	13/12	47.29°
5/12	22.62°	14/12	49.40°
6/12	26.57°	15/12	51.34°
7/12	30.26°	16/12	53.13°
8/12	33.69°	17/12	54.78°
		18/12	56.31°

### NFPA 13D Table 7.5.5.3 Distances From Heat Sources

Heat Source	Ordinary Temp. 135°-170°	Intermediate Temp. 175°-225°
Side of Fireplace	36"	12"
Front of Fireplace	60"	36"
Wood Burning Stove	42"	12"
Kitchen Range	18"	9"
Wall Oven	18"	9"
Hot Air Flues	18"	9"
Uninsulated Heat Ducts	18"	9"
Uninsulated Hot Water Pipes	12"	6"
Side of Hot Air Diffuser	24"	12"
Front of Hot Air Diffuser	36"	18"
Hot Water Heater	6"	3"
Furnace	6"	3"
50W-250W Light Fixture	6"	3"
250W-499W Light Fixture	12"	6"



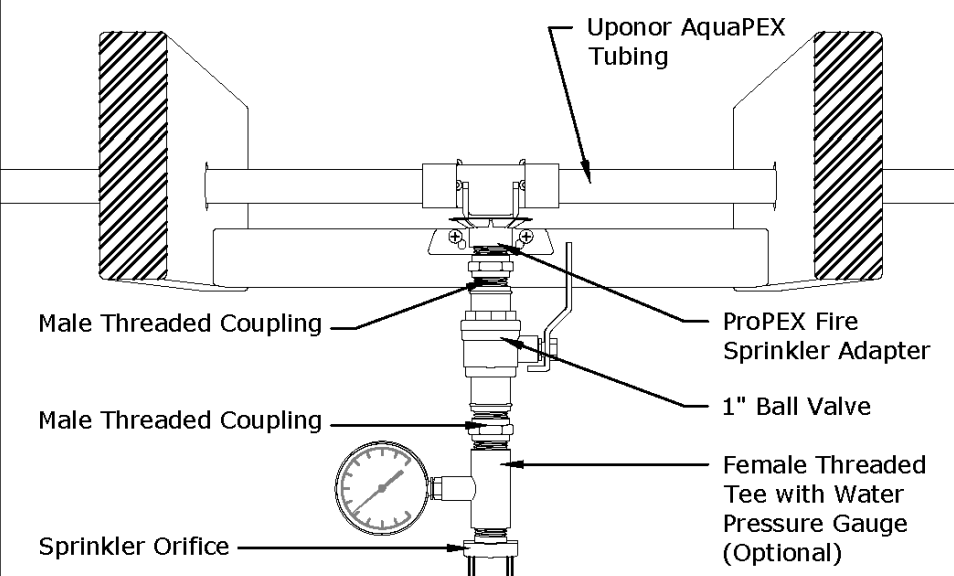
### Tubing Support Spacing:

(Anchor AquaPEX Tubing Securely Enough to Support the Tubing, Yet Relaxed Enough to Allow the Tubing to Expand and Contract)

- Along Horizontal Runs, Install Supports Every 32", If Horizontal Runs are Continuously Supported, Place Tubing Supports at Six-Foot Intervals.
- Along Vertical Runs, Install Supports Every Four to Five Feet, at Each Floor and at a Mid-story Guide.

### In-line Flow Test

The In-line Flow Test can be constructed on site. It performs a flow test to ensure proper system operation and flow (see Figure F001-8).



### Flow Test

To ensure the system provides enough water for proper fire sprinkler performance, you should conduct a flow verification test.

Note: The NFPA 13D Installation Standard does not require flow verification.

Before performing a flow verification test, confirm the water pressures by contacting the Water and Sewer Department of your local city. Ensure the available water pressure matches the pressure used in the system design.

Note: The sprinkler plan indicates the most hydraulically remote sprinkler (or pair of sprinklers). For test requirements on other sprinklers, consult your local code.

Note: It is a good idea to notify the fire inspector at least 24 hours prior to performing a flow verification test. This may speed up the inspection process and eliminate the need to repeat the test for the inspector.

Note: See "AquaSAFE Flow Test Instruction Sheet" (Provided in Contractors Documents package or online at [www.Uponorpro.com](http://www.Uponorpro.com)) for more information on Flow Test Setup, Assembly, Performing the Test and Troubleshooting. If there are any questions please contact Uponor.

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 sunhome@mst.edu

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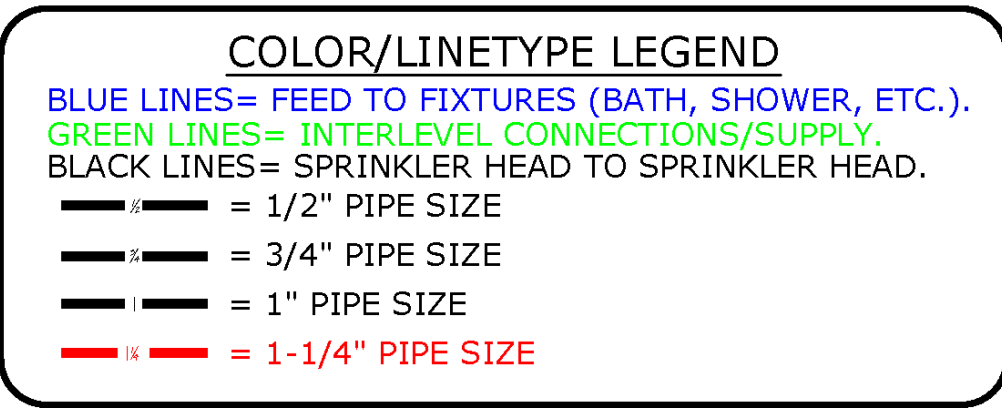
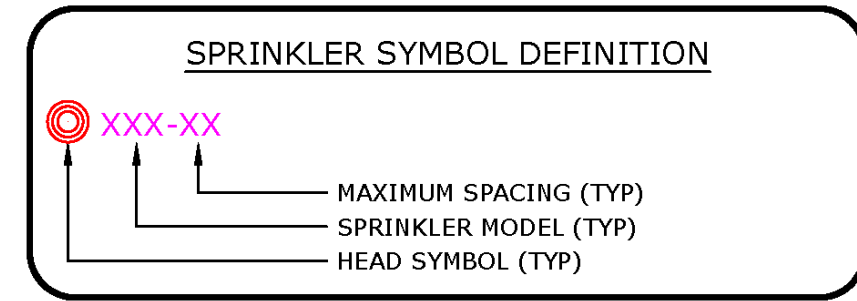
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SHEET TITLE  
**GENERAL SYMBOLS AND NOTES**

**F-001**

Markup Legend	
Delete Line	
Add Line	
Add Tee	
Add Elbow	
Add Coupling	
Add Head	
Delete Head	
Move Head	



**What to do if Changes are Required**  
 If any features or obstructions require the addition or deletion of sprinkler heads, or significant relocation of sprinkler heads, contact the Uponor Design Department to determine if observed changes require a redesign (888.594.7726).

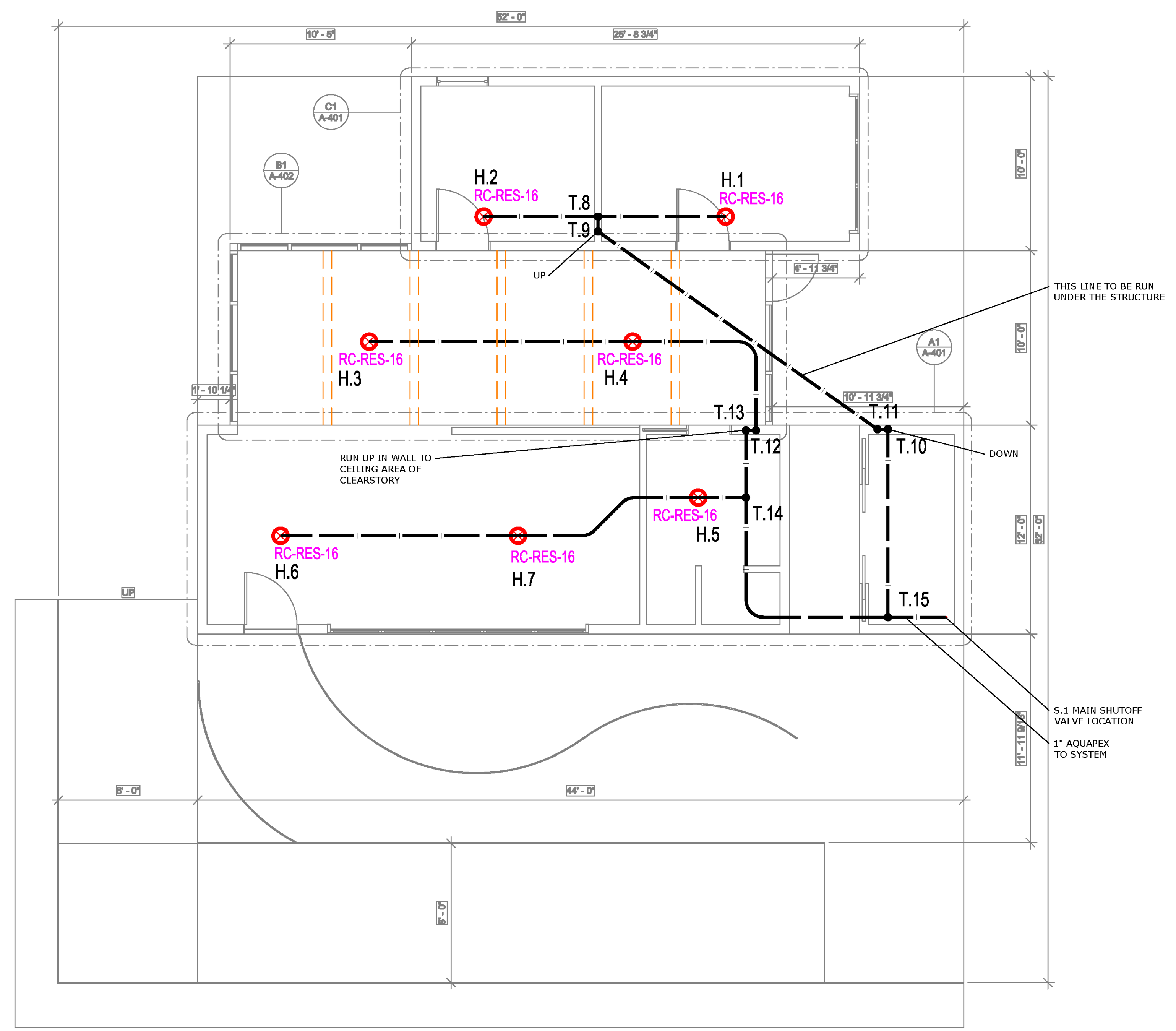
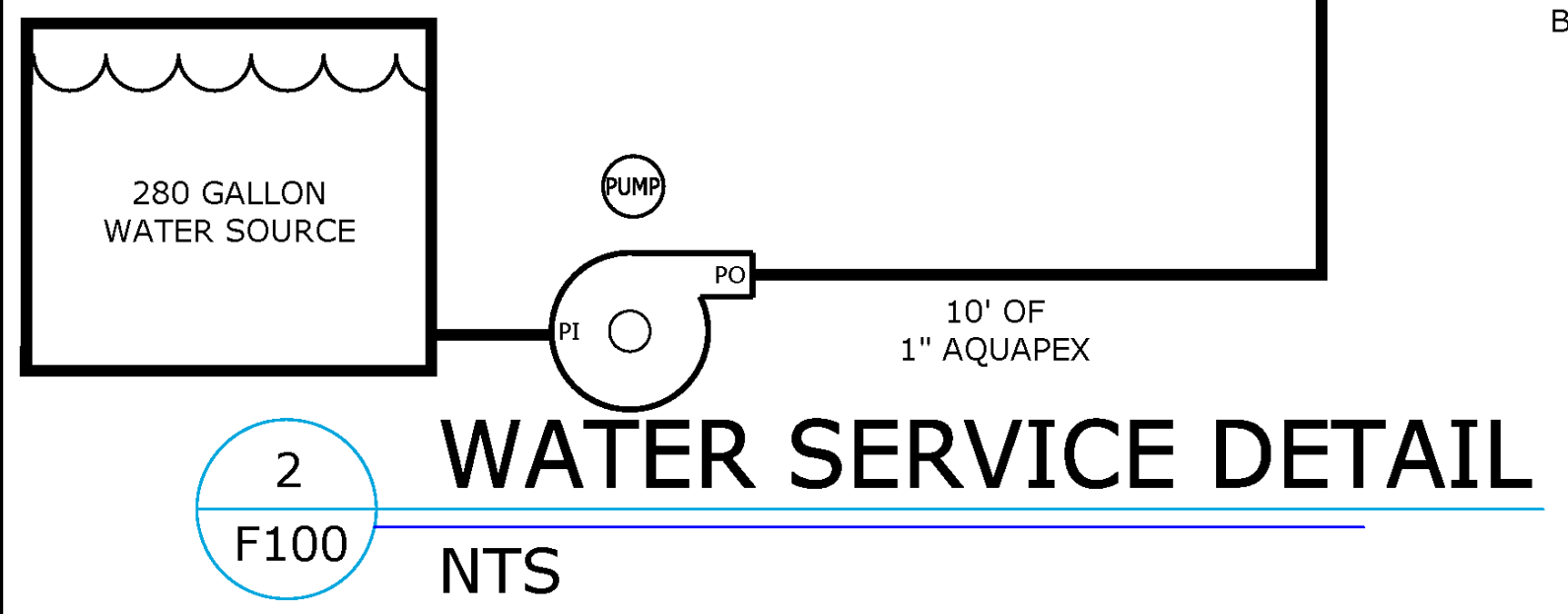
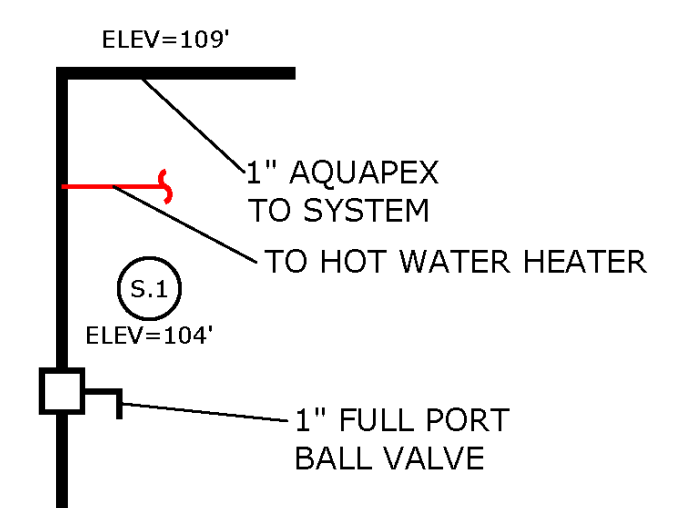
**MOST HYDRAULICALLY REMOTE HEADS**

HEAD #	GPM	PRESSURE REQ'D AT STREET
1 HEAD H.2	18	26.96
2 HEAD H.3 & H.4	27.6676	49.01

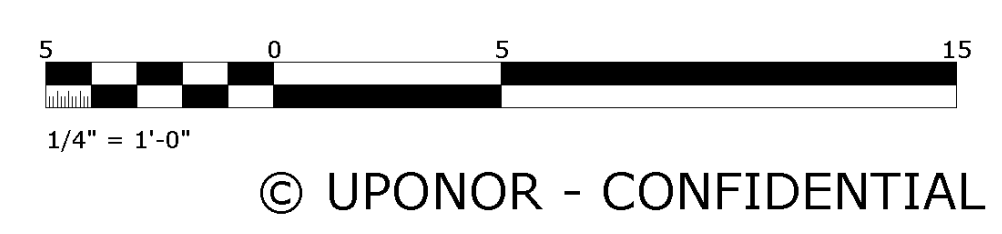
- - - 7 RC-RES-16 SENJU Model RC-RES Residential Flat Concealed Pendant SS8464 K=4.9, 162F°, 7/16" Orifice, Maximum Spacing 16"x16" Sprinkler head demand: 13 gpm @ 7.04 psi

WELL CASING AND/OR TANK TO PROVIDE 280 GALS OF STORAGE. WELL PUMP TO PROVIDE MINIMUM 27.67 GPM @ 49.01 PSI AT MANIFOLD S.1

**PUMP:**  
 PRESSURE REQUIRED: 55psi  
 GPM REQUIRED: 28gpm



**1 MAIN FLOOR**  
 F100 1/4" = 1'-0"



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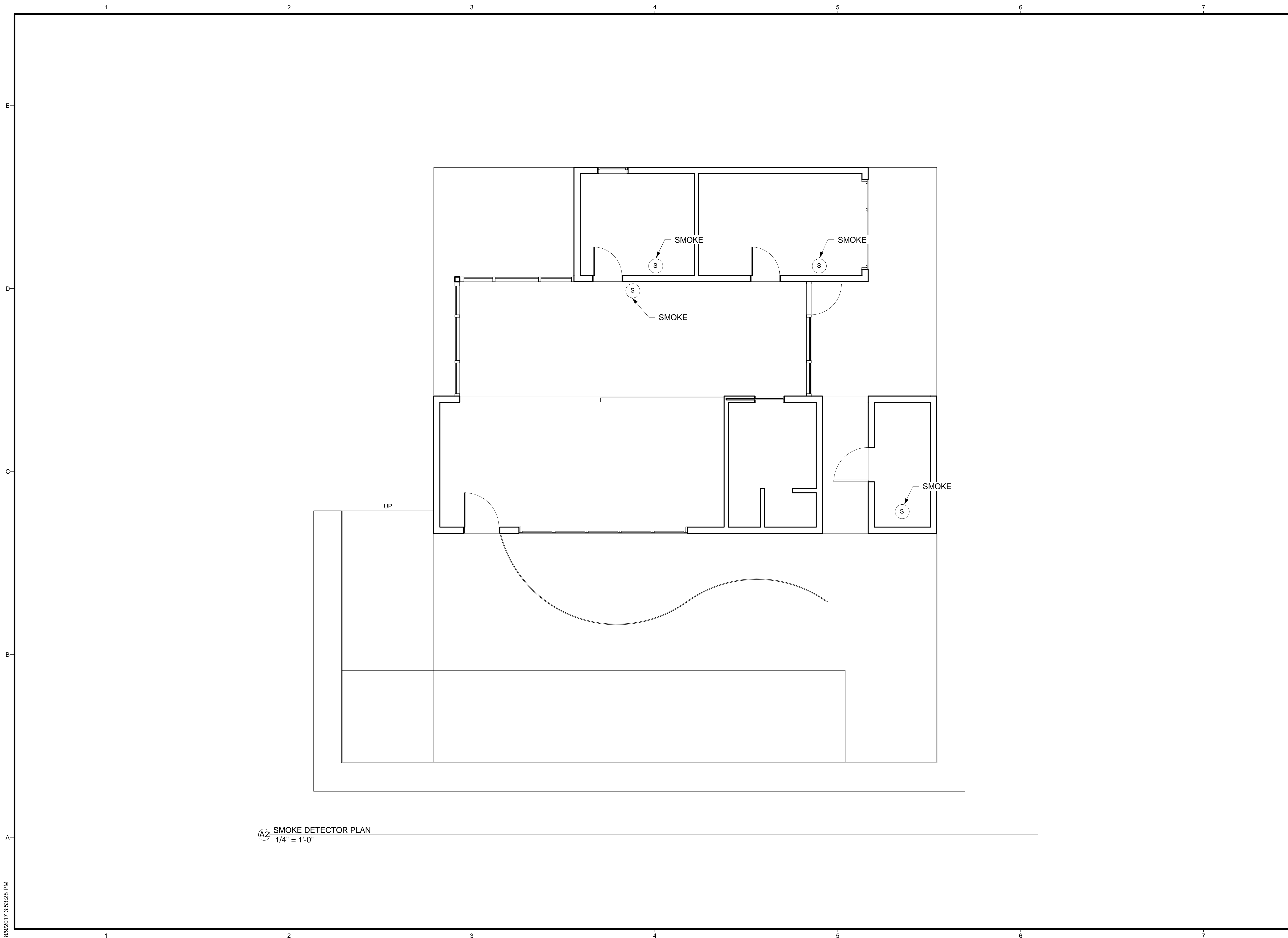
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SHEET TITLE  
**SPRINKLER HEAD PLAN**

**F-101**

8/9/2017 3:53:27 PM



A2 SMOKE DETECTOR PLAN  
1/4" = 1'-0"

8/9/2017 3:53:28 PM



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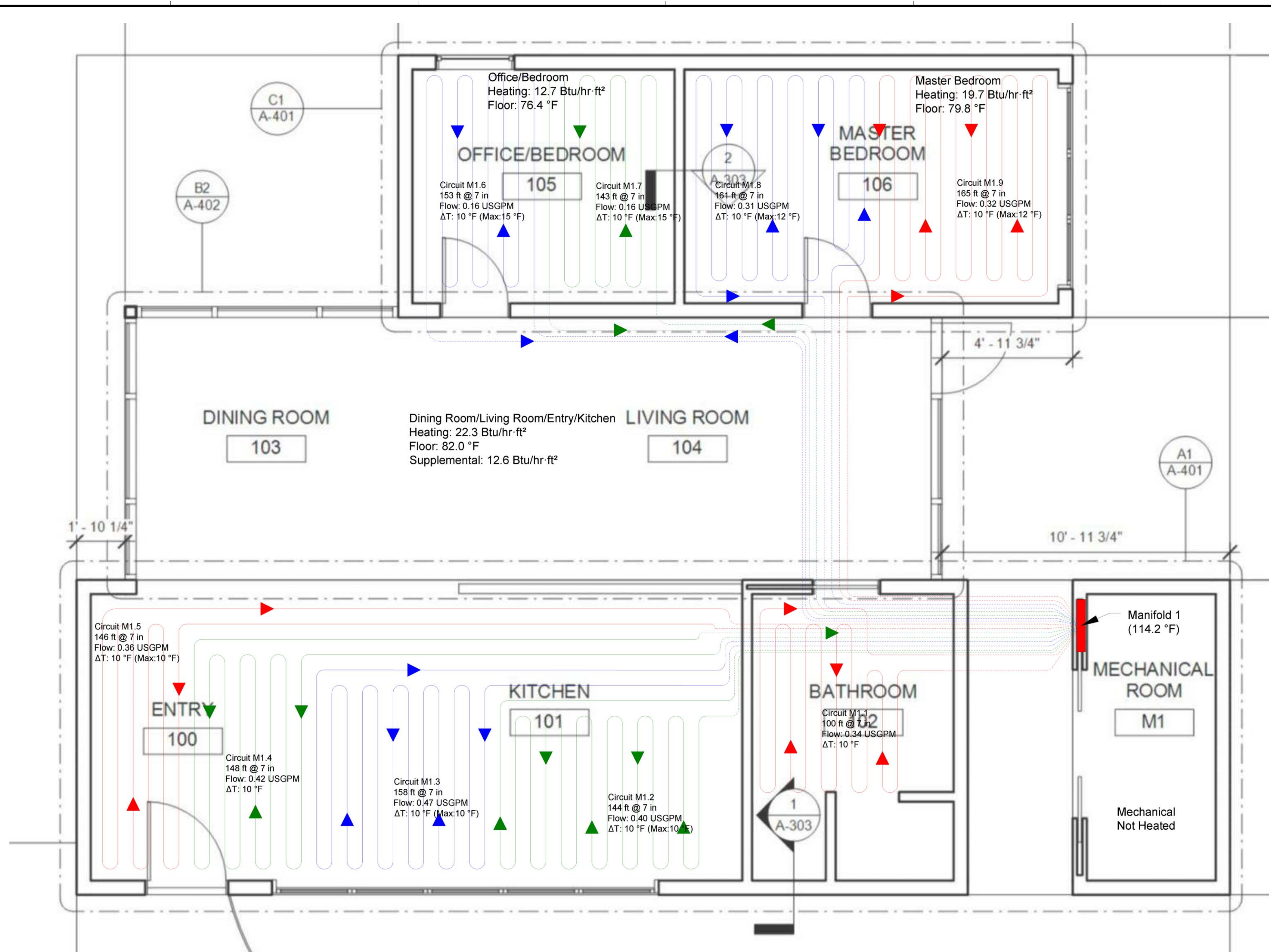
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SHEET TITLE  
**SMOKE DETECTOR  
 PLAN**

**F-102**







Manifolds							
Name	Manifold Type	# Circuits	Tubing Size	Supply Temp (°F)	Total Flow (USGPM)	Head Loss (ft water)	Total Load (Btu/hr)
Manifold 1	TruFLOW Classic	9	5/16"	114	2.95	17.0	14,716

Rooms				
Name	Area (ft²)	Zone	Total Load (Btu/hr)	
Dining Room/Living Room/Entry/Kitchen	680	Zone 101	18,623	
Master Bedroom	126	Zone 102	3,156	
Mechanical	103	Not Heated	0	
Office/Bedroom	90	Zone 102	1,626	

Circuit Information								
Number	Length (ft)	Spacing (in)	Tube Size	Manifold	Flow (USGPM)	Head Loss (ft water)	Total Load (Btu/hr)	
M1.1	100	7	5/16"	Manifold 1	0.34	5.9	1,678	
M1.2	144	7	5/16"	Manifold 1	0.40	11.3	1,986	
M1.3	158	7	5/16"	Manifold 1	0.47	16.8	2,356	
M1.4	148	7	5/16"	Manifold 1	0.42	13.0	2,113	
M1.5	146	7	5/16"	Manifold 1	0.36	9.7	1,801	
M1.6	153	7	5/16"	Manifold 1	0.16	2.6	813	
M1.7	143	7	5/16"	Manifold 1	0.16	2.5	813	
M1.8	161	7	5/16"	Manifold 1	0.31	8.3	1,543	
M1.9	165	7	5/16"	Manifold 1	0.32	9.1	1,613	



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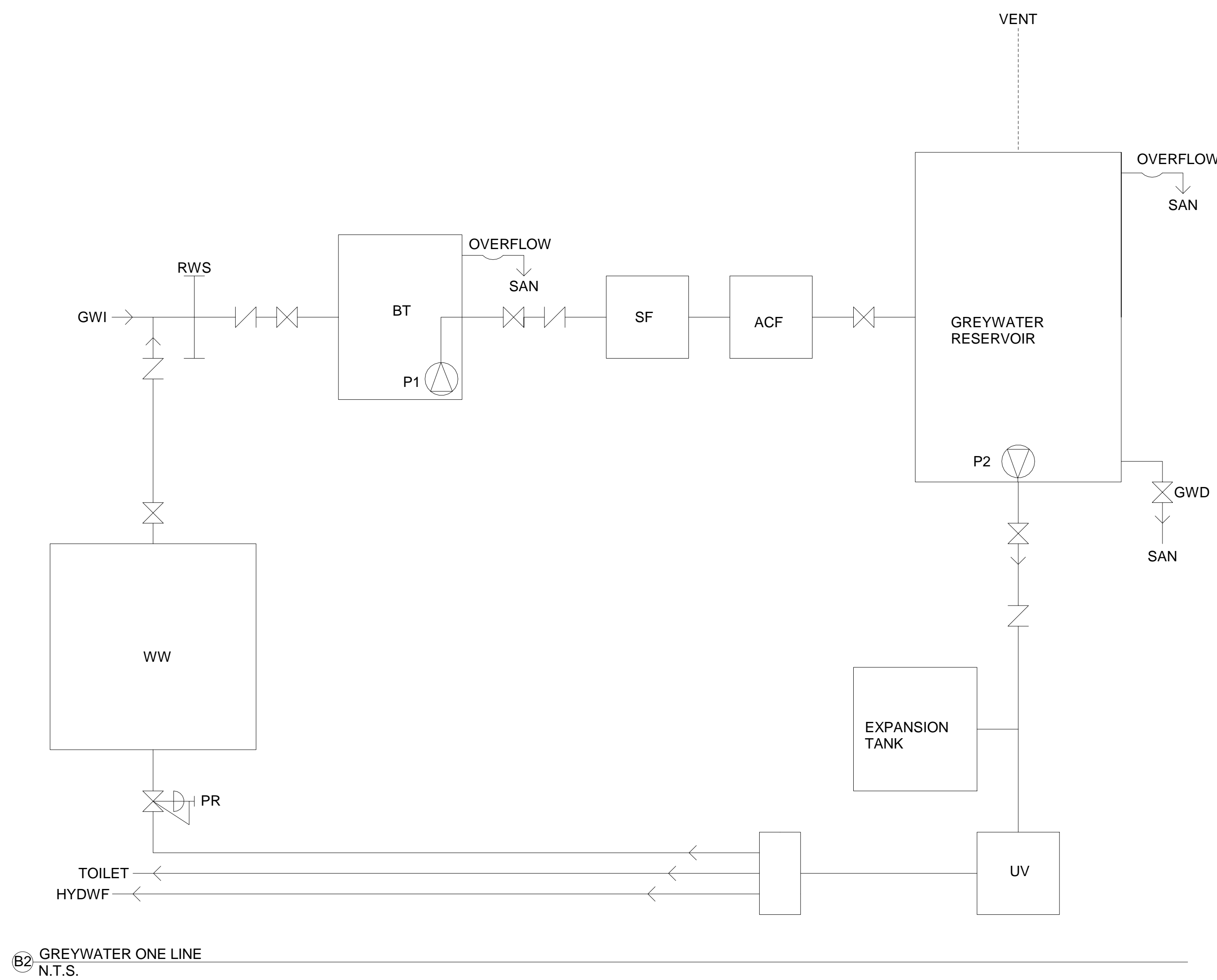
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SHEET TITLE  
**RADIANT FLOORING PLAN**

**P-103**

- LEGEND**
- GWI GREYWATER INFLUENT
  - RWS RAW WATER STRAINER
  - BT BACKUP TANK
  - P1 PUMP 1
  - P2 PUMP 2
  - SAN SANITARY SEWER
  - SF SPIN FILTER
  - ACF ACTIVATED CHARCOAL FILTER
  - GWD GREYWATER DRAIN
  - UV UV FILTER
  - PR PRESSURE REGULATOR
  - WW WATER WALL
  - HYDWF HYDROPONICS WATER FEED



Ⓟ GREYWATER ONE LINE  
N.T.S.



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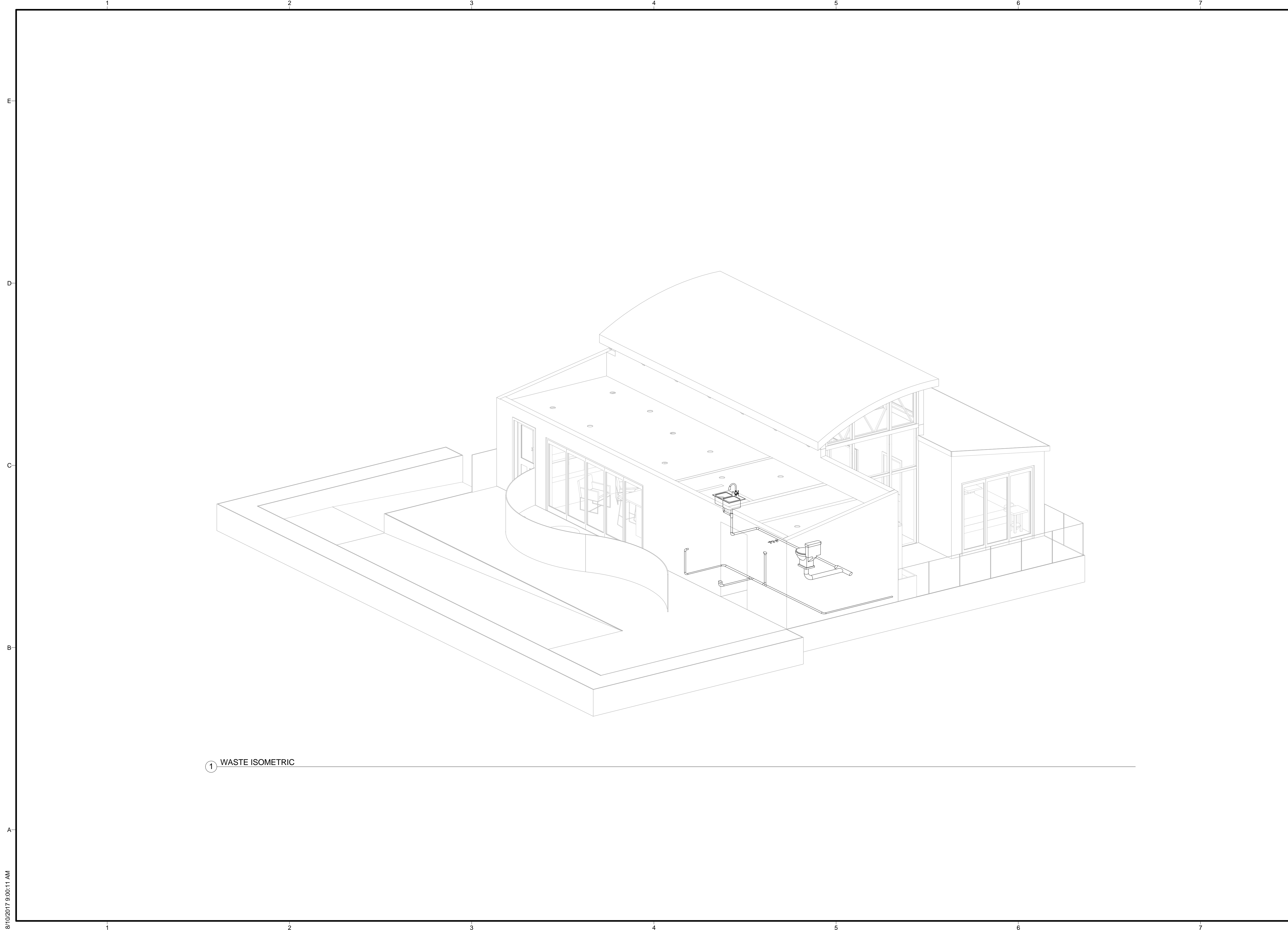
SHEET TITLE  
**GREYWATER ONE LINE**

**P-601**

8/10/2017 9:00:09 AM







① WASTE ISOMETRIC



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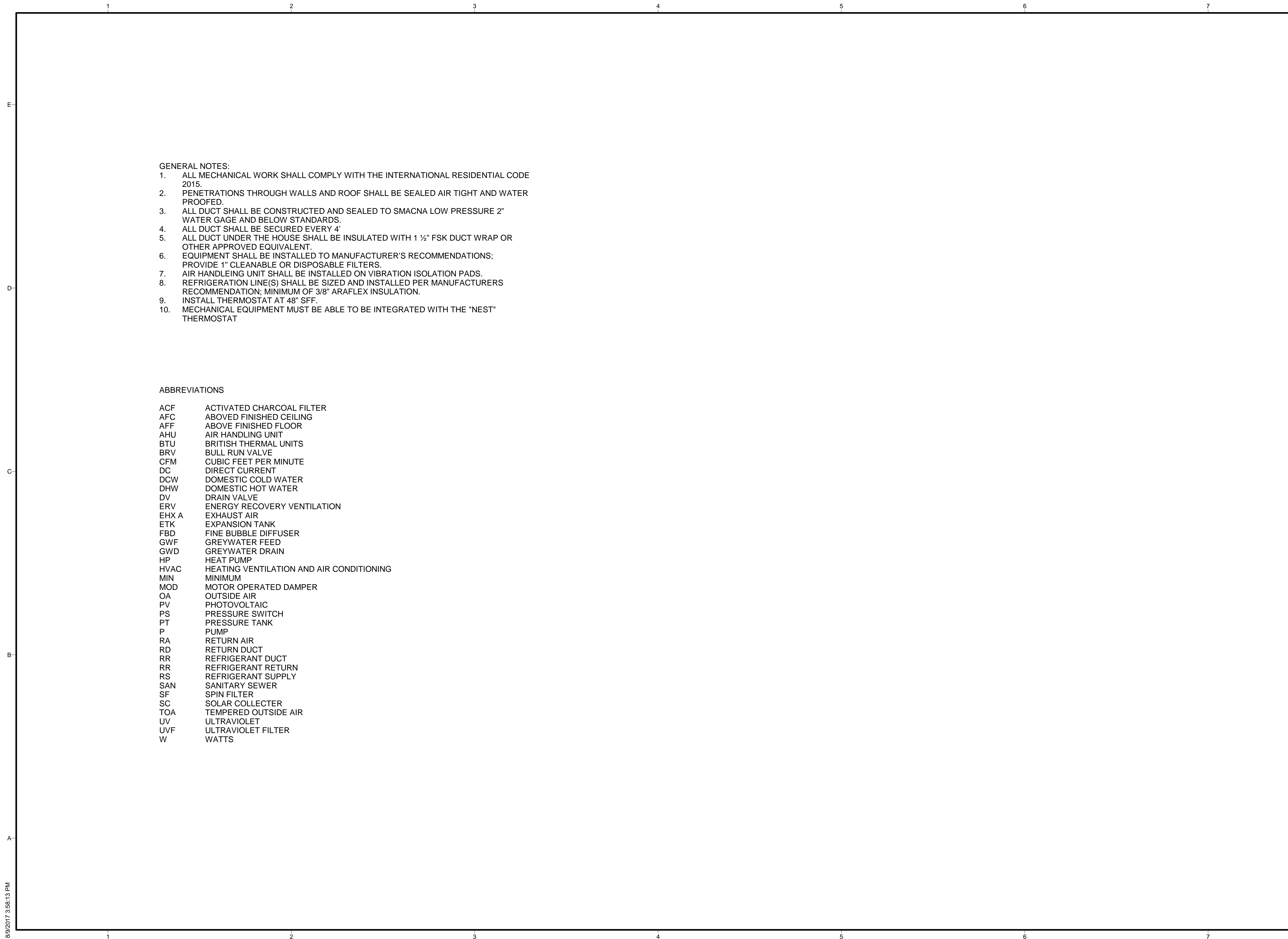


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**WASTE ISOMETRIC**

**P-902**



**GENERAL NOTES:**

1. ALL MECHANICAL WORK SHALL COMPLY WITH THE INTERNATIONAL RESIDENTIAL CODE 2015.
2. PENETRATIONS THROUGH WALLS AND ROOF SHALL BE SEALED AIR TIGHT AND WATER PROOFED.
3. ALL DUCT SHALL BE CONSTRUCTED AND SEALED TO SMACNA LOW PRESSURE 2" WATER GAGE AND BELOW STANDARDS.
4. ALL DUCT SHALL BE SECURED EVERY 4'
5. ALL DUCT UNDER THE HOUSE SHALL BE INSULATED WITH 1 1/2" FSK DUCT WRAP OR OTHER APPROVED EQUIVALENT.
6. EQUIPMENT SHALL BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS; PROVIDE 1" CLEANABLE OR DISPOSABLE FILTERS.
7. AIR HANDLING UNIT SHALL BE INSTALLED ON VIBRATION ISOLATION PADS.
8. REFRIGERATION LINE(S) SHALL BE SIZED AND INSTALLED PER MANUFACTURER'S RECOMMENDATION; MINIMUM OF 3/8" ARAFLEX INSULATION.
9. INSTALL THERMOSTAT AT 48" SFF.
10. MECHANICAL EQUIPMENT MUST BE ABLE TO BE INTEGRATED WITH THE "NEST" THERMOSTAT

**ABBREVIATIONS**

ACF	ACTIVATED CHARCOAL FILTER
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BTU	BRITISH THERMAL UNITS
BRV	BULL RUN VALVE
CFM	CUBIC FEET PER MINUTE
DC	DIRECT CURRENT
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DV	DRAIN VALVE
ERV	ENERGY RECOVERY VENTILATION
EHX A	EXHAUST AIR
ETK	EXPANSION TANK
FBD	FINE BUBBLE DIFFUSER
GWF	GREYWATER FEED
GWD	GREYWATER DRAIN
HP	HEAT PUMP
HVAC	HEATING VENTILATION AND AIR CONDITIONING
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
OA	OUTSIDE AIR
PV	PHOTOVOLTAIC
PS	PRESSURE SWITCH
PT	PRESSURE TANK
P	PUMP
RA	RETURN AIR
RD	RETURN DUCT
RR	REFRIGERANT DUCT
RR	REFRIGERANT RETURN
RS	REFRIGERANT SUPPLY
SAN	SANITARY SEWER
SF	SPIN FILTER
SC	SOLAR COLLECTOR
TOA	TEMPERED OUTSIDE AIR
UV	ULTRAVIOLET
UVF	ULTRAVIOLET FILTER
W	WATTS



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**M-001**







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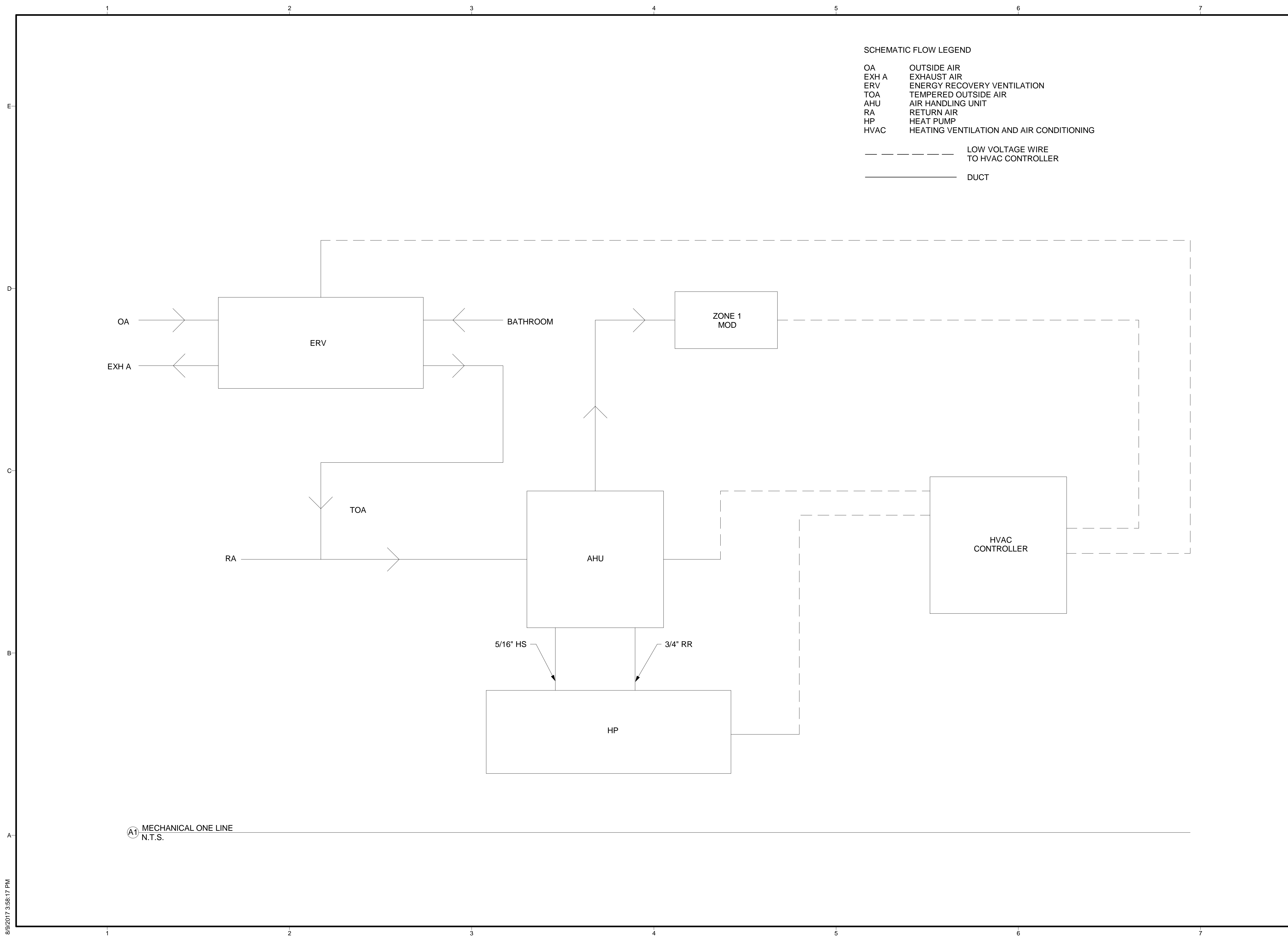


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**MECHANICAL  
 ELEVATIONS**

**M-201**



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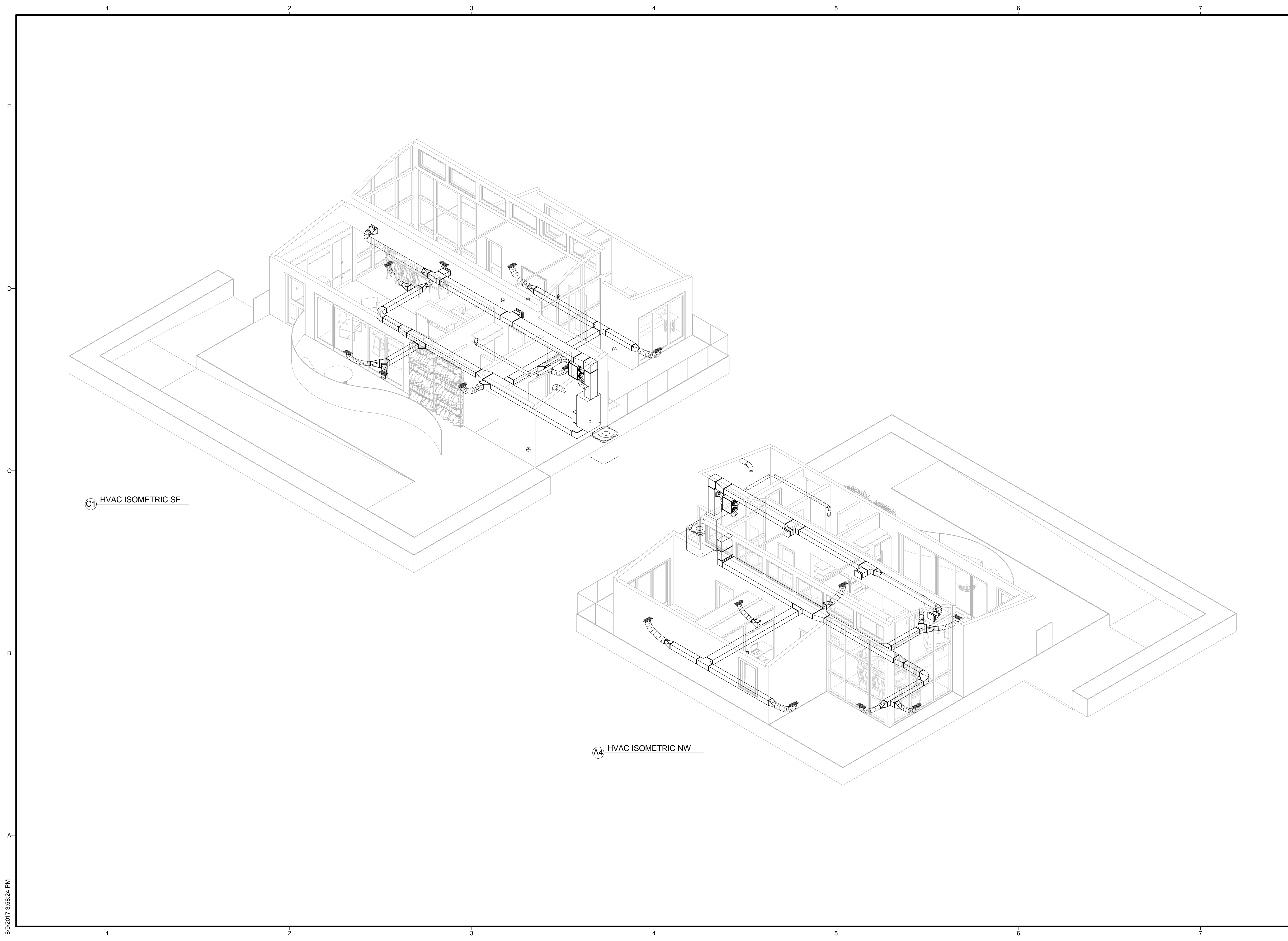


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SHEET TITLE  
**MECHANICAL ONE LINE**

**M-602**

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**M-901**

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ELECTRICAL DESIGN GUIDELINES

- CONDUCTORS-
- 1. ALL CONDUCTORS SHALL BE THWN COPPER.
- 2. DEDICATED NEUTRAL CONDUCTORS SHALL BE USED FOR ALL SINGLE PHASE LOADS UNLESS APPROVED IN WRITING BY THE PROJECT MANAGER.
- 3. ALL NEUTRAL CONDUCTORS WILL BE A MINIMUM OF FULL SIZE. DESIGNER WILL EVALUATE NEED FOR OVERSIZED NEUTRAL CONDUCTORS.
- 4. MINIMUM CONDUCTOR SIZE IS #12 AWG.
- 5. MINIMUM INSULATION RATING IS 90 DEGREES CELSIUS.
- 6. NOT PERMITTED: PRE-WIRED SYSTEMS SUCH AS TYPE AC (ARMORED CABLE), TYPE M (METAL-CLAD) AND TYPE NM (NONMETALLIC-SHEATHED CABLE) SHALL NOT BE USED UNLESS APPROVED IN WRITING BY THE PROJECT MANAGER PRIOR TO START OF CONSTRUCTION. (EXCEPTION: MC MAY BE USED FOR LIGHTING FIXTURE WHIPS UP TOO LONG. THEY MUST BE DEDICATED, NOT DAISY-CHAINED TOGETHER.)
- GROUNDING AND BONDING-
- 7. GROUNDING SYSTEMS SHOULD BE INSTALLED TO PROVIDE A RESISTANCE OF FIVE (5) OHMS OR LESS.
- 8. GROUNDING ELECTRODE CONDUCTORS SHALL BE INSULATED STRANDED COPPER CONDUCTORS. CONCEALED TERMINATIONS (SUCH AS BELOW GRADE AND WITHIN CONCRETE.) AND TERMINATIONS TO THE GROUNDING ELECTRODE SHALL BE MADE USING EXOTHERMIC WELDS.
- 9. GROUNDING CONDUCTORS SHALL BE INSULATED COPPER CONDUCTORS. GROUNDING CONDUCTORS LARGER THAN #8 AWG SHOULD BE STRANDED, AND CONDUCTORS SMALLER THAN #8 AWG SHOULD BE NONSTRANDED (SOLID). ALL GROUNDING AND BONDING SHOULD MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
- RACEWAY-
- 11. ALL CONDUCTORS SHOULD BE INSTALLED IN A RACEWAY SYSTEM.
- 12. INDOOR RACEWAY SYSTEM SHALL BE EMT, RIGID METAL CONDUIT, OR APPROVED SURFACE WAY.
- 13. SCHEDULE 80 PVC CONDUIT WILL BE UTILIZED ANYWHERE UNDERGROUND CONDUIT EMERGES FROM CONCRETE.
- 14. RIGID METAL CONDUIT OR SCHEDULE 80 PVC CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS. EXPANSION SHALL BE CONSIDERED FOR ALL EXTERIOR CONDUIT.
- 15. ELBOWS FOR RIGID METAL CONDUIT, 3 INCHES AND LARGER, SHALL BE EITHER PLASTCOATED OR TAPE COATED (FOR CORROSION CONTROL). RIGID METAL CONDUIT TO PREVENT DAMAGE FROM PULLING ROPES. RIGID METAL CONDUIT SHALL BE USED FOR AT LEAST THE FIRST 5 FEET OF HORIZONTAL RUNOUT FROM THE BUILDING TO ALLOW FOR BUILDING SETTLING OVER TIME.
- 16. EMT WILL NOT BE USED OUTDOORS, IN WET/DAMP LOCATIONS, OR IN FLOOR CRAWL SPACES. EXPOSED EMT WILL ALSO NOT BE ALLOWED BELOW 7 FEET AFF AREAS WHERE RACEWAY MAY RECEIVE PHYSICAL ABUSE (SUCH AS HALLWAYS, MECHANICAL ROOMS, STORAGE ROOMS, AND JANITOR CLOSETS), UNLESS THE CONDUIT IS 2" LARGER OR LARGER IN DIAMETER.
- 17. GARAGES AND SIMILAR AREAS SHALL BE CONSIDERED A WET LOCATION. ELECTRICAL ROOMS IN A GARAGE SHALL BE CONSIDERED A WET LOCATION. ALL PANELS AND ELECTRICAL DEVICES SHALL BE INSTALLED ON UNSTRUCT IN ELECTRICAL ROOMS IN GARAGE.
- 18. CONDUIT WILL BE SUPPORTED FROM THE BUILDING STRUCTURE. ATTACHMENT TO OTHER PIPES, CONDUITS, CONDUITS, DUCTWORK ETC. WILL NOT BE ALLOWED.
- 19. PVC CONDUIT WILL BE A SCHEDULE 40 MINIMUM WEIGHT UNLESS OTHERWISE INDICATED, AND SHALL BE DESIGNED FOR THE ELECTRIC APPLICATION WITH ALL CONNECTIONS SOLVENT WELDED.
- 20. ALL METALLIC FITTINGS WILL BE COMPRESSION TYPE RATED FOR GROUND CONNECTION.
- 21. FOR BRANCH CIRCUITS: A SEPARATE GROUNDING CONDUCTOR WILL BE INSTALLED. USE OF THE CONDUIT OR RACEWAY IS NOT AN ACCEPTABLE GROUNDING METHOD, HOWEVER, ALL METALLIC RACEWAY SHALL BE ELECTRICAL CONTINUOUS AND BONDED TO THE GROUNDING CONNECTOR.
- 22. FOR BRANCH CIRCUITS: THE MINIMUM CONDUIT SIZE WILL BE 3/4" EXCEPT FOR SWITCHLESS, LIGHTING WHIPS (SUPPLYING A SINGLE FIXTURE CIRCUIT), AND CONTROL WIRING WHICH MAY BE 1/2".
- 23. ALL RECEPTACLES AND SWITCHES WILL HAVE A MINIMUM RATING OF 20 AMPS AND WIRE COMMERCIAL SPECIFICATION GRADE.
- 24. PREFERRED COLOR FOR RECEPTACLES AND SWITCHES IS IVORY. OTHER COLORS MAY BE USED TO MATCH EXISTING DEVICES OR FOR SPECIAL USES.
- 25. IN AREAS REQUIRED TO HAVE GROUND FAULT INTERRUPTING CAPABILITY, GFRECEPTACLES SHALL BE USED IN LIEU OF GFI BREAKERS, UNLESS APPROVED BY THE PROJECT MANAGER.
- 26. ALL AREAS NOT ROTECTED BY GFCI OUTLETS, SHALL BE PROTECTED BY AFCI BREAKERS.
- 27. THE PREFERRED MOUNTING HEIGHTS, ABOVE FINISHED FLOOR ARE 48" FOR SWITCHES, AND 18" FOR RECEPTACLES.
- 28. EACH RESTROOM SHALL HAVE A MINIMUM OF ONE RECEPTACLE AND IT SHALL BE GFRECEPTACLE.
- 29. BOLT-IN BREAKERS SHALL BE USED. PLUG-IN BREAKERS ARE NOT ALLOWED. SQUARE D I-LINE AND GE SPECTRA SERIES ARE ACCEPTABLE.
- 30. TWO AND THREE POLE CIRCUIT BREAKERS SHALL HAVE AN INTERNAL COMMON TRIP AND ALL CIRCUIT BREAKERS FRAME SIZES RATED 200-AMP AND LARGER SHALL HAVE INTERCHANGEABLE TRIPS.
- 31. ONLY ONE CONDUCTOR SHALL BE CONNECTED TO EACH CIRCUIT BREAKER, UNLESS THE CIRCUIT BREAKER IS DESIGNED AND LISTED FOR MULTIPLE CONDUCTORS.
- 32. NO PIGGY BACK BREAKERS WILL BE ALLOWED.
- 33. ALL GENERAL PURPOSE POWER CIRCUITS WILL BE A MINIMUM OF 20 AMPS.



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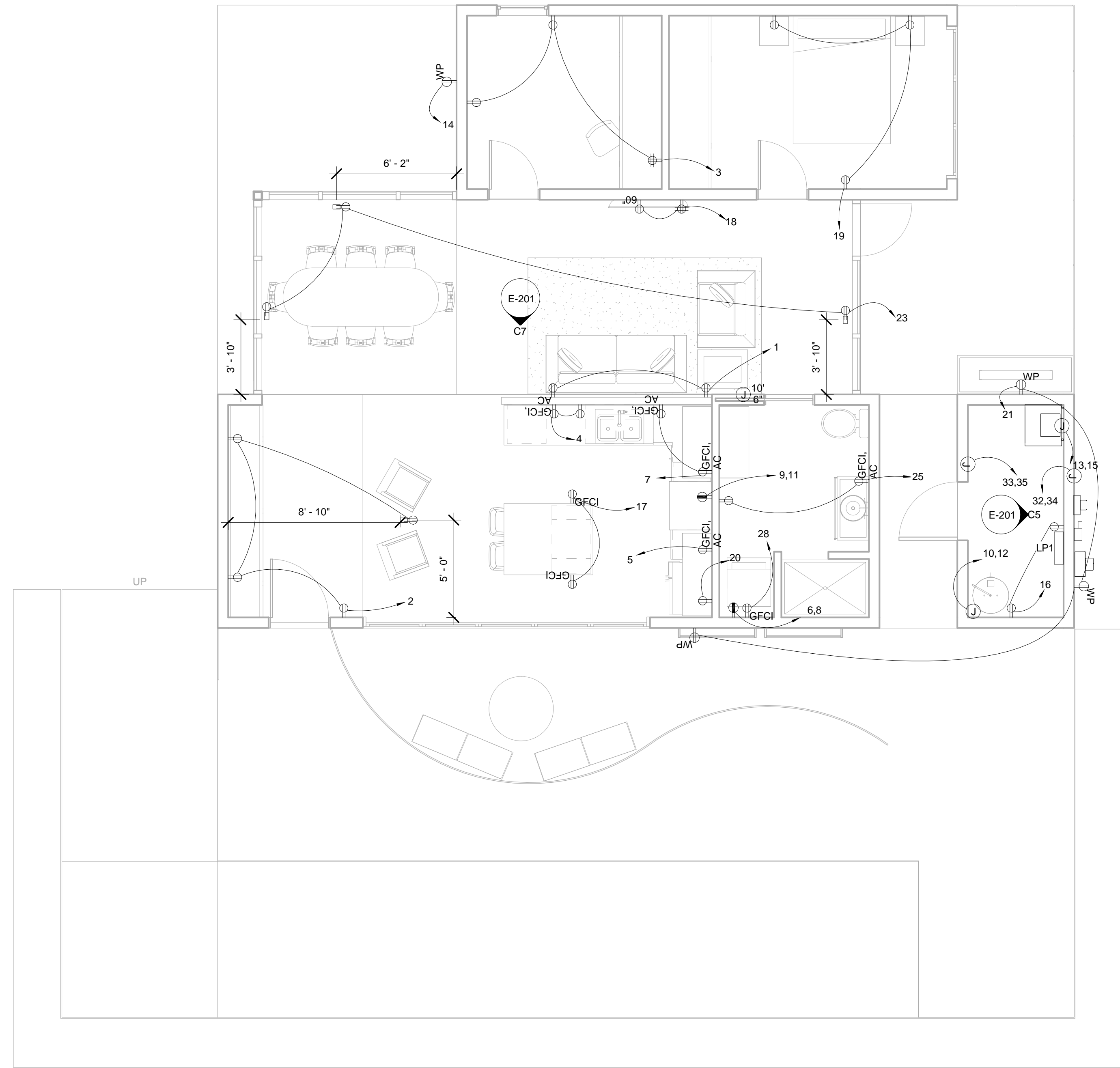
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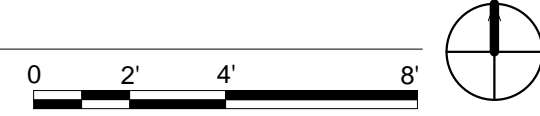
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 GENERAL SYMBOLS AND NOTES

E-001

- NOTES:
1. ALL WALL RECEPTILES ARE AT A STANDARD 18" UNLESS OTHERWISE SPECIFIED
  2. FLOOR RECEPTILES NEXT TO STOREFRONT WINDOWS SHOULD ALL BE 3" AWAY FROM THE BASE OF THE STOREFRONT
  3. SMOKE DETECTORS ARE HARD WIRED WITH BATTERY BACKUP



(A2) AC WIRING PLAN  
 1/4" = 1'-0"



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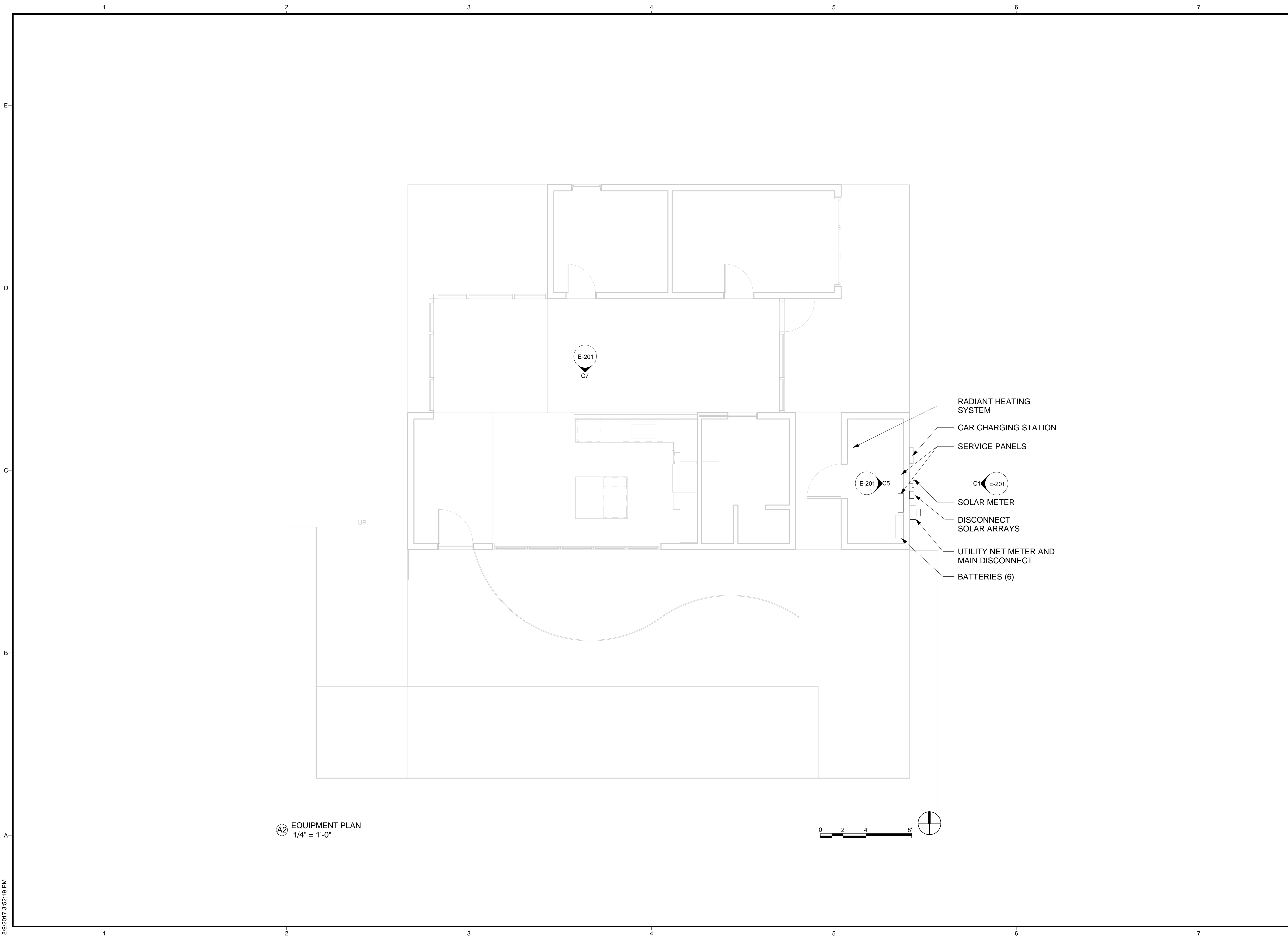
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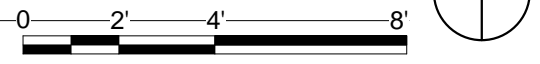
SHEET TITLE  
 AC WIRING PLAN

E-101





Ⓐ2 EQUIPMENT PLAN  
1/4" = 1'-0"



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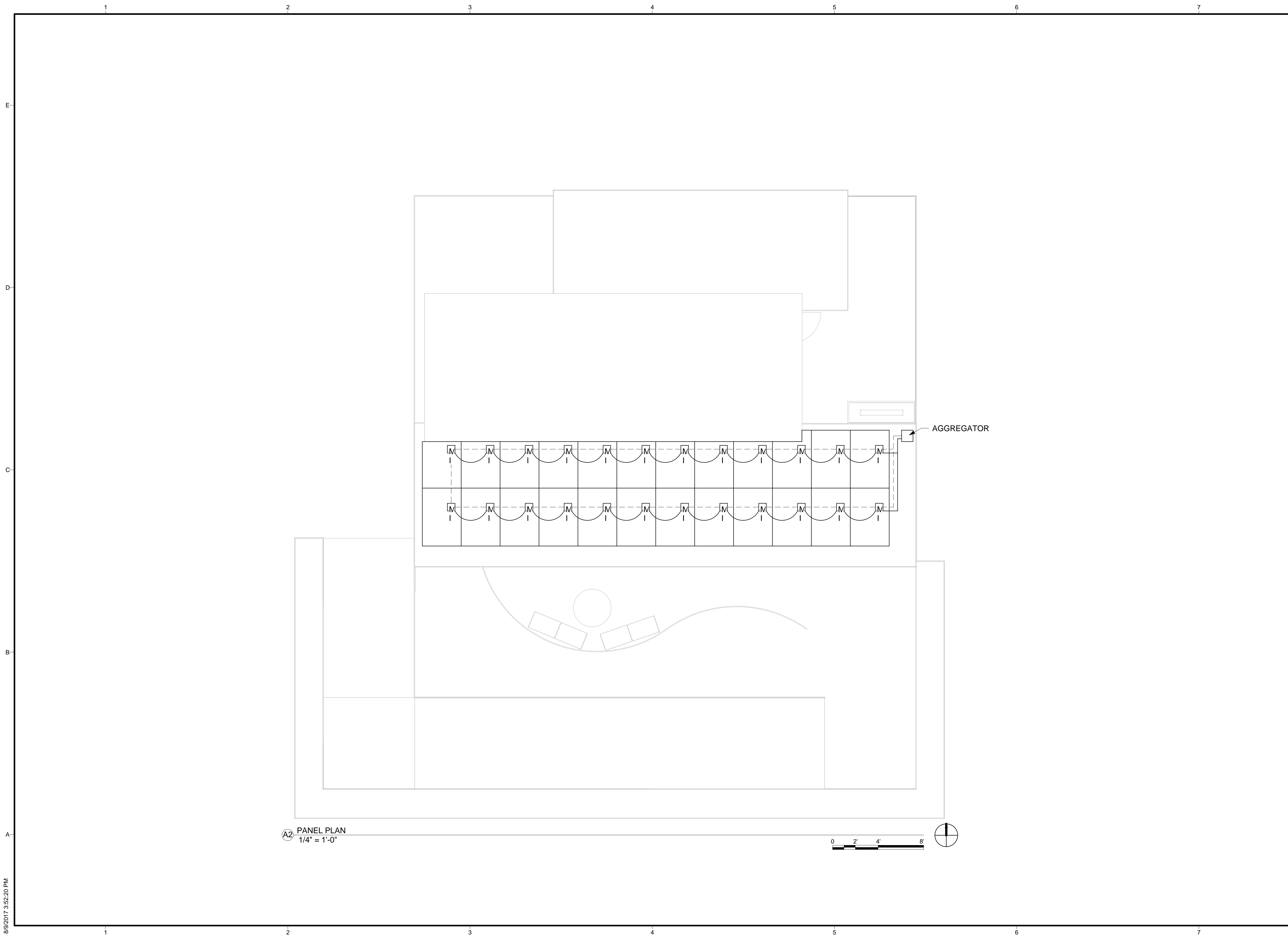


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SHEET TITLE  
 EQUIPMENT PLAN

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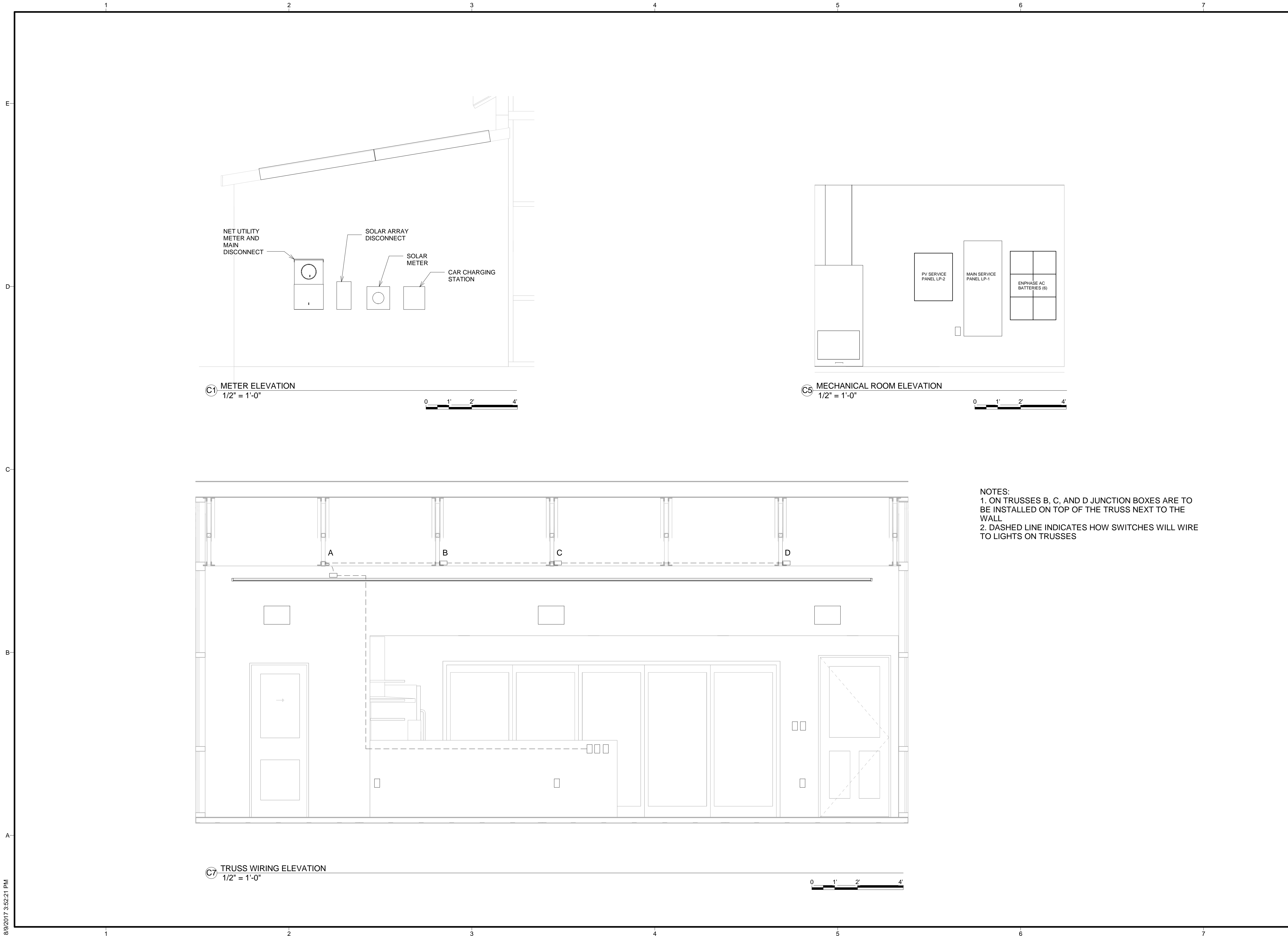
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SHEET TITLE  
**ROOF PLAN**

**E-104**

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- NOTES:  
 1. ON TRUSSES B, C, AND D JUNCTION BOXES ARE TO BE INSTALLED ON TOP OF THE TRUSS NEXT TO THE WALL  
 2. DASHED LINE INDICATES HOW SWITCHES WILL WIRE TO LIGHTS ON TRUSSES



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SHEET TITLE  
**ELECTRICAL ELEVATIONS**

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LIGHTING SCHEDULE			
TYPE MARK	TYPE	COUNT	WATTAGE
A	SURFACE MOUNTED CAN LIGHT 6"	16	60 W
C	BATHROOM VANITY	1	32 W
D	EXTERIOR SCONCE	5	60 W
E	LED STRIP LIGHT	1	40 W
F	KITCHEN PENDANT	3	100 W
G	DINING PENDANT	1	100 W
H	TRACK LIGHTING	6	40 W
I	CEILING FAN	1	21.34 W

Branch Panel: LP1									
		120/240V							
Location: MECHANICAL ROOM M1		Volts: Single Phase		A.I.C. Rating:					
Supply From:		Phases: 1		Mains Type:					
Mounting: WALL MOUNTED		Wires: 3		Mains Rating: 225 A					
Enclosure: NEMA 1				MCB Rating: 100 A					
Notes:									
CKT	Circuit Description	Trip	Poles	A	B	Poles	Trip	Circuit Description	CKT
1	Receptacles - Living Room	20 A	1	360 VA	720 VA	1	20 A	Receptacles - Entry Way	2
3	Receptacles - Office/Bedroom	20 A	1		720 VA	360 VA	1	20 A	Receptacles - Kitchen
5	Receptacle - Kitchen	20 A	1	180 VA	90 VA	2	20 A	Receptacles - Clothes Dryer	6
7	Receptacle - Kitchen	20 A	1		360 VA	90 VA	--	--	8
9	Receptacles - Range	20 A	2	90 VA	250 VA	2	20 A	Junction Box - Water Heater	10
11	--	--	--		90 VA	250 VA	--	--	12
13	Junction Box - HVAC	20 A	2	250 VA	180 VA	1	20 A	Receptacles - Exterior Garden	14
15	--	--	--		250 VA	360 VA	1	20 A	Receptacles - Mechanical Room
17	Receptacles - Island	20 A	1	360 VA	540 VA	1	20 A	Receptacles - TV	18
19	Receptacles - Master Bedroom	20 A	1		540 VA	180 VA	1	20 A	Receptacles - Fridge
21	Receptacles - Main Module Exterior	20 A	1	540 VA	240 VA	1	20 A	Lights - Exterior	22
23	Receptacle - Storefront	20 A	1		540 VA	280 VA	1	20 A	Lights - Pendants and Uplight
25	Receptacles - Bathroom	20 A	1	360 VA	420 VA	1	20 A	Lights - Entry and Kitchen	26
27	Lights - Bathroom	20 A	1		212 VA	180 VA	1	20 A	Receptacle - Dryer
29	Lights - Mechanical Room	20 A	1	120 VA	338 VA	1	20 A	Lights - Living Room	30
31	Lights - Office/Bedrooms	20 A	1		300 VA	250 VA	2	30 A	Car Charging Station
33	Radiant Flooring System	50 A	2	250 VA	250 VA	--	--	--	34
35	--	--	--		250 VA				36
37									38
39									40
41									42
				<b>Total Load:</b>	5497 VA	5178 VA			
				<b>Total Amps:</b>	46 A	43 A			
Legend:									
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals					
Other	0 VA	100%	0 VA	Total Conn. Load: 0 VA					
				Total Est. Demand: 0 VA					
				Total Conn. Current: 0 A					
				Total Est. Demand Current: 0 A					
Notes:									

Branch Panel: LP2									
		120/240V							
Location: MECHANICAL ROOM		Volts: SINGLE		A.I.C.:					
Supply From: SOLAR PANEL		Phase: 3		Mains Type:					
Mounting: WALL		Wires: 1		Mains Rating: 225A					
Enclosure: NEMA				MCB Rating: 100A					
Notes:									
CKT	Circuit Description	Trip	Poles	A	B	Poles	Trip	Circuit Description	CKT
1	Solar Panels	20 A	1	0 VA	0 VA	1	20 A	Solar Panels	2
3					0 VA	1	20 A	Batteries	4
5									6
7									8
9									10
11									12
13									14
15									16
17									18
21									20
23									22
									24
				<b>Total Load:</b>	0 VA	0 VA			
				<b>Total Amps:</b>	0 A	0 A			
Legend:									
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals					
Other	0 VA	100%	0 VA	Total Conn. Load: 0 VA					
				Total Est. Demand: 0 VA					
				Total Conn. Current: 0 A					
				Total Est. Demand Current: 0 A					
Notes:									



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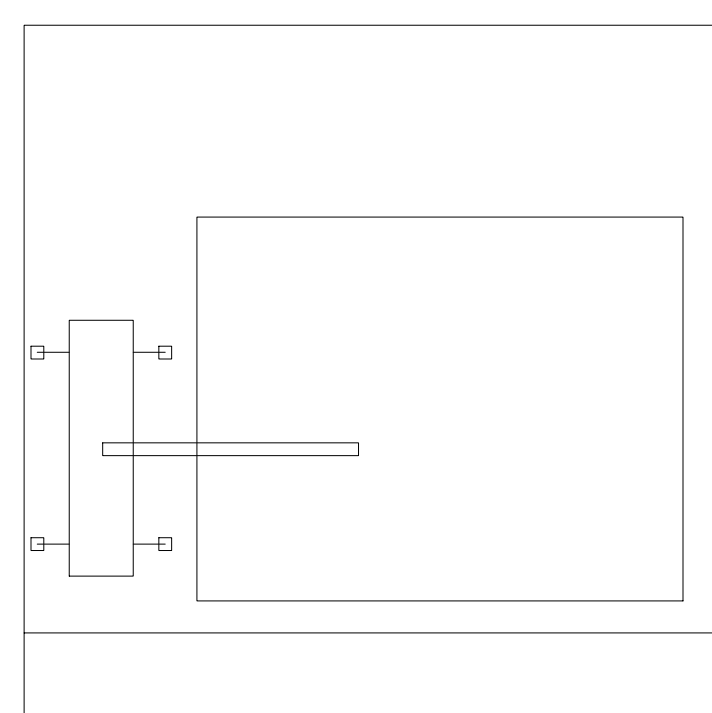
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**ELECTRICAL SCHEDULE**  
**E-601**



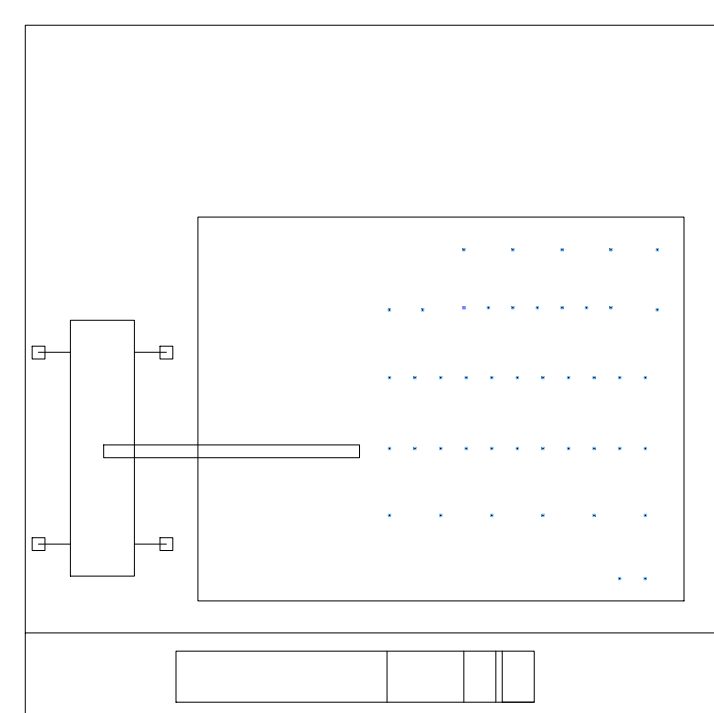


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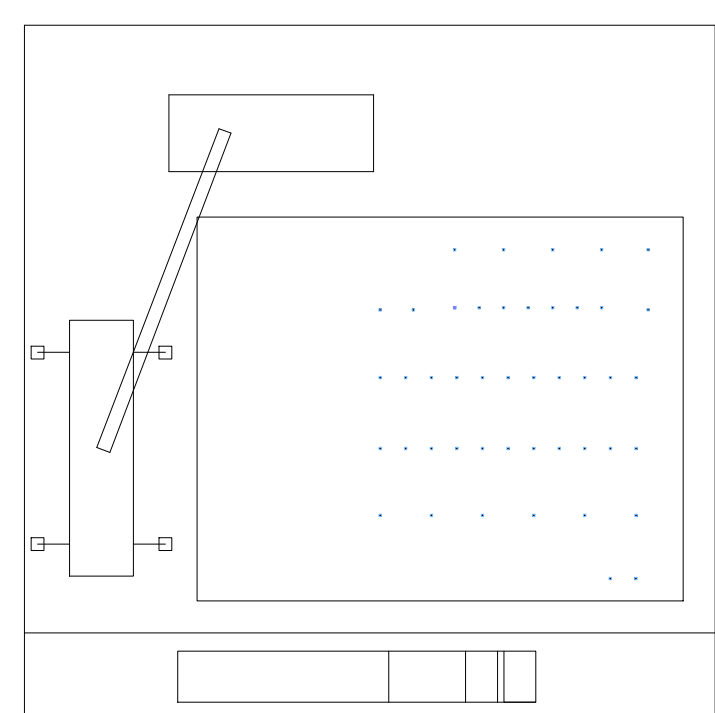
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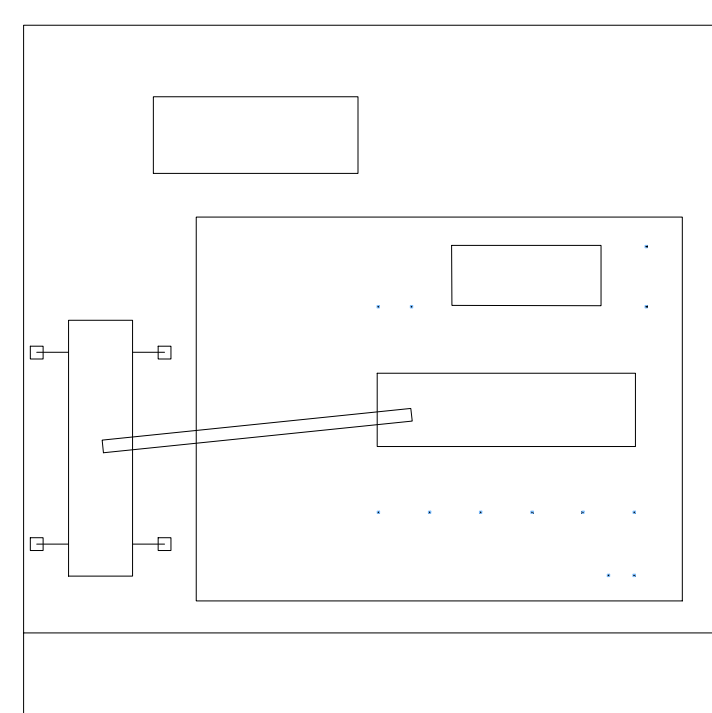
**STEP 1:** POSITION THE CRANE ON THE WEST SIDE OF THE BUILDING ENVELOPE IN TEAM CONSTRUCTION AREA, EXTEND OUTRIGGERS SO THAT THE CRANE IS READY TO USE.



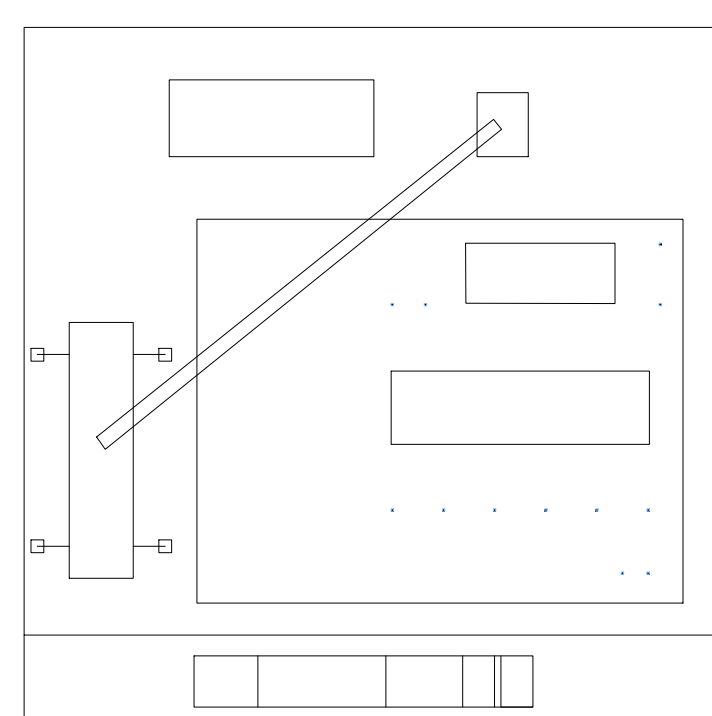
**STEP 2:** PLACE SCREW JACKS ON THE SITE IN PREDESIGNATED POSITIONS, DRIVE THE FIRST DELIVERY TRUCK INTO POSITION IN THE UNLOADING ZONE.



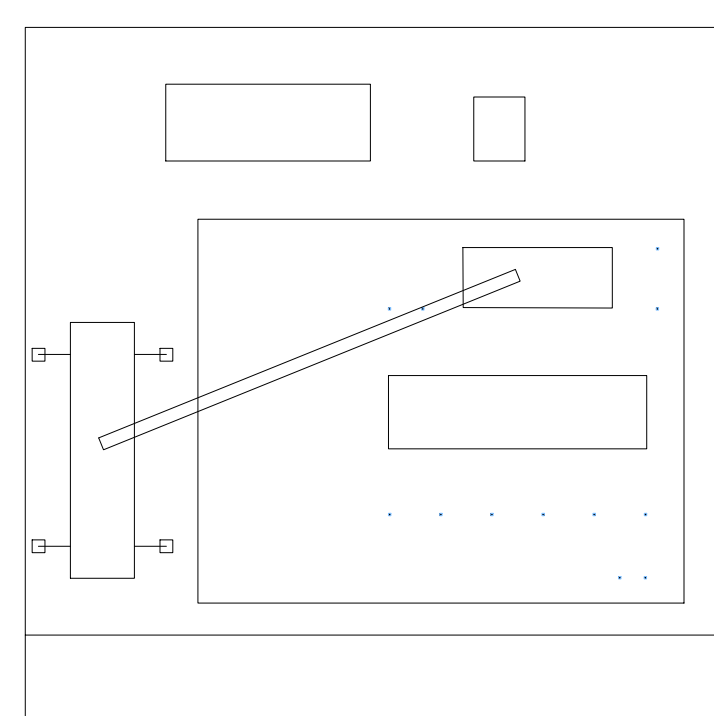
**STEP 3:** UNLOAD THE ROOF MODULE AND PLACE OFF TO THE NORTH SIDE OF THE CONSTRUCTION SITE.



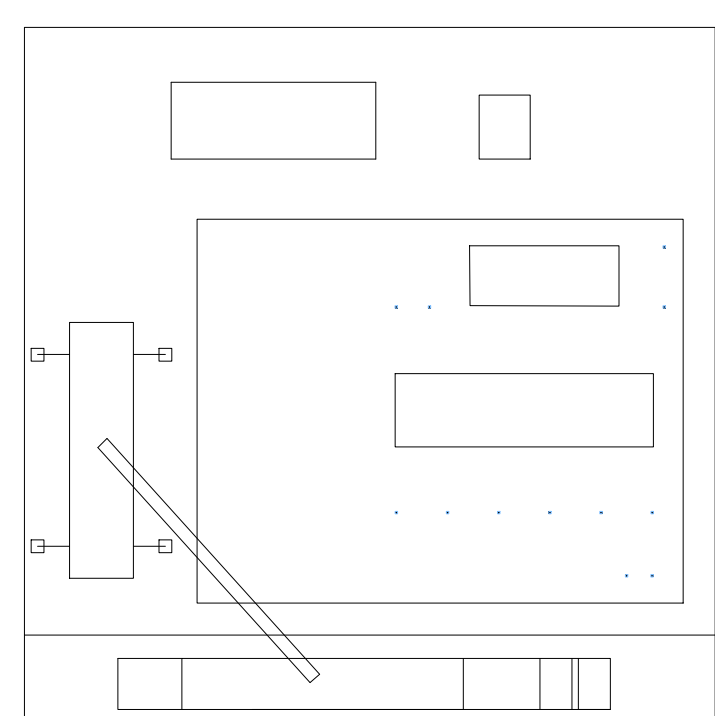
**STEP 4:** UNLOAD THE TWO I-BEAM FRAMES OFF THE TRUCK AND PLACE THEM DIRECTLY ONTO THE SCREW JACKS, MOVE THE FIRST DELIVERY TRUCK AWAY FROM THE SITE.



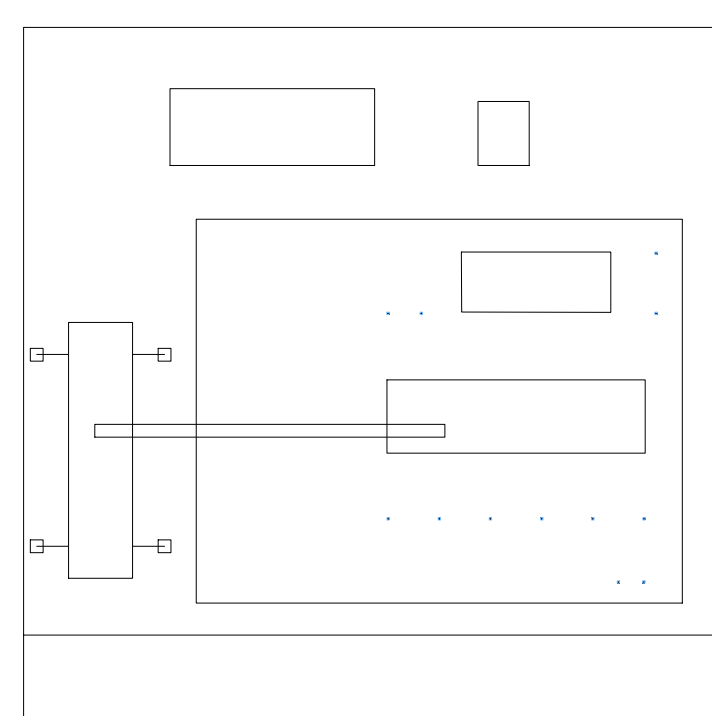
**STEP 5:** DRIVE THE SECOND DELIVERY TRUCK INTO POSITION IN THE UNLOADING ZONE, UNLOAD THE MIDDLE FLOOR SECTIONS AND PLACE OFF TO THE NORTH SIDE OF THE CONSTRUCTION SITE.



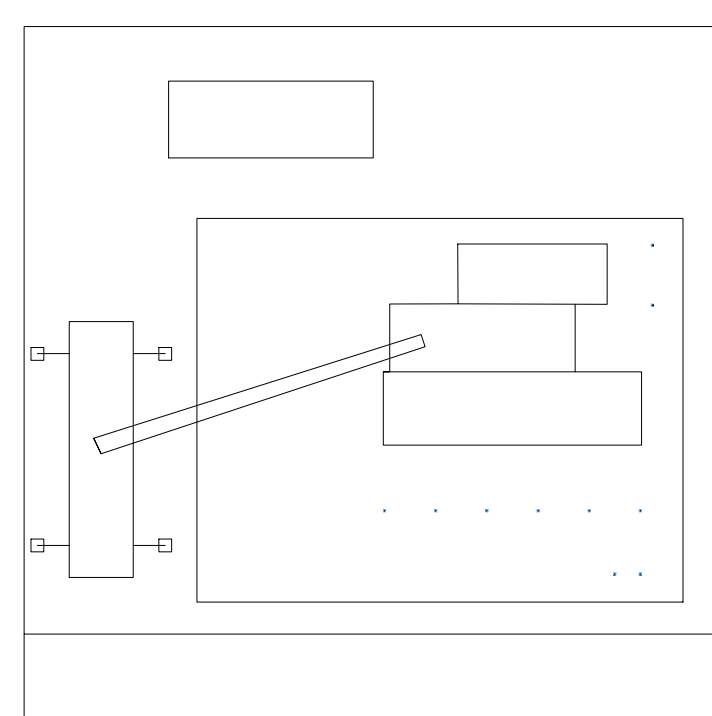
**STEP 6:** UNLOAD THE BEDROOM MODULE, PLACE THE BEDROOM MODULE DIRECTLY ONTO THE CORRESPONDING I-BEAM FRAME, MOVE THE SECOND DELIVERY TRUCK AWAY FROM THE SITE.



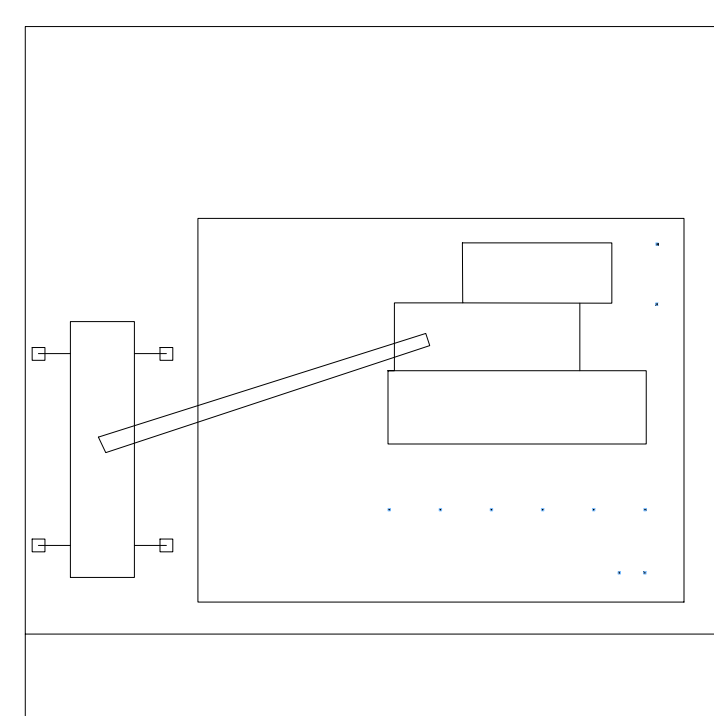
**STEP 7:** DRIVE THE THIRD DELIVERY TRUCK INTO POSITION IN THE UNLOADING ZONE, UNLOAD THE MAIN MODULE.



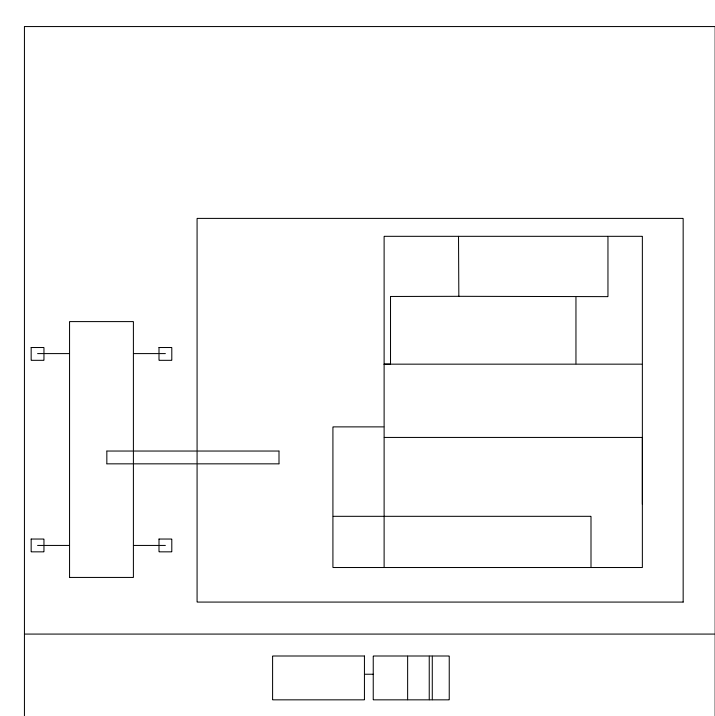
**STEP 8:** PLACE THE MAIN MODULE DIRECTLY ONTO THE CORRESPONDING I-BEAM FRAME, MOVE THE THIRD DELIVERY TRUCK AWAY FROM THE SITE.



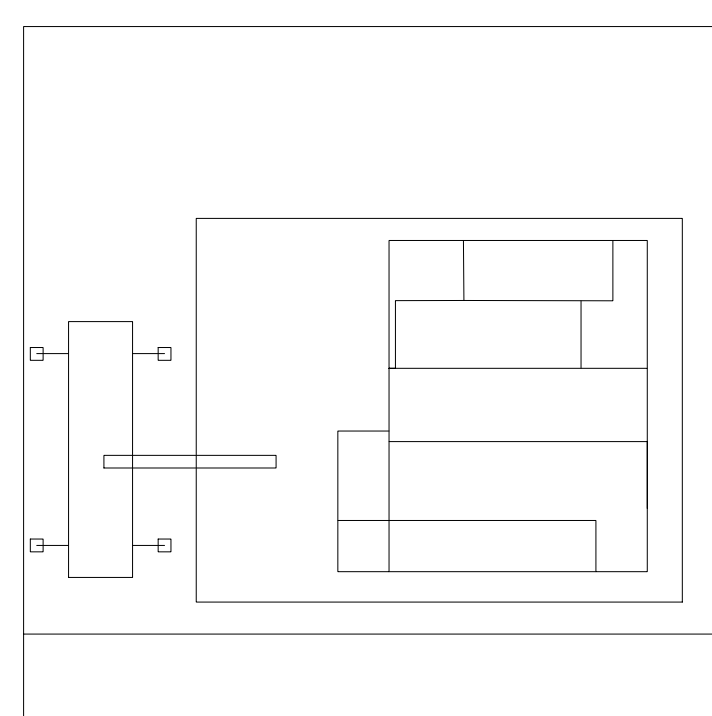
**STEP 9:** PICK UP THE MIDDLE FLOOR SECTIONS FROM THE NORTH SIDE OF THE SITE, PLACE THE MIDDLE FLOOR SECTIONS INTO POSITION.



**STEP 10:** PICK UP THE ROOF MODULE FROM THE NORTH SIDE OF THE SITE, PLACE THE ROOF MODULE INTO POSITION, SET STOREFRONT WINDOWS INTO PLACE.



**STEP 11:** DRIVE THE PICKUP TRUCK WITH FLATBED TRAILER INTO THE UNLOADING ZONE, UNLOAD THE DECK SECTIONS AND RAMP SECTIONS AND PLACE DIRECTLY INTO POSITION.



**STEP 12:** MOVE THE PICKUP TRUCK WITH FLATBED TRAILER AWAY FROM THE SITE, FILL EXTERNAL WATER STORAGE TANK.

**A1 ASSEMBLY PLAN**  
N.T.S.



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**ASSEMBLY**

**O-101**

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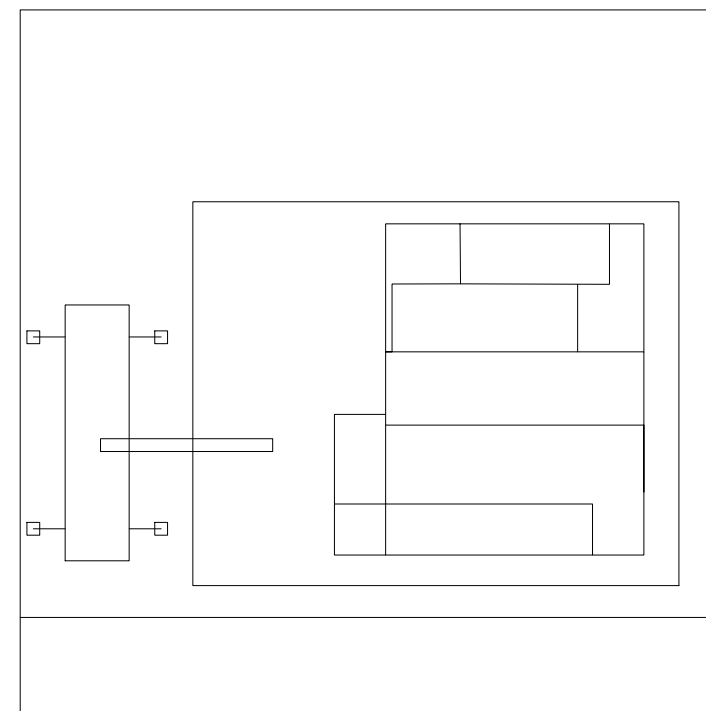
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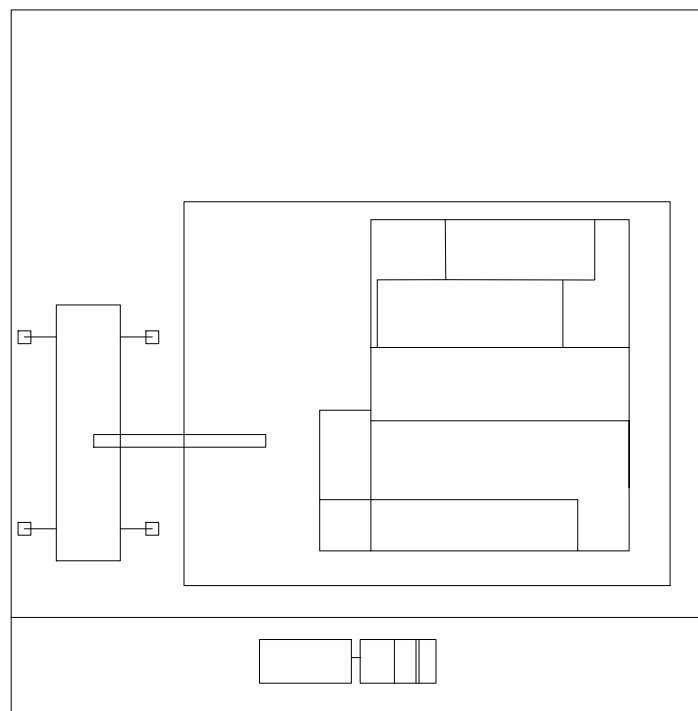
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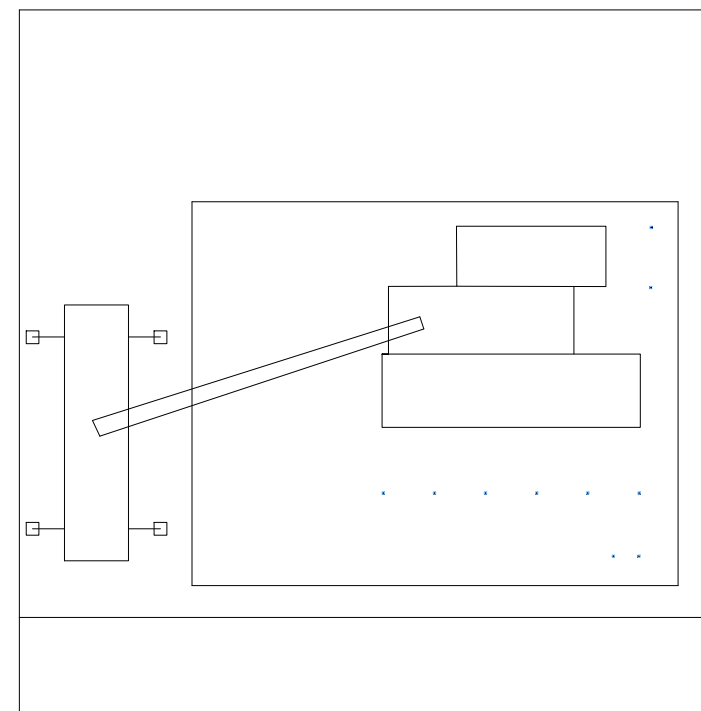
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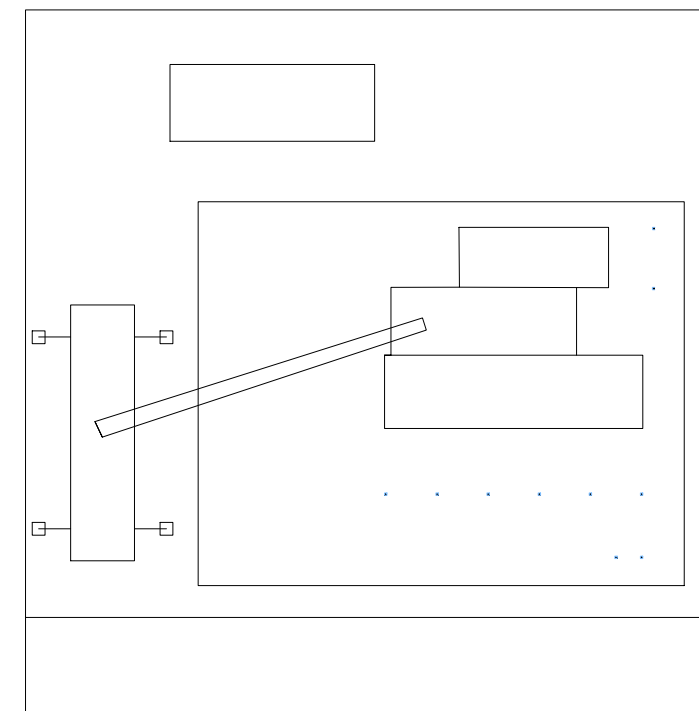
STEP 1: EMPTY EXTERNAL WASTE WATER TANK. POSITION THE CRANE ON THE WEST SIDE OF THE BUILDING ENVELOPE IN TEAM CONSTRUCTION AREA, EXTEND OUTRIGGERS SO THAT THE CRANE IS READY TO USE.



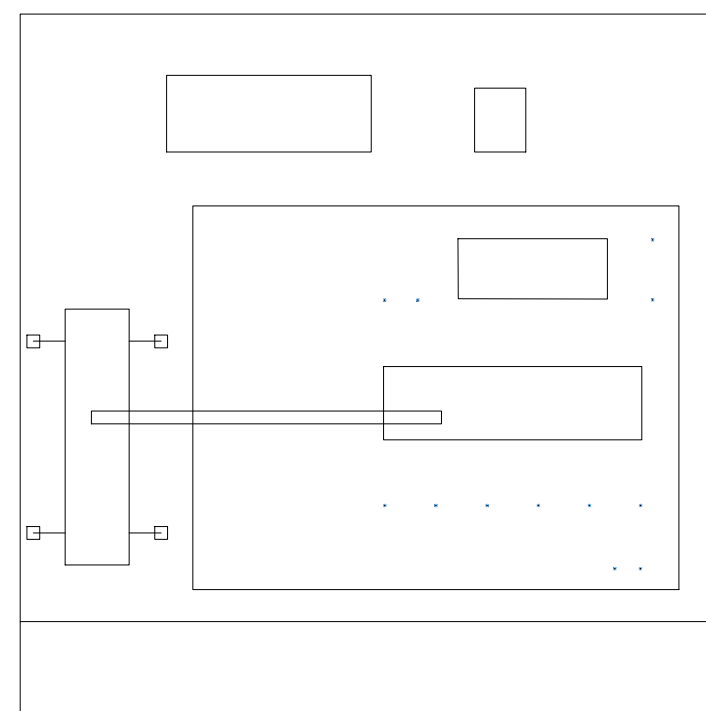
STEP 2: DRIVE THE PICKUP TRUCK WITH FLATBED TRAILER INTO THE UNLOADING ZONE, REMOVE THE DECK SECTIONS AND RAMP SECTIONS AND LOAD THEM ONTO THE TRAILER.



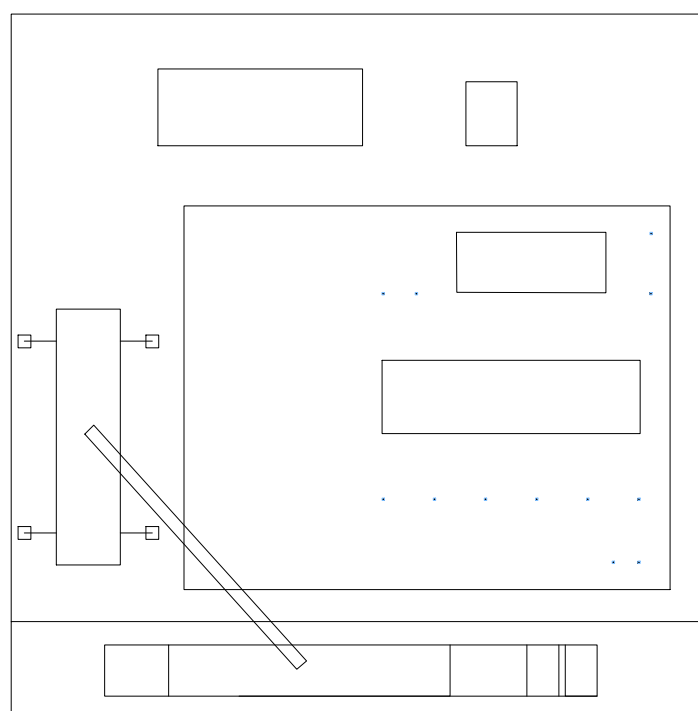
STEP 3: MOVE THE PICKUP TRUCK WITH FLATBED TRAILER AWAY FROM THE SITE.



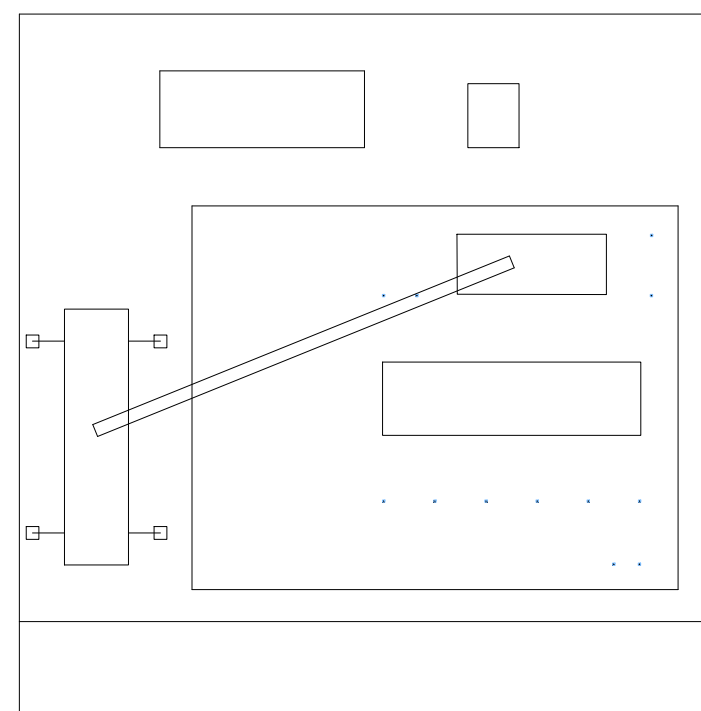
STEP 4: REMOVE THE STOREFRONT WINDOWS, REMOVE THE ROOF MODULE AND PLACE OFF TO THE NORTH SIDE OF THE CONSTRUCTION SITE TO BE LOADED LATER.



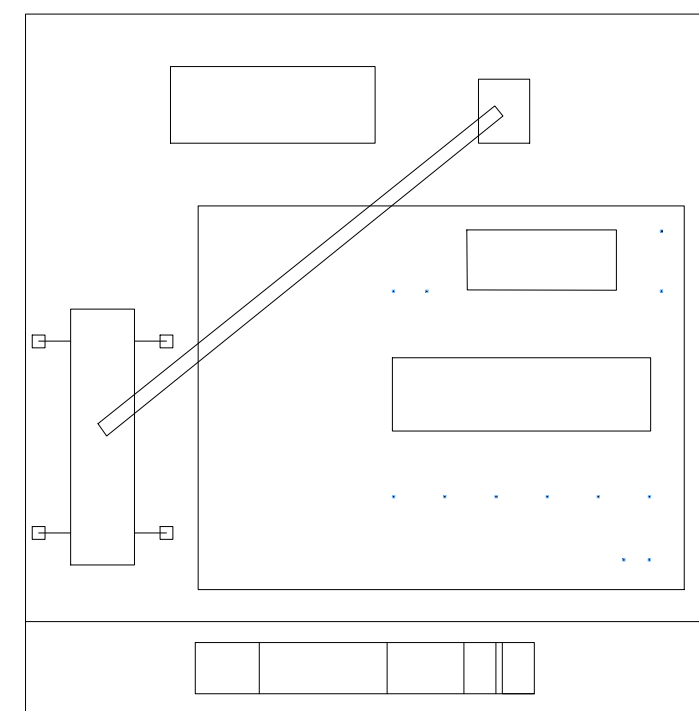
STEP 5: REMOVE MIDDLE FLOOR SECTIONS AND PLACE OFF TO THE NORTH SIDE OF THE CONSTRUCTION SITE TO BE LOADED LATER, DRIVE THIRD DELIVERY TRUCK IN THE LOADING ZONE.



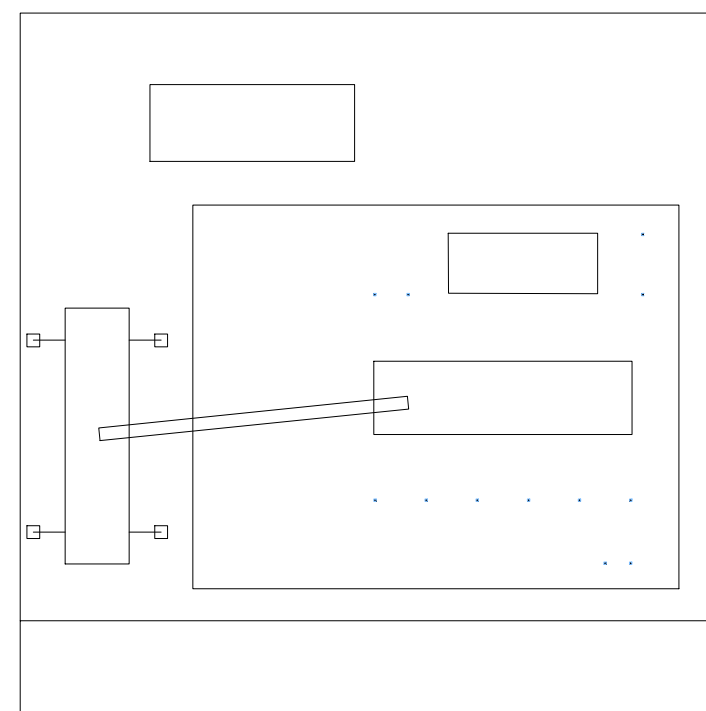
STEP 6: PICK UP THE MAIN MODULE FROM ITS I-BEAM FRAME AND LOAD ONTO THE THIRD DELIVERY TRUCK.



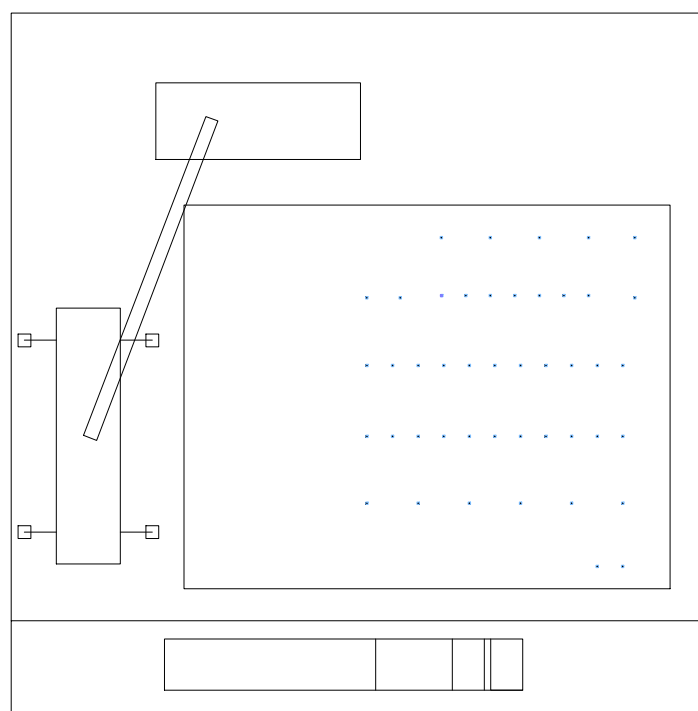
STEP 7: MOVE THE THIRD DELIVERY TRUCK AWAY FROM THE SITE.



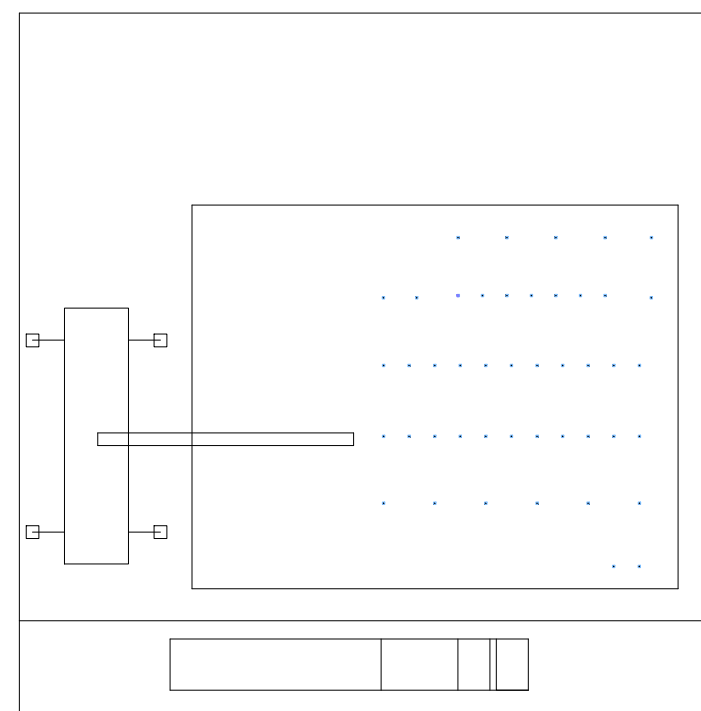
STEP 8: DRIVE THE SECOND DELIVERY TRUCK INTO THE LOADING ZONE, LOAD THE MIDDLE FLOOR SECTIONS ONTO THE TRUCK, PICK UP THE BEDROOM MODULE FROM ITS I-BEAM FRAME AND LOAD ONOTO THE SECOND DELIVERY TRUCK.



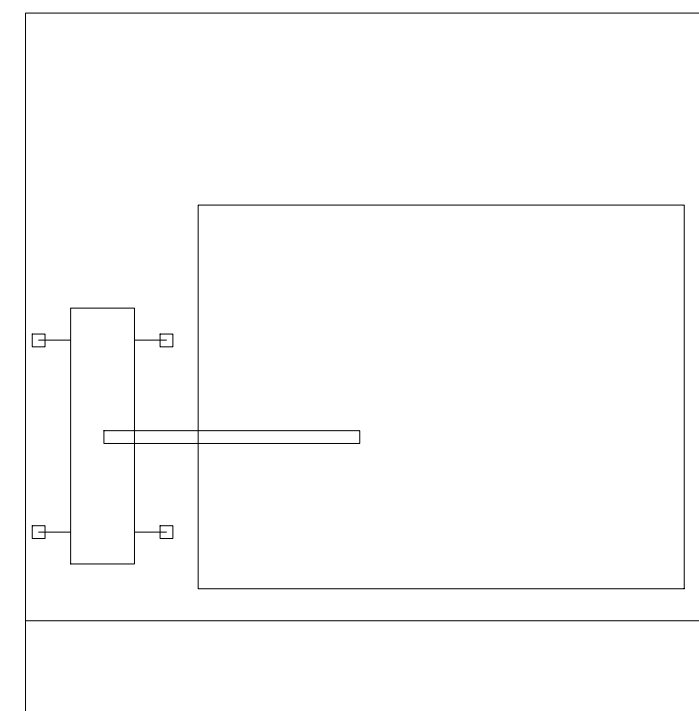
STEP 9: MOVE THE SECOND DELIVERY TRUCK AWAY FROM THE SITE.



STEP 10: DRIVE THE FIRST DELIVERY TRUCK INTO THE LOADING ZONE, LOAD THE TWO I-BEAM FRAMES DIRECTLY ONTO THE TRUCK .



STEP 11: PICK UP THE ROOF MODULE FROM THE NORTH SIDE OF THE SITE AND LOAD DIRECTLY ONTO THE TRUCK.



STEP 12: MOVE THE FIRST DELIVERY TRUCK AWAY FROM THE SITE, REMOVE THE SCREW JACKS FROM THE SITE.

(A1) DISASSEMBLY PLAN  
N.T.S.



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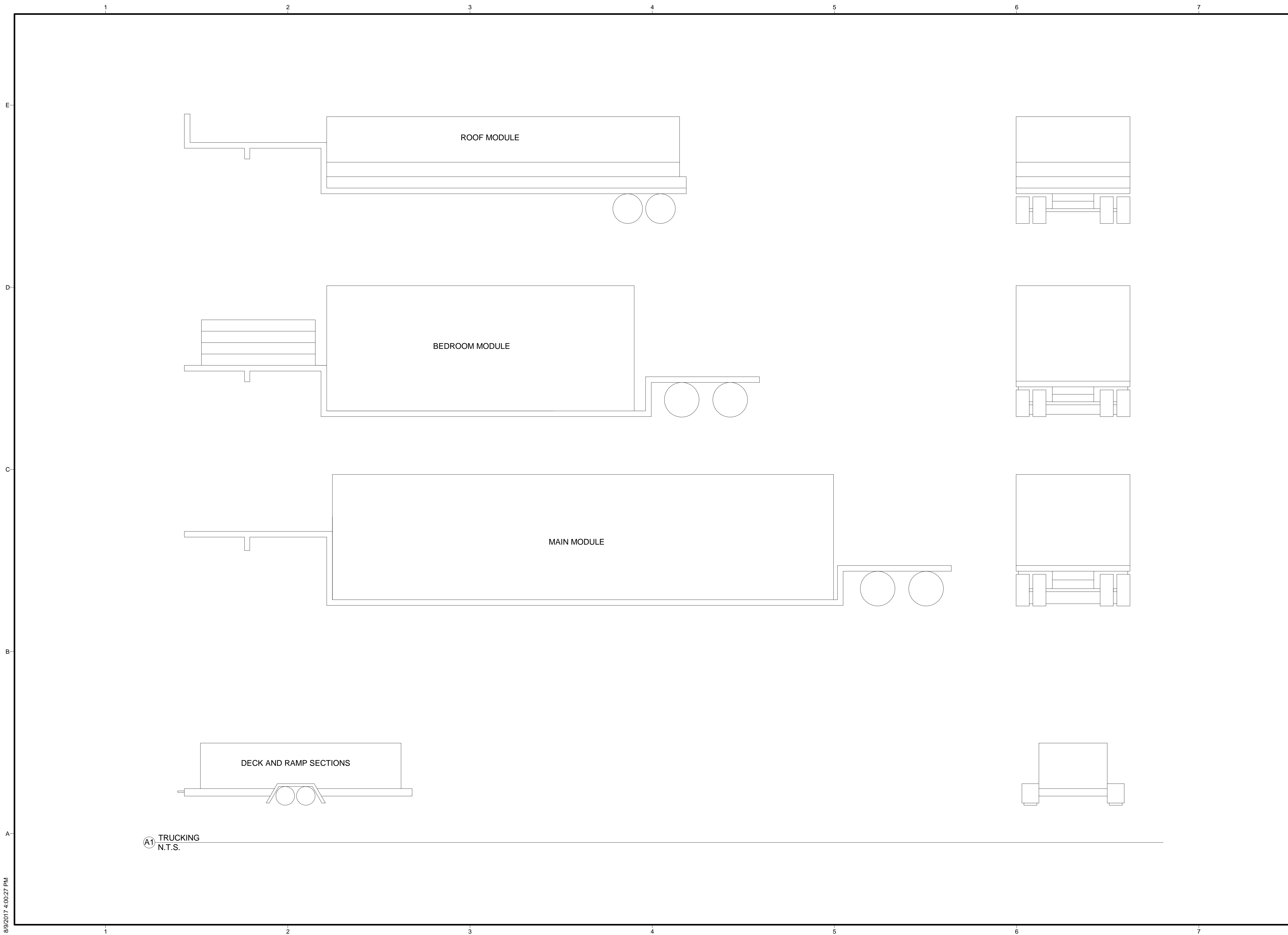


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