

DEMONSTRATION & MONITORING PROJECT

COLD CLIMATE AIR SOURCE HEAT PUMP & SOLAR HOT WATER HEATER

BETHEL, ALASKA

DO NOT USE SCALE 11X17 DRAWINGS - SPEC'D DRAWINGS ARE 24X36

DRAWING INDEX

ARCHITECTURAL DRAWINGS

- A1 FLOOR PLAN
- A2 EXTERIOR ELEVATIONS
- A3 BUILDING SECTION
- A4 BUILDING TRANSVERSE – LONGITUDINAL
- A5 INTERIOR ELEVATIONS
- A6 WALL SECTION & ROOF PLAN & DETAILS
- A7 SCHEDULES, WALL & DOOR TYPES, & DETAILS
- A8 WALL TYPES & OTHER DETAILS
- A9 STRUCTURAL INSULATED PANELS (SIP)
- A10 SIP FLOOR PLAN
- A11 SIP DETAILS
- A12 SIP DETAILS

STRUCTURAL DRAWINGS

- S1 FLOOR FRAMING PLAN
- S2 ROOF FRAMING PLANS & DETAILS
- S3 POST AND PAD DETAILS
- S4 PILE DETAILS
- S5 STAIR DETAILS

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- M0 MECHANICAL SCHEDULES
- M1 HEAT PUMP & APPURTENACES
- M2 FIXTURES, DWV & WATER ISOMETRIC
- M3 FIXTURE CONNECTION DETAILS
- M4 SOLAR HW HEATER & WATER TANK

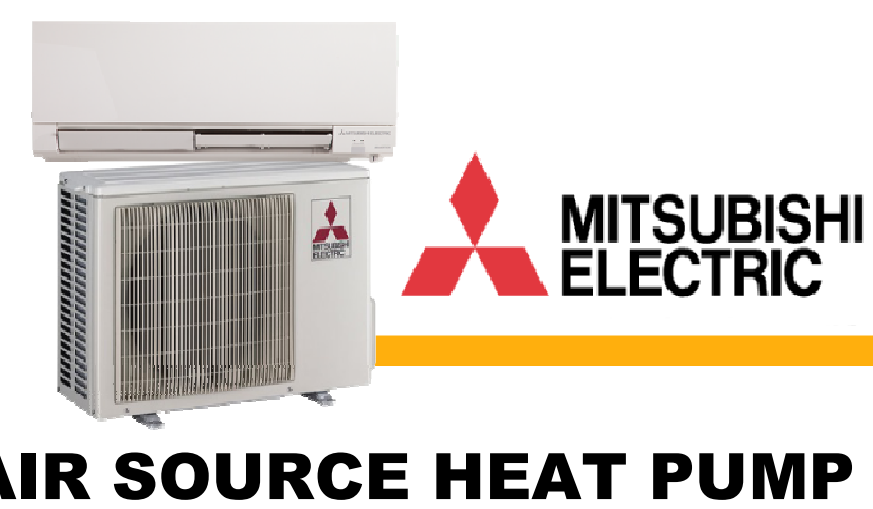
ELECTRICAL DRAWINGS

- E001 LEGEND, FIXTURE SCHEDULE, & DETAILS
- E101 LIGHTING PLAN
- E201 POWER & SIGNAL PLAN
- E301 DETAILS
- E401 ELECTRICAL SPECIFICATIONS
- E501 MONITORING DIAGRAM & ARCHITECTURE
- E601 MONITORING FLOOR PLAN & SOLAR HOT WATER

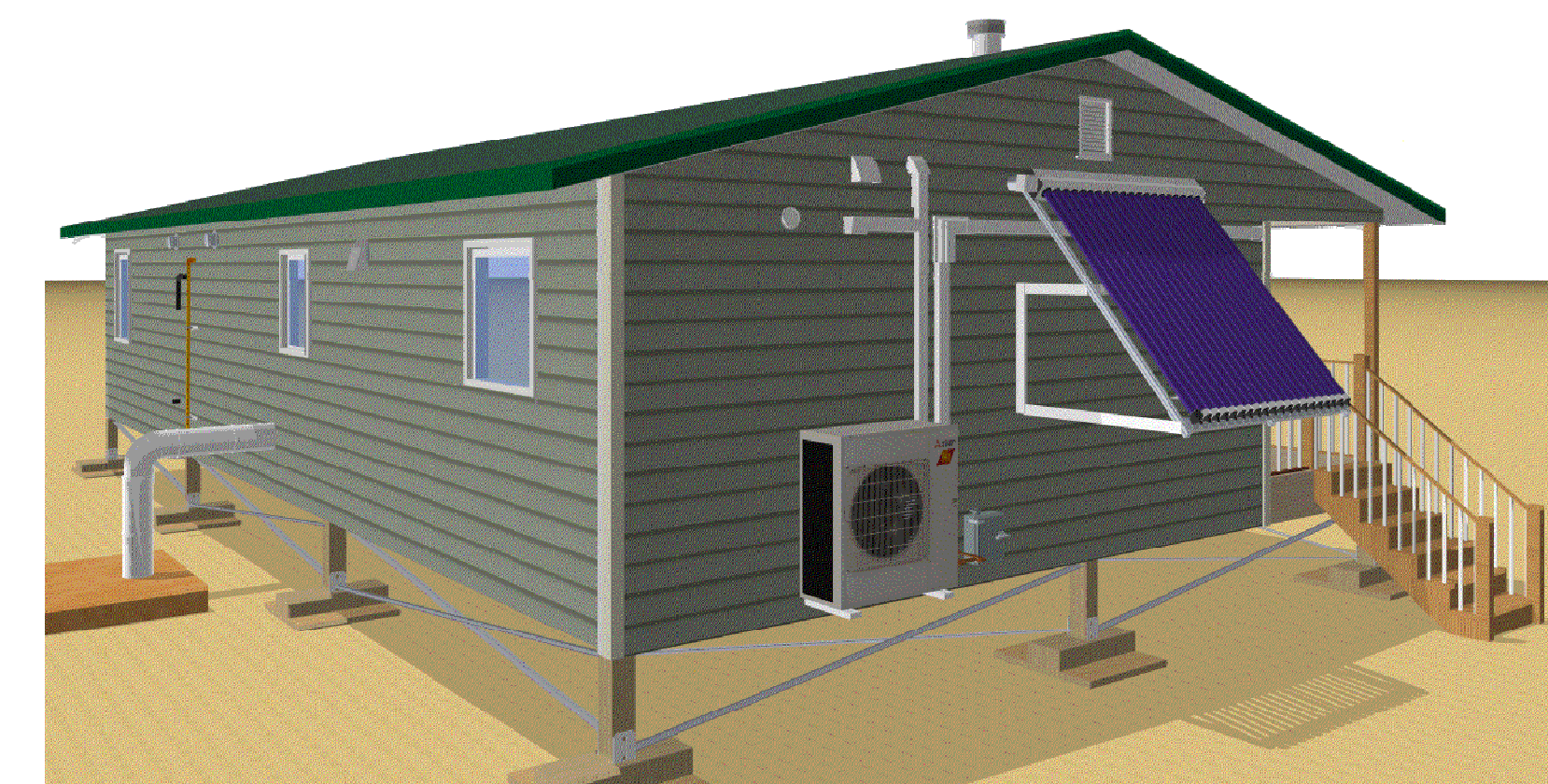
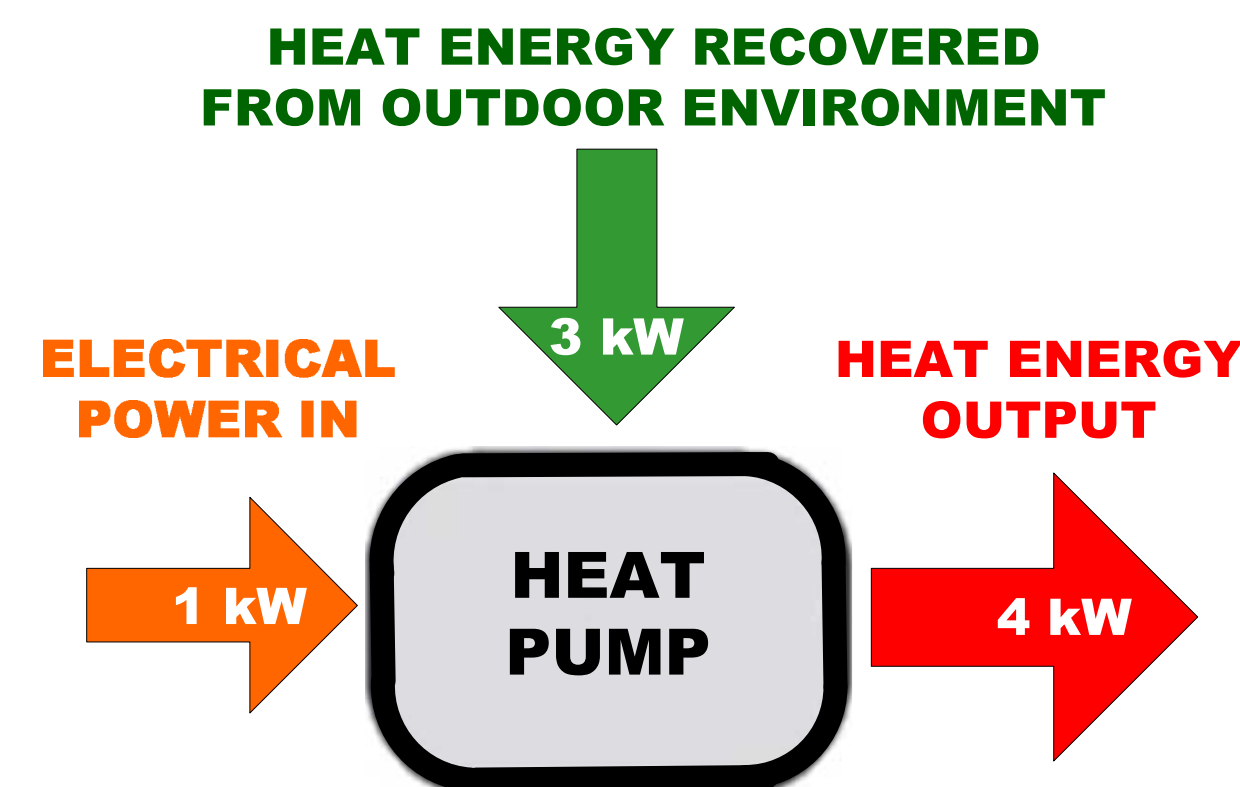


3D PLAN MODEL
1268 Sq ft Single Family
R50 Ceiling – R24 Walls – R50 Floor
Heating Design Temp: -22F = Heat Loss 18,533 BTU/H

MECHANICAL & MONITORING
DESIGNED & ENGINEERED BY:



AIR SOURCE HEAT PUMP



3D MODEL Design by jerry nicholson

MODEL HOME DRAWINGS USED BY PERMISSION FROM AVCP HOUSING AUTHORITY

REVISION 9/16/19

PROJECT DEMONSTRATION & MONITORING PROJECT FOR AIR SOURCE HEAT PUMPS
SYSTEM 1268 Sq ft Single Family
REVISION

TECHNOLOGICAL INNOVATION FOR RURAL ALASKA
DUCTLESS SPLIT SYSTEM
REVISION: None

OceanAir
HEATING & A/C
CONTRACTING LLC
HEAT PUMP SYSTEMS

Scale: n/a

Drawn by: jn

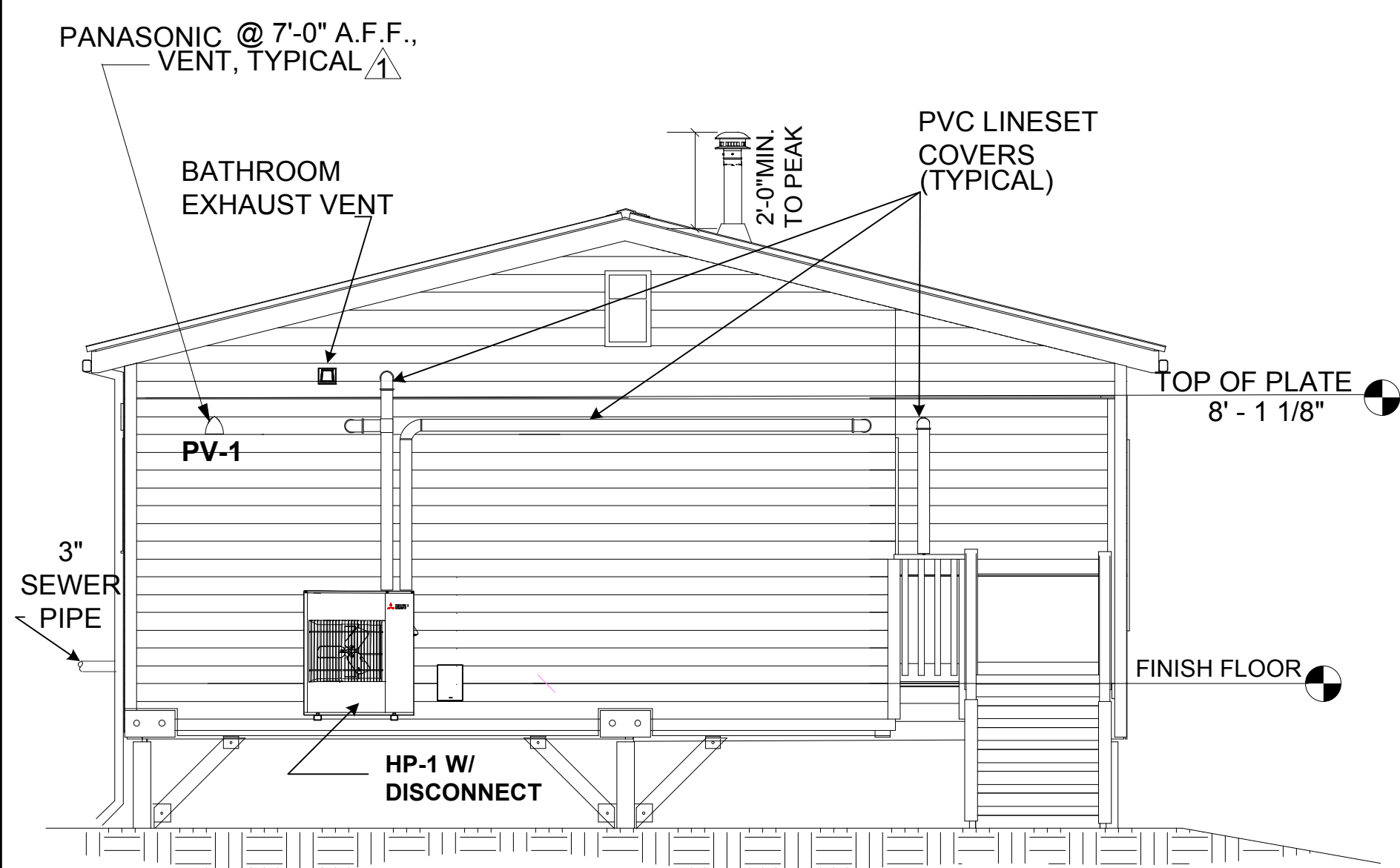
Date: 11/23/18

Job No.

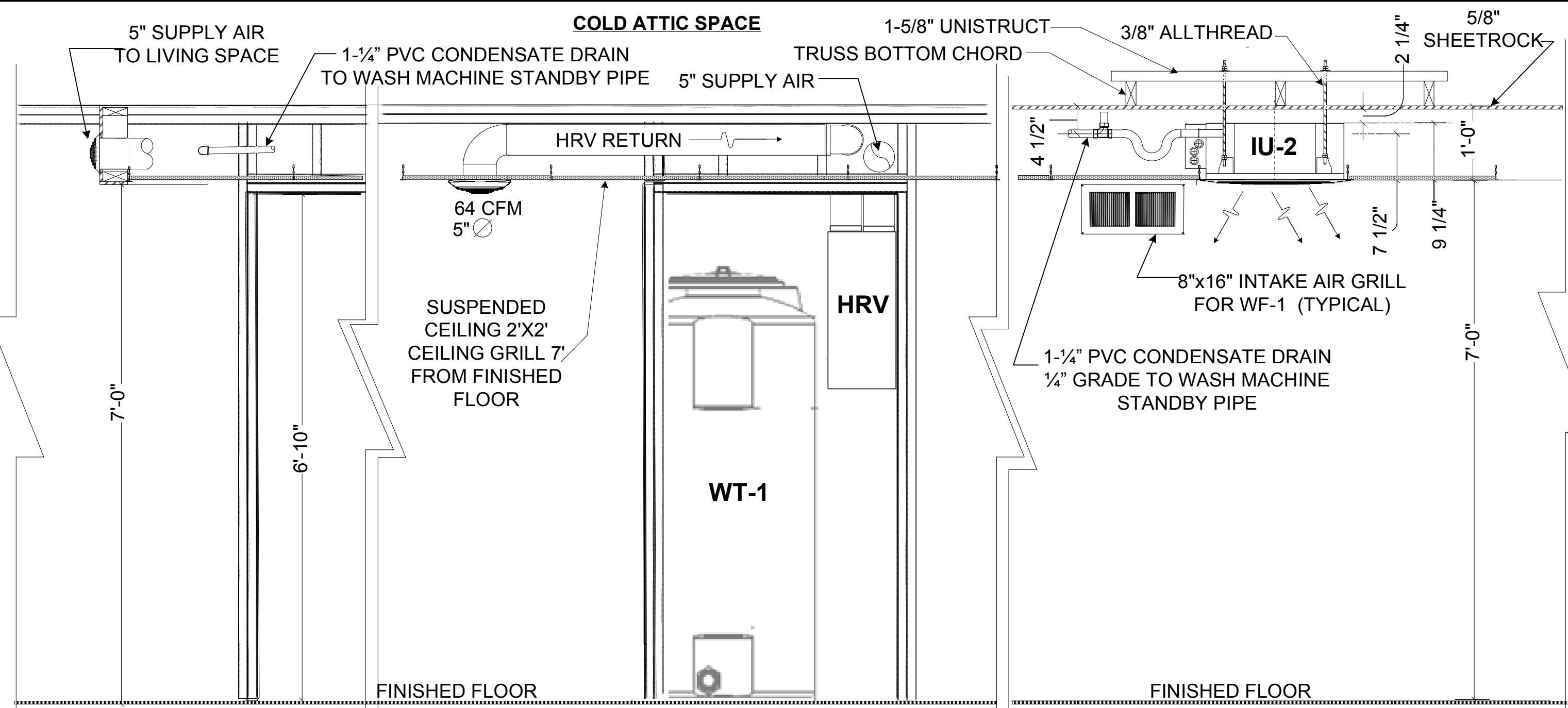
Category

Sheet

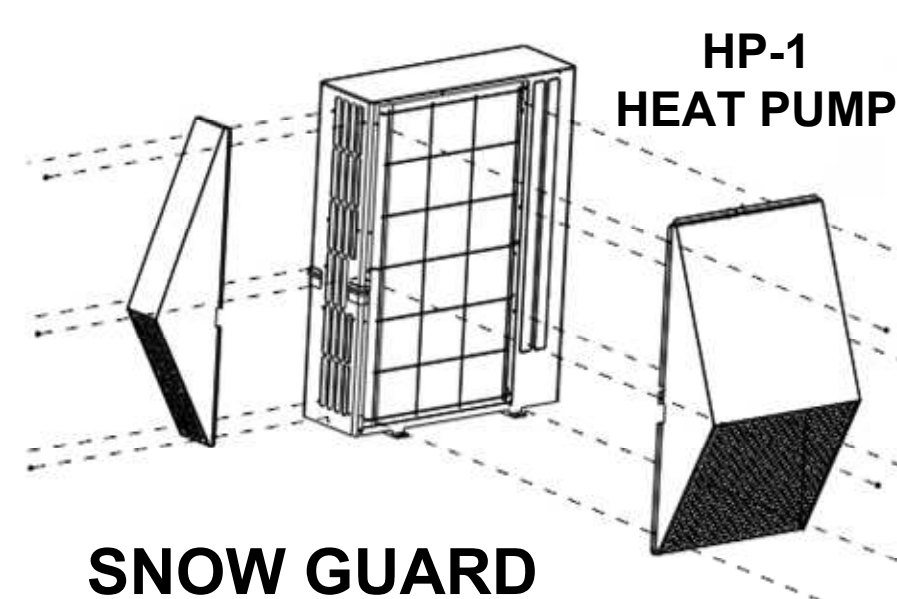
C 0
COVER



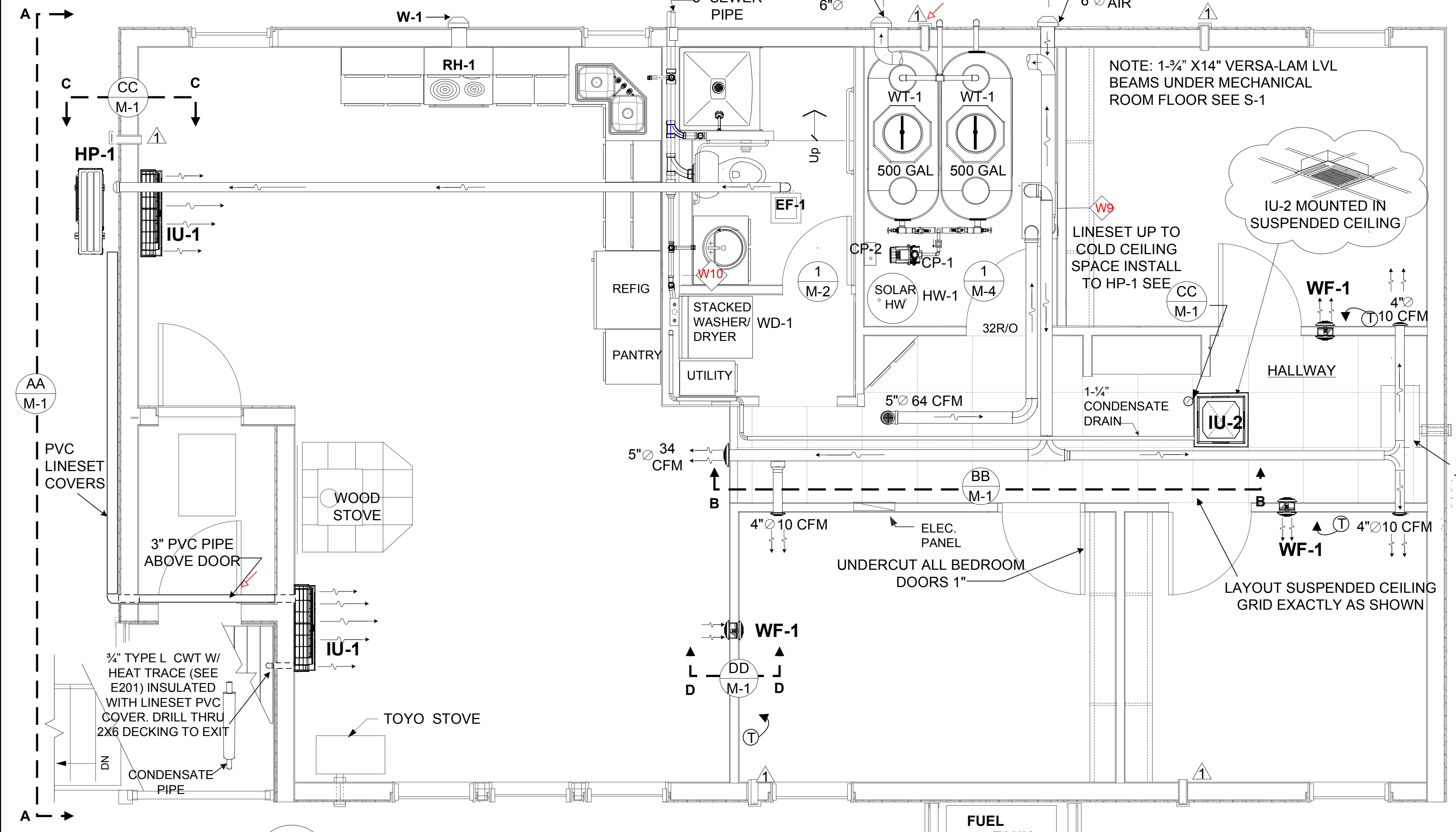
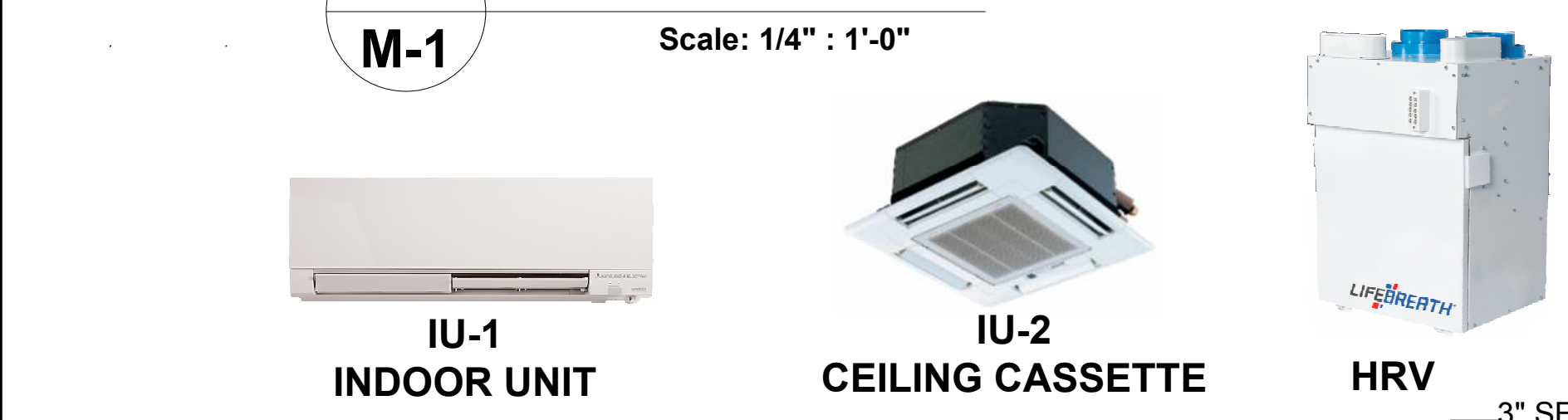
AA LEFT ELEVATION
M-1 Scale: 1/4" = 1'-0"



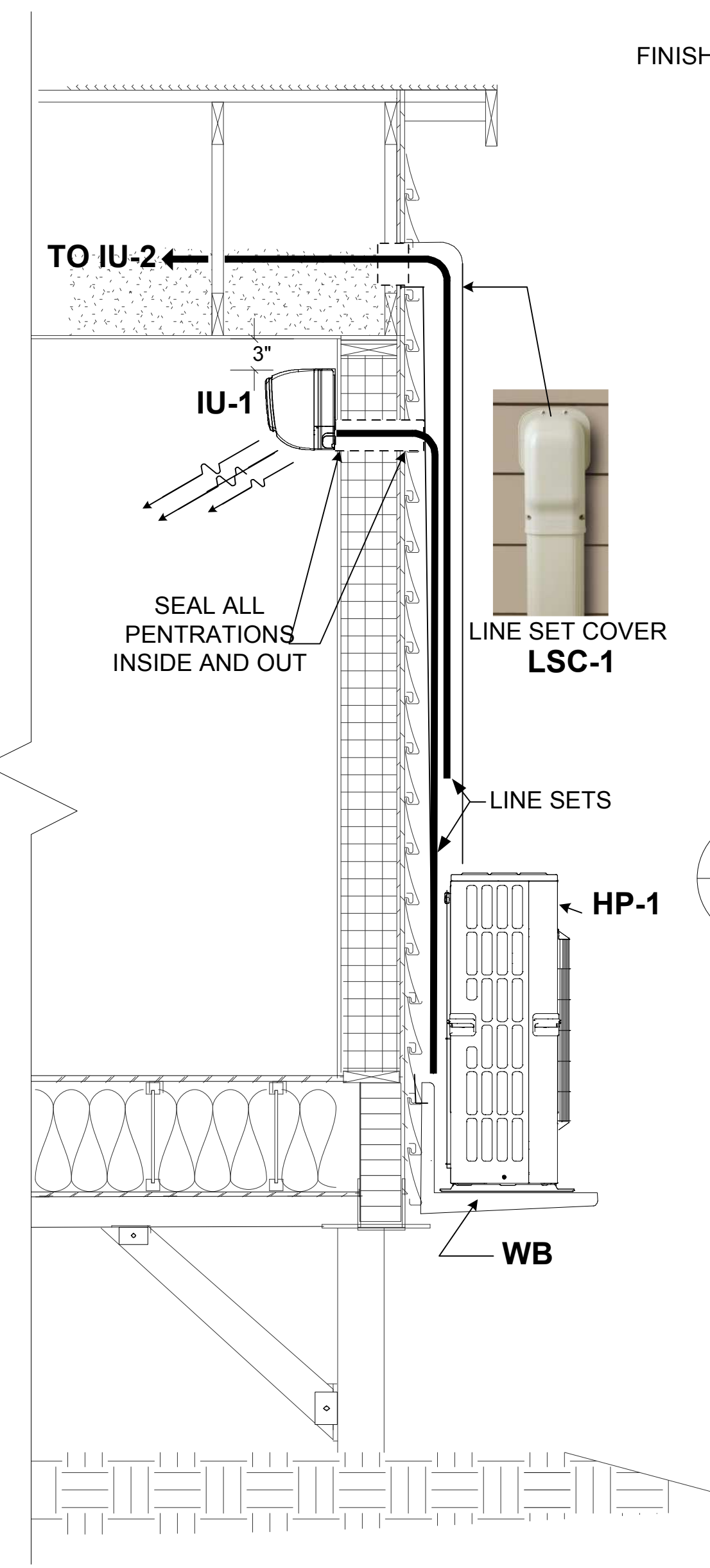
BB SECTION B-B HEAT PUMP CEILING UNIT - HRV DUCTING
M-1 SCALE: N/A



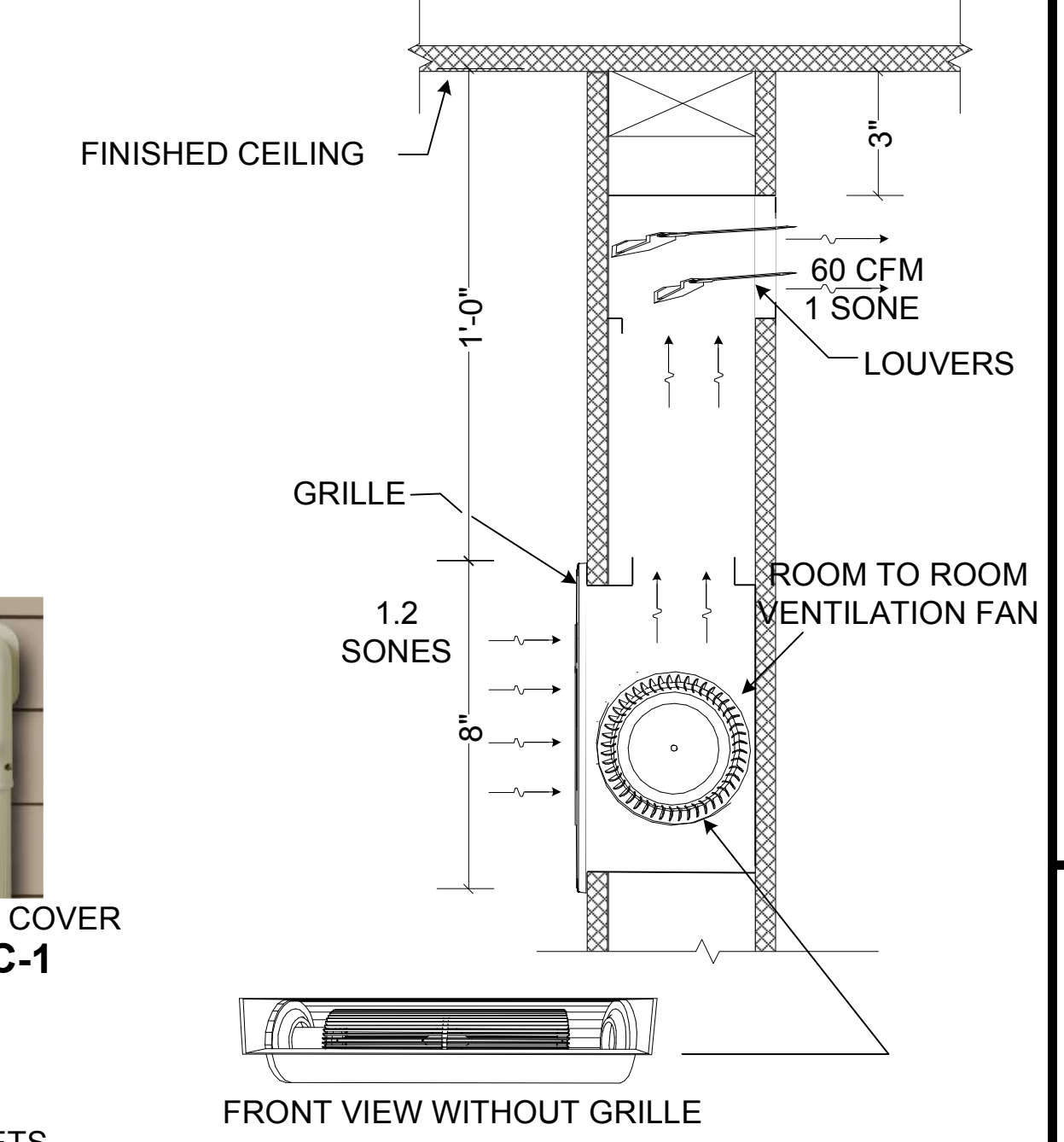
2 SG-1 DETAIL
M-1 NTS



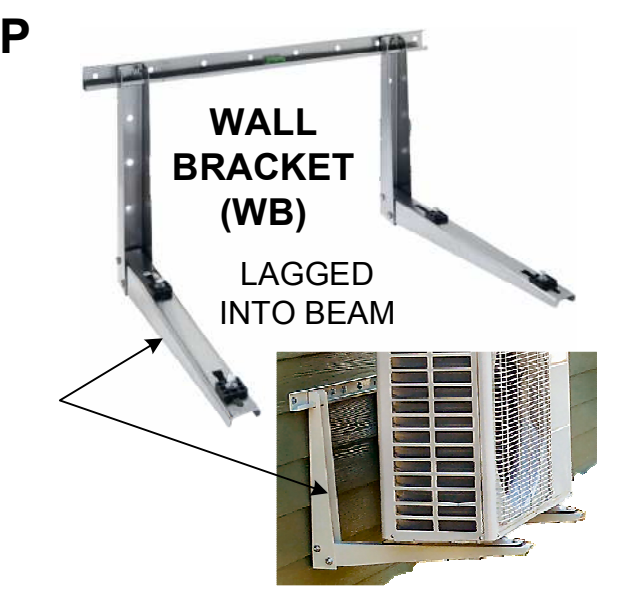
1 MECHANICAL/PLUMBING FLOOR PLAN
M-1 SCALE 3/8" = 1'-0"



CC SECTION C-C HEAT PUMP
M-1 NTS



DD SECTION D-D FAN
M-1 NTS



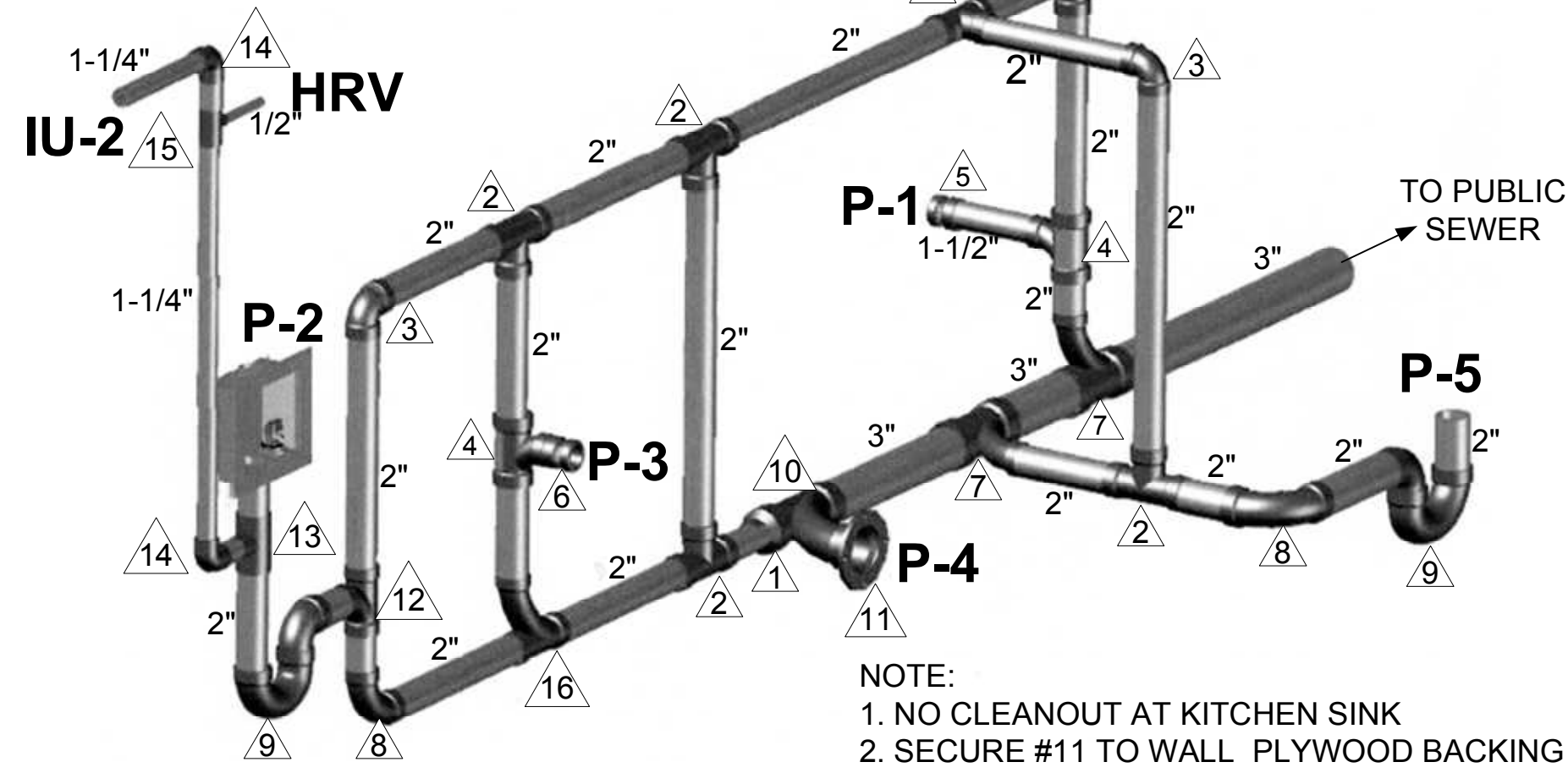
PROJECT DEMONSTRATION & MONITORING PROJECT FOR AIR SOURCE HEAT PUMPS
OWNER HEAT PUMP & APPURTENANCES
REVISION: None



Scale: per detail
Design/Drawing by: jn
Date: 6/5/19
Job No. Bethel Demo
Finished: 6/24/19
Category Sheet
M 1

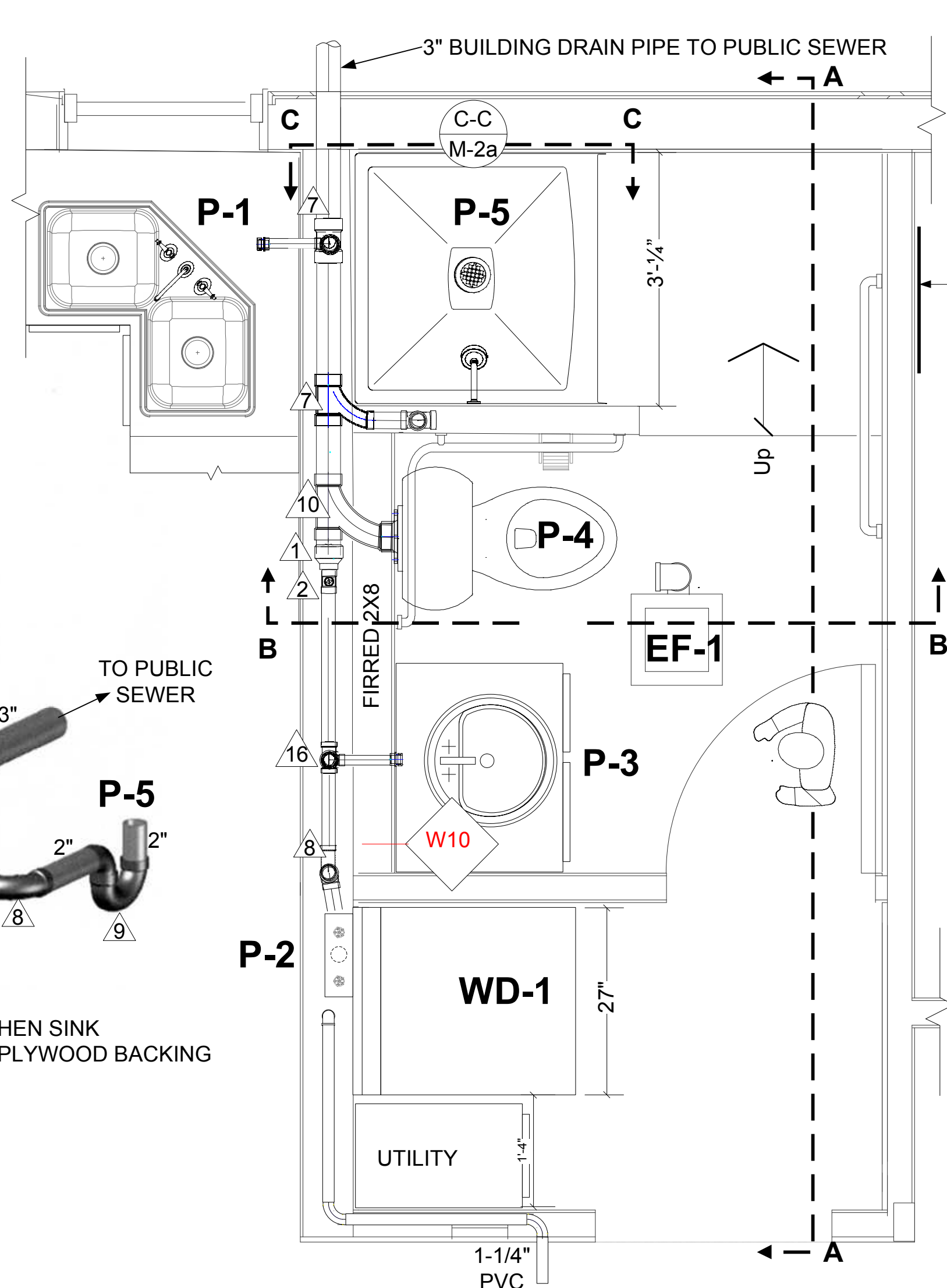
MODEL HOME USED BY PERMISSION OF AVCP HOUSING AUTHORITY

DWV FITTINGS	
1	ABS 3x2 INCREASER
2	ABS 2 VENT TEE
3	ABS 2 VENT ELBOW
4	ABS 2X2X1-1/2 SAN TEE
5	ABS 1-1/2 TRAP ADAPTER TUBE
6	ABS 1-1/2 X 1-1/4 TRAP ADAPTER TUBE
7	ABS 3X3X2 COMBO
8	ABS 2 LONG SWEEP ELBOW
9	ABS 2 P-TRAP
10	ABS 3X3X3 COMBO
11	ABS 4X3 CLOSET FLANGE HUB
12	ABS 2 SAN TEE
13	PVC 2X2X1-1/4 TEE
14	PVC 2 ELBOW
15	PVC 2X2X1/2 TEE W/ HOSE BARB
16	ABS 2X2X2 COMBO

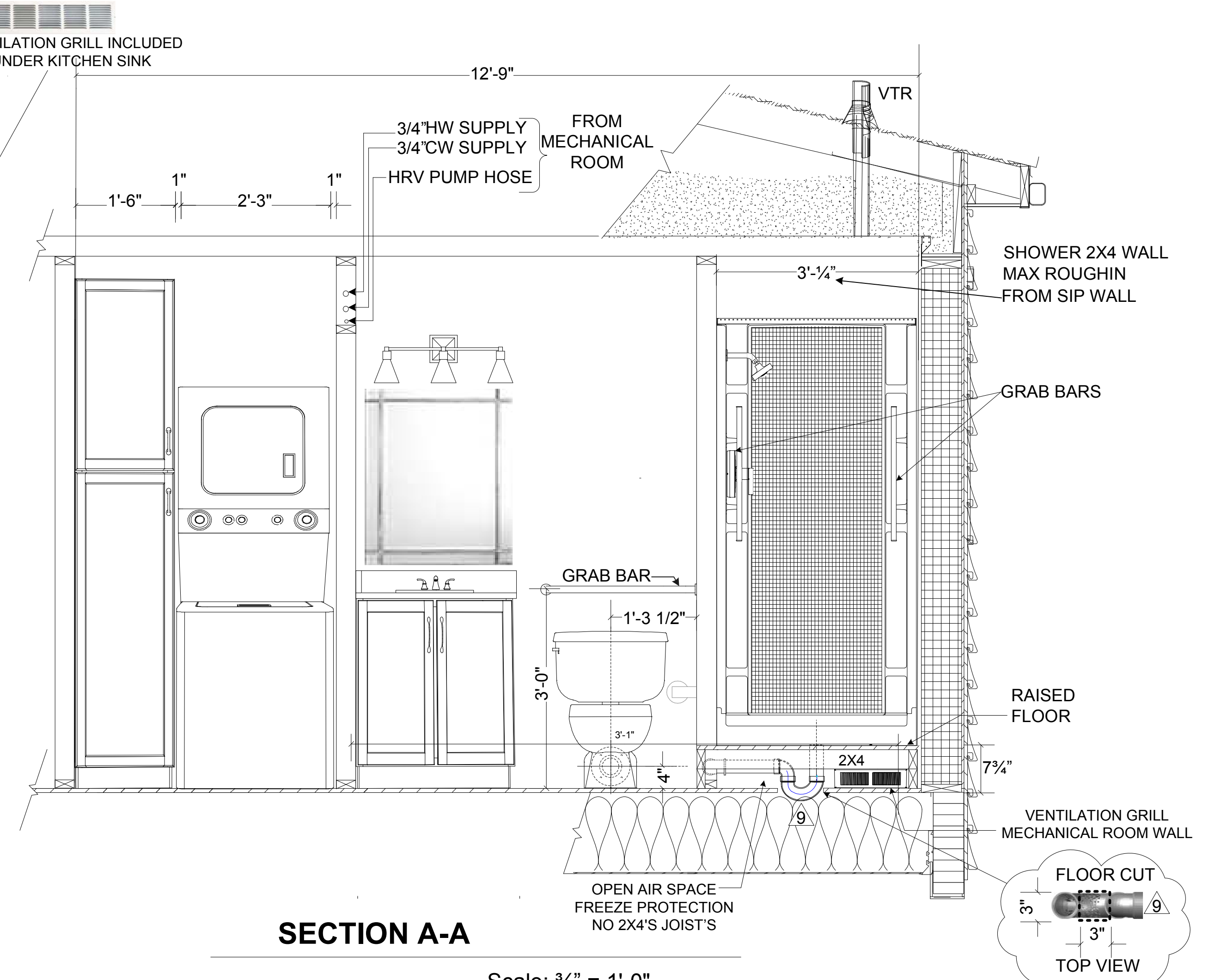


2 ABS DWV ISOMETRIC
PER UNIFORM PLUMBING CODE 2012 NTS

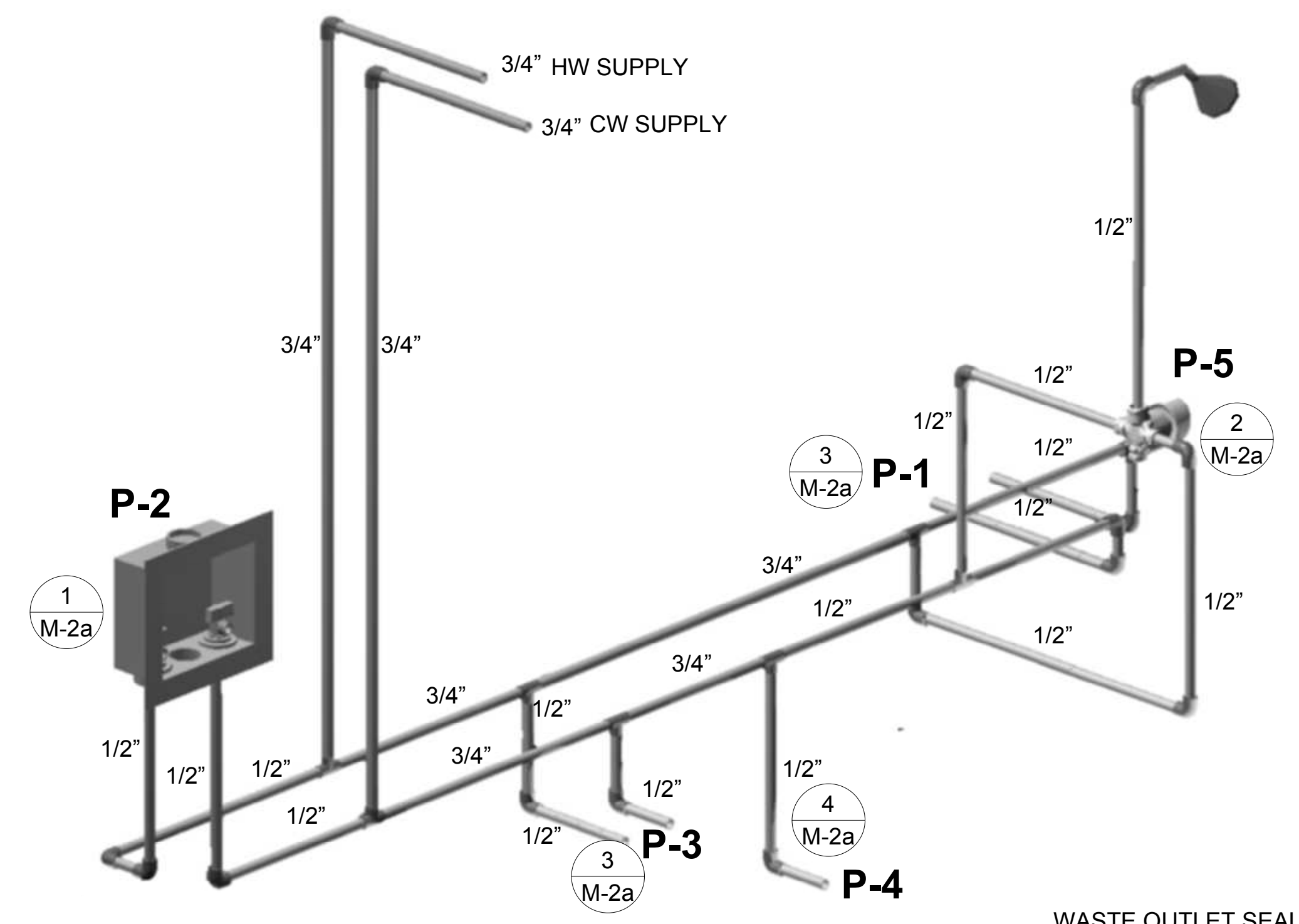
NOTE:
1. NO CLEANOUT AT KITCHEN SINK
2. SECURE #11 TO WALL PLYWOOD BACKING



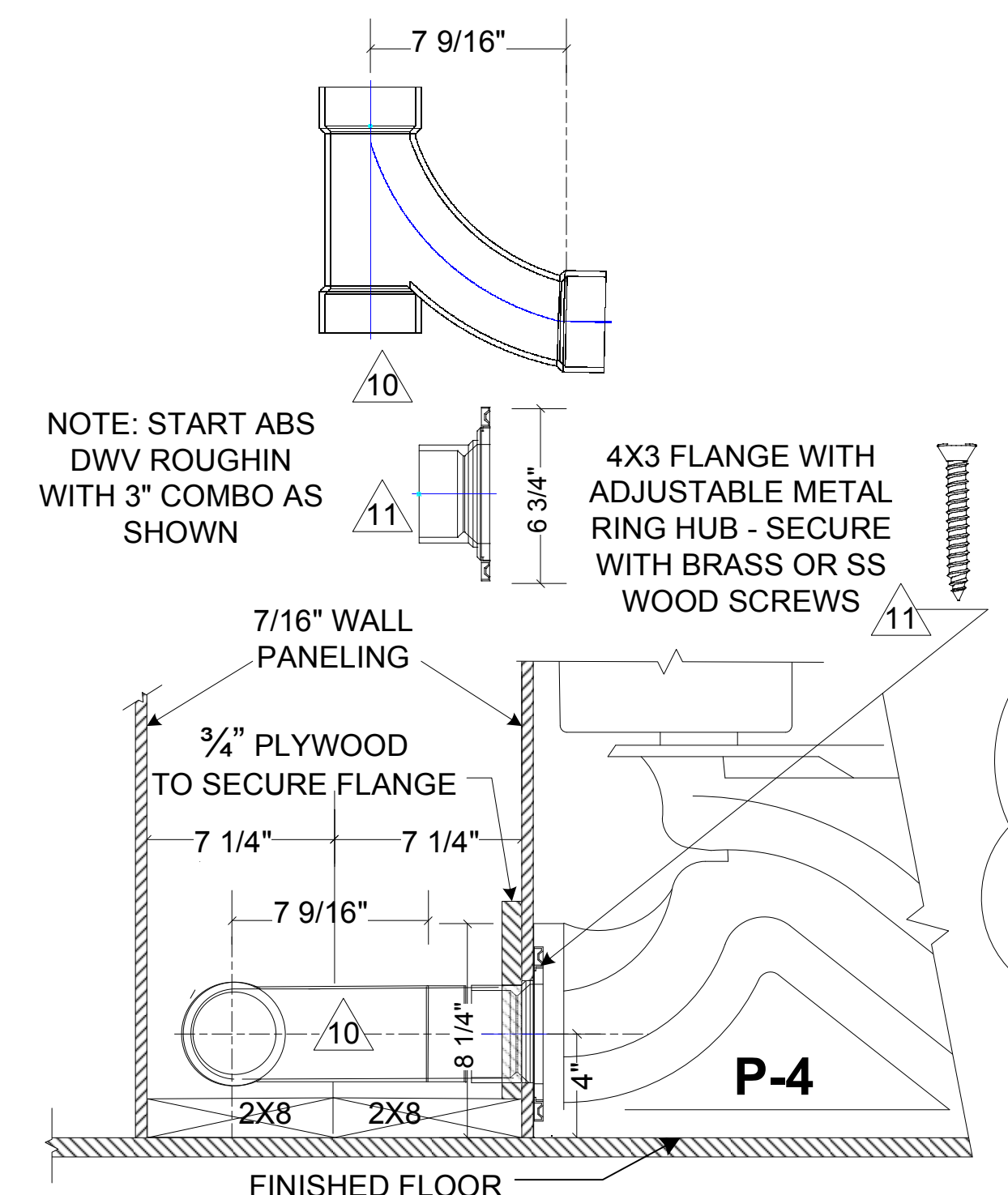
1 BATHROOM FIXTURE FLOOR PLAN
Scale: 3/4" = 1'-0"



SECTION A-A
Scale: 3/4" = 1'-0"

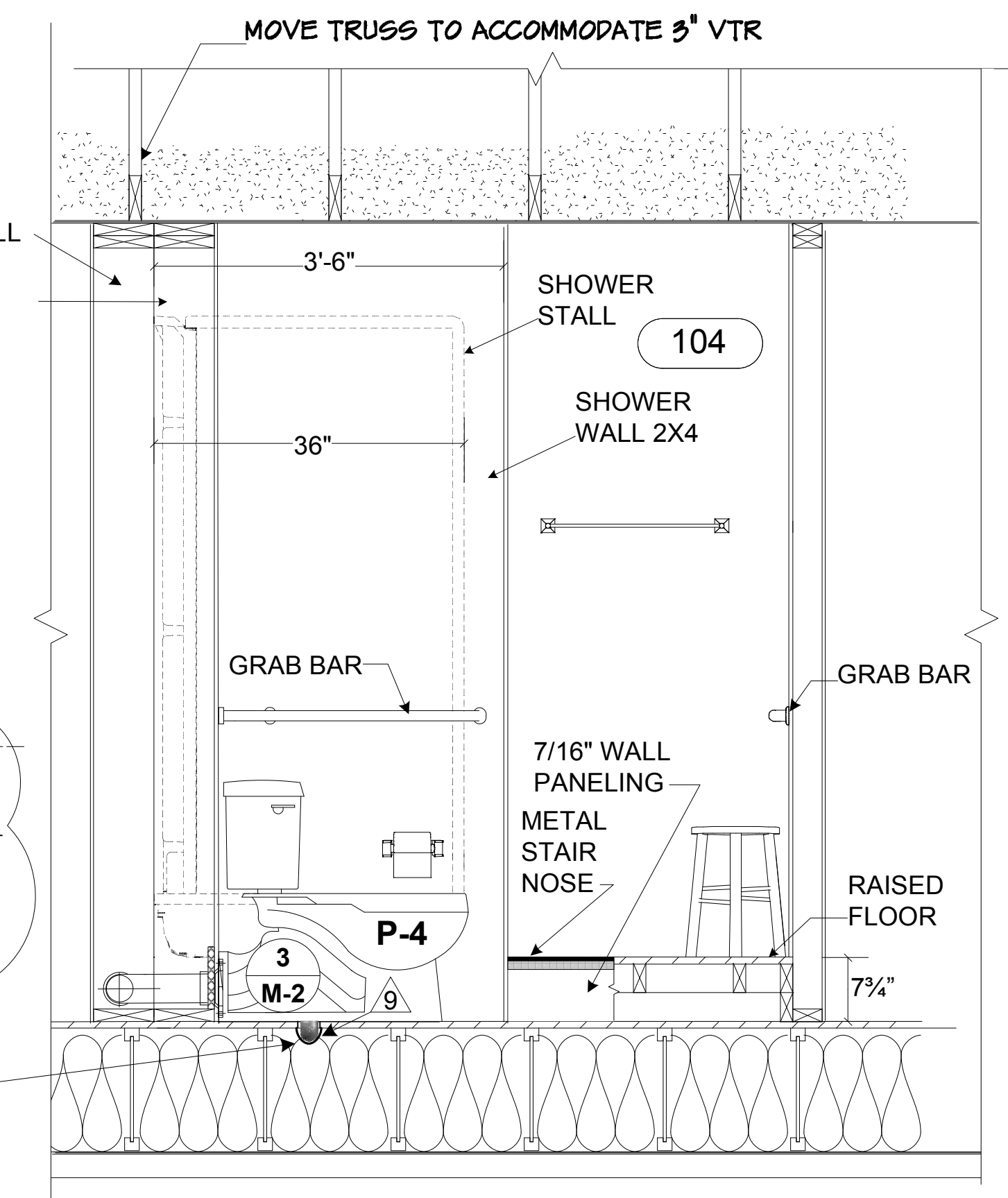


4 DOMESTIC WATER ISOMETRIC
UPONOR PROPEX BRASS FITTINGS NTS



3 DWV START POINT ROUGHIN DETAILS
SCALE: 2" = 1'-0"

WASTE OUTLET SEAL RING MUST BE NEOPRENE OR GRAPHITEFELT (WAX RING NOT RECOMMENDED).



SECTION B-B
Scale: 3/4" = 1'-0"

PROJECT DEMONSTRATION & MONITORING PROJECT FOR AIR SOURCE HEAT PUMPS

FIXTURES, WASTE, VENTS & WATER ISOMETRIC



Scale: Per Detail
Design/drawn by jn
Mechanical Administrator
Date: 7/22/19

Category Sheet
M 2

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Revision: None

REVISION: None

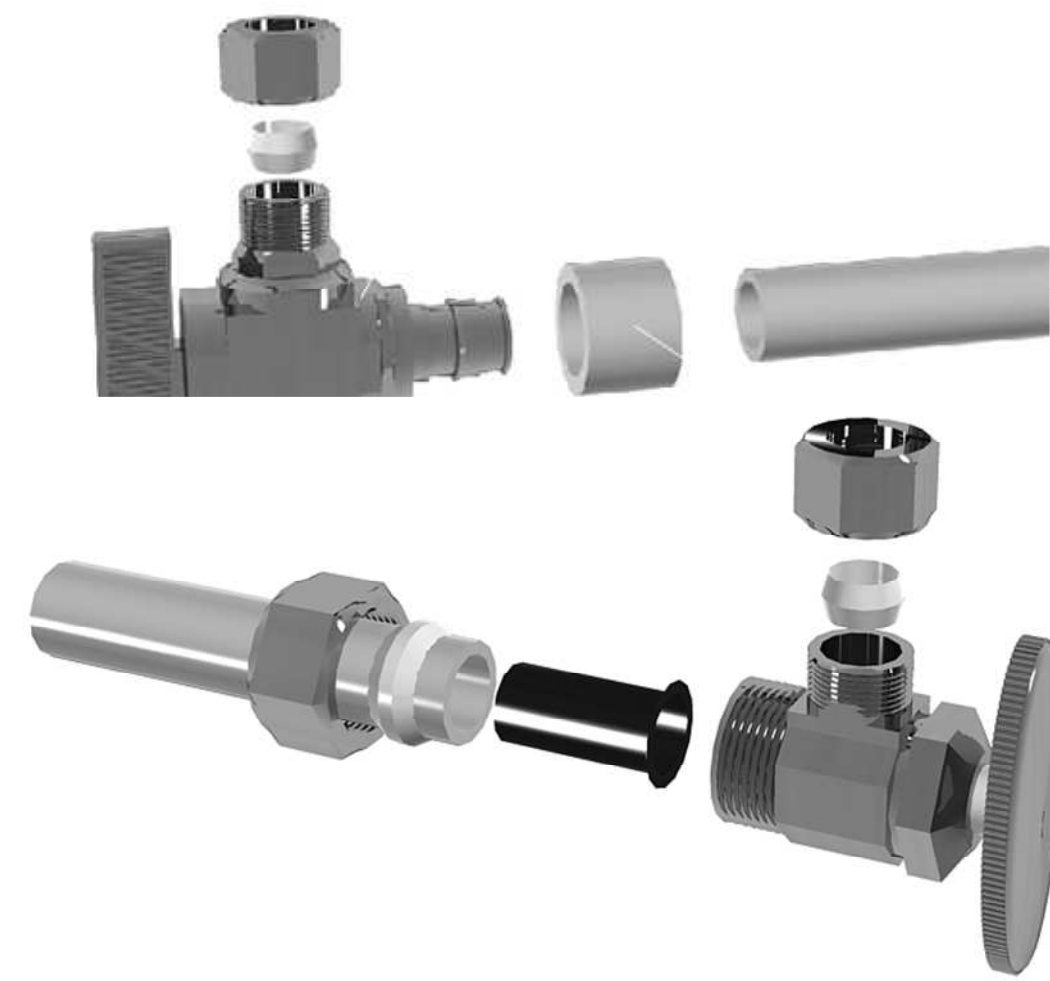
None

REVISION

SYSTEM



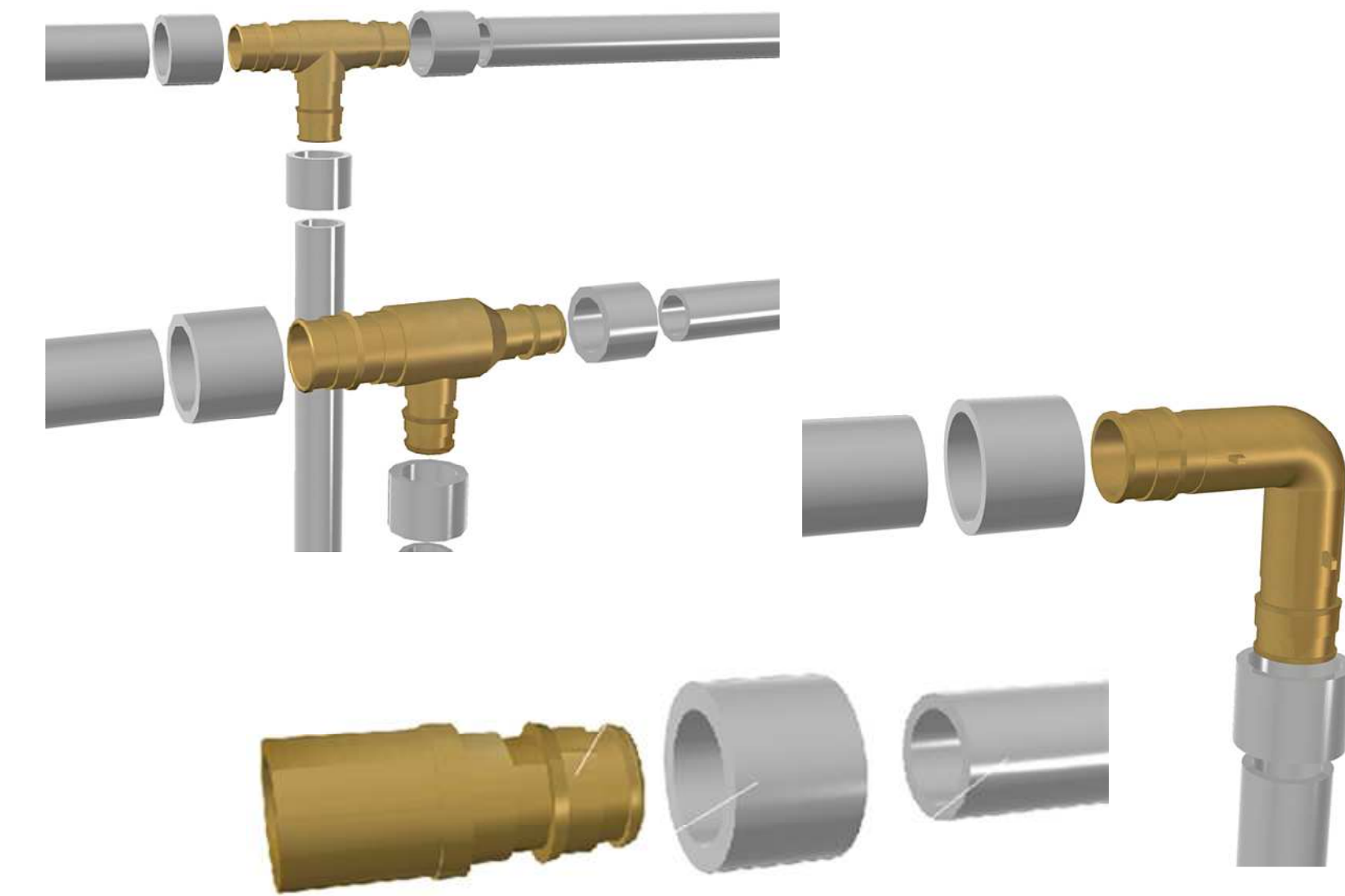
1 P-2 OATEY WASH MACHINE BOX
M-2a WITH WATER HAMMER ARRESTOR



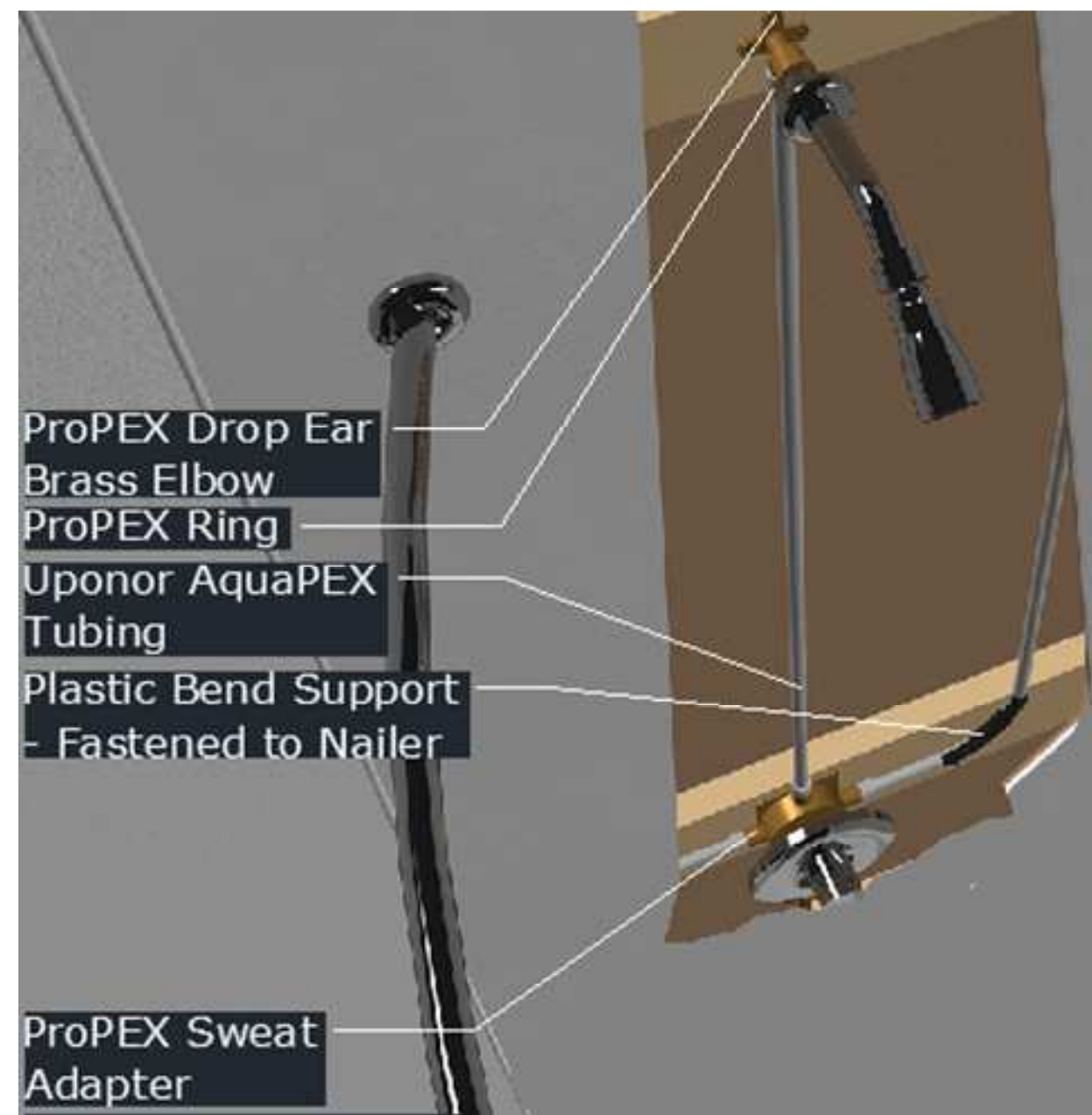
UPONOR ANGLE STOP CONNECTIONS



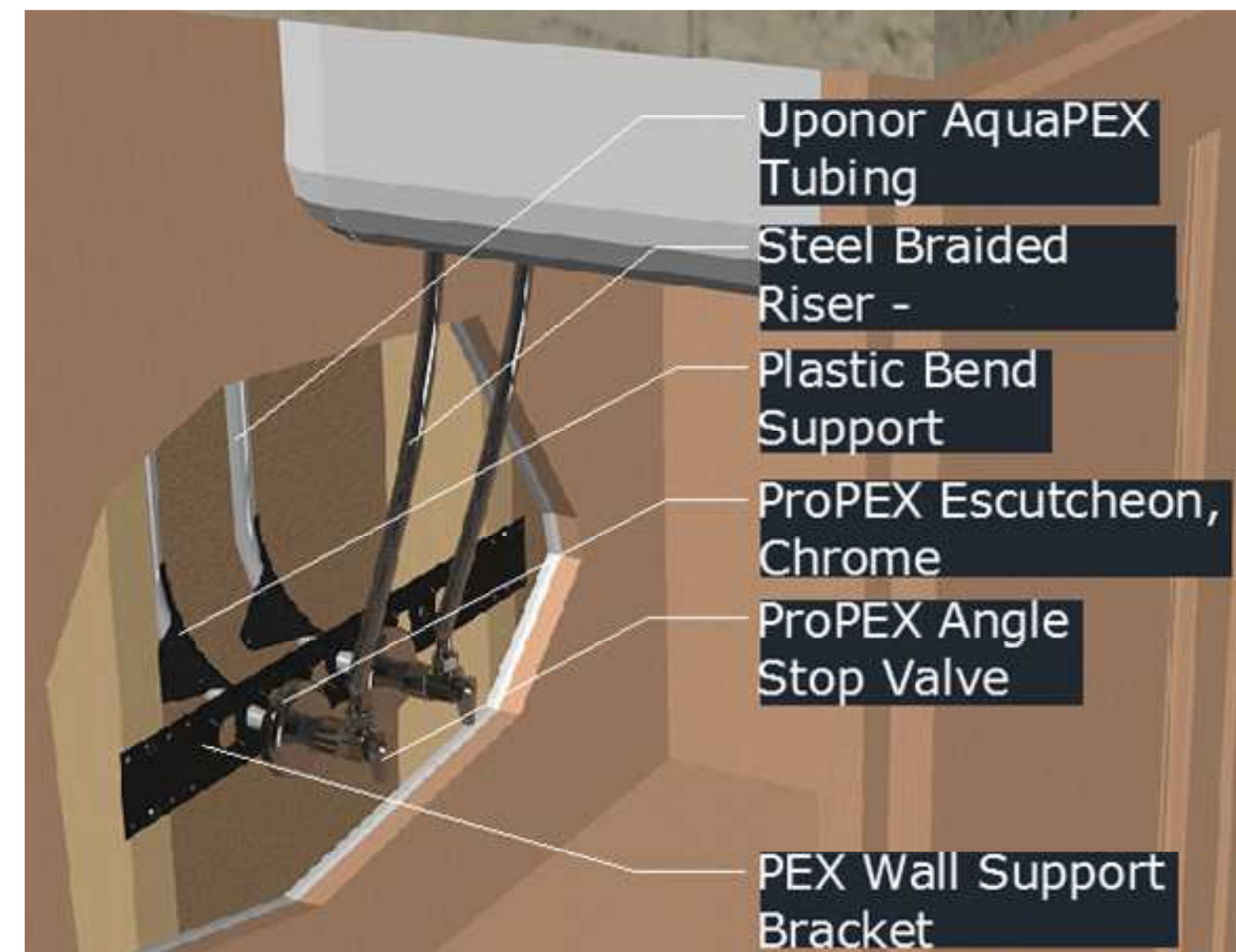
UPONOR BENDS



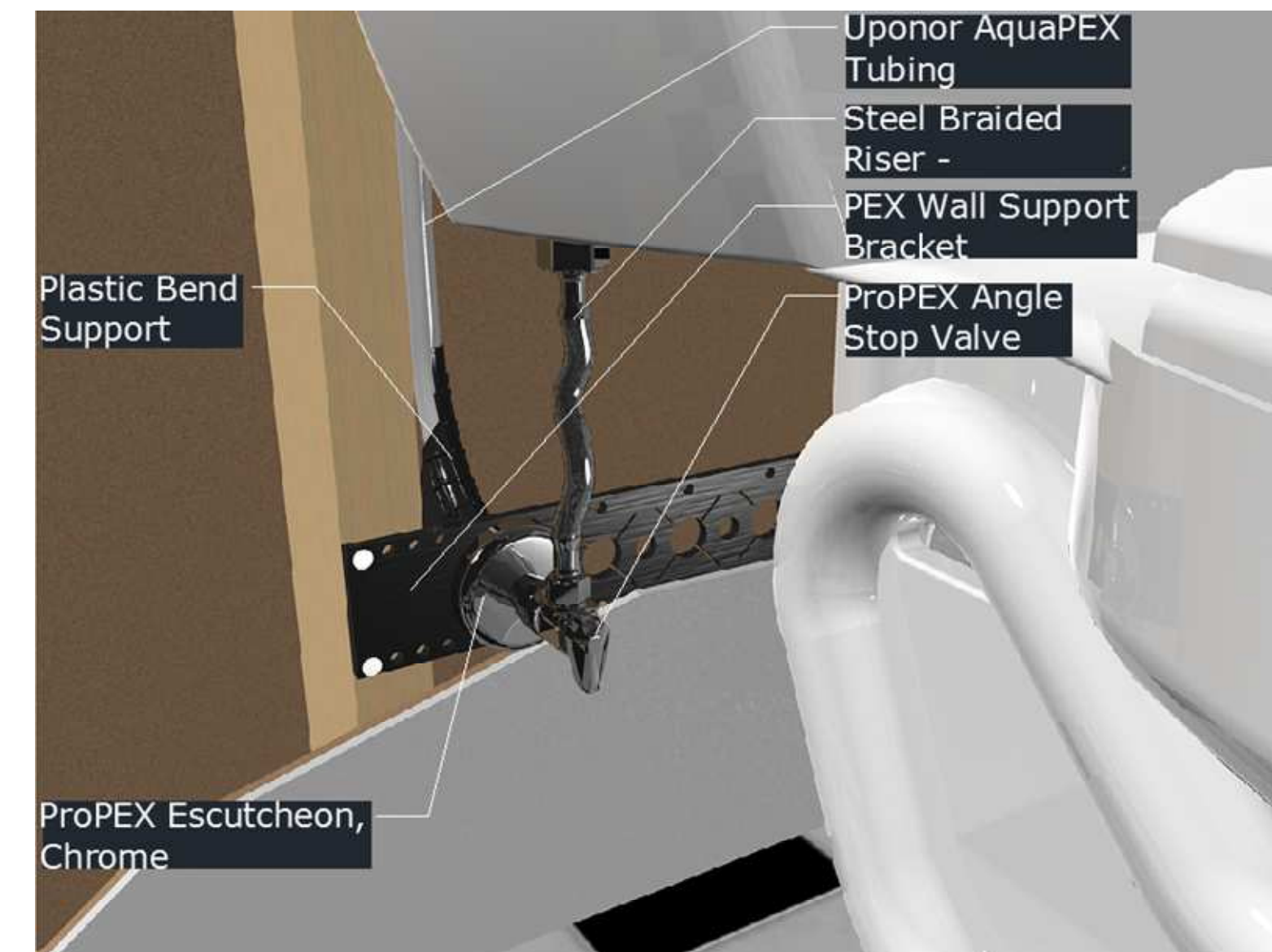
UPONOR PROPEX BRASS FITTINGS



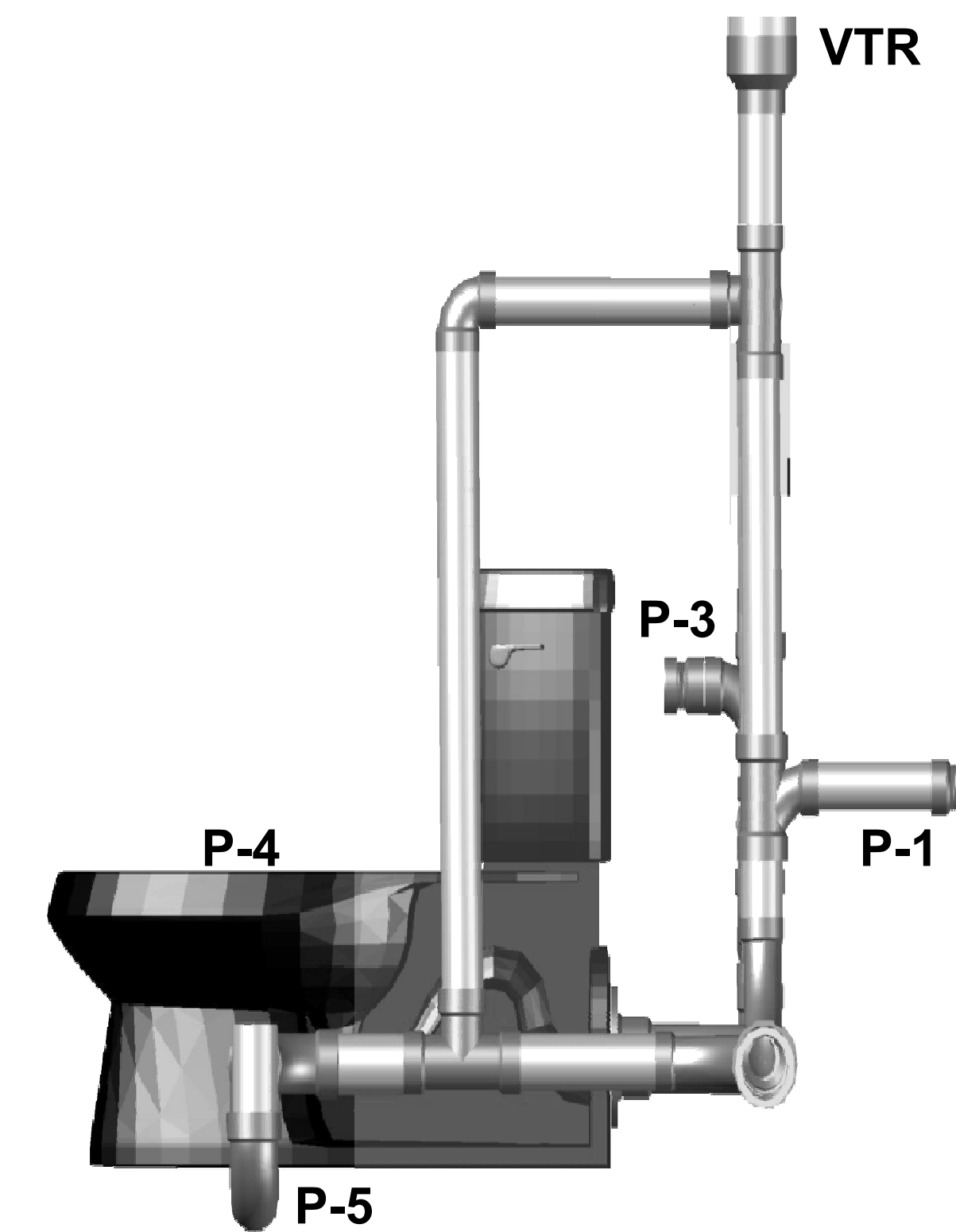
2 P-5 SHOWER DETAIL
M-2a



3 P-1 & 3 KITCHEN SINK & LAV DETAIL
M-2a



4 P-4 CLOSET DETAIL
M-2a



C-C SECTION C-C
M-2 3D VIEW DWG

UPONOR PROPEX PIPING SYSTEM

PROJECT DEMONSTRATION & MONITORING PROJECT FOR AIR SOURCE HEAT PUMPS

OWNER FIXTURE CONNECTION DETAILS

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REVISION: None

None

REVISION



Scale: per detail

Design/Drawn by: jn

Date: 7/22/19

Job No. Bethel Demo

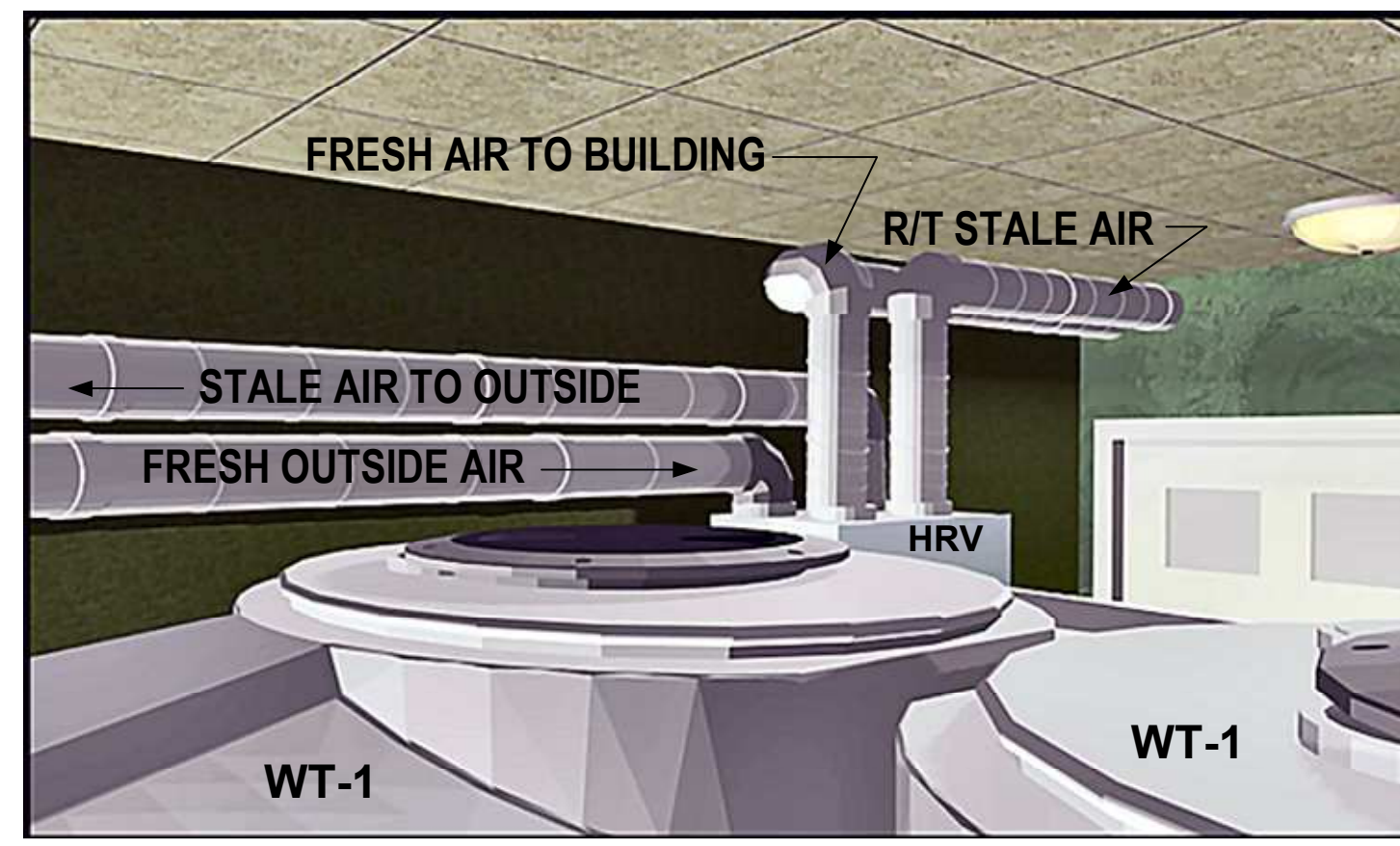
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Category	Sheet
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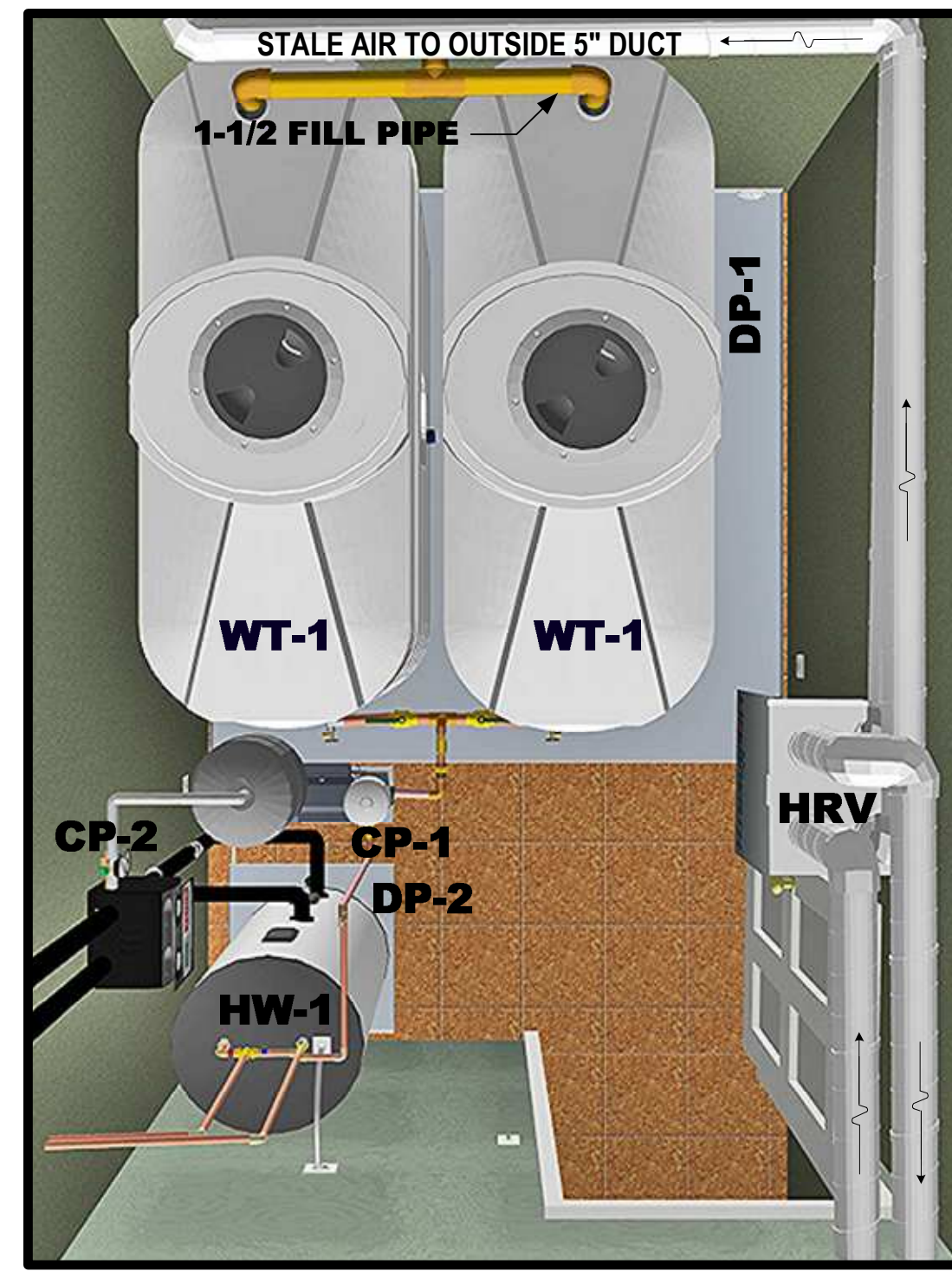
M 3



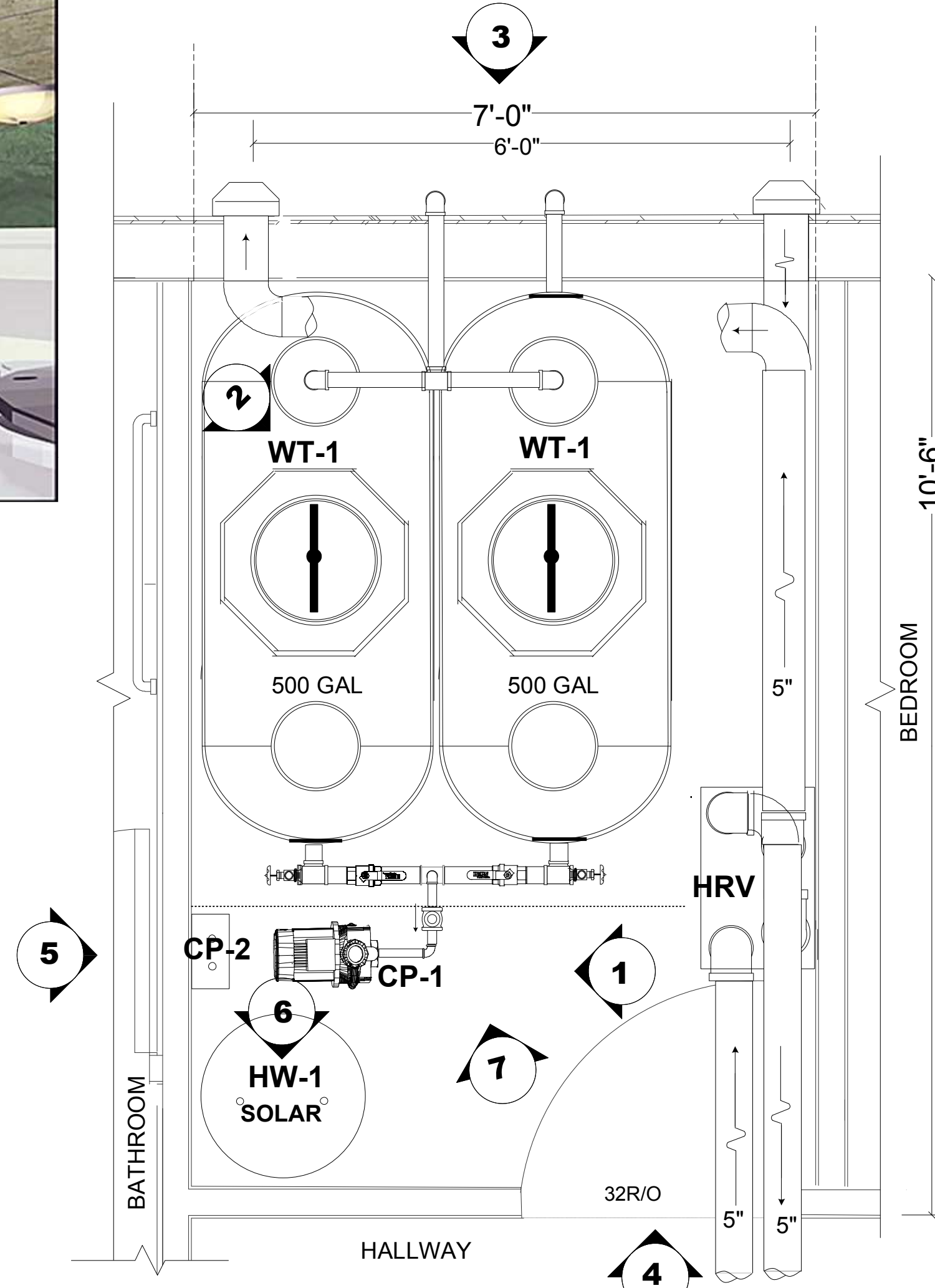
1 SOLAR HW HEATER & CONTROLLER (CP-2)
Scale: n/a



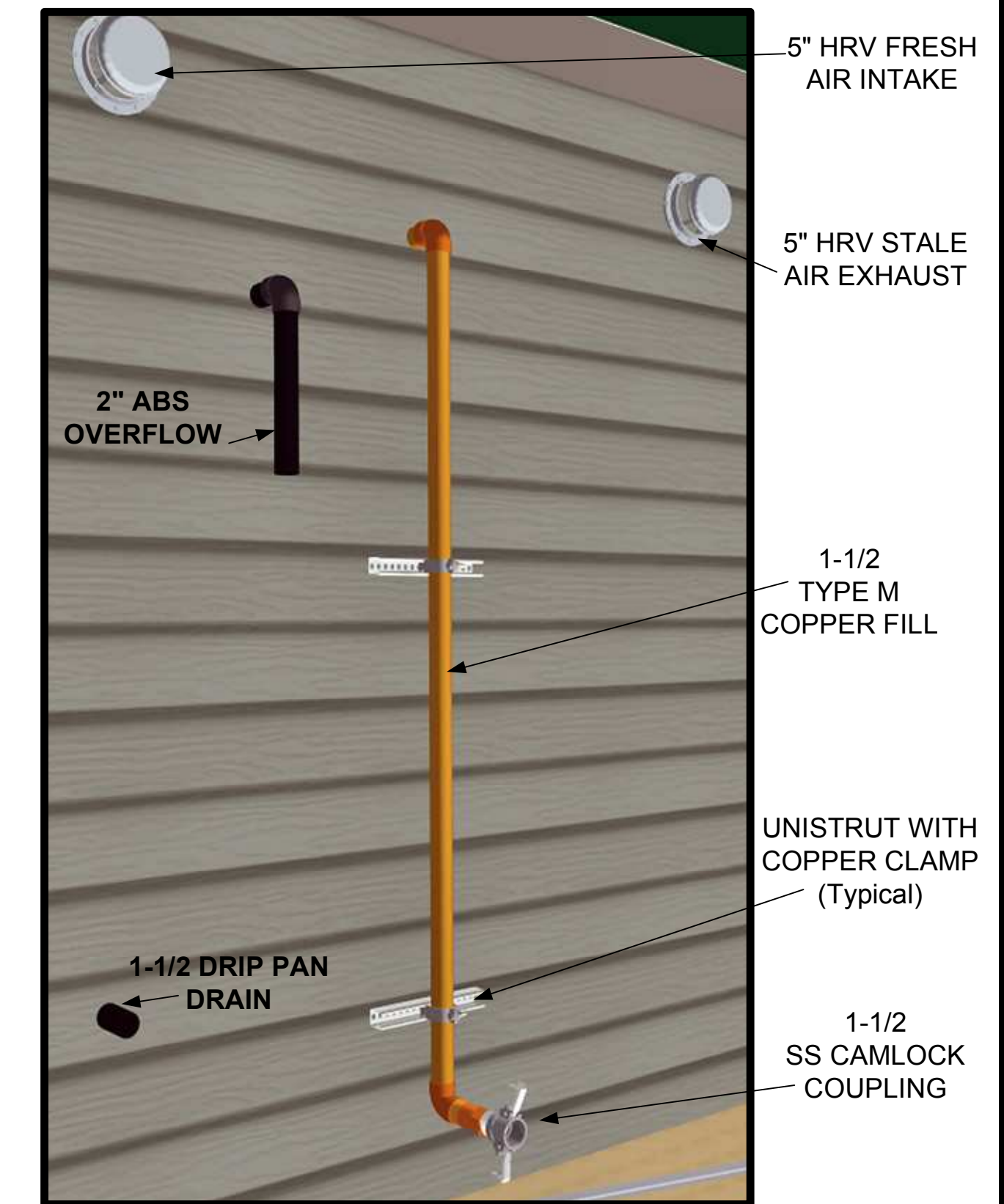
2 HRV VENTILATION DUCTS
Scale: n/a



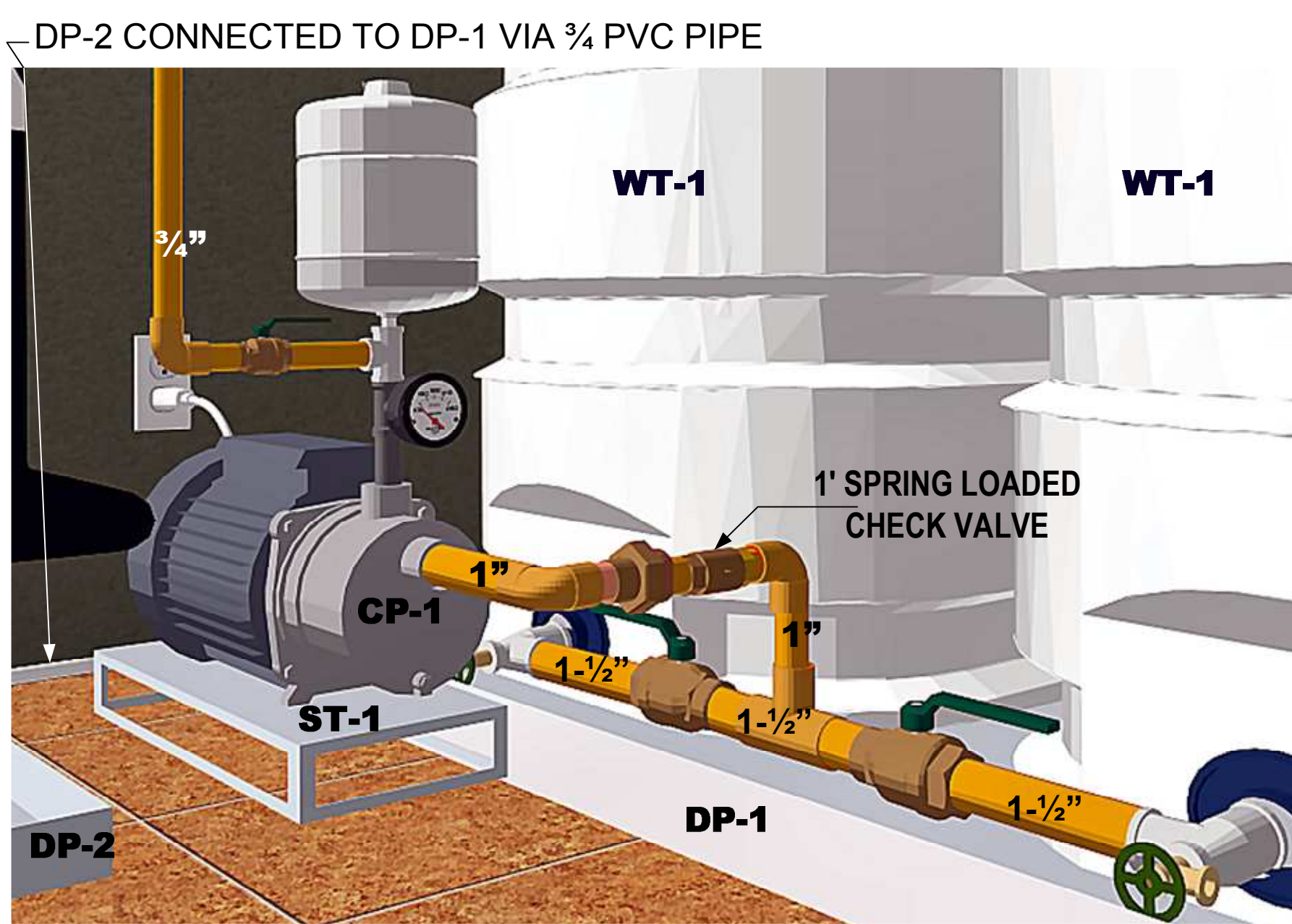
3D MECHANICAL ROOM FLOOR PLAN
Scale: n/a



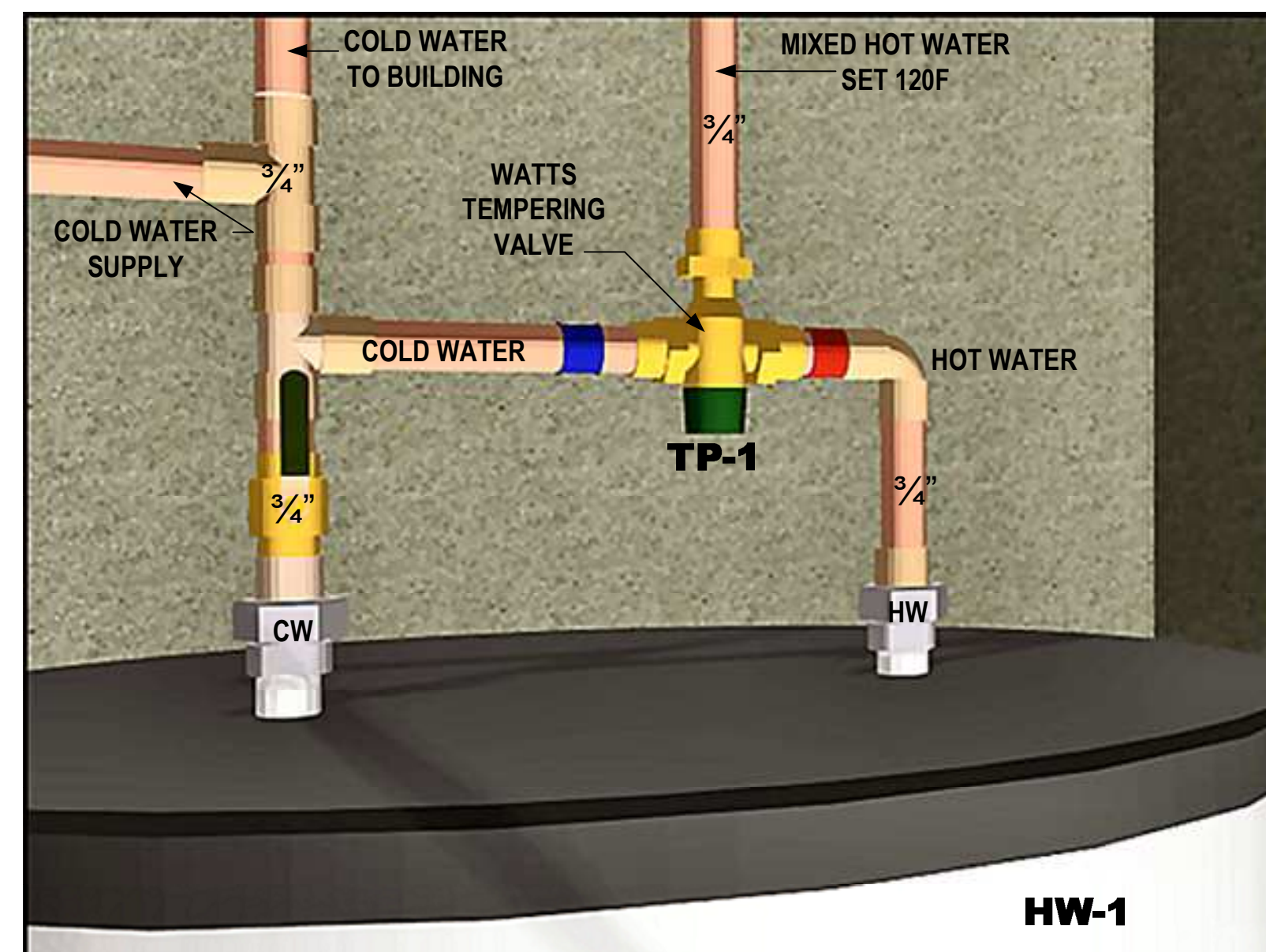
1 MECHANICAL ROOM FLOOR PLAN
M4 Scale: 3/4" = 1'-0"



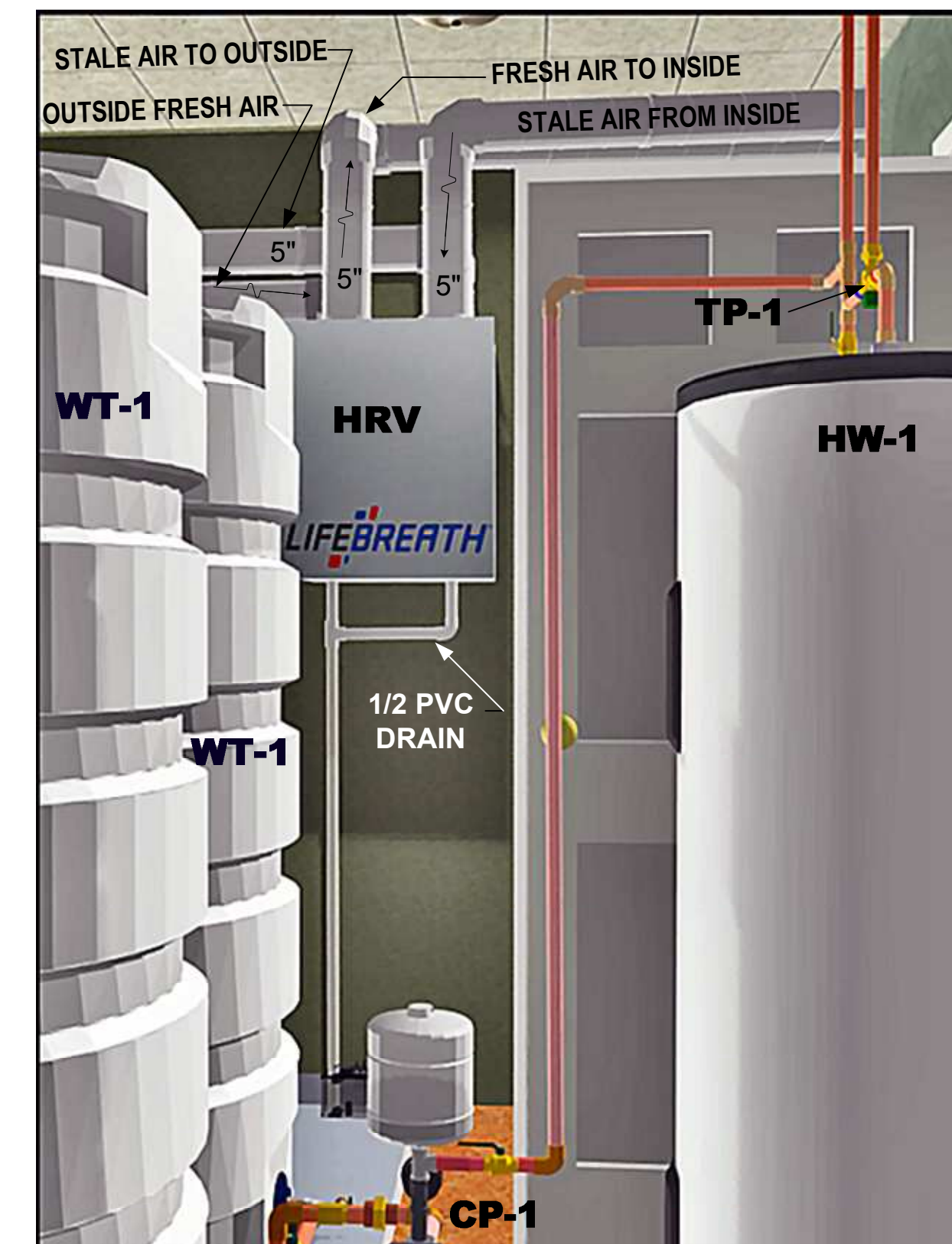
3 WATER FILL & OVERFLOW EXTERIOR
Scale: n/a



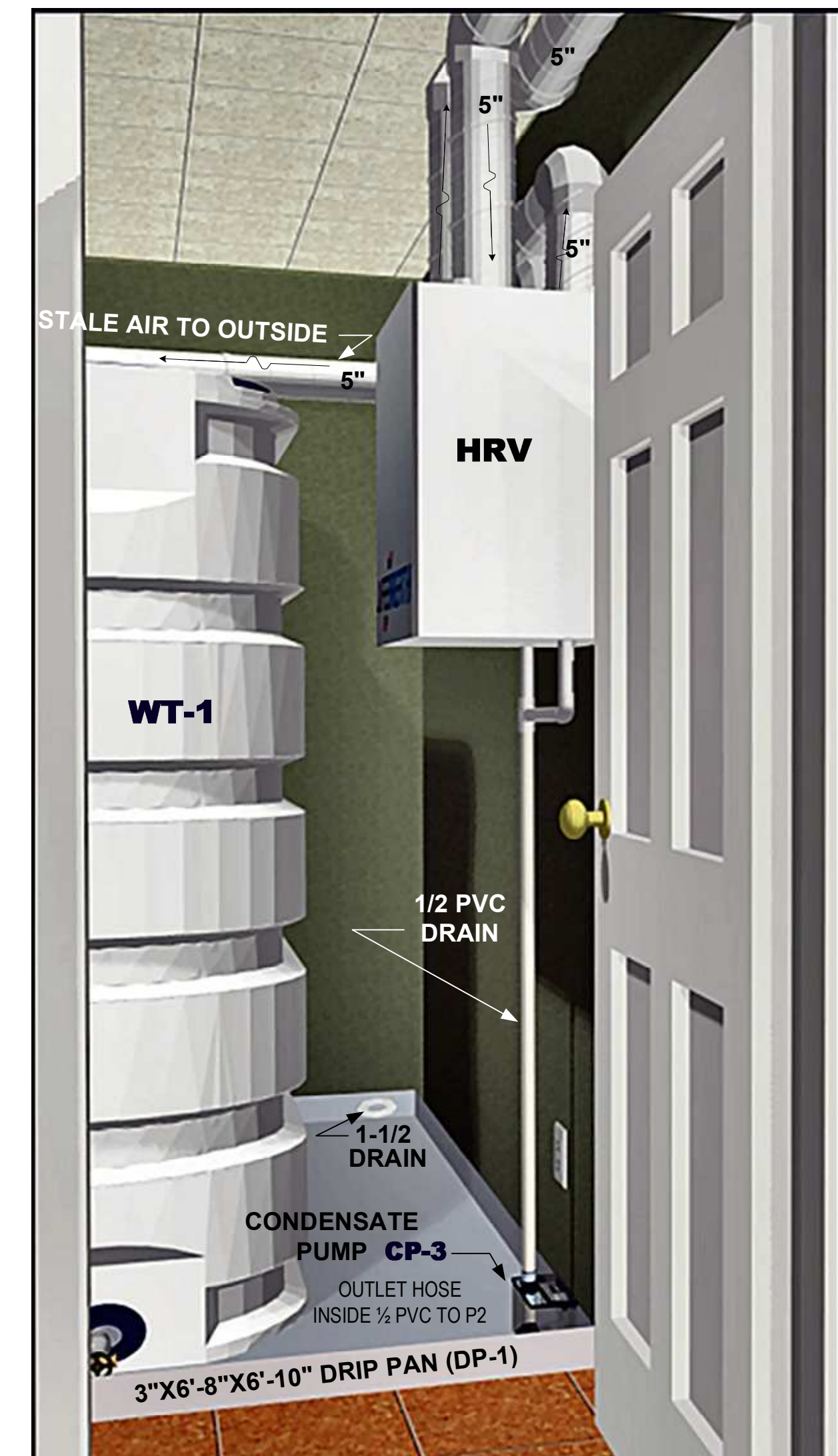
7 DOMESTIC WATER PUMP
Scale: n/a



6 HW-1 MIXING VALVE
Scale: n/a



5 HEAT RECOVERY VENTILATOR (HRV)
Scale: n/a



4 DRIP PAN & CONDENSATE PUMP
Scale: n/a

PROJECT: DEMONSTRATION & MONITORING PROJECT FOR AIR SOURCE HEAT PUMPS

SYSTEM: SOLAR HW HEATER, HRV & DOMESTIC WATER PUMP

REVISION: None

Revision: None

OceanAir HEATING & A/C CONTRACTING LLC

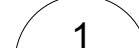
HEAT PUMP SYSTEMS

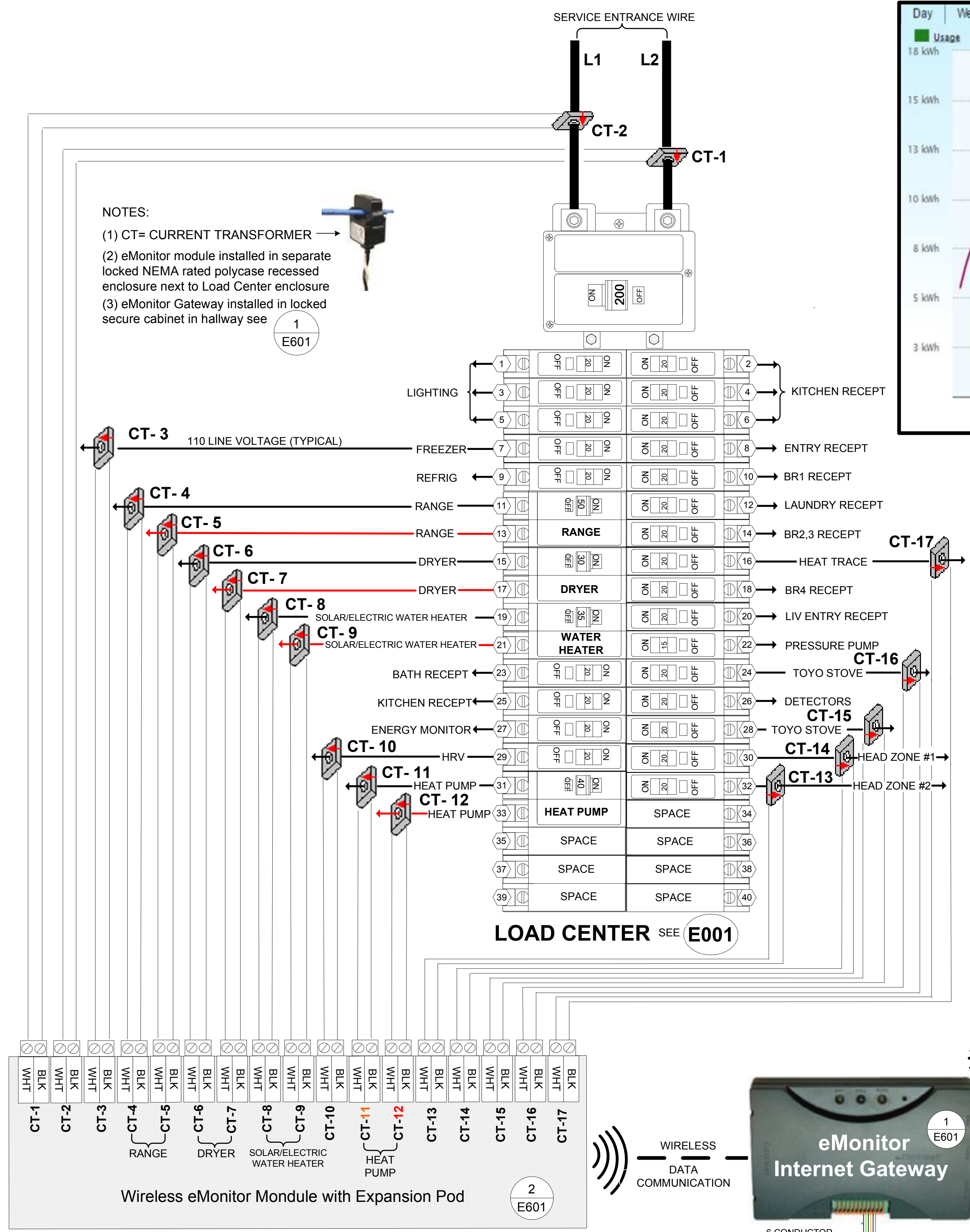
Scale: Per Detail
Design/drawn by jn
Date: 8/29/19
Job No.

Category: Sheet

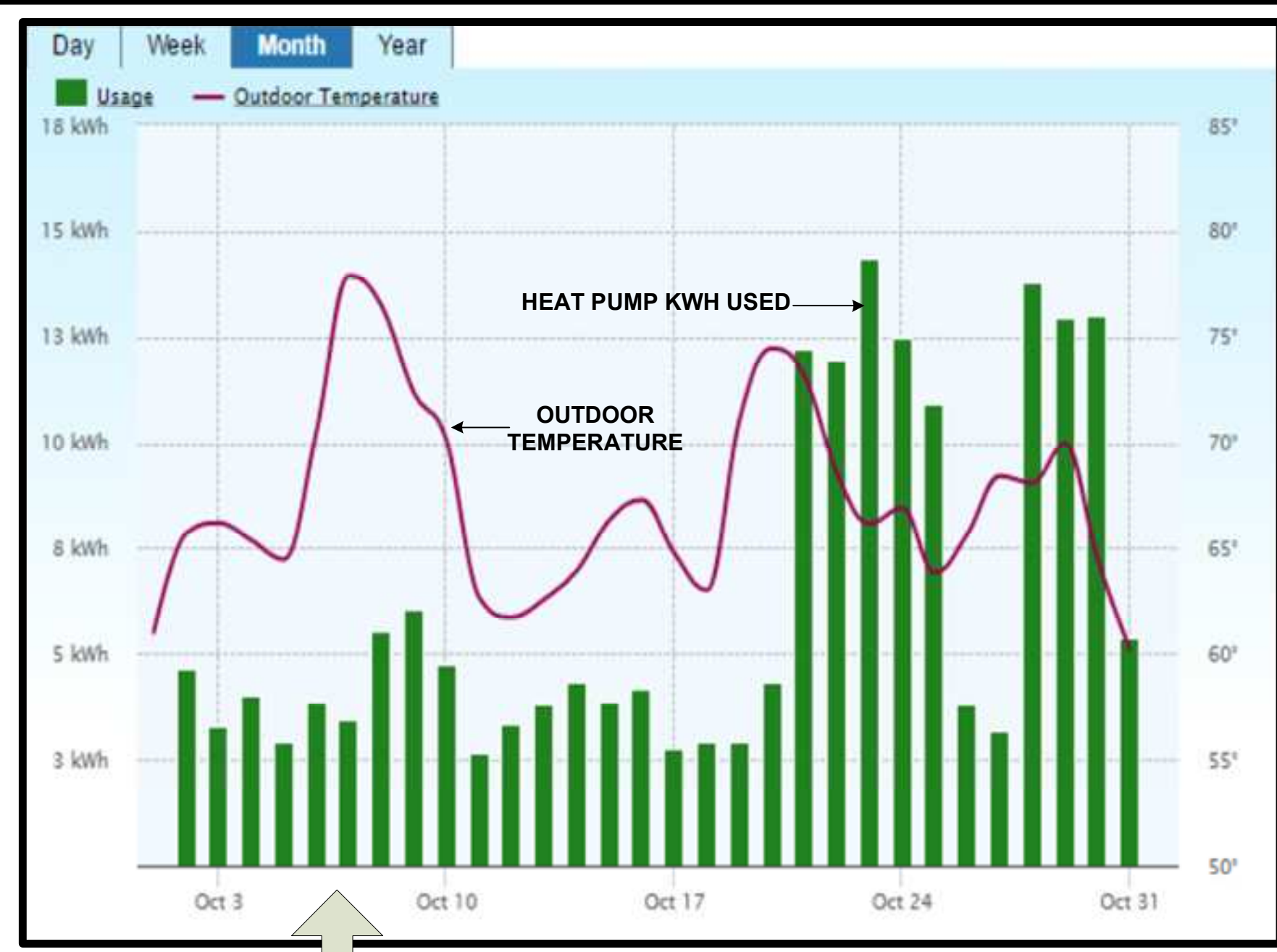
M 4

NOTES:

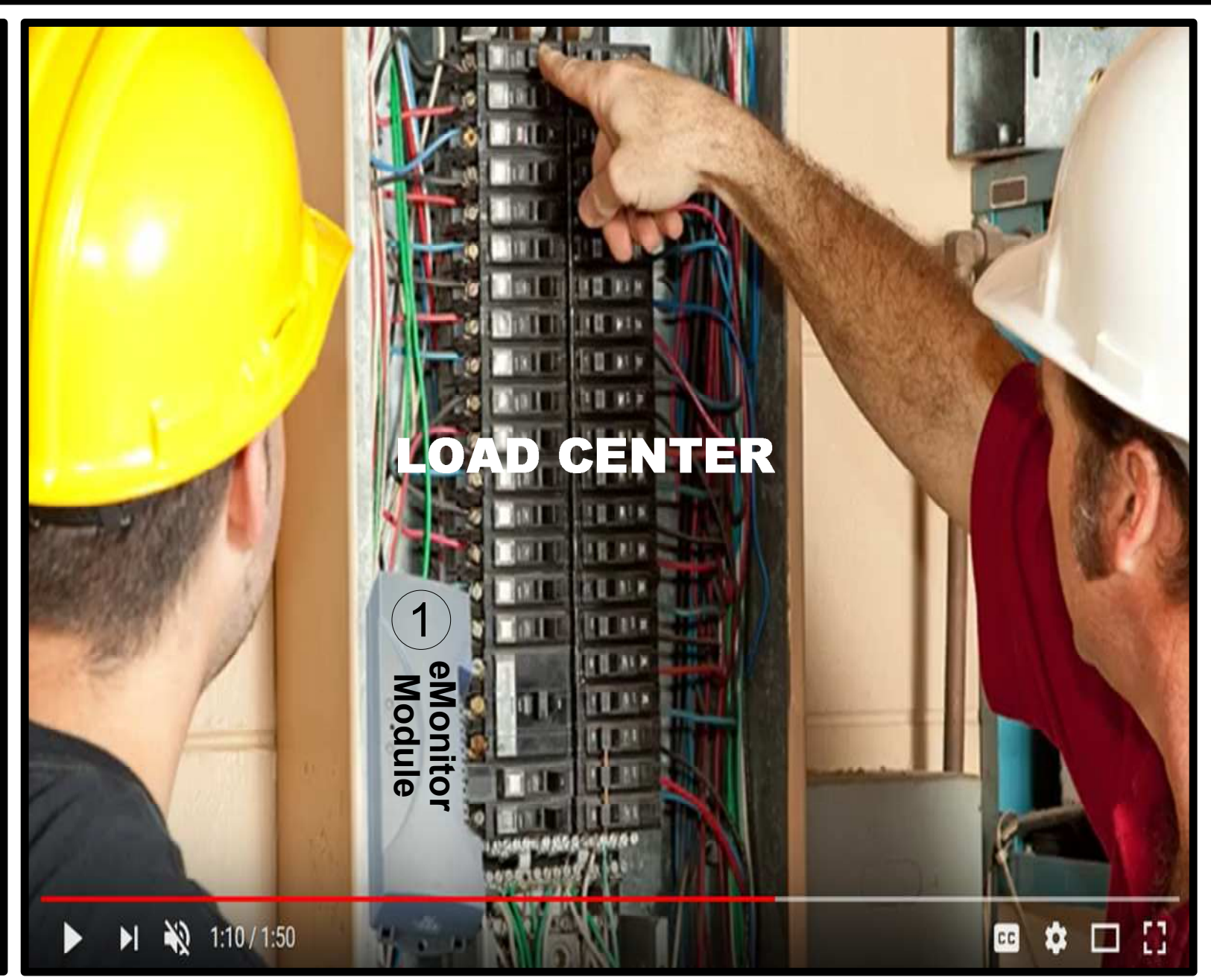
- (1) CT= CURRENT TRANSFORMER →
- (2) eMonitor module installed in separate locked NEMA rated polycase recessed enclosure next to Load Center enclosure
- (3) eMonitor Gateway installed in locked secure cabinet in hallway see 



1 CT MODULE & WIRING DIAGRAM
17 DATA POINTS MONITORED



2 SITESAGE HEAT PUMP ANALYTICS
DATA COLLECTED FROM CT 11&12
EXAMPLE SCREENSHOT GRAPHIC



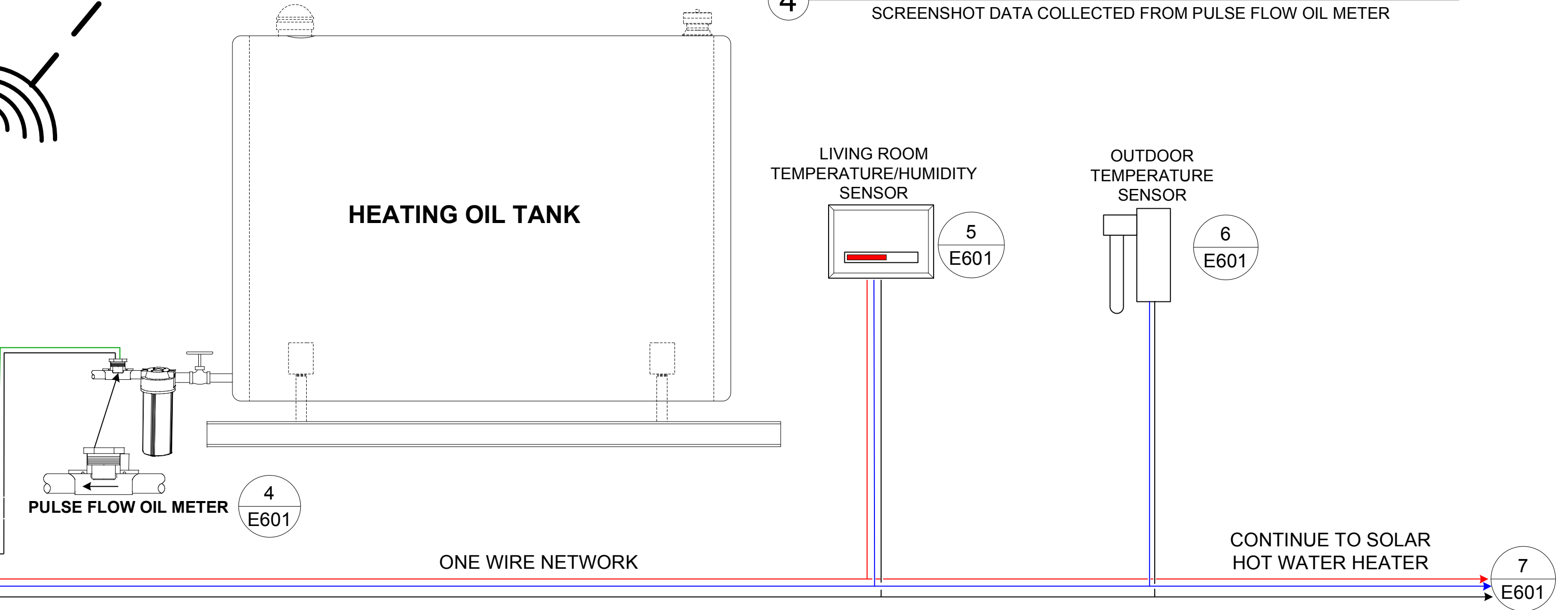
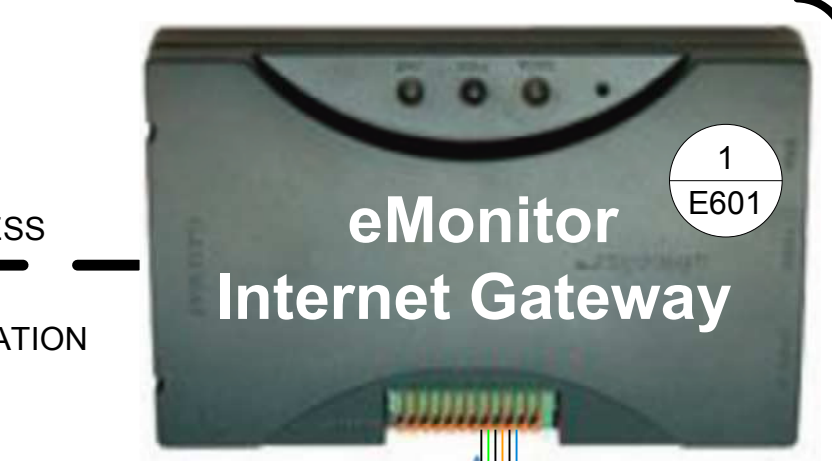
3 SITESAGE RESIDENTIAL INTRODUCTION
TYPE IN THE ABOVE CAPTION ON YouTube TO VIEW SOFTWARE & OVERVIEW IN HOW THE CT'S AND EMONITOR ARE INSTALLED



DESKTOP REMOTE ACCESS
MONITORING SOFTWARE & HARWARE BY:
<https://www.powerwisesystems.com/>



4 SITESAGE HEATING OIL ANALYTICS
SCREENSHOT DATA COLLECTED FROM PULSE FLOW OIL METER



PROJECT **DEMONSTRATION & MONITORING PROJECT FOR AIR SOURCE HEAT PUMPS**

SYSTEM **CT /DEVICE MONITORING DIAGRAM & ARCHITECTURE**

REVISION: None

Actual installation Overview & Presentation

OceanAir HEATING & A/C CONTRACTING LLC
HEAT PUMP SYSTEMS

Scale:
Drawn by: jerry
Date: 3/19/19
Job No.

Category Sheet

E 501