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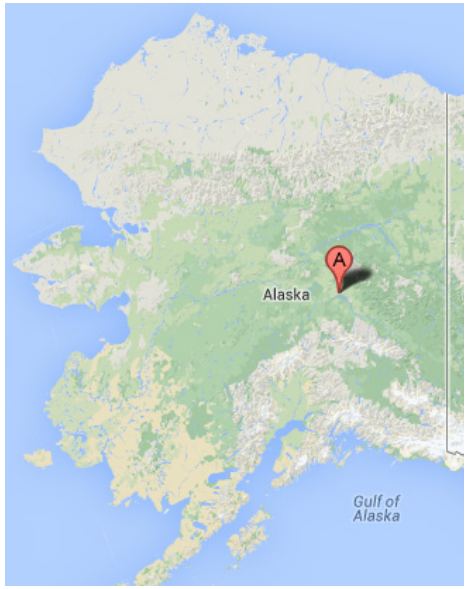
Design for UAF Sustainable Village:
WILLOW HOUSE
REMOTE wall with piling foundation



NOTE: The information contained in these documents was developed and published as a reference for specific climatic and site conditions. These documents are not a substitute for a detailed architectural plan set or site-specific engineering.

Any application of knowledge contained in this manual will need to consider site-specific issues including but not limited to applicable codes and structural design considerations for soil type, weather, and wind and snow load conditions. It is essential that a structural engineer review the plans to ensure they meet design criteria appropriate to the site.

This home has many elements that require specialized knowledge. We strongly recommend that skilled tasks, plumbing and electric work be done by professionals.

SUSTAINABLE VILLAGE AT UAF

SOUTHEAST PROTOTYPE HOME

N

LEGEND

- Site Boundary
- House Location
- Student Garden
- New Solar PV Array
- Existing Solar PV Array
- Powerline
- Powerline Poles
- Railroad Lines
- Elevation Contours
- Nenana Parking Lot
- Harper Bldg Parking Lot

Water Bodies

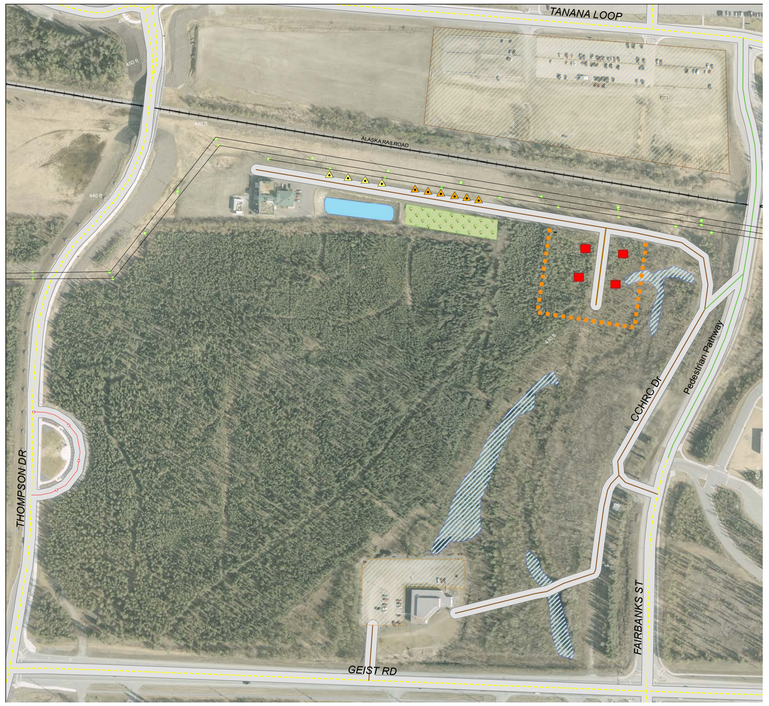
- Permanent Pond
- Seasonal Pond

Road Centerlines

- Mulch
- Paved
- Gravel
- Pedestrian
- Bus Ln

0 150 300 600 Feet

Cartographer
Nick Tove



7 SUSTAINABLE VILLAGE LOCATION

UNIVERSITY OF ALASKA FAIRBANKS

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SUSTAINABLE UAF

Alaska Housing FINANCE CORPORATION

ThotPro
STRUCTURAL ENGINEERING
www.thotpro.com

CODE REFERENCE

IBC 2006
UPC 2009
NEC 2011

LIST OF DRAWINGS

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
REVISION NOTES		
No.	Rev./Issue	Date

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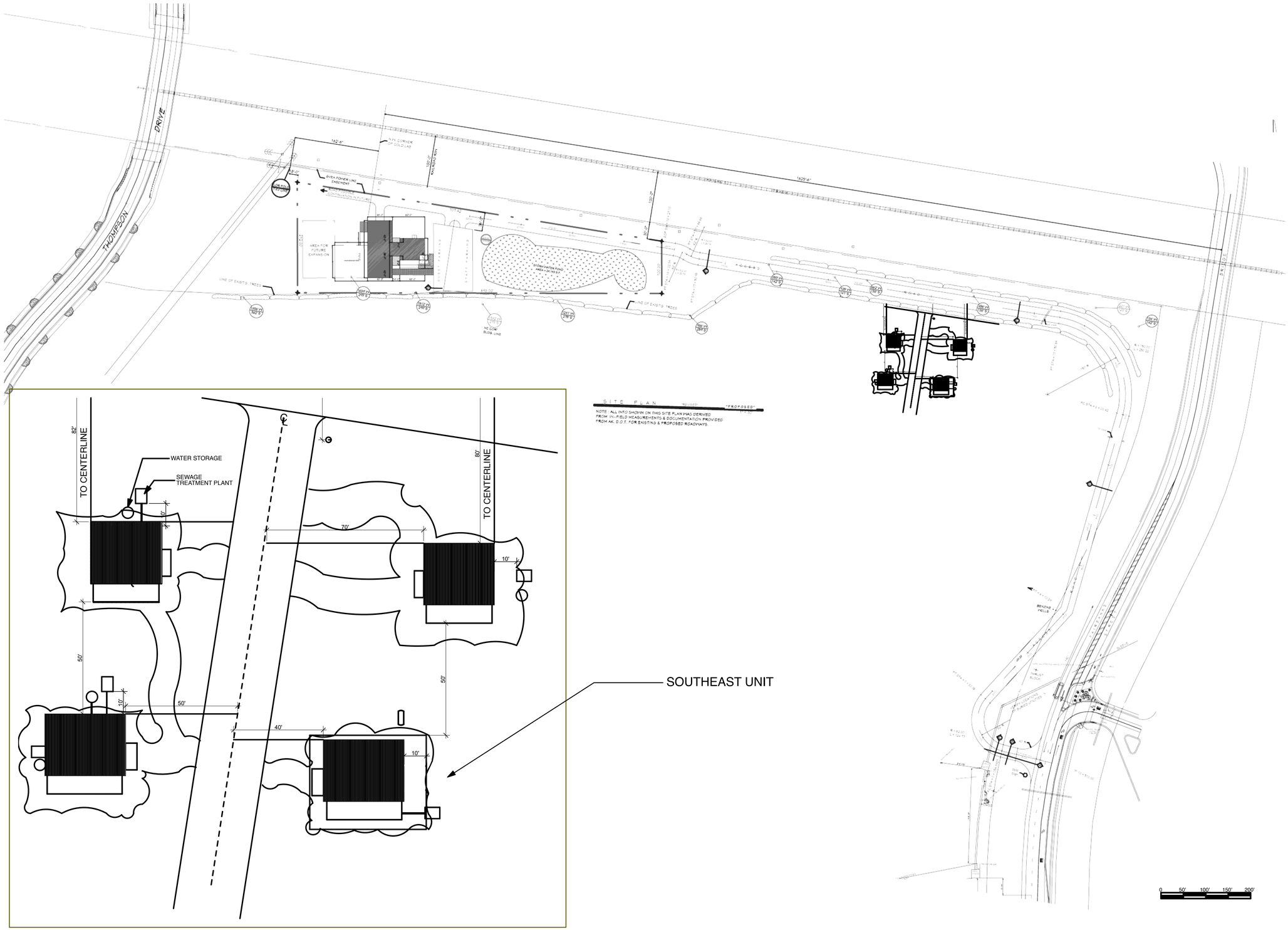
COVER SHEET

A0.0

SHEET 1 OF total



4 SITE PLAN
SCALE: 1" = 20'

1 Site Map Entire Plat

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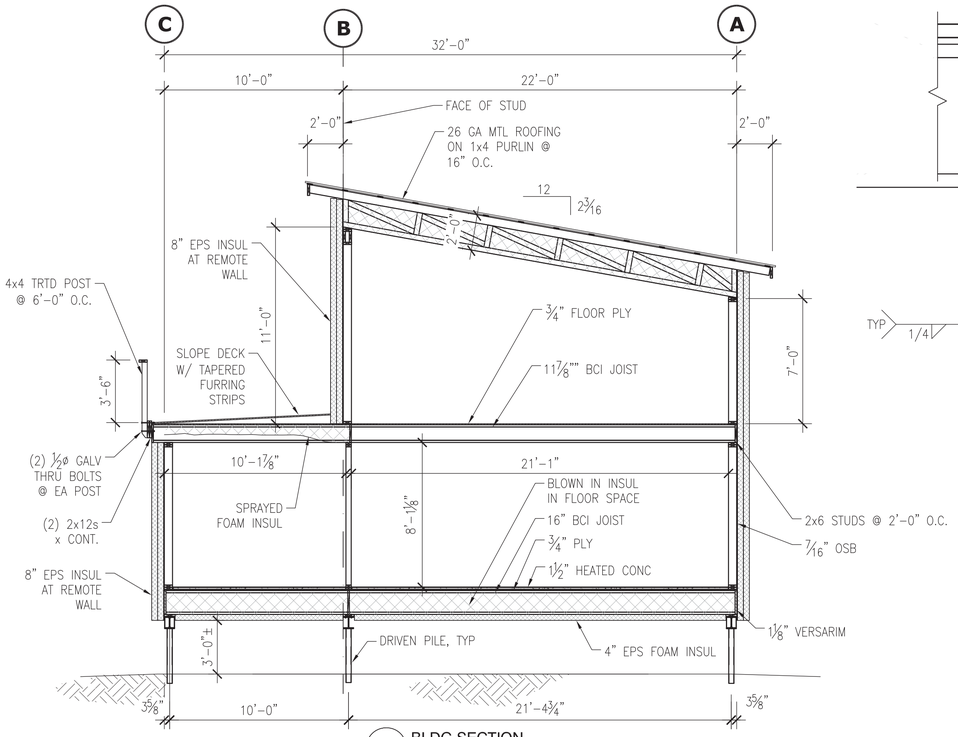
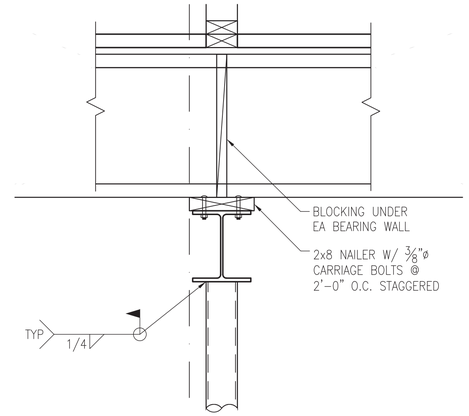
SITE PLAN

C1.0

SHEET 3 OF total



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



A PILE DETAIL
1 1/2" = 1'-0"

GENERAL NOTES:

1) STRUCTURAL DESIGN DATA

CODE: IBC 2006

LIVE LOADS:

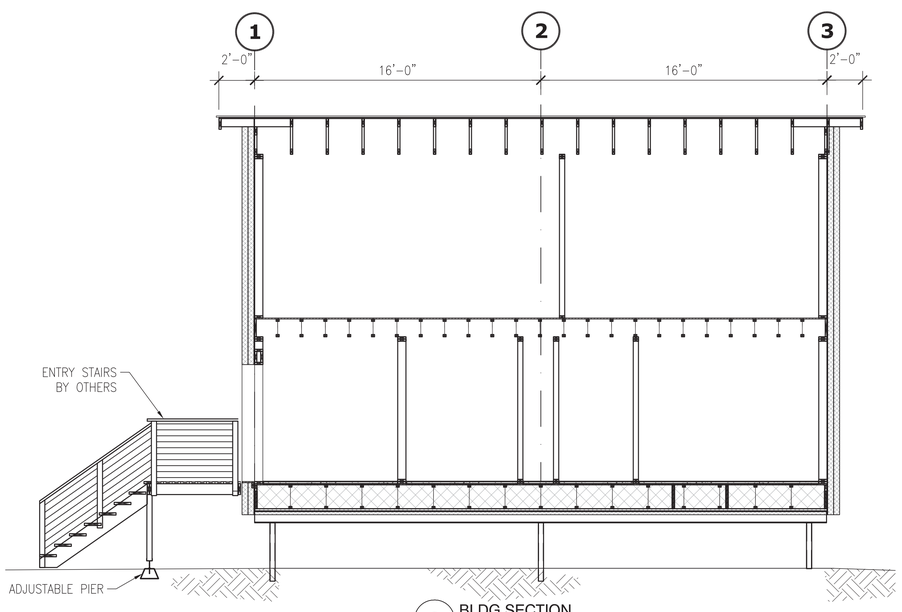
SNOW (QUINHAGAK)	26 PSF
RESIDENTIAL	40 PSF

WIND LOADS:
IN ACCORDANCE WITH THE IBC BASIC WIND SPEED = 120 MPH, EXPOSURE C.

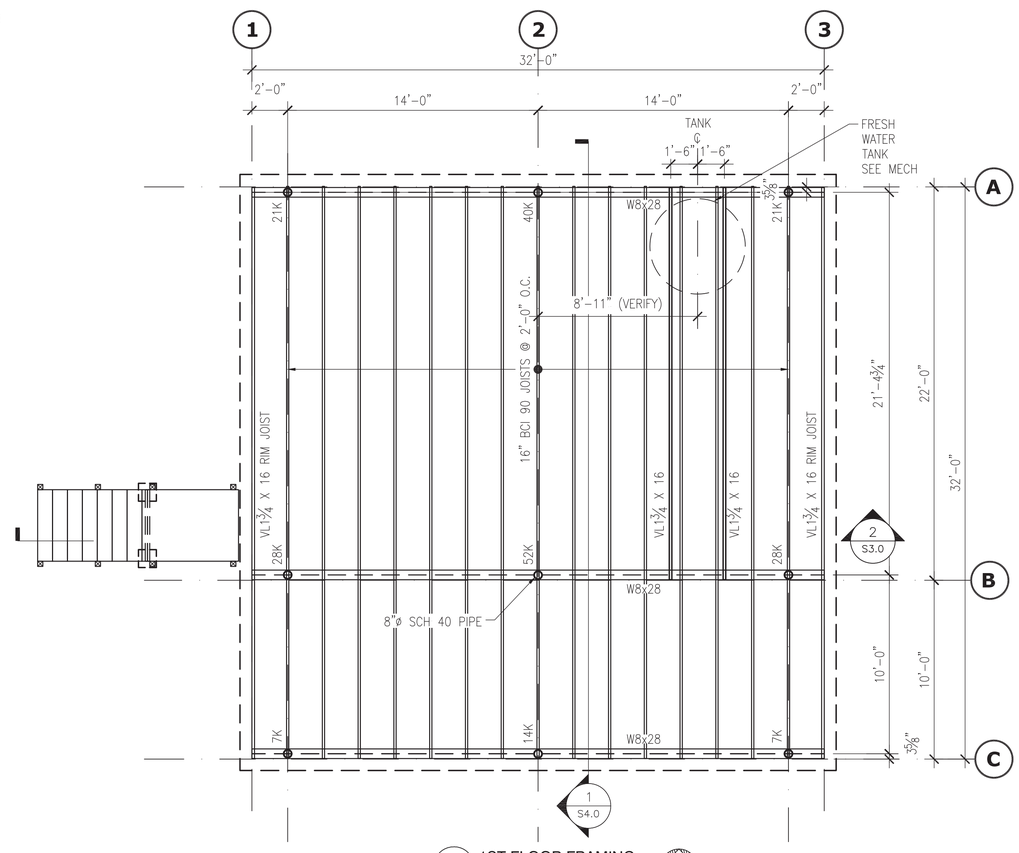
SEISMIC LOADS:
IN ACCORDANCE WITH THE IBC, 20% SNOW INCLUDED.

SITE CLASS:	D
IMPORTANCE:	1.0
Ss:	0.125 g
S1	0.070 g
SEISMIC USE GROUP:	1
SEISMIC DESIGN CATAGORY:	D
Sds PARAMETER	0.133

2) DRIVEN PILES: (REFER TO SHEET S3.0)
A. DRIVE ALL PILES A MINIMUM OF 30FT DEEP.
B. All PILES TO BE 5"ø SCH 40 PIPE UNO.
C. DRIVE PILES FOR LOADS SHOWN USING THE ENR FORMULA TO PROVE BEARING CAPACITY. PROVIDE TO ENGINEER OF RECORD A LOG OF BLOW COUNTS AND ENERGY OF DRIVING HEAD USED TO DRIVE PILES



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



3 1ST FLOOR FRAMING
1/4" = 1'-0"

STATE OF ALASKA 49TH Daniel B. Holmgren CE 8366 REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: CCHRC/Thotpro		
DRAWN BY: FS		
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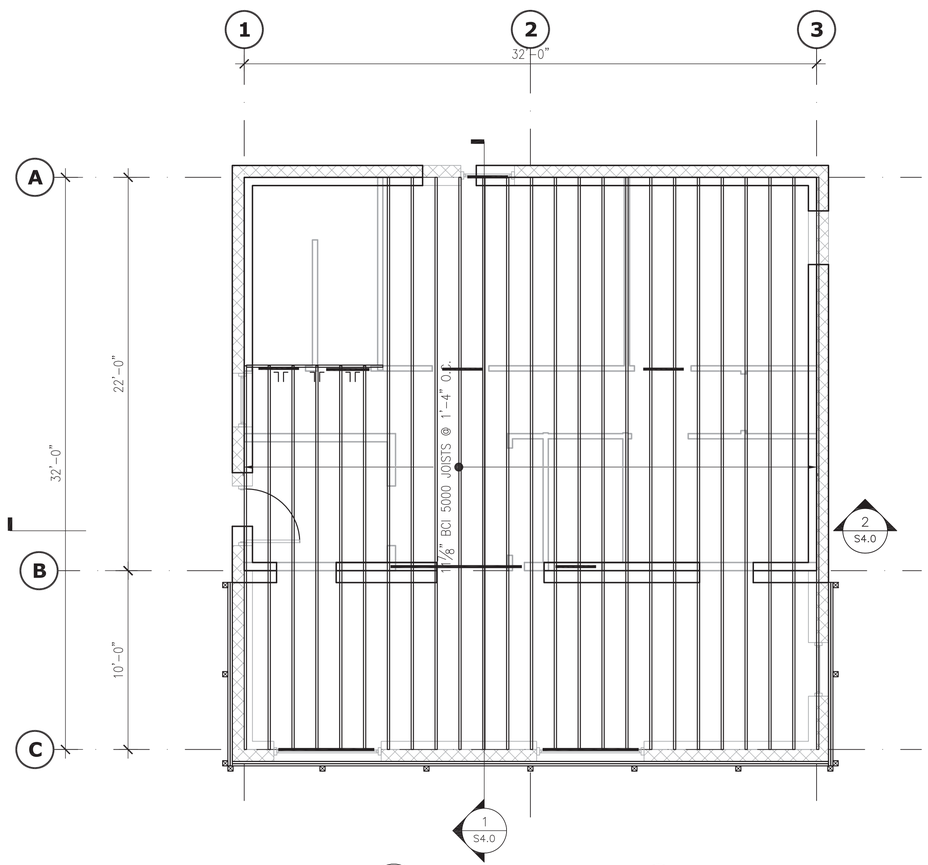
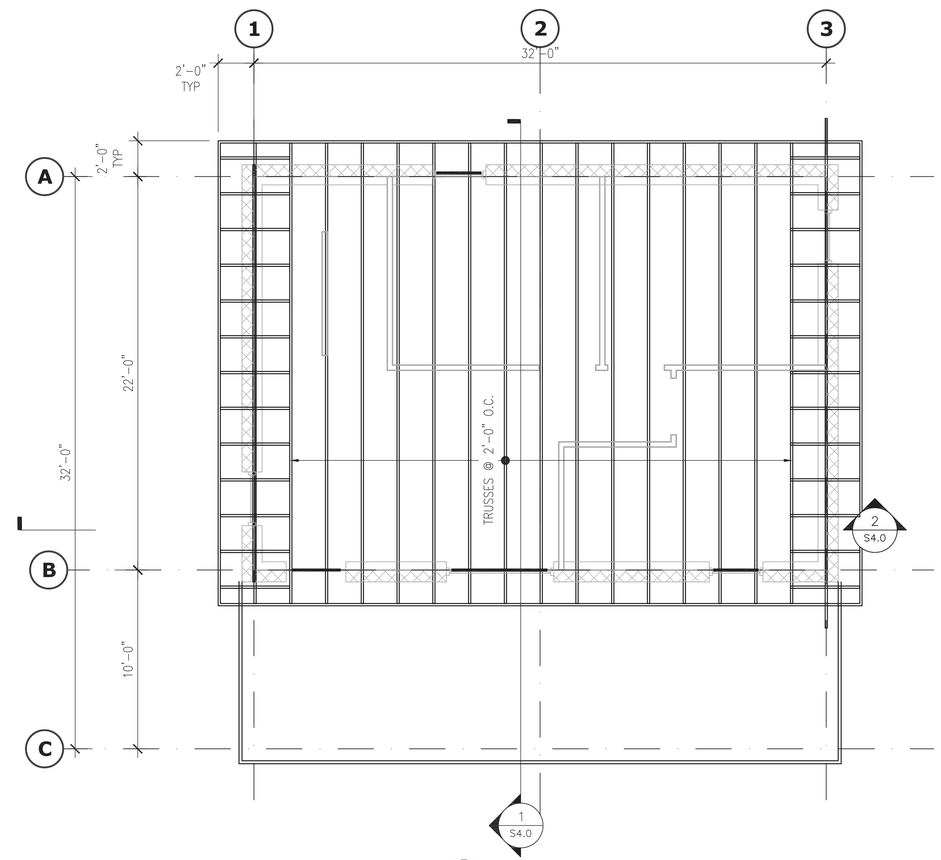
S4.0

SHEET ____ OF ____



1 2ND FLOOR FRAMING PLAN
1/4" = 1'-0"



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

STATE OF ALASKA
49TH
Daniel B. Holmgren
CE 9386
REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: CCHRC/Thotpro
DRAWN BY: FS

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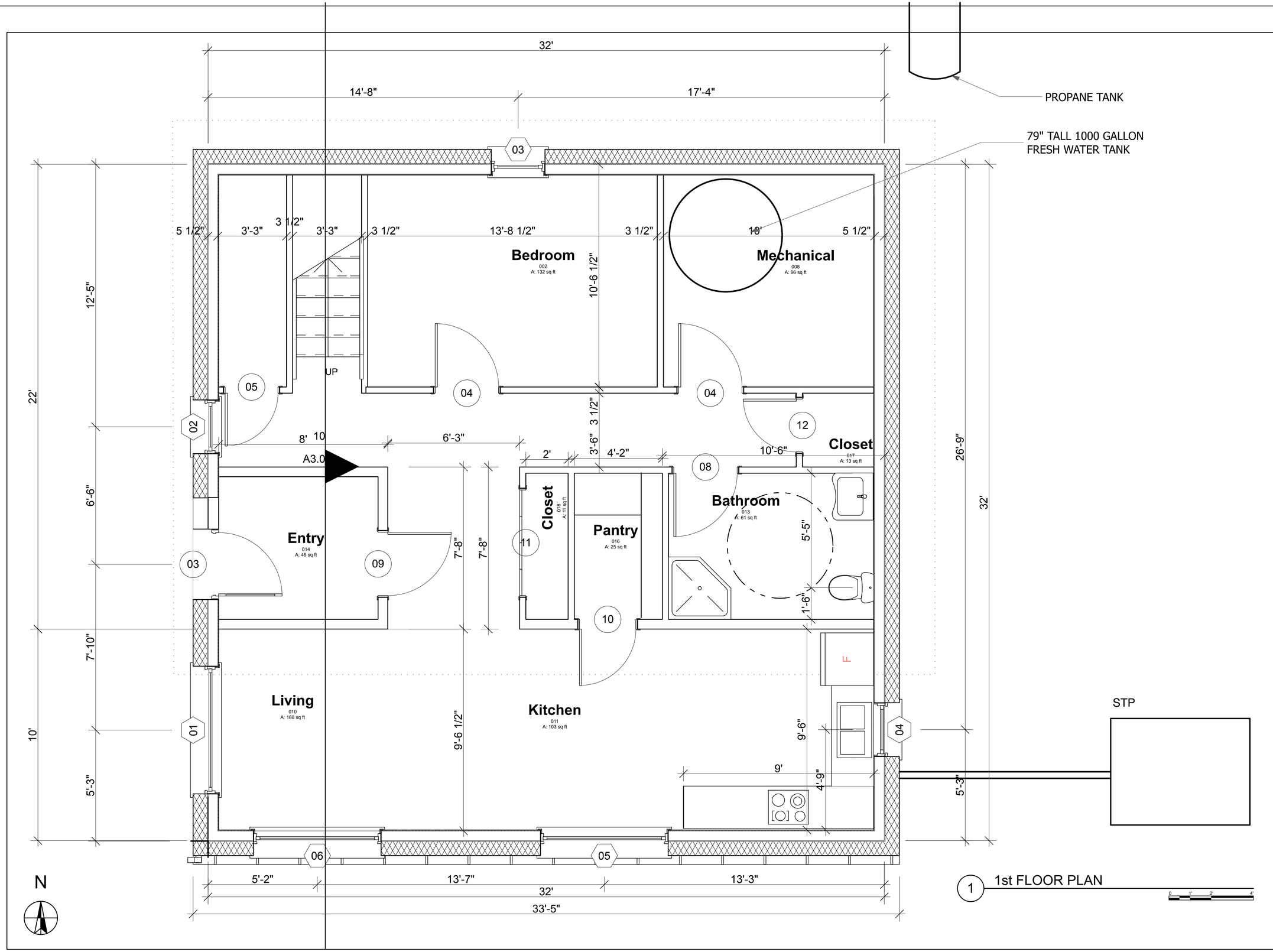
S4.1

SHEET ____ OF ____



1 1st FLOOR PLAN

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DRAWN BY:	Aa
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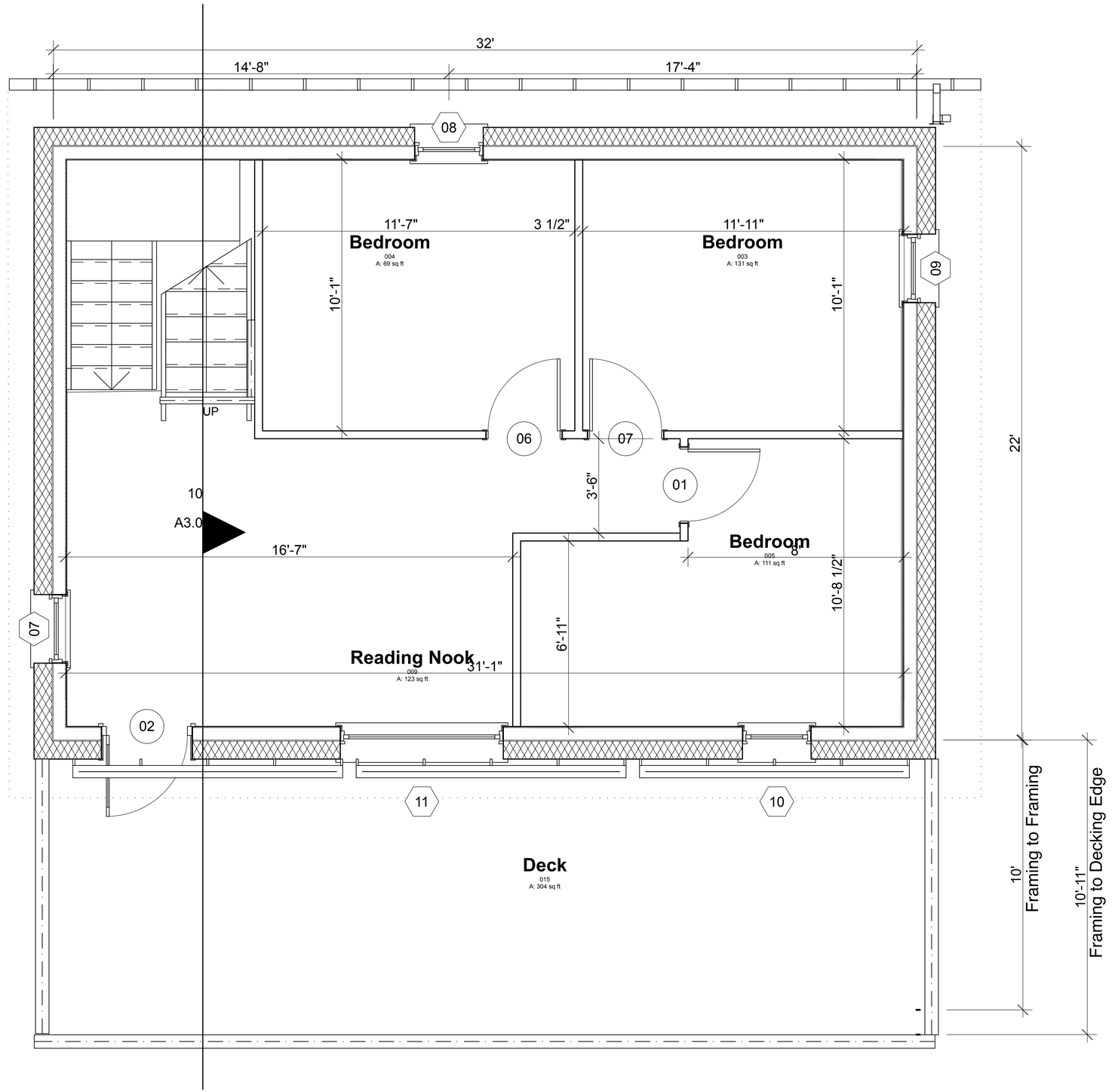
1st FLOOR PLAN

A2.1

SHEET 7 OF total



N

1 2nd FLOOR PLAN

0 1' 2' 4'

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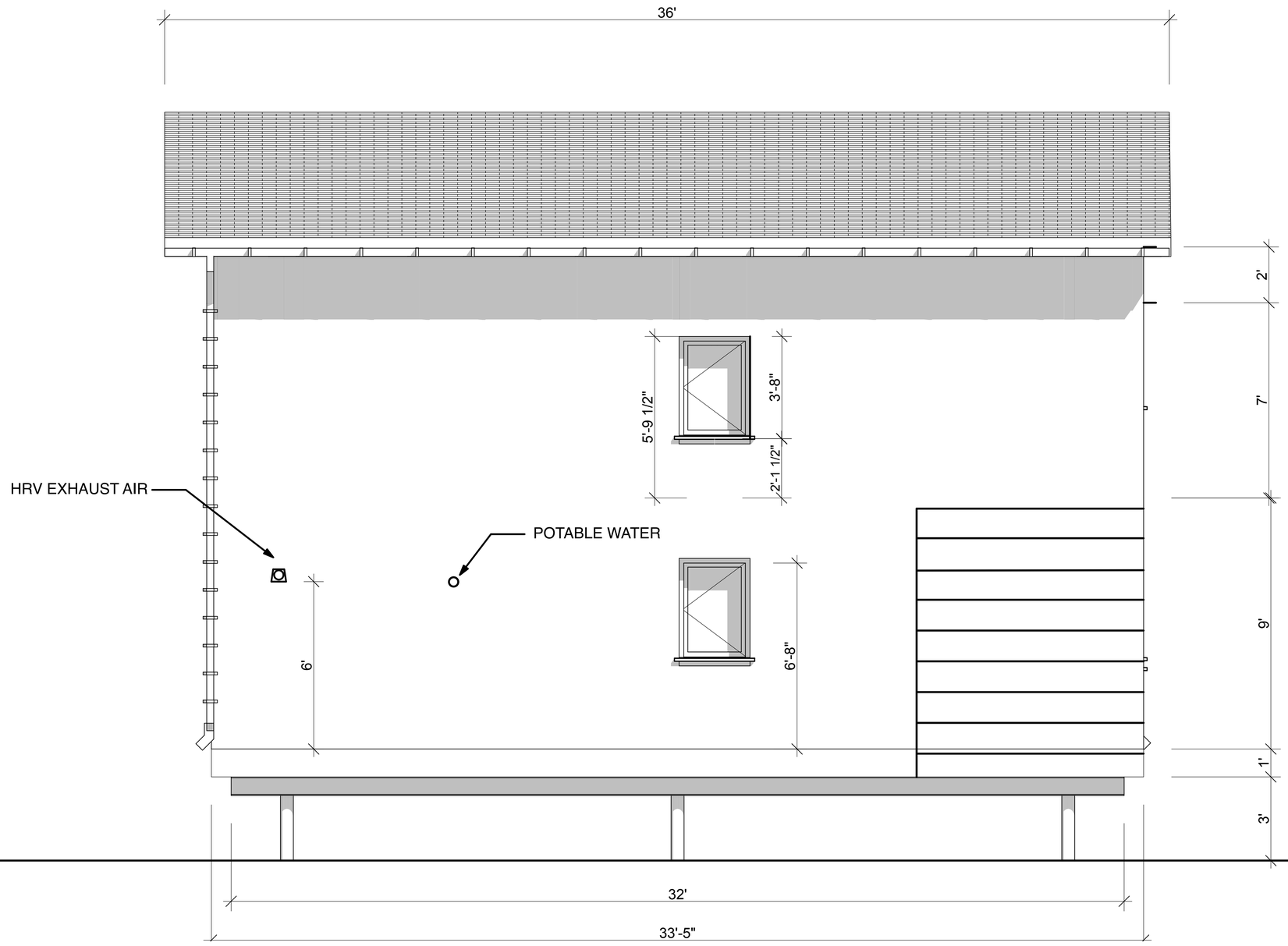
2nd FLOOR PLAN

A2.2

SHEET 8 OF total



1 NORTH ELEVATION
SCALE: 1/2" = 1'-0"

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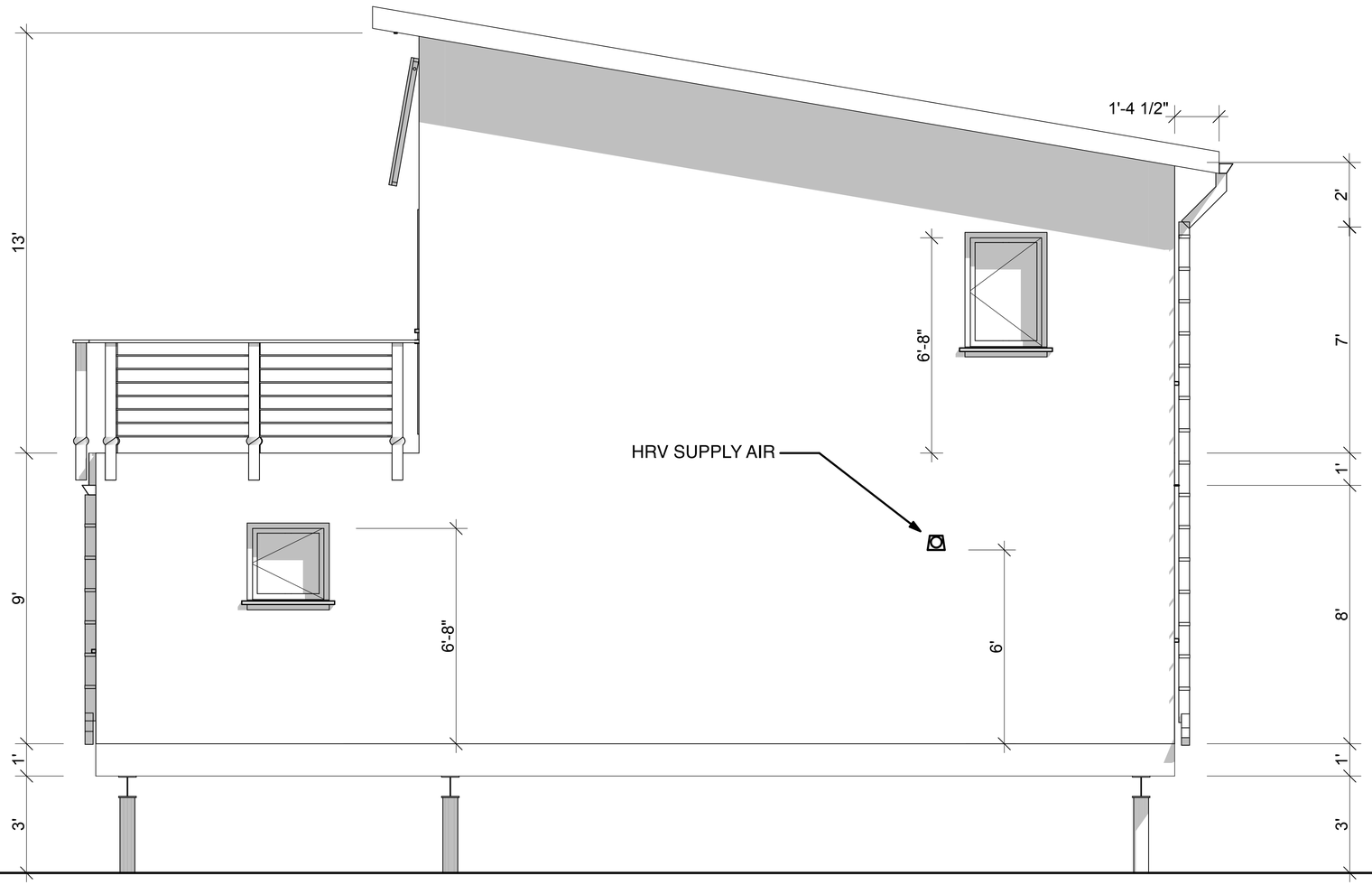
NORTH ELEVATION

A3.1

SHEET 11 OF total



1 EAST ELEVATION
SCALE: 1/2" = 1'-0"

0 1' 2' 4'

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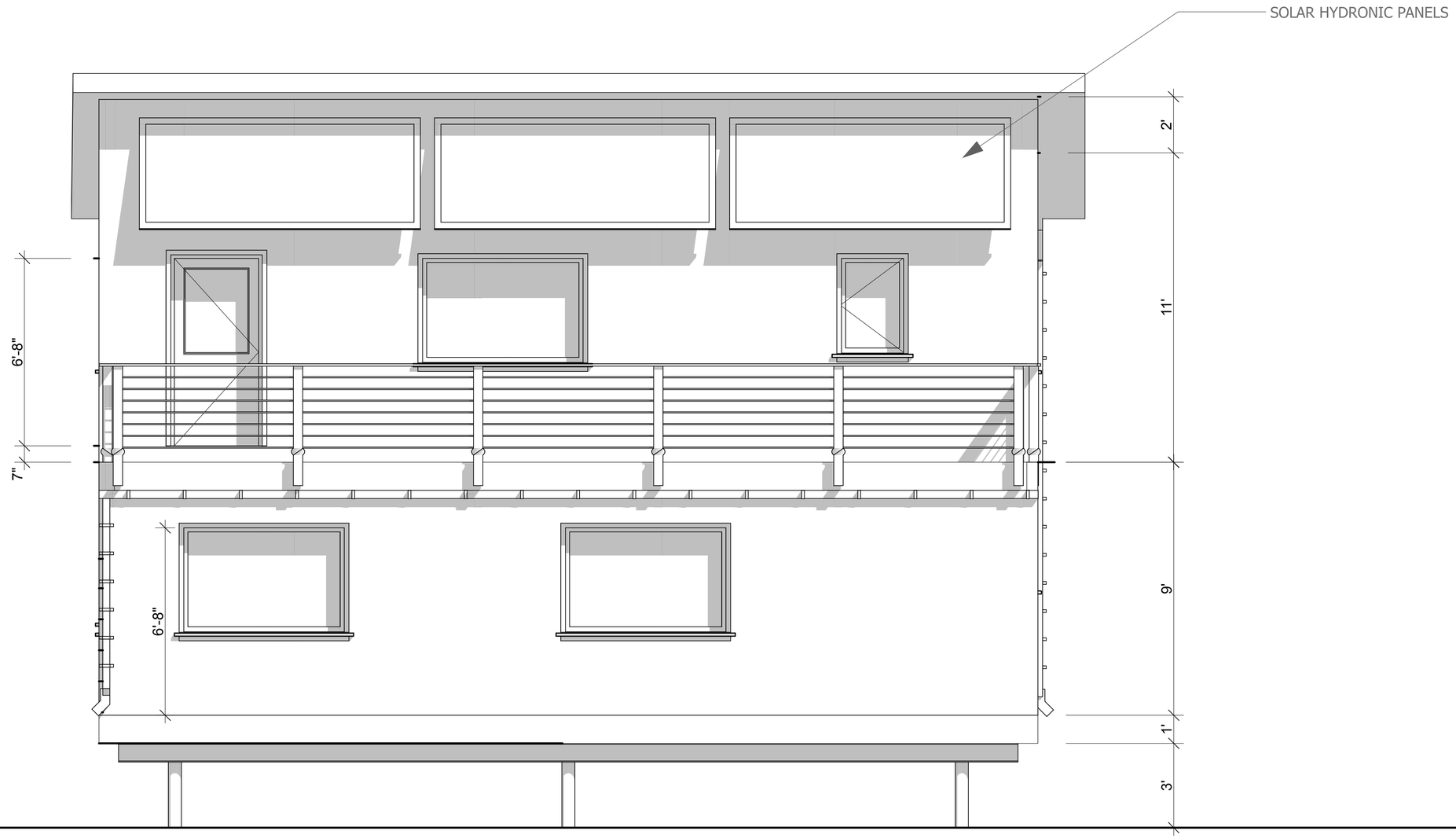
EAST ELEVATION

A3.2

SHEET 12 OF total



1 SOUTH ELEVATION
SCALE: 1/2" = 1'-0"

0 1' 2' 4'

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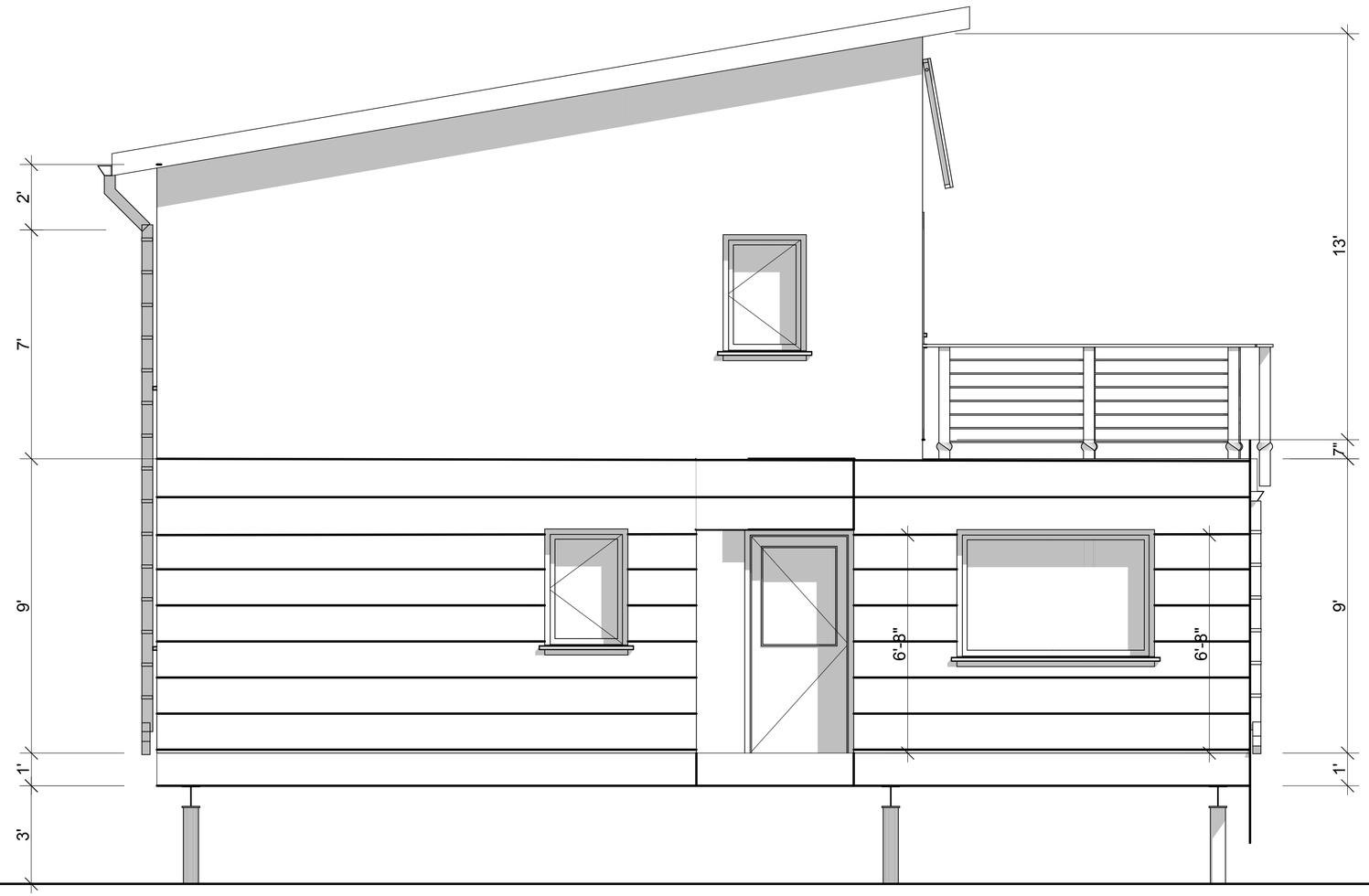
SOUTH ELEVATION

A3.3

SHEET 13 OF total



1 WEST ELEVATION

SCALE: 1/2" = 1'-0"

0 1' 2' 4'

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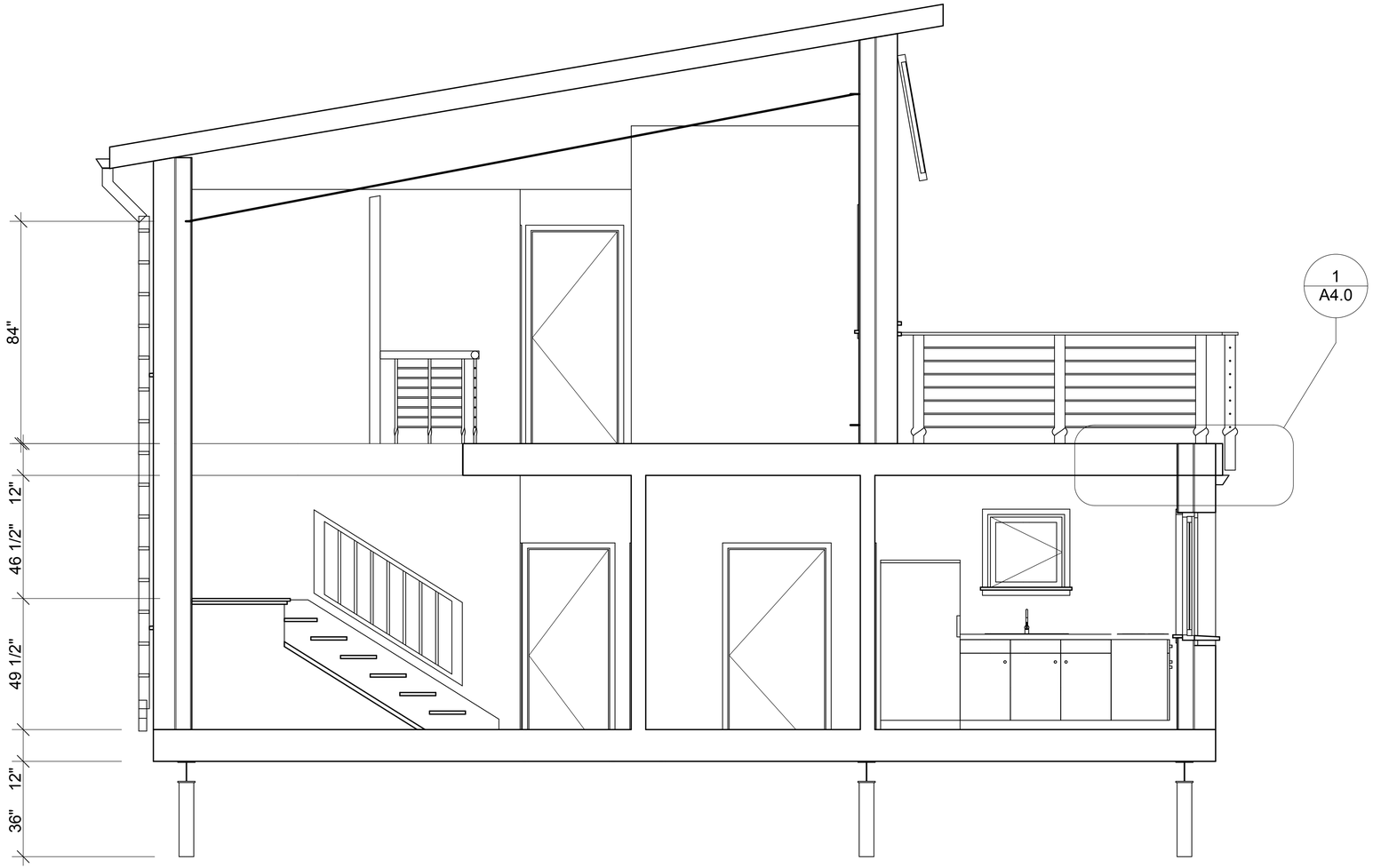
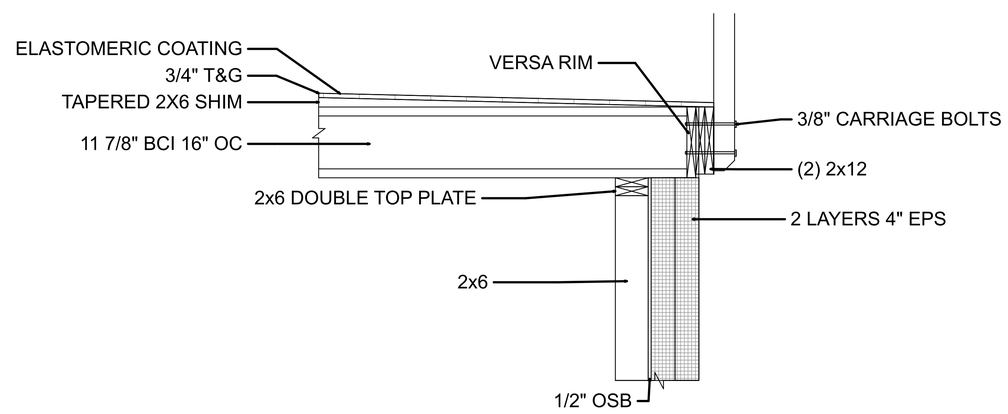
WEST ELEVATION

A3.4

SHEET 14 OF total



2 BUILDING SECTION



1 DETAIL

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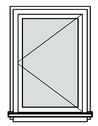
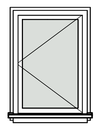
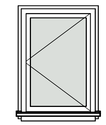
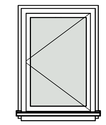
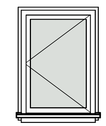
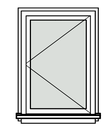
BUILDING SECTIONS

A4.0

SHEET 15 OF total

WINDOW SCHEDULE

LAB…	TYPE	WIDTH	HEIGHT	HINGE	3D Front View	Quantity
01		6'	4'	FIXED		1
02		2'-6"	3'-8"	RIGHT		1
03	EGRESS	2'-6"	3'-8"	RIGHT		1
04		2'-6"	2'-6"	RIGHT		1
05		6'	4'	FIXED		1
06		6'	4'	FIXED		1
07	EGRESS	2'-6"	3'-8"	RIGHT		1
08	EGRESS	2'-6"	3'-8"	RIGHT		1
09	EGRESS	2'-6"	3'-8"	RIGHT		1
10	EGRESS	2'-6"	3'-8"	RIGHT		1
11		6'	4'	FIXED		1

1 SOUTHEAST HOME WINDOW SCHEDULE

SPECIFICATIONS

PVC, CASEMENT, TRIPLE-GLAZE WITH ARGON GAS
TOTAL THICKNESS 15-3/8" WITH 8-3/4" DISTANCE FROM FLANGE TO OUTSIDE AND 6-1/2" DISTANCE FROM FLANGE TO INSIDE
INTERIOR RETURN AND EXTERIOR BOX-OUT TO BE PROVIDED
ROUGH OPENINGS 1/2" AROUND ENTIRE WINDOW FOR A TOTAL OF 1" IN BOTH DIMENSIONS

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DRAWN BY:	Aa

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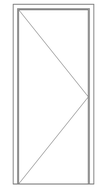
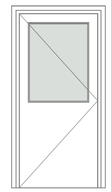
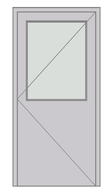
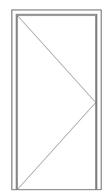
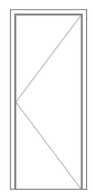
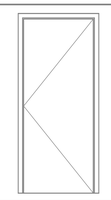
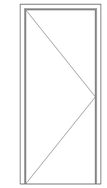
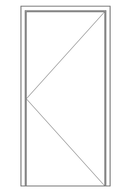
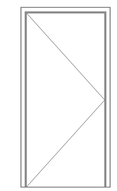
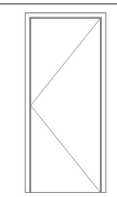
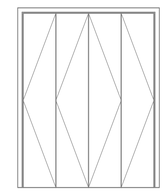
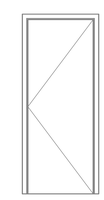
WINDOW SCHEDULE

A5.1

SHEET 17 OF total

DOOR SCHEDULE

DOOR ...	TYPE	Quantity	WIDTH	HEIGHT	SWING	3D Front View
01	SOLID CORE INTERIOR DOOR	1	2'-8"	6'-8"	LHIS	
02	FIBERGLASS INSULATED DOOR	1	3'	6'-8"	LHIS	
03	FIBERGLASS INSULATED DOOR	1	3'	6'-8"	RHIS	
04	SOLID CORE INTERIOR DOOR	2	3'	6'-8"	LHIS	
05	SOLID CORE INTERIOR DOOR	1	2'-6"	6'-8"	LHOS	
06	SOLID CORE INTERIOR DOOR	1	2'-8"	6'-8"	RHIS	
07	SOLID CORE INTERIOR DOOR	1	2'-8"	6'-8"	LHIS	
08	SOLID CORE INTERIOR DOOR	1	3'	6'-8"	RHIS	
09	SOLID CORE INTERIOR DOOR	1	3'	6'-8"	LHIS	
10	SOLID CORE INTERIOR DOOR	1	2'-8"	6'-8"	LHOS	
11	BIFOLD CLOSET DOORS	1	5'	6'-8"		
12	SOLID CORE INTERIOR DOOR	1	2'-6"	6'-8"	LHOS	

1 SOUTHEAST UNIT DOOR SCHEDULE

DESIGNED BY:	CCHRC
DRAWN BY:	Aa

REVISION NOTES

No.	Rev./Issue	Date

COLD CLIMATE HOUSING RESEARCH CENTER
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www.cchrc.org

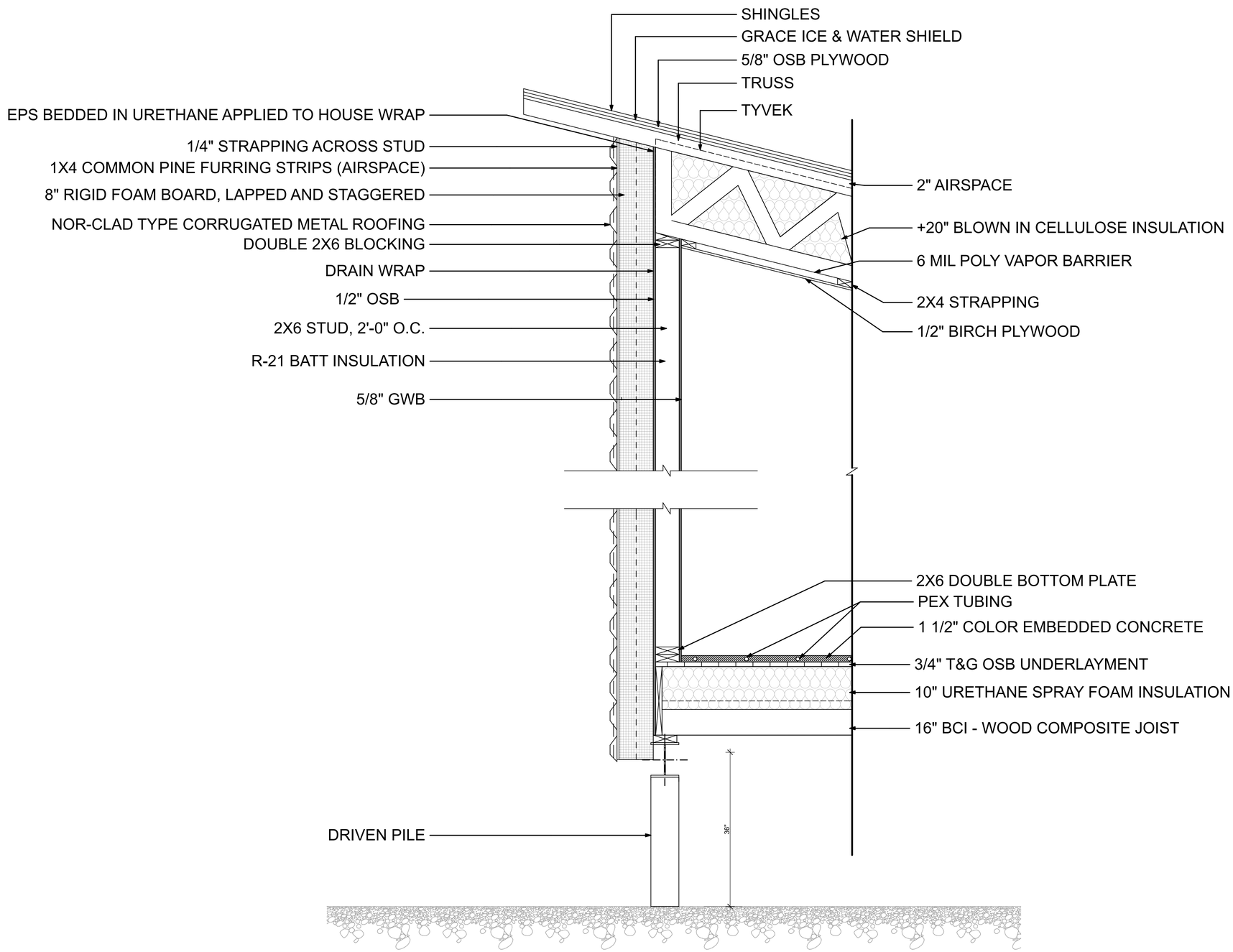
PROJECT
Sustainable Village at UAF
South East Home
FS442
Fairbanks, Alaska

ISSUED
03/10/2012
Design Development

DOOR SCHEDULE

A5.2

SHEET 18 OF total



1 DETAIL

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
REVISION NOTES		
No.	Rev./Issue	Date

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Sustainable Village at UAF
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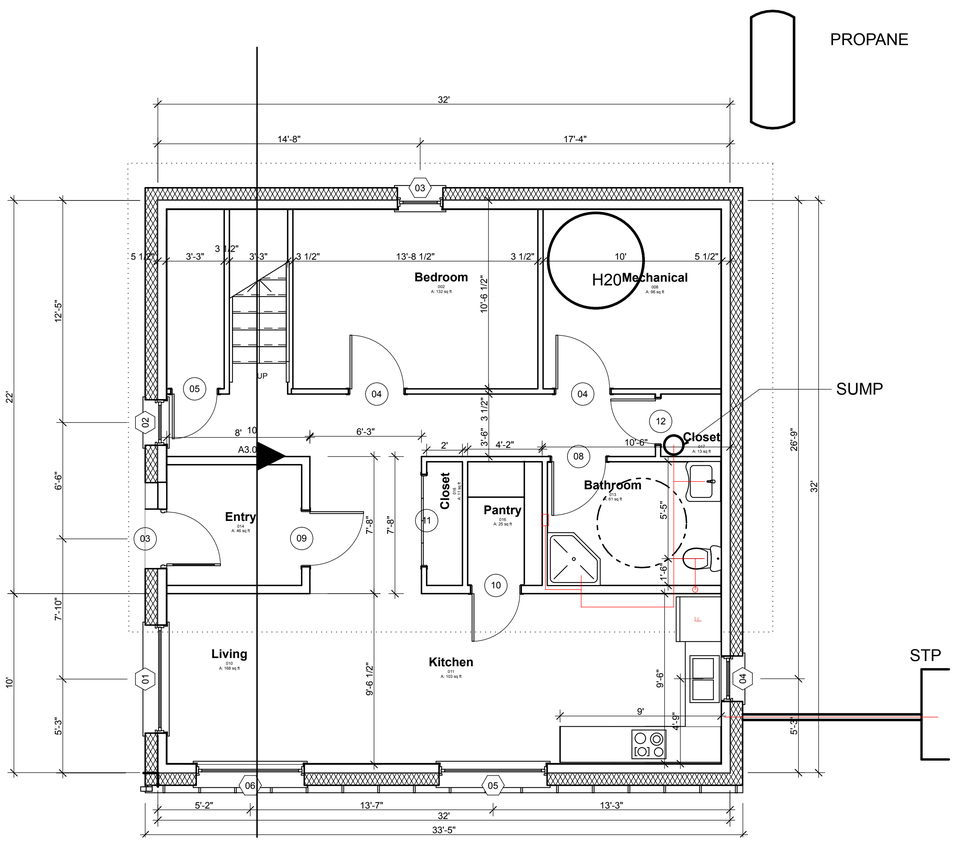
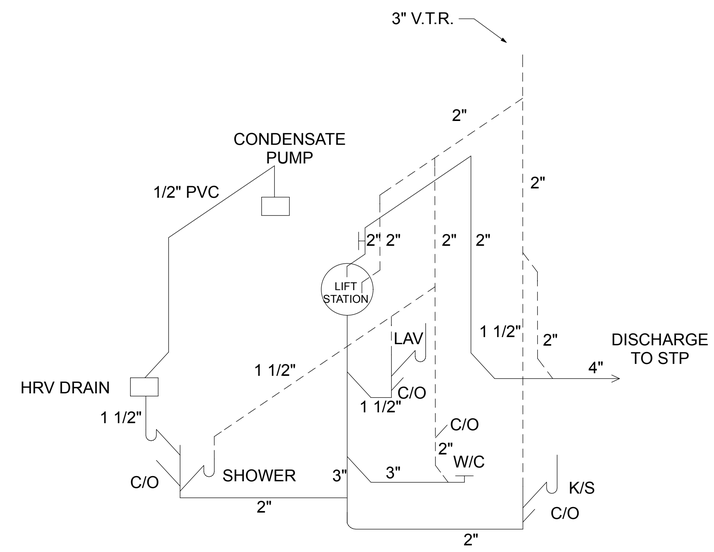
DETAILS

A6.0

SHEET 19 OF total



1 1st FLOOR PLAN



2 DWV PLAN

N

DESIGNED BY:	CCHRC
DRAWN BY:	Aa

REVISION NOTES

No.	Rev./Issue	Date

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FS442
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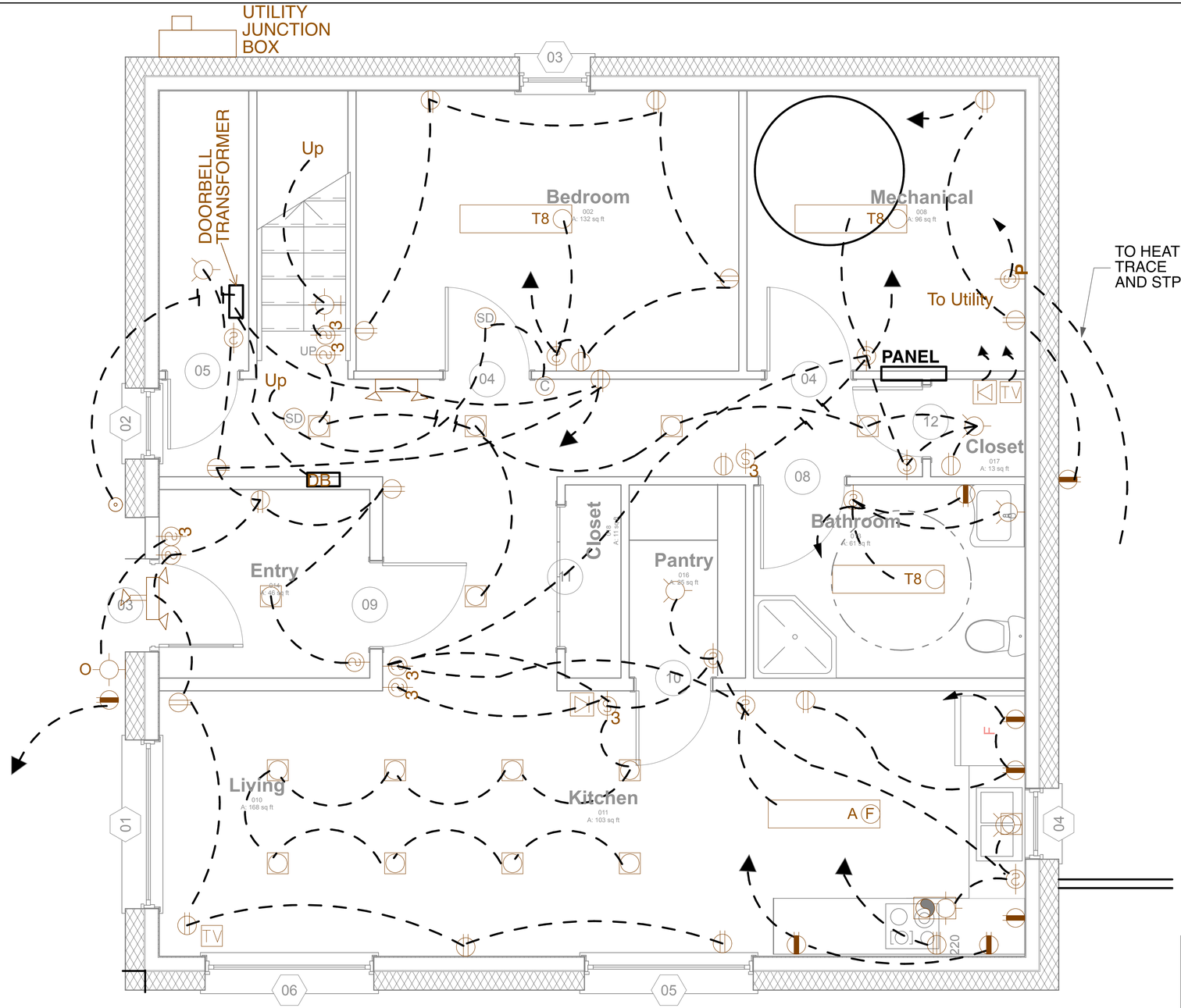
PLUMBING LAYOUT

P1.1

SHEET 20 OF total



1 1st FLOOR ELECTRICAL PLAN

N

KEY

- RECEPTACLE
- GFI RECEPTACLE
- SWITCH
- PILOT SWITCH
- 3-WAY SWITCH
- SMOKE DETECTOR
- TELEVISION
- TELEPHONE
- OUTDOOR LIGHT
- SCONCE LIGHT
- DOORBELL
- T8 FIXTURE
- EMERGENCY EXIT LIGHT
- 2-WAY EMERGENCY EXIT LIGHT
- CAN LIGHT
- CO DETECTOR

PANEL		100 AMP 1 ϕ 240V	
1 DOWNSTAIRS BEDROOM	AFI	2 BATHROOM	
3 UPSTAIRS BEDROOMS	AFI	4 KITCHEN RECEPTACLES	
5 DOWNSTAIRS LIGHTS	AFI	6 KITCHEN RECEPTACLES +FRIDGE	
7 DOWNSTAIRS RECEPTACLES	AFI	8 RANGE	
9 NOOK RECEPTACLES, LIGHTS	AFI	10 RANGE	
11 HEAT TRACE AND STP		12 HBH	
13 LIFT STATION		14 MECH	
15		16 HRV	
17		18	
19		20	

2 SOUTHEAST PANEL

DESIGNED BY:	CCHRC
DRAWN BY:	Aa
REVISION NOTES	
No.	Rev./Issue	Date

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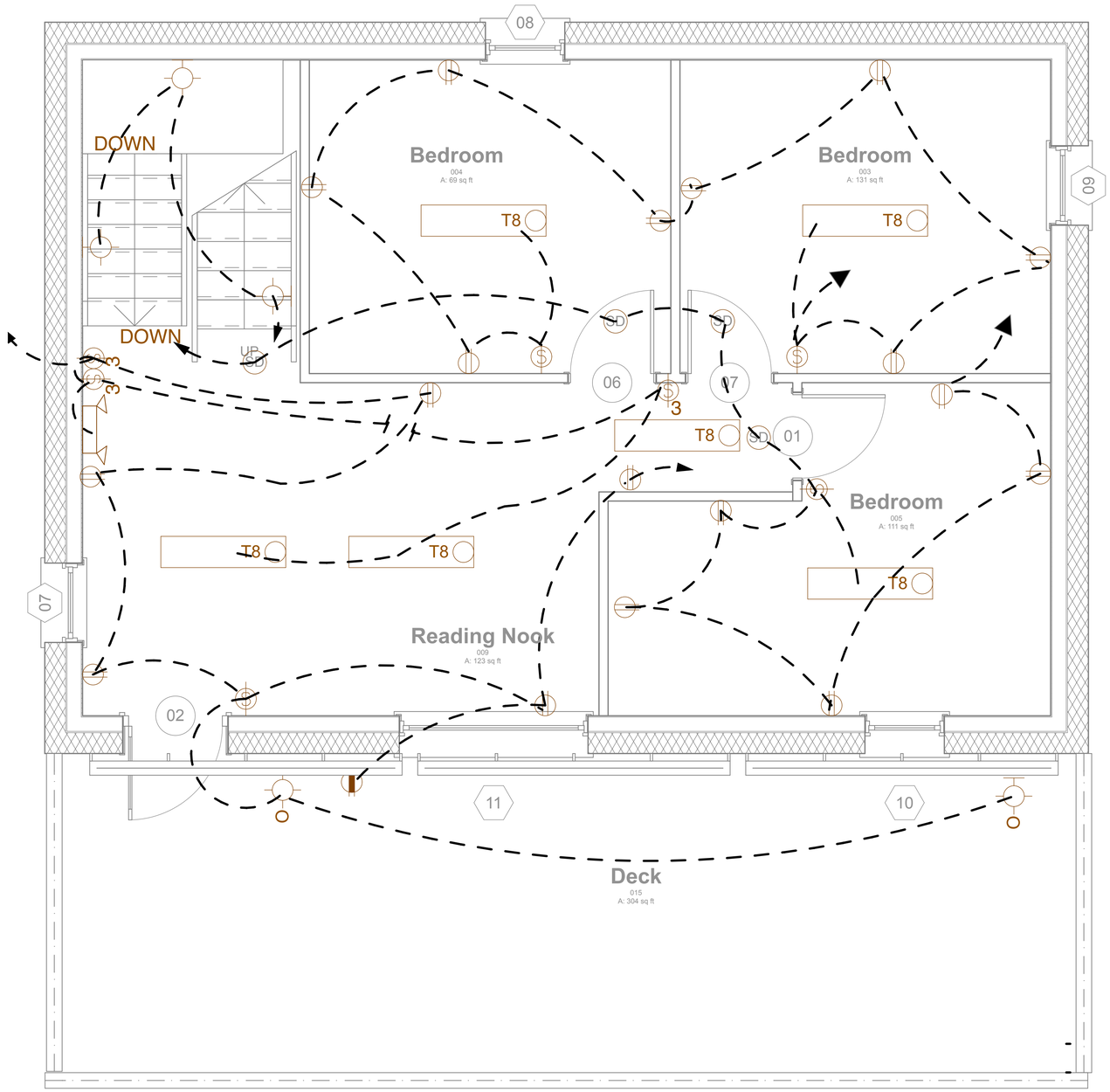
ELECTRICAL 1ST FLOOR

E1.0

SHEET 21 OF total



N

1 2nd FLOOR ELECTRICAL PLAN

KEY

- RECEPTACLE
- GFI RECEPTACLE
- SWITCH
- 3 3-WAY SWITCH
- SD SMOKE DETECTOR
- TV TELEVISION
- TELEPHONE
- O OUTDOOR LIGHT
- SCONCE LIGHT
- RB DOORBELL
- VALENCE VALENCE LIGHT
- EMERGENCY EXIT LIGHT
- CAN LIGHT

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
REVISION NOTES		
No.	Rev./Issue	Date

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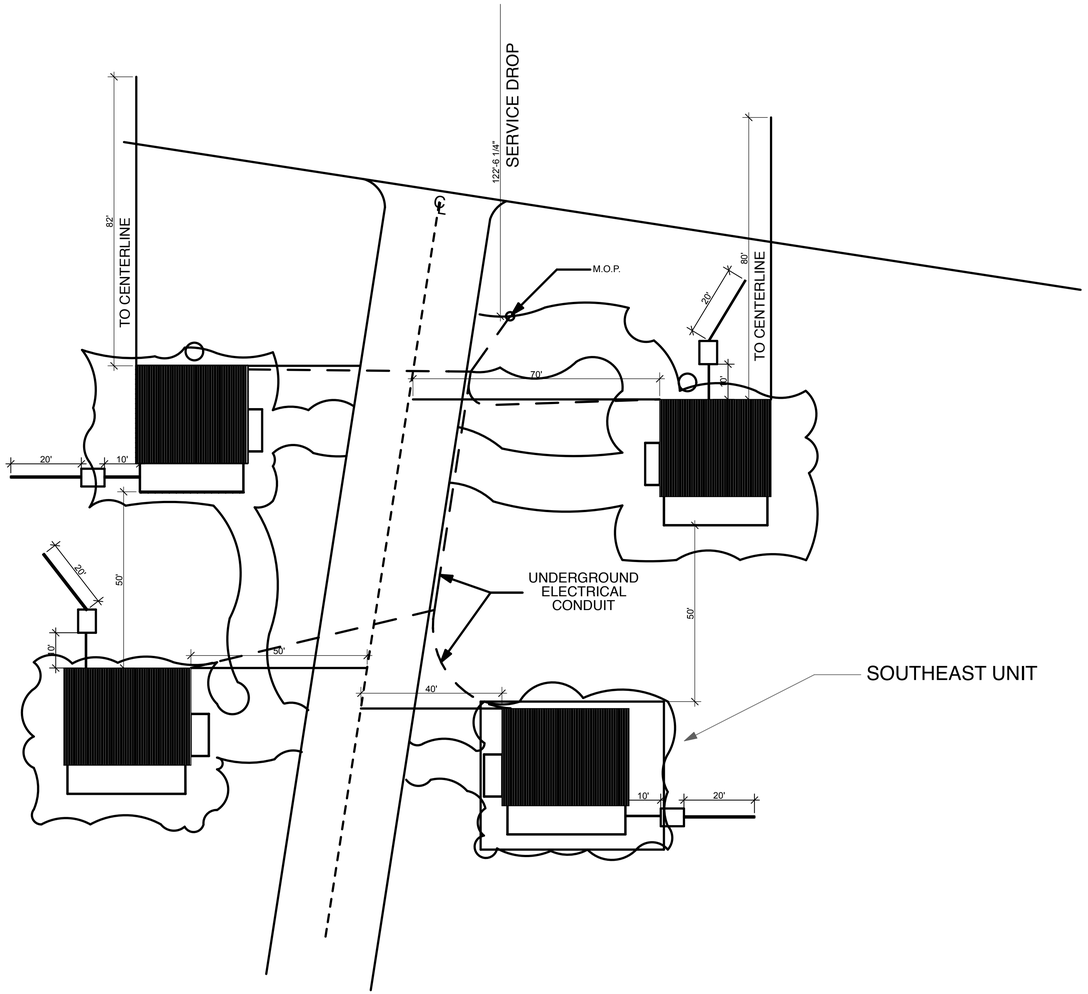
Design Development

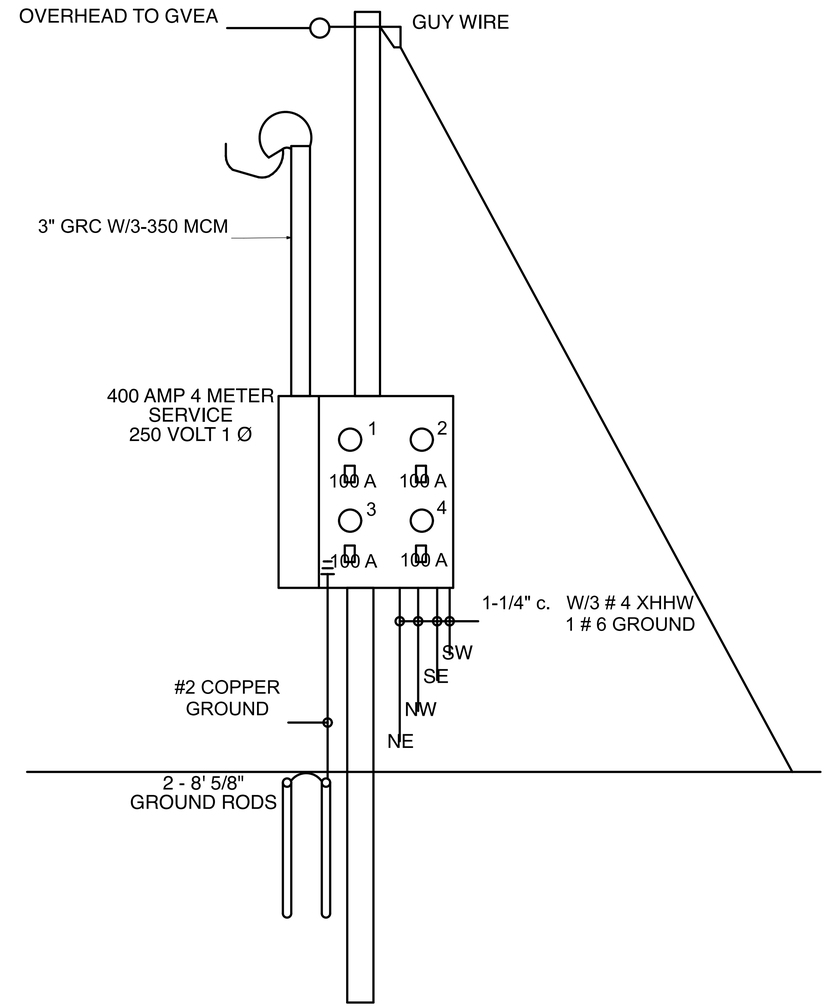
ELECTRICAL 2ND FLOOR

E1.1

SHEET 22 OF total



2 SITE PLAN



1 ELECTRICAL SERVICE

N

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
REVISION NOTES		
No.	Rev./Issue	Date

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03/10/2012
Design Development

ELECTRICAL SERVICE

E1.2

SHEET 23 OF total

Markup Legend	
Delete Line	
Add Line	
Add Tee	
Add Elbow	
Add Coupling	
Add Head	A.1 A.2 A.3
Delete Head	
Move Head	
Note: All revisions must be reviewed by Uponor	

Table F002-1

Multipurpose Fire Safety Systems

The Uponor Residential Fire Safety System is a residential fire protections system installed in combination with the cold side of the domestic potable water system. Only licensed contractors trained by Uponor can install this system.

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.6	17	33.67
2 HEAD	H.17 & H.15	26.0028	39.67

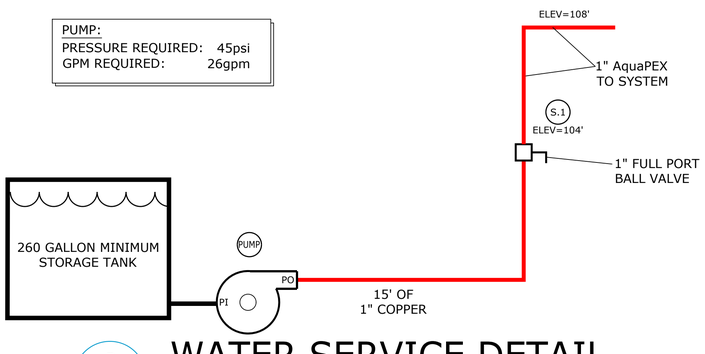
- - - 16 RFC49-16 — RELIABLE Model RFC49RFC49 Concealed Pendent Sprinkler K=4.9, 165F°, 3/8" Orifice, Maximum Spacing 16'x16' Sprinkler head demand: 13 gpm @ 7.04

- - - 2 RFC49-18 — RELIABLE Model RFC49RFC49 Concealed Pendent Sprinkler K=4.9, 165F°, 3/8" Orifice, Maximum Spacing 18'x18' Sprinkler head demand: 17 gpm @ 12.03

12 1st Floor
6 2nd Floor
18 TOTAL

WELL CASING AND/OR TANK TO PROVIDE 260 GALS OF STORAGE. WELL PUMP TO PROVIDE MINIMUM 26 GPM @ 45 PSI AT MANIFOLD S.1

PUMP:
PRESSURE REQUIRED: 45psi
GPM REQUIRED: 26gpm



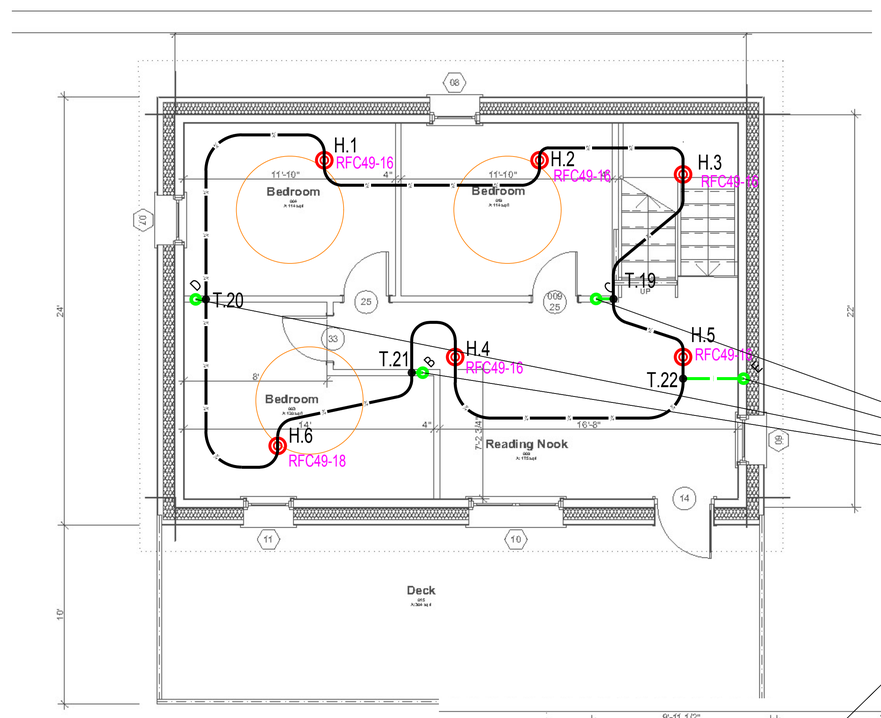
2 F100 WATER SERVICE DETAIL

NTS

SPRINKLER SYMBOL DEFINITION

XXX-XX(s1)(s2)

- SLOPED CEILING MAX. SLOPE OF 8:12 (33.7°) PITCH (MAY NOT APPLY)
- SLOPED CEILING MAX. SLOPE OF 4:12 (18.4°) PITCH (MAY NOT APPLY)
- MAXIMUM SPACING (TYP)
- SPRINKLER MODEL (TYP)
- HEAD SYMBOL (TYP)



3 F100 SECOND LEVEL

1/4" = 1'-0"

COLOR/LINETYPE LEGEND

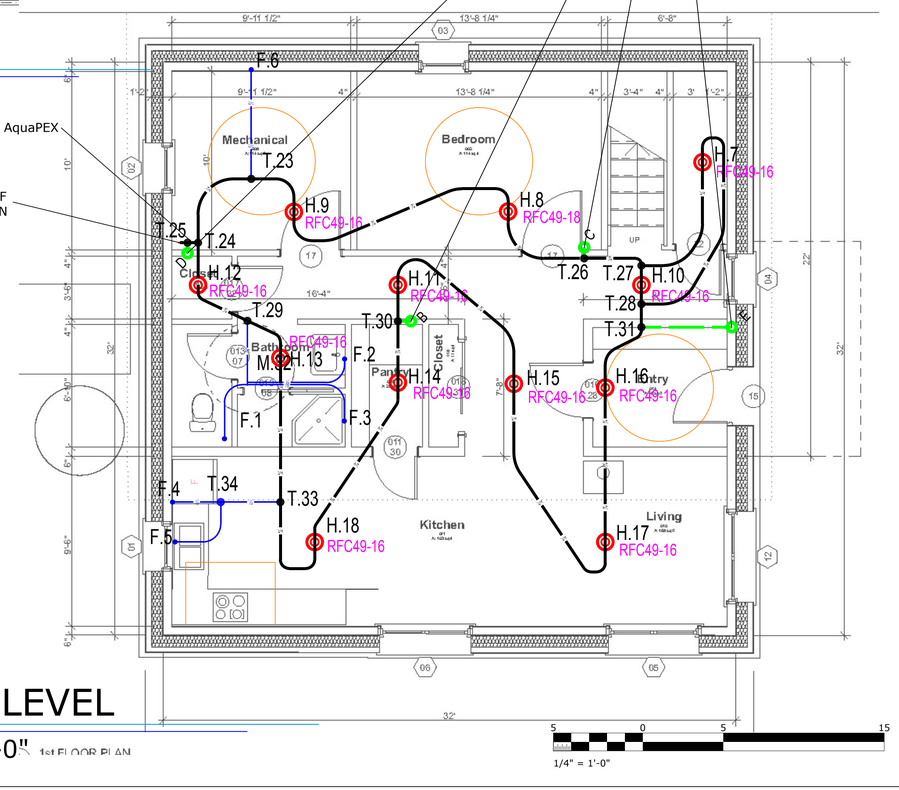
BLUE LINES= FEED TO FIXTURES (BATH, SHOWER, ETC.).
GREEN LINES= INTERLEVEL CONNECTIONS.
BLACK LINES= SPRINKLER HEAD TO SPRINKLER HEAD.

- = 1/2" PIPE SIZE
- = 3/4" PIPE SIZE
- = 1" PIPE SIZE
- = 1-1/4" PIPE SIZE
- = 2" PIPE SIZE

1" INTERLEVEL CONNECTIONS BETWEEN FLOORS

1" AquaPEX

S.1 MAIN SHUT-OFF VALVE LOCATION



1 F100 FIRST LEVEL

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

1/4" = 1'-0"

uponor

TECHNICAL SERVICES - DESIGN DEPARTMENT
21900 DODD BLVD., LAKEVILLE, MN 55044
T 888.594.7726 **F** 952.997.1731
EMAIL TECHNICAL.SERVICES@UPONOR.COM
WEB WWW.UPONOR-USA.COM

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SALES REP:

SUSTAINABLE VILLAGE AT UAF SOUTH
1000 FAIRBANKS ST.
FAIRBANKS AK 99709

DRAWN BY:	NEIL FINTELMAN
CHECKED BY:	DAN HUBBARD
CERTIFICATION LEVEL:	SET IV
CERTIFICATION NUMBER:	115052
COMPANY:	CCHRC
CONTACT:	AARON COOKE
CONTACT PH. NUMBER:	907.457.3454
ALLIANCE ID:	######
PLOT DATE:	4/17/12
SHEET SCALE:	1/4"=1'-0"
PROJECT NUMBER:	120417-40L
SQUARE FEET:	1024 SQ. FEET

REVISIONS

NO.	DATE	DESCRIPTION

SHEET DESCRIPTION
BASEMENT LEVEL

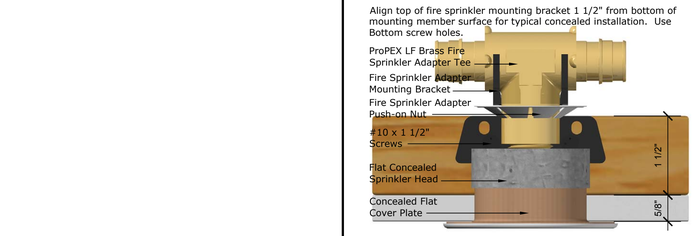
SHEET NUMBER
F100

AquaSAFE™ GENERAL NOTES:

1. THIS SYSTEM IS DESIGNED AS PER NFPA 13D 2010 EDITION AS A RESIDENTIAL MULTIPURPOSE SYSTEM. SECTION 3.3.9.3
2. UPONOR COMPANY RESERVES THE EXCLUSIVE RIGHTS TO ALL DETAILS AND DRAWINGS AS SHOWN ON THIS SHEET. THESE DETAILS AND DRAWINGS ARE PROPRIETARY INFORMATION OF UPONOR COMPANY AND UNAUTHORIZED USE MAY BE SUBJECT TO PROSECUTION TO THE FULL EXTENT OF THE LAW.
3. THE DESIGN OF THIS SYSTEM IS DICTATED BY SPECIFIC CEILING HEIGHTS AND ROOM SIZES. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THE CONDITIONS SHOWN ON THESE PLANS ARE EXACTLY AS THEY EXIST IN THE FIELD. DEVIATIONS FROM THE DESIGN MAY CAUSE THE SYSTEM TO BE UNABLE TO CONTROL A FIRE. IF THE BUILDING CONSTRUCTION DIFFERS FROM THE FIRE SPRINKLER PLAN, CONTACT THE SYSTEM DESIGNER IMMEDIATELY.
4. THIS SYSTEM AND THE ACCOMPANYING HYDRAULIC CALCULATIONS ARE DESIGNED IN COMPLIANCE WITH NFPA 13D 2010 EDITION.
5. "STAND ALONE" OR "MULTIPURPOSE, WET PIPE" SYSTEMS ARE NOT PERMITTED TO USE ANTI-FREEZE.
6. MODIFICATIONS ARE PROHIBITED. SPRINKLERS THAT HAVE BEEN PAINTED, CAULKED, MODIFIED OR DAMAGED MUST BE REPLACED.
7. WATER SHUT OFF VALVE IS NOT PERMITTED.
8. OWNERS MANUAL MUST BE PROVIDED TO THE OWNER.
9. 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**".
10. ALL INTERIOR PIPING TO BE UPONOR "AquaPEX®" UNLESS NOTED.
11. UPONOR "AquaPEX" TUBING TO BE SUPPORTED PER NFPA 13D AND MANUFACTURER'S RECOMMENDATIONS.
12. MINIMUM SPACING BETWEEN SPRINKLERS IS 8'-0" REFER TO SPACING CHARTS FOR MAXIMUM SPACING BETWEEN SPRINKLERS AND FROM WALLS.
13. SPRINKLERS ARE NOT NECESSARILY CENTERED IN ROOMS DUE TO LIGHT FIXTURES OR OTHER CEILING MOUNTED OBSTRUCTIONS.
14. THE PLUMBING TIE IN CONNECTIONS ARE SCHEMATIC IN NATURE AND CAN BE INSTALLED OFF THE SPRINKLER LOOP ANYWHERE BETWEEN SPRINKLER TO SPRINKLER CONNECTION.
15. 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.
16. INSULATION GUIDE LINES PER NFPA 13D.
    - 8.3.1* WET PIPE SYSTEMS. A WET PIPE SYSTEM SHALL BE PERMITTED TO BE TO BE USED WHERE ALL PIPING IS INSTALLED IN AREAS MAINTAINED ABOVE 40ºF, INCLUDING AREAS PROPERLY INSULATED TO MAINTAIN 40ºF.
      - •• A.8.3.1 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.8.3.1(A) THROUGH FIGURE A.8.3.1(E) SHOW SEVERAL METHODS THAT CAN BE CONSIDERED.
19. NFPA 13D 8.6 LOCATION OF SPRINKLERS.
    - 8.6.1 SPRINKLERS SHALL BE INSTALLED IN ALL AREAS EXCEPT WHERE OMISSION IS PERMITTED BY 8.6.2 THROUGH 8.6.7.
    - 8.6.2 SPRINKLERS SHALL NOT BE REQUIRED IN BATHROOMS OF 55 FT² (5.1 M²) AND LESS
    - 8.6.3 SPRINKLERS SHALL NOT BE REQUIRED IN CLOTHES CLOSETS, LINEN CLOSETS, AND PANTRIES THAT MEET ALL OF THE FOLLOWING CONDITIONS:
      (1) THE AREA OF THE SPACE DOES NOT EXCEED 24 FT² (2.2 M²).
      (2) THE LEAST DIMENSION DOES NOT EXCEED 3 FT (0.9 M).
      (3) THE WALLS AND CEILINGS ARE SURFACED WITH NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIALS AS DEFINED IN NFPA 220, STANDARD ON TYPES OF BUILDING CONSTRUCTION.
    - 8.6.4* SPRINKLERS SHALL NOT BE REQUIRED IN GARAGES, OPEN ATTACHED PORCHES, CARPORTS, AND SIMILAR STRUCTURES
      - •• A.8.6.4 ALTHOUGH NFPA 13D DOES NOT REQUIRE GARAGES TO BE SPRINKLERED, SOME AUTHORITIES HAVEING JURISDICTION TAKE IT UPON THEMSELVES TO ADD THIS REQUIREMENT LOCALLY. IN SUCH CIRCUMSTANCES, RESIDENTIAL OR QUICK-RESPONCE SPRINKLERS WITH A TWO-SPRINKLER DESIGN IN THE GARAGE WITH THE SAME PIPING USED IN THE REST OF THE DWELLING MAY BE USED. IT IS RECOGNIZED THAT RESIDENTIAL SPRINKLERS HAVE NOT BEEN TESTED SPECIFICALLY FOR FIRES IN GARAGES, BUT FIELD EXPERIENCE HAS SHOWN THAT THE SPRINKLERS HELP TO ALERT OCCUPANTS TO THE FACT THAT THERE IS A FIRE, CAN REDUCE THE POSSIBILITY OF FLASHOVER, AND CAN IMPROVE THE CHANCES FOR OCCUPANTS TO ESCAPE.
    - 8.6.5 SPRINKLERS SHALL NOT BE REQUIRED IN ATTICS, PENTHOUSE EQUIPMENT ROOMS, ELEVATOR MACHINE ROOMS, CONCEALED SPACES DEDICATED EXCLUSICELY 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 AND DO NOT CONTAIN FUEL-FIRED EQUIPMENT.
    - 8.6.6 SPRINKLERS SHALL NOT BE REQUIRED IN COVERED UNHEATED PROJECTIONS OF THE BUILDING AT ENTRANCES/EXITS AS LONG AS THERE IS ANOTHER MEANS OF EGRESS FROM THE DWELLING UNIT.
    - 8.6.7 SPRINKLERS SHALL NOT BE REQUIRED FOR CEILING POCKETS THAT MEET THE FOLLOWING CONDITIONS:
      (1) THE TOTAL VOLUME OF UNPROTECTED CEILING POCKET DOES NOT EXCEED 100 FT³ (2.83 M³).
      (2) THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY THE SPRINKLERS AT THE LOWER CEILING ELEVATION.
      (3) EACH UNPROTECTED CEILING POCKET IS SEPERATED FROM ANY ADJACENT UNPROTECTED CEILING POCKET BY A MINIMUM 10 FT (3.05 M) HORIZONTAL DISTANCE.
      (4) THE INTERIOR FINISH OF THE UNPROTECTED CEILING POCKET IS NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL.
      (5) SKYLIGHTS NOT EXCEEDING 32 FT² (2.97 M²) SHALL BE PERMITTED TO HAVE A PLASTIC COVER.

Flat Concealed Assembly Sprinkler Placement

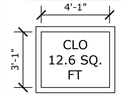
Align top of fire sprinkler mounting bracket 1 1/2" from bottom of mounting member surface for typical concealed installation. Use Bottom screw holes.



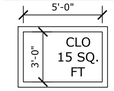
Caution: Do not paint over the sprinklers cover plates. Paint may interfere with the heat sensitivity of the sprinkler, and disturbances may damage the sprinkler.

See General Notes 8.6.3 for Closet Requirements

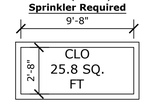
The least dimension exceeds 3 ft (0.9 m)
Sprinkler Required



Square footage does not exceed 24 ft² (2.2 m²).
Sprinkler Not Required



Square footage exceeds 24 ft² (2.2 m²).
Sprinkler Required



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 Guidlines**" for attic installation guidelines (Provided in Contractors Documents package or online at **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 (see **Figure F001-9**).

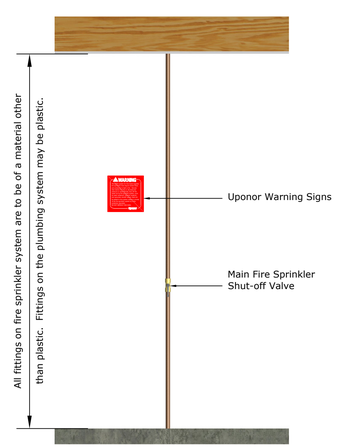
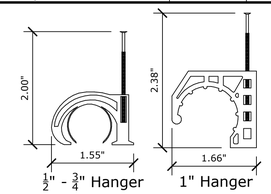


Figure F001-9

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)

1. Along Horizontal Runs, Install Supports Every 32", if Horizontal Runs are Continuously Supported, Place Tubing Supports at Six-Foot Intervals.
2. 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**).

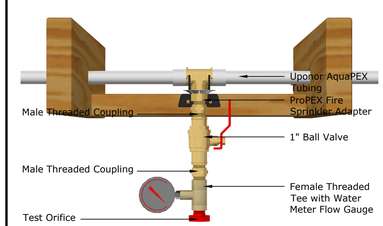


Figure F001-8

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 the job packet submittal or online for more information on Flow Test Setup, Assembly, Performing the Test and Troubleshooting. If there are any questions please contact Uponor.

uponor

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SALES REP:

SUSTAINABLE VILLAGE AT UAF SOUTH
1000 FAIRBANKS ST.
FAIRBANKS AK 99709

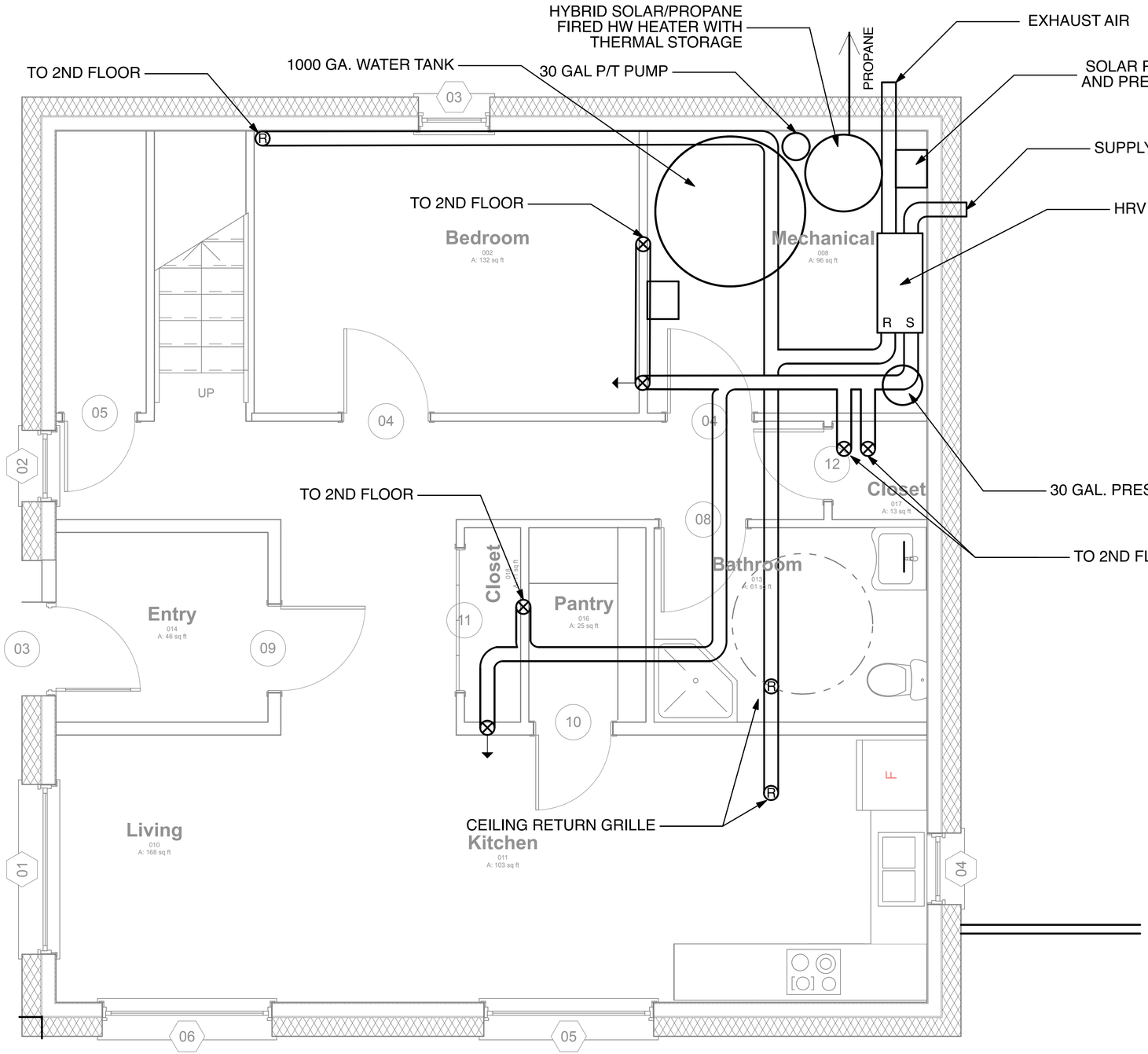
DRAWN BY:	NEIL FINTELMAN
CHECKED BY:	DAN HUBBARD
CERTIFICATION LEVEL:	SET IV
CERTIFICATION NUMBER:	115052
COMPANY:	CCHRC
CONTACT:	AARON COOKE
CONTACT PH. NUMBER:	907.457.3454
ALLIANCE ID:	######
PLOT DATE:	4/17/12
SHEET SCALE:	N.T.S.
PROJECT NUMBER:	120417-40L
SQUARE FEET:	1024 SQ. FEET

REVISIONS

NO.	DATE	DESCRIPTION

SHEET DESCRIPTION
GENERAL NOTES AND DETAILS

SHEET NUMBER
F001



KEY

- Ⓡ RETURN AIR DIFFUSER
- ⊗ SUPPLY AIR
- ▼ GRILLE DIRECTION

SUPPLY GRILLE IS AN ADJUSTABLE DIFFUSER 8" ABOVE FLOOR

N

1 MECHANICAL PLAN 1st FLOOR

0 1' 2' 4'

DESIGNED BY:	CCHRC
DRAWN BY:	Aa

REVISION NOTES

No.	Rev./Issue	Date

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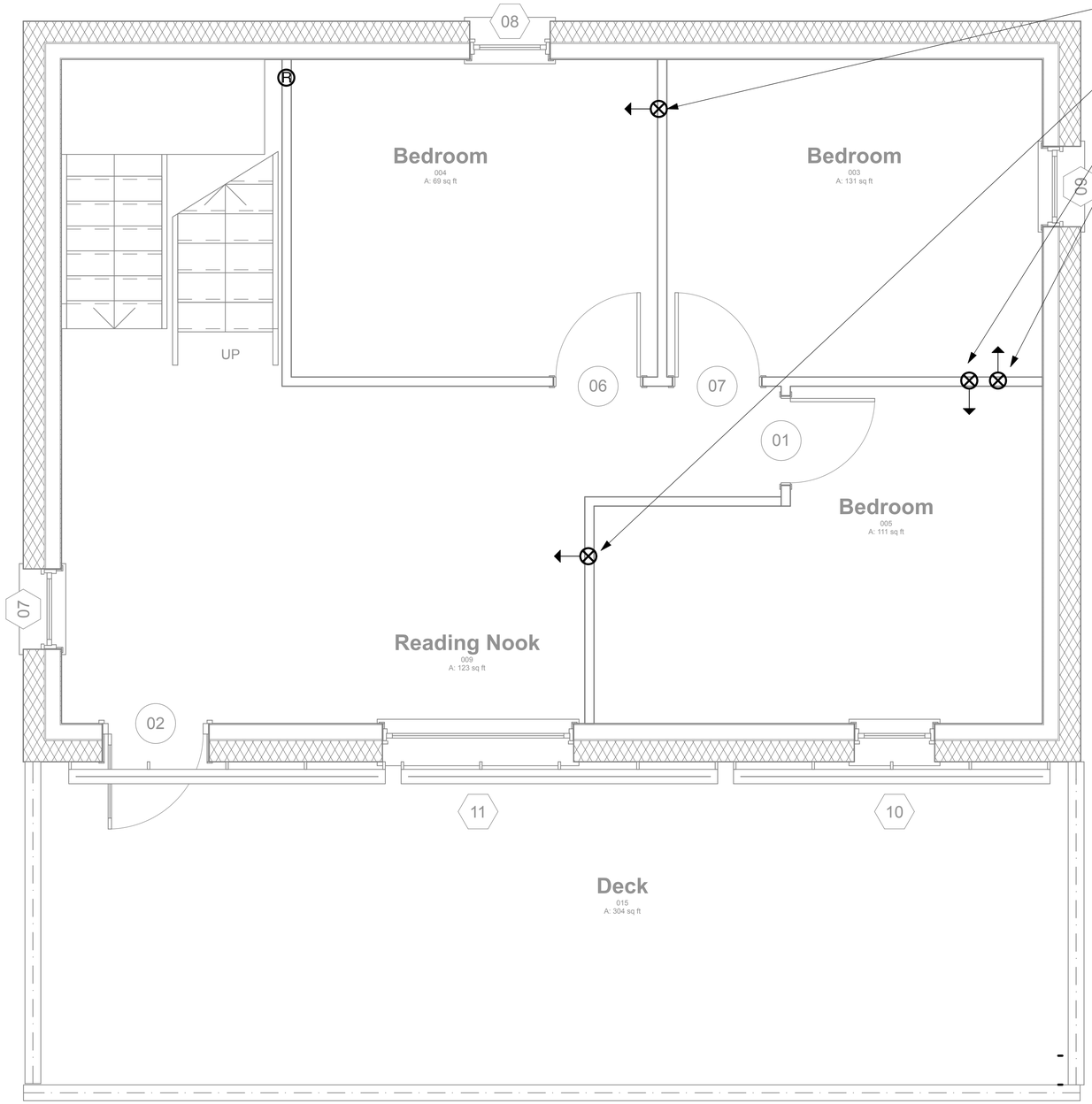
PROJECT
Sustainable Village at UAF
South East Home
FS442
Fairbanks, Alaska
ISSUED
03/10/2012
Design Development

MECHANICAL VENTILATION PLAN

M1.0

SHEET 24 OF total



ALL SUPPLY AIR BY WALL MOUNTED ADJUSTABLE DIFFUSER GRILLE 8" FROM THE FLOOR ON SUPPLY DUCT

KEY

- Ⓡ RETURN AIR DIFFUSER
- ⊗ SUPPLY AIR
- ▼ GRILLE DIRECTION

NOTE

WALL MOUNTED ADJUSTABLE DIFFUSER GRILLE 8" FROM THE FLOOR ON SUPPLY DUCT

N

1 MECHANICAL PLAN 2nd FLOOR

0 1' 2' 4'

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
REVISION NOTES		
No.	Rev./Issue	Date

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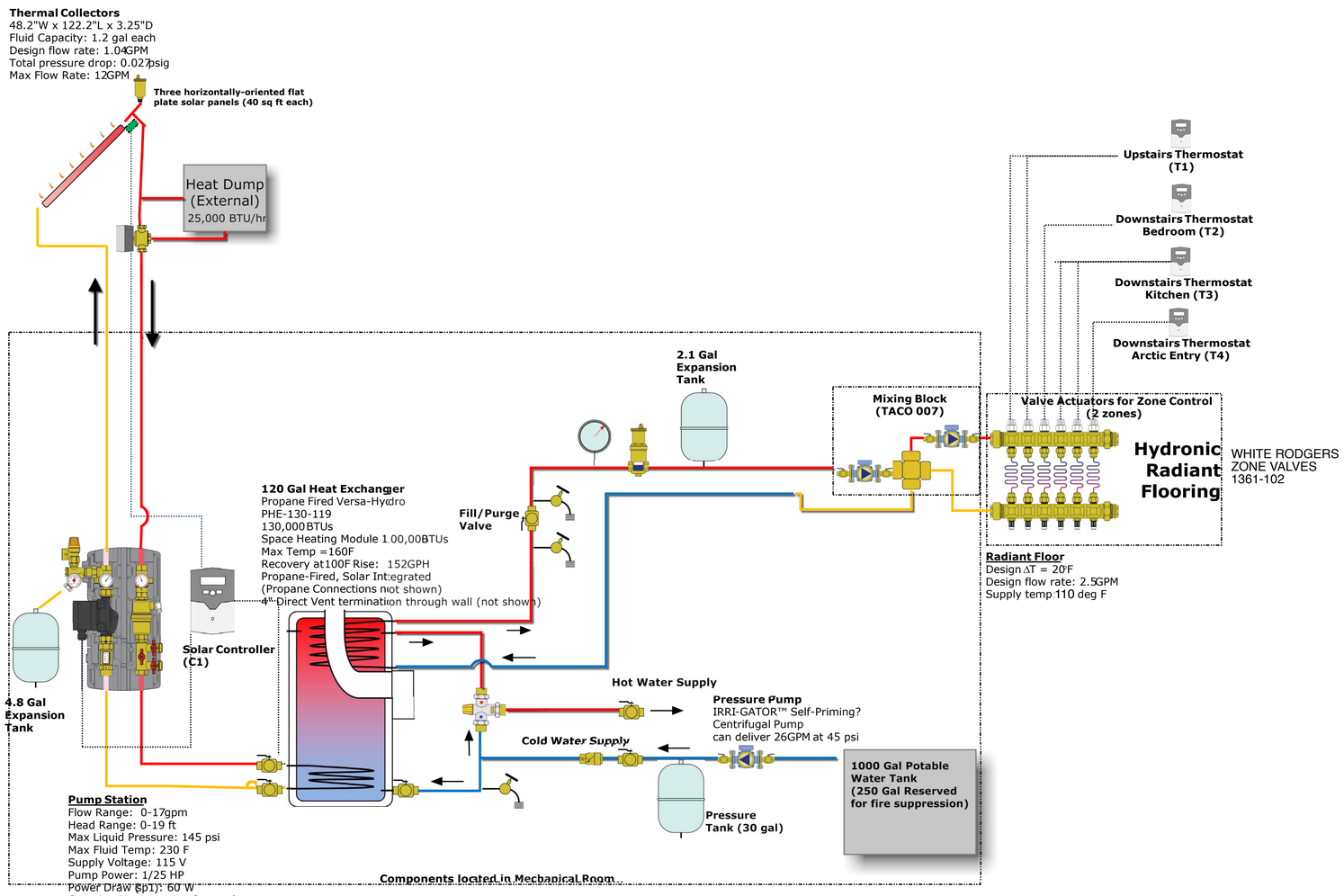
Design Development

MECHANICAL VENTILATION PLAN

M1.1

SHEET 25 OF total



1 Southeast Unit Solar Thermal Diagram

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
REVISION NOTES		
No.	Rev./Issue	Date

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SOLAR THERMAL SYSTEM

M1.2

SHEET 26 OF total