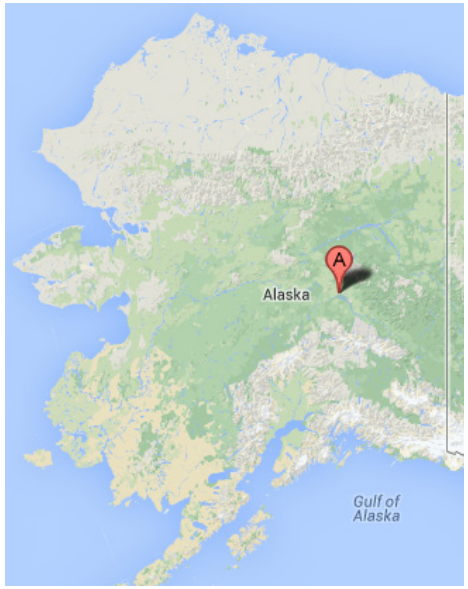
COLD CLIMATE HOUSING RESEARCH CENTER
CCHRC

Design for UAF Sustainable Village:
SPRUCE HOUSE

double wall with insulated foam raft 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

SOUTHWEST 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 Toye

1 SUSTAINABLE VILLAGE LOCATION

UNIVERSITY OF ALASKA FAIRBANKS

COLD CLIMATE HOUSING RESEARCH CENTER
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SUSTAINABLE UAF

Alaska Housing FINANCE CORPORATION

ThotPro
STRUCTURAL ENGINEERING
www.thotpro.com

CODE REFERENCE

IBC 2006
UPC 2009
NEC 2011

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A2.2	2nd FLOOR PLAN
	Roof Plan
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A3.2	EAST ELEVATION
A3.3	SOUTH ELEVATION
A3.4	WEST ELEVATION
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A4.2	Door Schedule
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A5.1	BUILDING SECTIONS
A6.0	DETAILS
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F100	FIRE SUPRESSION
F101	FIRE SUPRESSION
E1.0	ELECTRICAL LIGHTING LAY…
E1.1	ELECTRICAL LIGHTING LAY…
E1.2	ELECTRICAL SERVICE
M1.0	MECHANICAL VENTILATION …
M1.1	MECHANICAL VENTILATION …

DESIGNED BY:	CCHRC	
DRAWN BY:	Aa	
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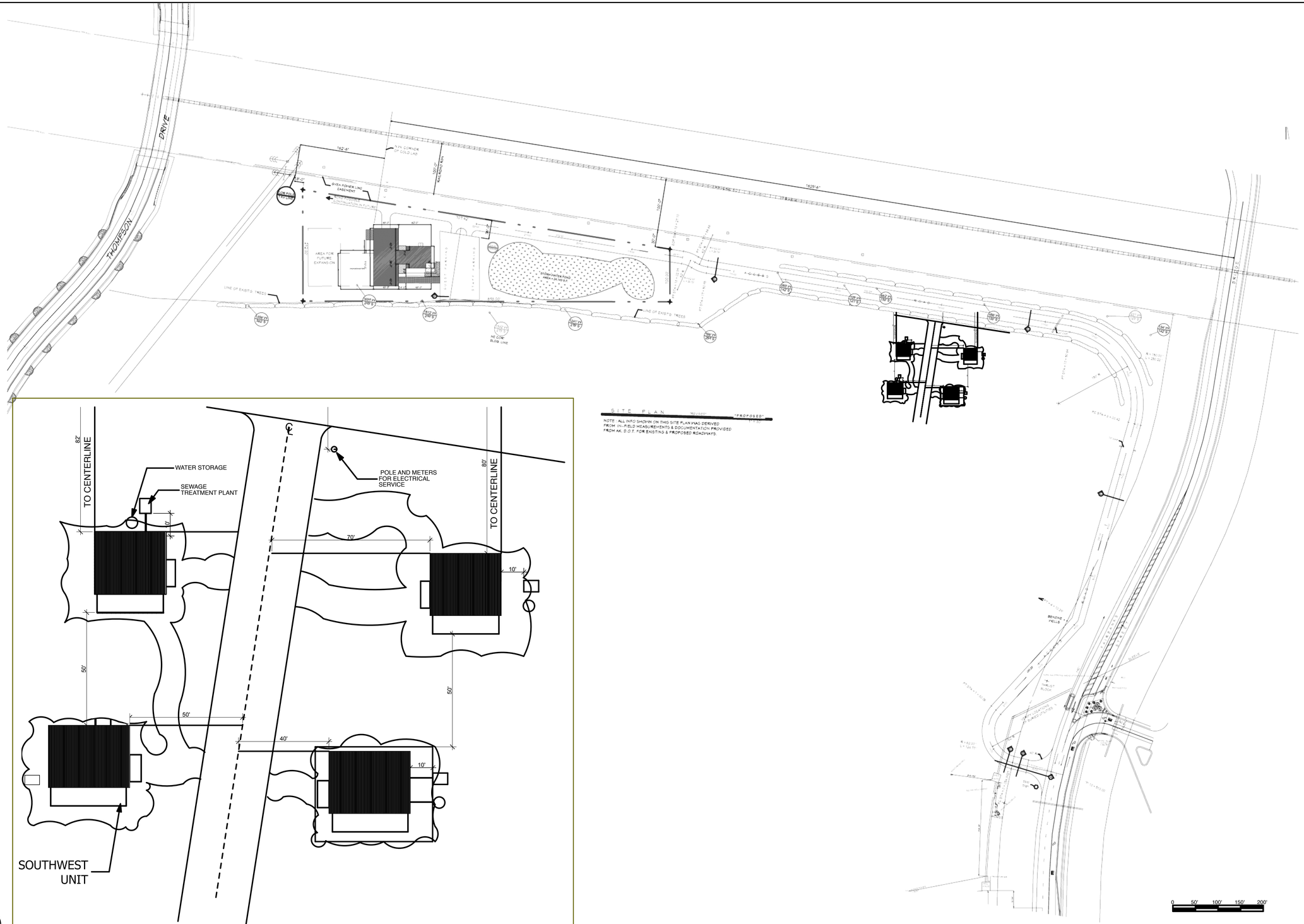
COVER SHEET

A0.0

SHEET 1 OF total

1/15/13 /Users/tashina/Desktop/SW_2013_01_14.pln
Tashina Duttle



1 Site Map Entire Plat

4 SITE PLAN
SCALE: 1" = 20'

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SITE PLAN

C1.0

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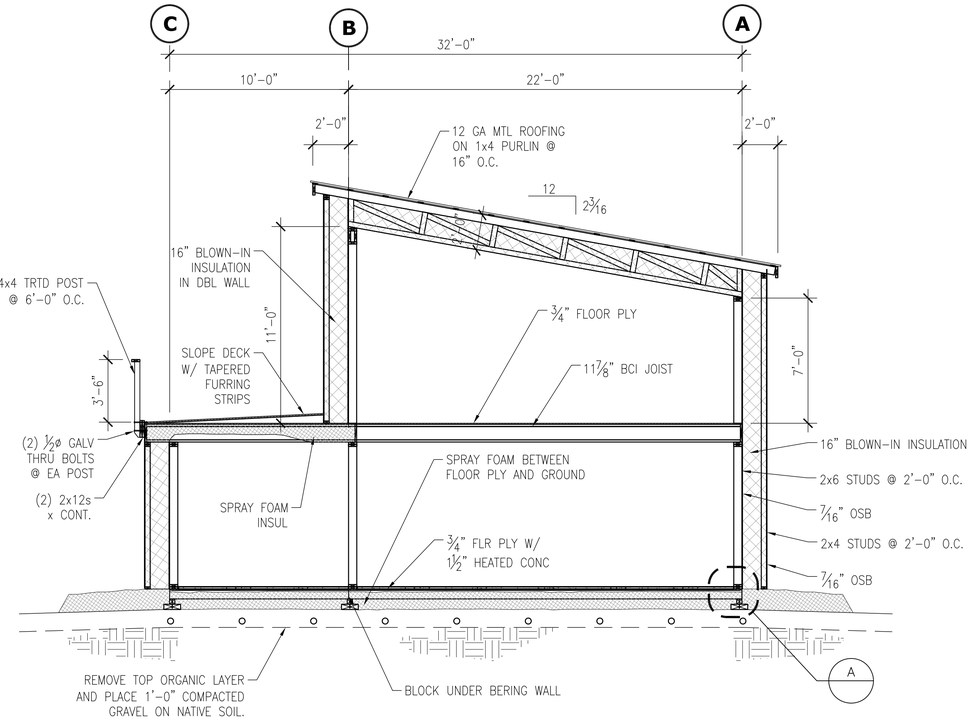
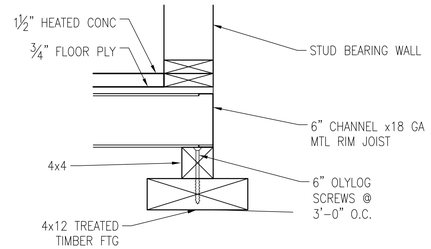


1 BUILDING SECTION
1/4" = 1'-0"



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

GENERAL NOTES:

STRUCTURAL DESIGN DATA

CODE: IBC 2006

LIVE LOADS:

SNOW (QUINHAGAK)	26 PSF
RESIDENTIAL	40 PSF

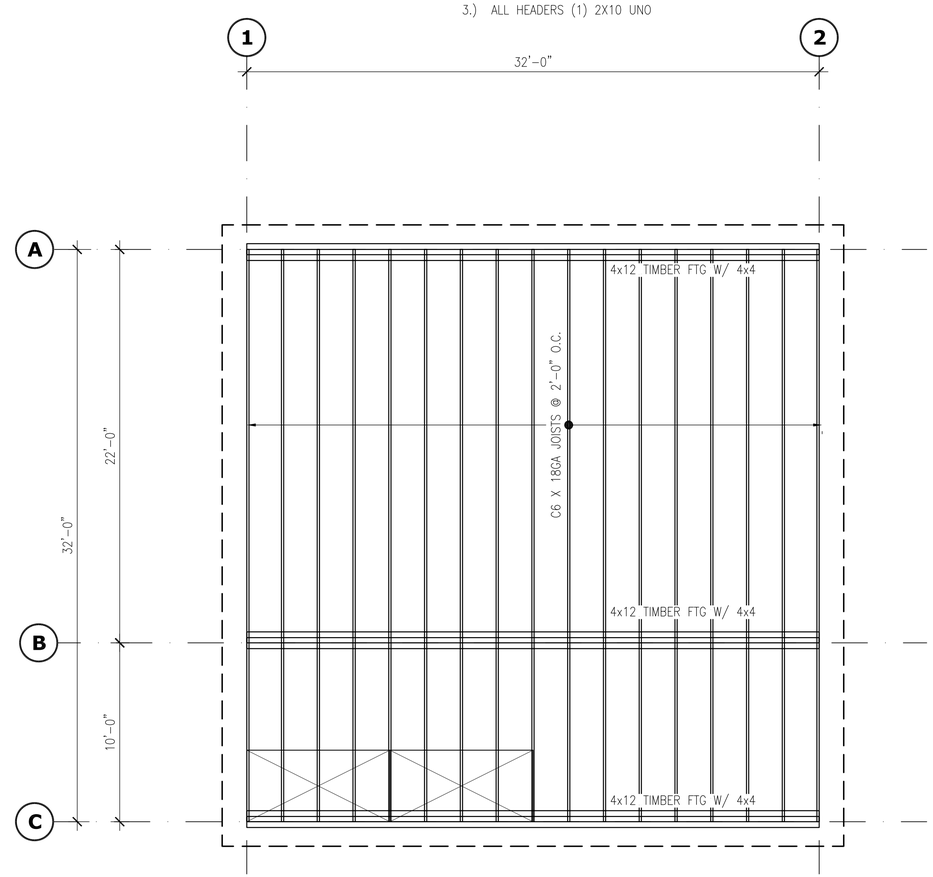
WIND LOADS:
IN ACCORDANCE WITH THE IBC BASIC WIND SPEED = 120 MPH, EXPOSURE C.

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

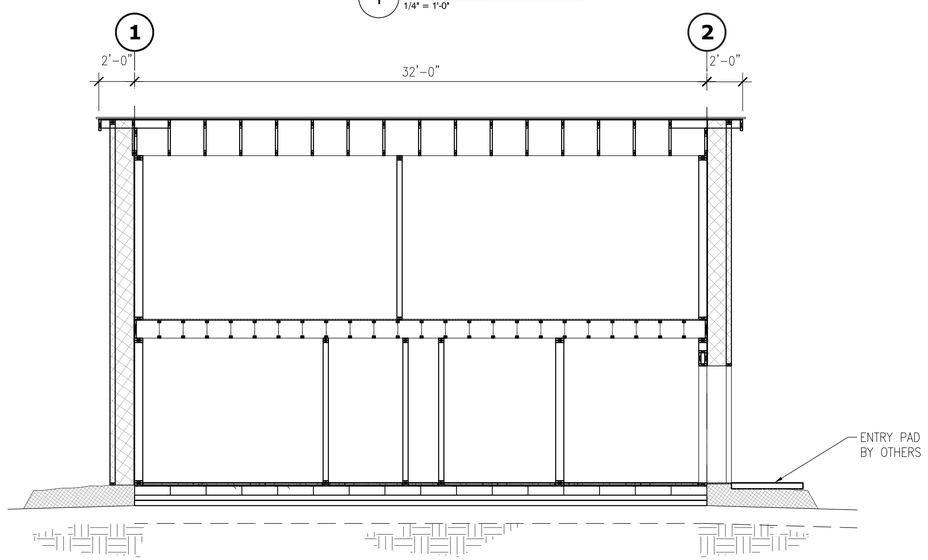
SITE CLASS:	D
IMPORTANCE:	1.0
Ss:	0.125 g
S1	0.070 g
SEISMIC USE GROUP:	1
SEISMIC DESIGN CATAGORY:	D
Sds PARAMETER	0.133

2) THE FOAM MAT FOUNDATION ASSUMES THAT THE GROUND BENEATH THE BUILDING REMAINS FROZEN. DESIGNS TO MAINTAIN THE 'COLD' PERMAFROST CONDITION IS BY OTHERS. IN THE EVENT OF A SUBSIDING SUBBASE DUE TO MELTING THE FOUNDATION MAY BE 'RE-LEVELED' BY INJECTING FOAM UNDER THE BUILDING FOAM FOUNDATION MAT.

3.) ALL HEADERS (1) 2X10 UNO



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



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

STATE OF ALASKA
49th
Daniel B. Holmgren
No. CE9366
5/25/2012
REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: CCHRC/Thotpro
DRAWN BY: FS

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S2.0

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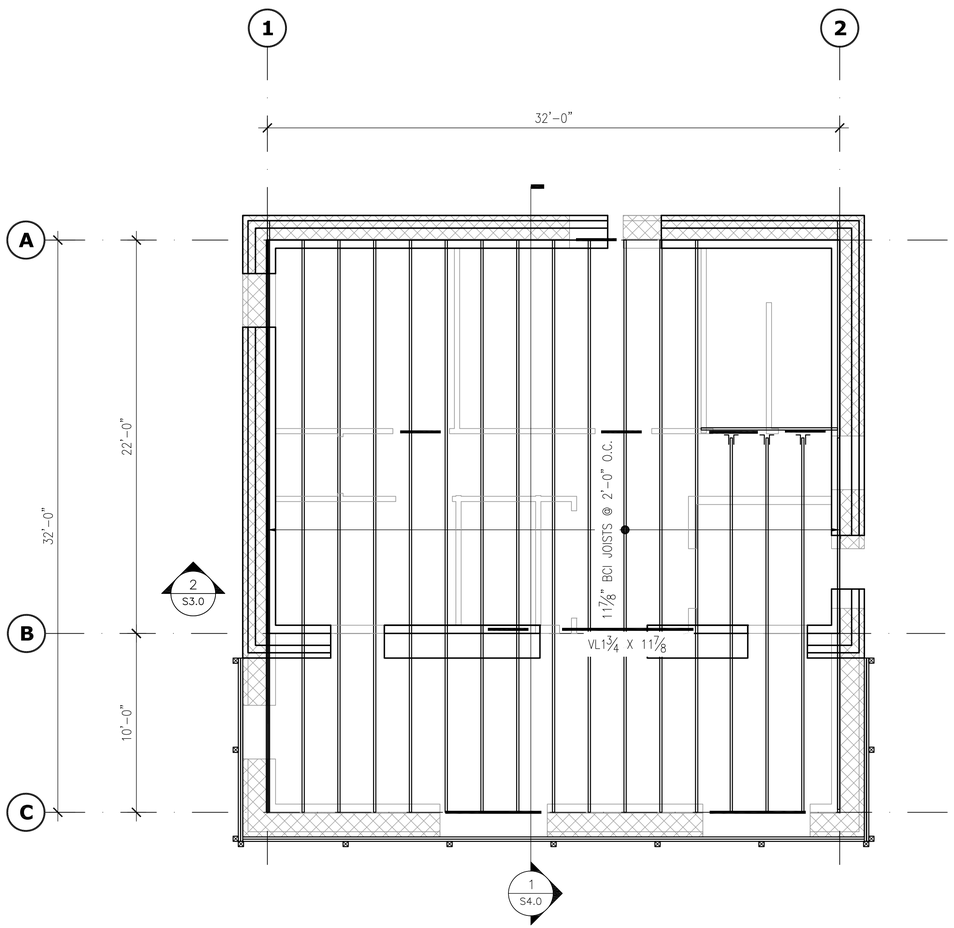
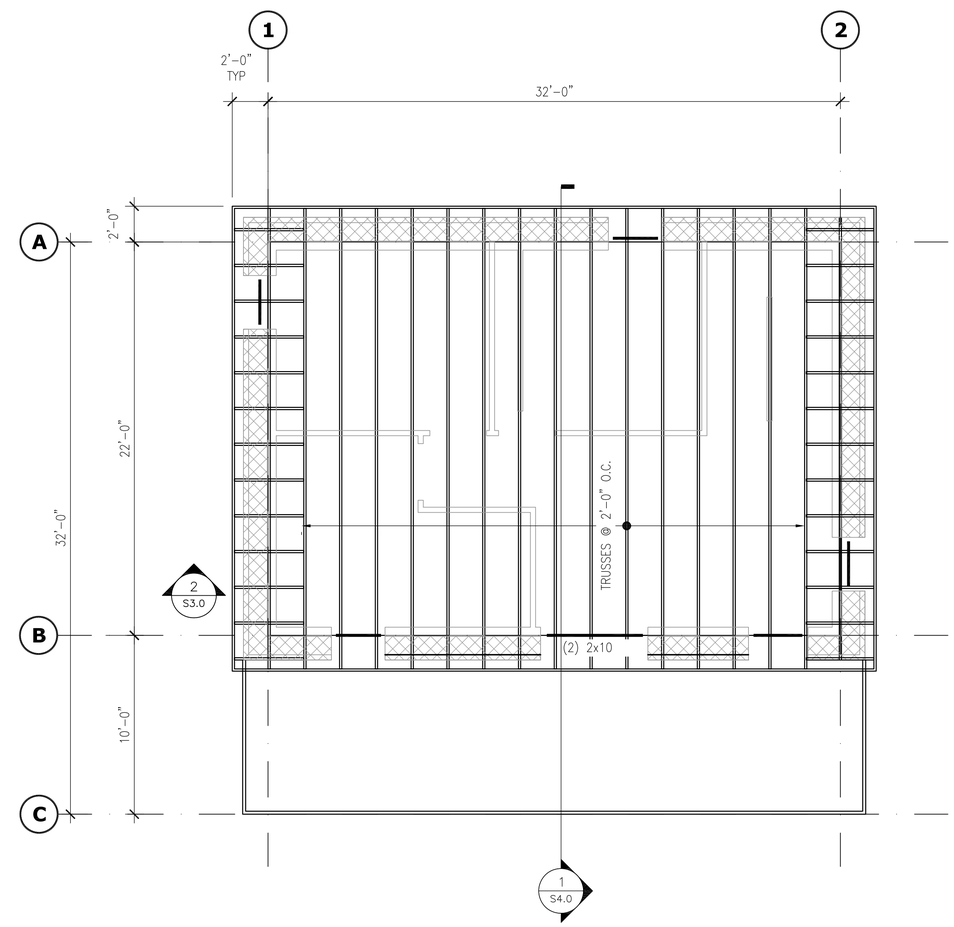


1 2ND FLR FRAMING
1/4" = 1'-0"



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

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S2.1

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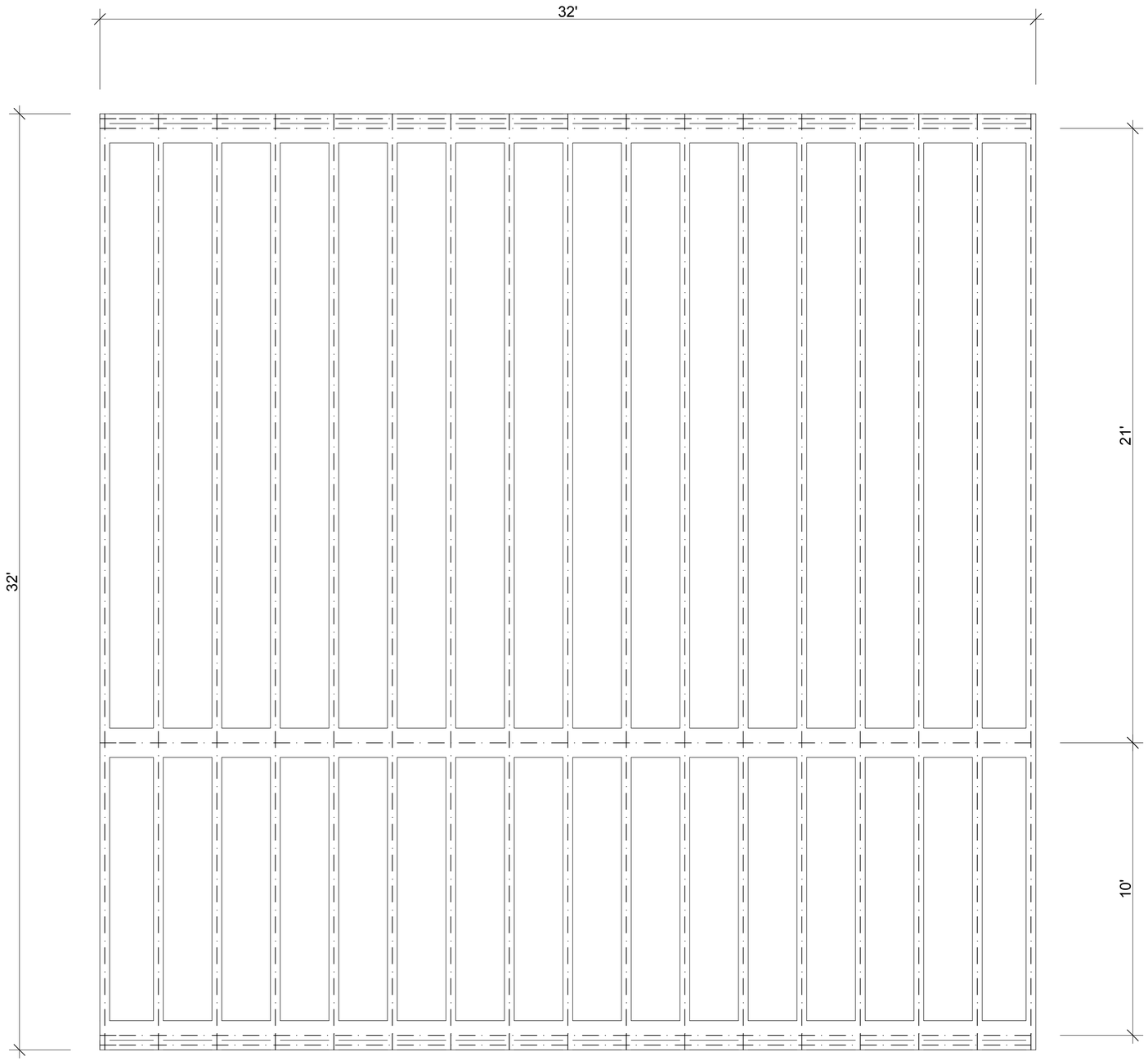

N

1 LOWER LEVEL FLOOR PLAN

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FOUNDATION PLAN

A2.0

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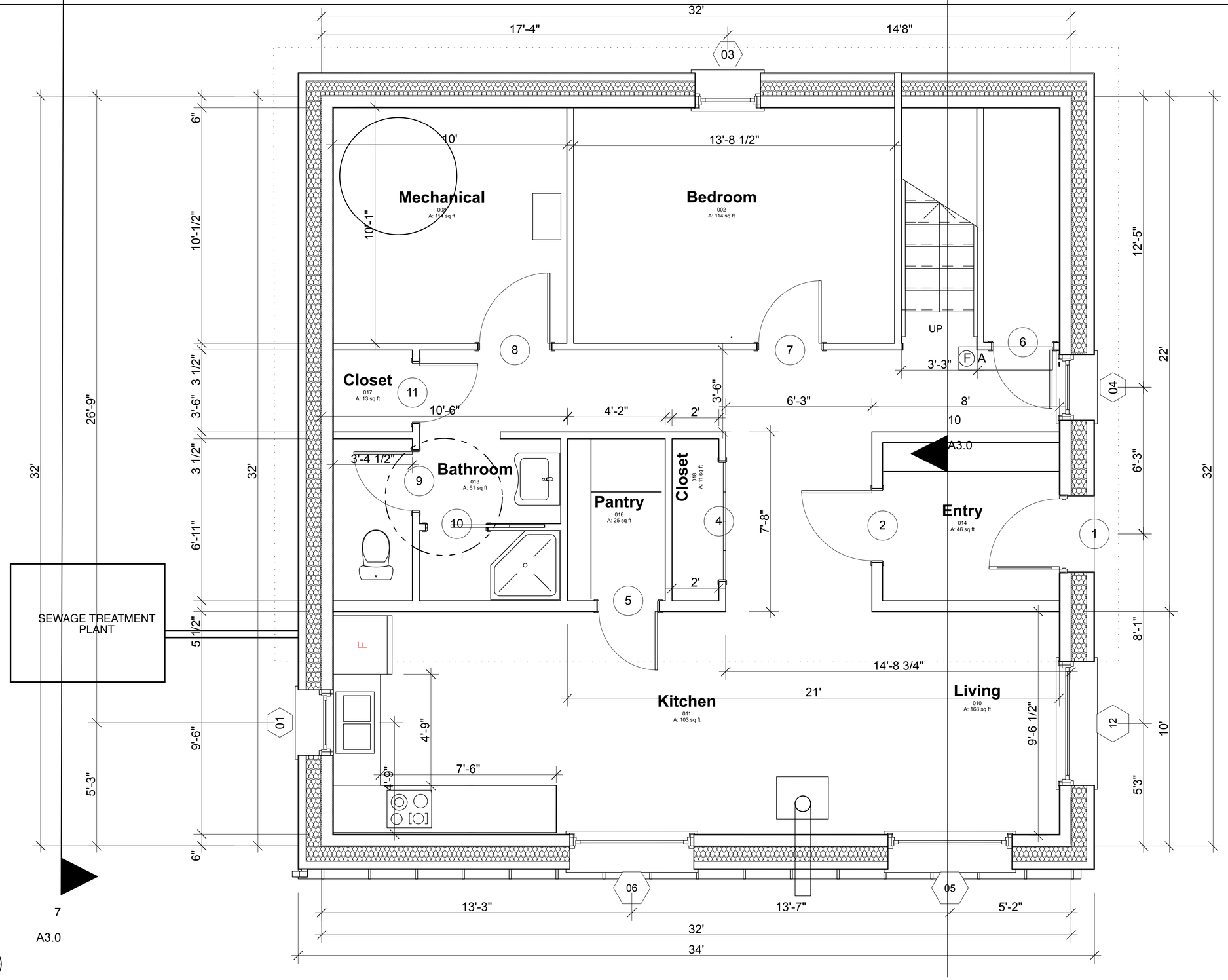

1 1st FLOOR PLAN

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1st FLOOR PLAN

A2.1

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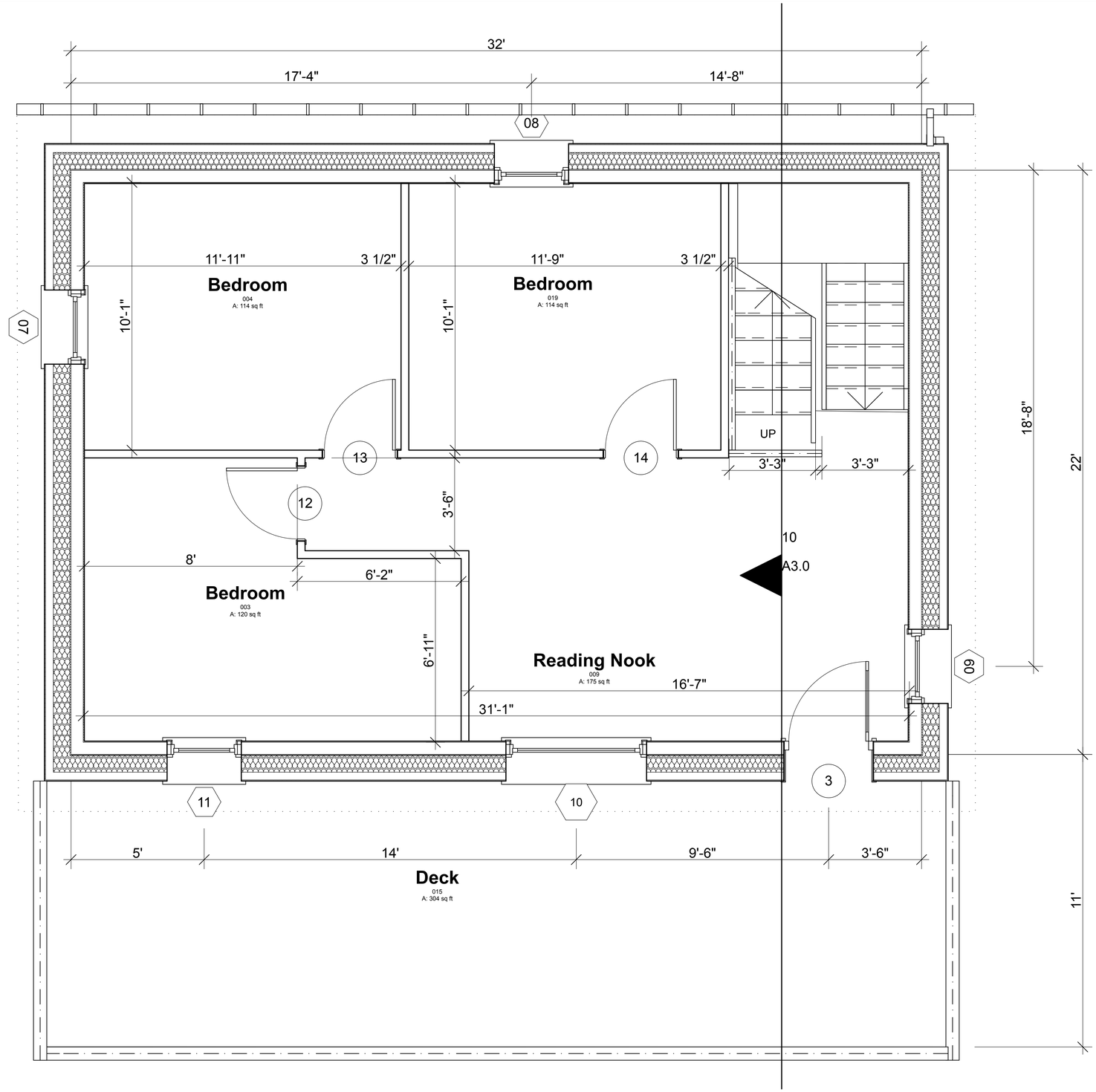

N

1 2nd FLOOR PLAN

0 1' 2' 4'

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2nd FLOOR PLAN

A2.2

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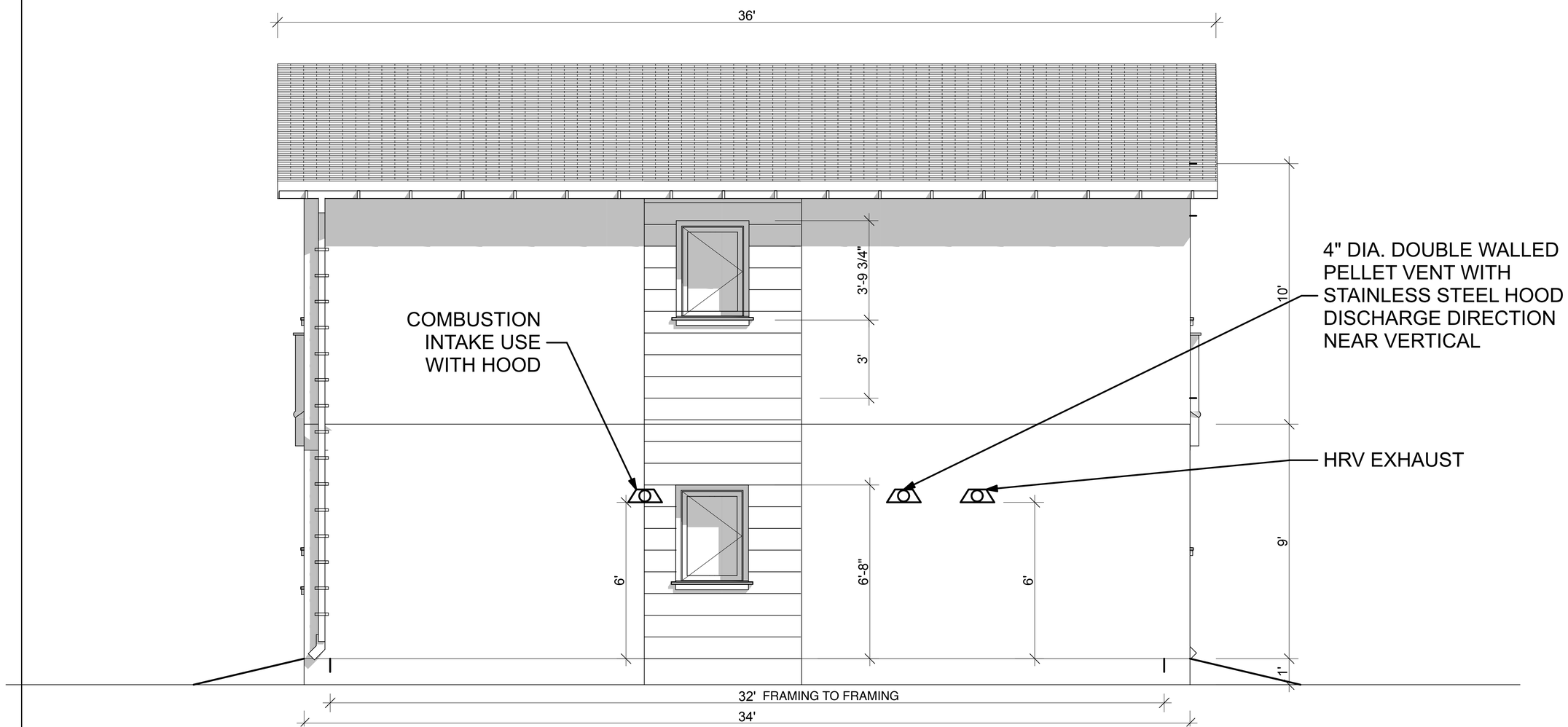

1 NORTH ELEVATION
SCALE: 1/2" = 1'-0"

0 1' 2' 4'

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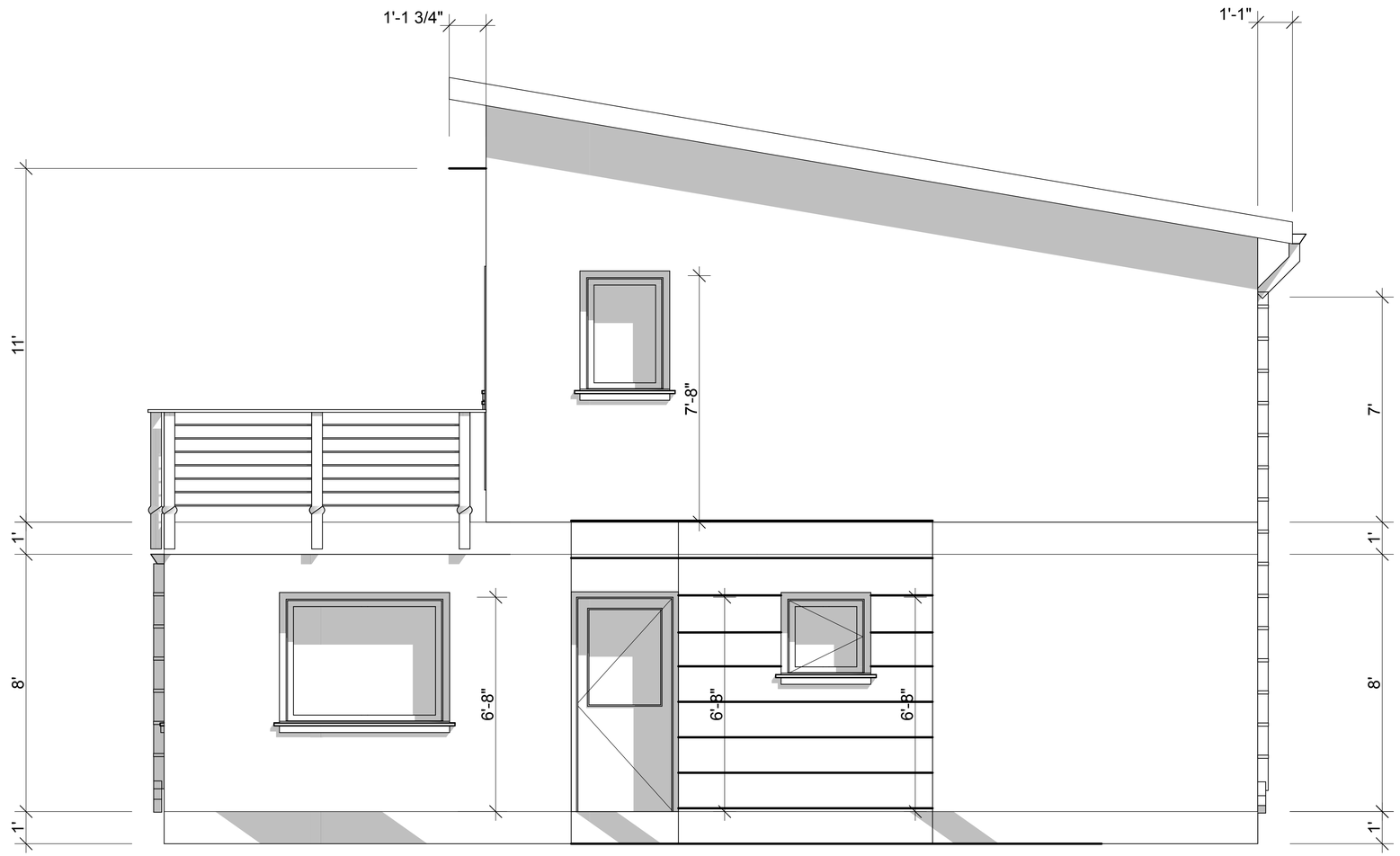
NORTH ELEVATION

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

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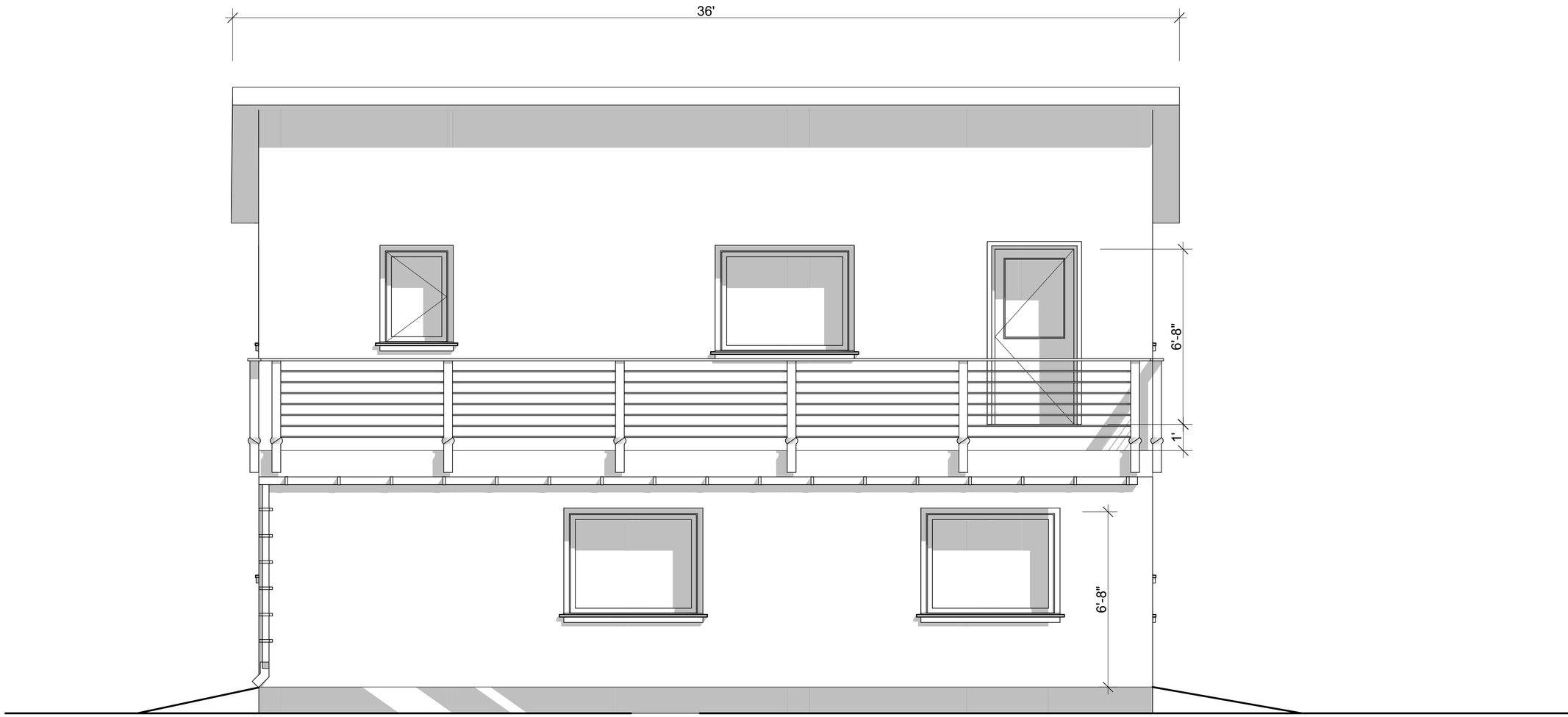

1 SOUTH ELEVATION
SCALE: 1/2" = 1'-0"

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SOUTH ELEVATION

A3.3

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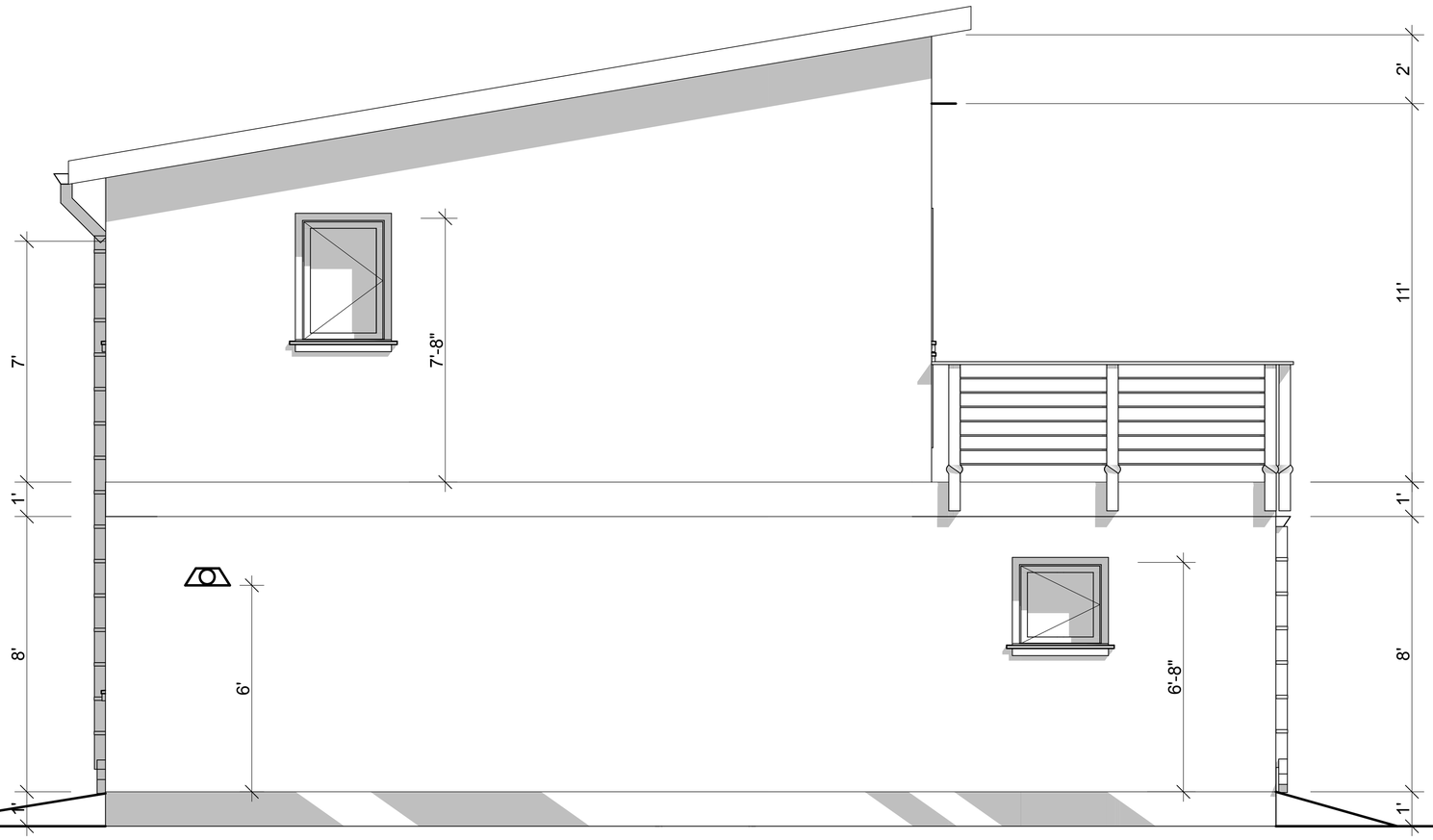

1 WEST ELEVATION
SCALE: 1/2" = 1'-0"

0 1' 2' 4'

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WEST ELEVATION

A3.4

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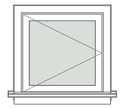
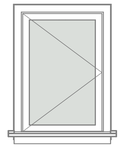
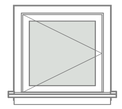
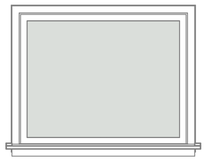
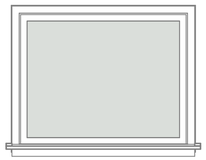
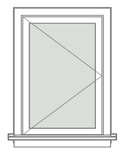
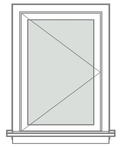
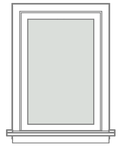
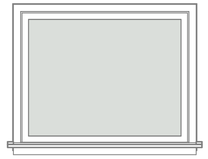
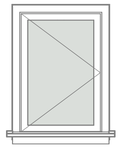
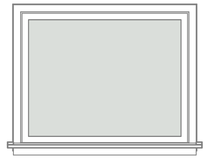
WINDOW SCHEDULE

ID	TYPE	WIDTH	HEIGHT	3D Front View	Quantity
01	R	2'-6"	2'-6"		1
03	R	2'-6"	3'-8"		1
04	R	2'-6"	2'-6"		1
05	FIXED	5'	4'		1
06	FIXED	5'	4'		1
07	R	2'-6"	3'-8"		1

WINDOW SCHEDULE

ID	TYPE	WIDTH	HEIGHT	3D Front View	Quantity
08	R	2'-6"	3'-8"		1
09	FIXED	2'-6"	3'-8"		1
10	FIXED	5'	4'		1
11	R	2'-6"	3'-8"		1
12	FIXED	5'	4'		1

1 SNC Window Schedule

DESIGNED BY:	CCHRC
DRAWN BY:	Aa

REVISION NOTES

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Window Schedule

A4.1

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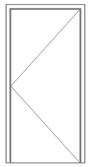
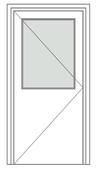
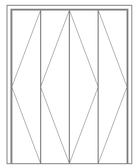
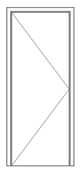
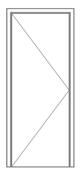
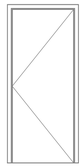
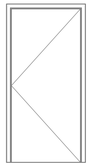
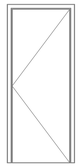
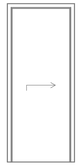
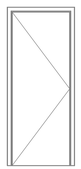
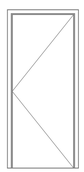
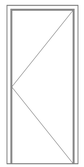
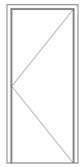
DOOR SCHEDULE

DOOR NO.	TYPE	WIDTH	HEIGHT	SWING	3D Front View
1	FIBERGLASS INSULATED DOOR	3'	6'-8"	RHIS	
2	SOLID CORE INTERIOR DOOR	3'	6'-8"	RHIS	
3	FIBERGLASS INSULATED DOOR	3'	6'-8"	RHIS	
4	BIFOLD CLOSET DOORS	5'	6'-8"		
5	SOLID CORE INTERIOR DOOR	2'-6"	6'-8"	RHIS	
6	SOLID CORE INTERIOR DOOR	2'-6"	6'-8"	RHIS	

DOOR SCHEDULE

DOOR NO.	TYPE	WIDTH	HEIGHT	SWING	3D Front View
7	SOLID CORE INTERIOR DOOR	2'-8"	6'-8"	RHIS	
8	SOLID CORE INTERIOR DOOR	3'	6'-8"	RHIS	
9	SOLID CORE INTERIOR DOOR	2'-6"	6'-8"	RHIS	
10	POCKET DOOR LEAF	2'-6"	6'-8"		
11	SOLID CORE INTERIOR DOOR	2'-6"	6'-8"	RHOS	
12	SOLID CORE INTERIOR DOOR	2'-8"	6'-8"	RHIS	

DOOR SCHEDULE

DOOR NO.	TYPE	WIDTH	HEIGHT	SWING	3D Front View
13	SOLID CORE INTERIOR DOOR	2'-8"	6'-8"	RHIS	
14	SOLID CORE INTERIOR DOOR	2'-8"	6'-8"	RHIS	

1 DOOR SCHEDULE SOUTHWEST UNIT

DESIGNED BY:	CCHRC
DRAWN BY:	Aa

REVISION NOTES

No.	Rev./Issue	Date

COLD CLIMATE HOUSING RESEARCH CENTER
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(907) 457-3454
www.cchrc.org

PROJECT
Sustainable Village at UAF
South West Home
FS 443
Fairbanks, Alaska

ISSUED
03/10/2012
Design Development

Door Schedule

A4.2

SHEET 16 OF total

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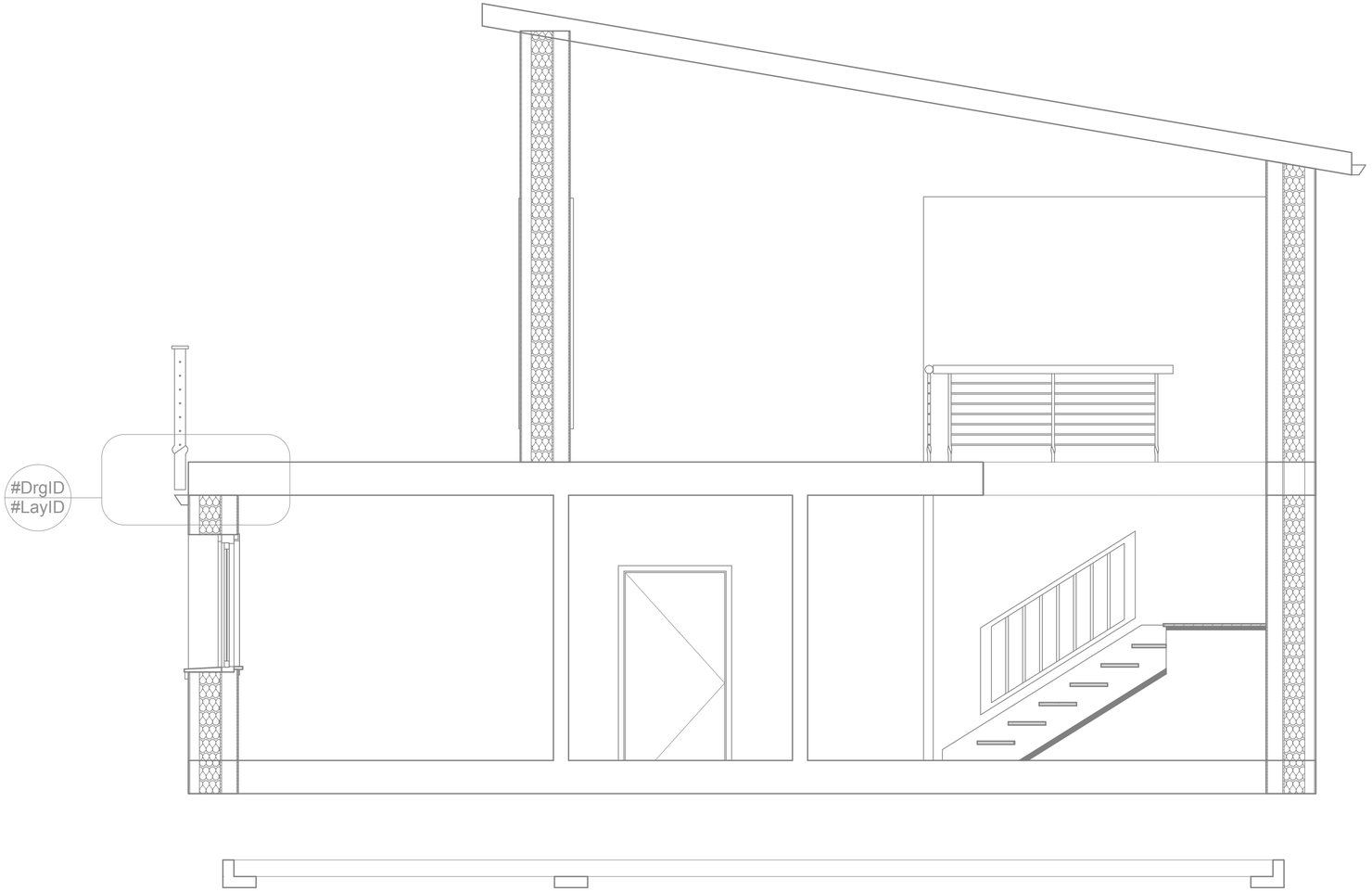
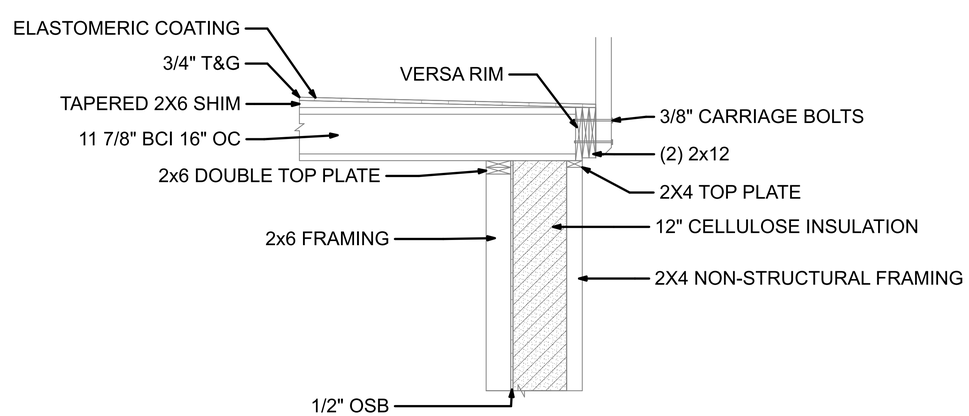


1 BUILDING SECTION



2 DETAIL

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

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CCHRC
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PROJECT
Sustainable Village at UAF
South West Home
FS 443
Fairbanks, Alaska
ISSUED
03/10/2012
Design Development

BUILDING SECTIONS

SHEET 17 OF total

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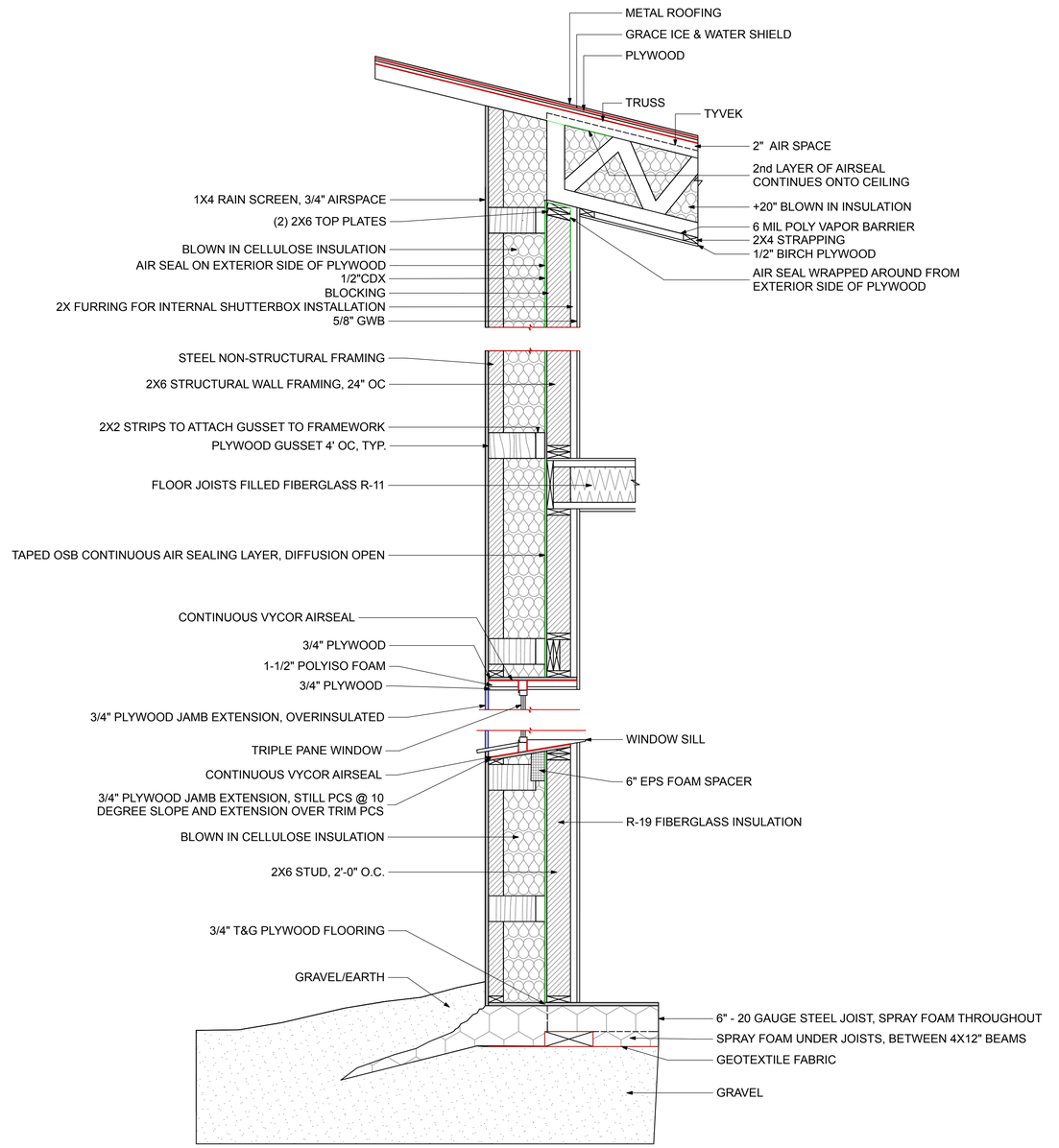

1 DETAIL

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

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PROJECT
Sustainable Village at UAF
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FS 443
Fairbanks, Alaska
ISSUED
03/10/2012
Design Development

DETAILS

A6.0

SHEET 19 OF total

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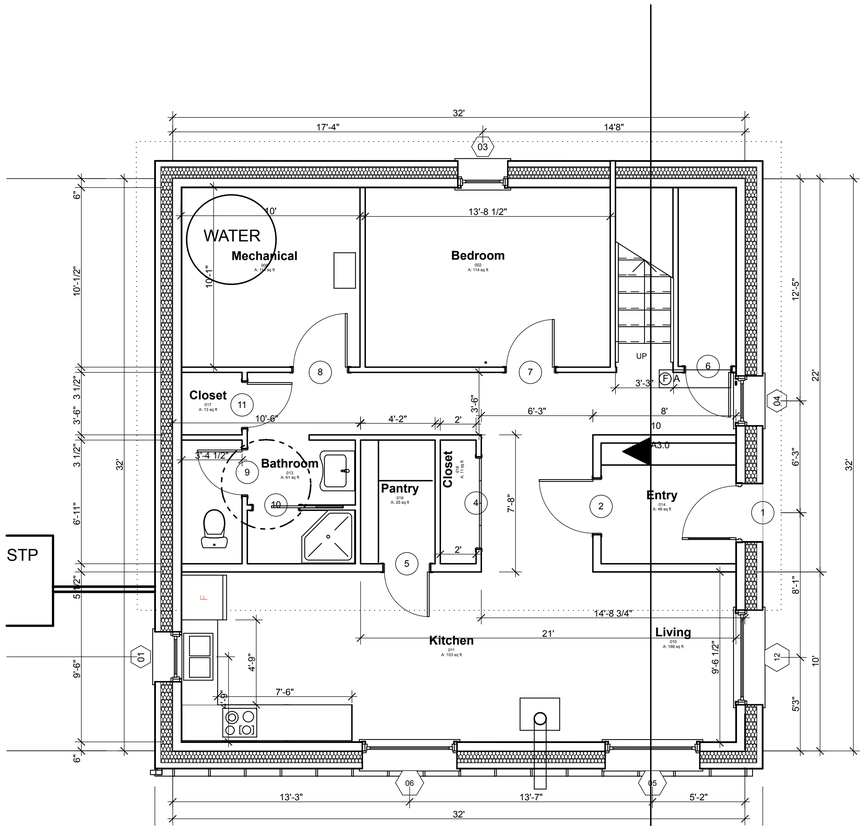
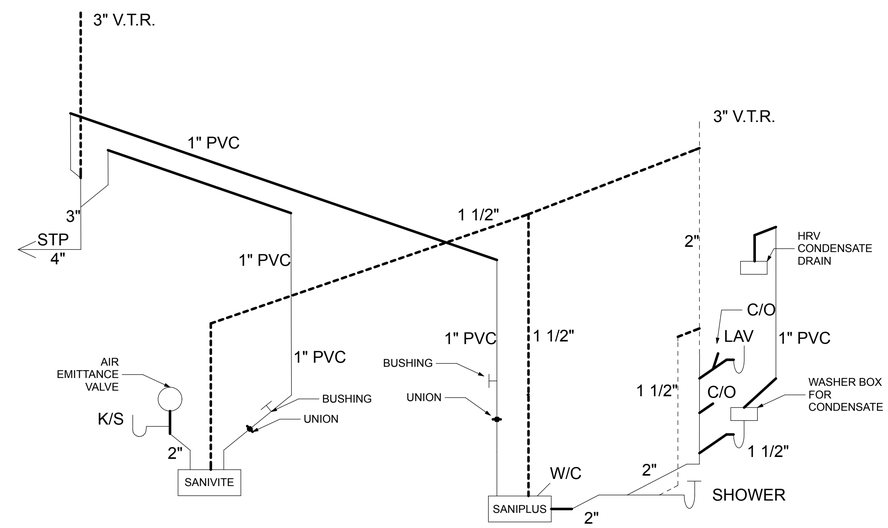


1 1st FLOOR PLAN



2 (NON ADA) DWV PLAN

N

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

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PROJECT
Sustainable Village at UAF
South West Home
FS 443
Fairbanks, Alaska

ISSUED
03/10/2012
Design Development

PLUMBING LAYOUT

P1.1

SHEET 20 OF total

1/15/13 /Users/tashina/Desktop/SW_2013_01_14.pln
Tashina Duttle

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

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)

COLOR/LINETYPE LEGEND

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

- 4 = 1/2" PIPE SIZE
- 5 = 3/4" PIPE SIZE
- 1 = 1" PIPE SIZE
- 1x = 1-1/4" PIPE SIZE
- 2 = 2" PIPE SIZE

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

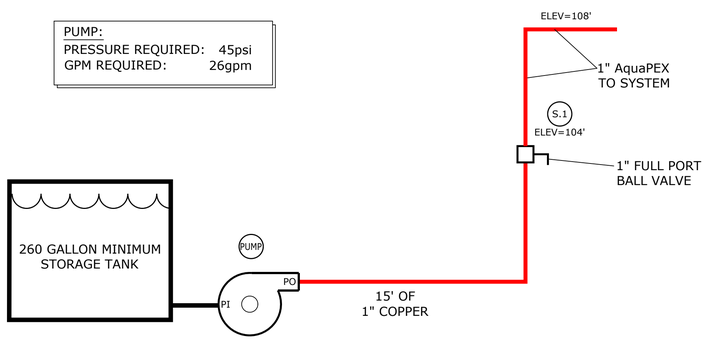
- - - 16 — RFC49-16
RELIABLE Model RFC49RFC49 Concealed Pendent Sprinkler K=4.9, 165F°, 3/8" Orifice, Maximum Spacing 16'x16' Sprinkler head demand: 13 gpm @ 7.04

- - - 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

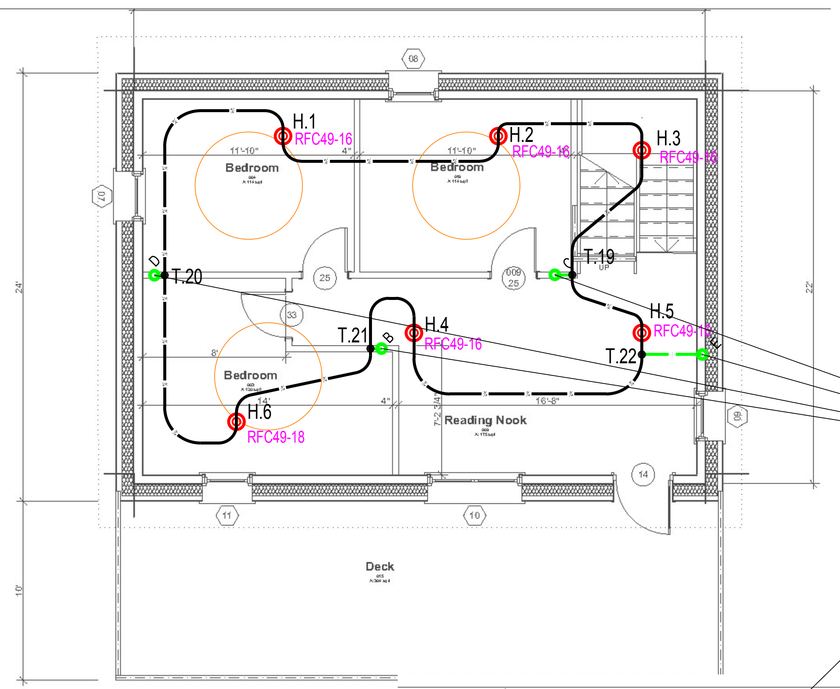
12 1st Floor
6 2nd Floor
18 TOTAL

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

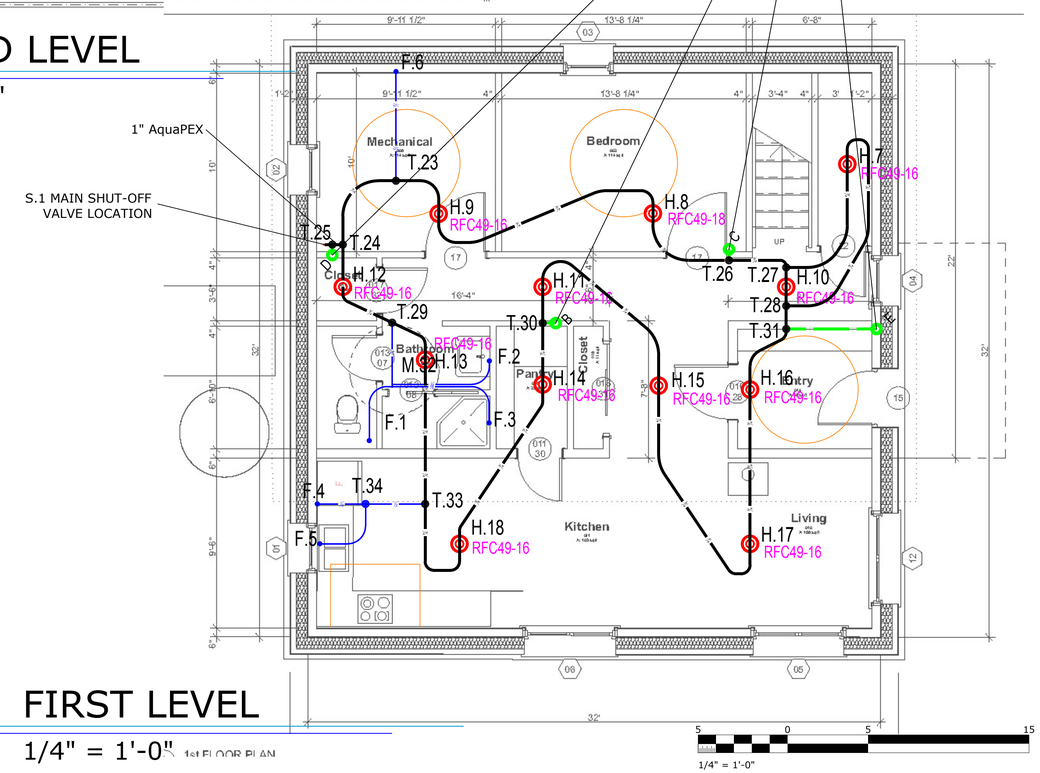
PUMP:
PRESSURE REQUIRED: 45psi
GPM REQUIRED: 26gpm



2 F100 WATER SERVICE DETAIL
NTS



3 F100 SECOND LEVEL
1/4" = 1'-0"



1 F100 FIRST LEVEL
1/4" = 1'-0" 1st FLOOR PLAN

1/4" = 1'-0"

DISCLAIMER

THIS SERIES OF PLUMBING, HYDRONIC HEATING/COOLING, SNOW AND ICE MELTING, AND/OR FIRE SPRINKLER TECHNICAL DRAWINGS HAVE BEEN DESIGNED BY UPONOR NORTH AMERICA'S TECHNICAL SERVICES DEPARTMENT. THEY HAVE BEEN PREPARED TO MEET PROFESSIONAL STANDARDS OF DESIGN AND CONSTRUCTION. BEFORE STARTING ALL WORK, YOU SHOULD VERIFY THE ACCURACY OF THE DRAWINGS, PERFORM A CAREFUL CHECK OF PIPE SIZE, CALCULATIONS, MATERIALS, PLUMBING AND/OR FIRE CODES USED. REPORT ANY ERRORS AND/OR DESIGN CHANGES TO UPONOR, INC. TECHNICAL SERVICES - DESIGN DEPARTMENT TO VERIFY THAT THE DESIGN IS STILL VALID. IF ERRORS AND/OR DESIGN CHANGES ARE NOT REPORTED BACK TO UPONOR, INC., IT IS THE SOLE RESPONSIBILITY OF THE INSTALLER TO ENSURE SYSTEM DESIGN WILL FUNCTION PROPERLY WITH ALL APPLICABLE CODES AND EXPECTATIONS. THERE IS NO WARRANTY WRITTEN, EXPRESSED OR IMPLIED FOR DAMAGES THAT MAY RESULT FROM THE APPLICATION AND/OR INTERPRETATION OF THESE DRAWINGS.

SALES REP:

uponor

TECHNICAL SERVICES - DESIGN DEPARTMENT
21900 DODD BLVD., LAKEVILLE, MN 55044
T **T** 888.594.7726 F 952.892.7771
EMAIL TECHNICAL.SERVICES@UPONOR.COM
WEB WWW.UPONOR-USA.COM

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

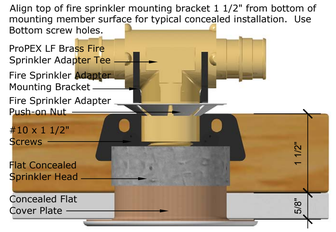
F:\New_Sales\Customer and Technical Support\TECH_SERVICES\Design Department\Tech Service\2012\Fire Safety\120417-40L Sustainable Village @ UAF - South\UDC\120417-40L Sustainable Village @ UAF - South.dwg 04/20/12 - 11:48 am

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

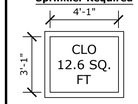
Align top of fire sprinkler mounting bracket 1 1/2" from bottom of mounting member surface for typical concealed installation. Use Bottom screw holes.



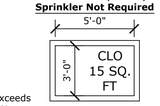
Caution: Do not paint over the sprinklers cover plates. Paint may interfere with the heat sensitivity of the sprinkler, and disturbances may damage the sprinkler.

See General Notes 8.6.3 for Closet Requirements

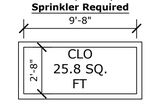
The least dimension exceeds 3 ft (0.9 m)
Sprinkler Required



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**).

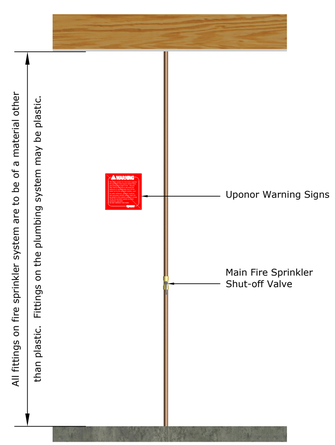
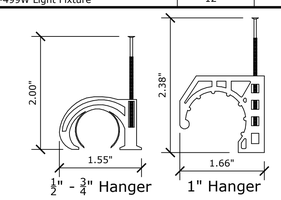


Figure F001-9

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**).

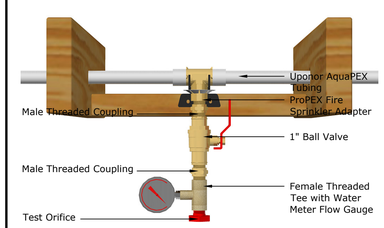


Figure F001-8

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:	1150952
COMPANY:	Cornerstone
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

NO.	DATE	REVISIONS DESCRIPTION

SHEET DESCRIPTION
GENERAL NOTES AND DETAILS

SHEET NUMBER
F001

F:\New_Sales\Customer and Technical Support\TECH_SERVICES\Design Department\Tech Service\2012\Fire Safety\120417-40L Sustainable Village @ UAF - South\UDC\120417-40L Sustainable Village @ UAF - South.dwg 04/20/12 - 11:47 am

1 1st FLOOR ELECTRICAL PLAN

KEY

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

PANEL			
1	DOWN MDROM PLUGS & LIGHTS	2	MAIN
3	UPSTAIRS PLUGS & LIGHTS	4	MAIN
5	UPSTAIRS BDRMS PLUGS & LIGHTS	6	BATHROOM PLUG & LIGHTS
7	UPSTAIRS BDRM PLUGS & LIGHTS	8	FRONT EXTERIOR PLUGS
9	DOWNSTAIRS PLUGS	10	KITCHEN PLUGS
11	DOWNSTAIRS LIGHTS	12	KITCHEN PLUGS
13	STPP	14	COMM PLUG/ FIRE ALARM
15	HRV	16	TOILET MASERATOR
17	STEFFES HEATER	18	PRESSURE TANK
19	STEFFES HEATER	20	PRESSURE TANK
21	HWH	22	OVEN
23	HWH	24	OVEN

2 SW PANEL SCHEDULE

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DRAWN BY:	Aa
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No.	Rev./Issue	Date

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PROJECT
Sustainable Village at UAF
South West Home
FS 443
Fairbanks, Alaska
ISSUED
03/10/2012
Design Development

ELECTRICAL
LIGHTING LAYOUT
1ST FLOOR

E1.0

SHEET 23 OF total

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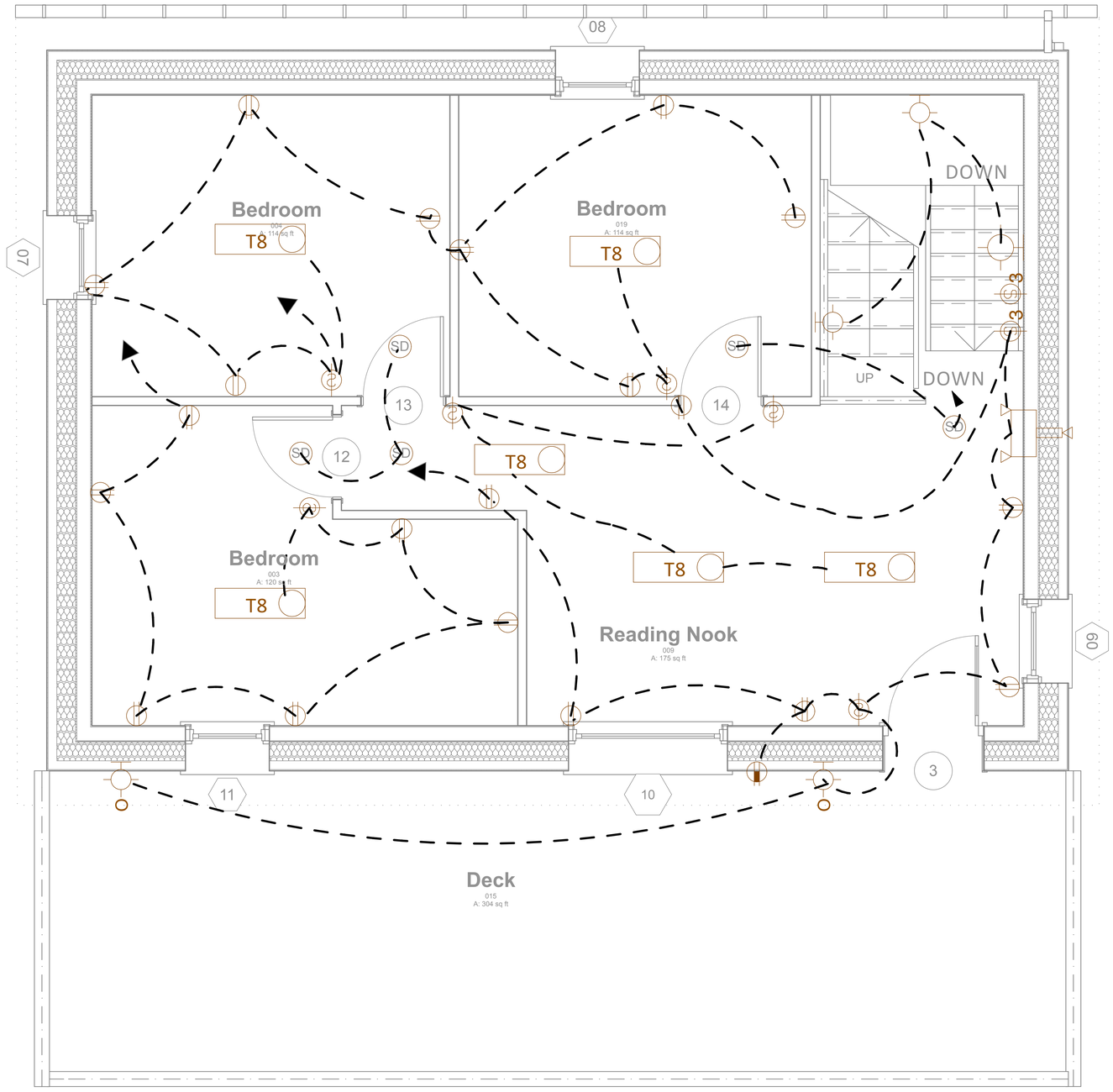

N

1 2nd FLOOR ELECTRICAL PLAN

KEY

- GFI RECEPTACLE
- RECEPTACLE
- SWITCH
- 3-WAY SWITCH
- SMOKE DETECTOR
- TELEVISION
- TELEPHONE
- OUTDOOR LIGHT
- SCONCE LIGHT
- DOORBELL
- T8 FIXTURE

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ELECTRICAL LIGHTING LAYOUT 2ND FLOOR

E1.1

SHEET 24 OF total

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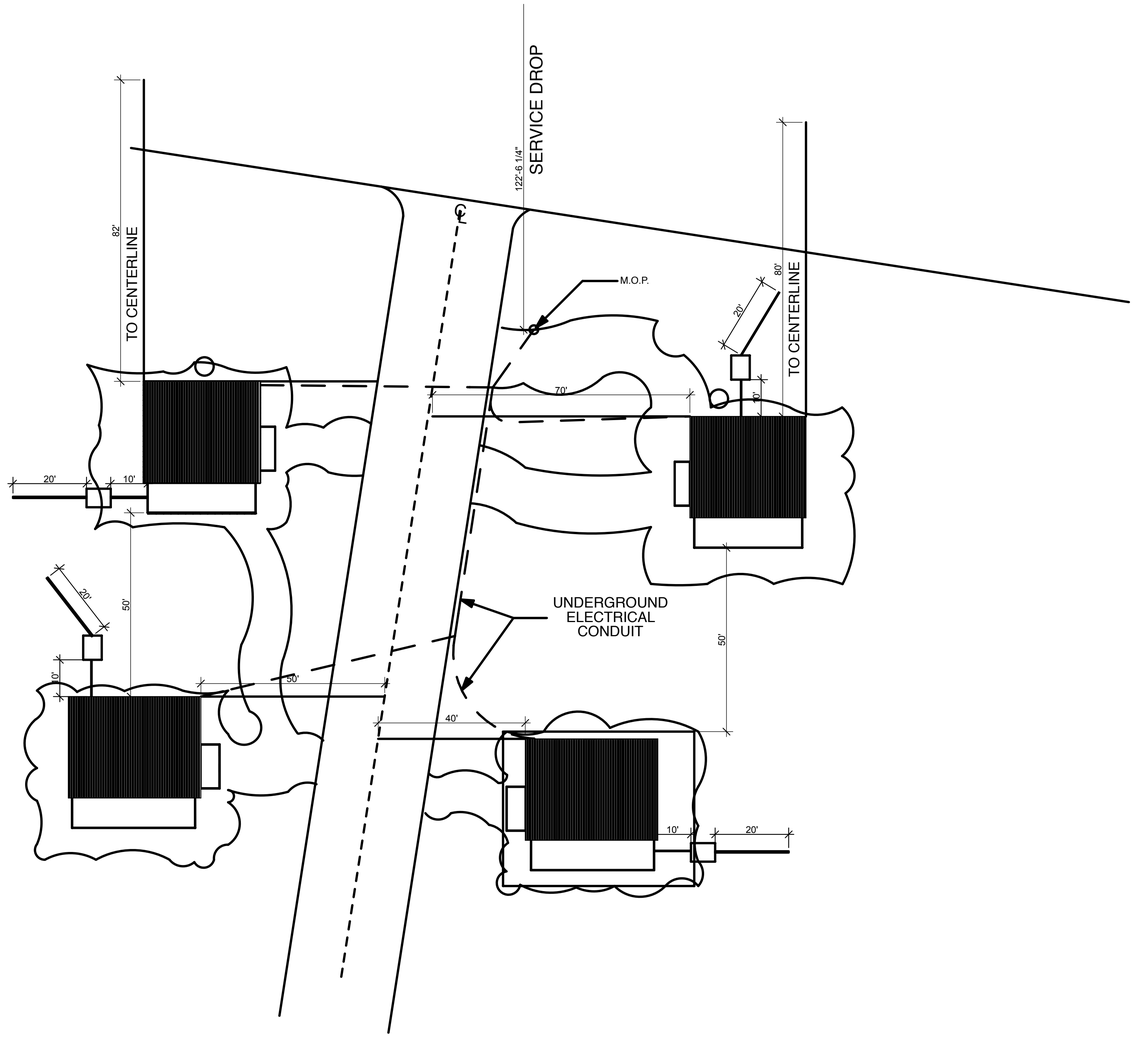
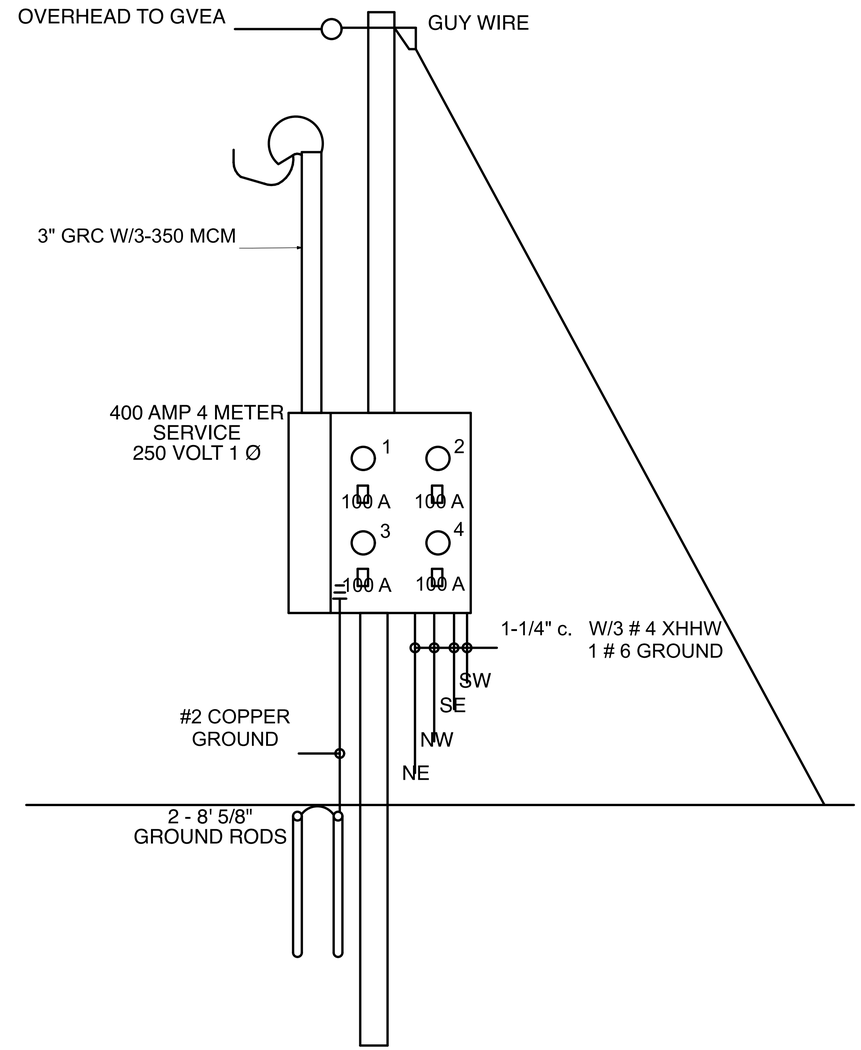


2 SITE PLAN



1 ELECTRICAL SERVICE

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ELECTRICAL SERVICE

E1.2

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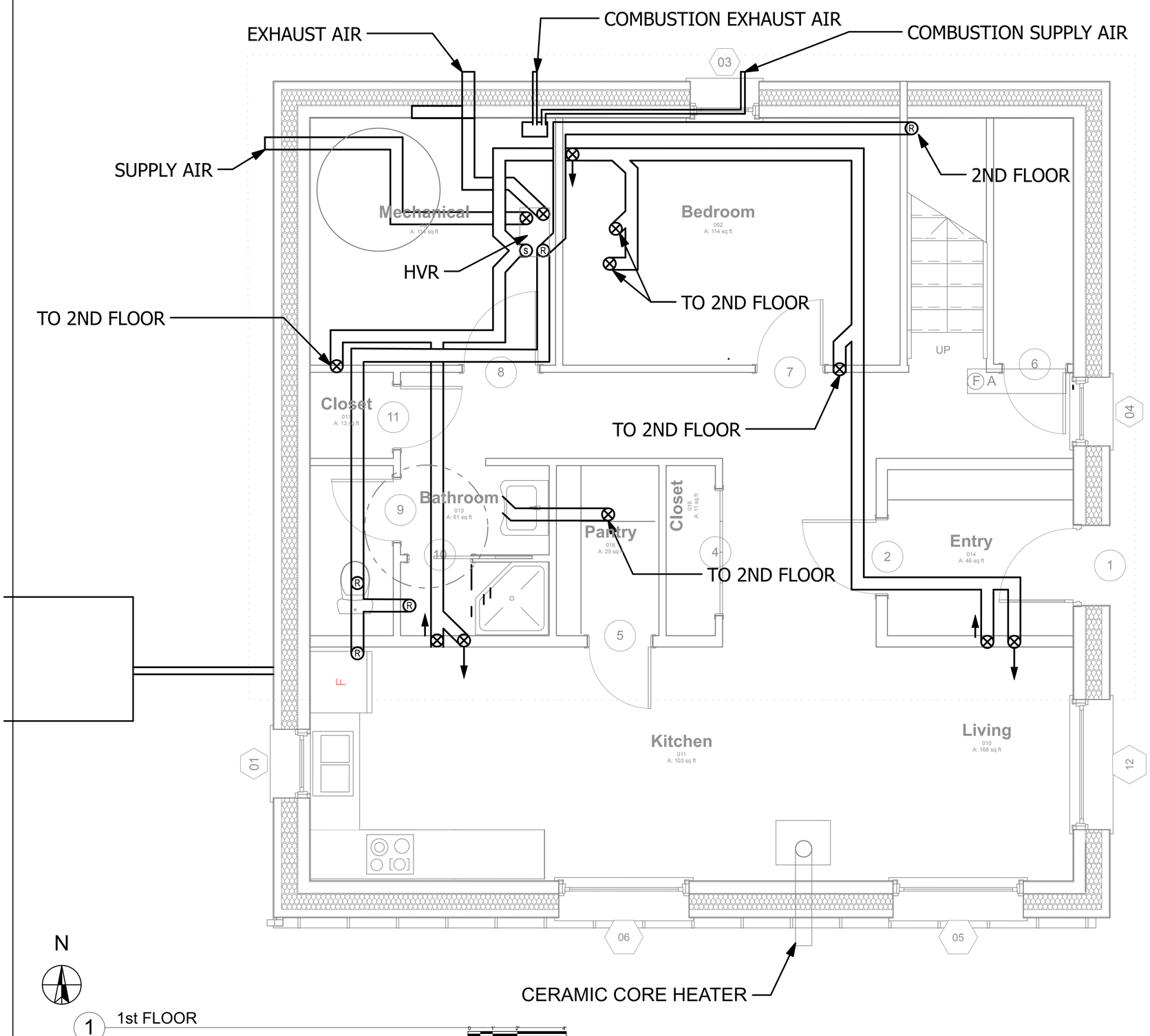

KEY

- RETURN AIR DIFFUSER
- SUPPLY AIR
- GRILLE DIRECTION

SUPPLY IS AN ADJUSTABLE DIFFUSER 8" ABOVE FLOOR

NOTES:
1. ALL HRV DUCTING TO BE 6" ROUND DUCT
2. SUPPLY ZONE REGISTERS HAVE CONSTANT AIRFLOW VALVES = 20 CFM
3. FIRST FLOOR RETURN ZONE REGISTER LAV = 20CFM
4. 2ND FLOOR RETURN ZONE REGISTER LAV = 100CFM

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

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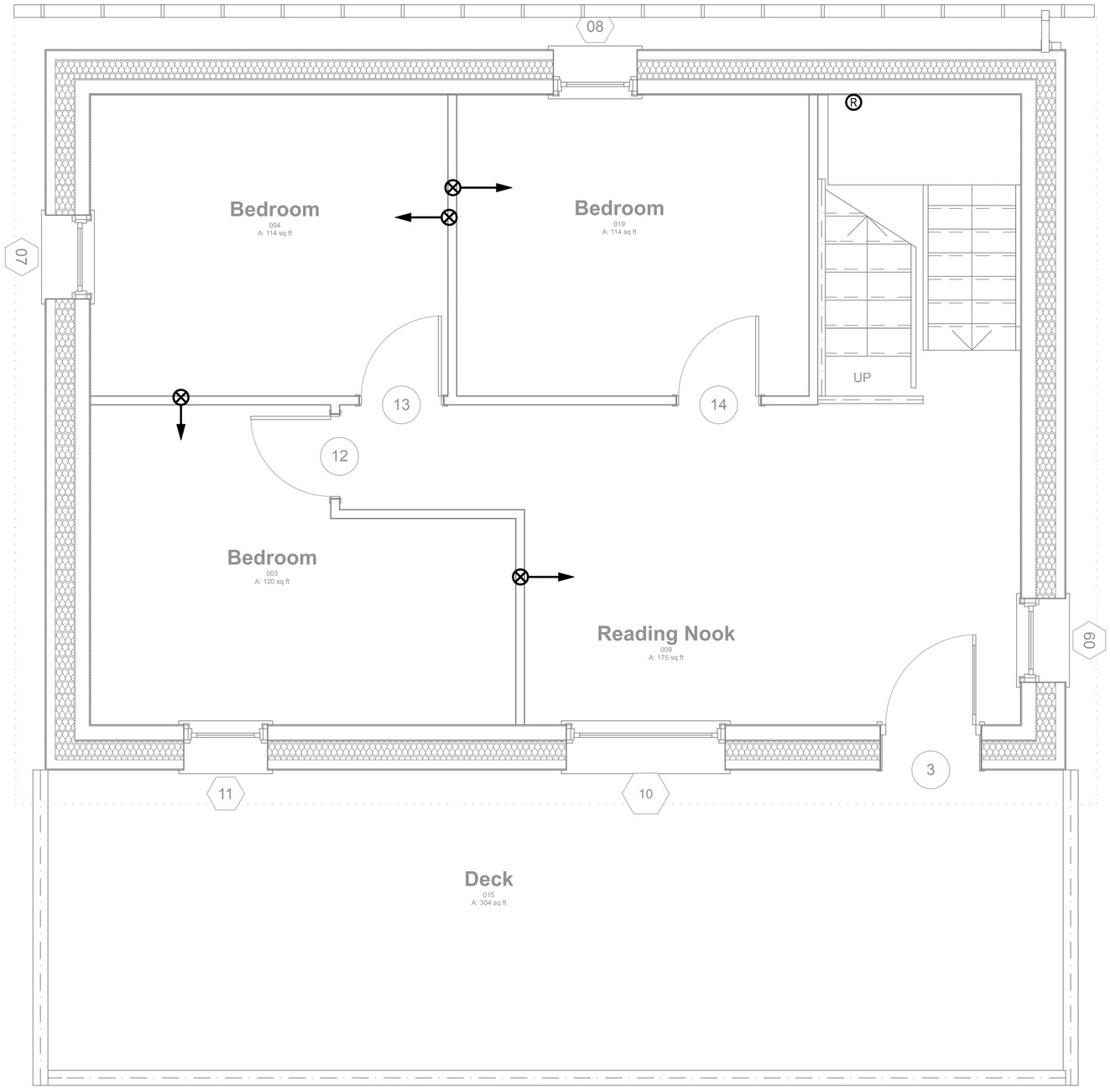
03/10/2012
Design Development

MECHANICAL VENTILATION PLAN

M1.0

SHEET 26 OF total



N

1 2nd FLOOR

0' 1' 2' 4'

KEY

R RETURN AIR DIFFUSER

SUPPLY AIR

GRILLE DIRECTION

SUPPLY IS AN ADJUSTABLE DIFFUSER 8" ABOVE FLOOR

DESIGNED BY:	CCHRC
DRAWN BY:	Aa

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MECHANICAL VENTILATION PLAN

M1.1

SHEET 27 OF total

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