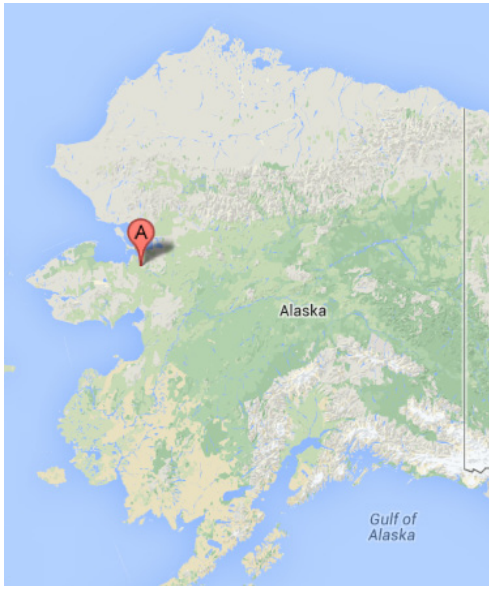
Cold Climate Housing Research Center

CCHRC

Design for Buckland, Alaska

integrated truss house on insulated foam raft foundation



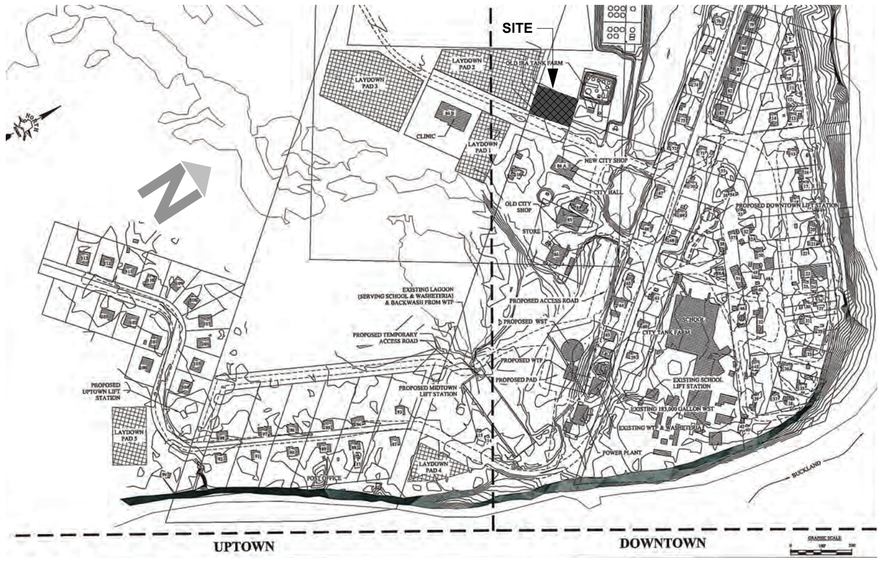
NOTE: The information contained in these documents was developed and published as a reference for specific climatic and site conditions. These documents are not a substitute for a detailed architectural plan set or site-specific engineering.

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.

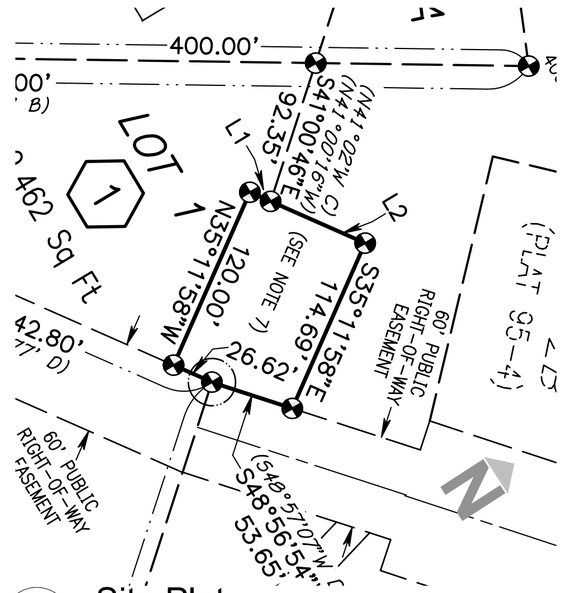
This home has many elements that require specialized knowledge. We strongly recommend that skilled tasks, plumbing and electric work be done by professionals.

BUCKLAND PROTOTYPE HOME

NOT FOR CONSTRUCTION

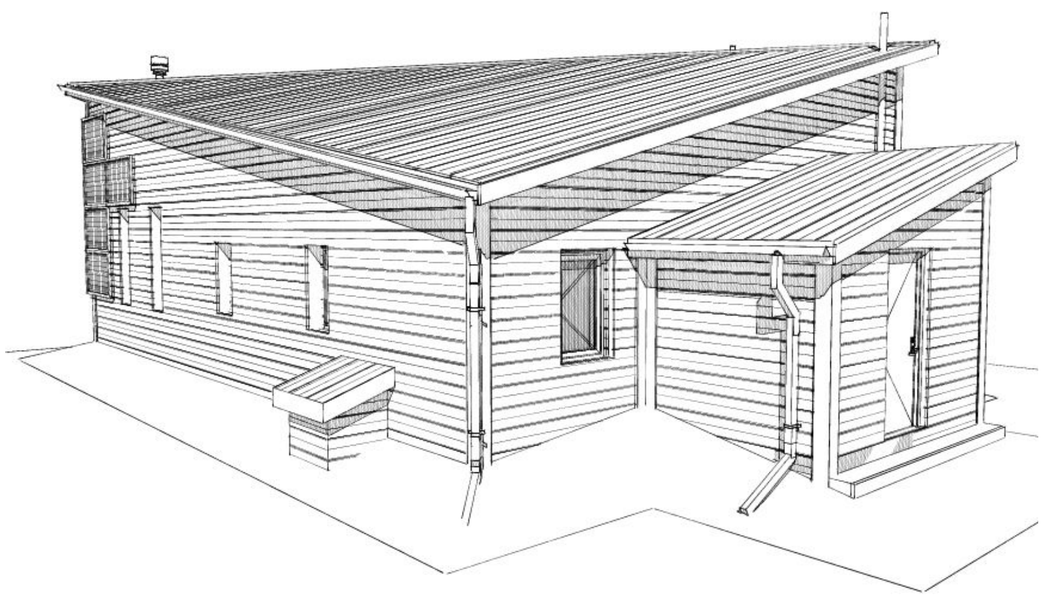


SUMMIT Buckland overview



Site Plot

City of Buckland



Buckland Rendering

UNIVERSITY OF ALASKA FAIRBANKS
CHUKCHI CAMPUS

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

NWIHA The Northwest Indian Housing Association

COLD CLIMATE HOUSING RESEARCH CENTER
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A-601	DOOR WINDOWS SCHE…
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DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

SHEET NOTES:

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CCHRC 1000 FAIRBANKS STREET
P.O. BOX 82489
FAIRBANKS, AK 99708-2489
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PROJECT
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Buckland, Alaska

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CONSTRUCTION DOCUMENTS

COVER SHEET

A-001

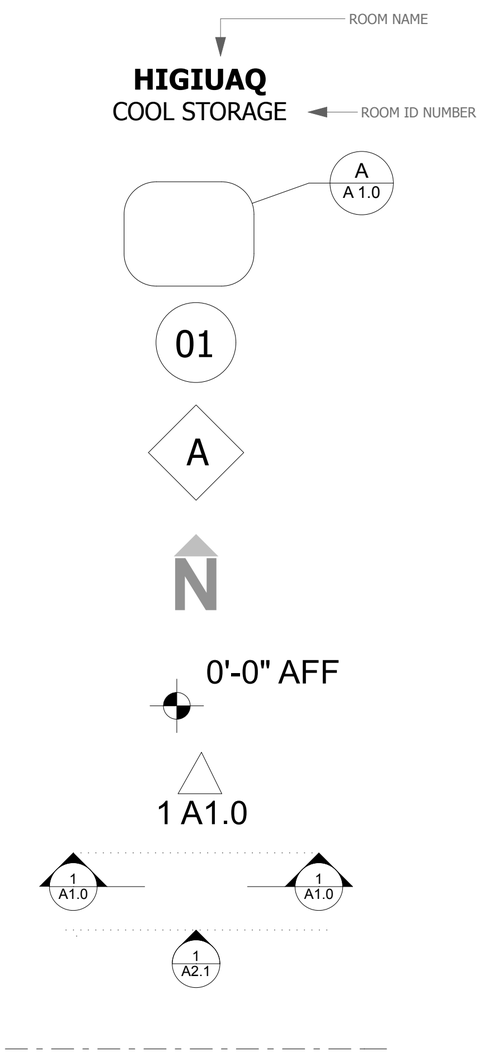
SHEET 1 OF total

ABBREVIATIONS

AB	ANCHOR BOLT
ADD	ADDENDUM
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ARCH	ARCHITECTURAL
AWW	ALL WEATHER WOOD
BLDG	BUILDING
COF	CENTER OF FRAMING
CONT	CONTINUOUS
CONTR	CONTRACTOR
CW	CASEWORK
DIA	DIAMETER
ELEV	ELEVATION
ELEC	ELECTRICAL
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EXT	EXTERIOR
FL	FLOOR
FRT	FIRE RETARDANT TREATED
GALV	GALVANIZED
HP	HIGH POINT
HR	HOUR
ID	INSIDE DIAMETER
INT	INTERIOR
ISOL	ISOLATION
LOC	LIMITS OF CONSTRUCTION
LP	LOW POINT
MAINT	MAINTENANCE
MECH	MECHANICAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O/C	ON CENTER
OD	OUTSIDE DIAMETER
R	RADIUS
RE	REFER
RM	ROOM
RO	ROUGH OPENING
SCHED	SCHEDULED
SHT	SHEET
SPEC	SPECIFICATION
STOR	STORAGE
STRUCT	STRUCTURAL
TOJ	TOP OF JOIST
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRN	TRAINING
TYP	TYPICAL
URN	URINAL
VEST	VESTIBULE
W/	WITH
W/C	TOILET
W/O	WITHOUT

NOT FOR CONSTRUCTION

SYMBOLS



Room Name

Detail reference

Door ID

Window Type

North Symbol

Spot Elevation/Height Marker

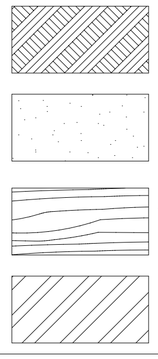
Interior Elevation

Section Reference

Elevation Tag

Site Boundary

MATERIALS

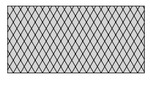


Earth

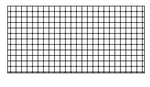
Gravel Fill

Wood

Steel

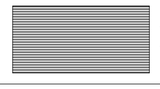


Insulation Batt



Insulation Rigid

Glass



Plywood

PROJECT NOTES

[March 2012]
Construction Drawings 1st round completion

[January 2013]
Modification to storage areas
Foundation/Structural: Changed to ADJUSTABLE

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

SHEET NOTES:

Cold Climate Housing Research Center
CCHRC 1000 FAIRBANKS STREET
P.O. BOX 82489
FAIRBANKS, AK 99708-2489
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SYMBOL SHEET

A-002

SHEET 3 OF total

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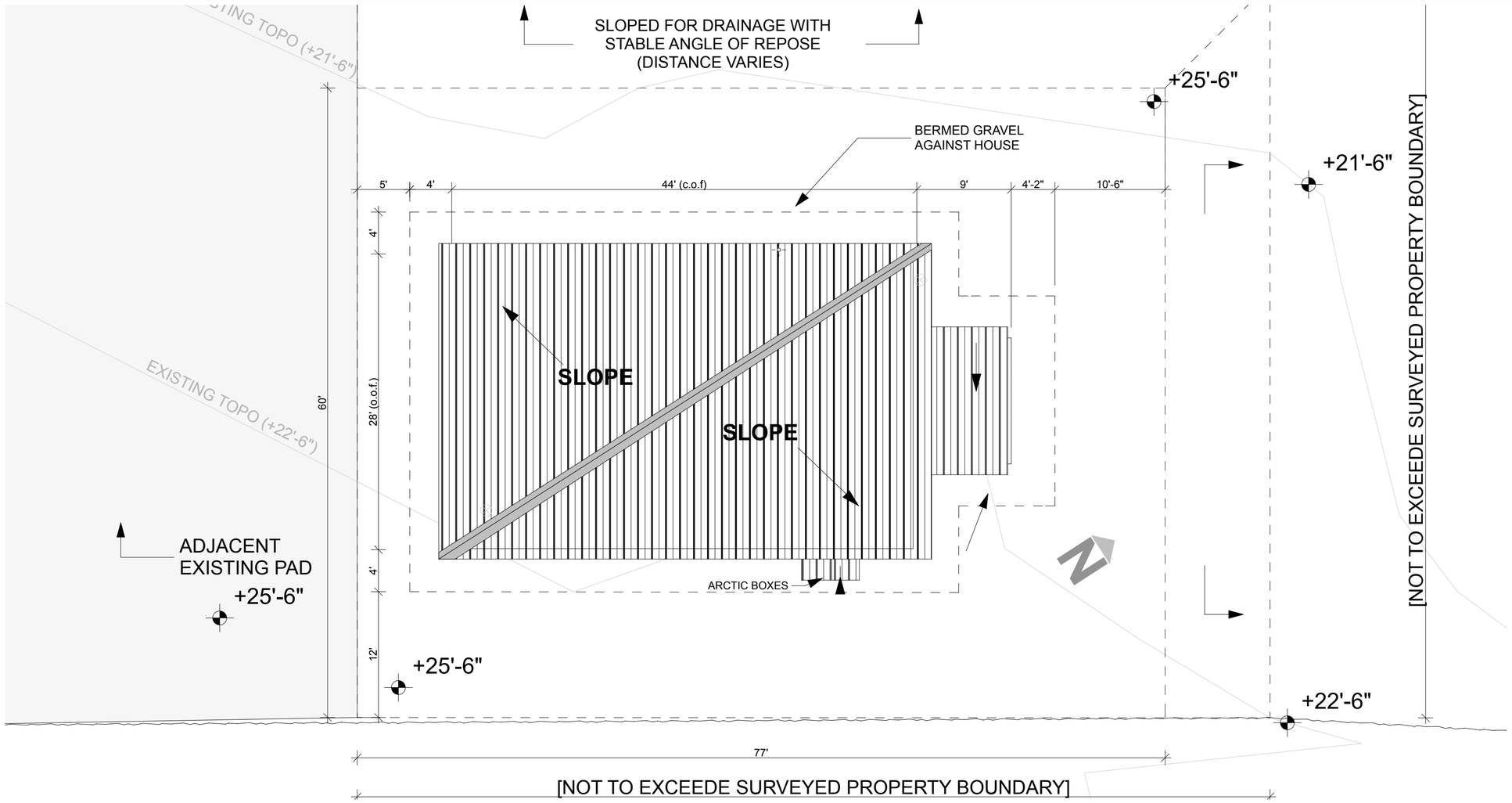
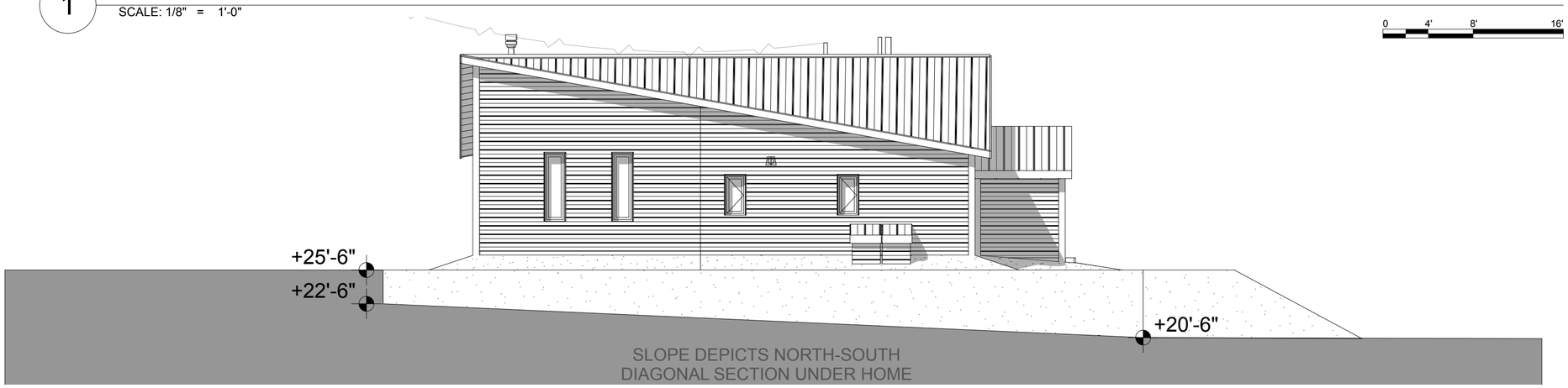


1 SITE PLAN
SCALE: 1/8" = 1'-0"



2 SOUTH ELEVATION [SITE]
SCALE: 1/8" = 1'-0"

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DRAWN BY: C.DiRu		
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SITE PLAN

A-101

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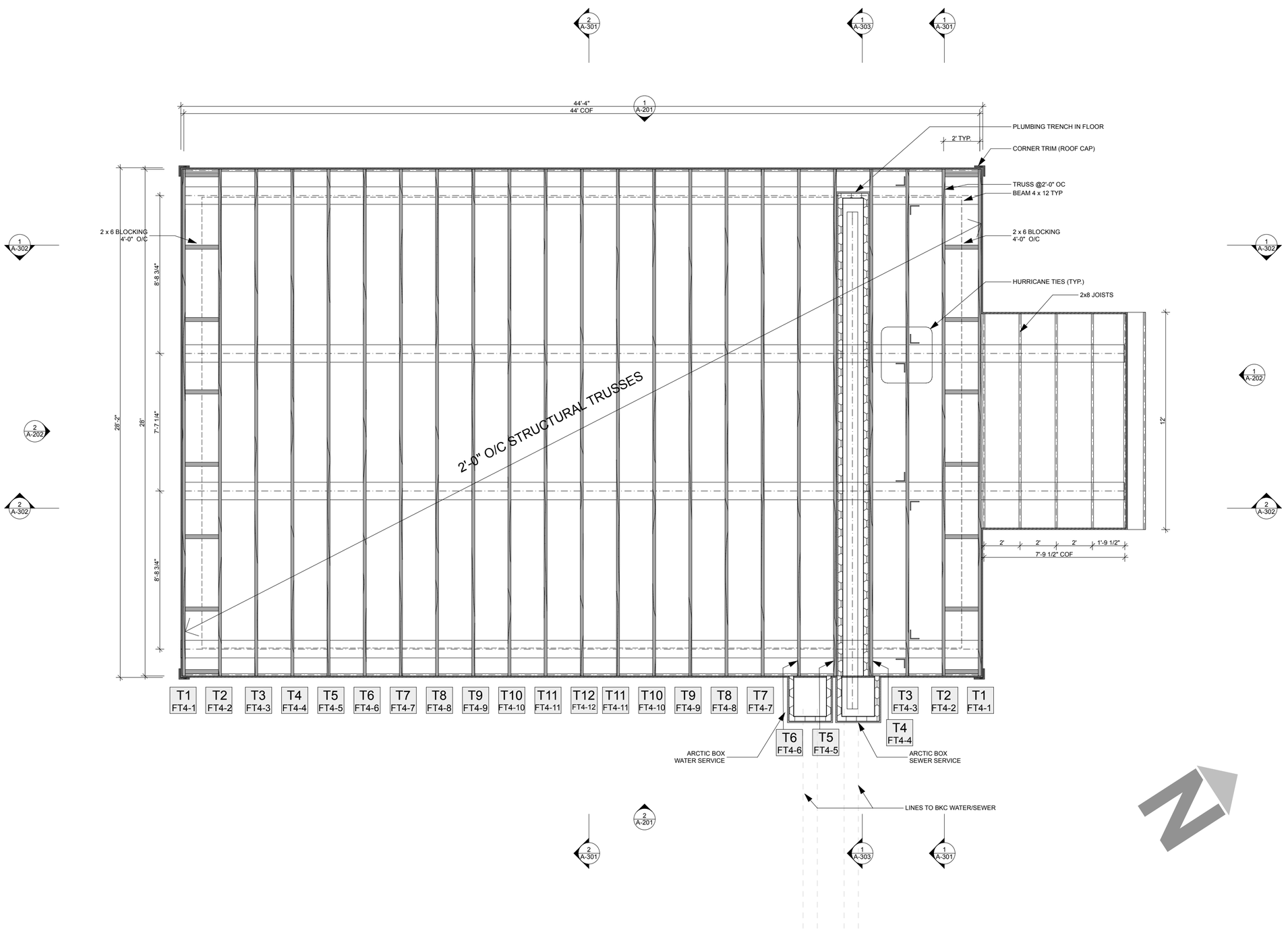

1 FOUNDATION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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FOUNDATION PLAN

A-102

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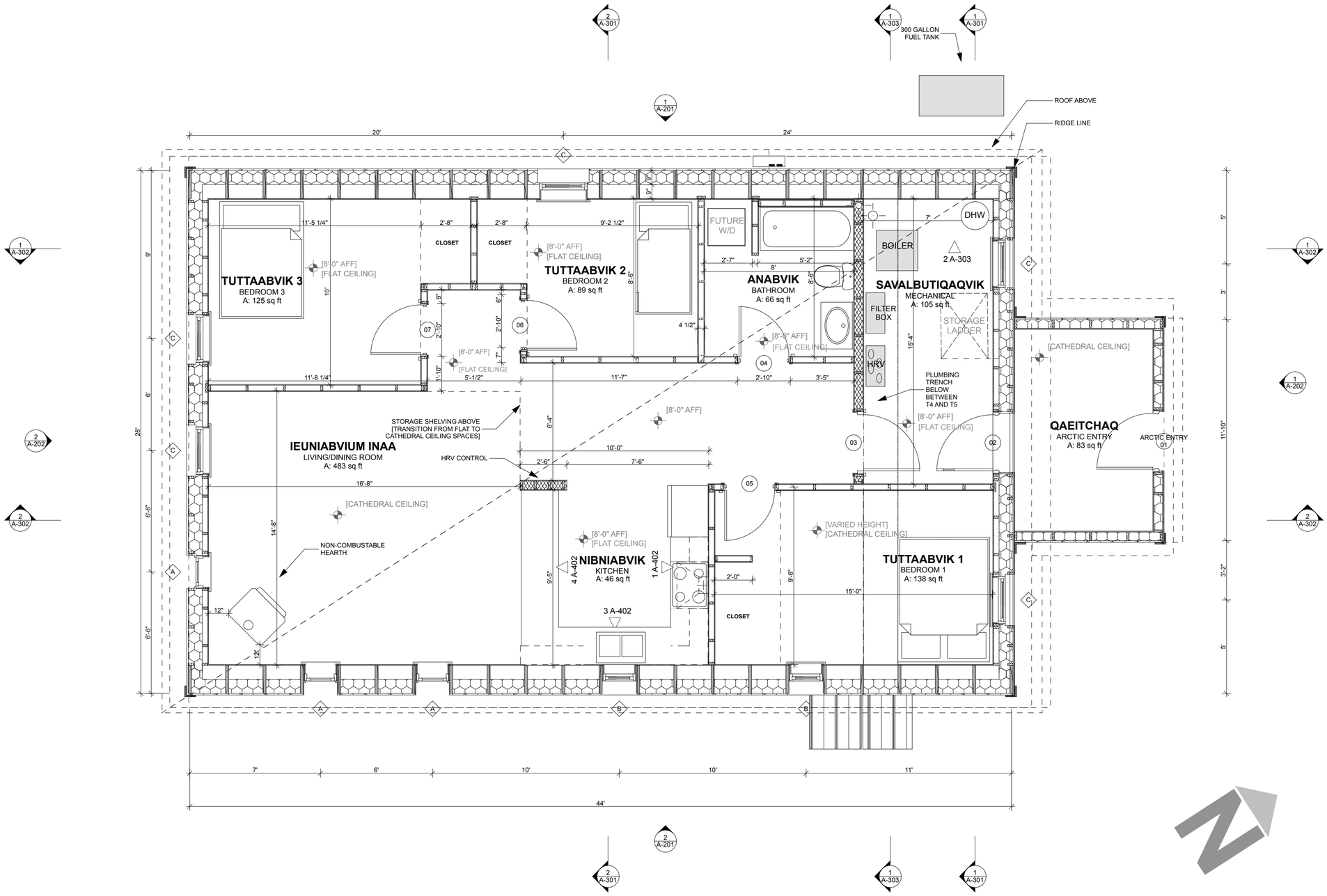

1 FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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FIRST FLOOR PLAN

A-103

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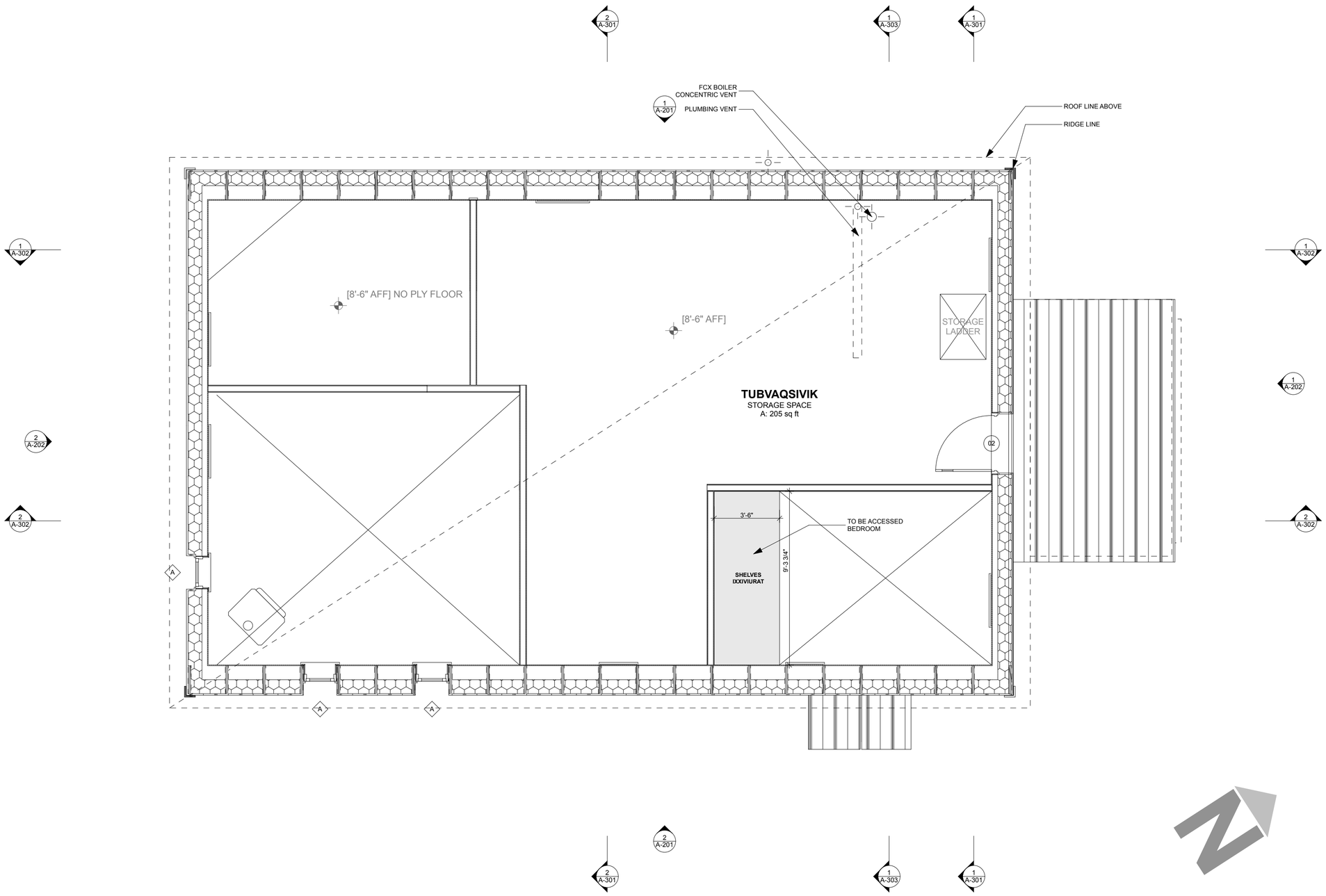

1 STORAGE
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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STORAGE

A-104

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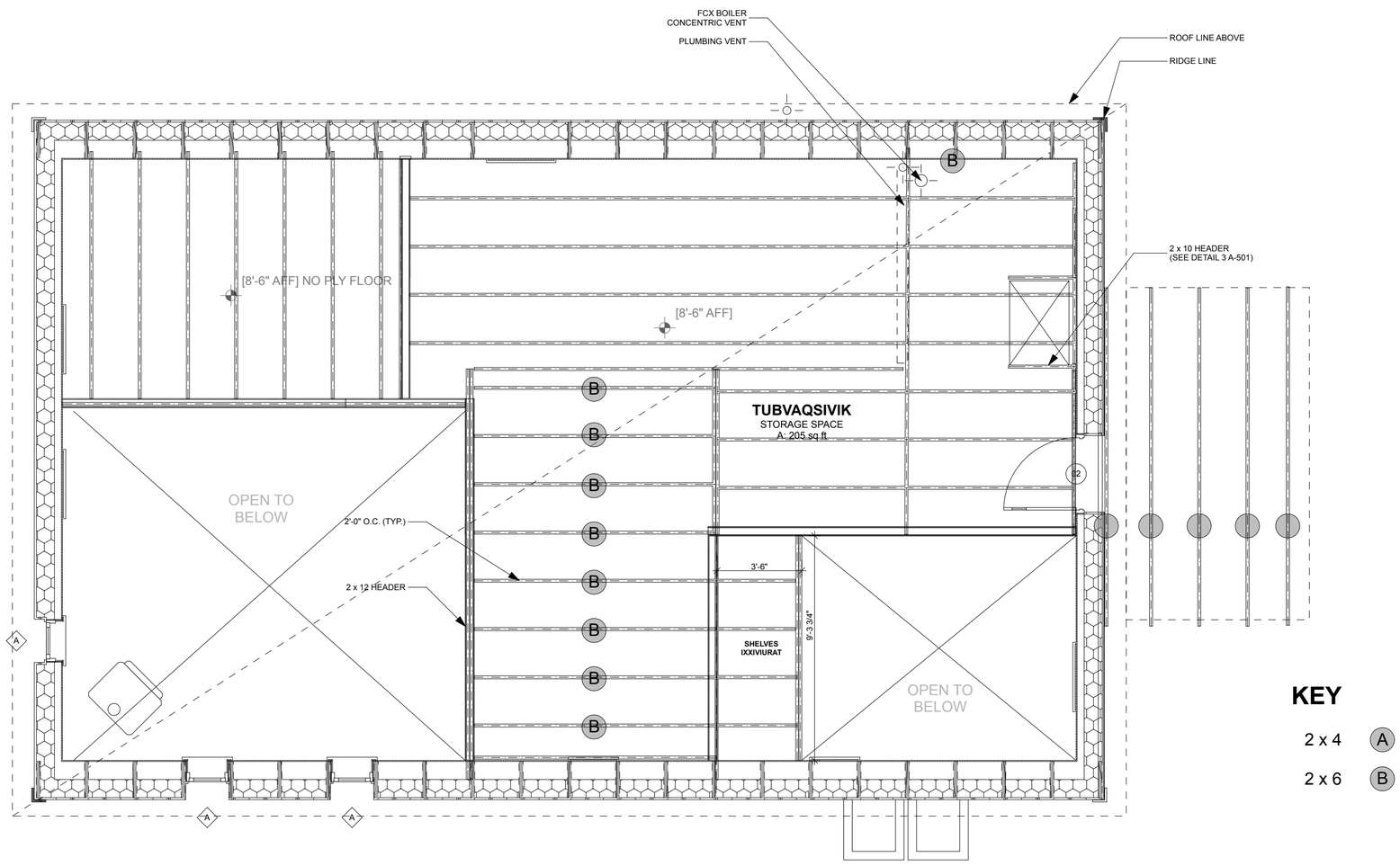

1 STORAGE
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
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STORAGE FRAMING PLAN

A-105

SHEET 8 OF total

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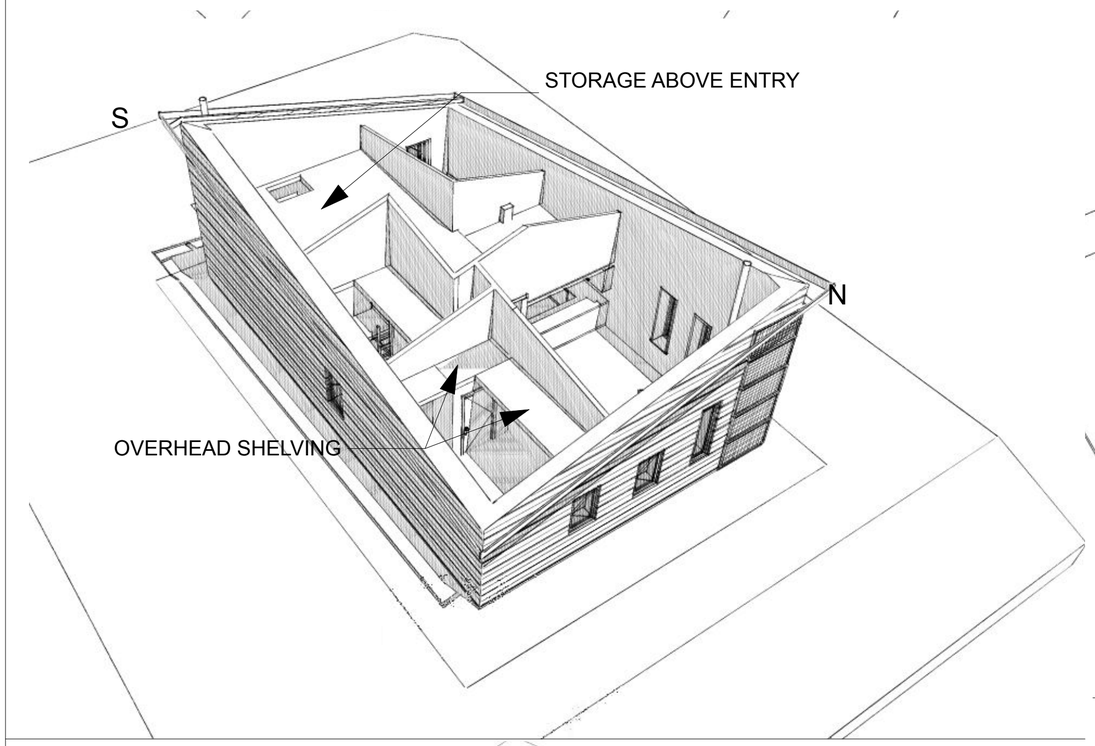
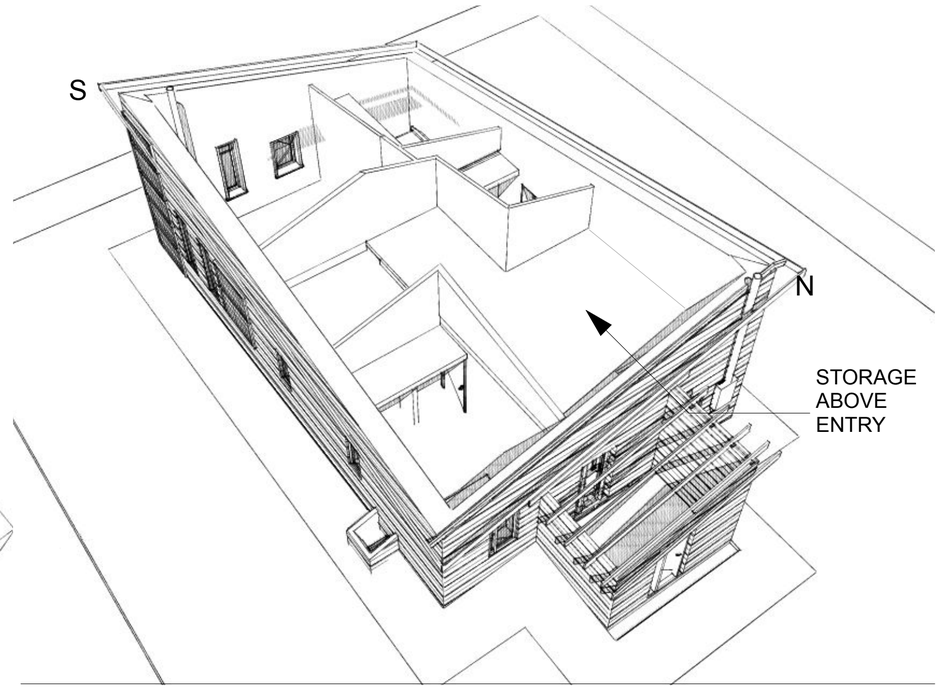
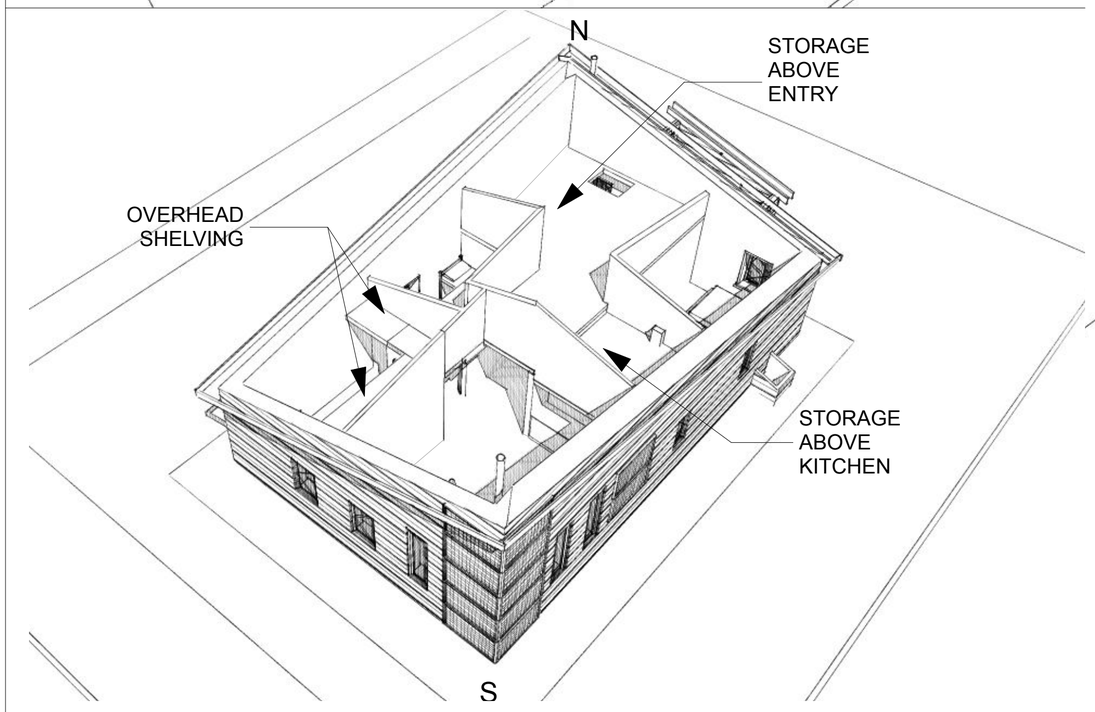
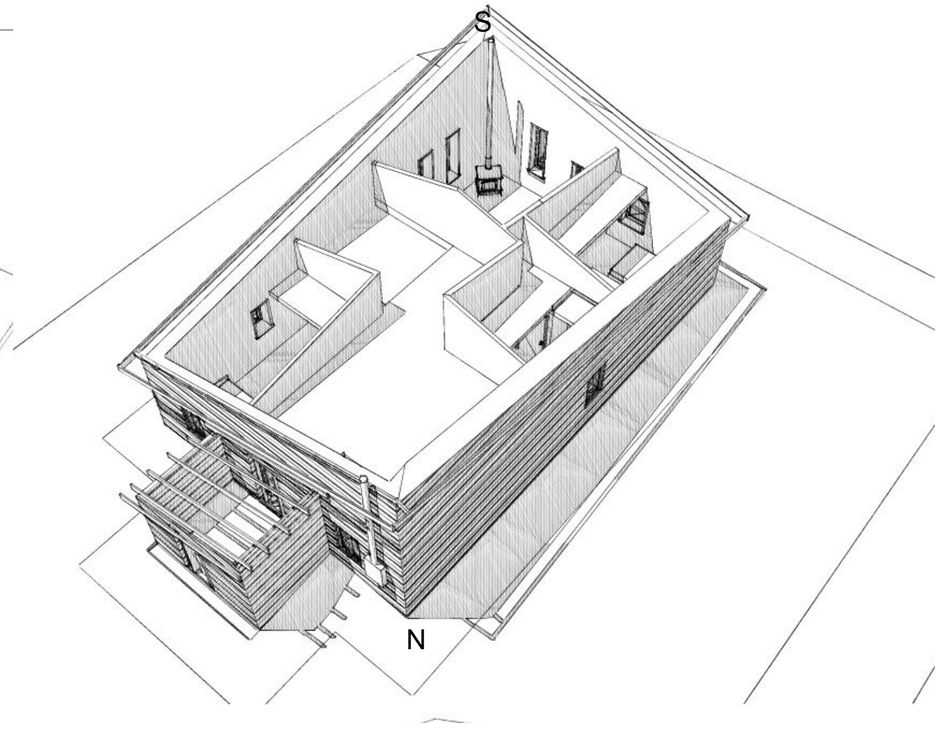
STORAGE LAYOUT HAS BEEN MODIFIED - SEE STORAGE PLAN









1 STORAGE AXON
SCALE: 1:63.33

2 STORAGE AXONS
SCALE: 1:63.81

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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STORAGE AXON

A-106

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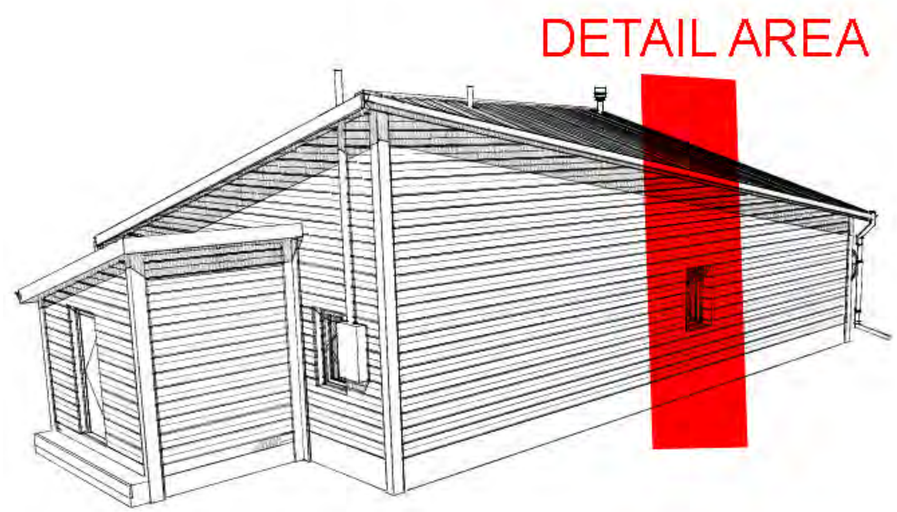
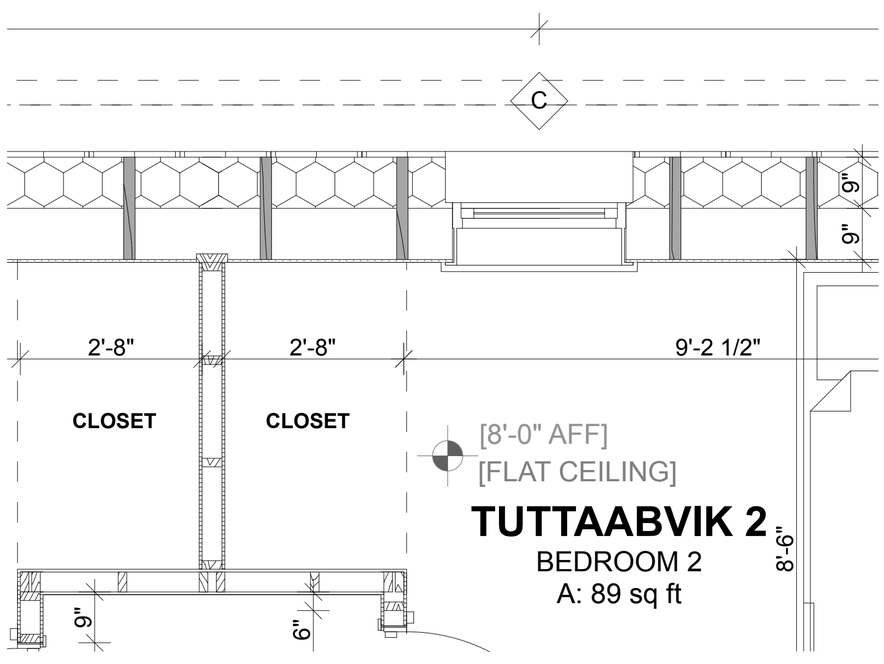


2 TRUSS HEADER DETAIL AREA

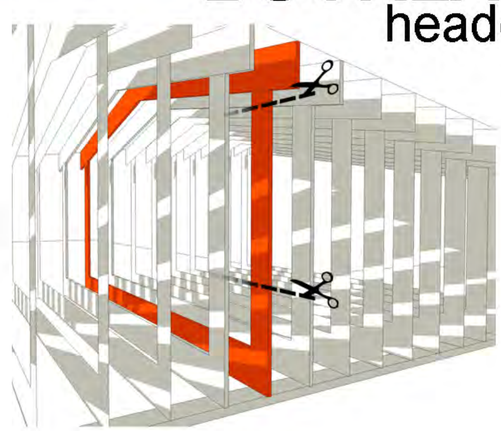
NOT TO SCALE



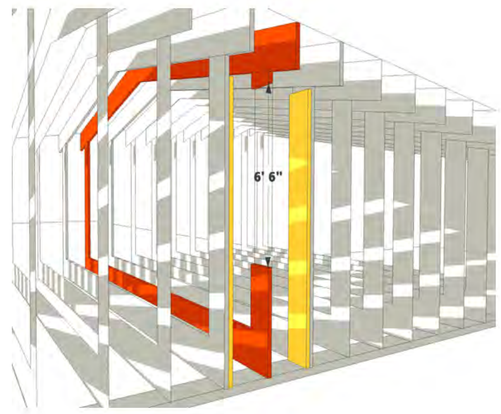
3 FIRST FLOOR PLAN

NOT TO SCALE

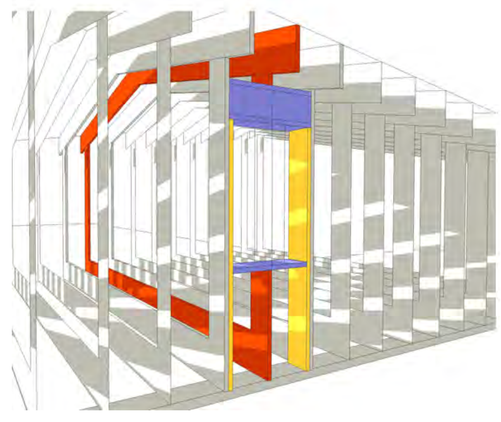
BUCKLAND TRUSS
header detail



- install full truss
- sheathe roof and walls
- trim truss in place (w/ temp bracing on top and bottom)



- attach **King-studs** to adj. trusses



- install **box beam** for headerto pick up loads form trimmed truss
- simple sill placed on top of lower trimmed truss

1 TRUSS HEADER DETAIL

NOT TO SCALE

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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TRUSS HEADER DETAIL

A-107

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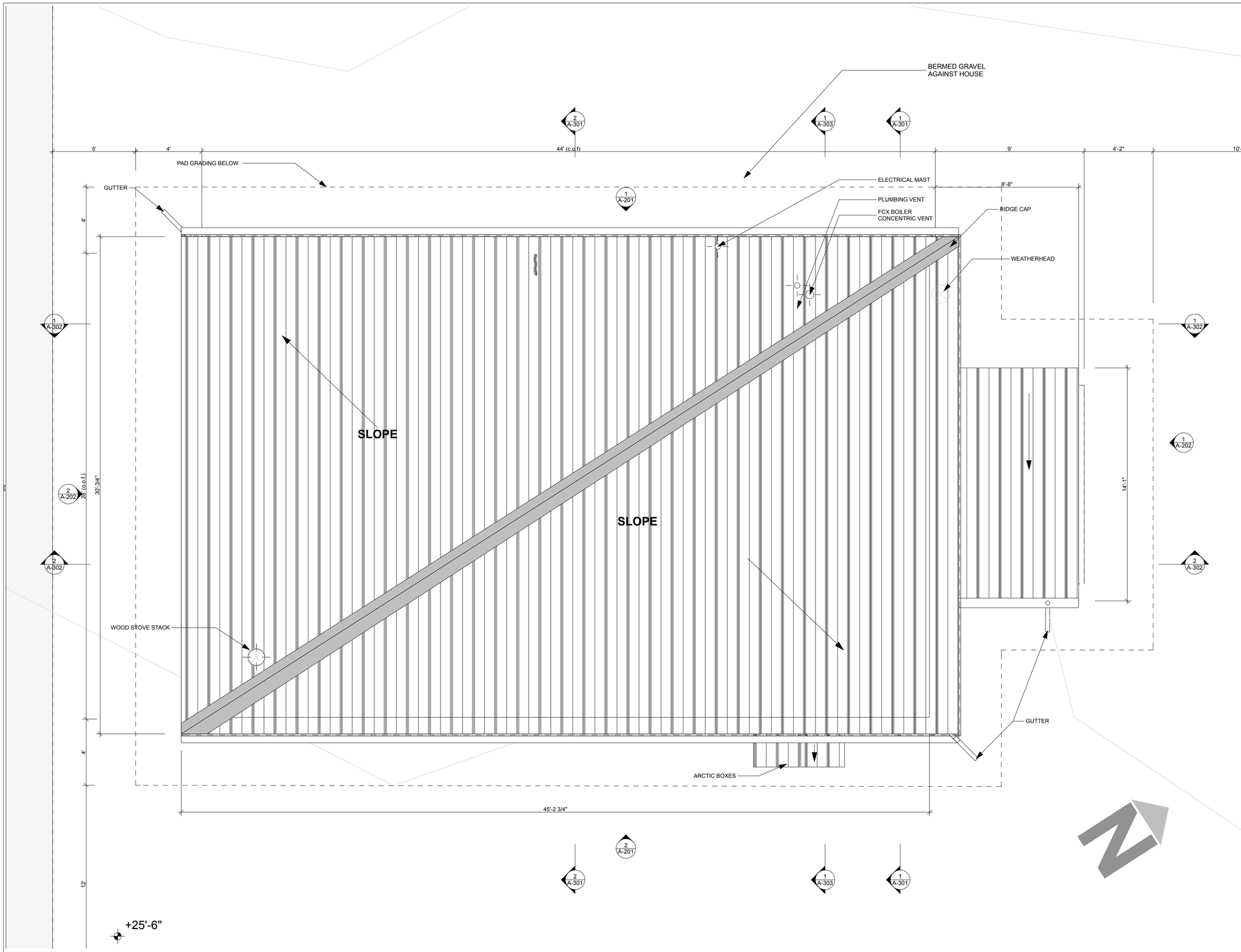

1 ROOF PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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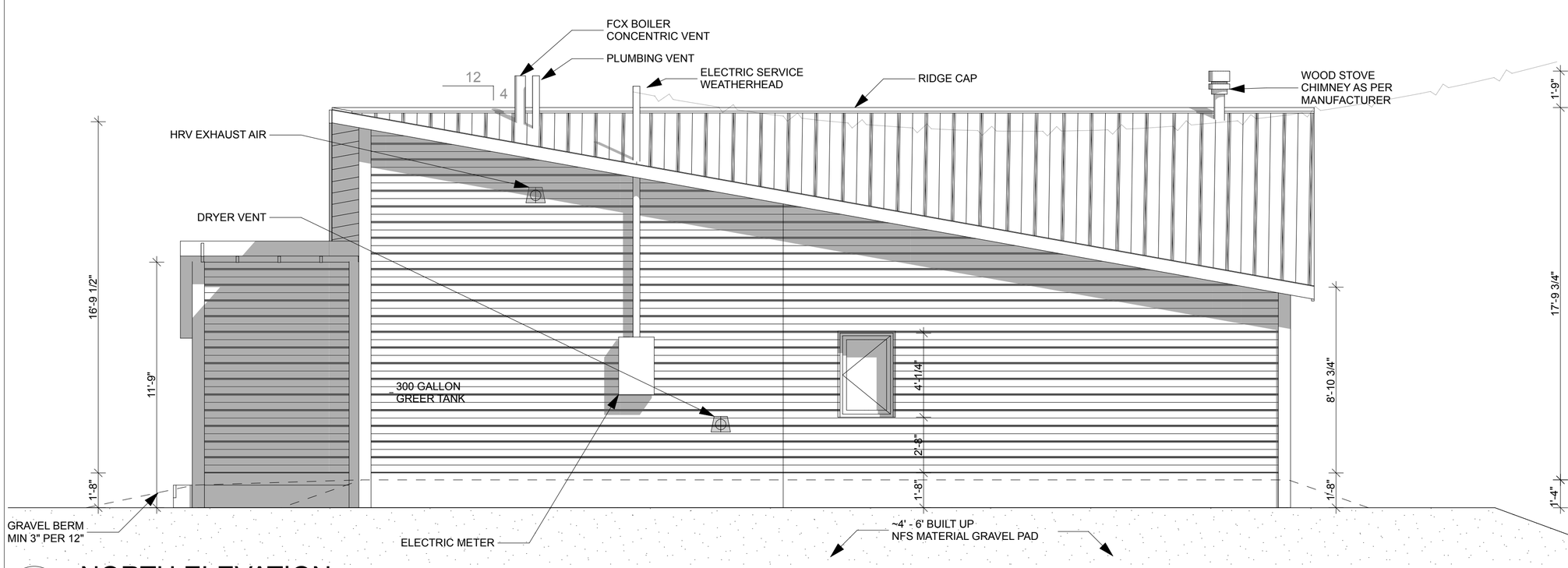
ROOF

A-108

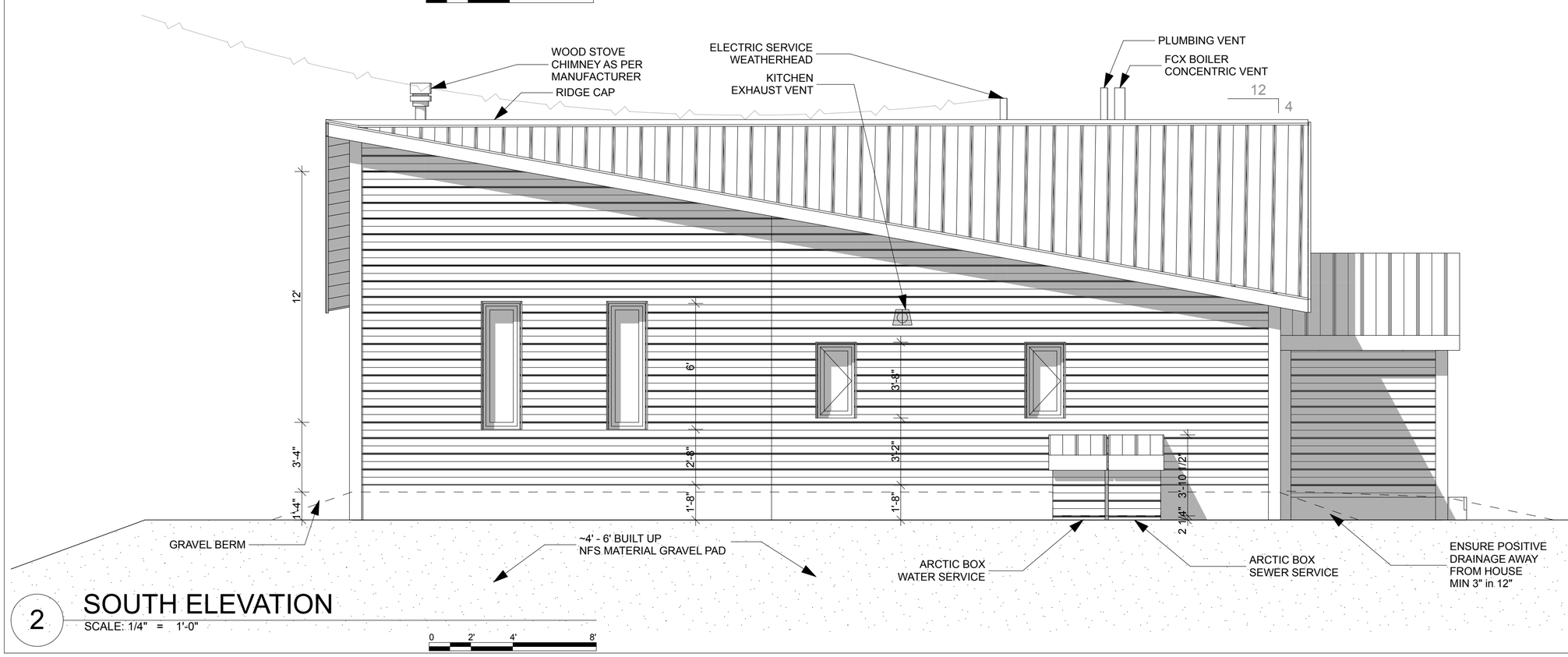
SHEET 11 OF total

NOT FOR CONSTRUCTION



1 NORTH ELEVATION
SCALE: 1/4" = 1'-0"

0 2' 4' 8'



2 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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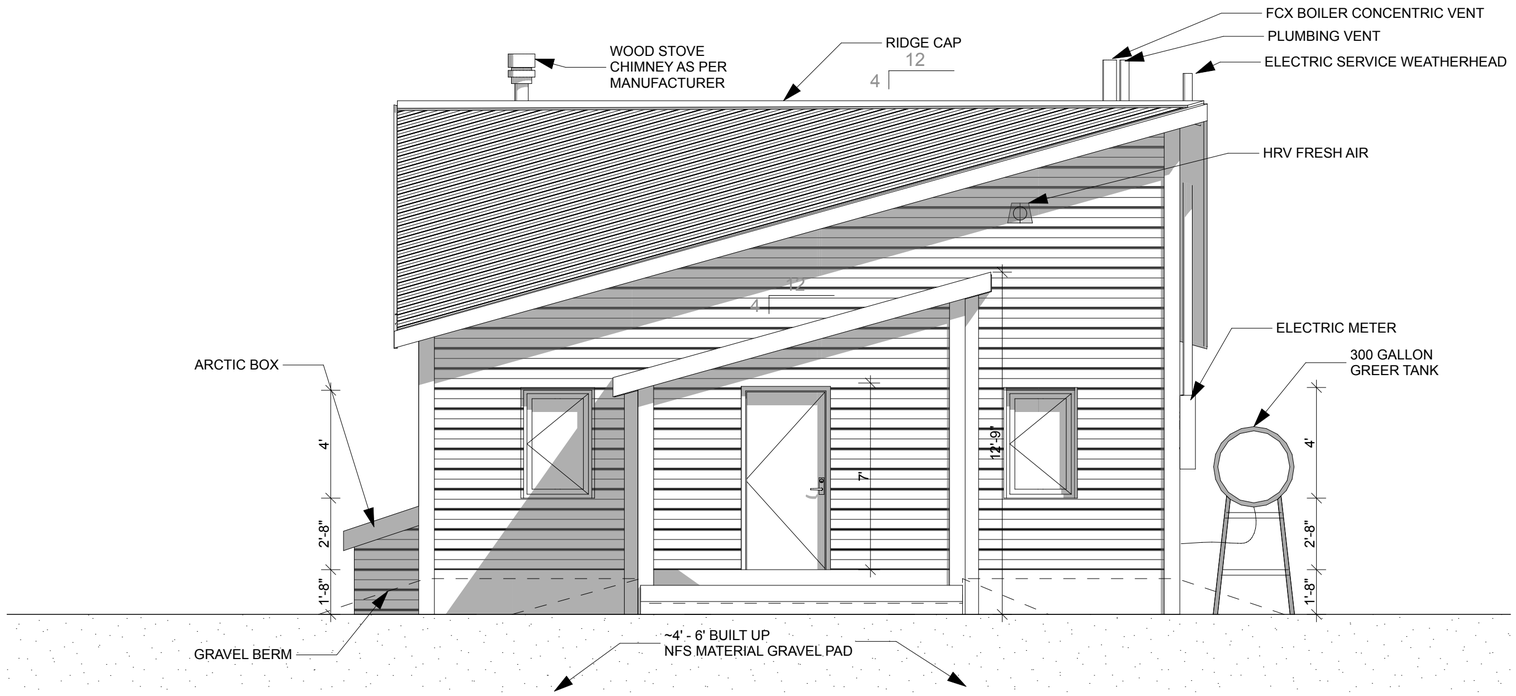
NORTH & SOUTH ELEVATIONS

A-201

SHEET 12 OF total

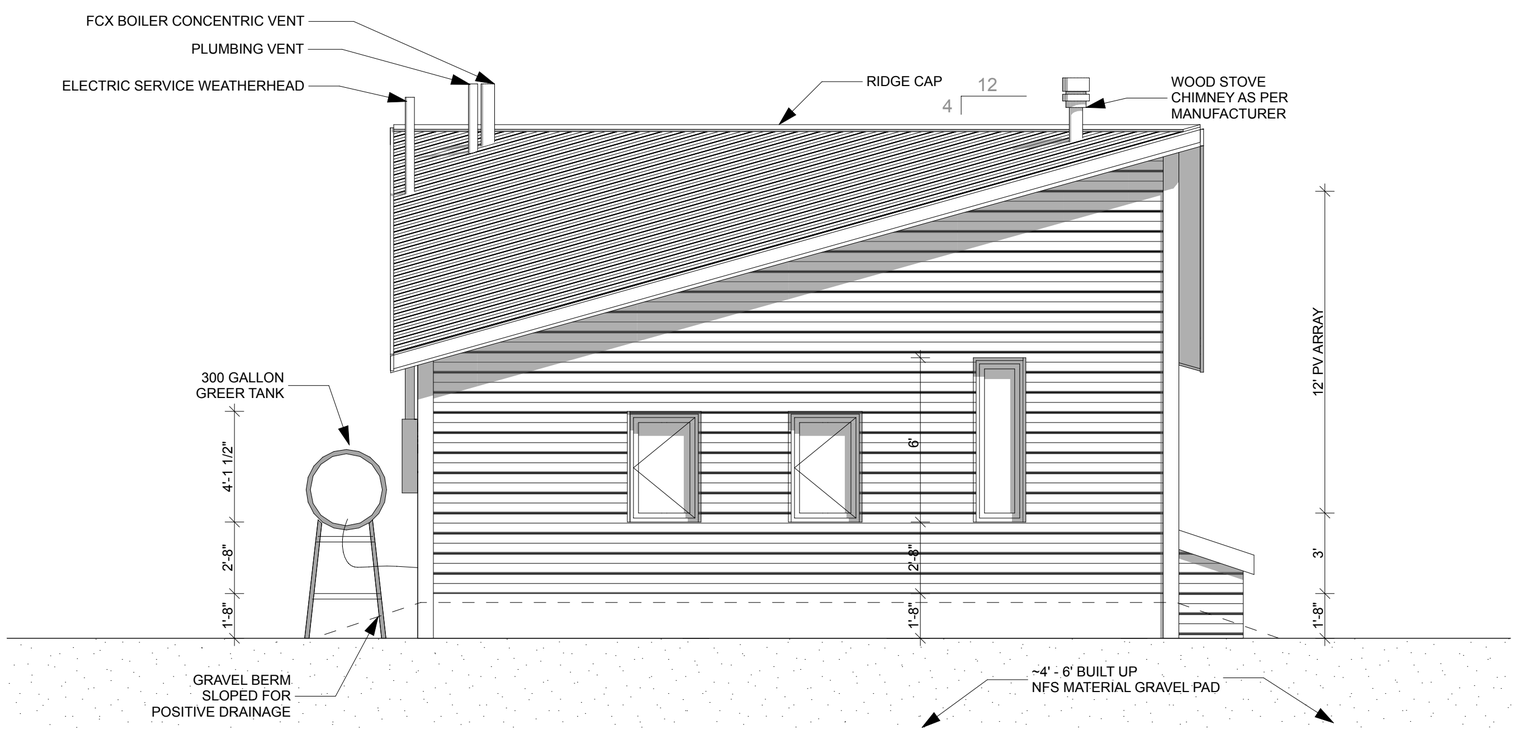
NOT FOR CONSTRUCTION



1 EAST ELEVATION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'



2 WEST ELEVATION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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EAST & WEST ELEVATIONS

A-202

SHEET 13 OF total

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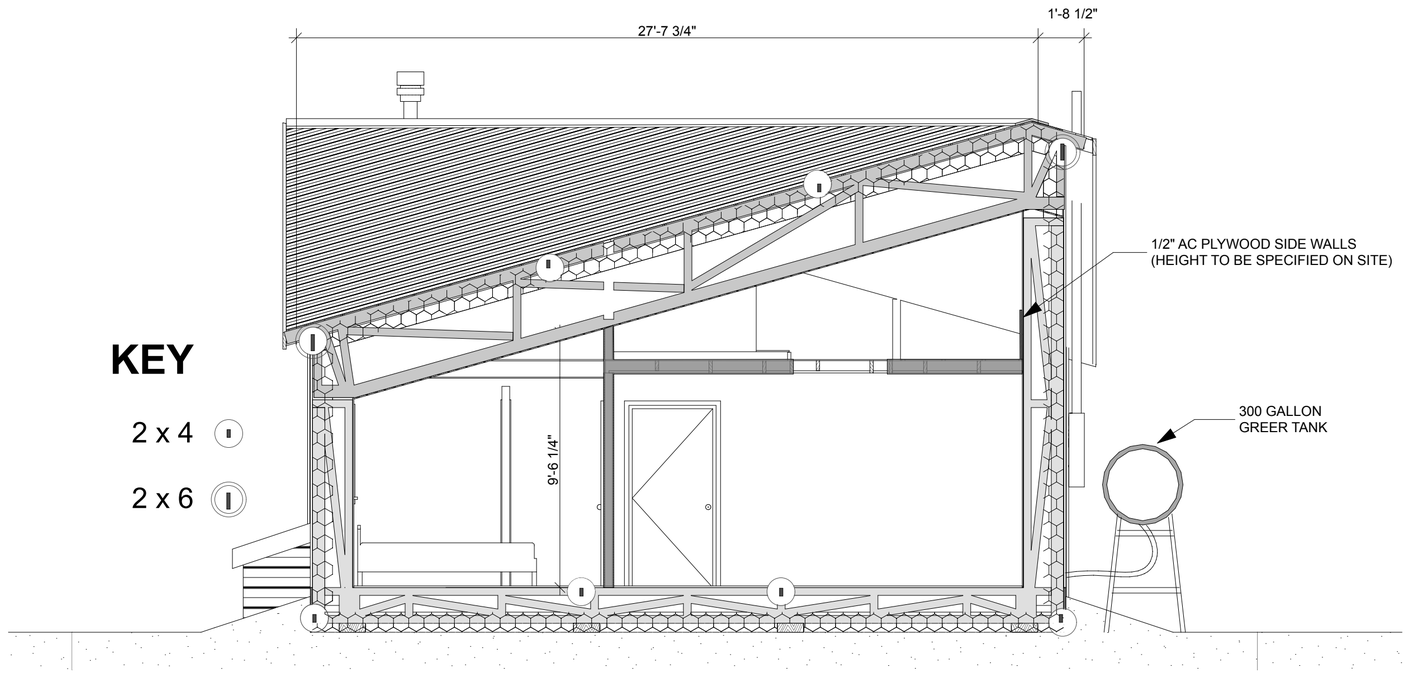
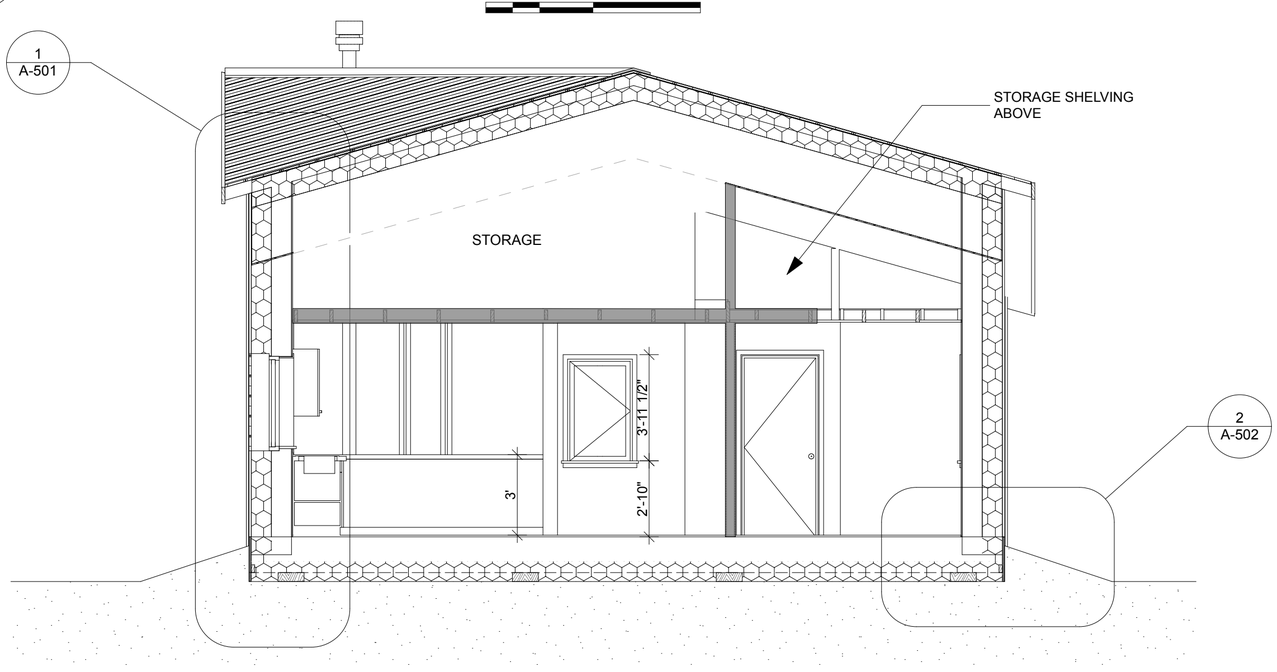


1 TRUSS SECTION

SCALE: 1/4" = 1'-0"



2 N-S KITCHEN SECTION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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P.O. BOX 82489
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PROJECT
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N-S SECTION
MECH

A-301

SHEET 14 OF total

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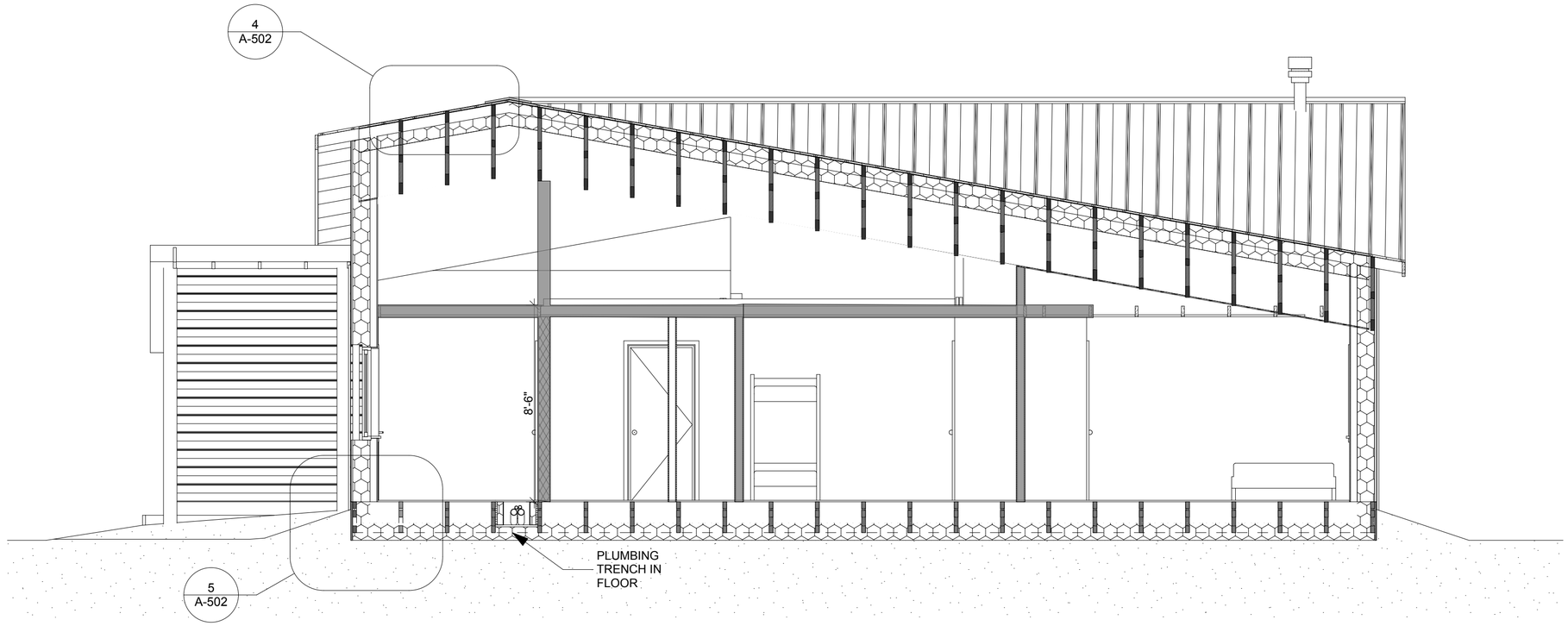
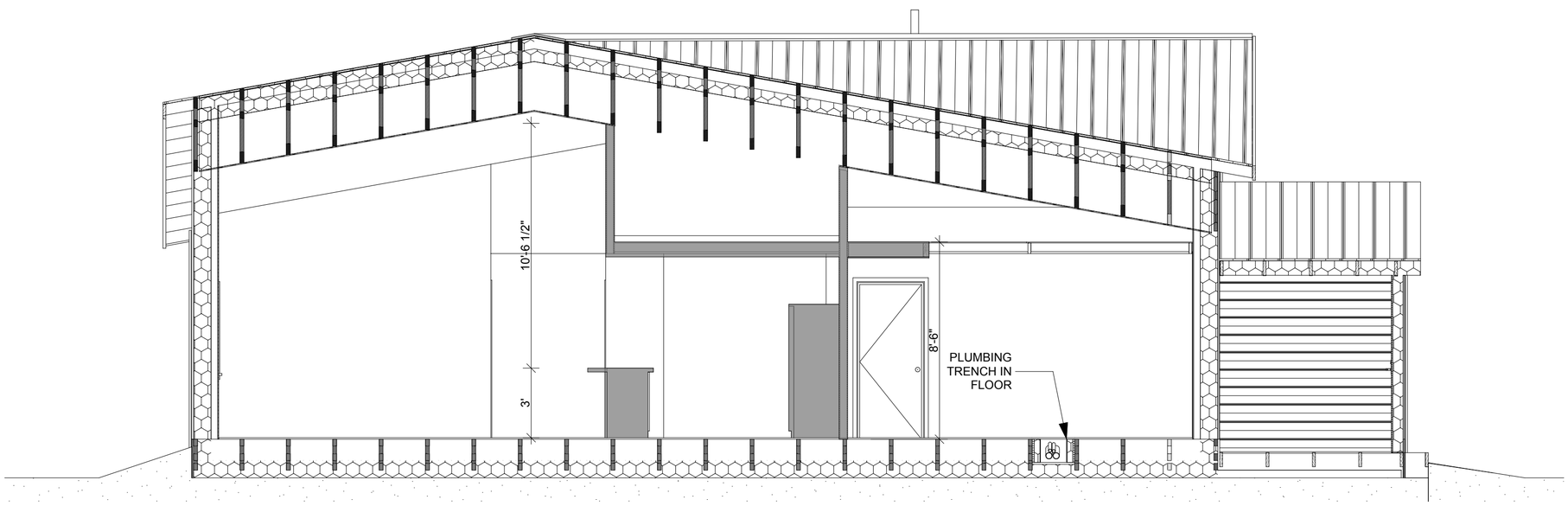


1 E-W NORTH SECTION
SCALE: 1/4" = 1'-0"

0 2' 4' 8'



2 E-W SOUTH SECTION
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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E-W SECTIONS

A-302

SHEET 15 OF total

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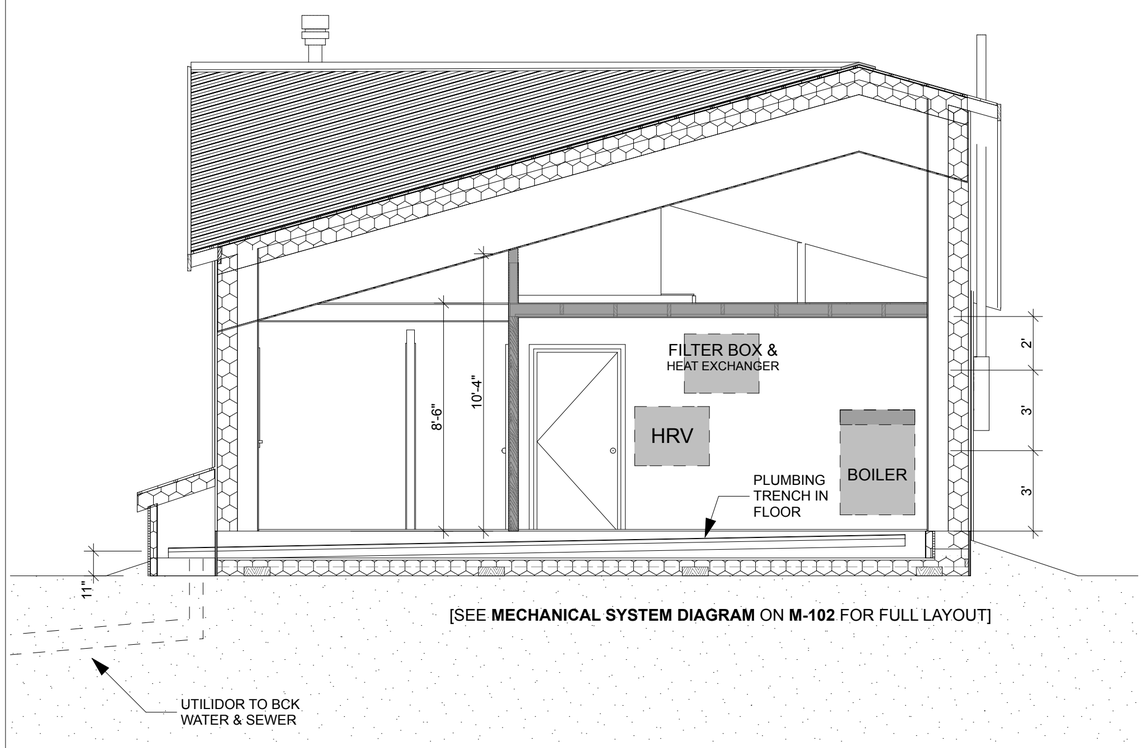
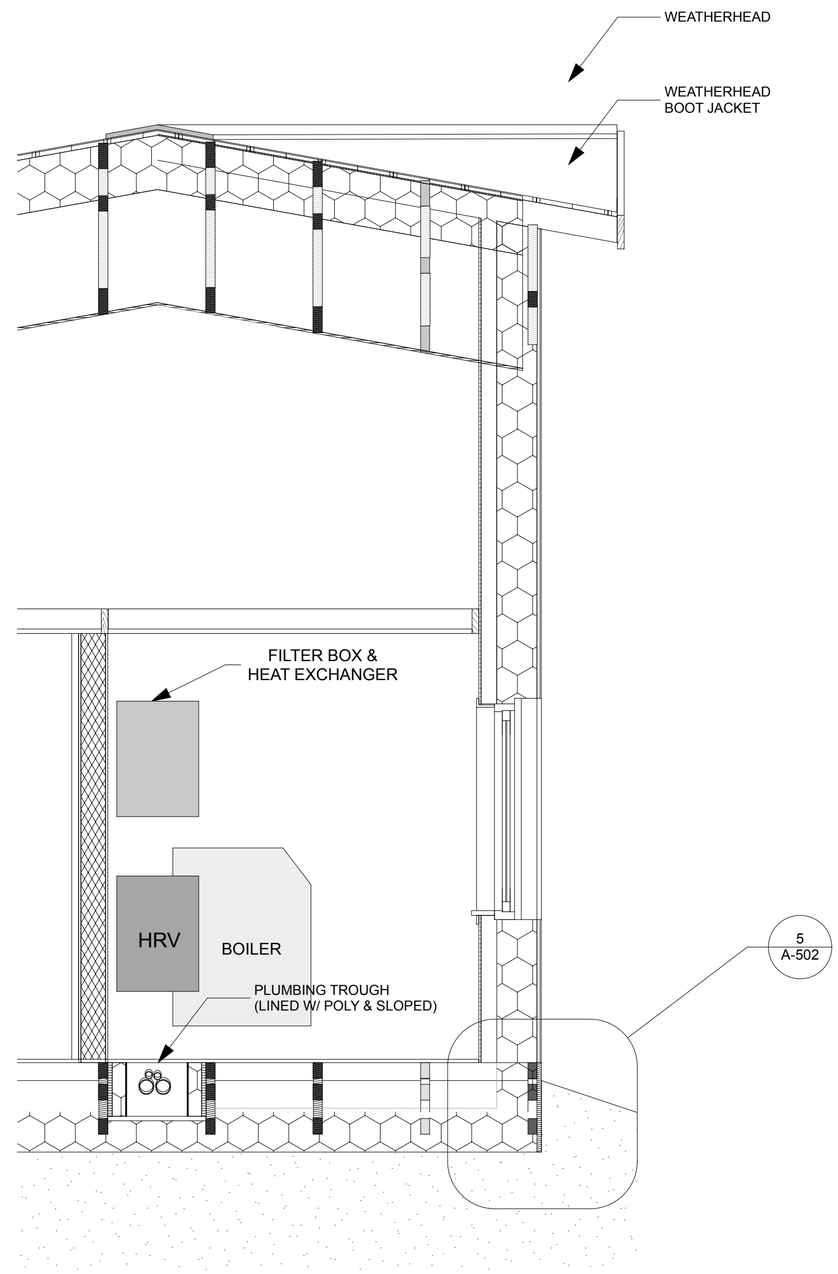


1 PLUMBING TRENCH SECTION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'



2 MECH N ELEVATION

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

0 1' 2' 4'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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MECHANICAL

A-303

SHEET 16 OF total

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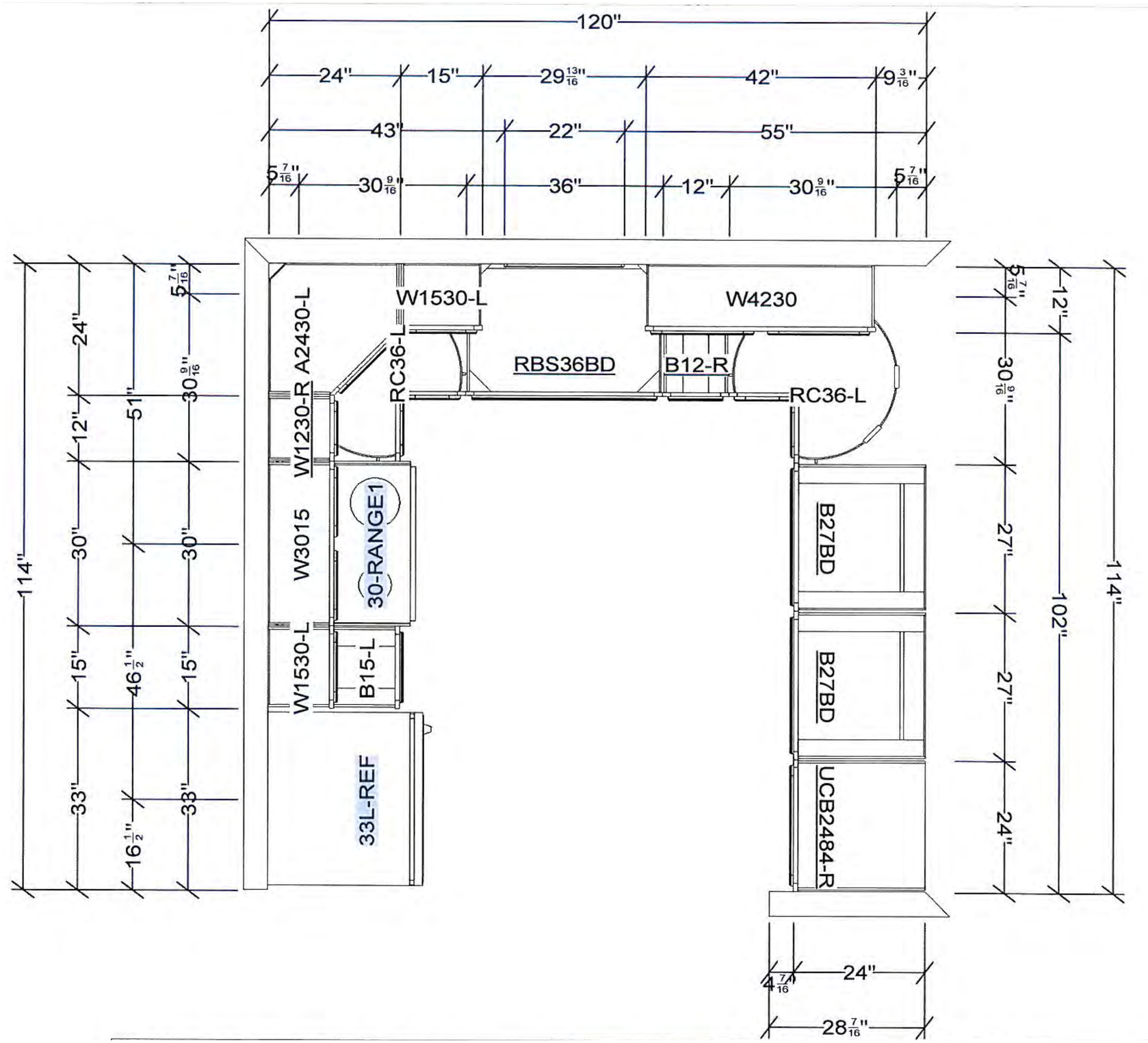

KITCHEN PLAN

NOT TO SCALE

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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KITCHEN PLAN

A-401

SHEET 17 OF total

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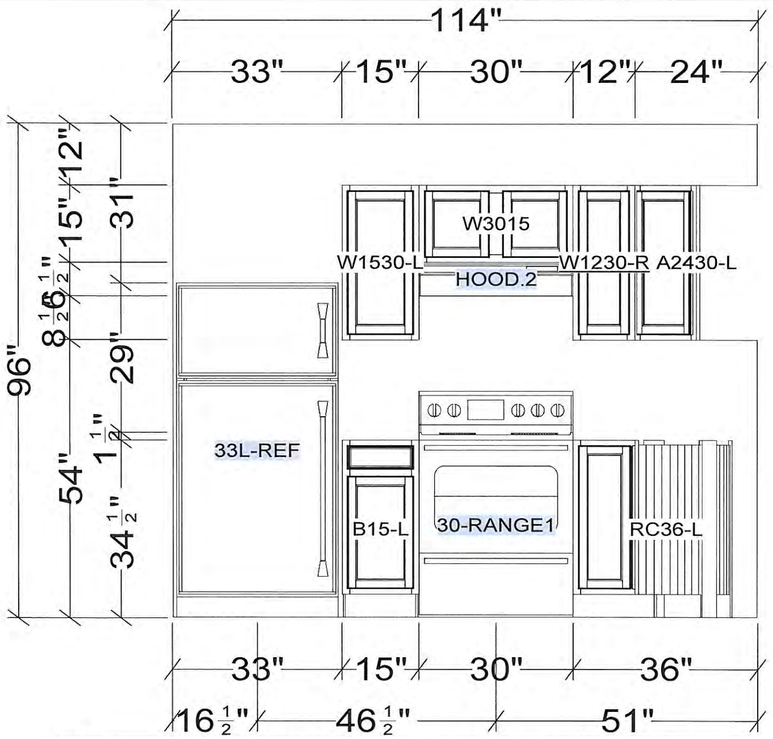
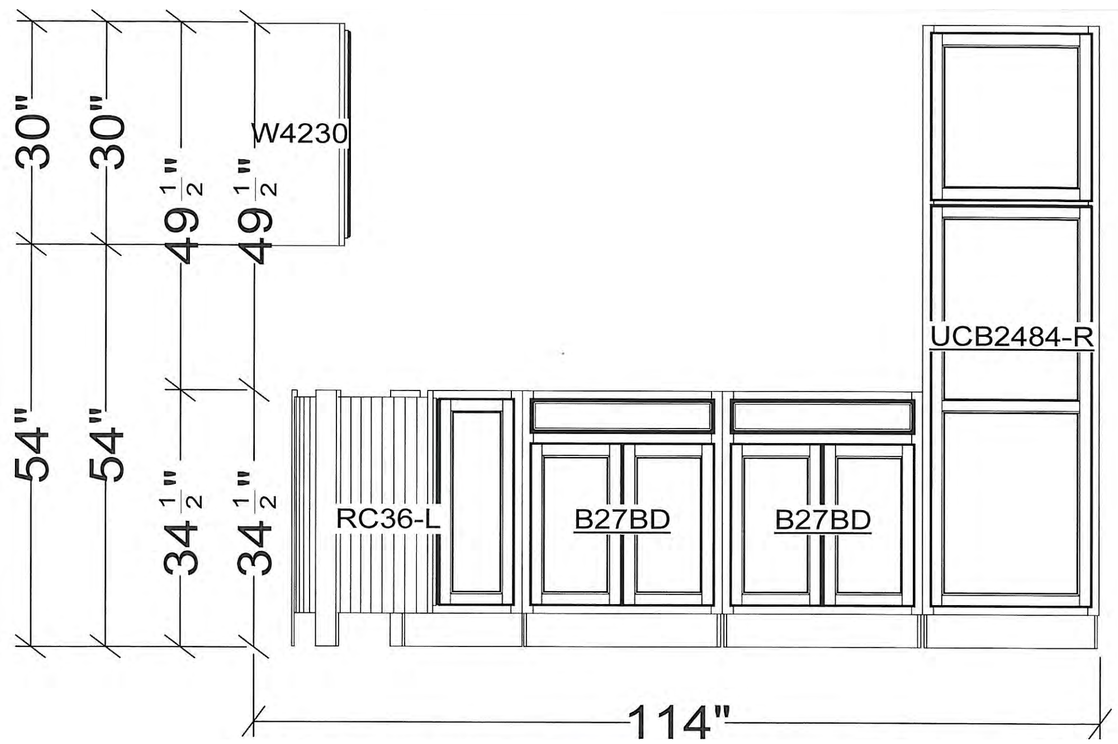


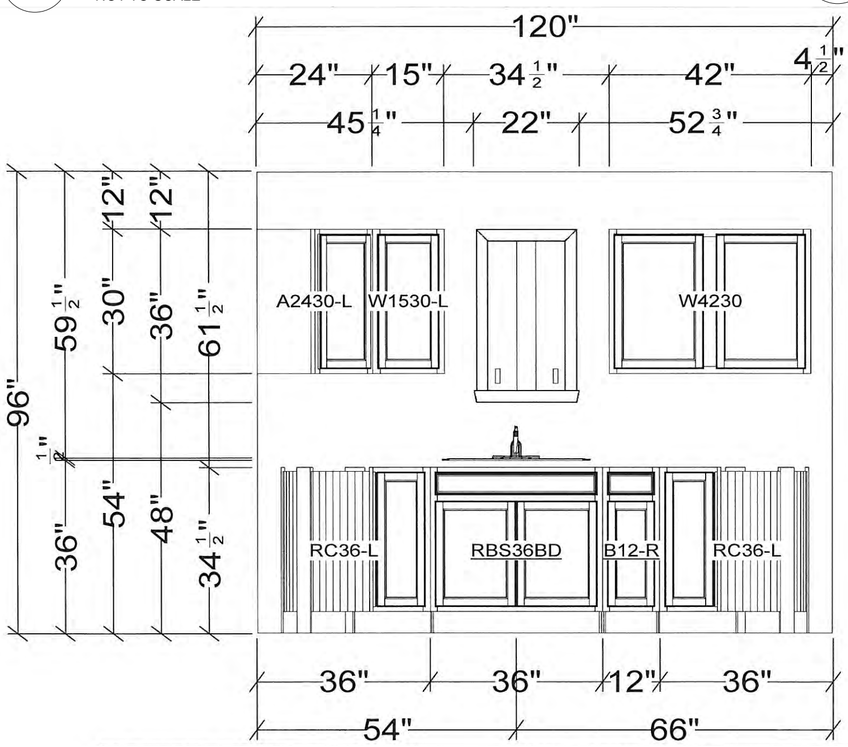
1 KITCHEN EAST ELEVATION

NOT TO SCALE



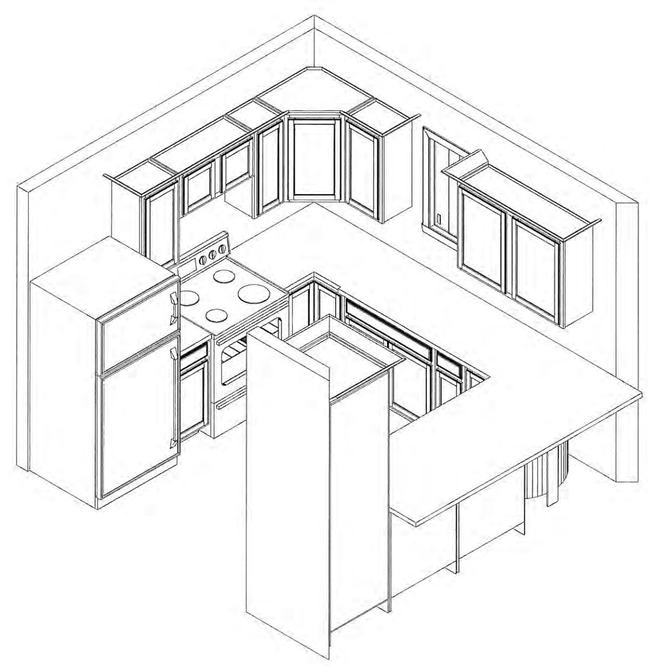
4 KITCHEN WEST ELEVATION

NOT TO SCALE



3 KITCHEN SOUTH ELEVATION

NOT TO SCALE



2 KITCHEN AXON

NOT TO SCALE

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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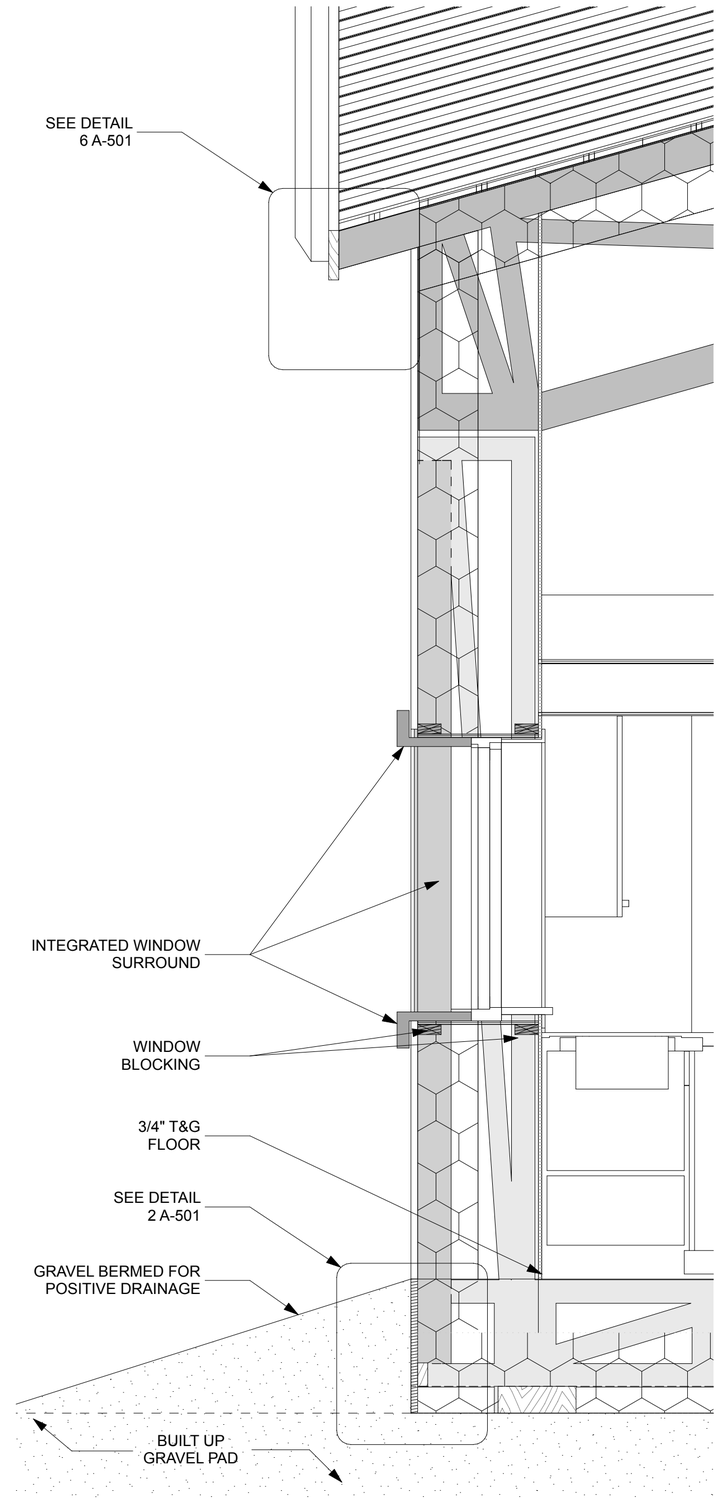
KITCHEN ELEVATIONS

A-402

SHEET 18 OF total

NOT FOR CONSTRUCTION



1 SOUTH WALL DETAIL

SCALE: 3/4" = 1'-0"

0 1' 2' 3'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
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WALL SECTION DETAILS

A-501

SHEET 19 OF total

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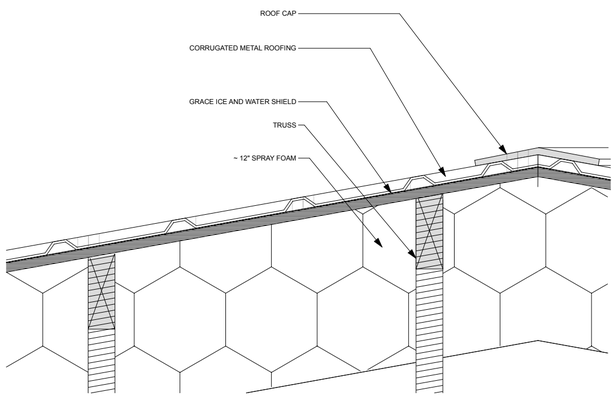
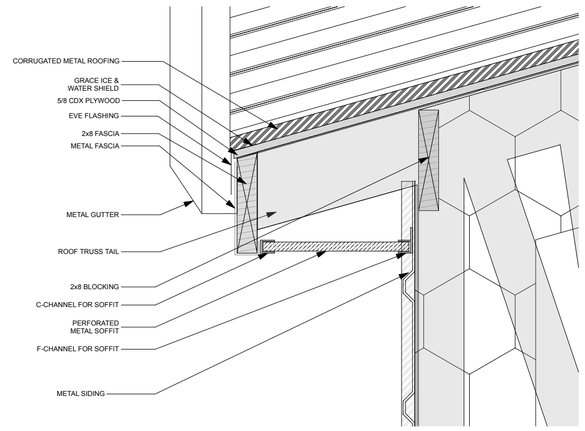
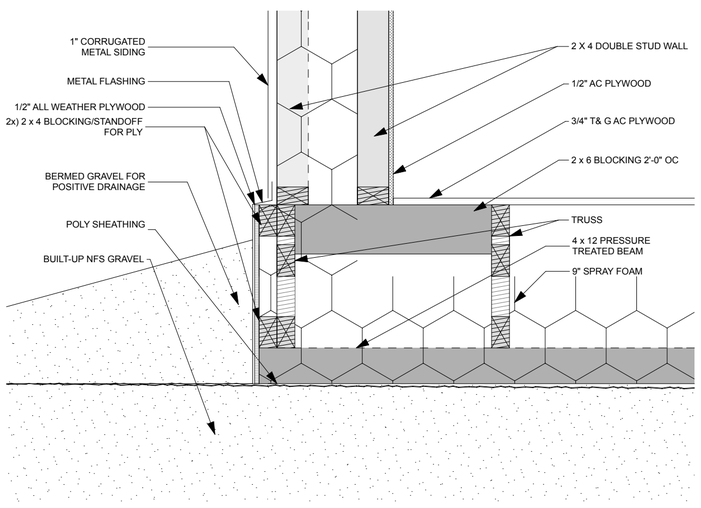


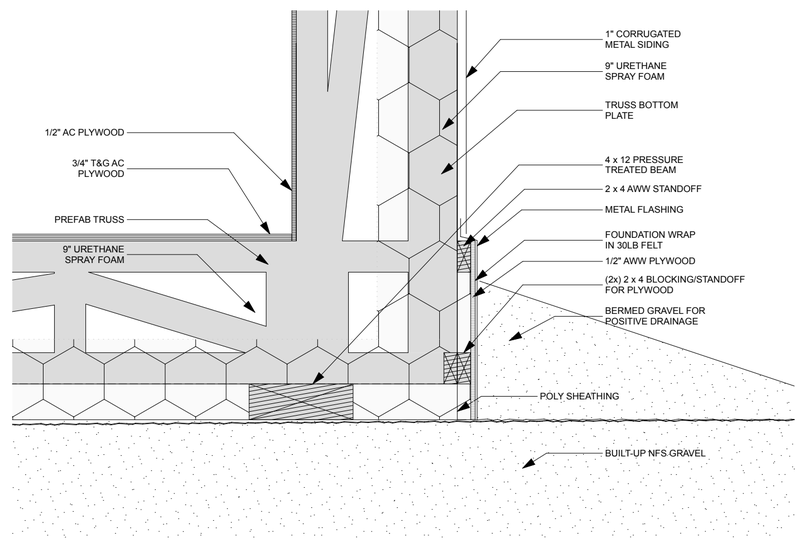
7 ROOF RIDGE DETAIL
SCALE: 1 1/2"= 1'-0"
0 6" 12" 18"



6 EAVE SOFFIT DETAIL
SCALE: 1 1/2"= 1'-0"
0 6" 12" 18"



5 GABLE END WALL DETAIL
SCALE: 1" = 1'-0"
0 6" 1' 2'



2 FOUNDATION DETAIL
SCALE: 1" = 1'-0"
0 6" 1' 2'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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WALL DETAILS

A-502

SHEET 20 OF total

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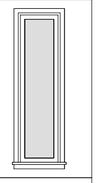
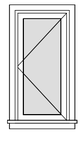
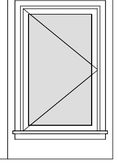
BUCKLAND DOOR SCHEDULE

ID	Description	Door Width	Door Height	Hinge	3D Back View	Location	Rough Opening
01		3'	6'-8"				3'-4"x6'-10"
02		3'	6'-8"				3'-4"x6'-10"
03		3'	6'-8"				3'-4 1/2"x6'-10 1/4"
04		2'-8"	6'-8"				2'-10"x6'-9"
05		2'-8"	6'-8"				2'-10"x6'-9"
06		2'-8"	6'-8"				2'-10"x6'-9"
07		2'-8"	6'-8"				2'-10"x6'-9"

1 DOOR SCHEDULE

BUCKLAND WINDOW SCHEDULE

MARK	UNIT SIZE		TYPE	MATERIAL	NOTES	Quantity	3D Back Vi…
	WIDTH	HEIGHT					
A	1'-8 1/2"	6'	PVC FIXED, triple glazed with Argon gas, and double flanged buck extension as per specifications	09 | Paint-02 Whitewash	(2x) on 18.5" wall (1x) on 14" wall	3	
B	1'-8 1/2"	3'-6"	PVC CASEMENT, triple glazed with Argon gas, and double flanged buck extension as per specifications	09 | Paint-02 Whitewash	(2x) on 18.5" wall	2	
C	2'-6"	4'	PVC CASEMENT, triple glazed with Argon gas, and double flanged buck extension as per specifications	09 | Paint-02 Whitewash	(1x) on 18.5" wall (4x) on 14" wall	5	

2 WINDOW SCHEDULE

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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DOOR WINDOWS SCHEDULE

A-601

SHEET 21 OF total

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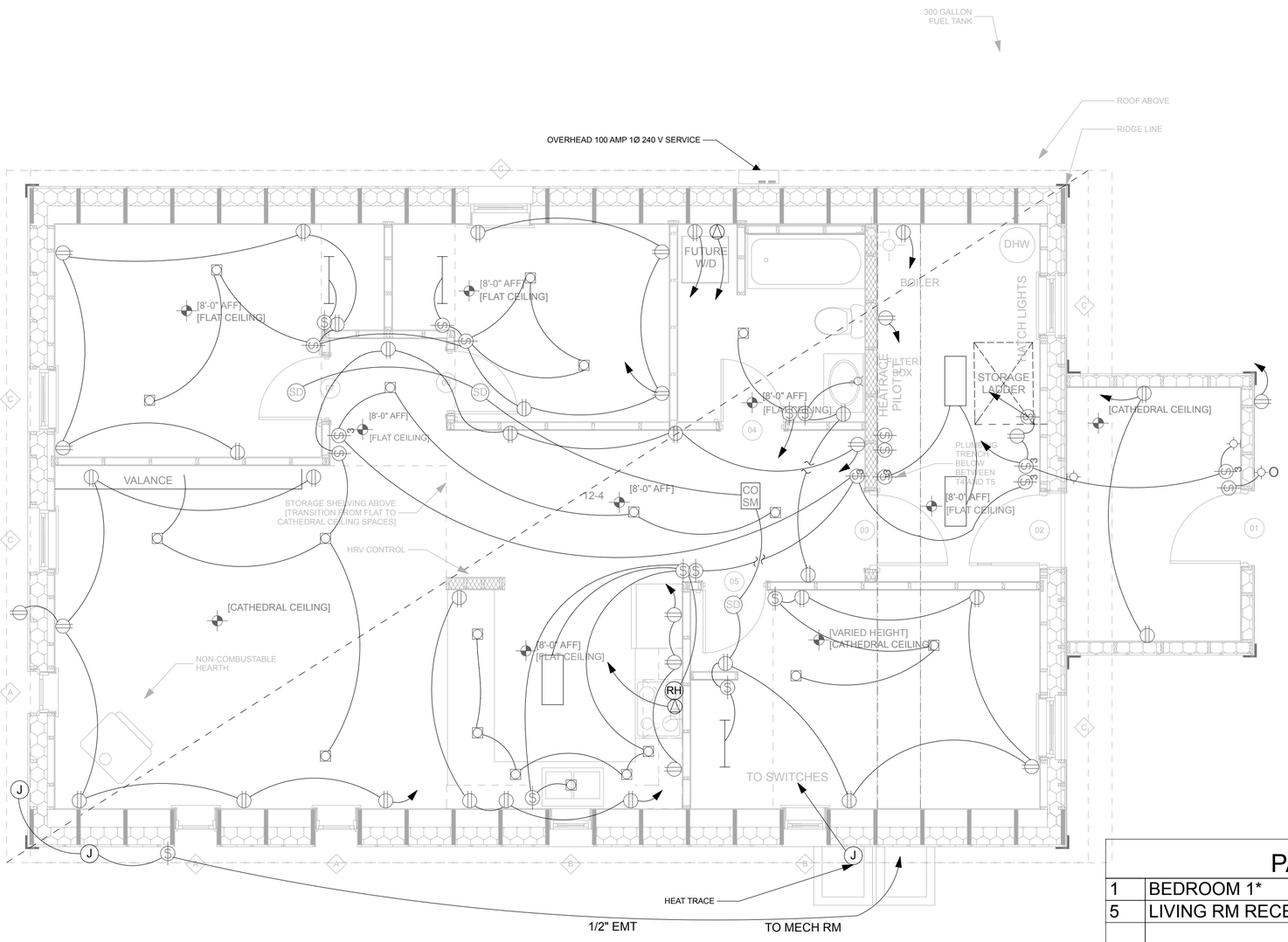

1 1st FLOOR
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

KEY

RECESSED CAN LIGHT	
SWITCH	$
3-WAY SWITCH	$3
JUNCTION BOX	J
50 AMP SERVICE	
EXTERIOR LIGHT	O
SMOKE DETECTOR	SD
CARBON-MONOXIDE SMOKE DETECTOR	CO SM
VANITY FIXTURE	
WALL MOUNTED LIGHT	
DUPLEX PLUG	
UTILITY LIGHT	
LINEAR CLOSET FIXTURE	
RANGE HOOD	RH

PANEL 100A 1Ø 240V			
1	BEDROOM 1*	BATHROOM	2
5	LIVING RM RECEPT*	HBH	6
7	LIV KITCH LIGHTS*	HEAT, HRV	8
9	KITCH, REFRIG RECEPTS	PUMPS	10
11	KITCH RECEPTS	WASHER	12
13	RANGE	DRYER	14
15	RANGE	DRYER	16
17	HEATRACE !		18
19			20
21			22
23			24
25			26
27			28
29			30
*	ARC FAULT BREAKER		
!	EDP BREAKER		
3	BEDROOM 2, 3*	KONICHUK RECEPTS	4

2 ELECTRICAL SCHEDULE
SCALE: 1' = 1'-0"

0 1/2" 1" 2"

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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PROJECT
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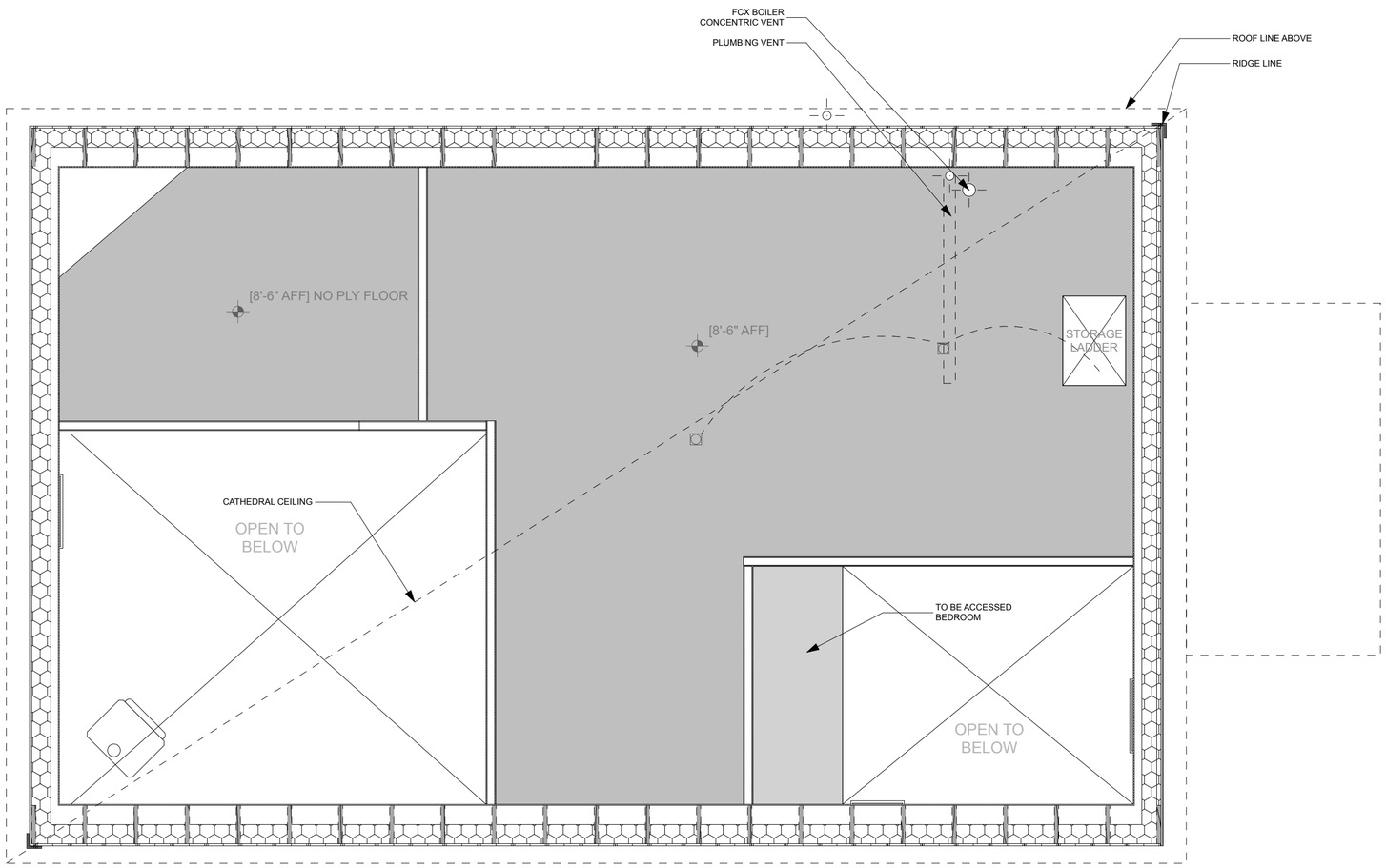
ELEC PLAN

E-101

SHEET 24 OF total

NOT FOR CONSTRUCTION



KEY

RECESSED CAN LIGHT	
SWITCH	$
3-WAY SWITCH	$3
JUNCTION BOX	J
50 AMP SERVICE	
EXTERIOR LIGHT	O
SMOKE DETECTOR	SD
CARBON-MONOXIDE SMOKE DETECTOR	CO SM
VANITY FIXTURE	
WALL MOUNTED LIGHT	
DUPLEX PLUG	
UTILITY LIGHT	
LINEAR CLOSET FIXTURE	
RANGE HOOD	RH

1 STORAGE
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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ELEC STORAGE PLAN

E-102

SHEET 25 OF total

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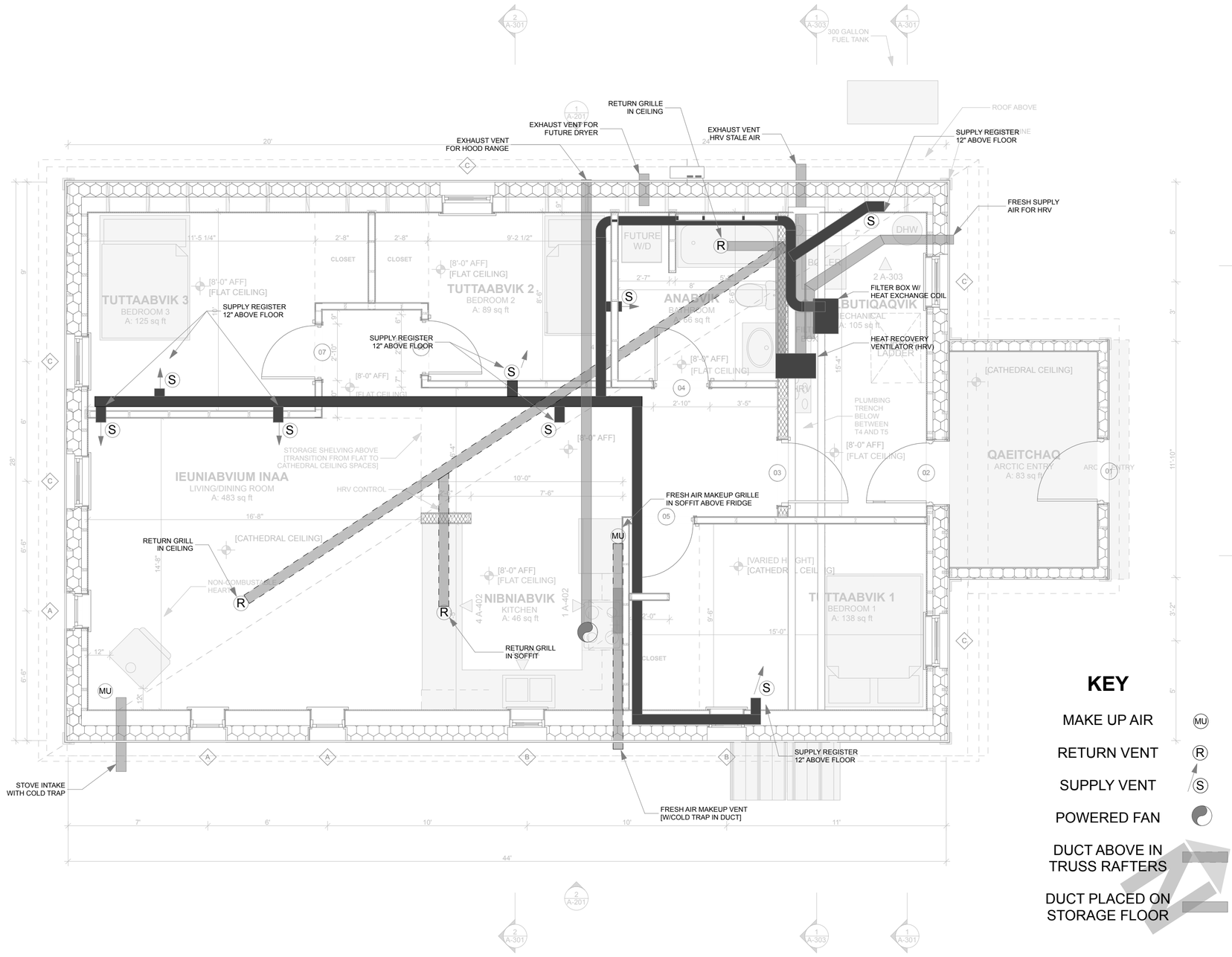

KEY

- MAKE UP AIR (MU)
- RETURN VENT (R)
- SUPPLY VENT (S)
- POWERED FAN
- DUCT ABOVE IN TRUSS RAFTERS
- DUCT PLACED ON STORAGE FLOOR

1 MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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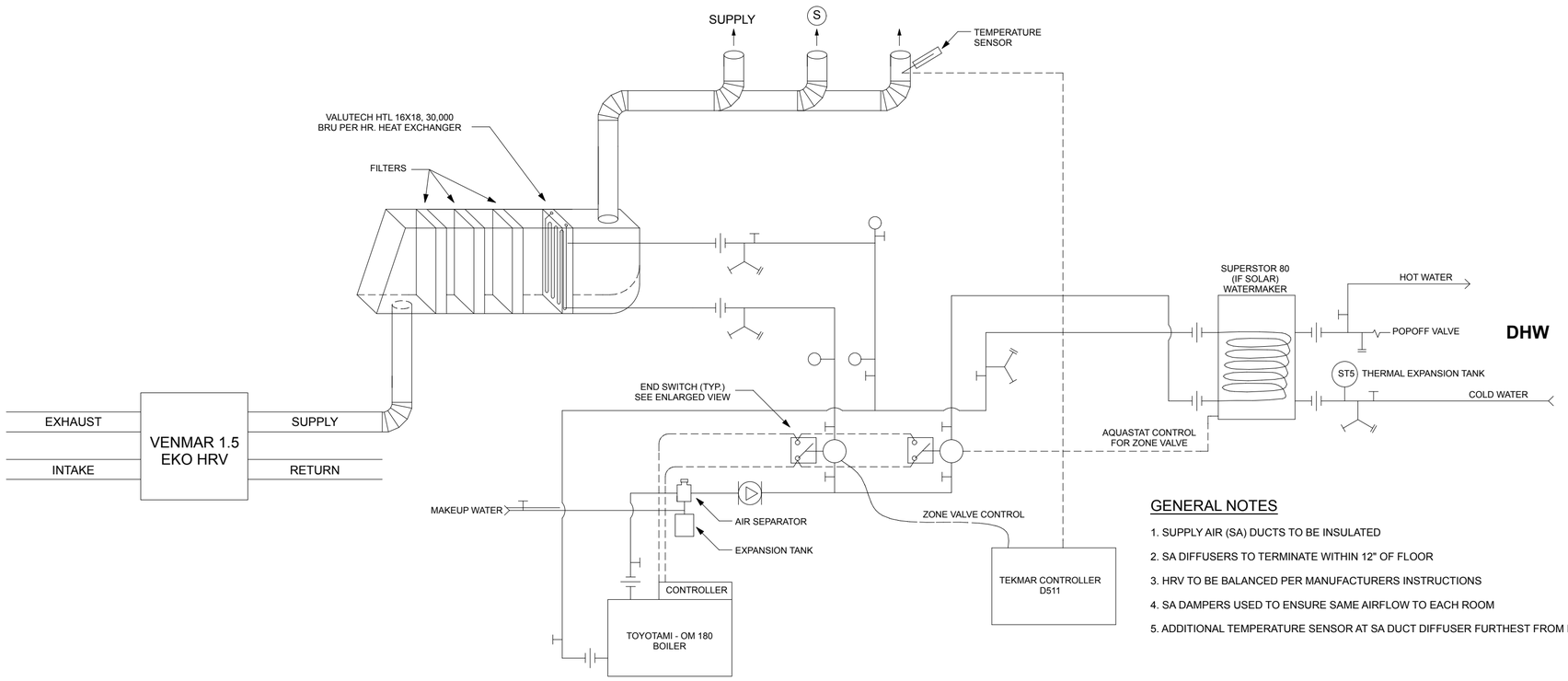
MECH PLAN

M-101

SHEET 22 OF total

NOT FOR CONSTRUCTION

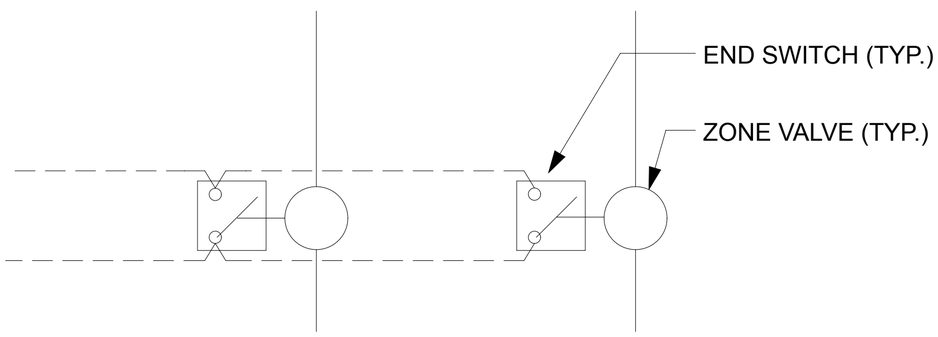


GENERAL NOTES

1. SUPPLY AIR (SA) DUCTS TO BE INSULATED
2. SA DIFFUSERS TO TERMINATE WITHIN 12" OF FLOOR
3. HRV TO BE BALANCED PER MANUFACTURERS INSTRUCTIONS
4. SA DAMPERS USED TO ENSURE SAME AIRFLOW TO EACH ROOM
5. ADDITIONAL TEMPERATURE SENSOR AT SA DUCT DIFFUSER FURTHEST FROM HRV

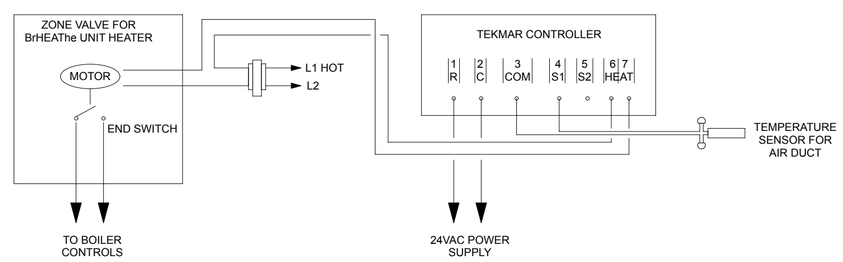
1 MECHANICAL SCHEMATIC

NOT TO SCALE



2 ENLARGED VIEW OF ZONE VALVES & END SWITCHES

NOT TO SCALE



3 DETAILED SCHEMATIC OF CONTROLLER WIRING

NOT TO SCALE

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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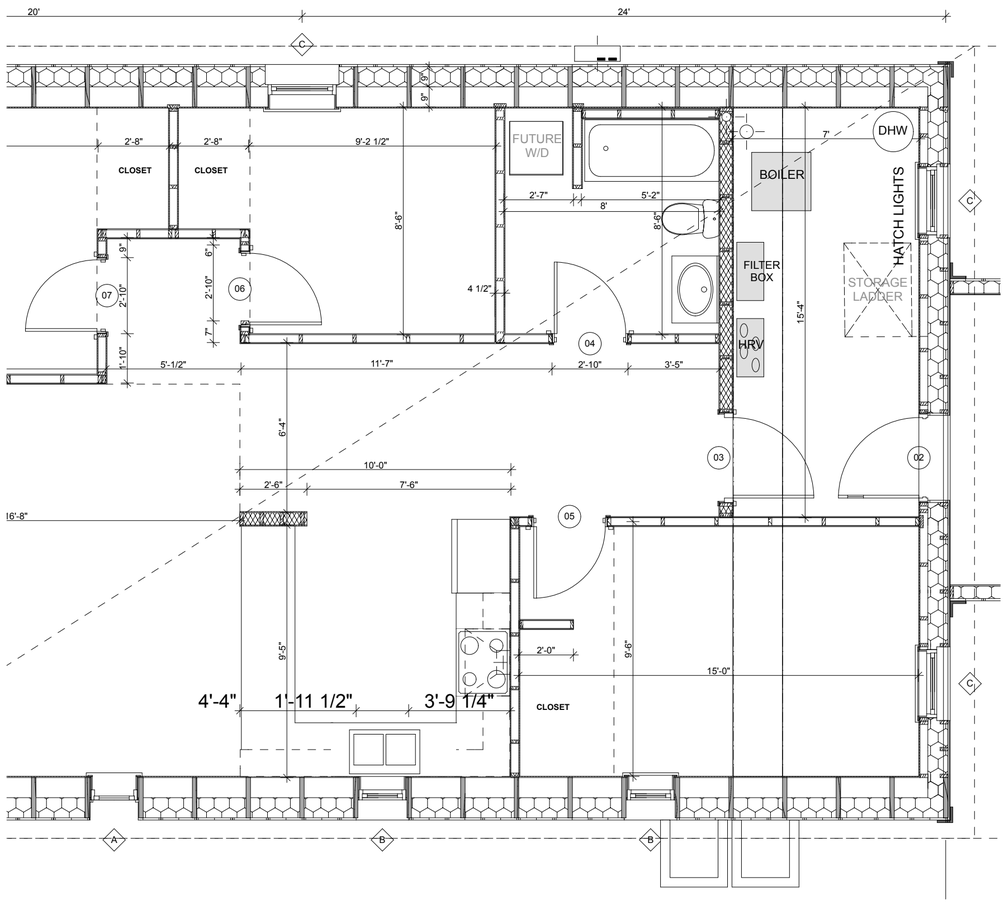
MECH SYSTEM

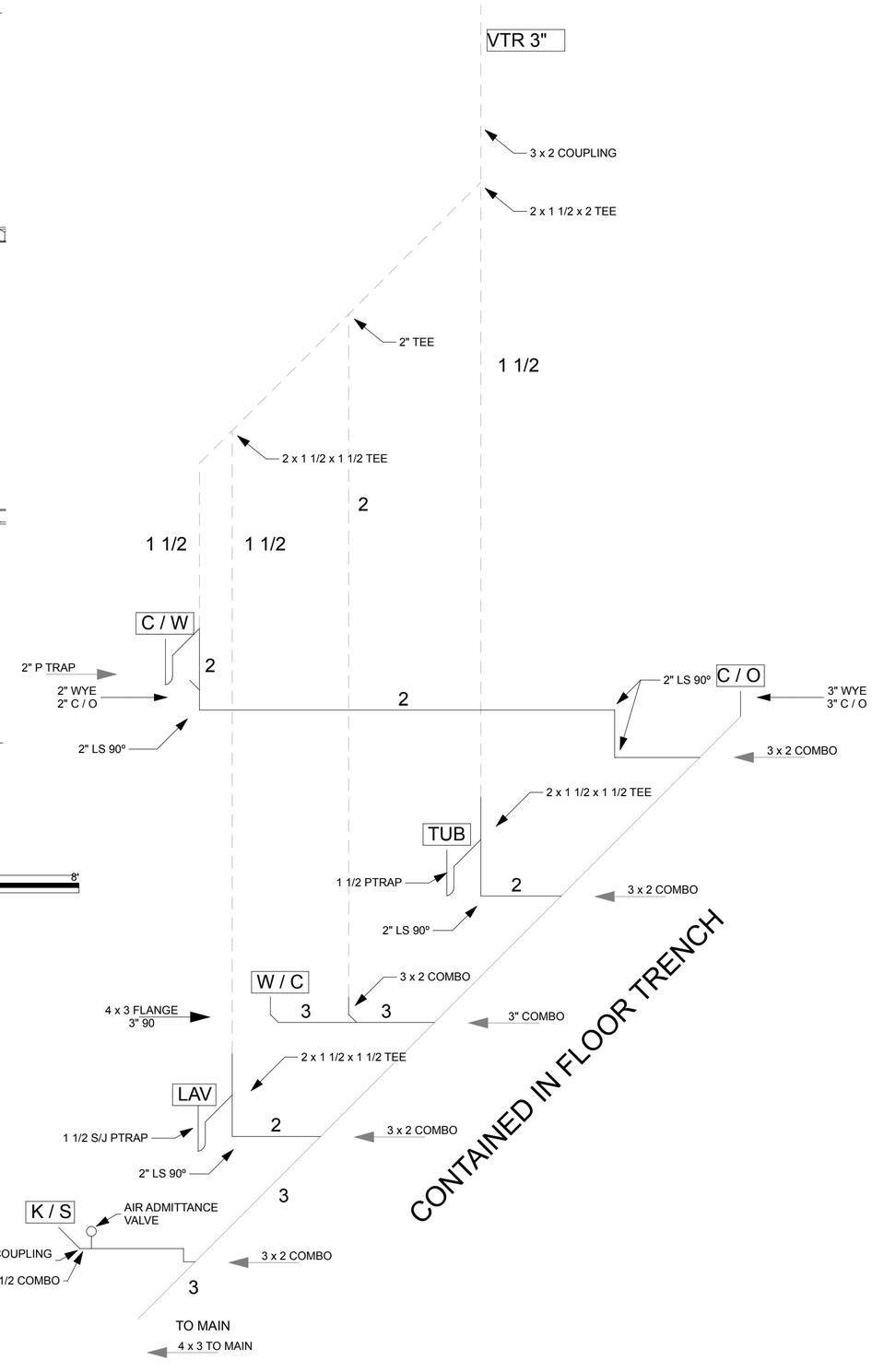
M-102

SHEET 23 OF total

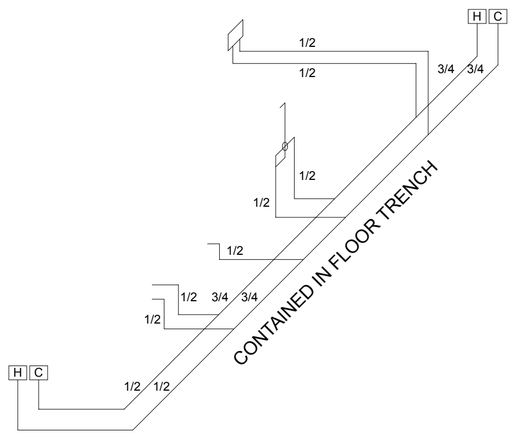
NOT FOR CONSTRUCTION



1 MAIN FLOOR



2 D-02 PLUMBING DIAGRAM



3 D-02 PLUMBING DIAGRAM

DESIGNED BY: j.Hebert, c.DiRu		
DRAWN BY: C.DiRu		
No.	Rev./Issue	Date

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PLUMBING PLAN

P-101

SHEET 26 OF total