

NOT FOR CONSTRUCTION

**A** Rendering  
No Scale

**B** Alternate  
No Scale

**PROJECT DATA**

**Project Name:** Prototype Four-Unit Residence

\_\_\_\_\_

\_\_\_\_\_

**Project Address:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Building Owner:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Governing Codes**  
2015 Michigan Building Code  
2015 Michigan Plumbing Code  
2015 Michigan Mechanical Code  
20xx Michigan Electrical Rules  
Michigan Barrier Free Codes

**Project Type:** New construction  
**Building Use Group:** R-2  
**Building Construction Type:** VB

**Section 420.2** - Walls separating *dwelling units* in the same building shall be constructed as *fire partitions* in accordance with **Section 708**

**Section 420.3** - Floor assemblies separating *dwelling units* in the same building shall be constructed as *horizontal assemblies* in accordance with **Section 711**

**Section 420.5** - Group R occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with **Section 903.2.8**

**Building Height** [Section 504: for R2, VB w/ S13R]  
Allowable: three stories  
Actual: two stories

**Building Area**  
Allowable: 7000 ft<sup>2</sup> [Table 506.2, Use R-2, Type VB]  
Actual  
Lower Level: 1,760 ft<sup>2</sup> (for full basement)  
Main Level: 1,829 ft<sup>2</sup>  
Upper Level: 1,829 ft<sup>2</sup>  
3,658 ft<sup>2</sup> (does not include Lower Level)

**Required fire resistance ratings** [Table 601]  
Primary structural frame 0 hour  
Exterior Bearing walls 0 hour  
Interior Bearing walls 0 hour  
Non-bearing walls 0 hour  
Floor construction 0 hour  
Roof construction 0 hour

**Section 708 Fire Partitions**  
Fire partitions shall have a fire-resistance rating of not less than one hour

**ANY PENETRATION IN THE RATED FLOOR/CEILING SHALL BE FIRE RATED.**

**Section 708.4 - Continuity, Exception 5**  
Attic fireblocking or draftstopping is not required at the partition line in Group R-2 that do not exceed four stories above grade plane, provided the attic space is divided into areas not exceeding 3,000 ft<sup>2</sup>

**Section 711 - Floor and Roof Assemblies**  
Horizontal assemblies shall have a fire-resistance rating of not less than one hour.

**903.2.8 Fire alarm system:** Not Required

**Section 903 Automatic Sprinkler Systems**  
Not Required  
x NFPA 13R [Section 903.3.1.2]  
NFPA 13

**SPRINKLER SYSTEM DESIGN SHALL BE PROVIDED AS A DEFERRED SUBMITTAL TO THE AUTHORITY HAVING JURISDICTION (AHJ).**

**Section 1004 - Occupant Load**  
Permitted maximum: 3,658 ft / 200 gross = 18 occupants  
Actual maximum: 4 units x 4 occupants/unit = 16 occupants

**Maximum Common Path of Egress** [Table: 1006.2.1]  
Permitted maximum: 125'-0"  
Actual maximum: 85'-9"

**Section 1020 - Corridors**  
Minimum Corridor Width: 36 inches [Table 1020.2]

**Number of Exits** [Table 1006.3.2(1)]  
Minimum Required: one exit  
Actual: one exit

**Exit Access Travel Distance** [Table 1017.2]  
Permitted Maximum: 250'-0" (w/ sprinkler)  
Actual Maximum: 85'-9"

**DRAWING SCHEDULE**

- A1.0 Cover Sheet and Building Info
- A2.0 Foundation Plan
- A2.1 Main Floor Plan
- A2.2 Upper Floor Plan
- A2.3 Roof Plan & Attic Plan
- A2.4 Reflected Ceiling Plans
- A3.0 Building Section & Wall Section
- A4.0 Building Elevations
- A4.1 Building Elevations
- A5.0 Interior Elevations
- A6.0 Wall Details

- X1.0 Options
- S1.0 Structural Plans

- E0.1 Electrical Cover Sheet
- E1.1 Electrical Foundation Plan
- E1.2 Main Level Lighting
- E1.3 Upper Level Lighting
- E2.1 Main Level Power
- E2.2 Upper Level Power
- E5.1 Electrical Details
- E7.1 Electrical Schedules

- P0.1 Plumbing Cover Sheet
- P1.1 Plumbing Plans
- P6.1 Plumbing Schedules and Details

- M0.1 HVAC Cover Sheet
- M1.1 HVAC Plans
- M6.1 HVAC Details and Schedules

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**SYMBOL LEGEND**

- Building Section
- Detail flag
- Interior Elevation
- Vertical Elevation
- Window Call Out
- Door Call Out
- Note Call Out

**Owner**

\_\_\_\_\_

\_\_\_\_\_

**Architect**

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\_\_\_\_\_

**Engineer**

\_\_\_\_\_

\_\_\_\_\_

**Developer/Contractor**

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\_\_\_\_\_

**ABBREVIATIONS**

AB	Anchor Bolt	GALV	Galvanized	R	Radius
AC	Air Conditioning	GLB	Glue Laminated Beam	REF	Refrigerator
A/C	Asphaltic Concrete	GYP	Gypsum	REINF	Reinforced (ing)
ARCH	Architectural	HVAC	Heating & Cooling Equip	SC	Solid core
BLKG	Blocking	HRV	Heat Recovery Ventil.	SQFT	Square feet
CMU	Concrete Masonry Unit	HB	Hose Bib	SHTG	Sheathing
CONC	Concrete	HC	Hollow Core	SIM	Similar
CONT	Continuous	HDR	Header	SS	Stainless steel
DBL	Double	HORIZ	Horizontal	TBD	To be determined
DET	Detail	INSUL	Insulation	TO	Top of
DF	Douglas Fir	INT	Interior	TYP	Typical
DS	Downspout	MAX	Maximum	VERT	Vertical
DW	Dishwasher	MC	Medicine cabinet	W/	With
EA	Each	MFR	Manufacturer	W/O	Without
EQUIP	Equipment	MIN	Minimum		
(E)	Equal	NTS	Not to Scale		
FF	Finish Floor	OC	On center		
FTG	Footing	PLYWD	Plywood		
GA	Gauge	RO	Rough opening		

**BUILDING DATA**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**DESIGN CRITERIA**

**Roof Dead:** \_\_\_\_\_ **Wind:** \_\_\_\_\_

**Roof Live:** \_\_\_\_\_ **Septic:** \_\_\_\_\_

**Wall Dead:** \_\_\_\_\_ **Soil bearing:** \_\_\_\_\_

Assembly type	Standard	Description
wall assemblies	R-_____	_____
fenestration/openings	U-_____	_____
roof/ceiling assemblies	R-_____	_____
floors over conditioned spaces	R-_____	_____
slab on grade	R-_____	_____
crawl spaces	R-_____	_____
lower level walls: continuous insulation	R-_____	_____
lower level walls: cavity insulation	R-_____	_____

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Do not scale.  
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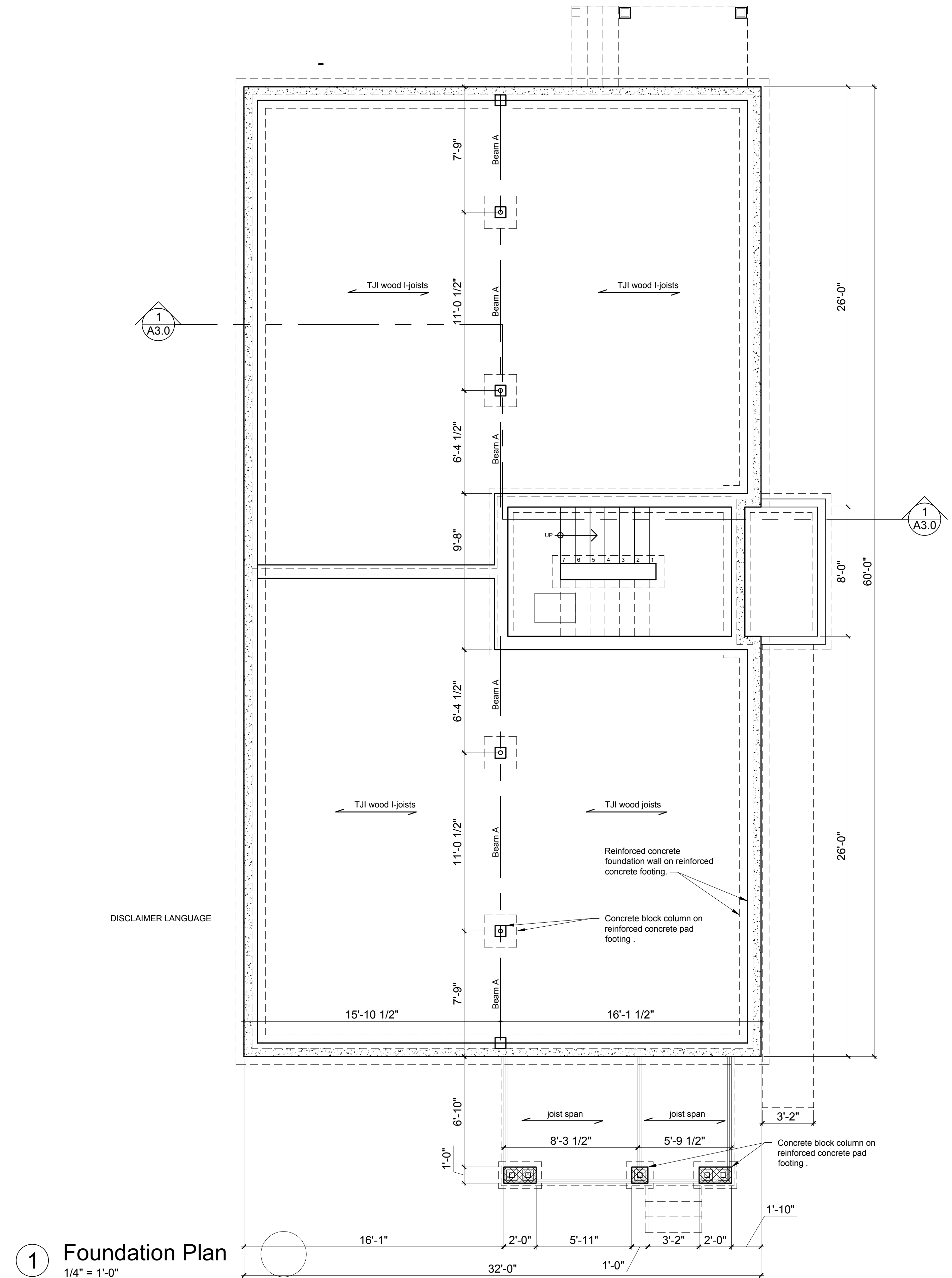
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Job Number:  
2022xx  
Title:  
FOUNDATION  
PLAN

A2.0



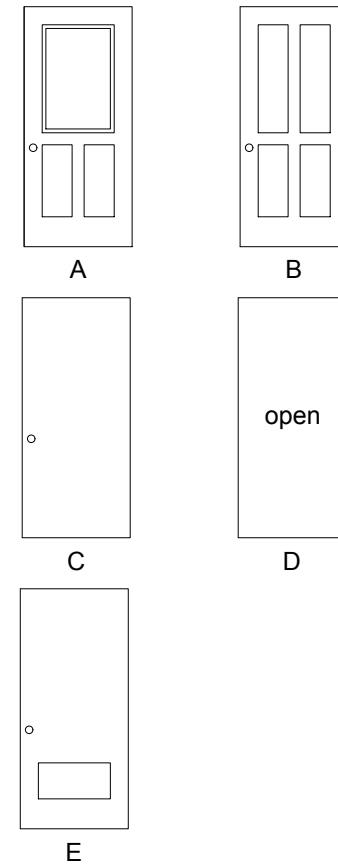
1 Foundation Plan  
1/4" = 1'-0"

DISCLAIMER LANGUAGE

Mark	Description	Manufacturer	Collection	Color
PT1	Paint 1			
PT2	Paint 2			
PT3	Paint 3			
TILE1	Ceramic 1			
TILE2	Ceramic 2			
CPT1	Carpet 1			
CPT2	Carpet 2			
TB1	Tile Base			
VB	Vinyl Base			

**Hardware Descriptions**  
Schlage or approved equal

**ENTRY**  
The deadbolt is engaged or retracted by an outside key or an inside thumb-turn. When the deadbolt is engaged the outside grip is locked and will not retract the latchbolt. When the deadbolt is engaged the inside grip simultaneously retracts both the deadbolt and the latchbolt. The latchbolt alone can be locked by a toggle (engaging the deadbolt is not required to lock the outside grip).



Door Types

**PASSAGE**  
Latchbolt is retracted by the grip on either side. Both grips are always free

**PRIVACY**  
The latchbolt is retracted by the inside grip or an outside key. The latchbolt is retracted by the outside grip unless the grip is locked by a thumbturn from the inside. The latchbolt / outside grip cannot be locked by a key from the outside.

**CLOSET**  
Ball catch is disengaged when handle is pulled. No interior handle

**2 Schedules**  
No scale

**MAIN LEVEL FINISH SCHEDULE**

NO.	ROOM	FLOOR	BASE	WALLS	CEILING	NOTES
100	STAIR HALL	TILE1	TB1			
101	HALL	TILE1	TB1			
102	KITCHEN	CPT1	VB			
103	BEDROOM 1	TILE1	TB1			
104	BATH	CPT1	VB			
105	BEDROOM 2	TILE1	TB1			
106	LIVING ROOM	TILE1	TB1			
111	HALL	CPT2	VB			
112	KITCHEN	CPT2	VB			
113	BEDROOM 1	CPT2	VB			
114	BATH	CPT2	VB			
115	BEDROOM 2	TILE1	TB1			
116	LIVING ROOM	CPT1	VB			

**MAIN LEVEL WINDOW SCHEDULE**

MARK	QTY	WIDTH	HEIGHT	DESCRIPTION	NOTES
A	0	2'-6"	3'-5"	CASEMENT	
B	4	2'-8"	4'-5"	CASEMENT	
C	2	2'-0"	3'-0"	CASEMENT	
D	10	2'-8"	4'-0"	CASEMENT	

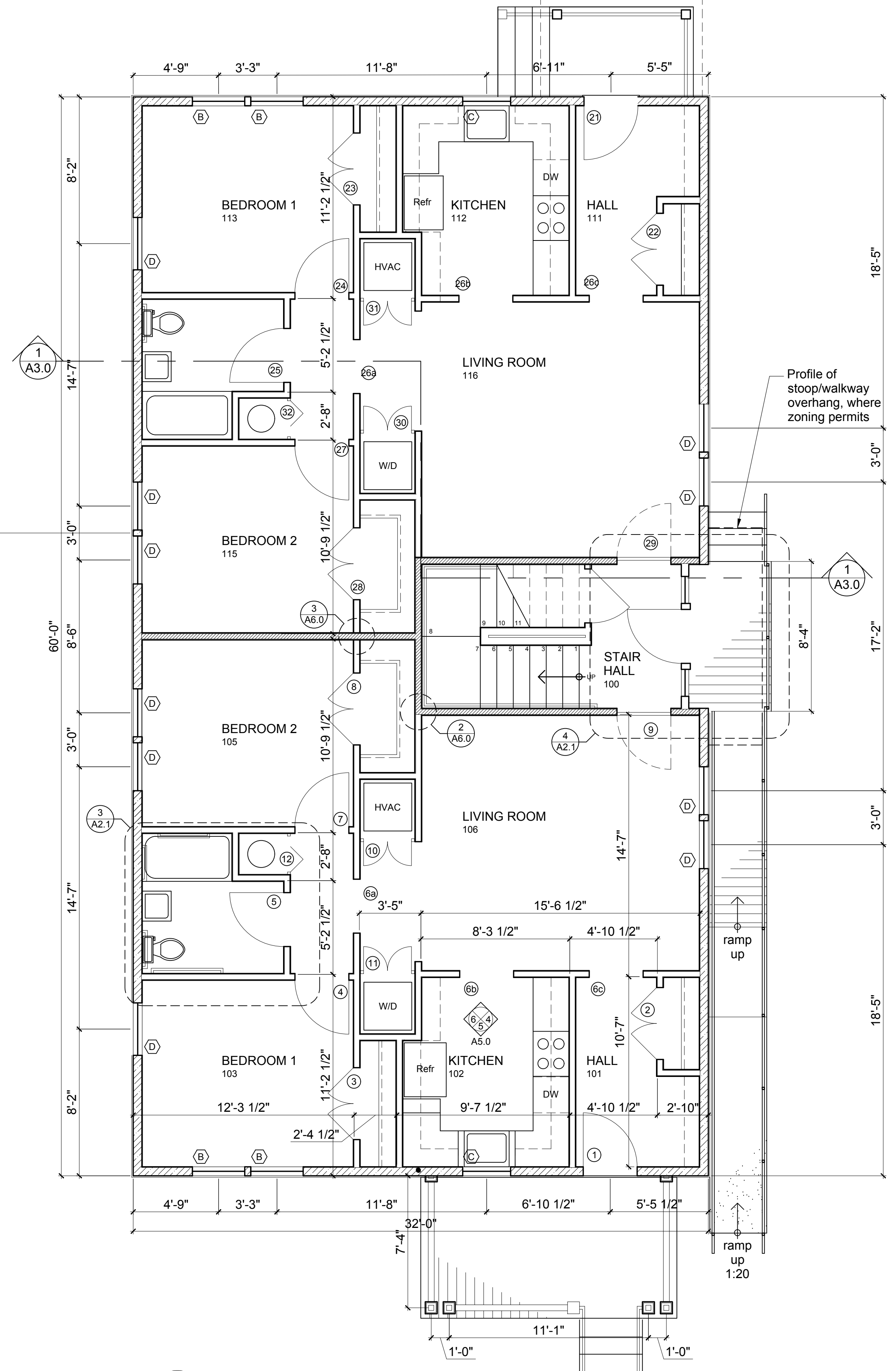
**MAIN LEVEL DOOR SCHEDULE**

MARK	ID	SIZE	SWING	MATERIAL	FRAME	HARDWARE	NOTES
1	A	36" x 80"	LEFT	STEEL	PAINTED	ENTRY	
2	B	48" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
3	B	48" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
4	B	36" x 80"	LEFT	WOOD	PAINTED	PRIVACY	
5	B	72" x 80"	RIGHT	WOOD	PAINTED	PRIVACY	
6	D	36" x 80"	OPEN	WOOD	PAINTED	NONE	Cased opening, three (3) locations
7	B	36" x 80"	RIGHT	WOOD	PAINTED	PRIVACY	
8	B	36" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
9	C	36" x 80"	LEFT	STEEL	PAINTED	ENTRY	Rated door, Equipped with closer
10	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
11	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
12	B	24" x 80"	BIFOLD	WOOD	PAINTED	NONE	
21	A	36" x 80"	RIGHT	STEEL	PAINTED	ENTRY	
22	B	48" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
23	B	48" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
24	B	36" x 80"	RIGHT	WOOD	PAINTED	PRIVACY	
25	B	72" x 80"	LEFT	WOOD	PAINTED	PRIVACY	
26	D	36" x 80"	OPEN	WOOD	PAINTED	NONE	Cased opening, three (3) locations
27	B	36" x 80"	LEFT	WOOD	PAINTED	PRIVACY	
28	B	36" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
29	C	36" x 80"	RIGHT	STEEL	PAINTED	ENTRY	Rated door, Equipped with closer
30	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
31	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
32	B	24" x 80"	BIFOLD	WOOD	PAINTED	NONE	

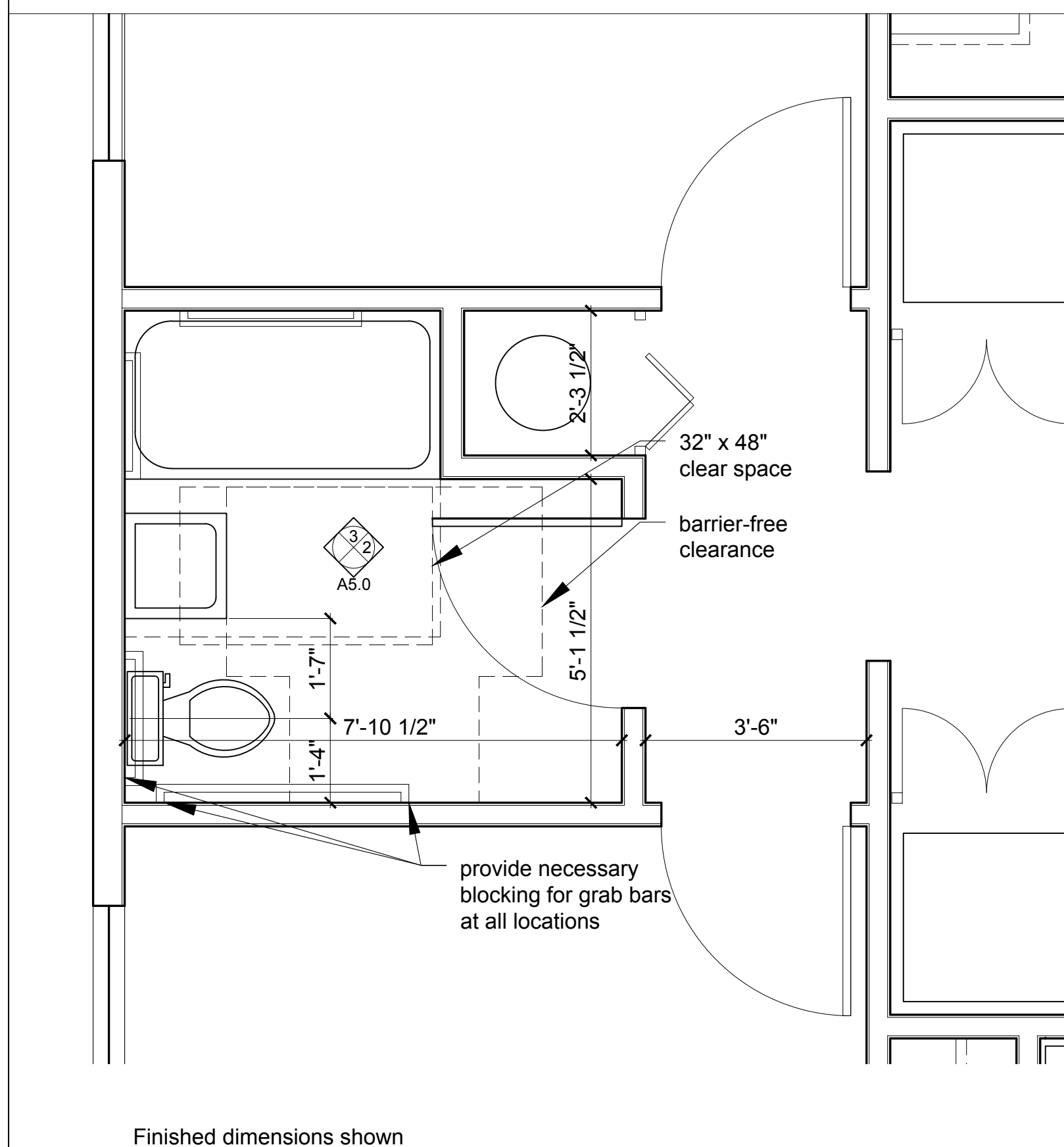
WALL TYPES - refer to Sheet A6.0 for details

- Wall Type 1: Exterior Walls
- Wall Type 2: Interior Partition walls
- Wall Type 3: Interior Rated Walls
- Wall Type 4: Foundation Walls

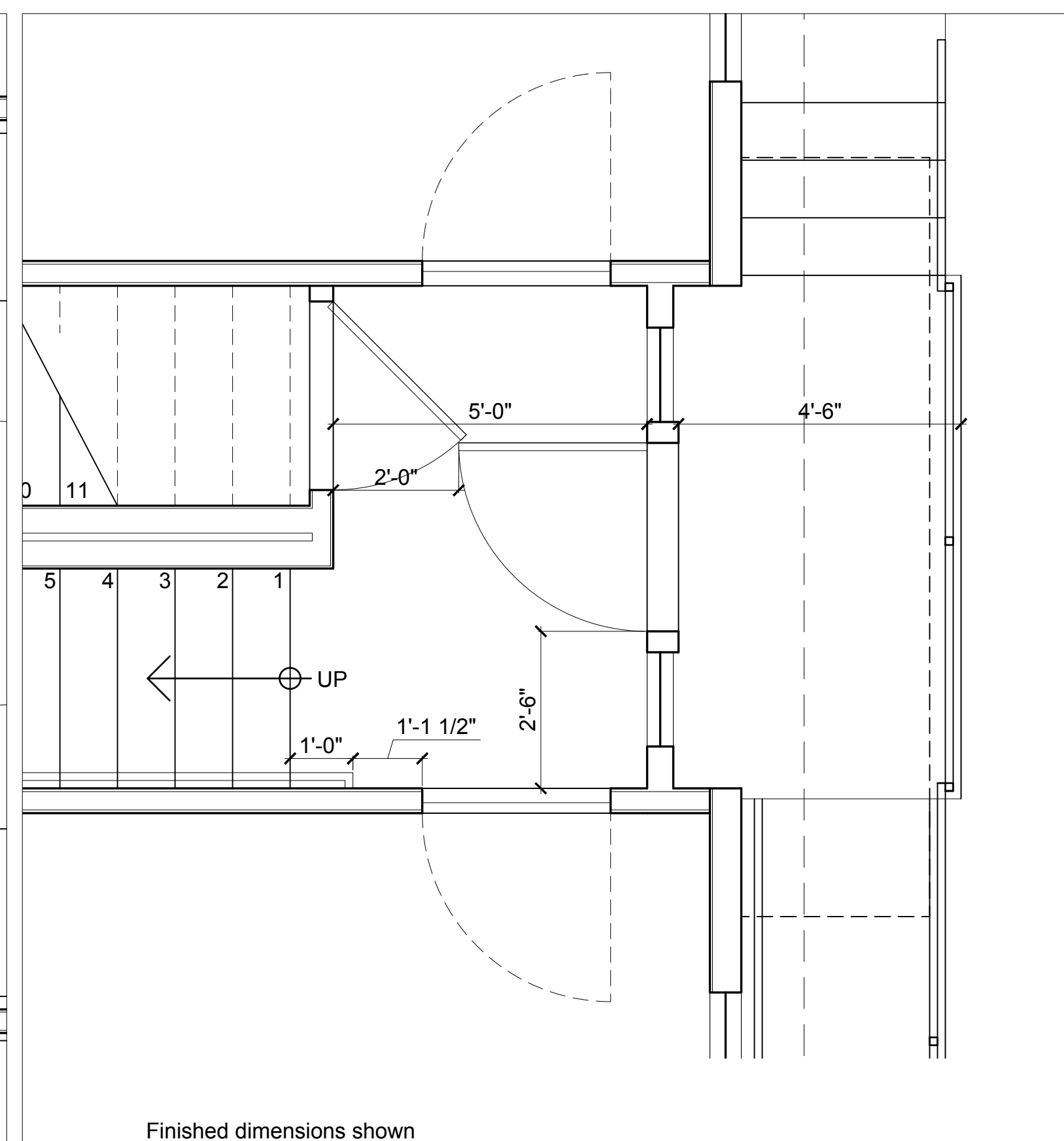
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**1 Main Plan**  
1/4" = 1'-0"



**3 Bath & Approach Details**  
1/2" = 1'-0"



**4 Stair Hall Details**  
1/2" = 1'-0"

Do not scale.  
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Job Number:  
2022xx  
Title:  
MAIN FLOOR  
PLAN

A2.1

Mark	Description	Manufacturer	Collection	Color
PT1	Paint 1			
PT2	Paint 2			
PT3	Paint 3			
TILE1	Ceramic 1			
TILE2	Ceramic 2			
CPT1	Carpet 1			
CPT2	Carpet 2			
TB1	Tile Base			
VB	Vinyl Base			

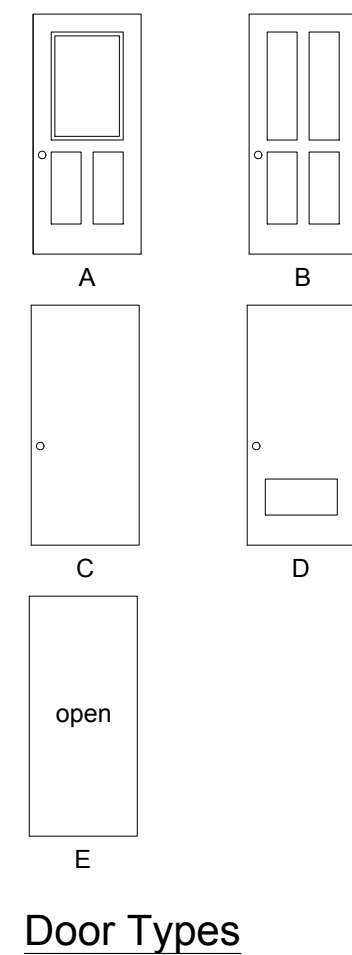
**Hardware Descriptions**  
Schlage or approved equal

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**CLOSET**  
Ball catch is disengaged when handle is pulled. No interior handle



Door Types

**UPPER LEVEL FINISH SCHEDULE**

NO.	ROOM	FLOOR	BASE	WALLS	CEILING	NOTES
200	STAIR HALL	TILE1	TB1	PNT1	CLG	
201	DINING NOOK	TILE1	TB1	PNT1	CLG	
202	KITCHEN	TILE1	VB1	PNT1	CLG	
203	BEDROOM 1	CPT1	TB1	PNT1	CLG	
204	BATH	TILE1	VB1	PNT1	CLG	
205	BEDROOM 2	CPT1	TB1	PNT1	CLG	
206	LIVING ROOM	CPT1	TB1	PNT1	CLG	
211	DINING NOOK	TILE1	VB1	PNT1	CLG	
212	KITCHEN	TILE1	VB1	PNT1	CLG	
213	BEDROOM 1	CPT1	VB1	PNT1	CLG	
214	BATH	TILE1	VB1	PNT1	CLG	
215	BEDROOM 2	CPT1	TB1	PNT1	CLG	
216	LIVING ROOM	CPT1	VB1	PNT1	CLG	

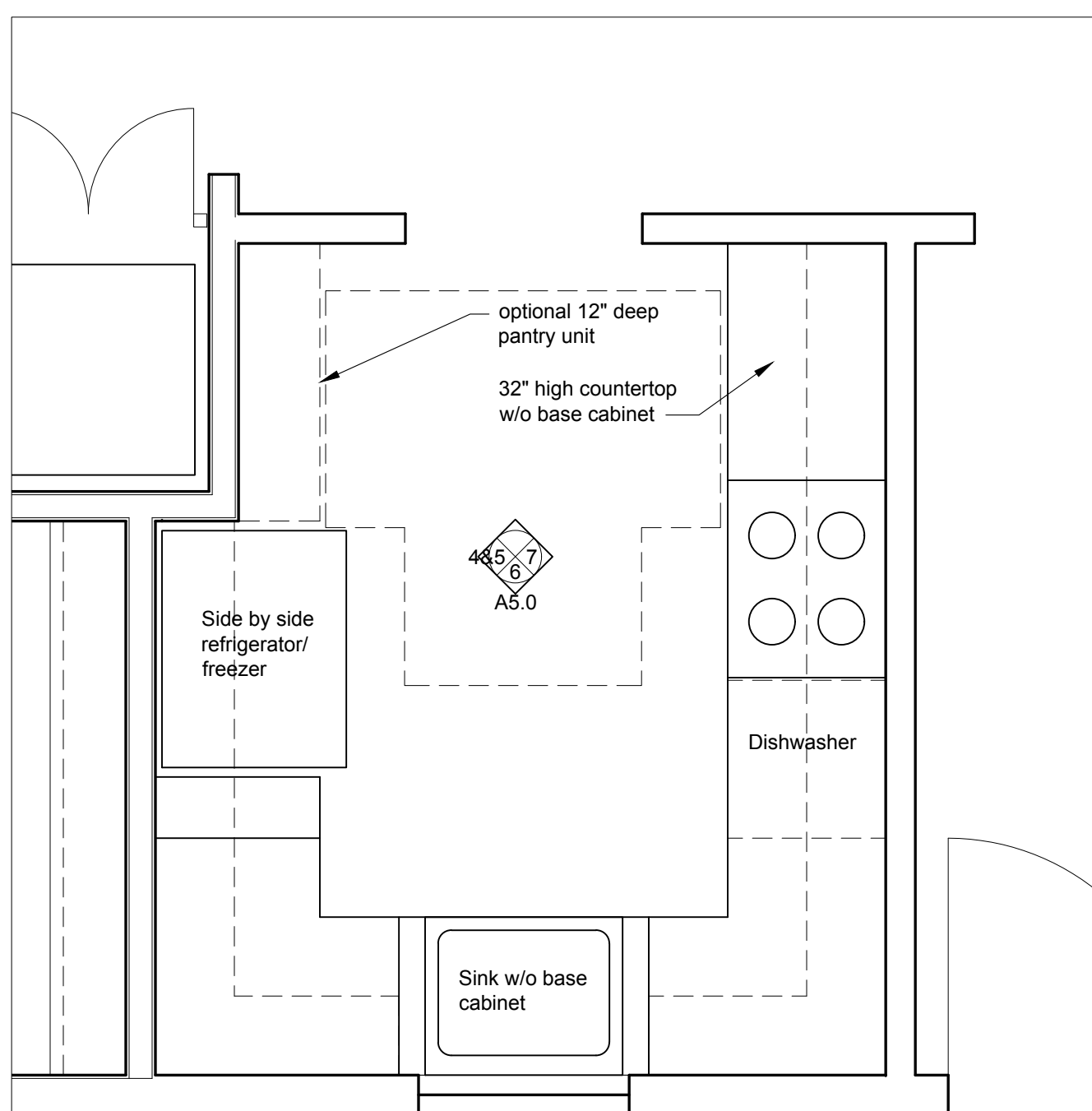
**UPPER LEVEL WINDOW SCHEDULE**

MARK	QTY	WIDTH	HEIGHT	DESCRIPTION	NOTES
A	8	2'-5"	6'-0"	CASEMENT	
B	0	2'-5"	5'-0"	CASEMENT	
C	0	3'-5"	5'-0"	CASEMENT	
D	12	3'-5"	5'-0"	CASEMENT	

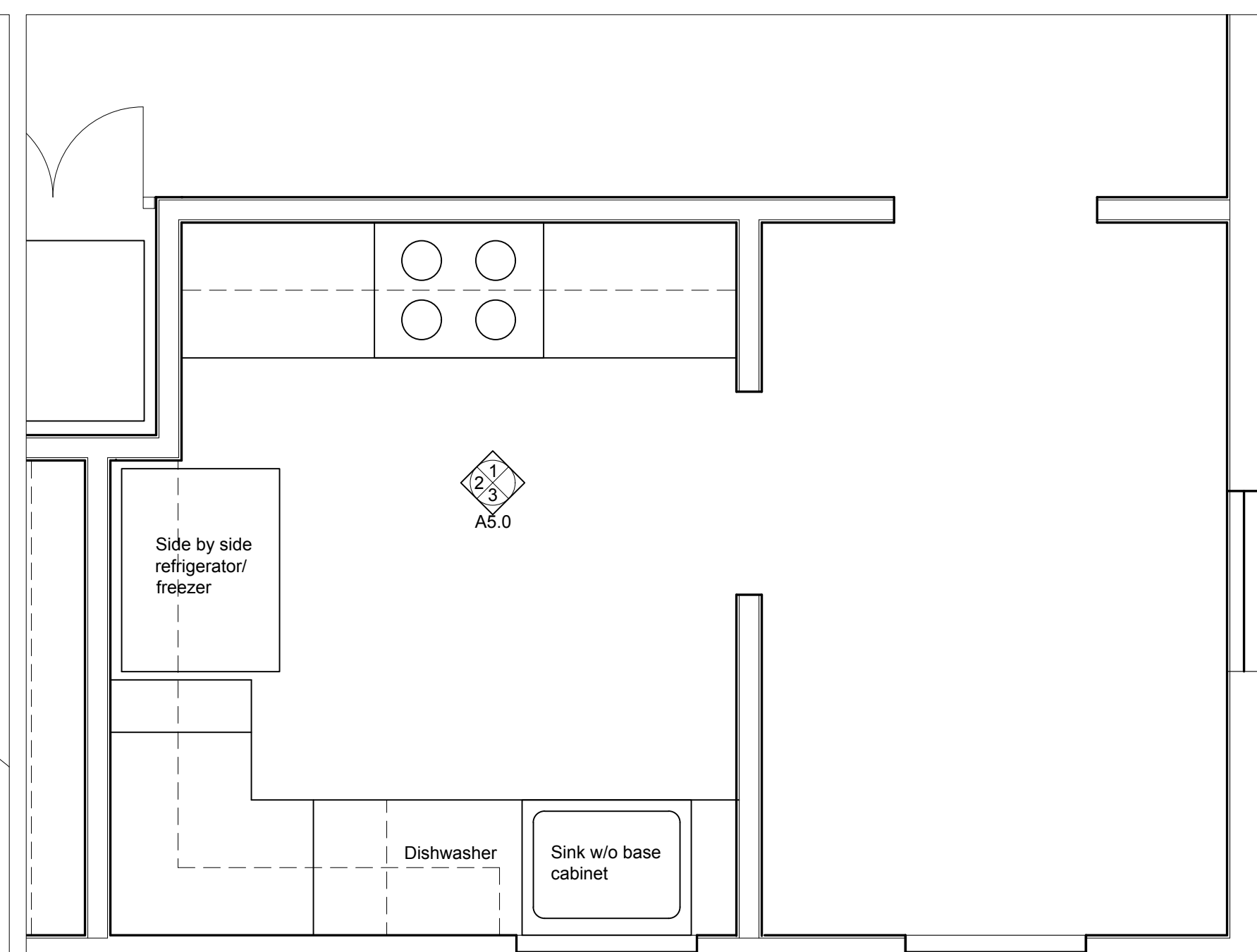
**UPPER LEVEL DOOR SCHEDULE**

MARK	ID	SIZE	SWING	MATERIAL	FRAME	HARDWARE	NOTES
41	B	36" x 80"	LEFT	WOOD	PAINTED	ENTRY	Rated door with closer
42	B	36" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
43	B	36" x 80"	RIGHT	WOOD	PAINTED	PRIVACY	
44	B	36" x 80"	RIGHT	WOOD	PAINTED	PASSAGE	
45	D	72" x 80"	OPEN	-	-	-	Cased opening; three (3) locations
46	B	36" x 80"	LEFT	WOOD	PAINTED	PRIVACY	
47	B	36" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
48	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
49	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
50	B	24" x 80"	BIFOLD	WOOD	PAINTED	NONE	
61	B	36" x 80"	LEFT	WOOD	PAINTED	ENTRY	Rated door with closer
62	B	36" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
63	B	36" x 80"	RIGHT	WOOD	PAINTED	PRIVACY	
64	B	36" x 80"	RIGHT	WOOD	PAINTED	PASSAGE	
65	D	72" x 80"	OPEN	-	-	-	Cased opening; three (3) locations
66	B	36" x 80"	LEFT	WOOD	PAINTED	PRIVACY	
67	B	36" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
68	D	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
69	B	32" x 80"	DOUBLE	WOOD	PAINTED	CLOSET	
70	B	24" x 80"	BIFOLD	WOOD	PAINTED	NONE	

**2 Schedules**  
no scale



**4 Main Level Kitchen Layout**  
1/2" = 1'-0"



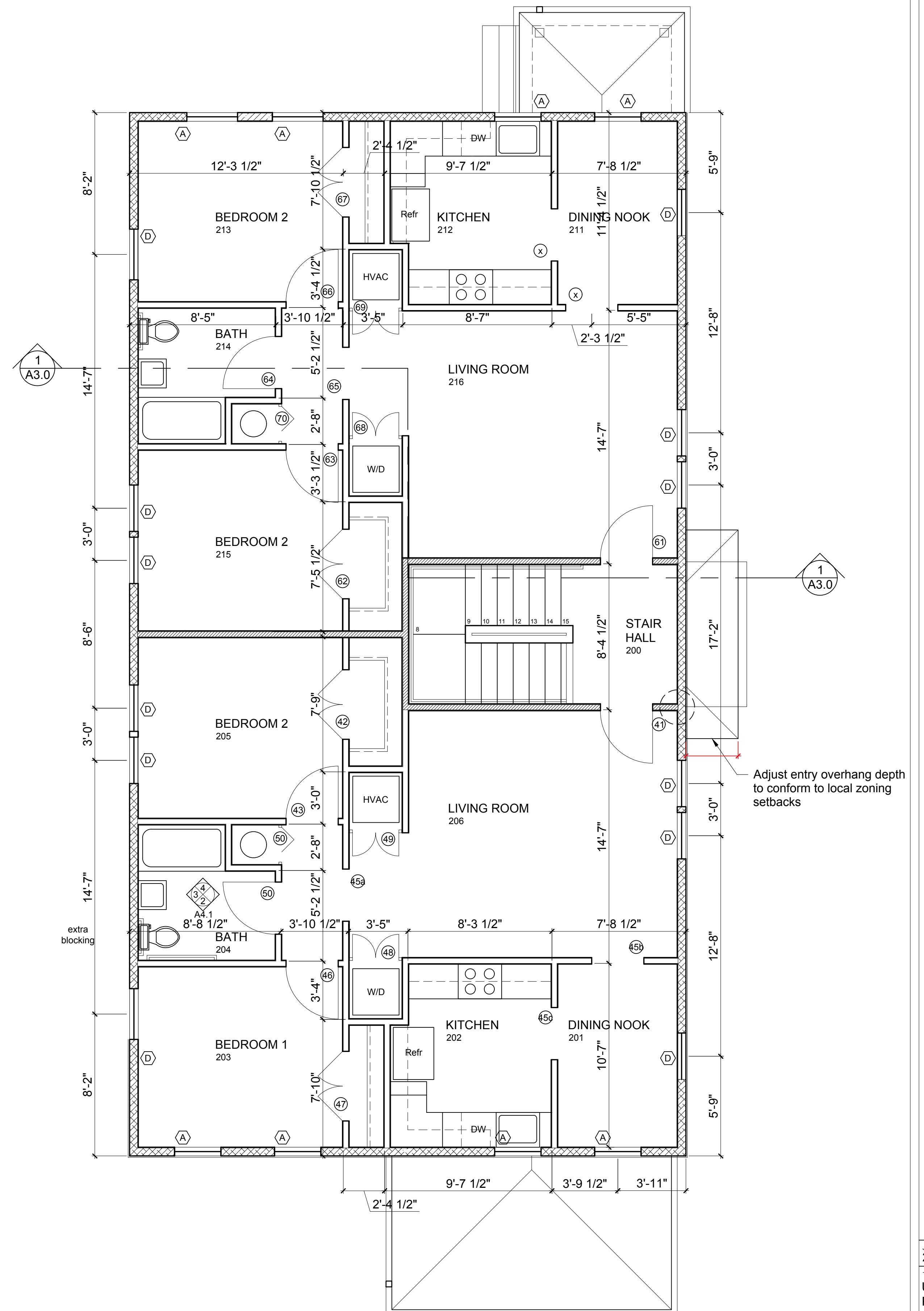
**3 Upper Level Kitchen Layout**  
1/2" = 1'-0"

**WALL TYPES** - refer to Sheet A6.0 for details



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**1 Upper Level Plan**  
1/4" = 1'-0"



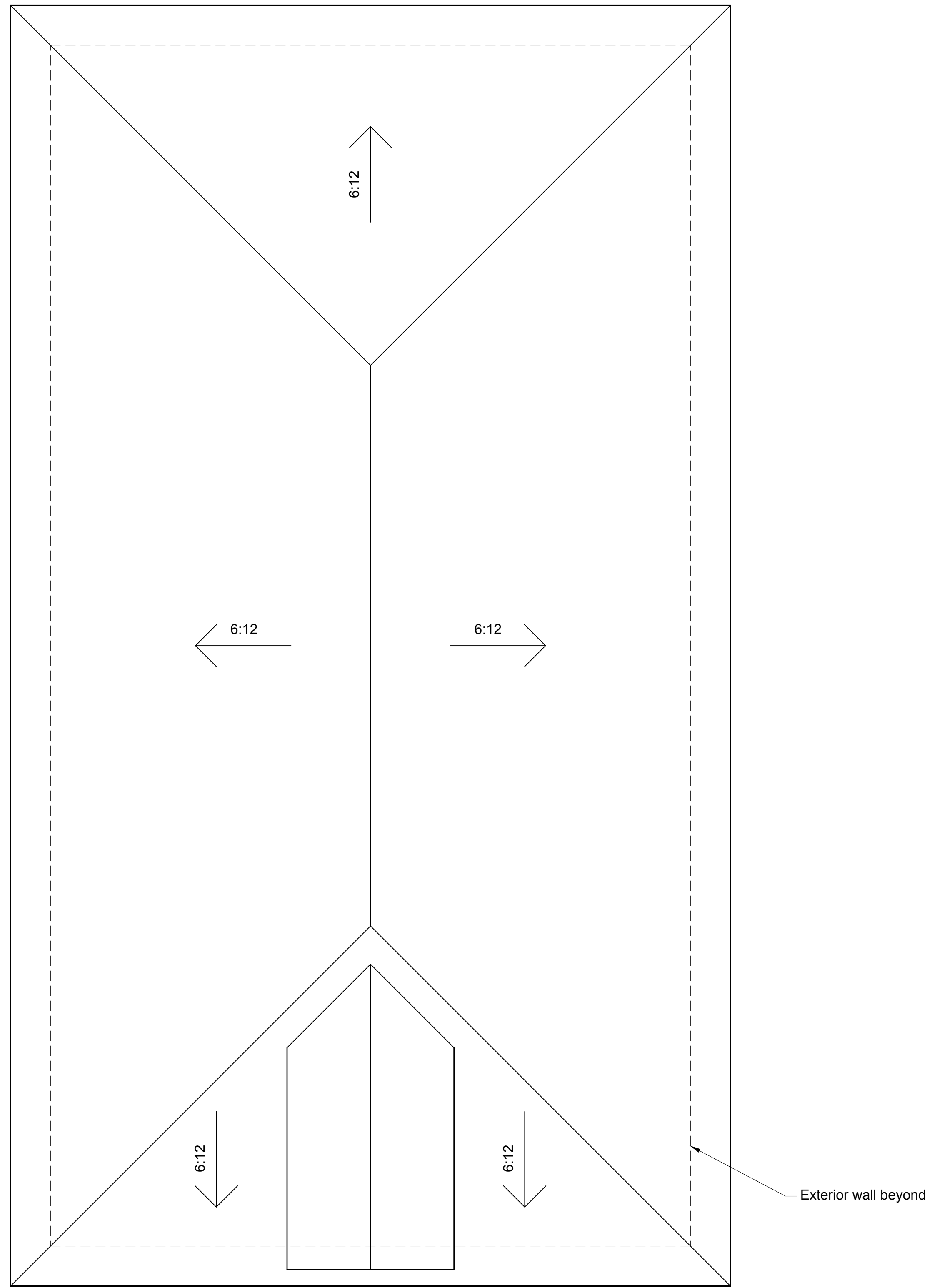
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UPPER FLOOR PLAN

**A2.2**

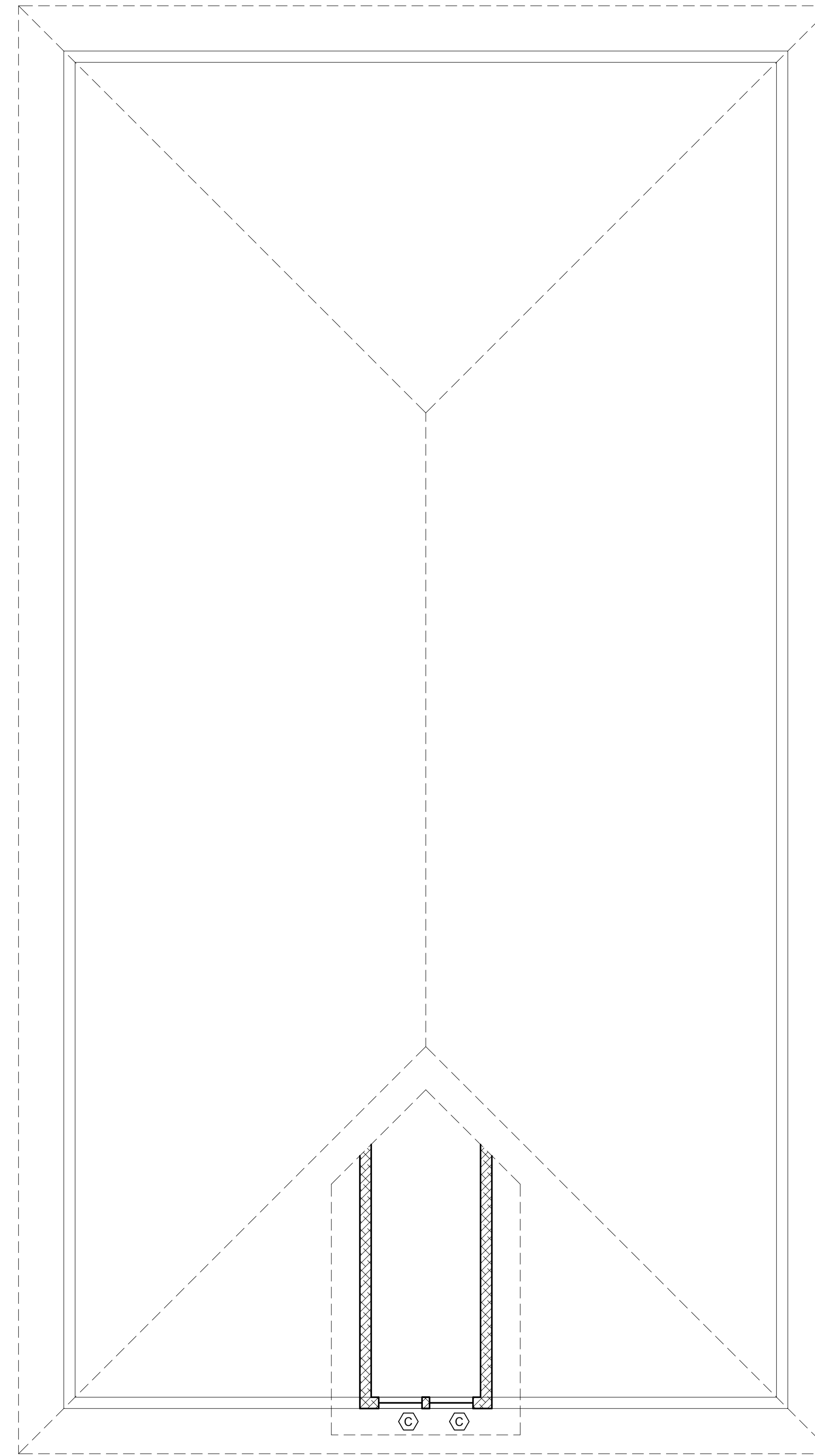


1 Roof Plan  
1/4" = 1'-0"

WALL TYPES - refer to Sheet A6.0 for details

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- Wall Type 2: Interior Partition walls
- Wall Type 3: Interior Rated Walls
- Wall Type 4: Foundation Walls

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1 Attic Plan  
1/4" = 1'-0"

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2022xx  
Title:  
ATTIC & ROOF  
PLANS

A2.3

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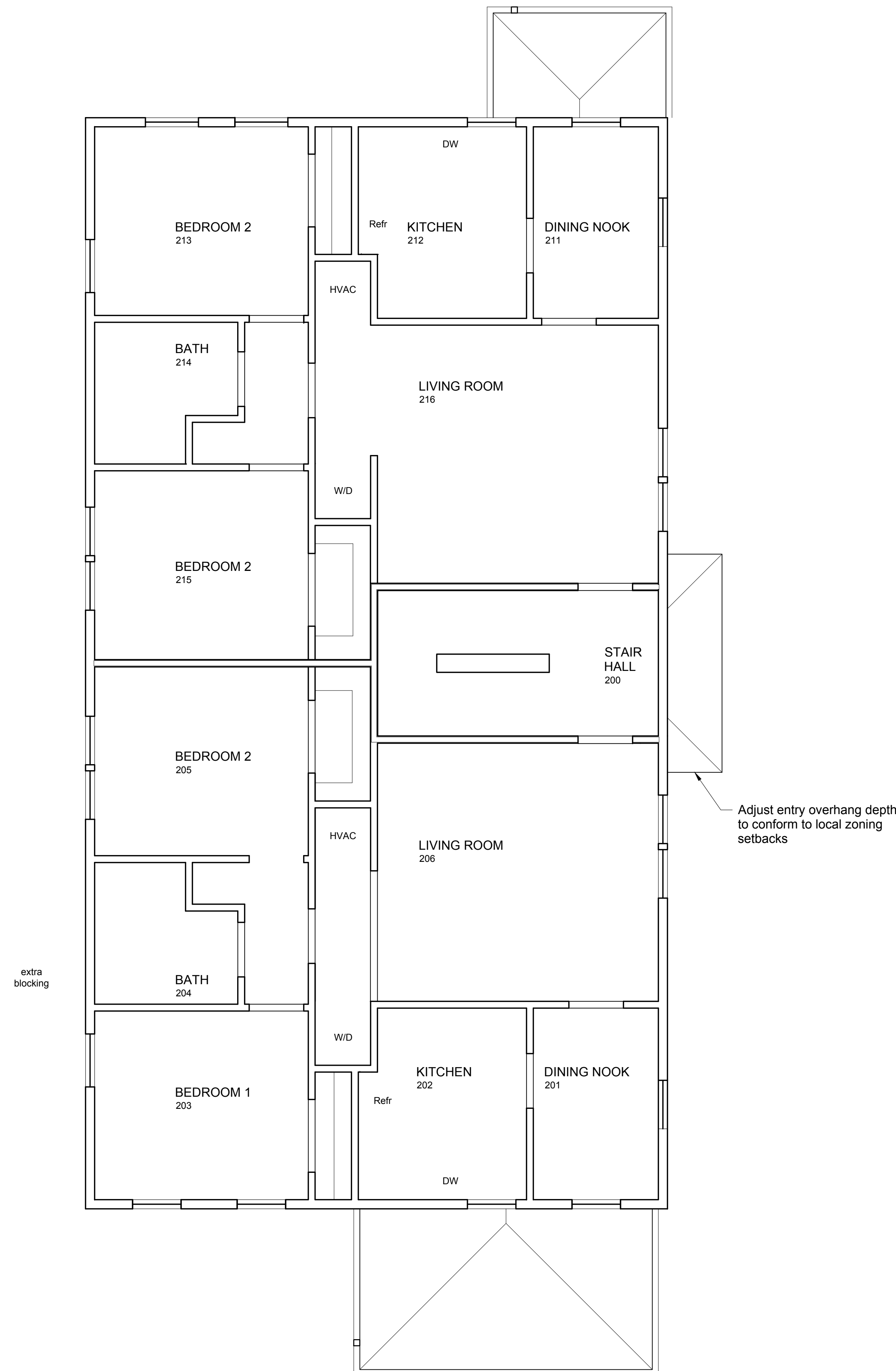
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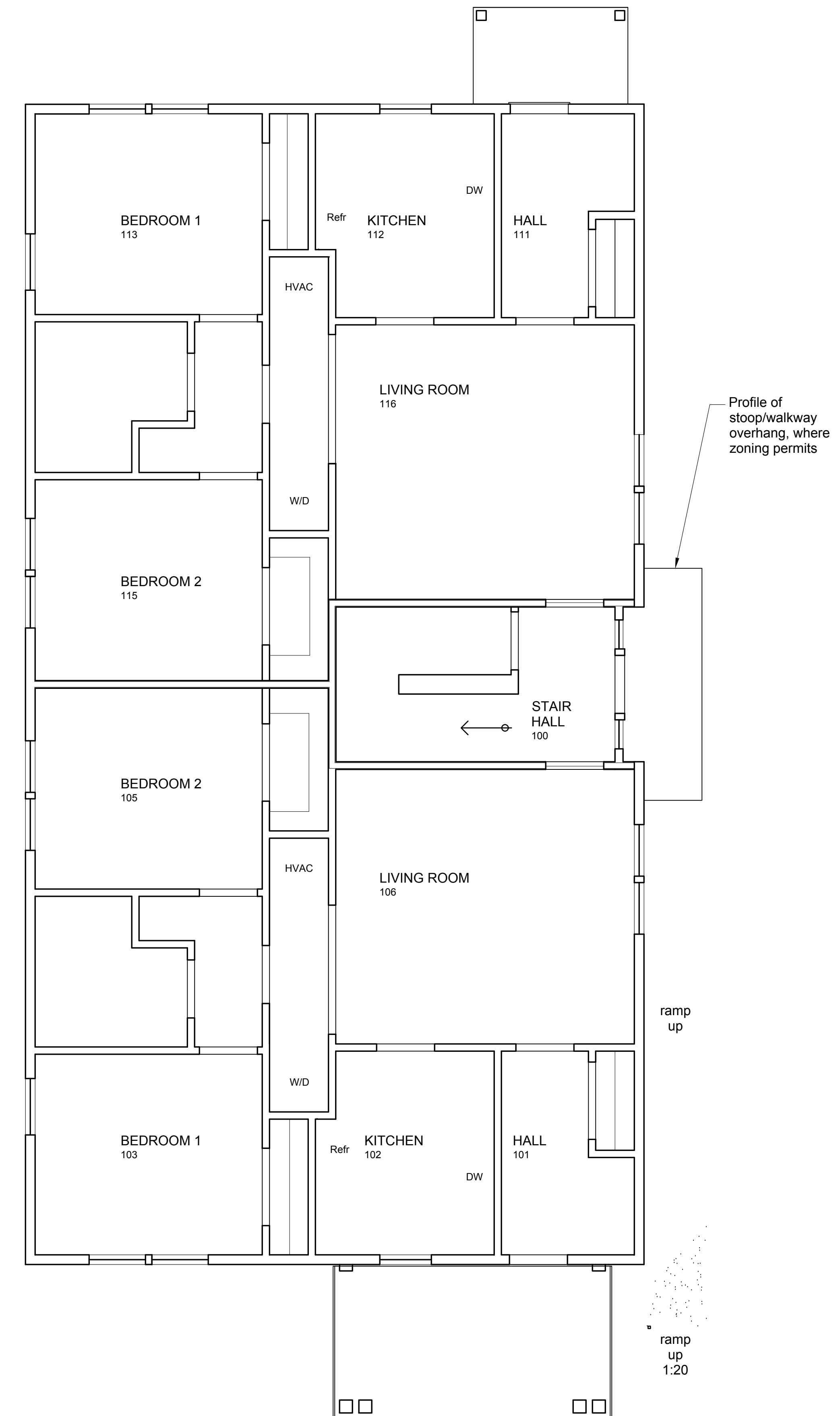
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Job Number:  
2022xx  
Title:  
REFLECTED  
CEILING PLANS

**A2.4**



② Upper Reflected Ceiling Plan  
1/4" = 1'-0"



① Main Reflected Ceiling Plan  
1/4" = 1'-0"

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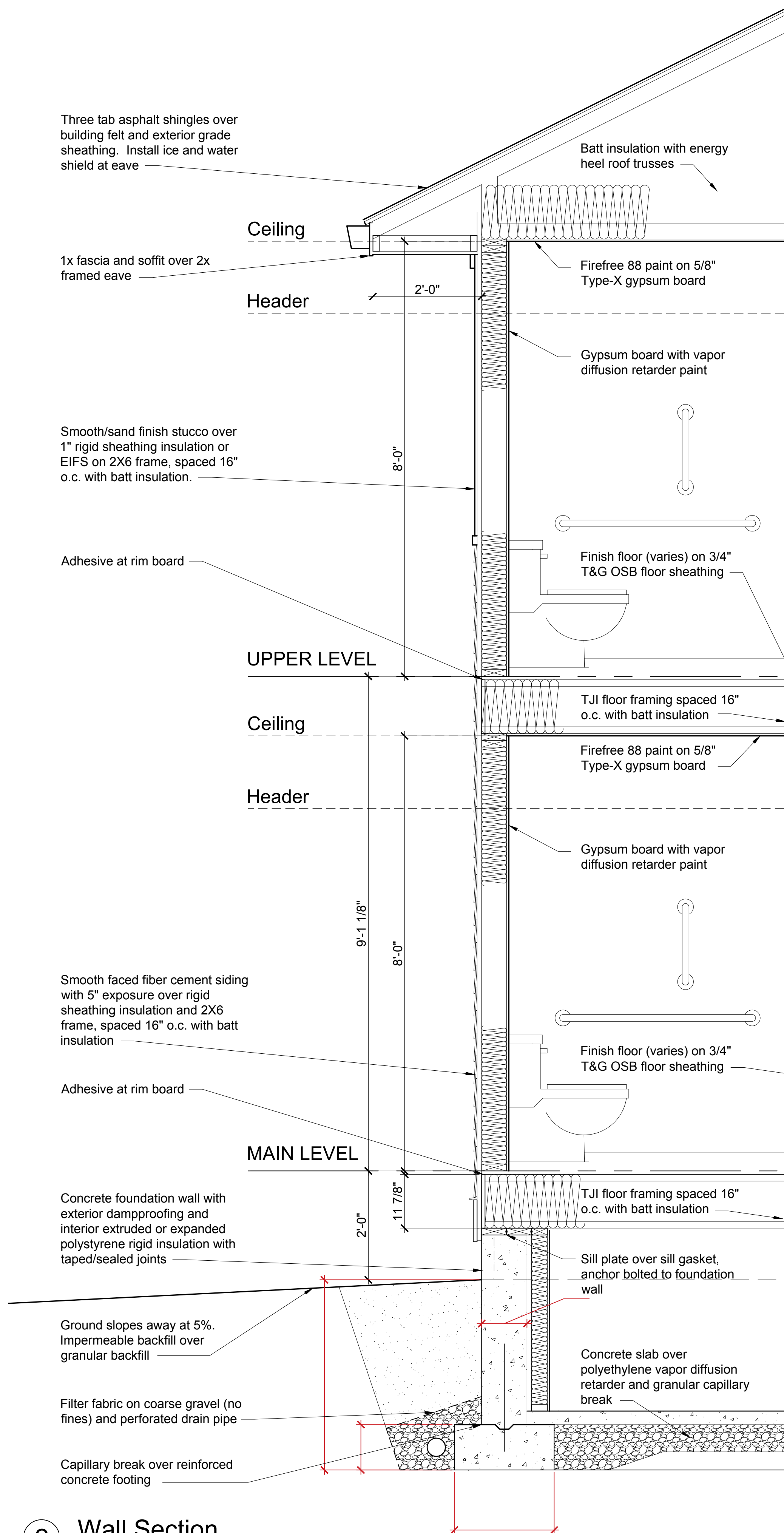
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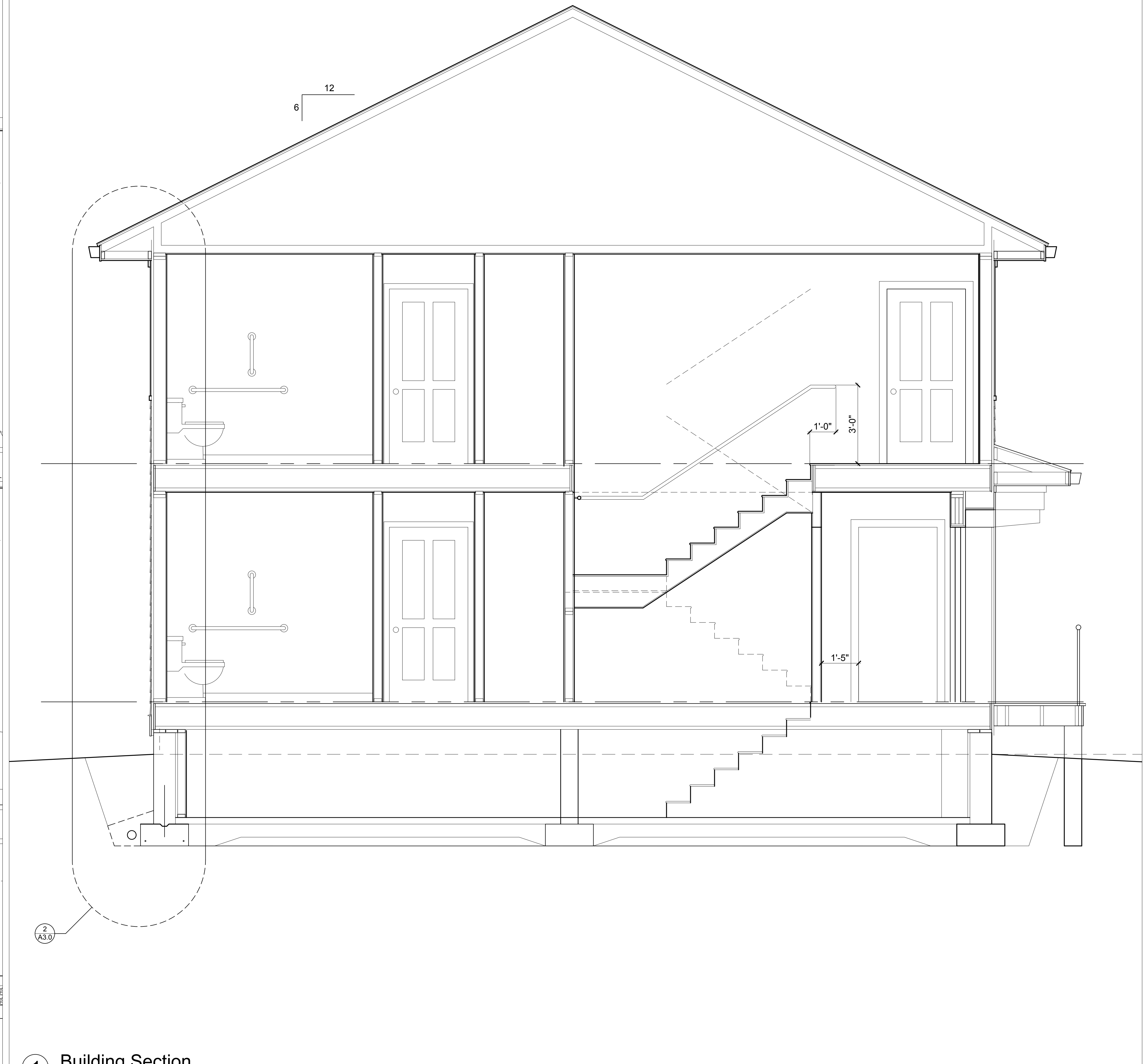
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Job Number:  
2022xx  
Title:  
BUILDING AND WALL SECTION

A3.0



2 Wall Section  
3/4" = 1'-0"

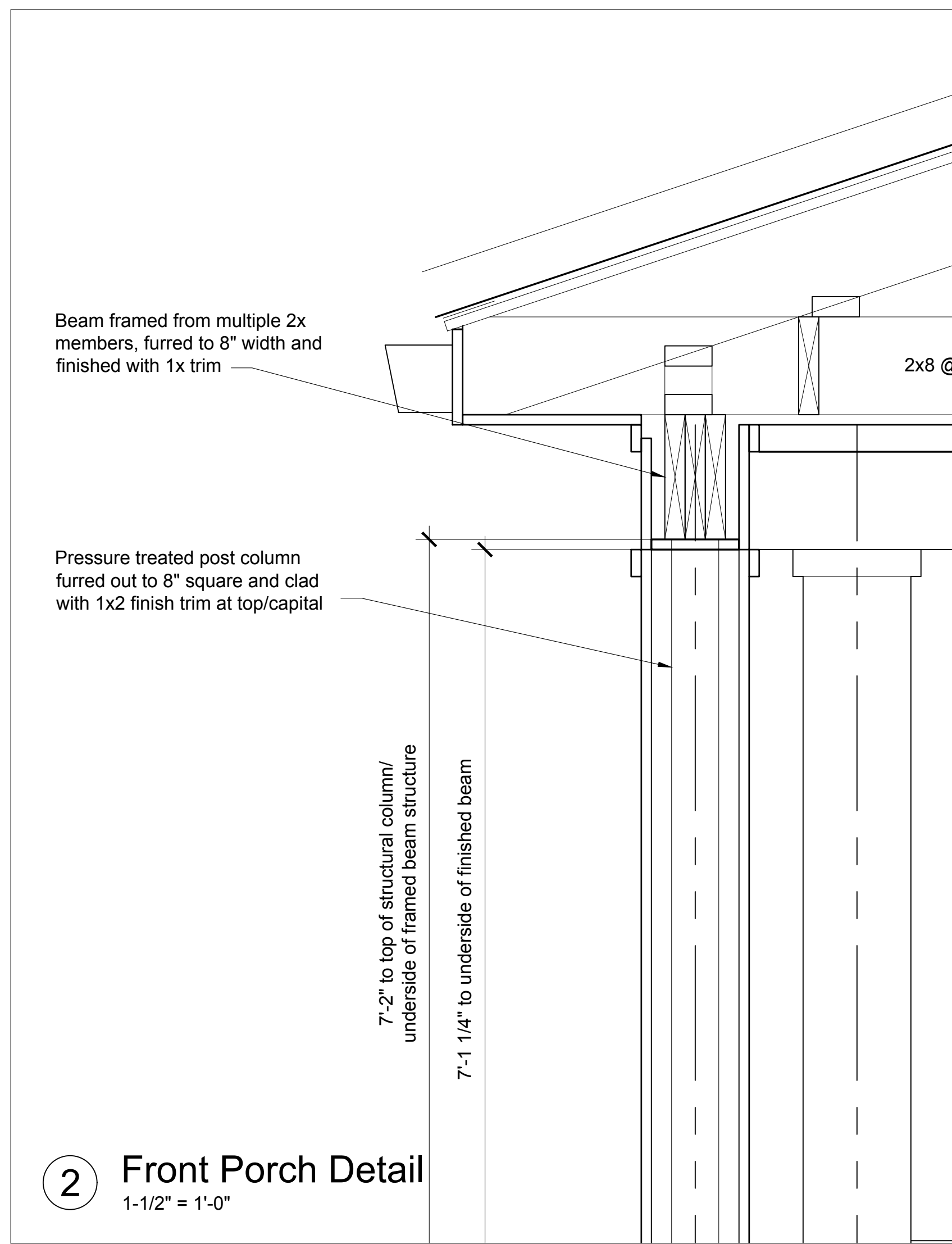


1 Building Section  
1/2" = 1'-0"

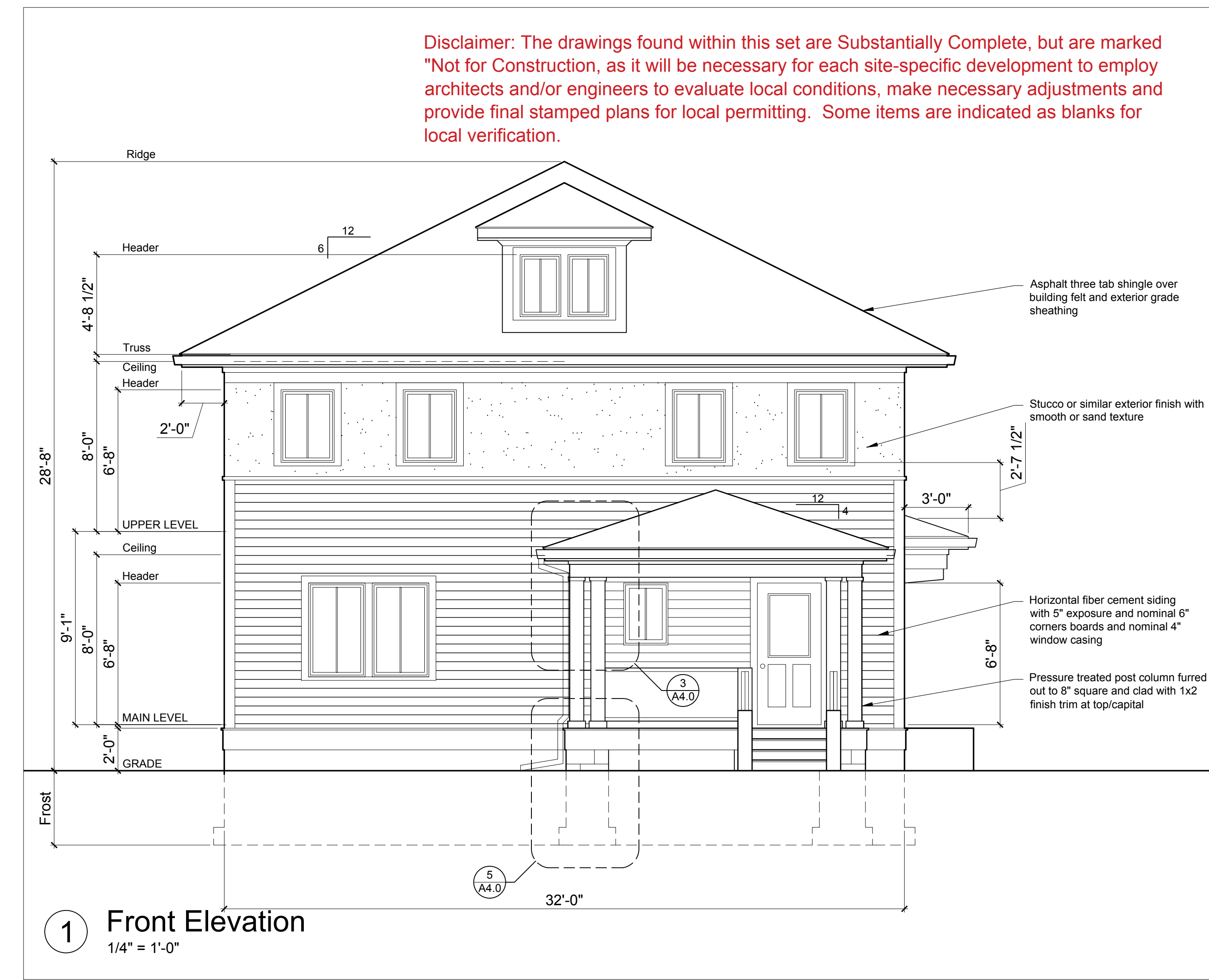
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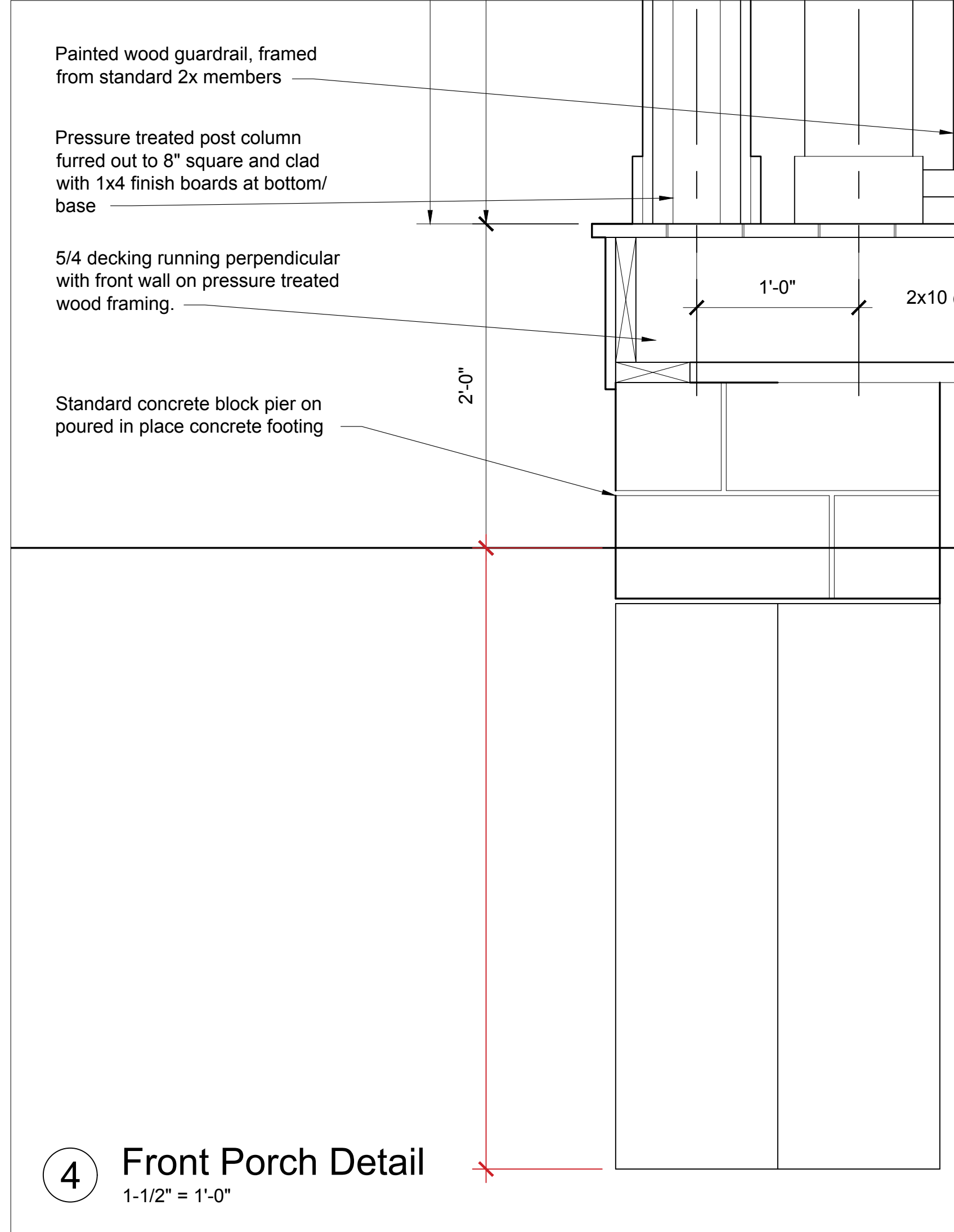
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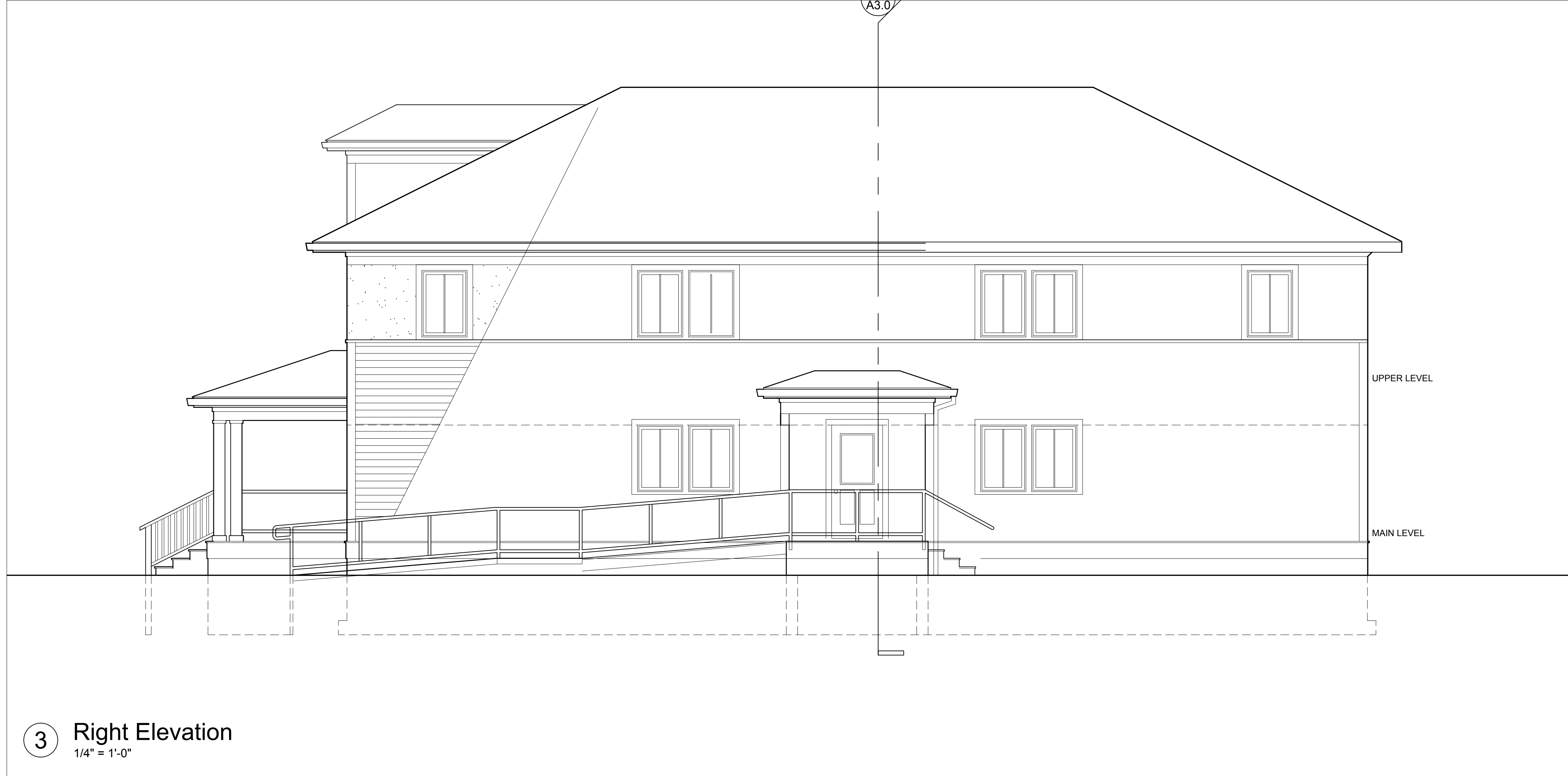
**2** Front Porch Detail  
1-1/2" = 1'-0"



**1** Front Elevation  
1/4" = 1'-0"



**4** Front Porch Detail  
1-1/2" = 1'-0"



**3** Right Elevation  
1/4" = 1'-0"



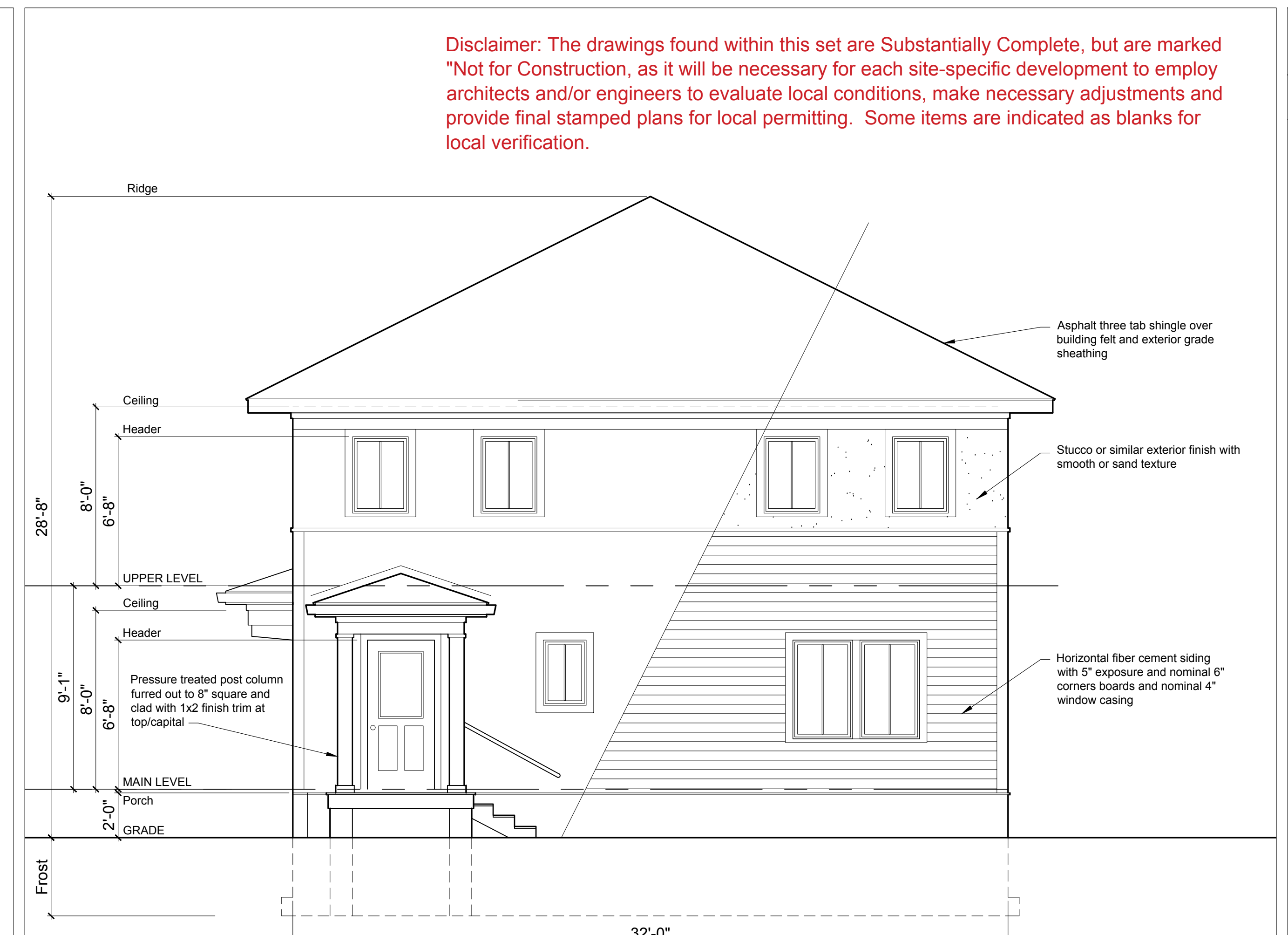
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**2** Rear Porch Detail  
1/2" = 1'-0"



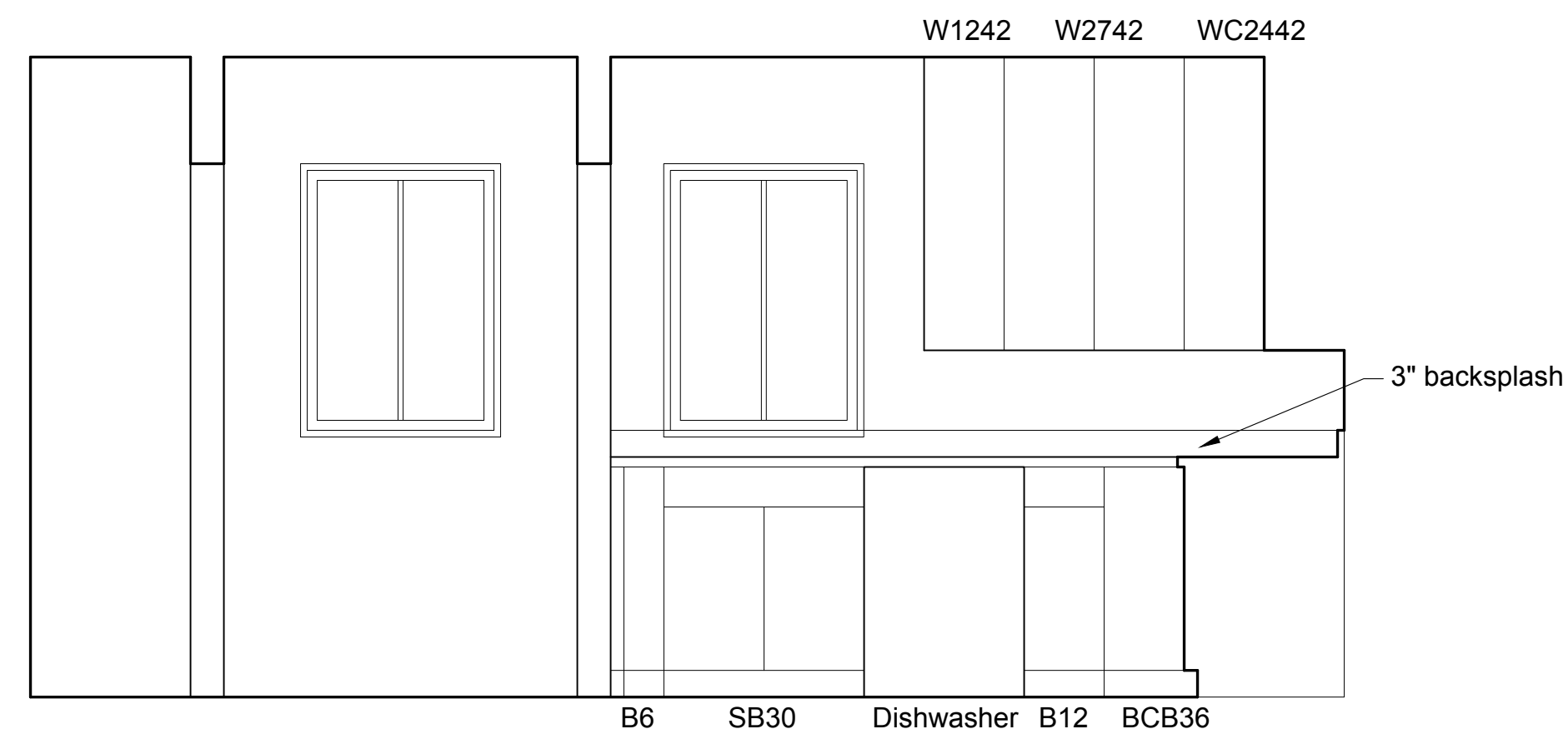
**1** Rear Elevation  
1/4" = 1'-0"



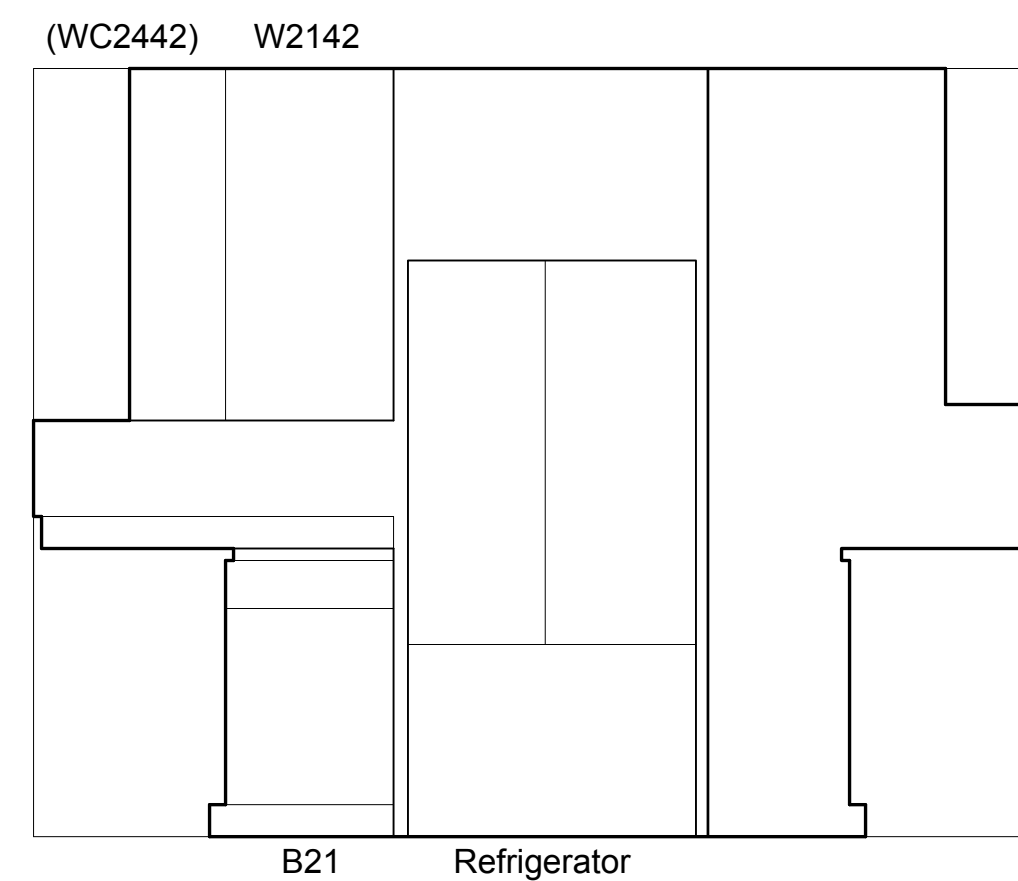
**3** Left Elevation  
1/4" = 1'-0"

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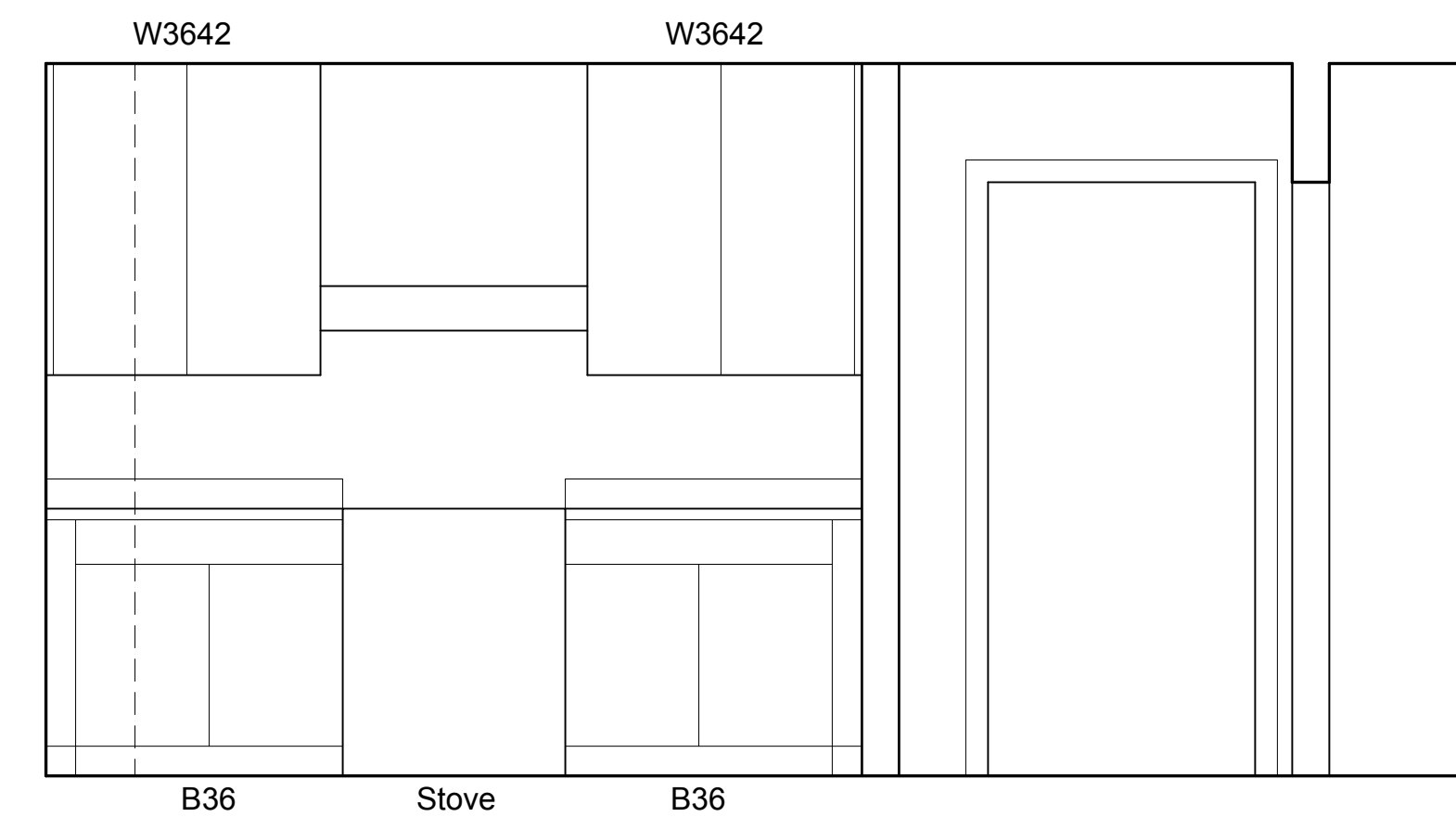
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③ Dishwasher



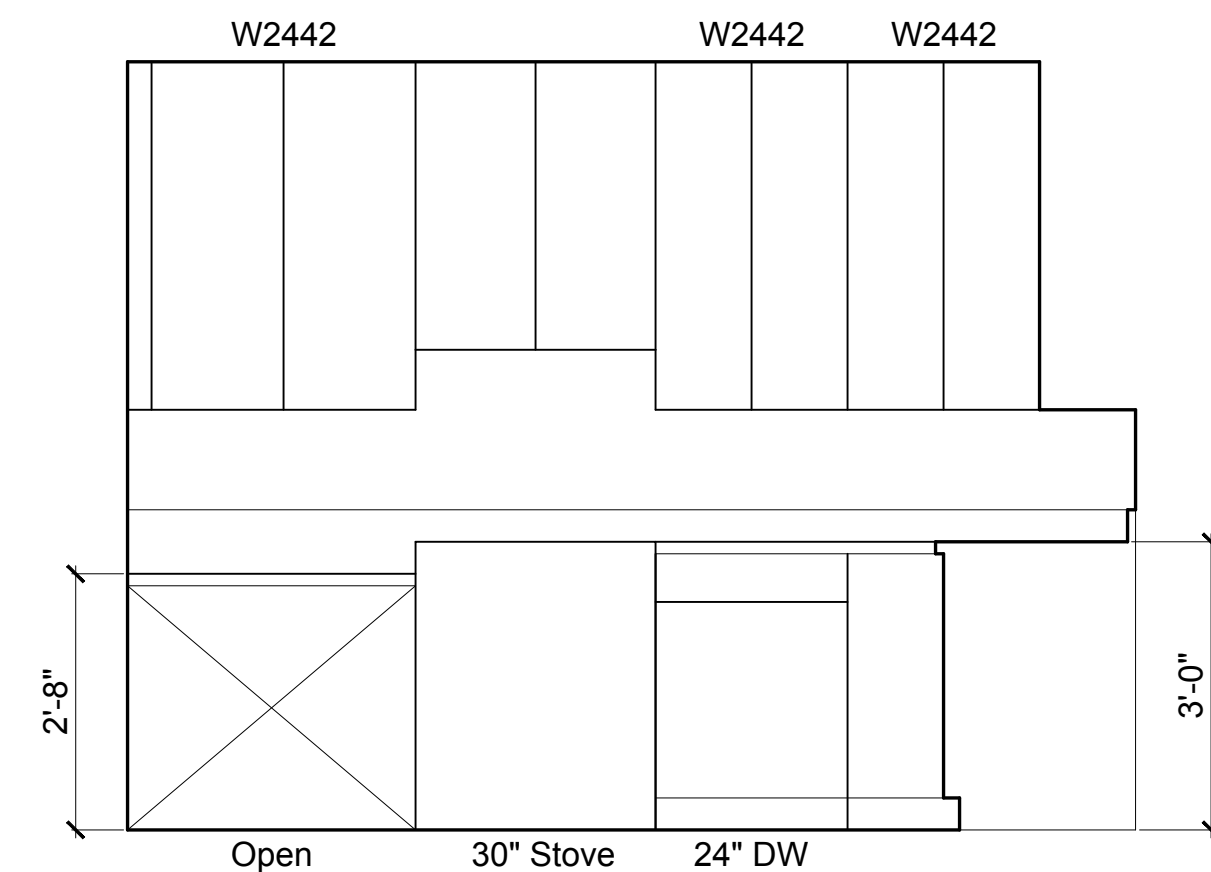
② Refrigerator



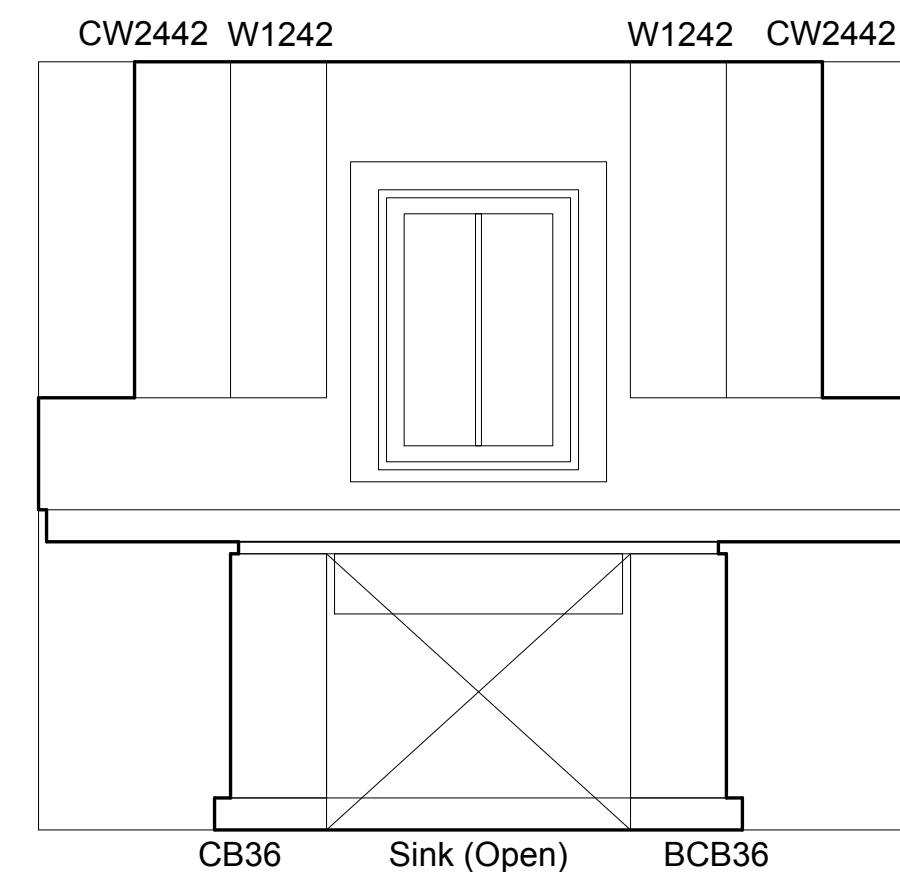
① Stove

Upper Kitchen Elevations

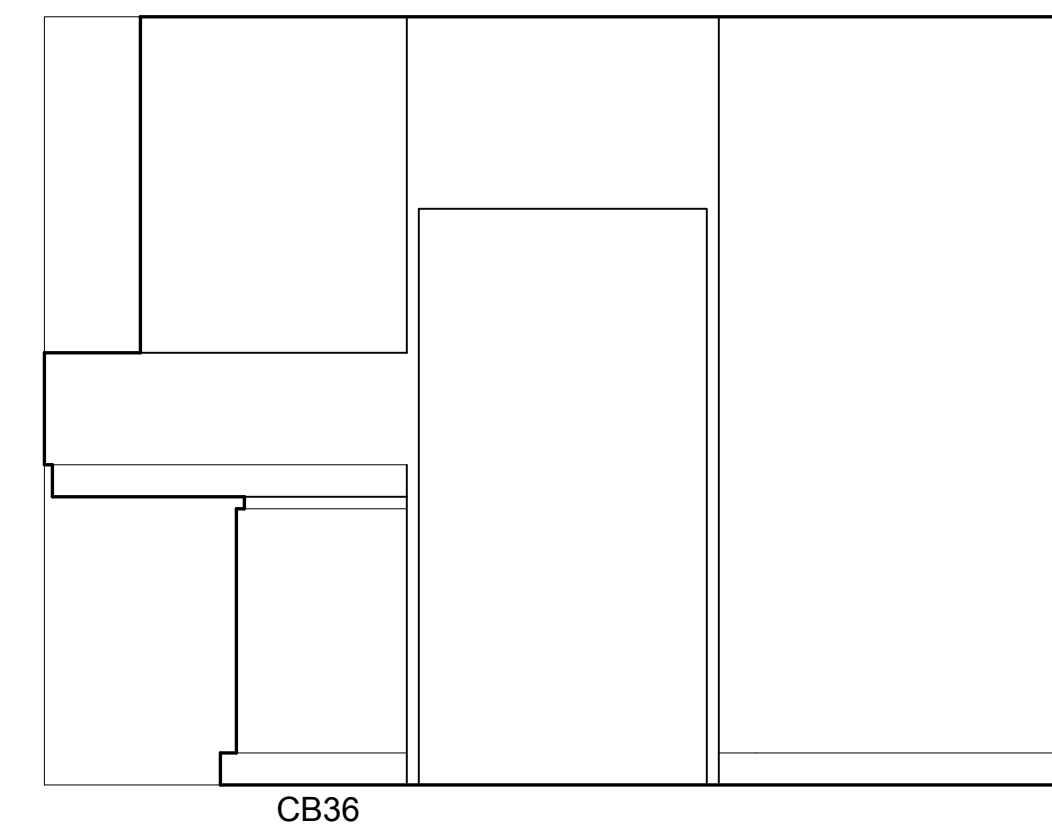
1/2" = 1'-0"



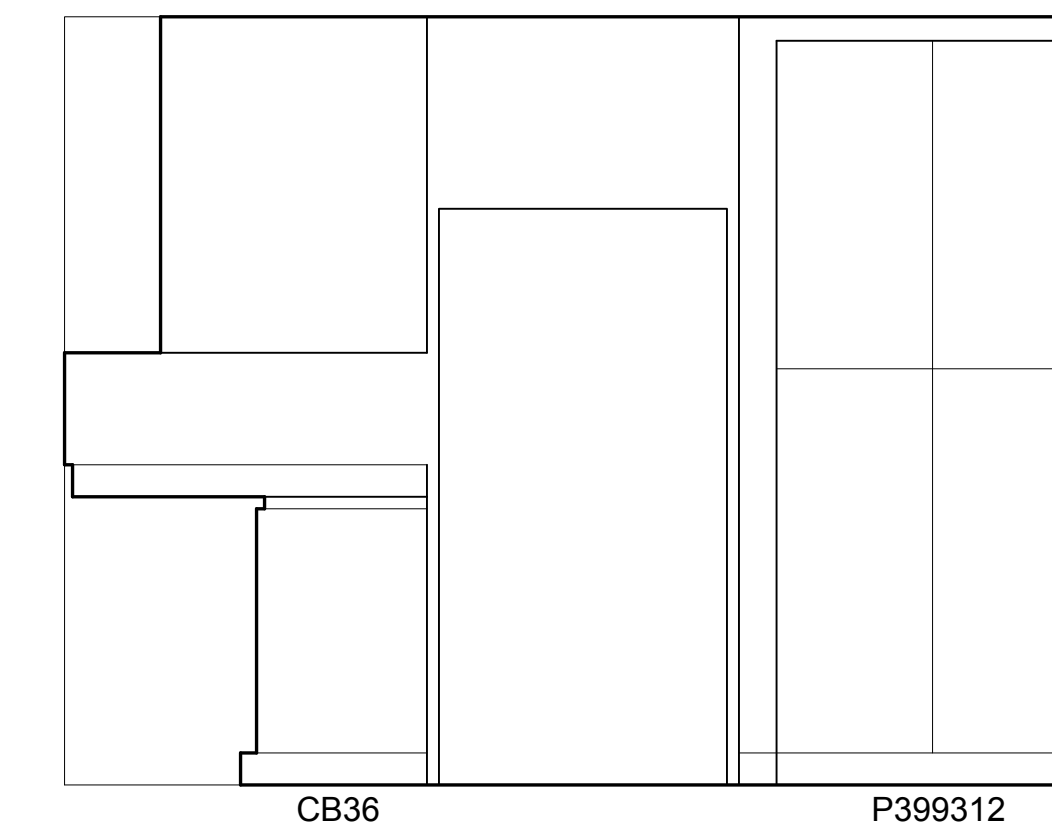
⑦ Stove & Dishwasher



⑥ Sink



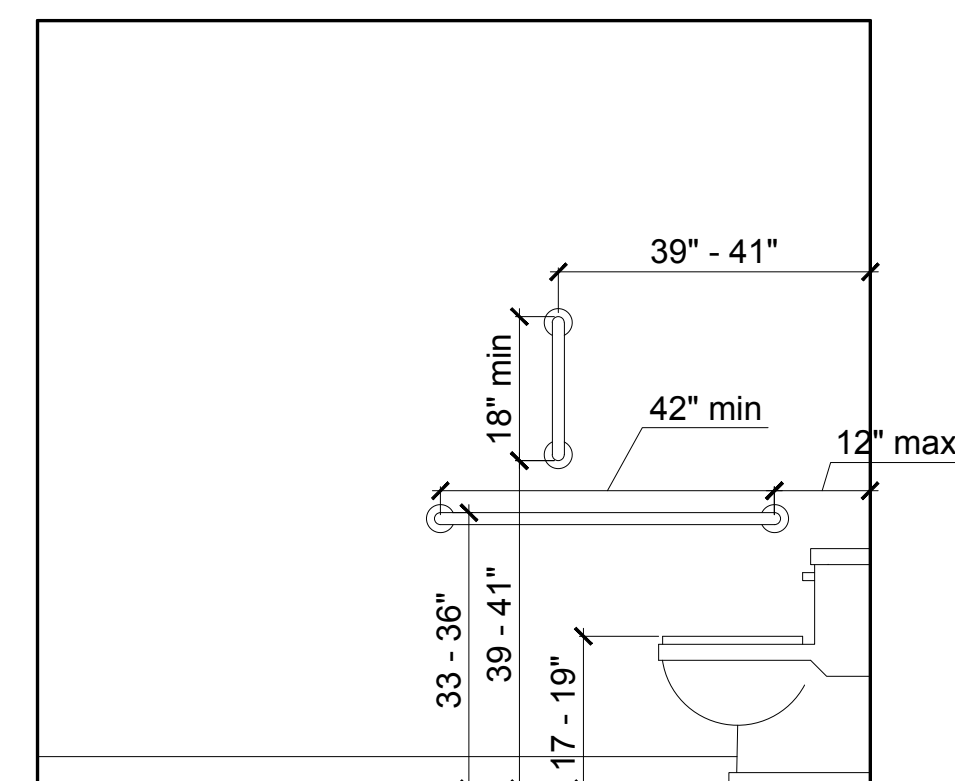
⑤ Refrigerator



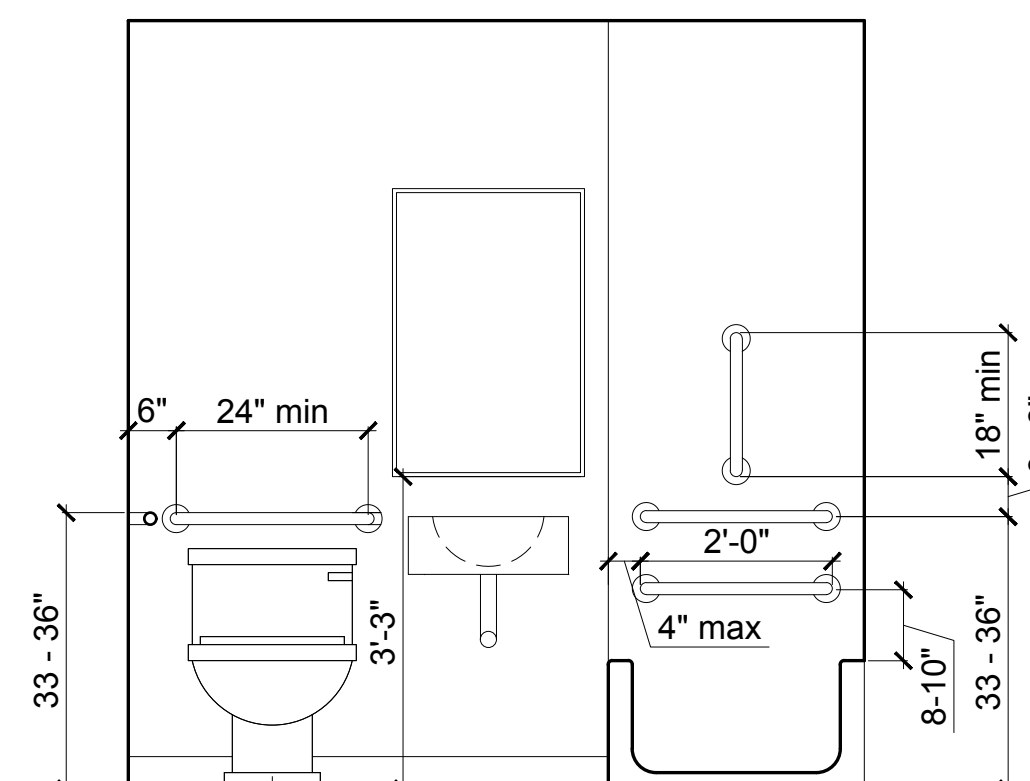
④ Refrig w/ Optional Pantry

Main Kitchen Elevations

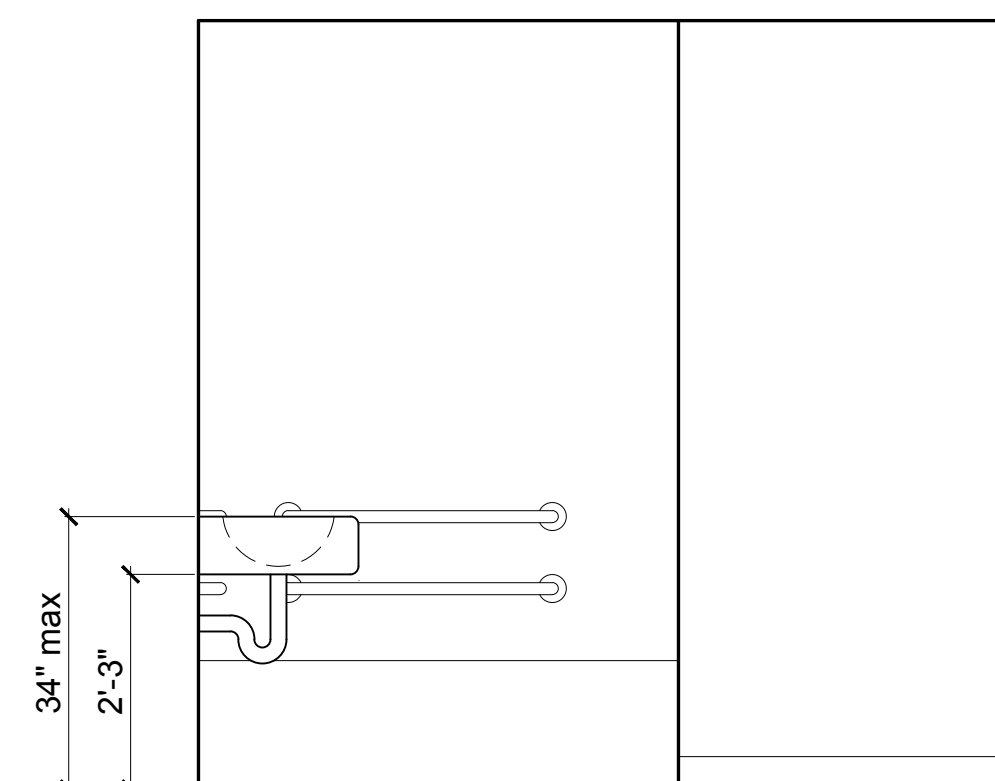
1/2" = 1'-0"



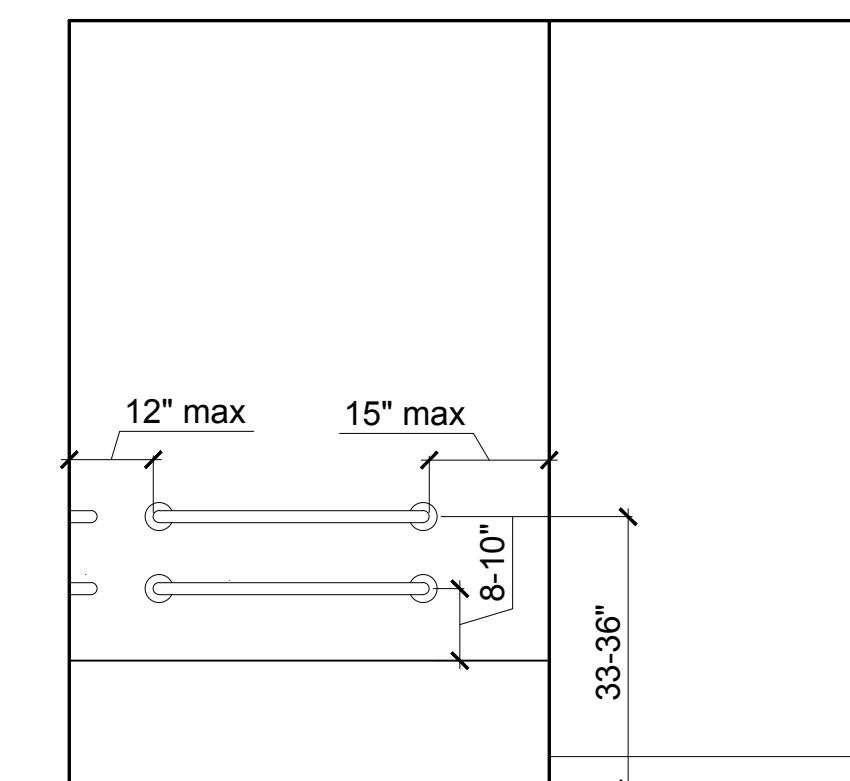
⑪ Side Toilet



⑩ Front Toilet



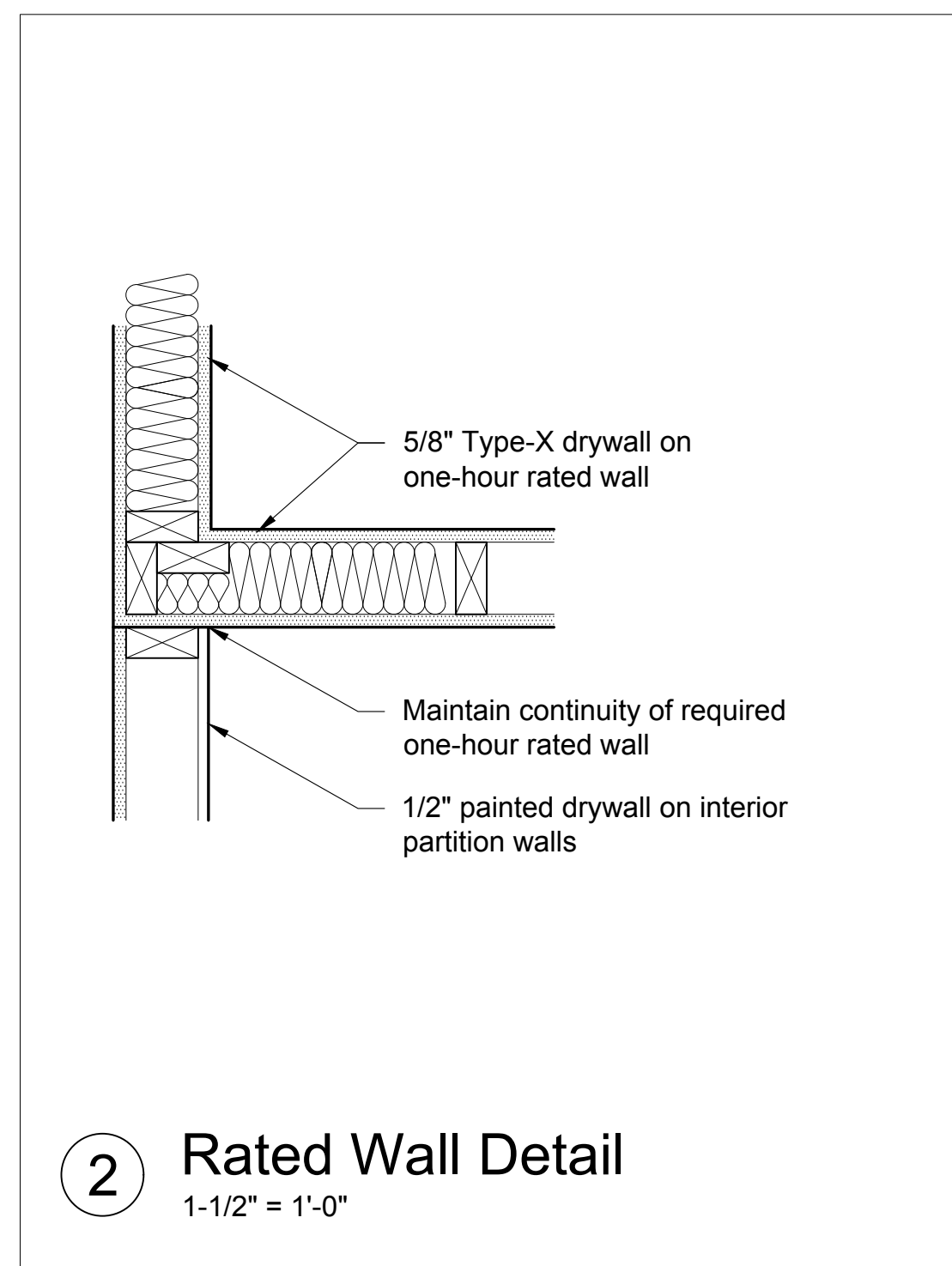
⑨ Lavatory



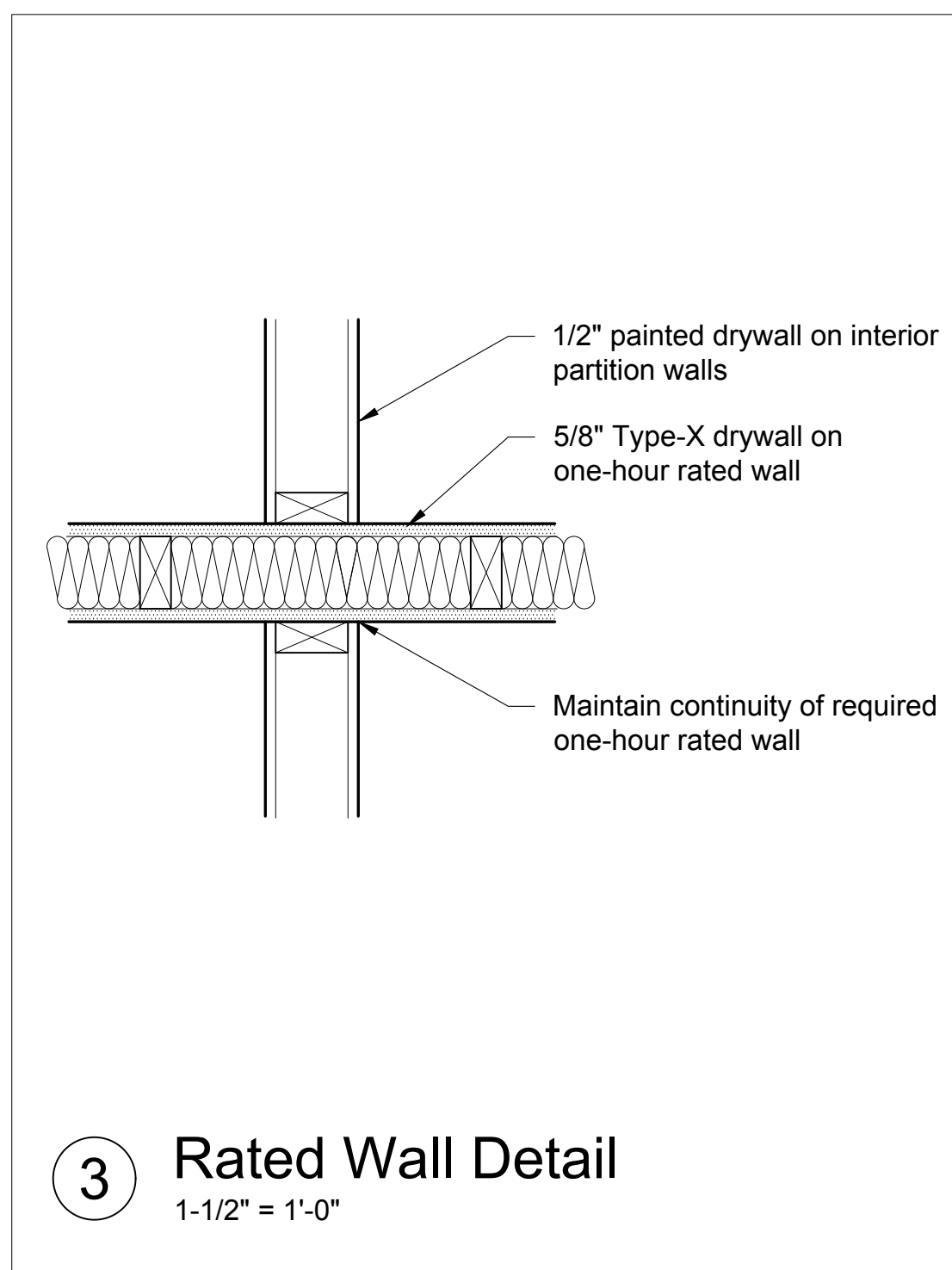
⑧ Bathtub

Upper Bath Elevations

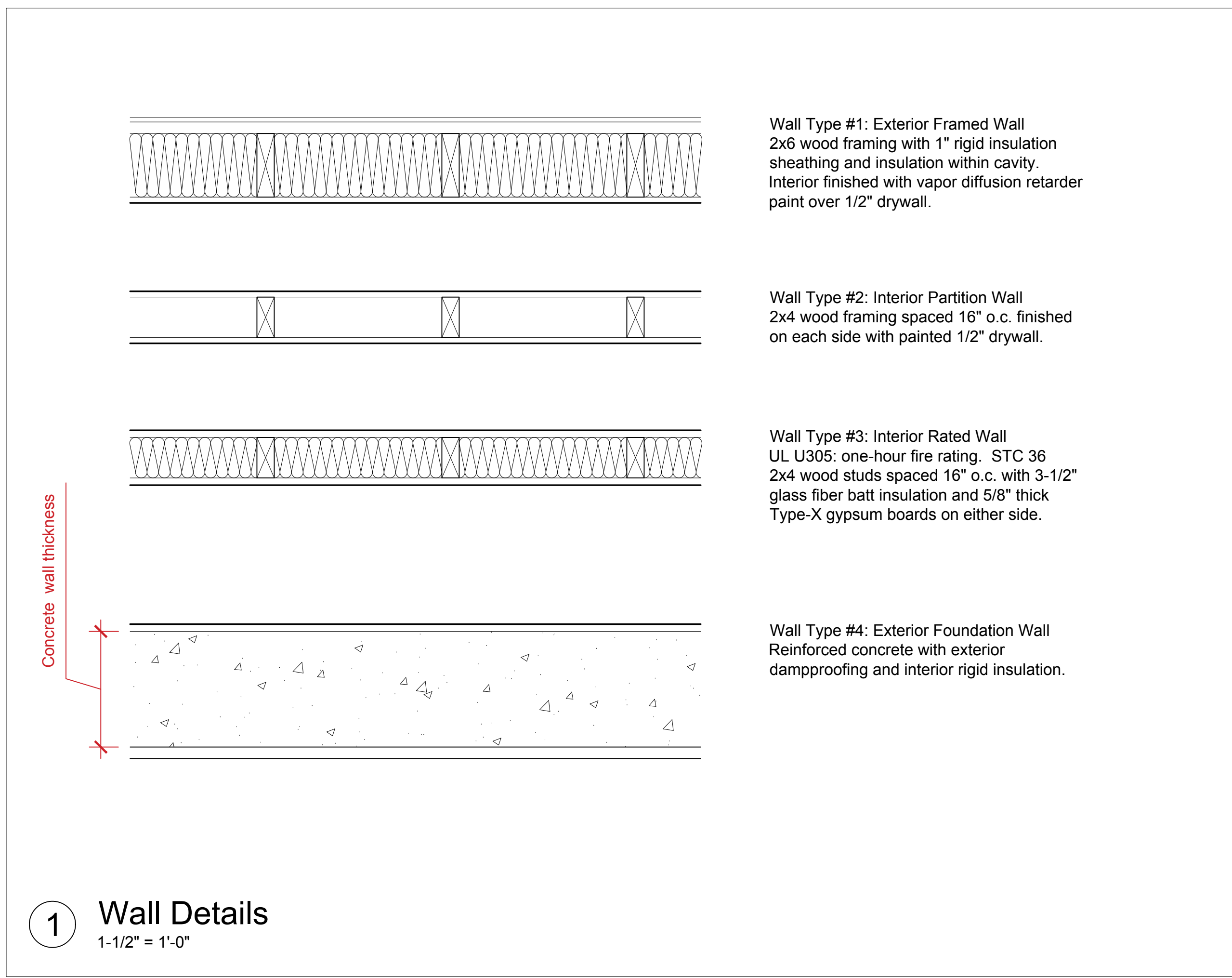
1/2" = 1'-0"



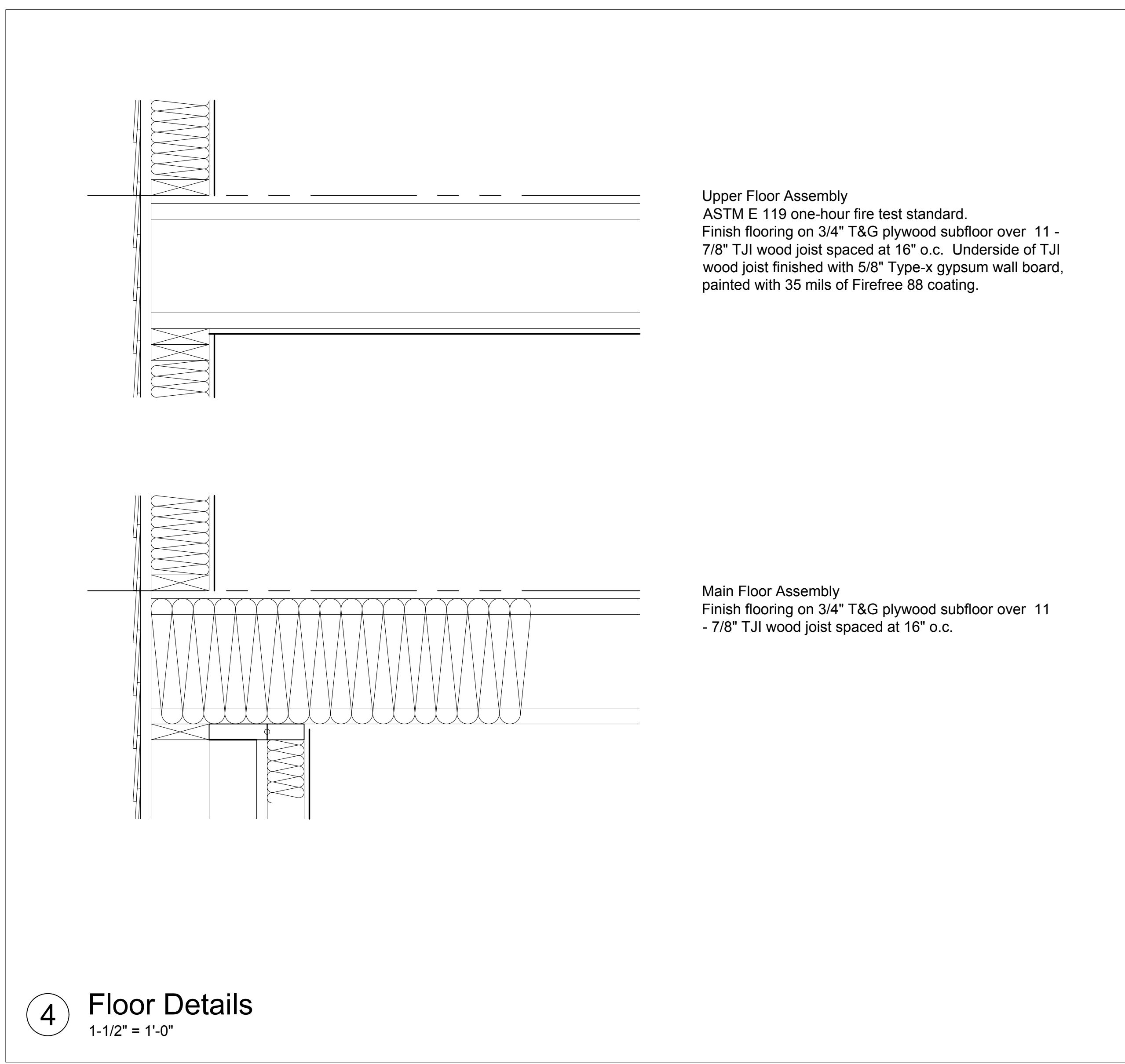
② Rated Wall Detail  
1-1/2" = 1'-0"



③ Rated Wall Detail  
1-1/2" = 1'-0"



① Wall Details  
1-1/2" = 1'-0"



④ Floor Details  
1-1/2" = 1'-0"

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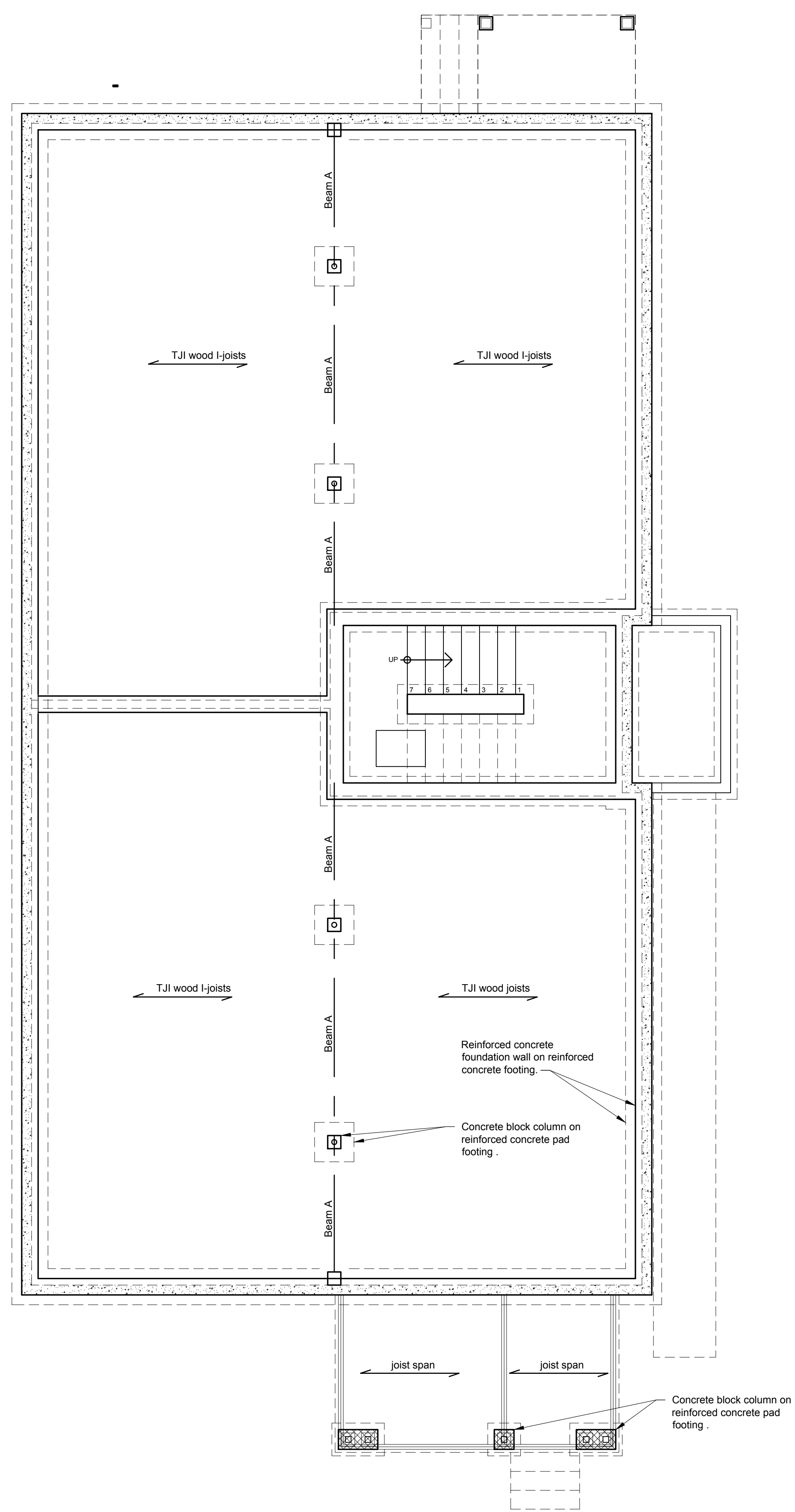
Job Number:  
2022xx  
Title:  
INTERIOR  
DETAILS

A6.0

**NOT FOR CONSTRUCTION**

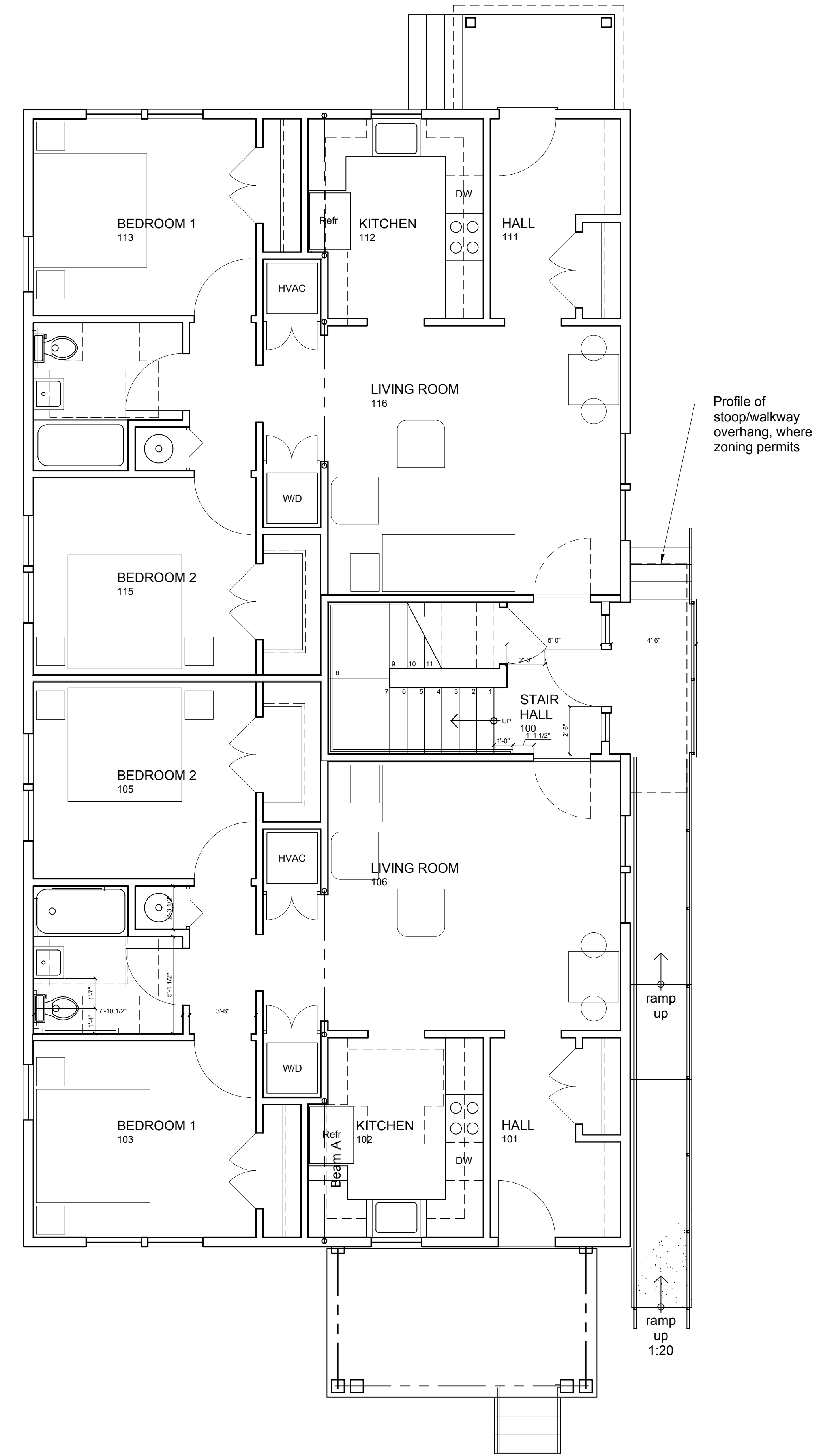
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DISCLAIMER LANGUAGE

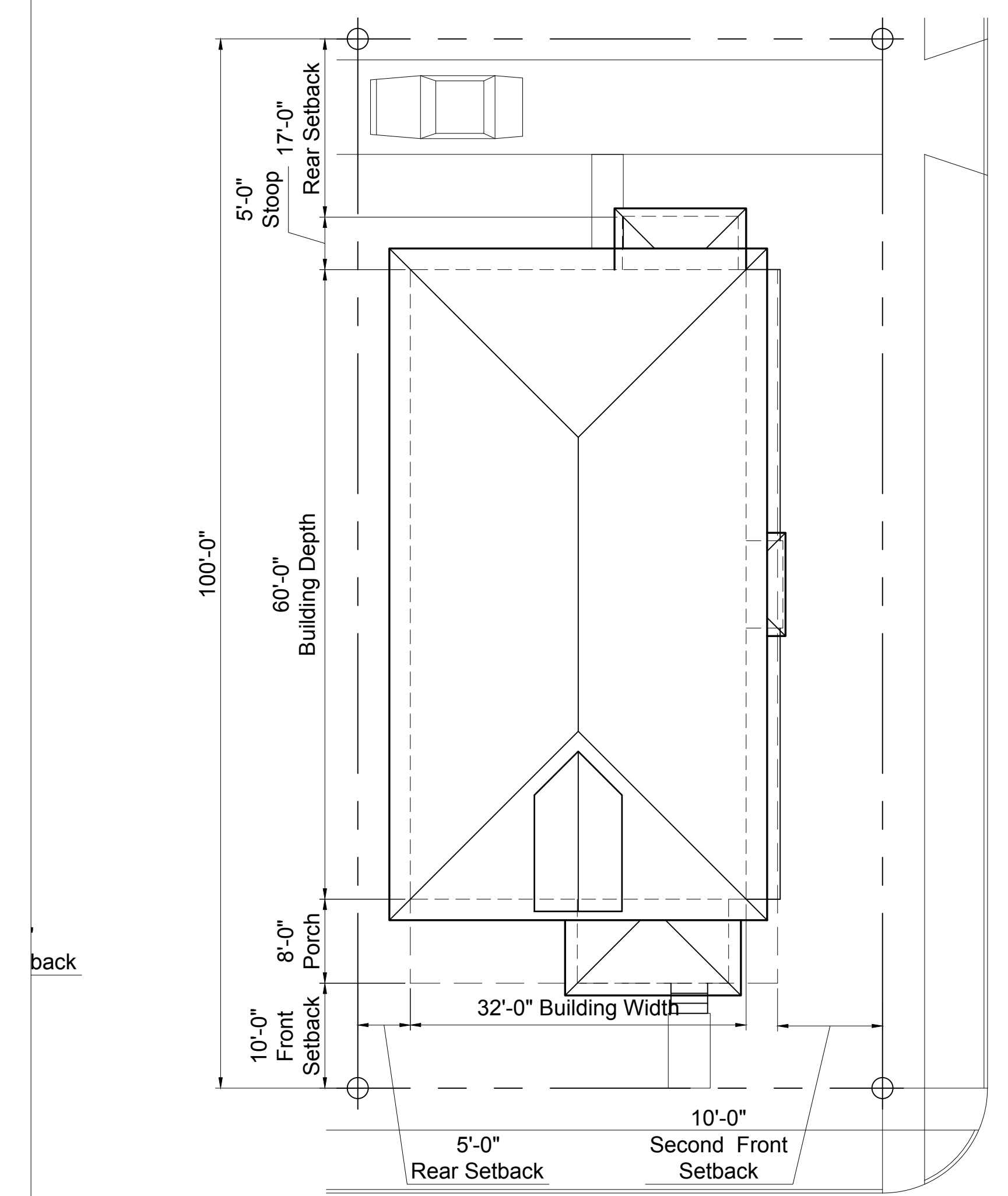
**1** Foundation Plan  
1/4" = 1'-0"



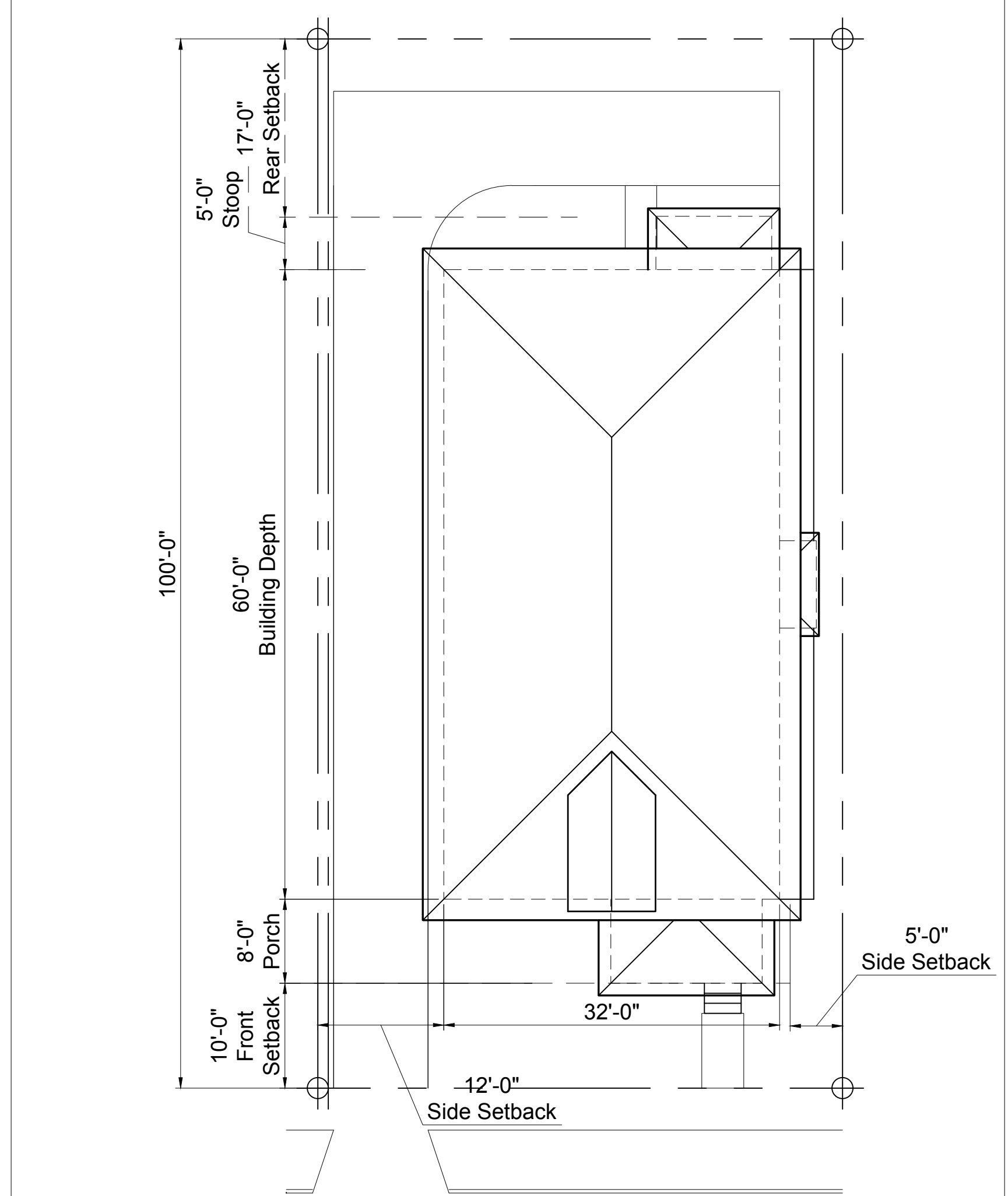
**1** Main Plan  
1/4" = 1'-0"

**NOT FOR CONSTRUCTION**

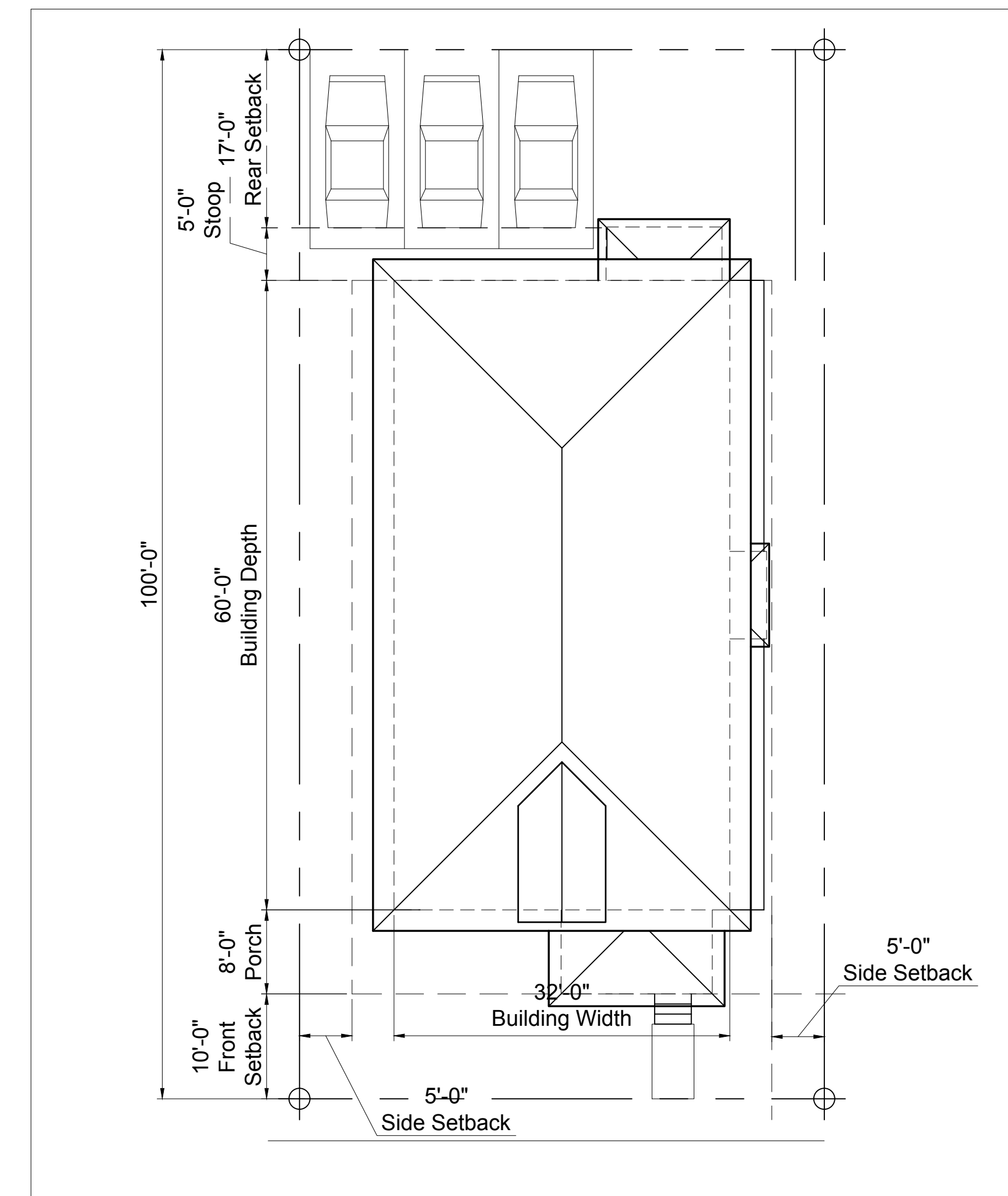
**THE GROVE**  
Michigan Municipal League



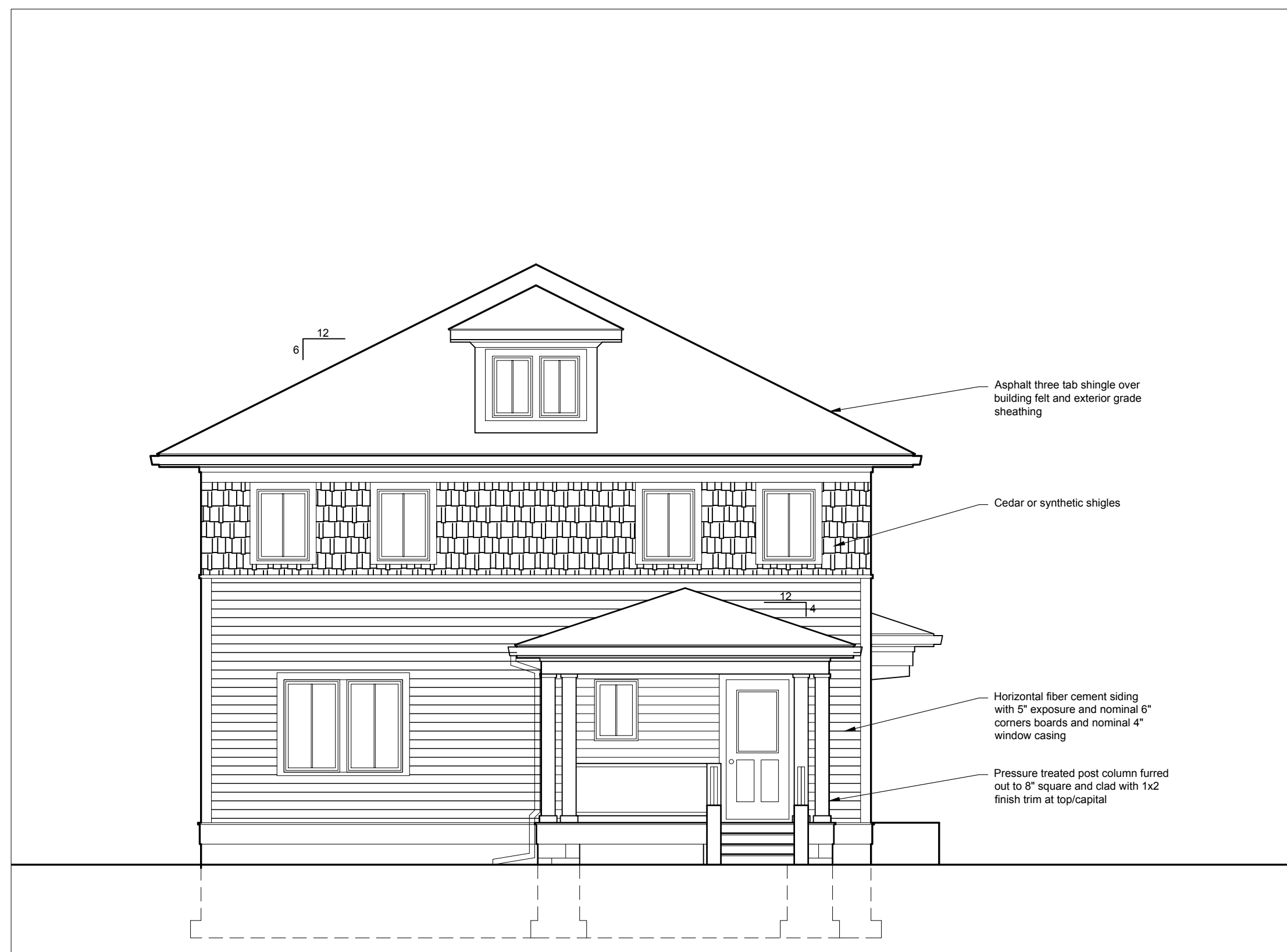
2 Site Plan - Corner  
3/32" = 1'-0"



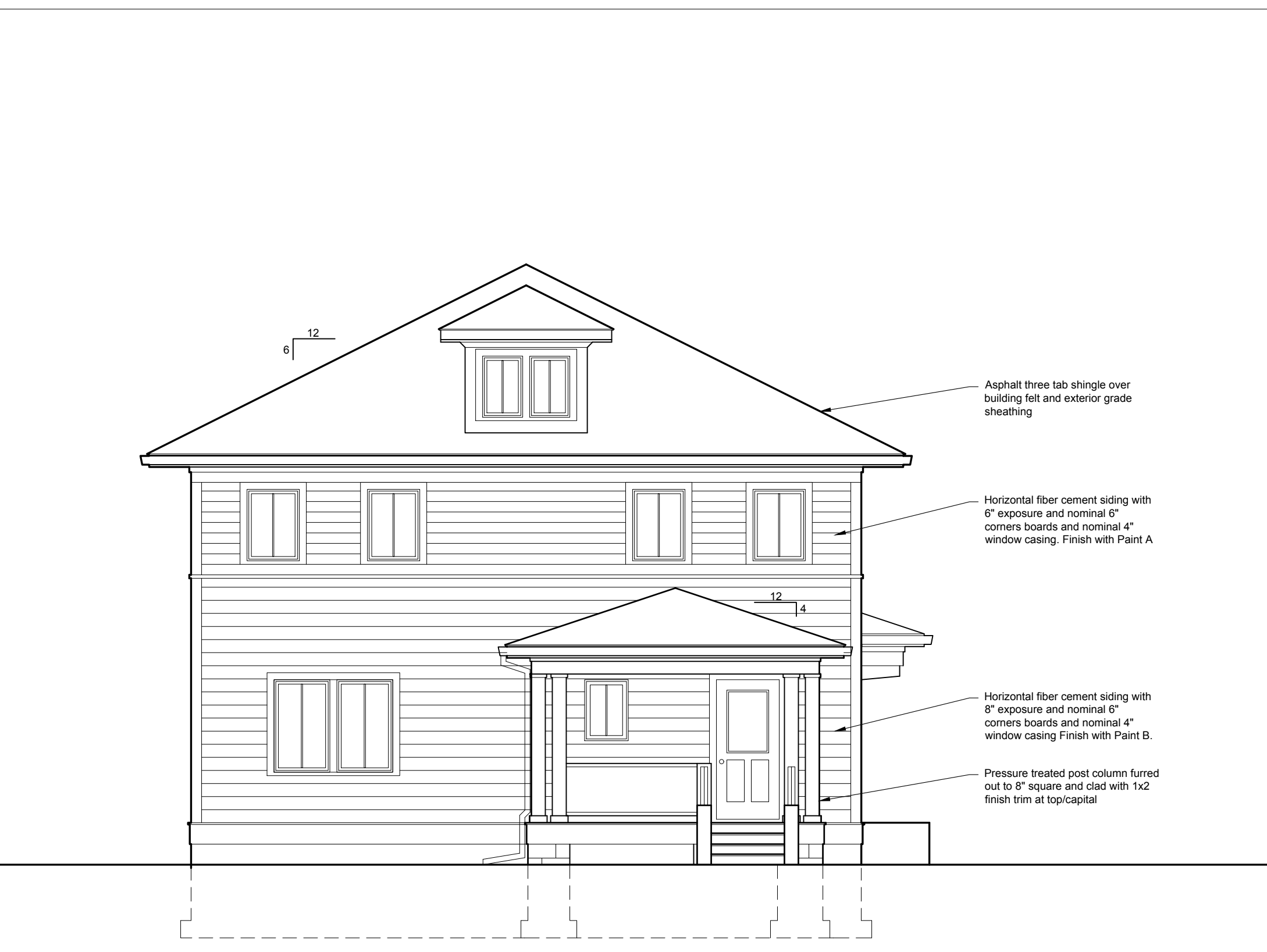
1 Site Plan - Standard Lot  
3/32" = 1'-0"



5 Site Plan - Alley Access  
3/32" = 1'-0"



4 Exterior Finish Option C  
No Scale



3 Exterior Finish Option B  
No Scale

# ABBREVIATIONS

A, AMP	AMPERES
AF	AMP FUSE OR AMP FRAME
AFC	AVAILABLE FAULT CURRENT (SYMMETRICAL)
A.F.F.	ABOVE FINISHED FLOOR
AIC	AMPERE INTERRUPTING CAPACITY
AM	AMMETER
ASYM.	ASYMMETRICAL
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CAP	CAPACITY OR CAPACITOR
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT, CCT	CIRCUIT
C.O.	CONDUIT ONLY
CONN.	CONNECT OR CONNECTION
CU	COPPER
DA	DURESS ALARM
DB	DOOR BELL
DISC.	DISCONNECT
DPST	DOUBLE POLE SINGLE THROW
EC	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER (COORDINATE ACCESSIBILITY OF GFCI)
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATION OR ELEVATOR
EMERGS, EM	EMERGENCY
EPO	EMERGENCY POWER OFF
EMT	ELECTRICAL METAL TUBING
FIXT.	FIXTURE
FLA	FULL LOAD AMPERES
FLUOR.	FLUORESCENT
GRC, GCR	GALVANIZED RIGID CONDUIT
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GRD, GND, G	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
I.G.	ISOLATED GROUND
INCAND.	INCANDESCENT
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LTG	LIGHTING
LV	LOW VOLTAGE
MA TV	MASTER ANTENNA TELEVISION
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE, METAL HALIDE OR MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
N.C.	NORMALLY CLOSED
N.E.C.	NATIONAL ELECTRICAL CODE
N.I.C.	NOT IN CONTRACT
NF	NON FUSIBLE
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OL	OVERLOADS
P	POLE
PB	PULL BOX
PH OR Ø	PHASE
PNL	PANEL
PR	PAIR
PVC	POLYVINYL CHLORIDE
PWR.	POWER
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
SOL	SOLENOID
SPDT	SINGLE POLE DOUBLE THROW
SPKR	SPEAKER
SPST	SINGLE POLE SINGLE THROW
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TEL	TELEPHONE
XFMR	TRANSFORMER
TTB	TELEPHONE TERMINAL BACKBOARD
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERES
VD	VOLTAGE DROP
VM	VOLT METER
W	WATTS OR WIRE
W	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XP	EXPLOSION PROOF

# CIRCUIT DESIGNATIONS

BRANCH CIRCUIT HOMERUN, PROVIDE PHASE, NEUTRAL AND GROUND CONDUCTORS FOR EACH INDICATED CIRCUIT OR MULTI WIRE BRANCH AS REQUIRED. PROVIDE SWITCH LEGS FOR SWITCH CIRCUITING AS REQUIRED. PROVIDE EQUIPMENT GROUND WIRE IN ALL BRANCH CIRCUIT RACEWAYS/CIRCUITS. PROVIDE SEPARATE ISOLATED GROUND WIRE TO ALL ISOLATED GROUND DEVICES.

CONDUIT SIZE	MAX QUANTITY OF CONDUCTORS PER CONDUIT		
	CONDUCTOR SIZE		
	12	8	
1/2 INCH	1 TO 4	1 TO 4	NA
3/4 INCH	5 TO 8	5 TO 6	1 TO 3
1 INCH	9 TO 13	7 TO 11	4 TO 5

SEE SPECIFICATIONS FOR LIMITATIONS ON QUANTITY OF CURRENT CARRYING CONDUCTORS PER CONDUIT

# LIGHTING

NOTE A: UPPER CASE ALPHANUMERIC SUBSCRIPT DENOTES FIXTURE TYPE. SEE SCHEDULE(S)  
NOTE B: LOWER CASE LETTER SUBSCRIPT PROVIDED ADJACENT TO SWITCHING DEVICE AND ASSOCIATED LIGHT FIXTURE(S) WHERE REQUIRED FOR CLARIFICATION.

S SWITCH AT +48" U.O.N.  
THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE VARIOUS TYPES OF SWITCHES.  
NO SUBSCRIPT - SINGLE POLE  
2 — DOUBLE POLE  
3 — THREE WAY  
4 — FOUR WAY  
D — DIMMER, COMPATIBLE WITH FIXTURE, LUTRON MAESTRO.  
f — FUSED  
L — PILOT LIGHT  
LV — LOW VOLTAGE/DIGITAL SWITCH  
OS — WALL SWITCH OCCUPANCY SENSOR, DUAL TECHNOLOGY.  
DOS — WALL SWITCH OCCUPANCY SENSOR, DUAL TECHNOLOGY.  
TE — MANUAL STARTER WITH THERMAL ELEMENT  
XP — EXPLOSION PROOF  
M — MOTOR RATED

# POWER AND DIAGRAMS

NOTE:  
A. OUTLETS IN FINISHED OR SHELL SPACES SHALL BE MOUNTED AT +18" UON.  
B. OUTLETS IN GARAGE, MECHANICAL, AND ELECTRICAL SPACES SHALL BE MOUNTED AT 48" UON.  
C. OUTLETS SHALL BE TAMPER PROOF, WHERE REQUIRED PER CODE.  
D. OUTLETS SHALL HAVE AFCI PROTECTION, WHERE REQUIRED PER CODE.  
E. OUTLETS SHALL HAVE GFCI PROTECTION, WHERE REQUIRED PER CODE.

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE DIFFERENT TYPES OF RECEPTACLES

WP — WEATHERPROOF, EXTRA DUTY, WITH STEEL IN-USE COVER.  
CL — CLOCK MOUNTED AT +84", REGRESSED SINGLE RECEPTACLE, WITH CLOCK HANGER.  
H — HORIZONTAL MOUNTING  
U — DUAL USB INCLUDED WITH RECEPTACLE TYPE SHOWN.

TYPICAL SYMBOLOLOGY:

# FIRE DETECTION AND ALARM

CONTROL PANEL AT +72" TO TOP

FIRE ALARM ANNUNCIATOR PANEL AT +72" TO TOP

MANUAL STATION AT +48"

FIRE SUPPRESSION SYSTEM ABORT SWITCH STATION AT +48"

COMBINATION CARBON MONOXIDE / SMOKE DETECTOR WITH ANNUNCIATION

SMOKE DETECTOR - PHOTO ELECTRIC AREA BEAM

DUCT SMOKE DETECTOR

FIRE/ SMOKE DAMPER

AUTOMATIC HEAT DETECTOR

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE THE VARIOUS TYPE OF HEAT DETECTORS

NO SUBSCRIPT - FIXED TEMPERATURE (165 DEGREE U.O.N.)  
RIF — COMBINATION RATE OF RISE FIXED TEMPERATURE (135 DEGREE U.O.N.)  
XP — EXPLOSION PROOF, FIXED TEMPERATURE (135 DEGREE U.O.N.) CLASS 1, GROUP C

NOTE: WALL MOUNT VISUAL AND COMBINATION AUDIO/VISUAL NOTIFICATION APPLIANCES AT +80" AFF TO BOTTOM OF FACE PLATE U.O.N.

V VISUAL NOTIFICATION APPLIANCE  
A WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCE  
AV WALL MOUNTED COMBINATION AUDIBLE/VISUAL NOTIFICATION APPLIANCE  
V CEILING MOUNTED VISUAL NOTIFICATION APPLIANCE  
A CEILING MOUNTED AUDIBLE NOTIFICATION APPLIANCE  
AV CEILING MOUNTED COMBINATION AUDIBLE/VISUAL NOTIFICATION APPLIANCE  
DH MAGNETIC DOOR HOLDER, COORDINATE MOUNTING HEIGHT WITH DOOR MANUFACTURER.  
FR ELECTROMECHANICAL DOOR RELEASE, COORDINATE WITH DOOR MANUFACTURER.  
FS SPRINKLER OR STANDPIPE FLOW ALARM SWITCH CONNECTION  
TS VALVE TAMPER SWITCH  
F AIR PRESSURE MONITOR SWITCH FOR PRE-ACTION OR DRY PIPE SPRINKLER SYSTEM

# TELECOMMUNICATION

GENERAL NOTES

NOTE A: OUTLETS IN FINISHED OR SHELL SPACES SHALL BE MOUNTED AT +18" UON.  
NOTE B: OUTLETS LOCATED AT COUNTERS SHALL BE LOCATED 18" AFF IN KNEE SPACE IF PROVIDED OR 4" ABOVE COUNTER OR BACK SPLASH AS APPLICABLE IF NO KNEE SPACE IS PROVIDED UON.  
NOTE C: WHERE ASTERISK (\*) IS INDICATED NEXT TO OUTLET AT WORK COUNTER, OUTLET SHALL BE LOCATED ABOVE COUNTER RATHER THAN IN KNEE SPACE.

STANDARD TELECOMMUNICATIONS OUTLET - PROVIDE EXTRA DEEP DOUBLE GANG BOX WITH SINGLE GANG MUD RING AND (1) 1" CONDUIT TO ABOVE FINISHED CEILING, MOUNTED AT 18" AFF, UON. PROVIDE PLASTIC BUSHING AT THE ENDS OF THE CONDUITS. DATA DEVICES AND WIRING PROVIDED BY OTHERS, UON.

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE THE VARIOUS (NON-STANDARD) TYPES OF OUTLETS

F FLOOR MOUNTED.  
C CEILING MOUNTED.  
48" MOUNTED 48" AFF, UON.  
72" MOUNTED 72" AFF, UON.  
44" TELEPHONE AT 44" AFF, UON.  
TV TELEVISION, MOUNTED AT NOTED HEIGHT.  
B — BLANK (ROUGH-IN TO ACCESSABLE CEILING SPACE) WITH BLANK COVERPLATE  
F — FIBER  
# — THE FIRST NUMBER INDICATES THE NUMBER OF CAT6 CABLES. THE SECOND NUMBER INDICATES THE QUANTITY OF JACK LOCATIONS.  
CLOCK - SEE SPECIFICATIONS FOR REQUIREMENTS.  
S SPEAKER FOR PA SYSTEM.  
DO ADA DOOR CONTROL OPENER, COORDINATE WITH DOOR REQUIREMENTS  
DC DOOR CONTROLS, COORDINATE WITH SECURITY, AUTO AND MANUAL CONTROLS

# SECURITY

FIXED VIDEO SURVEILLANCE CAMERA

DOOR POSITION SWITCH

CONNECTION TO ELECTRIC OR PNEUMATIC DOOR LOCK

CARD READER AT +48"

**NOTE:**  
SYMBOLS SHOWN ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A CHECK LIST OF DEVICES REQUIRED BY THE CONTRACT

# GENERAL

MOUNTING HEIGHTS TO BE AS INDICATED. UON, MOUNTING HEIGHTS ARE TO CENTER OF DEVICE FROM FINISHED FLOOR OR GRADE, UON. SEE SPECIFICATION DIV 26 FOR ADDITIONAL REQUIREMENTS.

KEY NOTE REFERENCE SYMBOL. DENOTES "SEE KEY NOTE NO. 2"

FOOT ON DEVICE INDICATES WALL MOUNTED

# DEMOLITION AND REMODEL

EXISTING ELECTRICAL ITEM TO BE REMOVED, UON.

EXISTING ELECTRICAL ITEM TO REMAIN

EXISTING ELECTRICAL ITEM TO BE REMOVED AND PROVIDED WITH A BLANK COVERPLATE

EXISTING ELECTRICAL CIRCUIT TO BE REMOVED SHOWN ONLY WHERE CLARIFICATION BETWEEN EXISTING TO REMAIN AND REMOVED ITEMS IS REQUIRED

SEE PLANS AND NOTES FOR DEVICES INTEND FOR REUSE AND / OR REPURPOSING.

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### GENERAL NOTES:

- ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ACCEPTED EDITION OF THE NATIONAL ELECTRICAL CODE, NEC, AND ALL STATE AND LOCAL CODES.
- COORDINATE THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND CONNECTIONS WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL AND EQUIPMENT DRAWINGS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER, CONDUITS, AND OTHER COMPONENTS AS SHOWN ON THE EQUIPMENT PROVIDER DRAWINGS FOR INSTALLATION OF SYSTEM.
- "BACK TO BACK" OR THROUGH THE WALL BOXES SHALL NOT BE USED.
- INSTALL HANDLE LOCK-ON, ON ALL CIRCUIT BREAKERS CONTROLLING NIGHT LIGHT, EMERGENCY LIGHT AND EXIT LIGHT CIRCUITS.
- ALL RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE.
- PROVIDE TAMPER RESISTANT RECEPTACLES WHERE REQUIRED BY APPLICABLE CODES.
- RECEPTACLES INDICATED AS GROUND FAULT CIRCUIT INTERRUPTER TYPE SHALL BE MOUNTED IN AN ACCESSIBLE LOCATION, PER CODE OR PROVIDED WITH A GFCI BREAKER.
- ALL CONDUCTORS SHALL BE COPPER. ALUMINUM WIRES SHALL NOT BE USED.
- MINIMUM CONDUIT SIZE SHALL BE 1/2" FOR POWER FEEDS AND 1" FOR DATA FEEDS.
- FINAL CONNECTION TO ITEMS SUBJECT TO VIBRATION SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT.
- 120/240 VAC CIRCUIT WIRING FOR ANY ROOM OR AREA MAY BE GROUPED INTO RACEWAYS UNLESS SEPARATE RACEWAYS ARE REQUIRED BY THE NEC. COMPLY WITH NEC REQUIREMENTS FOR CONDUCTOR DERATING.
- PROVIDE EQUIPMENT GROUNDING CONDUCTORS FOR ALL POWER AND LIGHTING CIRCUITS.
- ALL LIGHTING AND POWER CONDUCTORS SHALL BE 12 AWG MINIMUM. ALL CONTROL CONDUCTORS SHALL BE 14 AWG MINIMUM OR AS SPECIFIED BY MANUFACTURER.
- DEDICATED NEUTRAL SHALL BE PROVIDED FOR ALL CIRCUITS. SHARED NEUTRALS ARE NOT ALLOWED.
- BASIS OF DESIGN IS FOR A COMPLETE ELECTRICAL SYSTEM, INSTALLED PER CODE REQUIREMENTS.
- PROVIDE AN UNSWITCHED HOT TO ALL EMERGENCY BATTERY PACKS, LIGHTING INVERTERS AND EMERGENCY LIGHTING UNITS AHEAD OF AN LIGHTING CONTROLS FROM THE BRANCH CIRCUIT SERVING LIGHTING IN THE SURROUNDING AREA.

**Do not scale.**  
Use figured dimensions only.  
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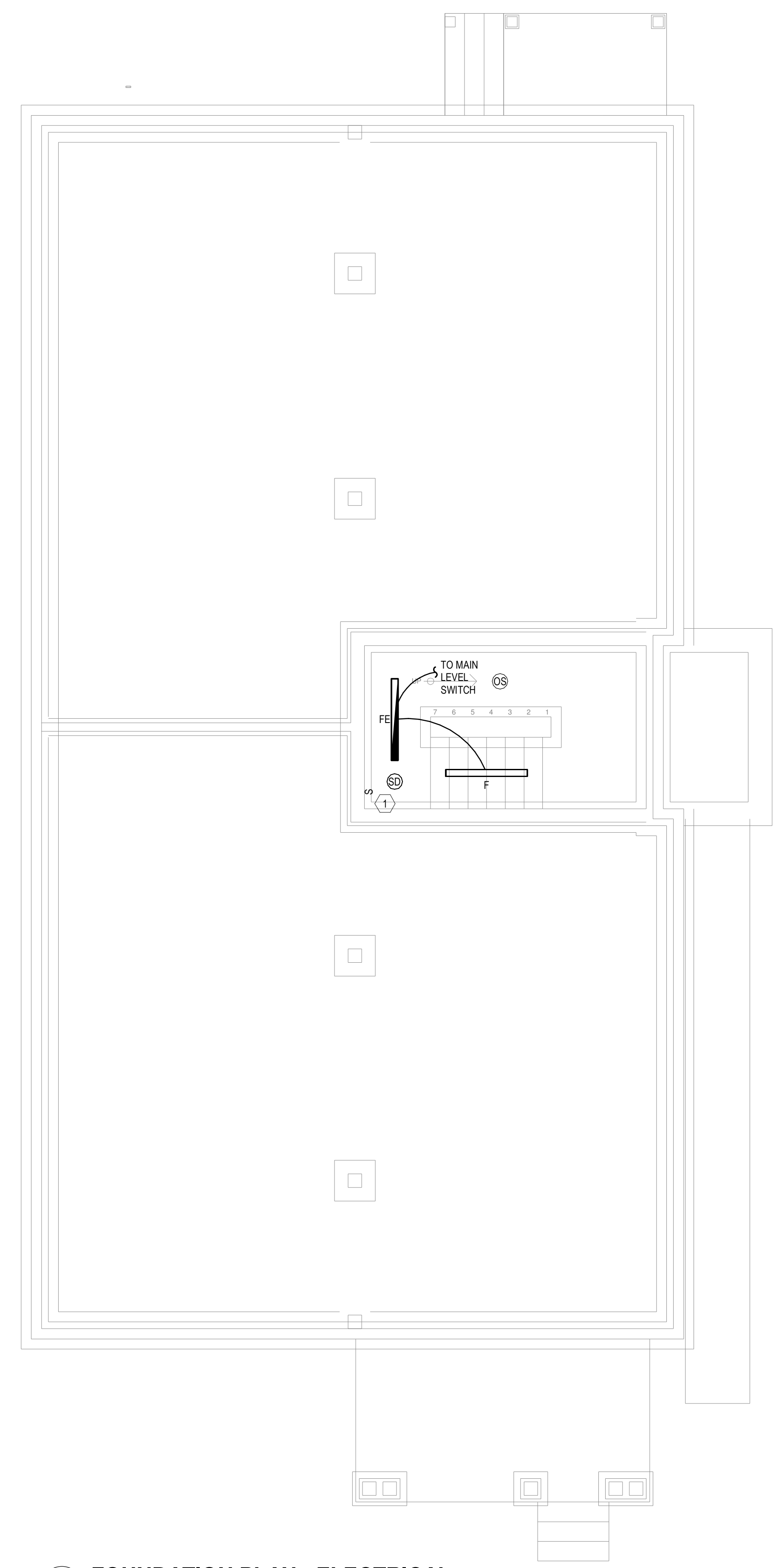
Job Number:  
2022xx  
Title:  
ELECTRICAL COVER SHEET

**E0.1**

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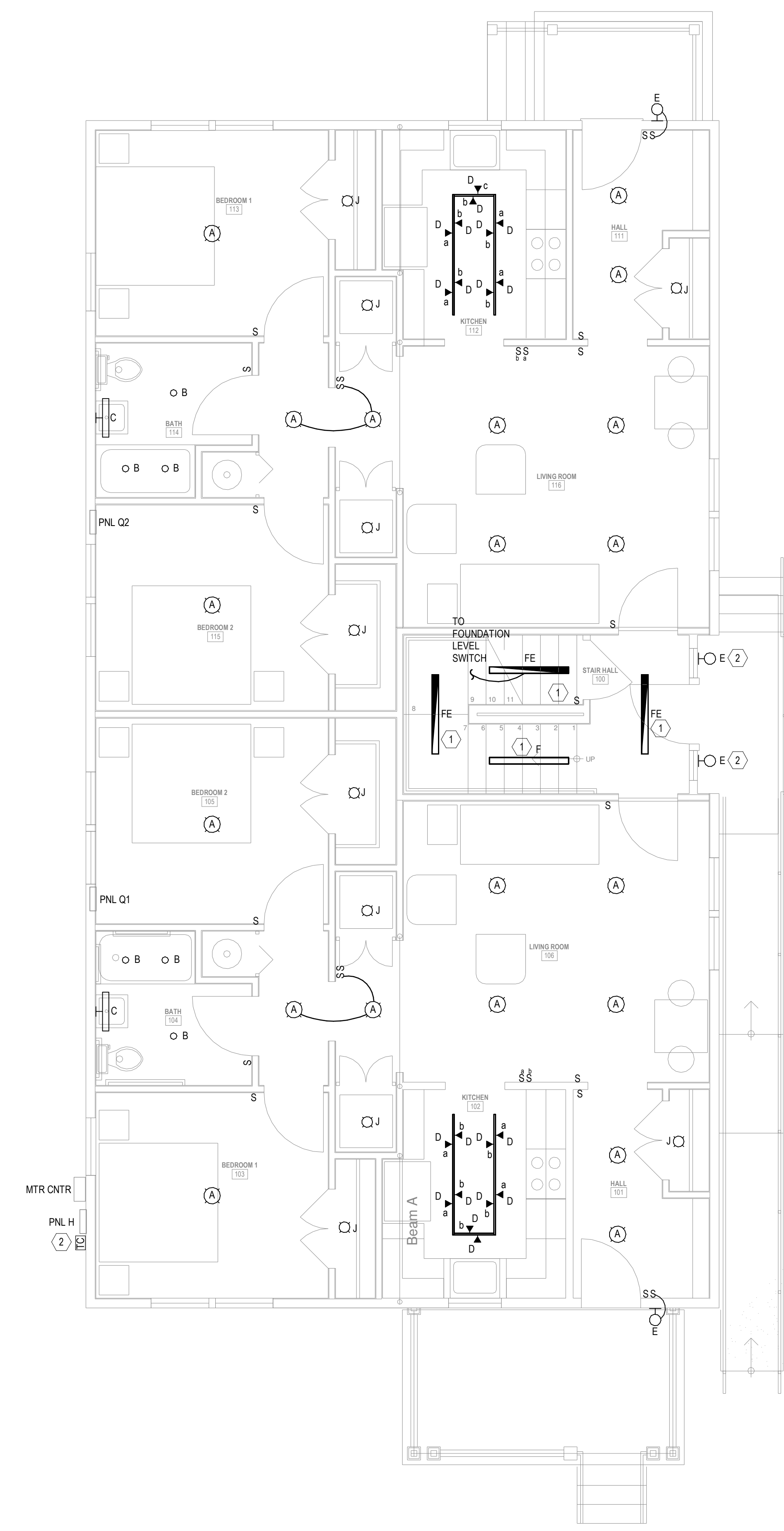


# KEYNOTES:  
1 SEE DETAIL 3/E5.1 FOR WIRING DIAGRAM.

1 FOUNDATION PLAN - ELECTRICAL  
E1.1 SCALE = 1/4" = 1'-0"

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- # KEYNOTES:
- 1 SEE DETAIL 3/ES.1 FOR WIRING DIAGRAM.
  - 2 CONNECT LIGHTING VIA TIME CLOCK CIRCUIT.



1 MAIN LEVEL PLAN - LIGHTING  
E1.2 SCALE = 1/4" = 1'-0"

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Job Number:  
2022xx  
Title:  
MAIN LEVEL  
PLAN - LIGHTING

E1.2

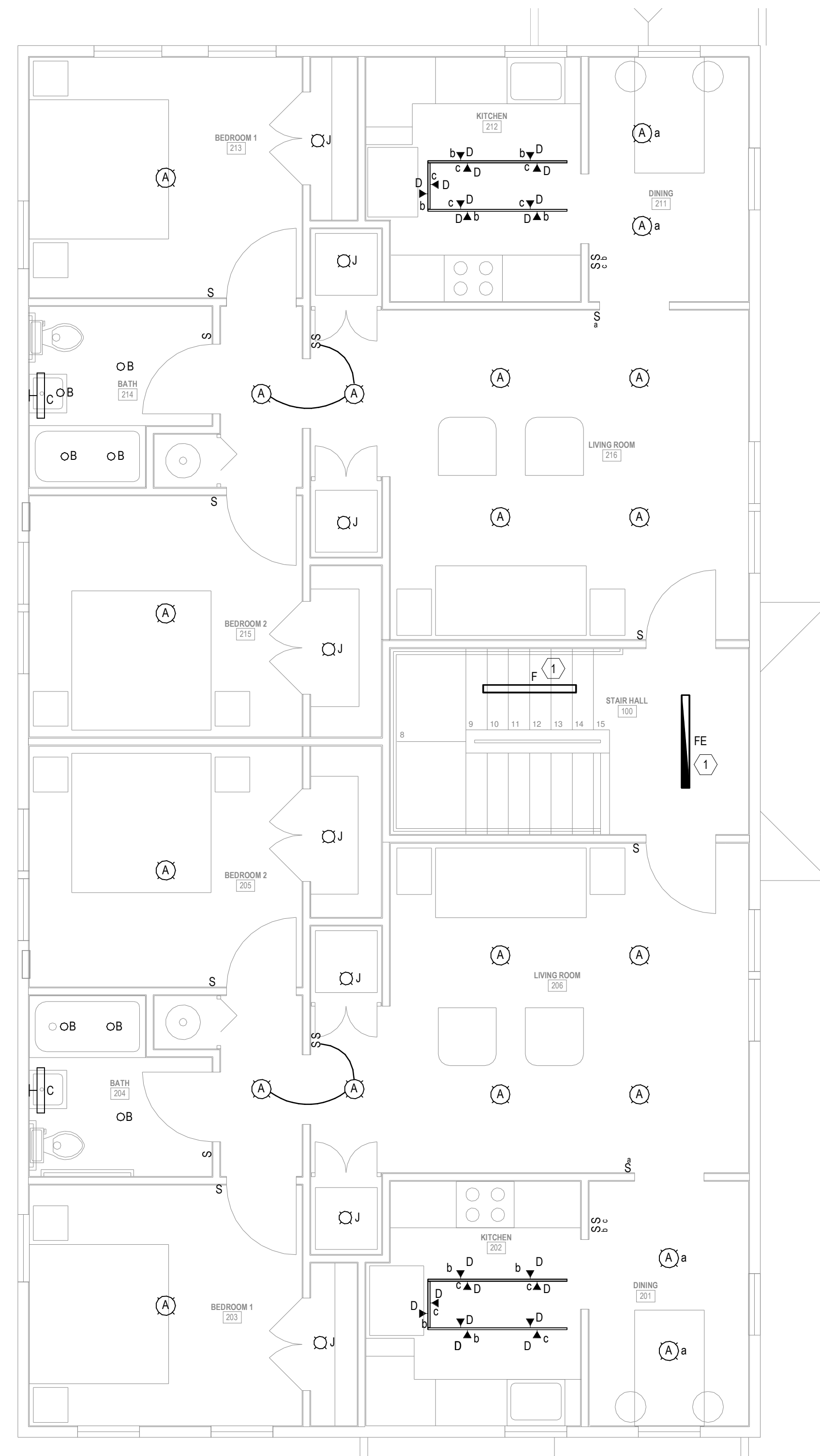


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- # KEYNOTES:  
1 SEE DETAIL 3/ES.1 FOR WIRING DIAGRAM.



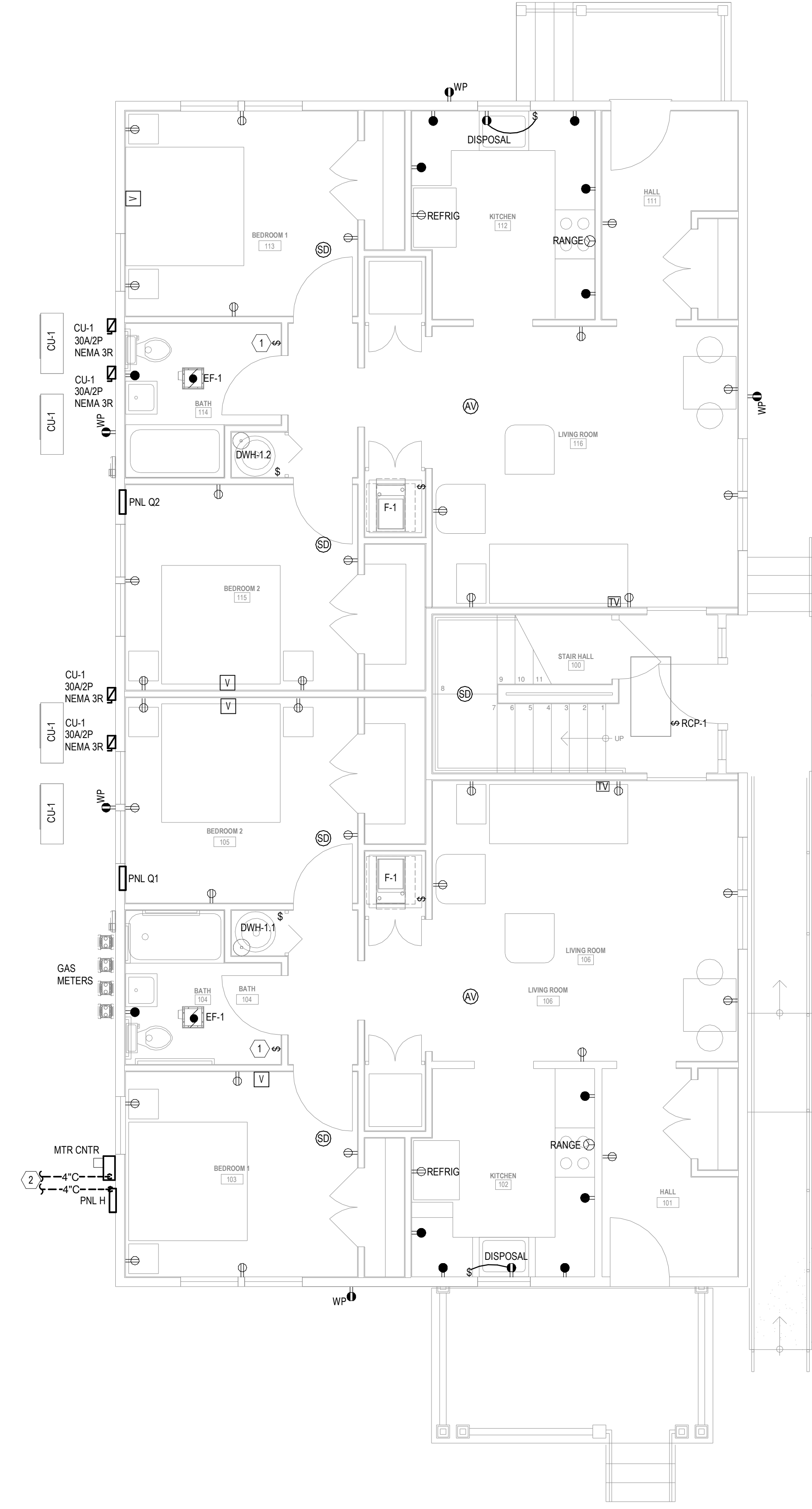
1 UPPER LEVEL PLAN - LIGHTING  
E1.3 SCALE = 1/4" = 1'-0"

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Job Number:  
2022xx  
Title:  
UPPER LEVEL  
PLAN - LIGHTING

E1.3

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- # KEYNOTES:
- 1 BATH EXHAUST FAN SWITCH.
  - 2 EMPTY CONDUIT WITH PULLROPE STUBBED 6" ABOVE GRADE, 5'-0" AWAY FROM BUILDING.

1 MAIN LEVEL PLAN - POWER AND SYSTEMS  
E2.1 SCALE = 1/4" = 1'-0"

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THE GROVE  
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Job Number:  
2022xx  
Title:  
MAIN LEVEL  
PLAN - POWER  
AND SYSTEMS

E2.1

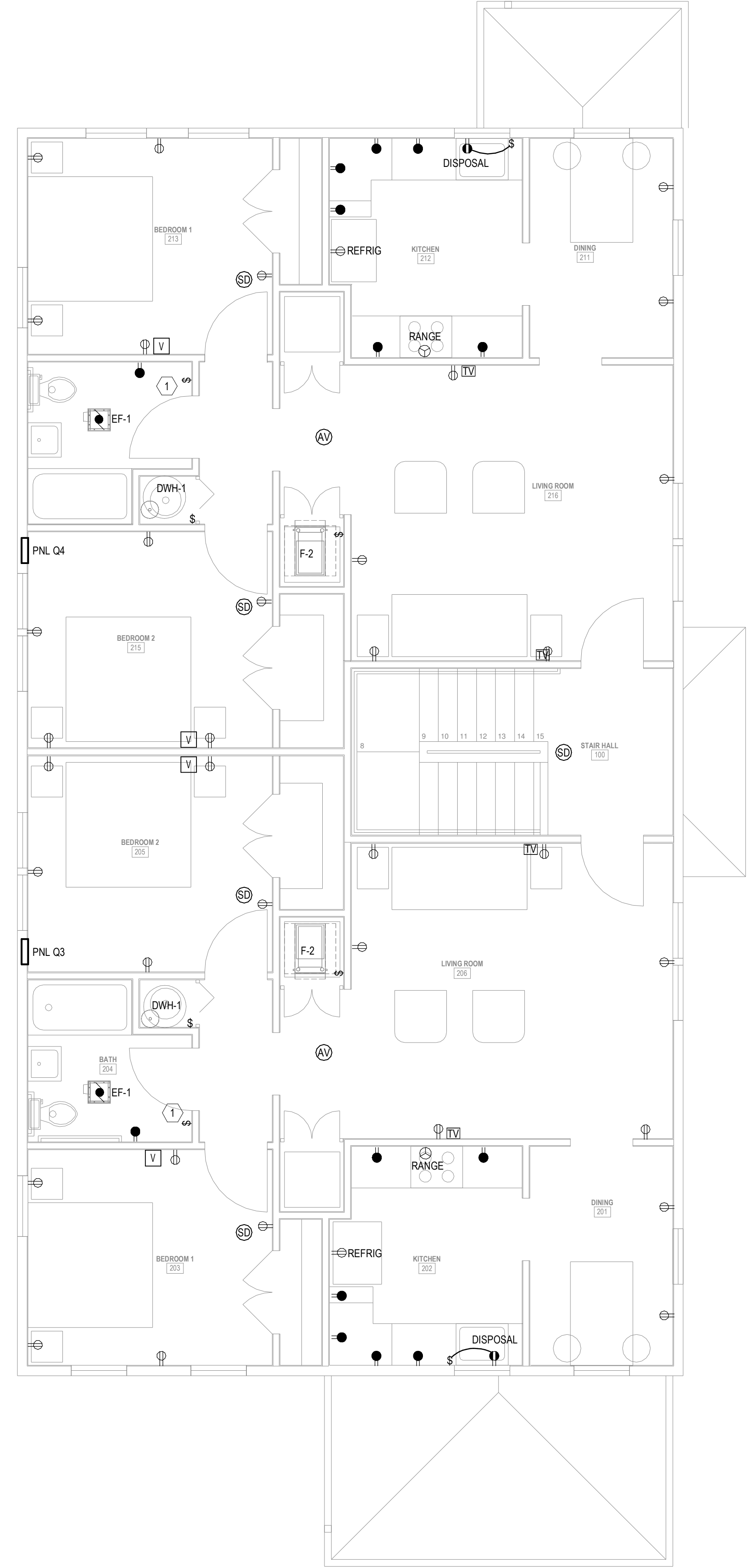
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**THE GROVE**  
Michigan Municipal League

Job Number:  
2022xx  
Title:  
UPPER LEVEL  
PLAN - POWER  
AND SYSTEMS

**E2.2**

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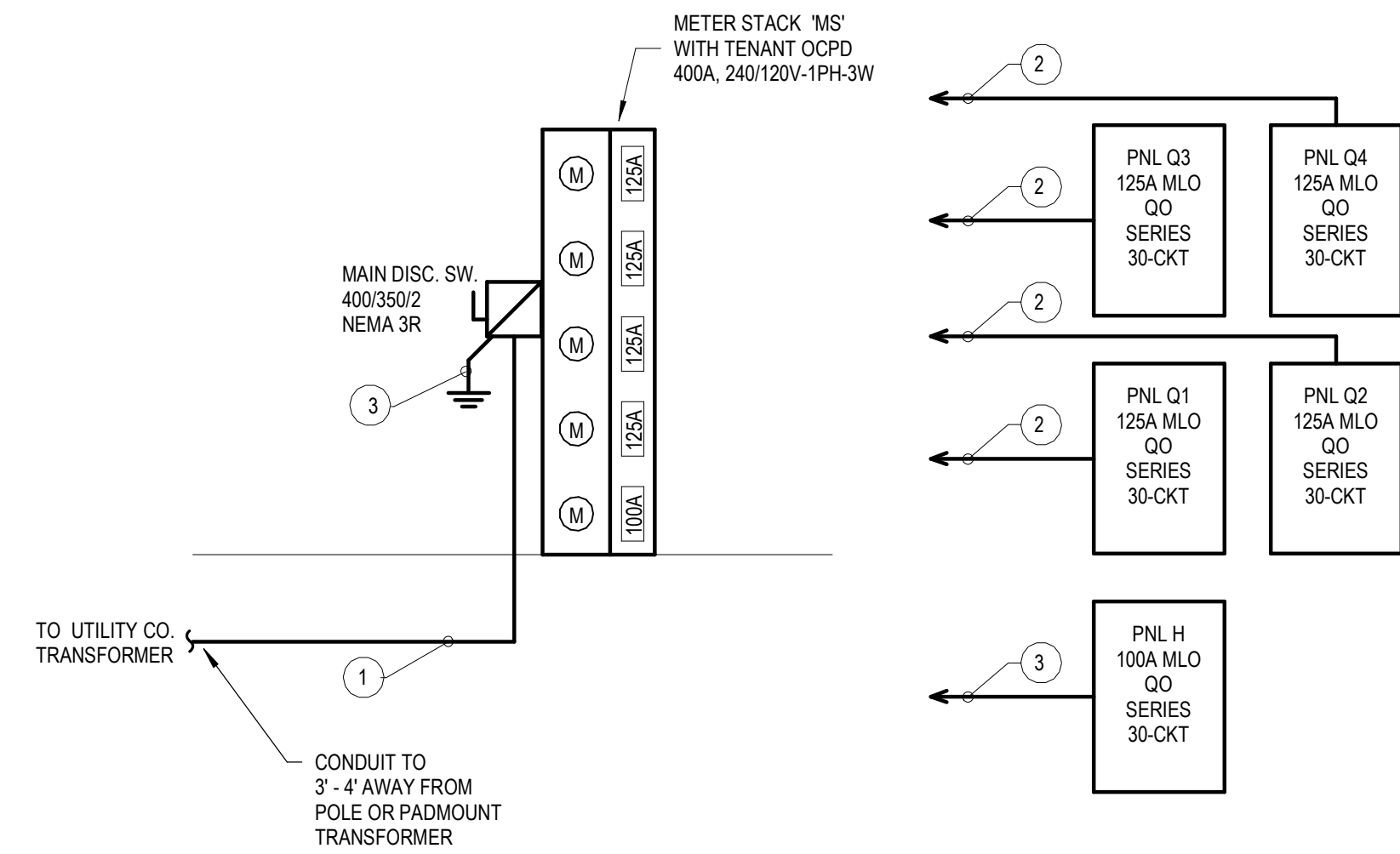


**KEYNOTES:**  
1 BATH EXHAUST FAN SWITCH.

**1 UPPER LEVEL PLAN - POWER AND SYSTEMS**  
E2.2 SCALE = 1/4" = 1'-0"

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Do not scale.  
Use figured dimensions only.  
MML Review Set  
22 AUG 2022

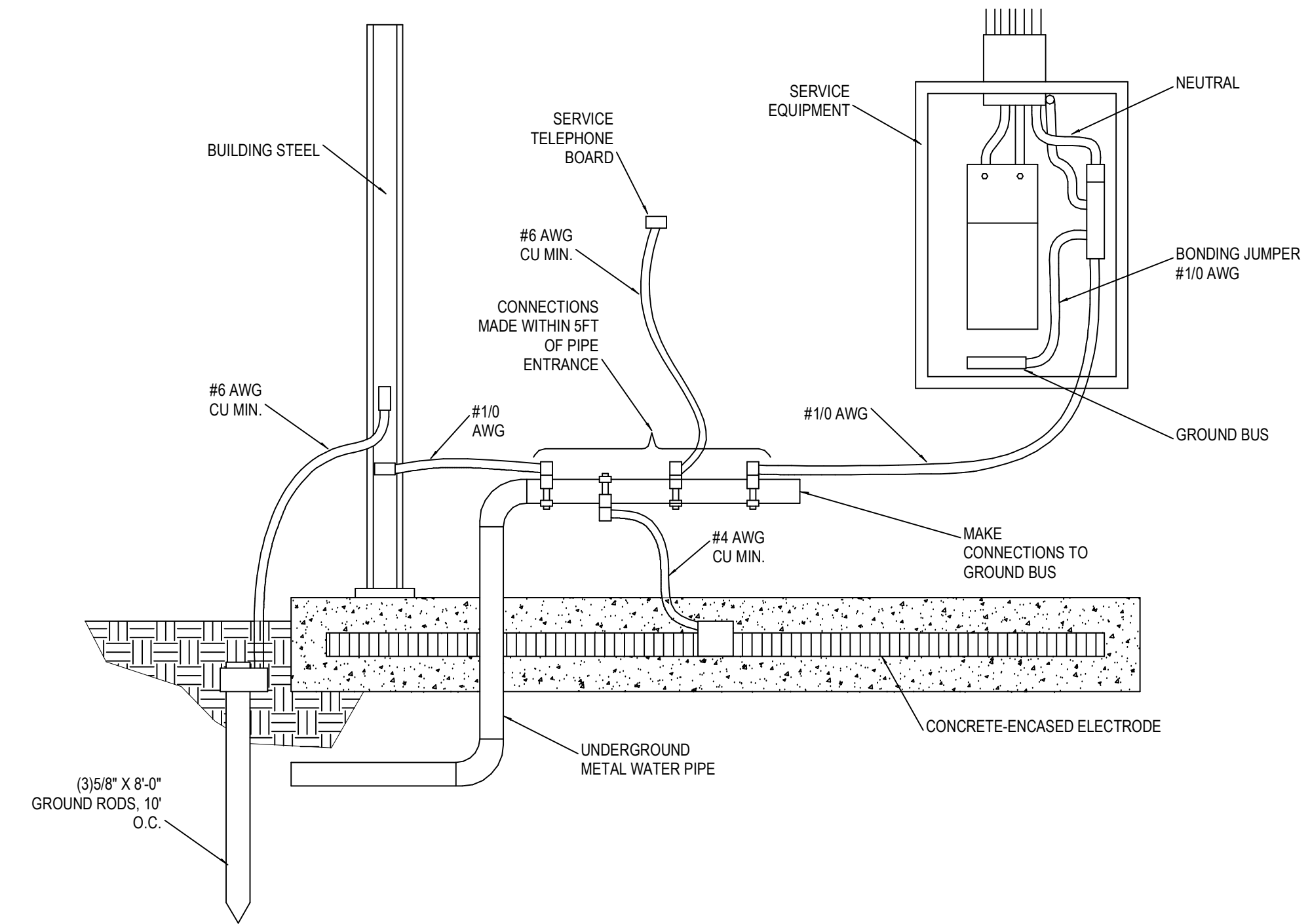


1 120/240V ELECTRICAL RISER DIAGRAM  
E5.1 NOT TO SCALE

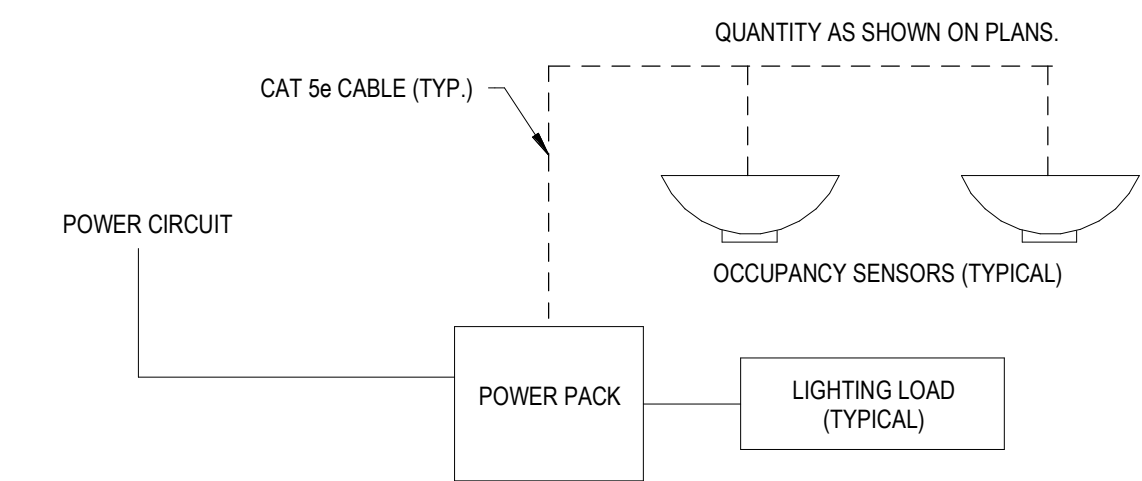
CABLE/CONDUIT SCHEDULE

- 1 EMPTY 4" CONDUIT WITH PULL ROPE
- 2 3#1, #6 GND, 1 1/2" C
- 3 3#1, #8 GND, 1 1/2" C
- 4 #1/0 AWG GND, GEC

NOTE:  
Isc (L-L): 25853 AMPS  
AVAILABLE FAULT CURRENT CALCULATIONS ARE BASED ON AN ASSUMPTION OF 100KVA TRANSFORMER WITH AN INFINITE PRIMARY AND A 2.5% IMPEDENCE. CONTRACTOR TO CONFIRM WITH THE UTILITY COMPANY THE AVAILABLE FAULT CURRENT AND ADJUST AIC RATINGS FOR ALL ELECTRICAL EQUIPMENT PRIOR TO ORDERING.



2 GROUNDING AND BONDING DETAIL  
E5.1 NOT TO SCALE



BASIS OF DESIGN:

- 1. ACUITY rLIGHT.

APPROVED ALTERNATES:

- 1. EATON
- 2. LEVITON
- 3. HUBBELL NX

SEQUENCE OF OPERATION:

- 1. ALL CONTROLS TO BE COMPLIANT WITH ASHRAE 90.1, 2013 WITHOUT MICHIGAN EXCEPTIONS FOR LEED COMPLIANCE.
- 2. MANUAL "ON", LOCAL ON/OFF OVERRIDE, AUTO "OFF".
- 3. SEE PLANS FOR SPECIFIC QUANTITY AND LOCATION OF SWITCH TYPES.

3 LIGHTING CONTROL DIAGRAM  
E5.1 NOT TO SCALE

NOT FOR CONSTRUCTION

THE GROVE  
Michigan Municipal League

Job Number:  
2022xx  
Title:  
ELECTRICAL  
DETAILS

E5.1

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Do not scale.  
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MML Review Set  
22 AUG 2022

NOT FOR CONSTRUCTION

THE GROVE  
Michigan Municipal League

Job Number:  
2022xx  
Title:  
ELECTRICAL  
SCHEDULES

E7.1

### LIGHT FIXTURE SCHEDULE

ID	MANUFACTURER	MODEL NO.	VOLTAGE	REQUIRED LAMPS		DESCRIPTION	NOTES
				QTY	WATT		
A	JUNO	JSF-11IN-35K-90CRI-MVOLTZT-WH	MVOLT	1	15 W	LED, 3500K, 1300LM, 90CRI	LED SURFACE MOUNT DOWNLIGHT
B	JUNO	ICILED-G4-14LM-35K-90CRI-MVOLTZT1	MVOLT	1	17 W	LED, 3500K, 1400LM, 90CRI	4" DOWNLIGHT, WHITE FLANGE, 1% DIMMING
C	LITHONIA	FMV7SL-24IN-MVOLT-30K90CRI-BN-M	MVOLT	1	10 W	LED, 3000K, 1300LM	2" LED VANITY
D	JUNO	R60SL-35K-90CRI-WFL-WH / TU-WH	MVOLT	1	10 W	LED, 3500K, 3000LM, 90CRI	LED CYLINDER TRACK HEAD WITH TRACK SECTIONS
E	SIGNATURE HARDWARE	SKU: 941513	120V	1	10 W	LED, 3000K, 1300LM	OUTDOOR ENTRANCE WALL SCONCE
F	LITHONIA	WL4-40L-EZ1-LP835-MSD7	MVOLT	1	40 W	LED, 3500K, 4000LM, 82CRI, L90@60,000	1X4 SURFACE LED
FE	LITHONIA	WL4-40L-EZ1-LP835-MSD7-EL14L	MVOLT	1	40 W	LED, 3500K, 4000LM, 82CRI, L90@60,000	1X4 SURFACE LED WITH EMERG BATTERY
H	LITHONIA	OLVTCM	120-277V	1	15 W	LED, 4000K, 600LM	LED VAPORTITE SURFACE CEILING MOUNT
J	CLOUDY BAY	JSF-11IN-35K-90CRI-MVOLTZT-WH	120V	1	10 W	LED, 5000K, 600LM, 90CRI	MOTION SENSOR CEILING LIGHT

**Panel: H**  
 Location: BEDROOM 1 103  
 Supply From: UTILITY  
 Mounting: RECESSED  
 Enclosure: TYPE 1  
 Series: LOAD CENTER

Volts: 120/240 Single  
 Phases: 1  
 Wires: 3

A.I.C. Rating: 10kAIC  
 Mains Type: MLO  
 Mains Rating: 100 A  
 Bus Rating: 125 A  
 Neutral Buss: Yes  
 Ground Buss: Yes

Notes:  
 \* PROVIDE GFCI CIRCUIT BREAKER.  
 PROVIDE AFCI CIRCUIT BREAKERS AS REQUIRED BY THE NEC.

CKT	Circuit Description	Trip	Poles	A		B		Poles	Trip	Circuit Description	CKT
				0.00	0.02	0.75	0.10				
1	LTG STAIR HALL	20	1	0.00	0.02			1	20	LTG - WALL SCONCE EXTERIOR	2
3	RCP-1 STAIR HALL 100	20	1					1	20	LTG TIME CLOCK EXTERIOR	4
5	SPARE	20	1	0.00	0.00			1	20	SPARE	6
7	SPARE	20	1			0.00	0.00	1	20	SPARE	8
9	SPARE	20	1	0.00	0.00			1	20	SPARE	10
11	SPARE	20	1			0.00	0.00	1	20	SPARE	12
13	SPARE	20	1	0.00	0.00			1	20	SPARE	14
15	SPARE	20	1			0.00	0.00	1	20	SPARE	16
17	SPARE	20	1	0.00	0.00			1	20	SPARE	18
19	SPARE	20	1			0.00	0.00	1	20	SPARE	20
				<b>Total Load:</b>	0 kW	1 kW					
				<b>Total Amps:</b>	0 A	7 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
LTG	20 VA	125.00%	25 VA	<b>Total Load:</b> 0.87 kW <b>Demand Load:</b> 1.06 kW <b>Connected Amps:</b> 4 A <b>Demand Amps:</b> 4 A
Motor	750 VA	125.00%	938 VA	
Other	100 VA	100.00%	100 VA	

Notes:

**Panel: Q1**  
 Location: BEDRM 105  
 Mounting: RECESSED  
 Enclosure: TYPE 1  
 Series: LOAD CENTER

Volts: 120/240 Single  
 Phases: 1  
 Wires: 3

A.I.C. Rating: 10kAIC  
 Mains Type: MLO  
 Mains Rating: 125 A  
 Bus Rating: 125 A  
 Neutral Buss: Yes  
 Ground Buss: Yes

Notes:  
 \* PROVIDE GFCI CIRCUIT BREAKER.  
 PROVIDE AFCI CIRCUIT BREAKERS AS REQUIRED BY THE NEC.

CKT	Circuit Description	Trip	Poles	A B		Poles	Trip	Circuit Description	CKT
				1	20				
1	LTG HALL, BDRM, BATH	20	1	...	1	20	20	LTG LIVING, KITCHEN	2
3	RECEPT BATH	20	1	...	1	20	20	RECEPT LIVING	4
5	RECEPT BEDROOM 1	20	1	...	1	20	20	DISPOSAL KITCHEN	6
7	RECEPT BEDROOM 2	20	1	...	1	20	20	* D.W. KITCHEN	8
9	SPARE	20	1	...	1	20	20	REFRIG KITCHEN	10
11	FURNACE F-1 CLOSET	20	1	...	1	20	20	* MICRO KITCHEN	12
13	DWH-1 MECH	20	1	...	1	20	20	RECEPT KITCHEN	14
15	EF-1 BATH	20	1	...	1	20	20	RECEPT KITCHEN	16
17	SPARE	20	1	...	1	20	20	RECEPT KITCHEN	18
19	SPARE	20	1	...	1	20	20	SPARE	20
21	WASHER LAUNDRY	20	1	...	1	20	20	SPARE	22
23	DRYER LAUNDRY	30	2	...	1	20	20	SPARE	24
25	--	--	--	...	1	20	20	SPARE	26
27	CU-1 EXTERIOR	20	2	...	2	50	50	RANGE KITCHEN	28
29	--	--	--	...	--	--	--	--	30

Notes:

**Panel: Q2**  
 Location: BEDRM 115  
 Mounting: RECESSED  
 Enclosure: TYPE 1  
 Series: LOAD CENTER

Volts: 120/240 Single  
 Phases: 1  
 Wires: 3

A.I.C. Rating: 10kAIC  
 Mains Type: MLO  
 Mains Rating: 125 A  
 Bus Rating: 125 A  
 Neutral Buss: Yes  
 Ground Buss: Yes

Notes:  
 \* PROVIDE GFCI CIRCUIT BREAKER.  
 PROVIDE AFCI CIRCUIT BREAKERS AS REQUIRED BY THE NEC.

CKT	Circuit Description	Trip	Poles	A B		Poles	Trip	Circuit Description	CKT
				1	20				
1	LTG HALL, BDRM, BATH	20	1	...	1	20	20	LTG LIVING, KITCHEN	2
3	RECEPT BATH	20	1	...	1	20	20	RECEPT LIVING	4
5	RECEPT BEDROOM 1	20	1	...	1	20	20	DISPOSAL KITCHEN	6
7	RECEPT BEDROOM 2	20	1	...	1	20	20	* D.W. KITCHEN	8
9	SPARE	20	1	...	1	20	20	RECEPT KITCHEN	10
11	FURNACE F-1 CLOSET	20	1	...	1	20	20	* MICRO KITCHEN	12
13	DWH-1 MECH	20	1	...	1	20	20	RECEPT KITCHEN	14
15	EF-1 BATH	20	1	...	1	20	20	RECEPT KITCHEN	16
17	SPARE	20	1	...	1	20	20	RECEPT KITCHEN	18
19	SPARE	20	1	...	1	20	20	SPARE	20
21	WASHER LAUNDRY	20	1	...	1	20	20	SPARE	22
23	DRYER LAUNDRY	30	2	...	1	20	20	SPARE	24
25	--	--	--	...	1	20	20	SPARE	26
27	CU-1 EXTERIOR	20	2	...	2	50	50	RANGE KITCHEN	28
29	--	--	--	...	--	--	--	--	30

Notes:

**Panel: Q3**  
 Location: BEDRM 205  
 Mounting: RECESSED  
 Enclosure: TYPE 1  
 Series: LOAD CENTER

Volts: 120/240 Single  
 Phases: 1  
 Wires: 3

A.I.C. Rating: 10kAIC  
 Mains Type: MLO  
 Mains Rating: 125 A  
 Bus Rating: 125 A  
 Neutral Buss: Yes  
 Ground Buss: Yes

Notes:  
 \* PROVIDE GFCI CIRCUIT BREAKER.  
 PROVIDE AFCI CIRCUIT BREAKERS AS REQUIRED BY THE NEC.

CKT	Circuit Description	Trip	Poles	A B		Poles	Trip	Circuit Description	CKT
				1	20				
1	LTG HALL, BDRM, BATH	20	1	...	1	20	20	LTG LIVING, KITCHEN	2
3	RECEPT BATH	20	1	...	1	20	20	RECEPT LIVING	4
5	RECEPT BEDROOM 1	20	1	...	1	20	20	DISPOSAL KITCHEN	6
7	RECEPT BEDROOM 2	20	1	...	1	20	20	* D.W. KITCHEN	8
9	SPARE	20	1	...	1	20	20	REFRIG KITCHEN	10
11	FURNACE F-2 CLOSET	20	1	...	1	20	20	* MICRO KITCHEN	12
13	DWH-1 MECH	20	1	...	1	20	20	RECEPT KITCHEN	14
15	EF-1 BATH	20	1	...	1	20	20	RECEPT KITCHEN	16
17	SPARE	20	1	...	1	20	20	RECEPT KITCHEN	18
19	SPARE	20	1	...	1	20	20	SPARE	20
21	WASHER LAUNDRY	20	1	...	1	20	20	SPARE	22
23	DRYER LAUNDRY	30	2	...	1	20	20	SPARE	24
25	--	--	--	...	1	20	20	SPARE	26
27	CU-1 EXTERIOR	20	2	...	2	50	50	RANGE KITCHEN	28
29	--	--	--	...	--	--	--	--	30

Notes:

**Panel: Q4**  
 Location: BEDRM 215  
 Mounting: RECESSED  
 Enclosure: TYPE 1  
 Series: LOAD CENTER

Volts: 120/240 Single  
 Phases: 1  
 Wires: 3

A.I.C. Rating: 10kAIC  
 Mains Type: MLO  
 Mains Rating: 100 A  
 Bus Rating: 125 A  
 Neutral Buss: Yes  
 Ground Buss: Yes

Notes:  
 \* PROVIDE GFCI CIRCUIT BREAKER.  
 PROVIDE AFCI CIRCUIT BREAKERS AS REQUIRED BY THE NEC.

CKT	Circuit Description	Trip	Poles	A B		Poles	Trip	Circuit Description	CKT
				1	20				
1	LTG HALL, BDRM, BATH	20	1	...	1	20	20	RECEPT LIVING	2
3	RECEPT BATH	20	1	...	1	20	20	RECEPT LIVING	4
5	RECEPT BEDROOM 1	20	1	...	1	20	20	DISPOSAL KITCHEN	6
7	RECEPT BEDROOM 2	20	1	...	1	20	20	* D.W. KITCHEN	8
9	SPARE	20	1	...	1	20	20	REFRIG KITCHEN	10
11	FURNACE F-2 CLOSET	20	1	...	1	20	20	* MICRO KITCHEN	12
13	DWH-1 MECH	20	1	...	1	20	20	RECEPT KITCHEN	14
15	EF-1 BATH	20	1	...	1	20	20	RECEPT KITCHEN	16
17	SPARE	20	1	...	1	20	20	RECEPT KITCHEN	18
19	SPARE	20	1	...	1	20	20	SPARE	20
21	WASHER LAUNDRY	20	1	...	1	20	20	SPARE	22
23	DRYER LAUNDRY	30	2	...	1	20	20	SPARE	24
25	--	--	--	...	1	20	20	SPARE	26
27	CU-1 EXTERIOR	20	2	...	2	50	50	RANGE KITCHEN	28
29	--	--	--	...	--	--	--	--	30

Notes:

**PLUMBING ABBREVIATIONS**

ATC	ARCHITECTURAL TRADES CONTRACTOR
AFF	ABOVE FINISHED FLOOR
BFS	BELOW FLOOR SLAB
BTU	BRITISH THERMAL UNIT
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
CO	CLEAN OUT
COTG	CLEAN OUT TO GRADE
CF	COLD WATER
DW	DRINKING FOUNTAIN
DIA/Ø	DIAMETER
DWH	DOMESTIC WATER HEATER
ETC	ELECTRICAL TRADES CONTRACTOR
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
G	GAS (NATURAL)
G (2-PSI)	NATURAL GAS (2-PSI)
G (5-PSI)	NATURAL GAS (5-PSI)
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HP	HORSE POWER
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HWR	HOT WATER RETURN
HW	HOT WATER
INV OR I.E.	INVERT ELEVATION
LAV	LAVATORY
MTC	MECHANICAL TRADES CONTRACTOR
MBH	BTU PER HOUR (THOUSAND)
MS	MOP SINK
ORC	OVER-FLOW RAIN CONDUCTOR
ORD	OVER-FLOW ROOF DRAIN
PVC	POLYVINYL CHLORIDE
RC	RAIN CONDUCTOR
RD	ROOF DRAIN
SAN	SANITARY
SH	SHOWER
SK	SINK
SS	SOIL STACK
ST	STORM
TYP	TYPICAL
UR	URINAL
VAC	VACUUM
VB	VACUUM BREAKER
V	VENT
VS	VENT STACK
VTR	VENT THRU ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WS	WASTE STACK
X-	EXISTING

NOTE:  
ALL ABBREVIATIONS AND SYMBOLS SHOWN ON THIS SHEET MAY NOT BE USED ON THIS PROJECT.

**PLUMBING SYMBOLS**

	KEY NOTE
	CONNECTION POINT, NEW TO EXISTING
	DEMOLITION END POINT
	PIPE TURNED UP
	PIPE TURNED DOWN
	PIPE OUT OF TOP
	PIPE OUT OF BOTTOM
	COLD WATER
	HOT WATER
	HOT WATER RETURN
	VENT PIPE
	LOW PRESSURE GAS
	HIGH PRESSURE GAS
	MEDIUM PRESSURE GAS
	SANITARY
	SANITARY BELOW FLOOR SLAB
	RAIN CONDUCTOR
	RAIN CONDUCTOR BELOW FLOOR SLAB
	OVERFLOW RAIN CONDUCTOR
	FIRE PROTECTION
	UNION
	FLOW DIRECTION
	GATE VALVE
	GAS COCK
	CHECK VALVE
	BALL VALVE
	CIRCUIT BALANCE VALVE
	BUTTERFLY VALVE
	WATER METER
	GAS METER
	STRAINER
	HOSE BIBB/WALL HYDRANT
	GAS REGULATOR
	RELIEF VALVE
	SHOWER HEAD

**GENERAL PLUMBING NOTES**

- A. PIPING LAYOUT IS SCHEMATIC. EXACT LOCATION OF PIPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE, EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK WITHOUT PRIOR COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL TRADES' WORK.
- B. ALL WORK SHALL COMPLY WITH THE MICHIGAN PLUMBING CODE AND ALL APPLICABLE LOCAL CODES.
- C. ALL INVERTS, STATED OR NOT, NEW OR EXISTING, SHALL BE COORDINATED IN THE FIELD, VERIFY EXISTING INVERTS PRIOR TO STARTING WORK.
- D. UNLESS OTHERWISE NOTED, ALL PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTCHEON AT EACH PENETRATION OF A FINISHED SURFACE.
- E. PLUMBING UTILITY PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- F. PROVIDE SHOCK ABSORBER IN THE DOMESTIC COLD AND HOT WATER PIPING. SHOCK ABSORBERS TO BE LOCATED IN AN ACCESSIBLE LOCATION.
- G. ALL WALL AND SLAB PENETRATIONS OF MASONRY OR CONCRETE CONSTRUCTION SHALL BE SLEEVED.
- H. PROVIDE ISOLATION SEPARATORS FOR COPPER PIPING RUNNING THROUGH METAL STUDS.
- I. ALL FLOOR DRAINS ARE TO HAVE AN APPROVED TRAP SEAL DEVICE.
- J. ALL FIXTURES SHALL HAVE SHUTOFF STOP VALVES IN AN ACCESSIBLE LOCATION. PIPING BEYOND THE STOP VALVES AND EXPOSED IN OCCUPIED SPACES SHALL BE CHROME-PLATED. ANY NOTED SHUTOFF VALVES ARE IN ADDITION TO THIS REQUIREMENT.
- K. PROVIDE FIRE STOPPING AT ALL PENETRATIONS OF FIRE RATED ENCLOSURES.

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FLUID OPERATING TEMP RANGE, °F	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE, INCHES					NOTE
	CONDUCTIVITY RANGE BTU-IN/HR-FT <sup>2</sup> -°F	MEAN TEMP RATING, °F	INSULATION THICKNESS, INCHES					
			<1	1 TO <1.5	1.5 TO <4	4 TO <8	>8	
105°+ (DOM. HW)	0.22 - 0.28	100°	0.5 <sup>a</sup>	0.5 <sup>a</sup>	1.0 <sup>a</sup>	1.0 <sup>a</sup>	1.0 <sup>a</sup>	2
DOM. HW W/ HWR	0.27	100°	1.0 <sup>c</sup>	1.0 <sup>c</sup>	1.0 <sup>a,c</sup>	1.0 <sup>a,c</sup>	1.0 <sup>a,c</sup>	2
40° TO 60°	0.21 - 0.27	75°	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1
> 40°	0.20 - 0.26	50°	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1.5 <sup>b,d</sup>	1
DOMESTIC CW	0.21 - 0.27	75°	1.0	1.0	1.0	1.0	1.0	1

NOTE: THE VALUES LISTED IN THE SCHEDULE ARE BASED ON THE MICHIGAN UNIFORM ENERGY CODE (BASED ON ASHRAE 90.1-2013), 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) (AS REFERENCED BY 2015 MICHIGAN MECHANICAL CODE), & 2018 MICHIGAN PLUMBING CODE (MPC). THE MORE STRINGENT REQUIREMENTS ARE USED AS LISTED BELOW. VERIFY THE VALUES COMPLY WITH THE CODES IN EFFECT AT THE TIME OF CONSTRUCTION AND ADJUST ACCORDINGLY.

CODE REFERENCES:

- a. FROM ASHRAE 90.1, TABLE 6.8.3-1 "MINIMUM PIPING INSULATION THICKNESS" FOR "HEATING AND HOT WATER SYSTEMS (STEAM, STEAM CONDENSATE, HOT WATER HEATING AND DOMESTIC WATER SYSTEMS)"
- b. FROM ASHRAE 90.1, TABLE 6.8.3-2 "MINIMUM PIPING INSULATION THICKNESS" FOR "COOLING SYSTEMS (CHILLED WATER, BRINE, AND REFRIGERANT)."
- c. FROM IECC, SECTION C404 "SERVICE WATER HEATING (MANDATORY)" PARAGRAPH C404.4 "INSULATION OF PIPING."
- d. FROM IECC, TABLE C403.2.10 "MINIMUM PIPE INSULATION THICKNESS."

NOTES:

1. PROVIDE WITH VAPOR BARRIER. HANGERS/SUPPORTS SHALL BE INSTALLED OUTSIDE OF INSULATION.
2. THE FOLLOWING DOMESTIC/SERVICE HOT WATER PIPING SHALL BE INSULATED AS INDICATED.
  - a. RECIRCULATING SYSTEM PIPING, INCL THE SUPPLY AND RETURN PIPING OF A CIRCULATING TANK TYPE WATER HEATER.
  - b. THE FIRST 8 FT. OF OUTLET PIPING FOR A CONSTANT TEMPERATURE NONRECIRCULATING STORAGE SYSTEM.
  - c. THE INLET PIPE BETWEEN THE STORAGE TANK AND A HEAT TRAP IN A NONRECIRCULATING STORAGE SYSTEM.
  - d. PIPES THAT ARE EXTERNALLY HEATED (SUCH AS HEAT TRACE OR IMPEDANCE HEATING).

Do not scale.  
Use figured dimensions only.  
MML Review Set  
22 AUG 2022

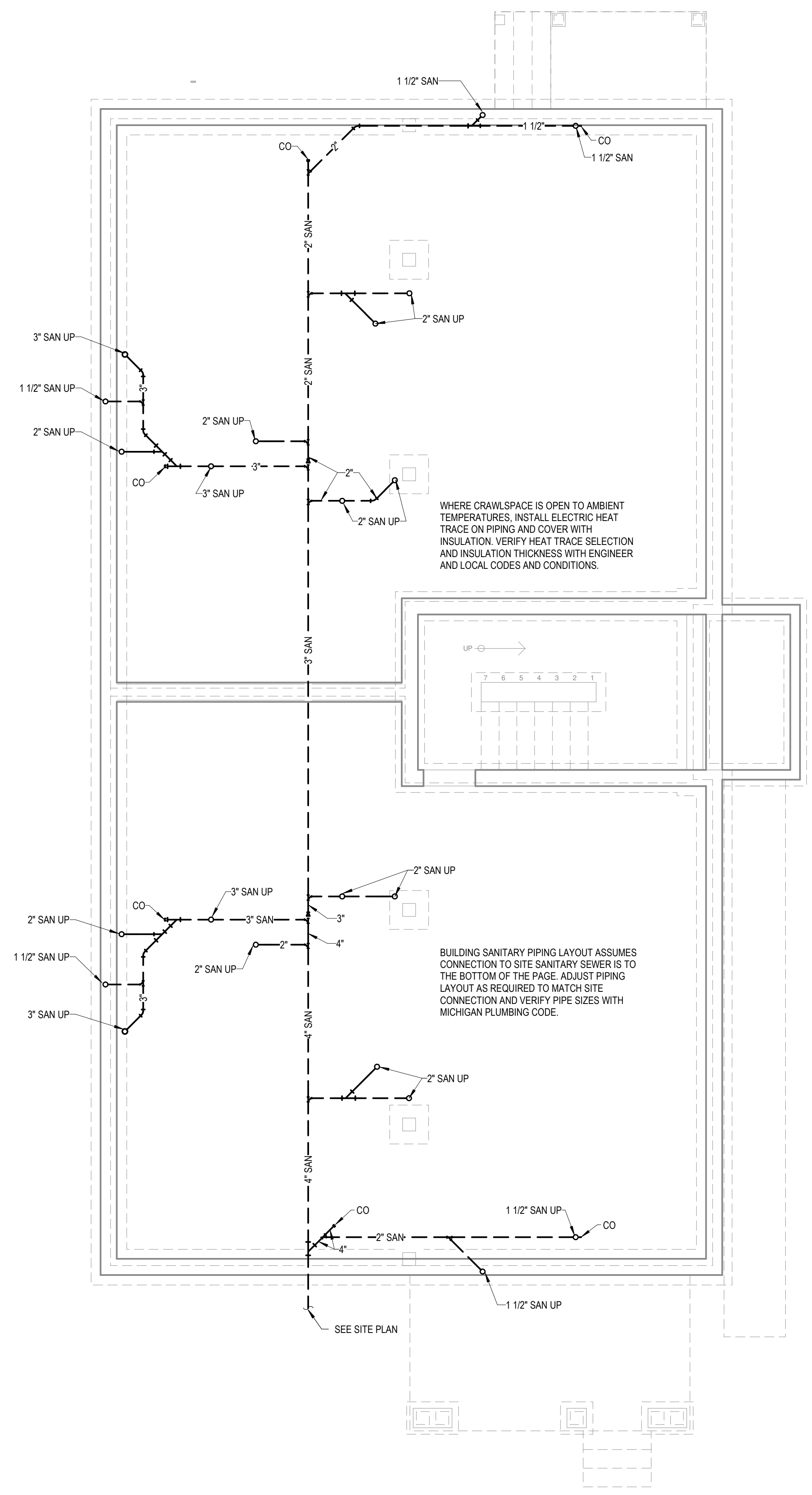
**NOT FOR CONSTRUCTION**

**THE GROVE**  
Michigan Municipal League

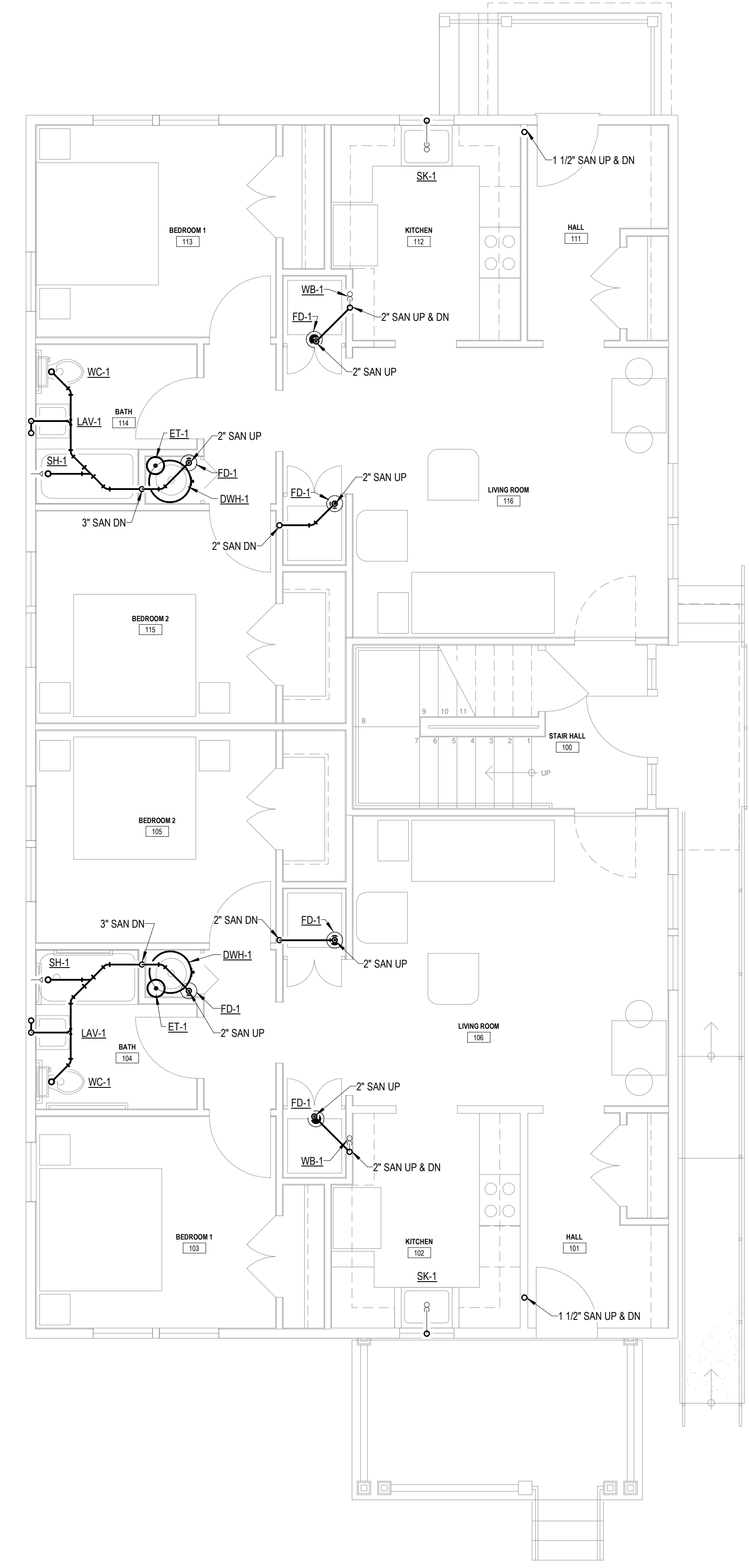
Job Number:  
2022xx  
Title:  
PLUMBING COVER SHEET

P0.1

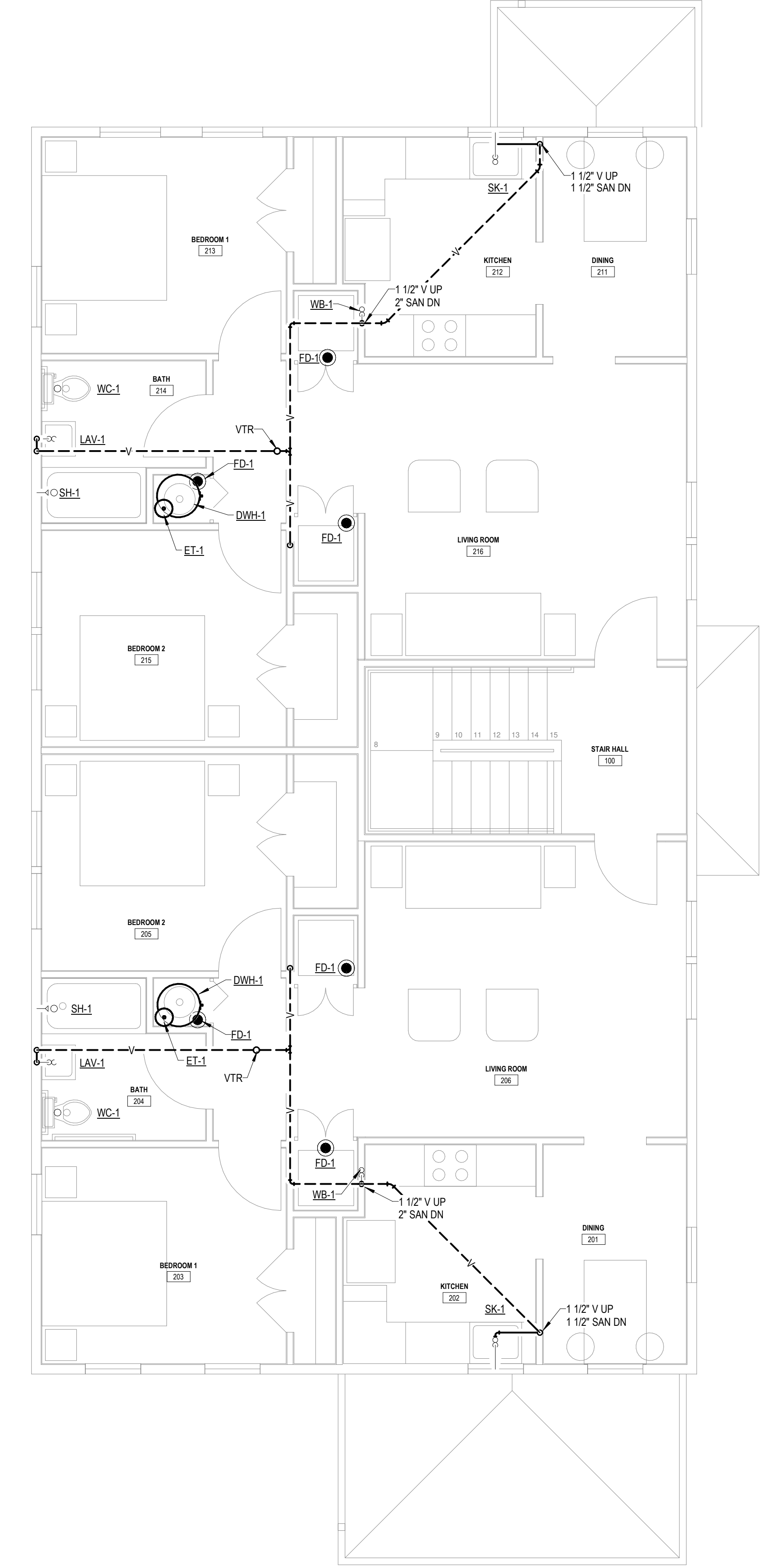
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1 MAIN FLOOR PLAN - PLUMBING UNDERGROUND  
P1.1 SCALE = 1/4" = 1'-0"



2 MAIN LEVEL PLAN - PLUMBING  
P1.1 SCALE = 1/4" = 1'-0"



3 UPPER LEVEL PLAN - PLUMBING  
P1.1 SCALE = 1/4" = 1'-0"

NOT FOR CONSTRUCTION

THE GROVE  
Michigan Municipal League

Job Number:  
2022xx  
Title:  
PLUMBING  
PLANS

P1.1

NOT FOR CONSTRUCTION

THE GROVE  
Michigan Municipal League

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### DOMESTIC WATER HEATER SCHEDULE

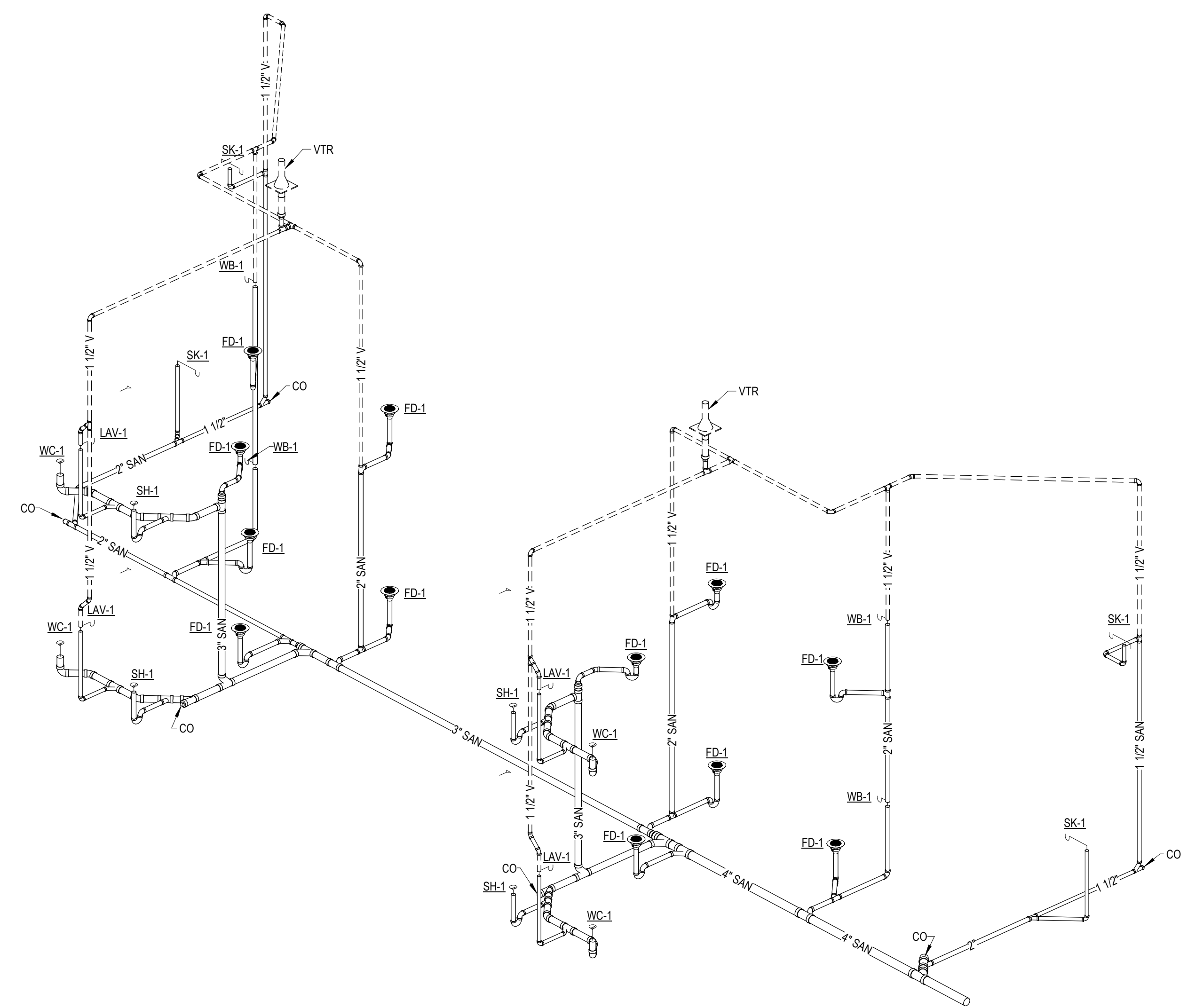
TAG	BASIS OF DESIGN		DESCRIPTION	STORAGE CAPACITY (GALLONS)	RECOVERY GPH	RISE OF RECOVERY DEG. F.	EWT DEG. F.	LWT DEG. F.	ELECTRICAL DATA		COMMENTS
	MANUFACTURER	MODEL							DWH KW	DWH VOLTAGE	
DWH-1	Bradford White	RE240LN6	Residential Lowboy Electric Water Heater	37	19	100	50	120	4.5	120V / 1Ø	

### EXPANSION TANK SCHEDULE

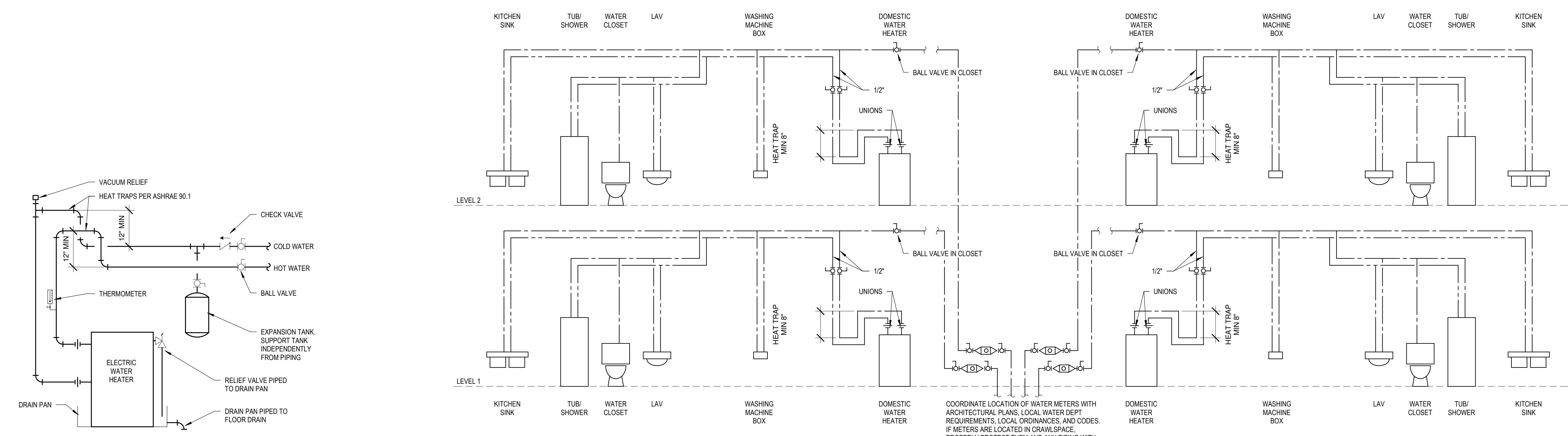
TAG	DESIGN BASIS		TANK VOLUME (GALLONS)	MAXIMUM ACCEPTANCE VOLUME (GALLONS)	SYSTEM CONNECTION SIZE	ASME Rated	COMMENTS
	MANUFACTURER	MODEL					
ET-1	Amtral	ST-5	2.0 gal	0.90	3/4"	No	

### PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	FIXTURE TYPE	PIPE CONNECTION DATA				ELECTRICAL DATA		COMMENTS
		COLD WATER	HOT WATER	VENT	SANITARY	FLA	VOLTAGE	
FD-1	FLOOR DRAIN	-	-	1-1/2"	2"	-	-	
LAV-1	LAVATORY	1/2"	1/2"	1-1/4"	1-1/2"	-	-	
SH-1	SHOWER	1/2"	1/2"	1-1/2"	2"	-	-	
SK-1	KITCHEN SINK	1/2"	1/2"	1-1/4"	1-1/2"	-	-	
WB-1	WASHER BOX	1/2"	1/2"	1-1/2"	2"	-	-	
WC-1	TANK TYPE WATER CLOSET	1/2"	1/2"	1-1/2"	3"	-	-	



1  
P6.1  
**SANITARY PIPING ISOMETRIC**  
NOT TO SCALE



2  
P6.1  
**DOMESTIC WATER HEATER PIPING SCHEMATIC**  
NOT TO SCALE

3  
P6.1  
**DOMESTIC WATER PIPING SCHEMATIC**  
NOT TO SCALE



### HVAC ABBREVIATIONS

ATC	ARCHITECTURAL TRADES CONTRACTOR
AC	AIR CONDITIONING(ER)
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AMB	AMBIENT
BDD	BACKDRAFT DAMPER
B.O.D.	BOTTOM OF DUCT
CONV	CONNECTOR
CFM	CUBIC FEET PER MINUTE
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CU	CONDENSING UNIT
COR	CONDENSER WATER RETURN
COS	CONDENSER WATER SUPPLY
DB	DRY BULB TEMPERATURE
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD
ECUH	ELECTRIC CABINET UNIT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ETC	ELECTRICAL TRADES CONTRACTOR
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
F	FURNACE
F/SD	COMBINATION FIRE/SMOKE DAMPER
G	LOW PRESSURE GAS
GPM	GALLONS PER MINUTE
HR	HEATING HOT WATER RETURN
HS	HEATING HOT WATER SUPPLY
HP	HORSEPOWER
HPS	HIGH PRESSURE STEAM SUPPLY
HVAC	HEATING/VENTILATING/AIR CONDITIONING
LAT	LEAVING AIR TEMPERATURE
LPS	LOW PRESSURE STEAM SUPPLY
MAX	MAXIMUM
MTC	MECHANICAL TRADES CONTRACTOR
MBH	BTU PER HOUR (THOUSAND)
MFR	MANUFACTURER
MPS	MEDIUM PRESSURE STEAM SUPPLY
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
PRV	PRESSURE REDUCING VALVE
PSC	PUMPED STEAM CONDENSATE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RG	RETURN GRILLE
RL	REFRIGERANT LIQUID
RP	RADIANT PANEL
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SC	STEAM CONDENSATE
SD	SUPPLY DIFFUSER
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
TG	TRANSFER GRILLE
TU	TERMINAL UNIT
TXV	THERMAL EXPANSION VALVE
TYP	TYPICAL
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE
X-	EXISTING
SD-1	TAG (DIFFUSERS AND GRILLES)
8"	NECK SIZE
200 CFM	AIR FLOW
TYP.2	COMMENTS

**NOTE:**  
ALL ABBREVIATIONS AND SYMBOLS SHOWN ON THIS SHEET MAY NOT BE USED ON THIS PROJECT.

### PIPING SYMBOLS

	PIPE TURNED UP
	PIPE TURNED DOWN
	PIPE OUT OF TOP
	PIPE OUT OF BOTTOM
	PIPE ANCHOR
	PIPE ALIGNMENT GUIDE
	PIPE EXPANSION JOINT
	STRAINER
	UNION
	SHUT-OFF VALVE
	CHECK VALVE
	BALL VALVE
	GLOBE VALVE
	MOTOR OPERATED VALVE
	SOLENOID OPERATED VALVE
	2-WAY TEMPERATURE CONTROL VALVE
	3-WAY TEMPERATURE CONTROL VALVE
	STEAM TRAP
	CIRCUIT BALANCE VALVE
	HEATING HOT WATER SUPPLY
	HEATING HOT WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	CONDENSATE DRAIN
	COMPRESSED AIR
	HIGH PRESSURE STEAM 76-100 LBS.
	MEDIUM PRESSURE STEAM 21-75 LBS.
	LOW PRESSURE STEAM 0-20 LBS.
	STEAM CONDENSATE
	STEAM CONDENSATE PUMPED
	GAS PIPE - LOW PRESSURE
	GAS - HIGH PRESSURE
	GAS - MEDIUM PRESSURE
	GAS METER

### GENERAL HVAC NOTES

- A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
- B. WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS, THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.
- C. ALL WORK SHALL COMPLY WITH THE MICHIGAN MECHANICAL CODE AND ALL APPLICABLE LOCAL CODES.
- D. ALL DUCT TO BE OF 1" PRESSURE CLASS, UNLESS NOTED OTHERWISE.
- E. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF ROOF TOP EQUIPMENT.
- F. DUCTWORK SHALL BE ACOUSTICALLY LINED WITHIN 20 FT OF THE INTAKE AND/OR DISCHARGE OF A FAN.
- G. INSTALL VOLUME DAMPERS IN ALL BRANCH DUCTS SERVING A SINGLE GRILLE, REGISTER, OR DIFFUSER.
- H. INSTALL FLEXIBLE DUCT CONNECTIONS AT THE INLET AND DISCHARGE OF ALL FANS.
- I. MAXIMUM LENGTH OF FLEXIBLE DUCT TO AIR TERMINAL DEVICES SHALL NOT EXCEED 5'-0" IN LENGTH WITH A MAXIMUM OF ONE 90° TURN AND SHALL BE INSULATED. ELBOWS SHALL BE MIN. 1.5 RADIUS. CONNECTIONS TO TERMINAL DEVICES SHALL BE Banded AND TAPED.
- J. UNDERGROUND GAS SERVICE BY UTILITY COMPANY. REFER TO CIVIL DRAWINGS. COORDINATE SERVICE, METER, ETC. LOCATIONS WITH UTILITY COMPANY.
- K. DUCT/PIPING LAYOUT IS SCHEMATIC. EXACT LOCATION OF DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE. EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK WITHOUT PRIOR COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL TRADES' WORK.
- L. UNLESS OTHERWISE NOTED, ALL DUCT/PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTCHEON OR ALUMINUM DUCT COLLAR AT EACH PENETRATION OF A FINISHED SURFACE.
- M. DUCT/PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- N. DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
- O. ANY ADDITIONAL LOW VOLTAGE CONTROL WIRING THAT IS REQUIRED SHALL BE PROVIDED BY THE HVAC CONTRACTOR. CONTROL WIRING SHALL BE RUN IN CONDUIT IF REQUIRED BY LOCAL CODES. FIELD VERIFY PRIOR TO BID. POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- P. PROVIDE TRAP FOR CONDENSATION DRAIN LINES.
- Q. PROVIDE VIBRATION ISOLATION AT EACH CONNECTION TO A MOTORIZED PIECE OF EQUIPMENT BY THE HVAC CONTRACTOR.
- R. MOUNT THERMOSTAT/SENSORS AT 48" AFF UNLESS NOTED OTHERWISE.
- S. THE HVAC CONTRACTOR SHALL CLOSELY COORDINATE AIR DEVICE AND DUCTWORK LOCATIONS WITH REFLECTED CEILING AND STRUCTURAL PLANS.
- T. COORDINATE SENSOR AND THERMOSTAT LOCATION WITH ARCHITECT.

### GENERAL SYMBOLS

	KEY NOTE
	CONNECTION POINT, NEW TO EXISTING
	DEMOLITION END POINT

### SHEET METAL SYMBOLS

	SUPPLY AIR DUCT
	RETURN AIR DUCT
	EXHAUST AIR DUCT
	BALANCE DAMPER
	CONICAL TEE
	90° TEE WITH 45° APPROACH
	TRANSITION CONCENTRIC
	TRANSITION ECCENTRIC
	VERTICAL FIRE DAMPER
	HORIZONTAL FIRE DAMPER
	VERTICAL COMBINATION FIRE SMOKE DAMPER
	HORIZONTAL COMBINATION FIRE SMOKE DAMPER
	VERTICAL SMOKE DAMPER
	HORIZONTAL SMOKE DAMPER
	MOTORIZED DAMPER
	AIR FLOW DIRECTION

### CONTROL SYMBOLS

	THERMOSTAT
	TEMPERATURE SENSOR
	HUMIDISTAT
	DUCT SMOKE DETECTOR. INSTALLED BY M.T.C. PROVIDED AND WIRED BY E.T.C.

**Disclaimer:** The drawings found within this set are Substantially Complete, but are marked "Not for Construction," as it will be necessary for each site-specific development to employ architects and/or engineers to evaluate local conditions, make necessary adjustments and provide final stamped plans for local permitting. Some items are indicated as blanks for local verification.

Do not scale.  
Use figured dimensions only.  
MML Review Set  
22 AUG 2022

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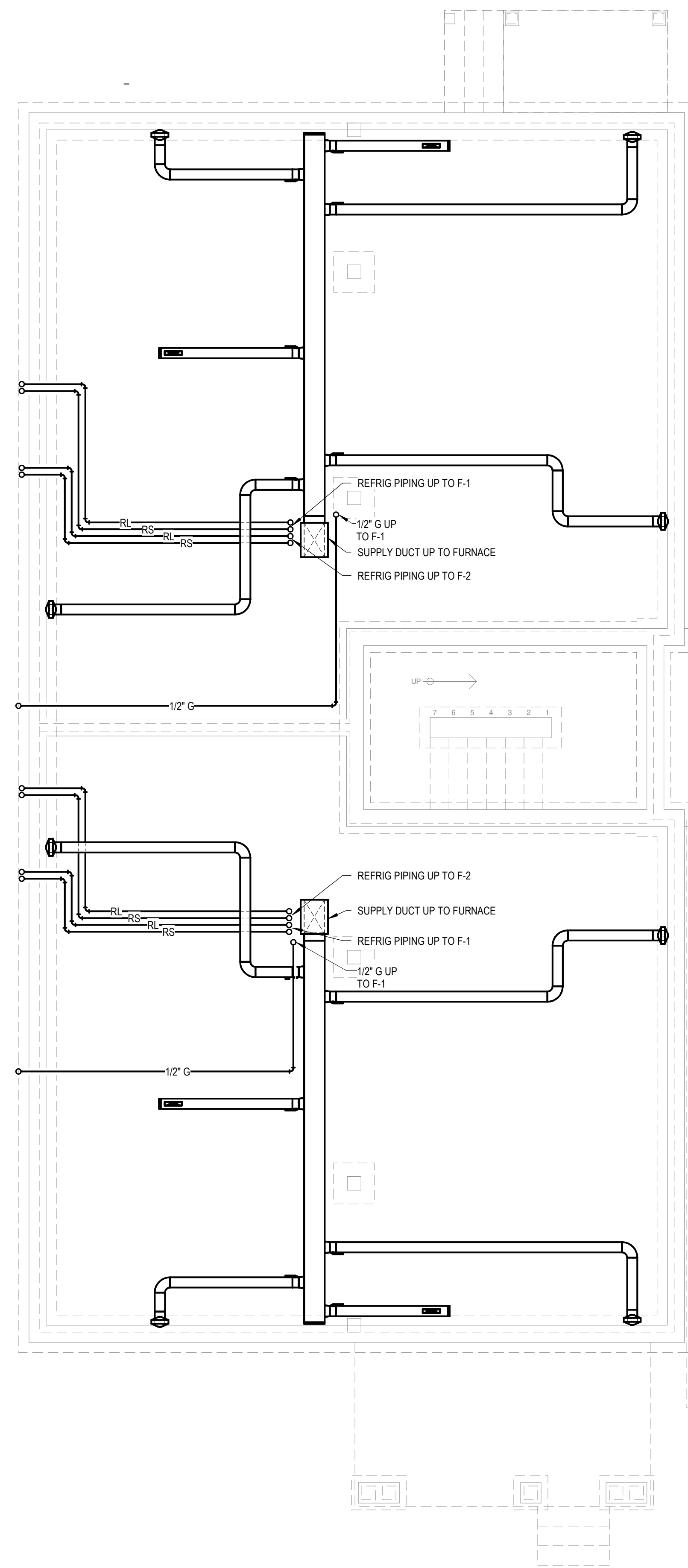
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2022xx  
Title:  
HVAC COVER SHEET

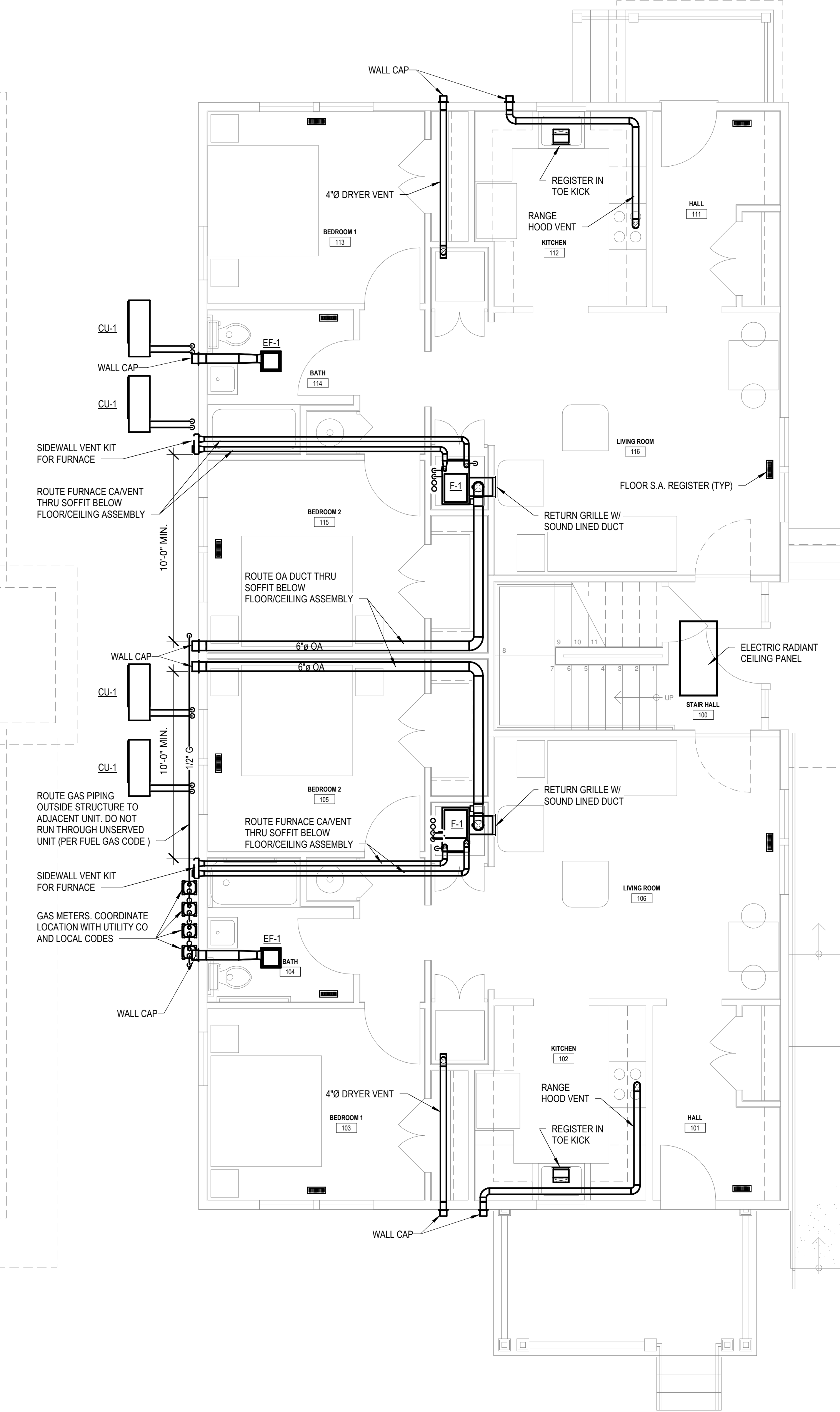
**M0.1**

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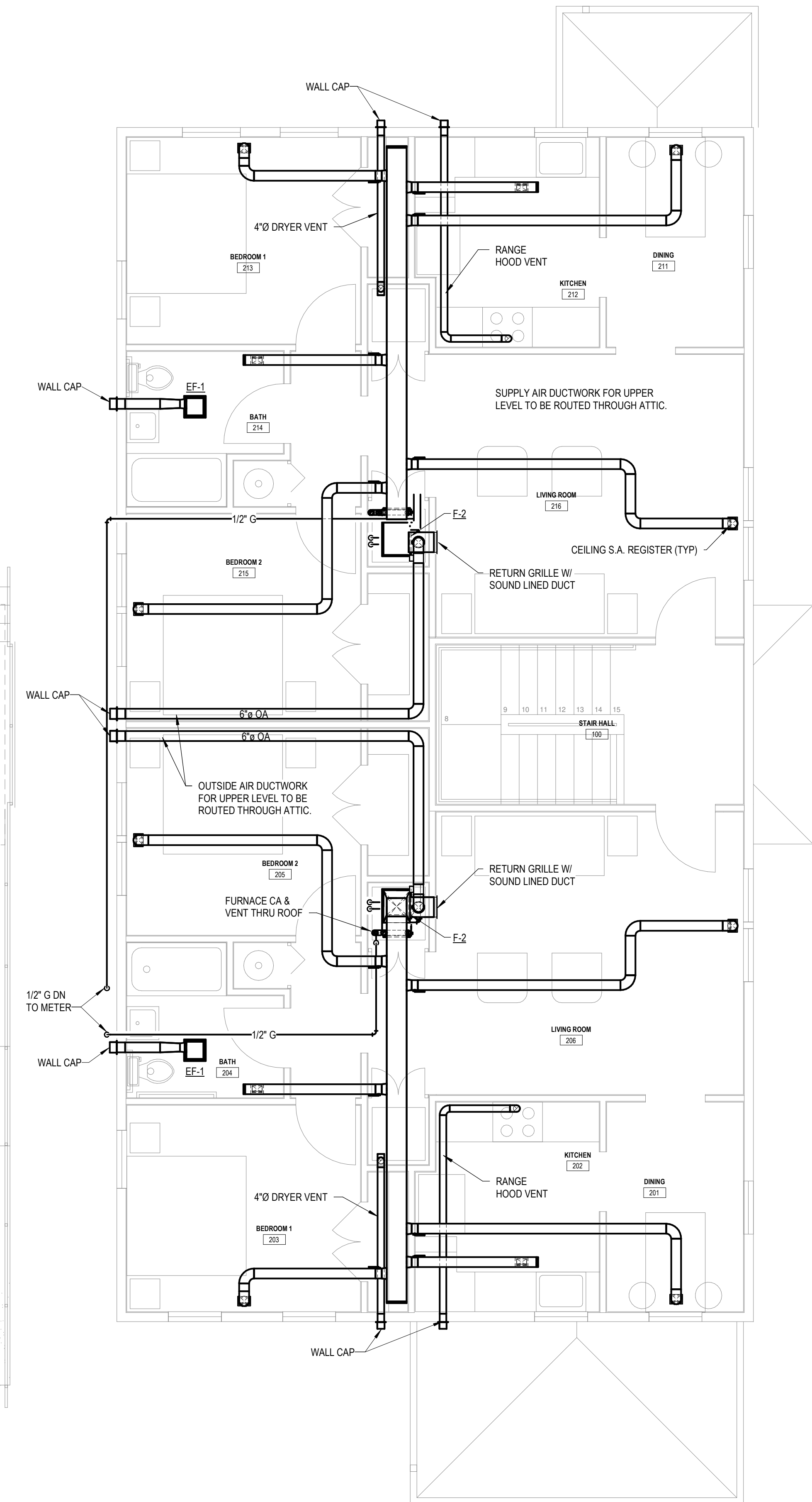
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4 FOUNDATION PLAN - HVAC  
M1.1 SCALE = 1/4" = 1'-0"



2 MAIN LEVEL PLAN - HVAC  
M1.1 SCALE = 1/4" = 1'-0"



3 UPPER LEVEL PLAN - HVAC  
M1.1 SCALE = 1/4" = 1'-0"

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Job Number:  
2022xx  
Title:  
HVAC FLOOR  
PLANS

M1.1

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22 AUG 2022

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### EXHAUST FAN SCHEDULE

COMMENTS:  
1. PROVIDE WITH ELECTRONICALLY COMMUTATED MOTOR WITH CONSTANT CFM ADAPTIVE, VARIABLE SPEED TECHNOLOGY PROGRAMMED TO OVERCOME THE STATIC PRESSURE ASSOCIATED WITH COMMON RESIDENTIAL INSTALLATION SCENARIOS.  
2. PROVIDE WITH WALL CAP INCLUDING BIRDSCREEN AND BACKDRAFT DAMPER.

TAG	BASIS OF DESIGN		CFM	E.S.P. (in-wg)	FAN SPEED (RPM) DESIGN	DRIVE TYPE	SONES	ELECTRICAL DATA		DISCONNECT BY		VFD	CONTROL	COMMENTS
	MANUFACTURER	MODEL						WATTS	VOLTAGE	M.T.C.	E.T.C.			
EF-1	Greenheck	SP-LP511	80	0.28	831	DIRECT	2	11	120V / 1Ø	X			LOCAL SWITCH	1, 2

### FURNACE SCHEDULE

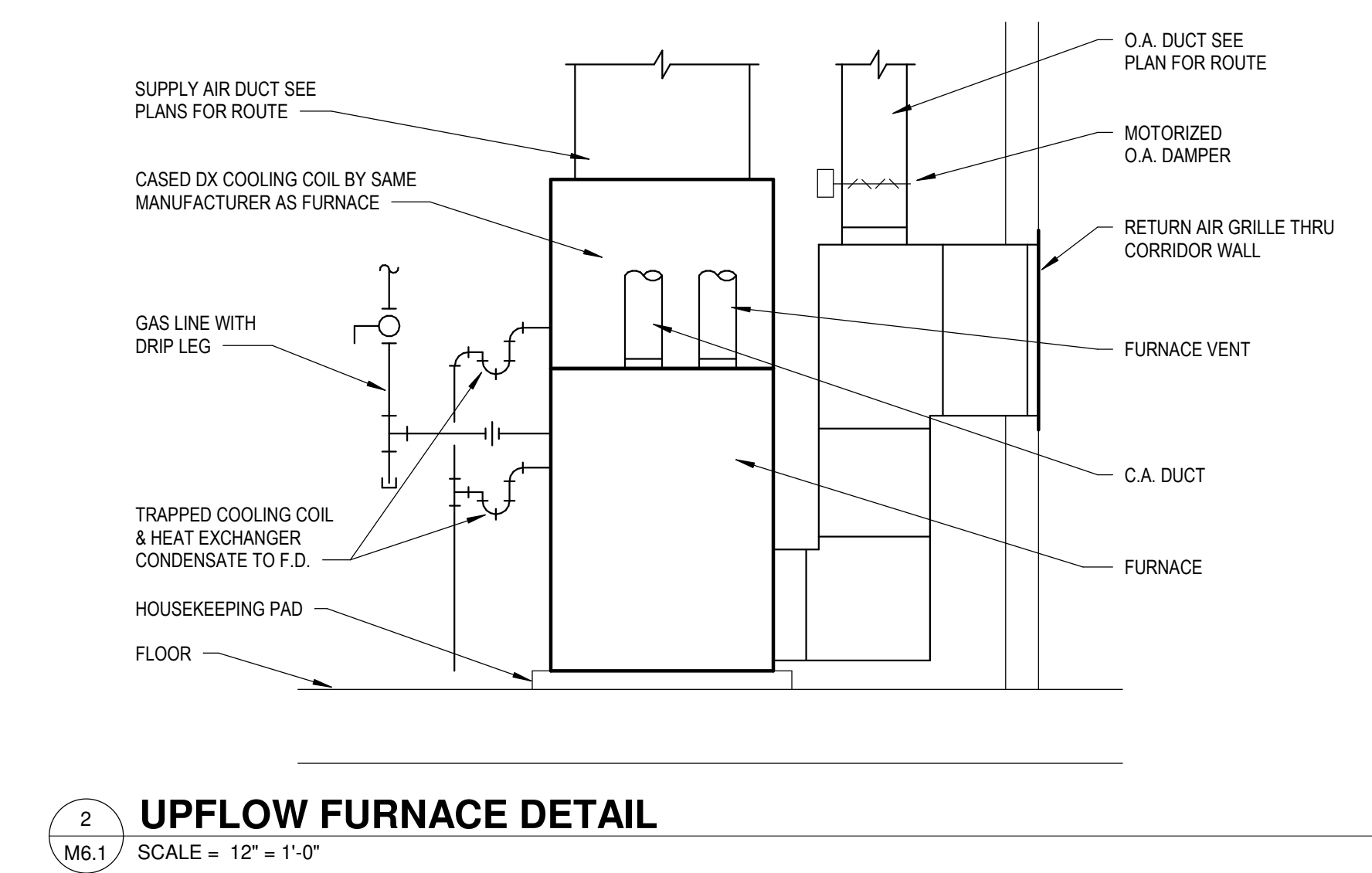
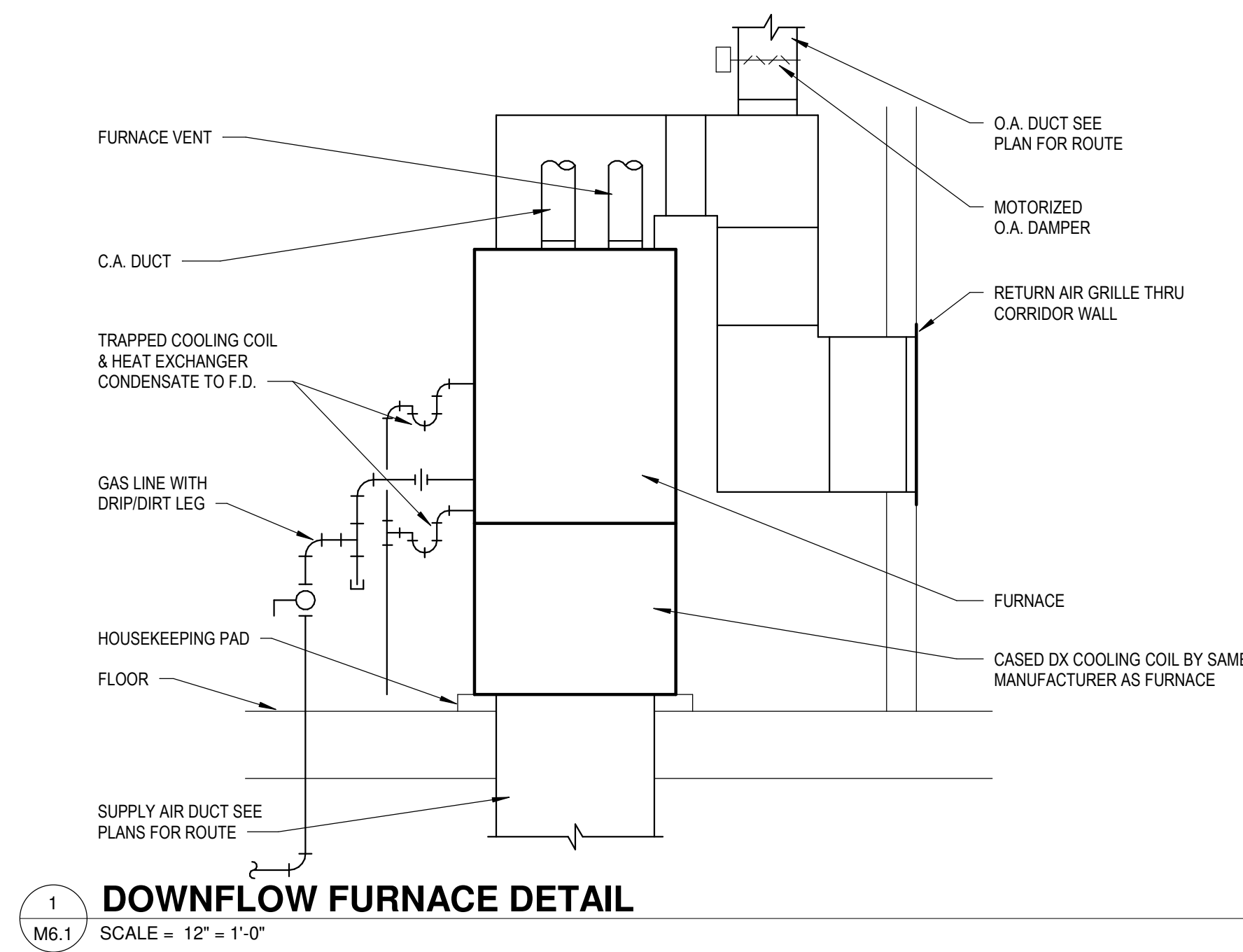
COMMENTS:  
1. PROVIDE WITH 1" MERV 8 FILTER.  
2. UNIT SHALL COMMUNICATE WITH CONDENSING UNIT TO MATCH CAPACITY TO DEMAND AND FURNACE FAN SPEED.  
3. UNIT SHALL HAVE ELECTRONICALLY COMMUTATED MOTOR (ECM) FOR SUPPLY FAN.  
4. PROVIDE 7-DAY / 4-PERIOD THERMOSTAT.  
5. CONNECT MOTORIZED OUTSIDE AIR DAMPER TO SUPPLY FAN CONTROL. DAMPER SHALL OPEN WHEN FAN IS RUNNING.  
6. PROVIDE WITH CASED COILING COIL WITH CONDENSATE DRAIN. COIL SHALL BE SAME MANUFACTURER AS FURNACE AND CONDENSING UNIT.  
7. VERIFY CAPACITY WITH LOCAL CLIMATE DESIGN CONDITIONS, SITE ORIENTATION, AND ENERGY CODE.

TAG	BASIS OF DESIGN		DESCRIPTION	SUPPLY FAN DATA		COOLING COIL DATA		HEATING DATA		ELECTRICAL DATA			DISCONNECT BY		COMMENTS
	MANUFACTURER	MODEL No.		SUPPLY AIR	OUTSIDE AIR	NOM. TONS	TOTAL BTU/H	INPUT BTU/H MAX	OUTPUT BTU/H MIN	H.P.	MOCP	VOLTAGE	M.T.C.	E.T.C.	
F-1	Daikin	DC96VC	DOWNFLOW, GAS-FIRED FURNACE	700 CFM	45 CFM	1.5	17	40	38	1/2	15	120V / 1Ø	X		1, 2, 3, 4, 5, 6, 7
F-2	Daikin	DM96VC	UPFLOW, GAS-FIRED FURNACE	700 CFM	45 CFM	1.5	17	40	38	1/2	15	120V / 1Ø	X		1, 2, 3, 4, 5, 6, 7

### CONDENSING UNIT SCHEDULE

COMMENTS:  
1. PROVIDE WITH INVERTER (VARIABLE SPEED) COMPRESSOR.  
2. UNIT SHALL COMMUNICATE WITH FURNACE TO MATCH CAPACITY TO DEMAND AND FURNACE FAN SPEED.  
3. VERIFY CAPACITY WITH LOCAL CLIMATE DESIGN CONDITIONS, SITE ORIENTATION, AND ENERGY CODE.

TAG	BASIS OF DESIGN		DESCRIPTION	REFRIGERANT	COOLING - MBH	TONS	SEER	ELECTRICAL DATA			DISCONNECT BY		COMMENTS
	MANUFACTURER	MODEL						MCA	MOCP	VOLTAGE	M.T.C.	E.T.C.	
CU-1	Daikin	DX17VSS181AA	Split System Air Conditioner	R-410A	17.1	1.5	17	12.7	15	208-230V / 1Ø	X		1, 2, 3



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HVAC DETAILS &  
SCHEDULES

M6.1