

To be determined based on the exact location of construction site.

| 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-_____  | _____       |

**PROJECT DATA**

**Project Name:** Prototype Cottage Residence  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**Project Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**Building Owner:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Governing Codes**  
2015 Michigan Residential Code  
Michigan Barrier Free Codes

**Building Area**  
Slab on Grade 576 ft<sup>2</sup>  
Ground Level 576 ft<sup>2</sup>  
Main Level: 576 ft<sup>2</sup>  
Upper Level: 576 ft<sup>2</sup>  
1,728 ft<sup>2</sup> (does not include slab)

**R302.1(1) Exterior Walls**

| Exterior Wall Element | Minimum Fire Resistance Rating  | Minimum Fire Resistance Separation |
|-----------------------|---|------------------------------------|
| Walls                 | 1-hour tested in accordance with STM E119 or URLL 263 with exposure from both sides | <5 feet                            |
|                       | Not rated 0 hours   | => 5 feet                          |
|                       | Not allowed N/A   | <2 feet                            |
| Projections           | Fire-resistance rated 1 hour on the underside                                       | > 2 feet to < 5 feet               |
|                       | Not rated 0 hours   | > 5 feet                           |
|                       | Not allowed N/A   | < 3 feet                           |
| Openings in walls     | 25% of maximum wall area 0 hours  | 3 feet                             |
|                       | Unlimited 0 hours   | 5 feet                             |
| Penetrations          | Comply with Section R302.4  | <3 feet                            |
|                       | None required   | 3 feet                             |

**R302.3 Two-family dwellings.**  
Dwelling units in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119 or UL 263. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

**R302.4 Dwelling Unit Rated Penetrations.**  
Penetrations of wall or floor-ceiling assemblies required to be fire-resistance rated in accordance with Section R302.2 or R302.3 shall be protected in accordance with this section.

ANY PENETRATION in the RATED FLOOR/CEILING SHALL BE FIRE RATED.

PENETRATIONS SHALL NOT BE PERMITTED through FIRE RATED WALLS and STRUCTURAL INSULATED PANELS (SIPS).

**R302.11 Fireblocking.**  
In combustible construction, fire-blocking shall be provided to cut off both vertical and horizontal concealed draft openings and to form an effective fire barrier between stories, and between a top story and the roof space.

**R302.12 Draftstopping.**

In combustible construction where there is usable space both above and below the concealed space of a floor-ceiling assembly, draftstops shall be installed so that the area of the concealed space does not exceed 1,000 square feet. Draftstopping shall divide the concealed space into approximately equal areas. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below, draftstopping shall be provided in floor-ceiling assemblies under the following circumstances:  
1. Ceiling is suspended under the floor framing.  
2. Floor framing is constructed of truss-type open-web or perforated members.

**Section R314 Smoke Alarms.**  
**R314.2.1 New Construction.**  
Smoke alarms shall be provided in dwellings.

**R314.3 Location.**  
1. In each sleeping room.  
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.

**R314.4 Interconnection.**  
Where more than 1 smoke alarm is required to be installed within an individual dwelling unit in accordance with Section R314.3, the alarm shall be interconnected.

**R315 Carbon Monoxide Alarms.**  
**R315.2.1 New Construction.**  
For new construction, carbon monoxide alarms shall be provided in dwelling units where either or both of the following exist:  
1. The dwelling unit contains a fuel-fired appliance.  
2. The dwelling unit has an attached garage with an opening that communicates with the dwelling unit.

Shop Drawings for ROOF TRUSSES to be provided in a deferred submittal, based on local conditions.

**DRAWING SCHEDULE**

- Duplex Series**  
A1.0 Cover Sheet and Building Info  
A2.0 Foundation Plan & Details  
A2.1 Ground Floor Plan  
A2.2 Main Floor Plan  
A2.3 Upper Floor Plan  
A2.4 Attic & Roof Plan  
A3.0 Building Section & Wall Section  
A4.0 Exterior Elevations  
A5.0 Interior Elevations  
A5.1 Interior Elevations

- Electrical Series**  
E0.1 Electrical Cover Sheet  
E1.1 Floor Plans - Lighting  
E2.1 Floor Plans - Power  
E5.1 Electrical Details  
E7.1 Electrical Schedules

- Plumbing Series**  
P0.1 Plumbing Cover Sheet  
P1.1 Plumbing Floor Plans  
P6.1 HVAC Cover Sheet

- HVAC Series**  
M0.1 HVAC Cover Sheet  
M1.1 HVAC Floor Plans  
M6.1 HVAC Details & Schedules

- Site Series**  
L1.0 Options

**Disclaimer:** The drawings found within this set are Substantially Complete, and 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 required for local permitting. Individuals using these drawings shall seek any necessary professional services before starting the building process.

**SYMBOL LEGEND**

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

**Owner**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**Architect**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**Engineer**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**Developer/Contractor**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

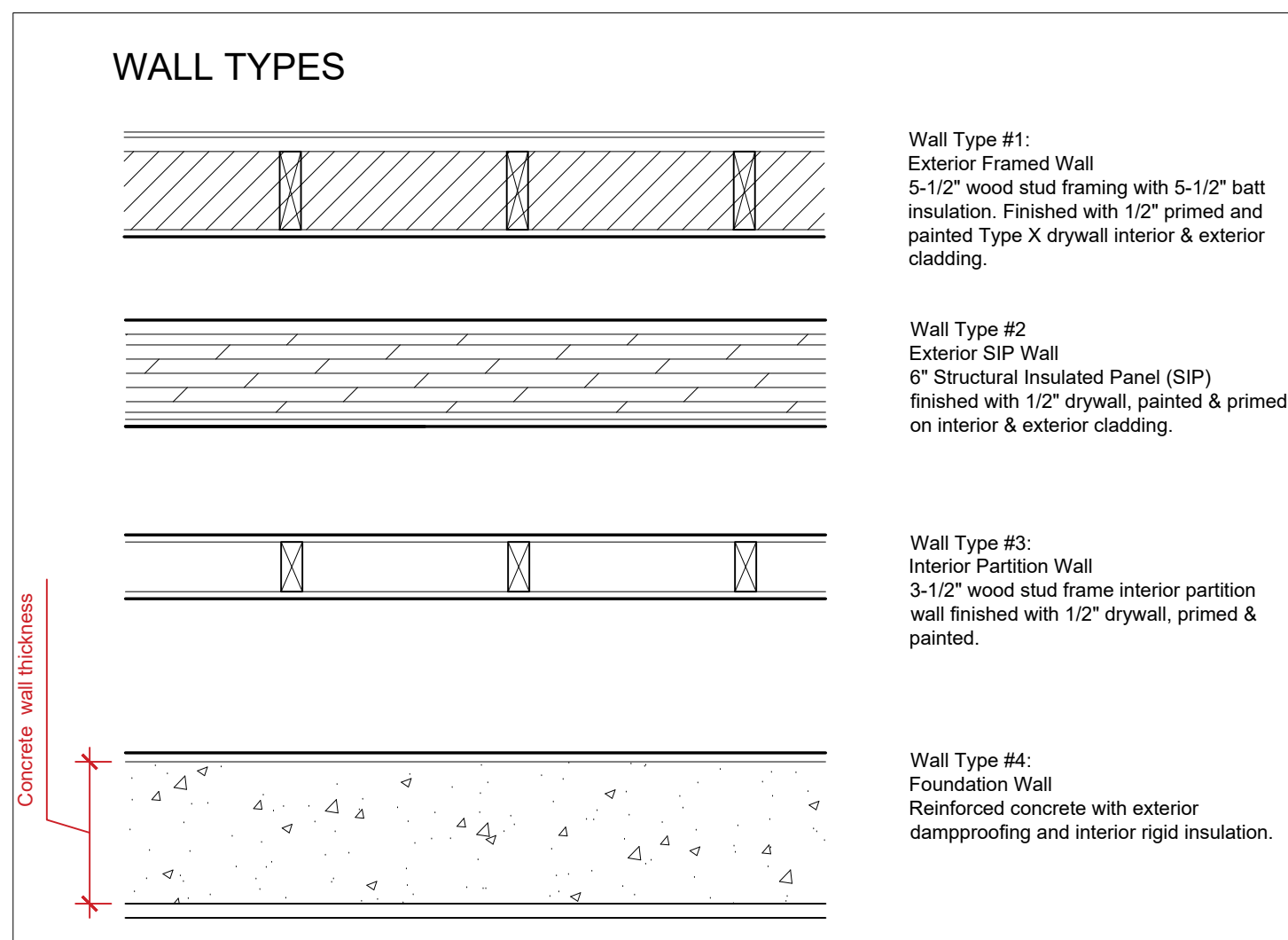
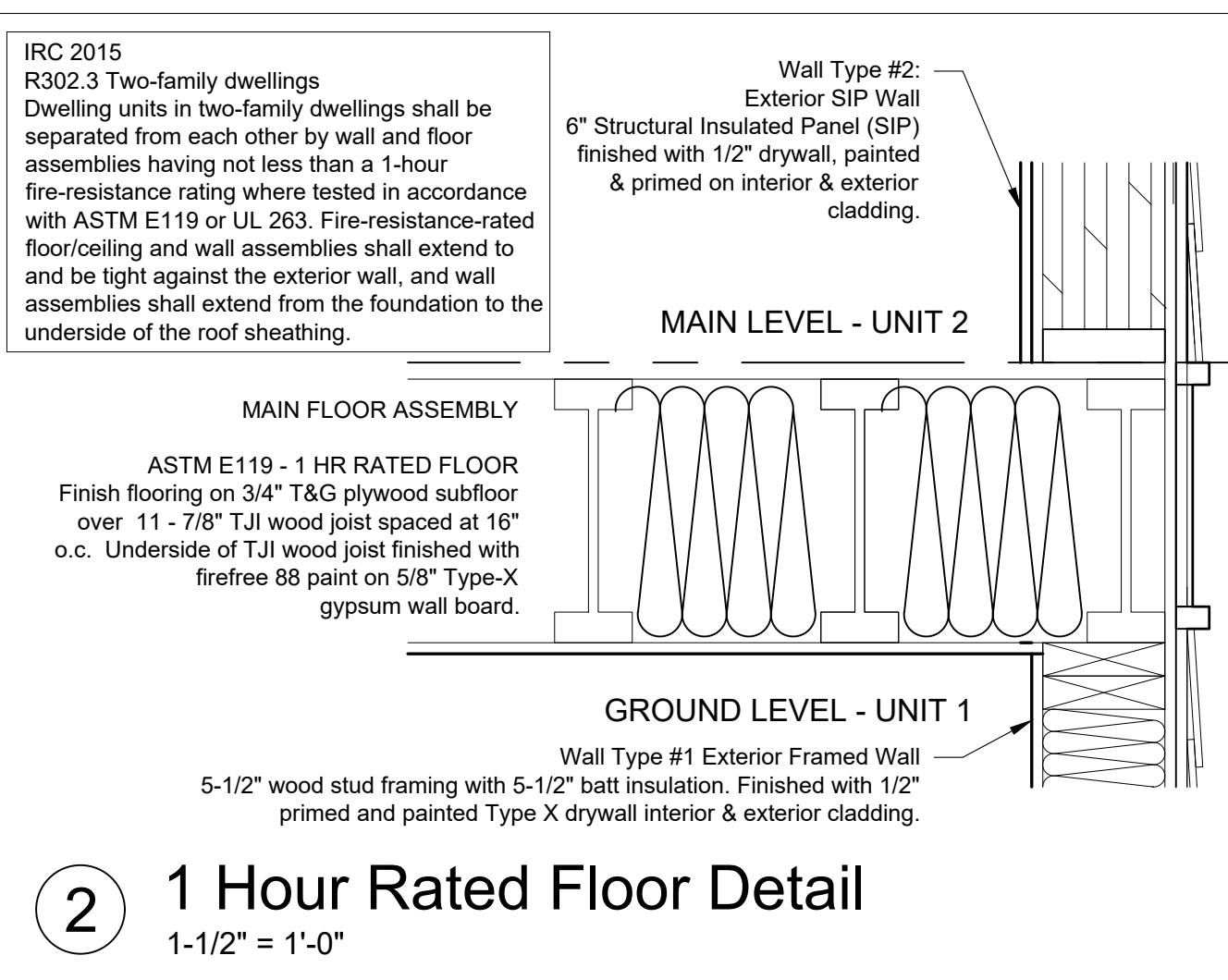
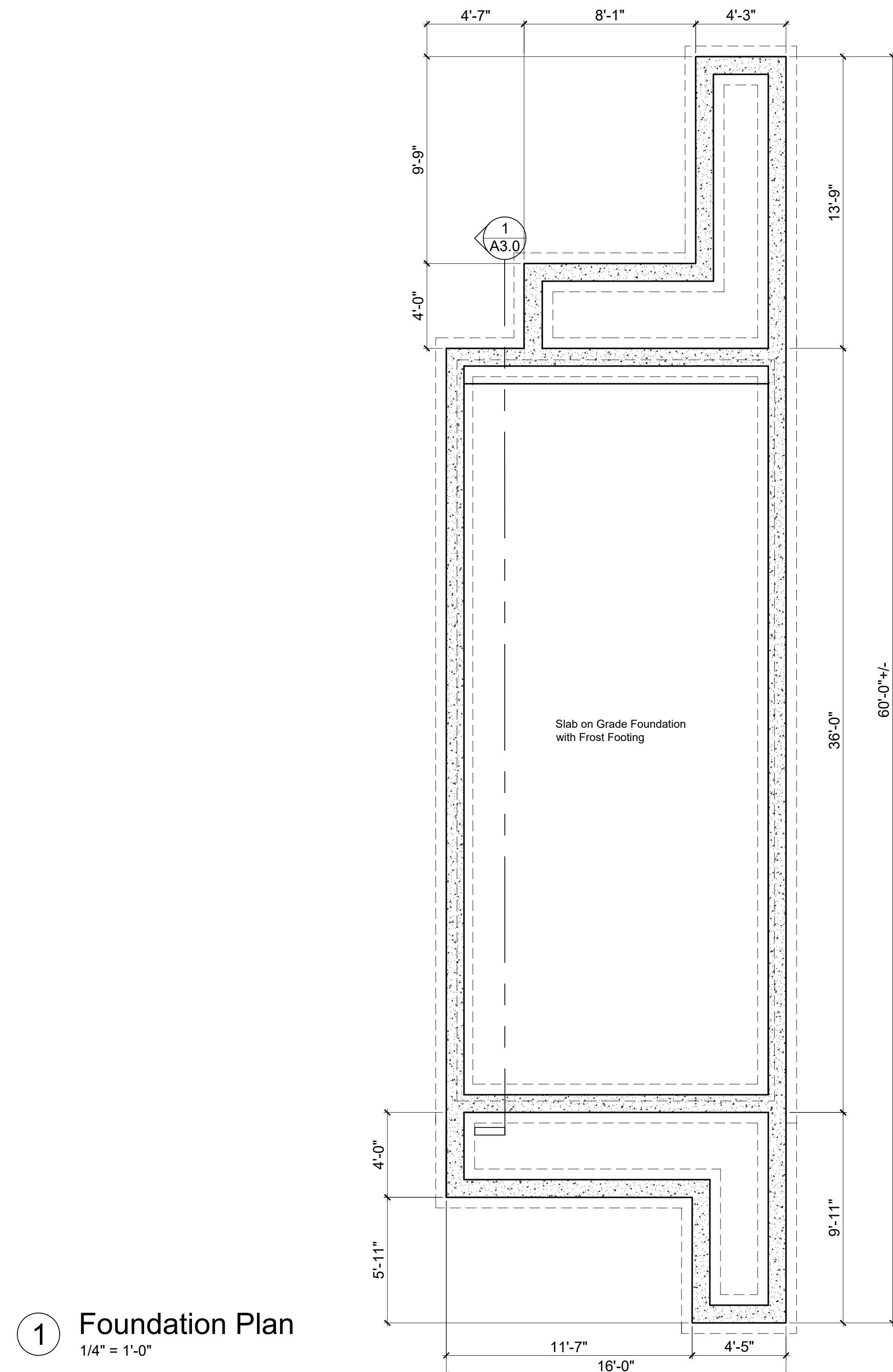
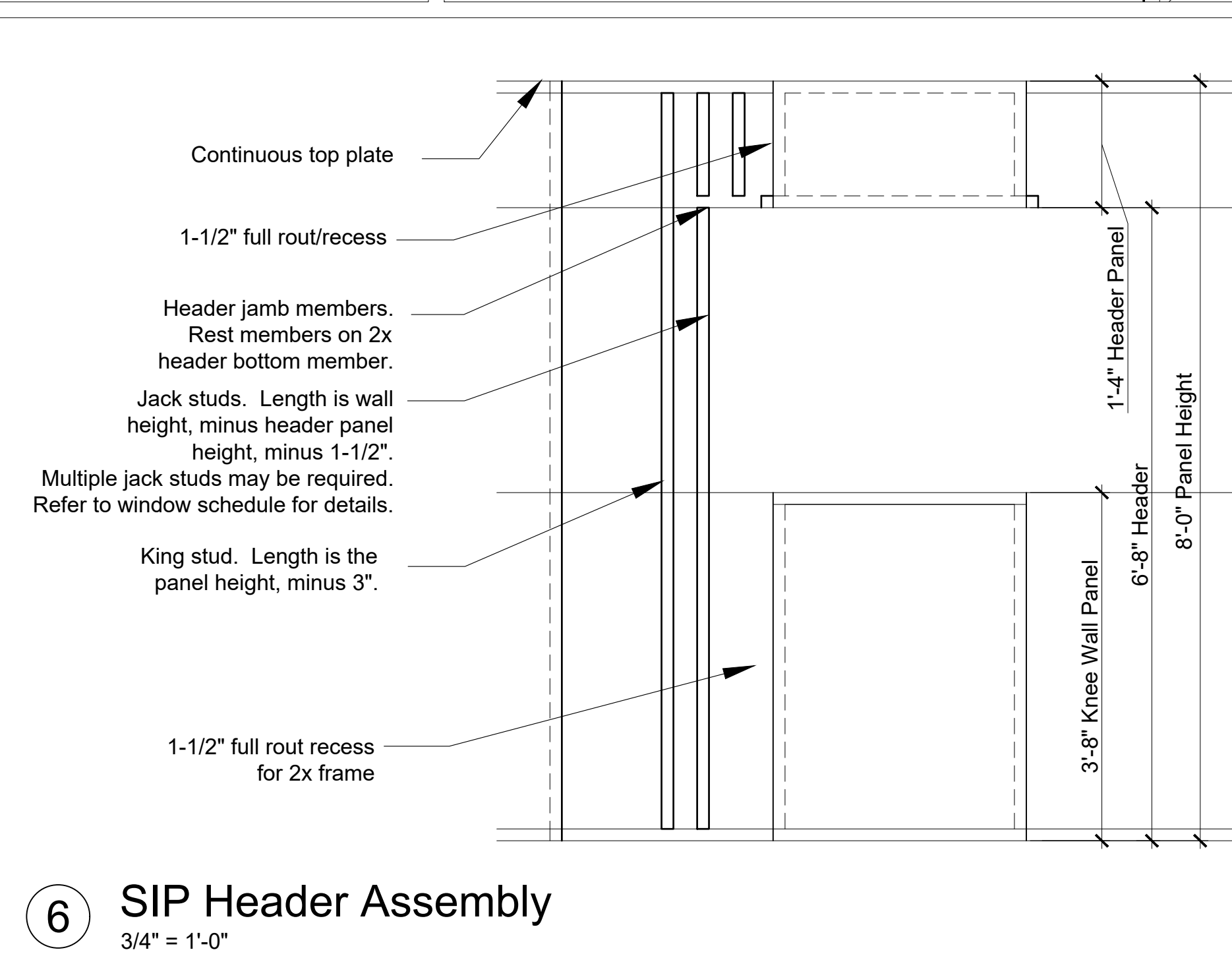
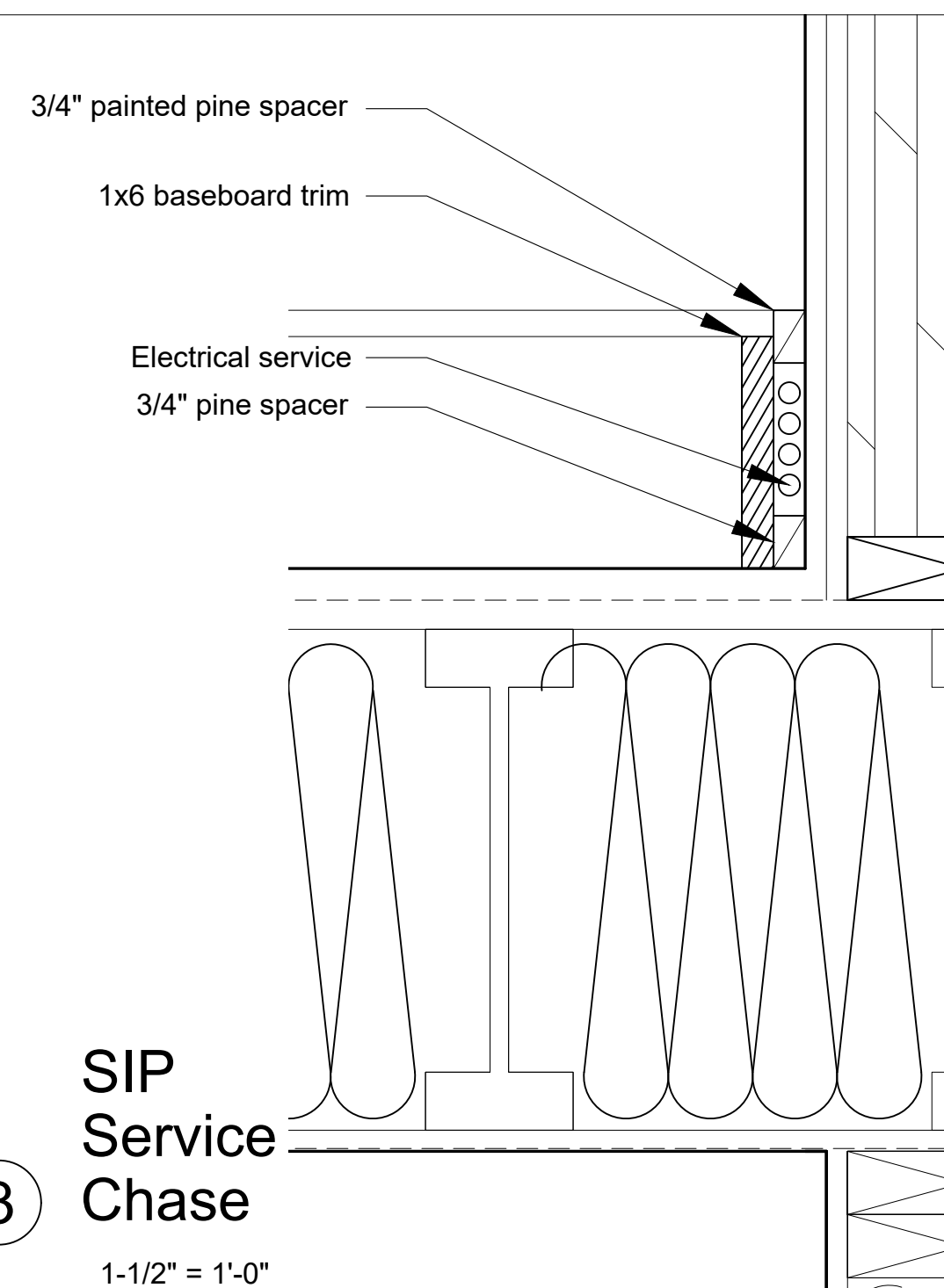
**ABBREVIATIONS**

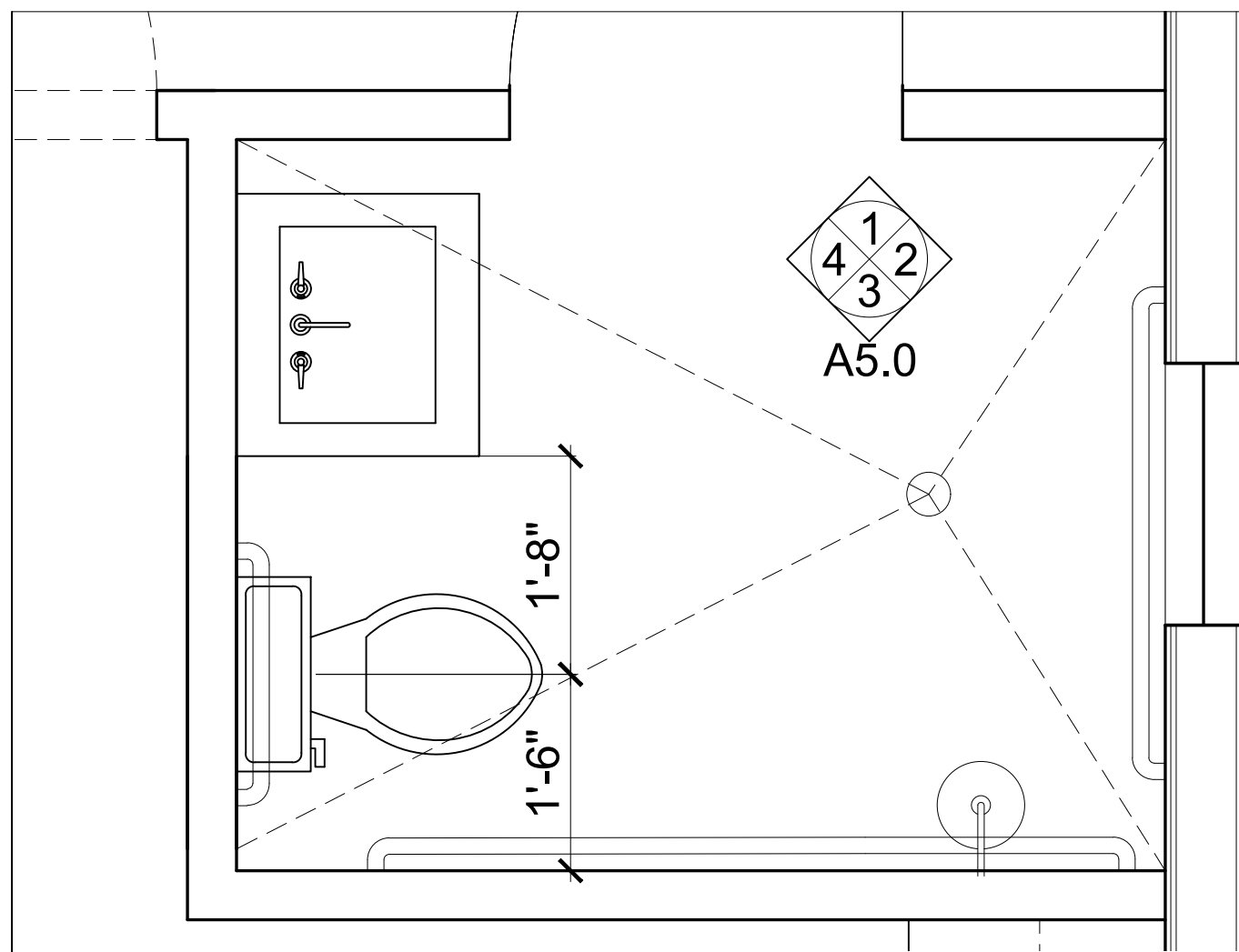
|                           |                              |                        |                  |
|---------------------------|------------------------------|------------------------|------------------|
| AB Anchor Bolt            | GALV Galvanized              | R R-Value              | R-Value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

**BUILDING DATA**

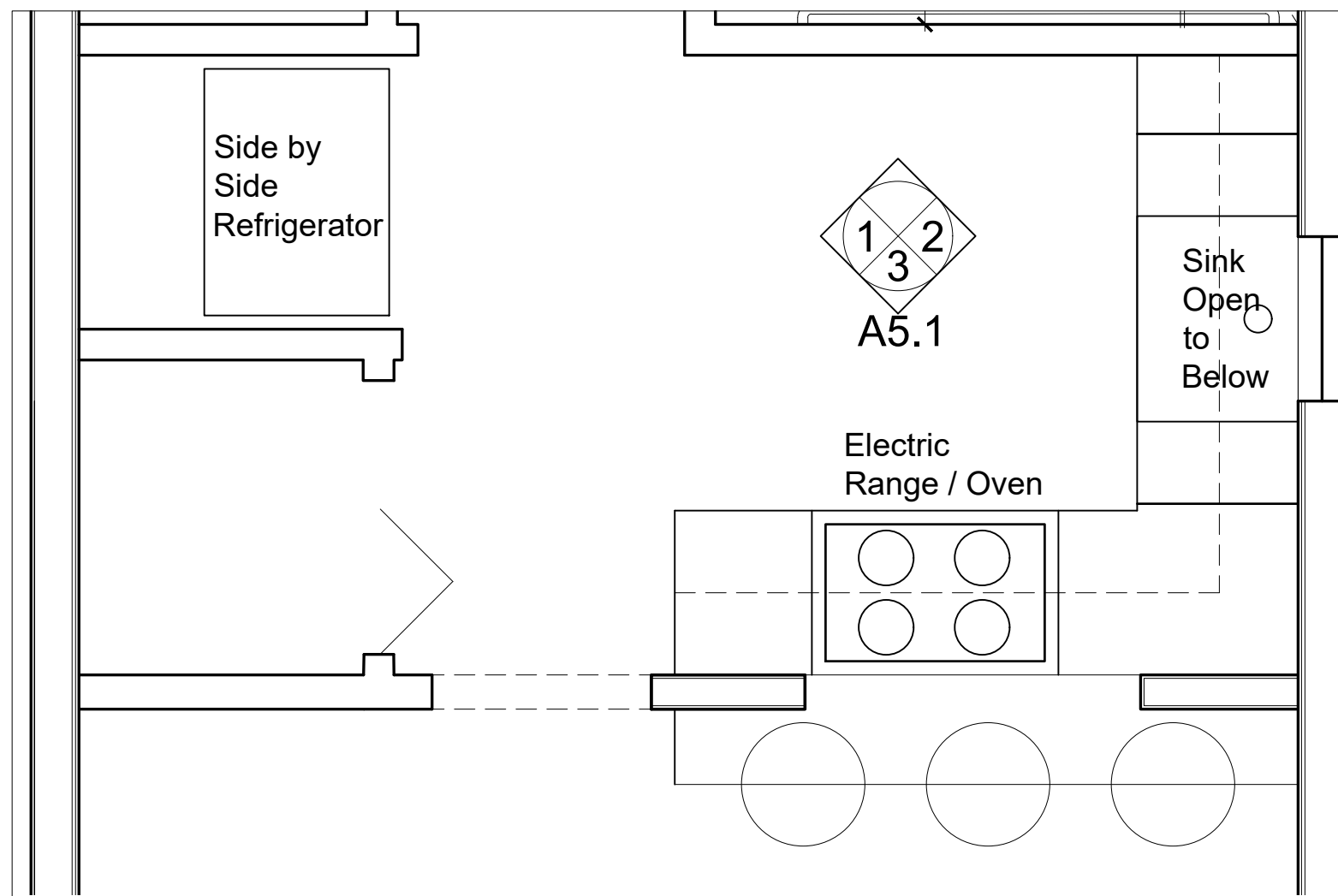
**DESIGN CRITERIA**  
To be determined based on the exact location of construction site.  
Roof Dead: \_\_\_ psf      Wind: \_\_\_\_\_  
Roof Live: \_\_\_ psf      Septic: \_\_\_\_\_  
Soil Bearing: \_\_\_ psf

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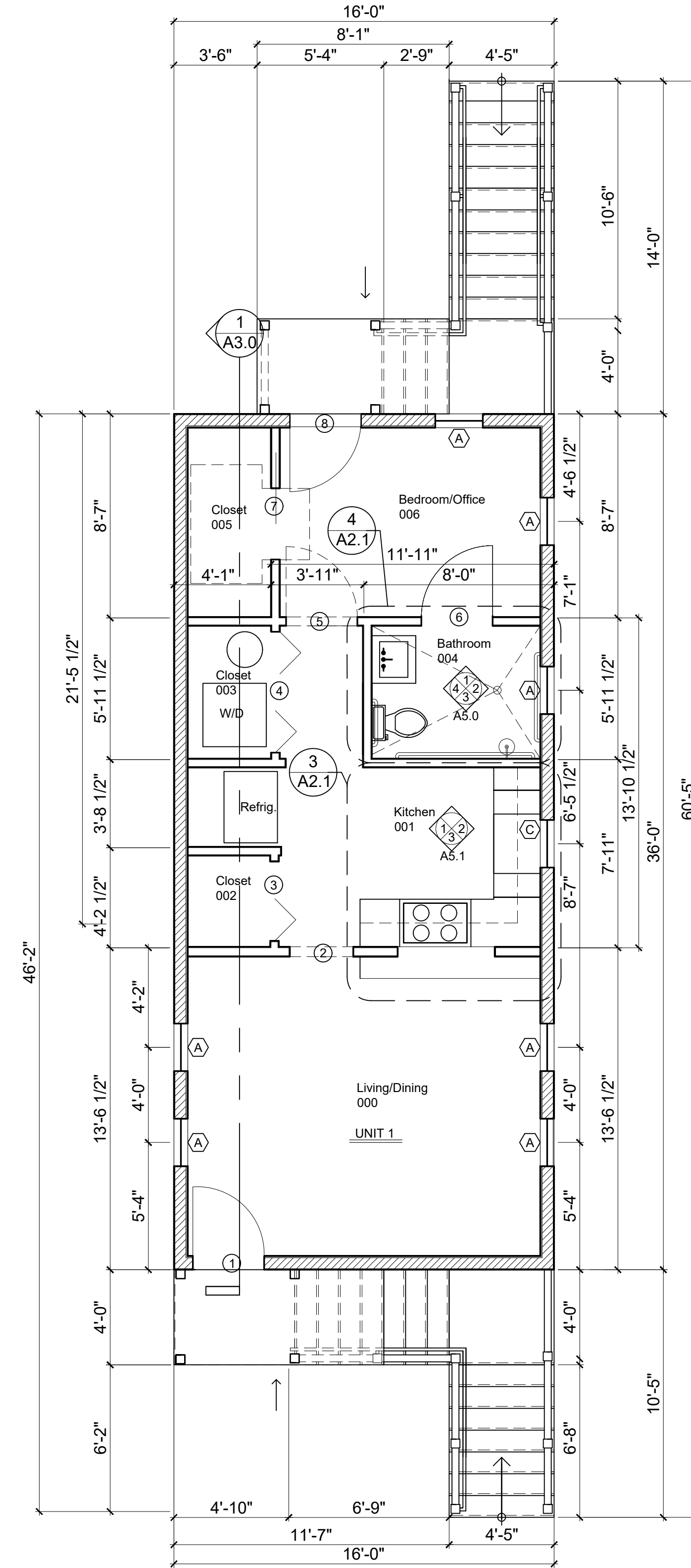


④ Ground Level Bathroom Layout  
3/4" = 1'-0"



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

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① Ground Floor Plan  
1/4" = 1'-0"

**Finish Descriptions**

| Mark  | Description       | Manufacturer | Collection | Color     |
|-------|-------------------|--------------|------------|-----------|
| PT1   | Paint 1           |              |            |           |
| PT2   | Paint 2           |              |            |           |
| PT3   | Paint 3           |              |            |           |
| TILE1 | Ceramic 1         |              |            |           |
| TILE2 | Ceramic 2         |              |            |           |
| LVT 1 | Luxury Vinyl Tile |              |            | Wood Look |
| CPT1  | Carpet 1          |              |            |           |
| CPT2  | Carpet 2          |              |            |           |
| TB1   | Tile Base         |              |            |           |
| VB    | Vinyl Base        |              |            |           |

**GROUND LEVEL FINISH SCHEDULE**

| NO. | ROOM           | FLOOR  | BASE | WALLS  | CEILING | NOTES |
|-----|----------------|--------|------|--------|---------|-------|
| 000 | LIVING/DINING  | LVT    | VB   | PAINT  | PAINT   |       |
| 001 | KITCHEN        | TILE 1 | TB 1 | PAINT  | PAINT   |       |
| 002 | CLOSET         | TILE 1 | TB 1 | PAINT  | PAINT   |       |
| 003 | CLOSET         | TILE 1 | TB 1 | PAINT  | PAINT   |       |
| 004 | BATHROOM       | TILE 2 | TB 2 | TILE 2 | PAINT   |       |
| 005 | CLOSET         | CPT 1  | VB   | PAINT  | PAINT   |       |
| 006 | BEDROOM/OFFICE | CPT 1  | VB   | PAINT  | PAINT   |       |

**GROUND LEVEL WINDOW SCHEDULE**

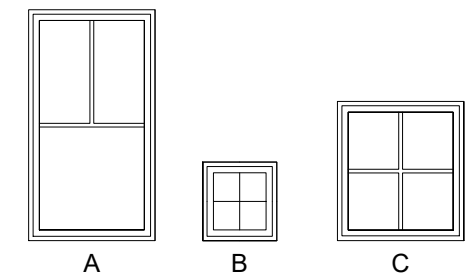
| MARK | QTY | WIDTH | HEIGHT | DESCRIPTION | NOTES |
|------|-----|-------|--------|-------------|-------|
| A    | 7   | 2'-5" | 4'-5"  | CASEMENT    |       |
| B    | 0   | 1'-5" | 1'-6"  | CASEMENT    |       |
| C    | 1   | 2'-5" | 2'-7"  | CASEMENT    |       |

\*Bedroom windows required to meet egress requirements

**GROUND LEVEL DOOR SCHEDULE**

| MARK | ID     | SIZE      | SWING  | MATERIAL | FRAME   | HARDWARE | NOTES                 |
|------|--------|-----------|--------|----------|---------|----------|-----------------------|
| 1    | A      | 36" x 80" | LEFT   | STEEL    | PAINTED | ENTRY    |                       |
| 2    | F      | 36" x 80" | -      | -        | PAINTED | -        | CASED OPENING         |
| 3    | D      | 36" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |                       |
| 4    | D      | 42" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |                       |
| 5    | F or B | 36" x 80" | LEFT   | WOOD     | PAINTED | PRIVACY  | CASED OPENING or DOOR |
| 6    | B      | 36" x 80" | RIGHT  | WOOD     | PAINTED | PRIVACY  |                       |
| 7    | B      | 36" x 80" | POCKET | WOOD     | PAINTED | PRIVACY  |                       |
| 8    | A      | 36" x 80" | STEEL  | WOOD     | PAINTED | ENTRY    |                       |

**Hardware Descriptions**  
Schlage or approved equal



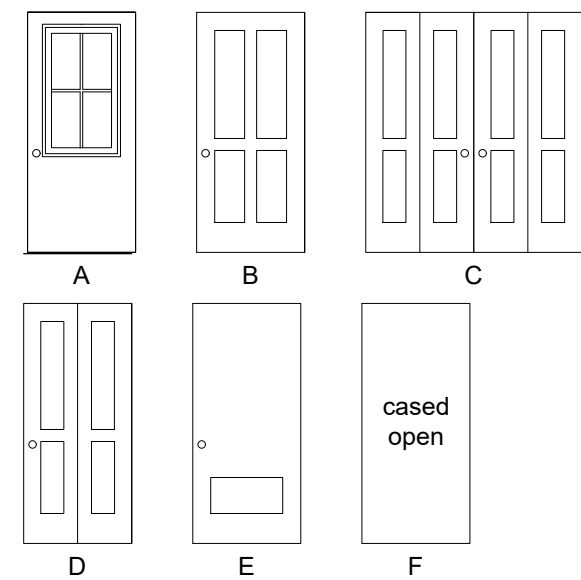
Window Types

**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).

**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.

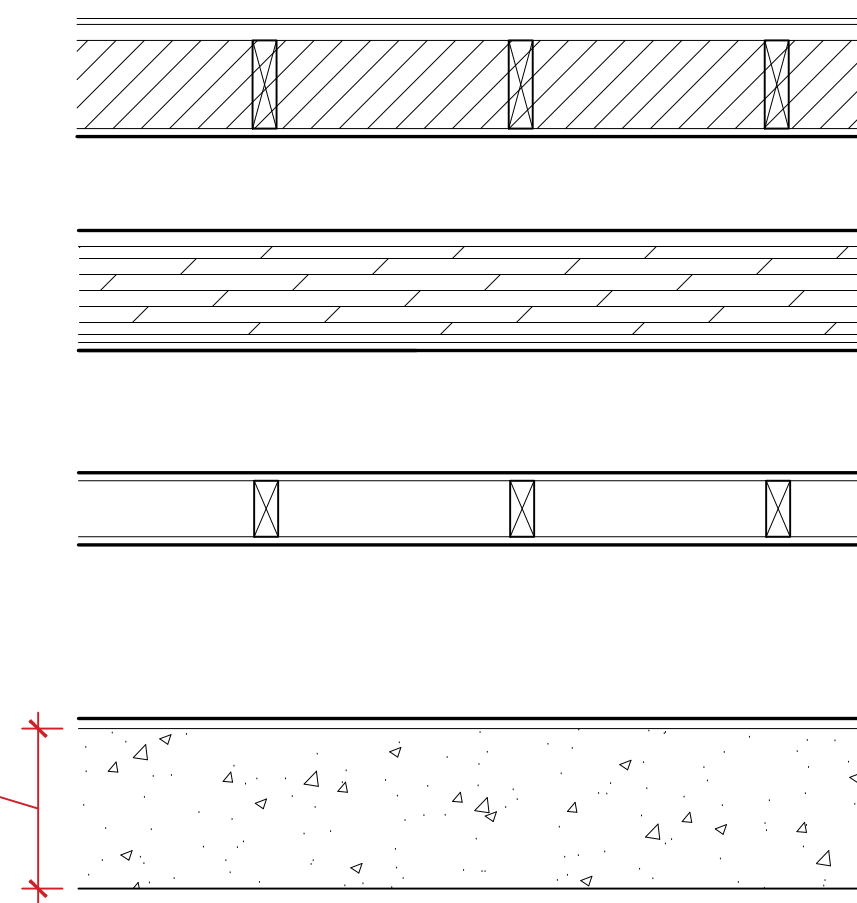
**CLOSET**  
Ball catch is disengaged when handle is pulled. No interior handle.



Door Types

② Schedules  
No scale

**WALL TYPES**



Wall Type #1:  
Exterior Framed Wall  
5-1/2" wood stud framing with 5-1/2" batt insulation. Finished with 1/2" primed and painted Type X drywall interior & exterior cladding.

Wall Type #2:  
Exterior SIP Wall  
6" Structural Insulated Panel (SIP) finished with 1/2" drywall, primed & painted, on interior & exterior cladding.

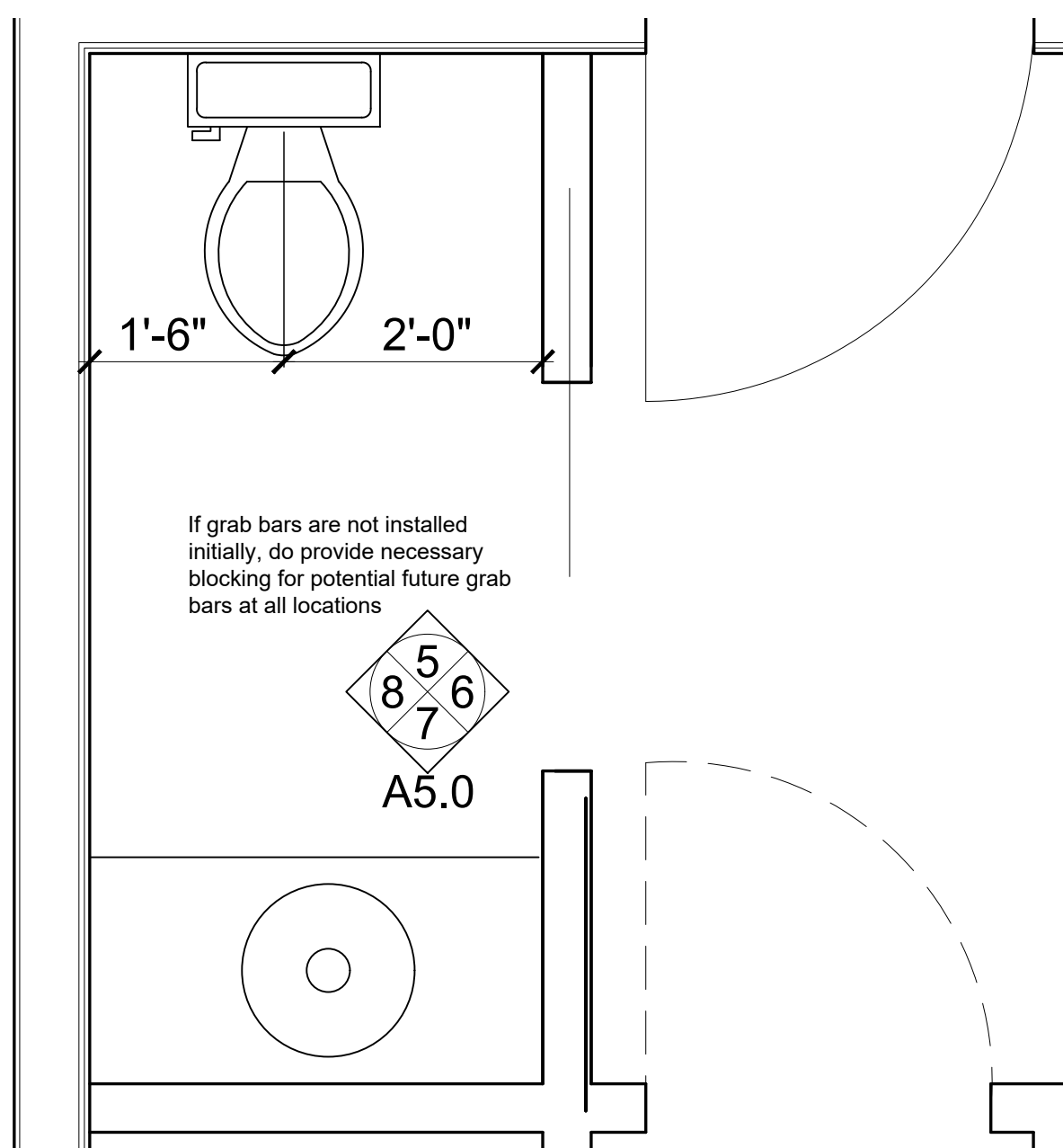
Wall Type #3:  
Interior Partition Wall  
3-1/2" wood stud frame interior partition wall finished with 1/2" drywall, primed & painted.

Wall Type #4:  
Foundation Wall  
Reinforced concrete with exterior dampproofing and interior rigid insulation.

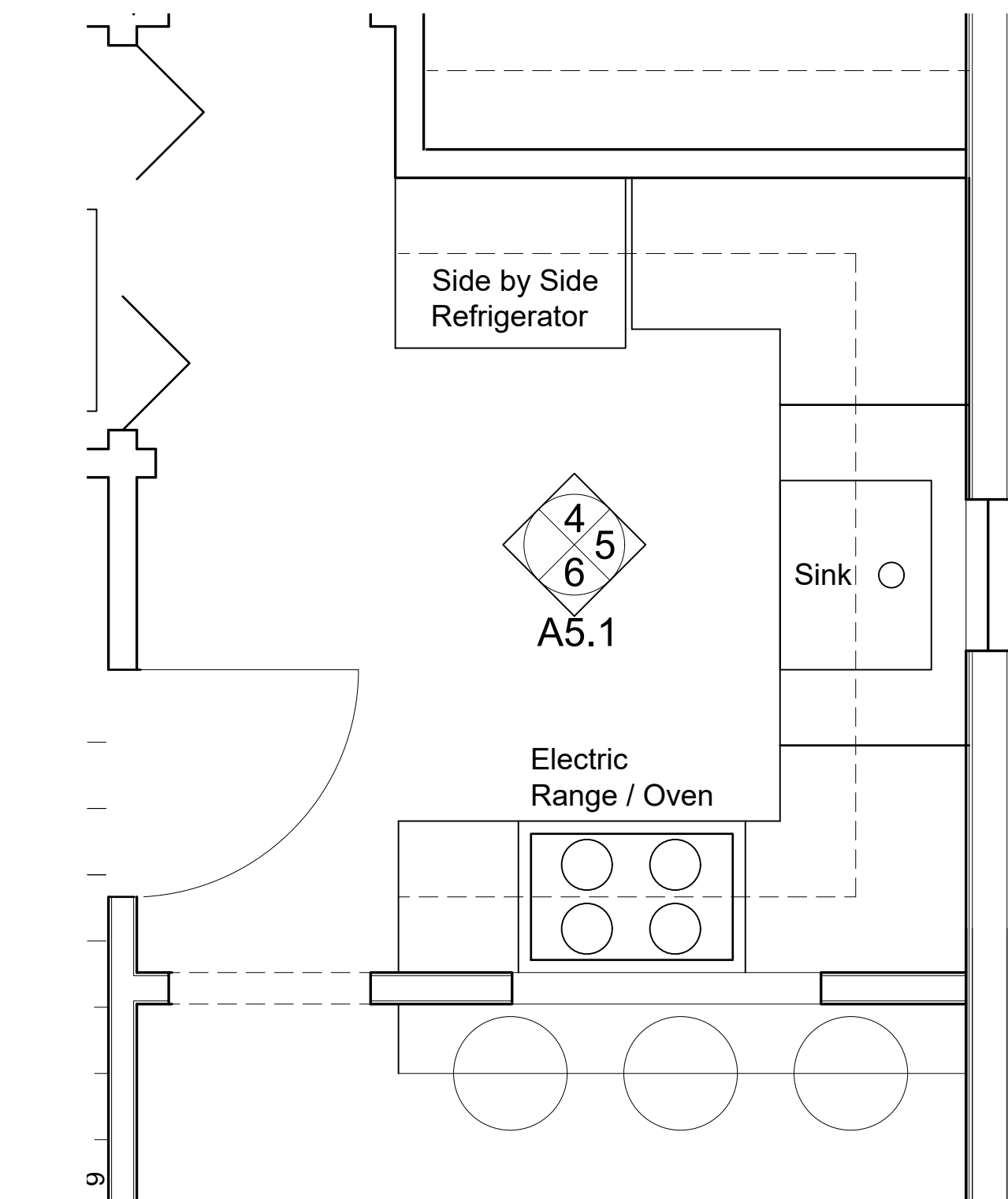
NOT FOR CONSTRUCTION

THE CAPITOL  
Michigan Municipal League

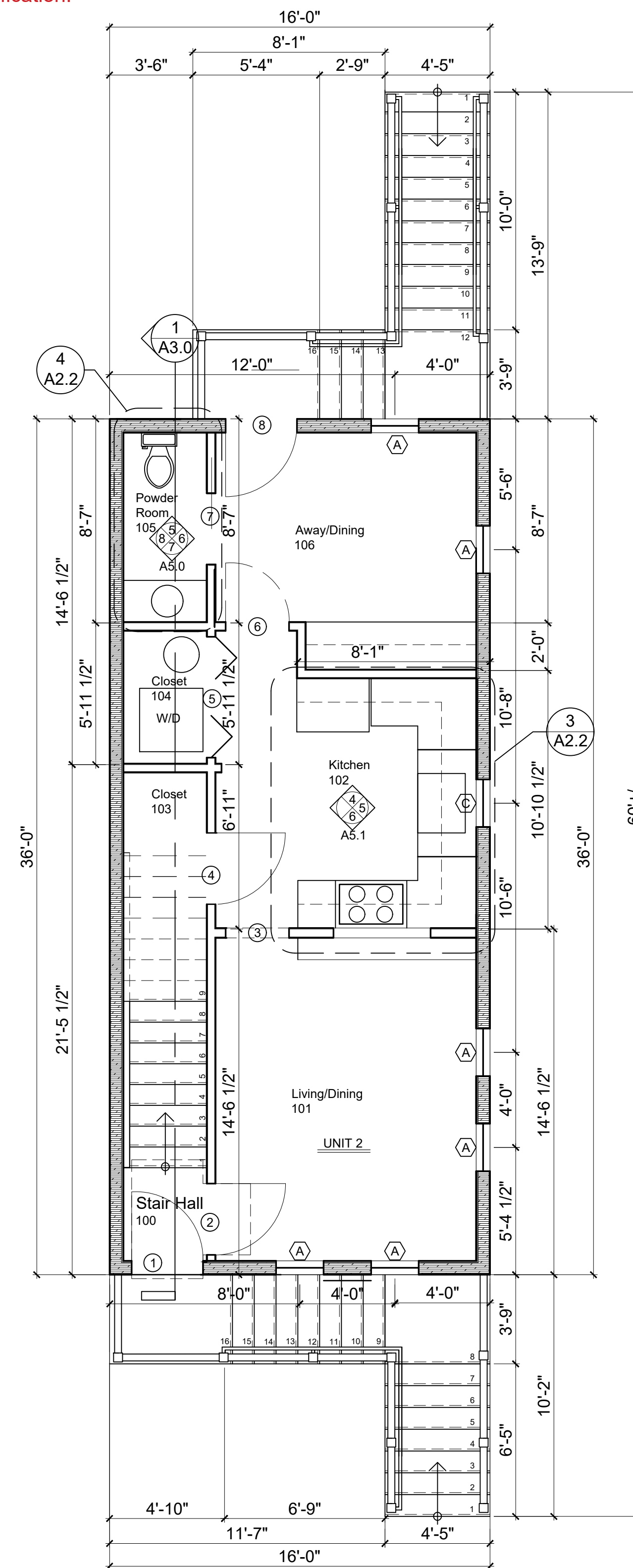
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4 Main Level Bathroom Layout  
3/4" = 1'-0"



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



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

Finish Descriptions

| Mark  | Description       | Manufacturer | Collection | Color     |
|-------|-------------------|--------------|------------|-----------|
| PT1   | Paint 1           |              |            |           |
| PT2   | Paint 2           |              |            |           |
| PT3   | Paint 3           |              |            |           |
| TILE1 | Ceramic 1         |              |            |           |
| TILE2 | Ceramic 2         |              |            |           |
| LVT 1 | Luxury Vinyl Tile |              |            | Wood Look |
| CPT1  | Carpet 1          |              |            |           |
| CPT2  | Carpet 2          |              |            |           |
| TB1   | Tile Base         |              |            |           |
| VB    | Vinyl Base        |              |            |           |

MAIN LEVEL FINISH SCHEDULE

| NO. | ROOM          | FLOOR | BASE | WALLS | CEILING | NOTES |
|-----|---------------|-------|------|-------|---------|-------|
| 100 | STAIR HALL    | LVT   | VB   | PAINT | PAINT   |       |
| 101 | LIVING/DINING | LVT   | VB   | PAINT | PAINT   |       |
| 102 | KITCHEN       | LVT   | VB   | PAINT | PAINT   |       |
| 103 | CLOSET        | LVT   | VB   | PAINT | PAINT   |       |
| 104 | CLOSET        | LVT   | VB   | PAINT | PAINT   |       |
| 105 | POWDER RM     | TILE1 | TB1  | PAINT | PAINT   |       |
| 106 | AWAY/DINING   | LVT   | VB   | PAINT | PAINT   |       |

MAIN LEVEL WINDOW SCHEDULE

| MARK | QTY | WIDTH | HEIGHT | DESCRIPTION | NOTES |
|------|-----|-------|--------|-------------|-------|
| A    | 6   | 2'-5" | 4'-5"  | CASEMENT    |       |
| B    | 0   | 1'-5" | 1'-5"  | CASEMENT    |       |
| C    | 1   | 2'-5" | 2'-7"  | CASEMENT    |       |

\*Bedroom windows required to meet egress requirements

MAIN LEVEL DOOR SCHEDULE

| MARK | ID | SIZE      | SWING  | MATERIAL | FRAME   | HARDWARE | NOTES         |
|------|----|-----------|--------|----------|---------|----------|---------------|
| 1    | A  | 36" x 80" | LEFT   | STEEL    | PAINTED | ENTRY    |               |
| 2    | B  | 36" x 80" | LEFT   | WOOD     | PAINTED | PASSAGE  |               |
| 3    | F  | 32" x 80" | -      | -        | PAINTED | -        | CASED OPENING |
| 4    | E  | 36" x 80" | LEFT   | WOOD     | PAINTED | CLOSET   |               |
| 5    | C  | 60" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |               |
| 6    | F  | 32" x 80" | -      | -        | PAINTED | -        | CASED OPENING |
| 7    | B  | 36" x 80" | POCKET | WOOD     | PAINTED | PRIVACY  |               |
| 8    | A  | 36" x 80" | RIGHT  | STEEL    | PAINTED | ENTRY    |               |

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).

PASSAGE

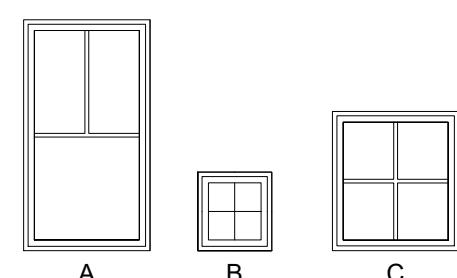
Latchbolt is retracted by the grip on either side. Both grips are always free.

PRIVACY

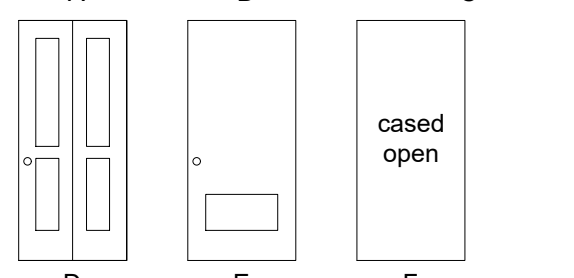
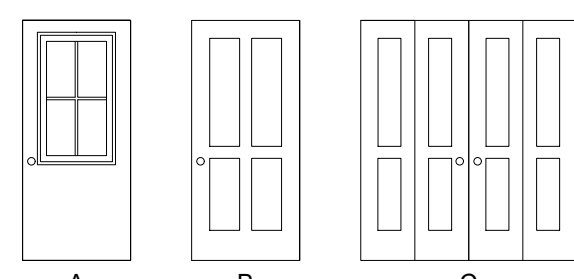
The latchbolt is retracted by the inside grip or an outside key. The latchbolt is retracted by the outside grip unless the grip is locked by a thumbturn from the inside. The latchbolt / outside grip cannot be locked by a key from the outside.

CLOSET

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

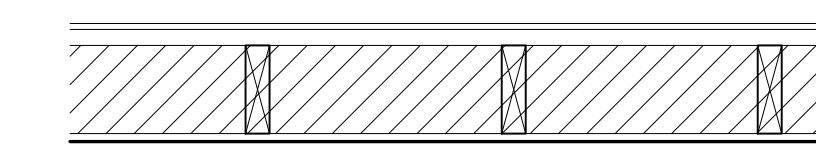


Window Types

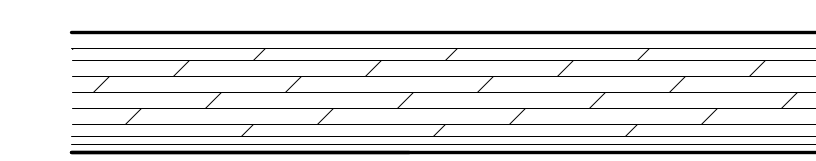


Door Types

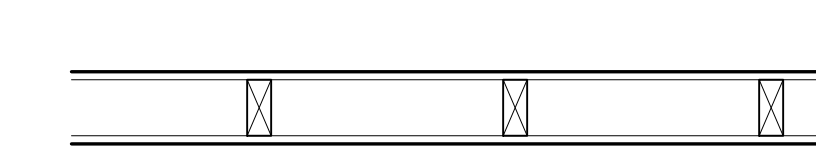
WALL TYPES



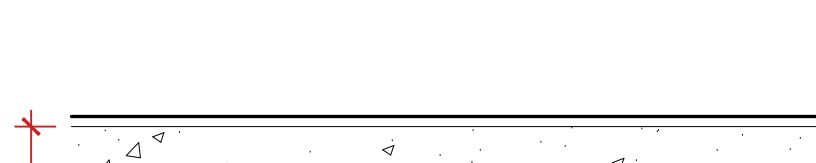
Wall Type #1:  
Exterior Framed Wall  
5-1/2" wood stud framing with 5-1/2" batt insulation. Finished with 1/2" primed and painted Type X drywall interior & exterior cladding.



Wall Type #2:  
Exterior SIP Wall  
6" Structural Insulated Panel (SIP) finished with 1/2" drywall, painted & primed, on interior & exterior cladding.

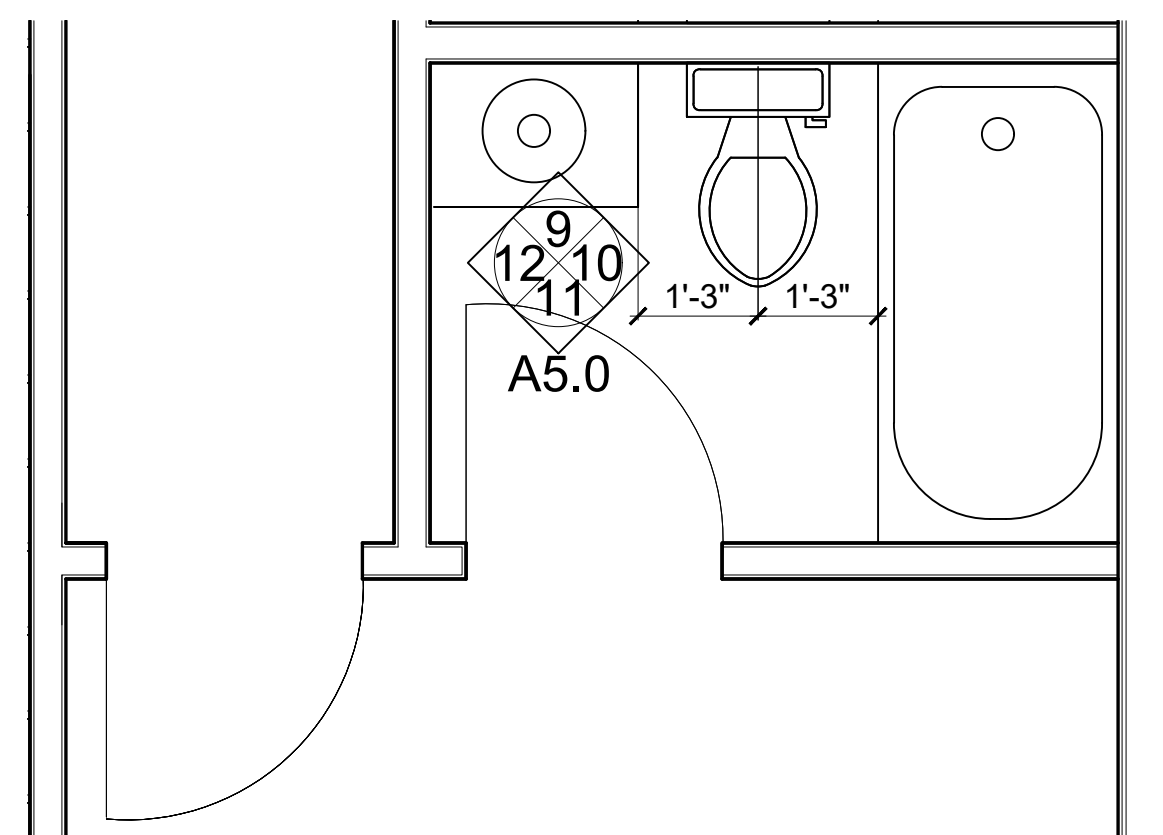


Wall Type #3:  
Interior Partition Wall  
3-1/2" wood stud frame interior partition wall finished with 1/2" drywall, primed & painted.



Wall Type #4:  
Foundation Wall  
Reinforced concrete with exterior dampproofing and interior rigid insulation.

2 Schedules  
No scale



3 Typical Upper Bathroom Layout  
1/2" = 1'-0"

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Do not scale.  
Use figured dimensions only.  
MML Review Set  
15 October 2023

NOT FOR CONSTRUCTION

Finish Descriptions

| Mark  | Description       | Manufacturer | Collection | Color     |
|-------|-------------------|--------------|------------|-----------|
| PT1   | Paint 1           |              |            |           |
| PT2   | Paint 2           |              |            |           |
| PT3   | Paint 3           |              |            |           |
| TILE1 | Ceramic 1         |              |            |           |
| TILE2 | Ceramic 2         |              |            |           |
| LVT 1 | Luxury Vinyl Tile |              |            | Wood Look |
| CPT1  | Carpet 1          |              |            |           |
| CPT2  | Carpet 2          |              |            |           |
| TB1   | Tile Base         |              |            |           |
| VB    | Vinyl Base        |              |            |           |

UPPER LEVEL FINISH SCHEDULE

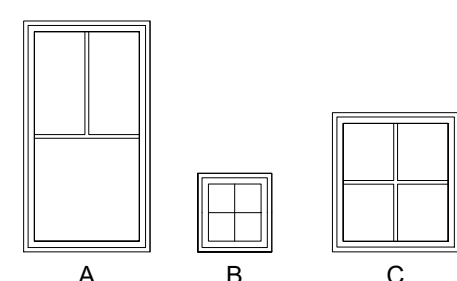
| NO. | ROOM       | FLOOR  | BASE | WALLS | CEILING | NOTES |
|-----|------------|--------|------|-------|---------|-------|
| 100 | STAIR HALL | LVT    | VB   | PAINT | PAINT   |       |
| 200 | HALL       | LVT    | VB   | PAINT | PAINT   |       |
| 201 | BEDROOM 1  | CPT 1  | VB   | PAINT | PAINT   |       |
| 202 | CLOSET     | CPT 1  | VB   | PAINT | PAINT   |       |
| 203 | BATHROOM 1 | TILE 2 | TB 2 | PAINT | PAINT   |       |
| 204 | BATHROOM 2 | TILE 2 | TB 2 | PAINT | PAINT   |       |
| 205 | BEDROOM 2  | CPT 1  | VB   | PAINT | PAINT   |       |
| 206 | CLOSET     | CPT 1  | VB   | PAINT | PAINT   |       |
| 207 | CLOSET     | CPT 1  | VB   | PAINT | PAINT   |       |
| 208 | CLOSET     | CPT 1  | VB   | PAINT | PAINT   |       |

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).



Window Types

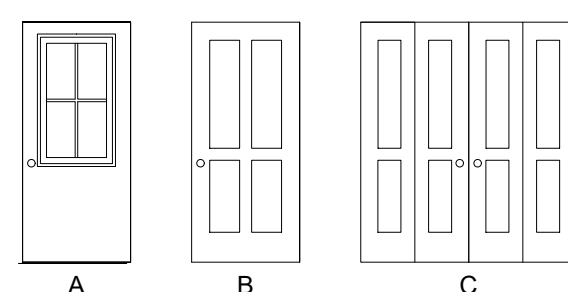
UPPER LEVEL WINDOW SCHEDULE

| MARK | QTY | WIDTH | HEIGHT | DESCRIPTION | NOTES |
|------|-----|-------|--------|-------------|-------|
| A    | 4   | 2'-5" | 4'-5"  | CASEMENT    |       |
| B    | 2   | 1'-5" | 1'-6"  | CASEMENT    |       |
| C    | 0   | 2'-5" | 2'-7"  | CASEMENT    |       |

\*Bedroom windows required to meet egress requirements

PASSAGE

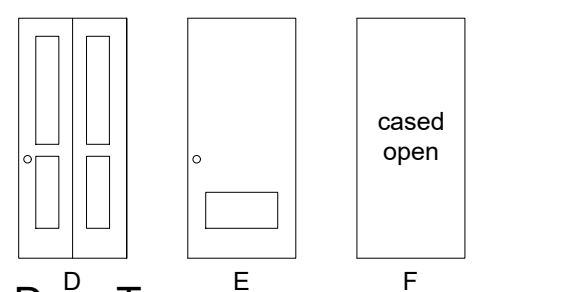
Latchbolt is retracted by the grip on either side. Both grips are always free.



Door Types

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.



Door Types

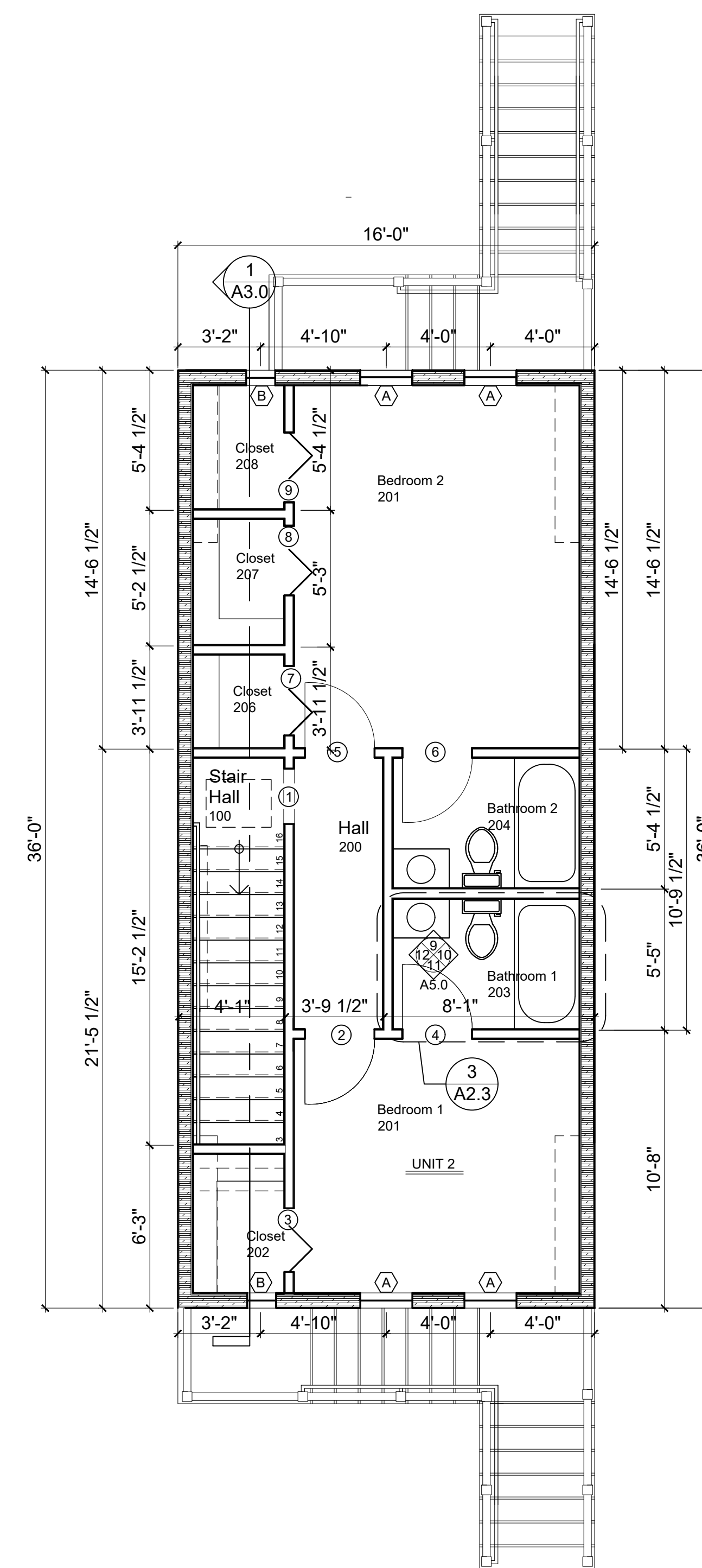
CLOSET

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

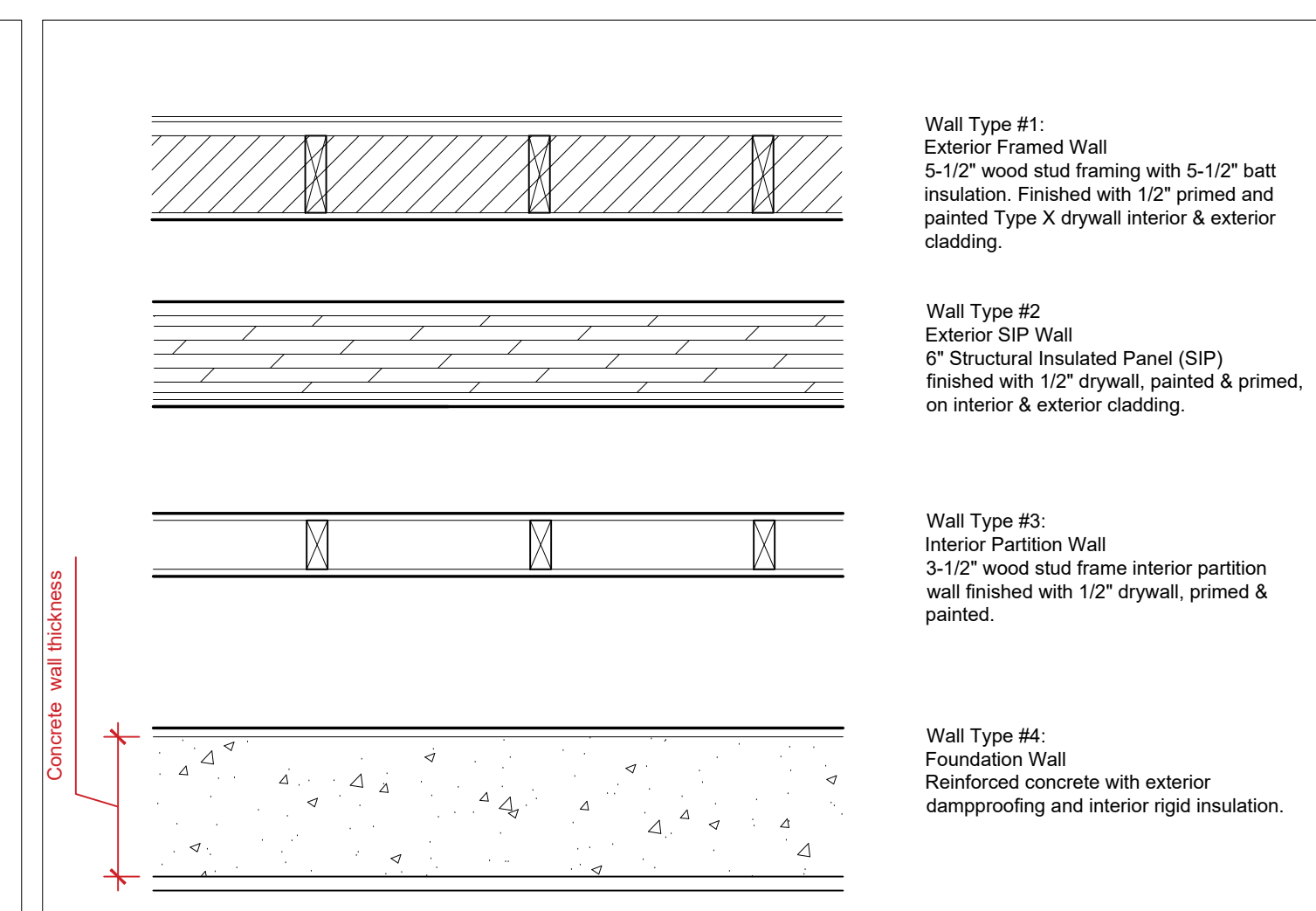
UPPER LEVEL DOOR SCHEDULE

| MARK | ID | SIZE      | SWING  | MATERIAL | FRAME   | HARDWARE | NOTES         |
|------|----|-----------|--------|----------|---------|----------|---------------|
| 1    | F  | 32" x 80" | -      | -        | PAINTED | -        | CASED OPENING |
| 2    | B  | 32" x 80" | RIGHT  | WOOD     | PAINTED | PRIVACY  |               |
| 3    | D  | 32" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |               |
| 4    | B  | 32" x 80" | LEFT   | WOOD     | PAINTED | PRIVACY  |               |
| 5    | B  | 32" x 80" | LEFT   | WOOD     | PAINTED | PRIVACY  |               |
| 6    | B  | 32" x 80" | RIGHT  | WOOD     | PAINTED | PRIVACY  |               |
| 7    | D  | 32" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |               |
| 8    | D  | 32" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |               |
| 9    | D  | 32" x 80" | BIFOLD | WOOD     | PAINTED | CLOSET   |               |

2 Schedules  
No scale



1 Upper Floor Plan  
1/4" = 1'-0"



THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
UPPER FLOOR  
PLAN

A2.3

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 required for local permitting. Some items are indicated as blanks for local verification.

Do not scale.  
Use figured dimensions only.

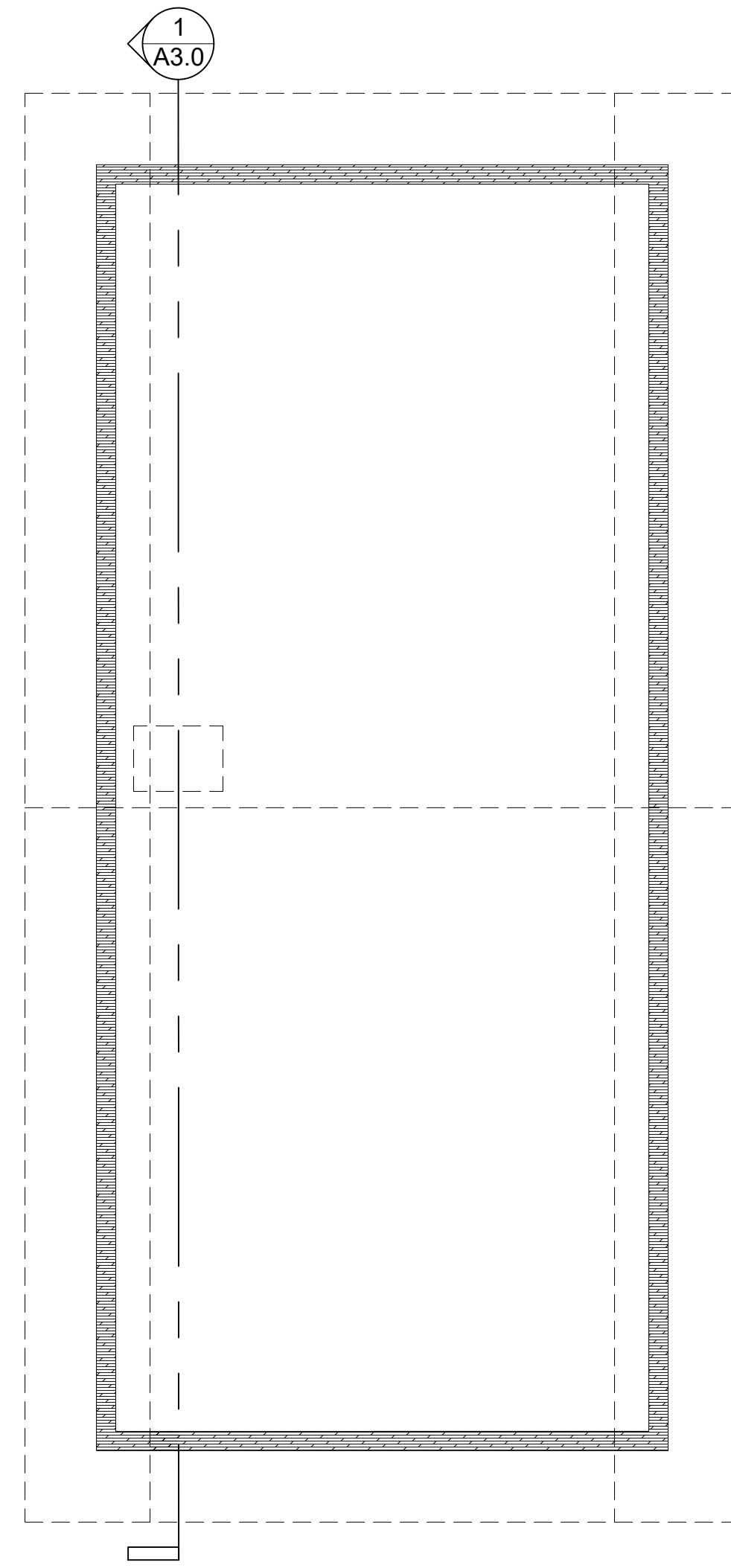
MML Review Set  
15 October 2023

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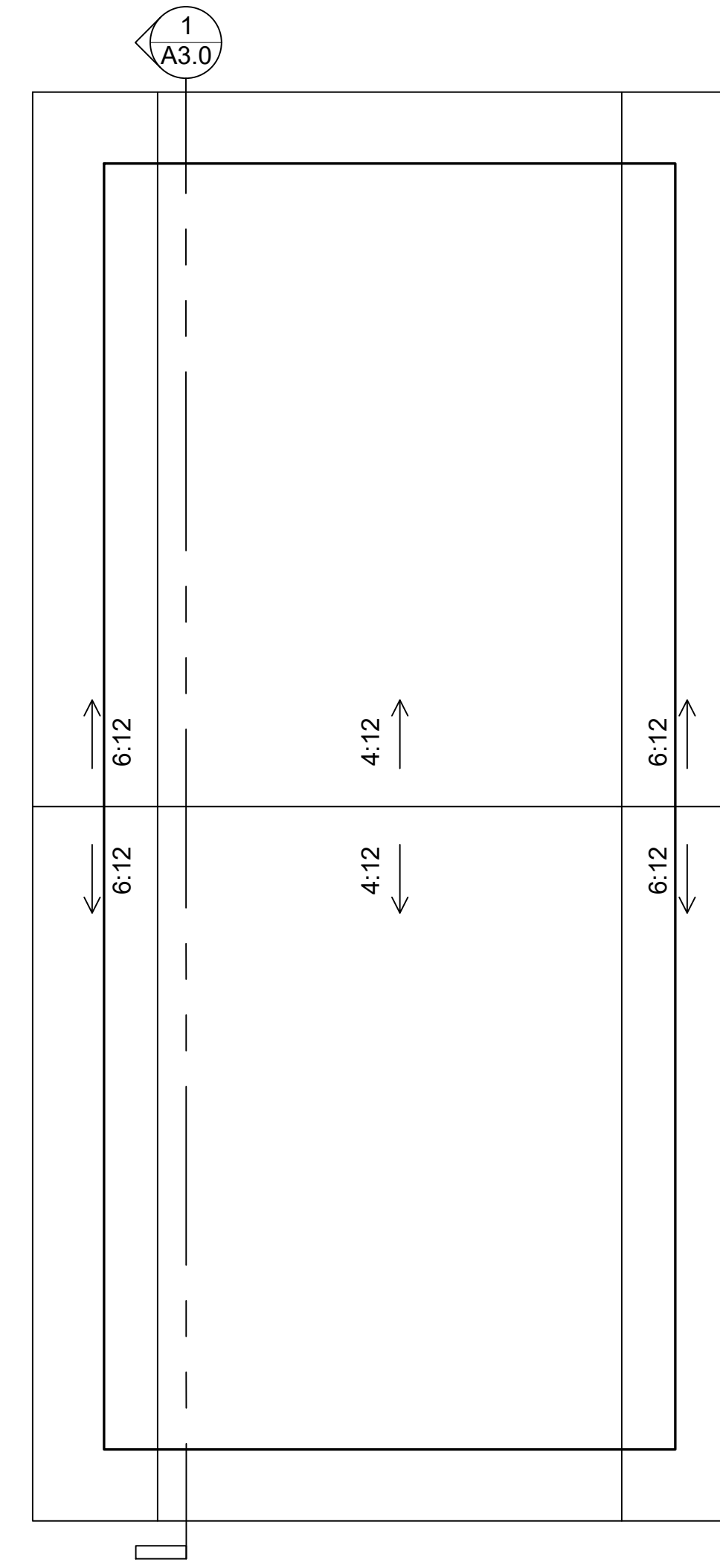
THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
ATTIC & ROOF PLANS

A2.4

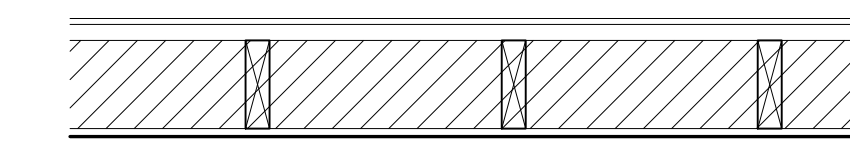


2 Roof Plan  
1/4" = 1'-0"

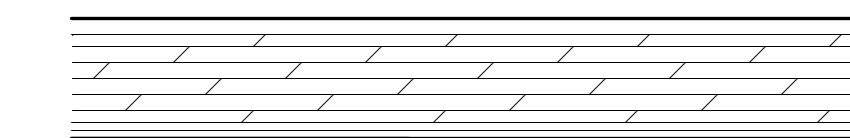


1 Roof Plan  
1/4" = 1'-0"

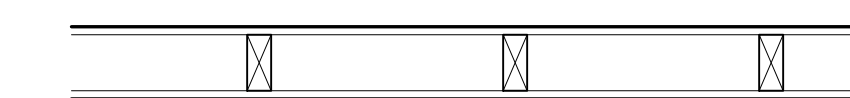
WALL TYPES



Wall Type #1:  
Exterior Framed Wall  
5-1/2" wood stud framing with 5-1/2" batt insulation. Finished with 1/2" primed and painted Type X drywall interior & exterior cladding.

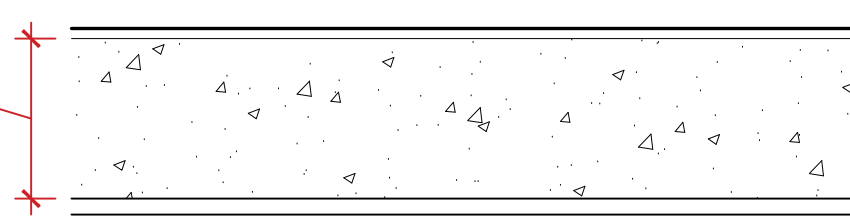


Wall Type #2:  
Exterior SIP Wall  
6" Structural Insulated Panel (SIP) finished with 1/2" drywall, painted & primed, on interior & exterior cladding.

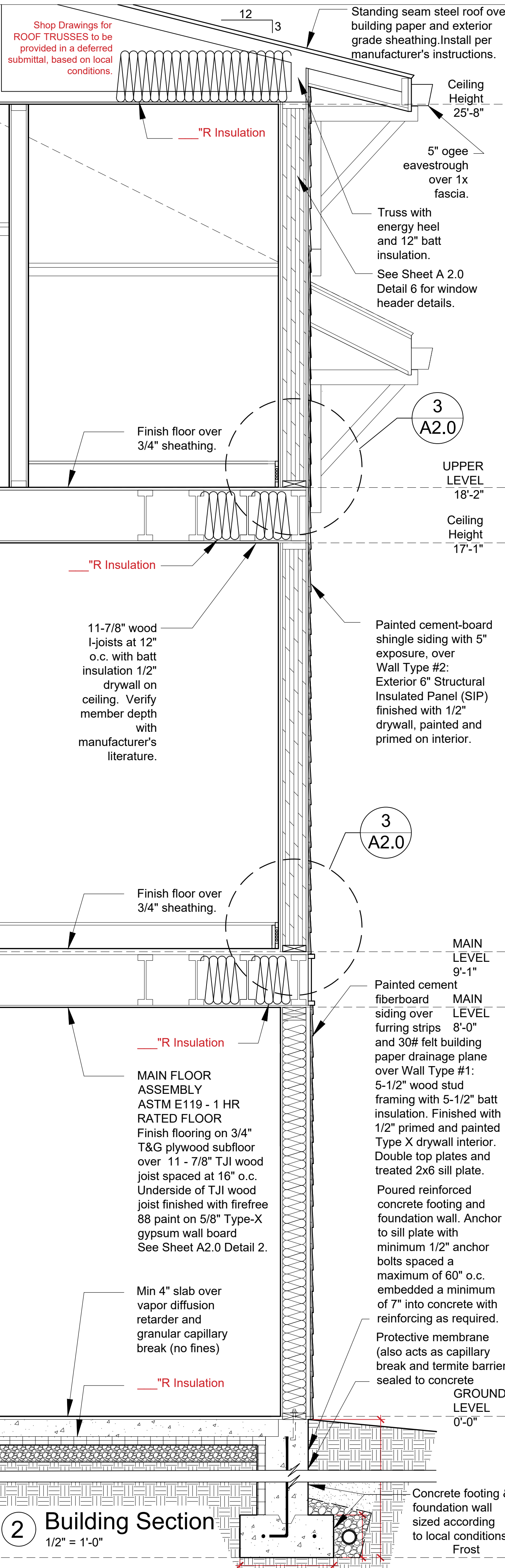


Wall Type #3:  
Interior Partition Wall  
3-1/2" wood stud frame interior partition wall finished with 1/2" drywall, primed & painted.

Concrete wall thickness

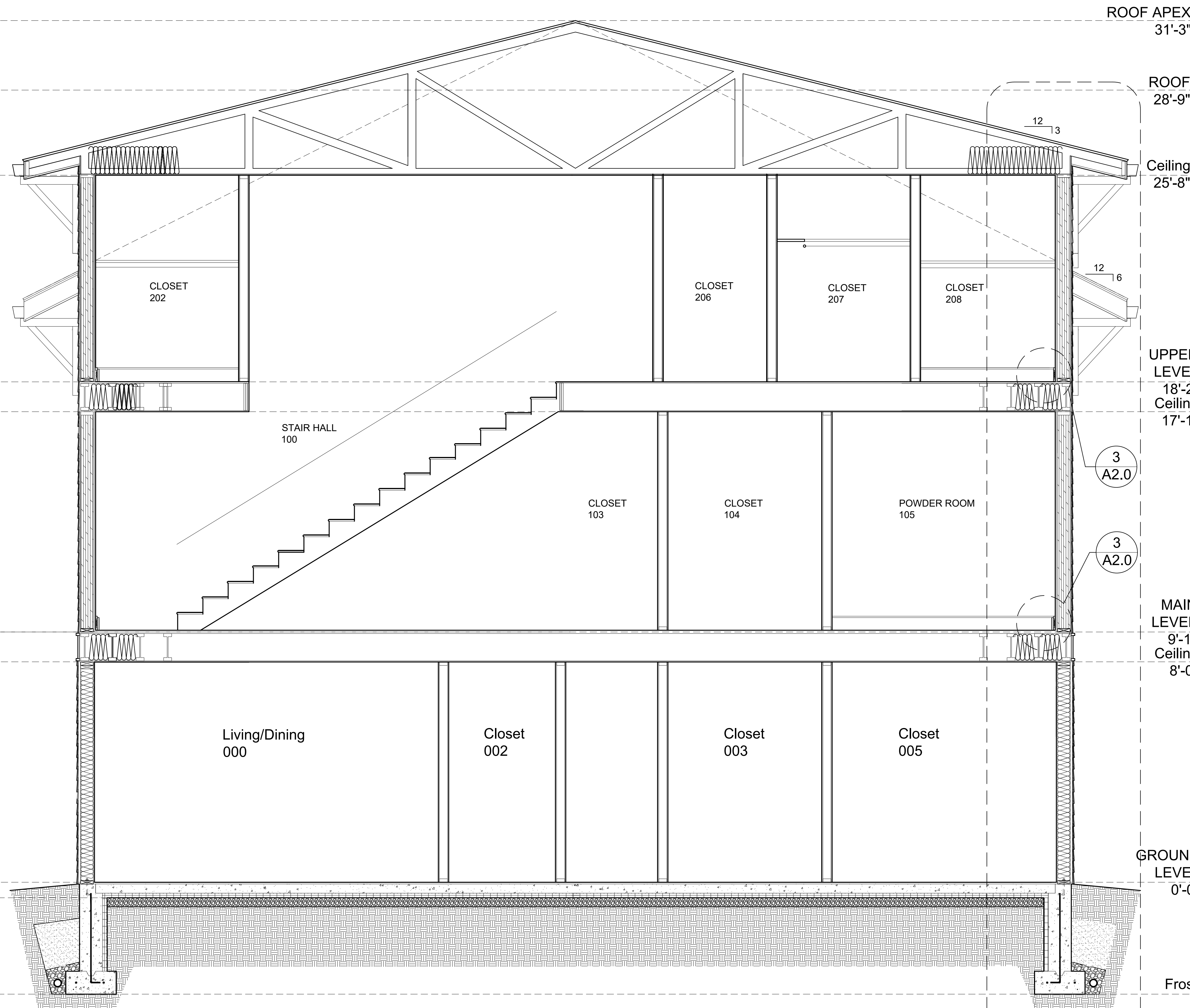


Wall Type #4:  
Foundation Wall  
Reinforced concrete with exterior dampproofing and interior rigid insulation.



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

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

Do not scale. Use figured dimensions only.

MML Review Set  
15 October 2023

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THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
BUILDING AND WALL SECTION

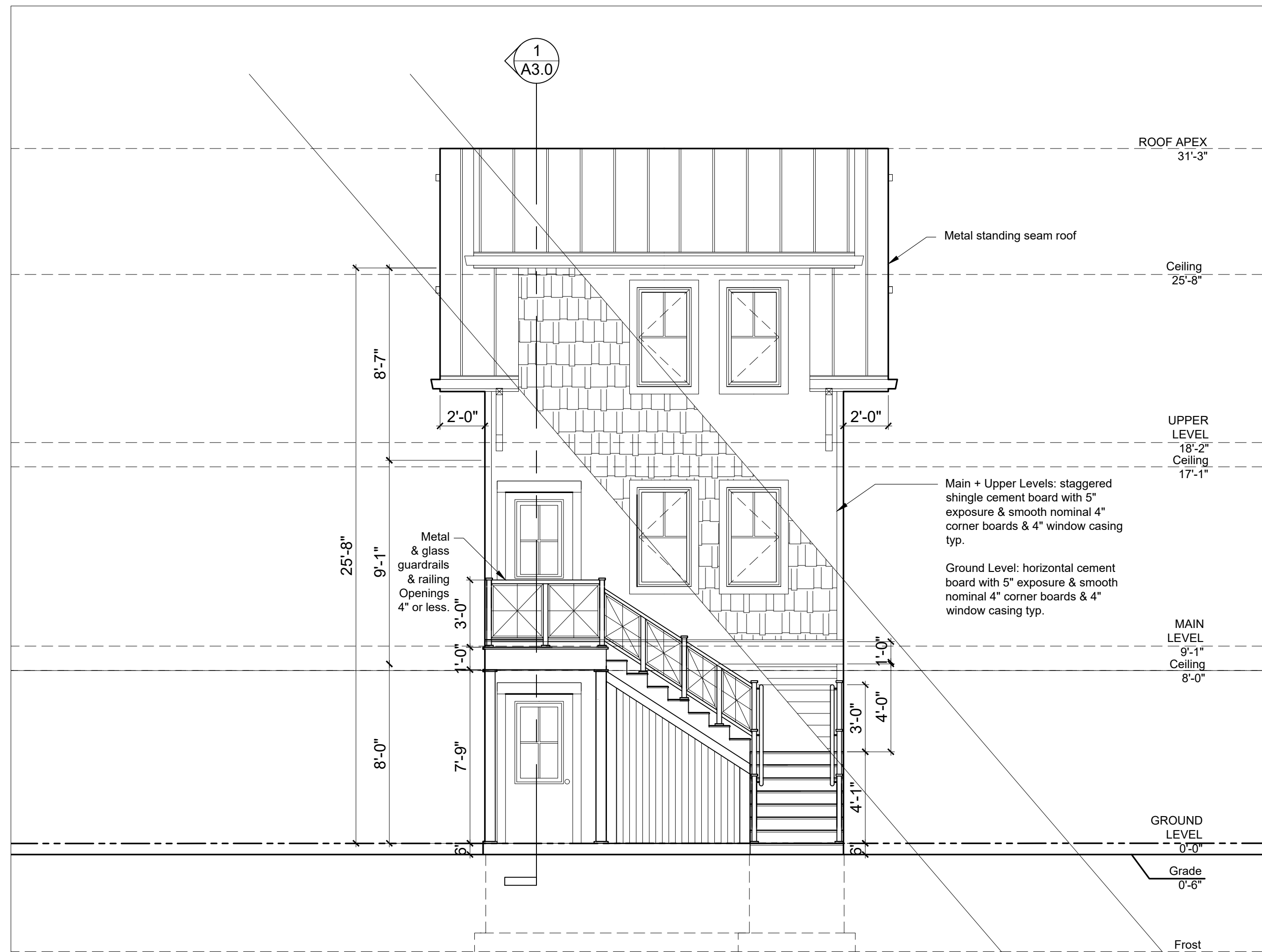
A3.0

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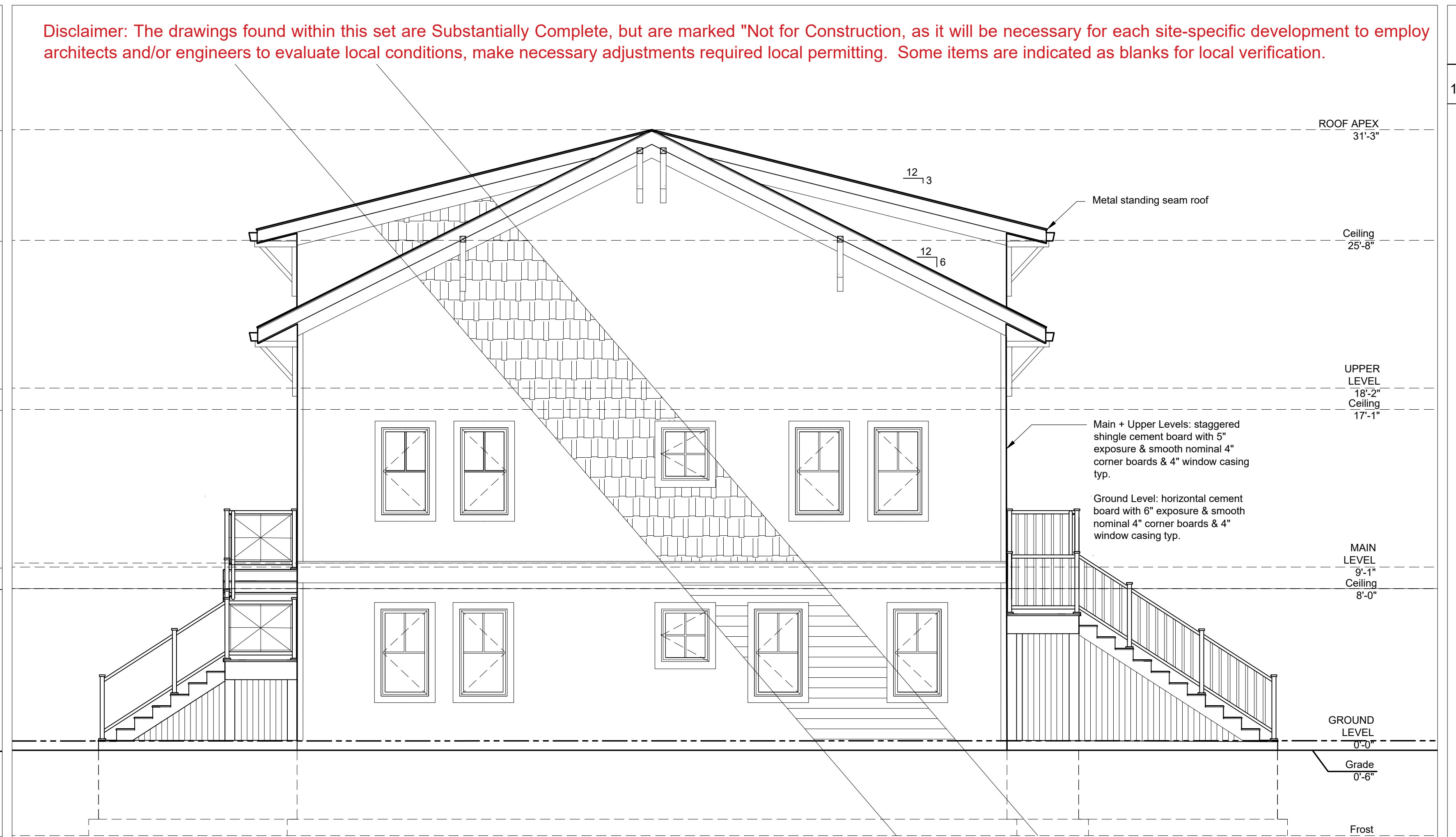
Do not scale.  
Use figured dimensions only.

MML Review Set  
15 October 2023

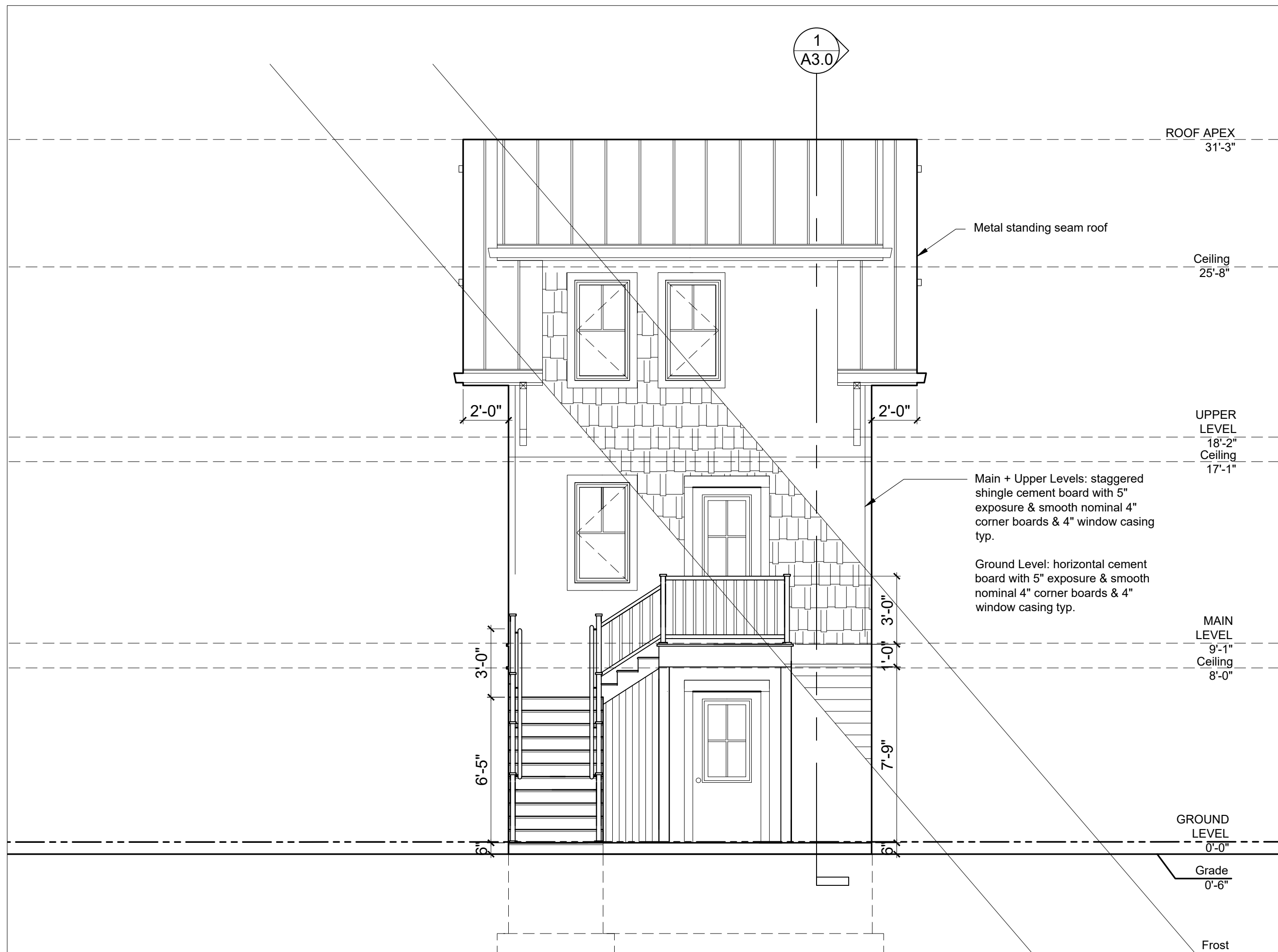
**NOT FOR CONSTRUCTION**



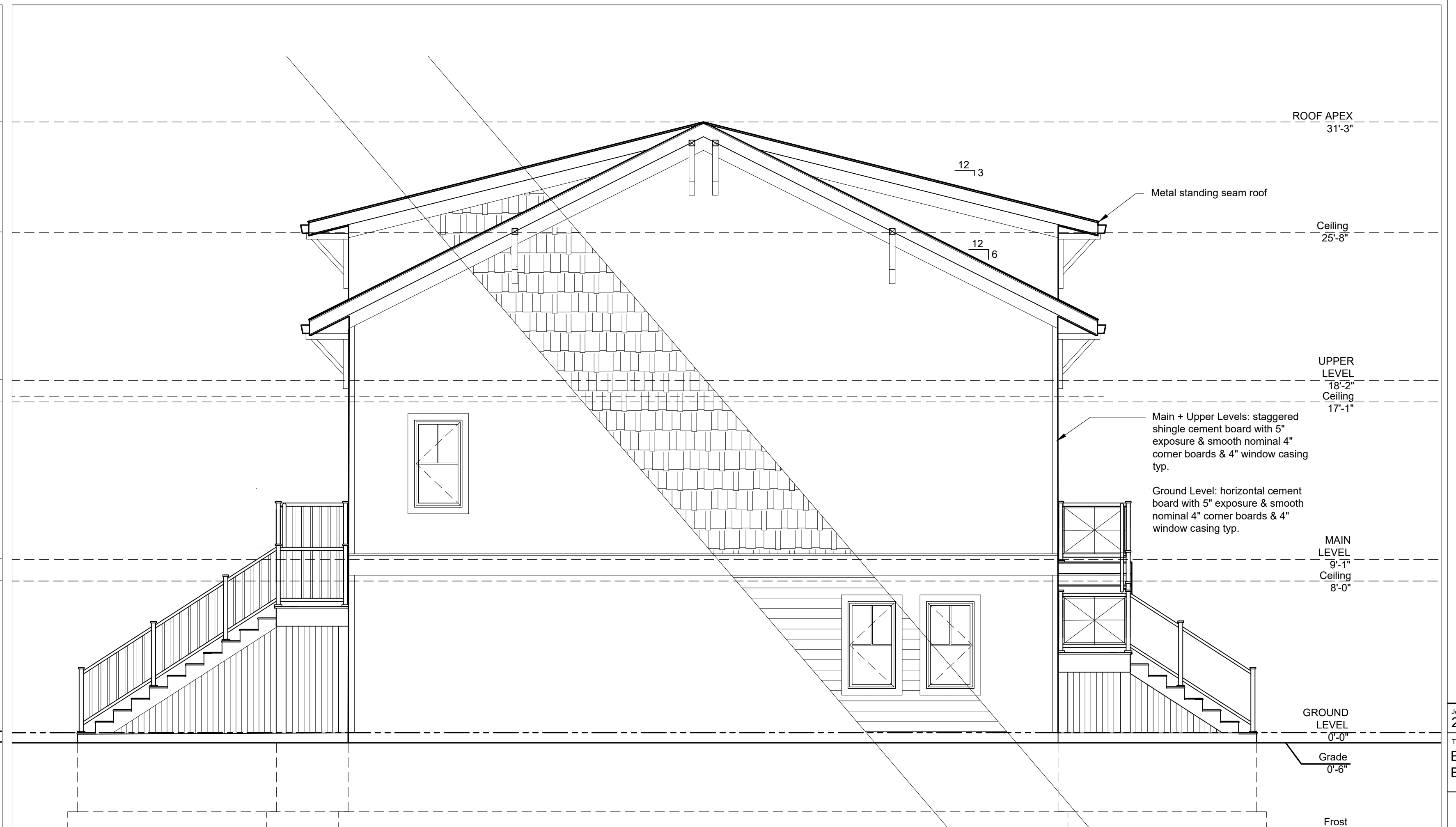
1 Front Elevation  
1/4" = 1'-0"



2 Right Elevation  
1/4" = 1'-0"



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



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

**THE CAPITOL**  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
EXTERIOR ELEVATIONS

A4.0

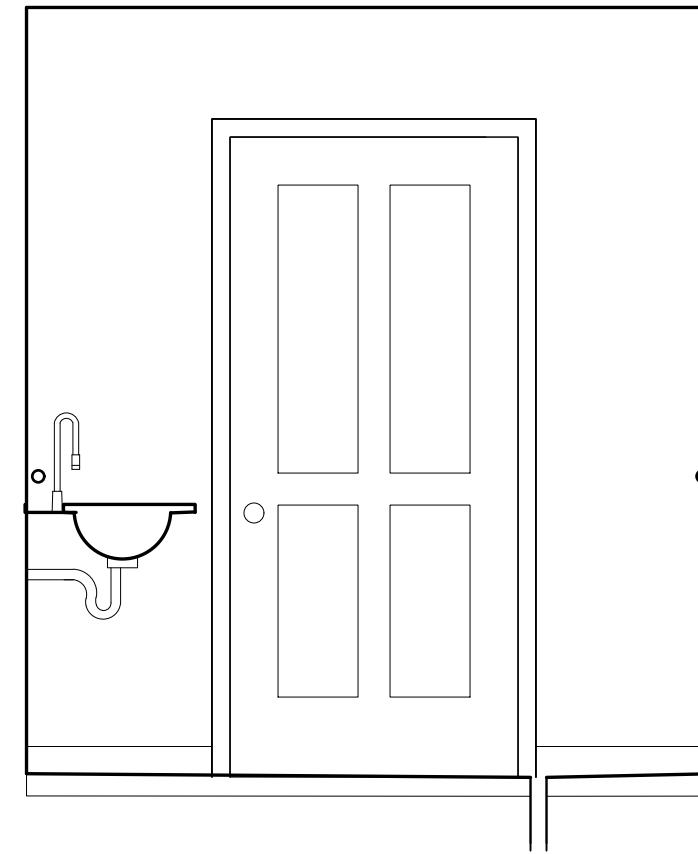


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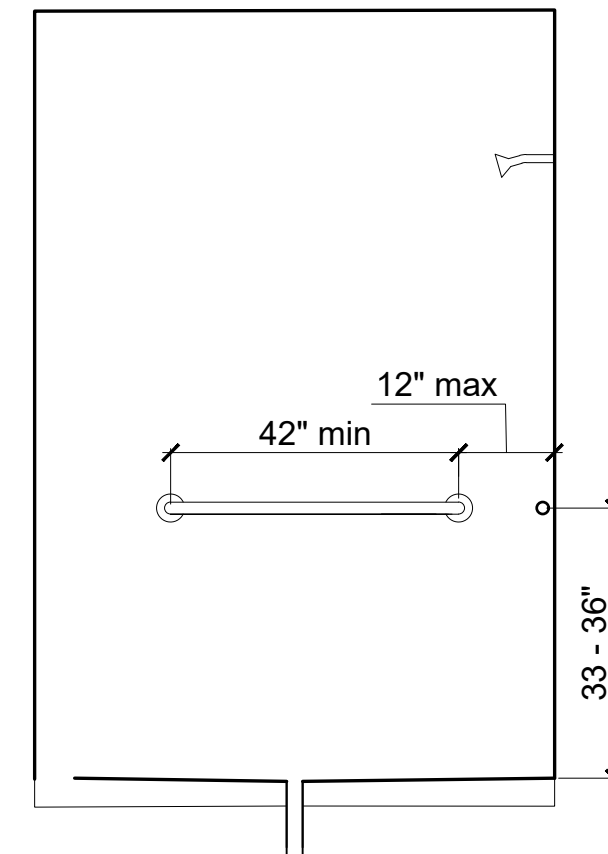
Do not scale.  
Use figured  
dimensions only.

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15 October 2023

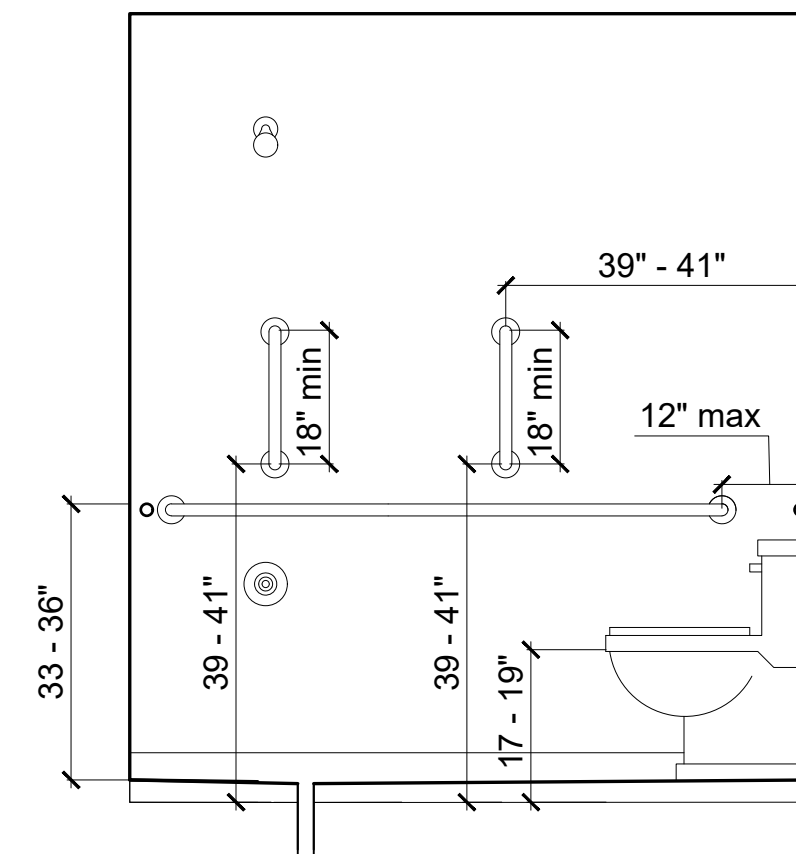
NOT FOR CONSTRUCTION



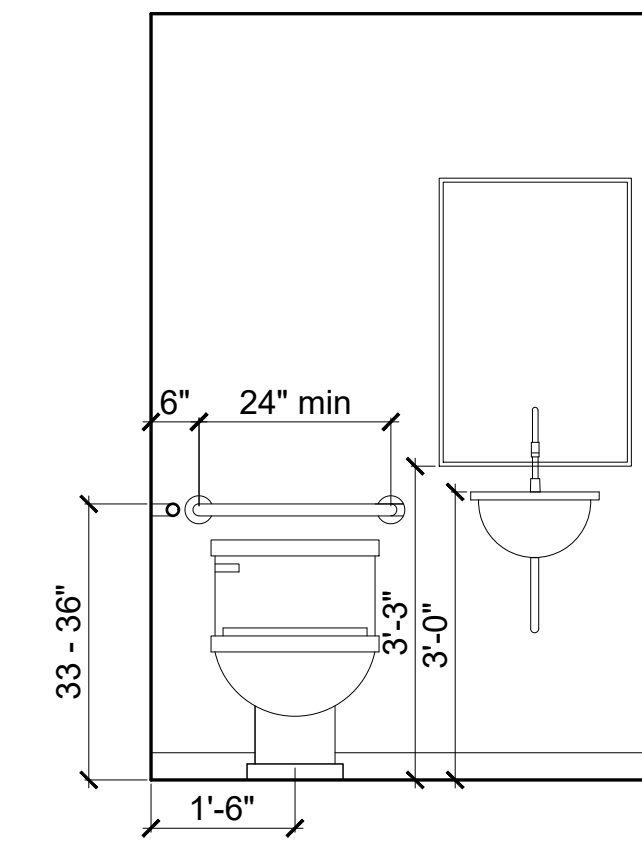
1 Bathroom Elevations  
1/2" = 1'-0"



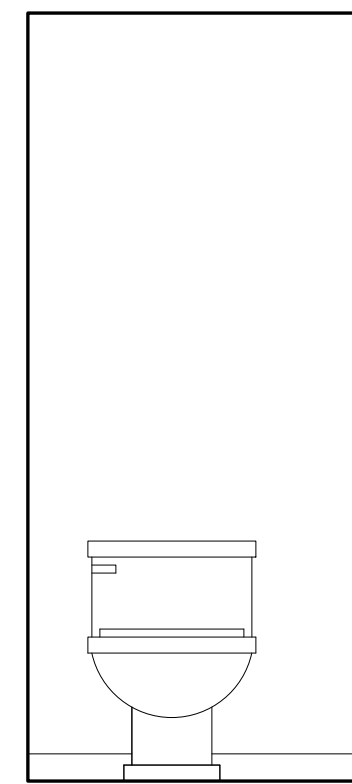
2 Bathroom Elevations  
1/2" = 1'-0"



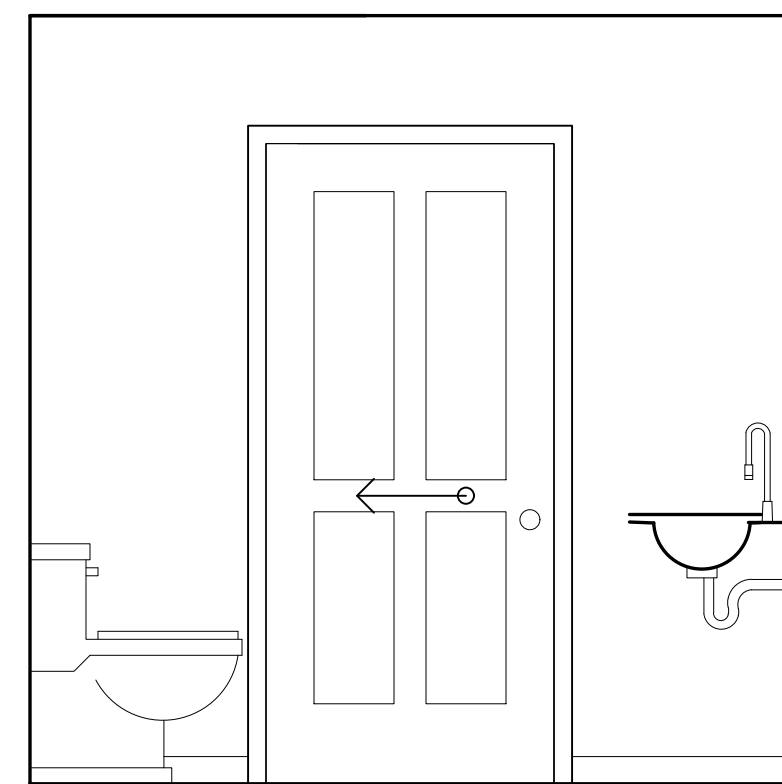
3 Bathroom Elevations  
1/2" = 1'-0"



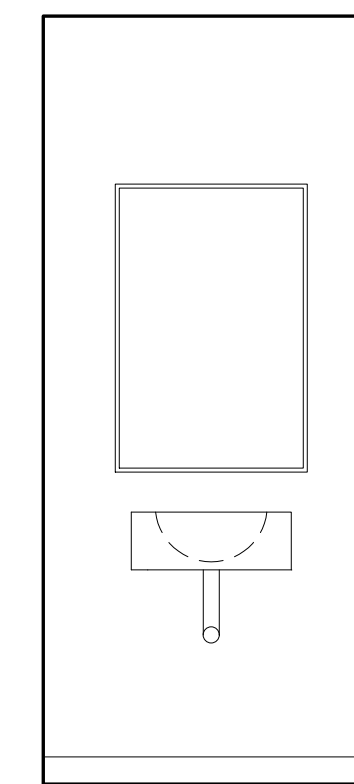
4 Bathroom Elevations  
1/2" = 1'-0"



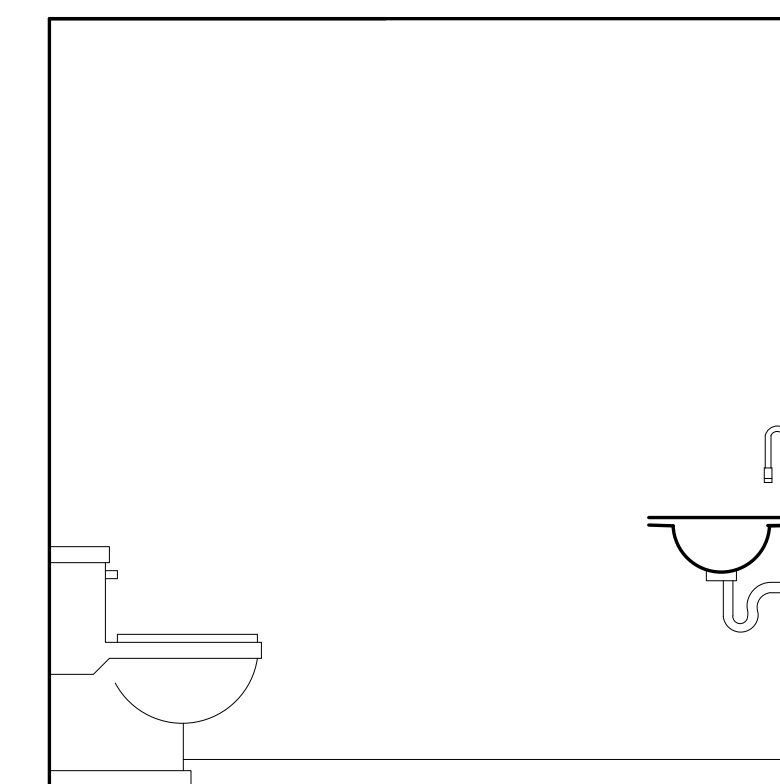
5 Bathroom Elevations  
1/2" = 1'-0"



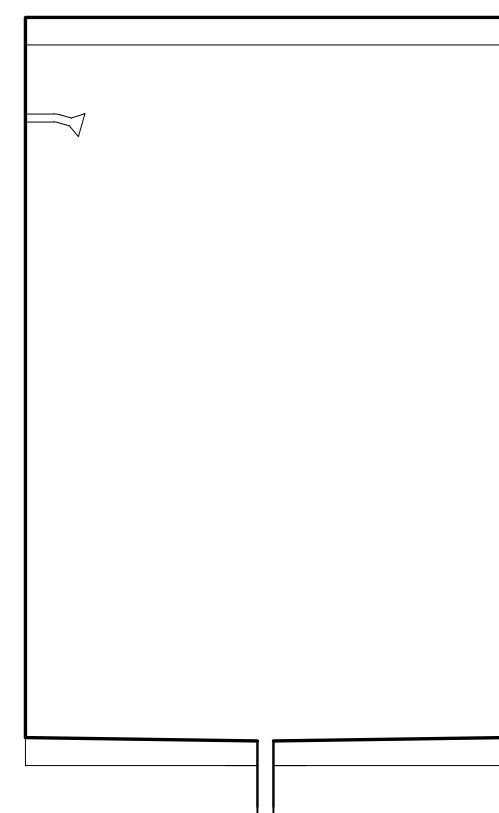
6 Bathroom Elevations  
1/2" = 1'-0"



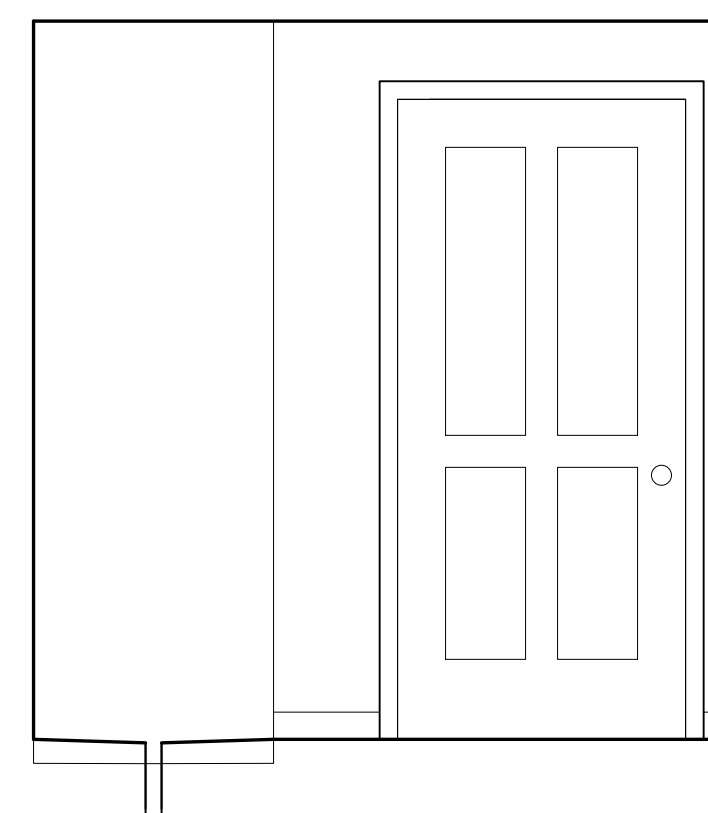
7 Bathroom Elevations  
1/2" = 1'-0"



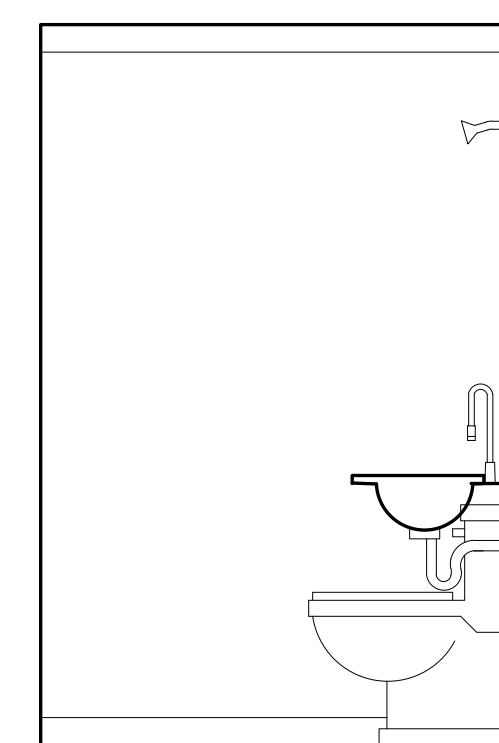
8 Bathroom Elevations  
1/2" = 1'-0"



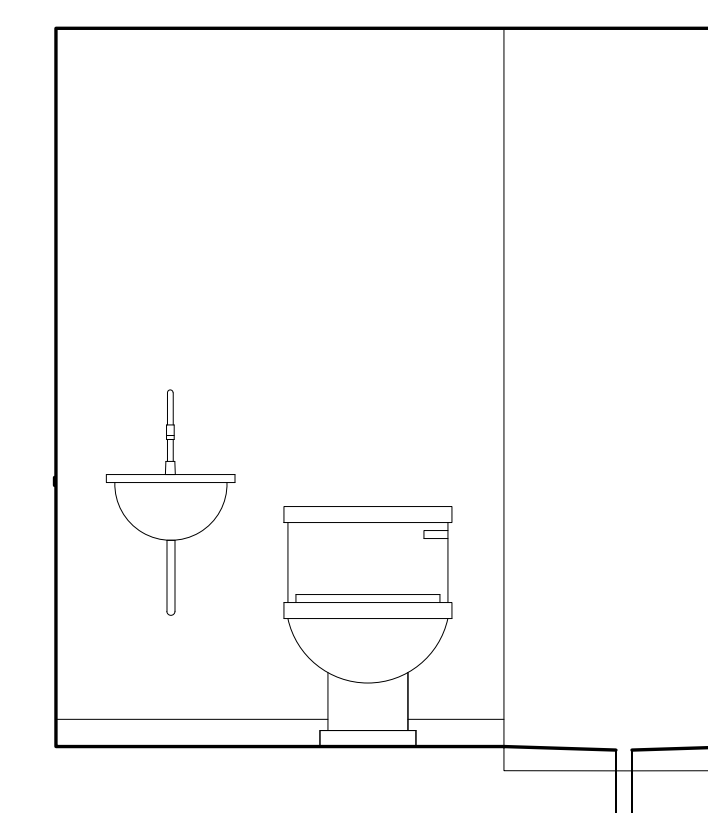
9 Bathroom Elevations  
1/2" = 1'-0"



10 Bathroom Elevations  
1/2" = 1'-0"



11 Bathroom Elevations  
1/2" = 1'-0"



12 Bathroom Elevations  
1/2" = 1'-0"

THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
INTERIOR  
ELEVATIONS

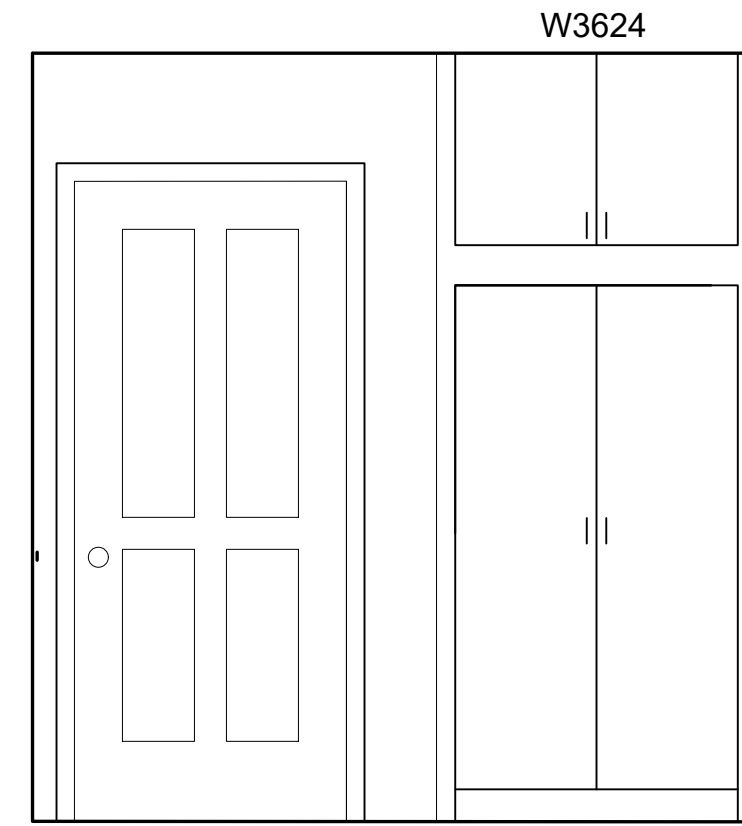
A5.0

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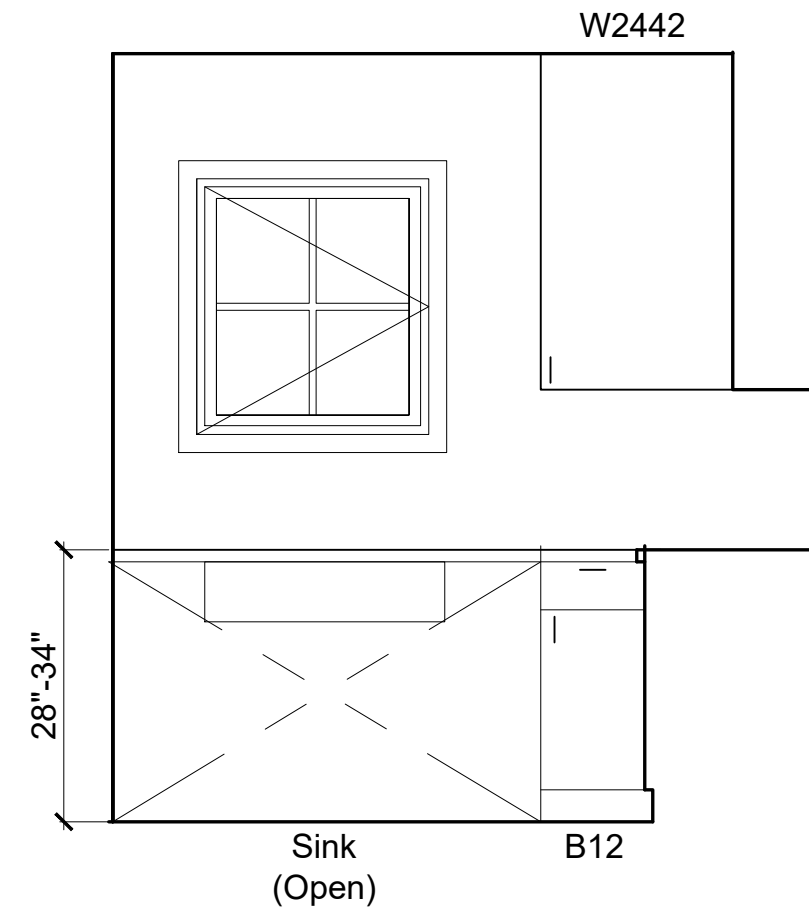
Do not scale.  
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15 October 2023

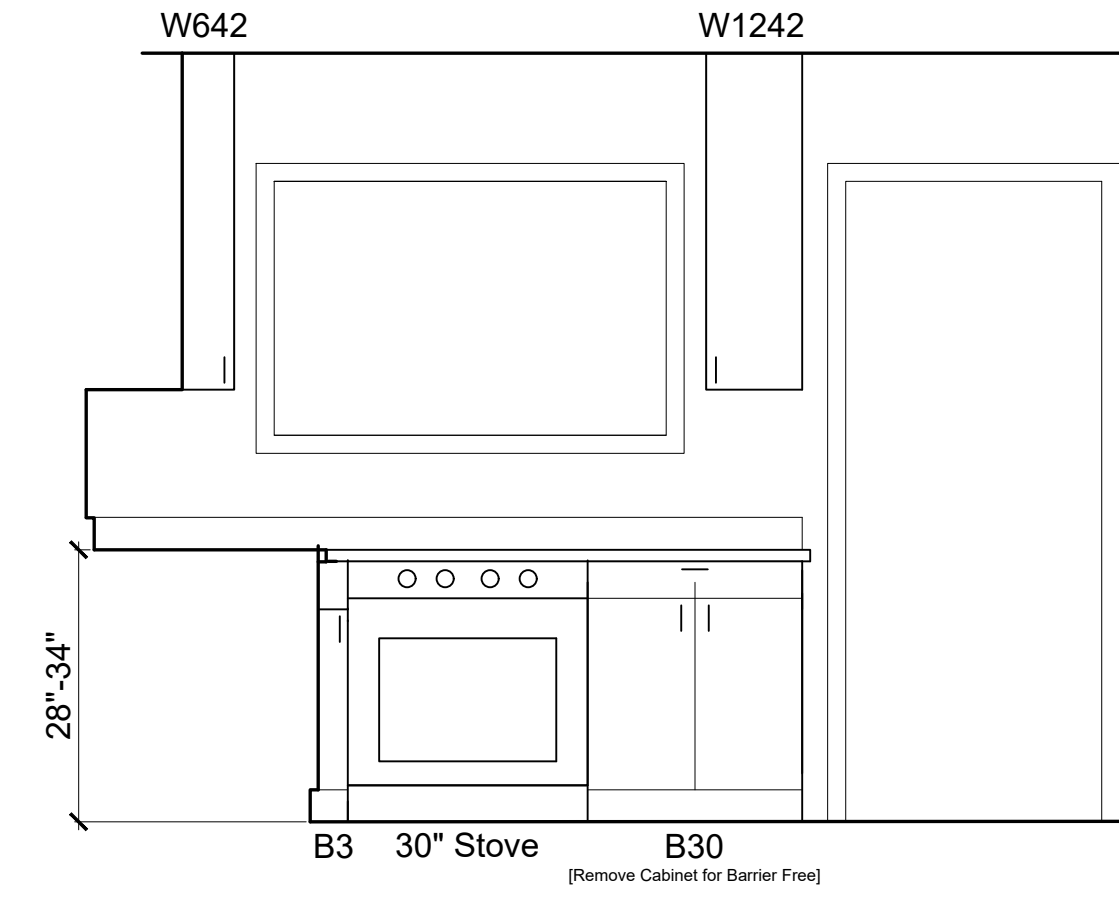
NOT FOR CONSTRUCTION



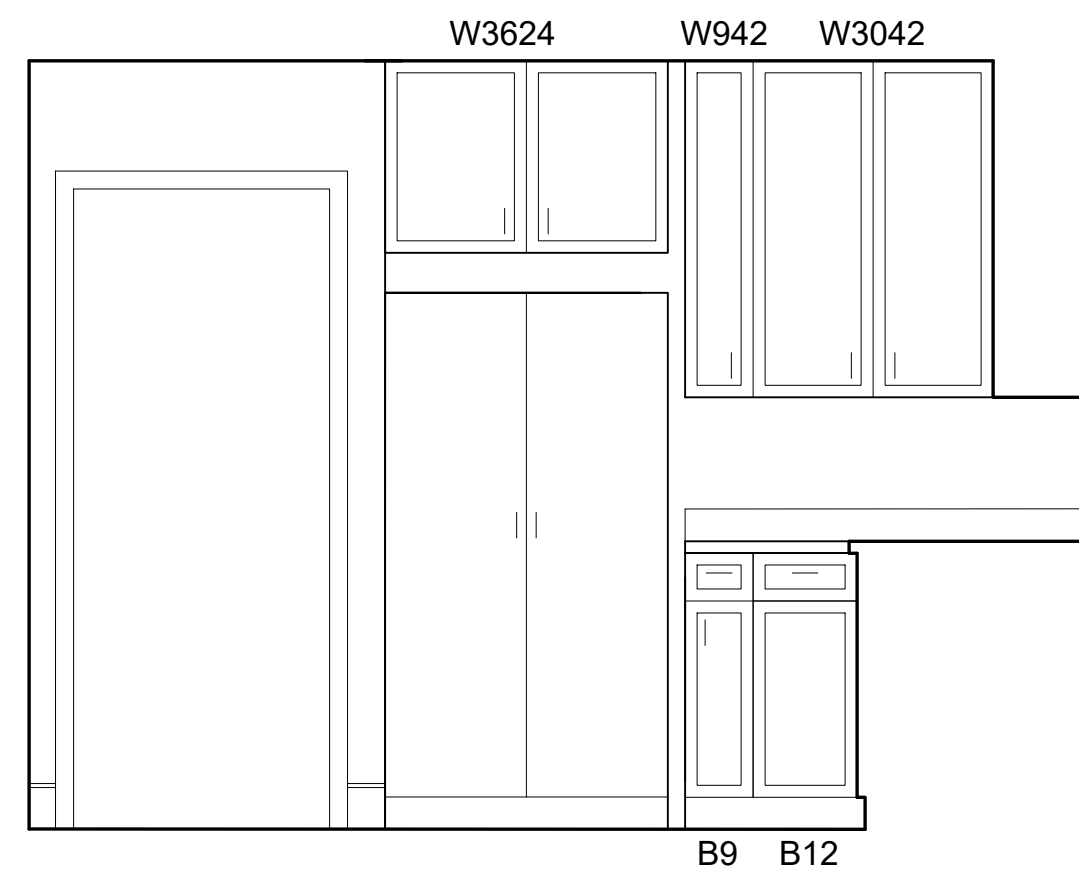
1 Kitchen Elevations  
1/2" = 1'-0"



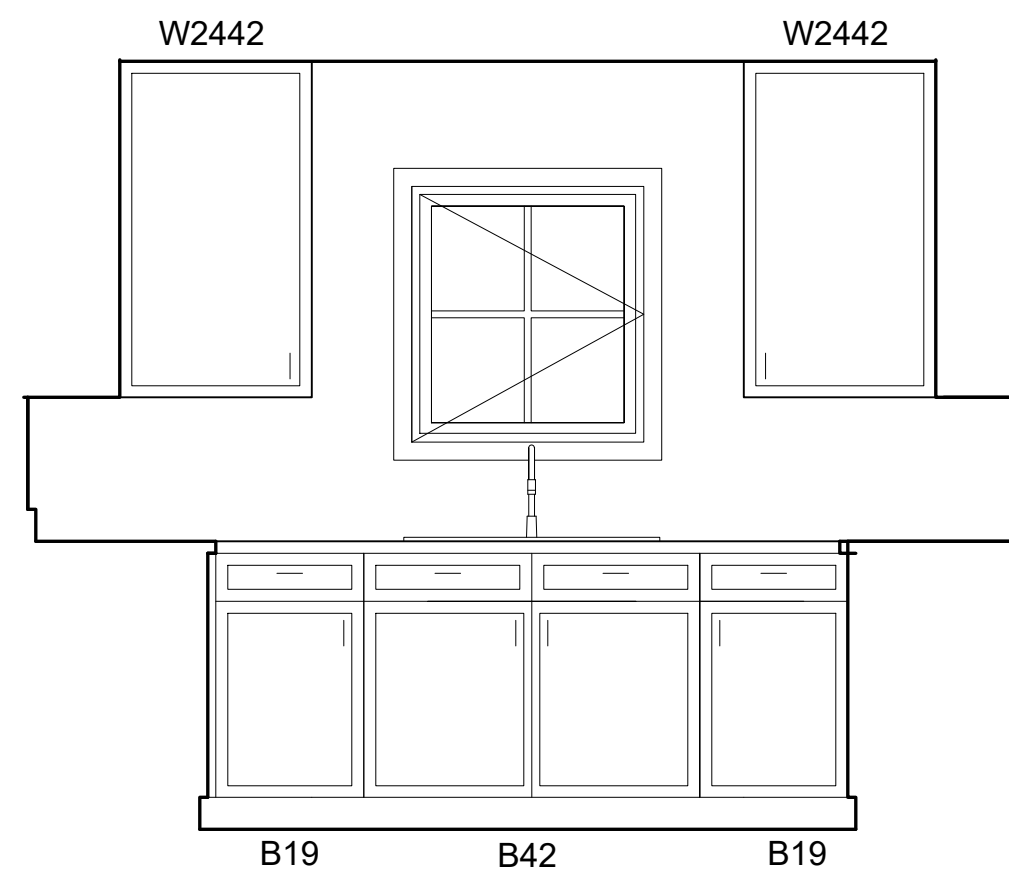
2 Kitchen Elevations  
1/2" = 1'-0"



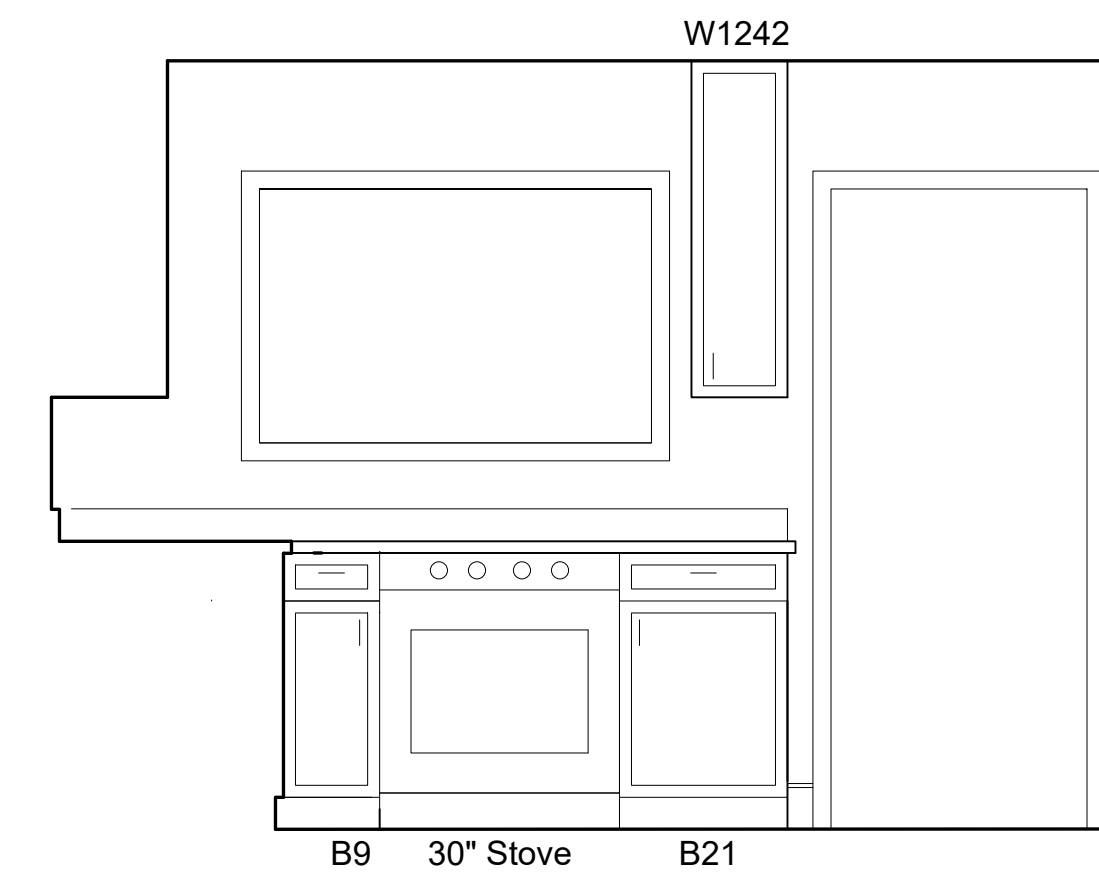
3 Kitchen Elevations  
1/2" = 1'-0"



4 Kitchen Elevations  
1/2" = 1'-0"



5 Kitchen Elevations  
1/2" = 1'-0"



6 Kitchen Elevations  
1/2" = 1'-0"



**SIDING**

- Option 1 Staggered shingle fiber cement siding with 6" exposure + board & batten
- Option 2 Staggered cedar shakes + board & batten

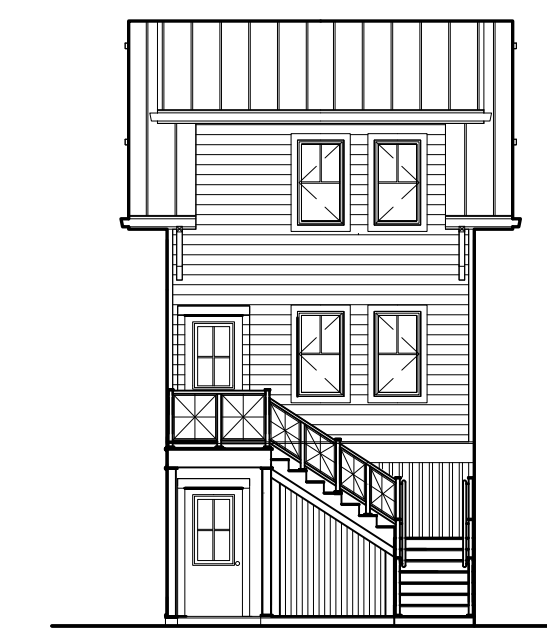
**CORNER BOARDS**

- Option 1 Smooth nominal 6" cement fiber boards
- Option 2 Smooth nominal 6" Cedar boards

**DETAILS**

- Option 1 Smooth moisture resistant 1x trim boards
- Option 2 Cedar 1x trim boards

7 Exterior Finish Material Options  
No Scale



**SIDING**

- Option 1 Cement fiber board lap siding with 6" exposure + board & batten
- Option 2 Cedar lap siding + board & batten

**CORNER BOARDS**

- Option 1 Smooth nominal 6" cement fiber boards
- Option 2 Smooth nominal 6" Cedar boards

**DETAILS**

- Option 1 Smooth moisture resistant 1x trim boards
- Option 2 Cedar 1x trim boards



**SIDING**

- Option 1 Stucco + cedar board & batten
- Option 2 Stucco + cement fiber board & batten

**CORNER BOARDS**

- Option 1 Smooth nominal 6" cement fiber boards
- Option 2 Smooth nominal 6" Cedar boards

**DETAILS**

- Option 1 Smooth moisture resistant 1x trim boards
- Option 2 Cedar 1x trim boards

THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
INTERIOR  
ELEVATIONS

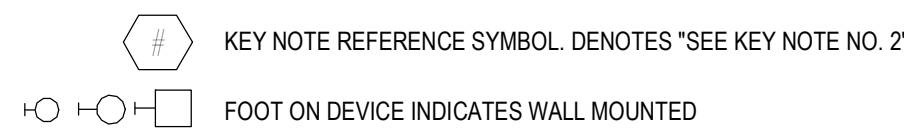
A5.1

# ABBREVIATIONS

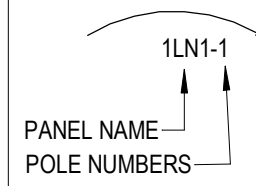
|           |  |
|-----------|--|
| A, AMP    | AMPERES  |
| AF        | AMP FUSE OR AMP FRAME                                    |
| AFC       | AVAILABLE FAULT CURRENT (SYMMETRICAL)                    |
| A.F.F.    | ABOVE FINISHED FLOOR                                     |
| AIC       | AMPERE INTERRUPTING 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   |
| DPS1T     | DOUBLE POLE SINGLE THROW                                 |
| EC        | ELECTRICAL CONTRACTOR                                    |
| EWG       | ELECTRIC WATER COOLER (COORDINATE ACCESSIBILITY OF GFCI) |
| ELEC      | ELECTRIC OR ELECTRICAL                                   |
| ELEV      | ELEVATION OR ELEVATOR                                    |
| EMERG. 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  |
| MATV      | MASTER ANTENNA TELEVISION                                |
| MCB       | MAIN CIRCUIT BREAKER                                     |
| MCC       | MOTOR CONTROL CENTER                                     |
| MH        | MANHOLE, METAL HAULDE 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        | PULLBOX  |
| 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  |

# 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.



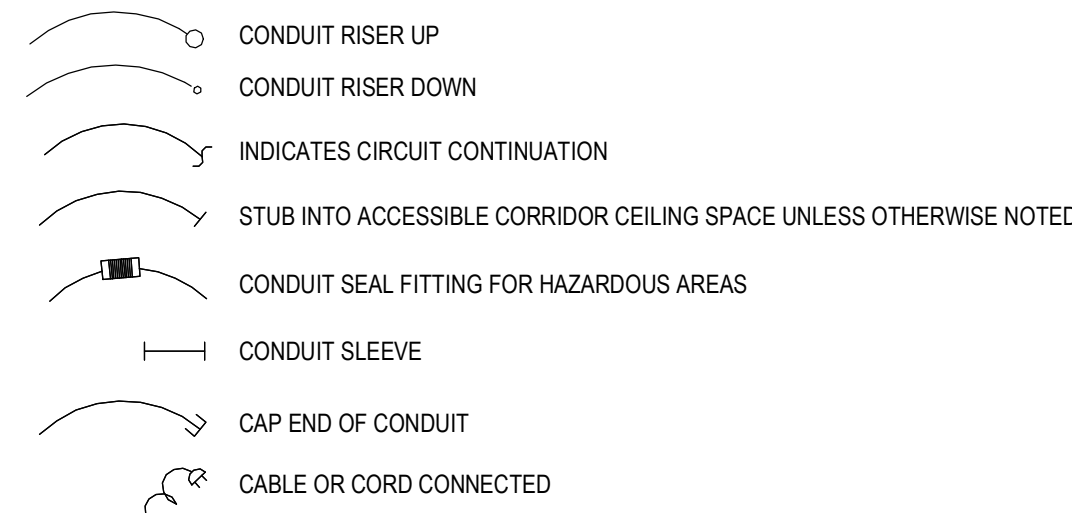
# CIRCUIT DESIGNATIONS



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 |         |        |  |
|--------------|--|---------|--------|--|
|              | 12                                     | 10      | 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 |  |

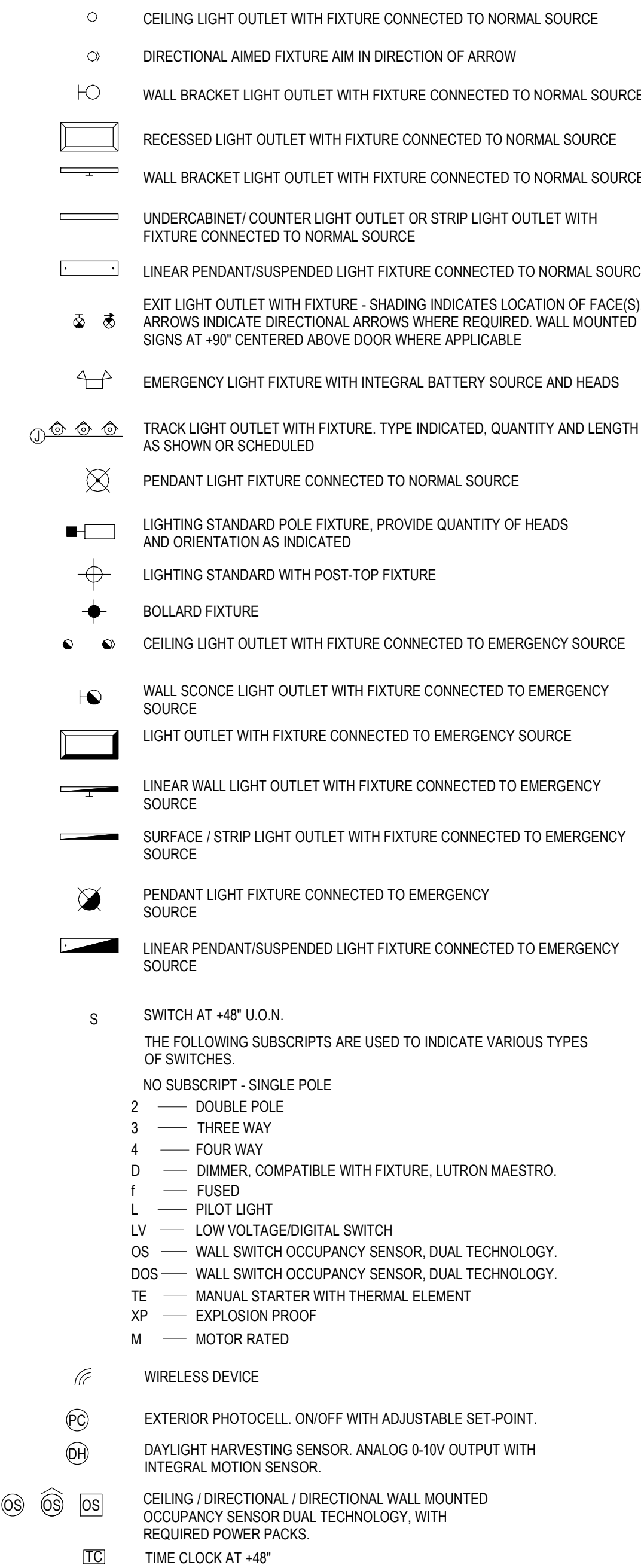
SEE SPECIFICATIONS FOR LIMITATIONS ON QUANTITY OF CURRENT CARRYING CONDUCTORS PER CONDUIT



# 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.



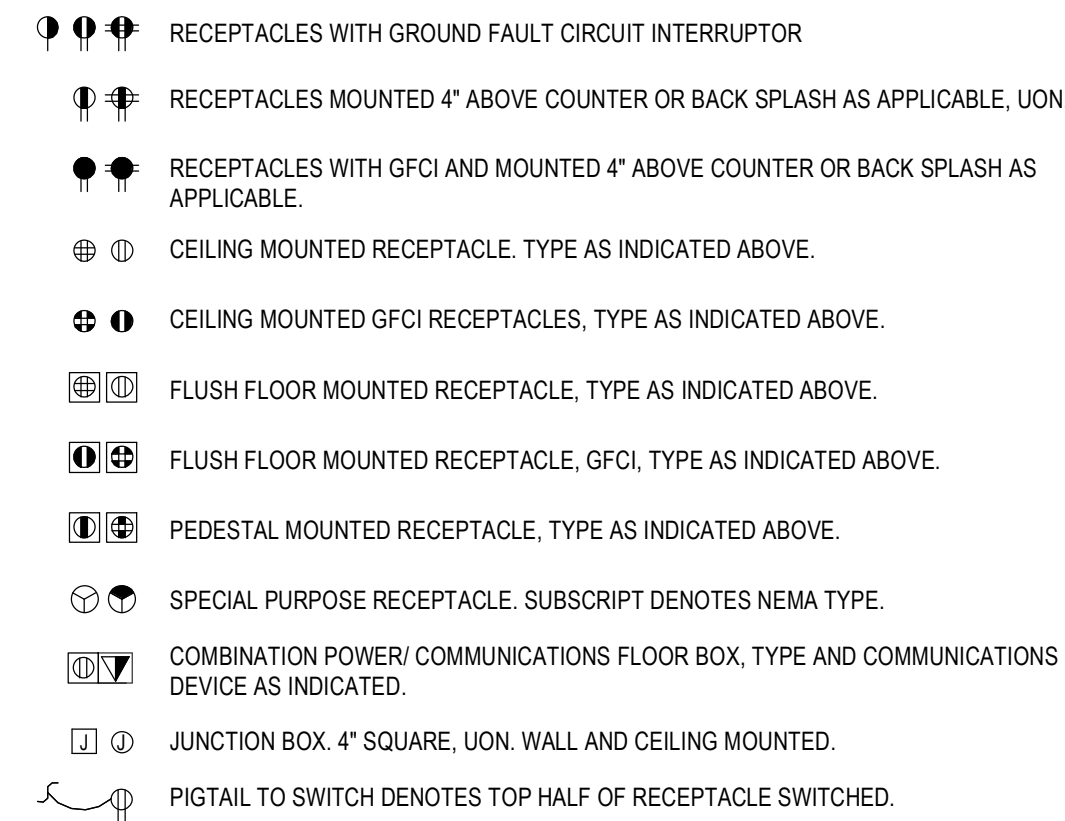
# POWER AND DIAGRAMS

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.

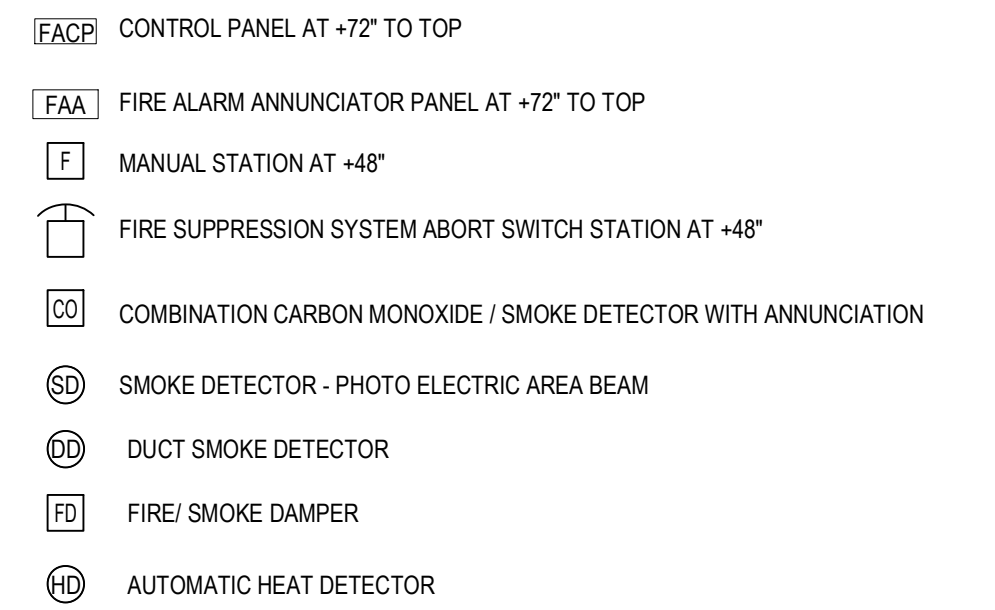
THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE DIFFERENT TYPES OF RECEPTACLES

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.

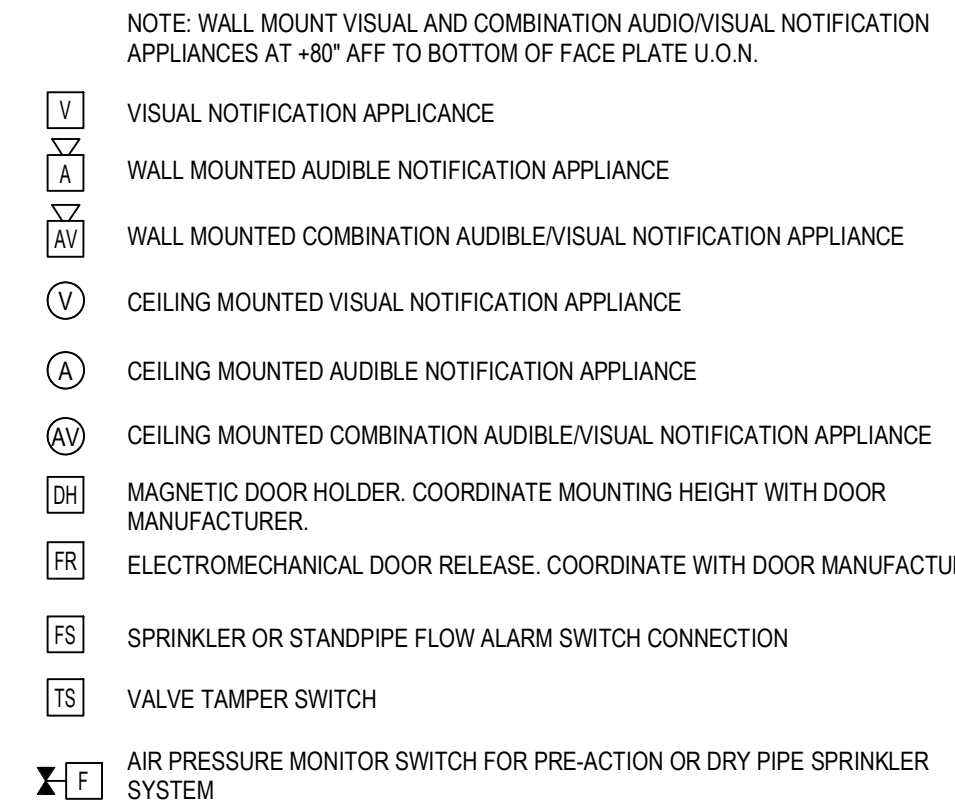
TYPICAL SYMBOLOLOGY:  
 20A, 125V, 2 POLE, 3 WIRE GROUNDING DUPLEX RECEPTACLE, NEMA 5-20R  
 20A, 125V, 2 POLE, 3 WIRE GROUNDING SINGLE RECEPTACLE, NEMA 5-20R  
 20A, 125V, 2 POLE, 3 WIRE GROUNDING DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R  
 250V, 2 POLE, 3 WIRE GROUNDING SINGLE RECEPTACLE, SIZE AND TYPE AS NOTED.



# FIRE DETECTION AND ALARM



THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE THE VARIOUS TYPE OF HEAT DETECTORS  
 NO SUBSCRIPT - FIXED TEMPERATURE (155 DEGREE U.O.N.)  
 R/F — 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



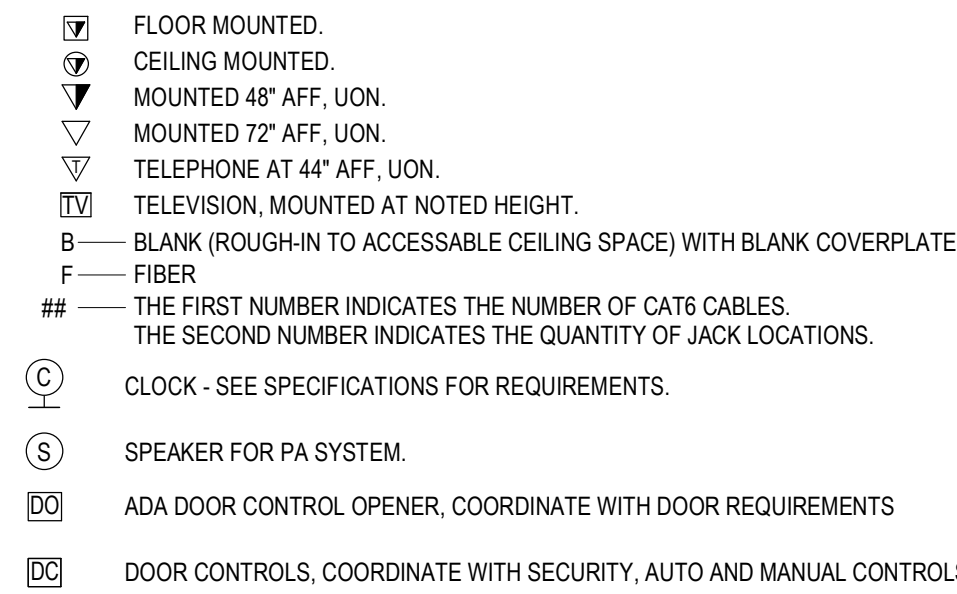
# TELECOMMUNICATION

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



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

Do not scale. Use figured dimensions only.

15 October 2023

NOT FOR CONSTRUCTION

# 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, CABLETRAY, 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.
- ALL RECEPTACLES SHALL BE HARD USE, 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.
- 120/240VAC 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.

THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx

Title:  
ELECTRICAL COVER SHEET

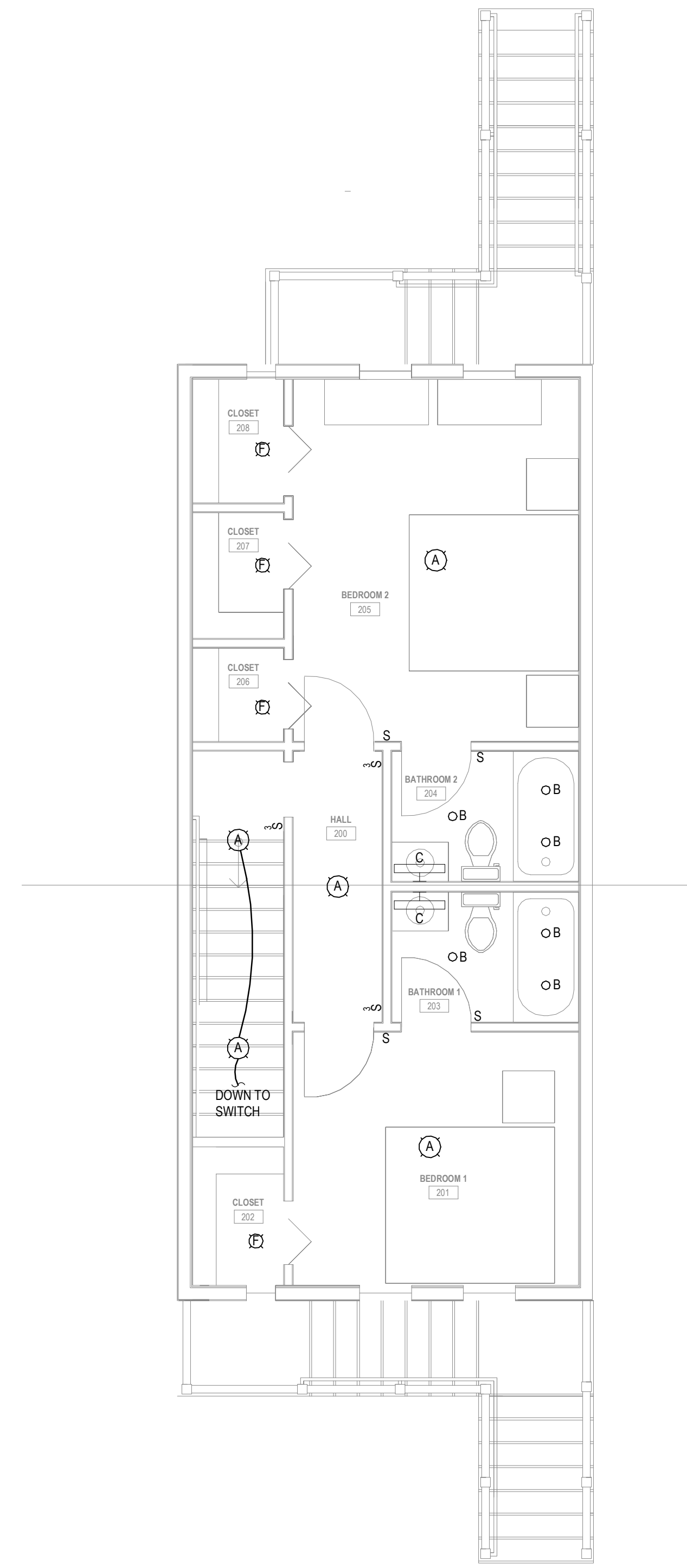
E0.1

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.

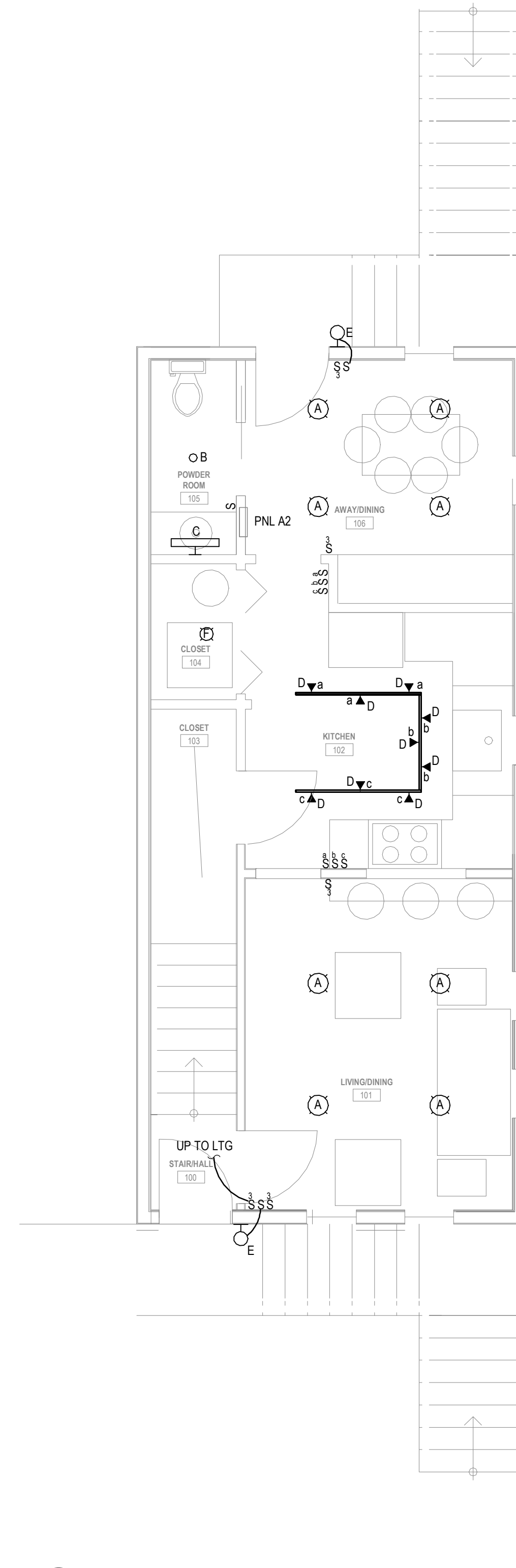
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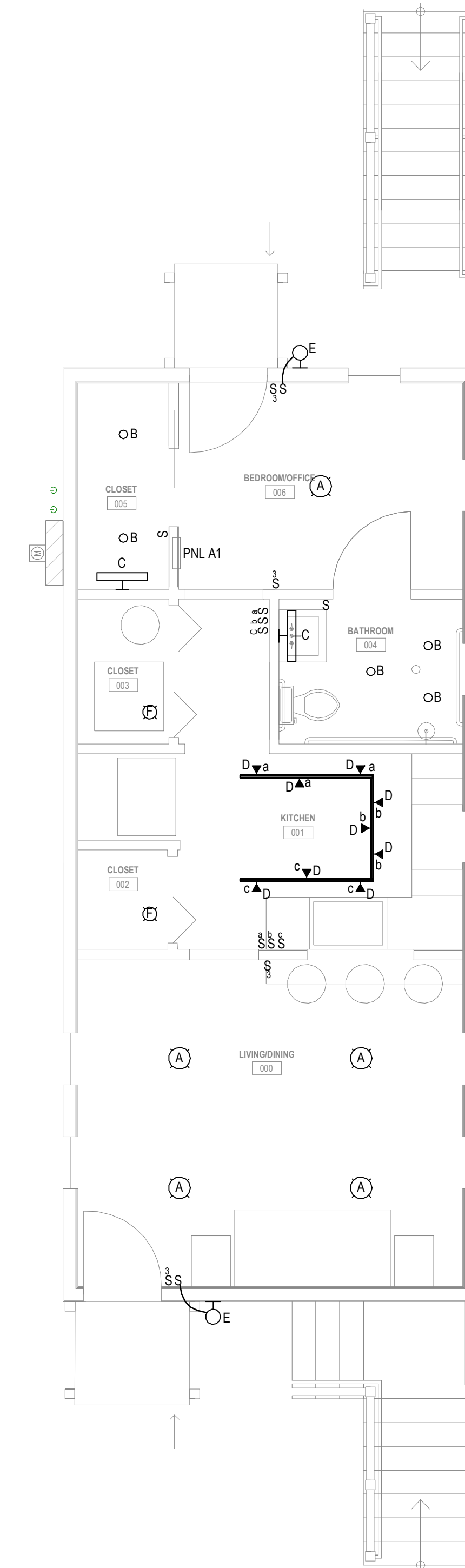
NOT FOR CONSTRUCTION



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



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



1 GROUND FLOOR PLAN - LIGHTING  
E1.1 SCALE = 1/4" = 1'-0"

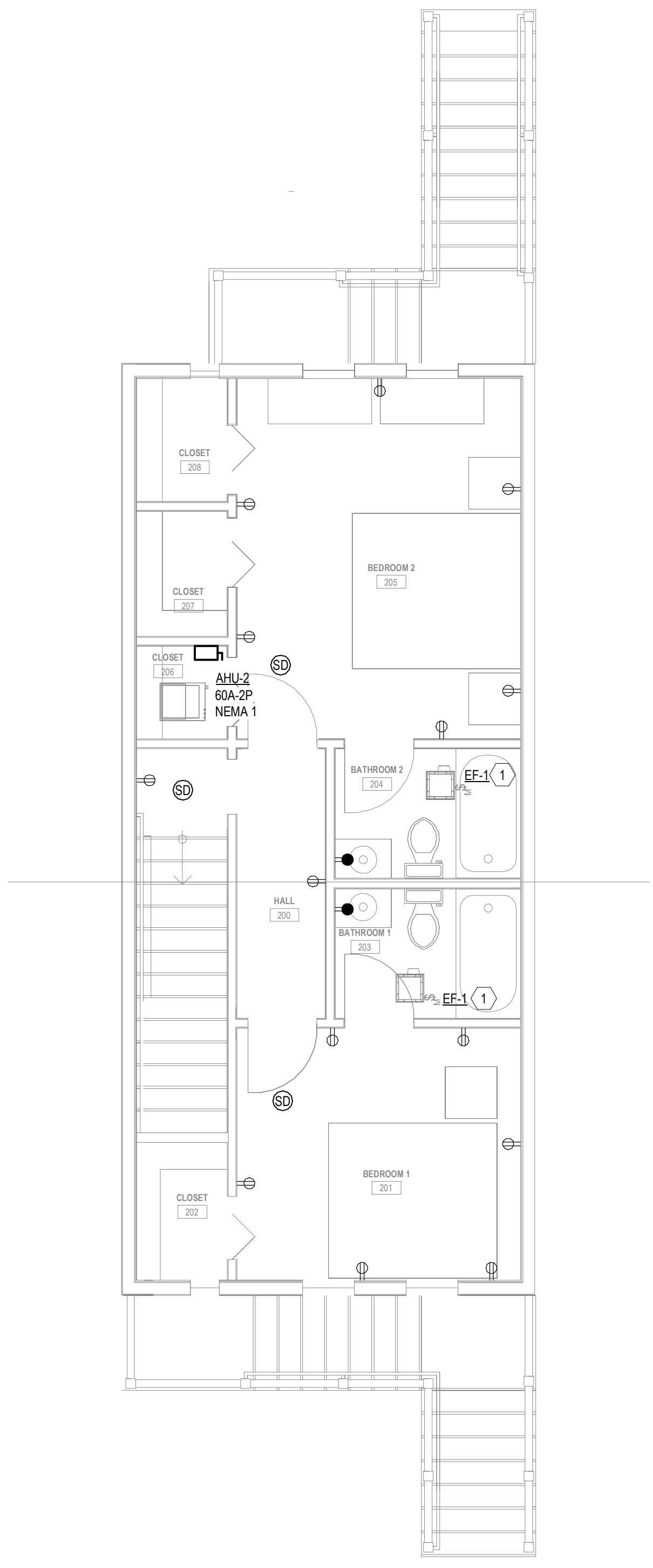
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Job Number:  
2023xx  
Title:  
FLOOR PLANS -  
LIGHTING

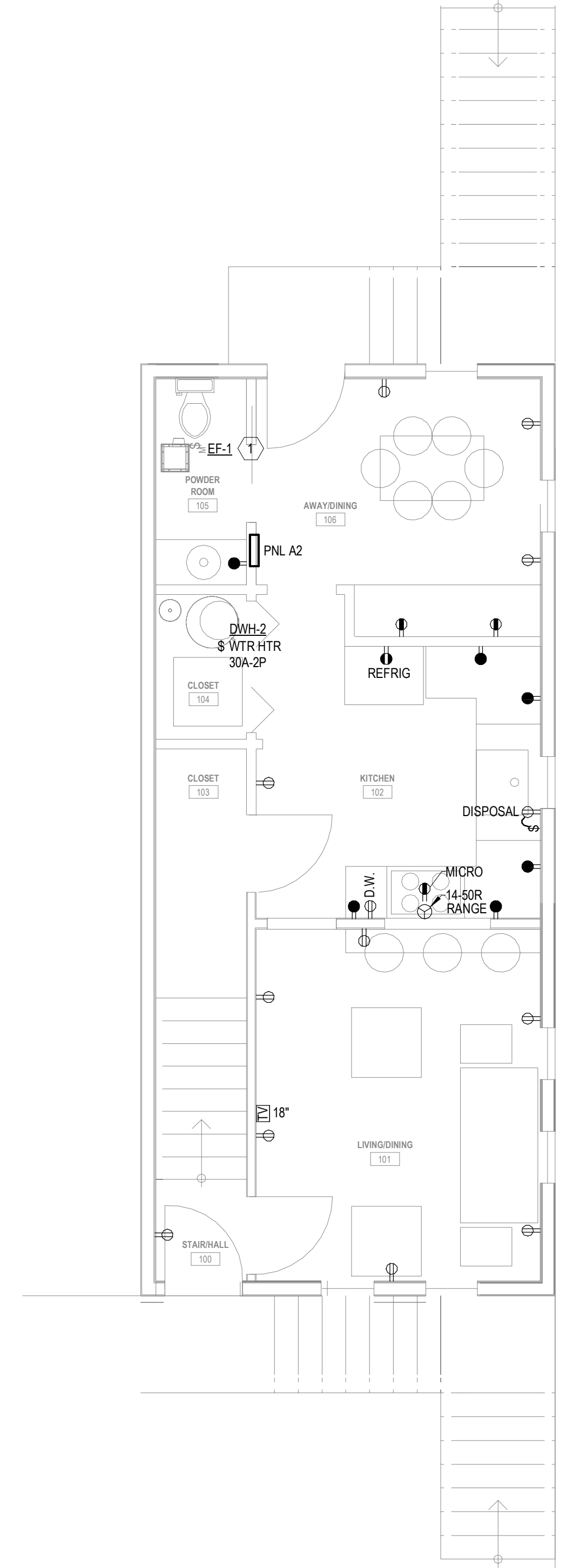
E1.1

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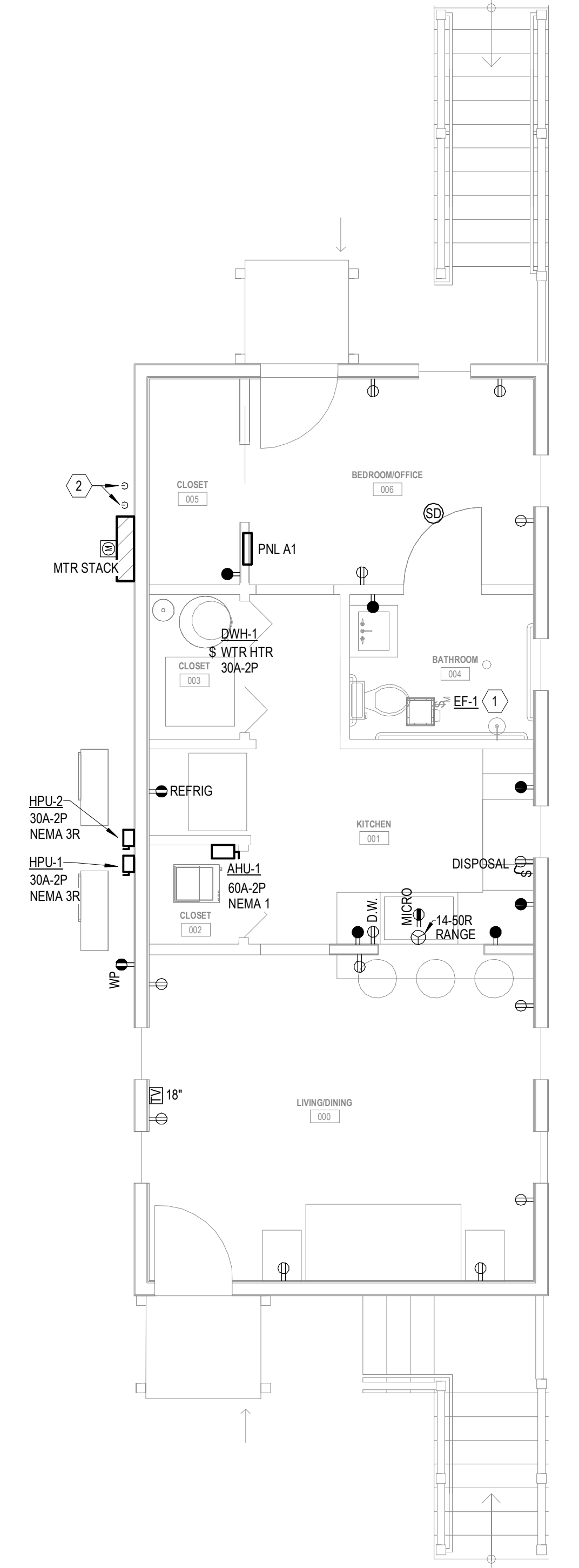
- # KEYNOTES:  
1 CONNECT EXHAUST FAN TO LOCAL LIGHTING CIRCUIT. CONTROL EXHAUST WITH LIGHTING.  
2 EMPTY 3" CONDUIT WITH PULL ROPE. STUB OUT 5'-0" FROM THE BUILDING.



1 UPPER FLOOR PLAN - POWER  
E2.1 SCALE = 1/4" = 1'-0"



2 MAIN FLOOR PLAN - POWER  
E2.1 SCALE = 1/4" = 1'-0"



3 GROUND FLOOR PLAN - POWER  
E2.1 SCALE = 1/4" = 1'-0"

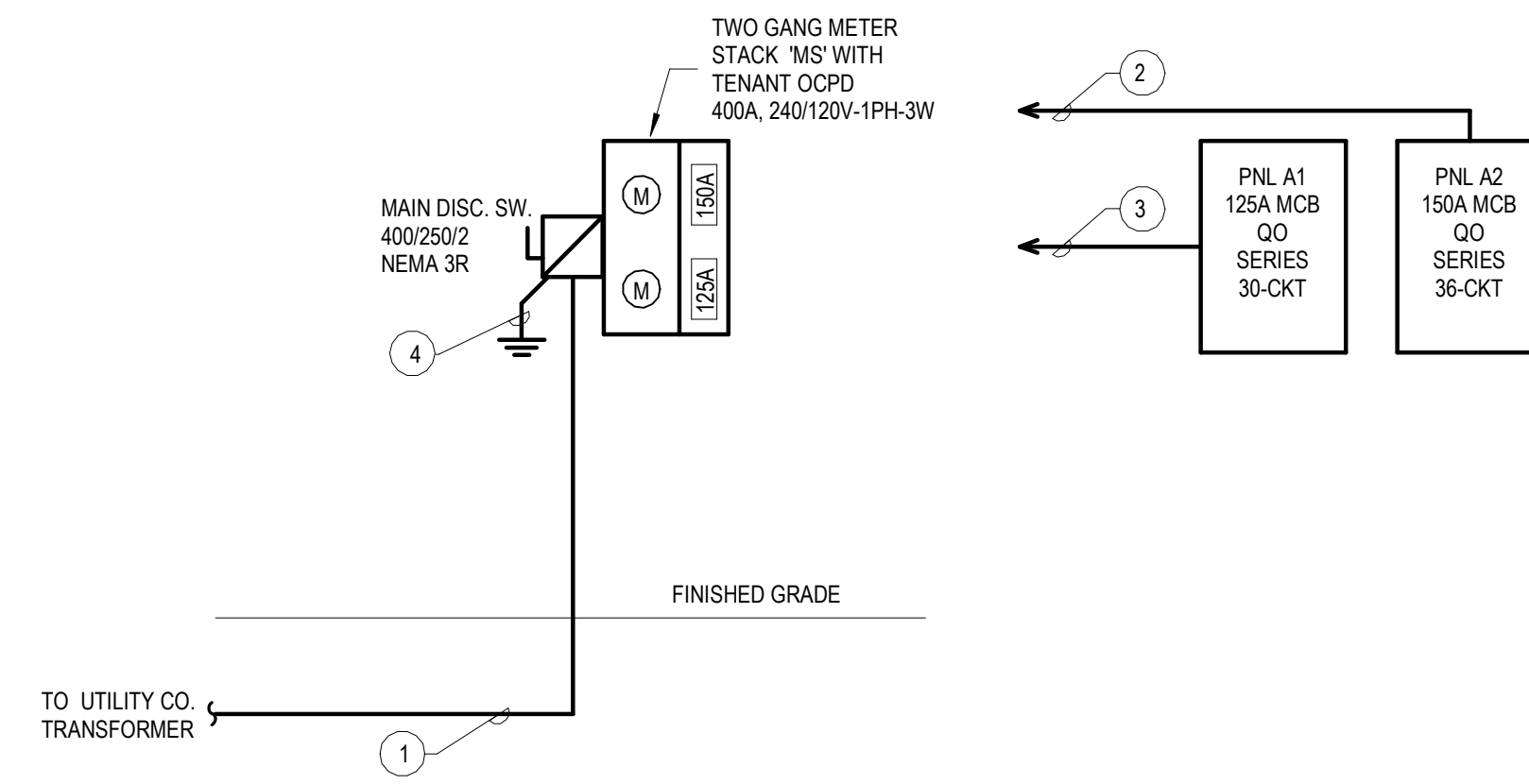
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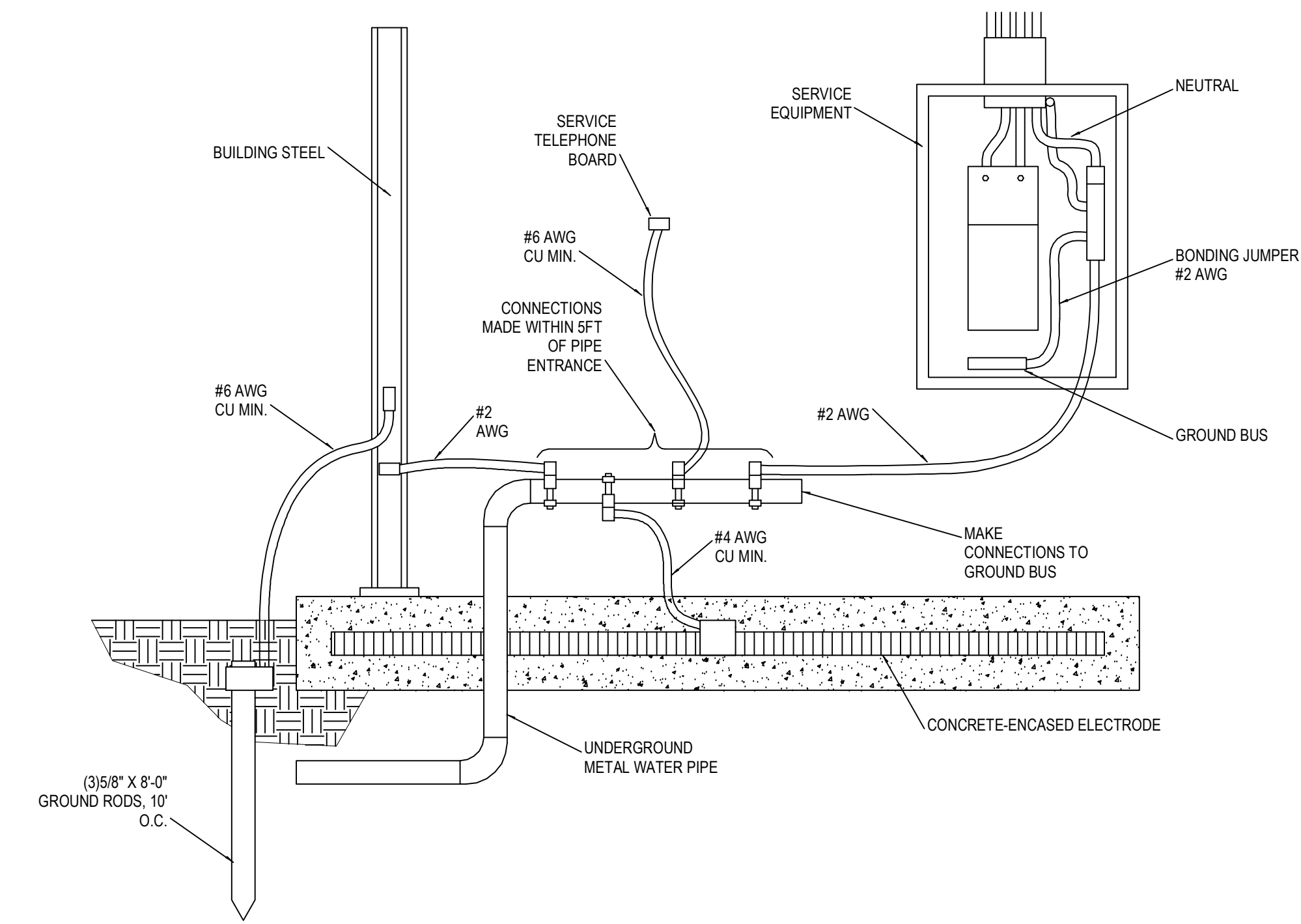


3  
ES.1 **120/240V ELECTRICAL RISER DIAGRAM**  
NOT TO SCALE

CABLE/CONDUIT SCHEDULE

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

NOTE:  
I<sub>sc</sub> (L-L): 9657 AMPS  
AVAILABLE FAULT CURRENT CALCULATIONS ARE BASED ON AN ASSUMPTION OF 50KVA 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.



1  
ES.1 **GROUNDING AND BONDING DETAIL (TYPICAL)**  
NOT TO SCALE

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Job Number:  
2023xx  
Title:  
ELECTRICAL  
DETAILS

E5.1

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15 October 2023

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THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx

Title:  
ELECTRICAL  
SCHEDULES

E7.1

### LIGHT FIXTURE SCHEDULE

| ID | MANUFACTURER       | MODEL NO.                          | VOLTAGE  | REQUIRED LAMPS |      |                           | DESCRIPTION                            | NOTES                                      |
|----|--------------------|------------------------------------|----------|----------------|------|---------------------------|--|--|
|    |                    |                                    |          | QTY            | WATT | TYPE                      |  |  |
| A  | JUNO               | JSF-11IN-35K-90CRI-HVOLT-ZT-WH     | 120-277V | 1              | 15 W | LED, 3500K, 1300LM, 90CRI | LED SURFACE MOUNT DOWNLIGHT            |  |
| B  | JUNO               | IC1LED-G4-14LM-35K-90CRI-HVOLT-ZT1 | 120-277V | 1              | 17 W | LED, 3500K, 1400LM, 90CRI | 4" DOWNLIGHT, WHITE FLANGE, 1% DIMMING |  |
| C  | LITHONIA           | FMVTSL-24IN-MVOLT-30K90CRI-BN-M4   | 120-277V | 1              | 10 W | LED, 3000K, 1300LM        | 2' LED VANITY                          |  |
| D  | JUNO               | R605L-35K-90CRI-WFL-WH/TU-WH       | 120-277V | 1              | 10 W | LED                       | LED TRACK HEAD WITH TRACK SECTION      | SEE LIGHTING PLAN FOR TRACK SECTION LENGTH |
| E  | SIGNATURE HARDWARE | SKU: 941513                        | 120V     | 1              | 10 W | LED, 3000K, 1300LM        | OUTDOOR ENTRANCE WALL SCONCE           |  |
| F  | CLOUDY BAY         | JSF-11IN-35K-90CRI-HVOLT-ZT-WH     | 120V     | 1              | 10 W | LED, 5000K, 600LM, 90CRI  | MOTION SENSOR CEILING LIGHT            |  |

#### Panel: A1

**Location:** BEDROOM 006      **Volts:** 120/240 Single      **A.I.C. Rating:** 10kAIC  
**Mounting:** RECESSED      **Phases:** 1      **Mains Type:** MCB  
**Enclosure:** TYPE 1      **Wires:** 3      **Mains Rating:** 125 A  
**Series:** LOAD CENTER      **Bus Rating:** 125 A  
**Neutral Buss:** Yes  
**Ground Buss:** Yes

**Notes:**  
\* PROVIDE GFCI CIRCUIT BREAKER

| CKT | Circuit Description          | Trip | Poles | A B   |      | Circuit Description  | CKT |
|-----|------------------------------|------|-------|-------|------|----------------------|-----|
|     |                              |      |       | Poles | Trip |                      |     |
| 1   | LTG LIVING/DINING 000        | 20   | 1     | ...   | 1    | DISPOSAL KITCHEN 001 | 2   |
| 3   | LTG KITCHEN 001              | 20   | 1     | ...   | 1    | * MICRO KITCHEN 001  | 4   |
| 5   | LTG KITCHEN 001              | 20   | 1     | ...   | 2    | RANGE KITCHEN 001    | 6   |
| 7   | LTG KITCHEN 001              | 20   | 1     | ...   | --   | --                   | 8   |
| 9   | LTG RMS 005, 006, 004, 00... | 20   | 1     | ...   | 2    | WTR HTR CLOSET 003   | 10  |
| 11  | RECEPT LIVING/DINING 000     | 20   | 1     | ...   | --   | --                   | 12  |
| 13  | RECEPT LIVING/DINING 000     | 20   | 1     | ...   | 1    | RECEPT BATHROOM 004  | 14  |
| 15  | RECEPT KITCHEN 001           | 20   | 1     | ...   | 1    | RECEPT BEDROOM 006   | 16  |
| 17  | RECEPT KITCHEN 001           | 20   | 1     | ...   | 2    | AHU-1 CLOSET 002     | 18  |
| 19  | REFRIG KITCHEN 001           | 20   | 1     | ...   | --   | --                   | 20  |
| 21  | * D.W. KITCHEN 001           | 20   | 1     | ...   | 2    | HPU-1                | 22  |
| 23  | SPARE                        | 20   | 1     | ...   | --   | --                   | 24  |
| 25  | SPARE                        | 20   | 1     | ...   | 1    | SPARE                | 26  |
| 27  | SPARE                        | 20   | 1     | ...   | 1    | SPARE                | 28  |
| 29  | SPARE                        | 20   | 1     | ...   | 1    | SPARE                | 30  |

**Notes:**

#### Panel: A2

**Location:** AWAY/DINING 106      **Volts:** 120/240 Single      **A.I.C. Rating:** 10kAIC  
**Mounting:** RECESSED      **Phases:** 1      **Mains Type:** MCB  
**Enclosure:** TYPE 1      **Wires:** 3      **Mains Rating:** 150 A  
**Series:** LOAD CENTER      **Bus Rating:** 150 A  
**Neutral Buss:** Yes  
**Ground Buss:** Yes

**Notes:**  
\* PROVIDE GFCI CIRCUIT BREAKER

| CKT | Circuit Description        | Trip | Poles | A B   |      | Circuit Description    | CKT |
|-----|----------------------------|------|-------|-------|------|------------------------|-----|
|     |                            |      |       | Poles | Trip |                        |     |
| 1   | LTG RMS 101, 201           | 20   | 1     | ...   | 1    | DISPOSAL KITCHEN 102   | 2   |
| 3   | LTG KITCHEN 102            | 20   | 1     | ...   | 1    | * MICRO KITCHEN 102    | 4   |
| 5   | LTG KITCHEN 102            | 20   | 1     | ...   | 2    | RANGE KITCHEN 102      | 6   |
| 7   | LTG KITCHEN 102            | 20   | 1     | ...   | --   | --                     | 8   |
| 9   | LTG RMS 104, 105, 106      | 20   | 1     | ...   | 2    | WTR HTR CLOSET 104     | 10  |
| 11  | LTG RMS 200, 201, 202, 203 | 20   | 1     | ...   | --   | --                     | 12  |
| 13  | LTG RMS 204-208            | 20   | 1     | ...   | 1    | RECEPT POWDER ROOM...  | 14  |
| 15  | RECEPT STAIR/HALL 100      | 20   | 1     | ...   | 1    | RECEPT AWAY/DINING 106 | 16  |
| 17  | RECEPT LIVING/DINING 101   | 20   | 1     | ...   | 1    | RECEPT AWAY/DINING 106 | 18  |
| 19  | RECEPT LIVING/DINING 101   | 20   | 1     | ...   | 1    | RECEPT BEDROOM 1 201   | 20  |
| 21  | RECEPT KITCHEN 102         | 20   | 1     | ...   | 1    | RECEPT BEDROOM 1 201   | 22  |
| 23  | RECEPT KITCHEN 102         | 20   | 1     | ...   | 1    | RECEPT BATHROOM 1 203  | 24  |
| 25  | REFRIG KITCHEN 102         | 20   | 1     | ...   | 1    | RECEPT BATHROOM 2 204  | 26  |
| 27  | * D.W. KITCHEN 102         | 20   | 1     | ...   | 1    | RECEPT BEDROOM 2 205   | 28  |
| 29  | AHU-2 CLOSET 206           | 35   | 2     | ...   | 1    | RECEPT BEDROOM 2 205   | 30  |
| 31  | --                         | --   | --    | ...   | 1    | SPARE                  | 32  |
| 33  | HPU-2                      | 35   | 2     | ...   | 1    | SPARE                  | 34  |
| 35  | --                         | --   | --    | ...   | 1    | SPARE                  | 36  |

**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                   |
| CW          | COLD WATER                           |
| DF          | 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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| PIPE INSULATION SCHEDULE       |  |                      |                                   |                    |                    |                    |                    |    |
|--------------------------------|--|----------------------|-----------------------------------|--------------------|--------------------|--------------------|--------------------|----|
| 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 | <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.

15 October 2023

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**THE CAPITOL**  
Michigan Municipal League

Job Number:  
2023xx

Title:  
PLUMBING COVER SHEET

**P0.1**



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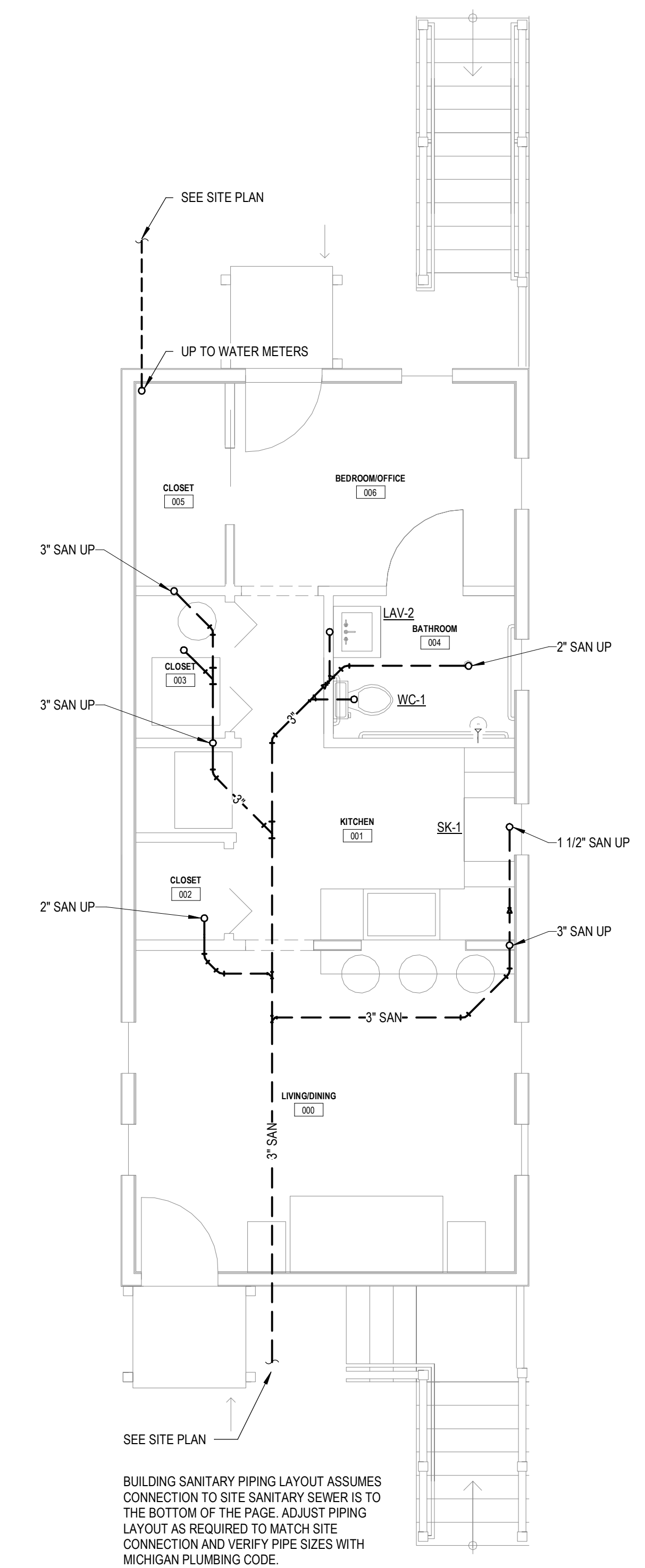
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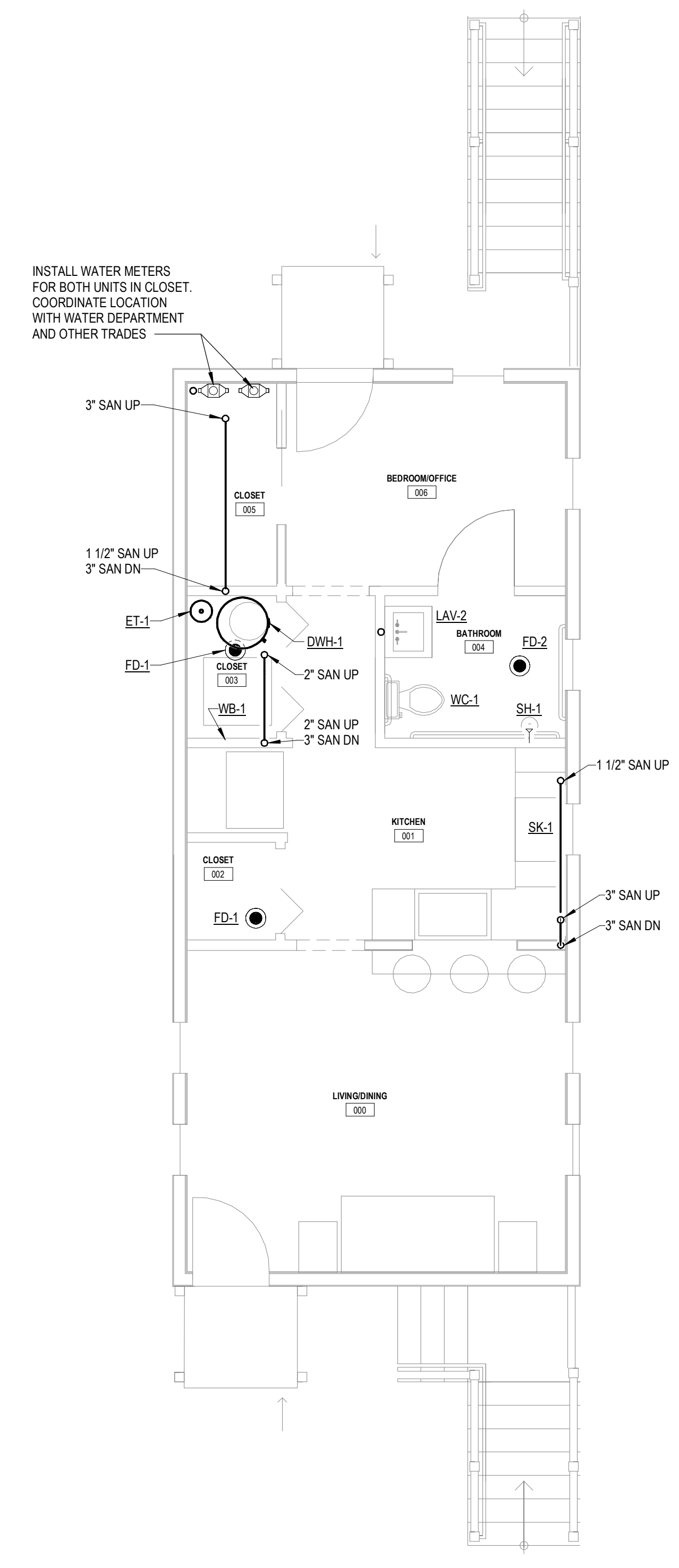
**THE CAPITOL**  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
PLUMBING  
FLOOR PLANS

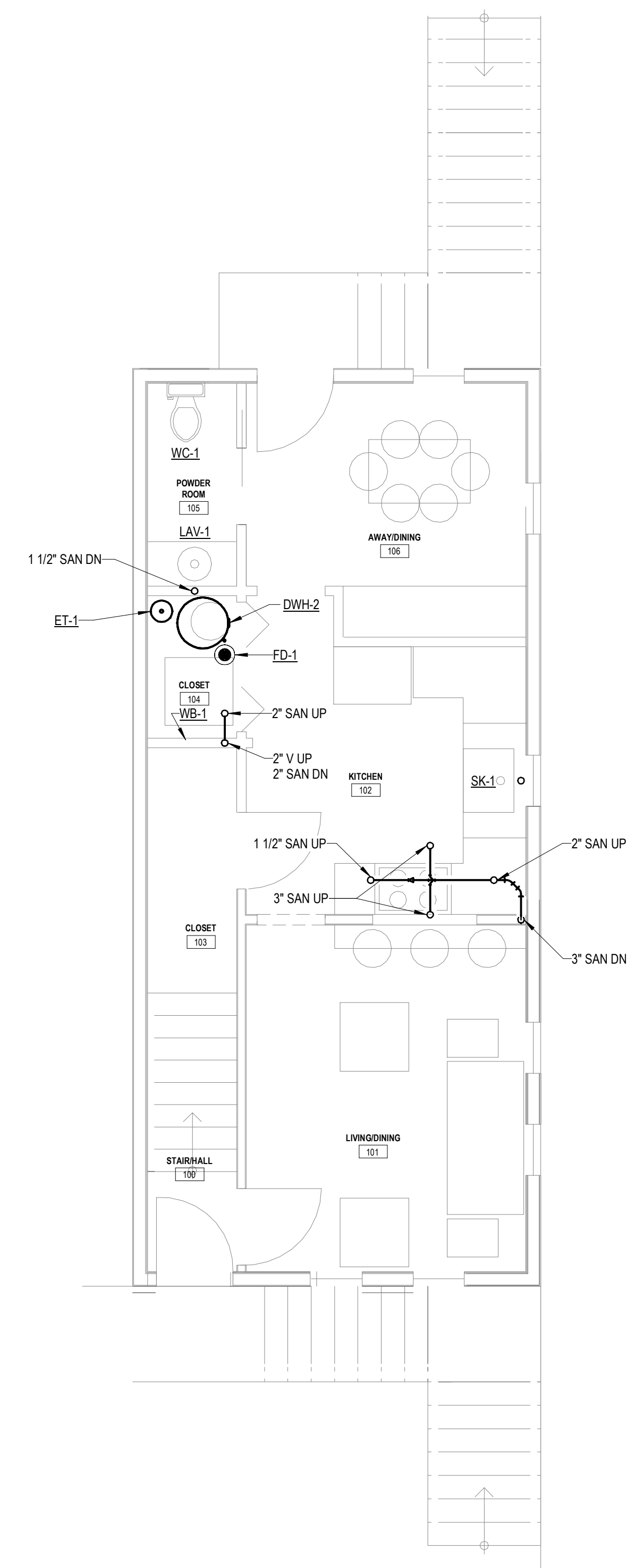
P1.1



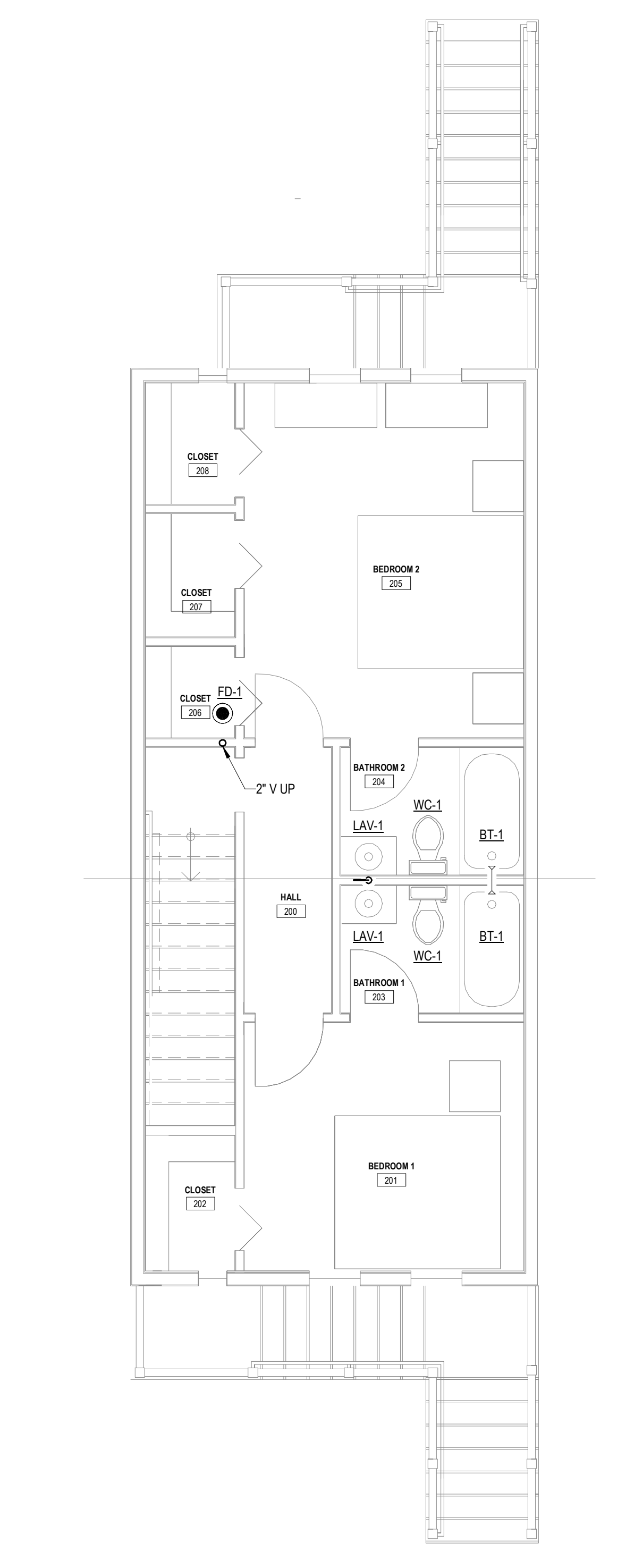
**1 GROUND FLOOR PLAN - PLUMBING UNDERGROUND**  
SCALE = 1/4" = 1'-0"



**2 GROUND FLOOR PLAN - PLUMBING**  
SCALE = 1/4" = 1'-0"



**3 MAIN FLOOR PLAN - PLUMBING**  
SCALE = 1/4" = 1'-0"



**4 UPPER FLOOR PLAN - PLUMBING**  
SCALE = 1/4" = 1'-0"

BUILDING SANITARY PIPING LAYOUT ASSUMES CONNECTION TO SITE SANITARY SEWER IS TO THE BOTTOM OF THE PAGE. ADJUST PIPING LAYOUT AS REQUIRED TO MATCH SITE CONNECTION AND VERIFY PIPE SIZES WITH MICHIGAN PLUMBING CODE.

8/23/2023 10:16:18 AM

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THE CAPITOL  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
PLUMBING  
SCHEDULES

P6.1

### DOMESTIC WATER HEATER SCHEDULE

COMMENTS:  
1. PROVIDE WITH TEMPERATURE & PRESSURE RELIEF VALVE.  
2. PROVIDE WITH DRAIN PAN.  
3. WATER HEATER SHALL INCLUDE INTEGRAL OR FACTORY INSTALLED HEAT TRAPS.  
4. WATER HEATER SHALL HAVE SIDE INLET AND OUTLET CONNECTIONS.

| TAG   | BASIS OF DESIGN |          | DESCRIPTION                 | STORAGE CAPACITY (GALLONS) | RECOVERY GPH | 1 HR DRAW (GALLONS) | RISE OF RECOVERY °F | EWT °F | LWT °F | ELECTRICAL DATA |             | COMMENTS   |
|-------|-----------------|----------|-----------------------------|----------------------------|--------------|---------------------|---------------------|--------|--------|-----------------|-------------|------------|
|       | MANUFACTURER    | MODEL    |                             |                            |              |                     |                     |        |        | DWH KW          | DWH VOLTAGE |            |
| DWH-1 | Lochinvar       | JEA030KD | SHORT ELECTRIC WATER HEATER | 28                         | 27           | 47                  | 70                  | 50     | 120    | 4.5             | 240V / 10   | 1, 2, 3, 4 |
| DWH-2 | Lochinvar       | JEA040KD | SHORT ELECTRIC WATER HEATER | 38                         | 32           | 59                  | 70                  | 50     | 120    | 5.5             | 240V / 10   | 1, 2, 3, 4 |

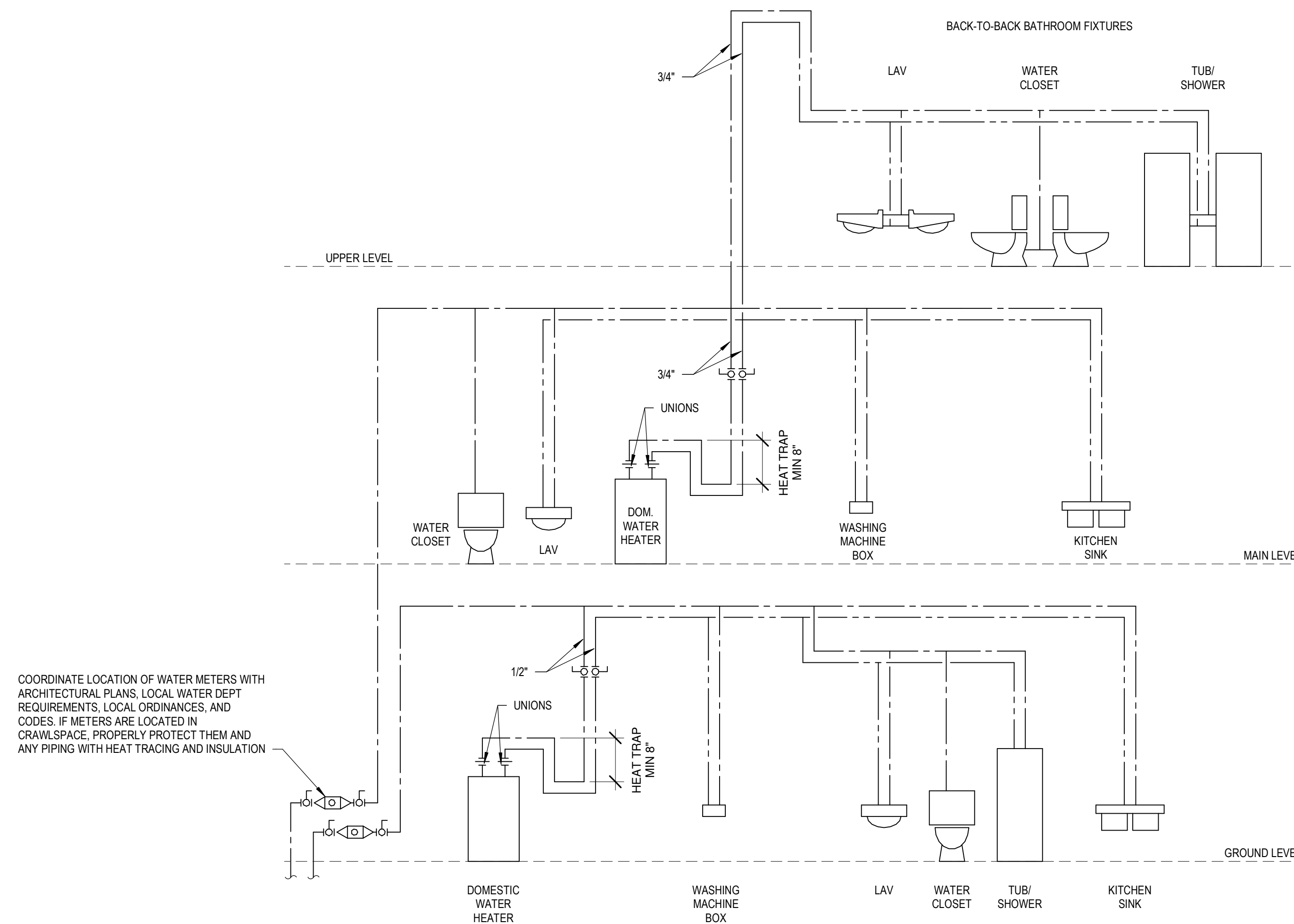
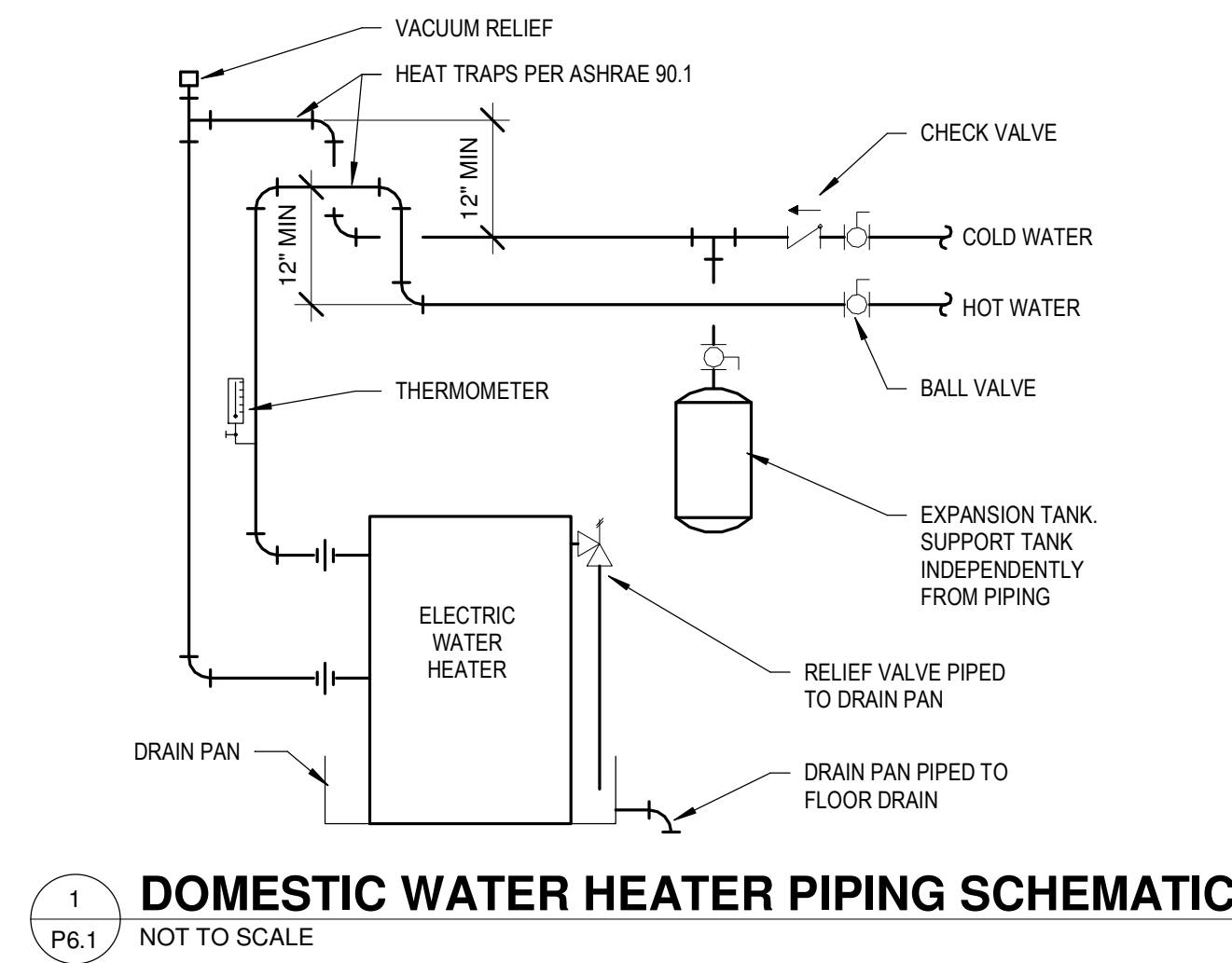
### EXPANSION TANK SCHEDULE

COMMENTS:  
1. CARBON STEEL SHELL  
2. HEAVY DUTY BUTYL BLADDER  
3. STAINLESS STEEL CONNECTION  
4. BAKED EPOXY FINISH  
5. 240 DEGREE F MAXIMUM TEMPERATURE  
6. 150 PSI MAXIMUM DESIGN PRESSURE

| TAG  | DESIGN BASIS |       | TANK VOLUME | MAXIMUM ACCEPTANCE VOLUME | SYSTEM CONNECTION SIZE | ASME Rated | COMMENTS         |
|------|--------------|-------|-------------|---------------------------|------------------------|------------|------------------|
|      | MANUFACTURER | MODEL |             |                           |                        |            |                  |
| ET-1 | Amtrul       | ST-5  | 2.0 gal     | 0.9 gal                   | 3/4"                   | No         | 1, 2, 3, 4, 5, 6 |

### PLUMBING FIXTURE CONNECTION SCHEDULE

| TAG   | FIXTURE TYPE           | PIPE CONNECTION DATA |           |        |          | ELECTRICAL DATA |         | COMMENTS |
|-------|------------------------|----------------------|-----------|--------|----------|-----------------|---------|----------|
|       |                        | COLD WATER           | HOT WATER | VENT   | SANITARY | FLA             | VOLTAGE |          |
| BT-1  | BATHTUB / SHOWER       | 1/2"                 | 1/2"      | 1-1/2" | 2"       | -               | -       |          |
| FD-1  | FLOOR DRAIN            | -                    | -         | 1-1/2" | 2"       | -               | -       |          |
| FD-2  | SHOWER DRAIN           | -                    | -         | 1-1/2" | 2"       | -               | -       |          |
| LAV-1 | LAVATORY               | 1/2"                 | 1/2"      | 1-1/4" | 1-1/2"   | -               | -       |          |
| LAV-2 | 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"       | -               | -       |          |



COORDINATE LOCATION OF WATER METERS WITH ARCHITECTURAL PLANS, LOCAL WATER DEPT REQUIREMENTS, LOCAL ORDINANCES, AND CODES. IF METERS ARE LOCATED IN CRAWLSPACE, PROPERLY PROTECT THEM AND ANY PIPING WITH HEAT TRACING AND INSULATION

### 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    | CONVECTOR                            |
| 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"Ø     | 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 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. |

### GENERAL HVAC NOTES

- 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.
- 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 DRAWINGS AND SPECIFICATIONS.
- ALL WORK SHALL COMPLY WITH THE MICHIGAN MECHANICAL CODE AND ALL APPLICABLE LOCAL CODES.
- ALL DUCT TO BE OF 1" PRESSURE CLASS, UNLESS NOTED OTHERWISE.
- COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF ROOF TOP EQUIPMENT.
- DUCTWORK SHALL BE ACOUSTICALLY LINED WITHIN 20 FT OF THE INTAKE AND/OR DISCHARGE OF A FAN.
- INSTALL VOLUME DAMPERS IN ALL BRANCH DUCTS SERVING A SINGLE GRILLE, REGISTER, OR DIFFUSER.
- INSTALL FLEXIBLE DUCT CONNECTIONS AT THE INLET AND DISCHARGE OF ALL FANS.
- 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.
- UNDERGROUND GAS SERVICE BY UTILITY COMPANY. REFER TO CIVIL DRAWINGS. COORDINATE SERVICE, METER, ETC. LOCATIONS WITH UTILITY COMPANY.
- 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.
- 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.
- DUCT/PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
- 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.
- PROVIDE TRAP FOR CONDENSATION DRAIN LINES.
- PROVIDE VIBRATION ISOLATION AT EACH CONNECTION TO A MOTORIZED PIECE OF EQUIPMENT BY THE HVAC CONTRACTOR.
- MOUNT THERMOSTAT/SENSORS AT 48" AFF UNLESS NOTED OTHERWISE.
- THE HVAC CONTRACTOR SHALL CLOSELY COORDINATE AIR DEVICE AND DUCTWORK LOCATIONS WITH REFLECTED CEILING AND STRUCTURAL PLANS.
- COORDINATE SENSOR AND THERMOSTAT LOCATION WITH ARCHITECT.

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15 October 2023

**NOT FOR CONSTRUCTION**

**THE CAPITOL**  
Michigan Municipal League

Job Number:  
2023xx  
Title:  
HVAC COVER  
SHEET

**M0.1**

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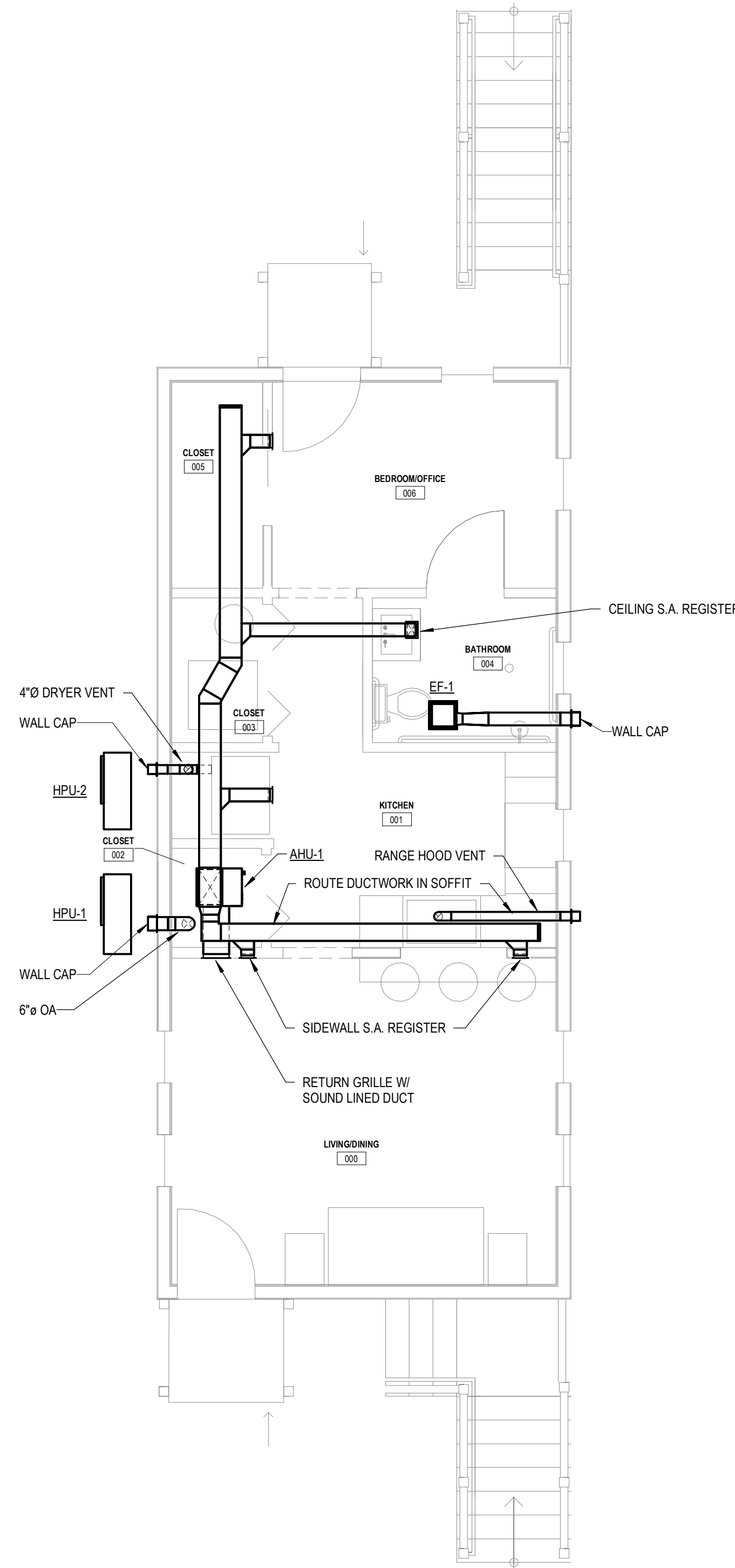
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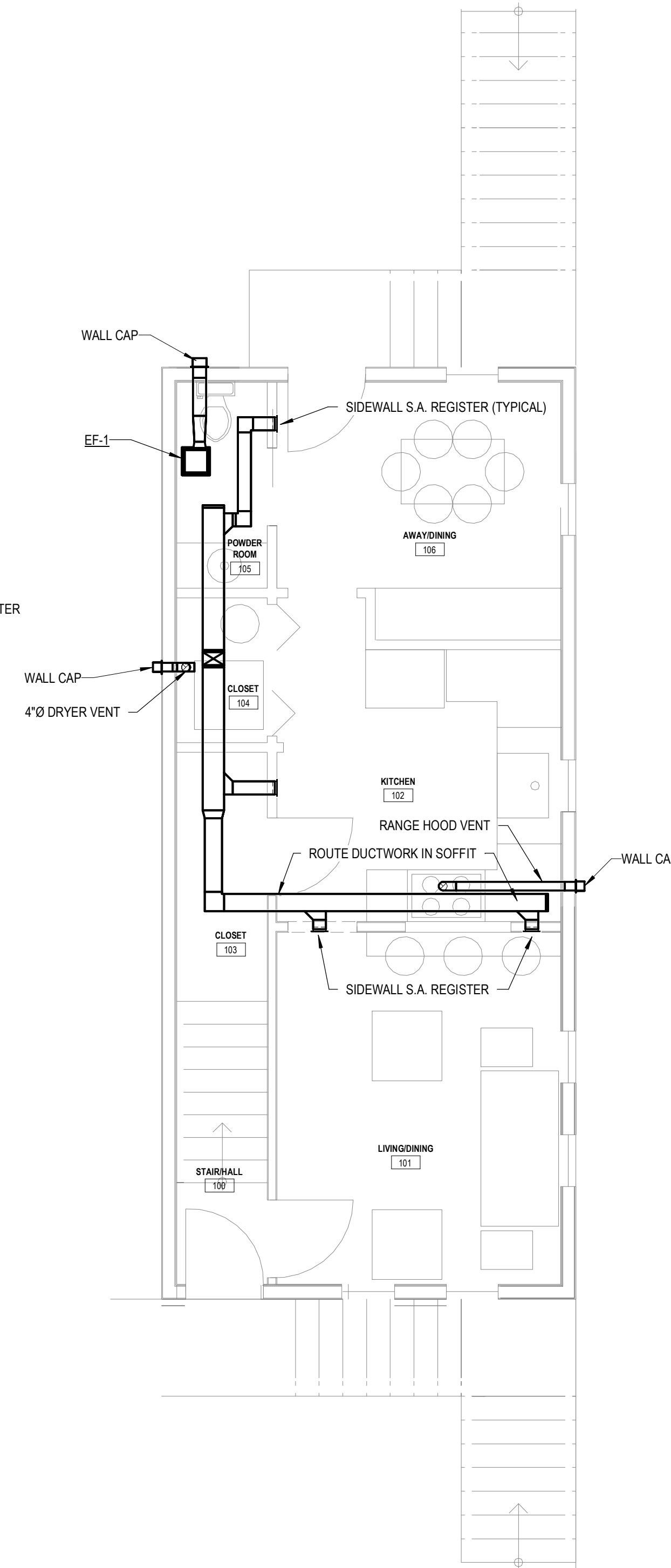
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Job Number:  
2023xx  
Title:  
HVAC FLOOR  
PLANS

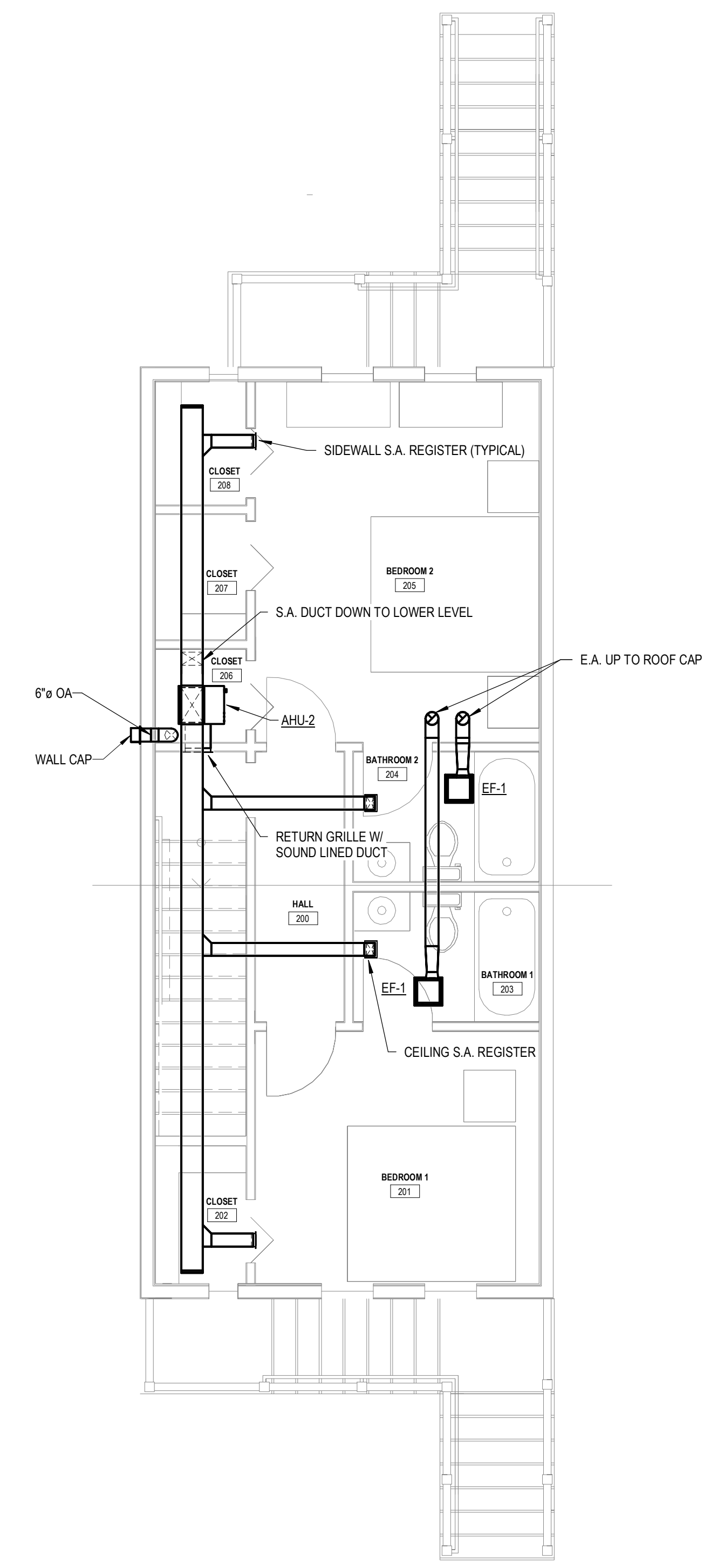
M1.1



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



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



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

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Michigan Municipal League

Job Number:  
2023xx  
Title:  
HVAC DETAILS &  
SCHEDULES

M6.1

### 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.<br>(in-wg) | FAN SPEED<br>(RPM)<br>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-LP0511 | 80  | 0.28              | 831                          | DIRECT     | 2     | 11              | 120V / 1Ø | X             |        | No  | LOCAL SWITCH | 1, 2     |

### AIR HANDLING UNIT SCHEDULE

COMMENTS:  
1. PROVIDE WITH FACTORY CONTROLS AND WALL MOUNTED, PROGRAMMABLE THERMOSTAT THAT WILL COORDINATE THE OPERATION OF THE AIR HANDLING AND REHEAT COIL. THERMOSTAT SHALL HAVE SETTINGS FOR 7-DAYS / 4-PERIODS.  
2. PROVIDE WITH CONDENSATE DRAIN SENSOR TO SHUT-DOWN UNIT IN THE EVENT OF CONDENSATE DRAIN BLOCKAGE.  
3. PROVIDE WITH ELECTRIC REHEAT COIL. ELECTRIC HEAT TO HAVE SEPARATE POWER CONNECTION.  
4. AIR HANDLING UNIT FAN AND CONTROLS POWERED FROM OUTDOOR UNIT. ELECTRIC HEAT TO HAVE SEPARATE POWER CONNECTION.  
5. PROVIDE WITH 1" MERV 8 FILTER.  
6. UNIT SHALL COMMUNICATE WITH CONDENSING UNIT TO MATCH CAPACITY TO DEMAND AND FURNACE FAN SPEED.  
7. UNIT SHALL HAVE ELECTRONICALLY COMMUTATED MOTOR (ECM) FOR SUPPLY FAN.  
8. CONNECT MOTORIZED OUTSIDE AIR DAMPER TO SUPPLY FAN CONTROL. DAMPER SHALL OPEN WHEN FAN IS RUNNING.  
9. VERIFY CAPACITY WITH LOCAL CLIMATE DESIGN CONDITIONS, SITE ORIENTATION, AND ENERGY CODE.

DESIGN CONDITIONS:  
WINTER: 0°F OUTSIDE  
70°F INSIDE  
SUMMER: 95°F DB OUTSIDE  
80°F DB INSIDE  
67°F WB INSIDE

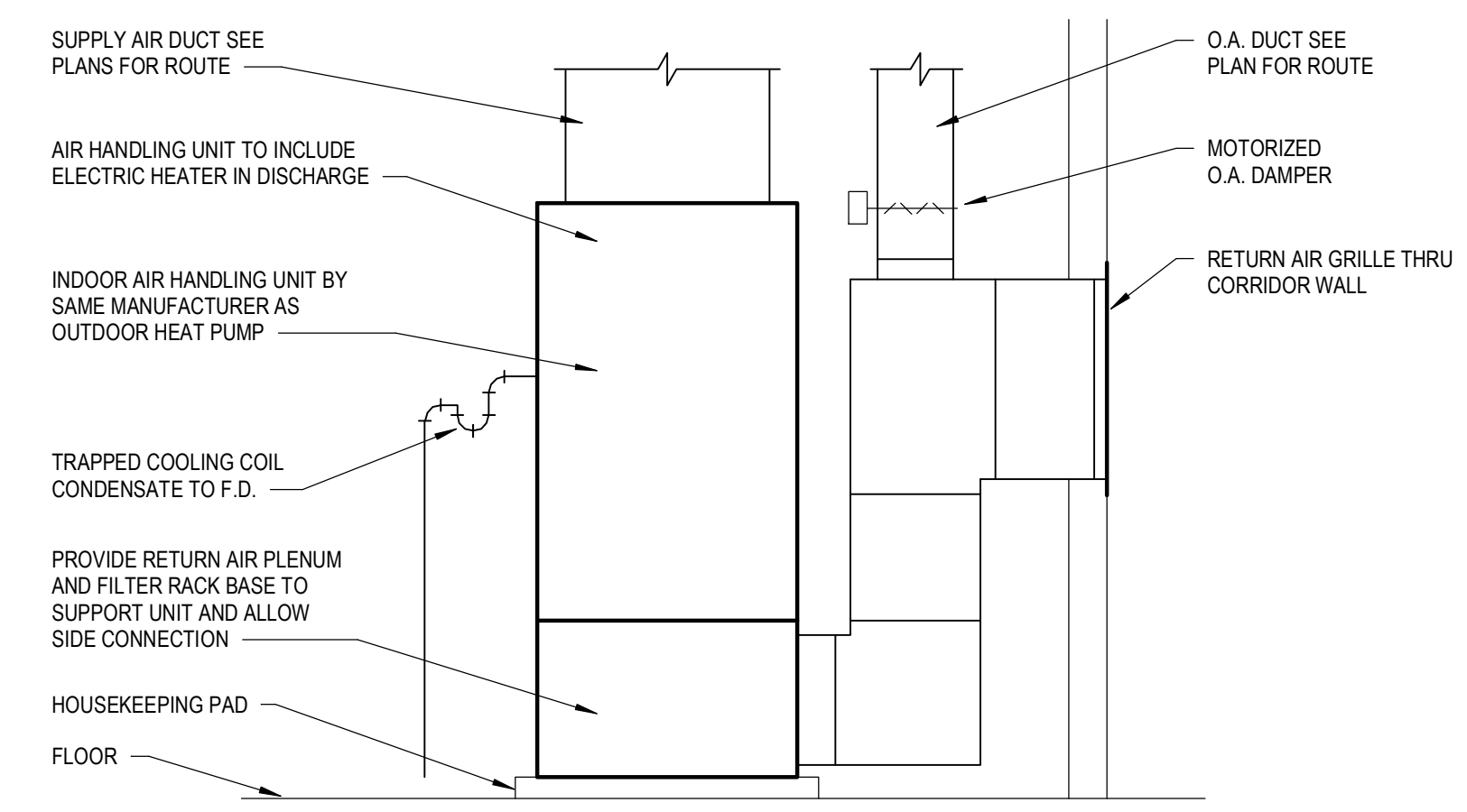
| TAG   | BASIS OF DESIGN |           | DESCRIPTION                      | OUTDOOR UNIT | AIR FLOW DATA |        |                 | HEAT PUMP CAPACITY (MBH) |                |                     |               | ELECTRICAL DATA |      | COMMENTS |    |     |           |          |
|-------|-----------------|-----------|----------------------------------|--------------|---------------|--------|-----------------|--------------------------|----------------|---------------------|---------------|-----------------|------|----------|----|-----|-----------|----------|
|       | MANUFACTURER    | MODEL NO. |                                  |              | SUPPLY CFM    | E.S.P. | OUTSIDE AIR CFM | AT AHRI CONDITIONS       |                | AT CONDITIONS NOTED |               | ELECTRIC HEAT   |      |          |    |     |           |          |
|       |                 |           |                                  |              |               |        |                 | REFRIG.                  | COOLING @ 47°F | HEATING @ 95°F      | HEATING @ 0°F | SEER2           | EER2 |          | KW | MCA | VOLTAGE   |          |
| AHU-1 | Daikin          | FTQ18TA   | Multi-Position Air Handling Unit | HPU-1        | 600           | 0.5    | 30              | R-410A                   | 18             | 20                  | 18.0          | 20.0            | 15.5 | 12.5     | 5  | 32  | 240V / 1Ø | 1 THRU 9 |
| AHU-2 | Daikin          | FTQ36TA   | Multi-Position Air Handling Unit | HPU-2        | 1050          | 0.5    | 45              | R-410A                   | 36             | 40                  | 36.2          | 39.9            | 15.3 | 11.3     | 5  | 32  | 240V / 1Ø | 1 THRU 9 |

### HEAT PUMP UNIT SCHEDULE

COMMENTS:  
1. UNIT SHALL BE RATED FOR LOW AMBIENT HEATING. REFER TO AIR HANDLING UNIT SCHEDULE FOR OUTDOOR CONDITIONS AND CAPACITIES AT THOSE CONDITIONS.  
2. PROVIDE WITH HAIL GUARDS.  
3. PROVIDE EQUIPMENT STANDS SUCH THAT UNIT IS INSTALLED 24" MIN. ABOVE GRADE.  
4. PROVIDE WITH INVERTER (VARIABLE SPEED) COMPRESSOR.  
5. UNIT SHALL COMMUNICATE WITH AHU TO MATCH CAPACITY TO DEMAND AND AHU FAN SPEED.  
6. VERIFY CAPACITY WITH LOCAL CLIMATE DESIGN CONDITIONS, SITE ORIENTATION, AND ENERGY CODE.

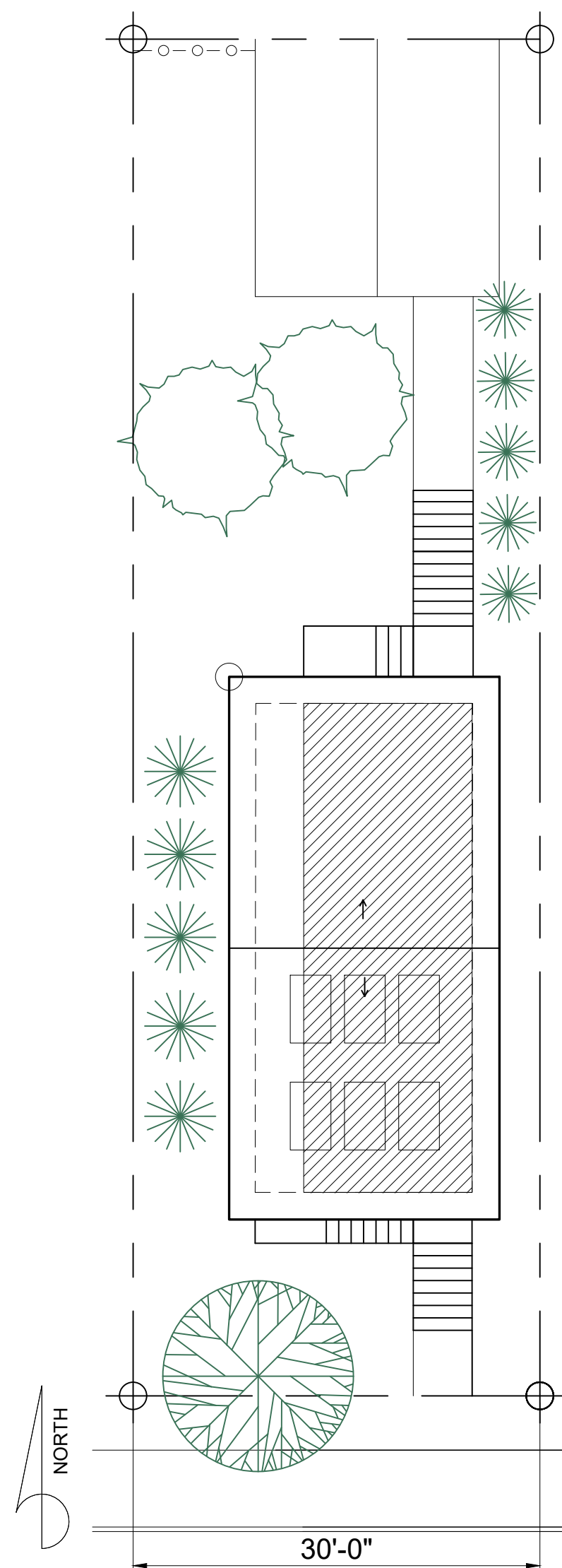
NOTE:  
RATED CAPACITIES ARE PER AHRI STANDARD. REFER TO FAN COIL SCHEDULE ON THIS SHEET TO SEE PERFORMANCE CAPACITIES AT DESIGN CONDITIONS.

| TAG   | BASIS OF DESIGN |             | DESCRIPTION                         | INDOOR UNIT | REFRIGERANT | NOMINAL TONS | RATED CAPACITY |             | ELECTRICAL DATA |      |               | COMMENTS |
|-------|-----------------|-------------|-------------------------------------|-------------|-------------|--------------|----------------|-------------|-----------------|------|---------------|----------|
|       | MANUFACTURER    | MODEL       |                                     |             |             |              | COOLING MBH    | HEATING MBH | MCA             | MOCP | VOLTAGE       |          |
| HPU-1 | Daikin          | RZQ18TAVJUA | Outdoor Split System Heat Pump Unit | AHU-1       | R-410A      | 1.5          | 18             | 20          | 16.5            | 25   | 208-240V / 1Ø | 1 THRU 6 |
| HPU-2 | Daikin          | RZQ36TAVJUA | Outdoor Split System Heat Pump Unit | AHU-2       | R-410A      | 3.0          | 36             | 40          | 29.1            | 35   | 208-240V / 1Ø | 1 THRU 6 |

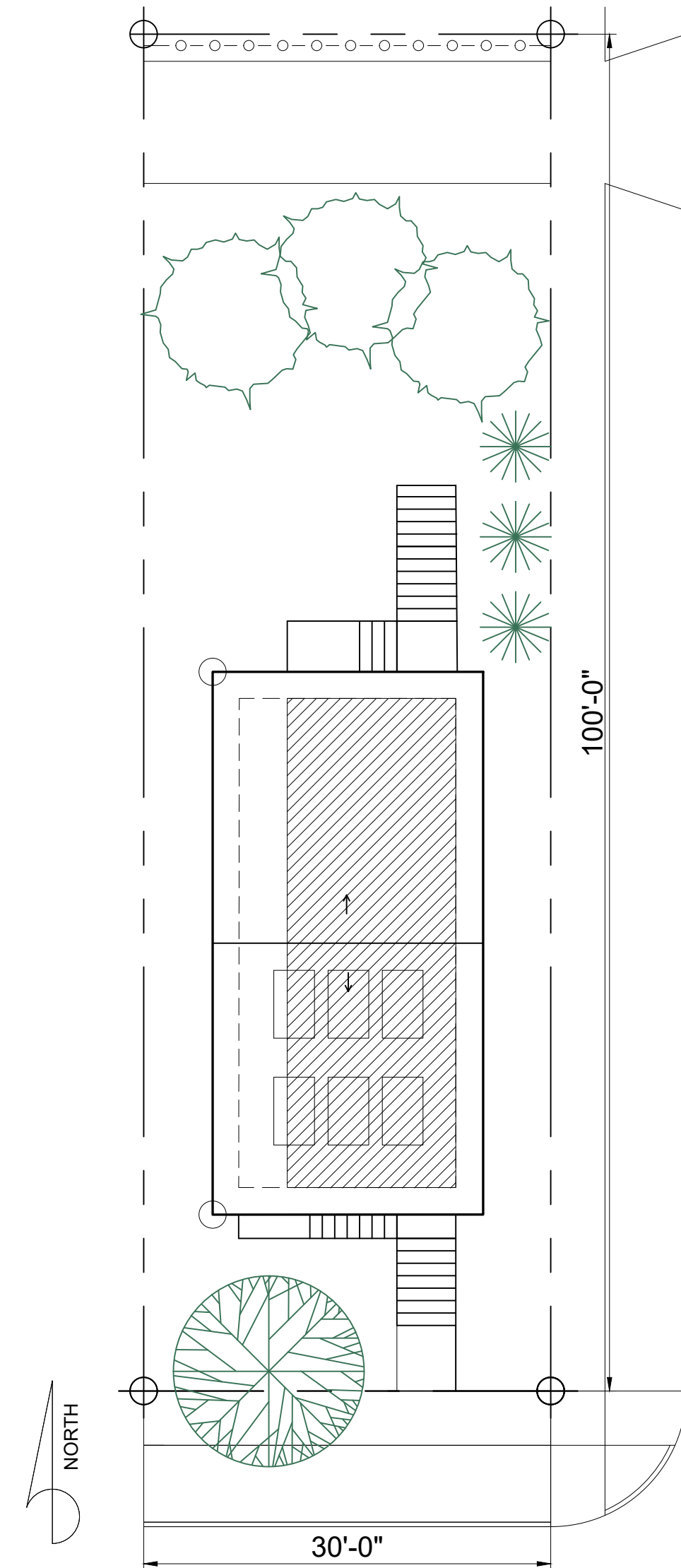


1  
M6.1 UPFLOW AIR HANDLING UNIT DETAIL  
NOT TO SCALE

**NOT FOR CONSTRUCTION**



**C** Alley Lot  
No Scale



**B** Corner Lot  
No Scale

**BUILDING LAYOUT**

Locate commonly used spaces where they will benefit the most from daylighting. Kitchens and Living spaces should be located to the south or outside walls. Buffer spaces, like closets and mechanicals to the north. South and west facing porches provide additional moderation of temperature swings.

Achieving the best layout may require rotating and/or mirroring the established floor plans.

The shaded area indicates the location of the primary living spaces in the building: the Kitchen/Dining Room and the Living Room.

Light colored fences placed at the north side of the building can provide reflected daylighting. Natural ground cover placed south of the building, instead of light colored concrete will reduce reflected summer heat gain.

Deep overhangs block high summer sun, while allowing low altitude winter heat gain. In the cold, wet climate of the Midwest, deep overhangs are paired with steeper roof pitches to serve the additional purpose of keeping runoff rain and snow away from foundations and basement windows.

Locate solar panels to south for solar gain. If solar panels are not feasible, due to site conditions, purchasing or renting solar panels from a community solar site may be an alternative.

**SITE CONSIDERATIONS**

**Capturing rain runoff**

Use of eavestroughs and downspouts to capture rainwater will reduce runoff, helping to preserve topsoil and reducing the volume treated by municipal storm sewers. The rainbarrels should be capture water that can be used to supplement the home supply as needed for gardening.

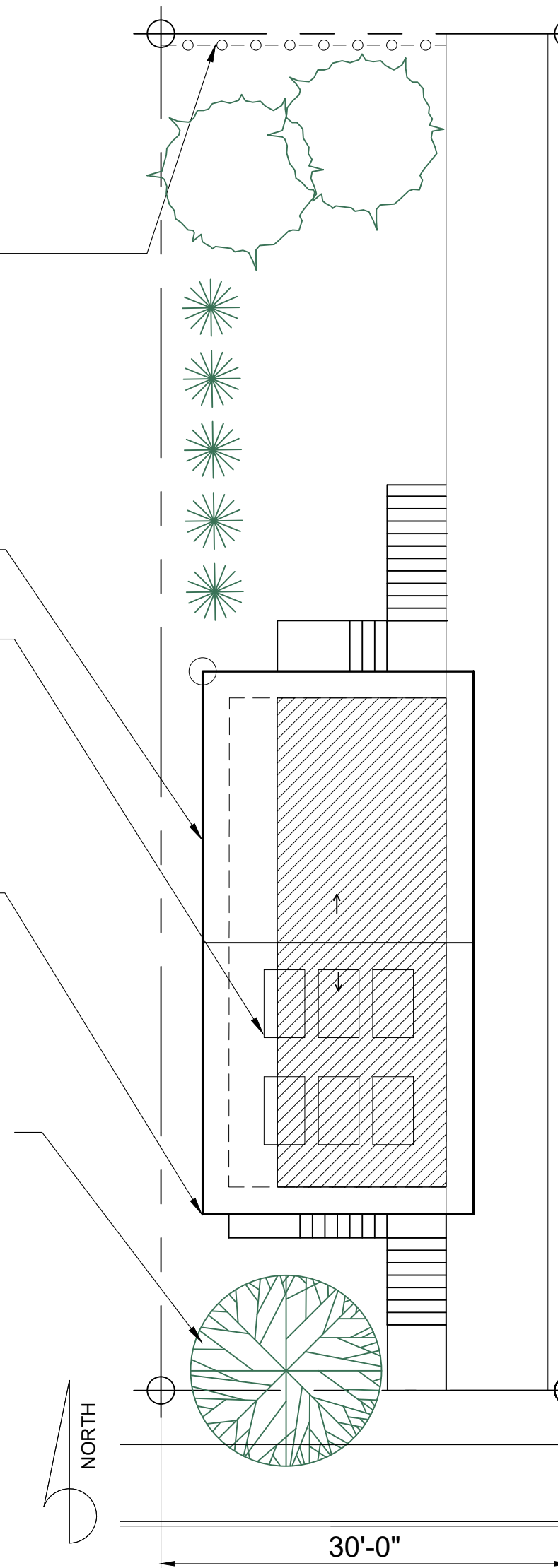
**Controlling solar heating and lighting**

Elevation walls that face south (or nearly so) provide the best opportunities for daylighting and passive solar gains though south-facing windows. Reorienting the roof pitch away from mature trees and toward the sun will allow for increased active solar opportunities.

Use landscaping to protect the house from winter winds, to allow winter solar gains and daylighting, while shading and cooling in the summer. The west and south facing elevations should be protected from summer sun and should be shaded, either with plantings, porches, arbors and other similar shading devices that can also provide effective control. Gardens provide an alternative to mono-turf and provide cooling. Vegetation & pervious pavers help manage onsite rain runoff.

Southern exposures should be clear of any obstructions, except for deciduous trees that provide relief from the summer sun. East and west facing windows can cause the most summertime heat and should be minimized (as an option).

Similar to large shading structures, operable shutters are a less expensive option for controlling sunlight and radiant heat. They can be an attractive addition to any building, and can be found in a variety of styles to match the building.

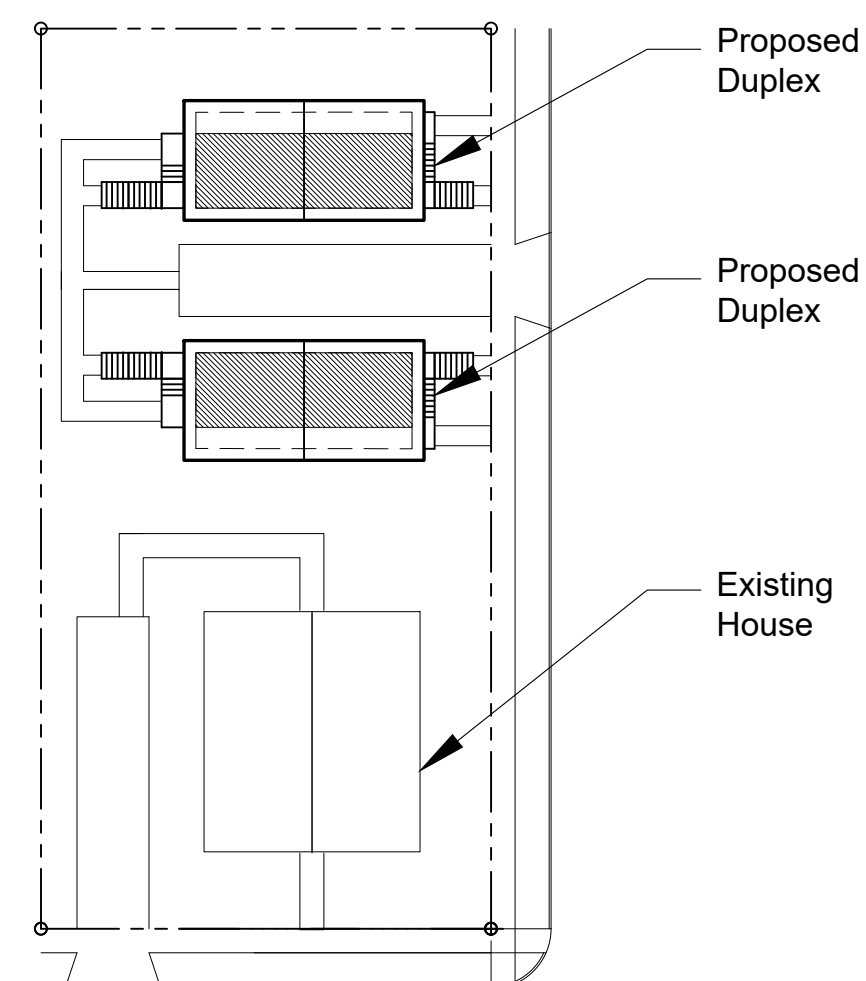


**A** Standard Lot  
No Scale

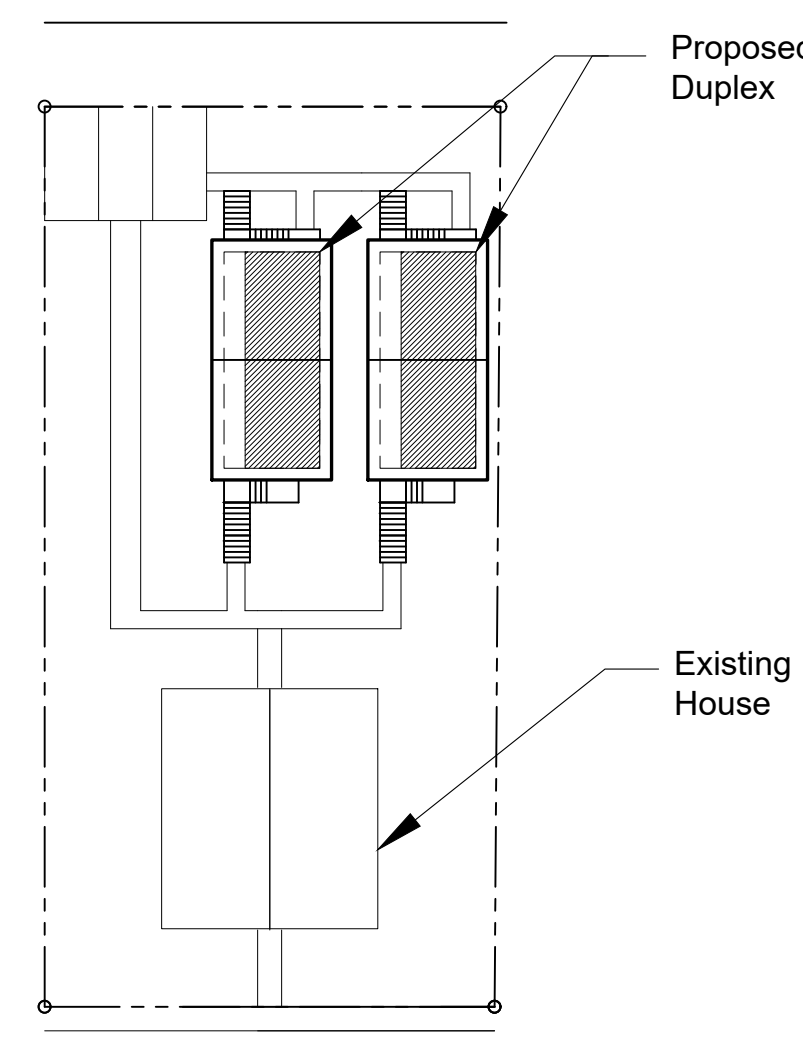
In Details A-C & Details 1-3, the shaded area indicates the location of the primary living spaces in the building: the Kitchen/Dining Room and the Living Room. In order to maximize daylighting, these spaces should be oriented to the south, or the outside walls, if the south elevation is not available. Achieving the best layout may require rotating and/or mirroring the established floor plans.

Details 1-3, propose adding buildings to a site with an existing structure. Local ordinances may or may not allow this by right. Where not allowed by right, a variance may be an option. Verify with the local planning & zoning office to determine what is allowed before proceeding.

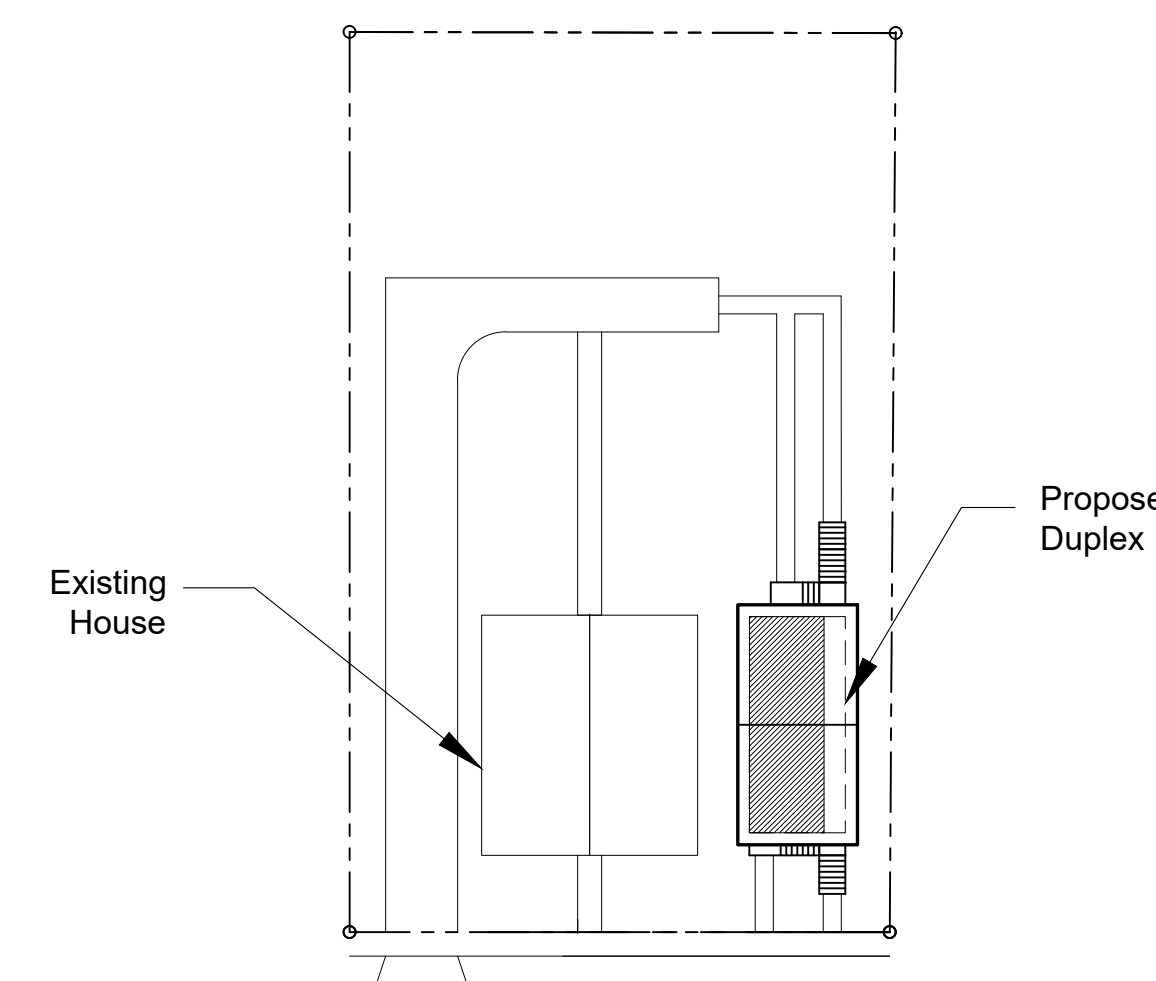
**Disclaimer:** The drawings found within this set are Substantially Complete, and are marked "Not for Construction," as it will be necessary for each site-specific development to employ architects and/or engineers to evaluate local conditions, make necessary adjustments and provide final stamped plans for local permitting. Individuals using these drawings shall seek any necessary professional services before starting the building process.



**3** Existing House - Corner Lot  
No Scale



**3** Existing House - Alley Lot  
No Scale



**1** Existing House - Standard Lot  
No Scale