

# Bradley Heights Apartments

## A 236-Unit Apartment Development Puyallup, Washington

### Bradley Heights SS LLC

#### PROJECT TEAM

Owner/Developer	Bradley Heights SS LLC 614 Boylston Ave E Seattle, WA 98102 (206) 557-7236
Architect	Milbrandt Architects, Inc., P.S. 25 Central Way, Suite 210 Kirkland, WA 98033 (425) 454-7130
Structural Engineer	Solutions 4 Structure, Inc. 11605 135th St Ct E Puyallup, WA 98374 (253) 268-2923
Civil Engineer	Azure Green Consultants 409 East Pioneer Puyallup, WA 98372 (253) 770-3144
Landscape Architect	Nature By Design 1320 Alameda Avenue, Suite B Fircrest, WA 98466 (253) 460-6067
MEP Engineer	Robison Engineering Inc. 19401 40th Avenue W, Suite 302 Lynnwood, WA 98036 (206) 364-3343

#### PROJECT INFORMATION

Site Address:	202 27th Ave SE, Puyallup, WA 98374
Project Description:	Construction of 236 wood framed apartment units in eight stacked flat buildings along with a leasing amenity building.
Site Area:	7.785 acres (+/- 339,107 SQ. FT.)
Tax Parcel Number:	419036006
Occupancy Type:	All Apartment Buildings are R2 occupancy.
Type of Construction	All Apartment Buildings are Type V-B construction with NFPA 13R automatic sprinklers .
Applicable Codes:	2018 International Building Code 2018 Uniform Plumbing Code 2018 Washington State Energy Code 2018 International Mechanical code 2018 International Fire Code 2022 National Electrical Code ICC/ANSI A117.1-2009 Standard Washington State Amendments as modified and adopted by the local jurisdiction.

#### RATED ASSEMBLIES

Rated assemblies shall be provided in accordance with IBC section 420

Assembly	Fire Rating	Detail
Common walls separating dwelling units:	1-hour	4/D1
Exterior walls:	non-rated	1/D1
Interior bearing walls:	non-rated	2/D1
Interior non-bearing walls:	non-rated	2/D1
Corridor-to-unit walls:	1-hour	3/D1
Floor/ceiling:	1-hour	13/D1
Roof/ceiling:	1-hour	17/D1
Penetrations (firestopping)	Per situation	17/D7
Membrane penetrations by ducts in ceiling	26 ga. steel ducting	6/D7
Stair fire barrier wall:	1-hour @ 3-story 2-hour @ 4-story	3/D1 7/D1

Fire Alarm systems and smoke alarms shall be provided in accordance with IBC section 420.5 Refer to unit plan sheets for smoke detector locations and requirements.

#### GENERAL NOTES

- Comply with 2018 IBC and all applicable codes and ordinances of the local jurisdiction and the State of Washington.
- Do not scale drawings.
- Verify all rough-in dimensions for equipment provided in this contract or by others.  
All rough-ins shall be approved and fireblocking shall be installed prior to framing inspection.
- Verify size and location of and provide all openings through floors and walls, furring, anchors, inserts, rough bucks and backing for surface mounted items.
- Provide furring as required to conceal mechanical and electrical work in all finished areas.
- All swinging doors not located by dimensions on plans, interior elevations, or details shall be 3" from face of stud to edge of rough openings or centered between room partitions as shown.
- Plans are drawn assuming the following rough openings:  
Swinging doors: Nominal size +2".  
Bi-Fold doors: Nominal size +1-1/2".  
Bi-Pass doors: Nominal size +0".  
Windows: Nominal size +0".  
Sliding glass doors: Nominal size +0".
- Fill where required with earth free from organic material. Compact fill in 12" layers maximum.
- "Finish Floor" refers to the top of concrete slab or top of wood floor sheathing .
- Exterior walls shall be 2x6 studs at 16" o.c. and interior walls shall be 2x4 studs at 16" o.c., unless noted otherwise.
- Unless otherwise noted, plan dimensions are to face of studs and face of concrete walls.
- Refer to interior elevations for cabinet and counter lengths, dimensions, countertop materials and detail reference. Verify all existing dimensions before installation.
- Provide caulking between sole plates and subfloor and between rim joists at both top plate and subfloor.
- Hydrants shall be in service prior to start of framing.
- Through penetrations and membrane penetrations of rated wall or floor/ceiling assembly will require firestopping per 2018 IBC Section 714. See detail 7/D7 for diagram of specifics.
- Shall be no asbestos used on this project.
- All Tub-Shower valves installed shall conform to UPC 408.3 & ASSE 1016 or ASME A112.18.1
- Milbrandt Architects is not responsible for construction means, methods, techniques or procedures, or for the safety precautions and programs in connection with the work, and is not responsible for the failure of any contractor or subcontractor to carry out the work in accordance with the various contract documents and or governing jurisdiction, regardless of what is shown on these drawings.

#### FEDERALLY DECLARED SAFE HARBOR

Declared Safe Harbor: HUD Fair Housing Accessibility Guidelines published on March 6, 1991 and the Supplemental Notice to Fair Housing Accessibility Guidelines: Questions and Answers about the Guidelines, published on June 28, 1994.

#### ACCESSIBILITY

Design is based on the 2018 IBC Chapter 11 which has been amended by the State of Washington, & 2009 ICC A117.1 Accessible & Useable Buildings & Facilities.

None of the buildings are an elevator type building.  
There are a total of 84 one-story dwelling units at ground level. All ground floor units are 1 or 2-bed unit designs. Provided total 84 accessible units: 12 Type A and 72 Type B units.

- Type A units meet the requirements for Type B units.  
The 12 Type A units are proportioned as follows (see Site Plan):
- (7) 1-Bed units (1 BR) in each of Buildings A, C, D, E, F & G - for a total of 7.
  - (5) 2-Bed units (2 BR) in Buildings A, D, E, F & G - for a total of 5.

**Parking:**  
Section 1106.2 IBC requires 2% of each proposed parking stall type to be accessible.  
Of the 354 total open stalls, 12 are accessible, including 5 van stalls. Each accessible open stall is indicated by the wheelchair symbol on the site plan and further designated by the detail symbols 10/A3.

#### VENTILATION NOTES

- Design Criteria: 2018 International Mechanical Code with Washington State Amendments.
- System Type: Balanced whole house fan system with energy recovery ventilator
- Use: Group R occupancy.
- Specifics: See mechanical plans by others.

#### ENERGY NOTES

Reference: 2018 WSEC  
Chapter 4 using climate zone category 5 & marine 4 for all calculations.

All residential units shall comply with the Requirements By Component Table 402.1.1. Including but not limited to the following:		Associated Notes/Details Showing Compliance See Insul. Notes on sheets U1, U2, U3, U4, U5
Code Requirements		
Window U-Factor	.24 or better	
Ceiling R-Value	R-49	13 / D1
Wood Frame Wall R-Value	R-21 int.	1, 3, 4, 7 & 8 / D1
Floor R-Value	R-30	N/A
Slab R-Value & Depth	R-10, 2ft	1, 3, 5 & 6 / D2
"int" (intermediate framing) denotes standard framing 16" o.c. with headers insulated with a min. of R-10 (see 6/D6).		

All units need to have a certificate posted within 3 feet of the electrical distribution panel listing the following information: R-values, U-values, duct air leakage test results, building envelope air leakage test results, types and efficiencies of heating, cooling and service water heating equipment per R401.3

All insulation shall comply with table R402.4.1.1 WSEC  
Hot water piping shall be insulated to a minimum of R-3 per R403.5.2  
Water heaters in unheated spaces, or on concrete floors shall be placed on minimum of R-10 incompressible insulated surface per R403.5.5  
Mechanical ventilation shall be provided per R403.6  
A minimum of 90% of all permanently installed lamps in lighting fixtures shall be high-efficacy lamps per R404.1

See Insulation Notes on the Unit Plans, and Insulation and Energy Notes on sheet D7.

Energy Credits used (see 2018 WSEC table 406.3 for all requirements):

Knee Wall Insulation Credit System Type 3	-1.0 CREDITS
Option 1.1 Efficient Building Envelope	0.5 CREDITS
Option 2.1 Air Leakage Control	1.0 CREDITS
Option 5.5 Efficient Water Heating	2.5 CREDITS
Option 7.1 Appliance Package	1.5 CREDITS
<b>TOTAL PROVIDED</b>	<b>4.5 CREDITS</b>

Revise to match 2018 Prescriptive Energy Code Compliance report. Page A

Report selected 1.7 credit; plans show 1.1 credit

#### FIRE SYSTEMS

Buildings shall have an NFPA 13R sprinkler system installed throughout per 2018 IBC Section 903.3.1.2 which shall include a notification appliance which is activated upon sprinkler flow. Any alarms, bells or lights required due to the design of the sprinkler system or integral with the sprinkler system shall be considered part of the sprinkler system. The sprinkler system design, therefore, needs to include any and all integrated alarms.

Plans and specifications for sprinklers shall be submitted to the city of Puyallup as a separate permit for review and approval before installation.

#### DESIGN LOADS

See structural notes. Sheet S1.0

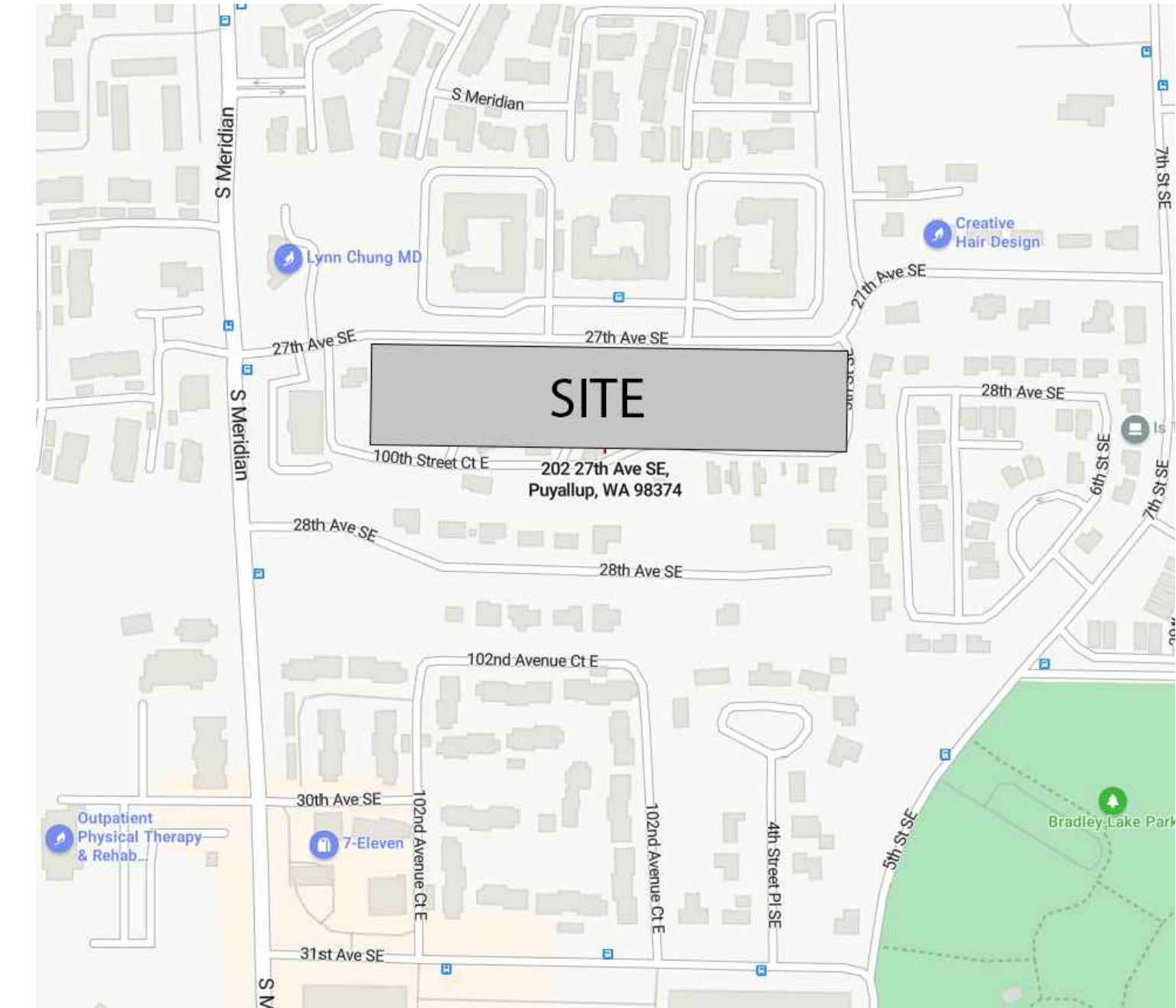
#### DEFERRED SUBMITTALS

Shop drawings and calculations are required for:

- Firestopping details. Firestopping methods and materials shall be determined by the Contractor except where details or notes are indicated in these drawings. Firestopping locations are indicated in part by detail 17/07. Contractor shall submit UL assembly details and product cuts of all relevant situations to the Architect for conformance to the building design. Upon the Architect's approval, they shall be submitted to the Building Official for approval. Firestopping shall not be installed without City approval.

#### SEPARATE PERMITS

The following required permits will be submitted separately:  
1. Automatic Fire Sprinkler System (See fire systems note, this sheet).  
2. Fire Alarm System.

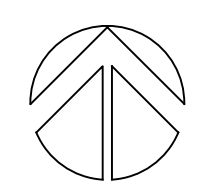
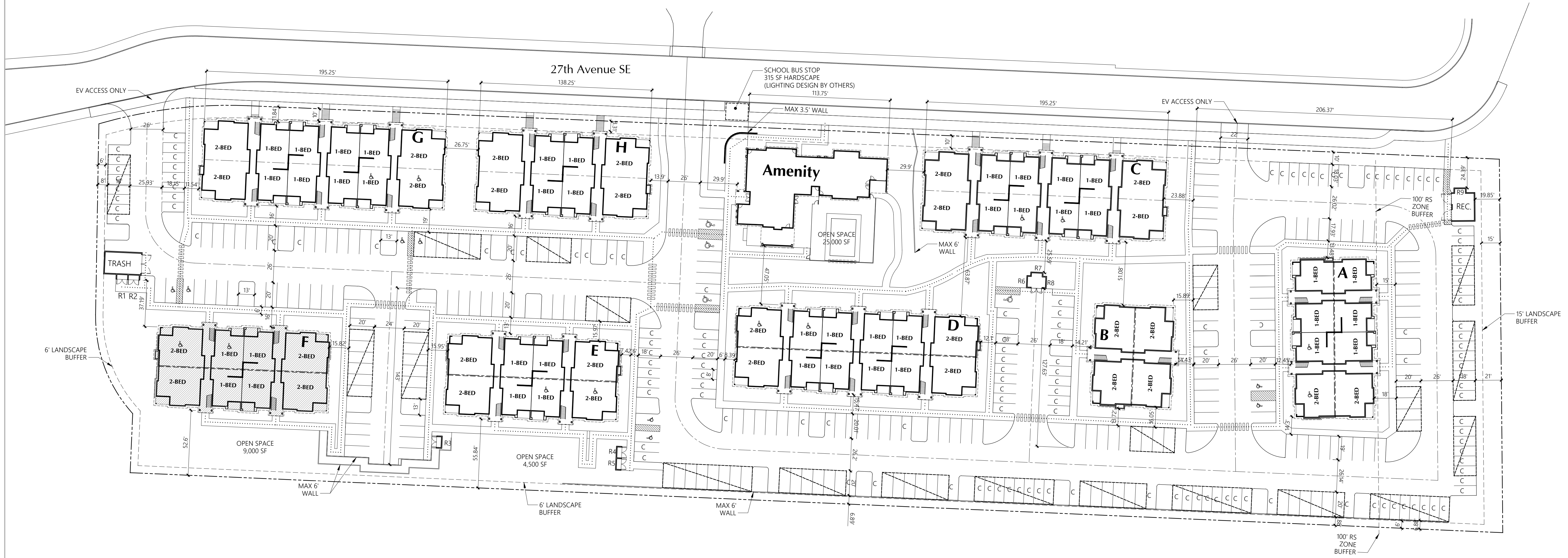


#### VICINITY MAP





Sunset Garden Senior Living Apartments



**SITE PLAN** 236 UNITS  
1" = 40'

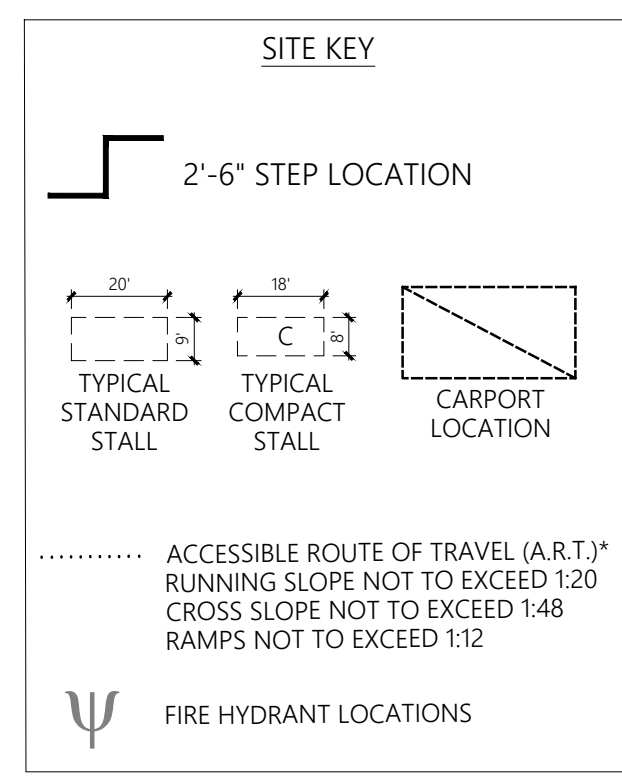
**SITE INFORMATION**

**SITE ADDRESS:** 202 27th Ave SE, Puyallup, WA  
**PARCEL #:** 419036006  
**SITE AREA:** 339,107 SF (7.785 Acres)  
**ZONE:** RM-CORE  
**SETBACKS:** NORTH/FRONT: 10 FT setback to buildings  
WEST/SIDE: 0 FT Building setback - 6 FT landscape buffer  
SOUTH/REAR: 0 FT Building setback - 6 FT landscape buffer  
EAST/SIDE: .25 FT Building setback - 15 ft landscape buffer  
**BUILDING HEIGHT:** 50' Max  
**DENSITY:** Min 16 units per acre (125 units)  
no Max density  
**LOT COVERAGE:** Max 90%  
**LANDSCAPE AREA:** Min 10% of net lot area (33,910 SF)  
**OPEN SPACE:** 10% of net lot area (33,910 SF)  
38,500 SF provided  
**PRIVATE OPEN SPACE:** 60 SF per ground floor unit  
10' x 6' per upper story unit  
**PARKING:** 1.5 PARKING SPACES PER UNIT  
Required Parking: 354 Stalls  
Provided Parking: 354 Stalls  
**EASEMENTS:** no existing easements on site

PARKING SUMMARY		
Parking Stalls Required		354
Standard Stalls		118
Compact Stalls	41.5%	100
Parallel Stalls		0
Carport Stalls		124
Attached Garage Stalls		0
Detached Garage Stalls		0
Accessible Standard Stalls		6
Accessible Van Stalls		5
Accessible Parallel Stalls		0
Accessible Carport Stalls		1
Accessible Garage Stalls		0
Tandem Stalls		0
Tandem Garage Stalls		0
Subtotal	354	1.50 Stalls / D.U.
Aprons		0
<b>Total Parking Stalls Provided</b>	<b>354</b>	<b>1.50 Stalls / D.U.</b>

**UNIT COUNT**  
1 BED 137 (58%)  
2 BED 99 (42%)  
**TOTAL 236**

Provide egress plan with all dimensions with travel distance for all floors.  
Page A2



- SITE NOTES**
- 1) TYPICAL SIDEWALK WIDTH IS 6'
  - 2) A MINIMUM CLEAR WIDTH OF 44" IS REQUIRED FOR ALL EXTERIOR ACCESSIBLE ROUTES PER WASHINGTON STATE AMENDMENT SECTION 1101.2.1

**Site Plan**  
**Building F**

**Bradley Heights Apartments**  
Puyallup, Wa

**Timberlane Partners**

**Revisions**  
No. Date Description

Initial Publish Date:  
Date Plotted: 2-20-24  
Job No.: 23-06 Drawn By: APT/HDM  
Sheet No.:

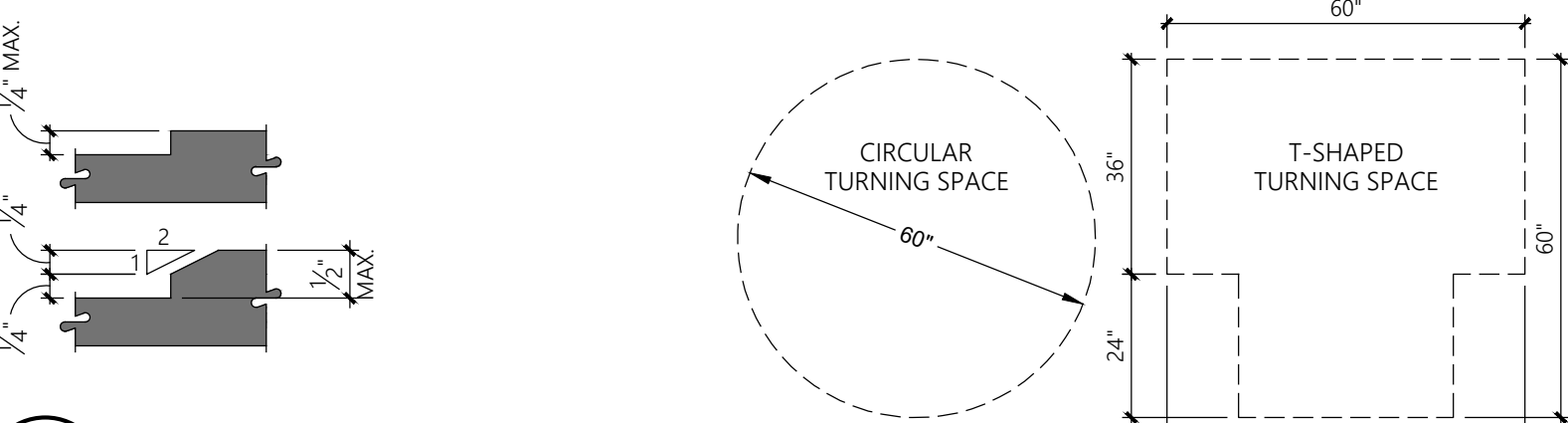
NOTE: ALL DIMENSIONS ARE FROM FINISHED SURFACE

**CHANGES IN LEVEL**

CHANGES IN LEVEL OF 1/4" MAX. SHALL BE PERMITTED TO BE VERTICAL AND WITHOUT EDGE TREATMENT.  
CHANGES IN LEVEL BETWEEN 1/4" AND 1/2" MAX. SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2

**TURNING SPACE & CLEAR FLOOR SPACE**

TURNING SPACES SHALL BE EITHER A 60" CIRCLE OR A T-SHAPED SPACE WITHIN A 60" SQUARE. CLEAR FLOOR SPACE IS DEFINED AS A SPACE 30"x48" A SLOPE OF NOT MORE THAN 1:48 SHALL BE PERMITTED WITHIN TURNING AND CLEAR FLOOR SPACES. NO CHANGES IN LEVEL ARE PERMITTED.



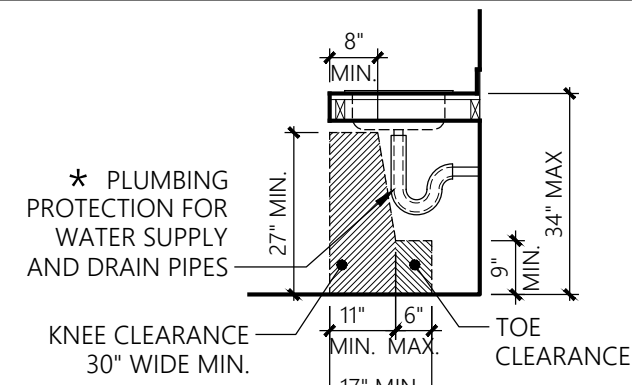
**1 FLOOR CLEARANCES**

3/8"=1'-0"

**KNEE AND TOE CLEARANCE**

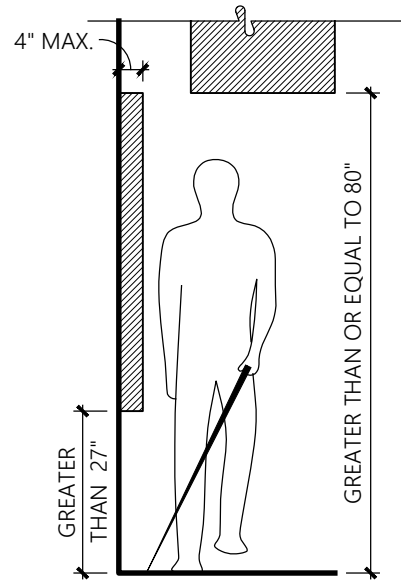
TOE OR KNEE CLEARANCE SHALL BE 30" WIDE MIN. THE DIP OF THE OVERFLOW ON A SINK SHALL NOT BE CONSIDERED IN DETERMINING KNEE AND TOE CLEARANCE.

\* WATER SUPPLY & DRAINPIPES UNDER LAVATORIES AND SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES AND SINKS.



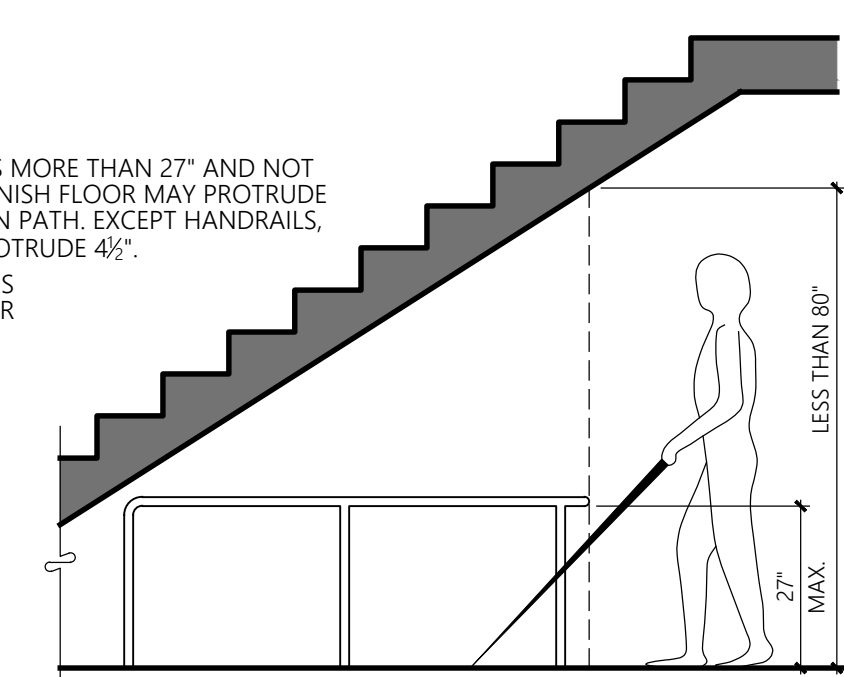
**2 KNEE AND TOE SPACE**

3/8"=1'-0"



**PROTRUDING OBJECTS**

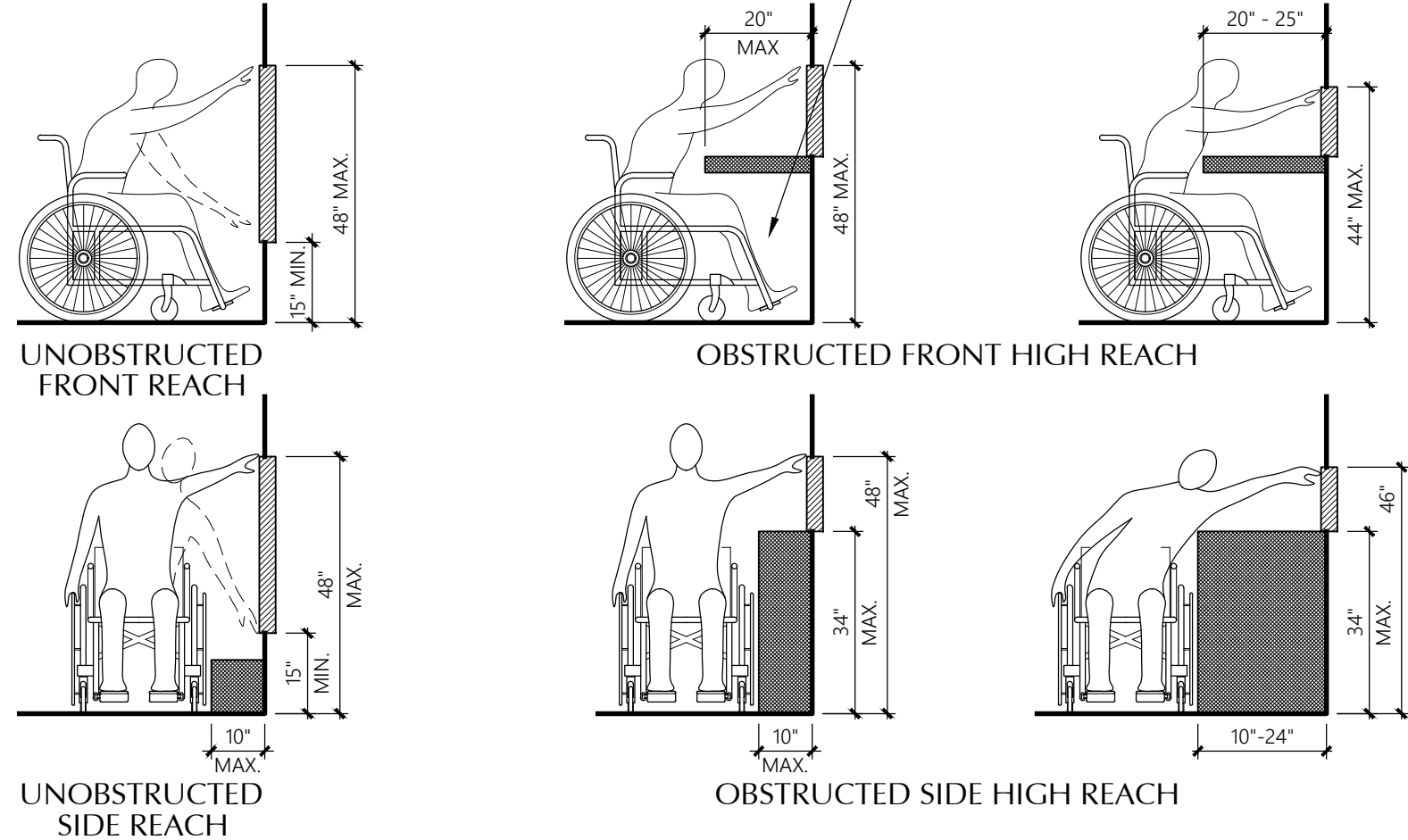
OBJECTS WITH LEADING EDGES MORE THAN 27" AND NOT MORE THAN 80" ABOVE THE FINISH FLOOR MAY PROTRUDE 4" MAX INTO THE CIRCULATION PATH. EXCEPT HANDRAILS, WHICH ARE PERMITTED TO PROTRUDE 4 1/2". WHERE VERTICAL CLEARANCE IS LESS THAN 80", GUARDRAILS OR OTHER BARRIERS SHALL BE PROVIDED WITH THE LEADING EDGE OF THE GUARDRAIL NO MORE THAN 27" MAX. ABOVE THE FLOOR.



**3 PROTRUDING OBJECTS**

3/8"=1'-0"

CLEAR FLOOR SPACE SHALL EXTEND BENEATH THE ELEMENT FOR A DISTANCE NOT LESS THAN THE REQUIRED REACH DEPTH OVER THE OBSTRUCTION.



**OPERABLE PARTS**

A 30"x48" CLEAR FLOOR SPACE SHALL BE PROVIDED AT ALL OPERABLE PARTS. ALL OPERABLE PARTS SHALL BE WITHIN ONE OR MORE OF THE REACH RANGES. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5.0 LBS MAX.

**4 REACH RANGES**

3/8"=1'-0"

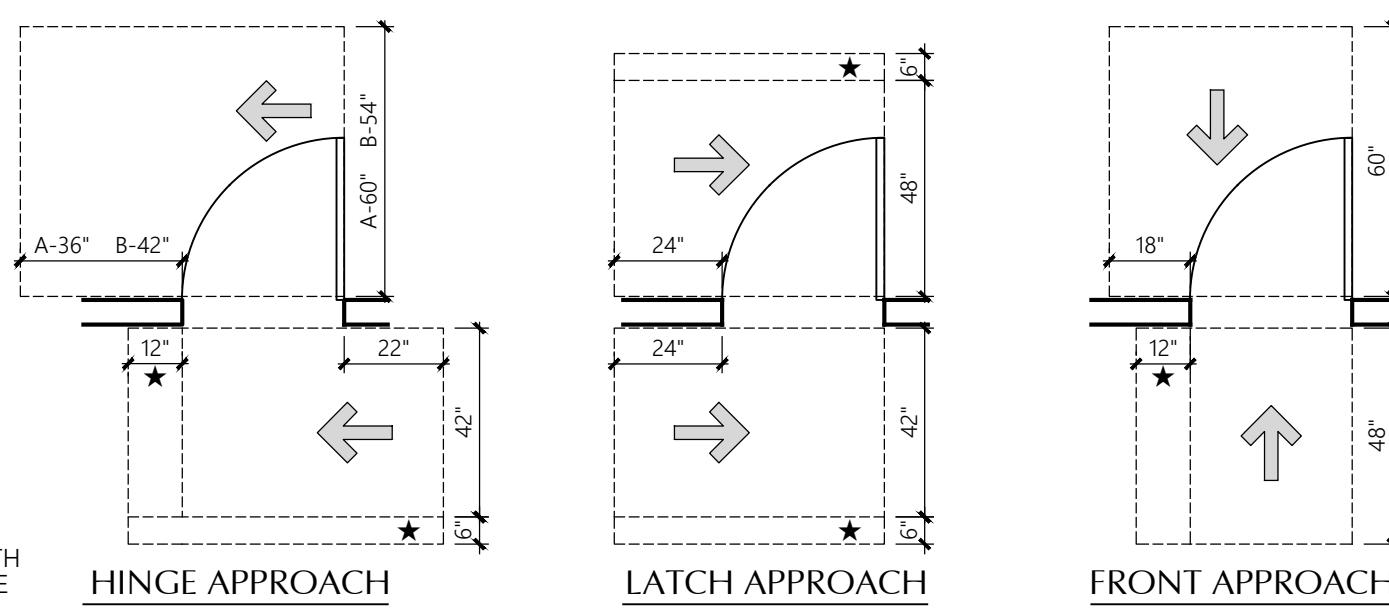
**ACCESSIBLE ROUTE** (PER IBC SECTION 1104.2)

AT LEAST ONE ACCESSIBLE ROUTE WITHIN THE SITE SHALL BE PROVIDED FROM PUBLIC TRANSPORTATION STOPS, ACCESSIBLE PARKING, ACCESSIBLE PASSENGER LOADING ZONES, AND PUBLIC STREETS OR SIDEWALKS TO THE ACCESSIBLE BUILDING ENTRANCES SERVED. WHEN A BUILDING OR PORTION OF A BUILDING IS REQUIRED TO BE ACCESSIBLE, AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED TO EACH PORTION OF THE BUILDING, TO ACCESSIBLE BUILDING ENTRANCES CONNECTING ACCESSIBLE WALKWAYS AND TO THE PUBLIC WAY.

ACCESSIBLE ROUTES SHALL COINCIDE WITH OR BE LOCATED IN THE SAME AREAS AS A GENERAL CIRCULATION PATH. ACCESSIBLE ROUTES SHALL CONSIST OF ONE OR MORE OF THE FOLLOWING COMPONENTS: WALKING SURFACES WITH A SLOPE NOT STEEPER THAN 1:20, DOORS & DOORWAYS, RAMPS, CURB RAMPS EXCLUDING THE FLARED SIDES, ELEVATORS, AND PLATFORM LIFTS.

**5 ACCESSIBLE ROUTE**

\* ADDITIONAL CLEARANCE IF DOOR HAS BOTH CLOSER AND LATCH



**MANEUVERING CLEARANCES**

MIN. MANEUVERING CLEARANCES SHALL COMPLY WITH THESE DIAGRAMS AND SHALL NOT INCLUDE KNEE & TOE CLEARANCE. THE FLOOR SURFACE WITHIN THE MANEUVERING CLEARANCE SHALL HAVE A SLOPE NOT GREATER THAN 1:48

**DOORS**

**DOORWAY CLEAR WIDTH:** DOOR OPENINGS SHALL PROVIDE A CLEAR WIDTH OF 32" MIN. CLEAR OPENING OF DOORWAYS WITH SWINGING DOORS SHALL BE MEASURED FROM THE FACE OF THE DOOR TO THE STOP WITH THE DOOR OPEN 90°

**THRESHOLDS:** IF PROVIDED, THRESHOLDS SHALL BE 1/2" MAX. IN HEIGHT & SHALL COMPLY WITH SECTIONS 302 & 303. (See detail 1 ACC sheets)

**DOOR HARDWARE:** HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERABLE PARTS ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST TO OPERATE. OPERABLE PARTS OF SUCH HARDWARE SHALL BE 34" MIN. AND 48" MAX. ABOVE THE FLOOR.

**CLOSING SPEED:** DOORS WITH CLOSERS SHALL BE ADJUSTED SO THAT FROM A 90° OPEN POSITION, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12° FROM THE LATCH IS 5 SECONDS MIN.

**DOORS WITH A SPRING HINGE:** SHALL BE ADJUSTED SO THAT FROM A 70° OPEN POSITION, THE TIME REQUIRED TO MOVE THE DOOR TO A CLOSED POSITION IS 1.5 SECONDS MIN.

**DOOR OPENING FORCE:** HINGED, SLIDING OR FOLDING DOORS OTHER THAN FIRE DOORS SHALL HAVE AN OPENING FORCE AS FOLLOWS: INTERIOR DOORS: 5 LBS. MAX. EXTERIOR DOORS: 10 LBS. MAX.

**6 DOORS**

1/4"=1'-0"

**RAMPS**

**GENERAL:** RAMP RUNS SHALL HAVE A RUNNING SLOPE GREATER THAN 1:20 AND NOT STEEPER THAN 1:12. THE MAX. CROSS SLOPE OF A RAMP SHALL BE 1:48. THE MAX. RISE FOR ANY RAMP RUN SHALL BE 30". LANDINGS SUBJECT TO WET CONDITIONS SHALL BE DESIGNED TO PREVENT THE ACCUMULATION OF WATER.

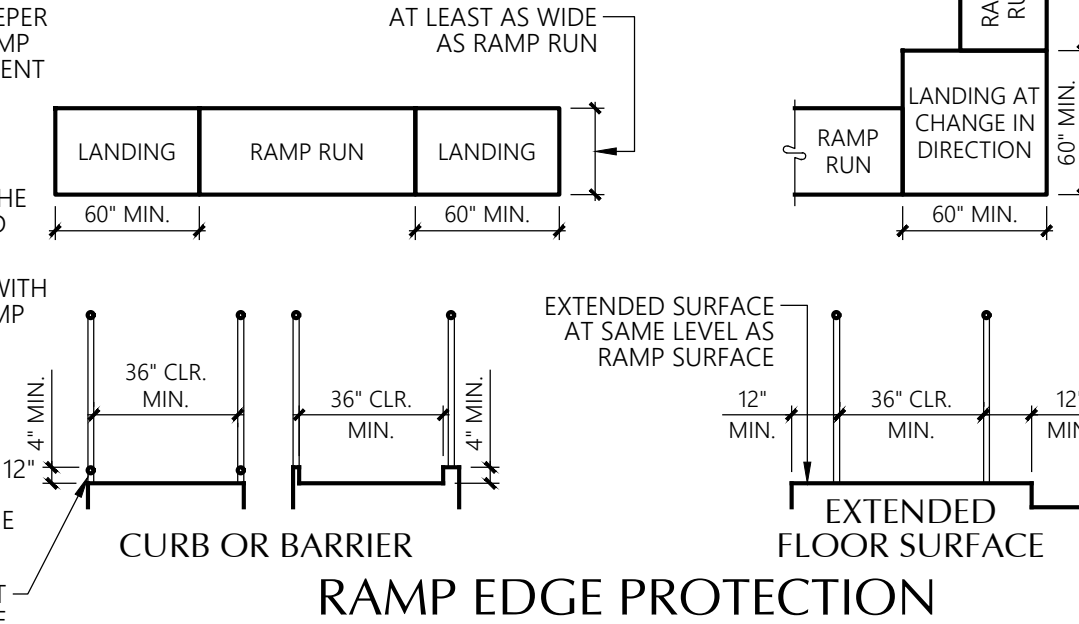
**CHANGES IN LEVEL:** CHANGES IN LEVEL SHALL COMPLY WITH SECTION 303 (See detail 1 ACC sheets)

**CLEAR WIDTH:** THE CLEAR WIDTH SHALL BE 36" MIN. FOR EXTERIOR ROUTES OF TRAVEL THE CLEAR WIDTH SHALL BE 44" MIN. THE HANDRAILS SHALL NOT PROJECT INTO THE REQUIRED CLEAR WIDTH OF THE RAMP RUN.

**LANDINGS:** RAMP RUNS SHALL HAVE LANDINGS AT THE BOTTOM & TOP OF EACH RAMP RUN WITH A MAX. SLOPE OF 1:48. CLEAR WIDTH OF LANDINGS SHALL BE AS WIDE AS THE WIDEST RAMP RUN LEADING TO THE LANDING AND A MIN. CLEAR LENGTH OF 60". RAMP RUNS THAT CHANGE DIRECTION AT THE LANDING SHALL BE SIZED TO PROVIDE A TURNING SPACE (See detail 1 ACC sheets)

**HANDRAILS:** RAMP RUNS WITH A RISE GREATER THAN 6" SHALL HAVE HANDRAILS

**EDGE PROTECTION:** THE FLOOR SURFACE OF THE RAMP RUN OR LANDING SHALL EXTEND 12" BEYOND THE INSIDE FACE OF A RAILING OR THERE SHALL BE A 4" MIN. HEIGHT CURB OR A BARRIER AT THE EDGE OF THE RAMP OR LANDING CONSTRUCTED SO THAT IT PREVENTS THE PASSAGE OF A 4" DIAMETER SPHERE



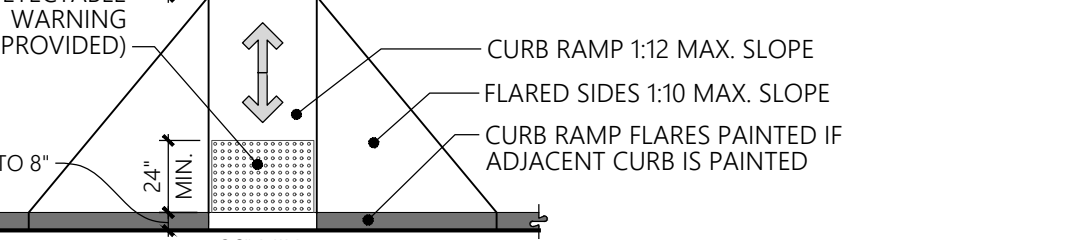
**7 RAMPS**

1/4"=1'-0"

**CURB RAMPS**

THE MIN. WIDTH OF CURB RAMPS SHALL BE 36". ALL ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 1:20. THE CURB RAMP SHALL HAVE A MAX. SLOPE OF 1:12 WITH A MAX. CROSS SLOPE OF 1:48. LANDINGS SUBJECT TO WET CONDITIONS SHALL BE DESIGNED TO PREVENT THE ACCUMULATION OF WATER.

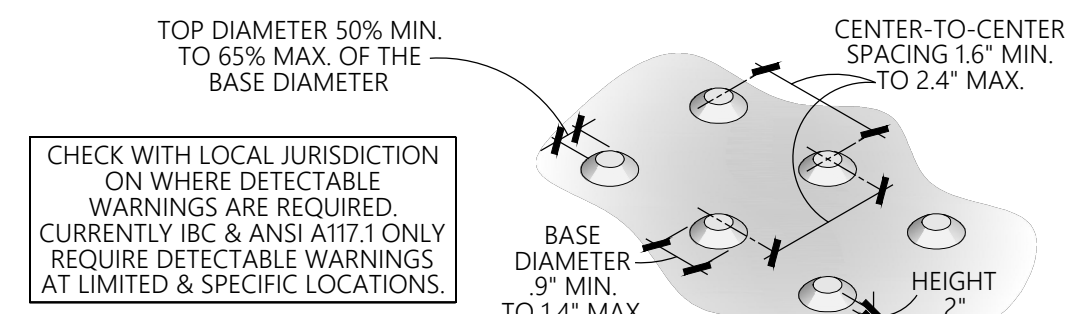
A 36" MIN. LENGTH LANDING AT LEAST AS WIDE AS THE CURB RAMP SHALL BE PROVIDED AT THE TOP OF CURB RAMPS. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.



**DETECTABLE WARNINGS**

DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

DETECTABLE WARNING SURFACES IN INTERIOR LOCATIONS SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE CONTACT. TRUNCATED DOMES SHALL BE ALIGNED IN A SQUARE PATTERN.



**8 CURB RAMPS AND DETECTABLE WARNINGS**

1/4"=1'-0"

**ACCESSIBLE PARKING SPACES**

**LOCATION:** PER IBC SECTION 1106.6, ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE. WHERE PRACTICAL, THE ACCESSIBLE ROUTE SHALL NOT CROSS LANES OF TRAFFIC. WHERE CROSSING TRAFFIC LANES IS NECESSARY, THE ROUTE SHALL BE DESIGNATED AND MARKED AS A CROSSWALK.

**PARKING STALL SIZE:** CAR AND VAN PARKING SPACES SHALL BE 96" MIN. WIDTH. ACCESS AISLES SERVING CAR PARKING SPACES SHALL BE 60" MIN. IN WIDTH. ACCESS AISLES SERVING VAN PARKING SPACES SHALL BE 96" MIN. IN WIDTH.

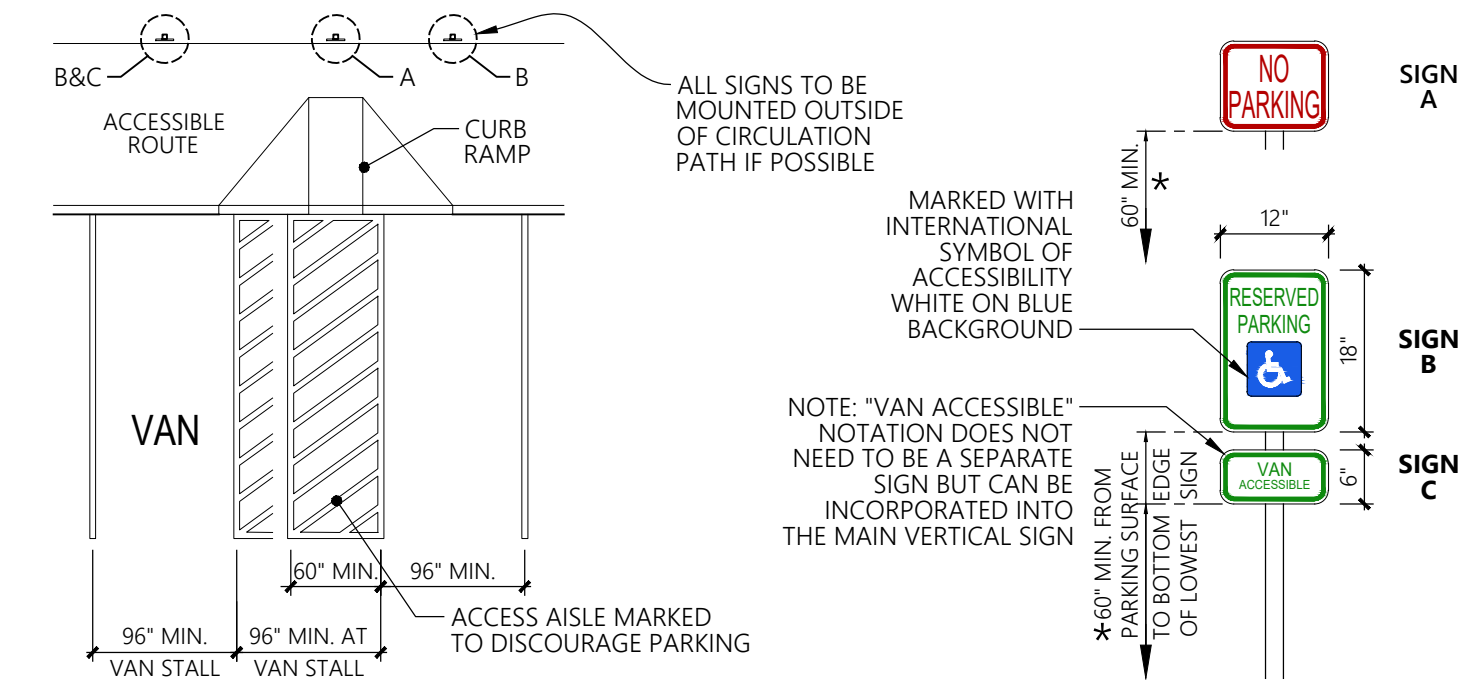
**ACCESS AISLE:** CAR AND VAN PARKING SPACES SHALL HAVE AN ADJACENT ACCESS AISLE ON EITHER SIDE OF THE PARKING SPACE. THE ACCESS AISLES SHALL BE 60" MIN. IN WIDTH FOR CAR STALLS AND 96" MIN. IN WIDTH FOR VAN STALLS AND EXTEND THE FULL LENGTH OF AND AT THE SAME LEVEL AS THE PARKING SPACE THEY SERVE. ACCESS AISLES SHALL BE MARKED SO AS TO DISCOURAGE PARKING IN THEM.

**FLOOR SURFACES:** PARKING STALLS & ADJACENT ACCESS AISLES SHALL HAVE A SURFACE SLOPE NOT GREATER THAN 1:48. WHERE MOUNTING IS NECESSARY WITHIN A PATH OF CIRCULATION, SIGNS SHALL MEET THE REQUIREMENTS OF IBC SECTION 1003.3 FOR PROTRUDING OBJECTS AND POST-MOUNTED OBJECTS.

**IDENTIFICATION:** ACCESSIBLE PARKING SPACES SHALL BE INDICATED BY A VERTICAL SIGN. SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY THAT IS WHITE WITH A BLUE BACKGROUND. SIGNS IDENTIFYING VAN PARKING SPACES SHALL CONTAIN THE DESIGNATION "VAN ACCESSIBLE". A VERTICAL "NO PARKING" SIGN SHALL BE ERRECTED AT THE HEAD OF EACH ACCESS AISLE LOCATED ADJACENT TO AN ACCESSIBLE PARKING SPACE. THESE SIGNS MAY INCLUDE ADDITIONAL LANGUAGE SUCH AS, BUT NOT LIMITED TO, AN INDICATION OF THE AMOUNT OF THE MONETARY PENALTY FOR PARKING IN THE SPACE WITHOUT A VALID PERMIT OR THE ACCESS AISLE. THESE SIGNS SHALL BE 60" MIN. ABOVE THE FLOOR OF THE PARKING SPACE MEASURED TO THE BOTTOM OF THE SIGN.

**SIGN MOUNTING:** SIGNS ARE TO BE MOUNTED COMPLETELY OUTSIDE OF CIRCULATION PATHS WHEREVER POSSIBLE. WHERE MOUNTING IS NECESSARY WITHIN A PATH OF CIRCULATION, SIGNS SHALL MEET THE REQUIREMENTS OF IBC SECTION 1003.3 FOR PROTRUDING OBJECTS AND POST-MOUNTED OBJECTS.

\* SIGNS MOUNTED ON POSTS WITHIN A CIRCULATION PATH SHALL BE INSTALLED WITH A VERTICAL CLEARANCE OF 80" MIN. FROM THE LOWEST POINT OF THE SIGN(S) TO THE WALKING SURFACE. IF A POST MOUNTED SIGN IS SIZED SUCH THAT IT PROTRUDES 4" MAX. FROM THE MOUNTING POST, THEN THE MOUNTING HEIGHT SHALL BE MOUNTED AT 60" MIN. ABOVE THE PARKING SURFACE SO AS TO NOT BE OBSTRUCTED BY ANY PARKED VEHICLES.



**10 ACCESSIBLE PARKING SPACES**

NTS

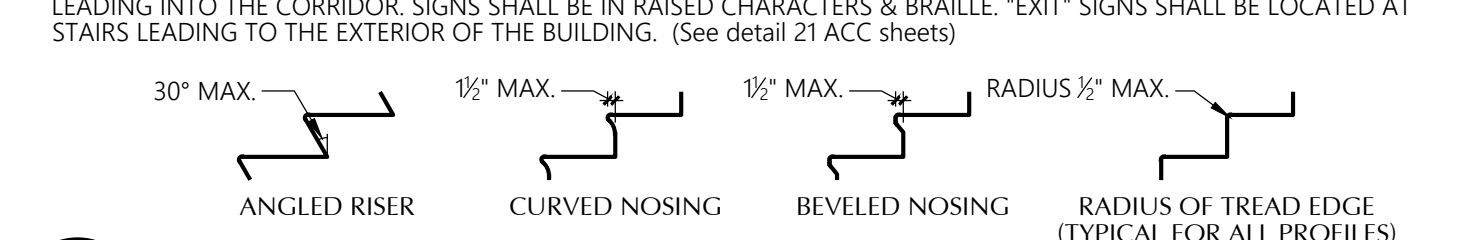
**ACCESSIBLE STAIR REQUIREMENTS**

ALL STEPS ON A FLIGHT OF STAIRS SHALL HAVE UNIFORM RISER HEIGHTS AND UNIFORM TREAD DEPTHS. RISERS SHALL BE 4" HIGH MIN. AND 7" HIGH MAX. TREADS SHALL BE 11" DEEP MIN.

OPEN RISERS ARE NOT PERMITTED & TREADS SHALL HAVE A SLOPE NOT MORE THAN 1:48.

STAIR NOSINGS SHALL CONFORM TO THE DIAGRAMS SHOWN HERE AND THE LEADING 2" OF THE TREAD SHALL HAVE VISUAL CONTRAST OF DARK-ON-LIGHT OR LIGHT-ON-DARK FROM THE REMAINDER OF THE TREAD.

STAIR TREADS & LANDINGS SUBJECT TO WET CONDITIONS SHALL BE DESIGNED TO PREVENT ACCUMULATION OF WATER. FLOOR IDENTIFICATION SIGNS SHALL BE LOCATED AT EACH FLOOR LANDING ADJACENT TO THE STAIRWELL DOOR LEADING INTO THE CORRIDOR. SIGNS SHALL BE IN RAISED CHARACTERS & BRAILLE. "EXIT" SIGNS SHALL BE LOCATED AT STAIRS LEADING TO THE EXTERIOR OF THE BUILDING. (See detail 21 ACC sheets)



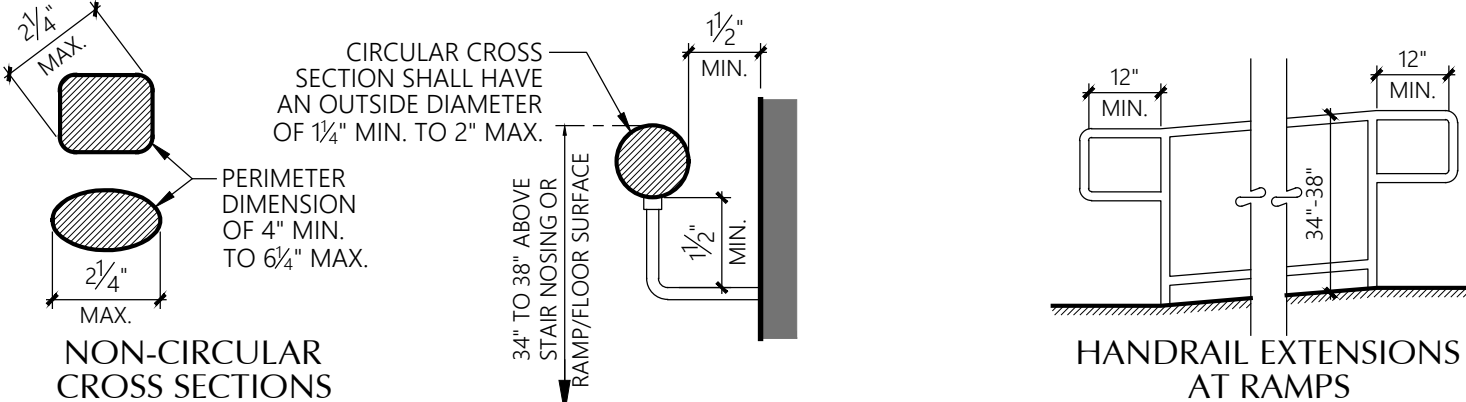
**11 ACCESSIBLE STAIRS**

3/8"=1'-0"

**HANDRAILS**

HANDRAILS SHALL BE PROVIDED ON BOTH SIDES OF STAIRS & RAMPS. THEY SHALL BE CONTINUOUS FOR THE FULL LENGTH OF EACH STAIR FLIGHT OR RAMP RUN. INSIDE HANDRAILS ON SWITCHBACK STAIRS SHALL BE CONTINUOUS BETWEEN FLIGHTS OR RUNS.

HANDRAIL GRIPPING SURFACES & ANY SURFACES ADJACENT TO THEM SHALL BE FREE OF SHARP OR ABRASIVE ELEMENTS & SHALL HAVE ROUNDED EDGES. THEY SHALL BE CONTINUOUS ALONG THEIR LENGTH AND SHALL NOT BE OBSTRUCTED ALONG THEIR TOPS OR SIDES. THE BOTTOM SHALL NOT BE OBSTRUCTED FOR MORE THAN 20% OF ITS LENGTH



**HANDRAIL EXTENSIONS**

EXTENSIONS SHALL EXTEND BEYOND AND IN THE SAME DIRECTION OF A STAIR FLIGHT OR RAMP RUN EXCEPT FOR THE INSIDE CONTINUOUS HANDRAIL AT SWITCHBACK STAIRS OR RAMPS. HANDRAILS SHALL RETURN TO A WALL, GUARD OR THE LANDING SURFACE, OR BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT STAIR FLIGHT OR RAMP RUN.

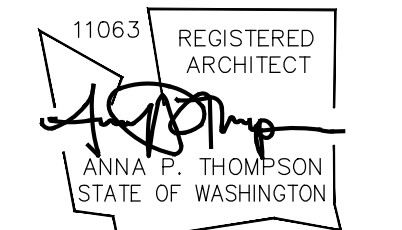
AT THE BOTTOM OF A STAIR FLIGHT THE HANDRAIL SHALL EXTEND AT THE SLOPE OF THE STAIR FLIGHT FOR A HORIZONTAL DISTANCE EQUAL TO ONE TREAD DEPTH BEYOND THE BOTTOM TREAD NOSING.

**12 HANDRAILS**

1 1/2" = 1'-0" AND 3/8"=1'-0"

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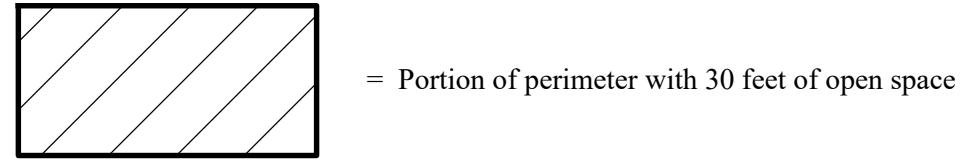
Bradley Heights Apartments Puyallup, Wa

Timberlane Partners

Revisions No. Date Description

Initial Publish Date: Date Plotted: 2-20-24 Job No.: 23-06 Drawn By: APT/DJV/JLL Sheet No.:

**LEGEND**



**FRONTAGE INCREASE TO BUILDING AREA**

Per IBC Section 506.3 buildings that adjoin or have access to a public way or qualifying green space for more than 25% of their total perimeter are eligible for an area factor increase based on frontage.  
To qualify for an area factor increase based on frontage, the public way or open space adjacent to the building perimeter shall have a minimum distance (W) of 20 feet, and only the first 30 feet shall be considered in the calculation. The measurement shall be to the nearest lot line, the entire width of a street, alley or public way, or the exterior face of an adjacent building on the same property.  
For purposes of simplifying this calculation only those portions of perimeter fronting right of way or green space with a dimension of 30 feet or more are considered. Those portions of perimeter that front areas that may qualify (are more than 20 feet, but are less than 30 feet) are not included in the frontage calculation.

Frontage Area increase calculation:  
 $I_f = [F/P \cdot 0.25]W/30$   
 $I_f$  = area of increase due to frontage  
 $F$  = Building perimeter that fronts on a public way or open space  
 $P$  = Full building perimeter  
 $W$  = Width of public way or open space (max of 30')

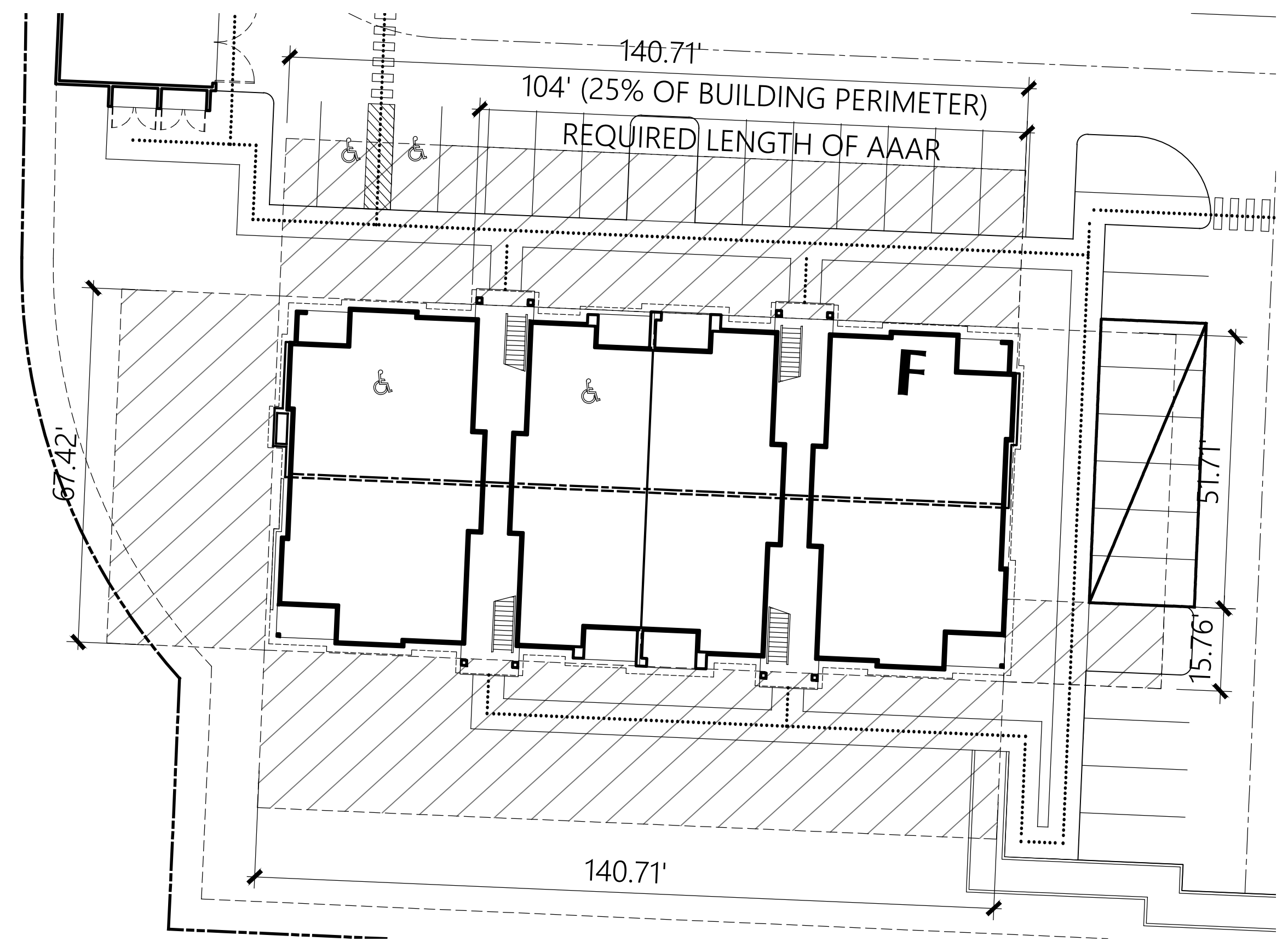
For Building F  
 $F = 400.55'$   
 $P = 416.31'$   
 $W = 30'$   
 $I_f = [400.55/416.31 \cdot 0.25]30/30 = 0.71$  factor of increase due to frontage

**ALLOWABLE BUILDING AREA**

Per IBC Table 506.2: Buildings of R-2 occupancy with VB construction type are allowed to have an area of 7,000 square feet per floor. With the area factor increase from above this allowable area per floor is increased as follows:  
 $7,000 \text{ s.f.} + (7,000 \text{ s.f.} \times 0.71) = 11,970$  square feet per floor allowed

**Proposed floor area for Building F**

Bsmt:	4,198 s.f.
Floor 1:	8,198 s.f.
Floor 2:	8,156 s.f.
Floor 3:	8,284 s.f.



**BUILDING F** AREA INCREASE DIAGRAM  
1" = 20'



**Grade Plane Calculations**  
Building F

**Bradley Heights Apartments**  
Puyallup, Wa

**Timberlane Partners**

Revisions		
No.	Date	Description

Initial Publish Date:	2-20-24
Date Plotted:	2-20-24
Job No.:	23-06
Drawn By:	TMK
Sheet No.:	

**A5**

**IBC SECTION 202 DEFINITIONS**

**BASEMENT.** A STORY THAT IS NOT A STORY ABOVE GRADE PLANE (SEE "STORY ABOVE GRADE PLANE"); THIS DEFINITION OF "BASEMENT" DOES NOT APPLY TO THE PROVISIONS OF SECTION 1612 FOR FLOOD LOADS.

**STORY ABOVE GRADE PLANE.** ANY STORY HAVING ITS FINISHED FLOOR SURFACE ENTIRELY ABOVE GRADE PLANE, OR IN WHICH THE FINISHED SURFACE OF THE FLOOR NEXT ABOVE IS:

- MORE THAN 6 FEET (1829 MM) ABOVE GRADE PLANE; OR
- MORE THAN 12 FEET (3658 MM) ABOVE THE FINISHED GROUND LEVEL AT ANY POINT

**GRADE PLANE.** A REFERENCE PLANE REPRESENTING THE AVERAGE OF FINISHED GROUND LEVEL ADJOINING THE BUILDING AT EXTERIOR WALLS, WHERE THE FINISHED GROUND LEVEL SLOPES AWAY FROM THE EXTERIOR WALLS. THE REFERENCE PLANE SHALL BE ESTABLISHED BY THE LOWEST POINTS WITHIN THE AREA BETWEEN THE BUILDING AND THE LOT LINE OR, WHERE THE LOT LINE IS MORE THAN 6 FEET (1829 MM) FROM THE BUILDING, BETWEEN THE BUILDING AND A POINT 6 FEET (1829 MM) FROM THE BUILDING.

**BUILDING F**

AVERAGE GRADE ELEVATION AT EACH EXTERIOR WALL:

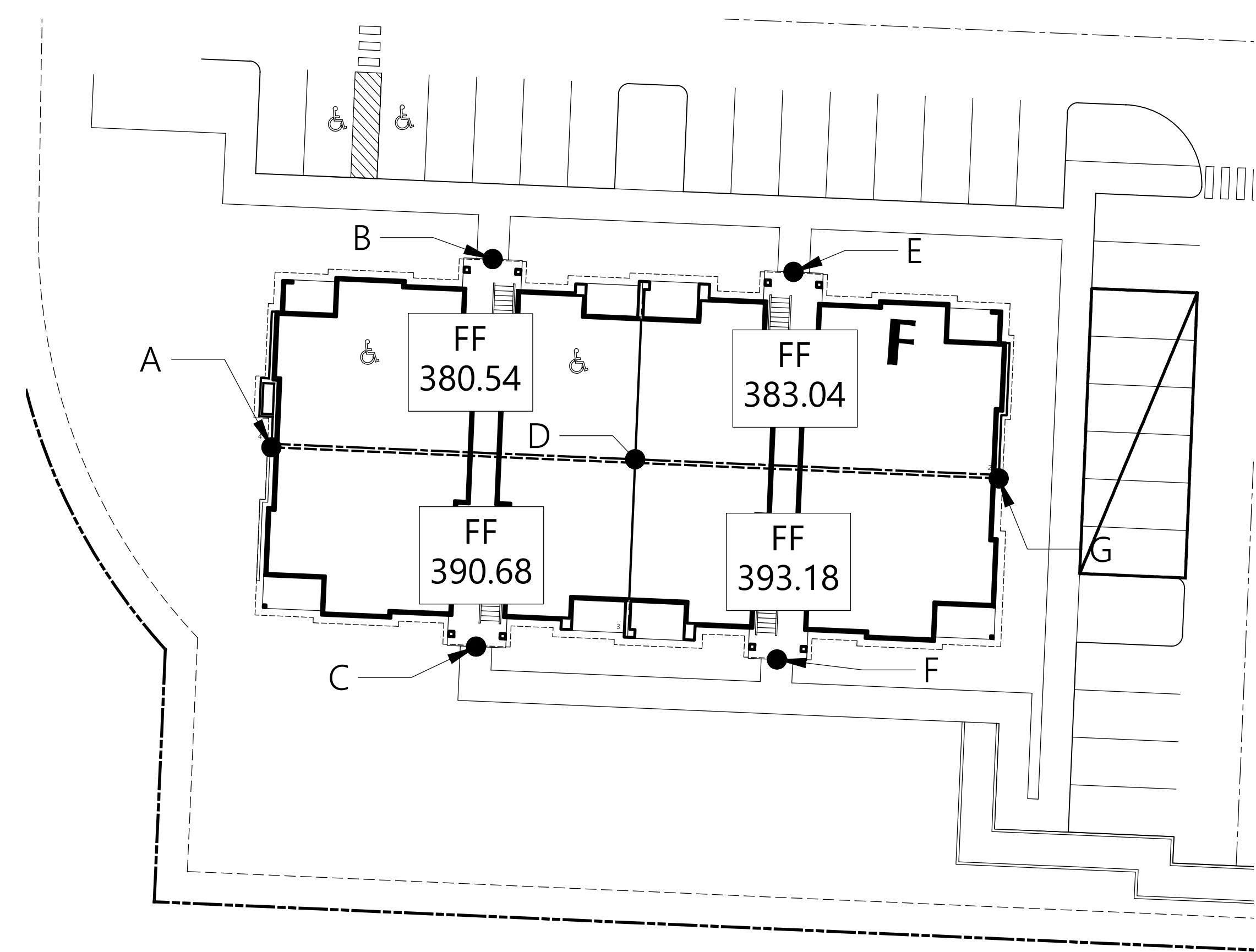
SEGMENT 1:	
POINT A	= 384.25
POINT B	= 379.96
POINT C	= 390.10
POINT D	= 384.65
1540.71/4 = 385.18 AEG	

FIRST FLOOR (FLOOR NEXT ABOVE GRADE PLANE) IS LESS THAN 6 FEET (ACTUAL 5.5 FEET) BELOW  
FIRST FLOOR FINISHED FLOOR ELEVATION OF 390.68.

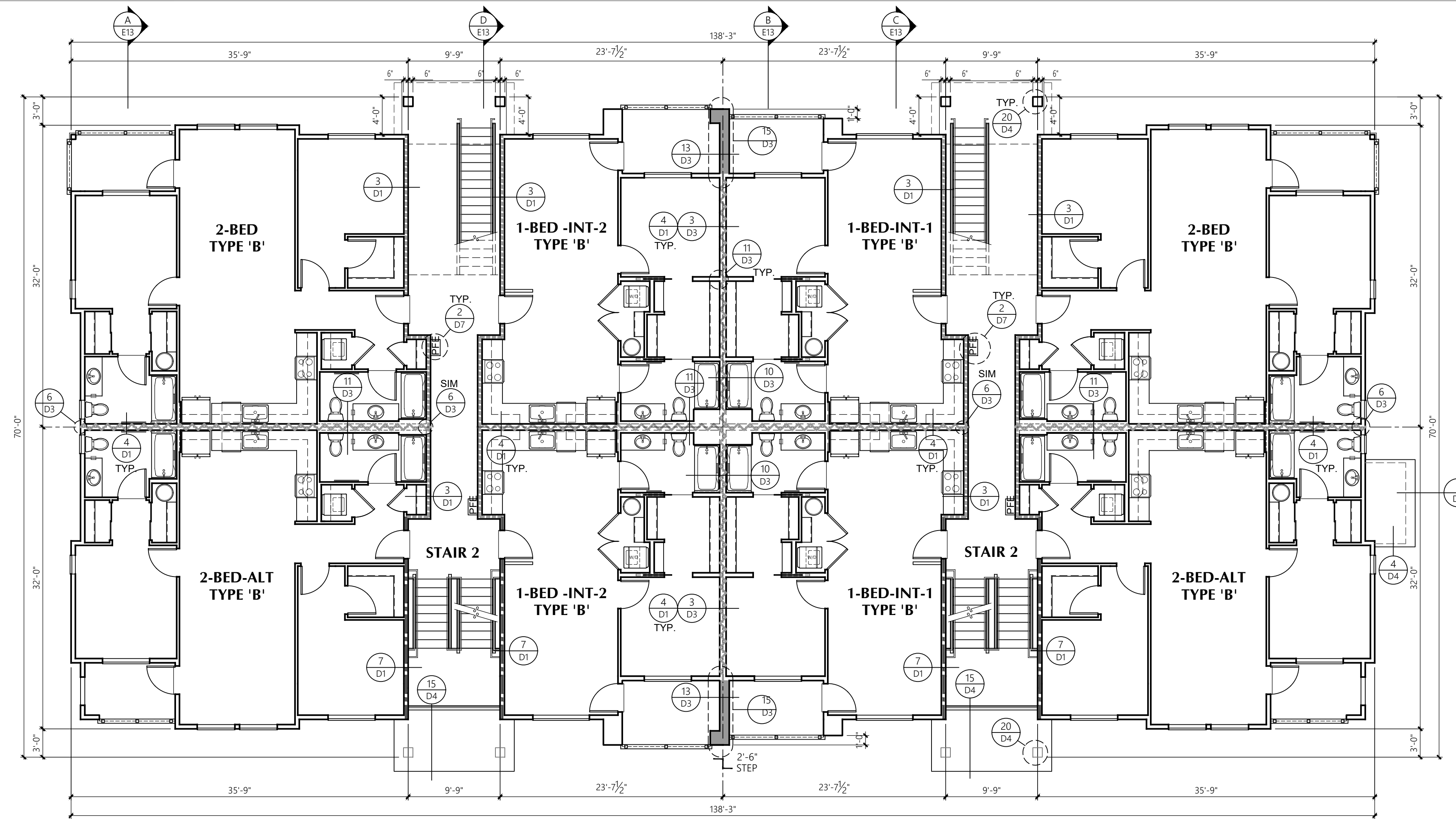
SEGMENT 2:	
POINT D	= 384.65
POINT E	= 382.46
POINT F	= 392.51
POINT G	= 388.27
1552.13/4 = 388.03 AEG	

FIRST FLOOR (FLOOR NEXT ABOVE GRADE PLANE) IS LESS THAN 6 FEET (ACTUAL 5.15 FEET) BELOW  
FIRST FLOOR FINISHED FLOOR ELEVATION OF 393.18.

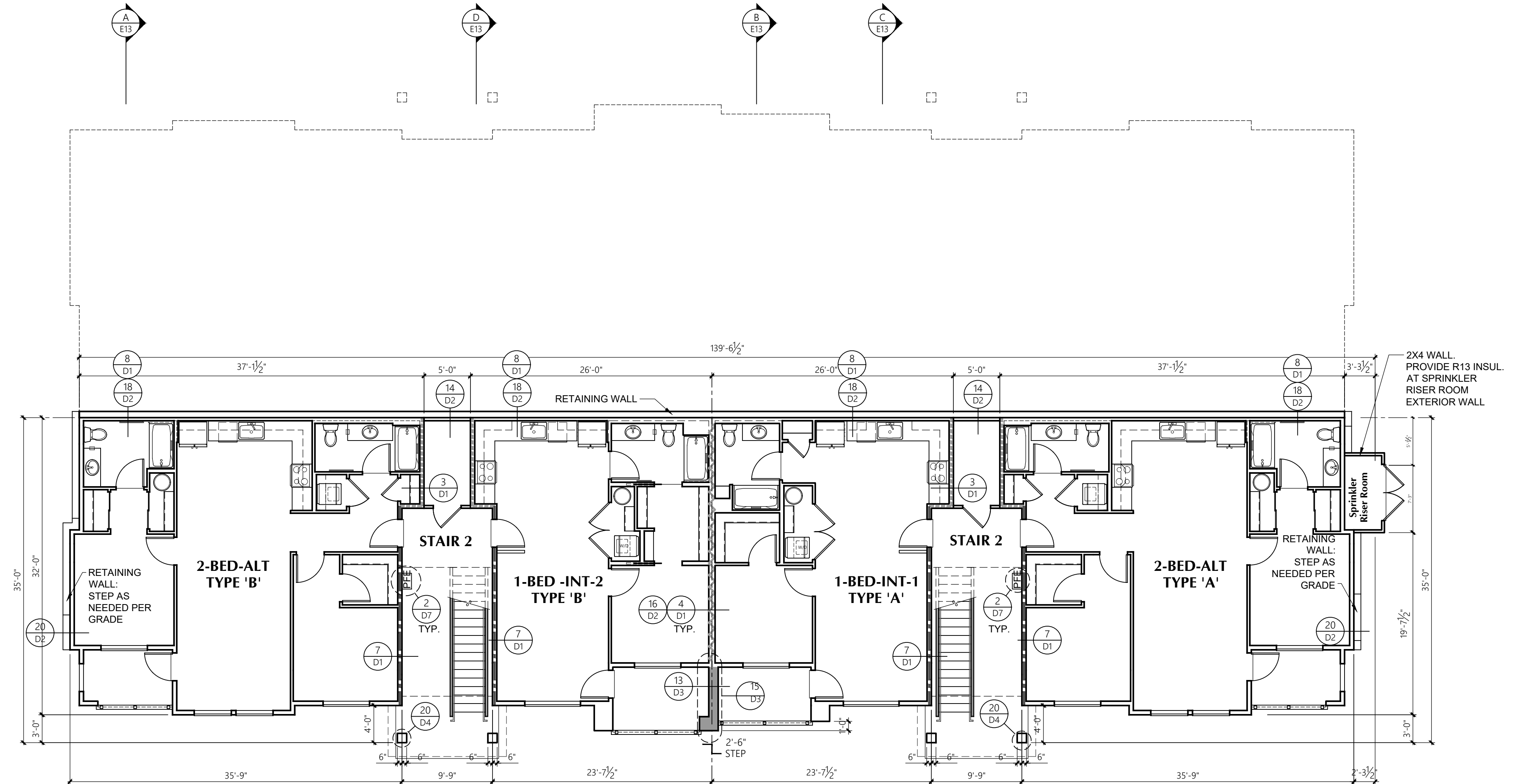
BUILDING A QUALIFIES AS 3-STORY OVER BASEMENT



**BUILDING F** AVERAGE GRADE CALCULATIONS  
1" = 20'



**BUILDING F** 1st LEVEL PLAN  
 1/8" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING



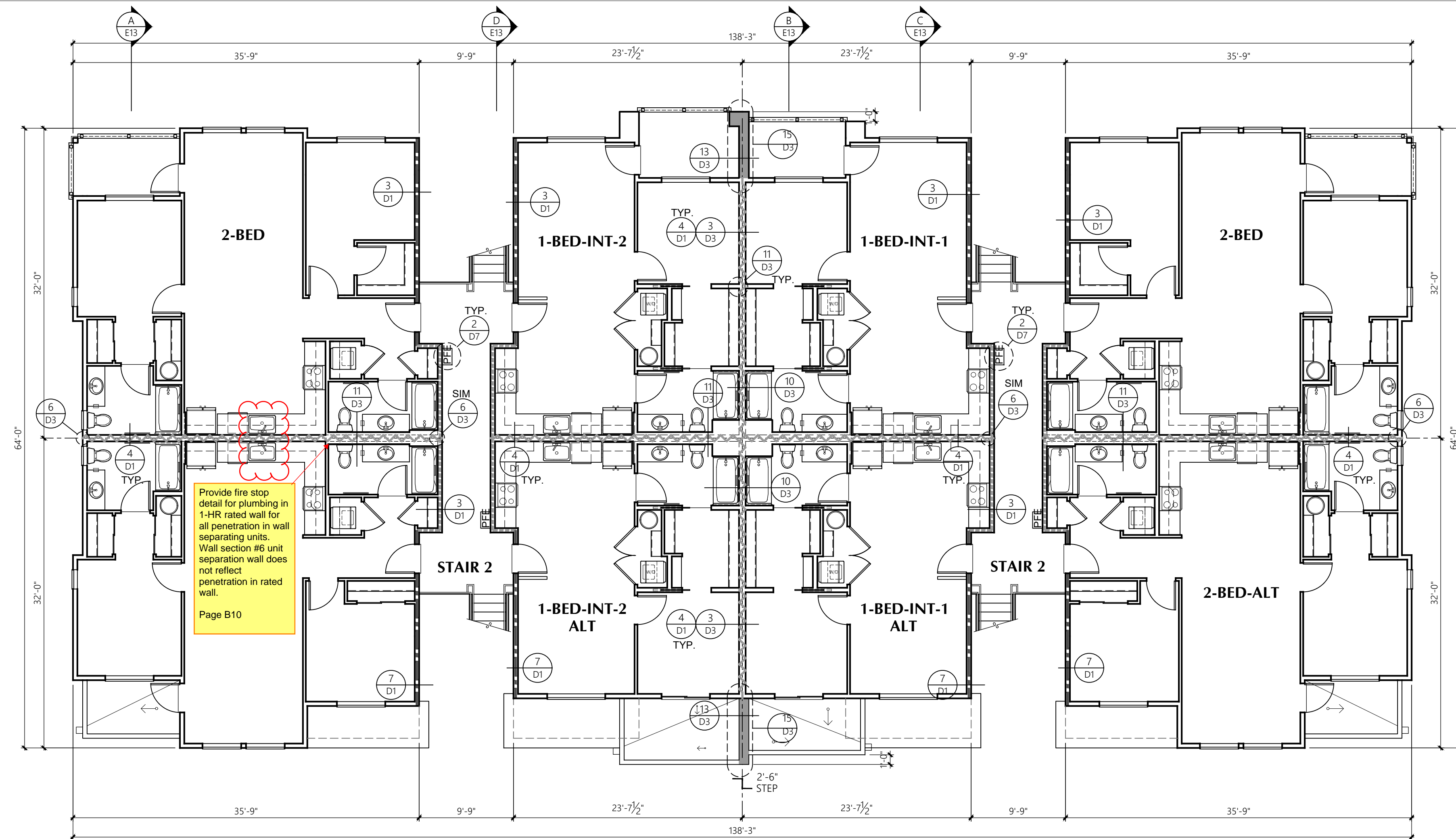
**BUILDING F** BASEMENT LEVEL PLAN  
 1/8" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING

**LEGEND**

- EXTENT OF 1-HR FIRE PARTITION
- 1-HR FIRE PARTITION SEPARATES THE INTERIOR SPACES BETWEEN UNITS IN THE SAME BUILDINGS. IT'S EXTENT ENDS WHERE ONE SIDE WOULD BE AN EXTERIOR FACE. SEE 4/D1
- EXTENT OF 1-HR FIRE BARRIER AROUND EXIT STAIRS. SEE 3/D1
- EXTENT OF 2-HR FIRE BARRIER AROUND EXIT STAIRS. SEE 7/D1
- EXTENT OF 1-HR EXTERIOR WALL. SEE LOCATION SPECIFIC DETAIL
- FE\* - SEMI RECESSED FIRE EXTINGUISHER CABINET/SEE DETAIL 2/D7

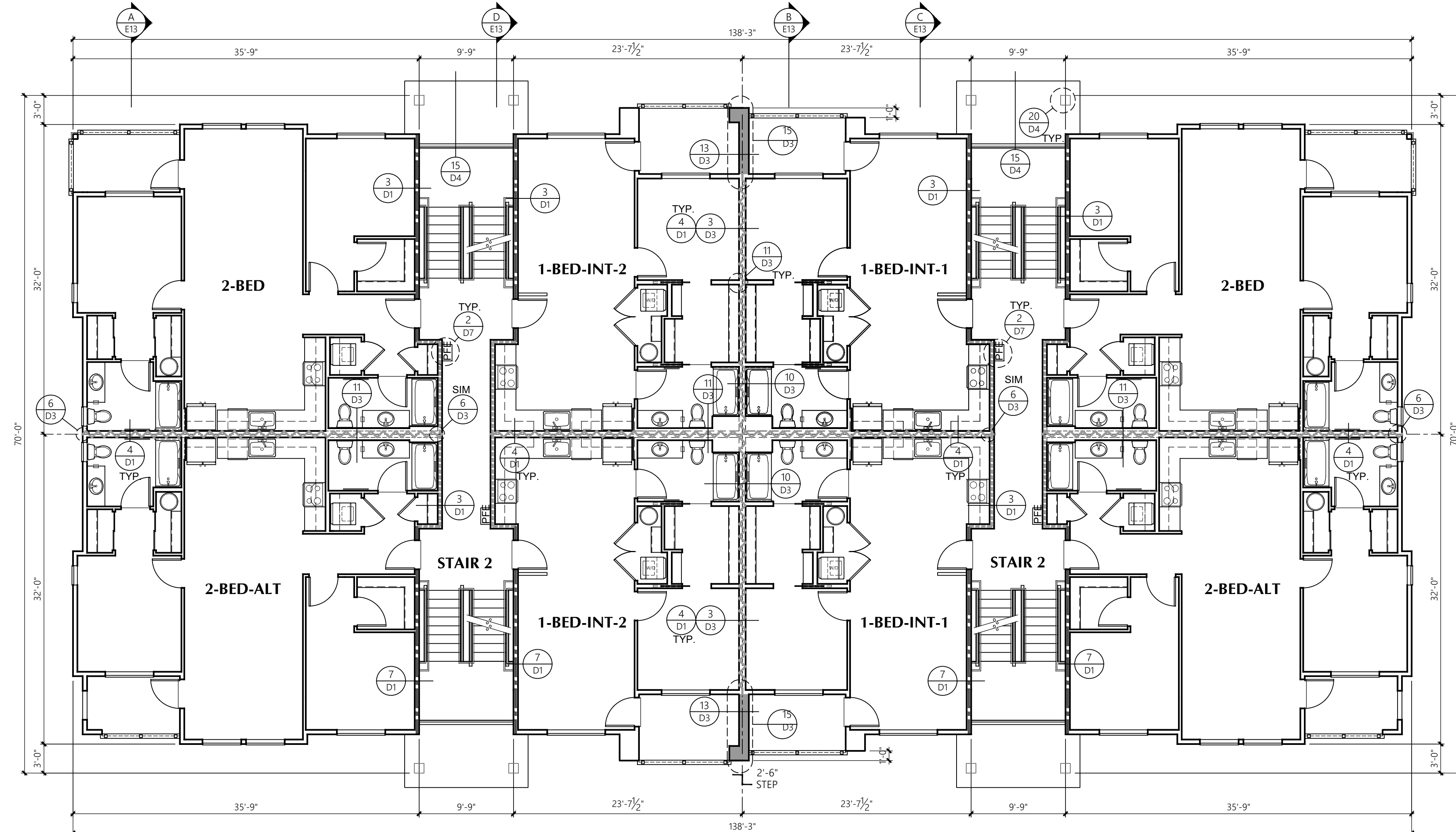


No.	Date	Description



Provide fire stop detail for plumbing in 1-HR rated wall for all penetration in wall separating units. Wall section #6 unit separation wall does not reflect penetration in rated wall.  
Page B10

**BUILDING F** 3rd LEVEL PLAN  
1/8" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING



**BUILDING F** 2nd LEVEL PLAN  
1/8" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING

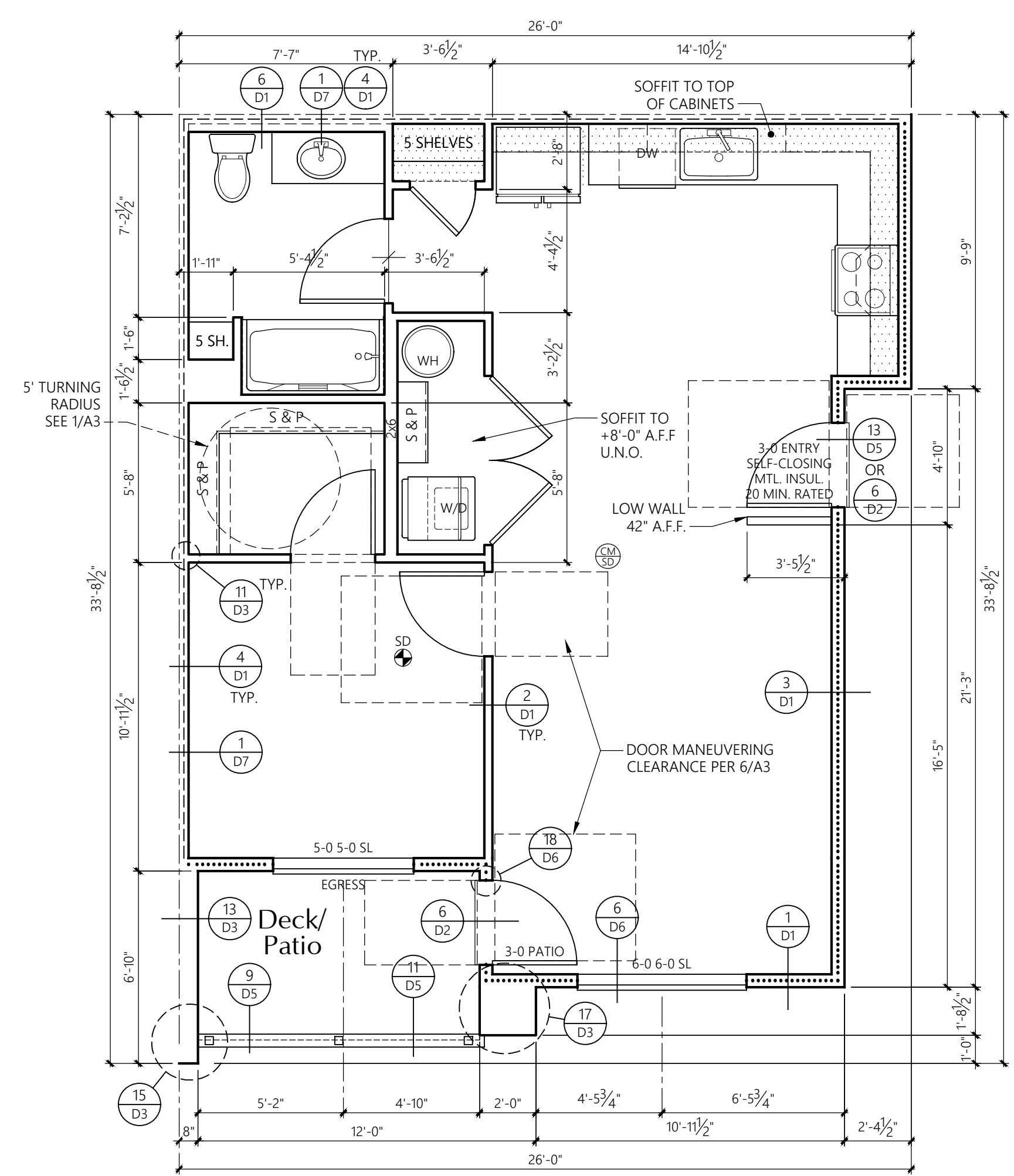
**LEGEND**

- EXTENT OF 1-HR FIRE PARTITION
- 1-HR FIRE BARRIER SEPARATES THE INTERIOR SPACES BETWEEN UNITS IN THE SAME BUILDINGS. IT'S EXTENT ENDS WHERE ONE SIDE WOULD BE AN EXTERIOR FACE. SEE 4/D1
- EXTENT OF 1-HR FIRE BARRIER AROUND EXIT STAIRS. SEE 3/D1
- EXTENT OF 2-HR FIRE BARRIER AROUND EXIT STAIRS. SEE 7/D1
- EXTENT OF 1-HR EXTERIOR WALL. SEE LOCATION SPECIFIC DETAIL
- FE\* - SEMI RECESSED FIRE EXTINGUISHER CABINET/SEE DETAIL 2/D7



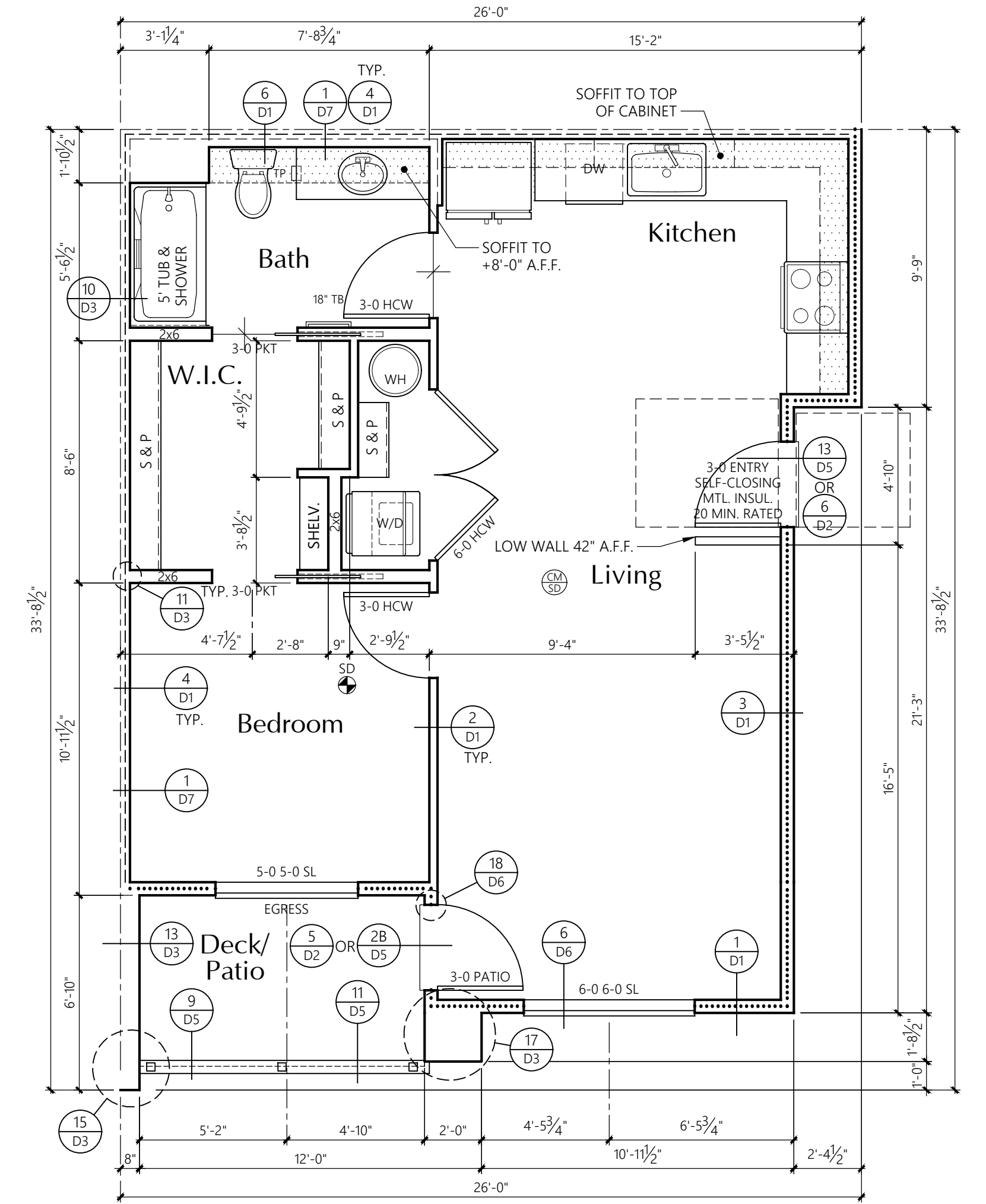
No.	Date	Description





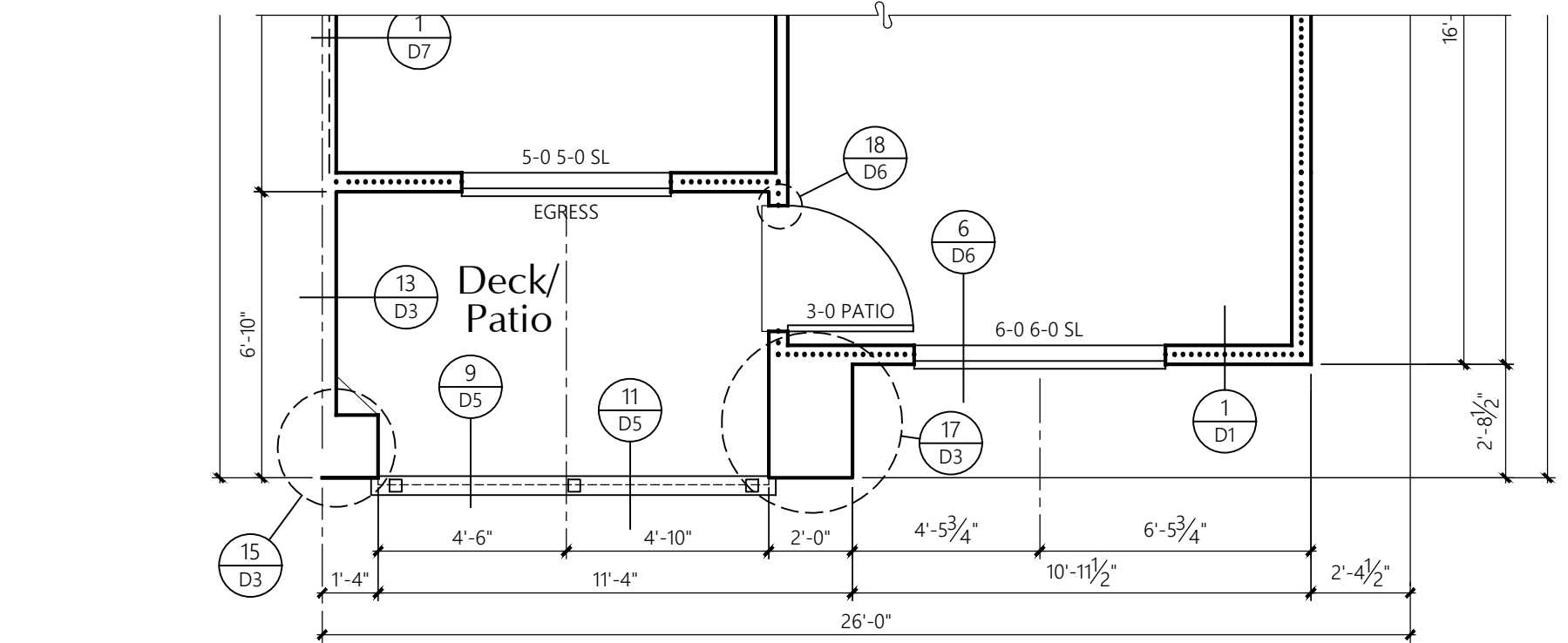
**1-BED-INT-1 UNIT** TYPE 'A' ACCESSIBLE  
BASEMENT & 1st LEVEL FLOOR PLAN  
1/4" = 1'-0"

AREA SUMMARY		
Total SF	Heated SF	Patio/Deck SF
61	684	61



**1-BED-INT-1 UNIT** TYPE 'B' ACCESSIBLE  
BASEMENT & 1st LEVEL FLOOR PLAN  
1/4" = 1'-0"

AREA SUMMARY		
Total SF	Heated SF	Patio/Deck SF
61	684	61



**1-BED-INT-2 UNIT** TYPE 'A' & 'B' ACCESSIBLE  
BASEMENT & 1st LEVEL FLOOR PLAN  
1/4" = 1'-0"

AREA SUMMARY		
Total SF	Heated SF	Patio/Deck SF
71	684	71

**UNIT PLAN NOTES**

**FRAMING:**  
2x6'S AT EXTERIOR WALLS  
2x4'S AT INTERIOR WALLS  
UNLESS NOTED OTHERWISE.

..... R-21 BATT INSULATION U.N.O.  
----- R-13 BATT INSULATION  
3 1/2" ACOUSTICAL INSULATION ONE SIDE OF PARTYWALL, U.N.O.

[Symbol] LOCATION OF SOFFIT FOR VENT RUNS, SOFFIT HEIGHT +8'-0" A.F.F. U.N.O. ON PLANS; SEE DETAIL 1/D7

[Symbol] SMOKE DETECTOR  
[Symbol] CARBON MONOXIDE/SMOKE DETECTOR

CONCEALED SPACES SHALL BE FIRESTOPPED IN BOTH DIRECTIONS AT 10'-0" ON CENTER AND AT FLOORS. TYPICAL.

ALL ESCAPE OR RESCUE WINDOWS FROM SLEEPING ROOMS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5.7 SQUARE FEET. THE MINIMUM CLEAR OPENING HEIGHT DIMENSION SHALL BE 24". MINIMUM CLEAR OPENING WIDTH DIMENSION SHALL BE 20". EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL HAVE THE BOTTOM OF CLEAR OPENING NOT GREATER THAN 44 INCHES MEASURED FROM THE FLOOR.

WHERE THE OPENING OF THE SILL PORTION OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE AT A HEIGHT NOT LESS THAN 36 INCHES ABOVE THE FINISHED FLOOR SURFACE OF THE ROOM IN WHICH THE WINDOW IS LOCATED. OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4 INCH DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 36 INCHES OF THE FINISHED FLOOR.

ALL GLAZING SHALL CONFORM TO THE 2018 IBC, CHAPTER 24, SEC. 2406, SAFETY GLAZING. GLAZING IN ALL DOORS SHALL BE SAFETY TYPE AND ALL GLAZING WITHIN A 24" ARC OF EITHER VERTICAL EDGE SHALL BE SAFETY TYPE.

PROVIDE 3/8" TYPE 'X' (MIN.) GYPSUM SHEATHING ON WALLS BEHIND TUB/SHOWERS TO SATISFY FIRE REQUIREMENTS AT PARTYWALL CONDITION. PROVIDE 3/4" PLYWOOD UNDER TUB IN PLACE OF THE GYPCRETE, SEE DETAIL 14/D1

PROVIDE WATER RESISTANT GYPSUM WALLBOARD BEHIND TUB AND SHOWER ENCLOSURE MATERIALS TO A HEIGHT OF 70" MINIMUM ABOVE THE DRAIN INLET.

NO PLUMBING SHALL BE LOCATED IN THE 1" AIR SPACE OF FIRE PARTITIONS OR FIRE WALLS.

ALL BEDROOM AND BATHROOM DOORS SHALL BE UNDERCUT A MINIMUM OF 1/2" ABOVE THE ADJACENT FLOOR COVERING.

THE FRONT DOOR SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. IT MAY BE PROVIDED WITH A NIGHT LATCH, DEAD BOLT OR SECURITY CHAIN, PROVIDED SUCH DEVICES ARE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR TOOL, AND MOUNTED NOT TO EXCEED 48" ABOVE THE FINISHED FLOOR.

**GYPSUM WALLBOARD SCHEDULE**

EXCEPT WHERE NOTED OTHERWISE, 3/8" TYPE 'X' GYPSUM WALLBOARD SHALL BE USED THROUGHOUT;  
ON INTERIOR NON-RATED WALLS, EXTERIOR WALLS, CORRIDOR WALLS, AND 1-HOUR AND 2-HOUR FIRE-RATED WALLS.

STANDARD PLATE  
HEIGHT: 9'-1"

SEE ELEVATION SHEETS FOR FLOOR TO FLOOR HEIGHTS

WINDOW HDR IS 8'-0"  
UNLESS NOTED OTHERWISE

SEE SHEET U6 FOR INTERIOR ELEVATIONS AND ACCESSIBILITY REQUIREMENTS.

**DOOR KEY:**

TYPE:  
SW = SWING  
BF = BIFOLD  
BP = BYPASS

CONSTRUCTION:  
HCW = HOLLOW CORE WD.  
SCW = SOLID CORE WD.  
MTL = METAL  
HM = HOLLOW METAL

**WINDOW KEY:**

TYPE:  
FIX = FIXED/PICTURE  
SL = SLIDER  
SH = SINGLE HUNG  
SGD = SLIDING GLASS DOOR

**INSULATION**

FOUNDATION PERIMETER - R-10 RIGID INSULATION TO A DEPTH OF 24" OR TO TOP OF FOOTING AT HEATED PERIMETER

EXTERIOR WALLS - FIBERGLASS BATTS OR BLANKETS 2x6 WALLS - R21

FLOORS OVER UNHEATED SPACES - R30

ATTICS AND ROOF ASSEMBLIES - R-49

FULL HEIGHT OF UNCOMPRESSED INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES

EXTERIOR DOORS: MAIN ENTRY U=0.20  
ALL OTHERS U=0.40

WINDOWS: MILGARD VINYL U-VALUE  
TYPE (VINYL) MODEL 0.24 or BETTER  
SLIDING 6110 ARGON/LoE 0.24 or BETTER  
FIXED 6310 ARGON/LoE 0.24 or BETTER  
SINGLE HUNG 6210 ARGON/LoE 0.24 or BETTER  
DBL SLIDER 8125 ARGON/LoE 0.24 or BETTER  
SGD 6610 ARGON/LoE 0.24 or BETTER

NOTE: ALL CONCEALED OR EXPOSED INSULATION SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450

**ACCESSIBILITY NOTES:**

ALL GROUND FLOOR UNITS IN THIS PROJECT MUST MEET THE ACCESSIBILITY REQUIREMENTS OF TYPE 'B' ACCESSIBLE UNITS AS REQUIRED BY CHAPTER 11 OF THE 2018 IBC.

INCLUDED IN THE ABOVE GROUND FLOOR UNITS 5% OF ALL UNITS NEED TO MEET THE ACCESSIBILITY REQUIREMENTS OF TYPE 'A' ACCESSIBLE UNITS AS REQUIRED BY CHAPTER 11 OF THE 2018 IBC. SEE BUILDING PLANS FOR LOCATION OF 'TYPE 'A' UNITS

SEE SHEET U9 FOR SPECIFIC ADAPTABILITY STANDARD FOR BOTH 'TYPE 'A' AND 'TYPE 'B' ACCESSIBLE UNITS. SEE INTERIOR ELEVATION SHEETS FOR ADDITIONAL ACCESSIBILITY REQUIREMENTS.

LIGHTING CONTROLS, ELECTRICAL SWITCHES, ENVIRONMENTAL CONTROLS, OPERATING HARDWARE FOR DOORS AND WINDOWS, AND PLUMBING FIXTURE CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST TO OPERATE. EXCEPT FOR OPERABLE DOOR HARDWARE, SUCH ITEMS SHALL BE 15" MINIMUM AND 44" MAXIMUM ABOVE THE FLOOR (48" FOR WINDOWS).

OPERABLE ENTRY DOOR HARDWARE SHALL BE 34" MINIMUM AND 48" MAXIMUM ABOVE THE FLOOR.

OPENING FORCES FOR ENTRY DOOR SHALL BE: 15 POUNDS TO RELEASE THE LATCH  
30 POUNDS TO SET DOOR IN MOTION  
15 POUNDS TO OPEN DOOR TO FULL 90° FORCE MEASURED AT LATCH SIDE OF DOOR.

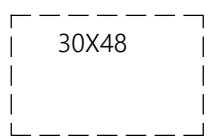
THE DOOR CLOSER ON THE ENTRY DOOR SHALL BE ADJUSTED TO CLOSE FROM AN OPEN POSITION OF 90° TO AN OPEN POSITION OF 12° IN NOT LESS THAN 5 SECONDS.

OPENING FORCE OF ALL SWINGING INTERIOR DOORS AND THE SLIDING GLASS DOOR SHALL NOT EXCEED 5 POUNDS APPLIED TO THE LATCH SIDE OF THE DOOR.

THE FORCE REQUIRED TO ACTIVATE ALL OTHER OPERABLE ITEMS LISTED ABOVE SHALL BE 5 POUNDS.

\*BIFOLD DOOR HARDWARE AT LAUNDRY TO BE 'FULL ACCESS HARDWARE'.

THE 30"x48" CLEAR FLOOR SPACE IS REQUIRED AT EACH FIXTURE OR LOCATION SHOWN ON THE FLOOR PLAN.



**UNIT PLAN NOTES**

- FRAMING:**
- 2x6'S AT EXTERIOR WALLS
  - 2x4'S AT INTERIOR WALLS UNLESS NOTED OTHERWISE.
  - R-21 BATT INSULATION U.N.O.
  - R-13 BATT INSULATION
  - 3/8" ACOUSTICAL INSULATION ONE SIDE OF PARTYWALL, U.N.O.
  - LOCATION OF SOFFIT FOR VENT RUNS. SOFFIT HEIGHT +8'-0" A.F.F. U.N.O. ON PLANS; SEE DETAIL 1/07
  - SMOKE DETECTOR
  - CARBON MONOXIDE/SMOKE DETECTOR

PROVIDE WATER RESISTANT GYPSUM WALLBOARD BEHIND TUB AND SHOWER ENCLOSURE MATERIALS TO A HEIGHT OF 70" MINIMUM ABOVE THE DRAIN INLET.

NO PLUMBING SHALL BE LOCATED IN THE 1" AIR SPACE OF FIRE PARTITIONS OR FIRE WALLS.

ALL BEDROOM AND BATHROOM DOORS SHALL BE UNDERCUT A MINIMUM OF 1/2" ABOVE THE ADJACENT FLOOR COVERING.

THE FRONT DOOR SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. IT MAY BE PROVIDED WITH A NIGHT LATCH, DEAD BOLT OR SECURITY CHAIN, PROVIDED SUCH DEVICES ARE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR TOOL, AND MOUNTED NOT TO EXCEED 48" ABOVE THE FINISHED FLOOR.

**GYPSUM WALLBOARD SCHEDULE**

EXCEPT WHERE NOTED OTHERWISE, 5/8" TYPE 'X' GYPSUM WALLBOARD SHALL BE USED THROUGHOUT; ON INTERIOR NON-RATED WALLS, EXTERIOR WALLS, CORRIDOR WALLS, AND 1-HOUR AND 2-HOUR FIRE-RATED WALLS.

**DOOR KEY:**

TYPE: SW = SWING, BF = BIFOLD, BP = BYPASS

CONSTRUCTION: HCW = HOLLOW CORE WD., SCW = SOLID CORE WD., MTL = METAL, HM = HOLLOW METAL

**WINDOW KEY:**

TYPE: FIX = FIXED/PICTURE, SL = SLIDER, SH = SINGLE HUNG, SGD = SLIDING GLASS DOOR

**ACCESSIBILITY NOTES:**

ALL GROUND FLOOR UNITS IN THIS PROJECT MUST MEET THE ACCESSIBILITY REQUIREMENTS OF 'TYPE B' ACCESSIBLE UNITS AS REQUIRED BY CHAPTER 11 OF THE 2018 IBC.

CONCEALED SPACES SHALL BE FIRESTOPPED IN BOTH DIRECTIONS AT 10'-0" ON CENTER AND AT FLOORS. TYPICAL.

ALL ESCAPE OR RESCUE WINDOWS FROM SLEEPING ROOMS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5.7 SQUARE FEET. THE MINIMUM CLEAR OPENING HEIGHT DIMENSION SHALL BE 24". MINIMUM CLEAR OPENING WIDTH DIMENSION SHALL BE 20". EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL HAVE THE BOTTOM OF CLEAR OPENING NOT GREATER THAN 44 INCHES MEASURED FROM THE FLOOR.

WHERE THE OPENING OF THE SILL PORTION OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE AT A HEIGHT NOT LESS THAN 36 INCHES ABOVE THE FINISHED FLOOR SURFACE OF THE ROOM IN WHICH THE WINDOW IS LOCATED. OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4 INCH DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 36 INCHES OF THE FINISHED FLOOR.

ALL GLAZING SHALL CONFORM TO THE 2018 IBC, CHAPTER 24, SEC. 2406, SAFETY GLAZING. GLAZING IN ALL DOORS SHALL BE SAFETY TYPE AND ALL GLAZING WITHIN A 24" ARC OF EITHER VERTICAL EDGE SHALL BE SAFETY TYPE.

PROVIDE 3/4" TYPE 'X' (MIN.) GYPSUM SHEATHING ON WALLS BEHIND TUB/SHOWERS TO SATISFY FIRE REQUIREMENTS AT PARTYWALL CONDITION. PROVIDE 3/4" PLYWOOD UNDER TUB IN PLACE OF THE GYPCRETE. SEE DETAIL 14/D1

**INSULATION**

FOUNDATION PERIMETER - R-10 RIGID INSULATION TO A DEPTH OF 24" OR TO TOP OF FOOTING AT HEATED PERIMETER

EXTERIOR WALLS: FIBERGLASS BATTS OR BLANKETS 2x6 WALLS - R21

FLOORS OVER UNHEATED SPACES - R30

ATTICS AND ROOF ASSEMBLIES - R-49

FULL HEIGHT OF UNCOMPRESSED INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES

EXTERIOR DOORS: MAIN ENTRY U=0.20  
ALL OTHERS U=0.40

WINDOWS: MILGARD VINYL

TYPE (VINYL)	MODEL	U-VALUE
SLIDING	6110 ARGON/LoE	0.24 or BETTER
FIXED	6310 ARGON/LoE	0.24 or BETTER
SINGLE HUNG	6210 ARGON/LoE	0.24 or BETTER
DBL. SLIDER	8125 ARGON/LoE	0.24 or BETTER
SGD	6610 ARGON/LoE	0.24 or BETTER

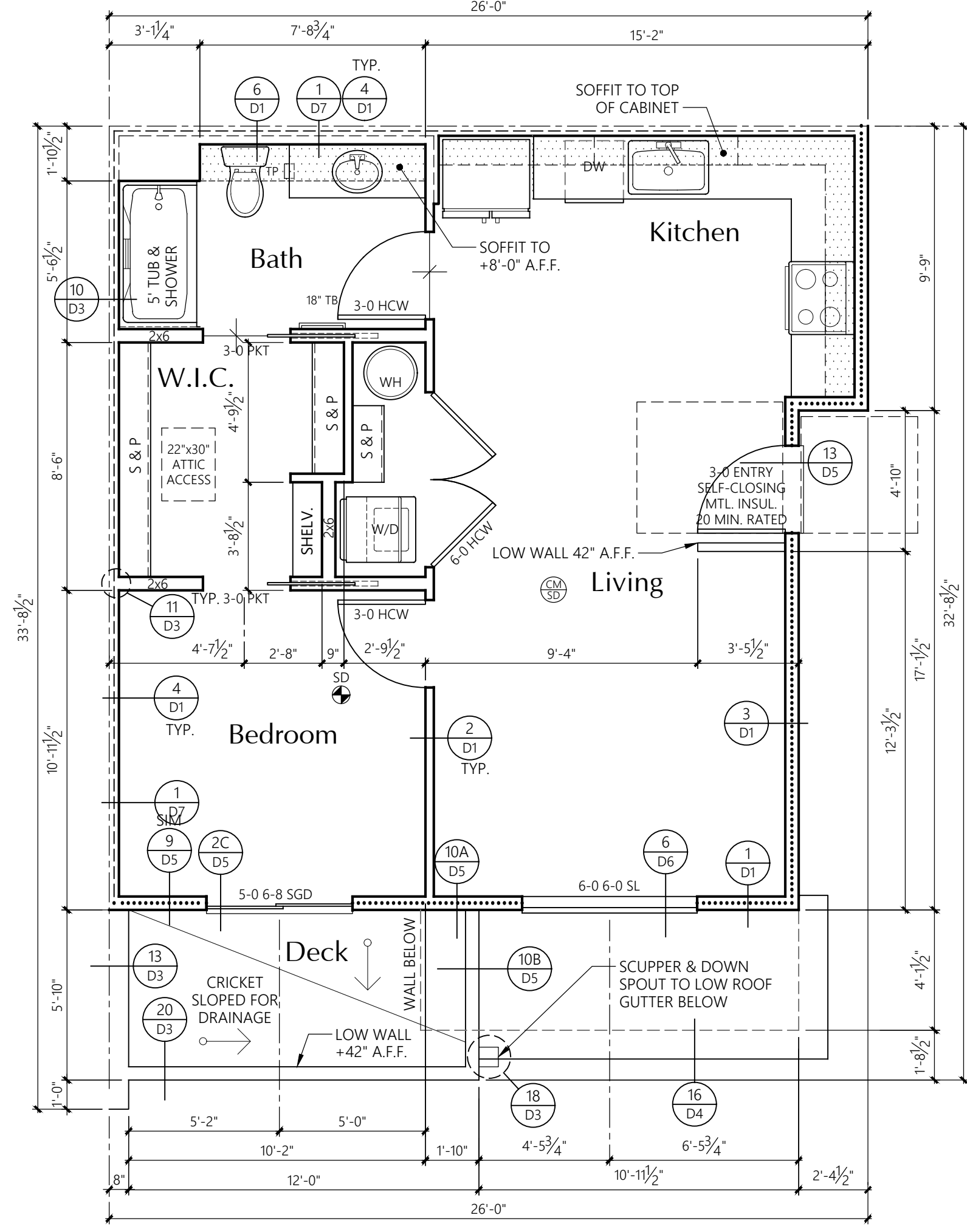
NOTE: ALL CONCEALED OR EXPOSED INSULATION SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450

STANDARD PLATE HEIGHT: 9'-1"

SEE ELEVATION SHEETS FOR FLOOR TO FLOOR HEIGHTS

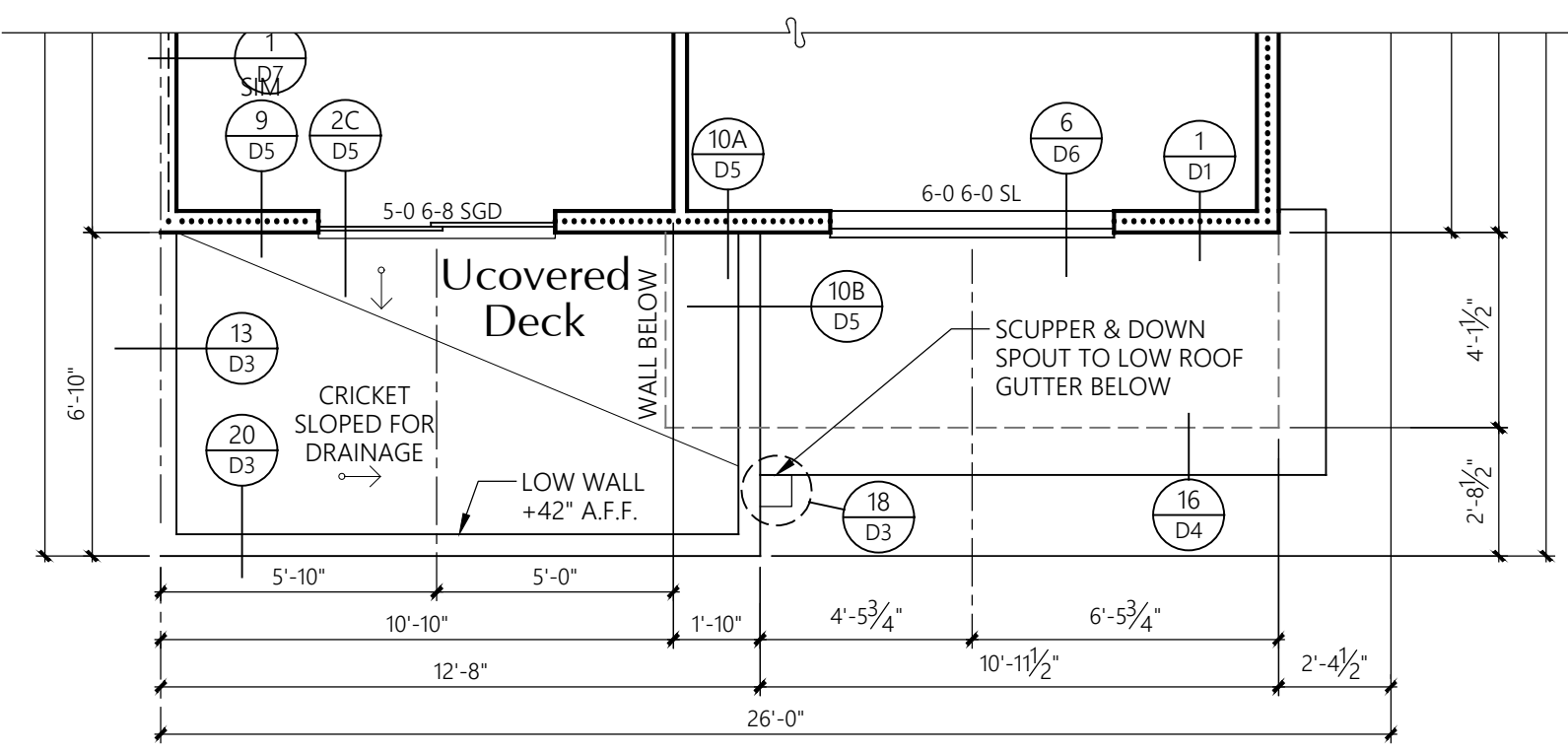
WINDOW HDR IS 8'-0" UNLESS NOTED OTHERWISE

SEE SHEET U6 FOR INTERIOR ELEVATIONS AND ACCESSIBILITY REQUIREMENTS.



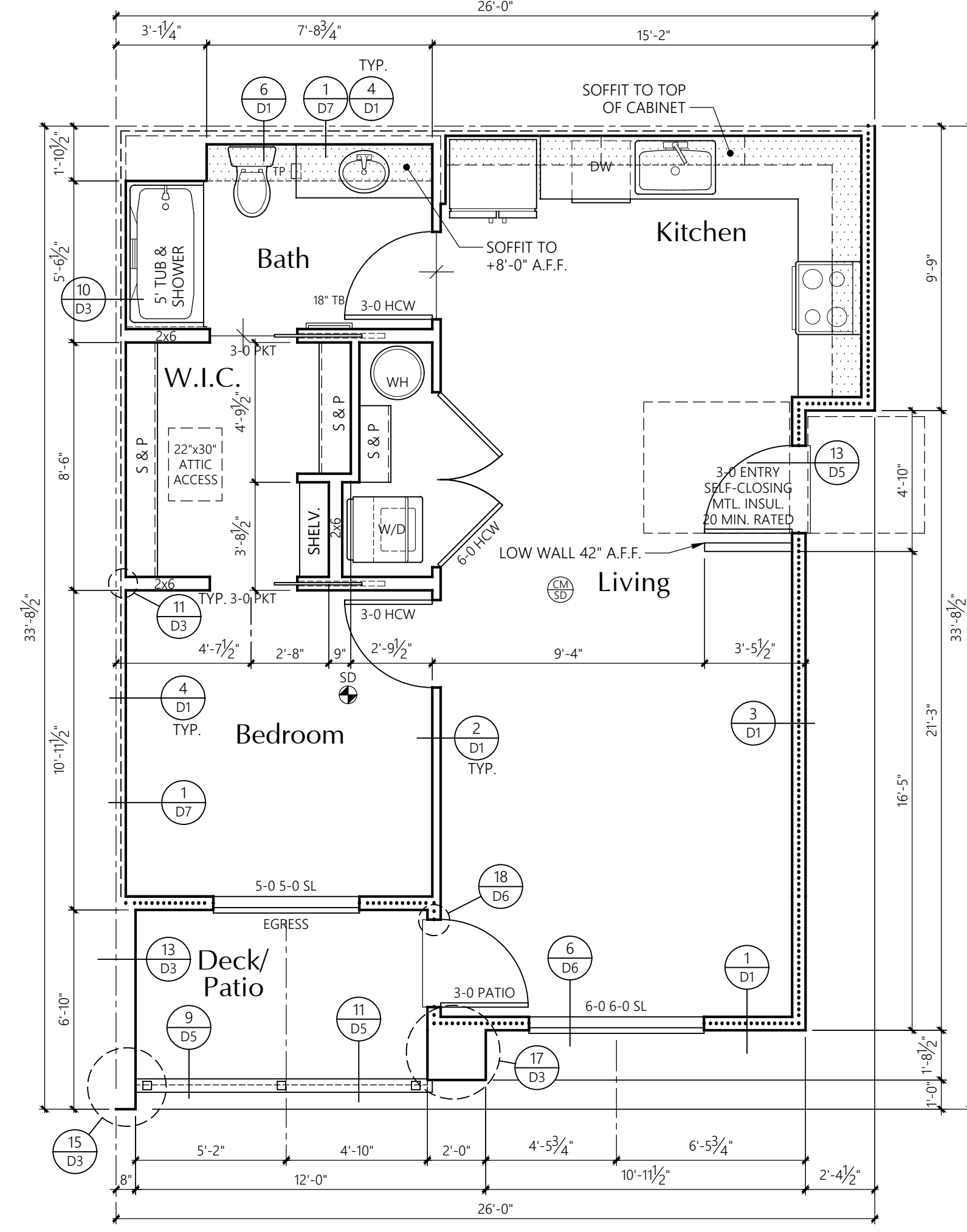
**1-BED-INT-ALT-1** ALTERNATE 3rd LEVEL FLOOR PLAN  
1/4" = 1'-0"

AREA SUMMARY		
	Heated SF	Deck/Patio SF
Total SF	634	74



**1-BED-INT-ALT-2** ALTERNATE 3rd LEVEL FLOOR PLAN  
1/4" = 1'-0"

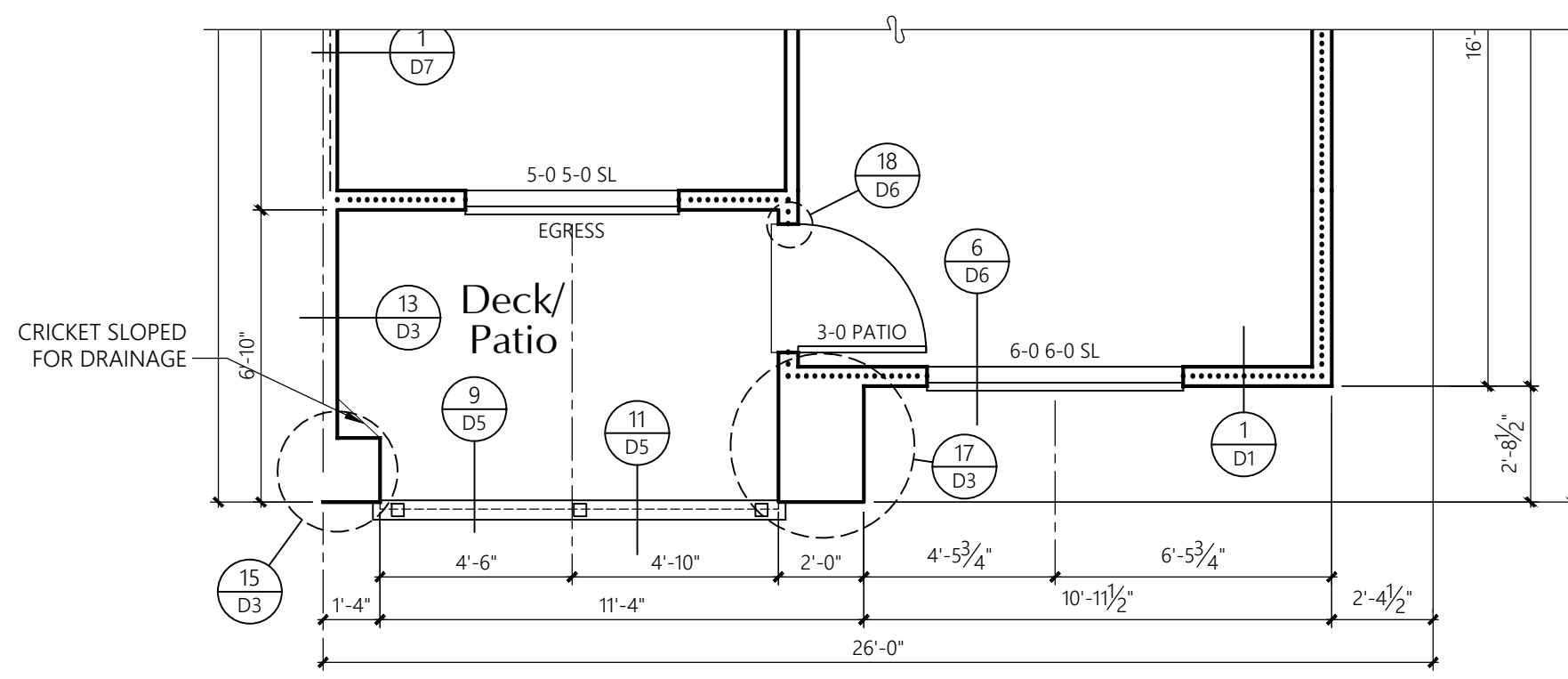
AREA SUMMARY		
	Heated SF	Deck/Patio SF
Total SF	634	86



**1-BED-INT-1 UNIT** NON-ACCESSIBLE 2nd & 3rd LEVEL FLOOR PLAN  
1/4" = 1'-0"

AREA SUMMARY		
	Heated SF	Patio/Deck SF
Total SF	684	61

\* Side of exterior walls to which area was measured

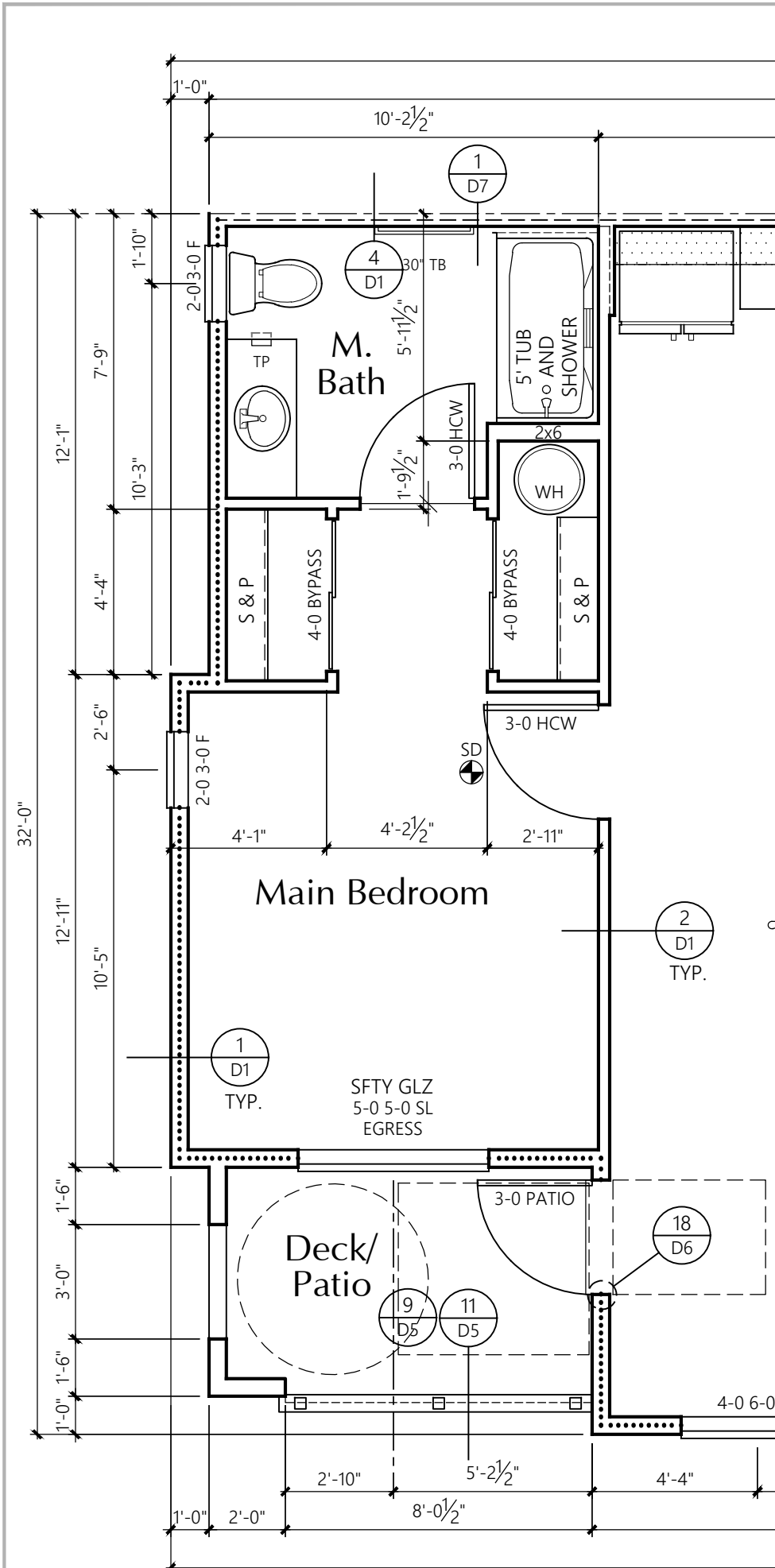


**1-BED-INT-2 UNIT** NON-ACCESSIBLE 2nd & 3rd LEVEL FLOOR PLAN  
1/4" = 1'-0"

AREA SUMMARY		
	Heated SF	Patio/Deck SF
Total SF	684	71

\* Side of exterior walls to which area was measured

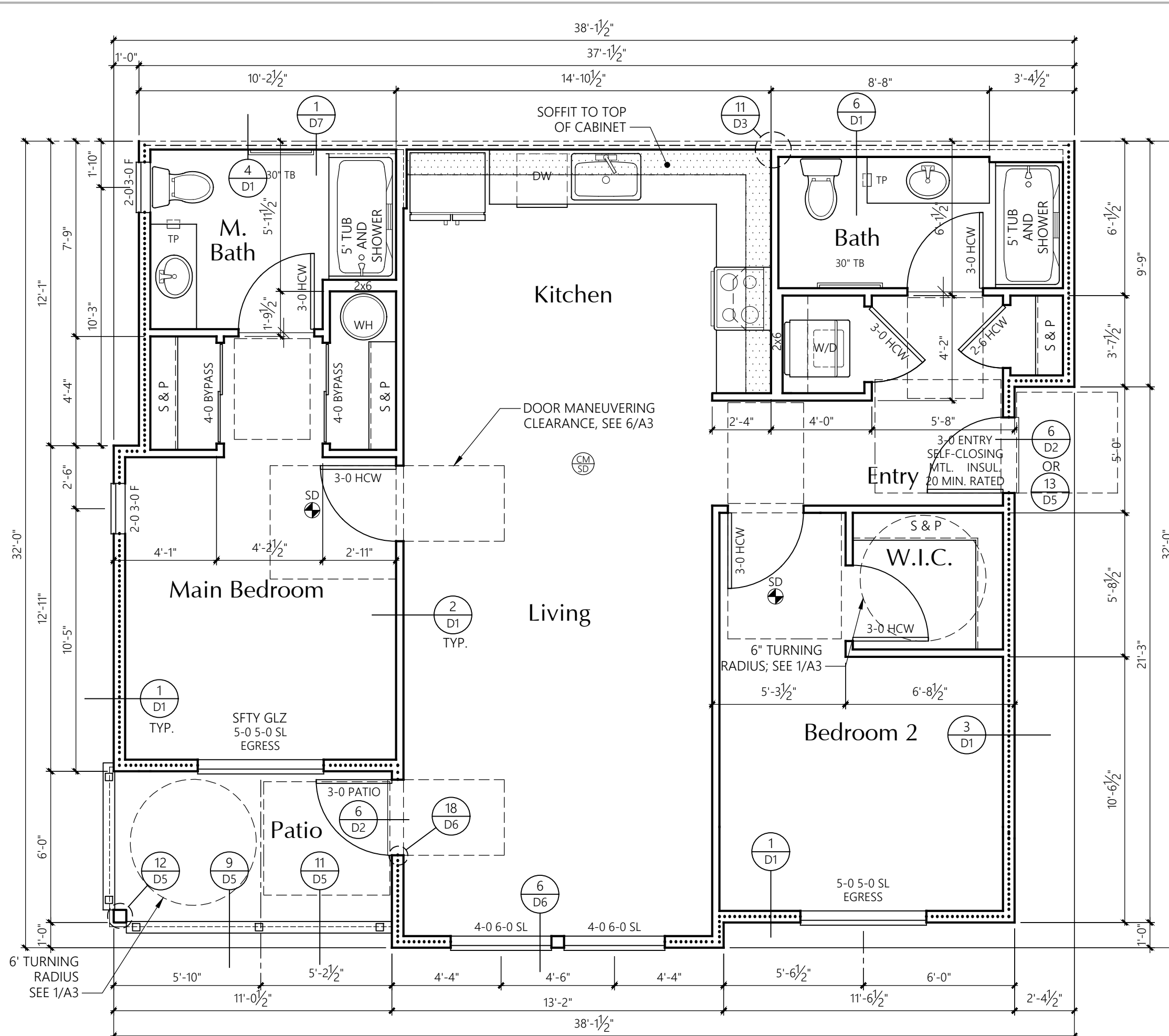




**2-BED-ALT UNIT** ALTERNATE TYPE 'A' OR 'B' ACCESSIBLE  
1st LEVEL FLOOR PLAN

1/4" = 1'-0"

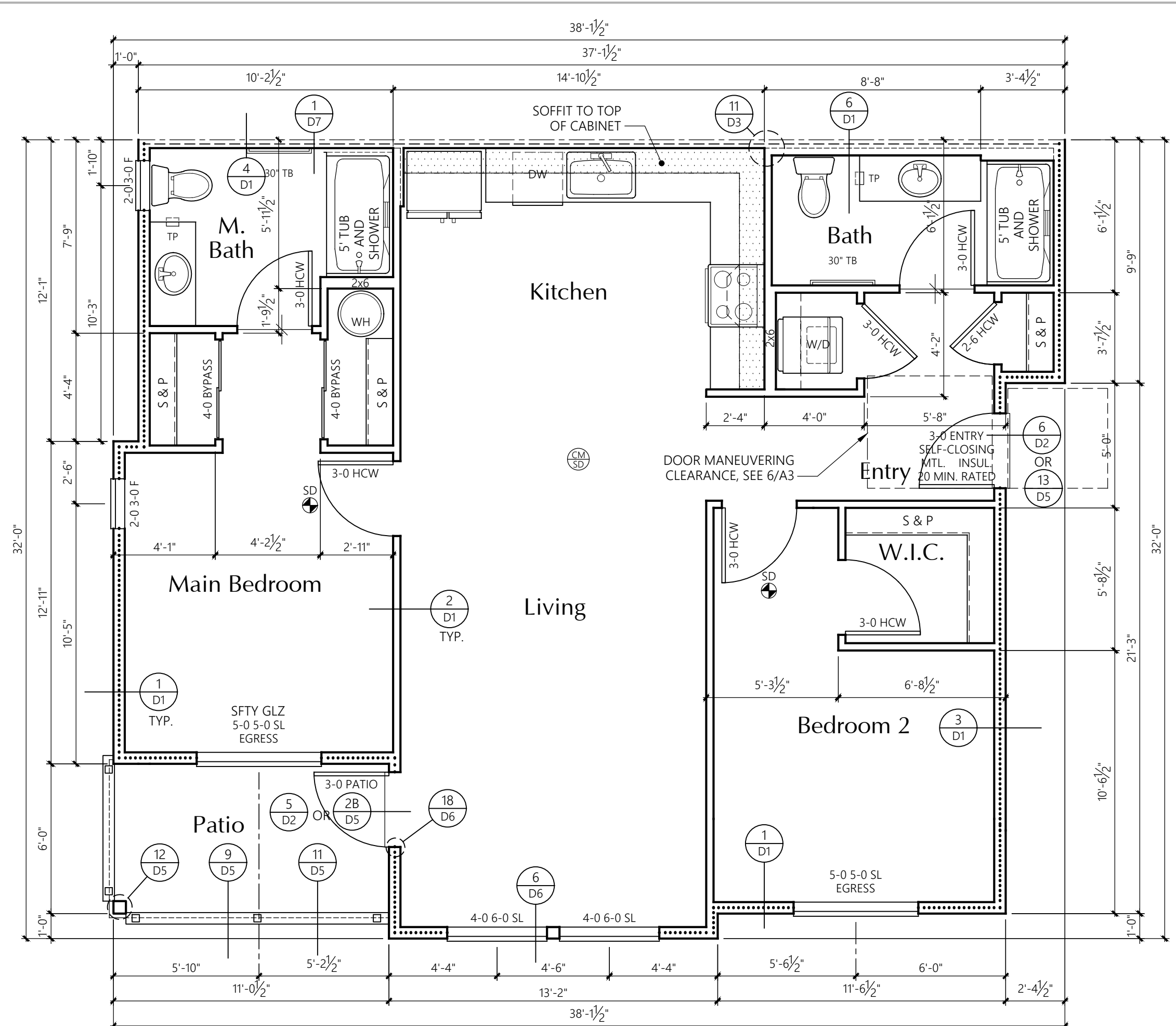
SEE TYPICAL 2-BED UNIT TYPE 'A' ACCESSIBLE FLOOR PLAN OR TYPE 'B' ACCESSIBLE FLOOR PLAN FOR REMAINDER OF UNIT



**2 BED UNIT** TYPE 'A' ACCESSIBLE  
1st LEVEL FLOOR PLAN

1/4" = 1'-0"

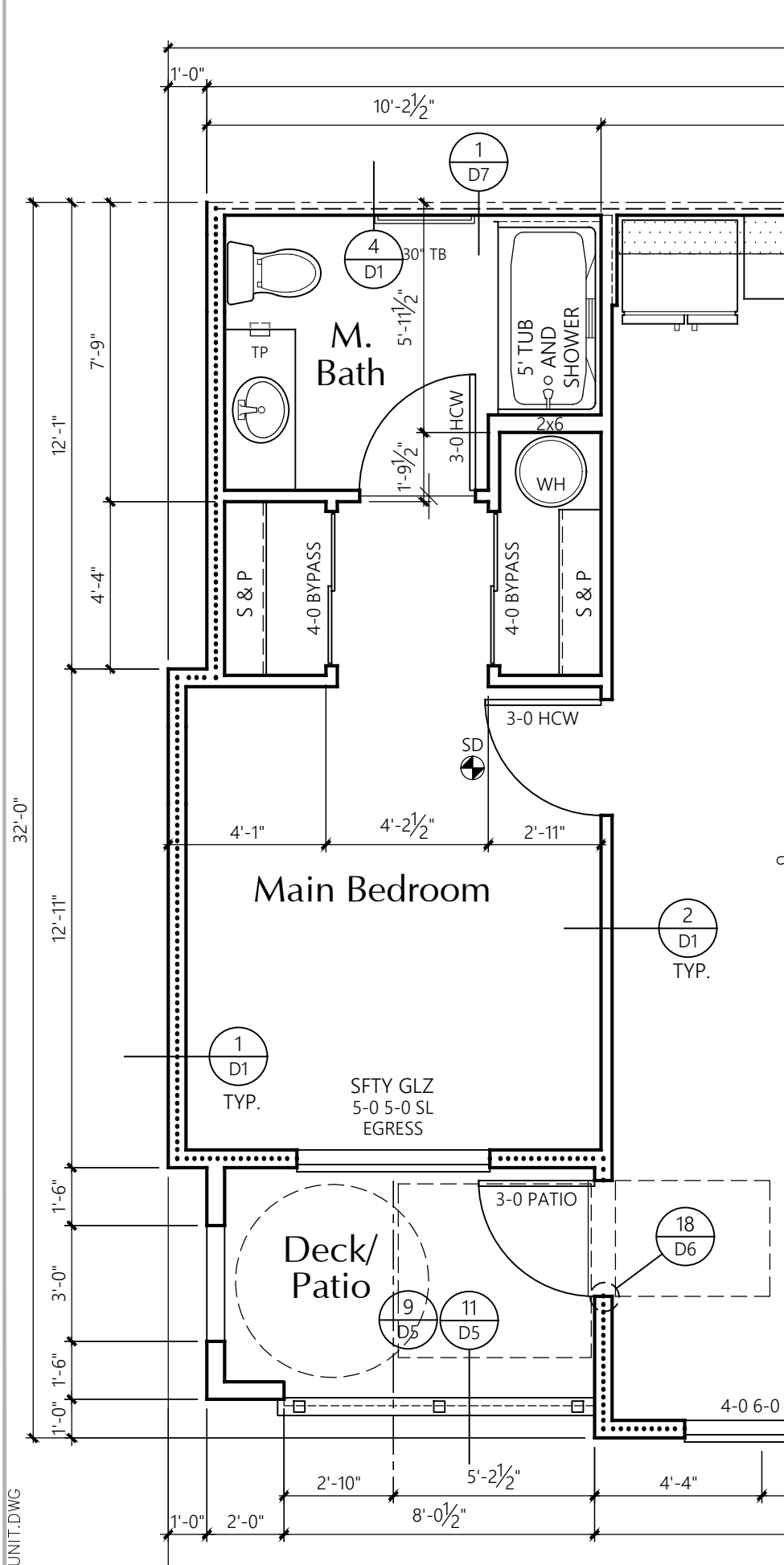
AREA SUMMARY		
	Heated SF	Patio/Deck SF
Total SF	1019	66



**2-BED UNIT** TYPE 'B' ACCESSIBLE  
1st LEVEL FLOOR PLAN

1/4" = 1'-0"

AREA SUMMARY		
	Heated SF	Patio/Deck SF
Total SF	1019	66



**2-BED-ALT UNIT** ALT. 'A' OR 'B' ACCESSIBLE  
BASEMENT PLAN

1/4" = 1'-0"

SEE TYPICAL 2-BED UNIT TYPE 'A' ACCESSIBLE FLOOR PLAN OR TYPE 'B' ACCESSIBLE FLOOR PLAN FOR REMAINDER OF UNIT

**UNIT PLAN NOTES**

- FRAMING: 2x6'S AT EXTERIOR WALLS  
2x4'S AT INTERIOR WALLS  
UNLESS NOTED OTHERWISE.
  - R-21 BATT INSULATION U.N.O.
  - R-13 BATT INSULATION
  - 3/8" ACOUSTICAL INSULATION ONE SIDE OF PARTYWALL, U.N.O.
  - LOCATION OF SOFFIT FOR VENT RUNS, SOFFIT HEIGHT +8'-0" A.F.F. U.N.O. ON PLANS; SEE DETAIL 1/D7
  - SMOKE DETECTOR
  - CARBON MONOXIDE/SMOKE DETECTOR
- CONCEALED SPACES SHALL BE FIRESTOPPED IN BOTH DIRECTIONS AT 10'-0" ON CENTER AND AT FLOORS. TYPICAL.
- ALL ESCAPE OR RESCUE WINDOWS FROM SLEEPING ROOMS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5.7 SQUARE FEET. THE MINIMUM CLEAR OPENING HEIGHT DIMENSION SHALL BE 24". MINIMUM CLEAR OPENING WIDTH DIMENSION SHALL BE 20". EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL HAVE THE BOTTOM OF CLEAR OPENING NOT GREATER THAN 44 INCHES MEASURED FROM THE FLOOR.
- WHERE THE OPENING OF THE SILL PORTION OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE AT A HEIGHT NOT LESS THAN 36 INCHES ABOVE THE FINISHED FLOOR SURFACE OF THE ROOM IN WHICH THE WINDOW IS LOCATED. OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4 INCH DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 36 INCHES OF THE FINISHED FLOOR.
- ALL GLAZING SHALL CONFORM TO THE 2018 IBC, CHAPTER 24, SEC. 2406, SAFETY GLAZING. GLAZING IN ALL DOORS SHALL BE SAFETY TYPE AND ALL GLAZING WITHIN A 24" ARC OF EITHER VERTICAL EDGE SHALL BE SAFETY TYPE.
- PROVIDE 3/8" TYPE 'X' (MIN.) GYPSUM SHEATHING ON WALLS BEHIND TUB/SHOWERS TO SATISFY FIRE REQUIREMENTS AT PARTYWALL CONDITION. PROVIDE 3/4" PLYWOOD UNDER TUB IN PLACE OF THE GYPCRETE, SEE DETAIL 14/D1

- PROVIDE WATER RESISTANT GYPSUM WALLBOARD BEHIND TUB AND SHOWER ENCLOSURE MATERIALS TO A HEIGHT OF 70" MINIMUM ABOVE THE DRAIN INLET.
- NO PLUMBING SHALL BE LOCATED IN THE 1" AIR SPACE OF FIRE PARTITIONS OR FIRE WALLS.
- ALL BEDROOM AND BATHROOM DOORS SHALL BE UNDERCUT A MINIMUM OF 1/2" ABOVE THE ADJACENT FLOOR COVERING.
- THE FRONT DOOR SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. IT MAY BE PROVIDED WITH A NIGHT LATCH, DEAD BOLT OR SECURITY CHAIN. PROVIDED SUCH DEVICES ARE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR TOOL, AND MOUNTED NOT TO EXCEED 48" ABOVE THE FINISHED FLOOR.

GYPSUM WALLBOARD SCHEDULE  
EXCEPT WHERE NOTED OTHERWISE, 5/8" TYPE 'X' GYPSUM WALLBOARD SHALL BE USED THROUGHOUT.  
ON INTERIOR NON-RATED WALLS, EXTERIOR WALLS, CORRIDOR WALLS, AND 1-HOUR AND 2-HOUR FIRE-RATED WALLS.

STANDARD PLATE  
HEIGHT: 9'-1"  
SEE ELEVATION SHEETS FOR FLOOR TO FLOOR HEIGHTS

WINDOW HDR IS 8'-0"  
UNLESS NOTED OTHERWISE

SEE SHEET U8 FOR INTERIOR ELEVATIONS AND ACCESSIBILITY REQUIREMENTS.

**DOOR KEY:**

- TYPE: SW = SWING  
BF = BIFOLD  
BP = BYPASS
- CONSTRUCTION: HCW = HOLLOW CORE WD.  
SCW = SOLID CORE WD.  
MTL = METAL  
HM = HOLLOW METAL

**WINDOW KEY:**

- TYPE: FIX = FIXED/PICTURE  
SL = SLIDER  
SH = SINGLE HUNG  
SGD = SLIDING GLASS DOOR

**INSULATION**

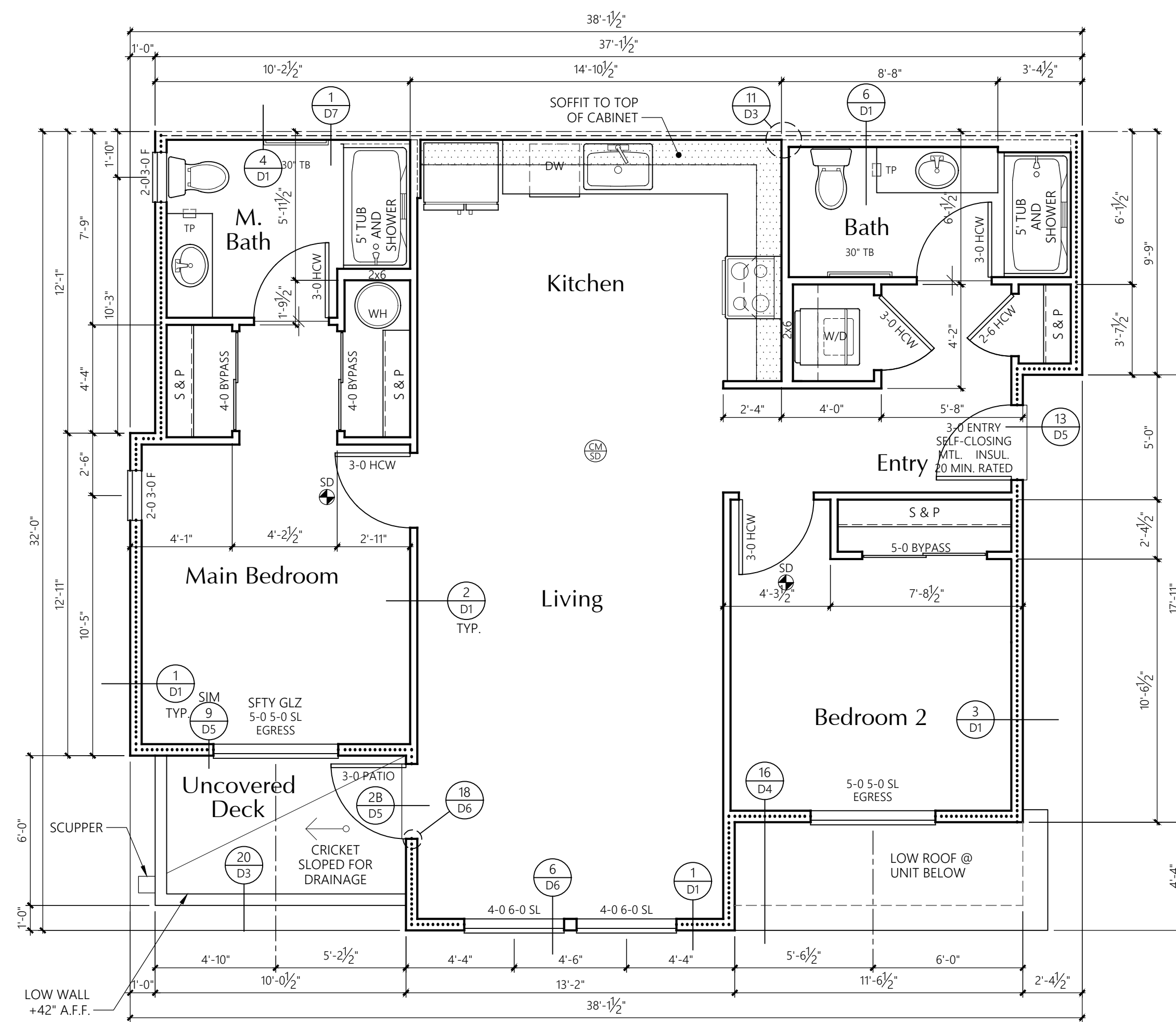
- FOUNDATION PERIMETER - R-10 RIGID INSULATION TO A DEPTH OF 24" OR TO TOP OF FOOTING AT HEATED PERIMETER
- EXTERIOR WALLS: FIBERGLASS BATTS OR BLANKETS 2x6 WALLS - R21
- FLOORS OVER UNHEATED SPACES - R30
- ATTICS AND ROOF ASSEMBLIES - R-49
- FULL HEIGHT OF UNCOMPRESSED INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES
- EXTERIOR DOORS: MAIN ENTRY U=0.20  
ALL OTHERS U=0.40
- WINDOWS: MILGARD VINYL  
TYPE (VINYL) MODEL U-VALUE  
SLIDING 6110 ARGON/LoE 0.24 or BETTER  
FIXED 6310 ARGON/LoE 0.24 or BETTER  
SINGLE HUNG 6210 ARGON/LoE 0.24 or BETTER  
DBL. SLIDER 8125 ARGON/LoE 0.24 or BETTER  
SGD 6610 ARGON/LoE 0.24 or BETTER

NOTE: ALL CONCEALED OR EXPOSED INSULATION SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450

**ACCESSIBILITY NOTES:**

- ALL GROUND FLOOR UNITS IN THIS PROJECT MUST MEET THE ACCESSIBILITY REQUIREMENTS OF TYPE 'B' ACCESSIBLE UNITS AS REQUIRED BY CHAPTER 11 OF THE 2018 IBC.
- INCLUDED IN THE ABOVE GROUND FLOOR UNITS 5% OF ALL UNITS NEED TO MEET THE ACCESSIBILITY REQUIREMENTS OF TYPE 'A' ACCESSIBLE UNITS AS REQUIRED BY CHAPTER 11 OF THE 2018 IBC. SEE BUILDING PLANS FOR LOCATION OF TYPE 'A' UNITS
- SEE SHEET U9 FOR SPECIFIC ADAPTABILITY STANDARD FOR BOTH TYPE 'A' AND TYPE 'B' ACCESSIBLE UNITS. SEE INTERIOR ELEVATION SHEETS FOR ADDITIONAL ACCESSIBILITY REQUIREMENTS.
- LIGHTING CONTROLS, ELECTRICAL SWITCHES, ENVIRONMENTAL CONTROLS, OPERATING HARDWARE FOR DOORS AND WINDOWS, AND PLUMBING FIXTURE CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST TO OPERATE. EXCEPT FOR OPERABLE DOOR HARDWARE, SUCH ITEMS SHALL BE 15" MINIMUM AND 44" MAXIMUM ABOVE THE FLOOR (48" FOR WINDOWS).
- OPERABLE ENTRY DOOR HARDWARE SHALL BE 34" MINIMUM AND 48" MAXIMUM ABOVE THE FLOOR.
- OPENING FORCES FOR ENTRY DOOR SHALL BE: 15 POUNDS TO RELEASE THE LATCH  
30 POUNDS TO SET DOOR IN MOTION  
15 POUNDS TO OPEN DOOR TO FULL 90° FORCE MEASURED AT LATCH SIDE OF DOOR.
- THE DOOR CLOSER ON THE ENTRY DOOR SHALL BE ADJUSTED TO CLOSE FROM AN OPEN POSITION OF 90° TO AN OPEN POSITION OF 12° IN NOT LESS THAN 5 SECONDS.
- OPENING FORCE OF ALL SWINGING INTERIOR DOORS AND THE SLIDING GLASS DOOR SHALL NOT EXCEED 5 POUNDS APPLIED TO THE LATCH SIDE OF THE DOOR.
- THE FORCE REQUIRED TO ACTIVATE ALL OTHER OPERABLE ITEMS LISTED ABOVE SHALL BE 5 POUNDS.
- \*BIFOLD DOOR HARDWARE AT LAUNDRY TO BE "FULL ACCESS HARDWARE".
- THE 30"x48" CLEAR FLOOR SPACE IS REQUIRED AT EACH FIXTURE OR LOCATION SHOWN ON THE FLOOR PLAN.





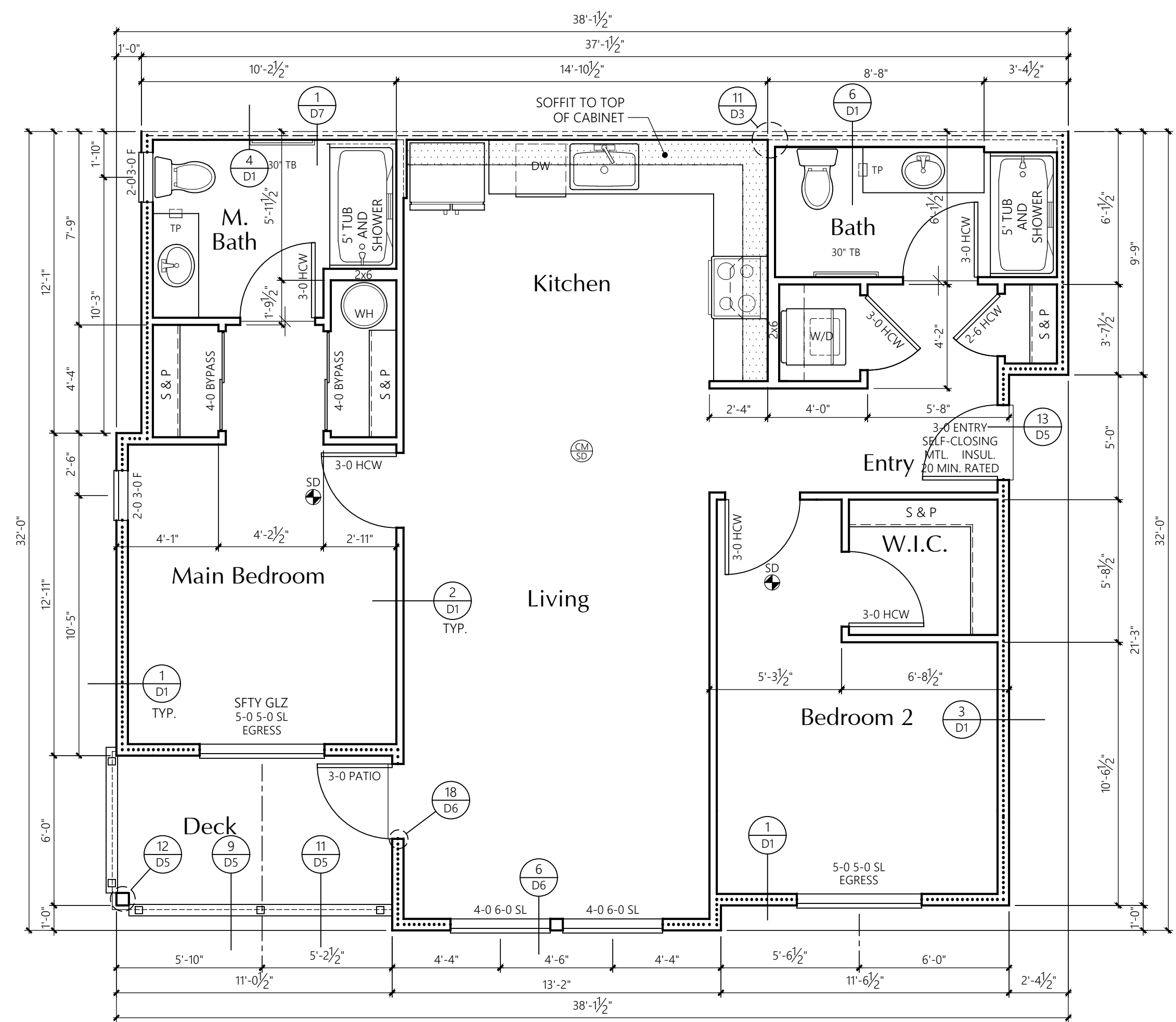
### 2-BED-ALT UNIT

1/4" = 1'-0"

### ALTERNATE 3rd LEVEL FLOOR PLAN

AREA SUMMARY		
	Heated SF	Patio/Deck SF
Total SF	980	60

\* Side of exterior walls to which area was measured



### 2-BED UNIT

1/4" = 1'-0"

### NON-ACCESSIBLE 2nd & 3rd LEVEL FLOOR PLAN

AREA SUMMARY		
	Heated SF	Patio/Deck SF
Total SF	1019	66

### UNIT PLAN NOTES

- FRAMING: 2x6'S AT EXTERIOR WALLS  
2x4'S AT INTERIOR WALLS  
UNLESS NOTED OTHERWISE.
- ..... R-21 BATT INSULATION U.N.O.
- R-13 BATT INSULATION  
3/8" ACOUSTICAL INSULATION ONE  
SIDE OF PARTYWALL, U.N.O.
- LOCATION OF SOFFIT FOR VENT  
RUNS. SOFFIT HEIGHT +8'-0" A.F.F.  
U.N.O. ON PLANS; SEE DETAIL 1/D7
- SD  
SMOKE DETECTOR
- SM  
CARBON MONOXIDE/SMOKE DETECTOR

PROVIDE WATER RESISTANT GYPSUM WALLBOARD  
BEHIND TUB AND SHOWER ENCLOSURE MATERIALS TO A  
HEIGHT OF 70" MINIMUM ABOVE THE DRAIN INLET.

NO PLUMBING SHALL BE LOCATED IN THE 1" AIR SPACE OF FIRE  
PARTITIONS OR FIRE WALLS.

ALL BEDROOM AND BATHROOM DOORS SHALL BE UNDERCUT  
A MINIMUM OF 1/2" ABOVE THE ADJACENT FLOOR COVERING.

THE FRONT DOOR SHALL BE OPENABLE FROM THE INSIDE  
WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR  
EFFORT. IT MAY BE PROVIDED WITH A NIGHT LATCH, DEAD  
BOLT OR SECURITY CHAIN, PROVIDED SUCH DEVICES ARE  
OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR  
TOOL, AND MOUNTED NOT TO EXCEED 48" ABOVE THE  
FINISHED FLOOR.

GYPSUM WALLBOARD SCHEDULE  
EXCEPT WHERE NOTED OTHERWISE, 5/8" TYPE 'X' GYPSUM  
WALLBOARD SHALL BE USED THROUGHOUT;  
ON INTERIOR NON-RATED WALLS, EXTERIOR WALLS,  
CORRIDOR WALLS, AND 1-HOUR AND 2-HOUR FIRE-RATED  
WALLS.

STANDARD PLATE  
HEIGHT: 9'-1"

SEE ELEVATION SHEETS FOR  
FLOOR TO FLOOR HEIGHTS

WINDOW HDR IS 8'-0"

UNLESS NOTED OTHERWISE

SEE SHEET U8 FOR INTERIOR ELEVATIONS  
AND ACCESSIBILITY REQUIREMENTS.

CONCEALED SPACES SHALL BE FIRESTOPPED IN BOTH  
DIRECTIONS AT 10'-0" ON CENTER AND AT FLOORS. TYPICAL.

ALL ESCAPE OR RESCUE WINDOWS FROM SLEEPING ROOMS  
SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5.7 SQUARE  
FEET. THE MINIMUM CLEAR OPENING HEIGHT DIMENSION  
SHALL BE 24". MINIMUM CLEAR OPENING WIDTH DIMENSION  
SHALL BE 20". EMERGENCY ESCAPE AND RESCUE OPENINGS  
SHALL HAVE THE BOTTOM OF CLEAR OPENING NOT GREATER  
THAN 44 INCHES MEASURED FROM THE FLOOR.

WHERE THE OPENING OF THE SILL PORTION OF AN OPERABLE  
WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE  
FINISHED GRADE OR OTHER SURFACE BELOW, THE LOWEST  
PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE AT  
A HEIGHT NOT LESS THAN 36 INCHES ABOVE THE FINISHED  
FLOOR SURFACE OF THE ROOM IN WHICH THE WINDOW IS  
LOCATED. OPERABLE SECTIONS OF WINDOWS SHALL NOT  
PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4-INCH  
DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED  
WITHIN 36 INCHES OF THE FINISHED FLOOR.

ALL GLAZING SHALL CONFORM TO THE 2018 IRC,  
CHAPTER 24, SEC. 2406, SAFETY GLAZING. GLAZING IN ALL  
DOORS SHALL BE SAFETY TYPE AND ALL GLAZING WITHIN A  
24" ARC OF EITHER VERTICAL EDGE SHALL BE SAFETY TYPE.

PROVIDE 3/8" TYPE 'X' (MIN.) GYPSUM SHEATHING ON WALLS  
BEHIND TUB/SHOWERS TO SATISFY FIRE REQUIREMENTS AT  
PARTYWALL CONDITION. PROVIDE 1/2" PLYWOOD UNDER TUB  
IN PLACE OF THE GYPCRETE, SEE DETAIL 14/D1

### DOOR KEY:

- TYPE:  
SW = SWING  
BF = BIFOLD  
BP = BYPASS
- CONSTRUCTION:  
HCW = HOLLOW CORE WD.  
SCW = SOLID CORE WD.  
MTL = METAL  
HM = HOLLOW METAL

### WINDOW KEY:

- TYPE:  
FIX = FIXED/PICTURE  
SL = SLIDER  
SH = SINGLE HUNG  
SGD = SLIDING GLASS DOOR

### INSULATION

FOUNDATION PERIMETER - R-10 RIGID INSULATION  
TO A DEPTH OF 24" OR TO TOP OF FOOTING AT  
HEATED PERIMETER

EXTERIOR WALLS: FIBERGLASS BATTS OR BLANKETS  
2x6 WALLS - R21

FLOORS OVER UNHEATED SPACES - R30

ATTICS AND ROOF ASSEMBLIES - R-49  
FULL HEIGHT OF UNCOMPRESSED INSULATION  
EXTENDS OVER THE WALL TOP PLATE AT  
THE EAVES.

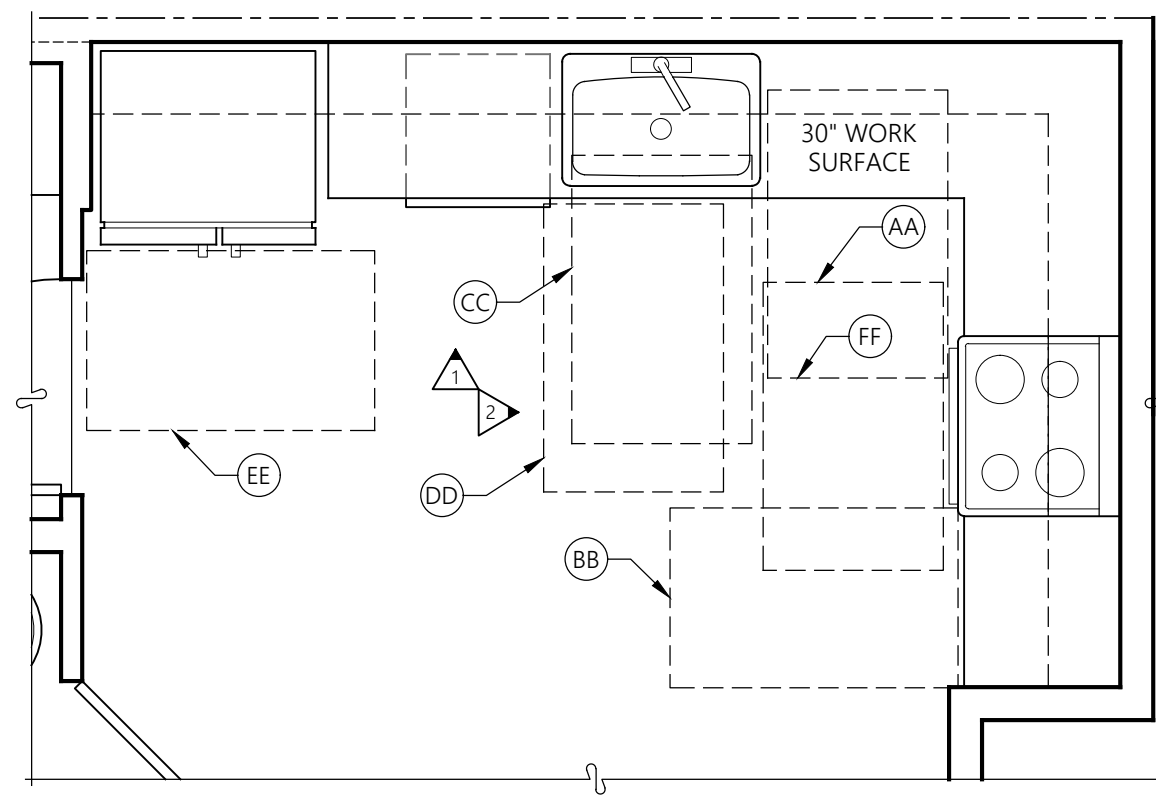
EXTERIOR DOORS: MAIN ENTRY U=0.20  
ALL OTHERS U=0.40

WINDOWS: MILGARD VINYL

TYPE (VINYL)	MODEL	U-VALUE
SLIDING	6110 ARGON/LoE	0.24 or BETTER
FIXED	6310 ARGON/LoE	0.24 or BETTER
SINGLE HUNG	6210 ARGON/LoE	0.24 or BETTER
DBL SLIDER	8125 ARGON/LoE	0.24 or BETTER
SGD	6610 ARGON/LoE	0.24 or BETTER

NOTE: ALL CONCEALED OR EXPOSED INSULATION  
SHALL HAVE A FLAME SPREAD INDEX OF NOT  
MORE THAN 25 AND A SMOKE-DEVELOPED  
INDEX OF NOT MORE THAN 450

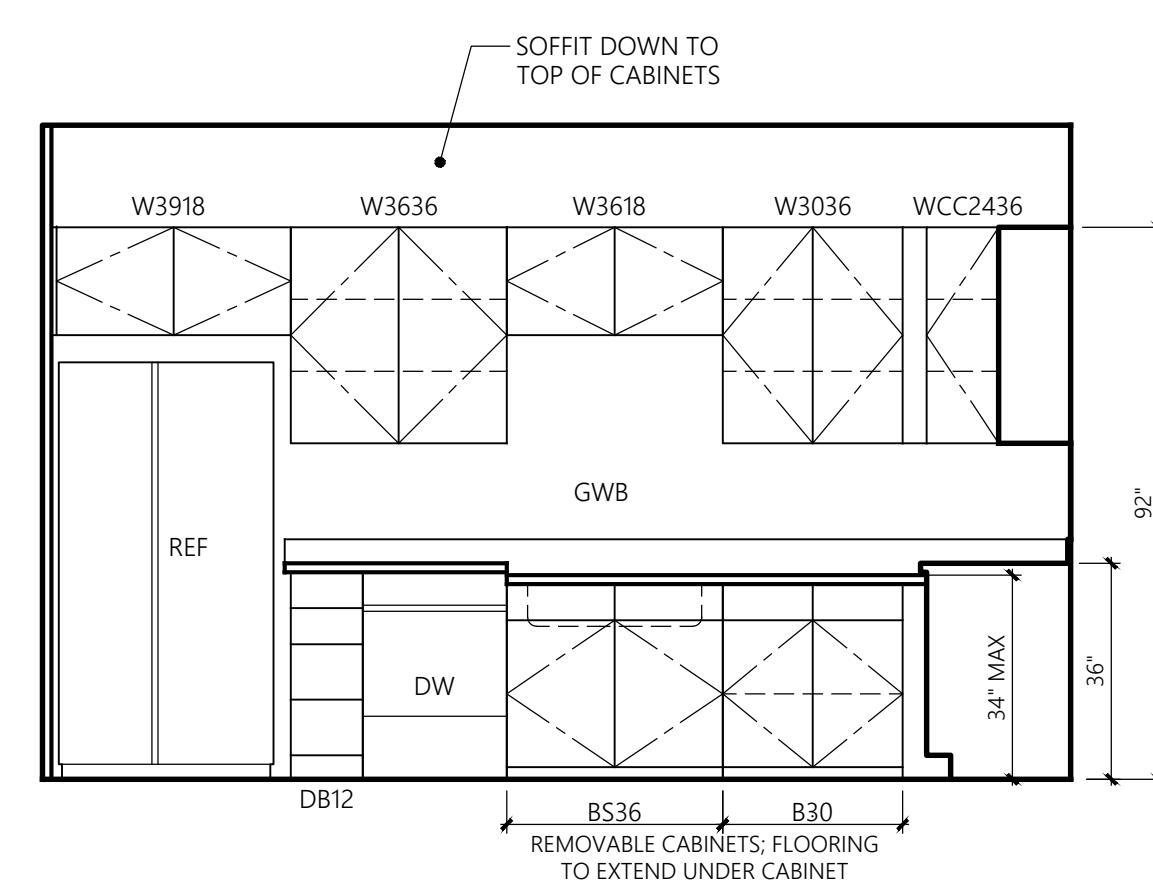




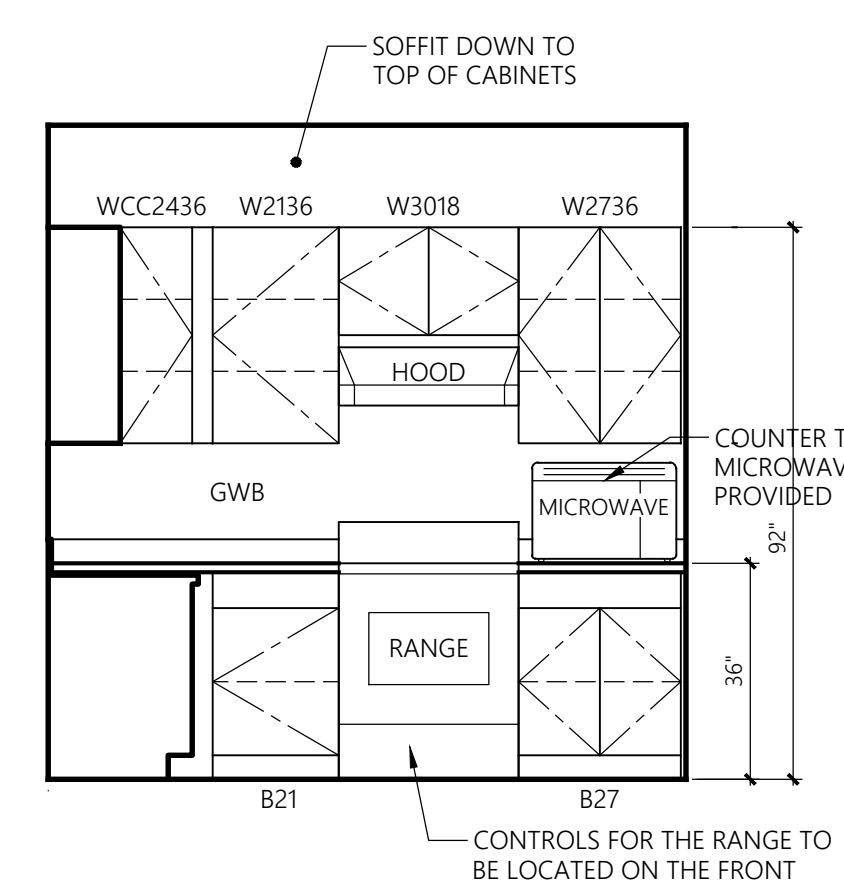
**1-BED-UNIT**

3/8" = 1'-0"

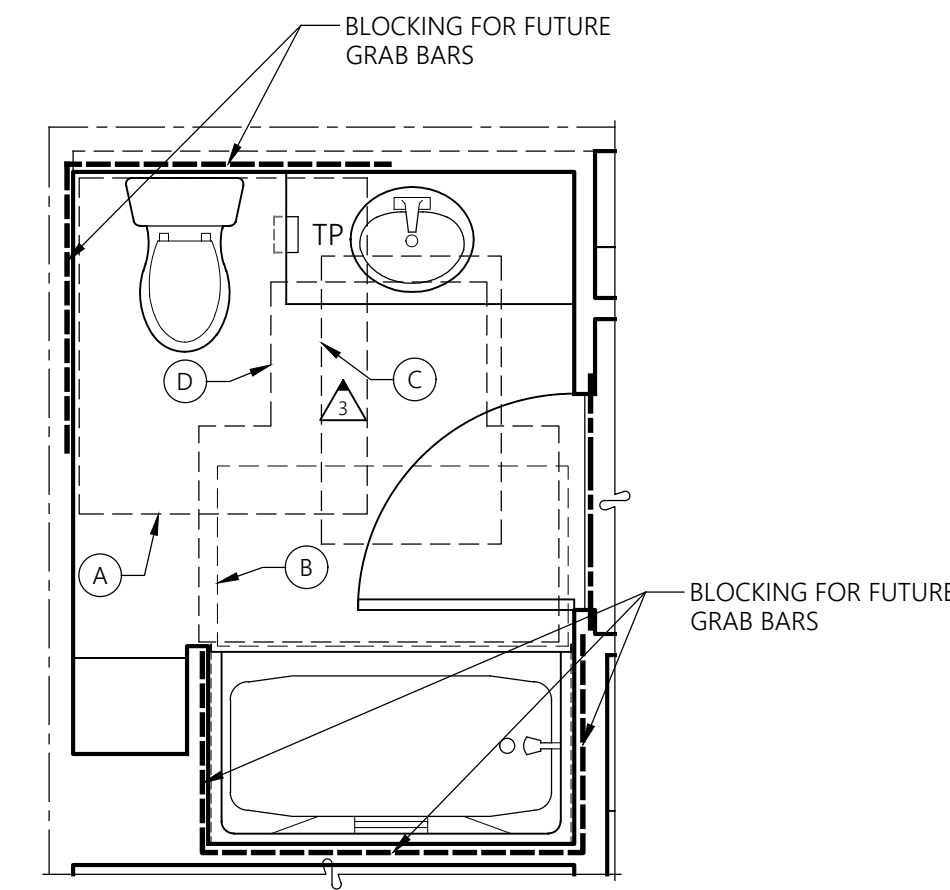
TYPE 'A'  
KITCHEN PLAN



**1** KITCHEN



**2** KITCHEN

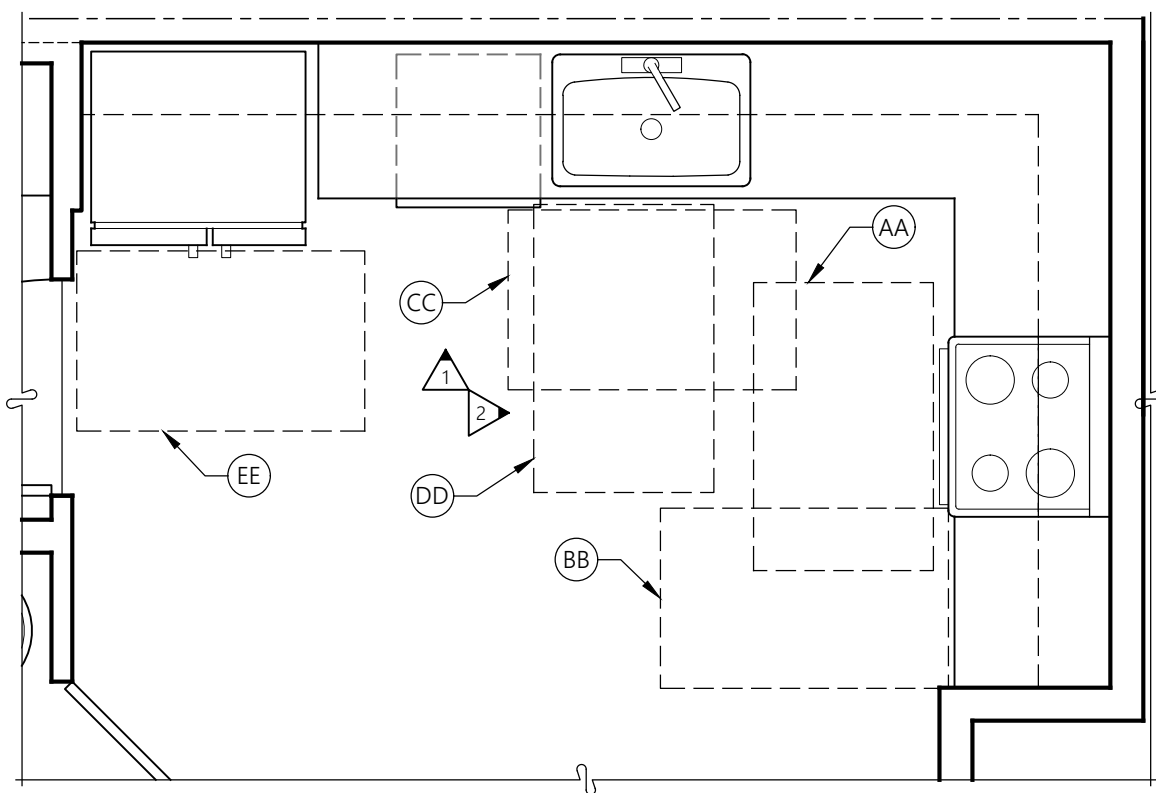
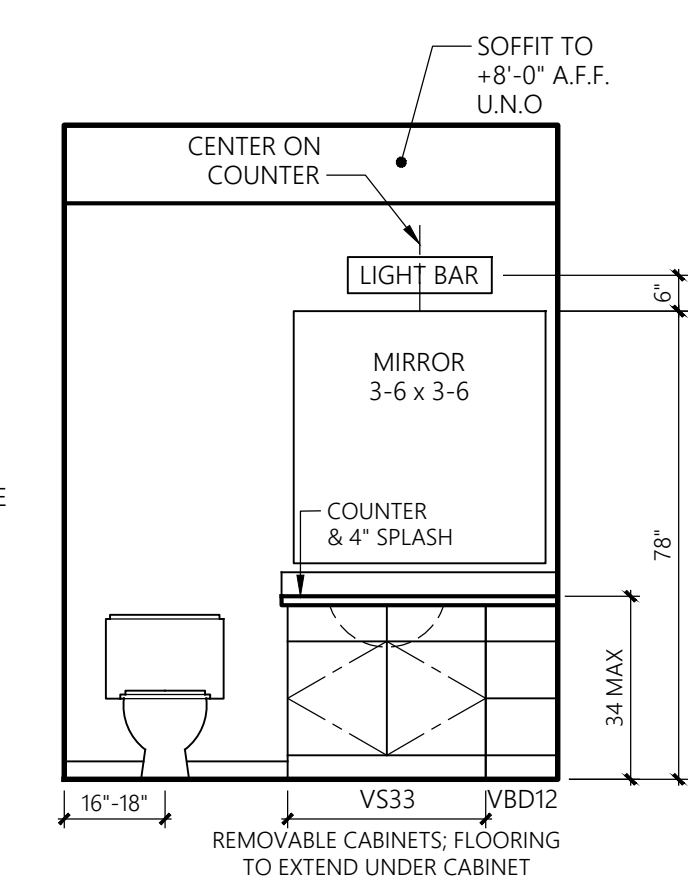


**1-BED-UNIT** BATHROOM PLAN

3/8" = 1'-0"

TYPE 'A'

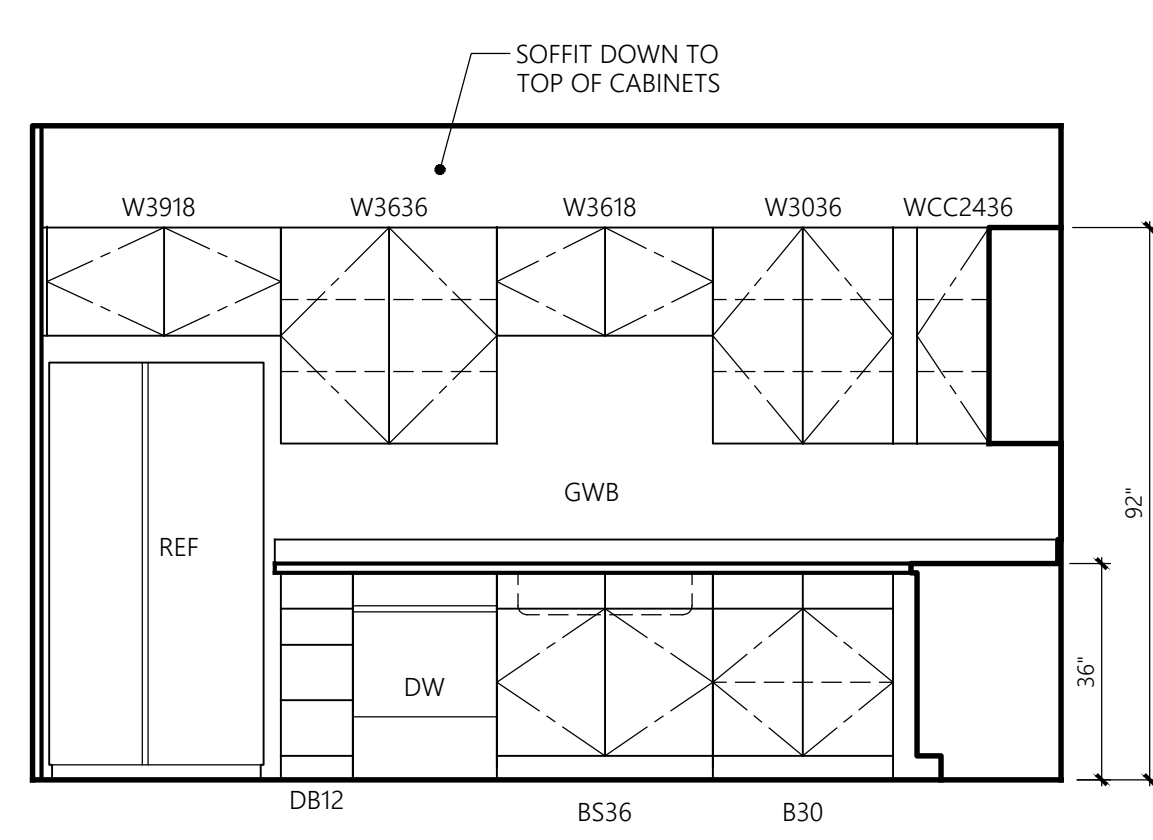
**3** BATH



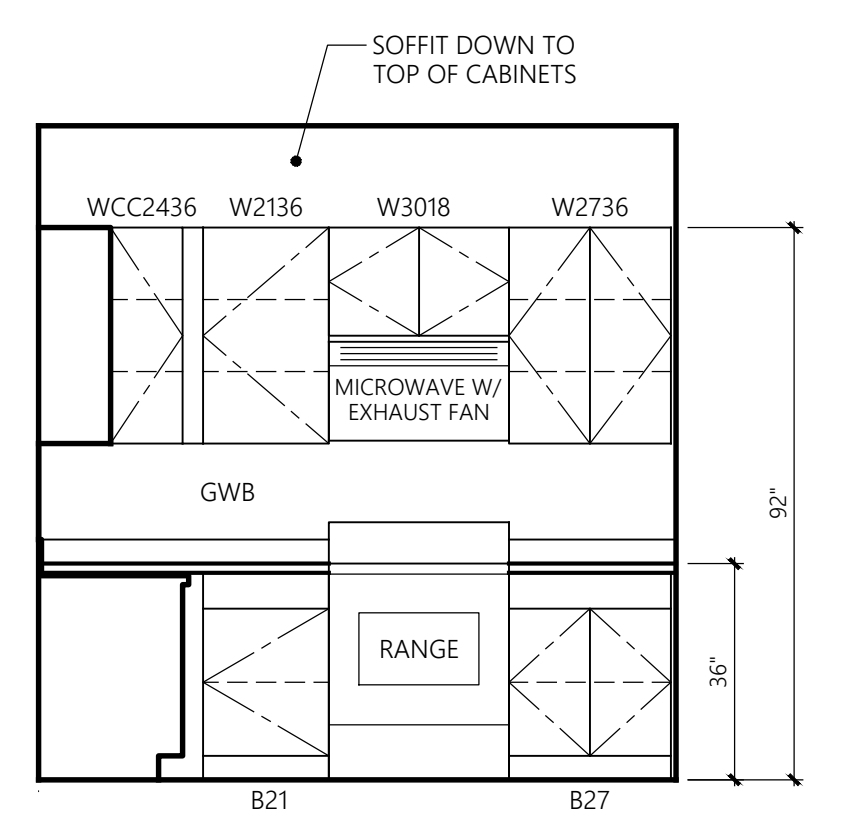
**1-BED-UNIT**

3/8" = 1'-0"

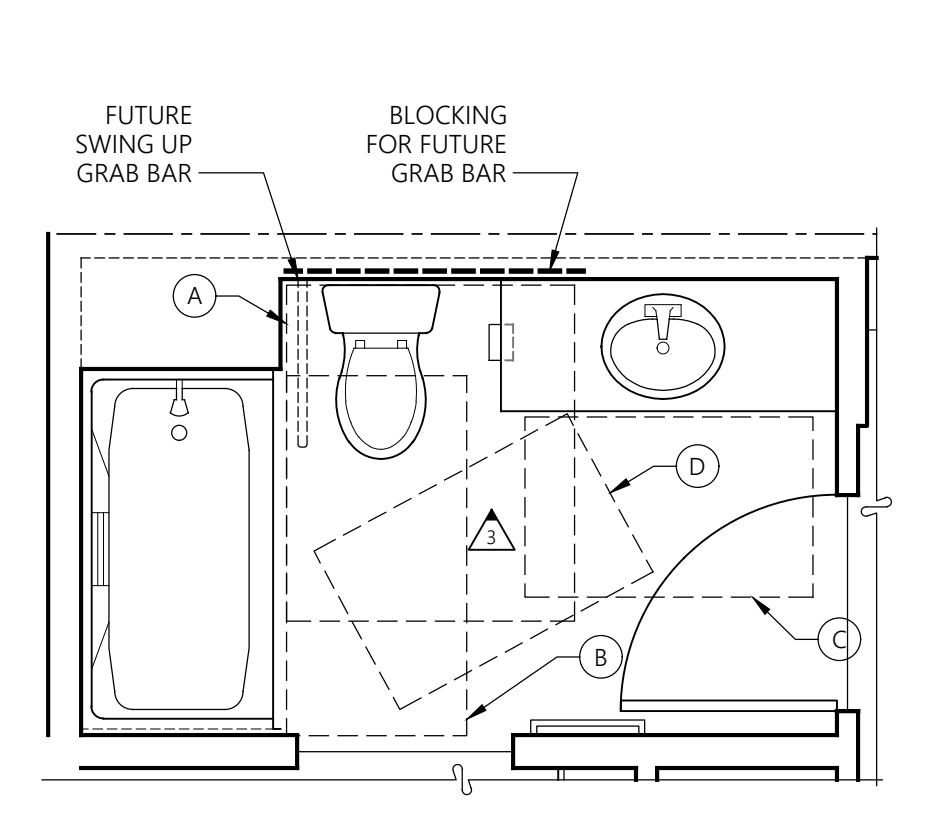
TYPE 'B'  
KITCHEN PLAN



**1** KITCHEN



**2** KITCHEN

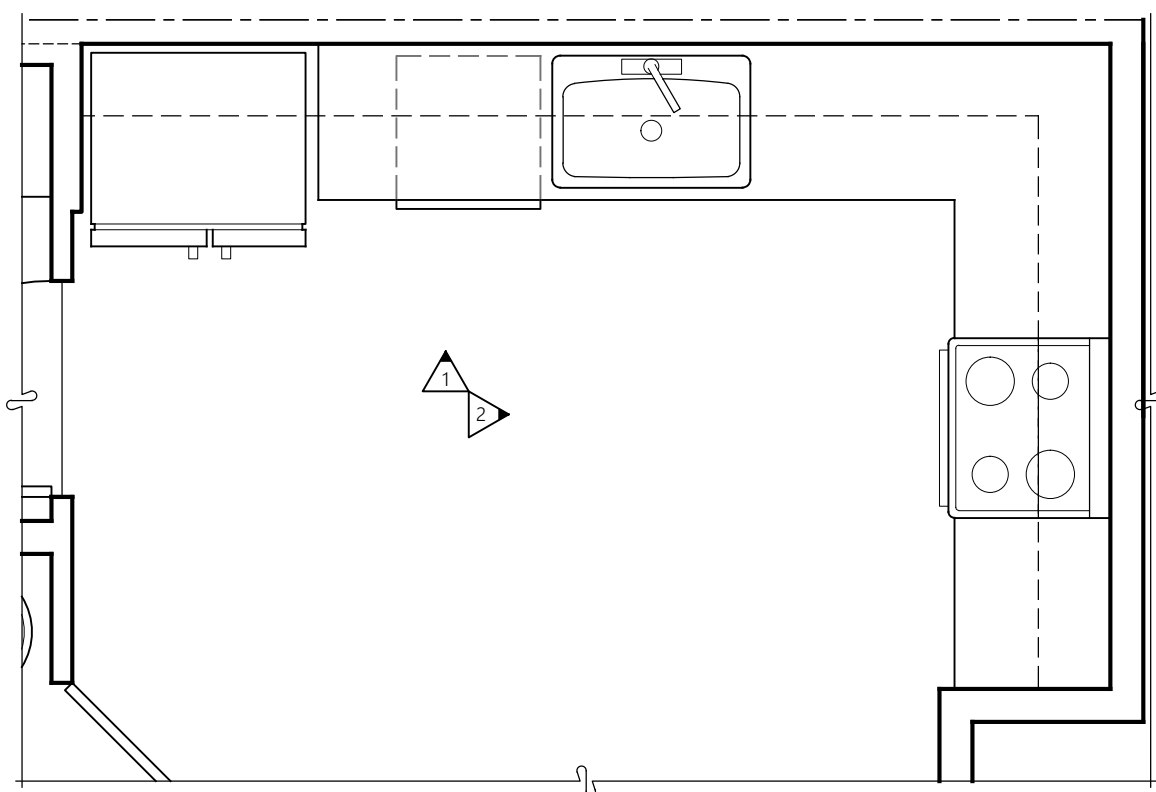
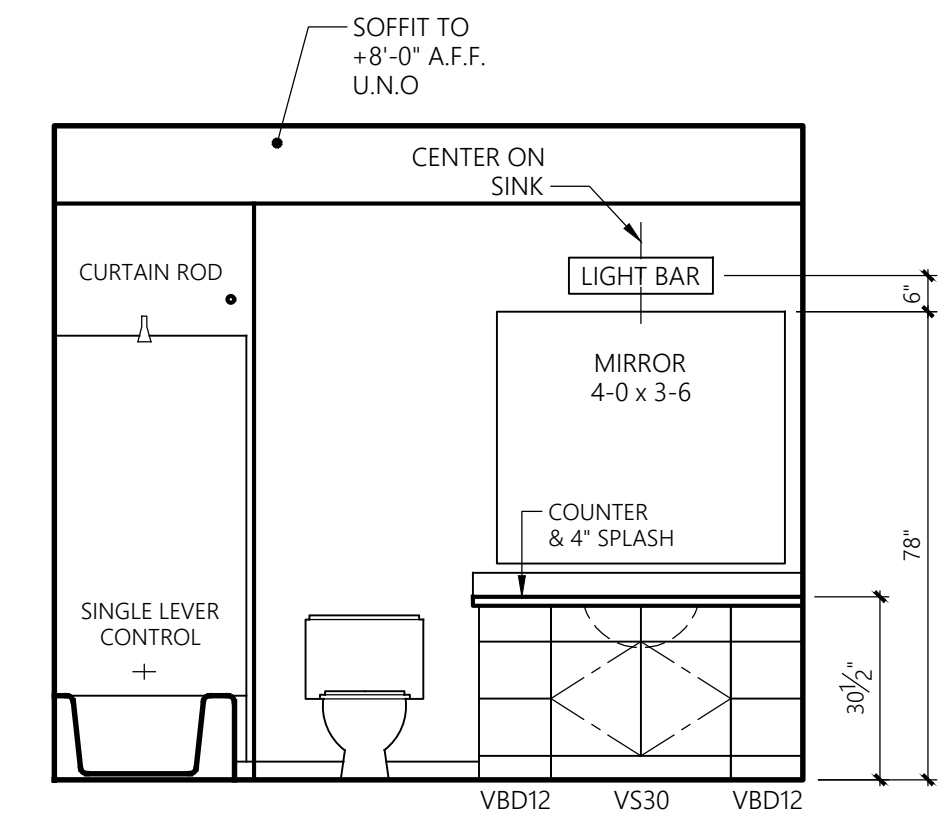


**1-BED-UNIT** BATHROOM PLAN

3/8" = 1'-0"

TYPE 'B'

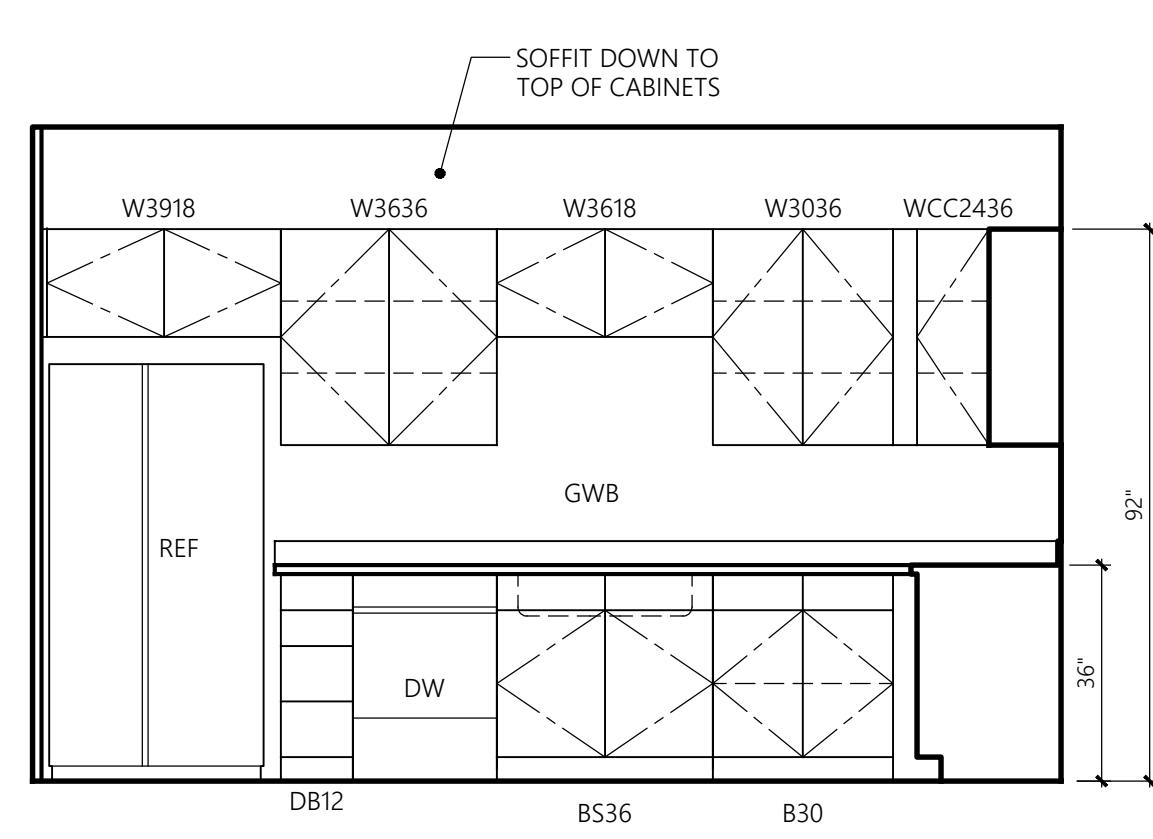
**3** BATH



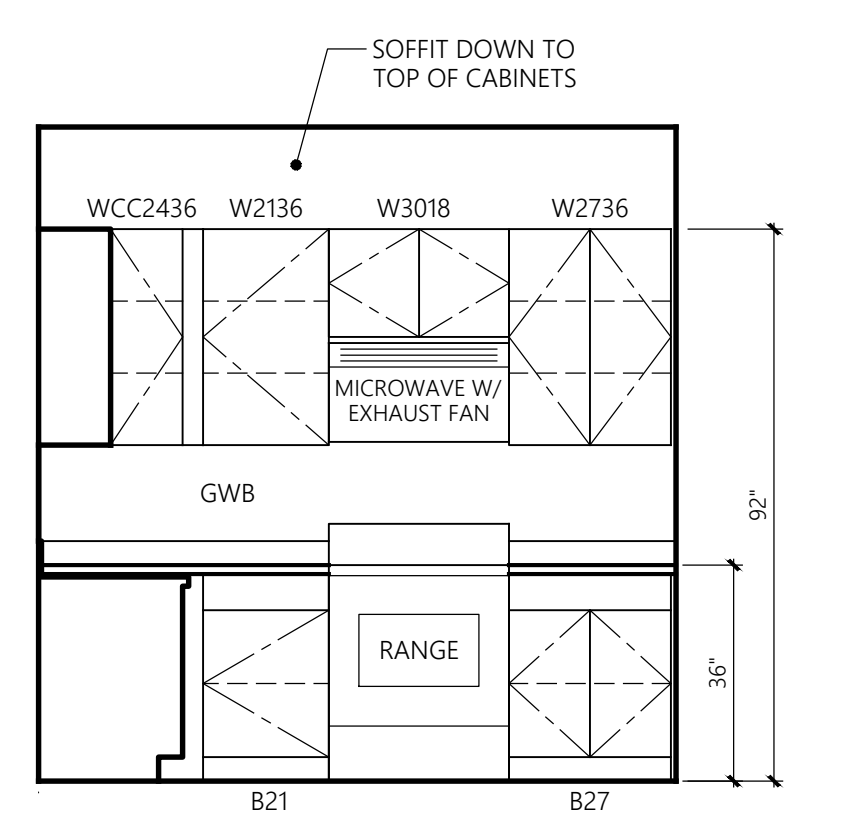
**1-BED-UNIT**

3/8" = 1'-0"

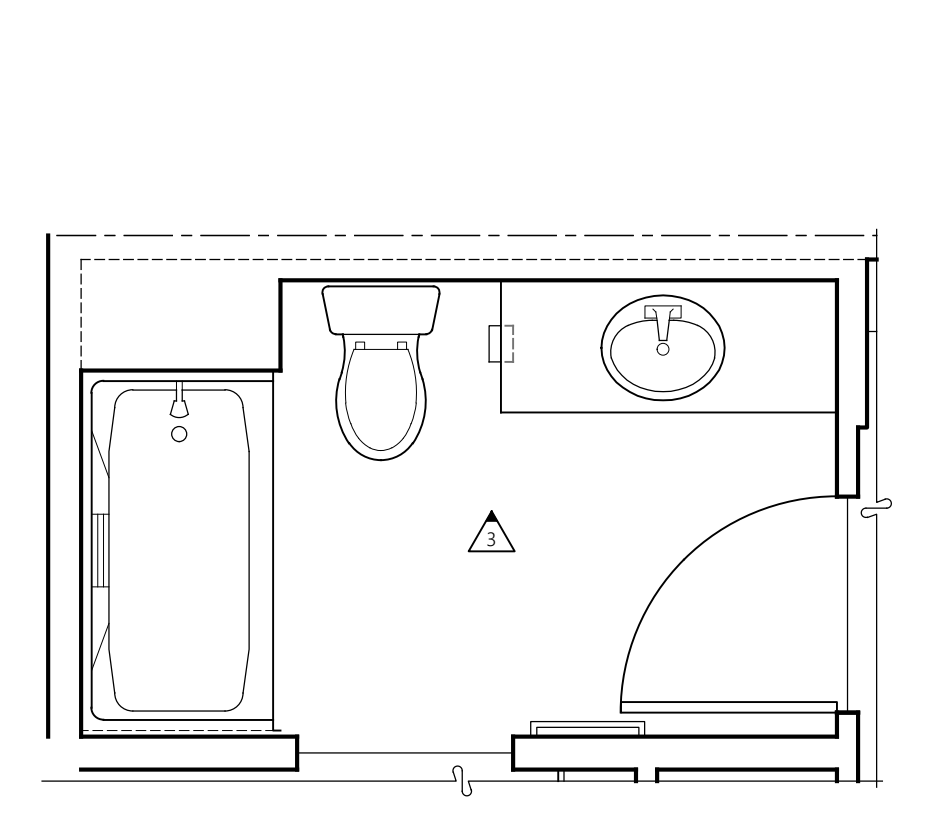
NON-ACCESSIBLE  
KITCHEN PLAN



**1** KITCHEN



**2** KITCHEN

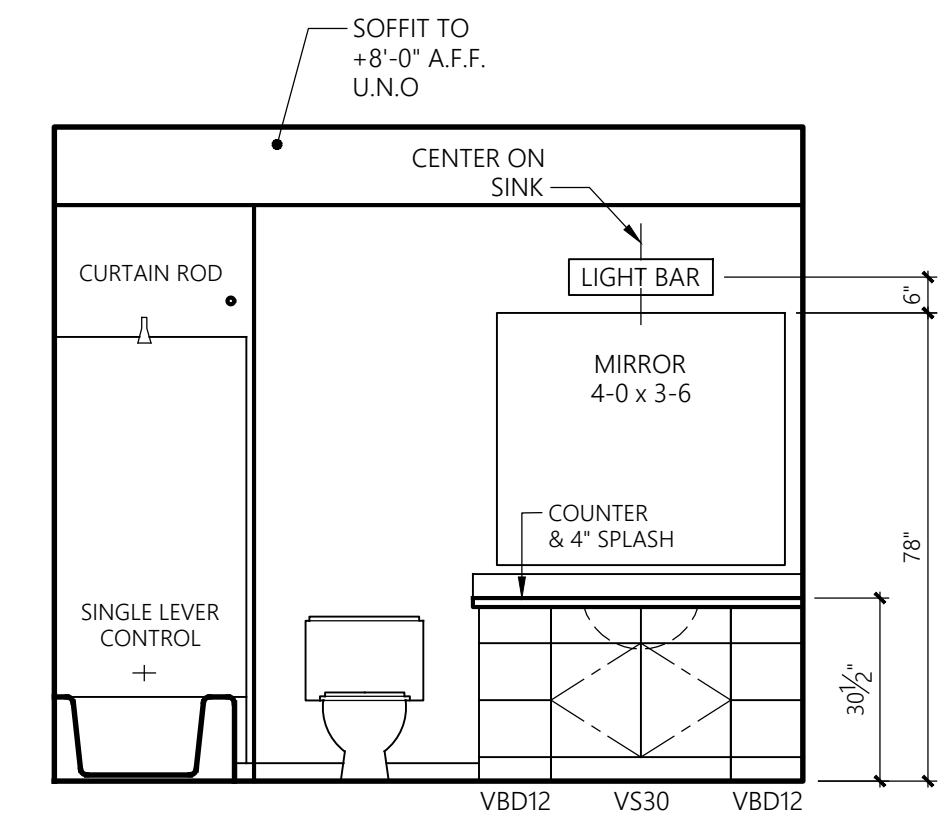


**1-BED-UNIT** BATHROOM PLAN

3/8" = 1'-0"

NON-ACCESSIBLE

**3** BATH



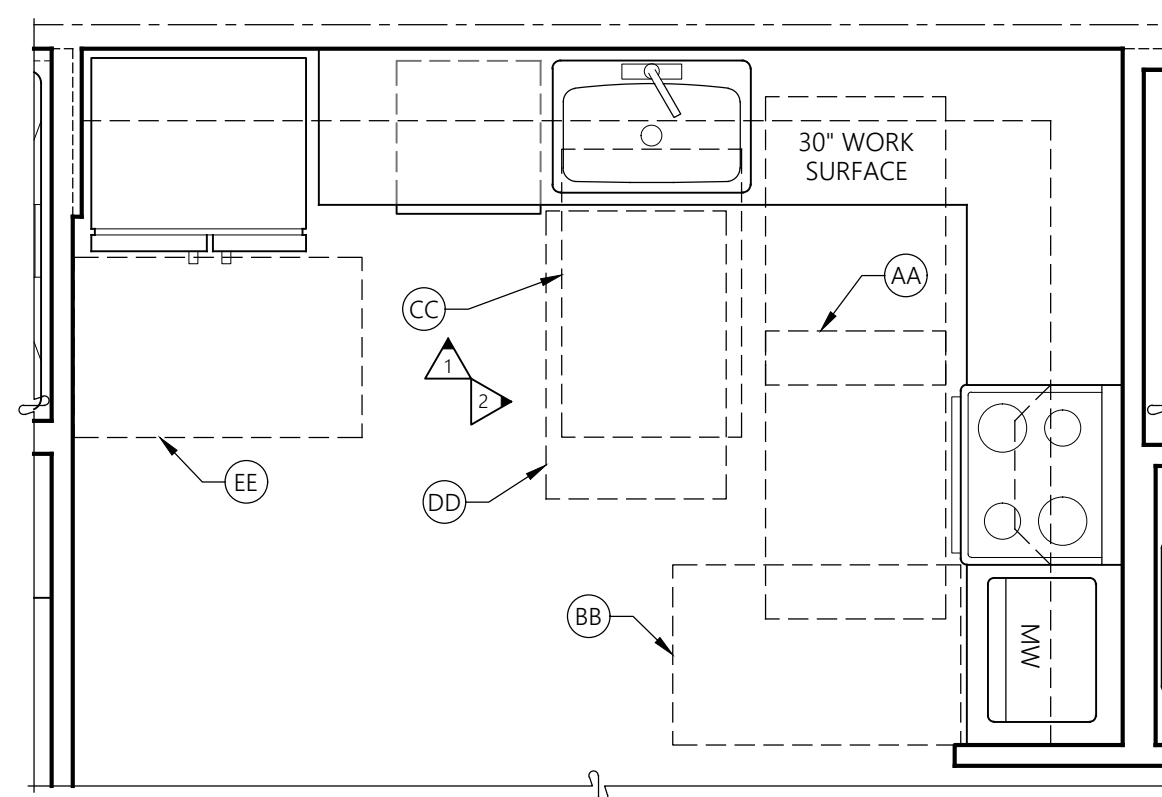
\*SEE SHEET U9  
FOR  
ACCESSIBILITY  
STANDARDS

**CLEAR FLOOR SPACE LEGEND**  
TYPE A UNIT

- (A) 60x66 CLEAR FLOOR SPACE AT TOILET.
- (B) 30x60 CLEAR FLOOR SPACE AT TUB.
- (C) 30"x48" CLEAR FLOOR SPACE CENTERED ON SINK
- (D) 60" DIAMETER TURNING CIRCLE OR T-SHAPE TURNING SPACE
- (AA) 30x48 CLEAR FLOOR SPACE AT STOVE.
- (BB) 30x48 CLEAR FLOOR SPACE AT OVEN.
- (CC) 30x48 CLEAR FLOOR SPACE AT SINK.
- (DD) 30x48 CLEAR FLOOR SPACE AT DISHWASHER.
- (EE) 30x48 CLEAR FLOOR SPACE AT REFRIGERATOR.
- (FF) 30x48 CLEAR FLOOR SPACE AT WORK SURFACE.
- (GG) 30x48 CLEAR FLOOR SPACE AT WASHER/DRYER

**CLEAR FLOOR SPACE LEGEND**  
TYPE B UNIT

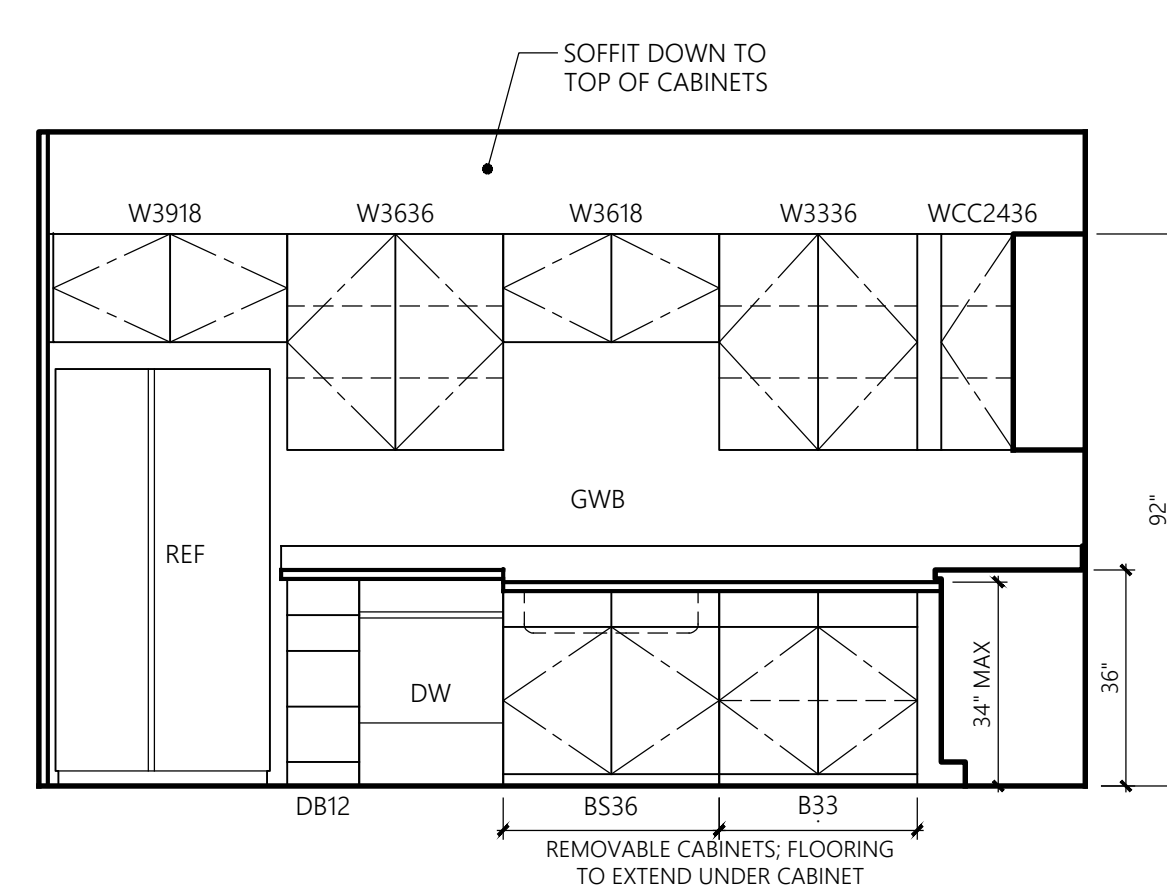
- (A) 48x56 CLEAR FLOOR SPACE AT TOILET.
- (B) 30x48 CLEAR FLOOR SPACE AT TUB.
- (C) 30"x48" CLEAR FLOOR SPACE CENTERED ON SINK
- (D) 30"x48" CLEAR FLOOR SPACE BEYOND ARC OF DOOR.
- (AA) 30x48 CLEAR FLOOR SPACE AT STOVE.
- (BB) 30x48 CLEAR FLOOR SPACE AT OVEN.
- (CC) 30x48 CLEAR FLOOR SPACE AT SINK.
- (DD) 30x48 CLEAR FLOOR SPACE AT DISHWASHER.
- (EE) 30x48 CLEAR FLOOR SPACE AT REFRIGERATOR.
- (GG) 30x48 CLEAR FLOOR SPACE AT WASHER/DRYER



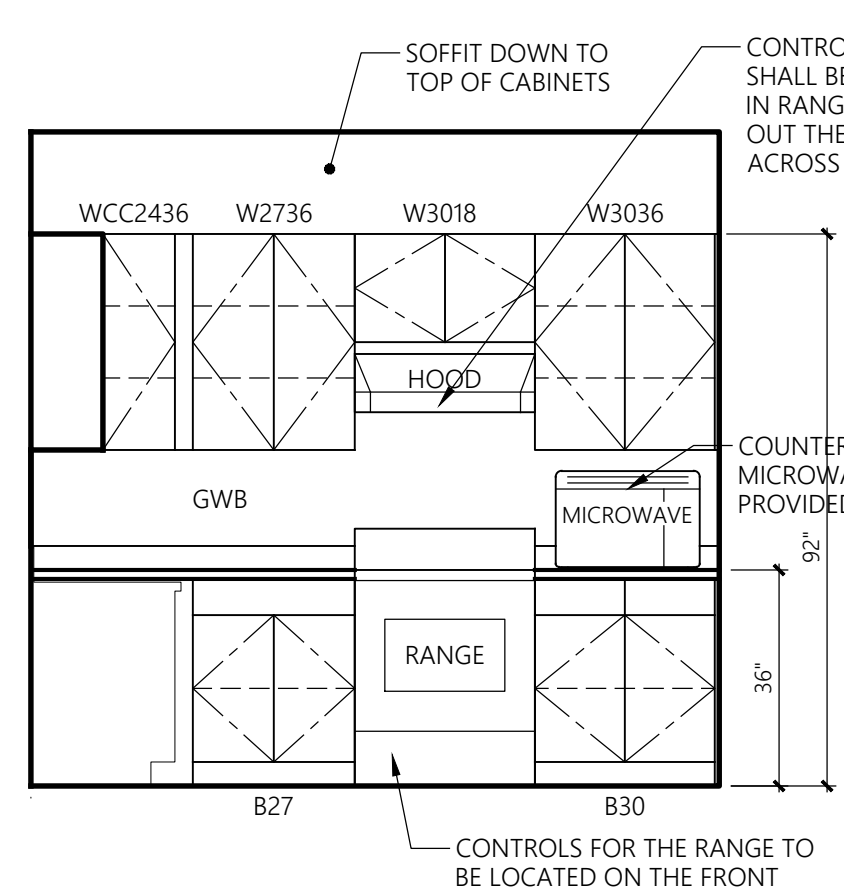
**2-BED UNIT**

3/8" = 1'-0"

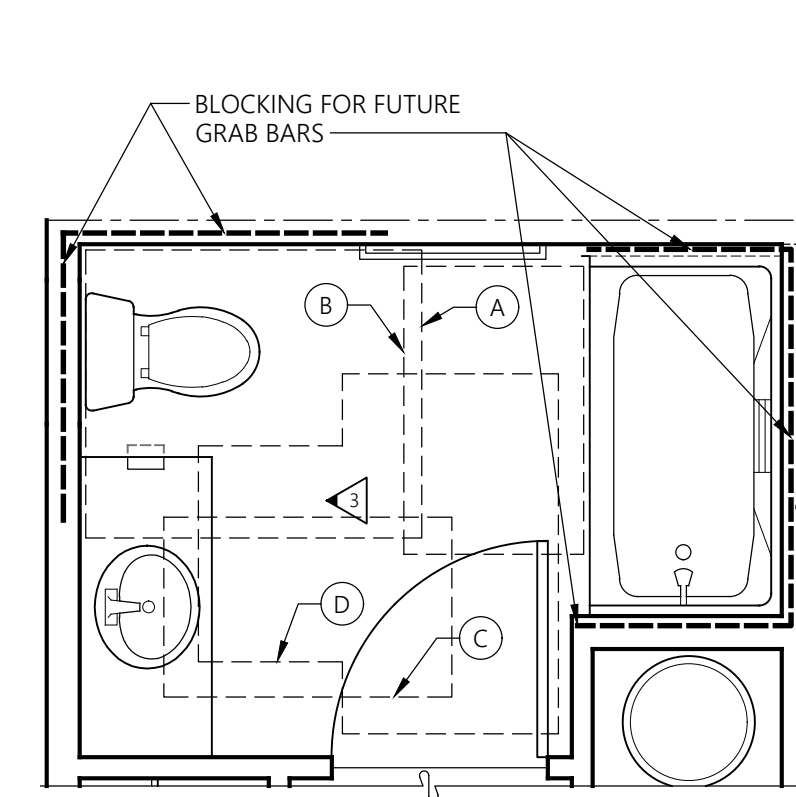
TYPE 'A'  
KITCHEN PLAN



① KITCHEN



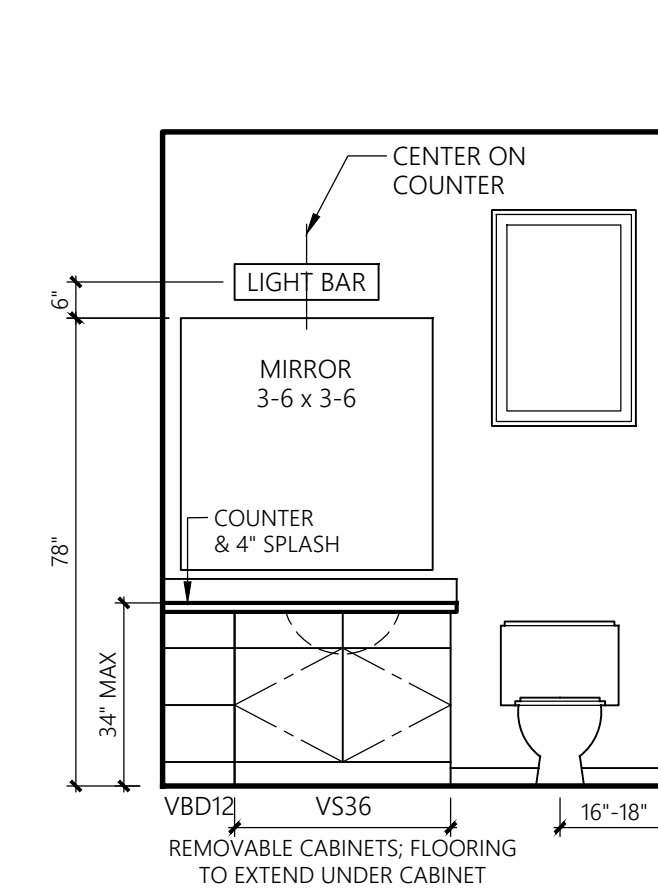
② KITCHEN



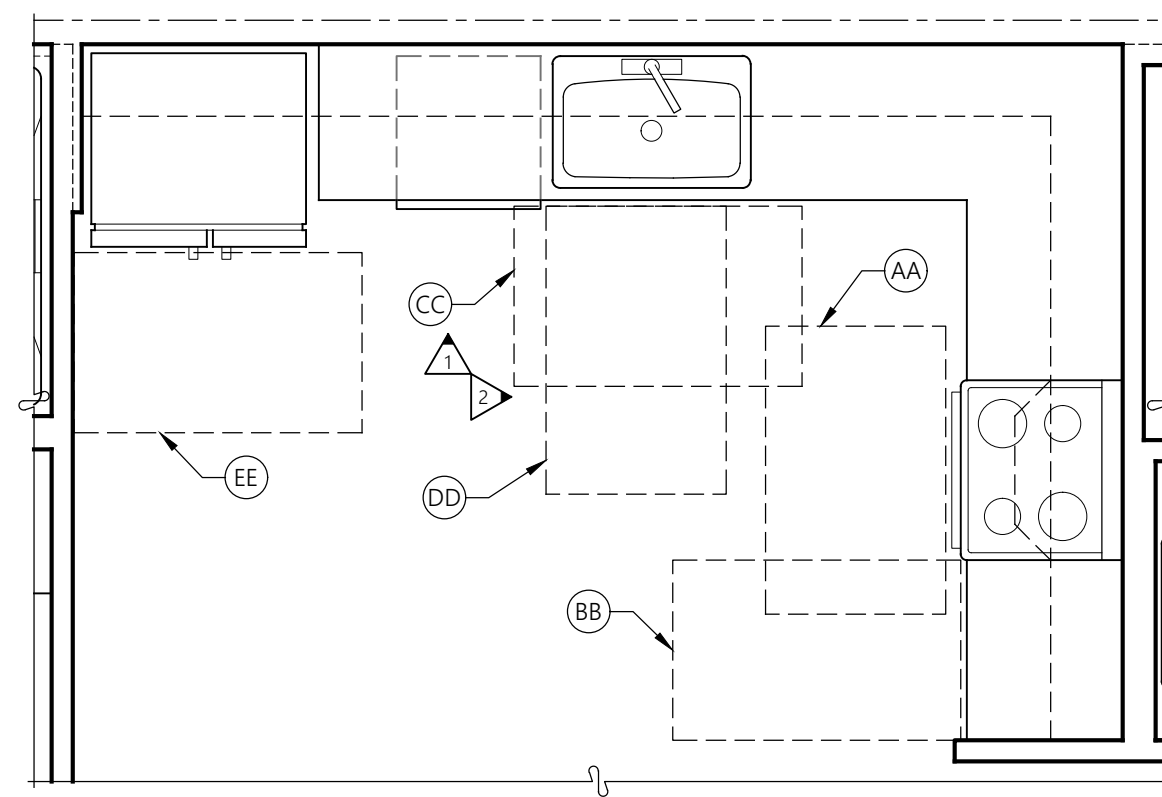
**2-BED UNIT**

3/8" = 1'-0"

TYPE 'A'  
MAIN BATHROOM PLAN



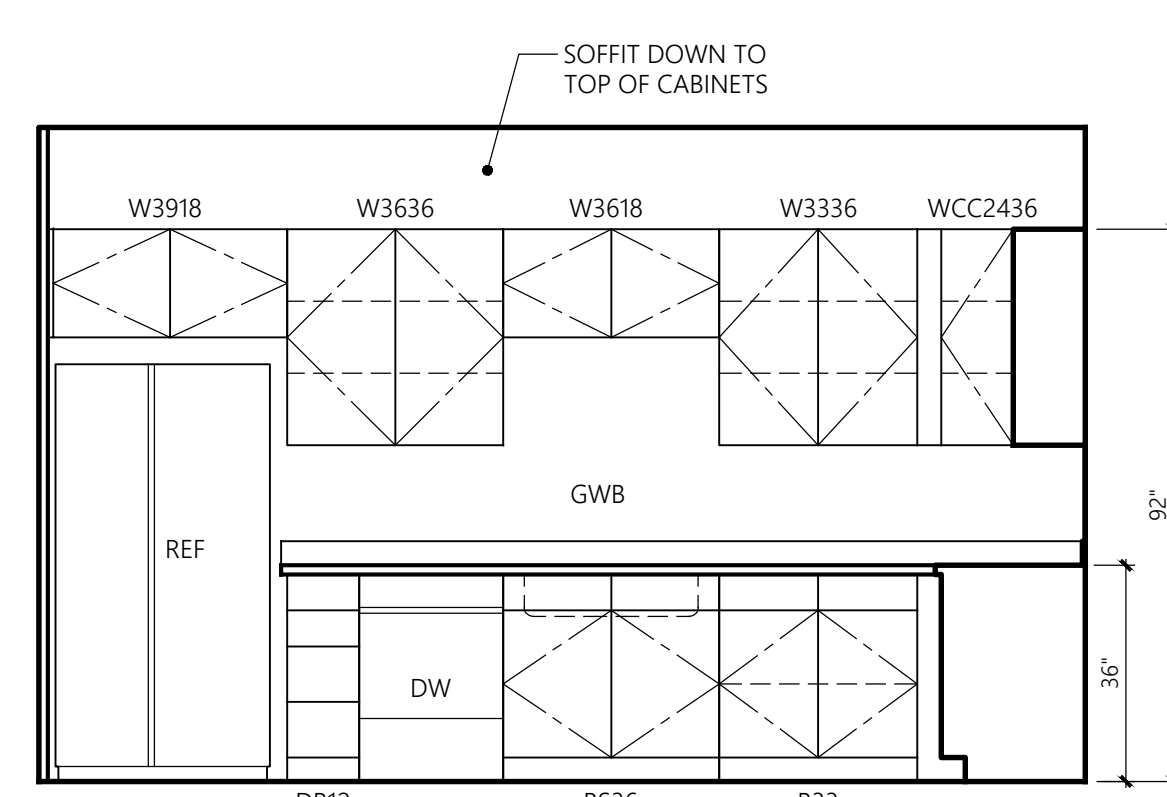
③ MAIN BATH



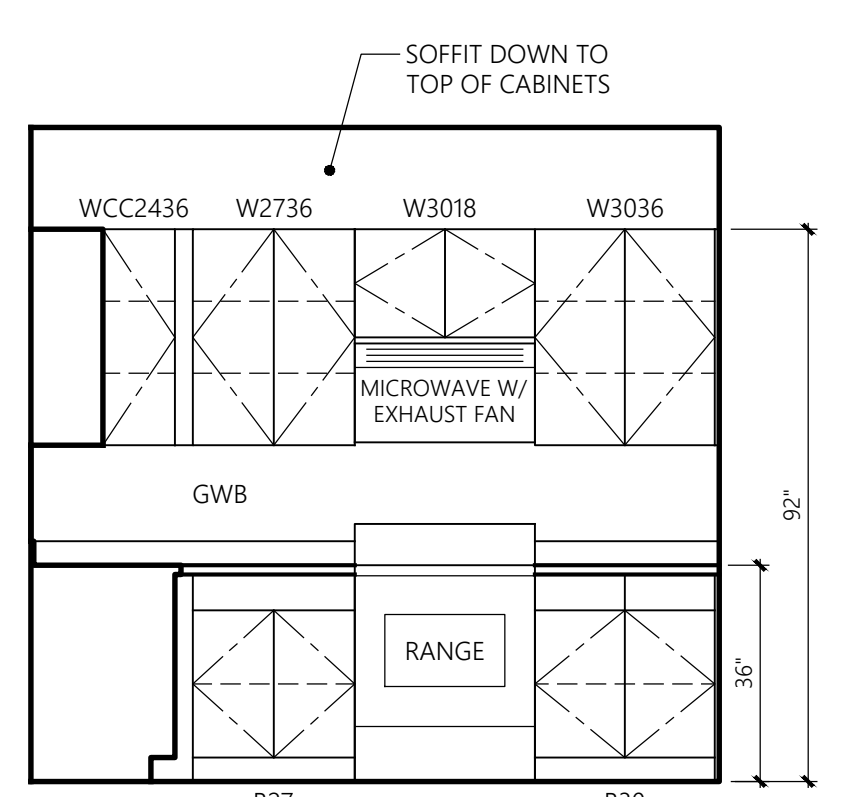
**2-BED UNIT**

3/8" = 1'-0"

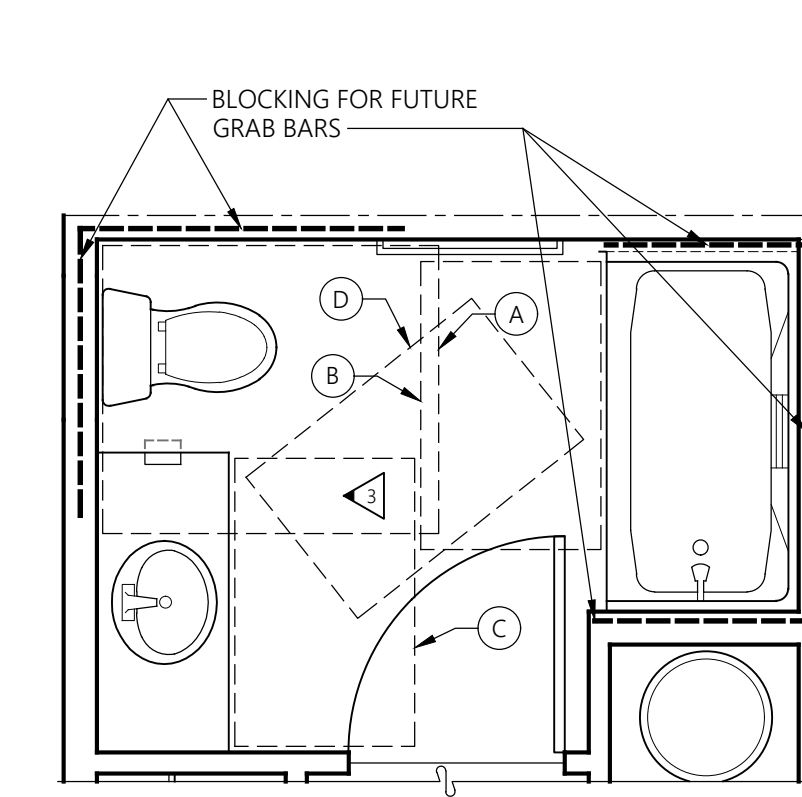
TYPE 'B'  
KITCHEN PLAN



① KITCHEN



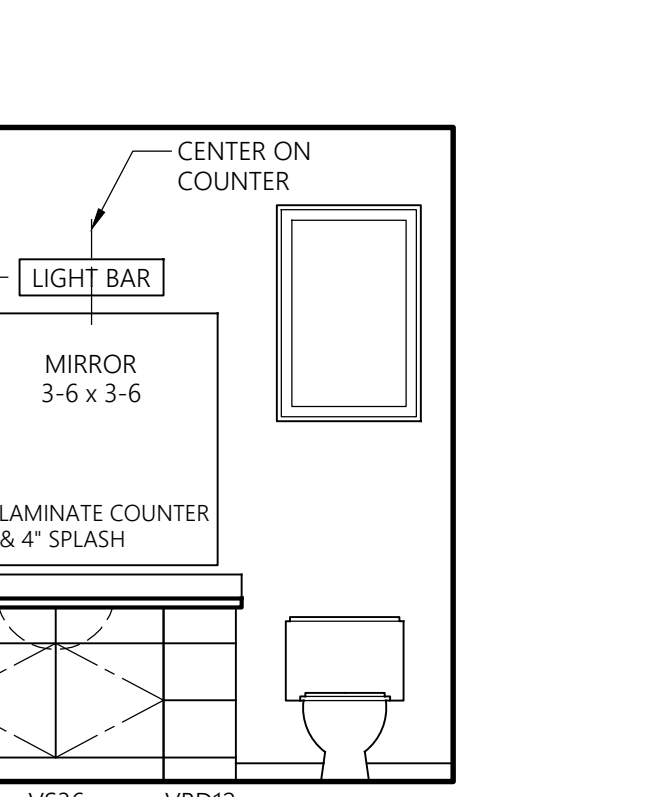
② KITCHEN



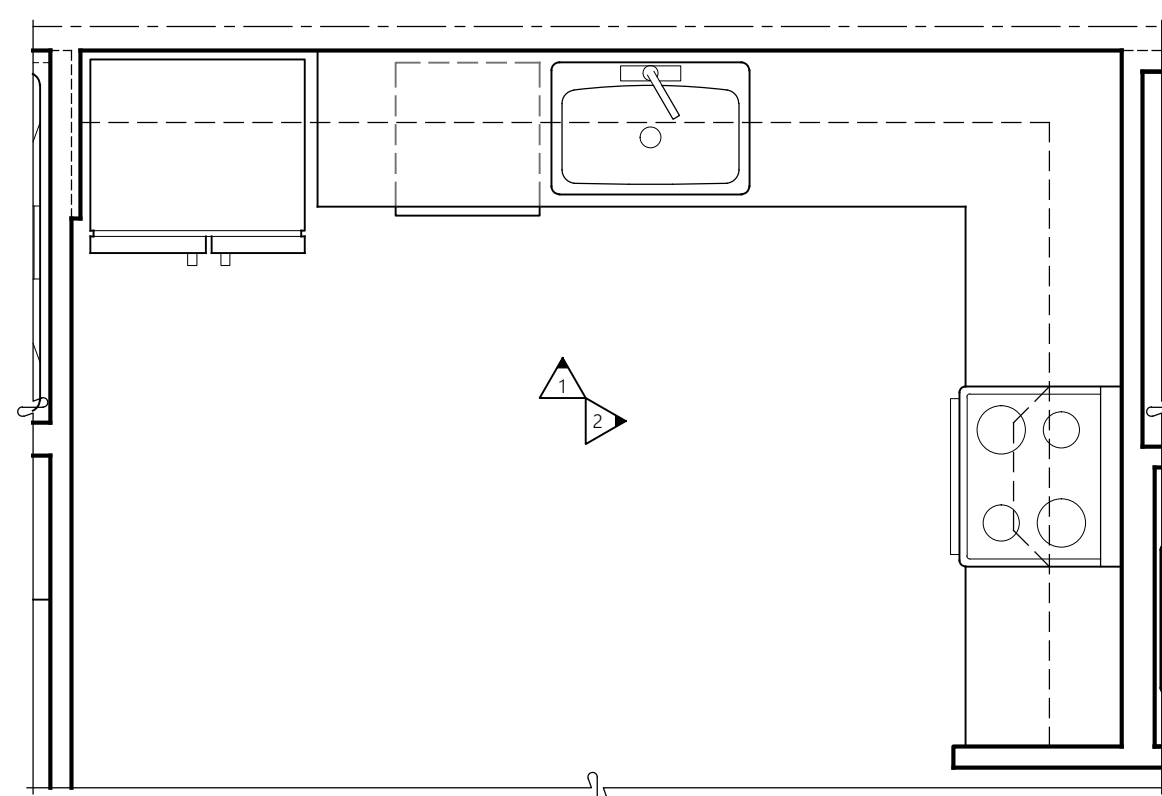
**2-BED UNIT** BATHROOM PLAN

3/8" = 1'-0"

TYPE 'B' ACCESSIBLE UNIT



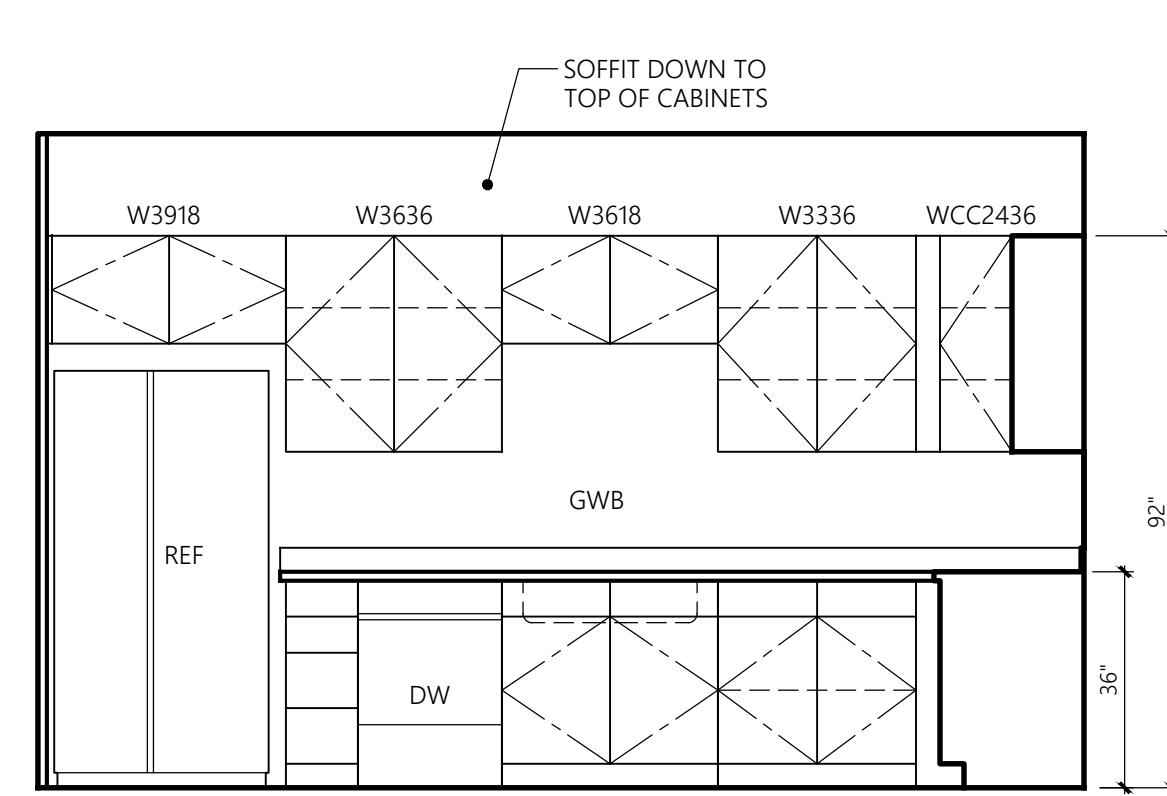
③ BATH



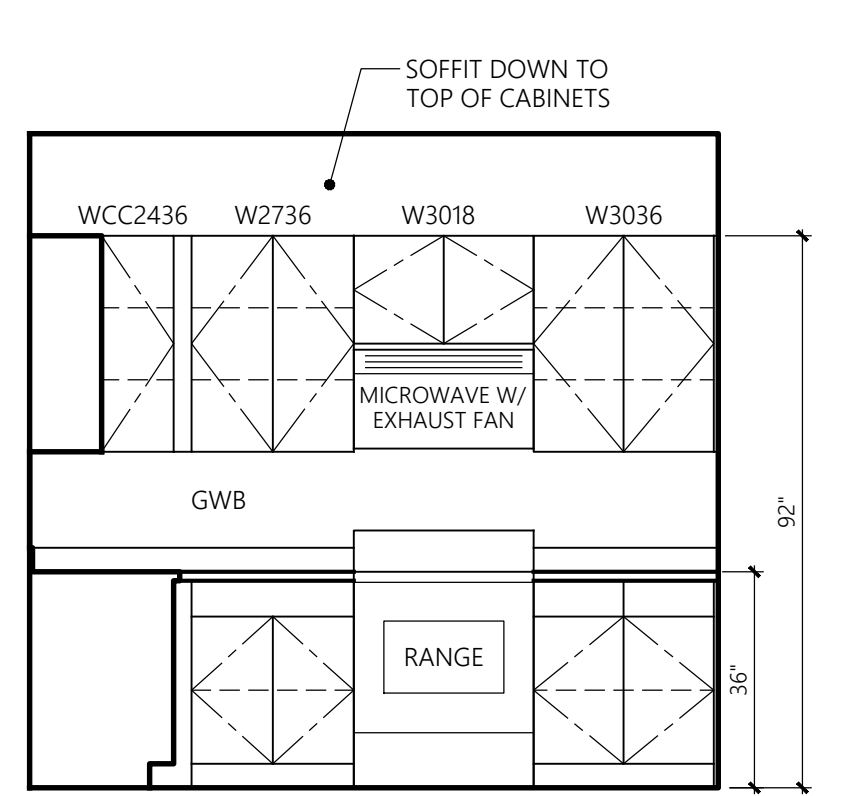
**2-BED UNIT**

3/8" = 1'-0"

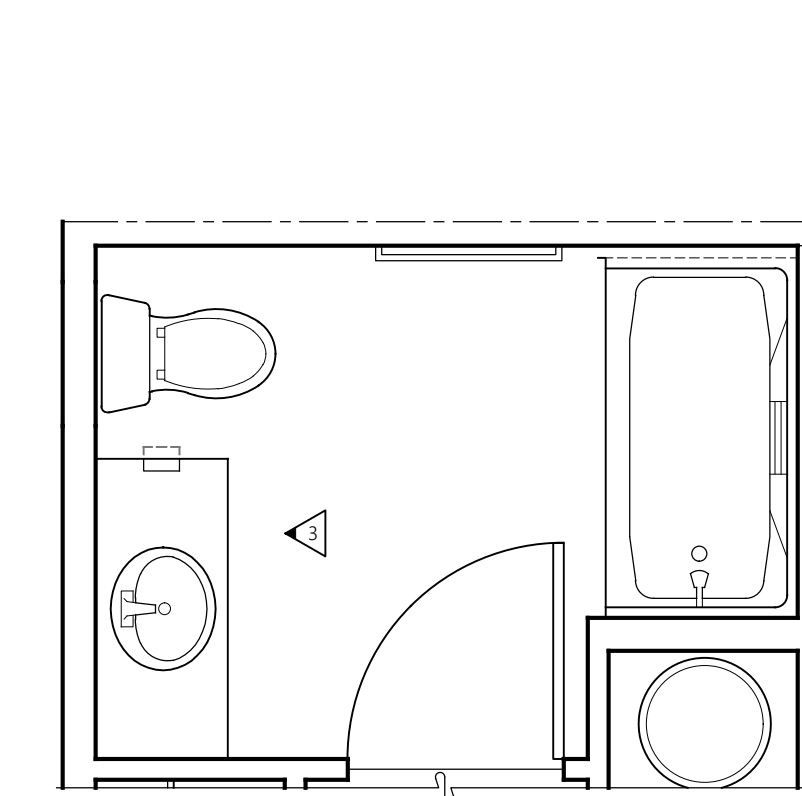
NON-ACCESSIBLE  
KITCHEN PLAN



① KITCHEN



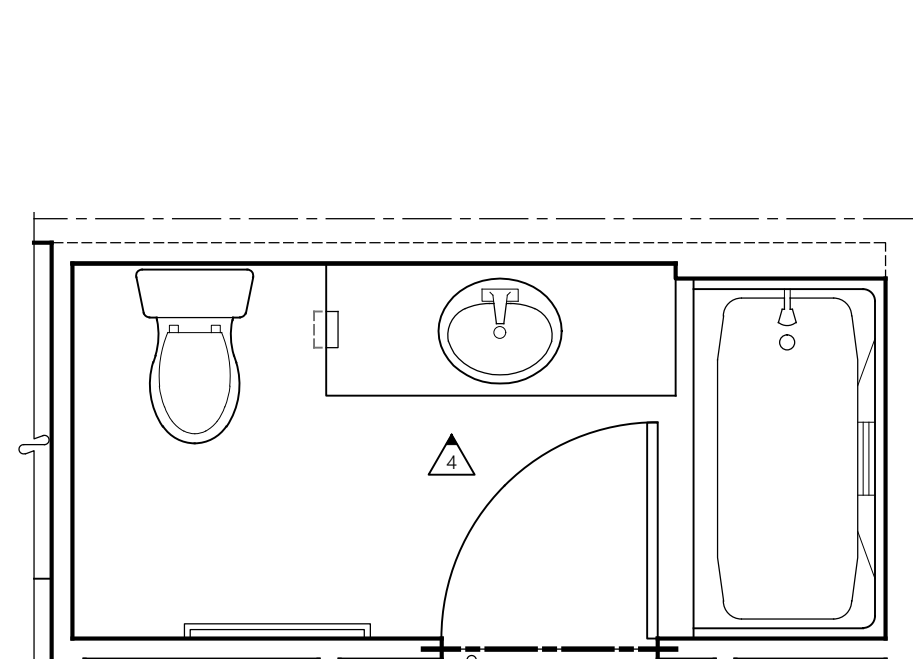
② KITCHEN



**2-BED UNIT** NON-ACCESSIBLE  
BATHROOM PLAN

3/8" = 1'-0"

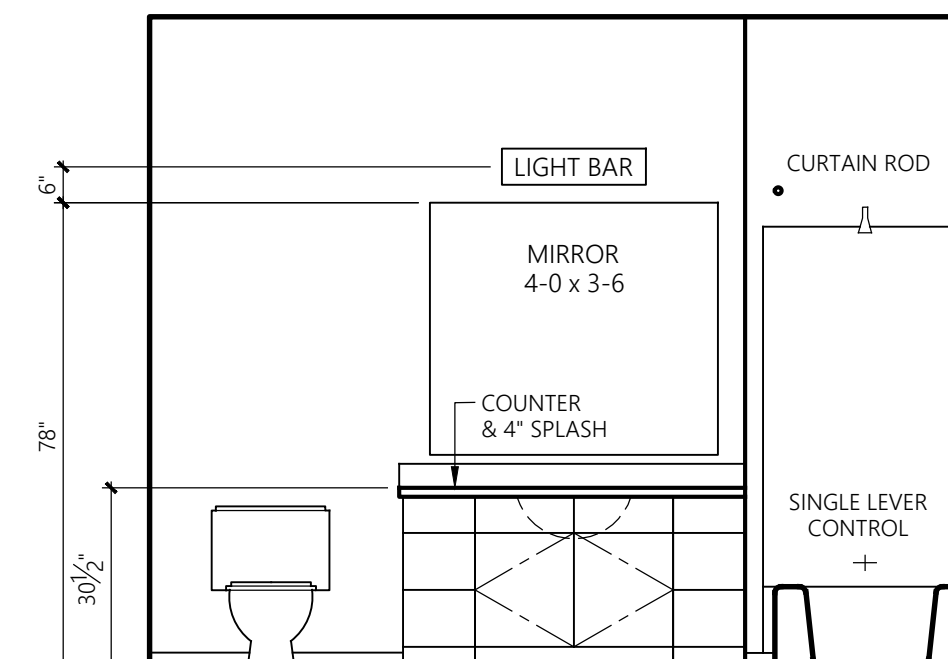
③ BATH



**2-BED UNIT**

3/8" = 1'-0"

TYPE 'A' & 'B' & NON-ACCESSIBLE  
SECONDARY BATHROOM PLAN



④ SECONDARY

\*SEE SHEET U9  
FOR  
ACCESSIBILITY  
STANDARDS

CLEAR FLOOR SPACE LEGEND TYPE A UNIT	
(A)	60x66 CLEAR FLOOR SPACE AT TOILET.
(B)	30x60 CLEAR FLOOR SPACE AT TUB.
(C)	30"x48" CLEAR FLOOR SPACE CENTERED ON SINK
(D)	60" DIAMETER TURNING CIRCLE OR T-SHAPE TURNING SPACE
(AA)	30x48 CLEAR FLOOR SPACE AT STOVE.
(BB)	30x48 CLEAR FLOOR SPACE AT OVEN.
(CC)	30x48 CLEAR FLOOR SPACE AT SINK.
(DD)	30x48 CLEAR FLOOR SPACE AT DISHWASHER.
(EE)	30x48 CLEAR FLOOR SPACE AT REFRIGERATOR.
(FF)	30x48 CLEAR FLOOR SPACE AT WORK SURFACE.
(GG)	30x48 CLEAR FLOOR SPACE AT WASHER/DRYER

CLEAR FLOOR SPACE LEGEND TYPE B UNIT	
(A)	48x56 CLEAR FLOOR SPACE AT TOILET.
(B)	30x48 CLEAR FLOOR SPACE AT TUB.
(C)	30"x48" CLEAR FLOOR SPACE CENTERED ON SINK
(D)	30"x48" CLEAR FLOOR SPACE BEYOND ARC OF DOOR.
(AA)	30x48 CLEAR FLOOR SPACE AT STOVE.
(BB)	30x48 CLEAR FLOOR SPACE AT OVEN.
(CC)	30x48 CLEAR FLOOR SPACE AT SINK.
(DD)	30x48 CLEAR FLOOR SPACE AT DISHWASHER.
(EE)	30x48 CLEAR FLOOR SPACE AT REFRIGERATOR.
(GG)	30x48 CLEAR FLOOR SPACE AT WASHER/DRYER

F:\2306\INTERIOR ELEVATIONS.DWG

**NUMBER OF TYPE A UNITS**

IN GROUP R-2 OCCUPANCIES CONTAINING MORE THAN 10 DWELLING UNITS OR SLEEPING UNITS AT LEAST 5% BUT NOT LESS THAN ONE OF THE UNITS SHALL BE A TYPE A UNIT. ALL UNITS ON THE SITE SHALL BE CONSIDERED TO DETERMINE THE TOTAL NUMBER OF UNITS AND THE REQUIRED NUMBER OF TYPE A UNITS. EXISTING STRUCTURES ON A SITE SHALL NOT CONTRIBUTE TO THE TOTAL NUMBER OF UNITS ON A SITE. TYPE A UNITS SHALL BE DISPERSED AMONG THE VARIOUS CLASSES OF UNITS. THE NUMBER OF TYPE A UNITS IS PERMITTED TO BE REDUCED IN ACCORDANCE WITH CONDITIONS DEFINED IN SECTION 1107.7 OF THE IBC.

**ACCESSIBLE ROUTE**

AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ALL SPACES AND ELEMENTS THAT ARE PART OF THE UNIT. ACCESSIBLE ROUTES SHALL CONCLUDE WITH OR BE LOCATED IN THE SAME AREA AS THE GENERAL CIRCULATION PATH. (See detail 5 ACC sheets)

**TURNING SPACE & CLEAR FLOOR SPACE**

ALL ROOMS SERVED BY AN ACCESSIBLE ROUTE SHALL PROVIDE A TURNING SPACE EXCEPT FOR BATHROOMS THAT ARE NOT REQUIRED TO MEET ACCESSIBILITY STANDARDS, OR CLOSETS OR PANTRIES THAT ARE 48" MAX IN DEPTH. (See detail 1 ACC sheets)

**NOTE:** BALCONIES AND CORRIDORS ARE NOT ROOMS AND AS SUCH DO NOT NEED TO HAVE A TURNING SPACE

**DOORS AND DOORWAYS**

THE PRIMARY ENTRANCE DOOR AND ALL DOORS INTENDED FOR USER PASSAGE, SHALL COMPLY WITH SECTION 404. (See detail 6 ACC sheets)

**BALCONY DOORS:** THRESHOLDS AT EXTERIOR SLIDING DOORS SHALL BE PERMITTED TO BE 3/4" MAX. IN HEIGHT PROVIDED THEY ARE BEVELED WITH A MAX. SLOPE OF 1:2

WHERE EXTERIOR SPACE DIMENSIONS OF BALCONIES ARE LESS THAN THE REQUIRED MANEUVERING CLEARANCE, DOOR MANEUVERING CLEARANCES ARE NOT REQUIRED ON THE EXTERIOR SIDE OF THE DOOR.

**BATHROOM DOORS:** BATHROOMS NOT REQUIRED TO BE ACCESSIBLE ONLY NEED TO PROVIDE DOOR MANEUVERING CLEARANCE ON THE OUTSIDE OF THE DOOR.

BATHROOM DOORS MAY SWING INTO THE BATHROOM AND INTO THE REQUIRED CLEAR FLOOR SPACE AT ANY FIXTURE WHEN A CLEAR FLOOR SPACE OF AT LEAST 30"x48" IS PROVIDED WITHIN THE ROOM BEYOND THE ARC OF THE DOOR SWING.

**OPERABLE PARTS**

LIGHTING CONTROLS, ELECTRICAL PANELBOARDS, ELECTRICAL SWITCHES & RECEPTACLE OUTLETS, ENVIRONMENTAL CONTROLS, APPLIANCE CONTROLS, OPERATING HARDWARE FOR OPERABLE WINDOWS, PLUMBING FIXTURES, AND USER CONTROLS FOR SECURITY OR INTERCOM SYSTEMS SHALL COMPLY WITH SECTION 309. (See detail 4 ACC sheets)

1. Receptacle outlets serving a dedicated use.
2. Where two or more receptacle outlets are provided in a kitchen above a counter top that is unintercepted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Where redundant controls other than light switches are provided for a single element, one control shall not be required to be accessible.
7. Reset buttons & shut-offs serving appliances, piping & plumbing fixtures.
8. Electrical panelboards shall not be required to comply with Section 309.4.

**WINDOWS**

ONLY WINDOWS REQUIRED TO BE OPERABLE FOR NATURAL VENTILATION OR TO PROVIDE AN EMERGENCY ESCAPE AND RESCUE OPENING NEED TO HAVE OPERABLE PARTS COMPLYING WITH SECTION 309. (See detail 4 ACC sheets)

**LAUNDRY EQUIPMENT**

WASHING MACHINES AND CLOTHES DRYERS SHALL COMPLY WITH SECTION 611.

**TOILET AND BATHING FACILITIES**

AT LEAST ONE TOILET AND BATHING FACILITY SHALL CONTAIN ONE LAVATORY, ONE WATER CLOSET AND EITHER A BATHTUB OR SHOWER WITHIN THE UNIT THAT MEETS THE REQUIREMENTS DETAILED FOR TYPE A FIXTURES (See details 23 thru 28 ACC sheets). THE ACCESSIBLE TOILET AND BATHING FIXTURES SHALL BE IN A SINGLE TOILET/BATHING AREA SUCH THAT TRAVEL BETWEEN FIXTURES DOES NOT REQUIRE TRAVEL THROUGH OTHER PARTS OF THE UNIT.

ALL TOILET & BATHING FACILITIES WITHIN A TYPE A UNIT SHALL PROVIDE REINFORCEMENT FOR THE FUTURE INSTALLATION OF GRAB BARS AT WATER CLOSETS, BATHTUBS AND SHOWER SEATS. REINFORCEMENT IS NOT REQUIRED IN ANY OTHER PURPOSES OTHER THAN A LAVATORY AND A WATER CLOSET, PROVIDED THE ROOM DOES NOT CONTAIN THE ONLY LAVATORY OR WATER CLOSET ON THE ACCESSIBLE LEVEL OF THE DWELLING UNIT.

**ALARMS**

ACCESSIBLE AUDIBLE AND VISIBLE ALARMS AND NOTIFICATION APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72 LISTED IN SECTION 105.2.2. BE POWERED BY A COMMERCIAL LIGHT AND POWER SOURCE, BE PERMANENTLY CONNECTED TO THE WIRING OF THE PREMISES ELECTRIC SYSTEM, AND BE PERMANENTLY INSTALLED.

**VISIBLE NOTIFICATION APPLIANCES**

IN GROUP R-2 OCCUPANCIES REQUIRED TO HAVE A FIRE ALARM SYSTEM, EACH STORY THAT CONTAINS DWELLING UNITS & SLEEPING UNITS SHALL BE PROVIDED WITH THE CAPABILITY TO SUPPORT VISIBLE ALARM NOTIFICATION APPLIANCES, SUCH CAPABILITY SHALL ACCOMMODATE WIRED OR WIRELESS EQUIPMENT. THE FUTURE CAPABILITY SHALL INCLUDE ONE OF THE FOLLOWING:

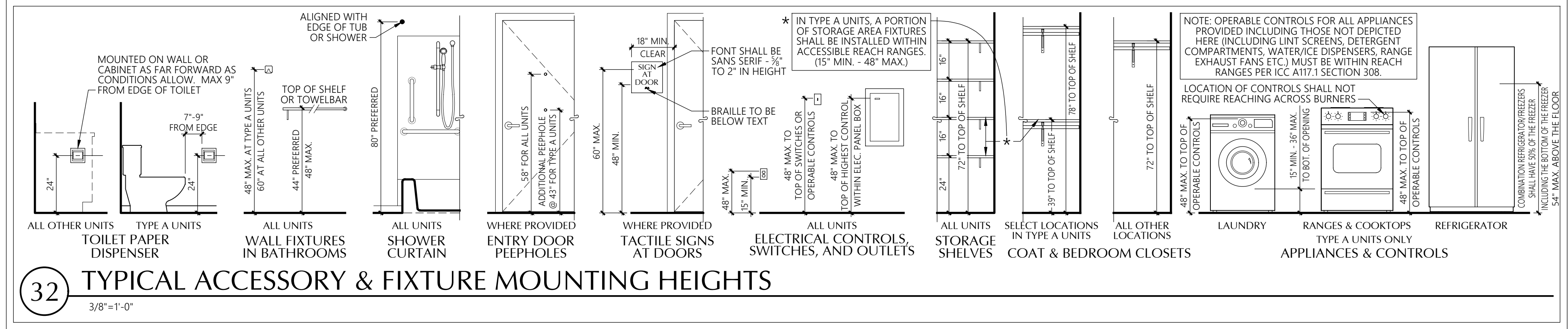
1. The interconnection of the building fire alarm system with the unit smoke alarms.
2. Replacement of audible appliances with combination audible/visible appliances.
3. The future extension of the existing wiring from the unit smoke alarm location to required locations for visible appliances.

VISIBLE NOTIFICATION APPLIANCES, WHERE PROVIDED AS PART OF THE UNIT SMOKE DETECTION SYSTEM OR BUILDING FIRE ALARM SYSTEM, SHALL BE ACTIVATED UPON SMOKE DETECTION OR WITH ACTIVATION OF THE BUILDING FIRE ALARM. THE SAME VISIBLE NOTIFICATION APPLIANCE CAN BE USED FOR BOTH SMOKE DETECTION AND FIRE ALARM ACTIVATION, BUT SHALL NOT BE USED FOR ANY OTHER PURPOSES WITHIN THE UNIT.

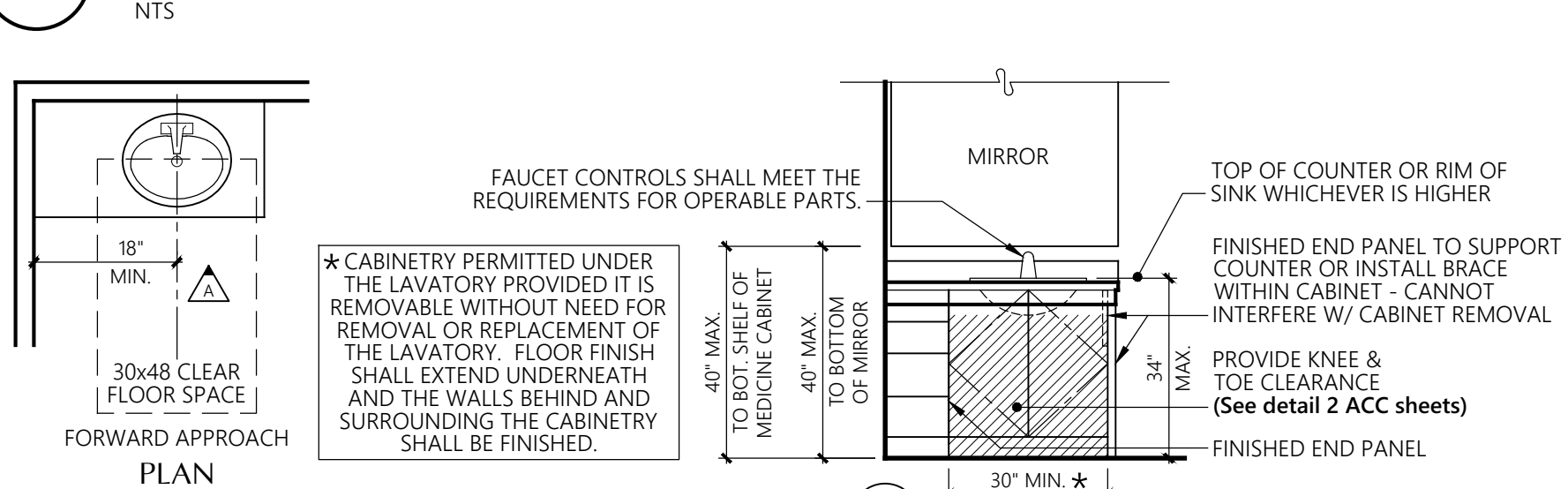
**UNIT PRIMARY ENTRANCE**

THE ACCESSIBLE PRIMARY ENTRANCE SHALL BE ON AN ACCESSIBLE ROUTE FROM PUBLIC AND COMMON AREAS. COMMUNICATION FEATURES SHALL BE PROVIDED AT THE UNIT PRIMARY ENTRANCE. A HARD-WIRED ELECTRIC DOORBELL SHALL BE PROVIDED. A BUTTON OR SWITCH SHALL BE PROVIDED ON THE PUBLIC SIDE OF THE UNIT PRIMARY ENTRANCE.

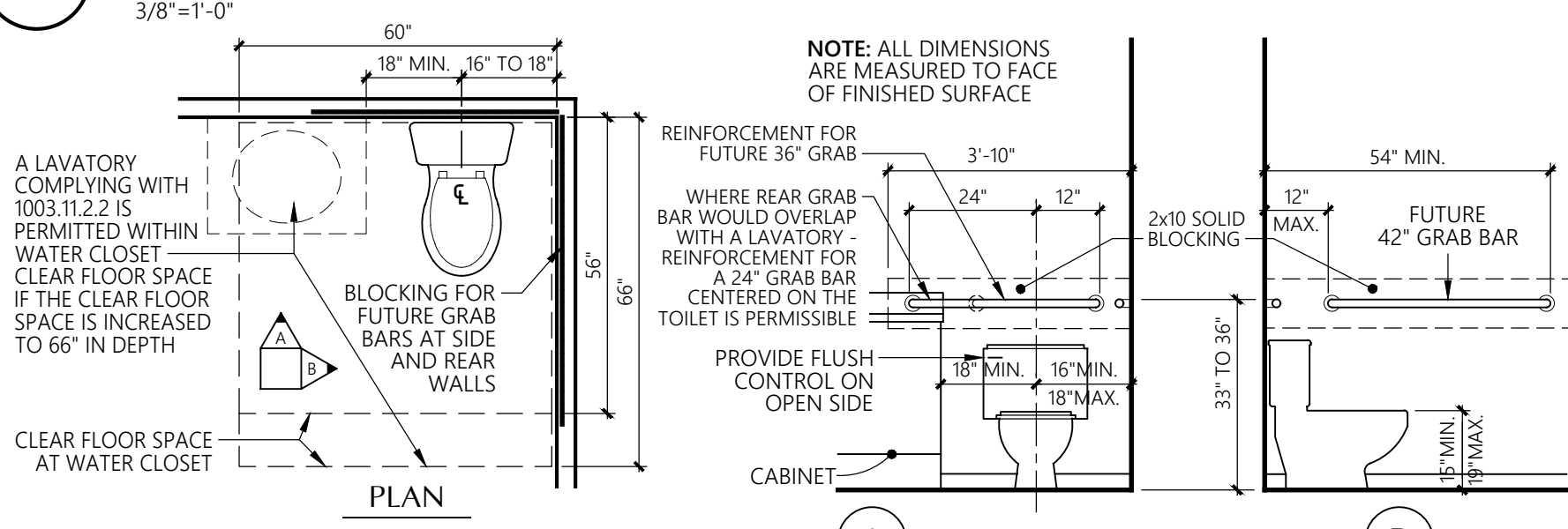
WHERE A SYSTEM PERMITTING VOICE COMMUNICATION BETWEEN A VISITOR AND THE OCCUPANT OF THE UNIT IS PROVIDED AT A LOCATION OTHER THAN THE UNIT ENTRY DOOR, THE SYSTEM SHALL INCLUDE THE CAPABILITY OF SUPPORTING VOICE AND TTY COMMUNICATION WITHIN THE UNIT INTERFACE. A MEANS FOR VISUALLY IDENTIFYING A VISITOR WITHOUT OPENING THE UNIT ENTRY DOOR SHALL BE PROVIDED. PEEPHOLES, WHERE USED SHALL PROVIDE A MINIMUM 180-DEGREE RANGE OF VIEW. PEEPHOLES SHALL BE PLACED AT A STANDARD HEIGHT FOR BOTH STANDING PERSONS AND WHEELCHAIR USERS. (See detail 32 ACC sheets)



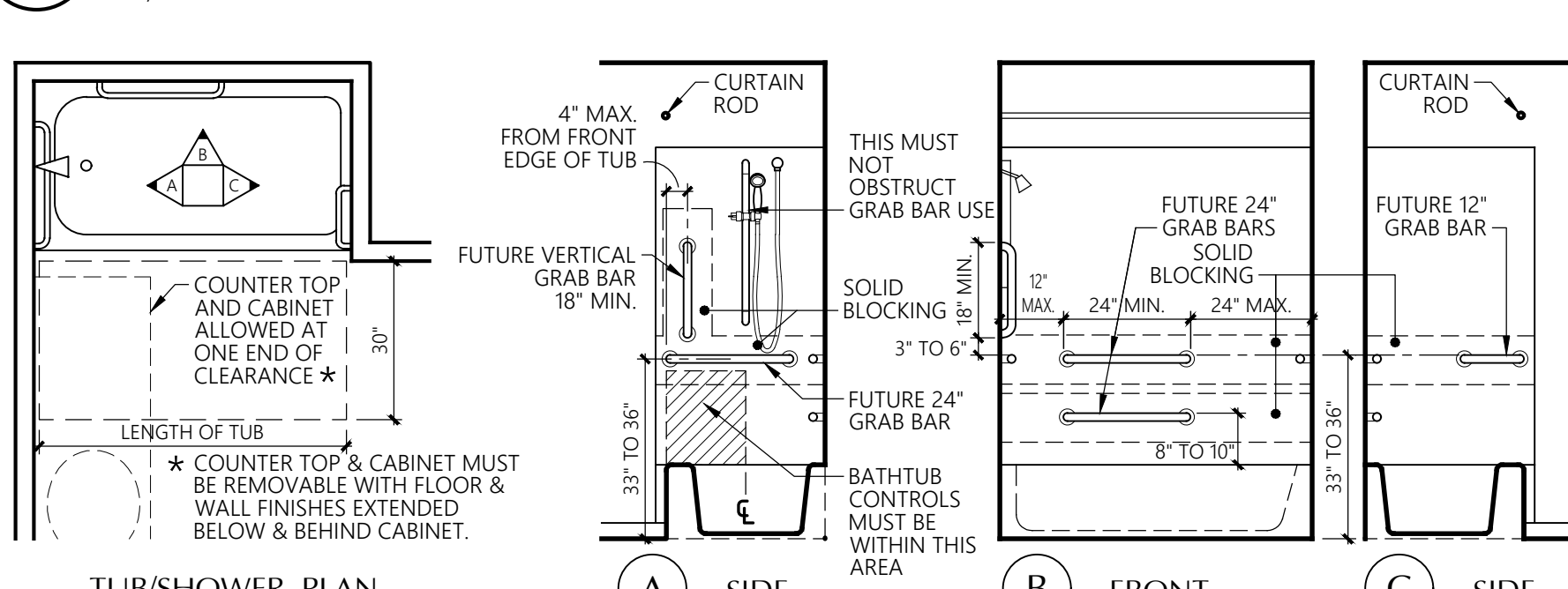
**23 GENERAL TYPE A UNIT NOTES**



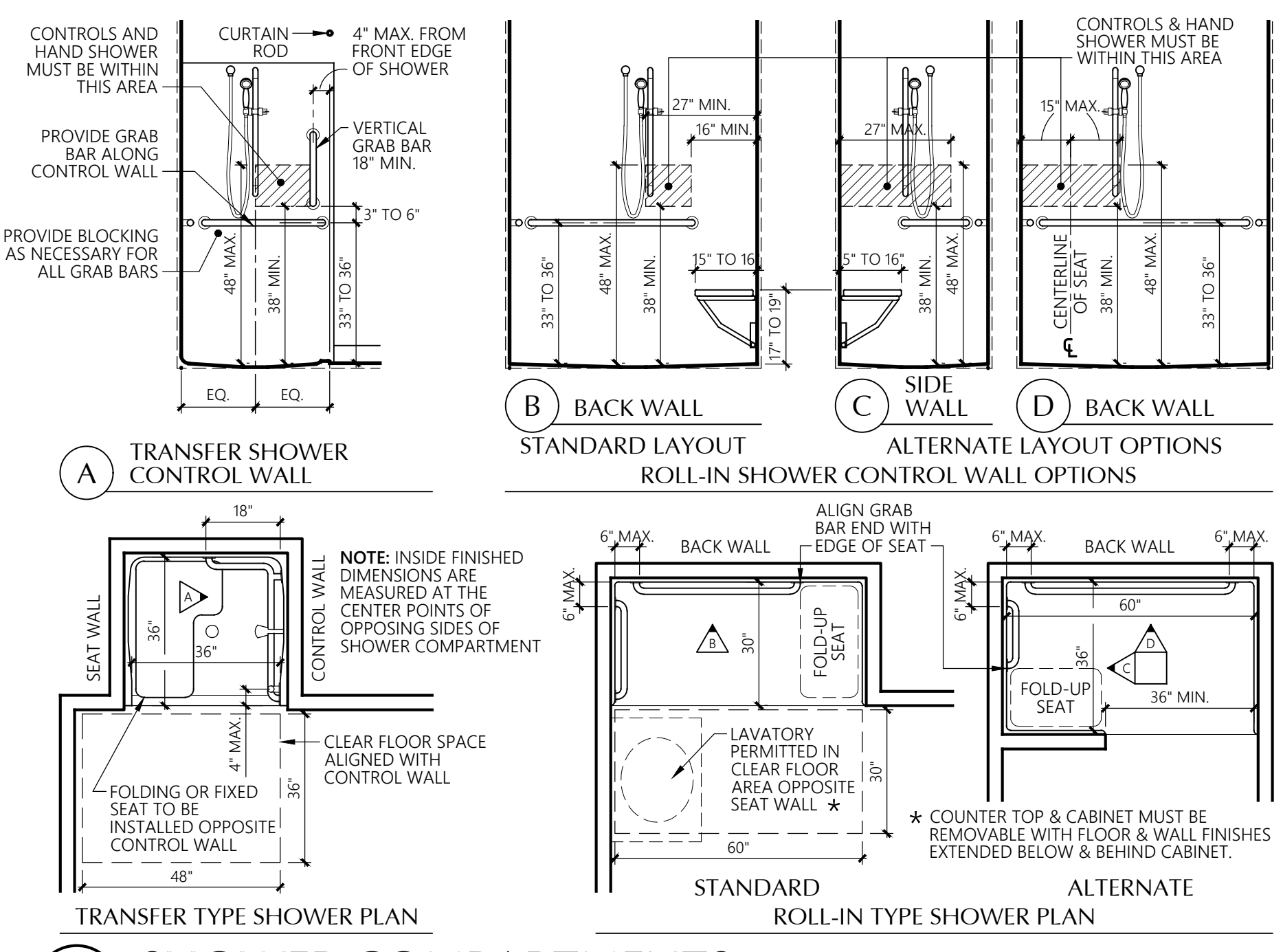
**24 LAVATORY**



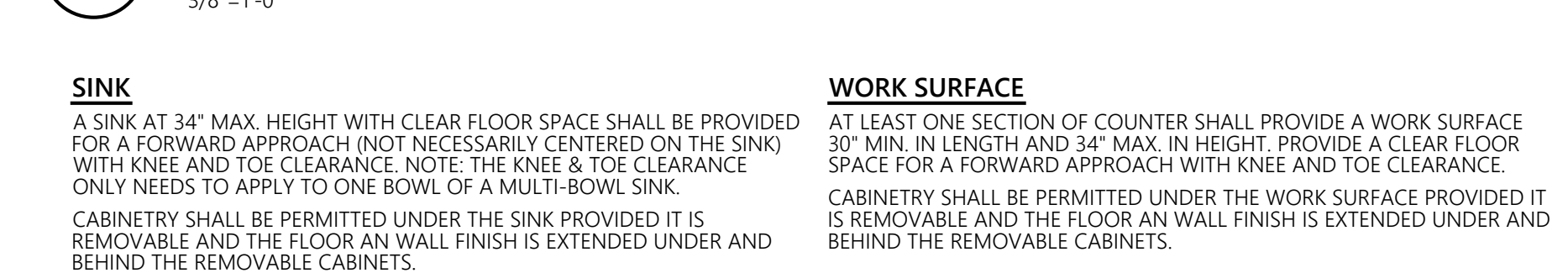
**25 WATER CLOSET**



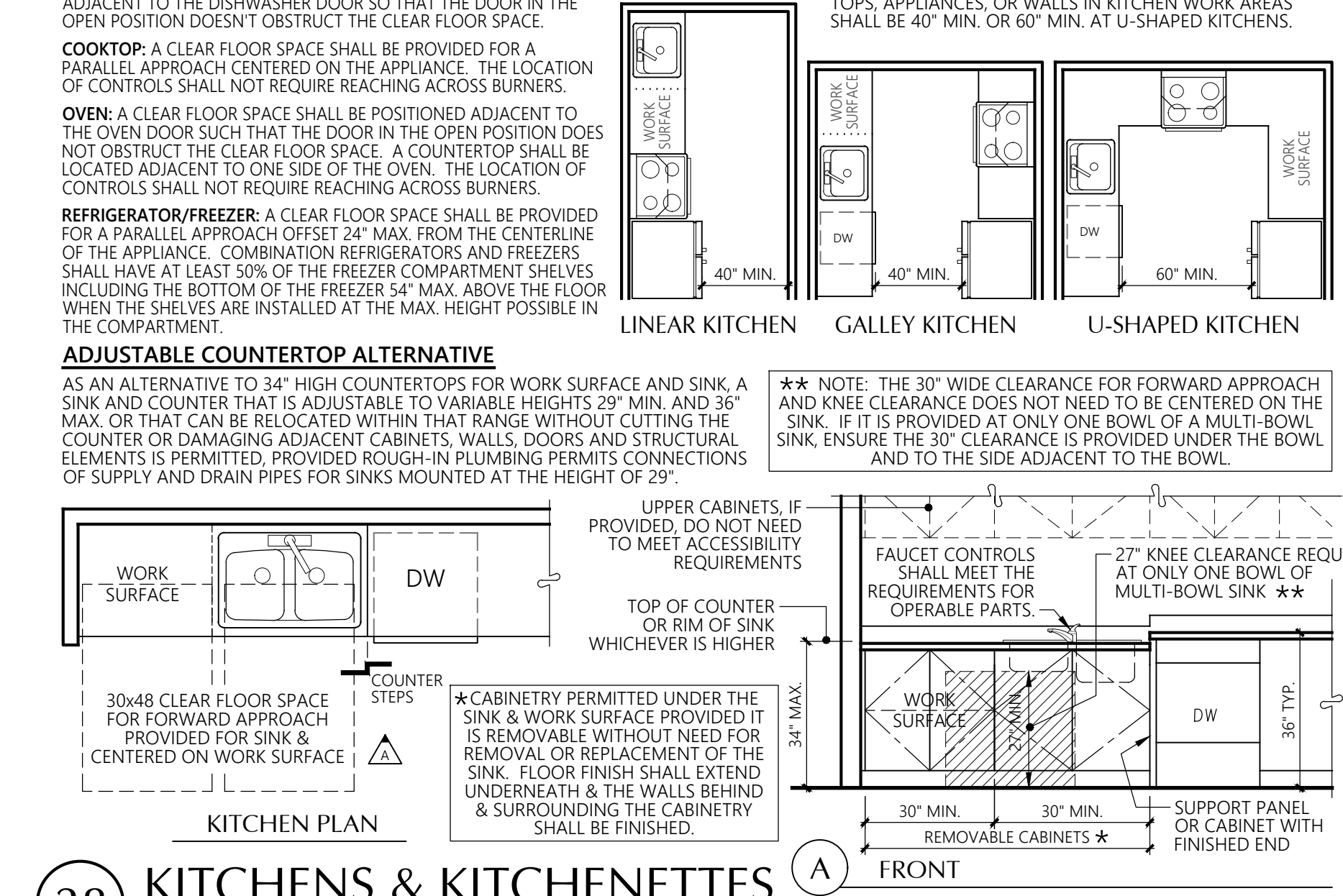
**26 BATHTUB & TUB / SHOWER COMBO**



**27 SHOWER COMPARTMENTS**



**28 KITCHENS & KITCHENETTES**



**NUMBER OF TYPE B UNITS**

IN GROUP R-2 OCCUPANCIES WHERE THERE ARE 4 OR MORE DWELLING UNITS OR SLEEPING UNITS INTENDED TO BE OCCUPIED AS A RESIDENCE IN A SINGLE STRUCTURE, EVERY DWELLING UNIT AND SLEEPING UNIT SHALL BE A TYPE B UNIT. THE NUMBER OF TYPE B UNITS IS PERMITTED TO BE REDUCED IN ACCORDANCE WITH CONDITIONS DEFINED IN SECTION 1107.7 OF THE IBC. THIS REDUCTION OF TYPE B UNITS IS TYPICALLY FOR UNITS THAT ARE ON UPPER STORIES OF A MULTISTORY BUILDING WITHOUT ELEVATOR SERVICE OR MULTI-STORY DWELLING UNITS (SEE IBC FOR SPECIFIC CONDITIONS ALLOWING REDUCTION OF TYPE B UNITS).

**UNIT PRIMARY ENTRANCE**

SAME REQUIREMENTS AS FOR TYPE A UNITS EXCEPT THAT ONLY A SINGLE PEEP-HOLE NEED BE PROVIDED AT A STANDARD HEIGHT FOR STANDING PERSONS.

**ACCESSIBLE ROUTE**

SAME REQUIREMENTS AS FOR TYPE A UNITS EXCEPT YOU ARE PERMITTED TO HAVE ONE OF THE FOLLOWING: A RAISED / SUNKEN FLOOR AREA IN A LIVING, DINING OR SLEEPING ROOM OR A MEZZANINE THAT IS NOT ENCLOSED AND DOES NOT HAVE PLUMBING FIXTURES.

**CHANGES IN LEVEL**

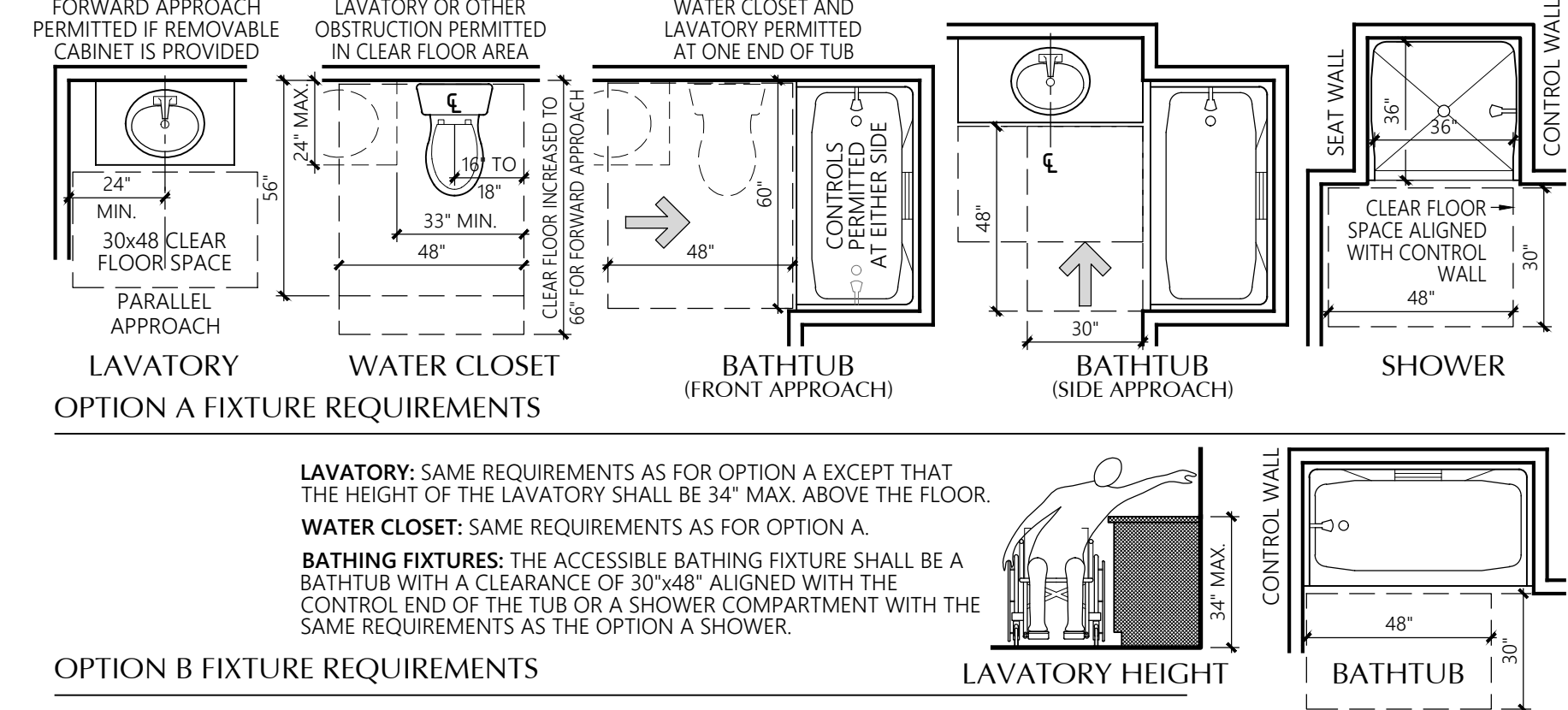
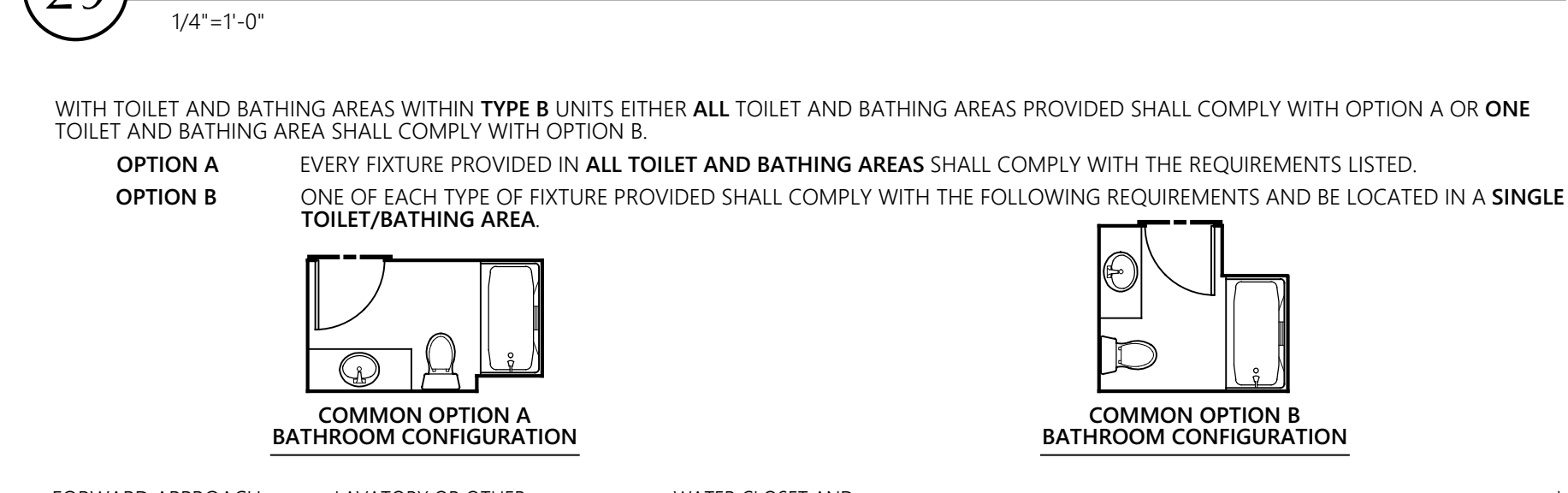
SAME REQUIREMENTS AS FOR TYPE A UNITS EXCEPT WHERE EXTERIOR DECK, PATIO OR BALCONY SURFACE MATERIALS ARE IMPERVIOUS, THE WIDTH OF THE SURFACE SHALL BE 4" MAX. BELOW THE INTERIOR FLOOR LEVEL.

**DOORS**

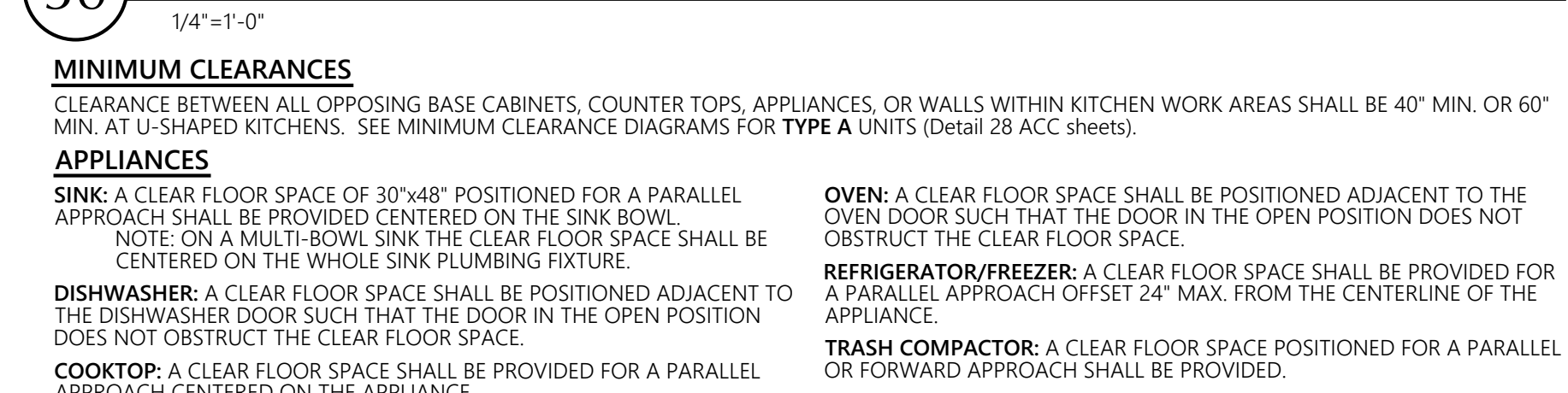
SAME REQUIREMENTS AS FOR TYPE A UNITS EXCEPT DOORS INTENDED FOR USER PASSAGE SHALL HAVE A CLEAR OPENING WIDTH OF 31 3/8" MIN. MEASURED BETWEEN THE FACE OF THE DOOR & THE STOP WITH THE DOOR OPENED 90°.

**BATHROOM DOORS:** BATHROOM DOORS MAY SWING INTO THE REQUIRED CLEAR FLOOR SPACE AT ANY FIXTURE WHEN A CLEAR FLOOR SPACE OF AT LEAST 30"x48" IS PROVIDED WITHIN THE ROOM BEYOND THE ARC OF THE DOOR SWING.

**29 GENERAL TYPE B UNIT NOTES**



**30 TYPE B - TOILET & BATHING FIXTURES**



**31 KITCHENS AND KITCHENETTES**



25 Central Way, Suite 210  
Kirkland, Washington 98033  
P: 425.454.7130 F: 425.658.1208  
Web: www.milbrandtarch.com

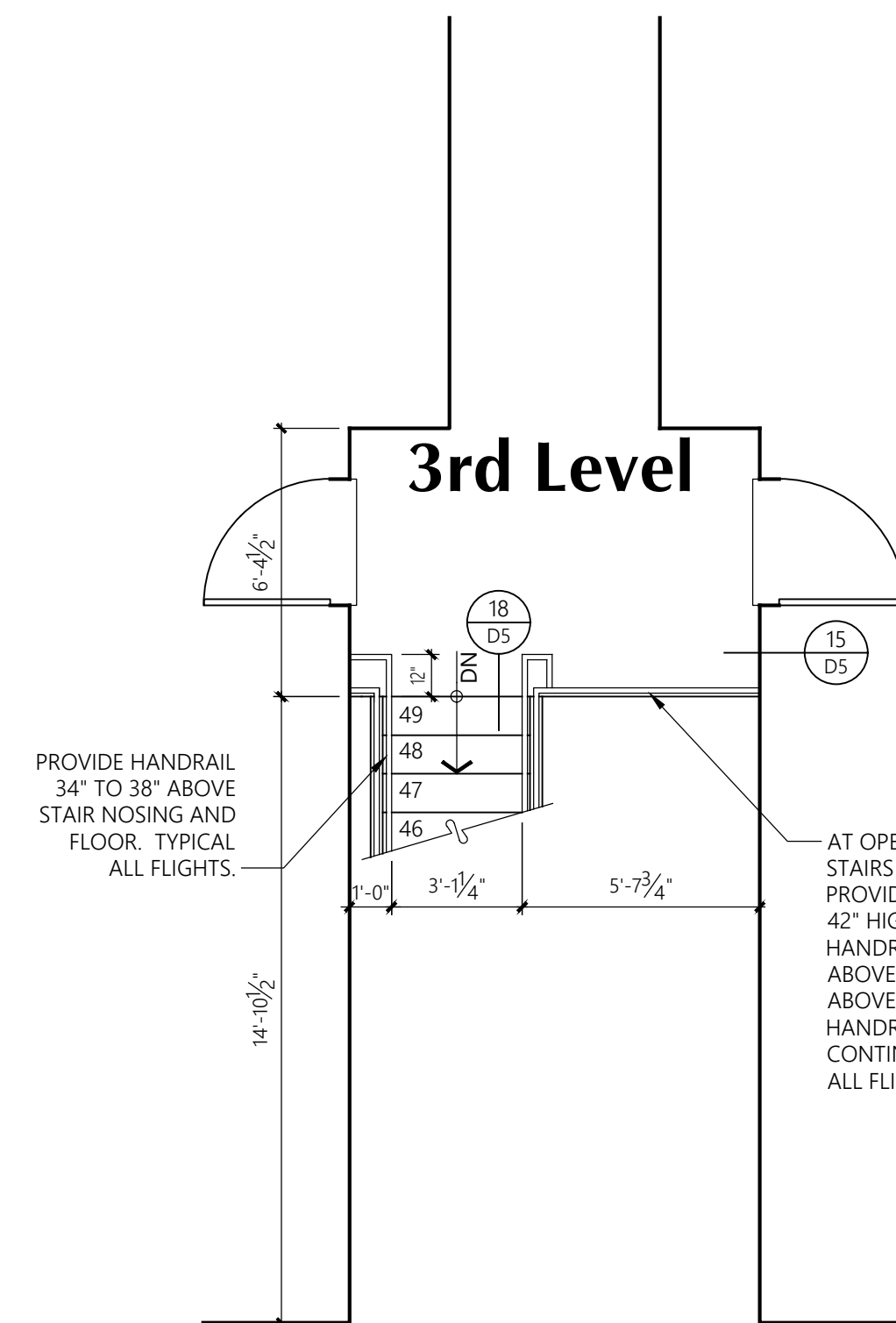
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11063 REGISTERED ARCHITECT  
ANITA L. THOMPSON  
STATE OF WASHINGTON

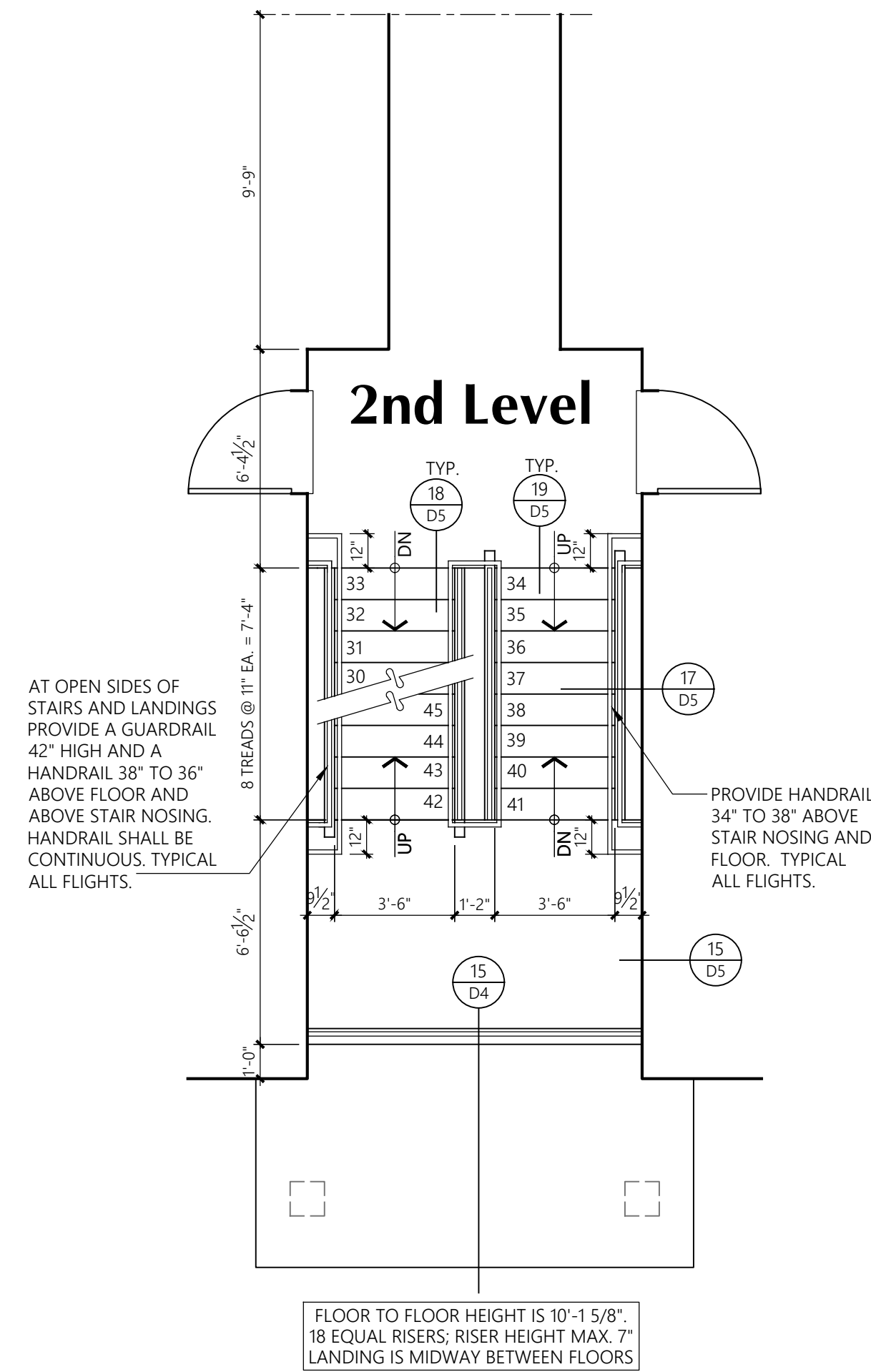
**Bradley Heights Apartments**  
Puyallup, Wa

**Timberlane Partners**

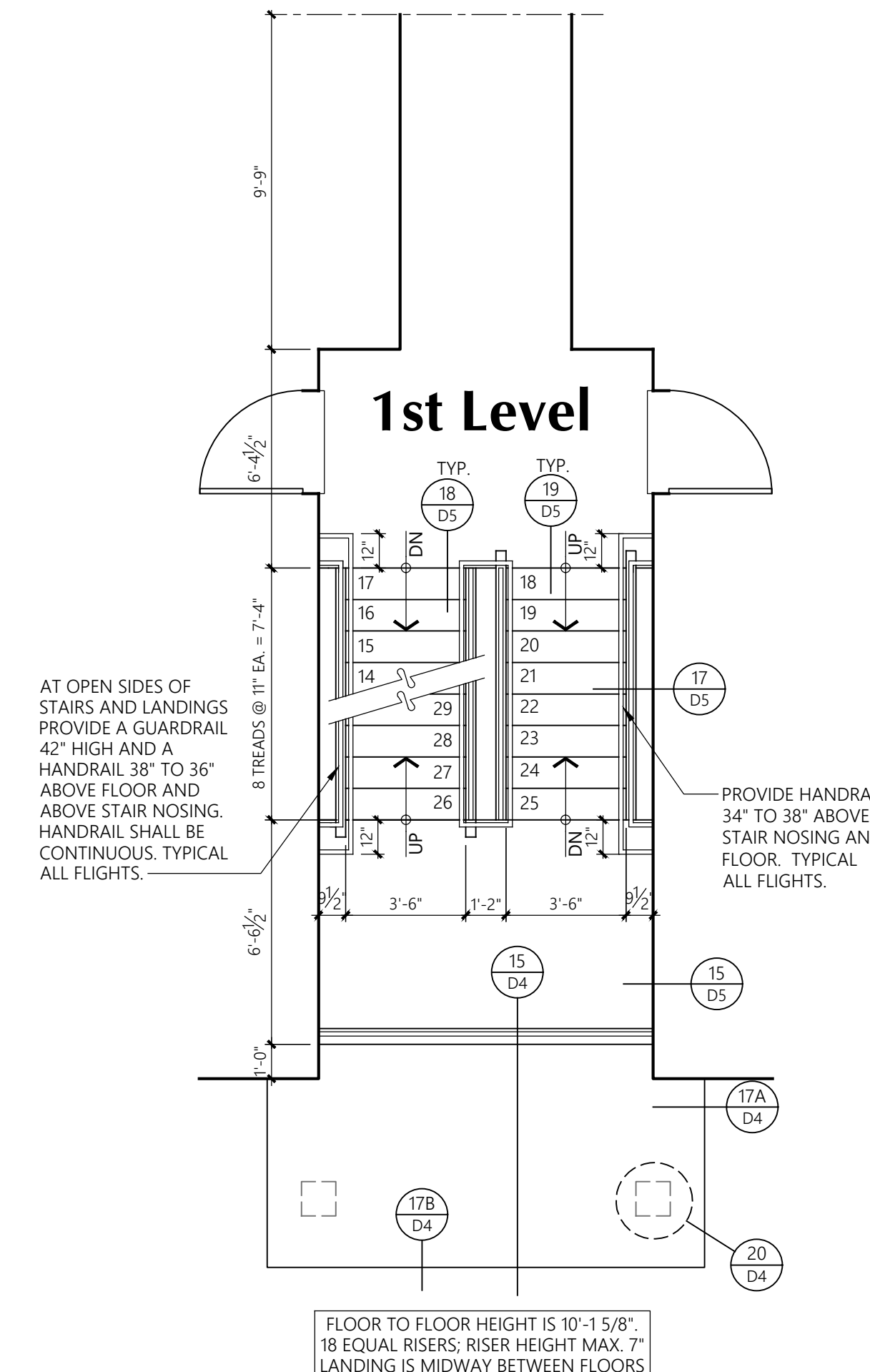
Revisions  
No. Date Description



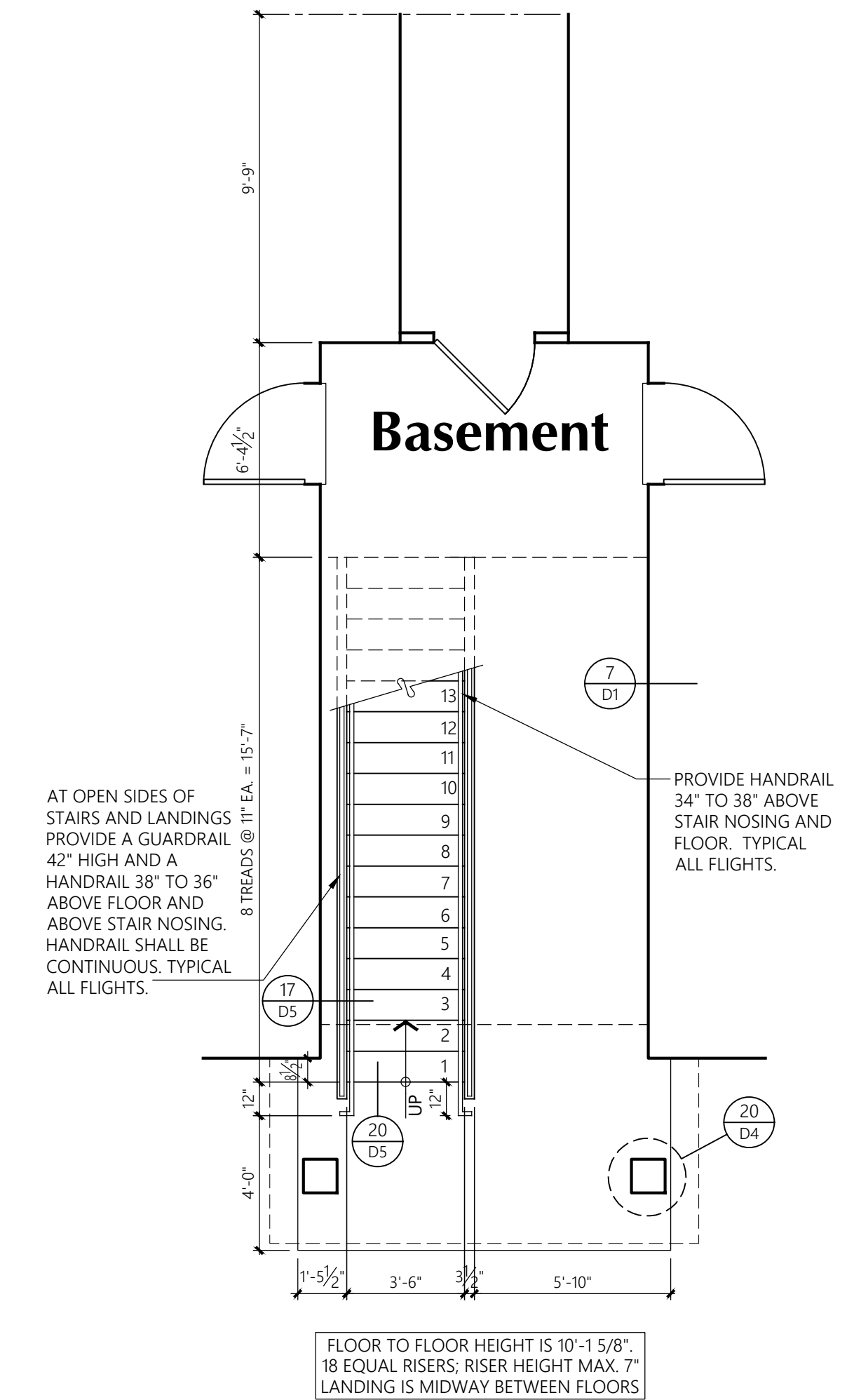
**STAIR 2** 3RD LEVEL FLOOR PLAN  
1/4" = 1'-0"



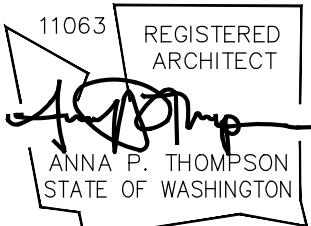
**STAIR 2** 2ND LEVEL FLOOR PLAN  
1/4" = 1'-0"



**STAIR 2** 1ST LEVEL FLOOR PLAN  
1/4" = 1'-0"



**STAIR 2** BASEMENT LEVEL PLAN  
1/4" = 1'-0"







**Building F**  
Partial Architectural Foundation Plan

**Bradley Heights Apartments**

Puyallup, Wa

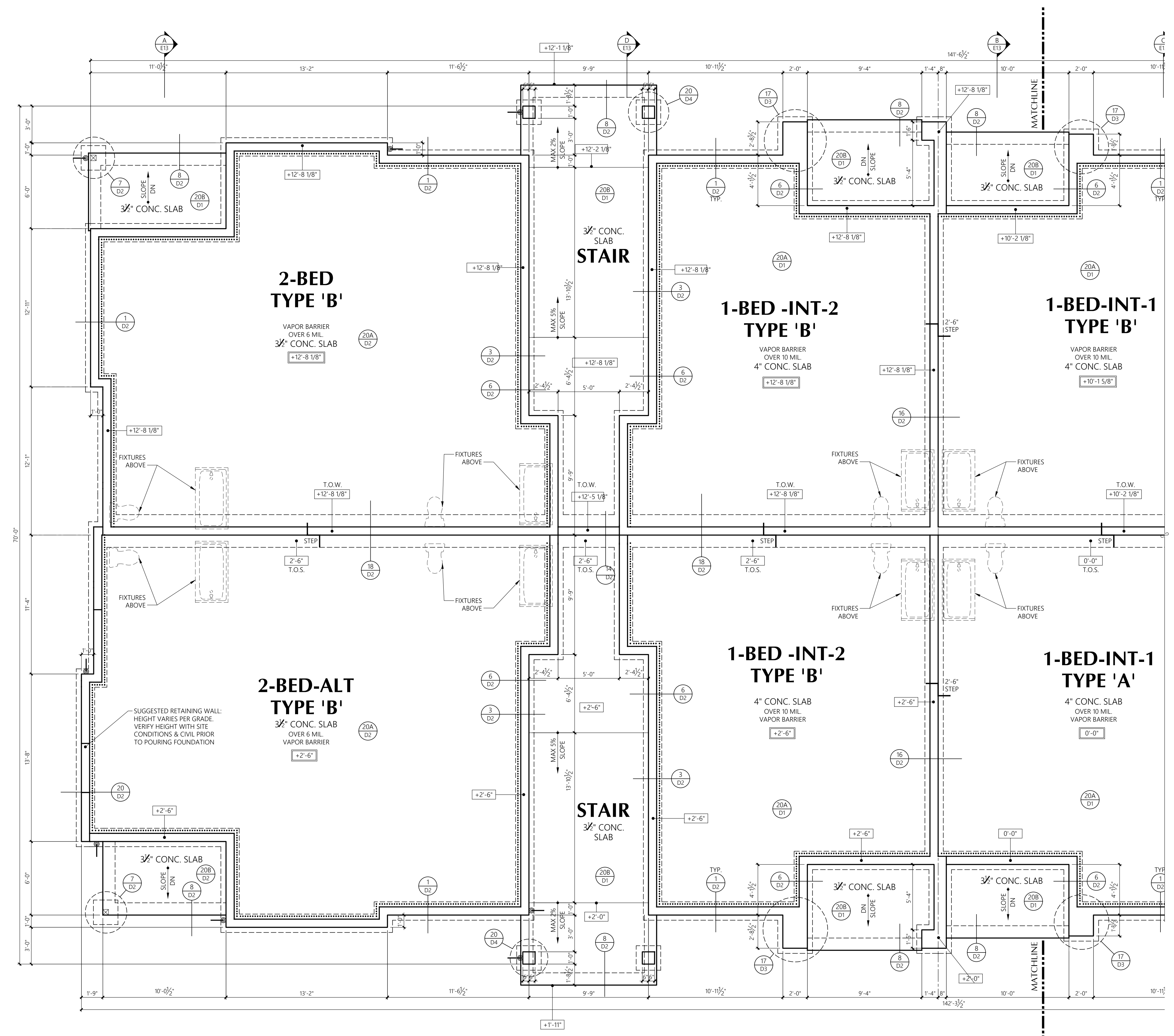
**Timberlane Partners**

**Revisions**

No.	Date	Description

Initial Publish Date:  
Date Plotted: **2-20-24**  
Job No.: **23-06** Drawn By: **APT/HDM/TMK**  
Sheet No.:

**F10**



**FOUNDATION NOTES**

- LOCATION OF DOWNSPOUT: PROVIDE TIGHT LINE AND RISER BOOT
- X" ELEVATION AT TOP OF CONCRETE (TOP OF FOOTING MAY VARY BECAUSE OF EXCAVATION)
- +X'-X" FINISH SLAB ELEVATION
- ..... R-10 RIGID PERIMETER INSULATION

**BUILDING F** PARTIAL FOUNDATION PLAN  
1/4" = 1'-0"

SEE S2.6 FOR STRUCTURAL FOUNDATION PLAN

F:\2306\BUILDING F.DWG



**Building F**  
Partial Architectural Foundation Plan

**Bradley Heights Apartments**

Puyallup, Wa

**Timberlane Partners**

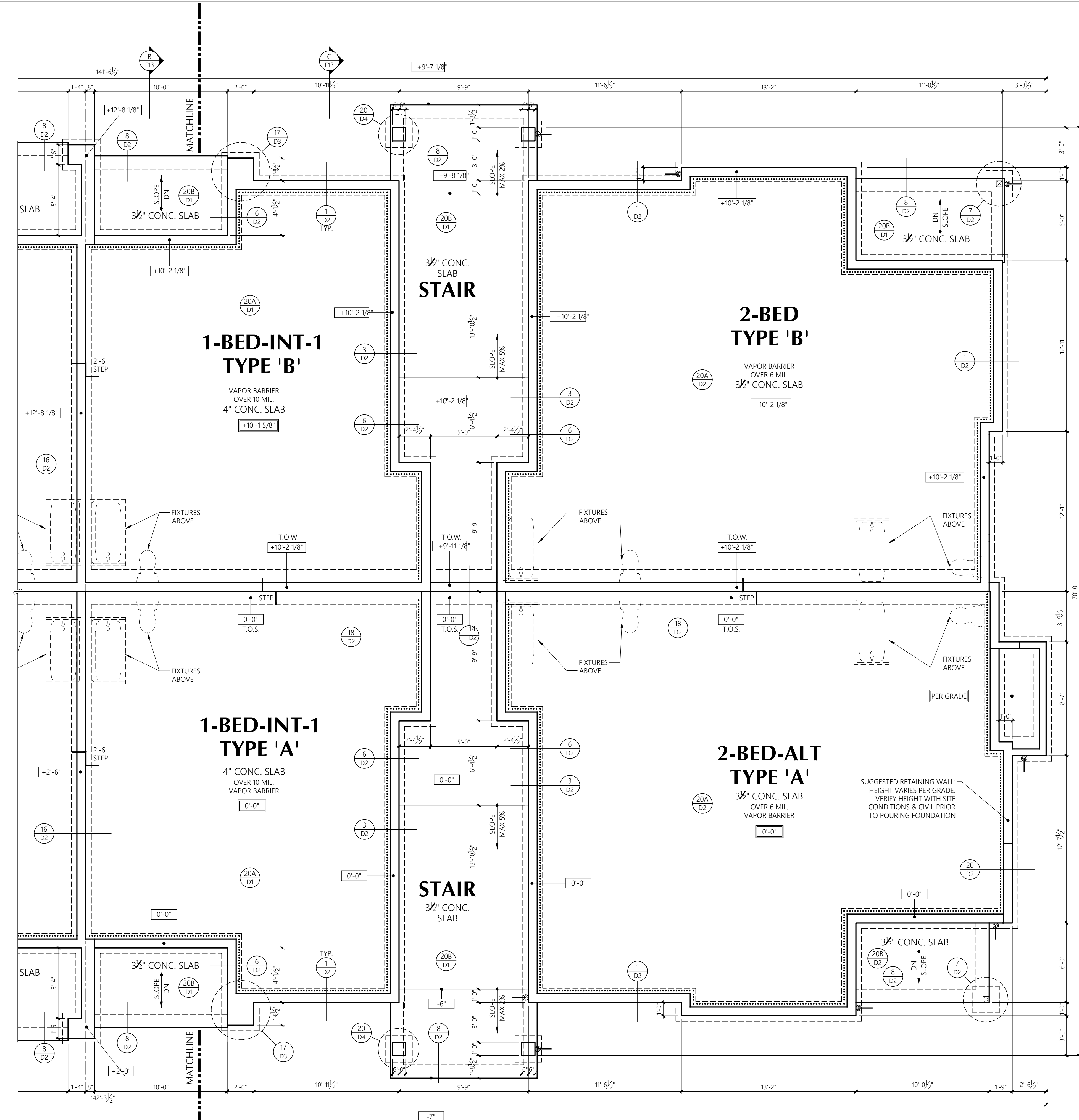
**Revisions**

No.	Date	Description

Initial Publish Date: \_\_\_\_\_  
Date Plotted: **2-20-24**

Job No.:	Drawn By:
<b>23-06</b>	<b>APT/HDM/TMK</b>
Sheet No.:	

**F11**

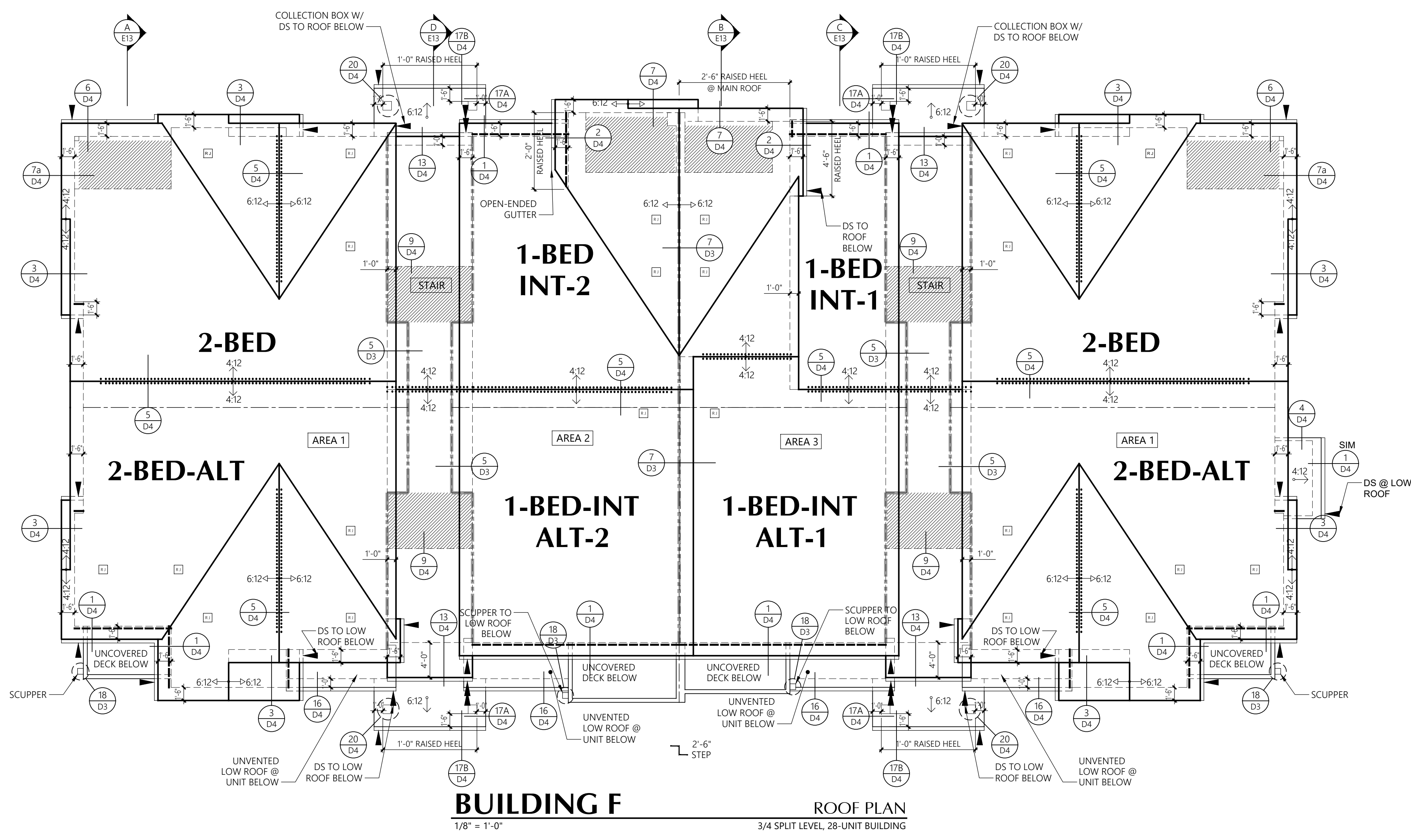


**FOUNDATION NOTES**

- LOCATION OF DOWNSPOUT: PROVIDE TIGHT LINE AND RISER BOOT
- ELEVATION AT TOP OF CONCRETE (TOP OF FOOTING MAY VARY BECAUSE OF EXCAVATION)
- FINISH SLAB ELEVATION
- R-10 RIGID PERIMETER INSULATION

SEE S2.6 FOR STRUCTURAL FOUNDATION PLAN

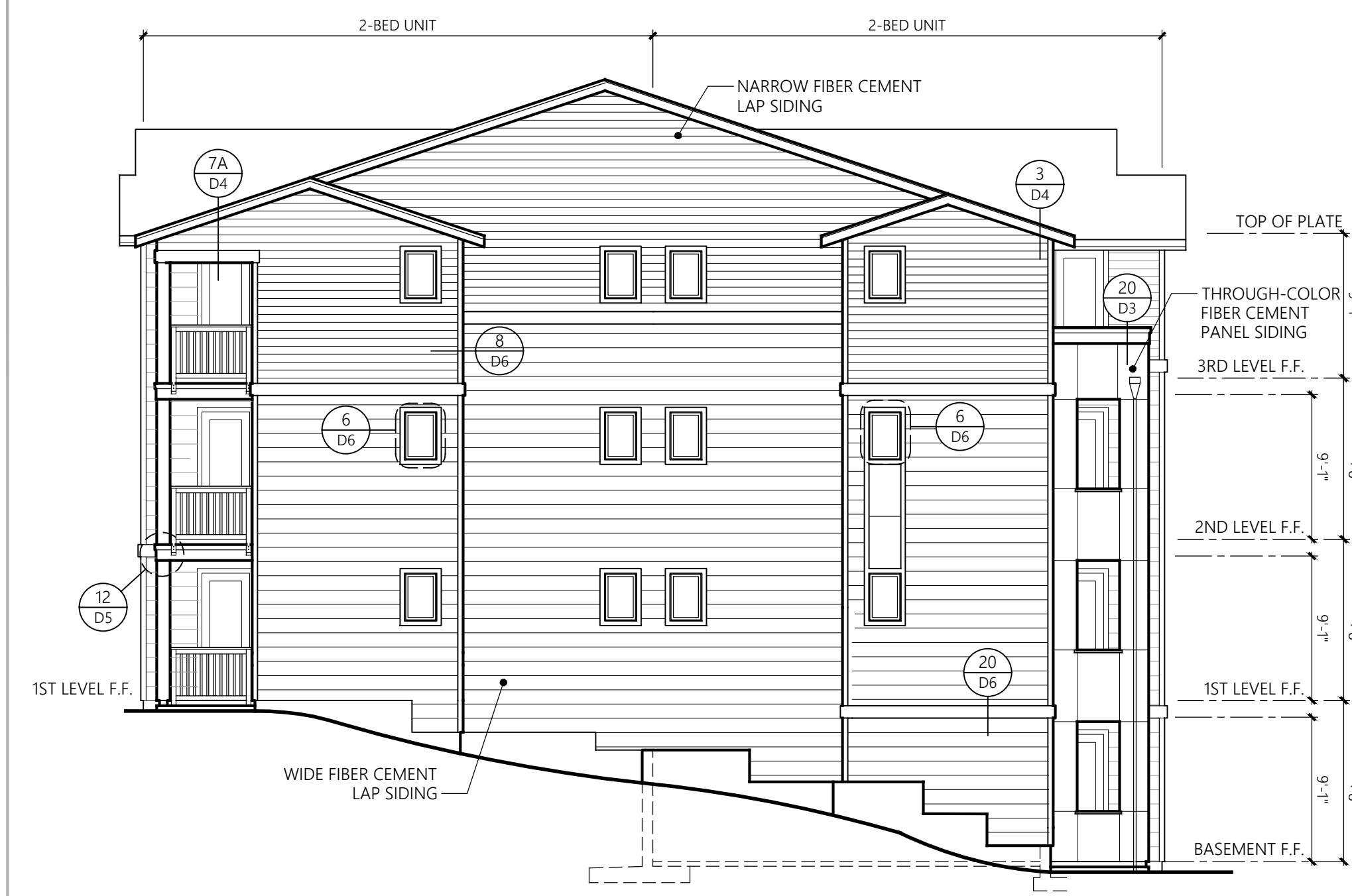
**BUILDING F** PARTIAL FOUNDATION PLAN  
1/4" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING



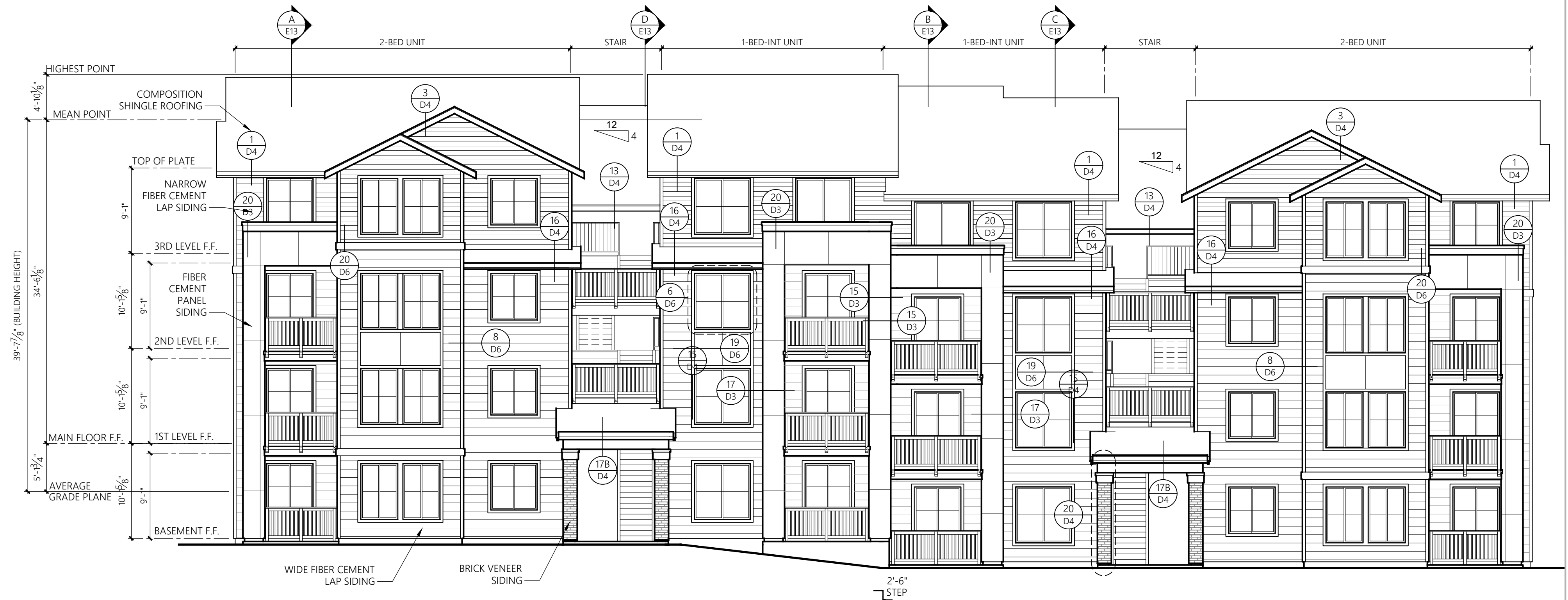
**BUILDING F** ROOF PLAN  
1/8" = 1'-0"  
3/4 SPLIT LEVEL, 28-UNIT BUILDING

Area Description	Attic Area (SF)	Venting Ratio	Required Venting (SI)	ROOF VENTING CALCULATIONS					Venting Provided (SI)					*% of req'd	
				Low Eave Vent (LF)	Low Jacks (Qty)	High Jacks (Qty)	Vented Soffit (SF)	Ridge Vent (LF)	Lower	%	Upper	%	Total	%*	
AREA 1	2,160	1/300	1,037	20	8	0	58	64	790	61%	768	49%	1,558	150%	
AREA 2	1,448	1/300	695	32	3	5	64	24	604	53%	538	47%	1,142	164%	
AREA 3	1,435	1/300	689	32	3	5	54	20	545	53%	490	47%	1,035	150%	
STAIR	462	1/150	444	0	0	0	124	5	732	92%	60	8%	792	179%	

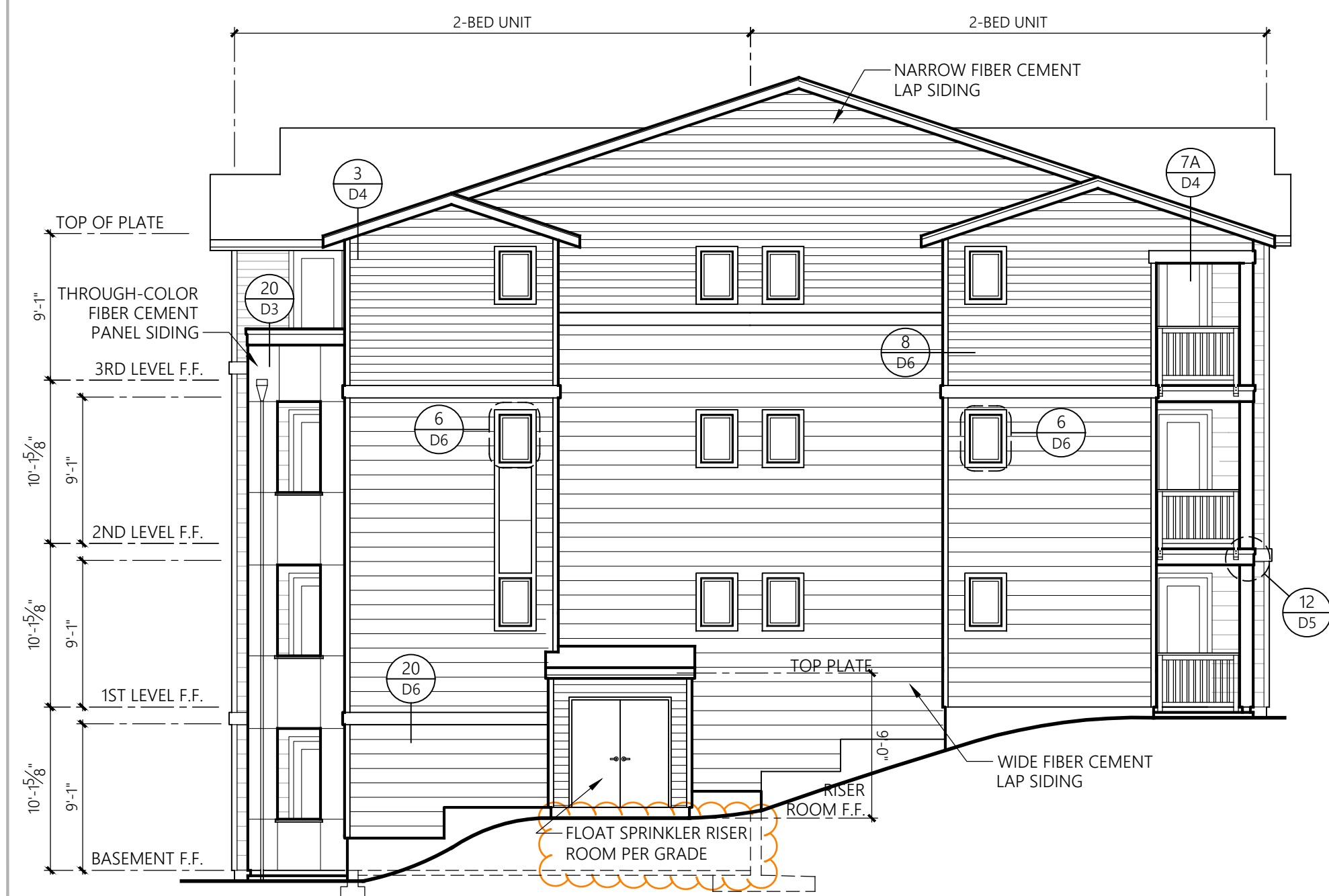
ROOF LEGEND	
[Symbol]	ROOF JACK 50 SQ.IN. NET FREE AREA
[Symbol]	4:12 SLOPE INDICATOR U.N.O.
[Symbol]	6:12 SLOPE INDICATOR U.N.O.
[Symbol]	BUILDING OUTLINE
[Symbol]	EAVE VENTING 2.4 SQ.IN./LF. NET FREE AREA
[Symbol]	RIDGE VENTING 12 SQ.IN./LF. NET FREE AREA
[Symbol]	UNIT SEPARATION AND DRAFT STOPPING LOCATIONS AT ATTIC
[Symbol]	GUTTER (DOUBLE LINE)
[Symbol]	DOWNSPOUT LOCATION
[Symbol]	VENTED FIBER CEMENT SOFFIT 5.9 SQ.IN./LF. NET FREE AREA



**BUILDING F** SIDE ELEVATION  
1/8" = 1'-0"



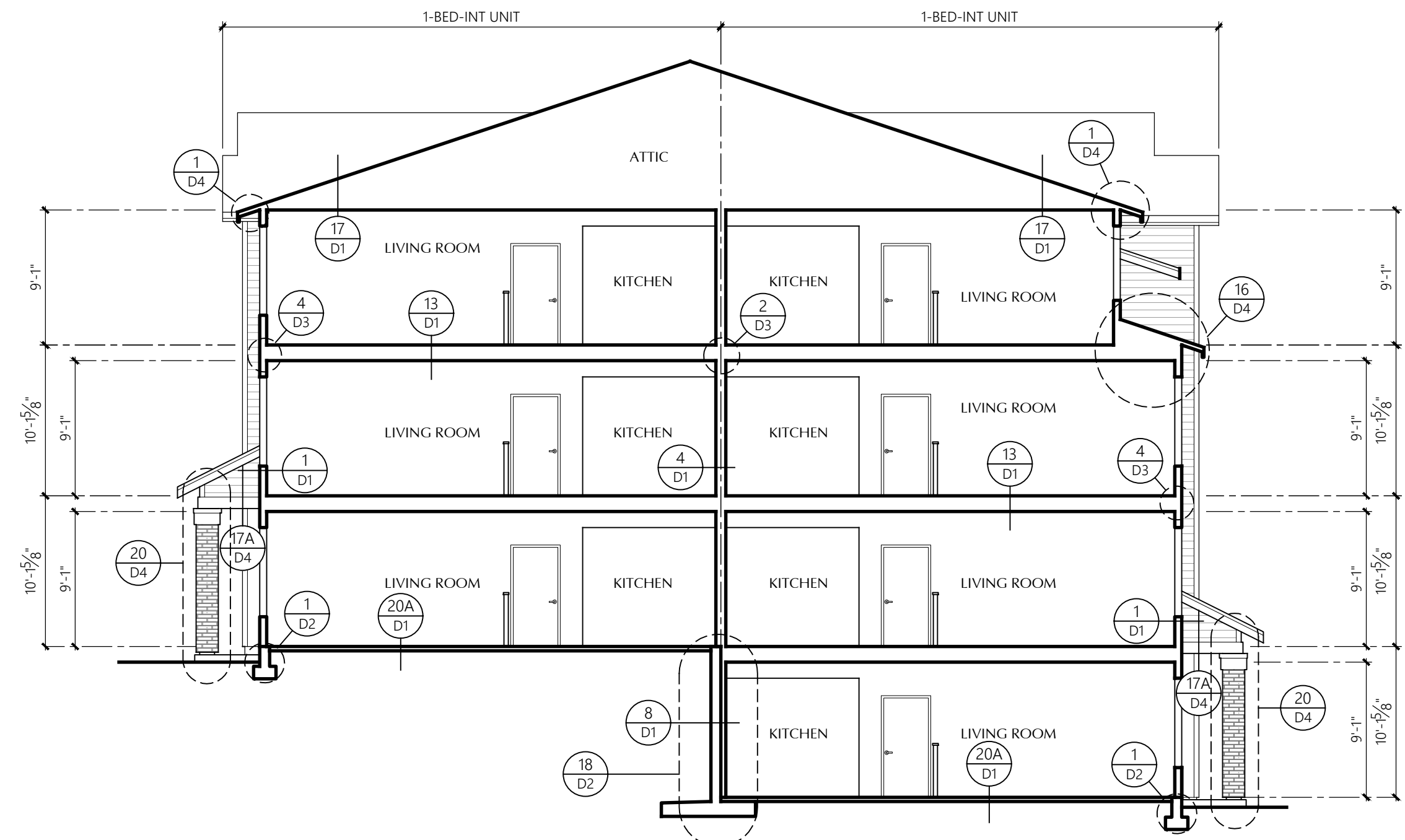
**BUILDING F** FRONT ELEVATION  
1/8" = 1'-0"  
WINDOW HDR HEIGHT 8'-0" A.F.F. UNO



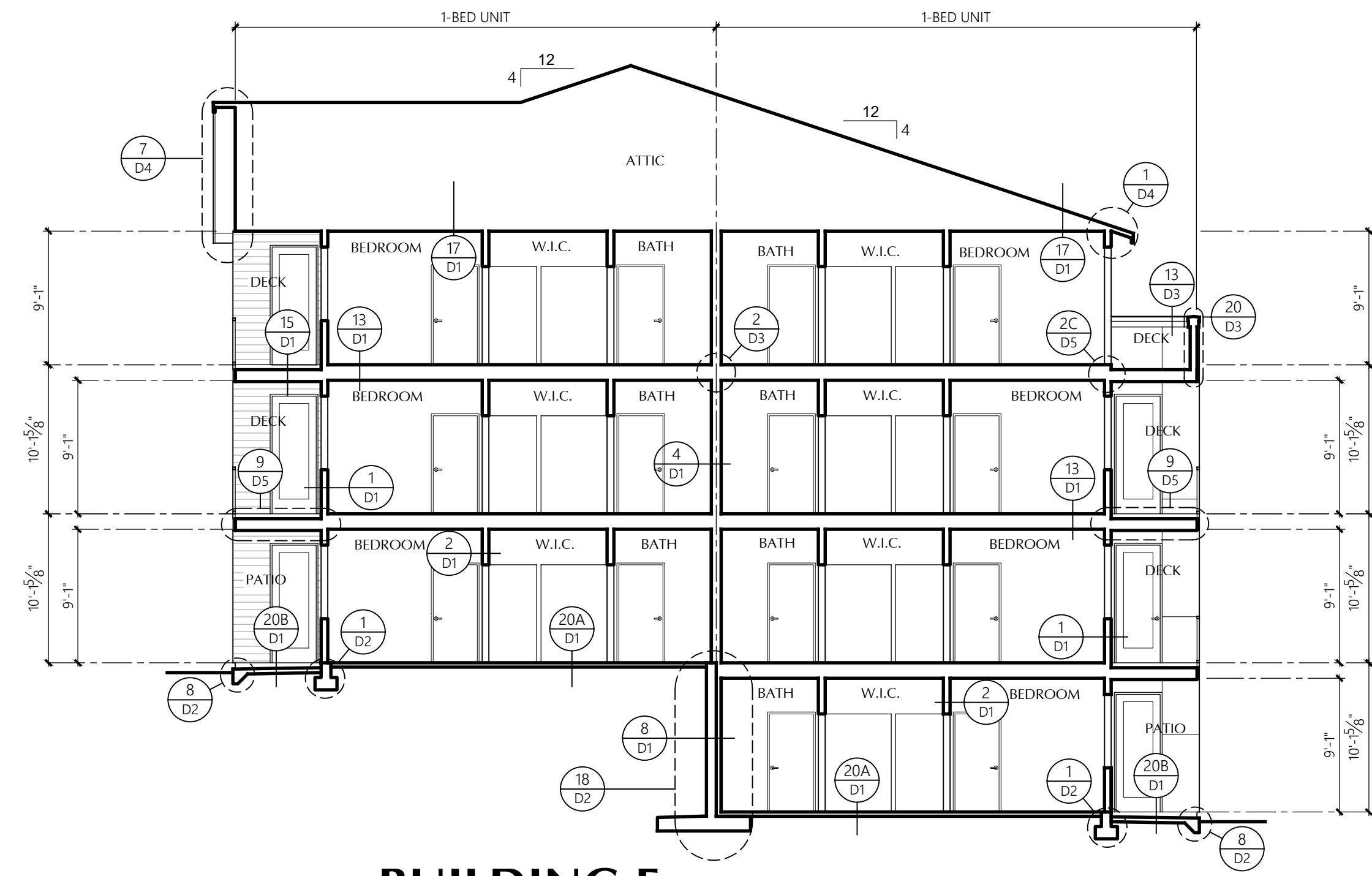
**BUILDING F** SIDE ELEVATION  
1/8" = 1'-0"



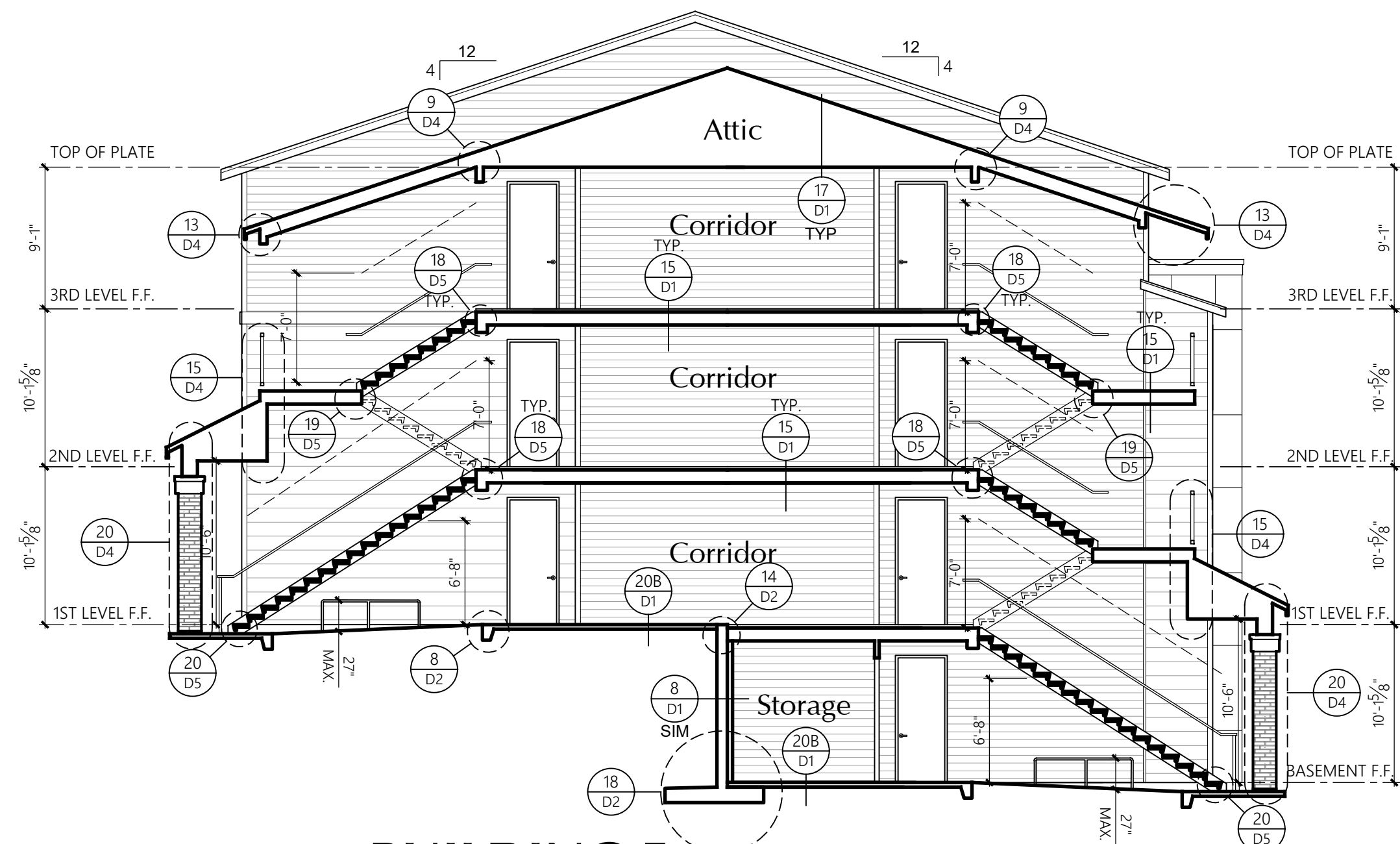
**BUILDING F** REAR ELEVATION  
1/8" = 1'-0"  
ELEVATION SCHEME 1



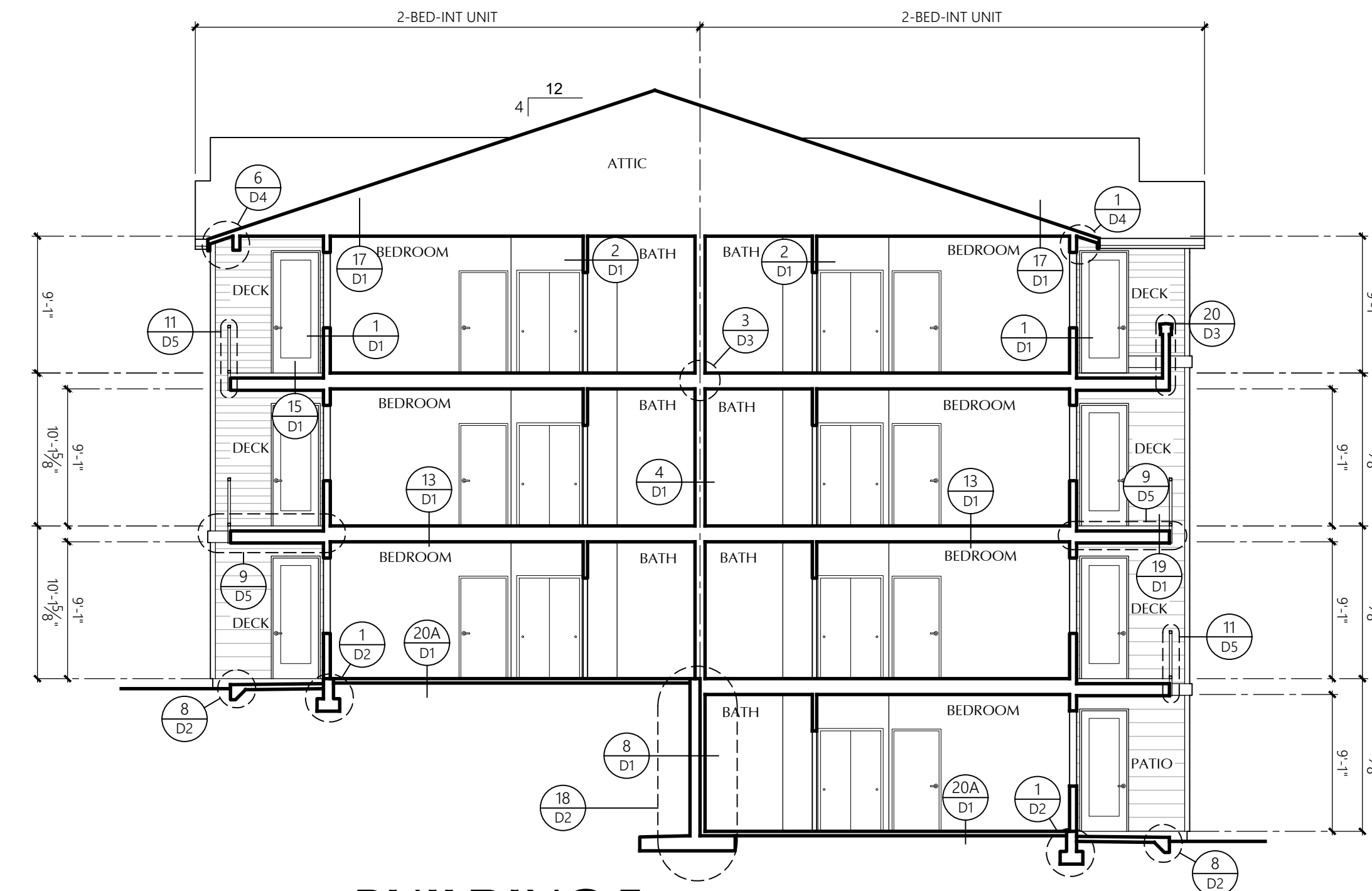
**BUILDING F** SECTION C  
1/8" = 1'-0"



**BUILDING F** SECTION B  
1/8" = 1'-0"



**BUILDING F** SECTION D  
1/8" = 1'-0"



**BUILDING F** SECTION A  
1/8" = 1'-0"



# STRUCTURAL NOTES-TABLES

Special Inspection required per Chapter 17 of the 2018 IBC - SUBMIT REPORTS TO INSPECTORS WITH THE CITY OF PUYALLUP

WIND PRESSURE TABLE FOR COMPONENTS & CLADDING (ASD)						
ROOF SURFACES <sup>1</sup>						
EFFECTIVE WIND AREA	POSITIVE PRESSURE (PSF)			NEGATIVE PRESSURE (PSF)		
	ZONE <sup>2</sup>					
	1	2	3	1	2	3
10 SF	7.80	7.80	7.80	-12.39	-21.56	-31.89
20 SF	7.04	7.04	7.04	-12.01	-19.65	-29.59
50 SF	6.27	6.27	6.27	-11.62	-17.74	-27.30
100 SF	5.51	5.51	5.51	-11.24	-15.83	-25.01
500 SF	5.51	5.51	5.51	-11.24	-15.83	-25.01

WALL SURFACES						
EFFECTIVE WIND AREA	POSITIVE PRESSURE (PSF)			NEGATIVE PRESSURE (PSF)		
	ZONE <sup>2</sup>					
	4	5	4	5	4	5
10 SF	12.18	12.18	-13.21	-16.31		
20 SF	11.56	11.56	-12.59	-15.07		
50 SF	10.94	10.94	-11.98	-13.83		
100 SF	10.32	10.32	-11.36	-12.57		
500 SF	9.08	9.08	-10.12	-10.12		

1. NET WIND PRESSURES AT ROOF SURFACES = VALUE FROM TABLE ABOVE +2/3 DEAD LOAD (DEAD LOAD REDUCES NEGATIVE PRESSURE + ADDS TO POSITIVE PRESSURES)  
 2. ZONES ARE DEFINED BY FIGURE 30.6-1 ASCE/SEI 07-10 FOR ROOF AND WALL ELEMENTS

2018 International Building Code - Statement of Special Inspection

MATERIAL/ TYPE INSPECTION	IBC CODE REFERENCE	REFERENCE STANDARD	FREQUENCY APPLICABLE TO THIS PROJECT			SCOPE OF SERVICE
			CONT.	PERIODIC	REQUIRED	
Site Preparation	Table 1705.6 Item 5	-	-	X	N/A	Inspection to determine that the site has been prepared in accordance with the approved soils or geotechnical report.
Prepared Fill - During Fill Preparation	Table 1705.6 Item 4	-	X	-	YES	Inspection to determine that the materials being used and maximum lift thicknesses comply with the approved report as specified in Section 1804.2.
Evaluation of in-place Density	Table 1705.6 Item 3	-	-	X	YES	Tests to determine, at the approved frequency, that the in-place dry density of the compacted fill complies with the approved report.
Footings and Foundations	1805.1 - 1805.9 Table 1705.6 Item 1	-	-	X	YES	Confirm soils suitable for the design allowable soil bearing pressure are present at bearing grade. Confirm the footing dimensions are as specified on the project plans.
Foundation Depth	Table 1705.6 Table 1705.6 Item 2	-	-	X	YES	Confirm excavation are extended to proper depth and have reached proper materials.

2018 International Building Code - Statement of Special Inspection

MATERIAL/ TYPE INSPECTION	IBC CODE REFERENCE	REFERENCE STANDARD	FREQUENCY APPLICABLE TO THIS PROJECT			SCOPE OF SERVICE
			CONT.	PERIODIC	REQUIRED	
Materials	1705.3.1, Table 1705.3 Item 1	Applicable ASTM material spec.; AISC 360, Section A3.3	-	X	YES	Manufacturer's Certificates of Compliance or Tests per Chapter 3 of ACI 318, per ASTM A 706, and per 1705.3.1
Installation of Reinforcing Steel	Table 1705.3 Item 1	ACI 318.3.5; 7.1 - 7.7	-	X	YES	Inspection to confirm compliance with details shown on approved Construction Documents, Shop Drawings, ACI 318 and Code Section 1910.4
Welding of Reinforcing Steel	Table 1705.3 Item 2	AWS D1.4, ACI 318.3.5.2	-	-	N/A	Observation of reinforcing steel welding in accordance with Table 1705.2.2, Item 2, ( see attached steel construction table).
Bolt Installation	1908.5, 1901.1 Table 1705.3 Item 3	ACI 318: 8.1.3, 21.2.8	X	-	YES	Observation of anchor bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased.
Formwork	Table 1705.3 Item 12	ACI 318.6.1.1	-	X	YES	Inspection for compliance with ACI 318, Section 6.1, 6.2, for shape, location and dimensions of concrete member being formed.
Concrete Strength	1910.10, Table 1705.3 Item 6	ASTM C 172, ASTM C 31, ACI 318.5.6, 5.8	-	X	NO	Evaluation of Concrete strength in accordance with ACI 318, Section 5.6 and in accordance with the requirements of IBC 1905.6.
Concrete Mixes	1904.2, 1910.2, 1910.3 Table 1705.3 Item 5	ACI 318: 4, 5.2-5.4	-	X	YES	Inspection for use of proper mix proportions and techniques, ACI 318, Chapter 4, Sections 5.2 - 5.4.
Concrete Sampling	1910.10 Table 1705.3 Item 6	ASTM C 172, ASTM C 31, ACI 318.5.6, 5.8	X	-	NO	
Concrete Placement	1910.6, 1910.7, 1910.8, Table 1705.3 Item 7	ACI 318.5.9, 5.10	X	-	YES	Inspection for proper application techniques; ACI 318, Sections 5.9 and 5.10
Curing Temperatures and Techniques	1910.9 Table 1705.3 Item 8	ACI 318: 5.11-5.13	-	X	NO	Inspection for maintenance of curing temperatures and techniques; ACI 318, Sections 5.11, 5.12 and 5.13.
Prestressed Concrete: Application Prestressing Forces	Table 1705.3 Item 9a	ACI 318: 18.20, ACI 18.18.4	X	-	NO	Field inspections of precast concrete members in accordance with ACI 318, Section 18.20.
Prestressed Concrete: Grouting of unbonded prestressing tendons in seismic-force-resisting system	Table 1705.3 Item 9b	ACI 318: 18.20, ACI 18.18.4	X	-	NO	Field inspections of precast concrete members in accordance with ACI 318, Chapter 18.18.4.
Manufacture of Precast Concrete	1704.2.1	-	-	X	NO	Certificate from Independent Agency and current agreement for periodic (minimum 6 month intervals) in-plant quality assurance inspections.
Erection of Precast Concrete	Table 1705.3 Item 10	ACI 318: 16	-	X	NO	Field inspections of precast concrete members in accordance with ACI 318, Chapter 16.
Post Tensioning	Table 1705.3 Item 11	ACI 318: 6.2	-	X	NO	Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms for beams and structural slabs in accordance with ACI 318, Section, 6.2.
Post Installed Anchors	1909.1, Table 1705.3 Item 11	ACI 318: 3.8.6, 8.1.3, 21.1.8	-	X	YES	Verification of anchors post installed in hardened concrete members.

2018 International Building Code - Statement of Special Inspection

MATERIAL/ TYPE INSPECTION	IBC CODE REFERENCE	REFERENCE STANDARD	FREQUENCY APPLICABLE TO THIS PROJECT			SCOPE OF SERVICE
			CONT.	PERIODIC	REQUIRED	
Fabrication - Inspection of Fabricator's Quality Control Procedures	1704.2.5	-	-	X	YES	Certificate from Independent Agency and current agreement for periodic (minimum 6 month intervals) in-plant quality assurance inspections.

2018 International Building Code - Statement of Special Inspection

MATERIAL/ TYPE INSPECTION	IBC CODE REFERENCE	REFERENCE STANDARD	FREQUENCY APPLICABLE TO THIS PROJECT			SCOPE OF SERVICE
			CONT.	PERIODIC	REQUIRED	
Structural Steel	1705.11.1	AISC 341	X	-	N/A	Observation of structural welding in accordance with AISC Seismic. Not required for 5/16" single pass fillet welds or welding of metal deck.
Structural Wood: Inspection of field gluing operations of elements of the seismic force resisting system.	1705.11.2	-	X	-	N/A	Inspection of field gluing operations of elements of the seismic force resisting system.
Structural Wood: Inspection of nailing, bolting, anchoring and other fastening components within the seismic force resisting system, including drag struts, braces and hold-downs.	1705.11.2	-	-	X	YES	Inspection of nailing, bolting, anchoring and other fastening components within the seismic force resisting system, including drag struts, braces and hold-downs. Not required for nailing o.c., spacing greater than 4" o.c.
Cold-formed Steel Framing	1705.11.3	-	-	X	NO	Inspection of welding operations of elements of the seismic force resisting system.
Cold-formed Steel Framing	1705.11.3	-	-	X	NO	Inspection of screw attachments, bolting, anchoring and other fastening components within the seismic force resisting system, including struts, braces and hold-downs.

2018 International Building Code - Statement of Special Inspection

MATERIAL/ TYPE INSPECTION	IBC CODE REFERENCE	REFERENCE STANDARD	FREQUENCY APPLICABLE TO THIS PROJECT			SCOPE OF SERVICE
			CONT.	PERIODIC	REQUIRED	
Structural Observations	1704.5	-	-	X	If required by jurisdiction	Structural observations to be performed to observe general conformance to the construction documents.

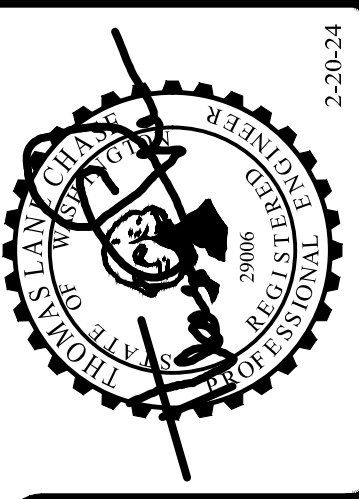
Revisions to this sheet:

**Bradley Heights Apartments**  
202 27th Ave SE  
Puyallup, Washington

PROJECT NO. : 23-007  
 DESIGNED BY : TLC, OGG, MRO  
 DRAWN BY : RSO  
 ISSUE DATE : 2-20-24  
 LATEST REV. OF DWG. SET :

SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
 THESE DRAWINGS ARE SUBJECT TO REVISIONS  
 PENDING LOCAL JURISDICTIONAL REVIEW.

# S1.1

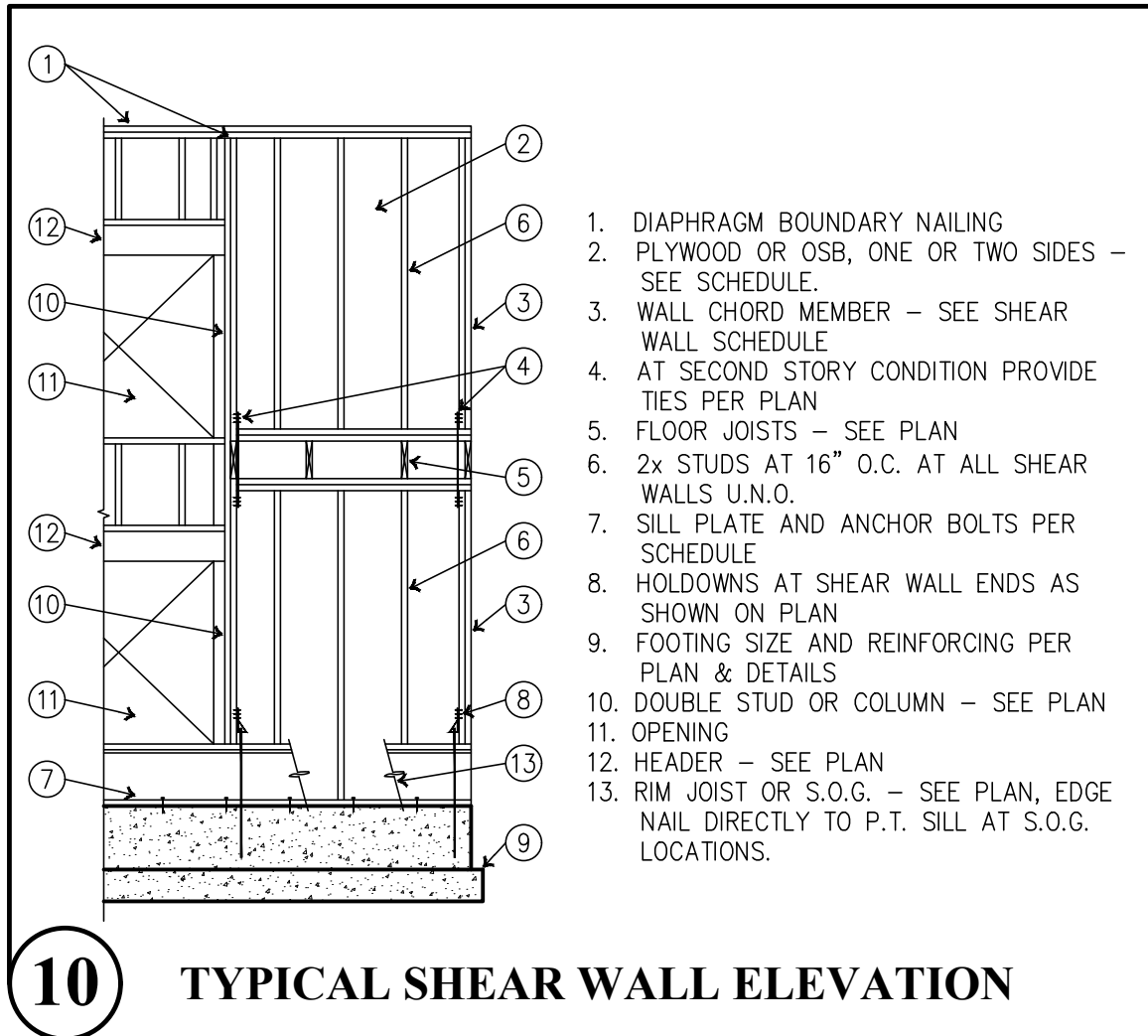


THOMAS L. CHASE, PE  
 MARTIN R. OMAN, PE, SE  
 OLEG G. KONDRATYUK, PE

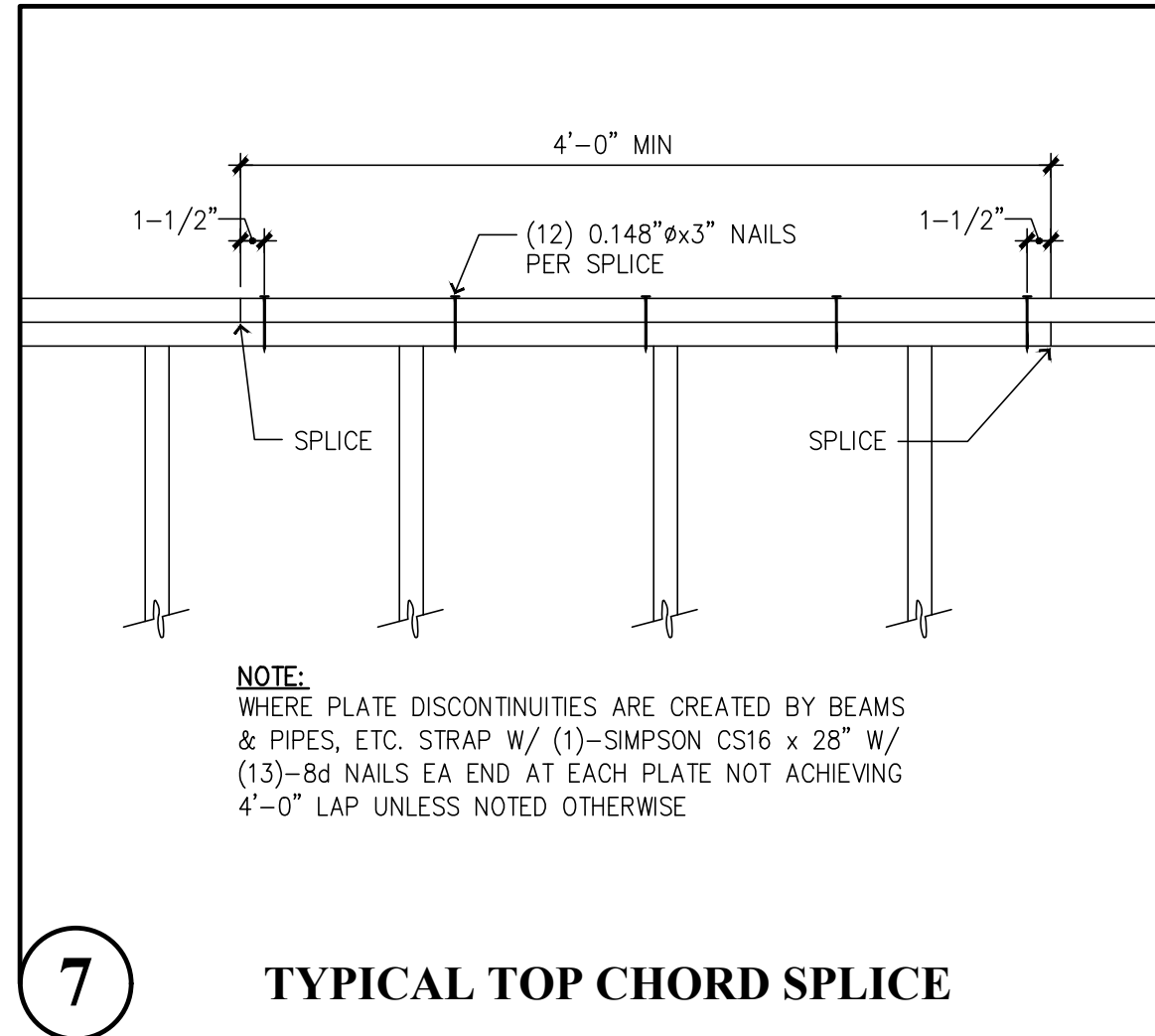
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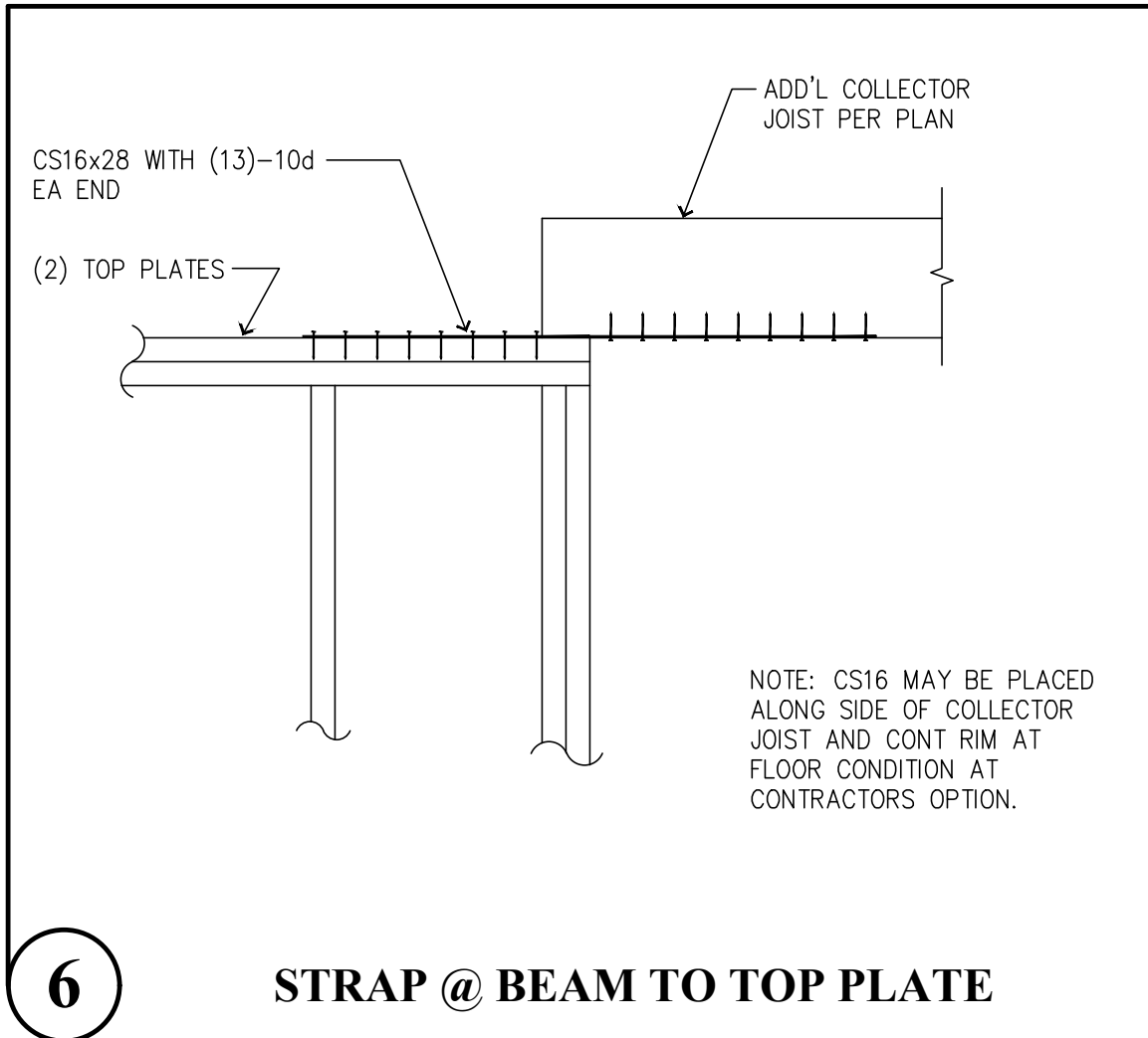
A Structural Engineering Corporation



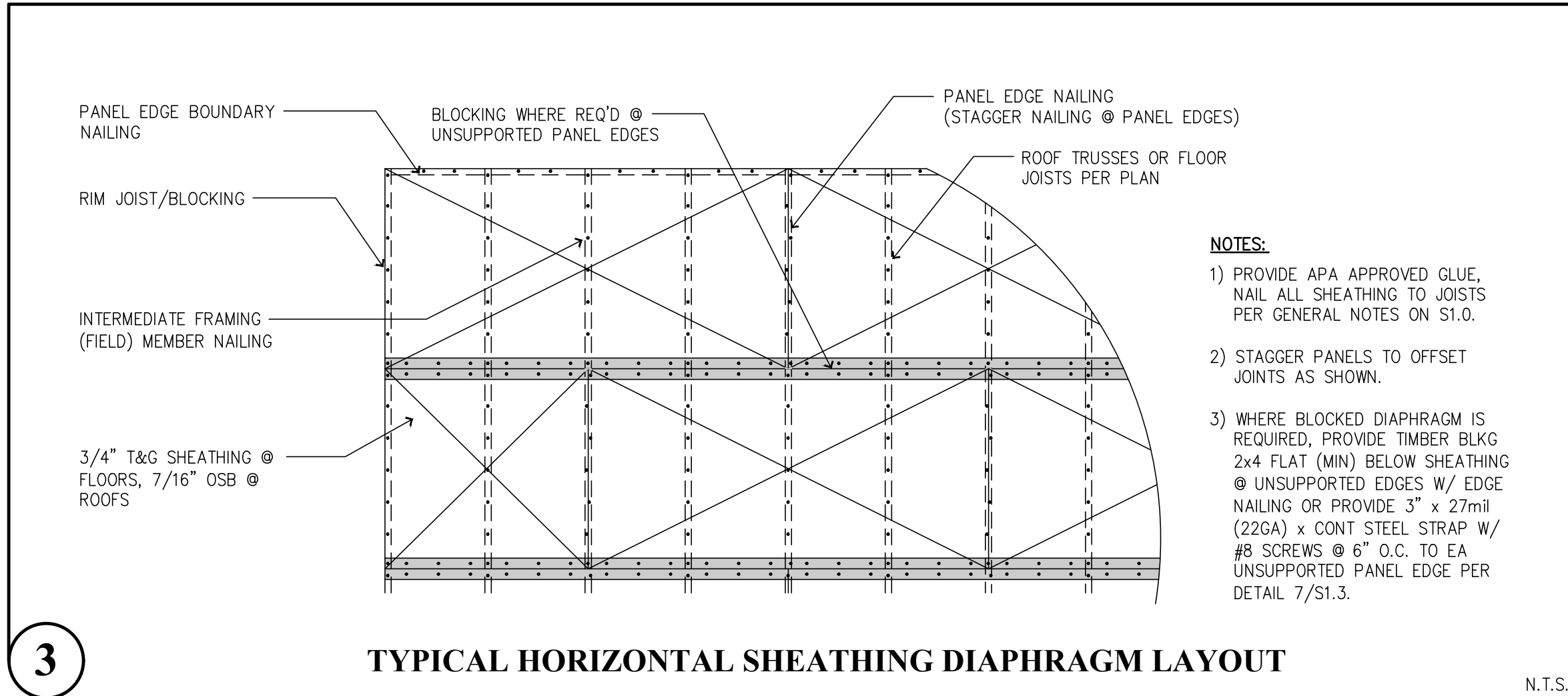
**10** TYPICAL SHEAR WALL ELEVATION



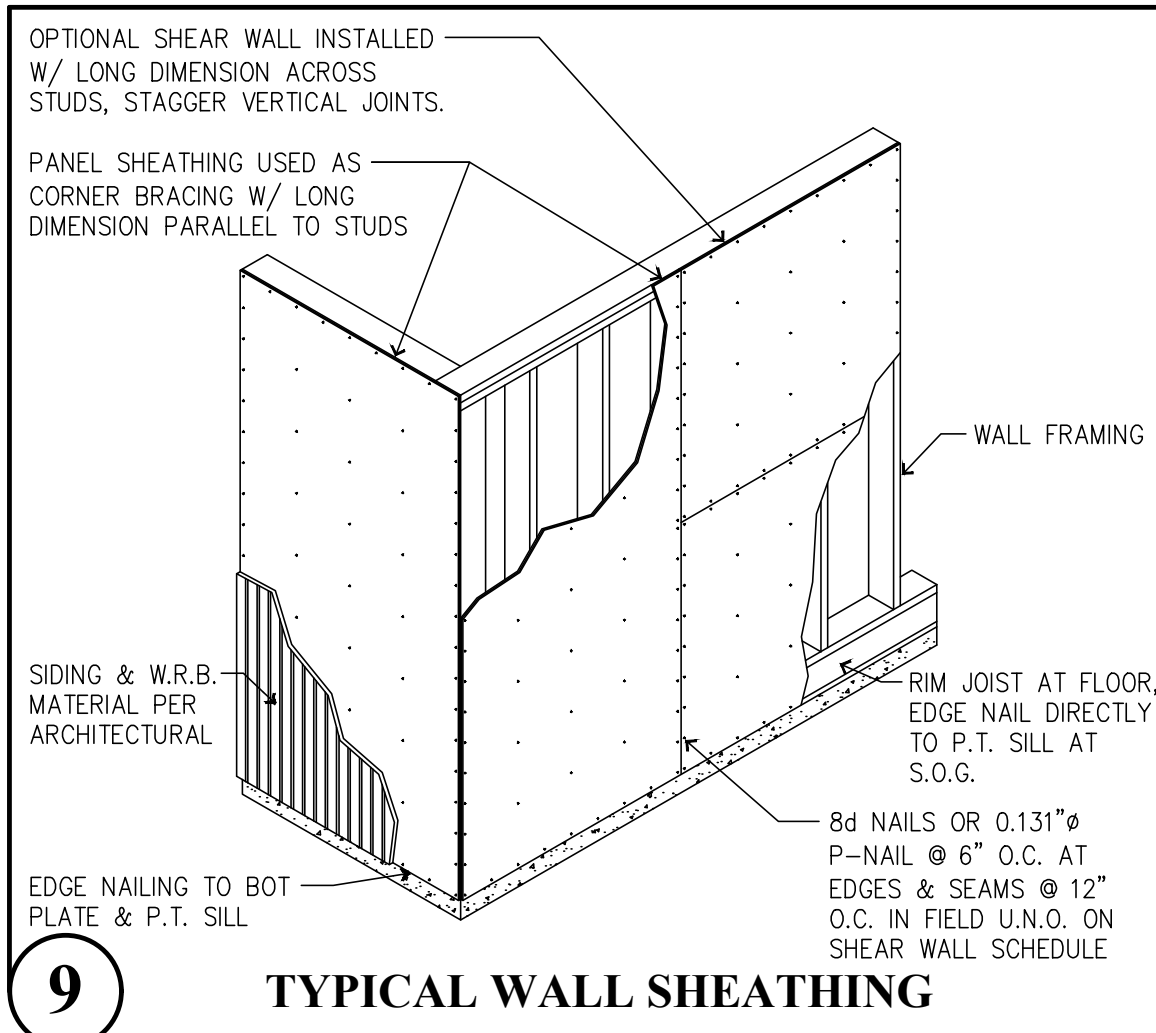
**7** TYPICAL TOP CHORD SPLICE



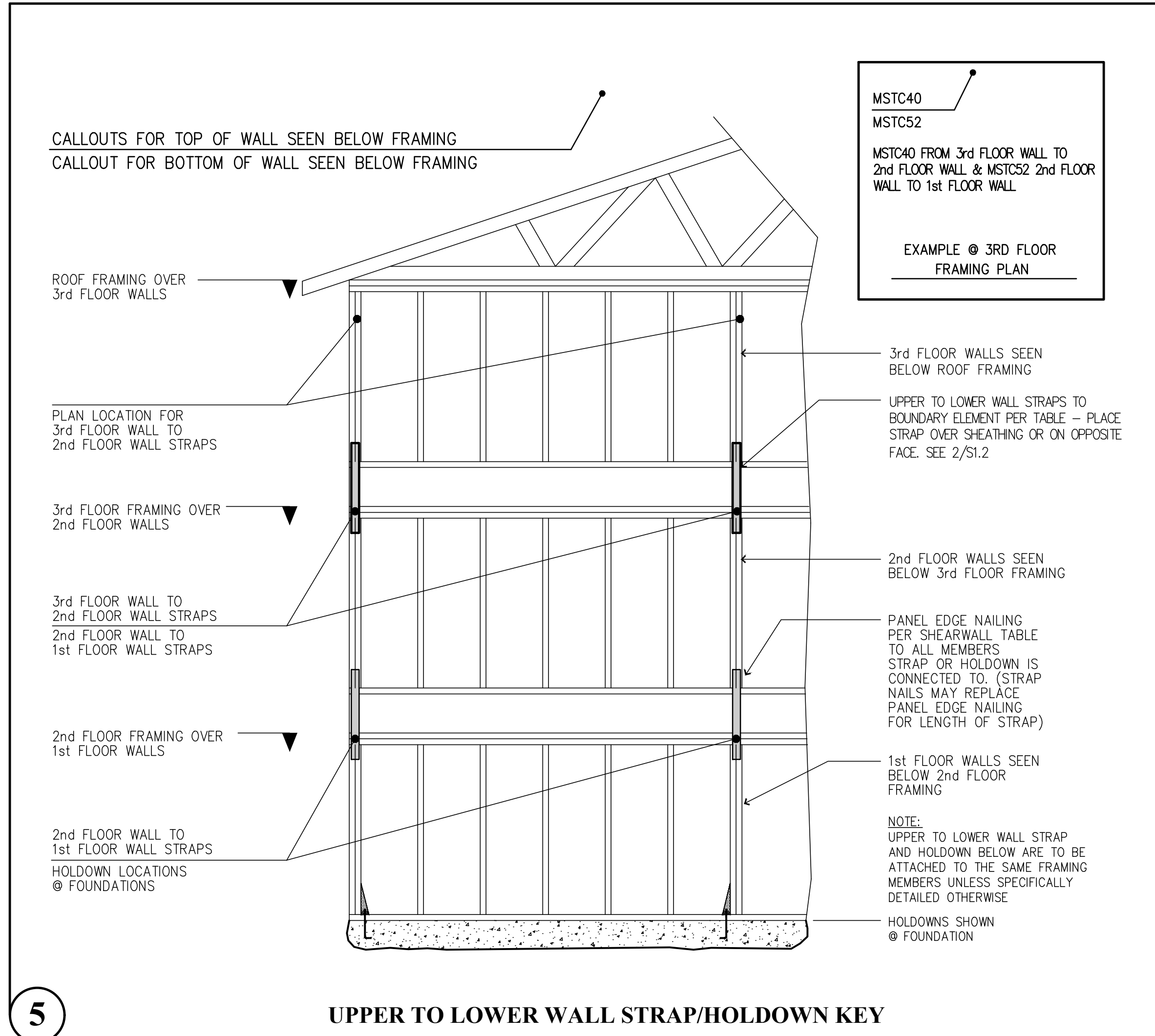
**6** STRAP @ BEAM TO TOP PLATE



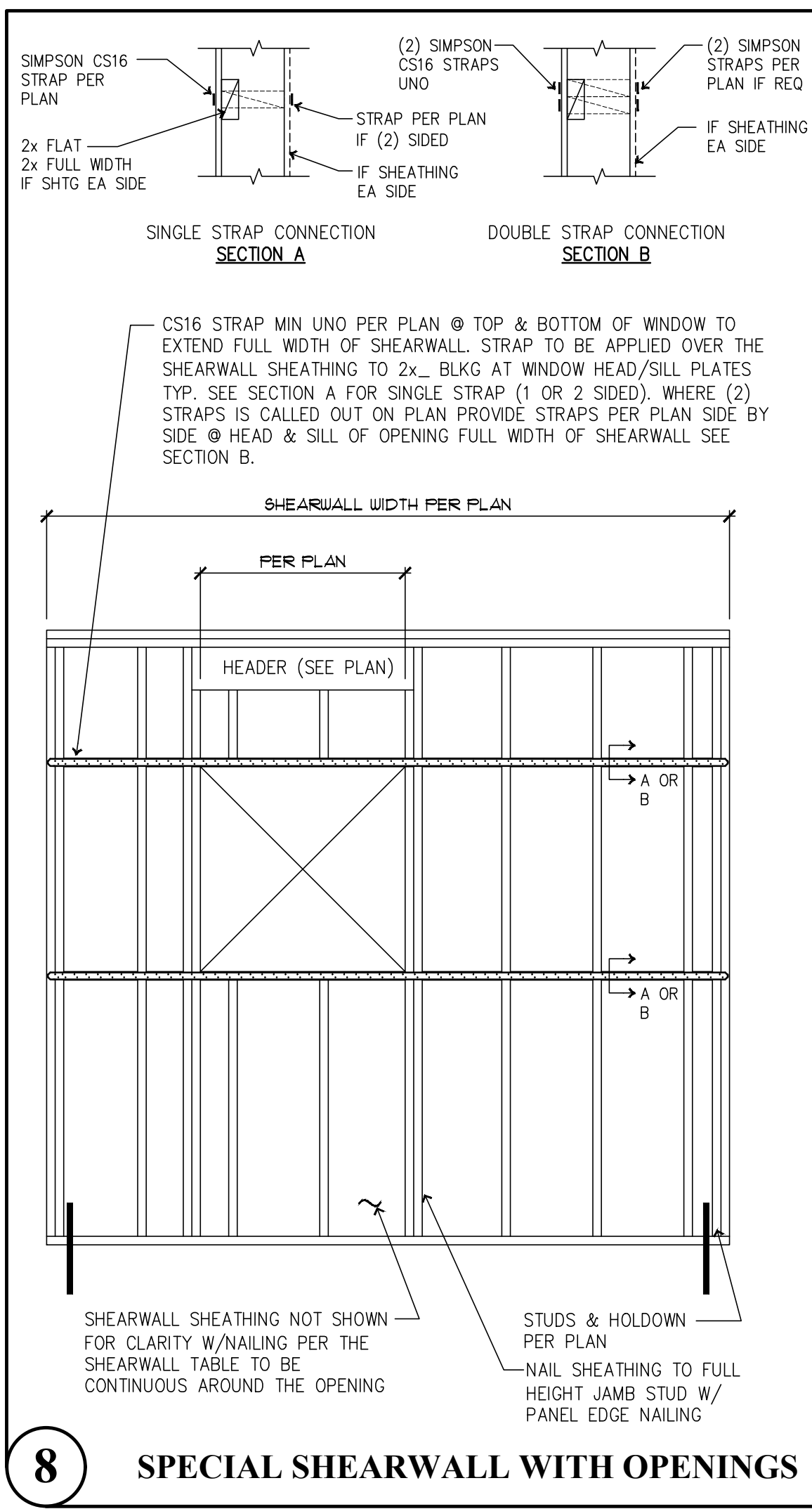
**3** TYPICAL HORIZONTAL SHEATHING DIAPHRAGM LAYOUT



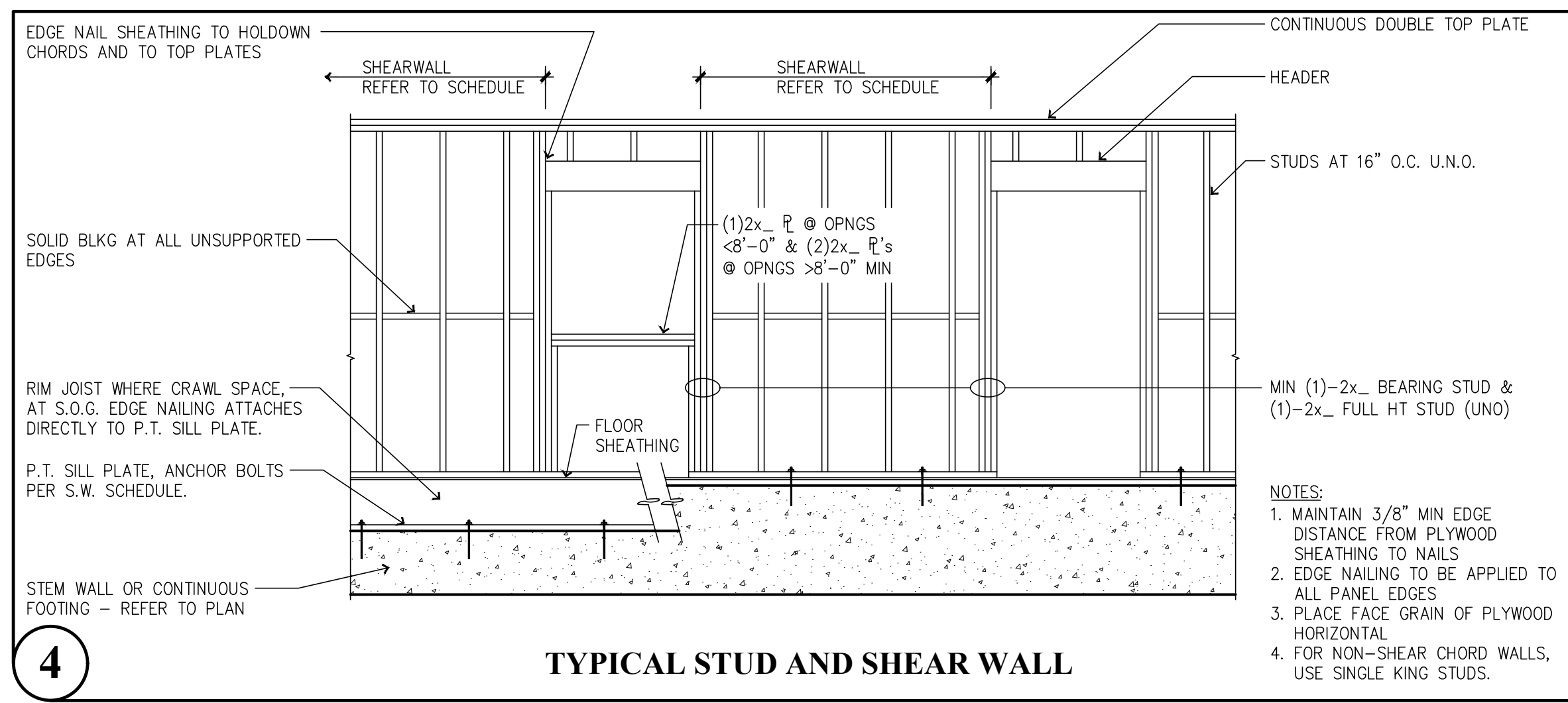
**9** TYPICAL WALL SHEATHING



**5** UPPER TO LOWER WALL STRAP/HOLDOWN KEY



**8** SPECIAL SHEAR WALL WITH OPENINGS



**4** TYPICAL STUD AND SHEAR WALL

**HOLDOWN TABLE**

MARK	BOUNDARY ELEMENT		TOTAL FASTENERS	ANCHOR DIAMETER	ANCHOR EMBEDMENT	MIN EDGE DISTANCE WITHOUT ADD'L REINF
	2x4 WALL	2x6 WALL				
MST37	4x4 #2 HF	4x6 #2 HF	(20) 16d	N/A	N/A	N/A
MST48	4x4 #2 HF	4x6 #2 HF	(32) 16d	N/A	N/A	N/A
(2)MST48	4x6 #2 HF	6x6 #2 DF	(46) 16d	N/A	N/A	N/A
MST60	4x6 #2 HF	4x6 #2 HF	(64) 16d	N/A	N/A	N/A
(2)MST60	4x6 #2 HF	6x6 #2 DF	PER MFR	N/A	N/A	N/A
HDU2	4x4 #2 HF	4x6 #2 HF	PER MFR	5/8"	8"	4"
HDU4	4x4 #2 HF	4x6 #2 HF	PER MFR	5/8"	8"	4"
HDU5	4x6 #2 HF	4x6 #2 HF	PER MFR	5/8"	8"	8"
HDU8	4x6 #2 DF	6x6 #2 DF	PER MFR	7/8"	12"	8"
HDU11	4x6 #2 DF	6x6 #2 DF	PER MFR	1"	12"	12"
HDU14	4x8 #2 DF	6x6 #2 DF	PER MFR	1"	12"	16"

**NOTES:**

- STRAP HOLDOWNS MAY BE APPLIED DIRECTLY TO BOUNDARY MEMBER ON OPPOSITE SIDE OF SHEATHING OR APPLIED DIRECTLY OVER PWD/OSB SHEATHING. DO NOT LOCATE STRAPS UNDER WOOD SHEATHING OF ANY TYPE OR OVER GYPSUM SHEATHING. (DO NOT INSTALL MSTC TYPE STRAPS OVER SHEATHING, SEE 4/S1.3)
- NAIL SHEATHING PER SHEARWALL TABLE TO EACH BOUNDARY ELEMENT PER TABLE ABOVE.
- ALIGN FLOOR TO FLOOR STRAPS WITH HOLDOWNS AT FOUNDATION, TYP. (SEE DETAIL 5/S1.2)
- HOLDOWNS/STRAPS MUST BE ATTACHED TO FULL HEIGHT MEMBERS UNLESS NOTED OTHERWISE. BOUNDARY ELEMENTS ARE IN ADDITION TO TRIMMER/BEARING STUDS CALLED OUT ON PLAN. (SEE DETAILS 1.2 & 3/S1.3)
- ANCHOR BOLTS SHALL BE CAST IN PLACE AND ALL ANCHORS EXCEPT HDU2 AND HDU4 REQUIRE ADDITIONAL REBAR IF EMBEDDED IN STEM WALLS OR IF MIN EDGE DISTANCE IS LESS THAN AS NOTED USE A STANDARD WASHER WITH A STANDARD NUT ON EACH SIDE AT BOTTOM OF ANCHOR. ADDITIONAL REINFORCEMENT SHALL BE PER DETAILS 1.2, & 3/S1.3.
- THREADED RODS/ANCHORS ARE ASTM A307 OR ASTM F1554 U.N.O.
- STRAPS/HOLDOWNS SHALL BE INSTALLED WITH THE FASTENERS SPECIFIED BY THE MANUFACTURER TO ACHIEVE THE MAXIMUM TABULATED LOAD & AS INDICATED IN THE TABLE ABOVE.
- INSTALL HALF OF SPECIFIED FASTENERS EACH END OF STRAPS PER SIMPSON STRONGTIE.
- SEE DETAIL 4/S1.3 FOR MSTC - HOLDOWN STRAPS FROM SHEARWALL TO BEAM & DETAIL 6/S1.3 FOR MSTC - HOLDOWN STRAPS @ END OF BEAM TO POST/COLUMN. (\*) SYMBOL AT END OF MSTC STRAP CALLOUT (i.e. (2)MSTC48B3\*) INDICATES STRAP IS INVERTED AND ATTACHES END OF BEAM TO POST BELOW PER 6/S1.3

**2**

**SHEARWALL COMPONENT TABLE**

MARK	MARK <sup>14</sup>	COMPONENTS	1/2" A.B. PL TO CONCRETE SPACING (IN)	5/8" A.B. PL TO CONCRETE SPACING (IN)	10d COMMON PL TO PL SPACING (IN)	SIMPSON A35 CLIP ANGLE SPACING (IN)	SIMPSON LTP4 CLIP ANGLE SPACING (IN)
W1	W1P	7/16" PWD OR OSB, BLOCKED, W/ 8d NAILS @ 6" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD.	47" O.C.	68" O.C.	8.1" O.C.	30" O.C.	29" O.C.
W2	W2P	7/16" PWD OR OSB, BLOCKED, W/ 8d NAILS @ 4" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD.	32" O.C.	47" O.C.	5.5" O.C.	20" O.C.	20" O.C.
W3	W3P	7/16" PWD OR OSB, BLOCKED, W/ 8d NAILS @ 3" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD. SEE NOTE 2	25" O.C.	36" O.C.	4.3" O.C.	16" O.C.	15" O.C.
W4	W4P	7/16" PWD OR OSB, BLOCKED, W/ 8d NAILS @ 2" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD. SEE NOTE 2	19" O.C.	28" O.C.	6.6" O.C. EA ROW	12" O.C.	12" O.C.
W5	W5P	7/16" PWD OR OSB, BLOCKED, W/ 10d NAILS @ 2" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD. SEE NOTE 2.	16" O.C.	23" O.C.	5.6" O.C. EA ROW	10" O.C.	10" O.C.
W6	W6P	15/32" PWD OR OSB, (2) LAYERS (ONE EACH SIDE), BLOCKED, W/ 10d NAILS @ 3" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD. SEE NOTE 2, 3 & 15	12" O.C.	18" O.C.	4.3" O.C. EA ROW	8" O.C.	8" O.C.
W7	W7P	15/32" PWD OR OSB, (2) LAYERS (ONE EACH SIDE), BLOCKED, W/ 10d NAILS @ 2" O.C. @ PANEL EDGES AND @ 12" O.C. @ FIELD. SEE NOTE 2, 3, & 15	9" O.C.	14" O.C.	3" O.C. EA ROW STAGGERED	5" O.C.	5" O.C.

**NOTES:**

- ALL NAILING PER ANS/AF & PA SDPWS - 2018 TABLE 4.3A
- USE 3x STUDS AT ALL ABUTTING PANEL EDGES. NAILS SHALL BE STAGGERED WHERE NAILS ARE SPACED AT 2" O.C.
- IF CALLOUT REQUIRES BLOCKING, SHEATHING MAY BE PLACED WITH THE LONGITUDINAL DIRECTION VERTICAL. STUDS AND PLATES WILL BE CONSIDERED TO ACT AS BLOCKING.
- WALL SHEATHING CALLED OUT SHALL EXTEND FOR ENTIRE WALL LENGTH AT THAT ELEVATION AND SHALL BE CONTINUOUS AROUND OPENINGS TYPICALLY.
- 8d NAILS ARE TO BE .131" AND 2-1/2" IN LENGTH. 10d NAILS ARE TO BE .148" AND A MINIMUM OF 3" IN LENGTH. 16d NAILS ARE TO BE .162" AND 3-1/4" IN LENGTH. NAILS SHALL BE INSTALLED SO AS TO NOT SPLIT THE TIMBER FRAMING.
- SIMPSON A35 OR LTP4 CLIP ANGLES SHALL BE INSTALLED WITH THE APPROPRIATE FASTENERS PER THE MANUFACTURER'S SPECIFICATIONS.
- USE 3"x3"x0.229" PLATE WASHERS AT ALL ANCHOR BOLTS PER SECTION 4.3.6.4.3
- SPACING SHOWN ABOVE FOR ANCHOR BOLTS, NAILING AND CLIPS IS MAXIMUM AMOUNT ALLOWED.
- FRAMING AT SHEARWALLS SHALL BE SPACED NO FARTHER THAN 16" O.C.

MIN 4" O.C. SPACING IN A SINGLE ROW PER NOTE 11

1/2" MIN BETWEEN ROWS

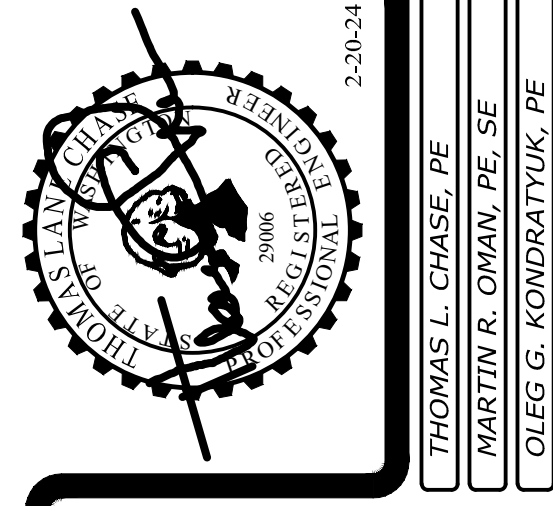
(2)2x STUDS

(2) ROWS 0.148" x 3" NAILS SPACING PER NOTES 13 AND 14

**NOTES:**

- MINIMUM NAIL SPACING IN A SINGLE ROW SHALL BE 4 INCHES ON CENTER. USE (2) ROWS IF SPACING LESS THAN THIS. USE 2ND RIM BOARD, RIM JOIST OR BLOCKING WHERE THREE ROWS OF NAILING CALLED OUT.
- EXTEND SHEATHING UP TO DOUBLE TOP PLATES AND INSTALL NAILS THROUGH SHEATHING INTO UPPER TOP PLATE PER TYPICAL DETAILS. NO PLATE TO PLATE NAILING REQUIRED IN DOUBLE TOP PLATES WITH THIS CONFIGURATION.
- OPTIONAL TO USE (2) 2x's IN PLACE OF SINGLE 3x IN SHEARWALLS W3, W4 AND W5 W/ STITCH NAILING.
- (2) ROWS OF 0.148" x 3" STITCH NAILING (2)2x STUDS TOGETHER @ 10" O.C. FOR W3 SHW, 8" O.C. FOR W4 SHW & 6" O.C. FOR W5 SHW PER SECTION 4.3.7 NOTE 4.
- THE "W\_P" INDICATES SHEAR WALL TYPE WITH OPENINGS. PROVIDE SHEATHING AROUND ALL OPENINGS AND ABOVE AND BELOW ALL OPENINGS. PROVIDE HORIZONTAL STRAPS & NAILING AT OPENINGS PER 8/S1.2

**1**



Revisions to this sheet:

**Bradley Heights Apartments**  
202 27th Ave SE  
Puyallup, Washington

**Solutions 4 Structures**  
A Structural Engineering Corporation

PROJECT NO. : 23-007  
DESIGNED BY : TLC, OGG, MRO  
DRAWN BY : RSO  
ISSUE DATE : 2-20-24  
LATEST REV. OF DWG. SET :

THOMAS L. CHASE, PE  
MARTIN R. OMAN, PE, SE  
OLEG G. KONDRATYUK, PE

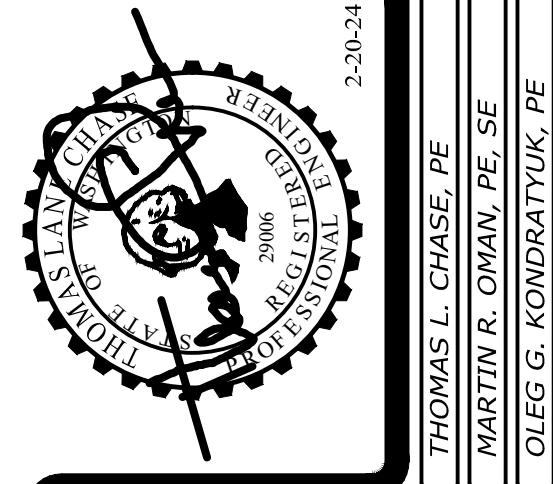
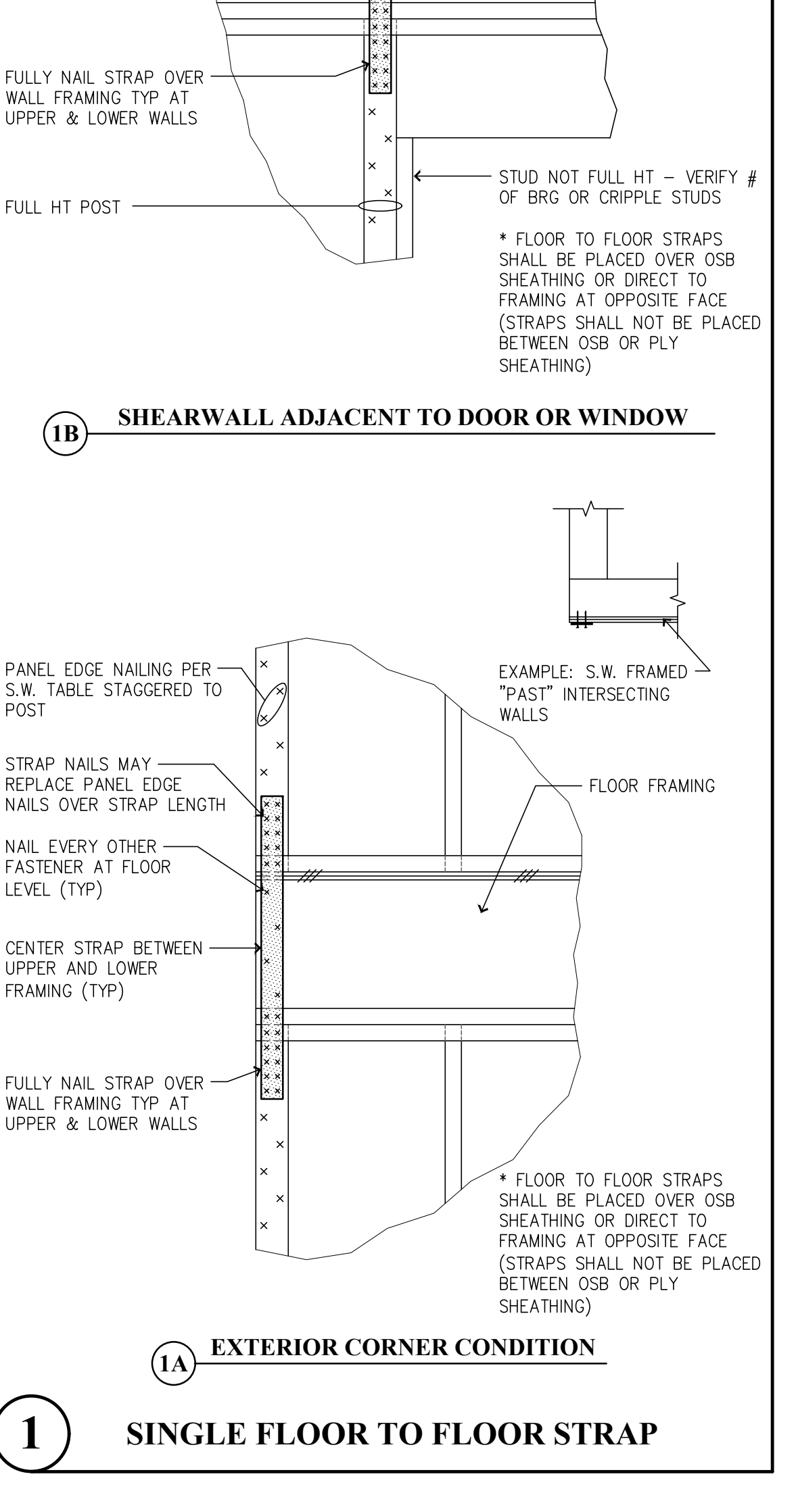
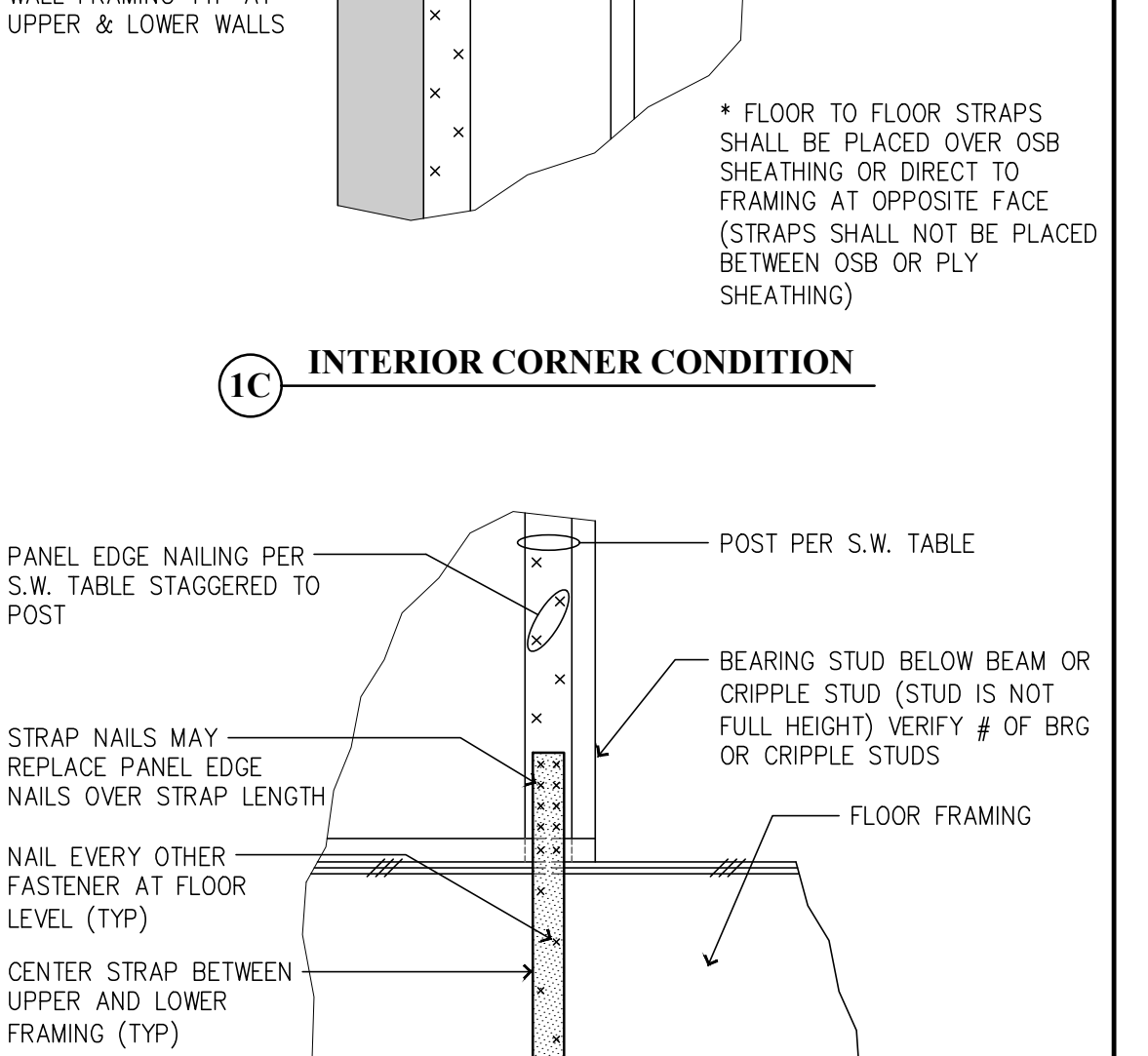
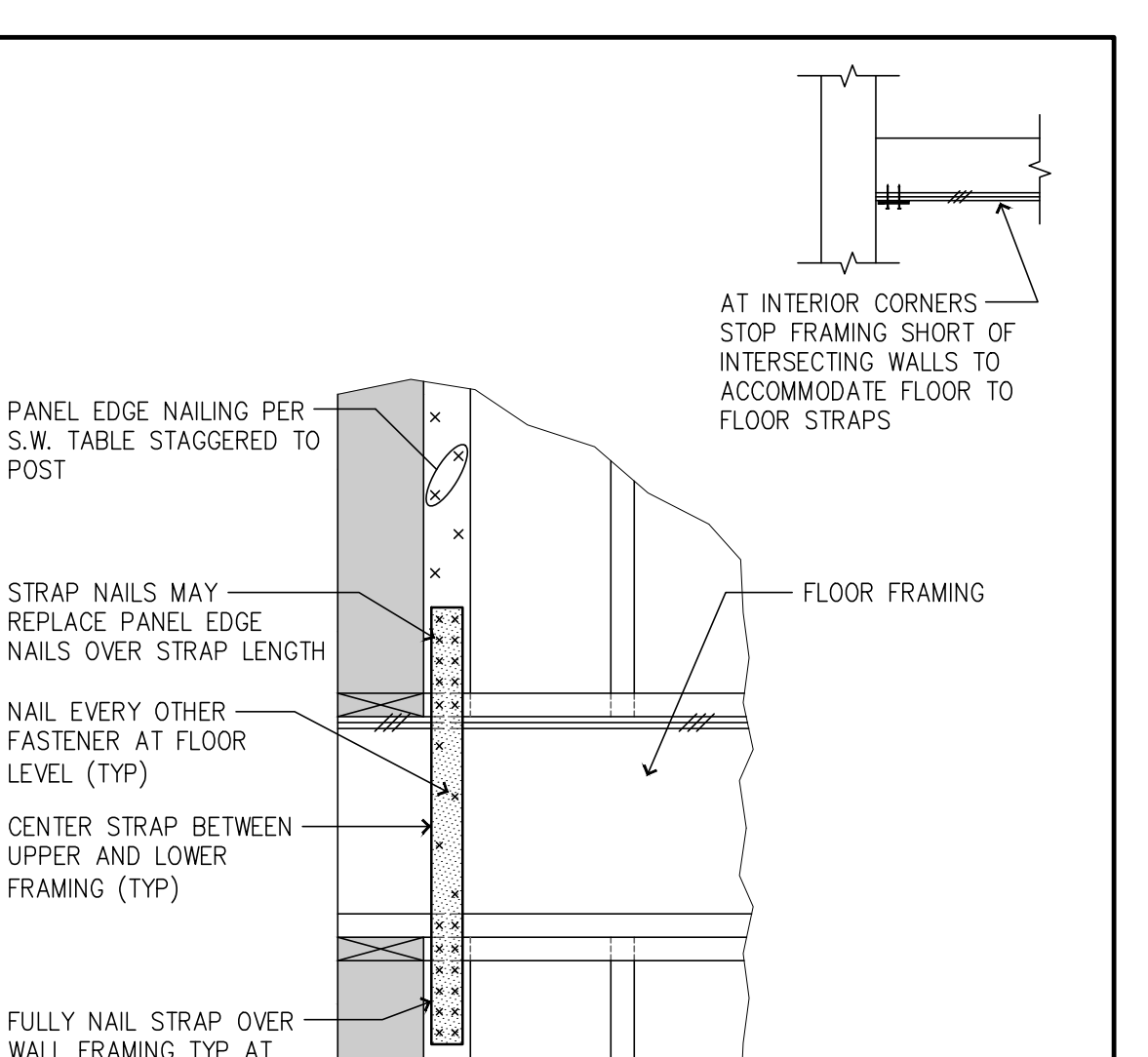
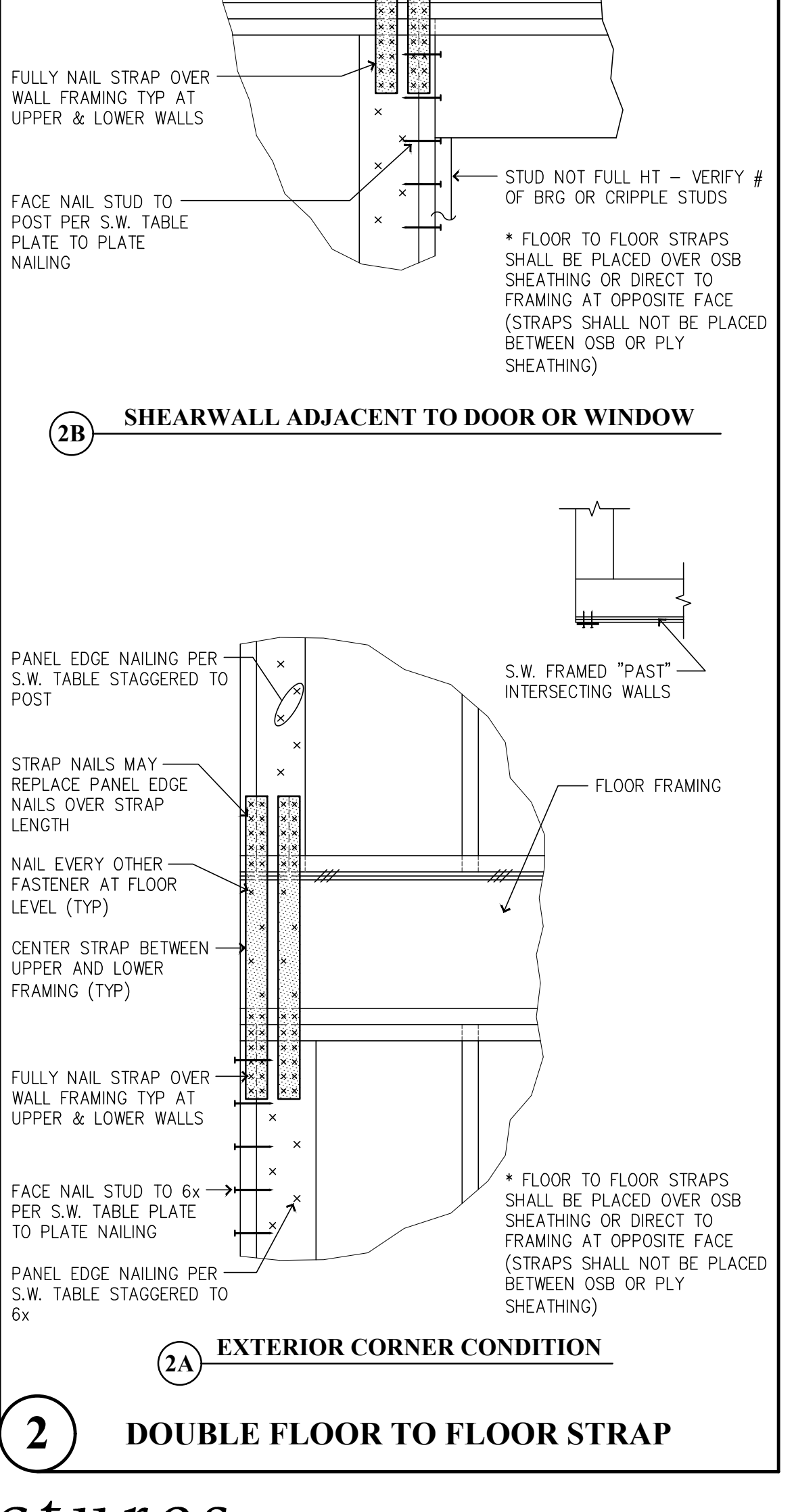
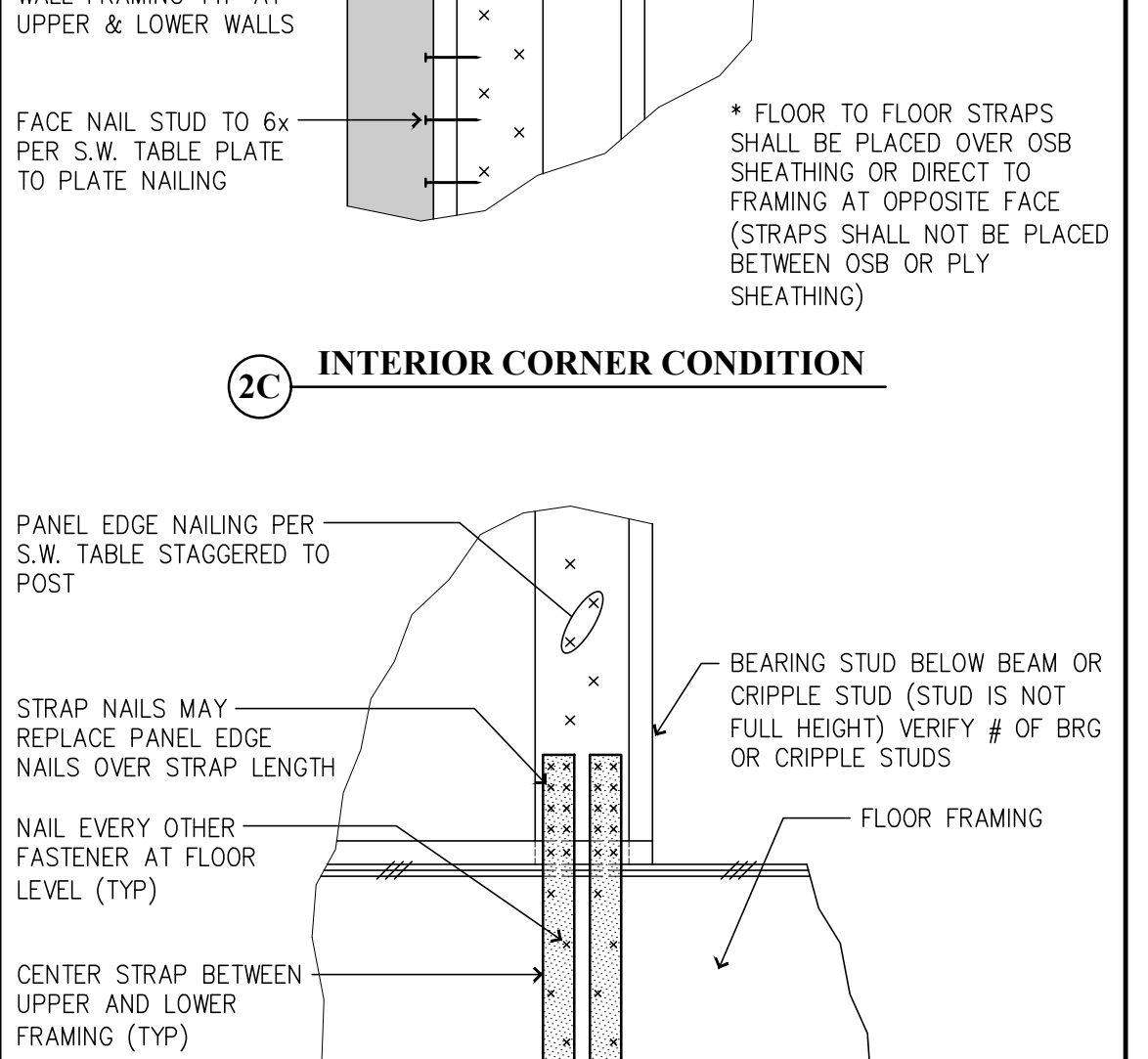
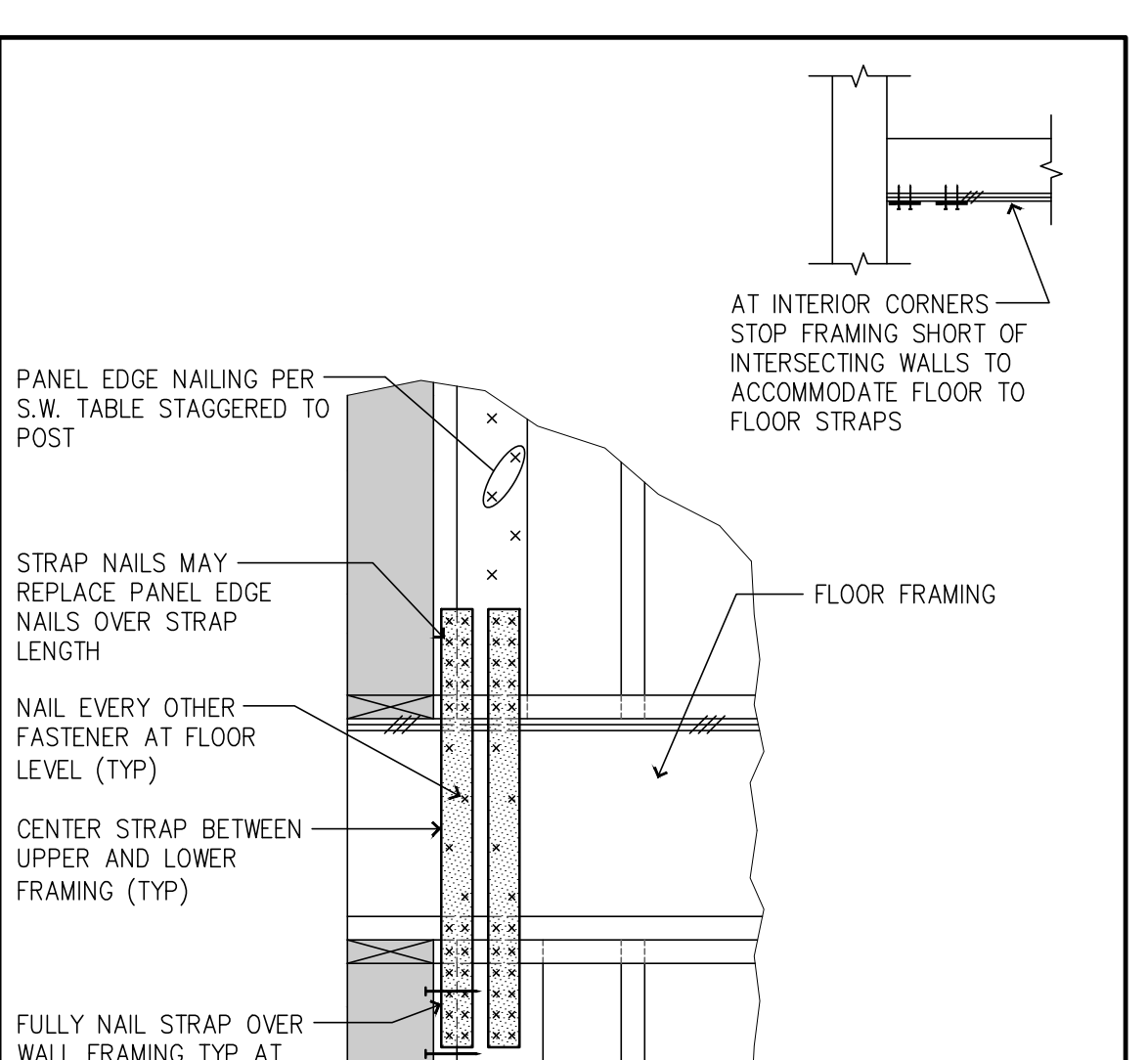
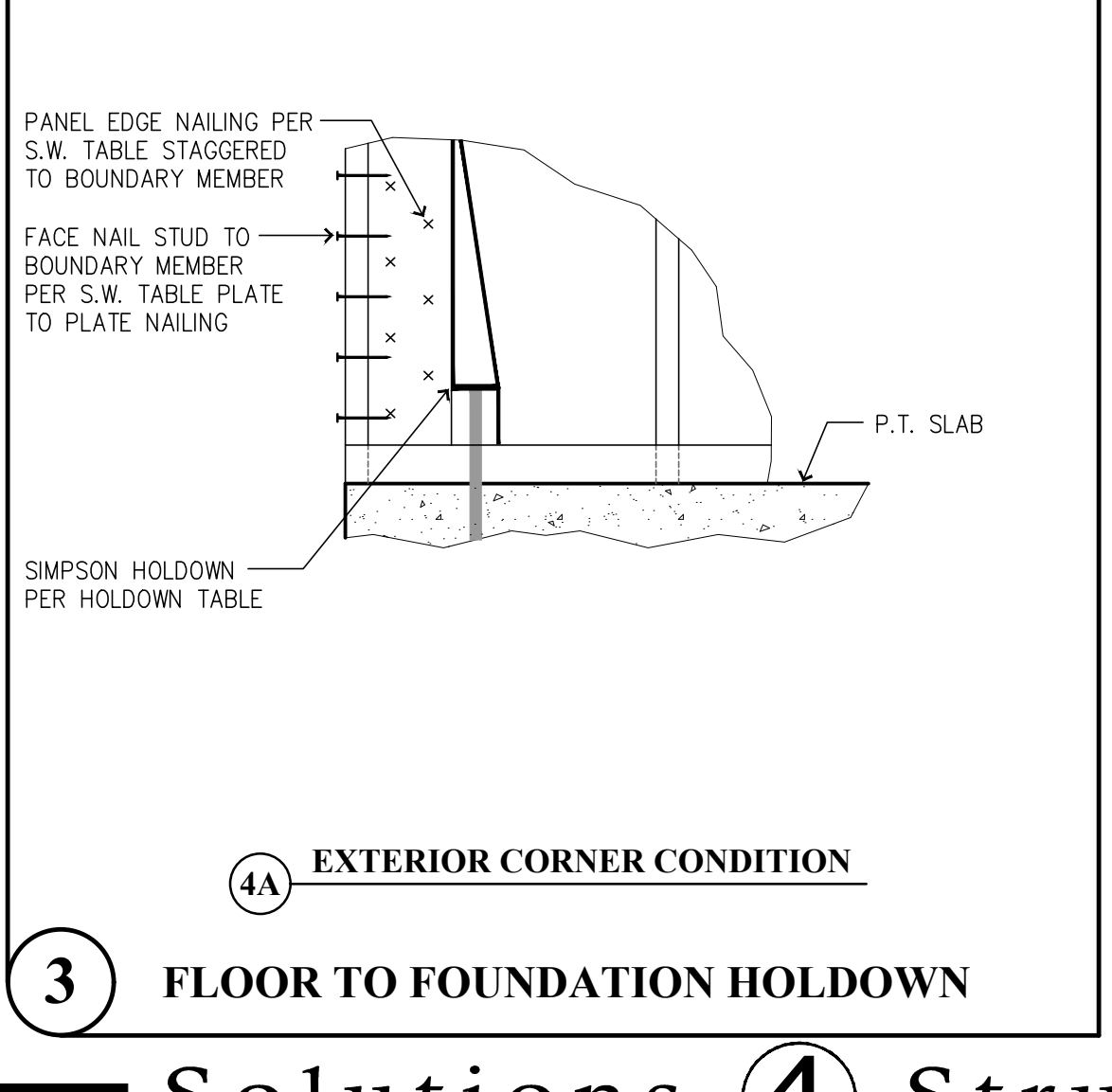
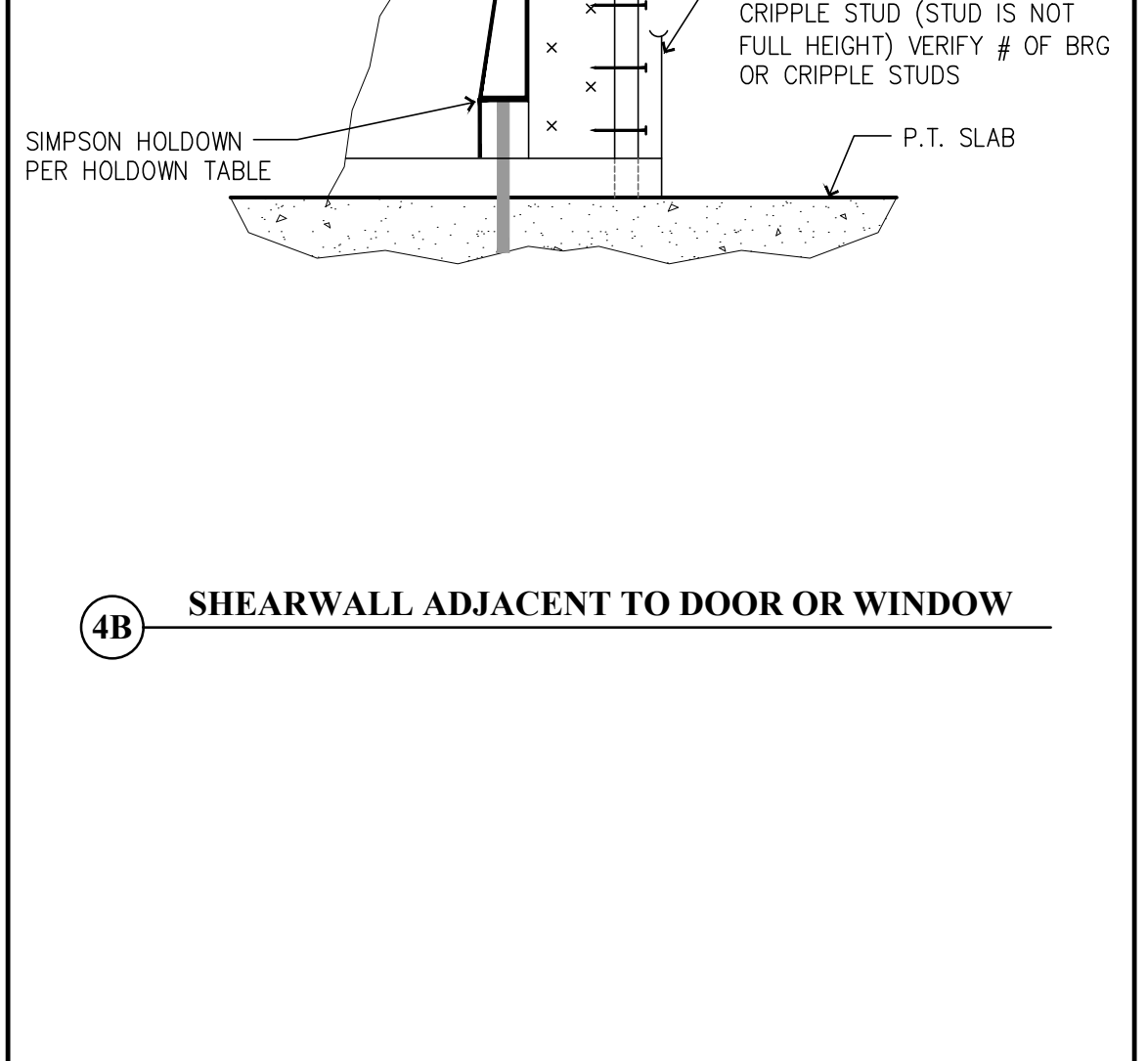
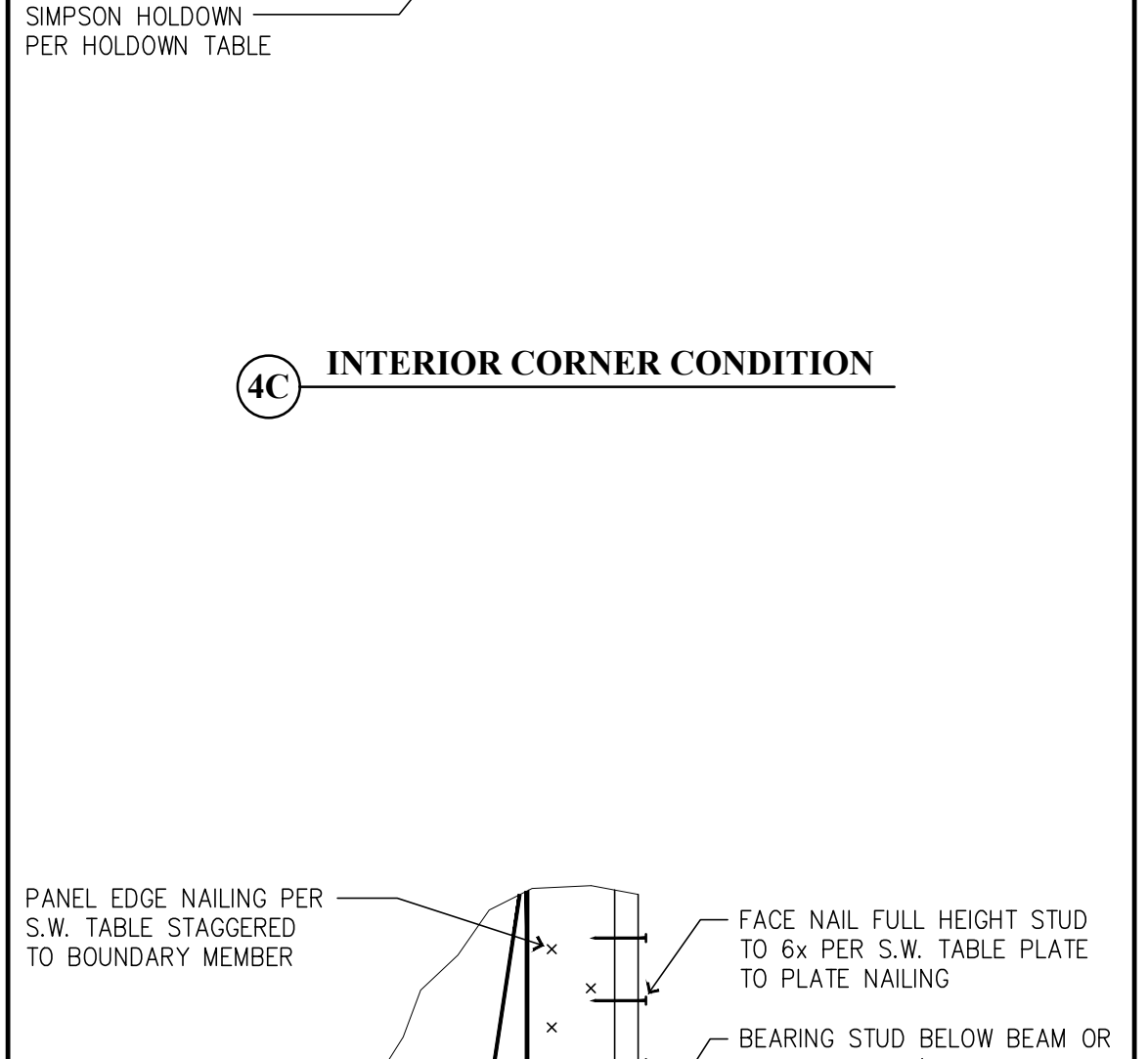
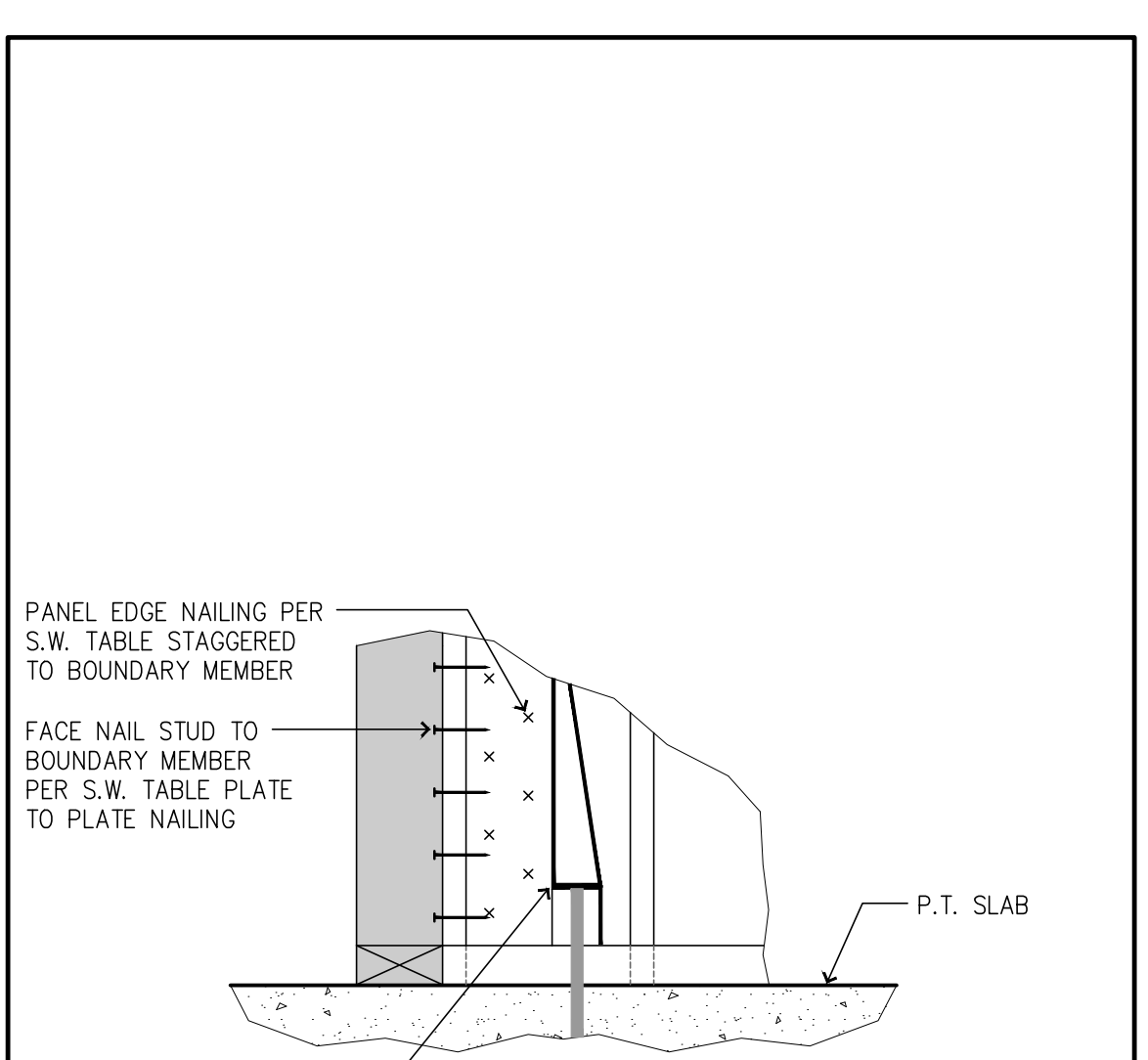
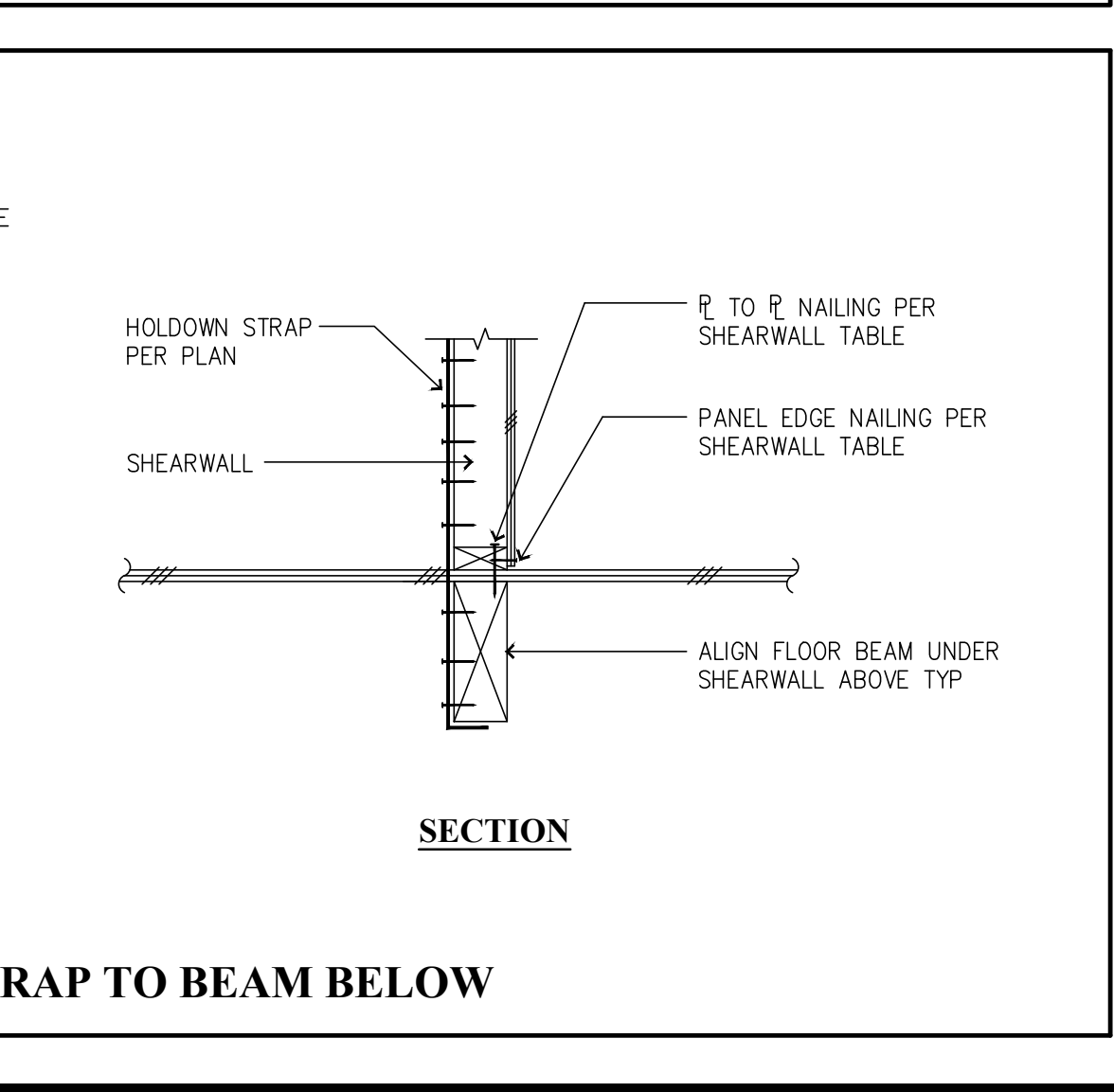
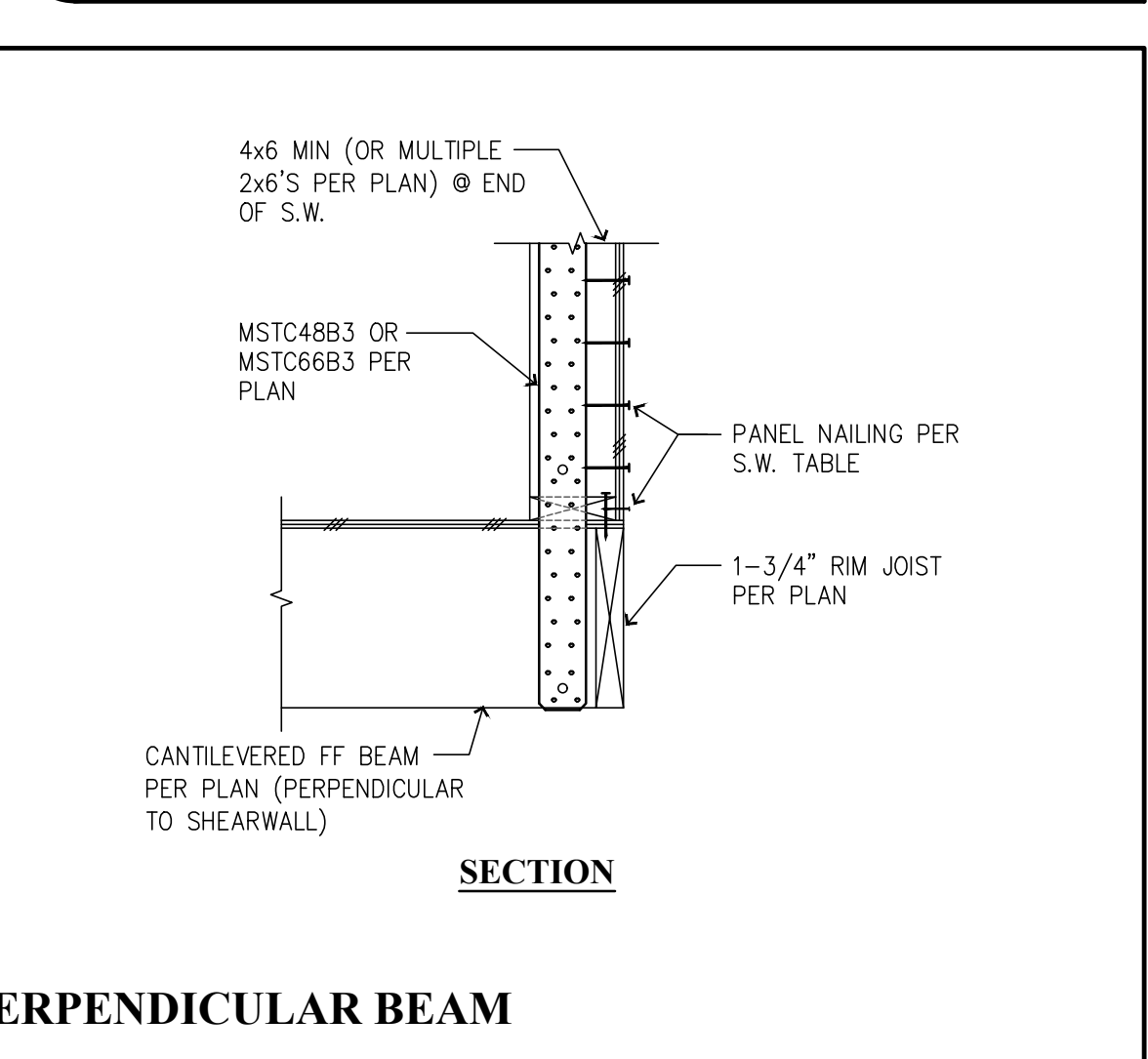
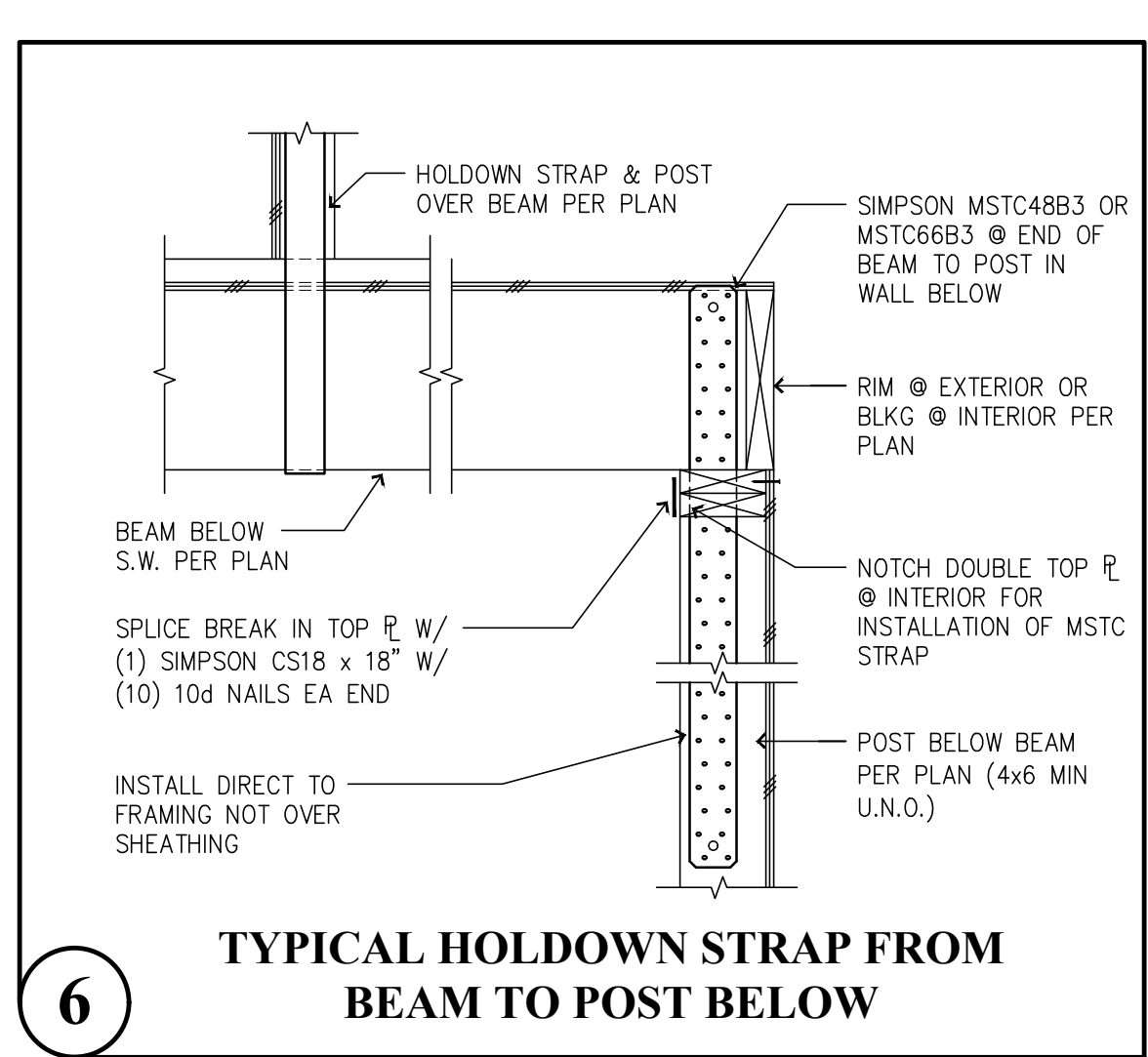
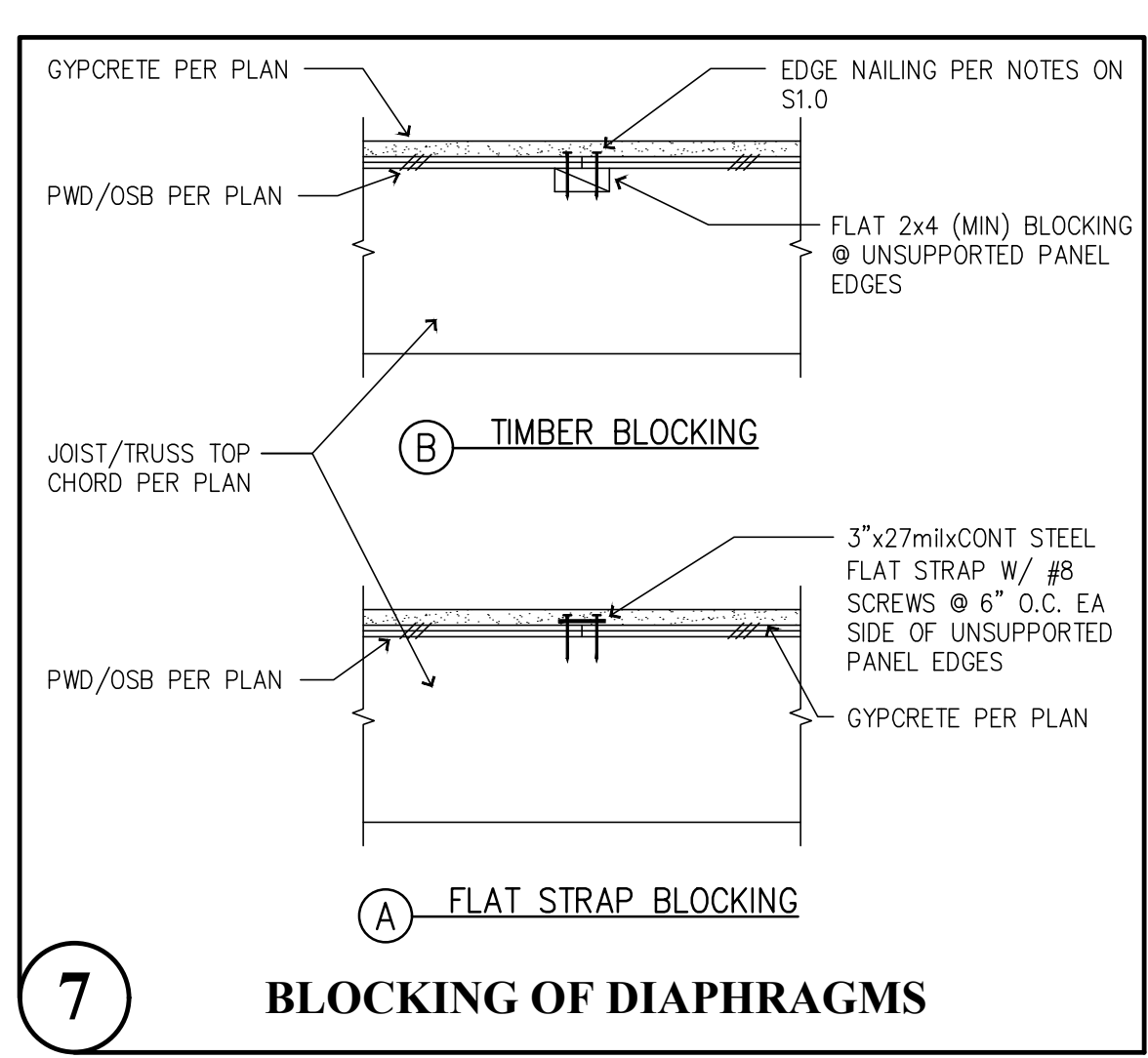
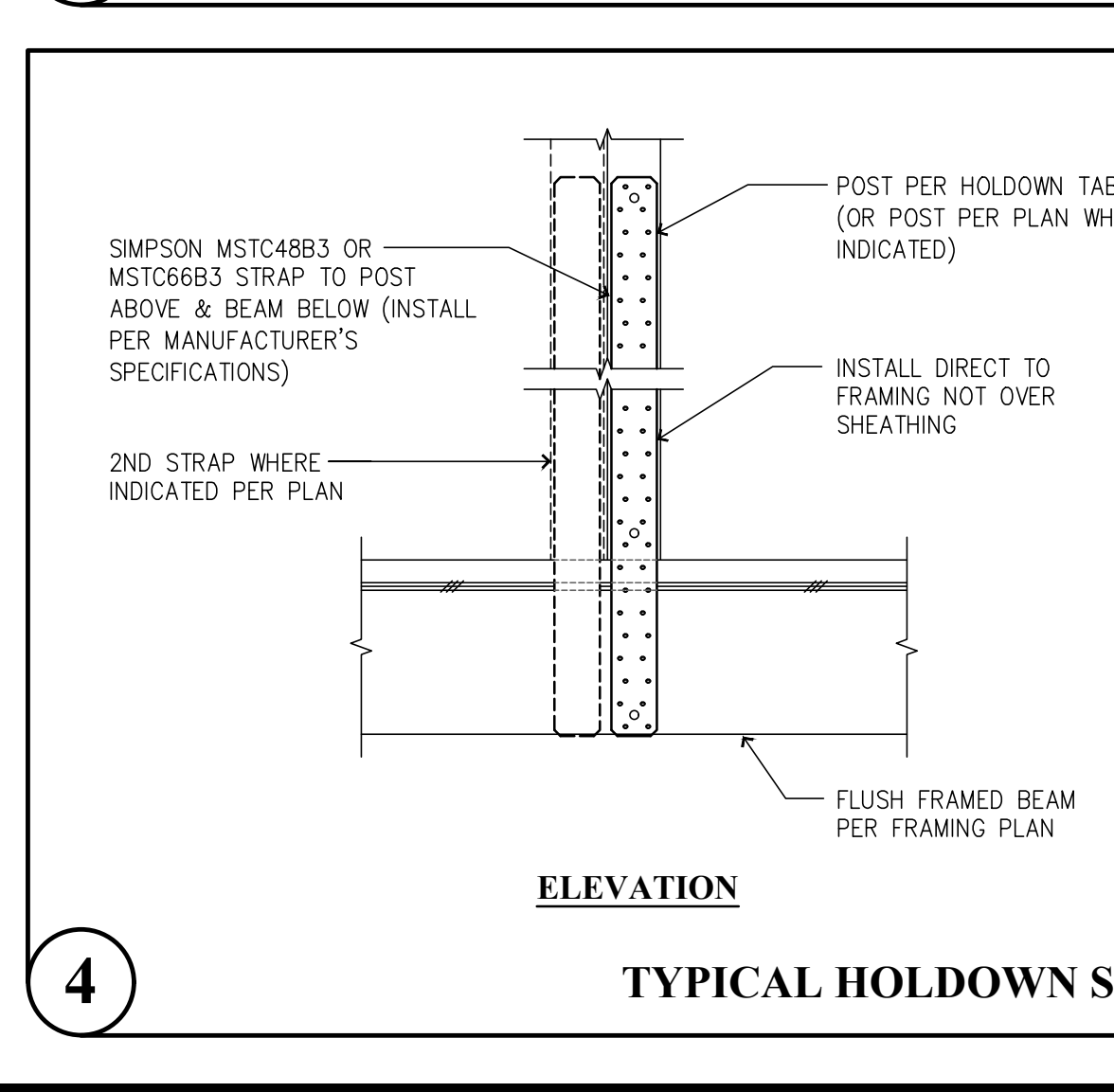
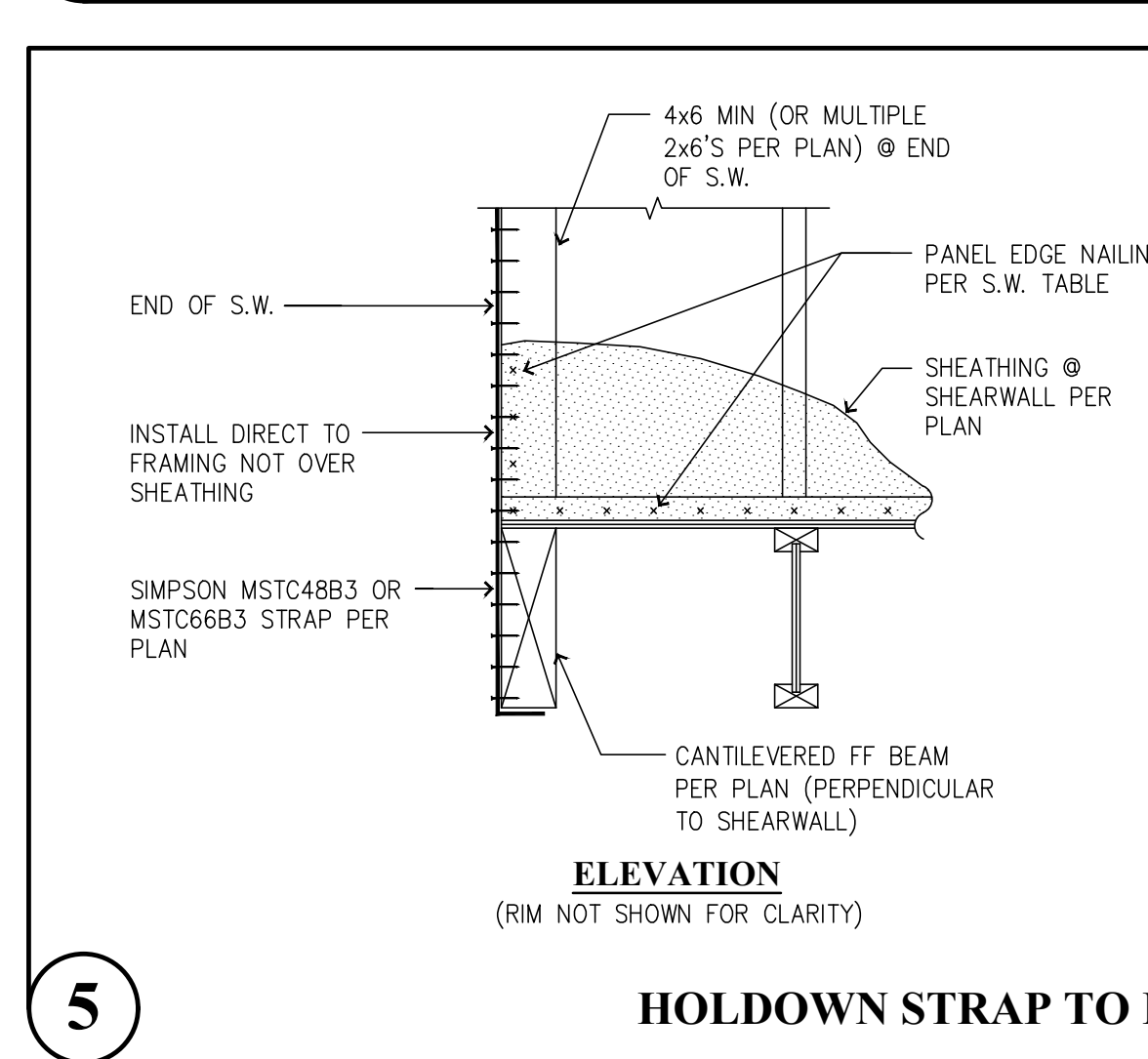
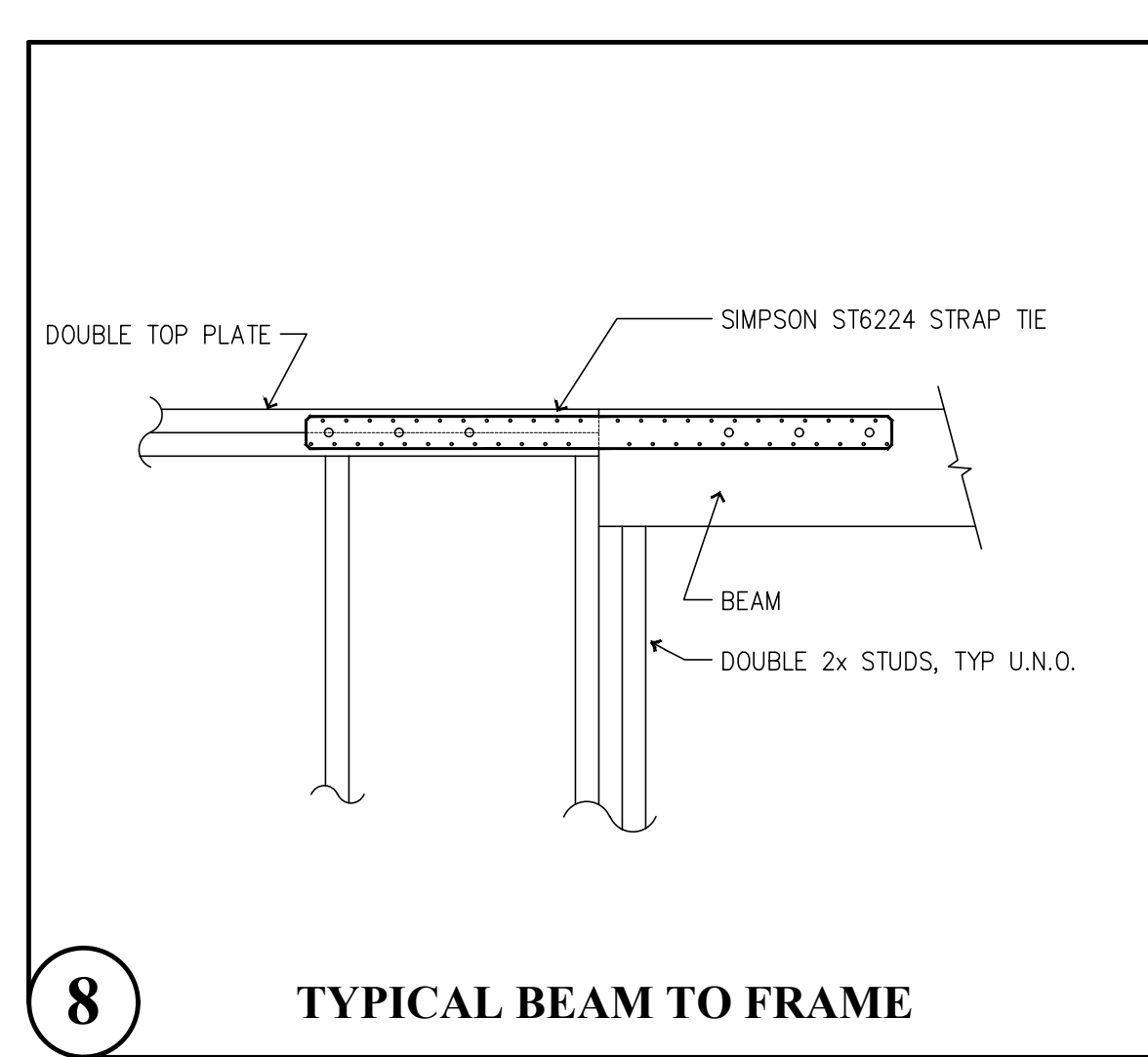
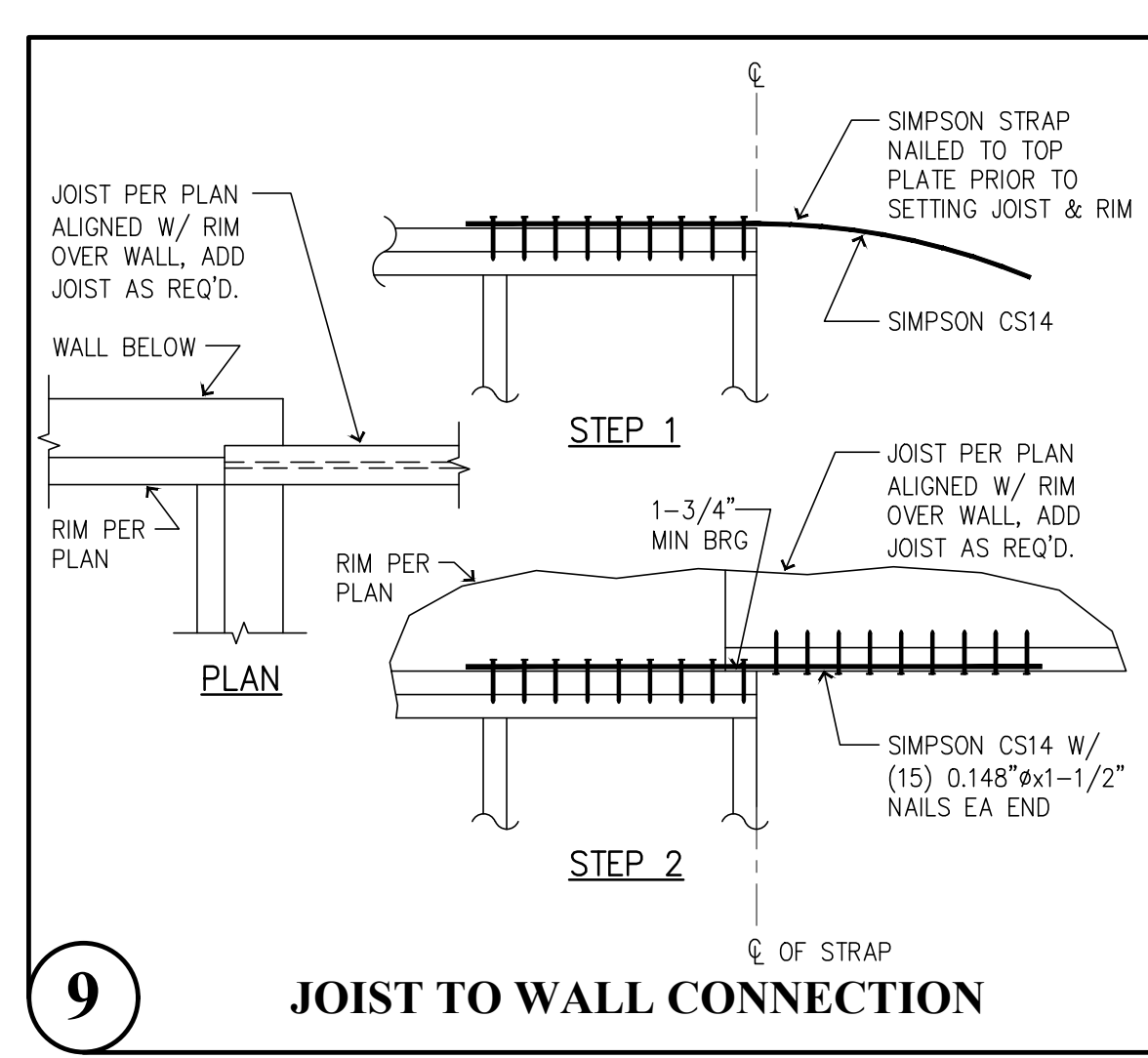
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Ph. 253-314-9822  
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THESE DRAWINGS ARE SUBJECT TO REVISIONS PENDING LOCAL JURISDICTIONAL REVIEW.

**S1.2**



CAD FILE: F:\Projects\2023\Projects\23.007 Bradley Heights\Drawings\51.3.dwg  
PLOT DATE/TIME: 2/15/2024 - 9:24am THANK YOU FOR USING SOLUTIONS 4 STRUCTURES



Revisions to this sheet:

**Bradley Heights Apartments**  
202 27th Ave SE  
Puyallup, Washington

**Solutions 4 Structures**  
A Structural Engineering Corporation

Puyallup, Washington 98374  
Ph 253-314-9822  
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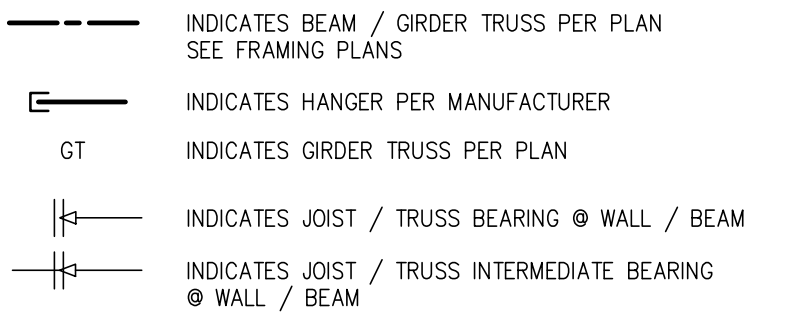
PROJECT NO. : 23.007  
DESIGNED BY : TLC, OGG, MRO  
DRAWN BY : RSO  
ISSUE DATE : 2-20-24  
LATEST REV. OF DWG. SET :

SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
THESE DRAWINGS ARE SUBJECT TO REVISIONS  
PENDING LOCAL JURISDICTIONAL REVIEW.

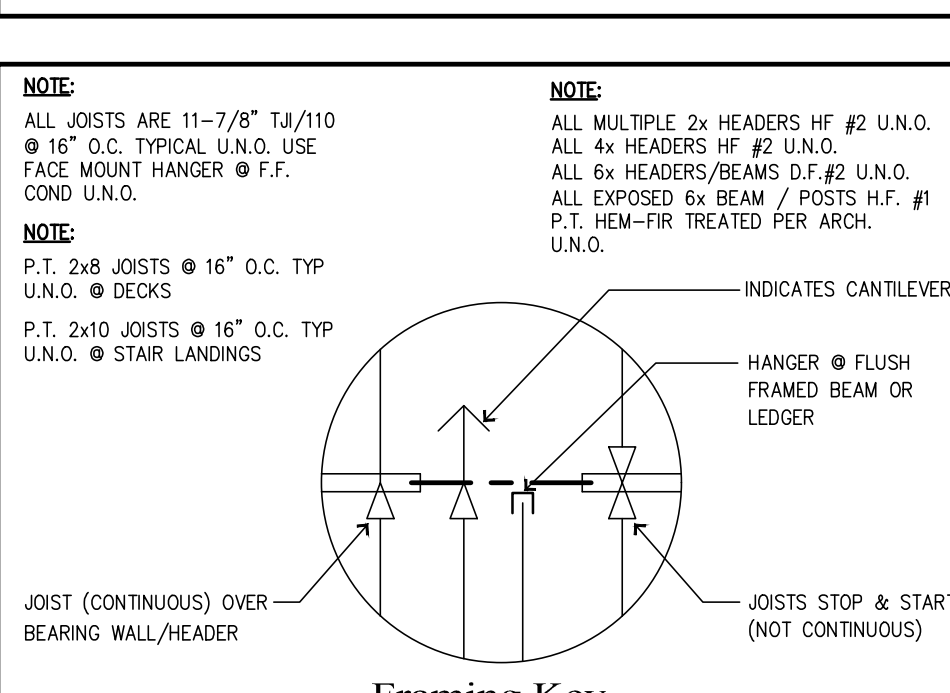
# S1.3

**Floor & Roof Framing Notes**

- ROOF AND FLOOR JOIST LOCATIONS ARE SCHEMATICALLY SHOWN ON THE PLANS. IT IS NOT THE INTENT OF THE STRUCTURAL PLANS TO GRAPHICALLY LOCATE ALL FRAMING MEMBERS. THE ARCHITECT SHALL VERIFY THE COMPATIBILITY OF JOIST LAYOUT AND FRAMING W/ MECHANICAL, ELECTRICAL & PLUMBING AND ARCHITECTURAL PLANS. THE CONTRACTOR IS RESPONSIBLE FOR SPACING FRAMING MEMBERS AS NOTED ON THE PLANS AND GENERATING MEMBER LAYOUT FOR SHOP DRAWINGS AND QUANTITY TAKEOFFS.
- FOR ALL UNITS TYPES SEE WALL STUD SCHEDULE FOR BEARING WALL STUD REQUIREMENTS. ALL OTHER NON-BEARING 2x4 & 2x6 WALLS ARE AT 16" O.C.
- THE TRUSS AND JOIST MANUFACTURER SHALL VERIFY BEARING COMPATIBILITY (CRUSHING) WITH THE PLATE MATERIAL. TYPICALLY, COMPOSITE BEAMS SHALL BE FULLY BEARING ON 2x... WALLS. I.E. BREAK RIM OR BLOCKING TO ALLOW FULL BEARING OVER PLATES.
- PLACE LONG DIRECTION OF ALL OSB SHEETS PERPENDICULAR TO TRUSS/RAFTER OR JOIST DIRECTION. SEE DETAIL 3/S1.2. FLOOR SHEATHING IS TO BE CONTINUOUS FROM UNIT TO UNIT. TYPICAL NAILING AT FLOOR AND ROOF DIAPHRAGMS IS PROVIDED IN THE GENERAL STRUCTURAL NOTES ON SHEETS S1.0.
- W- DENOTES THE SHEARWALL TYPE. SEE THE SHEARWALL TABLE ON SHEET S1.2. INDICATES SHEARWALL LOCATION. THE CALLOUTS ON THE SHEARWALL TABLE APPLY ONLY ALONG THE LENGTH OF WALL SHOWN SHADED. PROVIDE SOLID BLOCKING IN FLOOR SPACE BELOW PERPENDICULAR SHEARWALLS.
- INDICATES SHEAR WALL TYPE WITH OPENINGS. PROVIDE SHEATHING AROUND ALL OPENINGS AND ABOVE AND BELOW ALL OPENINGS. PROVIDE HORIZONTAL STRAPS & NAILING AT OPENINGS PER 8/S1.2
- THE DOUBLE TOP PLATE IS TO BE CONTINUOUS ALONG ALL EXTERIOR WALLS AND AT ALL WALL LINES CONTAINING SHEARWALLS. TYPICAL WALL TOP PLATE SPLICES SHALL BE PER DETAIL 7/S1.2 TYP.
- WHERE COMPOSITE JOISTS AND BEAMS ARE USED AS DRAG STRUTS THE MANUFACTURER SHALL PROVIDE THE FRAMING MEMBERS WITH THE CAPACITY CALLED OUT ON THE PLANS.
- TYPICAL FLOOR JOISTS SHALL BE 11-7/8" T&I/10 @ 16" O.C. TYP. U.N.O. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ALL JOIST AND BEAM HANGERS, WEB STIFFENERS, SOLID BLOCKING, AND ADDITIONAL RIM OR JOIST MATERIAL TO ACCOMMODATE FLUSH-FRAMED CONDITIONS (F.F.), CANTILEVERED CONDITIONS, CONCENTRATED BEARING LOADS AND NAILING FROM SHEARWALLS ABOVE AND BELOW.
- F.F. = FLUSH-FRAMED BEAM. VERIFY FLUSH OR DROPPED BEAM CONDITION PER ARCHITECT.
- ALL BEAMS PER SCHEDULE U.N.O. ALL NON BEARING BEAMS SHALL BE A MIN OF (2)2x8 U.N.O. ALL OTHER BEAMS ARE AS MARKED ON PLANS.
- AT ALL BEAM BEARING/JAMB LOCATIONS, AT MINIMUM PROVIDE BEARING (TRIMMER) STUDS AND FULL HEIGHT (KING) STUDS PER THE JAMB STUD SCHEDULE FOR EACH BEARING IF PROVIDED. IF NO SCHEDULE, PROVIDE (1) 2x... BEARING AND (1) 2x... FULL HEIGHT STUD MINIMUM.
- EXPOSED FRAMING SHALL BE PRESSURE TREATED (P.T.) VERTICAL & HORIZONTAL FRAMING @ WATERPROOFED WALKWAYS AND PRIVATE DECKS. ALL EXPOSED BEAM HANGERS SHALL BE POST HOT-DIPPED GALVANIZED AND HAVE CONCEALED FLANGES. VERIFY W/ ARCHITECT. SEE NOTE ON SHEET S1.0
- FOR TYPICAL HOLDOWN ASSEMBLIES SEE THE HOLDOWN TABLE ON 2/S1.2 AND DETAILS ON SHEET S3.0.
- SEE ARCHITECTURAL PLANS FOR STAIR FRAMING DETAILS & STAIR FRAMING DETAILS AND NOTES, CONTROL JOINTS IN CONCRETE FLOORING AND ROOF VENTILATION REQUIREMENTS AND DETAILS.
- SEE CIVIL AND ARCHITECTURAL PLANS FOR TOP OF WALL HEIGHTS AND ELEVATIONS. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE DIMENSIONS ARE SHOWN ON THE STRUCTURAL PLANS, CONTRACTOR SHALL VERIFY COMPATIBILITY W/ ARCHITECTURAL PLANS. WHERE DISCREPANCY EXISTS, CONTRACTOR SHALL NOTIFY BOTH THE ENGINEER AND ARCHITECT FOR CLARIFICATION.
- WINDOW SUPPLIER TO VERIFY THAT WINDOW AND WINDOW FRAMES TRANSFER WIND LOADS EVENLY TO STRUCTURAL FRAMING ON ALL 4 SIDES OF WINDOW. WINDOW SUPPLIER TO VERIFY MINIMUM .005TH STORY DRIFT TOLERANCE IN PLANE OF ALL WINDOWS AND ALLOW FOR L/240 DEFLECTION (PERPENDICULAR) AT WINDOW MULLIONS.
- SEE GENERAL STRUCTURAL NOTES ON S1.0 TO S1.3 FOR ADDITIONAL INFORMATION.
- LEGEND:



- PROVIDE WALL FIREBLOCKING @ DROPPED SOFFITS SHOWN ON ARCH.
- PROVIDE WALL BLOCKING FOR ALL WALL MOUNTED EQUIPMENT (SUCH AS TOWEL BARS, GRAB BARS, TOILET PAPER HOLDERS, DOOR STOPS, ETC.).
- LFA INDICATES - LOAD FROM ABOVE
- FF INDICATES FLUSH FRAMED BEAM
- INDICATES STRAP HOLDOWN, SEE SHEET 2/S1.2 FOR HOLDOWN TABLE & UPPER TO LOWER WALL STRAP/HOLDOWN KEY.
- REFER TO ARCHITECTURAL DRAWINGS FOR ALL FLOOR ELEVATIONS.
- SIMPSON STRONG TIE PRODUCTS ARE CALLED OUT ON THE DRAWINGS. HOWEVER, EITHER SIMPSON OR KC METALS PRODUCTS MAY BE USED PROVIDED IT HAS SAME OR GREATER CAPACITY.



**SEE SHEET S1.2 FOR SHEARWALL AND HOLDOWN TABLES**

**Beam Schedule**

MARK	BEAM SIZE
B1	4x8
B2	4x10
B3	6x10 DF #2
B4	3-1/8 x 10-1/2 GLB
B5	P.T. 4x8
B6	P.T. 4x10
B7	P.T. 6x10 HF#1
B8	P.T. 3-1/8 x 10-1/2 GLB
B9	P.T. 5-1/8 x 10-1/2 GLB
B10	5-1/4x11-7/8 PSL
B11	3-1/2x11-7/8 LSL

**Jamb Stud Schedule**

TYPE	C1	C2	C3	C4	C5	C6	-	-
BEARING/FLT HT STUDS	1/2	1/3	2/1	2/2	2/3	2/4	-	-

NOTE: STUD SIZE SHOULD MATCH WALL SIZE PER PLAN.

**Wall Stud Schedule**

FRAMING LEVEL	2x6 BRG INT SINGLE WALL	2x6 BRG INT PARTY WALLS	2x4 BRG SINGLE WALL	2x4 BRG PARTY WALLS
ROOF	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
3RD	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
2ND	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
BASEMENT	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 12" O.C.	2x4 HF#2 @ 16" O.C.

NOTES:

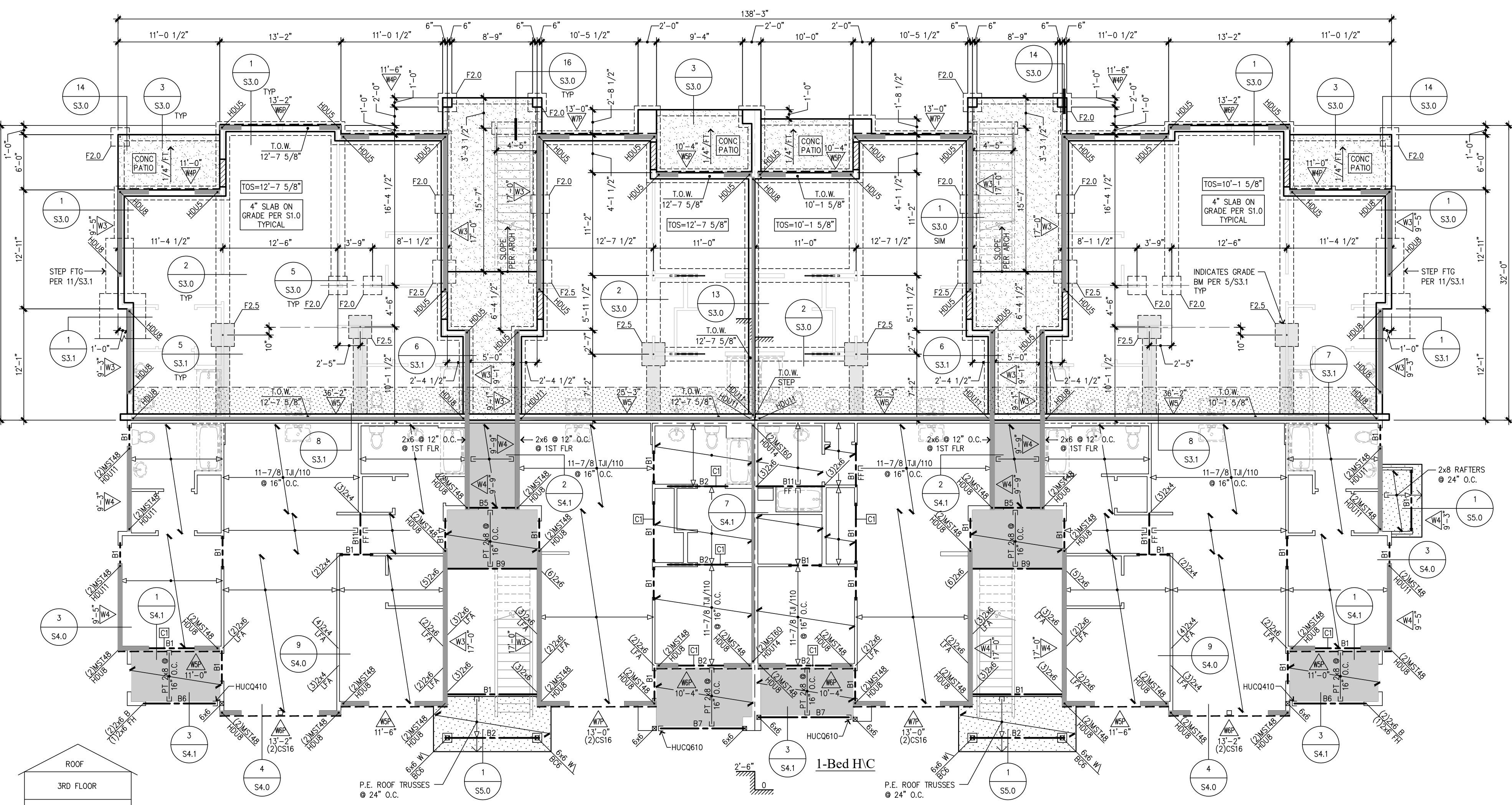
- ALL STUD MATERIAL SHALL BE HEM FIR STUD GRADE OR BETTER UNLESS NOTED OTHERWISE AND PLATE MATERIAL SHALL BE HEM FIR STANDARD OR BETTER UNLESS NOTED OTHERWISE.
- STUDS CALLED OUT IN THIS SCHEDULE ARE FOR WALL SUPPORTING THE FRAMING LEVEL INDICATED. THAT IS WALLS BELOW THE FRAMING LEVEL SHOWN.
- THIS SCHEDULE COVERS BUILDING UNITS 3 STORES IN HEIGHT. FIRST, DETERMINE THE NUMBER OF STORES FOR THE UNIT SECOND, DETERMINE THE FRAMING LEVEL, THIRD, READ SCHEDULE HORIZONTALLY FOR THE WALL LOCATION.

**Foundation Notes**

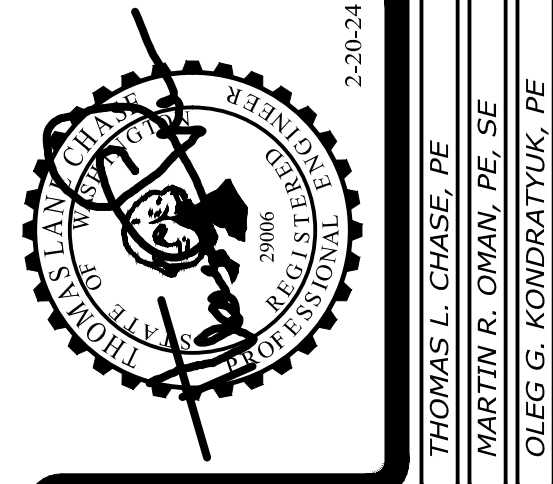
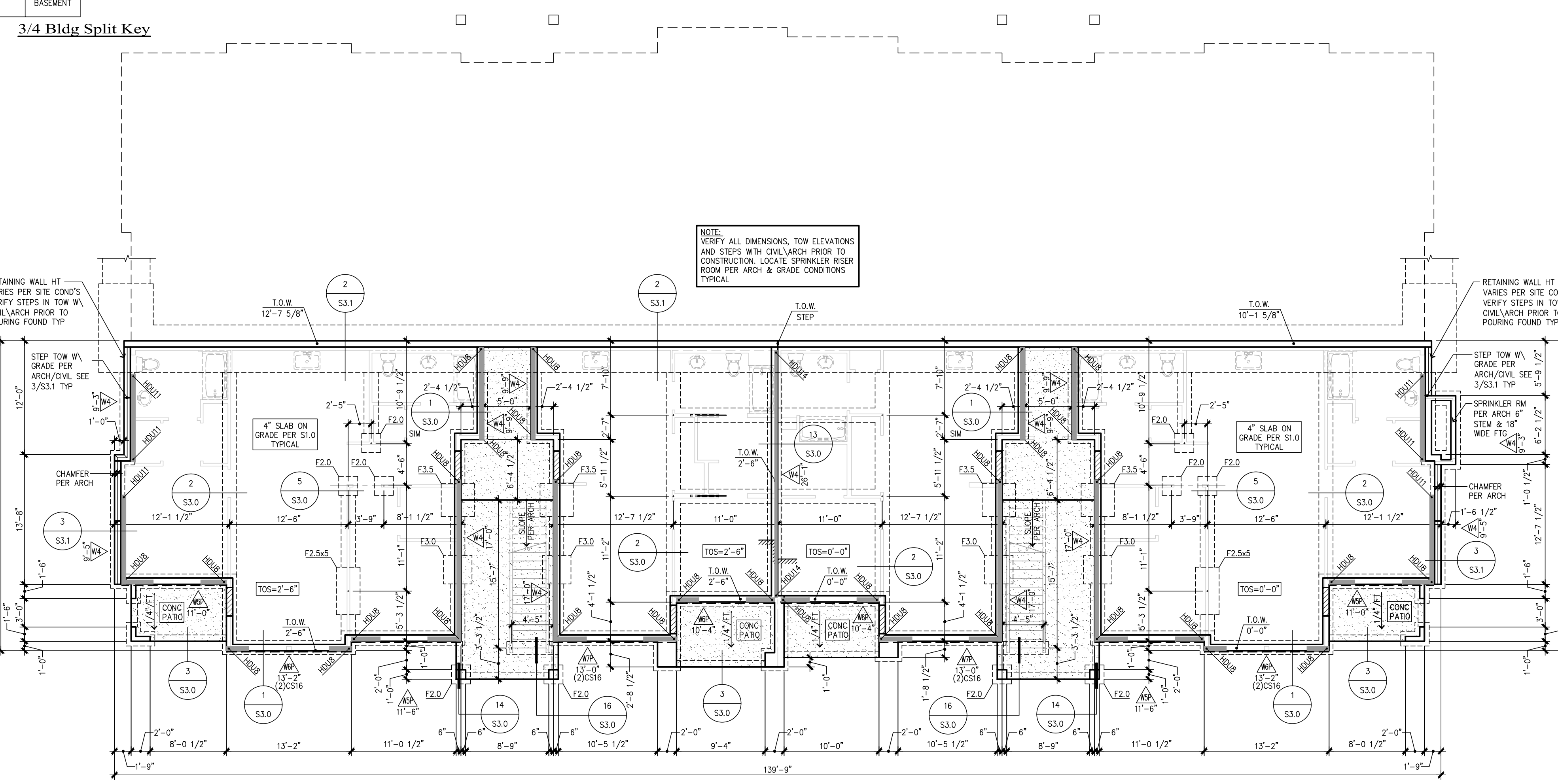
- TYPICAL DIMENSIONS ARE TO FACE OF WALL OR TO CENTERLINE OF COLUMN OR FOOTING. VERIFY ALL DIMENSIONS & ELEVATIONS WITH THE ARCHITECT.
- PROVIDE FOOTING SUBSTRATE PREPARATION PER THE SOILS REPORT.
- F-- INDICATES ISOLATED FOOTING TYPICAL ISOLATED FTG SHALL BE CONSTRUCTED PER FOOTING SCHEDULE 5/S3.0.
- EXTEND ALL CONTINUOUS FOOTINGS AT END WALLS 1'-0" MIN. BEYOND END OF ALL BEARING WALLS & SHEARWALLS. (TYPICAL) UNO
- ALL EXTERIOR WALLS SHALL HAVE AN 8" STEMWALL AND A 18" WIDE x 8" DEEP FOOTING W/ STEEL REINFORCING 3" CLR. OF SOIL UNLESS NOTED OTHERWISE.
- ADD STRIP DRAINS AT FACE OF BUILDINGS WHEN WALKS SLOPE TOWARD BUILDING, CONNECT TO TIGHTLINE.
- PROVIDE #4-24" x 24" CORNER BARS TO MATCH ALL HORIZONTAL REINFORCEMENT IN STEMWALLS AND FOOTINGS. (TYPICAL)
- FLOOR SLABS - 4" CONC. SLAB ON GRADE 6x6 - W1.2xM1.2 WWF @ CENTER-LINE OR FIBER MESH PER MANUFACTURER OVER SUBSTRATE PER SOILS ENGINEER, USE WWF WHERE INDICATED. PROVIDE CONTROL JOINTS PER DETAIL 15/S3.0 AT THE DIRECTION OF THE ARCHITECT.
- ENTRY SLABS - 4" CONC. SLAB (BROOM FINISH)
- PATIO SLABS - 4" CONC. W/ THICKENED EDGES. SLOPE AWAY FROM BUILDING AT 1/4"/FT. SEE 3/S3.0
- ALL THICKENED SLABS FOR BEARING WALLS AND PARTY WALLS SHALL BE 16" WIDE x 12" DEEP W/ (2) #4 BARS CONTINUOUS UNLESS NOTED OTHERWISE. DEEPEN LOCALLY AT HOLDDOWNS TO OBTAIN EMBEDMENT DEPTH +3" MIN.
- ALL THICKENED EDGE SLABS SHALL BE 8" WIDE x 8" DEEP W/ (1) #4 BAR CONTINUOUS (3" FROM BOTTOM) UNLESS NOTED OTHERWISE. SEE 3/S3.0.
- W- DENOTES THE SHEARWALL TYPE. SEE THE SHEARWALL TABLE ON SHEET S1.2. INDICATES SHEARWALL LOCATION. THE CALLOUTS ON THE SHEARWALL TABLE APPLY ONLY ALONG THE LENGTH OF WALL SHOWN SHADED. PROVIDE SOLID BLOCKING IN FLOOR SPACE BELOW PERPENDICULAR SHEARWALLS.
- INDICATES SHEAR WALL TYPE WITH OPENINGS. PROVIDE SHEATHING AROUND ALL OPENINGS AND ABOVE AND BELOW ALL OPENINGS. PROVIDE HORIZONTAL STRAPS & NAILING AT OPENINGS PER 8/S1.2
- INDICATES HOLDOWN, SEE 2/S1.2 FOR HOLDOWN TABLE & UPPER TO LOWER WALL STRAPS HOLDOWN/KEY.
- VERIFY ALL TOP OF SLAB ELEVATIONS AND BUILDING STEPS WITH ARCH/CIVIL PLANS TYPICAL.
- TYPICAL PERIMETER FOOTING SHALL BE LOCATED A MIN. 18" BELOW GRADE OR AS REQUIRED BY LOCAL JURISDICTION.
- SEE DETAILS FOR TYPICAL STEMWALL/FOOTING & THICKENED SLAB CONSTRUCTION.
- T.O.W. = TOP OF STEMWALL  
T.O.F. = TOP OF FOOTING  
T.O.S. = TOP OF SLAB
- SEE THE GENERAL STRUCTURAL NOTES ON SHEET S1.0 FOR ADDITIONAL INFORMATION.
- VERIFY WITH CIVIL GRADING PLAN FOR GARAGE SLAB ELEVATION @ GARAGE DOORWAY.
- DEEPEN FOOTINGS AS NECESSARY TO MAINTAIN MINIMUM COVER. COORDINATE WITH CIVIL GRADING PLAN FOR GRADE CONDITIONS.
- INDICATES DEEPENED TOP OF STEMWALL AT DOORWAY. POUR SLAB OVER SEE 4/S3.0.
- ALL INTERSECTING FOOTINGS / STEM WALLS SHALL HAVE CORNER BARS TO MATCH HORIZ REINFORCEMENT SEE 10/S3.0.

**Continuous Wall Footing Schedule**

"W"	"D"	REINFORCEMENT	
		LONGITUDINAL	TRANSVERSE
1'-6"	12"	(2)-#4 BOT	-
2'-0"	12"	(3)-#4 BOT	-
3'-0"	14"	(3)-#5 BOT	#4 @ 18" O.C. BOT



**Foundation Plan Basement - Bldg F**



THOMAS L. CHASE, PE  
MARTIN R. OMAN, PE, SE  
OLEG G. KONDRATYUK, PE

Revisions to this sheet:

**Bradley Heights Apartments**  
202 27th Ave SE  
Puyallup, Washington

**Solutions 4 Structures**  
A Structural Engineering Corporation

PROJECT NO. : 23-007  
DESIGNED BY : TLC, OGG, MRO  
DRAWN BY : RSO  
ISSUE DATE : 2-20-24  
LATEST REV. OF DWG. SET :

Payallup, Washington 98374  
Ph 253-314-9822  
www.solutions4structures.com

SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
THESE DRAWINGS ARE SUBJECT TO REVISIONS PENDING LOCAL JURISDICTIONAL REVIEW.

**S2.14**

CAD FILE: F:\Projects\2023 Projects\Drawings\Drawings\S2.14.dwg PLOT DATE/TIME: 2/15/2024 - 9:40am THANK YOU FOR USING SOLUTIONS 4 STRUCTURES 2-20-24

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  - W-1 INDICATES SHEAR WALL TYPE WITH OPENINGS. PROVIDE SHEATHING AROUND ALL OPENINGS AND ABOVE AND BELOW ALL OPENINGS. PROVIDE HORIZONTAL STRAPS & NAILING AT OPENINGS PER 8/S1.2
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- AT ALL BEAM BEARING/JAMB LOCATIONS, AT MINIMUM PROVIDE BEARING (TRIMMER) STUDS AND FULL HEIGHT (KING) STUDS FOR THE JAMB STUD SCHEDULE FOR EACH BUILDING IF PROVIDED. IF NO SCHEDULE, PROVIDE (1) 2x\_ BEARING AND (1) 2x\_ FULL HEIGHT STUD MINIMUM.
- EXPOSED FRAMING SHALL BE PRESSURE TREATED (P.T.) VERTICAL & HORIZONTAL FRAMING @ WATERPROOFED WALKWAYS AND PRIVATE DECKS. ALL EXPOSED BEAM HANGERS SHALL BE POST HOT-DIPPED GALVANIZED AND HAVE CONCEALED FLANGES. VERIFY W/ ARCHITECT. SEE NOTE ON SHEET S1.0
- FOR TYPICAL HOLDOWN ASSEMBLIES SEE THE HOLDOWN TABLE ON 2/S1.2 AND DETAILS ON SHEET S3.0.
- SEE ARCHITECTURAL PLANS FOR STAIR FRAMING DETAILS & STAIR FRAMING DETAILS AND NOTES, CONTROL JOINTS IN CONCRETE FLOORING AND ROOF VENTILATION REQUIREMENTS AND DETAILS.
- SEE CIVIL AND ARCHITECTURAL PLANS FOR TOP OF WALL HEIGHTS AND ELEVATIONS. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE DIMENSIONS ARE SHOWN ON THE STRUCTURAL PLANS, CONTRACTOR SHALL VERIFY COMPATIBILITY W/ ARCHITECTURAL PLANS. WHERE DISCREPANCY EXISTS, CONTRACTOR SHALL NOTIFY BOTH THE ENGINEER AND ARCHITECT FOR CLARIFICATION.
- WINDOW SUPPLIER TO VERIFY THAT WINDOW AND WINDOW FRAMES TRANSFER WIND LOADS EVENLY TO STRUCTURAL FRAMING ON ALL 4 SIDES OF WINDOW. WINDOW SUPPLIER TO VERIFY MINIMUM .005"H STORY DRIFT TOLERANCE IN PLANE OF ALL WINDOWS AND ALLOW FOR L/240 DEFLECTION (PERPENDICULAR) AT WINDOW MULLIONS.
- SEE GENERAL STRUCTURAL NOTES ON S1.0 TO S1.3 FOR ADDITIONAL INFORMATION.

**SEE SHEET S1.2 FOR SHEARWALL AND HOLDOWN TABLES**

**Beam Schedule**

MARK	BEAM SIZE
B1	4x8
B2	4x10
B3	6x10 DF #2
B4	3-1/8 x 10-1/2 GLB
B5	P.T. 4x8
B6	P.T. 4x10
B7	P.T. 6x10 HF#1
B8	P.T. 3-1/8 x 10-1/2 GLB
B9	P.T. 5-1/8 x 10-1/2 GLB
B10	5-1/4x11-7/8 PSL
B11	3-1/2x11-7/8 LSL

**Jamb Stud Schedule**

TYPE	C1	C2	C3	C4	C5	C6	-	-
BEARING/FULL HT STUDS	1/2	1/3	2/1	2/2	2/3	2/4	-	-

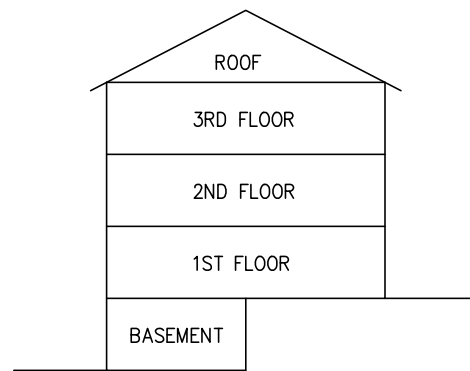
NOTE: STUD SIZE SHOULD MATCH WALL SIZE PER PLAN.

**Wall Stud Schedule**

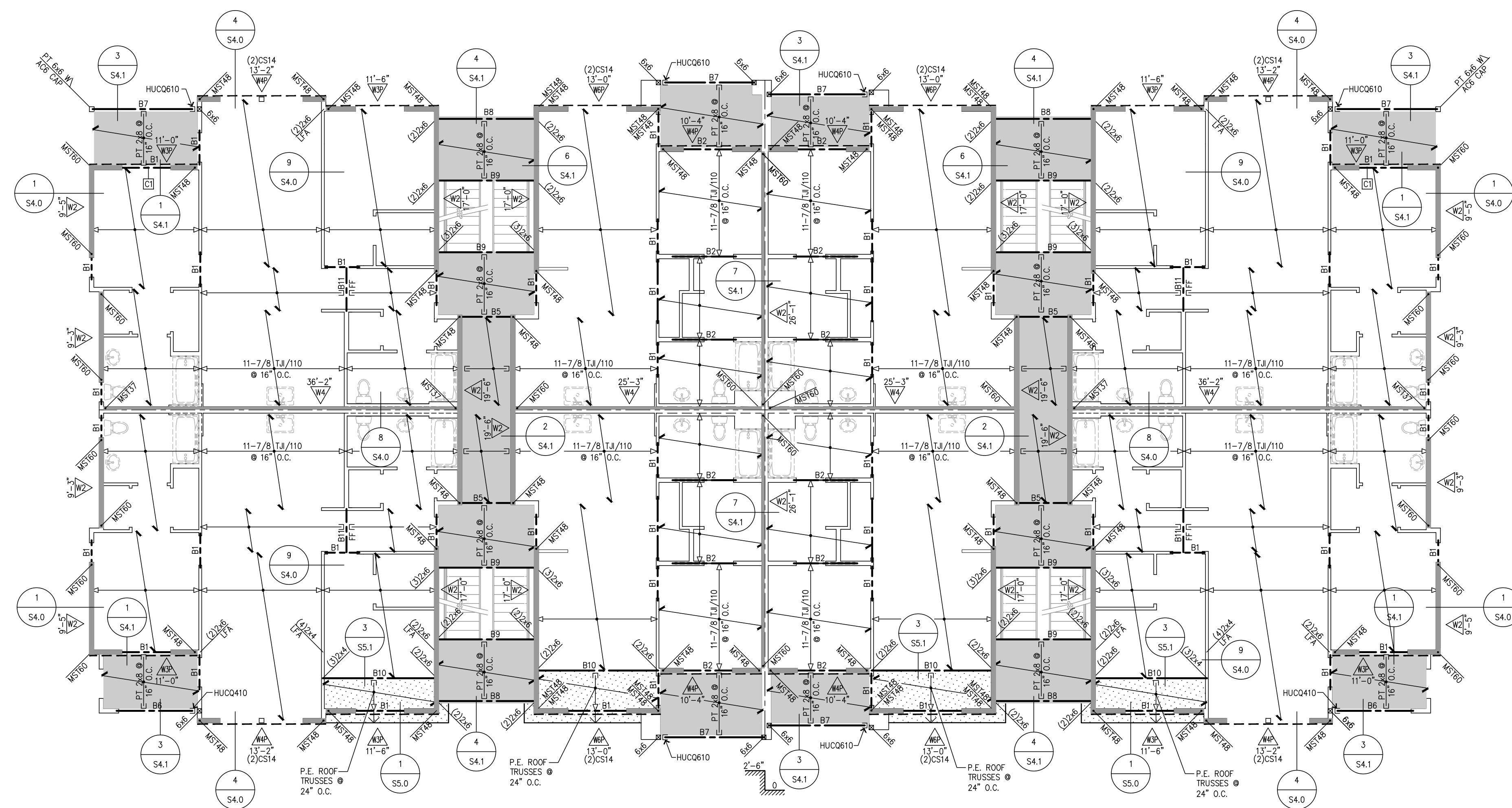
FRAMING LEVEL	2x6 EXTERIOR	2x6 BRG INT SINGLE WALL	2x6 BRG INT PARTY WALLS	2x4 BRG SINGLE WALL	2x4 BRG PARTY WALLS
ROOF	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
3RD	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
2ND	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
BASEMENT	2x6 @ 16" O.C.	2x6 @ 12" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 12" O.C.	2x4 HF#2 @ 16" O.C.

NOTES:

- ALL STUD MATERIAL SHALL BE HEM FIR STUD GRADE OR BETTER UNLESS NOTED OTHERWISE AND PLATE MATERIAL SHALL BE HEM FIR STANDARD OR BETTER UNLESS NOTED OTHERWISE.
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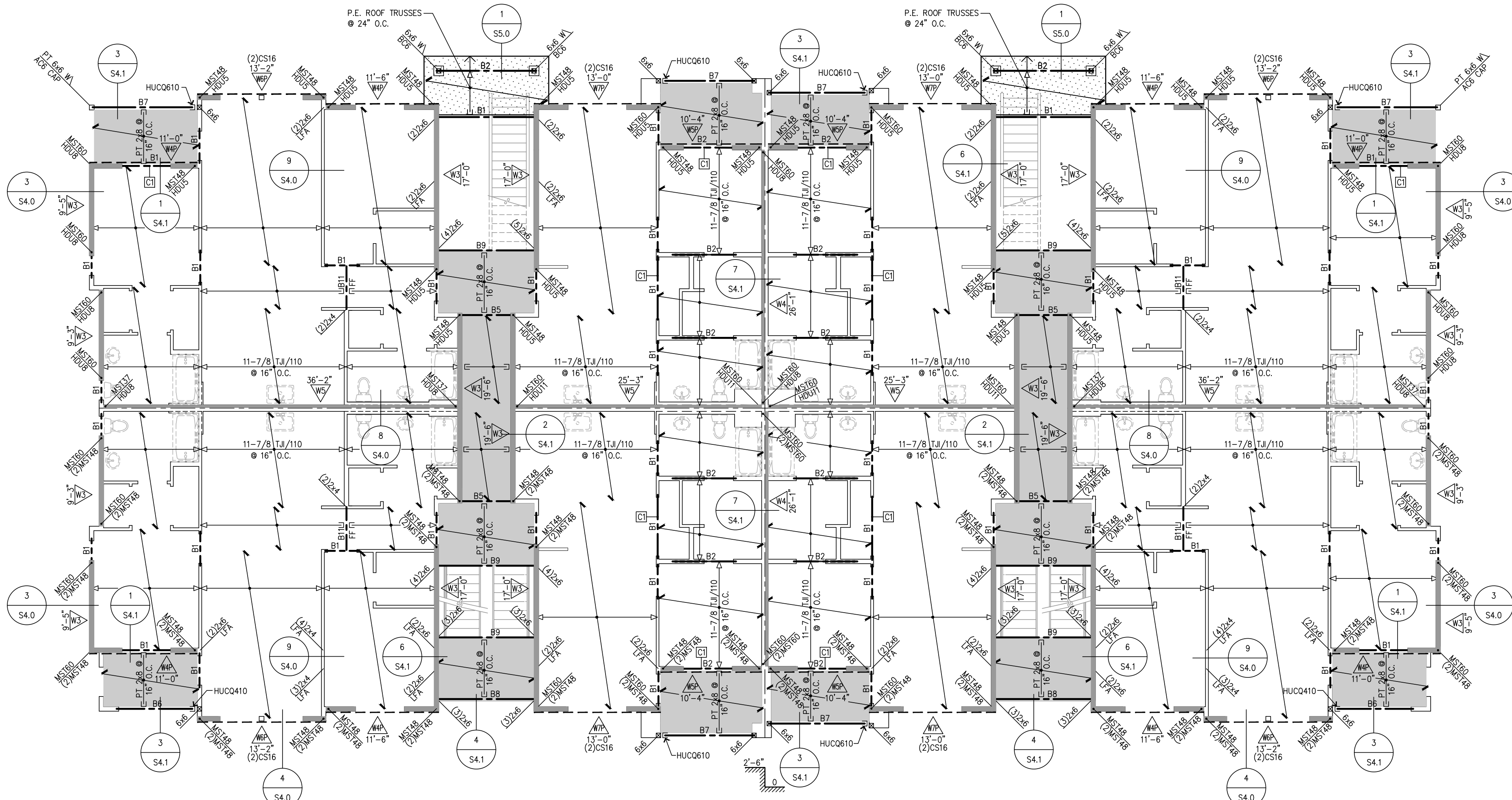


3/4 Bldg Split Key



3rd Floor Framing Plan - Bldg F

SCALE 1/8"=1'-0"



2nd Floor Framing Plan - Bldg F

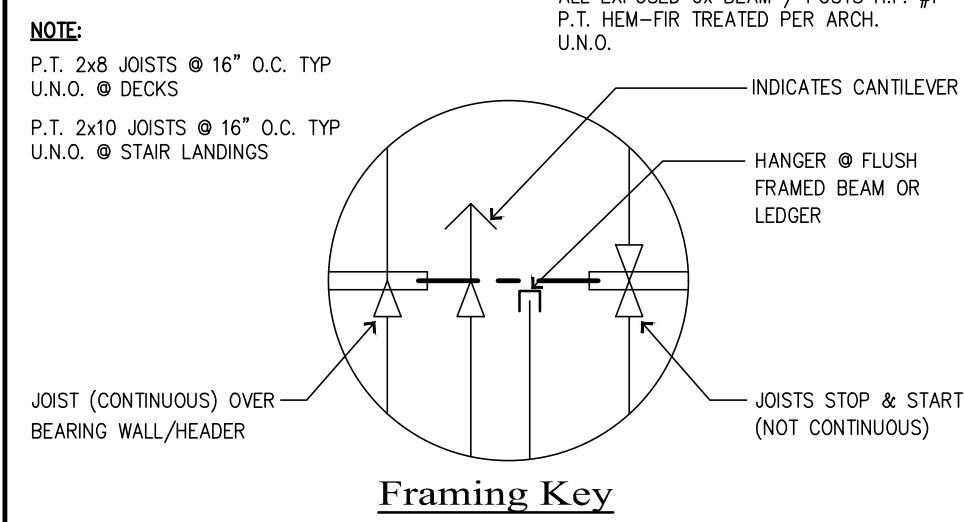
SCALE 1/8"=1'-0"

- INDICATES BEAM / GIRDER TRUSS PER PLAN SEE FRAMING PLANS
- INDICATES HANGER PER MANUFACTURER
- GT INDICATES GIRDER TRUSS PER PLAN
- INDICATES JOIST / TRUSS BEARING @ WALL / BEAM
- INDICATES JOIST / TRUSS INTERMEDIATE BEARING @ WALL / BEAM
- INDICATES TYPICAL TOILET, BATHTUB & SHOWER LAYOUT. CONTRACTOR TO COORDINATE JOIST LAYOUT WITH FIXTURE LOCATIONS TO AVOID PLUMBING & FRAMING CONFLICTS.
- INDICATES ROOF OVERFRAMING - SEE DETAILS 5/S5.0
- PROVIDE WALL FIREBLOCKING @ DROPPED SOFFITS SHOWN ON ARCH.
- PROVIDE WALL BLOCKING FOR ALL WALL MOUNTED EQUIPMENT (SUCH AS TOWEL BARS, GRAB BARS, TOILET PAPER HOLDERS, DOOR STOPS, ETC.).
- LFA INDICATES - LOAD FROM ABOVE
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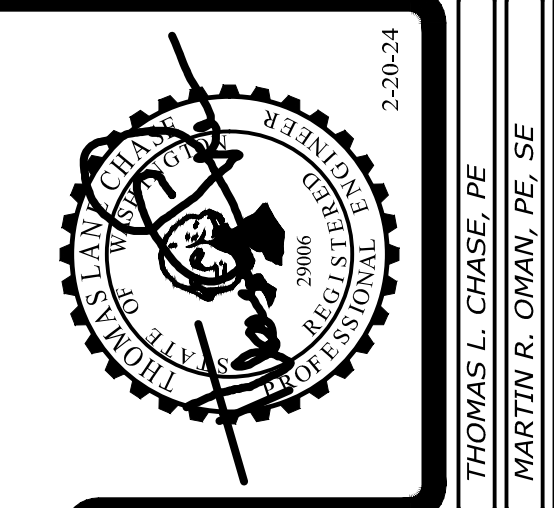
NOTE: ALL JOISTS ARE 11-7/8" T&I/10 @ 16" O.C. TYPICAL U.N.O. USE FACE MOUNT HANGER @ F.F. COND U.N.O.

NOTE: P.T. 2x6 JOISTS @ 16" O.C. TYP U.N.O. @ DECKS. P.T. 2x10 JOISTS @ 16" O.C. TYP U.N.O. @ STAIR LANDINGS

NOTE: ALL MULTIPLE 2x\_ HEADERS HF #2 U.N.O. ALL 4x\_ HEADERS HF #2 U.N.O. ALL 6x\_ HEADERS/BEAMS D.F.#2 U.N.O. ALL EXPOSED 6x\_ BEAM / POSTS H.F.#1 P.T. HEM-FIR TREATED PER ARCH. U.N.O.



Framing Key



THOMAS L. CHASE, PE  
MARTIN R. OMAN, PE, SE  
OLEG G. KONDRATYUK, PE

Revisions to this sheet:

**Bradley Heights Apartments**  
202 27th Ave SE  
Puyallup, Washington

**Solutions 4 Structures**  
A Structural Engineering Corporation

Puyallup, Washington 98374  
Ph 253-314-9822  
www.solutions4structures.com

PROJECT NO. : 23-007  
DESIGNED BY : TLC, OGG, MRO  
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SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
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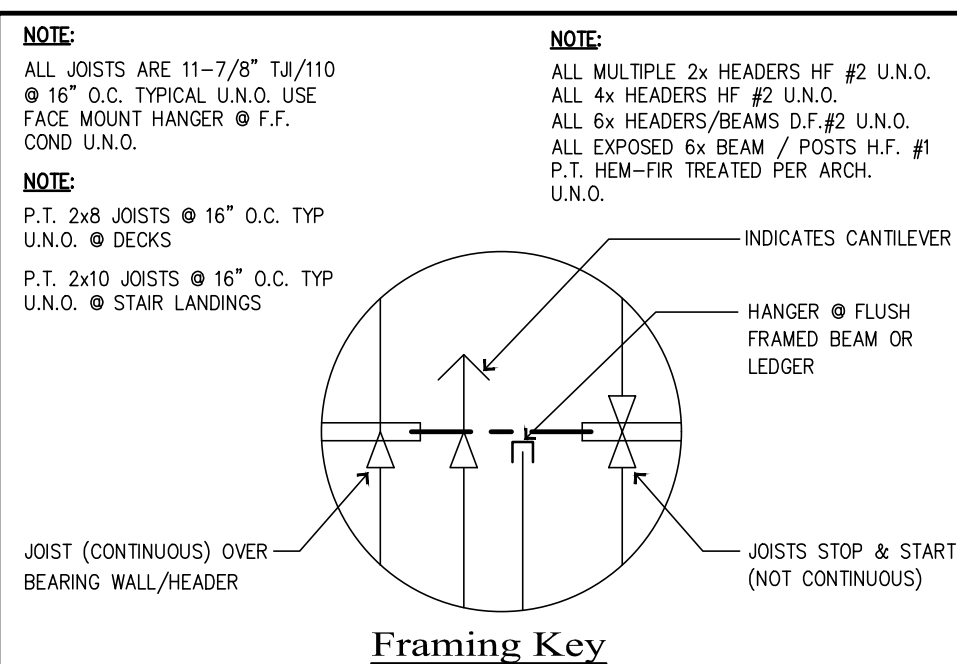
**S2.15**

CAD FILE: F:\Projects\2023 Projects\23.007 Bradley Heights\Drawings\S2.15.dwg PLOT DATE/TIME: 2/15/2024 - 9:41 am THANK YOU FOR USING SOLUTIONS 4 STRUCTURES

**Floor & Roof Framing Notes**

- ROOF AND FLOOR JOIST LOCATIONS ARE SCHEMATICALLY SHOWN ON THE PLANS. IT IS NOT THE INTENT OF THE STRUCTURAL PLANS TO GRAPHICALLY LOCATE ALL FRAMING MEMBERS. THE ARCHITECT SHALL VERIFY THE COMPATIBILITY OF JOIST LAYOUT AND FRAMING W/ MECHANICAL, ELECTRICAL & PLUMBING AND ARCHITECTURAL PLANS. THE CONTRACTOR IS RESPONSIBLE FOR SPACING FRAMING MEMBERS AS NOTED ON THE PLANS AND GENERATING MEMBER LAYOUT FOR SHOP DRAWINGS AND QUANTITY TAKEOFFS.
- FOR ALL UNITS TYPES SEE WALL STUD SCHEDULE FOR BEARING WALL STUD REQUIREMENTS. ALL OTHER NON-BEARING 2x4 & 2x6 WALLS ARE AT 16" O.C.
- THE TRUSS AND JOIST MANUFACTURER SHALL VERIFY BEARING COMPATIBILITY (CRUSHING) WITH THE PLATE MATERIAL. TYPICALLY, COMPOSITE BEAMS SHALL BE FULLY BEARING ON 2x... WALLS. I.E. BREAK RIM OR BLOCKING TO ALLOW FULL BEARING OVER PLATES.
- PLACE LONG DIRECTION OF ALL OSB SHEETS PERPENDICULAR TO TRUSS/RAFTER OR JOIST DIRECTION, SEE DETAIL 3/S1.2. FLOOR SHEATHING IS TO BE CONTINUOUS FROM UNIT TO UNIT. TYPICAL NAILING AT FLOOR AND ROOF DIAPHRAGMS IS PROVIDED IN THE GENERAL STRUCTURAL NOTES ON SHEETS S1.0.
- W- DENOTES THE SHEARWALL TYPE, SEE THE SHEARWALL TABLE ON SHEET S1.2. INDICATES SHEARWALL LOCATION, THE CALLOUTS ON THE SHEARWALL TABLE APPLY ONLY ALONG THE LENGTH OF WALL SHOWN SHADED. PROVIDE SOLID BLOCKING IN FLOOR SPACE BELOW PERPENDICULAR SHEARWALLS. INDICATES SHEAR WALL TYPE WITH OPENINGS. PROVIDE SHEATHING AROUND ALL OPENINGS AND ABOVE AND BELOW ALL OPENINGS. PROVIDE HORIZONTAL STRAPS & NAILING AT OPENINGS PER 8/S1.2
- THE DOUBLE TOP PLATE IS TO BE CONTINUOUS ALONG ALL EXTERIOR WALLS AND AT ALL WALL LINES CONTAINING SHEARWALLS. TYPICAL WALL TOP PLATE SPICES SHALL BE PER DETAIL 7/S1.2 TYP.
- WHERE COMPOSITE JOISTS AND BEAMS ARE USED AS DRAG STRUTS THE MANUFACTURER SHALL PROVIDE THE FRAMING MEMBERS WITH THE CAPACITY CALLED OUT ON THE PLANS.
- TYPICAL FLOOR JOISTS SHALL BE 11-7/8" T&I/10 @ 16" O.C. TYP. U.N.O. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ALL JOIST AND BEAM HANGERS, WEB STIFFENERS, SOLID BLOCKING, AND ADDITIONAL RIM OR JOIST MATERIAL TO ACCOMMODATE FLUSH-FRAMED CONDITIONS (F.F.), CANTILEVERED CONDITIONS, CONCENTRATED BEARING LOADS AND NAILING FROM SHEARWALLS ABOVE AND BELOW.
- F.F. = FLUSH-FRAMED BEAM. VERIFY FLUSH OR DROPPED BEAM CONDITION PER ARCHITECT.
- ALL BEAMS PER SCHEDULE U.N.O. ALL NON BEARING BEAMS SHALL BE A MIN OF (2)2x8 U.N.O. ALL OTHER BEAMS ARE AS MARKED ON PLANS.
- AT ALL BEAM BEARING/JAMB LOCATIONS, AT MINIMUM PROVIDE BEARING (TRIMMER) STUDS AND FULL HEIGHT (KING) STUDS PER THE JAMB STUD SCHEDULE FOR EACH BUILDING IF PROVIDED. IF NO SCHEDULE, PROVIDE (1) 2x... BEARING AND (1) 2x... FULL HEIGHT STUD MINIMUM.
- EXPOSED FRAMING SHALL BE PRESSURE TREATED (P.T.) VERTICAL & HORIZONTAL FRAMING @ WATERPROOFED WALKWAYS AND PRIVATE DECKS. ALL EXPOSED BEAM HANGERS SHALL BE POST HOT-DIPPED GALVANIZED AND HAVE CONCEALED FLANGES, VERIFY W/ ARCHITECT. SEE NOTE ON SHEET S1.0
- FOR TYPICAL HOLDOWN ASSEMBLIES SEE THE HOLDOWN TABLE ON 2/S1.2 AND DETAILS ON SHEET S3.0.
- SEE ARCHITECTURAL PLANS FOR STAIR FRAMING DETAILS & STAIR FRAMING DETAILS AND NOTES, CONTROL JOINTS IN CONCRETE FLOORING AND ROOF VENTILATION REQUIREMENTS AND DETAILS.
- SEE CIVIL AND ARCHITECTURAL PLANS FOR TOP OF WALL HEIGHTS AND ELEVATIONS. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE DIMENSIONS ARE SHOWN ON THE STRUCTURAL PLANS, CONTRACTOR SHALL VERIFY COMPATIBILITY W/ ARCHITECTURAL PLANS. WHERE DISCREPANCY EXISTS, CONTRACTOR SHALL NOTIFY BOTH THE ENGINEER AND ARCHITECT FOR CLARIFICATION.
- WINDOW SUPPLIER TO VERIFY THAT WINDOW AND WINDOW FRAMES TRANSFER WIND LOADS EVENLY TO STRUCTURAL FRAMING ON ALL 4 SIDES OF WINDOW. WINDOW SUPPLIER TO VERIFY MINIMUM .005" STORY DRIFT TOLERANCE IN PLANE OF ALL WINDOWS AND ALLOW FOR L/240 DEFLECTION (PERPENDICULAR) AT WINDOW MULLIONS.
- SEE GENERAL STRUCTURAL NOTES ON S1.0 TO S1.3 FOR ADDITIONAL INFORMATION.

18. LEGEND:
- INDICATES BEAM / GIRDER TRUSS PER PLAN SEE FRAMING PLANS
  - INDICATES HANGER PER MANUFACTURER
  - INDICATES GIRDER TRUSS PER PLAN
  - INDICATES JOIST / TRUSS BEARING @ WALL / BEAM
  - INDICATES JOIST / TRUSS INTERMEDIATE BEARING @ WALL / BEAM
  - INDICATES TYPICAL TOILET, BATHTUB & SHOWER LAYOUT. CONTRACTOR TO COORDINATE JOIST LAYOUT WITH FIXTURE LOCATIONS TO AVOID PLUMBING & FRAMING CONFLICTS.
  - INDICATES ROOF OVERFRAMING - SEE DETAILS 5/S5.0
  - PROVIDE WALL FIREBLOCKING @ DROPPED SOFFITS SHOWN ON ARCH.
  - PROVIDE WALL BLOCKING FOR ALL WALL MOUNTED EQUIPMENT (SUCH AS TOWEL BARS, GRAB BARS, TOILET PAPER HOLDERS, DOOR STOPS, ETC.).
  - LFA INDICATES - LOAD FROM ABOVE
  - FF INDICATES FLUSH FRAMED BEAM
  - INDICATES STRAP HOLDOWN, SEE SHEET 2/S1.2 FOR HOLDOWN TABLE & UPPER TO LOWER WALL STRAP/HOLDOWN KEY.
  - REFER TO ARCHITECTURAL DRAWINGS FOR ALL FLOOR ELEVATIONS.
  - SIMPSON STRONG TIE PRODUCTS ARE CALLED OUT ON THE DRAWINGS. HOWEVER, EITHER SIMPSON OR KC METALS PRODUCTS MAY BE USED PROVIDED IT HAS SAME OR GREATER CAPACITY.



**SEE SHEET S1.2 FOR SHEARWALL AND HOLDOWN TABLES**

**Beam Schedule**

MARK	BEAM SIZE
B1	4x8
B2	4x10
B3	6x10 DF #2
B4	3-1/8 x 10-1/2 GLB
B5	P.T. 4x8
B6	P.T. 4x10
B7	P.T. 6x10 HF#1
B8	P.T. 3-1/8 x 10-1/2 GLB
B9	P.T. 5-1/8 x 10-1/2 GLB
B10	5-1/4x11-7/8 PSL
B11	3-1/2x11-7/8 LSL

**Jamb Stud Schedule**

TYPE	C1	C2	C3	C4	C5	C6	-	-
BEARING/FULL HT STUDS	1/2	1/3	2/1	2/2	2/3	2/4	-	-

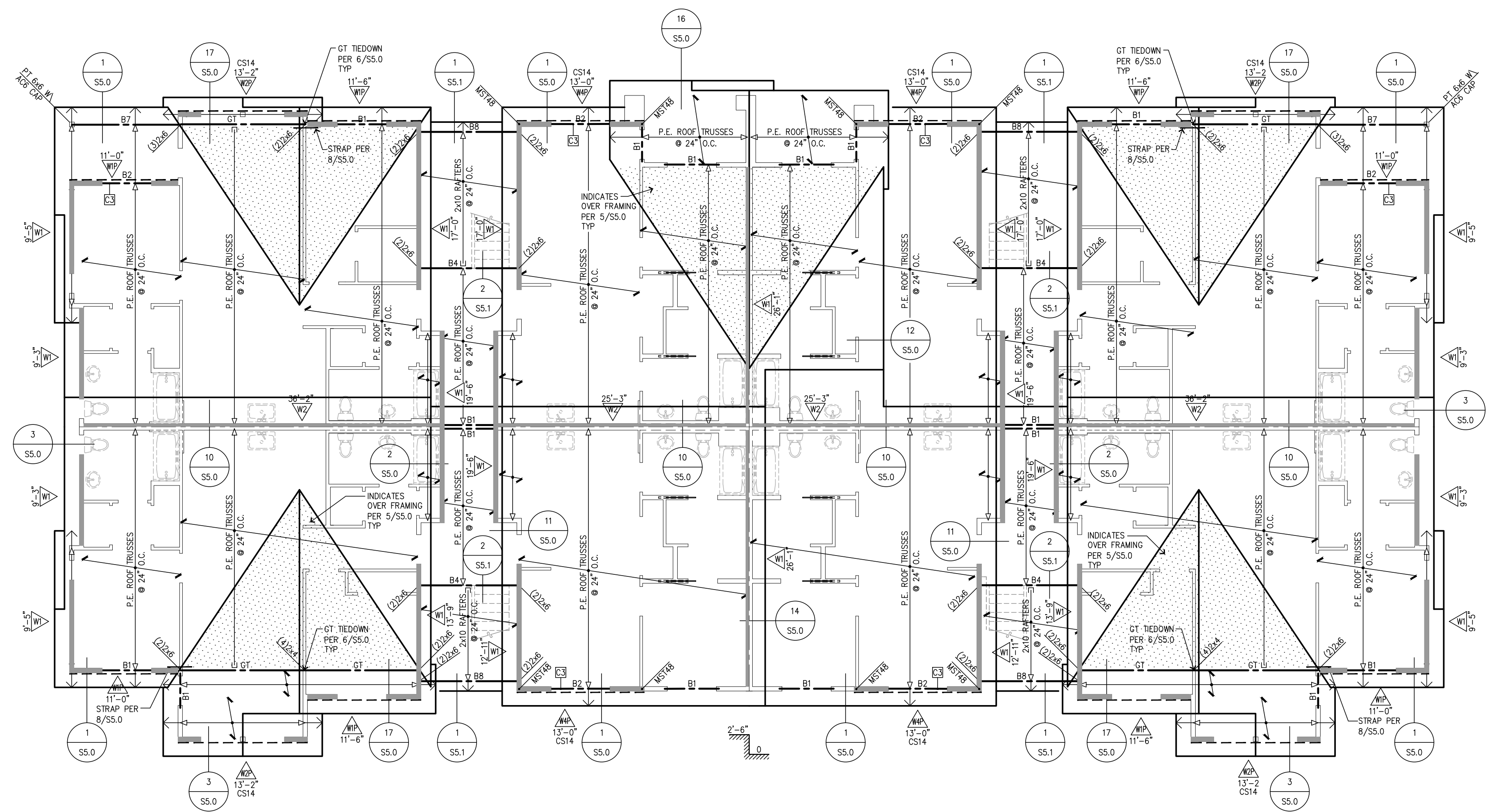
NOTE: STUD SIZE SHOULD MATCH WALL SIZE PER PLAN.

**Wall Stud Schedule**

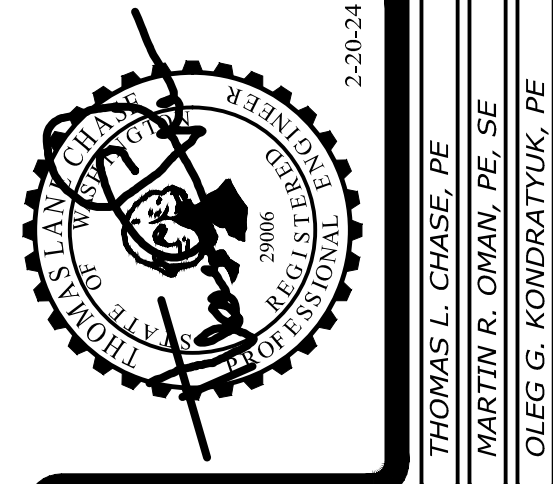
FRAMING LEVEL	2x6 EXTERIOR SINGLE WALL	2x6 BRG INT PARTY WALLS	2x4 BRG INT SINGLE WALL	2x4 BRG PARTY WALLS
ROOF	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
3RD	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
2ND	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 16" O.C.	2x4 HF#2 @ 16" O.C.
BASEMENT	2x6 @ 16" O.C.	2x6 @ 16" O.C.	2x4 HF#2 @ 12" O.C.	2x4 HF#2 @ 16" O.C.

**NOTES:**

- ALL STUD MATERIAL SHALL BE HEM FIR STUD GRADE OR BETTER UNLESS NOTED OTHERWISE AND PLATE MATERIAL SHALL BE HEM FIR STANDARD OR BETTER UNLESS NOTED OTHERWISE.
- STUDS CALLED OUT IN THIS SCHEDULE ARE FOR WALL SUPPORTING THE FRAMING LEVEL INDICATED. THAT IS WALLS BELOW THE FRAMING LEVEL SHOWN.
- THIS SCHEDULE COVERS BUILDING UNITS 3 STORES IN HEIGHT. FIRST, DETERMINE THE NUMBER OF STORES FOR THE UNIT SECOND, DETERMINE THE FRAMING LEVEL, THIRD, READ SCHEDULE HORIZONTALLY FOR THE WALL LOCATION.



**Roof Framing Plan - Bldg F**  
SCALE 1/8"=1'-0"



Revisions to this sheet:

**Bradley Heights Apartments**  
202 27th Ave SE  
Puyallup, Washington

**Solutions 4 Structures**  
A Structural Engineering Corporation

PROJECT NO. : 23-007  
DESIGNED BY : TLC, OGG, MRO  
DRAWN BY : RSO  
ISSUE DATE : 2-20-24  
LATEST REV. OF DWG. SET :

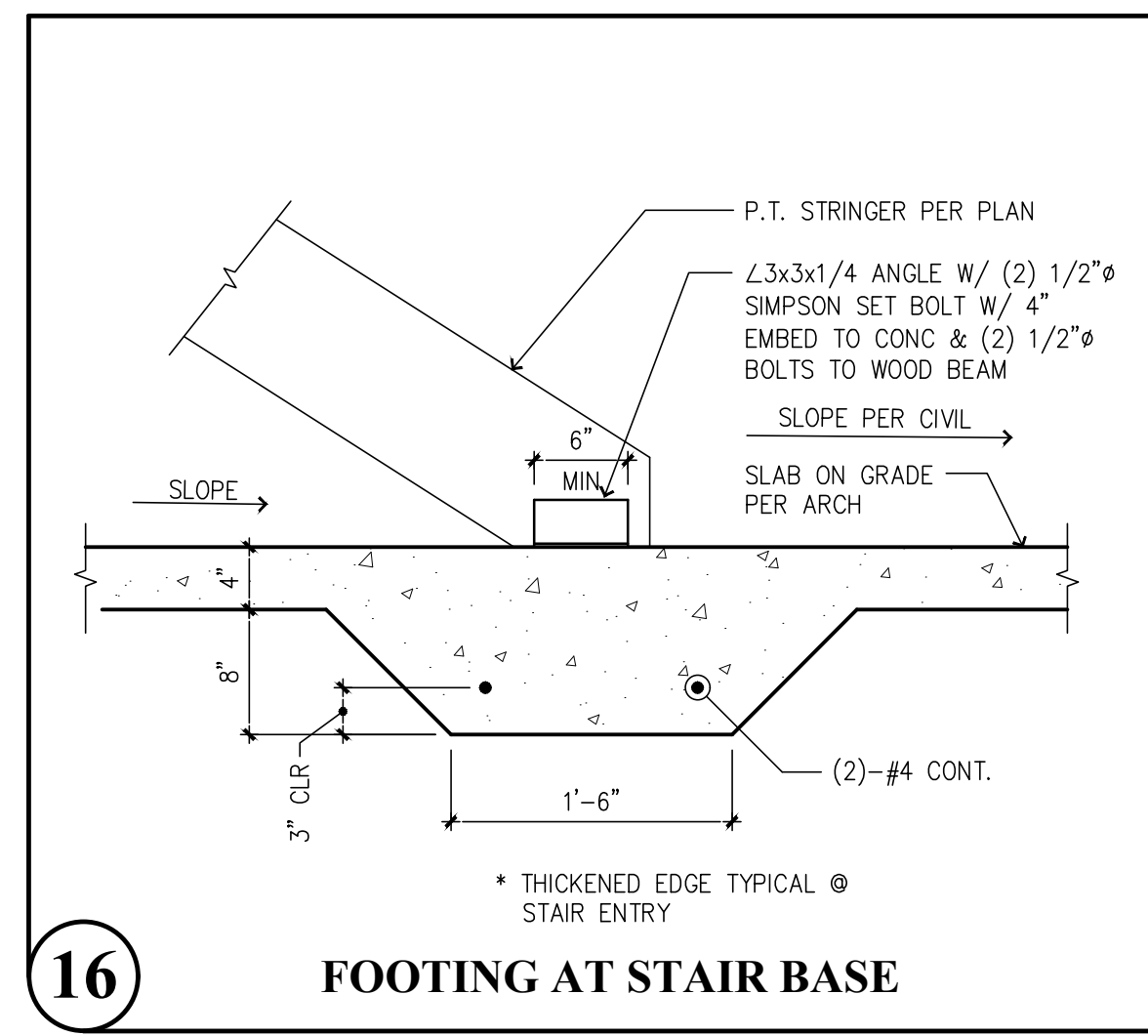
Puyallup, Washington 98374  
Ph 253-314-9822  
www.solutions4structures.com

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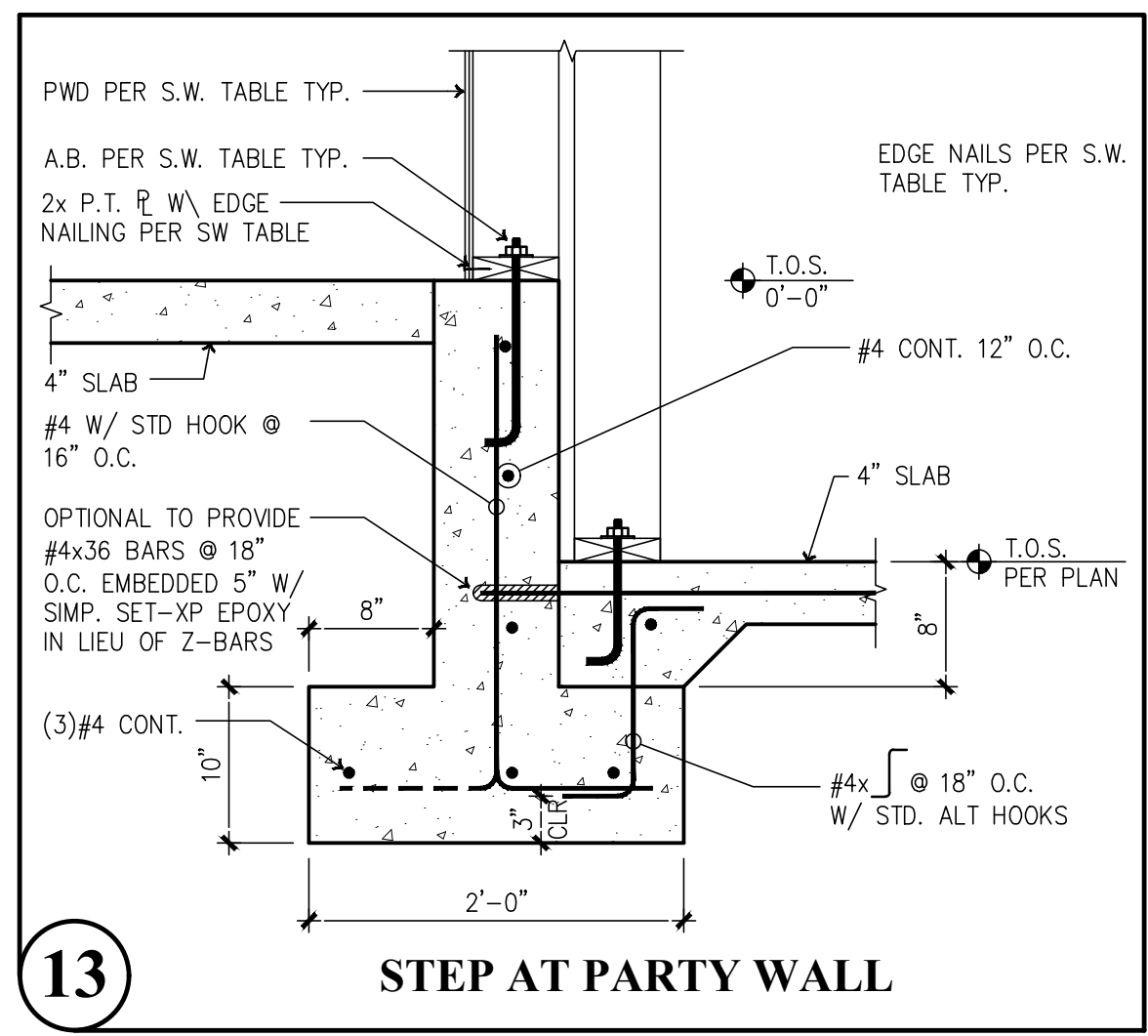
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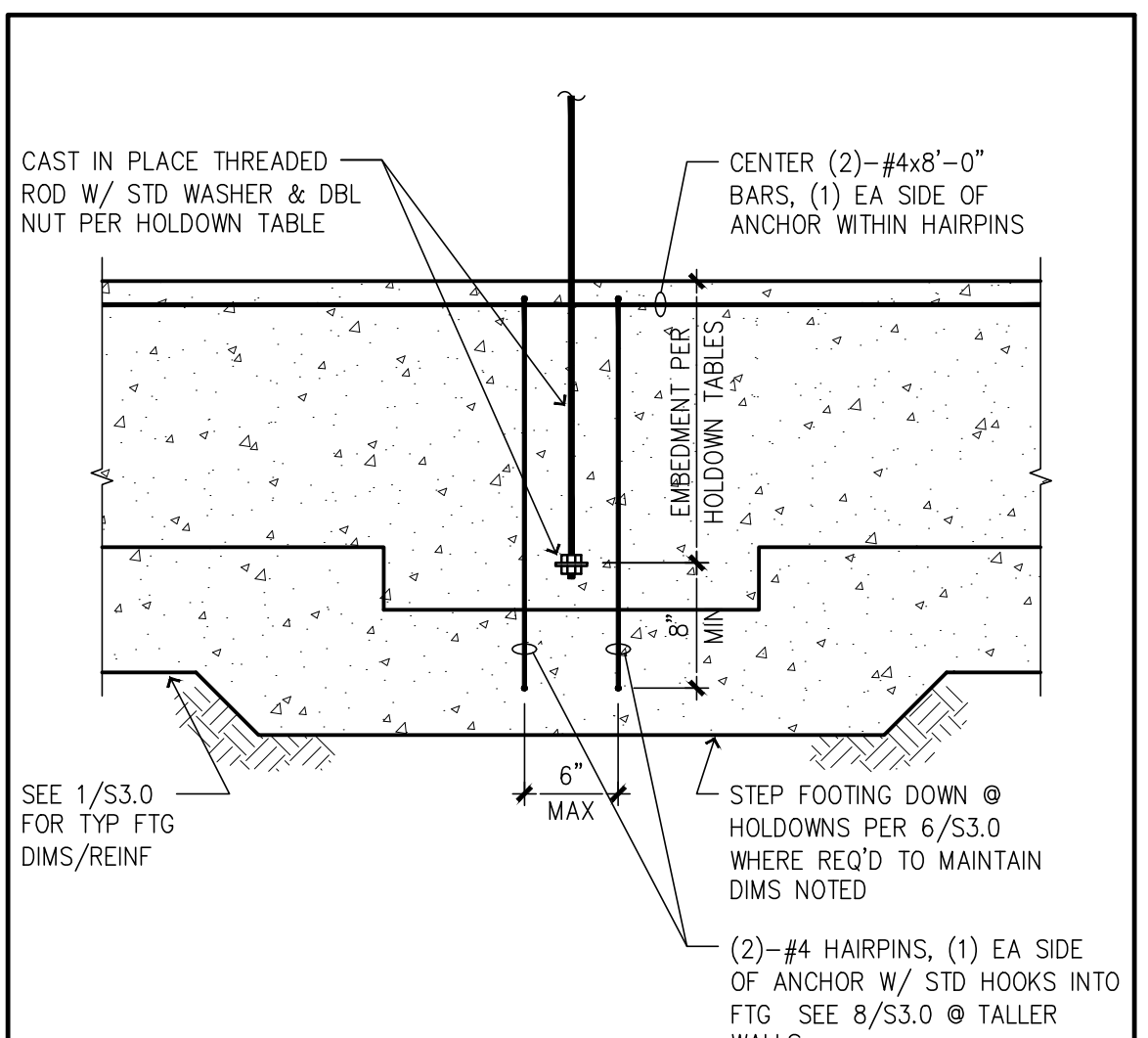
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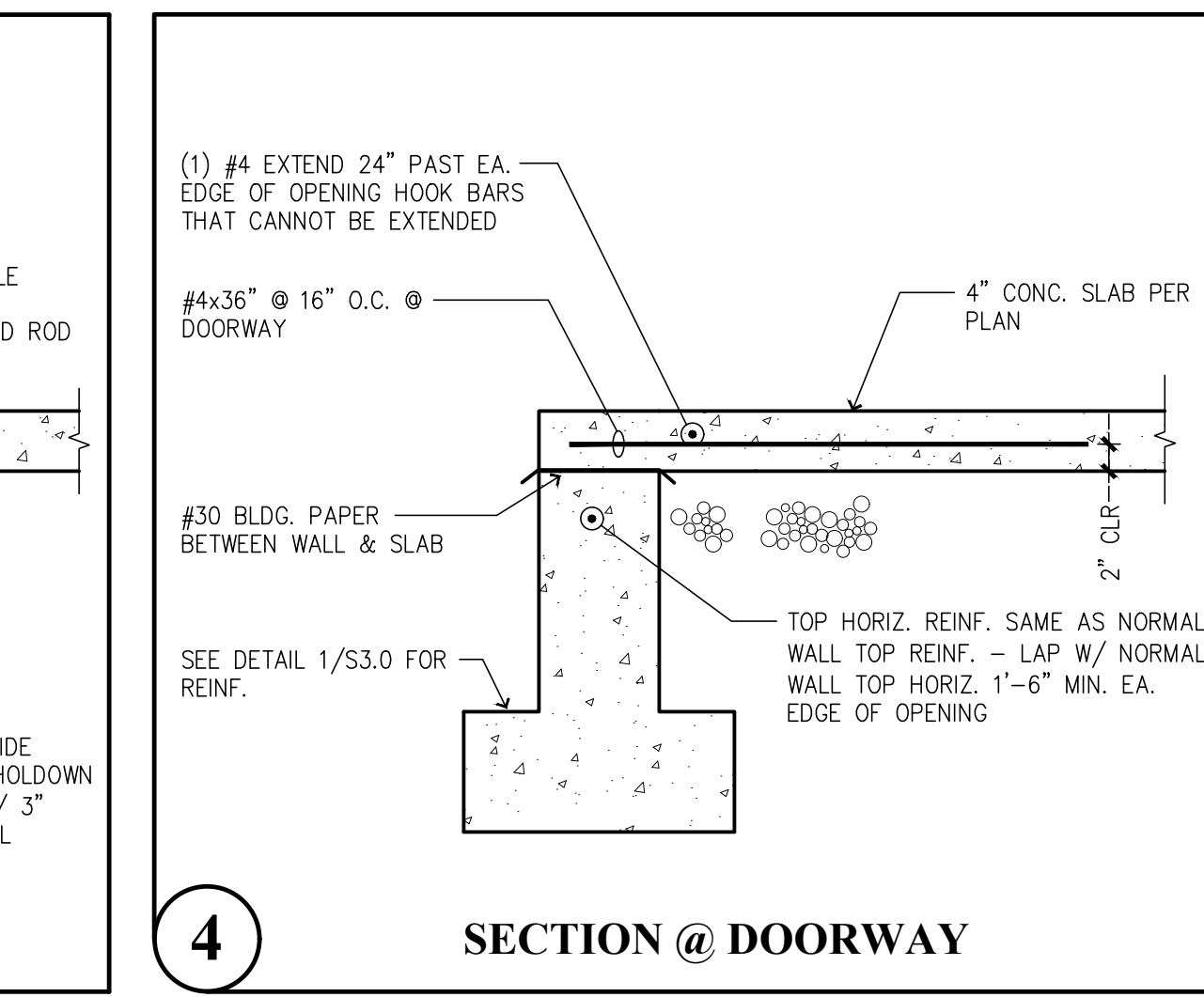
**16** FOOTING AT STAIR BASE



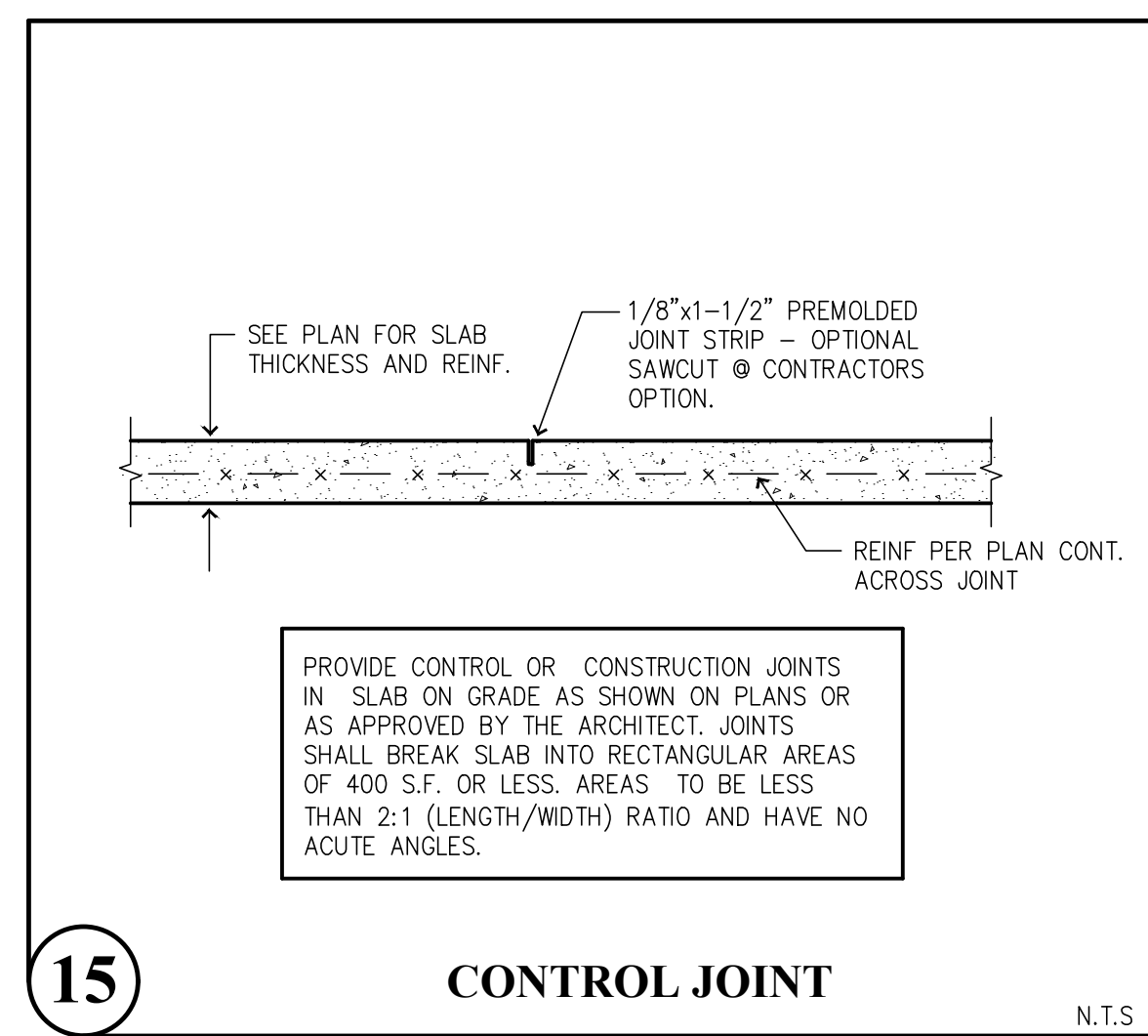
**13** STEP AT PARTY WALL



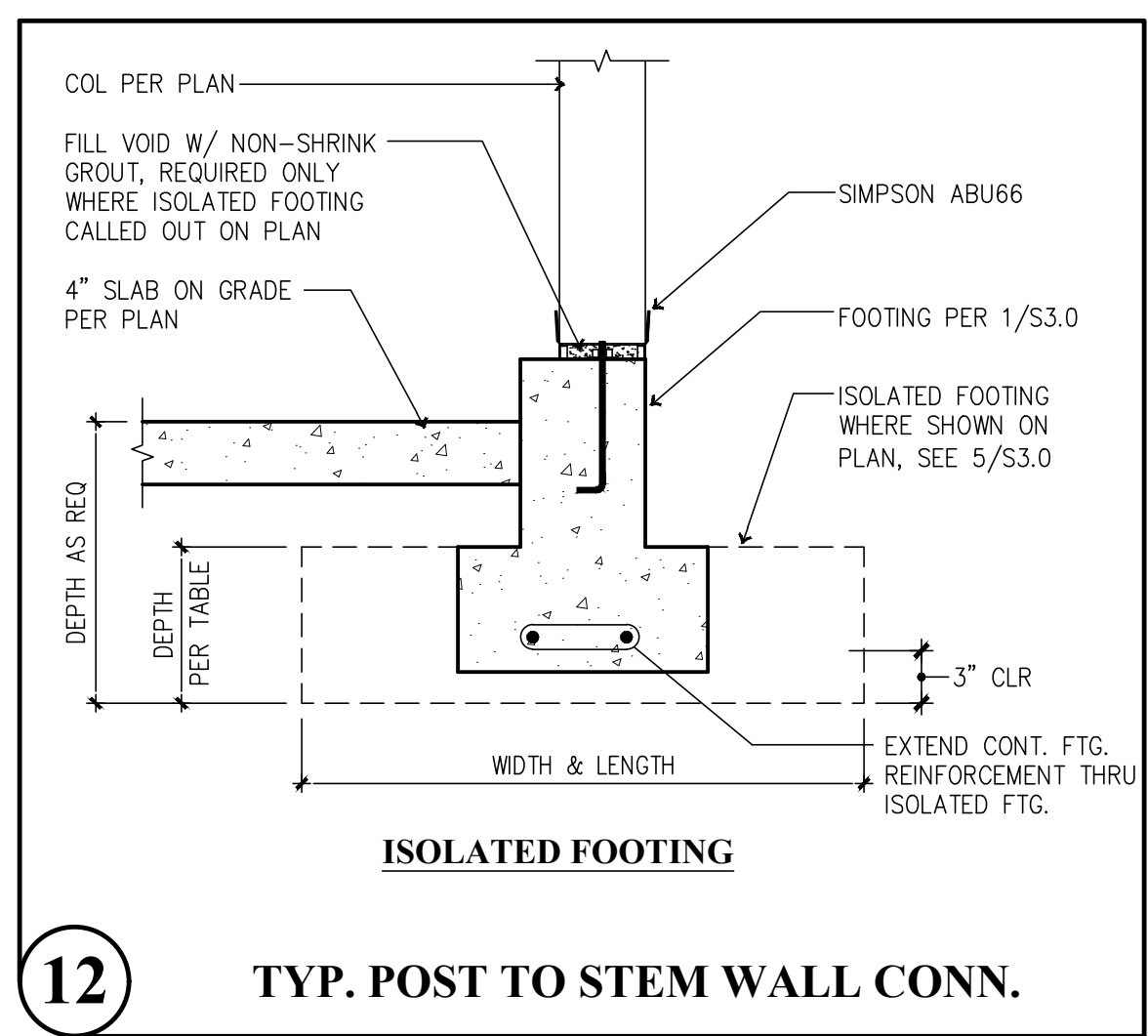
**7** HOLDOWNS @ THICKENED SLAB FOOTINGS



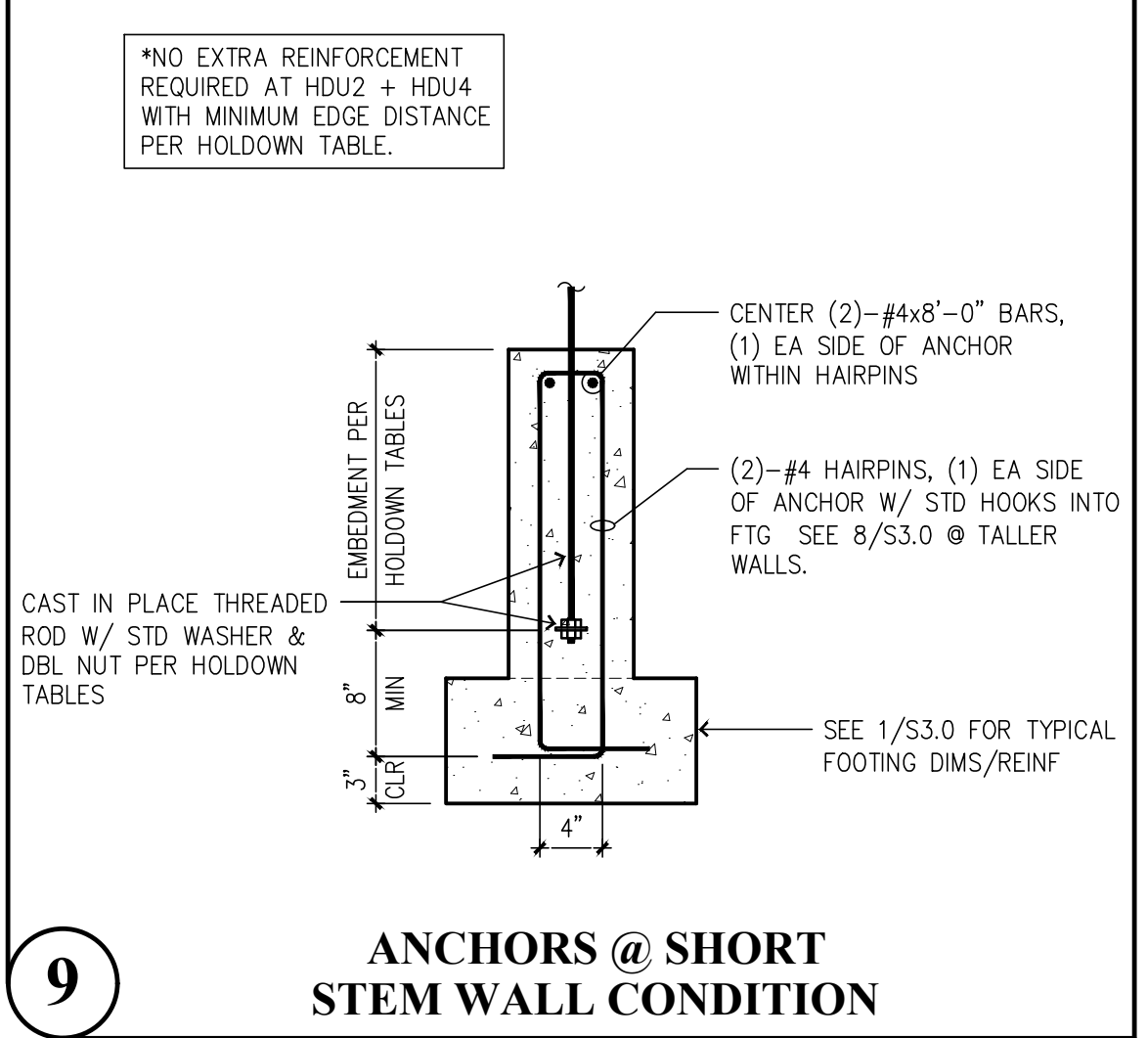
**4** SECTION @ DOORWAY



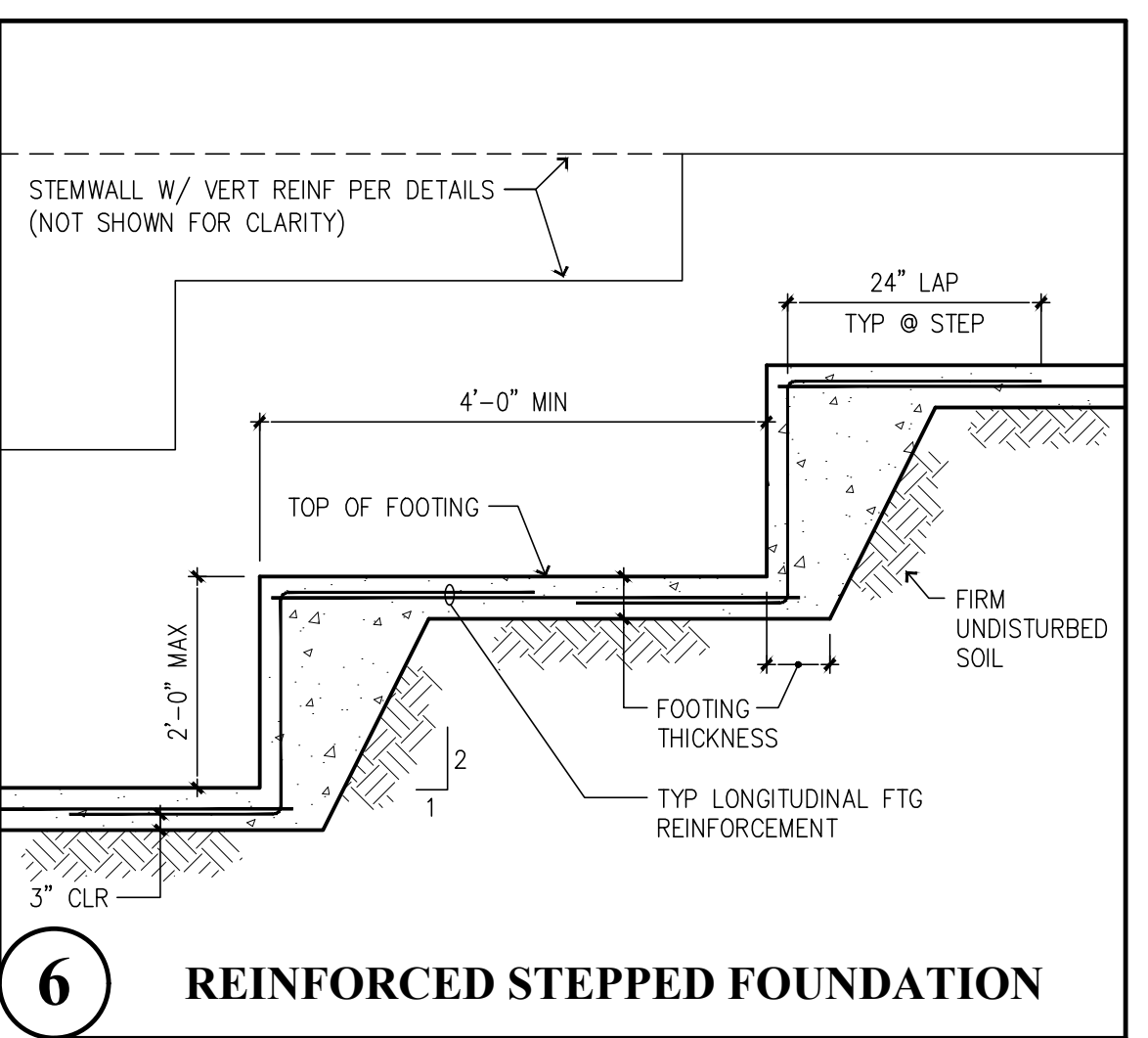
**15** CONTROL JOINT



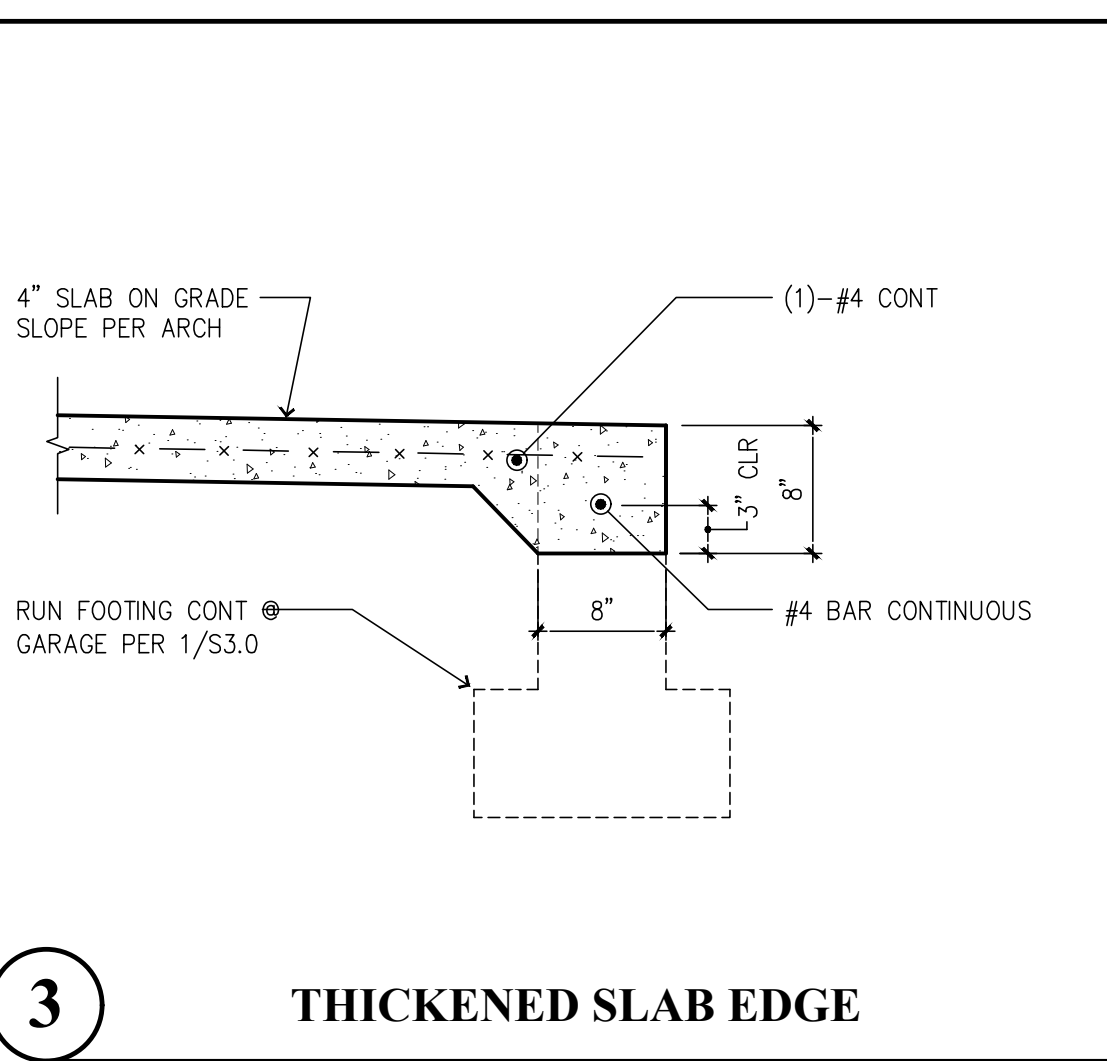
**12** TYP. POST TO STEM WALL CONN.



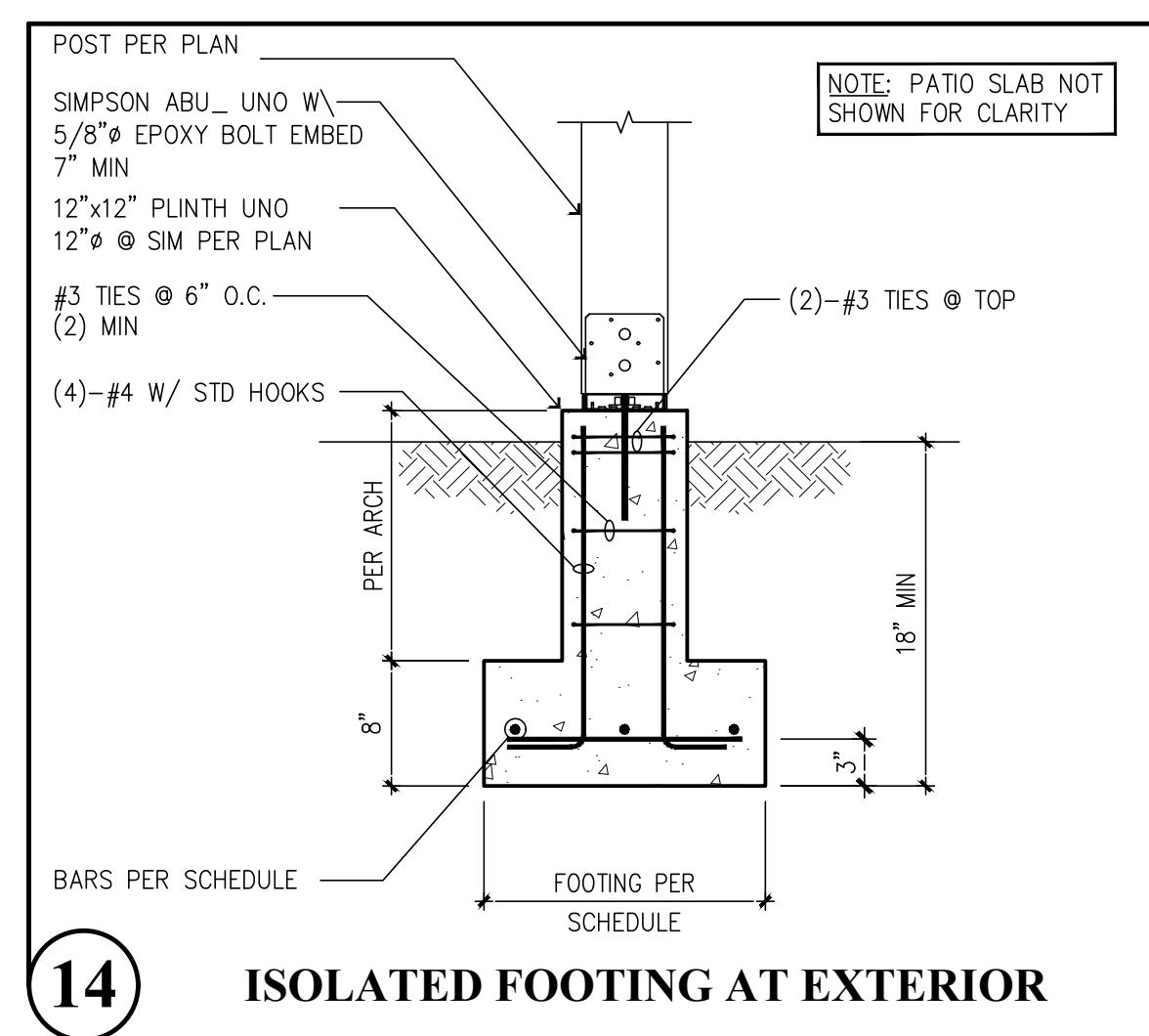
**9** ANCHORS @ SHORT STEM WALL CONDITION



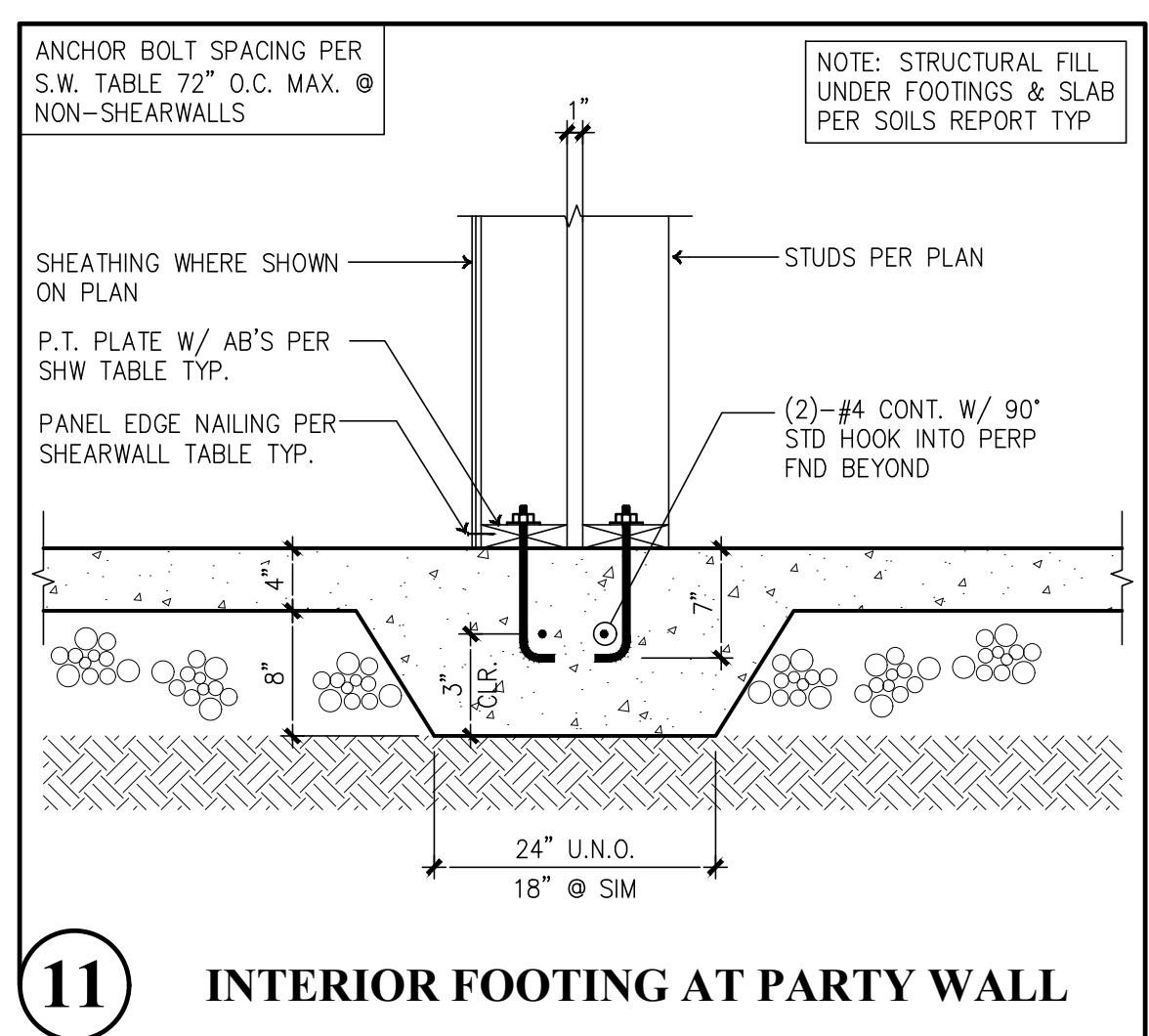
**6** REINFORCED STEPPED FOUNDATION



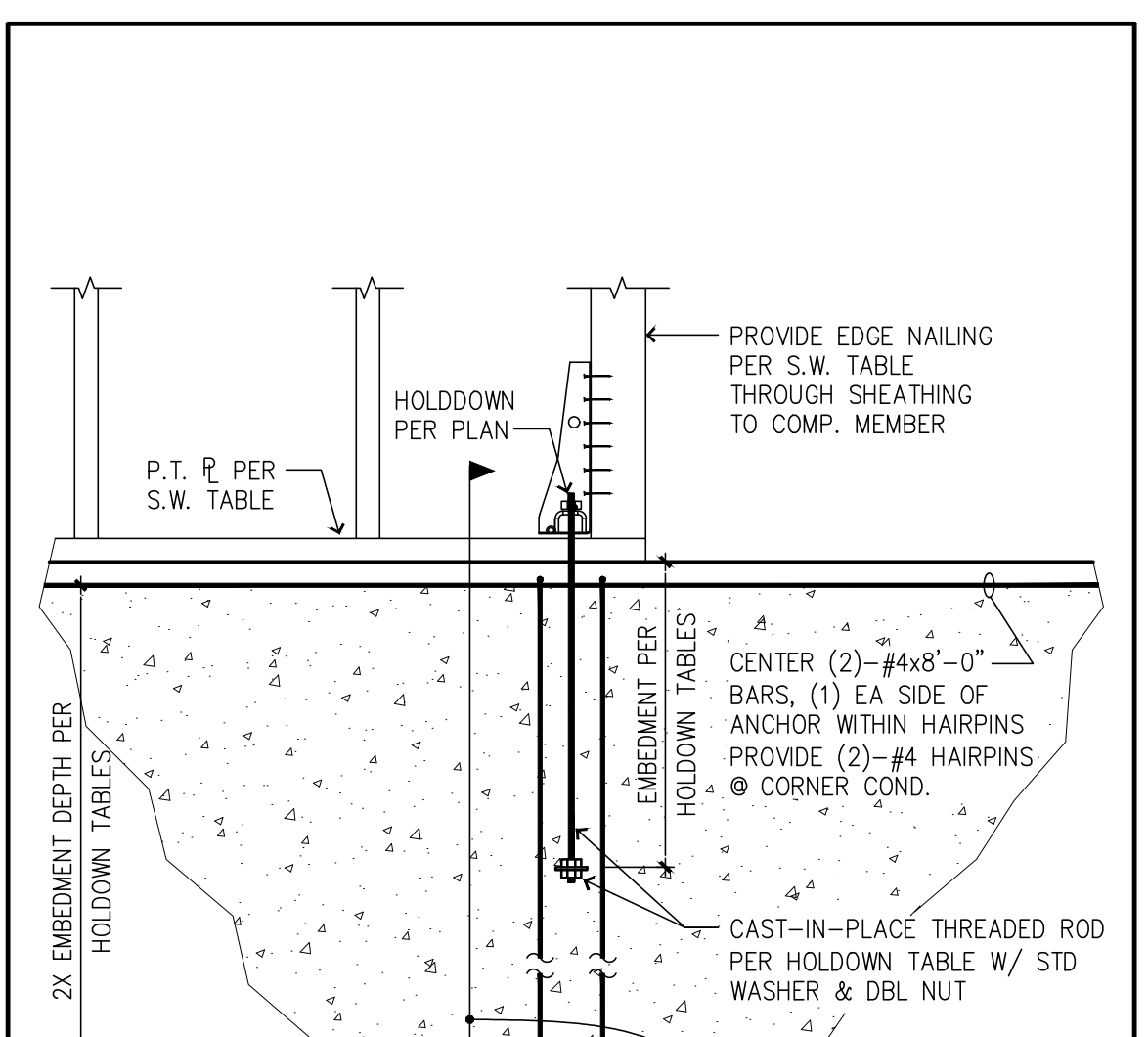
**3** THICKENED SLAB EDGE



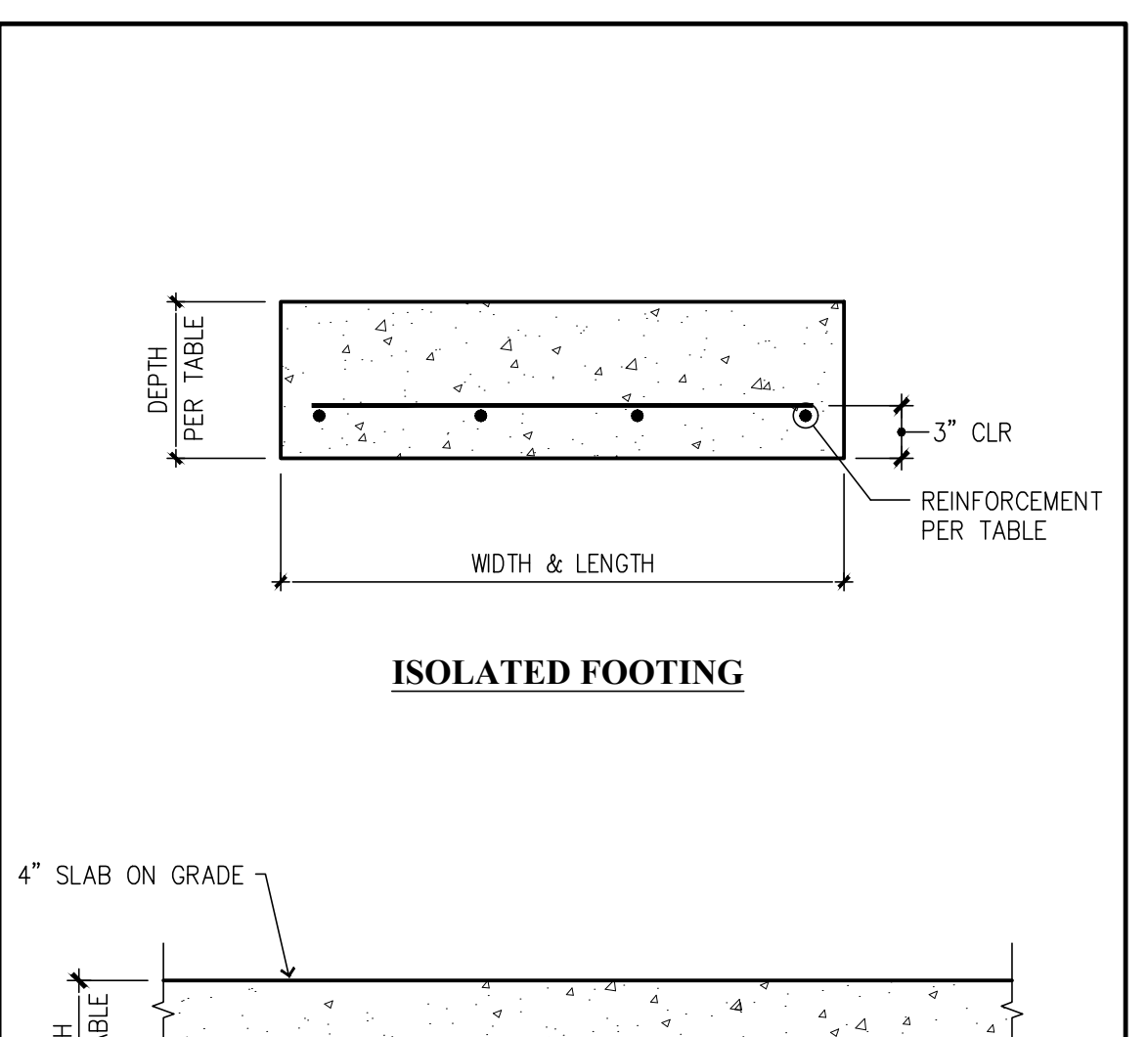
**14** ISOLATED FOOTING AT EXTERIOR



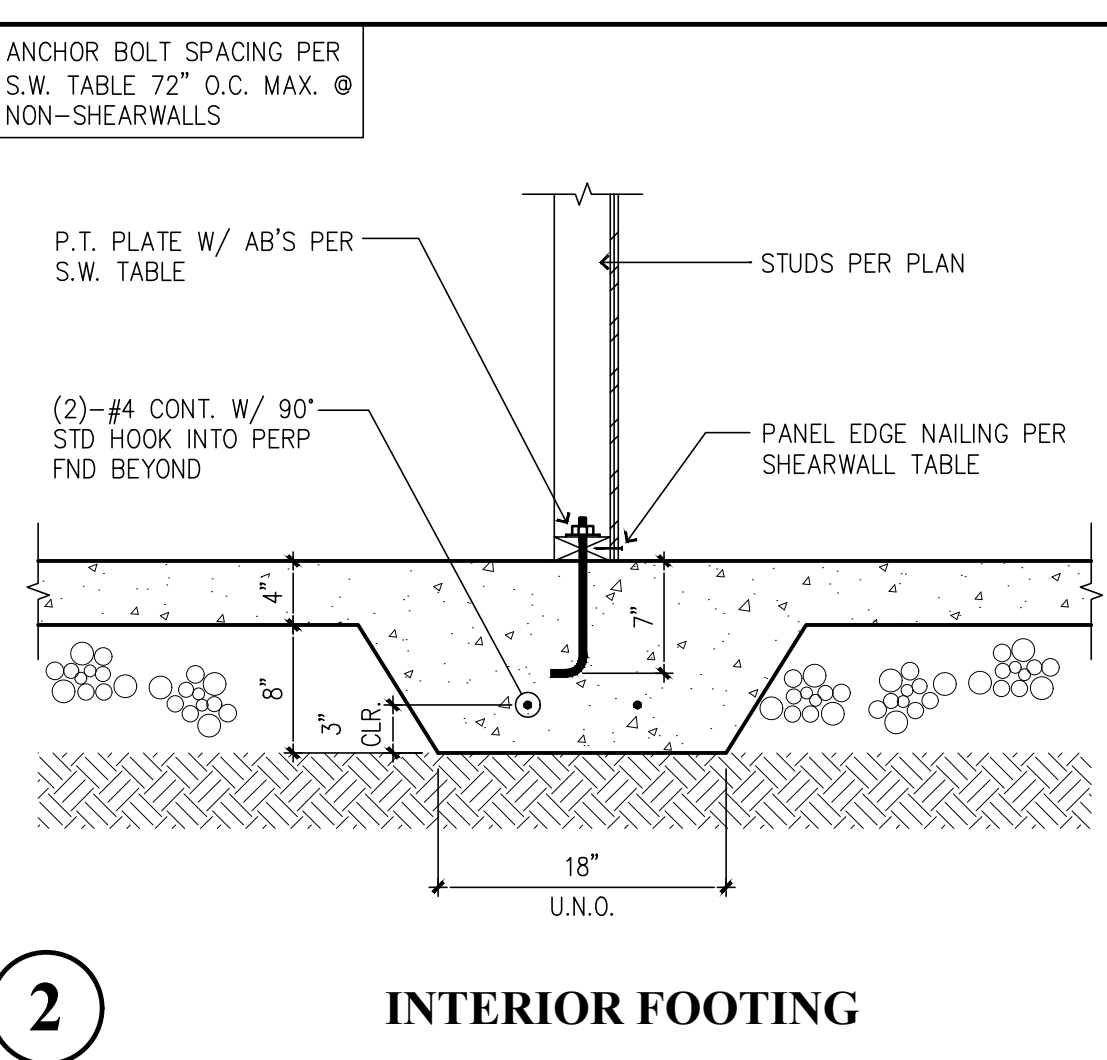
**11** INTERIOR FOOTING AT PARTY WALL



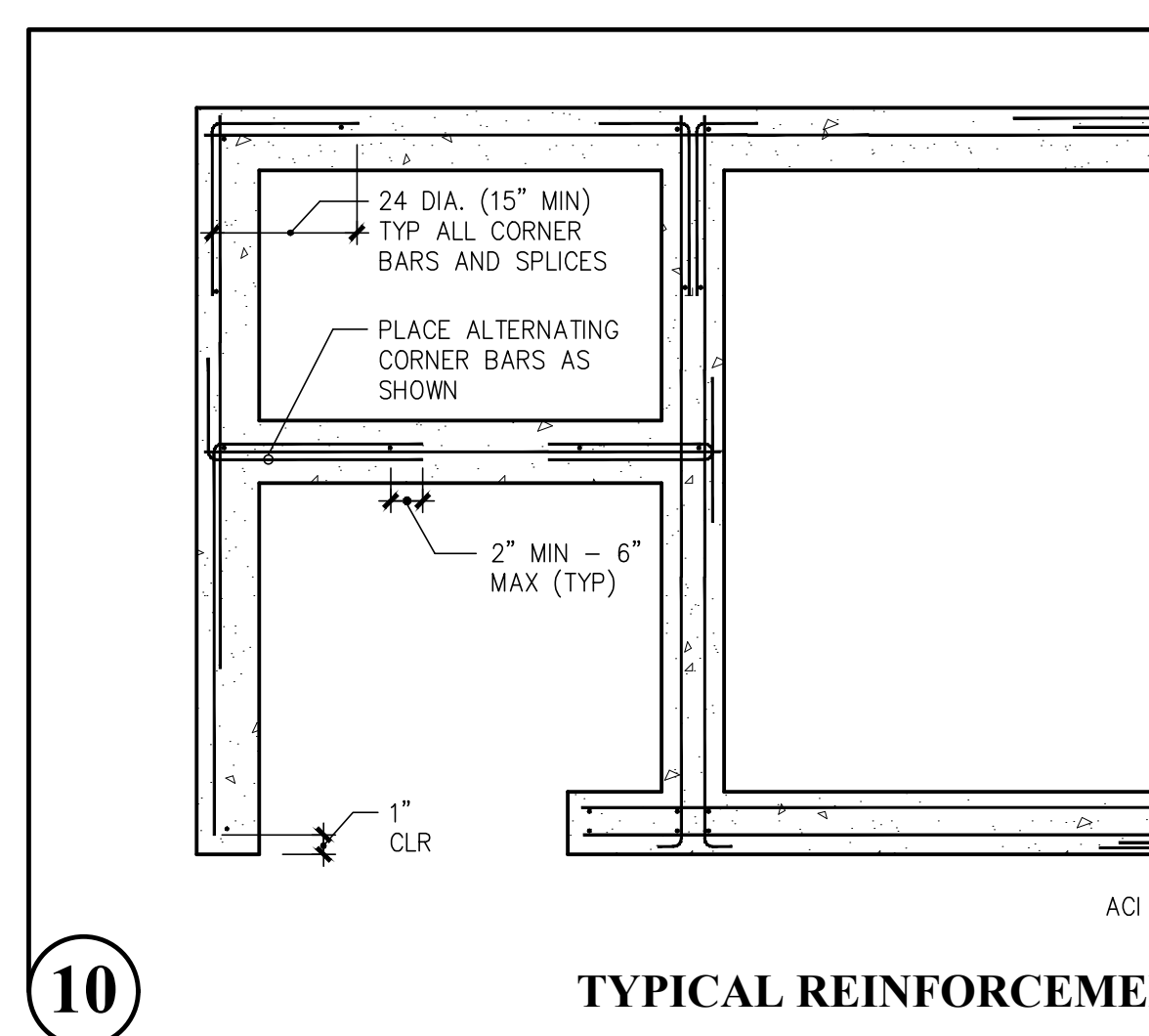
**8** ANCHORS @ TALL STEM WALL CONDITION



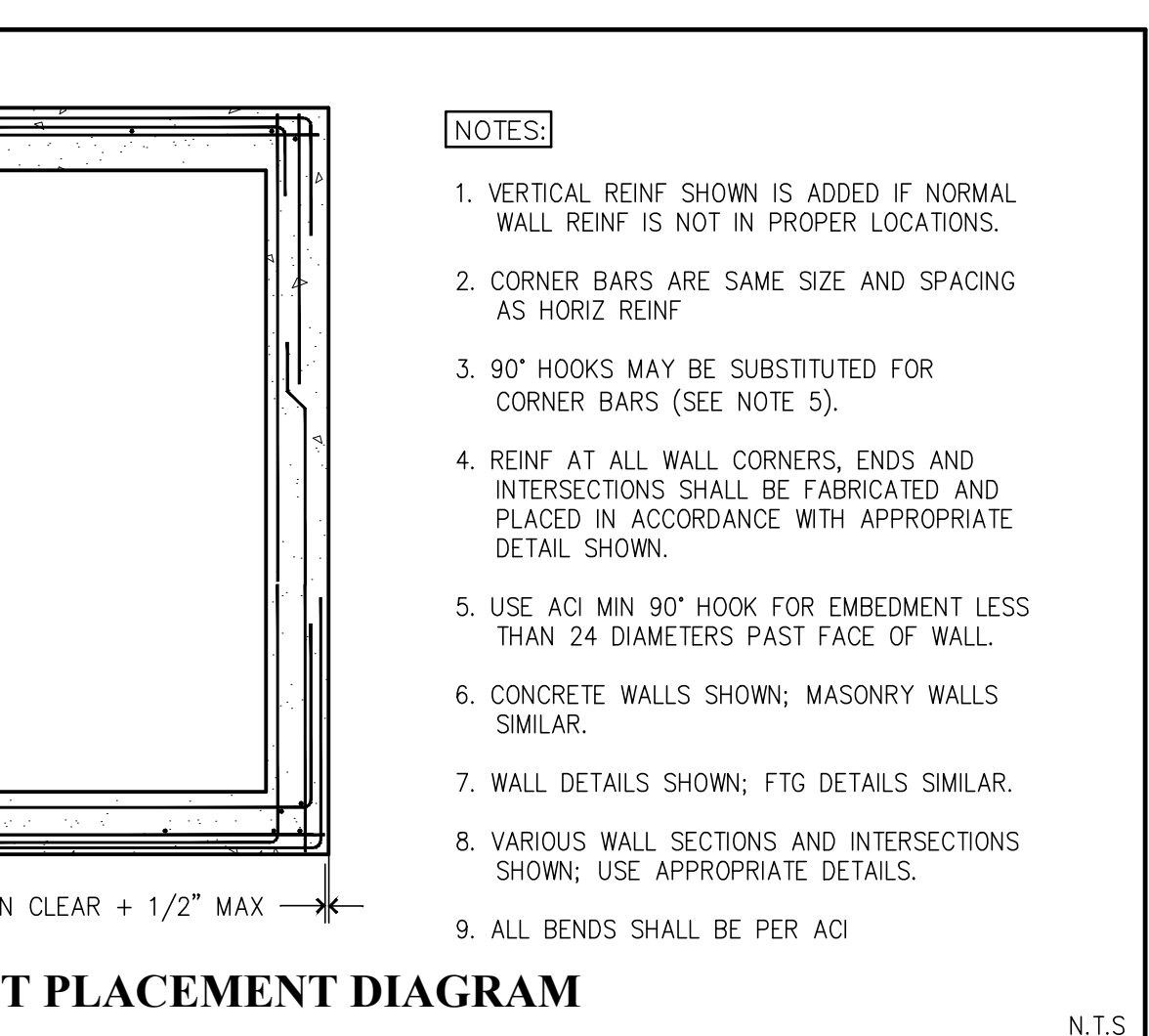
**5** FOOTING SCHEDULE



**2** INTERIOR FOOTING



**10** TYPICAL REINFORCEMENT PLACEMENT DIAGRAM

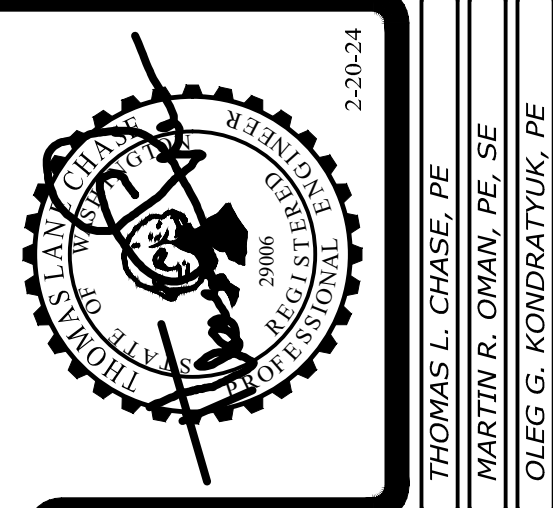


**1** TYPICAL EXTERIOR STEMWALL

- NOTES:**
- VERTICAL REINF SHOWN IS ADDED IF NORMAL WALL REINF IS NOT IN PROPER LOCATIONS.
  - CORNER BARS ARE SAME SIZE AND SPACING AS HORIZ REINF
  - 90° HOOKS MAY BE SUBSTITUTED FOR CORNER BARS (SEE NOTE 5).
  - REINF AT ALL WALL CORNERS, ENDS AND INTERSECTIONS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH APPROPRIATE DETAIL SHOWN.
  - USE ACI MIN 90° HOOK FOR EMBEDMENT LESS THAN 24 DIAMETERS PAST FACE OF WALL.
  - CONCRETE WALLS SHOWN; MASONRY WALLS SIMILAR.
  - WALL DETAILS SHOWN; FTG DETAILS SIMILAR.
  - VARIOUS WALL SECTIONS AND INTERSECTIONS SHOWN; USE APPROPRIATE DETAILS.
  - ALL BENDS SHALL BE PER ACI

MARK	WIDTH OR LENGTH	DEPTH	REINFORCEMENT
F2.0	2'-0"x2'-0"	10"	(3)-#4 BARS EA WAY
F2.5	2'-6"x2'-6"	10"	(3)-#4 BARS EA WAY
F2.5x3.0	2'-6"x3'-0"	10"	(3)-#4 BARS EA WAY
F3.0	3'-0"x3'-0"	12"	(3)-#4 BARS EA WAY
F3.5	3'-6"x3'-6"	12"	(4)-#4 BARS EA WAY
F4.0	4'-0"x4'-0"	14"	(4)-#4 BARS EA WAY

\* DEEPEN FOOTING LOCALLY AS REQUIRED FOR HOLDOWNS TO EQUAL ANCHOR EMBEDMENT + 3" CLEAR MIN



Revisions to this sheet:

**Bradley Heights Apartments**  
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 Puyallup, Washington

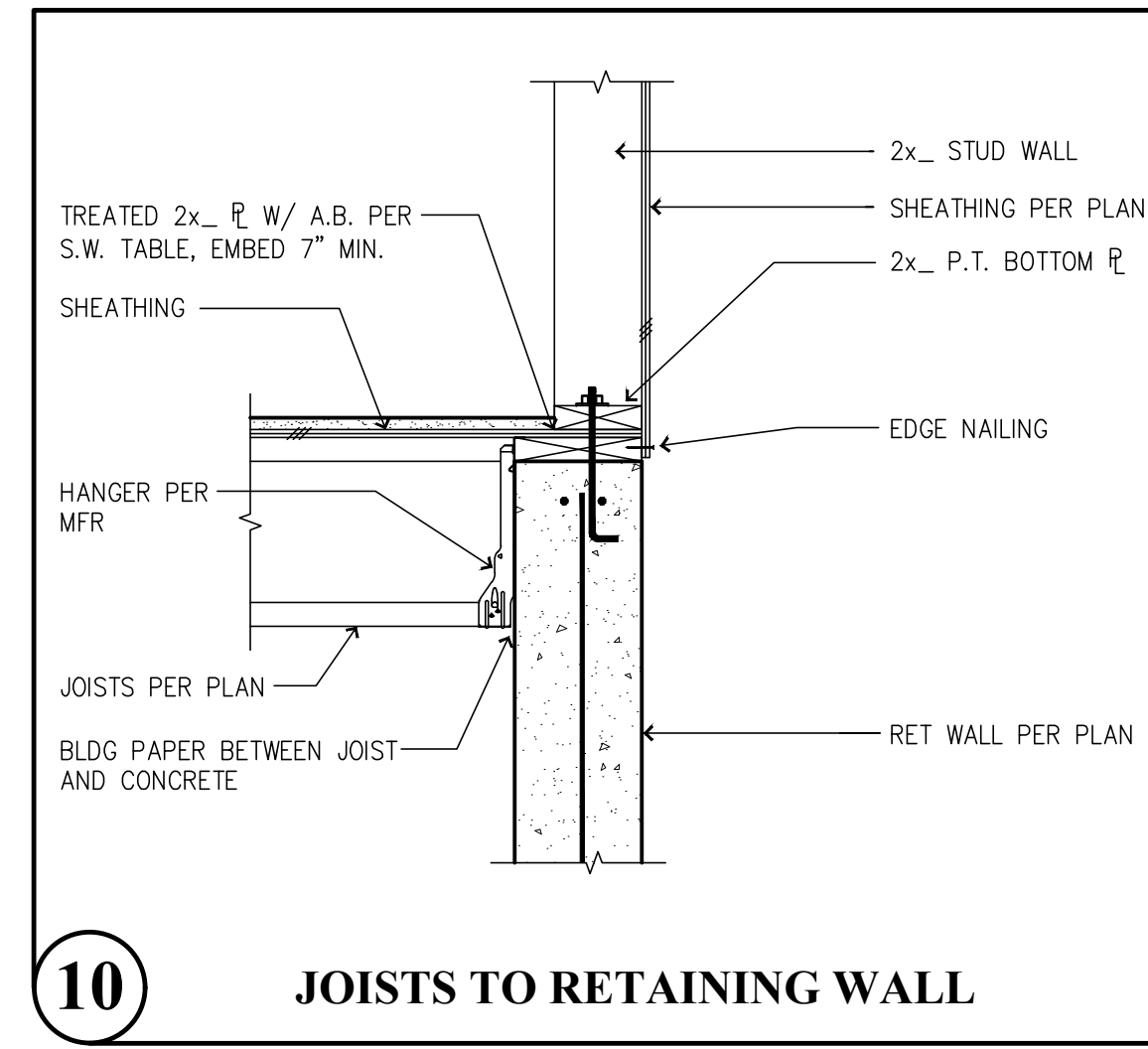
**Solutions 4 Structures**  
 A Structural Engineering Corporation

PROJECT NO. : 23.007  
 DESIGNED BY : TLC, OGG, MRO  
 DRAWN BY : RSO  
 ISSUE DATE : 2-20-24  
 LATEST REV. OF DWG. SET :

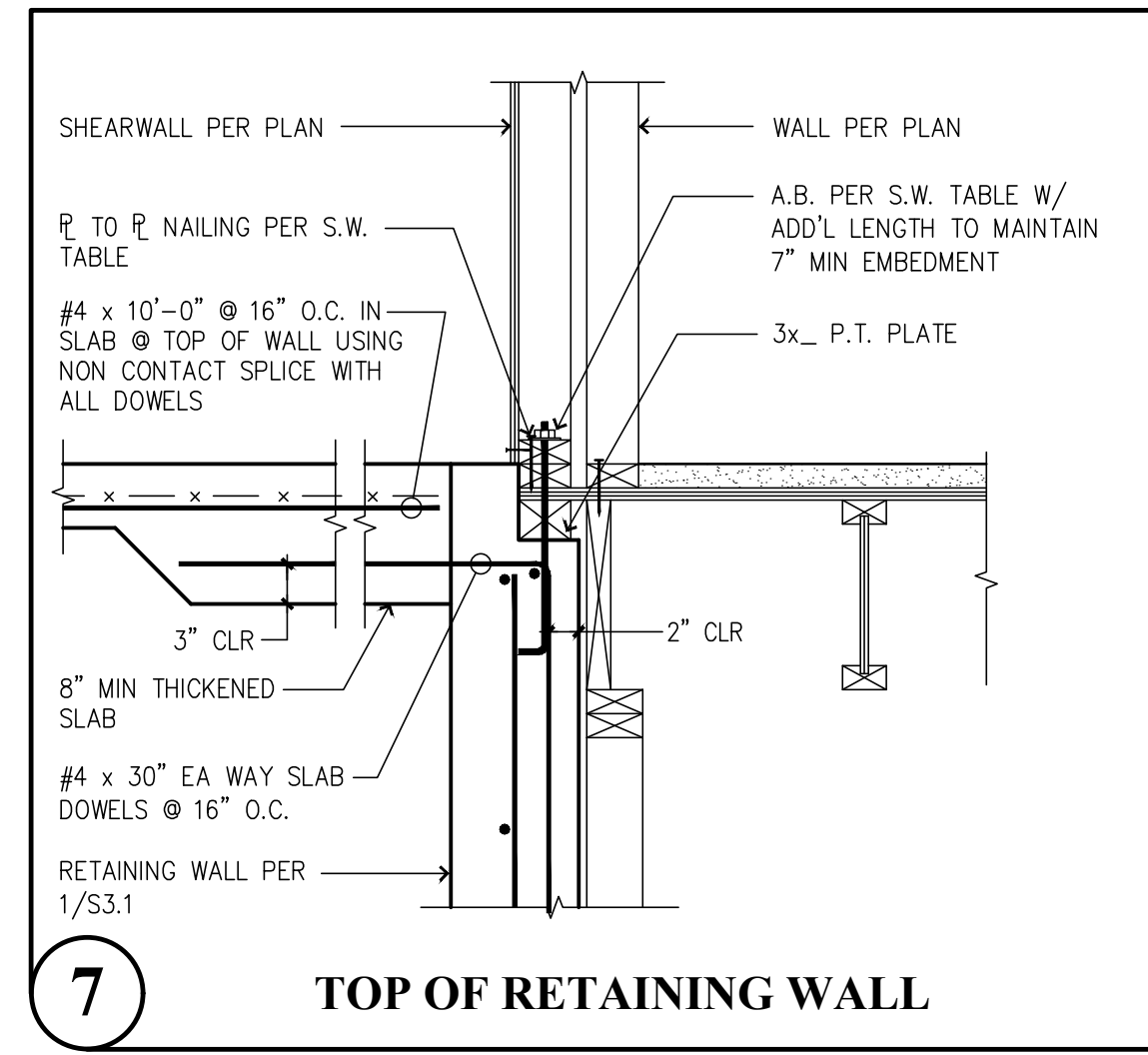
Submittal set only not for construction. These drawings are subject to revisions pending local jurisdictional review.

**S3.0**

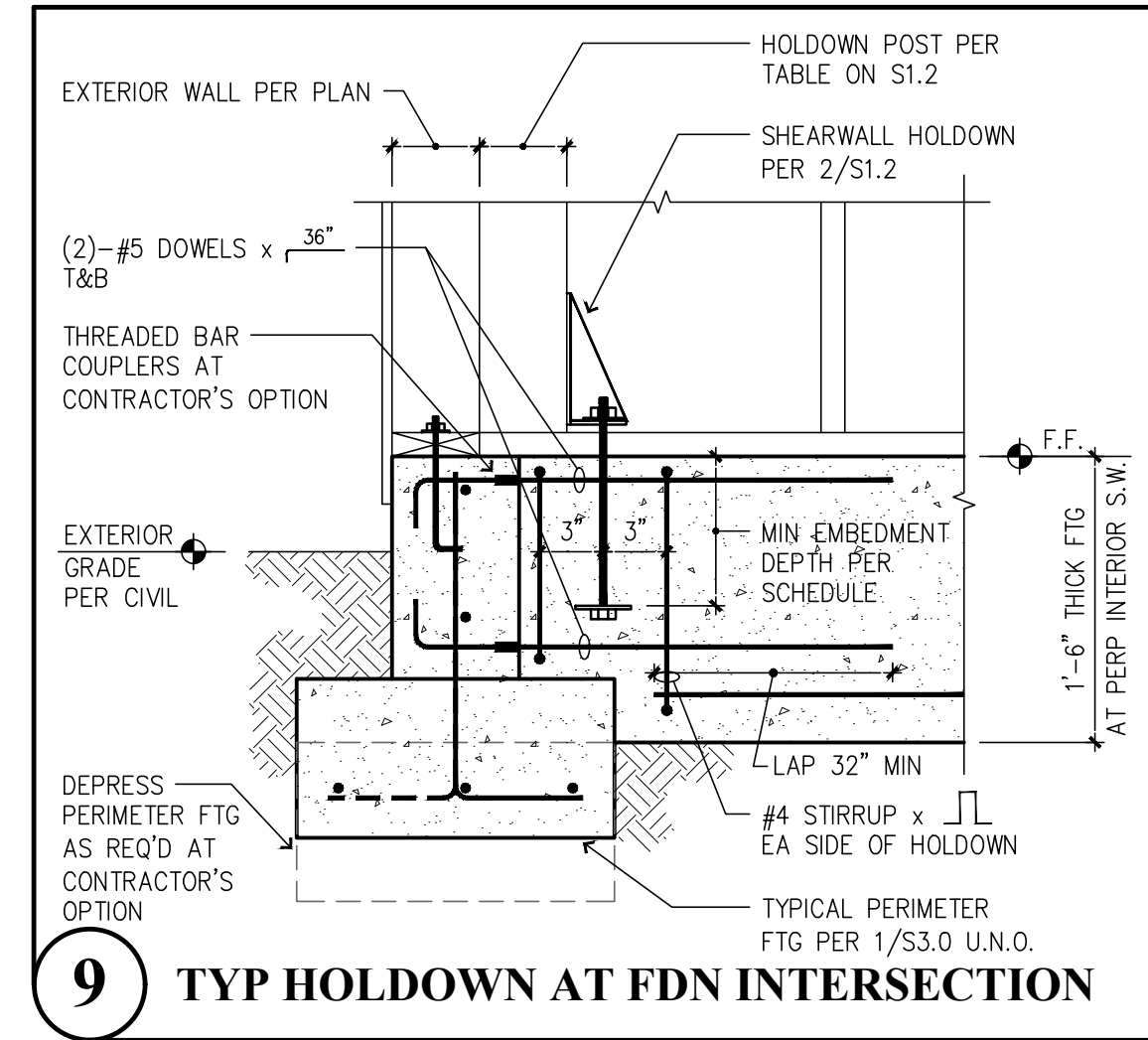
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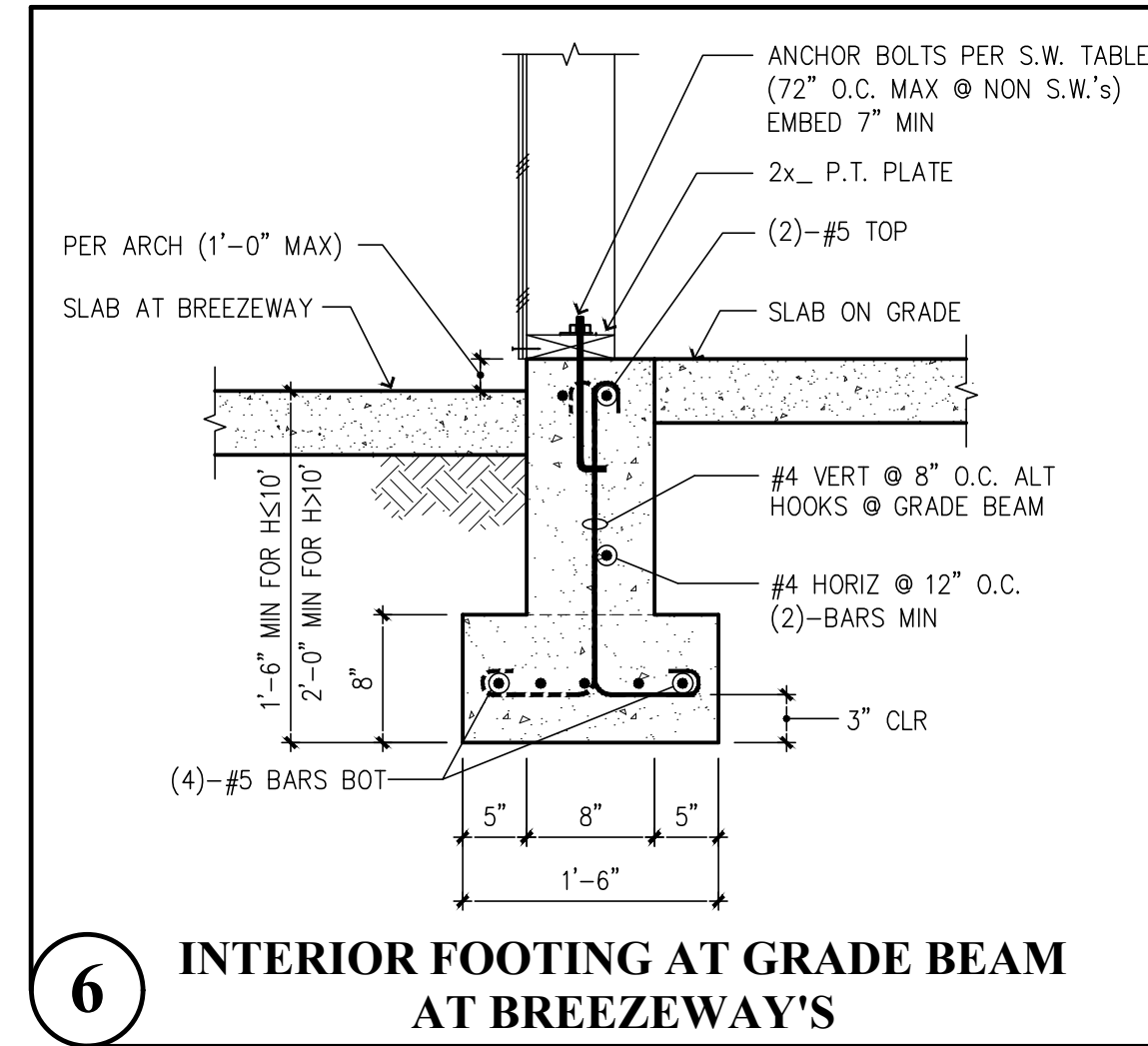
**10** JOISTS TO RETAINING WALL



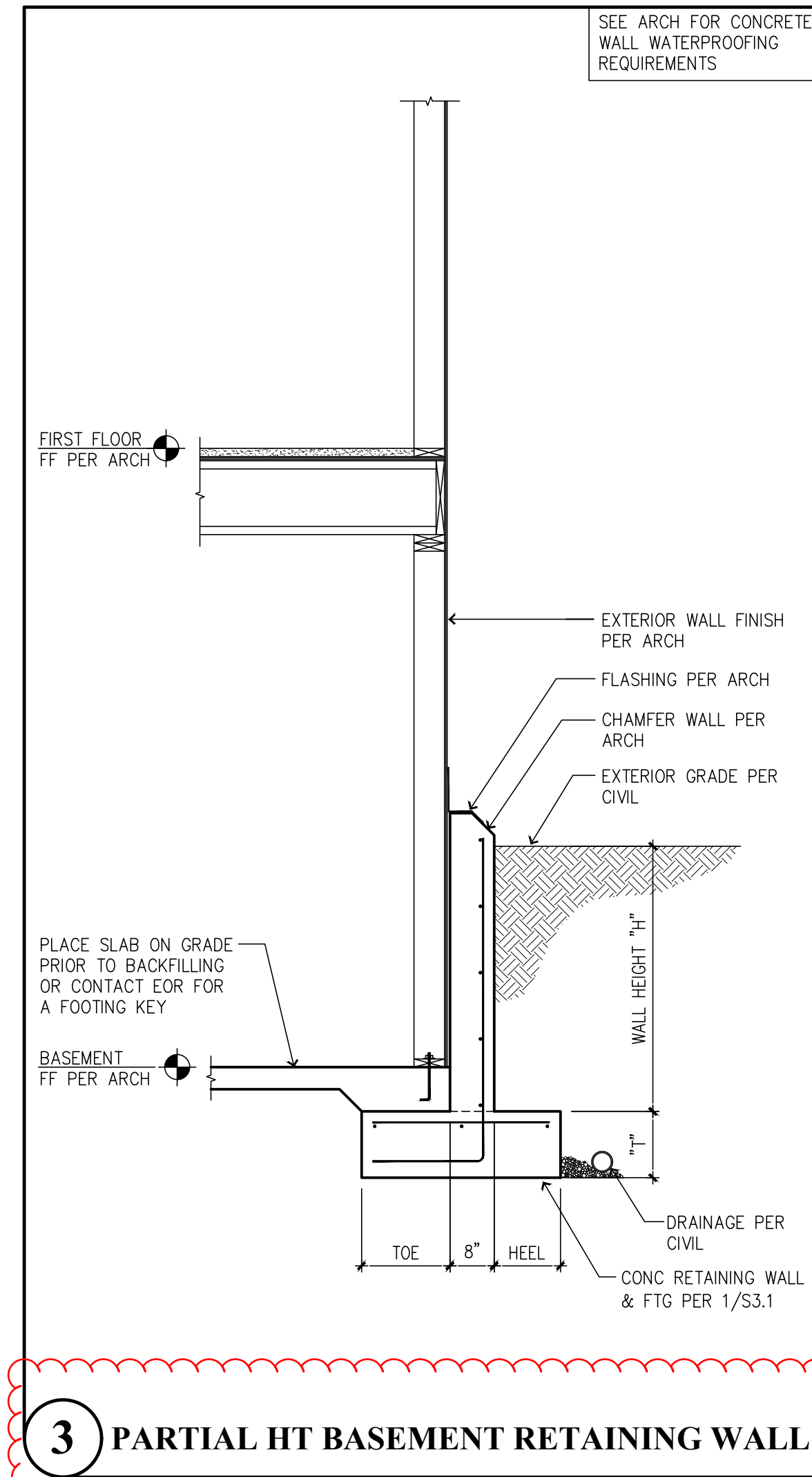
**7** TOP OF RETAINING WALL



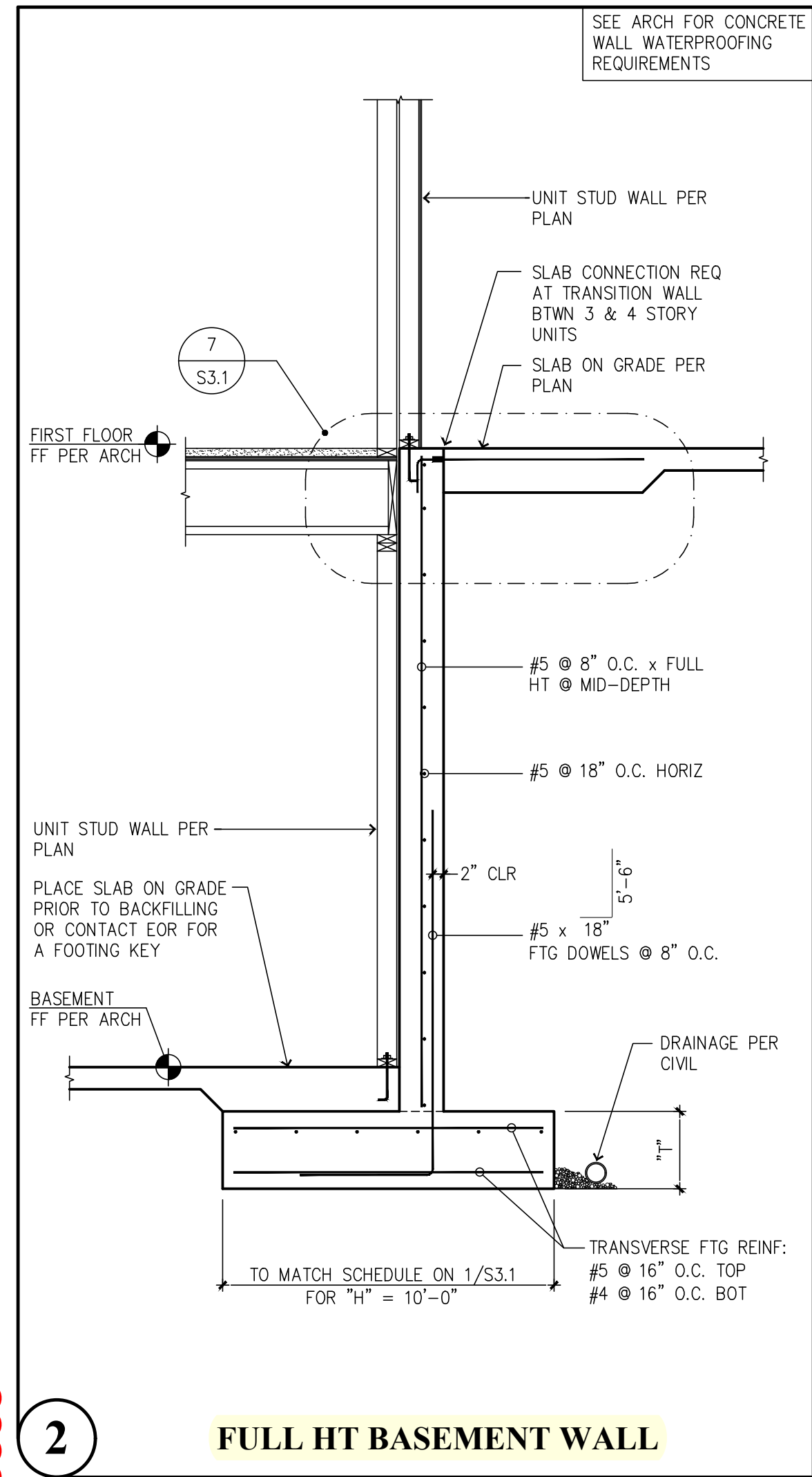
**9** TYP HOLDOWN AT FDN INTERSECTION



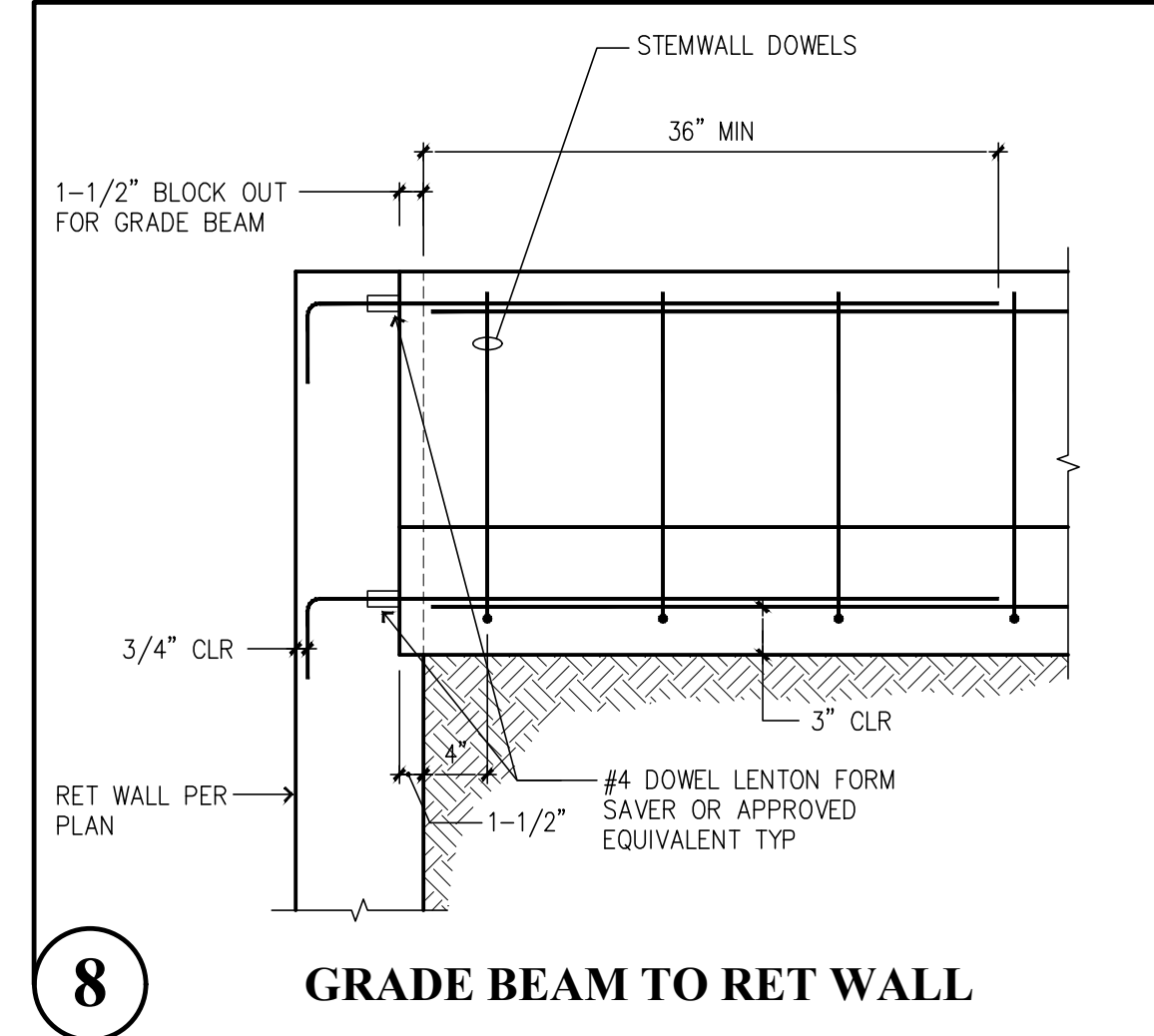
**6** INTERIOR FOOTING AT GRADE BEAM AT BREEZEWAY'S



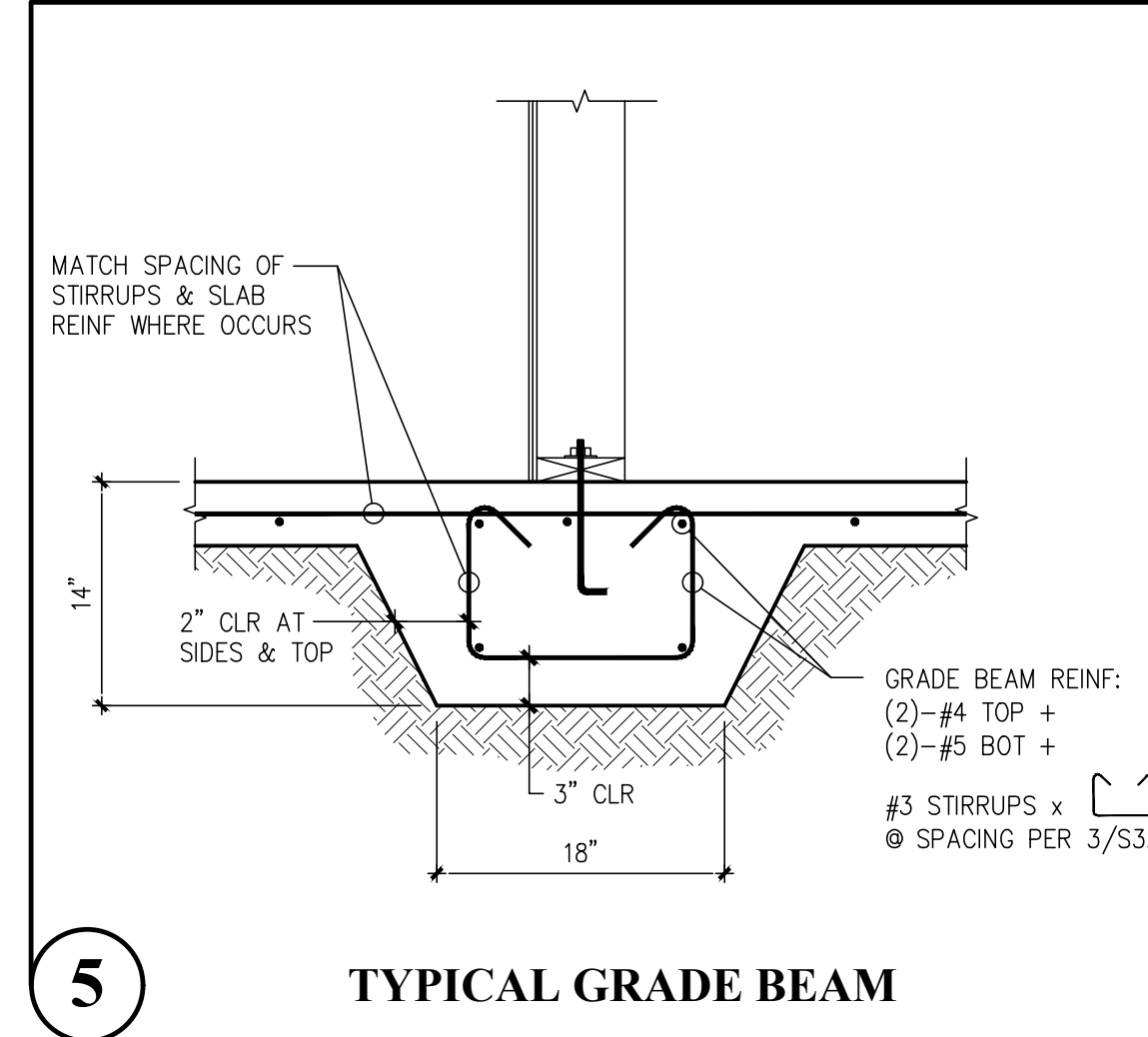
**3** PARTIAL HT BASEMENT RETAINING WALL



**2** FULL HT BASEMENT WALL

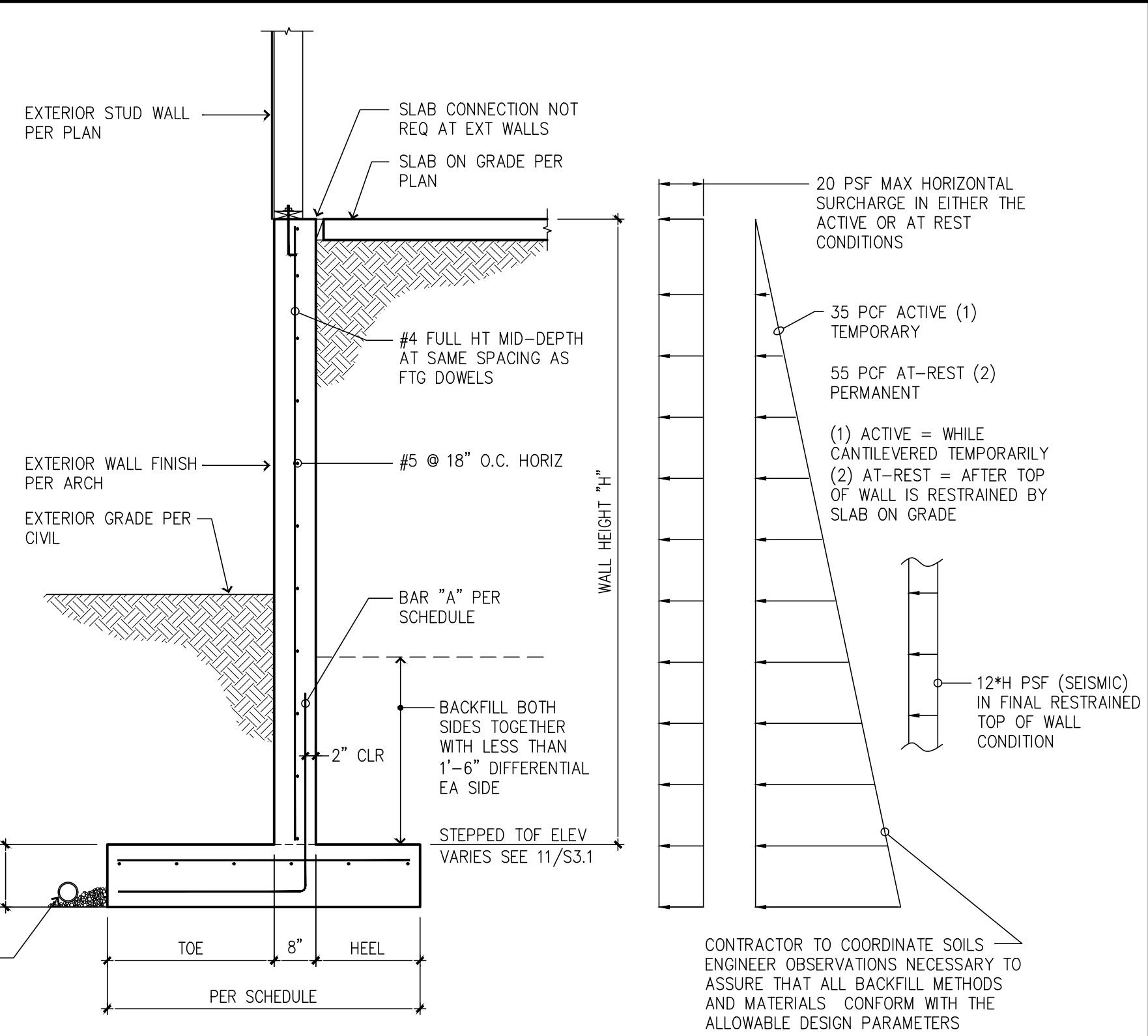


**8** GRADE BEAM TO RET WALL



**5** TYPICAL GRADE BEAM

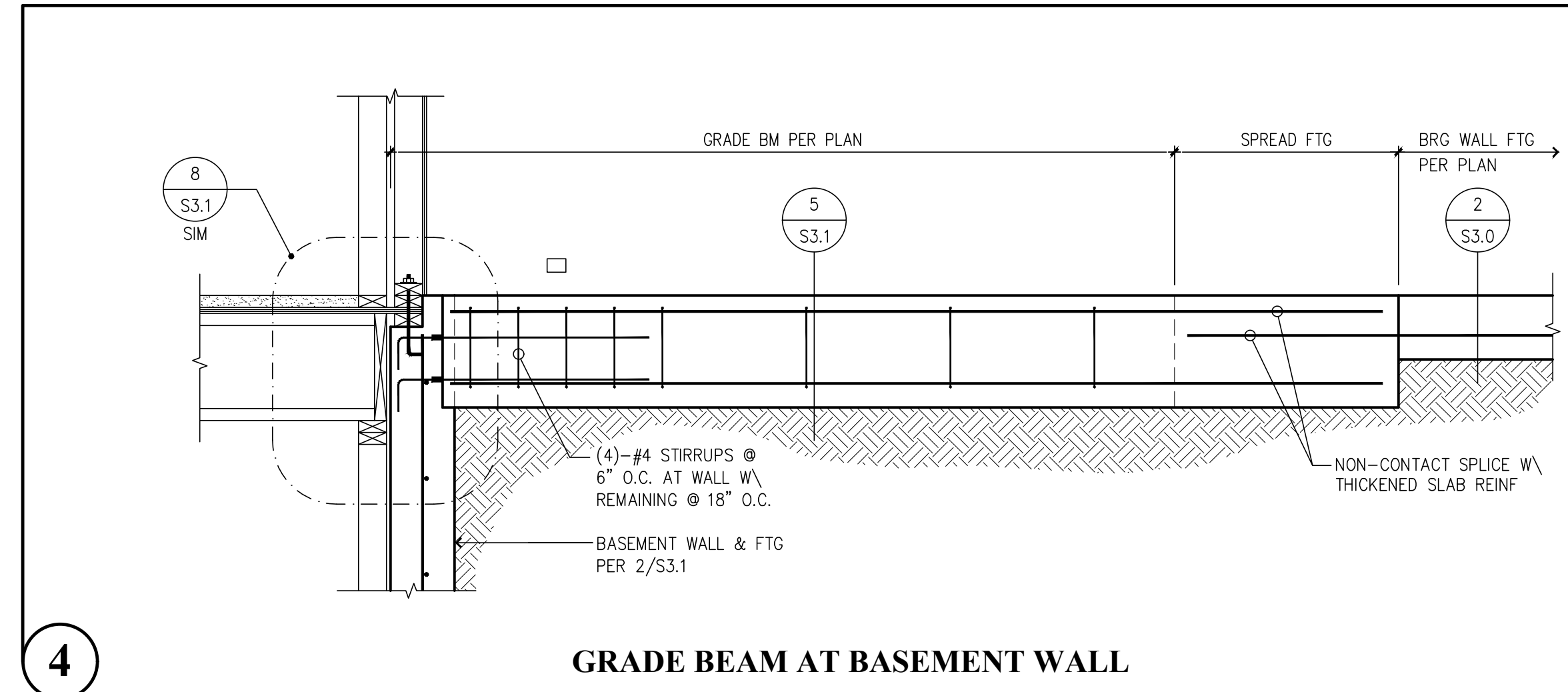
- DESIGN PARAMETERS**
- SOIL BEARING = 2,000 PSF
  - ACTIVE & AT REST FLUID PRESSURES PER DIAGRAM
  - PASSIVE FLUID PRESSURE = 450 PCF
  - 20 PSF (MAX) LIVE LOAD SURCHARGE, HORIZ.
  - 12" H PSF (MAX) SEISMIC SURCHARGE, HORIZ.
  - SOIL FRICTION COEF. = 0.53
  - SOIL UNIT WEIGHT = 120 PCF (MIN)
  - DRAINAGE SYSTEM BY OTHERS. HYDROSTATIC PRESSURES BEHIND THE WALL ARE NOT PERMITTED
- NOTES**
- PROVIDE CORNER STEEL @ FTG CORNERS & INTERSECTIONS. USE 36"x36" ELBOW STEEL TO LAP HORIZ REINF, MATCH SIZE.
  - CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND HEIGHTS PRIOR TO CONSTRUCTION. NOTIFY ENGR/OWNER OF ANY DISCREPANCIES.
  - REINFORCEMENT GRADES SHALL TYPICALLY BE : GRADE 60
  - CONCRETE STRENGTH SHALL BE A MINIMUM OF 2500 PSI PRIOR TO BACKFILL.



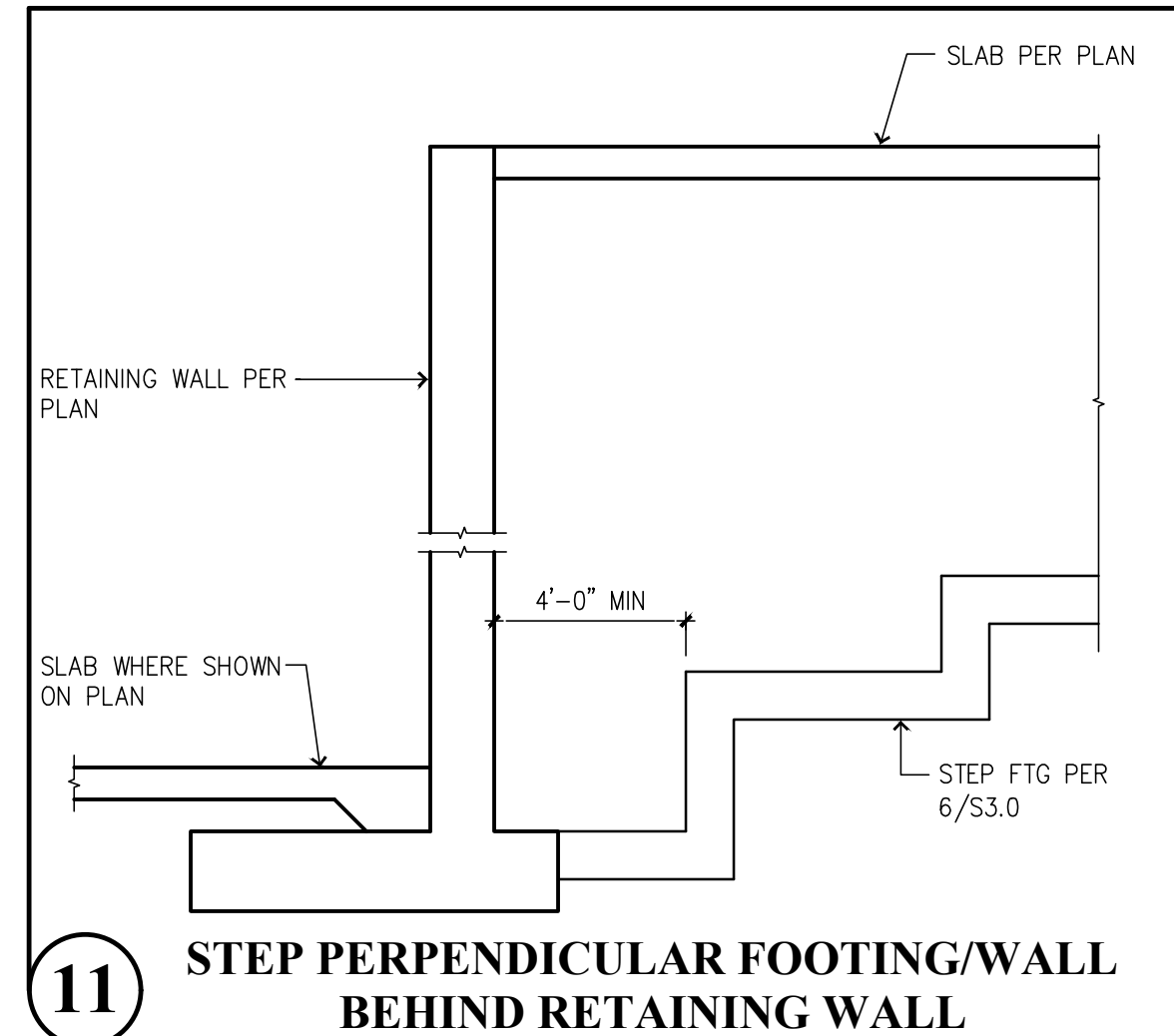
**STEPPED BASEMENT WALL SCHEDULE**

WALL HEIGHT MAX	FOOTING DIMENSIONS				"T" THKNS	BAR "A"		BAR "B"	
	TOE	STEM	HEEL	TOTAL		SIZE & SPACING	VERT LEG	HORIZ LEG	SIZE & SPACING
10'-0"	2'-8"	8"	1'-8"	5'-0"	14"	#5 @ 10" O.C.	5'-6"	2'-10"	#4 @ 10" O.C.
8'-0"	2'-0"	8"	1'-4"	4'-0"	12"	#5 @ 12" O.C.	4'-6"	2'-2"	#4 @ 12" O.C.
6'-0"	1'-4"	8"	1'-0"	3'-0"	12"	#4 @ 12" O.C.	FULL HT	1'-6"	#4 @ 12" O.C.
4'-0"	0'-8"	8"	0'-8"	2'-0"	10"	#4 @ 16" O.C.	FULL HT	0'-10"	#4 @ 16" O.C.

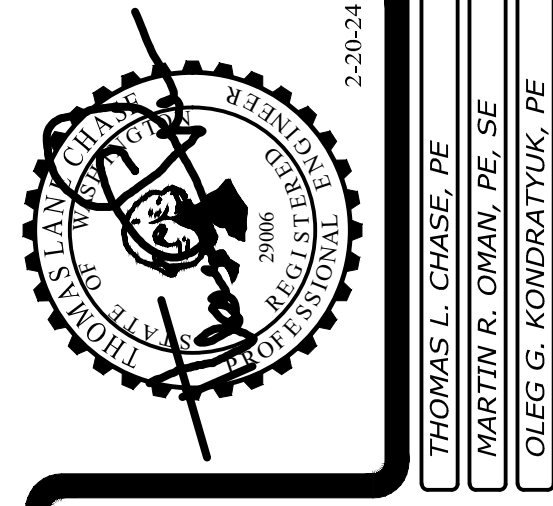
**1** STEPPED BASEMENT WALL SCHEDULE



**4** GRADE BEAM AT BASEMENT WALL



**11** STEP PERPENDICULAR FOOTING/WALL BEHIND RETAINING WALL



Revisions to this sheet:

**Bradley Heights Apartments**  
 202 27th Ave SE  
 Puyallup, Washington

**Solutions 4 Structures**  
 A Structural Engineering Corporation

Puyallup, Washington 98374  
 Ph 253-314-9822  
 www.solutions4structures.com

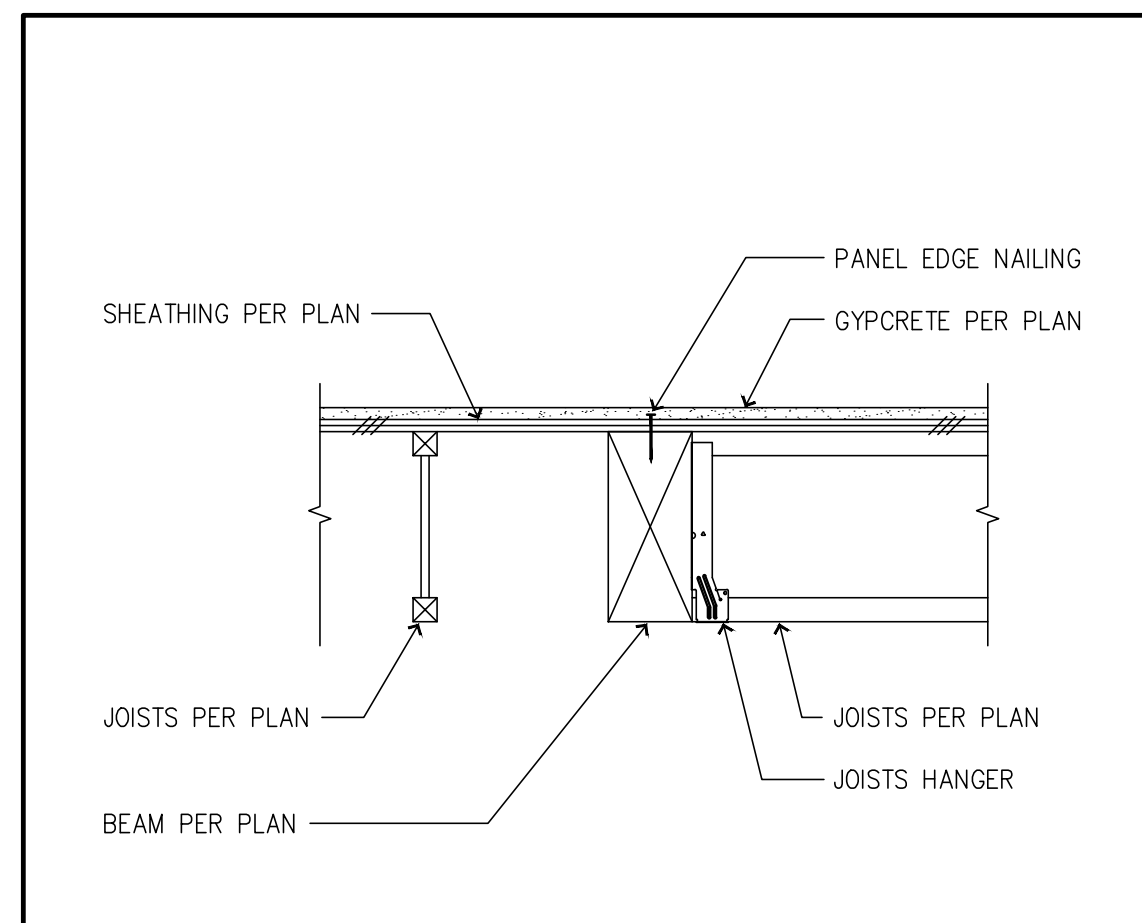
PROJECT NO. : 23.007  
 DESIGNED BY : TLC, OGG, MRO  
 DRAWN BY : RSO  
 ISSUE DATE : 2-20-24  
 LATEST REV. OF DWG. SET :

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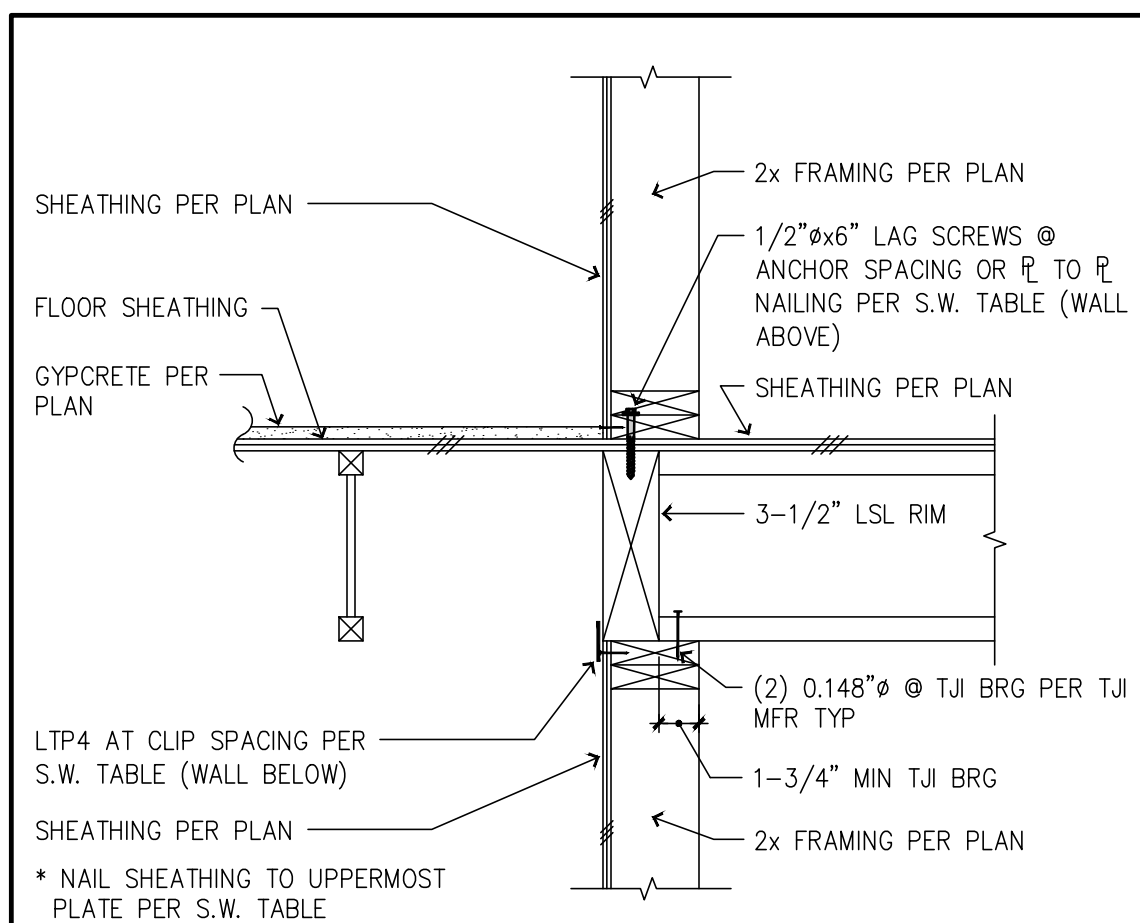
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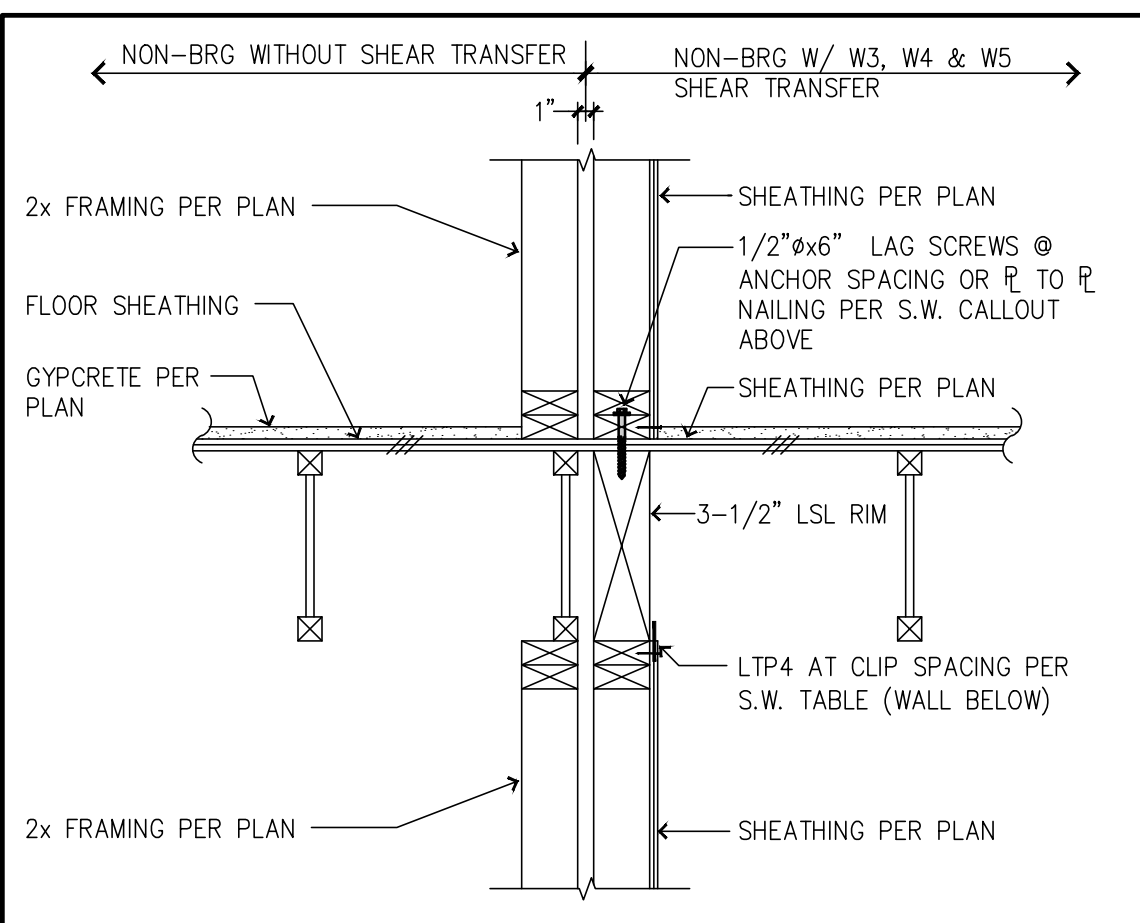
16 TYP BEAM AT INTERIOR ONE SIDE



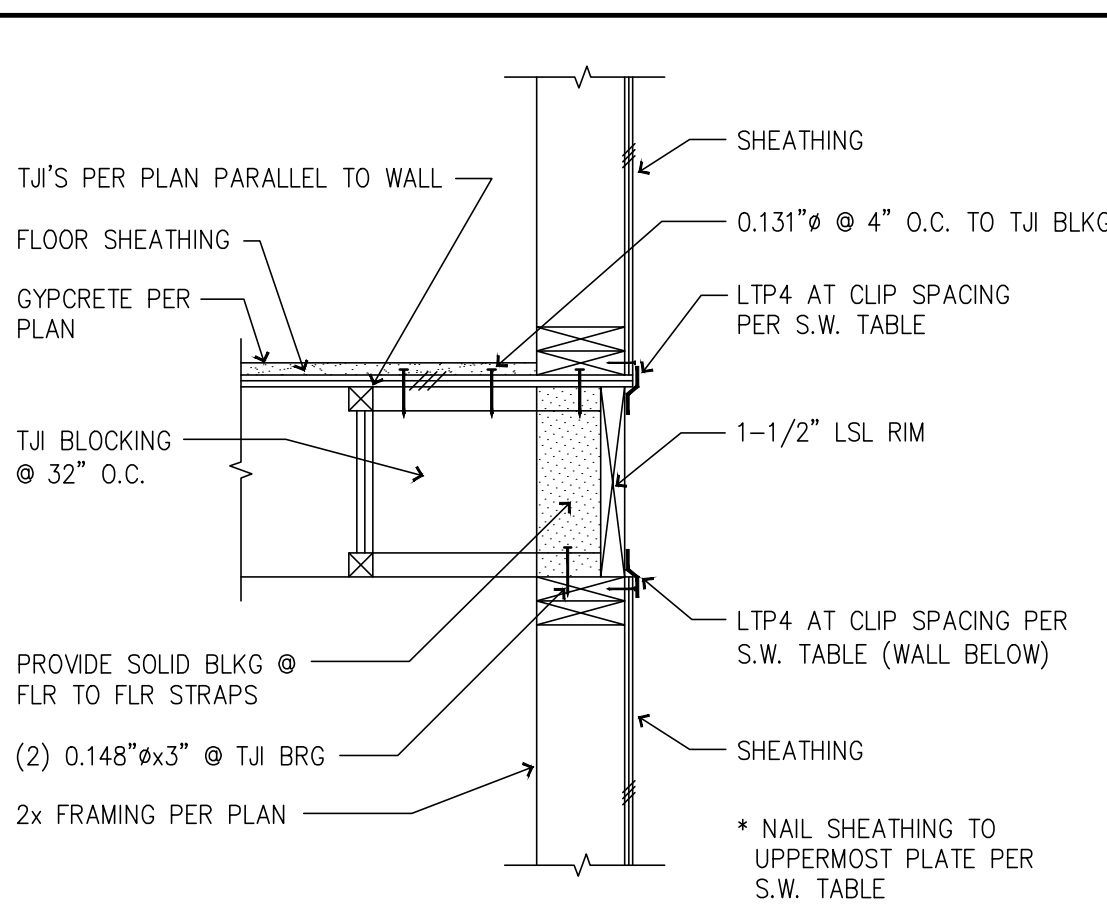
12 INTERIOR WALL BEARING ONE SIDE (W3, W4 & W5 SHEAR TRANSFER)



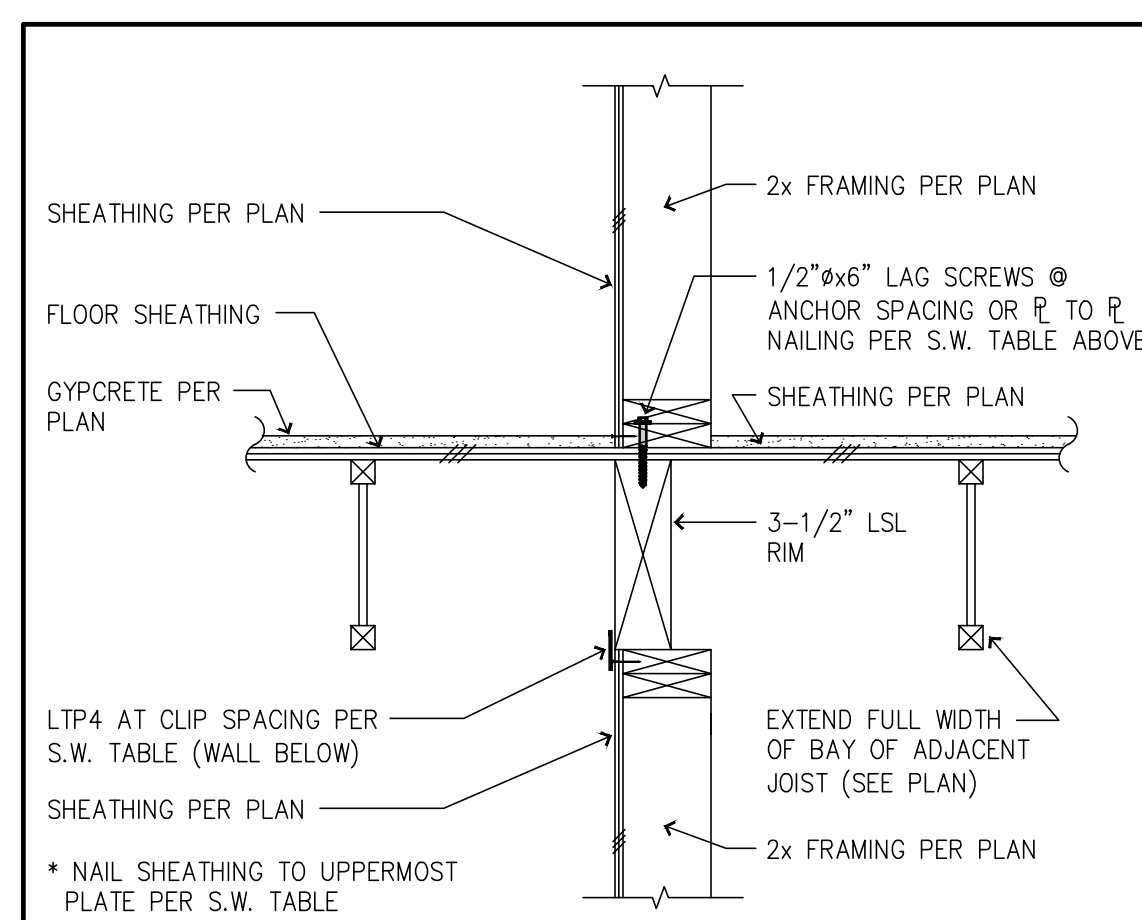
8 PARTY WALL NON-BEARING (W3, W4 & W5 SHEAR TRANSFER)



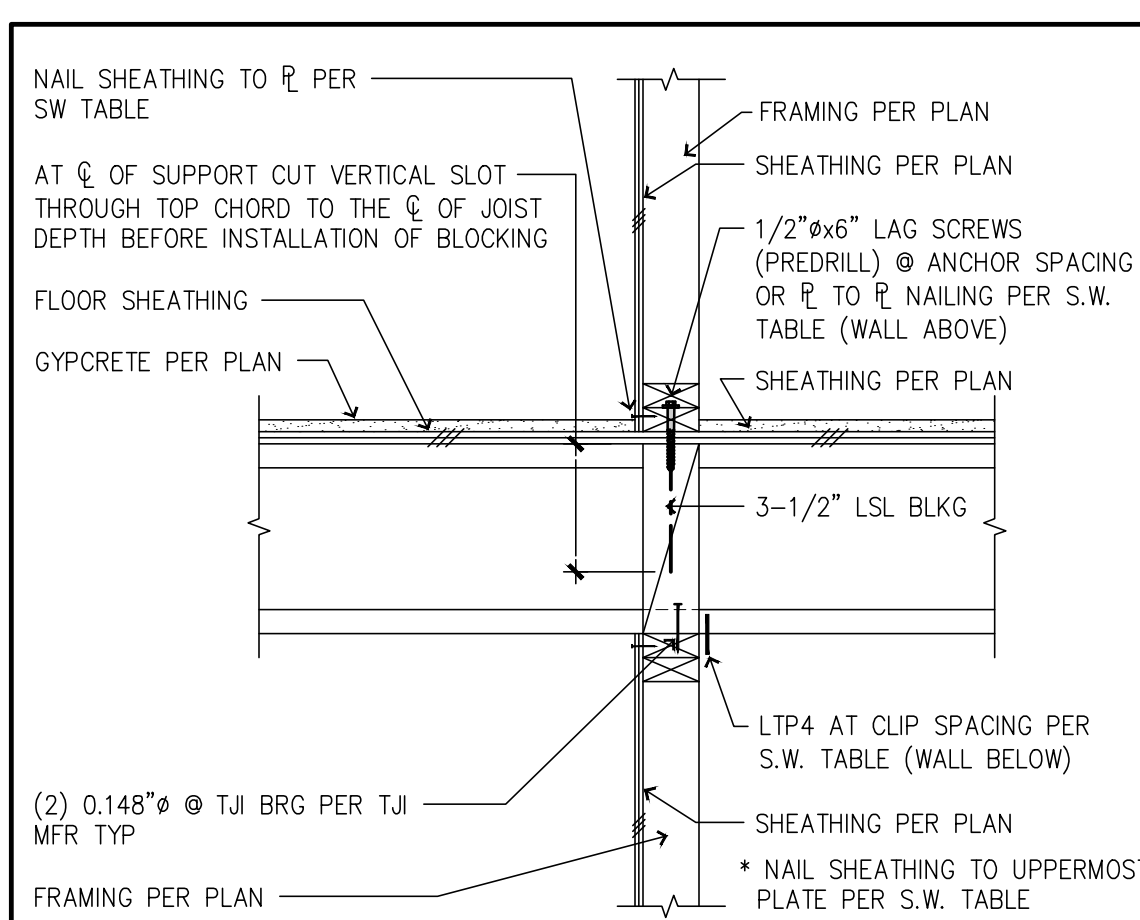
4 TJI FLOOR JOIST PARALLEL TO WALL (W3, W4 & W5 SHEAR TRANSFER)



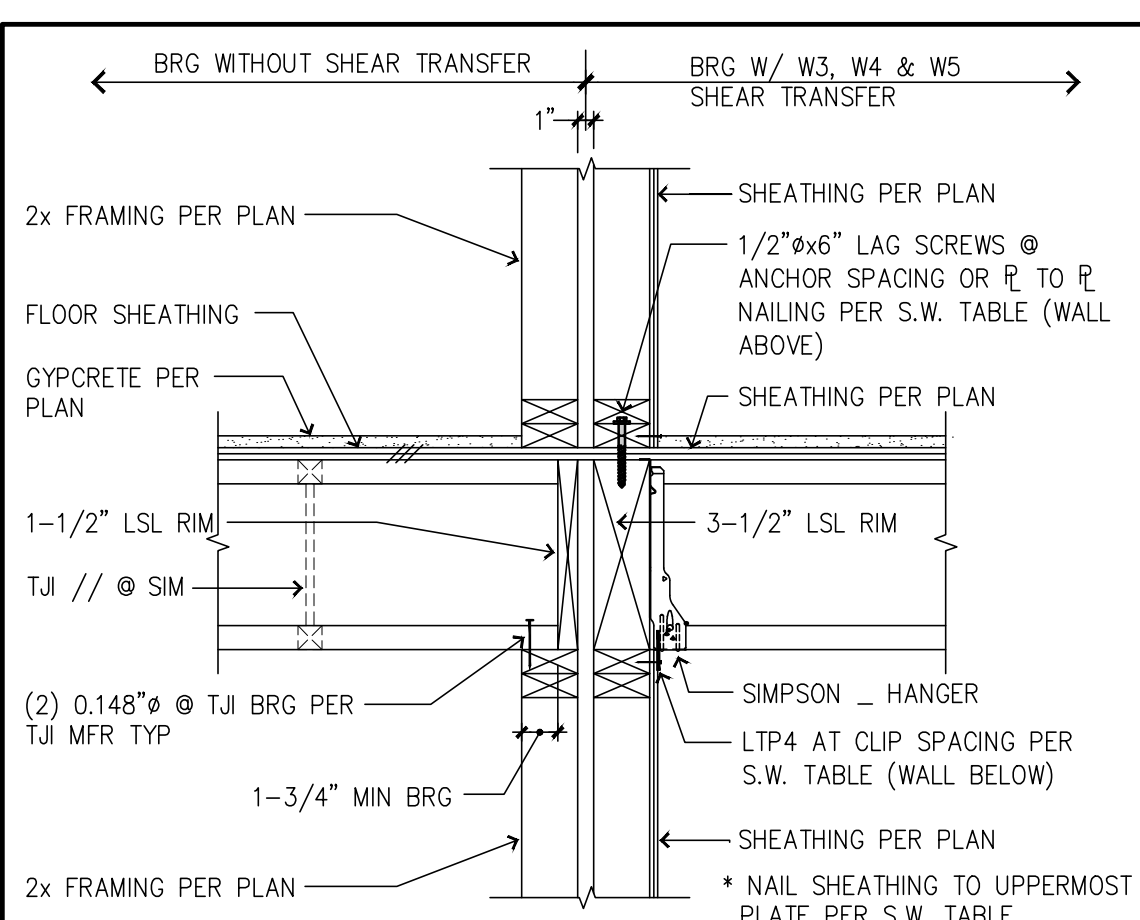
15 TYP TJI AT FLUSH FRAMED BM SUPPORT



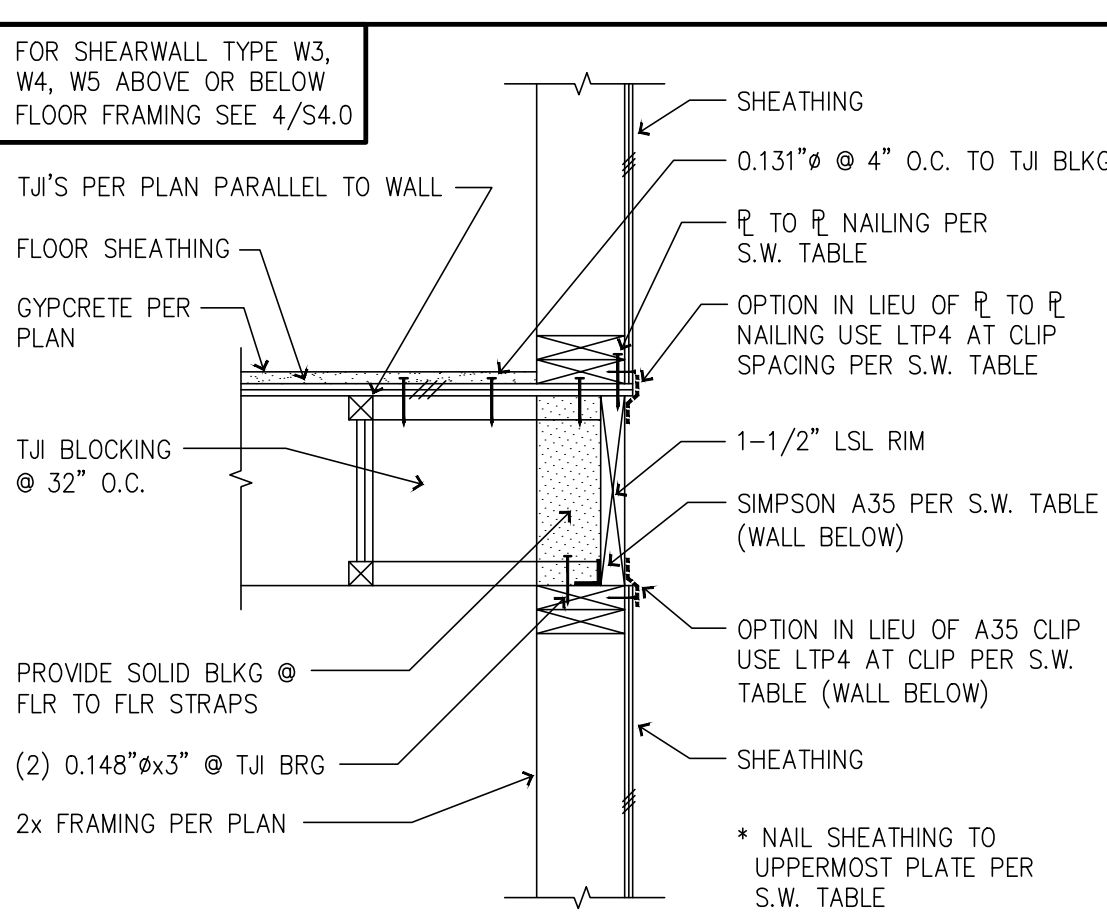
11 INTERIOR WALL BEARING ONE SIDE (W1, W2 SHEAR TRANSFER)



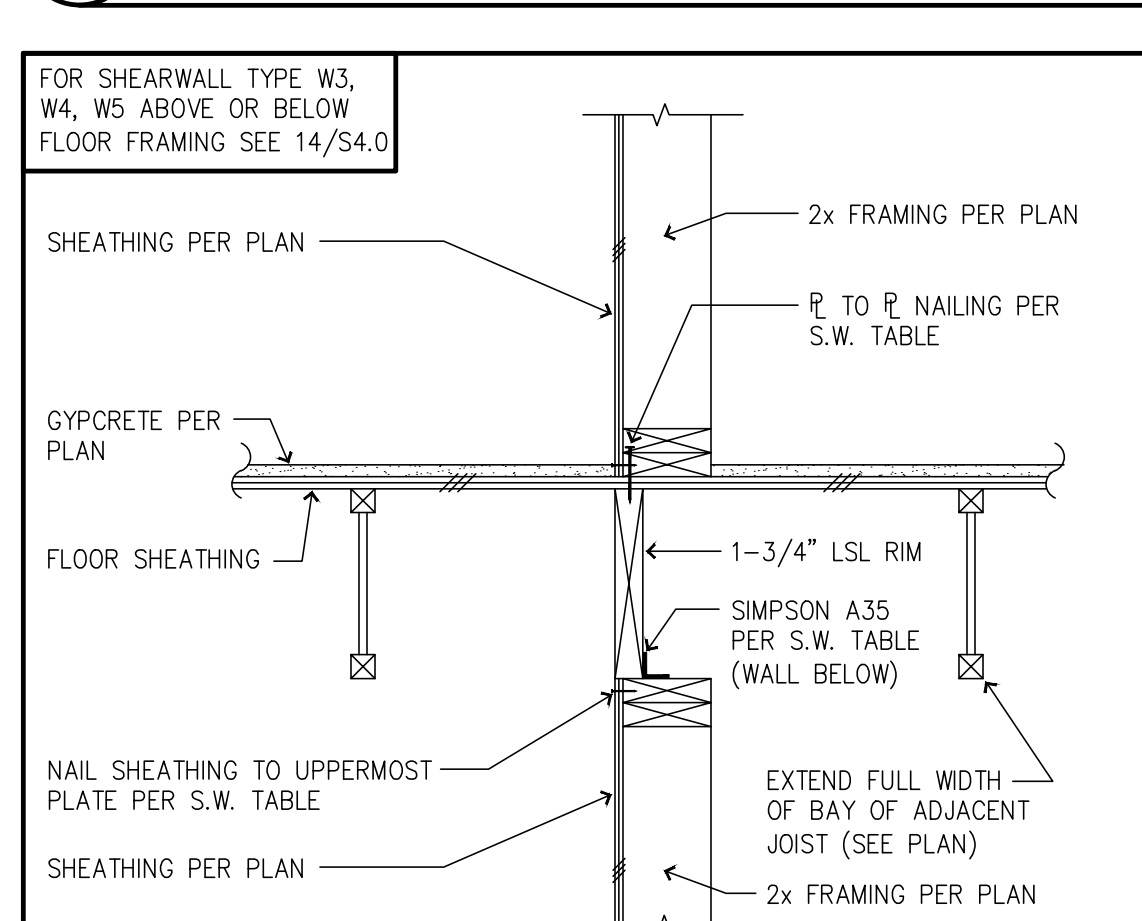
7 TYP PARTY WALL NON-BEARING (W1, W2 SHEAR TRANSFER)



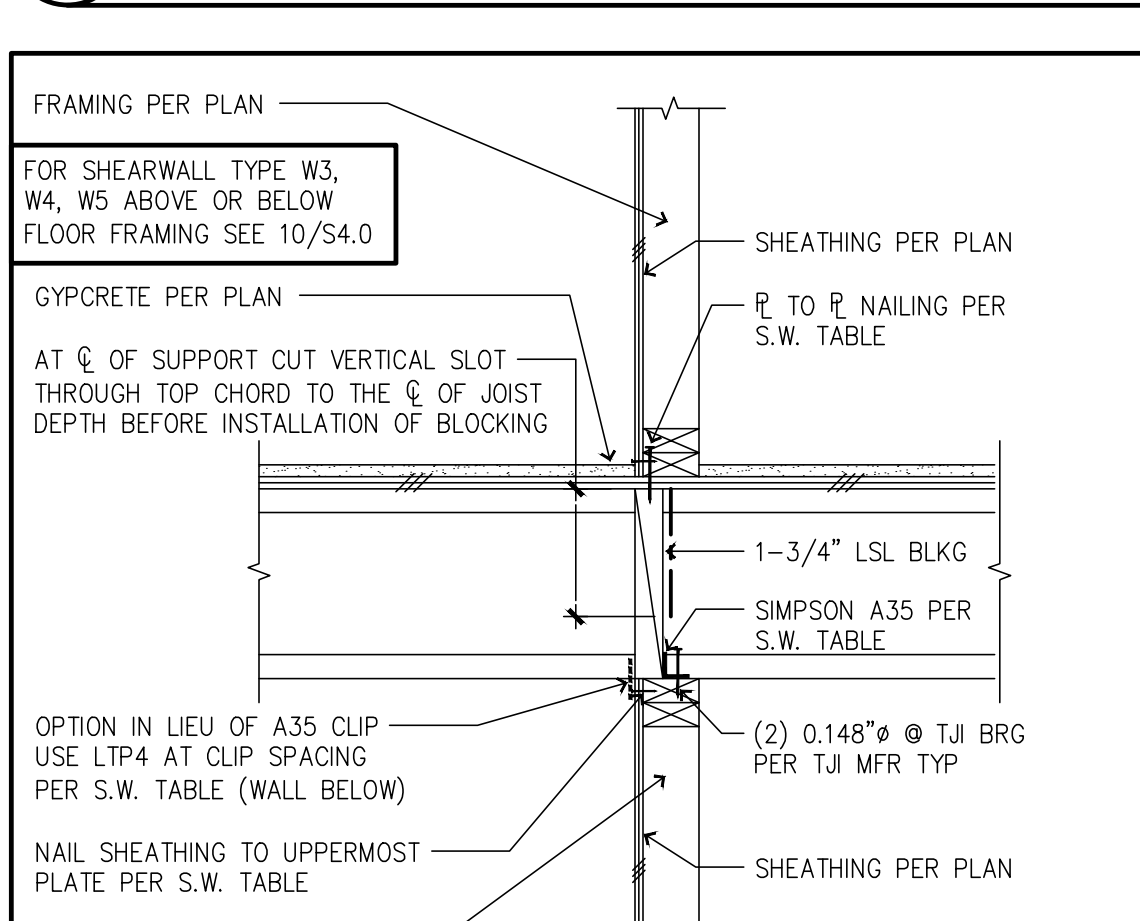
3 TJI FLOOR JOIST PERPENDICULAR TO WALL (W3, W4 & W5 SHEAR TRANSFER)



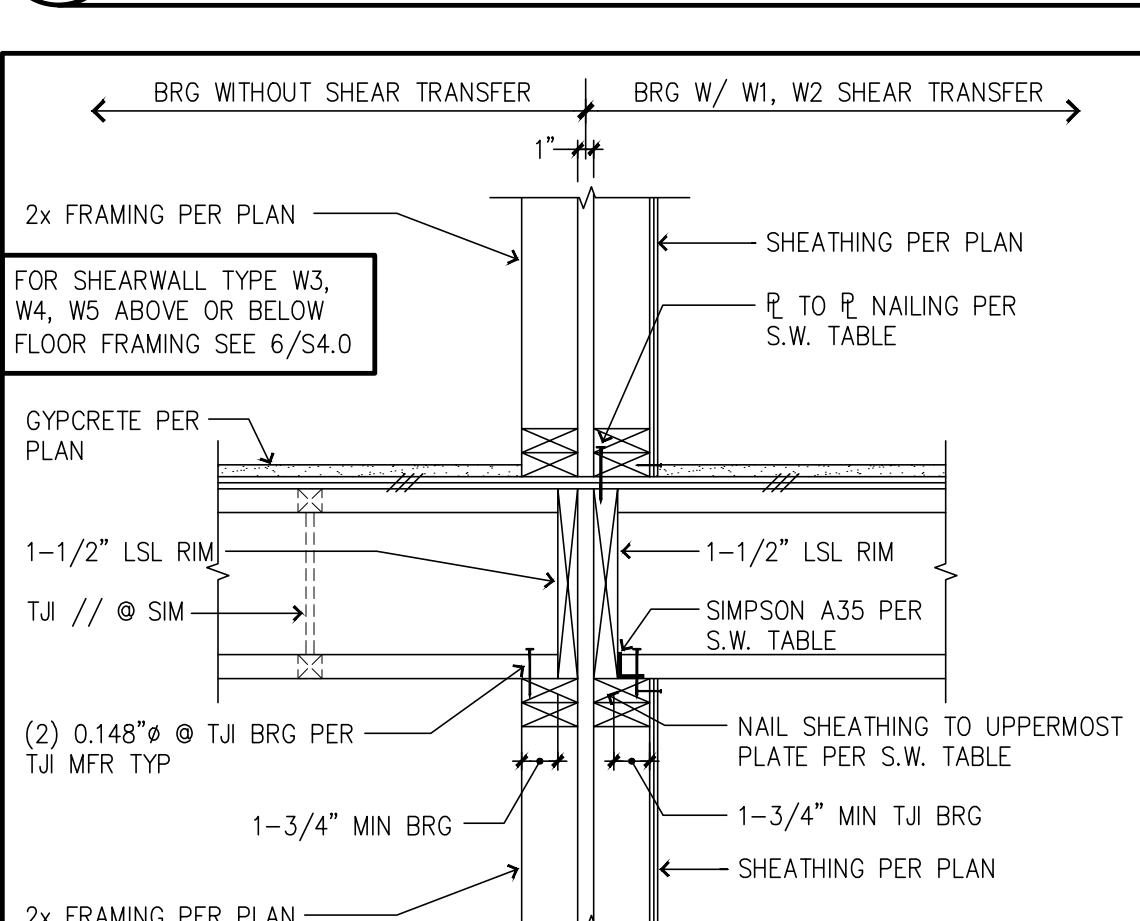
14 INTERIOR WALL NON-BEARING (W3, W4 & W5 SHEAR TRANSFER)



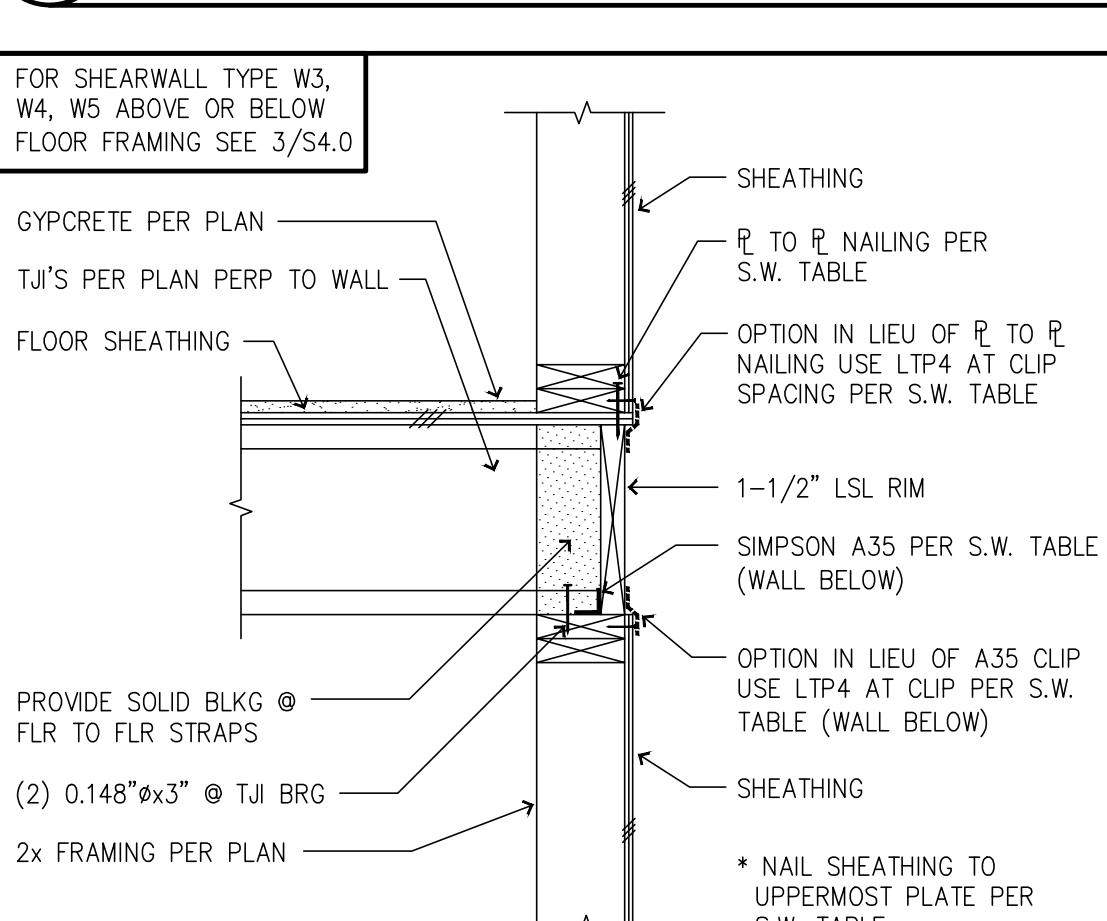
10 INTERIOR BEARING EA SIDE (W3, W4 & W5 SHEAR TRANSFER)



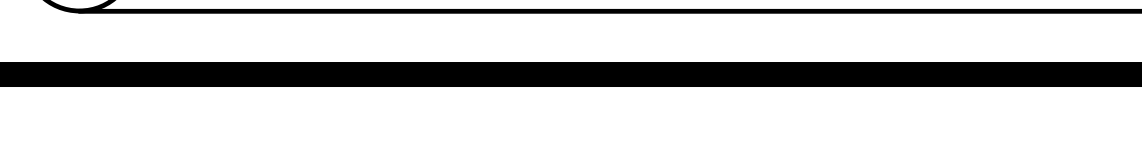
6 PARTY WALL BEARING EA SIDE (W3, W4 & W5 SHEAR TRANSFER)



2 TYP TJI FLOOR JOIST PARALLEL TO WALL (W1, W2 SHEAR TRANSFER)



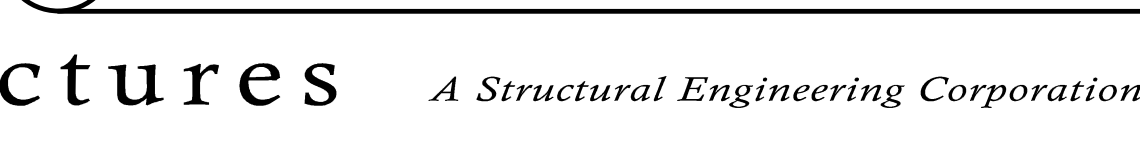
13 TYP INTERIOR WALL NON-BEARING (W1, W2 SHEAR TRANSFER)



9 TYP INTERIOR BEARING EA SIDE (W1, W2 SHEAR TRANSFER)



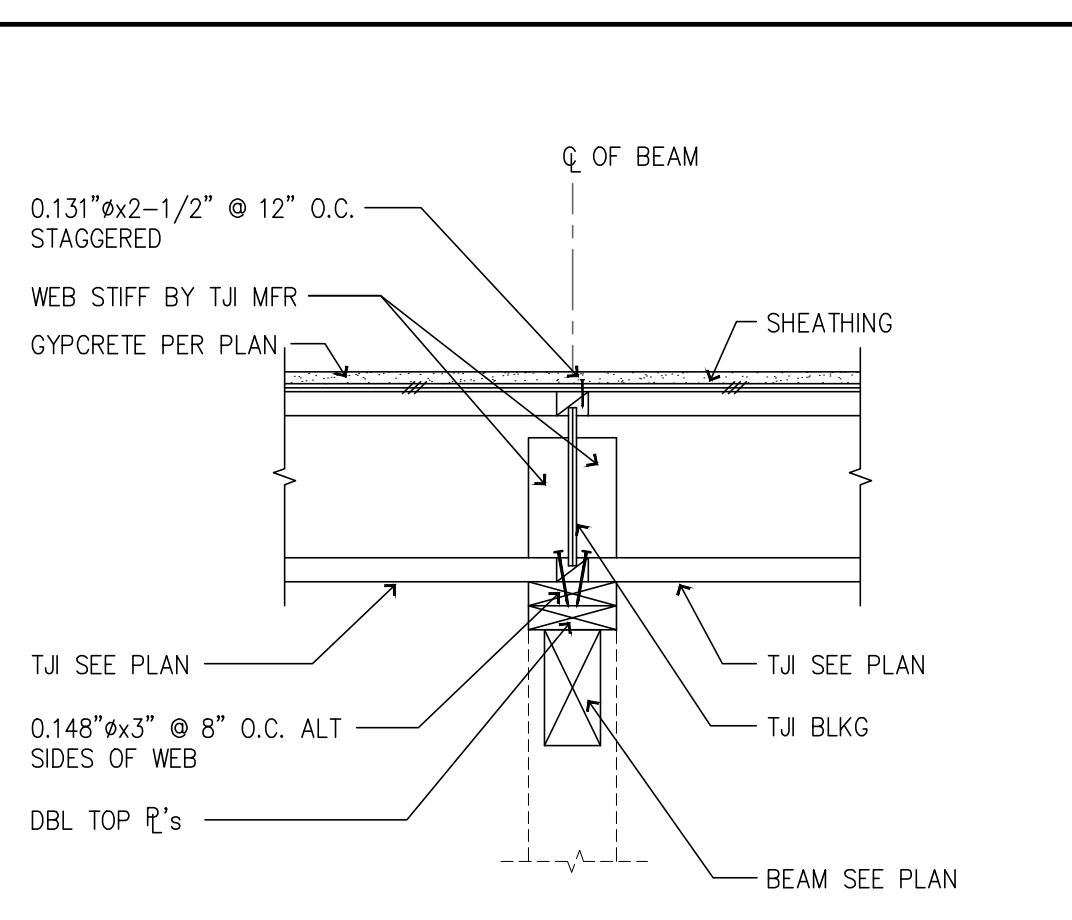
5 TYP PARTY WALL BEARING EA SIDE (W1, W2 SHEAR TRANSFER)



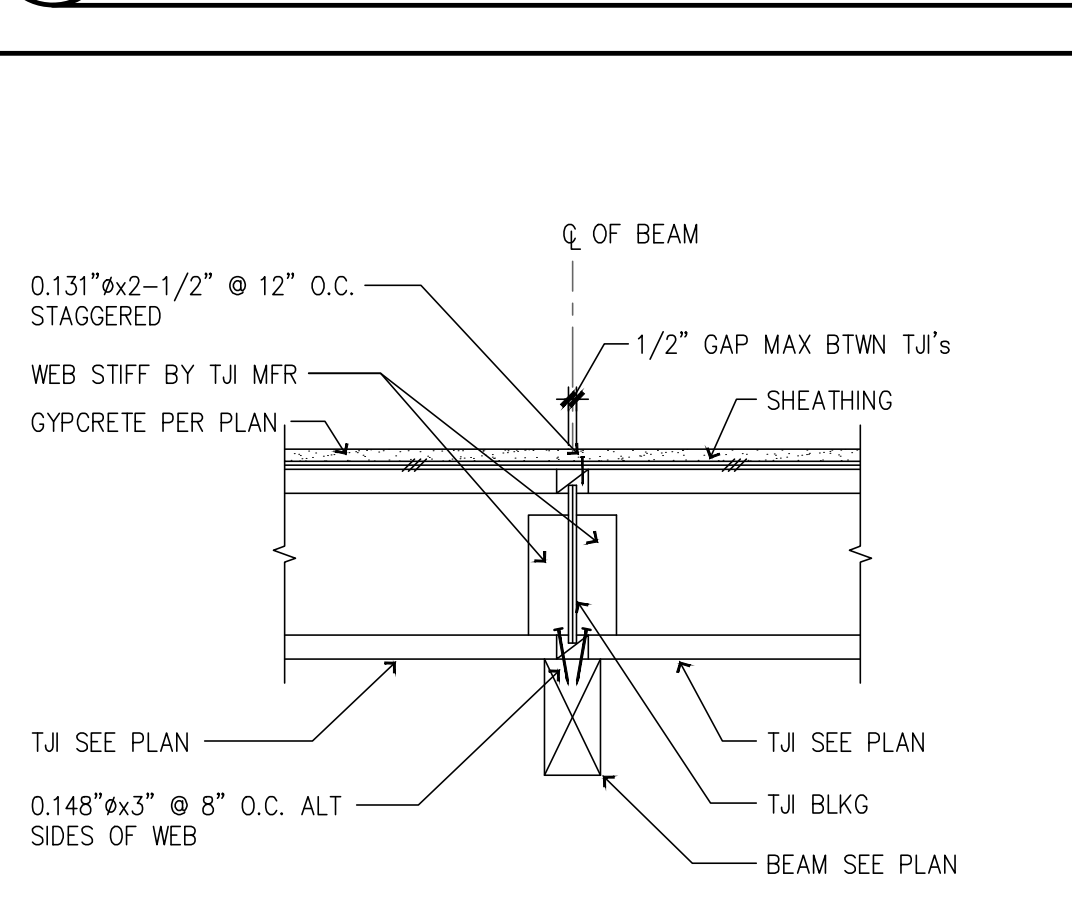
1 TYP TJI FLOOR JOIST PERPENDICULAR TO WALL (W1, W2 SHEAR TRANSFER)



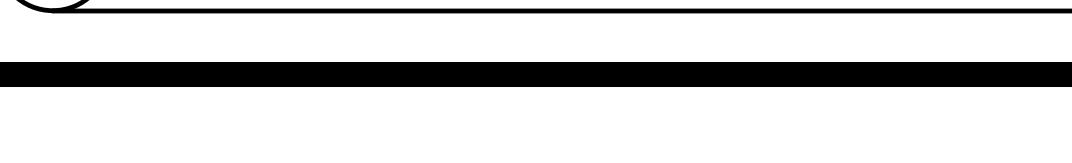
19 CONTINUOUS SHEATHING @ SHEARWALL



18 TYP CONTINUOUS TJI AT DROPPED BM SUPPORT



17 TYP NON CONTINUOUS TJI AT DROPPED BM SUPPORT



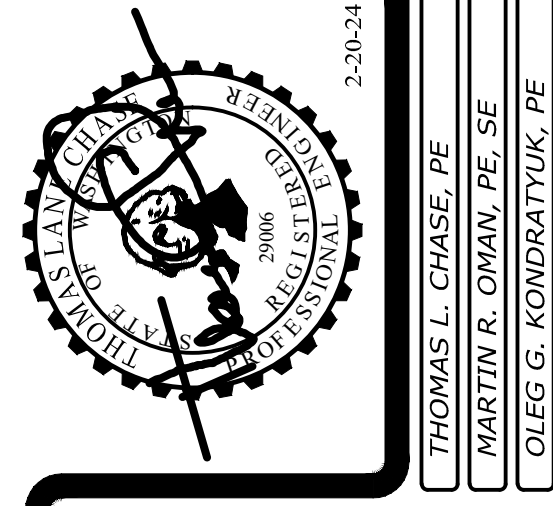
Revisions to this sheet:

Bradley Heights Apartments  
202 27th Ave SE  
Puyallup, Washington

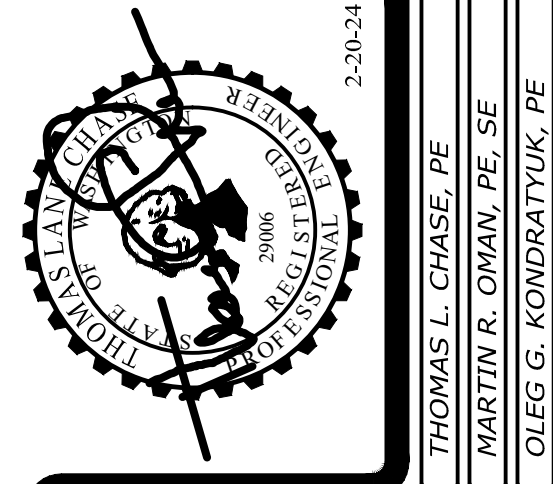
Solutions 4 Structures  
A Structural Engineering Corporation

PROJECT NO. : 23.007  
DESIGNED BY : TLC, ODK, MRO  
DRAWN BY : RSO  
ISSUE DATE : 2-20-24  
LATEST REV. OF DWG. SET :

SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
THESE DRAWINGS ARE SUBJECT TO REVISIONS PENDING LOCAL JURISDICTIONAL REVIEW.



S4.0



Revisions to this sheet:

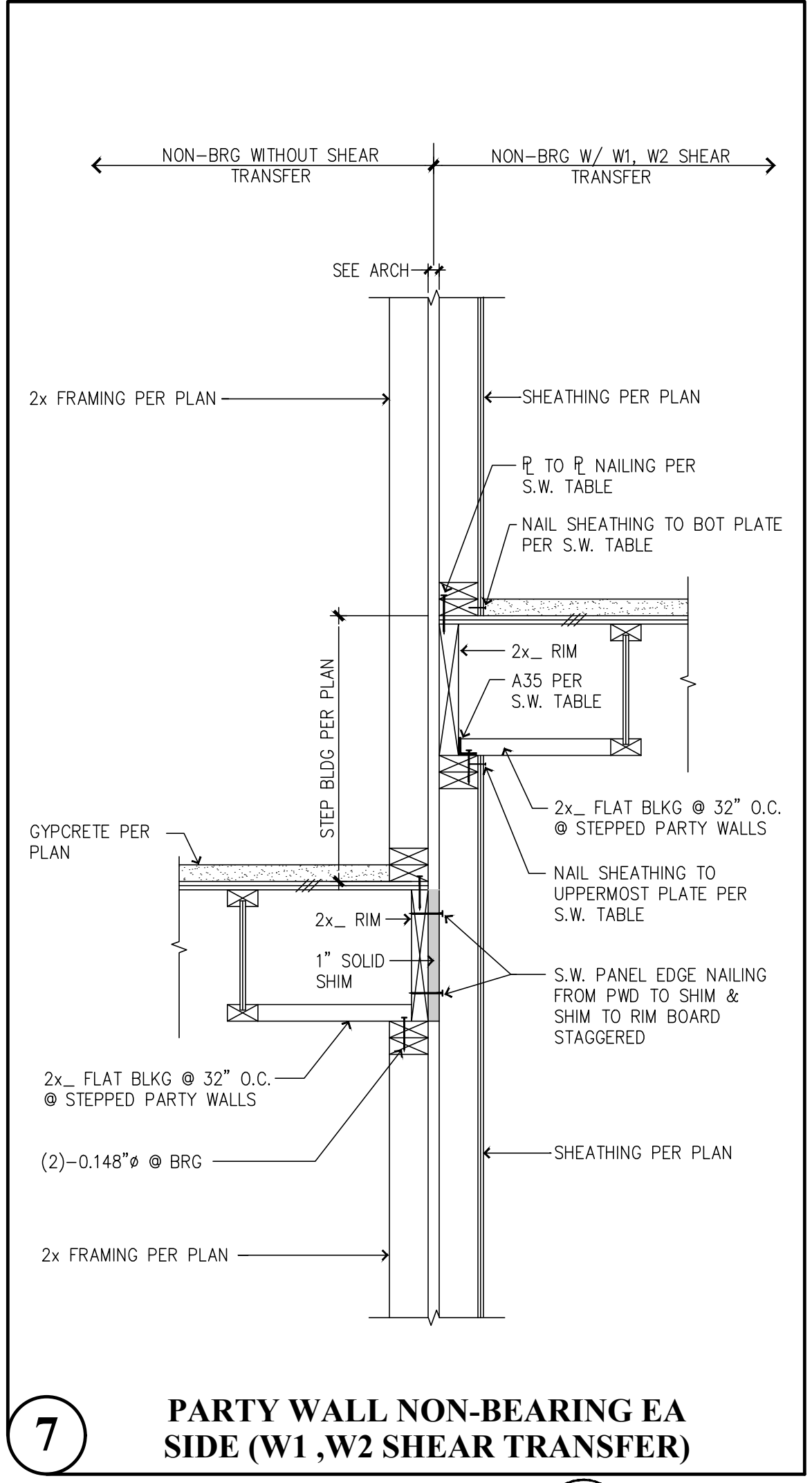
Puyallup, Washington 98374  
 Ph. 253-314-9822  
 www.solutions4structures.com

**Bradley Heights Apartments**  
 202 27th Ave SE  
 Puyallup, Washington  
**Solutions 4 Structures**  
 A Structural Engineering Corporation

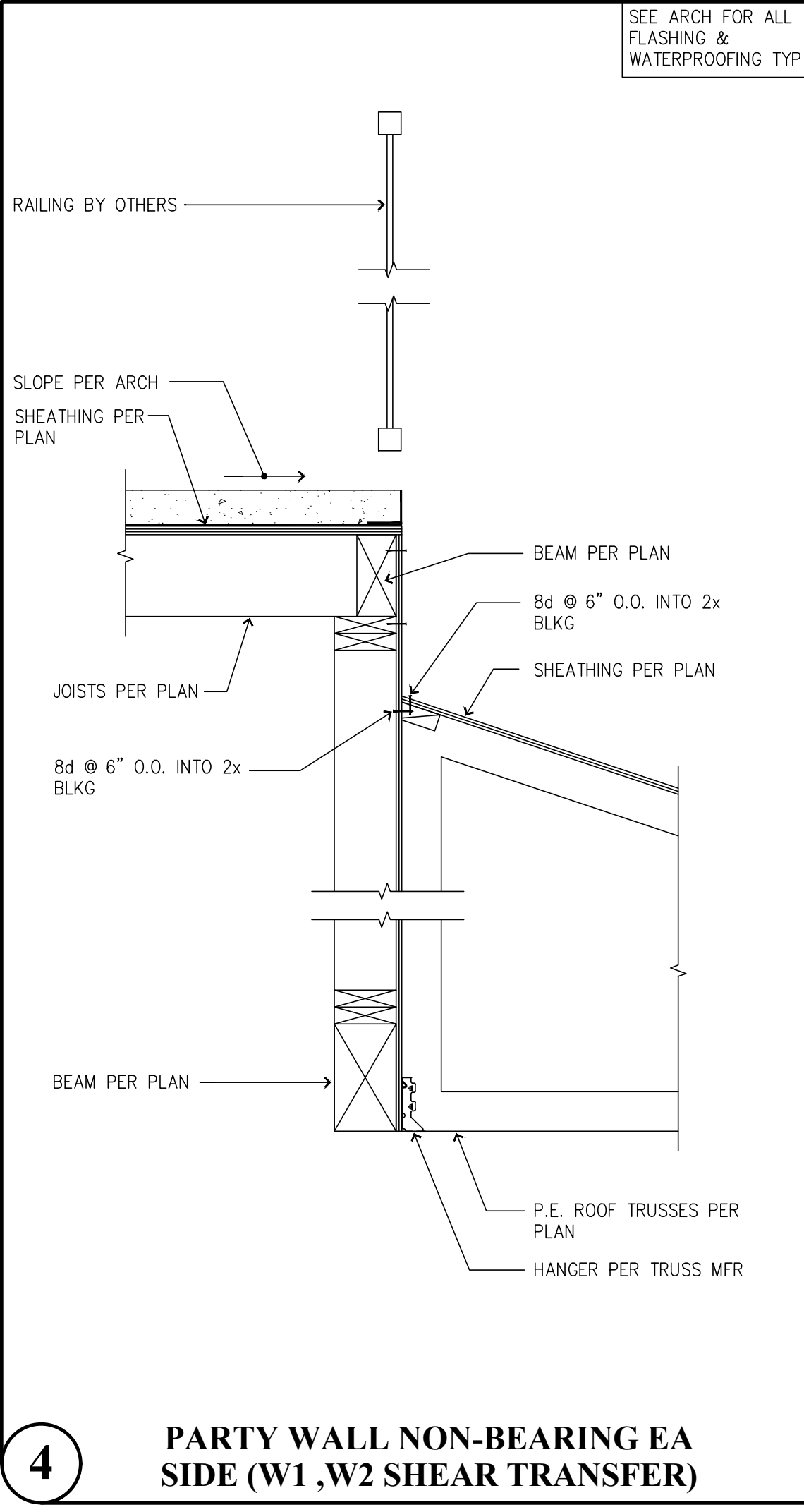
PROJECT NO. : 23.007  
 DESIGNED BY : TLC, OGG, MRO  
 DRAWN BY : RSO  
 ISSUE DATE : 2-20-24  
 LATEST REV. OF DWG. SET :

SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
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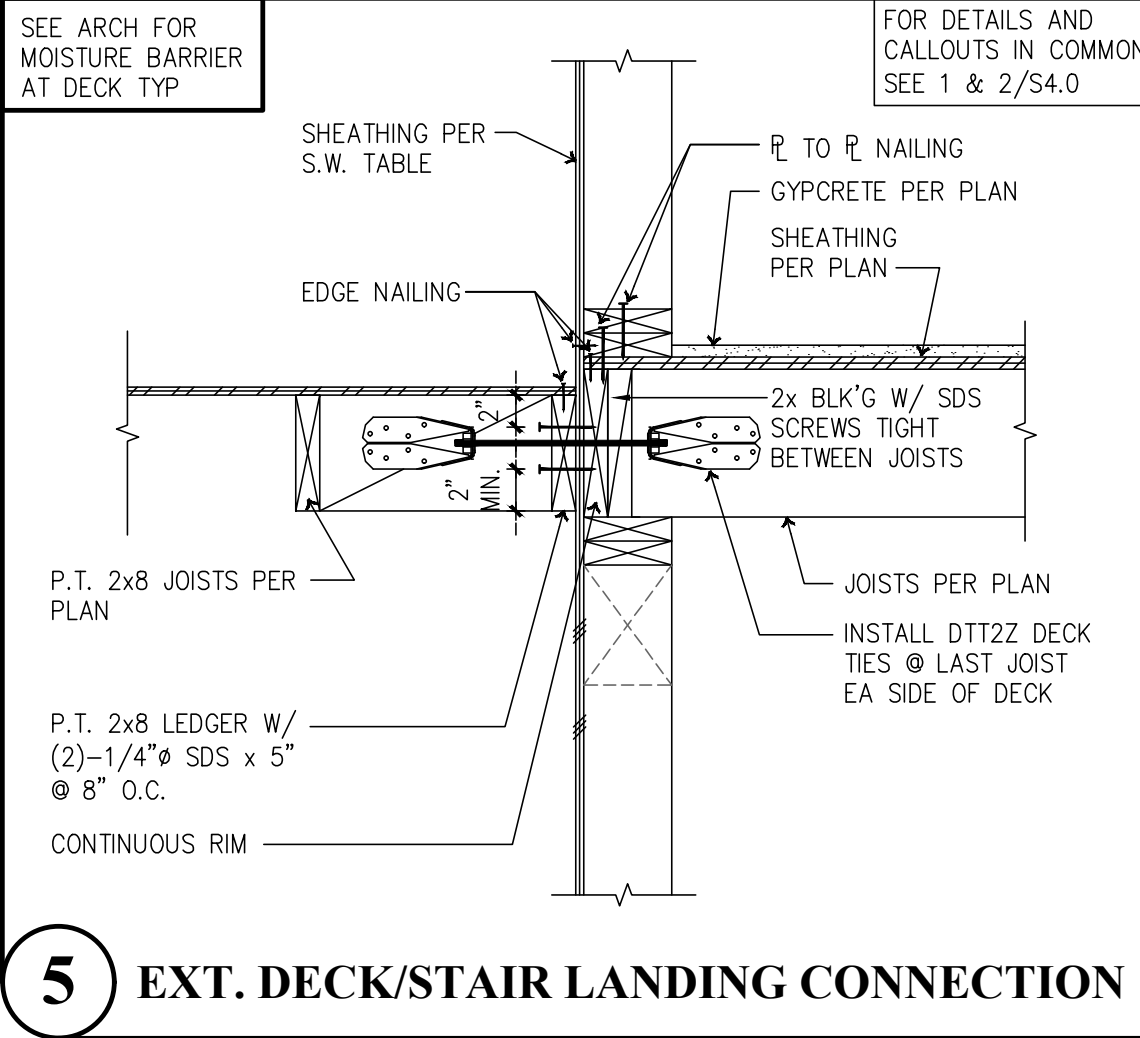
**S4.1**



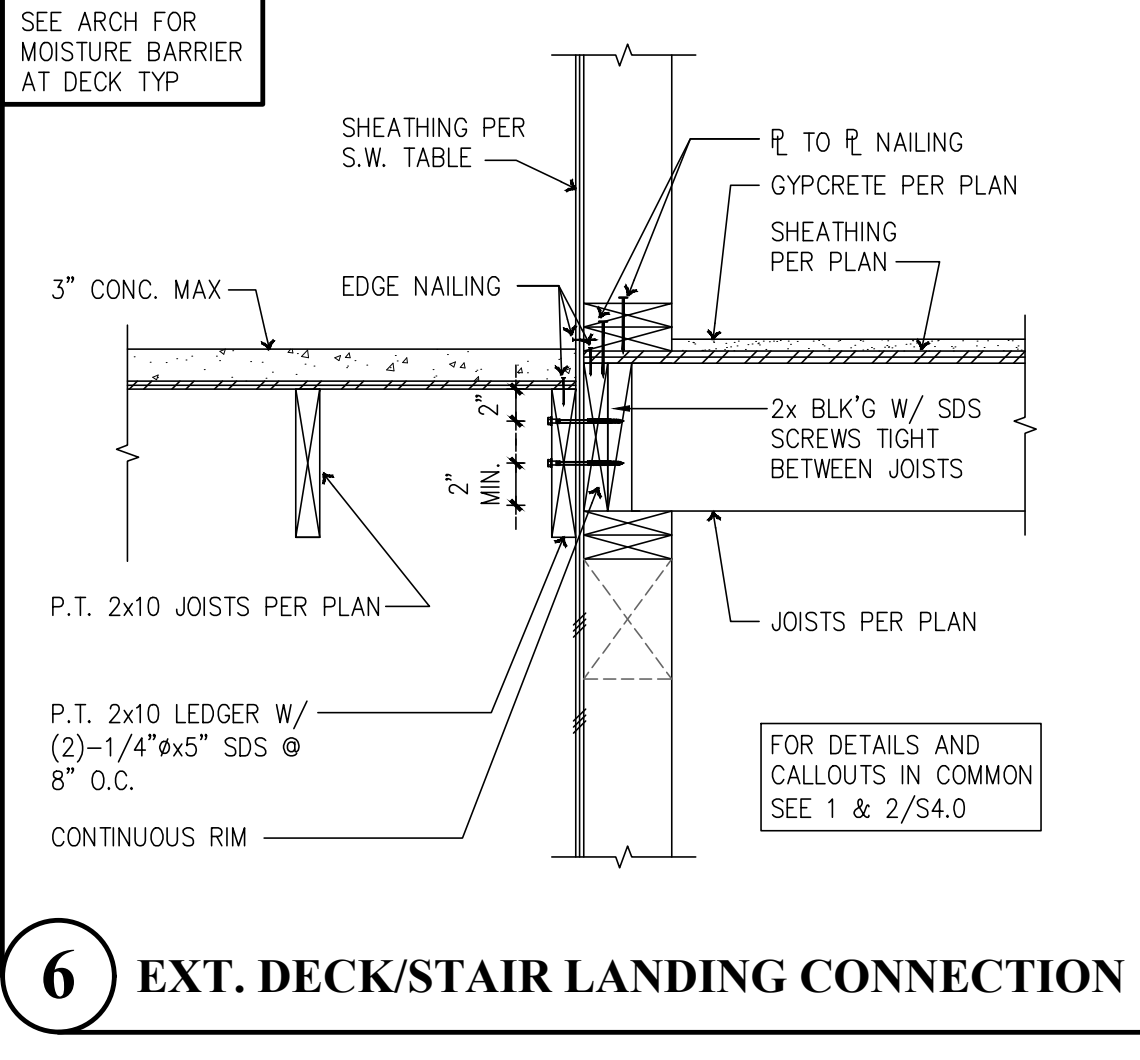
**7** PARTY WALL NON-BEARING EA SIDE (W1, W2 SHEAR TRANSFER)



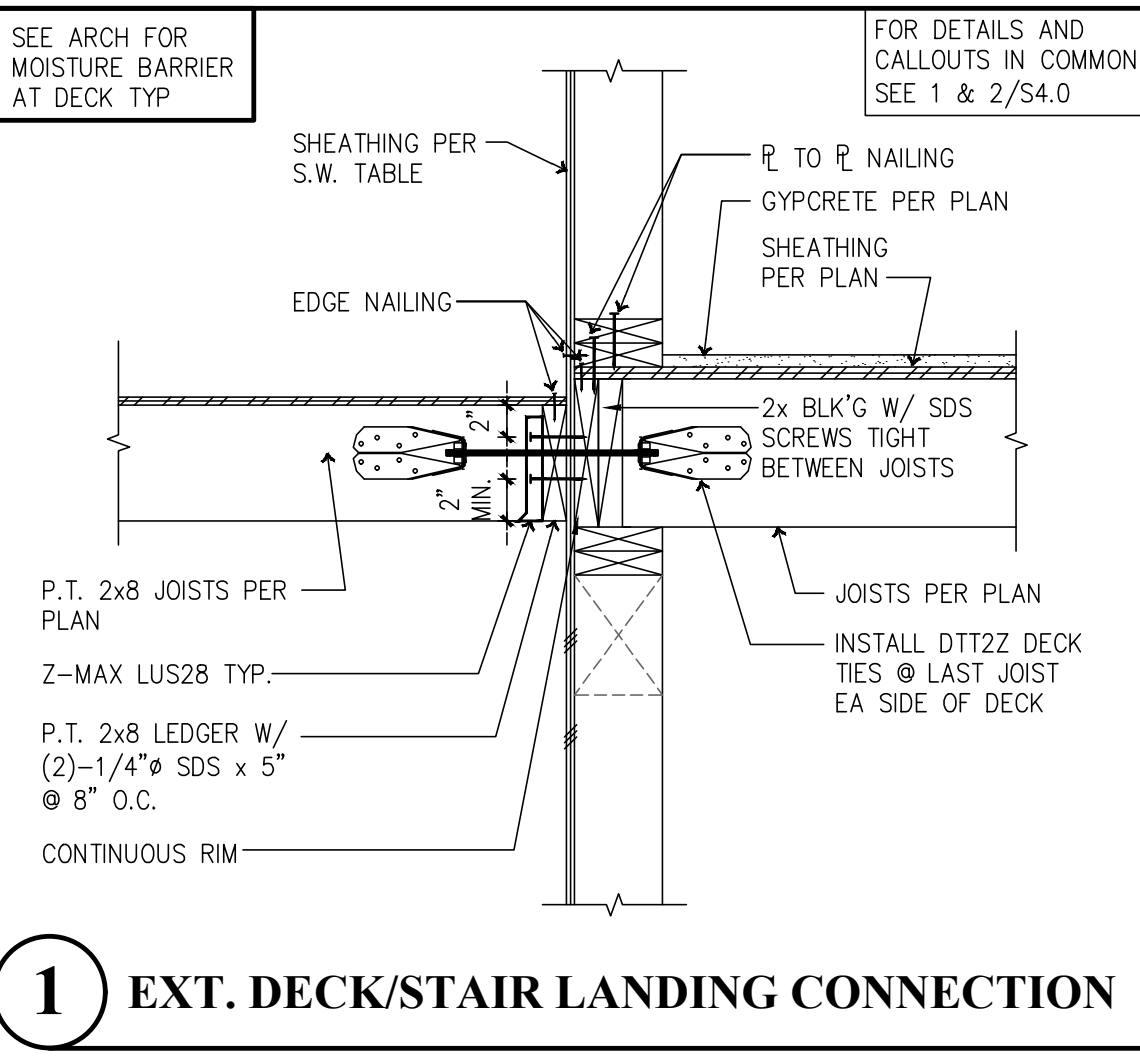
**4** PARTY WALL NON-BEARING EA SIDE (W1, W2 SHEAR TRANSFER)



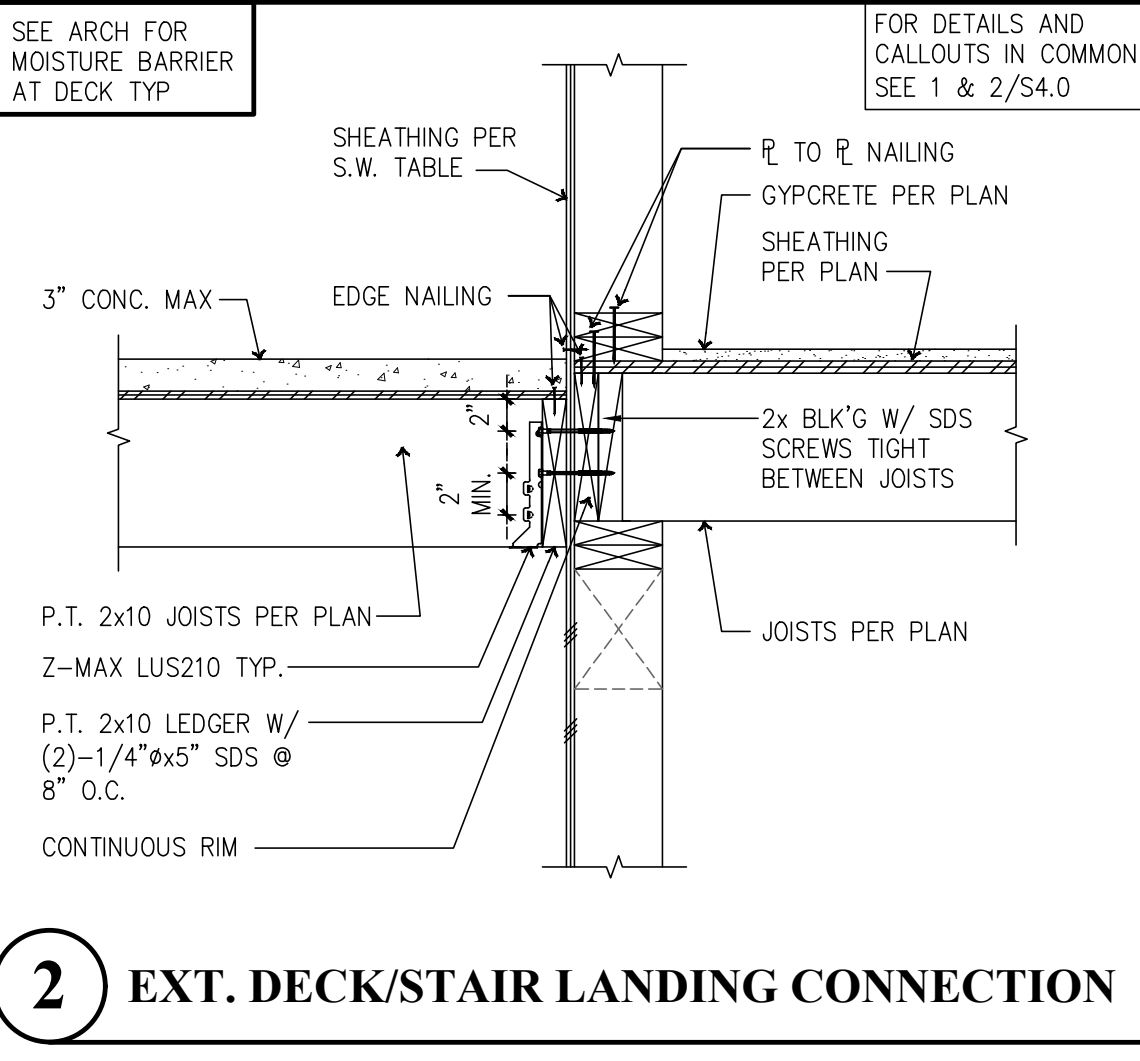
**5** EXT. DECK/STAIR LANDING CONNECTION



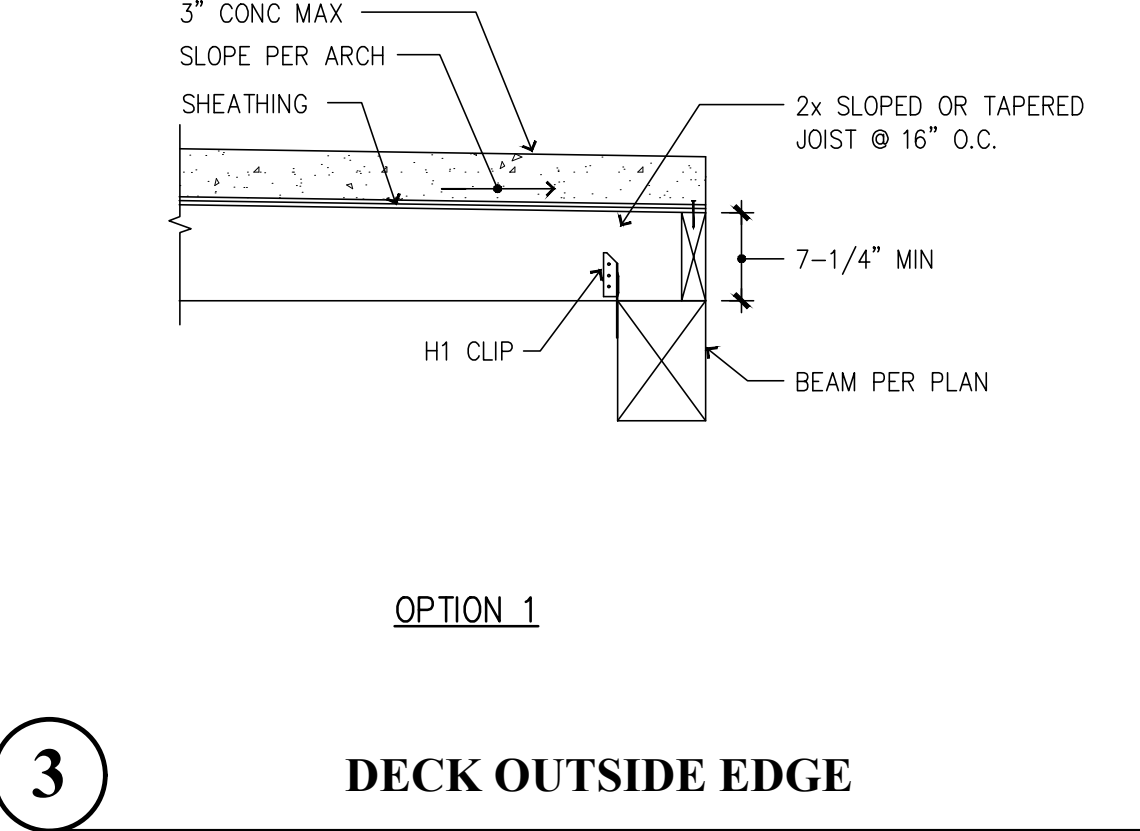
**6** EXT. DECK/STAIR LANDING CONNECTION



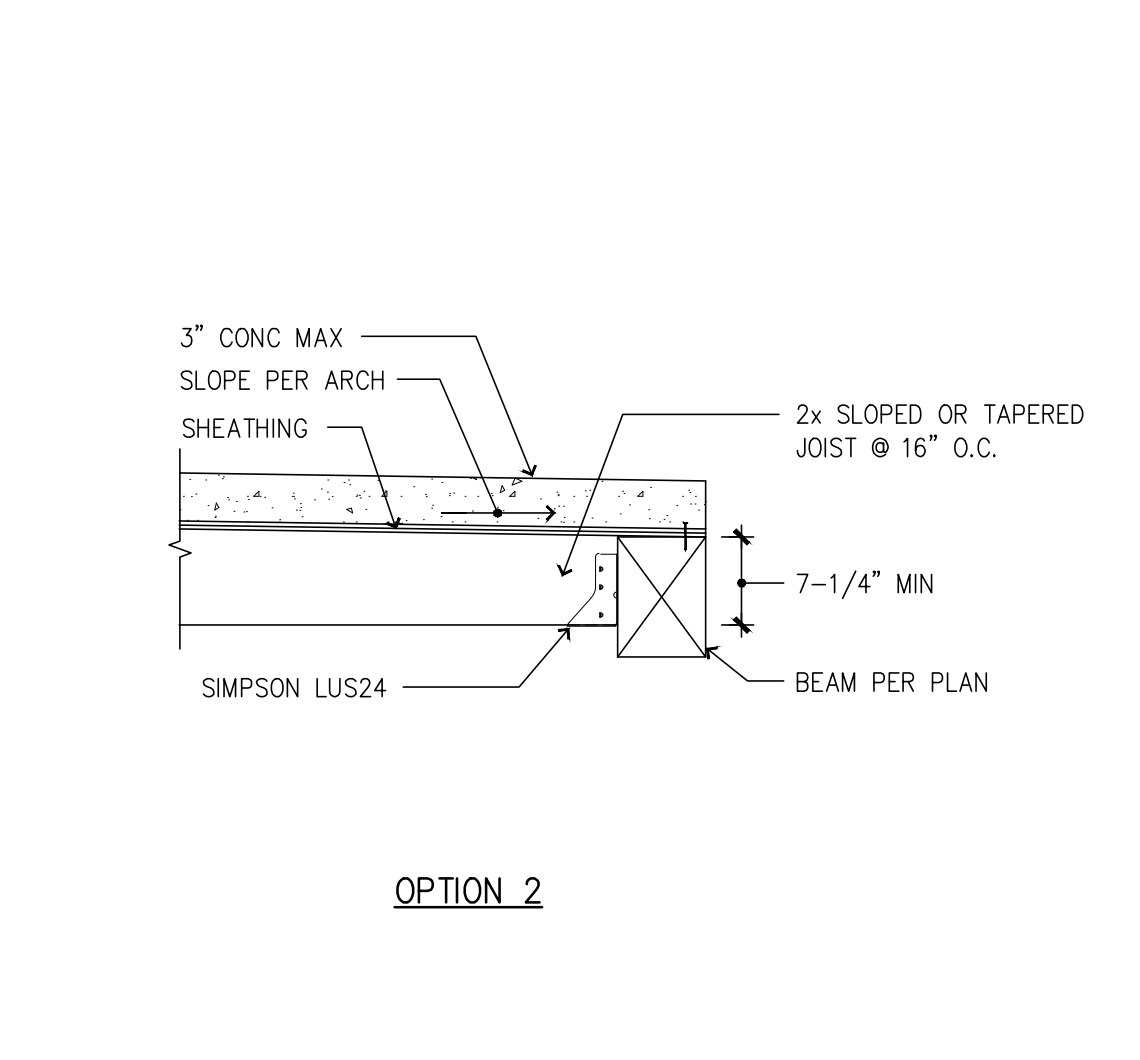
**1** EXT. DECK/STAIR LANDING CONNECTION



**2** EXT. DECK/STAIR LANDING CONNECTION



**3** DECK OUTSIDE EDGE

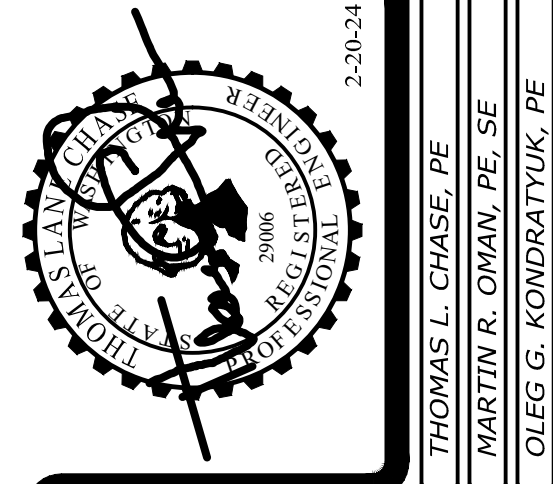
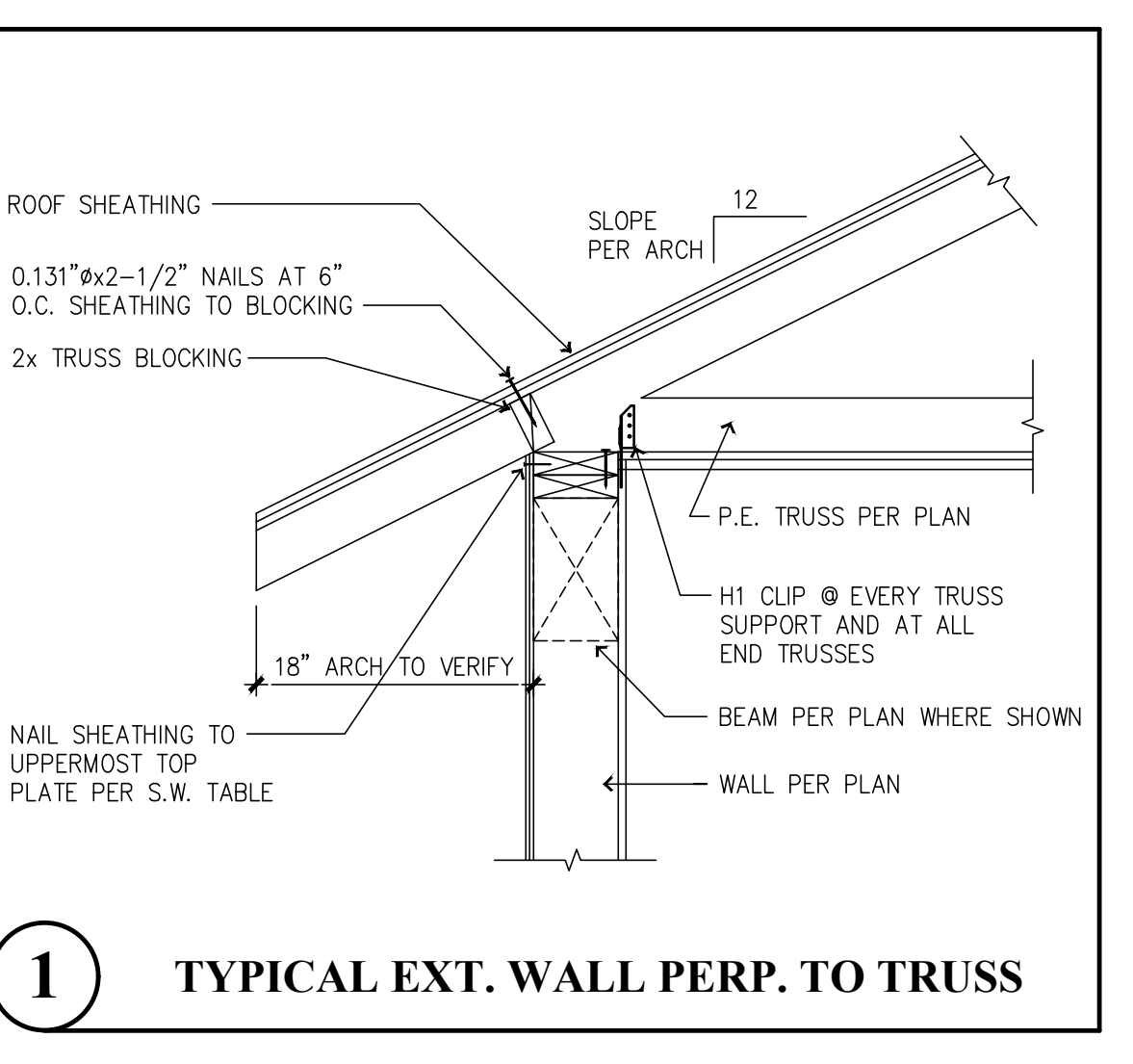
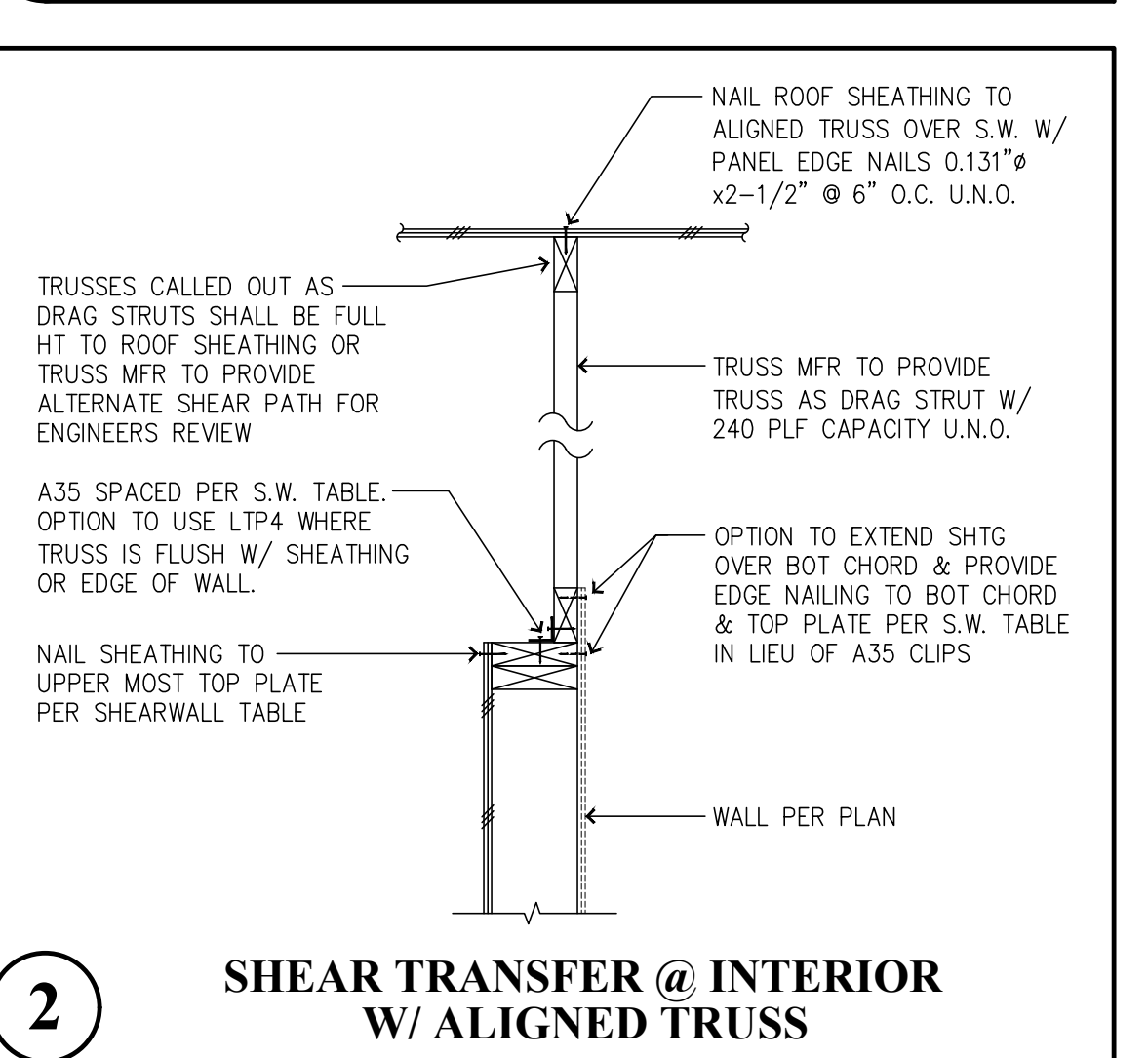
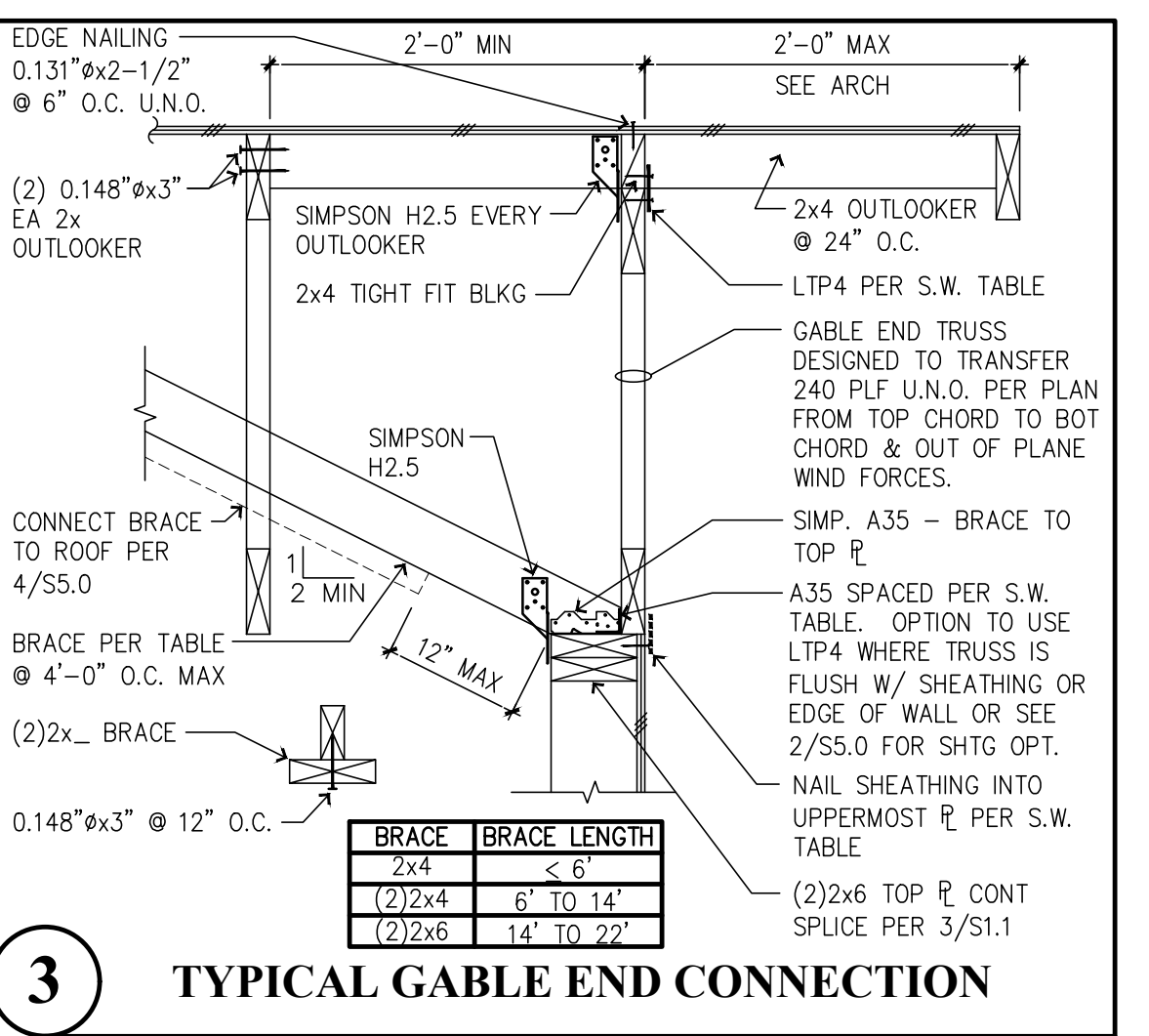
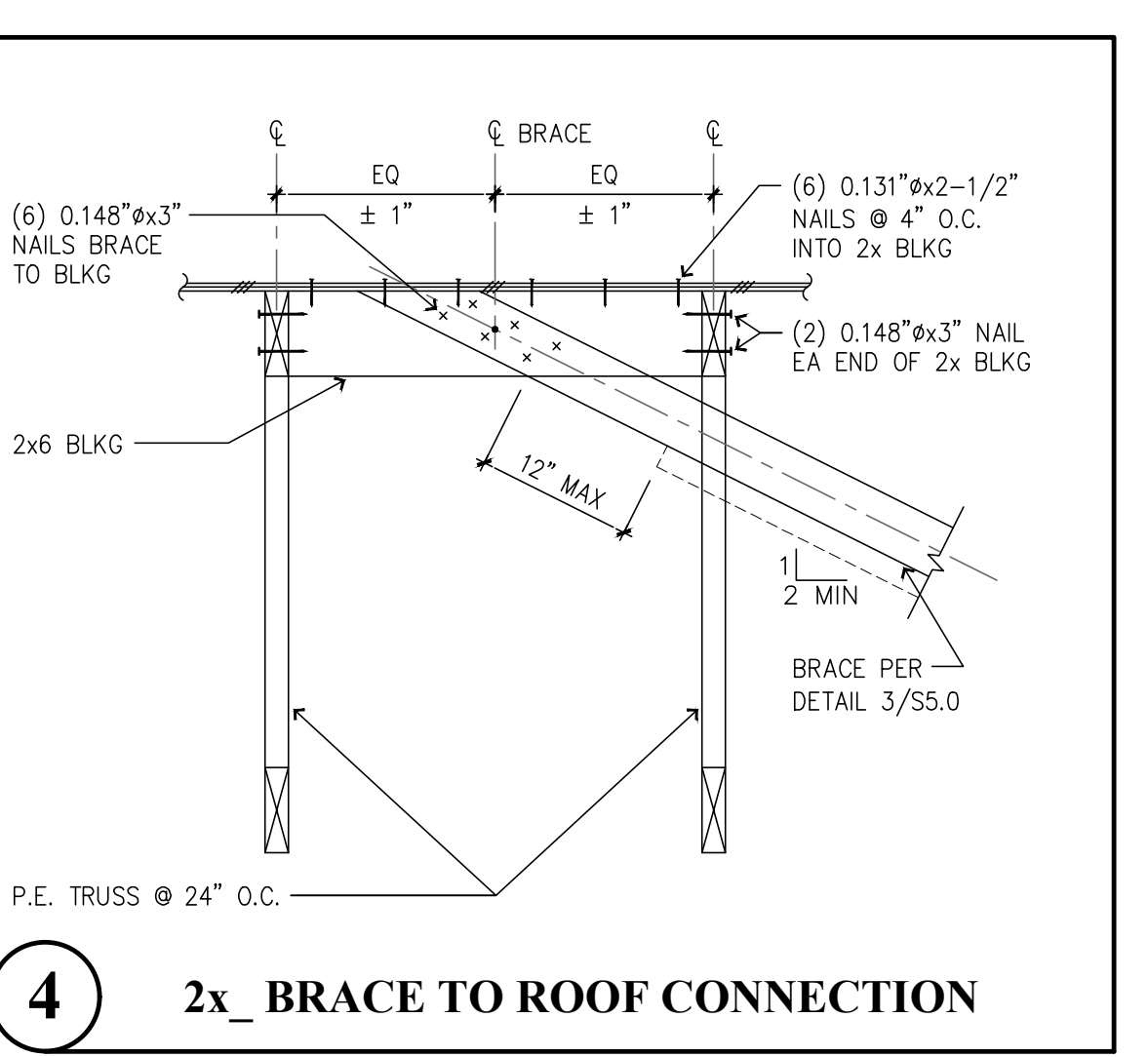
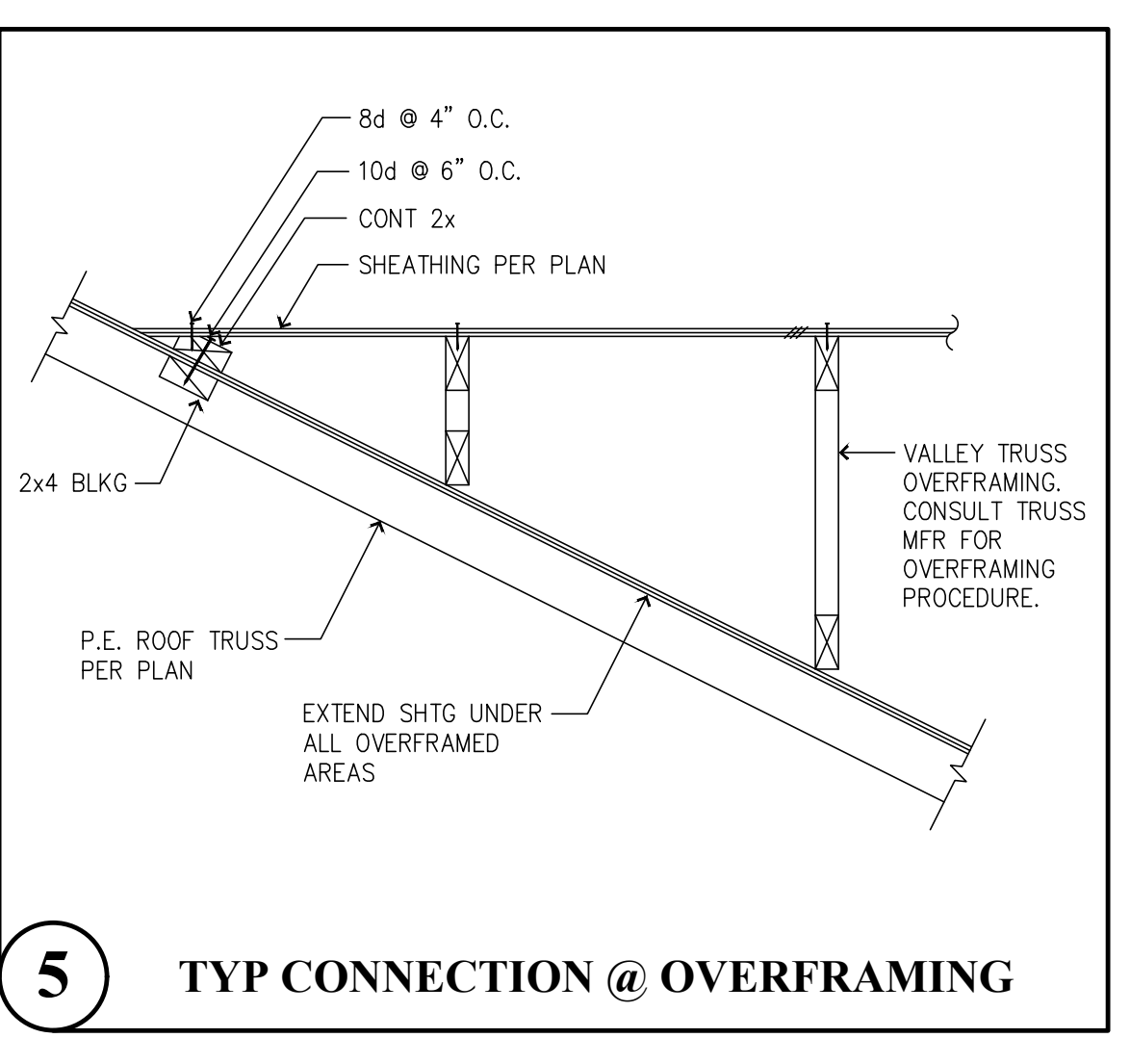
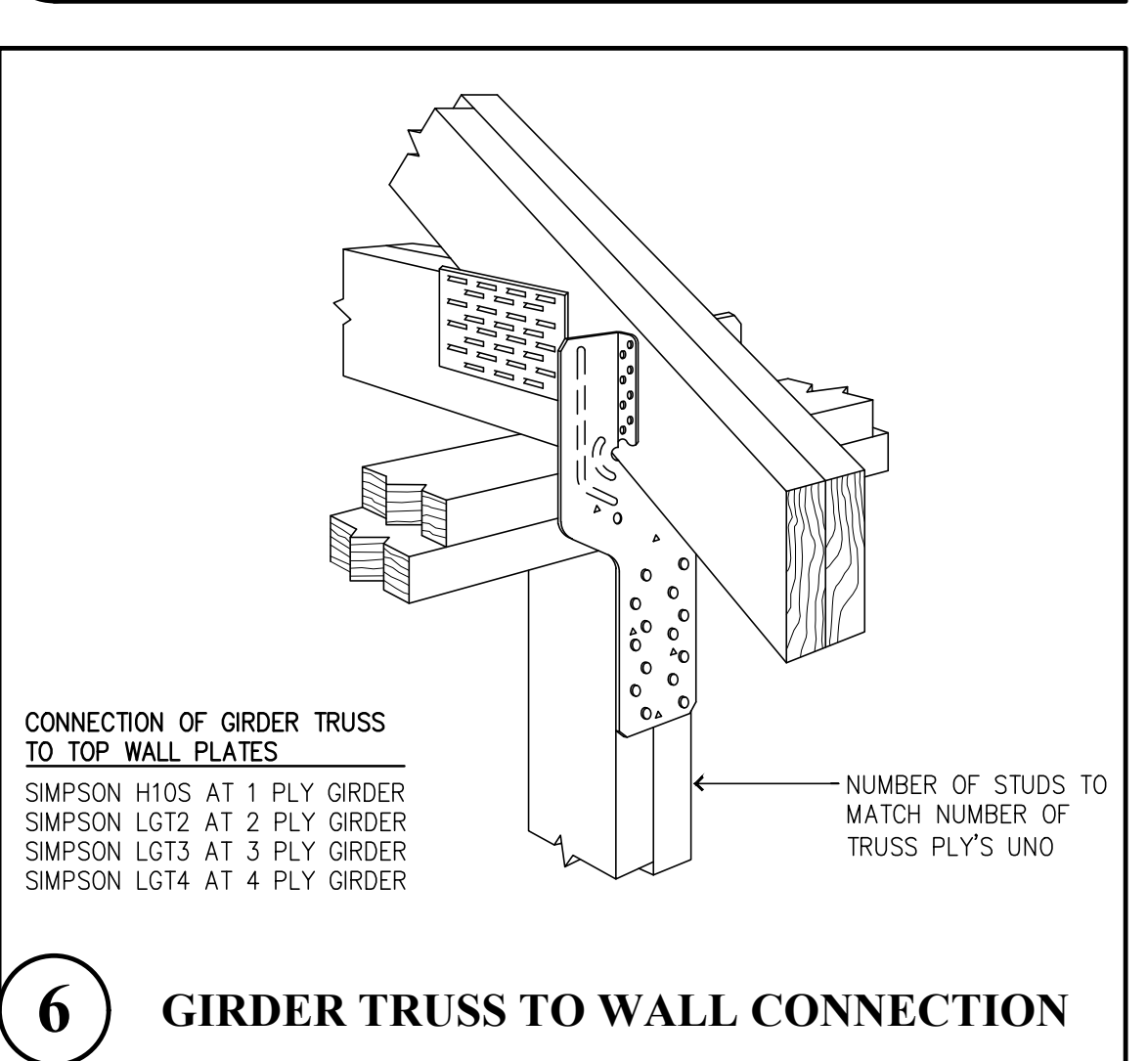
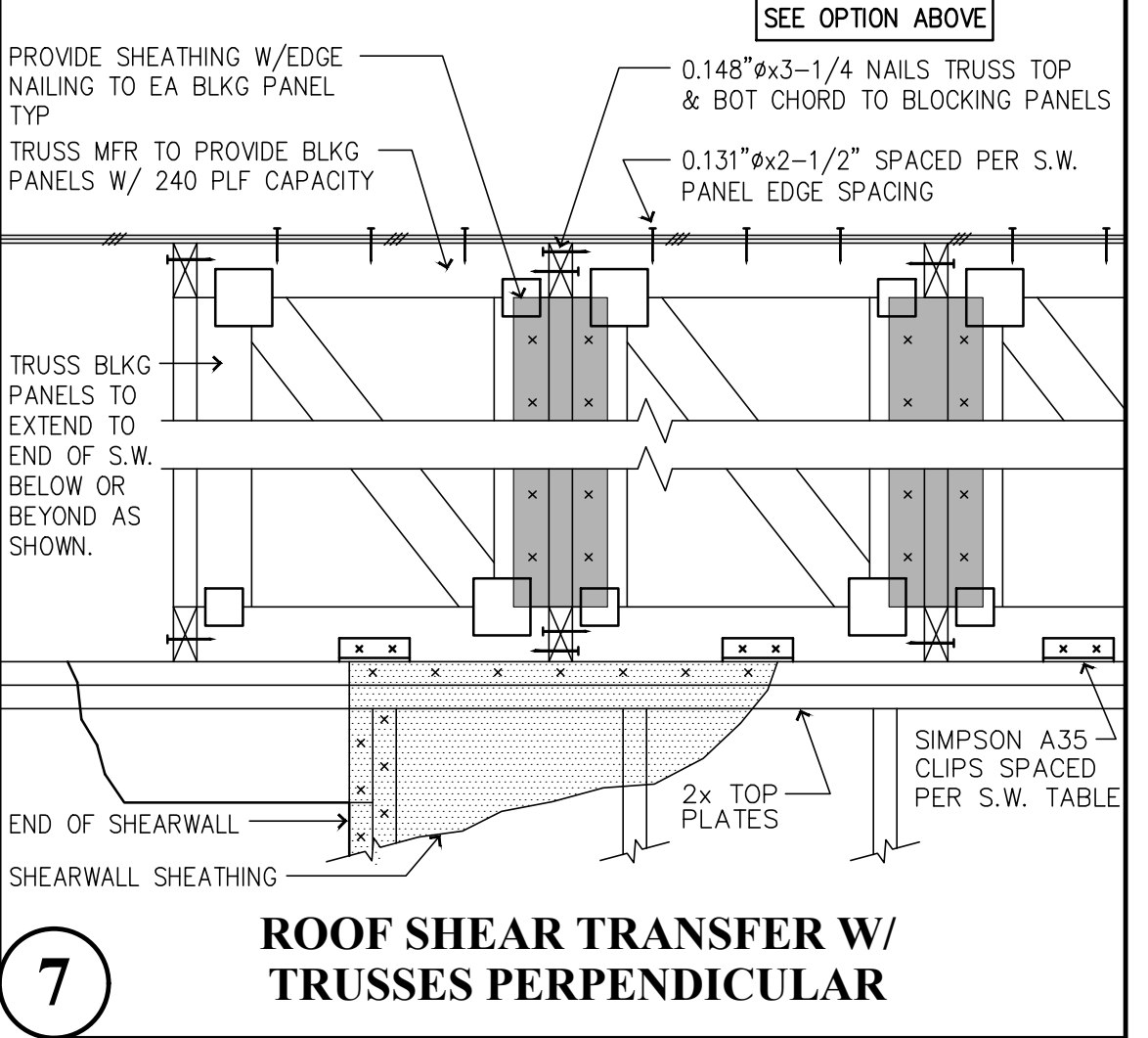
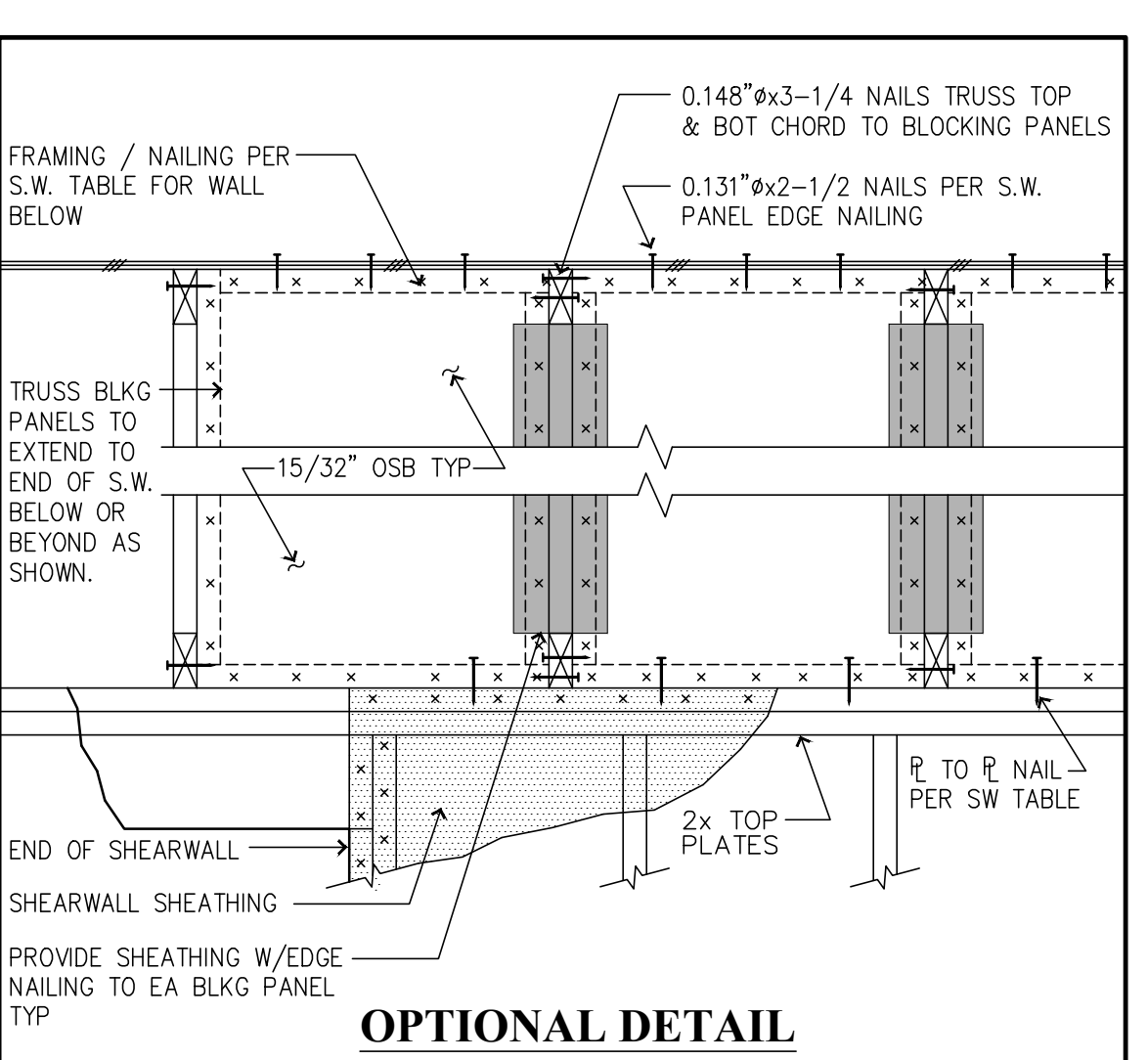
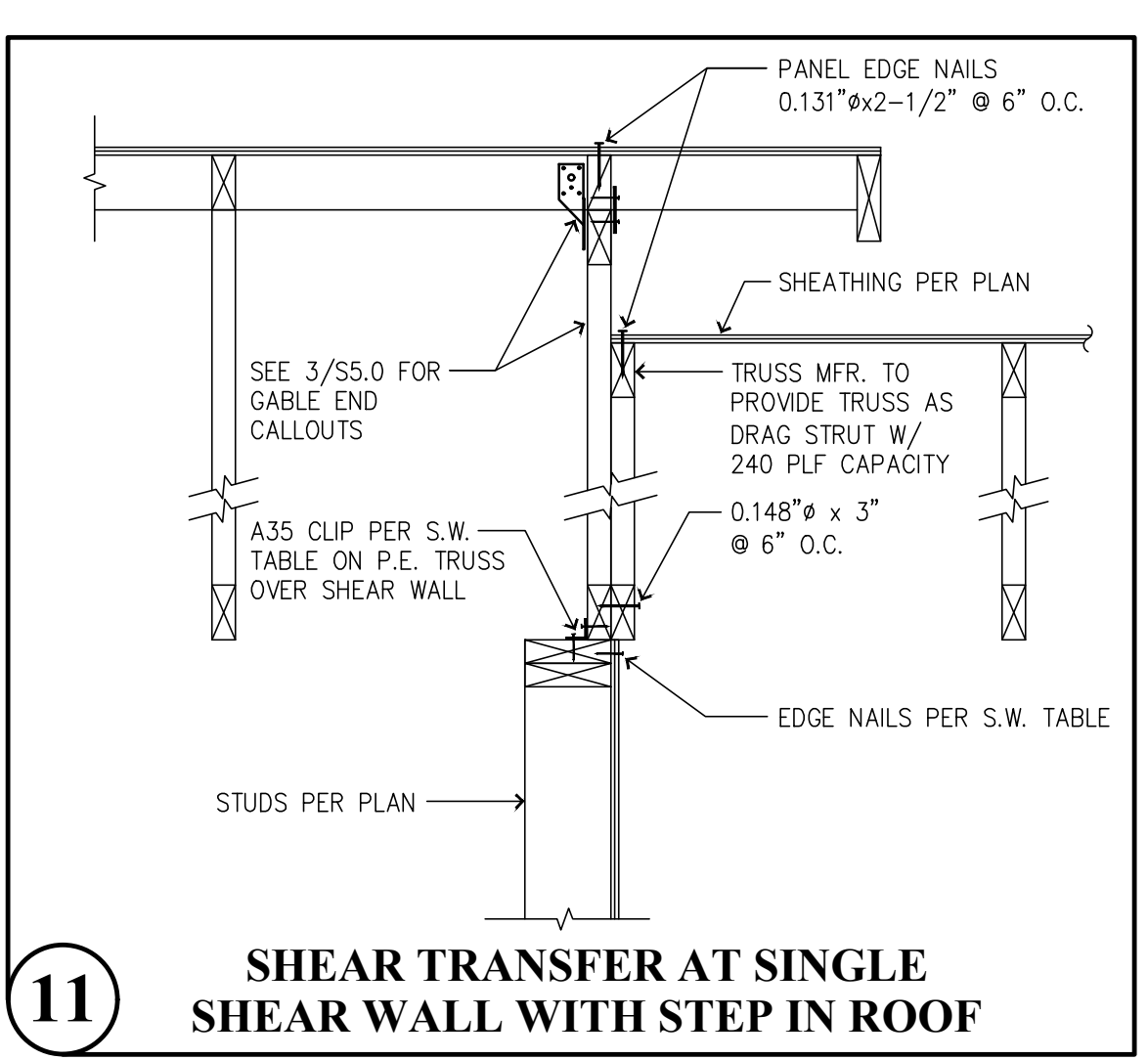
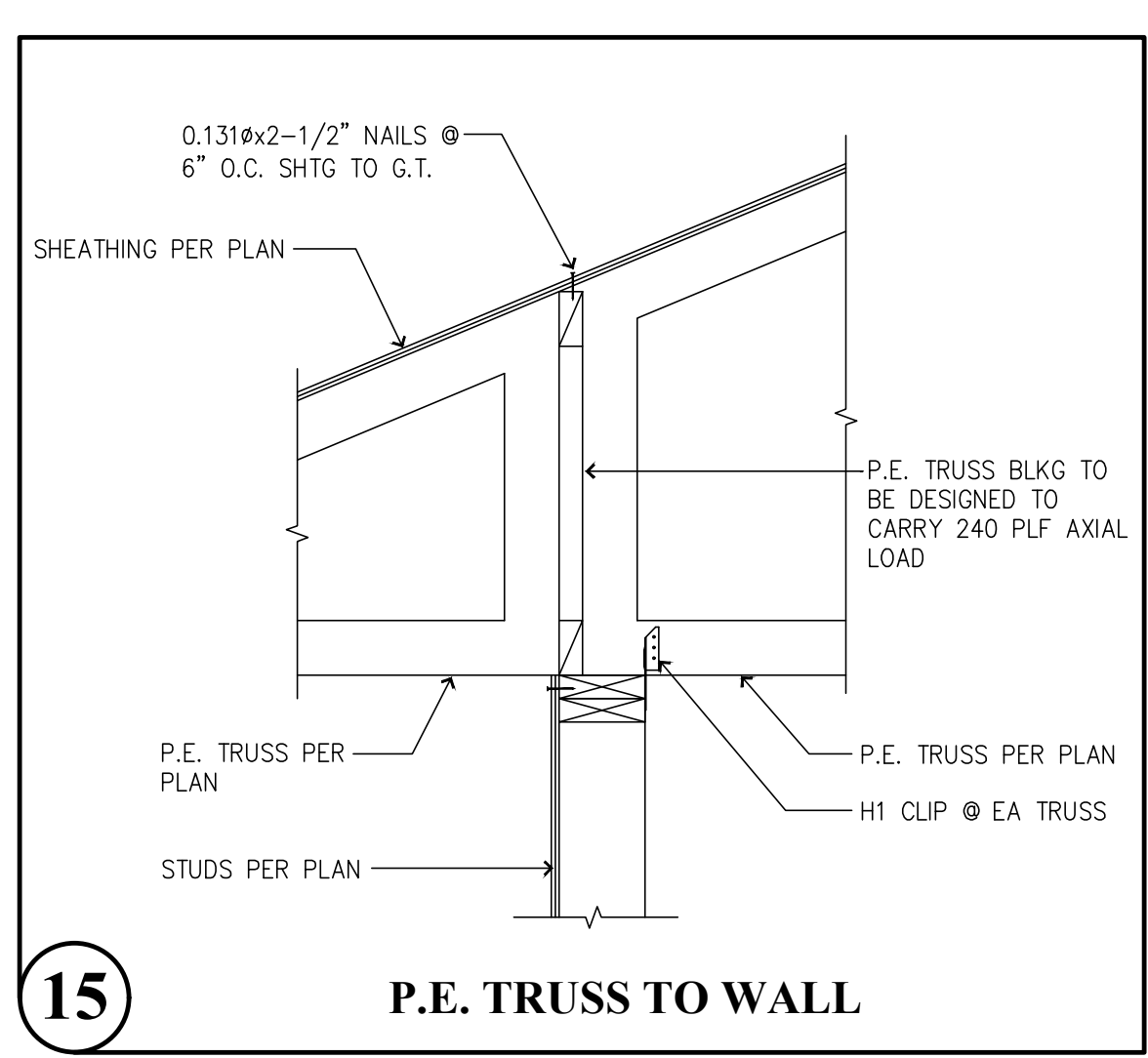
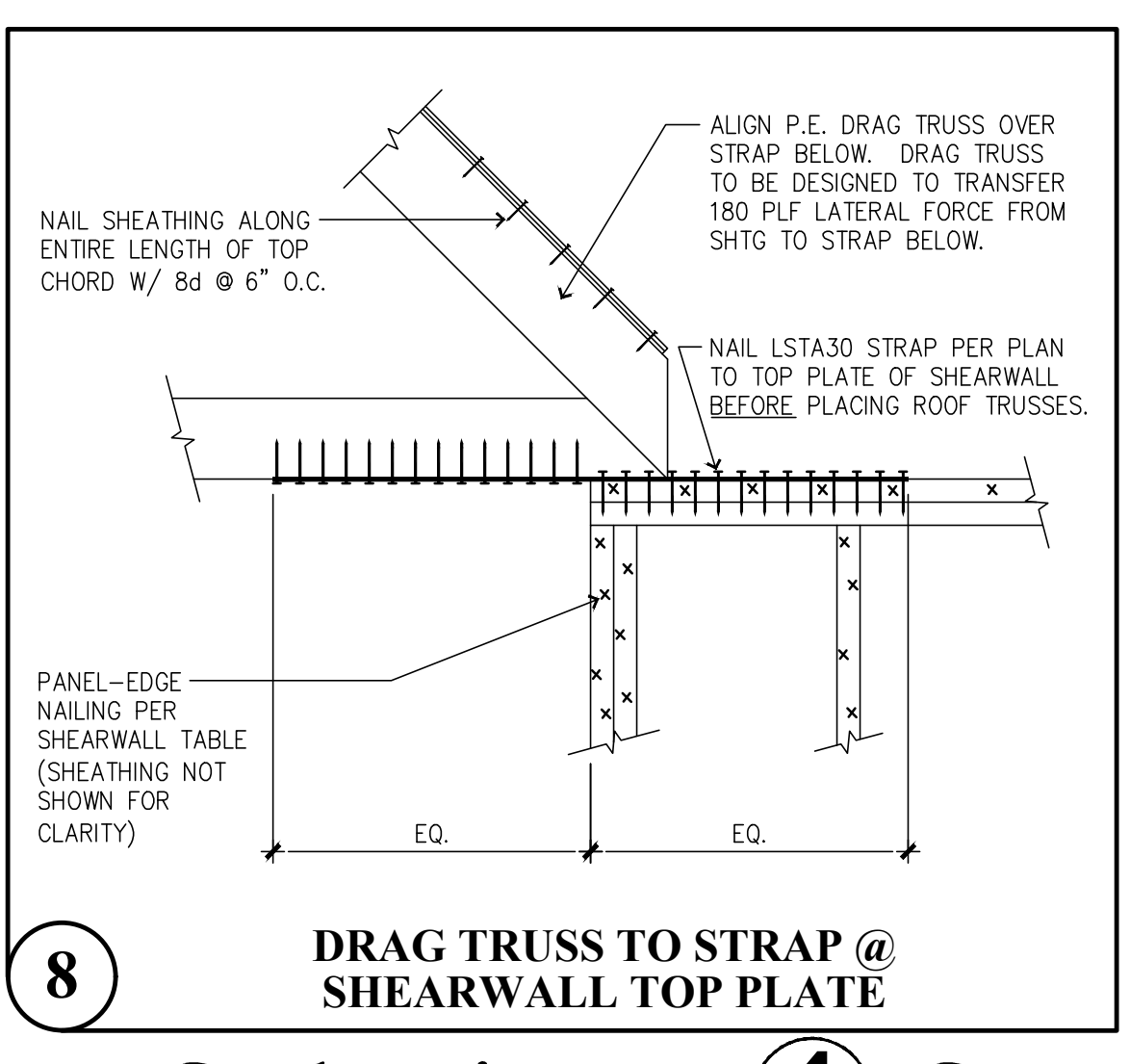
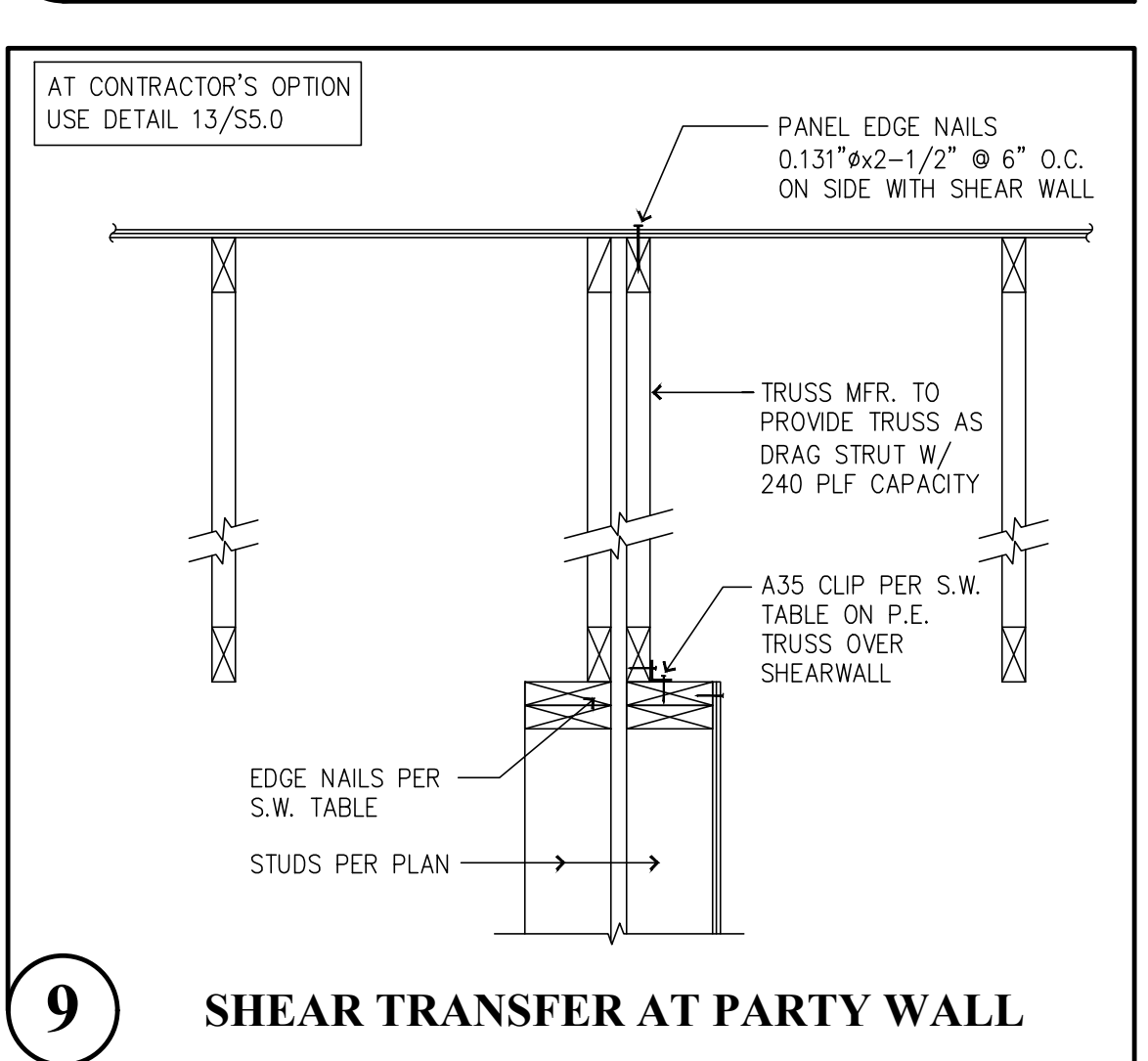
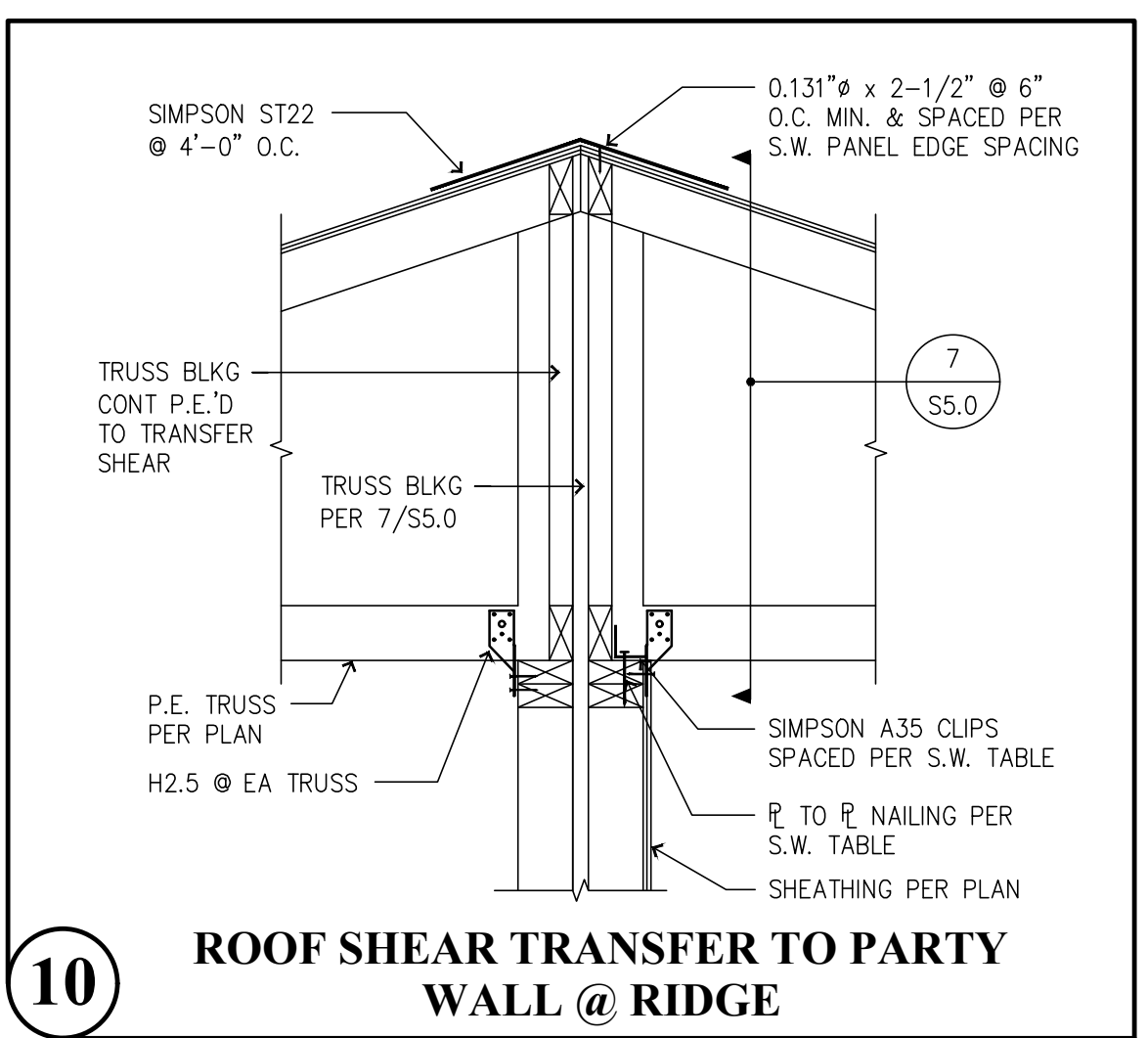
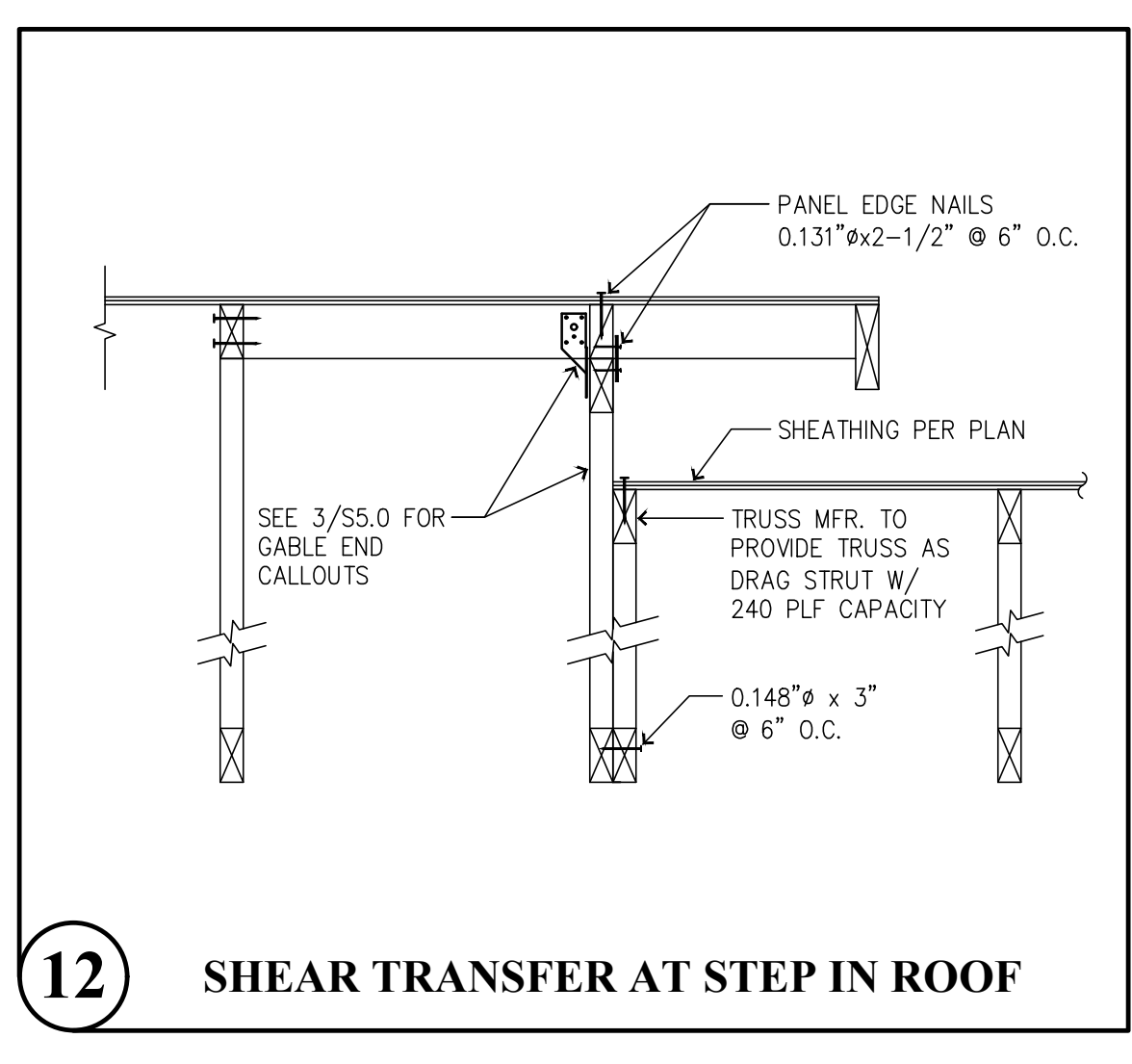
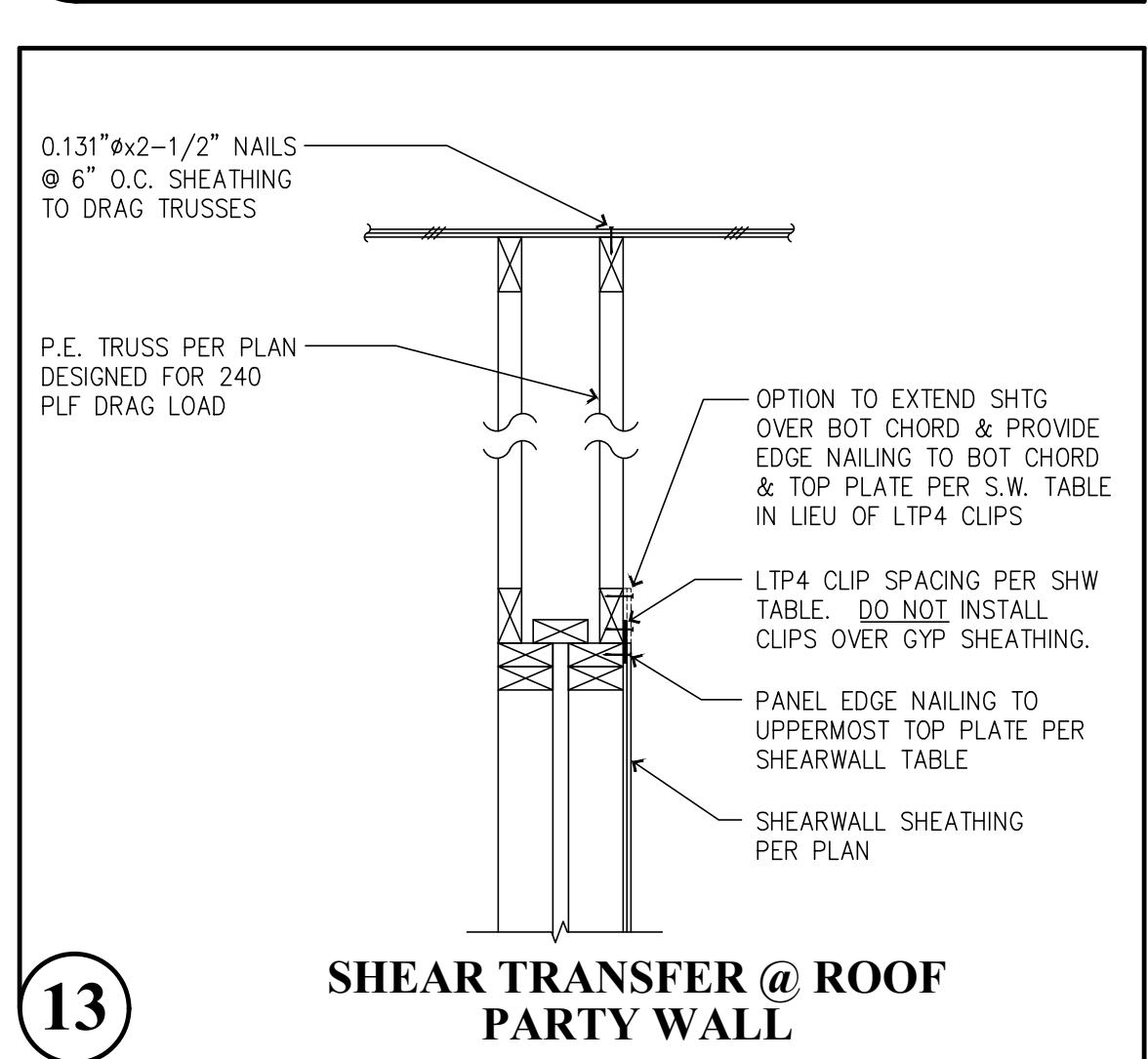
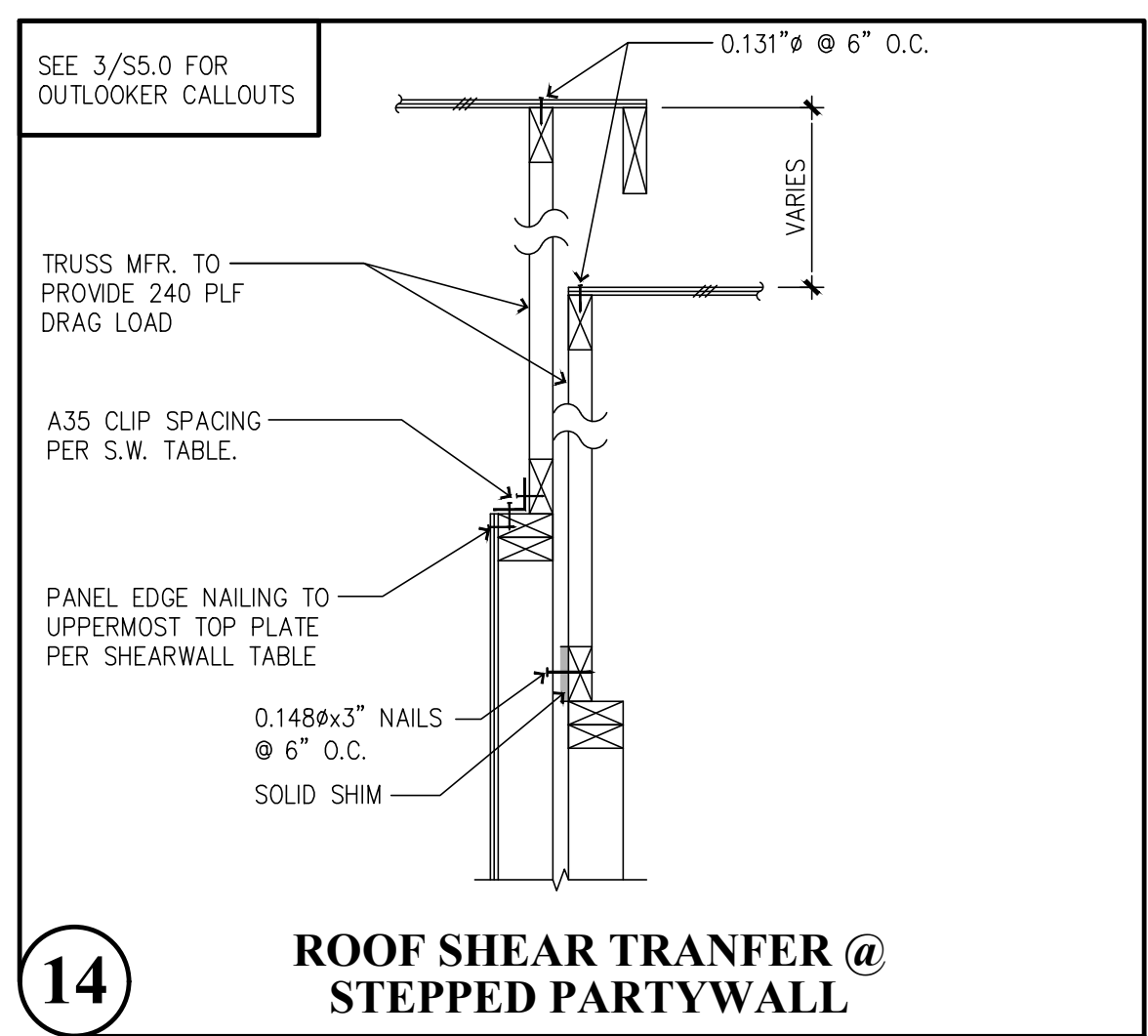
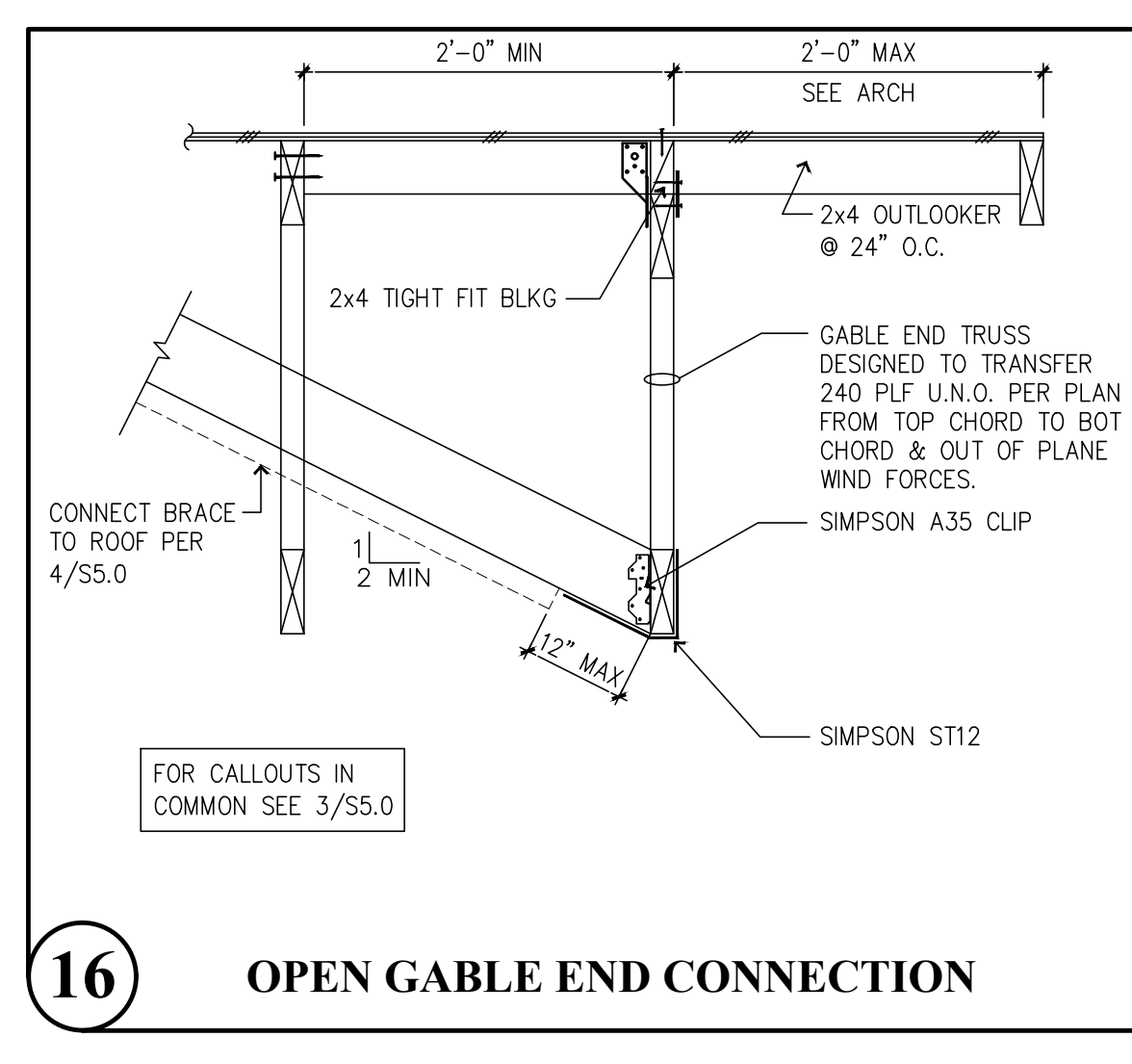
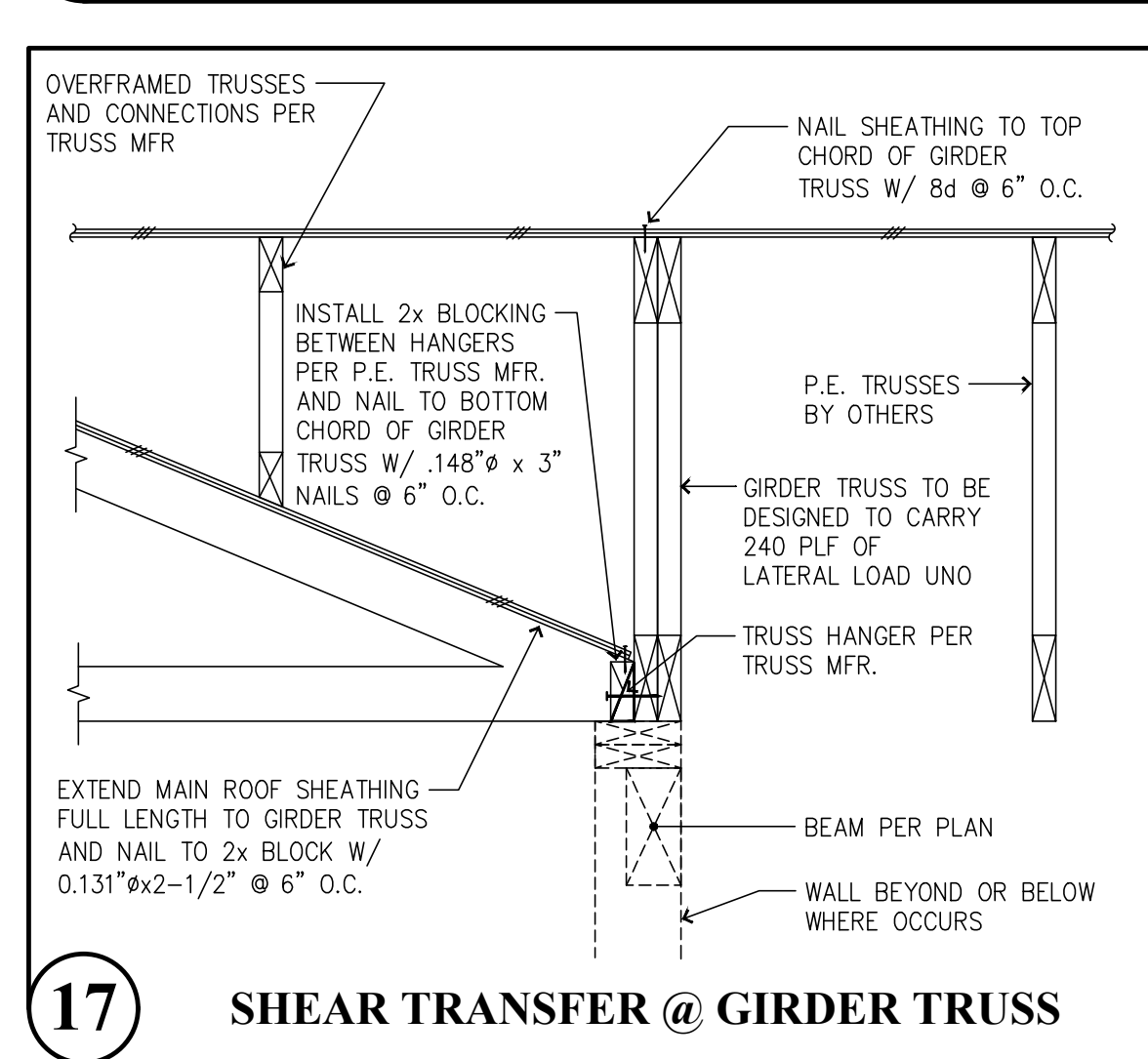
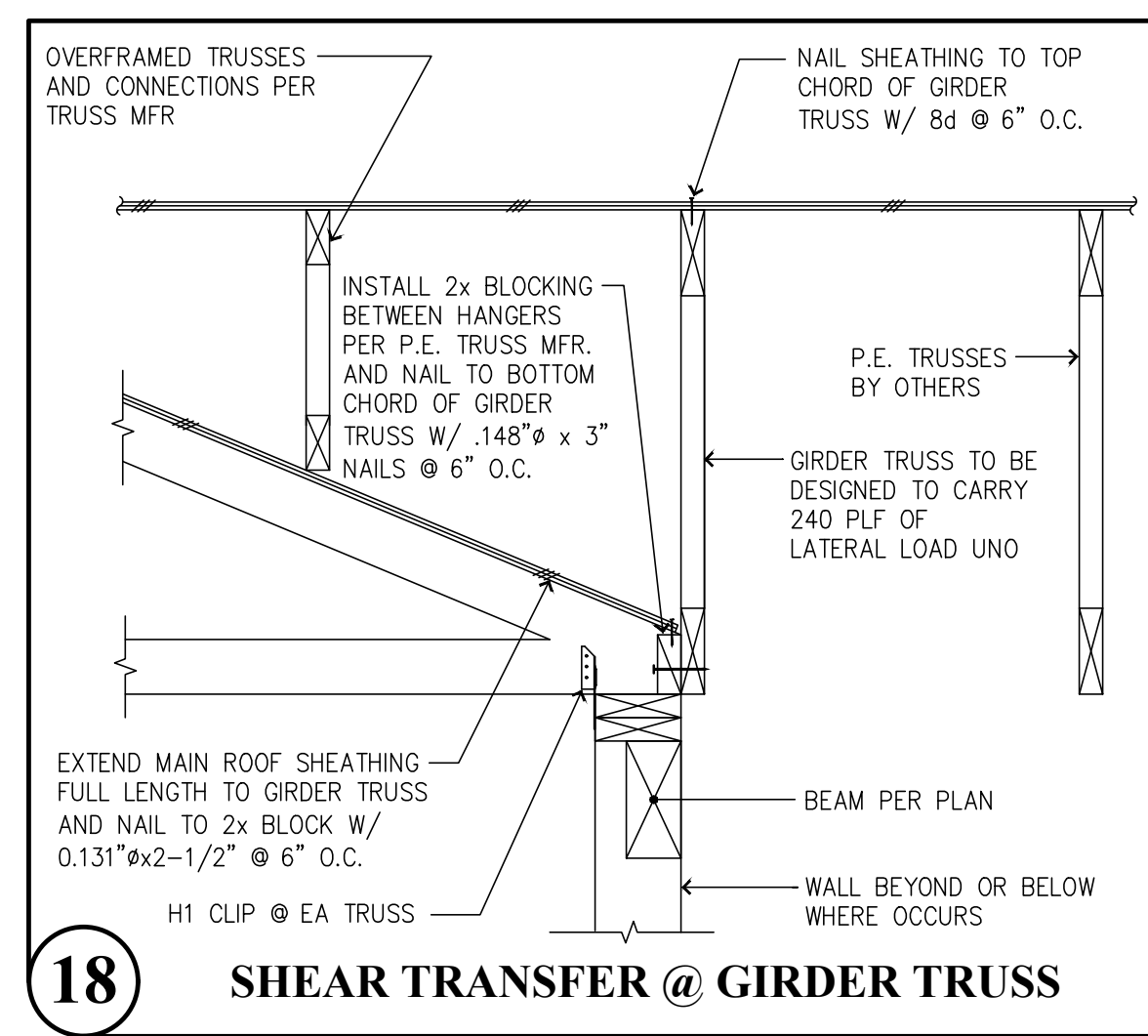


**3** DECK OUTSIDE EDGE



PLOT DATE/TIME: 2/15/2024 - 9:50am THANK YOU FOR USING SOLUTIONS 4 STRUCTURES

CAD FILE: F:\Projects\2023 Projects\23.007 Bradley Heights\Drawings\S5.0.dwg



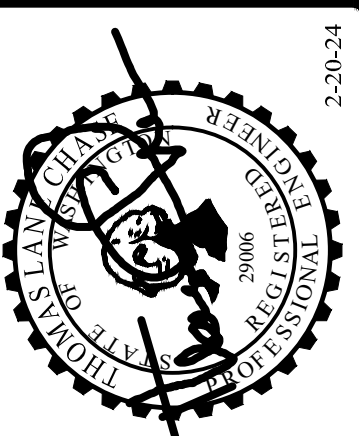
Revisions to this sheet:

**Bradley Heights Apartments**  
 202 27th Ave SE  
 Puyallup, Washington

Puyallup, Washington 98374  
 Ph: 253-314-9822  
 www.solutions4structures.com

PROJECT NO. : 23.007  
 DESIGNED BY : TLC, OGG, MRO  
 DRAWN BY : RSO  
 ISSUE DATE : 2-20-24  
 LATEST REV. OF DWG. SET :

SUBMITTAL SET ONLY NOT FOR CONSTRUCTION  
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 PENDING LOCAL JURISDICTIONAL REVIEW.



2-20-24  
 THOMAS L. CHASE, PE  
 MARTIN R. OMAN, PE, SE  
 OLEG G. KONDRATYUK, PE

Revisions to this sheet:

**Bradley Heights Apartments**  
 202 27th Ave SE  
 Puyallup, Washington

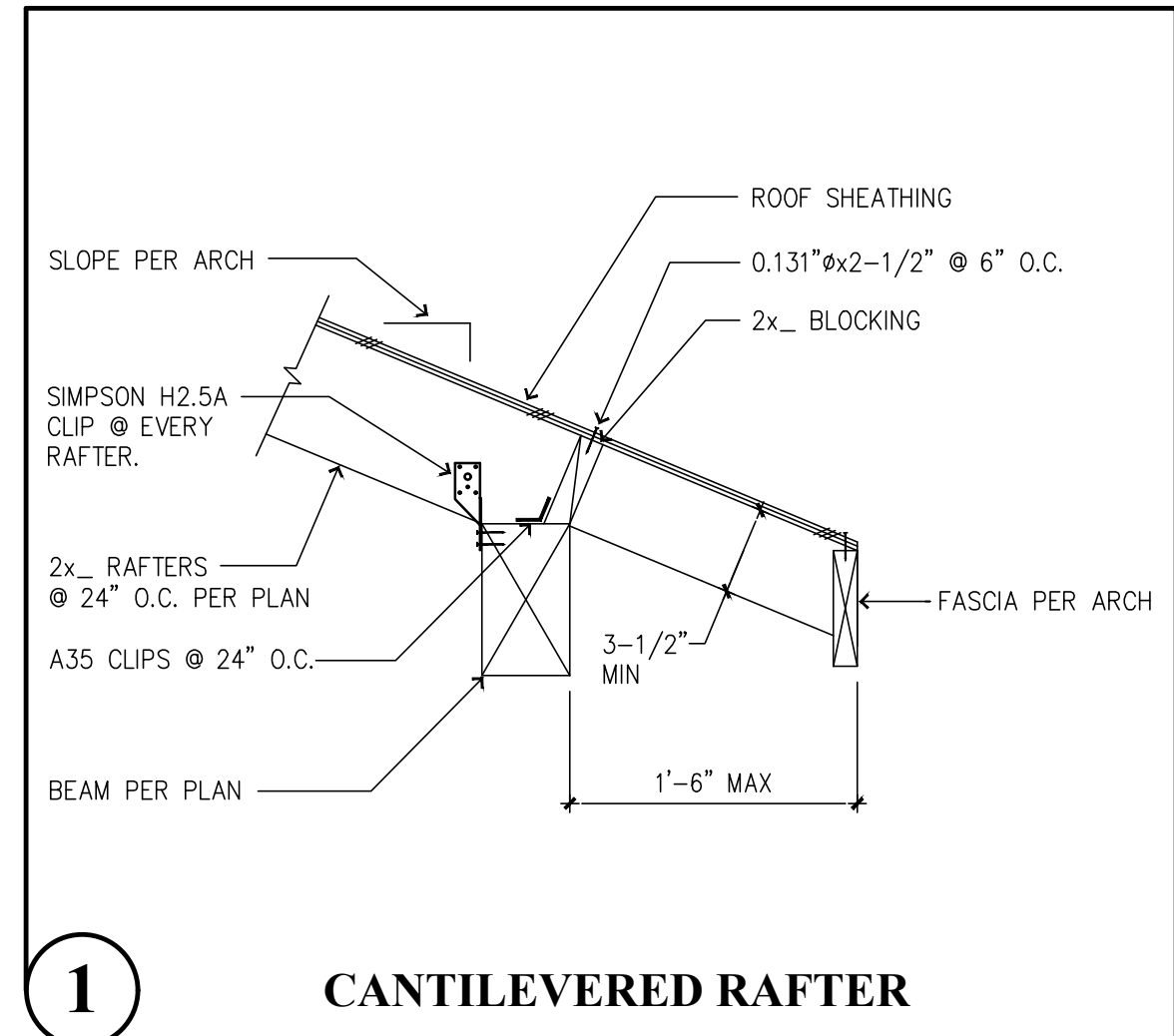
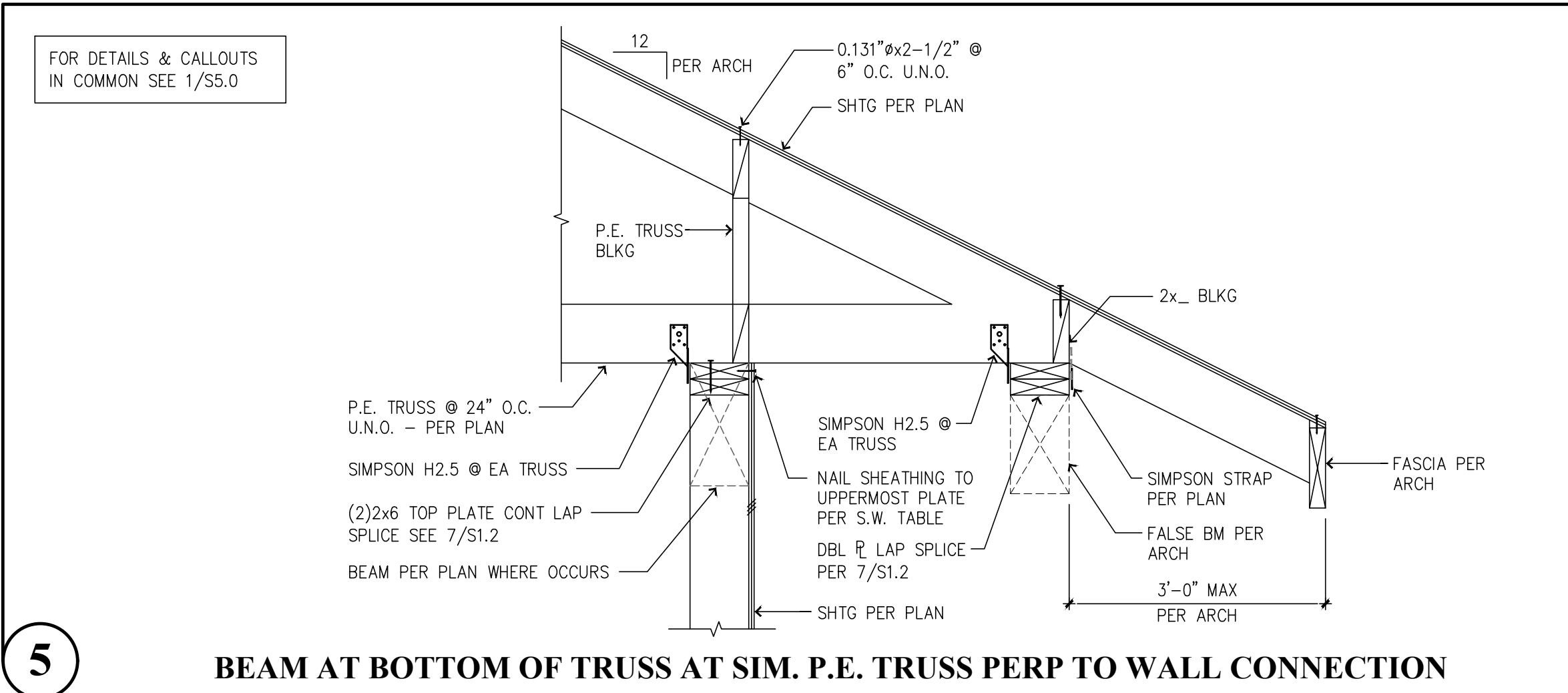
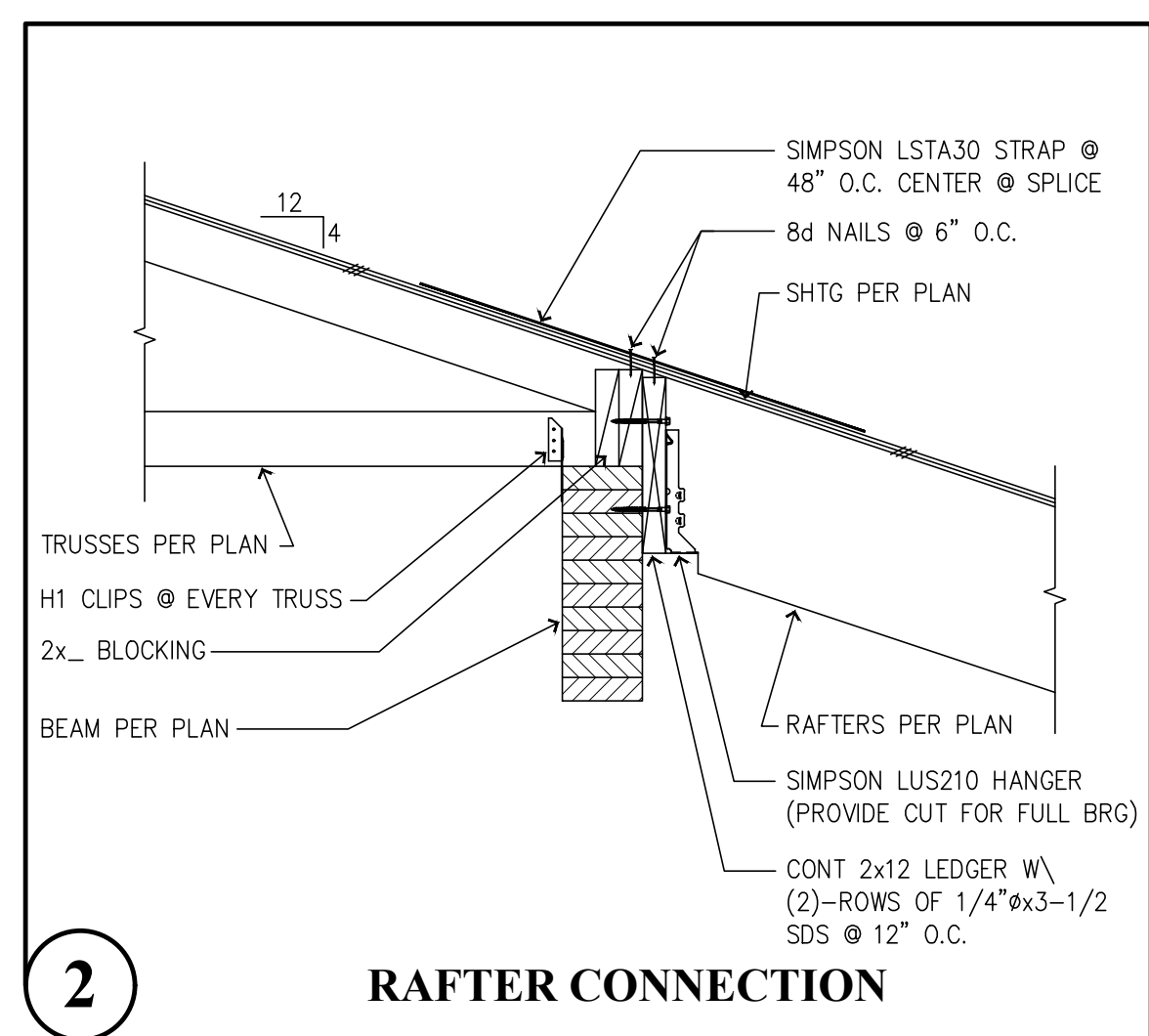
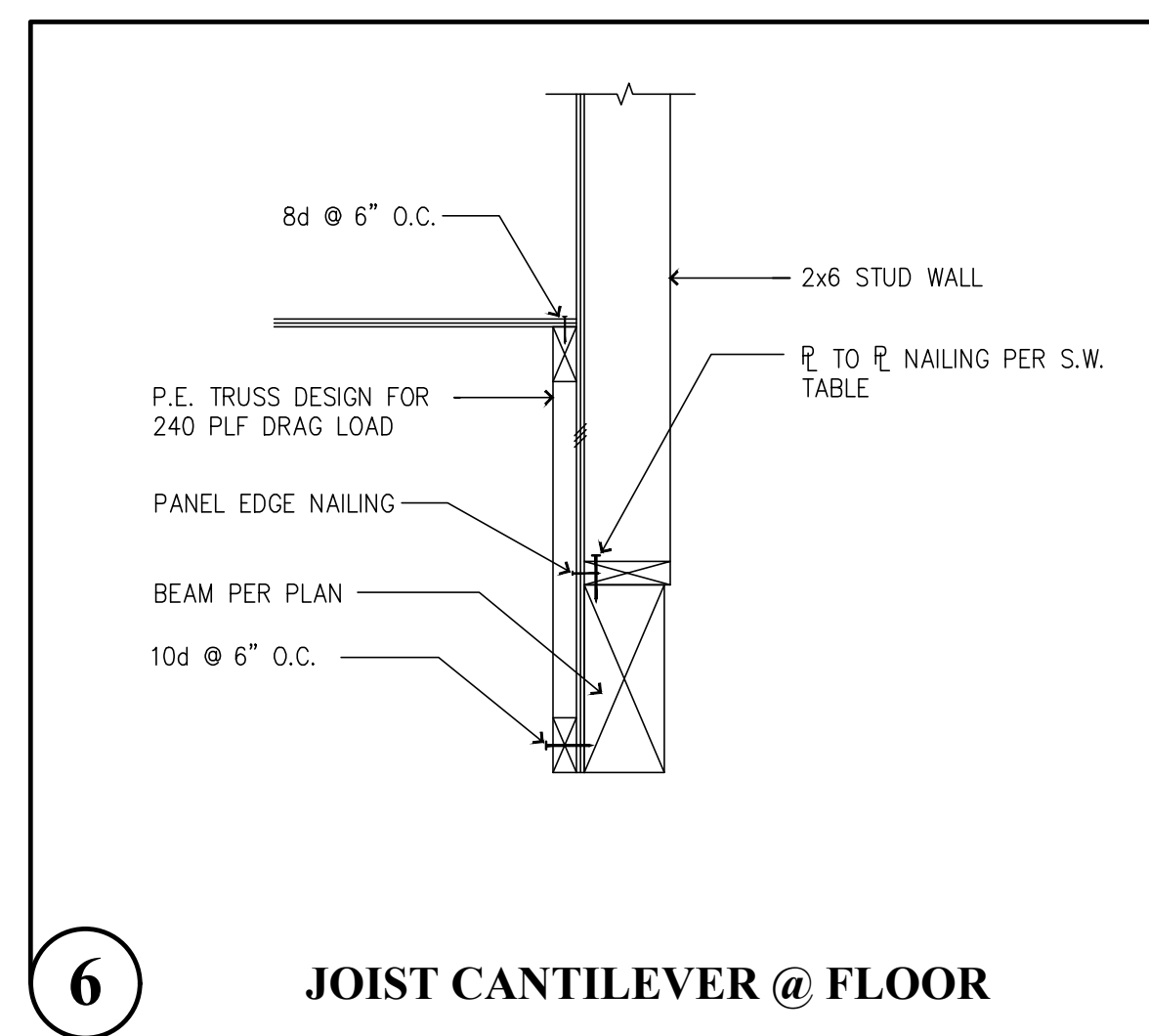
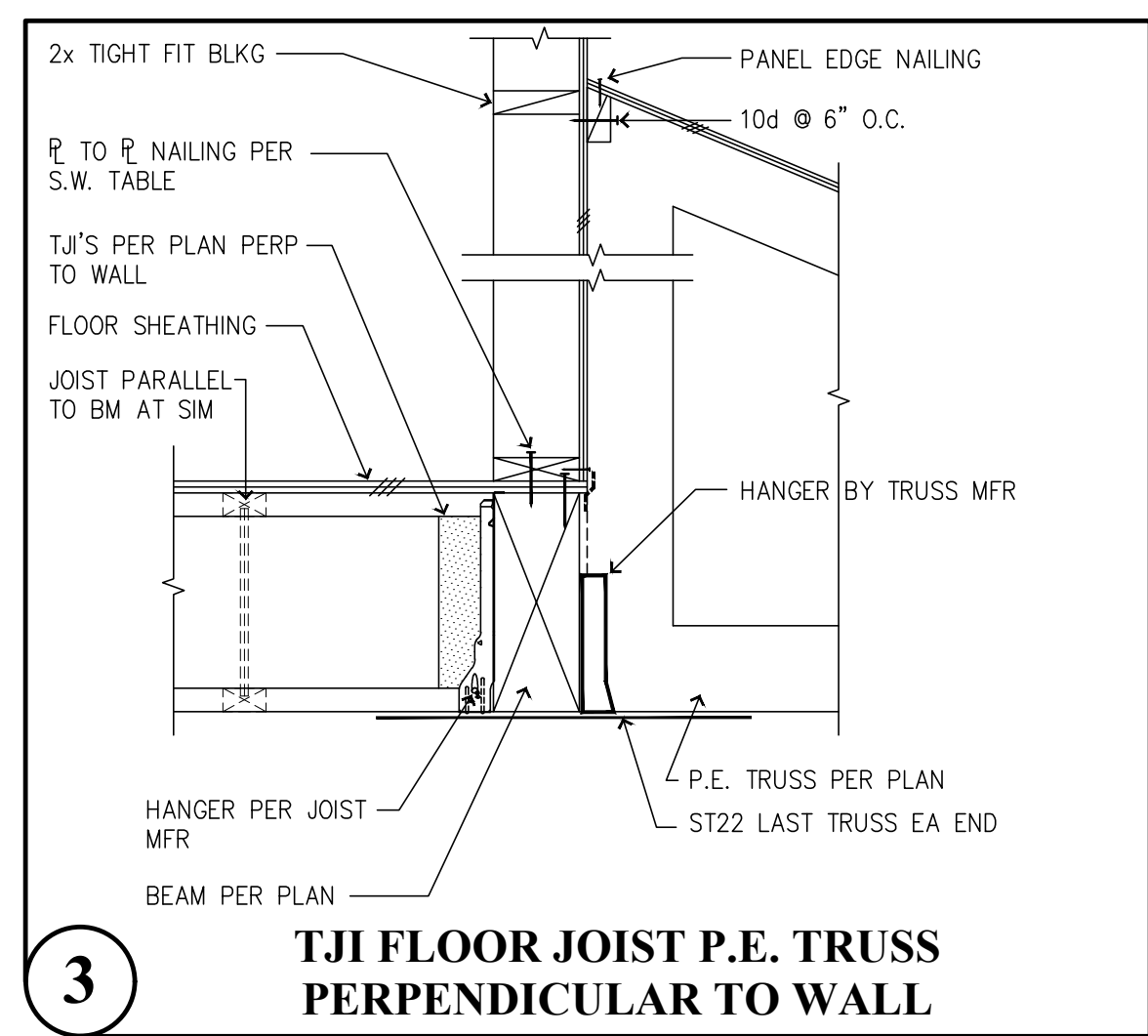
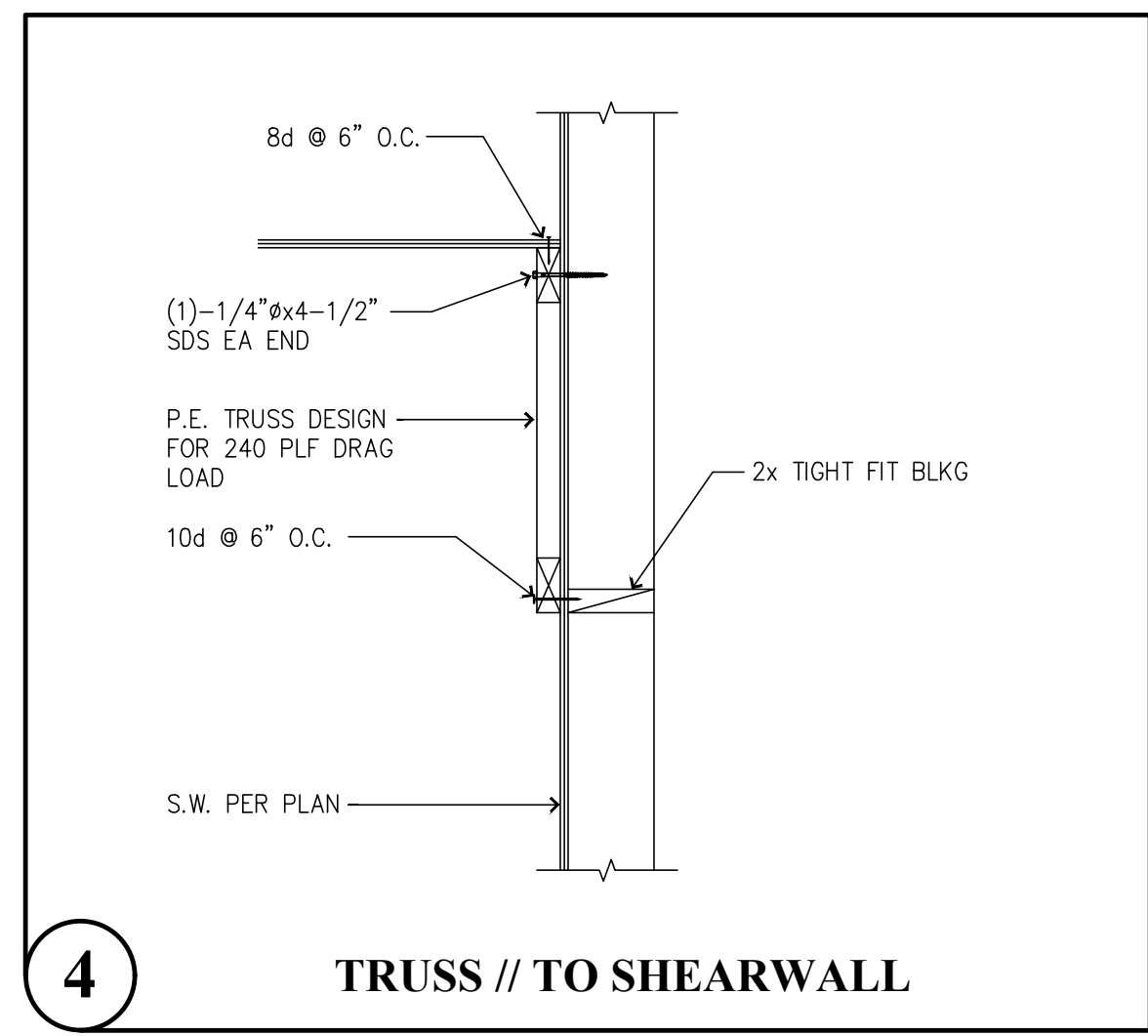
Puyallup, Washington 98374  
 Ph 253-314-9822  
 www.solutions4structures.com

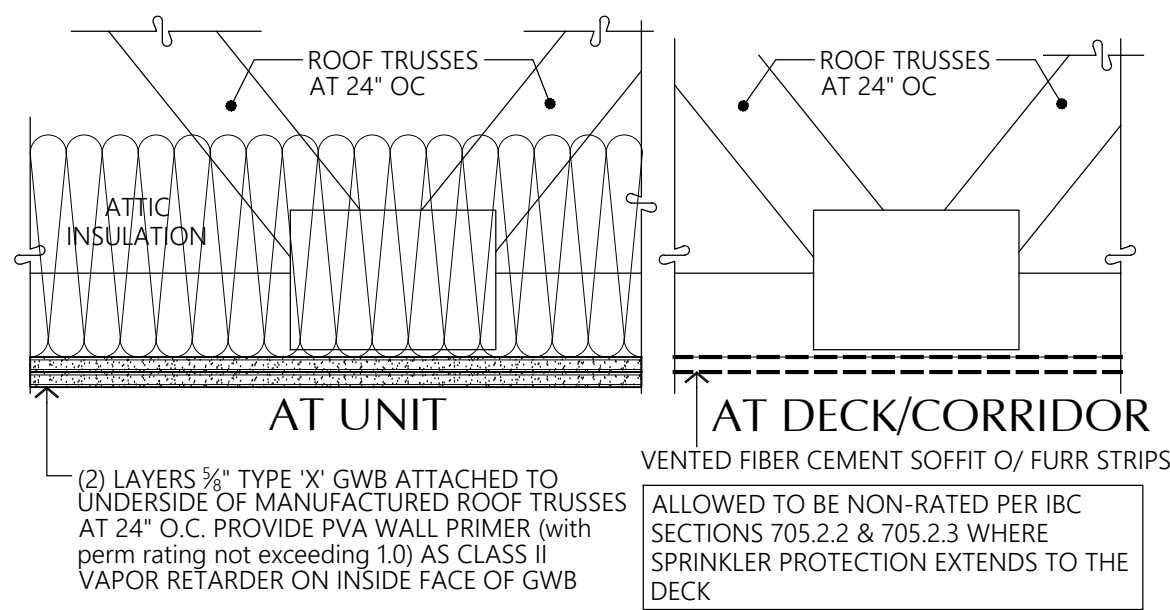
**Solutions 4 Structures**  
 A Structural Engineering Corporation

PROJECT NO. : 23.007  
 DESIGNED BY : TLC, OGG, MRO  
 DRAWN BY : RSO  
 ISSUE DATE : 2-20-24  
 LATEST REV. OF DWG. SET :

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**S5.1**

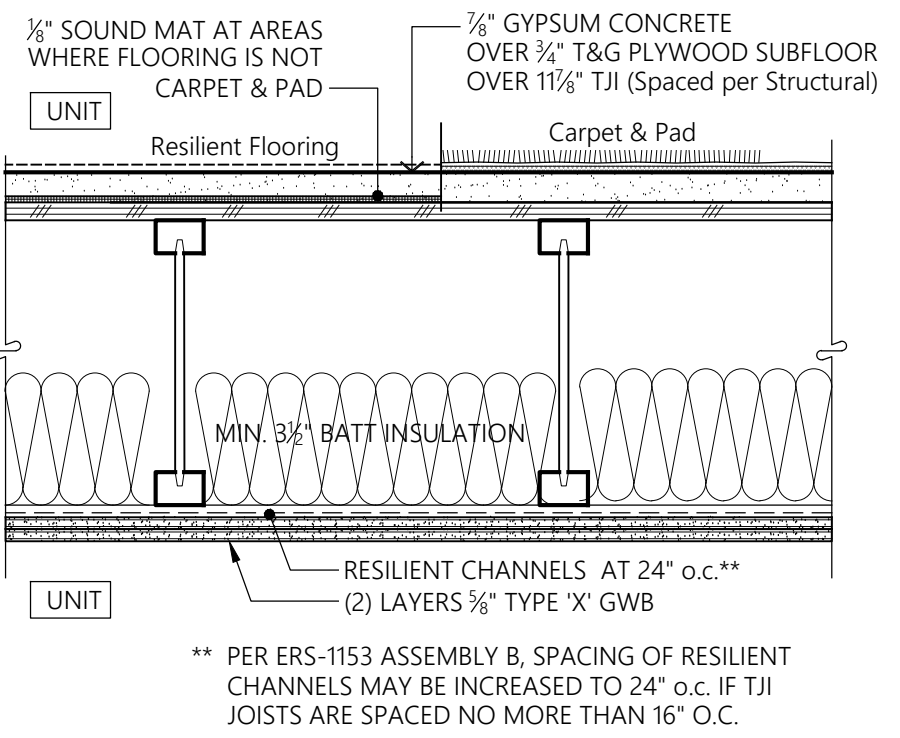




**1-HR GA File No. RC 2602**  
 Base layer 1/2" type X gypsum wallboard applied at right angles to wood roof trusses 24" o.c. with 1 1/2" Type W or S drywall screws 24" o.c. Face layer 1/2" type X gypsum wallboard or gypsum veneer base applied at right angles to trusses with 1 1/2" Type W or S drywall screws 12" o.c. at joints and intermediate trusses and 1 1/2" Type G drywall screws 12" o.c. placed 2" back on either side of end joints. Joints offset 24" from base layer joints. Wood trusses supporting 1/2" wood structural panels applied at right angles to trusses with 8d nails. Appropriate roof covering. Ceiling provides one hour fire resistance protection for trusses.

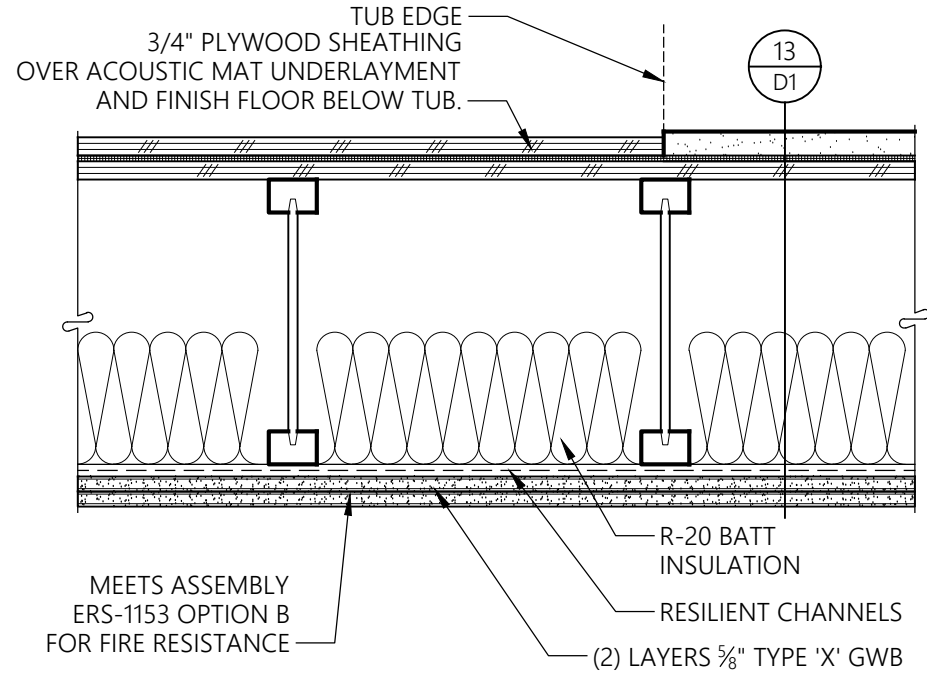
**17 TYPICAL 1-HR ROOF/CEILING**  
 1-1/2" = 1'-0" SECTION

- 1-HR ESR-1153 Assembly B, Sound Rating Option 2**
- The flooring must consist of a single layer of 3/4" span-rated, T&G, sheathing (Exposure 1). Construction adhesive conforming to ASTM D3498 must be applied to the top or the joists prior to placing sheathing. All butt joints of the sheathing must be located over framing members.
  - TJI joists must be installed with a maximum spacing of 24" o.c. for floor-ceiling assemblies.
  - Optional minimum 3/2" glass fiber insulation or glass fiber insulation rated R-30 or less may be installed in the joist plenum when resilient channels are used. The insulation must be placed above the resilient channels between the joist bottom flanges.
  - Ceiling membrane shall be two layers of same-type gypsum board, either: 1/2" USG Firecode "C", 1/2" NGC Gold Bond Fire-Shield "C", or 1/2" type "X" complying with ASTM C36.
  - The first layer of gypsum board must be installed perpendicular to the TJI joist and attached using 1 1/4" long, Type S screws spaced 12" o.c. The second layer must be installed with the joints staggered from the first layer. The second layer must be fastened to the TJI joists with 2" long, Type S screws spaced 12" o.c. in the field and 8" o.c. at the butt joints. Type G screws, 1 1/2" long, must be spaced 8" o.c. and 6" from each side of the transverse joints of the second layer. The second layer must be finished with joint tape and compound.
  - Resilient channels are required to be used as part of the ceiling attachment system, provided they are spaced 16" o.c. and fastened perpendicular to the TJI joists using 1" long, Type S screws spaced 12" o.c. When resilient channels are used, the first layer of the ceiling membrane must be installed perpendicular to the channels and attached to the resilient channels using 1" long, Type S screws spaced 12" o.c. The second layer must be installed with the joints staggered from the first layer and attached using 3/4" long, Type S screws. The screw spacing for the second layer of gypsum board must be a maximum of 12" o.c. in the field and 8" o.c. at the butt joints. Type G screws, 1 1/2" long, must be spaced 8" o.c. and 6" from each side of the transverse joints of the second layer, the second layer must be finished with joint tape and compound.

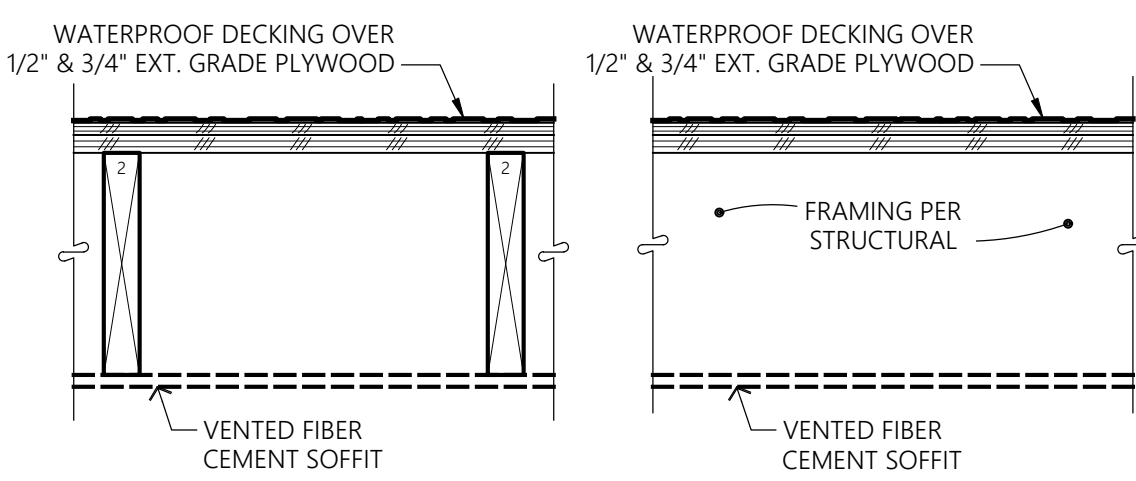


**STC = 58 per ICC-ES Evaluation Report IIC = 54 With Carpet & Pad**

**13 TYP. 1-HR FLOOR/CEILING AT DWELLING UNITS**  
 1-1/2" = 1'-0" SECTION

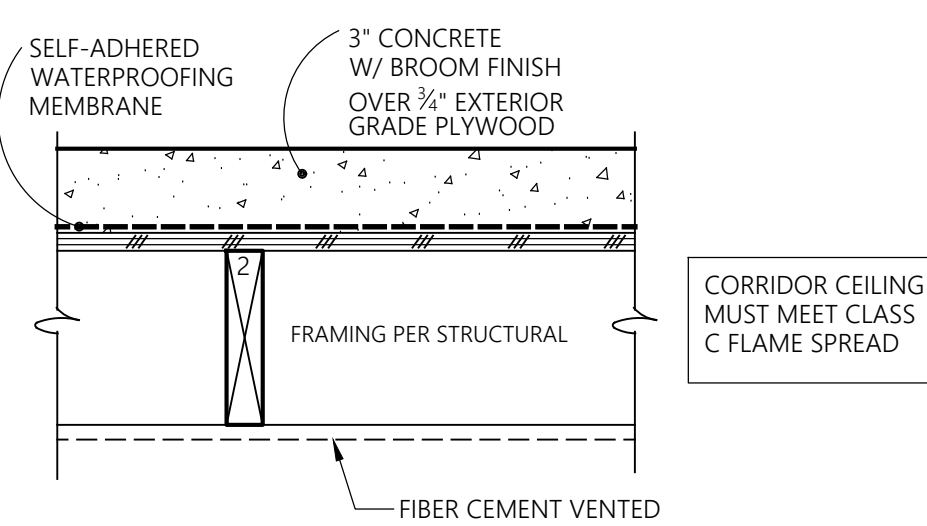


**14 FLOOR BENEATH TUB**  
 1 1/2" = 1'-0" SECTION

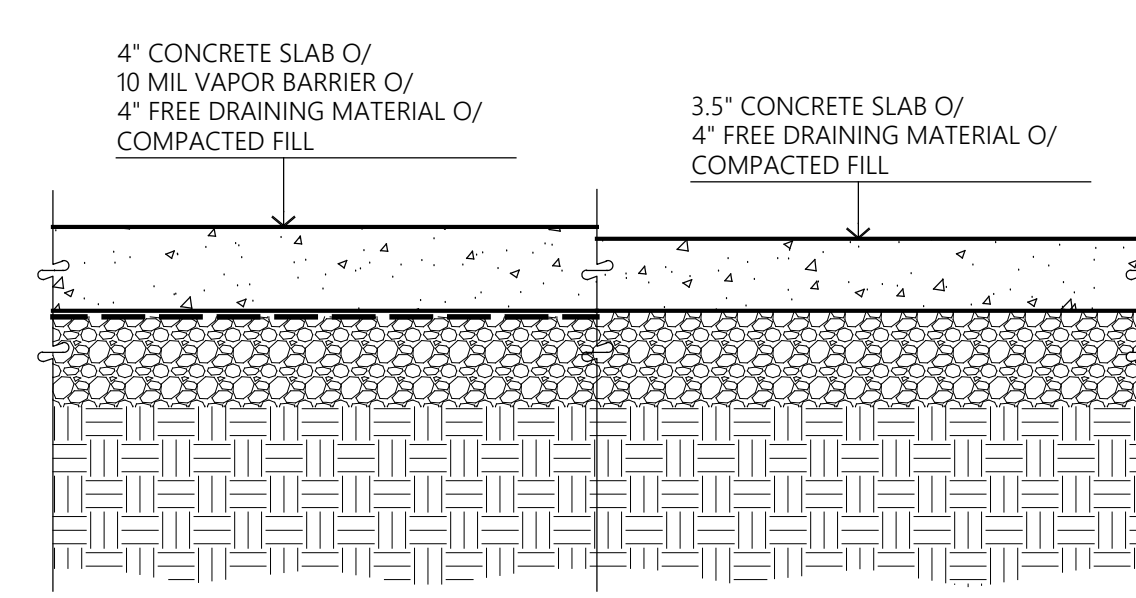


ASSEMBLY ALLOWED TO BE NON-RATED PER OSSC SECTIONS 705.2.2 AND 705.2.3 WITH FIRE SPRINKLERS PROTECTING DECK

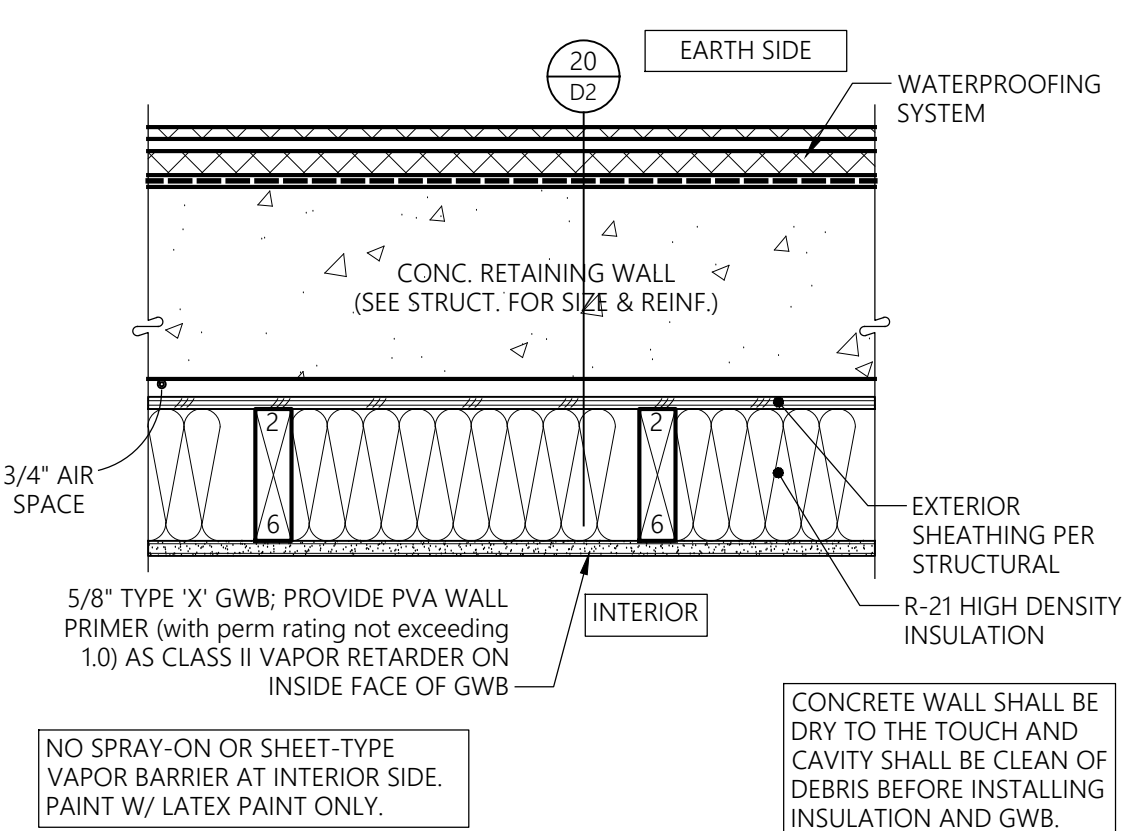
**19 FLOOR AT DECK**  
 1 1/2" = 1'-0" SECTION



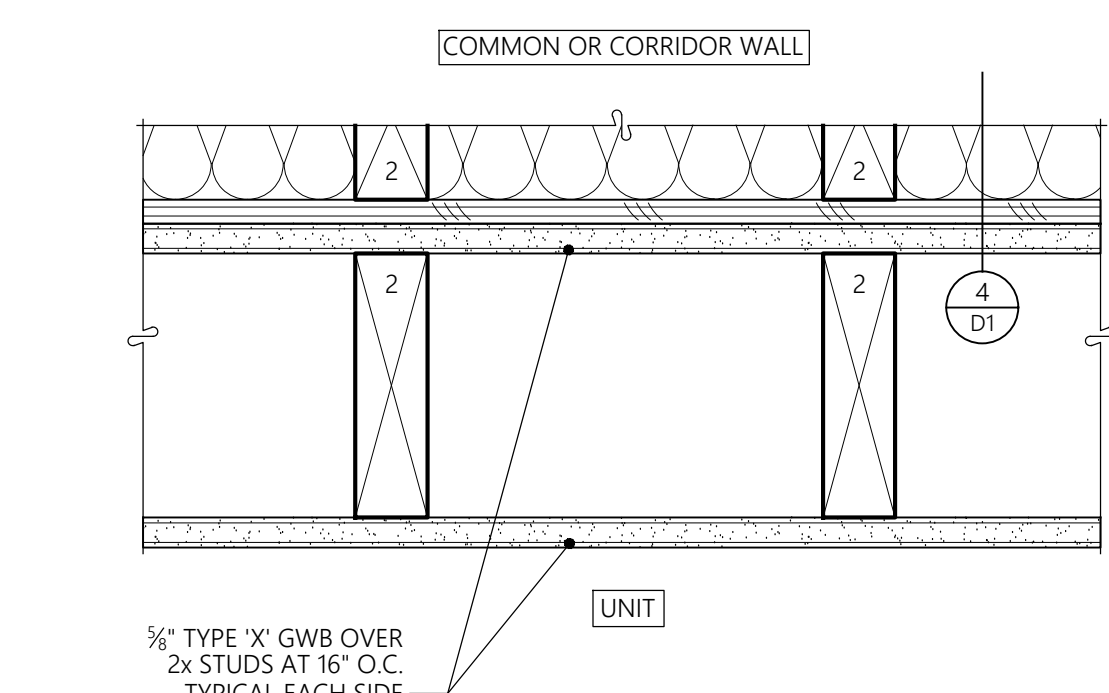
**15 FLOOR AT CORRIDOR/LANDING**  
 1-1/2" = 1'-0" SECTION



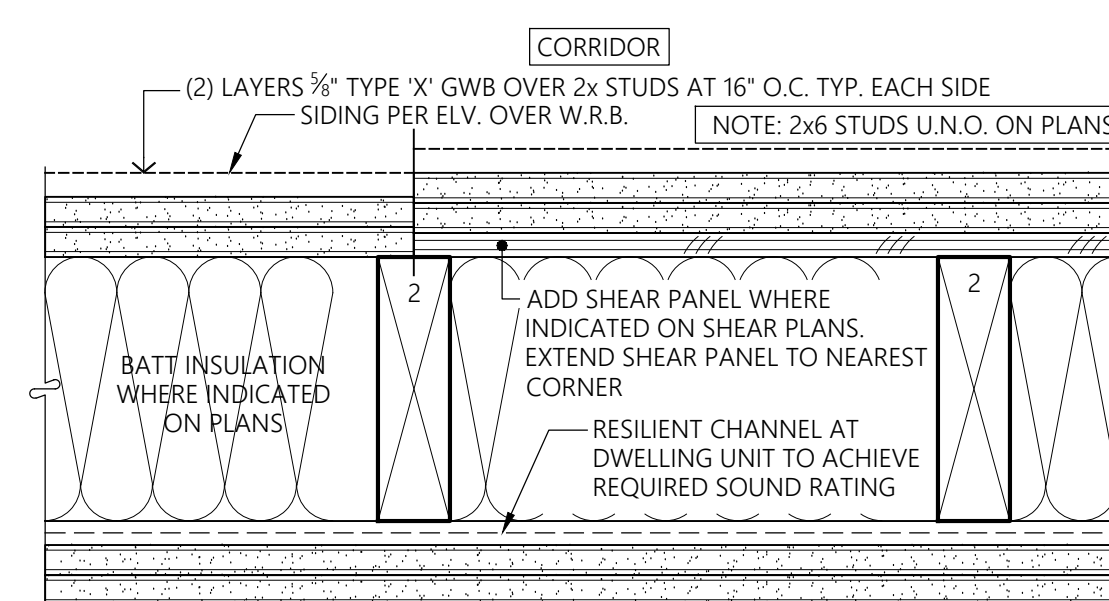
**20 TYP. SLAB-ON-GRADE**  
 1-1/2" = 1'-0" SECTION



**12 CONCRETE WALL @ EXTERIOR WALL**  
 1-1/2" = 1'-0" PLAN

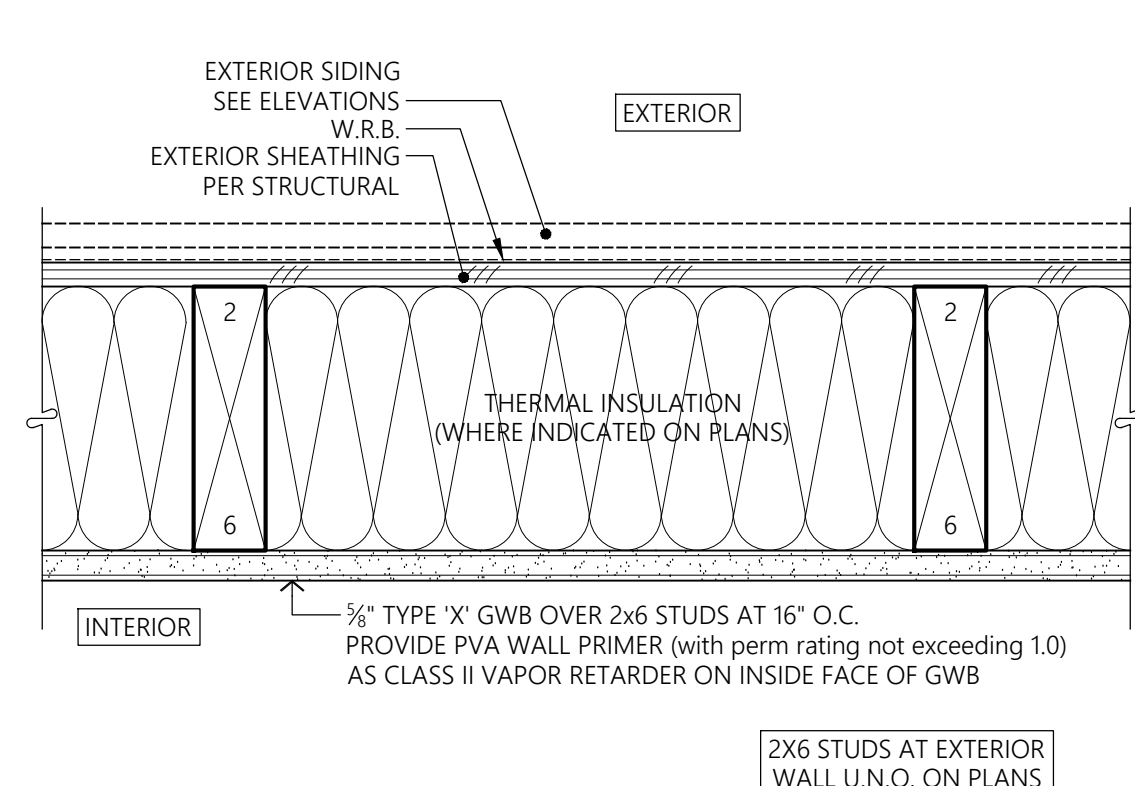


**6 FURRED PLUMBING WALL**  
 3" = 1'-0" PLAN



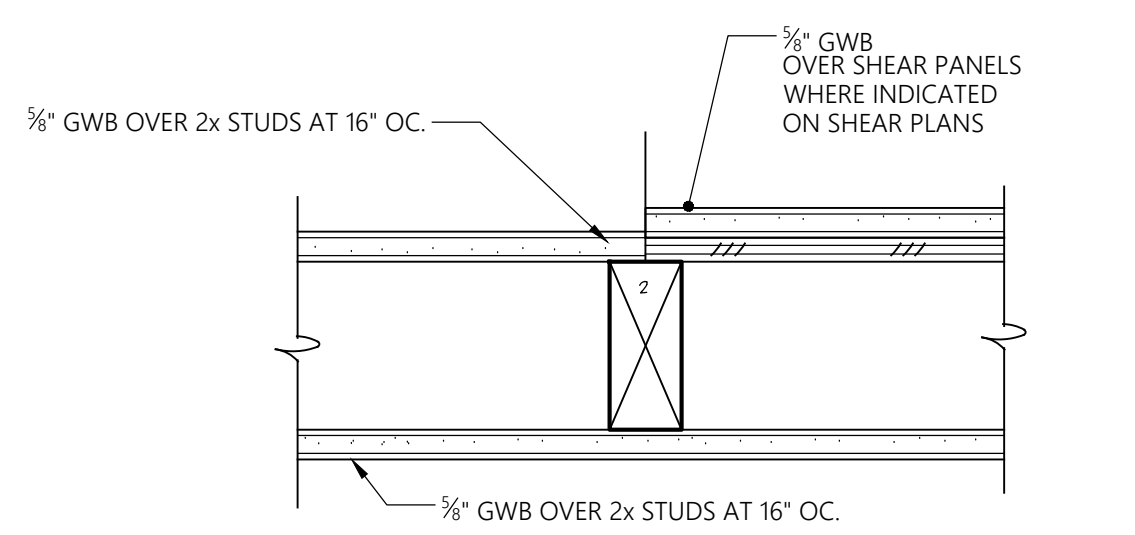
**2-HR GA File No. WP4136 STC 50 (TL-93-103)**  
 Base layer 1/2" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to each side of 2 x 4 wood studs 16" o.c. with 1 1/2" Type W drywall screws 12" o.c. Face layer 1/2" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to each side with 1 1/4" Type W drywall screws 12" o.c. and offset 6" from screws in base layer. Joints staggered 16" each layer and side. At shear walls, increase fastener length by the thickness of the shear panel. Add resilient channel and 3" insulation to achieve sound rating

**7 TYP. 2-HR FIRE BARRIER WALL AT EXIT CORRIDOR**  
 3" = 1'-0" PLAN

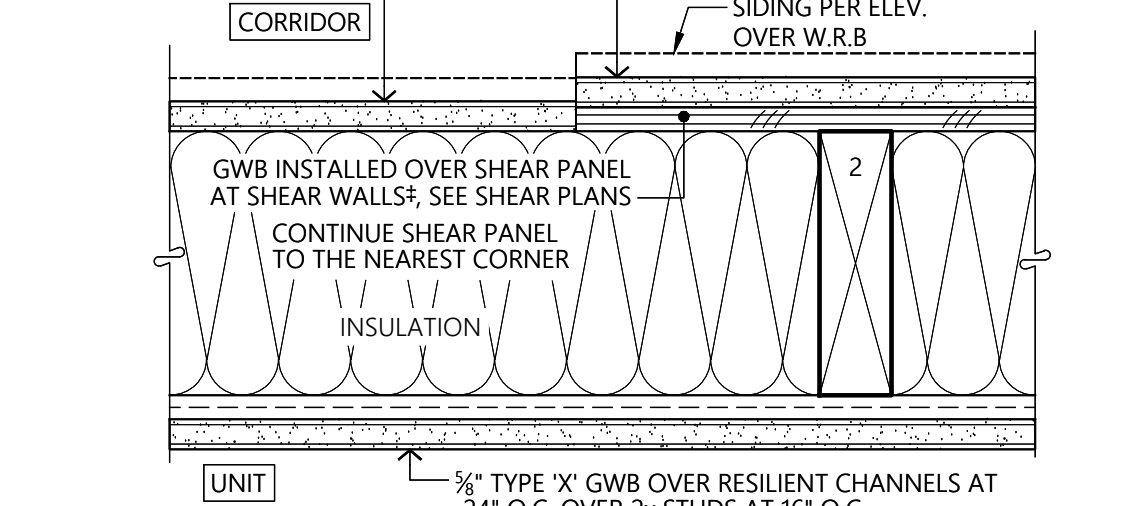


**1 TYPICAL EXTERIOR WALL**  
 3" = 1'-0" PLAN

NOTE: SHEAR DIAPHRAGM MAY OCCUR ON EITHER SIDE OF THE WALL OR ON BOTH SIDES.

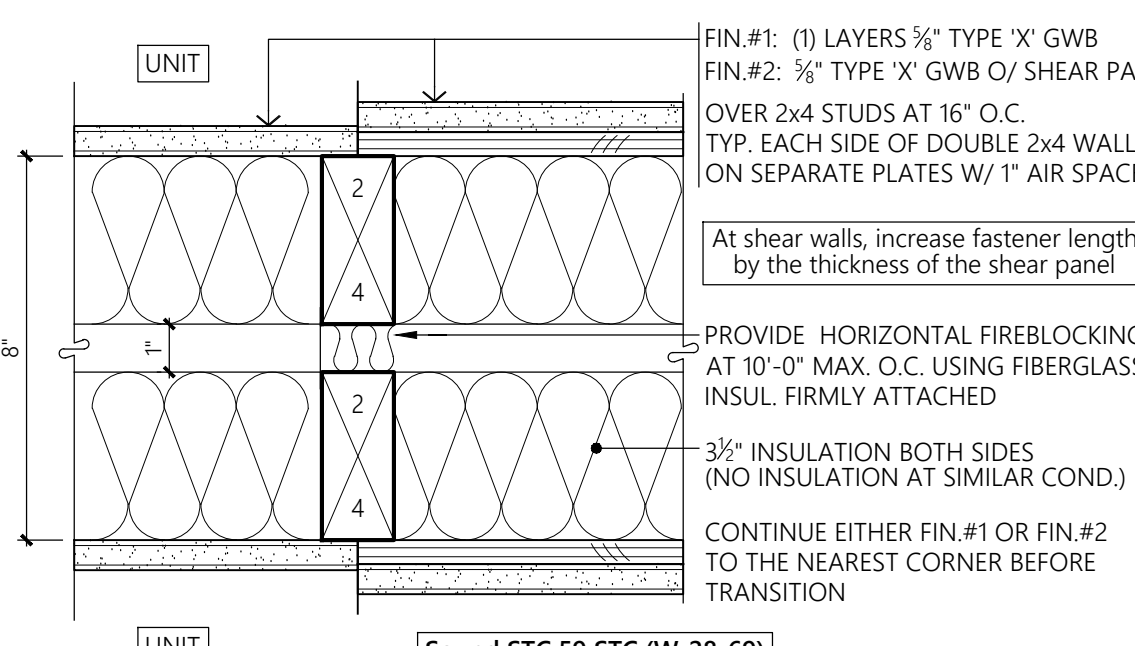


**2 TYP. INTERIOR WALL**  
 3" = 1'-0" PLAN



**1-HR GA File No. WP3243 50-54 STC Sound**  
 Resilient channels 24" o.c. attached at right angles to ONE SIDE of 2x4" wood studs 24" o.c. with 1 1/2" Type S drywall screws. One layer 1/2" Type X gypsum wallboard or gypsum veneer base applied at right angles to channels with 1" Type S drywall screws 8" o.c. with vertical joints located midway between studs. 3" mineral or glass fiber insulation in stud space.  
 OPPOSITE SIDE - One layer 1/2" Type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to studs with 6d cement coated nails 1 1/4" long, 0.0915" shank, 3/4" heads, 7" o.c. Vertical joints staggered 24" on opposite sides. (LOAD-BEARING)  
 \* Per general note 16 greater stud sizes are permitted than those specified.  
 † At shear walls, increase fastener length by the thickness of the shear panel

**3 TYP. 1-HR CORRIDOR WALL**  
 3" = 1'-0" PLAN



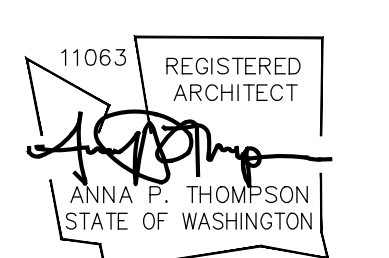
**1-HR Using Calculated Fire Resistance Method**  
 Using IBC Section 722, Tables 722.6.2(1) and 722.6.2(2), 1/2" Type X GWB (40 min.) and studs at 16" o.c. (20 min.) provide 60 minutes of protection  
 DETAIL SIMILAR WHERE UNIT SEPARATION WALL CONTINUES DOWN TO GARAGES

**4 TYP. 1-HR COMMON WALL SEPARATING DWELLING UNITS**  
 3" = 1'-0" PLAN

FR 2309 VERTICALS (01-100) DWG

25 Central Way, Suite 210  
 Kirkland, Washington 98033  
 P: 425.454.7130 F: 425.658.1208  
 Web: www.milbrandtarch.com

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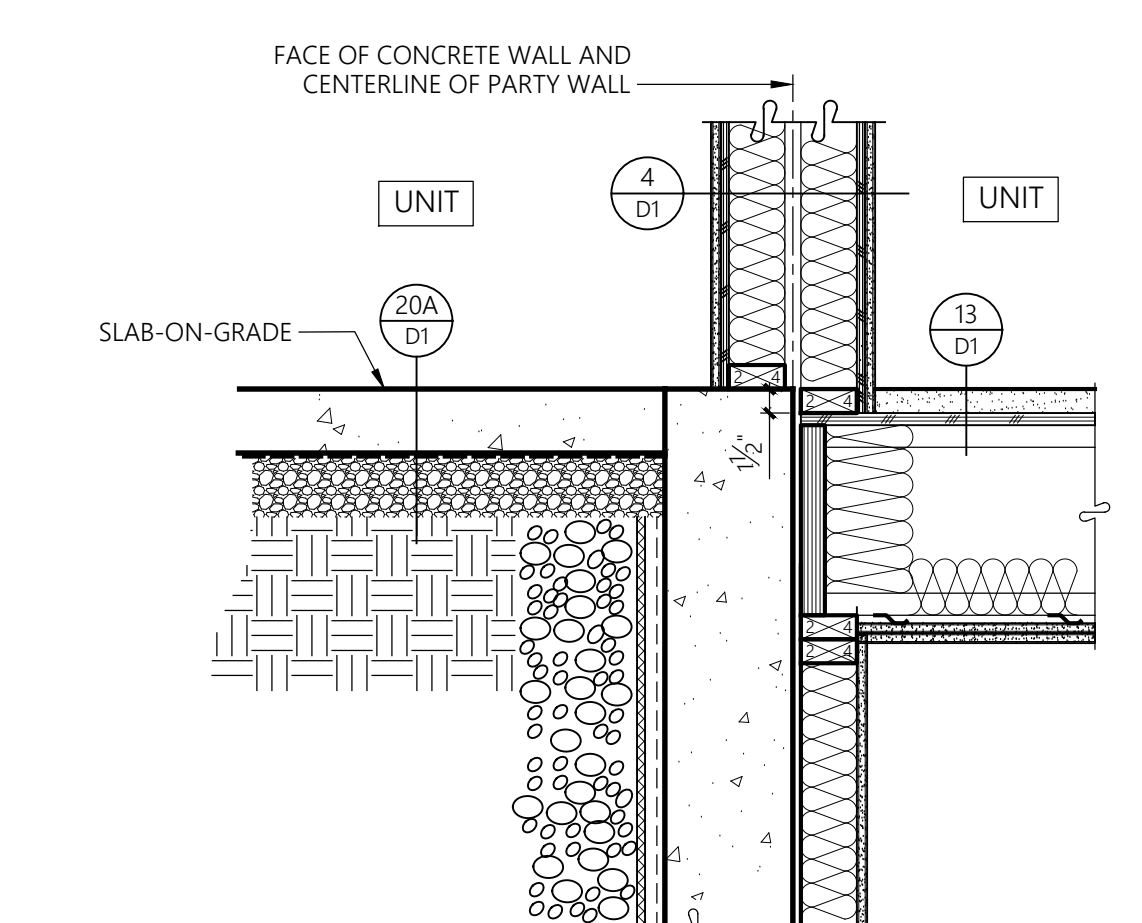
Details

**Bradley Heights Apartments**  
 Puyallup, Wa

**Timberlane Partners**

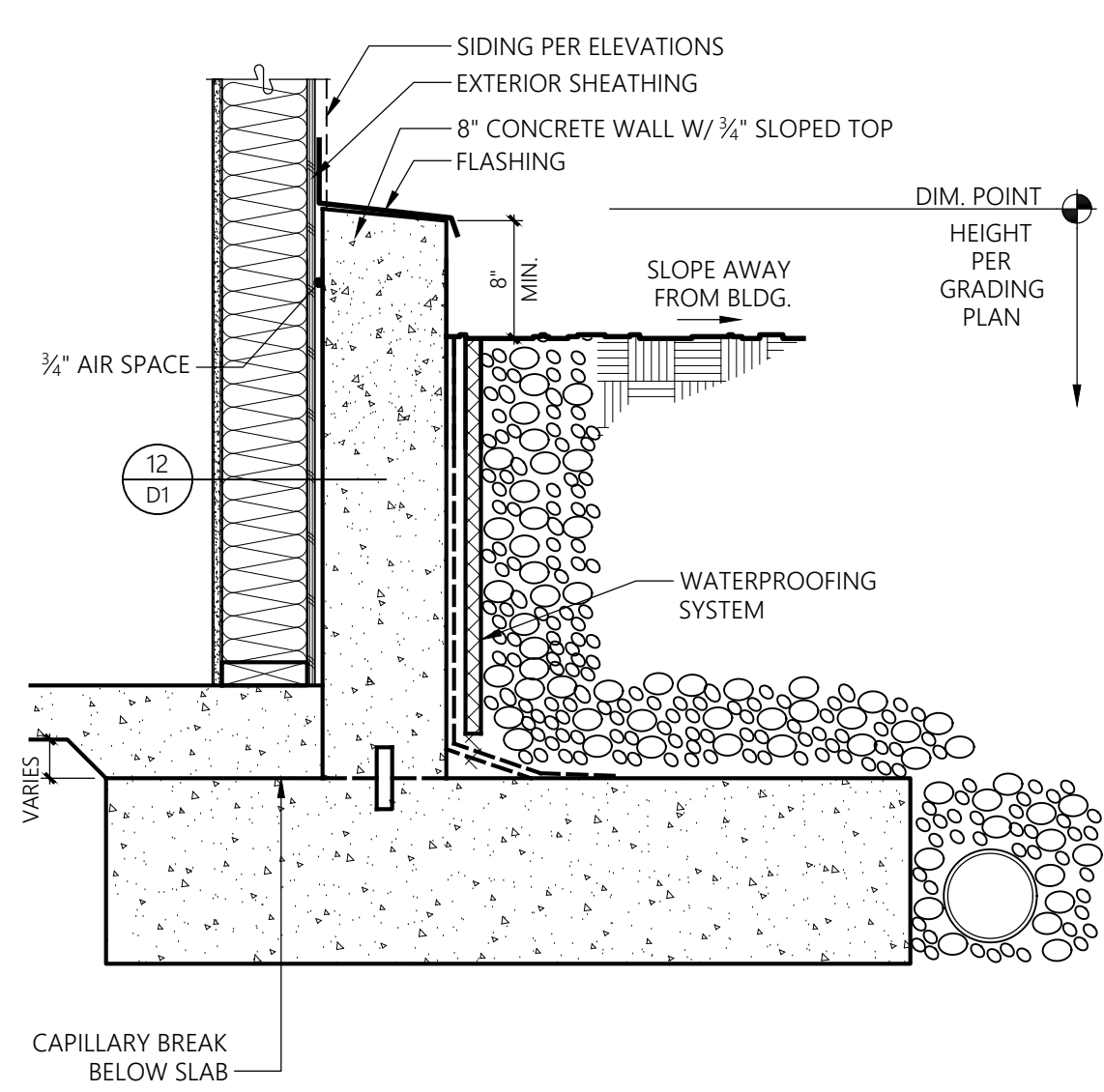
**Revisions**  
 No. Date Description

Initial Publish Date:  
 Date Plotted: **2-20-24**  
 Job No.: **23-06** Drawn By: **APT/HDM**  
 Sheet No.:

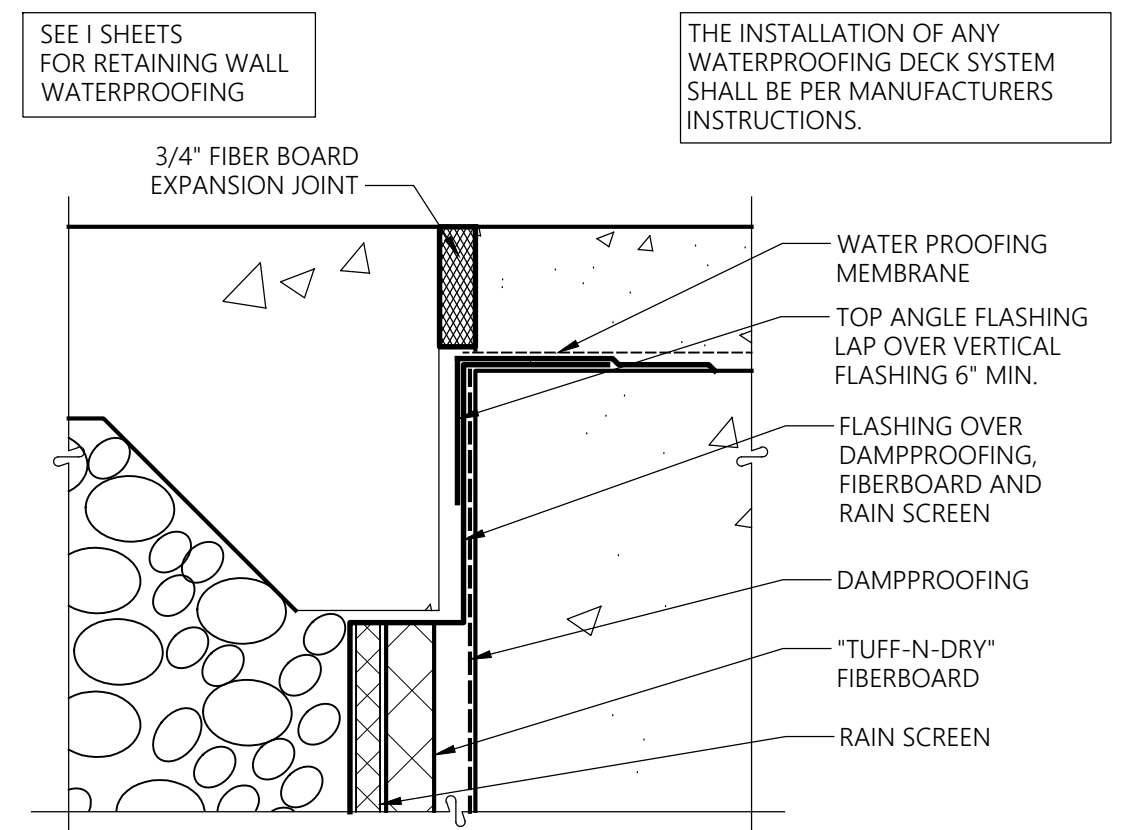


**18** BASEMENT RETAINING WALL  
1" = 1'-0" SECTION

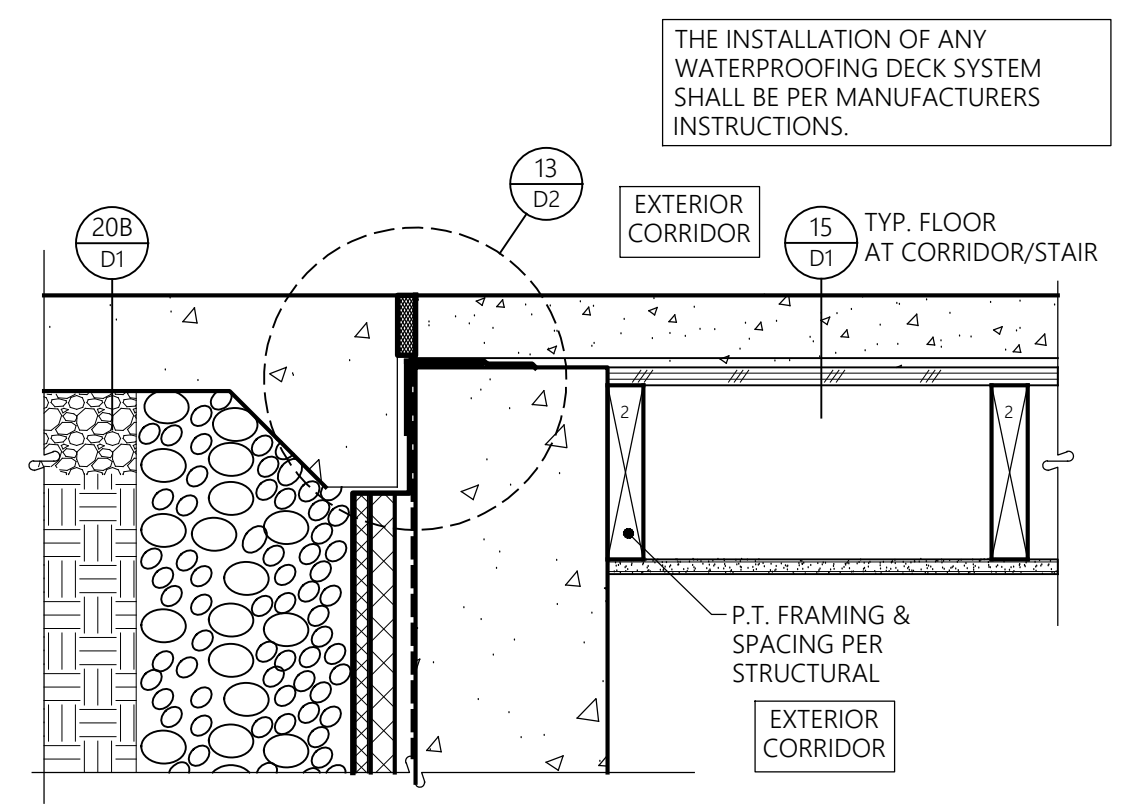
SEE STRUCTURAL ENGINEERS DESIGN, PAGE S3.1



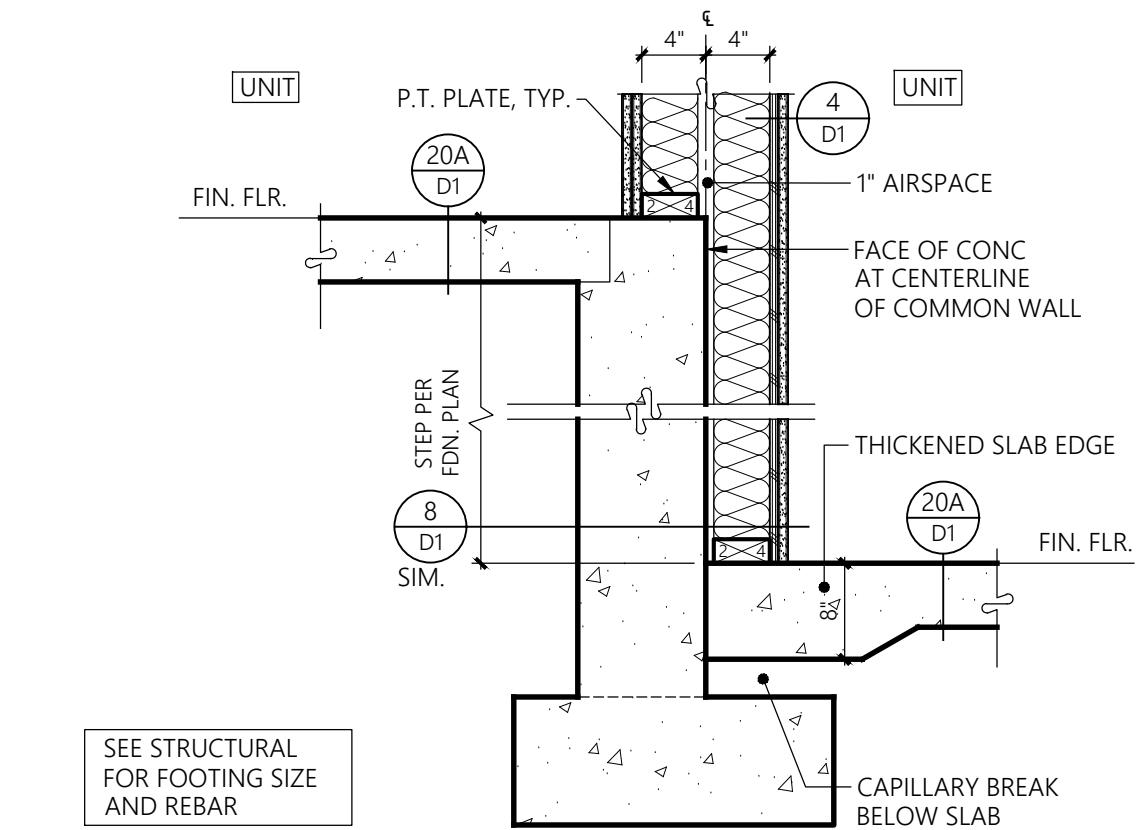
**20** CONCRETE WALL  
1" = 1'-0" SECTION



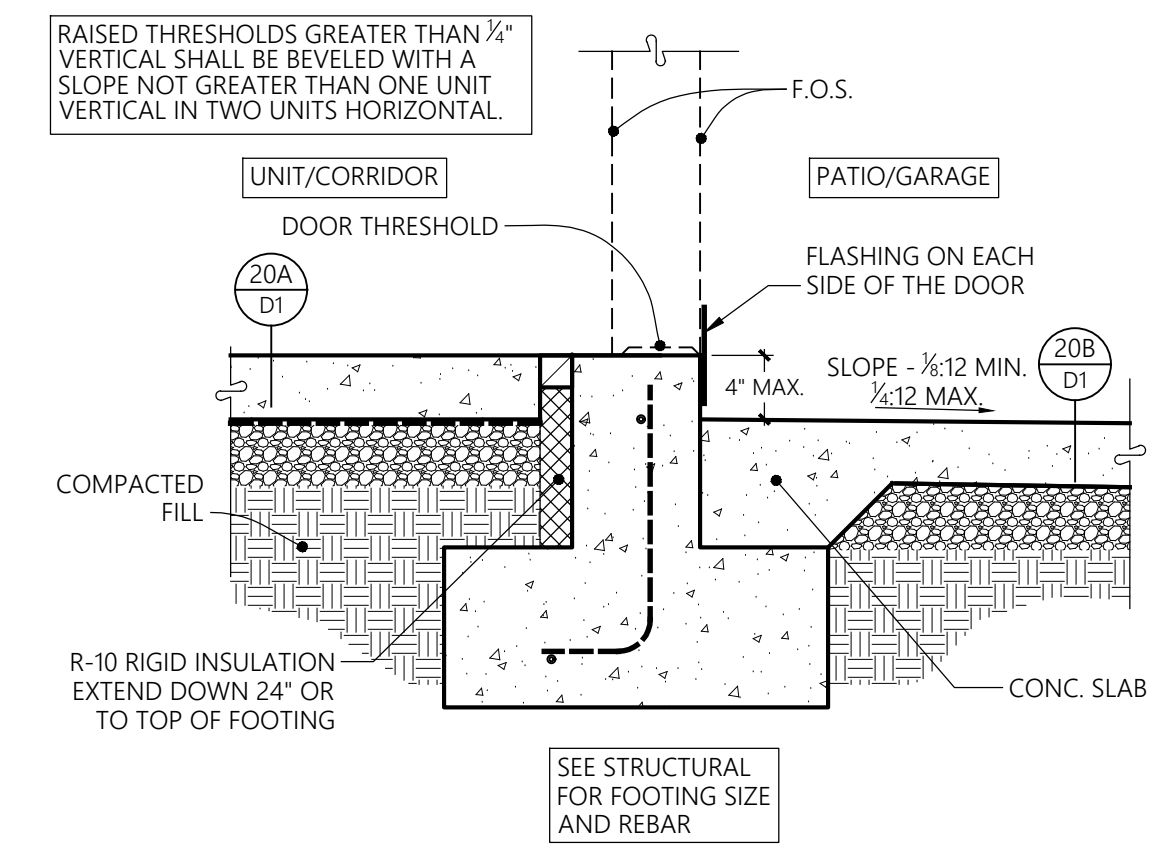
**13** CORRIDOR / SLAB FLASHING  
3" = 1'-0" SECTION



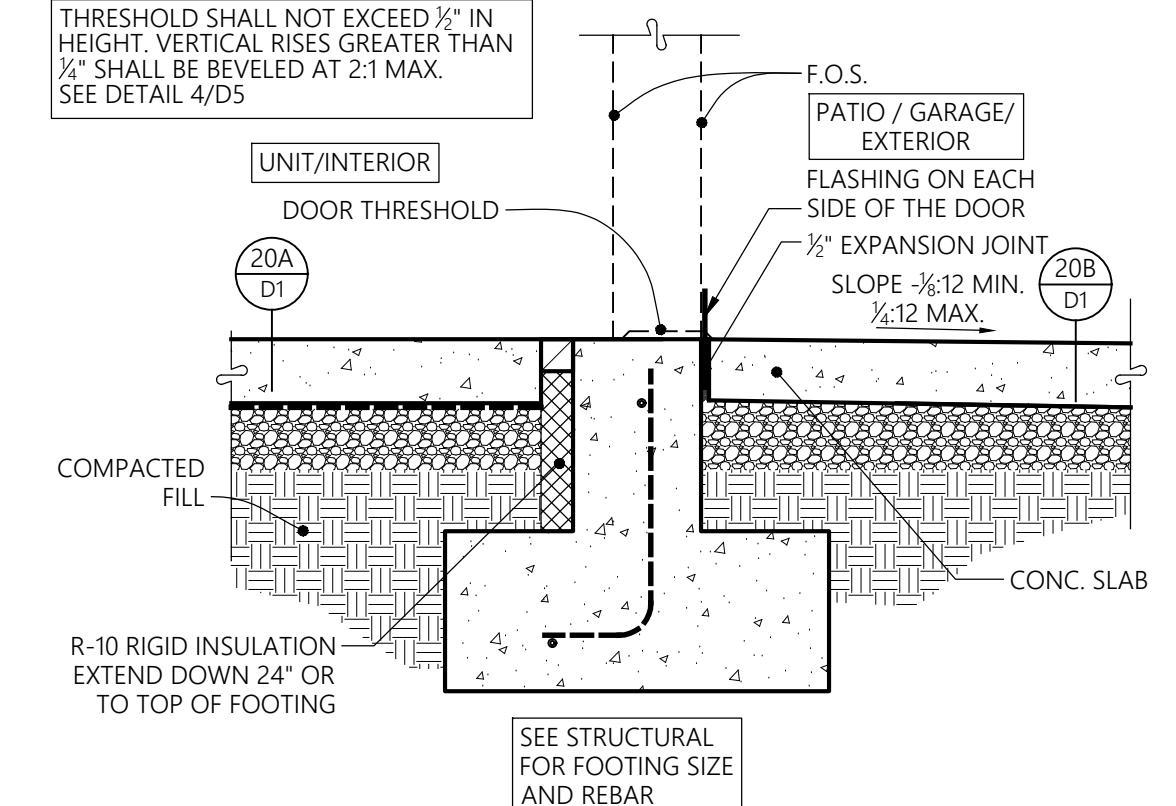
**14** CORRIDOR / SLAB TRANSITION  
1-1/2" = 1'-0" SECTION



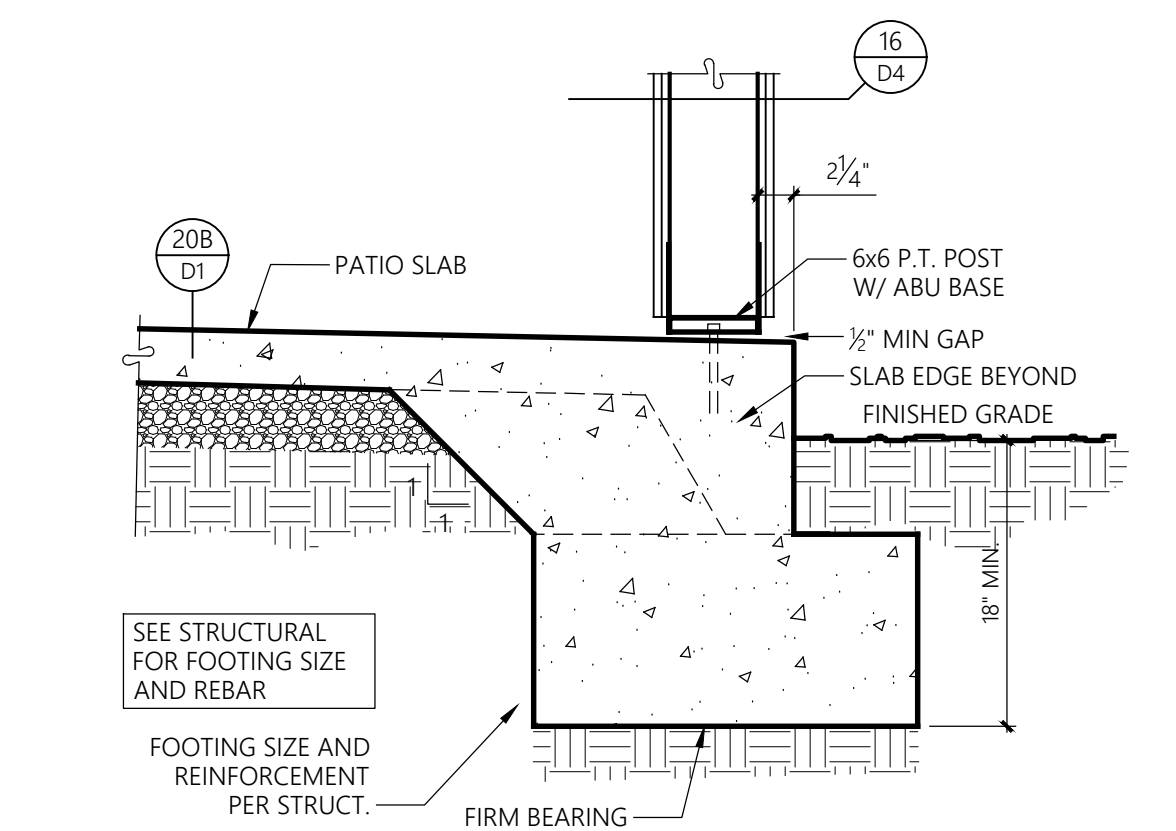
**16** COMMON WALL FOUNDATION UNIT -T0- UNIT AT STEP  
1" = 1'-0" SECTION



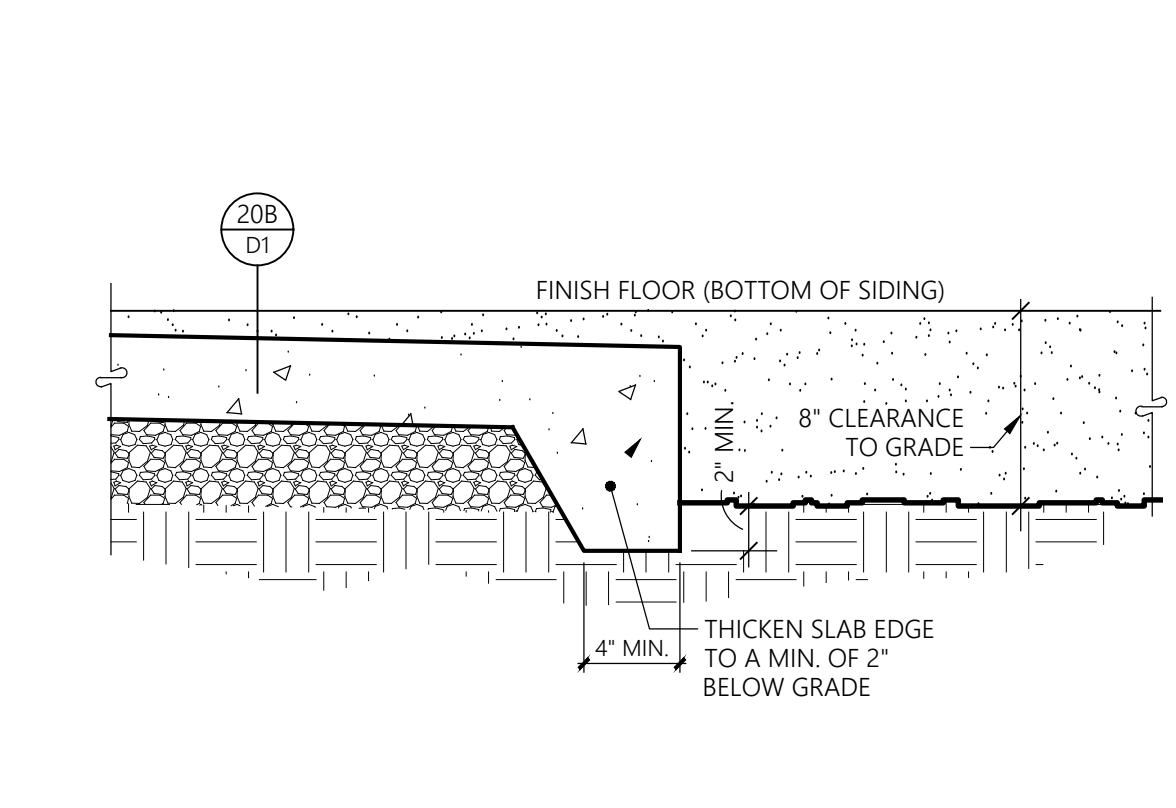
**5** SWING DOOR THRESHOLD AT PATIO OR GARAGE  
1" = 1'-0" SECTION



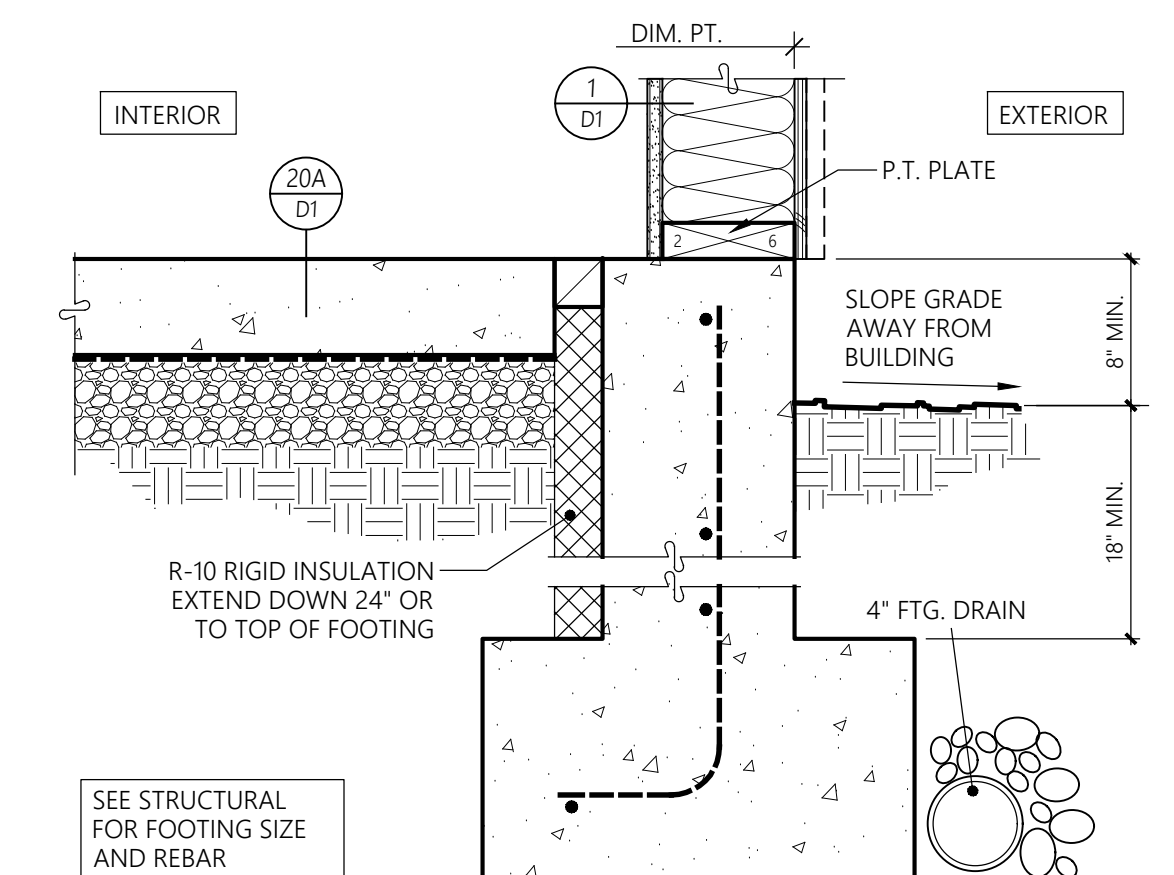
**6** SWING DOOR THRESHOLD AT ACCESSIBLE ENTRANCE  
1" = 1'-0" SECTION



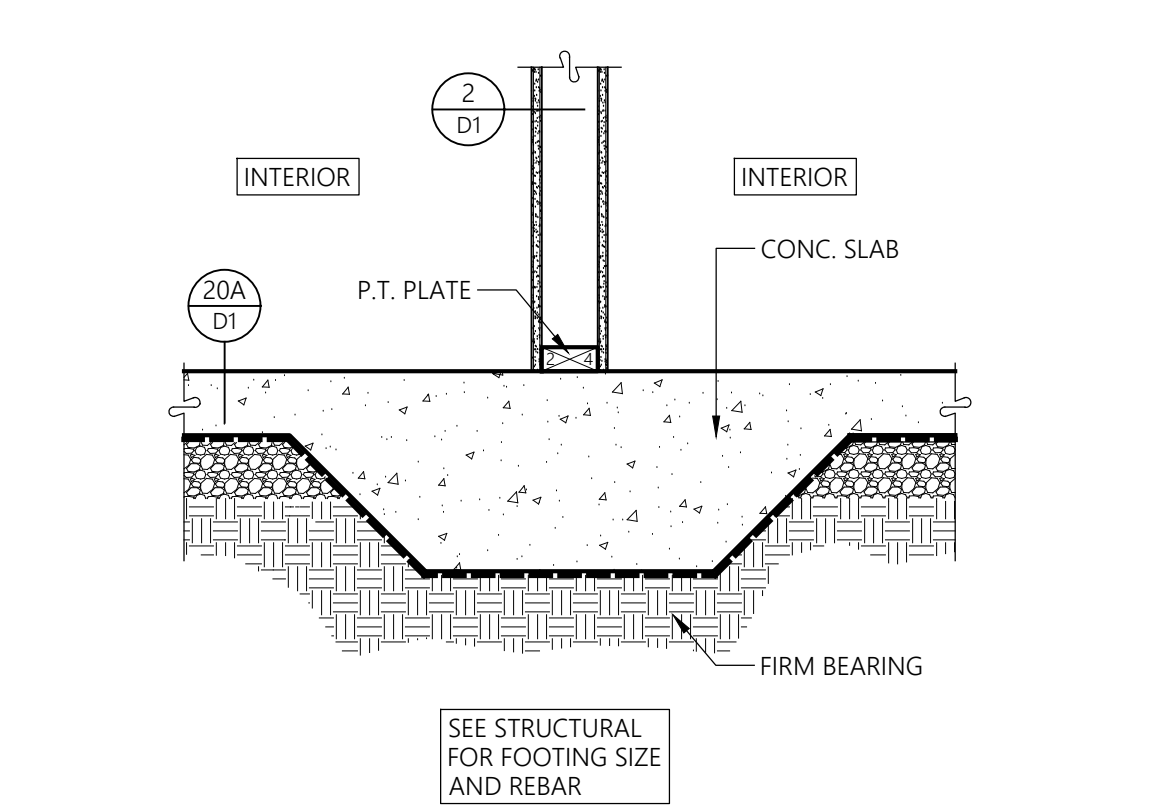
**7** POST FOOTING AT PATIO  
1" = 1'-0" SECTION



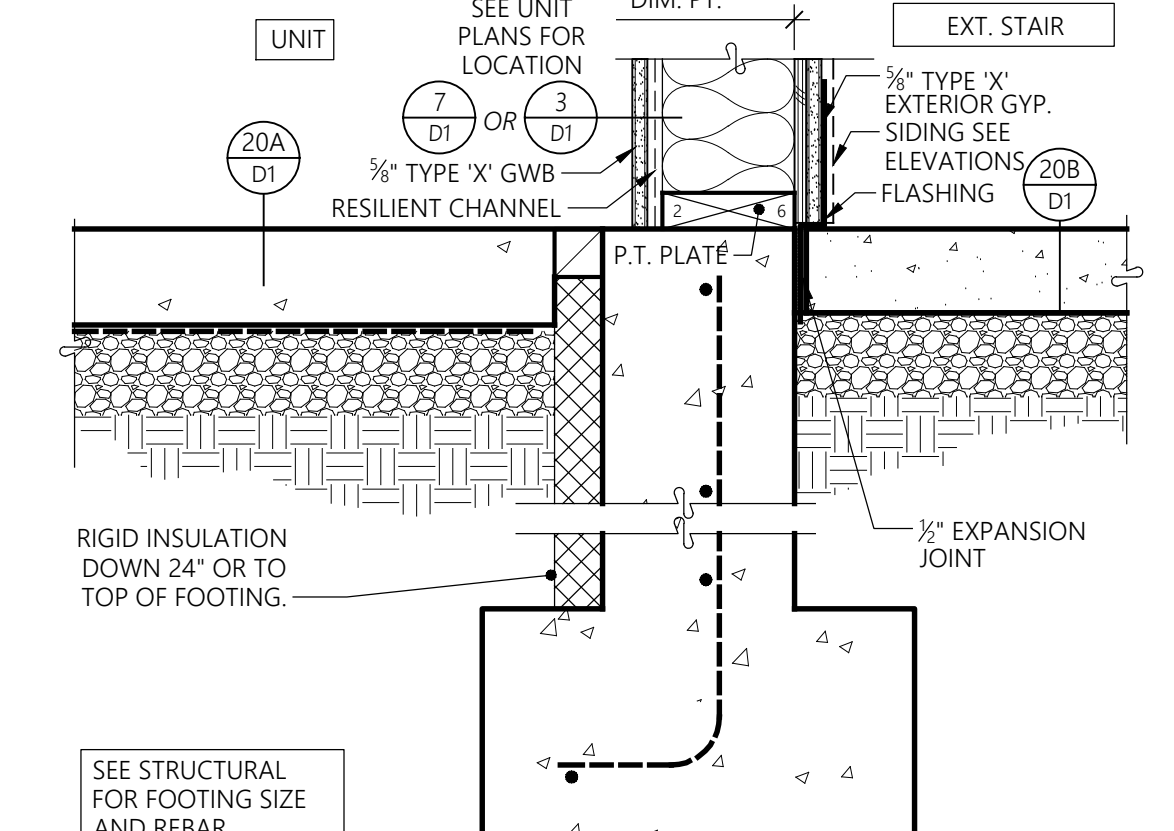
**8** THICKENED CONC. SLAB EDGE AT PORCH / PATIO  
1-1/2" = 1'-0" SECTION



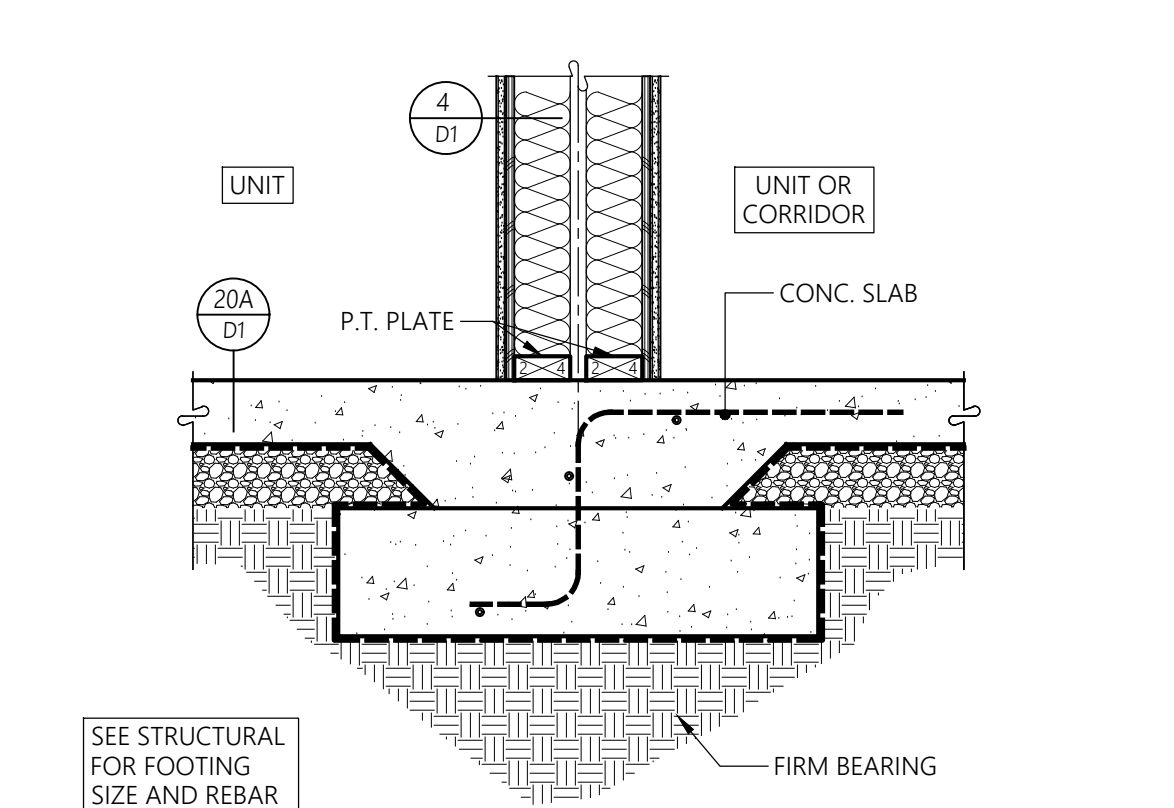
**1** TYP. EXTERIOR WALL FOOTING  
1-1/2" = 1'-0" SECTION



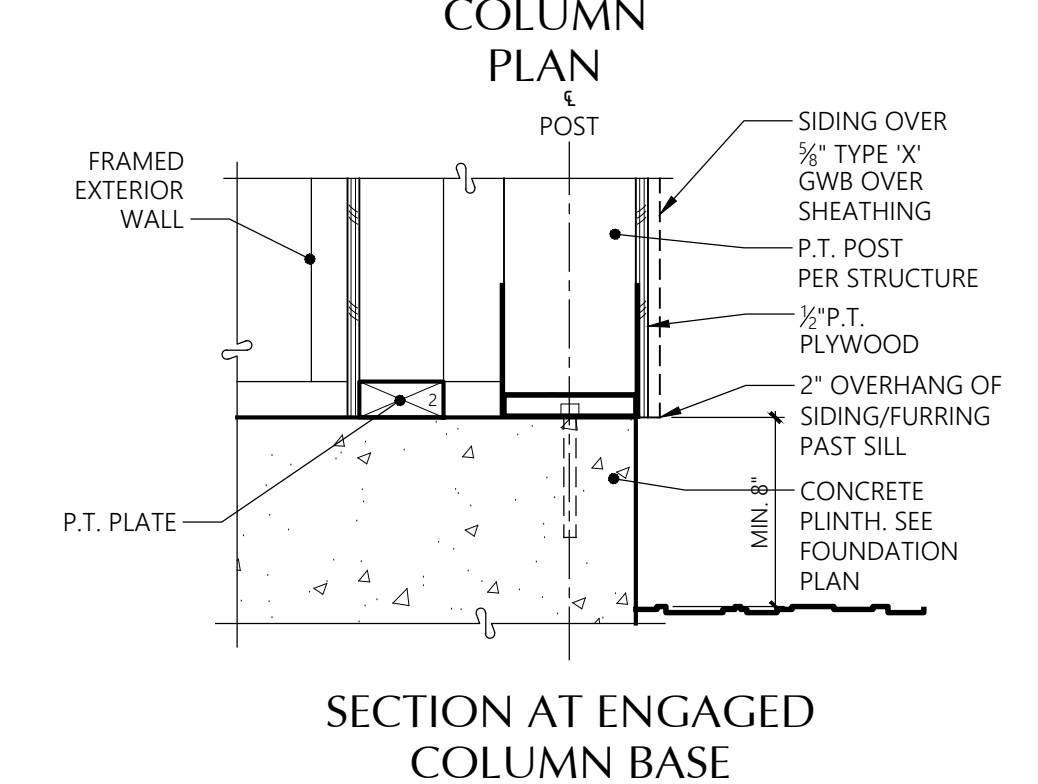
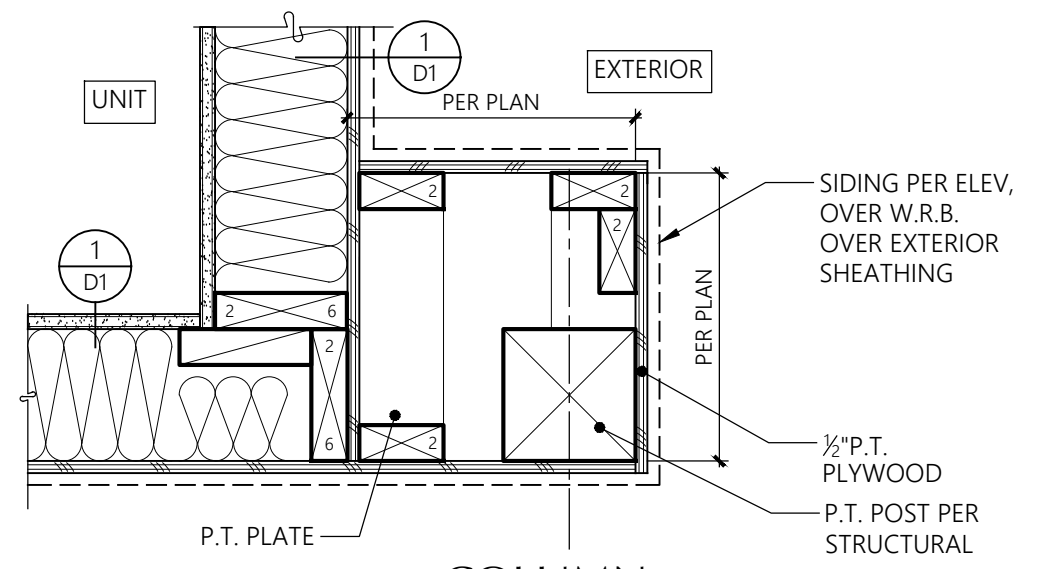
**2** INTERIOR WALL FOOTING  
1" = 1'-0" SECTION



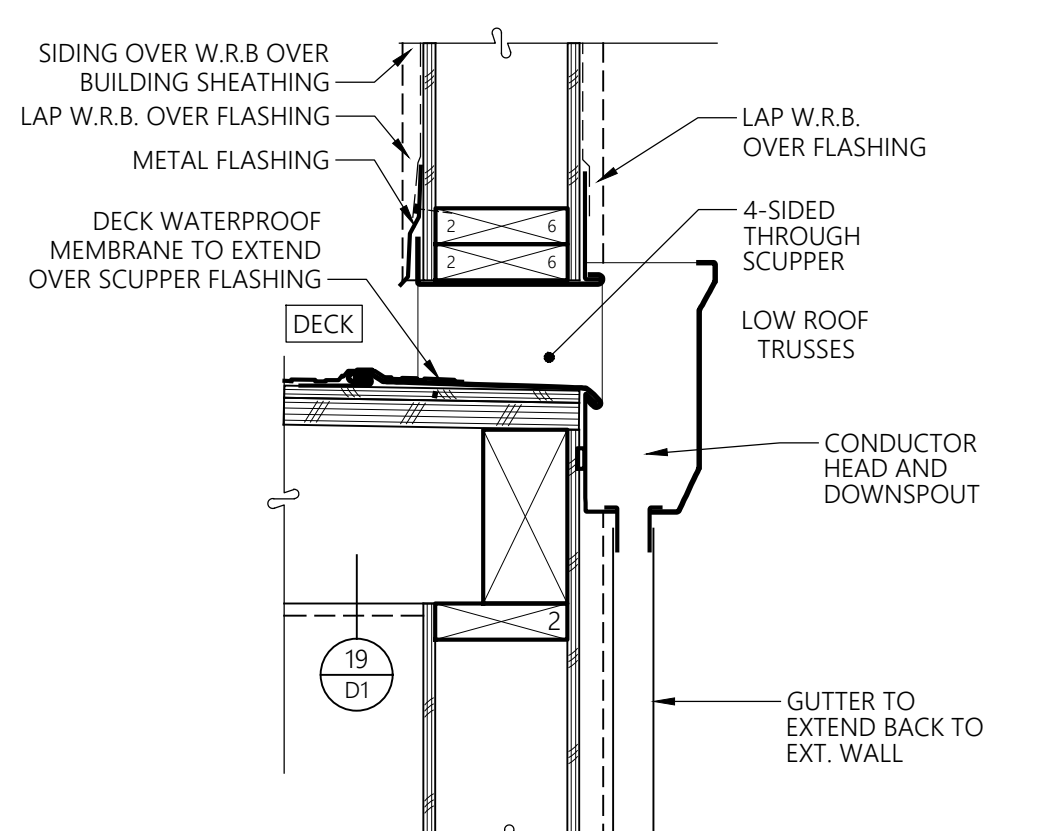
**3** TYP. STAIR WALL FOOTING  
1 1/2" = 1'-0" SECTION



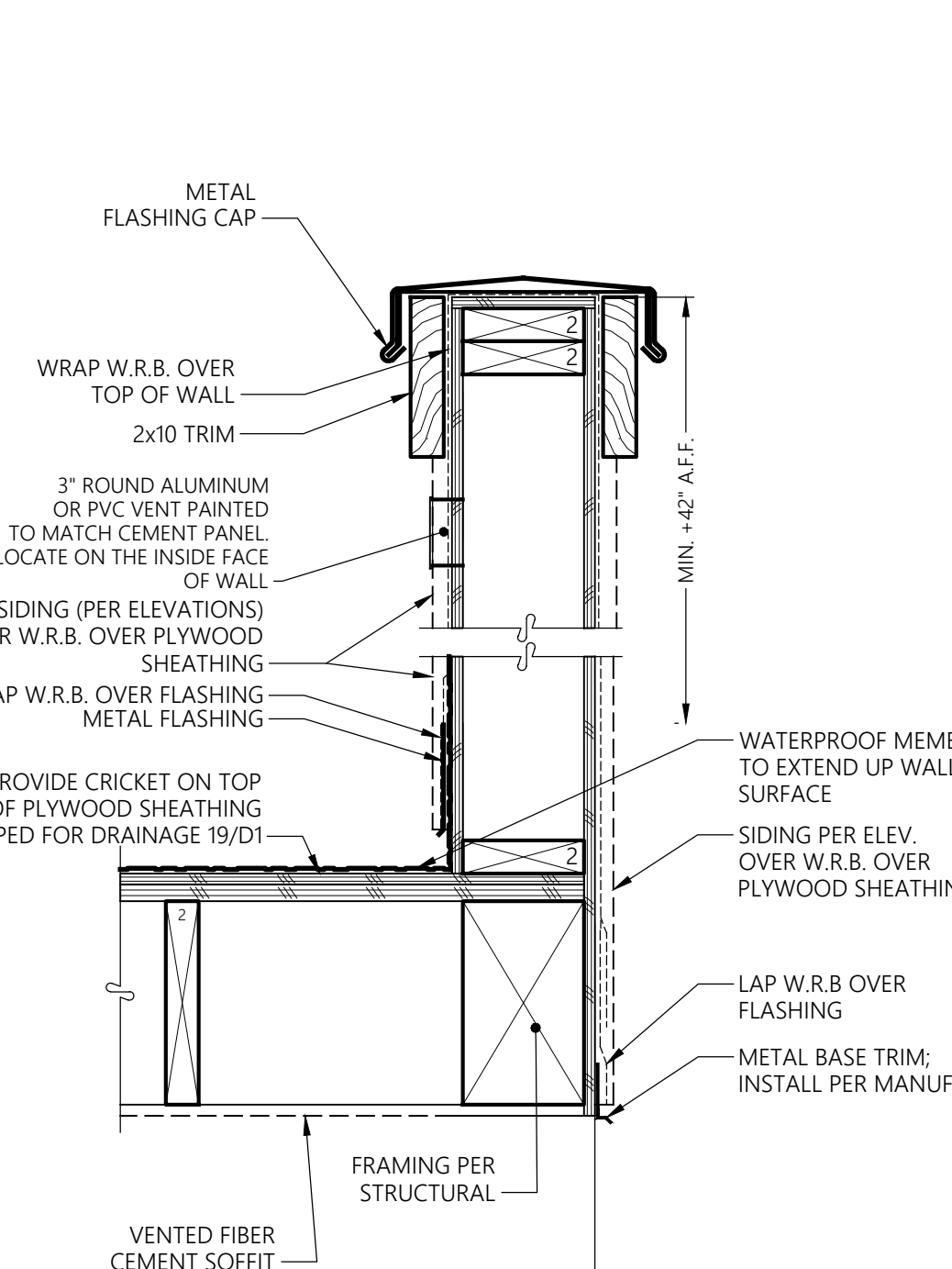
**4** COMMON WALL FOUNDATION  
1" = 1'-0" SECTION



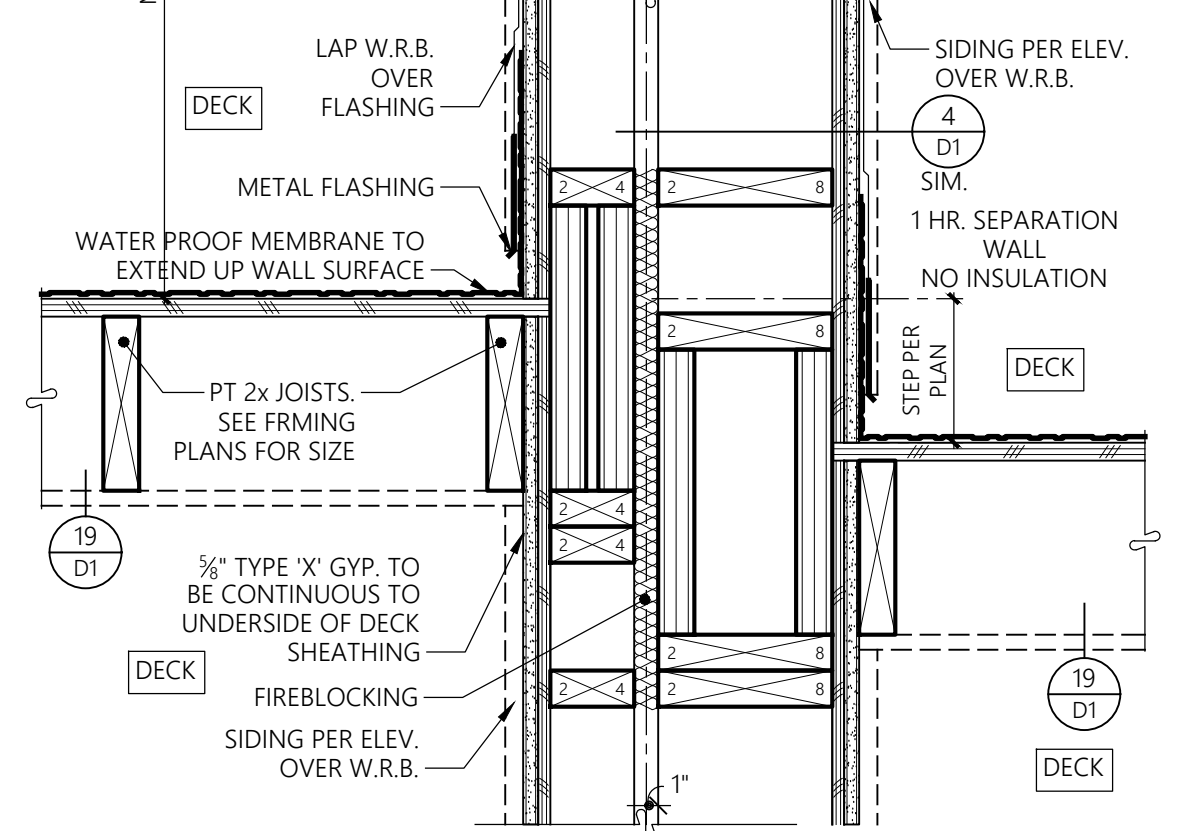
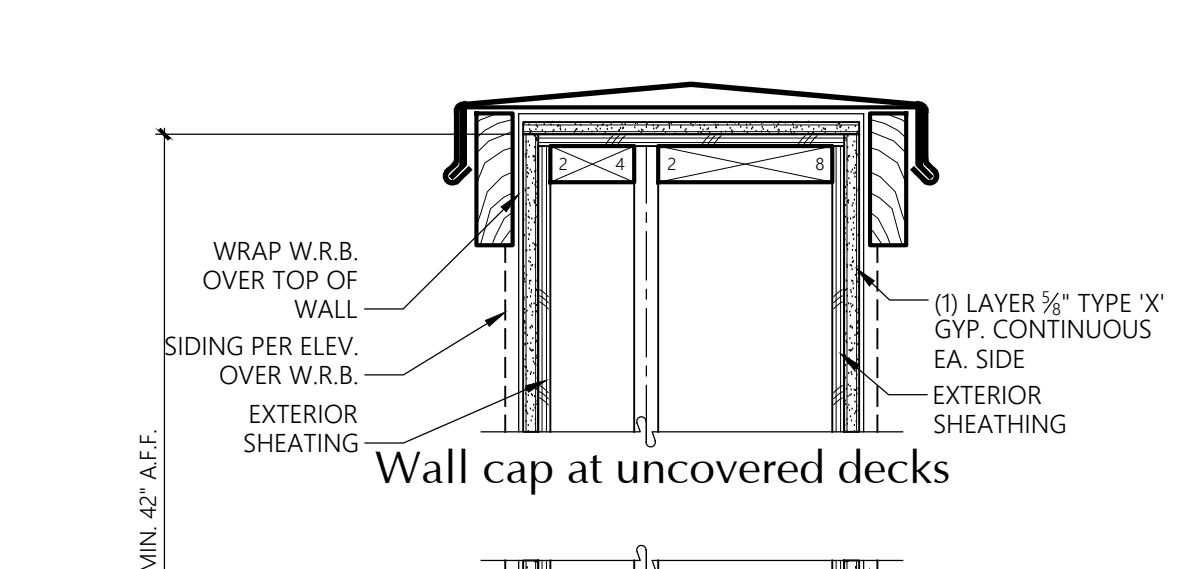
**17** FURRED COLUMN  
1-1/2" = 1'-0"



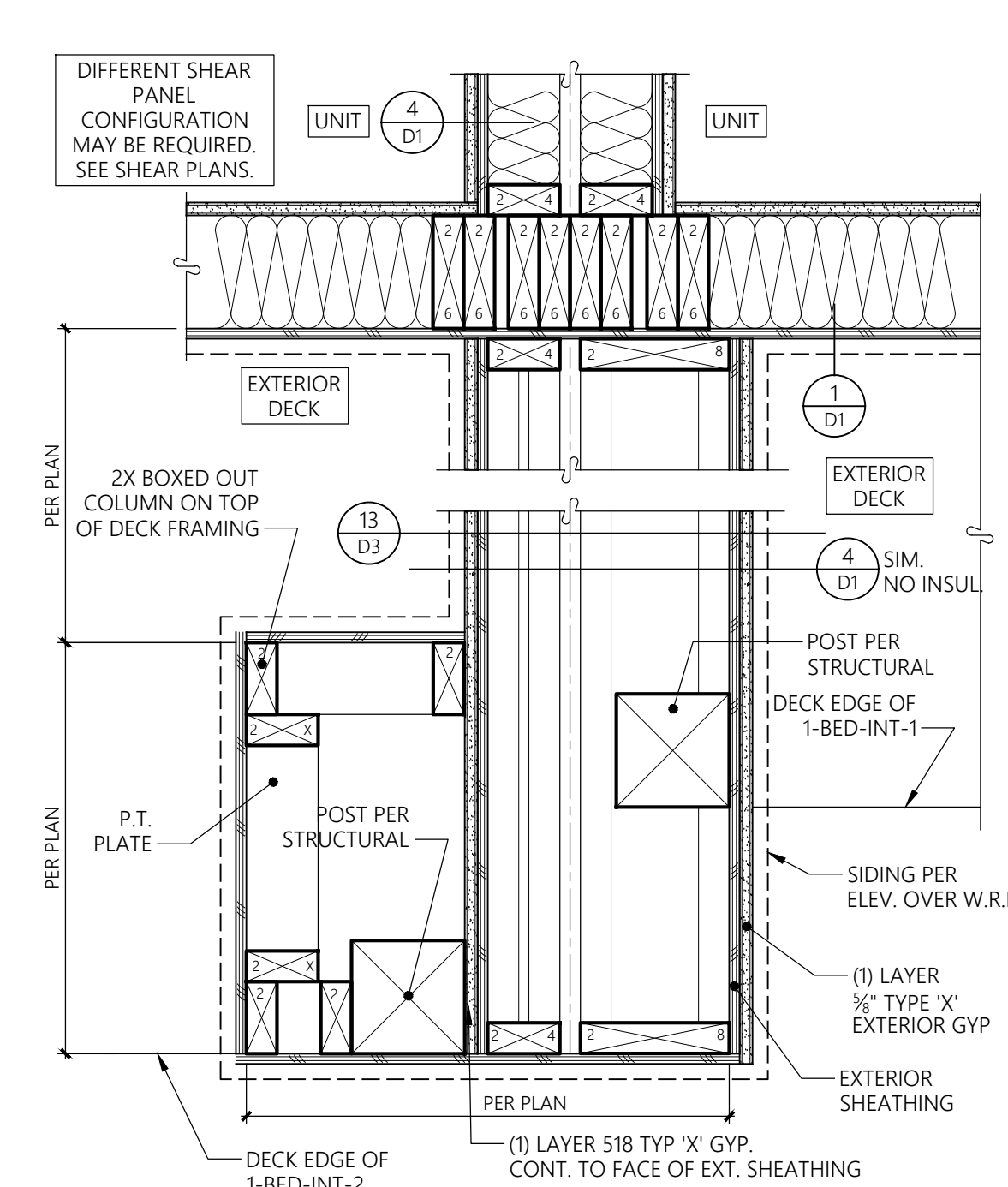
**18** SCUPPER AT DECK  
1-1/2" = 1'-0"



**20** LOW WALL @ DECK EDGE  
1-1/2" = 1'-0"



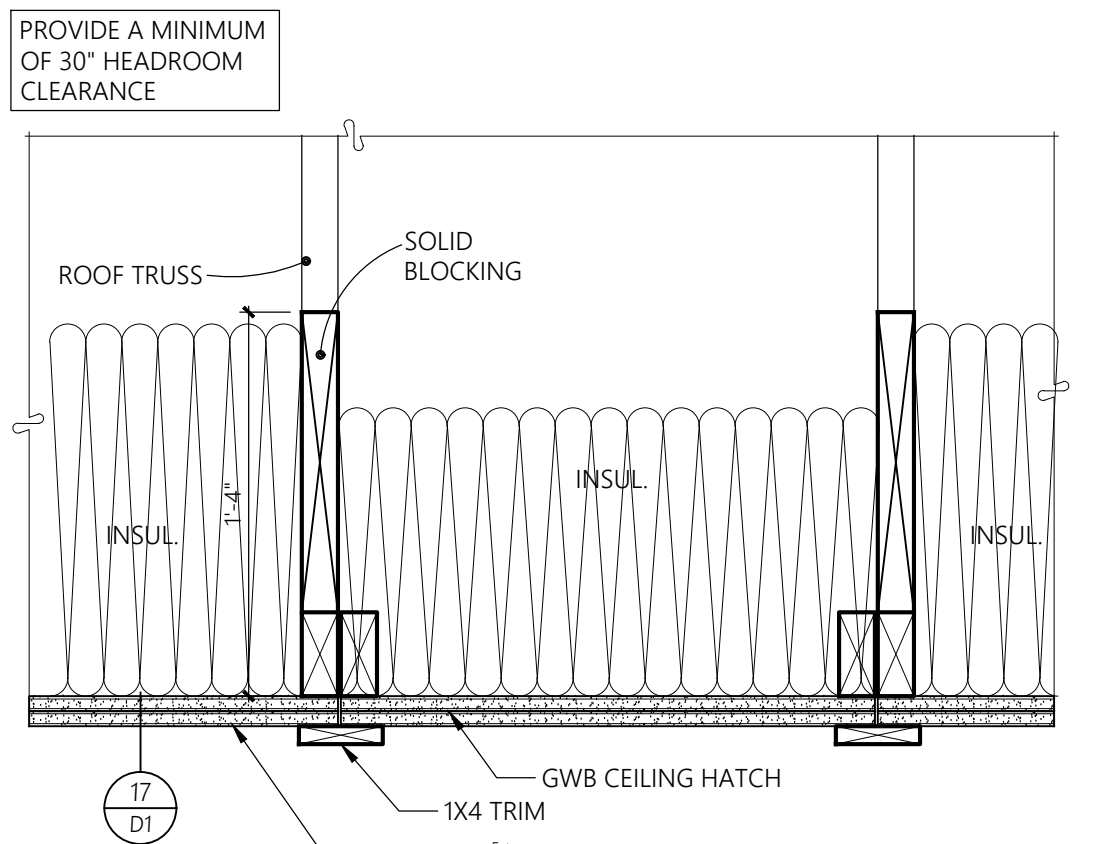
**9** ATTIC ACCESS  
1-1/2" = 1'-0"



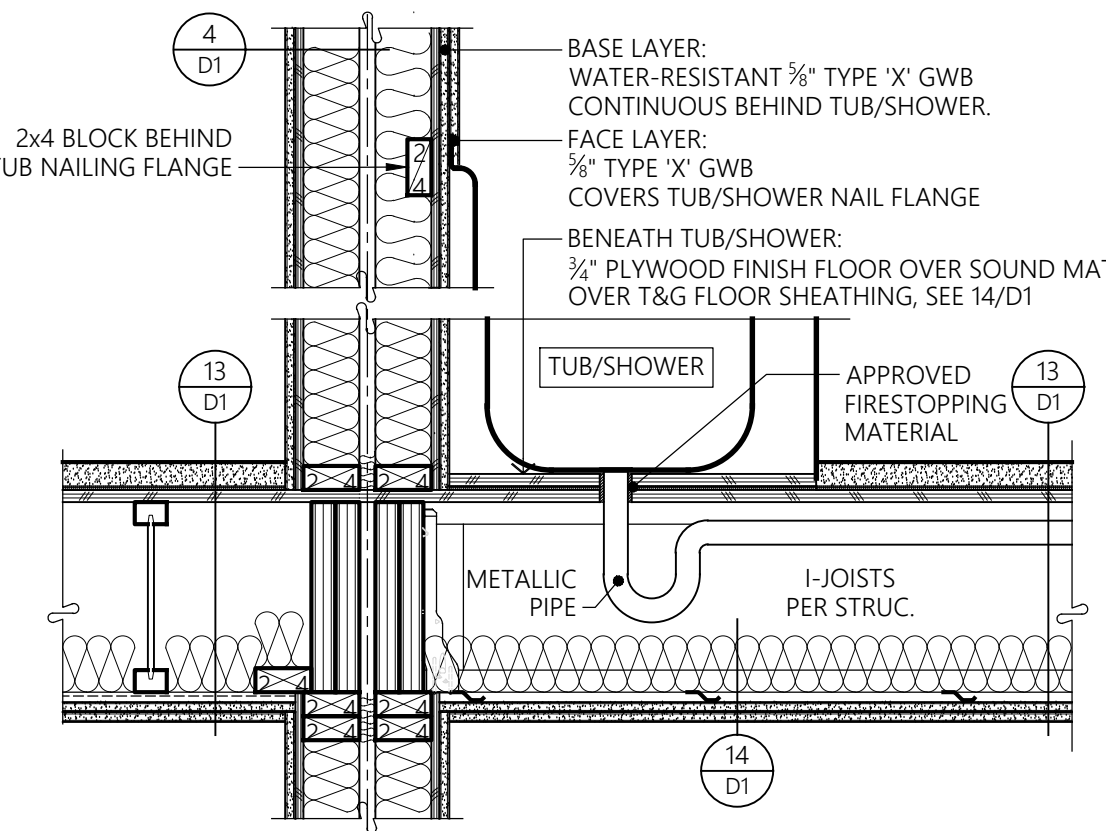
**13** STEPPED COMMON WALL @ DECK  
1-1/2" = 1'-0"



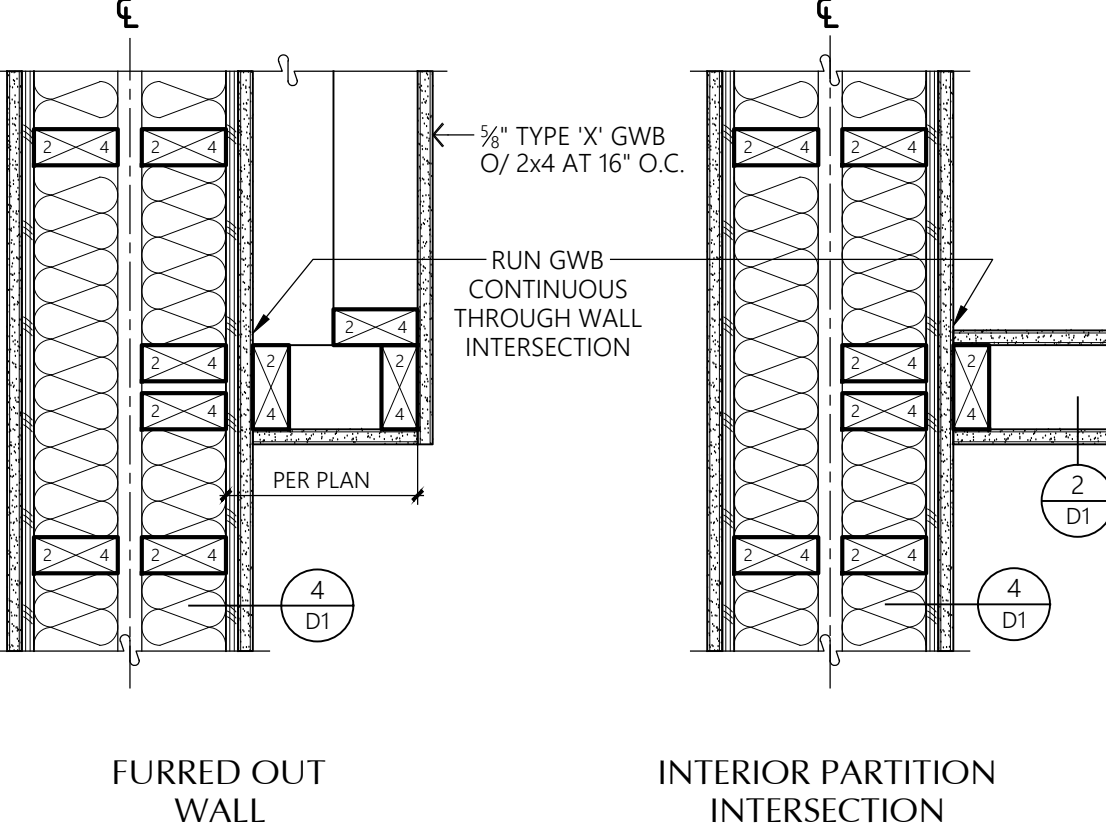
**15** UNIT SEP. WALL AT DECK  
1-1/2" = 1'-0"



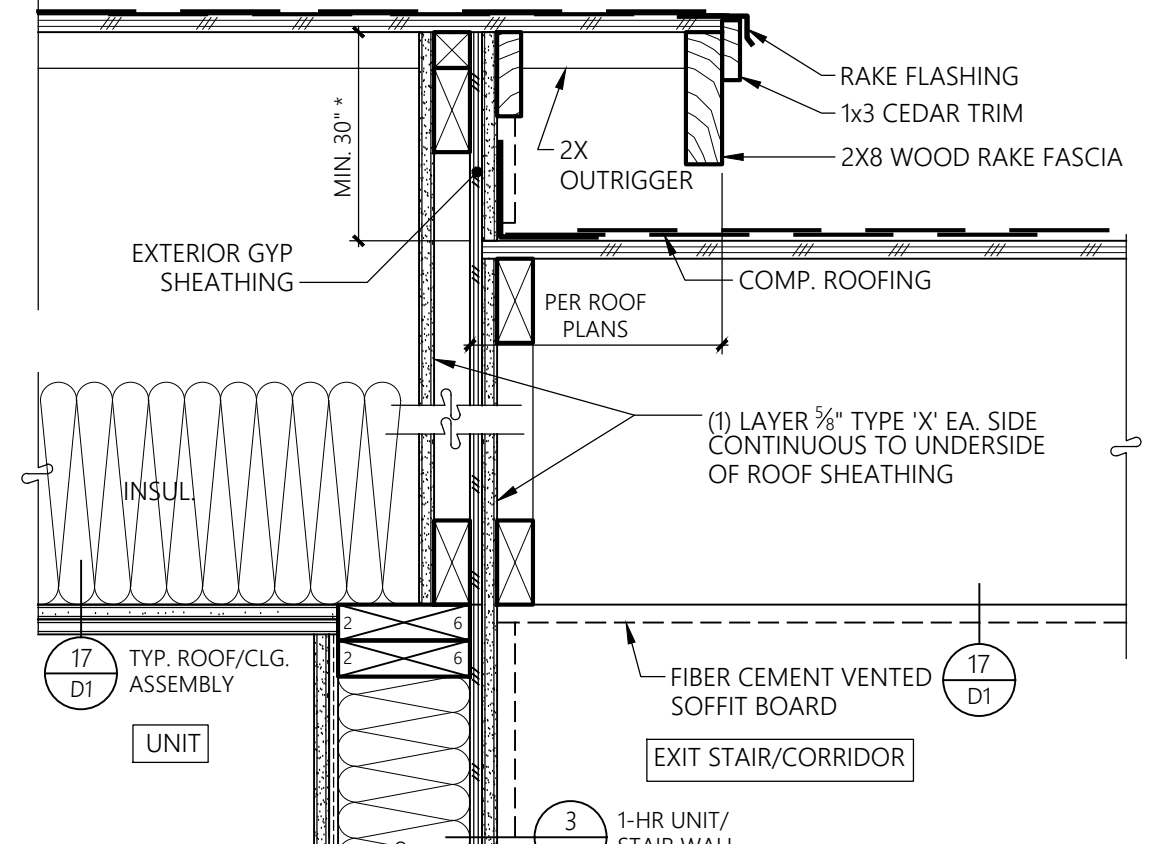
**10** TUB/SHOWER AT 1-HR SEP. WALL  
1" = 1'-0"



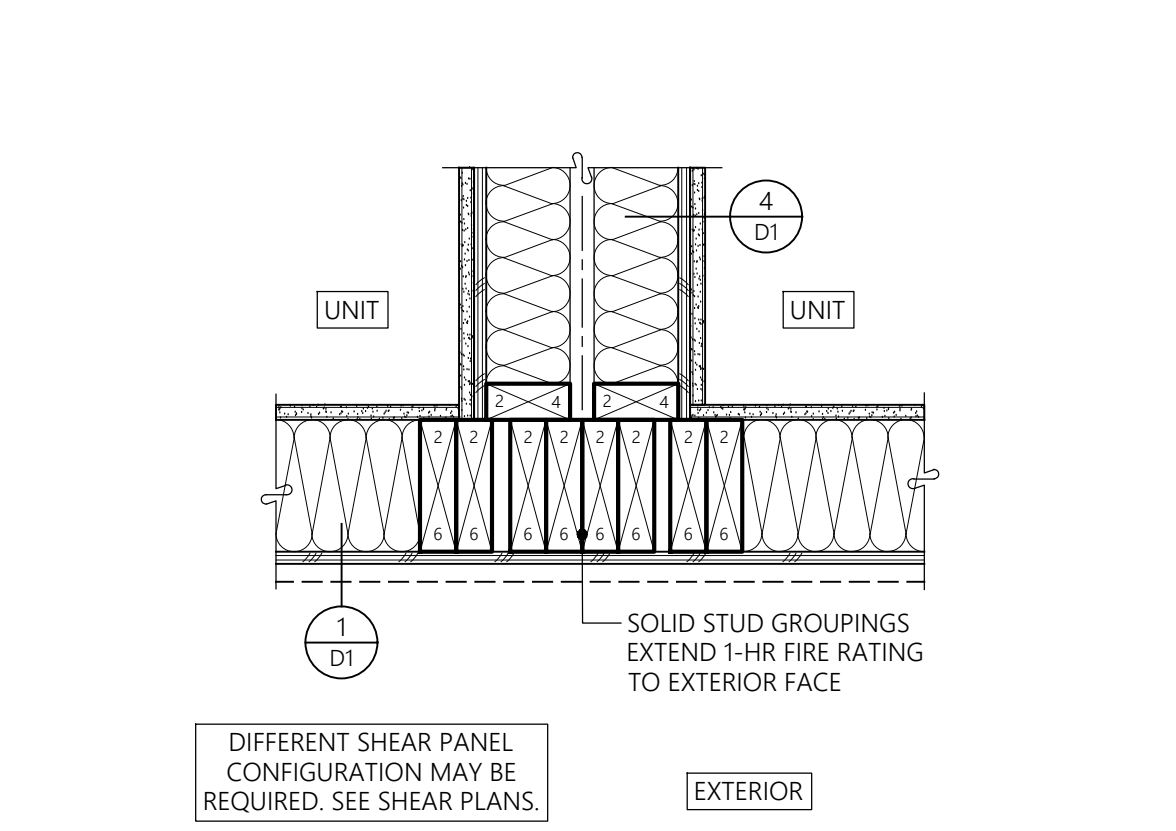
**11** INTERIOR WALL AT UNIT SEP. WALL  
1-1/2" = 1'-0"



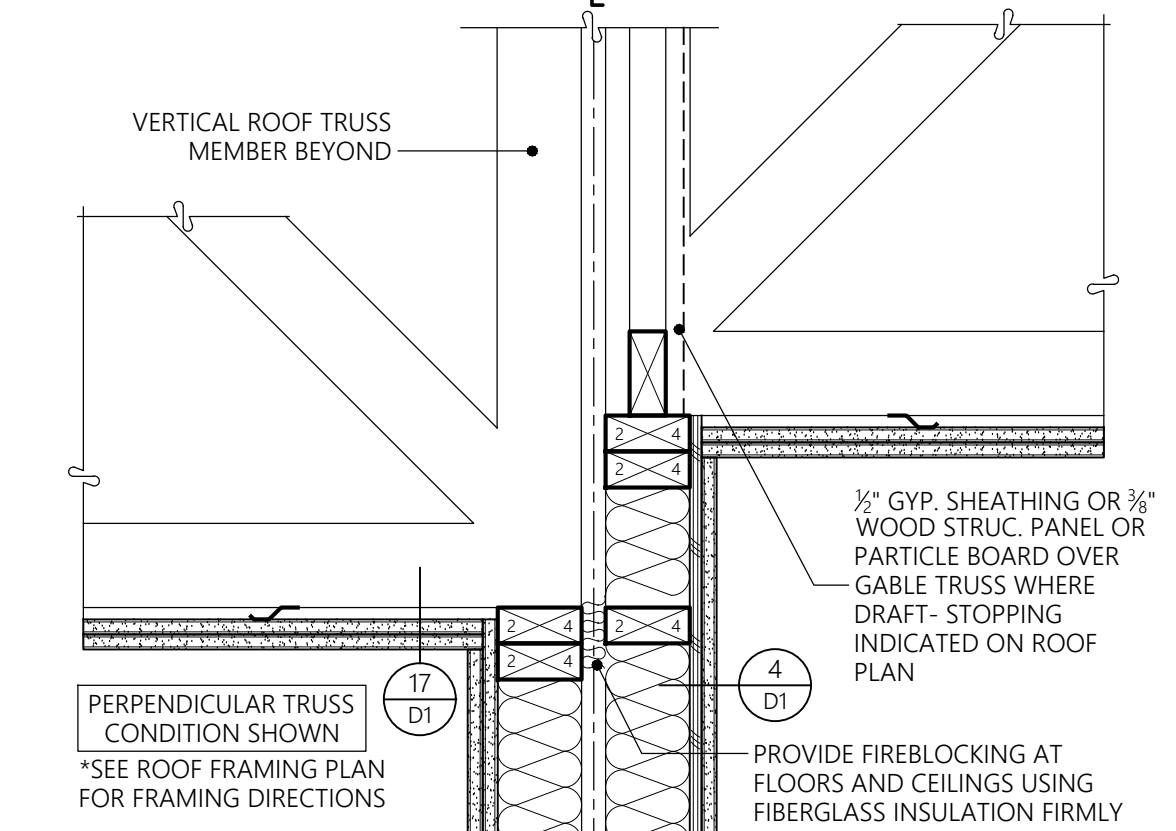
**11** INTERIOR WALL AT UNIT SEP. WALL  
1-1/2" = 1'-0"



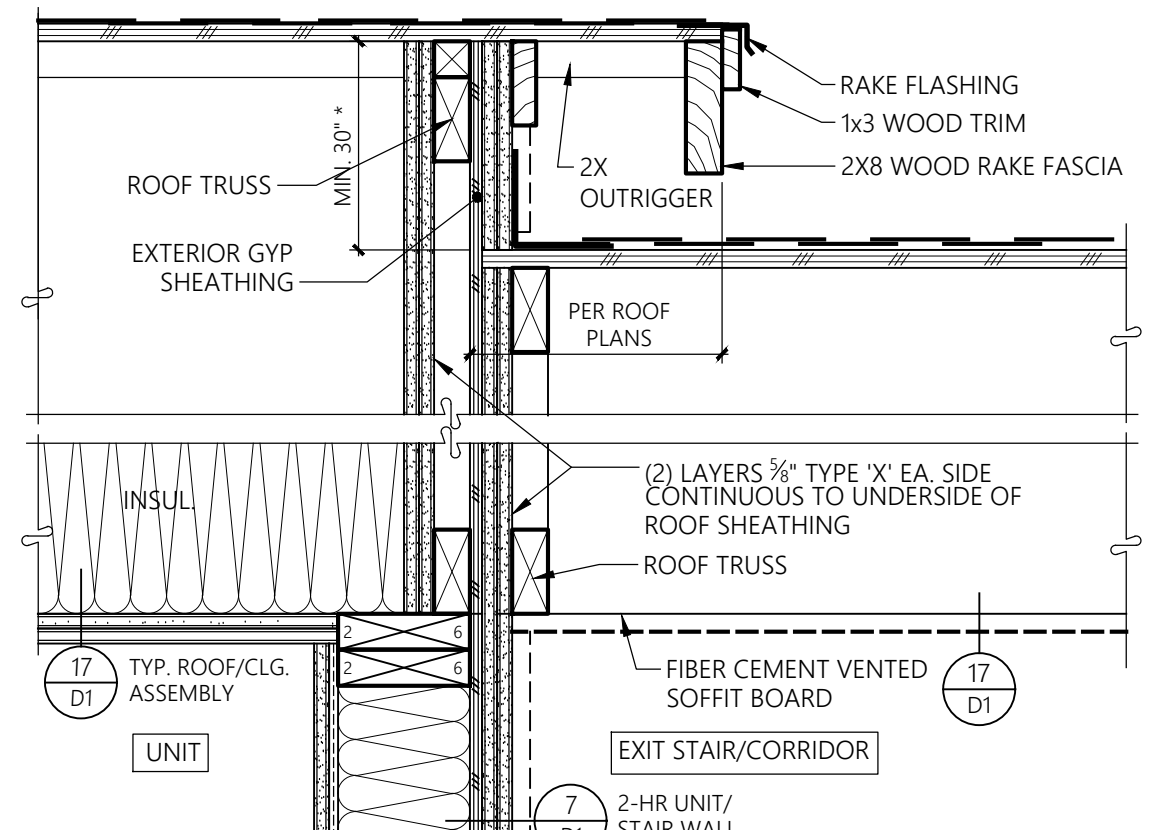
**5** 1-HR STAIR WALL AT ROOF  
1-1/2" = 1'-0"



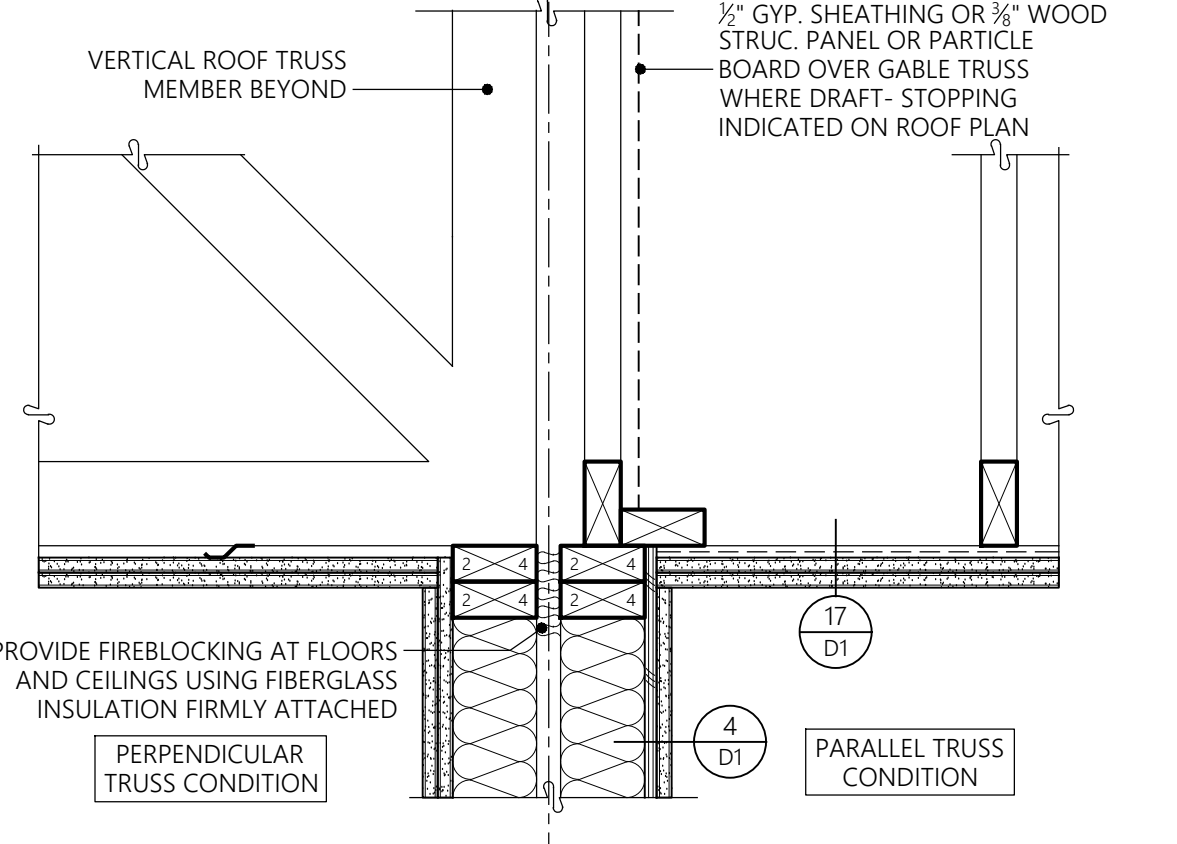
**6** UNIT SEP. WALL AT EXT. WALL  
1-1/2" = 1'-0"



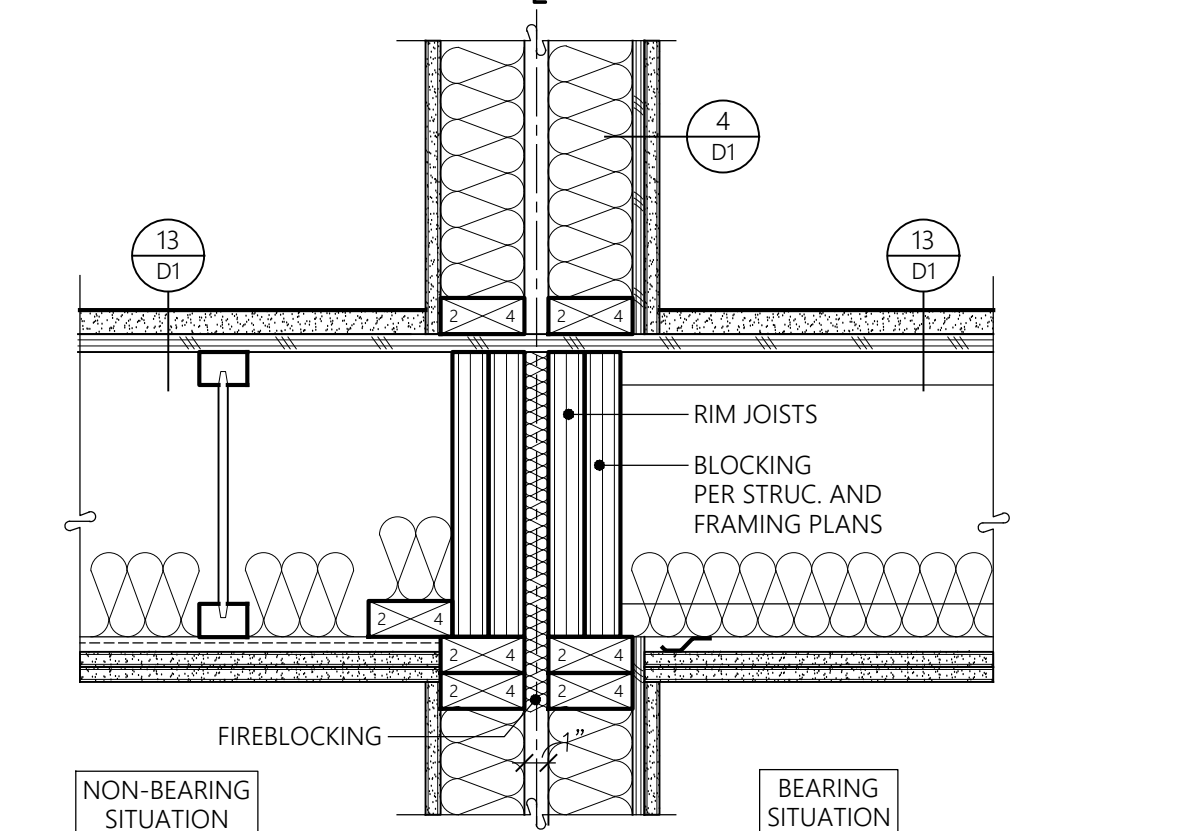
**7** UNIT SEP. WALL AT STEPPED ROOF  
1-1/2" = 1'-0"



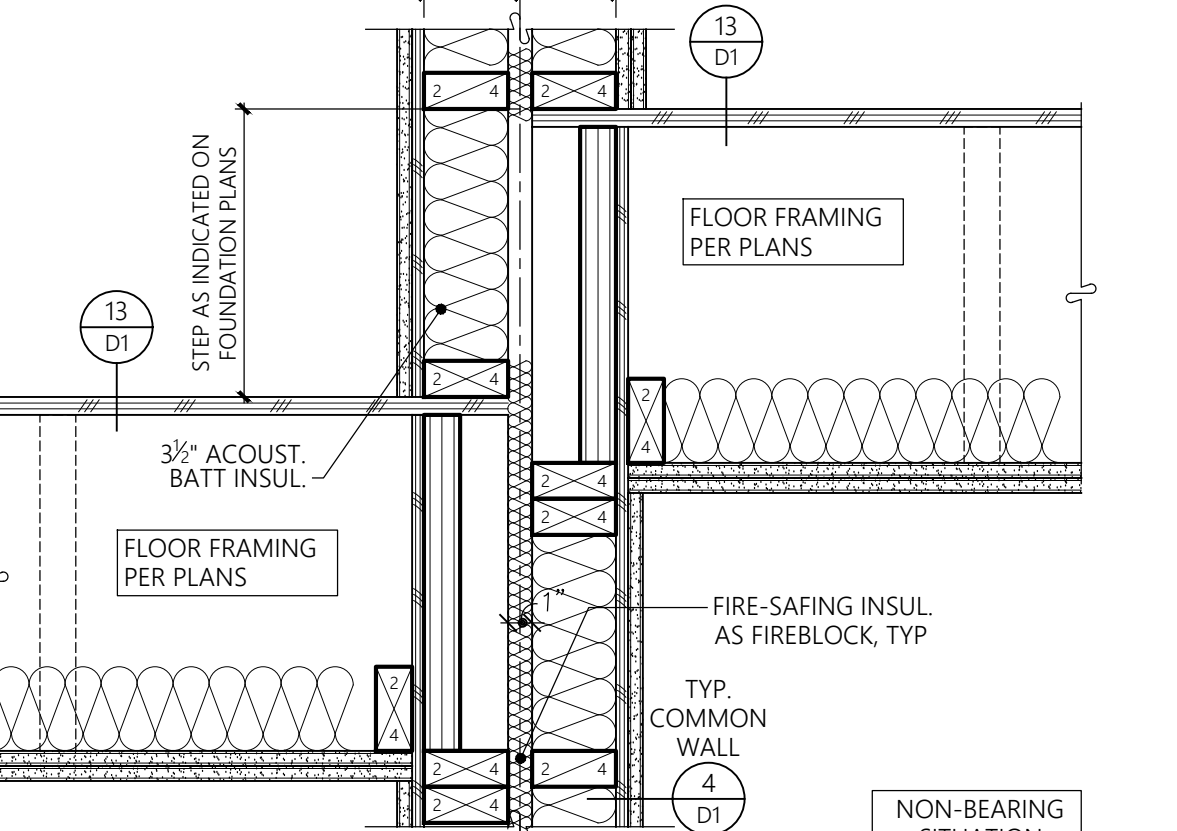
**8** 2-HR STAIR WALL AT ROOF  
1-1/2" = 1'-0"



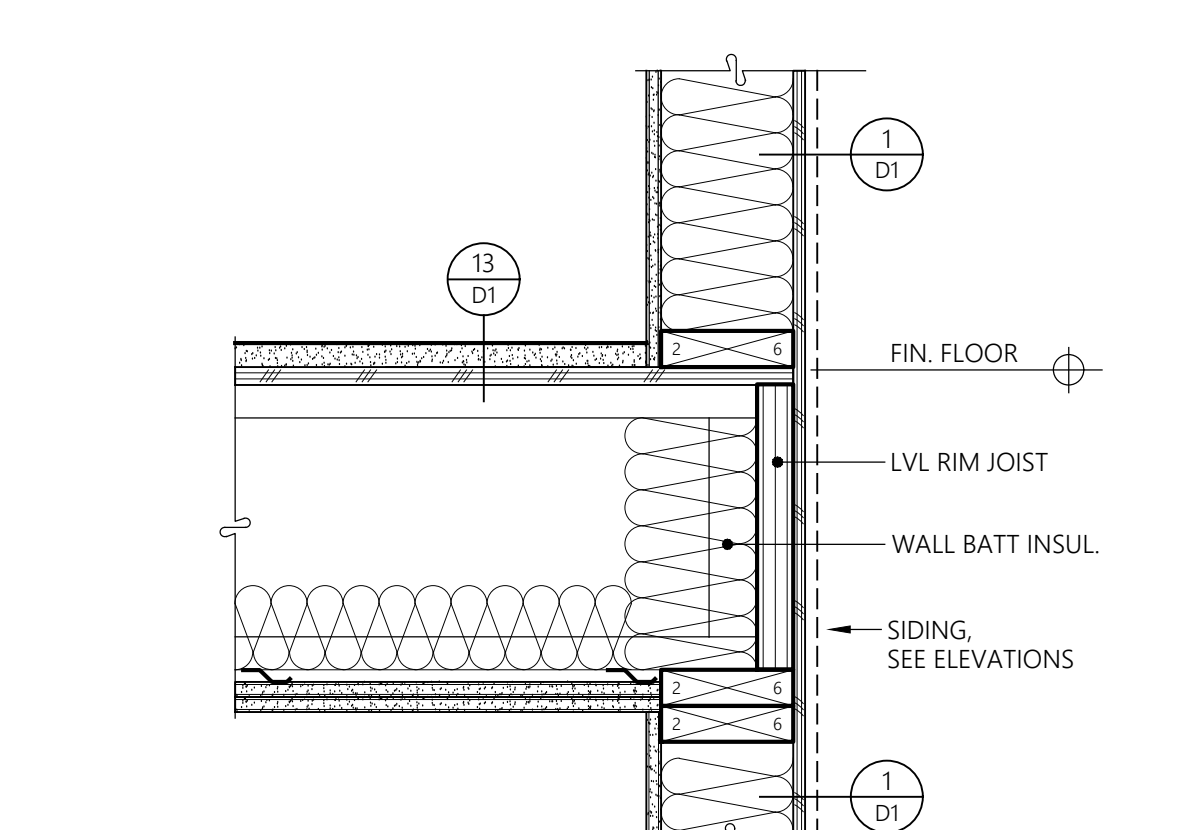
**1** UNIT SEP. WALL AT ROOF TRUSSES  
1-1/2" = 1'-0"



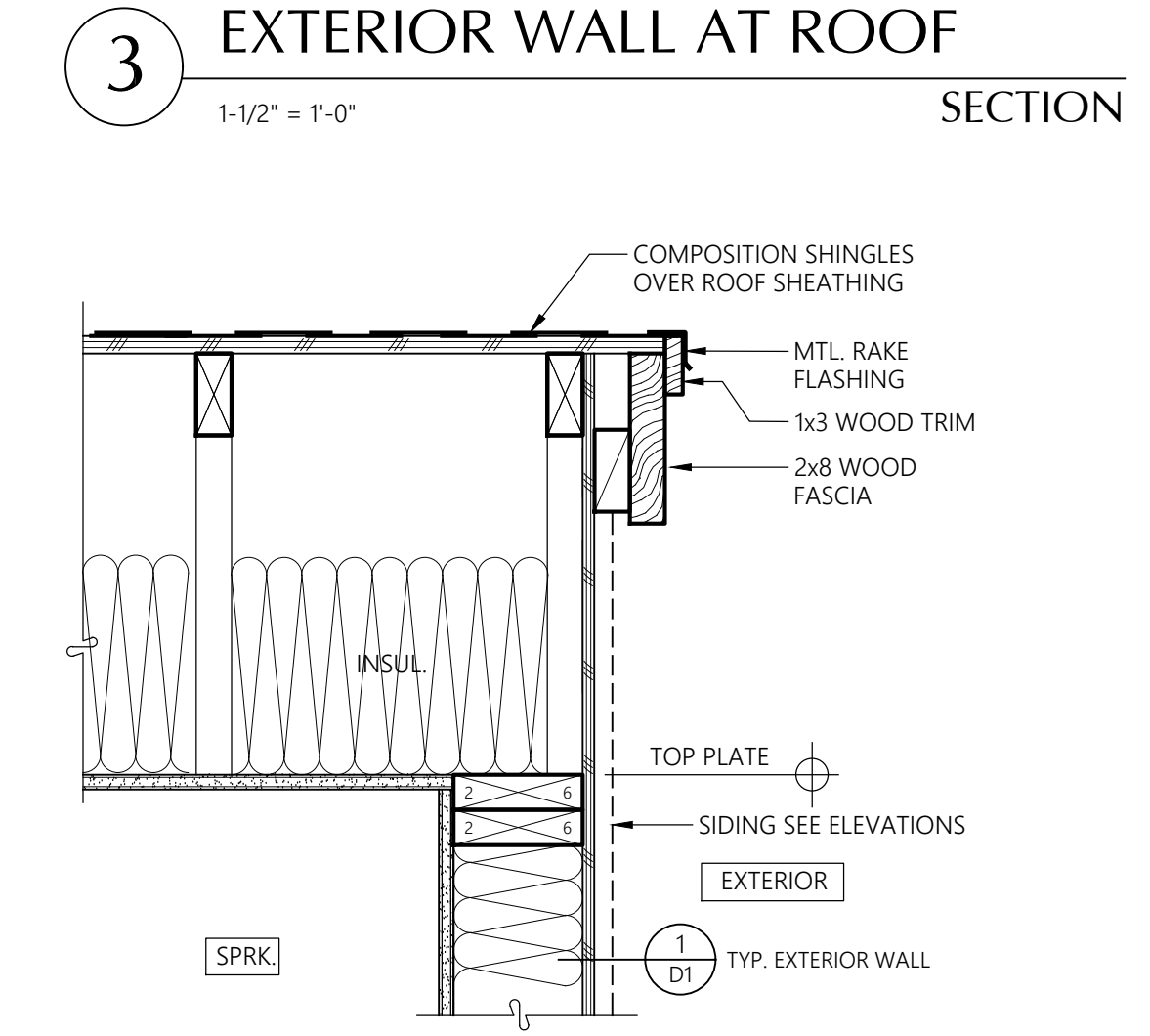
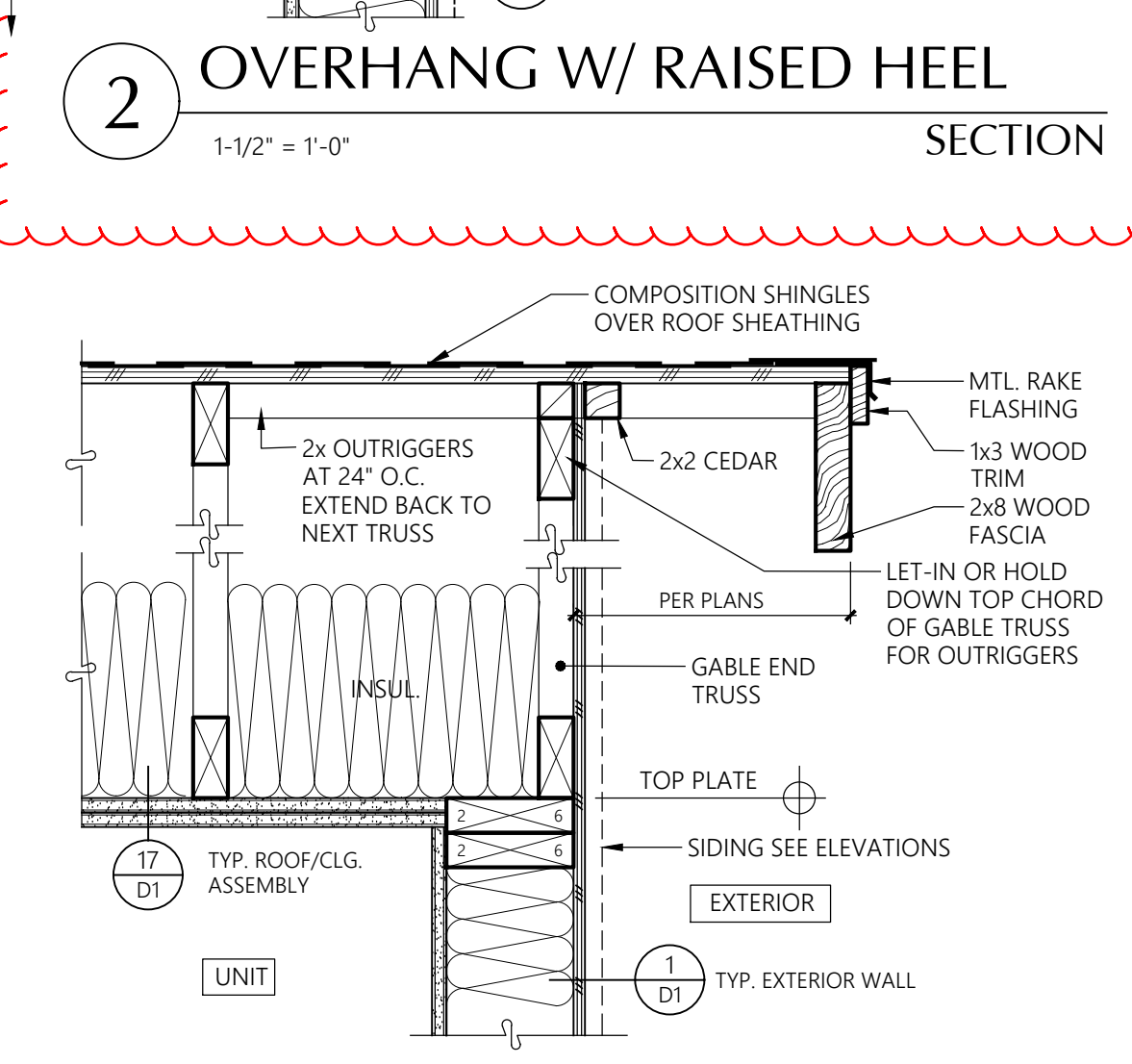
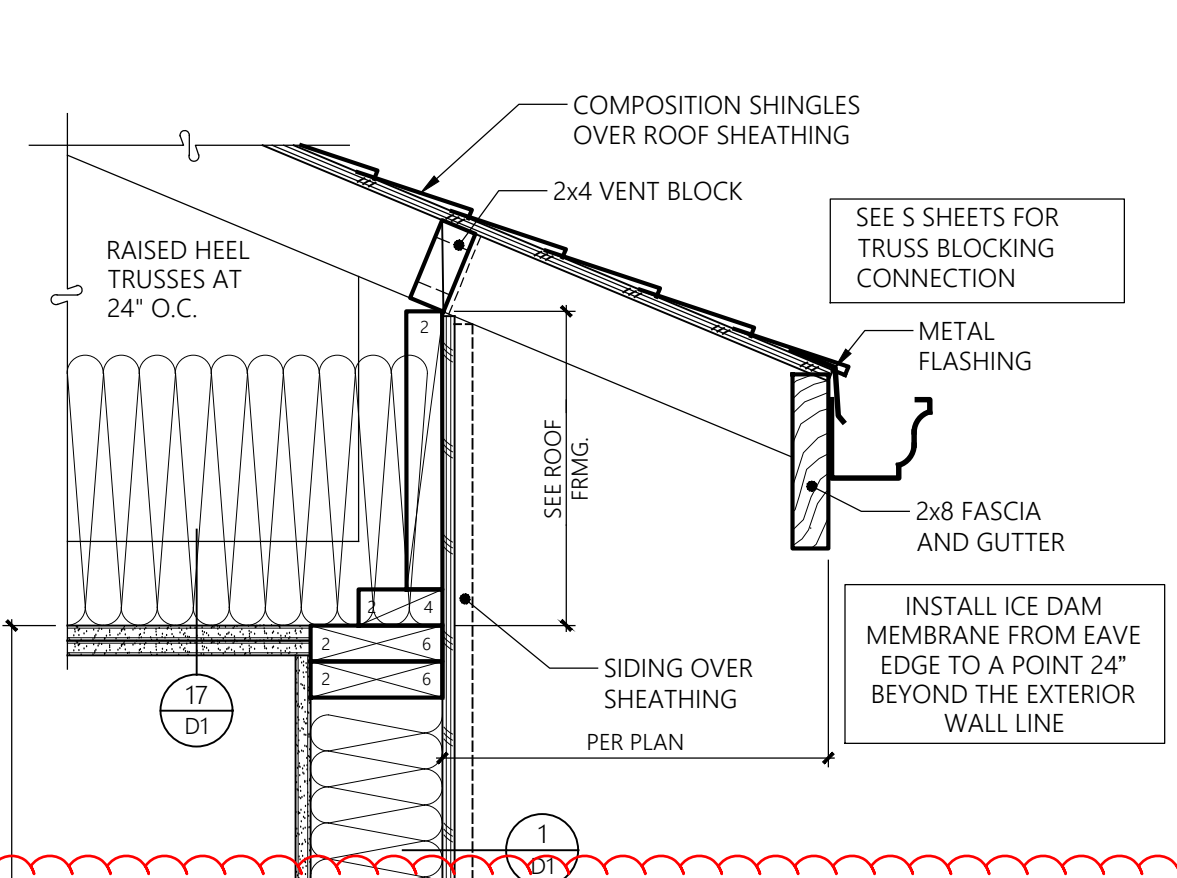
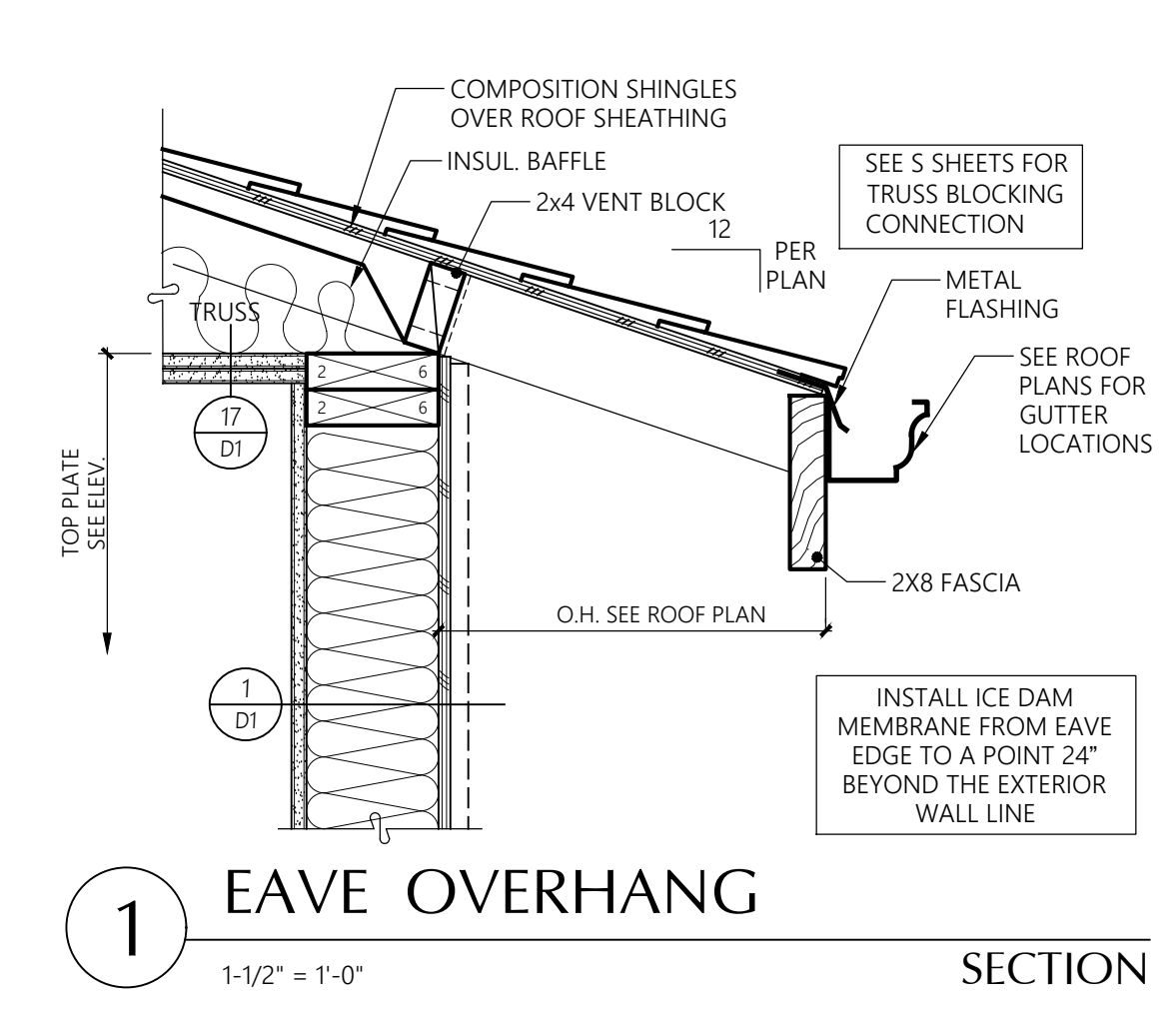
**2** UNIT SEPAR. AT FLOOR  
1-1/2" = 1'-0"



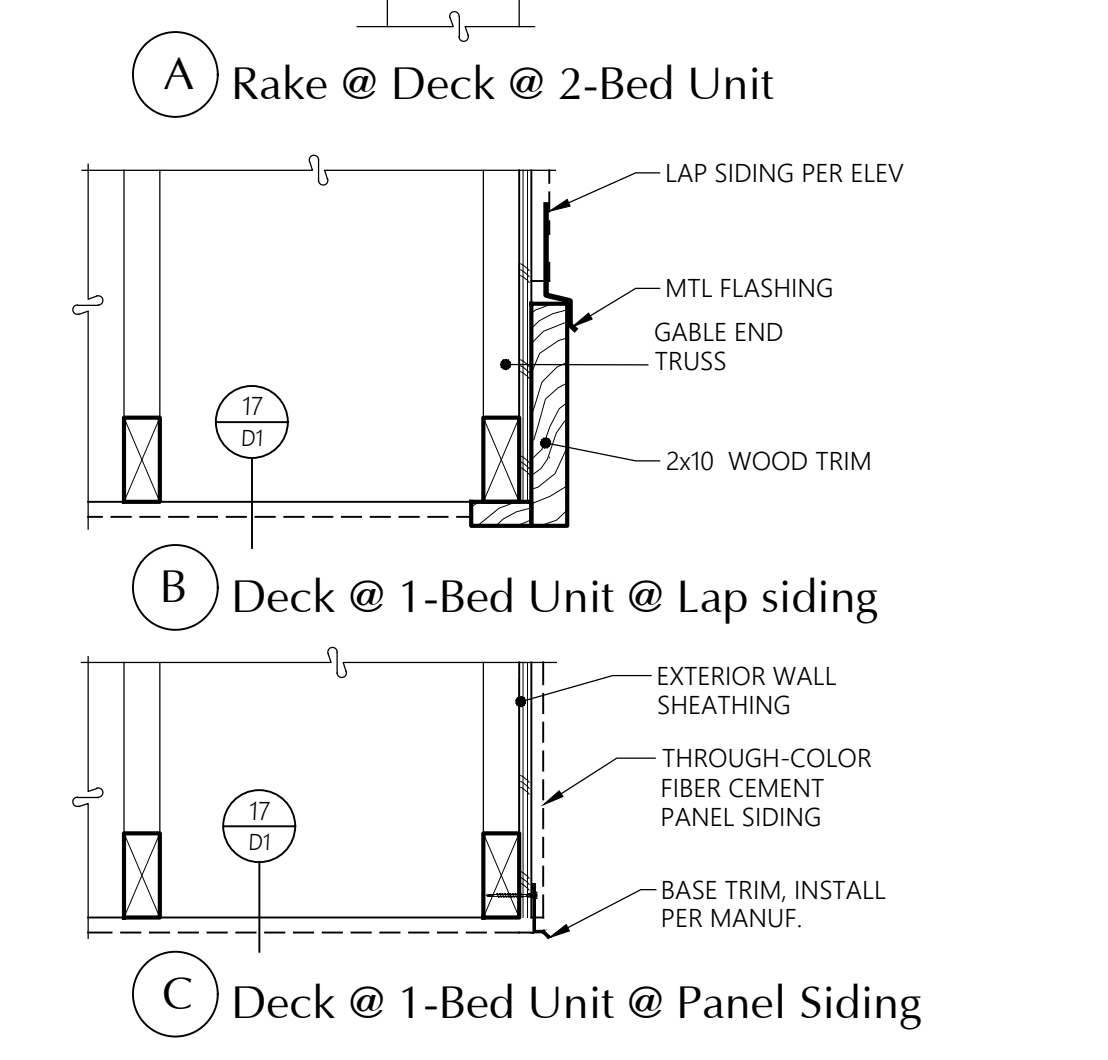
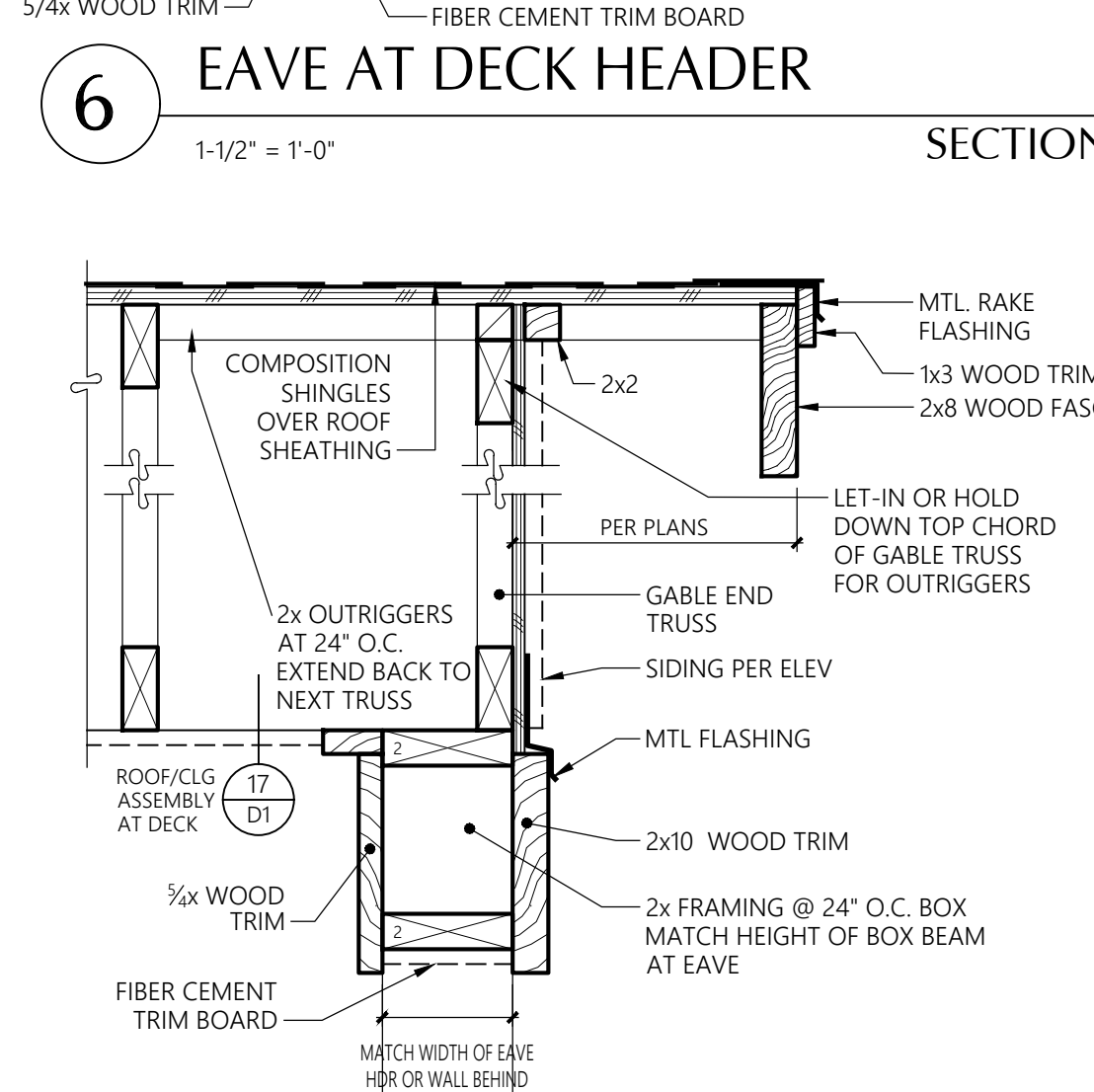
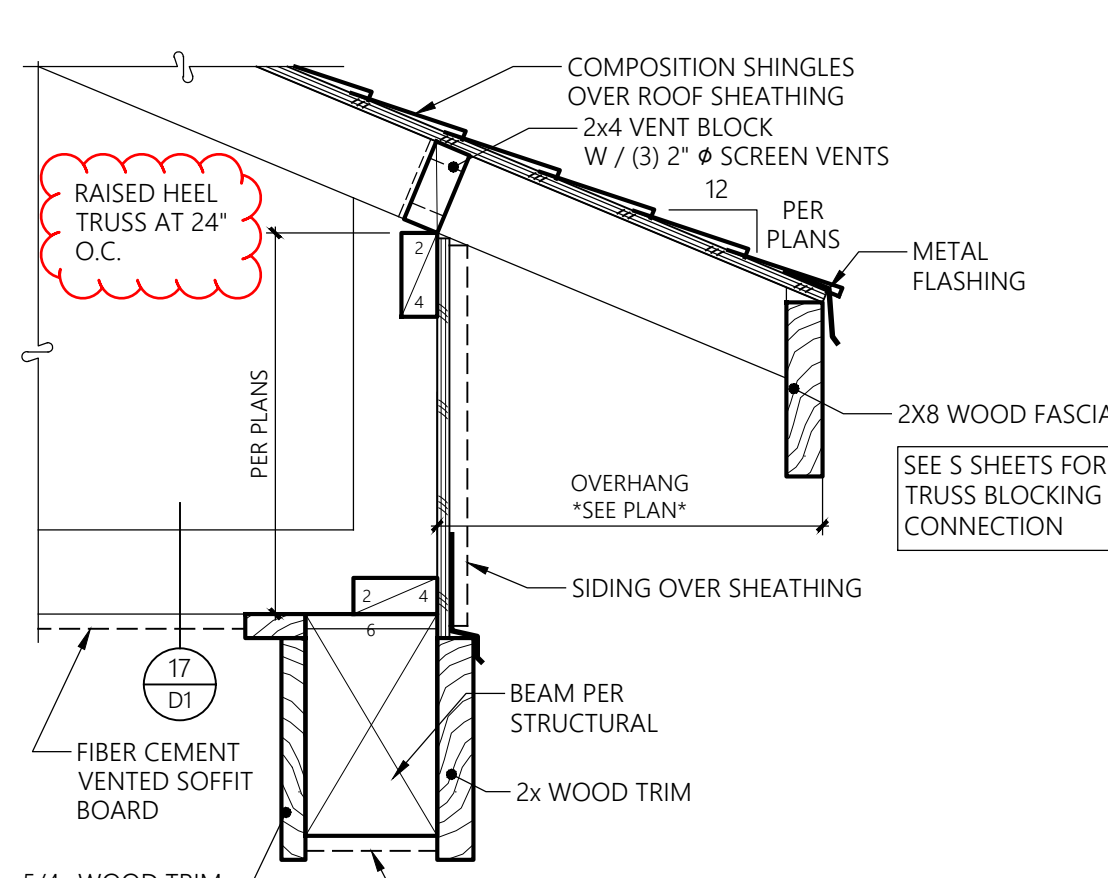
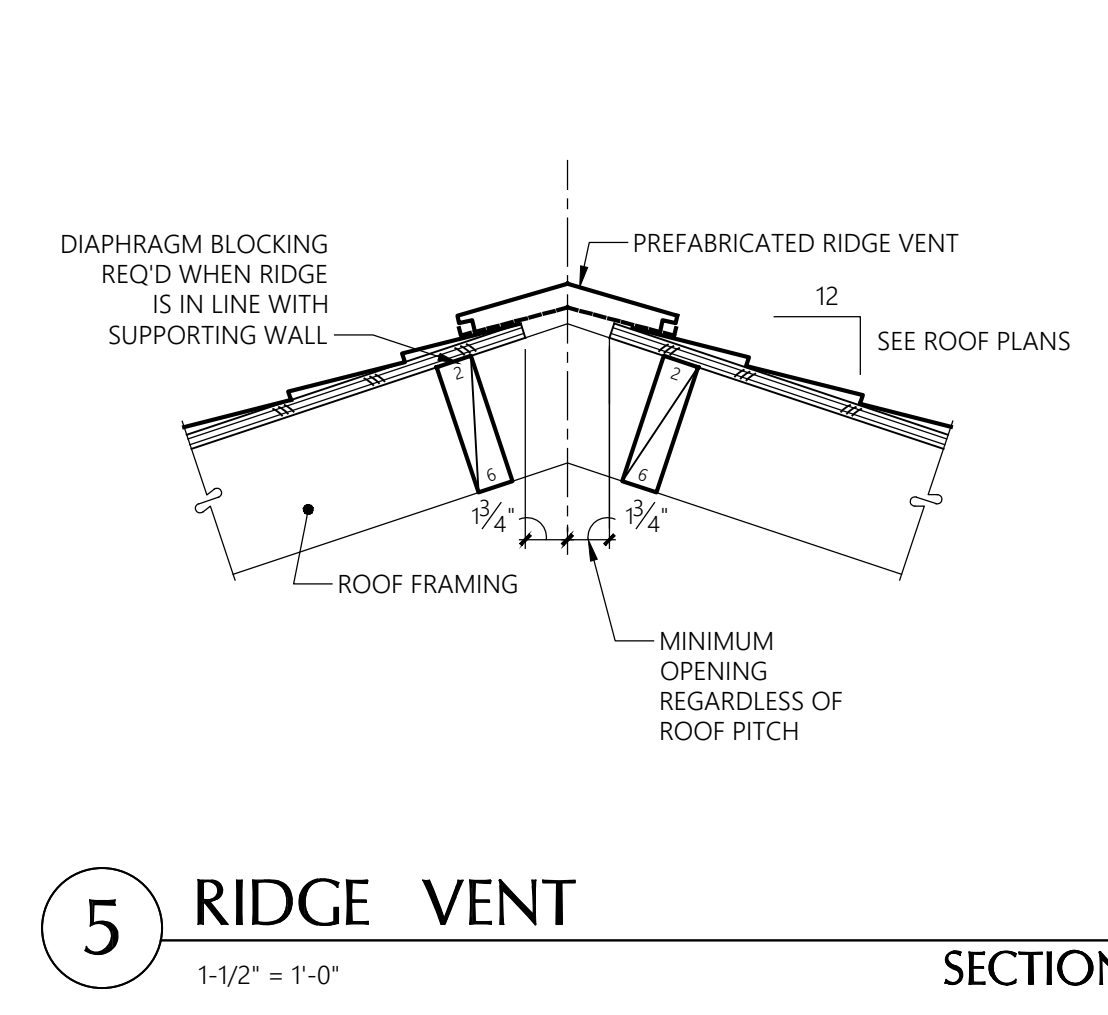
**3** COMMON WALL AT STEPPED FLOOR  
1-1/2" = 1'-0"



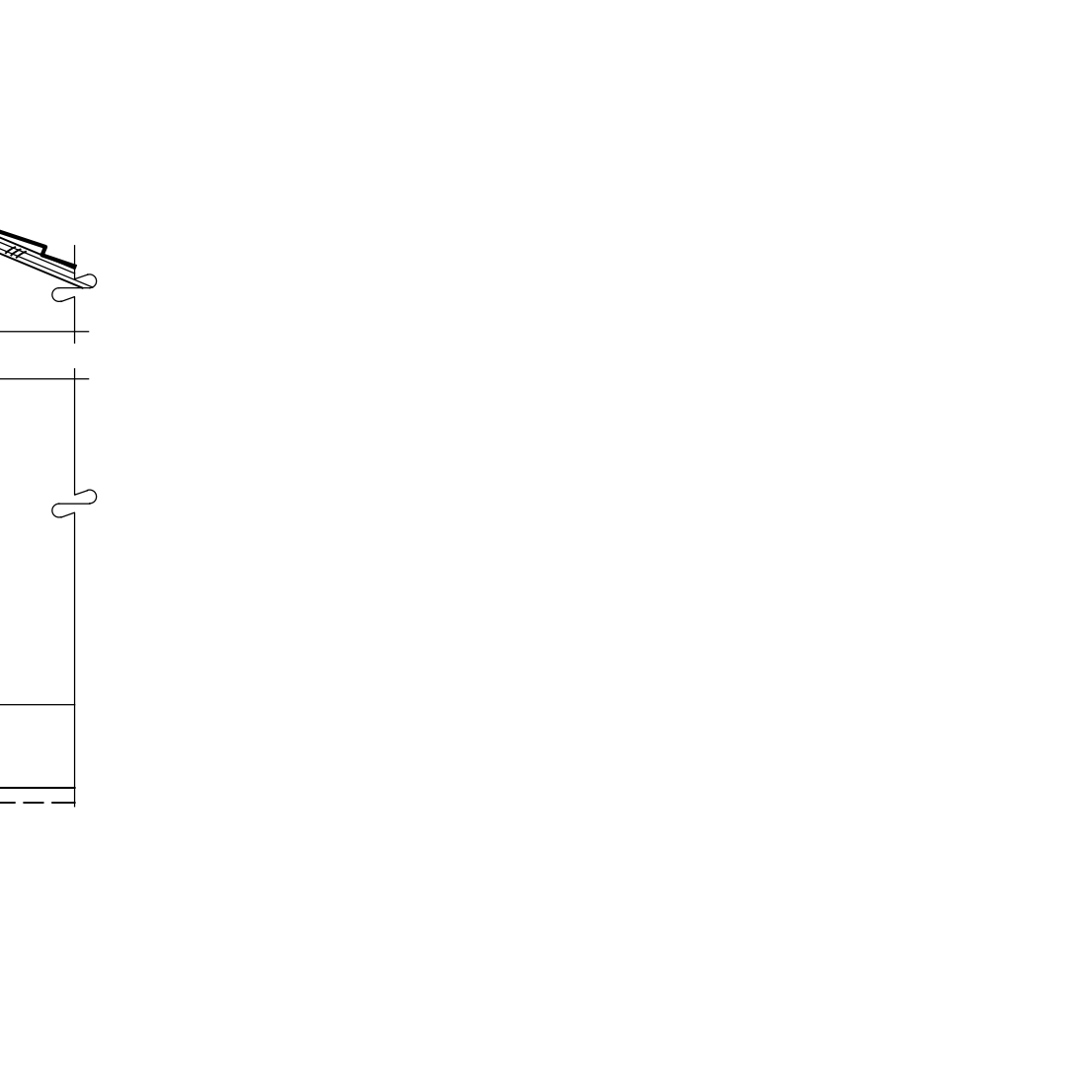
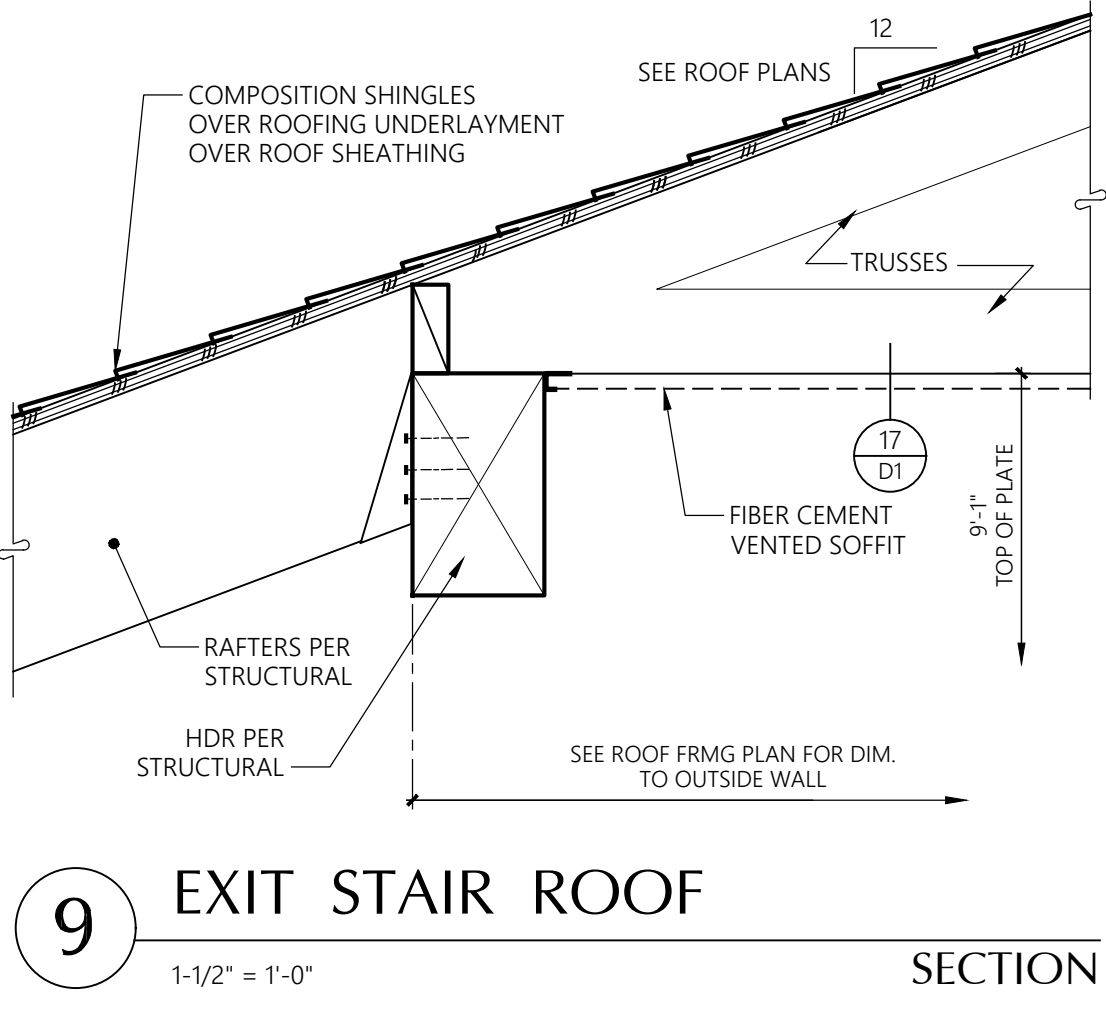
**4** EXTERIOR WALL AT FLOOR  
1-1/2" = 1'-0"



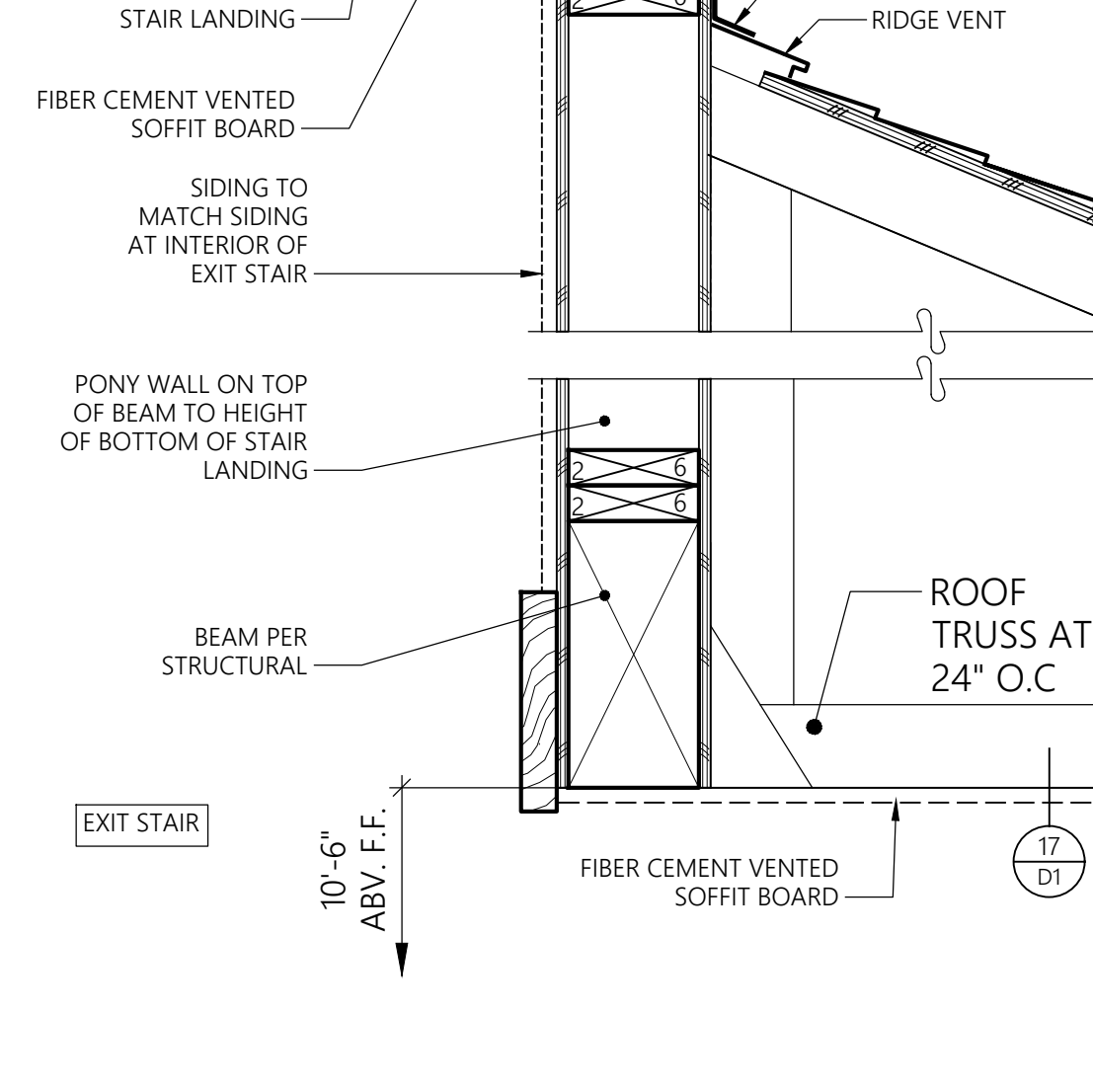
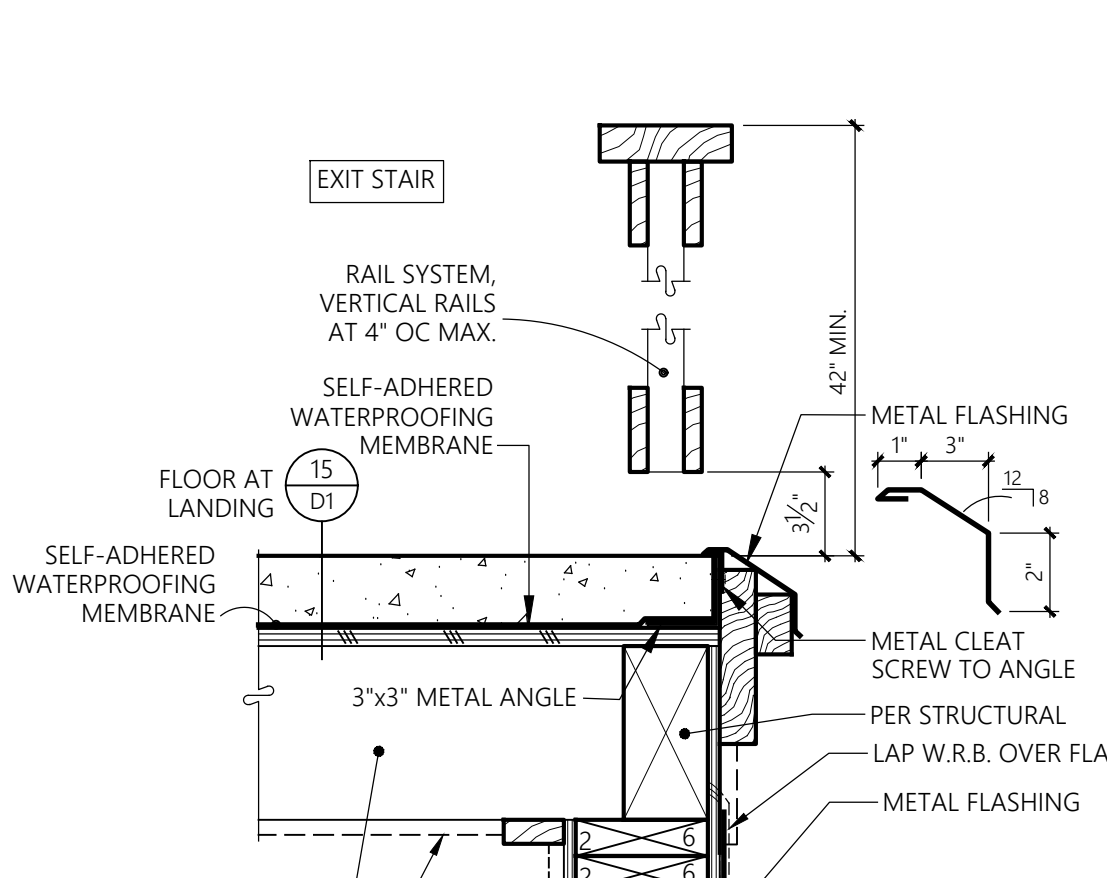
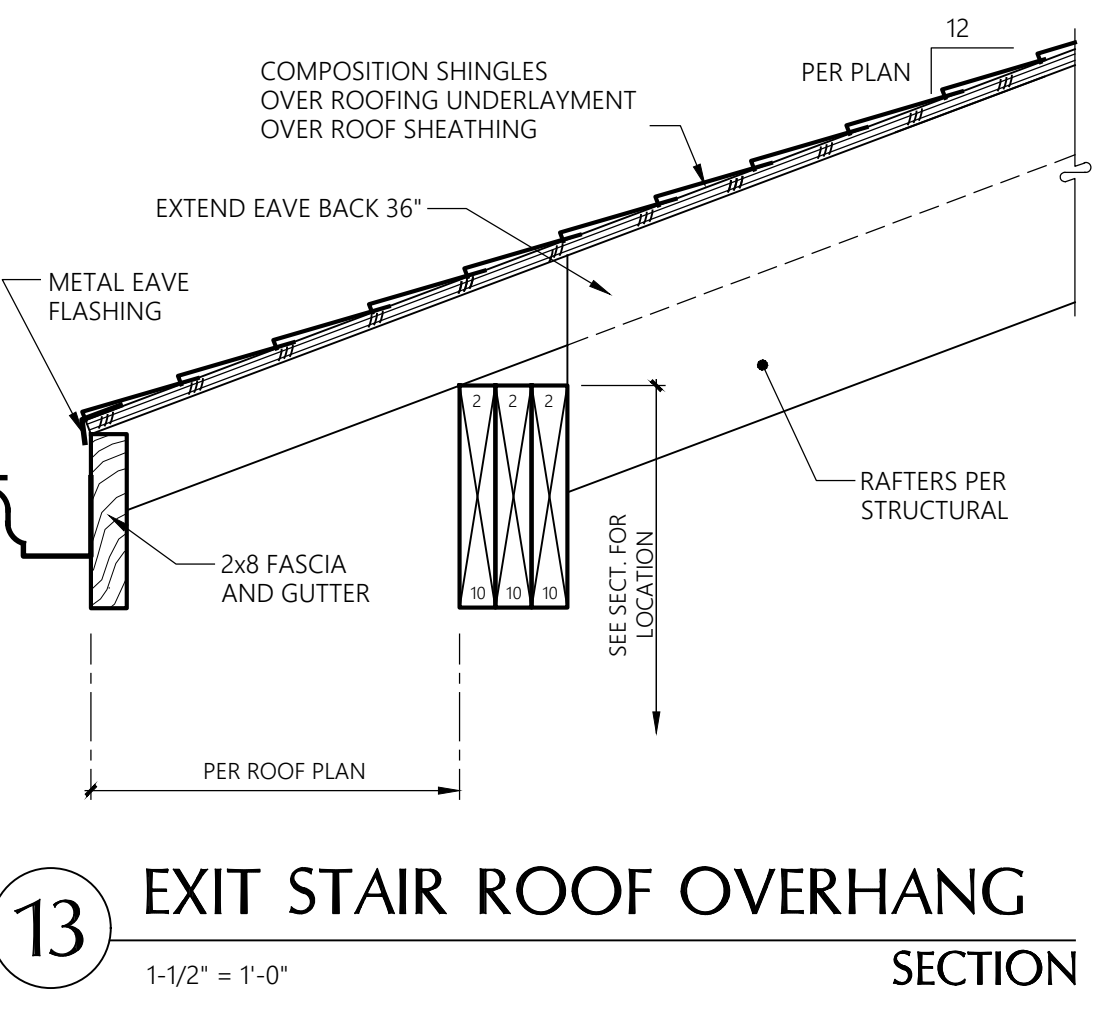
**4** SPRK./ELEC. ROOM RAKE SECTION  
1-1/2" = 1'-0"



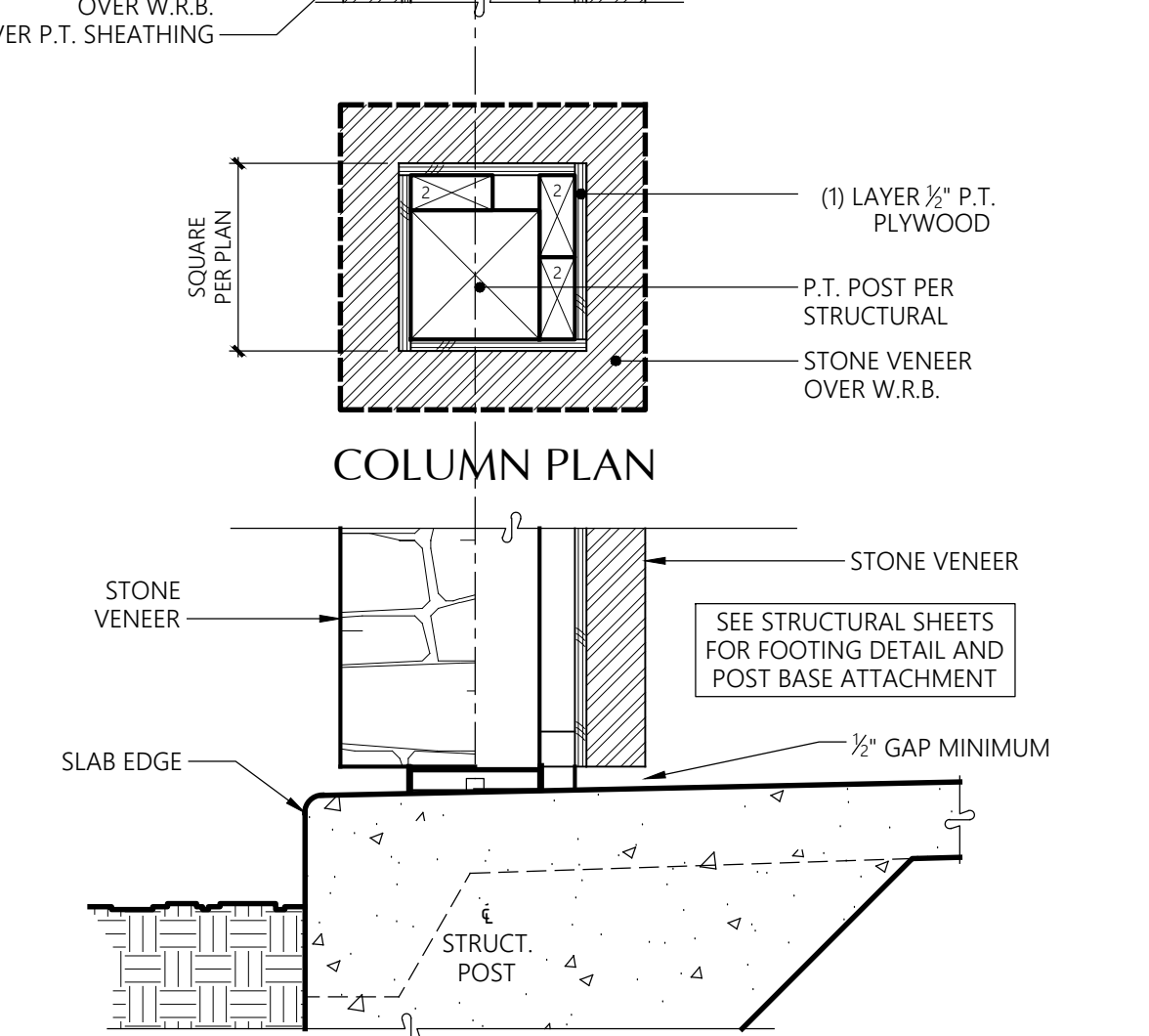
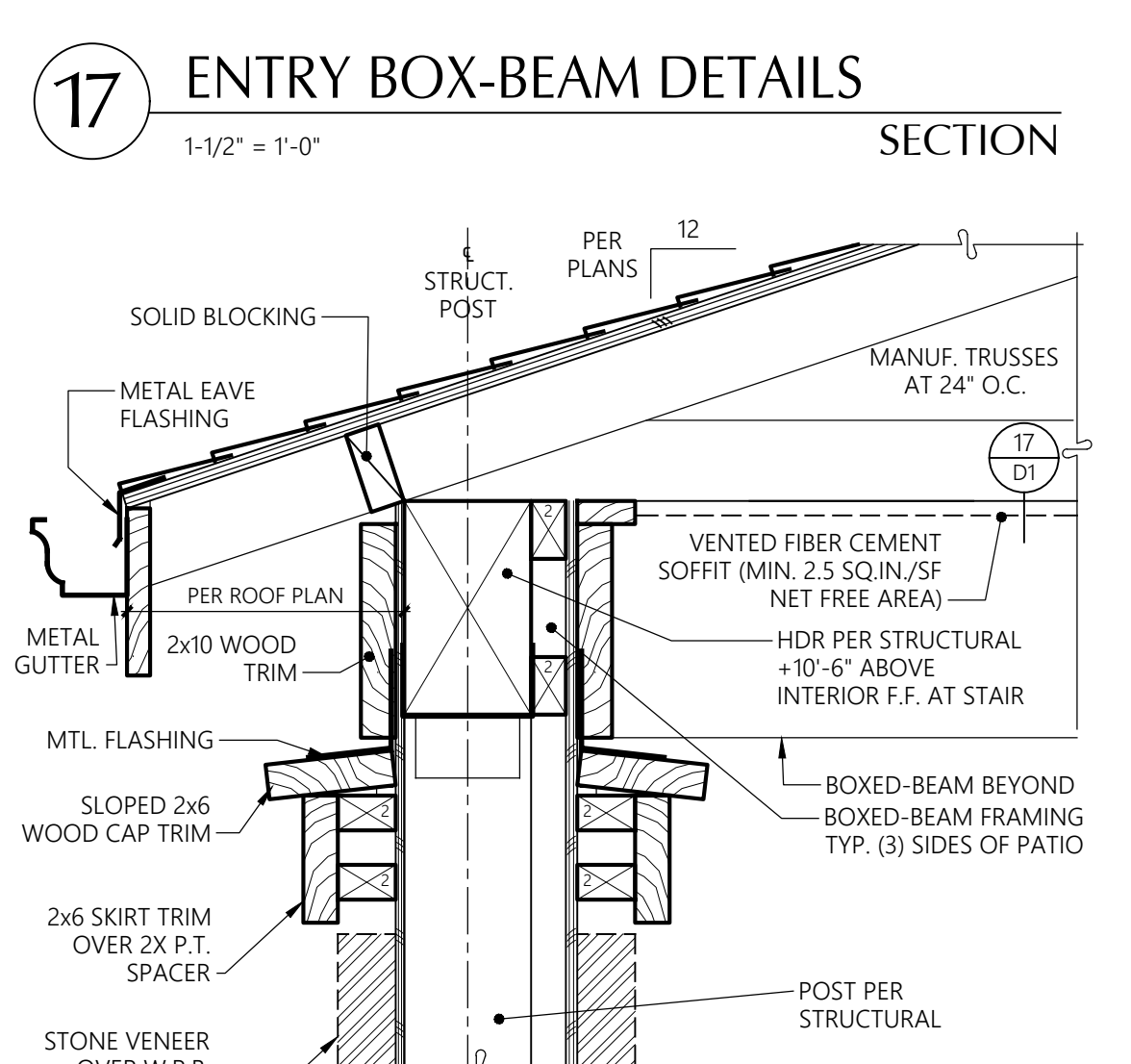
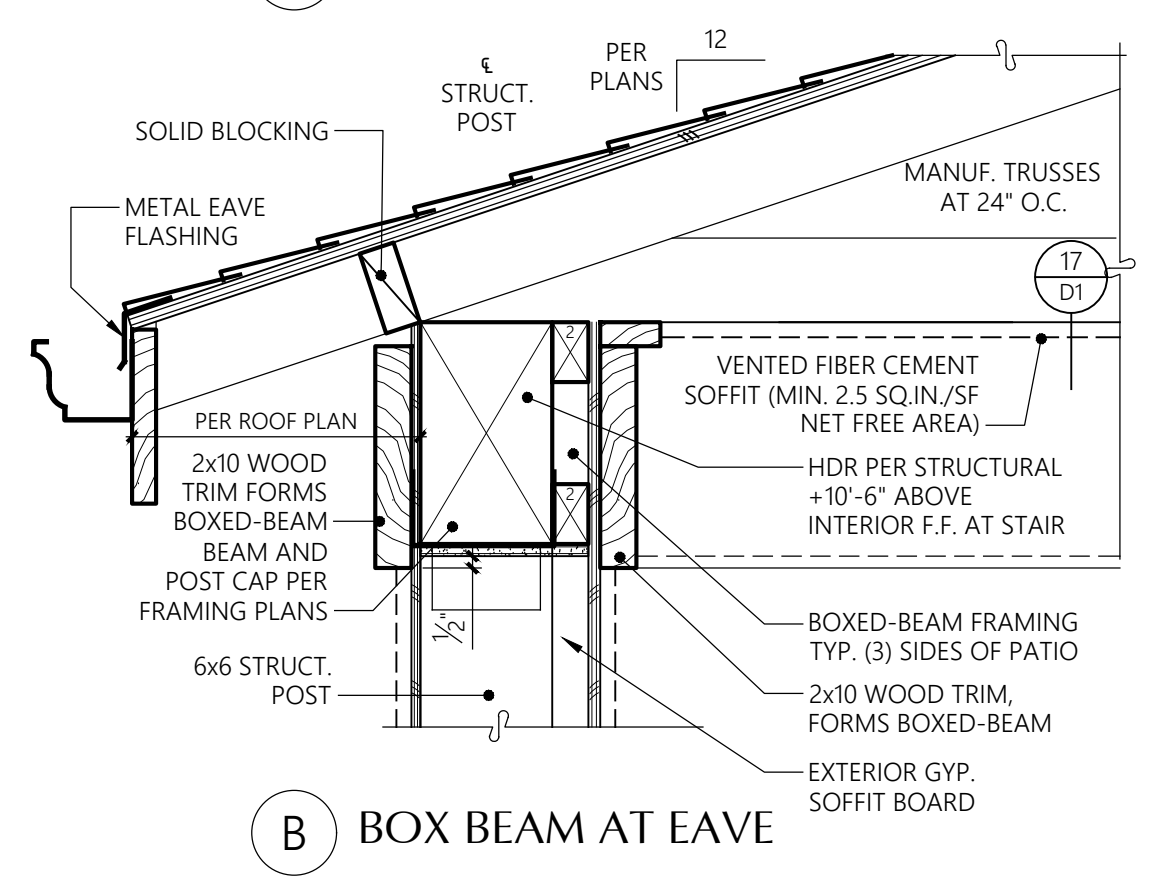
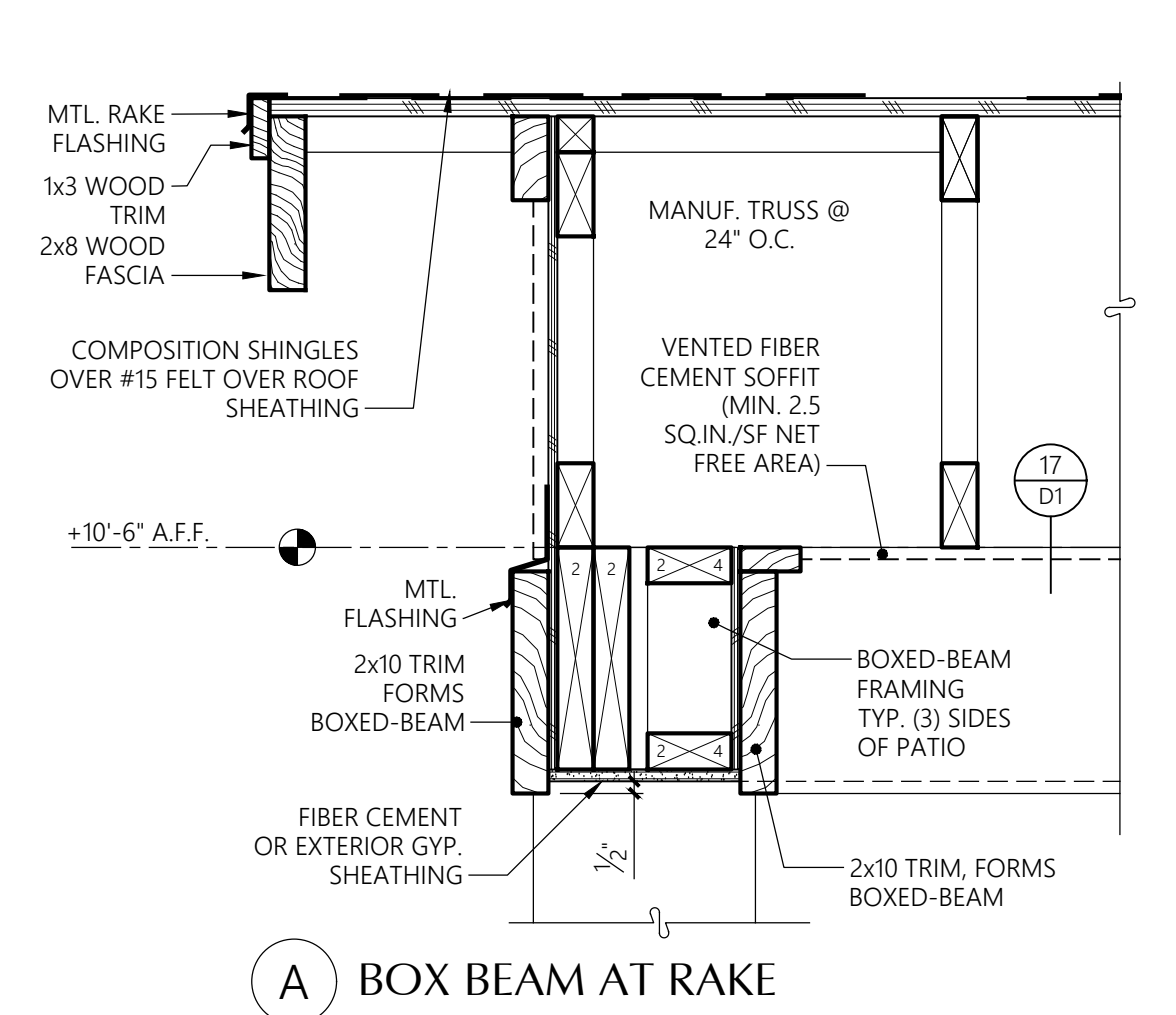
**7** RAKE AT DECK SECTION  
1-1/2" = 1'-0"



**15** GUARD AT LANDING SECTION  
1-1/2" = 1'-0"

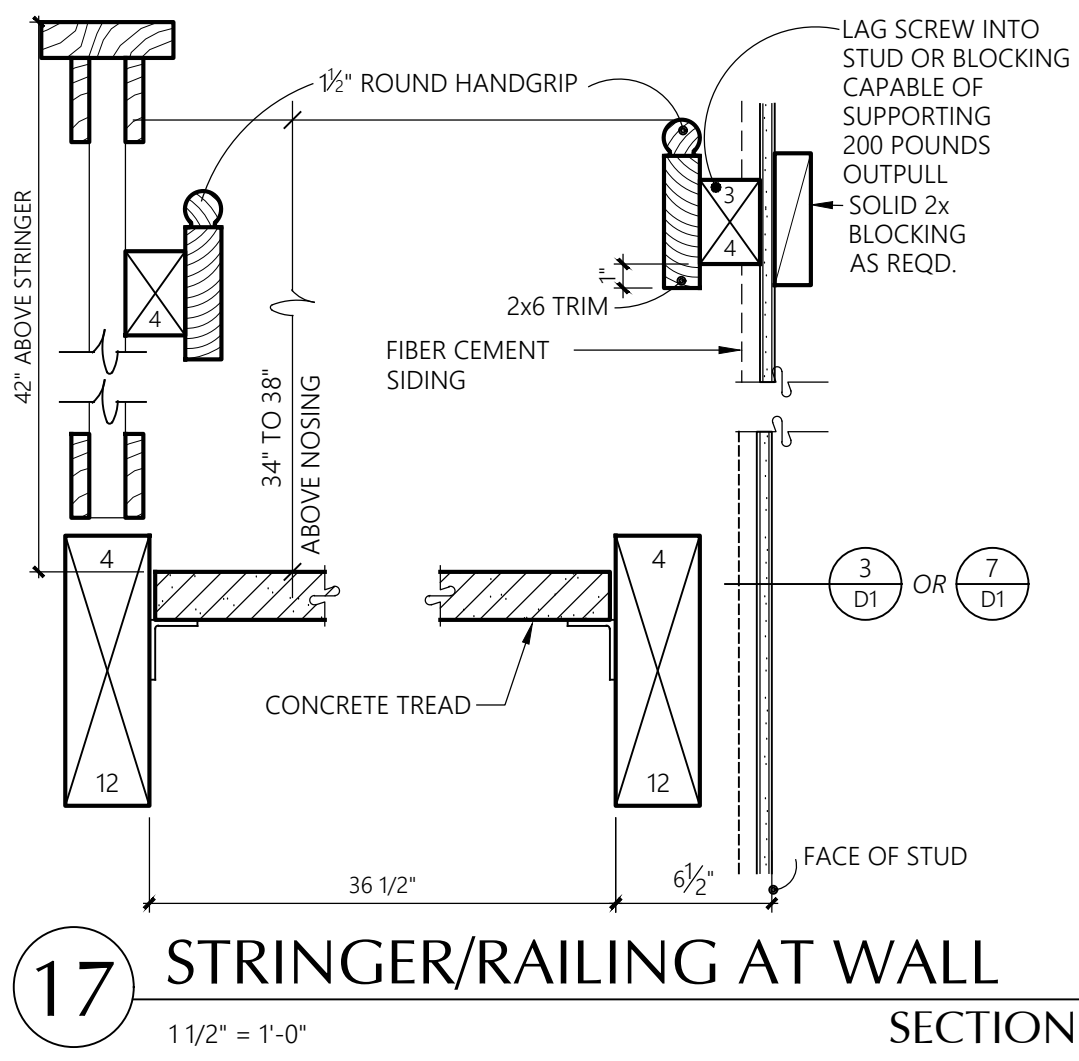


**16** LOW ROOF SECTION  
1-1/2" = 1'-0"

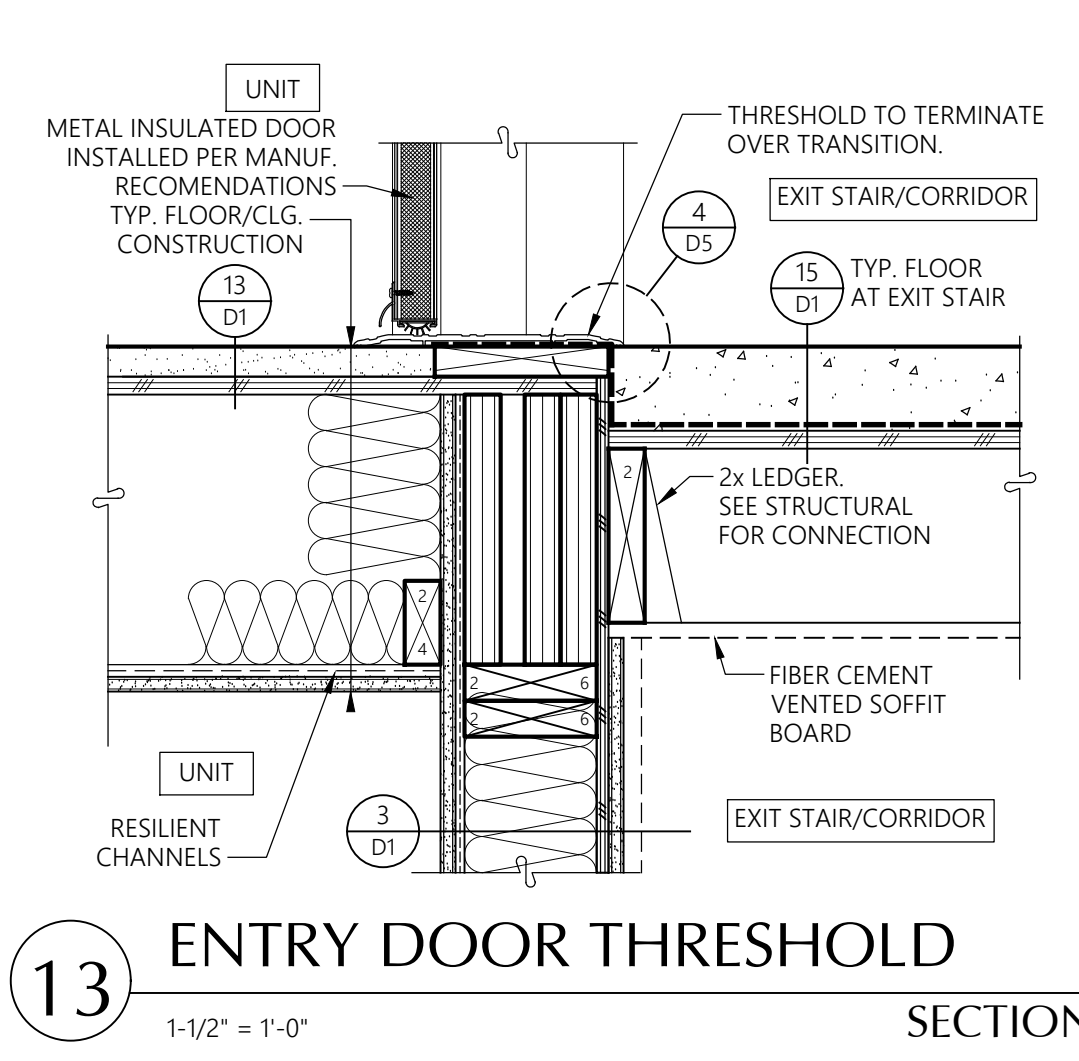


**20** ENTRY COLUMN AND LOW ROOF SECTION  
1-1/2" = 1'-0"

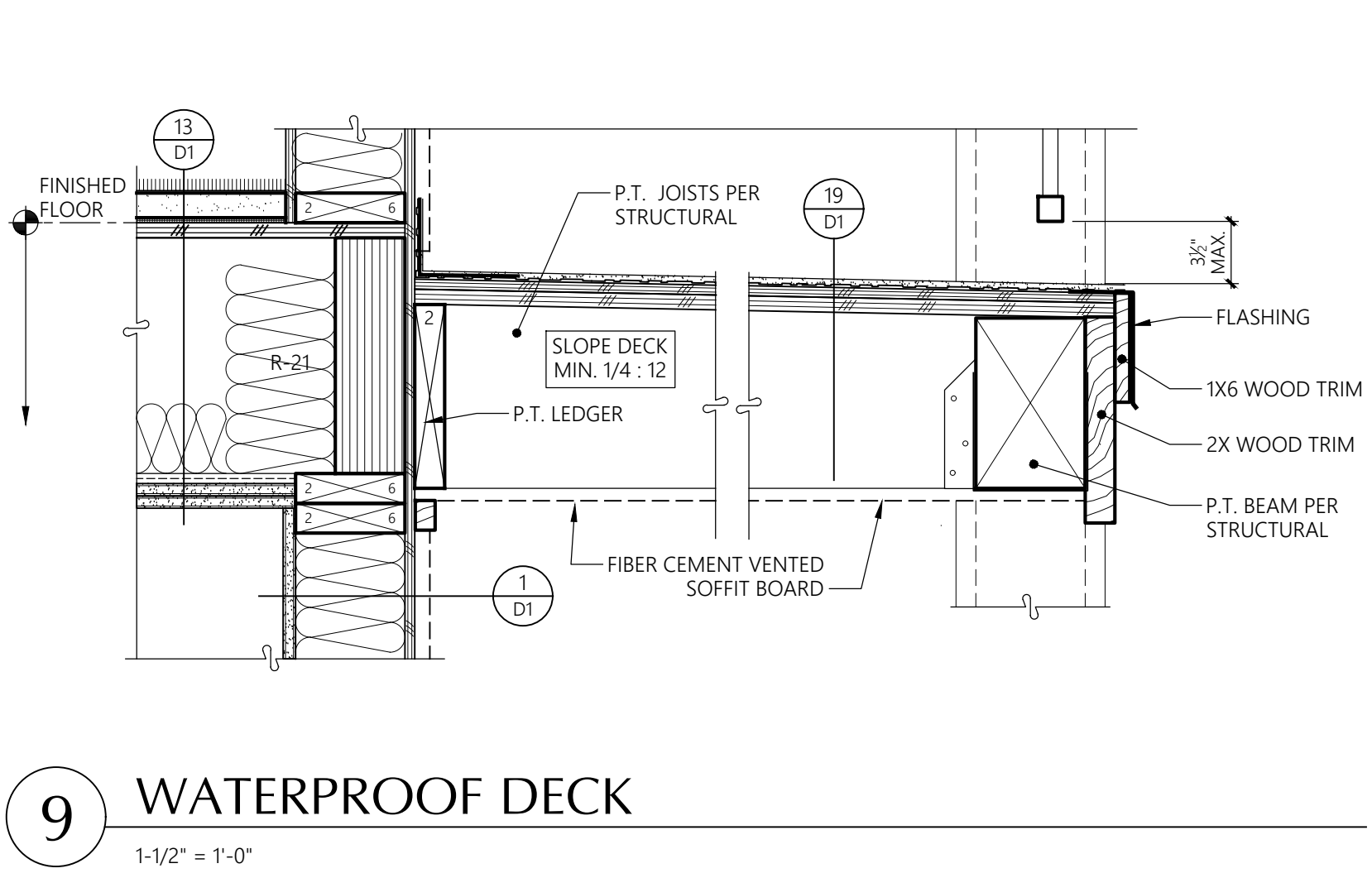
FR: 2306\_V01 DETAILS (01-10X) DWG



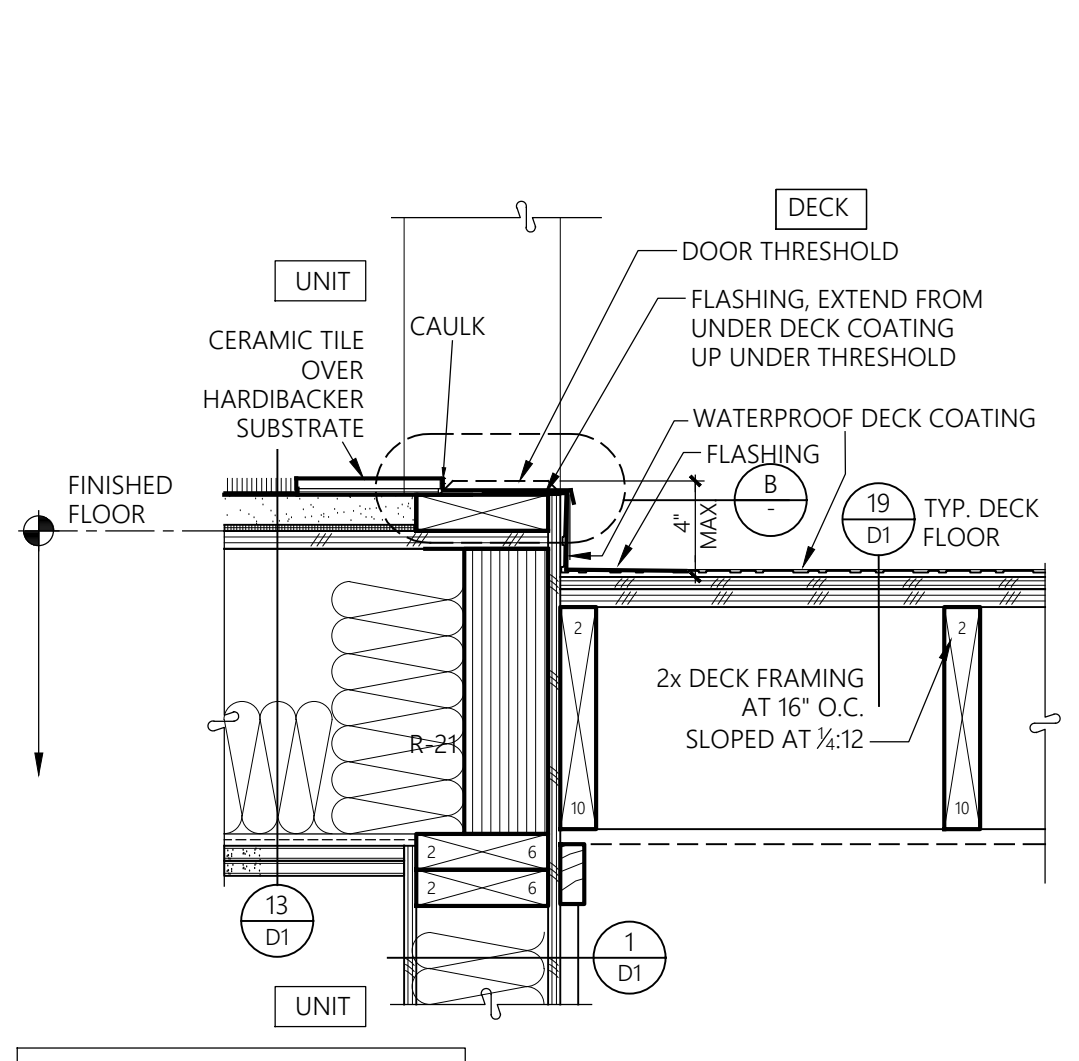
**17** STRINGER/RAILING AT WALL  
1 1/2" = 1'-0"  
SECTION



**13** ENTRY DOOR THRESHOLD  
1-1/2" = 1'-0"  
SECTION

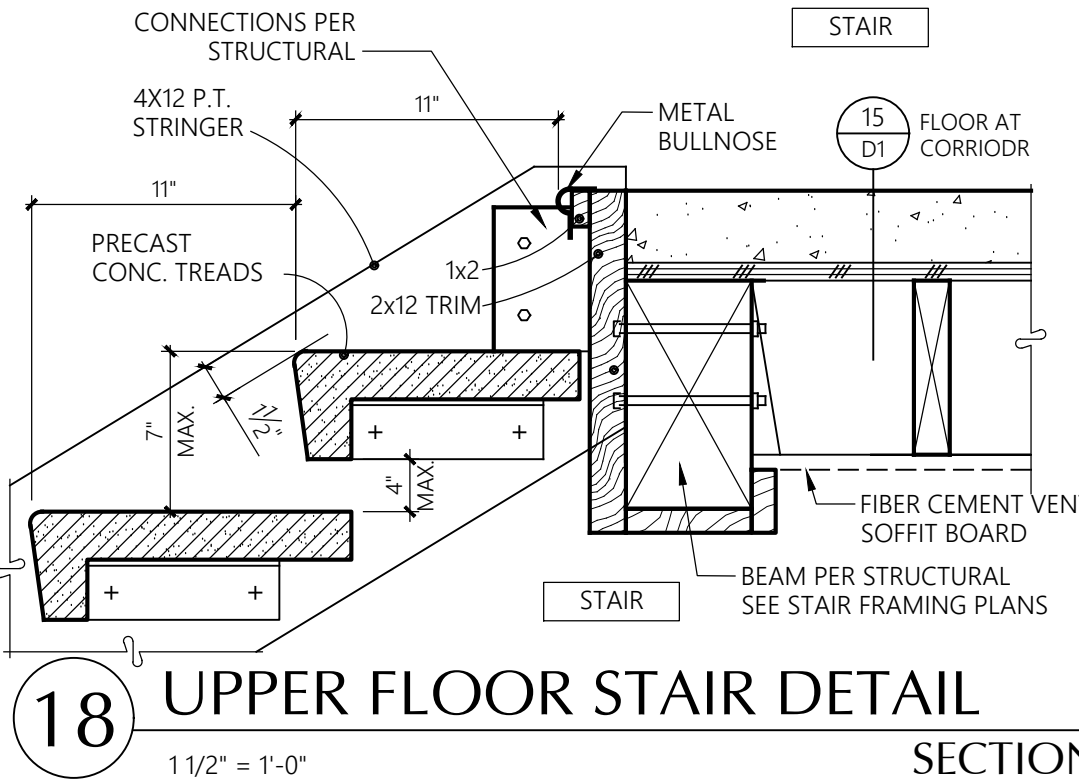


**9** WATERPROOF DECK  
1-1/2" = 1'-0"  
SECTION

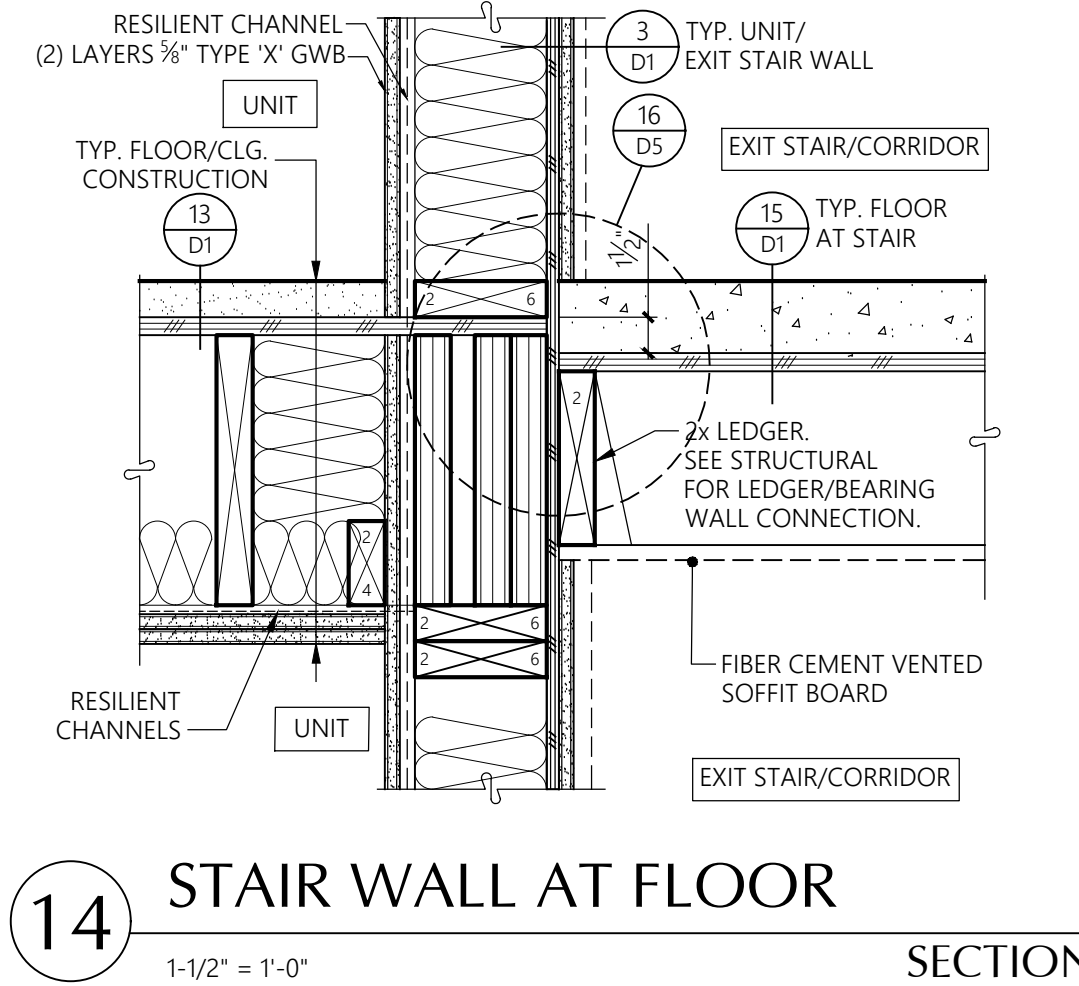


NOTE: SEE STRUCTURAL DETAIL SHEETS FOR ALL POST AND BEAM CONNECTIONS.

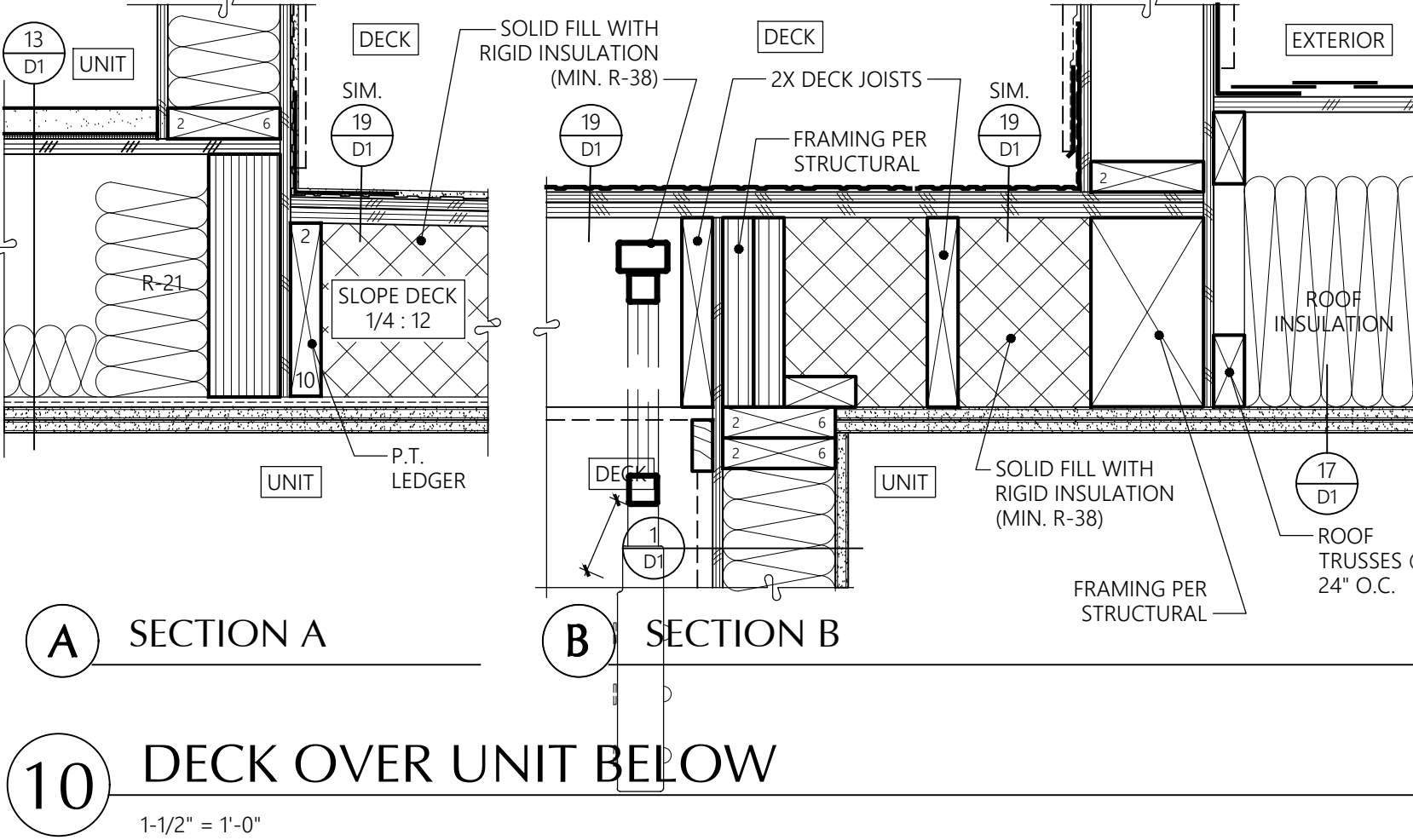
**A** PATIO SWING DOOR STANDARD THRESHOLD



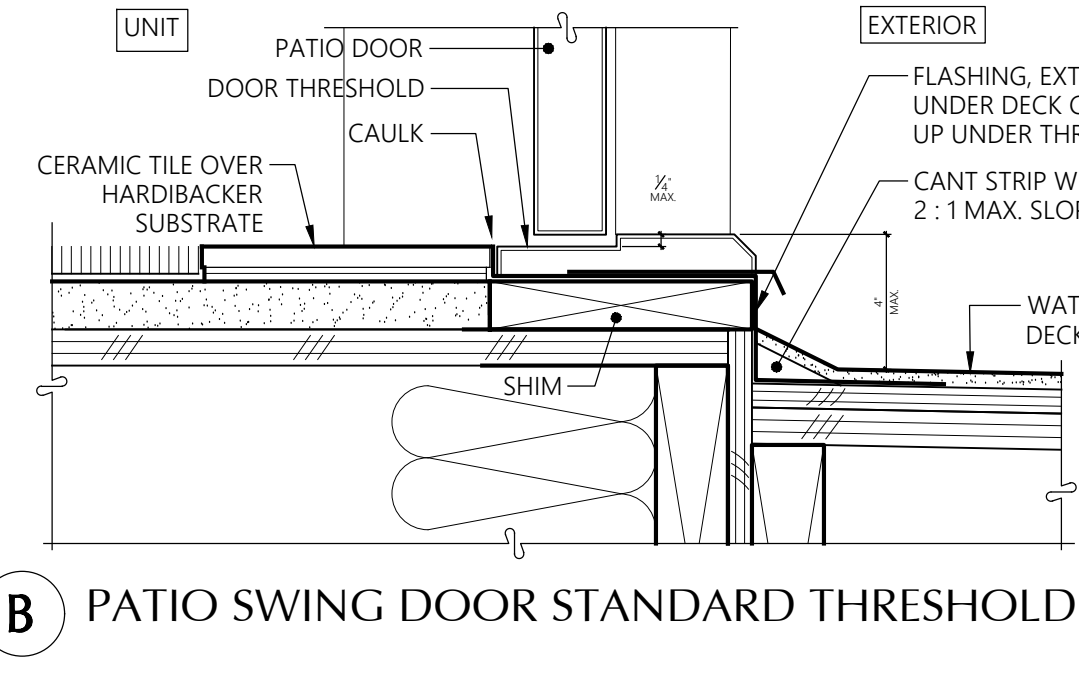
**18** UPPER FLOOR STAIR DETAIL  
1 1/2" = 1'-0"  
SECTION



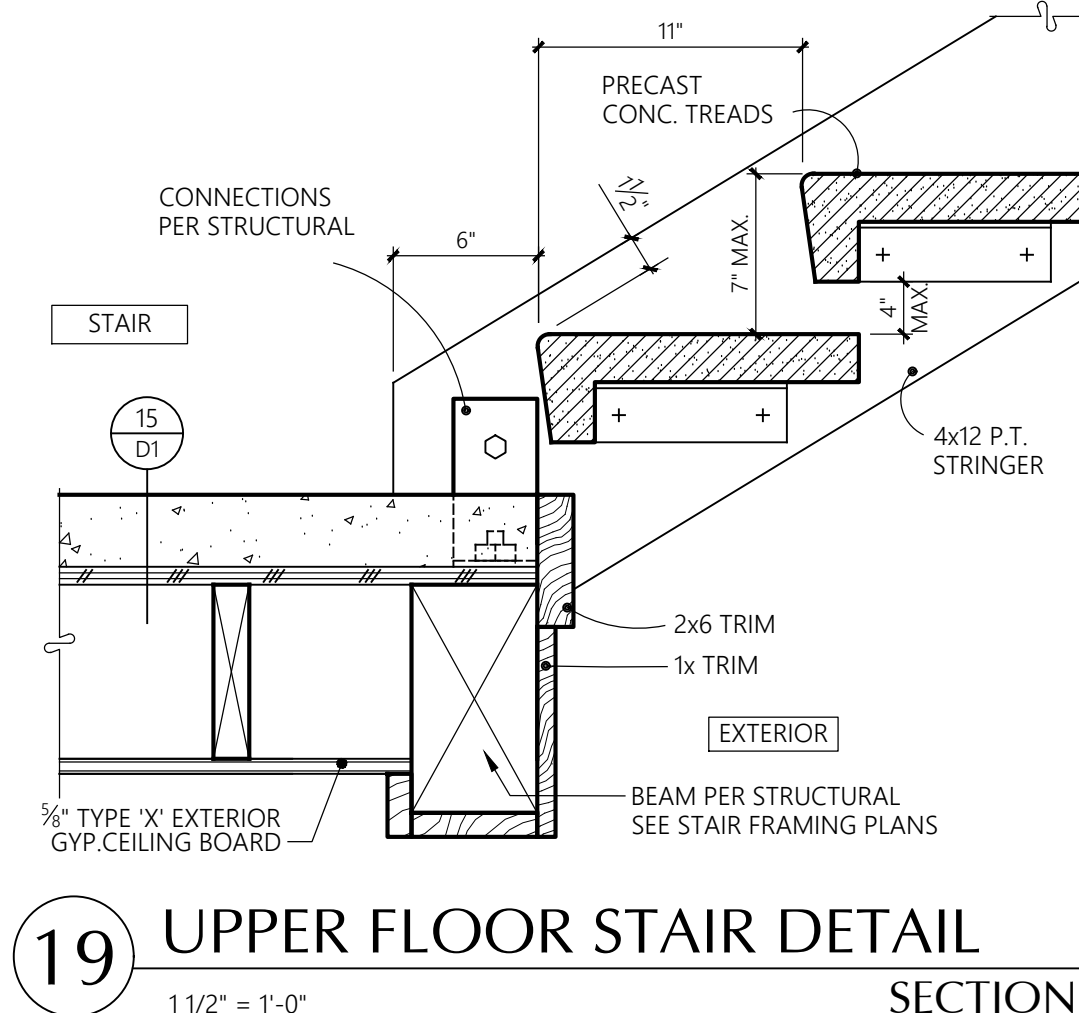
**14** STAIR WALL AT FLOOR  
1-1/2" = 1'-0"  
SECTION



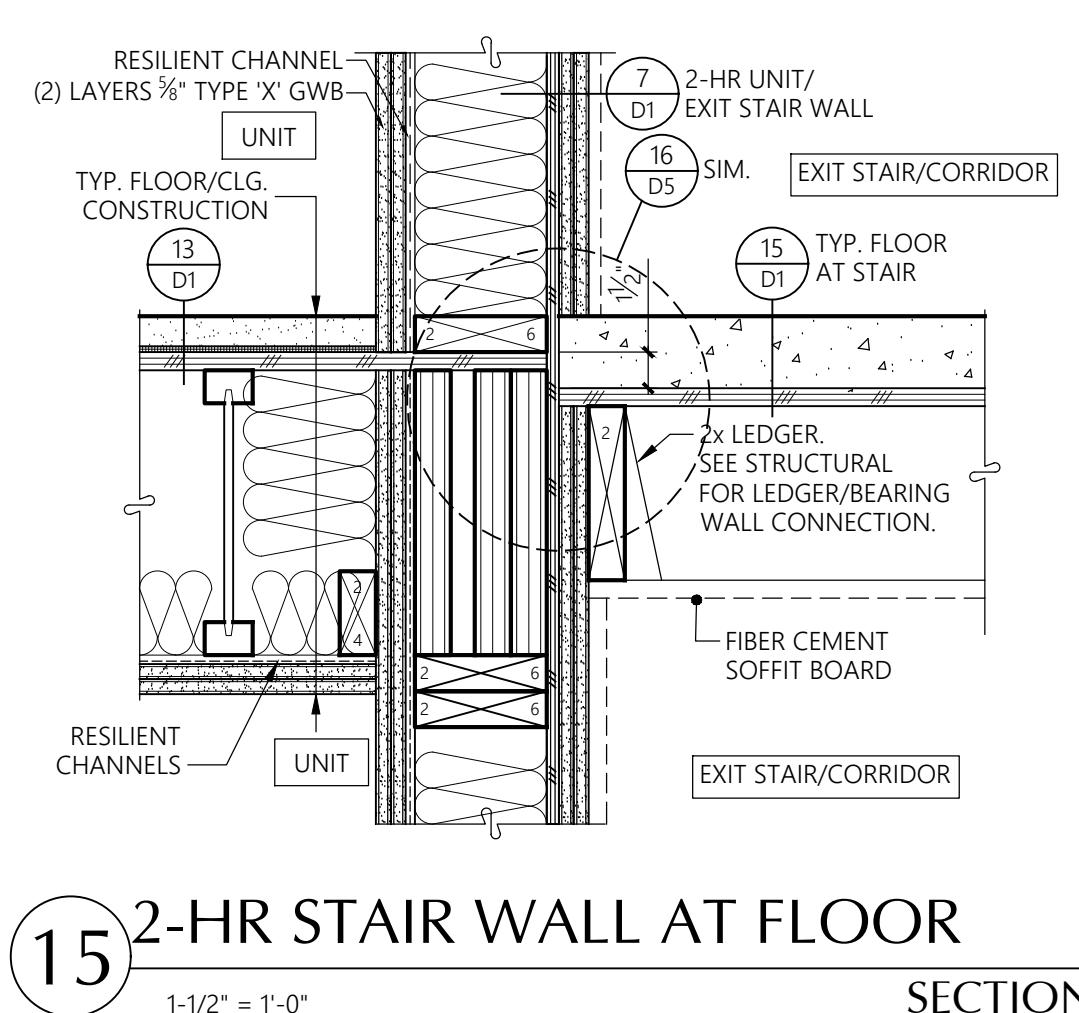
**10** DECK OVER UNIT BELOW  
1-1/2" = 1'-0"  
SECTION



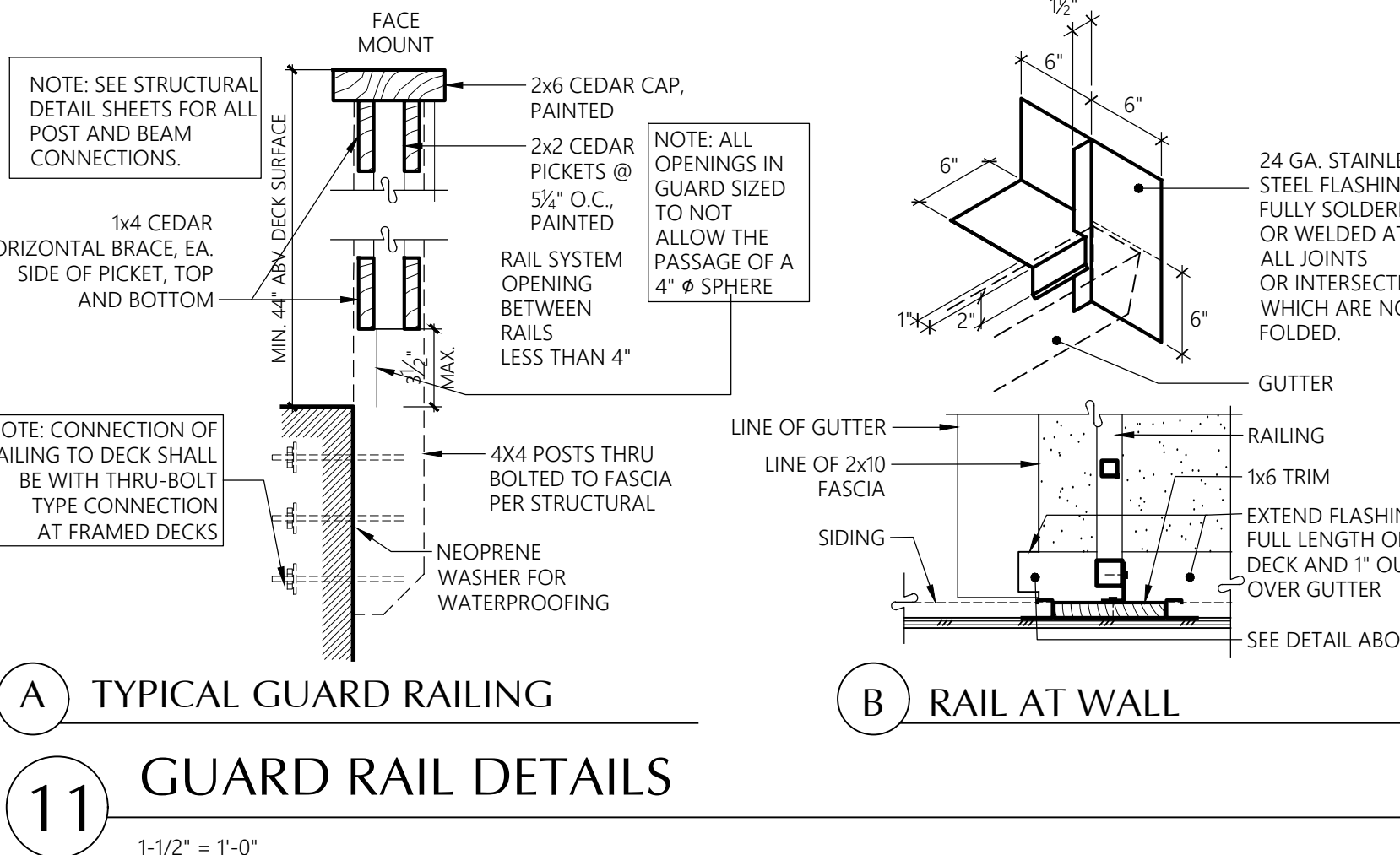
**B** PATIO SWING DOOR STANDARD THRESHOLD



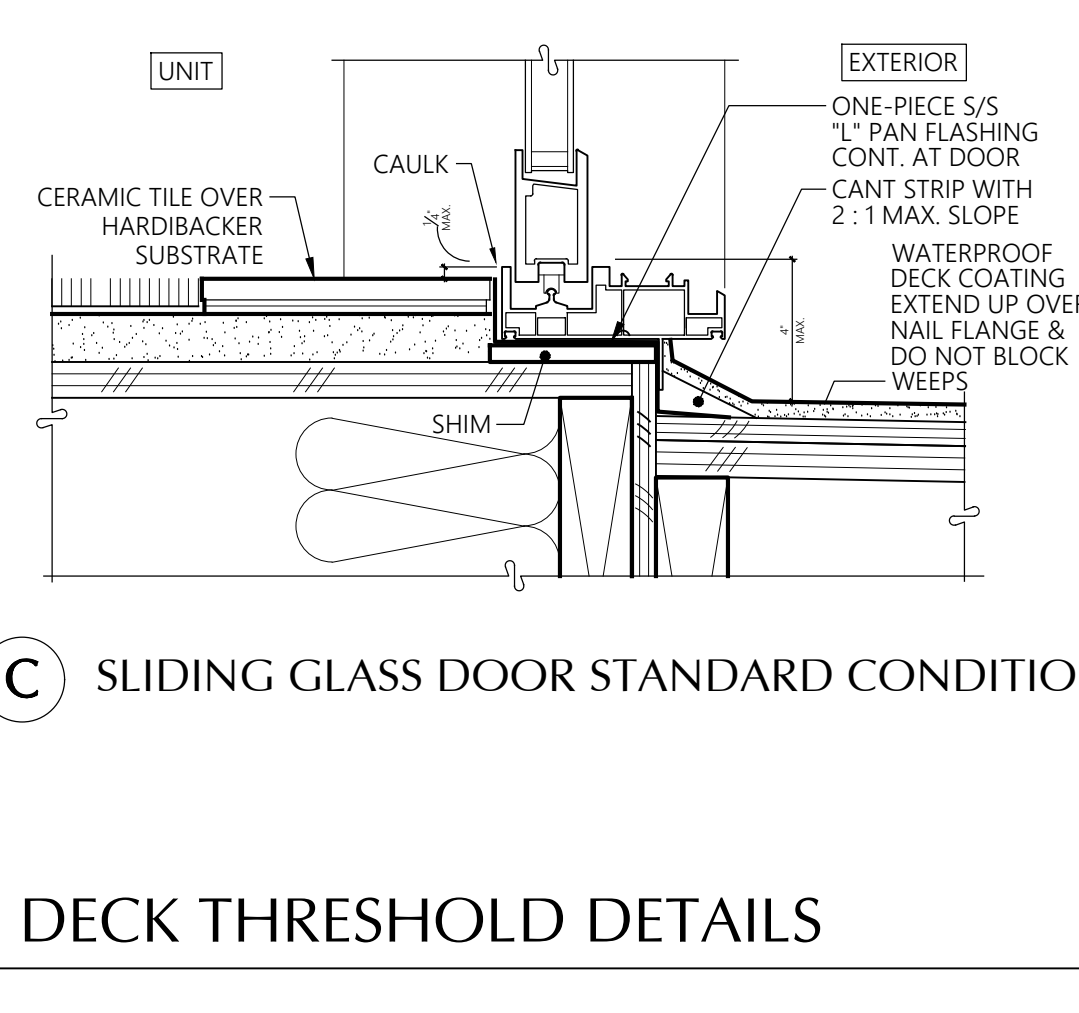
**19** UPPER FLOOR STAIR DETAIL  
1 1/2" = 1'-0"  
SECTION



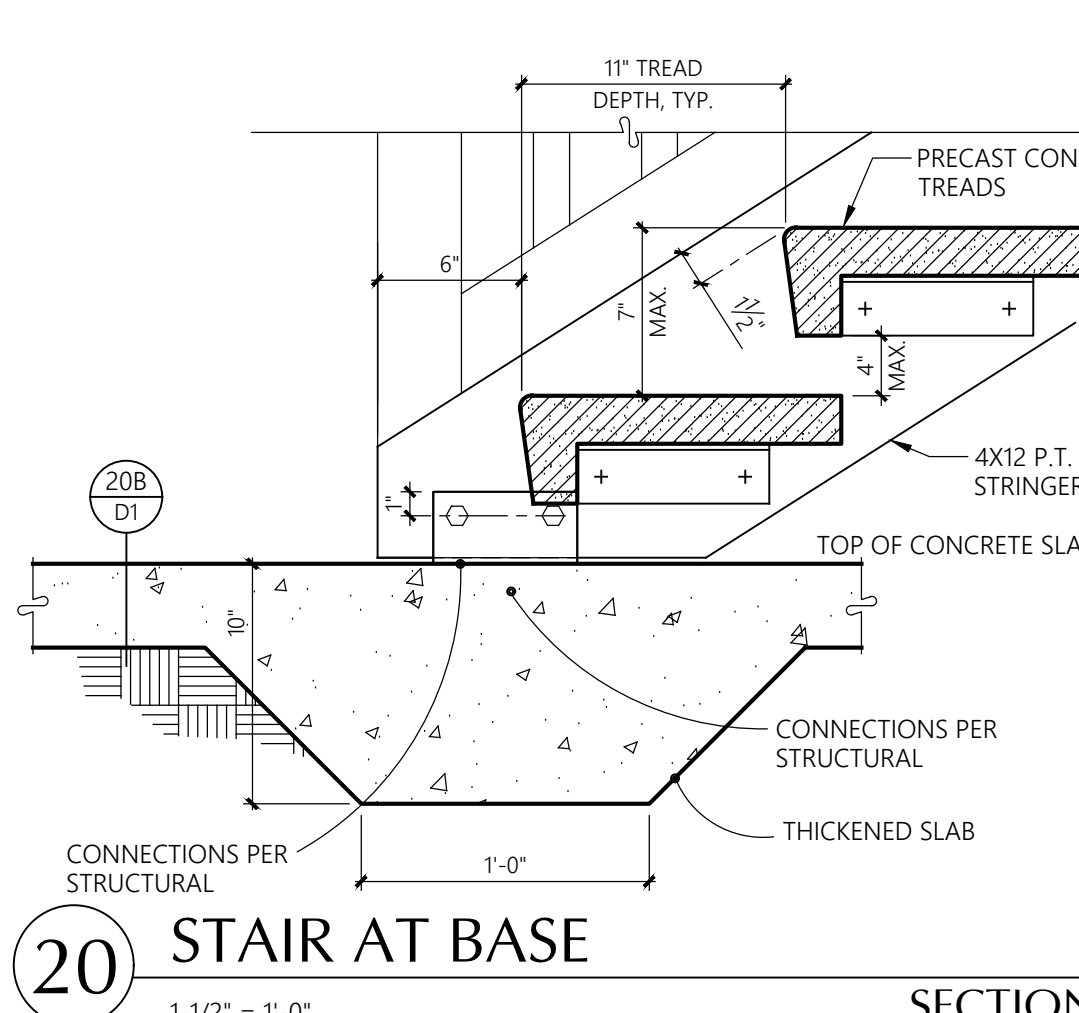
**15** 2-HR STAIR WALL AT FLOOR  
1-1/2" = 1'-0"  
SECTION



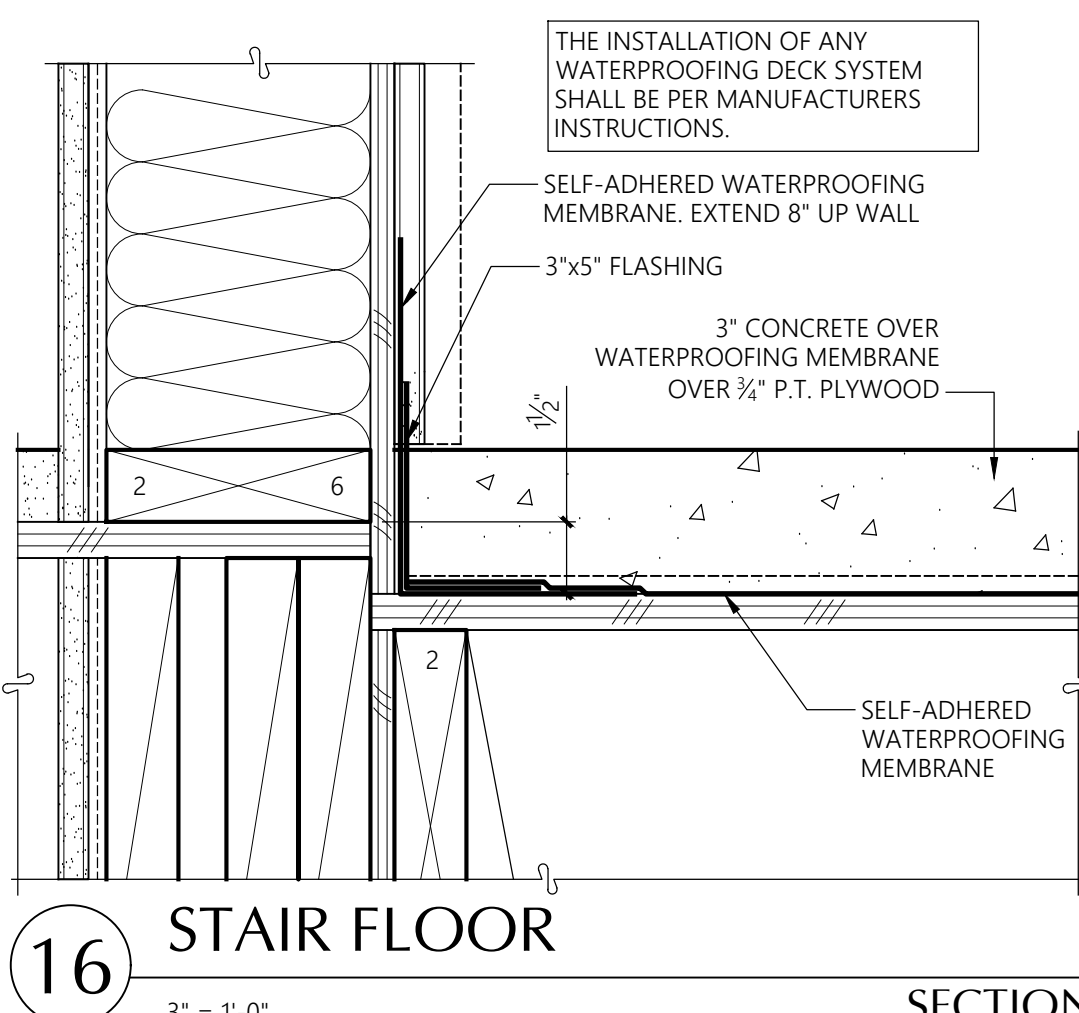
**11** GUARD RAIL DETAILS  
1-1/2" = 1'-0"  
SECTION



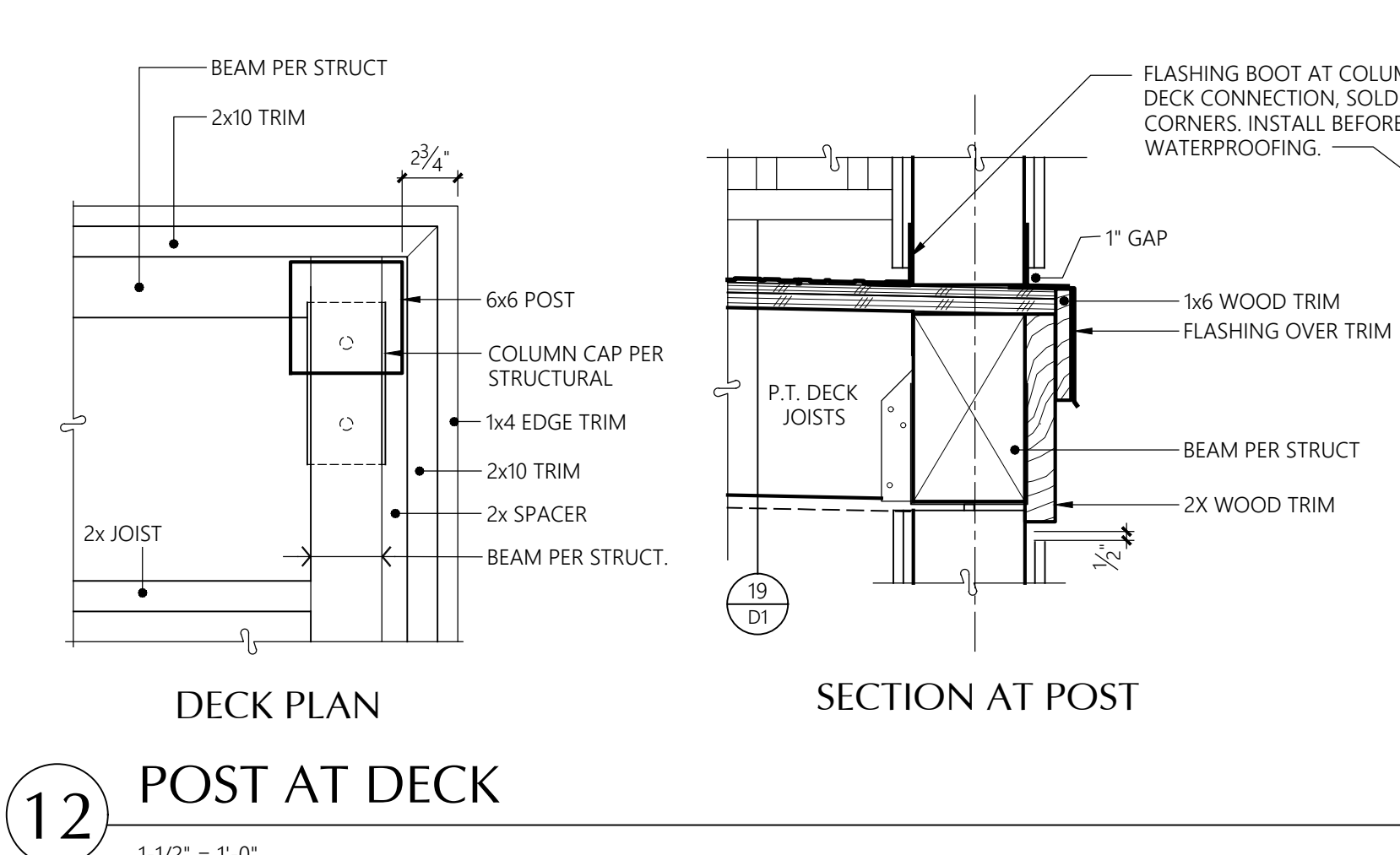
**2** DECK THRESHOLD DETAILS  
SECTION



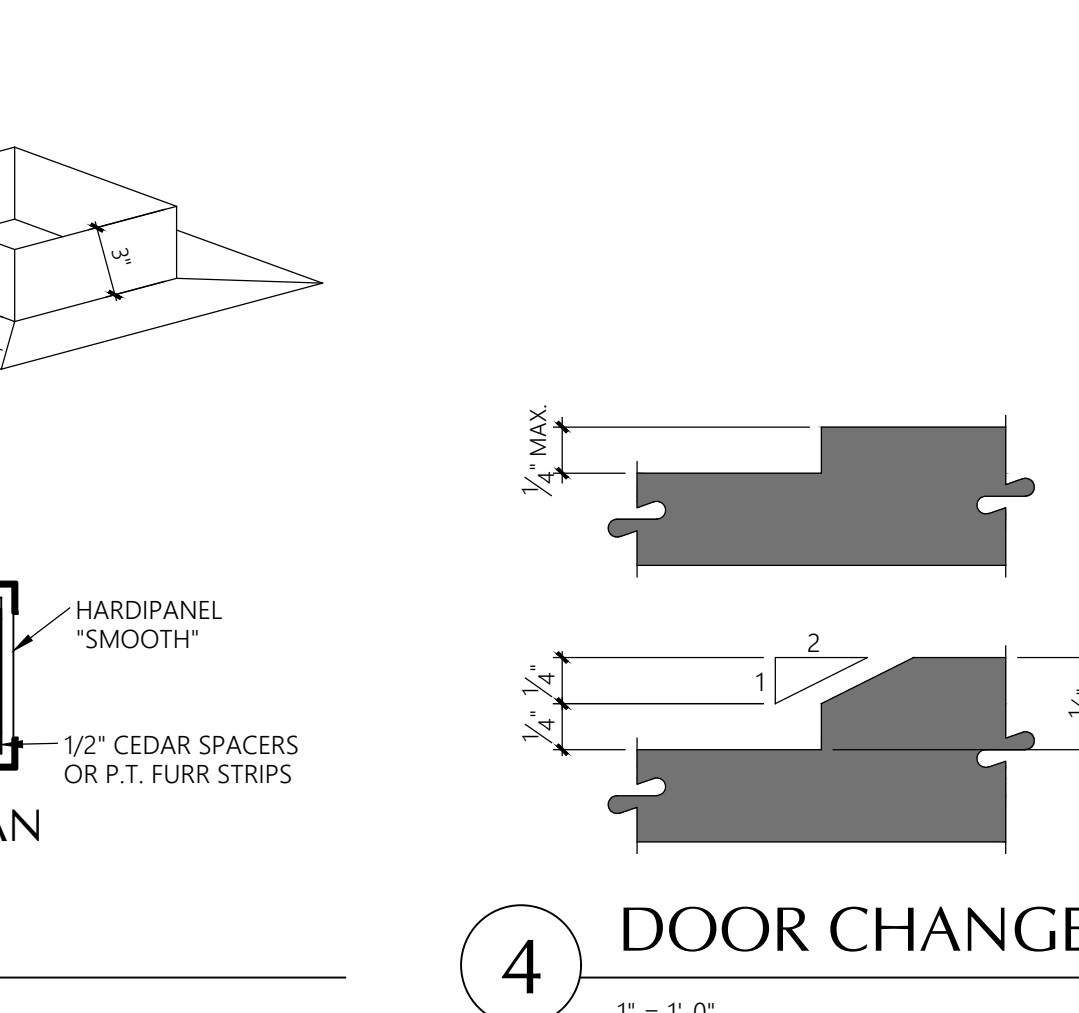
**20** STAIR AT BASE  
1-1/2" = 1'-0"  
SECTION



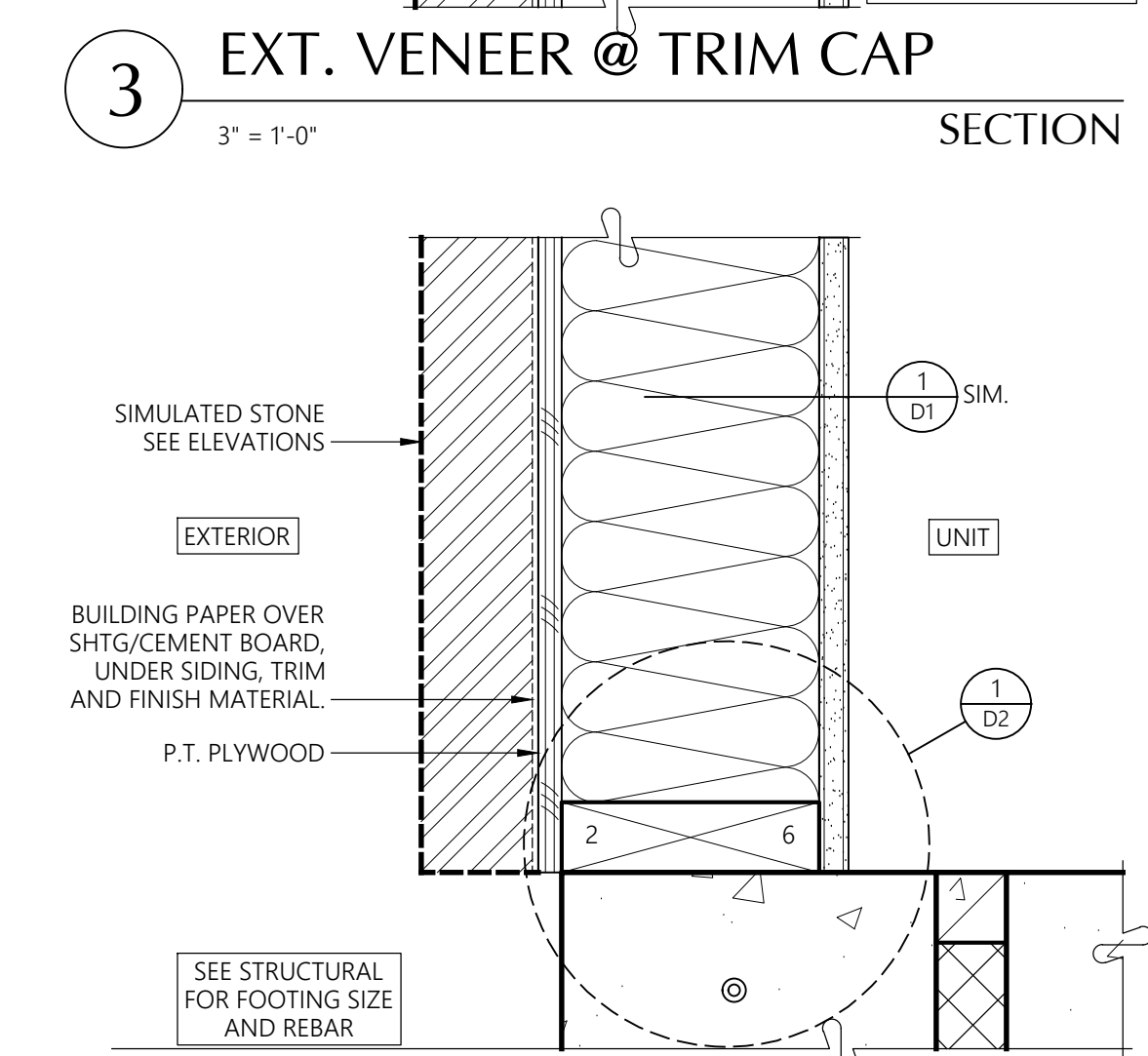
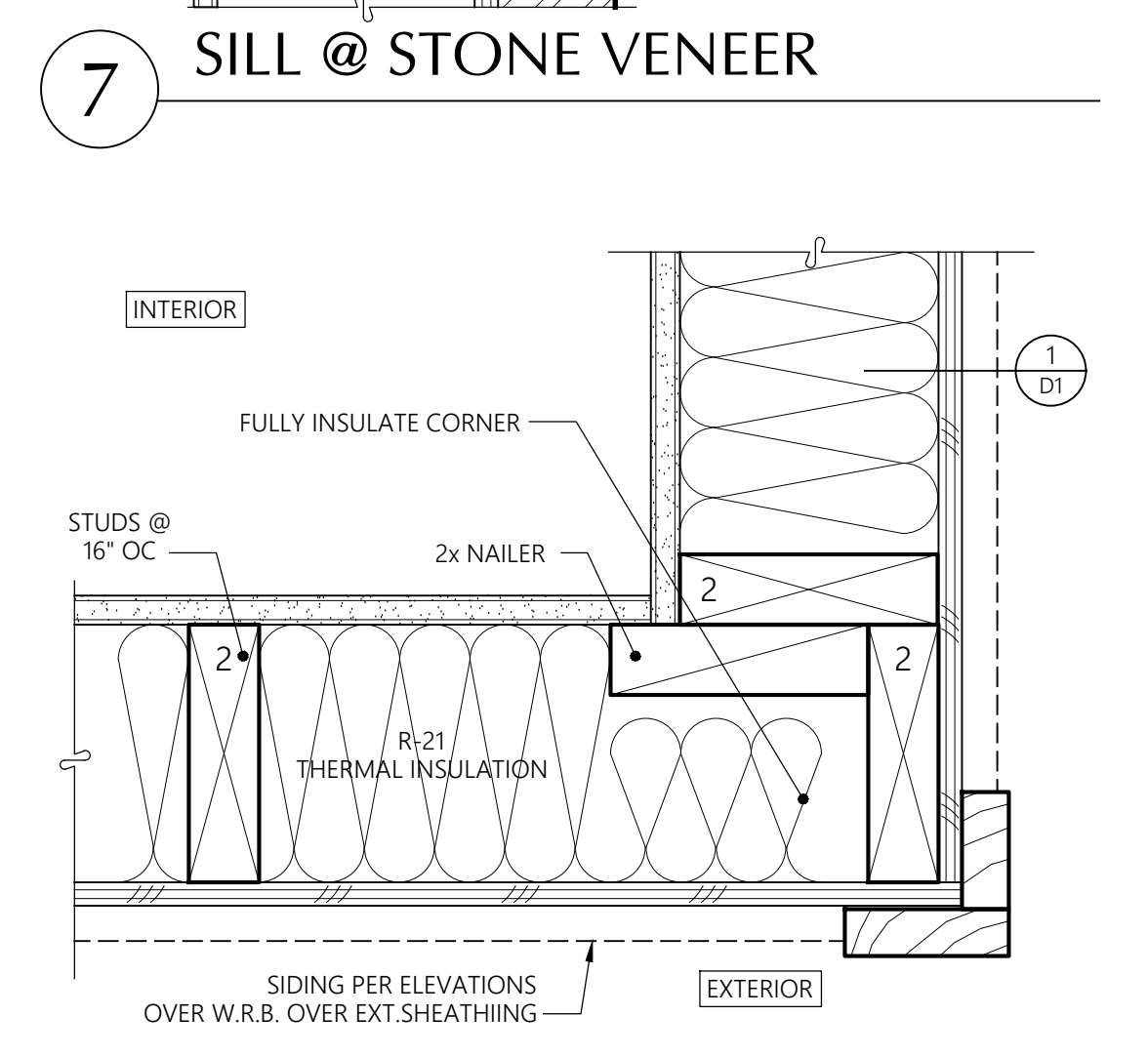
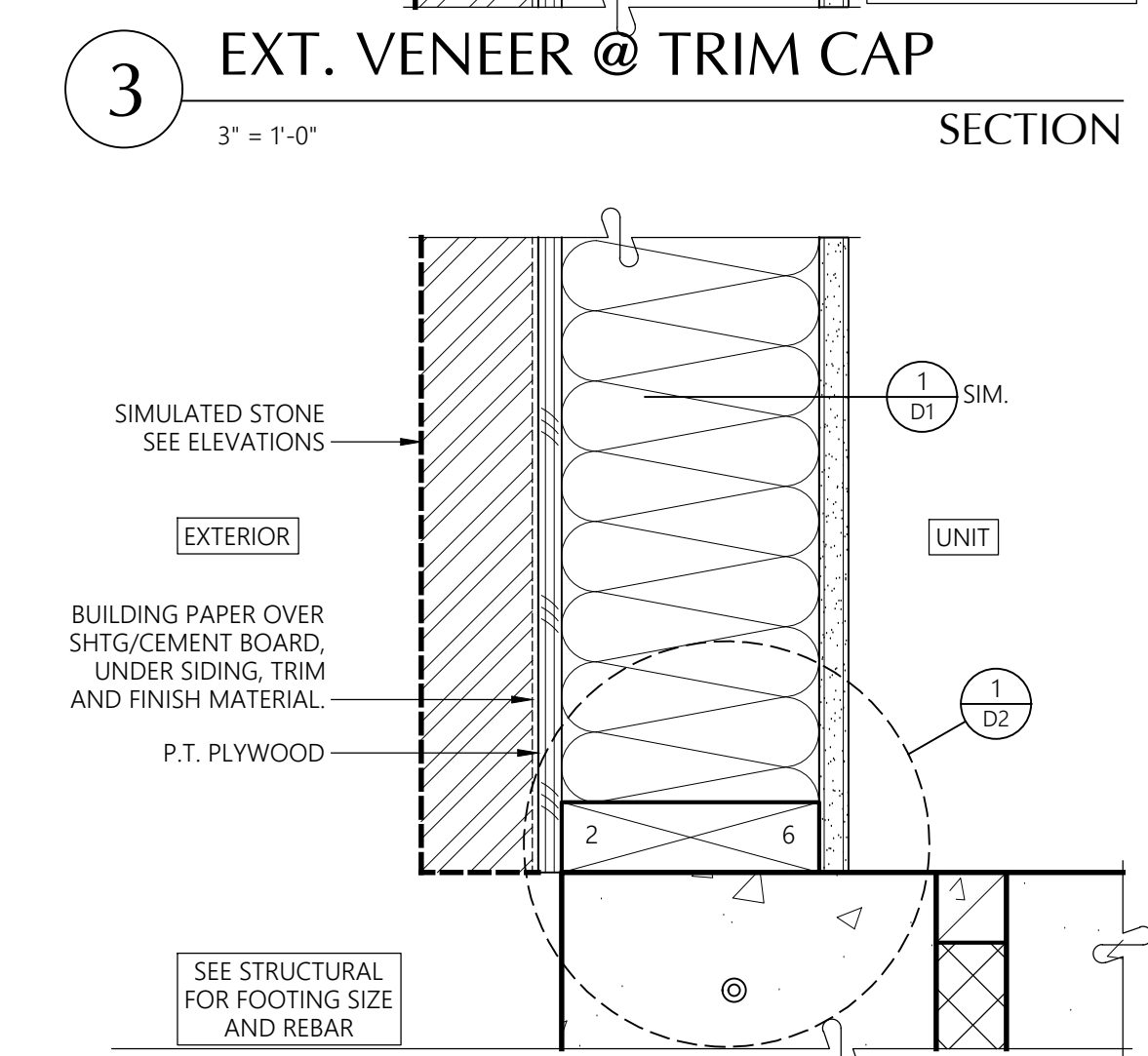
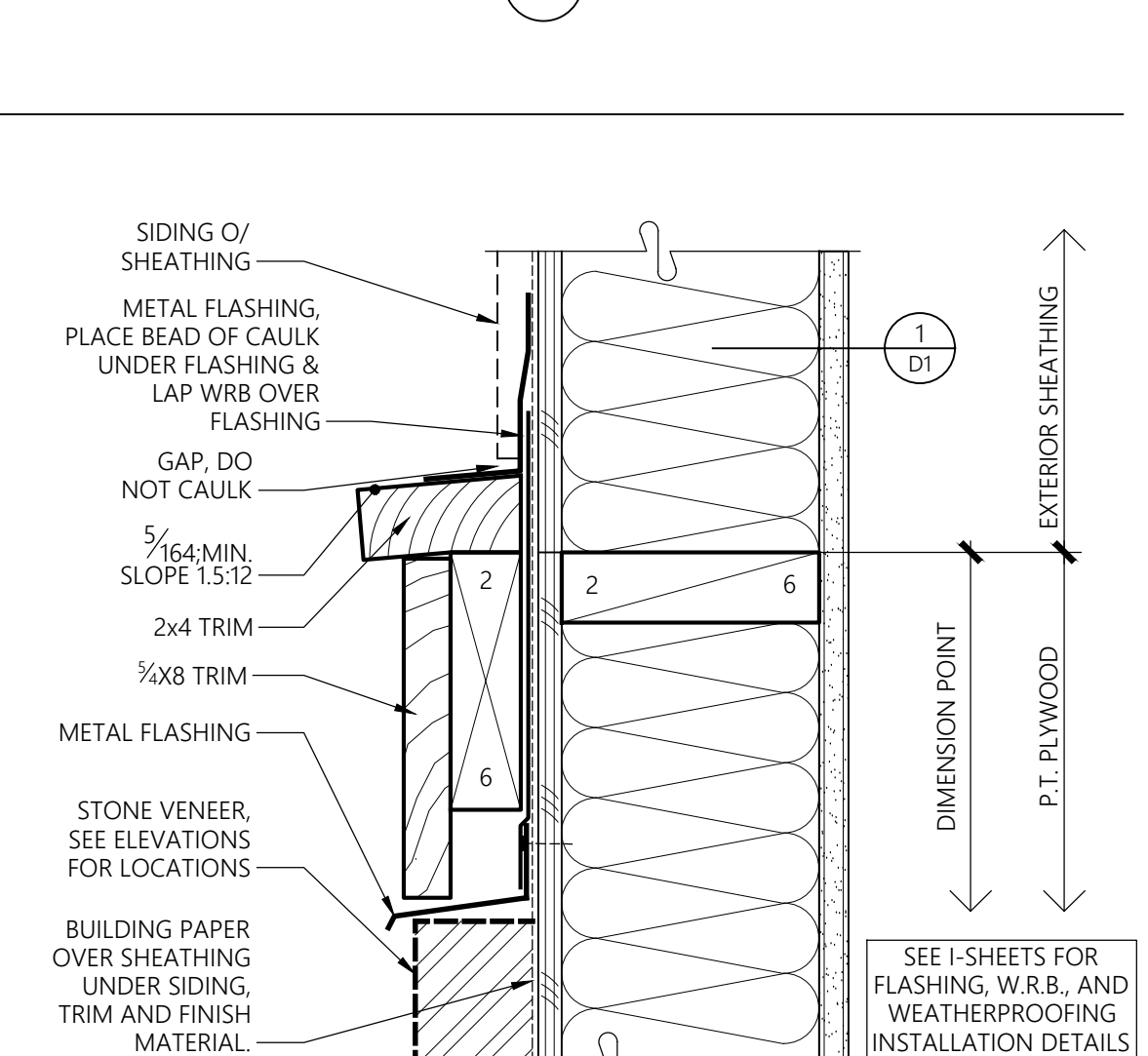
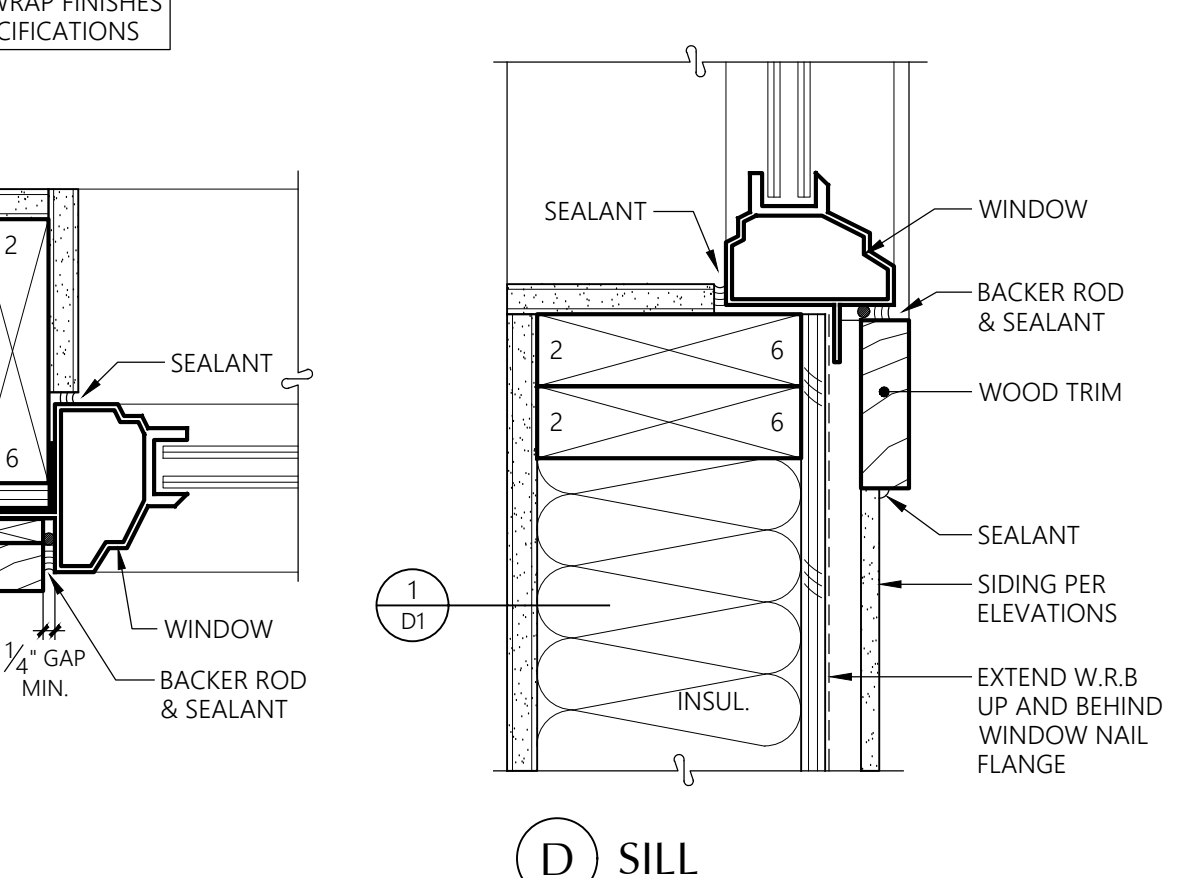
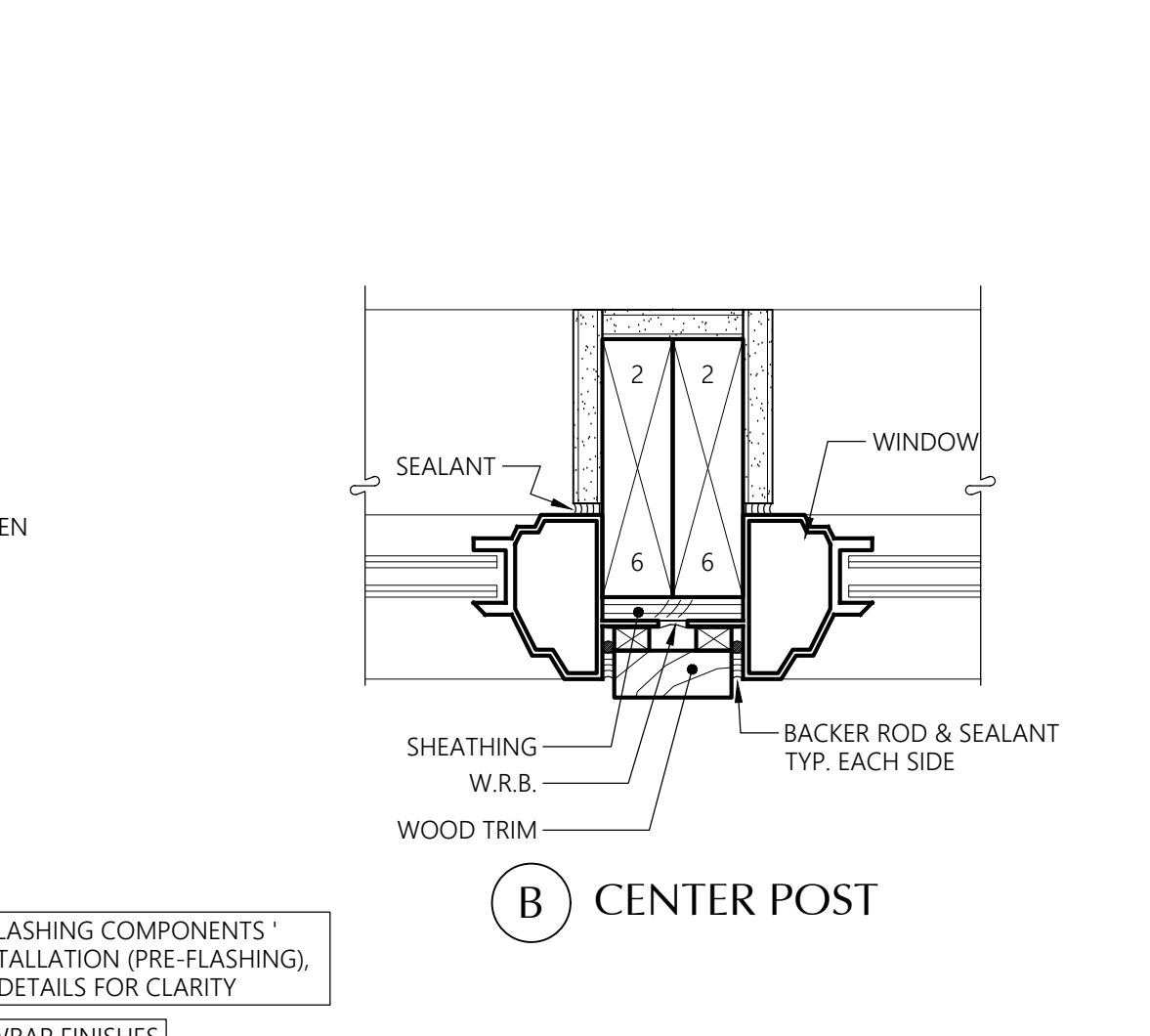
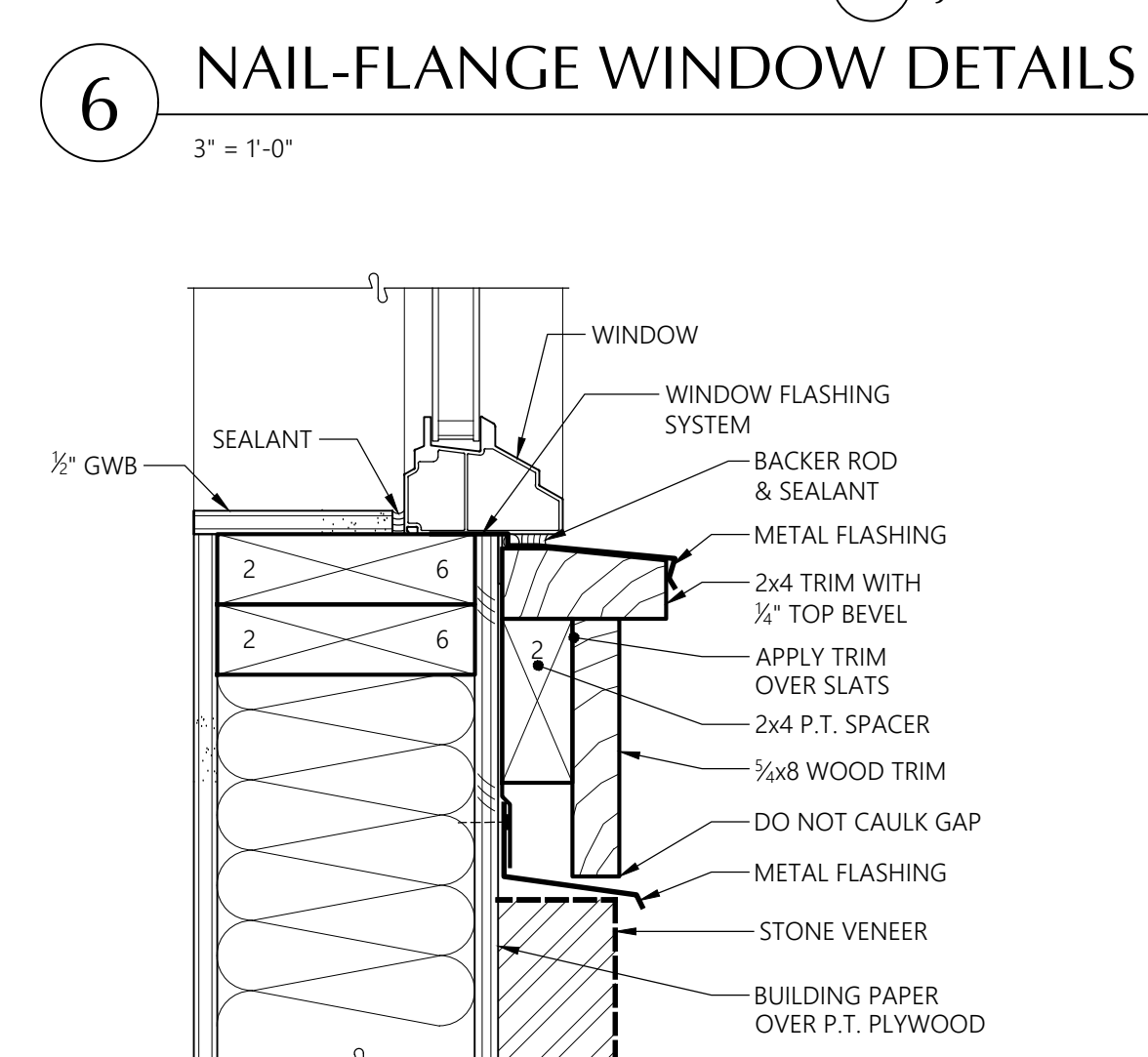
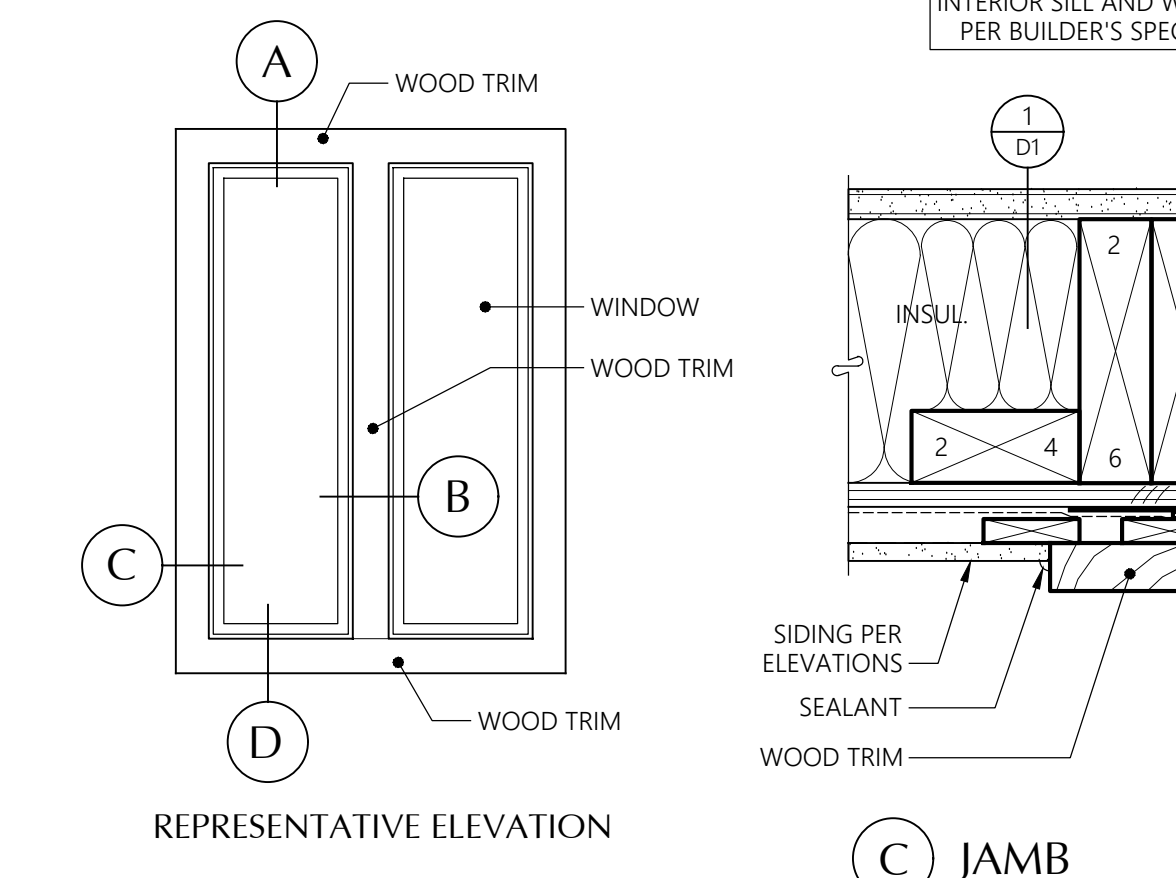
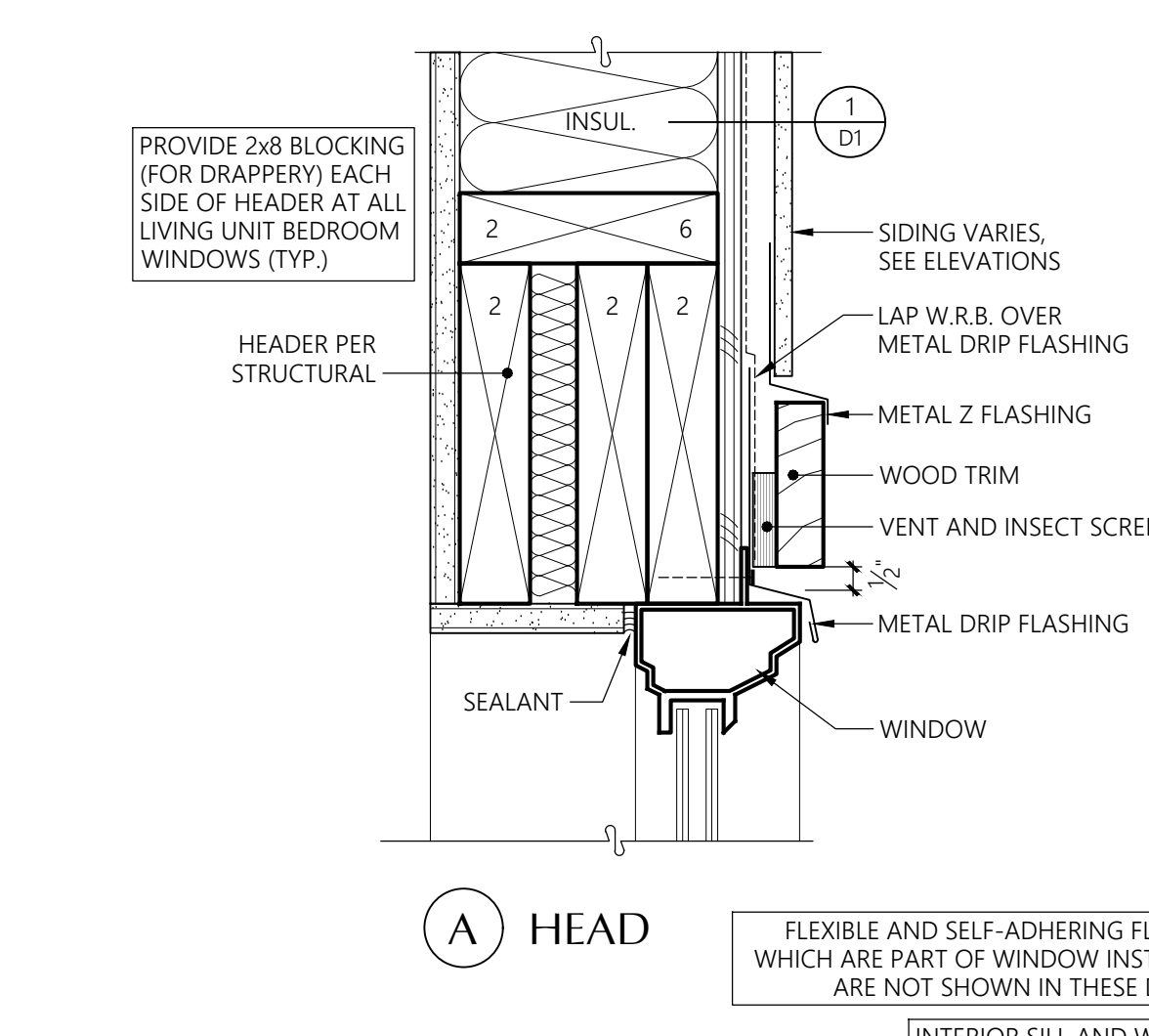
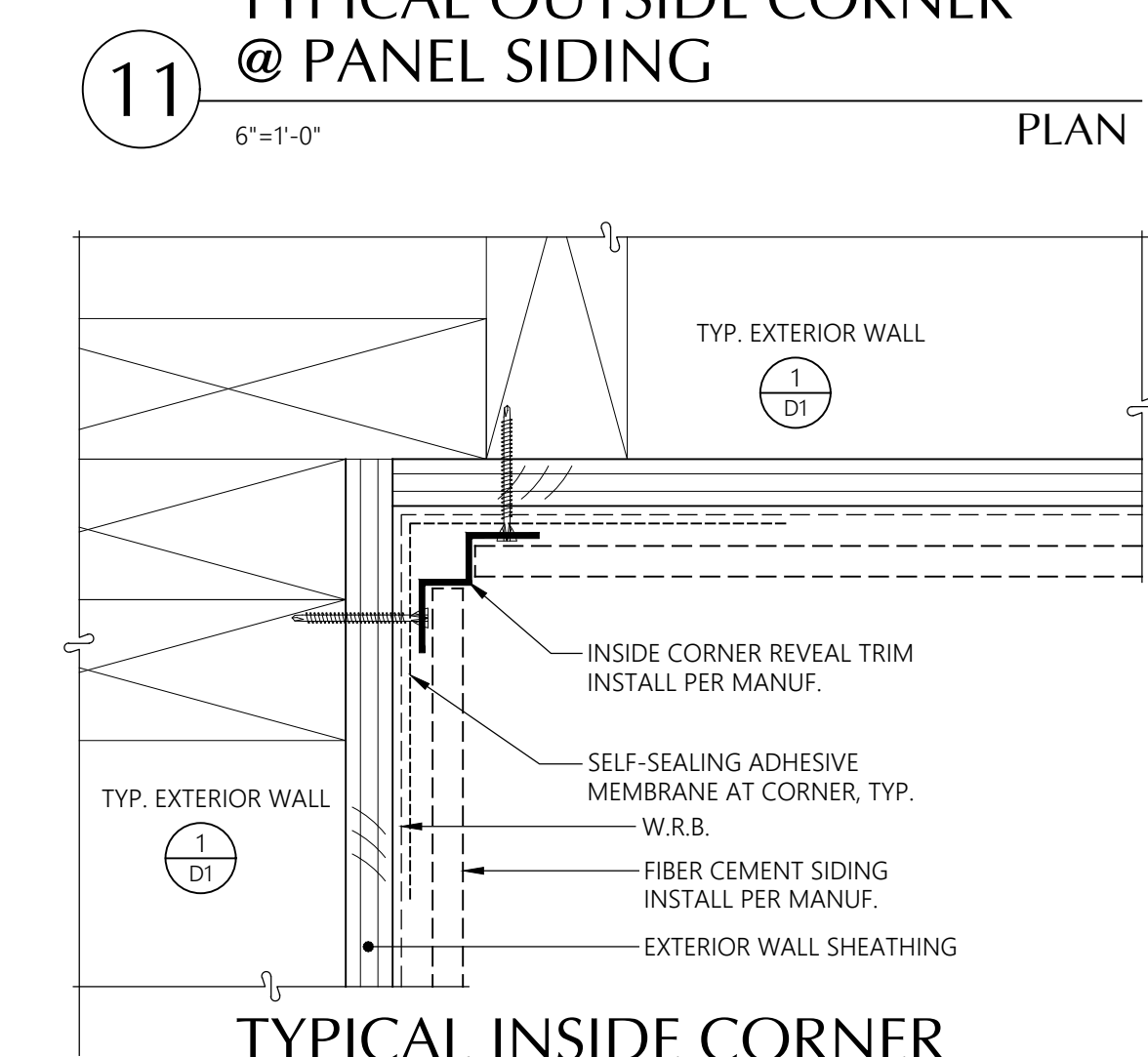
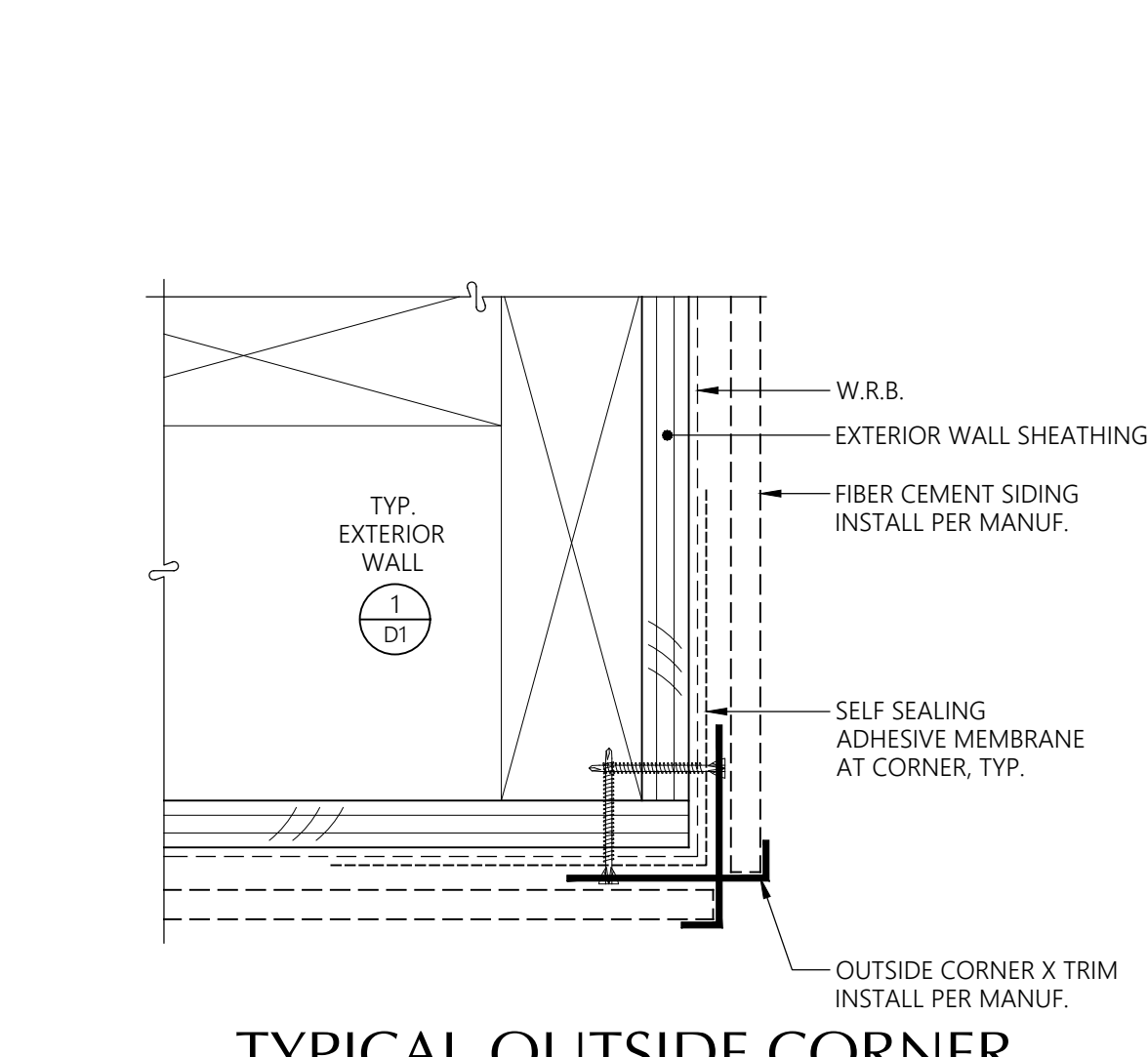
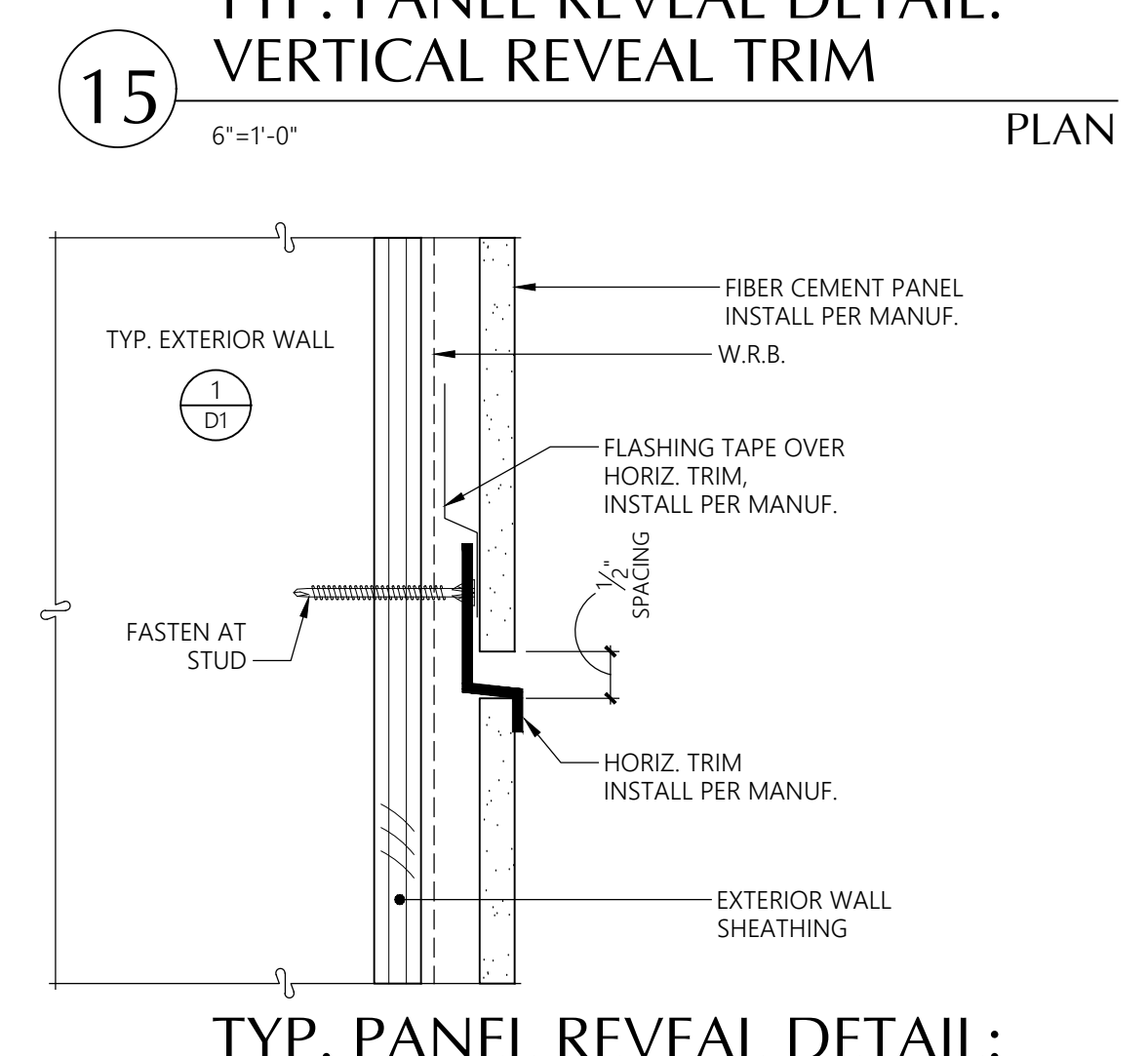
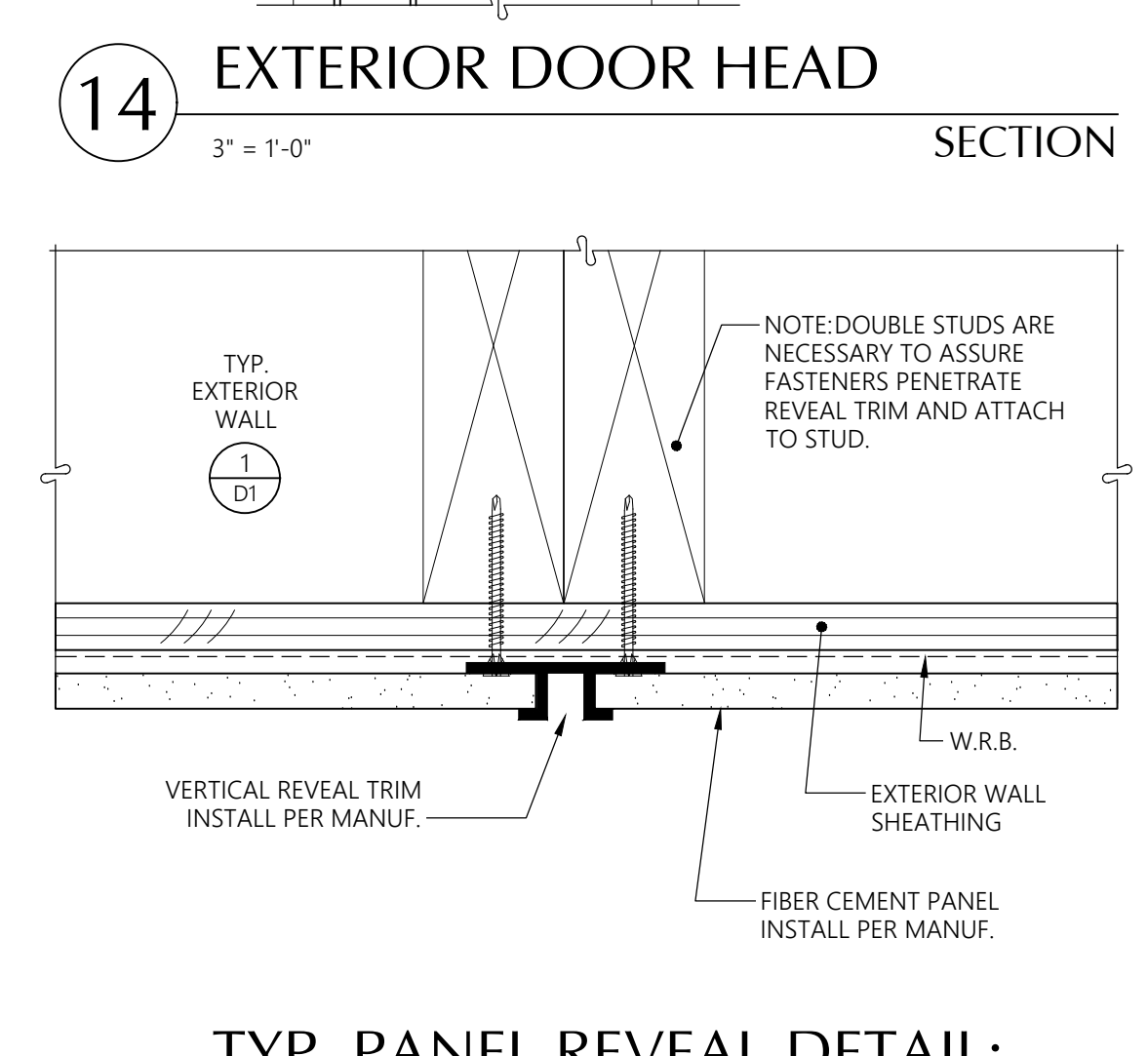
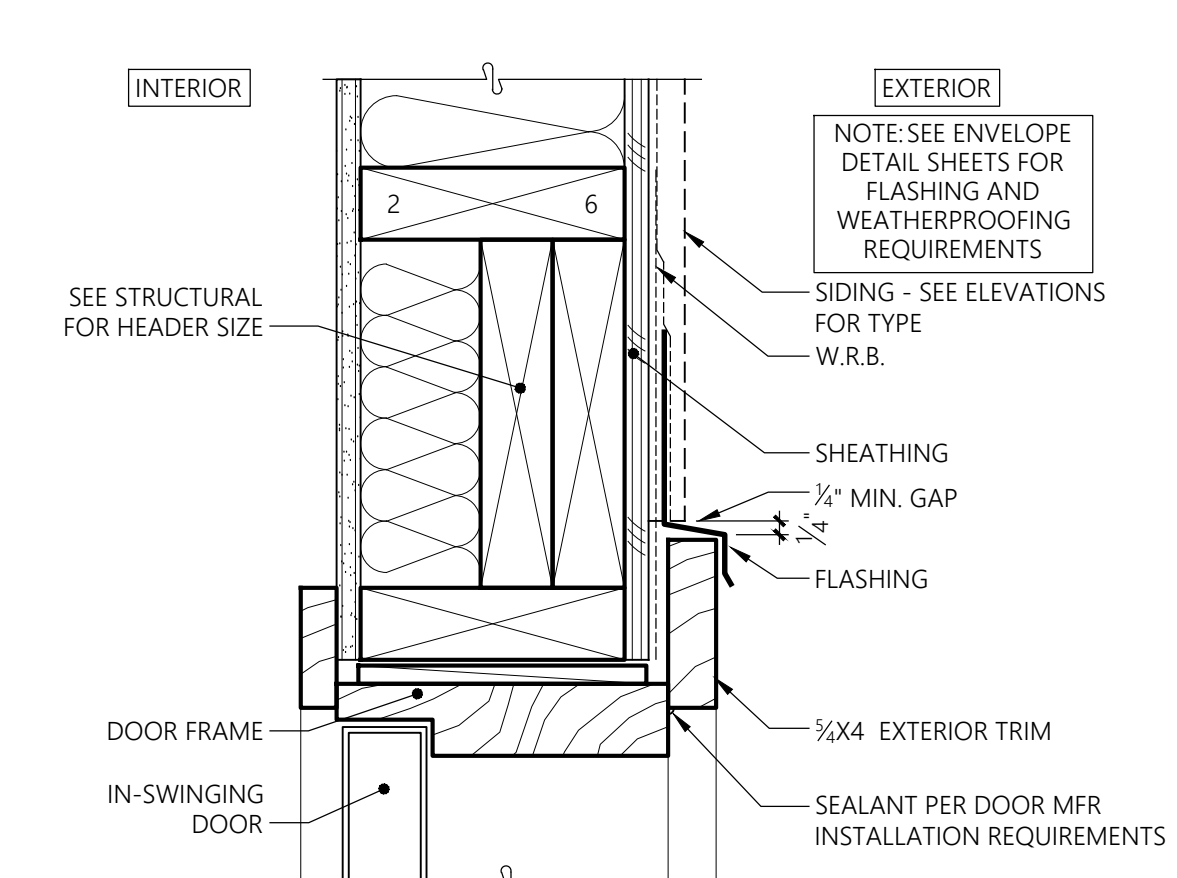
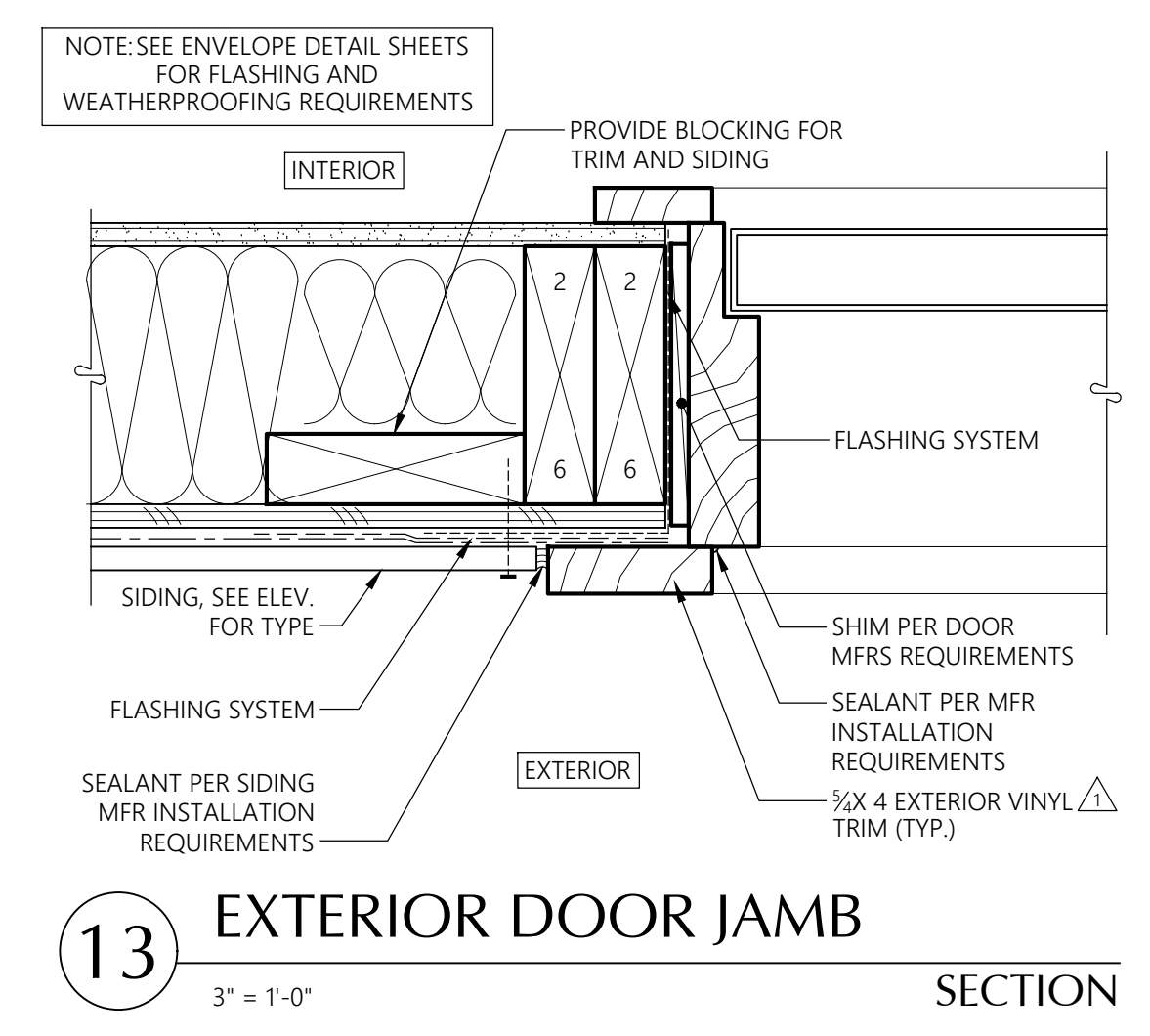
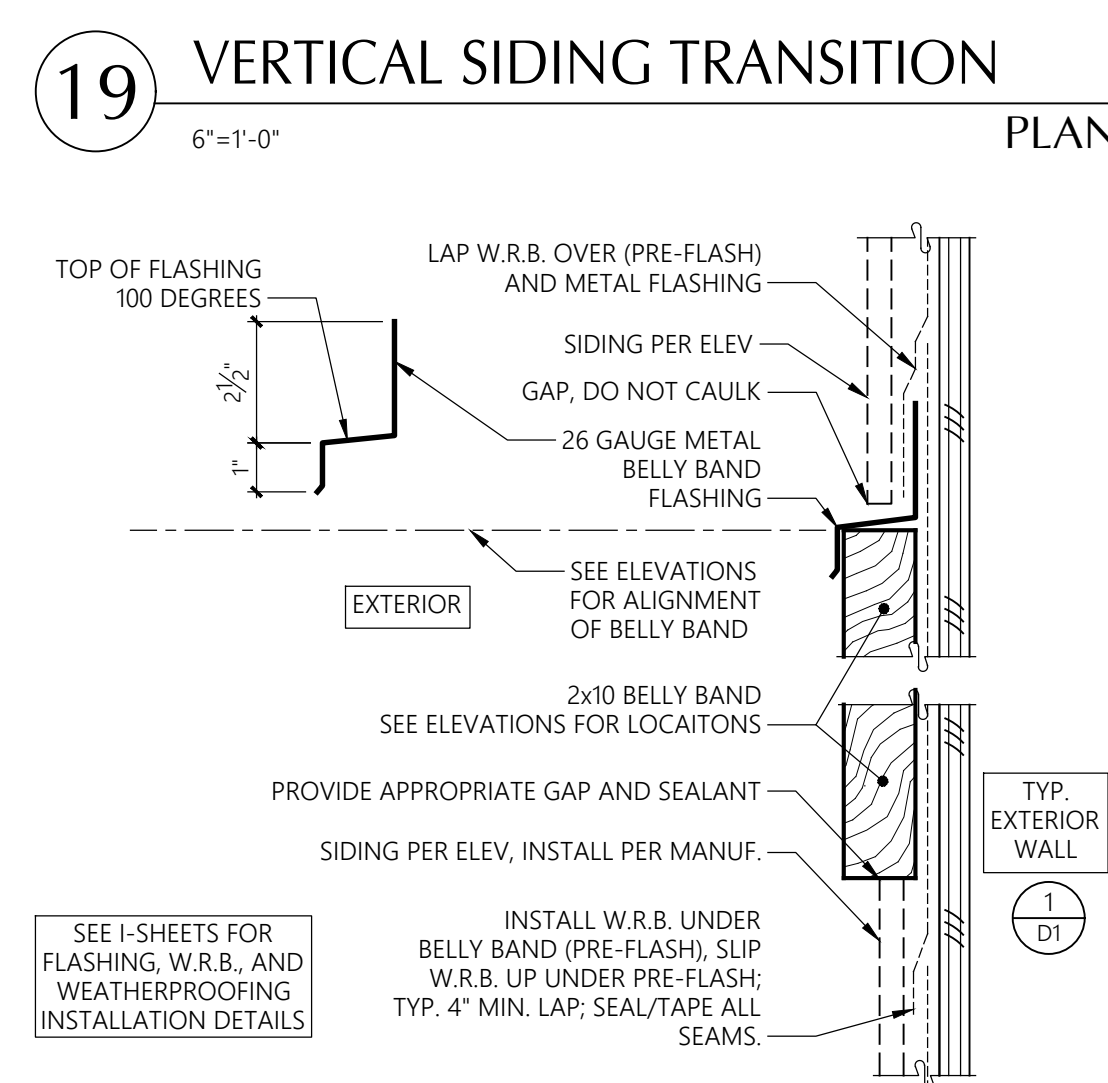
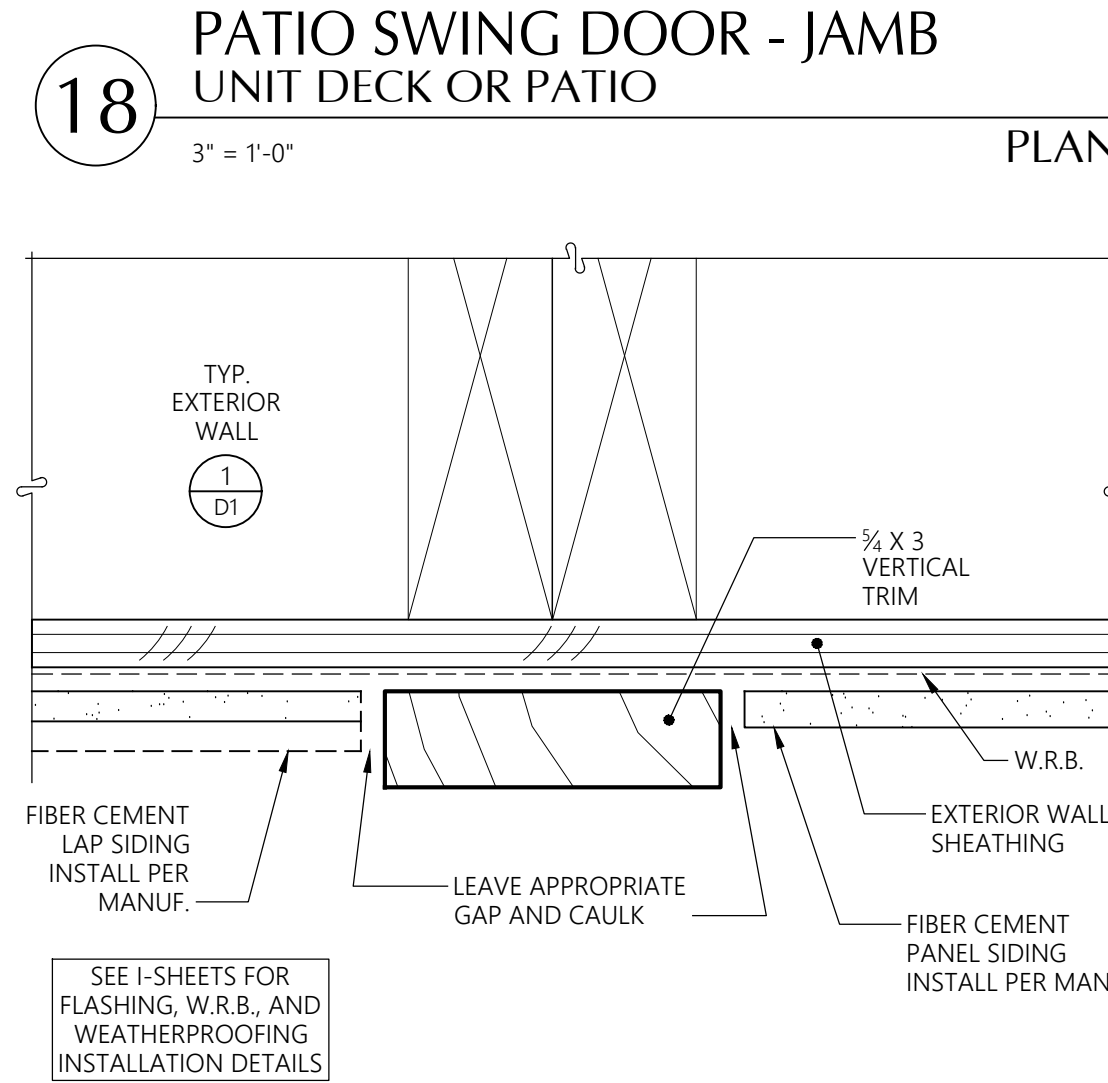
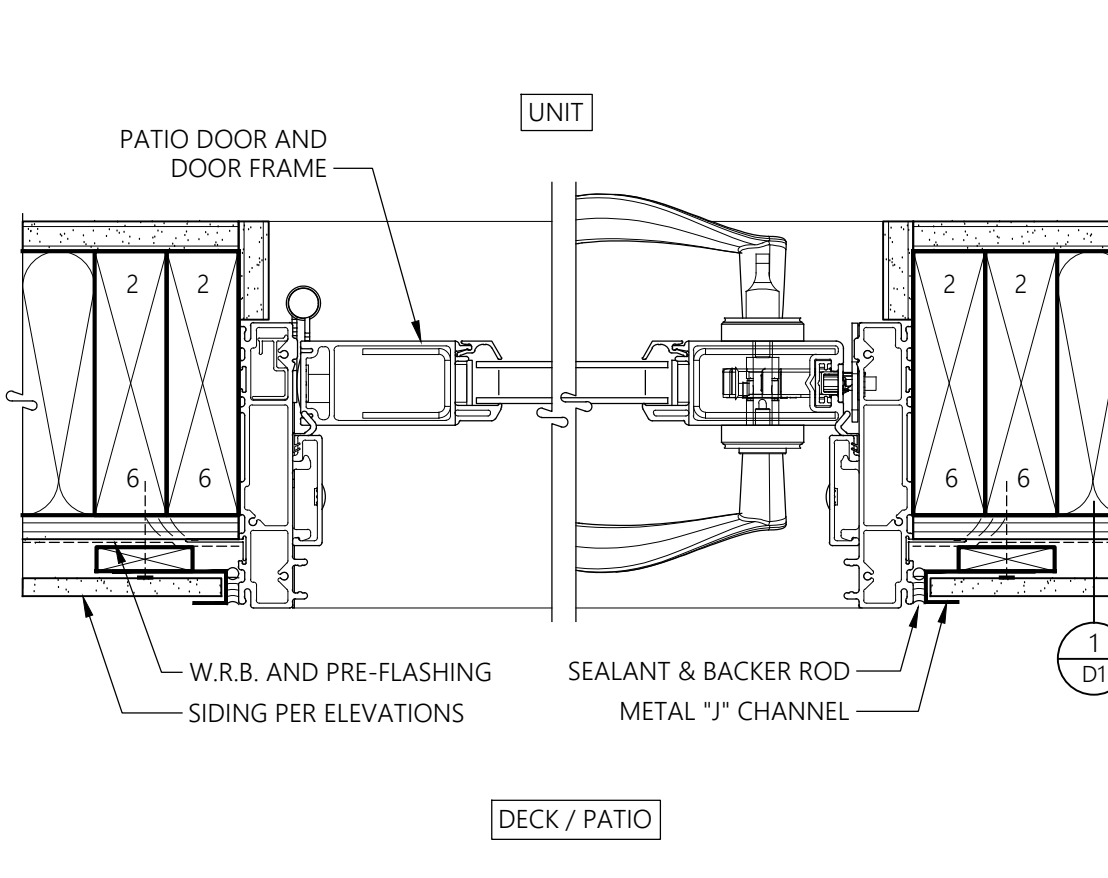
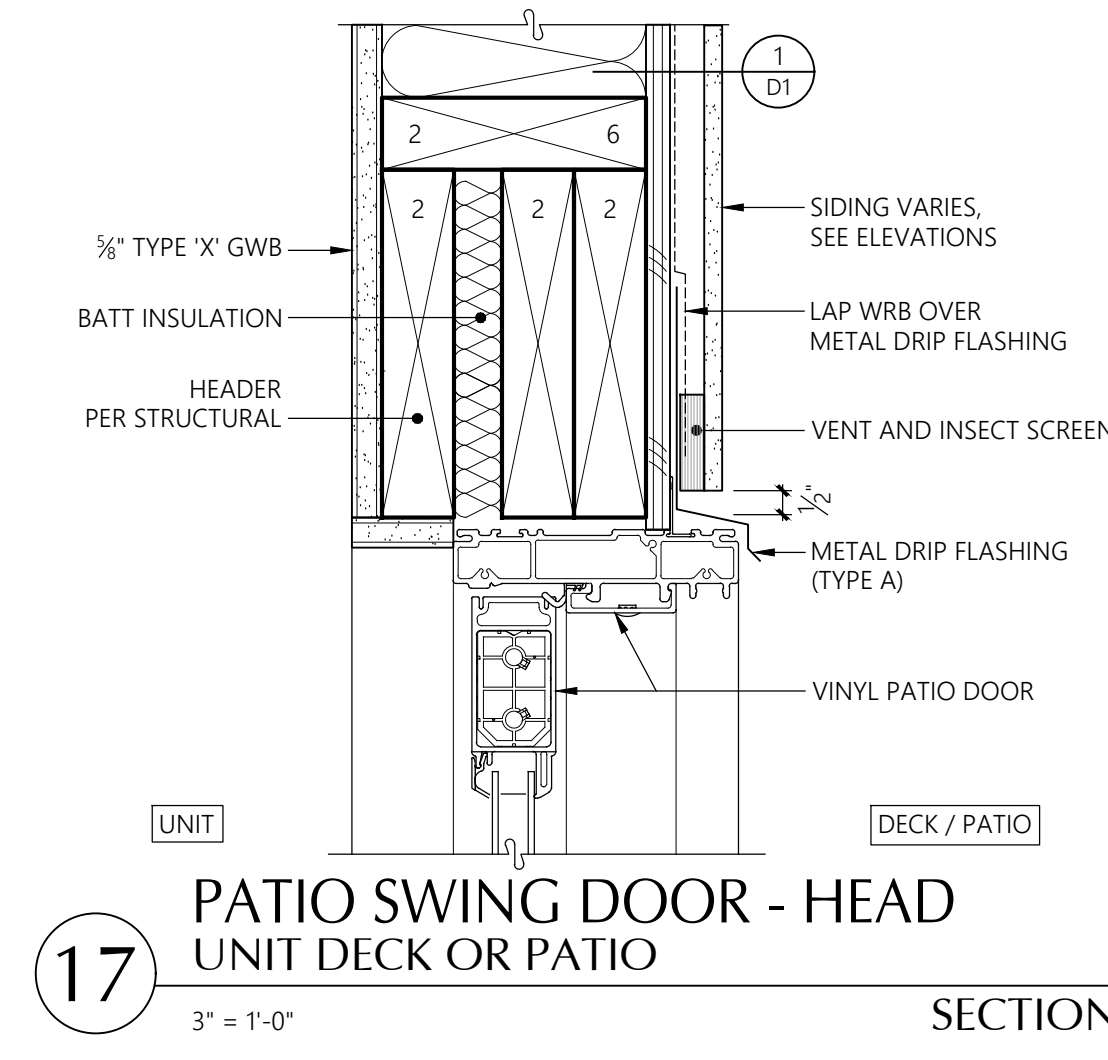
**16** STAIR FLOOR  
3" = 1'-0"  
SECTION



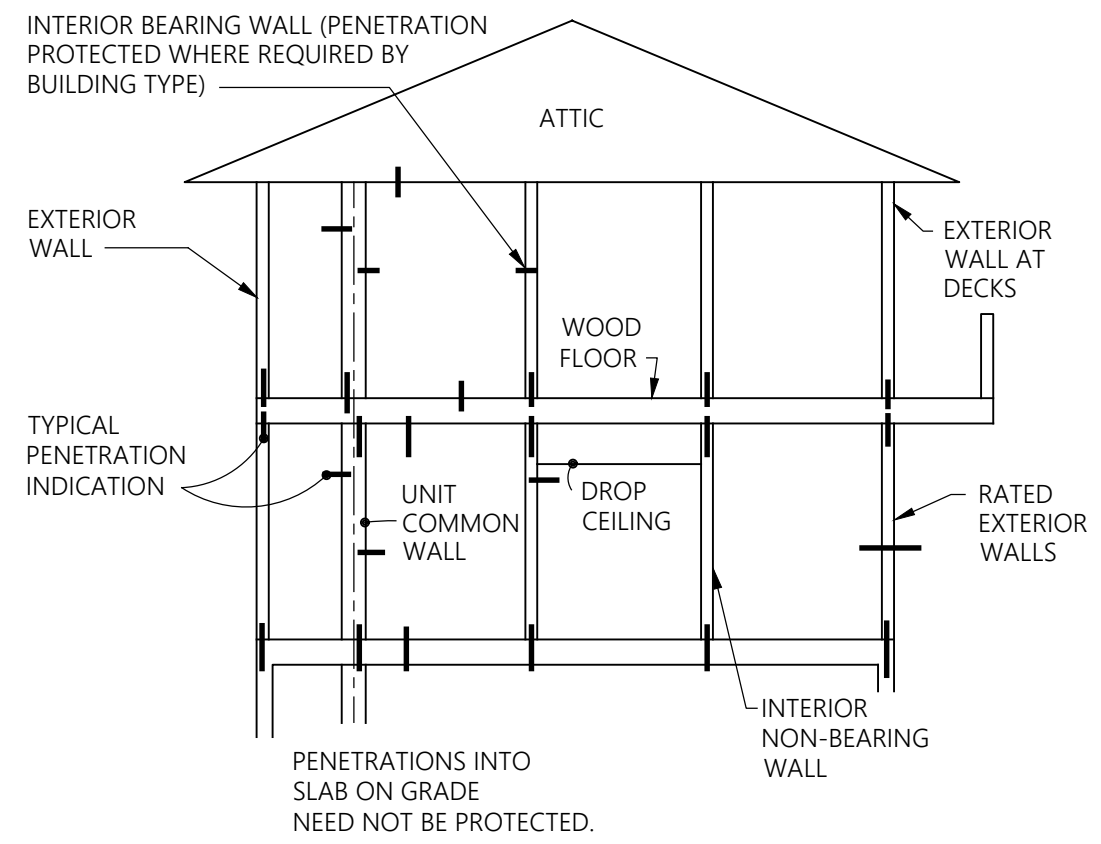
**12** POST AT DECK  
1-1/2" = 1'-0"  
SECTION



**4** DOOR CHANGES IN LEVEL  
1" = 1'-0"  
SECTION







THE PURPOSE OF THIS DETAIL IS TO INDICATE TYPES OF LOCATIONS OF WALL, CEILING AND FLOOR PENETRATIONS THAT NEED TO BE FIRESTOPPED IN ACCORDANCE WITH 706, 708, 711, 713, 714 AND 717 OF THE 2018 INTERNATIONAL BUILDING CODE. THE THICK LINES IN THE DETAIL INDICATE A PENETRATION BY A PIPE, CONDUIT, VENT, ETC., WHETHER PLASTIC (COMBUSTIBLE) OR NON-COMBUSTIBLE. IN GENERAL THESE PENETRATIONS (OR THE ANNULAR SPACE AROUND THEM) WOULD COMPROMISE THE INTEGRITY OF THE FIRE-RATED ASSEMBLY UNLESS IT WERE CLOSED OFF AND PROTECTED DURING A FIRE. COMMON WALLS BETWEEN UNITS ARE FIRE-RATED WALLS. UNRATED WALLS WITHIN UNITS (EVEN THOUGH THEY MAY HAVE RATED WALLBOARD) NEED NOT BE PROTECTED. HOWEVER, PENETRATION OF THE TOP AND BOTTOM PLATES OF UNRATED WALLS INTO THE RATED FLOOR ASSEMBLY NEEDS TO BE FIRESTOPPED. THE CONTRACTOR SHALL DETERMINE FIRESTOPPING FOR EACH SITUATION, AND TESTED ASSEMBLIES SHALL BE SUBMITTED TO THE ARCHITECT AND THE CITY IN ACCORDANCE WITH THE "DEFERRED SUBMITTALS" SECTION ON THE COVER SHEET.

**17** PENETRATION LOCATIONS FOR FIRESTOPPING SECTION  
NO SCALE

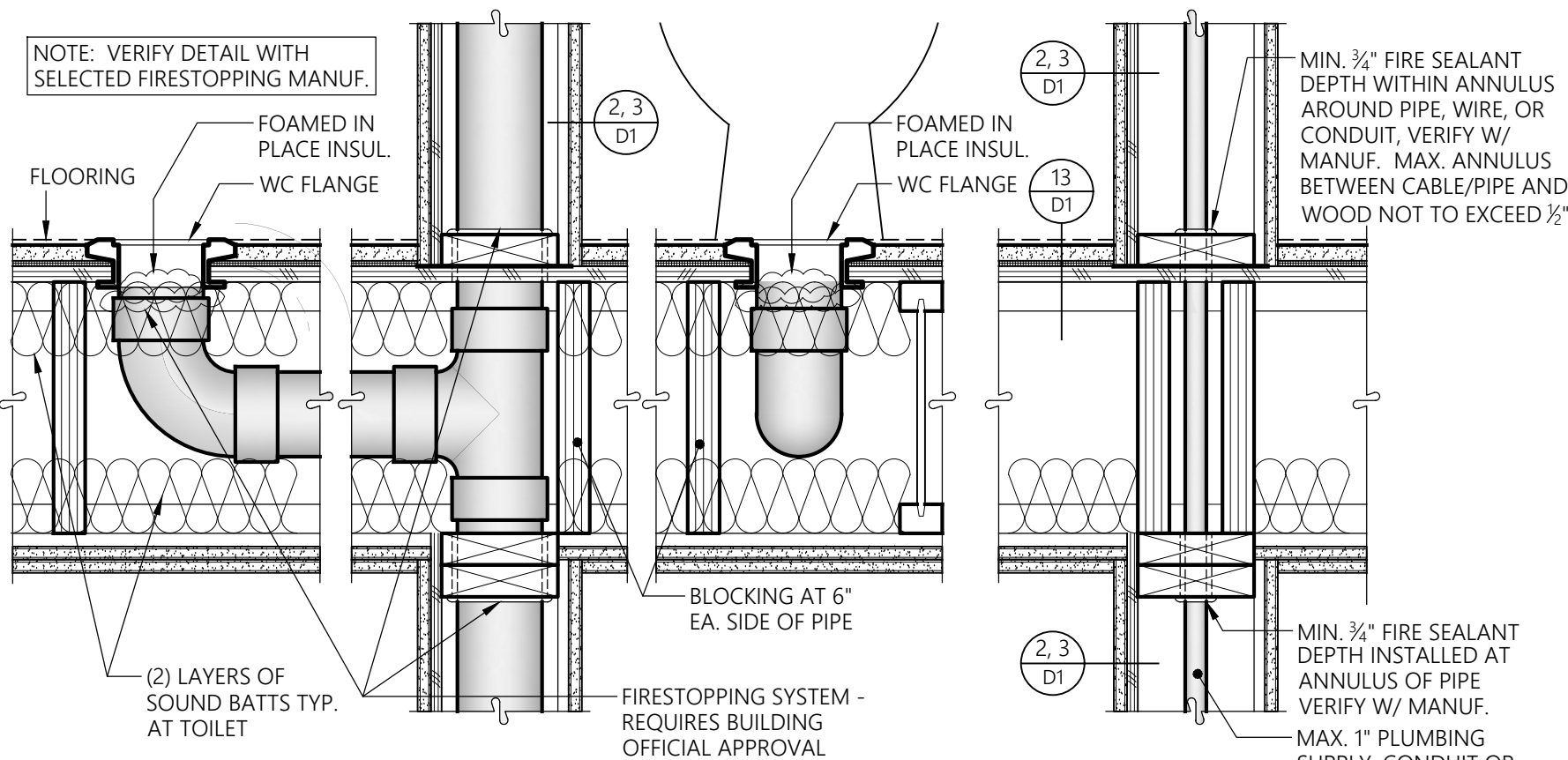
NOTE: THESE FIRESTOPPING DETAILS ARE REPRESENTATIVE OF TYPICAL SITUATIONS ONLY. FOR OTHER CONDITIONS REFER TO 3M MATRIX OF UL TESTED SYSTEMS BELOW. IF CONDITION IS NOT COVERED IN THIS MATRIX, CONTACT MANUFACTURER FOR TESTED ASSEMBLY RECOMMENDATION. ALL FIRESTOP DETAILS TO BE EXECUTED BY LICENSED AND/OR CERTIFIED INSTALLER.

FIRESTOPPING PENETRATIONS AND VOIDS IN RATED CONSTRUCTION: MATRIX OF UL TESTED SYSTEMS:

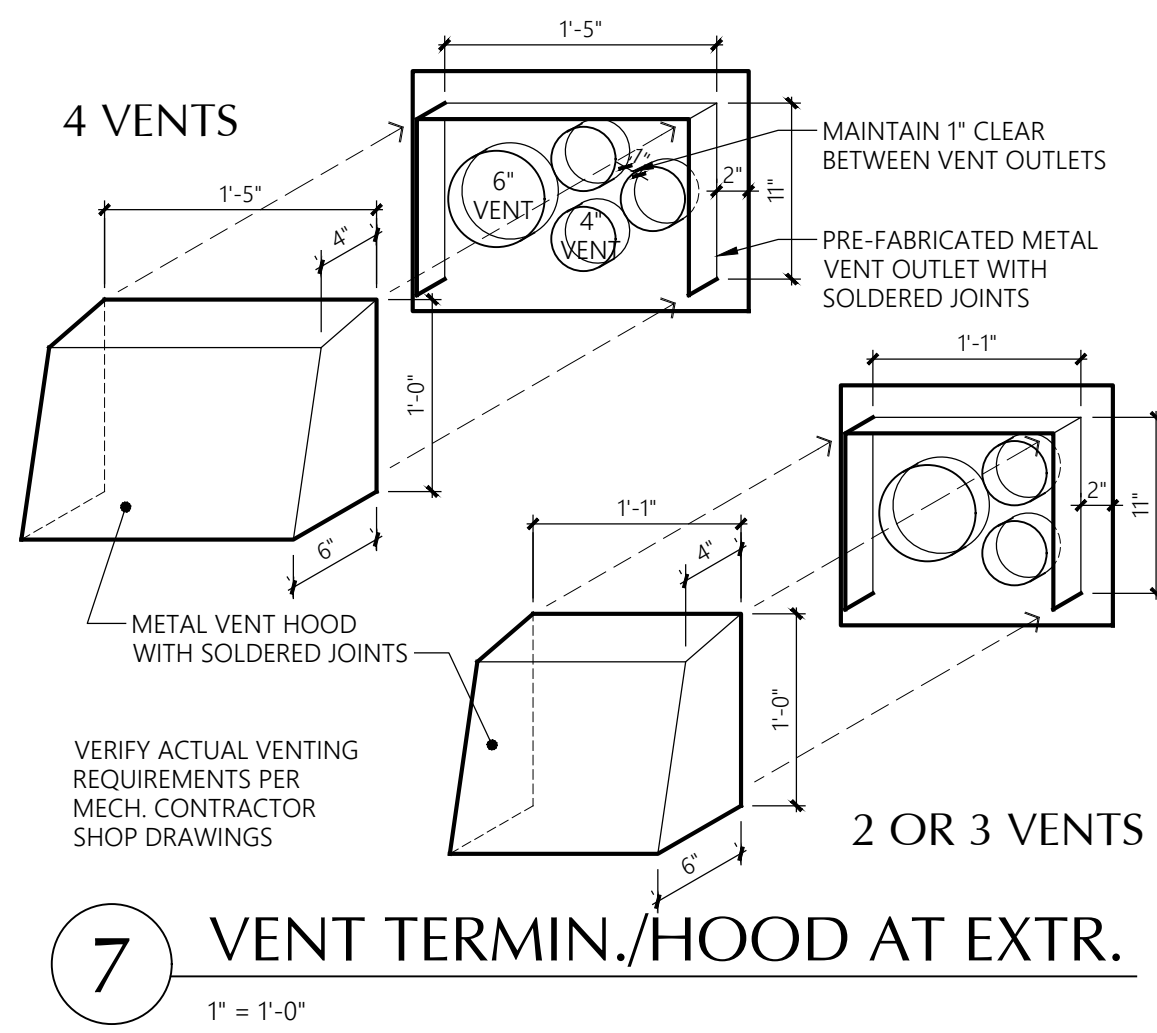
PENETRATING ITEM	ASSEMBLY	FIRE RATING	SYSTEM	PRODUCT	PENETRATING ITEM	ASSEMBLY	FIRE RATING	SYSTEM	PRODUCT
METAL PIPE/CONDUIT	CONC. WALLS/FLRS	2,3,8,4 HR	CAJ1044	CP25WB+	PLASTIC PIPE	CONC. WALLS/FLRS	182 HR	CAJ2001	*PPD
MULTIPLE METAL	CONC. WALLS/FLRS	2 HR	CAJ1092	CP25WB+	PLASTIC PIPE	GYP. WALLS	182 HR	WL2002	*PPD
METAL PIPE/CONDUIT	GYP. WALLS	1,2&3 HR	WL1001	CP25WB+	PLAS. JACKETED CABLE	CONC. WALLS/FLRS	2 HR	CAJ3021	MOLDABLE PUTTY
MULTIPLE METAL	GYP. WALLS	1&2 HR	WL1016	CP25WB+	PLAS. JACKETED CABLE	GYP. WALLS	182 HR	WL3031	MOLDABLE PUTTY
INSULATED PIPE	CONC. WALLS/FLRS	1,2,8,3 HR	CAJ5001	CP25WB+	CABLE TRAYS	CONC. WALLS/FLRS	2&3 HR	CAJ4003	CP25WB+ CS195+
INSULATED PIPE	GYP. WALLS	1&2 HR	WL5039	CP25WB+	CABLE TRAYS	GYP. WALLS	182 HR	WL4004	CP25WB+ CS195+
HVAC DUCTS (RECT.)	CONC. WALLS/FLRS	2 HR	CAJ7016	CP25WB+	BUS DUCT	CONC. WALLS/FLRS	2&3 HR	CAJ6001	CP25WB+ CS195+
HVAC DUCTS (ROUND)	CONC. WALLS/FLRS	2 HR	CAJ7003	CP25WB+	ELEC. OUTLET BOXES	GYP. WALLS	182 HR	ANSJ UL263	MOLDABLE PUTTY
HVAC DUCTS	GYP. WALLS	1&2 HR	WL7008	CP25WB+	CONSTRUCTION JOINTS:				
PVDF PLASTIC	CONC. WALLS/FLRS	2 HR	CAJ2121	F5195+ CP25WB+	GYP. WALL TO CONC. DECK	CONC. DECK	182 HR	HW0012	SILICONE 2300
PVDF PLASTIC	GYP. WALLS	1&2 HR	WL2092	F5195+ CP25WB+	CONC. FLOOR TO CONC. FLOOR	CONC. FLOOR	3 HR	FFD1002	SILICONE 2003

\*PPD = 3M PLASTIC PIPE DEVICE

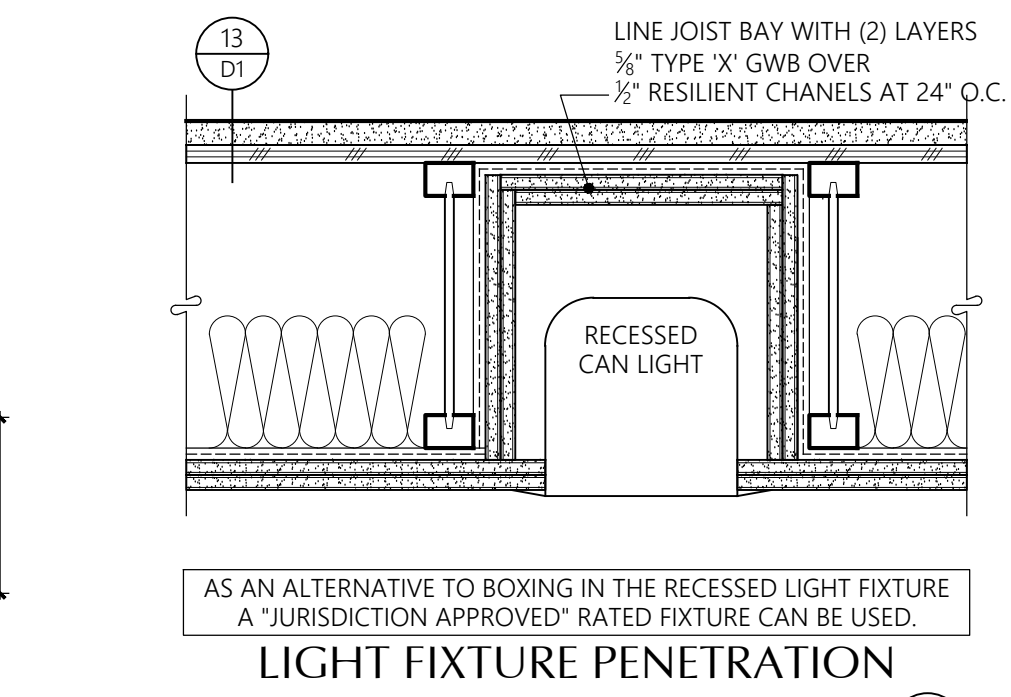
**18** MATRIX OF UL TESTED SYSTEMS FOR FIRESTOPPING NTS



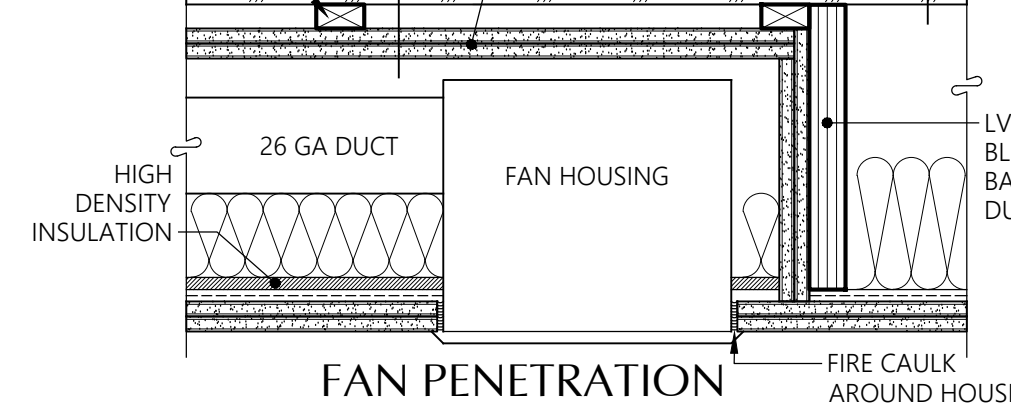
**19** TYP. FIRESTOP AT PENETRATION SECTION  
1-1/2" = 1'-0"



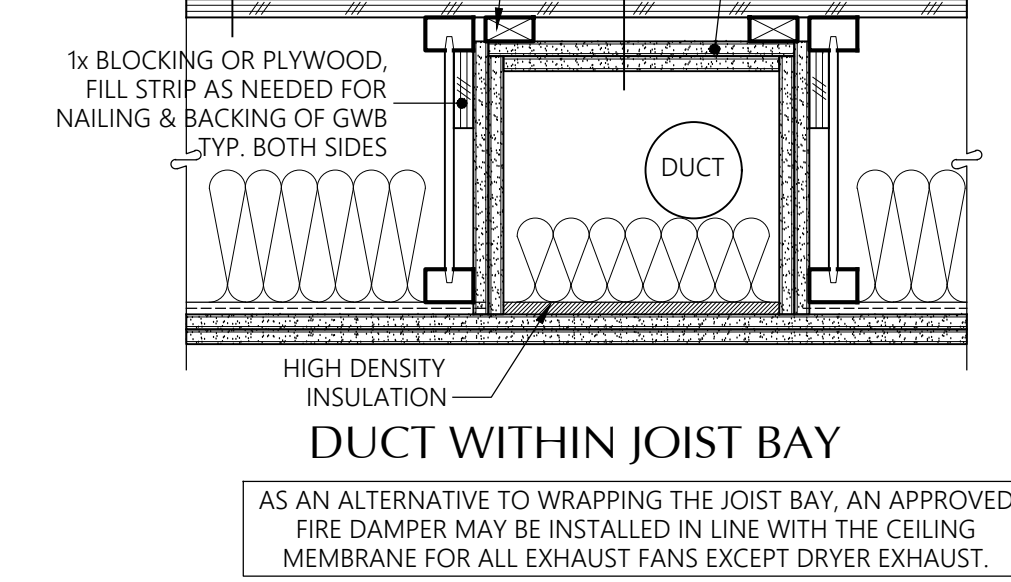
**7** VENT TERMIN./HOOD AT EXTR. SECTION  
1" = 1'-0"



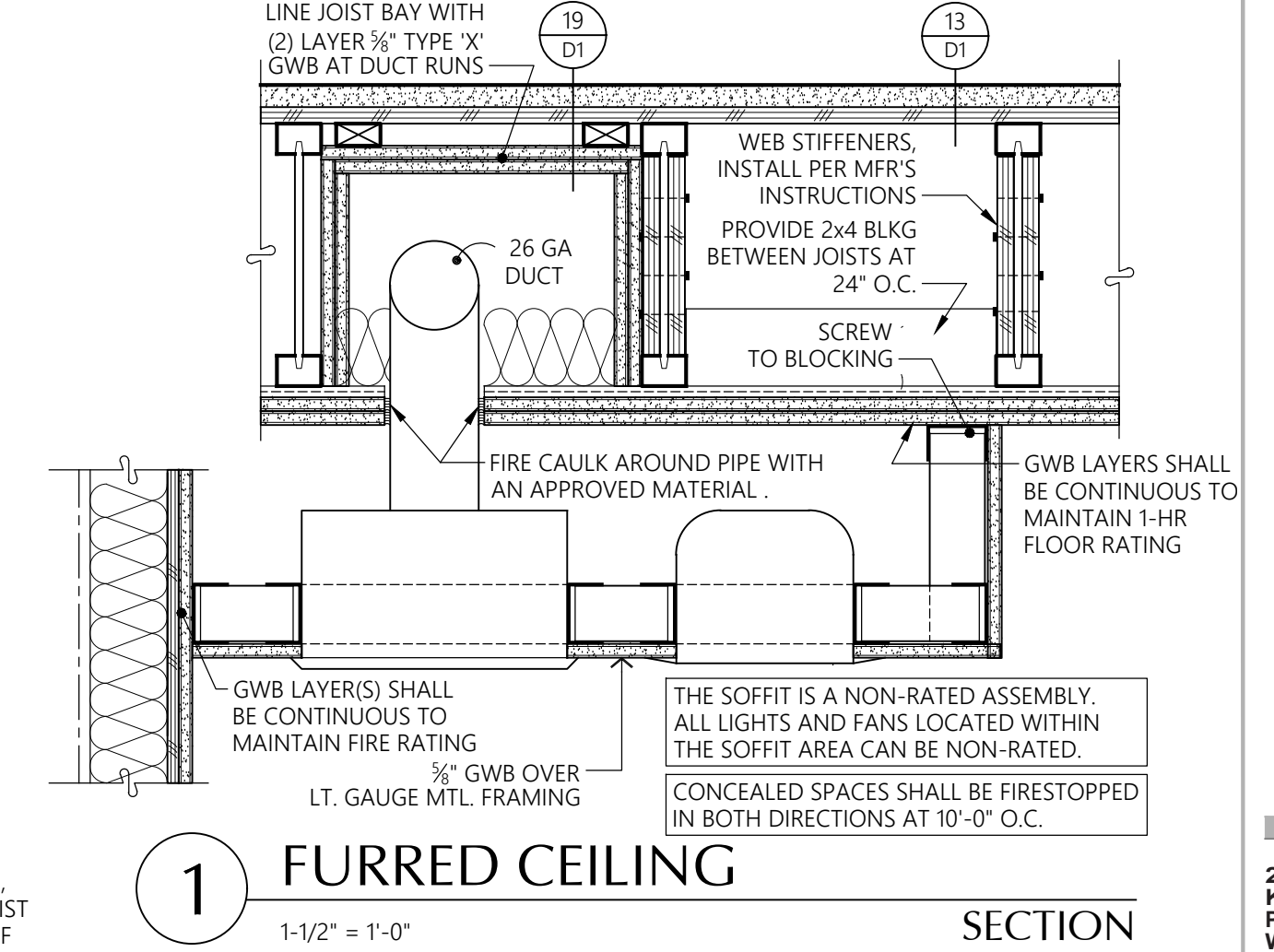
**1** FURRED CEILING SECTION  
1-1/2" = 1'-0"



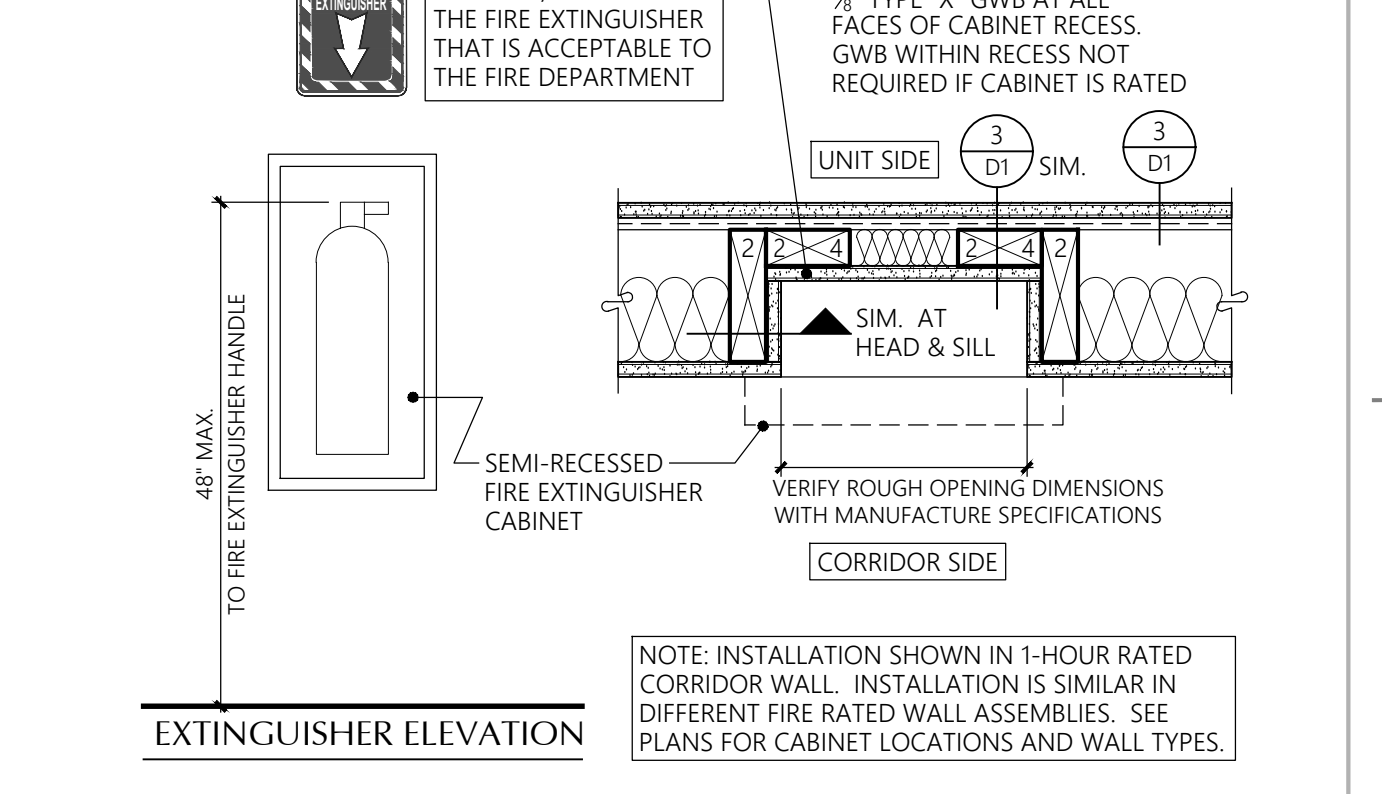
**2** SEMI-RECESSED FIRE EXT. CAB. PLAN  
1-1/2" = 1'-0"



**6** PENETRATIONS AT FLR./CLG. SECTION  
1-1/2" = 1'-0"



**13** LIGHT FIXTURE PENETRATION SECTION  
1-1/2" = 1'-0"



**19** TYP. FIRESTOP AT PENETRATION SECTION  
1-1/2" = 1'-0"

INSULATION AND ENERGY NOTES

Insulation - General

All insulation materials shall be installed according to the manufacturer's instructions to achieve proper densities, and maintain uniform R-values. Substantial contact of the insulation with the surface being insulated is required.

Where required, insulation shall be installed with clearances according to manufacturer's specifications. Insulation shall be installed so that required ventilation is unobstructed. For blown or poured loose fill insulation clearances shall be maintained through installation of a permanent retainer.

Slab on Grade

R-10 slab on grade insulation shall be installed inside the foundation wall.

Insulated Floors

Floor insulation shall be installed in a permanent manner in substantial contact with the surface being insulated. Insulation supports shall be installed so spacing is no more than twenty-four inches on center.

Floors separating conditioned space from unconditioned space shall have a vapor barrier installed. Vapor barrier shall be installed on the warm side of the insulation. The vapor barrier shall have a one perm dry cup rating or less (i.e. four mil polyethylene or kraft faced material). The floor sheathing may be used as the vapor barrier if rated (and so stamped) at one perm (max). Otherwise place vapor barrier on top of joists before placing sheathing.

Exterior Walls

All wall insulation shall fill the entire cavity. Exterior wall cavities isolated during framing shall be fully insulated to the levels of the surrounding walls. All faced insulation shall be face stapled to avoid compression.

Walls separating conditioned space from unconditioned space shall have a vapor barrier installed. Faced batt insulation shall be face stapled. Vapor barrier shall be installed on the warm side of the insulation.

Air Leakage

These air leakage notes apply to those locations separating outdoor ambient conditions from interior spaces that are heated or mechanically cooled.

Exterior joints around windows and door frames, between wall cavities and window or door frames, openings between walls and foundation, between walls and roof and wall panels, openings of utility services through walls, floors and roof, and all other openings in the building envelope shall be sealed, caulked, gasketed, or weatherstripped to limit air leakage in a manner approved by the building official.

Doors

All exterior doors or doors serving as access to an enclosed unheated area shall be weatherstripped to limit leakage around their perimeter when in a closed position. The thermal transfer characteristics of insulated doors shall be determined per NFRC 100-91.

Windows:

Glazing U-values shall be determined in accordance with NFRC 100-91. Windows and SGD shall be double glazed vinyl type with the U-values indicated on the unit plans.

Windows shall be furnished with outdoor air inlets as indicated on the Unit Electrical plans. Inlets shall have a controllable and secure opening and be capable of a total opening area of not less than four (4) square inches and tested by a nationally recognized standard or approved agency and located to avoid drafts. Inlets shall be screened or otherwise protected from entry by insects, leaves, or other material.

Roof/Ceilings:

Roof/Ceiling insulation: Open-Blown or poured loose fill insulation may be used in attic spaces where the slope of the ceiling is more than 4 in 12 and there is at least 44 inches of clear distance from the top of the bottom chord of the truss or ceiling joist to the underside of the sheathing. When eave vents are installed, baffling of the vent openings shall be provided so as to deflect the incoming air above the surface of the insulation. Baffles shall be rigid material, resistant to wind driven moisture. When feasible, the baffles shall be installed from the top of the outside of the exterior wall, extending inward, to a point six inches vertically above the height of noncompressed insulation, and twelve inches vertically above loose fill insulation. Baffles shall be in place at the time of framing inspection.

Where the ventilation space above the insulation is less than an average of twelve inches roof ceiling assemblies shall be provided with a vapor barrier having a 0.5 perm cup rating or less. Faced batt insulation where used as a vapor barrier shall be face stapled.

Vapor barriers shall not be required in roof/ceiling assemblies where the ventilation space above the insulation averages twelve inches or greater.

Vapor barriers shall be installed on the warm side of the insulation.

# GENERAL NOTES

## GENERAL NOTES - MECHANICAL

- REFERENCE TO RELATED WORK: "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, LANDSCAPE, OR KITCHEN), OR ITEM BASED ON A SPECIFIC MANUFACTURER'S DIMENSIONS (VERIFY).
- ELECTRICAL CHARACTERISTICS: REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS (VOLTAGES, ETC. OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED).
- CODES: COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PER THE APPLICABLE BUILDING, MECHANICAL, ENERGY, PLUMBING, FIRE, AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL AHJ.
- PREPARE AND SUBMIT FOR REVIEW A SHOP DRAWING BASED ON FINAL STRUCTURAL SHOP DRAWINGS FOR LOCATING AND ROUTING ALL DUCTWORK, DAMPERS, EQUIPMENT, PIPING, ETC.
  - COORDINATE FLOOR AND BEAM PENETRATIONS WITH STRUCTURAL.
  - COORDINATE FINAL LOCATION AND ROUTING WITH CEILING, LIGHTS, WALLS, FIRE SPRINKLER PIPING, AND OTHER TRADES WORK.
  - INCLUDE ADDITIONAL OFFSETS, ELBOWS, ROUTING, EQUIVALENT DUCT SIZING EXCHANGE, RELOCATING, ETC. AS REQUIRED FOR A COMPLETE OPERATING MECHANICAL SYSTEM.
  - PROVIDE SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.
- MECHANICAL CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITHIN THE STRUCTURE.
- ACCESS DOORS: COORDINATE WITH ARCHITECT AND LOCATE ALL ACCESS DOORS ON SHOP DRAWINGS PRIOR TO BEGINNING OF CONSTRUCTION. ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. VERIFY ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.
- RATED PENETRATION: DUCT PENETRATIONS THROUGH RATED ENCLOSURES SHALL BE FIRE/SMOKE DAMPERED PER THE LATEST EDITION OF THE UNDERWRITERS LABORATORIES(UL) FIRE RESISTANCE WITH HOURLY RATINGS FOR THROUGH-PENETRATION FIRE STOPS SYSTEM VOLUME #2, OR SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL LISTINGS (3M OR EQUIVALENT). DETERMINE REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BID.
- EXHAUST OUTLETS: SOURCE-SPECIFIC FANS SHALL BE VENTED TO OUTDOORS WITH A MINIMUM 3' CLEARANCE BETWEEN VENT OUTLETS AND BUILDING OPENINGS, AND 10' MINIMUM BETWEEN VENT OUTLETS AND MECHANICAL AIR INTAKES.
- ROOF PENETRATIONS: SEE ARCHITECTURAL DRAWINGS FOR ROOF CAP, ROOF CURB, ROOF DRAIN, AND VTR DETAILS.
- EXPOSED PIPING: PROVIDE CHROME PLATING FOR EXPOSED PIPING IN FINISHED ROOMS.
- PENETRATIONS: PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS AND SHEET METAL FLASHING FOR EXPOSED DUCTWORK PENETRATIONS.
- SHAFT AND PLENUM CONNECTIONS: SEAL CONNECTIONS TO AIR SHAFTS AIRTIGHT. PROVIDE AIRTIGHT SEAL AROUND PENETRATIONS IN AIR PLENUMS.
- LIGHT FIXTURE CLEARANCE: COORDINATE LOCATIONS OF MECHANICAL WORK TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND REPLACEMENT.
- MOTORS: COMPLY WITH ENERGY CODE ENFORCED BY AHJ FOR MINIMUM EFFICIENCIES UNDER FULL LOAD.
- ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.

## COORDINATION REQUIREMENTS

- PIPING: COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL AND AT THE SITE PRIOR AND DURING THE CONSTRUCTION.
- DUCTWORK: LOCATE AND COORDINATE THE EXACT LOCATION OF DUCTWORK WITH STRUCTURAL PLANS AND WITH THE GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY STRUCTURE OR EQUIPMENT. COORDINATE WITH FRAMING CONTRACTOR TO ASSURE JOIST SPACES LINE UP WHEN DUCTWORK MUST PASS THROUGH DIFFERENT JOIST SPACES.
- ADJUSTMENTS: ALL EQUIPMENT, MOTORS, FANS GAS BURNERS, IGNITION DEVICES, DRIVES, ETC. SHALL BE ADJUSTED AND BALANCED TO OPERATE AT SPECIFIED RATINGS AS REQUIRED FOR THIS PROJECT SITE AND ACCOUNTING FOR ELEVATION ABOVE SEA LEVEL.
- APPROVALS: MECHANICAL AND PLUMBING EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE PROJECT LOCATION AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, ETC. CODES AND REGULATIONS. THE CONTRACTOR SHALL COORDINATE WITH HIS MANUFACTURE SUPPLIERS AND SHALL INCLUDE ALL COSTS REQUIRED TO MEET THESE REQUIREMENTS IN HIS BID.
- FIRE PROTECTION: CONTRACTOR SHALL PROVIDE A FULLY DESIGNED FIRE PROTECTION SPRINKLER SYSTEM IN COMPLIANCE WITH NFPA AND LOCAL CODES. PROVIDE DESIGN, PERMITS, MATERIALS, INSTALLATION, TESTING AND ALL OTHER FOR A FULLY OPERATIONAL SYSTEM. LOCATION OF ALL PIPING TO BE COORDINATED WITH OTHER TRADES.

## PIPING NOTES

- DISASSEMBLY PROVISIONS: PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS TO EQUIPMENT, COILS, TRAPS, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.
- REDUCERS: PROVIDE AS REQUIRED FROM LINE PIPE SIZE TO EQUIPMENT, TRAP, COIL, AND CONTROL VALVE CONNECTION SIZES.
- OFFSETS: PROVIDE FOR BRANCH LINES TO EQUIPMENT.
- DILECTRIC UNIONS: PROVIDE AT CONNECTIONS OF DISSIMILAR PIPE.
- REFRIGERANT PIPING: PROVIDE SIZING & INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- CONDENSATE DRAIN: PROVIDE A P-TRAP FOR EACH HVAC UNIT CONDENSATE PAN WITH PLUG TEES FOR CLEANING. CONDENSATE DRAINS SHALL BE DISCHARGED TO AN INDIRECT WASTE OR OUTSIDE.

## INSULATION/LINING NOTES

- ENERGY CODE: AS A MINIMUM, COMPLY WITH THICKNESSES AND TYPES LISTED IN ENERGY CODE ENFORCED BY AHJ.
- EXTENT OF INTERNAL DUCT LINING:
  - GRILLE AND DIFFUSER BOXES AND BOOTS.
  - TRANSFER DUCTS.
  - THE FIRST 10 FEET OF SUPPLY AND RETURN DUCTWORK FROM THE AIR HANDLER.
- EXTENT OF EXTERNAL DUCT INSULATION:
  - SUPPLY AND RETURN AIR IN UNCONDITIONED SPACES, MECHANICAL ROOMS, ELECTRICAL ROOMS, AND EQUIPMENT ROOMS NOT SPECIFIED TO BE INTERNALLY LINED.
  - SUPPLY AIR ABOVE CEILINGS OR EXPOSED NOT SPECIFIED TO BE INTERNALLY LINED.
  - OUTDOOR AIR INTAKE.
- MISCELLANEOUS DUCT FITTINGS (CONICAL TAKEOFFS, ETC.): WRAP WITH INSULATION FOR CONDENSATION CONTROL.

## PLAN NOTES

- DUCTWORK SHALL BE METALLIC DUCTWORK
- TEST AND BALANCE WORK SHALL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCE AGENCY. PROVIDE (3) COPIES OF TEST AND BALANCE REPORT TO OWNER.
- COORDINATE DUCTWORK WITH MISCELLANEOUS OBSTRUCTIONS IN CEILING SPACE.
- RESTROOM EXHAUST SHALL BE A MINIMUM OF 10' FROM ANY MECHANICAL OUTSIDE AIR INTAKES.
- ROUTE DUCTWORK UNDERNEATH JOISTS UON.
- TRANSITION DUCT UNDER BEAMS AND DUCTS. FIELD VERIFY AVAILABLE CEILING CAVITY DIMENSIONS.
- COORDINATE MOUNTING HEIGHT OF DIFFUSERS WITH ARCHITECTURAL PLANS.

## SHEET METAL NOTES

- REFERENCE: SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, CURRENT EDITION.
- CLEARANCE: COORDINATE DUCTWORK WITH MISCELLANEOUS OBSTRUCTIONS IN CEILING SPACE.
- ROUND ELBOWS AND OFFSETS: FULL RADIUS (R/D = 1.5), 5-PIECE SEGMENTED OR STAMPED. REFER TO SMACNA HVAC FIG 2-7, 3-3. DO NOT USE ANGLED OFFSET (TYPE 1). MITERED OFFSET (TYPE 2) MAY BE USED UP TO 30 DEGREE OFFSET ANGLE.
- ROUND TEES AND LATERALS: CONICAL TEE PER SMACNA HVAC FIG 3-5; DO NOT USE STRAIGHT TEE. DO NOT USE CONICAL SADDLE TAP FOR EXPOSED DUCTWORK IN FINISHED SPACES. 90-DEGREE TEE WITH OVAL TO ROUND TAP, LATERAL, AND 45-DEGREE RECTANGULAR LEAD-IN PER SMACNA HVAC FIG 3-4.
- RECTANGULAR ELBOWS AND OFFSETS: FULL RADIUS WHERE SPACE PERMITS, R/W = 1.5; OTHERWISE USE SQUARE CORNER ELBOW WITH TURNING VANES.
- RECTANGULAR DIVIDED FLOW FITTINGS: USE GENERALLY, EXCEPT BRANCHES TO TERMINALS; SMACNA HVAC FIG 2-5, TYPES 1, 2, 4A, AND 4B. DO NOT USE TYPE 3.
- TURNING VANES: H.E.P. MANUFACTURER OR APPROVED HIGH EFFICIENCY PROFILE AIRFOIL TYPE FOR RECTANGULAR SQUARE THROAT ELBOWS. ACOUSTICAL TYPE FOR RETURN AIR MITERED ELBOWS.
- TAKEOFFS TO OPENINGS: CONICAL TYPE WITH VOLUME DAMPER FOR ROUND DUCT BRANCS PER SMACNA HVAC FIG 2-6, MINIMUM INLET DIAMETER 2 INCHES LARGER THAN DUCT SIZE. 45 DEGREE ENTRY FITTING FOR RECTANGULAR DUCT BRANCHES PER SMACNA HVAC FIG 2-6.
- FLEXIBLE CONNECTIONS: PROVIDE AT EACH DUCT CONNECTION TO FANS, PACKAGED HVAC EQUIPMENT, EXTERNALLY ISOLATED AIR HANDLING UNITS, FAN COIL UNITS, AND SIMILAR EQUIPMENT. EXCEPTION: EQUIPMENT IN CORRIDOR CEILING SPACES WHERE FIRE RATING IS REQUIRED.
- ALL DUCT WORK SHALL BE CLASSIFIED FOR LOW PRESSURE SYSTEMS PER IMC SECTION 603.
- ALL DUCTS AND JOINTS SHALL BE SEALED PER IMC SECTION 603.

## HVAC NOTES

- ATTACHMENTS: AIR DISTRIBUTION OUTLETS AND LOUVERS

- SHALL HAVE ALL REQUIRED ACCESSORIES AND ATTACHMENTS FOR A COMPLETE CONNECTION TO THE SPECIFIC TYPE OF STRUCTURE THAT THEY ARE BEING ATTACHED TO. THIS INCLUDES, BUT IS NOT LIMITED TO, EXTERIOR BRICKS, GWB WALLS, GWB CEILING, ETC.
- DUCTWORK: DUCTWORK SHALL BE SMOOTH SHEET METAL (CLASS-1). DUCTWORK THROUGH FIRE RATED STRUCTURE AND FLOOR SHALL BE MIN. 26 GA. STEEL. MAXIMUM LENGTH OF FLEXIBLE DUCTS SHALL BE 5'-0", UNLESS OTHERWISE NOTED ON DRAWINGS. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
  - SEISMIC: PROVIDE SEISMIC RESTRAINTS FOR MECHANICAL EQUIPMENT, PIPING, AND DUCTWORK PER SMACNA AND LOCAL REGULATIONS.
  - FILTER CLEARANCE: PROVIDE ADEQUATE CLEARANCE FOR CHANGING AIR FILTERS.
  - DUCTWORK AND PIPING OUTSIDE OF MECHANICAL ROOMS SHALL BE CONCEALED, COORDINATE WITH THE GENERAL CONTRACTOR TO FUR-OUT AS REQUIRED.
  - FIRE RATINGS: RATED FLOOR/CEILING JOINT SPACES HAVING DUCTWORK INSIDE THEM SHALL BE FIRE/SMOKE PROTECTED TO MAINTAIN THE 1-HOUR FLOOR/CEILING RATING PER LOCAL JURISDICTIONS. EXHAUST DUCTWORK PENETRATING THE 1-HOUR ROOF/CEILING OR FLOOR/CEILING ASSEMBLY SHALL HAVE ACCESSIBLE CEILING FIRE DAMPERS. ALTERNATIVELY, THE EXHAUST DUCTWORK SHALL BE ROUTED INSIDE A RATED SHAFT TO PROTECT THE CEILING/ROOF RATING PER THE LOCAL JURISDICTIONS.
  - FIRESTOP: PIPE, DUCT AND CONDUIT PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE FIRE AND SMOKE STOPPED PER CODE.
  - DUCTWORK: DUCTWORK SHALL BE SMOOTH SHEET METAL (CLASS-1). DUCTWORK THROUGH FIRE RATED STRUCTURE AND FLOOR SHALL BE MIN. 26 GA. STEEL. MAXIMUM LENGTH OF FLEXIBLE DUCTS SHALL BE 5'-0" UNLESS OTHERWISE NOTED ON DRAWINGS. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
  - VOLUME DAMPERS: PROVIDE AN ACCESSIBLE MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, OSA AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING. VOLUME DAMPERS IN NON-ACCESSIBLE CEILING SHALL HAVE A CONTROL ARM EXTENDED TO AN ACCESSIBLE LOCATION. PROVIDE "YOUNG" REGULATOR OR EQUAL. EXACT LOCATION OF CONTROL DEVICES VISIBLE IN FINISHED SPACES SHALL BE COORDINATED WITH THE ARCHITECT.
  - CORRIDOR THERMOSTAT: PROVIDE TAMPERPROOF THERMOSTATS IN CORRIDORS. DO NOT PROVIDE PLASTIC GUARDS TO MAKE THE THERMOSTATS TAMPERPROOF. PROVIDE BLANK SECURABLE THERMOSTAT COVERS.

## APPLICABLE CODE

### BUILDING CODE:

2018 WASHINGTON STATE ENERGY CODE-RESIDENTIAL BY WASHINGTON ADMINISTRATIVE CODE CHAP 51-50 (WSEC)

2018 INTERNATIONAL RESIDENTIAL CODE WITH ADMINISTRATIVE CODE CHAP 51-51 (WSRC)

2018 INTERNATIONAL MECHANICAL CODE WITH ADMINISTRATIVE CODE CHAP 51-52 (WSMC)

DRAWINGS ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

## PRE-CON MEETING NOTES

CONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE ENGINEER FOR THE PURPOSE OF REVIEWING THE WORK PRIOR TO ORDERING ANY EQUIPMENT OR PERFORMING ANY WORK. THE MEETING SHALL BE LOCATED AT THE PROJECT SITE ON A DATE AND TIME TO BE MUTUALLY AGREED. THE MEETING WILL BE A WORKING SESSION. THE MEETING WILL BE FACILITATED BY THE ENGINEER AND THE AGENDA WILL INCLUDE A DETAILED REVIEW OF THE PLANS AND SPECIFICATIONS, CROSS CHECK WITH OTHER TRADES FOR COORDINATION ISSUES, REVIEW OF PROPOSED PRODUCTS, REVIEW OF PLANNED MEANS AND METHODS, AND ON-SITE INVESTIGATION OF FIELD CONDITIONS RELATIVE TO EXISTING CONDITIONS THAT COULD AFFECT THE WORK. PERSONS ATTENDING THE MEETING SHALL BE KNOWLEDGEABLE OF THE PROJECT AND SHALL BE THE SPECIFIC PERSONS INTENDED TO CONTINUE WITH THE PROJECT THROUGH TO COMPLETION. IF REQUIRED, REVISED PLANS WILL BE ISSUED THROUGH OFFICIAL CHANNELS. CHANGES IN THE BID PRICE WILL BE DISCUSSED, BUT NO CHANGE ORDERS WILL BE ISSUED UNLESS PROCESSED THROUGH OFFICIAL CHANNELS. IT SHALL BE UNDERSTOOD THAT THE ENGINEER HAS NO AUTHORITY TO ISSUE CHANGE ORDERS.

THE FOLLOWING TRADES SHALL BE REPRESENTED FOR THE MINIMUM TIME INDICATED:

MECHANICAL SHEET METAL	4 HOURS
PLUMBING/PIPING	4 HOURS
ELECTRICAL	4 HOURS
SPRINKLER	2 HOURS
GENERAL CONTRACTOR	ALL SESSIONS

# ANNOTATIONS

- ACU AIR CONDITIONING UNIT
- AFF ABOVE FINISHED FLOOR
- AHJ AUTHORITY HAVING JURISDICTION
- AHU AIR HANDLING UNIT
- BDD BACKDRAFT DAMPER
- BHP BRAKE HORSEPOWER
- BTUH BRITISH THERMAL UNIT PER HOUR
- C COMMON
- CAP CAPACITY
- CC COOLING COIL
- CD CEILING DIFFUSER
- CFM CUBIC FEET PER MINUTE
- CLG CEILING, COOLING
- CO CLEANOUT
- COMB COMBUSTION
- CONT CONTINUE, CONTROL
- CONTR CONTRACTOR
- COP COEFFICIENT OF PERFORMANCE
- CWS CHILLED WATER SUPPLY
- CWR CHILLED WATER RETURN
- D DIAMETER
- DB DRY BULB, DECIBEL
- DEG DEGREE
- DNM DIMENSION
- DISCH DISCHARGE
- DN DOWN
- EA EXHAUST AIR
- EAT ENTERING AIR TEMPERATURE
- EER ENERGY EFFICIENCY RATIO
- EF EXHAUST FAN
- EFF EFFICIENCY
- EG EXHAUST GRILLE, ENGINE GENERATOR
- ELEC ELECTRIC
- EQUIV EQUIVALENT
- ESP EXTERNAL STATIC PRESSURE
- EXH EXHAUST
- EXT EXTERIOR, EXTERNAL
- F FAHRENHEIT
- FD FAN DAMPER
- FCU FAN COIL UNIT
- FLR FLOOR
- FPM FEET PER MINUTE
- FPS FEET PER SECOND
- FSD FIRE/SMOKE DAMPER
- G GAS
- GRD GRILLES, REGISTERS, AND DIFFUSERS
- GWB GYPSUM WALLBOARD
- HORIZ HORIZONTAL
- HP HORSEPOWER, HEAT PUMP
- HU HEAT RECOVERY UNIT
- HVAC HEATING, VENTILATING, AND AIR CONDITIONING
- HVU HEATING AND VENTILATION UNIT
- HWR HIGH WALL RETURN, HOT WATER RETURN
- HWS HIGH WALL SUPPLY, HOT WATER SUPPLY
- HX HEAT EXCHANGER
- ID INDIRECT DRAIN, INSIDE DIAMETER
- INCH INCH
- KW KILOWATT
- L LONG, LENGTH
- LB POUND
- LWR LOW WALL RETURN
- LWS LOW WALL SUPPLY
- MBH THOUSAND BTU PER HOUR
- MECH MECHANICAL
- MCA MINIMUM CIRCUIT AMPACITY
- MOCP MAXIMUM OVER CURRENT PROTECTION
- MTD MOUNTED
- OSA OUTDOOR AIR
- OBD OPPOSED BLADE DAMPER
- OD OUTSIDE DIMENSION OR DIAMETER
- OPNG OPENING
- P PUMP
- PD PRESSURE DROP
- POC POINT OF CONNECTION
- PRV PRESSURE REDUCING VALVE
- PSIG POUNDS PER SQUARE INCH GAUGE
- RA RETURN AIR
- REF REFERENCE
- RF RELIEF FAN
- RG RETURN GRILLE
- RPM REVOLUTIONS PER MINUTE
- SA SUPPLY AIR
- SCH SCHEDULE
- SF SUPPLY FAN, SQUARE FOOT
- SENS SENSIBLE
- SG SUPPLY GRILLE
- SMACNA SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
- SO SCREENED OPENING
- SP STATIC PRESSURE
- SS STAINLESS STEEL, SANITARY
- SQ SQUARE
- TG TRANSFER GRILLE
- TP TYPICAL
- UH UNIT HEATER
- UON UNLESS OTHERWISE NOTED
- V VENT
- VENT VENTILATION, VENTILATOR
- VTR VENT THRU ROOF
- W WASTE, WATT, WIDE
- WB WET BULB (TEMPERATURE)

# SYMBOLS

**DUCTWORK**

DUCT (1ST FIGURE = SIDE SHOWN, 2ND FIGURE = SIDE NOT SHOWN)

DUCT SECTION, POSITIVE PRESSURE

DUCT SECTION, NEGATIVE PRESSURE

ROUND DUCT SECTION

DUCT PENETRATION THRU FLOOR OR ROOF

VOLUME DAMPER

FIRE/SMOKE DAMPER (--- = HORIZ DUCT, --- = VERT DUCT), 2-HR RATED, UON

FIRE DAMPER (--- = HORIZ DUCT, --- = VERT DUCT), 2-HR RATED, UON

90° ELBOW, R/D OR R/W=1.5

SQUARE CORNER ELBOW WITH TURNING VANES

90° TAKE-OFF OR TEE

90° CONICAL TAKE-OFF

45° LATERAL TAKE-OFF

TRANSITION OR REDUCER (FOT = FLAT ON TOP, FOB = FLAT ON BOTTOM)

WYE FITTING

90° RECTANGULAR TAKE-OFF WITH 45° TAPER

90° DIVERGING RECTANGULAR TEE, EITHER RADIUS OR TURNING VANES

PARALLEL FLOW BRANCH CONNECTION, EITHER RADIUS OR TURNING VANES

FLEXIBLE DUCT

ROUND DUCT INDICATOR

**EQUIPMENT**

TYPICAL EQUIPMENT DESIGNATION (EXHAUST FAN SHOWN)

DUCT SMOKE DETECTOR

ROOM THERMOSTAT OR TEMPERATURE TRANSMITTER

ROOM HUMIDISTAT OR HUMIDITY TRANSMITTER

CARBON MONOXIDE SENSOR

SMOKE DETECTOR

**TERMINALS**

DIFFUSER/GRILLE TYPE, AND NUMBER OR SIZE

DESIGN CFM (WHERE APPLICABLE) CEILING DIFFUSER (FLOW ARROWS SHOWN FOR NON SYMMETRICAL AIRFLOW)

CEILING RETURN/EXHAUST GRILLE

LINEAR DIFFUSER, CEILING OR WALL MOUNTED (FLOW ARROWS SHOWN FOR NON SYMMETRICAL AIRFLOW)

WALL SUPPLY GRILLE (SG)

WALL RETURN/EXHAUST GRILLE (RG, EG)

TRANSFER GRILLE (TG), DUCT CONNECTED, WALL MOUNTED W/ OPTIONAL CFM SHOWN

TRANSFER GRILLE, CEILING MOUNTED WITH FULL-SIZED LINED DUCT CONNECTION

# DRAWING INDEX

## Sheet List Table

Sheet Number	Sheet Title	PERMIT SET			
M0.0	LEGEND, GENERAL NOTES, & DRAWING INDEX	02/15/2024	X		
M0.1	PROJECT NOTES		X		
M0.2	TABLES & CALCULATIONS		X		
M0.3	MECHANICAL SCHEDULES & WSEC FORMS		X		
M2.0	HVAC PLAN - BASEMENT & 1ST LEVEL		X		
M2.1	HVAC PLAN - 2ND & 3RD LEVEL		X		
M3.0	HVAC ENLARGED PLANS		X		
M3.1	HVAC ENLARGED PLANS		X		

PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
202 27TH AVE SE  
PUYALLUP, WA 98374

19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

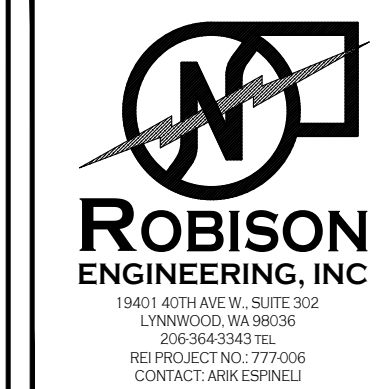
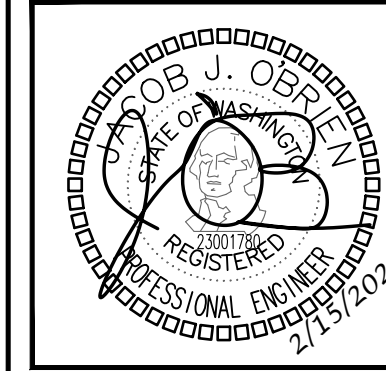
**ROBISON ENGINEERING, INC**

DATE: 02/15/2024

SHEET TITLE:  
LEGEND,  
GENERAL NOTES,  
& DRAWING  
INDEX

SHEET NO.  
**M0.0**

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: OP	DESIGNED: ABE	CHECKED: ABE	APPROVED: JOB
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# WHOLE HOUSE VENTILATION NOTES

EACH DWELLING UNIT OR SLEEPING UNIT SHALL BE EQUIPPED WITH A WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM THAT COMPLIES WITH SECTIONS 403.4.1 THROUGH 403.4.6. EACH DWELLING UNIT OR SLEEPING UNIT SHALL BE EQUIPPED WITH LOCAL EXHAUST COMPLYING WITH SECTION 403.4.7. ALL OCCUPIED SPACES, INCLUDING PUBLIC CORRIDORS, OTHER THAN GROUP R DWELLING UNITS AND/OR SLEEPING UNITS, THAT SUPPORT THESE GROUP R OCCUPANCIES, SHALL MEET THE VENTILATION REQUIREMENTS OF SECTION 402 OR THE MECHANICAL VENTILATION REQUIREMENTS OF SECTIONS 403.1 THROUGH 403.3.

THE WHOLE HOUSE VENTILATION SYSTEM SHALL CONSIST OF ONE OR MORE SUPPLY FANS, ONE OR MORE EXHAUST FANS, OR AN ERV/HRV WITH INTEGRAL FANS; AND THE ASSOCIATED DUCTS AND CONTROLS. LOCAL EXHAUST FANS SHALL BE PERMITTED TO SERVE AS PART OF THE WHOLE-HOUSE VENTILATION SYSTEM WHEN PROVIDED WITH THE PROPER CONTROLS IN ACCORDANCE WITH SECTION 403.4.5. THE SYSTEMS SHALL BE DESIGNED AND INSTALLED TO SUPPLY AND EXHAUST THE MINIMUM OUTDOOR AIRFLOW RATES PER SECTION 403.4.2 AS CORRECTED BY THE BALANCED AND/OR DISTRIBUTED WHOLE-HOUSE VENTILATION SYSTEM COEFFICIENTS IN ACCORDANCE WITH SECTION 403.4.3 WHERE APPLICABLE.

THE DWELLING UNIT WHOLE-HOUSE MECHANICAL VENTILATION MINIMUM OUTDOOR AIRFLOW RATE SHALL BE DETERMINED IN ACCORDANCE WITH EQUATION 4-10 OR TABLE 403.4.2.

RESIDENTIAL DWELLING AND SLEEPING UNITS IN GROUP R-2 OCCUPANCIES SYSTEM SHALL INCLUDE SUPPLY AND EXHAUST FANS AND BE A BALANCED WHOLE-HOUSE VENTILATION SYSTEM IN ACCORDANCE WITH SECTION 403.4.6.3. THE SYSTEM SHALL INCLUDE A HEAT OR ENERGY RECOVERY VENTILATOR WITH A SENSIBLE HEAT RECOVERY EFFECTIVENESS AS PRESCRIBED IN SECTION C403.3.6 OF THE WASHINGTON STATE ENERGY CODE. THE WHOLE-HOUSE VENTILATION SYSTEM SHALL OPERATE CONTINUOUSLY AT THE MINIMUM VENTILATION RATE DETERMINED IN ACCORDANCE WITH SECTION 403.4. THE WHOLE-HOUSE SUPPLY FAN SHALL PROVIDE DUCTED OUTDOOR VENTILATION AIR TO EACH HABITABLE SPACE WITHIN THE RESIDENTIAL UNIT.

CONTROLS FOR THE WHOLE-HOUSE VENTILATION SYSTEM SHALL COMPLY WITH THE FOLLOWING:

1. THE WHOLE-HOUSE VENTILATION SYSTEM SHALL BE CONTROLLED WITH MANUAL SWITCHES, TIMERS OR OTHER MEANS THAT PROVIDE FOR AUTOMATIC OPERATION OF THE VENTILATION SYSTEM THAT HAVE READY ACCESS FOR THE OCCUPANT.
2. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE OFF OF THE SYSTEM BY THE OCCUPANT DURING PERIODS OF POOR OUTDOOR AIR QUALITY. CONTROLS SHALL INCLUDE PERMANENT TEXT OR A SYMBOL INDICATING THEIR FUNCTION. RECOMMENDED CONTROL PERMANENT LABELING TO INCLUDE TEXT SIMILAR TO THE FOLLOWING; "LEAVE ON UNLESS OUTDOOR AIR QUALITY IS VERY POOR."
3. WHOLE-HOUSE VENTILATION SYSTEMS SHALL BE CONFIGURED TO OPERATE CONTINUOUSLY EXCEPT WHERE INTERMITTENT OFF CONTROLS ARE PROVIDED IN ACCORDANCE WITH SECTION 403.4.6.5 AND ALLOWED BY SECTION 403.4.4.2.

WHOLE HOUSE VENTILATION SUPPLY AND EXHAUST FANS SPECIFIED IN THIS SECTION SHALL HAVE A MINIMUM EFFICACY AS PRESCRIBED IN THE WASHINGTON STATE ENERGY CODE. THE FANS SHALL BE RATED FOR SOUND AT A MAXIMUM OF 1.0 SONE AT DESIGN AIRFLOW AND STATIC PRESSURE CONDITIONS. DESIGN AND INSTALLATION OF THE SYSTEM OR EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH MANUFACTURERS' INSTALLATION INSTRUCTIONS

A BALANCED WHOLE HOUSE VENTILATION SYSTEM SHALL INCLUDE BOTH SUPPLY AND EXHAUST FANS. THE SUPPLY AND EXHAUST FANS SHALL HAVE AIRFLOW THAT IS WITHIN 10 PERCENT OF EACH OTHER. THE TESTED AND BALANCED TOTAL MECHANICAL EXHAUST AIRFLOW RATE IS WITHIN 10 PERCENT OR 5 CFM, WHICHEVER IS GREATER, OF THE TOTAL MECHANICAL SUPPLY AIRFLOW RATE. THE FLOW RATE TEST RESULTS SHALL BE SUBMITTED AND POSTED IN ACCORDANCE WITH SECTION 403.4.6.6. THE EXHAUST FAN SHALL MEET THE REQUIREMENTS OF SECTION 403.4.6.2. THE SUPPLY FAN SHALL MEET THE REQUIREMENTS OF SECTION 403.4.6.3. FOR R-2 DWELLING AND SLEEPING UNITS, THE SYSTEM IS REQUIRED TO HAVE BALANCED WHOLE-HOUSE VENTILATION BUT IS NOT REQUIRED TO HAVE DISTRIBUTED WHOLE-HOUSE VENTILATION WHERE THE NOT DISTRIBUTED SYSTEM COEFFICIENT FROM TABLE 403.4.3 IS UTILIZED TO CORRECT THE WHOLE-HOUSE MECHANICAL VENTILATION RATE. THE SYSTEM SHALL BE DESIGNED AND BALANCED TO MEET THE PRESSURE EQUALIZATION REQUIREMENTS OF SECTION 501.4. INTERMITTENT DRYER EXHAUST, INTERMITTENT RANGE HOOD EXHAUST, AND INTERMITTENT TOILET ROOM EXHAUST AIRFLOW RATES ABOVE THE RESIDENTIAL DWELLING OR SLEEPING UNIT MINIMUM VENTILATION RATE ARE EXEMPT FROM THE BALANCED AIRFLOW CALCULATION.

**FACTORY-BUILT INTAKE/EXHAUST COMBINATION TERMINATIONS**

PER 2018 IMC 401.4.3, ITEM 3, EXCEPTION, SEPARATION IS NOT REQUIRED BETWEEN INTAKE AIR OPENINGS AND LIVING SPACE RELIEF AIR EXHAUST AIR OPENINGS OF AN INDIVIDUAL DWELLING UNIT OR SLEEPING UNIT, NOT TO INCLUDE COMMON AREAS OUTSIDE OF THE DWELLING OR SLEEPING UNIT, WHERE A FACTORY-BUILT INTAKE/EXHAUST COMBINATION TERMINATION FITTING, LISTED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, IS USED TO SEPARATE THE AIR STREAMS. A MINIMUM OF 5 FEET HORIZONTAL SEPARATION BETWEEN OTHER ENVIRONMENTAL AIR EXHAUST OUTLETS AND OTHER DWELLING OR SLEEPING UNIT FACTORY-BUILT INTAKE/EXHAUST COMBINATION TERMINATION FITTINGS SHALL BE MAINTAINED.

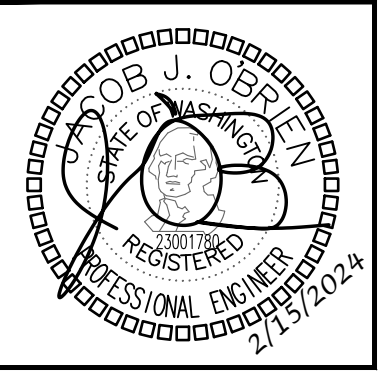
## CALCULATIONS

### RESIDENTIAL VENTILATION CALCULATIONS

UNIT TYPE	UNIT SQUARE FOOTAGE	NUMBER OF BEDROOMS	2018 IMC CRITERIA (1)			VENTILATION QUALITY ADJUSTMENT COEFFICIENT (3)	MINIMUM WHOLE HOUSE VENTILATION RATE, CFM	TOTAL CFM PROVIDED BY WHOLE HOUSE FAN SYSTEM
			FLOOR AREA, SQFT	NUMBER OF BEDROOMS	REQUIRED CFM (2)			
1 BEDROOM	660	1	500 - 1,000	1	30	1.5	45	55
2 BEDROOM	1000	2	500 - 1,000	2	35	1.5	53	55

- NOTE:
- (1) VENTILATION CRITERIA IS PER THE 2018 WA RESIDENTIAL CODE SECTION M1505.4.3
  - (2) MINIMUM OSA FOR CONTINUOUSLY OPERATING FAN(S).
  - (3) ADJUSTMENT COEFFICIENT IS PER 2018 WRC, TABLE M1505.4.3(2) FOR A NOT BALANCED, AND NOT DISTRIBUTED WHOLE HOUSE VENTILATION SYSTEM.

NO.	DATE	DESCRIPTION



DRAWN: OP	DESIGNED: ABE	CHECKED: ABE	APPROVED: JOB
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PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

**ROBISON ENGINEERING, INC.**  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

DATE: 02/15/2024

SHEET TITLE:  
TABLES & CALCULATIONS

SHEET NO.  
**M0.2**

# WSEC FORMS

6/16/23, 11:30 AM waenergycodes.com/print\_project\_summary\_form.php?k=aWQ9MTkxMzAmZnZpPTE3JmN0aT00Ng==&print=1

**MECHANICAL COMPLIANCE SUMMARY**

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1 Administered by: ©2023 NEEA, All rights reserved

Project Title: Bradley Heights Apartments Building F - 2018 WSEC For Building Department Use: **Date: Jun 16, 2023**

Project Address: 202 27th Ave SE Puyallup, WA 98374

Applicant Name: Ark Espinelli

Applicant Phone: 206-364-3343

Applicant Email: aespinel@robisonengineering.com

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.technicalsupport@waenergycodes.com

General Occupancy	General Building Use Type	Multifamily/Residential	Building Cond. Floor Area	25,082
All Group R - R2, R3 & R4 over 3 stories and all R1	Multifamily/Residential		Project Cond. Floor Area	25,082
			Floors Above Grade	3
			Compliance Method	Compliance Method 1 - General

Mechanical Project Description: Full mechanical design for new 3 story residential building with basement.

Mechanical Compliance Scope and Method	Project Type	Mechanical Scope	Economizer Exception(s) Applied?	DOAS Ventilation Provided?	Higher Equipment Efficiency Option Applied?	Equipment Efficiency Compliance Verification
	New Building	Single Zone Systems & Equipment	No	Yes	NA	COMPLIES

Additional Efficiency Credits Included (AEC):

Does building include occupancy classifications requiring DOAS? No Does project include DOAS equipment? Yes

Based on project scope do TSPR requirements apply? No Do all systems comply with Appendix D standard reference design or qualify for an exception to TSPR? No

**Scope & Space Conditioning: NEW BUILDING - SINGLE ZONE SYSTEMS & EQUIPMENT Compliance Verification: COMPLIES**

Single Zone Air Systems Category - Unit heaters & duct heaters

System/Equip ID	Quantity of Items	Ventilation Standard	Ventilation CFM (Total if Multiple Items)	Ventilation Air Source	Paired with DOAS
EW1-1	56	IMC Ventilation		Other System	
EW1-2	14	IMC Ventilation		Other System	

System/Equip ID	Heating System/Equip Type	Specific Type	Heating Capacity	HC Units	Proposed Heating Efficiency	HE Units	Efficiency Compliance Verification
EW1-1	Unit heater	Electric resistance	1	Btu/h			COMPLIES
EW1-2	Unit heater	Electric resistance	2	Btu/h			COMPLIES

System/Equip ID	Area(s) Served	Location In Project Documents - Plan/Detail #
EW1-1	APARTMENT UNITS	M0.3
EW1-2	APARTMENT UNITS	M0.3

System/Equip ID for a single or multiple items? Multiple items w/ identical heating & cooling capacity

System/Equip ID for a single or multiple items? Multiple items w/ identical heating & cooling capacity

https://waenergycodes.com/print\_project\_summary\_form.php?k=aWQ9MTkxMzAmZnZpPTE3JmN0aT00Ng==&print=1 1/1

# MECHANICAL SCHEDULES

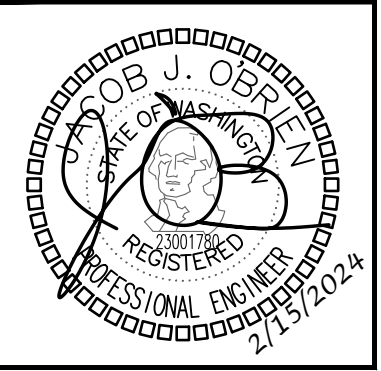
ELECTRIC HEATERS					
EQUIP NO.	SERVICE	MOUNTING/ DISCHARGE	HEATING	ELECTRICAL	BASIS OF DESIGN (3)
			KW	VOLTAGE	
EW1-1	APARTMENT UNIT	WALL	1.0	208V/1P	(1)(2)
EW1-2	APARTMENT UNIT	WALL	1.5	208V/1P	(1)(2)

- NOTES: (1) BROAN, KING, CADET OR EQUIVALENT.  
 (2) PROVIDE REMOTE THERMOSTAT. COORDINATE FINAL LOCATION WITH ELECTRICAL DRAWINGS.  
 (3) ALL ELECTRIC HEATERS TO BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

FAN SCHEDULE									
EQUIP NO.	SERVICE	TYPE	AIRFLOW, CFM	ESP. IN WG	ELECTRICAL		OPERATION	WEIGHT, LBS	BASIS OF DESIGN (1)(2)(3)
					VOLTAGE	HP			
BEF-1	RESTROOM	CEILING MOUNTED	55/80	0.5	115V/1P	FHP	CONTINUOUS	10	GREENHECK SP-AP0511W (4)
BEF-2	RESTROOM	CEILING MOUNTED	50	0.5	115V/1P	FHP	(2)	10	GREENHECK SP-AP0511W

- NOTES: (1) PROVIDE BACKDRAFT DAMPERS ON EXHAUST FANS.  
 (2) 1.0 SONES MAXIMUM.  
 (3) VIBRATION ISOLATION: FANS < 125 LBS RUBBER ISOLATORS, FANS > 125 LBS SPRING ISOLATORS  
 (4) FAN SHALL BE 2-SPEED: 35 CFM CONTINUOUS LOW SETTING AND 80 CFM HIGH SPEED ACTIVATED BY INTEGRAL OCCUPANCY SENSOR ON GRILLE.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: OP	DESIGNED: ABE	CHECKED: ABE	APPROVED: JOB
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PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

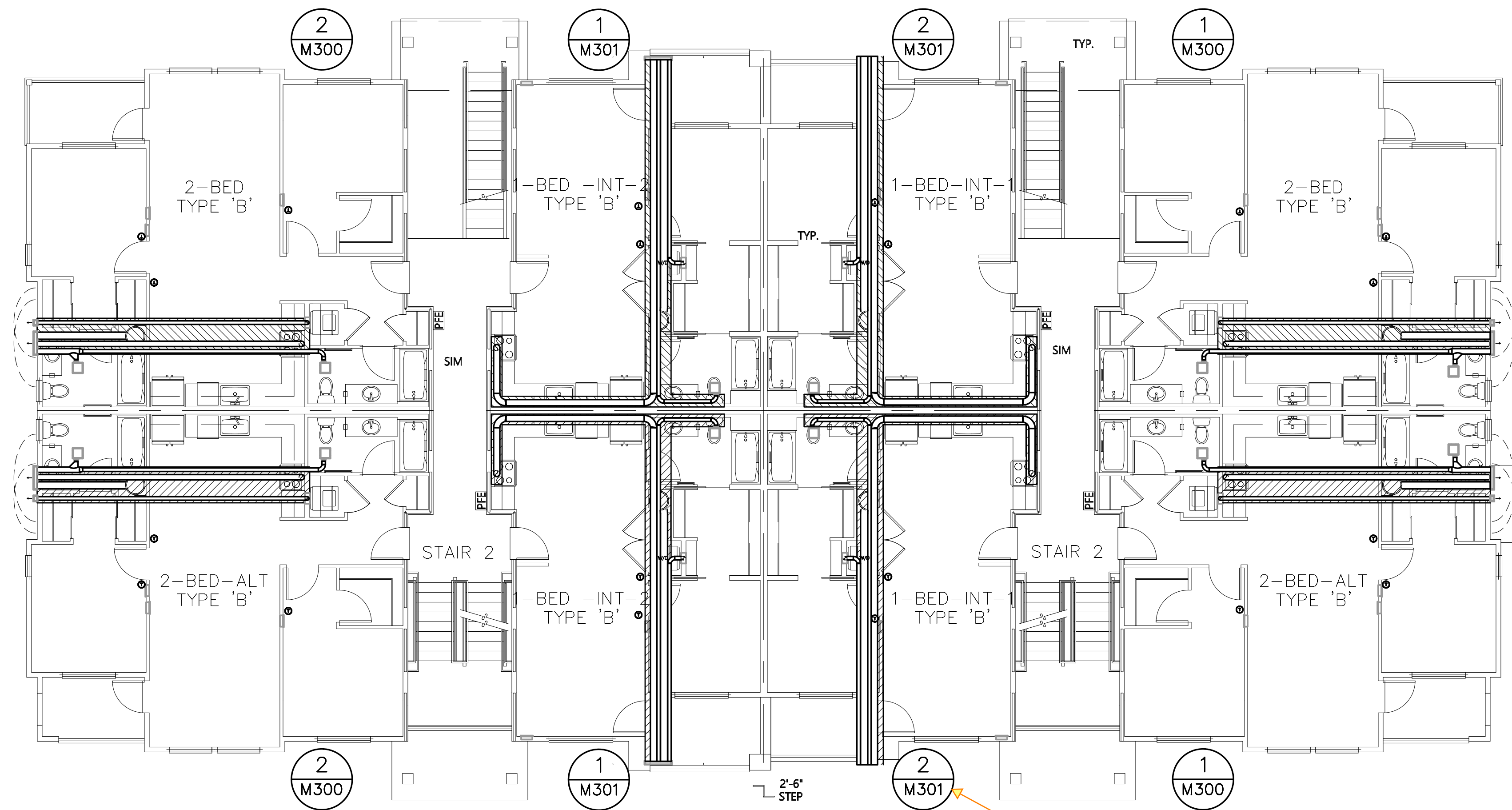
19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC.**

DATE: 02/15/2024

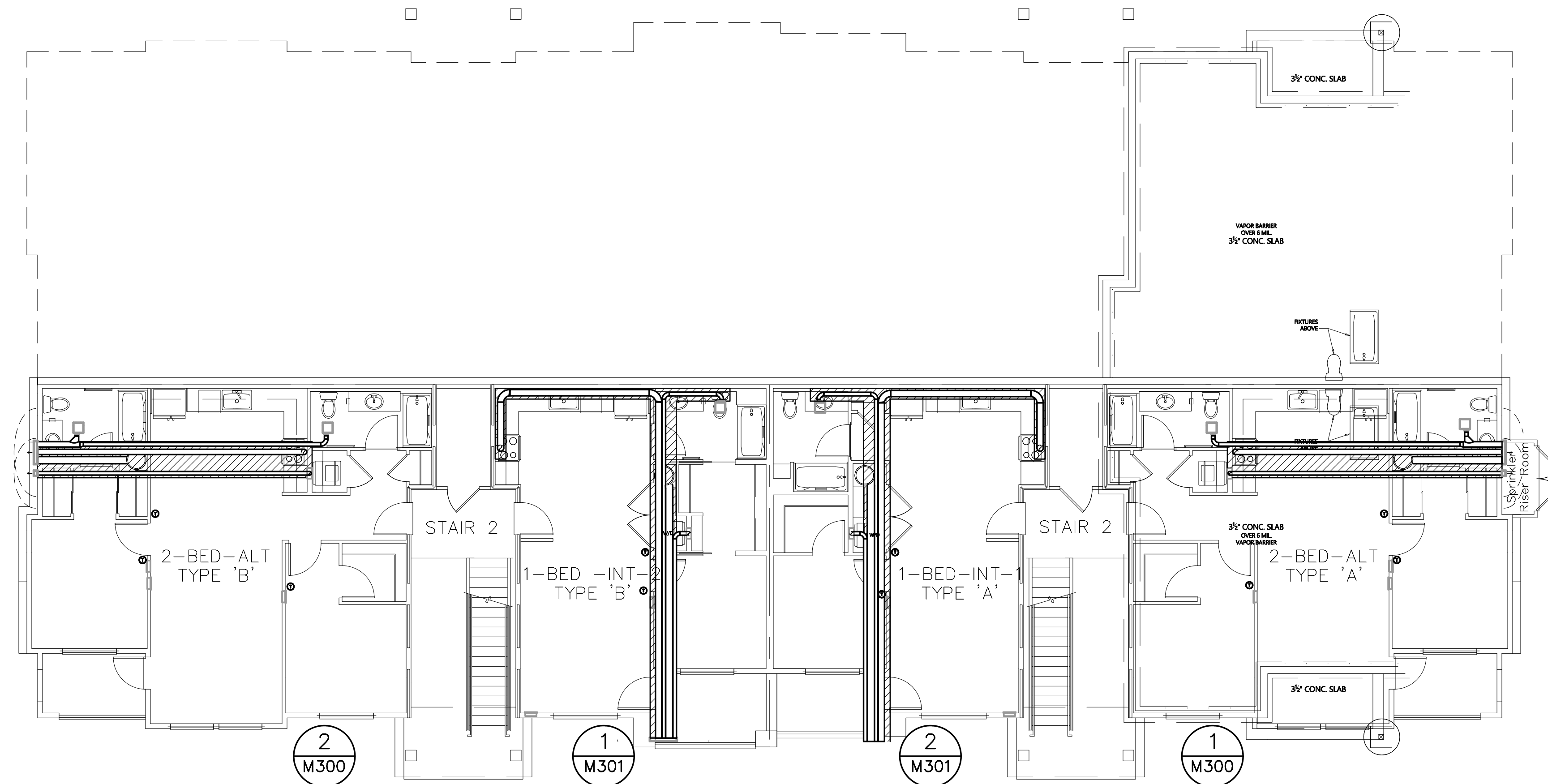
SHEET TITLE: **MECHANICAL SCHEDULES & WSEC FORMS**

SHEET NO. **M0.3**



BUILDING F  
1st LEVEL PLAN  
1/8" = 1'-0"  
3/4 SPLIT LEVEL, 28-UNIT BUILDING

Provide lengths to all duct work for all floors to identify maximum duct length for all areas.  
Page M2.0

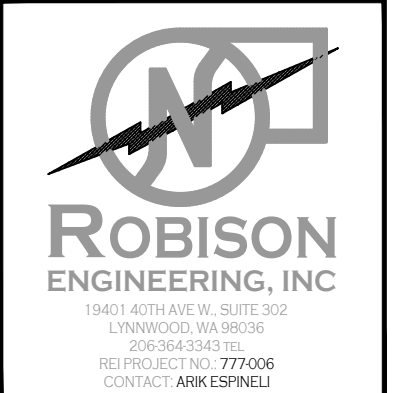
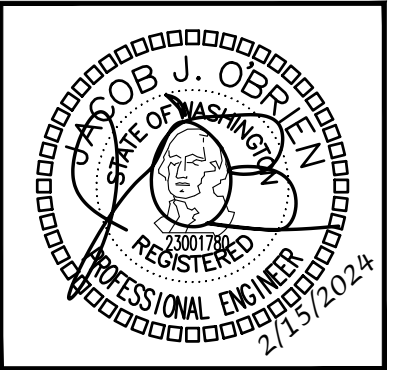


BUILDING F  
BASEMENT LEVEL PLAN  
1/8" = 1'-0"  
3/4 SPLIT LEVEL, 28-UNIT BUILDING

Did not locate sheets M300-M303 duct sizes and length.  
Page M2.0

RESIDENTIAL UNIT NOTES:  
1 M300 = REFER TO DWG M300, DETAIL 1.  
FOR DUCT SIZES WITHIN THE RESIDENTIAL UNITS, REFER TO THE ENLARGED UNIT PLANS ON DWGS M300-M303.

NO.	DATE	DESCRIPTION	REVISIONS



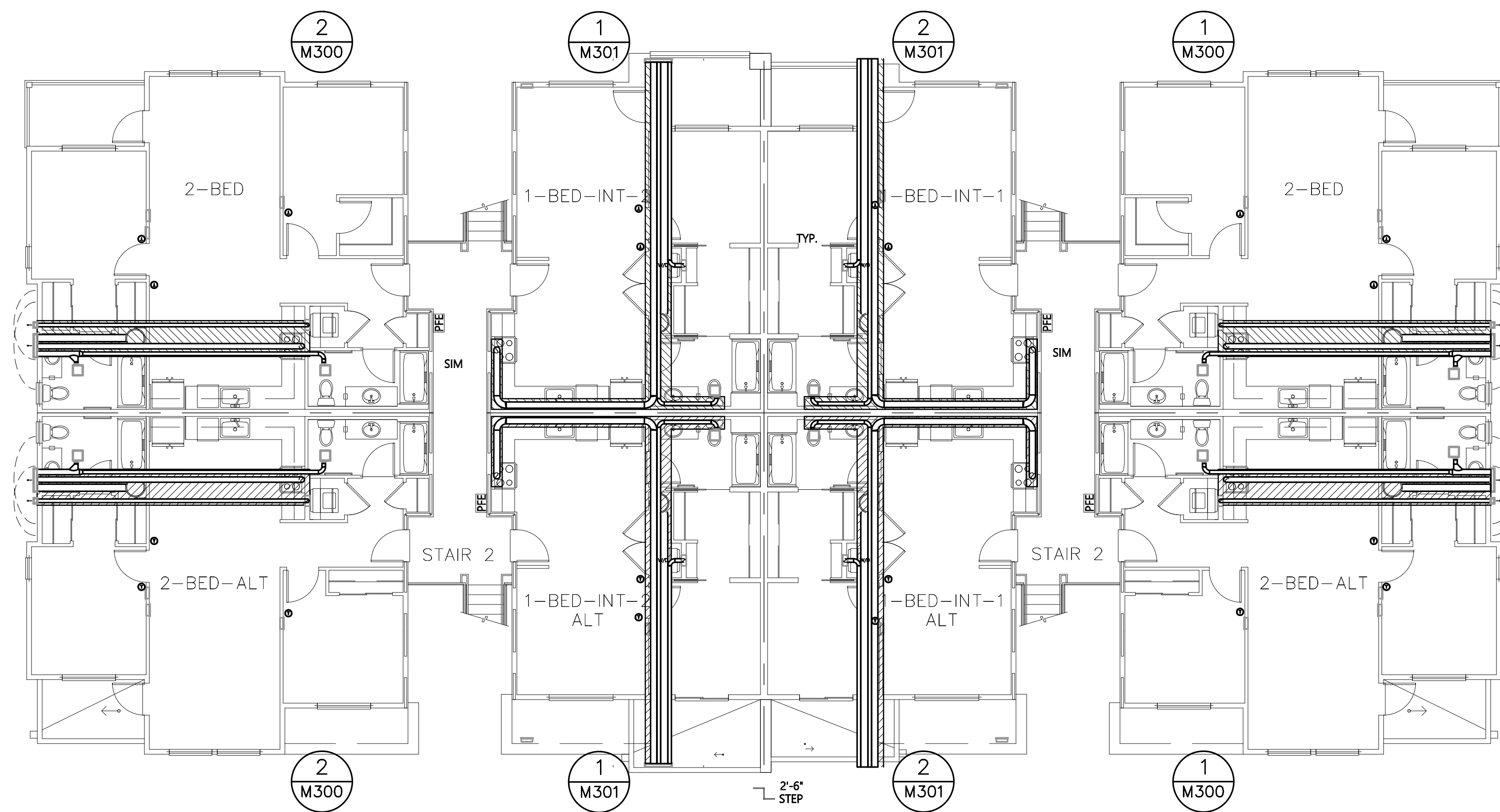
DRAWN:	OP
DESIGNED:	ABE
CHECKED:	ABE
APPROVED:	JOB

PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
202 27TH AVE SE  
PUYALLUP, WA 98374  
19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 864-3343  
**ROBISON ENGINEERING, INC.**

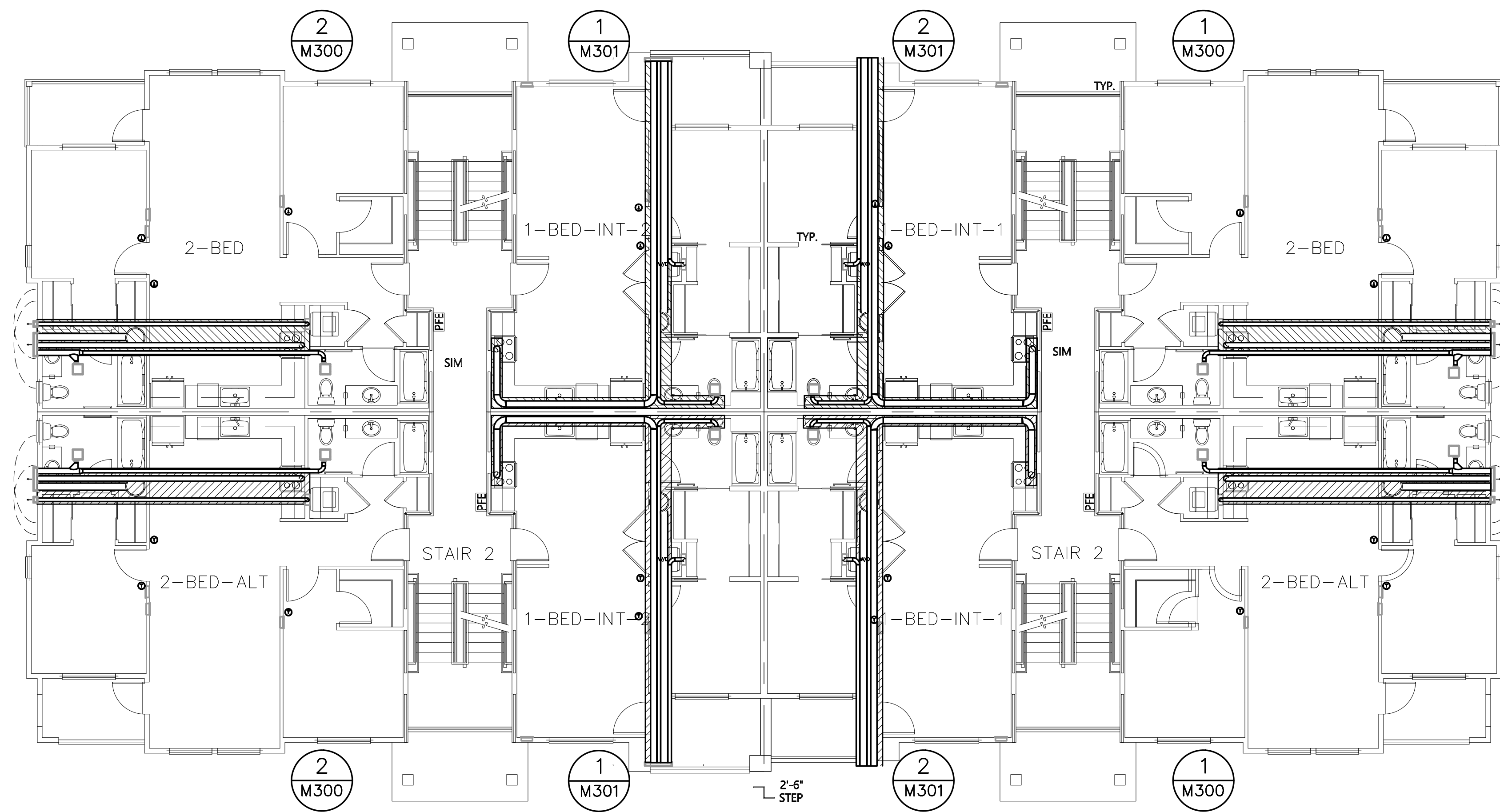
DATE: 02/15/2024

SHEET TITLE:  
HVAC PLAN -  
BASEMENT &  
1ST LEVEL

SHEET NO.  
**M2.0**



BUILDING F 3rd LEVEL PLAN  
 1/8" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING



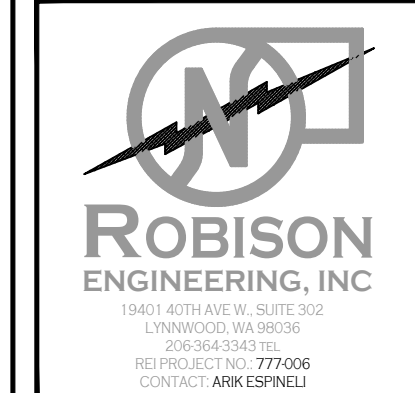
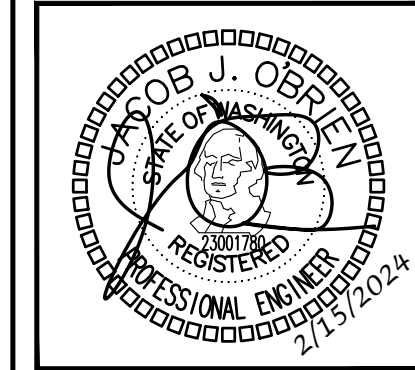
BUILDING F 2nd LEVEL PLAN  
 1/8" = 1'-0" 3/4 SPLIT LEVEL, 28-UNIT BUILDING

RESIDENTIAL UNIT NOTES:

1 M300 = REFER TO DWG M300, DETAIL 1.

FOR DUCT SIZES WITHIN THE RESIDENTIAL UNITS, REFER TO THE ENLARGED UNIT PLANS ON DWGS M300-M303.

NO.	DATE	DESCRIPTION	REVISIONS



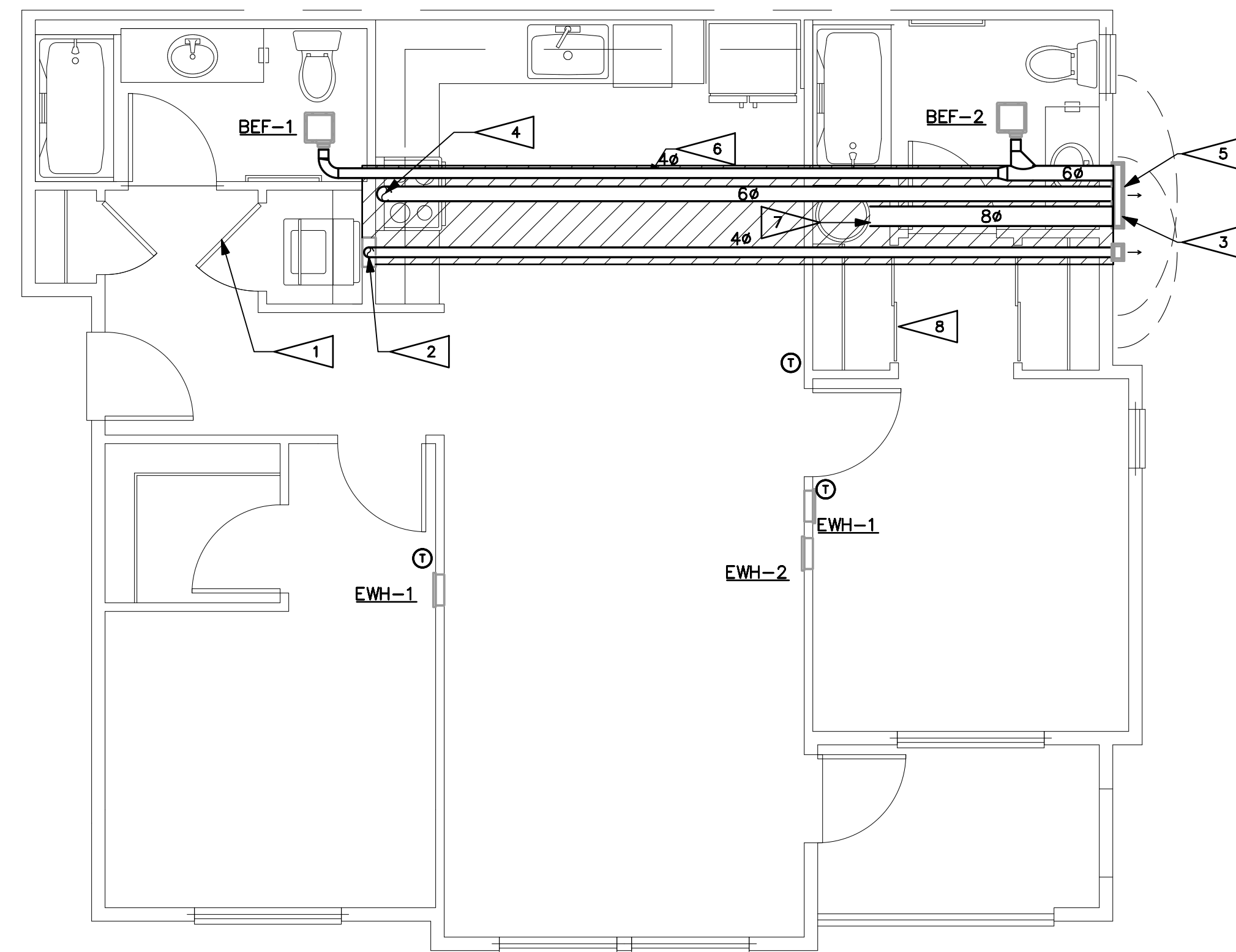
DRAWN:	OP
DESIGNED:	ABE
CHECKED:	ABE
APPROVED:	JOB

PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
 202 27TH AVE SE  
 PUYALLUP, WA 98374  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 864-3343  
**ROBISON**  
 ENGINEERING, INC.

DATE: 02/15/2024

SHEET TITLE:  
 HVAC PLAN -  
 2ND & 3RD  
 LEVEL

SHEET NO.  
**M2.1**

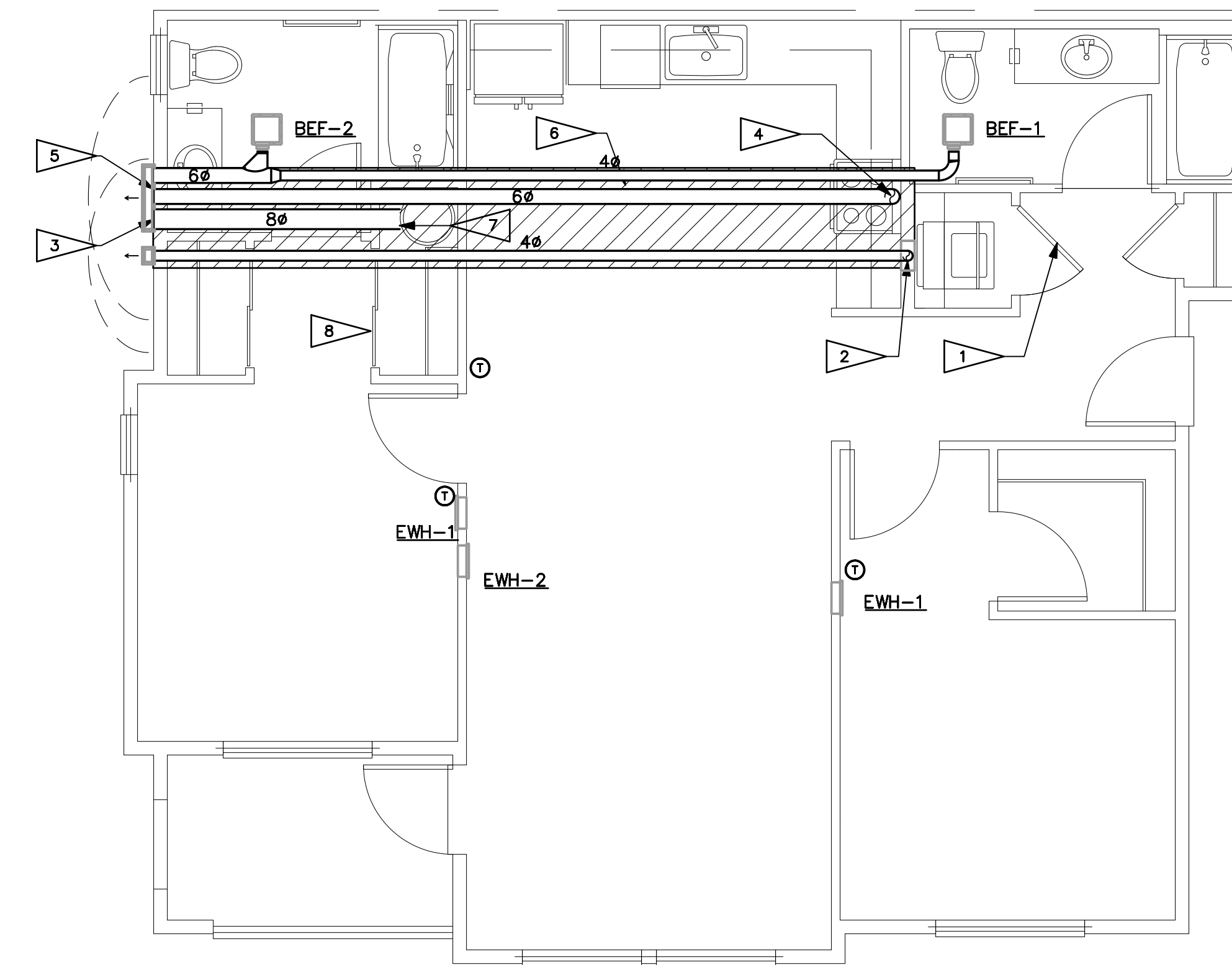


HVAC ENLARGED PLANS

2-BED-ALT-1

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

1  
M300



HVAC ENLARGED PLANS

2-BED-ALT-2

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

2  
M300

Provide lengths to all duct work for all floors to identify and verify does not exceed Table 504.8.4.1 for allowable exhaust duct length.

Page M3.0

GENERAL NOTES:

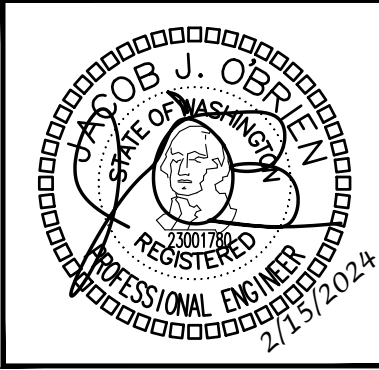
- ENVIRONMENTAL EXHAUST TERMINATIONS: MAINTAIN 3 FOOT SEPARATION FROM PROPERTY LINES AND OPERABLE OPENINGS INTO BUILDING, 10 FEET FROM MECHANICAL AIR INTAKES.
- MOUNT REMOTE THERMOSTATS 48" AFF. PER WSEC C403.4.9, AT LEAST ONE THERMOSTAT SHALL BE PROGRAMMABLE ON A 5-2 SCHEDULE.
- UNDERCUT ALL BATHROOM DOORS BY MINIMUM 1/2" TO ALLOW TRANSFER OF MAKEUP AIR FOR BATHROOM EXHAUST.
- ELECTRIC WALL HEATERS SHALL BE RECESSED IN WALL UNLESS FIRE RATED OR EXTERIOR WALL. FOR HEATERS MOUNTED ON SUCH WALL, PROVIDE SURFACE-MOUNT WALL CAP.
- PROVIDE ACCESSIBLE MANUAL VOLUME DAMPERS AT BRANCHES OR OPPOSED-BLADE DAMPERS AT GRILLES FOR AIR BALANCING PER VOLUME DAMPERS NOTE ON SHEET M0.00.

FLAG NOTES:

- CLOSETS CONTAINING DRYERS SHALL BE PROVIDED WITH LOUVERED DOOR OR 100 SQ. IN FREE-AREA OPENING ABOVE DOOR. OPENING PROVIDES PATH FOR EXHAUST AIR DURING WASHER OPERATION PER WSMC TABLE 403.3.1.1 NOTE (I) AND MAKEUP AIR DURING DRYER OPERATION PER 504.6.
- 4" POC TO DRYER. PROVIDE METAL DRYER BOX WHERE DUCT IS ROUTED IN 2x6 FRAMED WALL. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WSMC 504.8.4.1 FOR THE MAXIMUM ALLOWED LENGTH OF THE DRYER VENT. PROVIDE PERMANENT PLACARD OF TYPE PLAC34 SHOWING NET EQUIVALENT LENGTH. DUCT SHALL REMAIN SEPARATE FROM OTHER EXHAUST SYSTEMS UP TO TERMINATION.
- 4" DRYER EXHAUST TERMINATION WALL CAP. PROVIDE BACKDRAFT DAMPER AT TERMINATION. DO NOT INSTALL SCREENS ON DRYER EXHAUST TERMINATIONS. CLEARANCES PER GENERAL NOTE 1.

- POC TO DOMESTIC KITCHEN RANGE HOOD. SEE PLANS FOR SIZE. DUCT SHALL REMAIN SEPARATE FROM OTHER EXHAUST SYSTEMS UP TO TERMINATION.
- DOMESTIC KITCHEN RANGE HOOD EXHAUST TERMINATION WALL CAP WITH SCREEN. PROVIDE BACKDRAFT DAMPER AT TERMINATION. CLEARANCES PER GENERAL NOTE 1.
- LOWERED SOFFIT FOR MECHANICAL EQUIPMENT.
- 8" POC FOR HEAT PUMP WATER HEATER EXHAUST.
- CLOSETS CONTAINING WATER HEATERS SHALL BE PROVIDED WITH MINIMUM 3/4" UNDERCUT.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	OP
DESIGNED:	ABE
CHECKED:	ABE
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PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
202 27TH AVE SE  
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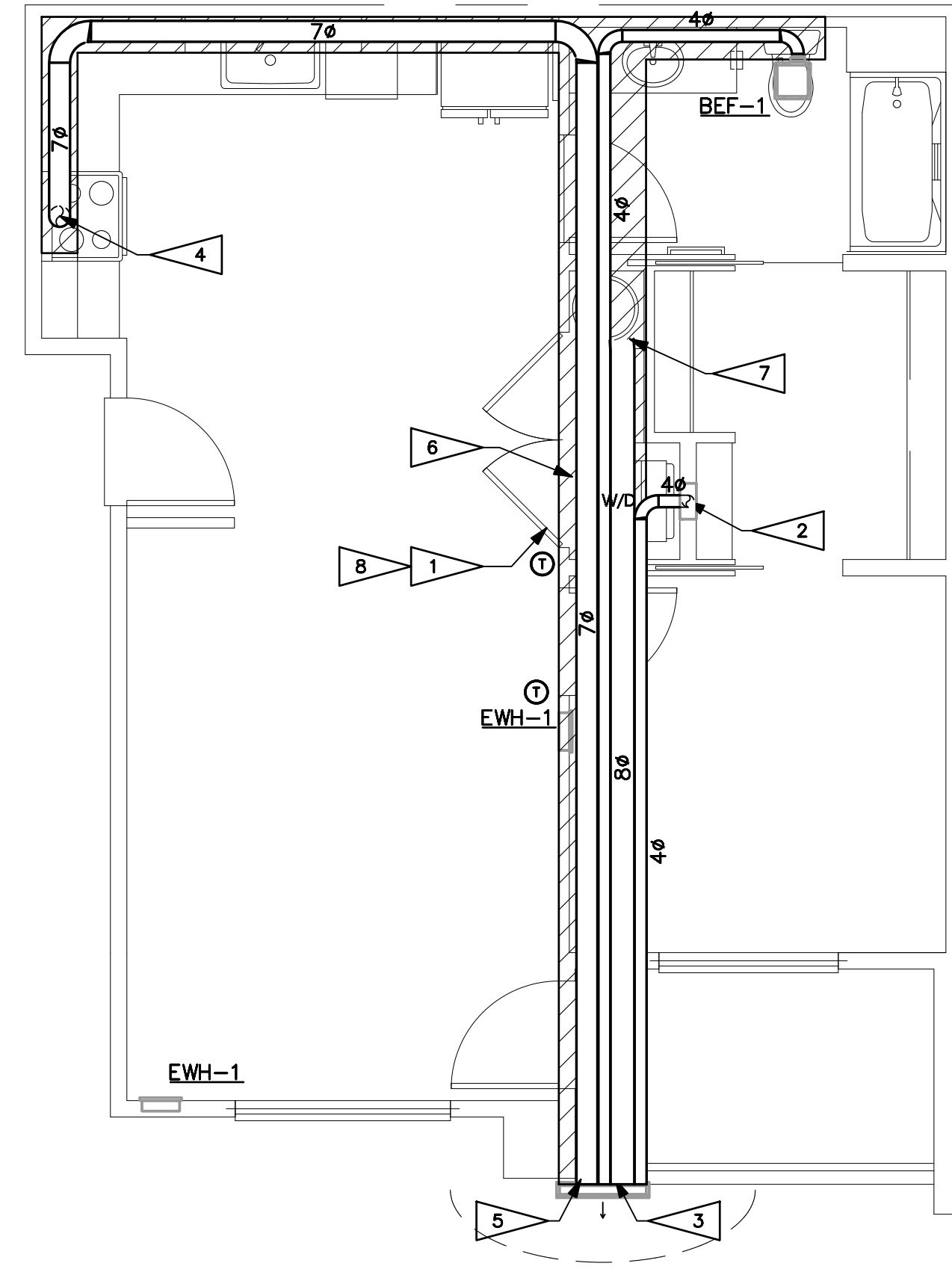
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SHEET TITLE:  
HVAC  
ENLARGED  
PLANS

SHEET NO.  
M3.0



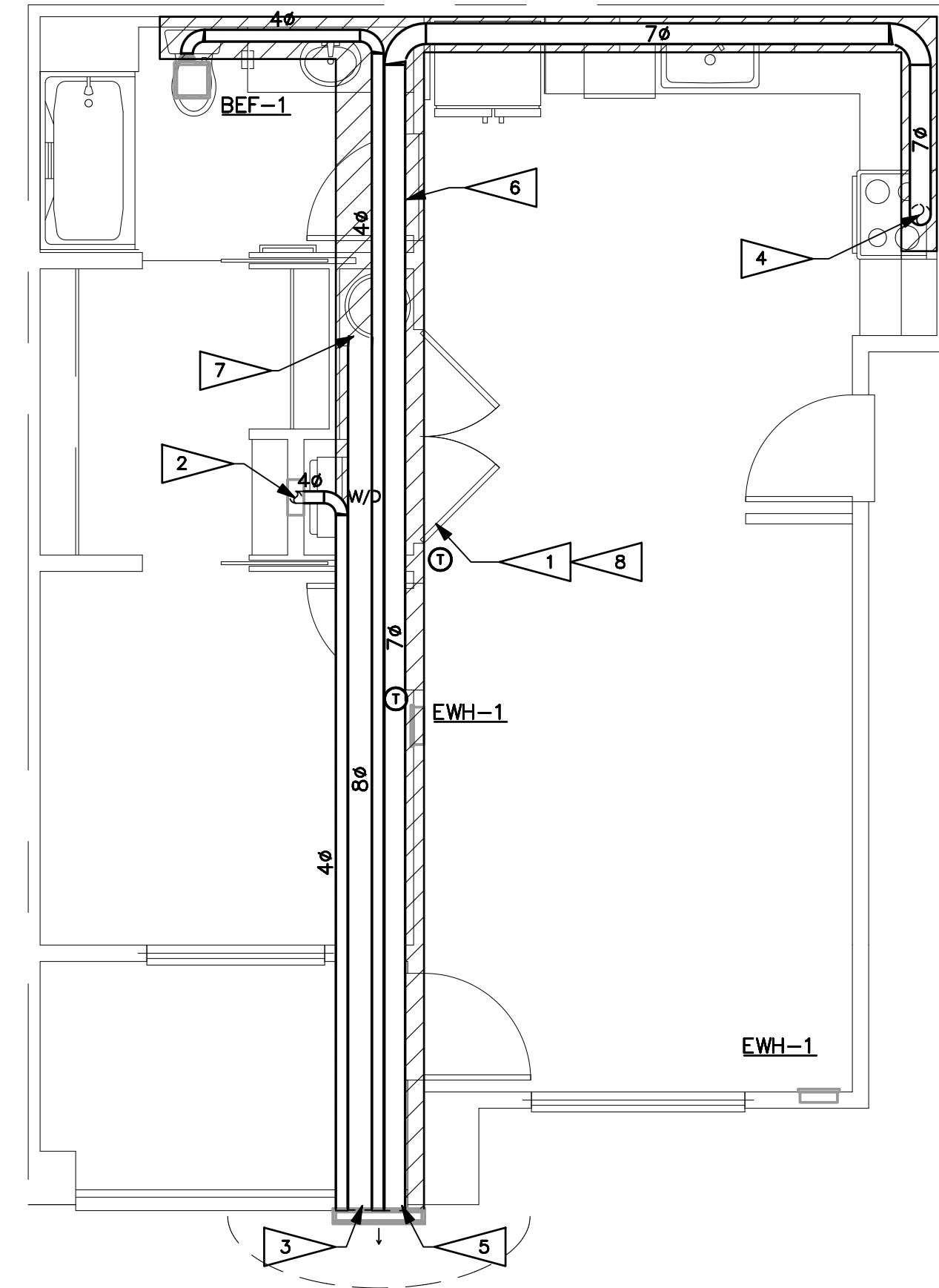


HVAC ENLARGED PLANS

1-BED-INT-1

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

1  
M301

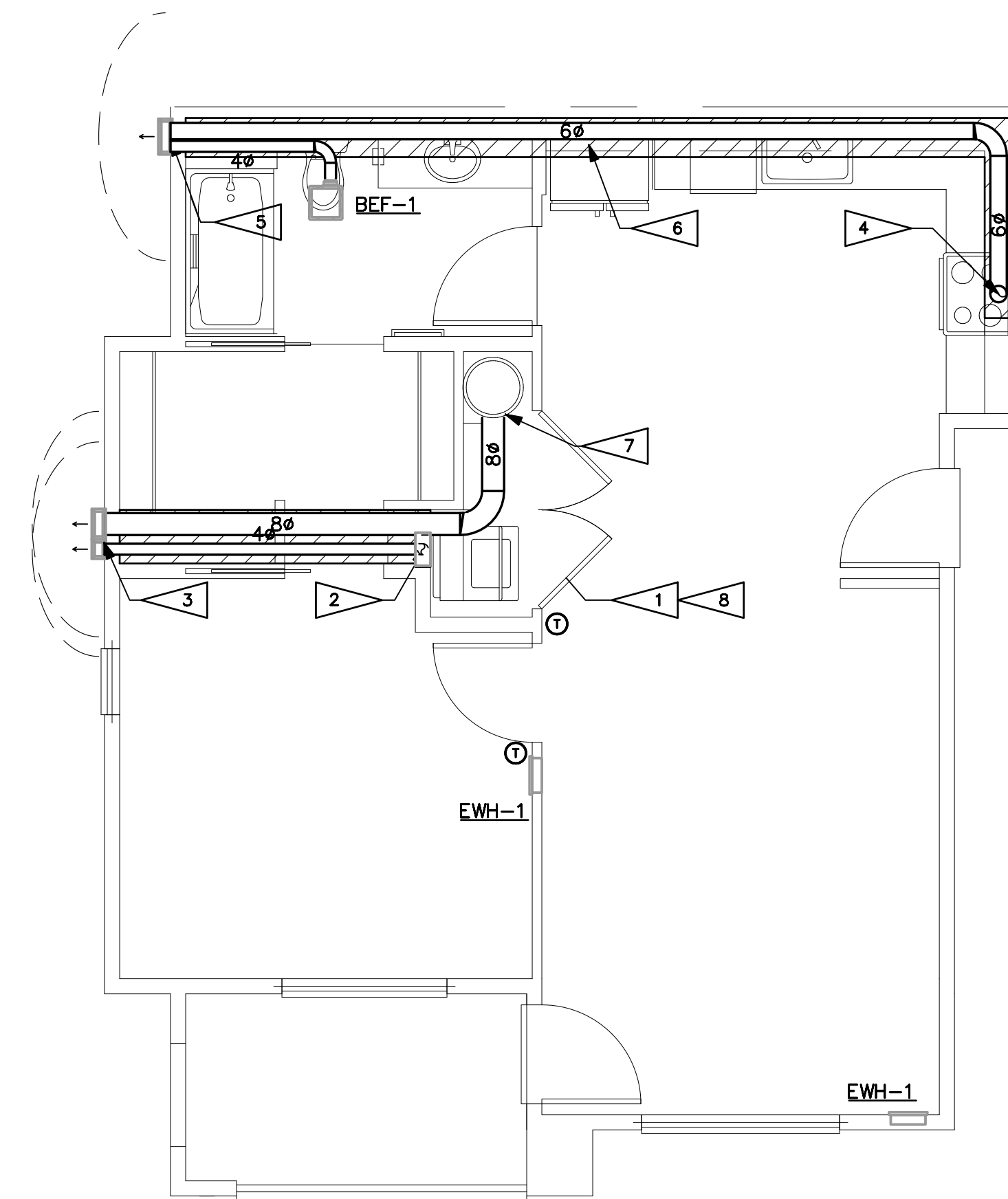


HVAC ENLARGED PLANS

1-BED-INT-2

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

2  
M301



HVAC ENLARGED PLANS

1-BED-END

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

3  
M301

Provide lengths to all duct work for all floors to identify and verify does not exceed Table 504.8.4.1 for allowable exhaust duct length.  
Page M3.1

GENERAL NOTES:

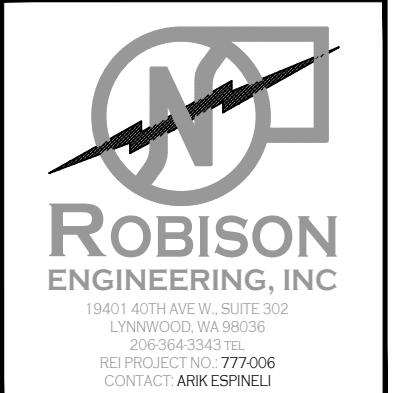
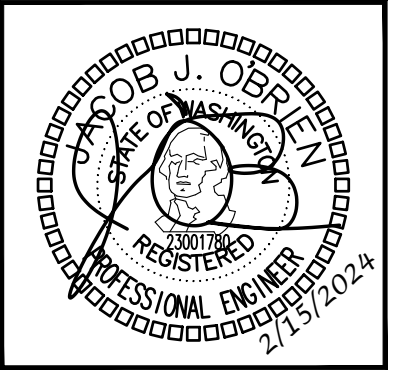
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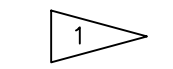





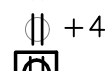



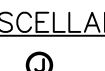



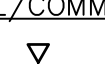


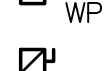













**ROBISON**  
ENGINEERING, INC.

DATE: 02/15/2024

SHEET TITLE:  
HVAC  
ENLARGED  
PLANS

SHEET NO.  
M3.1

**SYMBOLS**

<p><b>GENERAL</b></p> <hr/> <p><b>DETAIL IDENTIFICATION</b></p> <p>SYMBOL</p>    <p><b>SWITCHES</b></p> <p>\$<sub>0</sub></p> <p>\$<sub>0S</sub></p> <p>\$<sub>D</sub></p> <p>\$<sub>HP</sub></p> <p>\$<sub>T</sub></p> <p>\$<sub>3</sub></p> <p><b>RECEPTACLES</b></p>              <p><b>MISCELLANEOUS</b></p>      <p><b>SIGNAL/COMMUNICATION</b></p>    <p><b>POWER</b></p>       	<p>LIGHT LINE INDICATES NON-ELECTRICAL OR BACKGROUND (THIS IS NOT CONTRACTUAL DEFINITION OF WORK)</p> <p>HEAVY LINE INDICATES NEW WORK (THIS IS NOT CONTRACTUAL DEFINITION OF WORK)</p> <p><b>NAME</b></p> <p>FLAG NOTE</p> <p>REVISION NOTE</p> <p>REVISION DEFINITION, AREA ENCIRCLED CONTAINS DRAWING CHANGES MADE SUBSEQUENT TO PREVIOUS ISSUE</p> <p>SWITCH, SINGLE POLE; WITH SWITCHING SUBSCRIPT</p> <p>OCCUPANCY SENSOR SWITCH</p> <p>SWITCH, SINGLE POLE; WITH SWITCHING SUBSCRIPT "D" INDICATES WALLBOX DIMMER</p> <p>CEILING MOUNTED OCCUPANCY SENSOR</p> <p>SWITCH, TIMER.</p> <p>SWITCH, THREE WAY.</p> <p>SINGLE RECEPTACLE</p> <p>DUPLEX RECEPTACLE: WALL MOUNTED, +18" AFF</p> <p>CONTROLLED AND NON CONTROLLED DUPLEX RECEPTACLE (SPLIT WIRED RECEPTACLE)</p> <p>DUPLEX RECEPTACLE - ABOVE COUNTER</p> <p>DUPLEX GFCI ABOVE COUNTER</p> <p>DUPLEX GFCI</p> <p>DUPLEX RECEPTACLE, WITH HEIGHT ABOVE FINISHED FLOOR INDICATED</p> <p>CEILING MOUNTED DUPLEX RECEPTACLE</p> <p>DOUBLE DUPLEX RECEPTACLE: WALL MOUNTED, +18" AFF</p> <p>FLOOR BOX ONE DUPLEX RECEPTACLE</p> <p>FLOOR BOX ONE DUPLEX RECEPTACLE + ONE DATA</p> <p>FLOOR BOX ONE DUPLEX RECEPTACLE + ONE DATA + ONE VOICE</p> <p>SPECIAL PURPOSE RECEPTACLE, AS NOTED</p> <p>JUNCTION BOX: 4SQ MOUNTED</p> <p>JUNCTION BOX: 4SQ WALL MOUNTED</p> <p>JUNCTION BOX: 4SQ TRACK</p> <p>CONNECTION FOR LIGHTED MIRROR COORDINATE LOCATION AND ELEVATION WITH ARCHITECT PRIOR TO ROUGH-IN</p> <p>THERMOSTAT</p> <p>DATA OUTLET: WALL MOUNTED @ +18" AFF U.O.N.</p> <p>TELEPHONE/DATA OUTLET: WALL MOUNTED @ +18" AFF U.O.N.</p> <p>TELEVISION OUTLET: WALL MOUNTED @ +18" AFF U.O.N.</p> <p>PANELBOARD</p> <p>NON-FUSED DISCONNECT SWITCH (WP = NEMA 3R WHERE APPROPRIATE )</p> <p>FUSED DISCONNECT SWITCH</p> <p>MOTOR CONNECTION (EQUIPMENT NAME, HORSEPOWER, VOLTAGE, AND PHASE INDICATED)</p> <p>EQUIPMENT CONNECTION (EQUIPMENT NAME, LOAD, VOLTAGE, AND PHASE INDICATED)</p> <p>TRANSFORMER, DRY TYPE, SHOWN TO SCALE</p> <p>KW METER AND BASE</p> <p><b>[FACP]</b> FIRE ALARM SYSTEM CONTROL PANEL</p> <p><b>[P]</b> FIRE ALARM SYSTEM PULL STATION</p> <p><b>[S]</b> FIRE ALARM SYSTEM STROBE/SPEAKER</p> <p><b>[SD]</b> FIRE ALARM PHOTOELECTRIC SMOKE DETECTOR AND SPEAKER.</p> <p><b>[C]</b> FIRE ALARM COMBINATION PHOTOELECTRIC SMOKE DETECTOR, CARBON MONOXIDE DETECTOR, AND SPEAKER, GUESTROOM.</p> <p><b>[CO]</b> CARBON MONOXIDE DETECTOR.</p> <p><b>[EMD]</b> ELECTRO-MAGNETIC DOOR HOLDER</p> <p><b>[DSD]</b> DUCT SMOKE DETECTOR</p>
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**ABBREVIATIONS**

A	AMPERE
AC	ALTERNATING CURRENT, ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	ALUMINUM
AMP	AMPERE
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
C	COIL or CONDUIT
CKT	CIRCUIT
CO	CONDUIT/RACEWAY ONLY
CT	CURRENT TRANSFORMER
Cu	COPPER
D	COOL WHITE
DW	DIMMER
DED	DEDICATED
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EXIST	EXISTING
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FLUOR	FLUORESCENT
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
IG	ISOLATED GROUND
KCML	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERES
KW	KILOWATT
LTG	LIGHTING
LV	LOW VOLTAGE
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE (NFPA-70)
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NTS	NOT TO SCALE
PNL	PANEL
POC	POINT OF CONNECTION
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
QTY	QUANTITY
RECEPT	RECEPTACLE
REF	REFERENCE
RI	ROUGH-IN
RM	ROOM
RO	RACEWAY ONLY
SHT	SHEET
SPEC	SPECIFICATIONS
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNOT	UNLESS OTHERWISE NOTED
V	VOLTS
W	WATTS
WW	WARM WHITE
WP	WEATHERPROOF
W/O	WITHOUT
XFMR	TRANSFORMER
XFR	TRANSFER
Z	IMPEDANCE OR ZONE

**GENERAL NOTES**

<p><b>GENERAL</b></p> <p>1. PROVIDE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE GOVERNING ELECTRICAL CODE, LOCAL CODES, ORDINANCES AND REQUIREMENTS OF UTILITY COMPANIES FURNISHING SERVICES TO INSTALLATION.</p> <p>2. PROVIDE ALL WORK AND ITEMS NECESSARY FOR COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEMS. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY CONDUIT, BOX, CONDUCTOR OR SIMILAR ITEMS FOR A COMPLETE INSTALLATION.</p> <p>3. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND DETERMINE CONDITIONS WHICH MAY AFFECT BID. ANY ITEMS NOT FULLY UNDERSTOOD SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO BIDDING.</p> <p>4. "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, OR MECHANICAL).</p> <p>5. REFERENCE ARCHITECTURAL DRAWING FOR EXACT LOCATION OF DEVICES. QUESTIONS CONCERNING THE LOCATION OF DEVICES AND EQUIPMENT SHALL BE DIRECTED TO THE ARCHITECT. FAILURE TO COORDINATE REQUIREMENTS SHALL IN NO WAY RESULT IN ADDITIONAL COMPENSATION BEING PROVIDED TO THE CONTRACTOR.</p> <p>6. WHEREVER THE WORD "PROVIDE" IS USED, IT MEANS, "FURNISH AND INSTALL COMPLETE AND READY FOR USE."</p> <p>7. COORDINATE LOCATION OF ELECTRICAL WITH OTHER TRADES.</p> <p>8. REFER TO EQUIPMENT DRAWINGS FOR MECHANICAL CHARACTERISTICS (SIZE, LOCATION, ETC.) OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED. COORDINATE INSTALLATION AND LOCATION OF ALL EQUIPMENT WITH MECHANICAL CONTRACTOR. VERIFY ALL FUSE RATINGS, WIRE SIZES AND DISCONNECT SIZES PRIOR TO INSTALLATION.</p> <p><b>MATERIALS AND METHODS</b></p> <p>1. PROVIDE RACEWAY AND WIRING ROUTED CONCEALED WITHIN BUILDING STRUCTURE WHERE POSSIBLE. WHERE RACEWAY CANNOT BE CONCEALED, IT SHALL BE INSTALLED PER PROJECT MANAGER'S DIRECTION. ALL CONDUIT SHALL BE INSTALLED IN NEAT SYMMETRICAL LINES HORIZONTAL OR PERPENDICULAR TO BUILDING COLUMNS AND ROOF LINES. CONDUITS SHALL BE GROUPED ON COMMON SUPPORTS WHEREVER POSSIBLE.</p> <p>2. EXPOSED CONDUIT ROUTING: CONDUITS MAY BE ROUTED EXPOSED IN MECHANICAL AND ELECTRICAL ROOMS ONLY. EXPOSED CONDUITS SHALL BE SECURED A MINIMUM OF 6" ABOVE FLOOR.</p> <p>3. OUTDOOR EXPOSED CONDUIT ROUTING: CONDUITS ROUTED ON ROOF OR EXPOSED TO WEATHER SHALL BE GRC, PVC OR LIQUID-TIGHT FLEX. PROVIDE WATER-TIGHT CONNECTIONS AND FITTINGS.</p> <p>4. CLEARANCES: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET.</p> <p>5. CONNECTIONS: PROVIDE GRS, METALLIC FLEX, OR LIQUIDTITE FLEX CONDUITS FOR CONNECTIONS TO MOTORS OR MOTORIZED EQUIPMENT.</p> <p>6. WIRING: PROVIDE MINIMUM #12 AWG WIRE SIZE. IF CONDUIT IS TO BE USED MINIMUM IS TO BE 1/2". FLEXIBLE CONDUIT AND FLEXIBLE CABLE IS PERMISSIBLE THROUGHOUT THE BUILDING.</p>	<p>7. WIRING: PROVIDE MINIMUM #10 AWG COPPER CONDUCTOR SIZE IN 120V BRANCH CIRCUIT RUNS OVER 75' IN LENGTH.</p> <p><b>SITE ELECTRICAL</b></p> <p>1. TRENCHING: COORDINATE ALL TRENCHING WORK WITH OTHER UTILITY LOCATIONS AND DRAINAGE TRENCHES.</p> <p>2. UNDERGROUND CONDUITS: PROVIDE PVC, SCHEDULE 40, 3/4" MINIMUM. PROVIDE GRC CONDUIT TRANSITION ELBOW WHEN TURNING UP TO ABOVE GRADE.</p> <p>3. DIRECT-BURIED CONDUITS: CONDUIT FOR BRANCH CIRCUITS OUTSIDE BUILDINGS NOT BENEATH DRIVEWAYS OR PARKING AREAS SHALL BE DIRECTLY BURIED WITHOUT CONCRETE ENCASEMENT. THE DEPTH TO THE TOP OF BURIED CONDUITS SHALL BE 36". PROVIDE MARKER TAPE 12" BELOW GRADE.</p> <p>4. BELOW SLAB: CONDUIT ROUTED BELOW ON-GRADE FLOOR SLABS SHALL BE INSTALLED PRIOR TO FLOOR SLAB POUR. ROUTE CONDUITS BELOW SLAB AS STRAIGHT AS POSSIBLE TO MINIMIZE BENDS.</p> <p>5. ALL CONDUITS PENETRATING THE BUILDING ENVELOPE BELOW GRADE SHALL FOLLOW WATERPROOFING REQUIREMENTS IN THE ARCHITECTURAL DRAWINGS.</p> <p><b>NEUTRALS</b></p> <p>1. AT CONTRACTORS OPTION, NEUTRALS MAY BE SHARED ON COMBINED HOMERUNS UNLESS THE CIRCUIT HAS A GFCI BREAKER, AN ISOLATED GROUND, OR IS FROM A PANEL WITH TVSS PROTECTION. ANY NEUTRAL DOWNSTREAM FROM A DIMMER SHALL BE DEDICATED TO THE DIMMED LOAD.</p> <p>2. NEUTRAL WIRES SHOWN FOR TWO AND THREE POLE MECHANICAL AND KITCHEN EQUIPMENT MAY BE OMITTED UPON VERIFICATION THAT THEY ARE NOT REQUIRED EITHER FOR OPERATION OR CONTROL CIRCUITS PER MANUFACTURER'S SPECIFICATIONS.</p> <p><b>LIGHTING</b></p> <p>1. PROVIDE LIGHT FIXTURES WITH PROPER FITTING FLANGES, MOUNTING SUPPORTS, AND ACCESSORY ITEMS, UL LISTED FOR CONDITIONS OF USE.</p> <p><b>LOW VOLTAGE LIGHTING</b></p> <p>1. PROVIDE LOW VOLTAGE TRANSFORMERS IN NEARBY ACCESSIBLE CEILING SPACE.</p> <p>2. PROVIDE LOW VOLTAGE CONDUCTORS SIZED PER MANUFACTURER'S GUIDELINES TO MINIMIZE VOLTAGE DROP.</p> <p><b>LIGHTING CONTROL</b></p> <p>1. THE MAXIMUM LIGHTING POWER THAT MAY BE CONTROLLED FROM A SINGLE SWITCH OR AUTOMATIC CONTROL SHALL NOT EXCEED THAT WHICH IS PROVIDED BY A TWENTY AMPERE CIRCUIT LOADED TO NOT MORE THAN EIGHTY PERCENT. A MASTER CONTROL MAY BE INSTALLED PROVIDED THE INDIVIDUAL SWITCHES RETAIN THEIR CAPABILITY TO FUNCTION INDEPENDENTLY.</p> <p>2. EMERGENCY FIXTURES: EMERGENCY BATTERY/CHARGER SHALL BE CONNECTED TO AN UNSWITCHED LEG OF THE DESIGNATED CIRCUIT.</p>
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**GENERAL REQUIREMENTS**

- DRAWINGS ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED.
- THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT.
- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS.
- REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS.
- PROVIDE CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

**CONTRACTOR SUBSTITUTIONS & REVISIONS**

- PLEASE SUBMIT PROPOSALS FOR SUBSTITUTIONS OR REVISIONS FOR REVIEW AND APPROVAL PRIOR TO ORDERING MATERIAL OR DOING WORK.
- FOR EQUIPMENT THAT IS SCHEDULED BY MANUFACTURER'S NAME AND CATALOG DESIGNATIONS, THE MANUFACTURER'S PUBLISHED DATA AND/OR SPECIFICATION FOR THAT ITEM ARE CONSIDERED PART OF SPECIFICATION.
- ENGINEERING COSTS FOR REVISING MEP PLANS SHALL BE ADDRESSED IN THE COST ANALYSIS OF THE SUBSTITUTION PROPOSAL.
- CONTRACTOR TO COORDINATE WITH ENGINEER AND DETERMINE ASSOCIATED DESIGN AND PERMITTING COSTS. CONTRACTOR SHALL BE RESPONSIBLE FOR OTHER COSTS ASSOCIATED WITH UNFORESEEN ISSUES RESULTING FROM SUBSTITUTIONS OR REVISIONS.

**PRE-CON MEETING NOTES**

CONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE ENGINEER FOR THE PURPOSE OF REVIEWING THE WORK PRIOR TO ORDERING ANY EQUIPMENT OR PERFORMING ANY WORK. THE MEETING SHALL BE LOCATED AT THE PROJECT SITE ON A DATE AND TIME TO BE MUTUALLY AGREED. THE MEETING WILL BE A WORKING SESSION. THE MEETING WILL BE FACILITATED BY THE ENGINEER AND THE AGENDA WILL INCLUDE A DETAILED REVIEW OF THE PLANS AND SPECIFICATIONS, CROSS CHECK WITH OTHER TRADES FOR COORDINATION ISSUES, REVIEW OF PROPOSED PRODUCTS, REVIEW OF PLANNED MEANS AND METHODS, AND ON-SITE INVESTIGATION OF FIELD CONDITIONS RELATIVE TO EXISTING CONDITIONS THAT COULD AFFECT THE WORK. PERSONS ATTENDING THE MEETING SHALL BE KNOWLEDGEABLE OF THE PROJECT AND SHALL BE THE SPECIFIC PERSONS INTENDED TO CONTINUE WITH THE PROJECT THROUGH TO COMPLETION. IF REQUIRED, REVISED PLANS WILL BE ISSUED THROUGH OFFICIAL CHANNELS. CHANGES IN THE BID PRICE WILL BE DISCUSSED, BUT NO CHANGE ORDERS WILL BE ISSUED UNLESS PROCESSED THROUGH OFFICIAL CHANNELS. IT SHALL BE UNDERSTOOD THAT THE ENGINEER HAS NO AUTHORITY TO ISSUE CHANGE ORDERS.

THE FOLLOWING TRADES SHALL BE REPRESENTED FOR THE MINIMUM TIME INDICATED:

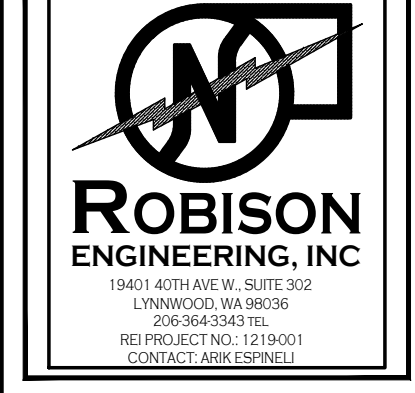
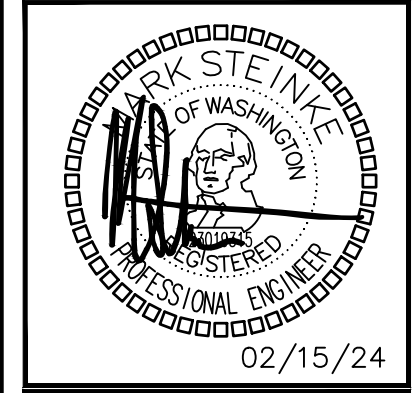
MECHANICAL SHEET METAL	4 HOURS
PLUMBING/PIPING	4 HOURS
ELECTRICAL	4 HOURS
SPRINKLER	2 HOURS
GENERAL CONTRACTOR	ALL SESSIONS

**DRAWING INDEX**

DWG	DESCRIPTION	INCLUDED IN SET	
		PERMIT REVIEW SET 10/06/23	PERMIT SET 02/15/24
E0.00	LEGEND, GENERAL NOTES, DRAWING INDEX	X	X
E0.01	PROJECT NOTES	X	X
E0.10	SITE POWER PLAN - WEST	X	X
E0.11	SITE LIGHTING PLAN - WEST	X	X
E1.00	LIGHTING & PHOTOMETRIC PLAN-BASEMENT	X	X
E1.01	LIGHTING & PHOTOMETRIC PLAN-1ST FLOOR	X	X
E1.02	LIGHTING PLAN - 2ND & 3RD FLOOR	X	X
E1.50	LIGHTING NOTES & LUMINAIRE SCHEDULES	X	X
E3.00	POWER PLAN - BASEMENT & 1ST FLOOR	X	X
E3.01	POWER PLAN - 2ND & 3RD FLOOR	X	X
E3.02	POWER PLAN - ROOF	X	X
E5.00	UNIT PLANS NOTES	X	X
E5.01	UNIT PLANS & SCHEDULES	X	X
E5.02	UNIT PLANS & SCHEDULES	X	X
E6.00	ONE-LINE DIAGRAM & NOTES	X	X
E6.00	PANELS SCHEDULES	X	X

Separate electrical permit is required with Washington State Department of Labor & Industries.  
<https://lni.wa.gov/licensing-permits/electrical/electrical-perm-its-fees-and-inspections> or Licensing information: Call 1-800-647-0982

NO.	DATE	DESCRIPTION



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206)364-3343

**ROBISON ENGINEERING, INC**

DATE: 02/15/24
SHEET TITLE: LEGEND, GENERAL NOTES, DRAWING INDEX
SHEET NO. E0.00

## APPLICABLE CODES

THE FOLLOWING PROJECT DESIGN IS BASED ON THE FOLLOWING CODES:

- 2020 NATIONAL ELECTRICAL CODE (NEC)
- 2018 WASHINGTON STATE ENERGY CODE (WSEC)
- 2018 INTERNATIONAL BUILDING CODE (IBC) & WASHINGTON STATE AMENDMENTS
- 2018 INTERNATIONAL FIRE CODE (IFC) & WASHINGTON STATE AMENDMENTS
- 2018 INTERNATIONAL MECHANICAL CODE (IMC) & WASHINGTON STATE AMENDMENTS
- 2018 UNIFORM PLUMBING CODE (UPC) & WASHINGTON STATE AMENDMENTS

## VIBRATION AND ACOUSTICAL ISOLATION

THE FOLLOWING MEASURES SHALL BE TAKEN TO MINIMIZE VIBRATION AND NOISE TRANSMISSION FROM MECHANICAL AND ELECTRICAL EQUIPMENT TO THE INTERIOR SPACES:

TRANSFORMERS:

- A) PROVIDE FLEXIBLE CONDUIT OR MC CABLE AT EQUIPMENT CONNECTION.
- B) MOUNT TRANSFORMERS ON NEOPRENE GROMMET ISOLATORS.

SUBDUCT EXHAUST FANS:

- A) PROVIDE FLEXIBLE CONDUIT OR MC CABLE AT EQUIPMENT CONNECTION.

ENCLOSED GARAGE EXHAUST FANS:

- A) PROVIDE FLEXIBLE CONDUIT OR MC CABLE AT EQUIPMENT CONNECTION.

ROOFTOP AIR HANDLERS:

- A) PROVIDE FLEXIBLE CONDUIT OR MC CABLE AT EQUIPMENT CONNECTION.

FAN COIL UNITS:

- A) PROVIDE FLEXIBLE CONDUIT OR MC CABLE AT EQUIPMENT CONNECTION.

ROOF MOUNTED CONDENSERS:

- A) PROVIDE FLEXIBLE CONDUIT OR MC CABLE AT EQUIPMENT CONNECTION.

FLEXIBLE CONDUIT OR MC CABLE CONNECTIONS FOR VIBRATION ISOLATION SHALL BE A MINIMUM OF TWO FEET LONG.

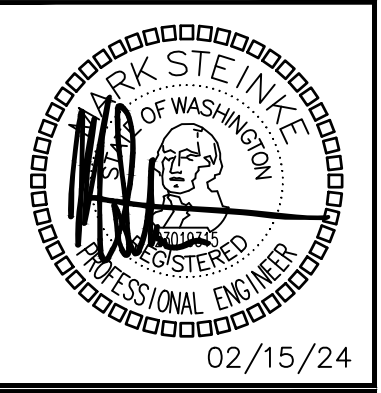
## TEMPERATURE LIMITATION OF CONDUCTORS

ADDITIONAL ADJUSTMENTS FOR CONDUITS EXPOSED TO SUNLIGHT ON OR ABOVE ROOFTOPS SHALL BE FACTORED PER NEC TABLE 310.15(B)(2)(C)

## CONDUIT & CONDUCTOR FIRE RATING

1. CONDUIT FOR ELECTRICAL CONDUCTORS BY THE FACP OR FIRE ALARM SYSTEM SHALL BE IN 2 HOUR RATED ENCLOSURES OR ENCASED IN 2-INCH OF CONCRETE AND RATED CABLE ASSEMBLIES, OR BE CONDUCTORS IN 2 HOUR-RATED RACEWAYS PER NFPA 72.
2. THE EQUIPMENT AND CONTROL WIRING SHALL BE ENCLOSED BY FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH IBC SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH IBC SECTION 711, OR USING A 2 HR RATED CABLE SYSTEM OR ENCLOSED WITHIN 2" OF CONCRETE.
3. FIRE ALARM WIRING SHALL COMPLY WITH IBC 907.6.1. WIRING SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 70.
4. RACEWAYS FOR THE DEDICATED BRANCH CIRCUIT(S) REQUIRED FOR PRIMARY POWER TO THE FIRE ALARM CONTROL PANEL (FACP) SHALL BE IN 2 HOUR RATED ENCLOSURES OR ENCASED IN 2-INCH OF CONCRETE AND RATED CABLE ASSEMBLIES, OR BE CONDUCTORS IN 2 HOUR-RATED RACEWAYS PER IBC 907 AND NFPA 72 SECTION 10.6.11.3.1.3

NO.	DATE	DESCRIPTION	REVISIONS



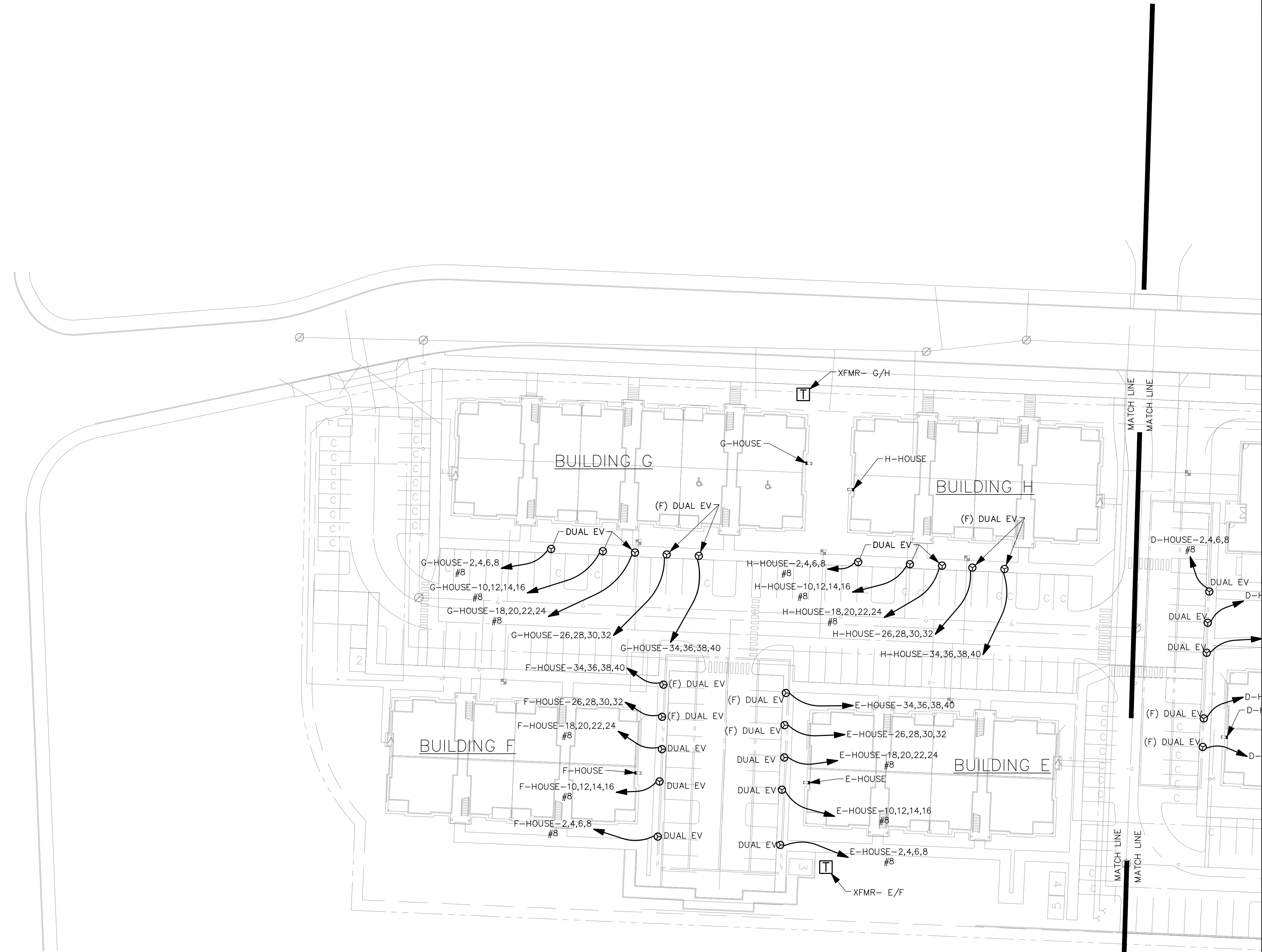
DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343  
**ROBISON ENGINEERING, INC**

DATE: 02/15/24

SHEET TITLE:  
LEGEND, GENERAL NOTES, DRAWING INDEX

SHEET NO.  
**E0.01**

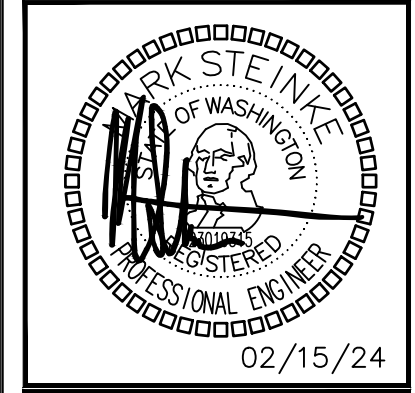


**SITE POWER PLAN – WEST**

SCALE: 1/32" = 1'-0"

- SHEET NOTES:**
1. EV CHARGER LOCATIONS:
    - 1.1. PROVIDE PRE-FABRICATED EV CHARGING STATION.
    - 1.2. FOUNDATION TO INCLUDE ACCESSIBLE UNDERGROUND PULLBOX, CONDUIT ENTRY PORTS AND COVERPLATE DESIGNED FOR DIRECT-MOUNTING EV CHARGER PEDESTAL.
    - 1.3. PROVIDE FOUNDATION PRODUCTS BY BREEZE-EV, EV-BLOCKS OR EQUIVALENT.
    - 1.4. IF FOUNDATION IS INSTALLED LESS THAN 2'-0" FROM THE EDGE OF THE CURB, THEN PROVIDE A BOLLARD AT EACH CORNER OF THE FOUNDATION THAT COMPLIES WITH 2018 IBC 1607.9
  2. (F) DUAL EV CHARGING STATIONS: PROVIDE 1-1/4" CONDUIT WITH PULL WIRE FROM EV PANEL(S) IN ELECTRICAL ROOM AS INDICATED.
  3. DUAL EV CHARGING STATIONS: PROVIDE AND INSTALL 1-1/4" CONDUIT, CONDUCTORS, AND REQUIRED BREAKERS FOR DUAL EV CHARGING STATIONS.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

**ROBISON ENGINEERING, INC**  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

DATE: 02/15/24

SHEET TITLE:  
**SITE POWER - WEST SITE PLAN**

SHEET NO.  
**E0.10**

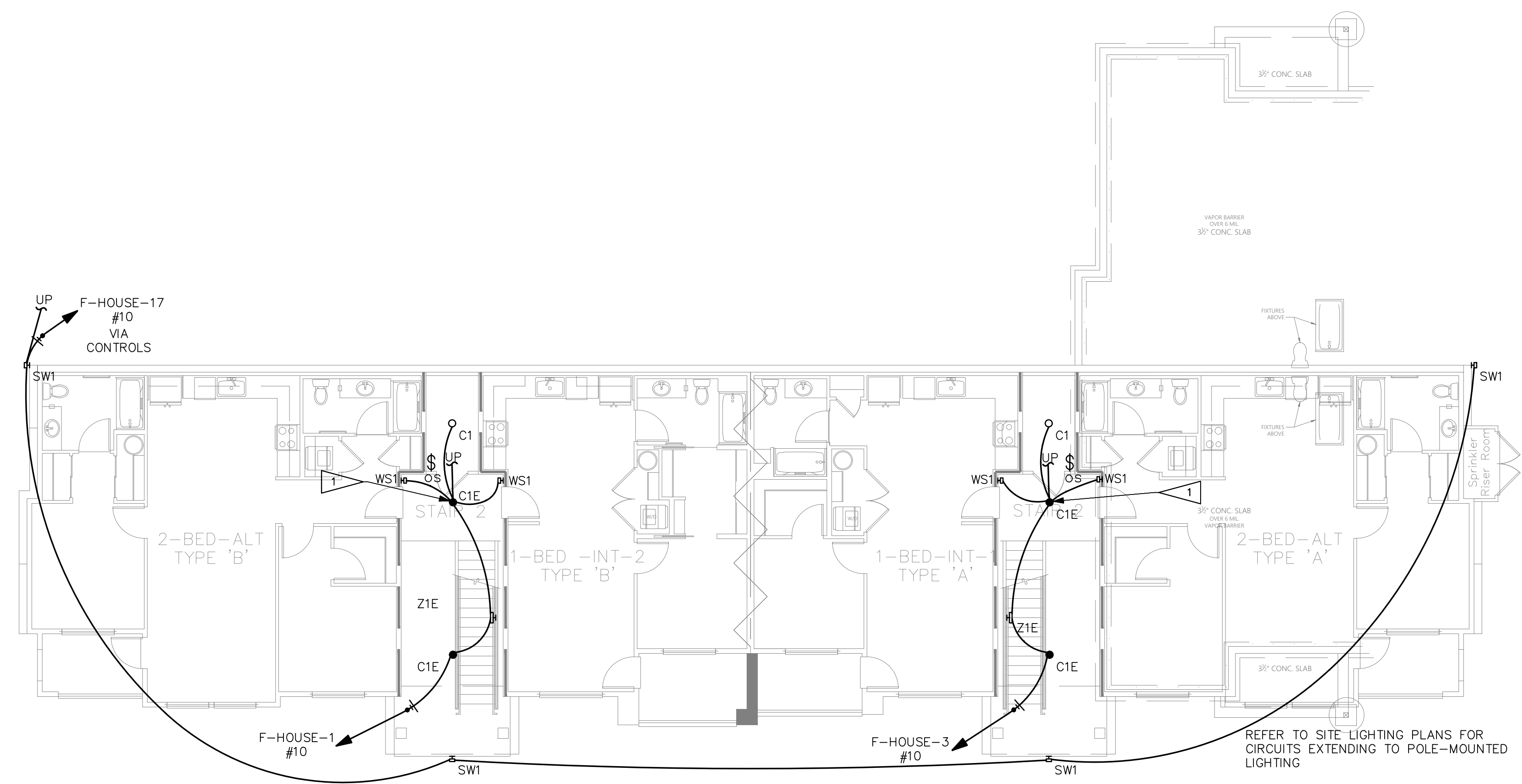


GENERAL NOTES

- EMERGENCY EGRESS LIGHTING: EMERGENCY LUMINAIRES WITH 90 MINUTE BATTERY BACKUP.
- REFER TO SERIES E500 DRAWINGS FOR TYPICAL UNIT PLANS SHOWING ELECTRICAL AND LIGHTING LAYOUT.
- SEE SHEET E1.50 FOR LUMINAIRE SCHEDULE AND LIGHTING NOTES.

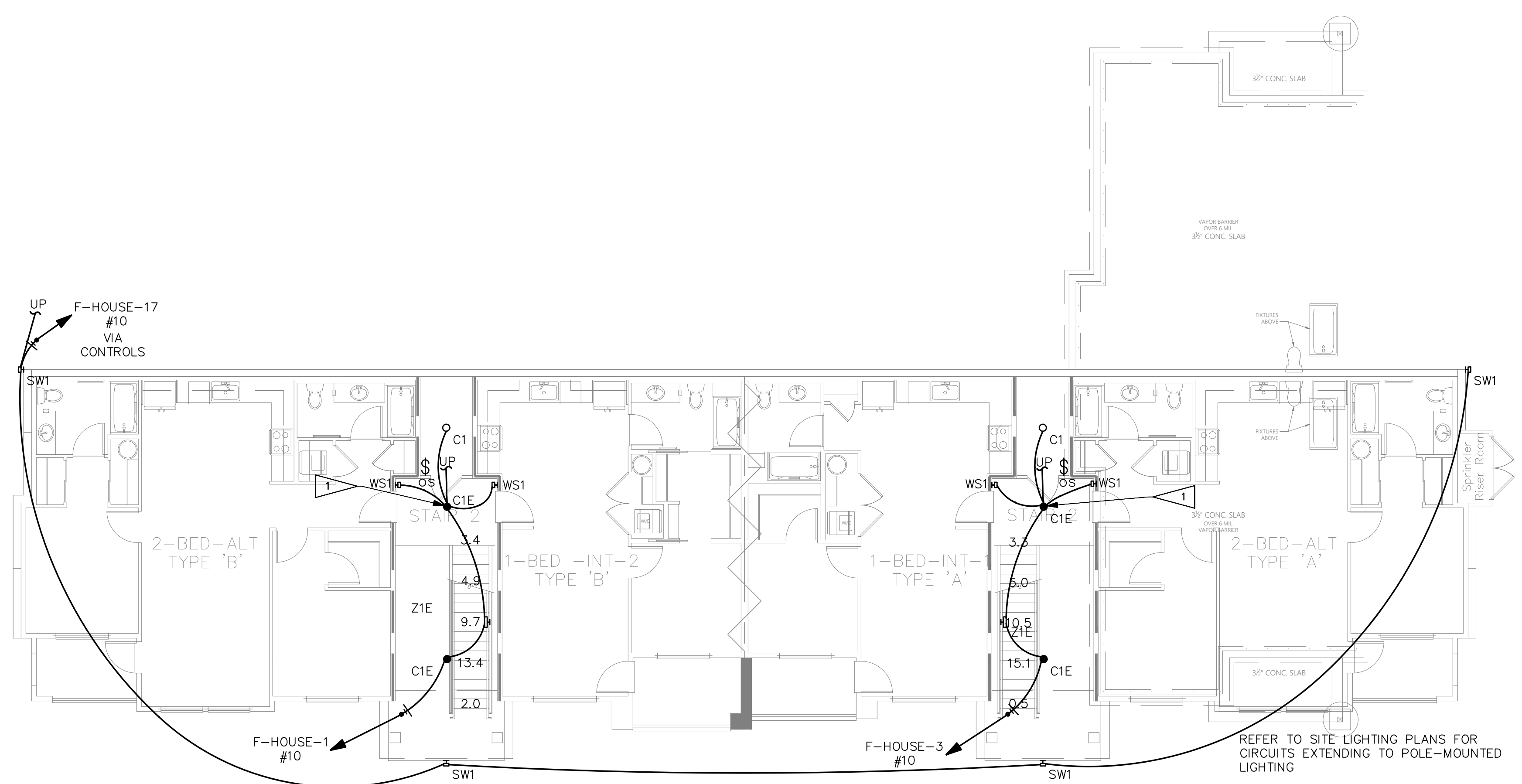
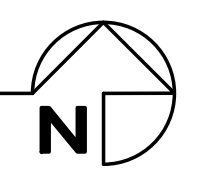
FLAG NOTES

- CIRCUIT STAIRS VERTICALLY. LUMINAIRE(S) IN STAIRWELL
- EXIT SIGNS: PROVIDE UNSWITCHED HOT.



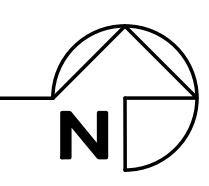
LIGHTING PLAN - BASEMENT

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



PHOTOMETRIC PLAN - BASEMENT

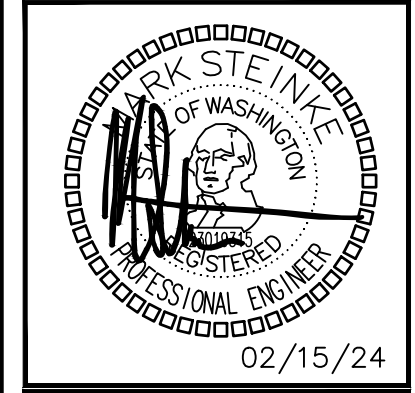
SCALE: 1/8" = 1'-0"



Egress Basement Stairs Photometric Schedule

AVERAGE FOOT-CANDLES	6.69
MAXIMUM FOOT-CANDLES	13.4
MINIMUM FOOT-CANDLES	2.0
MINIMUM TO MAXIMUM FC RATIO	0.15
MAXIMUM TO MINIMUM FC RATIO	6.75
AVERAGE TO MINIMUM FC RATIO	3.36

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	KL
DESIGNED:	MHS
CHECKED:	PSR
APPROVED:	JAY

PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

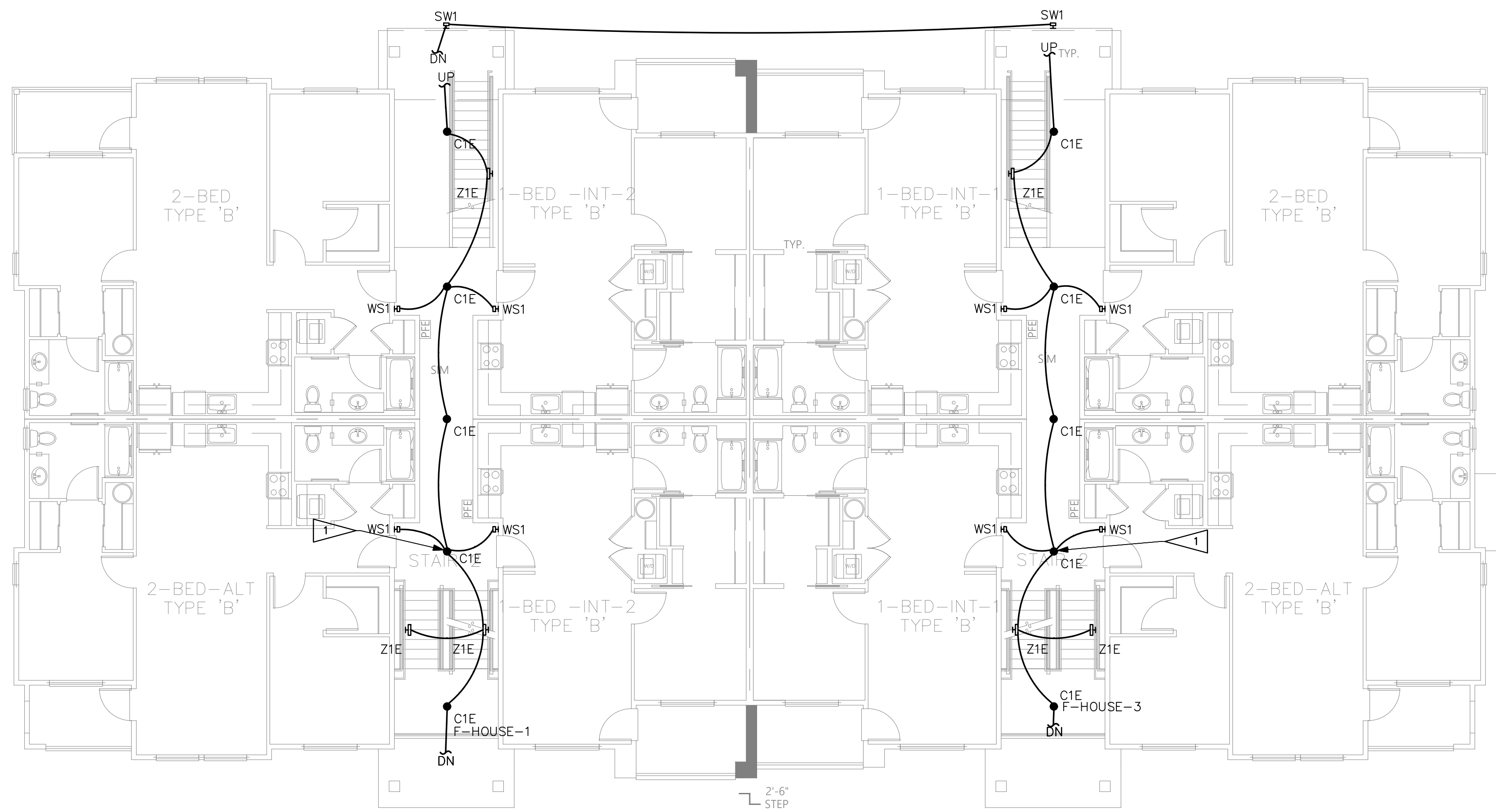
19401 40TH AVE W, SUITE 302  
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**ROBISON ENGINEERING, INC.**

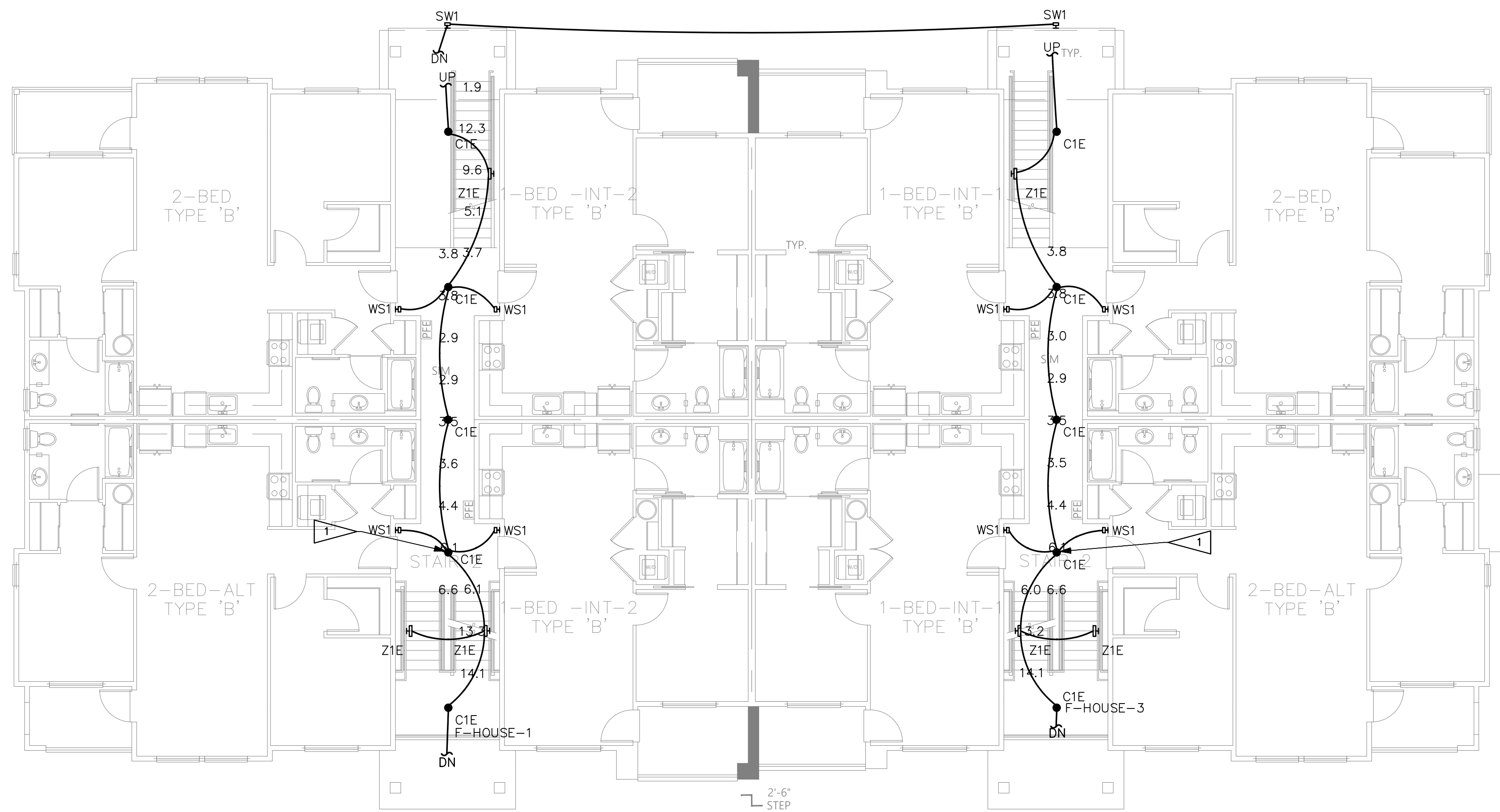
DATE: 02/15/24

SHEET TITLE:  
**LIGHTING & PHOTOMETRIC PLAN - BASEMENT**

SHEET NO.  
**E1.00**



LIGHTING PLAN – 1ST FLOOR  
SCALE: 1/8" = 1'-0"



PHOTOMETRIC PLAN – 1ST FLOOR  
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. EMERGENCY EGRESS LIGHTING: EMERGENCY LUMINAIRE(S) WITH 90 MINUTE BATTERY BACKUP.
2. REFER TO SERIES E500 DRAWINGS FOR TYPICAL UNIT PLANS SHOWING ELECTRICAL AND LIGHTING LAYOUT.
3. SEE SHEET E1.50 FOR LUMINAIRE SCHEDULE AND LIGHTING NOTES.

FLAG NOTES

1. CIRCUIT STAIRS VERTICALLY. LUMINAIRE(S) IN STAIRWELL
2. EXIT SIGNS: PROVIDE UNSWITCHED HOT.

Egress Stairs  
Photometric Schedule

AVERAGE FOOT-CANDLES	11.17
MAXIMUM FOOT-CANDLES	14.1
MINIMUM FOOT-CANDLES	6.1
MINIMUM TO MAXIMUM FC RATIO	0.43
MAXIMUM TO MINIMUM FC RATIO	2.30
AVERAGE TO MINIMUM FC RATIO	1.82

Egress Corridor  
Photometric Schedule

AVERAGE FOOT-CANDLES	4.18
MAXIMUM FOOT-CANDLES	6.6
MINIMUM FOOT-CANDLES	2.9
MINIMUM TO MAXIMUM FC RATIO	0.44
MAXIMUM TO MINIMUM FC RATIO	2.25
AVERAGE TO MINIMUM FC RATIO	1.43

Egress Long Stairs  
Photometric Schedule

AVERAGE FOOT-CANDLES	6.53
MAXIMUM FOOT-CANDLES	12.3
MINIMUM FOOT-CANDLES	1.9
MINIMUM TO MAXIMUM FC RATIO	0.16
MAXIMUM TO MINIMUM FC RATIO	6.36
AVERAGE TO MINIMUM FC RATIO	3.37



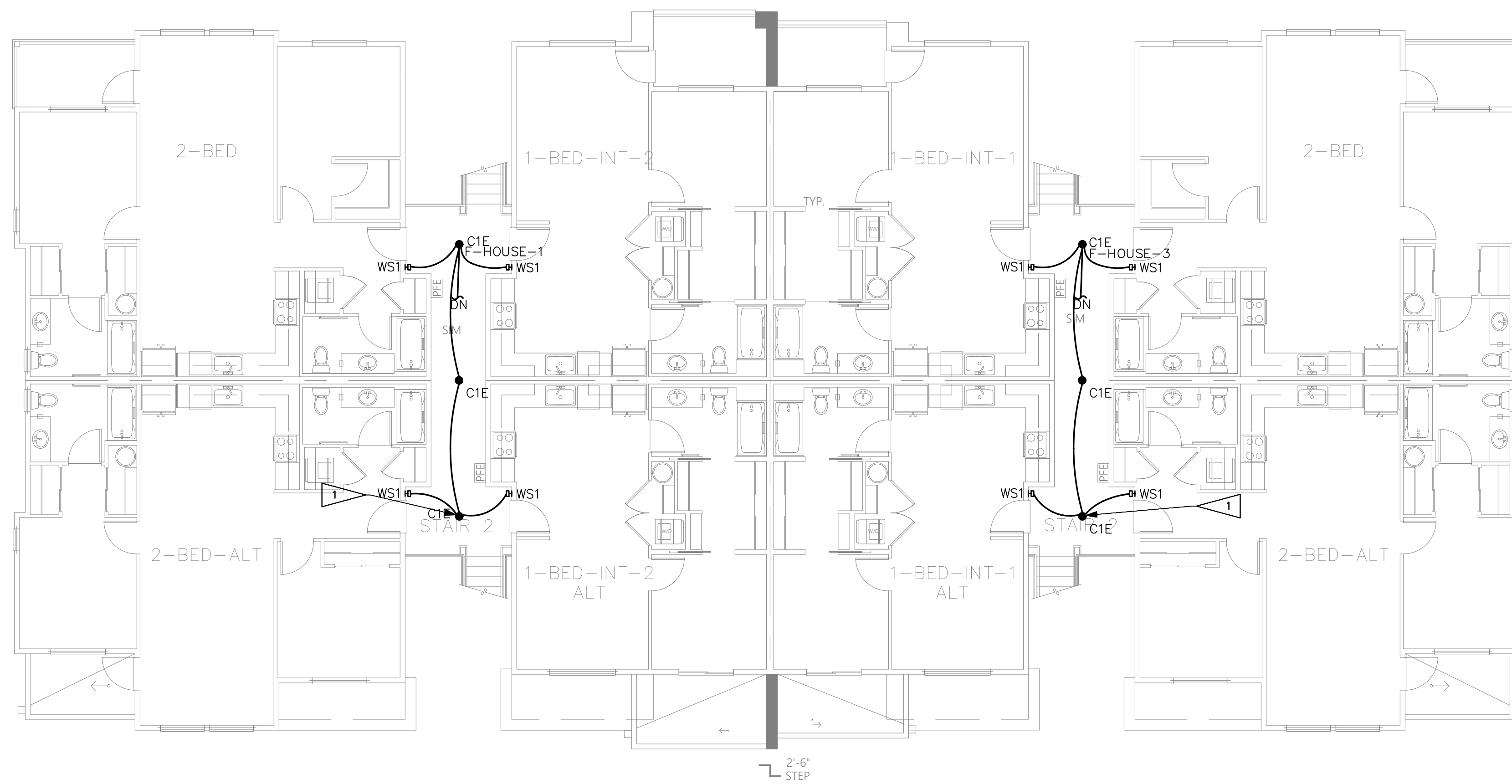
DRAWN: KL  
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CHECKED: PSR  
APPROVED: JAY

PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
27TH AVE SE AND 5TH ST SE PUYALLUP, WA  
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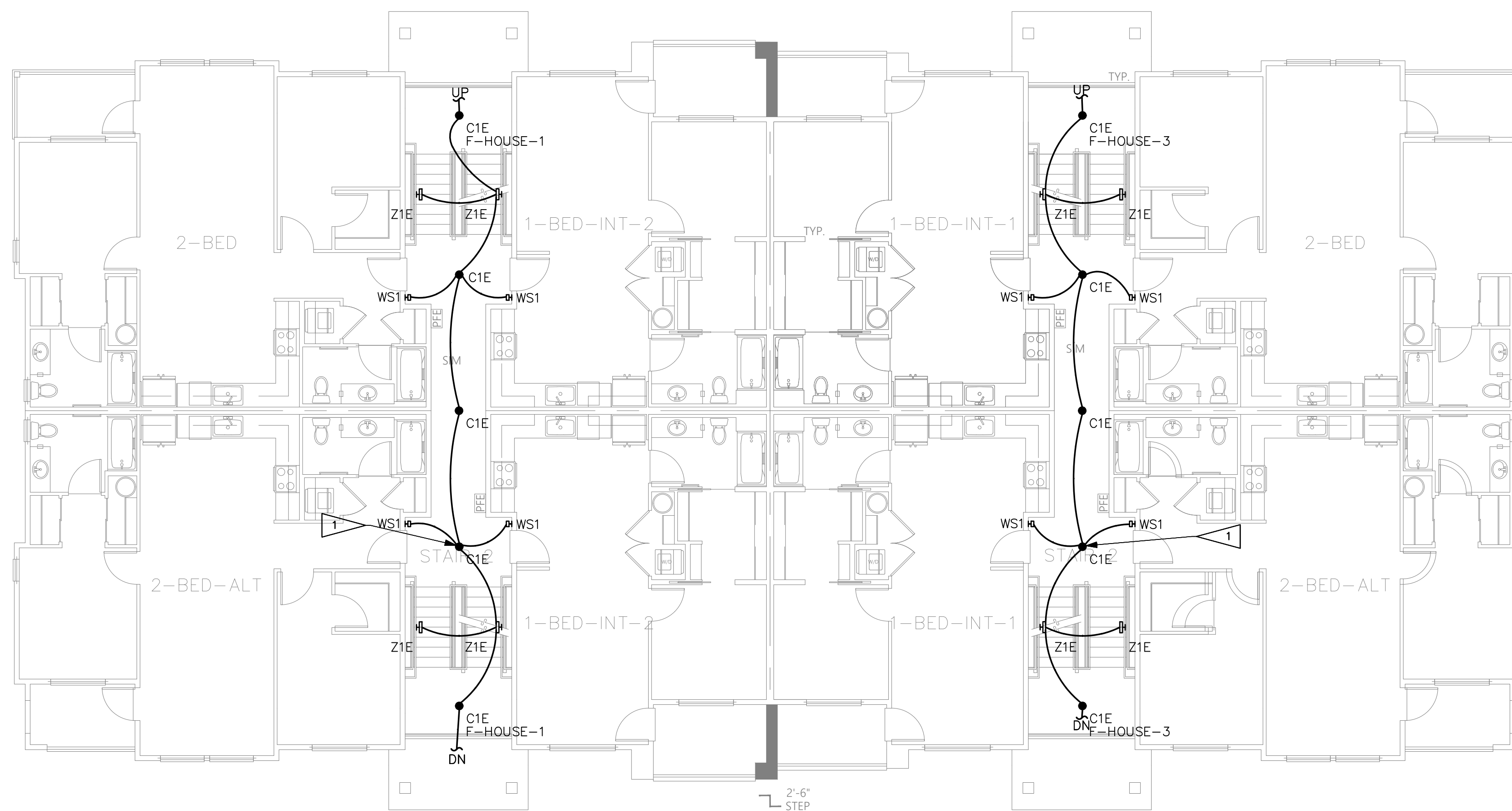
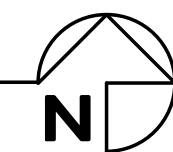
SHEET TITLE:  
LIGHTING &  
PHOTOMETRIC  
PLAN - 1ST  
FLOOR

SHEET NO.  
**E1.01**



**LIGHTING PLAN – 3RD FLOOR**

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



**LIGHTING PLAN – 2ND FLOOR**

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



**GENERAL NOTES**

1. EMERGENCY EGRESS LIGHTING: EMERGENCY LUMINAIRES WITH 90 MINUTE BATTERY BACKUP.
2. REFER TO SERIES E500 DRAWINGS FOR TYPICAL UNIT PLANS SHOWING ELECTRICAL AND LIGHTING LAYOUT.
3. SEE SHEET E1.50 FOR LUMINAIRE SCHEDULE AND LIGHTING NOTES.

**FLAG NOTES**

1. CIRCUIT STAIRS VERTICALLY. LUMINAIRE(S) IN STAIRWELL
2. EXIT SIGNS: PROVIDE UNSWITCHED HOT.



02/15/24



DRAWN:	KL
DESIGNED:	MHS
CHECKED:	PSR
APPROVED:	JAY

PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

**ROBISON ENGINEERING, INC**  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

DATE: 02/15/24

SHEET TITLE:  
**LIGHTING PLAN - 2ND & 3RD FLOOR**

SHEET NO.  
**E1.02**



### EXTERIOR LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	MOUNTING	DESCRIPTION	MODEL	VOLTAGE	TYPE	CRI / CCT	LAMPING	WATTAGE
SP1		16' POLE	POLE LIGHT - PARKING & DRIVE AISLE - COMFORT OPTICS - B2 U0 G2	GARDCO: P20 C A02 830 T1S AR1 120 BL30-MW PCB	MULTIPLE	INTEGRAL CONTROLS	80 / 3000K	(1) 36W LED	36
SW1		SURFACE - 12' AFF	WALL SCONCE - AREA LIGHT - B1 U0 G1	GARDCO: GWM A06 830 T3M 120 MW30 PCB	120	INTEGRAL CONTROLS	80 / 3000K	(1) 16W LED	16

- NOTES:
- CONTRACTOR TO FURNISH AND INSTALL ALL FIXTURES.
  - LUMINAIRE SCHEDULE IS BOD ONLY. CONTRACTOR TO SUBMIT FIXTURE MODEL OR EQUIVALENT. CONTRACTOR TO COORDINATE FIXTURE FINISHES WITH ARCHITECT/OWNER.
  - FIXTURE CATALOG NUMBERS DO NOT NECESSARILY DENOTE SPECIFIC MOUNTING ACCESSORIES. CONTRACTOR TO PROVIDE ALL NECESSARY ACCESSORIES TO SUCCESSFULLY COMPLETE THE INSTALLATION.
  - 'BUG' RATING ON EXTERIOR FIXTURES INDICATES 'BACKLIGHT', 'UPLIGHT', AND 'GLARE' AS STANDARDS IN CLASSIFYING OUTDOOR LIGHT FIXTURES.

### GENERAL LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	MOUNTING	DESCRIPTION	MODEL	VOLTAGE	TYPE	CRI / CCT	LAMPING	WATTAGE
B1		SURFACE	4' NARROW WRAP - BOH	DAY-BRITE CF: FSW440L835 UNV DIM	120	0-10V DIMMING	80 / 3000K	(1) 31.4W LED	31.4
C1E		SURFACE	4" SURFACE DOWNLIGHT	DMF: DRDH N JO 70S EM / DRD5S 4 R 07 9 30 EM	120	0-10V DIMMING	90 / 3000K	(1) 9W LED	9
D1		RECESSED	RECESSED DOWNLIGHT - SLOPED CEILING	DMF: DRD4M 10 9 30 FL X 0 / DRDH N JS 1004	120	0-10V DIMMING	90 / 3000K	(1) 12W LED	12
P1		PENDANT	STEM MOUNT DOWNLIGHT - SLOPED CEILING - 4' STEM	DMF: DCR T4 S X A 30 FL 0 00 30 XX 0 00 [FINISH]	120	0-10V DIMMING	90 / 3000K	(1) 40W LED	40
WS1		SURFACE	WALL SCONCE - EM BATTERY BACKUP	TBD	120	TBD DIMMING	TBD / TBD	(1) 5W LED	5
X1		SURFACE	EXIT SIGN - EMERGENCY BATTERY BACKUP - HATCH INDICATES LIT FACE	LSI: EMS WB SERIES (OR EQUAL)	MULTIPLE	EM	EM / EM	(1) 5W EM	5
X2		SURFACE	COMBO EXIT SIGN	LSI: CEC (OR EQUAL)	MULTIPLE	EM	EM / EM	(1) 5W EM	5
X3		SURFACE	EMERGENCY LIGHT - EMERGENCY BATTERY BACKUP DAMP LOCATION RATED - MAX 35' SPACING	LITHONIA: ELM2LF (OR EQUAL)	120	EM	EM / EM	(1) 5W EM	5
X4		WALL	EXTERIOR EMERGENCY LIGHT - EMERGENCY ON ONLY - MAX SPACING 35'	NORA LIGHTING: NE-902LED	120	EM	35' MAX SPACING	(1) 5W LED	5
Z1E		WALL	WALL PACK	LITHONIA: WPX1 LED P1 30K MVOLT	120	EM	70 / 3000K	(1) 11W LED	11

- NOTES:
- CONTRACTOR TO FURNISH AND INSTALL ALL FIXTURES.
  - LUMINAIRE SCHEDULE IS BOD ONLY. CONTRACTOR TO SUBMIT FIXTURE MODEL OR EQUIVALENT. CONTRACTOR TO COORDINATE FIXTURE FINISHES WITH ARCHITECT/OWNER.
  - FIXTURE CATALOG NUMBERS DO NOT NECESSARILY DENOTE SPECIFIC MOUNTING ACCESSORIES. CONTRACTOR TO PROVIDE ALL NECESSARY ACCESSORIES TO SUCCESSFULLY COMPLETE THE INSTALLATION.

### LIGHTING CONTROLS LEGEND

SYMBOL	CONTROL TYPE	CONTROL FUNCTION
	TOGGLE SWITCH	MANUAL ON/OFF LIGHTING CONTROL. SUBSCRIPT INDICATES WHICH FIXTURES ARE TO BE CONTROLLED BY WHICH SWITCH (WSEC C405.2.3). SUBSCRIPT 'k' INDICATES TAMPER RESISTANT KEYED SWITCH FOR USE BY AUTHORIZED PERSONNEL ONLY.
	DIMMER SWITCH	MANUAL MULTI-LEVEL LIGHTING CONTROL. SWITCH SHALL ALSO HAVE MANUAL ON/OFF FUNCTIONALITY. SUBSCRIPT INDICATES WHICH FIXTURES ARE TO BE CONTROLLED BY WHICH DIMMER. (C405.2.3)
	TOGGLE/DIMMER SWITCH WITH OCCUPANCY SENSOR	SWITCHES LABELED 'os' OR 'vs' SHALL TURN OFF ALL CONNECTED LUMINAIRES WITHIN 20 MINUTES OF SPACE BEING VACANT. (C405.2.1.1)
	CONTROL STATION; SEE LIGHTING CONTROL ZONE TABLE ON PLANS.	MANUAL LOCAL LIGHTING CONTROL (C405.2.1.1). CONTROL STATION SHALL HAVE CAPACITY TO CONTROL MULTIPLE ZONES AND MULTIPLE SCENES AS NEEDED. SUBSCRIPT CORRESPONDS TO 'LIGHTING CONTROLS' TABLE ON PLANS.
	SURFACE MOUNTED OCCUPANCY SENSOR	AUTOMATIC LIGHTING CONTROL SHALL TURN OFF ALL CONNECTED LUMINAIRES WITHIN 20 MINUTES OF SPACE BEING VACANT. (C404.2.1.1)
	MULTIZONE PHOTOSENSOR	AUTOMATIC LIGHTING CONTROL SHALL AUTOMATICALLY ADJUST THE LIGHT OUTPUT OF ALL CONNECTED LUMINAIRES BASED ON THE DAYLIGHT LEVEL IN THE PRIMARY AND SECONDARY ZONES (C405.2.4). SUBSCRIPT INDICATES WHICH FIXTURES ARE TO BE CONTROLLED BY ZONE; 'x' INDICATES MULTIPLE ZONE CONTROL.

### GENERAL LIGHTING NOTES

- LIGHTING CONTROLS SHALL BE INSTALLED WHICH MEET ALL REQUIREMENTS OF LOCAL ENERGY CODES.
- EMERGENCY LIGHT FIXTURES: IN ADDITION TO SWITCH-LEG, PROVIDE UNSWITCHED HOT TO SERVE INTERNAL BATTERY AND CHARGER.
- LOCATIONS OF OCCUPANCY SENSORS, PHOTO SENSORS, DIMMERS, AND SWITCHES ARE DIAGRAMMATIC. CONTRACTOR TO COORDINATE QUANTITIES AND OPTIMAL LOCATIONS WITH LIGHTING CONTROL MANUFACTURER AND ARCH/OWNER.
- AUTOMATIC LIGHTING SHUT-OFF CONTROLS SHALL BE PROVIDED BY LOCAL OCCUPANCY SENSORS UNLESS OTHERWISE NOTED. PUBLIC SPACES ARE ACTIVE 24/7 AND THEREFORE EXEMPT FROM AUTOMATIC LIGHTING SHUT-OFF REQUIREMENTS FOR SECURITY. (WSEC C405.2)
- DAYLIGHT ZONES ARE SHOWN ON PLANS AS DEFINED BY WASHINGTON STATE ENERGY CODE (WSEC) C405.2.4.2. SIDELIGHT DAYLIGHT ZONES ARE REFERRED TO AS 'PRIMARY' AND 'SECONDARY' ON PLANS AND DENOTED BY DASHED LINES.
- FOR CUSTOM FF&E FIXTURES, IT IS THE MANUFACTURER'S RESPONSIBILITY TO FURNISH PRODUCTS WHICH ARE COMPLIANT WITH ALL REQUIREMENTS OF LOCAL ENERGY CODES, AS WELL AS MATCH THE ELECTRICAL SPECIFICATIONS PROVIDED IN THE LUMINAIRE SCHEDULES. PROVIDE SUBMITTAL SHOP DRAWINGS WITHIN 30 DAYS OF RECEIVING FIXTURE ORDER. SUBMITTALS SHALL CLEARLY INDICATE LAMPING AND MAXIMUM WATTAGE RATING OF LAMP SOCKETS. NON-COMPLIANT FIXTURES REJECTED BY ELECTRICAL INSPECTOR SHALL BE RETURNED TO THE MANUFACTURER FOR REWORKING AND/OR RE-LABELING.
- ALL FIXTURES SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE TO ORDER ALL NECESSARY HARDWARE, ELECTRICAL CABLE, TIMERS, TRANSFORMERS, ETC., AS REQUIRED FOR COMPLETION OF INSTALLATION OF A FULLY FUNCTIONING SYSTEM.
- CONTRACTOR SHALL BE RESPONSIBLE FOR EQUIPPING ALL FIXTURES WITH THE EXACT LAMPS SPECIFIED IN THE FIXTURE SCHEDULE.
- WHERE FIXTURES REQUIRE REMOTE TRANSFORMERS OR BALLASTS, THE CONTRACTOR SHALL DETERMINE LOCATIONS AS REQUIRED FOR EVEN LOAD DISTRIBUTION, SERVICE ACCESS, AND VENTILATION.
- THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL ENGINEER FOR EXACT LOCATIONS OF TIMERS AND/OR PHOTO CELLS, IF ANY.
- WHERE APPLICABLE, THE CONTRACTOR SHALL AIM AND ADJUST LIGHTING FIXTURES AS DIRECTED BY THE LIGHTING DESIGNER UPON COMPLETION OF THE INSTALLATION.

#### SPECIAL NOTE TO THE CONTRACTOR:

- FIXTURE SUBMITTALS THAT DO NOT INCLUDE LAMP SPECIFICATIONS WILL BE CONSIDERED INCOMPLETE AND WILL NOT BE REVIEWED.

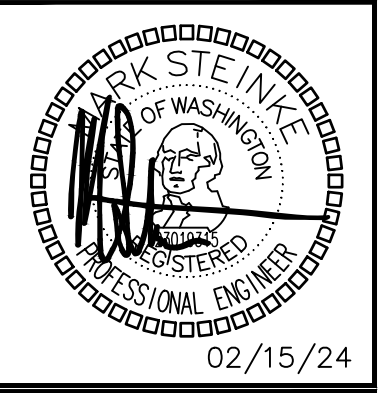
### LIGHTING CONTROL SYSTEM REQUIREMENTS

- CONTRACTOR TO PROVIDE A FULLY OPERATIONAL LIGHTING CONTROL SYSTEM.
- CONTRACTOR SHALL VERIFY THE COMPATIBILITY OF DIMMING AND CONTROL MODULES WITH FIXTURE TYPES PRIOR TO INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH A LIGHTING CONTROLS VENDOR TO OBTAIN LIGHTING CONTROL SYSTEM PACKAGE COMPLETE WITH DEVICES, WIRING DIAGRAMS, ANNOTATED PLANS INDICATING WHICH DEVICE TO BE USED IN EACH LOCATION, CONNECTION REQUIREMENTS, SET UP INSTRUCTIONS, COMMISSIONING AND CHECK-OUT FOLLOWING COMPLETION. PROVIDE ALL LOW VOLTAGE WIRING AS REQUIRED FOR CONTROL DEVICE INTERCONNECTIONS.
- INSTALLER QUALIFICATIONS: TECHNICIAN INSTALLING AND WIRING THE LIGHTING CONTROL SYSTEM SHALL HAVE INSTALLED THIS SAME SYSTEM AT LEAST ONCE PREVIOUSLY. TECHNICIAN SHALL HAVE RECEIVED TRAINING BY FACTORY REPRESENTATIVE ON THE SYSTEM BEING INSTALLED.
- PROVIDE LIGHTING CONTROL SYSTEM TO PERFORM THE FUNCTIONS DESCRIBED BELOW:
  - LIGHTING CONTROL SCHEDULE: PROVIDE SEPARATE SWITCHING AND DIMMING CONTROL FOR LIGHTING ZONES AS INDICATED.
  - AUTOMATIC LIGHTING CONTROLS:
    - UNLESS OTHERWISE NOTED ON PLANS, OCCUPANCY SENSORS SHALL AUTOMATICALLY TURN OFF ALL CONNECTED LIGHTING WITHIN 20 MINUTES OF SPACE BEING UNOCCUPIED. OCCUPANCY SENSORS SHALL EITHER BE MANUAL ON OR SHALL BE CONTROLLED TO AUTOMATICALLY TURN THE LIGHTING ON TO NOT MORE THAN 50 PERCENT POWER EXCEPT WHERE MANUAL ON WOULD ENDANGER THE SAFETY OR SECURITY OF THE ROOM OR BUILDING OCCUPANTS. (C405.2.1.1)
    - MULTI-ZONE PHOTO-SENSORS SHALL PROVIDE SEPARATE CONTROL FOR LUMINAIRES IN EACH TYPE OF DAYLIGHT ZONE. (C405.2.4.1)
    - EXTERIOR LIGHTING CONTROLS SHALL AUTOMATICALLY TURN OFF ALL EXTERIOR LIGHTING AS A FUNCTION OF AVAILABLE DAYLIGHT. BUILDING FACADE AND LANDSCAPE LIGHTING SHALL HAVE CONTROLS THAT AUTOMATICALLY SHUT OFF THE LIGHTING FOR A MINIMUM OF 6 HOURS PER NIGHT OR NOT LATER THAN ONE HOUR AFTER BUSINESS CLOSING TO NOT EARLIER THAN ONE HOUR BEFORE BUSINESS OPENING, WHICHEVER IS LESS. OTHER LIGHTING SHALL HAVE CONTROLS CONFIGURED TO AUTOMATICALLY REDUCE THE CONNECTED LIGHTING POWER BY AT LEAST 30 PERCENT FROM NO LATER THAN 12 MIDNIGHT TO 6 AM OR FROM ON HOUR AFTER BUSINESS CLOSING TO ONE HOUR BEFORE BUSINESS OPENING OR DURING ANY PERIOD WHEN NO ACTIVITY HAS BEEN DETECTED FOR A TIME OF NO LONGER THAN 15 MINUTES. (C405.2.6)
  - MEANS OF EGRESS ILLUMINATION: AT ANY TIME THE BUILDING IS OCCUPIED, THE MEANS OF EGRESS SHALL BE ILLUMINATED AT AN INTENSITY OF NOT LESS THAN 1 FOOTCANDLE AT FLOOR LEVEL. (IBC 1008.2.1)
  - DURING EMERGENCY CONDITIONS EMERGENCY LIGHTING CIRCUITS SHALL BYPASS ALL LIGHTING CONTROLS IN ORDER TO ENERGIZE ALL CONNECTED LUMINAIRES AT FULL CAPACITY. PROVIDE UL924 RELAYS AS REQUIRED TO BYPASS AREA CONTROLS.
    - EMERGENCY PATHWAY EGRESS LIGHTING: ILLUMINATION PROVIDED ALONG THE EGRESS PATH AT FLOOR LEVEL SHALL AVERAGE AT LEAST 1 FOOT CANDLE. (IBC 1008.3.5)
    - EMERGENCY LIGHTING SHALL BE SUPPLIED BY: ELECTRICAL CONTRACTOR

### EXIT SIGN NOTES

DURING CONSTRUCTION UPON COMPLETION OF A TYPICAL FLOOR FRAMING AND BEFORE WALL COVER, ELECTRICAL CONTRACTOR SHALL WALK THE EGRESS PATHS WITH THE LOCAL INSPECTOR (AHJ) TO CONFIRM THAT ALL THE EXIT SIGNS ARE LOCATED PER THE AHJ'S SATISFACTION AND IDENTIFY ANY ADDITIONAL EXIT SIGNS THAT THE AHJ WISHES TO BE INSTALLED (IBC 1013.1). CONTRACTOR SHALL PROVIDE UP TO 10% ADDITIONAL EXIT SIGNS AT NO ADDITIONAL COST.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
27TH AVE SE AND 5TH ST SE PUYALLUP, WA

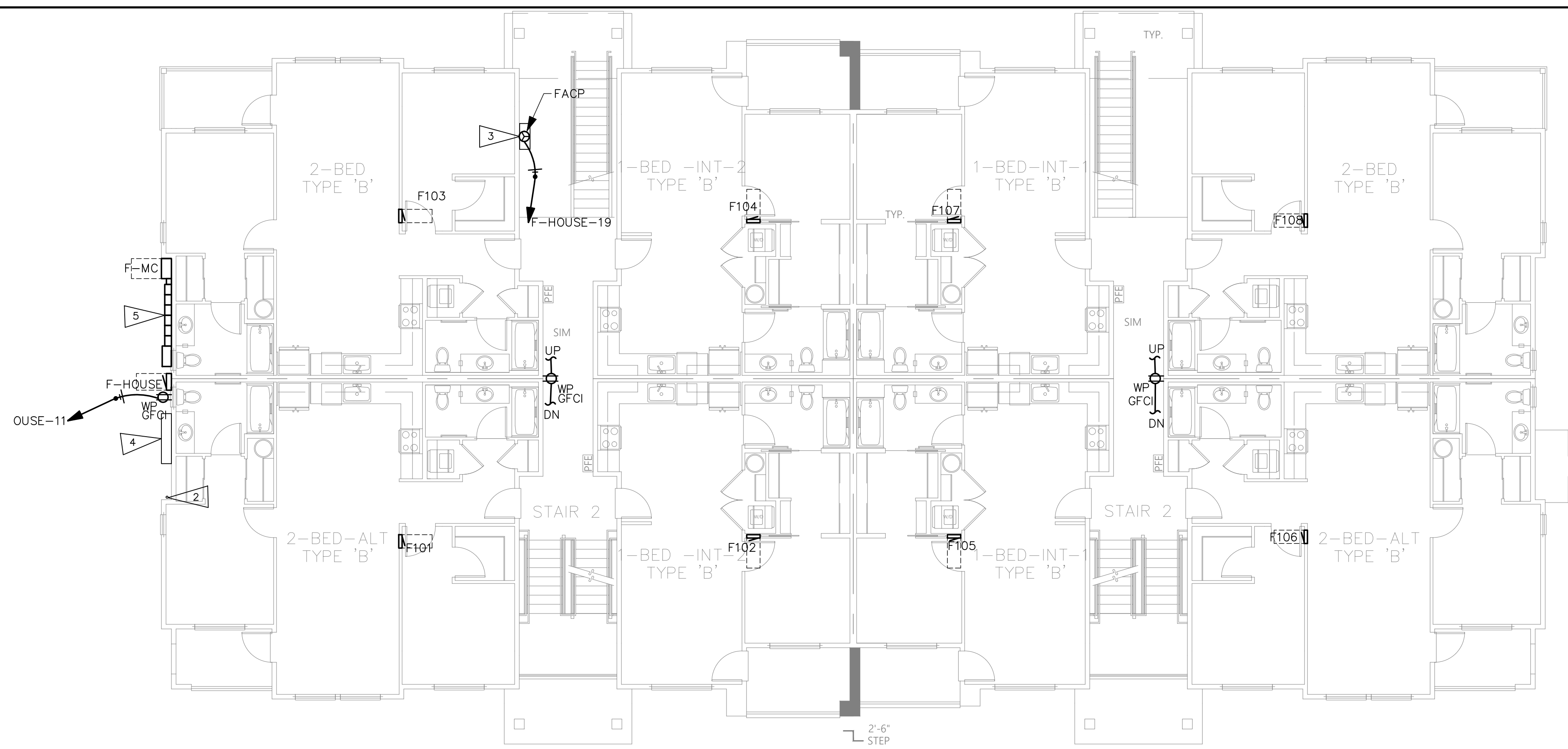
19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC.**

DATE: 02/15/24

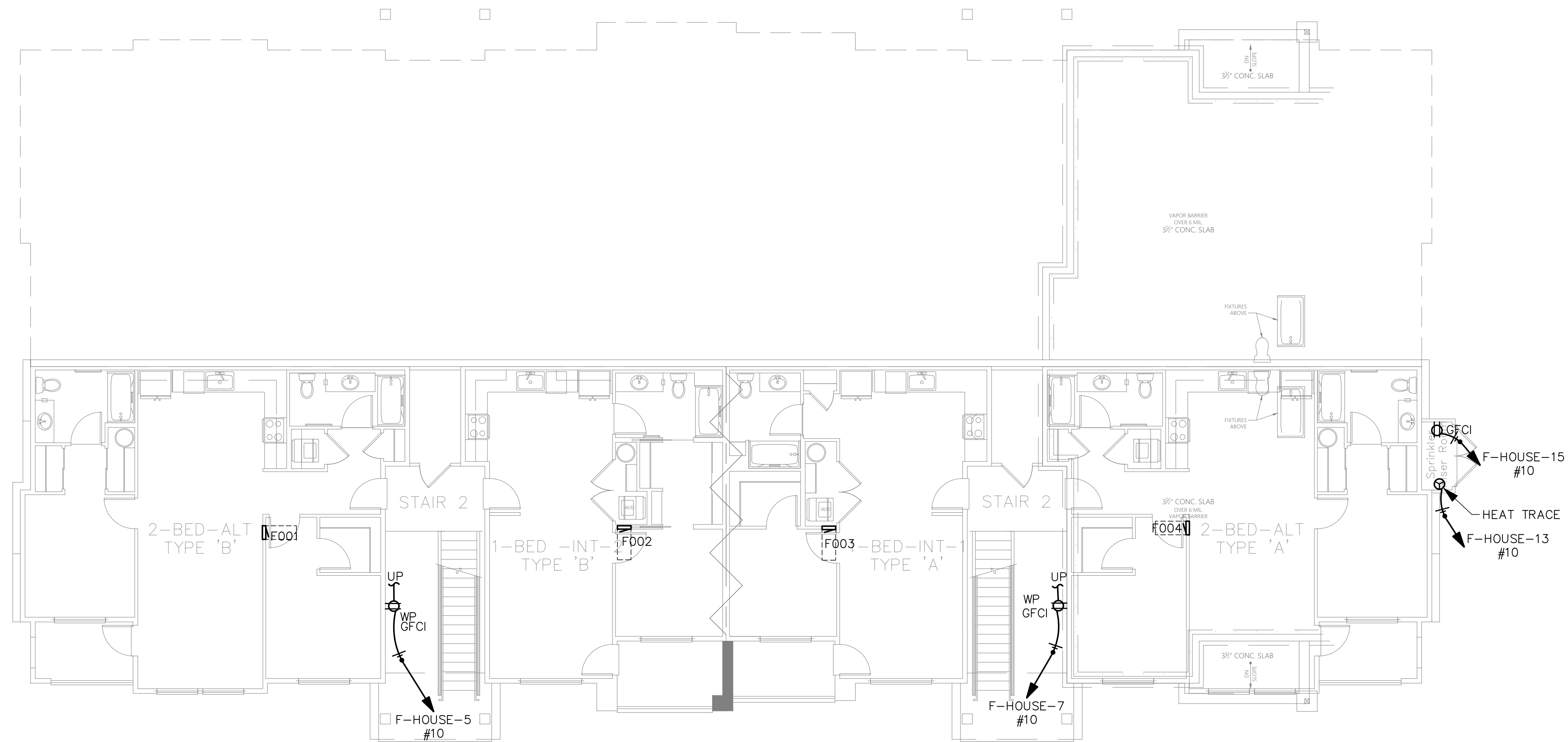
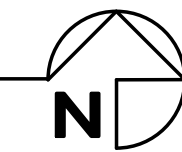
SHEET TITLE:  
**LIGHTING NOTES & LUMINAIRE SCHEDULE**

SHEET NO.  
**E1.50**



POWER PLAN - 1ST FLOOR

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



POWER PLAN - BASEMENT

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



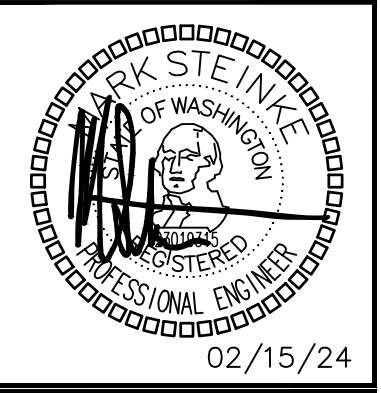
SHEET NOTES:

1. WIRING METHOD FOR APARTMENT FEEDERS MUST BE SUITABLE FOR THE TYPE OF CONSTRUCTION. SEE NEC 334.10

FLAG NOTES: (NOT EVERY FLAG IS USED ON EVERY SHEET)

1. FUTURE EV CHARGING STATIONS: PROVIDE 1-1/4" CONDUIT WITH PULL WIRE FROM EV PANEL(S) IN MAIN ELECTRICAL ROOM. TERMINATE CONDUIT IN A J-BOX ON WALL FOR FUTURE USE.
2. PROVIDE 2 1/2" C WITH PULL STRING WEATHER CAP TO ROOF FOR FUTURE SOLAR PATHWAY. COORDINATE RISER LOCATION WITH ARCHITECT.
3. LOCATION OF FIRE ALARM PANEL TO BE COORDINATED BY FIRE ALARM CONTRACTOR WITH FIRE AUTHORITIES.
4. SPACE FOR FUTURE SOLAR EQUIPMENT.
5. PROVIDE LEVEL ACCESS SURFACE IN FRONT OF ELECTRICAL EQUIPMENT.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

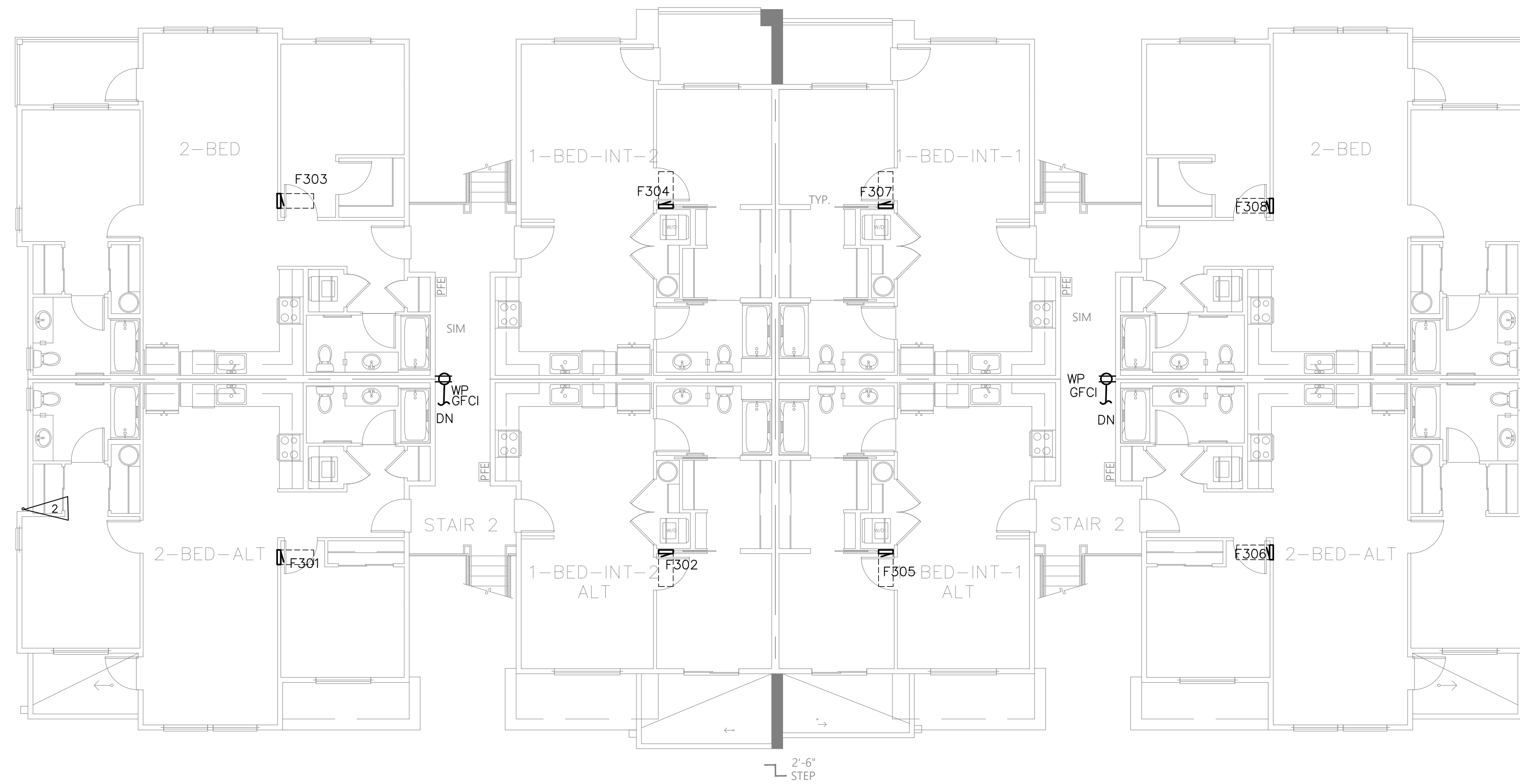
19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC.**

DATE: 02/15/24

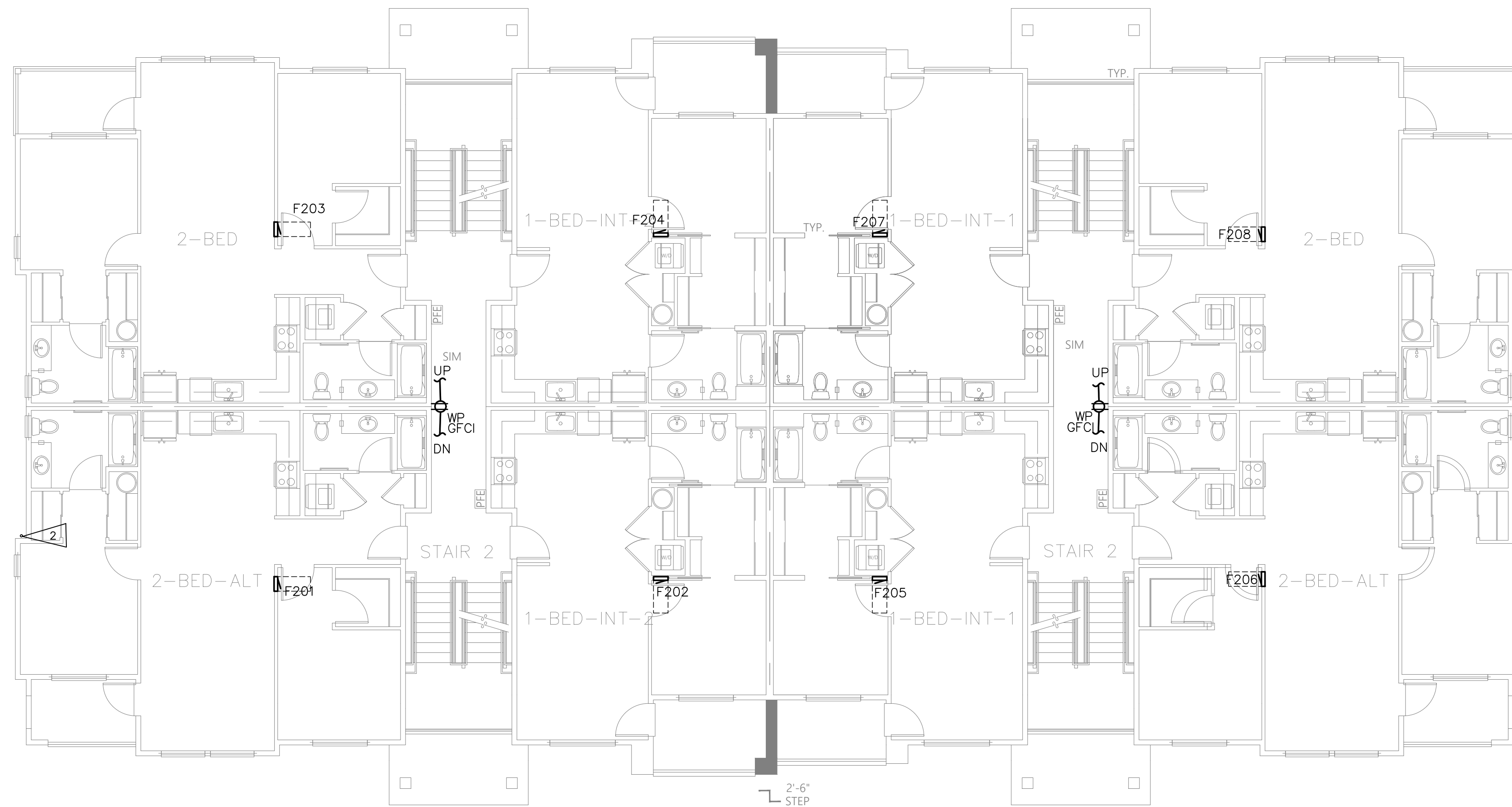
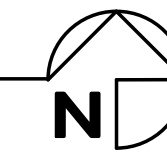
SHEET TITLE:  
**POWER PLAN - BASEMENT & 1ST FLOOR**

SHEET NO.  
**E3.00**



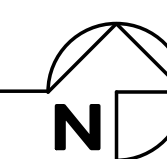
POWER PLAN – 3RD FLOOR

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



POWER PLAN – 2ND FLOOR

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



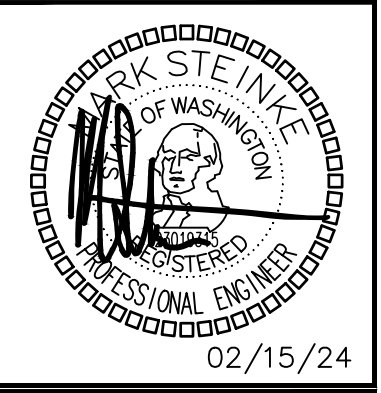
SHEET NOTES:

1. WIRING METHOD FOR APARTMENT FEEDERS MUST BE SUITABLE FOR THE TYPE OF CONSTRUCTION. SEE NEC 334.10

FLAG NOTES: (NOT EVERY FLAG IS USED ON EVERY SHEET)

1. FUTURE EV CHARGING STATIONS: PROVIDE 1-1/4" CONDUIT WITH PULL WIRE FROM EV PANEL(S) IN MAIN ELECTRICAL ROOM. TERMINATE CONDUIT IN A J-BOX ON WALL FOR FUTURE USE.
2. PROVIDE 2 1/2" C WITH PULL STRING WEATHER CAP TO ROOF FOR FUTURE SOLAR PATHWAY. COORDINATE RISER LOCATION WITH ARCHITECT.
3. LOCATION OF FIRE ALARM PANEL TO BE COORDINATED BY FIRE ALARM CONTRACTOR WITH FIRE AUTHORITIES.
4. SPACE FOR FUTURE SOLAR EQUIPMENT.
5. PROVIDE LEVEL ACCESS SURFACE IN FRONT OF ELECTRICAL EQUIPMENT.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

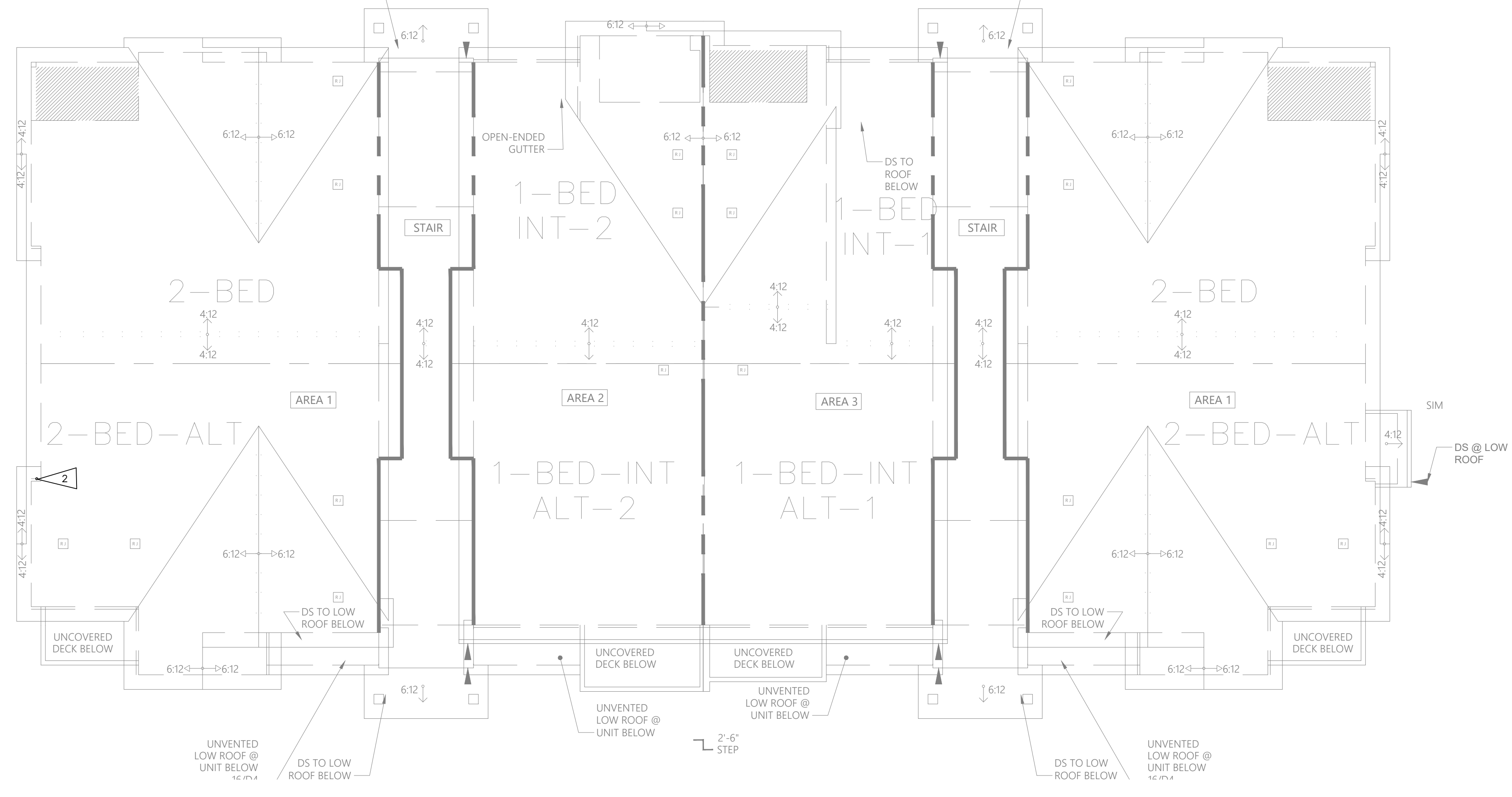
19401 40TH AVE W, SUITE 302  
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 PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC**

DATE: 02/15/24

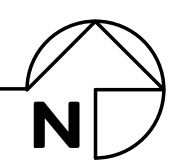
SHEET TITLE:  
**POWER PLAN  
 - 2ND & 3RD  
 FLOOR**

SHEET NO.  
**E3.01**



**POWER PLAN – ROOF**

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



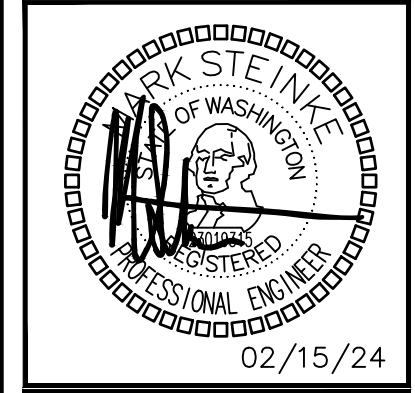
**SHEET NOTES:**

1. WIRING METHOD FOR APARTMENT FEEDERS MUST BE SUITABLE FOR THE TYPE OF CONSTRUCTION. SEE NEC 334.10

**FLAG NOTES:** (NOT EVERY FLAG IS USED ON EVERY SHEET)

1. FUTURE EV CHARGING STATIONS: PROVIDE 1-1/4" CONDUIT WITH PULL WIRE FROM EV PANEL(S) IN MAIN ELECTRICAL ROOM. TERMINATE CONDUIT IN A J-BOX ON WALL FOR FUTURE USE.
2. PROVIDE 2 1/2" C WITH PULL STRING WEATHER CAP TO ROOF FOR FUTURE SOLAR PATHWAY. COORDINATE RISER LOCATION WITH ARCHITECT.
3. LOCATION OF FIRE ALARM PANEL TO BE COORDINATED BY FIRE ALARM CONTRACTOR WITH FIRE AUTHORITIES.
4. SPACE FOR FUTURE SOLAR EQUIPMENT.
5. PROVIDE LEVEL ACCESS SURFACE IN FRONT OF ELECTRICAL EQUIPMENT.

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA

19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC**

DATE: 02/15/24

SHEET TITLE:  
**POWER PLAN - ROOF**

SHEET NO.  
**E3.02**

**UNIT LUMINAIRE SCHEDULE**

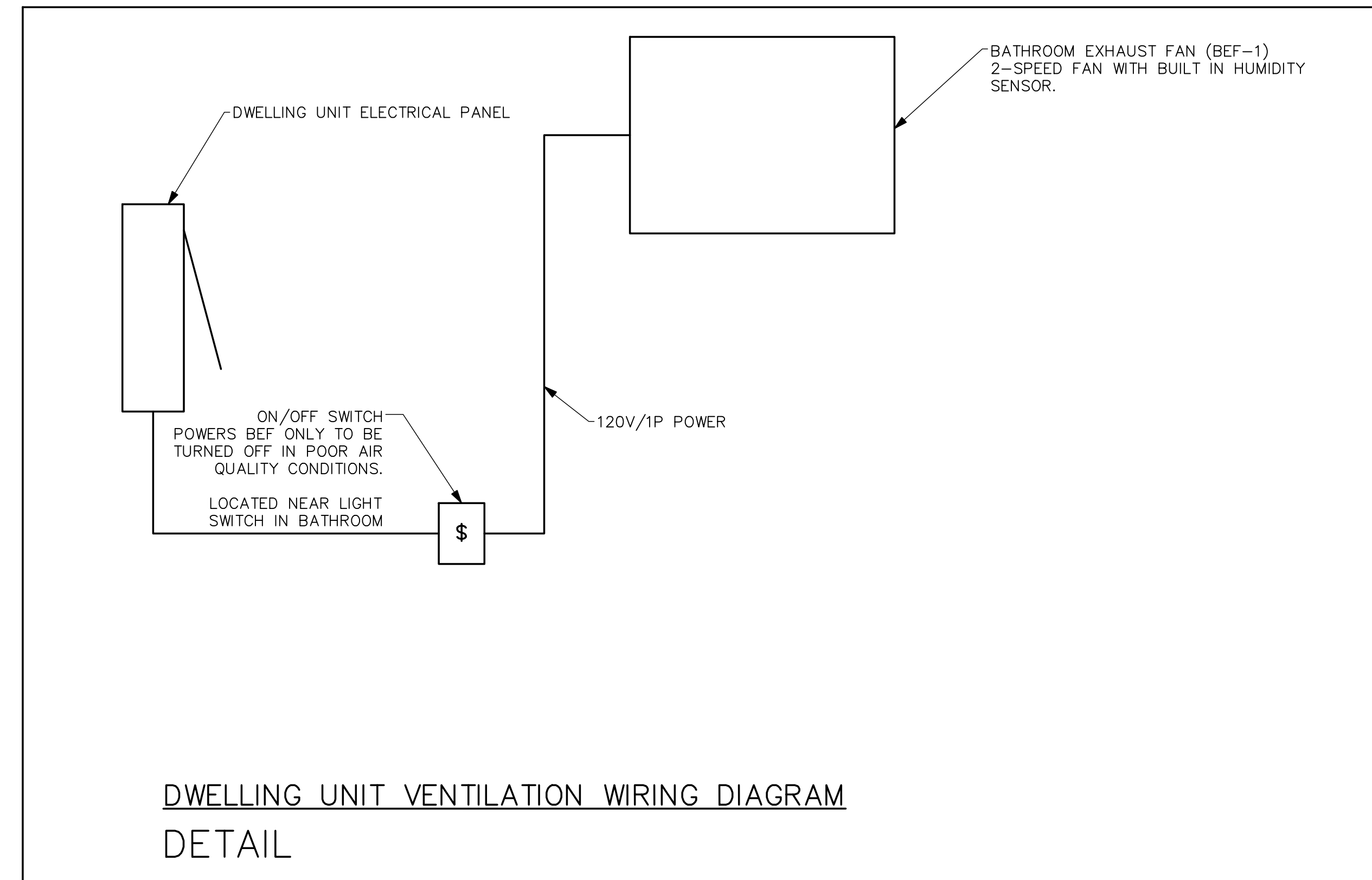
CALLOUT	SYMBOL	MOUNTING	DESCRIPTION	MODEL	VOLTAGE	TYPE	LAMPING	WATTAGE	NOTES
U1	○	CEILING	4" DOWNLIGHT	DMF: DRD5S-4-R-10-9-30-0	120	0-10V DIMMING	(1) 12W LED 3000K	12	
U2	○	CEILING	4" DOWNLIGHT WET RATED	DMF: DRD5S-4-S-10-9-30-0	120	0-10V DIMMING	(1) 12W LED 3000K	12	
U3	⏏	WALL	24" VANITY LIGHT	MAXIM - 52102	120	ELV DIMMING	(1) 16W LED 3000K	16	
U4	⏏	WALL	SLIM BALCONY LIGHT	MAXIM - 26106BK	120	NON DIMMING	(1) 10W LED 3000K	10	
U5	○	SURFACE	6" FLUSH MOUNT DOWNLIGHT	MAXIM - 57413WTWT	120	0-10V DIMMING	(1) 11W LED 3000K	11	

**ACCESSIBILITY NOTES:**

- ALL SWITCHES AND CONTROLS - 15" MIN; 48" MAX TO CONTROL.
- GENERAL OUTLETS MIN 18" AFF.
- ALL SWITCHES/CONTROLS ABOVE COUNTERTOPS 48" MAX.
- ELECTRICAL SUB-PANELS IN UNITS MUST COMPLY WITH ABOVE REACH RANGES.
- SWITCHES FOR EXHAUST HOODS AND GARBAGE DISPOSALS MUST COMPLY WITH ABOVE REACH RANGES. INSTALL SWITCHES ON FACE OF CABINETS IF REQUIRED TO COMPLY.

**APARTMENT NOTES:**

- ALL ELECTRICAL WORK SHALL COMPLY WITH ALL LOCAL AND NATIONAL CODES.
- DEVICE BOXES ON OPPOSITE SIDES OF DEMISING WALLS SHALL BE IN SEPARATE STUD BAYS. PROVIDE BACKING EQUIVALENT TO LOWRY'S OUTLET BOX PADS. CONDUIT FROM ONE UNIT SHALL NOT PASS THROUGH STUDS OF A SHARED WALL(DOUBLE STUDS) FROM AN ADJACENT UNIT(BRIDGING).
- PROVIDE ARC-FAULT PROTECTION, TAMPER PROOF AND GFCI RECEPTACLES AS REQUIRED BY CODE AND LOCAL AHJ. ARC-FAULT PROTECTION MUST BE PROVIDED FOR CIRCUITS IN THE AREAS LISTED IN NEC 210.12(A).
- PROVIDE SUFFICIENT DUPLEX RECEPTACLES TO MEET NEC 210.52.
- THERMOSTATS SHALL NOT INTERFERE WITH DOOR SWINGS.
- ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS FOR KITCHEN APPLIANCES. COORDINATE ALL J-BOX LOCATIONS WITH APPLIANCE INSTALLATION INSTRUCTIONS PRIOR TO ROUGH-IN.
- ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL CORD AND PLUG ASSEMBLY FOR EACH DISPOSER.
- PROVIDE A DEDICATED 20 AMP CIRCUIT TO EACH UNIT BATHROOM RECEPTACLE. BATHROOM LIGHTS, FAN TO BE ON SAME CIRCUIT PER 210.11(C)(3) EXCEPTION.
- HOME RUNS AND LOOPS CONNECTING LIGHT FIXTURES, WIRING DEVICES, AND HVAC EQUIPMENT ON PLANS INDICATE CIRCUITING SCHEME. SEE TYPICAL PANEL SCHEDULES FOR ACTUAL CIRCUIT NUMBERS FOR TYPICAL APARTMENT.
- LIGHTS WITHIN 3' HORIZONTAL OF SHOWER OR TUB TO BE WET LOCATION RATED AND HAVE FULLY ENCLOSED TRIMS. PROVIDE GFCI PROTECTION IF THE LUMINAIRE INSTALLATION MANUAL STATES IT IS REQUIRED.
- PROVIDE SMOKE DETECTORS AND CO ALARMS AS REQUIRED. DETECTORS AND ALARMS TO BE HARDWIRED AND PROVIDED WITH BATTERY BACKUP.
- ELECTRICAL CONTRACTOR SHALL INSTALL RECEPTACLES AND TV, DATA/PHONE OUTLETS UNDER COMMON COVER PLATE WHERE POSSIBLE. PROVIDE AND INSTALL DIVIDERS AS REQUIRED FOR CABLE/POWER SEPARATION.
- SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND LAYOUTS OF ALL DEVICES.
- ALL WALL PENETRATIONS SHALL BE CAULKED WITH APPROVED MATERIAL TO MAINTAIN THE FIRE RATING OF ALL WALLS AND FLOORS.
- ALL CONDUIT SHALL BE INSTALLED IN NEAT SYMMETRICAL LINES HORIZONTAL OR PERPENDICULAR TO BUILDING COLUMNS AND ROOF LINES. CONDUITS SHALL BE GROUPED ON COMMON SUPPORTS WHEREVER POSSIBLE.
- REFERENCE MECHANICAL DRAWINGS FOR EXACT LOCATION OF ALL MECHANICAL EQUIPMENT.
- ELECTRICAL CONTRACTOR SHALL VERIFY ALL FUSE RATING WIRE SIZES AND DISCONNECT SIZES WITH EQUIPMENT SERVED ON THE JOB PRIOR TO INSTALLATION.
- SEE ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR ADDITIONAL DETAILS AND CASEWORK DIMENSIONS.
- DEVICE LOCATIONS IN 1ST DWELLING/RESIDENT UNIT SHALL BE REVIEWED AND APPROVED BY OWNER PRIOR TO ROUGH-IN OF REMAINING UNITS
- CONFIRM FINAL LOCATION OF HEATERS AND THERMOSTATS IN FIELD PRIOR TO ROUGH-IN

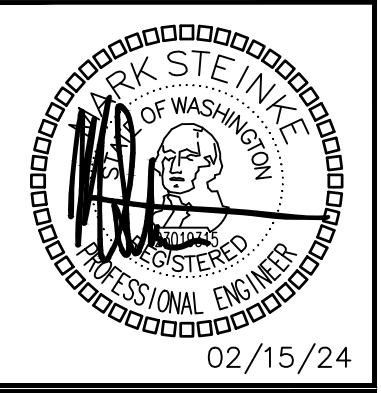


**DWELLING UNIT VENTILATION WIRING DIAGRAM DETAIL**

ELECTRIC HEATERS					
EQUIP NO.	SERVICE	MOUNTING/DISCHARGE	HEATING	ELECTRICAL	BASIS OF DESIGN
			KW	VOLTAGE	
EWH-1	BEDROOM	WALL	1	208V/1P	(1)
EWH-2	LIVING ROOM	WALL	1.5	208V/1P	(1)

- NOTES:
- (1) BROAN, CADET OR EQUIVALENT.
  - (2) PROVIDE REMOTE THERMOSTAT.

NO.	DATE	DESCRIPTION	REVISIONS



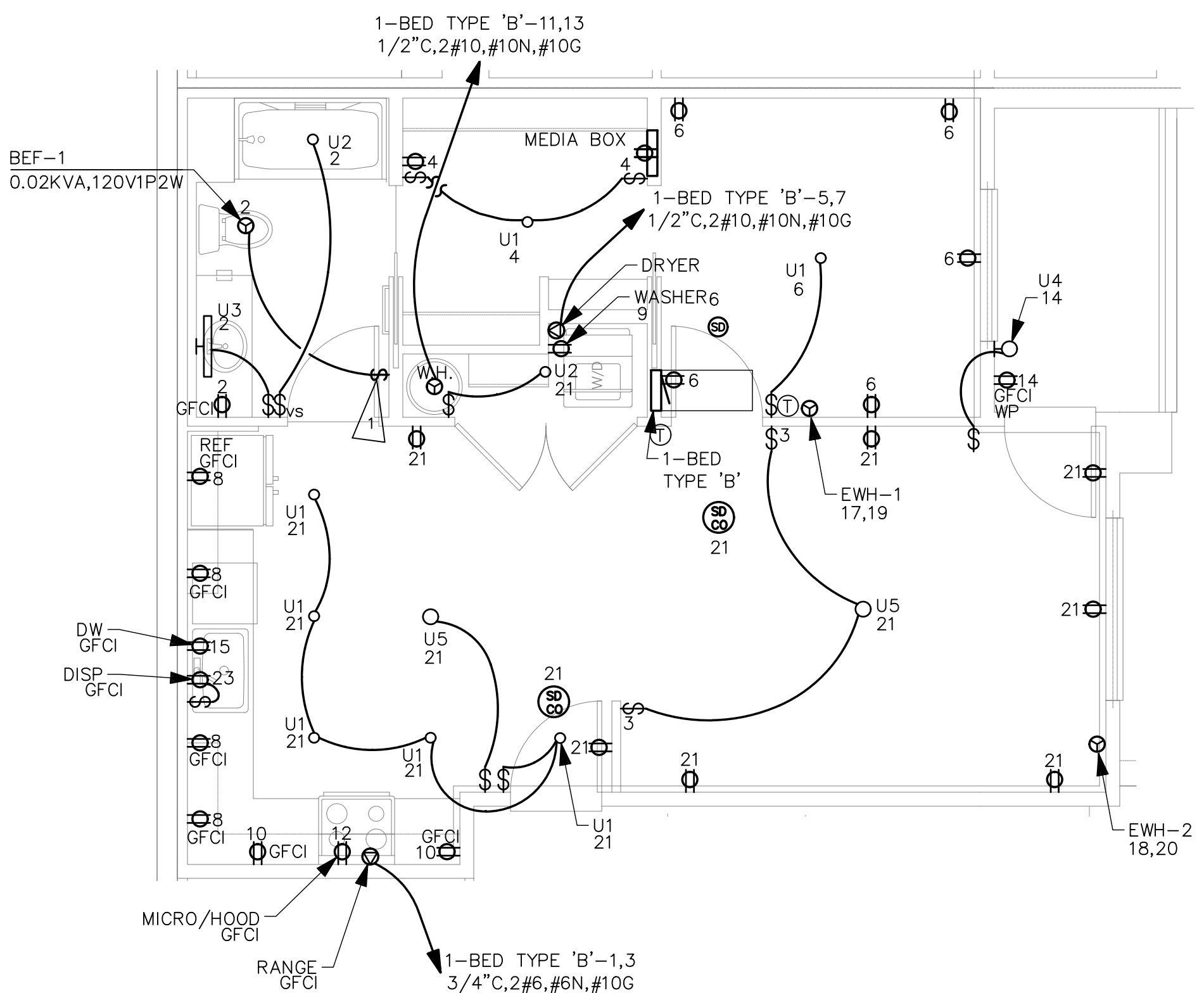
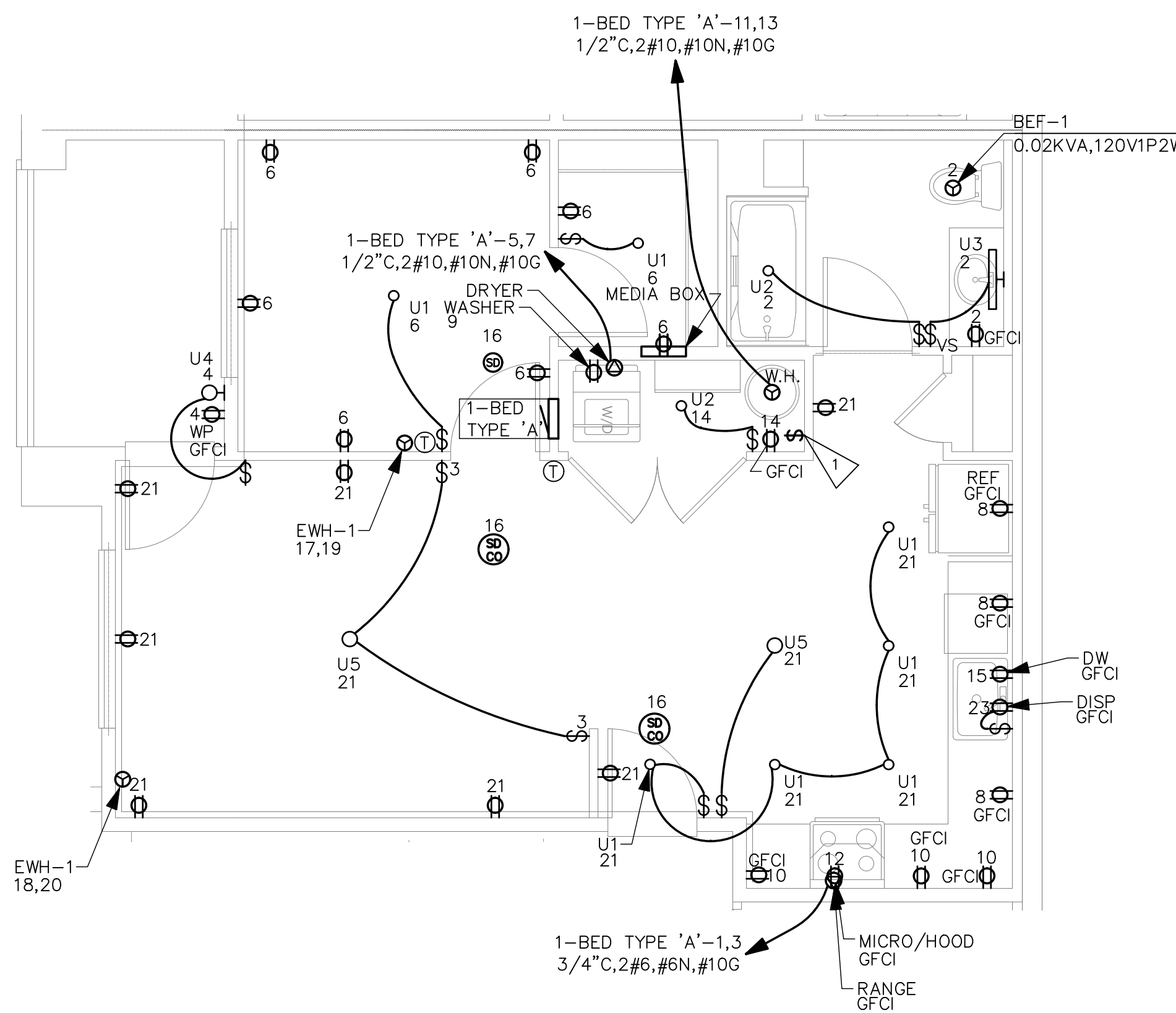
DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343  
**ROBISON ENGINEERING, INC**

DATE: 02/15/24

SHEET TITLE:  
**UNIT PLANS NOTES**

SHEET NO.  
**E5.00**



UNIT TYPICALS  
 1-BED-INT-2 TYPE 'A'  
 SCALE: 1/4" = 1'-0"

UNIT TYPICALS  
 1-BED-INT-1 TYPE 'B'  
 SCALE: 1/4" = 1'-0"

Panel		ROOM		VOLTS		AIC	
1-BED TYPE 'A'		FLUSH 'A'		208/120V 2P 3W		22,000	
		MOUNTING		BUS AMPS		MAIN BKR	
		FED FROM		125		MLO	
		NOTE		NEUTRAL		LUGS	
				100%		STANDARD	

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	50/2	8	RANGE	a 2	20/1	0.23	ERV, LIGHTING, RECEPTACLE
3				b 4	20/1	0.19	LIGHTING, RECEPTACLE
5	30/2	4.99	DRYER	a 6	20/1	1.28	LIGHTING, MEDIA BOX, RECEPTACLE
7				b 8	20/1	1.5	SMALL APPLIANCE
9	20/1	1.5	WASHER	a 10	20/1	1.5	SMALL APPLIANCE
11	30/2	4.4	WATER HEATER	b 12	20/1	1.58	MICRO/HOOD
13				a 14	20/1	0.192	LIGHTING, RECEPTACLE
15	20/1	1.2	DISHWASHER	b 16	20/1	0.15	SDCO
17	20/2	0.75	WALL HEATER	a 18	20/1	0	SPARE
19				b 20	20/1	0	SPARE
21	20/1	1.34	LIGHTING, RECEPTACLE	a 22	20/1	0	SPARE
23	20/1	0.7	DISPOSAL	b 24	20/1	0	SPARE

OPTIONAL DWELLING UNIT CALCULATION (NEC 220.82)			
	CONN KVA	CONN KVA	CALC KVA
LIGHTING AND RECEPTACLES	2.61	10	10
SMALL-APPLIANCE	3	10	(100%)
LAUNDRY	1.5	13.6	5.43 (40%)
APPLIANCES	8.47		
ELECTRIC COOKING	8		3.35 (220.82(C)(4))
TOTAL GENERAL LOAD	23.6		
		TOTAL LOAD	18.8
		BALANCED LOAD	90.3 A
		PHASE A	102%
		PHASE B	97.8%

Panel		ROOM		VOLTS		AIC	
1-BED TYPE 'B'		FLUSH 'B'		208/120V 2P 3W		22,000	
		MOUNTING		BUS AMPS		MAIN BKR	
		FED FROM		125		MLO	
		NOTE		NEUTRAL		LUGS	
				100%		STANDARD	

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	50/2	8	RANGE	a 2	20/1	0.23	ERV, LIGHTING, RECEPTACLE
3				b 4	20/1	0.372	LIGHTING, MEDIA BOX, RECEPTACLE
5	30/2	4.99	DRYER	a 6	20/1	0.912	LIGHTING, RECEPTACLE
7				b 8	20/1	1.5	SMALL APPLIANCE
9	20/1	1.5	WASHER	a 10	20/1	1.5	SMALL APPLIANCE
11	30/2	4.4	WATER HEATER	b 12	20/1	1.58	MICRO/HOOD
13				a 14	20/1	0.19	LIGHTING, RECEPTACLE
15	20/1	1.2	DISHWASHER	b 16	20/1	0.53	RECEPTACLE, SDCO
17	20/2	0.75	WALL HEATER	a 18	20/1	0	SPARE
19				b 20	20/1	0	SPARE
21	20/1	1.35	LIGHTING, RECEPTACLE	a 22	20/1	0	SPARE
23	20/1	0.7	DISPOSAL	b 24	20/1	0	SPARE

OPTIONAL DWELLING UNIT CALCULATION (NEC 220.82)			
	CONN KVA	CONN KVA	CALC KVA
LIGHTING AND RECEPTACLES	2.61	10	10
SMALL-APPLIANCE	3	10	(100%)
LAUNDRY	1.5	13.6	5.43 (40%)
APPLIANCES	8.47		
ELECTRIC COOKING	8		3.35 (220.82(C)(4))
TOTAL GENERAL LOAD	23.6		
		TOTAL LOAD	18.8
		BALANCED LOAD	90.3 A
		PHASE A	99.4%
		PHASE B	101%

GENERAL NOTES:

- COORDINATE FINAL LOCATION OF THERMOSTATS, SWITCHES, RECEPTACLES, DATA, PHONE, LIGHT FIXTURES AND J-BOXES WITH ARCHITECTURAL ELEVATIONS AND INTERIOR DESIGN PLANS PRIOR TO ROUGH-IN.
- ADA UNITS SHALL HAVE HOOD CONTROLS INSTALLED IN THE FACE OF THE LOWER CABINET WORK.
- PROVIDE TAMPER RESISTANT RECEPTACLES PER NEC 406.12.
- ALL UNITS: PROVIDE SWITCH CONTROLLING GARBAGE DISPOSAL TO BE LOCATED ABOVE BACKSPASH NEXT TO SINK OR ON COUNTER. SEE ARCHITECTURE.
- BATHROOM GFCI RECEPTACLES TO HAVE INTEGRAL NIGHTLIGHT.
- RECESSED CEILING LIGHT IN BATHROOM SHALL BE LED RATED FOR WET LOCATIONS W/ SHATTER PROOF LENS.
- ALL RECEPTACLES SHALL MEET REQUIREMENTS OF NEC ARTICLE 210.
- PROVIDE TELEPHONE & CABLE T.V. MEDIA TERMINATION ENCLOSURE (MEDIA BOX): PROVIDE LEVITON COMPACT MEDIA ENCLOSURE OR EQUIVALENT IN WALL WITH TOP NO HIGHTER THAN 60" AFF WITH 120V RECEPTACLE ADJACENT.
- PROVIDE COMBINATION HARDWIRED 120VAC PHOTOELECTRIC SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR WITH BATTERY-BACKUP
  - DETECTOR SHALL BE MINIMUM 6' HORIZONTAL DISTANCE FROM PERMANENT COOKING APPLIANCE PER CFC 90.2.11.8.
  - DETECTOR SHALL BE MINIMUM 3' HORIZONTAL DISTANCE FROM THE DOOR OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER PER CFC 90.2.11.8.
  - PROVIDE INTERCONNECTION WIRING SUCH THAT ACTUATION OF ONE ALARM WILL ACTIVATE ALL ALARMS IN THE DWELLING UNIT.
  - COORDINATE WITH AHJ ON INTERCONNECTING EACH DWELLING UNIT INTO THE FIRE ALARM SYSTEM FOR THE BUILDING.
  - COORDINATE WITH AHJ AS TO THE NUMBER AND LOCATION OF DEVICES PRIOR TO ROUGH-IN. DEVICES SHOWN ARE DIAGRAMMATIC.
- DISHWASHER OUTLET SHALL BE ACCESSIBLE. RECEPTACLE SHALL BE LOCATED IN SPACE ADJACENT TO THE DISHWASHER.
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT FOR THE LIVING ROOM.

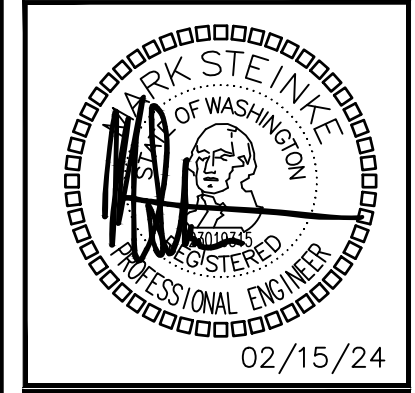
FLAG NOTES

- INTERLOCK ERV/BEF TO ON/OFF SWITCH. PROVIDE PERMANENT LABEL SAYING, "WHOLE HOUSE VENTILATION. LEAVE ON UNLESS OUTDOOR AIR QUALITY IS VERY POOR." ADHERE PERMANENT LABEL TO WALL ABOVE WALL SWITCH.

AFCI/GFCI REQUIREMENTS FOR DWELLING UNITS:

- ALL 15 AND 20A, 120V SINGLE PHASE CIRCUITS NOT INCLUDING THE BATHROOM SHALL BE AFCI PROTECTED (210.12).
- ALL DWELLING UNIT CIRCUITS IN BATHROOMS, GARAGES, OUTDOORS, KITCHENS, LAUNDRY AREAS, AND AREAS WITHIN 6' OF A SINK SHALL BE GFCI PROTECTED (210.8).
  - BATHROOM CIRCUIT TO BE GFCI PROTECTED VIA A GFCI RECEPTACLE, WHILE OTHER CIRCUITS SHALL BE PROTECTED AT THE BREAKER.
- UTILIZE "DUAL FUNCTION" BREAKER WHEN BOTH AFCI AND GFCI PROTECTION IS REQUIRED.

NO.	DATE	DESCRIPTION	REVISIONS



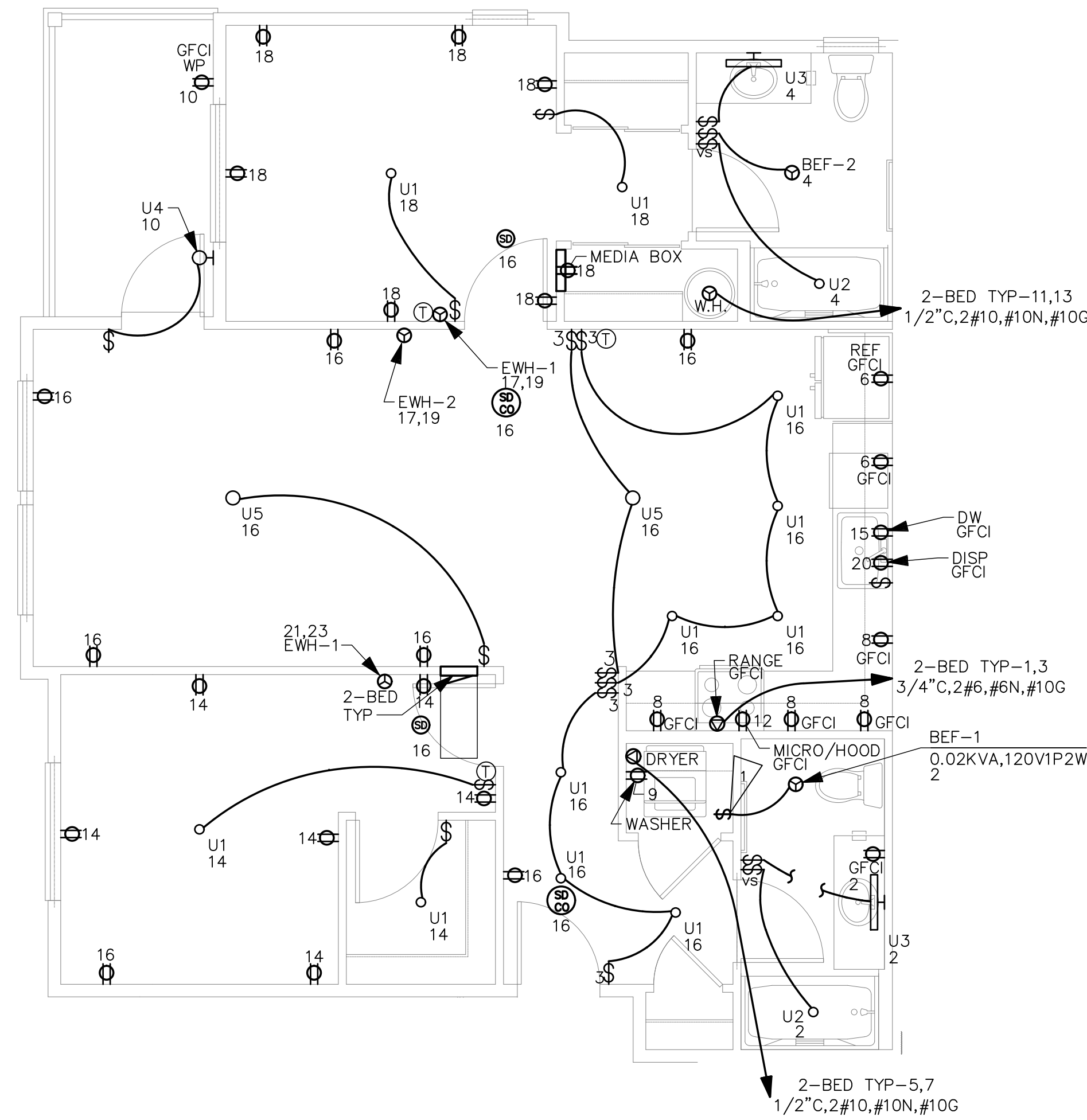
DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343  
**ROBISON ENGINEERING, INC.**

DATE: 02/15/24

SHEET TITLE:  
 UNIT PLANS & SCHEDULES

SHEET NO.  
**E5.01**



UNIT TYPICALS

2-BED TYP

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

Panel				ROOM MOUNTING FLUSH FED FROM NOTE			
<b>2-BED TYP</b>				<b>2-BED TYP</b>			
VOLTS 208/120V 2P 3W				AIC 22,000			
BUS AMPS 125				MAIN BKR MLO			
NEUTRAL 100%				LUGS STANDARD			
CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	50/2	8	RANGE	a 2	20/1	0.23	ERV, LIGHTING, RECEPTACLE
3				b 4	20/1	0.128	BATH EX FAN, LIGHTING
5	30/2	4.99	DRYER	a 6	20/1	1.5	SMALL APPLIANCE
7				b 8	20/1	1.5	SMALL APPLIANCE
9	20/1	1.5	WASHER	a 10	20/1	0.19	LIGHTING, RECEPTACLE
11	30/2	4.4	WATER HEATER	b 12	20/1	1.58	MICRO/HOOD
13				a 14	20/1	1.28	LIGHTING, RECEPTACLE
15	20/1	1.2	DISHWASHER	b 16	20/1	1.19	LIGHTING, RECEPTACLE
17	20/2	0.75	WALL HEATER	a 18	20/1	1.28	LIGHTING, MEDIA BOX, RECEPTACLE
19				b 20	20/1	0.7	DISPOSAL
21	20/2	1	WALL HEATER	a 22	20/1	0.2	SDCO
23				b 24	20/1	0	SPARE
OPTIONAL DWELLING UNIT CALCULATION (NEC 220.82)							
			CONN KVA			CONN KVA	CALC KVA
LIGHTING AND RECEPTACLES	3.52	1,173 SF (3 VA/SF)	GENERAL LOAD				
SMALL-APPLIANCE	3		UP TO 10 KVA		10	10	(100%)
LAUNDRY APPLIANCES	1.5		OVER 10 KVA		14.5	5.8	(40%)
ELECTRIC COOKING	8		MAX HEATING OR COOLING			4	(220.82(C)(4))
TOTAL GENERAL LOAD	24.5		TOTAL LOAD			19.8	
			BALANCED LOAD			95.2 A	
			PHASE A			99.7%	
			PHASE B			100%	

GENERAL NOTES:

- COORDINATE FINAL LOCATION OF THERMOSTATS, SWITCHES, RECEPTACLES, DATA, PHONE, LIGHT FIXTURES AND J-BOXES WITH ARCHITECTURAL ELEVATIONS AND INTERIOR DESIGN PLANS PRIOR TO ROUGH-IN.
- ADA UNITS SHALL HAVE HOOD CONTROLS INSTALLED IN THE FACE OF THE LOWER CABINET WORK.
- PROVIDE TAMPER RESISTANT RECEPTACLES PER NEC 406.12.
- ALL UNITS: PROVIDE SWITCH CONTROLLING GARBAGE DISPOSAL TO BE LOCATED ABOVE BACKSPLASH NEXT TO SINK OR ON COUNTER. SEE ARCHITECTURE.
- BATHROOM GFCI RECEPTACLES TO HAVE INTEGRAL NIGHTLIGHT.
- RECESSED CEILING LIGHT IN BATHROOM SHALL BE LED RATED FOR WET LOCATIONS W/ SHATTER PROOF LENS.
- ALL RECEPTACLES SHALL MEET REQUIREMENTS OF NEC ARTICLE 210.
- PROVIDE TELEPHONE & CABLE T.V. MEDIA TERMINATION ENCLOSURE (MEDIA BOX): PROVIDE LEVITON COMPACT MEDIA ENCLOSURE OR EQUIVALENT IN WALL WITH TOP NO HIGHTER THAN 60" AFF WITH 120V RECEPTACLE ADJACENT.
- PROVIDE COMBINATION HARDWIRED 120VAC PHOTOELECTRIC SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR WITH BATTERY-BACKUP
  - DETECTOR SHALL BE MINIMUM 6' HORIZONTAL DISTANCE FROM PERMANENT COOKING APPLIANCE PER CFC 90.2.11.8.
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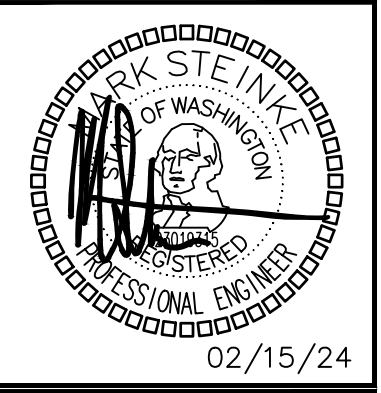
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NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
27TH AVE SE AND 5TH ST SE PUYALLUP, WA

19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: 206-364-3343

**ROBISON ENGINEERING, INC.**

DATE: 02/15/24

SHEET TITLE:  
**UNIT PLANS & SCHEDULES**

SHEET NO.  
**E5.02**

# REQUIRED ELECTRIC VEHICLE CHARGING INFRASTRUCTURE WAC 427:

- WHERE PARKING IS PROVIDED, TEN PERCENT OF PARKING SPACES SHALL BE PROVIDED WITH ELECTRIC VEHICLE CHARGING INFRASTRUCTURE.
- ELECTRICAL ROOM(S) SERVING PARKING AREAS SHALL BE DESIGNED TO ACCOMMODATE THE ELECTRICAL EQUIPMENT AND DISTRIBUTION REQUIRED TO SERVE A MINIMUM OF 20 PERCENT OF THE TOTAL PARKING SPACES WITH 208/240 V 40-AMP ELECTRIC VEHICLE CHARGING INFRASTRUCTURE.
- MINIMUM ONE ACCESSIBLE PARKING SPACE SHALL BE SERVED BY ELECTRIC VEHICLE CHARGING INFRASTRUCTURE.

TOTAL NUMBER OF PARKING SPACES = 354  
 AVERAGE NUMBER OF PARKING SPACES PER BUILDING =  $354/8 = 44.25$   
 $44.25 \times 0.2 = 8.85$   
 5 OUTDOOR EV CHARGERS WITH INFRASTRUCTURE  
 4 CONDUITS TO FUTURE EV CHARGING LOCATIONS

CAPACITY FOR 9 CHARGERS  $\times$  208V/1PH  $\times$  40A = 74.9 KVA = (208)A 3 PHASE POWER @ 120/208V  
 UTILIZING LOAD MANAGEMENT INFRASTRUCTURE, EV LOAD CAN BE REDUCED BY 50%.  $208A/2 = 104A$  @ 208V 3 PHASE

PER WAC 427, ELECTRICAL INFRASTRUCTURE FOR EACH BUILDING SHALL BE DESIGNED TO ACCOMMODATE 104 AMPS OF EV ELECTRICAL LOAD.

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
1	125	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G	A-001, A-002, A-003, A-004, A-101, A-102, A-103, A-104, A-105, A-106, A-107, A-108, A-201, A-202, A-203, A-204, A-205, A-206, A-207, A-208, A-301, A-302, A-303, A-304, A-305, A-306, A-307, A-308, B-001, B-002, B-101, B-102, B-103, B-104, B-201, B-202, B-203, B-204, B-301, B-302, B-303, B-304, C-101, C-102, C-103, C-104, C-105, C-106, C-107, C-108, C-109, C-110, C-111, C-112, C-201, C-202, C-203, C-204, C-205, C-206, C-207, C-208, C-209, C-210, C-211, C-212, C-301, C-302, C-303, C-304, C-305, C-306, C-307, C-308, C-309, C-310, C-311, C-312
2	100	1-1/2" C, 3#1/0 AL, #1/0 AL N, #6 AL G	AM-B, POOL
5	1200	(4)3-1/2" C, 3#500kcmil AL, #500kcmil AL N, #250kcmil AL G	A-MC, C-MC, E-MC, F-MC, G-MC
6	800	(3)3" C, 3#400kcmil AL, #400kcmil AL N, #4/0 AL G	B-MC
7	1600	(5)4" C, 3#600kcmil AL, #600kcmil AL N, #500kcmil AL G	D-MC
13	400	(2)2-1/2" C, 3#250kcmil AL, #250kcmil AL N, #1/0 AL G	AM-CT
15	1000	(4)3" C, 3#350kcmil AL, #350kcmil AL N, #4/0 AL G	H-MC
17	400	3-1/2" C, 3#500kcmil, #500kcmil N, #2G	AM-A
18	200	2" C, 3#3/0, #3/0N, #6G	A-HOUSE, B-HOUSE, C-HOUSE, D-HOUSE, E-HOUSE, F-HOUSE, G-HOUSE, H-HOUSE

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE

### FEEDER SCHEDULE NOTES:

#### CONDUIT FILL:

- FOR CONDUIT SIZES 1-1/2" AND BELOW, FILL IS BASED ON EMT.
- FOR CONDUIT SIZES 2" AND ABOVE, FILL IS BASED ON SCHEDULE 40 PVC.

IN LOCATIONS APPROVED FOR THE PURPOSE, CONTRACTOR MAY USE MC CABLE. IN LOCATIONS APPROVED FOR THE PURPOSE, CONTRACTOR MAY USE OTHER CONDUIT TYPES, INCLUDING RMC, FMC AND LFMC. CONTRACTOR REQUIRED TO ENSURE CONDUIT FILL DOES NOT EXCEED 40%.

CONTRACTOR RESPONSIBLE TO ENSURE TERMINATION/LUG CAPACITY FOR ALL SCHEDULED FEEDERS.

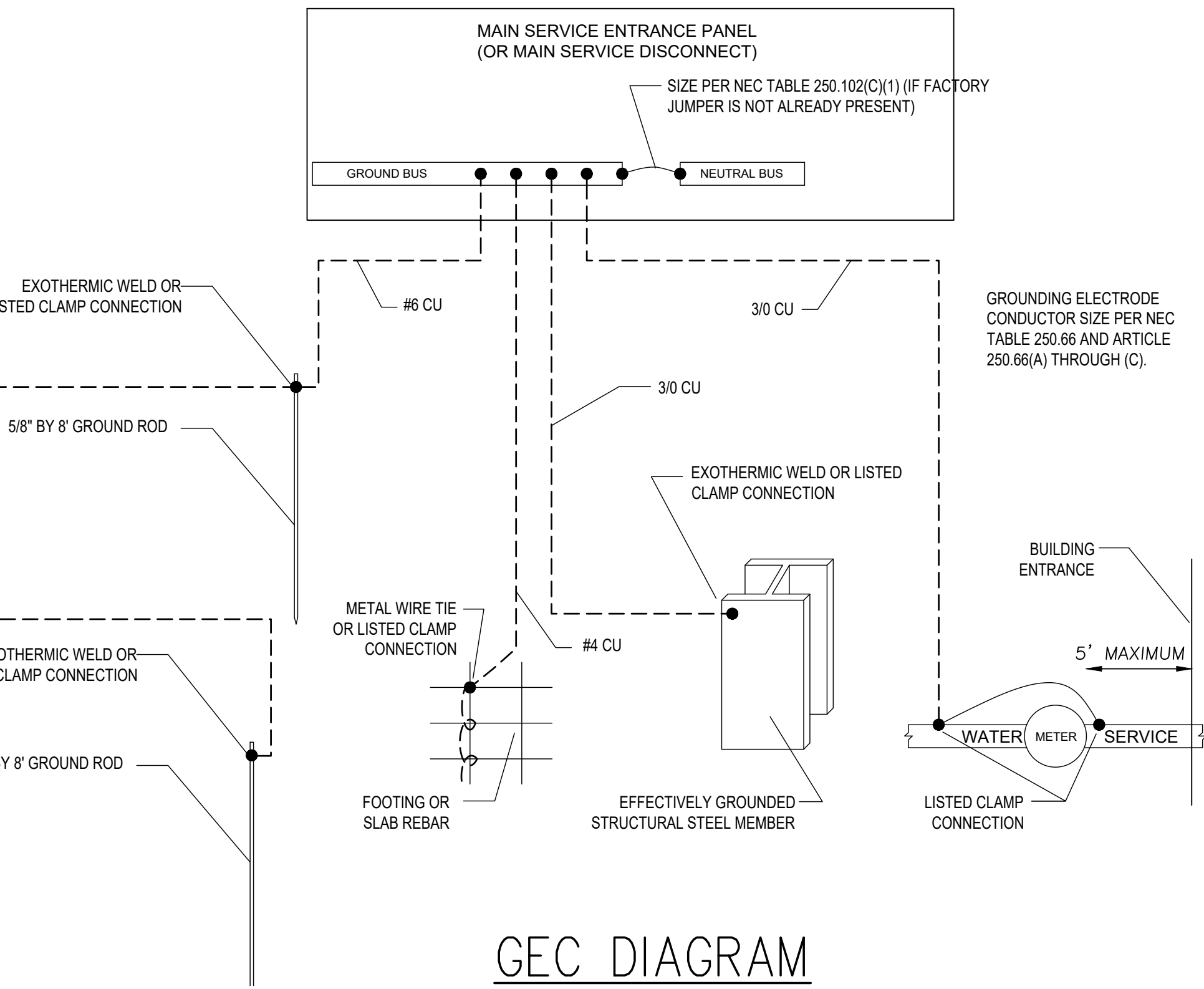
XHHW/THHN/THWN SHALL BE USED FOR INSULATION OF THE CONDUCTOR.

### GROUNDING NOTES AND REQUIREMENTS:

THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR, POWER COMPANY, PHONE COMPANY, INTERNET COMPANY, CABLE TV COMPANY, AND THE SATELLITE TV COMPANY TO ENSURE REQUIRED GROUNDING IS INSTALLED FOR EACH SYSTEM.

THIS SHALL BE DONE PRIOR TO AND DURING INSTALLATION OF FOUNDATION RE-BAR AND CONTINUE DURING THE CONSTRUCTION PHASES, TO ENSURE EACH SYSTEM HAS IT'S REQUIRED GROUNDING INSTALLED FOR PROPER OPERATION OF THE SYSTEM.

- THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND PROVIDE WHAT IS REQUIRED TO DO THE FOLLOWING:
- FOOTING GROUND RE-BAR COMES UP IN THE ELECTRICAL ROOM AND THE RE-BAR IS SNUGLY SECURED TO THE FOOTING RE-BAR.
- THE MSB GROUNDING TIES TO THE FOOTING RE-BAR, COUNTERPOISE, BUILDING STEEL, AND WATER PIPING.
- THE GROUND WIRE FOR THE COUNTERPOISE SHALL BE STRANDED, INSULATED WIRE IN CONDUIT UNTIL IT REACHES THE FIRST BAR OF THE COUNTERPOISE. BETWEEN THE COUNTERPOISE BARS IT SHALL BE A STRANDED BARE COPPER WIRE.



GEC DIAGRAM

### COORDINATION AND ARC FLASH STUDIES:

IMMEDIATELY UPON SELECTION OF ACTUAL EQUIPMENT BEING PROVIDED FOR THE PROJECT, THE ELECTRICAL CONTRACTOR SHALL PERFORM AN ARC FLASH ANALYSIS AND COORDINATION STUDY ON THE STANDBY DISTRIBUTION BASED ON ACTUAL EQUIPMENT TO BE PROVIDED. CONDUCTOR TYPES/SIZES/LENGTHS, ETC. COORDINATION SHALL BE CONFIRMED BASED ON FAULT NUMBERS SHOWN ON THIS DRAWING.

STUDIES SUBMITTED SHALL BE STAMPED BY A PROFESSIONAL ELECTRICAL ENGINEER HOLDING A CURRENT LICENSE FROM THE STATE OF WA.

PRELIMINARY ARC FLASH AND COORDINATION STUDIES ARE TO BE SUBMITTED WITH THE SUBMITTALS FOR THE PROTECTIVE DEVICES, PANELBOARDS, SWITCHBOARDS, AND OTHER ELECTRICAL EQPT.

THE ELECTRICAL CONTRACTOR SHALL SUBMIT THE STAMPED AND SIGNED ARC FLASH AND COORDINATION STUDY TO THE AHJ AS REQUIRED.

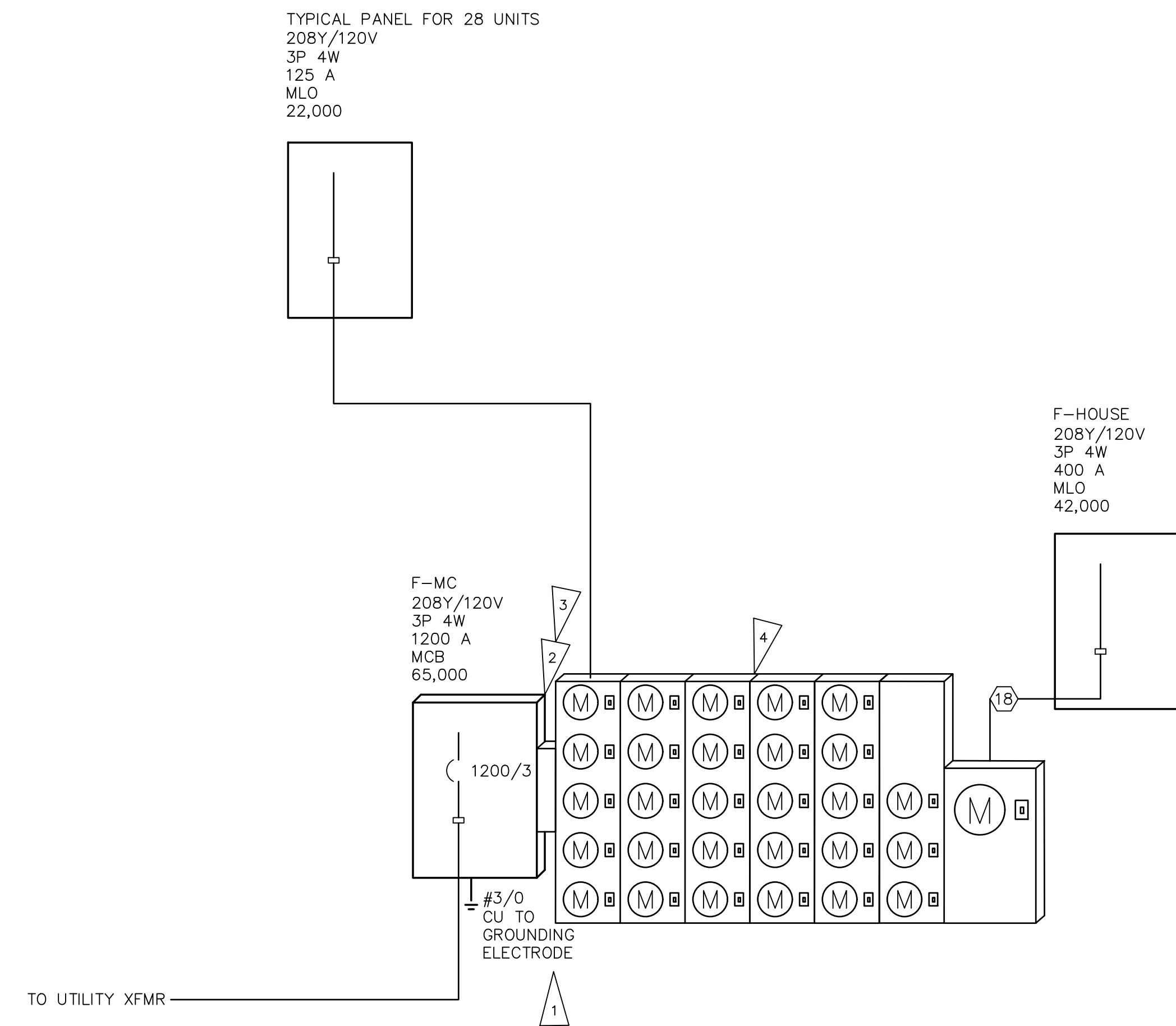
THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL PERMANENT LABELS INDICATING ARC FLASH HAZARD RISK CATEGORIES ON ALL DISTRIBUTION POINTS (SWITCHBOARDS, PANELBOARDS, VFDs, DISCONNECT SWITCHES, ETC). LABELS SHALL COMPLY WITH NFPA 70E.

### SHEET NOTES:

- CONTRACTOR TO OBTAIN UTILITY APPROVAL OF ALL SERVICE AND METERING EQUIPMENT PRIOR TO ORDERING.
- DISTRIBUTION SYSTEM AS DESIGNED IS FULLY RATED. CONTRACTOR WILL BE RESPONSIBLE FOR ENGINEERING IF SER RATED SYSTEMS ARE SUBMITTED, THE SUBMITTED SYSTEM SH MEET NEC 240.86(B) REQUIREMENTS FOR TESTED COMBINATIC AND SHALL NOT BE USED IF MOTOR CONTRIBUTION EXCEEDS LIMITS PER 240.86(C). NEC 110.22 MARKING REQUIREMENTS MUST BE MET.
- PROVIDE PERMANENT WARNING LABELS FOR ARC FLASH AND PPE REQUIREMENTS FOR THE SERVICE EQUIPMENT AND PANEL

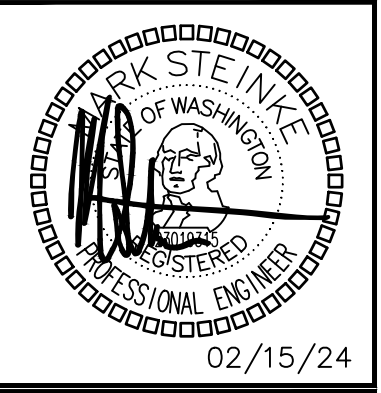
### FLAG NOTES:

- GROUNDING ELECTRODE CONDUCTOR AND SYSTEM GROUNDING SIZED PER N.E.C. 250
- PROVIDE ARC ENERGY REDUCTION: ENERGY REDUCING MAINTENANCE SWITCH PER NEC 240.87(B)(3)
- PROVIDE A LISTED SURGE PROTECTIVE DEVICE FOR DWELLING UNITS AS REQUIRED BY NEC 230.67. CONTRACTOR TO CONFIRM LOCATION IS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION OBTAIN PRICING FOR OPTION TO HAVE SPDs LOCATED IN UNI PANELS VS UPSTREAM.
- METER ELEVATIONS AND METERS PER STACK SHALL BE INSTALLED PER UTILITY ELECTRICAL PROVIDER REQUIREMENTS METER SOCKET IN ELECTRICAL ROOM. VERIFY EXACT LOCATION AND REQUIREMENTS WITH ELECTRIC UTILITY (TYPICAL)
- PROVIDE (1) 2 1/2" CONDUITS FOR SOLAR READY PATHWAY AND RESERVE SPACE IN THE MAIN ELECTRIC ROOM FOR FUTURE SOLAR EQUIPMENT. RESERVE SPACE FOR INSTALLATION OF FUTURE SOLAR CIRCUIT BREAKER AND PERMANENTLY MARK LOCATION AS "FOR FUTURE SOLAR ELECTRIC".



ONE-LINE DIAGRAM

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
 27TH AVE SE AND 5TH ST SE PUYALLUP, WA  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343  
**ROBISON ENGINEERING, INC.**

DATE: 02/15/24

SHEET TITLE:  
**ONE-LINE DIAGRAM & NOTES**

SHEET NO.  
**E6.00**



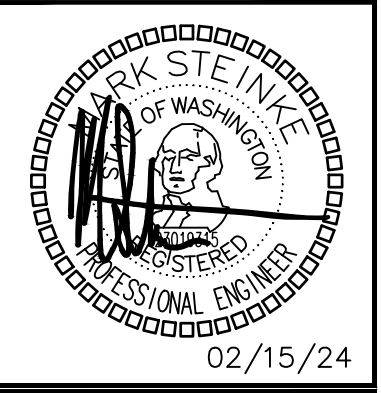
Panel	ROOM	VOLTS	208Y/120V 3P 4W	AIC	42,000		
MOUNTING SURFACE	BUS AMPS	200	MAIN BKR	MLO			
FED FROM F-MC	NEUTRAL	100%	LUGS	STANDARD			
NOTE							
CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	20/1	0.307	LIGHTING	a 2	40/2	6.66	EV CHARGER
3	20/1	0.307	LIGHTING	b 4			
5	20/1	0.72	RECEPTACLE	c 6	40/2	6.66	EV CHARGER
7	20/1	0.72	RECEPTACLE	a 8			
9	-/1	0	SPACE	b 10	40/2	6.66	EV CHARGER
11	20/1	0.18	RECEPTACLE	c 12			
13	20/1	0.5	HEAT TRACE	a 14	40/2	6.66	EV CHARGER
15	20/1	0.18	RECEPTACLE	b 16			
17	20/1	0.096	LIGHTING	c 18	40/2	6.66	EV CHARGER
19	20/1	0.5	FACP	a 20			
21	-/1	0	SPACE	b 22	40/2	6.66	(F) EV CHARGER
23	-/1	0	SPACE	c 24			
25	-/1	0	SPACE	a 26	40/2	6.66	(F) EV CHARGER
27	-/1	0	SPACE	b 28			
29	-/1	0	SPACE	c 30	40/2	6.66	(F) EV CHARGER
31	-/1	0	SPACE	a 32			
33	-/1	0	SPACE	b 34	40/2	6.66	(F) EV CHARGER
35	-/1	0	SPACE	c 36			
37	-/1	0	SPACE	a 38	-/3	0	SOLAR BREAKER
39	-/1	0	SPACE	b 40			
41	-/1	0	SPACE	c 42			
		CONN KVA	CALC KVA			CONN KVA	CALC KVA
LIGHTING		0.71	0.887 (125%)	EV LOAD		59.9	37.5 (63%)
RECEPTACLES		1.8	1.8 (50%>10)	CONTINUOUS		0.5	0.625 (125%)
				HEATING		0.5	0.5 (100%)
				TOTAL LOAD			41.3
				BALANCED 3-PHASE LOAD			115 A
				PHASE A			104%
				PHASE B			96.8%
				PHASE C			99.2%

# F-MC

Panel	ROOM	VOLTS	208Y/120V 3P 4W	AIC	65,000	
MOUNTING SURFACE	BUS AMPS	1200	MAIN BKR	MLO		
FED FROM XFMR E/F	NEUTRAL	100%	LUGS	STANDARD		
NOTE						
CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEEDER RACEWAY AND CONDUCTORS
1	125/2	PANEL F001	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
2	125/2	PANEL F002	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
3	125/2	PANEL F003	15	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
4	125/2	PANEL F004	16.5	16.7	16.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
5	125/2	PANEL F101	15.7	15.8	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
6	125/2	PANEL F102	15.7	15.8	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
7	125/2	PANEL F103	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
8	125/2	PANEL F104	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
9	125/2	PANEL F105	15.7	15.8	15.8	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
10	125/2	PANEL F106	16.5	16.7	16.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
11	125/2	PANEL F107	15.7	15.8	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
12	125/2	PANEL F108	16.7	16.5	16.5	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
13	125/2	PANEL F201	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
14	125/2	PANEL F202	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
15	125/2	PANEL F203	15.7	15.8	15.8	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
16	125/2	PANEL F204	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
17	125/2	PANEL F205	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
18	125/2	PANEL F206	16.7	16.5	16.5	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
19	125/2	PANEL F207	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
20	125/2	PANEL F208	15.8	16.5	16.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
21	125/2	PANEL F301	15.7	15.8	15.8	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
22	125/2	PANEL F302	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
23	125/2	PANEL F303	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
24	125/2	PANEL F304	15.7	15.8	15.8	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
25	125/2	PANEL F305	15.8	15.7	15.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
26	125/2	PANEL F306	15.7	16.5	16.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
27	125/2	PANEL F307	15.7	15.8	15.8	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
28	125/2	PANEL F308	16.5	16.7	16.7	1-1/2" C, 2#2/0 AL, #2/0 AL N, #4 AL G
29	200/3	PANEL F-HOUSE	21	22	20.4	2" C, 3#3/0, #3/ON, #6G
TOTAL CONNECTED KVA BY PHASE			323	325	307	

OPTIONAL MULTIFAMILY DWELLING CALCULATION (NEC 220.84)

DWELLING UNIT LOADS			
	KVA		KVA
LIGHTING AND RECEPTACLES	79.5	26,489 SF (3 VA/SF)	866
SMALL-APPLIANCE	84		28
LAUNDRY	42		(33%)
APPLIANCES	237		286
ELECTRIC COOKING	224		
HEATING	200	(100%)	
HOUSE LOADS			
	CONN KVA	CALC KVA	
LIGHTING	0.628	0.785 (125%)	
RECEPTACLES	1.8	1.8 (50%>10)	
			EV LOAD 59.9 37.5 (63%)
			CONTINUOUS 0.5 0.625 (125%)
			HEATING 0.5 0.5 (100%)
			TOTAL HOUSE LOAD 41.2
TOTAL LOAD			
	KVA		KVA
TOTAL DWELLING UNIT LOAD	286		TOTAL LOAD 327
TOTAL HOUSE LOAD	41.2		BALANCED 3-PHASE LOAD 908 A



DRAWN: KL	DESIGNED: MHS	CHECKED: PSR	APPROVED: JAY
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PROJECT: BRADLEY HEIGHTS APARTMENTS BLDG F  
27TH AVE SE AND 5TH ST SE PUYALLUP, WA

19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC.**

DATE: 02/15/24

SHEET TITLE:  
**PANELS SCHEDULES**

SHEET NO.  
**E6.01**

# GENERAL NOTES

- REFERENCE TO RELATED WORK: "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, LANDSCAPE, OR KITCHEN), OR ITEM BASED ON A SPECIFIC MANUFACTURER'S DIMENSIONS (VERIFY).
- ELECTRICAL CHARACTERISTICS: REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS (VOLTAGES, ETC. OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED).
- CODES: COMPLETE INSTALLATION OF THE PLUMBING SYSTEM SHALL BE PER THE APPLICABLE BUILDING, MECHANICAL, ENERGY, PLUMBING, FIRE, AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL AHJ.
- PREPARE AND SUBMIT FOR REVIEW A SHOP DRAWING BASED ON FINAL STRUCTURAL SHOP DRAWINGS FOR LOCATING AND ROUTING ALL EQUIPMENT, PIPING, ETC.
  - COORDINATE FLOOR AND BEAM PENETRATIONS WITH STRUCTURAL.
  - COORDINATE FINAL LOCATION AND ROUTING WITH CEILING, LIGHTS, WALLS, FIRE SPRINKLER PIPING, AND OTHER TRADES WORK.
  - INCLUDE ADDITIONAL OFFSETS, ELBOWS, ROUTING, EQUIVALENT DUCT SIZING EXCHANGE, RELOCATING, ETC. AS REQUIRED FOR A COMPLETE OPERATING MECHANICAL SYSTEM.
  - PROVIDE SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.
- PLUMBING CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF ALL PLUMBING EQUIPMENT WITHIN THE STRUCTURE.
- ACCESS DOORS: COORDINATE WITH ARCHITECT AND LOCATE ALL ACCESS DOORS ON SHOP DRAWINGS PRIOR TO BEGINNING OF CONSTRUCTION. ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. VERIFY ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.
- ROOF PENETRATIONS: SEE ARCHITECTURAL DRAWINGS FOR ROOF CAP, ROOF CURB, ROOF DRAIN, OVERFLOW DRAINS AND VTR DETAILS.
- EXPOSED PIPING: PROVIDE CHROME PLATING FOR EXPOSED PIPING IN FINISHED ROOMS.
- PENETRATIONS: PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS AND SHEET METAL FLASHING FOR EXPOSED DUCTWORK PENETRATIONS.
- SHAFT AND PLENUM CONNECTIONS: SEAL CONNECTIONS TO AIR SHAFTS AIRTIGHT. PROVIDE AIRTIGHT SEAL AROUND PENETRATIONS IN AIR PLENUMS.
- LIGHT FIXTURE CLEARANCE: COORDINATE LOCATIONS OF MECHANICAL WORK TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND REPLACEMENT.
- CABLE TRAYS: PIPING INSTALLED ADJACENT TO ELECTRICAL CABLE TRAYS SHALL ALLOW MINIMUM ACCESS OF 6" ABOVE AND TO THE SIDE OF CABLE TRAYS.
- MOTORS: COMPLY WITH ENERGY CODE ENFORCED BY AHJ FOR MINIMUM EFFICIENCIES UNDER FULL LOAD.
- ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.

## COORDINATION REQUIREMENTS

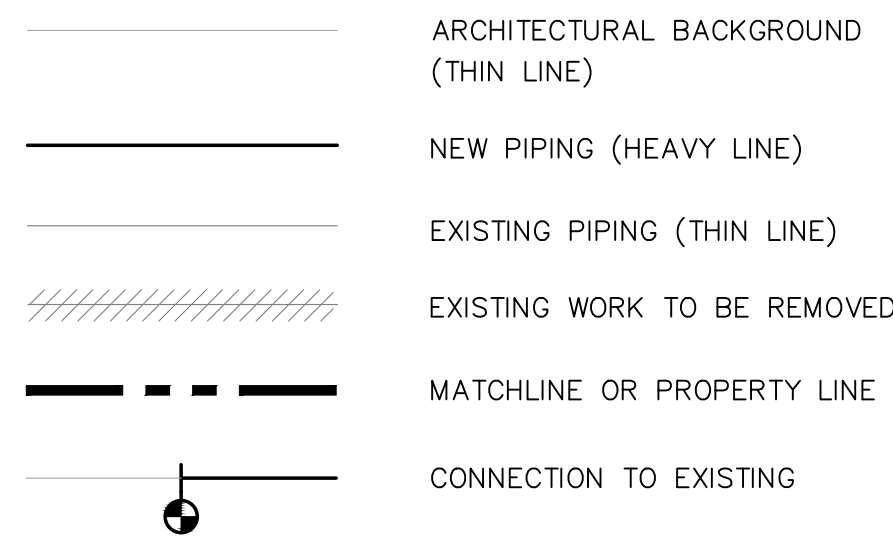
- IRRIGATION SYSTEM: COORDINATE IRRIGATION WATER DEMAND, MINIMUM WATER PRESSURE REQUIREMENTS & CONTROL CABINET LOCATIONS WITH IRRIGATION CONTRACTOR.
- GAS: CONTRACTOR/GAS COMPANY SHALL FINALIZE GAS METER AND GAS SERVICE LOCATIONS. INSTALL SEISMIC GAS SHUT OFF VALVE PER GAS COMPANY REGULATIONS.
- UTILITIES: COORDINATE WITH SITE UTILITY CONTRACTOR AND CIVIL DRAWINGS FOR UTILITY CONNECTIONS AND EXTENSIONS.
- ROOF DRAINAGE: COORDINATE WITH GENERAL CONTRACTOR FOR ROOF DRAIN AND OVERFLOWS, SCUPPER DRAINS, AND CONDENSATE DRAINS.
- PLUMBING FIXTURES & EQUIPMENT: COORDINATE EXACT LOCATION OF ALL PLUMBING FIXTURES & EQUIPMENT WITH ARCHITECTURAL AND OTHER TRADES DOCUMENTS.
- PIPING: COORDINATE EXACT LOCATION OF ALL STRUCTURAL FRAMING & FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL ENGINEER AT THE SITE PRIOR TO AND DURING THE CONSTRUCTION. COORDINATE UNDER GRADE PIPING & FOUNDATION DRAINAGE PIPING WITH CIVIL ENGINEER.
- ADJUSTMENTS: ALL EQUIPMENT, MOTORS, FANS GAS BURNERS, IGNITION DEVICES, DRIVES, ETC. SHALL BE ADJUSTED AND BALANCED TO OPERATE AT SPECIFIED RATINGS AS REQUIRED FOR THIS PROJECT SITE AND ACCOUNTING FOR ELEVATION ABOVE SEA LEVEL.
- APPROVALS: MECHANICAL AND PLUMBING EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE PROJECT LOCATION AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, APPLICABLE CODES & REGULATIONS. THE CONTRACTOR SHALL COORDINATE WITH MANUFACTURE SUPPLIERS AND SHALL INCLUDE ALL COSTS REQUIRED TO MEET THE BID DOCUMENTS.
- FIRE PROTECTION: CONTRACTOR SHALL PROVIDE A FULLY DESIGNED FIRE PROTECTION SPRINKLER SYSTEM IN COMPLIANCE WITH NFPA AND LOCAL CODES. PROVIDE DESIGN, PERMITS, MATERIALS, INSTALLATION, TESTING AND ALL OTHER FOR A FULLY OPERATIONAL SYSTEM. LOCATION OF ALL PIPING TO BE COORDINATED WITH OTHER TRADES.
- PRIOR TO PIPING INSTALLATION: PLUMBING CONTRACTOR TO COORDINATE PIPING LAYOUT WITH ALL OTHER TRADES.
- ACCESS: COORDINATE ALL ACCESS LOCATIONS WITH GENERAL CONTRACTOR AND ARCHITECT TO ENSURE ALL REQUIRED ACCESS HATCHES, ACCESS PANELS & ACCESS COVERS ARE PROVIDED.
- PROVIDE WATER TIGHT SEALS FOR ANY PIPING PENETRATING THE EXTERIOR FOUNDATION WALLS OR SLABS.
- ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT IMMEDIATELY.
- PROVIDE FIRE PROOFING FOR ALL PIPING PENETRATING FIRE BARRIER WALLS OR FLOOR SLABS.

## DISINFECTION OF POTABLE WATER SYSTEM REQUIREMENTS

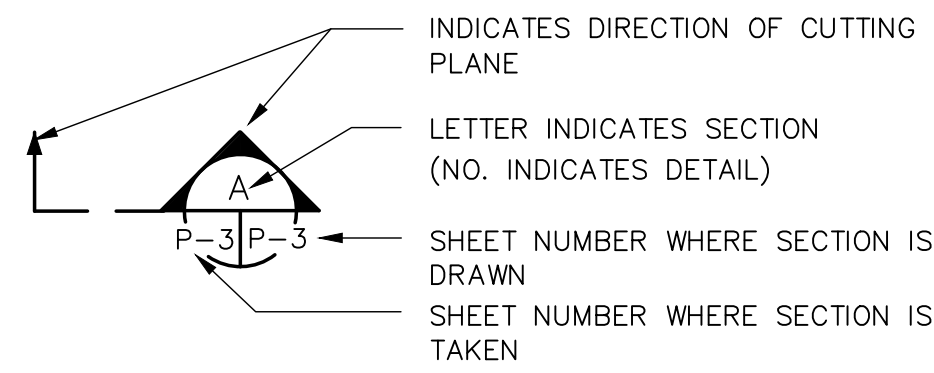
- NEW OR REPAIRED POTABLE WATER SUPPLY SYSTEMS SHALL BE DISINFECTED PRIOR TO USE.
- INITIAL COLIFORM SAMPLE IS REQUIRED PRIOR TO ADMINISTERING WATER-CHLORINE SOLUTION.
- SECTION 609.9 ITEMS #2 OR #3 CAN BE USED PRECEDED BY AND FOLLOWED BY ITEM #1.
- NOTE FILL PORT TO ADD CHLORINE MUST BE WHERE WATER SUPPLY ENTERS BUILDING AND A FLOW METER TO MEASURE SOLUTION.
- AFTER WATERCHLORINE SOLUTION IS INCORPORATED INTO THE NEW OR REPAIRED WATER SUPPLY SYSTEM A 48 HOUR WAITING PERIOD MUST BE OBSERVED PRIOR TO BACTERIOLOGICAL TEST.
- BACTERIOLOGICAL TEST SHALL BE CONDUCTED BY A LABORATORY CERTIFIED FOR DRINKING WATER IN WASHINGTON STATE AFFIRMING WATER QUALITY CONTAINS NO COLIFORM BY SAMPLE TESTING THE FURTHEST FIXTURE FROM PUBLIC WATER SOURCE AND NOT LESS THAN TWO OTHER LOCATIONS PART OF THE WATER SUPPLY SYSTEM.
- CHLORINE LEVEL IN THE NEW OR REPAIRED WATER SUPPLY SYSTEM SHALL NOT BE LESS THAN THE MEAN AVERAGE OF THE AREA IN RELATIONSHIP FROM THE WATER PURVEYOR SOURCE.
- WARNING: IN CASE A WATER SOFTENER IS PART OF THE COLD WATER SYSTEM, CONTRACTOR TO ENSURE THE WATER SOFTENER IS CONNECTED AND OPERATIONAL BEFORE STARTING THE DISINFECTION PROCESS. FAILURE TO FOLLOW THE INSTRUCTIONS WILL VOID THE WATER HEATER OR HEAT PUMP WARRANTY.

# SYMBOLS

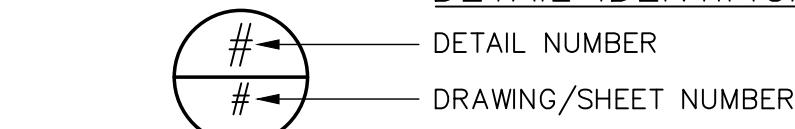
## GENERAL



## SECTION IDENTIFICATION



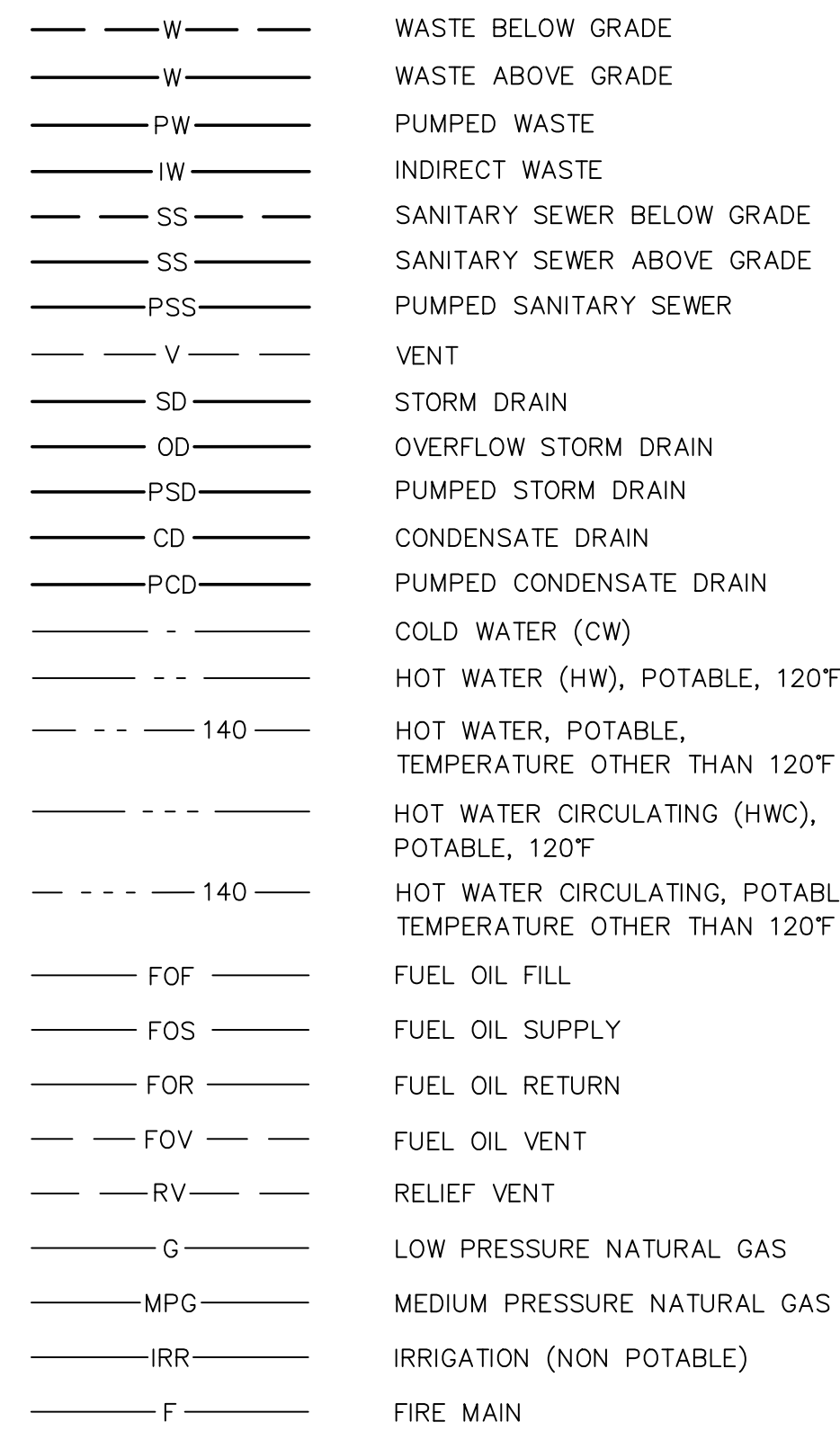
## DETAIL IDENTIFICATION



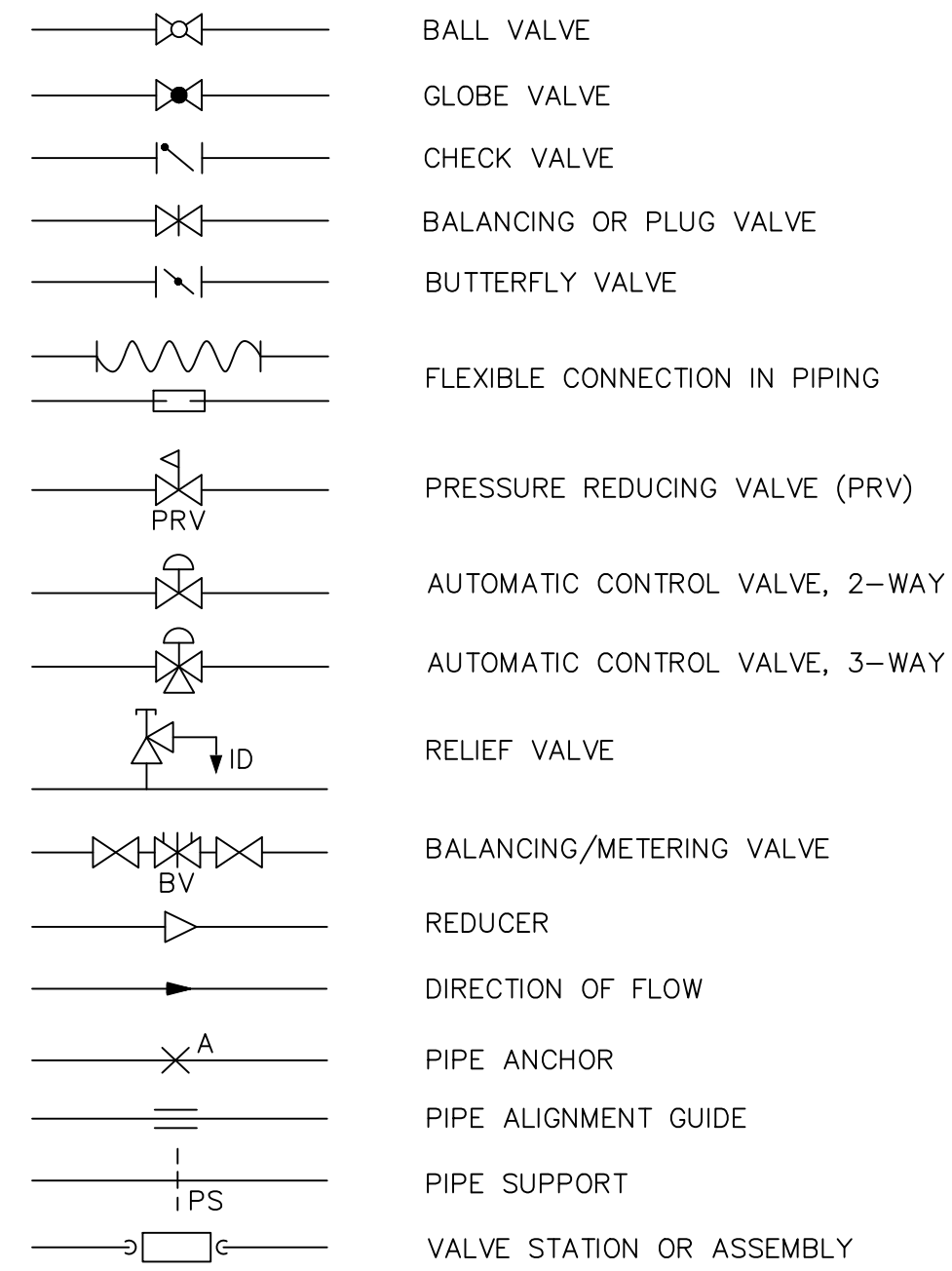
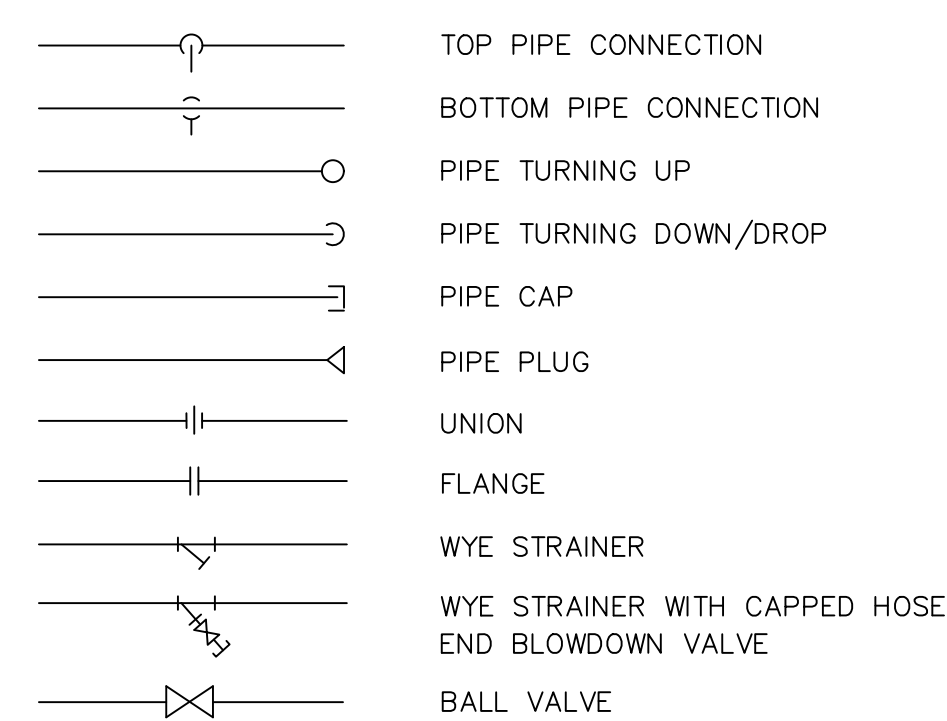
## EQUIPMENT



## PIPING



## PIPE SYMBOLS



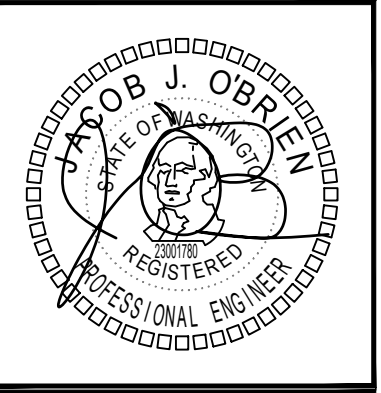
# ABBREVIATIONS

ABV	ABOVE	FLR	FLOOR	OPD	OVERFLOW DRAIN/DECK DRAIN
AD	AREA DRAIN	FPM	FEET PER MINUTE	OPNG	OVER PRESSURE DEVICE OPENING
AFF	ABOVE FINISHED FLOOR	FPS	FEET PER SECOND	P	PUMP
AHJ	AUTHORITY HAVING JURISDICTION	FS	FLOOR SINK	PD	PRESSURE DROP, PLANTER DRAIN
BFF	BELOW FINISHED FLOOR	FT	FEET	POC	POINT OF CONNECTION
BFP	BACKFLOW PREVENTER	FU	FIXTURE UNITS	PRV	PRESSURE REDUCING VALVE
BH	BACK OF HOUSE	G	GAS (LOW PRESSURE)	PS	PRESSURE RELIEF VALVE
BP	BOOSTER PUMP	GAL	GALLONS	PSD	PUMPED STORM DRAINAGE
BT	BATHTUB	GD	GARAGE DRAIN	PSIG	POUNDS PER SQUARE INCH GAUGE
BTUH	BRITISH THERMAL UNIT PER HOUR	GM	GAS METER	PSM	PUMPED SANITARY SEWER
BV	BALANCING VALVE	GPC	GRAMS PER GALLON	PSS	PUMPED SANITARY WASTE
C	COMMON	GPM	GALLONS PER MINUTE	PSW	PUMPED WASTE
CAP	CAPACITY	GV	GATE VALVE	RD	ROOF DRAIN
CB	CATCH BASIN	GYP	GYP-SUM WALLBOARD	REF	REFERENCE
CD	CONDENSATE DRAIN	GWH	GAS WATER HEATER	RFBP	REDUCED PRESSURE BACKFLOW PREVENTER
OFF	CAPPED FOR FUTURE	HB	HOSE BIBB	RPM	REVOLUTIONS PER MINUTE
CFM	CUBIC FEET PER MINUTE	HD	HEAD	S	SINK
CLG	CEILING, COOLING	HDR	HUB DRAIN	SC	SCHEDULE
CLW	CLOTHES WASHER	HDV	HOSE END DRAIN VALVE	SCW	SOFTENED COLD WATER
CD	CLEANOUTS	HORIZ	HORIZONTAL	SD	STORM DRAIN
COMB	COMBUSTION	HP	HORSEPOWER	SEP	SEWAGE EJECTOR PUMP
CONT	CONTINUE, CONTROL	HPCW	HIGH PRESSURE COLD WATER	SF	SQUARE FOOT
CONTR	CONTRACTOR	HW	HOT WATER	SGSV	SEISMIC GAS SHUT-OFF VALVE
COTG	CLEANOUTS TO GRADE	HWC	HOT WATER RE-CIRCULATION	SH	SHOWER
CP	CIRCULATING PUMP	HWCP	HOT WATER CIRCULATION PUMP	SO	STORM OVERFLOW
CP	CHECK VALVE	HWR	HOT WATER RETURN	SP	STATIC PRESSURE/SUMP PUMP
CW	COLD WATER	ID	INDIRECT DRAIN, INSIDE DIAMETER	SR	SUDD RELIEF
D	DIAMETER	IE	INVERT ELEVATION	SS	STAINLESS STEEL/SANITARY SEWER
DB	DRY BULB, DECIBEL	IHW	INDUSTRIAL HOT WATER	SSS	SIDE SANITARY SEWER
DF	DRINKING FOUNTAIN	IN	INCH	STD	STANDARD
DFU	DRAIN FIXTURE UNITS	INCH	INCH	SO	SQUARE
DI	DUCTILE IRON	KS	KITCHEN SINK	TD	TRENCH DRAIN
DIM	DIMENSION	KW	KILOWATT	TMV	THERMOSTATIC MIXING VALVE
DN	DOWN	L	LONG, LENGTH	TYP	TYPICAL
DS	DOWN SPOUT	LAV	LAVATORY	UH	UNIT HEATER
DWG	DRAWING	LB	POUND	UON	UNLESS OTHERWISE NOTED
(E)	EXISTING	M	METER	UR	URNAL
EFF	EFFICIENCY	MEH	MECHANICAL	V	VENT
ELEC	ELECTRIC	MCA	MIN. CIRCUIT AMPACITY	VTR	VENT THRU ROOF
EQUIV	EQUIVALENT	MCP	MAX. OVER CURRENT PROTECTION	WC	WATER CLOSET
EWC	ELECTRIC WATER COOLER	MFG	MEDIUM PRESSURE GAS MOUNTED	WCO	WALL CLEANOUTS
EW	ELECTRIC WATER HEATER	(N)	NEW	WHD	WALL HYDRANT
EXT	EXTERIOR, EXTERNAL	NC	NORMALLY CLOSED	WM	WASHING MACHINE
F	FAHRENHEIT	NO	NORMALLY OPEN	WSFU	WATER SUPPLY FIXTURE UNITS
FCO	FLOOR CLEANOUTS	OD	OUTSIDE DIMENSION/DIAMETER		
FD	FLOOR DRAIN				
FDC	FIRE DEPARTMENT CONNECTION				
FF	FINISHED FLOOR				

# DRAWING INDEX

DWG	DESCRIPTION	INCLUDED IN SET			
		PERMIT SET	2/15/2025		
POF.00	LEGEND, GENERAL NOTES, AND DRAWING INDEX	x			
POF.01	PLUMBING NOTES AND TABLES	x			
POF.02	PLUMBING CALCULATIONS	x			
POF.03	PLUMBING SCHEDULES	x			
P2F.00	UNDERSLAB WASTE & VENT PLAN	x			
P2F.01	BASEMENT WASTE & VENT PLAN	x			
P2F.02	LEVEL 1 WASTE & VENT PLAN				
P2F.03	LEVEL 2 WASTE & VENT PLAN	x			
P2F.04	LEVEL 3 WASTE & VENT PLAN	x			
P2F.05	ROOF WASTE & VENT PLAN	x			
P3F.01	BASEMENT PLUMBING SUPPLY PLAN				
P3F.02	LEVEL 1 PLUMBING SUPPLY PLAN	x			
P3F.03	LEVEL 2 PLUMBING SUPPLY PLAN	x			
P3F.04	LEVEL 3 PLUMBING SUPPLY PLAN	x			
P4F.00	WASTE & VENT RISER DIAGRAMS	x			
P7F.00	DETAILS	x			
P7F.01	DETAILS	x			

NO.	DATE	DESCRIPTION



DRAWN: JM	DESIGNED: JM	CHECKED: RJ	APPROVED: JR
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PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

DATE: 10/11/2023

SHEET TITLE: LEGEND GENERAL NOTES AND DRAWING INDEX

SHEET NO. POF.00

19401 40TH AVE W, SUITE 302  
 LYNWOOD, WA 98036  
 PHONE: (206) 364-3343

ROBISON ENGINEERING, INC.





# PLUMBING SCHEDULES

## PIPE MATERIALS

PIPE TYPE	MATERIAL	JOINT	NOTES
WATER DISTRIBUTION PIPING	COPPER, TYPE L.	SOLDERED	2
APARTMENT WATER PIPING	PEX-A	EXPANSION OR PUSH-FIT FITTINGS	2
WASTE AND VENT PIPING	SCHEDULE 40 SOLID CORE PVC	SOLVENT CEMENT	1,3
CONDENSATE DRAIN PIPING	COPPER, TYPE M.	SOLDERED OR PROPPRESS FITTINGS	

**NOTES:**

1. ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.
2. PROVIDE THERMAL EXPANSION LOOPS FOR ALL WATER PIPING IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
3. PROVIDE CAST IRON PIPING FOR WASTE DISCHARGE EXCEEDING 110 DEGREES FAHRENHEIT.

### PIPE SIZING SCHEDULE - COPPER TYPE L AT 7.0 PSI/100 FEET

PIPE SIZE	COLD WATER, FLUSH TANK			HOT WATER			COLD WATER, FLUSH VALVE		
	FIXTURE UNITS	FLOW, GPM	VELOCITY, FPS	FIXTURE UNITS	FLOW, GPM	VELOCITY, FPS	FIXTURE UNITS	FLOW, GPM	VELOCITY, FPS
1/2"	3.0	2.8	4.0	3.0	2.8	4.0	---	---	---
3/4"	9.0	7.5	5.2	8.5	7.0	4.9	---	---	---
1"	22.0	16.0	6.4	16.0	12.2	5.0	---	---	---
1-1/4"	45.0	27.0	7.3	27.0	18.5	5.0	9	27	7.3
1-1/2"	100.0	43.0	8.0	43.0	26.0	5.0	30	42.5	8
2"	230.0	75.0	8.0	112.0	45.0	5.0	125.0	74.0	8.0
2-1/2"	440.0	116.0	8.0	215.0	72.0	5.0	340.0	116.0	8.0
3"	750.0	160.0	8.0	350.0	100.0	5.0	680.0	160.0	8.0
4"	1600.0	280.0	8.0	800.0	175.0	5.0	1600.0	280.0	8.0
6"	5250.0	650.0	8.0	2750.0	400.0	5.0	5250.0	650.0	8.0

### PIPE SIZING SCHEDULE - PEX AT 14.0 PSI/100 FEET

PIPE SIZE	COLD WATER, FLUSH TANK			HOT WATER			COLD WATER, FLUSH VALVE		
	FIXTURE UNITS	FLOW, GPM	VELOCITY, FPS	FIXTURE UNITS	FLOW, GPM	VELOCITY, FPS	FIXTURE UNITS	FLOW, GPM	VELOCITY, FPS
1/2"	3.0	3.0	5.5	3.0	3.4	6.1	---	---	---
3/4"	9.0	7.8	7.1	11.0	8.5	7.7	1.0	7.8	7.1
1"	21.0	15.3	8.4	20.0	14.6	8.0	2.0	15.3	8.4
1-1/4"	44.0	26.1	9.6	33.0	21.8	8.0	9.0	26.1	9.6
1-1/2"	77.0	37.9	10.0	54.0	30.3	8.0	24.0	37.9	10.0
2"	199.0	65.0	10.0	134.0	52.0	8.0	91.0	65.0	10.0
2-1/2"	375.0	99.0	10.0	270.0	79.2	8.0	239.0	99.0	10.0
3"	589.0	140.8	10.0	443.0	112.6	8.0	494.0	140.8	10.0

## REDUCED PRESSURE BACKFLOW ASSEMBLY

EQUIP NO.	QTY	SERVICE	INLET/OUTLET SIZE	BASIS OF DESIGN	NOTES
RPBP-1	1	DOMESTIC WATER	3"	ZURN WILKINS 375	1,2

**NOTES:**

1. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
2. ALL DOMESTIC WATER EQUIPMENT SHALL BE NSF-61 LISTED.

## HYBRID ELECTRIC HEAT PUMP WATER HEATER

EQUIP NO.	SERVICE	UNIFORM ENERGY FACTOR	GPH RECOVERY AT 90F TR	STORAGE (GAL)	INLET/OUTLET CONNECTION	OPERATING WEIGHT (LBS)	ELECTRICAL	BASIS OF DESIGN	NOTES
HPWH-1	APARTMENT UNITS	4.00	27	80	3/4"	912	208V/1P/21A	RHEEM PROPH80	1,2,3,4

**NOTES:**

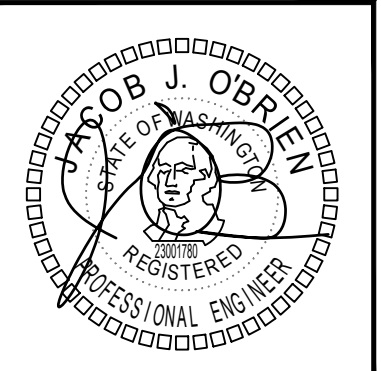
1. ELECTRICAL REQUIREMENTS ARE BASED ON NON-SIMULTANEOUS OPERATION.
2. FOR WATER HEATER PIPING DIAGRAM SEE DETAIL 1/P7.00.
3. ALL DOMESTIC WATER EQUIPMENT SHALL BE NSF-61 LISTED.
4. PROVIDE INLET AND OUTLET DUCTS FOR HEAT PUMP WATER HEATERS. SEE MECHANICAL DRAWINGS FOR ROUTING AND TERMINATION.

## EXPANSION TANK

EQUIP NO.	SERVICE	CAPACITY GAL.	PRE-CHARGE PRESSURE, PSI	TANK SIZE		OPERATING WEIGHT, LBS	BASIS OF DESIGN	NOTES
				DIAMETER	HEIGHT			
ET-1	DOMESTIC HOT WATER	4.5	50	11	15	9	THERM-X-TROL ST-12	1

**NOTES:**

1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS



DRAWN: JM	DESIGNED: JM	CHECKED: RJ	APPROVED: JR
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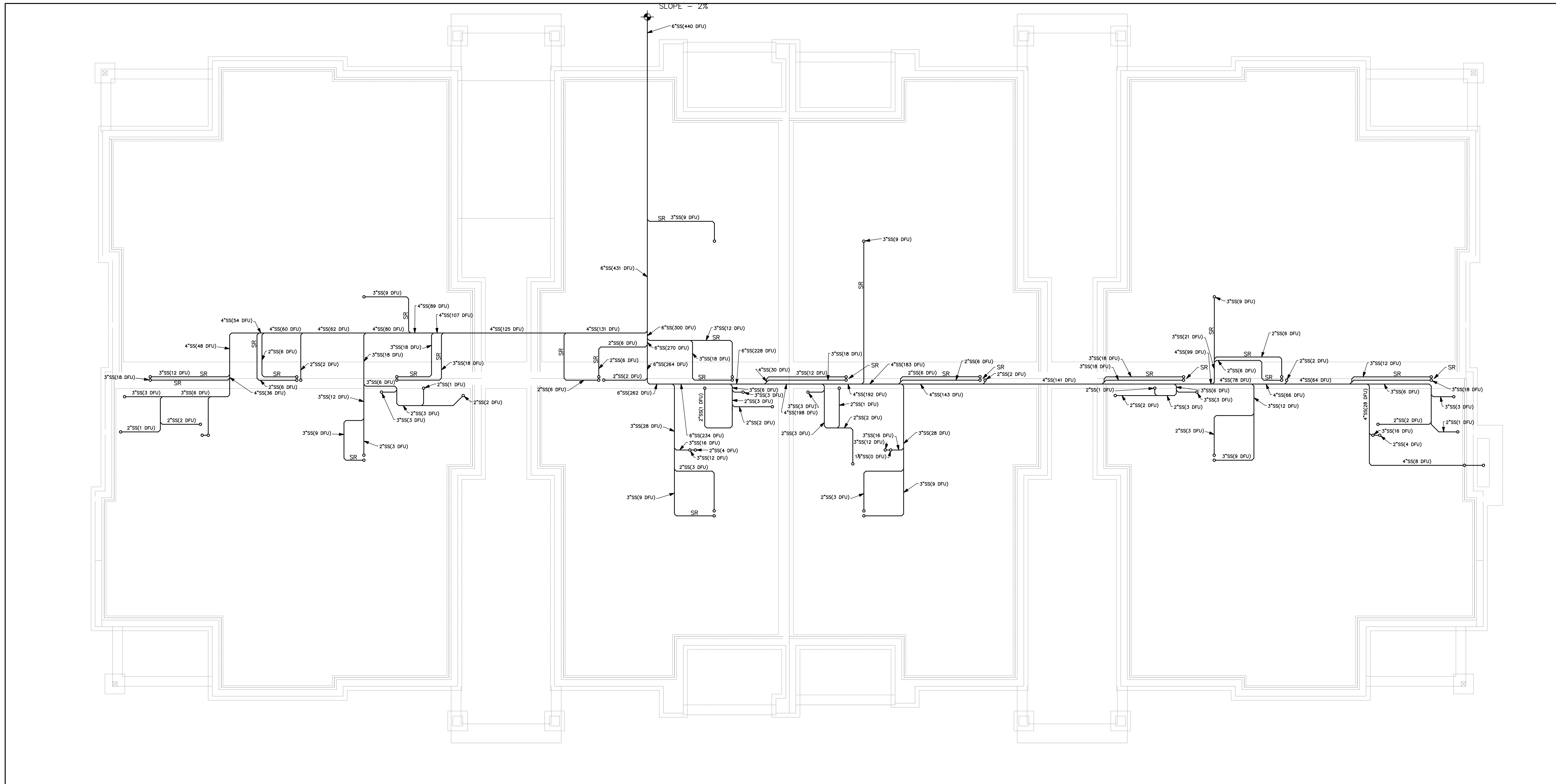
PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
 202 27TH AVE SE  
 PUYALLUP, WA 98374  
 19401 40TH AVE W, SUITE 302  
 LYNWOOD, WA 98036  
 PHONE: (206) 364-3343  
**ROBISON ENGINEERING, INC.**

DATE: 10/11/2023

SHEET TITLE:  
**PLUMBING SCHEDULES**

SHEET NO.  
**POF.03**

NO.	DATE	DESCRIPTION



**GENERAL NOTES**

1. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS PER 2018 UPC 1007.1. SEE DETAIL 5/P7.01.
2. WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

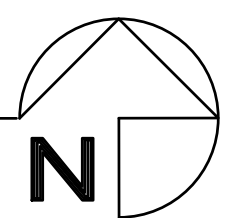
PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1 1/2"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

**FLAG NOTES** #

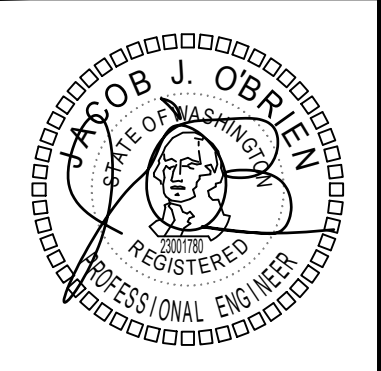
NOT USED

**BACKWATER VALVE ANALYSIS – SS POC:**  
 IF UPSTREAM MANHOLE RIM ELEVATION IS HIGHER THAN FINISH FLOOR ELEVATION CONTACT ENGINEER FOR FURTHER EVALUATION.

**UNDERSLAB WASTE & VENT PLAN**  
 SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

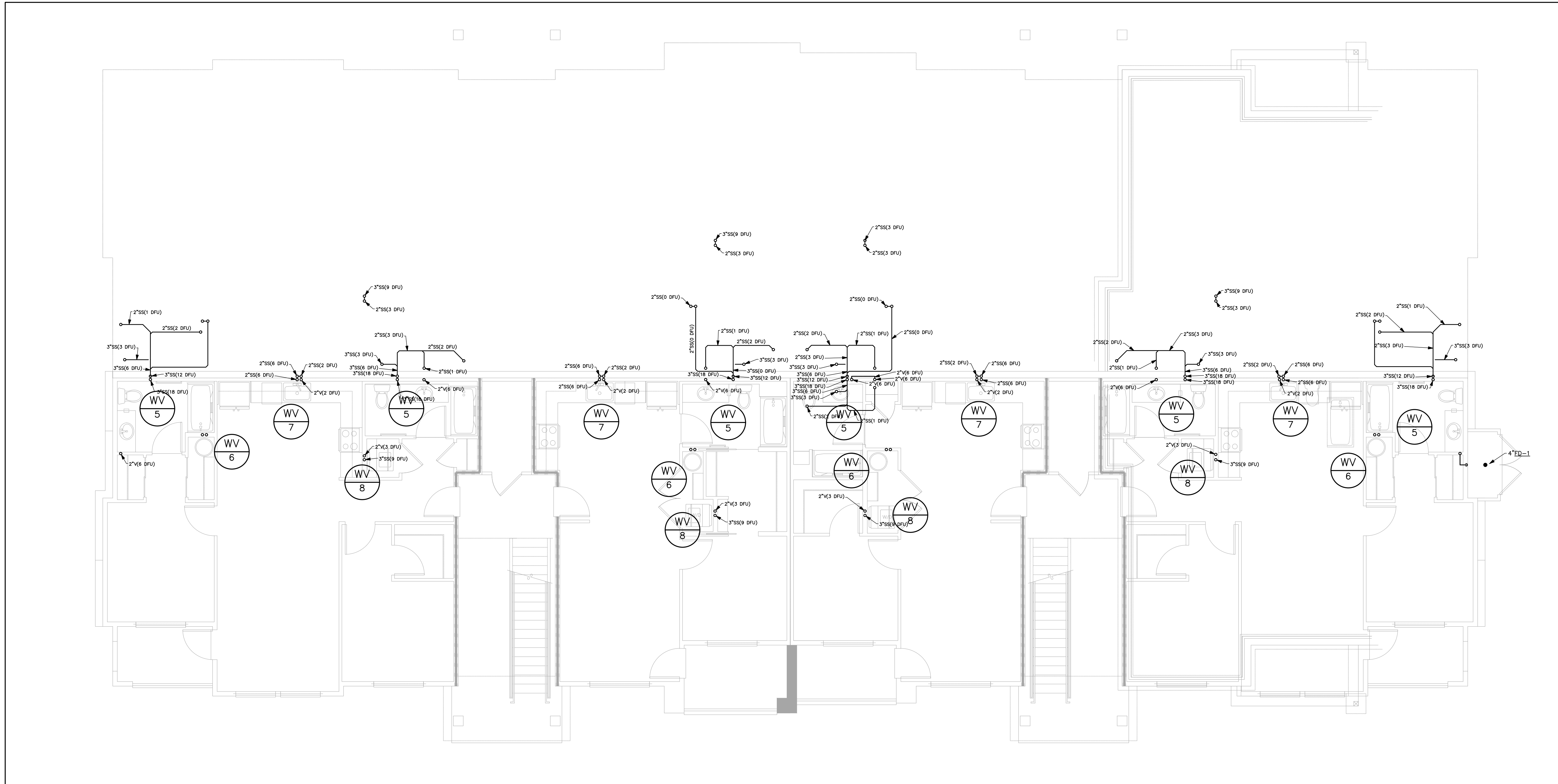
19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: 206/364-3343

**ROBISON ENGINEERING, INC**

DATE: 10/11/2023

SHEET TITLE:  
**UNDERSLAB WASTE & VENT PLAN**

SHEET NO.  
**P2F.00**



**GENERAL NOTES**

1. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS PER 2018 UPC 1007.1. SEE DETAIL 5/P7.01.
2. WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

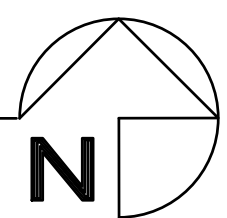
PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1 1/2"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

**FLAG NOTES** #

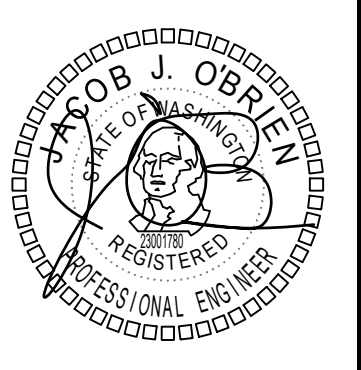
NOT USED

**BASEMENT WASTE & VENT PLAN**

SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM	DESIGNED:	JM	CHECKED:	RJ	APPROVED:	JR
--------	----	-----------	----	----------	----	-----------	----

PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

19401 40TH AVE W. SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

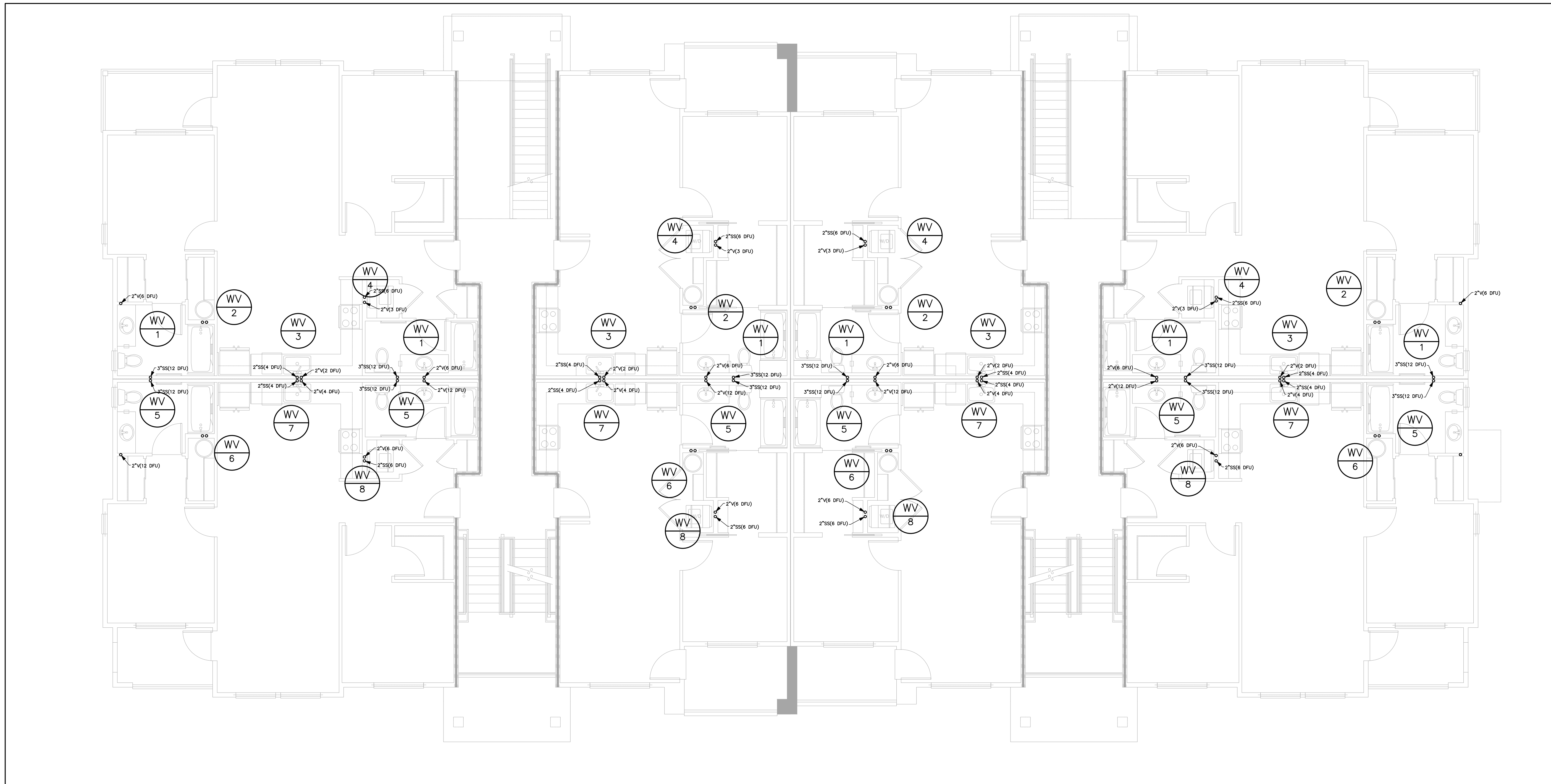
**ROBISON ENGINEERING, INC.**

DATE: 10/11/2023

SHEET TITLE:  
**BASEMENT WASTE & VENT PLAN**

SHEET NO.  
**P2F.01**

IDENTIFY ALL RATED WALLS AND STAIR CONSTRUCTION (R6) FOR ANY PLUMBING IN FIRE RATED PENETRATIONS REQUIRED. PAGE P2F.02



GENERAL NOTES

1. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS PER 2018 UPC 1007.1. SEE DETAIL 5/P7.01.
2. WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1 1/2"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

FLAG NOTES

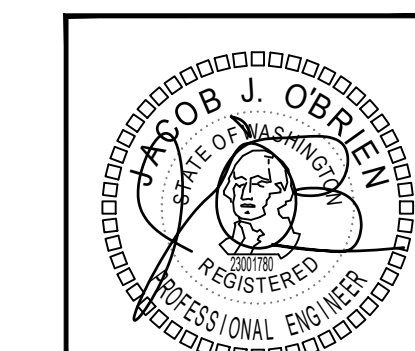
NOT USED

LEVEL 1 WASTE & VENT PLAN

SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
202 27TH AVE SE  
PUYALLUP, WA 98374

19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

**ROBISON**  
ENGINEERING, INC

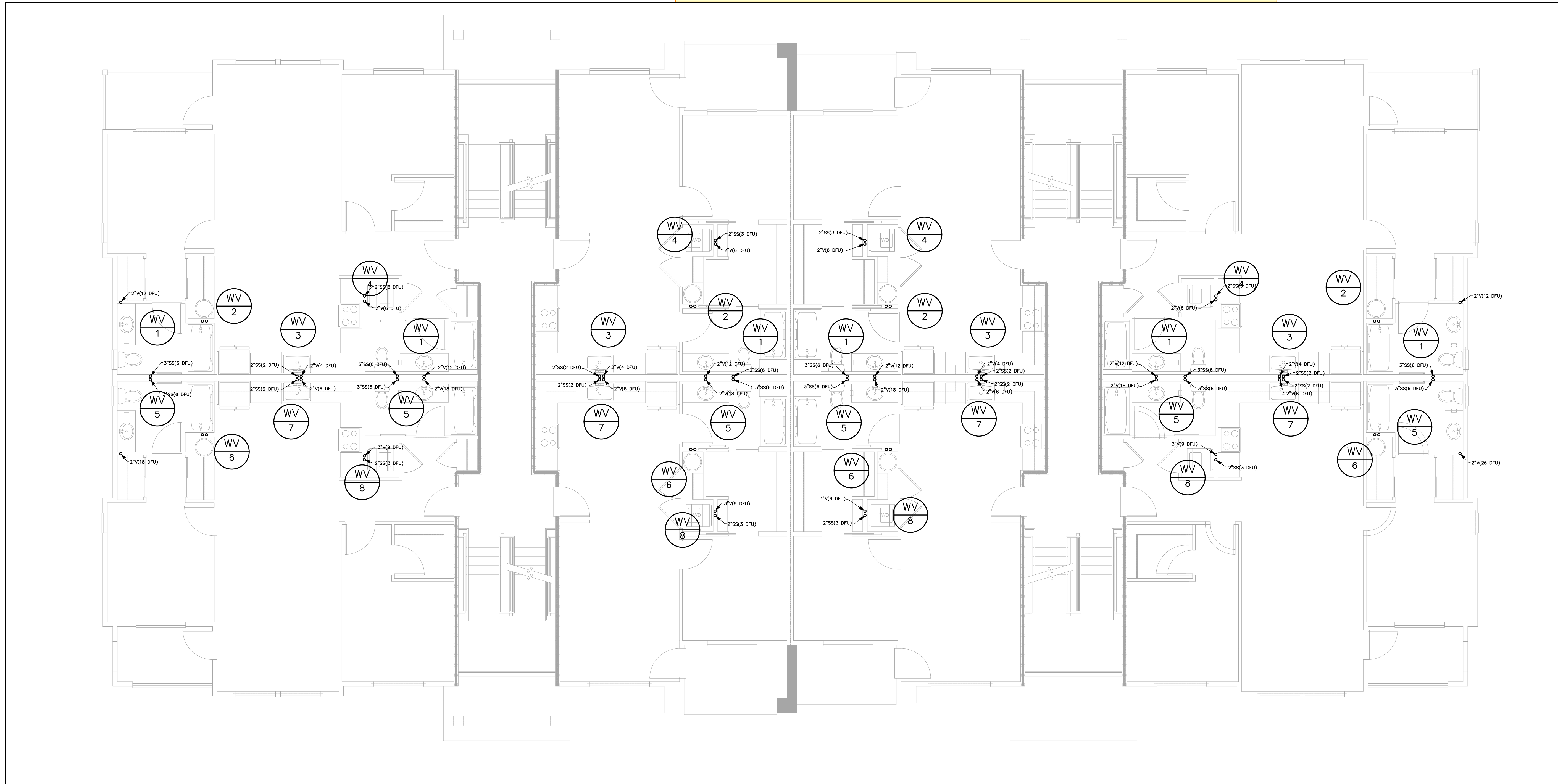
DATE: 10/11/2023

SHEET TITLE:  
LEVEL 1 WASTE & VENT PLAN

SHEET NO.  
P2F.02



IDENTIFY ALL RATED WALLS AND STAIR CONSTRUCTION (R6) FOR ANY PLUMBING IN FIRE RATED PENETRATIONS REQUIRED. PAGE P2F.03



**GENERAL NOTES**

1. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS PER 2018 UPC 1007.1. SEE DETAIL 5/P7.01.
2. WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

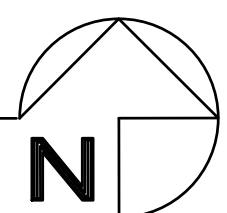
PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1 1/2"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

**FLAG NOTES** #

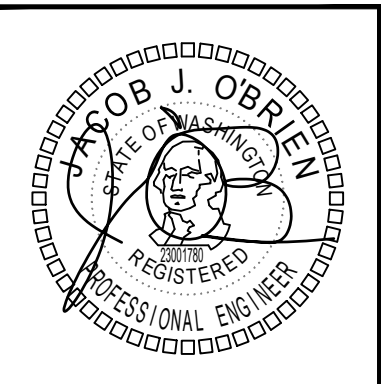
NOT USED

**LEVEL 2 WASTE & VENT PLAN**

SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

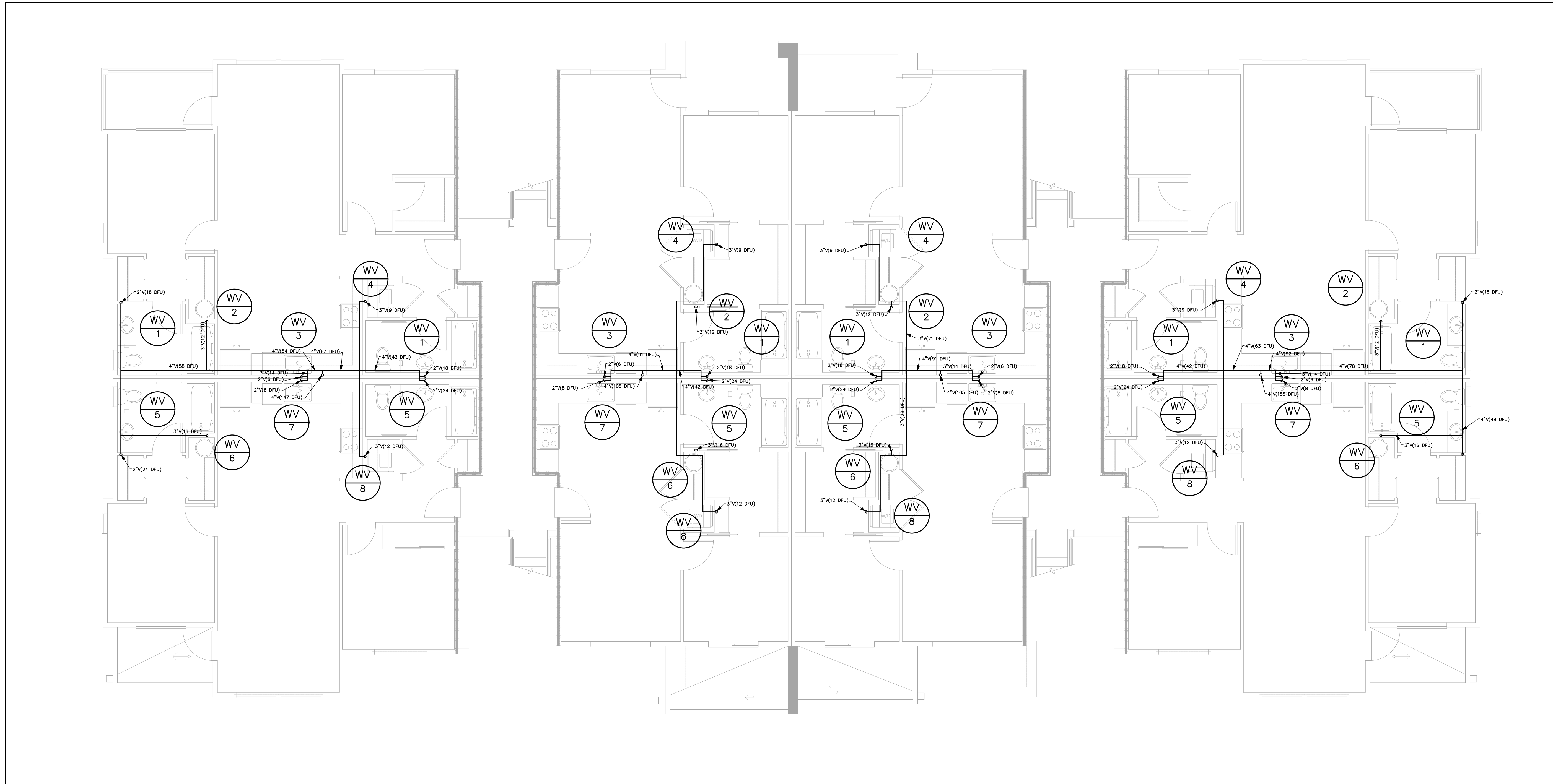
19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC**

DATE: 10/11/2023

SHEET TITLE:  
**LEVEL 2 WASTE & VENT PLAN**

SHEET NO.  
**P2F.03**



**GENERAL NOTES**

1. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS PER 2018 UPC 1007.1. SEE DETAIL 5/P7.01.
2. WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1 1/2"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

**FLAG NOTES** #

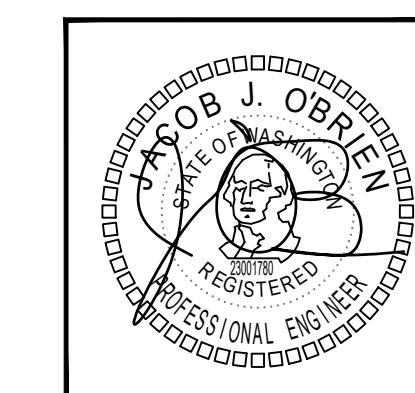
NOT USED

**LEVEL 3 WASTE & VENT PLAN**

SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
202 27TH AVE SE  
PUYALLUP, WA 98374

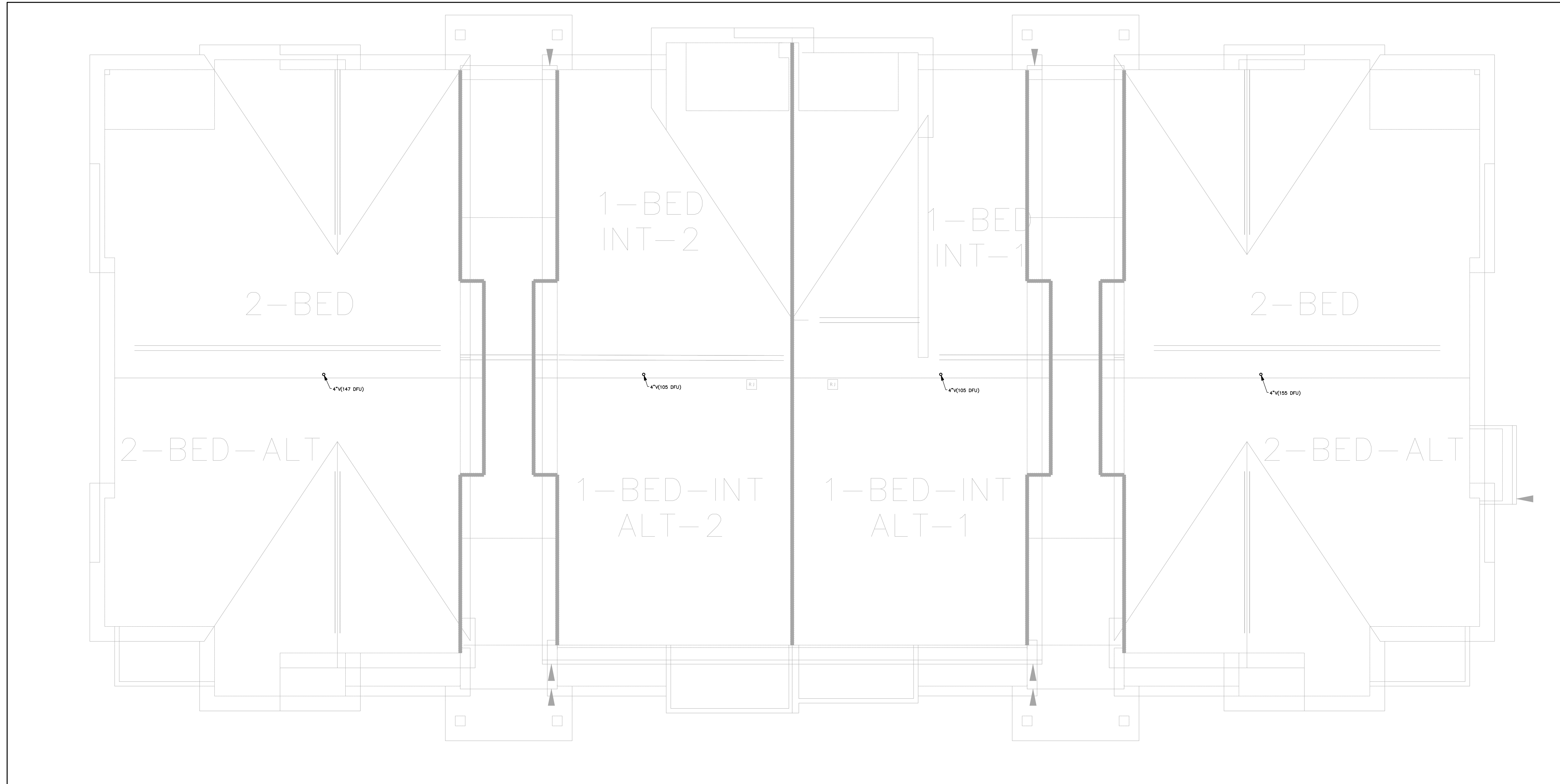
19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC**

DATE: 10/11/2023

SHEET TITLE:  
**LEVEL 3 WASTE & VENT PLAN**

SHEET NO.  
**P2F.04**



**GENERAL NOTES**

1. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS PER 2018 UPC 1007.1. SEE DETAIL 5/P7.01.
2. WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

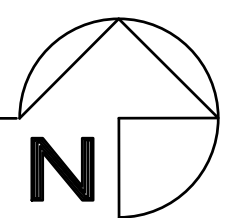
PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1 1/2"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

**FLAG NOTES**

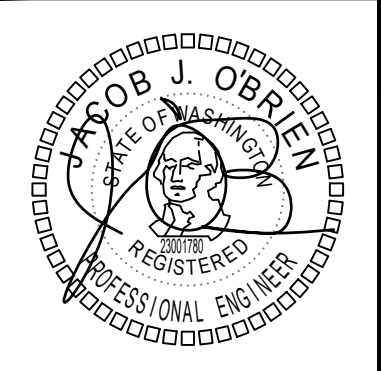
NOT USED

**ROOF WASTE & VENT PLAN**

SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
 202 27TH AVE SE  
 PUYALLUP, WA 98374

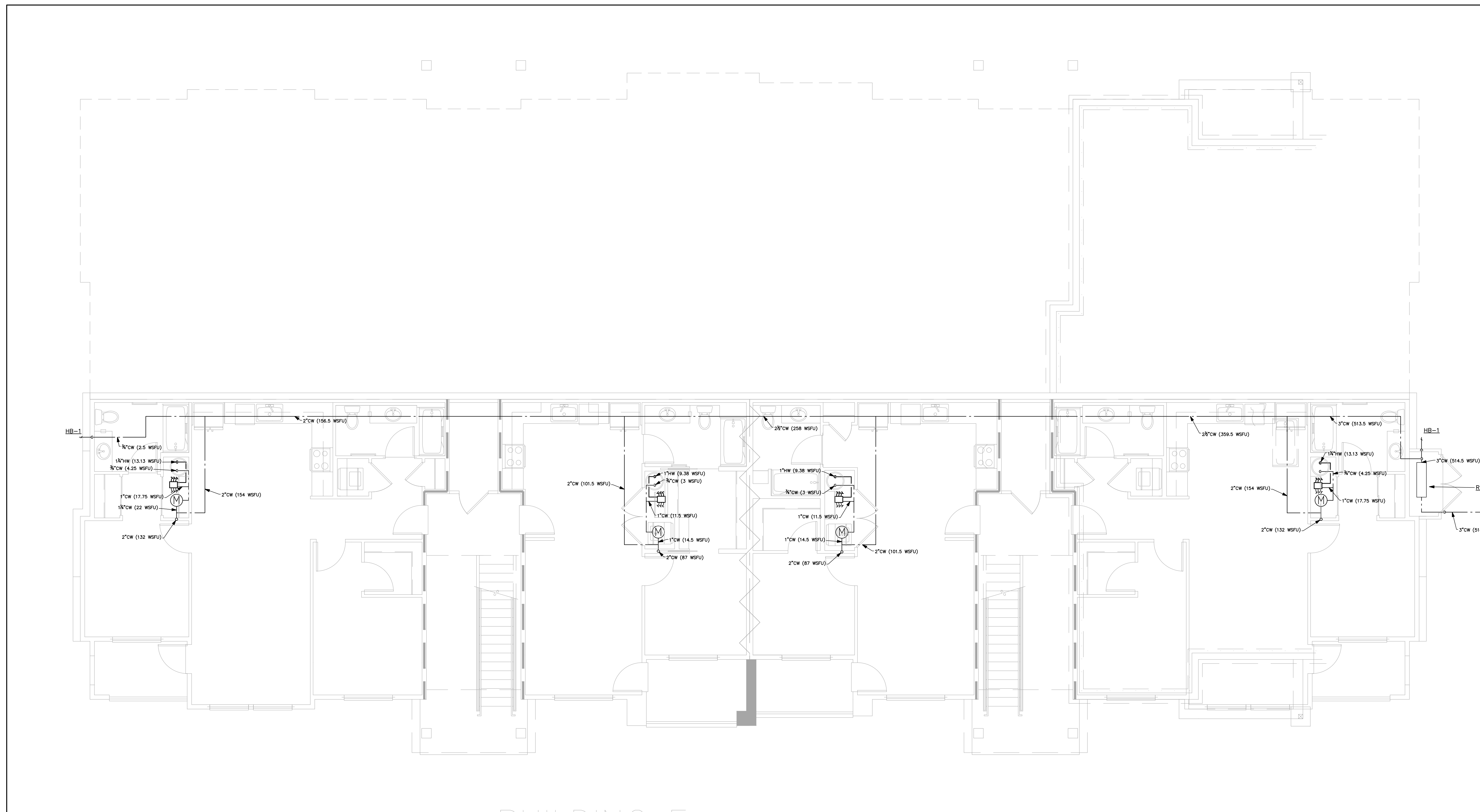
19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC**

DATE: 10/11/2023

SHEET TITLE:  
**ROOF WASTE & VENT PLAN**

SHEET NO.  
**P2F.05**



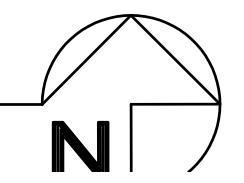
**GENERAL NOTES**

1. PROVIDE EXPANSION LOOPS FOR ALL WATER PIPING PER THE MANUFACTURER'S INSTRUCTIONS. SEE DETAIL 3/P.7.01.
2. INSTALL HEAT TRACE ON SUPPLY PIPE IN NON CONDITIONED SPACES.

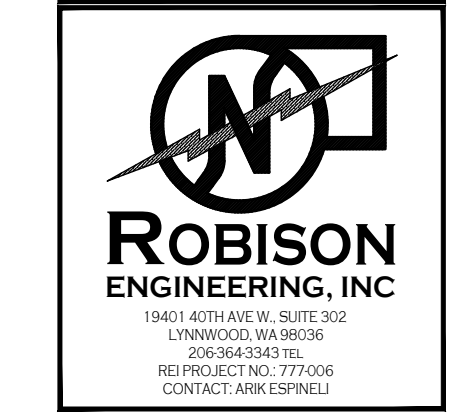
**FLAG NOTES** #

NOT USED

**BASEMENT PLUMBING SUPPLY PLAN**  
SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

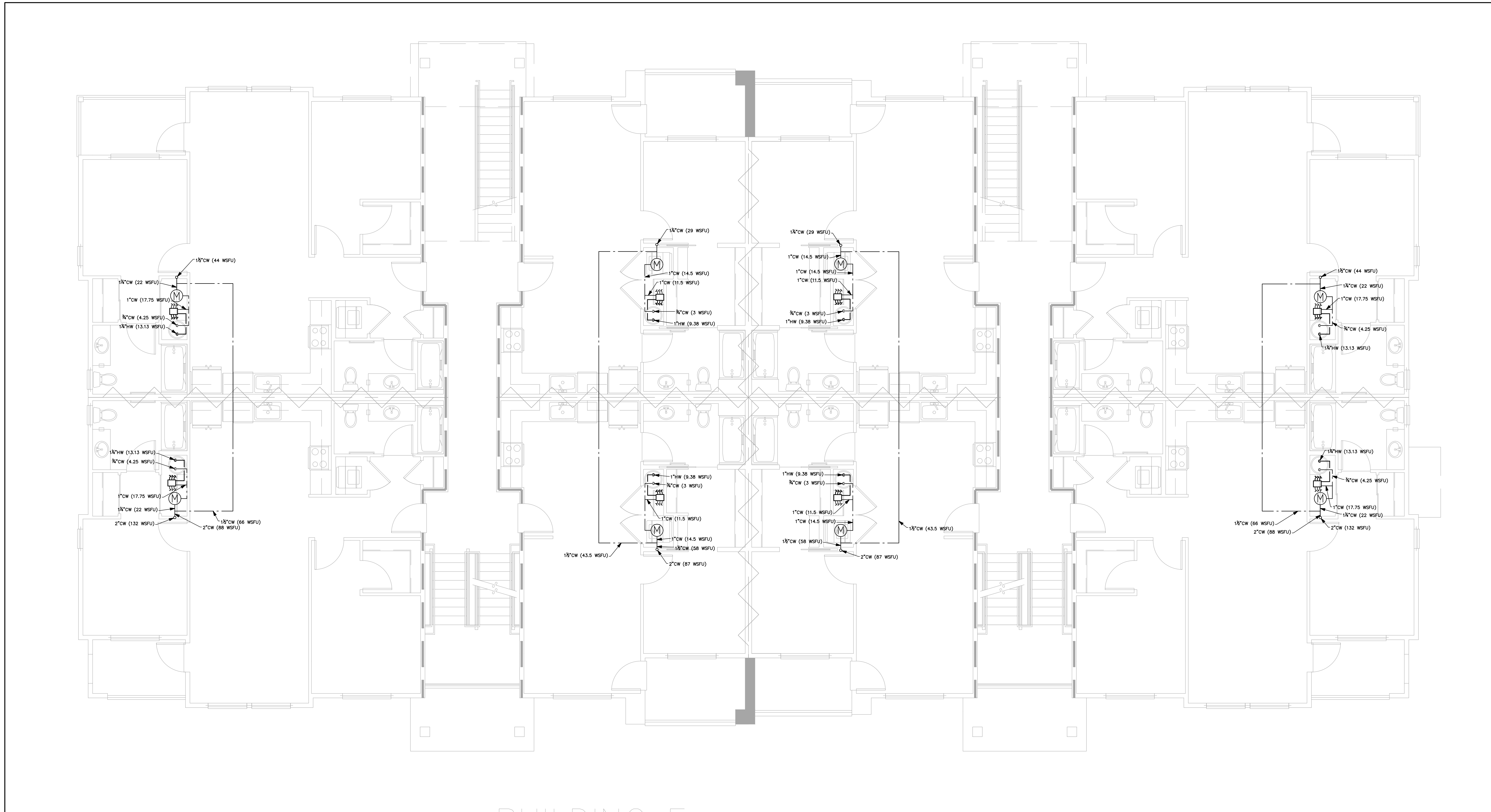
PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
202 27TH AVE SE  
PUYALLUP, WA 98374

**ROBISON ENGINEERING, INC.**  
19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: 2063643343

DATE: 10/11/2023

SHEET TITLE:  
**BASEMENT PLUMBING SUPPLY PLAN**

SHEET NO. 1



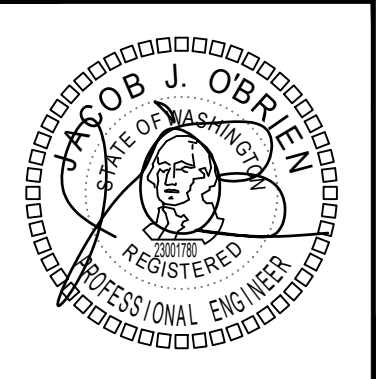
**GENERAL NOTES**

1. PROVIDE EXPANSION LOOPS FOR ALL WATER PIPING PER THE MANUFACTURER'S INSTRUCTIONS. SEE DETAIL 3/P7.01.
2. INSTALL HEAT TRACE ON SUPPLY PIPE IN NON CONDITIONED SPACES.

**FLAG NOTES** #

NOT USED

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

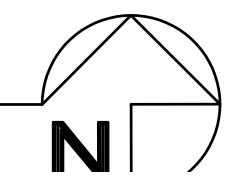
PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
 202 27TH AVE SE  
 PUYALLUP, WA 98374  
 19401 40TH AVE W, SUITE 302  
 LYNNWOOD, WA 98036  
 PHONE: (206) 364-3343  
**ROBISON ENGINEERING, INC.**

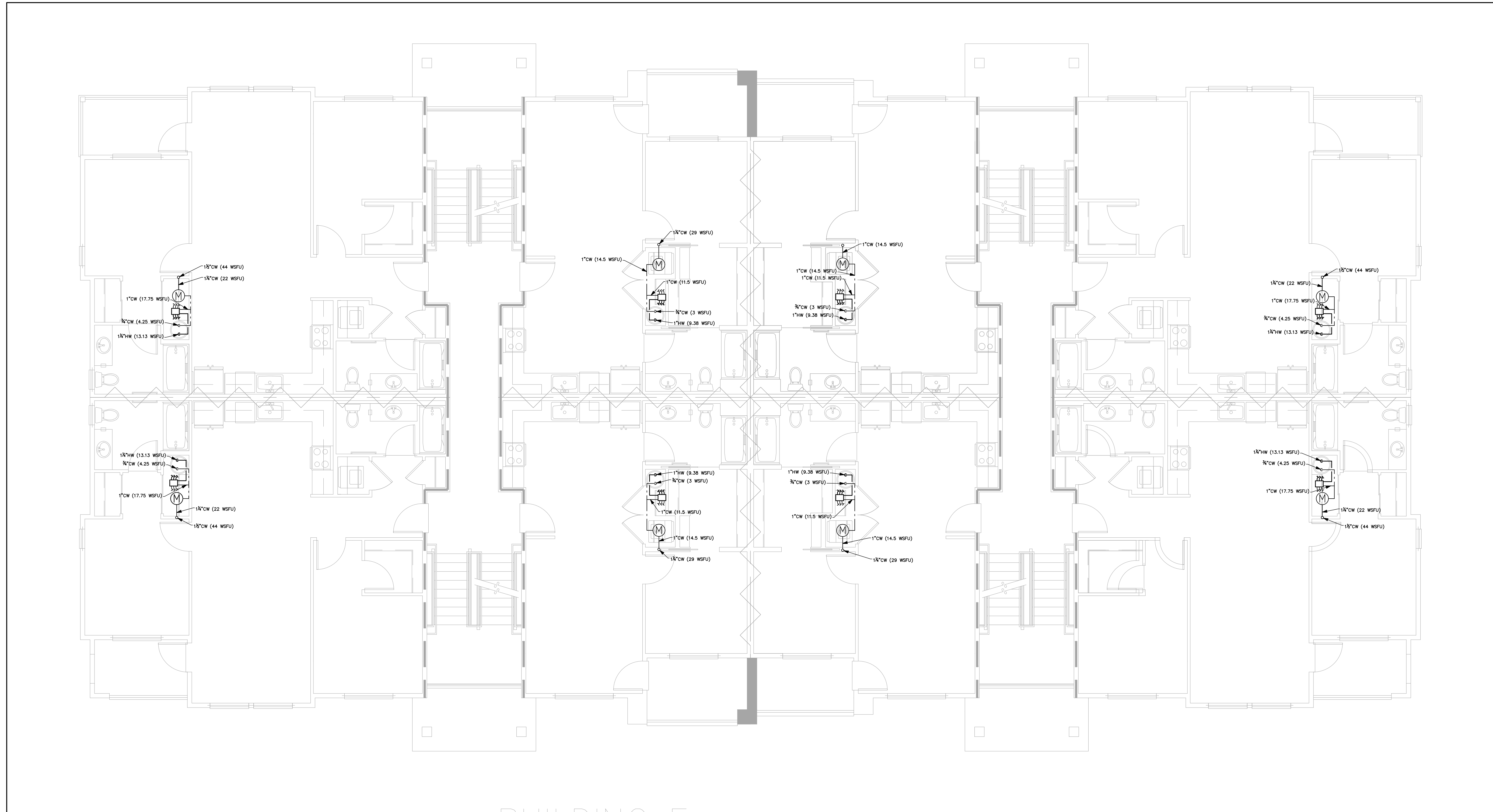
DATE: 10/11/2023

SHEET TITLE:  
**LEVEL 1 PLUMBING SUPPLY PLAN**

SHEET NO. 37

**LEVEL 1 PLUMBING SUPPLY PLAN**  
 SCALE: 3/16" = 1'-0"





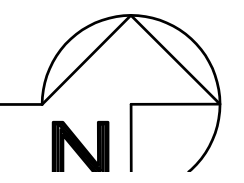
**GENERAL NOTES**

1. PROVIDE EXPANSION LOOPS FOR ALL WATER PIPING PER THE MANUFACTURER'S INSTRUCTIONS. SEE DETAIL 3/P7.01.
2. INSTALL HEAT TRACE ON SUPPLY PIPE IN NON CONDITIONED SPACES.

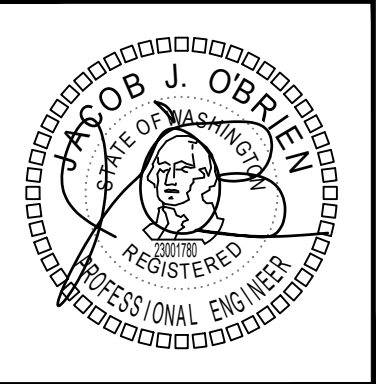
**FLAG NOTES** 

NOT USED

**LEVEL 2 PLUMBING SUPPLY PLAN**  
SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM	DESIGNED:	JM	CHECKED:	RJ	APPROVED:	JR
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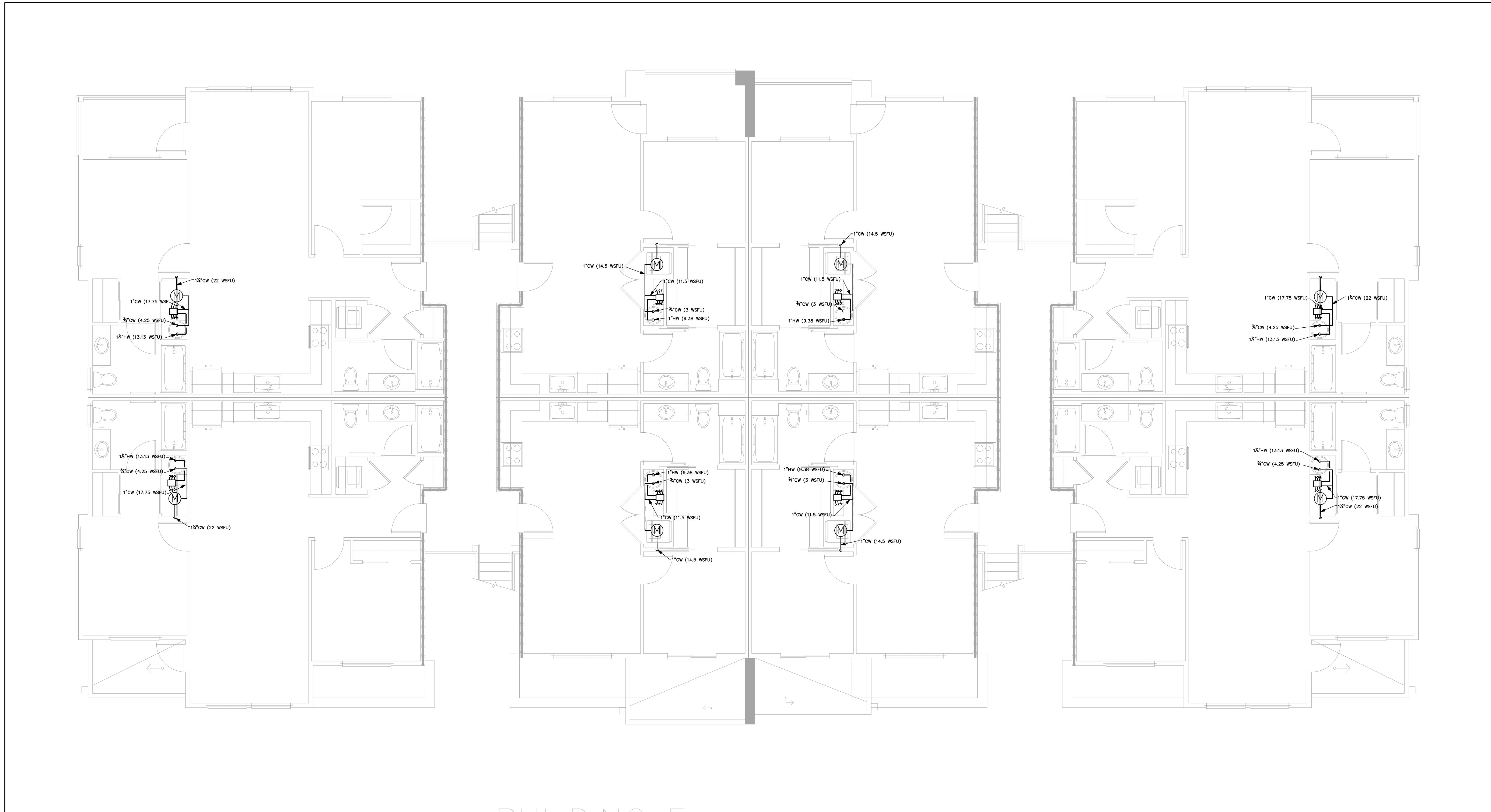
**BRADLEY HEIGHT APARTMENTS - BUILDING F**  
202 27TH AVE SE  
PUYALLUP, WA 98374

**ROBISON ENGINEERING, INC.**  
19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

DATE: 10/11/2023

SHEET TITLE:  
**LEVEL 2  
PLUMBING  
SUPPLY PLAN**

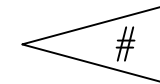
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**GENERAL NOTES**

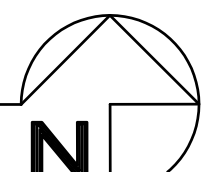
1. PROVIDE EXPANSION LOOPS FOR ALL WATER PIPING PER THE MANUFACTURER'S INSTRUCTIONS. SEE DETAIL 3/P7.01.
2. INSTALL HEAT TRACE ON SUPPLY PIPE IN NON CONDITIONED SPACES.

**FLAG NOTES**

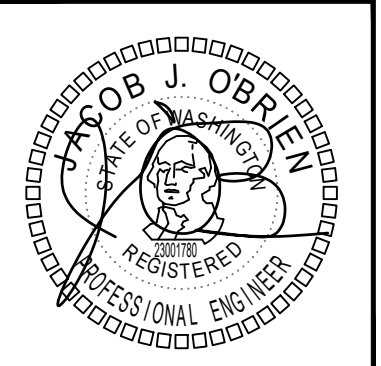


NOT USED

**LEVEL 3 PLUMBING SUPPLY PLAN**  
SCALE: 3/16" = 1'-0"



NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM
DESIGNED:	JM
CHECKED:	RJ
APPROVED:	JR

PROJECT: **BRADLEY HEIGHT APARTMENTS - BUILDING F**  
202 27TH AVE SE  
PUYALLUP, WA 98374

19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: (206) 364-3343

**ROBISON ENGINEERING, INC.**

DATE: 10/11/2023

SHEET TITLE:  
**LEVEL 3 PLUMBING SUPPLY PLAN**

SHEET NO. \_\_\_\_\_

**GENERAL NOTES**

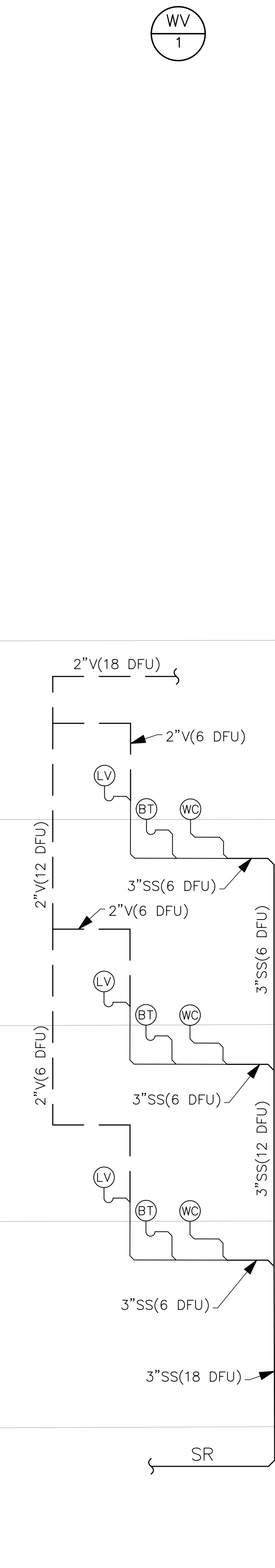
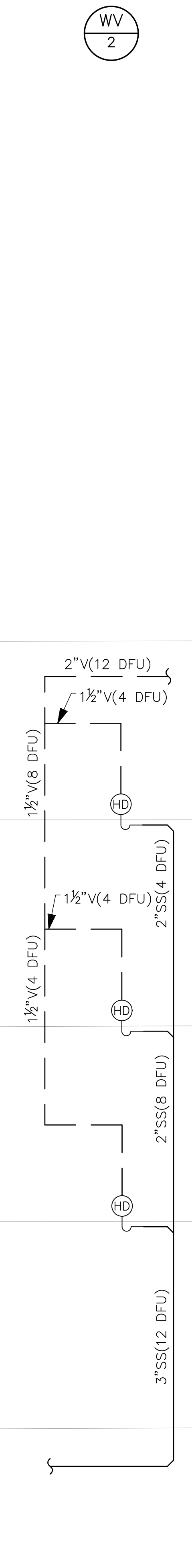
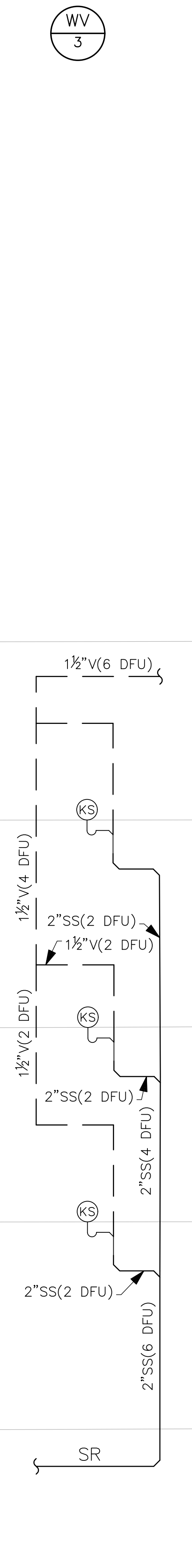
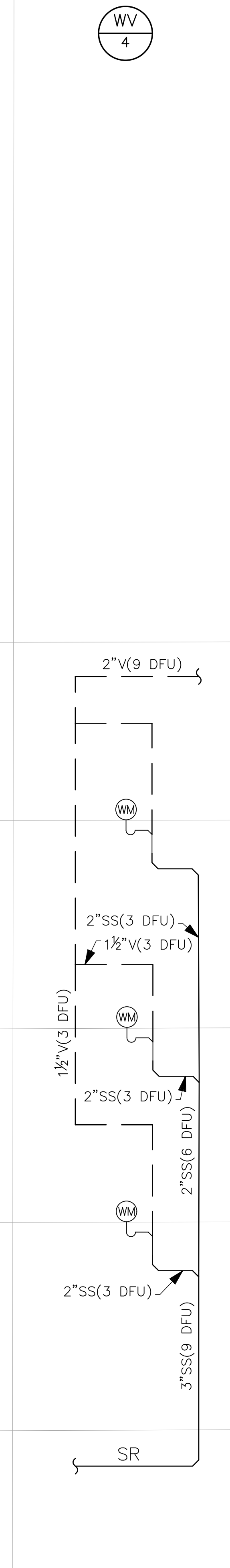
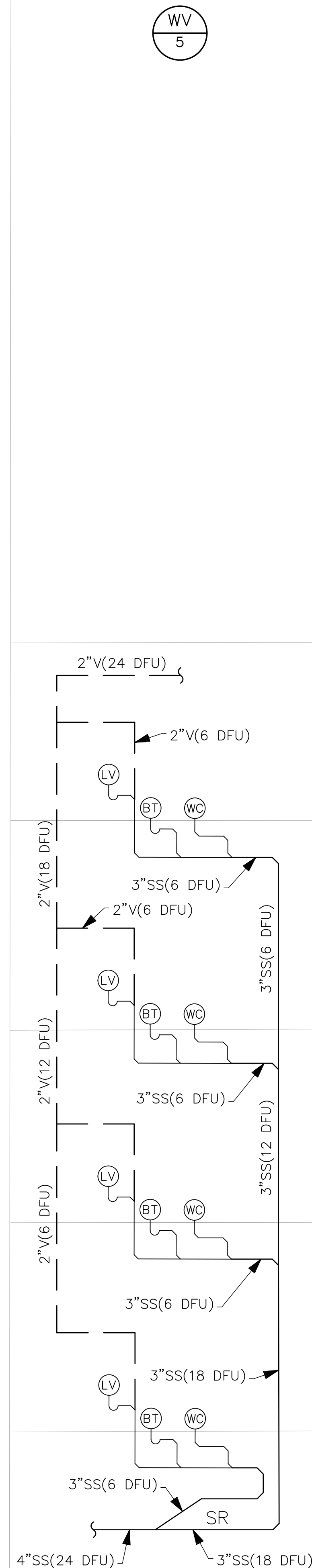
⊙  
WV  
# = WASTE & VENT RISER IDENTIFICATION (I.E. RISER "#"). REFER TO P200 SERIES FOR RISER DIAGRAMS.

- SUD RELIEF PIPING WITH LENGTH OF 8FT WILL BE USED.
- WASTE & VENT SIZING: WASTE & VENT PIPING IS SIZED PER 2018 UPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING 4" AND LARGER MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL FROM THE AHJ.

PIPE SIZE	VERTICAL	HORIZONTAL	VENT
1½"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	216 DFU	256 DFU
6"	1,380 DFU	720 DFU	1,380 DFU
8"	3,600 DFU	2,640 DFU	3,600 DFU

**ABBREVIATION LEGEND:**

LV = LAVATORY	(1 DFU)
BT = BATHTUB	(2 DFU)
SH = SHOWER	(2 DFU)
KS = KITCHEN SINK WITH DISHWASHER	(2 DFU)
WM = WASHING MACHINE	(3 DFU)
WC = WATER CLOSET	(3 DFU)
UR = URINAL	(2 DFU)
FD = FLOOR DRAIN	(2 DFU)
FS = FLOOR SINK	(4 DFU)
HD = HUB DRAIN	(4 DFU)



ROOF

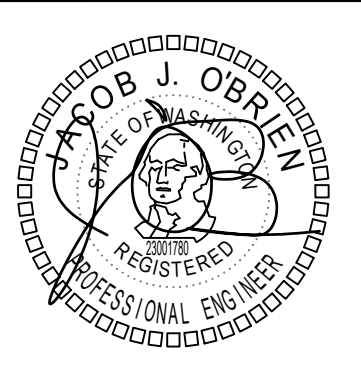
LEVEL 3

LEVEL 2

LEVEL 1

BASEMENT  
UNDERSLAB

NO.	DATE	DESCRIPTION	REVISIONS



DRAWN:	JM	DESIGNED:	JM	CHECKED:	RJ	APPROVED:	JR
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PROJECT: BRADLEY HEIGHT APARTMENTS - BUILDING F  
202 27TH AVE SE  
PUYALLUP, WA 98374

19401 40TH AVE W, SUITE 302  
LYNNWOOD, WA 98036  
PHONE: 2063643343

**ROBISON**  
ENGINEERING, INC.

DATE: 10/11/2023

SHEET TITLE:  
WASTE RISER  
DIAGRAMS

SHEET NO.  
**P4F.00**







