

[illegible]

STRUCTURAL GRID

COLUMN NUMBER
COLUMN GRID REFERENCE LINE
COLUMN LETTER

DOOR IDENTIFICATION

DOOR NUMBER

ROOM/SPACE IDENTIFICATION

ROOM NAME
ROOM NUMBER
ROOM AREA *

INTERIOR ELEVATION IDENTIFICATION

DRAWING NUMBER
SHEET NUMBER

EXTERIOR ELEVATION IDENTIFICATION

DRAWING NUMBER
SHEET NUMBER

BUILDING SECTION IDENTIFICATION

DRAWING NUMBER
SHEET NUMBER

WALL/DETAIL SECTION IDENTIFICATION

DRAWING NUMBER
SHEET NUMBER

DETAIL IDENTIFICATION

DRAWING NUMBER
SHEET NUMBER

ENLARGED DETAIL IDENTIFICATION

DRAWING NUMBER
SHEET NUMBER

PARTITION TYPE IDENTIFICATION

PARTITION TYPE RE: PARTITION TYPE SHEET
HEAD OF WALL TYPE RE: PARTITION TYPE SHEET

ACOUSTIC PARTITION TYPE IDENTIFICATION

PARTITION TYPE RE: PARTITION TYPE SHEET
HEAD OF WALL TYPE RE: PARTITION TYPE SHEET

WINDOW IDENTIFICATION

WINDOW TYPE

GLAZING IDENTIFICATION

GLAZING TYPE

FLAG NOTE IDENTIFICATION

NOTE NUMBER

ROOM/FINISH IDENTIFICATION

ROOM NAME
ROOM NUMBER
WALL FIN.
BASE TYPE
FLOOR FIN. TYPE

ELEVATION REFERENCE

ELEVATION
DATUM POINT LOCATION

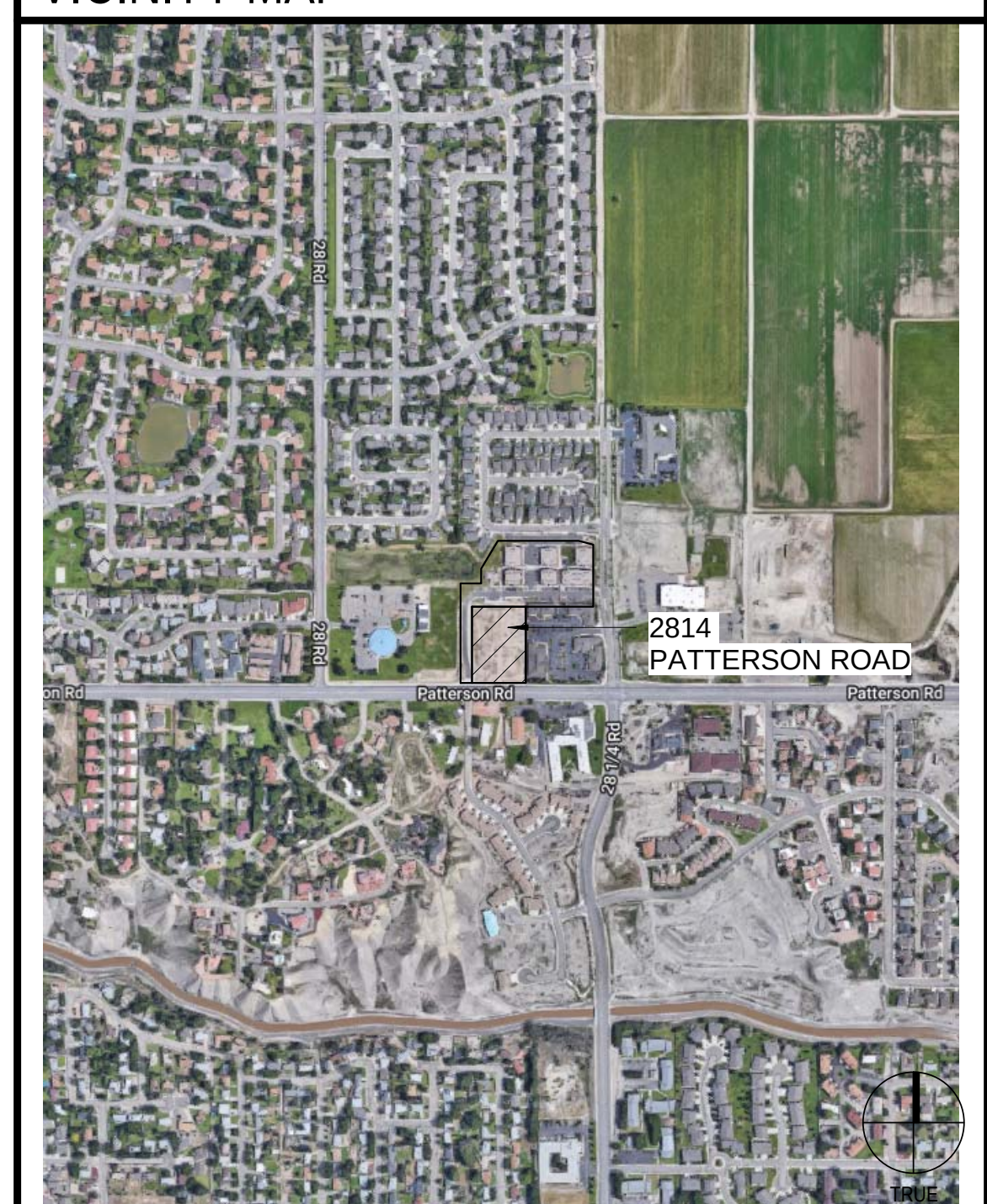
MATERIAL PATTERNS

Concrete
Undisturbed or Compacted Earth
Porous Fill (Gravel)
Steel
Aluminum
Masonry - Brick
Masonry - Concrete Block
Insulation - Rigid
Insulation - Batt
Gypsum - Plaster
Plywood
Finish Wood
Rough Wood
Acoustic Tile

ASSEMBLY IDENTIFICATION

EXTERIOR WALL ASSEMBLY TYPE
FLOOR ASSEMBLY TYPE
CEILING ASSEMBLY TYPE
ROOF ASSEMBLY TYPE

* ROOM AREAS - VERIFY BASIS OF MEASUREMENT USED BY ARCHITECT. MAY BE CALCULATED TO CENTERLINE OF SURROUNDING PARTITIONS OR TO INSIDE FINISH SURFACES



GENERAL		ARCHITECTURE	
G-000	COVER	A-100	CRAWL SPACE PLAN
G-100	PROJECT MATRIX / COMCHECK	A-101	LEVEL 1 FLOOR PLAN
G-101	CODE ANALYSIS	A-102	LEVEL 2 FLOOR PLAN
G-102	CODE SITE PLAN	A-103	LEVEL 3 FLOOR PLAN
G-103	BUILDING CODE PLANS	A-104	ROOF PLAN
G-104	BUILDING CODE PLANS	A-130	CRAWL SPACE RCP
G-105	BUILDING CODE PLANS	A-131	LEVEL 1 RCP
G-106	SPECIFICATIONS - DIVISION 1	A-132	LEVEL 2 RCP
G-107	SPECIFICATIONS - DIVISION 2-33	A-133	LEVEL 3 RCP
G-108	SPECIFICATIONS - ENERGY STAR	A-201	EXTERIOR ELEVATIONS
G-109	SPECIFICATIONS - ENERGY STAR	A-202	ENLARGED EXTERIOR ELEVATIONS
G-201	SIGN TYPES	A-401	STAIR 1 PLANS & SECTIONS
G-401	STANDARD MOUNTING HEIGHTS - ANSI 2009	A-402	STAIR 2 PLANS & SECTIONS
G-402	FHA INFORMATION	A-403	ELEVATOR PLANS, SECTIONS, & DETAILS
G-501	STANDARD PARTITION/ASSEMBLY TYPES	A-501	DETAILS
G-502	PARTITION/ASSEMBLY CUT SHEETS	A-502	DETAILS
G-503	WALL SECTION / RADON SYSTEM	A-601	DOOR TYPES, SCHEDULE, & DETAILS
		A-621	WINDOW TYPES & DETAILS
		A-622	WINDOW DETAILS
CIVIL		A-631	STOREFRONT TYPES & DETAILS
C-1	LEGEND NOTES AND ABBREVIATIONS	A-711	UNIT 1.1 (PLAN/RCP/FINISH/CODE)
C-2	GENERAL NOTES (1)	A-712	UNIT 1.2 - TYPE A (PLAN/RCP/FINISH/CODE)
C-3	GENERAL NOTES (2)	A-721	UNIT 2.1 (PLAN/RCP/FINISH/CODE)
C-4	DEMOLITION PLAN	A-722	UNIT 2.2 - TYPE A (PLAN/RCP/FINISH/CODE)
C-5	SITE PLAN	A-801	UNIT KITCHEN ELEVATIONS
C-6	FIRE SITE PLAN	A-811	UNIT BATH ELEVATIONS
C-7	GRADING PLAN	A-812	UNIT BATH ELEVATIONS
C-8	GRADING DETAILS	A-820	AMENITY ENLARGED PLANS & ELEVATIONS
C-9	RETAINING WALL PLAN AND PROFILE	A-901	UNIT DETAILS
C-10	DRAINAGE PLAN		
C-11	STORM DRAIN PLAN AND PROFILE		
C-12	UTILITY COMPOSITE PLAN	PLUMBING	
C-13	SANITARY SEWER PLAN AND PROFILE	P-1	CRAWL SPACE PLUMBING PLAN
C-14	CONSTRUCTION STORMWATER MANAGEMENT PLAN	P-2	LEVEL 1 PLUMBING PLAN
C-15	CONSTRUCTION STORMWATER MANAGEMENT NOTES AND DETAILS	P-3	LEVEL 2 PLUMBING PLAN
C-16	SITE DETAILS (1)	P-4	LEVEL 3 PLUMBING PLAN
C-17	SITE DETAILS (2)	P-5	LARGE SCALE UNIT PLUMBING PLANS & FIXTURE SCHEDULES
C-18	TRASH ENCLOSURE DETAILS		
C-19	UTE WATER DETAILS (1)	MECHANICAL	
C-20	UTE WATER DETAILS (2)	M-1	CRAWLSPACE HVAC PLAN
		M-2	LEVEL 1 HVAC PLAN
		M-3	LEVEL 2 HVAC PLAN
		M-4	LEVEL 3 HVAC PLAN
		M-5	LARGE SCALE UNIT HVAC PLANS & MECHANICAL SCHEDULES
		M-6	HVAC PIPING SCHEMATICS
LANDSCAPE		M-SPEC-1	MECHANICAL SPECIFICATIONS
L-1	LANDSCAPE SITE PLAN	M-SPEC-2	MECHANICAL SPECIFICATIONS
L-2	PLANTING PLAN	M-SPEC-3	MECHANICAL SPECIFICATIONS
L-3	LANDSCAPE LEGENDS & NOTES	M-SPEC-4	MECHANICAL SPECIFICATIONS
L-4	LANDSCAPE DETAILS		
L-5	DETAILS		
L-6	DETAILS		
L-7	DETAILS		
IR-1	IRRIGATION PLAN	ELECTRICAL	
IR-2	IRRIGATION PLAN	ES-1	ELECTRICAL SITE POWER PLAN AND LIGHTING PLAN
IR-3	IRRIGATION DETAILS	E-1	CRAWL SPACE ELECTRICAL SYSTEMS & LIGHTING PLAN
		E-2	LEVEL 1 ELECTRICAL POWER PLAN
STRUCTURAL		E-3	LEVEL 2 ELECTRICAL POWER PLAN
S-001	GENERAL NOTES	E-4	LEVEL 3 ELECTRICAL POWER PLAN
S-002	GENERAL NOTES	E-5	LEVEL 1 LIGHTING PLAN
S-003	LOAD KEYS	E-6	LEVEL 2 LIGHTING PLAN
S-004	TYPICAL DETAILS	E-7	LEVEL 3 LIGHTING PLAN
S-005	TYPICAL DETAILS	E-8	LARGE SCALE UNIT ELECTRICAL POWER PLANS
S-100	FOUNDATION PLAN	E-9	LARGE SCALE UNIT LIGHTING PLANS
S-101	LEVEL 1 FLOOR PLAN	E-10	ONE-LINE DIAGRAM LOAD CALCULATIONS AND PANEL SCHEDULES
S-102	LEVEL 2 FLOOR PLAN	E-SPEC-1	ELECTRICAL SPECIFICATIONS
S-103	LEVEL 3 FLOOR PLAN	E-SPEC-2	ELECTRICAL SPECIFICATIONS
S-104	ROOF PLAN		
S-400	DETAILS		
S-401	DETAILS		
S-402	DETAILS		
S-403	DETAILS		
S-404	DETAILS		
S-501	SCHEDULES		

G-000

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Generated by REScheck-Web Software
Compliance Certificate

Project 2814

Energy Code: 2009 IECC
Location: Grand Junction, Colorado
Construction Type: Multi-family
Project Type: New Construction
Conditioned Floor Area: 61 ft2
Glazing Area: 49%
Climate Zone: 5 (5548 HDD)
Permit Date:
Permit Number:

Construction Site:
2814 Patterson Road
Grand Junction, CO 81506

Owner/Agent:

Designer/Contractor:

Compliance: Passes using UA trade-off

Compliance: 6.9% Better Than Code Maximum UA: 6093 Your UA: 5674
The % Better or Worse Than Code index reflects how close to compliance the house is based on code trade-off rules.
It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Ceiling: Raised or Energy Truss	20,489	49.0	0.0	0.020	410
Concrete Curbs: Solid Concrete or Masonry	165			0.333	55
CMU Stair Core: Solid Concrete or Masonry	928	0.0	0.0	0.333	309
SIP Wall: Structural Insulated Panels	22,601		24.3	0.044	478
HM Door: Solid Door (under 50% glazing)	28			0.170	5
Coiling Door: Solid Door (under 50% glazing)	70			0.130	9
Storefront: Metal Frame w/ Thermal Break	1,324			0.380	503
Composite Window: Other	5,158			0.270	1393
Composite Window: Other	5,158			0.270	1393
Crawl: Solid Concrete or Masonry Wall height: 5.0' Depth below grade: 4.5' Insulation depth: 1.7'	20,342	0.0	15.0	0.110	1119

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2009 IECC requirements in REScheck Version : REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Dain Carlson - OZ Architecture
Name - Title

Signature

4/04/2019
Date

Project Title: 2814
Data filename:

Report date: 04/04/19
Page 1 of 2

Project Title: 2814
Data filename:

Report date: 04/04/19
Page 2 of 2

4/4/2019

2814									
UNIT DESCRIPTION/COUNT			UNIT CALCULATIONS				UNIT AREAS		
Unit Type	Description	Unit Count	Average Unit NRA	Average Unit NLA	Average Balcony Area	Total Balcony Area	NRA	NLA	GLA
UNIT 1.1	One Bed / One Bath	52	692	743	0	0	35,984	38,636	38,636
UNIT 1.2 - TYPE A	One Bed / One Bath	2	696	742	0	0	1,392	1,483	1,483
UNIT 2.1	Two Bed / Two Bath	5	1,057	1,133	0	0	5,285	5,665	5,665
UNIT 2.2 - TYPE A	Two Bed / Two Bath	1	1,065	1,131	0	0	1,065	1,131	1,131
UNIT SUBTOTALS									
SUBTOTAL UNITS		60			0	0	43,726	46,915	46,915

FLOOR AREA SUMMARY									
NRA	13,202	15,262	15,262						43,726
NLA	14,149	16,383	16,383						46,915
AMENITY / LAUNDRY	1,889	240	240						2,369
CIRCULATION	3,348	3,146	3,146						9,640
SUPPORT	956	720	720						2,396
GBA SUBTOTAL									
	20,342	20,489	20,489						61,320

BUILDING SUMMARY	
TOTAL UNITS	60
TOTAL BEDROOMS	66
GROSS LEASABLE AREA	46,915
NET LEASABLE AREA	46,915
CIRCULATION / SUPPORT	12,036
SUBTOTAL (RESIDENTIAL GROSS- BALCONIES EXCLUDED)	58,951
EFFICIENCY	80%
BALCONIES (@ UNITS)	0
AMENITY	2,369
GROSS BUILDING AREA	61,320

UNIT TYPE DISTRIBUTION		
One Bed / One Bath	54	90%
Two Bed / Two Bath	6	10%
TOTAL		100%

PARKING / DENSITY SUMMARY	
TOTAL PARKING REQUIRED	77
TOTAL PARKING PROVIDED	76+9 onsite + offsite
PARKING SPACES/UNIT	1.28
LAND AREA (acres)	95,875 SF
UNIT DENSITY (units/acre)	27.26
FLOOR AREA RATIO (FAR)	0.61

DEFINITIONS		
NRA	NET RENTABLE (paint-to-paint)	area of living unit measured from inside face of corridor/exterior walls & from inside face of partitions separating living unit from other living or commercial areas, includes heated area only
NLA	NET LEASABLE	outside face of exterior walls/ centerline of unit demising walls/ corridor side of unit wall
GLA	GROSS LEASABLE	NLA+ balconies
GBA	GROSS BUILDING AREA	total building area

SUPPORT offices, electrical, trash, water entry, mech, maint
AMENITY amenity space, mail/parcel area, common restrooms
CIRCULATION stairs, corridors, elevators, vestibule



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2814 PATTERSON ROAD
2814 PATTERSON ROAD, GRAND JUNCTION, CO 81506

PROJ. NO. 118185.00
DRAWN: OZ
CHECKED: OZ
APPROVED: OZ
DATE: 4/05/2019

© OZ ARCHITECTURE

2814 PATTERSON ROAD

ISSUED FOR:
100% CONSTRUCTION
DOCUMENTS

SHEET TITLE:
PROJECT MATRIX /
COMCHECK

SCALE:
SHEET NUMBER

G-100

2814 Patterson Road
Grand Junction, CO 81506

Project Description

This building is a 3-story for-rent apartment building.

1. First-floor consists of dwelling units, entry vestibule, amenity space, leasing offices, common restrooms, and support areas.
2. Second floor consists of dwelling units, laundry room, office storage, and electrical room.
3. Third floor consists of dwelling units, laundry room, and maintenance room.
4. Construction type is VA, R-2 occupancy with accessory A-3 and B occupancies (less than 10% of building area of the story)
5. NFPA 13R sprinkler system throughout

Code Summary:

- Construction Type of Building: VA
- Occupancy Classifications: R-2 w/ A-3 & B accessory occupancies
- Height of the Building: 36' /three stories
- Gross and Net Areas: Refer to table in the code analysis below
- Total Building Area: Refer to table in the code analysis below
- Allowable Area Calculations: Refer to the allowable area calculation below
- Occupant Load for Each Use: Refer to code plans
- Automatic Sprinkler System: NFPA 13R
- Zoning: PD (R-16) (parcel # 2943-063-51-003)

Applicable Codes and Standards

- 2012 International Building Code
- 2012 International Fire Code
- 2012 International Fuel Gas Code
- 2012 International Plumbing Code
- 2012 International Mechanical Code
- 2009 International Energy Conservation Code
- 2017 National Electrical Code, effective 8/1/2017
- 2009 ANSI A117.1, Accessibility requirements
- ANSI/ASME A17.1, Safety Code for Elevators 2013

Deferred Submittals

- Sprinkler System
- Fire Alarm
- Trusses
- Structural Insulated Panels (SIPs)

Building Areas

Option 1: 3 Story Building, VA, R-2 with accessory A-3 / B, NFPA 13R		
Floor/Level	Occupancy Group	Area in GSF
1		1,219
1		318
1		18,805
2		20,489
3		20,489
Total VA		61,320

FLOOR AREA, GROSS. The floor area within the outside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, ramps, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.

Allowable Area

IBC Table 503 & 506.3

12,000 s.f. per story is permitted in type VA Construction for R-2 Occupancy Group, this cannot be increased per Section 506.3 with an NFPA 13R sprinkler system.
11,500 s.f. per story is permitted in type VA Construction for A-3 Occupancy Group, this cannot be increased per Section 506.3 with an NFPA 13R sprinkler system.
18,000 s.f. per story is permitted in type VA Construction for B Occupancy Group, this cannot be increased per Section 506.3 with an NFPA 13R sprinkler system.

Area Increase for

Frontage

IBC 506.2

F = 852'; P = 852'; W = 30'

l_r = [F / P - 0.25] W / 30

l_r = [852' / 852' - 0.25] 30' / 30

l_r = 0.75

R-2 – 12,000 s.f. * 1.75 = 21,000 s.f. / floor

Stories

IBC Table 503 & 504.2

Three stories are permitted in type VA Construction for R-2 Occupancy Group, this can be increased to four stories with an NFPA 13R sprinkler system.
Two stories is permitted in type VA Construction for A-3 Occupancy Group, this can be increased to three stories with an NFPA 13R sprinkler system.
Three stories is permitted in type VA Construction for B Occupancy Group, this can be increased to four stories with an NFPA 13R sprinkler system.

Height

IBC Table 503 & 506.3

In type VA Construction, the height of the building is limited to 50 feet, which can be increased by 20 feet, but not exceed 60 feet, to a total of 60 feet with an NFPA 13R sprinkler system, actual building height is 36 feet.

Occupancy Separation

IBC 508.4

The first floor with A-3 and B occupancy groups is accessory to the R-2 occupancy. No separation is required.

Fire Resistance Rating of Building Elements in Type VA Construction, Table 601

Floor-ceiling

1-hour fire resistance rating.

Roof-ceiling

1-hour fire resistance rating.

Primary Struct. Frame

1-hour fire resistance rating.

Bearing Walls, Exterior

1-hour fire resistance rating.

Bearing Walls, Interior

1-hour fire resistance rating.

Nonbearing Walls, Exterior

0-hour fire resistance rating. Walls to the north have a fire separation distance between 10' to 30' with require 1-hour fire resistance rating.

Nonbearing Walls, Interior

0-hour fire resistance rating.

Secondary Struct. Frame

1-hour fire resistance rating.

Columns

1-hour fire resistance rating.

Nonbearing Walls

Interior non load bearing walls are designed in compliance with 2015 IBC Section 714.4.1.2 exception #7 with double wood top plate and type X gypsum wallboard.

2012 IBC 714.4.1.2 Membrane penetrations. Penetrations of membranes that are part of a horizontal assembly shall comply with Section 714.4.1.1 or 714.4.1.2. Where floor/ceiling assemblies are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire resistance will not be reduced.

Exception # 7. The ceiling membrane of 1- and 2-hour fire-resistance- rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the 2x double top plates are protected in accordance with Section 714.4.1.1 or 714.4.1.2 and the ceiling membrane is tight to the top plates.

Required at R-occupancies per IBC 420.4 and are being used for a height increase. The sprinkler system is being provided throughout per NFPA 13R.

Sprinkler System

Smoke Detection &

Fire Alarm Systems

IBC 420.5

Are required in R-2 occupancies per IBC 907.2.9. Fire alarm and detection system is a design-build and will be submitted by the selected contractor. Specific design details will be addressed by the design-build contractor.

Unit Separation (walls)

IBC 420.2

Walls separating sleeping units from each other or other occupancies contiguous to them will be separated by 1-hour fire resistance rated fire partitions per IBC Sections 708.1 and 708.3.

Unit Separation (floor)

IBC 420.3 & Table 601

Floor assemblies separating sleeping units from each other or other occupancies contiguous to them will be separated by 1-hour fire resistance rated floor construction in type VA construction per IBC Section 420.3 and Table 601.

Fire Separation Dist.

IBC Table 705.8 & Table 602

Fire separation distance exceeds 30' on all faces with windows.

Fire Barriers

IBC 707, 707.3-5

Comply with 707.3 for fire resistance ratings for specific applications. Match rating otherwise required for exterior wall per Section 705, not fire barrier, per 707.4. Extend from the top of floor / ceiling assembly below to underside of deck above, per 707.5.

Fire Partitions

IBC 708, 708.3-5

Not less than 1-hour (except corridors, see 1018.1), per 708.3. Extend from the top floor / ceiling assembly below to underside of deck or fire-rated floor or roof / ceiling assembly above, per 708.4. Match rating otherwise required for exterior wall per Section 705, not the fire partition, per 708.5.

Smoke Barriers

IBC 709, 709.3-5

Per 709.3, smoke barriers shall have a 1-hour rating. Extend from the top of floor / ceiling assembly below to underside of deck above, per 709.4. Openings in smoke barriers are per Section 716, per 709.5.

Smoke Partition

IBC 710, 710.3-4

Smoke partition requires no rating, per 710.3. Extend from the top of floor / ceiling assembly below to underside of deck or smoke-limiting ceiling membrane above, per 710.4.

Hoistway Enclosures

IBC 713.4

1-hour fire-resistance rated shaft constructed as a fire barrier with 60-minute protected openings.

Elev. Machine Room

The specified Otis HydroFit 3500# machine room-less elevator requires no elevator machine room; all elevator equipment is housed within the elevator shaft and maintenance is via a 60-minute fire resistance rated fire door into the shaft at level one.

IBC 713.2 & 713.4

Mechanical shafts for piping, ducts, and vents serving type VA construction are 1-hour fire resistance rated fire barriers since they penetrate a 1-hour floor assembly. Fire/smoke dampers are provided as required by IMC.

Refuse and laundry chute

Enclosures

IBC 713.13.1

A shaft enclosure containing a refuse chute shall not be used for any other purpose and shall be enclosed with a 1-hour fire rating. Openings into the shaft, including those from access rooms and termination rooms, shall be 60-minute protected openings. Openings into chutes shall not be located in corridors. Door shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.5.9.3, except that heat-activated closing devices shall be permitted between the shaft and the termination room.

Refuse and laundry chute

Access rooms

IBC 713.13.3

Access openings for refuse chutes shall be located in rooms or compartments enclosed in 1-hour fire barriers. Openings into the access rooms shall be protected by a 45-minute rating. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.5.9.3.

IBC 713.13.4

Refuse chutes shall discharge into an enclosed room separated from the remainder of the building by 1-hour fire fire barrier. Openings into the termination room shall be protected by 60-minute rating (equal to the protection of the shaft enclosure). Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.5.9.3.

Penetrations

Through and membrane penetration of fire resistance rated and fire resistance rated horizontal assemblies shall comply with IBC Section 714. Penetration fire stop shall include the F and T ratings as outlined in IBC 714.4.1.2 at horizontal assemblies.

Fire Protection of Openings

IBC Table 716.5

Assembly	Wall Ra	Opening	Vision Panel		Sidelite/Transom Rating		Sidelite/Transom Rating	
			Size	Fire Marking	Fire Protect	Fire Resist	Fire Protect	Fire Resist
Fire Walls & Barrier	2 hr	1-1/2	100 sq ft	D-H-90<100 sq ft	NP	2 hr	NP	W-120
			100 sq ft	D-H-W-90<100 sq ft	NP	3 hr	NP	W-240
			100 sq ft	D-H-90<100 sq ft	NP	1-1/2 hr	NP	W-90
			100 sq ft	D-H-W-90<100 sq ft	NP	1-1/2 hr	NP	W-120
Shafts & Enclosure Passageway	1-1/2	1-1/2	100 sq ft	D-H-T or D-H-W-9	NP	1-1/2 hr	NP	W-120
			100 sq ft	D-H-60<100 sq ft	NP	1 hr	NP	W-60
			100 sq ft	D-H-T-60 or D-H-T-W	NP	1 hr	NP	W-60
			100 sq ft	D-H-60<100 sq ft	NP	1 hr	NP	W-60
Other Fi Barrier	1 hr	3/4	Max size c	D-H-NT-45	3/4 hr			D-H-NT-45
			Max size c	D-20	3/4 hr			D-H-OH-45
			Max size c	D-H-45	1/3 hr			D-H-OH-20
			Max size c	D-H-20	1/3 hr			D-H-20
Exterior W	2 hr	1-1/2	100 sq ft	D-H-90<100 sq ft	NP	3 hr	NP	W-180
			100 sq ft	D-H-W-90<100 sq ft	NP	2 hr	NP	W-120
			100 sq ft	D-H-90<100 sq ft	NP	2 hr	NP	W-120
			100 sq ft	D-H-W-90<100 sq ft	NP	2 hr	NP	W-120
Smoke Bar	1 hr	1/3	Max size c	D-H-45	3/4 hr			D-H-45
			Max size c	D-20	3/4 hr			D-H-OH-45
			Max size c	D-20	3/4 hr			D-H-OH-45
			Max size c	D-20	3/4 hr			D-H-OH-45

Fire/Smoke Dampers

Radiation Dampers

To be coordinated with the mechanical drawings and be provided per IBC 717.

IBC 717.6.2. & 717.6.2.1

A listed/approved ceiling radiation damper shall be installed at the ceiling line (roof) where a duct penetrates ceiling membrane of a FRR horizontal assembly
For specific requirements refer to the project specifications and IBC Section 718.2. This section includes provisions for fire blocking in double stud walls, concealed wall spaces, connection between horizontal and vertical assemblies, stairways, ceiling and floor openings.

Fireblocking Materials

IBC 718.2.1
Two-inch nominal lumber; two thicknesses of 1-inch nominal lumber with broken lap joints; one thickness of 0.719-inch wood structural panels with joints backed by 0.719-inch wood structural panels; one-half-inch gypsum board; one-fourth-inch cement-based millboard; batts or blankets of mineral wool, mineral fiber or other approved materials installed in such a manner as to be securely retained in place; cellulose insulation installed as tested for the specific application

Draftstopping Materials

IBC 718.3.1
Shall not be less than 3/4-inch gypsum board, 3/8-inch particleboard, 1-inch nominal lumber, cement fiberboard, batts or blankets of mineral wool or glass fiber, or other approved materials adequately supported. The integrity of the draftstopping shall be maintained.

Draftstopping in Floor

IBC 718.3.2
Draftstopping shall be provided in floor/ceiling spaces in Group R-2 building with three or more dwelling units. Draftstopping shall be located above and in line with the dwelling unit and sleeping unit separations.

Draftstopping in Attic

IBC 718.4.2
Draftstopping shall be provided in attics, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more dwelling units.

Interior Finish Requirements

IBC Table 803.9

Finishes:	Group	Stairs	Corridors	Rooms
Sprinklered	A & H	B	B	C
	A & H	B	B	C
	B, E, M, R-1 & R-4	B	C	C
	F, R-2, R-3 & S	C	C	C
	I-2 & I-4	B	B	B
	I-3	A	A	C

Automatic Sprinkler System

IBC 903.3.1

NFPA 13 System for those required under 903.2, except for group R up to 4 stories can be NFPA 13R.

Standpipe Class

IBC 905.3.1-3

Per exception 1, Class I standpipes are allowed in buildings equipped throughout with an NFPA 13R sprinkler system. Grand Junction Fire requires standpipes in both stair cores of this building.

Manual Fire Alarm

IBC 907.2.9.1

A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed where any dwelling units are located three stories or more above the lowest level of exit discharge and where the building contains more than 16 dwelling units, so not required.

Auto. Smoke Detection

IBC 907.2.9.2

Single- and multi-station smoke alarm shall be installed, complying with UL 217 and NFPA 72.

Smoke/CO Alarm

IBC 907.2.11.2 & 908.7

Smoke & CO alarms (120VAC with battery backup) will be provided outside of each separate sleeping area and in each room used for sleeping purposes. The smoke alarms and combination smoke alarm/CO alarm units shall have strobes (120 VAC) integral to the operation of the alarm.

Interconnection

IBC 907.2.11.3

Where more than one smoke alarm is required to be installed within a dwelling unit, the smoke alarm shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit.

Power Source

IBC 907.2.11.4

Required smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system.

Carbon monoxide alarms

IBC 908.7

R occupancies located in a building with fuel-burning appliance shall be equipped with a single-station carbon monoxide alarm. Carbon monoxide alarm shall be listed and installed and maintained in accordance to NFPA 720 and the manufacturer's instructions.

Occupant Load Factors

IBC Table 1004.1.2

Business	1:100 s.f.	gross
Assembly (tables & chairs)	1:15 s.f.	net
Commercial Kitchens	1:200 s.f.	gross
Storage/MEP	1:300 s.f.	gross
Residential	1:200 s.f.	gross

Refer to code plans for additional information on occupant load factors and calculations.

Exit Widths

IBC 1005.3.1 & 1005.3.2

Stairway exit capacity: 0.3"/person

44" wide stairway accommodates: 146 people

Non-stairways exit capacity: 0.2"/person

36" door (33" clear width) accommodates: 165 people

Exit Illumination

IBC 1007.1

Where more than one means of egress is required, not less than two accessible means of egress are required.

Accessible Means of Egress

Elevator

IBC 1007.2.1

Elevator is not required to be an accessible means of egress since building is not four or more stories above or below a level of exit discharge

Stairways

IBC 1007.3

To be considered part of an accessible means of egress, stairways must have a clear width of 48" between handrails and incorporate an area of refuge. Note, these requirements are waived in buildings with an NFPA 13 or 13R sprinkler system and R-2 occupancy, refer to exception 1 & 2.

Areas of Refuge

IBC 1007.6

Are not required since elevator is not required to be accessible and stairs are not required to have an area of refuge due to NFPA 13R sprinkler system, refer to 1007.3, exception 2.

Two-Way Communication

IBC 1007.8

A two-way communication system is provided at the elevator landing on each accessible floor that is one or more stories above the story of exit discharge, including directions for the use of the system

Door Minimum Size

</

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PROJECT FLAGNOTES	
NO.	FLAGNOTE
21.02	FIRE DEPARTMENT CONNECTION, RE: PLUMB
22.02	GAS METER, RE: PLUMB
23.02	CHILLER IN ENCLOSURE, RE: MECH
26.01	TRANSFORMER, RE: ELEC
26.03	ELECTRIC SERVICE ENTRANCE, RE: ELECT.



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APPROVED: OZ
DATE: 4/05/2019

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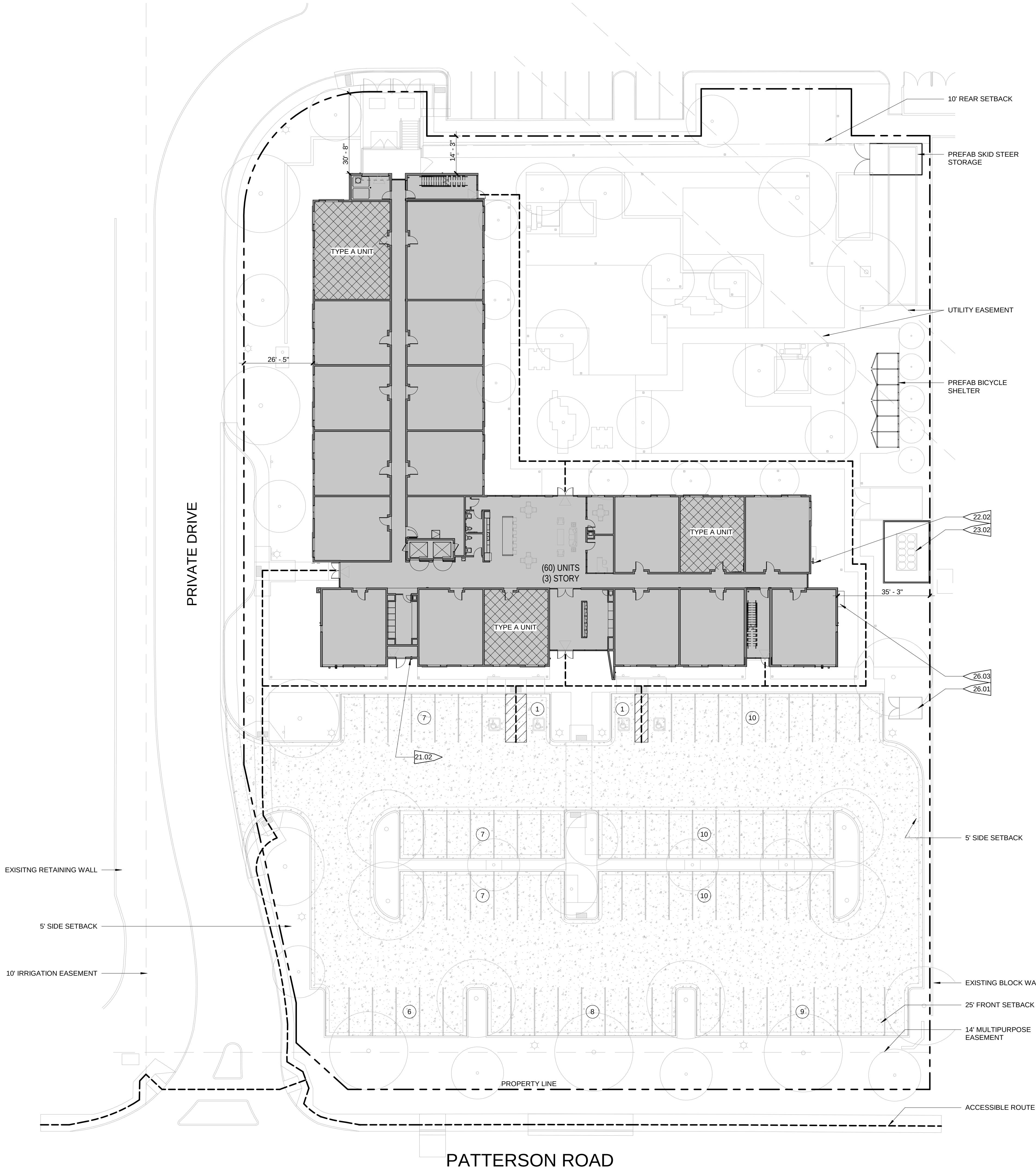
2814 PATTERSON ROAD

ISSUED FOR:
100% CONSTRUCTION
DOCUMENTS

SHEET TITLE:
CODE SITE PLAN

SCALE: 1" = 20'-0"
SHEET NUMBER

G-102



1 CODE SITE PLAN
1" = 20'-0"

REFER TO CIVIL DRAWINGS FOR ADDITIONAL SITE INFORMATION

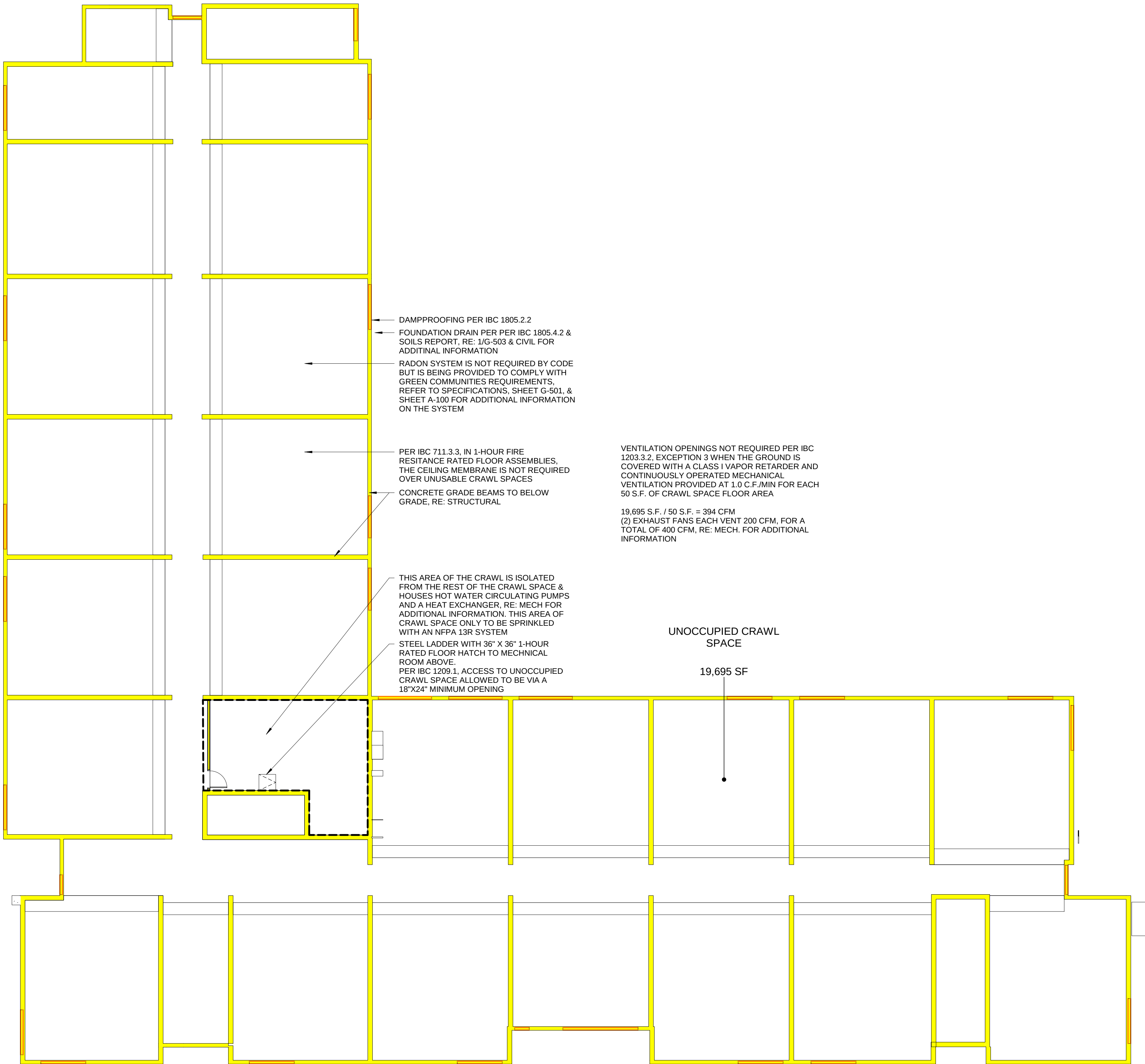


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CRAWL SPACE CODE PLAN

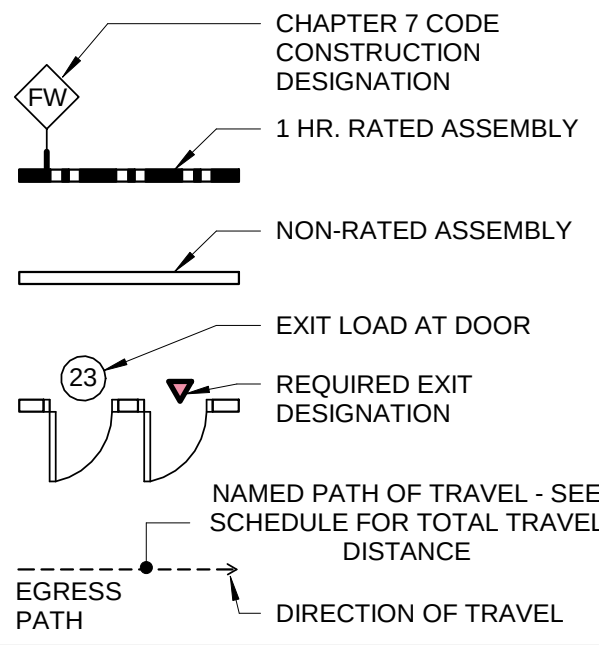
3/32" = 1'-0"



BUILDING CODE NOTES

- 1 BUILDING SHALL BE SPRINKLERED THROUGHOUT IN ACCORDANCE WITH IBC CHAPTER 9 AND NFPA 13R
- 2 SEE G-500 SERIES SHEETS FOR LISTED ASSEMBLIES FOR FLOOR/CEILINGS, ROOF/CEILINGS, EXTERIOR WALLS AND PARTITIONS. LISTED FIRE-RESISTIVE ASSEMBLIES MAY BE SUBSTITUTED WITH APPROVAL OF AUTHORITY HAVING JURISDICTION AND ARCHITECT.
- 3 SEE DOOR SCHEDULE, SHEET A-600 FOR DOOR RATINGS. ALL RATED DOORS TO COMPLY WITH IBC 716
- 4 ALL PENETRATIONS THROUGH FLOORS AND RATED WALLS TO BE FIRESTOPPED IN ACCORDANCE WITH IBC CHAPTER 7.
- 5 GC IS TO COORDINATE FIRE DEPARTMENT CONNECTION (FDC) LOCATION WITH AUTHORITY HAVING JURISDICTION AND ARCHITECT.
- 6 GC IS TO COORDINATE KNOX BOX LOCATION WITH FIRE DEPARTMENT AND ARCHITECT.

CODE SHEET GRAPHICS LEGEND



FIRE RESISTANCE DESIGNATIONS

FW	FIRE WALL (IBC SECTION 706)
FB	FIRE BARRIER (IBC SECTION 707)
FP	FIRE PARTITION (IBC SECTION 708)
SB	SMOKE BARRIER (IBC SECTION 709)
SP	SMOKE PARTITION (IBC SECTION 710)
SE	SHAFT ENCLOSURE (IBC SECTION 713)



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SHEET TITLE:
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SCALE: As indicated
SHEET NUMBER

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SHEET TITLE:
BUILDING CODE PLANS

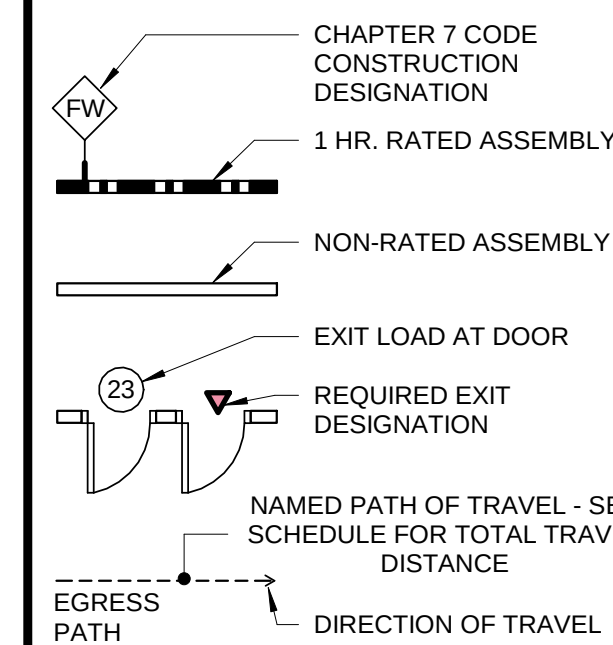
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SHEET NUMBER

G-104

BUILDING CODE NOTES

- BUILDING SHALL BE SPRINKLERED THROUGHOUT IN ACCORDANCE WITH IBC CHAPTER 9 AND NFPA 13R
- SEE G-500 SERIES SHEETS FOR LISTED ASSEMBLIES FOR FLOOR/CEILINGS, ROOF/CEILINGS, EXTERIOR WALLS, AND PARTITIONS. LISTED FIRE-RESISTIVE ASSEMBLIES MAY BE SUBSTITUTED WITH APPROVAL OF AUTHORITY HAVING JURISDICTION AND ARCHITECT.
- SEE DOOR SCHEDULE, SHEET A-600 FOR DOOR RATINGS. ALL RATED DOORS TO COMPLY WITH IBC 716
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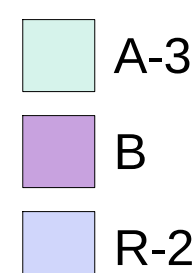
CODE SHEET GRAPHICS LEGEND



FIRE RESISTANCE DESIGNATIONS

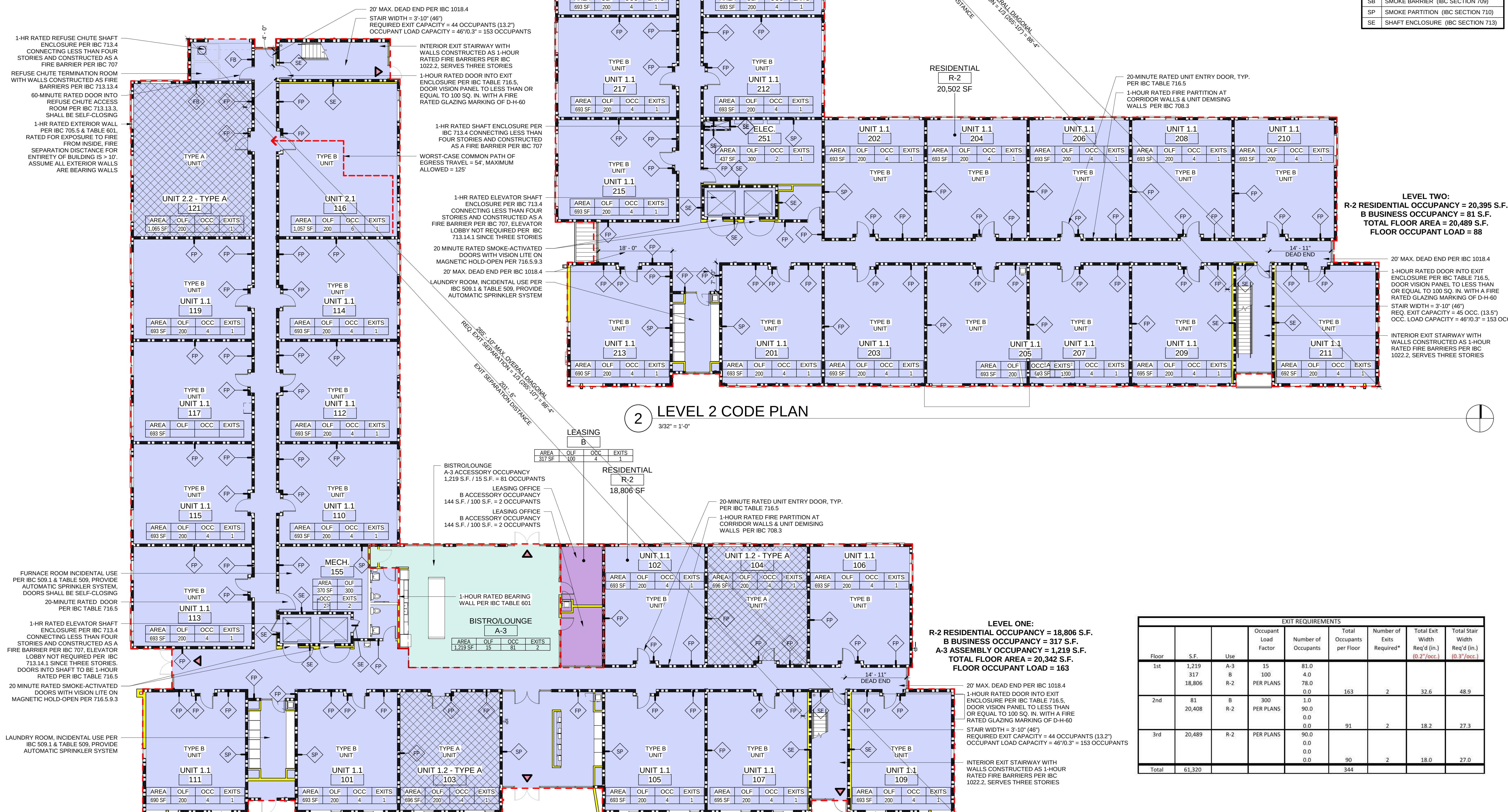
FW	FIRE WALL (IBC SECTION 706)
FB	FIRE BARRIER (IBC SECTION 707)
FP	FIRE PARTITION (IBC SECTION 708)
SB	SMOKE BARRIER (IBC SECTION 709)
SP	SMOKE PARTITION (IBC SECTION 710)
SE	SHAFT ENCLOSURE (IBC SECTION 713)

CODE OCCUPANCY



LEVEL 2 CODE PLAN

3/32" = 1'-0"



LEVEL 1 CODE PLAN

3/32" = 1'-0"

EXIT REQUIREMENTS							
Floor	S.F.	Use	Occupant Load Factor	Number of Occupants	Total Occupants per Floor	Total Exit Width Req'd (in.)	Total Stair Width Req'd (in.)
1st	1,219	A-3	15	81.0	163	32.6	48.9
	317	B	100	4.0			
	18,806	R-2	PER PLANS	78.0			
2nd	81	B	300	1.0	91	18.2	27.3
	20,408	R-2	PER PLANS	90.0			
				0.0			
3rd	20,489	R-2	PER PLANS	90.0	344	18.0	27.0
				0.0			
				0.0			
Total	61,320						

LEVEL ONE:
R-2 RESIDENTIAL OCCUPANCY = 18,806 S.F.
B BUSINESS OCCUPANCY = 317 S.F.
A-3 ASSEMBLY OCCUPANCY = 1,219 S.F.
TOTAL FLOOR AREA = 20,342 S.F.
FLOOR OCCUPANT LOAD = 163

20' MAX. DEAD END PER IBC 1018.4
1-HOUR RATED DOOR INTO EXIT ENCLOSURE PER IBC TABLE 716.5, DOOR VISION PANEL TO LESS THAN OR EQUAL TO 100 SQ. IN. WITH A FIRE RATED GLAZING MARKING OF D-H-60
STAIR WIDTH = 3'-10" (46")
REQUIRED EXIT CAPACITY = 44 OCCUPANTS (13.2")
OCCUPANT LOAD CAPACITY = 153 OCCUPANTS

INTERIOR EXIT STAIRWAY WITH WALLS CONSTRUCTED AS 1-HOUR RATED FIRE BARRIERS PER IBC 1022.2, SERVES THREE STORIES

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SHEET TITLE:
BUILDING CODE PL

SCALE: As indicated
SHEET NUMBER

G-105

BUILDING CODE NOTES	
1	BUILDING SHALL BE SPRINKLERED THROUGHOUT IN ACCORDANCE WITH IBC CHAPTER 9 AND MEFA 13P.
2	SEE G-500 SERIES SHEETS FOR LISTED ASSEMBLIES FOR FLOOR/CEILINGS, ROOF/CEILINGS, EXTERIOR WALLS, AND PARTITIONS. LISTED FIRE-RESISTIVE ASSEMBLIES MAY BE SUBSTITUTED WITH APPROVAL OF AUTHORITY HAVING JURISDICTION AND ARCHITECT.
3	SEE DOOR SCHEDULE, SHEET A-600 FOR DOOR RATINGS. ALL RATED DOORS TO COMPLY WITH IBC 716
4	ALL PENETRATIONS THROUGH FLOORS AND RATED WALLS TO BE FIRESTOPPED IN ACCORDANCE WITH IBC CHAPTER 7.
5	GC IS TO COORDINATE FIRE DEPARTMENT CONNECTION (FDC) LOCATION WITH AUTHORITY HAVING JURISDICTION AND ARCHITECT.
6	GC IS TO COORDINATE KNOX BOX LOCATION WITH FIRE DEPARTMENT AND ARCHITECT.

CODE SHEET GRAPHICS LEGEND

	CHAPTER 7 CODE CONSTRUCTION DESIGNATION
	1 HR. RATED ASSEMBLY
	NON-RATED ASSEMBLY
	EXIT LOAD AT DOOR
	REQUIRED EXIT DESIGNATION
	NAMED PATH OF TRAVEL - SEE SCHEDULE FOR TOTAL TRAVEL DISTANCE
	EGRESS PATH
	DIRECTION OF TRAVEL

FIRE RESISTANCE DESIGNATIONS	
FW	FIRE WALL (IBC SECTION 706)
FB	FIRE BARRIER (IBC SECTION 707)
FP	FIRE PARTITION (IBC SECTION 708)
SB	SMOKE BARRIER (IBC SECTION 709)
SP	SMOKE PARTITION (IBC SECTION 710)
SE	SHAFT ENCLOSURE (IBC SECTION 713)

CODE OCCUPANCY

 R-2

2 ROOF CODE PLAN

EGRESS PATH LENGTH		
PATH SEGMENT NAME	PATH TOTAL LENGTH	MAX DISTANCE ALLOWED
A	197' - 2 5/8"	250' - 0"

WORST-CASE EGRESS PATH "A", REFER TO
EGRESS PATH LENGTH INFO NOTED ABOVE
20-MINUTE RATED UNIT ENTRY DOOR, TYP.
PER IBC TABLE 716.5
1-HOUR RATED FIRE PARTITION AT
CORRIDOR WALLS & UNIT DEMISING
WALLS PER IBC 708.3

THRU-WALL SCUPPER W/ CONDUCTOR HEAD AND
DOWNSPOUT AT ALL AREAS OF ROOF W/ PARAPET
PER IBC 1503.4. SECONDARY (EMERGENCY
OVERFLOW) SCUPPERS ARE BEING PROVIDED
ADJACENT TO ALL SCUPPERS PER IBC 1503.4.2

LOW-SLOPE EPDM (THERMOSET) ROOFING TO BE
INSTALLED PER IBC 1507.12

ROOF ACCESS NOT REQUIRED BY CODE SINCE
BUILDING IS THREE STORIES AND ROOF IS
UNOCCUPIED, BUT ROOF HATCH IS BEING PROVIDED
IN CASE OF FUTURE MAINTENANCE. A GUARD
COMPLYING WITH IBC 1013.7 WILL BE PROVIDED SINCE
HATCH IS WITHIN 10' OF ROOF EDGE.

GUTTERS & DOWNSPOUTS PER IBC 1503.4.3,
REFER TO ROOF PLAN FOR SIZING CALCULATIONS

ASPHALT SHINGLES TO COMPLY WITH ASTM D 225
OR ASTM D3462 PER IBC 1507.2.5 & HAVE A
CLASSIFICATION OF G OR H TO MEET THE BASIC
MAXIMUM WIND SPEED.

FASTENERS SHALL BE INSTALLED PER IBC 1507.2.1
& 1507.2.7

- **ALTHOUGH NOT REQUIRED BY CODE, A ROOF FALL PROTECTION SYSTEM IS BEING PROVIDED PER OWNER REQUEST, REFER TO ROOF PLAN FOR ADDITIONAL INFORMATION**
- **ATTIC VENTILATION IS BEING PROVIDED PER IBC 1203.2 EXCEPTION 1 WITH A NET FREE VENTILATING AREA OF 1/300 OF THE AREA OF THE SPACE VENTILATED, REFER TO ROOF PLAN FOR CALCULATIONS AND ADDITIONAL INFORMATION**

METAL ROOF PANELS AT LOWER ROOFS TO BE INSTALLED PER IBC 1507.4 AND COMPOSED OF METALS THAT COMPLY WITH TABLE 1507.4.3(1). ATTACHMENT TO COMPLY WITH IBC 1507.4.4

2 ROC $3/32'' \equiv 1' : 0$

RESIDENTIAL
R-2

LEVEL THREE:
R-2 RESIDENTIAL OCCUPANCY = 20,480 S.F.
TOTAL FLOOR AREA = 20,480 S.F.
FLOOR OCCUPANT LOAD = 90

EXIT REQUIREMENTS								
Floor	S.F.	Use	Occupant Load Factor	Number of Occupants	Total Occupants per Floor	Number of Exits Required*	Total Exit Width Req'd (in.) (0.2"/occ.)	Total Stair Width Req'd (in.) (0.3"/occ.)
1st	1,219 317 18,806	A-3 B R-2	15 100 PER PLANS	81.0 4.0 78.0 0.0	163	2	32.6	48.9
2nd	81 20,408	B R-2	300 PER PLANS	1.0 90.0 0.0 0.0	91	2	18.2	27.3
3rd	20,489	R-2	PER PLANS	90.0 0.0 0.0 0.0	90	2	18.0	27.0
Total	61,230				344			

1 LEVEL 3 CODE PLAN

$$3/32'' = 1'-0''$$

DIVISION 1 - GENERAL REQUIREMENTS

11000 SUMMARY

SUMMARY OF WORK

- The Work to be done under the Contract is the construction in a workman-like manner, to the satisfaction of the Architect, of all the work set forth in the Contract Documents.
- The Contractor and all Subcontractors shall review all sections of the Drawings and Project Specifications prior to commencement of any part of the Work.
- All trades shall perform their work within the recognized standards of their industry.
- If the Contract Documents or job conditions make it impossible to produce first class Work or warranty for the Work or its performance, or if there are discrepancies among the Contract Documents, request an interpretation or clarification from the Architect prior to offering a cost for or commencing the Work.
- In the event of a conflict between documents, the better quality or greatest extent of work, as determined by the Architect, shall be performed by the Contractor.
- Any deviation whatsoever from the Contract Documents is not allowed without the Architect's written approval. Failure to obtain such written approval places all responsibility for the variation on the Contractor and applicable Subcontractor.

01200 ALTERNATE PAYMENT PROCEDURES

PRICES

- Materials are defined as alternate products, materials, equipment, systems, methods, units of work, or major elements of the construction, which may, at the Owner's option, be selected in lieu of corresponding requirements of the Contract Documents. Selection may occur prior to the Contract Date, or may, by agreement with the Contractor, be deferred for possible selection at a subsequent date.
- Materials as a part of each alternate, and associated costs/savings and increases/decreases in Contract Time.
- The description of each alternate is recognized to be incomplete and abbreviated but requires that each change must be complete for the scope of work to be affected. Refer to the applicable Specifications, descriptive notes, and Drawings for specific requirements of the work.
- Complete related work and modify surrounding work as required to properly integrate the work of each alternate.

SUBSTITUTION PROCEDURES

- After execution of the Contract, the Owner and Architect will consider substitutions of products in place of those specified under the following conditions:
 - The specified product or products, through no fault of the Contractor or his Subcontractors, cannot be delivered in time to meet the construction schedule.
 - A formal request is made for the substitution documenting fully the reason. Include complete data on the proposed substitution substantiating compliance with the Contract Documents, including product identification and description, performance and test data, references and samples where applicable.
 - Acceptance of the substitution request with accurate installed cost data on the proposed substitution in comparison with the product specified.
- Such submittal is a representation by the Contractor that:
 - He has personally investigated the proposed substitution and determined that it is equal or superior in all respects to that specified.
 - He will provide the same warranty for the substitution as for that specified.
 - The cost data presented is complete and includes all related costs under this Contract but excludes costs under separate contracts and excludes Architect's re-design costs, and that he waives all claims for additional costs related to the substitution which subsequently become apparent.
 - He will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
- When approved by the Owner and Architect, such substitution will be documented by Change Order modifying the Specifications.
- Approved substitutions may, because of different size, weight, configuration or other characteristics, require modifications to other elements of the Work. If such substitutions are used, all such modifications to other elements of the Work must be shown by shop drawings or other submittals as appropriate, and approved by the Architect before commencement of the Work.

CONTRACT MODIFICATION PROCEDURES

Architect's Supplemental Instructions (ASI)

The Architect will issue Architect's Supplemental Instructions authorizing minor changes in the Work, not involving changes to the Contract Sum or Contract Time, on AIA Document G710, "Architect's Supplemental Instructions" (or similar document).

Request for Information (RFI)

The Contractor may request additional information or clarification by submitting a Request for Information, on AIA Document G716 or on other form acceptable to the Architect. Allow five (5) working days from receipt for Architect's reply.

Proposal Requests (PR)

Architect-Initiated Proposal Requests

- The Architect will issue a detailed description of the proposed changes in the Work, on AIA Document G709 (or similar document), that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and/or Specifications.
 - Proposal Requests issued by the Architect are for information only, do not consider them as instruction to stop work in progress or to execute the proposed change.
 - Within seven (7) days of receipt of a Proposal Request, submit an estimate of cost necessary to execute the change to the Architect for review.
 - Include a list of quantities of products required and unit costs, with the total amount of purchases to be made.
 - Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - Include a statement indicating the effect the proposed change in the Work will have on Contract Time.
- Contractor-Initiated Proposal Requests**
- When latest or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change on AIA Document G709 or on other form acceptable to the Architect.
 - Provide a complete description of the proposed change.
 - Include a statement outlining the reason for the change and the effect of the change on the Work.
 - Include a list of quantities of products required and unit costs, with the total amount of purchases to be made.
 - Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - Indicate the effect of the proposed change on the Contract Sum and Contract Time.
 - Upon the Architect's approval of a Proposal Request, the Architect will issue a Change Order for signatures of the Architect, Contractor, and Owner on AIA Document G701.

Construction Change Directive (CCD)

When the Architect and the Contractor disagree on the terms of a Proposal Request, the Architect may issue a Construction Change Directive on AIA Document G714, "Construction Change Directive" instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order Proposal Request.

- The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.
- Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
- After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the contract.

PAYMENT PROCEDURES

Applications for Payment

- Contractor shall utilize AIA Document G702 and Continuation Sheet G703 (or other form acceptable to the Architect) as the form for Applications for Payment.
- Coordinate the Schedule of Values and Application for Payment with the Contractor's construction schedule, submittal schedule, and list of subcontractors.
- With each Application for Payment, submit lien releases from every entity who is lawfully entitled to file a lien and has performed Work covered by the payment. When an application shows completion of an item, submit final lien releases for that portion of the Work.
- Include amounts of change orders issued prior to the last day of the performance period covered by the application.
- Submit a copy of the Payment Application for Payment and the Application for Payment to the Architect for review and approval. Upon review and approval, Architect shall sign the payment application and forward to the Owner for final approval and payment processing.

Schedule of Values

- Submit the Schedule of Values to the Architect no later than seven (7) days before the initial Application for Payment.
- Include the following information on the Schedule of Values:
 - Project name, location, and number
 - Name of Architect
 - Name of Subcontractor
 - Date of Submittal
 - Include the following information on the Schedule of Values:
 - Related Specification section or division
 - Description of Work
 - Name of subcontractor
 - Name of manufacturer or fabricator
 - Name of supplier
 - Change Order numbers that affect value
 - Provide a separate line item for materials or equipment that have been purchased or fabricated and stored, but not yet installed.
 - Differentiate between items stored on and off site.
 - Temporary facilities and other items that are not actual work-in-place may be shown either as separate line items or included in general overhead expenses at Contractor's option.
 - Update and resubmit the Schedule of Values prior to the next Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

Initial Application for Payment

The following items shall precede or accompany the initial Application for Payment:

- List of subcontractors
- List of principal suppliers and fabricators
- Schedule of Values
- Contractor's preliminary construction schedule
- Schedule of principal products
- Schedule of unit prices
- Preliminary submittal schedule
- List of Contractor's staff assignments and principal consultants (if used)
- Copies of authorization and licenses from governing authorities
- Certificates of insurance and insurance policies

Application for Payment at Substantial Completion

The following items shall precede or accompany the Application for Payment at Substantial Completion:

- Occupancy permits and any agreed approval
- Warranties for mechanical, electrical, and plumbing
- Test/adjust/balance records
- Meter readings
- Changeover information related to Owner's occupancy, use operation, and maintenance
- Final cleaning
- Remove all temporary shoring, insurance coverage
- Punch list of incomplete work
- Submit AIA document G704 listing any incomplete work and associated value
- Completion of As-Built drawings to Owner. Files shall include a fully updated punch list including addenda, change orders, and RFIs. As-Built Drawings shall include one-line diagrams of any utilities, systems, or equipment not installed per the project documents.

Substantial Completion

- The following items shall precede or accompany the final Application for Payment:
 - Project closeout requirements completed in their entirety
 - Completion of items specified for completion after Substantial Completion
 - Proof that taxes, fees, and similar obligations were paid in full
 - Submit final lien releases from every entity involved with performance of the Work who is lawfully entitled to file a lien
 - Remove all temporary facilities
 - Remove all surplus materials, trash, and similar items
 - Change door locks to Owner's access

01300 ADMINISTRATIVE REQUIREMENTS

PROJECT MANAGEMENT AND COORDINATION

- The Contractor shall be responsible for all construction scheduling and shall be responsible to see that the Work is done in a timely manner.
- The Contractor shall immediately notify the Owner of any changes in the construction schedule.
- Each entity involved in the performance of Work for the entire Project shall cooperate in the overall coordination of the Work and promptly furnish information concerning its portion of the Work.
- It is the intent of the Contract Documents that all systems, including mechanical and electrical, be complete and functional to provide the intended or specified performance. The Contractor shall provide all incidental items and parts necessary to achieve this requirement.
- It is recognized that the Contract Documents are diagnostic in showing certain physical relationships of the various elements and systems and their interfacing with other elements and systems. Establishment and coordination of these relationships is the exclusive responsibility of the Contractor.
- Do not scale off the drawings. Where dimensions conflict or are missing, request clarification from the Architect prior to commencement of the Work.

PROJECT MEETINGS

Preconstruction Conference

- Schedule a pre-construction conference prior to any site work or construction.
- Attendees to include Owner, Architect (and their consultants on an as-needed basis), project superintendent, and major subcontractors as required by the Contractor.
- Agenda to include items that could affect progress, including the following:
 - Construction schedule and sequencing
 - Designation of responsible personnel
 - Procedures for processing field decisions and Change Orders
 - Procedures for processing Applications for Payment
- Submittal of shop drawings, product data, and samples

- Site access and use of the premises, including parking availability
- Work and storage areas
- Equipment and material deliveries
- Safety, security, and first aid procedures
- Housekeeping, inclusive of waste and recycling procedures
- Working hours

Preinstallation Meetings

- Conduct a pre-installation meeting at the Project Site before each construction activity that requires coordination with other construction, and notify the Architect of scheduled meeting dates.
- Attendees to include Contractor's project superintendent, the installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations.
- Agenda to include items of significance that pertain to the preparation for the particular activity under consideration, including (but not limited to) the Contractor:
 - Contract Documents
 - Options
 - Related Change Orders
 - Purchases and deliveries
 - Shop drawings, product data, and samples
 - Review of mockups
 - Possible conflicts
 - Compatibility of materials
 - Time schedules
 - Weather limitations
 - Manufacturer's recommendations and warranty requirements
 - Acceptability of substrate
 - Temporary facilities and services
 - Space and access limitations
 - Governing regulation
 - Safety issues
 - Inspection and testing requirements
 - Required quality and performance results
 - Protection of existing and new work
- Do not proceed with installation if items above cannot be successfully addressed. Initiate whatever actions are necessary to resolve conflicts to the satisfaction of the Work and resume meeting at the earliest possible date.

Progress Meetings

- Schedule progress meetings at the Project Site at regular intervals and notify the Architect of scheduled meeting dates.
- Attendees to include project superintendent, Architect, and any subcontractor, supplier, or other entity concerned with current progress, or involved in planning, coordination, or performance of future activities.
- Agenda to include items of significance that are appropriate to the status of the Project and that could affect progress, including (but not limited to) the following:
 - Reviewing and correcting or approving minutes of the previous progress meeting.
 - Review progress since last meeting.
 - Construction schedule. Determine where each activity is in relation to the Contractor's construction schedule and how activities behind schedule will be expedited. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - Review the present and future needs of each entity present, including (but not limited to) the following:
 - Interface requirements
 - Time
 - Sequencing
 - Status of submittals
 - Deliveries
 - Fabrication
 - Site access and utilization
 - Temporary facilities and services
 - Hours of work
 - Hazards and risks
 - Housekeeping, inclusive of waste and recycling procedures
 - Quality and work standards
 - Change Orders
 - Documentation of information for payment requests
 - No later than three (3) days after each meeting, Contractor shall distribute minutes of the meeting to the Architect, Owner, and each entity present (or whose submittal has been pending). Include a brief summary, in narrative form, of progress since the previous meeting and report, as specified, in the Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized as required. Issue the revised schedule with the report of each meeting.

SCHEDULING OF WORK

- A construction schedule shall be prepared by the Contractor and submitted to the Architect and Owner for review within ten (10) days of Contractor establishing date for commencement of the Work. Schedule to indicate each significant construction activity separately, including the anticipated first and last date of each activity.
- Contractor to provide an updated monthly schedule inclusive of the following:
 - Identification of activities that have changed
 - Changes in activity start or finish dates
 - Changes in activity duration (in number of work days)
 - Changes in critical path or Contract Time

SUBMITTAL PROCEDURES

- Shop drawings and submittals are required for the Architect's review and approval. Failure of the Contractor to provide shop drawings and/or submittals shall constitute a breach of contract. The Contractor shall be responsible for the design of the Work from the Architect. Shop drawings and submittals are to be provided as indicated in the Contract Documents.
- Submit all submittals to Contractor to Architect after Contractor has reviewed each submittal and indicated his action thereon, except for samples and selection submittals.
- Coordinate the preparation and processing of submittals with the performance of the Work so progress will not be delayed by processing and resubmission of submittals.
- Prepare submittals in duplicate (with extra copies as required by Contractor) with permanent marking on each submittal to identify it by project name, date, Contractor, Subcontractor, submittal name and similar information to distinguish it from other submittals. Electronic submittals, in PDF format, are acceptable where appropriate.
- Submittals received directly from sources other than through the Contractor's office will be returned "Without Review".
- No submittals are to be sent directly to the Architect's consultants.
- The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
- Allow ten (10) working days for submittal review. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect.
- The Architect will stamp submittals to indicate the action taken, actions include:
 - No Exception Taken:** The Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents.
 - Revisions Needed:** The Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
 - Rejected:** Do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or resubmit without prejudice according to the Architect's instructions, request clarification from the Architect prior to commencing Work.
 - Revise and Resubmit:** Do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations, and resubmit without delay. Repeat as necessary to obtain a different action.
 - Withdrawn:** Denotation by Architect when submittal has been reviewed exclusively by Architect's Consultant. Refer to notations or corrections by reviewing Consultant.
- Do not proceed with purchase, fabrication, or installation of submittal-related work until marked either "No Exceptions Taken" or "Make Corrections Taken" by the Architect. Resubmit as required until so marked by the Architect.
- Work which is executed without the required submittal review and approval shall be subject to rejection. Removal and reconstruction of rejected work shall be at the Contractor's expense.

Shop Drawings

- Provide shop drawings for units of work as required in the schedule of submittals. Specifications, and/or the Drawings. Prepare graphic information to a suitable scale on bond paper with drawings properly identified, show dimensions and indicate which are based on field measurements.
- Prepare shop drawings in duplicate (with extra copies as required by Contractor) with permanent marking on each drawing to identify it by project name, date, Contractor, Subcontractor, shop drawing name and similar information to distinguish it from other shop drawings.
- Do not reproduce Contract Documents or copy standard information as the basis for shop drawings. Standard information prepared without specific reference to the Project is not a shop drawing.
- Color drawings shall be reviewed by the Owner for completeness, accuracy, and conformity with the Contract Documents.
- Notes and corrections shall be made on all copies of submittals, signed by the individual reviewing the documents, and stamped with the Contractor's date/stamp.
- When products are specified by trade name or manufacturer's name and model number, furnish those specific proprietary products. Where more than one manufacturer is specified, the Contractor has the option as to which manufacturer's products are to be used.
- Do not furnish products of manufacturers not specified or not approved by Addendum except where such products have been specified solely by reference standards, or approved by the Architect.

Samples

- Provide samples in duplicate and submit to the Architect as specified in the Specifications and Drawings. Include "range" samples where variations are likely to occur. Unless otherwise specified, provide two complete sets of samples.
- Submit full size, color fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts, or containers of materials, color range sets, and swatches showing color, texture, and pattern.
- Where variation in color, pattern, texture, or other characteristics is inherent in the material or product represented, submit at least three (3) units that show the approximate limits of the variation.
- Distribute approved samples to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work.
- Maintain approved samples at the Project Site for quality comparison throughout the course of construction.

Product Data

- Submit product data in electronic format, including manufacturer installation instructions, cut sheets, standard color charts, options, rough-in diagrams and templates, standard wiring diagrams, and performance curves.

SCHEDULE OF SUBMITTALS

In addition to any submittal requirements contained within the Contract Documents, the following summary is offered. Refer to Civil, Landscape, Irrigation, Mechanical, Electrical, and Plumbing Drawings for detailed information on required submittals. Provide information as required to demonstrate compliance with all Energy Star and Green Communities requirements.

Division	Description of Submittal
01	- Contract Closeout: O&M Manuals, Equipment and Products Information, HVAC O&M Schedule - Construction Waste Management Plan - Construction Safety and Security Reports - VOC information for all adhesives, sealants, paints & coatings
02	- Geotechnical Engineer's progress reports (if initiated by Contractor) - Foundation and structural steel submittals including design engineer's reports for representative parameters of structural concrete, regional content documentation, steel reinforcement shop drawings, aggregate test reports, sealants and admixture information
03	- Gypsum Cement Underlayment: product data for gypsum cement, acoustic underlayment, primer, isolation strips - Thin Stone Veneer: product data, sample
04	- Precast Architectural Concrete: product data, color samples, rough/standard product data & color samples - Structural Steel: shop drawings - Metal Fabrications: shop drawings
05	- Composite Wood Products: product data including California 91320 (CARB) compliance - Structural Wood Products: product data including (CARB) 91320 compliance if rated (CARB) or information demonstrating they only contain Phenol Formaldehyde, are NAUF (no added urea formaldehyde) or NAF (no added formaldehyde) or NAF (no added formaldehyde) or NAF (no added formaldehyde) - Shop Fabricated Wood Trusses: product data, shop drawings
06	- Fiberglass Reinforced Plastic: product data - Dampproofing: product data - Weather-Resistive Barrier: product data - Flexible Flashing: product data - Thermal Insulation: product data - Acoustic insulation: product data
07	- Roof Underlayment: product data - Asphalt Shingles: product data, sample, color selection information - Insulation Baffle: product data - EPDM Roofing: product data, warranty - Sheet Metal Flashing/Trim: product data, sample, color selection information - Metal Roof Panels: product data, sample, color selection information - Gutters/Downspouts/Conductor Heads: product data, color selection information - Sill Sealer: product data - Joint Sealants: product data, color samples - Gas-Impermeable Vapor Barrier: product data, including tape, termination bars, and all other installation items - Structural Insulated Panels: product data, shop drawings, including sealant, tape, screws, and all other installation items - Engineered Wood Siding: product data, sample - Sluicor: product data - Aluminum Siding: product data - Fire-Resistive Joint Systems: product data, installer certificates - Snow Guards: product data - Waterproofing/Drainage Mat: product data - Rainscreen mat: product data
08	- Hollow Metal Doors & Frames: Shop drawings, product data, warranties, schedule - Wood or Composite Doors: product data, schedule - Aluminum Storefront: product data, shop drawings, warranties

- Composite Windows: shop drawings, product data, color selection information, warranties
- Access Doors & Frames: product data
- Attic Access Door: product data
- Crawl Space Floor Hatch: product data
- Coiling Door: product data
- Door Hardware: product data, warranties, schedule
- Gazing: product data
- Gypsum Wallboard: product data, regional content documentation, include information on drywall beads, mud, tape, clips, and all other installation materials, texture sample
- Finishes: product data, samples
- Tile: Material product data, samples
- Carpet: Tile: product data, Green Label Plus Certification
- Paint: draw downs, product data
- Countertops: product data, sample
- Luxury Vinyl Tile: product data, sample
- Resilient Wall Base: product data, sample
- Solid Surface Shower Surround: product data, sample
- Signage: shop drawings, sample
- Wall Protection: product data
- Toilet & Bath Accessories: product data
- Wire Shelving: product data
- Fire Extinguishers/Cabinets: product data
- Postal Boxes: product data, shop drawings
- Package Management System: product data, shop drawings
- Roof Hatch/Ladder: product data
- Roof Anchors: product data
- Residential Equipment & Appliances: product data, warranties
- Casework: product data, shop drawings, color sample
- Trash Chute: product data, shop drawings
- Elevator: product data, shop drawings
- Sprinkler: product data, shop drawings
- Plumbing: product data, and operational information for all equipment (fixtures, water heaters, radiant flooring equipment, boilers, etc.), demonstrate compliance with required flow rates
- HVAC: product data, operational information for all equipment
- X Vents: product data
- Roof Vents: product data
- Electrical: load calculations, one-line diagram, panel schedule, product data
- Fire Alarm System: product data, shop drawings
- Access Control System: product data, shop drawings
- Video Entry System: product data

REGULATORY REQUIREMENTS

Refer to Building and Code Information on project cover sheet, as well as Code Analysis and Code Plans, G-101-G-105.

SPECIFICATION EXPLANATIONS

- Where compliance with two or more industry standards or sets of requirements are specified, and overlapping of those requirements also establishes different or conflicting minimum or levels of quality, request direction from the Architect as to which standard to follow.
- The language in the Specifications and elsewhere in the Contract Documents is of the abbreviated type in certain instances, and implies words and meanings that shall be appropriately interpreted. Refer to drawing set cover sheet for list of abbreviations. Should there be any doubt on the Contractor's part as to the meaning of an abbreviation, request clarification from the Architect prior to commencing work or offering a cost for the related part of the Project.

MOCKUPS

Contractor shall provide the following full-scale mockups for Architect review and approval prior to beginning their related portion of work. Mockups may be constructed in place.

- Engineered wood siding / trim
- Window flashing & surround
- Paint
- Aluminum siding
- Thin stone veneer & grout

01500 TEMPORARY FACILITIES AND CONTROLS

- This section of the General Requirements specifies the minimum requirements for temporary services, utilities and facilities. The provision of adequate temporary facilities is not limited to the minimums established by the requirements listed. The use of alternate facilities equivalent to those specified is the Contractor's responsibility. The Contractor shall provide the following:
 - Make the required arrangements, secure, and pay for all water, gas, telephone, and other utilities needed during construction.
 - Temporary tie-in for electricity shall be provided by the Contractor. If power is not yet available through the Public Service Company, the Contractor shall supply a temporary generator.
 - Comply with governing regulations and utility company regulations and recommendations for the construction of temporary facilities including (but not limited to) code compliance, permits, inspections, testing, health and safety, and environmental compliance.
 - The Contractor shall provide the necessary requirements for construction safety. The Contractor shall provide all required aspects of construction for safe completion of the Work. Provide on-site fire extinguishers and first aid kit.
 - Provide temporary sheds, sanitary facilities, enclosures, dust control methods, barricades, and fencing as required for safe and proper completion of the Work.
 - Locate temporary facilities and controls where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by changing circumstances.
 - Comply with recognized standards and code requirements for the erection of adequate barricades to prevent accidents and losses.
 - Provide fire, heating units, and other equipment as long as needed for safe and proper completion of the Work. Remove temporary facilities and controls as rapidly as progress of the Work permits.
 - Provide temporary ventilation for specific material installation and protection requirements.
 - Provide temporary ventilation as required to prevent hazardous accumulation of fumes, remove excess humidity, or to ventilate volatile and hazardous materials.
 - Where permanent systems are used for temporary heat and/or ventilation, mechanical installer shall maintain, clean, adjust and put in new equipment before final acceptance.
 - Provide weatherproof, grounded, temporary power distribution system (on GFI circuitry) sufficient to accommodate performance of the Work.
 - Provide temporary lighting with local switching that provides adequate illumination for construction operations.
 - Store combustible materials in appropriate containers in a fire-safe location.

TEMPORARY CONTROLS

- Provide earthen embankments, drainage systems, and similar barriers in and around excavations, sub-grade construction, and steep embankments, sufficient to prevent flooding or erosion by runoff of storm water. Refer to cut drawings for more information.
- Provide protection, operate temporary facilities, and conduct construction by methods that comply with environmental regulations and that minimize potential air, water contamination, pollution, or other undesirable effects.
- Avoid using tools and equipment that produce harmful noise, and restrict use of noisemaking tools and equipment to hours that will minimize complaints from inhabitants near the Project Site.

01600 PRODUCT REQUIREMENTS

PRODUCT REQUIREMENTS

- Provide complete and accurate equipment which comply with the Contract Document requirements, are undamaged at the time of installation, and which are complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use.
- Notify the Architect of any specified product that the Contractor or his installers, as experts, know will not meet applicable building codes or Contract Document requirements, or is unsuitable to the application.
- Handle, install, connect, clean, condition, and adjust products in strict accordance with manufacturer's instructions. If product conditions or specifications are not met, the Contractor shall be responsible for the necessary repair or replacement of the product.
- Substitutions of specified products will be considered. Such substitutions must be equivalent in quality, performance and appearance as judged solely by the Architect. See section 01200 Price and Payment Procedures - Substitution Procedures.
- When products are specified by trade name or manufacturer's name and model number, furnish those specific proprietary products. Where more than one manufacturer is specified, the Contractor has the option as to which manufacturer's products are to be used.
- Do not furnish products of manufacturers not specified or not approved by Addendum except where such products have been specified solely by reference standards, or approved by the Architect.

OWNER-FURNISHED PRODUCTS

- The Contractor shall be responsible for coordinating and integrating the Work of any Owner's Subcontractor, or of any items procured or installed by the Owner (as called out in the Specifications or Drawings). Work includes providing support systems to receive Owner's items, as well as any necessary mechanical or electrical connections.
- The Contractor shall be responsible for providing shop drawings, product data, and samples to the Contractor.
- The Owner will arrange for delivery of Owner-furnished items according to the Contractor's construction schedule.
- Following delivery, the Owner will inspect items delivered for damage.
- If Owner's items are damaged, defective, or missing, the Architect will arrange for replacement.
- The Owner will arrange for manufacturer's field services and for the delivery of manufacturer's warranties to the Contractor.
- The Contractor shall designate delivery dates of Owner-furnished items in the Contractor's construction schedule.
- The Contractor shall review shop drawings, product data, and samples, and return them to the Architect noting discrepancies or problems anticipated in use of the product.
- The Contractor is responsible for receiving, unloading, and handling Owner-furnished items at the site.
- The Contractor is responsible for protecting and securing Owner-furnished items from damage, including damage from exposure to the elements. The Contractor shall repair or replace items damaged as a result of his operations.

PRODUCT STORAGE AND HANDLING REQUIREMENTS

- Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss (including that due to theft).
- Schedule delivery to coordinate delivery in order to minimize long-term storage and overcrowding of the Project Site. Be especially diligent with items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

01700 EXECUTION AND CLOSEOUT REQUIREMENTS

EXAMINATION AND PREPARATION

- The installer of each element of Work must examine the conditions of the substrate to receive the Work, dimensions and spaces adjacent, interfaces, interfacing with other elements and services, and the conditions under which the Work will be performed, and must notify the Contractor in writing of conditions detrimental to the proper or timely completion of the Work.
 - Should the Contractor not be able to resolve the Subcontractors' concerns, he shall consult with the Architect.
 - If the Contractor's work conditions have been corrected in a manner acceptable to the installer.
 - Commencement of the Work shall indicate acceptance of substrate conditions.
- CUTTING AND PATCHING**
- Do not cut and patch structural work in a manner resulting in a reduction of load carrying capacity or load/deflection ratio.
 - Do not cut and patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended, or resulting in safety or security concerns.
 - Do not cut and patch work which is exposed on the exterior or in occupied spaces of the Project, in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut and patch work, both as judged by the Architect.
 - If no other work performs under a separate contract without written permission of the Architect.
 - Except as otherwise indicated or approved by the Architect or Structural Engineer, provide materials for cutting and patching which will result in equal or better work than the work being cut and patched; in terms of performance characteristics and including visual effect where applicable.
 - Do not prevent failure, provide adequate temporary support and bracing for work to be cut or patched.
 - To prevent damage, provide adequate protection of adjacent work during cutting and patching, and provide protection of the work from adverse weather exposure.
 - Employ skilled workers or original installer to perform cutting and patching.
 - Cut work by methods least likely to damage adjacent work to remain.
 - If uncovered conditions are not as anticipated or if construction is not as indicated on the Drawings, immediately notify the Architect for further instructions.
 - In general, where mechanical cutting is required, cut work with sawing and grinding tools, not hammering and chipping tools. Core drill through concrete where small openings are necessary. When saw-cutting concrete, do not extend cuts beyond the corners of the required opening on either side of the opening.
 - Fit work tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
 - Patch with seams which are durable and as invisible as possible. Comply with any specified tolerances for the work.
 - Restore exposed finishes of patched areas and, where necessary, extend finish restoration into adjoining work, in a manner that will eliminate evidence of patching.

CLEANING AND WASTE MANAGEMENT

- Provide central trash collection facility for use of all trades and dispose of collected trash on a regular schedule, on site burning or disposal is not permitted. Each Contractor and Subcontractor is responsible for cleaning his work and removing his trash to the central collection point daily.
- Do not allow trash to be blown away or to litter the site or adjacent areas, maintain Project Site and adjacent public streets free of trash, debris and accumulations of waste materials.
- Keep each unit of work or element of work as clean as is substantially complete for each area. Replace damaged items and restore superficial damage. Repeat cleaning operations during construction as required to maintain a minimum diffusion of dirt and dust into finished areas and equipment.
- Vacuum all stud cavities and top plates prior to insulation, and all interiors (inclusive of electrical boxes) prior to receiving paints, floor coverings and finishes.

Final Cleaning

- Perform all cleaning just prior to substantial completion inspection.
- Use experienced workers or professional cleaners to clean all interior and exterior surfaces.
- Remove waste concrete and other building materials.
- Take exterior areas and remove all trash and debris.
- Clean and polish glass, hardware, casework, counters, fixtures and accessories.
- Wipe surfaces of mechanical and electrical equipment clean, remove excess lubrication and other substances (by mechanical installer).
- Remove all non-permanent labels and associated adhesive.
- Repair, patch and touch-up marred surfaced to match adjacent finishes.
- Clean light fixtures and lamps so as to function with full efficiency (by electrical installer).

CLOSEOUT PROCEDURES

Pre-closeout Substantial Completion

- Obtain and submit releases enabling Owner's full use of the Work and access to services and utilities, including a Certificate of Occupancy.
 - Advise Owner of pending insurance changeover requirements.
 - Complete start-up and testing of all systems and instruct Owner in their operations. Submit operations, maintenance, and warranty information manual in a three-ring binder for Architect and Owner review.
 - Complete final cleaning requirements.
 - Make final changeover of locks and transmit keys to Owner in person or via registered mail.
 - Make final changeover of locks and transmit keys to Owner in person or via registered mail.
- Pre-closeout Project Closeout**
- Continuous and accurate record of Project Site all temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.
 - Touch-up and otherwise repair or restore marred exposed finishes.
 - Submit statement showing final accounting of changes to the Contract Sum.
 - Account for all Allowance items.
 - Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
 - Prepare in three ring binder format a comprehensive Operations and Maintenance Manual of all product literature, manuals and maintenance information on a per unit basis for all appropriate elements integrated within the Project. Refer to LEED Requirements for more information on the Operations and Maintenance Manual.
 - Submit Record Documents, maintenance manuals and similar final record information as required. Include name, address and telephone

DIVISION 2 – EXISTING CONDITIONS

- A. **GEOTECHNICAL INVESTIGATION:** Refer to geotechnical and geologic hazards investigation performed by Huddleston-Berry Engineering & Testing, LLC, dated November 28, 2018, project #01013-0009.
- B. **TREE/SITE PROTECTION:** Protect existing trees to remain and areas of site to remain undisturbed during construction with fencing as required by civil engineer and AHJ.
- C. **EROSION CONTROL:** Provide erosion control measures as required by civil engineer and Authority Having Jurisdiction.
- D. **SITE UTILITIES:** Contractor to locate existing utilities and coordinate all site utilities with utility companies and Mechanical, Electrical, and Plumbing scope of work. Refer to Civil drawings and specifications for additional information.
- E. **SITE CLEARING & TOPSOIL:** Remove any stumps and organic material and dispose of legally off site. Stockpile boulders from excavation (larger than 18" diameter) for reuse in landscaping. Strip and stockpile topsoil prior to construction. Refer to Civil drawings and specifications for additional information.
- F. **EXCAVATION/BACKFILL:** Extent of excavation shall be as shown on the drawings. Backfill material shall be installed in lifts and compacted as recommended by the Geotechnical and Structural Engineers. Foundation walls are designed to be supported from the top by floor construction. Do not backfill until floor construction has been installed, refer to notes by Structural Engineer for more information.

G. GENERAL NOTE: All roof leaders terminating at ground level shall empty into a below-grade storm drain.

DIVISION 3 – CONCRETE

- A. **FOUNDATIONS:** Contractor to verify all required sleeve and blockout sizes and locations and coordinate exact foundation depths with actual lot-specific grading and civil engineer, refer to structural notes and details for additional information.
- B. **CONCRETE REINFORCING/FORMING/ACCESSORIES:** Refer to structural notes and details.
- C. **FOUNDATION DAMPPROOFING:** Refer to Division 7.
- D. **FOUNDATION WALL DRAINAGE:** Provide rigid perforated 4" diameter PVC piping around foundation walls per soils report and route to daylight. Place pipe in 3/4" washed rock surrounded by filter fabric and slope to drain at a minimum of 1% per drawings. Install impermeable membrane below the drain to limit moisture infiltration.
- E. **CONCRETE FLOORS:** Prosocon Concrete Protector WB, or approved equal. Seal all interior concrete floors in Trash Room, stairs and crawl space.
- F. **GYPSUM CEMENT UNDERLAYMENT:** 1 1/4" thick Maxxon Gyp-Crete 2000 (or approved equal) at all floors. Install gypsum cement underlayment on 1/2" thick Acoustical 1/2" sound control mat and install Acoustical-Fiberglass Isolation Strips at all walls and around all penetrations through gypsum cement underlayment using Acousti-Mat Tape. Prime subfloor as required by manufacturer and seal with Maxxon Overspray or Maxxon Acrylic prior to installing finish flooring.

DIVISION 4 – MASONRY

- A. **UNIT MASONRY:** Ground-face concrete masonry units, 8" high x 16" long, thickness as noted in drawings. Provide all shapes as required for inlets, corners, jambs, control joints, and other special conditions. Exposed face to have matching color (color to be decided), texture, and pattern. Clean all exposed masonry and seal with Prosocon Sure Klean Weather Seal Blok-Guard & Graffiti Control II low VOC water-based silicone emulsion.
- B. **THIN STONE VENEER:** Telluride Stone Company Heritage Series or Telluride Gold Collection (color/style to be decided), average thickness 3/4" - 1 1/2". Install using flat and corner pieces on 1/2" scratch coat with type N mortar per manufacturer requirements. Weather-resistant barrier per division 7.
- C. **PRECAST ARCHITECTURAL CONCRETE:** Provide in sizes and shapes as noted in drawings, sand finish, color to be decided. Install with Type N Portland cement/mortar mortar and grout all joints with two-part polyurethane elastomeric sealant and seal cast stone with a no-shen water-based penetrating sealer.

DIVISION 5 – METALS

- A. **STRUCTURAL STEEL FRAMING:** Provide shop drawings for all structural steel members, including columns, beams, embed plates, base plates, etc. Refer to structural notes and details for more information and coordinate finish of all exposed steel with Architect. Refer to code analysis and code plans for information on fire protecting structural steel.
- B. **LIGHT-GAUGE METAL FRAMING:** At dropped ceilings and soffits, install gypsum wallboard on USG Drywall Suspension System with heavy duty DGLW Straight Main Tees, Cross Tees, and 1 1/2" x 1 1/2" 20 gauge Clark Dietrich angles.
- C. **METAL FABRICATIONS:** Provide shop drawings for all metal fabrications, including stairs and landings, handrails, guardrails, etc. Grind welds smooth at all joints in metal fabrications that are exposed to view. Refer to structural notes and details for more information. Coordinate finish for all exposed steel with Architect.
- D. **PIPE & TUBE RAILINGS:** Interior and exterior stair handrails to be 1 1/2" diameter steel with galvanized finish.
- E. **CONCRETE FILLED STEEL STAIR SYSTEM:** Interior stairs to be designbuilt, fabricated of steel plate stringers with concrete-filled steel treads and concrete-filled steel pans at landings. Provide shop drawings and structural calculations for review.

DIVISION 6 – WOODS, PLASTICS, & COMPOSITES

- A. **ROUGH CARPENTRY:** Prior to constructing any exterior or interior walls, all framing dimension strings are to be checked by the General Contractor and framing contractor to identify any potential dimensional discrepancies. All discrepancies should be brought to the attention of the Architect prior to beginning framing work. Refer to structural drawings for additional information.
- B. **INTERIOR WALL FRAMING:** As shown on plans and structural notes and drawings. Provide wood blocking at all locations required for installation of wall-mounted handrails, towel bars, toilet paper holders, mirrors, shelving, and other components. Provide acoustic insulation per Division 7 where noted on plans. Minimize framing members by utilizing drywall clips, ladder blocking, or two-stud corners in lieu of three-stud corners at all areas of interior framing.
- C. **SHOP-FABRICATED WOOD TRUSSES:** Provide shop-fabricated wood floor and roof trusses as noted in structural drawings and specifications. Provide shop drawings and calculations for review.
- D. **MUD SILL:** Use pressure treated lumber and provide double-galvanized or stainless steel connectors per structural at all framing adjacent to concrete. Separate sills from concrete with sill sealer per division 7.
- E. **SILL SEALER:** Install per Division 7.
- F. **SHEATHING:** Refer to structural notes and details.
- G. **SUBFLOOR:** Refer to structural notes and details.
- H. **GLUE-LAMINATED BEAMS:** Provide architectural appearance-grade beams per structural notes and drawings, to be finished with Sherwin Williams WoodScapes Exterior Polyurethane Semi-Transparent House Stain, color to be decided. Provide samples for owner review.
- I. **FINISH CARPENTRY:**
- BASE TRIM: refer to resilient wall base in Division 9
 - DOOR CASING: 1 1/16" x 2-1/2" primed MDF at head and jambs with butt joint
 - WINDOW SILL/APRON: Sill to be 1 1/16" MDF (x required depth) with 1 1/16" x 2-1/2" MDF apron
- J. **FIBERGLASS REINFORCED PLASTIC:** Marlite Standard FRP, smooth light grey panels at areas noted in drawings with anodized aluminum trim molding as required for a complete installation.
- K. **COMPOSITE WOOD PRODUCTS:** Refer to Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.
- L. GENERAL NOTE: All interior non-load-bearing wall framing shall be installed with a slip connection per Detail 5 on Plan Sheet G-501.

DIVISION 7 – THERMAL & MOISTURE PROTECTION

- A. **DAMP/PROOFING:** Deco Products, Inc. Deco 200 Dampproof Coating, spray-applied to all foundation and concrete retaining walls. Fill all bug holes, cracks, and other imperfections in concrete surfaces prior to application.
- B. **WEATHER-RESISTIVE BARRIER:** DuPont Tyvek Commercial/Wrap, DuPont Tyvek Commercial/Wrap Caps, DuPont Tyvek Tape, and other accessories as required for a complete installation per "Installation Guidelines for Buildings Less Than 5 Stories and Low-Rise Multi-Family Residential Buildings Less Than 6 Stories". At areas of thin stone veneer, install Grade D asphalt paper-backed 2.5# galvanized metal lath over the Tyvek Commercial/Wrap. Install horizontally with upper layer lapped 2" (min.) over lower layer, lap at vertical joints to be 6" (min.). At areas of slucco, weather-resistant barrier to be DuPont Tyvek SluccoWrap with a second layer of SluccoWrap, Grade D building paper, felt, or paper-backed lath shall be provided. Foam around inside of all windows and doors with low-expansion polyurethane Hilti CP 812 Window & Door Pro Low Pressure Foam Filler.
- C. **FLEXIBLE FLASHING:** DuPont StraightFlash at all window and exterior door jambs and heads per manufacturer's recommendations. Refer to "DuPont Self-Adhered Flashing Systems Installation Instructions for Windows and Doors After Water-Resistive Barrier". Install DuPont Residential Sealant at window heads and jambs prior to installing windows. 7" wide DuPont FlexiWrap NF at all window sills and other openings per manufacturer's recommendations. Refer to "DuPont Self-Adhered Flashing Systems Installation Guidelines. Installation Instructions for Windows and Doors After Water-Resistive Barrier". Install DuPont FlexiWrap EZ around all penetrations through the weather-resistant barrier.
- D. **QUICKFLASH:** HVAC, plumbing and electrical penetrations to the exterior wall to have quickflash.
- E. **THERMAL INSULATION:** Insulation shall achieve RESNET Grade I installation standards. Install as noted below and in drawings to meet or exceed the requirements of 2012 IECC (Energy Star requires 2012 IECC which supersedes 2009 IECC as required by the Mesa County Building Department).
- Exterior Walls: R-30
 - Floors (over crawl space): 2" (R-10) rigid insulation installed in crawl space at inside of exterior foundation walls with thermal barrier as outlined in IRC 2603.4.1.6. Insulation to extend 24" minimum horizontally onto crawl space earth. Product must be Dow Styrofoam for thermal barrier to be omitted as noted below.
 - Crawlspace Walls: 2" (R-10) rigid insulation installed in crawl space at inside of exterior foundation walls with thermal barrier as outlined in IRC 2603.4.1.6. Insulation to extend 24" minimum horizontally onto crawl space earth. Product must be Dow Styrofoam for thermal barrier to be omitted as noted below.
 - Roof: 12" R-38 fiberglass batt insulation with 4-1/2" R-11 loose fill insulation installed on top of batts, for a total minimum R-Value of R-49
 - Elevator Pit Walls: 3" (R-15) rigid insulation installed at exterior of outside of elevator shaft walls (only needed if owner sticks with the ventilated crawl space vs a conditioned crawl space)

NOTE: It is assumed that the crawl space and the thermal barrier will be the floor over the crawl space. As such, the crawl space walls do not need to be insulated per code, but are being insulated per owner request @ R-10 (2") as noted above. ICC-ES Evaluation Report #ESR-2142 allows the use of Dow Styrofoam (up to 2") at crawl space walls without a thermal or ignition barrier applied to the foam insulation. Refer to except of the Thermal Barrier to be provided to the owners decide to do a conditioned-non-ventilated crawl space instead, and the crawl space walls will act as the thermal barrier, then Energy Star requires the project to follow IECC 2012, which requires R-15 (3") at crawl space walls, which would necessitate the addition of an thermal barrier to that insulation.

- F. **ACOUSTIC INSULATION:** Owens Corning Sound Attenuation Batt insulation at walls noted on floor plans, installed full height of wall, thickness to match width of framing member. Floors to have 3-1/2" loose-fill insulation.

- G. **ROOF UNDERLAYMENT @ AREAS OF ASPHALT SHINGLE ROOFING:** Owens Corning 36" Fiberglass Reinforced Felt, install underlayment per roofing manufacturer's requirements for a low slope application including overlapping underlayment to provide a double layer of underlayment and install Owens Corning WeatherLock Self-Adhered Underlayment at all eaves from outside face of eave to a point 24" in from roof edge. At contractor's option, Fiberglass Reinforced Felt may be replaced with Owens Corning WeatherLock Self-Adhered Underlayment (with a standard 3" overlap) on the entire at areas of asphalt shingle.

- H. **ASPHALT SHINGLE ROOFING:** Owens Corning TriDefinition Duration, color to be decided.

- I. **INSULATION Baffle:** Owens Corning Ratt-R-Mat, 22.5" X 48", bend down to top plate per manufacturer instructions.

- J. **EPDM ROOFING MEMBRANE:** Firestone RubberGuard EPDM System, fully adhered, color to be black. Provide low VOC primer and bonding adhesive. Low VOC Lap Sealant and WeatherLock Self-Adhered Underlayment at all eaves from outside face of eave to a point 24" in from roof edge. At contractor's option, EPDM may be replaced with Owens Corning WeatherLock Self-Adhered Underlayment (with a standard 3" overlap) on the entire at areas of asphalt shingle.

- K. **SHEET METAL FLASHING AND TRIM:** Aluminum zinc alloy coated steel, class AZ750 with three coats fluoropolymer finish, color, TBD. Install 26 gauge prefinished metal flashing so as to divert water to the exterior of the building envelope. Install all flashing per industry standards and in compliance with requirements of SMACNA, including joints, seams, details, and accommodation of thermal movement. Form sections square, true, and accurate to size, free from distortion or other defects.

- L. **METAL ROOF PANELS:** ASC Building Products Skyline Roofing 16" wide 26 gauge striated standing seam metal roofing panels with Kynar finish, color to be decided.

- M. **GUTTERS:** 6" K-style seamless aluminum gutters with kynar finish, 0.032", color to be decided. Provide all miters, end caps, hangers, and other accessories as required.

- N. **DOWNSPOUTS:** 4" smooth round aluminum downspouts with kynar finish, 0.024", locations as noted on drawings, color to be decided. Provide all outlets, offsets, elbows, and brackets as required. Provide PVC drainage as required to transition to PVC storm pipe to below grade.

- O. **CONDUCTOR HEADS:** 10" wide x 12" tall 0.050" aluminum w/ 4" outlet and kynar finish.

- P. **SCUPPERS:** 4" wide x 4" high x 12" long 24 gauge G90 galvanized steel with soldered seams

- Q. **SILL SEALER:** Protecto 38" closed cell polyethylene foam Premium Energy Sill Sealer (or similar) at all concrete to wood sill junctures. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- R. **JOINT SEALANTS:** Provide sealant and caulking joints at all locations indicated on the drawings and at all other locations per industry standards, to include all junctions of dissimilar materials. Seal all external cracks, joints, penetrations, edges, and entry points. Provide color chart for color selection. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- S. **VAPOR RETARDER:** No additional vapor retarder is required on the inside face of exterior walls as the SIP wall panels have a perm rating of less than 1.0 perm and act as the vapor retarder.

- T. **GAS IMPERMEABLE VAPOR BARRIER:** Install Stego Industries StegoCrawl Wrap 15-mil Vapor Barrier at entire crawlspace floor for radon system. Overlap seams 12" minimum and tape with StegoCrawl Tape per manufacturer instructions. Turn vapor barrier up foundation walls to within 3" of top of concrete wall, tape to wall with StegoCrawl Tape, and fasten to wall with StegoCrawl Term Bar. Tape all penetrations of vapor barrier. Barrier to be 8-mil minimum cross-laminated polyethylene.

- U. **STRUCTURAL INSULATED PANELS (SIPs):** Big Sky R-Control (or approved equal), Exposure I OSB with Foam Control EPS core and factory-produced electrical chases. Panels to be 6 1/2" thick (R-22.6 @ 75°F, R-24.3 @ 40°F). Provide add optional pricing for R-Control MX panels at the same thickness. Provide double 2x splines (required by rated assembly), SIP sealant, SIP tape, and connectors, GC to provide dimensional lumber.

- V. **ENGINEERED WOOD SIDING AND TRIM:**
- VERTICAL SIDING PANELS: LP SmartSide 38 Series Cedar Texture (0.315" thick x 16" wide x 16' long), install on non-compressible rainscreen matrix as specified below.
 - BATTENS: LP SmartSide 440 Series Cedar Texture Trim Battens (2 1/2" wide x 0.625" thick x 16' long) installed in a board and batten pattern with battens installed at 16" o.c.
 - VENTED SOFFIT PANELS: LP SmartSide 38 Series Ventilated Cedar Texture Soffit panels (4" x 8" x 0.315" thick) at all exterior eaves and soffits to be vented.
 - NON-VENTED SOFFIT PANELS: LP SmartSide 38 Series Cedar Texture Soffit panels at all eaves and soffits that do not require venting.
 - TRIM: LP SmartSide 540 Series Cedar Texture Trim at other locations, in sizes as required.
 - Provide sealant, Z flashing, and all other accessories as required for a complete installation and install all products per manufacturer's instructions.

- W. **STUCCO:** StoPowerwall Next as manufactured by Sto Corporation 100 percent acrylic polymer-based elastomeric textured finish, integrally colored, colors as indicated on elevations. Total thickness: Horizontal, 1/2 inches; vertical, 7/8 inches. Install on acrylic-based primer and sealer as recommended by stucco manufacturer and G60 (2180) hot-dipped galvanized zinc coating, self-furring expanded metal lath lath (2.5 lbs/sq. yd. diamond-mesh, typical; 3.4 lbs/sq. yd. expanded-mesh around all windows, doors, openings, through wall penetrations, and soffits and overhangs) on moisture barrier as recommended by manufacturer for construction type. Provide all casing beads, head flashings, control joints, backer rod and sealant, weed screeds, corneries, external-corner reinforcement, cornerbeads, expansion joints, and other accessories as required for a complete installation.

- X. **ALUMINUM SIDING:** Langdon Wood Grain Aluminum Siding, 4" x 8" above finish, color to be decided. Provide all inside and outside corner, shiner strips, Z tracks, clips, and other accessories as required for a complete installation. Install trim screen configuration on 1x3 turning strips per manufacturer requirements.
- Y. **FIRE-RESISTIVE JOINT SYSTEM:** Provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other products, and maintain original fire-resistance rating of assemblies in or between which fire-resistive joint systems are installed. Fire-resistive joint systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.

- Z. **SNOW GUARDS:** SnowMax snow guards at all metal roofs, provide bars, splice plates, U-Blocks, and other parts for a complete assembly.

- AA. **WATERPROOFING:** TREMproof, cold-applied, waterproofing. Wrapped up adjacent vertical surfaces 1'-0" min. in Trash Room.

- BB. **DRAINAGE MAT:** TREMDrain, compatible with TREMproof waterproofing, in Trash Room.

- CC. **RAINSREEN MATRIX:** Install Benjamin Obdyke Slicker Classic Rainscreen fmm behind all engineered wood siding panels.

DIVISION 8 – OPENINGS

- A. **HOLLOW METAL DOORS & FRAMES:** Doors to be 18 gauge heavy duty steel with rigid honeycomb or polystyrene core, 1 3/4" thick, closer reinforcement, factory-primed. Frames to be 16 gauge cold-rolled steel, mitered corners, factory-primed, in depths as required by partitions, with anchors as appropriate for condition. Refer to drawings for partition widths, fire ratings, sizes, glazing, and other requirements. U-Factor to be 0.17 or less at opaque doors, 0.25 or less at doors with glazing <= 1/2 lite and 0.30 or less at doors with glazing > 1/2 lite. SHGC to be 0.25 or less at doors with glazing <= 1/2 lite and 0.38 or less at doors with glazing > 1/2 lite.
- B. **AMENITY & COMMON AREA DOORS (including unit entry doors):** VT Industries SUPA Collection, solid-core, paintable, 1-3/4" thick, factory-primed and machined for hardware, refer to drawings for doors with vision panels, required fire ratings, and other information. Door types include flush, SS100 with S sticking and flat MDF or glass panels.

- C. **UNIT INTERIOR DOORS:** VT Industries SUPA Collection, solid-core, paintable, 1 3/8" thick, factory-primed and machined for hardware, type SS100 with S sticking and flat MDF panel, prehung with eased edge stop jamb, verify hinge finish w/ owner. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- D. **ALUMINUM STOREFRONT:** Kawneer TriFab Versa-Glaze11 storefront, 2" wide x 1/2" deep, center glazing, with Kawneer 560 InsulClad storefront doors, 2-1/4" thick. U-Factor to be 0.38 or less at fixed fenestration and 0.30 or less at entrance doors. SHGC to be 0.38 or less.

- E. **COMPOSITE WINDOWS:** Andersen 100 Series Fibrex Composites w/ dual-pane low-E glazing, sizes and configurations as shown in the drawings. Color to be decided. U-Factor to be 0.27 or less. SHGC to be 0.38 or less. Provide window opening control devices on all windows with a sill located 6" or more above grade when the sill is less than 24" above the floor inside. Windows shall have an air infiltration rate of no more than 0.3 cfm per square foot, as labeled by the manufacturer.

- F. **ACCESS DOORS & FRAMES:** Include all access doors and frames as required to access mechanical equipment, including fancoils and dampers, refer to mechanical for additional information and provide locking doors where access doors are located in units.

- G. **ATTIC ACCESS DOORS:** Best Access Doors BA-PFU 22"x30", fire-rated, insulated, upward-opening.

- H. **CRAWL SPACE ACCESS FLOOR HATCH:** Best Access Doors #BA-FRFD, 36" x 36" fire rated floor hatch.

- I. **CEILING DOOR:** Overhead Door Corporation RapidStat Insulated Service Door. Series 626, STC 21, U-Value 0.13, R-Value 7.7, flat profile F-265, interior-mount, PowderGuard Max finish, color to be decided, direct-drive motor, photoelectric opener.

- J. **DOOR HARDWARE:** VESDA selected by owner and coordinated by GC with the door hardware supplier and low voltage company. All lockable door hardware shall be compatible with the Best Lock system. The Contractor shall provide the Owner with a final door schedule with door numbers, hardware type, and location of all locking devices. A keying schedule will be generated by the Owner and provided to the General Contractor for formatting of permanent lock cores and keys.

- K. **SLIDING DOOR:** 10' x 7' x 4" aluminum sliding door with track and rollers.

- L. **ROOF HATCH AND LADDER:** Bilco Single Leaf Roof Scuttle, Type F, 4'-0" x 4'-0" with LadderPup Safety Post, and standard fixed steel ladder. Install a Bil-Guard 2.0 Roof Hatch Safety Railing System since hatch is within 10' of the roof edge.

DIVISION 9 – FINISHES

- A. **GYPSUM WALLBOARD:** Except where noted otherwise all gypsum wallboard shall be 5/8" thick, type X, install mold and moisture resistant wallboard at all bathroom ceilings and walls, install tile backboard at areas of tile and behind all showers and tubs, including behind their surrounds, and refer to drawings for required location of Type X, Type C, and exterior gypsum soffit wallboard. Provide metal cornerbead, expansion joints, hat channels, resilient channels, and other shapes as required. Resilient channel at acoustic wall and floor assemblies to be Clark Dietrich 1/2" deep KC Deluxe, install with attachment flange along the bottom edge at walls. Other materials include 1" shaft liner panels, Clark Dietrich shaftwall framing members, joint tape, and compound. Gypsum wallboard finish to be Level 3 with light orange peel texture at interior of units and Level 4 with a smooth finish at all amenity and common areas, including corridors. Hold all paper-faced drywall abutting concrete slabs and walls 1/2" (minimum) above surface of concrete. Refer to drawings for additional information on fire-resistance rated assemblies, sound ratings, fastener type, size, and spacing, and other wallboard requirements. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- B. **DRYWALL CLIPS:** Simpson drywall stops, install @ 16" O.C.

- C. **FINISHES:** Owner to select and coordinate all finishes.

- D. **TILE BACKBOARD:** Provide 1/2" thick cement backer board or other moisture-resistant (non-paper faced) tile backer board at all areas of tile and behind all showers and tubs, including behind their surrounds. Paper-faced backer is not allowed behind showers, tubs, and their enclosures. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- E. **TILE:** Owner to select all tile and grout colors. Install per TCNA's "Handbook for Ceramic Tile Installations" on Redgard Waterproofing and Crack Prevention Membrane with thinset latex portland cement mortar and polymer-modified sanded portland cement grout. Seal all grout with a water-based penetrating sealer, Mapei Ultra-Care Grout Sealer or similar. Use sanded siliconized acrylic caulk (to match grout color) in lieu of grout at all joints with dissimilar materials such as casework and countertops. Install tile in sizes and patterns as noted by Owner's Interior Designer and provide Schluter Systems trim as required by Interior Designer. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS; all setting materials to comply with VOC levels listed in SCAMQI Form 1168.

- F. **CARPET TILE:** To be selected by Owner. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- G. **INTERIOR PAINT:** Sherwin Williams PVA Interior Latex Primer and Sealer and Sherwin Williams ProMar 400 Zero VOC Interior Latex paint. Colors and sheen to be selected by owner, provide 4"x4" mock-up in the building of every color for Owner approval. Interior exposed glulams to be finished with matte polyurethane. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- H. **EXTERIOR PAINT & STAIN:** Sherwin Williams A-100 Exterior Latex Flat (two coats) and Quick Dry Exterior Latex Stain Blocking Primer where required. Exterior walls to be stained with Silksens ProLuxe Color SRD Semi-Transparent Stain, color to be decided. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- I. **COUNTERTOPS:** To be selected by Owner. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS; composite wood substrate to comply with CA 91320 Phase 2.

- J. **LUXURY VINYL TILE:** To be selected by Owner. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- K. **RESILIENT WALL BASE:** Tarkett (Formerly Johnstone) Millwork Wall Finishing System Thermoplastic Rubber Wall Base, Reveal 4 1/4", color to be decided. Install with Tarkett Adhesive, miter and glue all inside and outside corners. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- L. **SOLID SURFACE SHOWER SURROUNDS:** DuPont Corian 142" Interior Vertical Cladding, color and style to be selected by owner. Install per manufacturer instructions with adhesive and caulk. Installers to be trained by supplier on the installation of silicone filled corners and joints to be hard-seamed.

- M. **GENERAL NOTE:** All trash rooms served by the trash chute shall be fully lined with FRP.

DIVISION 10 – SPECIALTIES

- A. **SIGNAGE:** Provide all code-required signage, address signage, and other signage as required by owner and Authority Having Jurisdiction. Owner to coordinate with sign company on signage design. Refer to Drawings for additional information.

- B. **WALL PROTECTION:** All exterior corners at amenity and common areas to have 4" tall x 2" wide 16 gauge stainless steel corner guards with brushed finish. Provide pricing for alternative 4" tall x 2" wide polycarbonate protected corners.

- C. **TOILET BATH ACCESSORIES:** To be selected by owner, provide blocking per Division 6. Soap Dispenser to be Gojo Progen ADX-12 (dispenser).

- D. **SHOECLOSET SHELVES:** Rubbermaid FreeSlide 16" deep shelves installed with Direct-Mount Back Clips, Support Braces, and Wall End Brackets. Provide End Stops, Clamps, and Rod Spacers as needed for a complete installation. Install FreeSlide Corner Shelf units at all inside corners. Provide solid blocking in walls as required for attaching shelving and braces.

- E. **WIRE SHELVING SYSTEM:** Rubbermaid FastTrack Rails, Uprights, and Brackets with white epoxy-coated steel TightMesh Shelving, sizes and configurations as noted in the drawings. Provide solid blocking in walls as required for attaching rails and uprights, cut shelves to fit and install end caps at all cut ends. Uprights to be 70" length unless noted otherwise.

- F. **FIRE EXTINGUISHER CABINETS:** Semi-recessed, 1-hour rated, ADA-compliant, cold-rolled steel with white baked enamel or powder coat finish, continuous piano hinges, and safety glass.

- G. **FIRE EXTINGUISHERS:** Provide steel multipurpose dry chemical ABC 10-lb portable extinguishers (in cabinets) with glossy red finish or as required by Authority Having Jurisdiction. Locate on all levels at locations noted in drawings to ensure that all portions of the building are within 75 feet travel distance to an extinguisher.

- H. **POSTAL BOXES:** Provide (5) Auth Florence 4C12D-12 front-load recessed-mount modules, engraved door ID, color to be decided.

- I. **PACKAGE MANAGEMENT SYSTEM:** To be owner-provided and GC coordinated, size, configuration, options, and color to be decided by owner. Coordinate with Architect for built-in installation.

- J. **ROOF ANCHORS:** Install Guardian Fall Protection HitchClip Anchor System @ 30' o.c. on both sides of main roof, in asphalt shingles. Install per manufacturer instructions and provide all blocking and other framing as required.

DIVISION 11 – EQUIPMENT

- A. **APPLIANCES:** Appliances are to be selected by the Owner, GC to coordinate with casework and other items. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

DIVISION 12 – FURNISHINGS

- A. **CASEWORK:** Refer to plans and interior elevations for location, sizes, and configurations. Owner to select style, finishes, and hardware. Provide shop drawings for Architect review. Casework to be frameless and have adjustable, clip-on detachable, full overlay, 110-degree concealed hinges, and side-mounted 100# capacity drawer guides with nylon rollers. Cabinet interior to be wood grain. Toe kick overlays and all exposed end panels to have finish to match casework fronts. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS; cabinetry to comply with CA 91320 Phase 2.

- B. **FURNITURE:** Not in contract, any furniture shown in the drawings is for layout purposes only.

- C. **WINDOW BLINDS/SHADES:** To be selected and coordinated by Owner.

DIVISION 13 – SPECIAL CONSTRUCTION

N/A

DIVISION 14 – CONVEYING SYSTEMS

- A. **TRASH CHUTE:** Wilkinson Hi-Rise, 24" diameter, 16 gauge aluminumized steel, U rated stainless steel self-closing bottom-hinged ADA doors, horizontal installed sliding steel discharge door with fusible link, pump dampening, floor frames with sound baffles, sprinklers, and disinfecting and sanitizing unit.

- B. **ELEVATOR:** Provide two Otis HydroFit machine-roomless hoistless hydraulic elevators, 125 feet/min., 3500#, stretcher-compliant, 7'-9" interior height, 3'-6" x 7'-0" single-side-opening door, 3-stop, 5/16" floor recess to accept LVT flooring to match adjacent corridor flooring, controller located in hoistway with side access door, cab, door and entrance to be satin stainless steel, no emergency power, flat metal ceiling w/ LED lights, brushed stainless steel handrails. Provide minimum high-back handrails, provide fully enclosed elevator cars with vinyl floors and custom for both elevator and wheelchair access.

- C. **DOCK LIFT:** Provide Vestil VL100-568 Premium Truck Scissor Dock Lift at trash enclosure as shown on Civil and Electrical plans. Dock lift to have the following accessories to Vestil: VL-3HP and VL-SSTB.

DIVISION 21 – FIRE SUPPRESSION

- A. **SPRINKLER SYSTEM:** Provide NFPA 13R sprinkler system throughout. Refer to code analysis, code plans, and Plumbing drawings for additional information.

DIVISION 22 – PLUMBING

- A. Refer to Plumbing drawings and specifications for information. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING

- A. Refer to Mechanical drawings and specifications for information. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

- B. **EXTERIOR VENTS:** X-Vent, one custom color, to be decided, Gang, where possible.

- C. **POWERED ROOF VENTS:** GAF Master Flow Power Attic Vent, roof-mount #ERV4 & ERV5, refer to roof plans for locations of each. Provide with humidistat HT1, color to be brown.

DIVISION 26 – ELECTRICAL

- A. Refer to Electrical drawings and specifications for information. Reference Section 018000 SUSTAINABLE DESIGN REQUIREMENTS.

DIVISION 27 – COMMUNICATIONS

N/A

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

- A. **FIRE ALARM SYSTEM:** Provide shop drawings for Architect review. Refer to Electrical drawings and specifications for information.

- B. **ACCESS CONTROL SYSTEM:** Owner to coordinate card reader/key fob access control system, verify which doors are to have access control, and provide submittal to Architect for review.

- C. **MULTI-TENANT VIDEO ENTRY SYSTEM:** Aliphone GT Series Versatile Multi-Tenant Security Video flush-mount Intercom with card reader. Owner to select entrance station, video guard station, tenant station, and all other options.

DIVISION 31 – EARTHWORK

- A. <

Rater Design Review Checklist

ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

Home Address:	City:	State:	Permit Date:	Must Correct	Builder Verified	Rater Verified	NA
1. Partnership Status							
1.1 Rater has verified that builder is an ENERGY STAR partner using energystar.gov/partnerlocator							
1.2 Rater has verified that HVAC contractor holds credential required to complete the HVAC Commissioning Checklist, unless all equipment to be installed is an exempted type, in which case check "NA" ⁽¹⁾ ☐							
HVAC Contractor Company Name:							
2. High-Performance Fenestration							
2.1 Specified fenestration meets or exceeds 2009 IECC requirements ¹							
3.1 Specified ceiling, wall, floor, and slab insulation levels comply with one of the following options:							
3.1.1 Meets or exceeds 2009 IECC levels ^{1, 1, 1, 1, 1}							
3.1.2 Achieves $\geq 13\%$ of the total UA resulting from the U-factors in 2009 IECC Table 402.2.1, per guideline in Footnote 46, AND specified foam infiltration does not exceed the following ¹							
3.1.3 1.5 ACH50 in CZs 1-2, 2.5 ACH50 in CZs 3-4, 2 ACH50 in CZs 5, 6, 7, 1.5 ACH50 in CZ 8							
4. Review of HVAC Design Report ²							
4.1 HVAC Design Report collected for records, with no items left blank							
4.2 HVAC Design Report reviewed by Rater for the following parameters (HVAC Design Report item # indicated in parenthesis):							
4.2.1 Cooling season and heating season outdoor design temperatures used in loads (3.3) are within the limits of ASHRAE 55 and ASHRAE 62-2010, and the design is consistent with the climate and the home will be built, or the designer has provided an allowance from EPA's use alternative values ¹							
4.2.2 Number of occupants used in loads (3.4) is within 2 of the home to be certified ¹							
4.2.3 Conditioned floor area used in loads (3.5) is between zero and 300 sq. ft. larger than the home to be certified							
4.2.4 Window area used in loads (3.6) is between zero and 50 sq. ft. larger than the home to be certified							
4.2.5 Permeant window SHGC used in loads (3.7) is 0.1 of predominate value in the home to be certified ¹							
4.2.6 Screenshot, latent, & total heat gain are documented (3.10-3.12) for the orientation of the home to be certified ¹							
4.2.7 The variation in total heat gain across orientations (3.13) is ≤ 6 kWh ¹							
4.2.8 Cooling zoning (4.13) is within the cooling zoning limit (4.15) selected by the HVAC designer							
Rater Name: Date of Review:							
Rater Signature: Rater Company Name:							

Required for homes permitted ¹ starting 07/01/2016

Revised 08/15/2015

Page 1 of 9

Rater Design Review Checklist

ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

The term "Rater" refers to the person completing the third-party inspections required for certification. This person shall be a certified Home Energy Rater, Rating Field Inspector, or an equivalent designated as determined by a Verification Oversight Organization such as RESNET, and is to have attended and successfully completed an EPA-recognized training class. See [energystar.gov/partnerlocator](#).

HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (HQUTO) if split air conditioner, unitary air conditioner, heat pump, or water-source heat pump, or multi-split heat pump, or air-source heat pump, or forced-air distribution system (i.e., ducts) or a furnace up to 225 kBtu/h with a forced-air distribution system (i.e., ducts) will be installed in the home to be certified. For all other permutations of equipment (e.g., furnaces, mini-split, multi-split) and distribution systems, credentialing is not required. An explanation of this credentialing process and links to HQUTOs, which maintain lists of credentialed contractors, are found at [energystar.gov/partnerlocator](#).

All windows, doors and skylights shall meet or exceed the component U-factor and SHGC requirements specified in 2009 IECC Table 402.1.1. If no NFRC rating is noted in the window or product literature (e.g., for site-built fenestration), select the U-factor and SHGC value from Table 4 and 11, respectively. In 2013 ASHRAE Fundamentals, Chapter 15, Select the highest U-factor and SHGC value among the values listed for the known window characteristics (e.g., frame type, number of panes, glass color, and presence of low-e coating). Note that the U-factor requirement applies to all fenestration unless the SHGC only applies to the glazing portion. The following exceptions apply:

- a. An area-weighted average of fenestration products shall be permitted to satisfy the U-factor requirements;
- b. An area-weighted average of fenestration products $\leq 50\%$ glazed shall be permitted to satisfy the SHGC requirements;
- c. 15 square feet of glazing fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b), above;
- d. One side-throw garage door assembly up to 24 square feet in area shall be exempt from the U-factor requirements and shall be excluded from area-weighted averages calculated using a) and b), above;
- e. Fenestration utilized as part of a passive solar design shall be exempt from the U-factor and SHGC requirements, and shall be excluded from area-weighted averages calculated using a) and b), above. Except windows that shall be factory-fitted 45-degree or true South and directly coupled to the known window characteristics that has a heat capacity > 20 Btu/lb and provided in a ratio of at least 3 sq. ft. per sq. ft. of South-facing fenestration. Generally, thermal mass materials will be at least 2 in. thick.

In Passive House (PHUS) certified homes, where triple-glazed window assemblies with thermal breaks / spacers between the panes are used, such windows need not be excluded from items 2.1 and 3.1, and shall be excluded from averaging calculation (a) through e), above.

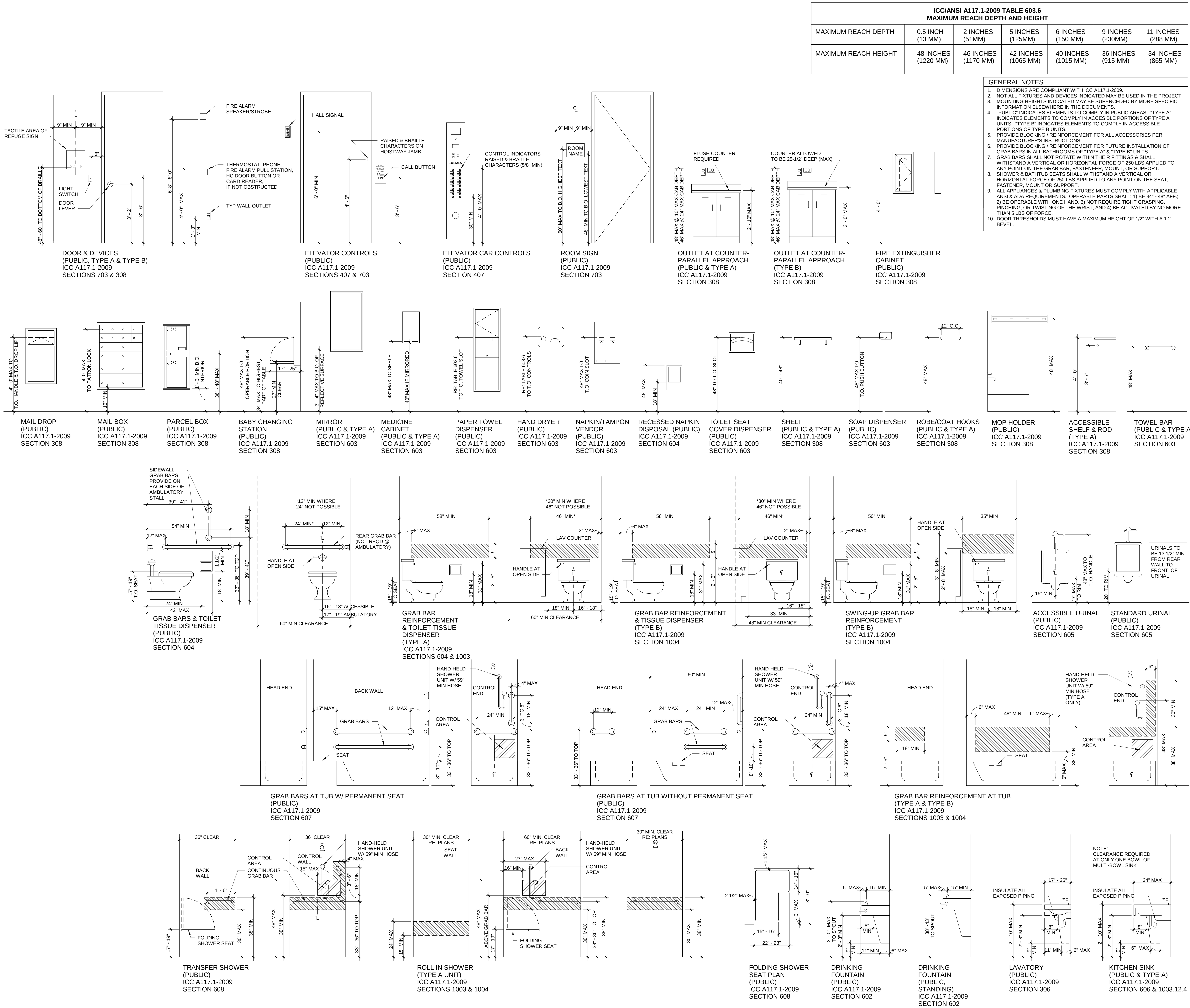
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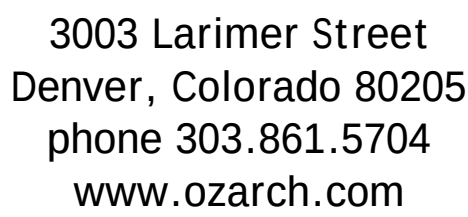
Rater Field Checklist

ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

Home Address:	City:	State:	Permit Date:	Must Correct	Builder Verified	Rater Verified	NA
1. High-Performance Fenestration & Insulation							
1.1 Fenestration meets or exceeds levels specified in Item 2.1 of the Rater Design Review Checklist							
1.2 Insulation meets or exceeds levels specified in Item 3.1 of the Rater Design Review Checklist							
1.3 All insulation achieves RESNET-defined Grade 1 insulation. See Footnote 3 for alternatives ¹							
2. Fully-Aligned Air Barriers ¹ At each insulated location below, a complete air barrier is provided that is fully aligned as follows:							
Cellings: At interior or exterior horizontal surface of ceiling insulation in Climate Zones 1-3; at interior horizontal surface of ceiling insulation in Climate Zones 4-8. Also, at exterior vertical surface of ceiling insulation in all climate zones (e.g., using a vinyl baffle that extends to the full height of the insulation in every bay or a tabbed baffle in each bay) with a soffit vent that prevents wind washing in adjacent bays ¹							
2.1 All other floors adjoining unconditioned space (e.g., m / hard joists at exterior wall or air porch)							
2.2 Walls behind showers, tubs, staircases, and fireplaces							
2.3 All attic walls and daylight shaft walls							
2.4 Walls adjoining porch roofs or garages							
2.5 Double-walls and all other exterior walls							
2.6 All exterior vertical surface of office insulation in all climate zones and, if over unconditioned space, also at interior horizontal surface including supports to ensure alignment. See Footnotes 10 & 11 for alternatives ^{1, 1, 1}							
2.7 For slabs on grade in CZ 4-8, 100% of slab edge insulated to $\geq R-5$ or the depth specified by the 2009 IECC and aligned with the thermal boundary of the walls ¹							
3.1 For insulated ceilings with attic space above (i.e., non-attached), Grade 1 insulation extends to the inside face of the exterior wall below and is $\geq R-2$ in CZ 1-2, $\geq R-3$ in CZ 3-4, $\geq R-3$ in CZ 5-8							
3.2 For slabs on grade in CZ 4-8, 100% of slab edge insulated to $\geq R-5$ or the depth specified by the 2009 IECC and aligned with the thermal boundary of the walls ¹							
3.3 Insulation beneath attic platforms (e.g., HVAC platforms, walkways) $\geq R-2$ in CZ 1-2, $\geq R-3$ in CZ 3-4, $\geq R-3$ in CZ 5-8							
3.4 Continuous rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.1 Structural insulated panels (SIPs) shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.2 Advanced framing, including all of the items below:							
3.4.3a Corners insulated $\geq R-6$ edge ¹ , AND:							
3.4.3b Headers above vinyl or steel framing or equivalent cavity walls, and $\geq R-5$ for all other assemblies (e.g., with 2x6 framing) ¹ , AND:							
3.4.3c Framing isolated at all windows & doors to one pair of joists; plus one pair of joists shall be insulated to $\geq R-5$ edge ¹ , AND:							
3.4.3d Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3e Minimum insulation $\geq R-5$ edge ¹ , AND:							
3.4.3f Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3g Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3h Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3i Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3j Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3k Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3l Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3m Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3n Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3o Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3p Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3q Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3r Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3s Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3t Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3u Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3v Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3w Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3x Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3y Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3z Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3aa Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ab Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ac Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ad Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
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3.4.3af Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
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3.4.3al Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3am Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3an Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ao Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ap Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3aq Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ar Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3as Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3at Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3au Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3av Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3aw Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ax Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ay Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3az Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ba Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bb Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bc Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bd Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3be Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bf Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bg Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bh Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bi Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bj Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bk Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bl Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bm Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bn Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bo Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bp Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bq Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3br Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bs Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bt Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bu Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bv Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bw Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bx Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3by Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3bz Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ca Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3cb Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3cc Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3cd Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3ce Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\geq R-5$ in CZ 3-4, $\geq R-5$ in CZ 5-8 ^{1, 1, 1}							
3.4.3cf Rigid insulation, installed sitting, or over unconditioned space, above grade at exterior wall or air porch, shall be $\geq R-5$ in CZ 1-2, $\ge$							

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APPROVED: OZ
DATE: 4/05/2019

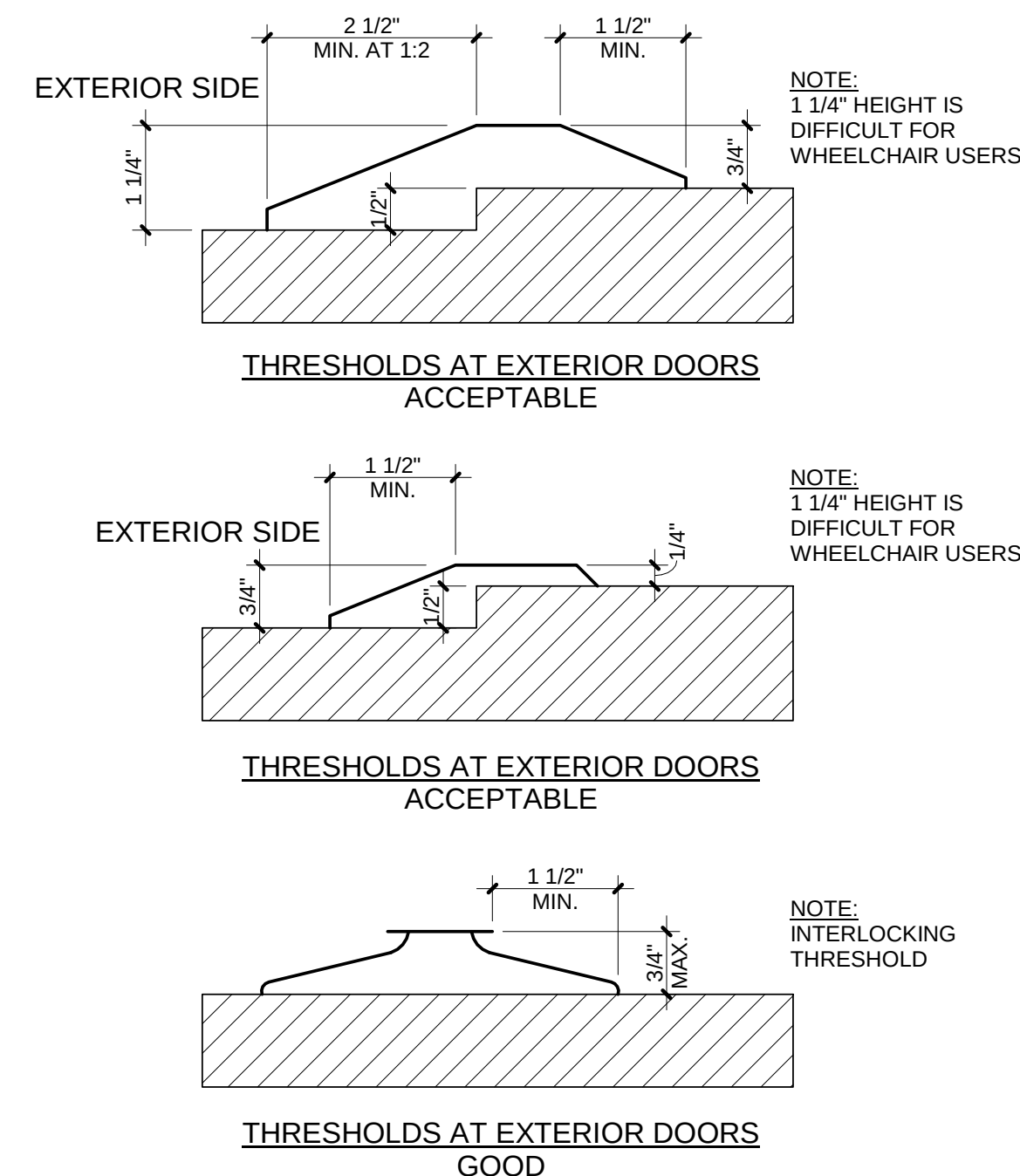
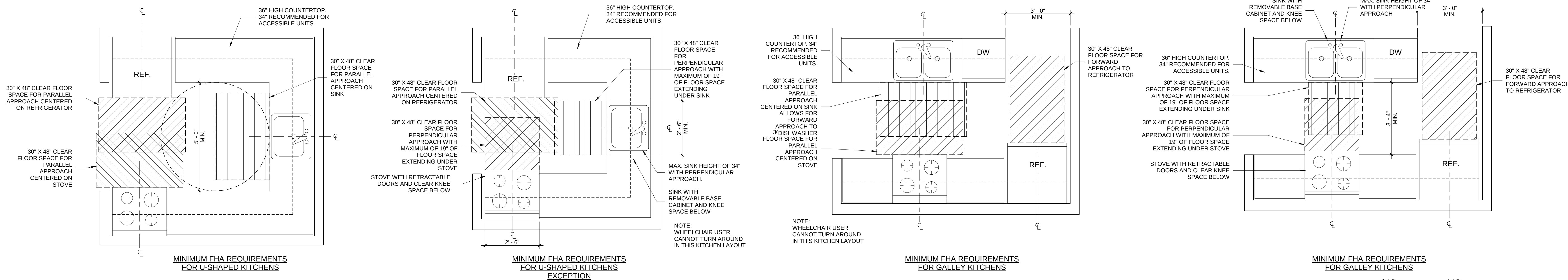
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ISSUED FOR:
100% CONSTRUCTION
DOCUMENTS

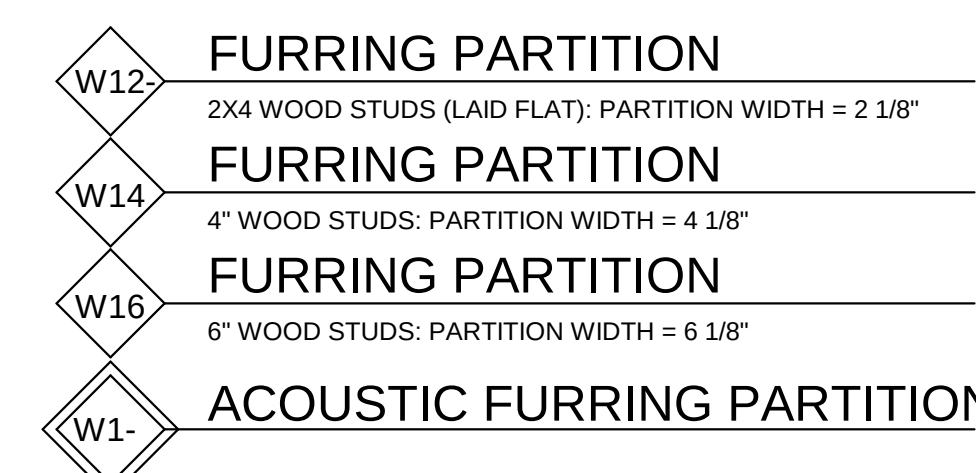
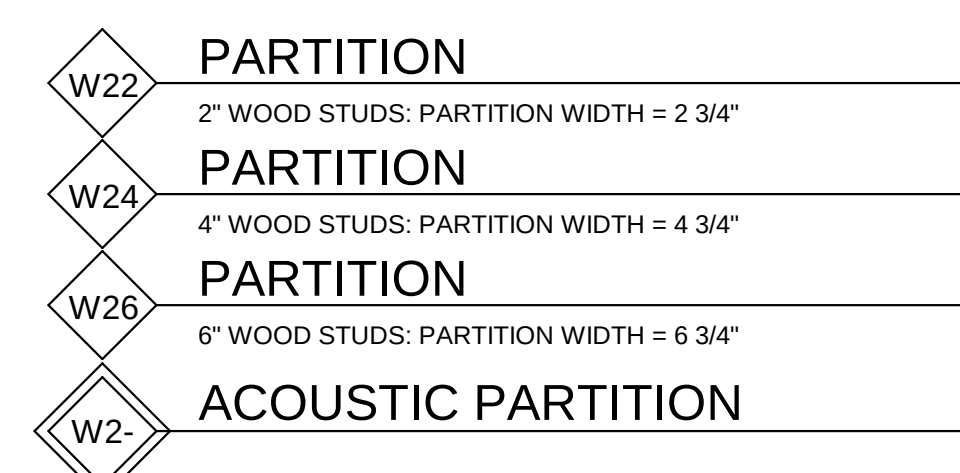
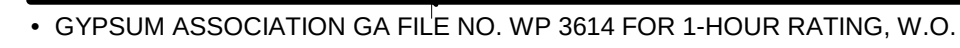
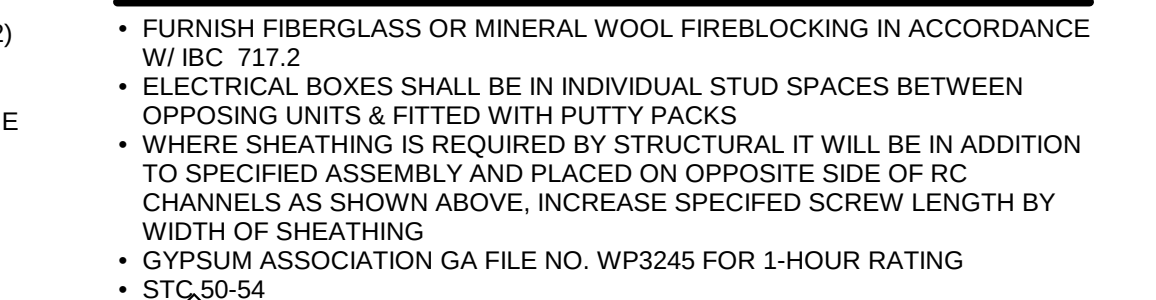
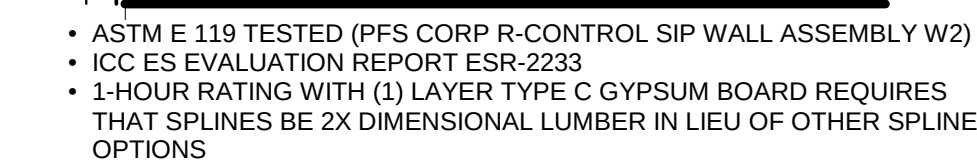
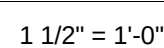
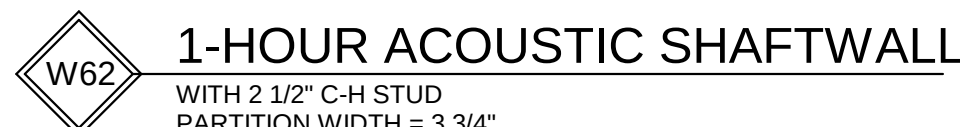
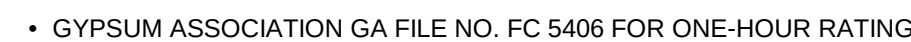
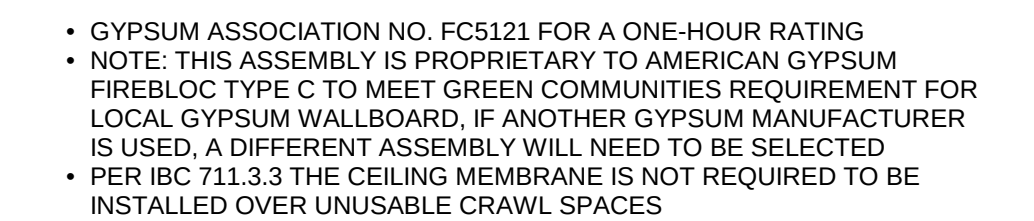
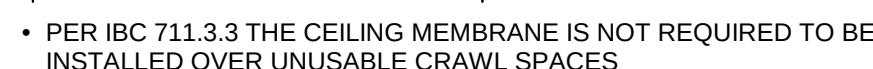
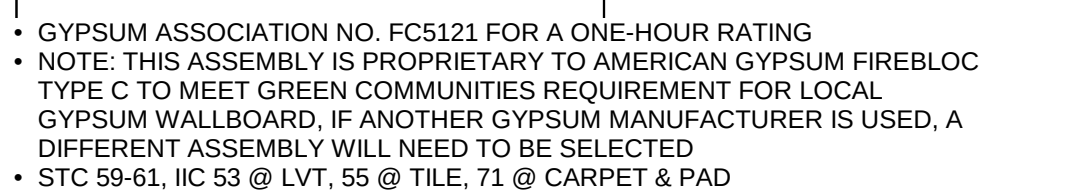
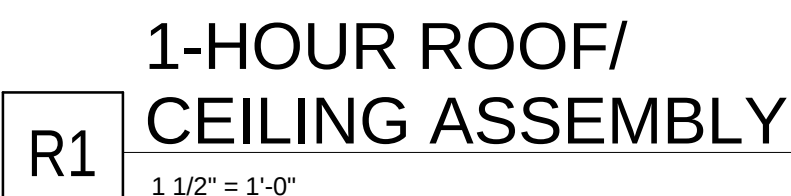
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FHA INFORMATION

SCALE: As indicated
SHEET NUMBER

G-402



<u>MAXIMUM HEIGHT DIFFERENCE BETWEEN INTERIOR FLOOR LEVEL AND EXTERIOR FLOOR LEVEL</u>	
LEVEL DIFFERENCE	AT PRIMARY ENTRANCE
	0" PERVIOUS CONSTRUCTION (WOOD DECKING)
	1/2" IMPERVIOUS CONSTRUCTION (CONCRETE, BRICK)
LEVEL DIFFERENCE	AT SECONDARY ENTRANCE DOOR
	1/2" PERVIOUS CONSTRUCTION
	4" IMPERVIOUS CONSTRUCTION
FAIR HOUSING ACT DESIGN MANUAL PG. 4.11	



DRYERBOX FIRESTOP SYSTEM

UL® Classified Through-penetration Firestop System

the dryerbox® System No. W-L-7129

Through-penetration Firestop System No. W-L-7129
March 26, 2008

F Ratings — 1/2 and 1 Hr
(See Items 1, 1A and 4)

T Ratings — 1/2 and 1 Hr
(See Items 1 and 1A)



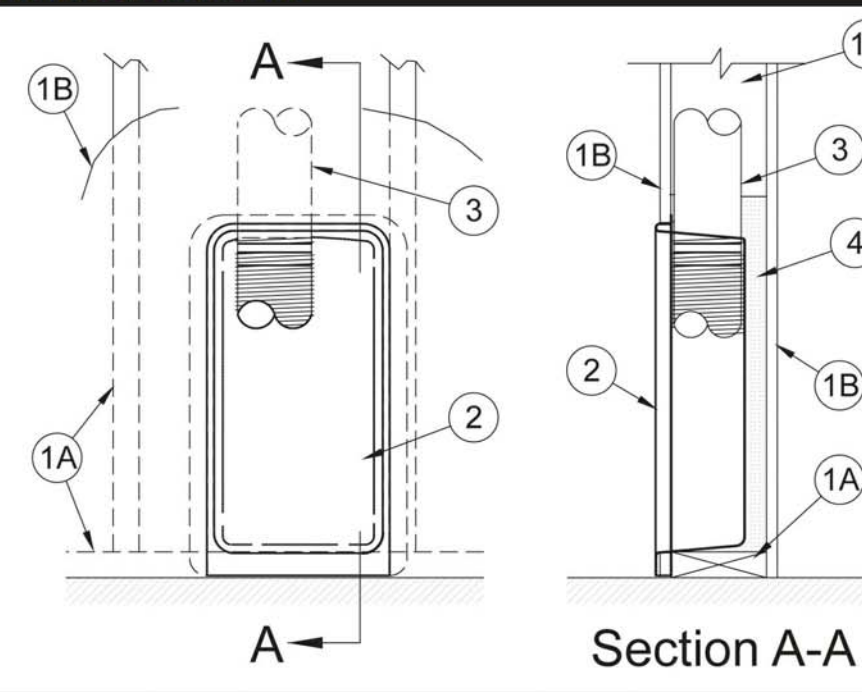
Design/System/Construction/
Assembly Usage Disclaimer

Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, systems, devices, and materials.

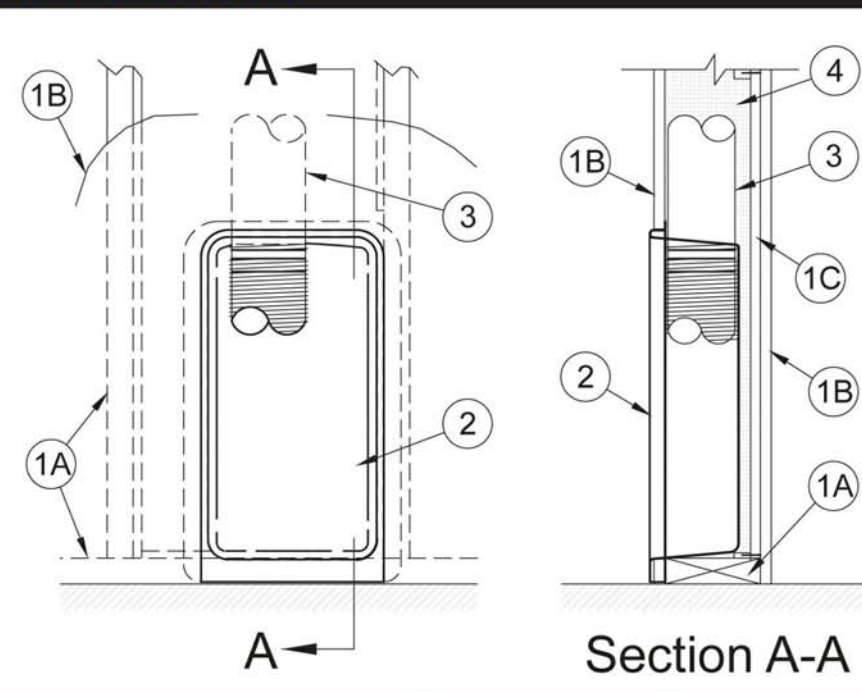
When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specific concerning alternate materials and alternate methods of construction.

Only products which bear UL's Mark are considered Certified.

CONFIGURATION A



CONFIGURATION B



In-O-Vate Technologies Inc. 888-443-7937 **www.Dryerbox.com**
810 Sutton Street • Suite 20 • Jupiter FL 33477 • Phone: 561-743-8696 • Fax: 561-743-9723

System W-L-7129 Summary & Code Information

Quick One-Hour Wall Firestop Instruction Summary

These key components are noted on the instruction sheet that comes with every Dryerbox. The following are highlights to comply with the UL Classification for through-penetration firestop systems.

To achieve a fire resistance rating (one-hour F & T) 2X6 wood framing is required. The Dryerbox unit must be installed in accordance with the UL Cabinet System listing.

1. An extra layer of type-X drywall must be installed in the ID of the stud cavity in which the Dryerbox is located. Drywall must be attached to nails (minimum 1" X 2") located on the inside of the cavity wall studs. Secure nailers to wall framing at max 18 in. OC. The screws used to attach the inner layer of drywall shall be spaced a maximum of 18" apart.
2. The entire depth of stud cavity with Dryerbox® must be filled with R19 fiberglass batt insulation. Additional insulation shall be added within the cavity as necessary to completely fill all voids around the periphery of the Dryerbox and around the dryer vent pipe.
3. Use a Roto-zip-bit tool to cut the drywall leaving a caulk joint for the painter. This void must be caulked or mudded.

IBC 708.3 (709.3 in prior code) - Requirements When Sprinkler Systems are Installed

Current building code only requires a 1/2 hour rating for Dryerbox® installation when used in conjunction with a sprinkler system. You may find the full, relevant code excerpt below. To achieve a half hour rating, you only need to build out using Firestop System Configuration A Wall Assembly Components which are even simpler.

(1 Hour Rating Requires Configuration B as outlined above)

708.3 Fire-resistance rating. Fire partitions shall have a fire-resistance rating of not less than 1 hour.

Exceptions:

1. Corridor walls permitted to have a 1/2 hour fire-resistance rating by Table 1018.1.
2. Dwelling unit and sleeping unit separations in buildings of Type IIB, IIB and VB construction shall have fire-resistance ratings of not less than 1 1/2 hour in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. Corridors adjacent to the exterior walls of buildings shall be permitted to have unprotected openings on unrated exterior walls where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

SECTION 1018 CORRIDORS

1018.1 Construction.

Corridors shall have fire-resistance rating in accordance with Table 1018.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.

Exceptions:

1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A fire-resistance rating is not required for corridors contained within a dwelling or sleeping unit in an occupancy in Group R.
3. A fire-resistance rating is not required for corridors in open parking garages.
4. A fire-resistance rating is not required for corridors in an occupancy in Group B which is a space requiring only a single means of egress complying with Section 1015.1.
5. Corridors adjacent to the exterior walls of buildings shall be permitted to have unprotected openings on unrated exterior walls where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

TABLE 1018.1 CORRIDOR FIRE-RESISTANCE RATING

1. **Wall Assembly — Configuration A** — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of min 6 mm by 2 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 6 in. (152.4 mm) wide and snapcap max 24 in. (610 mm) OC.

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.

b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

1. **Wall Assembly — Configuration A** — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of min 2 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC.

B. **Gypsum Board** — One layer of nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design.

The hourly F and T Rating of the firestop system for Configuration A is 1 1/2 Hr.

1A. **Wall Assembly — Configuration B** — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing to consist of wood studs. Wood studs to consist of min 2 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC.

B. **Gypsum Board** — One layer of nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design.

C. **Gypsum Board** — An additional layer of gypsum board shall be cut to fit ID of stud cavity and installed flush with edge of studs on non-penetrated face of wall. Additional layer of gypsum board to be attached to min 1 by 2 in. (25 by 51 mm) wood nailing strips with fasteners spaced max 18 in. (457 mm) OC around periphery of board. Nailing strips to be secured to wood studs and plates with fasteners spaced max 18 in. (457 mm) OC. Nailing strips may be discontinuous and terminate max 1 in. (25 mm) from vent duct and cabinet interfaces with plates and studs.

The hourly F and T Rating of the firestop system for Configuration B is equal to 1 Hr.

2. **Cabinet** — Recessed fixture intended for dryer appliance exhaust duct installed per manufacturer's installation instructions in one side of wall assembly. Cutout in gypsum board for top exhaust device is 18-1/4 by 9-1/2 in. (464 by 241 mm). Cutout in gypsum board for bottom exhaust duct is 16 by 14 in. (406 by 356 mm). Max gap between cabinet and gypsum board around periphery of cutout shall be 1/8 in. (3.2 mm). As an option, gap may be sealed with UL Classified sealant or caulk (see Fill, Void or Cavity Material (XHHW) category in the Fire Resistance Directory for names of manufacturers) or drywall compound.

3. **Steel Vent Duct** — Nom 4 in. (102 mm) diam by min 26 gauge rigid steel dryer duct friction fitted into top or bottom opening of the cabinet (Item 2) for purposes of venting to the exterior. Vent duct to be routed entirely within fire rated construction from the cabinet to the exterior of the building. Vent duct to be firestopped in accordance with an appropriate F-A-7000, F-C-7000 or F-E-7000 Series firestop system where it passes through the top plate or sole plate of the chase in which it is routed.

4. **Insulation** — The spaces between the sides of the cabinet and the studs and the space immediately above the cabinet are to be tightly packed with glass fiber batt or mineral wool batt insulation. For firestop systems with a 1 Hr F Rating, the entire stud cavity containing the cabinet shall be filled with min R19 glass fiber batt insulation or mineral wool insulation with additional pieces of insulation applied as needed to completely fill all voids around the cabinet and vent duct to the full depth of the stud cavity.

*Bearing the UL Classification Mark

GYPSUM ASSOCIATION GENERAL EXPLANATORY NOTES

IA-600-2015 FIRE RESISTANCE DESIGN MANUAL

GENERAL EXPLANATORY NOTES

All dimensions, weights, temperatures, and pressures are in U.S. customary units. For commonly used metric (SI) conversions refer to the Appendices and ANSI SI-10-2010, *American National Standard for Metric Practice*.

Nails shall comply with ASTM F547 or ASTM C514. Other nails, suitable for the intended use, and having dimensions not less than those specified in this Manual shall be permitted as substitutions.

Fasteners installed along the edges of gypsum board shall be placed along the paper board edges on the long dimension of the board. Fasteners at the end shall be placed along mill or field cut ends on the short dimension. Fasteners on the perimeter of the board shall be placed along both edges and ends. Indicated fastener spacings are maximums. Closer fastener spacing may reduce the STC.

Screws meeting ASTM C1002 shall be permitted to be substituted for the prescribed nails, one for one, when the length and head diameter of the screws equal or exceed those of the nails specified in the tested system and the screw spacing does not exceed the spacing specified for the nails in the tested system.

Vertically applied gypsum board shall have the edges parallel to framing members. Horizontally applied gypsum board shall have the edges at right angles to the framing members. Intermediate vertical framing members are those between the vertical edges or ends of the board.

Unless otherwise specified, the face layers of all systems, except those with predecorated or metal covered surfaces or exterior gypsum sheathing panels, shall have joints taped with either paper tape or glass fiber mesh tape (minimum Level 1 as specified in GA-214, *Recommended Levels of Gypsum Board Finish*) and fasteners headed treated. Base layers in multi-layer systems shall not be required to have joints or fasteners taped or covered with joint compound.

Unless otherwise stated in the detailed description of the individual system, joints shall be staggered as follows:

- a. Horizontal butt joints on opposite sides of a partition in single layer applications shall be staggered not less than 12 inches.
- b. Horizontal butt joints in adjacent layers on the same side of a partition in multi-layer applications shall be staggered not less than 12 inches.
- c. Vertical joints on opposite sides of a partition in single layer applications shall not occur on the same stud.

10

having a cavity deep enough to accept the insulation is permitted provided that one additional layer of either 1/2 inch type X or 5/8 inch type X gypsum board is applied to the ceiling. The additional layer of gypsum board shall be applied as described for the face layer of the tested system except that the fastener length shall be increased by not less than the thickness of the additional layer of gypsum board.

13. In each system containing batt or blanket insulation the insulation is specified to be either mineral or glass fiber and, for fire resistance, the system shall be built using the type specified. Insulation shall be permitted to be either faced or unfaced.
14. A vapor retarder shall be permitted to be added to any fire-resistance rated system.
15. Although the systems are arranged in general groupings (i.e., walls and interior partitions, floor-ceilings, roof-ceilings, etc.), this is not intended to limit their use only to the specific category in which they are listed. For example, systems listed as shaft walls shall be permitted to be used as interior partitions. However, systems tested vertically (walls and partitions) shall not be permitted to be arbitrarily used in a horizontal orientation.
16. Unless otherwise specified in the detailed description, the generic steel studs and runners used in nonload-bearing walls and partitions in this Manual were fabricated from flat steel having a bare metal thickness of not less than 0.0179 inch and have a return lip dimension of not less than 3/16 inch.

Note: Consult the steel stud manufacturer for performance data and recommendations before substituting proprietary steel studs that either are fabricated from steel having a bare metal thickness of less than 0.0179 inch or have a return lip dimension less than 3/16 inch.

17. Single-flanged resilient channels applied to ceilings shall be oriented with the mounting flanges facing the same direction. Single-flanged resilient channels applied to walls shall be installed with the mounting flanges down. The channel at the floor shall be permitted to be inverted as necessary to facilitate attachment of the base molding. (See figure 8.)
18. Greater stud sizes (depths) shall be permitted to be used in metal- or wood-stud systems. Metal studs of heavier gauge than those tested shall be permitted. The assigned rating of any load-bearing system shall also apply to the same system when used as a nonload-bearing system. Indicated stud spacings are maximums. Heavier gauge studs or closer stud spacing may reduce the STC. Greater stud depth may improve the STC.
19. Specified floor-ceiling and roof-ceiling framing sizes or truss dimensions are minimums. Greater joist or truss sizes (depths) shall be permitted to be used in metal- or wood-framed systems. Indicated joist and truss spacings are maximums. Closer joist or truss

8. When a fire-resistance rated partition extends above the ceiling, the gypsum board joints occurring above the ceiling need not be taped and fasteners need not be covered when all of the following conditions are met.
 - a. The ceiling is part of a fire-resistance rated floor-ceiling or roof-ceiling system;
 - b. All vertical joints occur over framing members;
 - c. Horizontal joints are either staggered 24 inches o.c. on opposite sides of the partition, or are covered with strips of gypsum board not less than 6 inches wide; or the partition is a two-layer system with joints staggered 16 inches or 24 inches o.c.; and
 - d. The partition is not part of a smoke or sound control system.

Where joint treatment is discontinued at or just above the ceiling line, the vertical joint shall be cross taped at this location to reduce the possibility of joint cracking.

9. Metallic outlet boxes shall be permitted to be installed in wood and steel stud walls or partitions having gypsum board facings and classified as two hours or less. The surface area of individual boxes shall not exceed 16 square inches. The aggregate surface area of the boxes shall not exceed 100 square inches in any 100 square feet. Boxes located on opposite sides of walls or partitions shall be in separate stud cavities and shall be separated by a minimum horizontal distance of 24 inches. Approved nonmetallic outlet boxes shall be permitted as allowed by local code. Installing outlet boxes in sound control systems may reduce the STC.
10. Water-resistant gypsum backing board shall be installed over or as part of the fire-resistance rated system in areas to receive ceramic or plastic wall tile or plastic finished wall panels. When fire or sound ratings are necessary, the gypsum board required for the rating shall extend down to the floor behind fixtures so that the construction will equal that of the tested system.

Note: The use of water-resistant gypsum backing board as a base for tile in wet areas is regulated by local codes. Consult local building codes for requirements.

11. When not specified as a component of a fire tested wall or partition system, either faced or unfaced mineral fiber, glass fiber, or cellulose fiber insulation of a thickness not exceeding that of the cavity depth shall be permitted to be added within the stud cavity. Adding insulation may improve the STC.
12. In floor-ceiling or roof-ceiling systems, the addition or deletion of mineral or glass fiber insulation in ceiling joist spaces could possibly reduce the fire-resistance rating. The addition of up to 16-3/4 inches of 0.5 pcf glass fiber insulation (R-40), either faced or unfaced batt, or loose-fill to any 1- or 2-hour fire resistance rated floor-ceiling or roof-ceiling system

GA-600-2015 FIRE RESISTANCE DESIGN MANUAL

spacing may reduce the STC. Greater joist or truss depth may improve the STC.

20. Where design limitations, the distance between parallel rows of studs, such as in a chase wall, shall be permitted to be increased beyond that tested. When stud cavities in walls constructed of parallel rows of steel studs exceed 9-1/2 inches and cross bracing is required the cross bracing shall be fabricated from steel studs. Greater wall depth may improve the STC.
21. Systems tested with metal furring channels attached directly to the bottom chords of steel beams, bar joists, or wood trusses or framing shall be permitted to be suspended. Generally, furring channels are attached to 1-1/2 inch cold rolled carrying channels 48 inches o.c. suspended from joists by 8 ga wire hangers spaced not greater than 48 inches o.c.
22. Floor-ceiling and roof-ceiling systems were fire tested at less than 36 inches total depth. However, the total depth of the systems, with either directly attached or suspended ceiling membranes, shall be permitted to extend greater than 36 inches.
23. Where laminating compound is specified, taping, all-purpose, and setting type joint compounds shall be permitted.
24. Additional layers of type X or regular gypsum panels shall be permitted to be added to any system. Additional layers of gypsum board may improve the STC.
25. When not specified as a component of a fire-resistance rated wall or partition system, cementitious backer units and/or wood structural panels shall be permitted to be added to one or both sides. Such panels shall be permitted to be applied either as a base layer directly to the framing (under the gypsum board), as a face layer (over the face layer of gypsum board), or between layers of gypsum board in multi-layer systems. Where such panels are applied under the gypsum board or between layers of gypsum board the length of the fasteners specified for the attachment of the gypsum board applied over the panels shall be increased by not less than the thickness of the panels. Fastener spacing for the gypsum board and the number of layers of gypsum board shall be as specified in the system description.
26. When additional panels, such as those noted in 24 and 25 above, are applied, and joints are staggered from previous layer, joints are not required to be finished.
27. Each proprietary system lists specific products that are acceptable for use in the specific system in which they are listed. Consult the manufacturer for information on additional proprietary products that are suitable for use in specific proprietary systems.

WALL ASSEMBLY W46

PFS CORP W2

TECH BULLETIN

R SIPs

SIP No. 2018

Subject: Fire Resistive Assemblies

Date: November 2007 (Revised May 2017)

ASTM E 119 (UL 263) tests have been conducted on R-Control SIPs to develop fire resistance assemblies.

Wall: Twenty Minute Rating

An R-Control SIP wall section faced with 1/2" gypsum board with an electrical outlet and wiring in place was tested. A foam sealant was placed around the outlet opening following R-Control SIP detail SIP-129a.

The results from ASTM E 119 testing showed that an R-Control SIP having electrical outlets, wiring and factory pre-cut chases detailed per SIP-129a and with 1/2" gypsum board complies as a twenty minute fire rating per the ASTM E 119 test standard.

Wall: 1-Hour Rating

An R-Control SIP with two layers of 5/8" Type X gypsum board applied to the face, having an outlet and wiring in place and an intumescent caulk placed around the outlet opening complies as an hourly wall assembly per the criteria of ASTM E 119.

Please refer to PFS Corporation R-Control SIP Wall Assembly W1.

Wall: 1-Hour Rating

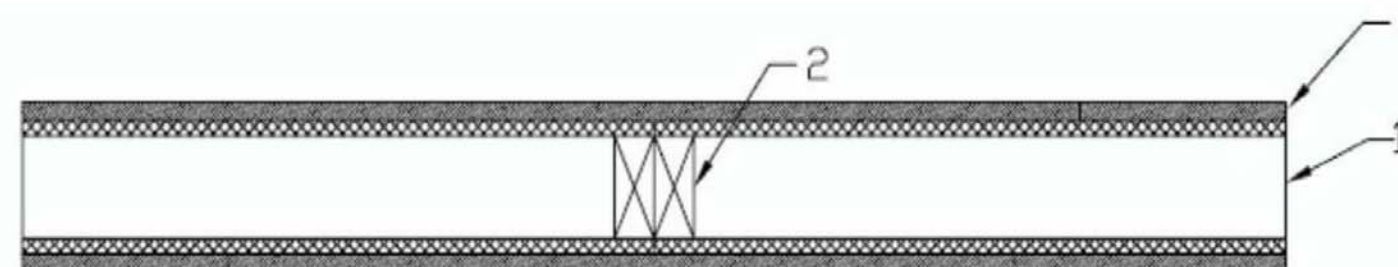
An R-Control SIP with one layer of 5/8" Type C gypsum board applied to the face and connected using 2X dimensional lumber splines complies as an hourly wall assembly per the criteria of ASTM E 119.

Please refer to PFS Corporation R-Control SIP Wall Assembly W2.



R-Control SIP Wall Assembly W2 1 Hour Fire Rated Assembly (Formerly UL Assembly U535)

Page 3 of 5



1. Panels — R-Control SIPs, 6-1/2 inch minimum thickness. R-Control SIPs loaded to 1800 lb. per linear foot.
2. Lumber Splines - Two nominal 2 in. by 6 in. SPF No. 2 or better lumber splines installed in Panels (Item 1) in pre-cut channels. Lumber splines secured to oriented strand board face of R-Control SIP with 0.113 minimum nails at maximum 6 in. OC. R-Control Do-All-Ply installed in accordance with R-Control Construction Manual.
3. Gypsum Board - 5/8 in. thick, 4 ft. wide, applied vertically installed with 1-5/8 in. long high/low bugle-head steel screws spaced 8 in. OC along the edges and 12 in. OC in the field. Vertical joints over vertical joints of Panels (Item 1). Gypsum Board joints covered with joint tape and joint compound. Screw heads covered with joint compound.

AMERICAN GYPSUM CO - Type AG-C
CANADIAN GYPSUM COMPANY - Type C
LAFARGE NORTH AMERICA INC - Types LGFC-C/A
TEMPLE-INLAND FOREST PRODUCTS CORP - Type TG-C
UNITED STATES GYPSUM CO - Type C
USG MEXICO S A DE C V - Type C

4. Plates (Not Shown) - Nom 2 in. thick by width determined by panel thickness SPF No. 2 or better lumber installed at top and bottom of Panels (Item 1) in pre-cut channels. Plates secured to oriented strand board face of R-Control SIP with 0.113 minimum nails at maximum 6 in. OC. R-Control Do-All-Ply installed in accordance with R-Control Construction Manual.

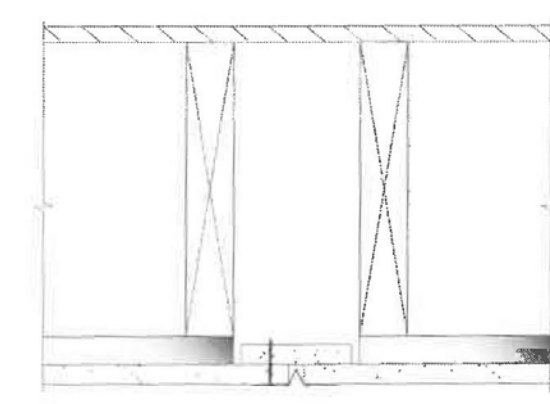
CONTROL JOINT - CEILING

GA FILE NO. SRS 5102

GYPSUM WALLBOARD STRIPS, CONTROL JOINT PARALLEL TO JOISTS, RIGID FURRING CHANNELS, WOOD JOISTS, I-JOISTS, OR TRUSSES

Two back-to-back wood joists, I-joists, or trusses framing the control joint and spaced 4" apart. Rigid furring channels applied at right angles to ceiling framing with ends at control joint opening cantilevered 1/4" into 4" space. Single 3-1/2" wide strip of 5/8" type X gypsum wallboard attached to the back face of the gypsum board ceiling membrane along one side of the control joint opening with 1-1/2" Type G drywall screws 24" o.c. Gypsum panel products applied to the ceiling as specified in the listing for the one-hour fire-resistance rated floor- or roof-ceiling system with a maximum 1/2" control joint opening centered over the backing strip. Gypsum panel ends or edges on one side of the control joint attached to one furring channel and gypsum panel ends or edges on the other side of the joint attached to the opposing furring channel. A 1/2" metal or vinyl control joint accessory stapled to the ceiling on each side of the control joint opening.

This control joint protection method is intended for use in any one-hour fire-resistance rated wood framed system in this Manual having a ceiling membrane consisting of a single layer of either 5/8" type X or 5/8" proprietary type X gypsum board. The floor-ceiling or roof-ceiling system shall be constructed of the materials and in the manner described in the individual GA File Number.



Fire Test: UL R4024, 97N2K136, 2-7-97

FLOOR/CEILING ASSEMBLY F1 & F3

GA FILE NO. FC 5121

FLOOR-CEILING SYSTEMS, WOOD FRAMED

GA FILE NO. FC 5121	PROPRIETARY*	1 HOUR FIRE	50 to 54 STC SOUND
WOOD TRUSSES, WOOD STRUCTURAL PANELS, GYPSUM FLOOR TOPPING, RESILIENT CHANNELS, GLASS BATT OR LOOSE FILL INSULATION, CEILING DAMPER, GYPSUM WALLBOARD Base layer of 5/8" proprietary type X gypsum wallboard applied at right angles to resilient furring channels 12" o.c. with 1" Type S drywall screws 8" o.c. No limit on overall thickness of glass batt, loose fill or mineral wool insulation allowed when applied directly over gypsum board. Wood trusses supporting a 23/32" wood structural panel subfloor, long edges T&G, applied at right angles to trusses with construction adhesive and 6d ring shank nails 12" o.c. A 15/32" wood structural panel underlaid applied over subfloor. Sound tested with 3 1/2" glass batt insulation, carpet, padding as well as vinyl flooring. Optional ceiling damper (refer to manufacturer for information on the type of damper).			
PROPRIETARY GYPSUM BOARD American Gypsum Company LLC..... 5/8" FireBloc® Type C Gypsum Board			
		Approx. Ceiling Weight: 3 psf Fire Test: UL R14196, 04NK25585, 1-15-05; 4786440611, 6-6-14; UL Design I574, UL Design M508 Sound Test: RAL TL08-310, 10-31-08; RAL TL08-311, 10-31-08 IIC & Test: (40 sheet vinyl), RAL IN08-039, 10-31-08; (64 C&P), RAL IN08-040, 10-31-08	

FLOOR/CEILING ASSEMBLY F2

GA FILE NO. FC 5406

GA FILE NO. FC 5406	GENERIC	1 HOUR FIRE	35 to 39 STC SOUND
WOOD JOISTS, GYPSUM WALLBOARD Base layer 5/8" type X gypsum wallboard applied at right angles to 2 x 10 wood joists 24" o.c. with 1 1/4" Type W or S drywall screws 24" o.c. Face layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to joists with 1 1/4" Type W or S drywall screws 12" o.c. placed 2" back on either side of end joints. Joints offset 24" from base layer joints. Wood joists supporting 1/2" plywood with exterior glue applied at right angles to joists with 8d nails. Ceiling provides one hour fire resistance protection for framing, including trusses.			
		Approx. Ceiling Weight: 5 psf Fire Test: FM FC 172, 2-25-72; ITS, 8-6-98 Sound Test: Estimated	

WALL ASSEMBLY W22, W24, W26

GA FILE NO. WP 3245

GA FILE NO. WP 3245	GENERIC	1 HOUR FIRE	50 to 54 STC SOUND
GYPSUM WALLBOARD, RESILIENT CHANNELS, MINERAL OR GLASS FIBER INSULATION, WOOD STUDS Resilient channels 24" o.c. attached at right angles to ONE SIDE of 2 x 4 wood studs 16" o.c. with 1-1/4" Type S drywall screws. One layer 5/8" 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: Base layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to studs with 8d cement coated nails, 1-7/8" long, 0.0915" shank, 15/64" heads, 7" o.c. Face layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to studs with 8d cement coated nails, 2-3/8" long, 8" o.c. Face layer joints offset 16" from base layer joints. Vertical joints staggered 16" on opposite sides. (LOAD-BEARING)			
		Thickness: 6" Approx. Weight: 9 psf Fire Test: Based on UL R14196, 05NK05371, 2-15-05, UL Design U305 Sound Test: NRCC TL-63-116, IRC-R-761, 3-98	

WALL ASSEMBLY W34 & W36

GA FILE NO. WP 3614

WALLS AND INTERIOR PARTITIONS, WOOD FRAMED			
GA FILE NO. WP 3614	GENERIC	1 HOUR FIRE	30 to 34 STC SOUND
GYPSUM WALLBOARD, WOOD STUDS One layer 5/8" 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 1-1/4" Type W drywall screws 12" o.c. Joints staggered 16" on opposite sides. (LOAD-BEARING)			
		Thickness: 4-3/4" Approx. Weight: 7 psf Fire Test: SWRI 01-4511-619[1], 3-9 Sound Test: See WP 3605 (OR 64-8, 2-4-64)	



3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com



2814 PATTERSON ROAD

2814 PATTERSON ROAD, GRAND JUNCTION, CO 81506

PROJ. NO. 118185.00
DRAWN: OZ
CHECKED: OZ
APPROVED: OZ
DATE: 4/05/2019

© OZ ARCHITECTURE

2814 PATTERSON ROAD

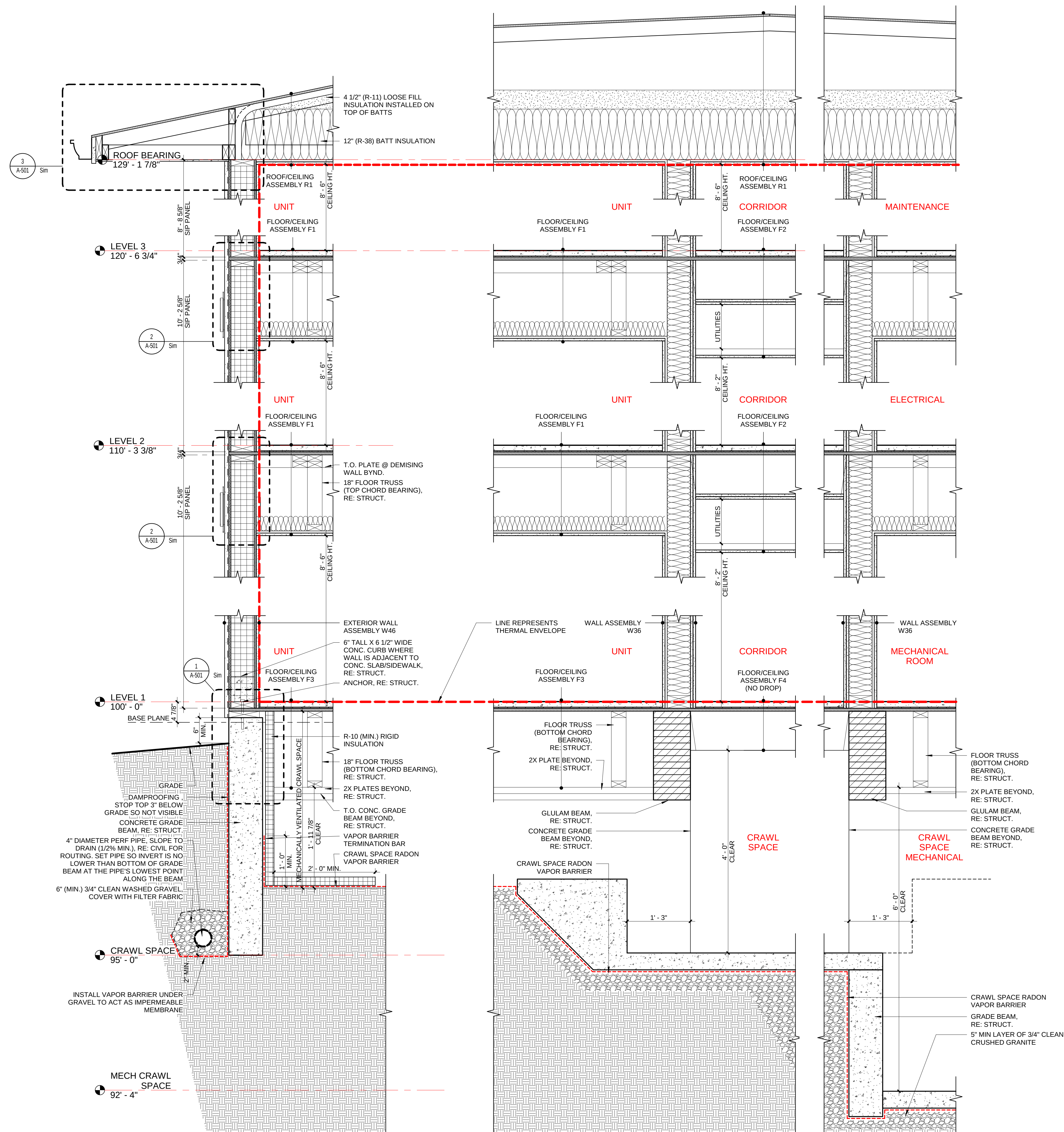
ISSUED FOR:
100% CONSTRUCTION
DOCUMENTS

SHEET TITLE:
WALL SECTION /
RADON SYSTEM

SCALE: 1" = 1'-0"
SHEET NUMBER

G-503

NOTE:
IT IS ASSUMED THAT FIRE SPRINKLER AND DOMESTIC WATER LINES
WILL BE ROUTED UP TO THE THIRD FLOOR FROM BELOW IN LIEU OF
THROUGH THE LEVEL THREE CORRIDOR OR ATTIC SPACE. AS SUCH,
NO DROPPED SOFFIT IS BEING PROVIDED AT THE LEVEL THREE
CORRIDOR TO HIDE UTILITIES. ELECTRICAL AND OTHER DRY UTILITIES
TO BE ROUTED THROUGH ATTIC SPACE



1 EXTERIOR WALL / CORRIDOR WALL SECTION
1" = 1'-0"

Line types

EXISTING

PROPOSED

DESCRIPTION

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ACCEPTANCE BLOCK

THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD. REVIEW BY THE CITY DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER APPROVES NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD.

CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.

x:\2018\2018-531-gphawhew-584\p01-ar\001-civil\In-Dwg\In-Dwg\1814Pat-Admin\30x42.dwg Plotted: 11/7/2019 11:56 AM By: Doreen Rioson

GENERAL SEWER NOTES:

- ALL SANITARY SEWER MAINS, SERVICES AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF GRAND JUNCTION STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION OF UNDERGROUND UTILITIES.
- MARK STUBBED ENDS OF ALL SEWER SERVICE LINES WITH FENCE POST, 3-WAY SWING TIES AND DEPTH TO SERVICE.
- CONTRACTOR TO VERIFY THE GRADE OF ALL EXISTING SEWER LINES BEFORE INSTALLING ANY PIPE TO VERIFY INVERT ELEVATIONS. CONTACT ENGINEER WITH ANY DIFFERENCES IN ELEVATIONS SO THAT GRADES CAN BE ADJUSTED.
- CONTRACTOR SHALL POTHOLE ALL MISCELLANEOUS UTILITIES THAT WILL CROSS OR PARALLEL THE LINE PRIOR TO INSTALLING NEW LINE. IF GRADE CONFLICTS OCCUR, CONTACT ENGINEER SO THAT GRADES CAN BE ADJUSTED.
- PLAN VIEW DISTANCE BETWEEN MANHOLES IS CENTERLINE TO CENTERLINE OF MANHOLES. PROFILE DISTANCE AND SLOPE BETWEEN MANHOLES IS FROM INVERT OUT TO INVERT IN OF MANHOLES (CL TO CL. MANHOLE DISTANCE MINUS 1/2 INSIDE DIAMETER OF EACH MANHOLE).
- THE SEWER MANHOLES SHOWN IN PLAN VIEW INDICATE THE LOCATION OF THE STEPS WITHIN THE MANHOLE AND MANHOLE RIM LOCATION BY A BLACKENED CIRCLE. THIS WILL BE THE REQUIRED LOCATION FOR EACH MANHOLE SHOWN.

CITY OF GRAND JUNCTION SANITARY SEWER NOTES:

- CONTRACTOR SHALL HAVE ONE SIGNED COPY OF PLANS AND A COPY OF THE CITY OF GRAND JUNCTION'S STANDARD SPECIFICATIONS AT THE JOB SITE AT ALL TIMES.
- ALL SEWER MAINS SHALL BE PVC SDR 35 (ASTM 3034) UNLESS OTHERWISE NOTED.
- ALL SEWER MAINS SHALL BE LAID TO GRADE UTILIZING A PIPE LASER.
- ALL SERVICE LINE CONNECTIONS TO NEW MAINS SHALL BE ACCOMPLISHED WITH FULL BODY WYES OR TEES. TAPPING SADDLES WILL NOT BE ALLOWED.
- SERVICE LINE CONNECTIONS TO EXISTING NON-PVC MAINS SHALL BE ACCOMPLISHED USING "INSERTA TEES" MANUFACTURED BY INSERTA FITTINGS COMPANY OF HILLSBORO, OREGON. FOR EXISTING PVC MAINS, TAPPING SADDLES SHALL BE USED.
- 4 INCH SERVICES SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES. ALL 6 INCH SERVICES SHALL BE CONNECTED TO THE MAIN AT A MANHOLE.
- THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SEWER LINE TESTING TO BE COMPLETED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE. PRESSURE TESTING WILL BE PERFORMED AFTER INSTALLATION OF DRY UTILITIES, AFTER ALL COMPACTION OF STREET SUBGRADE AND PRIOR TO STREET PAVING. FINAL LAMPING WILL ALSO BE ACCOMPLISHED AFTER PAVING IS COMPLETED. THESE TESTS SHALL BE THE MINIMUM BASIS OF ACCEPTANCE OF THE SEWER LINE EXTENSION.
- THE CONTRACTOR SHALL OBTAIN CITY OF GRAND JUNCTION STREET CUT PERMIT FOR ALL WORK WITHIN EXISTING CITY RIGHT-OF-WAY PRIOR TO CONSTRUCTION.
- A CLAY CUT-OFF WALL SHALL BE PLACED 10 FEET UPSTREAM FROM ALL NEW MANHOLES UNLESS OTHERWISE NOTED. THE CUT-OFF WALL SHALL EXTEND FROM 6 INCHES BELOW TO 6 INCHES ABOVE GRANULAR BACKFILL MATERIAL AND SHALL BE 2 FEET WIDE. IF NATIVE MATERIAL IS NOT SUITABLE, THE CONTRACTOR SHALL IMPORT MATERIAL APPROVED BY THE ENGINEER. COST IS INCIDENTAL TO THE COST OF THE GRAVITY SEWER PIPE AND WILL NOT BE PAID FOR SEPARATELY.
- SEWER SERVICE STUB OUTS SHALL BE CAPPED AND PLUGGED. STUB OUT SHALL BE MARKED WITH A 4X4 INCH POST PAINTED GREEN BURIED WITH 3 FEET ABOVE GRADE. AS-BUILT SURVEYING FOR VERTICAL GRADE OF STUB OUT REQUIRED PRIOR TO BACKFILL.
- RED LINE AS-BUILTS SHALL BE SUBMITTED TO THE CITY UTILITY ENGINEER AT LEAST 72 HOURS PRIOR TO PAVING FOR REVIEW.

CITY OF GRAND JUNCTION STORM SEWER NOTES:

- ALL DRAIN INLETS SHOWN IN GUTTER PANS SHALL BE TYPE 1 DRAIN INLET AS SHOWN ON THE DRAINAGE DETAIL SHEET ####.
- FOR PROFILES OF STORM LINE, SEE SHEET ####.
- BACKFILL AROUND MANHOLES, INLET BOXES, AND OTHER STRUCTURES SHALL BE PLACED IN 8" LIFTS AND COMPACTED TO 95% MODIFIED PROCTOR.
- ALL PORTLAND CEMENT CONCRETE SHALL BE COLORADO DEPARTMENT OF TRANSPORTATION CLASS "B" (SECTION 601.02).
- ANY EXISTING PAVEMENT NOT DESIGNATED FOR REMOVAL WHICH IS DAMAGED BY CONSTRUCTION SHALL BE REPLACED IN-KIND BY CONTRACTOR.
- ALL CONCRETE WORK WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED BY A LICENSED CITY CONTRACTOR.
- SEE APPROVED CONSTRUCTION DRAWINGS FOR ALL LOCATIONS, GRADES, AND ELEVATIONS OF ALL DRAINAGE IMPROVEMENTS.
- MANHOLE RING AND COVER AND INLET GRATE AND FRAME SHALL BE ADJUSTED TO FINISHED GRADE USING NON-SHRINK GROUT AND PRE-CAST CONCRETE GRADE RINGS OR WITH THE "WHIRLY-GIRT" METHOD. GROUT THICKNESS SHALL NOT EXCEED 2 INCHES. GROUT SHALL BE PLACED BETWEEN THE CONCRETE GRADE RINGS. STEEL GRADE ADJUSTMENT RINGS MAY BE USED FOR ADJUSTMENT OF MANHOLE COVERS ONLY WHEN STREETS ARE OVERLAID.
- SEE THE CITY OF GRAND JUNCTION STORMWATER MANAGEMENT MANUAL FOR STORMWATER DESIGN CRITERIA.
- ALL WORK SHALL BE IN ACCORDANCE WITH APPROVED PLANS, STANDARD STORM DRAIN DETAILS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF UNDERGROUND UTILITIES.
- STORM DRAIN INLET BOXES MAY BE MADE FROM STACKABLE PRECAST BOX SECTIONS WITH TONGUE AND GROOVE JOINTS AND FLEXIBLE SEALANT BETWEEN SECTIONS. THE TOP SECTION OF THE INLET BOX SHALL HAVE A GROOVE-LESS FLAT SURFACE TO SUPPORT THE INLET FRAME AND GRATE.

CITY OF GRAND JUNCTION MANHOLE NOTES

- CONCRETE SHALL BE COLORADO DEPARTMENT OF TRANSPORTATION CLASS "B" (SECTION 601.02).
- ALL CEMENT USED IN MORTAR, CONCRETE BASES, GRADE RINGS, RISER SECTIONS AND CONES FOR SANITARY SEWER MANHOLES, SHALL BE TYPE V OR MODIFIED TYPE II PORTLAND CEMENT WITH LESS THAN 5% TRICALCIUM ALUMINATE.
- MANHOLE RISER SECTIONS, CONES AND GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE CONFORMING TO ASTM C-478 OR AASHTO M-199.
- BACKFILL AROUND MANHOLES AND OTHER PIPELINE STRUCTURES SHALL BE PLACED IN 8" MAX. LIFTS AND COMPACTED TO 95% AASHTO T-99 WITH HAND OPERATED MECHANICAL EQUIPMENT.
- ALL WORK SHALL BE IN ACCORDANCE WITH APPROVED PLANS AND CITY SPECIFICATIONS.
- THE MANHOLE CONE AND BARREL SECTIONS SHALL BE POSITIONED SUCH THAT THE MANHOLE RING AND STEPS ARE AT A 45° ANGLE FROM THE INLET PIPE (SEE CITY DETAIL PAGE SS-08).
- MANHOLE RING AND COVER SHALL BE SET TO FINISH GRADE USING RAPID ROAD REPAIR GROUT TO ADJUST RIM ELEVATION. GROUT SHALL NOT EXCEED 2" THICKNESS. GROUT SHALL BE PLACED BETWEEN TOP OF CONCRETE GRADE RING AND RING AND COVER. STEEL GRADE ADJUSTMENT RINGS MAY BE USED FOR ADJUSTMENT OF MANHOLE COVERS ONLY WHEN STREETS ARE OVERLAID.
- INVERTED MANHOLE RINGS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER.

GENERAL UTILITY NOTES:

- THE APPROXIMATE LOCATION OF ALL KNOWN UTILITIES (WATER, SEWER, GAS, PHONE, ELECTRIC, CABLE, ETC.) ARE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS TO VERIFY BOTH LOCATION AND DEPTH OF UTILITIES BEFORE ANY WORK BEGINS. CONTRACTOR SHALL BEAR THE RESPONSIBILITY FOR THE PROTECTION OF UTILITIES DURING CONSTRUCTION. NO ADDITIONAL PAYMENT WILL BE MADE FOR UTILITIES LOCATED BUT NOT SHOWN IN DRAWINGS.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR RESTORING ANY DISTURBED AREAS IN ACCORDANCE WITH SPECIFICATIONS.
- ALL UTILITY WORK TO BE DONE IN STRICT COMPLIANCE WITH RESPECTIVE UTILITY COMPANY REQUIREMENTS.
- SHALLOW UTILITIES SHOWN ON THE PLANS ARE SHOWN AS DESIGN LOCATIONS. FIELD CONDITIONS MAY REQUIRE MINOR UTILITY ADJUSTMENTS.
- CONTRACTOR, AT HIS OWN EXPENSE, SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY LOCATES BY POT HOLING PRIOR TO CONSTRUCTION. IF ANY GRADE CONFLICTS OCCUR WITH UTILITY CROSSINGS, CONTACT OWNER REPRESENTATIVE SO THAT GRADES CAN BE ADJUSTED.
- FOLLOW ALL CDPE (COLORADO DEPARTMENT OF HEALTH & ENVIRONMENT) REGULATIONS FOR WATER AND SEWER LINE CROSSINGS & CITY OF GRAND JUNCTION SEPARATION REQUIREMENTS.
- UTILITY COMPANIES AND/OR THE CITY OF GRAND JUNCTION SHALL NOT BE RESPONSIBLE FOR DAMAGE TO PLANTINGS, IRRIGATION SYSTEMS, FENCES OR OTHER APPURTENANCES LOCATED OR CONSTRUCTED WITHIN THE MULTI-PURPOSE EASEMENT WHEN SUCH DAMAGE RESULTS FROM THE INSTALLATION AND/OR REPAIR OF UTILITIES WITHIN SAID MULTIPURPOSE EASEMENT.
- STREET TREES SHALL BE LOCATED 5' FROM THE BACK OF SIDEWALK AND NO LESS THAN 10' FROM ANY DRIVEWAY. NO TREES SHALL BE PLANTED WITHIN THE MULTI-PURPOSE EASEMENT WITHOUT APPROVAL OF THE SPECIES AND LOCATION BY THE CITY FORESTRY SUPERVISOR.
- ALL FIRE HYDRANTS AND WATER METERS SHALL REMAIN UNOBSTRUCTED AND ACCESSIBLE AT ALL TIMES. NO FENCES, PLANTINGS, STRUCTURES OR OTHER OBSTACLE SHALL BE LOCATED WITHIN 3' OF ANY FIRE HYDRANT OR ON THE STREET SIDE OF ANY FIRE HYDRANT OR ON THE STREET SIDE OF ANY FIRE HYDRANT.

SHALLOW UTILITY NOTES:

- EXISTING UTILITY LOCATIONS ARE A COMBINATION OF SURVEYED FIELD LOCATIONS, OBSERVATIONS, AND EXISTING MAPPING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION.
- ALL UTILITY WORK TO BE DONE IN STRICT COMPLIANCE WITH RESPECTIVE UTILITY COMPANY REQUIREMENTS.
- SHALLOW UTILITIES SHOWN ON THE PLANS ARE SHOWN AS DESIGN LOCATIONS. FIELD CONDITIONS MAY REQUIRE MINOR UTILITY ADJUSTMENTS.
- PROVIDE CONDUIT SIZE AND TYPE PER LOCAL UTILITY PROVIDER.
- PROVIDE CONDUIT STUB A MINIMUM OF 6" ABOVE FINAL GRADE AT LOCATIONS DESIGNATED FOR PEDESTAL INSTALLATION AND CAP.
- DUCT TAPE EACH UTILITY CONDUIT GROUPING (I.E. TELEPHONE, CABLE, ELEC.) TOGETHER ABOVE GRADE AND LABEL.
- PROVIDE PULL STRING IN EACH CONDUIT.
- TRANSITION CONDUIT FROM TYPICAL UTILITY TRENCH SPACING TO PROVIDE SEPARATION FROM VERTICAL APPURTENANCES OF DEEPER UTILITIES.
- GAS UTILITY WILL INSTALL GAS PIPING.
- GAS MAIN SHALL HAVE A MINIMUM OF 36" OF APPROVED BACK-FILL OR COVER.
- GAS- WIDTH OF TRENCH SHALL NOT BE LESS THAN (10") FOR 2" MAIN INSTALLATION AND (14") FOR 4" MAIN INSTALLATION. WHERE TIE-INS OR CROSSINGS ARE LOCATED BELL-HOLES SHALL BE PROVIDED, SIZE OF WHICH SHALL ALLOW ADEQUATE WORKING SPACE FOR MEN AND EQUIPMENT.
- GAS- BEDDING MATERIAL SHALL BE ROCK FREE. BEDDING MATERIAL SHALL NOT CONSIST OF ANY FRACTURED ROCK TYPE MATERIAL. ALL BEDDING MATERIAL TO BE PRE-APPROVED BY XCEL REPRESENTATIVE.
- GAS- WHEN ROCKY CONDITIONS ARE ENCOUNTERED THE TRENCH BOTTOM SHALL BE CLEAN AND THE GAS MAIN BEDDED A MINIMUM OF 6" BELOW AND 12" ABOVE WITH PRE-APPROVED BEDDING MATERIAL.
- GAS- PIPELINE TO BE BEDDED AND BACK-FILLED THE SAME DAY AS INSTALLED.
- GAS- CONTRACTOR/DEVELOPER RESPONSIBLE FOR COMPACTION REQUIREMENTS PER SPECIFICATIONS.
- ALL SITE CLEANUP AND LANDSCAPING TO BE COMPLETE BY CONTRACTOR/DEVELOPER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO DISPOSE OF EXCESS MATERIALS OR SPOILS.
- CABLE- COMCAST CABLE WILL PROVIDE ANY REQUIRED VAULTS AND PEDESTALS.
- CABLE- COMCAST REQUESTS CONTRACTOR TO FURNISH 3" DIAMETER, SCHEDULE 40 PVC CONDUIT.
- CABLE- CONTRACTOR TO INSTALL CONDUIT, BED CONDUIT WITH 3/4" MINUS MATERIAL, 4" BELOW TO 4" ABOVE CONDUIT, STUB CONDUIT ABOVE GROUND AT PEDESTAL LOCATIONS; PULL CORD TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- TELE- CENTURYLINK REQUESTS CONTRACTOR TO SUPPLY 4" SCHEDULE 40 PVC CONDUIT.
- TELE- CENTURYLINK REQUESTS INSTALLATION OF SWEEPS TO HAVE A MINIMUM 9 FOOT RADIUS.
- TELE- CENTURYLINK REQUESTS SWEEPS TO BE GLUED IN PLACE, EXTEND AT LEAST 12" ABOVE GROUND, AND TO BE PLACED CLOSELY TOGETHER TO FIT INSIDE A SINGLE PEDESTAL.
- EXISTING UTILITY LOCATIONS ARE A COMBINATION OF SURVEYED FIELD LOCATIONS, OBSERVATIONS, AND EXISTING MAPPING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO ANY EXISTING CONSTRUCTION.

UTILITY CONTACT INFORMATION:

ELECTRICAL AND GAS:	TILLMON MCSCHOOLER (970) 244-2695
XCEL ENERGY	
CABLE TELEVISION:	ARMANDO S. (970) 812-2439
CHARTER COMMUNICATIONS	
TELEPHONE:	CHRIS JOHNSON (970) 244-4311
CENTURYLINK	
DOMESTIC WATER:	DAVE PRISKE (970) 242-7491
UTE WATER CONSERVANCY DISTRICT	
SANITARY SEWER:	BILL ETCHERRY (970) 256-4176
CITY OF GRAND JUNCTION	
DRAINAGE AND IRRIGATION:	(970) 242-5065
GRAND VALLEY WATER USERS ASSOCIATION	
REFUSE COLLECTION:	MATT JONES (970) 243-8555
COMMERCIAL REFUSE SERVICE	

ACCEPTANCE BLOCK

THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD. REVIEW BY THE CITY DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD.

CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.

CITY DEVELOPMENT ENGINEER DATE



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Grand Junction Housing Authority
2814 Patterson Road

Construction Documents

Project Milestones:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

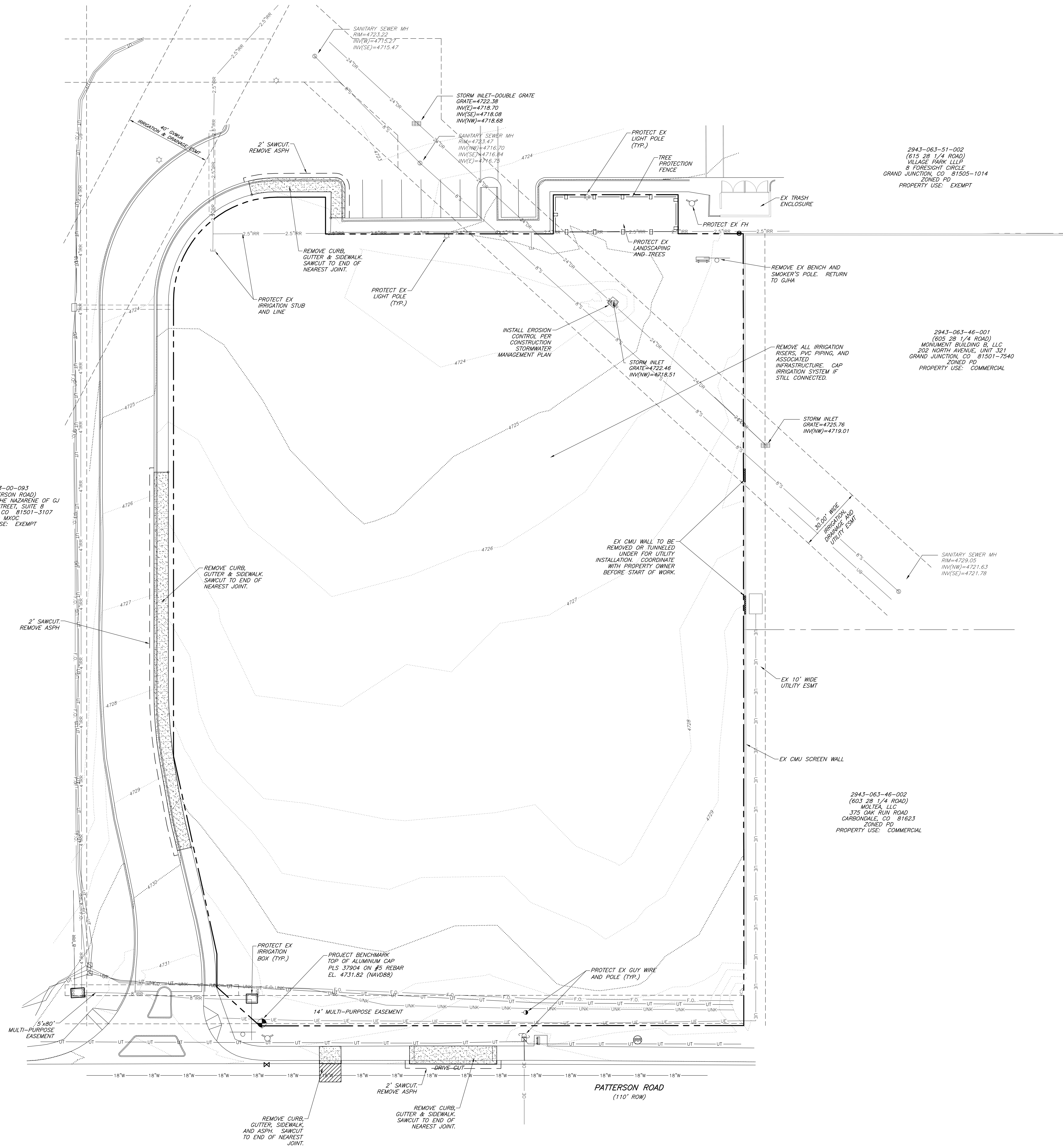
Site No. 2018-531.001
Drawn by: FJB
Date: 5.16.19
DC: RS | PE: DLS
File: 2814Pat-Admin30x42

General Notes (2)

Dwg No. C-3

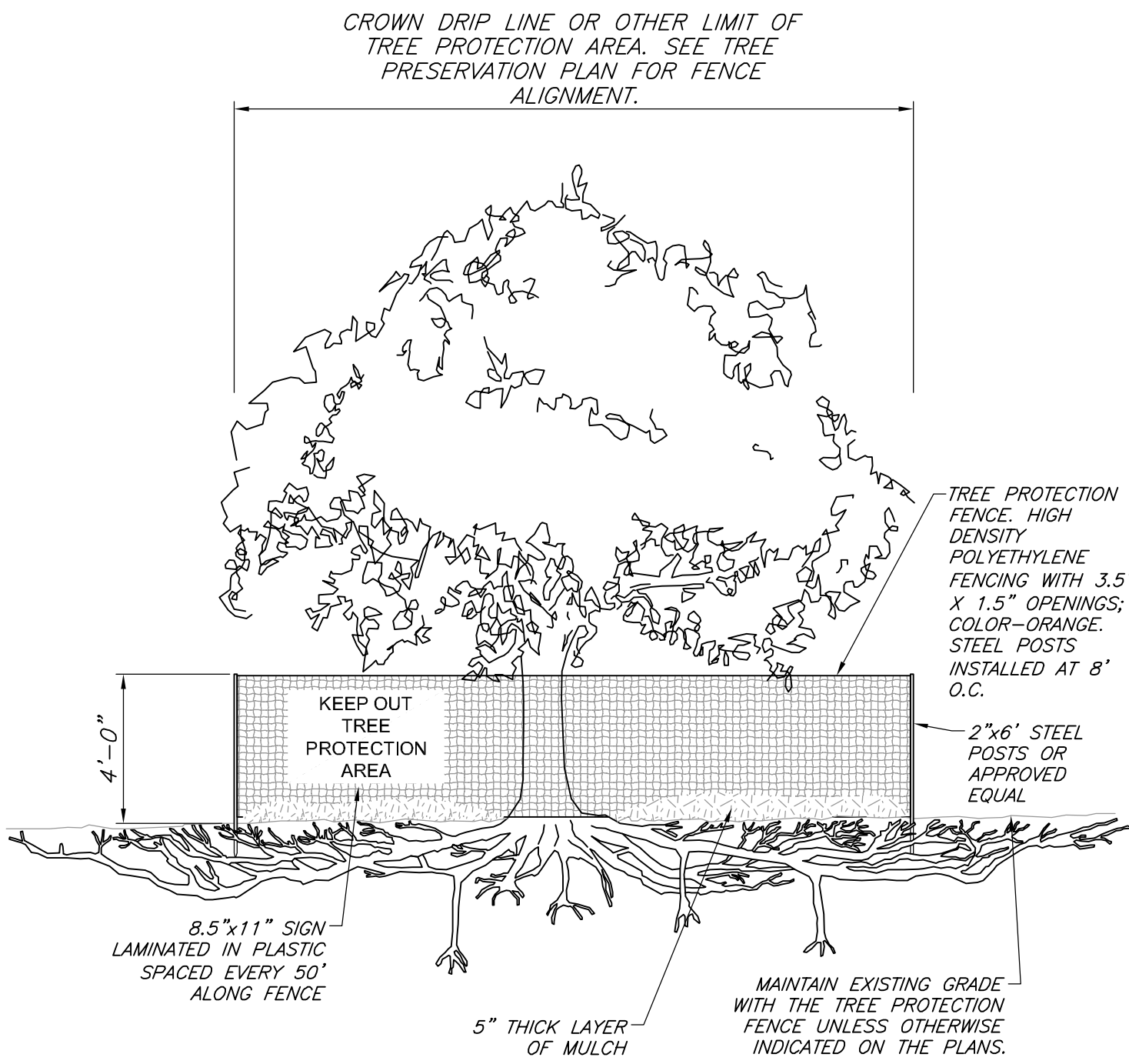
Of: 21

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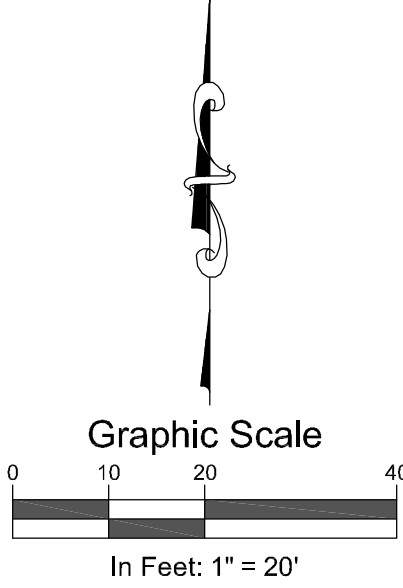
GENERAL NOTES:

- EXISTING FIELD CONDITIONS WERE GENERATED BY A SURVEY PERFORMED BY POLARIS SURVEYING, GRAND JUNCTION, CO., PROVIDED ON 12/13/2018.



- NOTES:
- SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
 - IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
 - NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
 - NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
 - SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITH THE TREE PROTECTION AREA.

TREE PROTECTION FENCE
NTS



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Rev	Date	By	Check
1	11/04/19	DM	

Project Milestones

Task	Start	End	Status
ASB-07 Construction Review			

Site No. 2018-531.001
Drawn by: FJB
Date: 5.16.19
QC: RS PE: DLR
File: 2814Pat-DemoPlan

Title:
Demolition Plan

Dwg No.
C-4

CITY OF GRAND JUNCTION ZONING TABLE			
	ZONING DISTRICT: PLANNED DEVELOPMENT		PROVIDED PARCEL 2
	PERMITTED / REQUIRED		
SITE	Land Use		Multifamily Residential Apartment
	Minimum Lot Area (SF)	N/A	95,875
	Minimum Lot Width (FT)	30	242.8241
	Lot Coverage	75%	
	Minimum Frontage (FT)	20	223.0937
BUILDING	Maximum Building Height	40 ft or 3 stories	36 ft, 3 stories (1)
	Minimum Setbacks (FT)		
	Front Yard	20	161.78
	Side Yard (Street Side)	15	26.38
	Side Yard (Interior)	5	35.45
PARKING AND ACCESS	Rear Yard	10	14.26
	Accessory Structure Setback	3	3
	Parking Space Size	18.5' x 9'	18.5' x 9'
	Minimum Number of Spaces		
	Multifamily - 1 bedroom (1.25 per Unit)	54 x 1.25 = 67.5	
LIGHTING	Multifamily - 2 bedroom (1.5 per Unit)	1.5 x 6 = 9	
	Total Spaces	76.5 (77)	76/9
	Accessible Parking Spaces	4	3
	Parking Area Light Max Height (ft)	35	20
	Sidewalk Light Max Height (ft)	12	12
SCREEN	Max. Fence, Hedge, Wall Height (ft)	6	6
	Notes	All data referenced from Zoning and Development Code from The City of Grand Junction passed October 17, 2018. (1) Height as measured above Finished Floor (N/A) Not Applicable (V) Variance	

GENERAL NOTES:

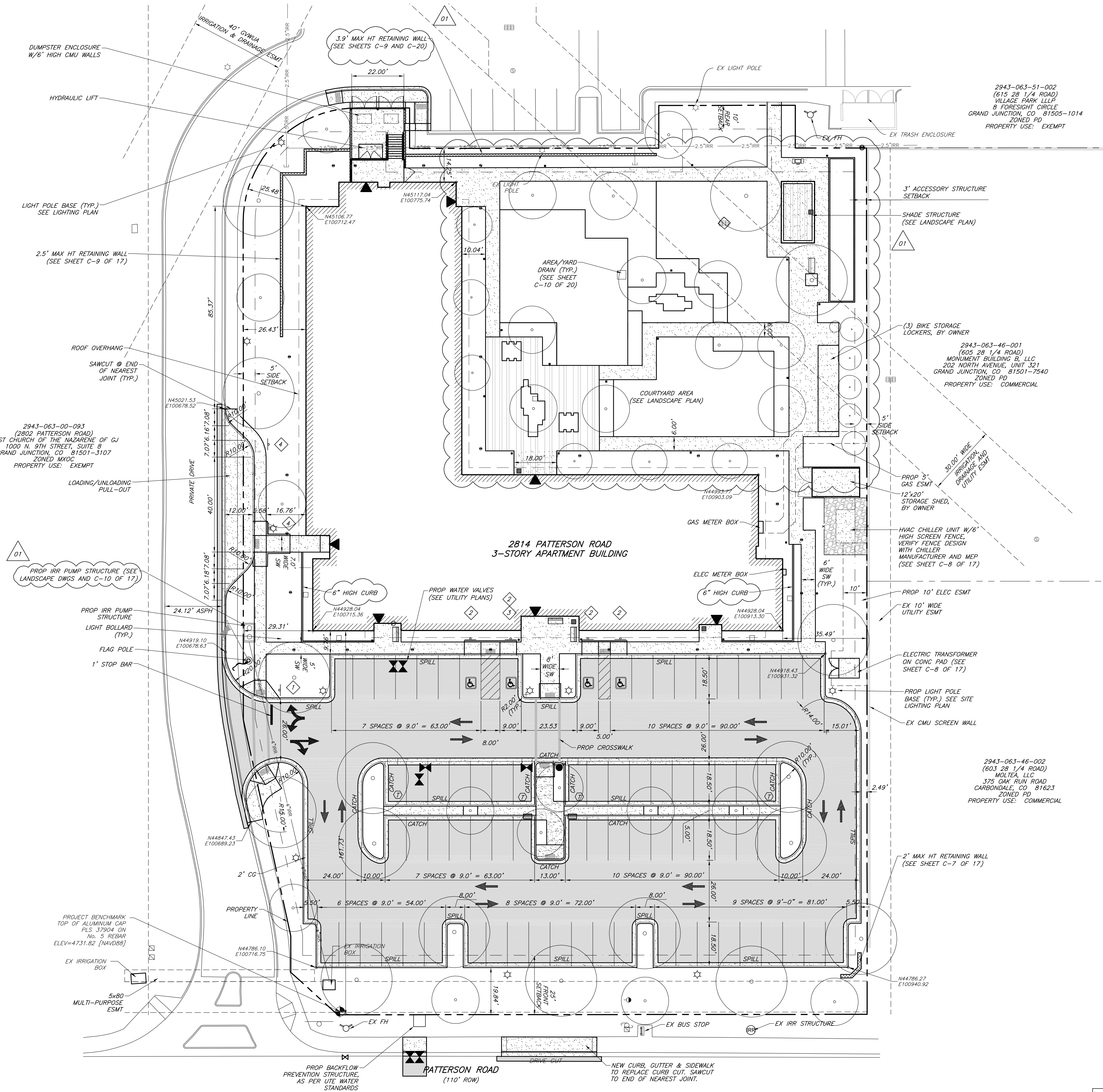
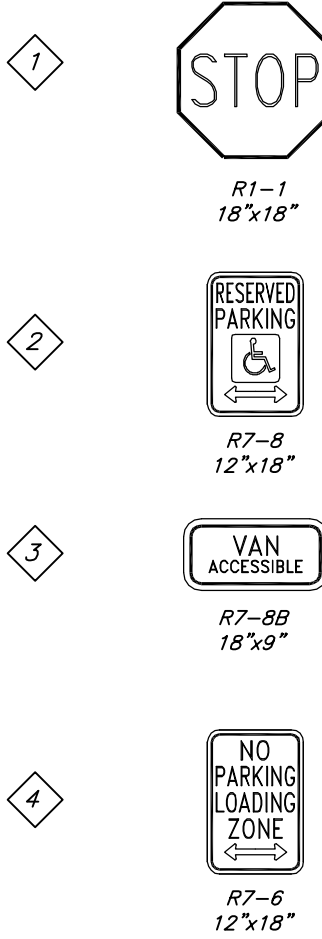
ALL EXISTING PAVEMENT, CURB, GUTTER, AND SIDEWALK NOT DESIGNATED FOR REMOVAL THAT IS DAMAGED BY CONSTRUCTION SHALL BE REPLACED IN-KIND BY CONTRACTOR.

AREA BREAKDOWNS	SF	%
BUILDING	20369.8	21.2%
ACCESSORY STRUCTURES	558.0	0.6%
ASPHALT	25692.8	26.8%
CONCRETE/HARDSCAPING	14369.9	15.0%
GRAVEL	320.0	0.3%
LANDSCAPING	34564.5	36.1%
Total:	95875.0	100.0%

UTILITY CONTACT INFORMATION:

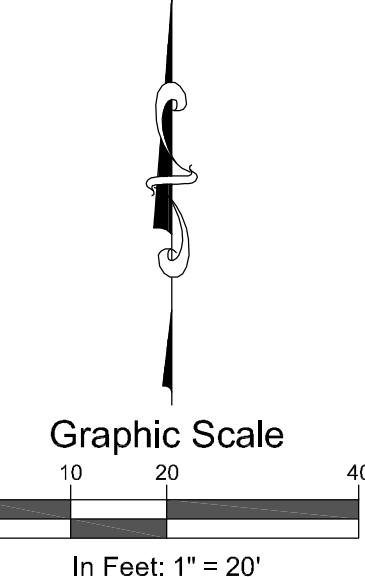
ELECTRICAL AND GAS: XCEL ENERGY	TILLMON MCSCHOOLER (970) 244-2695
CABLE TELEVISION: CHARTER COMMUNICATIONS	ARMANDO S. (970) 812-2439
TELEPHONE: CENTURYLINK	CHRIS JOHNSON (970) 244-4311
DOMESTIC WATER: UTE WATER CONSERVANCY DISTRICT	DAVE PRISKE (970) 242-7491
SANITARY SEWER: CITY OF GRAND JUNCTION	BILL ETCHVERRY (970) 256-4176
DRAINAGE AND IRRIGATION: GRAND VALLEY WATER USERS ASSOCIATION	(970) 242-5065
REFUSE COLLECTION: COMMERCIAL REFUSE SERVICE	MATT JONES (970) 243-8555

SIGN INFORMATION



ACCEPTANCE BLOCK:
THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD. REVIEW BY THE CITY DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD.
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CITY DEVELOPMENT ENGINEER DATE
CITY PLANNER DATE



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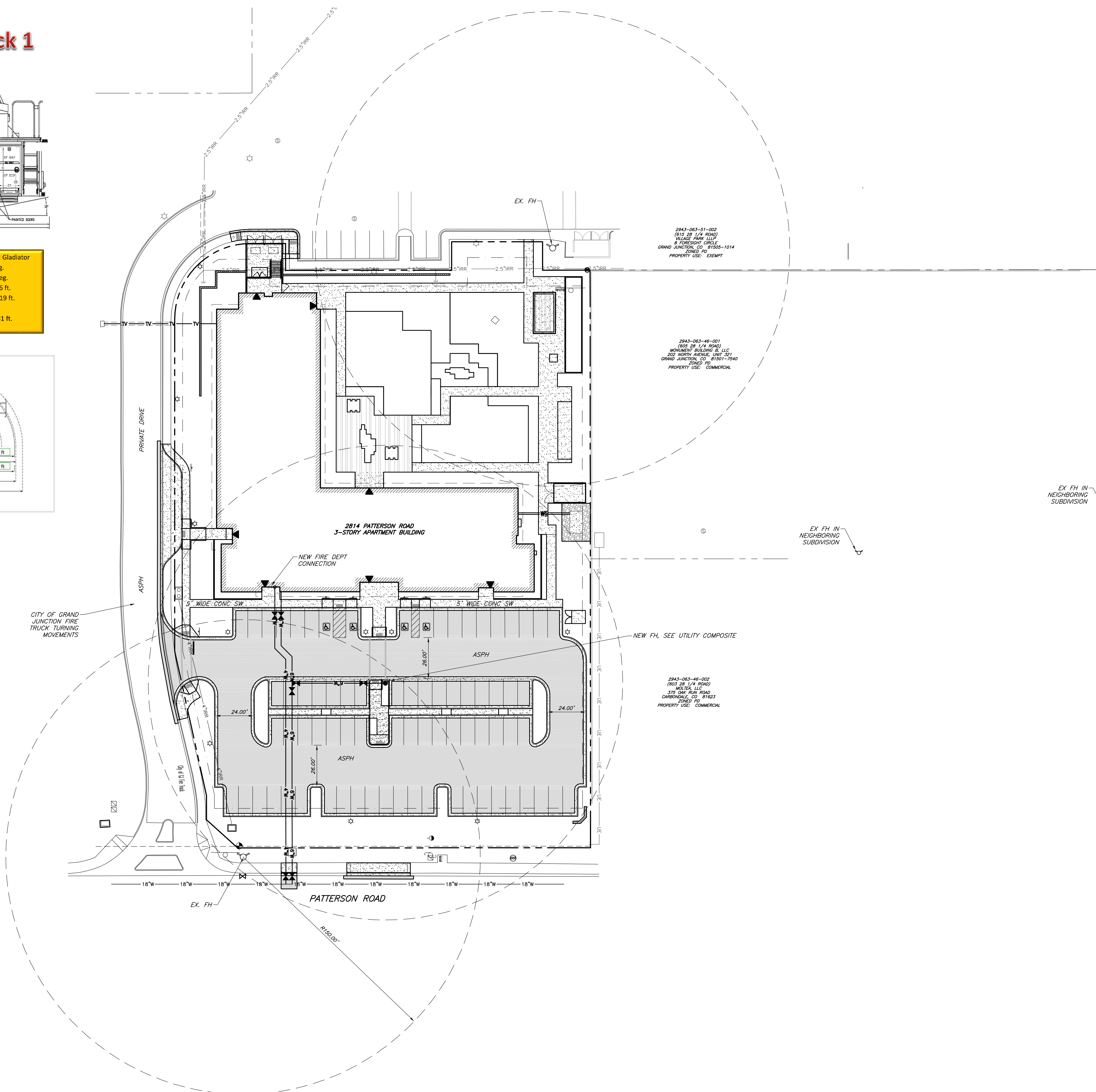
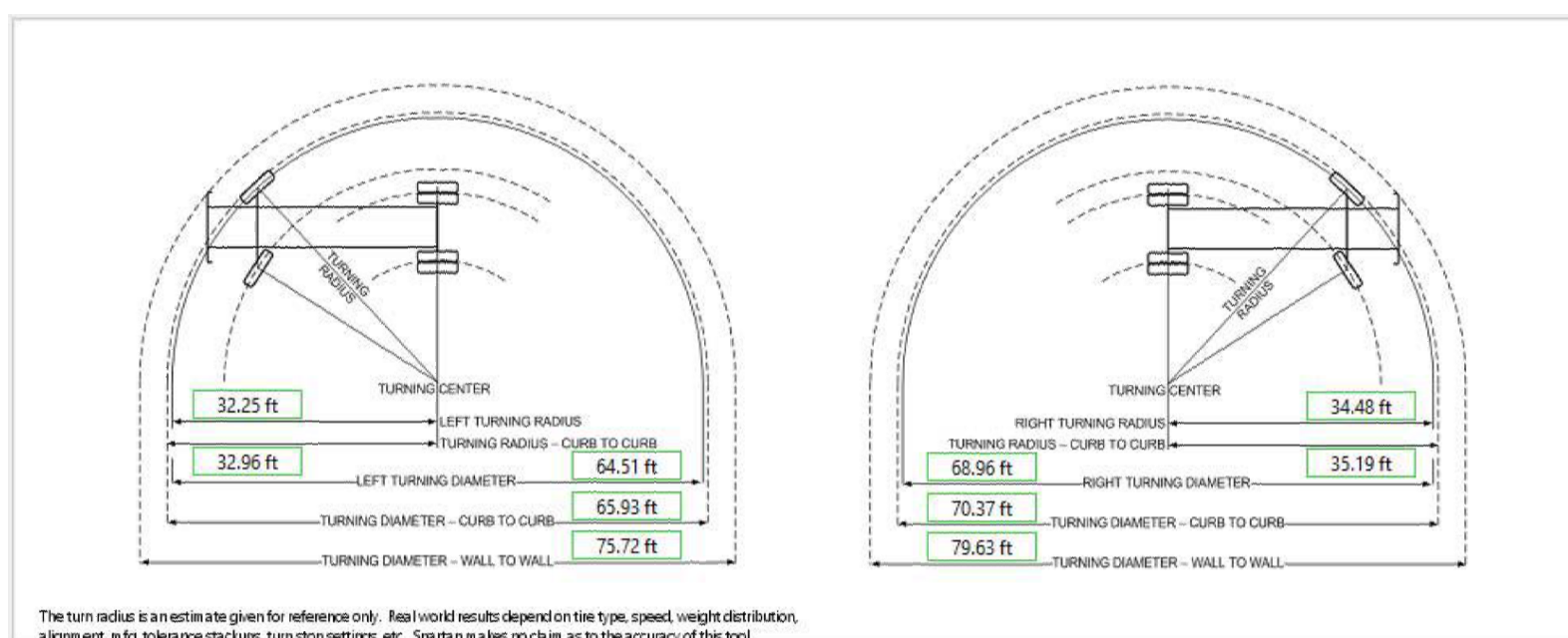
Rev	Date	By	Check	Appr
01	11/04/19	DM		

Site No. 2018-531.001
Drawn by: FJB
Date: 5.16.19
DC: DLS
PE: DLS
File: 2814Pul-SitePlan

Title: Site Plan
Dwg No. C-5
Of: 21

[illegible]

Weight: 75,000 gwy	Smeal Apparatus/Chassis Model 0100-012 Gladiator
Length: 42 feet	Left hand outside tire turn angle 33.50 deg.
Width: 9 feet	Right hand outside tire turn angle 31.00 deg.
Height: 12 feet	Left hand curb to curb turning radius 32.96 ft.
Outrigger Max: 19 feet	Right hand curb to curb turning radius 35.19 ft.
Angle of Approach: 11 degrees	Left hand wall to wall turning radius 37.86 ft.
Angle of Departure: 10 degrees	Right hand wall to wall turning radius 39.81 ft.



- NOTES:
1. FOR PARKING LOT PAVING SECTION, SEE SHEET C-17 OF 17.
 2. PARKING LOT MEETS GW 75,000 LBS. MINIMUM/H-20 LOADING, ALL WEATHER REQUIREMENTS.

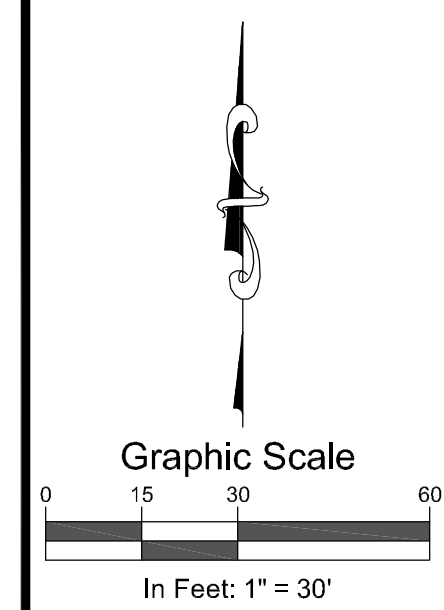
ACCEPTANCE BLOCK

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CITY PLANNER
DATE



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Sl	Revision	Date	By
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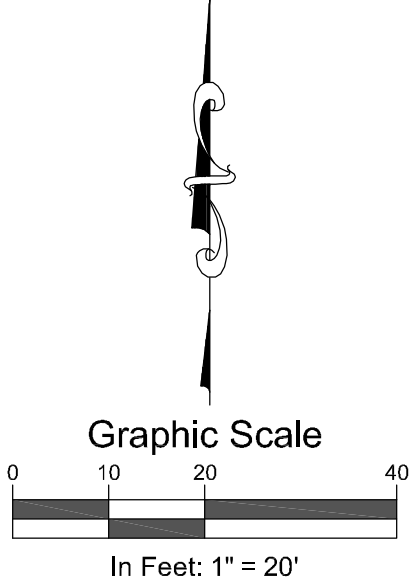
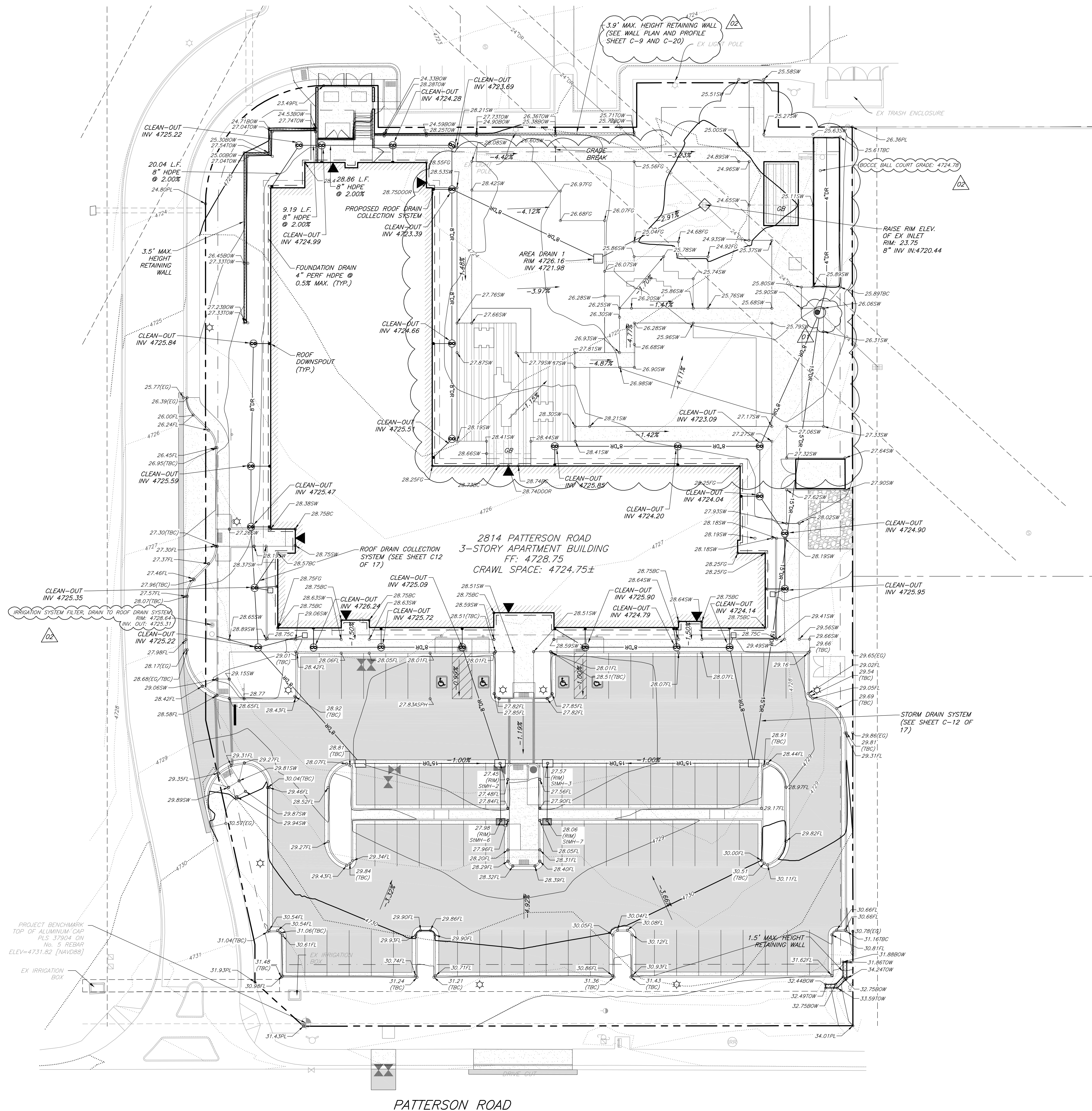
Job No.	2018-531.001		
Drawn by:	FJB		
Date:	5.16.19		
QC:	RS	PE:	DLR
File:	2814Pot.FirePlan		

Title:

Fire Site Plan

Dwg No. **C-6**

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Rev	Date	By	Check
1	4.11.19	CJR	
2	11.04.19	DWR	

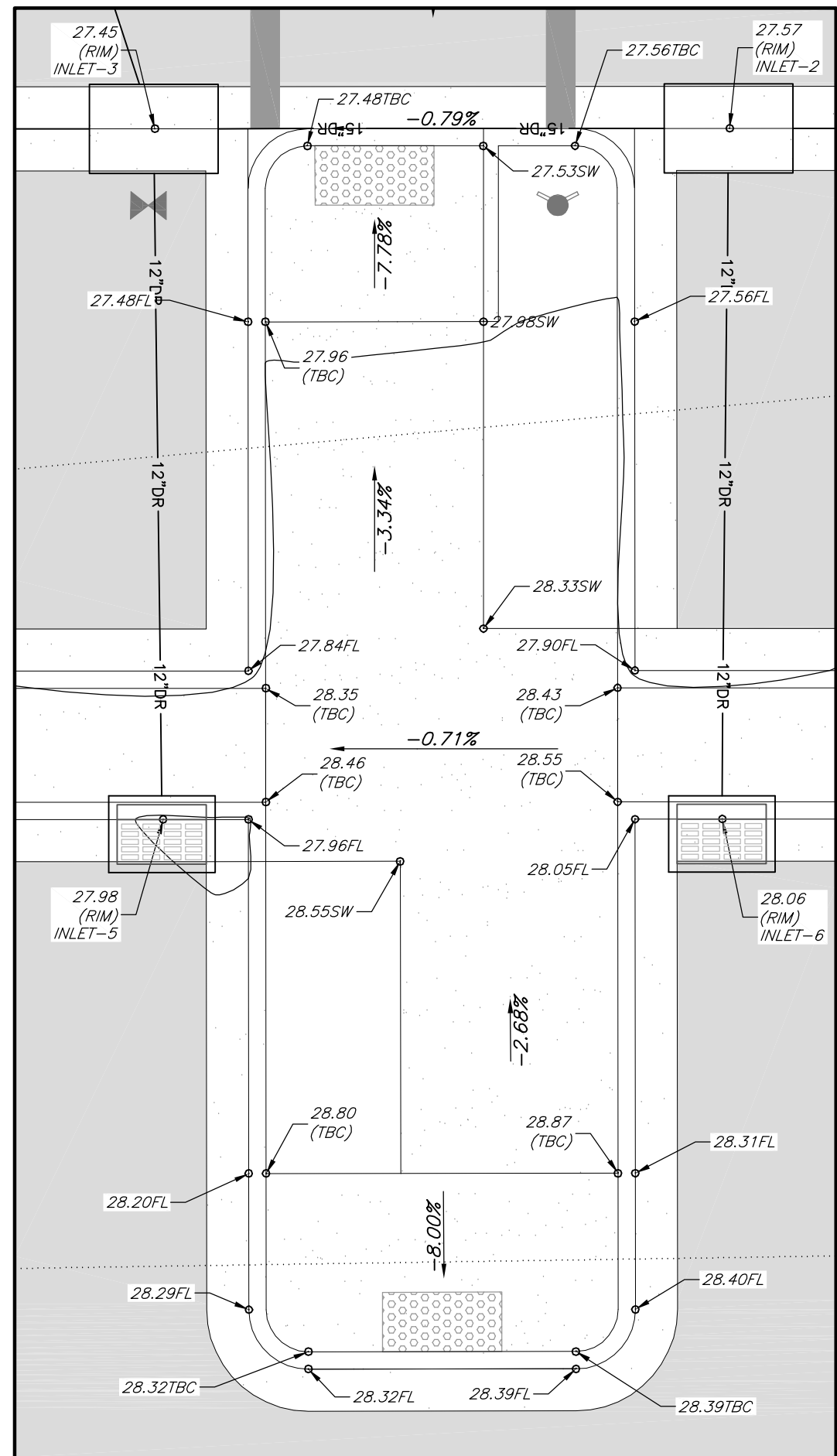
Project Milestones:

Rev	Date	By	Check
1	4.11.19	CJR	
2	11.04.19	DWR	

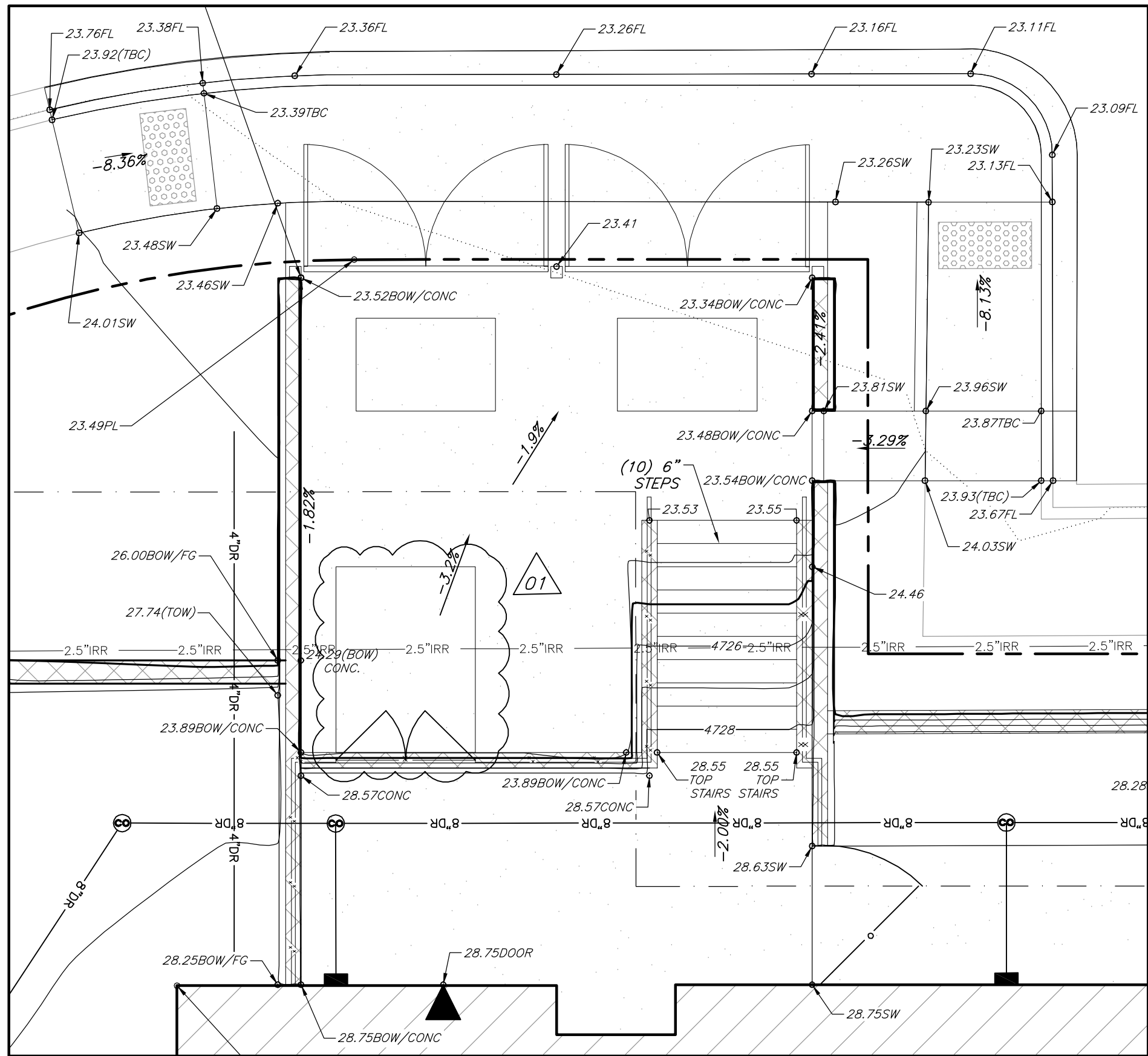
ACCEPTANCE BLOCK
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CITY DEVELOPMENT ENGINEER _____ DATE _____
CITY PLANNER _____ DATE _____

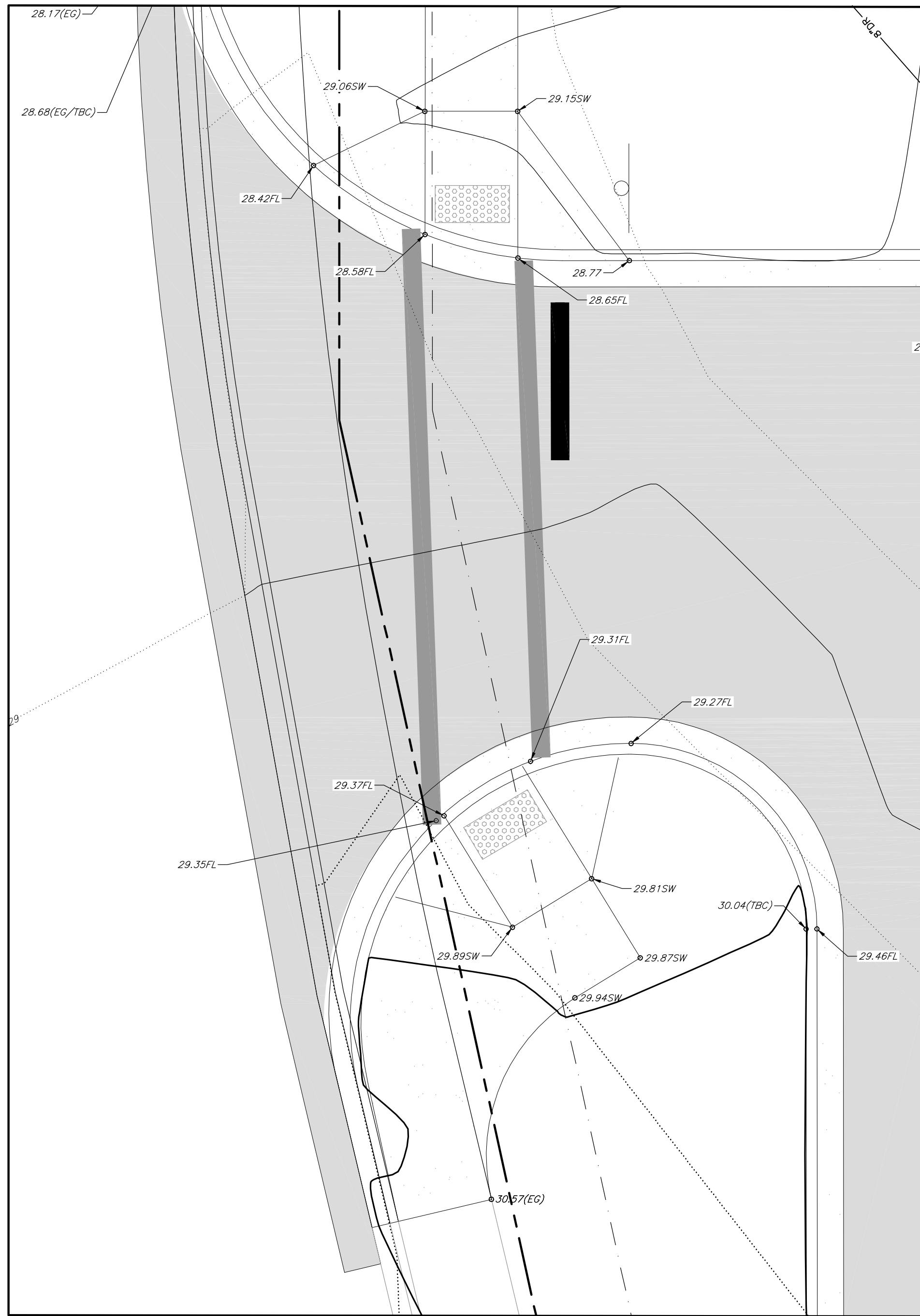
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Dwg No. **C-7**
Of: 21



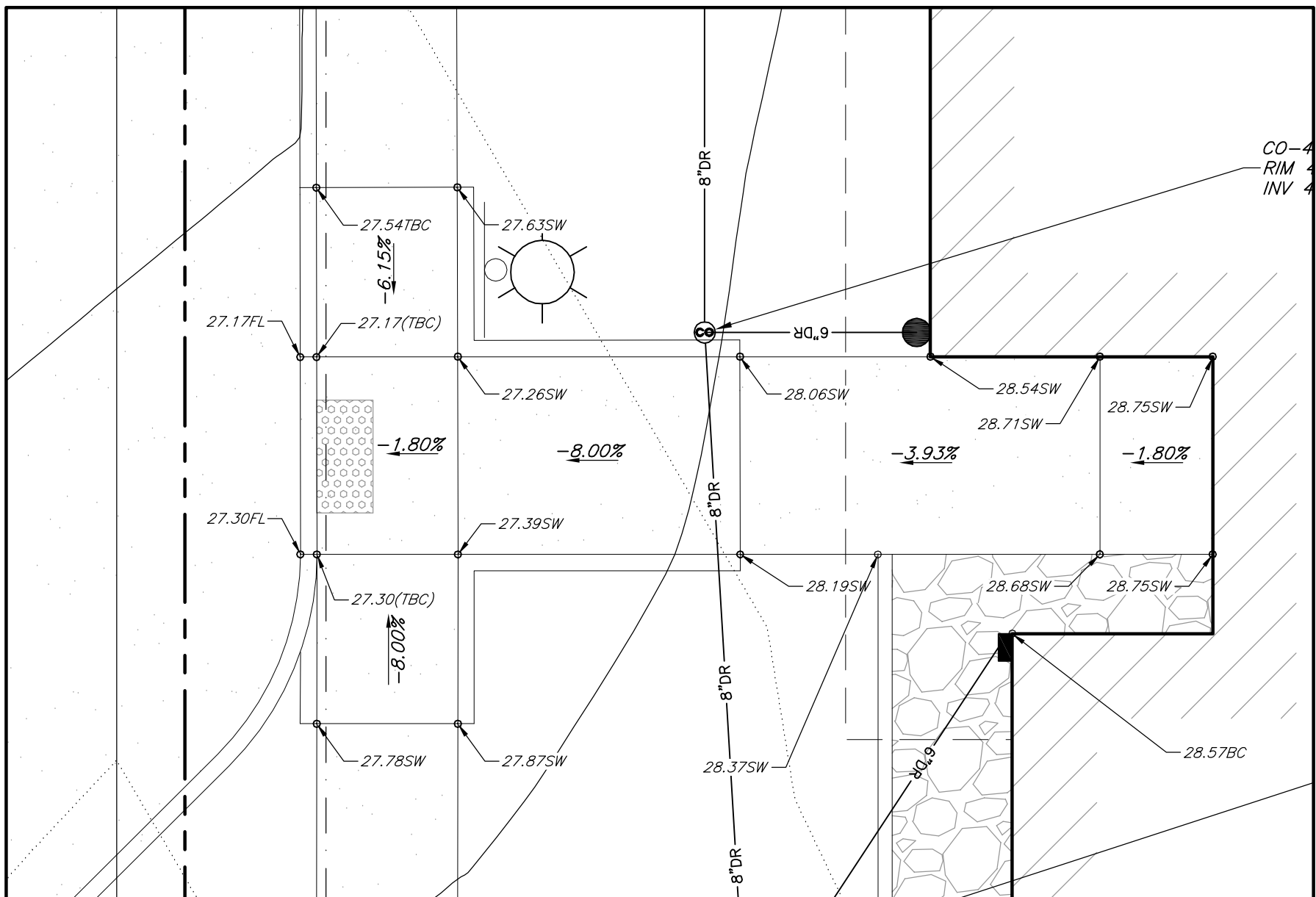
PARKING ISLAND DETAIL
SCALE: 1" = 5'



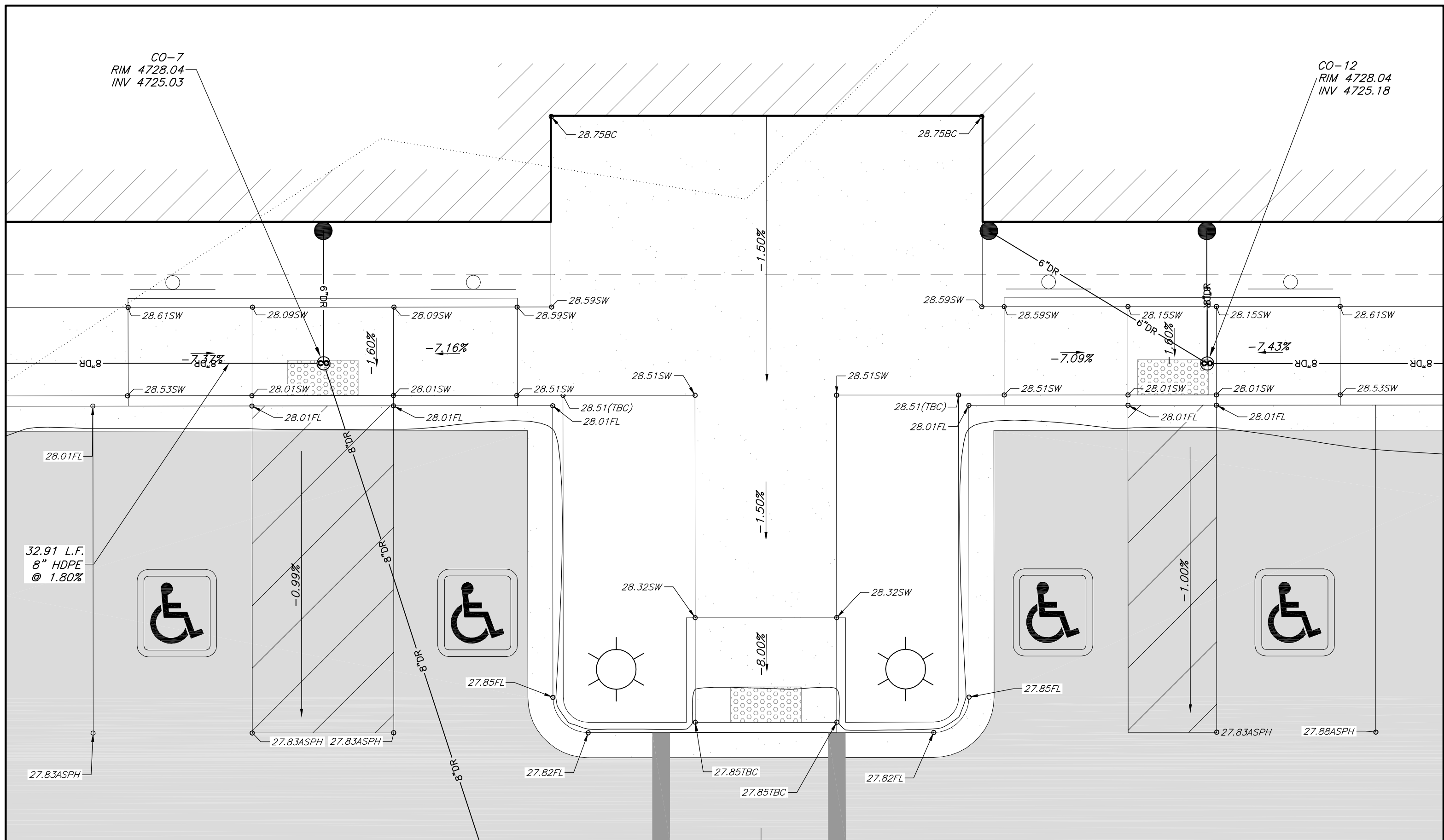
TRASH ENCLOSURE DETAIL
SCALE: 1" = 5'



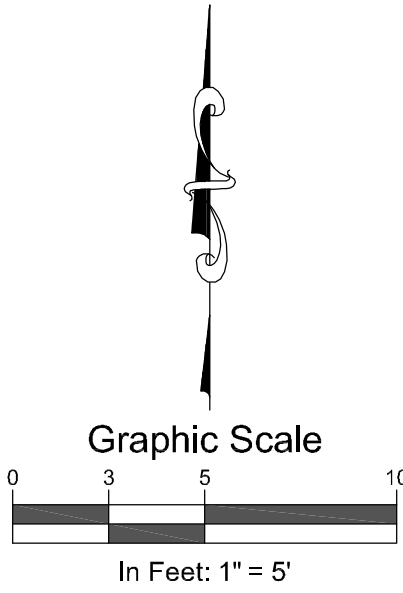
PARKING LOT ENTRANCE DETAIL
SCALE: 1" = 5'



RAMP DETAIL AT PULL-OUT
SCALE: 1" = 5'



SOUTH BUILDING ENTRANCE DETAIL
SCALE: 1" = 5'



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Rev	Date	By	Check
01	12.04.19	SGM	

Project Milestones:

Task	Start	End
Design	12.04.19	01.15.20
Construction	01.15.20	06.30.20

ACCEPTANCE BLOCK
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CITY PLANNER DATE

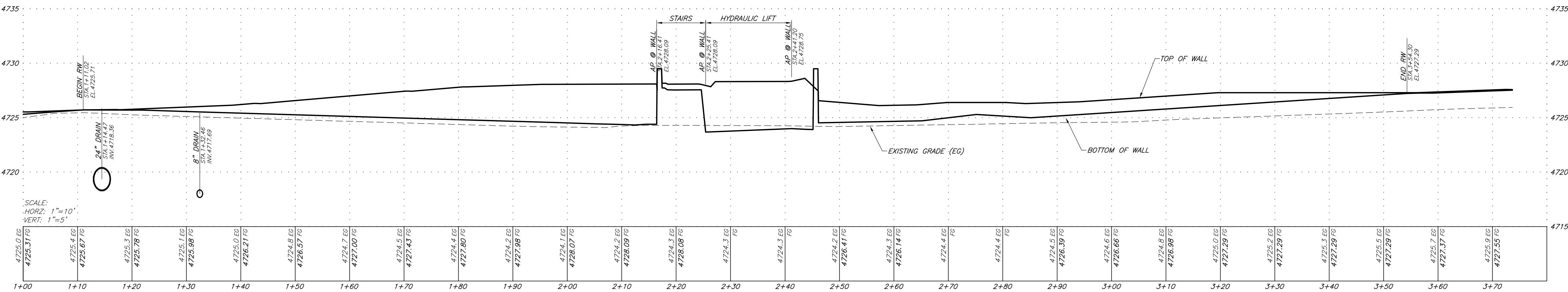
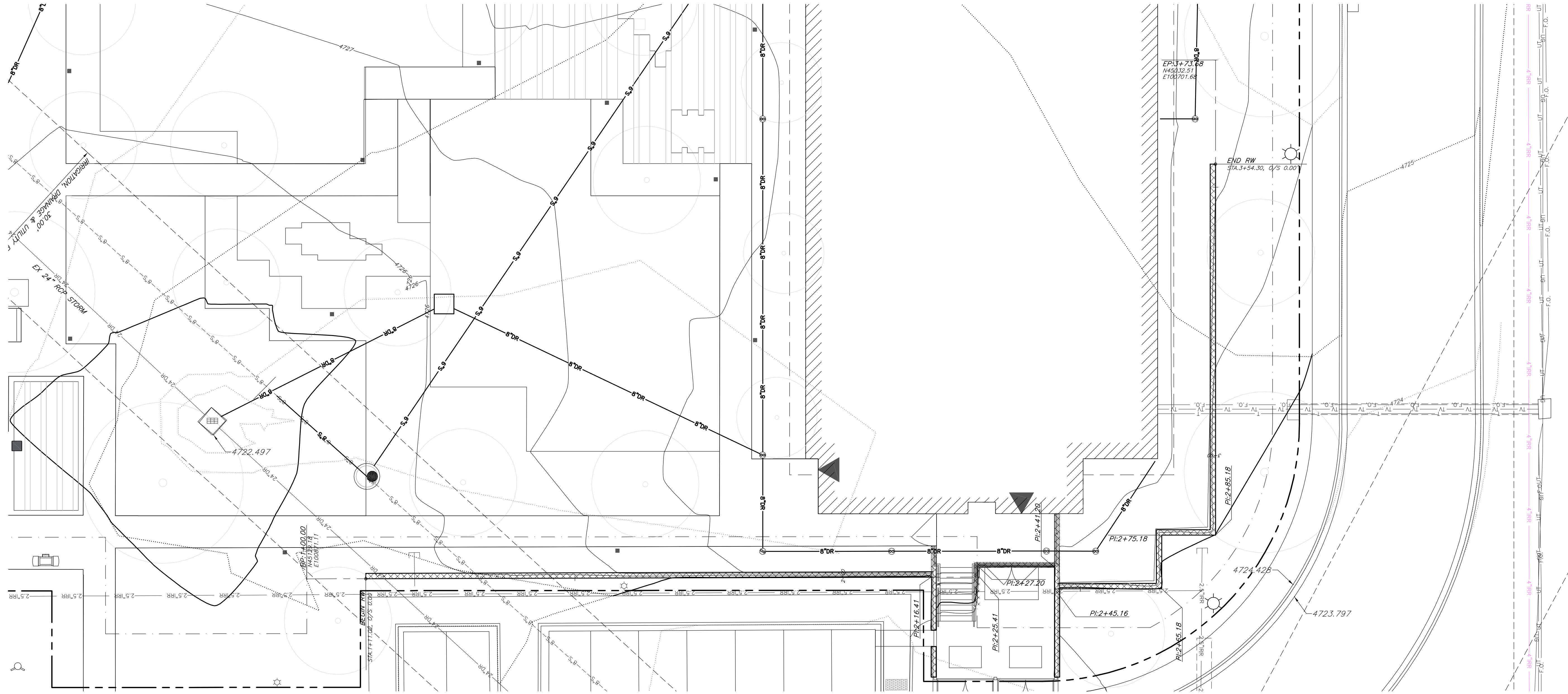
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Dwg No.

C-8

Of: 21

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NOTE: REFER TO LANDSCAPE DETAILS FOR MODULAR BLOCK WALL DETAIL (G/L-4)

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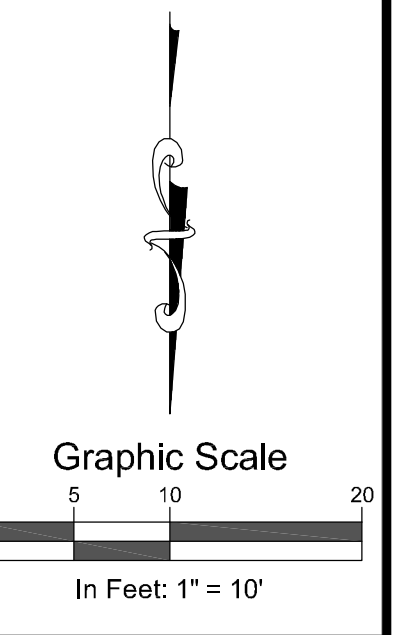
CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.

CITY DEVELOPMENT ENGINEER	DATE
CITY PLANNER	DATE

Retaining Wall Plan and Profile

C-9

Of: 21



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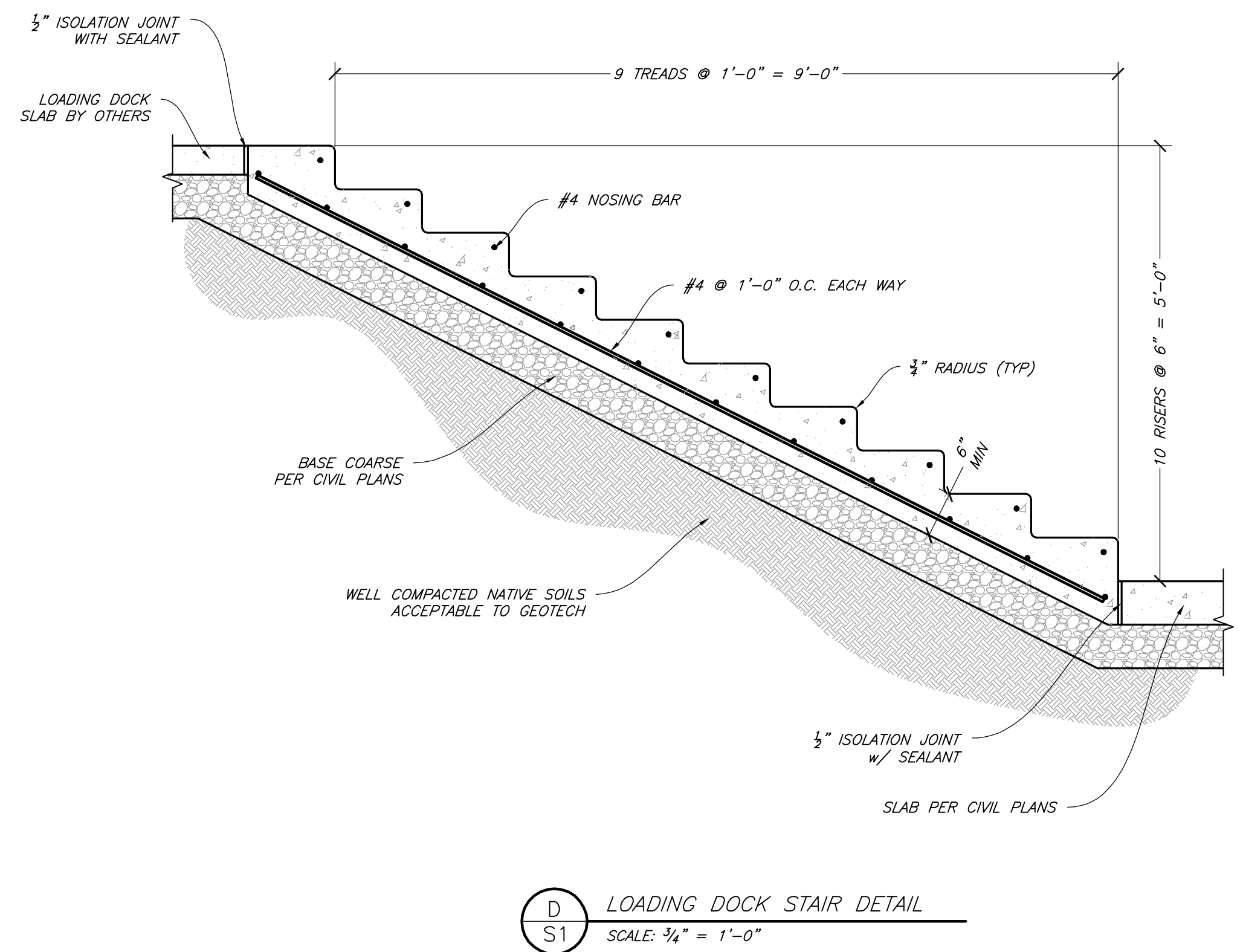
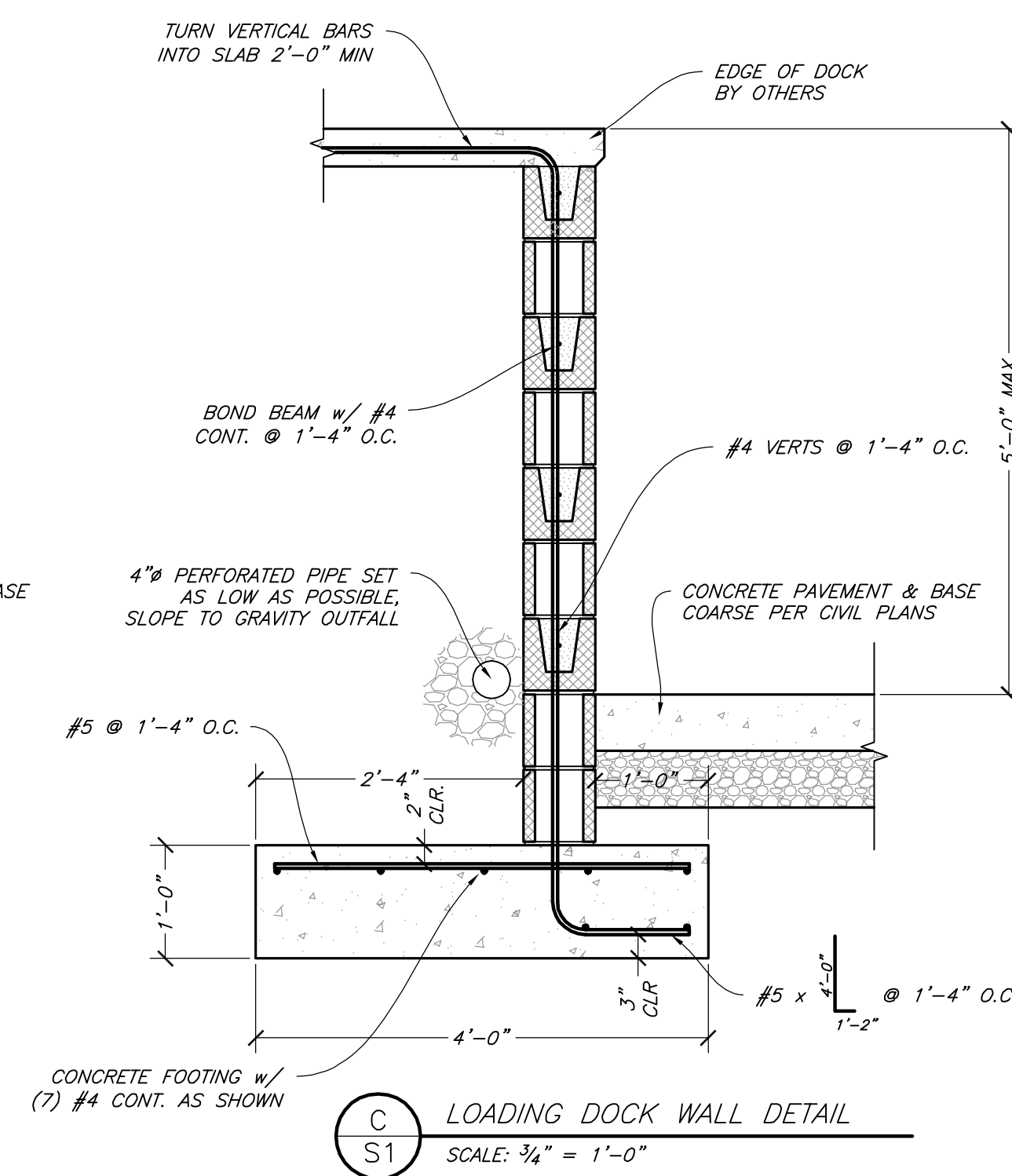
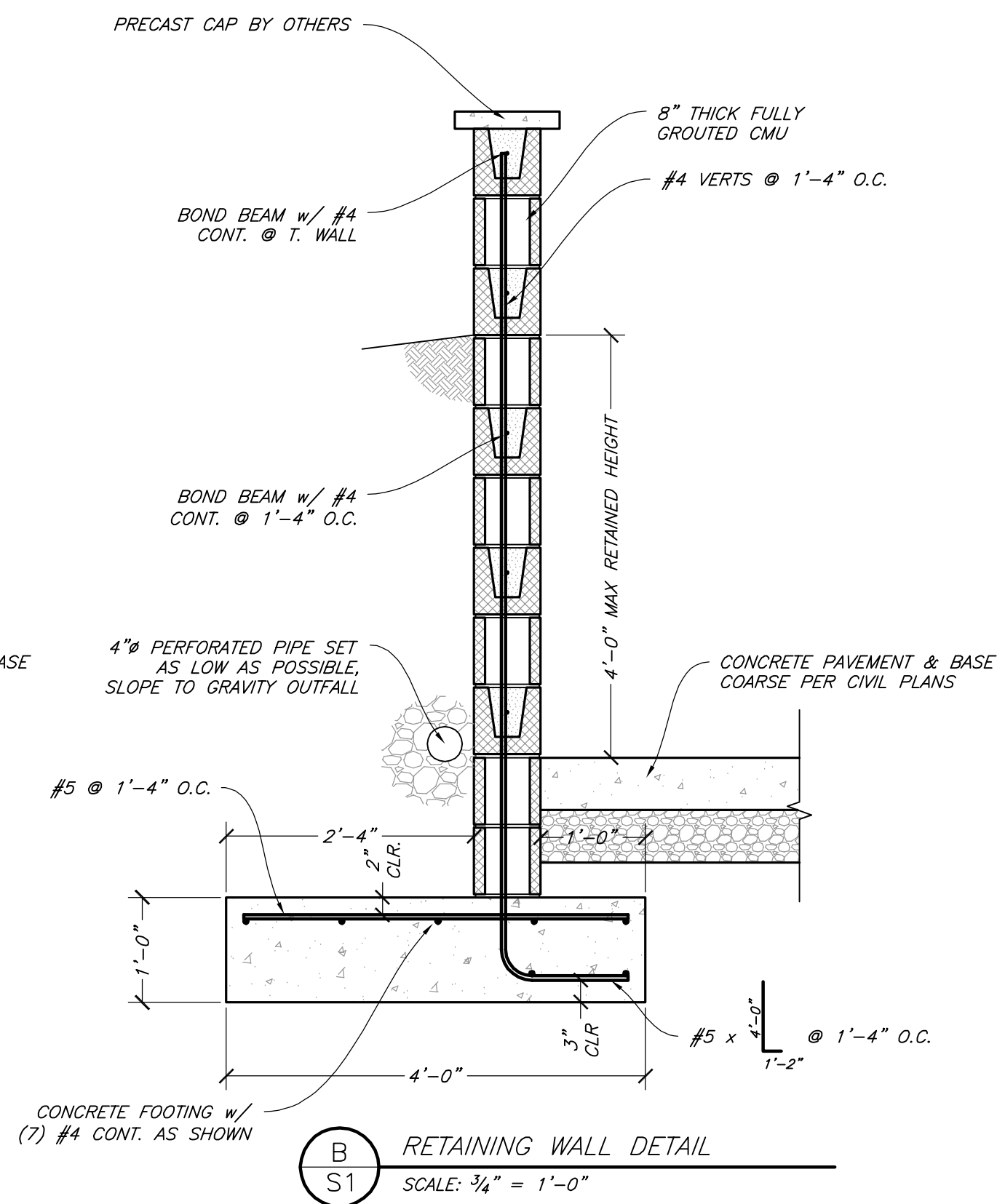
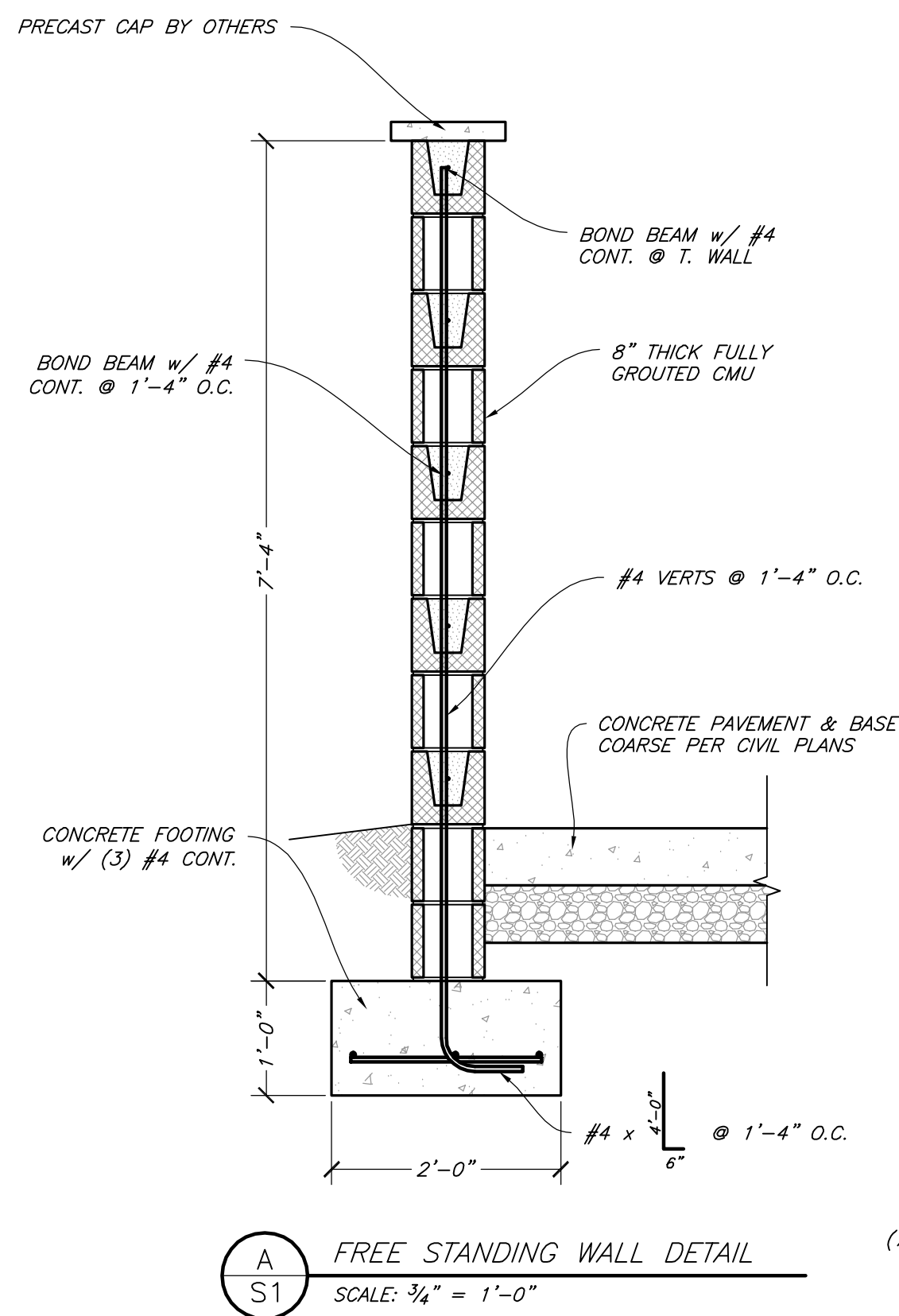
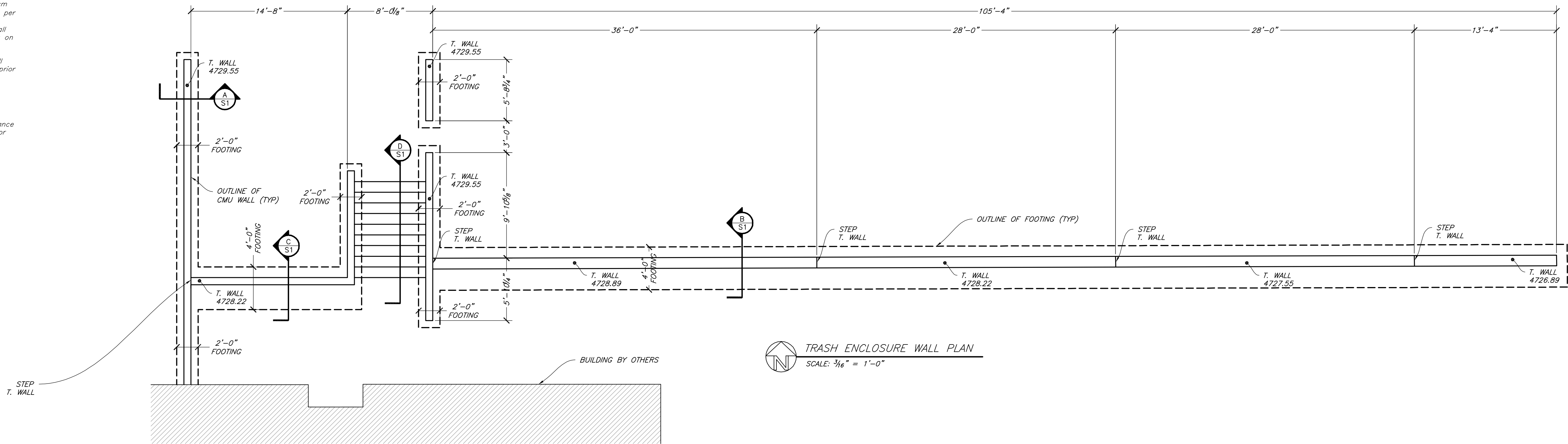
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2814 Patterson Road

Rev	Date	By	Project Milestones
01	11/24/19	DM	Construction Documents

GENERAL NOTES:

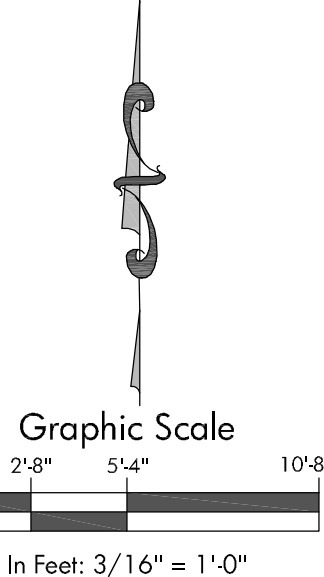
- Design and construction shall be in accordance with the requirements of the International Building Code, 2018 Edition (2018 IBC). Loads used in design are as follows:
 - Floor LL = 40 psf
 - Wind pressure based on 90 mph, 3 sec gust, Exposure B
 - Seismic Design Category C
- The design was prepared using an assumed maximum soil bearing pressure of 1500 psf and an assumed equivalent fluid pressure of 60 pcf. The soils are assumed to be uniform and non-expansive. The design was based on similar conditions of the surrounding area, but the values shall be verified by a site-specific soils investigation by a geotechnical engineer at time of construction. Footings shall bear on undisturbed native soils a minimum of 24" below adjacent finished grade.
- Concrete shall reach a minimum compressive strength of 3000 psi in 28 days. All exterior slabs and walls shall have a minimum of 5% entrained air. Reinforcing shall be conformance with ASTM A615, Grade 60. All reinforcing shall be secured in place prior to concrete placement. Horizontal reinforcing in walls and footings shall be made continuous around corners by 1" bars, or by shop bending. Lap splices shall be a minimum of 44 bar diameters. Reinforcement shall be made continuous through all wall construction joints and steps. All slabs-on-grade shall be provided with sawcut control joints 1" deep at 15 ft on center each way, or poured with 1.5 lbs/cu. yd. Fibermesh in the mix. It is the responsibility of the owner / contractor to coordinate all embeds, penetrations, openings and to verify all plan dimensions prior to forming and placing concrete.
- Masonry shall be in accordance with ASTM C90. Design is based on a prism strength (f'm) of 1,500 psi and Level 1 inspection of masonry construction per IBC 2018, 1704.5. Minimum masonry reinforcing shall be as shown in the details. Additionally, provide (1) #5 bar full height of wall at each side of all control joints, at building corners. Control joints shall be spaced at 25 feet on center maximum.
- Dimensions are to edge of framing or concrete, unless noted otherwise. All discrepancies shall be brought to the attention of the Engineer and Owner prior to construction.
- It is the responsibility of the Contractor to coordinate construction with all equipment and utilities, and verify sizes and locations before construction.
- STABILITY DURING ERECTION: Framing is not stable until all framing, connections, floors, and roofs have been installed and connected in accordance with these plans and the 2018 IBC. It is the responsibility of the contractor to provide temporary bracing to stabilize framing until the structure is complete.



ACCEPTANCE BLOCK

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CITY DEVELOPMENT ENGINEER DATE



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Grand Junction, CO 81506
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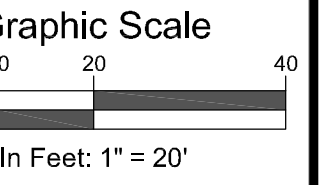
Grand Junction Housing Authority
2814 Patterson Road

Rev	By	Date	Description
1	JLB	5.16.19	Added missing wall detail to the set

Project Milestones

Sub No.	2018-531.001
Drawn by:	JLB
Date:	5.16.19
QC:	JLB
File:	WallDetails

Retaining Wall Details
C-10
Of: 21



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744 Horizon Court, Suite 250
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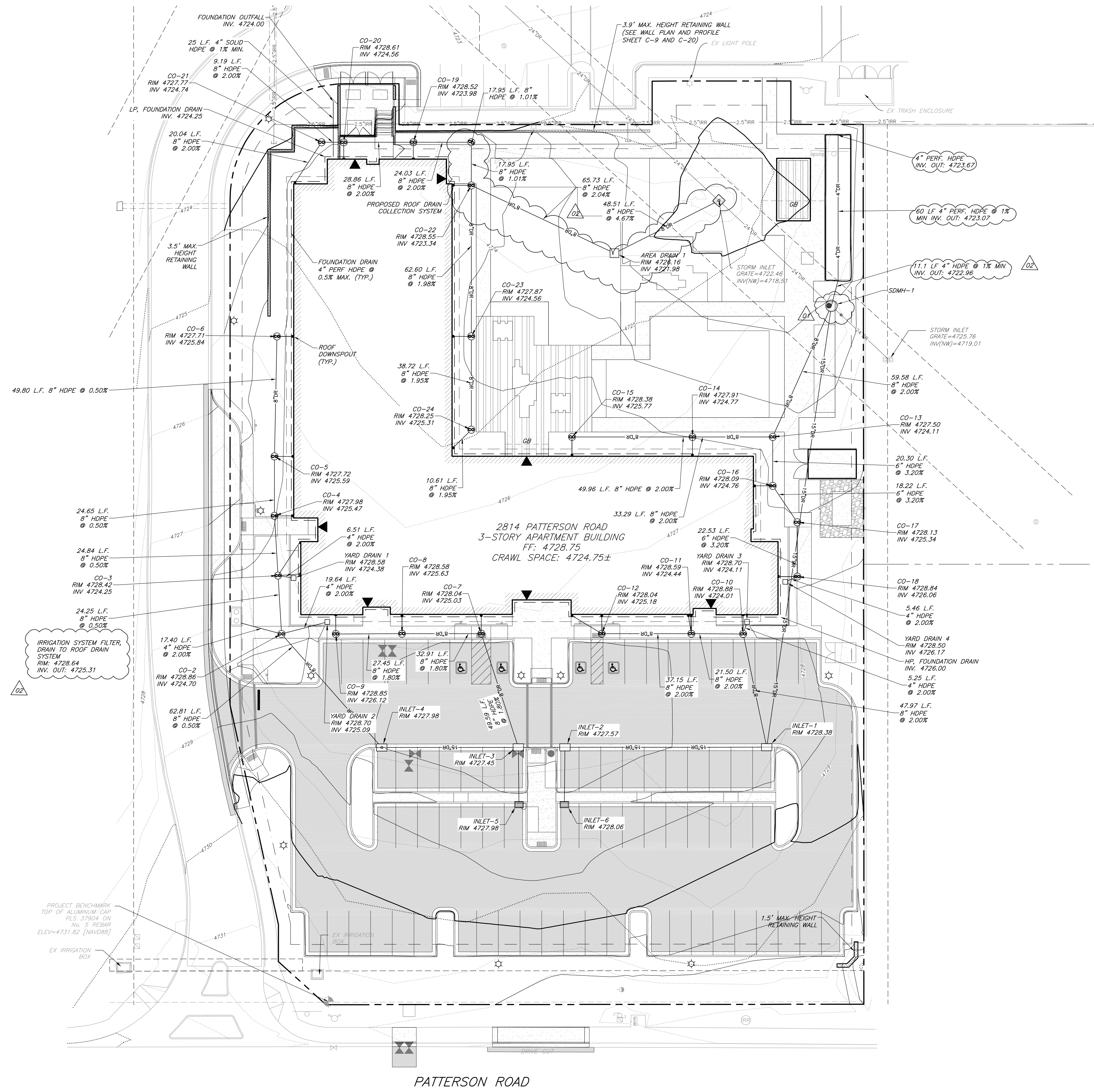
Grand Junction Housing Authority
2814 Patterson Road

[illegible]

Job No.	2018-531.001		
Drawn by:	FJB		
Date:	5.16.19		
Disc:	RS	PE:	DLR
Spec:	2814Pat-Grading Plan		

Drainage Plan

C-11



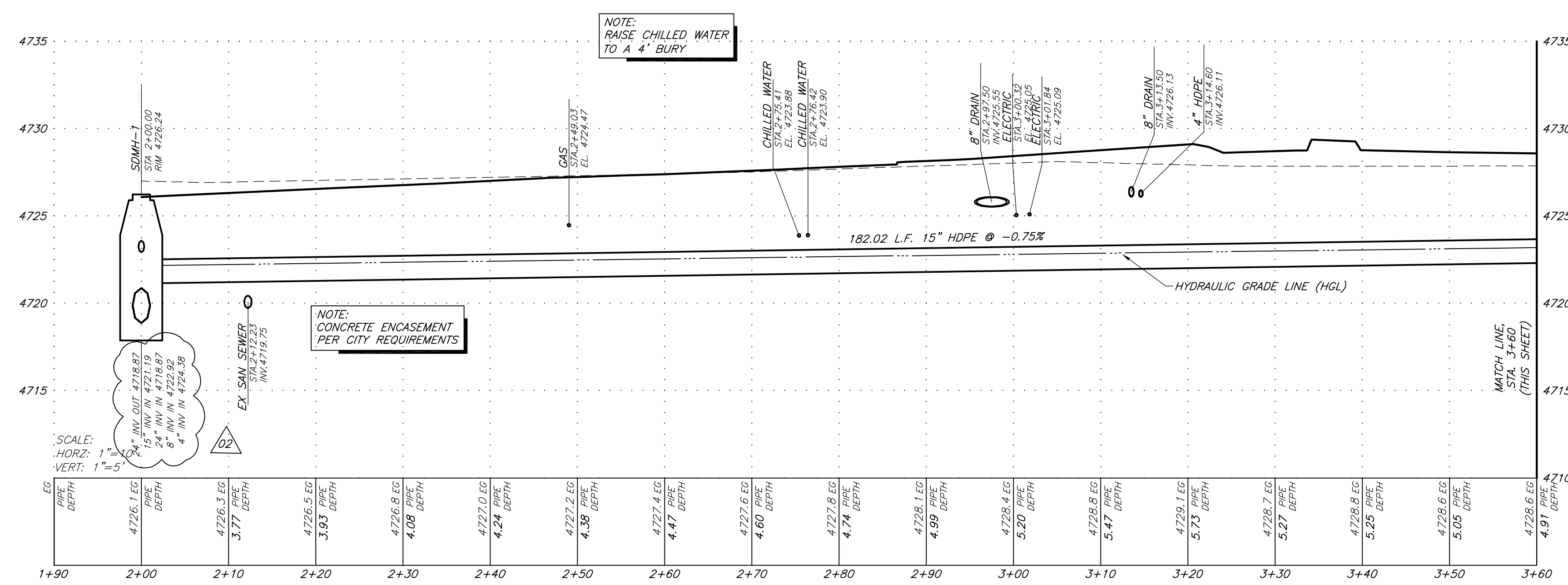
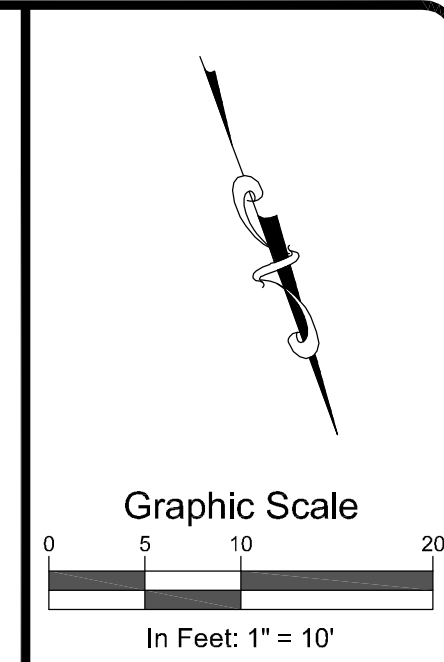
ACCEPTANCE BLOCK

THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD. REVIEW BY THE CITY DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD.

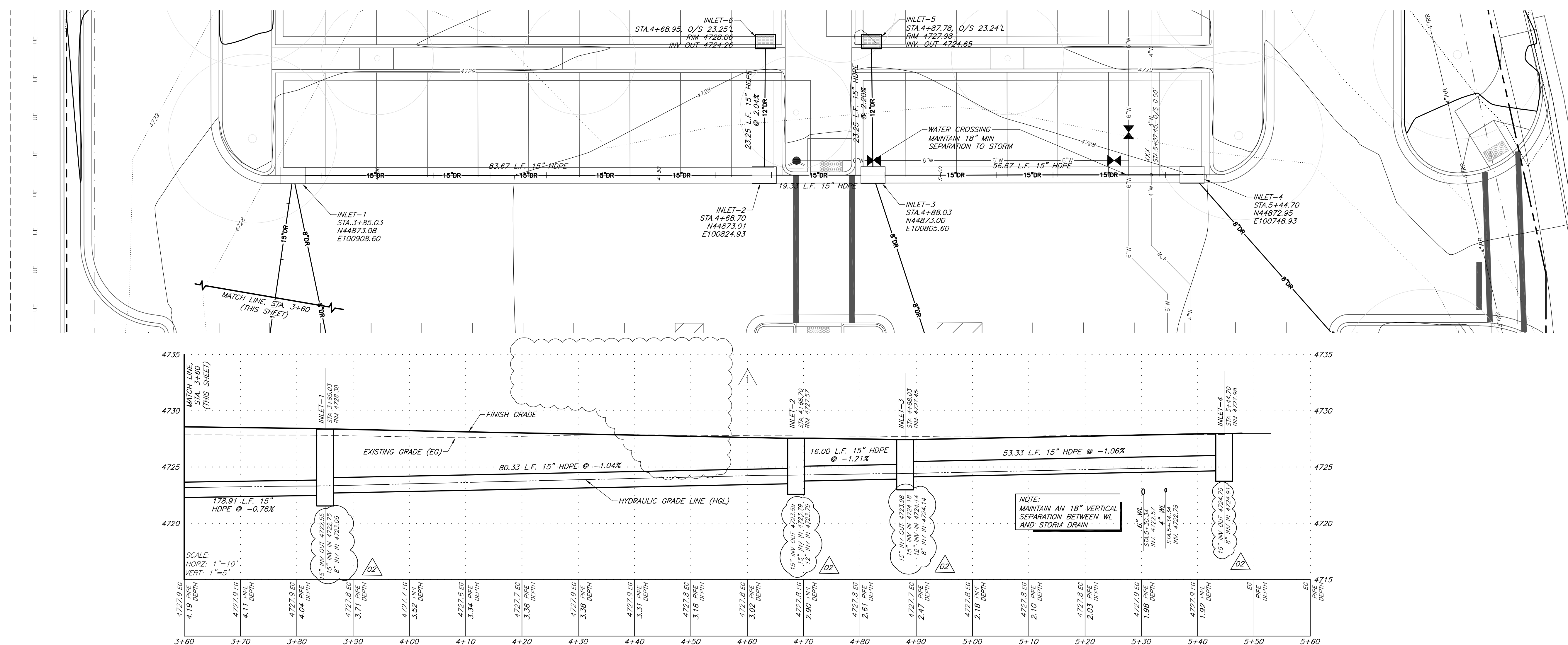
CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.

CITY DEVELOPMENT ENGINEER DATE _____

CITY PLANNER DATE _____

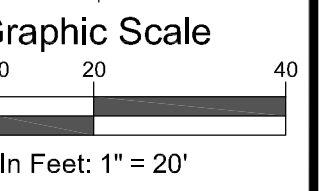


STORMWATER PLAN & PROFILE
STA: 2+00 TO STA: 3+60



STORMWATER PLAN & PROFILE
STA: 3+60 TO STA: 5+41

ACCEPTANCE BLOCK										Project
THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD. REVIEW BY THE CITY DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD. CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.										
CITY DEVELOPMENT ENGINEER DATED										
CITY PLANNER DATED										Project
Job No. 2018-033 (001)										
Drawn by: 										
Date: 5.16.19										Project
QC: RS PE: DL										
File: Storm Plan & Profile										
Title: Storm Drain Plan and Profile										Project
Dwg No. C-12										
Gr: 21										



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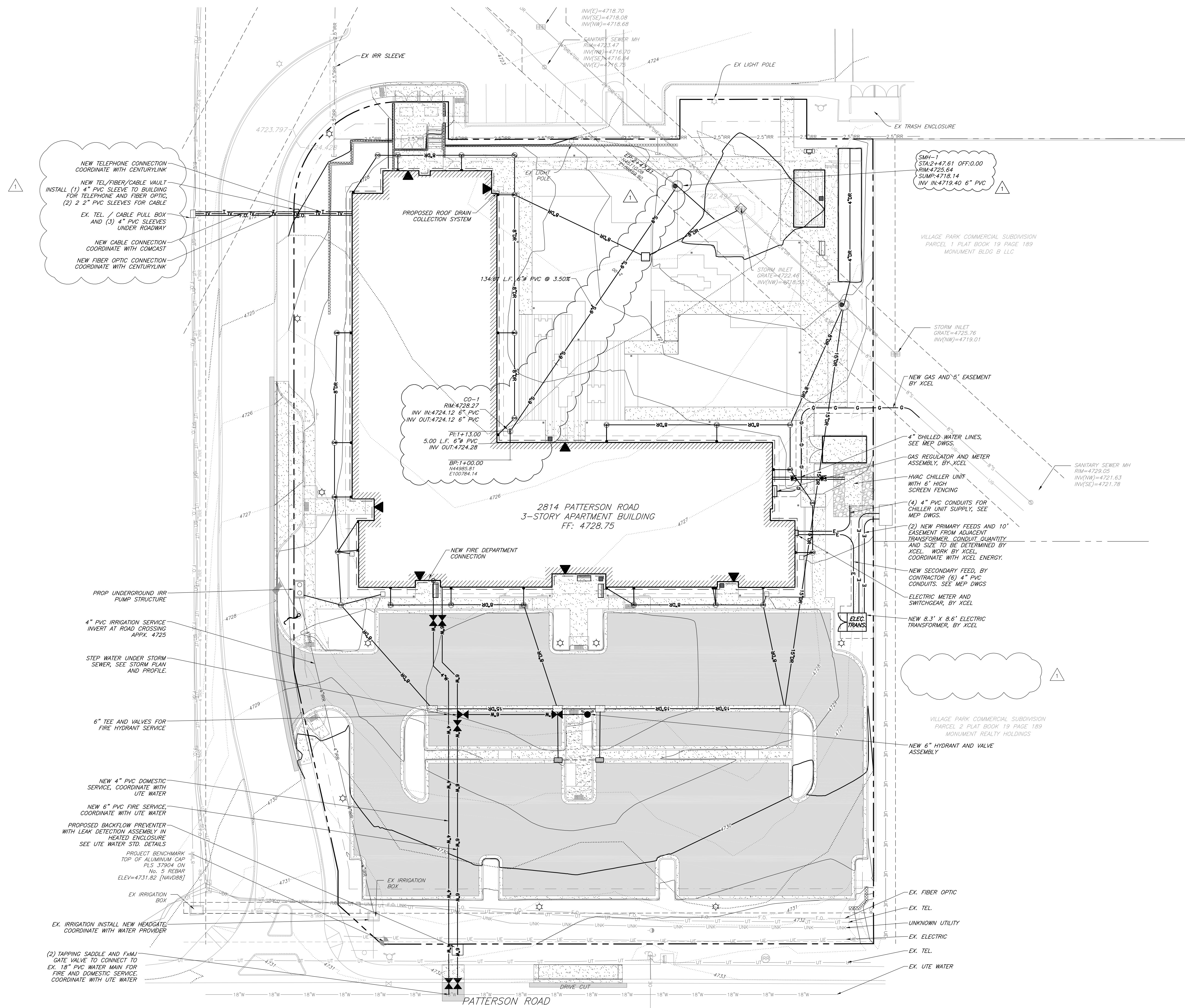
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Job No.	2018-531.001		
Drawn by:	FJB		
Date:	5.16.19		
Disc:	RS	PE:	DLR
Use:	Utility Composite Plan		

Utility Composite Plan

-13

: 21



ACCEPTANCE BLOCK

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CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.

CITY DEVELOPMENT ENGINEER DATE

CITY DEVELOPMENT DIVISION

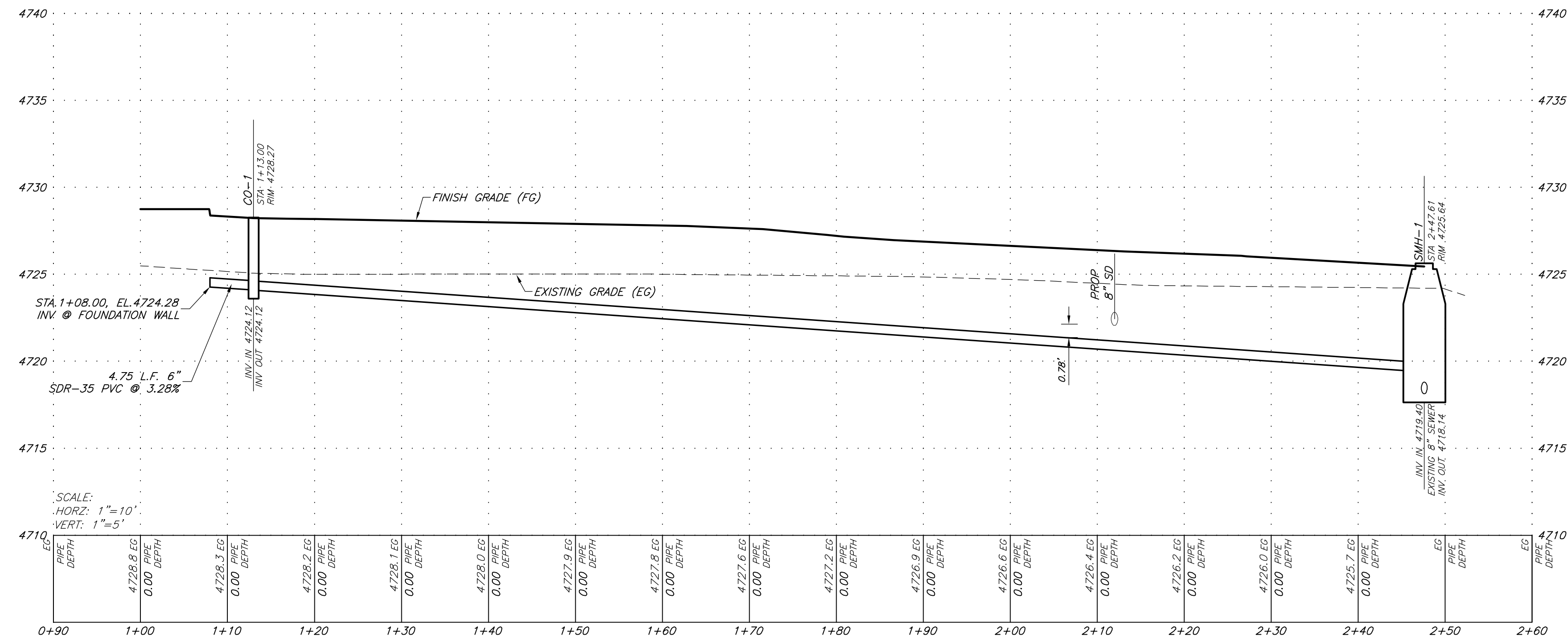
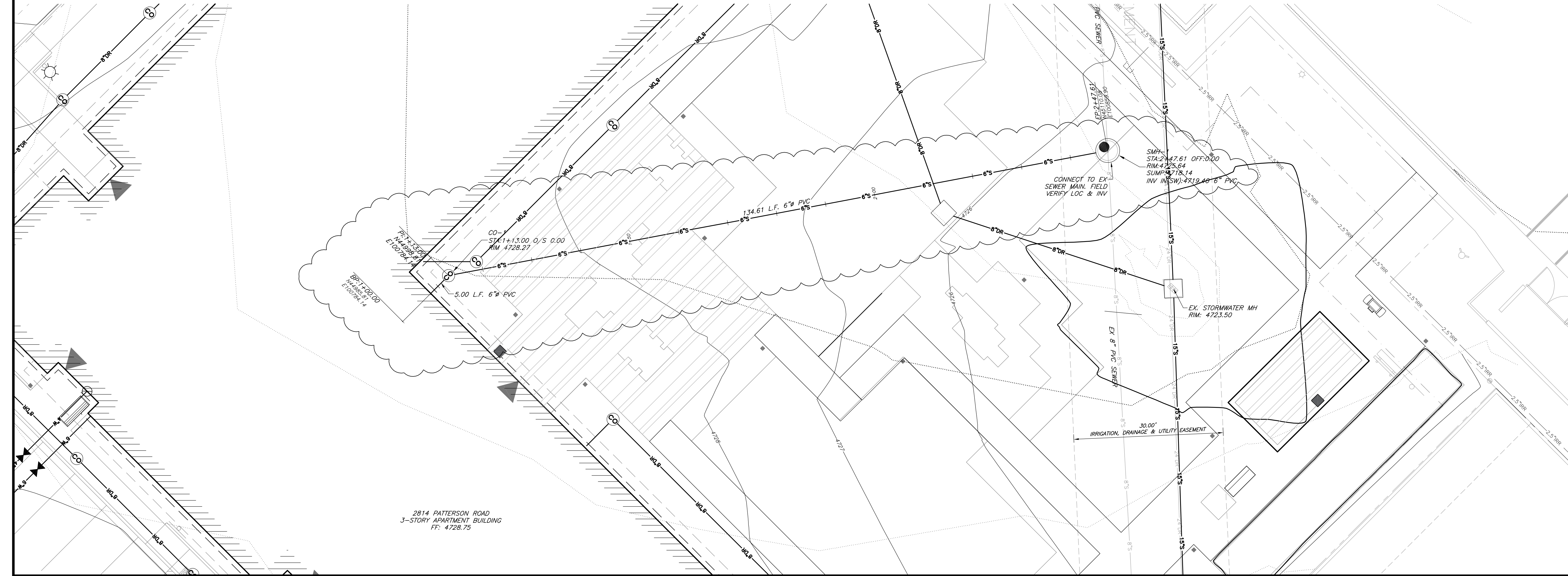
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DOI: 10.1002/for

CITY PLANNER DATE

10/18/2018 10:57 AM - g:\hsawh-28\pollr\d01-civil\H-Days\Civil\po-streetset\Utility Composite Plan.dwg Plotted: 11/7/2019 12:56 PM By: Diana Rooney

c:\2018\2018-531-phoenix-584-foot-and-001-civil\in\Draws\Civil\plan-sheet\San Sewer Plan & Profile.dwg Plotted: 11/7/2019 12:59 PM By: Dawn Rooney



ACCEPTANCE BLOCK

THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD. REVIEW BY THE CITY DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD.

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CITY DEVELOPMENT ENGINEER _____ DATE _____

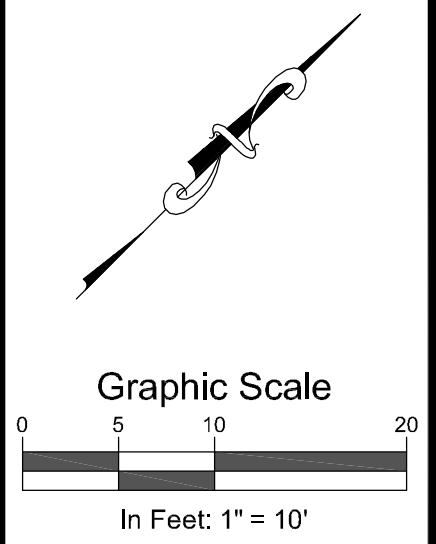
CITY PLANNER _____ DATE _____

Site No. 2018-531.001
Drawn by: FJB
Date: 5.16.19
QC: RS | PE: DLS
File: Sewer Plan & Profile

Title: Sanitary Sewer Plan and Profile

Draw No. C-14

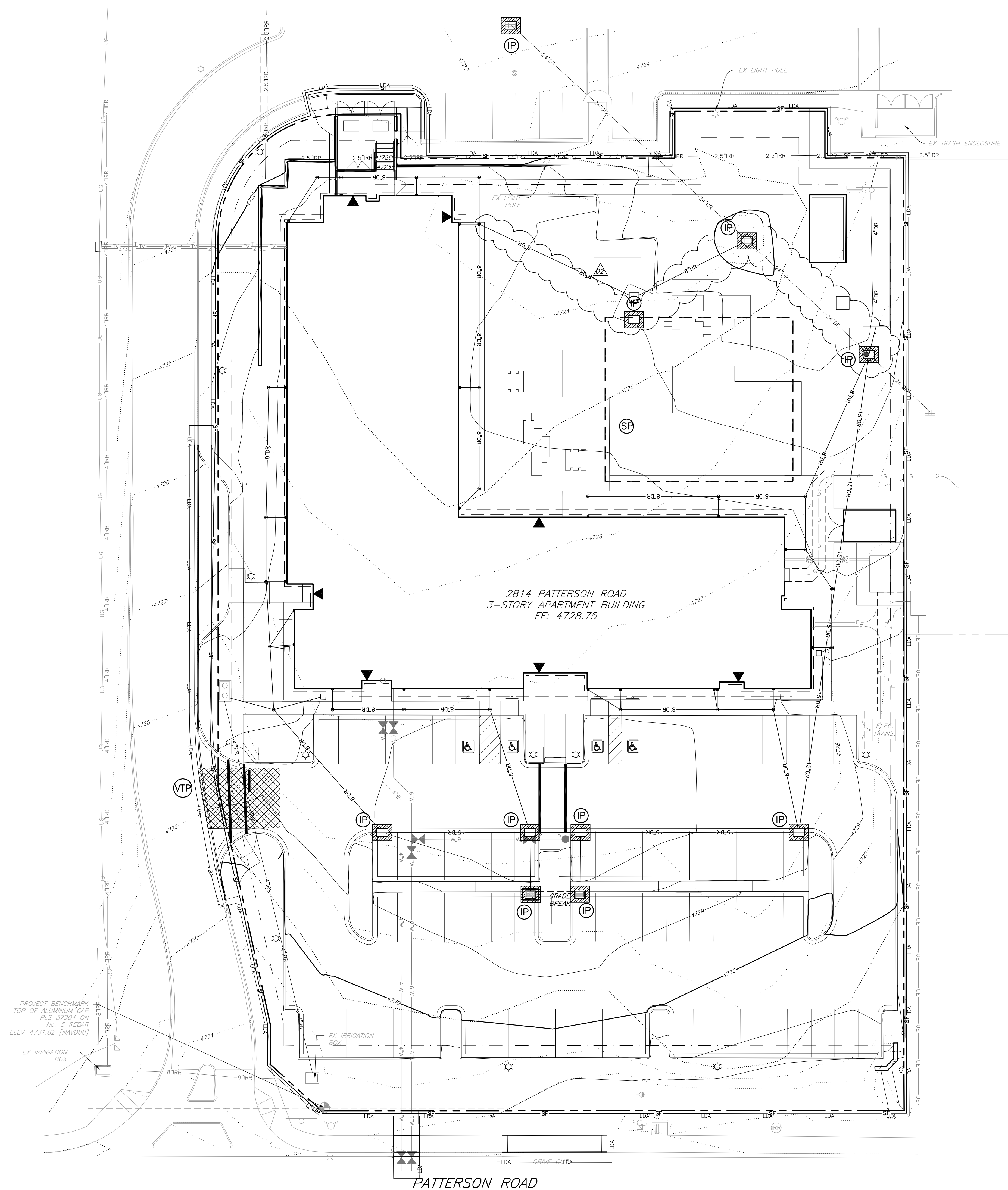
Of: 21



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Grand Junction Housing Authority
2814 Patterson Road

Rev	By	Date	Description
01	ASD	11.04.19	Construction Documents



LEGEND



 INLET PROTECTION, DROP GRAVEL BAG OR APPROVED EQUAL



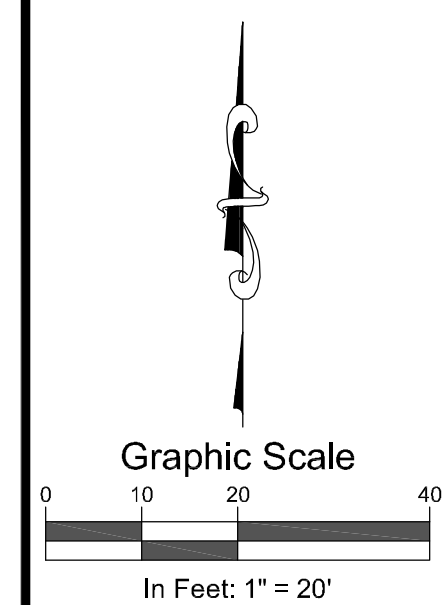
 VEHICLE TRACKING PAD



 SOIL STOCKPILE PROTECTION


 LIMITS OF DISTURBED AREA, 2.33 ACRES


 SILT FENCE



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2814 Patterson Road

[illegible]

ACCEPTANCE BLOCK

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CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR FROM THE DATE OF PLAN SIGNATURE.

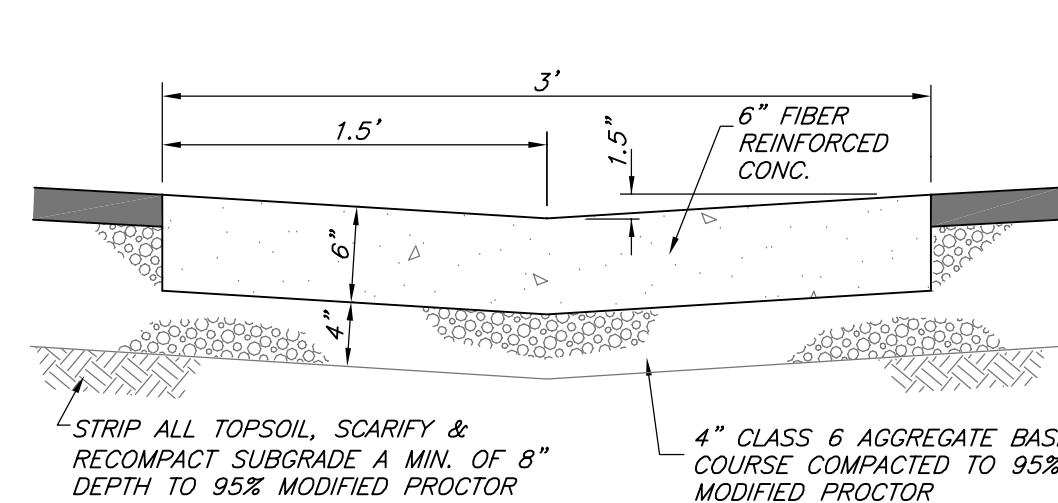
CITY DEVELOPMENT ENGINEER DATE

CITY PLANNER DATE

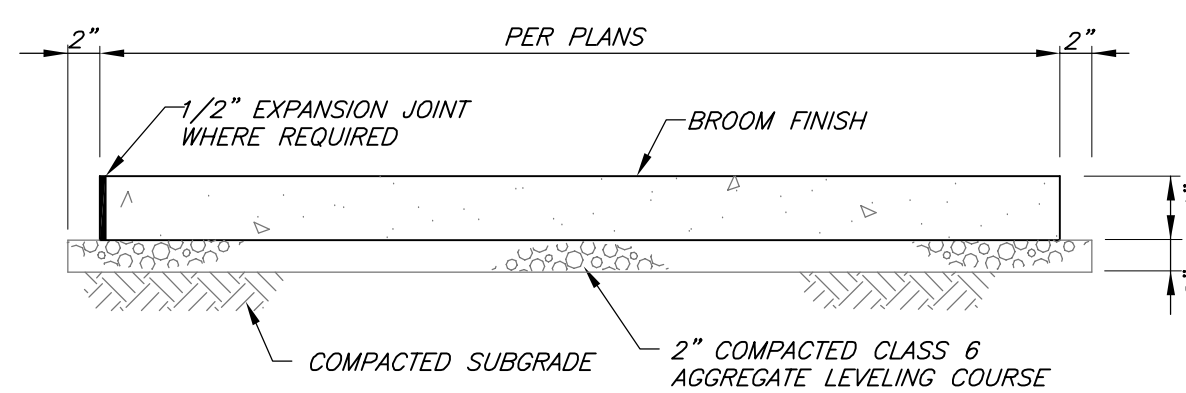
Title: Construction Stormwater Management Plan

C-15

Of: 21

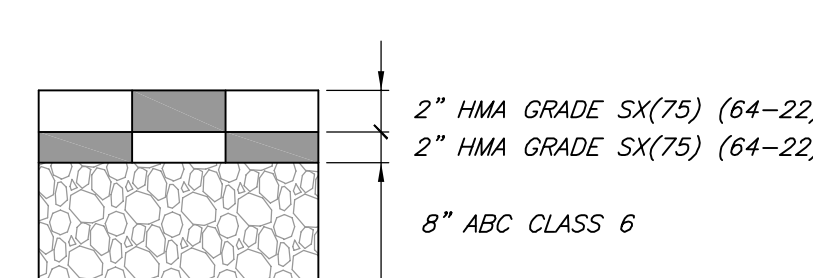


VALLEY PAN DETAIL
SCALE: 1" = 1'-0"

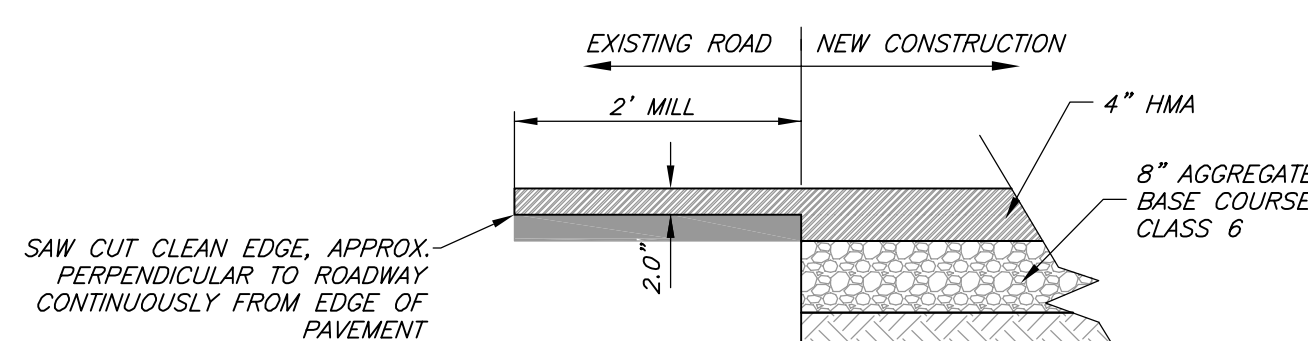


- NOTES:
- 1) EXPANSION JOINTS: 10' ON CENTER AND AT DRIVEWAYS.
 - 2) DUMMY JOINTS: 1" DEEP BY 1/8" - 1/4" WIDTH AT INTERVALS EQUAL TO SIDEWALK WIDTH.
 - 3) USE 1/4" RADIUS ON ALL EDGES.
 - 4) USE 6" DEPTH OF CONCRETE ON ALL DRIVEWAYS.
 - 5) CURE FOR 72 HOURS USING CURING COMPOUND, PLASTIC COVERING OR MOISTURE.
 - 6) USE 3750 PSI CONCRETE WITH FIBERMESH ADDITIVE AT 1-1/2 LBS./C.Y.

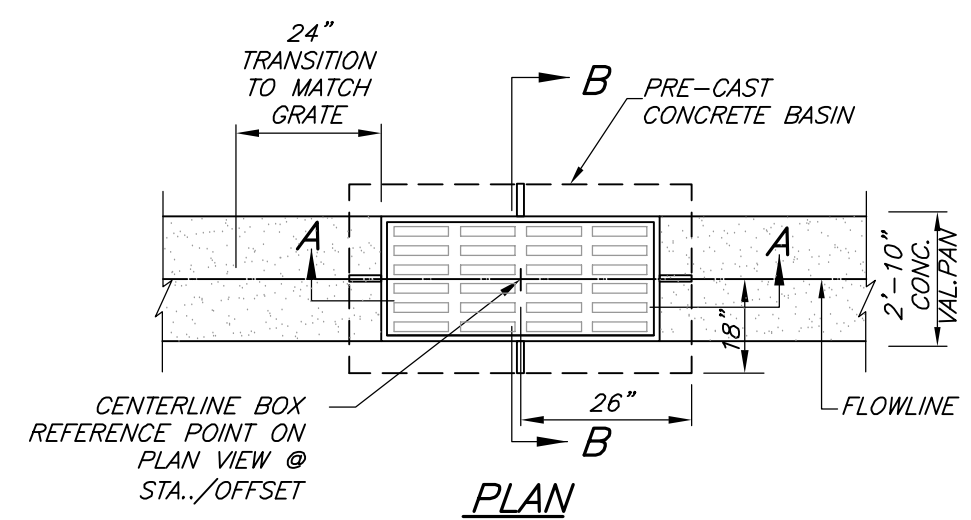
CONCRETE SIDEWALK



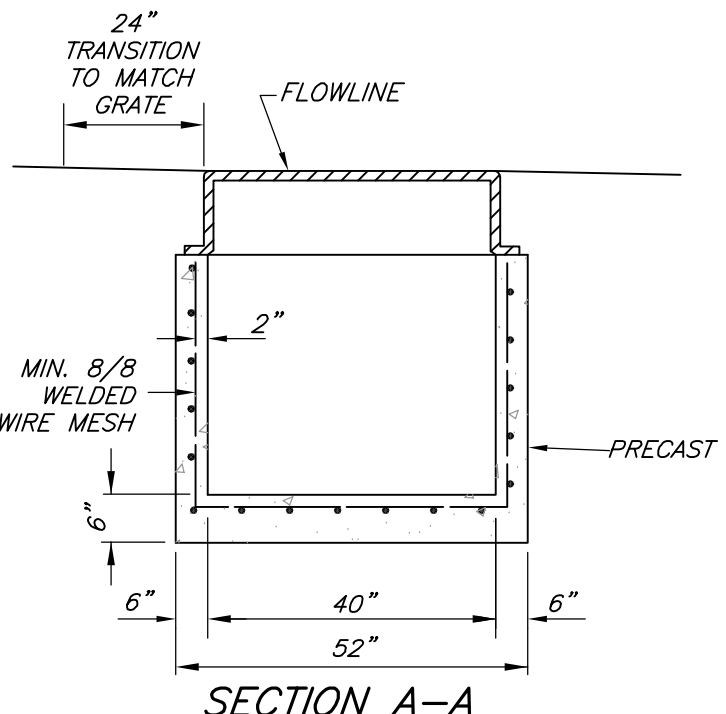
PAVEMENT SECTION DETAIL



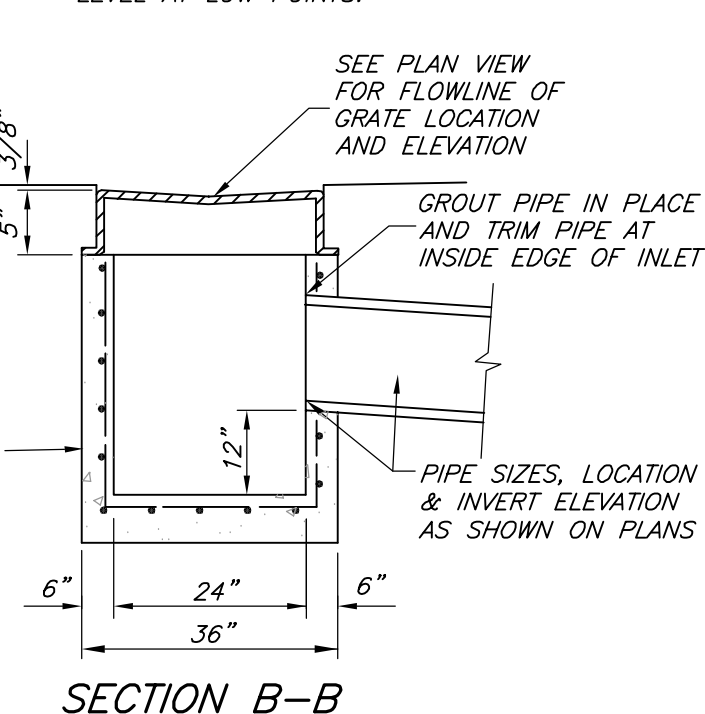
TYPICAL T-LOCK PAVEMENT JOINT
TO BE USED TO TRANSITION TO EX. PAVEMENT SURFACES
N.T.S.



- NOTES:
1. CATCH BASIN INLET GRATE & FRAME TO BE DEETER FOUNDRY, INC. 2501 OR APPROVED EQUAL.
 2. FRAME & GRATE SHALL BE ASPHALT PAINT-DIPPED BY MANUFACTURER.
 3. PRECAST CONCRETE ADJUSTMENT RINGS (IF REQUIRED) SHALL BE GROUTED IN PLACE.
 4. PIPE ENDS ARE TO BE TRIMMED FLUSH WITH THE INTERIOR WALLS.
 5. SET GRATE W/ CONC. LEVELING COURSE TO MATCH LONGITUDINAL SLOPE OF THE ROAD OR LEVEL AT 1.0% POINTS.

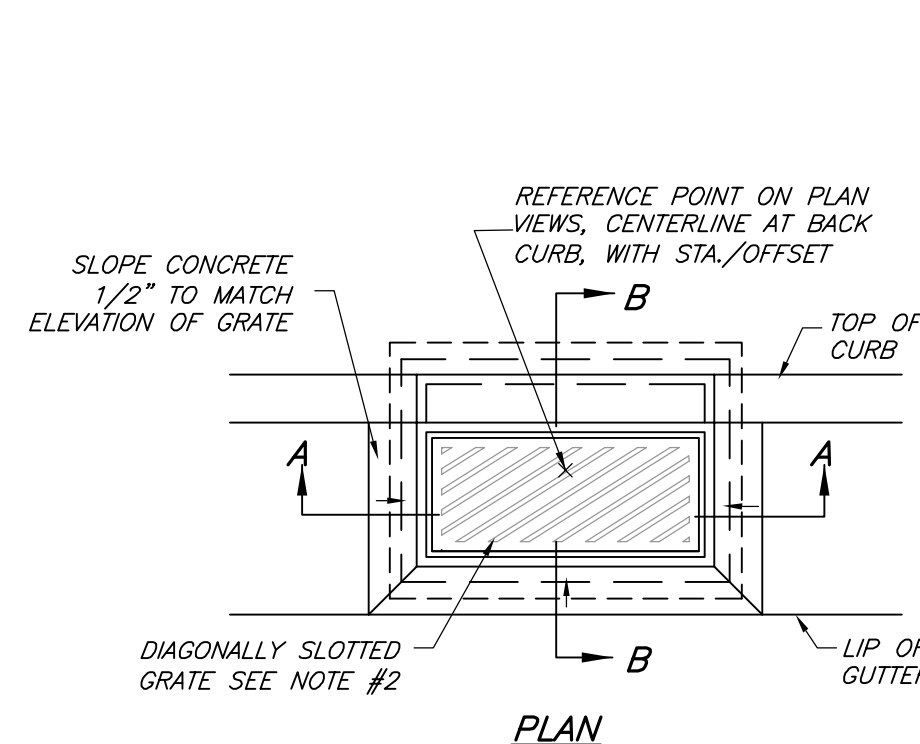


SECTION A-A



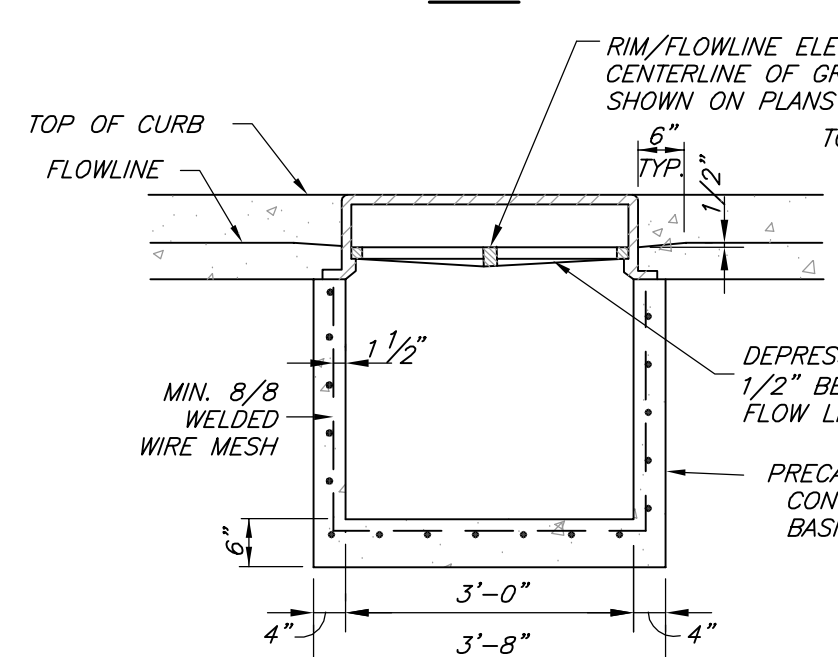
SECTION B-E

VALLEY PAN DRAIN INLET DETAIL
NOT TO SCALE

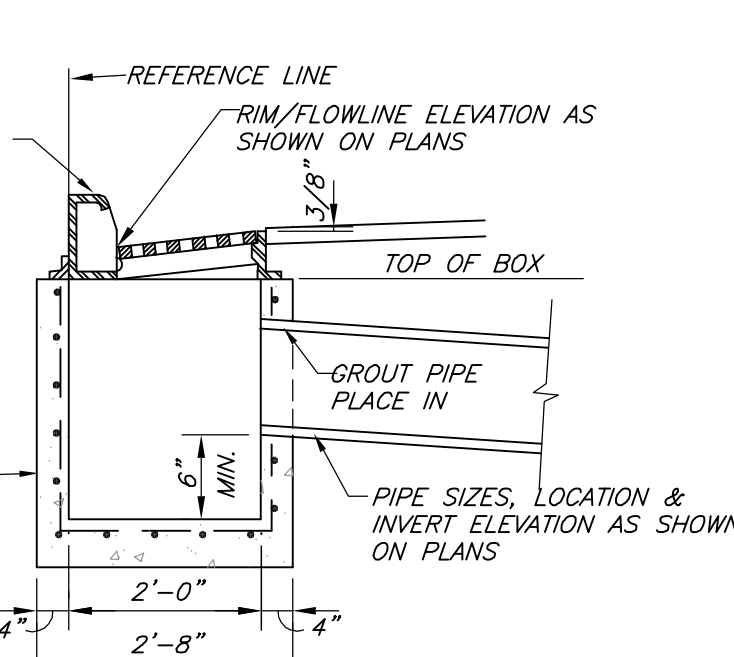


- NOTES:
- 1) FRAME, GRATE & CURB INLET TO BE DETAIL FOUNDATION & JOINTS OR APPROVED EQUIV.
- 2) DOUBLE INLET FRAME, GRATE & CURB INLET TO BE DETAIL FOUNDATION & JOINTS OR APPROVED EQUIV. (ABUTTING SIDE FLANGES TO BE OMITTED TO FORM DOUBLE). THE CONCRETE BASE FOR THE DOUBLE INLET SHALL BE THE SAME AS SHOWN, EXCEPT THAT THE OVERALL WIDTH OF SECTION A-A SHALL BE 6'-10" RATHER THAN 3'-8".
- 3) FRAME & GRATE SHALL BE ASPHALT PAINT-DIPPED BY MANUFACTURER.
- 4) PRECAST CONCRETE ADJUSTMENT RINGS (IF REQUIRED) SHALL BE GROUDED IN PLACE.
- 5) PIPE ENDS ARE TO BE TRIMMED FLUSH WITH THE EXISTING WALLS.
- 6) SET GRATE W/ CONC. LEVELING COURSE TO MATCH LONGITUDINAL SLOPE OF THE ROAD.

PLAN

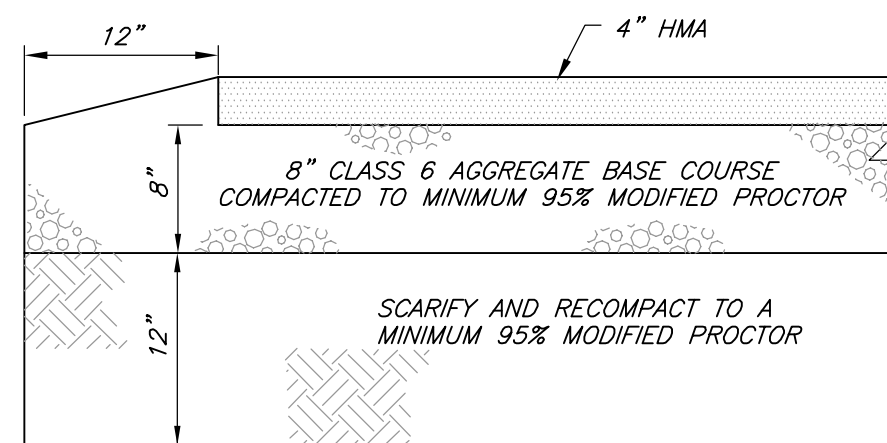


SECTION A-A

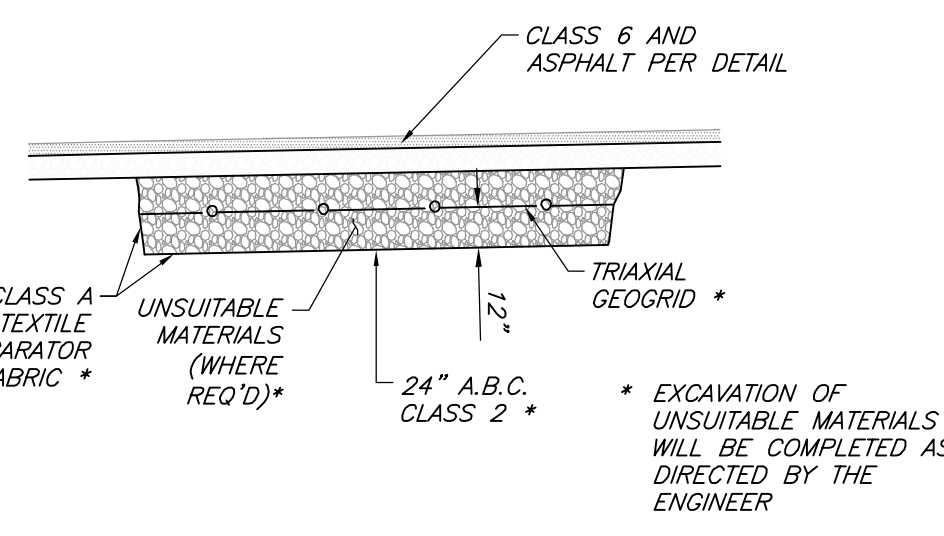


SECTION B-E

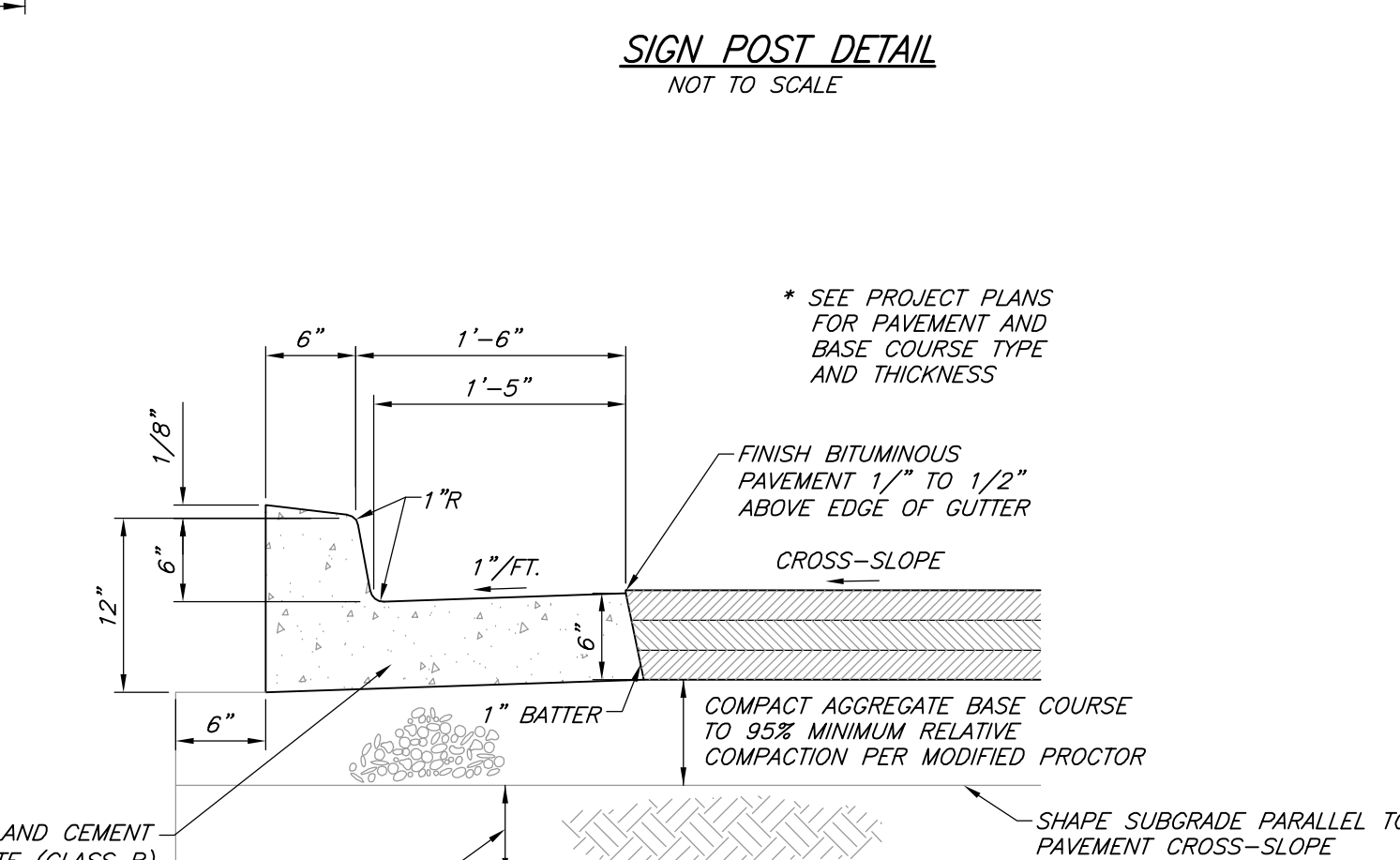
DRAIN INLET
SCALE: 1/2" = 1'-0"



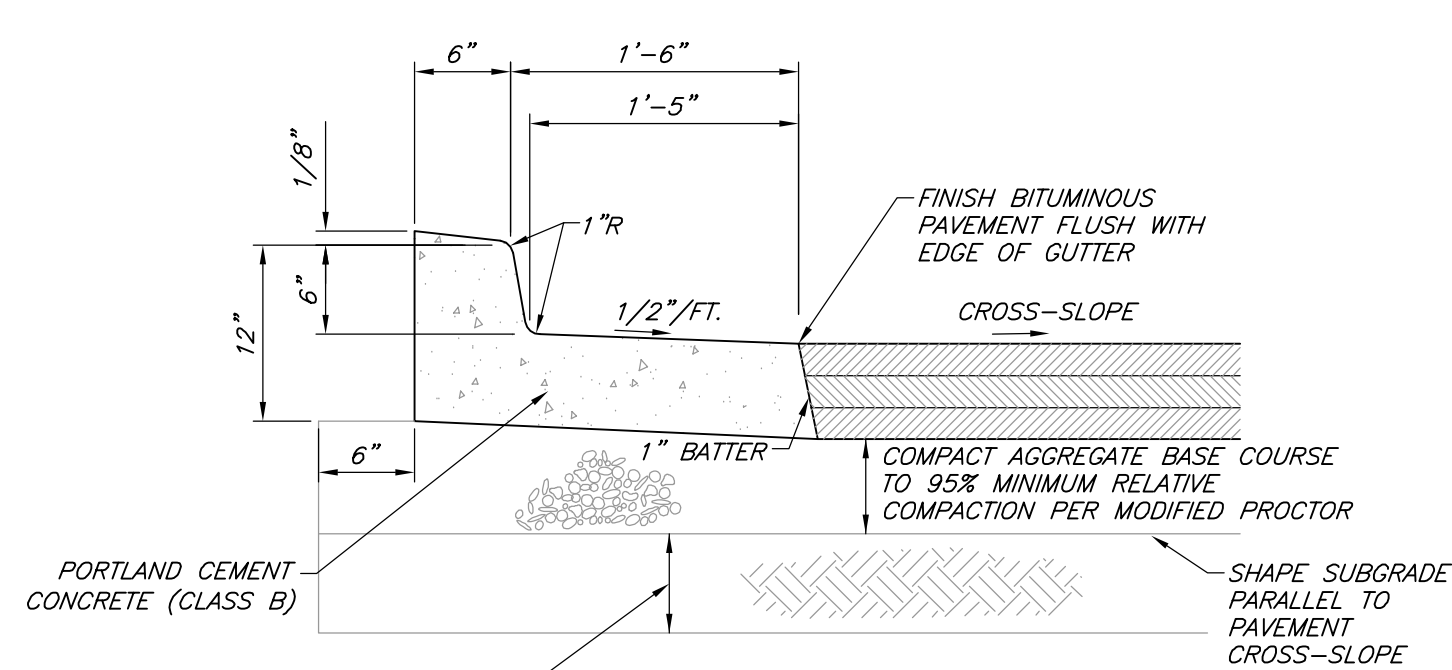
TYPICAL PAVING SECTION
SCALE: 1" = 1'-0"



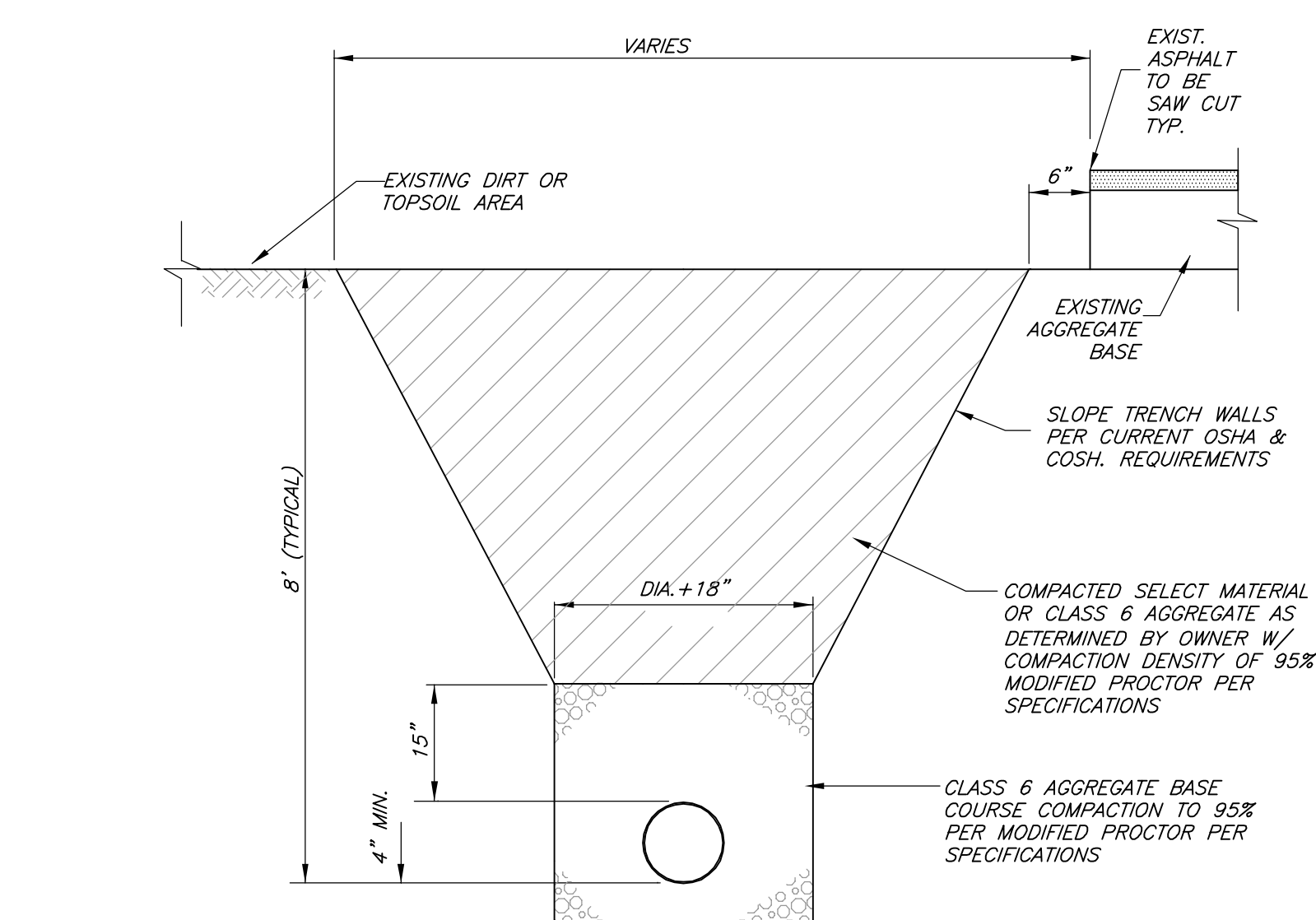
UNSUITABLE MATERIAL EXCAVATION
NTS



STANDARD CURB AND GUTTER
NTS

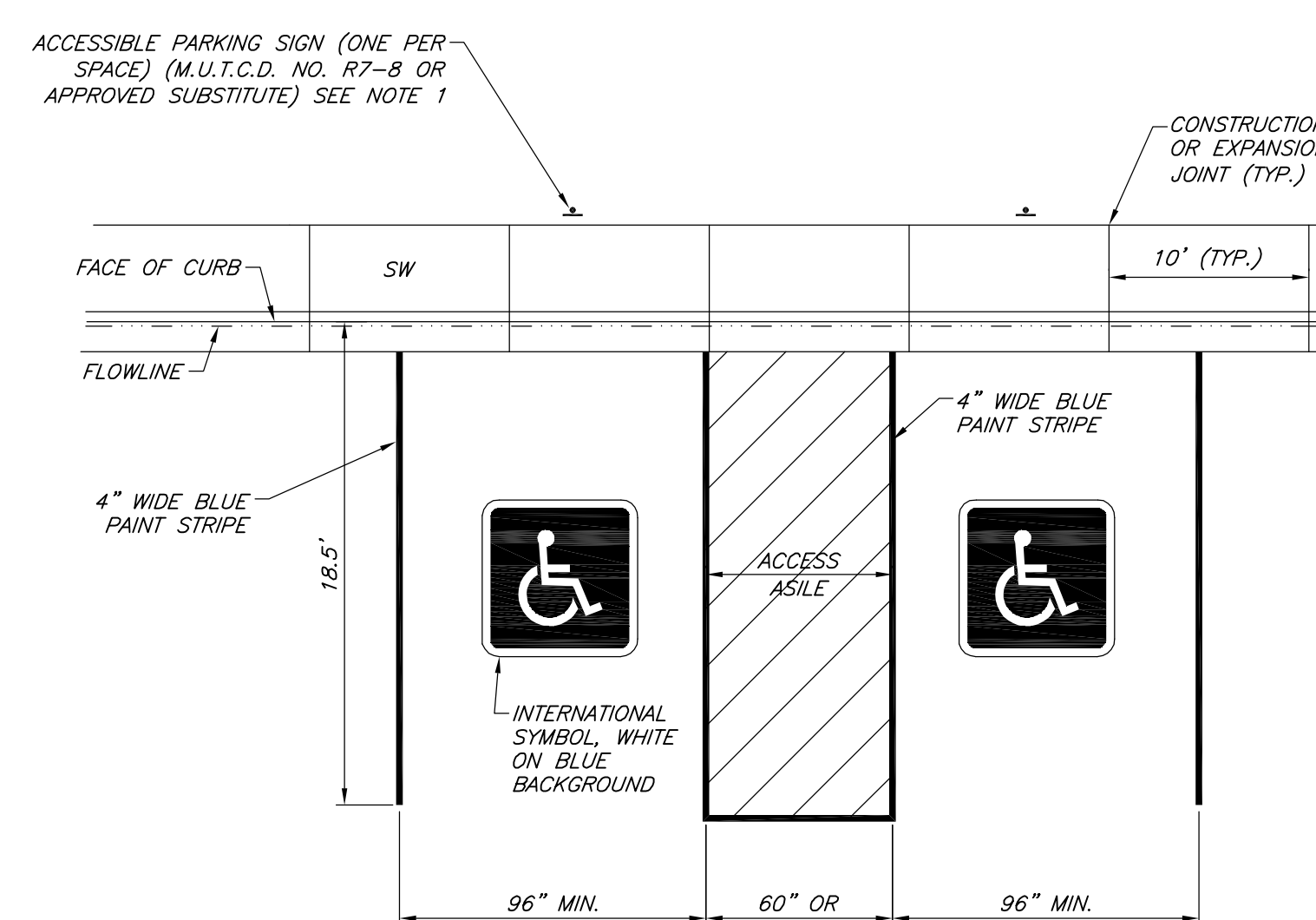


CURB WITH SPILL GUTTER
(FOR USE ON RAISED MEDIANS ONLY)



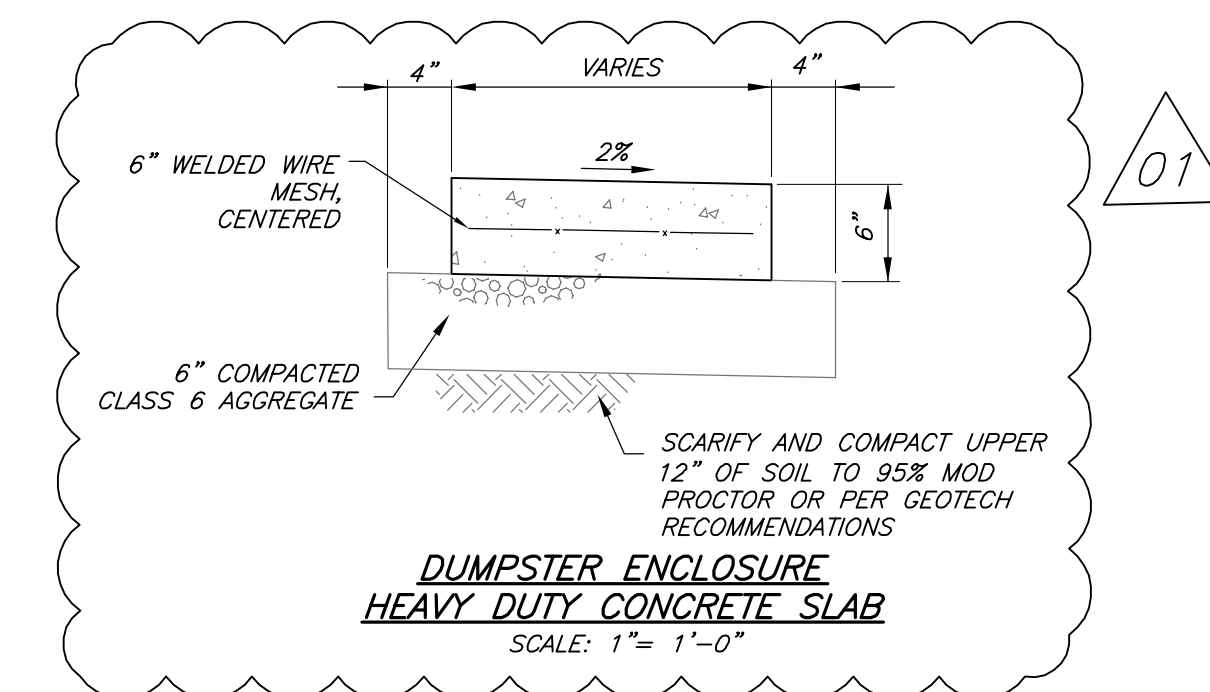
- NOTES:
1. PAVEMENT REPLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS:
 ASPHALT SURFACING = 3" MIN.
 AGGREGATE BASE COURSE = 8" MIN.
 2. BASE COURSE REPLACEMENT SHALL MEET EXISTING THICKNESS WITH THE FOLLOWING MINIMUMS:
 AGGREGATE BASE COURSE = 12" MIN.
 3. DIRT / TOPSOIL REPLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS:
 4" TOPSOIL.
 4. SELECT MATERIAL AS FOLLOWS:
 6" MAXIMUM SIZE IN 12" OF BACKFILL
 12" MAXIMUM SIZE IN REMAINDER OF BACKFILL

UTILITY TRENCH CROSS-SECTION
SCALE: $3/4" = 1'-0"$



- NOTES:**
1. ACCESSIBLE PARKING SPACES SHALL BE DESIGNATED AS RESERVED FOR THE DISABLED BY SIGN SHOWING THE SYMBOL OF ACCESSIBILITY (SEE WALKED FIGURES 18-19). SPACES COMPLYING WITH NOTE 2 SHALL HAVE AN ADDITIONAL SIGN "VAN ACCESSIBLE" MOUNTED BELOW THE SYMBOL OF ACCESSIBILITY. SUCH SIGNS SHALL BE MOUNTED SO THEY CANNOT BE OBTURED BY A VEHICLE PARKED IN THE SPACE.
 2. ONE IN EVERY EIGHT ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, SHALL BE SERVED BY A SIDEWALK RAMP. "WIDE" AND SMALL DESIGNATED "VAN ACCESSIBLE" AS SPECIFIED BY NOTE 1. PARKING ACCESSIBLE SPACES SHALL BE PART OF AN ACCESS ROUTE TO THE BUILDING OR FACILITY ENTRANCE. TWO ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS ROUTE. PARKING SPACES AND ACCESSIBLE SPACES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS.
 3. ACCESSIBLE CURB RAMPS AT INTERSECTIONS SHALL BE ALIGNED WITH STREET CROSSWALKS.
 4. THE MAXIMUM LONGITUDINAL SLOPE ALLOWED ON ANY CURB RAMP OR SIDEWALK SHALL BE 1" (25.4MM) PER 1' (304.8MM). THE MAXIMUM CROSS SLOPE ALLOWED ON ANY WALKING ROUTE IS 1:50 (2%) (1/4"/1').
 5. THE SURFACE OF ALL ACCESSIBLE RAMPS AND PLAZED SIDES SHALL BE FINISHED WITH A COURSE BROOMED TEXTURE PERPENDICULAR TO THE SLOPE OF THE RAMP.
 6. ALL HANDICAP RAMPS, PARKING STANDS AND LANDINGS, SHALL CONFORM TO THE UNIFORM FEDERAL ACCESSIBILITY STANDARDS (VFAS) LATEST EDITION.

ACCESSIBLE PARKING



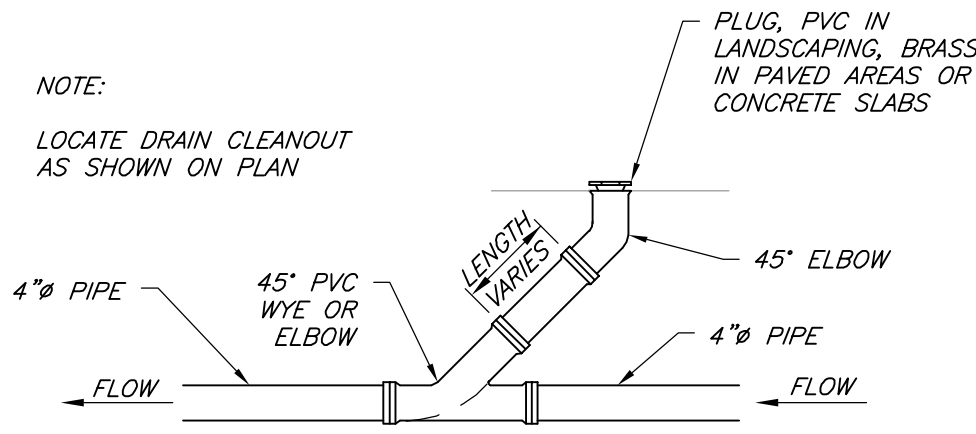
ACCEPTANCE BLOCK

THE CITY OF GRAND JUNCTION REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE CITY'S DEVELOPMENT STANDARDS, SUBJECT TO THESE PLANS BEING SEALED, SIGNED, AND DATED BY THE PROFESSIONAL OF RECORD OF THE CITY. THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL OF RECORD.

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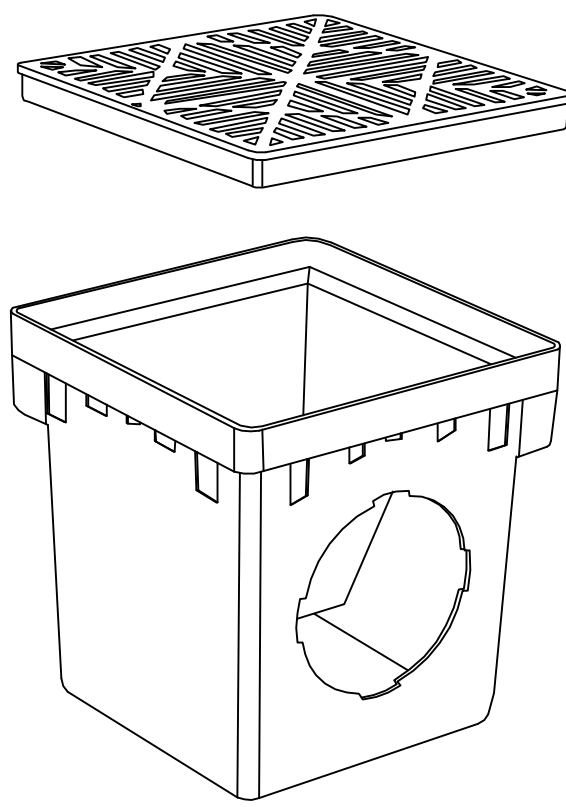
CITY DEVELOPMENT ENGINEER DATE

x:\2018\2018-531-gphashew-584-foot\rd\001-civil\In-Dwg\1-Civil\Drawings\Admin\Draw42.dwg Plotted: 11/7/2019 1:01 PM By: Diana Rooney



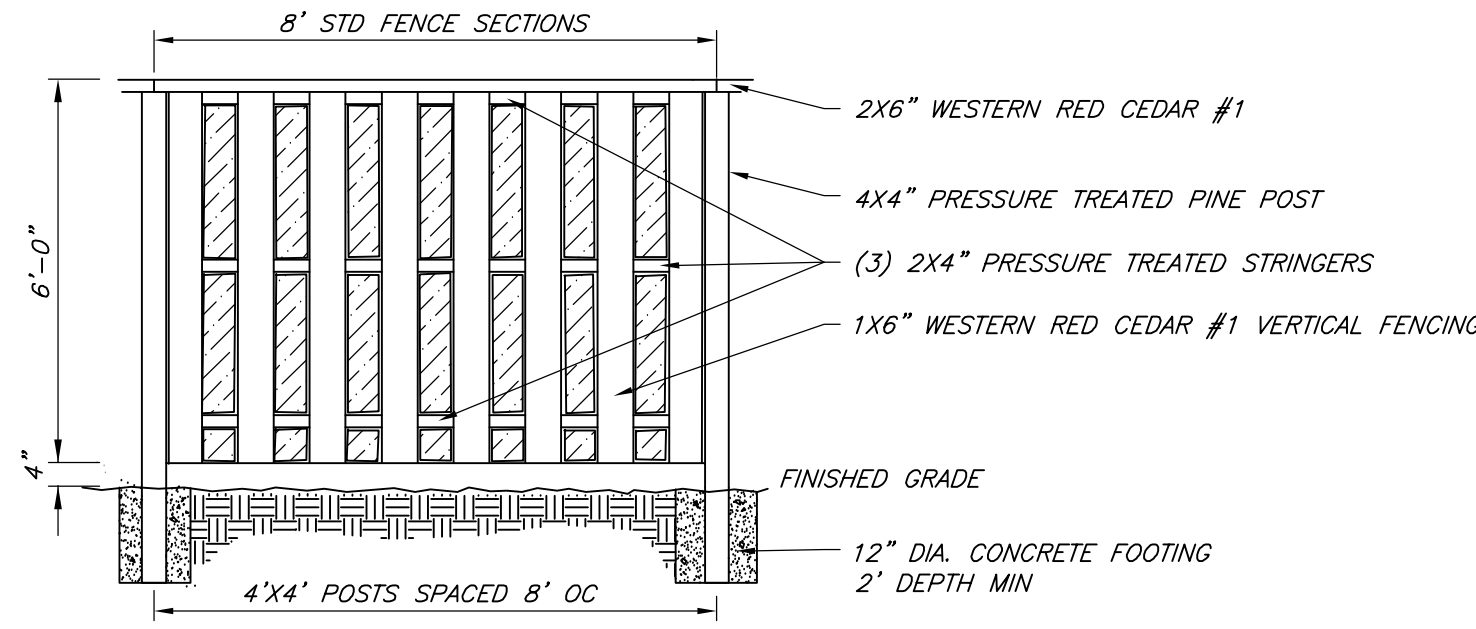
- NOTES:
1. IN-LINE WYE FOR EXISTING STRUCTURES
 2. WYE SADDLE FOR OTHER SERVICES.
 3. BACKFILL UNDER WYE TO BE SCREENED ROCK OR CLASS 6 AGGREGATE, 95% COMPACTION DENSITY PER SPECIFICATIONS

CLEAN-OUT DETAIL (CO)
NTS

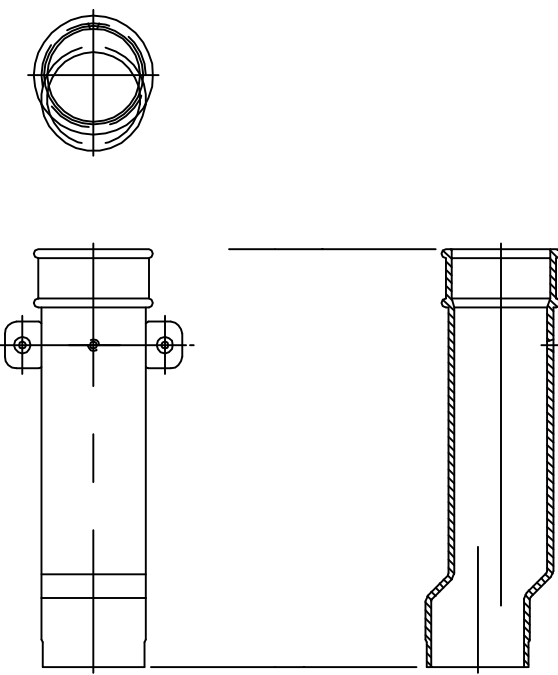


- NOTES:
- NDS 12" X 12" CATCH BASIN #1200 OR APPROVED EQUAL

12" X 12" NDS YARD DRAIN
NTS

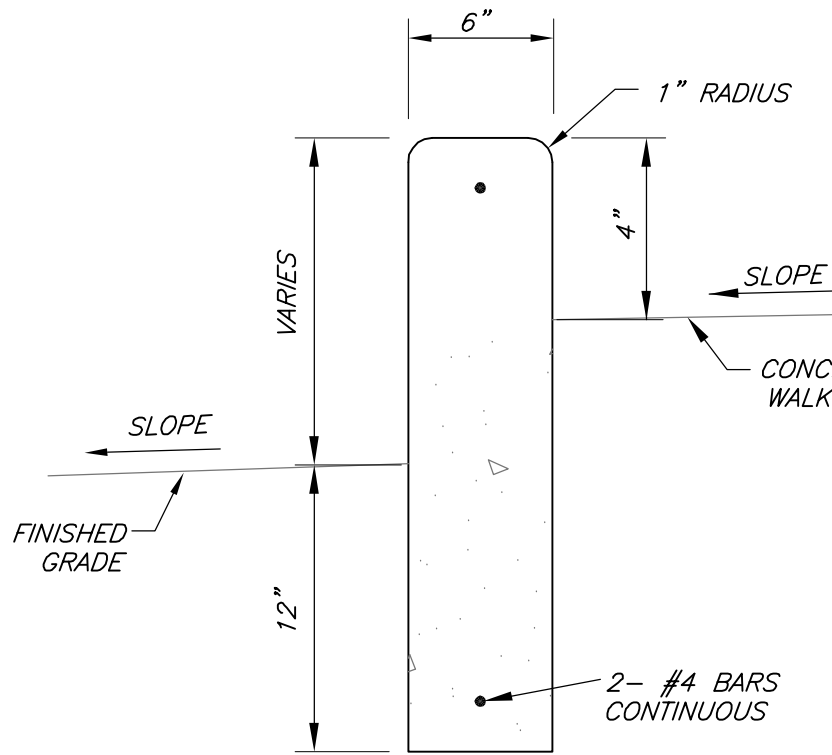


6' HIGH SCREEN FENCE
NTS

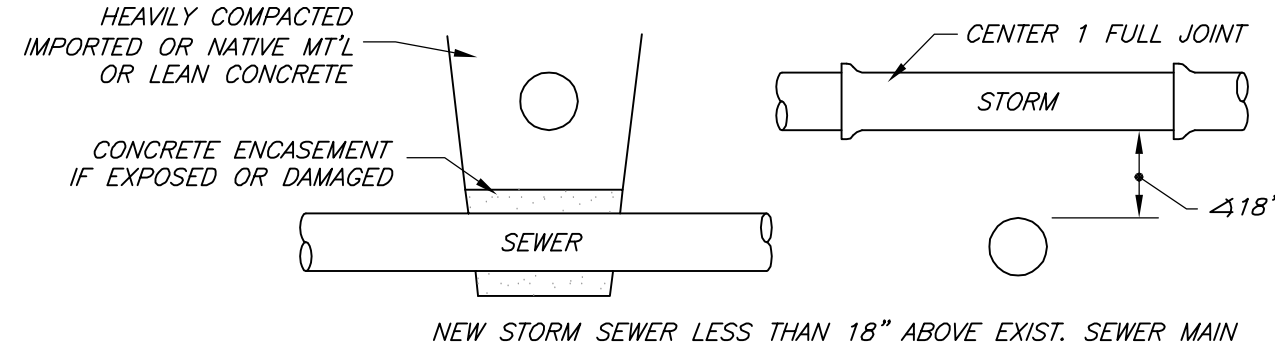


- NOTES:
1. INSTALL METAL DOWNSPOUT BOOT ON (2) DOWNSPOUTS BY TRASH ROOM AREA
 2. PRODUCT TO BE ZURN PROD # Z191-RD-CA 4" TO 4" OR APPROVED EQUAL
 3. ALL OTHER DOWNSPOUTS TO BE ADS PLASTIC BOOTS OR APPROVED EQUAL.

METAL DOWNSPOUT BOOT
NTS



CURB DETAIL
NTS



- NOTE:
- SEWER LINE TO BE CONSTRUCTED OF ONE JOINT (18" MINIMUM) OF C-900 PVC, OR 18" PIPE, CENTERED ON STORM LINE FOR PERPENDICULAR CROSSING. FOR SKEW CROSSINGS, USE C-900 PIPE UNTIL HORIZONTAL SEPARATION EXCEEDS 10'.

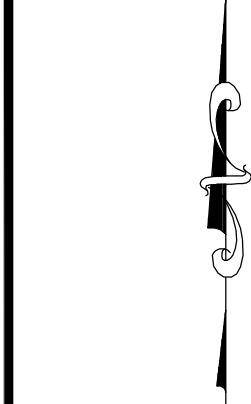
STORM / SEWER CROSSING DETAIL
NOT TO SCALE

ACCEPTANCE BLOCK

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CITY DEVELOPMENT ENGINEER DATE



Grand Junction Housing Authority
2814 Patterson Road

Revision	Date	By
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Job No. 2018-531.001
Drawn by: FJB
Date: 5.16.19
C.D.: DLS
File: 2814Pat-Admin30x42

Site Details (2)

C-18

Of: 21



1. WATER LINES ARE TO BE INSTALLED ON THE NORTH OR EAST SIDE OF THE R.O.W., NO LESS THAN 2' OR MORE THAN 1' FROM LIP OF CURB UNLESS OTHERWISE SHOWN
2. ALL FERROUS METAL PIPE, VALVES, FITTINGS, AND APPURTENANCES SHALL BE WRAPPED WITH A MINIMUM 8 MIL HIGH DENSITY POLYETHYLENE MATERIAL PRIOR TO BACKFILLING
3. DEADENDS MUST EXTEND A MIN. OF 43' BEYOND THE LAST VALVE, TO A POINT BEYOND SURFACE IMPROVEMENTS, OR TO THE PROJECT LIMITS, WHICHEVER IS GREATER
4. AVOID METER SERVICES OFF OF DEADEND LINES
5. HYDRANT LOCATIONS TO BE AT INTERSECTIONS AND/OR ON PARCEL LINES AND PAIRED WITH WATER METER SERVICES

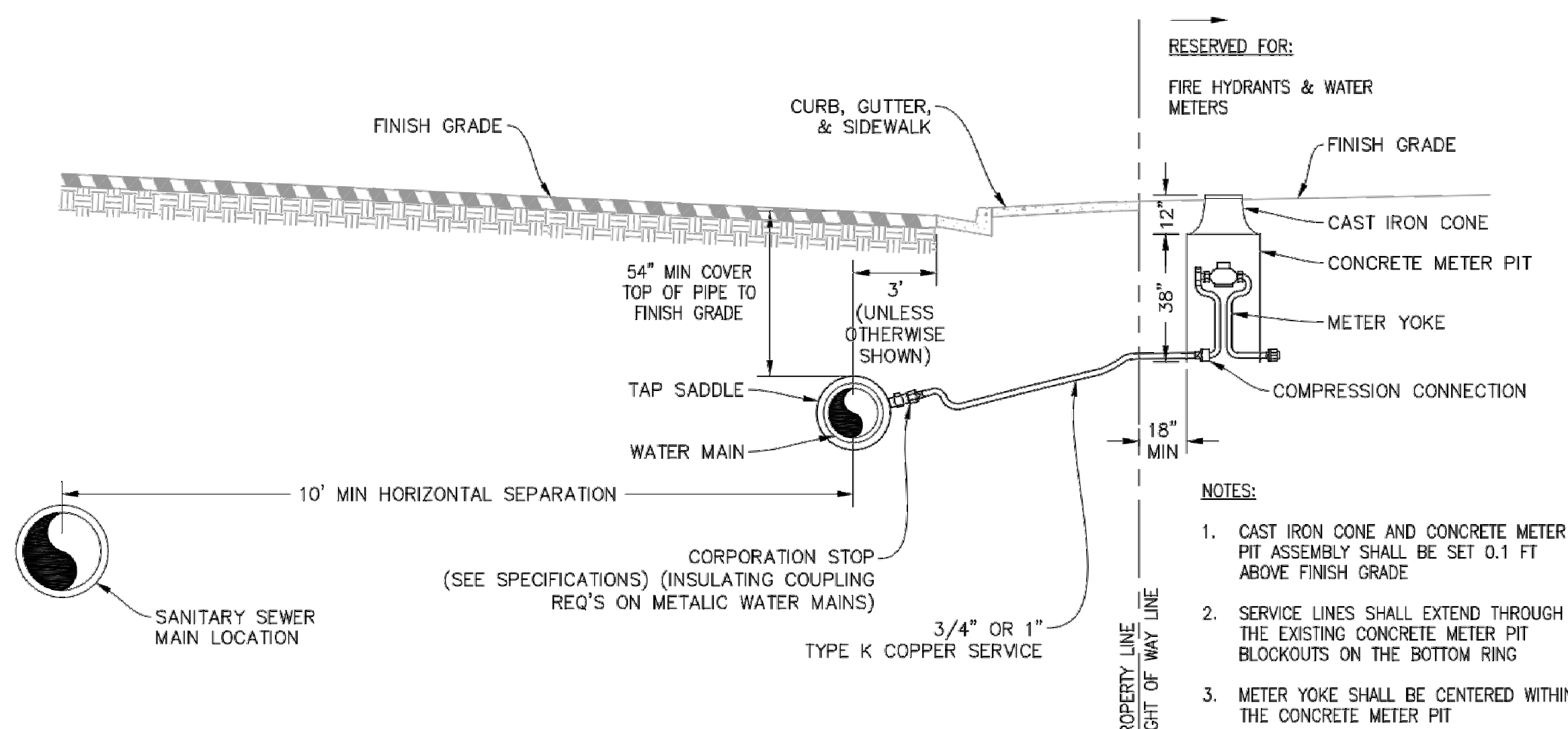
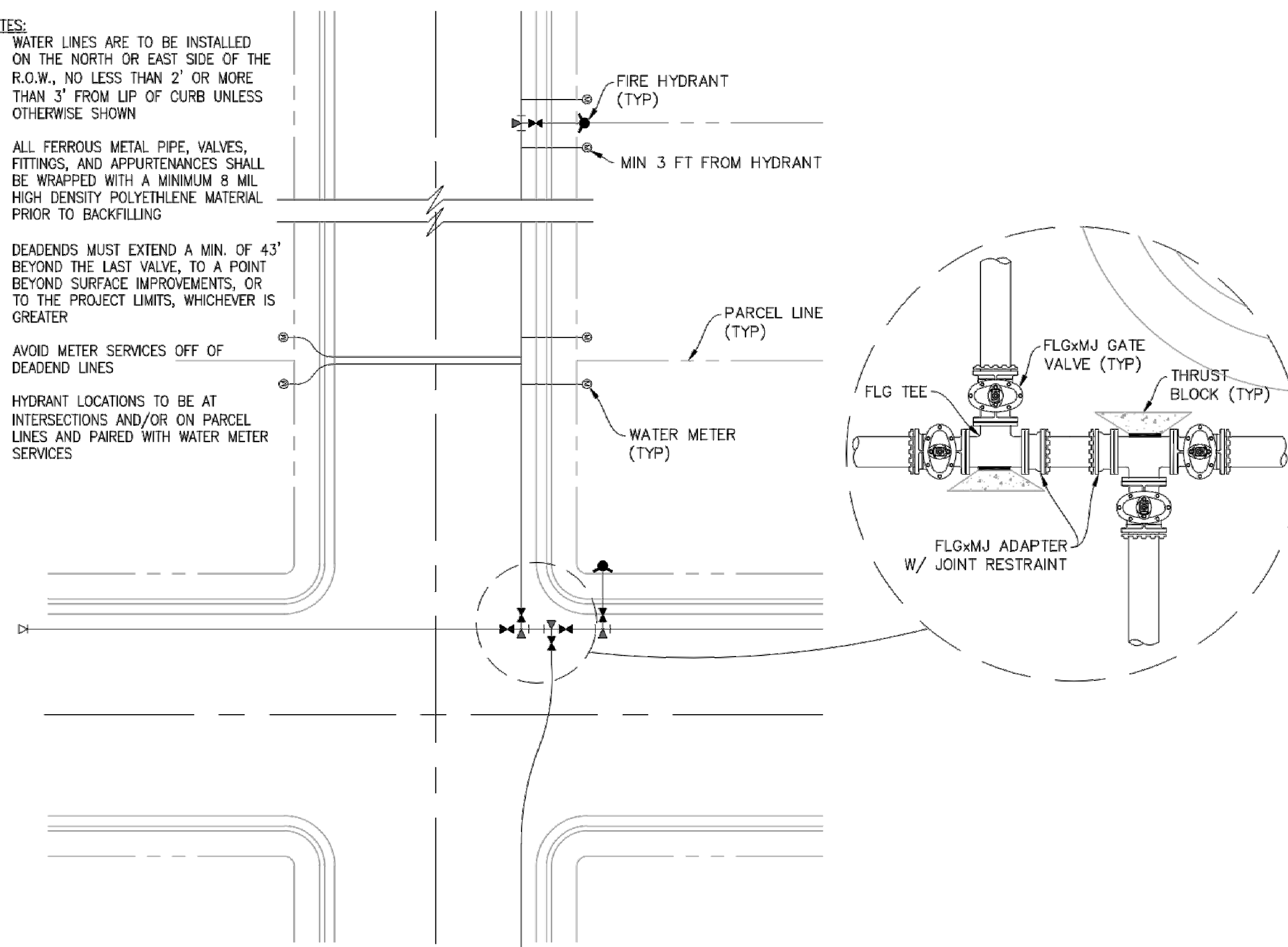


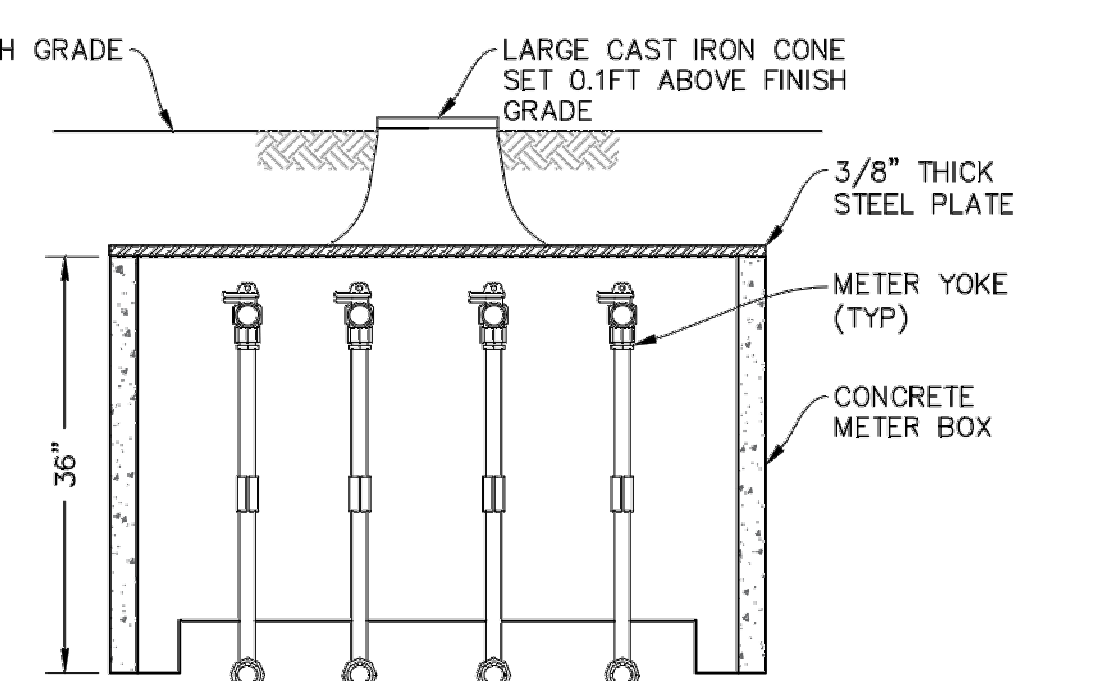
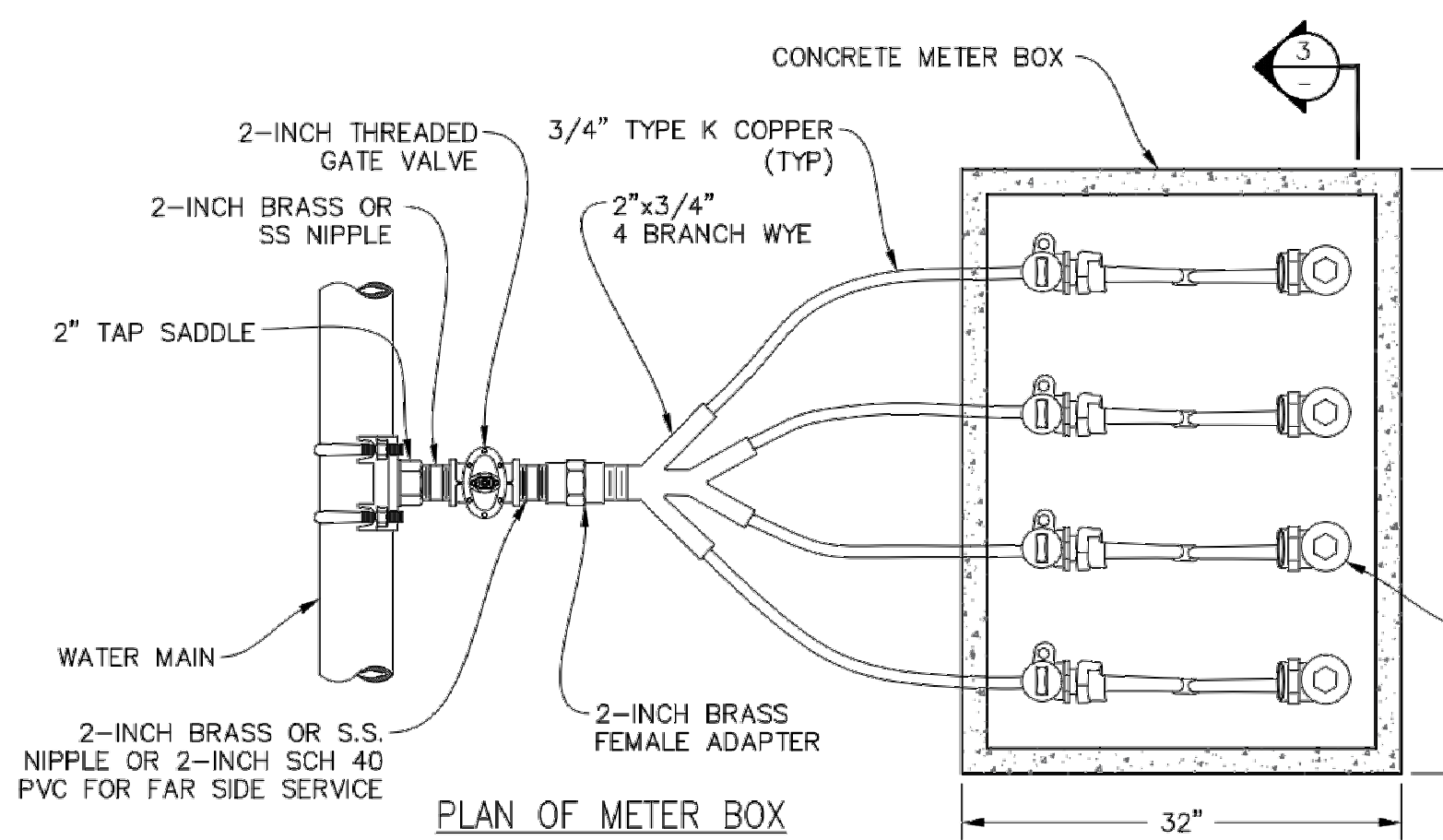
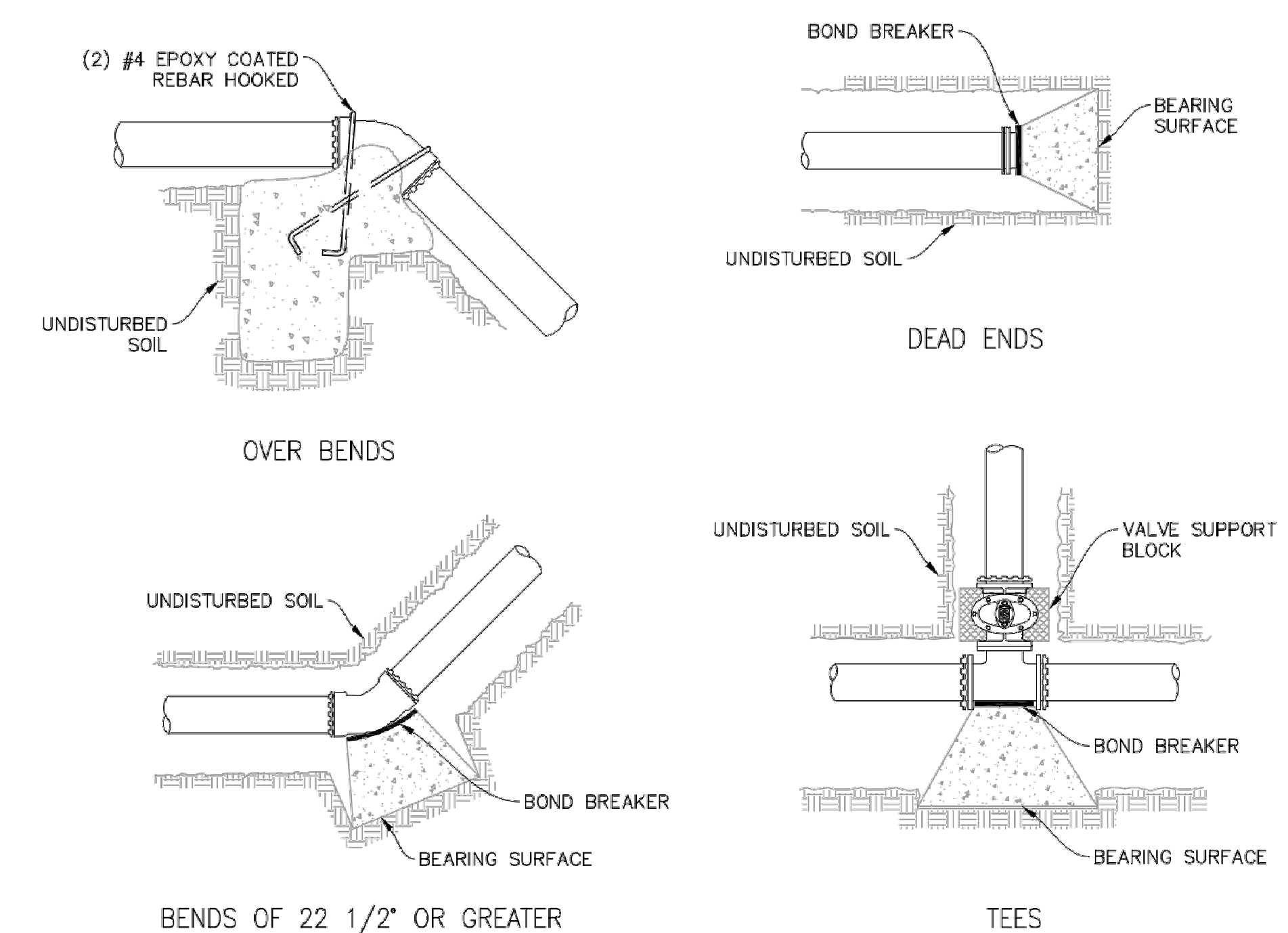
TABLE FOR CONCRETE THRUST BLOCKING	
BEARING AREAS (IN SQ. FT.)	
1	1
2	4
3	9
4	16
5	25
6	36
7	49
8	64
9	81
10	100
11	121
12	144
13	169
14	196
15	225
16	256
17	289
18	324
19	361
20	400
21	441
22	484
23	529
24	576
25	625
26	676
27	729
28	784
29	841
30	900
31	961
32	1024
33	1089
34	1156
35	1225
36	1296
37	1369
38	1444
39	1521
40	1600
41	1681
42	1764
43	1849
44	1936
45	2025
46	2116
47	2209
48	2304
49	2401
50	2500
51	2601
52	2704
53	2809
54	2916
55	3025
56	3136
57	3249
58	3364
59	3481
60	3600
61	3721
62	3844
63	3969
64	4096
65	4225
66	4356
67	4489
68	4624
69	4761
70	4900
71	5041
72	5184
73	5329
74	5476
75	5625
76	5776
77	5929
78	6084
79	6241
80	6400
81	6561
82	6724
83	6889
84	7056
85	7225
86	7396
87	7569
88	7744
89	7921
90	8100
91	8281
92	8464
93	8649
94	8836
95	9025
96	9216
97	9409
98	9604
99	9801
100	10000

SIZE	BENDS			TEE BRANCH SIZE AND DEAD ENDS
	90°	45°	22 1/2°	
6	4.0	2.2	1.1	2.8
8	7.1	3.8	2.0	5.0
10	11.1	6.0	3.0	7.8
12	16.0	8.6	4.4	11.3
14	21.7	11.8	6.0	15.4
16	28.4	15.3	8.0	20.0

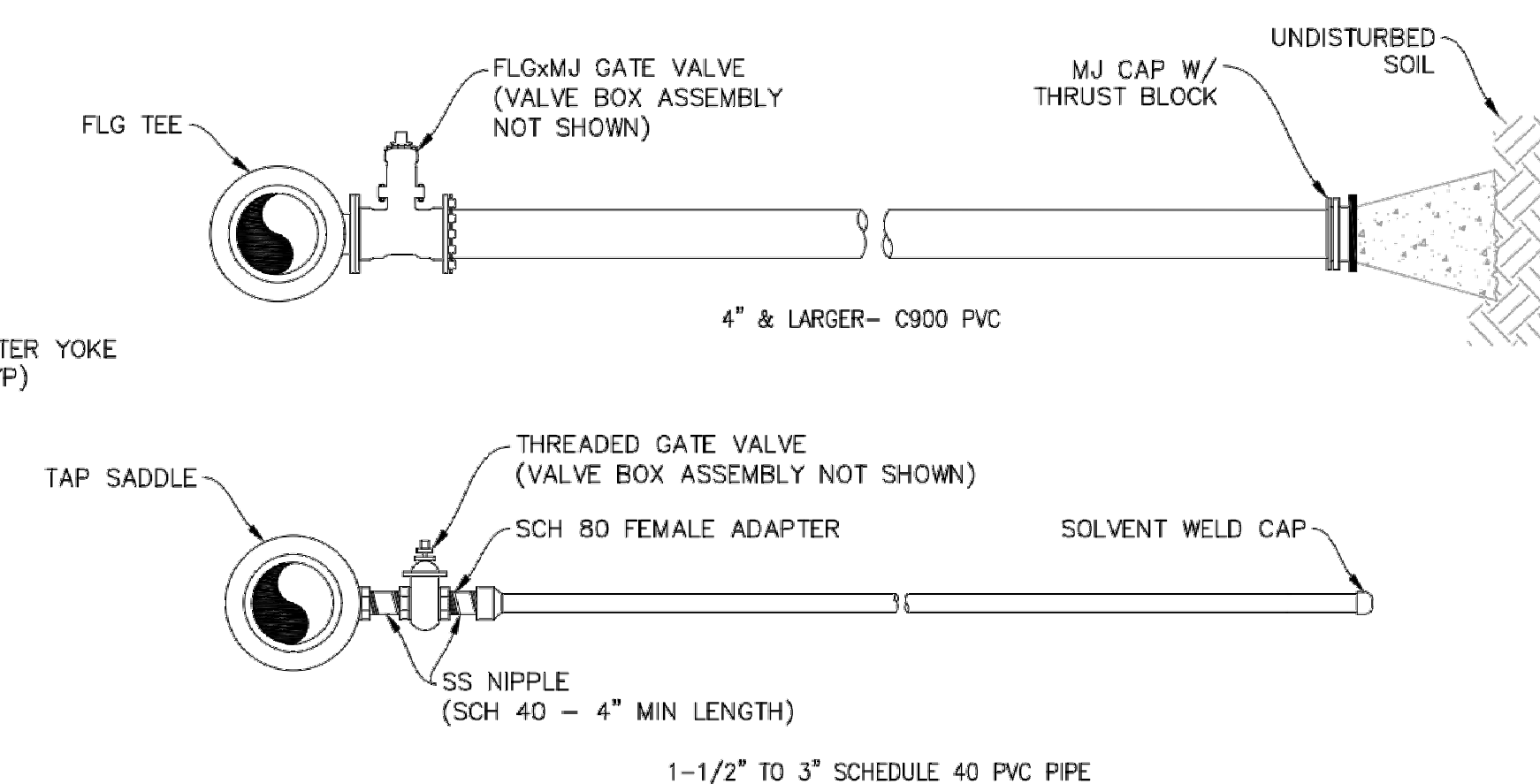
FIRE HYDRANT THRUST BLOCKS SHALL BE A MIN OF 1/4 CU. YD
IN MASS AND HAVE A MIN BEARING AREA OF 5 SQ. FT.

AREAS GIVEN ARE BASED ON INTERNAL STATIC PRESSURE OF 100 P.S.I.
AND SOIL BEARING CAPACITY OF 1,000 lbs. PER SQ. FT.

AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING TABULATED VALUES BY A CORRECTION FACTOR "F"

$$F = \frac{\text{ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF lbs PER SQ. INCH}}{\text{ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF lbs.}}$$


SECTION OF METER BOX
4 METER GANG BOX DETAIL (L)
UTE WATER STANDARD DETAILS
SCALE: NTS



DATE:	APRIL 2018
CAD:	D.REED
DESIGN:	
CHECKED:	
APPROVED:	D.PRISKE



UTE WATER CONSERVANCY DISTRICT
GRAND JUNCTION, CO 81505
PH. (970)242-7491
FX. (970)242-9189

NO.	REVISION	DATE	BY
1			
2			
3			
4			

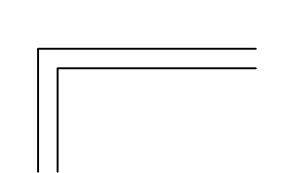
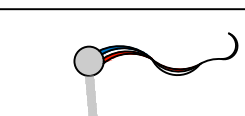
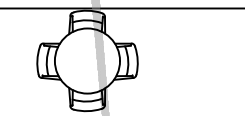
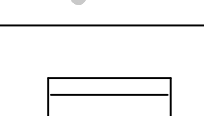
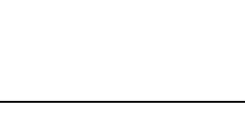
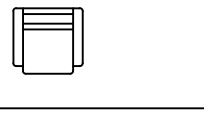
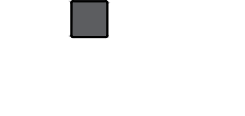
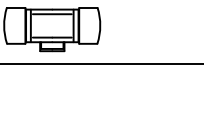
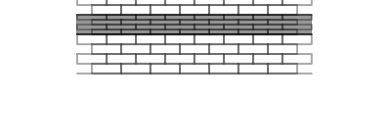
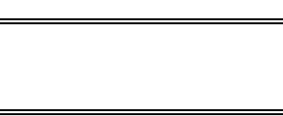
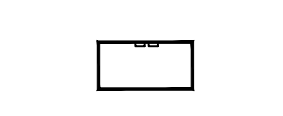
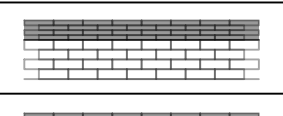
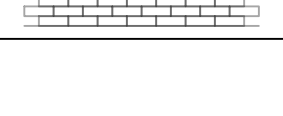
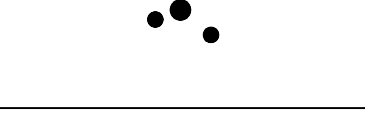
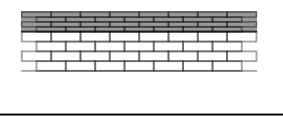
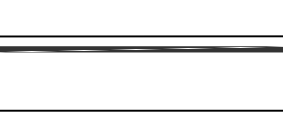
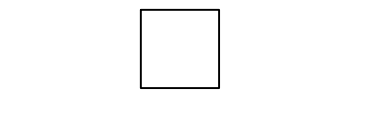
UTE WATER STANDARD DETAILS

DETAIL SHEET 2 OF 2

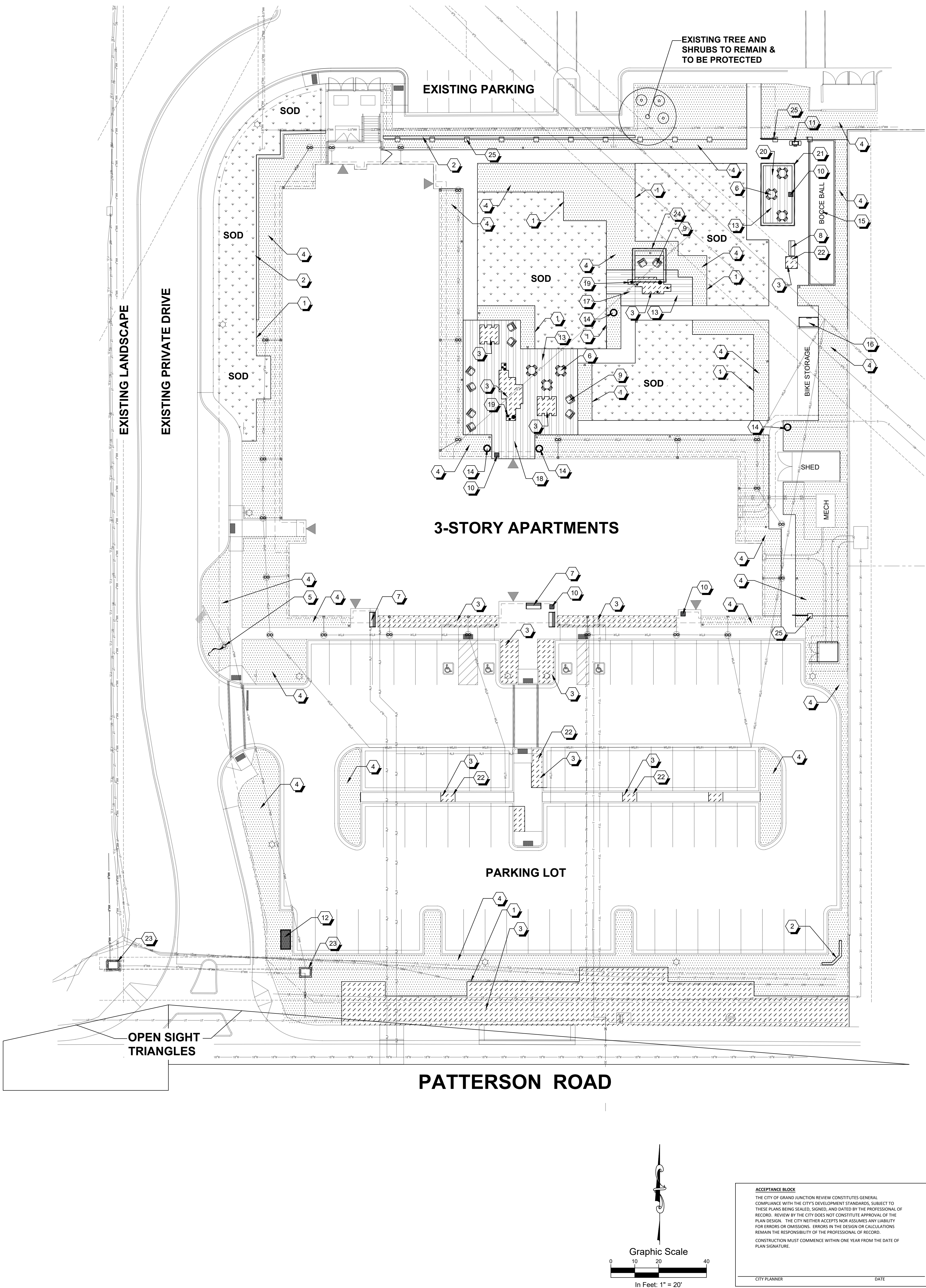
SHEET NO.

2

LANDSCAPE SITE LEGEND: NOTE: QUANTITIES ARE PROVIDED AS A COURTESY ONLY. IF DISCREPANCY BETWEEN PLAN AND COUNT/QUANTITY EXISTS, PLAN TAKES PRECEDENCE.

REFERENCE NOTES SCHEDULE			
SYMBOL	DESCRIPTION	QTY	
	STEEL LANDSCAPE EDGER 1/8"X4" "COL-MET" MFG POWDERCOAT BROWN COLOR. INSTALL WITH PROPER LAP-JOINTS AND STAKES PER MFG RECOMMENDATIONS. SEE DETAIL C, SHEET L-4.	913 LF	
	LANDSCAPE UNIT RETAINING WALL WITH CAP. VERSALOK MFG. WALL & CAP. RED COLOR BLEND TO MATCH TRASH ENCLOSURE. LOCATED AT PERIMETER OF SITE. INSTALL PER DETAIL G, SHEET L-4.	229 LF	
SYMBOL	DESCRIPTION	QTY	
	1/2" TAN GRANITE STONE MULCH (TO MATCH PHASE 1). PLACE 3" DEEP OVER LANDSCAPE FABRIC.	4,904 SF	
	3" WASHED ROUND GRAVEL STONE MULCH, 3" DEEP OVER LANDSCAPE FABRIC.	21,471 SF	
SYMBOL	DESCRIPTION	QTY	
	FLAGPOLE. SEE DETAIL J, SHEET L-5. INSTALL IN CONCRETE FOOTING PER MFG RECOMMENDATIONS.	1	
	EXTERIOR TABLE AND CHAIRS. OWNER FURNISHED. SEE THE EXAMPLE PHOTO DETAIL N, SHEET L-5.	6	
	EXTERIOR FURNITURE - 6 FT. BENCH WITH BACK. OWNER FURNISHED. SEE THE EXAMPLE PHOTO, DETAIL M, SHEET L-5.	3	
	EXTERIOR FURNITURE - 6 FT. BENCH WITHOUT BACK (TO ALLOW SITTING IN EITHER DIRECTION). OWNER FURNISHED. SEE THE EXAMPLE PHOTO DETAIL M, SHEET L-5.	1	
	EXTERIOR FURNITURE - OUTDOOR LIVING CHAIR. OWNER FURNISHED. SEE THE EXAMPLE PHOTO DETAIL L, SHEET L-5.	10	
	EXTERIOR FURNITURE - TRASH RECEPTACLE. OWNER FURNISHED. SEE THE EXAMPLE PHOTO DETAIL M, SHEET L-5.	4	
	FREE-STANDING BARBEQUE, PROPANE. OWNER FURNISHED.	1	
	IRRIGATION PUMP STATION IN PREFAB METAL PUMP ENCLOSURE (SEE THE IRRIGATION PLANS). TIE THE 2" FILTER FLUSH PIPE LINE TO DRAIN BACK INTO EXISTING IRRIGATION STRUCTURE.	1	
	LANDSCAPE PAVERS. SEE THE DETAILS FOR TYPE, COLOR, AND INSTALLATION REQUIREMENTS. SEE DETAILS D, E, & F, SHEET L-4.	SEE PLAN	
	LARGE BOWL PLANTER. CONTRACTOR FURNISHED. SEE THE EXAMPLE PHOTO DETAIL I, SHEET L-5.	3	
	10 FT. X 60 FT. ARTIFICIAL TURF SURFACED BOCCIE BALL COURT. SEE DETAIL O, SHEET L-5.	1	
	TOY BOX. OWNER FURNISHED. SEE THE EXAMPLE PHOTO DETAIL K, SHEET L-5.	1	
	ZEN GARDEN PAVING PATTERN. SEE DETAIL Q, SHEET L-3.	476 SF	
	MAIN PLAZA AREA PAVING PATTERN. SEET DETAIL S, SHEET L-3.	1,936 SF	
	SCULPTURE BALLS IN ZEN GARDENS. SEE THE EXAMPLE PHOTO DETAIL R, SHEET L-3. CONTRACTOR TO FUNISH, AND INSTALLED IN CONCRETE FOOTINGS.	11	
	PICNIC PERGOLA AREA 12 FT X 24 FT. PAVING PATTERN. SEE DETAIL T, SHEET L-3.	288 SF	
	14 FT X 26 FT PREFABRICATED ALUMINUM PERGOLA WITH 6"X6" POSTS,INSTALL IN CONCRETE FOOTINGS PER MFG RECOMMENDATIONS. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL. SEE DETAIL P, SHEET L-5.	1	
	TREE WELL OPENING IN CONCRETE. SEE THE EXAMPLE PHOTO DETAIL H, SHEET L-4.	SEE PLAN	
	EXISTING CONCRETE IRRIGATION STRUCTURES AT EACH SIDE OF ENTRY DRIVE ALONG PATTERSON ROAD TO REMAIN AND TO BE PROTECTED DURING CONSTRUCTION.	2	
	14 FT SQUARE PREFABRICATED ALUMINUM PERGOLA WITH 6"X6" POSTS,INSTALL IN CONCRETE FOOTINGS PER MFG RECOMMENDATIONS. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL. SEE DETAIL P, SHEET L-5.	1	
	6 FT HIGH DECORATIVE METAL FENCE, AND (2) CANTILEVER ROLLER PEDESTRIAN GATES. INSTALL IN CONCRETE FOOTINGS. SEE EXAMPLE PHOTO DETAIL E, SHEET L-4.	218 LF	

LANDSCAPE SITE PLAN:



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Landscape Architect

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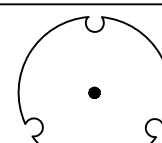
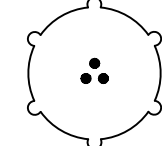
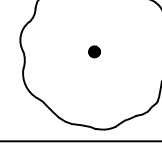
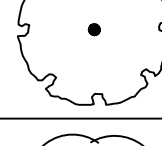
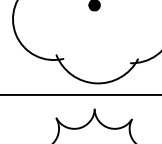
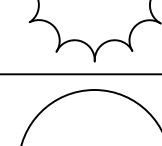
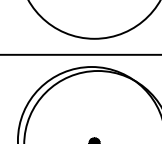
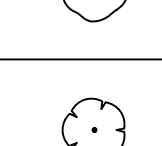
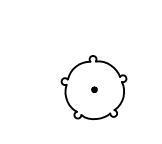
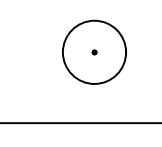
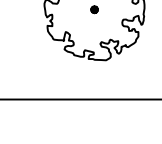
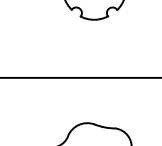
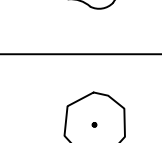
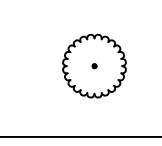
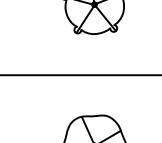
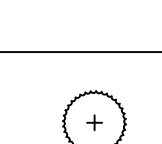
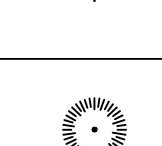
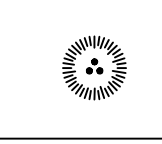
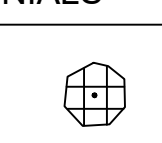
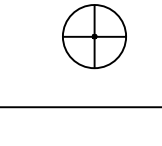
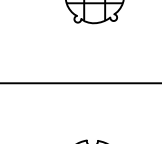
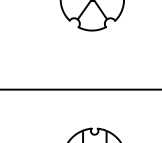
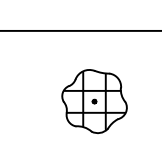
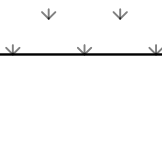
GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

DATES/ REVISIONS

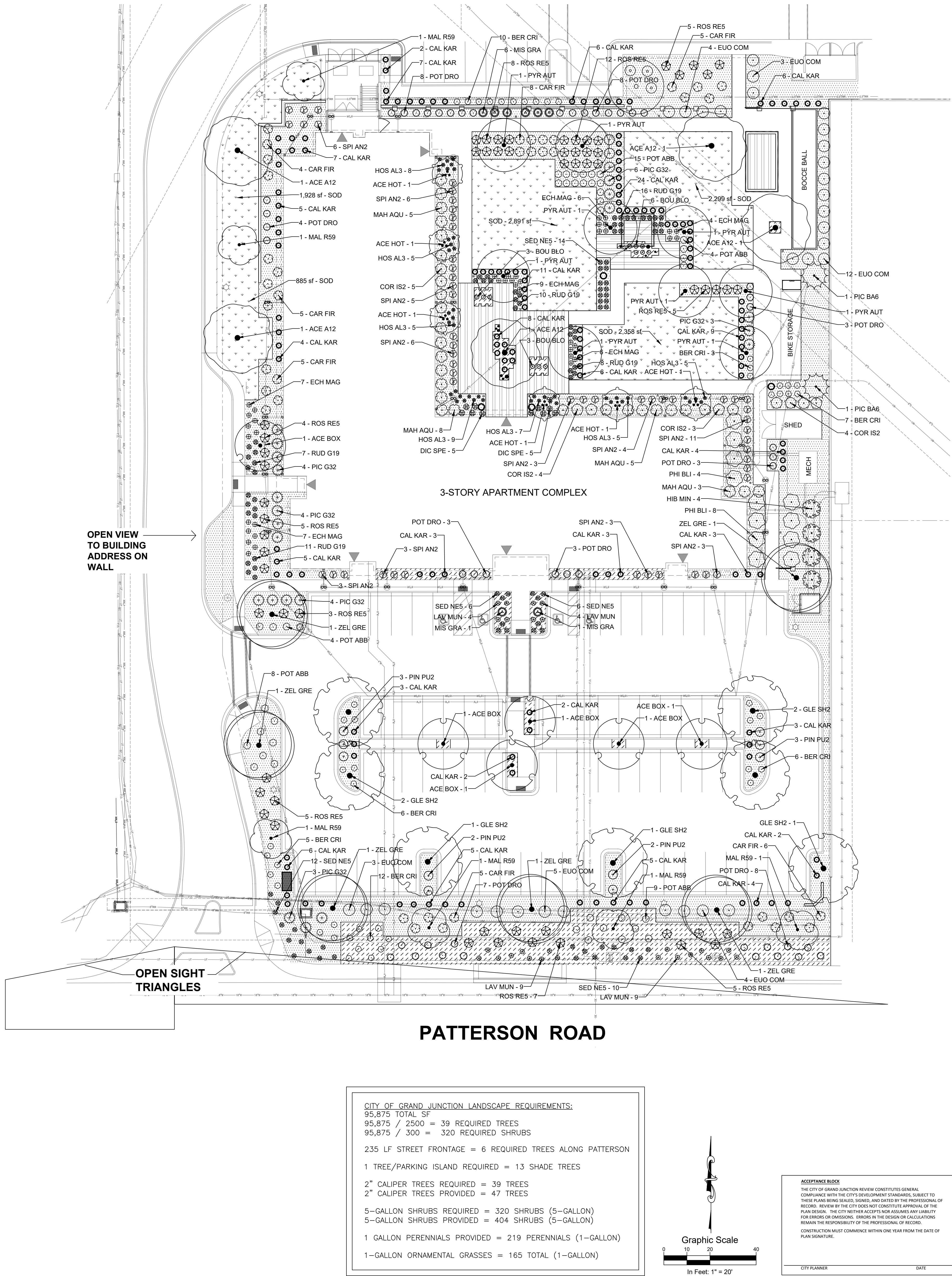
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04.05.19	100% CD's
01.10.20	ASI-01

L-1

LANDSCAPE
SITE PLAN

PLANT SCHEDULE				
TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	ACE BOX	6	ACER NEGUNDO 'SENSATION' SENSATION MAPLE 30' TALL, 25' SPREAD, RED FALL COLOR	2" CALIPER
	ACE HOT	6	ACER TATARICUM 'HOT WINGS' HOT WINGS TATARIAN MAPLE 20' TALL, 15' SPREAD, RED SUMMER ORNAMENTAL WINGS, YELLOW FALL COLOR, MULTI-STEM	1.5" CALIPER
	ACE A12	5	ACER X FREEMANII 'JEFFSRED' AUTUMN BLAZE MAPLE 45' TALL, 30' SPREAD, RED FALL COLOR, LARGE SHADE TREE	2" CALIPER
	GLE SH2	7	GLEDTISIA TRIACANTHOS INERMIS 'SHADEMASTER'™ SHADEMASTER HONEYLOCUST 40' TALL, 30' SPREAD, YELLOW FALL COLOR	2" CALIPER
	MAL R59	6	MALUS X 'ROYAL RAINDROPS' ROYAL RAINDROPS CRABAPPLE 20' TALL, 20' SPREAD, RED-PINK SPRING FLOWERS, RED PERSISTANT FRUIT	1.5" CALIPER
	PIC BA6	2	PICEA PUNGENS 'BABY BLUEEYES' BABY BLUE EYES SPRUCE 20' TALL, 12' SPREAD, UPRIGHT BLUE SEMI-DWARF EVERGREEN	6 FT. B&B
	PYR AUT	9	PYRUS CALLERYANA 'AUTUMN BLAZE' AUTUMN BLAZE PEAR 40' TALL, 25' SPREAD, WHITE FRAGRANT SPRING FLOWERS, RED FALL COLOR	2" CALIPER
	ZEL GRE	6	ZELKOVA SERRATA 'GREEN VASE' SAWLEAF ZELKOVA 50' TALL, 30' SPREAD, YELLOW ORANGE FALL COLOR.	2" CALIPER
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BER CRI	49	BERBERIS THUNBERGII 'CRIMSON PYGMY' CRIMSON PYGMY BARBERRY 2' TALL, 3' SPREAD, RED FOLIAGE	5 GALLON
	CAR FIR	38	CARYOPTERIS X CLANDONENSIS 'DARK KNIGHT' DARK KNIGHT BLUEBEARD 3' TALL, 4' SPREAD, BLUE SUMMER FLOWERS	5 GALLON
	COR IS2	16	CORNUS STOLONIFERA 'ISANTI' ISANTI DOGWOOD 4' TALL, 5' SPREAD, WHITE SPRING FLOWERS, ORANGE FALL, RED TWIGS, SHADE TOLERANT.	5 GALLON
	EUO COM	31	EUONYMUS ALATUS 'COMPACTUS' COMPACT BURNING BUSH 5' TALL, 5' SPREAD, RED FALL COLOR.	5 GALLON
	HIB MIN	4	HIBISCUS SYRIACUS 'MINERVA' MINERVA ROSE OF SHARON 10 FT. TALL, 8 FT. SPREAD, PURPLE SUMMER FLOWERS.	5 GALLON
	MAH AQU	21	MAHONIA AQUIFOLIUM OREGON GRAPE 5' TALL, 5' SPREAD, YELLOW SUMMER FLOWERS, RED FALL BERRIES	5 GALLON
	PHI BLI	12	PHILADELPHUS LEWISII 'BLIZZARD' BLIZZARD MOCKORANGE 7' TALL, 8' SPREAD, WHITE FRAGRANT SPRING FLOWERS	5 GALLON
	POT ABB	40	POTENTILLA FRUTICOSA 'ABBOTSWOOD' ABBOTSWOOD POTENTILLA 3' TALL, 4' SPREAD, WHITE SUMMER FLOWERS	5 GALLON
	POT DRO	47	POTENTILLA FRUTICOSA 'GOLD DROP' GOLD DROP POTENTILLA 3' TALL, 3' SPREAD, YELLOW SUMMER FLOWERS.	5 GALLON
	ROS RE5	59	ROSA MEIDILAND SERIES 'RED' RED MEIDILAND ROSE 3' TALL, 4' SPREAD, RED SUMMER FLOWERS.	5 GALLON
	SPI AN2	53	SPIRAEA X BUMALDA 'ANTHONY WATERER' ANTHONY WATERER SPIRAEA 3' TALL, 3' SPREAD, PINK SUMMER FLOWERS	5 GALLON
EVERGREEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	PIC G32	24	PICEA PUNGENS 'GLAUCA GLOBOSA' DWARF GLOBE BLUE SPRUCE 4' TALL, 5' SPREAD, BLUE DWARF EVERGREEN. SHORT GRAFT	5 GALLON
	PIN PU2	10	PINUS MUGO PUMILIO DWARF MUGO PINE 4' TALL, 4' SPREAD, GREEN EVERGREEN.	5 GALLON
ORNAMENTAL GRASS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BOU BLO	12	BOULELOUA GRACILIS 'BLONDE AMBITION' BLONDE AMBITION BLUE GRAMA 2' TALL, 2' SPREAD, ORNAMENTAL GRASS WITH YELLOW ORNAMENTAL SEED HEADS	1 GALLON
	CAL KAR	145	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' KARL FOERSTER FEATHER REED GRASS 4' TALL, 3' SPREAD, UPRIGHT ORNAMENTAL GRASS	1 GALLON
	MIS GRA	8	MISCANTHUS SINENSIS 'GRACILLIMUS' GRACILLIMUS MAIDEN GRASS 5' TALL, 3' SPREAD, VASE SHAPE ORNAMENTAL GRASS	1 GALLON
PERENNIALS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	DIC SPE	10	DICENTRA SPECTABILIS BLEEDING HEART 2' TALL, 2.5' SPREAD, PINK SUMMER FLOWERS	1 GALLON
	ECH MAG	39	ECHINACEA PURPUREA 'MAGNUS' MAGNUS PURPLE CONEFLOWER 3 FT. TALL, 2 FT. SPREAD, PURPLE SUMMER FLOWER.	1 GALLON
	HOS AL3	44	HOSTA FORTUNEI 'ALBO-MARGINATA' PLANTAIN LILY 1.5' TALL, 1.5' SPREAD, VARIEGATED WHITE AND GREEN FOLIAGE.	1 GALLON
	LAV MUN	26	LAVANDULA ANGUSTIFOLIA 'MUNSTEAD' MUNSTEAD ENGLISH LAVENDER 2 FT. TALL, 2 FT. SPREAD, BLUE PURPLE SUMMER FLOWERS.	1 GALLON
	RUD G19	52	RUDBECKIA FULGIDA 'GOLDSTRUM' GOLDSTRUM BLACK-EYED SUSAN 2.5 FT. TALL, 2 FT. SPREAD, GOLD SUMMER FLOWERS	1 GALLON
	SED NE5	48	SEDUM X 'NEON' NEON SEDUM 2' TALL, 2' SPREAD, BRIGHT PINK FALL FLOWERS	1 GALLON
GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	CONT
	SOD	10,362 SF	TURF SOD DROUGHT-TOLERANT KENTUCKY BLUEGRASS MIX SOD AS IS LOCALLY AVAILABLE. INSTALL SOD WITH TIGHT JOINTS, AND ROLL.	-

PLANTING PLAN & LEGEND:



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GRAND JUNCTION HOUSING AUTHORITY
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01.10.20	ASI-01

L-2

PLANTING PLAN

GREEN COMMUNITIES NOTES:

LANDSCAPE:

1. ALL PLANTS SPECIFIED ARE NATIVE OR ADAPTED PLANTS AND DO WELL IN THE GRAND JUNCTION AREA. ALL NEW PLANTS ARE APPROPRIATE TO THE SITE'S SOIL AND MICROCLIMATE, AND NONE ARE INVASIVE SPECIES. ALL DISTURBED AREAS ARE LANDSCAPED AND/OR XERISCAPED.

2. TURF AREAS HAVE BEEN MINIMIZED EXCEPT IN ANTICIPATED HIGH USE ACTIVE AREAS IN CENTRAL COURTYARD, AND NEAR WEST BUILDING ENTRY.

3. THE USE OF ORGANIC AND NONTOXIC FERTILIZERS, PESTICIDES, HERBICIDES, FUNGICIDES, AND PRE-EMERGENT HERBICIDES IS RECOMMENDED AND ENCOURAGED.

4. WALKING PATHS AND SEATING AREAS HAVE BEEN DESIGNED IN PEDESTRIAN ACTIVITY AREAS.

5. IT IS NOT ANTICIPATED THAT THERE ARE ANY EXISTING INVASIVE PLANT SPECIES LOCATED AT THE SITE. IF THERE ARE, THEY SHALL BE REMOVED PRIOR TO CONSTRUCTION.

6. VISUALLY APPEALING ENVIRONMENTS ALONG PATHS OF TRAVEL, AND VISUALLY INTERESTING LANDSCAPING WITH A VARIETY OF COLORS, TEXTURES, AND FLOWERING TIMES HAVE BEEN INCORPORATED INTO THE DESIGN AND PLANT PALETTE.

7. MATURE PLANT HEIGHTS AND SIZES HAVE BEEN CONSIDERED FOR PLACEMENT THROUGHOUT THE LANDSCAPE AND HAVE BEEN DESIGNED TO FACILITATE A SAFE AND SECURE ENVIRONMENT.

8. TURF HAS BEEN LIMITED TO HIGH USE AREAS IN THE COURTYARD, AND A SMALL AREA ALONG THE ENTRY DRIVE WEST OF THE BUILDING.

9. OPEN SPACE AREAS COMPRISE OF 39% OF THE TOTAL SITE.

IRRIGATION: (SEE THE IRRIGATION PLANS) AN EFFICIENT WATER IRRIGATION SYSTEM WILL BE INSTALLED AT THE SITE AND INCLUDES:

- SEPARATELY ZONED TURF AND SHRUB BED AREAS, BASED ON WATER NEEDS OF TURF AND SHRUB BEDS
- AN AUTOMATIC CONTROLLER THAT ACTIVATES THE VALVES FOR EACH WATERING ZONE AT THE BEST TIME OF DAY TO MINIMIZE EVAPORATIVE LOSSES WHILE MAINTAINING HEALTHY PLANTS AND OBEYING LOCAL REGULATION AND WATER-USE GUIDANCE.
- A MOISTURE SENSOR CONTROLLER OR RAIN DELAY CONTROLLER

2. THE IRRIGATION SYSTEM HAS BEEN DESIGNED, AND WILL BE INSTALLED WITH EFFICIENT IRRIGATION EQUIPMENT AND INCLUDES A WATERSENSE-LABELED WEATHER-BASED IRRIGATION CONTROLLER.

LANDSCAPE NOTES:

1. INSTALL A NEW AUTOMATIC UNDERGROUND IRRIGATION SYSTEM FOR THE NEW LANDSCAPE. TIE INTO THE EXISTING DITCH WATER IRRIGATION SUPPLY LINE NEAR THE IRRIGATION STRUCTURE LOCATED ON THE SOUTH SIDE OF THE SIDE. LOCATE THE NEW PUMP STATION WHERE SHOWN AT THE WEST SIDE OF THE BUILDING. TURF GRASS AREAS REQUIRE POP-UP SPRAY OR ROTATOR HEADS. ALL TREES, SHRUBS, ORNAMENTAL GRASS, AND PERENNIALS REQUIRE BUBBLER IRRIGATION TO EACH PLANT. A WATER SENSE IRRIGATION CONTROLLER IS REQUIRED AND SHALL BE LOCATED IN THE MECHANICAL ROOM. SEE THE IRRIGATION PLANS.

2. EXISTING TOPSOIL SHALL BE SALVAGED AND STOCKPILED FOR USE AS TOPSOIL IN ALL AREAS TO BE LANDSCAPED. NO TOPSOIL SHALL BE REMOVED FROM THE SITE. ALL TOPSOIL SHALL BE AMENDED. RECOMMENDED TOPSOIL DEPTH TO BE 18" DEEP.

3. WHEN INSTALLING PLANT MATERIAL, PLANT MIX SHALL BE COMPRISED OF 1 PART SOIL AMENDMENTS (DECOMPOSED BARK MULCH OR "MESA MAGIC" SOIL AMENDMENT PRODUCT) TO 2 PARTS TOPSOIL. OVER EXCAVATE THE PLANTING HOLES TWO TIMES THE DIAMETER OF THE ROOTBALL. FILL WITH PLANT MIX. ROOTING HORMONE SUCH AS INDOL 3 BUTERIC ACID SHALL BE USED FOR ALL TREES & SHRUBS.

4. PLANT MATERIAL WAS CHOSEN FOR ITS SPECIFIC VARIETY, HEIGHT, AND COLOR. ANY PLANT MATERIAL SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.

5. ALL STONE MULCH SHRUB BEDS SHALL BE INSTALLED WITH WEED BARRIER FABRIC AND TOPDRESSED WITH A MINIMUM OF THREE INCHES OF SPECIFIED MULCH THROUGHOUT. HOWEVER, NO FABRIC SHALL BE USED IN PERENNIAL BED AREAS, TYPICAL.

6. LOCATE AND MARK LOCATIONS OF ALL UTILITIES PRIOR TO INSTALLING PLANT MATERIAL. DO NOT PLANT ANY TREES OR SHRUBS DIRECTLY OVER BURIED UTILITY LINES,

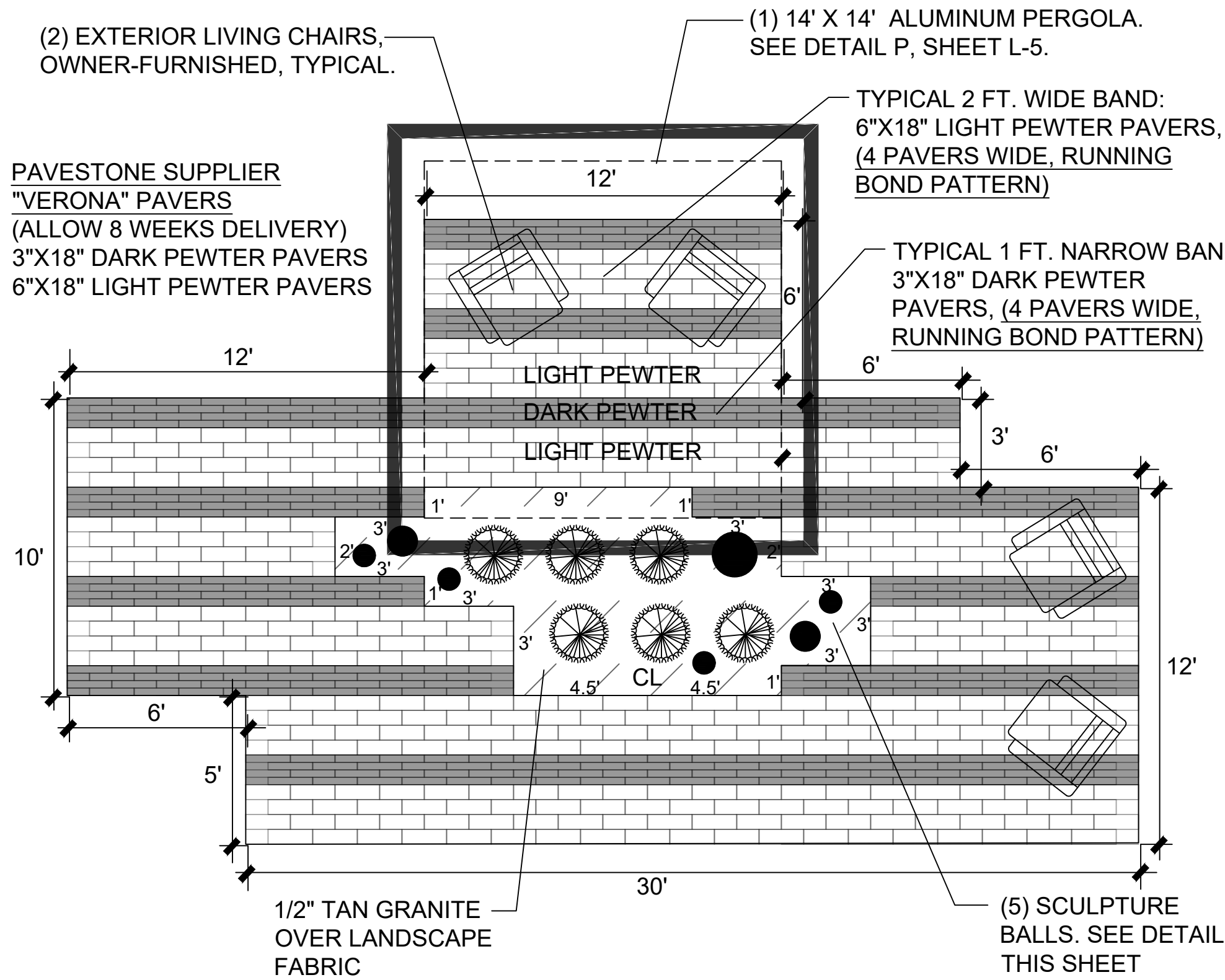
7. STONE MULCH SHRUB BEDS SHALL HAVE "DEWITT PRO 5" WEED BARRIER FABRIC OR APPROVED EQUAL INSTALLED UNDER MULCH UNLESS NOTED OTHERWISE - OVERLAP SEAMS MIN. 4" AND ATTACH FABRIC IN PLACE WITH 8" LONG STAPLES AT MAX. 4' O.C. (BARK MULCH SHRUB BEDS = NO LANDSCAPE FABRIC).

8. THE TURF GRASS AREAS SHALL BE PREPARED BY ROTOTILLING IN 4 CY/1,000 SF OF SOIL AMENDMENTS INTO THE TOP 6" AND FINE GRADE. NO CLODS TO BE GREATER THAN 2" SIZE. INSTALL SOD & ROLL GRASS PER THE SUPPLIERS RECOMMENDATIONS.

9. WHEN PLANTING TREES OR SHRUBS: THOROUGHLY SOAK PLANTING HOLE WHILE BACKFILLING. PRUNE DEAD OR DAMAGED BRANCHES IMMEDIATELY AFTER PLANTING. FERTILIZE WITH AGRIFORM 21 GRAM PLANT TABLETS, 20-10-5. 6 TABLETS PER TREE, 3 PER SHRUB, & 1 PER PERENNIAL.

10. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARDS FOR NURSERY STOCK, CURRENT EDITION. PLANTING SHALL BE DONE IN CONFORMANCE WITH THE ASSOCIATED LANDSCAPE CONTRACTORS OF COLORADO (A.L.C.C.) SPECIFICATIONS. THE CONTRACTOR SHALL GUARANTEE IRRIGATION SYSTEM AND ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE. ANY DEAD OR DYING PLANT SHALL BE REPLACED DURING THE ONE-YEAR GUARANTEE PERIOD. THE CONTRACTOR SHALL WINTERIZE IRRIGATION SYSTEM IN FALL AND PROVIDE SPRING START-UP DURING ONE-YEAR WARRANTY PERIOD.

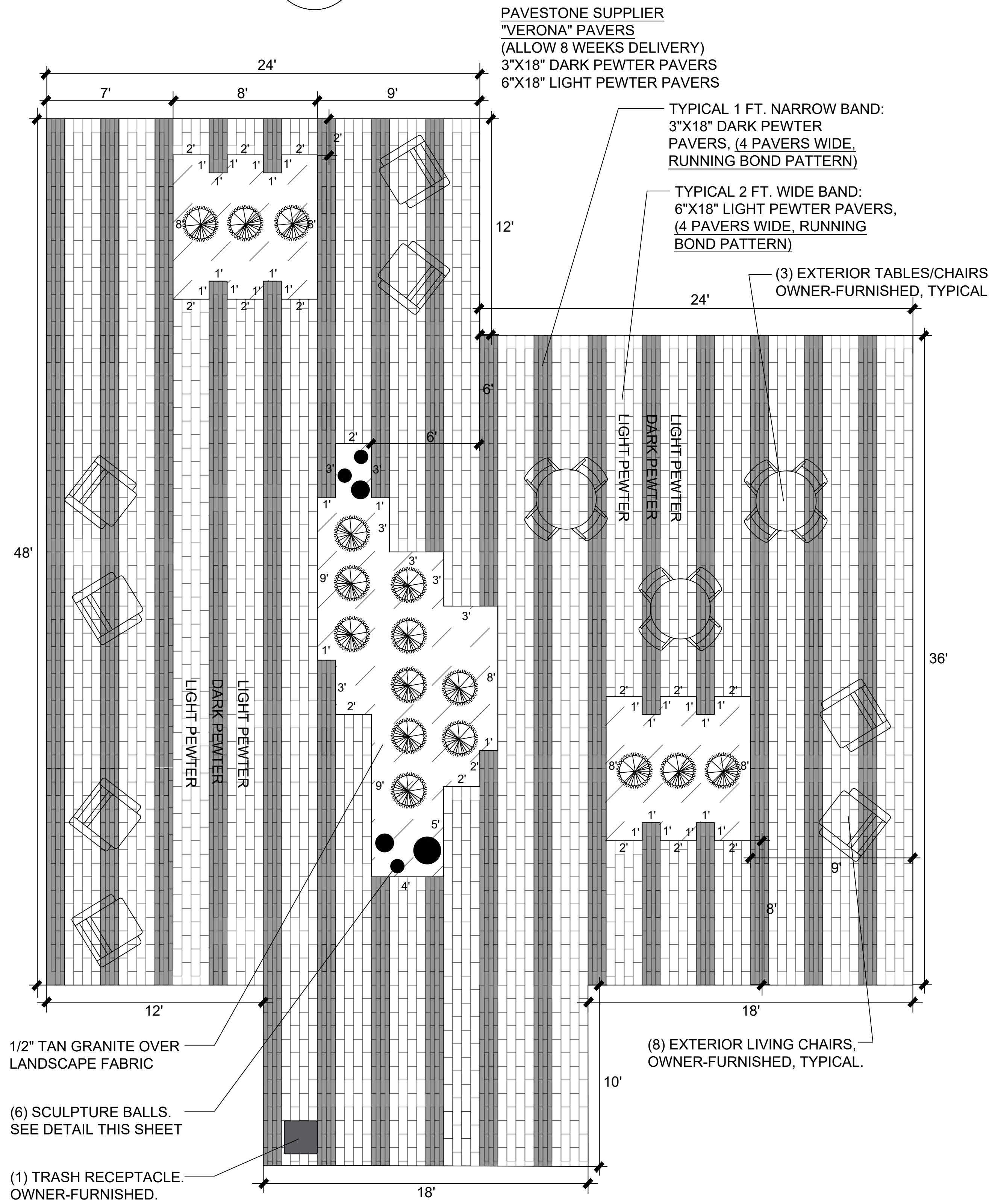
11. LANDSCAPE MAINTENANCE: ALL PLANTS SHALL BE MAINTAINED CONTINUALLY IN A HEALTHY CONDITION IN ACCORDANCE WITH GENERALLY ACCEPTED PROFESSIONAL HORTICULTURAL STANDARDS AND PRACTICES. PLANTS THAT DIE OR ARE UNHEALTHY SHALL BE REPLACED. REGULAR PRUNING AND TRIMMING SHALL APPLY TO MAINTAIN HEALTH AND AN ATTRACTIVE APPEARANCE AND TO PERMIT THE PLANTS TO ACHIEVE THEIR INTENDED FORM AND HEIGHT. LANDSCAPE AREAS SHALL REMAIN FREE OF WEEDS, LITTER, JUNK, RUBBISH AND OTHER NUISANCES AND OBSTRUCTION. TO PREVENT WEED GROWTH, EROSION, AND BLOWING DUST, AREAS NOT COVERED BY VEGETATION SHALL BE COVERED WITH STONE MULCH TO PROVIDE A CLEAN, UNIFORM APPEARANCE.



Q
L-3

PAVER LAYOUT AT ZEN GARDEN

SCALE: 1" = 4'-0"



S
L-3

COURTYARD PLAZA ENLARGEMENT

SCALE: 1" = 4'-0"

STAINLESS STEEL GAZING BALLS:
"LILY'S HOME GAZING GLOBE
MIRROR BALL", AVAILABLE VIA
AMAZON.COM

BALL SIZES FOR PROJECT:
(3) 12" DIAMETER
(4) 10" DIAMETER
(4) 8" DIAMETER



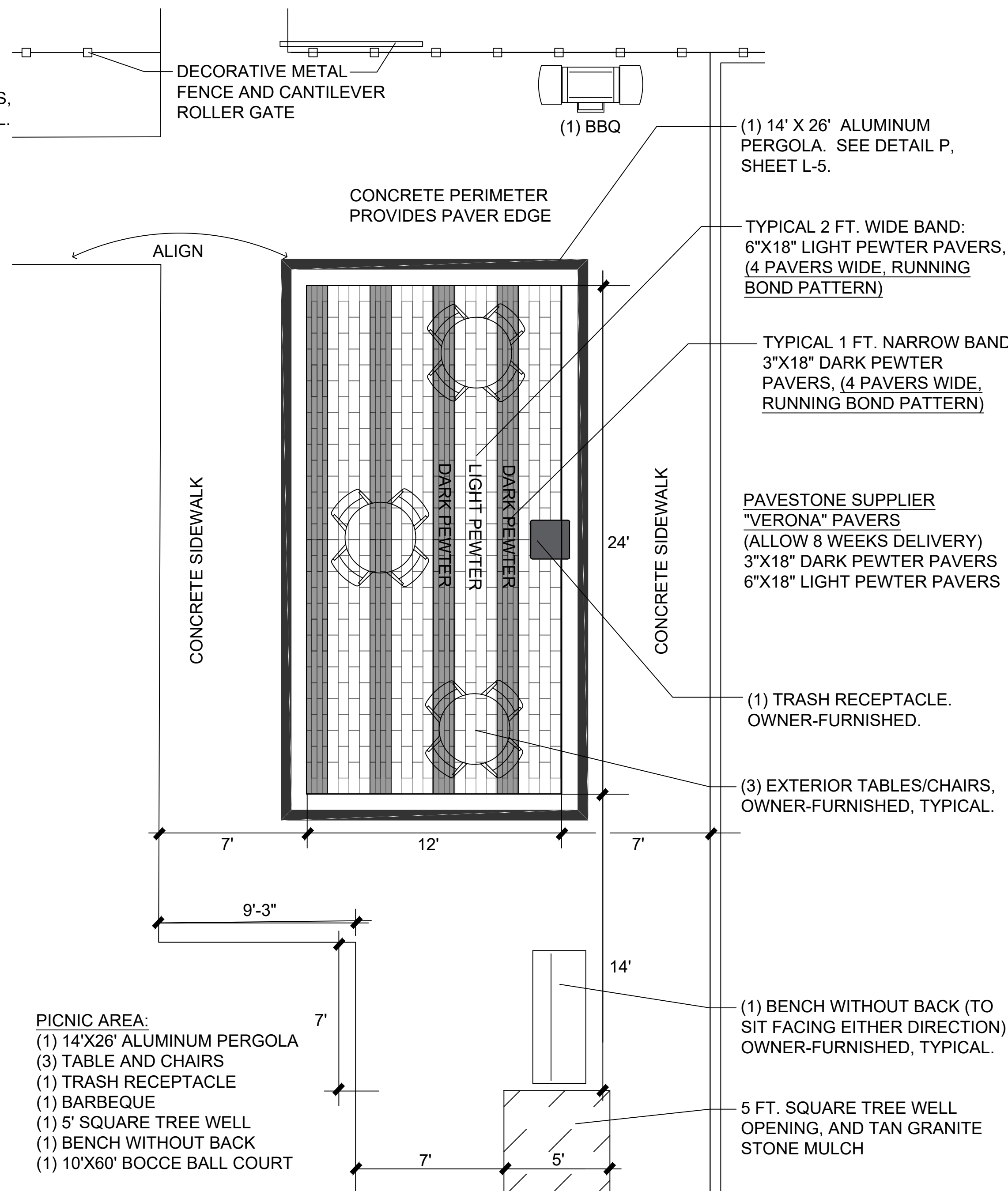
CONTRACTOR TO PROVIDE BALLS AND SECURELY INSTALL FLUSH WITH GROUND. DRILL OR THREAD BALL WITH A STAINLESS STEEL BASE AND SPIKE TO SECURE BALL INTO CONCRETE FOOTING 6" DIA X 18" DEEP IN SUBGRADE.

R
L-3

SCULPTURE BALLS

EXAMPLE PHOTO

NOT TO SCALE



T
L-3

PAVERS AT PICNIC PAVILION

SCALE: 1" = 4'-0"

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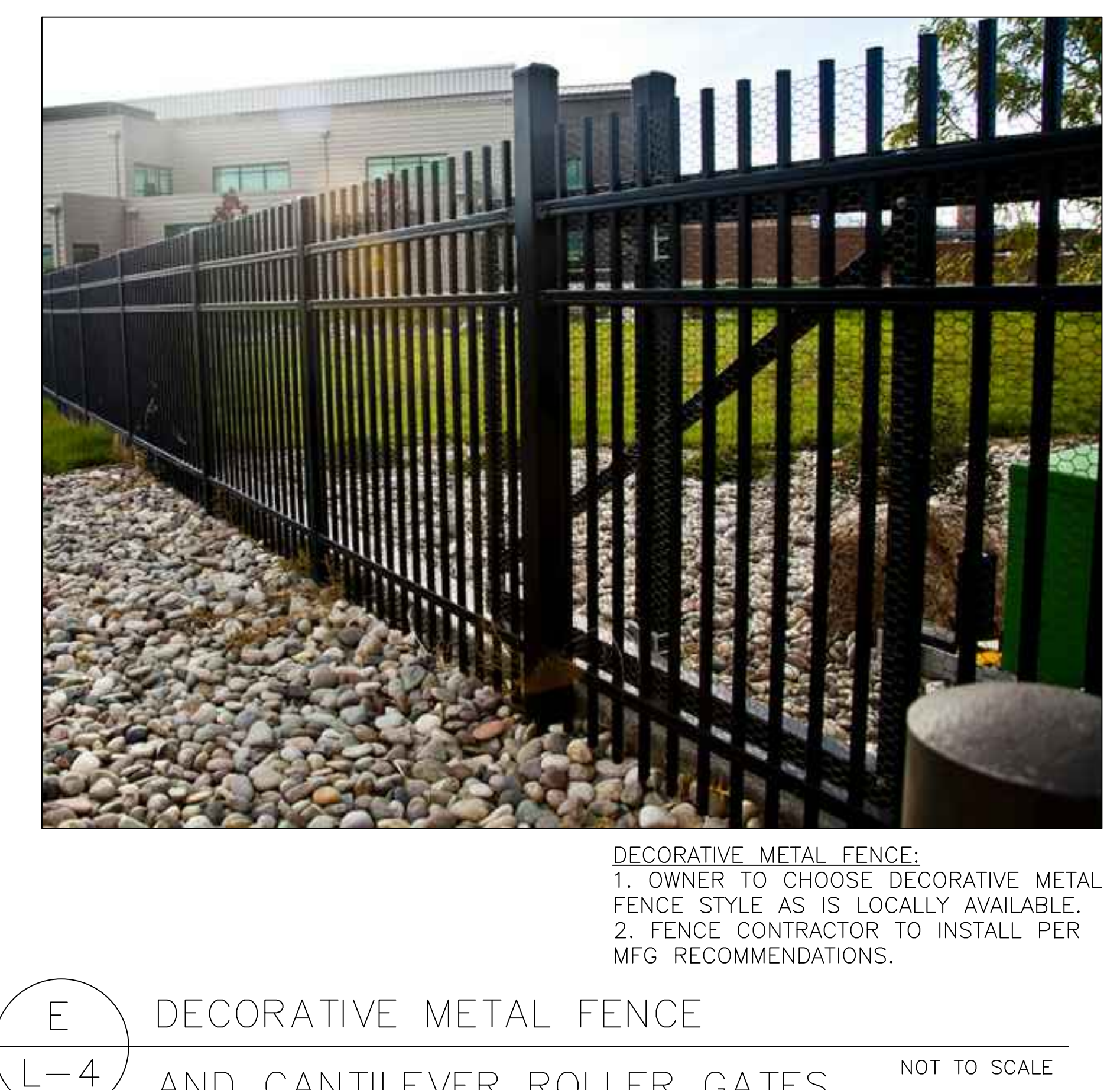
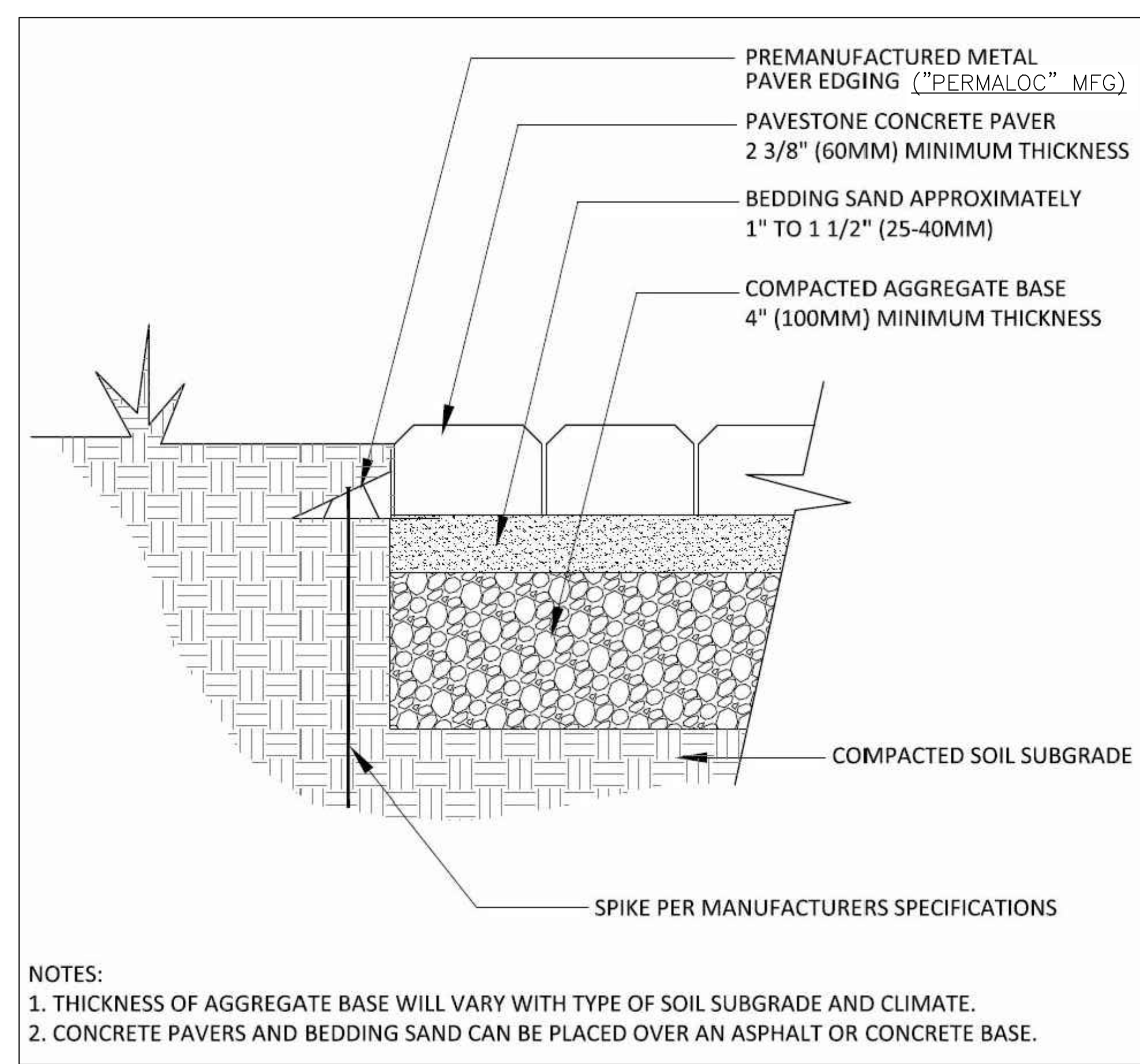
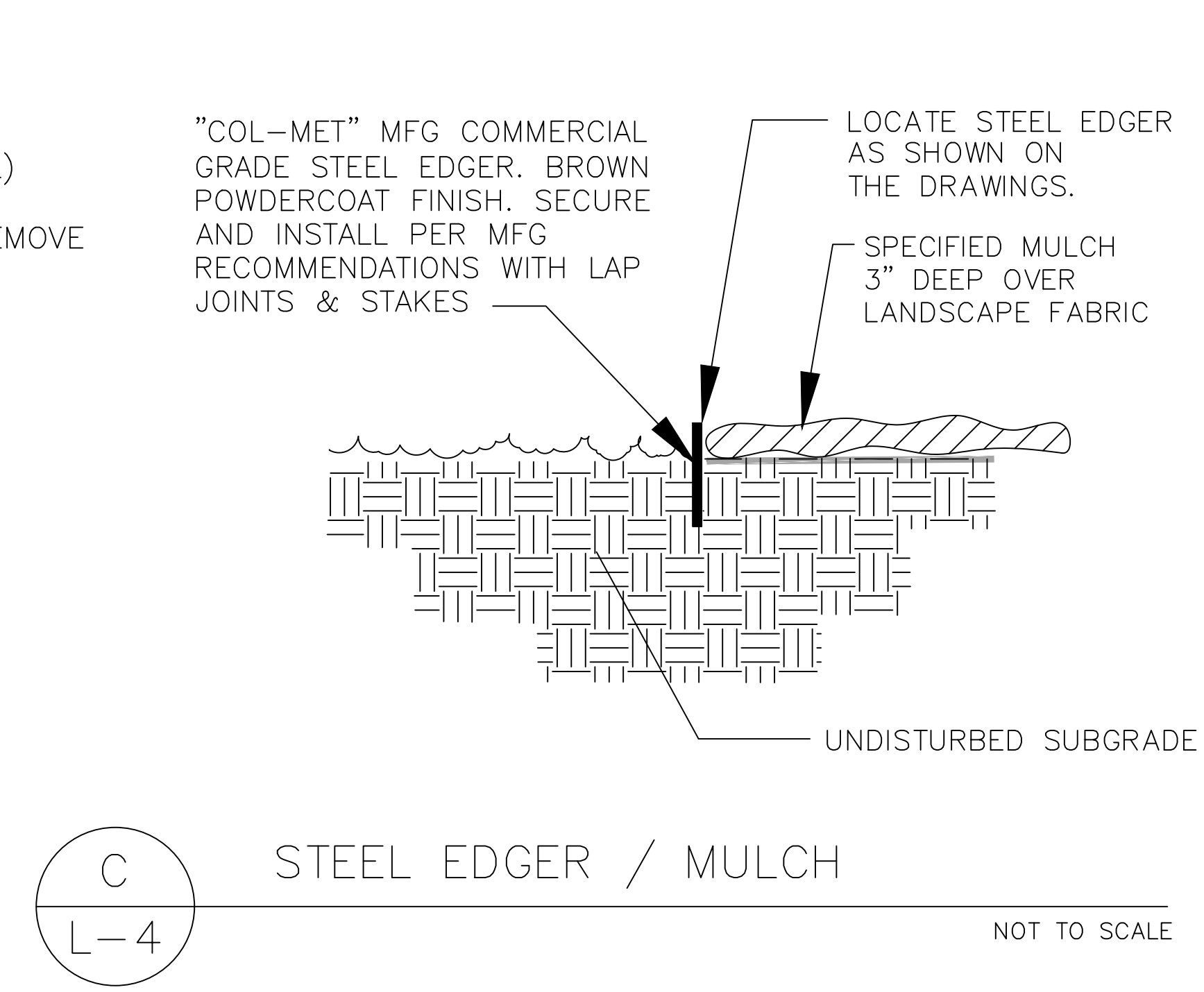
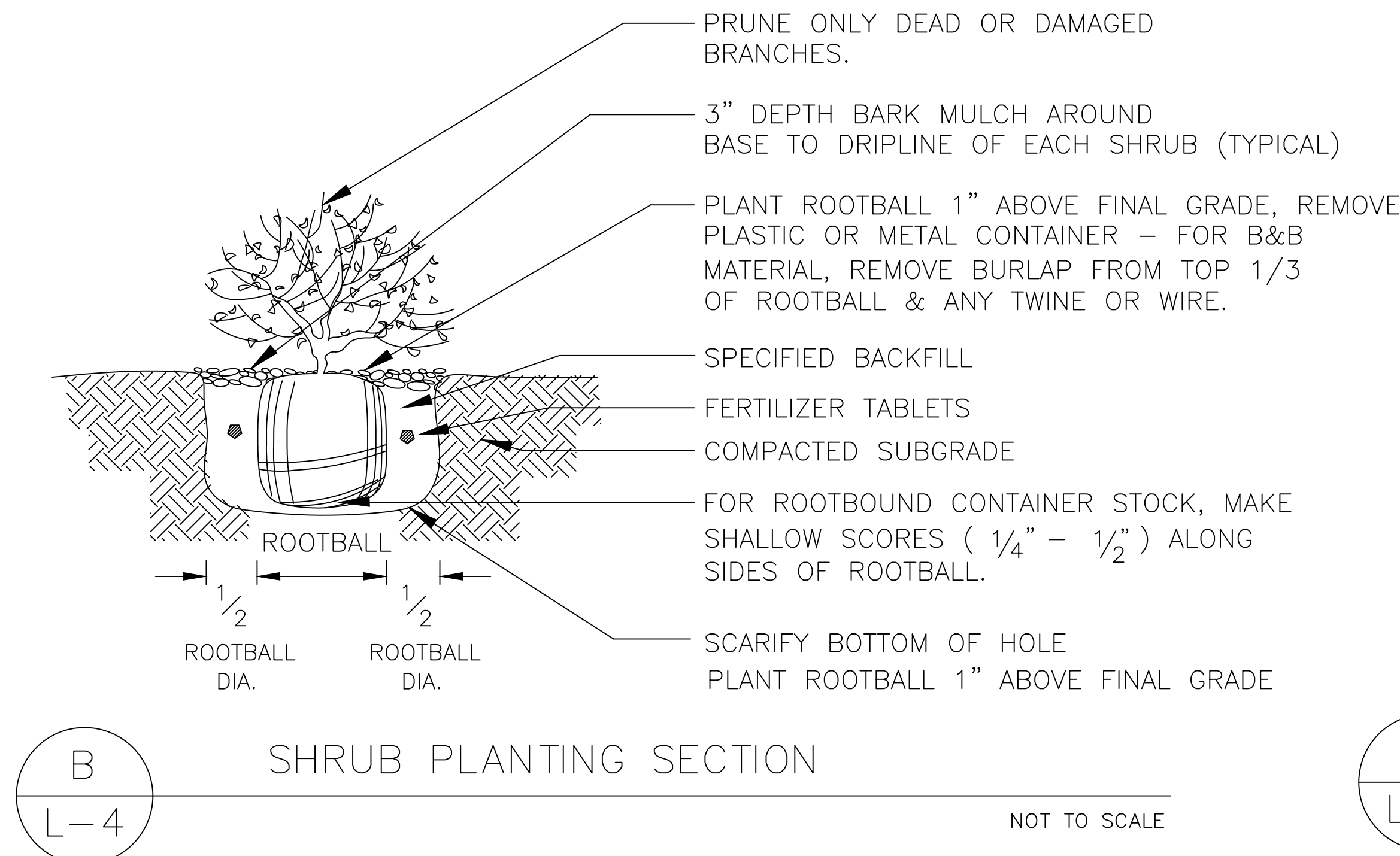
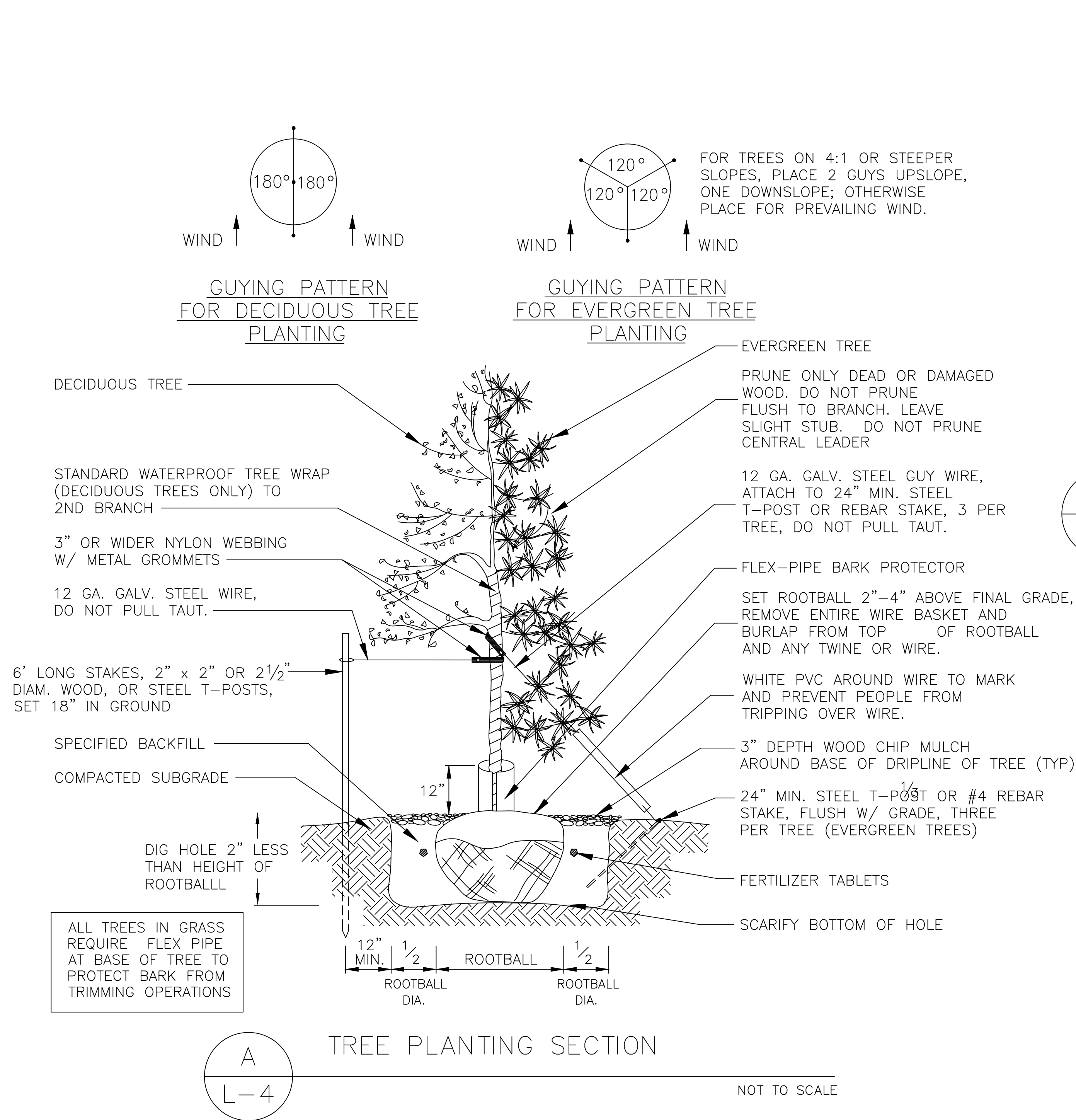


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L-3

LANDSCAPE
DETAILS



Verona™

PAVESTONE MFG "VERONA" PAVERS 2 FT. WIDE LIGHT PEWTER COLOR BANDS OF 6"x18" PAVERS IN RUNNING BOND PATTERN SEPARATED BY 1 FT. WIDE BAND OF SOLID DARK PEWTER 3"x18" PAVERS IN RUNNING BOND PATTERN. SEE THE DRAWING ENLARGEMENTS ON SHEET L-3.

Products

LIGHT PEWTER

Verona™ 8x18 8cm

Verona™ 6x18 8cm

Verona™ 4x8 8cm

Verona™ 3x18 8cm

Verona™ 9x18 8cm

Verona™ 18x18 8cm

Verona™ 3x18 10cm

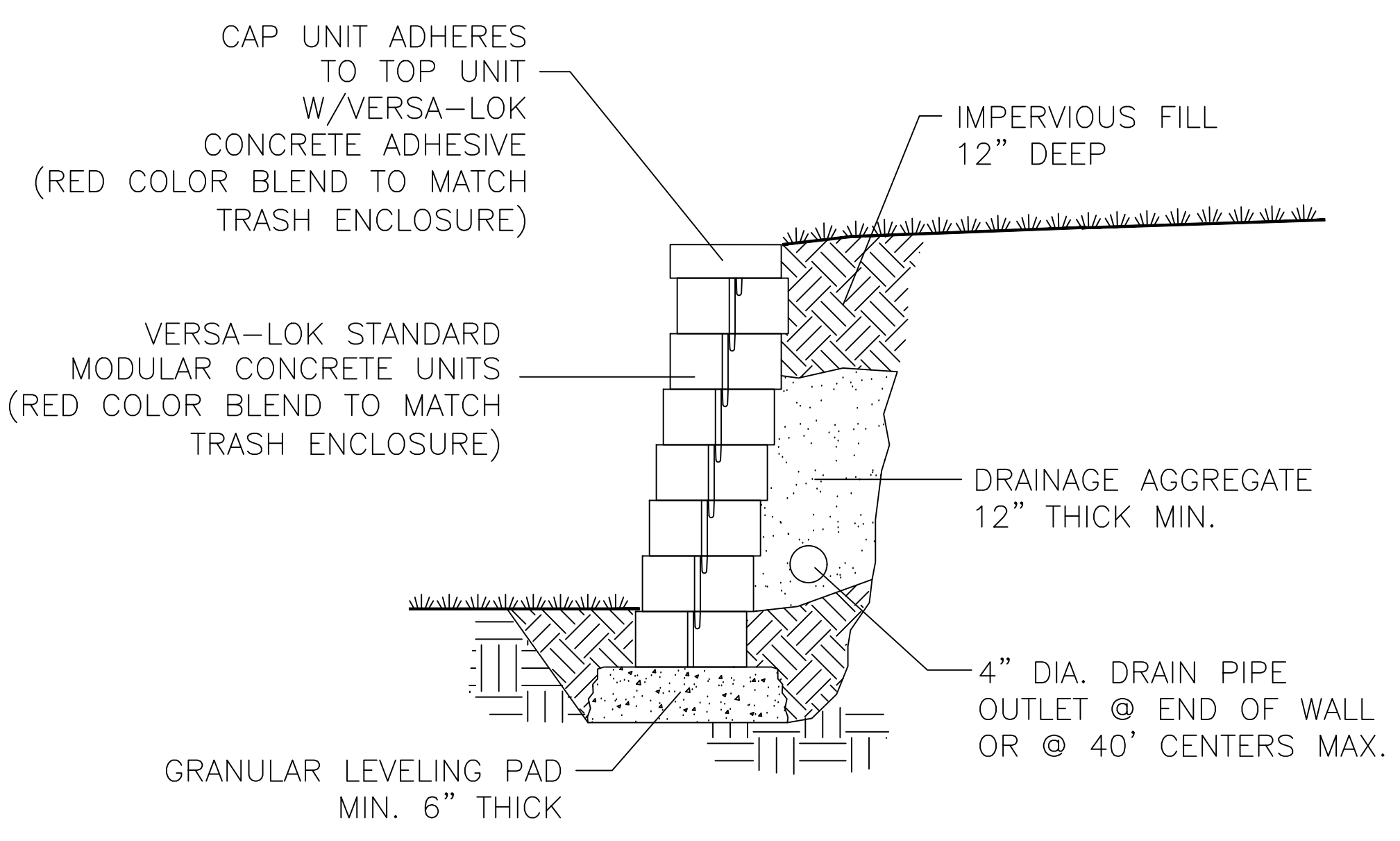
Verona™ 5x24 10cm

DARK PEWTER

F EXTERIOR PAVERS - PAVESTONE "VERONA"

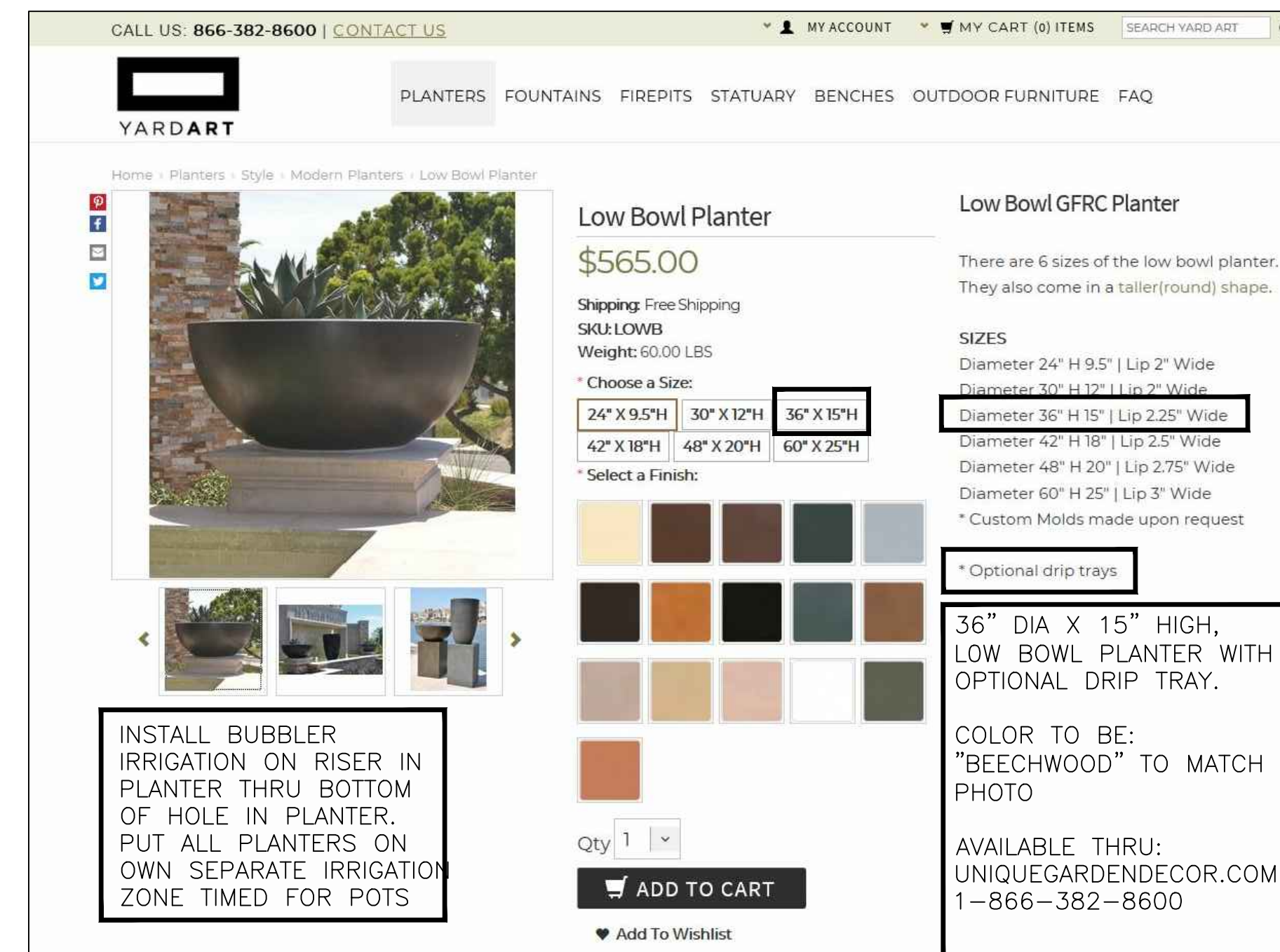
L-4

NOT TO SCALE NOT TO SCALE



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LANDSCAPE DETAILS:



1 LARGE BOWL PLANTER

L-5

NOT TO SCALE



ANOVA MFG
AVAILABLE THRU "A TO Z" RECREATION
970-819-8926,
JOSH@ATOZRECREATION.COM

MADISON 6 FT. BENCH:

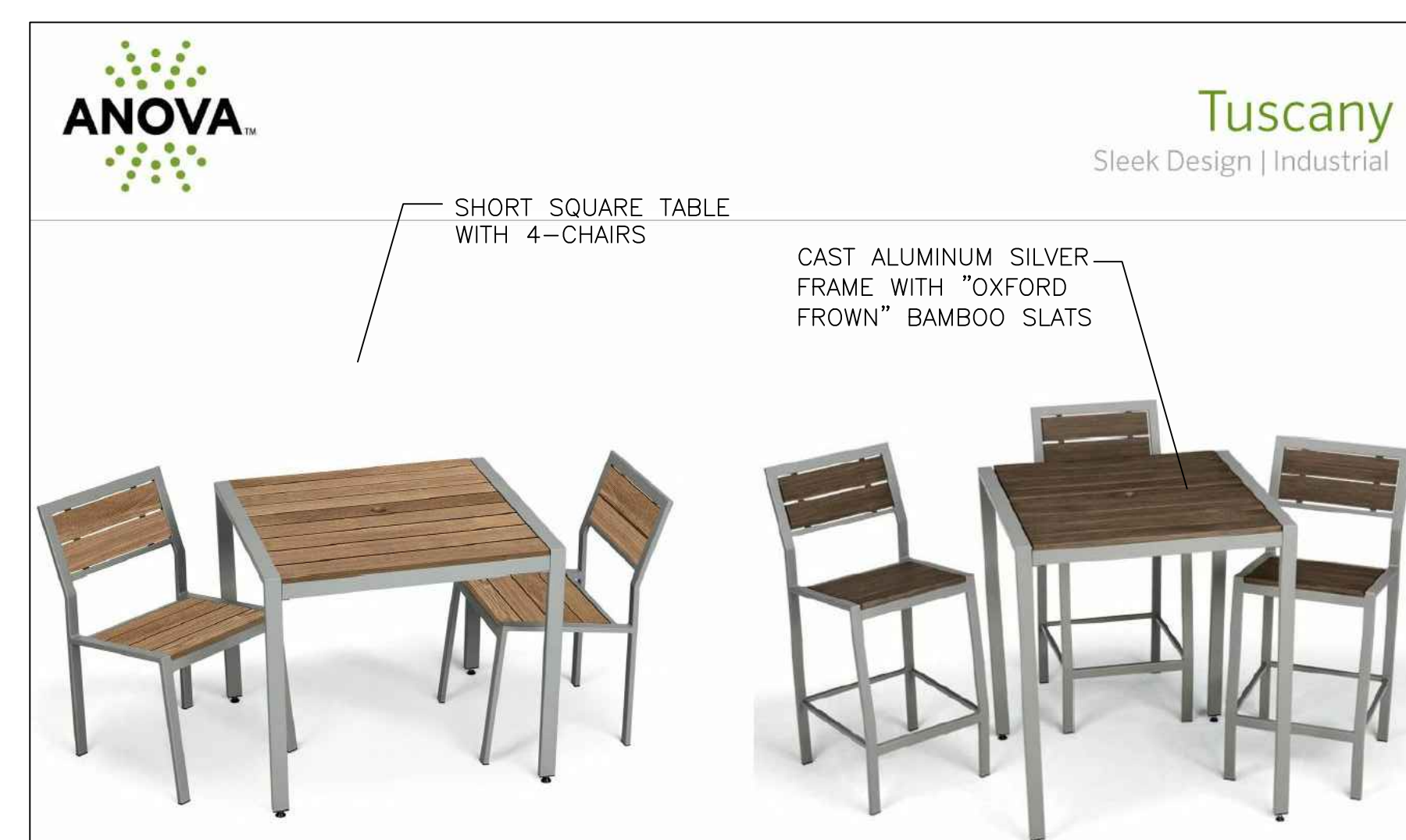
- CAST ALUMINUM SILVER FRAME
- "OXFORD BROWN" BAMBOO SLATS
- SURFACE MOUNT

BEACON HILL SQUARE
TRASH RECEPTACLE:

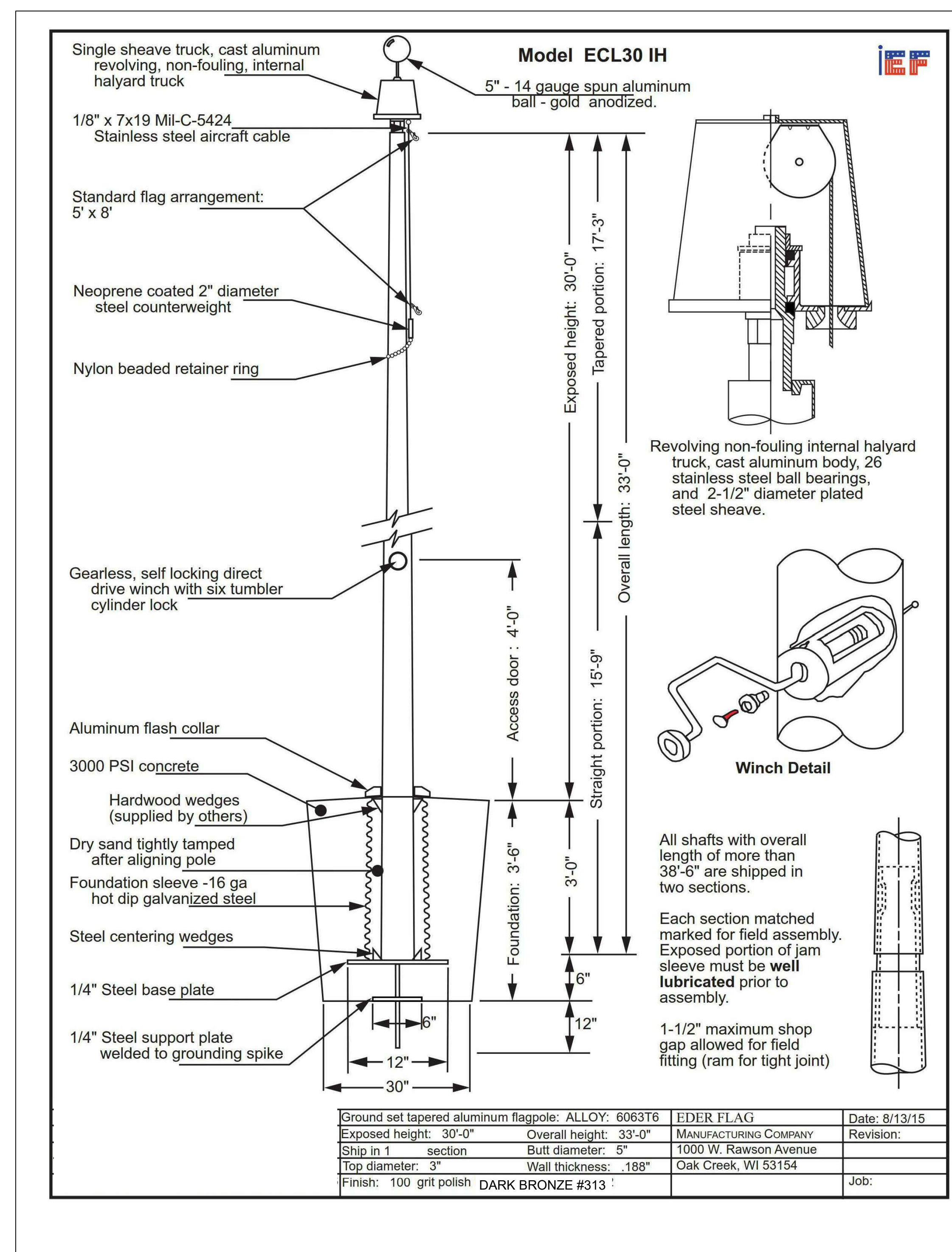
- CAST ALUMINUM SILVER FRAME
- "OXFORD BROWN" BAMBOO SLATS

CONTRACTOR TO PROVIDE SHOP
DRAWINGS FOR APPROVAL. INSTALL
PER MFG RECOMMENDATIONS.


 SITE FURNITURE – PER MFG. RECOMMENDATIONS.
 BENCHES & TRASH RECEPTACLES EXAMPLE PHOTOS



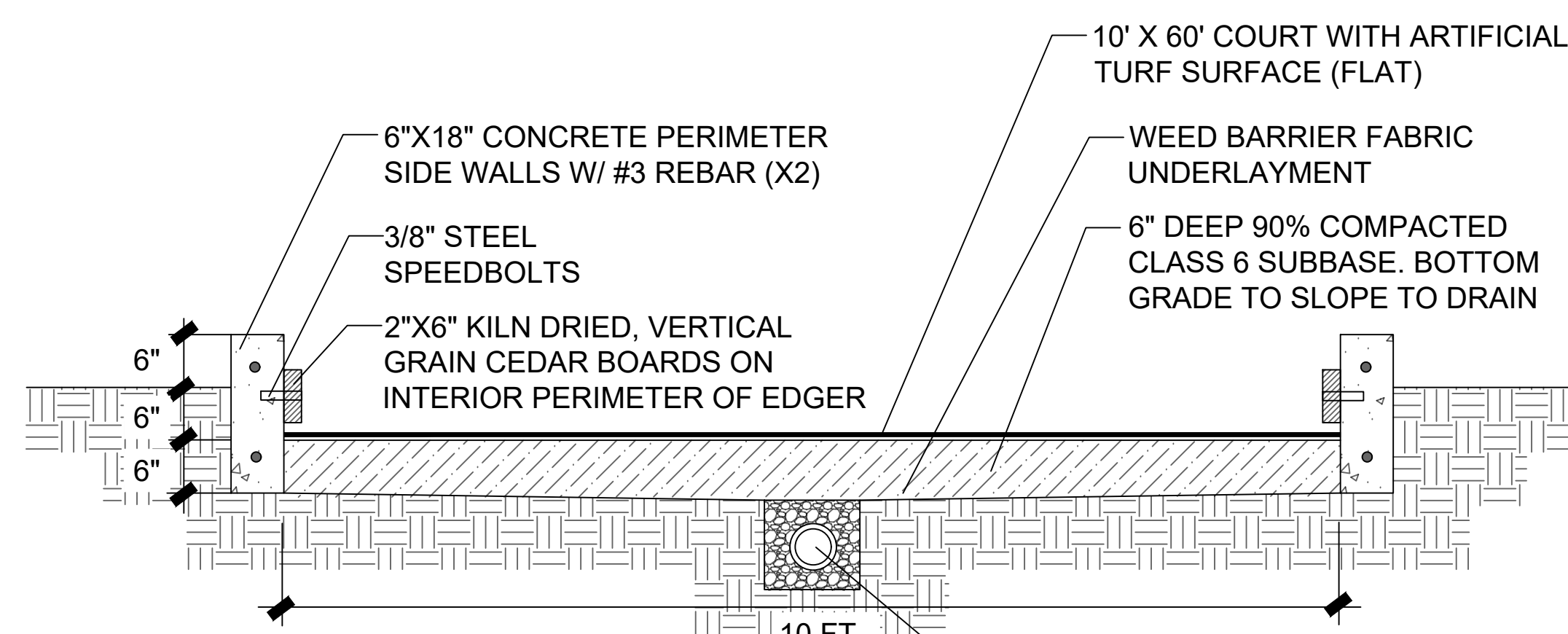

 SITE FURNITURE—TABLE & CHAIRS
 EXAMPLE PHOTO
 NOT TO SCALE



J
L-5

30 FT. INTERNAL HALYARD. FLAGPOLE

NOT TO SCALE



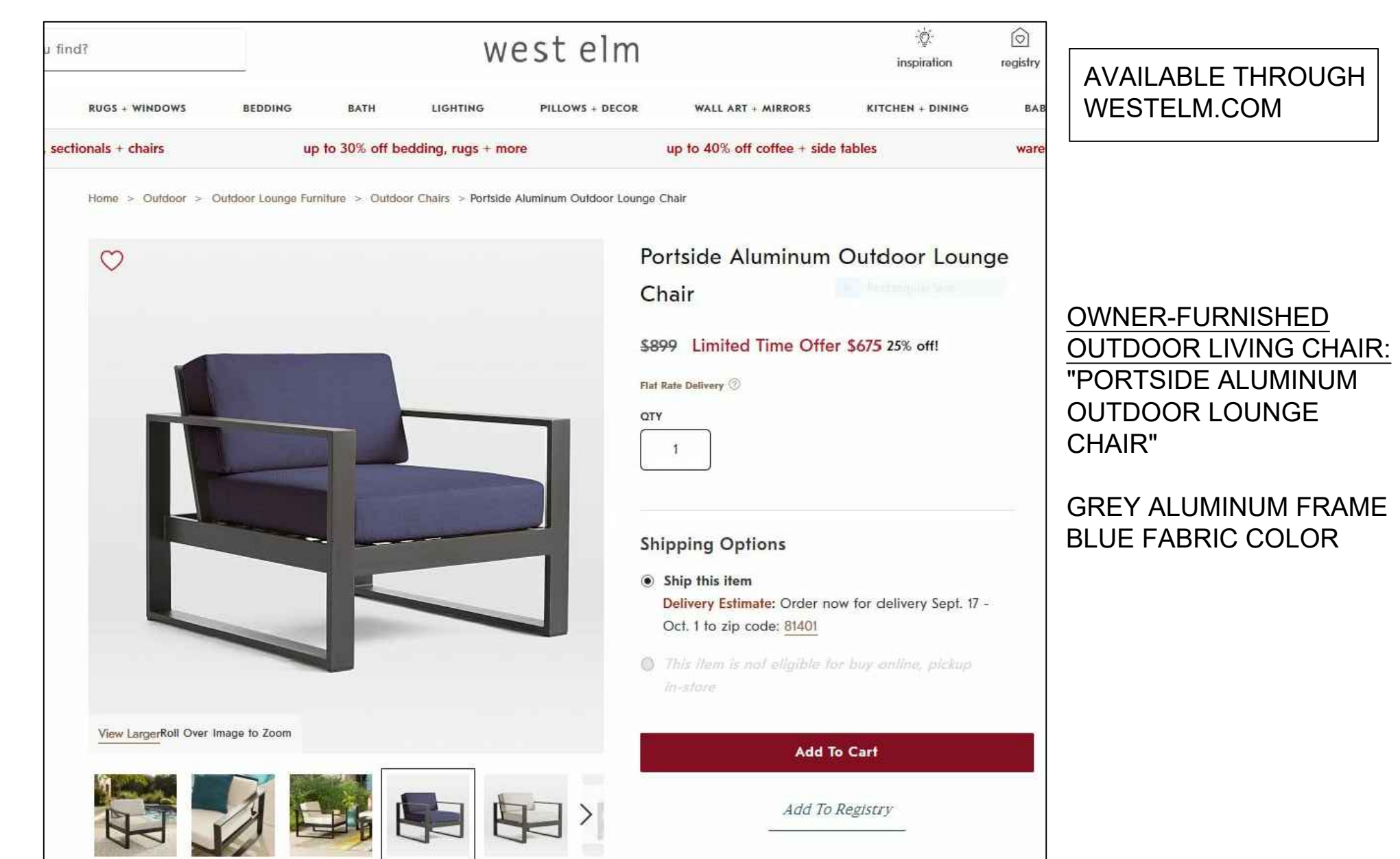
ARTIFICIAL TURF:

- 1. AS MUCH AS POSSIBLE, TURF SHALL BE ONE CONTINUOUS PIECE, 10' WIDE X 60' LONG - AVOID SEAMS.
- 2. INSTALL PER MFG RECOMMENDATIONS INCLUDING:
 - A. COMPACT SUBBASE SURFACE LEVEL TO 90%.
 - B. INSTALL WEED BARRIER FABRIC ON TOP OF SUBBASE.
 - C. LAY FLAT AND ACCLIMATE TURF.
 - D. TRIM TURF TIGHT TO EDGER
 - E. SECURE W/ 60D NAILS SPACED AT 4" APART ALONG EDGES.
 - SECURE 18" O.C. THROUGHOUT FIELD.
 - F. TURF GRAIN TO FACE SAME DIRECTION THROUGHOUT COURT. ALL SEAMS TO BE FLUSH AND TAPED FLAT. SEAMS ONLY ALLOWED PERPENDICULAR TO COURT.
 - G. INFILL TURF WITH APPROVED SAND. PLACE WITH DROP-SPREADER. POWER BROOM. BLADES STAND ON END.

0
L-5

10' X 60' BOCC BALL COURT - SECTION

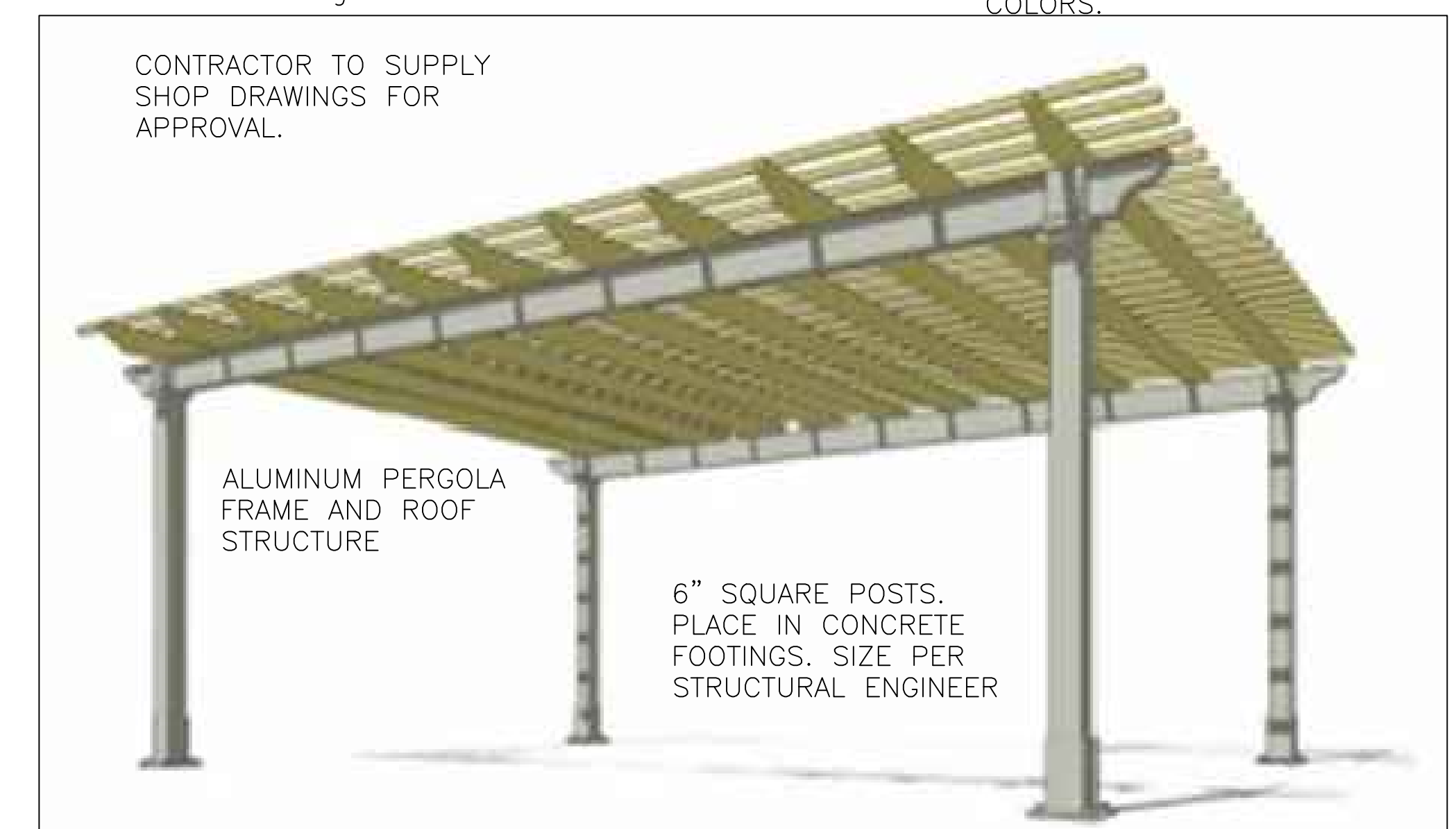
NOT TO SCALE




 SITE FURNITURE – OUTDOOR LIVING CHAIR
 EXAMPLE PHOTO NOT TO SCALE

LOCALLY AVAILABLE THRU
MOR STORAGE
970-254-0460
www.morstorage.com

ARCHITECT TO CHOOSE
COLORS TO MATCH OR
COMPLEMENT BUILDING
COLORS.

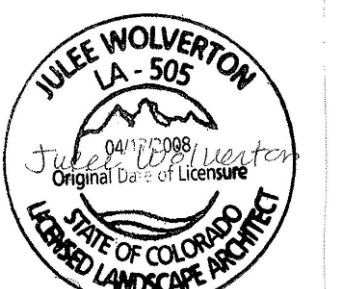


14 FT. X 26 FT. ALUMINUM PERGOLA

Julee Wolverton,
Landscape Architect



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-5

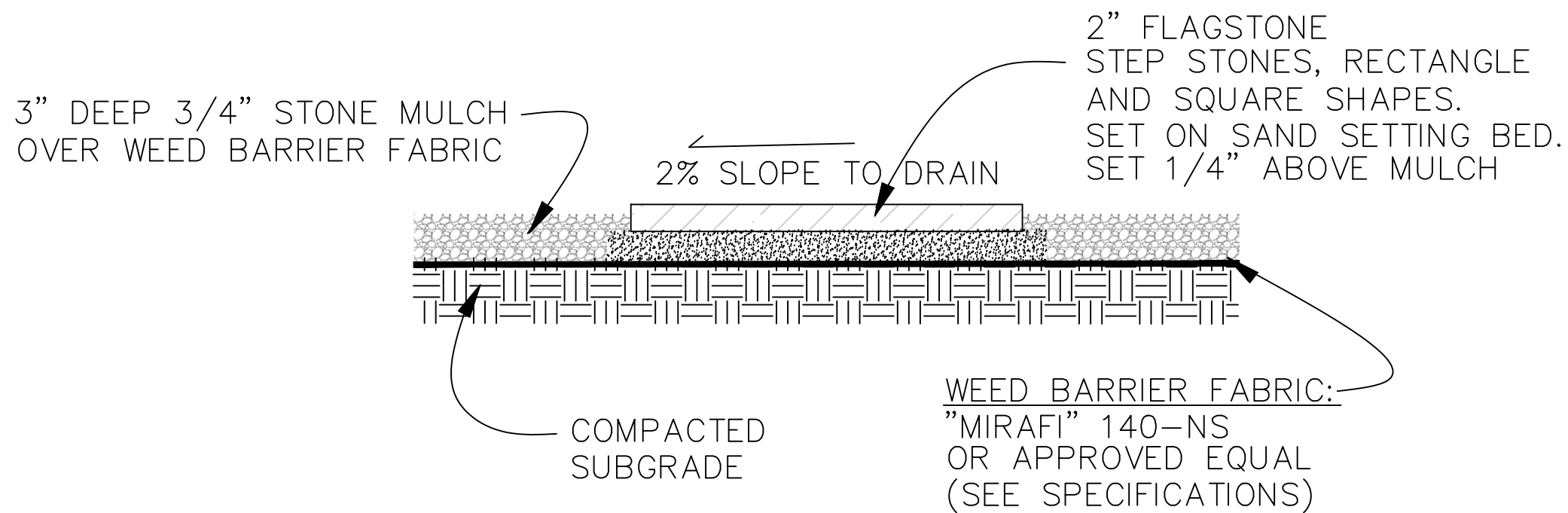
LANDSCAPE
DETAILS



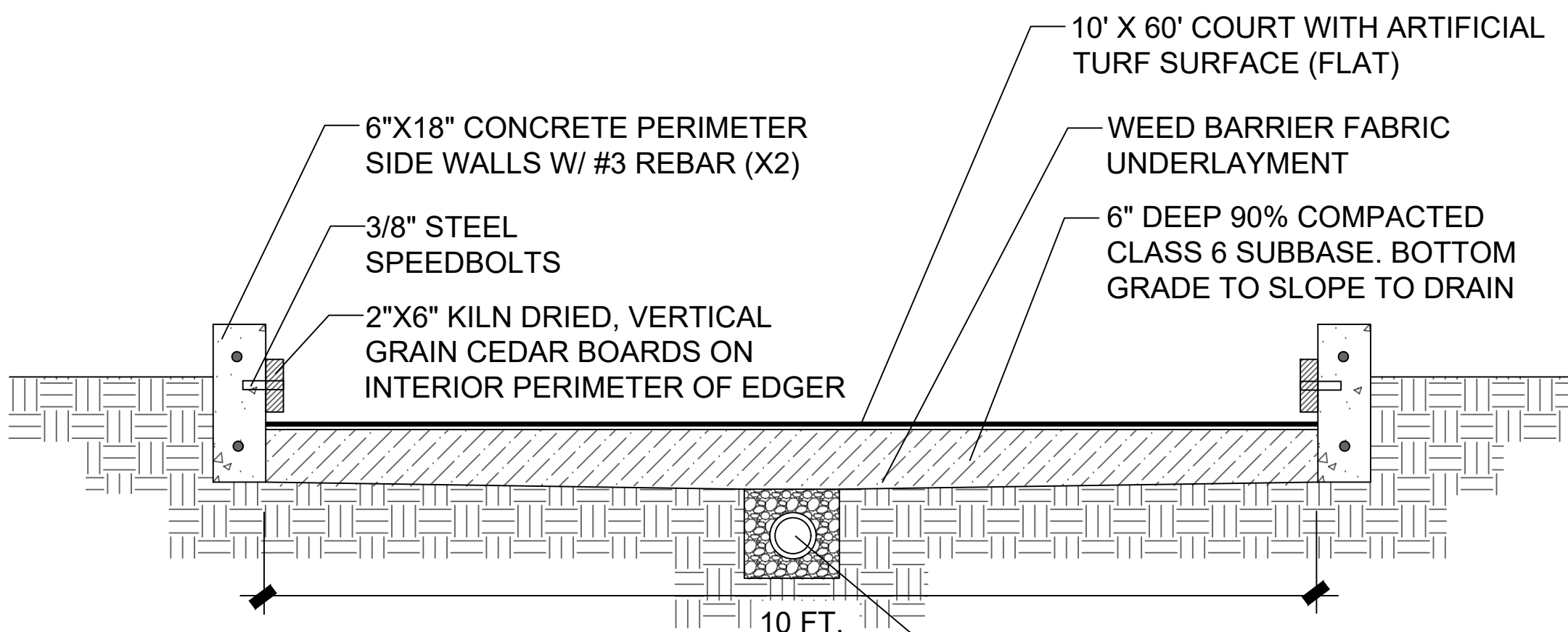
2"x18"x18" SQUARE RED
FLAGSTONE STEPPING
STONE. INSTALL PER
DETAIL Q, THIS SHEET.

2"x24"x72" RECTANGLE
BUFF-COLORED
FLAGSTONE STEPPING
STONE. INSTALL PER
DETAIL Q, THIS SHEET.

P STEPPING STONES – EXAMPLE PHOTOS
L-6 DIMENSIONAL FLAGSTONE NOT TO SCALE



Q STEPPING STONES
L-6 SECTION DETAIL NOT TO SCALE



ARTIFICIAL TURF:
1. AS MUCH AS POSSIBLE, TURF SHALL BE ONE CONTINUOUS
PIECE, 10' WIDE X 60' LONG - AVOID SEAMS.
2. INSTALL PER MFG RECOMMENDATIONS INCLUDING:
A. COMPACT SUBBASE SURFACE LEVEL TO 90%.
B. INSTALL WEED BARRIER FABRIC ON TOP OF SUBBASE.
C. LAY FLAT AND ACCLIMATE TURF.
D. TRIM TURF TIGHT TO EDGER
E. SECURE W/ 60D NAILS SPACED AT 4" APART ALONG EDGES.
SECURE 18" O.C. THROUGHOUT FIELD.
F. TURF GRAIN TO FACE SAME DIRECTION THROUGHOUT
COURT. ALL SEAMS TO BE FLUSH AND TAPED FLAT. SEAMS
ONLY ALLOWED PERPENDICULAR TO COURT.
G. INFILL TURF WITH APPROVED SAND. PLACE WITH
DROP-SPREADER. POWER BROOM. BLADES STAND ON END.

12" SQUARE WASHED ROUND
GRAVEL DRAIN TRENCH WITH
4" DIAMETER PERFORATED
DRAIN LINE UNDER COURT.
CONNECT DRAIN LINE TO
STORM DRAIN SYSTEM.

S 10' X 60' BOCCÉ BALL COURT – SECTION
L-6 NOT TO SCALE

Verona™



PAVESTONE MFG
"VERONA" PAVERS
2 FT. WIDE BANDS OF
WHITE & LIGHT GREY
6"x18" PAVERS DIVIDED
BY 1 FT. WIDE BAND OF
SOLID DARK GREY
3"x18" PAVERS. SEE
THE DRAWING
ENLARGEMENTS ON
SHEET L-7.

Products



Verona™ 8x16 8cm



Verona™ 6x18 8cm



Verona™ 4x8 8cm



Verona™ 3x18 8cm



Verona™ 9x18 8cm



Verona™ 18x18 8cm

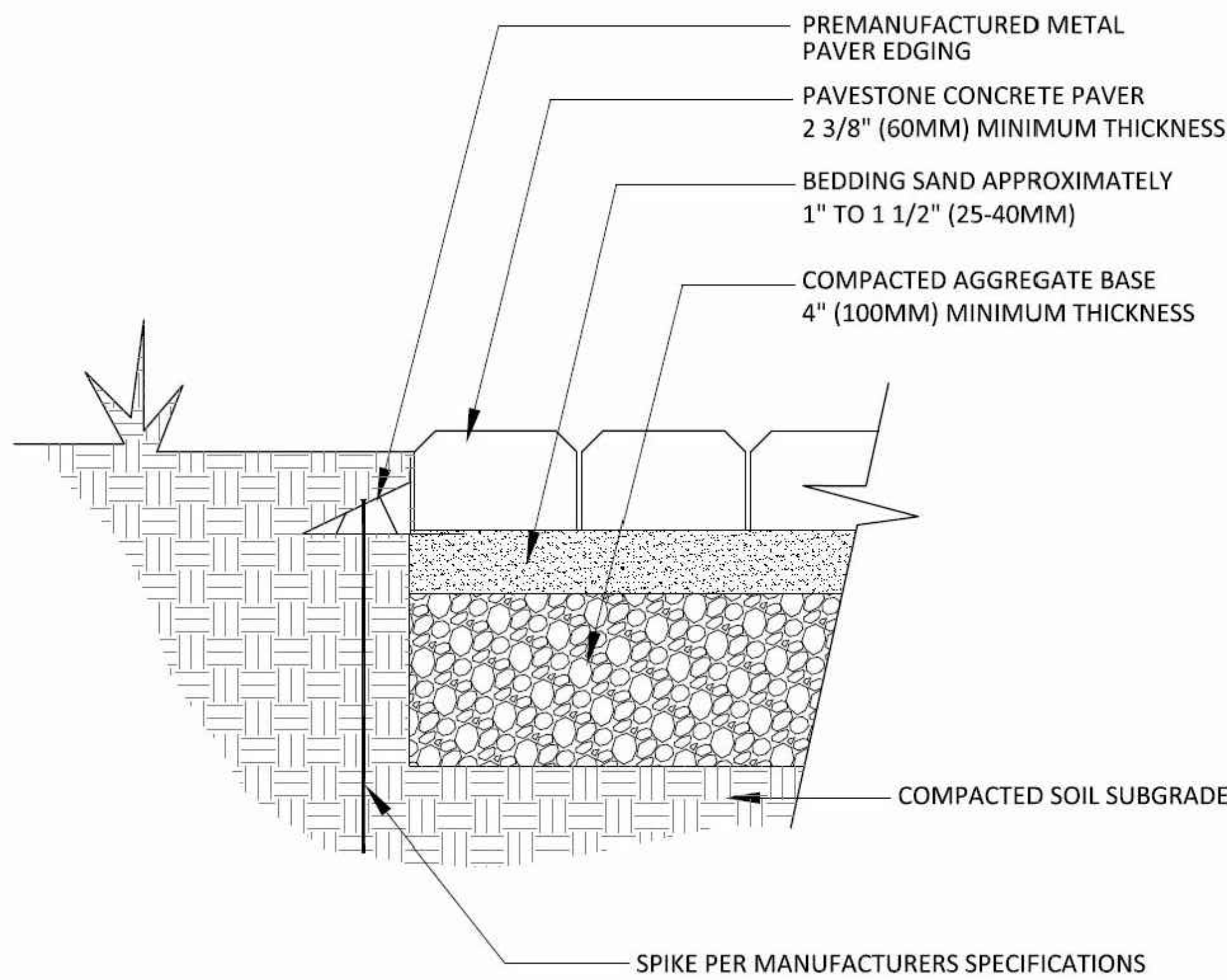


Verona™ 3x18 10cm



Verona™ 5x24 10cm

V EXTERIOR PAVERS – PAVESTONE "VERANO"
L-6 NOT TO SCALE NOT TO SCALE



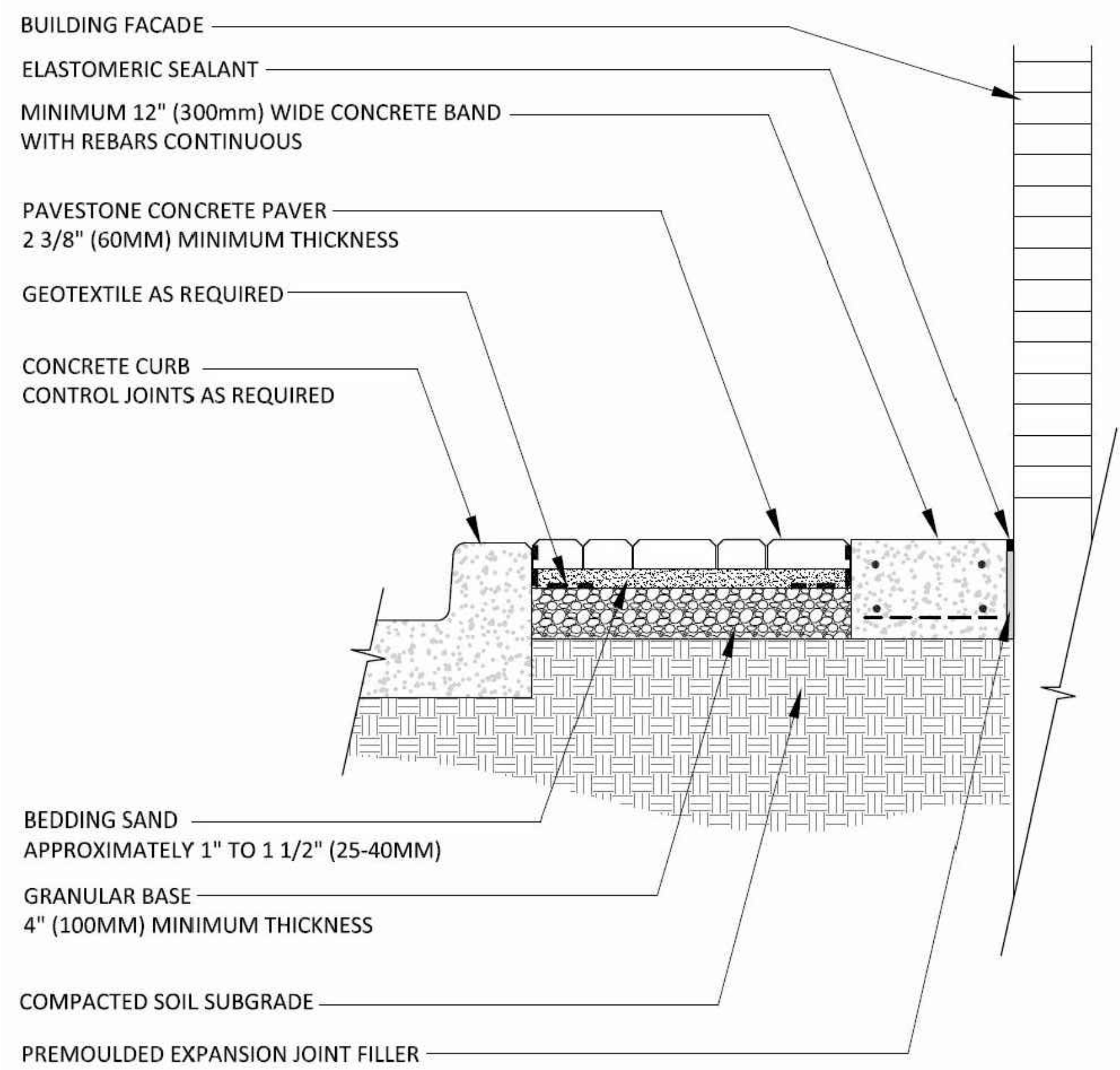
NOTES:
1. THICKNESS OF AGGREGATE BASE WILL VARY WITH TYPE OF SOIL SUBGRADE AND CLIMATE.
2. CONCRETE PAVERS AND BEDDING SAND CAN BE PLACED OVER AN ASPHALT OR CONCRETE BASE.

W EXTERIOR PAVES WITH MFG
L-6 PROVIDED EDGER NOT TO SCALE

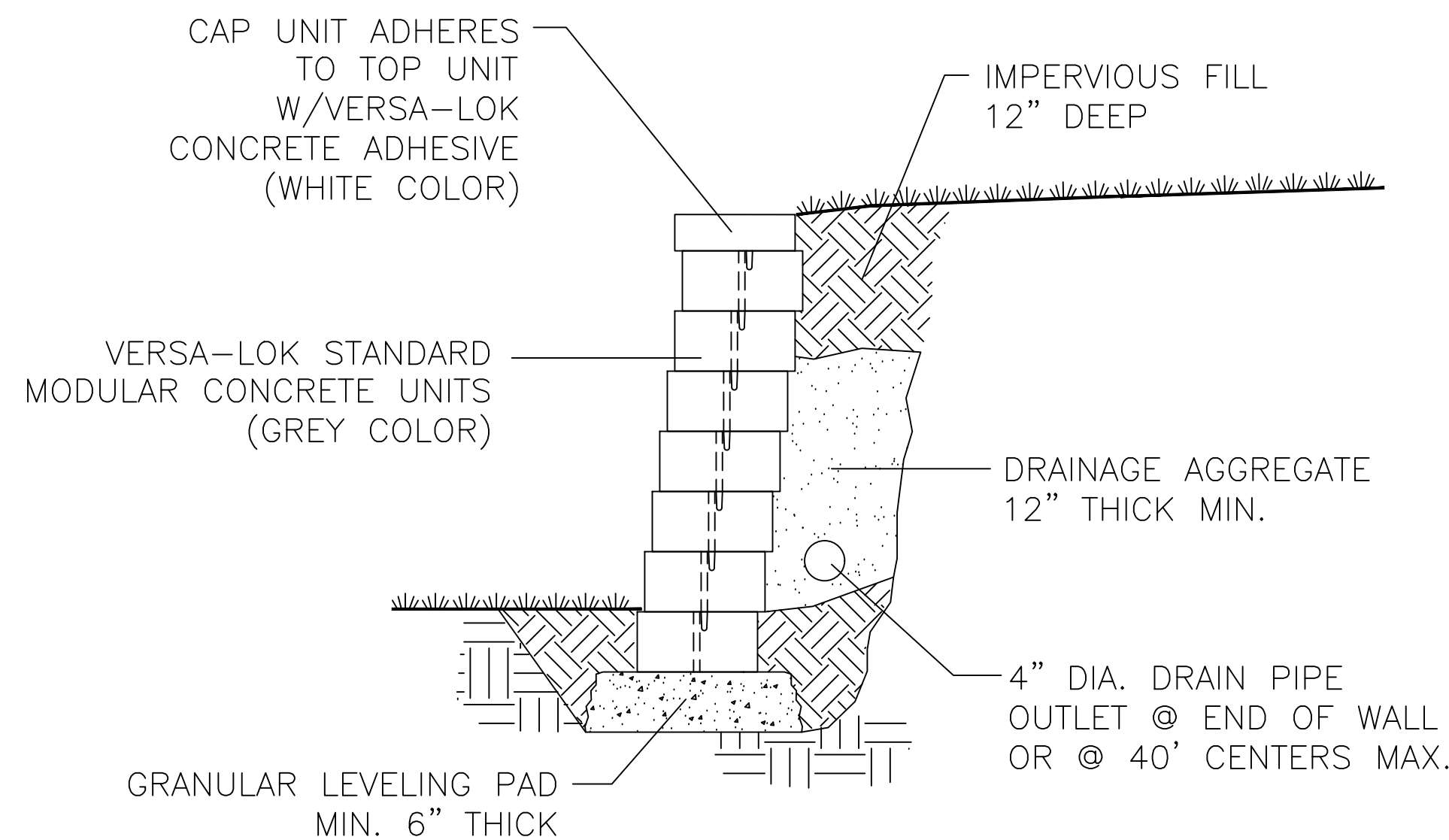
Rubbermaid
2 ft. 4 in. x 4 ft. 8 in. Small Vertical Resin Storage Shed



R RUBBERMAID STORAGE TOY BOX
L-6 EXAMPLE PHOTO NOT TO SCALE

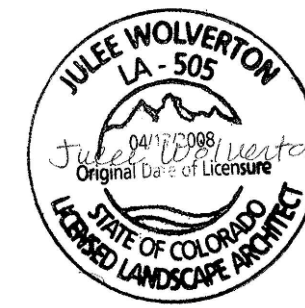


U EXTERIOR PAVES AT BUILDING WALL
L-6 WITH CONCRETE HEADER NOT TO SCALE



X LANDSCAPE RETAINING WALL
L-6 PERIMETER OF SITE NOT TO SCALE

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julee@juleewolverton.com

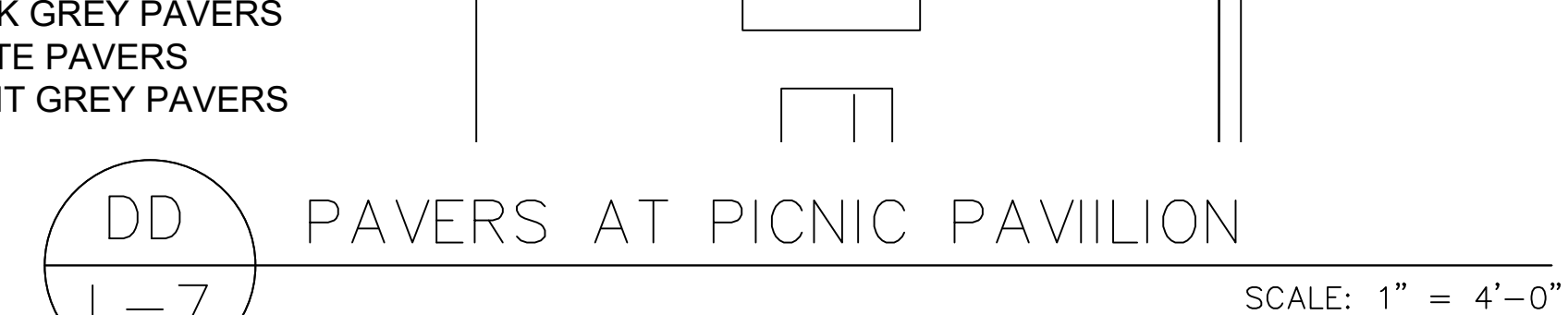
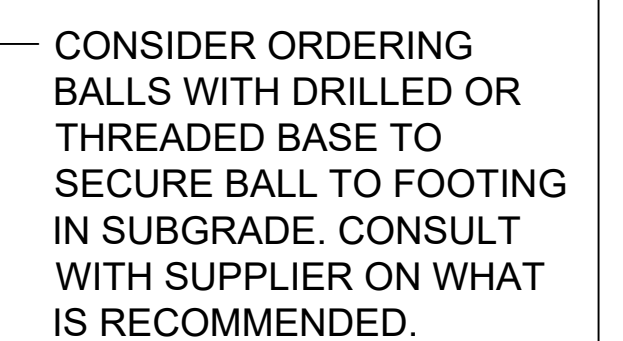
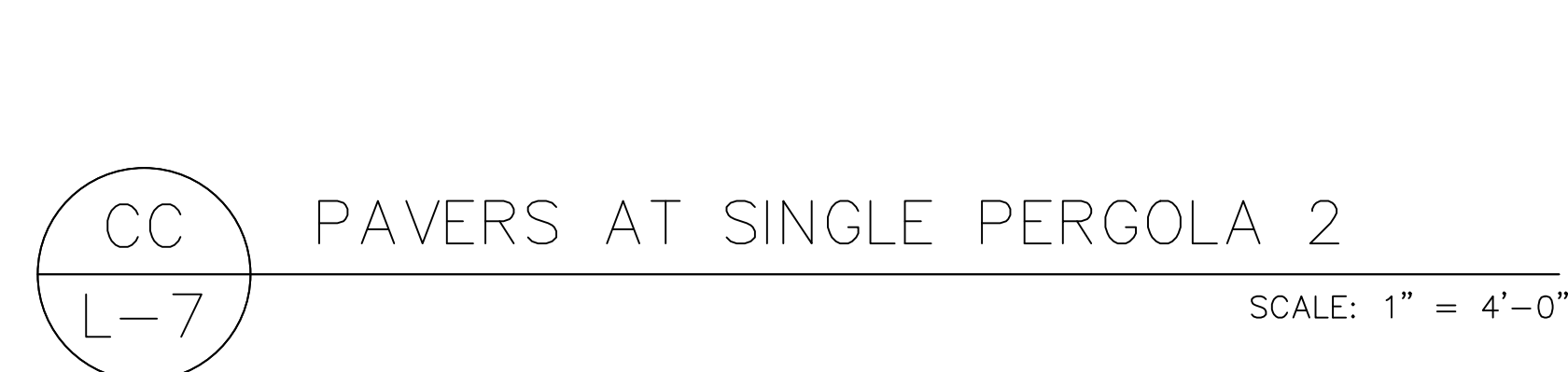


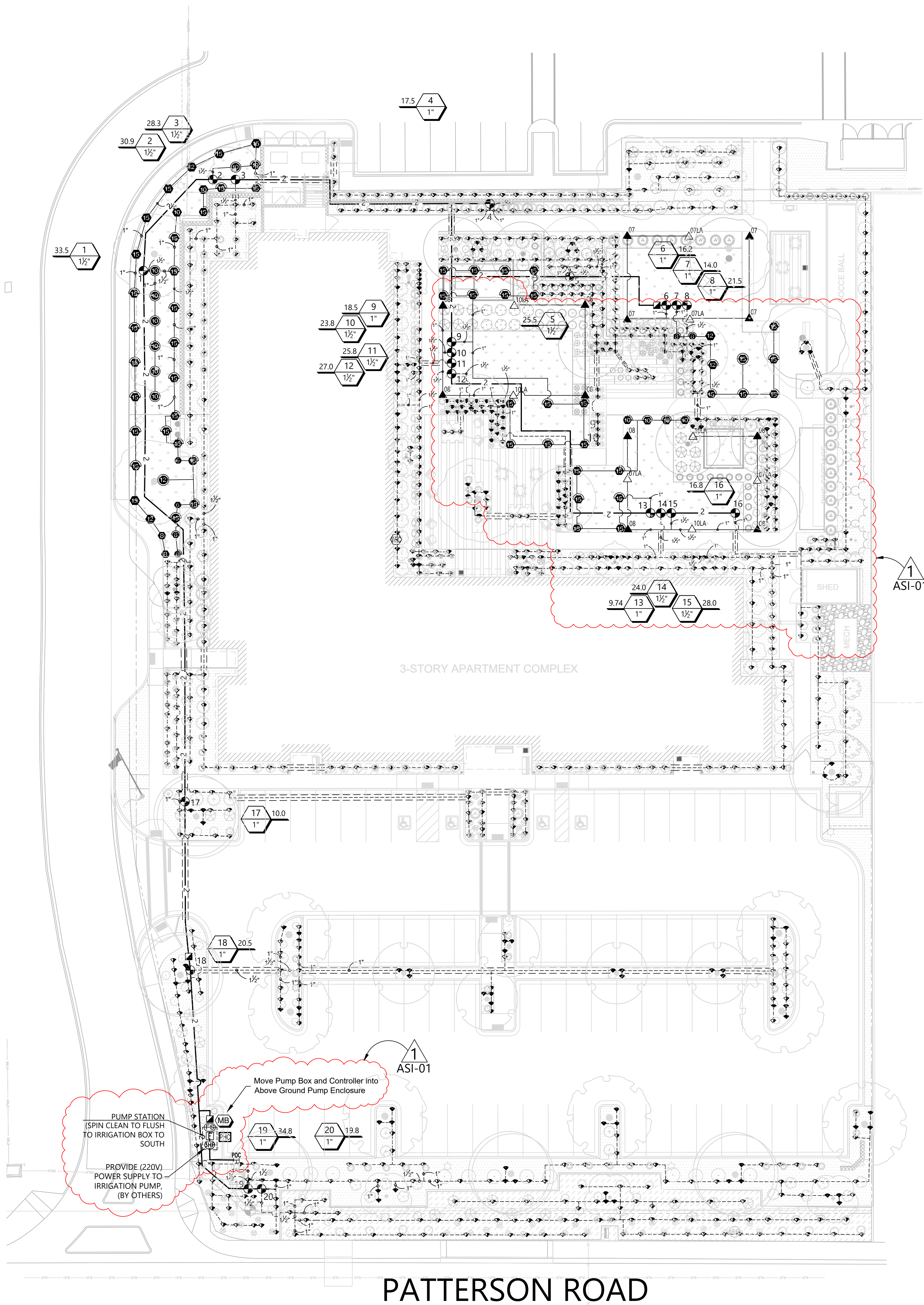
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2814 PATTERSON ROAD
GRAND JUNCTION, CO

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01.14.19 CITY SUBMITTAL
04.05.19 100% CD's

L-6

LANDSCAPE
DETAILS





IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	ARC
06	Rain Bird 1804 8H Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	2	180
06	Rain Bird 1804 8Q Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	2	90
10	Rain Bird 1804 10H Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	3	180
10	Rain Bird 1804 10Q Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	2	90
12	Rain Bird 1804 12H Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	1	180
12	Rain Bird 1804 15F Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	1	360
12	Rain Bird 1804 15H Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	23	180
12	Rain Bird 1804 15Q Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	19	90
0	Rain Bird 1804 6VAN Series Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	2	Adj
0	Rain Bird 1804 8HE-VAN Series Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	2	Adj
10	Rain Bird 1804 10HE-VAN Series Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	2	Adj
12	Rain Bird 1804 12HE-VAN Series Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	3	Adj
12	Rain Bird 1804 15HE-VAN Series Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet.	6	Adj
10	Rain Bird RD-04-U U10 Series Turf Spray, 4.0" Pop-Up. 1/2" NPT female threaded inlet.	7	360
12	Rain Bird RD-04-U U12 Series Turf Spray, 4.0" Pop-Up. 1/2" NPT female threaded inlet.	1	360
12	Rain Bird RD-04-U U15 Series Turf Spray, 4.0" Pop-Up. 1/2" NPT female threaded inlet.	1	180
12	Rain Bird RD-04-U U15 Series Turf Spray, 4.0" Pop-Up. 1/2" NPT female threaded inlet.	2	90
07	Hunter PCN (0.25 GPM) Flood Bubbler, 4.0" 1804 pop-up	673	360
07	Hunter PCN (0.50 GPM) Flood Bubbler, 4.0" 1804 pop-up	207	360
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	
07	Rain Bird 2045A 07 Turf Impact Rotor, Pop-Up Sprinkler, Open Case, Adjustable and Full Circle. With Precision Jet Tube. Nozzles: 06=red; 07=black; 08=blue; 10=yellow; 12=beige.	4	
08	Rain Bird 2045A 08 Turf Impact Rotor, Pop-Up Sprinkler, Open Case, Adjustable and Full Circle. With Precision Jet Tube. Nozzles: 06=red; 07=black; 08=blue; 10=yellow; 12=beige.	8	
07LA	Rain Bird 2045A-LA 07LA Turf Impact Rotor, Pop-Up Sprinkler, Open Case, Adjustable and Full Circle. With Precision Jet Tube. Low Angle Nozzles: 07LA=black; 10LA=yellow.	4	
10LA	Rain Bird 2045A-LA 10LA Turf Impact Rotor, Pop-Up Sprinkler, Open Case, Adjustable and Full Circle. With Precision Jet Tube. Low Angle Nozzles: 07LA=black; 10LA=yellow.	4	
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	
0	Rain Bird PESB 1-1/2" 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Scrubber Technology for Reliable Performance in Dirty Water Irrigation Applications.	9	
0	Rain Bird PESB 1" 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Scrubber Technology for Reliable Performance in Dirty Water Irrigation Applications.	11	
0	Rain Bird 44-LRC 1" 1" Brass Quick-Coupling Valve, with Corrosion-Resistant Stainless Steel Spring, Locking Thermoplastic Rubber Cover, and 2-Piece Body.	3	
PHC	Hunter Pro-HC Hydrowise Controller Wi-Fi enabled, full-functioning controller with touchscreen, 24-Station fixed controller, 120 VAC, Indoor model.	1	
WRF	Hunter WRF-CLIK Rain/Freeze Sensor. Install within 1000 ft of controller, in line of sight. 22-28 VAC/VDC 100 mA power from timer transformer. Mount as noted. Includes Gutter Mount.	1	
FS	Hunter HC-150-FLOW 1-1/2" for use with Hydrowise enabled controller to monitor flow and provide system alerts. Also functions as stand alone flow totalizer/sub meter on any residential or commercial irrigation system.	1	
HP	Munro 3 HP Pump Station 3 Phase Power 3hp, Residential, Light Commercial, Parks and Rec Use. Complete Pump Station, with quick disconnection, in a above ground pump enclosure. Install 2" discharge pipe to flush filter water into existing irrigation box.	1	
IF	Spin Clean - Jain Landscape 4EH-2P 2" with 50 Mesh Screen Maximum recommended flow is 110 gpm with 2" Flush Line redirected and connected to existing irrigation supply box on site.	1	
POC	Point of Connection 2"	1	
	Irrigation Lateral Line: PVC Class 200 SDR 21 1"	4,613 l.f.	
	Irrigation Lateral Line: PVC Class 200 SDR 21 1 1/2"	404.2 l.f.	
	Irrigation Lateral Line: PVC Class 200 SDR 21 1"	1218 l.f.	
	Irrigation Lateral Line: PVC Class 200 SDR 21 1 1/2"	148.7 l.f.	
	Irrigation Mainline: PVC Class 200 SDR 21 2"	875.4 l.f.	
	Pipe Sleeve: PVC Schedule 40	483.2 l.f.	

IRRIGATION NOTES:

- All work shall be per existing county or state code and is subject to inspection and approval by appropriate inspectors and/or owner representative. Installer to be responsible for all installation standards, practices and all permit requirements.
- GJ Housing Authority** has provided all base and planting information. Any discrepancies between said information and these irrigation plans shall be their responsibility. The installer will assume all costs and liabilities associated with any and all field changes to the system design.
- The system is designed to operate from the source with a flow of **50** gallons per minute (GPM) at **57** pounds per square inch (PSI) at the point of connection. Unless otherwise noted on the plans, source flow and pressure are the responsibility of others.
- All pipe to be sleeved wherever concrete, asphalt, or any hard surfaces are to be overlaid. All sleeves to be 2 times the diameter of the pipe to be sleeved. Main line sleeves to have an additional 4" inch sleeve in parallel for control wires.
- Irrigation plan is a diagrammatic single line drawing. Any components shown on plan outside of landscape are shown for clarity only. Multiple pipes may be installed in the same trench when proper pipe spacing can be maintained.
- Main line to be buried 24" (inch) to top of pipe.
- Control wires to be routed with main line and attached at 24" increments with plastic wire ties or duct tape. Wire splices to be located in a 10" (inch) round or larger valve box at least.
- Swing pipe to be used on all sprinkler heads under 6 GPM and swing joints on all heads over 6 GPM. Maximum length of swing pipe to be 5' (foot).
- Isolation valves to be located in 10" (inch) round valve box or larger.
- For obstructions (Electrical Transformers, Trees, Fire Hydrants, etc...), that will interfere with proper coverage of sprinkler heads, will require the addition of properly patterned heads around obstruction as to provide head to head coverage to all irrigated areas.
- Sprinkler heads to be set perpendicular to finished grade and adjusted to prevent over spray onto non irrigated areas.
- Laterals are sized at transitions only, segments that are not noted will be the same size as adjacent segments. Up stream segments will never be smaller than any down stream segments on the same lateral.
- Owner or Landscape Contractor shall determine final pump house enclosure style and filtration system prior to starting construction.

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI	PRECIP
1	Rain Bird PESB	1-1/2"	Turf Spray	33.45	210.1	35.59	1.46 in/h
2	Rain Bird PESB	1-1/2"	Turf Spray	30.93	255.8	36.20	1.27 in/h
3	Rain Bird PESB	1-1/2"	Bubbler	28.25	263.9	36.35	1.03 in/h
4	Rain Bird PESB	1"	Bubbler	17.50	363.5	34.25	0.95 in/h
5	Rain Bird PESB	1-1/2"	Bubbler	25.50	418.0	34.40	1.55 in/h
6	Rain Bird PESB	1"	Turf Impact	16.20	462.8	47.93	1.21 in/h
7	Rain Bird PESB	1"	Turf Spray	14.02	466.5	33.37	1.47 in/h
8	Rain Bird PESB	1"	Bubbler	21.50	470.2	34.21	1.97 in/h
9	Rain Bird PESB	1"	Turf Spray	18.46	399.2	33.49	1.66 in/h
10	Rain Bird PESB	1-1/2"	Turf Impact	23.80	403.0	50.81	1.76 in/h
11	Rain Bird PESB	1-1/2"	Bubbler	25.75	408.7	34.36	1.81 in/h
12	Rain Bird PESB	1-1/2"	Bubbler	27.00	410.5	35.32	3.25 in/h
13	Rain Bird PESB	1"	Turf Spray	17.74	531.4	32.37	1.36 in/h
14	Rain Bird PESB	1-1/2"	Bubbler	24.00	535.1	35.49	1.30 in/h
15	Rain Bird PESB	1-1/2"	Turf Impact	28.00	538.8	49.95	1.56 in/h
16	Rain Bird PESB	1"	Bubbler	16.75	561.7	34.89	1.14 in/h
17	Rain Bird PESB	1"	Bubbler	10.00	139.0	32.45	1.24 in/h
18	Rain Bird PESB	1"	Bubbler	20.50	199.3	36.21	1.73 in/h
19	Rain Bird PESB	1"	Bubbler	35.25	287.0	40.71	1.21 in/h
20	Rain Bird PESB	1"	Bubbler	19.75	291.8	35.93	0.93 in/h
	Common Wire				875.4		

GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

DATES/ REVISIONS	
01.14.19	CITY SUBMITTAL
04.04.19	100% CD's
01.10.20	ASI-1

IR-1

IRRIGATION
PLAN

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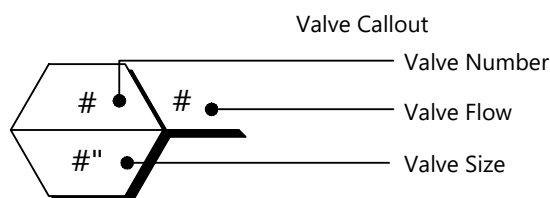
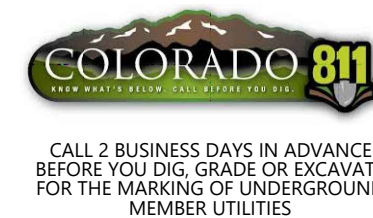


Grand Junction
Pipe & Supply
Irrigation Design Department
2868 I-70 Bus. Loop
Grand Jct, CO 81501
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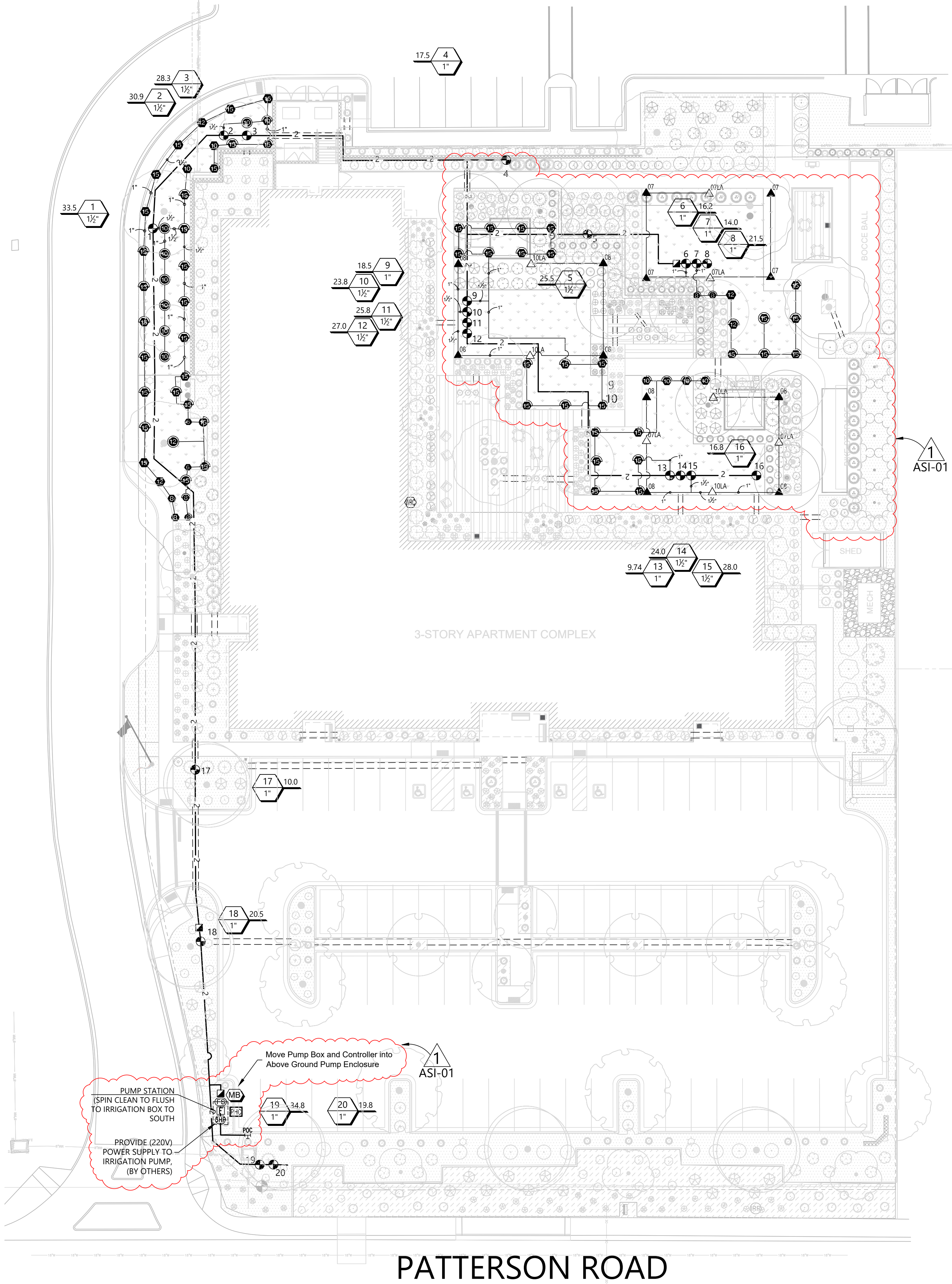
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Revision Date:	04-23-2019	Designed By:	J.D.C.
Revision Date:	08-29-2019	Designed By:	B.C.W.
Revision Date:	01-10-2020	Designed By:	M.J.G.
Drawing Number:	2019-0022	Checked By:	J.J.S.



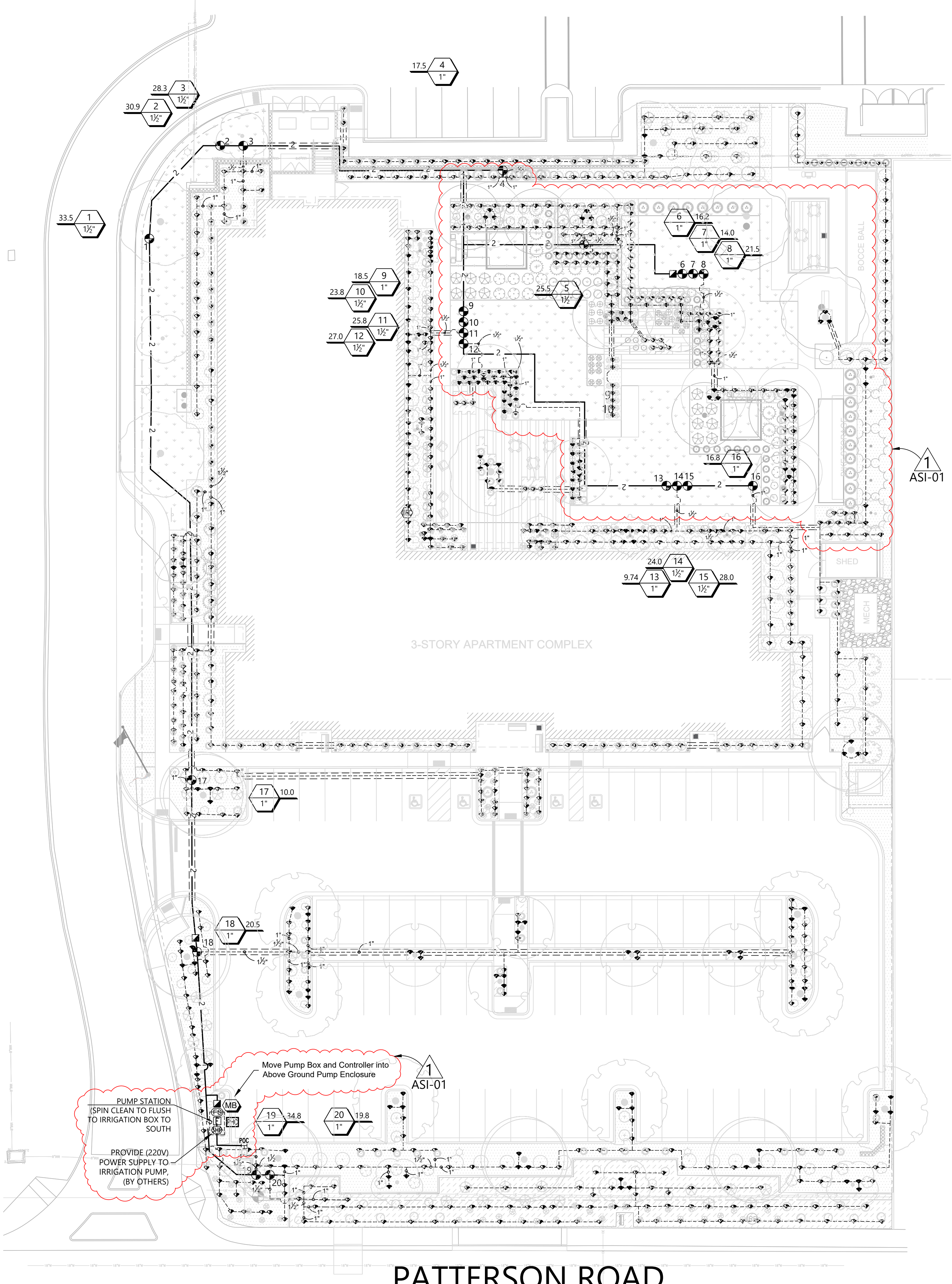
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TURF GRASS AREAS



SHRUB BED AREAS



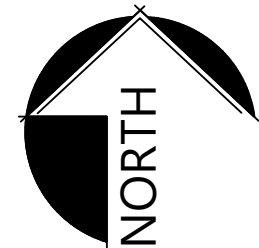
Julee Wolverton,
Landscape Architect



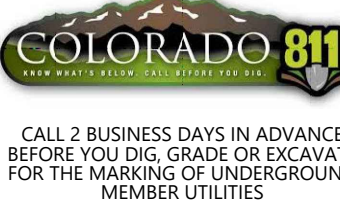
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GRAND JUNCTION HOUSING AUTHORITY
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GRAND JUNCTION, CO

DATES/ REVISIONS	
01.14.19	CITY SUBMITTAL
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01.10.20	ASI-1



0 10 20 40
SCALE: 1" = 20'



Grand Junction
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Design Date: 03-04-2015	Designed By: B.G.V.
Revision Date: 04-24-2015	Designed By: B.G.V.
Revision Date: 08-29-2019	Designed By: B.C.W.
Revision Date: 01-10-2020	Designed By: M.J.G.
Drawing Number: 2019-0000	Checked By: J.J.S.

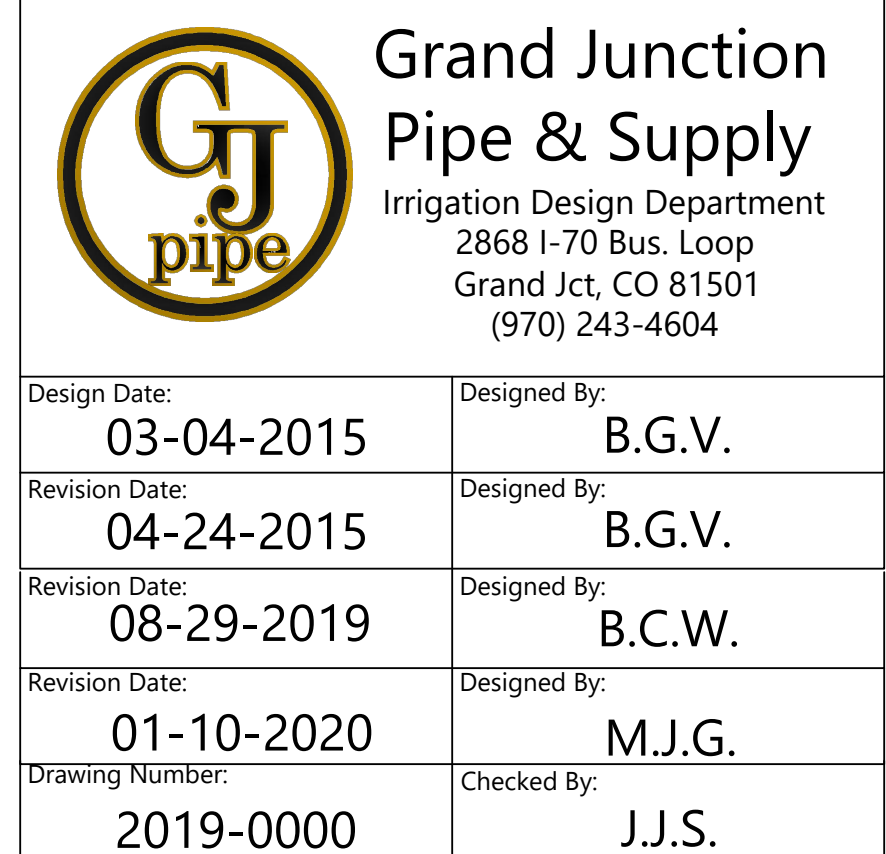
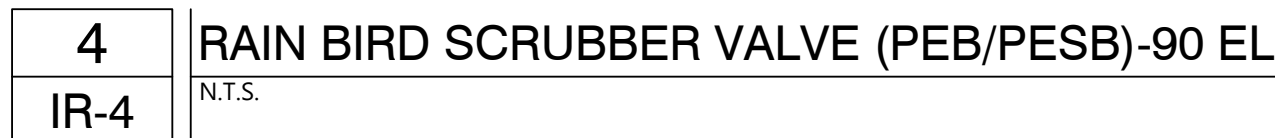
IR-2

IRRIGATION
PLAN

GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

IR-3

IRRIGATION DETAILS



IRRIGATION SYSTEM CUT-SHEETS - POP-UP SPRAY HEADS:

1800™ Series Spray Heads

Industry's Leading Spray Heads

Trusted for over 30 years, 1800 Series Spray Heads have provided unmatched durability, reliability, and performance.

Superior components and features make the 1800 Series Spray Head the spray head of choice for a wide variety of applications.

Features

- Co-molded, pressure-activated, multi-functional wiper seal assures positive seal without excess "flow-by" which enables more heads to be installed on the same valve.
- Designed for use with all Rain Bird plastic spray head nozzles—Rotary Nozzles, U-Series, MPR, VAN and XPEN Series.
- Precision controlled flush at pop-down clears debris from all soil types.
- Strong stainless steel spring provides reliable stem retraction.
- Ratchet mechanism on all models allows easy nozzle pattern alignment without tools.
- Pre-installed 1800 Pop-Top™ flush plug blocks debris from entering after flushing. Allows for easy nozzle installation.
- Constructed of time-proven UV-resistant plastic and corrosion resistant stainless steel parts, assuring long product life.
- All sprinkler components are removable from the top without special tools, providing for quick and easy flushing and maintenance of the sprinkler.
- Side inlets featured on 1806, 1806PRS, 1812, and 1812PRS models only.
- Five-year trade warranty.

Operating Range

- Spacing: 2.5 to 24 feet (0.8 to 7.3 m)
- Pressure: 15 to 70 psi (1.0 to 4.8 bar)

Specifications

- Flow-by: 0 at 8 psi (0.6 bar) or greater; 0.1 gpm (0.02 m³/h; 0.006 l/s) otherwise

Dimensions/Models

- Models and height:
 - 1802: 4" (10 cm) body height; 2" pop-up height (5 cm)
 - 1803: 4½" (12 cm) body height; 2" pop-up height (5 cm)
 - 1804: 6" (15 cm) body height; 4" pop-up height (10 cm)
 - 1806: 9 ½" (24 cm) body height; 6" pop-up height (15 cm)
 - 1812: 16" (40 cm) body height; 12" pop-up height (30 cm)
- Exposed surface diameter: 2½" (5.7 cm)

How To Specify

1804 - SAM - PRS - P45

Optional Feature:
SAM: Seal A-Matic™ check valve

Model:
1804-4" (10.2 cm) pop-up height

Note: SAM feature included with PRS models

How To Specify

1804 - SAM-P45 - R13-18Q

Nozzle:
Rotary Nozzle
Radius Range:
13-18" (40 - 55 cm)
13-14" (33 - 7.3m)

Pattern:
F: Full (360°)
T: Two Third (270°)
H: Half (180°)
Q: Quarter (90°)

Model:
1804-4" (10.2 cm) pop-up height

Note: Specify sprinkler bodies and nozzles separately.



Specifications

1802, 1803, 1804, 1806 and 1812 Pop-up Full or Part Circle Spray Sprinkler

The sprinkler body, stem, nozzle and screen shall be constructed of heavy-duty, ultra-violet resistant plastic. It shall have a heavy-duty stainless steel retract spring for positive pop-down and a ratcheting system for easy alignment of the pattern. The sprinkler shall have a soft elastomer pressure-activated co-molded wiper seal for cleaning debris from the pop-up stem as it retracts into the case to prevent the sprinkler from sticking up to minimize "flow-by."

The sprinkler shall have a matched precipitation rate (MPR) plastic or brass nozzle with an adjusting screw capable of regulating the radius and flow. The sprinkler shall be capable of housing protective, non-clogging filter screens or pressure compensating screens (PCS) under the nozzle. The screen shall be used in conjunction with the adjusting screw for regulating. The 6" (15 cm) and 12" (30 cm) models shall have both a side and a bottom ½" (15/21) (FNPT) inlet for ease of installation.

The sprinkler shall have a Pop-Top™ Flush Plug pre-installed. The plug shall prevent debris from clogging the sprinkler during installation and allow for the system to be flushed before nozzle. The plug shall be bright orange in color and constructed of polypropylene material.

Spray Heads

HOW TO CHANGE THE NOZZLE

1. Remove old nozzle.
2. Remove the filter screen below the nozzle.
3. Insert new filter screen.
4. Thread new nozzle on and turn clockwise until tight.



HOW TO ADJUST THE WATERING DIRECTION

Once the spray head is installed in your system, the stem can be rotated by hand to aim the spray pattern in the desired watering direction.

HOW TO ADJUST THE SPRAY DISTANCE

1. Turn the center screw with a small flat screwdriver.
2. Turn the screw clockwise to reduce spray distance up to 25%.



HOW TO ADJUST THE PATTERN

(available only in adjustable models)
Adjust from 0° to 360°. Twist the threaded collar to the right or to the left to achieve the desired watering pattern.



Troubleshooting Guide

Problem	Solution
1. Spray head throws shorter distance than expected.	- Clean filter or nozzle - Reduce number of heads in the zone. - Replace the nozzle with a larger radius nozzle.
2. Spray head is not popping up all the way.	- Clean stem / cap or replace.
3. Spray does not water in the desired pattern.	- Make sure the desired pattern is being used and change nozzle if needed. - Unscrew nozzle, clean screen and nozzle.
4. Head pops up but only dribbles.	- Install a check valve.
5. Water seeps slowly from some sprinklers, after valve shuts off.	- Inspect diaphragm or piston for debris on the valve.

RD1800 Series Spray Heads

4", 6", 12" (10.2 cm, 15.2 cm, 30.5 cm)



Every landscape has elements that wear on your spray heads over time—from sand and grit to high water pressure and harmful chemicals in reclaimed water.

RD1800™ was designed with these incredibly harsh conditions in mind. As the next evolution in spray heads from Rain Bird—the industry leader in sprays—RD1800 was built with exclusive materials and features that stand up to the challenges of any setting (see *Features* below for more information about what sets the RD1800 apart).

Ultimate Protection for both Potable and Non-Potable Markets

Potable water models of the RD1800 feature a white seal, and offer our highest level of protection against the universal challenges that spray heads endure. Non-potable models add an extra level of defense against the chlorine and chemicals found in recycled water, and feature a purple seal with the international "Do Not Drink" symbol and warnings in English and Spanish.

BUY NOW



* PRS Pressure Regulating Spray Head Models

RD1800 Series Spray Heads

4", 6", 12" (10.2 cm, 15.2 cm, 30.5 cm)



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BUY NOW

A RAIN BIRD 1804 POP-UP SPRAY HEAD
IR-4 NOT TO SCALE

B 1804 POP-UP SPECIFICATION
IR-4 NOT TO SCALE

C 1804 POP-UP MAINTENANCE
IR-4 NOT TO SCALE

D RAIN BIRD RD-04-U SERIES SPRAYS
IR-4 PURPLE SEAL – "DO NOT DRINK"

IRRIGATION SYSTEM CUT-SHEETS - MPR SERIES SPRAY NOZZLES:

Spray Nozzles

MPR Nozzles

www.rainbird.com/sprays

Plastic MPR Nozzles

Matched Precipitation Rate Nozzles

Features

- Matched precipitation rates across sets and patterns in 5 Series, 8 Series, 10 Series, 12 Series, and 15 Series for even water distribution and design flexibility
- MPR Nozzles are installed by more contractors than all other brands combined
- Quickly identify radius and arc with Top Color-coded™ nozzles even when system is not operating
- Three-year trade warranty

Operating Range

- Spacing: 3 to 15 feet (0.9 to 4.6 m)¹
- Pressure: 15 to 30 psi (1 to 2.1 bar)
- Optimum pressure: 30 psi (2.1 bar)²

Models

- 5 Series: Quarter, Half, Full Nozzles
- 8 Series: Bubbler Nozzles
- 8 Series: Quarter, Half, Full Nozzles
- 8 FLT Series: Designed for lower trajectory applications, such as windy areas
- 10 Series Nozzles
- 12 Series Nozzles
- 15 Series: Quarter, Half, Full Nozzles
- 15 Strip Series Nozzles

¹ These ranges are based on proper pressure at nozzle.
² Rain Bird recommends using 1800 PRS Spray Bodies to maintain optimum nozzle performance in higher pressure situations.



Rain Bird® MPR Nozzles, The Industry Standard

How To Specify

5 F
Pattern:
F: Full
H: Half
Q: Quarter

MPR Radius Range:
5-5 feet (1.5 m)
8-8 feet (2.4 m)
12-12 feet (3.7 m)
15-15 feet (4.6 m)

15 Series MPR						
30° Trajectory						
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h	
15F	15	11	2.60	2.07	2.39	
	20	12	3.00	2.01	2.32	
	25	14	3.30	1.62	1.87	
	30	15	3.70	1.58	1.83	
15H	15	11	1.30	2.07	2.39	
	20	12	1.50	2.01	2.32	
	25	14	1.65	1.62	1.87	
	30	15	1.85	1.58	1.83	
15Q	15	11	0.65	2.07	2.39	
	20	12	0.75	2.01	2.32	
	25	14	0.82	1.62	1.87	
	30	15	0.92	1.58	1.83	

Note: All MPR nozzles tested on 4" (10.2 cm) pop-ups
■ Square spacing based on 50% diameter of throw
▲ Triangular spacing based on 50% diameter of throw

15 Series MPR						
30° Trajectory						
Nozzle	Pressure psi	Radius m	Flow m³/h	Precip mm/h	Precip mm/h	
15F	1.0	3.4	0.60	9.8	52	60
	1.5	3.9	0.72	11.8	47	55
	2.0	4.5	0.84	13.7	41	48
	2.1	4.6	0.84	14.0	40	46
15H	1.0	3.4	0.30	4.9	52	60
	1.5	3.9	0.36	5.9	47	55
	2.0	4.5	0.42	6.8	41	48
	2.1	4.6	0.42	7.0	40	46
15Q	1.0	3.4	0.15	2.5	52	60
	1.5	3.9	0.18	2.9	47	55
	2.0	4.5	0.21	3.4	41	48
	2.1	4.6	0.21	3.5	40	46

Performance data taken in zero wind conditions
■ Square spacing based on 50% diameter of throw
▲ Triangular spacing based on 50% diameter of throw

RAIN BIRD

Spray Nozzles

MPR Nozzles

8 Series MPR

10° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h
8F	15	5	0.24	2.85	3.29
	20	6	0.86	2.30	2.66
	25	7	0.96	1.89	2.18
	30	8	1.05	1.58	1.82
8H	15	5	0.27	2.85	3.29
	20	6	0.42	2.25	2.59
	25	7	0.47	1.85	2.13
	30	8	0.52	1.56	1.81
8Q	15	5	0.18	2.77	3.20
	20	6	0.21	2.25	2.59
	25	7	0.24	1.89	2.18
	30	8	0.26	1.56	1.81

10 Series MPR

15° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h
10F	15	7	1.16	2.28	2.63
	20	8	1.30	1.96	2.26
	25	9	1.44	1.71	1.98
	30	10	1.58	1.52	1.75
10H	15	7	0.58	2.28	2.63
	20	8	0.65	1.96	2.26
	25	9	0.72	1.71	1.98
	30	10	0.79	1.52	1.75
10Q	15	7	0.29	2.28	2.63
	20	8	0.33	1.96	2.26
	25	9	0.36	1.71	1.98
	30	10	0.39	1.52	1.75

12 Series MPR

30° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h
12F	15	9	1.80	2.14	2.47
	20	10	2.10	2.02	2.34
	25	11	2.40	1.91	2.21
	30	12	2.60	1.74	2.01
12H	15	9	1.00	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.20	1.91	2.21
	30	12	1.30	1.74	2.01
12Q	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.60	1.91	2.21
	30	12	0.65	1.74	2.01

12 Series MPR

METRIC

Nozzle	Pressure bar	Radius m	Flow m³/h	Precip mm/h	Precip mm/h	
12F	1.0	2.7	0.48	6.8	55	63
	1.5	3.2	0.48	8.3	47	54
	2.0	3.6	0.59	9.7	46	53
	2.1	3.7	0.60	9.8	44	51
12H	1.0	2.7	0.20	3.4	55	63
	1.5	3.2	0.24	4.2	47	54
	2.0	3.6	0.30	4.9	46	53
	2.1	3.7	0.30	4.9	44	51
12Q	1.0	2.7	0.10	1.7	55	63
	1.5	3.2	0.12	2.1	47	54
	2.0	3.6	0.15	2.4	46	53
	2.1	3.7	0.15	2.5	44	51

Note: All MPR nozzles tested on 4" (10.2 cm) pop-ups
■ Square spacing based on 50% diameter of throw
▲ Triangular spacing based on 50% diameter of throw

Performance data taken in zero wind conditions
Note: Radius reduction over 25% of the normal throw of the nozzle is not recommended

IRRIGATION SYSTEM CUT-SHEETS - HUNTER FLOOD BUBBLERS
ON 1804 4" POP-UP SPRAY NOZZLES:

Hunter

Built on Innovation®

PCN BUBBLER NOZZLES



PCN-25 Flow: 0.25 GPM
PCN-50 Flow: 0.50 GPM
PCN-10 Flow: 1.0 GPM
PCN-20 Flow: 2.0 GPM

PRODUCTS

PROFESSIONALS

Hunter

Built on Innovation®

PCN BUBBLER NOZZLES



MP ROTATOR
MP ROTATOR
PRO ADJUSTABLE
PRO ADJUSTABLE
SIDE STRIP
SHORT RADIUS
STREAM
BUBBLERS

QUICK SPECS

NOZZLE TYPES	HIGH EFFICIENCY ROTATOR NOZZLE	SHORT RADIUS HIGH EFFICIENCY ROTATOR NOZZLE	ADJUSTABLE SPRAY	FIXED SPRAY	FIXED SPRAY	FIXED SPRAY	SPECIALTY NOZZLE	SPECIALTY NOZZLE
RADIUS (FT.)	8-31	6-16	4-17	6-17	6 x 15	6 x 30	2, 4, 6	7-18
WARRANTY	3 Years	2 Years	2 Years	2 Years	2 Years	2 Years	2 Years	2 Years

FEATURES

ARC	45-360	90-360	0-360	45-360	Rectangle	90 or 180	25-360	45-360
PRECIPITATION SQUARE	Approx. 0.42 in/hr	Approx. 0.8 in/hr	1.00-6.00 in/hr	1.532-08 in/hr	Approx. 3.34 in/hr	0.672-05 in/hr	0.512-29 in/hr	N/A
PRECIPITATION TRIANGLE	Approx. 0.42 in/hr	Approx. 0.9 in/hr	1.04-2.18 in/hr	1.632-08 in/hr	Approx. 1.67 in/hr	0.672-05 in/hr	0.512-29 in/hr	N/A

Hunter

Built on Innovation®

PCN BUBBLER NOZZLES



MP ROTATOR
MP ROTATOR
PRO ADJUSTABLE
PRO ADJUSTABLE
SIDE STRIP
SHORT RADIUS
STREAM
BUBBLERS

ADVANCED FEATURES

COLOR CODED	✓	✓	✓	✓	✓	✓	✓	✓
AUTOMATIC MATCHED PRECIPITATION	✓	✓	✓	✓	✓	✓	✓	✓
MAXIMUM WATER EFFICIENCY	✓	✓	✓	✓	✓	✓	✓	✓
PRESSURE COMPENSATING	✓	✓	✓	✓	✓	✓	✓	✓

APPLICATIONS

STRIP PATTERN	✓	✓	✓	✓	✓	✓	✓	✓
STREAM SPRAY	✓	✓	✓	✓	✓	✓	✓	✓
SHORT RADIUS	✓	✓	✓	✓	✓	✓	✓	✓
DEEP WATERING	✓	✓	✓	✓	✓	✓	✓	✓

E MPR SPRAY NOZZLE SERIES
IR-4 8, 10, 12, & 15 SIZES NOT TO SCALE

F MPR SPRAY NOZZLE SERIES
IR-4 8, 10, 12, & 15 SIZES NOT TO SCALE

G HUNTER PCN FLOOD BUBBLER NOZZLES
IR-4 NOT TO SCALE

H HUNTER PCN FLOOD BUBBLER NOZZLES
IR-4 NOT TO SCALE

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GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

DATES/ REVISIONS

01.14.19	CITY SUBMITTAL
04.05.19	100% CD'S
09.06.19	ASI-01

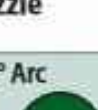
IR-4

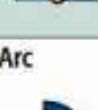
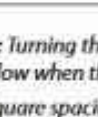
IRRIGATION CUT-SHEETS

IRRIGATION SYSTEM CUT-SHEETS - VAN AND HE-VAN SERIES SPRAY NOZZLES, & IRRIGATION ZONE WIRE WITH WATERPROOF WIRE CONNECTORS:

Spray Nozzles VAN Series Nozzles										www.rainbird.com/sprays									
4 Series VAN										METRIC									
0° Trajectory										0° Trajectory									
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar
330° Arc	15	4	0.62	7.23	8.35	330° Arc	1.0	1.2	0.19	3.2	144	166	330° Arc	1.0	1.2	0.19	3.2	144	166
	20	3	0.70	8.17	9.43		1.5	1.0	0.17	2.8	183	215		1.5	1.0	0.17	2.8	183	215
	25	4	0.80	5.25	6.06		2.0	1.2	0.20	3.3	152	176		2.0	1.2	0.20	3.3	152	176
	30	4	0.88	5.78	6.67		2.1	1.2	0.20	3.3	152	176		2.1	1.2	0.20	3.3	152	176
270° Arc	15	3	0.52	7.42	8.57	270° Arc	1.0	0.9	0.12	2.0	198	229	270° Arc	1.0	0.9	0.12	2.0	198	229
	20	3	0.58	8.27	9.55		1.5	1.0	0.14	2.3	187	216		1.5	1.0	0.14	2.3	187	216
	25	4	0.66	5.29	6.11		2.0	1.2	0.16	2.7	148	171		2.0	1.2	0.16	2.7	148	171
	30	4	0.73	5.86	6.77		2.1	1.2	0.17	2.8	157	181		2.1	1.2	0.17	2.8	157	181
180° Arc	15	3	0.32	6.84	7.90	180° Arc	1.0	0.9	0.07	1.2	173	200	180° Arc	1.0	0.9	0.07	1.2	173	200
	20	3	0.37	7.91	9.13		1.5	1.0	0.09	1.5	180	208		1.5	1.0	0.09	1.5	180	208
	25	4	0.41	4.93	5.69		2.0	1.2	0.10	1.7	139	161		2.0	1.2	0.10	1.7	139	161
	30	4	0.45	5.41	6.25		2.1	1.2	0.10	1.7	139	161		2.1	1.2	0.10	1.7	139	161
90° Arc	15	3	0.21	8.98	10.37	90° Arc	1.0	0.9	0.05	0.8	247	285	90° Arc	1.0	0.9	0.05	0.8	247	285
	20	3	0.24	10.27	11.86		1.5	1.0	0.06	0.9	240	277		1.5	1.0	0.06	0.9	240	277
	25	4	0.26	6.26	7.23		2.0	1.2	0.06	1.1	167	193		2.0	1.2	0.06	1.1	167	193
	30	4	0.29	6.98	8.06		2.1	1.2	0.07	1.1	194	224		2.1	1.2	0.07	1.1	194	224
6 Series VAN										METRIC									
0° Trajectory										0° Trajectory									
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar
330° Arc	15	4	0.85	5.38	6.44	330° Arc	1.0	1.2	0.19	3.2	144	166	330° Arc	1.0	1.2	0.19	3.2	144	166
	20	5	0.96	4.03	4.65		1.5	1.5	0.23	3.8	112	129		1.5	1.5	0.23	3.8	112	129
	25	5	1.09	4.58	5.29		2.0	1.8	0.27	4.5	91	105		2.0	1.8	0.27	4.5	91	105
	30	6	1.20	3.50	4.04		2.1	1.8	0.27	4.5	91	105		2.1	1.8	0.27	4.5	91	105
270° Arc	15	4	0.79	6.34	7.32	270° Arc	1.0	1.2	0.18	3.0	167	193	270° Arc	1.0	1.2	0.18	3.0	167	193
	20	5	0.88	4.52	5.22		1.5	1.5	0.21	3.5	124	143		1.5	1.5	0.21	3.5	124	143
	25	5	1.00	5.13	5.92		2.0	1.8	0.24	4.1	99	114		2.0	1.8	0.24	4.1	99	114
	30	6	1.10	3.92	4.53		2.1	1.8	0.25	4.2	103	119		2.1	1.8	0.25	4.2	103	119
180° Arc	15	4	0.42	5.05	5.83	180° Arc	1.0	1.2	0.10	1.6	139	161	180° Arc	1.0	1.2	0.10	1.6	139	161
	20	5	0.49	3.77	4.35		1.5	1.5	0.11	1.9	98	113		1.5	1.5	0.11	1.9	98	113
	25	5	0.55	4.24	4.90		2.0	1.8	0.13	2.2	80	92		2.0	1.8	0.13	2.2	80	92
	30	6	0.60	3.21	3.71		2.1	1.8	0.14	2.3	86	99		2.1	1.8	0.14	2.3	86	99
90° Arc	15	4	0.26	6.26	7.23	90° Arc	1.0	1.2	0.06	1.0	167	193	90° Arc	1.0	1.2	0.06	1.0	167	193
	20	5	0.30	4.62	5.33		1.5	1.5	0.07	1.2	124	143		1.5	1.5	0.07	1.2	124	143
	25	5	0.34	5.24	6.05		2.0	1.8	0.08	1.4	99	114		2.0	1.8	0.08	1.4	99	114
	30	6	0.37	3.96	4.57		2.1	1.8	0.08	1.4	99	114		2.1	1.8	0.08	1.4	99	114

A 4 AND 6 SERIES VAN SPRAY NOZZLES
IR-5 NOT TO SCALE

8 Series VAN										METRIC										
5° Trajectory										5° Trajectory										
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar	
	330° Arc	15	6	1.21	3.53	4.07	330° Arc	1.0	1.8	0.27	4.6	91	105	330° Arc	1.0	1.8	0.27	4.6	91	105
		20	7	1.36	2.91	3.36		1.5	2.1	0.32	5.4	79	91		1.5	2.1	0.32	5.4	79	91
		25	7	1.55	3.32	3.83		2.0	2.3	0.38	6.3	78	90		2.0	2.3	0.38	6.3	78	90
		30	8	1.70	2.79	3.22		2.1	2.4	0.39	6.4	74	86		2.1	2.4	0.39	6.4	74	86
	270° Arc	15	6	1.11	3.95	4.55	270° Arc	1.0	1.8	0.25	4.2	103	119	270° Arc	1.0	1.8	0.25	4.2	103	119
		20	7	1.24	3.24	3.74		1.5	2.1	0.30	4.9	91	105		1.5	2.1	0.30	4.9	91	105
		25	7	1.41	3.69	4.25		2.0	2.3	0.34	5.8	86	99		2.0	2.3	0.34	5.8	86	99
		30	8	1.55	3.10	3.58		2.1	2.4	0.35	5.9	81	94		2.1	2.4	0.35	5.9	81	94
	180° Arc	15	6	0.84	4.49	5.18	180° Arc	1.0	1.8	0.19	3.2	117	135	180° Arc	1.0	1.8	0.19	3.2	117	135
		20	7	0.97	3.81	4.40		1.5	2.1	0.23	3.8	104	120		1.5	2.1	0.23	3.8	104	120
		25	7	1.09	4.28	4.94		2.0	2.3	0.26	4.4	96	113		2.0	2.3	0.26	4.4	96	113
		30	8	1.19	3.58	4.13		2.1	2.4	0.27	4.5	94	109		2.1	2.4	0.27	4.5	94	109
	90° Arc	15	6	0.51	5.46	6.29	90° Arc	1.0	1.8	0.12	1.9	148	171	90° Arc	1.0	1.8	0.12	1.9	148	171
		20	7	0.59	4.64	5.35		1.5	2.1	0.14	2.3	127	147		1.5	2.1	0.14	2.3	127	147
		25	7	0.66	5.19	5.98		2.0	2.3	0.16	2.7	121	140		2.0	2.3	0.16	2.7	121	140
		30	8	0.72	4.33	5.00		2.1	2.4	0.16	2.7	111	128		2.1	2.4	0.16	2.7	111	128

10 Series VAN										METRIC										
10° Trajectory										10° Trajectory										
Nozzle	Pressure psi	Radius ft.	Flow gpm	Precip in/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar	Radius m	Flow l/m	Precip mm/h	Precip mm/h	Nozzle	Pressure bar	
	360° Arc	15	7	1.93	3.80	4.39	360° Arc	1.0	2.1	0.44	7.3	96	111	360° Arc	1.0	2.1	0.44	7.3	96	111
		20	8	2.32	3.50	4.04		1.5	2.4	0.53	9.0	89	103		1.5	2.4	0.53	9.0	89	103
		25	9	2.52	3.00	3.46		2.0	2.7	0.57	9.8	76	88		2.0	2.7	0.57	9.8	76	88
		30	10	2.60	2.50	2.89		2.1	3.1	0.59	9.8	63	73		2.1	3.1	0.59	9.8	63	73
	270° Arc	15	7	1.45	3.80	4.39	270° Arc	1.0	2.1	0.33	5.5	96	111	270° Arc	1.0	2.1	0.33	5.5	96	111
		20	8	1.75	3.50	4.04		1.5	2.4	0.4	6.8	89	103		1.5	2.4	0.4	6.8	89	103
		25	9	1.89	3.00	3.46		2.0	2.7	0.43	7.8	76	88		2.0	2.7	0.43	7.8	76	88
		30	10	2.10	2.70	3.12		2.1	3.1	0.48	7.9	68	79		2.1	3.1	0.48	7.9	68	79
	180° Arc	15	7	0.97	3.80	4.39	180° Arc	1.0	2.1	0.22	3.7	96	111	180° Arc	1.0	2.1	0.22	3.7	96	111
		20	8	1.20	3.50	4.04		1.5	2.4	0.27	4.6	89	103		1.5	2.4	0.27	4.6	89	103
		25	9	1.26	3.00	3.46		2.0	2.7	0.29	5.3	76	88		2.0	2.7	0.29	5.3	76	88
		30	10	1.45	2.80	3.23		2.1	3.1	0.33	5.5	71	82		2.1	3.1	0.33	5.5	71	82
	90° Arc	15	7	0.48	3.80	4.39	90° Arc	1.0	2.1	0.11	1.8	96	111	90° Arc	1.0	2.1	0.11	1.8	96	111
		20	8	0.58	3.50	4.04		1.5	2.4	0.13	2.3	89	103		1.5	2.4	0.13	2.3	89	103
		25	9	0.63	3.00	3.46		2.0	2.7	0.14	2.7	76	88		2.0	2.7	0.14	2.7	76	88
		30	10	0.75	2.90	3.35		2.1	3.1	0.17	2.8	73	85		2.1	3.1	0.17	2.8	73	85

Note: Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at or less than maximum arc.

■ Square spacing based on 50% diameter of throw

▲ Triangular spacing based on 50% diameter of throw

Performance data taken in zero wind conditions

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 Landscape Architect

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GRAND JUNCTION HOUSING AUTHORITY
 2814 PATTERSON ROAD
 GRAND JUNCTION, CO

DATES/ REVISIONS	
01.14.19	CITY SUBMITTAL
04.05.19	100% CD's
09.06.19	ASI-01

IR-6

IRRIGATION
CUT-SHEETS

RD1800 Series Spray Heads

4", 6", 12" (10.2 cm, 15.2 cm, 30.5 cm)



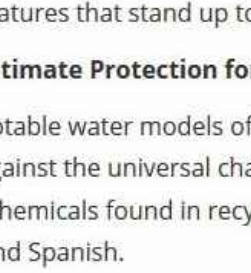
Every landscape has elements that wear on your spray heads over time—from sand and grit to high water pressure and harmful chemicals in reclaimed water.

RD1800™ was designed with these incredibly harsh conditions in mind. As the next evolution in spray heads from Rain Bird—the industry leader in sprays—RD1800 was built with exclusive materials and features that stand up to the challenges of any setting (see [Features below](#) for more information about what sets the RD1800 apart).

Ultimate Protection for both Potable and Non-Potable Markets

Potable water models of the RD1800 feature a white seal, and offer our highest level of protection against the universal challenges that spray heads endure. Non-potable models add an extra level of defense against the chlorine and chemicals found in recycled water, and feature a purple seal with the international "Do Not Drink" symbol and warnings in English and Spanish.

[BUY NOW](#)



* PRS Pressure Regulating Spray Head Models

RD1800 Series Spray Heads

4", 6", 12" (10.2 cm, 15.2 cm, 30.5 cm)



Every landscape has elements that wear on your spray heads over time—from sand and grit to high water pressure and harmful chemicals in reclaimed water.

RD1800™ was designed with these incredibly harsh conditions in mind. As the next evolution in spray heads from Rain Bird—the industry leader in sprays—RD1800 was built with exclusive materials and features that stand up to the challenges of any setting.

Ultimate Protection for Both Potable and Non-Potable Markets

Potable water models of the RD1800 feature a white seal, and offer our highest level of protection against the universal challenges that spray heads endure. Non-potable models add an extra level of defense against the chlorine and chemicals found in recycled water. These feature a purple seal with the international "Do Not Drink" symbol, and warnings in English and Spanish.

[BUY NOW](#)

Spray and Rotary Nozzles
U-Series Nozzles

www.rainbird.com

U10 Series						
12" Trajectory						
Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip in/h	▲ Precip in/h	
U-10F	15	7	1.16	207	2.39	60
	20	8	1.60	2.01	2.32	60
	25	9	1.50	1.62	1.87	60
U-10H	15	7	0.58	2.07	1.83	60
	20	8	0.67	2.01	2.32	60
	25	9	0.75	1.62	1.87	60
U-10Q	15	7	0.82	1.58	1.83	60
	20	8	0.93	2.01	2.32	60
	25	9	0.37	1.62	1.87	60
30	10	0.41	1.58	1.83		60

U10 Series						
12" Trajectory						
Nozzle	Pressure bar	Radius m	Flow m ³ /h	Flow l/min	■ Precip mm/h	▲ Precip mm/h
U-10F	1.0	2.1	0.26	4.4	52	60
	1.5	2.6	0.30	5.0	47	55
	2.0	3.0	0.34	6.1	41	48
U-10H	1.0	2.1	0.31	0.37	62	40
	1.5	2.6	0.33	2.2	52	60
	1.5	2.6	0.15	2.6	47	55
U-10Q	2.0	3.0	0.17	3.1	41	48
	2.1	3.1	0.19	3.1	40	46
	1.0	2.1	0.07	1.1	52	60
	1.5	2.6	0.08	1.3	47	55
	2.0	3.0	0.08	1.5	41	48
	2.1	3.1	0.09	1.6	40	46

U12 Series						
23" Trajectory						
Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip in/h	▲ Precip in/h	
U-12F	15	9	1.80	2.14	2.47	60
	20	10	2.10	2.02	2.34	60
	25	11	2.40	1.91	2.21	60
U-12H	15	9	0.90	2.14	2.47	60
	20	10	1.05	2.02	2.34	60
	25	11	1.20	1.91	2.21	60
U-12Q	15	9	0.45	2.14	2.47	60
	20	10	0.53	2.02	2.34	60
	25	11	0.60	1.91	2.21	60
30	12	0.65	1.74	2.01		60

U12 Series						
23" Trajectory						
Nozzle	Pressure bar	Radius m	Flow m ³ /h	Flow l/min	■ Precip mm/h	▲ Precip mm/h
U-12F	1.0	2.7	0.40	6.8	55	63
	1.5	3.2	0.48	8.3	47	54
	2.0	3.6	0.59	9.7	46	53
U-12H	1.0	2.7	0.20	3.4	55	63
	1.5	3.2	0.24	4.2	47	54
	2.0	3.6	0.30	4.8	46	53
U-12Q	1.0	2.7	0.10	1.4	44	51
	1.0	2.7	0.10	1.7	55	63
	1.5	3.2	0.12	2.1	47	54
	2.0	3.6	0.15	2.4	46	53
	2.1	3.7	0.15	2.5	44	51

U15 Series						
23" Trajectory						
Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip in/h		

U10, U12, U15—SERIES SPRAY NOZZLE
NOT TO SCALE

GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

Specifications

2045A Maxi-Paw™ FULL- or PART-CIRCLE Pop-Up Rotator

The full- or part-circle pop-up rotator sprinkler shall be a single nozzle impact drive type, capable of covering a _____ foot radius at _____ pounds per square inch (PSI) or (Bars) with a discharge rate of _____ gallons per minute (gpm) or (l/s, m³/h). The part-circle sprinkler shall have an infinitely adjustable arc of coverage from 20° to 340°. Full-circle (360°) rotators shall be accomplished by disengaging the trip mechanism of the impact drive.

The sprinkler case and internal assembly, except for the arm spring, bearing spring, wiper seal, and bearing washers, shall be constructed of durable engineered plastics. The rotation of the sprinkler shall be accomplished by a double-weighted, horizontal-oscillating Precision Jet (PJ™) arm, actuated by the outlet water stream. The double-weighted arm shall provide for a slower rotation speed and increased distance of throw.

The sprinkler shall have an adjustable diffuser pin for distance and distribution control and shall be capable of full- or part-circle operation. The sprinkler nozzle outlet trajectory shall be 23 degrees for the standard nozzles and 11 degrees for the low angle nozzles.

The sprinkler shall be a strong, stainless steel retract spring for positive pop-down. Pop-up height shall be 3" (7.6 cm).

The sprinkler shall have a multi-function, pressure-activated wiper seal for low pressure operation and for cleaning debris from the riser as it retracts into the case.

The sprinkler shall have a 1/2" (12/31) (NPT) side and a combination 1/2" (15/2) 10 or 3/4" (19/27) (NPT) bottom inlet for installation flexibility and a bottom inlet screen to protect nozzle from clogging. The case shall have a sturdy, reinforced rib design with flange.

The sprinkler shall accept seven interchangeable, color-coded nozzles.

The sprinkler shall be as manufactured by Rain Bird Sprinkler Mfg. Corp., Glendora, California.

2045A-SAM FULL- or PART-CIRCLE Maxi-Paw™ Pop-Up Rotator with Seal-A-Matic™

Optional Feature Specifications

When so indicated on the design, the full- or part-circle pop-up rotator sprinkler shall have all the specifications of the standard version with a Seal-A-Matic™ (SAM) check valve to prevent low head drainage for elevation differences up to 10 feet (3.1 m).

The sprinkler shall be as manufactured by Rain Bird Sprinkler Mfg. Corp., Glendora, California.



Rotors		www.rainbird.com/rotors												
2045A Maxi-Paw™ / Maxi-Paw SAM Nozzles														
Maxi-Paw™ / Maxi-Paw SAM Performance								METRIC						
Pressure psi	Nozzle	Radius ft.	Flow gpm	▲ Precip in/h	▲ Precip in/h			Pressure bar	Nozzle	Radius m	Flow l/min	▲ Precip mm/h	▲ Precip mm/h	
25	● 6	-	-	-	-			2.0	● 6	-	-	-	-	
	● 07 LA	22	1.5	0.60	0.69				● 07 LA	6.8	0.38	6.0	16	19
	● 07	32	2.2	0.41	0.48				● 7	10.4	0.55	9.0	10	12
	● 08	35	2.8	0.44	0.51				● 8	11.0	0.68	11.4	11	13
	● 10 LA	35	3.4	1.05	1.21				● 10 LA	8.1	0.83	13.8	25	29
	● 10	38	10.2	4.2	0.55	0.65			● 10	11.9	0.18	16.8	14	16
	● 12	39	5.5	0.70	0.80				● 12	12.3	1.32	22.2	18	20
35	● 6	37	2.0	0.28	0.32			2.5	● 6	11.3	0.46	7.8	7	8
	● 07 LA	23	1.9	0.69	0.80				● 07 LA	7.1	0.44	7.2	17	20
	● 07	37	2.7	0.38	0.44				● 7	11.4	0.62	10.2	10	11
	● 08	38	0.8	0.34	0.44	0.51			● 8	11.7	0.76	12.6	11	13
	● 10 LA	29	4.0	0.92	1.06				● 10 LA	8.9	0.92	15.6	23	27
	● 10	41	4.8	0.55	0.64				● 10	12.5	1.11	18.6	14	16
	● 12	42	6.3	0.69	0.79				● 12	12.9	1.45	24.0	18	20
45	● 6	38	0.6	0.31	0.35			3.0	● 6	11.5	0.51	8.4	8	9
	● 07 LA	25	2.1	0.65	0.75				● 07 LA	7.5	0.47	7.8	17	19
	● 07	39	3.0	0.38	0.44				● 7	11.8	0.67	11.4	10	11
	● 08	40	3.7	0.45	0.51				● 8	12.1	0.83	13.8	11	13
	● 10 LA	31	4.5	0.90	1.04				● 10 LA	9.4	1.01	16.8	23	27
	● 10	42	5.4	0.59	0.68				● 10	12.8	1.21	20.4	15	17
	● 12	44	7.1	0.71	0.82				● 12	13.3	1.59	26.4	18	21
55	● 6	38	2.5	0.33	0.39			3.5	● 6	11.6	0.55	9.0	8	9
	● 07 LA	25	2.3	0.71	0.82				● 07 LA	7.6	0.50	8.4	17	20
	● 07	41	3.3	0.38	0.44				● 7	12.2	0.71	12.0	10	11
	● 08	41	4.1	0.47	0.54				● 8	12.4	0.89	15.0	12	13
	● 10 LA	32	5.0	0.94	1.09				● 10 LA	9.6	1.09	18.0	23	27
	● 10	43	6.0	0.62	0.72				● 10	13.0	1.30	21.6	15	18
	● 12	45	7.9	0.75	0.87				● 12	13.6	1.72	28.8	19	21
60	● 6	38	2.6	0.35	0.40			4.0	● 6	11.6	0.58	9.6	9	


 MAXI-PAW 2045A NOZZLES
 NOT TO SCALE

IRRIGATION SYSTEM CUT-SHEETS - HUNTER PRO-C HYDROWISE IRRIGATION CONTROLLER:

PRO-C

CONTROLLER PROGRAMMING INSTRUCTIONS:

SETTING THE DATE AND TIME

1 Turn dial to the **Date/Time** position.

1 **YEAR:** Press **▲** and **■** to change the year.

Press **▶** to advance to **MONTH**.

1 **MONTH:** Press **▲** and **■** to change the month. Press **▶** to advance to **DAY**.

1 **DAY:** Press **▲** and **■** to change the date. Press **▶** to advance to **TIME**.

1 **TIME:** Press **▲** and **■** to select AM, PM or 24 HR. Press **▶** to select hours. Press **▲** and **■** to change the hour shown on the display. Press **▶** to select minutes. Press **▲** and **■** to change the minutes.

The date, day and time have now been set.

SETTING PROGRAM START TIME

NOTE: A single watering start time will start the program (A,B,C) and all stations assigned to the program will run sequentially.

1 Turn dial to the **Start Times** position.

1 Select program A, B or C by pressing **▲**.

1 Press **▲** and **■** to change the start time.

1 Press **▶** to select the next start time, or **■** for the next program.

To eliminate a programmed start time: Press **▲** and **■** to set the start time to **OFF** (which is between 11:45 PM and midnight).

SETTING STATION RUN TIMES (WATERING DURATION)

1 Turn the dial to the **Run Times** position.

1 Select program A, B or C by pressing **▲**.

1 The display will show the station number and the program letter selected (A, B or C). The run time will be flashing.

1 Press **▲** and **■** to change the run time.

1 Press **▶** to advance to the next station.

1 Repeat steps 4 and 5 for each station.

SETTING DAYS TO WATER

1 Turn the dial to the **Water Days** position.

1 The controller displays currently programmed active day schedule information. This dial position provides four different water day options: water on specific days of the week, interval watering, or water on odd days or even days. Each program can only operate using one type of water day option.

1 With the arrow cursor on a specific day (the cursor always starts with Monday), press **▲** to activate a particular day of the week to water. Press **■** to cancel watering for that day. After pressing a button the cursor automatically advances to the next day. **A** indicates a water day. **A** icon indicates a no water day.

1 Repeat step 1 until desired days have been selected.

Please refer to **Owner's Manual** for interval and odd or even day scheduling.

CLEARING CONTROLLER'S MEMORY/RESETTING CONTROLLER

If you feel that you have mis-programmed the controller, there is a process that will reset the memory to factory defaults and clear all data that has been entered into the controller.

1 Hold down the **■** button.

1 While holding down the **■** button, press and release the reset button on the back of the front panel, wait until the display reads 12:00 AM, then release the **■** button.

1 All the memory has been cleared and the controller may be reprogrammed.

MANUALLY OPERATING A SINGLE STATION

1 Turn dial to the **Manual** position.

1 Station run time will flash in the display. Press **▶** to move to the desired station. Press **▲** and **■** to set the watering duration.

1 Turn the dial to the **RUN** position to run the station. (Station designated will water, then controller will return to automatic mode).

ONE TOUCH MANUAL START AND STATION ADVANCE

With the dial in the **RUN** position, press and hold **▶** until **STATION 1** appears in the display. Release the arrow button to run all stations for their programmed run time (one touch).

To adjust run times prior to running all stations, press and hold the **▶** until **STATION 1** appears and then press **▲** and **■** to select the run time and **▶** to advance and adjust all programmed stations.

RAIN SENSOR BYPASS SWITCH

If a sensor is preventing system operation (or no sensor is installed and the switch is in the **ACTIVE** position), **SENSOR OFF** will be displayed. Move the switch to **BYPASS** and the rain sensor will be bypassed.

SEASONAL ADJUSTMENT

1 Turn dial to the **Seasonal Adjust** position.

1 Press **▲** and **■** to change the seasonal adjustment from 5% to 300% in 5% increments. The station run times displayed will automatically be recalculated.

PRO-C® - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4			
1 Models	2 Transformer	3 Indoor/Outdoor	4 Options
PC-4 = 4-station base module controller PCC-6 = 6-station PCC-12 = 12-station	00 = 120 VAC 01 = 230 VAC	(blank) = Outdoor model (internal transformer) i = Indoor model (plug-in transformer)	(blank) = No option E = 230 VAC with European connections A = 230 VAC with Australian connections (outdoor models have internal transformer with cord)

	X-CORE	HC	PRO-HC	PRO-C	PRO-C HYDROWISE
QUICK SPECS					
NUMBER OF STATIONS	2, 4, 6, 8	6 & 12, 24, 36	6, 12, 24	MODULAR: 4 TO 16 FIXED: 6 & 12	4-16
TYPE*	Fixed	Fixed and Expandable	Fixed	Modular and Fixed	Modular
NUMBER OF PROGRAMS	3	36	36	3	16
START TIMES PER PROGRAM	4	6	6	4	6
WARRANTY	2 Years	2 Years	2 Years	2 Years	2 Years

HUNTER PRO-C HYDROWISE (WITH EXPANSION MODULE), WI-FI ENABLED, FULL-FUNCTIONING CONTROLLER WITH TOUCHSCREEN, 24-STATION FIXED CONTROLLER, 120 VAC, INDOOR MODEL.

FEATURES					
ENCLOSURE TYPE	Plastic Indoor Plastic Outdoor	Plastic Indoor	Plastic Indoor Plastic Outdoor	Plastic Indoor Plastic Outdoor	Plastic Indoor Plastic Outdoor
TRANSFORMER TYPES	Plug In Outdoor	Plug In	Plug In Outdoor	Plug In Outdoor	Plug In Outdoor
HUNTER SOLAR SYNC ET SENSOR COMPATIBLE	Yes	No	No	Yes	No
HYDROWISE SOFTWARE COMPATIBLE	No	Yes	Yes	No	Yes
REMOTE CONTROL COMPATIBLE	Yes (ROAM, ROAMXL)	Yes (Smart Phone)	Yes (Smart Phone)	Yes (ROAM, ROAMXL)	Yes (Smart Phone, ROAM, ROAMXL)
FLOW SENSOR COMPATIBLE	No	Yes	Yes	No	Yes
RAIN/FREEZE SENSOR COMPATIBLE	Yes	Yes	Yes	Yes	Yes
NUMBER OF SENSOR INPUTS	1	2	2	1	1
MAX STATION RUN TIME (HRS)	4	24	24	6	24

WATERING SCHEDULE

PROGRAMS	A	B	C
WATER DAYS	M T W T F S S	M T W T F S S	M T W T F S S
Interval or Odd/Even Days			
Event Day(s) Off			
START TIME(S)			
Set the time(s) to start the program's watering cycle(s).			
1			
2			
3			
4			
Only one program start time is needed to run the cycle.			
STATION Location	Station Run Time	Station Run Time	Station Run Time
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
TOTAL RUN TIME:	For Program A	For Program B	For Program C
To determine the duration of each watering cycle, add up all the run times for each station.			

Website hunterindustries.com
1/19/2007/08 LIT-035 G 1/14

PRO-C | Hunter

A

PRO-C HYDROWISE CONTROLLER

IR-8

NOT TO SCALE

B

PRO-C HYDROWISE CONTROLLER

IR-8

NOT TO SCALE

C

PRO-C HYDROWISE CONTROLLER

IR-8

NOT TO SCALE

D

CONTROLLER WATERING SCHEDULE

IR-8

NOT TO SCALE

IRRIGATION SYSTEM CUT-SHEETS - HUNTER WRF-CLIK RAIN/FREEZE SENSOR & HC 150 FLOW METER:

Safeguard Yourself from the Elements

Installing Klik sensors allows a controller to sense rapidly changing weather and react to individual conditions like rain, high wind, or freezing temperatures.

MINI-CLIK®

RAIN-CLIK™

FREEZE-CLIK®

WIND-CLIK™

FLOW-CLIK™

SOIL-CLIK™

QUICK SPECS						
SENSOR TYPE	RAIN	RAIN/FREEZE	FREEZE	WIND	FLOW	SOIL
AVAILABLE WIRELESS	No	Yes	No	No	No	No
COMPATIBLE CONTROLLERS	ACC2 ACC I-Core ICC2 Pro-C PCC X-Core XC Hybrid NODE WVC	ACC2 ACC I-Core ICC2 Pro-C PCC X-Core XC Hybrid* NODE* WVC*	ACC2 ACC I-Core ICC2 Pro-C PCC X-Core XC Hybrid NODE WVC	ACC2 ACC I-Core ICC2 Pro-C PCC X-Core XC Hybrid NODE WVC	ACC2 ACC I-Core ICC2 Pro-C PCC X-Core XC Hybrid NODE WVC	ACC2 ACC I-Core ICC2 Pro-C PCC X-Core XC Hybrid NODE WVC

FEATURES						
QUICK RESPONSE™		✓				
WARRANTY	5 Years	5 Years (wired model) 10 Years (wireless model)	5 Years	5 Years	5 Years	5 Years
APPLICATIONS						
RAIN SENSOR	✓	✓				
FREEZE SENSOR		✓	✓			
WIND SENSOR				✓		
FLOW SENSOR					✓	
SOIL SENSOR						✓

* For use with wired models only

HUNTER WRF-CLIK RAIN/FREEZE SENSOR. INSTALL WITHIN 1,000 FEET OF CONTROLLER, IN LINE OF SIGHT, 22-28 VAC/VDC 100mA, POWER FROM TIMER TRANSFORMER. INCLUDES GUTTER MOUNT.

FEATURES

- Quick Response™ feature shuts the system off as soon as it starts raining
- Maintenance-free design with 10-year battery life for wireless models
- Adjustable vent ring allows for setting of reset delay
- Rugged polycarbonate housing and metal extension arm
- Wired models include 25' of 10 AWG sheathed, two-conductor, UL-approved wire
- Wireless unit available with 800' range from wireless sensor to receiver
- Warranty period: 5 years (10-year battery warranty for wireless model)
- Compatible with most controllers

SPECIFICATIONS

- Wiring: normally-open or normally-closed
- Time to turn off irrigation system: 2 to 5 minutes approx. for Quick Response
- Time to reset Quick Response: 4 hours approx. under dry, sunny conditions
- Time to reset when fully wet: 3 days approx. under dry, sunny conditions
- UL listed, CUL (CSA), CE
- Switch rating: 24 VAC, 3 A
- Freeze sensor shuts system off when temperatures fall below 37°F (Rain/Freeze-Clk® model)
- System operating frequency: 433 MHz (wireless model)
- Communication range up to 800' line of sight (wireless model)
- Rain/Freeze-Clk shuts system off when temperatures fall below 37°F
- Receiver input power: 24 VAC (from controller)

APPROVALS

- UL listed, FCC approved, cUL, CSA, CE

RAIN-CLIK	
Model	Description
RAIN-CLIK	Wired Rain-Clk sensor
RFC	Wired Rain/Freeze-Clk sensor
WR-CLIK	Wireless Rain-Clk sensor and receiver
WRF-CLIK	Wireless Rain/Freeze-Clk sensor and receiver

USER INSTALLED OPTION (SPECIFY SEPARATELY FROM CONTROLLER)

Model	Description
SGM	Optional gutter mount (included in the WRF-CLIK)

SENSORS

RAIN-CLIK/RFC

Height: 2.5"
Length: 7"

SGM

Optional gutter mount
Height: 9"
Length: 3"

WR-CLIK/WRF-CLIK

Height: 3"
Length: 8"

Wireless Receiver

Height: 3.25"
Length: 4"

HC FLOW METER

Sensor: Flow

FEATURES

- Flow meter connects to Hydrowise™ ready controllers and the Hydrowise software
- Shows total water use by zone
- Monitors the system to alert for high/low flow conditions
- Dial allows for manual recording at the meter in gallons or m³
- Meters are factory calibrated
- Two-wire read-based pulse output
- Flow directional markings on body
- Temperature range (water) - up to 100°F
- Electrical connection - 2 wires
- Directional flow - yes
- Accuracy - 2% (+ or -) at recommended flow
- Material: Brass body with PVC reading cap

► Additional chart on page 172

HC FLOW METER SPECIFICATIONS				
	HC-075-FLOW (¾" coupling)	HC-100-FLOW (1" coupling)	HC-150-FLOW (1½" coupling)	HC-200-FLOW (2" coupling)
Inlet/outlet connection size	¾" NPT body, male thread with 1" NPT male adaptor	1" NPT body, male thread with 1½" NPT male adaptor	1½" NPT body, male thread with 2" NPT male adaptor	2" NPT body, male thread with 3" NPT male adaptor
Meter internal diameter	¾"	1"	1½"	2"
Minimum flow (GPM)	0.22	0.3	0.88	1.98
Maximum recommended flow (GPM)	15	30	66	105
Maximum flow rate (GPM)	21	34	88	132
Dial reading (US gal)	1 pulse per 0.1 US gal	1 pulse per 1 US gal	1 pulse per 1 US gal	1 pulse per 1 US gal
Working pressure (PSI)	0-230	1-230	2-230	3-230

HUNTER HC-150-FLOW, 1 1/2" FOR USE WITH HYDROWISE ENABLED CONTROLLER TO MONITOR FLOW AND PROVIDE SYSTEM ALERTS. FUNCTIONS AS STAND ALONG FLOW. ALSO TOTALIZER/SUB-METER FOR IRRIGATION SYSTEM.

NOTE: INLET PIPE ENTERING METER: LENGTH MUST BE A MIN. OF 10 X PIPE DIA. OUTLET PIPE LEAVING METER: LENGTH MUST BE MIN. OF 5 X PIPE DIA. INLET AND OUTLET PIPE MUST BE STRAIGHT PIPE WITH NO FITTINGS OR TURNS UNTIL AFTER THESE SPECIFIED LENGTHS. PIPE AND FITTINGS MAY BE SCH 80 PVC SOLVENT WELD, THREADED SCH 80 PVC OR BRASS, AS REQUIRED FOR PROJECT.

DETAIL LEGEND:

1 HUNTER HC FLOW METER HC-150 WITH UNION CONNECTIONS

2 SCH 80 PVC FEMALE ADAPTER (S X T)

3 RECTANGULAR VALVE BOX PER SPECIFICATIONS

4 SCH 80 PVC 45 DEGREE ELBOW (S X S) TO LOWER MAIN LINE TO PROPER DEPTH (SIZE FOR LARGER MAIN LINE AS NEEDED)

5 SCH 80 PVC 45 DEGREE ELBOW (S X S) TO LOWER MAIN LINE TO PROPER DEPTH

6 2" DIA. (50 mm) MAIN LINE AT INLET & OUTLET

7 MAIN LINE TO SYSTEM (SEE LEGEND AND PLANS FOR TYPE AND SIZE)

8 TWO WIRES TO FLOW SENSOR TERMINALS AT CONTROLLER. MIN. 18 AWG-UF (2.08 mm²) SHIELDED WIRE WITH DIFFERENT COLOR FROM CONTROL/Common WIRE.

9 WEATHERPROOF WIRE CONNECTOR AS NEEDED

10 FINISH GRADE

11 SPECIFIED SOIL COVER (SEE LEGEND)

12 COMMON BRICK

13 GRAVEL BASE, 6" (15 cm) DEEP

TOP VIEW

SIDE VIEW

10 x PIPE DIA.

5 x PIPE DIA.

XX

HC-150 FLOW METER (1.5"/40 mm)

Hunter IRRIGATION DETAIL

NOT TO SCALE

E

HUNTER WRF-CLIK RAIN/FREEZE SENSOR

IR-8

NOT TO SCALE

F

HUNTER WRF-CLIK RAIN/FREEZE SENSOR

IR-8

NOT TO SCALE

G

HC 150-FLOW METER

IR-8

NOT TO SCALE

H

HC 150-FLOW METER

IR-8

NOT TO SCALE

Julee Wolverton,
Landscape Architect



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GRAND JUNCTION HOUSING AUTHORITY

2814 PATTERSON ROAD

GRAND JUNCTION, CO

DATES/ REVISIONS

01.14.19	CITY SUBMITTAL
04.05.19	100% CD's
09.06.19	ASI-01

IR-8

IRRIGATION CUT-SHEETS

IRRIGATION SYSTEM CUT-SHEETS - PVC SCH 40 AND SCH 80 FITTINGS FOR 1", 1 1/2", AND 2" SIZE PIPE:

PVC SCHEDULE 40 FITTINGS

40-2-060

Performance Engineered & Tested

Full 1/4" Through 12" Availability

Spears' comprehensive line of PVC fittings offers a variety of injection molded configurations in Schedule 40 sizes 1/4" through 12" conforming to ASTM D 2466.

Exceptional Chemical & Corrosion Resistance

Unlike metal, PVC fittings never rust, scale, or pit, and will provide many years of maintenance-free service and extended system life.

High Temperature Ratings

PVC thermoplastic can handle fluids at service temperatures up to 140°F (60°C), allowing a wider range of process applications, including corrosive fluids.

Lower Installation Costs

Substantially lower material costs than steel alloys or lined steel, combined with lighter weight and ease of installation, can reduce installation costs by as much as 60% over conventional metal systems.

SPEARS® Schedule 40 PVC fitting designs combine years of proven experience with computer generated stress analysis to yield the optimum physical structure and performance for each fitting. Material reinforcement is uniformly placed in stress concentration areas for substantially improved pressure handling capability. Resulting products are subjected to numerous verification tests to assure the very best PVC fittings available.

Higher Flow Capacity

Smooth interior walls result in lower pressure loss and higher volume than conventional metal fittings.

Additional Fabricated Configurations through 36"

Extra large, hard-to-find, and custom configurations fabricated from NSF Certified pipe. Fittings are engineered and tested to provide full pressure handling capabilities according to Spears' specifications.

PVC Valves

SPEARS® PVC Valve products are available for total system compatibility and uniformity; see SPEARS® THERMOPLASTIC VALVES PRODUCT GUIDE & ENGINEERING SPECIFICATIONS (V-4).

Advanced Design Specialty Fittings

Spears' wide range of innovative, improved products includes numerous metal-to-plastic transition fittings and unions with Spears' patented steel reinforced (SR) plastic threads.

Sample Engineering Specifications

All PVC Schedule 40 fittings shall be produced by Spears® Manufacturing Company from PVC Type I cell classification 2464, conforming to ASTM D 1784. All injection molded PVC Schedule 40 fittings shall be Certified for potable water service by NSF International and manufactured in strict compliance to ASTM D 2466. All fabricated fittings shall be produced in accordance with Spears® General Specifications for Fabricated Fittings.

QUALITY MANAGEMENT SYSTEMS
REGISTERED TO ISO 9001:2008

PROGRESSIVE PRODUCTS FROM SPEARS® INNOVATION & TECHNOLOGY

Visit our web site: www.spearsmfg.com

PVC Thermoplastic Pipe Temperature Pressure De-Rating

To determine the maximum internal pressure rating at an elevated temperature, simply multiply the pipe pressure rating at 73°F by the percentage specified for the desired temperature.

System Operating Temperature °F (°C)	73 (23)	80 (27)	90 (32)	100 (38)	110 (43)	120 (49)	130 (54)	140 (60)
PVC	100%	90%	75%	62%	50%	40%	30%	22%

NOTE: Valves, Unions and Specialty Products have different elevated temperature ratings than pipe.

PVC Basic Physical Properties

Properties	ASTM Test Method	PVC
Mechanical Properties, 73°F		
Specific Gravity, g/cm ³	D 792	1.41
Tensile Strength, psi	D 638	7,200
Modulus of Elasticity, psi	D 638	400,000
Compressive Strength, psi	D 695	9,000
Flexural Strength, psi	D 790	13,200
Izod Impact, notched, ft-lb/in	D 256	.65
Thermal Properties		
Heat Deflection Temperature, °F at 66 psi	D 648	165
Thermal Conductivity, BTU/inch°F/in	C 177	1.2
Coefficient of Linear Expansion, in/in/°F	D 696	3.1 X 10 ⁻⁵
Flammability		
Limiting Oxygen Index, %	D 2883	43
UL 94 rating		94V-0
Other Properties		
Water Absorption, % 24 hr.	D 570	.05
Industry Standard Color	White / Dark Gray	
ASTM Cel Classification	D 1784	12454
NSF Potable Water Approved		Yes

PVC Chemical Resistance

PVC is generally inert to most mineral acids, base salts and paraffinic hydrocarbon solvents. For more information on PVC chemical resistance refer to the Chemical Resistance of Rigid Vinyls Based on Immersion Test, published by the GEON® Company.

NOT FOR USE WITH COMPRESSED AIR OR GAS

Spears® Manufacturing Company DOES NOT RECOMMEND the use of thermoplastic piping products for systems to transport or store compressed air or gases, or the testing of thermoplastic piping systems with compressed air or gases in above and below ground locations. The use of our product in compressed air and gas systems automatically voids any warranty for such products, and its use against our recommendation is entirely the responsibility and liability of the installer.

WARNING: DO NOT USE COMPRESSED AIR OR GAS TO TEST ANY PVC OR CPVC THERMOPLASTIC PIPING PRODUCT OR SYSTEM, AND DO NOT USE DEVICE PROPELLED BY COMPRESSED AIR OR GAS TO CLEAR SYSTEMS. THESE PRACTICES MAY RESULT IN EXPLOSIVE FRAGMENTATION OF SYSTEM PIPING COMPONENTS CAUSING SERIOUS OR FATAL BODILY INJURY.

SPEARS' MANUFACTURING COMPANY • CORPORATE OFFICE

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Fax (503) 839-7551

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Denver, CO 80228
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Fax (303) 375-9546

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Salt Lake City, UT 84104
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Fax (717) 858-8547

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40-3-00

PVC SCHEDULE 80 FITTINGS

60-2-100

Performance Engineered & Tested

SPEARS® Schedule 80 PVC fitting designs combine years of proven experience with computer generated stress analysis to yield the optimum physical structure and performance for each fitting. Material reinforcement is uniformly placed in stress concentration areas for substantially improved pressure handling capability. Resulting products are subjected to numerous verification tests to assure obtaining the very best PVC fittings available.

Full 1/4" Through 12" Availability

Spears® comprehensive line of injection molded PVC fittings offers a variety of configurations in molded Schedule 80 sizes 1/4" through 12" conforming to ASTM D 2467 and Spears® exclusive CL150 Flanges in sizes 1/2" through 16".

Exceptional Chemical & Corrosion Resistance

Unlike metal, PVC fittings never rust, scale, or pit, and will provide many years of maintenance-free service and extended system life.

High Temperature Ratings

PVC thermoplastic can handle fluids at service temperatures up to 140°F (60°C), allowing a wide range of process applications, including corrosive fluids.

Lower Installation Costs

Substantially lower material costs than steel alloy or lined steel, combined with lighter weight and ease of installation, can reduce installation costs by as much as 60% over conventional metal systems.

Higher Flow Capacity

Smooth interior walls result in lower pressure loss and higher volume than conventional metal fittings.

Additional Fabricated Configurations through 36"

Extra large, hard-to-find, and custom configurations are fabricated from NSF Certified pipe. Fittings are engineered and tested to provide full pressure handling capabilities according to Design Specifications.

Advanced Special Specialty Fittings

Spears® wide ranges of innovative, improved product lines include: special large diameter fittings, pipe unions with Spears® patented special reinforced (SR) plastic threads.

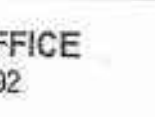
PVC Valves

SPEARS® PVC Valve products are available for total system compatibility and uniformity; see SPEARS® THERMOPLASTIC VALVES PRODUCT GUIDE & ENGINEERING SPECIFICATIONS (V-4).

Sample Engineering Specifications

All PVC Schedule 80 fittings shall be produced by Spears® Manufacturing Company from PVC Type I call classification 13454, conforming to ASTM Standard D 1784. All injection molded PVC Schedule 80 fittings shall be Certified for potable water service by NSF International and manufactured in strict compliance to NSF/ANSI D 2467. All fabricated fittings shall be produced in accordance with Spears® General Specifications for Fabricated Fittings. All PVC flanges shall be designed and manufactured to meet CL150 bolt pattern per ANSI Standard B16.3 and rated for a maximum internal pressure of 150 psi, non-shock at 173°F.

PROGRESSIVE PRODUCTS FROM SPEARS® INNOVATION & TECHNOLOGY
Visit our web site: www.spearsmfg.com

PVC Thermoplastic Pipe Temperature Pressure De-Rating To determine the maximum internal pressure rating at an elevated temperature, simply multiply the pipe pressure rating at 73°F by the percentage specified for the desired temperature. <table> <tr> <th>System Temp (°C)</th><th>73</th><th>80</th><th>92</th><th>100</th><th>110</th><th>120</th><th>130</th><th>140</th><th>160</th></tr> <tr> <th>Temperature °F (°C)</th><th>(23)</th><th>(27)</th><th>(39)</th><th>(36)</th><th>(43)</th><th>(49)</th><th>(54)</th><th>(50)</th><th>(60)</th></tr> <tr> <th>PVC</th><td>100%</td><td>90%</td><td>75%</td><td>62%</td><td>50%</td><td>40%</td><td>30%</td><td>22%</td><td></td></tr> </table> NOTE: Valves, Unions and Specialty Products have different elevated temperature ratings than pipe.										System Temp (°C)	73	80	92	100	110	120	130	140	160	Temperature °F (°C)	(23)	(27)	(39)	(36)	(43)	(49)	(54)	(50)	(60)	PVC	100%	90%	75%	62%	50%	40%	30%	22%																															
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A PVC SCHEDULE 40 FITTINGS


 PVC SCHEDULE 40 FITTINGS
 NOT TO SCALE


 PVC SCHEDULE 80 FITTINGS
 NOT TO SCALE

D
IR-9

PVC SCHEDULE 80 FITTINGS

NOT TO

IRRIGATION SYSTEM CUT-SHEETS - PVC CLASS 200 MAINLINE & LATERAL LINES & PVC FITTING CEMENT
FOR 1", 1 1/2", AND 2" SIZE PIPE FOR LATERALS AND MAINLINE, AND PVC SCHEDULE 40 FOR 4" PIPE AND WIRE SLEEVES

0700

PVC IRRIGATION

IRRIGATION
GOLF

INDUSTRIAL

CLASS 200 - SDR 21 PIPE FOR MAINLINE & LATERALS

Class 200 - SDR 21

Conforms to ASTM D-2241, D-1784 Class 12454 A, B.

ITEM	CARTON	DESCRIPTION
07000130	1000	3/4 CL200 PVC BE PIPE
07000131	1000	1 CL200 PVC BE PIPE
07000240	1000	1 1/4 CL200 PVC BE PIPE
07000250	1000	1 1/2 CL200 PVC BE PIPE
07000260	1000	1 3/4 CL200 PVC BE PIPE
07000276	1568	2 1/2 CL200 PVC BE PIPE
07000280	1568	3 CL200 PVC BE PIPE
07000290	960	3 CL200 PVC BE PIPE
07000300	960	3 CL200 PVC BE PIPE

Class 315 - SDR 13.5

Conforms to ASTM D-2241, D-1784 Class 12454 A, B.

ITEM	CARTON	DESCRIPTION
07000110	1000	1/2 CL315 PVC BE PIPE
07000120	2000	2 CL315 PVC BE PIPE
07000130	2000	2 1/2 CL315 PVC BE PIPE
07000180	1000	3 CL315 PVC BE PIPE
07000390	960	4 CL315 PVC BE PIPE

100 Foot Head

Conforms to ASTM S-376.1, A-1784 Class 12454 A, B. Regional distribution.

ITEM	CARTON	DESCRIPTION
07001008	280	3 1/2" FT HEAD PVC PIPE
07001010	220	10 1/2" FT HEAD PVC PIPE
07001012	160	12 1/2" FT HEAD PVC PIPE
07001015	160	15 1/2" FT HEAD PVC PIPE
07001018	100	18 1/2" FT HEAD PVC PIPE
07001200	80	20 1/2" FT HEAD PVC PIPE

PVC PRESSURE RATED PIPE
PVC (polyvinylchloride) pipe has been installed in industrial applications such as chemical treatment processing, painting, cold water distribution, drainage and irrigation systems for over 30 years. PVC pipe is strong, easy-to-handle material light enough that the average person can lift and carry a 50 foot section of 8" pipe.

Since PVC is made of a nearly inert material, it is not affected by electrolytic or galvanic corrosion. Its strength-to-weight ratio and its flexible nature means PVC pipe will resist cracking or rupture.

PVC pipe is manufactured in either accordance to ASTM Specifications (ASTM D-7861) and is available in a wide range of sizes and pressure ratings. The PVC used in plastic pipe is Type 1, Grade 3 PVC resin.

SCHEDULE 40 PIPE FOR PIPE SLEEVES AND WIRE SLEEVES
PVC has the strength of any major thermoplastic used for piping.

Schedule 40 Pipe

Conforms to ASTM D-1745, D-1785 Class 12454 A, B.

ITEM	CARTON	DESCRIPTION
07000140	1000	1/2 SCH 40 PVC BE PIPE
07000141	1000	3/4 SCH 40 PVC BE PIPE
07000143	1000	1 SCH 40 PVC BE PIPE
07000145	1000	1 1/4 SCH 40 PVC BE PIPE
07000147	1000	1 1/2 SCH 40 PVC BE PIPE
07000149	1000	2 SCH 40 PVC BE PIPE
07000160	1440	2 1/2 SCH 40 PVC BE PIPE
07000165	1440	3 SCH 40 PVC BE PIPE
07000166	960	3 SCH 40 PVC BE PIPE
07000168	960	3 SCH 40 PVC BE PIPE
07000170	960	3 SCH 40 PVC BE PIPE
07000172	960	3 SCH 40 PVC BE PIPE
07000174	960	3 SCH 40 PVC BE PIPE
07000176	960	3 SCH 40 PVC BE PIPE
07000178	960	3 SCH 40 PVC BE PIPE
07000180	960	3 SCH 40 PVC BE PIPE
07000182	960	3 SCH 40 PVC BE PIPE
07000184	960	3 SCH 40 PVC BE PIPE
07000186	960	3 SCH 40 PVC BE PIPE
07000188	960	3 SCH 40 PVC BE PIPE
07000190	960	3 SCH 40 PVC BE PIPE
07000192	960	3 SCH 40 PVC BE PIPE
07000194	960	3 SCH 40 PVC BE PIPE
07000196	960	3 SCH 40 PVC BE PIPE
07000198	960	3 SCH 40 PVC BE PIPE
07000200	960	3 SCH 40 PVC BE PIPE
07000202	960	3 SCH 40 PVC BE PIPE
07000204	960	3 SCH 40 PVC BE PIPE
07000206	960	3 SCH 40 PVC BE PIPE
07000208	960	3 SCH 40 PVC BE PIPE
07000210	960	3 SCH 40 PVC BE PIPE
07000212	960	3 SCH 40 PVC BE PIPE
07000214	960	3 SCH 40 PVC BE PIPE
07000216	960	3 SCH 40 PVC BE PIPE
07000218	960	3 SCH 40 PVC BE PIPE
07000220	960	3 SCH 40 PVC BE PIPE
07000222	960	3 SCH 40 PVC BE PIPE
07000224	960	3 SCH 40 PVC BE PIPE
07000226	960	3 SCH 40 PVC BE PIPE
07000228	960	3 SCH 40 PVC BE PIPE
07000230	960	3 SCH 40 PVC BE PIPE
07000232	960	3 SCH 40 PVC BE PIPE
07000234	960	3 SCH 40 PVC BE PIPE
07000236	960	3 SCH 40 PVC BE PIPE
07000238	960	3 SCH 40 PVC BE PIPE
07000240	960	3 SCH 40 PVC BE PIPE
07000242	960	3 SCH 40 PVC BE PIPE
07000244	960	3 SCH 40 PVC BE PIPE
07000246	960	

PVC IRRIGATION PIPE WATER FLEX HOSE WATER RECLAIMED WATER PIPE

Polyethylene Irrigation Pipe
 Conforms to ASTM D2239 requirements for PE3408 high strength, SDR18 90 psi, SDR18 100PSI NSF rated.
 Regional distribution.

ITEM	DESCRIPTION
07060210	3/4X100 60PSI NSF UTILITY PE PIPE
07060215	3/4X100 80PSI UTILITY PE PIPE
07060310	1/2X100 60PSI UTILITY PE PIPE
07060315	1/2X100 80PSI UTILITY PE PIPE
07060410	1/4X100 60PSI UTILITY PE PIPE
07060415	1/4X100 80PSI UTILITY PE PIPE
07060510	1/2X100 60PSI UTILITY PE PIPE
07060515	1/2X100 80PSI UTILITY PE PIPE
07060610	3/4X100 125 PSI LDCPE PIPE
07060620	3/4X100 125 PSI LDCPE PIPE
07060630	1/2X100 125 PSI LDCPE PIPE
07060640	1/4X100 125 PSI LDCPE PIPE

07070305	1/4X300 80PSI NSF 300 PE PIPE
07071210	3/4 X 100 100 PSI NSF 3486 PE PIPE
07071215	1/2 X 100 100PSI NSF 3486 PE PIPE
07071310	1/4 X 100 100PSI NSF 3486 PE PIPE
07071315	1/4 X 100 100PSI NSF 3486 PE PIPE
07071410	1/4 X 100 100PSI NSF 3486 PE PIPE
07071510	1/2 X 100 100PSI NSF 3486 PE PIPE
07071515	1/2 X 100 100PSI NSF 3486 PE PIPE
07072210	3/4 X 100 125 PSI NSF 3486 PE PIPE
07072215	3/4 X 100 125 PSI NSF 3486 PE PIPE
07072310	1/2 X 100 125 PSI NSF 3486 PE PIPE
07072315	1/2 X 100 125 PSI NSF 3486 PE PIPE
07072410	1/4 X 100 125 PSI NSF 3486 PE PIPE
07072415	1/4 X 100 125 PSI NSF 3486 PE PIPE
07072510	1/4 X 100 125 PSI NSF 3486 PE PIPE
07072515	1/4 X 100 125 PSI NSF 3486 PE PIPE
07073010	1/2 X 100 125 PSI NSF 3486 PE PIPE
07073015	1/2 X 100 125 PSI NSF 3486 PE PIPE

I.P.S. Flexible Sch. 40 PVC Hose
 Offers more flexibility, durability and shock resistance to an irrigation system than standard PVC pipe.
 Conforms to ASTM D-2241, D-1784 Cell Class 12454 A, B.

ITEM	CARTON	DESCRIPTION
08000622	25	1/2 X 1/4 IN IPS FLEX HOSE
08000624	20	1/2 X 1/2 IN IPS FLEX HOSE
08000626	24	3/4 X 1/2 IN IPS FLEX HOSE
08000628	20	3/4 X 3/4 IN IPS FLEX HOSE
08000630	10	1 X 1/2 IN IPS FLEX HOSE

Call us at 800.343.9464

PVC Spa Flex Hose
 A smooth bore flexible PVC tubing for plumbing spas and pools or used as a suction or return line in other low pressure applications, such as ponds and water features.

Maximim Pressure Ratings @ 60° F

1/2", 3/4", 1"	100 PSI
1-1/2", 2"	70 PSI
3"	85 PSI

ITEM	DESCRIPTION
08000010	1/2" X PVC BULK FLEX SPA HOSE 50'
08000020	3/4" X PVC BULK FLEX SPA HOSE 50'
08000030	1" X PVC BULK FLEX SPA HOSE 50'
08000040	1-1/2" X PVC BULK FLEX SPA HOSE 50'
08000050	2" X PVC BULK FLEX SPA HOSE 50'
08000060	3" X PVC BULK FLEX SPA HOSE 50'

Gasketed Twin Seal Sewer Pipe SDR-35
 Conforms to ASTM C-3034 SDR, SCS listed to ASTM D-1784.

ITEM	CARTON	DESCRIPTION
09001360	960	4.02R SDR 35 SEWER PIPE GASKET
09001370	360	6.02R SDR 35 SEWER PIPE GASKET
09001380	360	8.02R SDR 35 SEWER PIPE GASKET
09001390	240	10.02R SDR 35 SEWER PIPE GASKET
09001396	12	12.02R SDR 35 SEWER PIPE GASKET

Size	3	4	6	8	10	12
OD	3.393	4.471	6.275	8.460	10.520	12.500
ID	3.250	4.327	6.131	8.316	10.376	12.356
WALL	.110	.140	.180	.240	.300	.380
LSB100'	710	310	154	234	424	817.0
FLYGT 25'	1100	680	440	280	240	120

Class 200 Gasketed SDR-21
 Conforms to ASTM D-2241, ASTM D-1784 cell class 12454-B, gaskets ASTM F477.

ITEM	CARTON	DESCRIPTION
09000080	7100	2.02UG GASKETED PVC PIPE
09000081	440	2-1/2 2.02UG GASKETED PVC PIPE
09000082	1900	3.02UG GASKETED PVC PIPE
09000083	1100	3.52UG GASKETED PVC PIPE
09000084	600	4.02UG GASKETED PVC PIPE
09000085	350	4.52UG GASKETED PVC PIPE
09000086	200	5.02UG GASKETED PVC PIPE
09000087	120	6.02UG GASKETED PVC PIPE

UVR-PVC Pipe SCH. 40
 Solar Proof: Pvc is an ultraviolet resistant material recommended for above ground installation. Special formulation makes this brand of Pvc pipe a smart application for gavelated pipe

0700

PVC/IRRIGATION

IRRIGATION

GOLF

INDUSTRIAL

CL 200

P.R. 200 - SDR 21 Conforms to: ASTM D2241, D1784 cell class 1245-A, B

Nominal Pipe Size	Outside Diameter	Inside Diameter	Min. Wall Thickness	Max. Press. Working (PSI)
1/2"	0.840	0.716	0.062	200
3/4"	1.050	0.930	0.060	200
1	1.315	1.149	0.063	200
1 1/4"	1.660	1.466	0.079	200
1 1/2"	1.900	1.720	0.090	200
2	2.375	2.149	0.113	200
2 1/2"	2.875	2.601	0.137	200
3	3.500	3.169	0.167	200
4	4.500	4.072	0.214	200
6	6.625	5.983	0.316	200
8	8.625	7.740	0.410	200
10	10.750	9.850	0.511	200
12	12.750	11.450	0.606	200

CL 315

P.R. 315 - SDR 13.5 Conforms to: ASTM D2241, D1784 cell class 1245-A, B

Nominal Pipe Size	Outside Diameter	Inside Diameter	Min. Wall Thickness	Max. Press. Working (PSI)
1/2"	0.840	0.715	0.062	315
2	2.375	2.023	0.176	315
2 1/2"	2.875	2.449	0.231	315
3	3.500	2.892	0.259	315
4	4.500	3.634	0.333	315

Schedule 40

Schedule 40 Conforms to: ASTM D1785, D1785 cell class 1245-A, B

Nominal Pipe Size	Outside Diameter	Inside Diameter	Min. Wall Thickness	Max. Press. Working (PSI)
1/2"	0.840	.622	.109	600
3/4"	1.050	.824	.113	480
1	1.315	1.049	.133	480
1 1/4"	1.660	1.360	.140	370
1 1/2"	1.900	1.510	.145	330
2	2.375	2.007	.154	280
2 1/2"	2.875	2.459	.203	200
3	3.500	3.068	.216	260
4	4.500	4.028	.237	220
6	6.625	6.069	.265	180
8	8.625	7.981	.330	90
10	10.750	9.976	.365	140
12	12.750	11.890	.406	130

Schedule 80

Schedule 80 - Conforms to: ASAE S371, ASTM D1784 1245-A, B

Nominal Pipe Size	Outside Diameter	Inside Diameter	Min. Wall Thickness	Max. Press. Working (PSI)
1/2"	.840	.545	.147	80
3/4"	1.050	.742	.154	65
1	1.315	.957	.170	60
1 1/4"	1.660	1.279	.191	52
1 1/2"	1.900	1.500	.200	47
2	2.375	1.833	.216	40
2 1/2"	2.875	2.233	.276	40
3	3.500	2.900	.300	37
4	4.500	3.869	.337	32
6	6.625	5.981	.426	25
8	8.625	7.585	.500	26
10	10.750	9.492	.563	23
12	12.750	11.294	.687	23

100 Foot Head

100 Foot Head - Conforms to: ASAE S371, ASTM D1784 1245-A, B

Nominal Pipe Size	Outside Diameter	Inside Diameter	Min. Wall Thickness
8"	8.160	7.986	.087
10"	10.250	9.966	.107
12"	12.240	11.978	.131
15"	15.300	14.972	.164
20"	19.360	17.960	.200
24"	23.420	21.950	.235

* PP - Plastic Injection Pipe Dimensions

CL 100

P.R. 100 - SDR 41 - Conforms to: ASAE S371, ASTM D1784 cell class 1245-A, B

Nominal Pipe Size	Outside Diameter	Inside Diameter	Min. Wall Thickness
12	12.240	11.600	.299
15	15.300	14.254	.373
18	18.721	17.72	.466

* Dimension for friction loss not included in SDR 405 are extra

UVR-PVC

UVR-PVC Pipe IPS Schedule 40 [20 Ft. length]

Size	O.D.	I.D.	Wall Thickness	Weight Per Ft.
1/2"	.840			

[illegible]


 PVC - CLASS 200 PIPE
 NOT TO SCALE


 PVC - CLASS 200 PIPE
 NOT TO SCALE

G
IR-9

PVC - CLASS 200 PIPE

NOT TO SCALE


 PVC FITTING CEMENT
 NOT TO

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Landscape Architect



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c: 970.417.1779
julee@juleewolverton.com

GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

DATES/ REVISIONS	
14.19	CITY SUBMITTAL
05.19	100% CD's
06.19	ASI-01

IR-9

IRRIGATION
CUT-SHEETS

IRRIGATION SYSTEM CUT-SHEETS - MUNRO PUMP STATION:

Products for Irrigation



PUMPS



PUMP CONTROLS



PUMP STATIONS



INDUSTRIAL HOSE



HYDRAULIC HOSE



VALVES & FITTINGS



FILTRATION



INDUSTRIAL GOODS & SAFETY

HUNTER 3-HP PUMP STATION, 3-PHASE POWER, LIGHT COMMERCIAL COMPLETE PUMP STATION WITH QUICK DISCONNECTION. PLACE IN CONCRETE VAULT BELOW GRADE. CONNECT A 2" DRAINLINE IN BOTTOM OF VAULT TO STORM DRAIN SYSTEM.

Pump Controls

A pump control can be as simple as a standard pump start relay or more complex, offering protection and ease of use features. Choosing the correct pump control can save time, money and a lot of frustration.

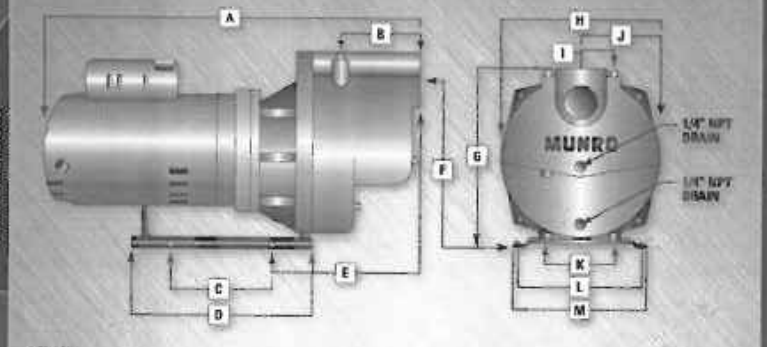
At Munro Supply, pump start controls and protection is one of our passions and expertise. We carry innovative products and, when your requirements are unique, we will work with you to source a custom solution.

We carry pump controls from the best names in the market, including:

- Munro
- Franklin
- Cutler Hammer
- Yaskawa



CUSTOM CONTROLS REQUEST

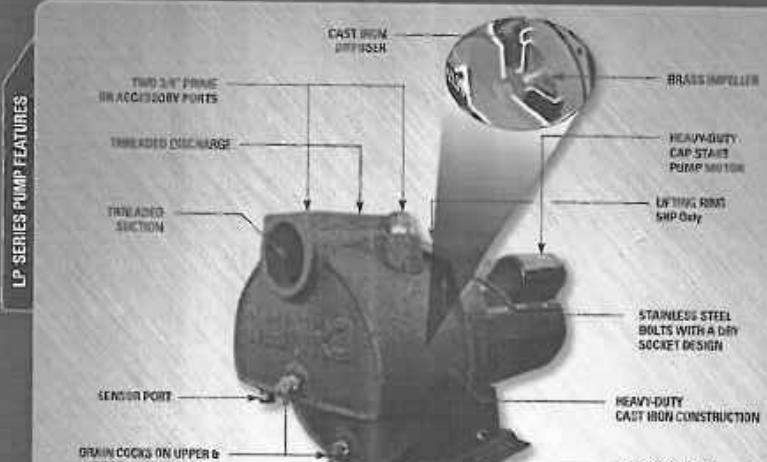


LP SERIES PUMPS
BY MUNRO

BUILT TO STANDARDS PROFESSIONALS RECOGNIZE



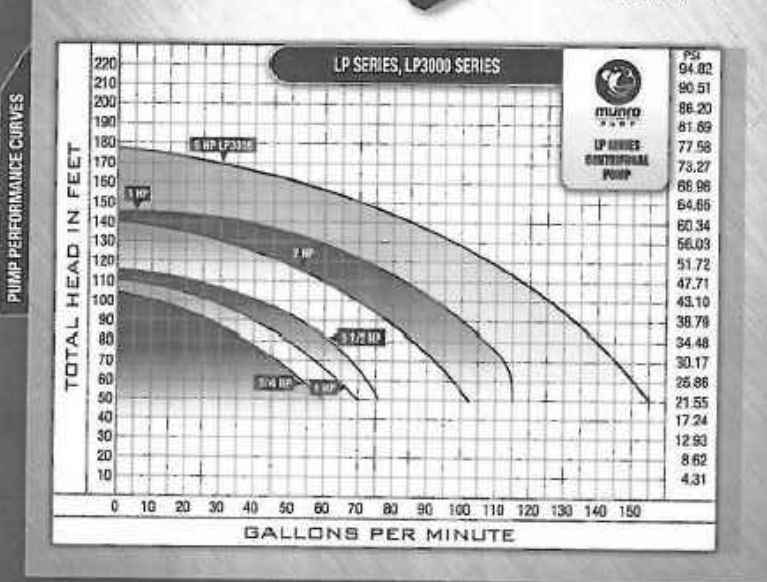
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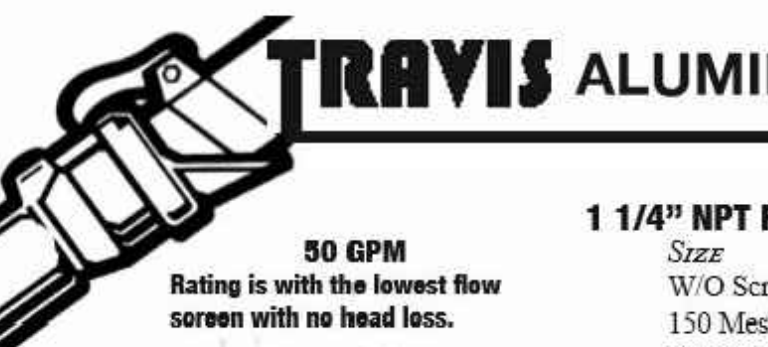
LP SERIES PUMPS



PUMP PERFORMANCE CURVES



LP SERIES PUMPS



TRAVIS ALUMINUM "Y" FILTERS

80 GPM
Rating is with the lowest flow screen with no head loss.



200 PSI Max Working pressure.

1 1/4" NPT FILTER

Size	Designation
W/O Screen	21000
150 Mesh	21M150
120 Mesh	21M120
80 Mesh	21M80
40 Mesh	21020
1/32"	21032
3/64"	21050
1/16"	21062
3/32"	21093
1/8"	21125
3/16"	21188
1/4"	21250

2" NPT FILTER

Size	Designation
W/O Screen	22000
150 Mesh	22M150
120 Mesh	22M120
80 Mesh	22M80
40 Mesh	22020
1/32"	22032
3/64"	22050
1/16"	22062
3/32"	22093
1/8"	22125
3/16"	22188
1/4"	22250

REPLACEMENT SCREENS FOR 1 1/4" & 2" FILTERS

Hole Size	Designation	2" SCREENS
150 Mesh	1M150	2M150
120 Mesh	1M120	2M120
80 Mesh	1M80	2M80
40 Mesh	1020	2020
1/32"	1032	2032
3/64"	1050	2050
1/16"	1062	2062
3/32"	1093	2093
1/8"	1125	2125
3/16"	1188	2188
1/4"	1250	2250

Product of: TRAVIS PATTERN & FOUNDRY INC., SPOKANE, WASHINGTON
Prices: SUBJECT TO CHANGE WITHOUT NOTICE
FAX: (509) 467-6465 - PHONE: (509) 466-3545

A

IR10

MUNRO PUMP STATION PARTS

NOT TO SCALE

B

IR10

MUNRO SMART BOX

NOT TO SCALE

C

IR10

3 HP PUMP, 3-PHASE POWER

NOT TO SCALE

D

IR10

SONNTAG 2" NPT ALUMINUM Y-FILTER

NOT TO SCALE

Products

- Hydraulic Hose
- Industrial Hose
- Pumps
- Valves & Fittings
- Pump Controls
- Filtration
- Pump Stations
- Industrial Goods & Safety
- Pump Parts

Valves & Fittings

Choosing the right valves and fittings is a critical step in any project. At Munro Supply, we offer a wide range of valves and fittings, including different configurations and construction materials. If you don't see what you need, just give us a call. We know valves and fittings!

Valves

All valve types have pros and cons, depending on the application. The tips below provide basic information about various valve types, to help you select the appropriate valve for your next job.

Gate Valves - Designed to operate fully open or closed, these valves open slowly and are available in a wide variety of sizes and materials.

- Pros - Slow operation prevents fluid hammer; Very little pressure loss; Good seal under high pressure
- Cons - Seepage is normal under low pressure



Fittings

The material and configuration of the pipe and hose fittings in your system will affect the ease of installing and servicing the system, longevity of the system, compatibility with chemical or particulate in the material moving through the system, and friction losses in the system.

Products

- Hydraulic Hose
- Industrial Hose
- Pumps
- Valves & Fittings
- Pump Controls
- Filtration
- Pump Stations
- Industrial Goods & Safety
- Pump Parts

Pump Parts

Known nation-wide as an expert pump parts depot, we offer pump parts for many major pump manufacturers, including impellers, mechanical shaft seals, packing, pet cocks and drain valves, pump housings, shafts, strainers, gaskets, and more. If we don't carry the part you need, we can usually source it or find a replacement part.

Location

Our parts department is located across the street from our main showroom and warehouse.

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Grand Junction, CO 81501
mps@munrocompanies.com



SPIN-CLEAN JAIN LANDSCAPE 4EH-2P 2" WITH 50 MESH SCREEN. MAXIMUM RECOMMENDED FLOW IS 110 GPM WITH 1.25" FLUSHLINE CONNECTED TO STORM DRAIN.



Api 4EH-2P-100 2" Spin Clean Filter - 90-110 Gpm

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672 SERIES
TWO-PIECE
COMPANION
FLANGE
CLASS 150
LEAD-FREE*

APPLICATIONS

- Potable water
- HVAC water-based systems - condensers, chilled water, hydronic heating
- Vacuum and compressed air systems
- Residential and commercial construction

SPECIFICATIONS

- 200 psi non-shock CWP
- 275°F maximum operating temperature (non-steam)

MATERIALS & CONSTRUCTION

- Steel companion flange (powder coated) with copper solder tube adapter
- Flange powder-coating creates a barrier between the steel and copper, preventing galvanic corrosion
- NIBCO lead-free* wrought copper fittings are made from commercially pure copper mill products per ASTM B75 C12200

DESIGN CRITERIA

- For use with ASTM B88 copper tubes
- Third-party certified to NSF/ANSI 61 and 372
- Dezinification-resistant
- Lead-free*
- Available in sizes 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 5" and 6" (soldier connections)



672
3/4" - 6"

SIZE	MATERIAL NO.	DESCRIPTION
3/4"	940380	672 3/4 CLASS 150 2-PC COMPANION FLANGE
1"	940385	672 1" CLASS 150 2-PC COMPANION FLANGE
1 1/4"	940400	672 1 1/4 CLASS 150 2-PC COMPANION FLANGE
1 1/2"	940450	672 1 1/2 CLASS 150 2-PC COMPANION FLANGE
2"	940500	672 2 CLASS 150 2-PC COMPANION FLANGE
2 1/2"	940550	672 2 1/2 CLASS 150 2-PC COMPANION FLANGE
3"	940600	672 3 CLASS 150 2-PC COMPANION FLANGE
4"	940700	672 4 CLASS 150 2-PC COMPANION FLANGE
5"	940750	672 5 CLASS 150 2-PC COMPANION FLANGE
6"	940800	672 6 CLASS 150 2-PC COMPANION FLANGE

*Lead Free refers to the wetted surface of pipe, fittings and flanges in potable water systems that have a weighted average lead content ≤ 0.25% per the Safe Drinking Water Act (SDWA) (amended 1-4-2011) and other applicable state regulations.

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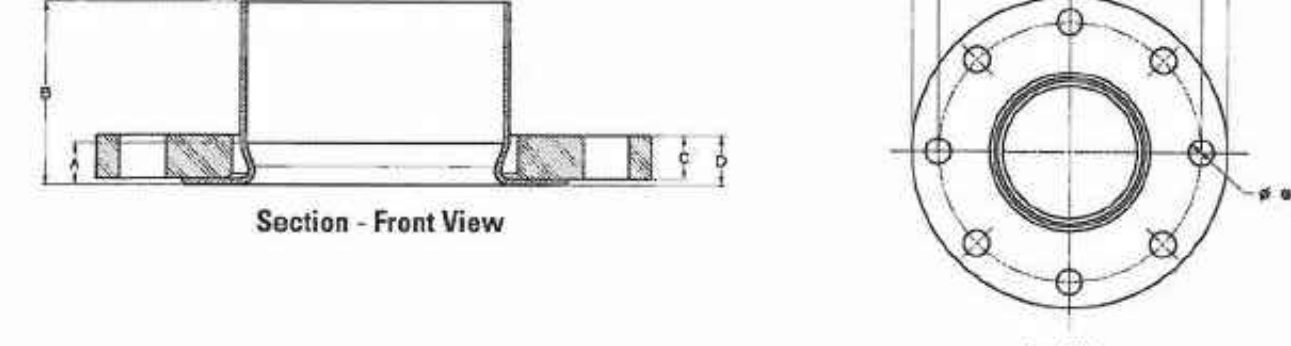
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672 Series - Class 150
Two-Piece Companion Flange



Section - Front View

Top View

SIZE	DIMENSIONS (INCHES)							WEIGHTS		
In.	mm	A	B	C	D	E	F	G	Lbs.	Kg.
3/4"	20	1/4	1	0.44	15/32	2.75	3.88	0.670	1.27	0.576
1"	25	1/32	1-1/4	0.50	1/32	3.12	4.25	0.620	1.76	0.798
1 1/4"	32	7/32	1-3/16	0.56	1/32	3.50	4.62	0.620	2.76	1.254
1 1/2"	40	1/32	1-7/16	0.63	1/16	3.88	5.00	0.620	3.06	1.389
2"	50	7/16	1-25/32	0.83	1/16	4.75	6.00	0.750	4.27	1.937
2 1/2"	65	5/8	2-1/8	0.83	23/32	5.50	7.00	0.750	5.92	2.685
3"	80	15/32	2-5/32	0.83	23/32	6.00	7.50	0.750	6.80	3.080
4"	100	21/32	3-31/32	0.71	15/16	7.50	9.00	0.750	10.91	4.943
5"	125	26/32	3-19/32	0.75	27/32	8.50	10.00	0.875	13.40	6.074
6"	150	1-1/16	4-5/32	0.87	1	9.50	11.00	0.875	18.91	8.577

LEGEND:

- A = bottom of raised face to tube stop
- B = overall height/length of flange
- C = flange thickness
- D = bottom of raised face to top of flange
- E = bolt circle diameter
- F = flange diameter
- G = bolt hole diameter

*Lead Free refers to the wetted surface of pipe, fittings and flanges in potable water systems that have a weighted average lead content ≤ 0.25% per the Safe Drinking Water Act (SDWA) (amended 1-4-2011) and other applicable state regulations.

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E

IR10

MUNRO VALVES & PUMP PARTS

NOT TO SCALE

F

IR10

SPIN-CLEAN FILTER

NOT TO SCALE

G

IR10

NIBCO 2-PIECE FLANGE

NOT TO SCALE

H

IR10

NIBCO 2-PIECE FLANGE

NOT TO SCALE

Julee Wolverton,
Landscape Architect



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Montrose, CO 81403
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GRAND JUNCTION HOUSING AUTHORITY
2814 PATTERSON ROAD
GRAND JUNCTION, CO

DATES/ REVISIONS

01.14.19	CITY SUBMITTAL
04.05.19	100% CD'S
09.06.19	ASI-01

IR-10

IRRIGATION
CUT-SHEETS

PROJECT DESCRIPTION

- Project consists of 3 levels above grade over crawl space. Foundations consist of grade beams and micropiles. Superstructure is premanufactured open web wood trusses on wood bearing walls/ SIPs bearing walls with wood beams. Lateral systems are light frame wood walls/ SIPs walls with structural shear panels and intermediate reinforced masonry shear walls.
- This description is for general orientation only. The General Contractor is responsible for all scope items described in the drawings and project specifications as well as for all material and labor that can reasonably be inferred there from.

GENERAL APPLICATION

- These drawings must be used in conjunction with the architectural drawings on the project to clearly define all requirements for construction.
- No Contractor should attempt to bid nor construct any portion of this project without consulting the project architectural, mechanical, and electrical documents.
- All things which, in the opinion of the Contractor, appear to be deficiencies, omissions, contradictions or ambiguities in the drawings shall be brought to the attention of the Structural Engineer. Corrections or written interpretations shall be issued before affected work may proceed.
- The Contractor shall inform the Structural Engineer, clearly and explicitly in writing of any deviation or substitution from requirements of the contract documents. Contractor shall not be relieved of any requirement of the contract documents by virtue of the Structural Engineer's review of shop drawings, project data, etc., unless the Contractor has clearly and explicitly informed the Structural Engineer in writing of any deviations or substitutions at time of submission.

MISCELLANEOUS NOTES

- The Contractor is solely responsible for all safety regulations, programs and precautions related to all work on this project.
- The Contractor is solely responsible for the protection of persons and property either on or adjacent to the project and shall protect it against injury, damage, or loss.
- Means and methods of construction and erection of structural materials are solely the Contractor's responsibility.
- The structure is designed to function as a unit upon completion of construction of the project and then, only to support the design loads indicated. The Contractor is responsible for means, methods and sequence of construction and the adequacy of the structure to support loads occurring during construction of the project. Furnish all temporary bracing, shoring, and/or support as may be required.
- No openings, nor any change in size, dimension or location shall be made in any structural element without written approval of the Structural Engineer.
- Where dimensions or weights of MEP, equipment or systems are variable from manufacturer to manufacturer, verify dimensions and weights shown on drawings with selected manufacturer prior to ordering materials. Notify Structural Engineer of discrepancies.
- Openings 1" 4" or less on a side are generally not shown on the structural drawings. Refer to drawings of other consultants for such openings.
- Openings through floors and/or roofs for passage of utilities are not located nor dimensioned on structural drawings. Contractor shall obtain and coordinate such locations and dimensions with the contractor requiring the opening.
- Show all openings through structural members on shop drawings and submit for review. Openings not shown on structural drawings are subject to acceptance and shall be specifically indicated for review and acceptance.
- Verify elevator pit dimensions, locations, loadings, and details with the elevator supplier prior to the fabrication and/or installation of any material.
- Fireproofing of structural elements is not shown on the structural drawings. Refer to the specifications and architectural documents.
- Do not scale these drawings, use the dimensions shown. In case of conflict, request clarification from Architect and Structural Engineer.
- No structural modifications, alterations, or repairs shall be made without prior review by Structural Engineer. Submit details and calculations prepared by a professional engineer registered in state where project is located and employed by Contractor.

QUALITY ASSURANCE

- The Contractor is responsible for quality assurance, including workmanship and materials furnished by subcontractors and suppliers.
- Inspection or testing by the Owner does not relieve the Contractor of his responsibility to perform the work in accordance with the Contract Documents.
- Workmanship: The Contractor is responsible and shall bear the cost of correcting work which does not conform to the specified requirements.
- Correct deficient work by means acceptable to the Architect. The cost of extra work incurred by the Architect to approve corrective work shall be borne by the Contractor.

QUALITY CONTROL

- The Owner's Testing Agency shall perform testing and special inspections required by the structural documents, building code and the local authority. The Testing Agency shall comply with ASTM E239 and upon completion of work, the Testing Agency shall furnish a certificate of compliance, signed by the professional engineer overseeing special inspections and testing. The professional engineer must be registered and licensed in the state where the project is located.
- The individual employed by the Testing Agency, responsible for overseeing testing and inspection of soils and foundations shall be a professional engineer practicing the discipline of geotechnical engineering, referred to as the Geotechnical Engineer in the structural portion of the construction documents. The Geotechnical Engineer is responsible for testing and inspections of soils, earthwork and foundations for conformance to the foundation design and the geotechnical report. See foundation section of the general notes.
- See special inspections section of the general notes for required testing and inspection.

SPECIAL INSPECTION

- Special inspection and testing shall be performed as required by the local jurisdiction, the building code and the construction documents. See quality assurance section of the general notes.
- Coordinate and schedule inspection and testing prior to the start of work requiring inspection and testing while providing special inspector reasonable notice.
- All deficiencies shall be corrected for acceptance by the testing agency.
- Inspections performed by the local jurisdiction do not replace inspection or testing required by the owners testing agency.
- Special inspection and testing is required for the items shown in the special inspections and testing table.

SPECIFICATIONS

- These General Notes are intended to function as the structural portion of project specifications.

STRUCTURAL DESIGN CRITERIA			
Building Code: 2012 International Building Code		(Note 1)	
Local Jurisdiction: Mesa County			
Risk Category: II			
Wind Loading			
Basic Wind Speed	V _{ult} = 115 MPH V ₁₀₀ = 90 MPH		
Exposure Category	B		
G _{Cp}	+/- 0.18		
Wind Base Shear - Ultimate			
East/West (1.0W)	119 K		
North/South (1.0W)	132 K		
Wind Design Pressure	20ft ²	50ft ²	100ft ²
Components & Cladding - Ultimate			
Interior Roof Zone (Zone 1)	-30.8 PSF	-29.5 PSF	-28.4 PSF
Roof End Zone (Zone 2)	-40.1 PSF	-36.5 PSF	-33.8 PSF
Corner Roof Zone (Zone 3)	-46.4 PSF	-39.2 PSF	-33.8 PSF
Interior Wall Zone (Zone 4)	-22.1 PSF	-20.8 PSF	-19.8 PSF
Wall End Zone (Zone 5)	-26.5 PSF	-24.0 PSF	-22.1 PSF
Parapet	59.7 PSF	51.3 PSF	45.0 PSF
Seismic Loading			
Seismic Importance Factor, I _s	1.0		
Mapped Spectral Response Acceleration			
S ₁	0.241		
S ₂	0.066		
Site Class	D		
Spectral Response Coefficients			
S _{DS}	0.258		
S _{DS1}	0.105		
Seismic Design Category	B		
Basic Seismic Force Resisting System	Intermediate reinforced masonry shear walls, light frame walls with shear panels		
Response Modification Factor, R	3.5		
Over-Strength Factor, O _s	2		
Deflection Amplification Factor, C _d	2.25		
Seismic Response Coefficient, C _s	0.073		
Analysis Procedure Used	Equivalent Lateral Force Procedure		
Seismic Base Shear - Ultimate			
East/West (1.0E)	169 K		
North/South (1.0E)	169 K		
Snow Loading (Notes 2,3,4,6)			
Ground Snow Load, P _g	30 PSF		
Minimum Flat Roof Snow Load, P _f	21 PSF		
Importance Factor, I _s	1.0		
Terrain Category	B		
Exposure Factor, C _e	0.9		
Thermal Factor, C _t	1.1		
Slope Factor, C _s	1.0		
Live Loads and Superimposed Dead Loads (Notes 5,6)			
Foundations			
Geotechnical Engineer Information:	Michael Berry P.E.#39010		
	Huddleston-Berry Engineering and Testing, LLC		
	640 White Avenue		
	Grand Junction, CO 81501		
	970-225-8005		
	Date of Report: 11/28/2018		
Active Equivalent Fluid Pressure	55 PSF/FT		
At-Rest Equivalent Fluid Pressure	75 PSF/FT		
Foundation Schedule Located on:	S-501		
Allowable Skin Friction (Compression)	1.5 KSF		
Minimum Pile Length	25 FT		
Referenced Datum	100'-0" first floor elevation +4728.75 USGS		
NOTES:			
1. The governing building code defines the applicable edition of referenced codes and standards. Where governing building code does not define referenced codes and standards, the latest edition shall be used.			
2. Ground snow load is according to Mesa County Building Department on 01/01/2019			
3. Minimum flat roof snow load according to the Mesa County Building Department on 01/01/2019			
4. All snow loads on the structure for both flat and sloped roofs are calculated in accordance with the 2012 IBC and based on the ground snow load stated above. Roof snow loads consider the following load conditions: partial loading, unbalanced roof snow loads, snow drifting, and sliding snow			
5. Minimum uniform and concentrated live loads as well as partition loads and applicable live load reductions are determined according to [Section 1607 of the IBC]			
6. See Load Keys for numerical definition and area designation of snow, live, and other gravity loads used in design			

SUBMITTALS

- See Material sections of these General Notes for required shop drawings.
- Submit one (1) copy of the required information (Manufacturers Data, Shop Drawings, etc) via electronic media (PDF or similar).
- Reproducible copies of contract documents shall not be used.
- Submittals shall be sent directly to the Architect for review and distribution.
- Submittals shall be reviewed by Contractor and Subcontractor prior to submission. Drawings shall bear Contractor's approval stamp accepting responsibility for coordination of dimensions shown in the contract documents, quantities and coordination with other trades.
- Allow 14 calendar days in the Structural Engineer's office for review of submittals.
- Submittals will be returned to the Architect with Structural Engineer's review comments via electronic media.

DEFERRED SUBMITTALS

- Submit shop drawings along with calculations noted to be signed by a registered Engineer in the state where the project is located when required by specification. These deferred submittals (shop drawings) shall first be submitted to the project Architect and/or Engineer of record for review and coordination. Following the completion of the review and coordination by the Architect/Engineer of record; a submittal may then be made by the Contractor to the local Building Department for review and approval, which shall include a letter stating this review and coordination has been performed and completed and plans and calculations for the deferred items are found to be acceptable (e.g., with regard to geometry, load conditions, etc) with no exceptions.
- The list of items for deferred submittals includes the following items:
 - Pre-fabricated stair units and their connections
 - Premanufactured hand/stair railings and their connections
 - SIP panel walls
 - Micropiles
 - All others required by the local jurisdiction

SPECIAL INSPECTIONS AND TESTING					
Category/Material	Component/Work	Class	1	2	3 4 5
Soils and Foundations	Slab-on-Grade Subgrade Material		X		
	Compaction		X	X	
	Micro Pile Installation		X	X	
	Micro Pile Load Testing		X		
Cast-in-Place Concrete	Formwork Installation		X		
	Reinforcing Placement		X	X	
	Steel Embeds		X	X	
	Cast Embedded Anchors		X	X	
	Concrete Strength, Slump, Temperature, and Air Content		X	X	
	Verification of mix design use on site (prior to placement)		X	X	
	Concrete Placement		X	X	
	Concrete Curing		X		
	Post-Installed Anchors in Overhead Applications		X	X	
	All Other Post-Installed Anchors		X	X	
	Verification of f'm prior to construction		X	X	
	Masonry Units, Grout and Mortar		X	X	
	Preparation of Mortar and Construction of Mortar Joints		X	X	
	Reinforcing Placement		X	X	
Reinforced Masonry (Level B)	Welding Reinforcement		X	X	
	Mortar Joint Reinforcing and Placement		X	X	
	Grout Space		X		
	Grout Placement		X	X	
	Control and Construction Joints		X		
	Steel Embeds		X	X	
Wood Framing	Cast Embedded Anchors		X	X	
	Post-Installed Anchors		X	X	
	Curing		X		
	Shear Wall Framing, Sheathing, Nailing, Anchors, and Holdowns		X	X	
	Drag Struts and Collectors		X	X	
	Floor/Roof Sheathing and Nailing		X	X	
NOTES:					
1. Special inspection and testing are to conform to chapter 17 of the IBC and the local building department.					
2. Unless noted as continuous inspection, all inspections are periodic. Periodic inspection is defined as part-time or intermittent inspection of the work. It is the Special Inspector's responsibility to determine and coordinate the frequency and duration of the inspection relative to the Contractor's schedule and sequencing of the work in order to meet the inspection and reporting requirements.					
3. Class 1: inspection verification of size, location, quantity, and tolerance.					
4. Class 2: inspection and testing verification of strength, grade, classification, quality, density, proportions, and manufacturers certified test reports.					
5. Class 3: Continuous inspection and verification of operations and conditions.					
6. Class 4: Audit and inspection of fabrication facility's quality control program, and collection of facilities records during the course of fabrication for Class 2 and 3 inspections and testing.					
7. Class 5: Verification of certifications					

FOUNDATIONS**GENERAL:**

- The foundations have been designed based on the design criteria and the Geotechnical Report referenced in the Structural Design Criteria section. Earthwork and foundation soil preparation shall be performed to provide soil properties meeting the design criteria.
- The Geotechnical Engineer shall inspect and test soils, earthwork and foundations - see special inspection and quality assurance sections of the general notes. Prior to placing foundations and slabs-on-grade, obtain approval from the Geotechnical Engineer indicating earthwork and soil preparation has been performed adequately to conform to the foundation design criteria.
- Provide 6" void form beneath all pile caps and grade beams per the Geotechnical Report.
- Bottom of exterior footings, grade beams, and walls shall bear below final exterior grade for frost protection - see structural design criteria section of the general notes.
- Foundation walls or grade beams having earth placed on each side shall have both sides filled simultaneously to maintain a common elevation.
- Brace all foundation walls against movement while backfilling until floor slabs at the top and bottom of the wall are in place. Brace foundation walls as necessary to prevent movement and overstress due to equipment loading regardless of sequencing of top and bottom floor slabs.
- Contractor shall provide continuous site drainage by a mechanical method to control surface and underground water as required to maintain a dry working site.
- Foundation drainage and waterproofing is not shown or specified within the structural portion of the construction documents. Reference other portions of the construction documents for drainage, waterproofing and items associated with other disciplines.

MICROPILE FOUNDATIONS**GENERAL:**

- Definition: Micropiles are small-diameter (<12"), drilled and grouted non-displacement piles which may or may not have a steel casing. A large diameter reinforcing bar is placed into the casing/bore hole and the casing/bore hole is grouted solid. Grout may be gravity or pressure fed into the casing.
- Micropiles shall be designed, installed, grouted, and cut off at appropriate elevations by the specialty contractor. Design shall be performed by a Professional Engineer registered in the state where the project is located. Specialty contractor shall have at least 5 years of successful experience in the design/installation of micropile foundations.

TESTING:

- Contractor shall perform verification tests prior to installation of production piles. Test in accordance with ASTM D1143 for compression and with ASTM D3689 for tension. See table below for number of tests required and applied factor of safety. Record test data per Table 7-1 of the FHWA NHI-05-039 and submit test results to Structural Engineer for review.
- Contractor shall perform proof tests production piles. Test in accordance with ASTM D1143 for compression and with ASTM D3689 for tension. See table below for number of tests required and applied factor of safety. Record test data per Table 7-2 of the FHWA NHI-05-039 and submit test results to Structural Engineer for review.
- Geotechnical Engineer shall witness the testing and installation of all micropiles.
- See "Special Inspections and Testing" Table.

SUBMITTALS:

- Submit sealed design calculations and installation procedure to Structural Engineer for approval.
- Design calculations shall include but not be limited to the following:
 - gage/thickness of casing, compressive strength of grout, size and grade of reinforcing, unfactored design capacity in compression and tension, and design length of piles.
- Installation procedures shall include but not be limited to the following:
 - narrative of installation procedures including required load testing, appropriate construction details that apply to this project including cut-off elevations, pile head details, doweling, etc.

MICROPILE FOUNDATIONS (continued)**PLACING AND FINISHING:**

- Provide final survey indicating actual location of installed piles.
- Centerline of piles shall not be more than 3 inches from indicated pile location.
- Top elevation of piles should be plus 1 inch or minus 2 inches from elevation indicated.
- Corrective work shall be provided by the contractor at no additional cost for piles whose locations are outside of the acceptable tolerances.

MICROPILE LOAD AND TESTING REQUIREMENTS		
Required Capacities: (Includes F.S. = 2.0)	Compression: 140 kips	Tension: 140 kips
Verification Tests (Prior to Construction Piles)	Yes, see above fore required capacities. Max pile head movement to be 0.02 in/kip	
Proof Tests	Minimum of 5% of production piles. Minimum Factor of safety = 1.6	

CAST-IN-PLACE CONCRETE**GENERAL:**

- All concrete work shall conform to ACI318 and ACI 301 and tolerances shall conform to ACI 117 unless noted otherwise. Contractor shall keep a copy of these references on site at all times.
- Concrete Compressive Strength - See "Concrete Mix Design Requirements" table
- Materials - See "Concrete Materials Designation" table

TESTING:

- Tests and inspections shall be performed in compliance with ACI 301 and Chapter 17 of the IBC. See Special Inspections.
- Concrete shall not be placed until reinforcing and embedded items have been inspected by the owner's independent inspection agency and/or the special inspector.
- See "Special Inspections and Testing" Table.

SUBMITTALS:

- Submittals shall conform to ACI 301 .
- Submittals for all concrete shall include: mix designs, construction joint locations, reinforcing, embedded items, and MEP sleeves and penetrations.
- Submittals for architecturally exposed concrete shall also include: form facing materials and mock-ups if required by the Architect.
- Reinforcing shop drawings shall include placement drawings 1/8"=1'-0" minimum scale complete with wall elevations and slab plans. Include special reinforcement required at openings through concrete structure. Include all accessories specified and required to support reinforcement. Detailing of reinforcing shall conform to ACISP-66.
- Embed shop drawings shall include placement drawings 1/8"=1'-0" minimum scale locating all embed plates, anchors, and anchor bolts for structural and non-structural components attaching to concrete. Contractor is responsible for coordinating with all trades for determining the need for embeds and locations. Post installed anchors are not allowed unless approved by the structural engineer during the shop submittal process.

FORMING:

- Unless noted otherwise, all formwork shall conform to Class B finish in accordance with ACI 117 unless noted otherwise by architectural drawings. Refer to architectural drawings for architectural finish concrete.
- All construction joints shown on the drawings shall be incorporated into the structure unless elimination is approved by the Structural Engineer. Additional joints required to facilitate construction shall be located at points of minimum shear and shall be detailed on reinforcing shop drawings for review. Locate vertical joints in girders, beams, grade beams, joists, walls and slabs within the middle third between supports designed and detailed with dowels and keys for transfer of design shear, unless noted otherwise. Reinforcing shall pass continuously through construction joints. Where joints are shown as roughened, mechanically roughen surface to 1/4" amplitude clean and free of laitance.
- Unless otherwise shown in the architectural drawings, provide chamfers at all columns, beams, walls, and slab edges that are exposed to view in the finished structure.
- Unless otherwise shown in the architectural drawings, provide drip edges at the underside of all exposed slab edges.
- Locate door openings, window openings, MEP openings, drip slots, reglets, brick ledges, curbs, and ledges per architectural drawings. For openings not dimensioned on structural drawings refer to architectural drawings.
- Provide void forms under foundation elements as shown on the drawings.

REINFORCING AND EMBEDDED ITEMS:

- Provide standard hooks on bars terminating at a concrete face unless noted such as at edges of openings, slab edges, expansion joints, ends of beams, and ends of walls.
- Unless noted otherwise, provide (2) #5's at each side of openings. Extend 2'-0" beyond edges of opening.
- Unless noted, splice continuous top and bottom bars in grade beams and walls as follows: top bars at mid-span, bottom bars over support.
- Splice bars with class B contact laps per the reinforcing contact lap splice length table, unless noted otherwise.
- Splice welded wire fabric by lapping one full mesh space plus 2".
- Unless noted, provide continuous reinforcing around corners and through construction joints, control joints, contraction joints, and joints between all abutting members. Provide epoxy coated reinforcing through construction joints at garage slabs and slabs exposed to de-icers.
- Masonry Dowels: provide, place, and space to match masonry horizontal and vertical reinforcing.
- Welding of reinforcing is prohibited, unless noted otherwise and shall conform to ASTM A706.
- Provide embeds (including anchors) for all supporting structural and non-structural elements including but not limited to hand rails, canopies, window washing davits, miscellaneous steel, bollards, etc.

PLACING AND FINISHING:

- Handling, placing, constructing, and curing shall conform to ACI 301 including placement of concrete in wet weather, cold weather, and hot weather.
- Curing compounds should not be used on surfaces that are to receive additional concrete, paint, tile, or other material requiring a positive bond unless the contractor has demonstrated that the membrane can be satisfactorily removed before subsequent application is made, or the membrane dissipates or can serve satisfactorily as the base for the later application.

ABBREVIATIONS	
AB	anchor bolt
ADDNL	additional
AFF	above finish floor
ALT	alternate
ARCH	architectural
BLDG	building
BU	beam
BOT, B/, Bdx	bottom of (S=slab, C=conc, etc)
BRG	bearing
BS	both sides
BTWN	between
CFS	cold-formed steel
CIP	cast-in-place
CJ	construction / control joint
CJP	complete joint penetration
CLR	clear
CMU	concrete masonry unit
COL	column
CONC	concrete
CONN	connection
CONST	construction
CONT	continuous
D	depth
DIA, Ø	diameter
DIM	dimension
DK	deck
DTL	detail
DWGS	drawings
DWL	dowel
(E)	existing construction
EA	each
EF	each face
EJ	expansion joint
ELEV	elevation
EDx	edge of (S=slab, C=conc, etc)
EW	each way
EXP	expansion
EXT	exterior
FDN	foundation
FLR	floor
FOX	face of (S=slab, C=conc, etc)
FS	far side
FTG	footing
GA	gage
GB	grade beam
GC	general contractor
GEN	general
GLB	glulam
HDG	hot dip galvanize
HDR	header
HK	hook
HORIZ	horizontal
HSA	headed stud anchor

POST INSTALLED ANCHORS IN CONCRETE AND MASONRY

GENERAL:

- Holes are assumed to be dry unless otherwise noted on plans.
- Holes to be hammer drilled with bit as specified by anchor manufacturer.
- Anchor specified are based on the specific technical data published by the specified anchor manufacturer. Substitutions are not permitted without approval by the Structural Engineer of Record prior to use. Contractor shall provide calculations demonstrating that the substituted product is capable of achieving the performance values of the specified product. Substitutions will be evaluated by their having an ICC ESR showing compliance with the relevant building code for seismic uses, load resistance, installation category, and availability of comprehensive installation instructions. Adhesive anchor evaluations consider creep, in-service temperature and installation temperature.
- Install anchors per the manufacturer instructions, as included in the anchor packaging. Installation shall adhere to ICC ESR. Reference plans and details for anchors that are to be installed with reduced torque.
- Concrete should be allowed to cure a minimum of 21 days prior to adhesive anchor installation.
- Prior to installation of anchors all installation and inspection personnel shall be instructed on site by a representative of the anchor manufacturer on proper installation techniques and equipment.
- Anchor capacity is dependent upon spacing between adjacent anchors and proximity of anchors to edge of concrete. Install anchors in accordance with spacing and edge clearances indicated on the drawings.
- Installation of anchors shall not damage existing reinforcing, which includes post-tensioned tendons (PT). Prior to drilling, care shall be taken to avoid damage by locating existing reinforcing and PT by use of GPR, X-Ray, or other means that avoids damage to the concrete and accurately predicts potential conflict of reinforcing and PT.
- Post-installed anchors to be stainless steel where exposed to exterior and/or corrosive environments unless the anchor is protected.
- All installers of post-installed adhesive anchors horizontally, vertically or upwardly inclined in concrete to support sustained tension loads shall be certified by ACI/CRSI adhesive anchor installer certification program, or equivalent as required by the IBC. Submit certificates for record.
- All post-installed anchors in concrete shall be suitable for use in cracked concrete applications.
- When doweling continuously deformed rebar into concrete use Hilti RE-500V3 or an adhesive that has been approved under ACI 355.4 and ACI 318 for development and lap splices.
- Unless noted otherwise on plans/details all adhesive anchors shall be Hilti HIT-HY200 Safe-Set for concrete and Hilti HY-70 for block and brick. Unless noted otherwise on plans/details all expansion anchors shall be Hilti Kwik-Bolt TZ. See note 3 for substitutions.

CONCRETE MIX DESIGN REQUIREMENTS							
Element	F _c (psi)	Cement Type	Max W/C	Max Agg	Air 1.2 Content	Slump	Exposure Class
Pier Caps	5000, NW	I/II	0.45	3/4"	-	4"	F0,CO,SO,W0
Grade beams, Tiebeams, Stem Walls	5000, NW	I/II	0.45	3/4"	5	4"	F1,CO,SO,W0
Interior Slab-on-Grade (SOG)	4000, NW	I/II	0.50	3/4"	-	4"	F0,CO,SO,W0
Other	5000, NW	I/II	0.45	3/4"	-	4"	F0,CO,SO,W0

TABLE FOOTNOTES:

- Minimum air content equals 5% if concrete is exposed to freezing temperature and moisture regardless of value indicated in table.
- Tolerance on air content as delivered shall be +/- 1.5% for F_c <= 5000 psi, 4.0% for F_c > 5000 psi
- Slump tolerances as follows (ACI 117)
Specified Slump not greater than 4" +/- 1/2"
Specified Slump more than 4" +/- 1/2"
Where Slump is specified as a range: No Tolerance
See ACI 301 for slump of concrete before addition of plasticizers or high-range water reducing admixtures
- Refer to concrete column schedule for additional strength requirements

GENERAL CONCRETE MIX NOTES:

- Strength (F_c) is the 28 day compressive strength at 28 days unless noted otherwise or compressive strength at the specified age.
- Concrete is normal weight concrete unless noted otherwise. Normal weight concrete (NW) shall have a dry density of 145 ± 5 pcf unless noted otherwise. Lightweight concrete (LW) shall have a dry density of 110 ± 5 pcf.
- Required minimum average splitting tensile strength = 6.7√(F_c) regardless of concrete density.
- Mix designs shall be in accordance with ACI 301.
- Exposure Class indicates the severity of the anticipated exposure of concrete members for each exposure indicated below according to ACI 318/ACI301.
Freeze Thaw Exposure noted thus: F0,F1,F2,F3
Water-Soluble Sulfate in Soil Exposure noted thus: S0,S1,S2,S3
Permeability Requirements noted thus: W0,W1
Corrosion Protection of Reinforcement noted thus: C0, C1, C2
Refer to ACI 301/ACI 318 for specific requirements based on the exposure category indicated in the mix design table above
- Corrosion Protection of Reinforcement requirements (C0,C1,C2):
Maximum water-soluble chloride ion (CL-) content in concrete, by % weight of cement
Reinforced Concrete: C0 = 1.0 C1 = 0.3 C2 = 0.15
Prestressed Concrete: C0 = 0.06 C1 = 0.06 C2 = 0.06
Where concrete is exposed to F3 freeze thaw exposure, restrictions on maximum fly ash and/or other cementitious materials apply. Refer to Table 4.4.2 in ACI 318 for requirements

REQUIRED CONCRETE COVER FOR NON-FIRE-RATED ASSEMBLIES		
Assembly	Cover (in)	
Concrete cast against & permanently exposed to earth	3	
Concrete Exposed to Earth and/or Weather	#6-#18	2
	#5 and smaller	1 1/2
	Walls, slabs #14-#18	1 1/2
	Walls, slabs #11 and smaller	3/4

NOTES:

- Primary reinforcement, ties, stirrups, and spirals

CONCRETE REINFORCING COMPRESSION CONTACT SPICE LENGTHS		
Specified Yield Strength (f _y) ≤ 60ksi	Specified Yield Strength (f _y) > 60ksi	
30d _s	(0.9f _y - 24)d _s	

NOTES:

- Splice length shall not be less than 12 inches.
- d_s is bar diameter
- Compression splices permitted only when lap splice is noted in drawings as compression, otherwise see tension splice table.

CONCRETE MATERIALS DESIGNATION		
Material	Standard	
Portland Cement	ASTM C150, Type I or Type II	
Fly Ash	ASTM C618, Class C or F	
Aggregate	ASTM C33	
Water	Potable	
Water Reducing Admixture	ASTM C494, Type A or Type D	
High Range Water Reducing Admixture	ASTM C494, Type F or Type G	
Accelerator Admixture	ASTM C494, Type C or Type E	
Air Entraining Admixture	ASTM C260	
Curing Compound	ASTM C309, Type I, Class A	
Reinforcing Bars	ASTM A615-grade 60 (Specified Yield Strength = 60ksi)	
Welded Reinforcing Bars	ASTM A706-grade 60 (Specified Yield Strength = 60ksi)	
Welded Wire Fabric	ASTM A185	
Vapor Retarder below SOG	ASTM E1745-Class A	

NOTES:

- Type I Portland cement may be used if acceptable to the Architect.

CONCRETE REINFORCING TENSION CONTACT LAP SPICE LENGTHS										
CONCRETE COMPRESSION STRENGTH (psi)										
Class A	Case #1	Bars ≤ #6	Top	Other	3,000	4,000	4,500	5,000	6,000	8,000
					57 d _s	49 d _s	47 d _s	44 d _s	40 d _s	35 d _s
					44 d _s	38 d _s	36 d _s	34 d _s	31 d _s	27 d _s
					71 d _s	62 d _s	58 d _s	55 d _s	50 d _s	44 d _s
Class B	Case #2	Bars ≤ #6	Top	Other	57 d _s	49 d _s	47 d _s	44 d _s	40 d _s	35 d _s
					85 d _s	74 d _s	70 d _s	66 d _s	60 d _s	52 d _s
					66 d _s	57 d _s	54 d _s	51 d _s	46 d _s	40 d _s
					107 d _s	92 d _s	87 d _s	83 d _s	76 d _s	65 d _s
Class C	Case #3	Bars ≤ #6	Top	Other	82 d _s	71 d _s	67 d _s	64 d _s	58 d _s	50 d _s
					74 d _s	64 d _s	60 d _s	57 d _s	52 d _s	45 d _s
					57 d _s	49 d _s	47 d _s	44 d _s	40 d _s	35 d _s
					93 d _s	80 d _s	76 d _s	72 d _s	65 d _s	57 d _s
Class D	Case #4	Bars ≤ #6	Top	Other	71 d _s	62 d _s	58 d _s	55 d _s	50 d _s	44 d _s
					111 d _s	96 d _s	91 d _s	86 d _s	79 d _s	68 d _s
					85 d _s	74 d _s	70 d _s	66 d _s	60 d _s	52 d _s
					139 d _s	120 d _s	113 d _s	108 d _s	98 d _s	85 d _s
Class E	Case #5	Bars ≤ #6	Top	Other	107 d _s	92 d _s	87 d _s	83 d _s	76 d _s	65 d _s
					107 d _s	92 d _s	87 d _s	83 d _s	76 d _s	65 d _s
					107 d _s	92 d _s	87 d _s	83 d _s	76 d _s	65 d _s
					107 d _s	92 d _s	87 d _s	83 d _s	76 d _s	65 d _s

Where:

d_s: Diameter of reinforcing bar

Class A: Class A tension splice

Class B: Class B tension splice

- Case #1: Clear spacing greater than or equal to 2"d_s AND cover greater than or equal to d_s.
- Case #2: Clear spacing less than 2"d_s or cover less than d_s.
- Top: Where horizontal reinforcement is placed such that more than 12 inches of fresh concrete is cast below the development length or splice.
- Other: Other condition not satisfying Top qualification (bottom horizontal reinforcing)

NOTES:

- All tension splices shall be contact class B splices unless noted otherwise. Splice length shall not be less than 12 inches.
- Splice lengths in table are for single bar splices with maximum yield strength of 60ksi non-epoxy reinforcing bars.
- For epoxy coated bars, zinc and epoxy coated cables, or epoxy coated wires multiply "Bot" reinforcing splice length by 1.5 and multiply "Top" reinforcing splice lengths by 1.31
- For lightweight concrete multiply splice length by 1.33.
- For reinforcing with a specified yield strength greater than 60ksi multiply splice length by (specified yield strength/60ksi)
- For individual bars within a bundle lap lengths shall be multiplied by 1.33 for four-bundles and 1.20 for three bar bundles. Individual splices within a bundle shall not overlap. Entire bundle shall not be lap spliced.
- Bars larger than #11 shall not be lap spliced. For bars larger than #11, mechanical splice shall be used. Mechanical splices shall have strength greater than or equal to 125% the yield strength of the reinforcing bar. Mechanical splices shall be staggered.
- Where bar of different size are lap spliced in tension the minimum splice length shall be the larger of the length of a Class B tension splice of the smaller bar, or the length of a Class A tension splice of the larger bar.
- Lap splices are not permitted where minimum clearance between reinforcing cannot be maintained.
- Lap splice lengths shall not be less than the larger of 12 inches multiplied by all applicable multipliers or the table length multiplied by all applicable multipliers.

CONCRETE REINFORCING TENSION CONTACT SPICE LENGTHS FOR CONCRETE COMPRESSION STRENGTH 4000 PSI CASE 1

Bar Size	Lap Class	Top Bars	Other Bars
#3	A	19"	14"
	B	24"	19"
#4	A	25"	19"
	B	32"	25"
#5	A	31"	24"
	B	40"	31"
#6	A	37"	29"
	B	48"	37"
#7	A	54"	42"
	B	70"	54"
#8	A	62"	48"
	B	80"	62"
#9	A	70"	54"
	B	90"	70"
#10	A	78"	60"
	B	102"	79"
#11	A	87"	67"
	B	113"	87"

NOTES:

- The table above is for concrete compression strength of 4000psi and Case#1 reinforcement.
- The table above is for Case #1 reinforcement with clear spacing greater than 2"d_s AND cover greater than or equal to d_s.
- Top bars are horizontal reinforcement placed such that more than 12 inches of fresh concrete is cast below the development length or splice. All tension splices shall be class B splices unless noted otherwise.
- Other bars are reinforcement other than Top bars.

CONCRETE REINFORCING DOWEL EMBEDMENT LENGTHS			
Concrete Compression Strength	Tension Dowels		Compression Dowels
	Standard Hook	Other	
3000psi	22d _s	Note 1	22d _s
4000psi	19d _s	Note 1	19d _s
5000psi	17d _s	Note 1	18d _s
6000psi	16d _s	Note 1	18d _s
8000psi	14d _s	Note 1	18d _s
≥ 10000psi	12d _s	Note 1	18d _s

NOTES:

- Refer to "Concrete Reinforcing Tension Contact Lap Splice Lengths" table for tension dowels without standard hooks. Values for Class A tension splices are permitted to be used.
- Embedment length shall not be less than 12 inches.
- d_s is bar diameter
- Compression dowel embedment lengths are permitted only when dowel is noted in drawings as compression, otherwise use tension embedment length.
- Extend dowels to far edge of member UNO.

REINFORCED MASONRY

GENERAL:

- All masonry work shall conform to ACI 530.1/ASCE 6/ TMS 602 unless noted otherwise. Contractor shall keep a copy of these references on site at all times.
 - Masonry Strength – See Masonry Strength Table
 - Materials – See Masonry Materials Table
- TESTING:
- Owner will engage a qualified Testing Agency, approved by the Architect and Engineer to perform tests and Special Inspections. Upon completion of work, Testing Agency shall furnish a certificate of compliance, signed by the Professional Engineer responsible for management of the Agency. The Professional Engineer must be registered in the state where the project is located. Tests and inspections shall be performed in compliance with ACI 530.1/ASCE 6/ TMS 602 and Chapter 17 of the IBC. Inspections include: proportions of site-prepared mortar, construction of mortar joints, location of reinforcement and connectors, grout space, grade and size of reinforcement, proportions of site-prepared grout, grout placement and curing. Testing includes: Grout strength, mortar strength, and prisms.
 - Masonry grout shall not be placed until reinforcing and connectors have been inspected by the owner's independent inspection agency and/or the special inspector.
 - See "Special Inspections and Testing" Table.

SUBMITTALS:

- Submittals shall conform to ACI 530.1/ASCE 6/ TMS 602. All submittals shall be reviewed by the Contractor prior to Engineers/Architects review and shall bear Contractors review stamp. Contractor is responsible for reviewing submittals for conformance with all contract documents and coordination with all trades.
- Submittals for all masonry shall include: Mix designs for grout and mortar, material certificates for: reinforcing, anchors, ties, and metal accessories, masonry units, mortar materials, and grout materials.
- Reinforcing shop drawings shall include placement drawings 1/8"=1'-0" minimum scale complete with wall elevations. Include special reinforcement required at openings through masonry structure. Include all accessories specified and required to support reinforcement.
- Embed shop drawings shall include placement drawings 1/8"=1'-0" minimum scale locating all embed plates, anchors, and anchor bolts for structural and non-structural components attaching to masonry. Contractor is responsible for coordinating with all trades for determining the need for embeds and locations. Post installed anchors are not allowed unless approved by the structural engineer during the shop submittal process.

REINFORCING AND EMBEDDED ITEMS:

- Vertical reinforcement shall extend the full height of the wall unless noted otherwise. Provide vertical reinforcement at all wall corners; end of walls; each side of openings and at each side of control and expansion joints.
- Provide bond beams at sill lines, top and bottom edge of openings, top of walls, floor lines, and roof lines. Bond beams shall be continuous unless noted otherwise. See typical bond beam detail.
- Continue reinforcing through construction joints and around corners unless noted otherwise. Terminate horizontal reinforcement at control joints except keep bars continuous at floor lines, roof lines, lintels, and top and bottom of typical openings.
- Provide standard hooks on bars terminating at a masonry face unless noted. i.e.: edges of openings, ends of walls, heads, jamps, control joints, etc.
- Splice bars with contact laps per the reinforcing splice and development length table, unless noted otherwise.
- Vertical reinforcement shall have a minimum clearance of 3/4" from masonry and shall be supported and fastened together to prevent displacment.
- Horizontal joint reinforcing shall be lapped no less than 6" at all splices including corners and tees where no control joint is used
- Dowels from concrete shall be furnished and placed by the concrete contractor.
- Welding of reinforcing is prohibited, unless noted otherwise and shall conform to ASTM A706.
- Provide embeds (including anchors) for supporting structural and non-structural elements including but not limited to: hand rails, canopies, miscellaneous steel, etc.

MASONRY ERECTION:

- Unless otherwise noted, lay masonry in running bond.
- Unless noted provide control joints at 30 feet on center.
- Coordinate blockouts, reveals, holes, openings, and built in items with all contract documents and trades.
- Grout lift heights shall follow requirements of TMS 602 Sections 3.5C and 3.5D. Grout lift heights shall follow requirements of TMS 602 Sections 3.5C and 3.5D.
- Grout cells solid at: reinforcing, bond beams, inserts, anchors, elevator guide rails, and 24" below and 12" to each side of steel beam bearing points.
- Consolidate grout pours 12" or less in height by mechanical vibration or puddling not more than five minutes after grouting.
- Consolidate grout pours exceeding 12" in height by mechanical vibration not more than five minutes after grouting, and reconsolidate after initial water loss and settlement has occurred.
- Grout in masonry beams shall be vibrated as it is placed. Where full depth grouting is required, the grouting shall extend to the end of the horizontal reinforcement.
- Hot weather construction refer to ACI 530.1 section 1.8D.
- Cold weather construction refer to ACI 530.1 section 1.8C.

MASONRY STRENGTH TABLE	
Element	Specified Compressive Strength
Concrete Masonry	F _m = 2000 psi
Grout for Concrete Masonry	F _g = 1.0*F _m (2000 psi minimum)

MASONRY MATERIALS TABLE	
Material	Standard
Hollow Concrete Masonry Units	ASTM C 90
Solid Concrete Masonry Units	ASTM C 145
Grout	ASTM C 476
Mortar	ASTM C 270
Reinforcing	ASTM A615-grade 60
Reinforcing Welded	ASTM A706-grade 60
Wire Reinforcing	ASTM A951

NOTES:

- Provide lightweight hollow concrete masonry units for general use. Provide normal weight or solid units where indicated.
- Mortar for clay masonry shall be type S.
- Mortar for concrete masonry shall be type S at exterior walls and type N at interior walls.
- Hydrated lime required in all mortar.
- Wire joint reinforcing shall be ladder type.

GROUT AND MORTAR PROPORTIONING TABLE	
Element	Proportions
Fine Grout	(1) Part Portland cement with not more than (1/10) part hydrated lime, and (2 1/4) to (3) parts sand.
Coarse Grout	(1) Part Portland cement with not more than (1/10) part hydrated lime, and (2 3/4) to (3) parts sand, and (1) to (2) parts gravel.
Mortar Type S Exterior Walls	(1) Part Portland cement with (1/4) to not more than (1/2) part hydrated lime and a damp aggregate ratio of not less than (2 1/4) and not more than (3) times the sum of the separate cementitious material volumes.
Mortar Type N Interior Walls	(1) Part Portland cement with (1/2) to not more than (1 1/4) part hydrated lime, and a damp aggregate ratio of not less than (2 1/4) and not more than (3) times the sum of the separate cementitious material volumes.

NOTES:

- Grout shall contain a minimum of (7) sacks of cement per cubic yard.
- Add sufficient water to provide proper consistency without segregation.

MASONRY REINFORCING SPICE LENGTHS	
Bar Size	Splice Length (in.)
#3	12
#4	14
#5	21
#6	39
#7	53
#8	80

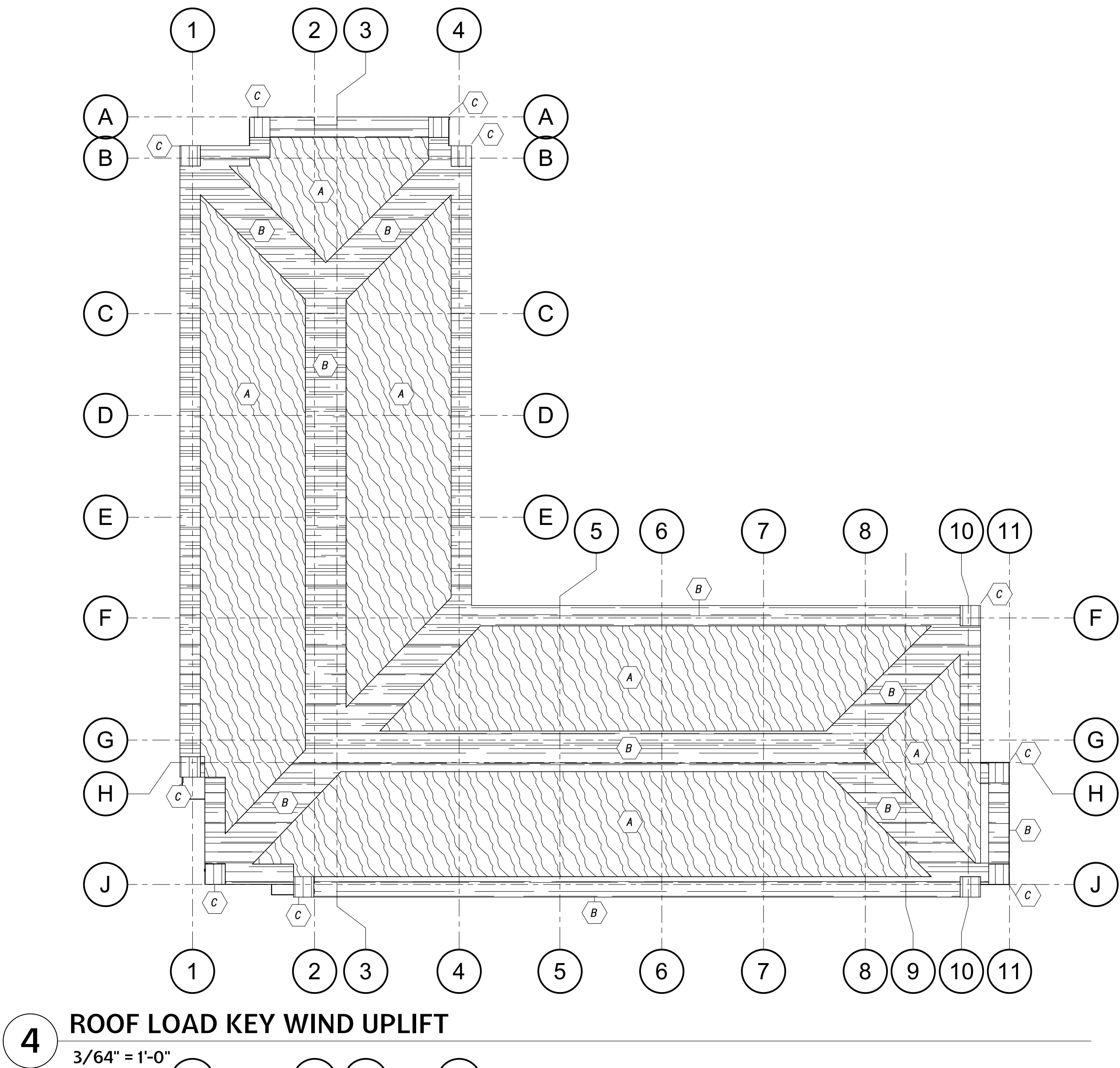
NOTES:

- SPICES IN REINFORCING BARS IN REINFORCED MASONRY SHALL HAVE MINIMUM LENGTHS DEFINED ABOVE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
- ALL SPICES TO BE WELDED TOGETHER.
- SPICE AND DEVELOPMENT LENGTHS ARE THE SAME VALUE FOR HORIZONTAL AND VERTICAL BARS.
- 4" MIN MUST BE GREATER THAN OR EQUAL TO 2000 PSI.
- CLEAR COVER FROM FACE OF BLOCK MUST BE GREATER THAN 3/31".

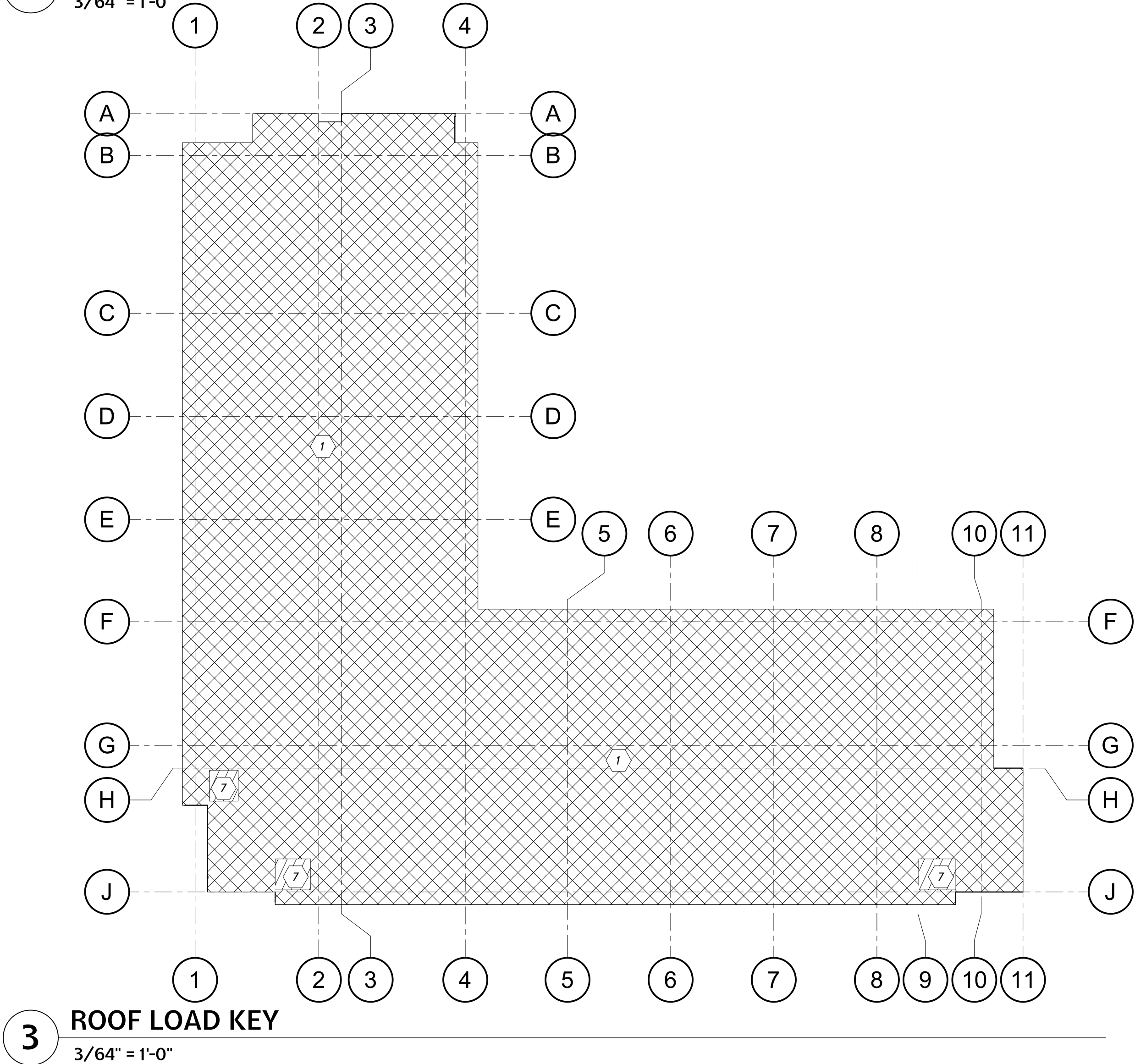
SIPS:

SYSTEM DESCRIPTION:

- Structural Insulated Panels (SIPs) consist of oriented strand board (OSB) laminated with structural adhesives to



4 ROOF LOAD KEY WIND UPLIFT
3/64" = 1'-0"

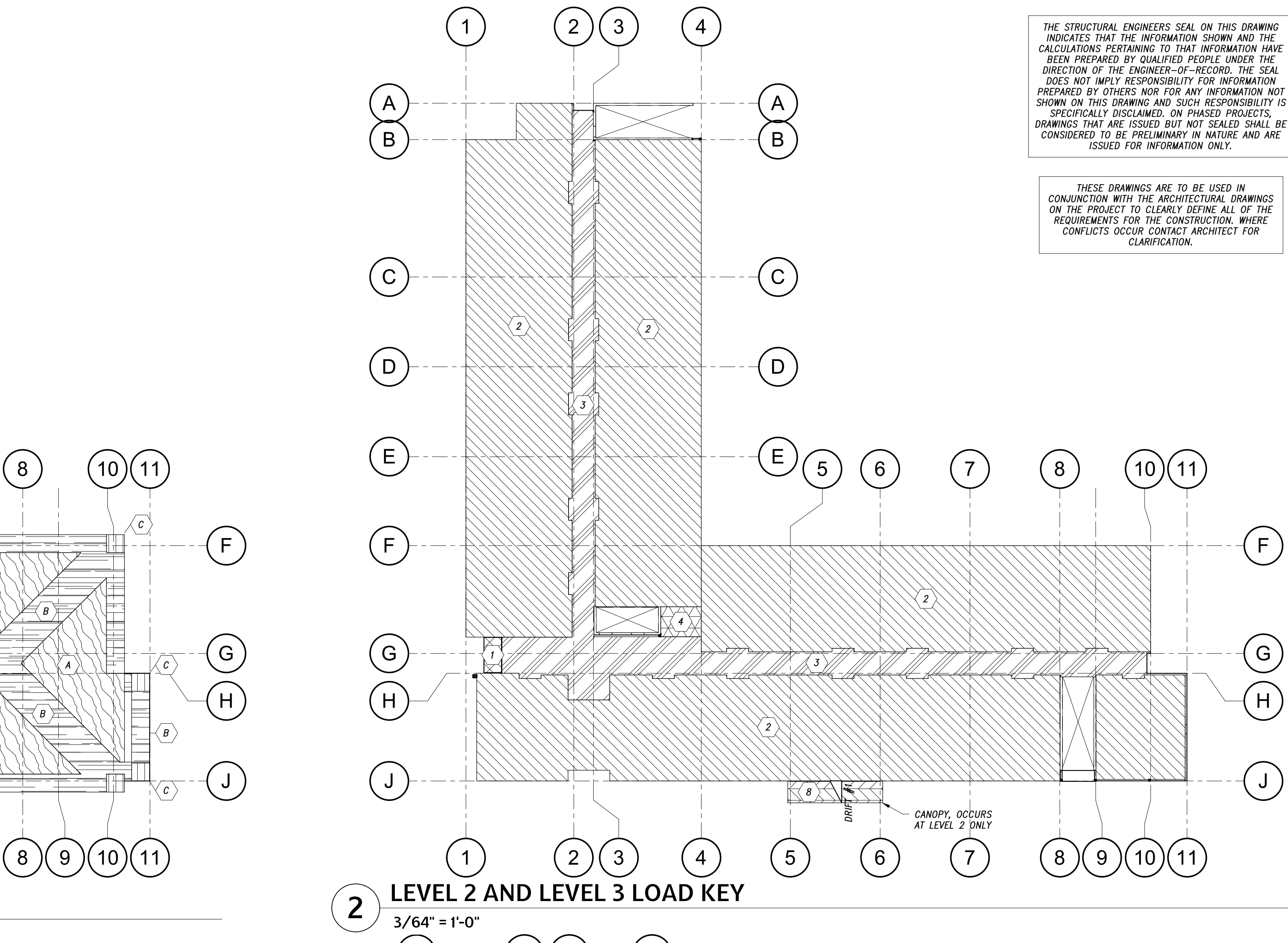


3 ROOF LOAD KEY
3/64" = 1'-0"

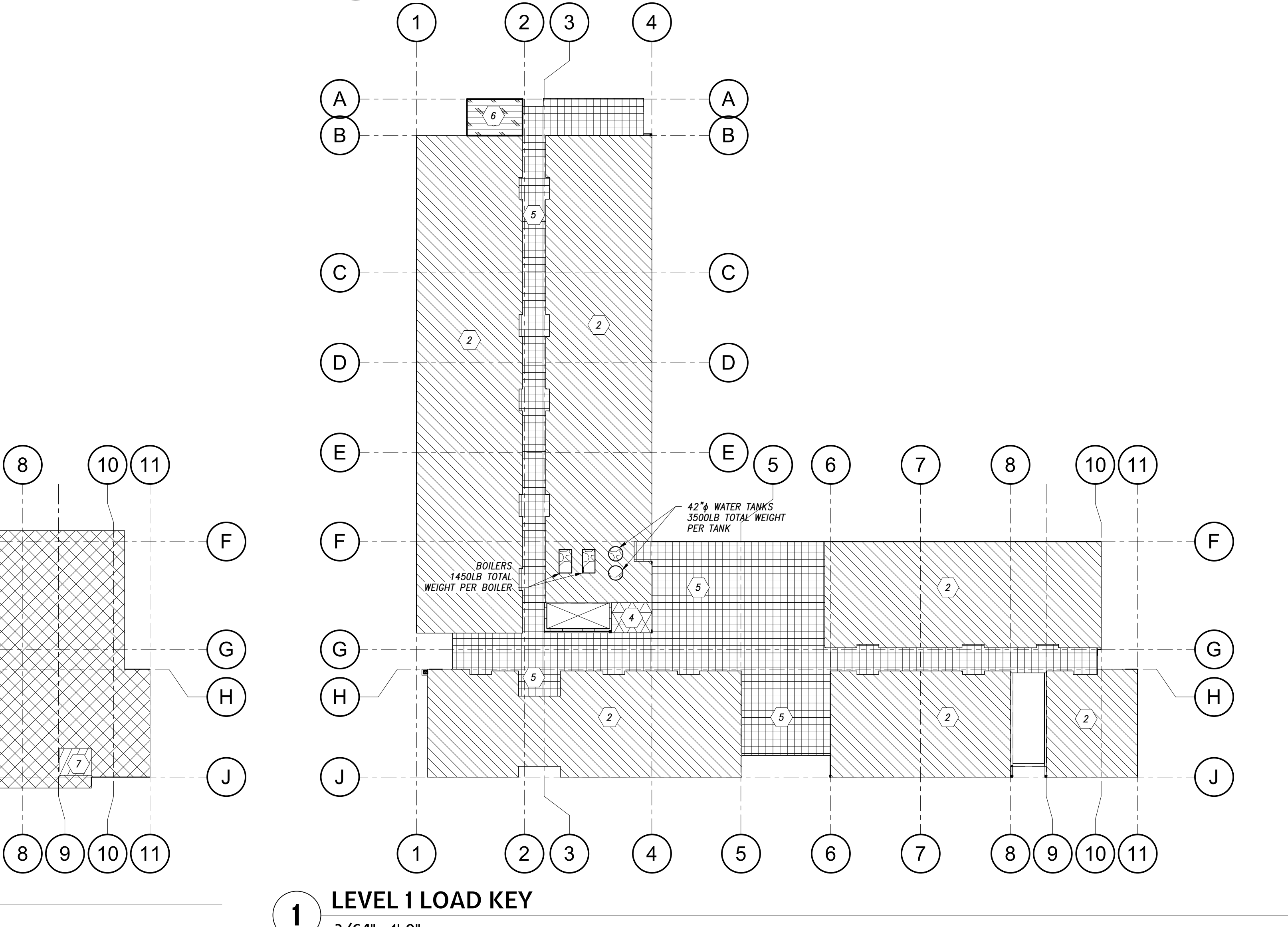
WIND UPLIFT LOAD KEY LEGEND		
WIND ZONE	PATTERN	NET UPLIFT (0.60-0.6W)
A		-5 PSF
B		-14 PSF
C		-24 PSF

NOTES:
1. REFERENCE GENERAL NOTES FOR COMPONENTS AND CLADDING WIND DESIGN PRESSURES.
2. NET UPLIFT PRESSURES ARE BASED ON AN EFFECTIVE WIND AREA OF 10PSF AT ZONE A AND ZONE C AND 280PSF AT ZONE B.
3. DEAD LOAD UTILIZED IN CALCULATIONS IS 20 PSF UNREDUCED OR (0.6*20PSF)= 12PSF REDUCED.

DRIFT #	Pd	Ld	Pf
1	31 PSF	7 FT	21 PSF



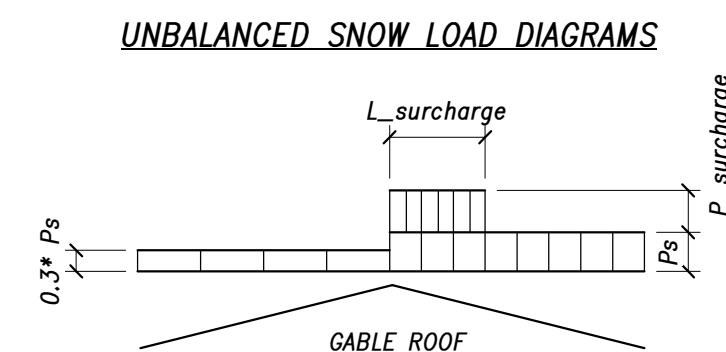
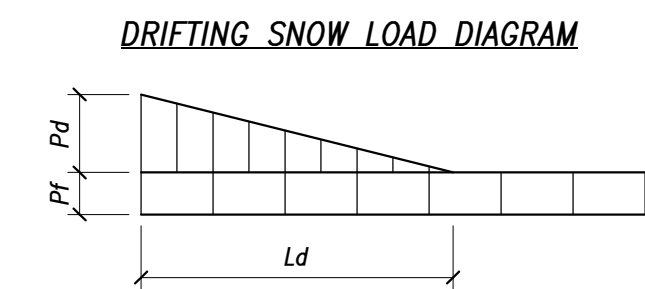
2 LEVEL 2 AND LEVEL 3 LOAD KEY
3/64" = 1'-0"



1 LEVEL 1 LOAD KEY
3/64" = 1'-0"

LOAD KEY LEGEND								
LOAD AREA	PATTERN	SELF WEIGHT 1.00 (psf)	SUPERIMPOSED LOADS			LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
			DEAD LOAD 1.00 (psf)	LIVE LOAD ¹ 1.00 (psf)	SNOW LOAD 1.00 (psf)			
1		6	14	20	21	NO	TYPICAL ROOF	SEE NOTES 1,2,4,5 UNBALANCED SNOW LOADING: P ₁ = 21psf, P ₂ =Surcharge 4psf; L ₁ =Surcharge=9'-4" ASSUMED PREMANUFACTURED TRUSS SELF WEIGHT = 3PSF
2		7	28	40	--	YES	TYPICAL RESIDENTIAL FLOOR	ASSUMED PREMANUFACTURED TRUSS SELF WEIGHT = 3PSF
3		7	28	40	--	NO	TYPICAL CORRIDOR	--
4		7	28	125	--	NO	STORAGE	ASSUMED PREMANUFACTURED TRUSS SELF WEIGHT = 3PSF
5		7	28	100	--	YES	FIRST FLOOR CORRIDOR/PUBLIC ROOMS	ASSUMED PREMANUFACTURED TRUSS SELF WEIGHT = 3PSF
6		7	63	125	--	YES	TRASH ROOM	4" TOPPING SLAB
7		6	24	20	21	NO	ROOF W/ OVERFRAMING	SEE NOTES 2,4,5, 10PSF OVERFRAMING ALLOWANCE ASSUMED PREMANUFACTURED TRUSS SELF WEIGHT = 3PSF

NOTES:
1. DRIFTING AND UNBALANCED SNOW LOADS ARE DEFINED BY DIAGRAM TO THE RIGHT.
2. ROOF LIVE AND SNOW LOADS DO NOT ACT CONCURRENTLY.
3. STAIRS TO BE DESIGNED BY STAIR MANUFACTURER; SELF WEIGHT AND SUPERIMPOSED DEAD LOADS TO BE DETERMINED BY STAIR MANUFACTURER.
4. SEE WIND UPLIFT LOAD KEY FOR VERTICAL WIND LOAD INFORMATION.
5. WHERE PREMANUFACTURED ROOF TRUSSES OCCUR, APPLY LOADS AS FOLLOWS:
CASE #1: APPLY TABULATED LOADS TO TOP CHORDS.
CASE #2: APPLY TABULATED LOADS TO TOP CHORDS W/ 8 PSF DEAD LOAD REDUCTION. APPLY 8 PSF DEAD LOAD TO BOTTOM CHORD.



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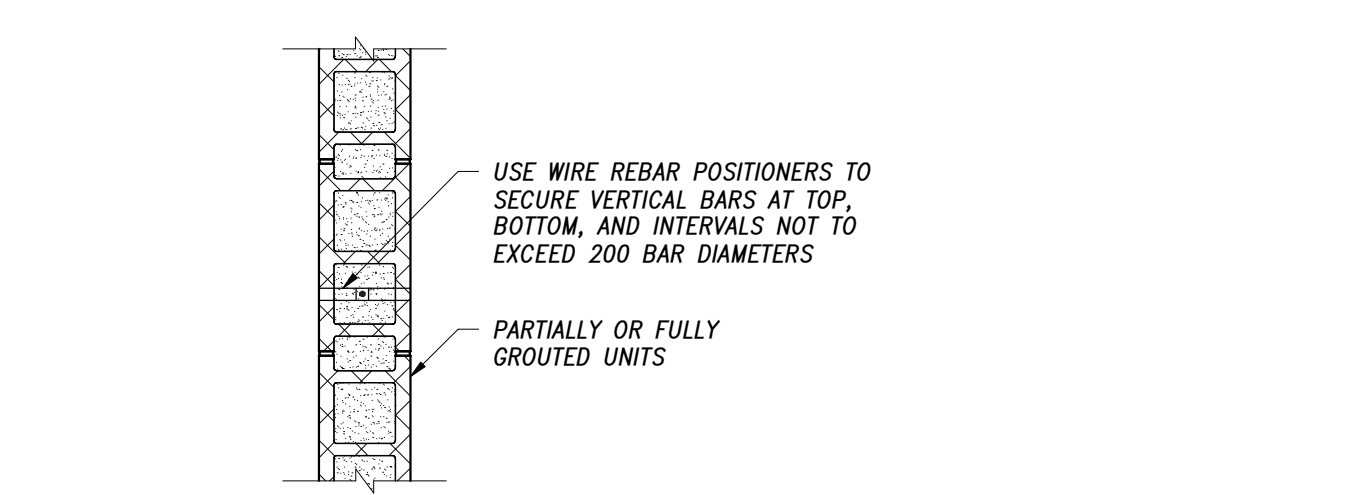
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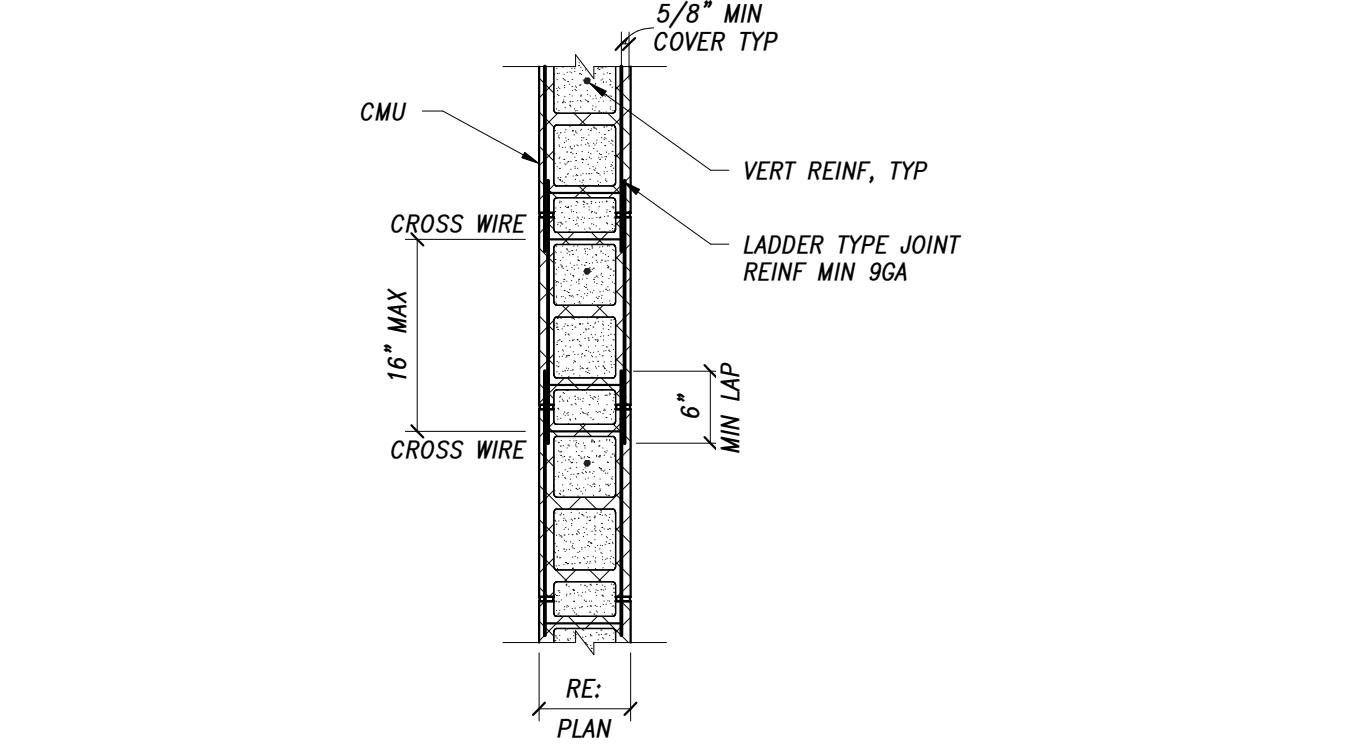
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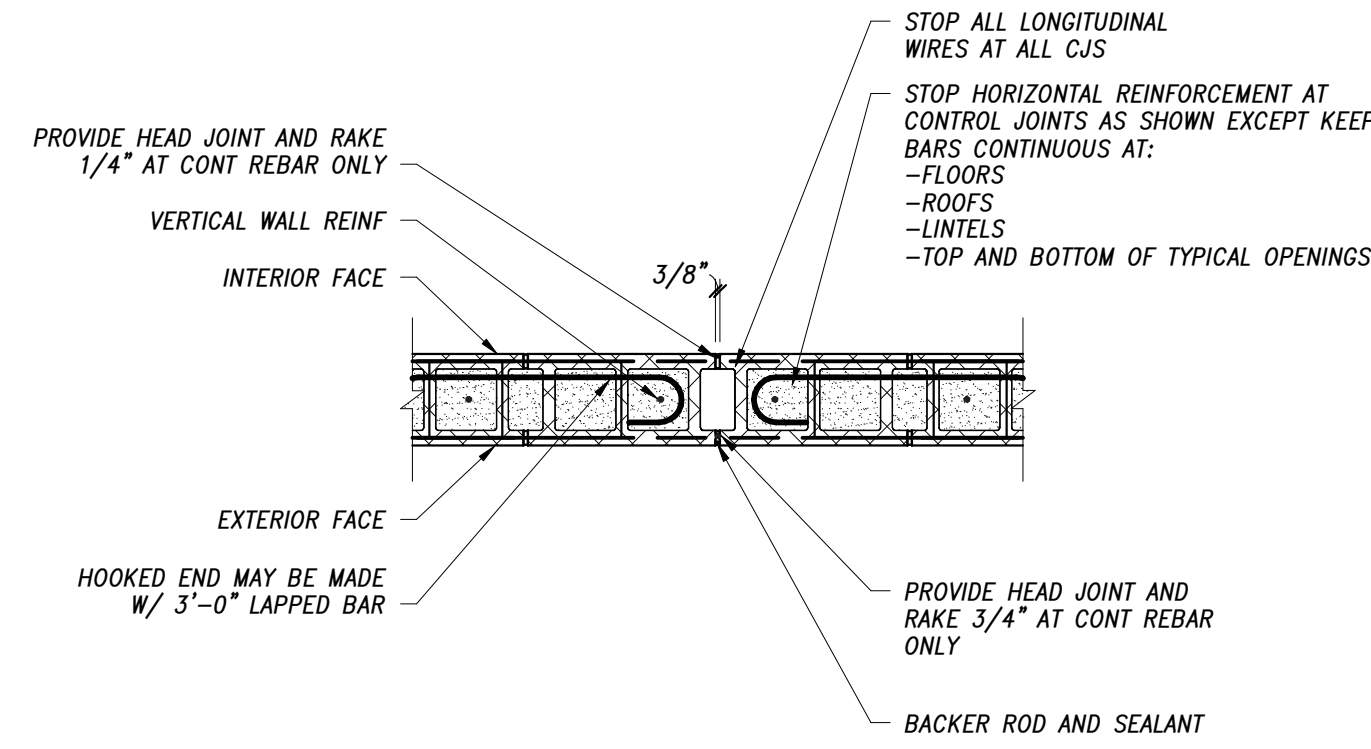
15 PERGOLA FOUNDATION



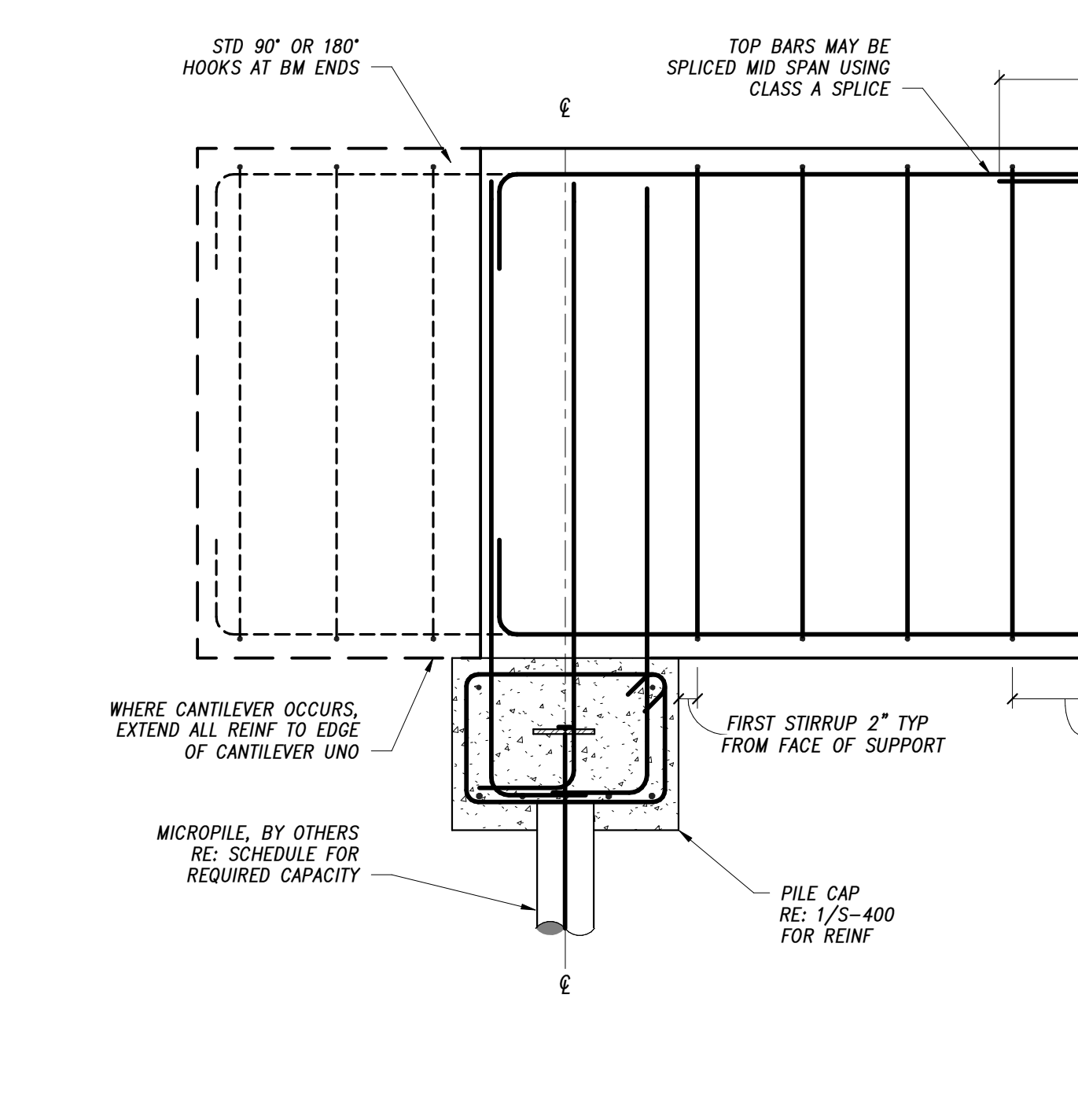
14 TYPICAL REINFORCED MASONRY VERTICAL BAR POSITIONERS



13 TYPICAL REINFORCED MASONRY WALL JOINT REINFORCEMENT



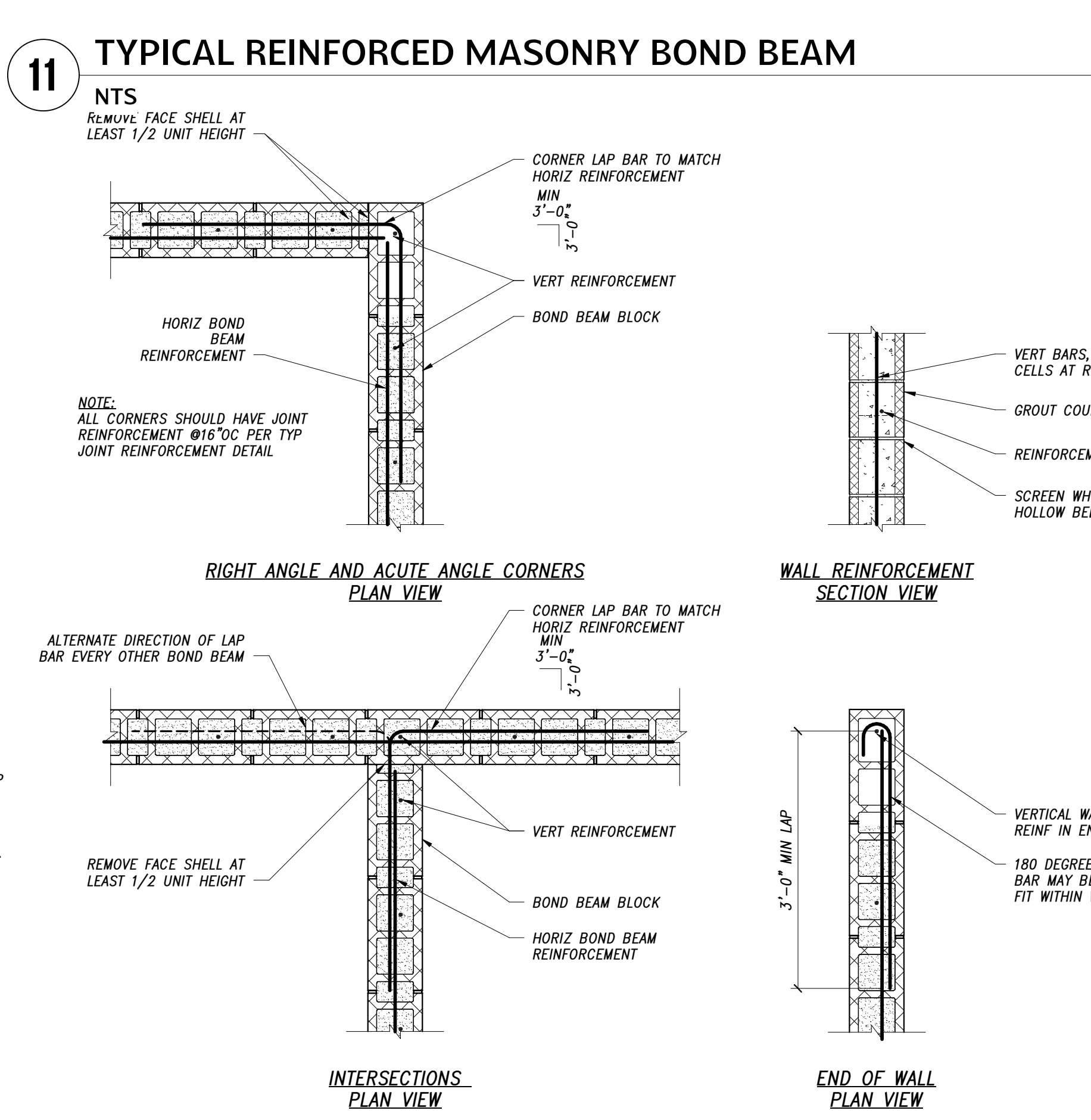
12 TYPICAL REINFORCED MASONRY WALL CONTROL JOINT



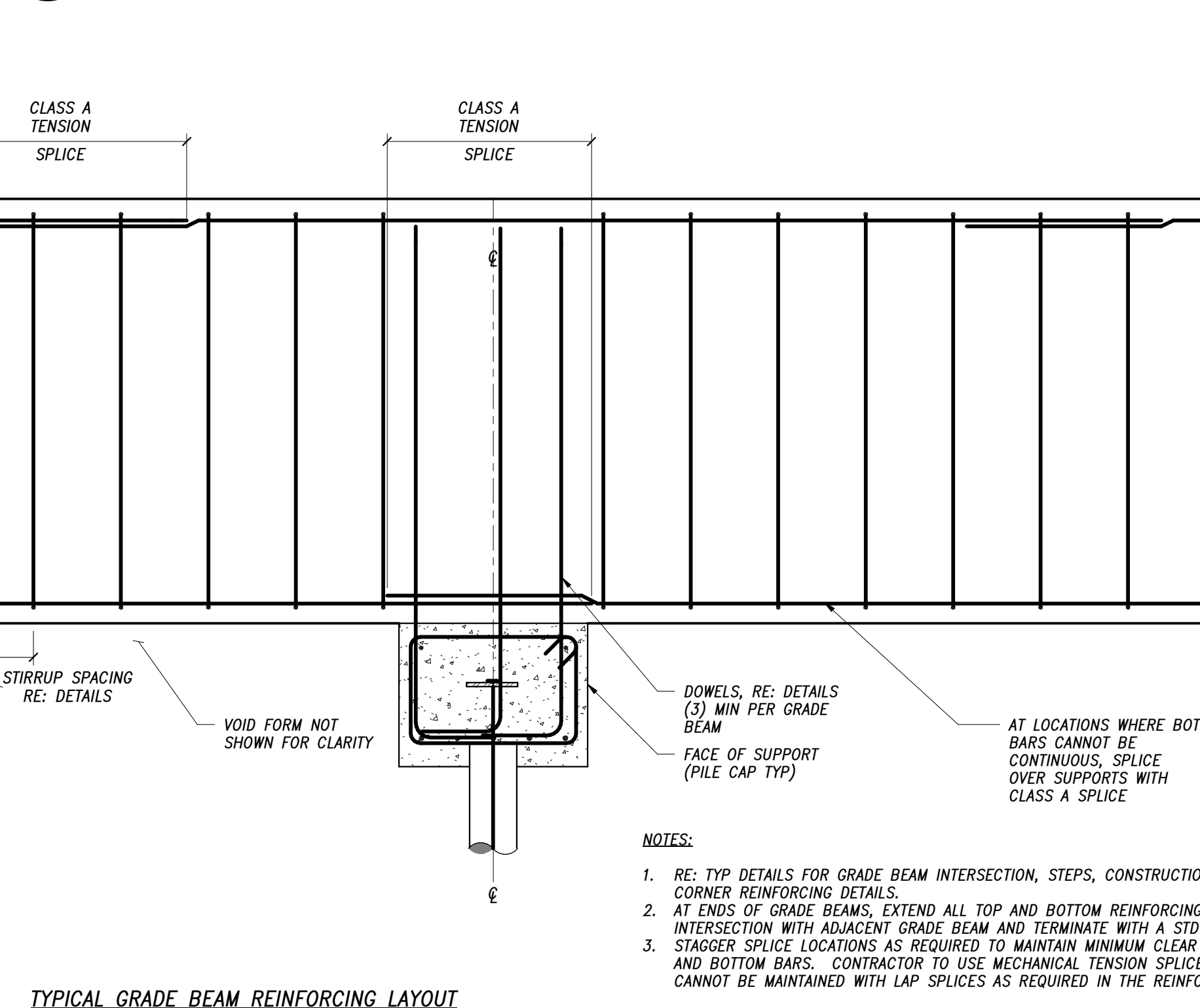
9 GRADE BEAM SPLICES



11 TYPICAL REINFORCED MASONRY BOND BEAM



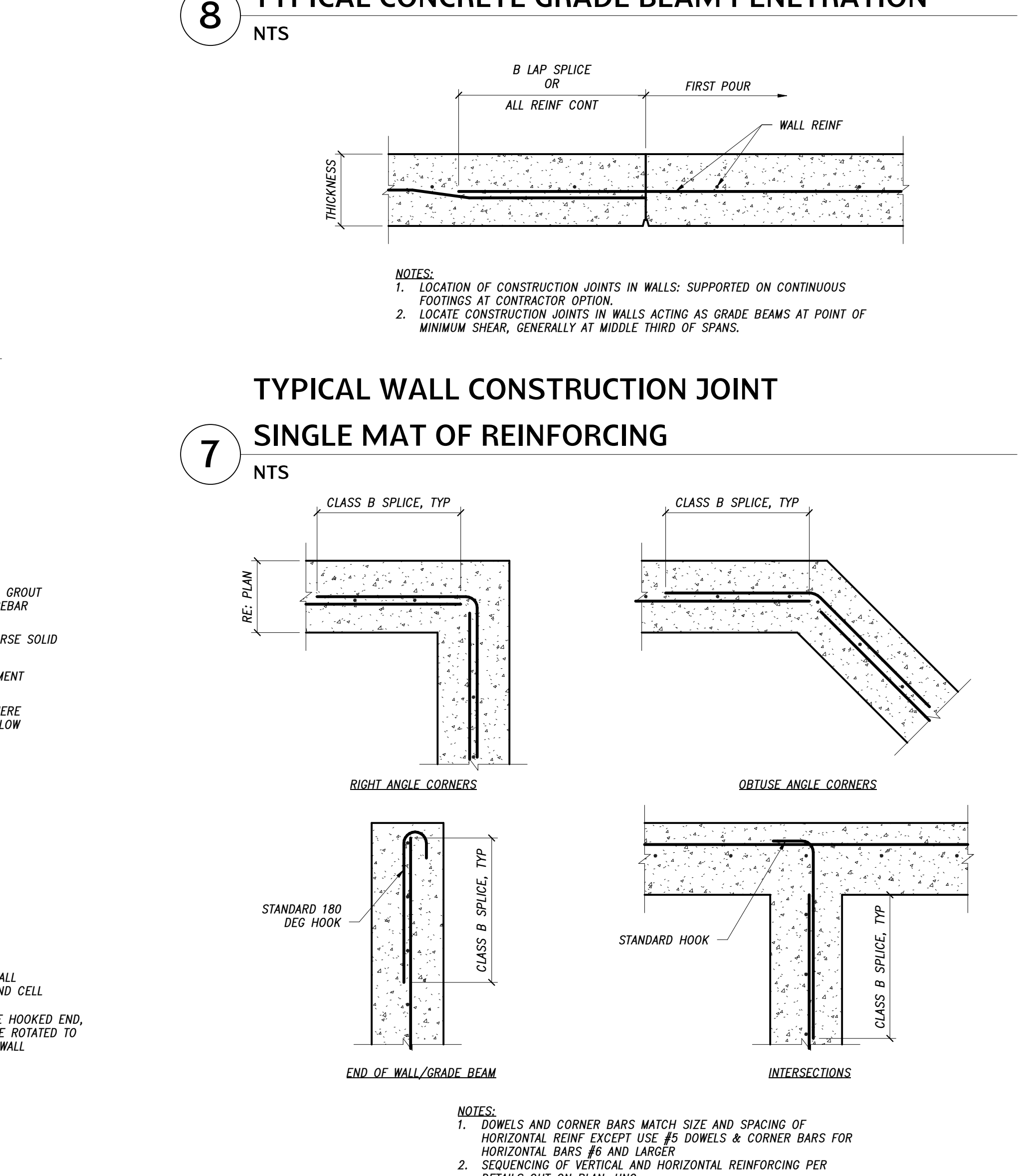
10 TYPICAL REINFORCED MASONRY WALL HORIZONTAL REINFORCEMENT CORNERS



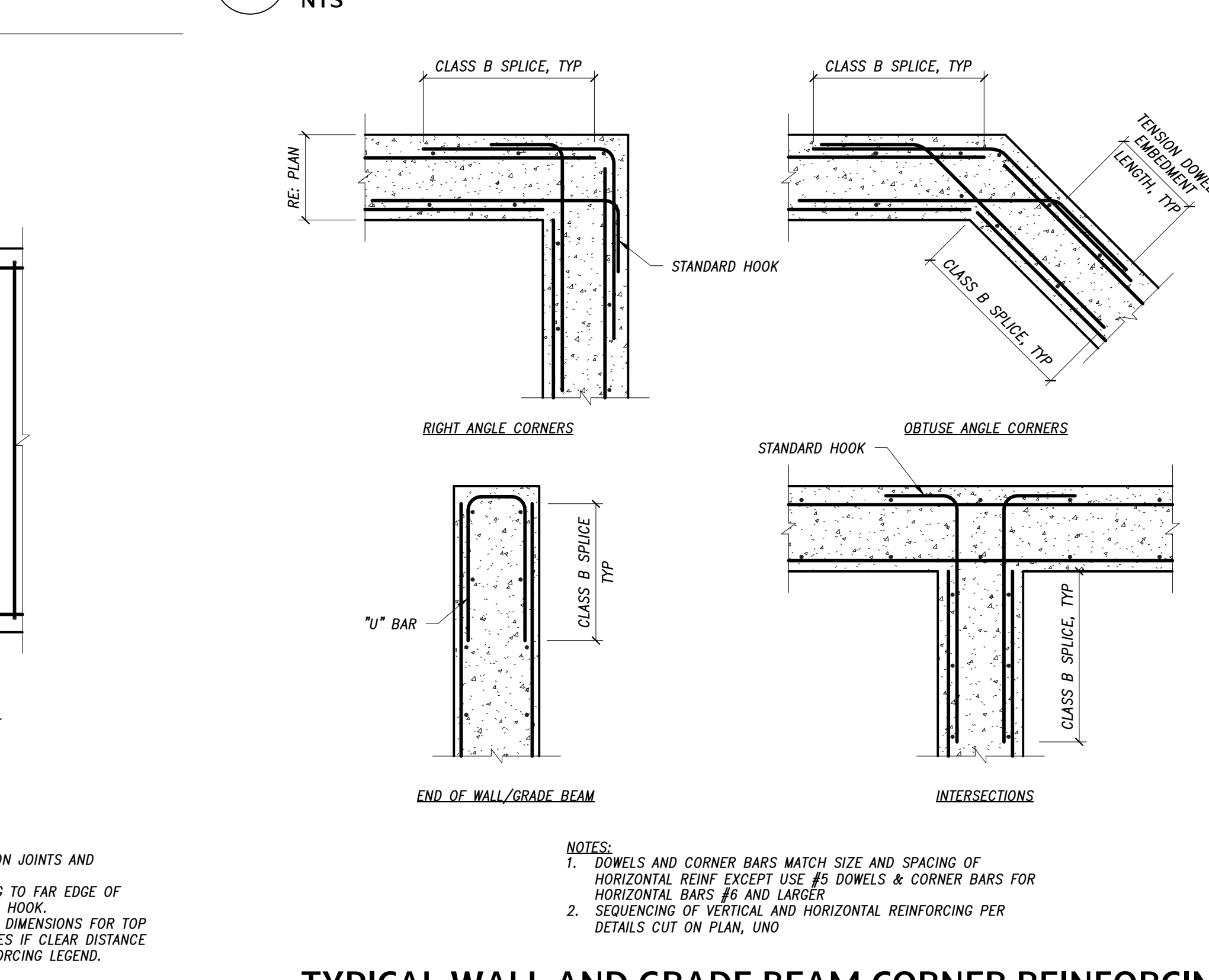
8 TYPICAL CONCRETE GRADE BEAM PENETRATION



7 TYPICAL WALL CONSTRUCTION JOINT SINGLE MAT OF REINFORCING



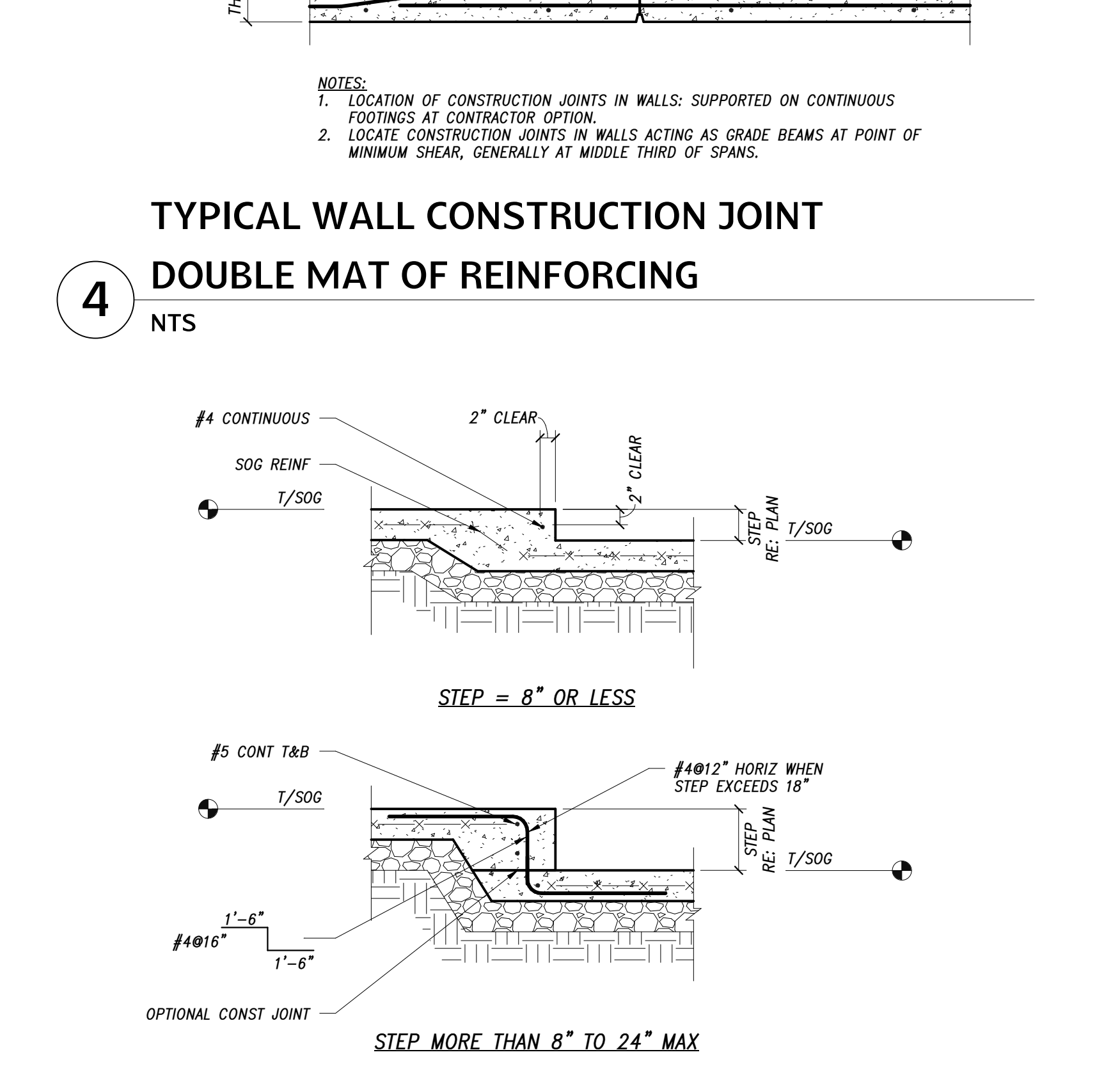
6 TYPICAL WALL AND GRADE BEAM CORNER REINFORCING SINGLE MAT OF REINFORCING



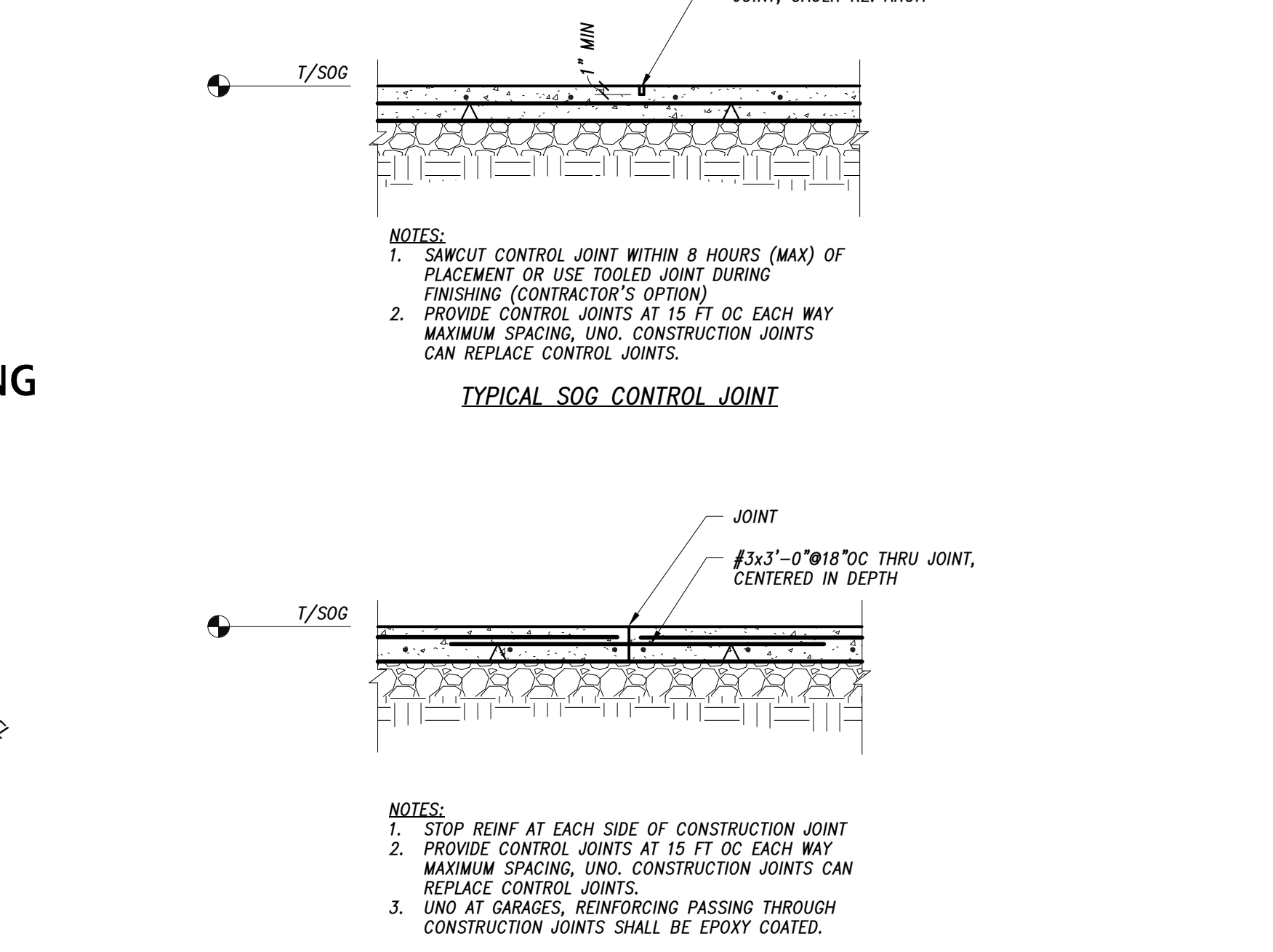
5 TYPICAL WALL AND GRADE BEAM CORNER REINFORCING DOUBLE MAT OF REINFORCING



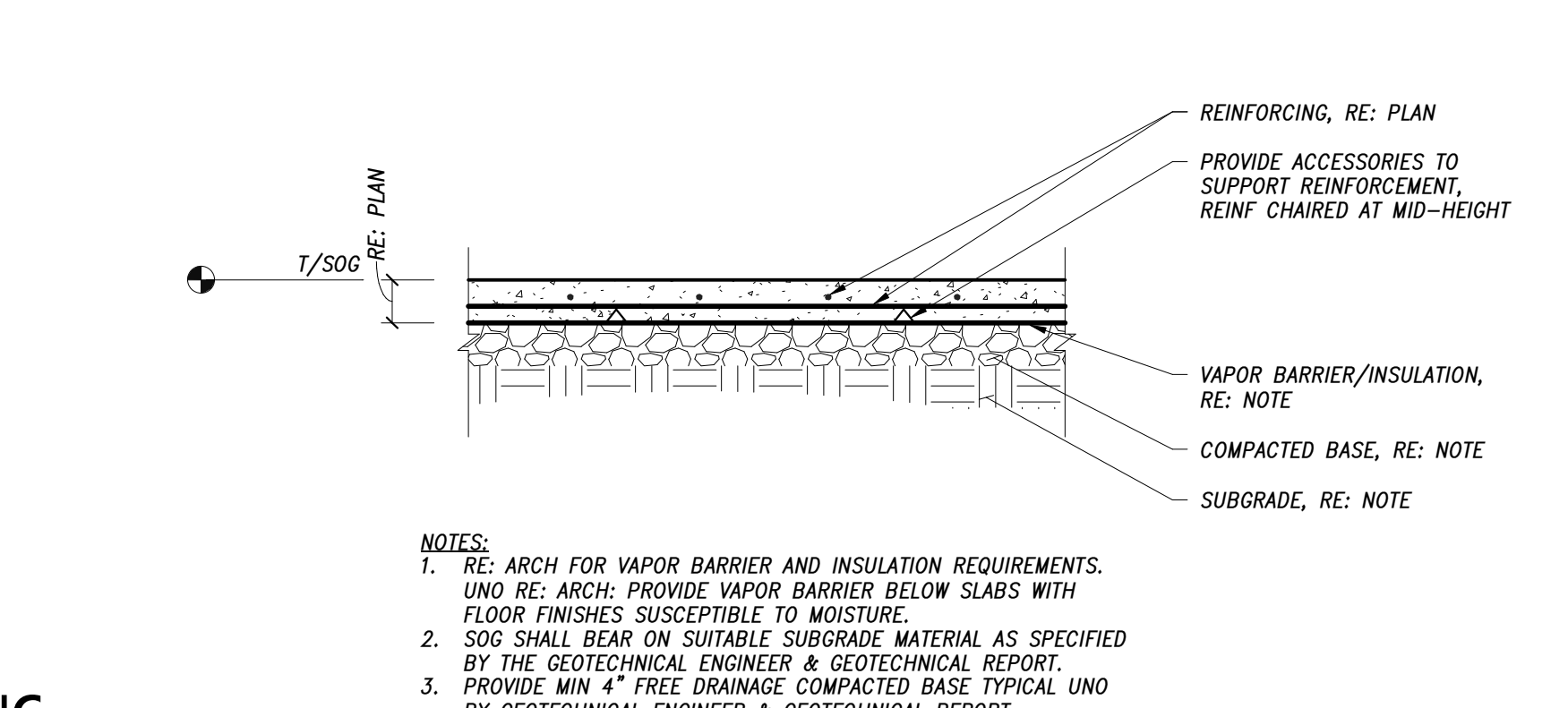
4 TYPICAL WALL CONSTRUCTION JOINT DOUBLE MAT OF REINFORCING



3 TYPICAL SLAB-ON-GRADE STEPS



2 TYPICAL SLAB-ON-GRADE JOINTING



1 TYPICAL SLAB-ON-GRADE



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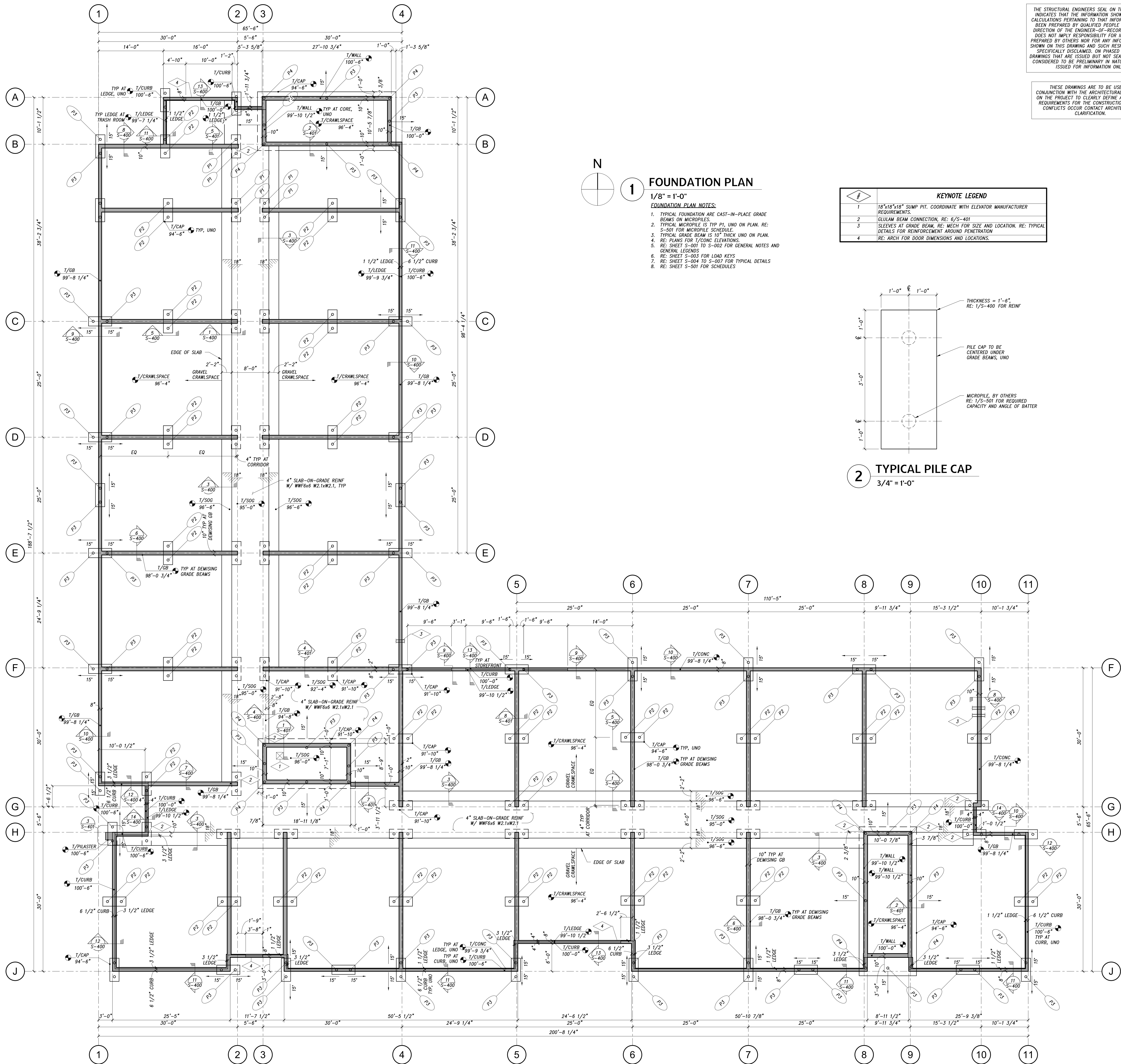
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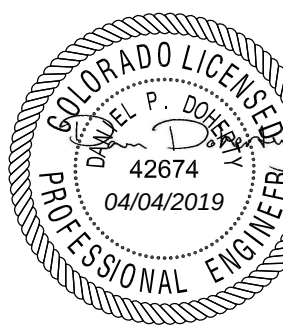


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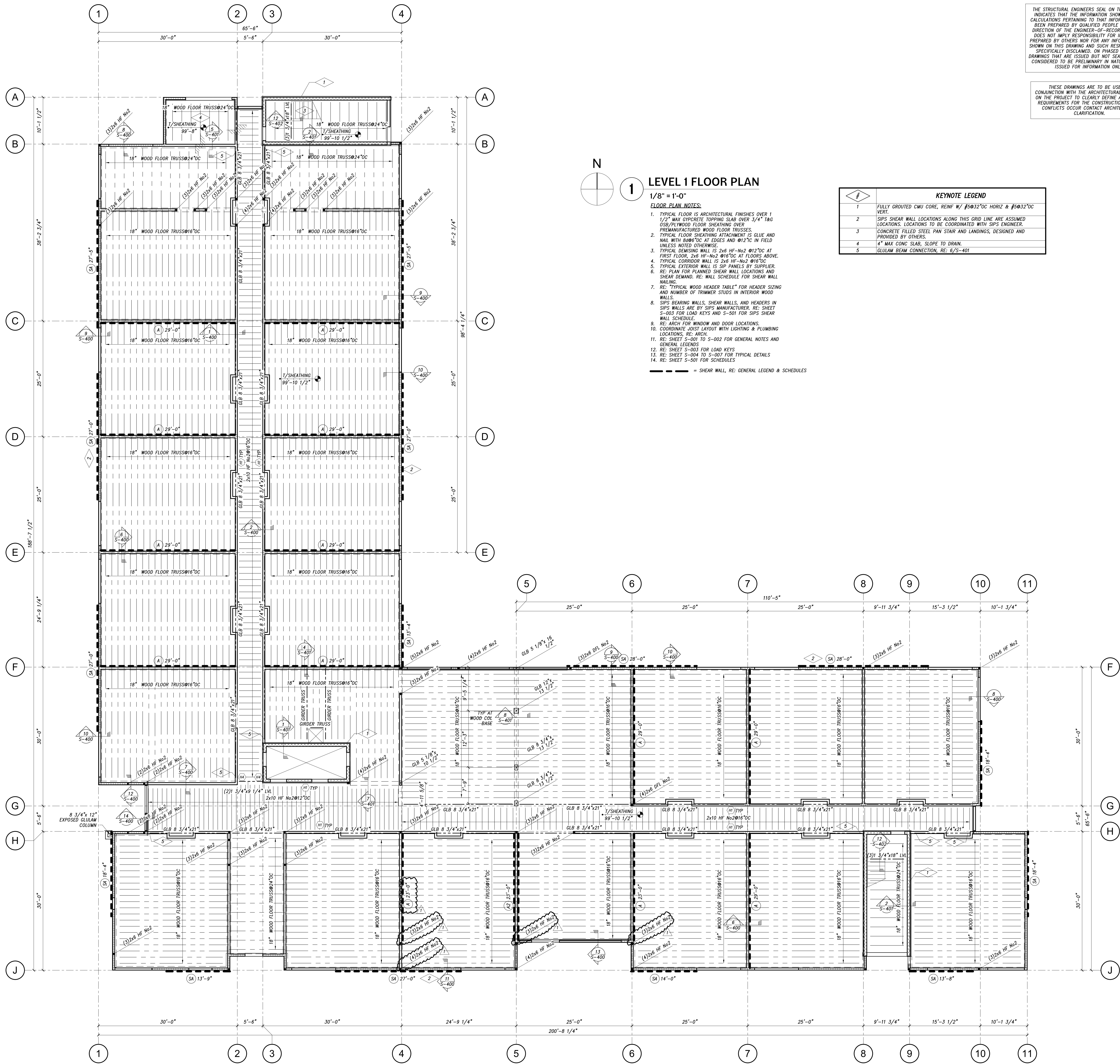
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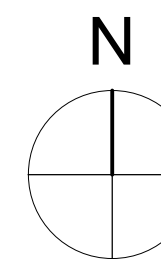
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1 LEVEL 1 FLOOR PLAN

1/8" = 1'-0"

FLOOR PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES.
2. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d66"OC AT EDGES AND #12"OC IN FIELD UNLESS NOTED OTHERWISE.
3. TYPICAL DEMISING WALL IS 2x6 HF-No2 #12"OC AT FIRST FLOOR, 2x6 HF-No2 #16"OC AT FLOORS ABOVE.
4. TYPICAL CORRIDOR WALL IS SIP PANELS BY SUPPLIER.
5. TYPICAL EXTERIOR WALL IS SIP PANELS BY SUPPLIER.
6. RE: PLAN FOR PLANNED SHEAR WALL LOCATIONS AND SHEAR DEMAND. RE: WALL SCHEDULE FOR SHEAR WALL NAILING.
7. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS IN INTERIOR WOOD WALLS.
8. SIPs BEARING WALLS, SHEAR WALLS, AND HEADERS IN SIPs WALLS ARE BY SIPs MANUFACTURER. RE: SHEET S-003 FOR LOAD KEYS AND S-501 FOR SIPs SHEAR WALL SCHEDULE.
9. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
10. COORDINATE JOIST LAYOUT WITH LIGHTING & PLUMBING LOCATIONS. RE: ARCH.
11. RE: SHEET S-001 TO S-002 FOR GENERAL NOTES AND GENERAL LEGENDS.
12. RE: SHEET S-003 FOR LOAD KEYS.
13. RE: SHEET S-004 TO S-007 FOR TYPICAL DETAILS.
14. RE: SHEET S-501 FOR SCHEDULES.

--- = SHEAR WALL, RE: GENERAL LEGEND & SCHEDULES

	KEYNOTE LEGEND
1	FULLY GROUTED CMU CORE, REINF W/ #5@32"OC HORIZ & #5@32"OC VERT.
2	SIPS SHEAR WALL LOCATIONS ALONG THIS GRID LINE ARE ASSUMED LOCATIONS. LOCATIONS TO BE COORDINATED WITH SIPS ENGINEER.
3	CONCRETE FILLED STEEL PAN STAIR AND LANDINGS, DESIGNED AND PROVIDED BY OTHERS.
4	4" MAX CONC SLAB, SLOPE TO DRAIN.
5	GLULAM BEAM CONNECTION, RE: 6/S-401



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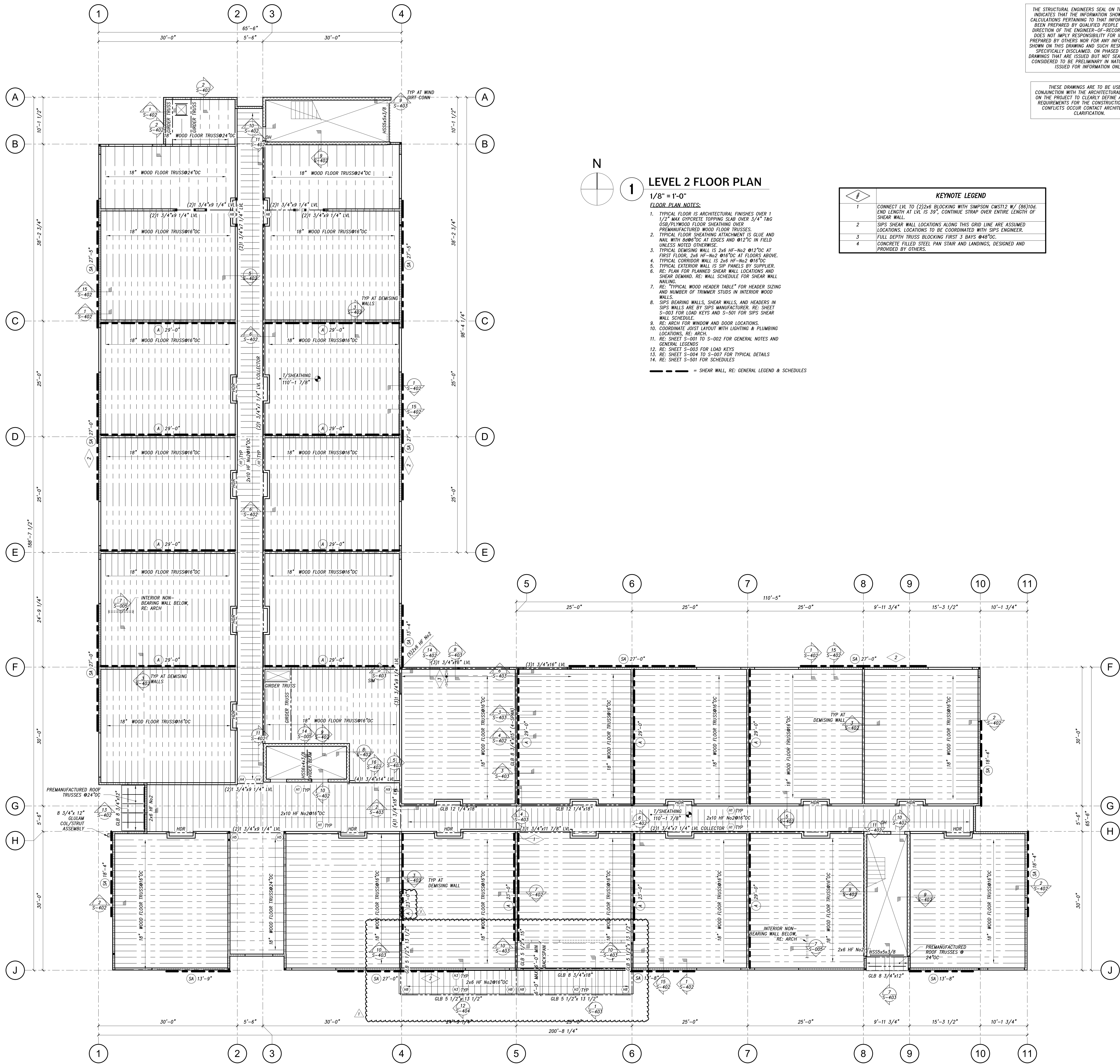
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LEVEL 1 FLOOR PLAN

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S-101

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LEVEL 2 FLOOR PLAN

- 1/8" = 1'-0"
- FLOOR PLAN NOTES:
1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES.
 2. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@16" OC AT EDGES AND @12" IN FIELD UNLESS NOTED OTHERWISE.
 3. TYPICAL DEMISING WALL IS 2x6 HF-No2 @12" OC AT FIRST FLOOR, 2x6 HF-No2 @16" OC AT FLOORS ABOVE.
 4. TYPICAL CORRIDOR WALL IS 2x6 HF-No2 @16" OC.
 5. TYPICAL EXTERIOR WALL IS SIP PANELS BY SUPPLIER.
 6. RE: PLAN FOR PLANNED SHEAR WALL LOCATIONS AND SHEAR DEMAND. RE: WALL SCHEDULE FOR SHEAR WALL SCHEDULING.
 7. RE: TYPICAL WOOD HEADER TABLE* FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS IN INTERIOR WOOD WALLS.
 8. SIPs BEARING WALLS, SHEAR WALLS, AND HEADERS IN SIPs WALLS ARE BY SIPs MANUFACTURER. RE: SHEET S-003 FOR LOAD KEYS AND S-501 FOR SIPs SHEAR WALL SCHEDULE.
 9. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
 10. COORDINATE JOIST LAYOUT WITH LIGHTING & PLUMBING LOCATIONS. RE: ARCH.
 11. RE: SHEET S-001 TO S-002 FOR GENERAL NOTES AND GENERAL LEGENDS.
 12. RE: SHEET S-003 FOR LOAD KEYS.
 13. RE: SHEET S-004 TO S-007 FOR TYPICAL DETAILS.
 14. RE: SHEET S-501 FOR SCHEDULES.
- = SHEAR WALL, RE: GENERAL LEGEND & SCHEDULES

KEYNOTE	LEGEND
1	CONNECT LVL TO (2)2x6 BLOCKING WITH SIMPSON CMST12 W/ (86)10d. END LENGTH AT LVL IS 39", CONTINUE STRAP OVER ENTIRE LENGTH OF SHEAR WALL.
2	SIPs SHEAR WALL LOCATIONS ALONG THIS GRID LINE ARE ASSUMED LOCATIONS. LOCATIONS TO BE COORDINATED WITH SIPs ENGINEER.
3	FULL DEPTH TRUSS BLOCKING FIRST 3 BAYS @48" OC.
4	CONCRETE FILLED STEEL PAN STAIR AND LANDINGS, DESIGNED AND PROVIDED BY OTHERS.

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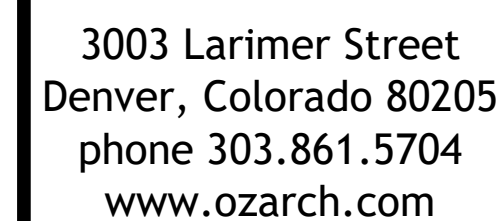
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LEVEL 2 FLOOR PLAN

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SHEET NUMBER

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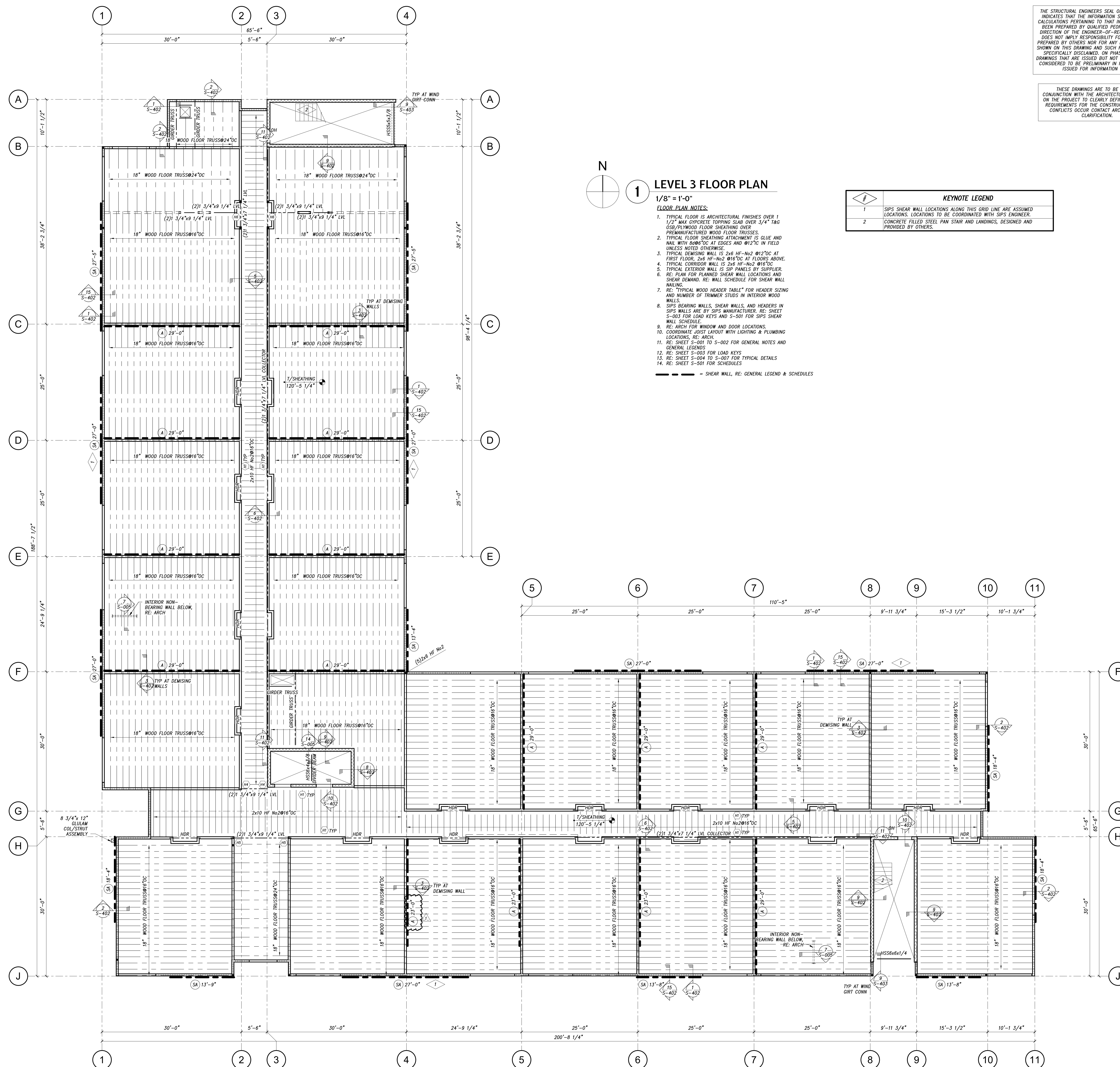
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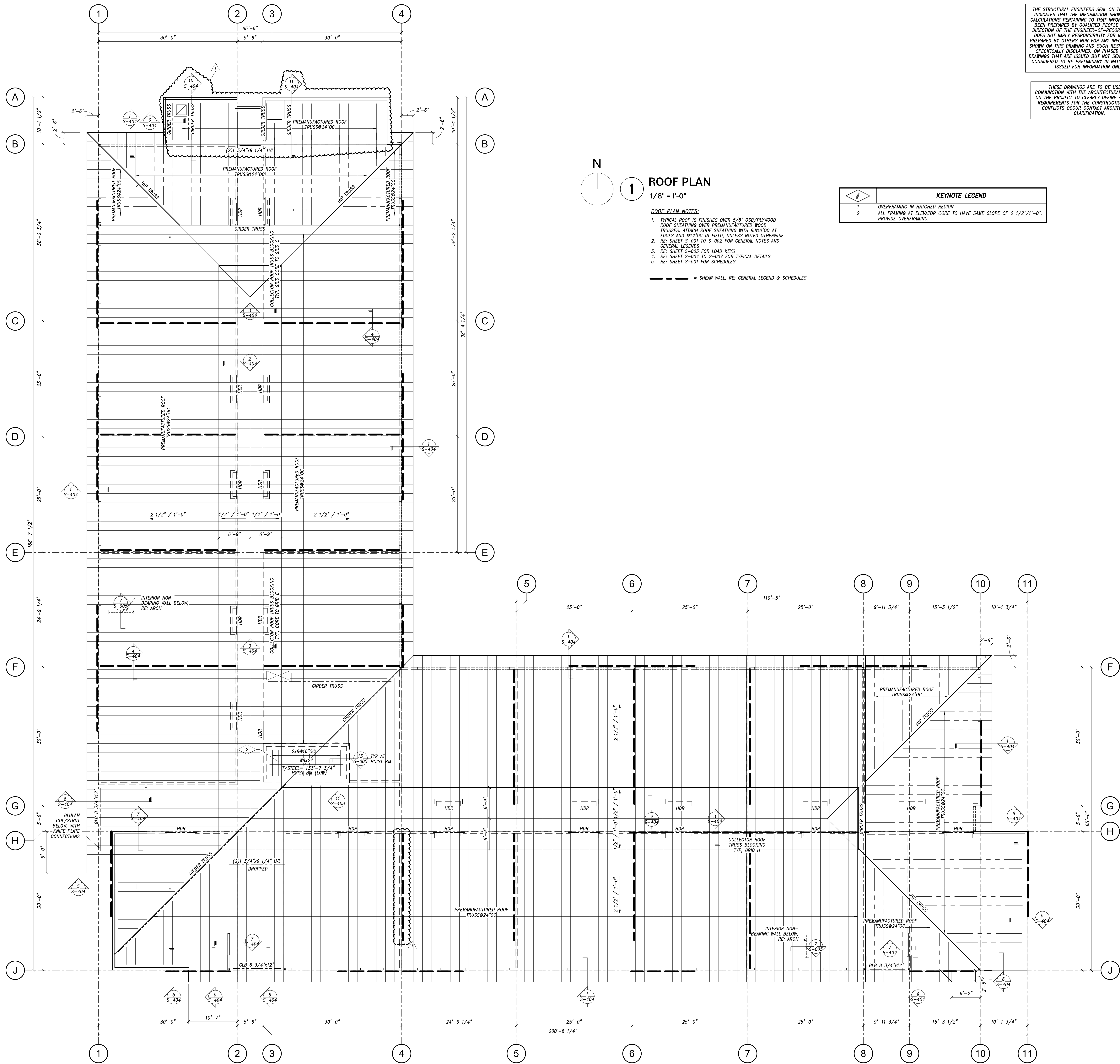


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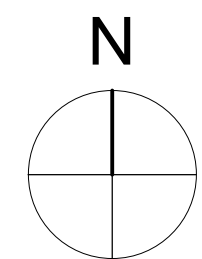
S-103





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1 ROOF PLAN

1/8" = 1'-0"

ROOF PLAN NOTES:

1. TYPICAL ROOF IS FINISHES OVER 5/8" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNLESS NOTED OTHERWISE.
2. RE. SHEET S-001 TO S-002 FOR GENERAL NOTES AND GENERAL LEGENDS
3. RE. SHEET S-003 FOR LOAD KEYS
4. RE. SHEET S-004 TO S-007 FOR TYPICAL DETAILS
5. RE. SHEET S-001 FOR SCHEDULES

--- = SHEAR WALL, RE: GENERAL LEGEND & SCHEDULES

KEYNOTE LEGEND	
1	OVERFRAMING IN HATCHED REGION.
2	ALL TRIMMING AT ELEVATOR CORE TO HAVE SAME SLOPE OF 2 1/2" / 1'-0". PROVIDE OVERFRAMING.



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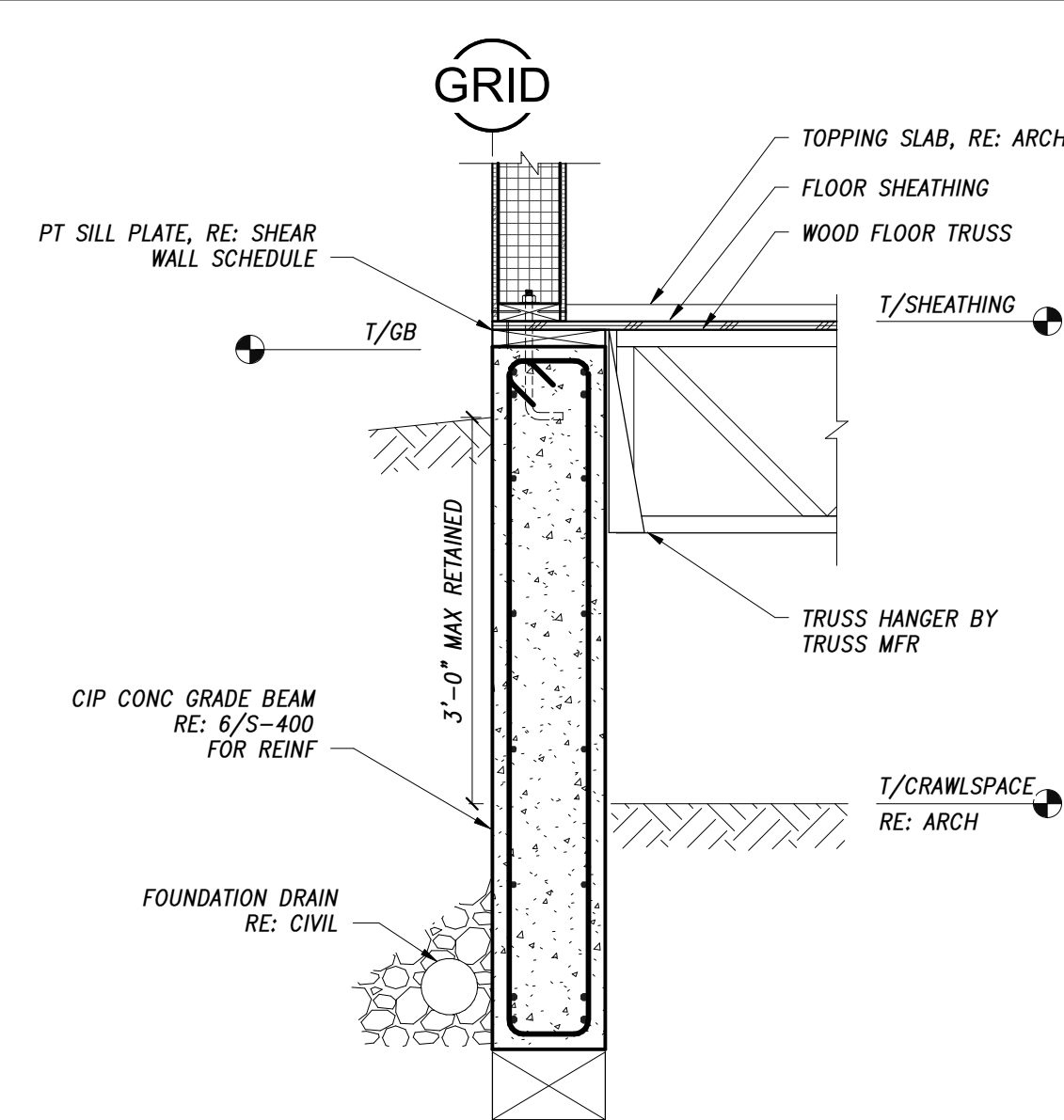
2814 PATTERSON ROAD
2814 PATTERSON ROAD, GRAND JUNCTION, CO 81506

PROJ. NO: 118185.00
DRAWN: LAJ/BWB
CHECKED: LAJ
APPROVED:DPD
DATE: 4/05/2019
REVISIONS:

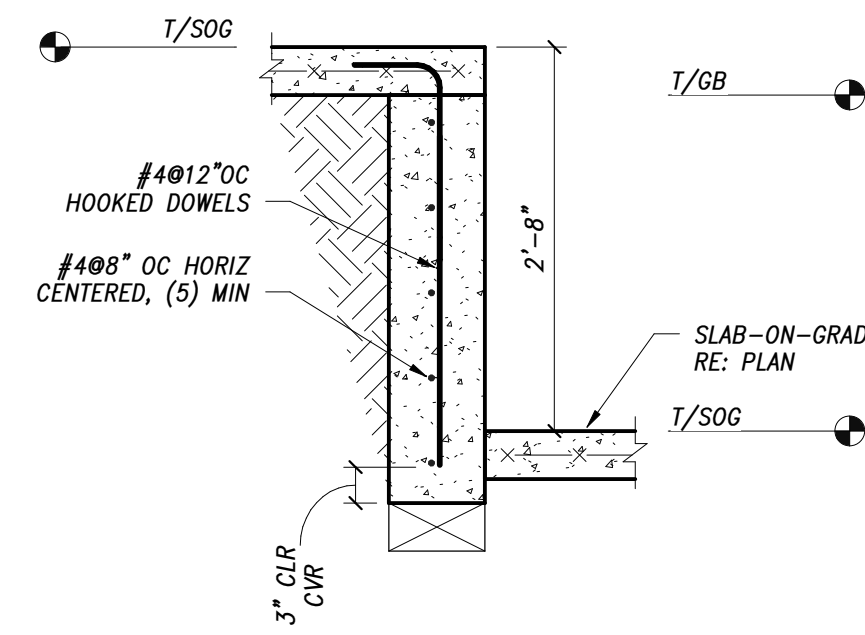


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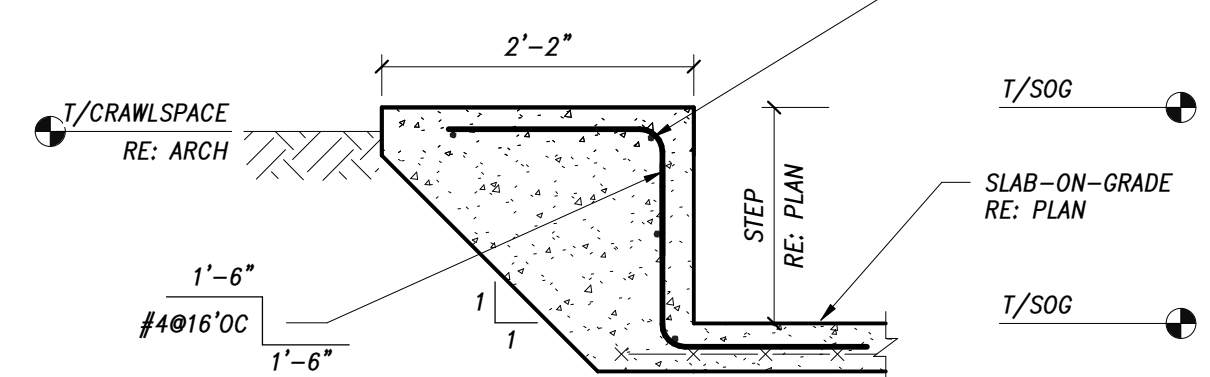
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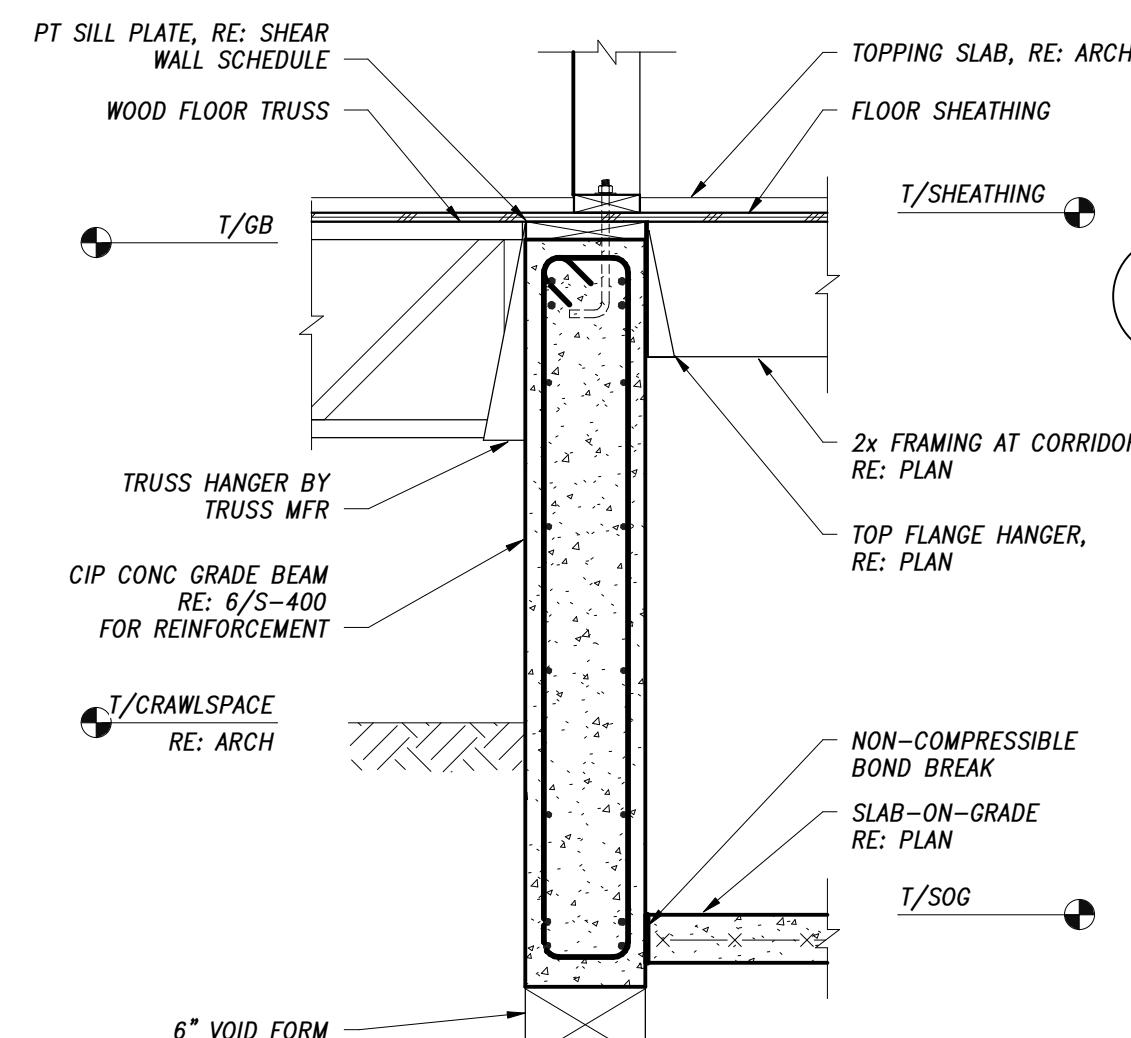
8 GRADE BEAM WITH PERP FLOOR TRUSSES
3/4" = 1'-0"



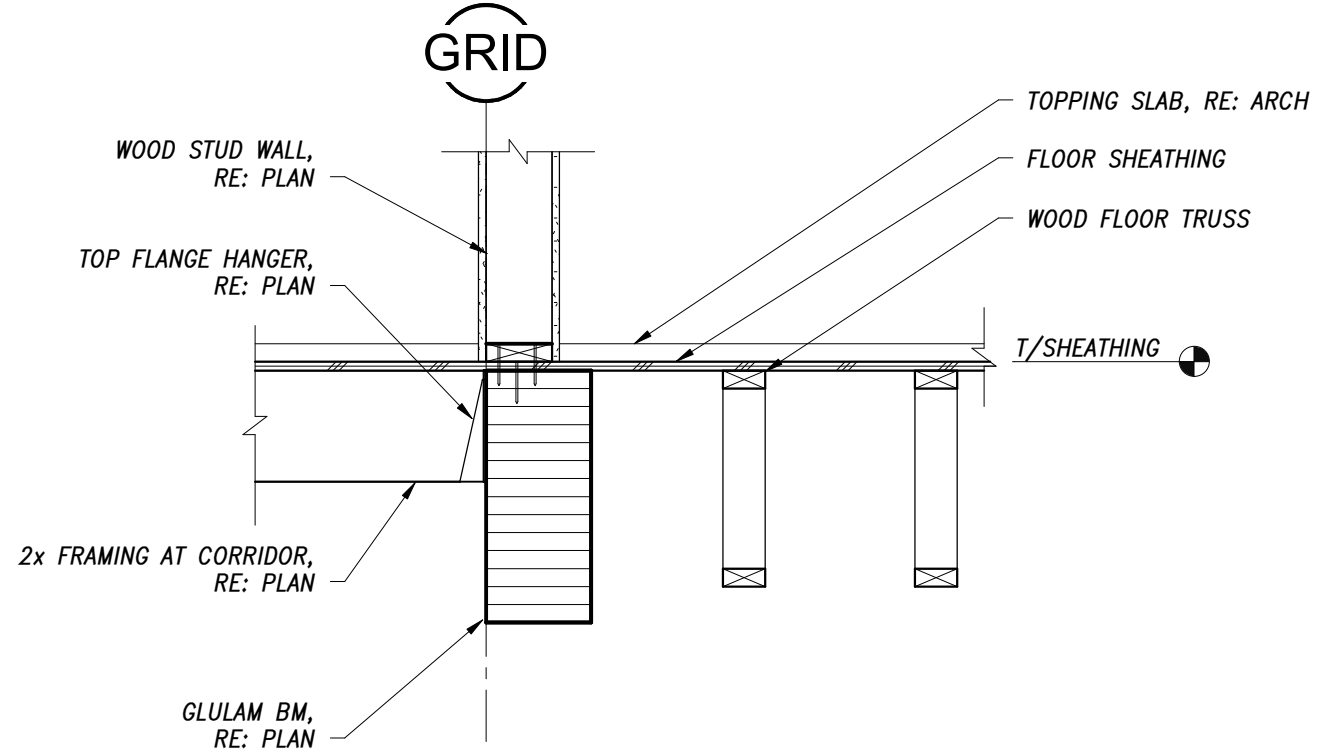
4 LARGE CORRIDOR STEP
3/4" = 1'-0"



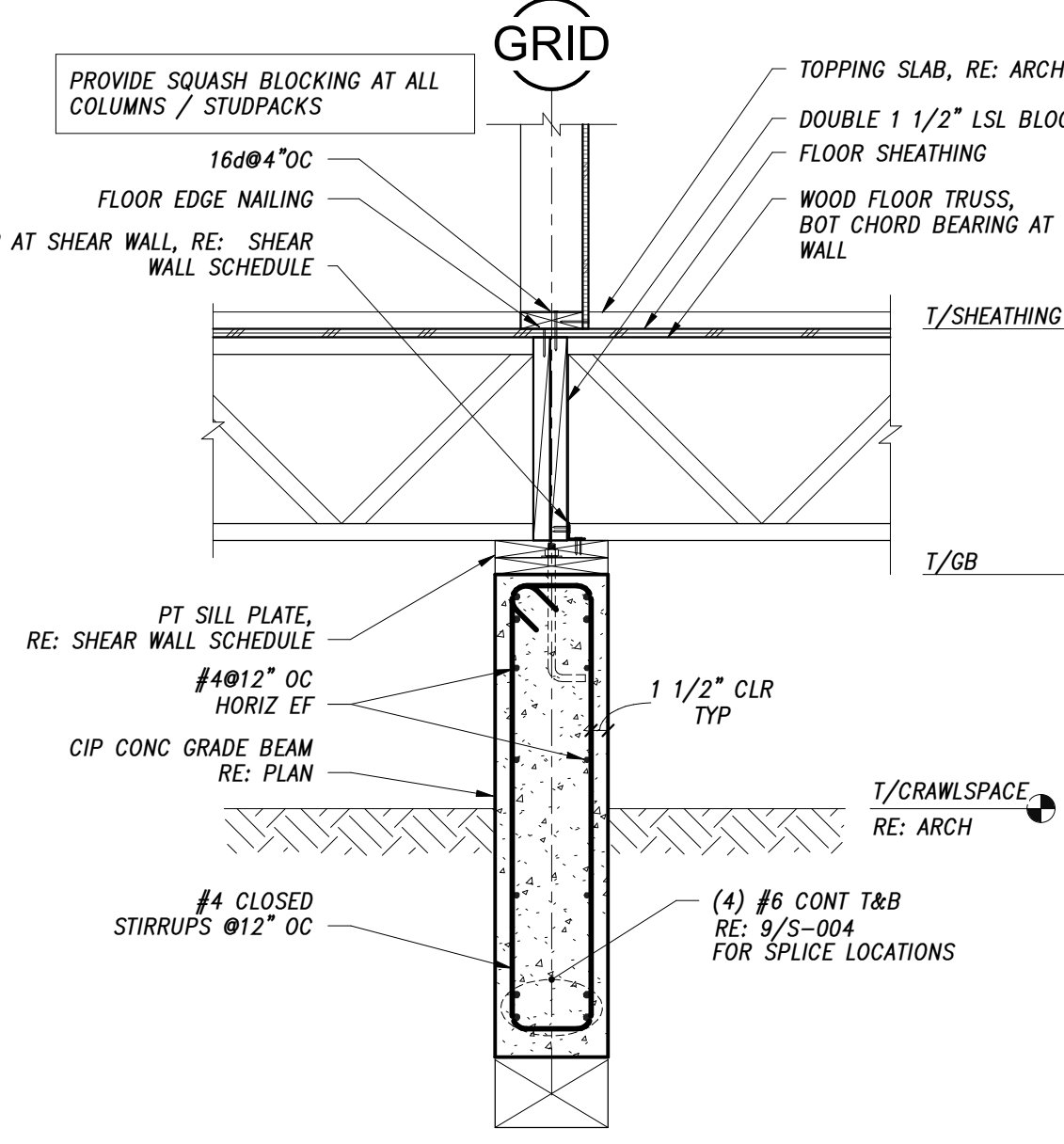
3 TYPICAL CORRIDOR STEP
3/4" = 1'-0"



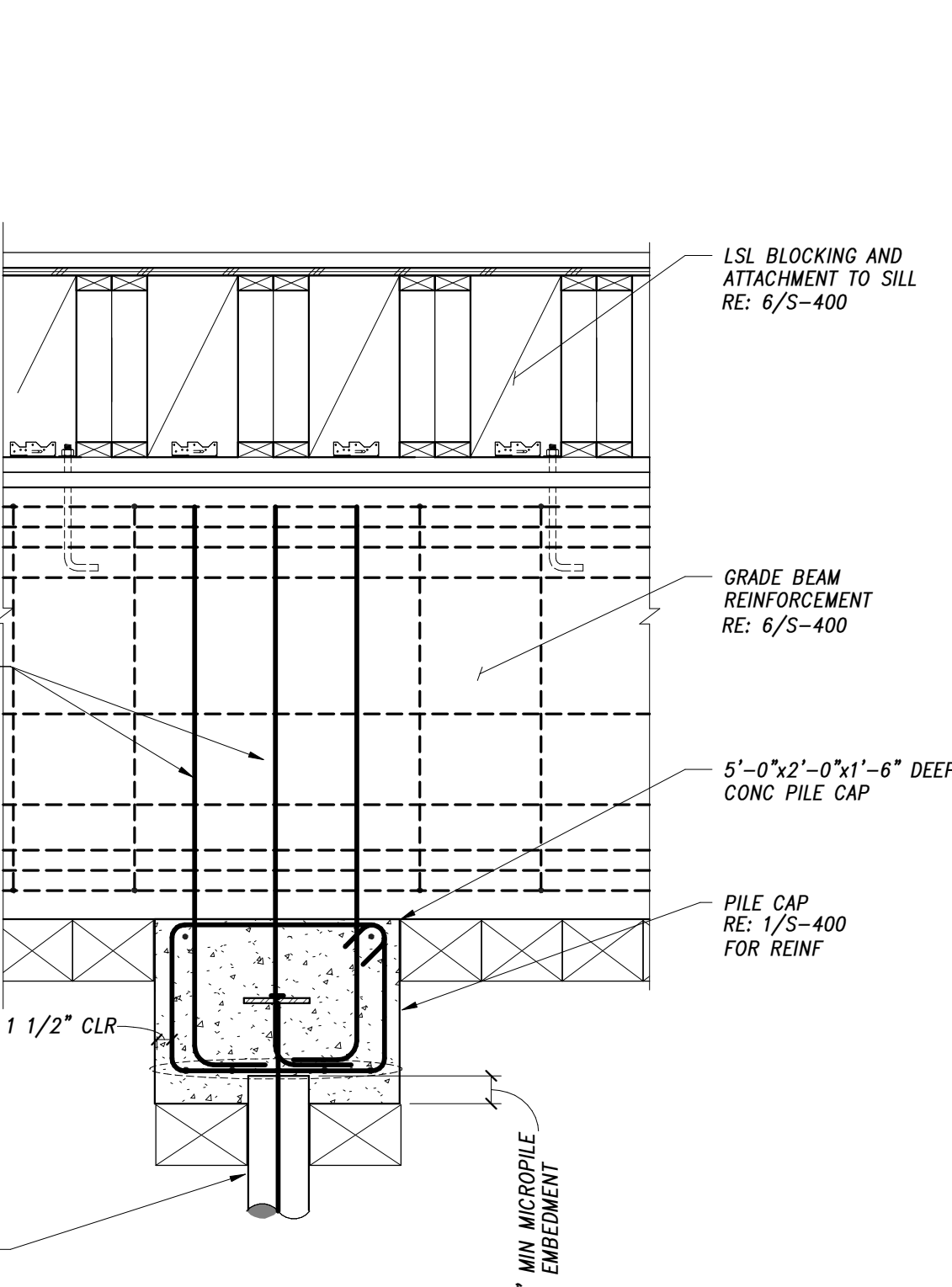
7 MAIN LOBBY CORRIDOR GRADEBEAM
3/4" = 1'-0"



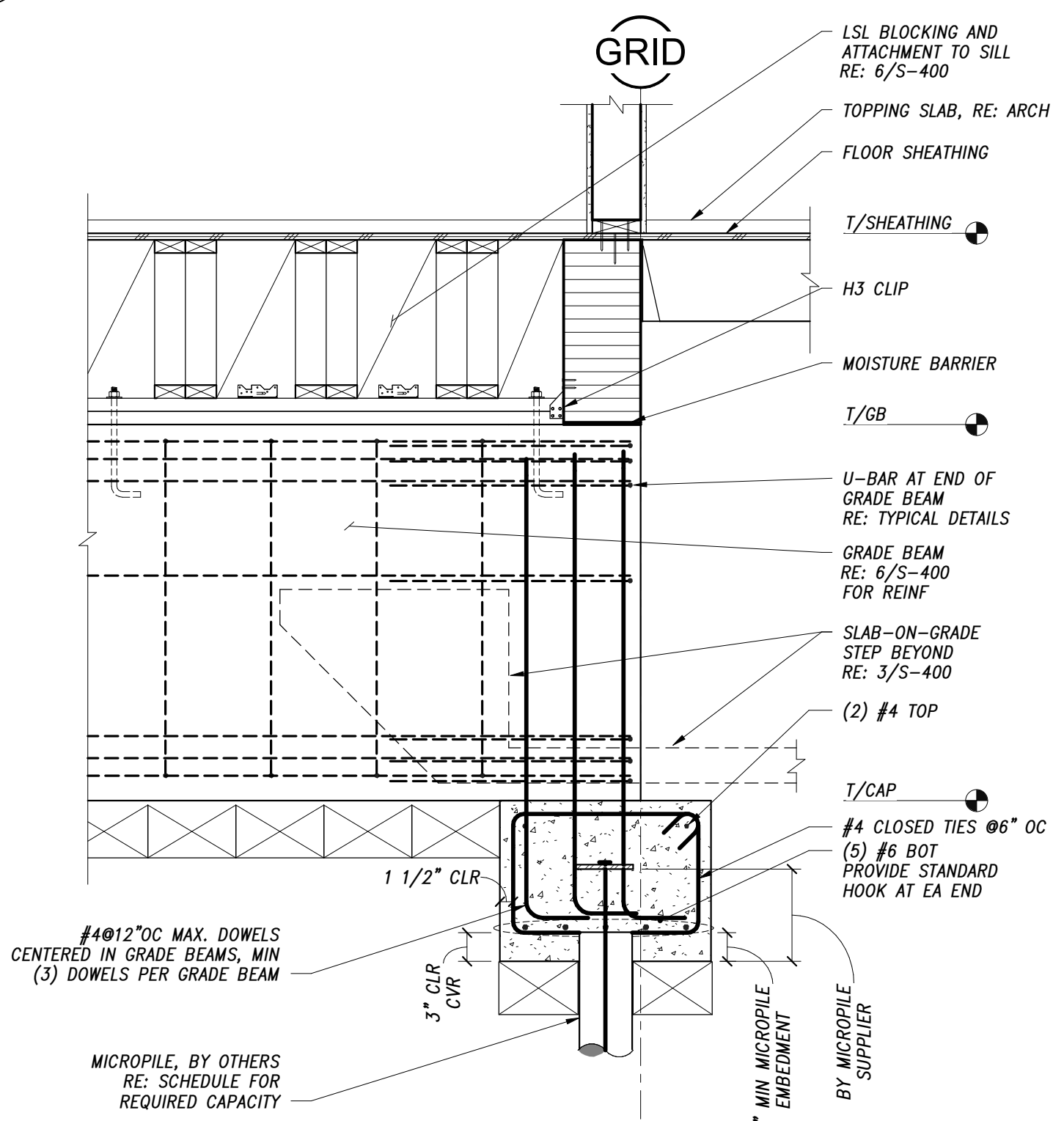
2 FLOOR FRAMING AT CORRIDOR CRAWL SPACE
3/4" = 1'-0"



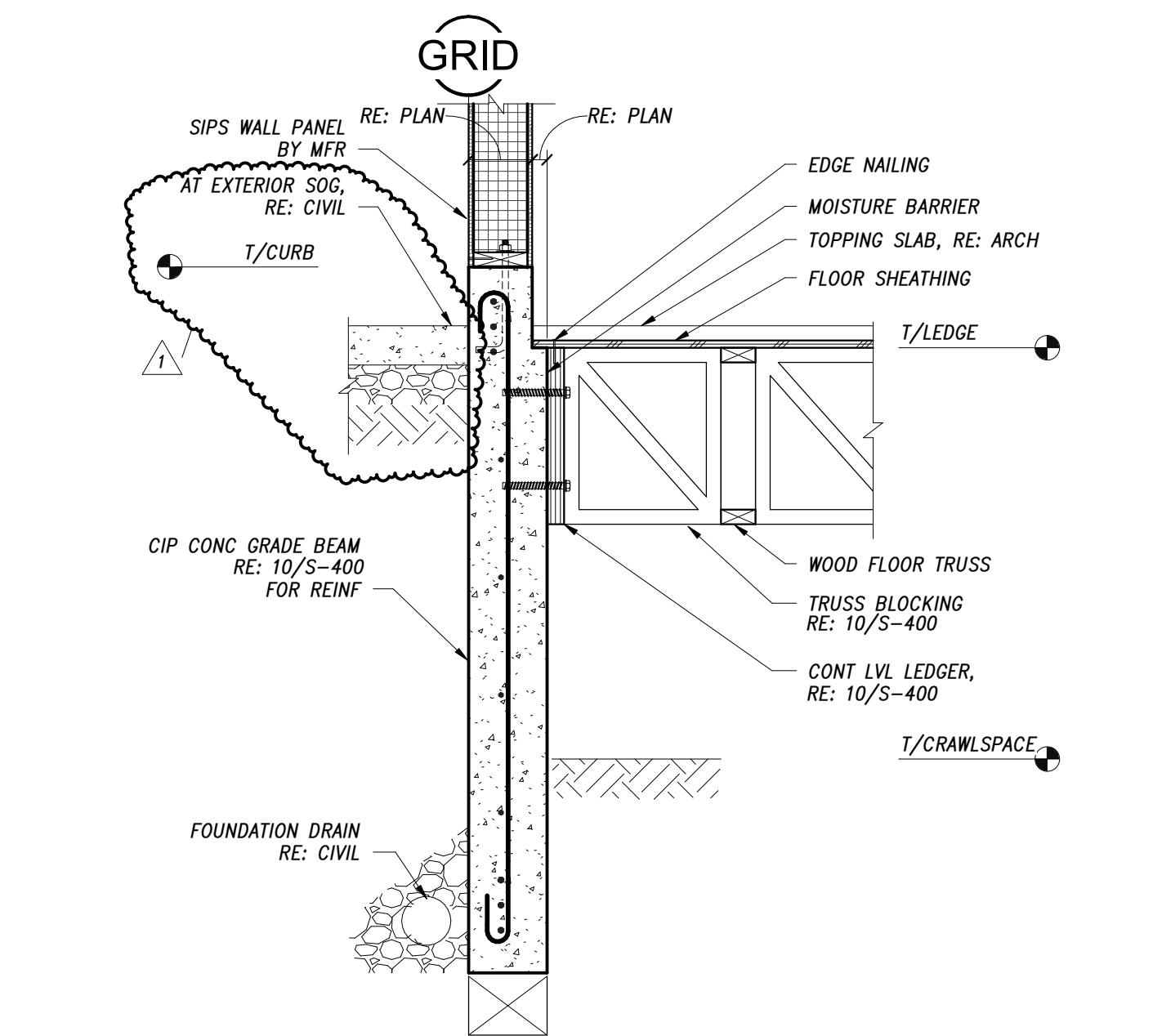
6 TYPICAL GRADE BEAM AT DEMISING WALL
3/4" = 1'-0"



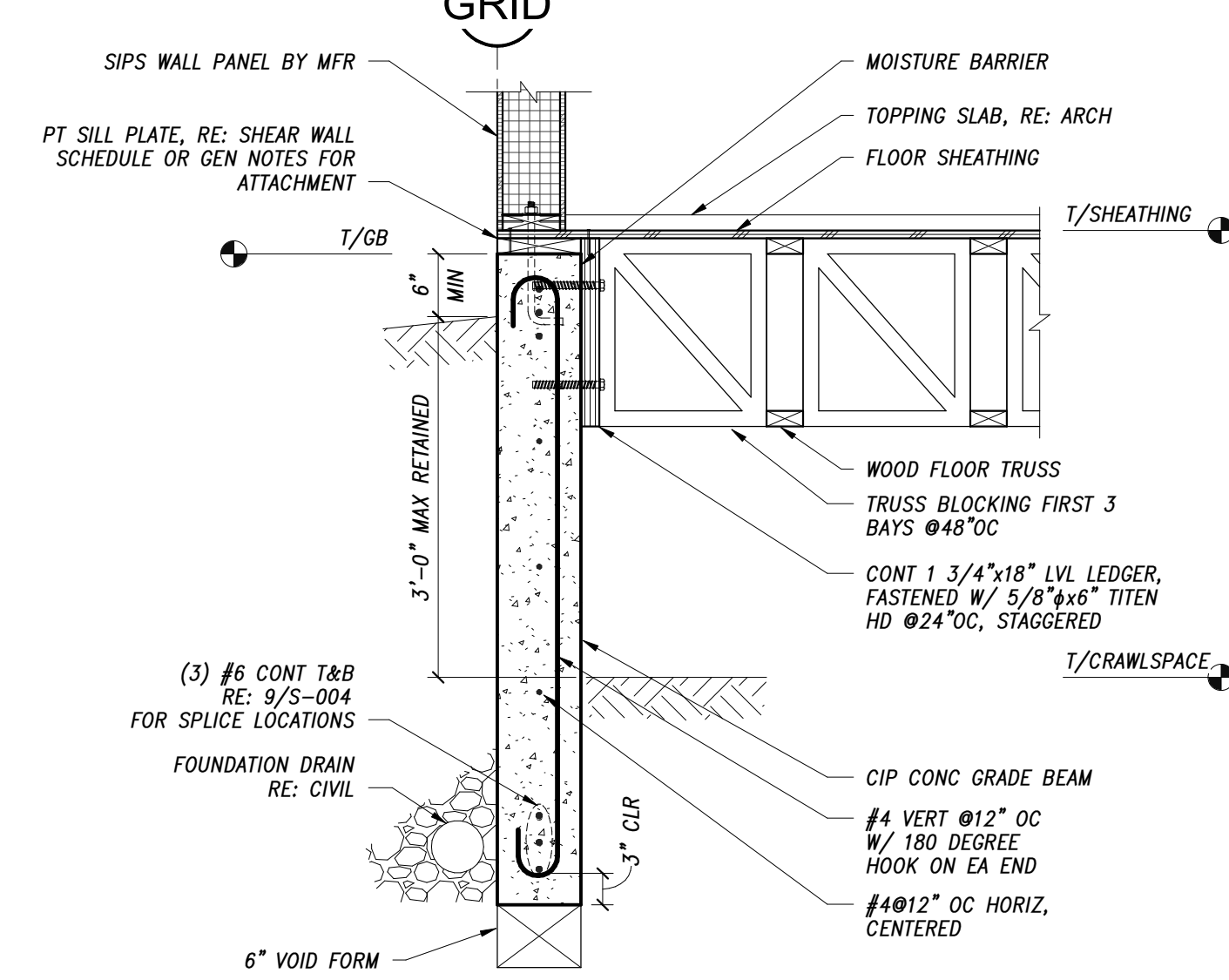
5 TYPICAL PILE CAP AT INTERIOR GRADE BEAM
3/4" = 1'-0"



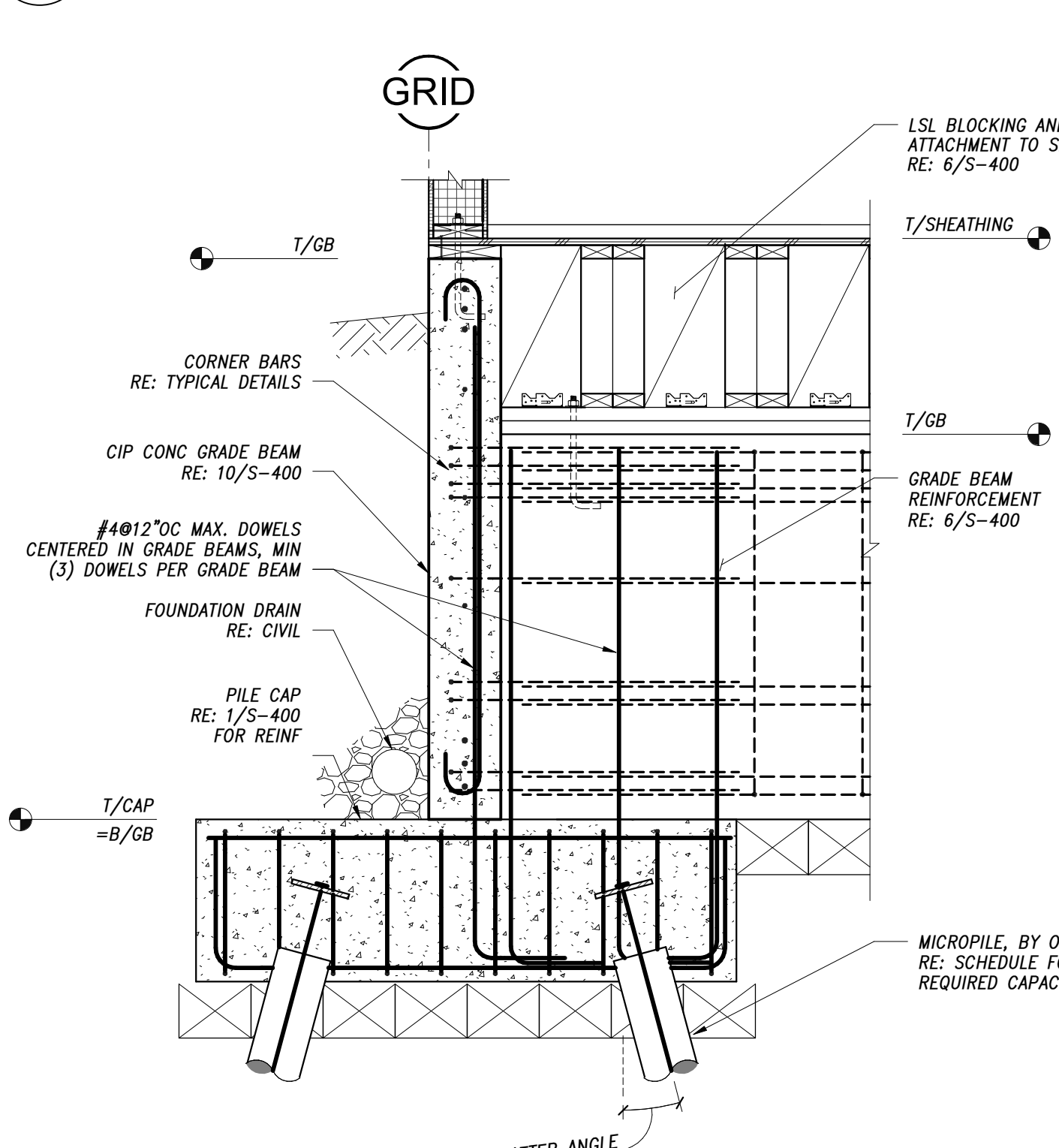
1 TYPICAL PILE CAP AT CORRIDOR GRADE BEAM
3/4" = 1'-0"



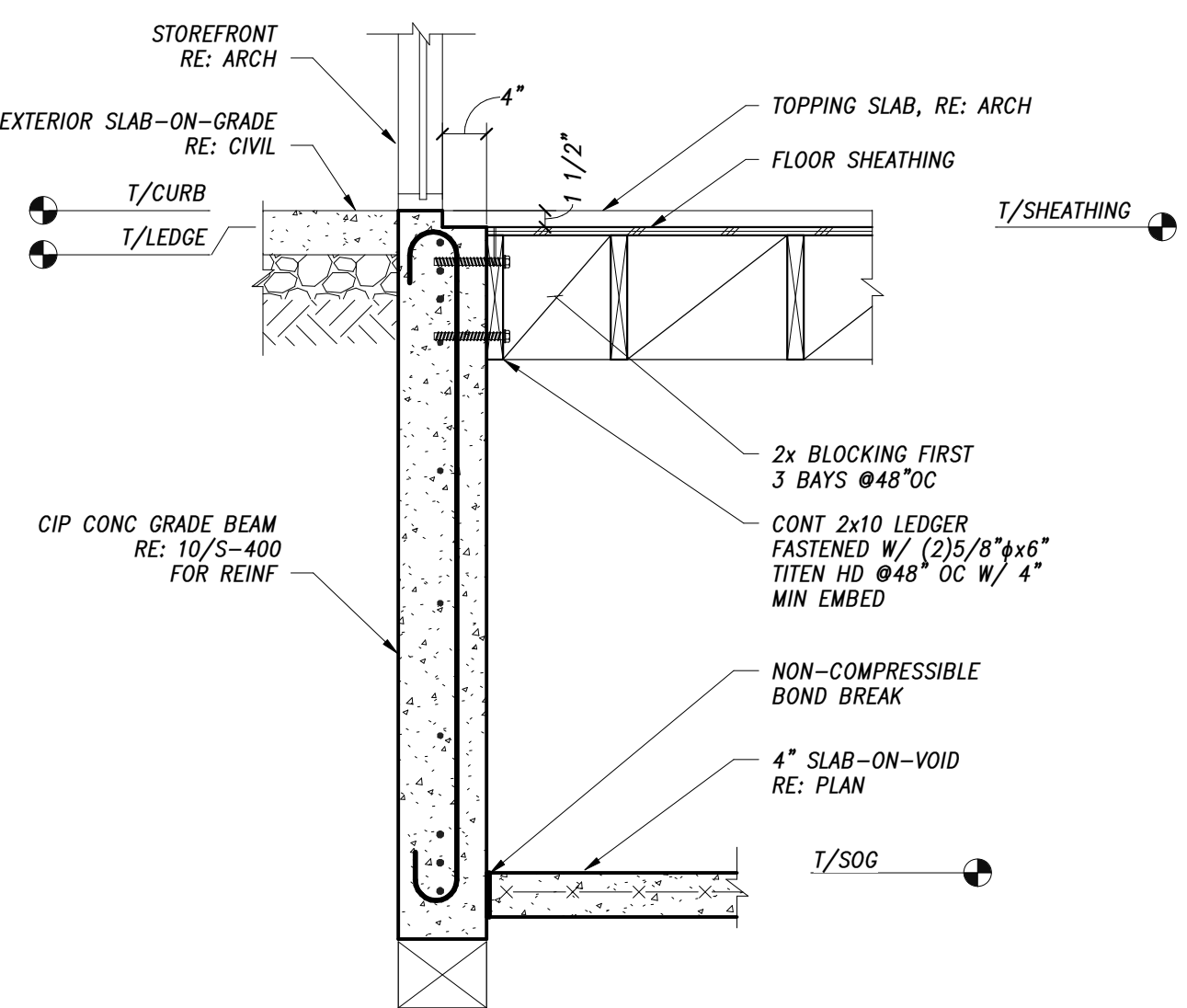
11 CURB DETAIL
3/4" = 1'-0"



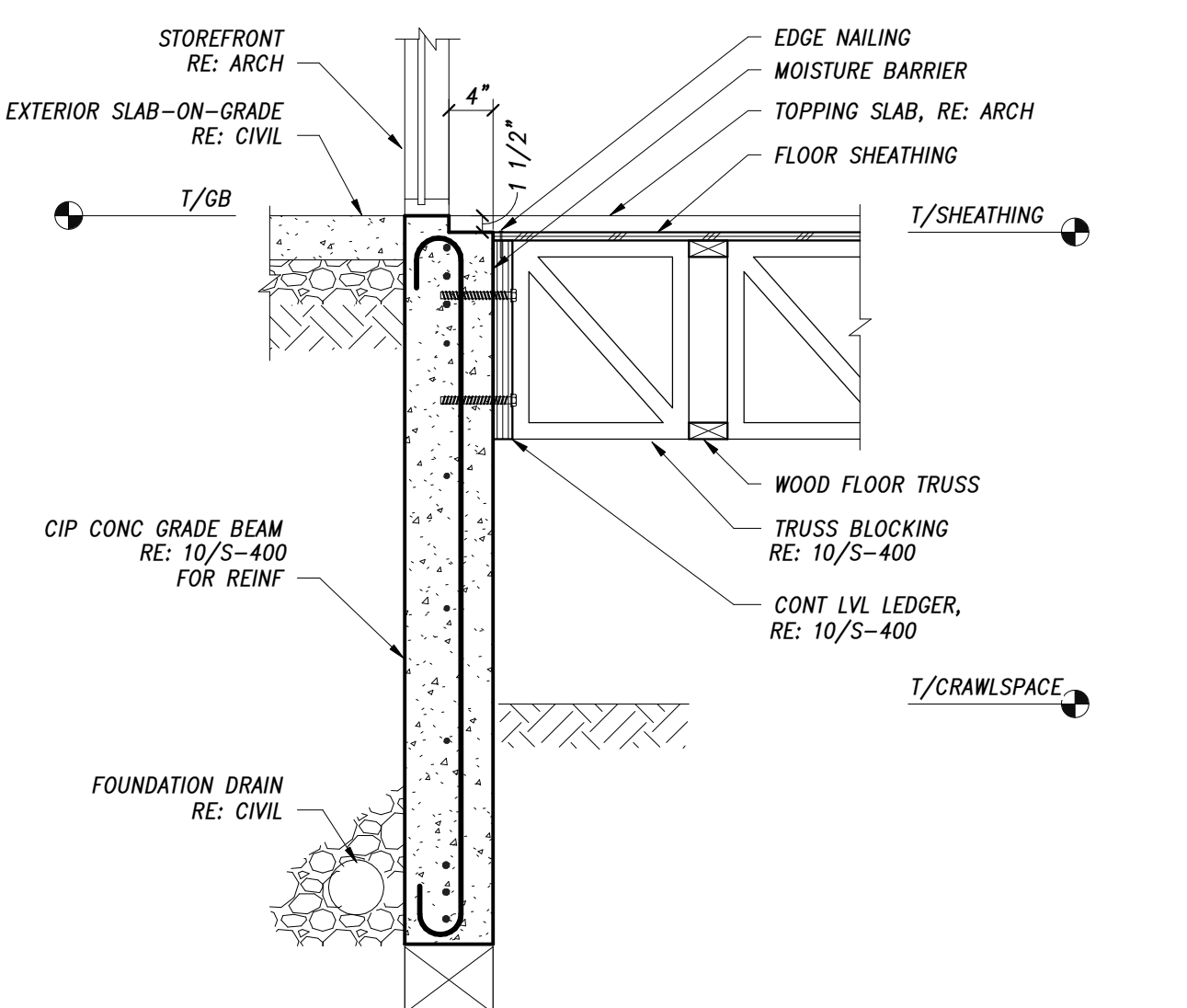
10 TYPICAL GRADE BEAM AT EXTERIOR
3/4" = 1'-0"



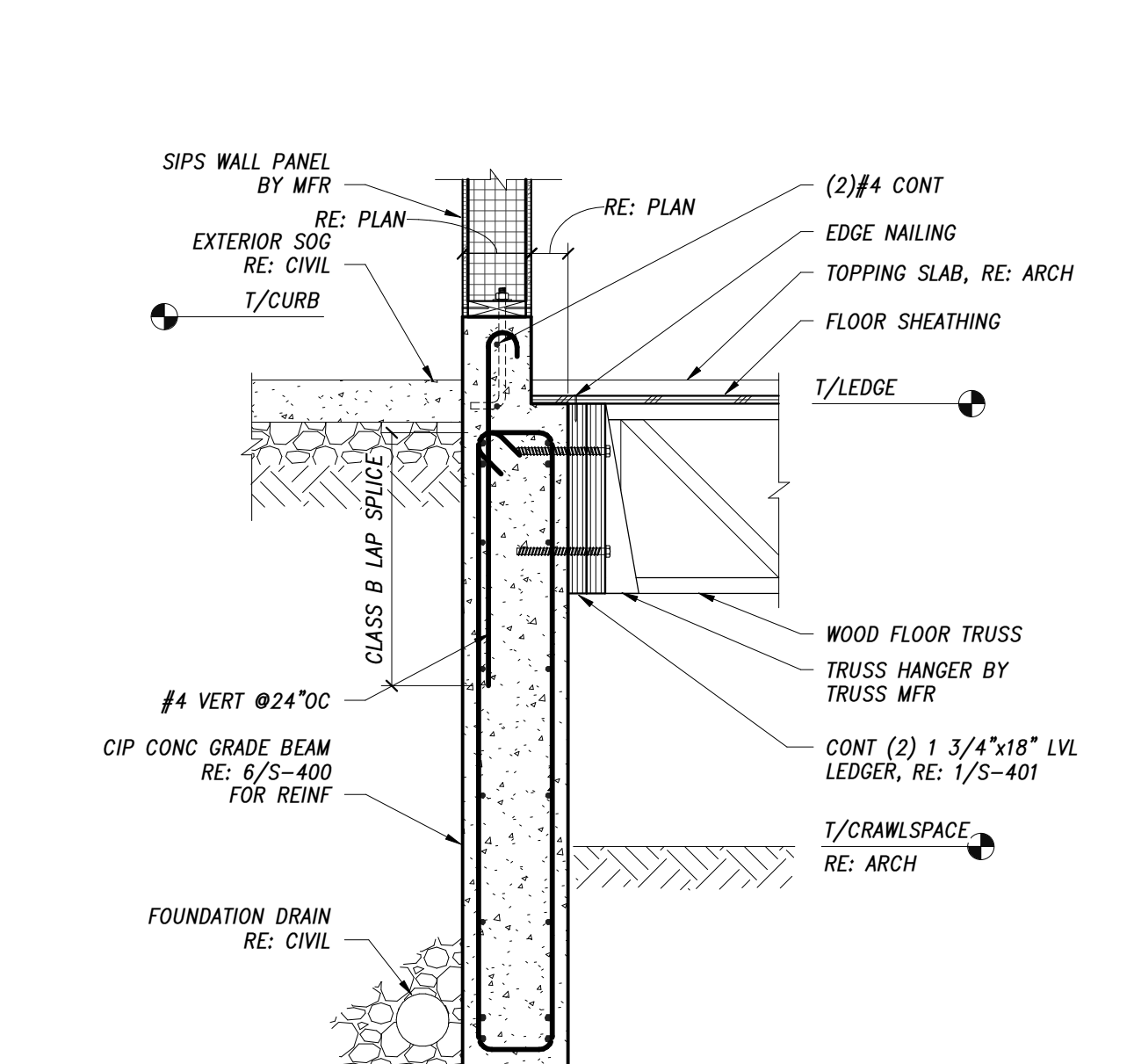
9 TYPICAL PILE CAP AT EXTERIOR GRADE BEAM
3/4" = 1'-0"



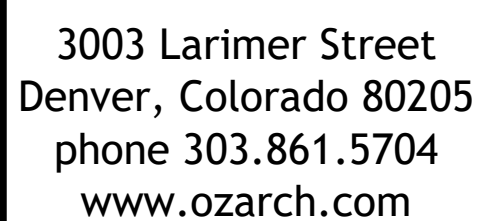
14 GRADE BEAM AT DOOR/STOREFRONT
3/4" = 1'-0"



13 GRADE BEAM AT DOOR/STOREFRONT
3/4" = 1'-0"



12 CURB DETAIL
3/4" = 1'-0"



PROJ. NO. 118185.0
DRAWN: LAJ/BWE
CHECKED: LAJ
APPROVED: DPD
DATE: 4/05/2015



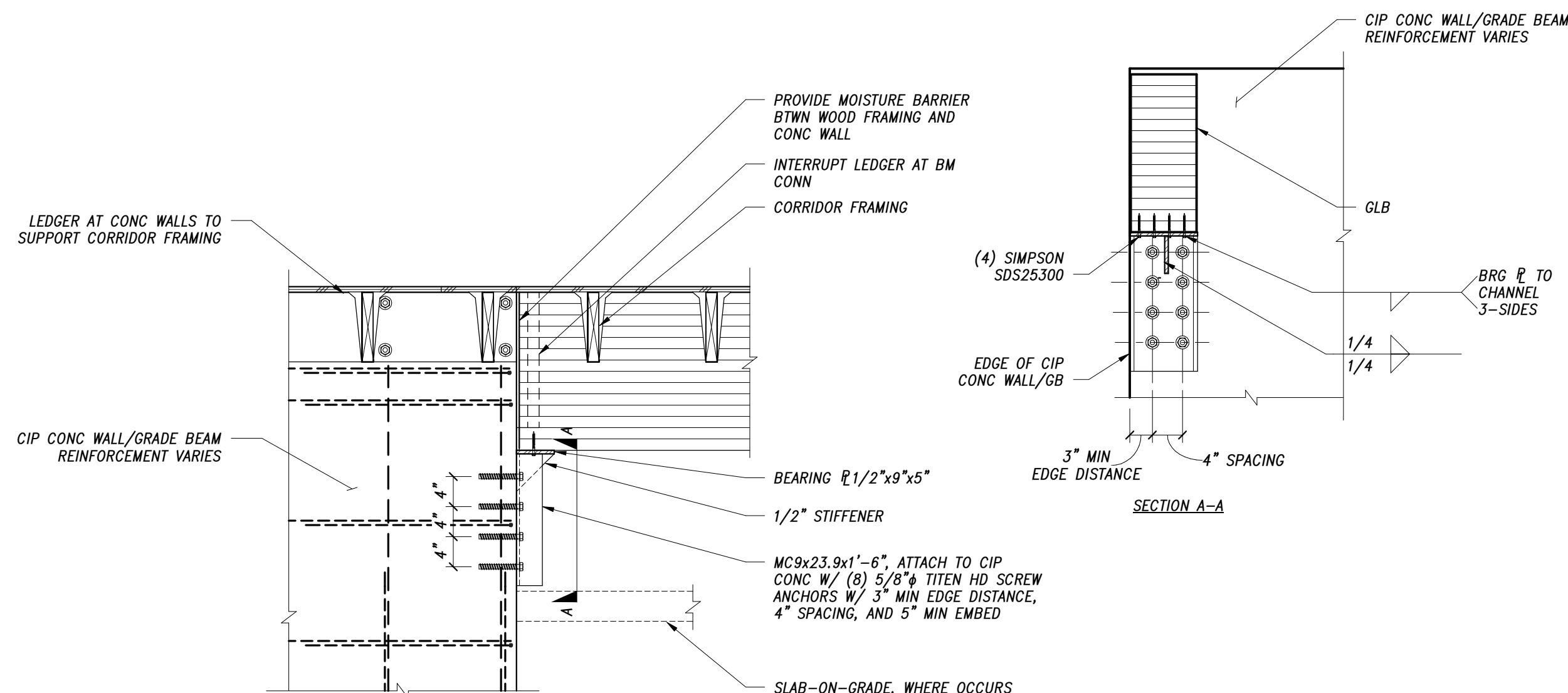
ISSUED FOR:
100% CD

SHEET TITLE:
DETAIL S

SCALE: 3/4" = 1'-
SHEET NUMBER

S-401

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1 1/2"

1 1/2"

1/2"

1/2"

1 1/2"

DETAIL A-A

SIDE $\frac{1}{2}$ " $\frac{1}{4}$ " $\times$ 10" W/
(2) $\frac{3}{4}$ " ϕ A307 BOLTS

WOOD COLUMN

BLOCKING AROUND CO
RE: TYP DETAILS

1/4"

1/4"

BASE $\frac{1}{2}$ "

1/2" NON-SHRINK
GROUT

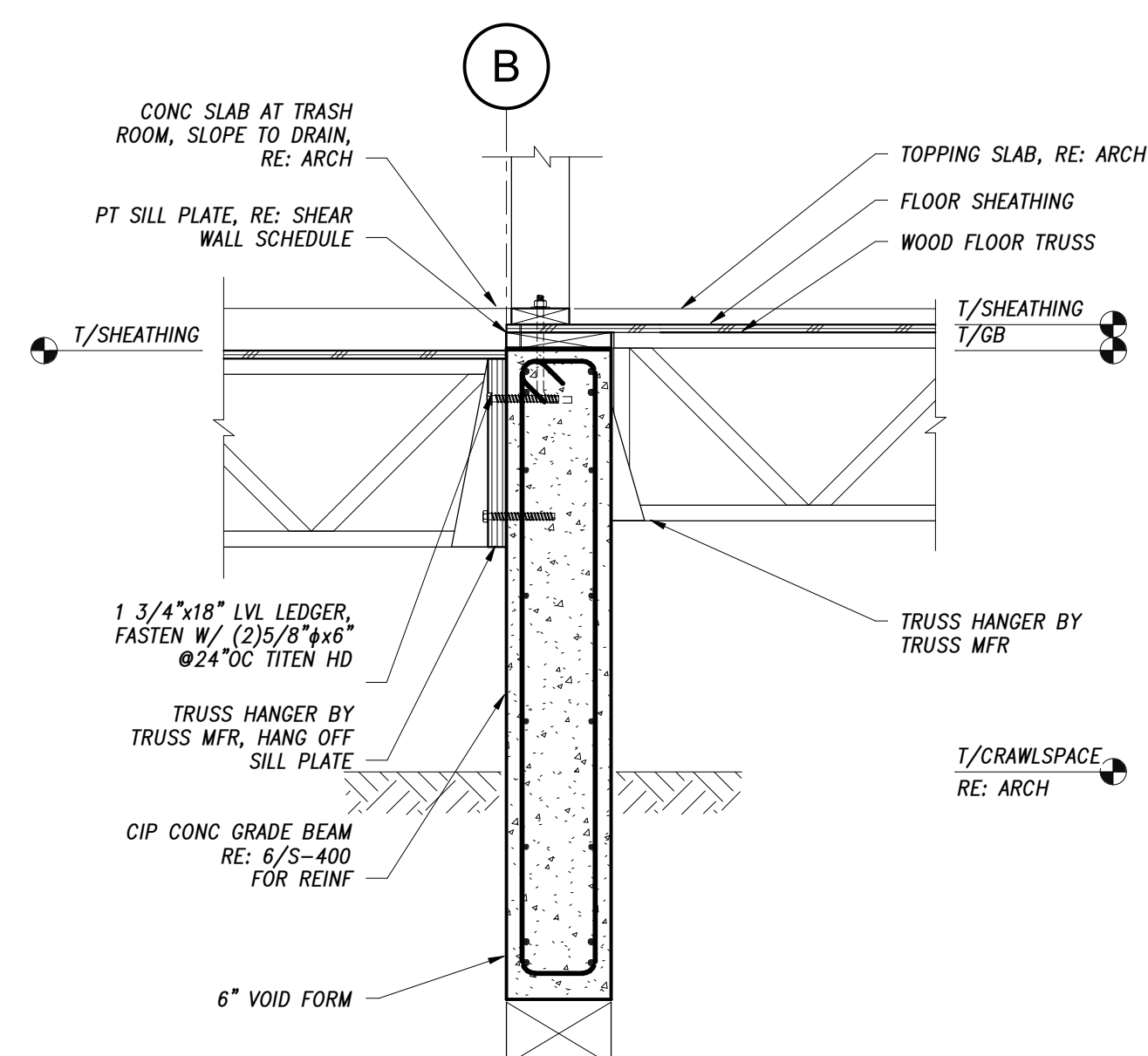
GRADE BEAM,
RE: PLAN

3"

5 1/2"

9"

SHRINK



GRID

FLOOR FRAMING
RE: 6/S-400

T/SHEATHING

T/GB

CONTRACTOR NOTE:
WALL TO BE TEMPORILY
SHORED UNTIL LEVEL 1
FRAMING IS IN PLACE AND
SLAB-ON-GRASS IS IN PLACE

T/CRAWL SPACE
RE: ARCH

CIP CONC GRADE BEAM
RE: 7/S-401
FOR REINFORCEMENT

NON-COMPRESSIBLE
BOND BREAK

4" SLAB-ON-VOID
RE: PLAN

T/SOG

T/CAP

PILE CAP BEYOND
RE: 5/S-400

Diagram H shows a cross-section of a corner reinforcement detail. The wall has a thickness of 1'-6" and a height of 1'-8". The reinforcement consists of #6 bars (labeled as (8) #6 VERT in the notes) for the wall and #6 bars for the beam. The beam is a concrete grade beam (labeled as CONC GRADE BEAM, RE: 6/S-400). The corner reinforcement is shown with typical details. The wall is labeled as CONC PILASTER, RE: W/ (8) #6 VERT. The beam is labeled as CONC GRADE BEAM, RE: 6/S-400. The corner reinforcement is shown with typical details. The wall is labeled as CONC PILASTER, RE: W/ (8) #6 VERT. The beam is labeled as CONC GRADE BEAM, RE: 6/S-400. The corner reinforcement is shown with typical details.

$3/4" = 1'-0"$

GRID

CMU CORE WALL,
RE: PLAN

MASONRY DOWELS TO
MATCH SIZE AND
SPACING OF VERT BARS

WOOD FLOOR TRUSS

T/WALL

TRUSS HANGER BY
TRUSS MFR

1 3/4"x18" LVL LEDGER, FASTEN
W/ (2)5/8"x6" Ø24°CØ TITEN HD

10" CONC STEM WALL
RE: 1/S-401
FOR REINF

MOISTURE BARRIER

TOPPING SLAB, RE: ARCH

FLOOR SHEATHING

TRUSS HANGER BY
TRUSS MFR

LVL LEDGER
RE: 1/S-401

18" THICK PILE CAP
RE: 1/S-401
FOR REINF

T/CAP

MICROPILE, BY OTHERS
RE: SCHEDULE FOR
REQUIRED CAPACITY

6" VOID FORM

3/4" x 1/8"

TOPPING SLAB,
RE: ARCH

FLOOR SHEATHING

WOOD FLOOR
TRUSS

TRUSS HANGER BY
TRUSS MFR

MOISTURE BARRIER
(2) 1 3/4"x18" (VL)
LEDGER, FASTEN W/ (2)
3/4"x8" Ø16"OC TITEN HD

10" CONC STEM WALL
REINF W/ #5@16"OC EW EF

DOWELS TO MATCH SIZE
AND SPACING OF VERT
REINFORCEMENT

NON-COMPRESSIBLE
BOND BREAK

SLAB-ON-GRADE
RE: PLAN

1/SDG

BY MICROPILE
DESIGNER

16" THICK PILE CAP,
REINF W/ #6@12"OC EW T&B

6" VOID FORM

1'-5"
MIN

CMU CORE WALL,
RE: PLAN

MASONRY DOWELS TO
MATCH SIZE AND
SPACING OF VERT BARS

1/WALL

4'-0" PIT DEPTH
VERIFY WITH ELEVATOR SUPPLIER

CLASS B LAP SPUCE

6" SLAB-ON-GRA
W/ #4@16"OC EW

DRAIN
RE: ARCH

1/SDG

GRATING BY OTHER
IF REQUIRED

SUMP PIT, RE: PL

(2) #5 EA W
HOOK BARS THAT
TERMINATE INTO S
OF SUMP PIT

1/CAP

8" MIN

MICROPILE, BY OTHERS
RE: SCHEDULE FOR
REQUIRED CAPACITY

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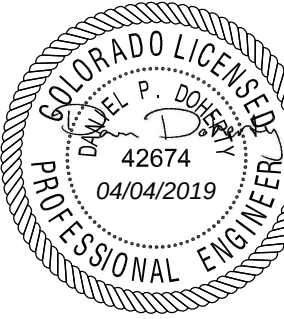
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CHECKED: LAJ
APPROVED:DPD
DATE: 4/05/2019

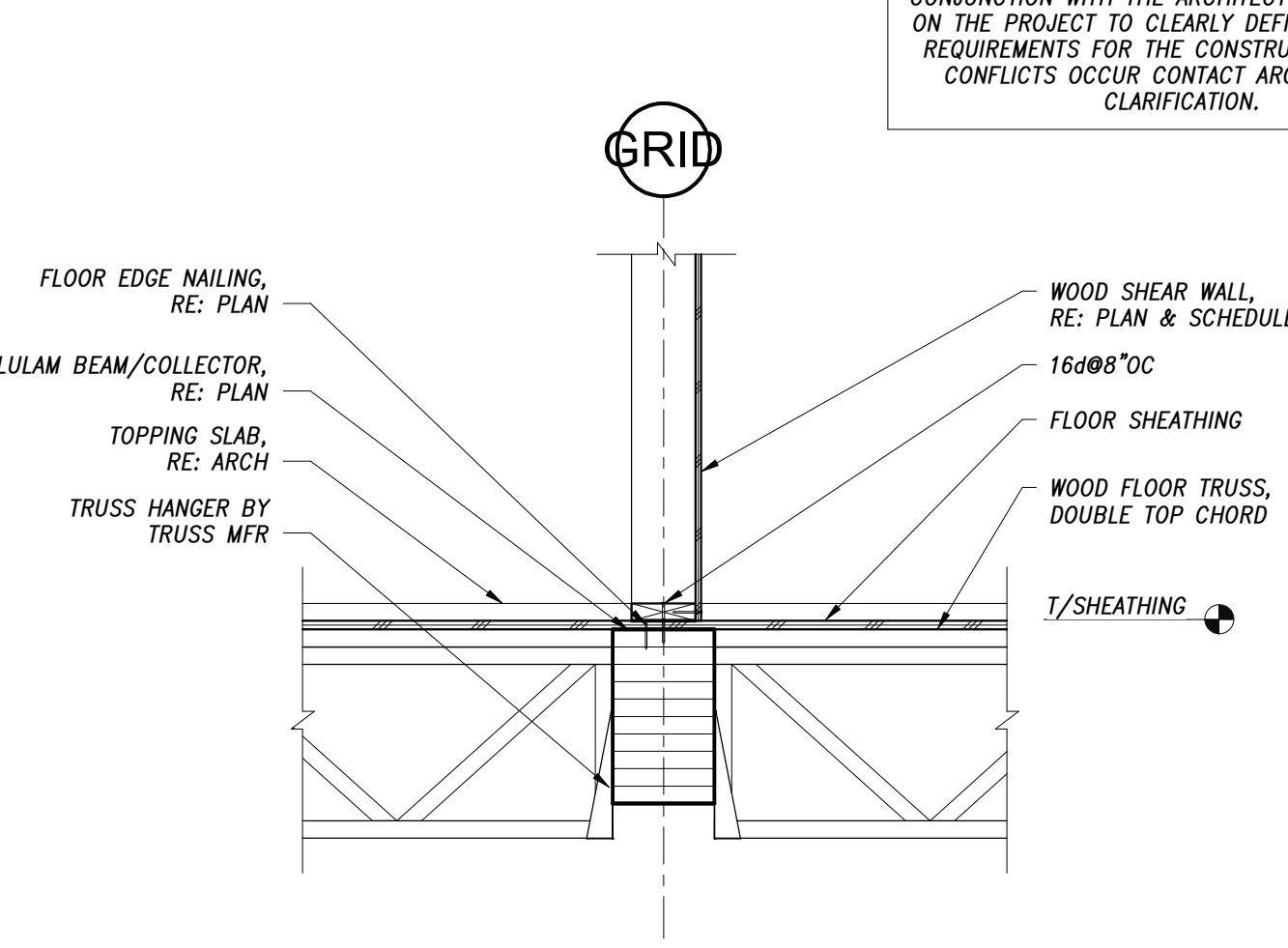


2814 PATTERSON ROAD

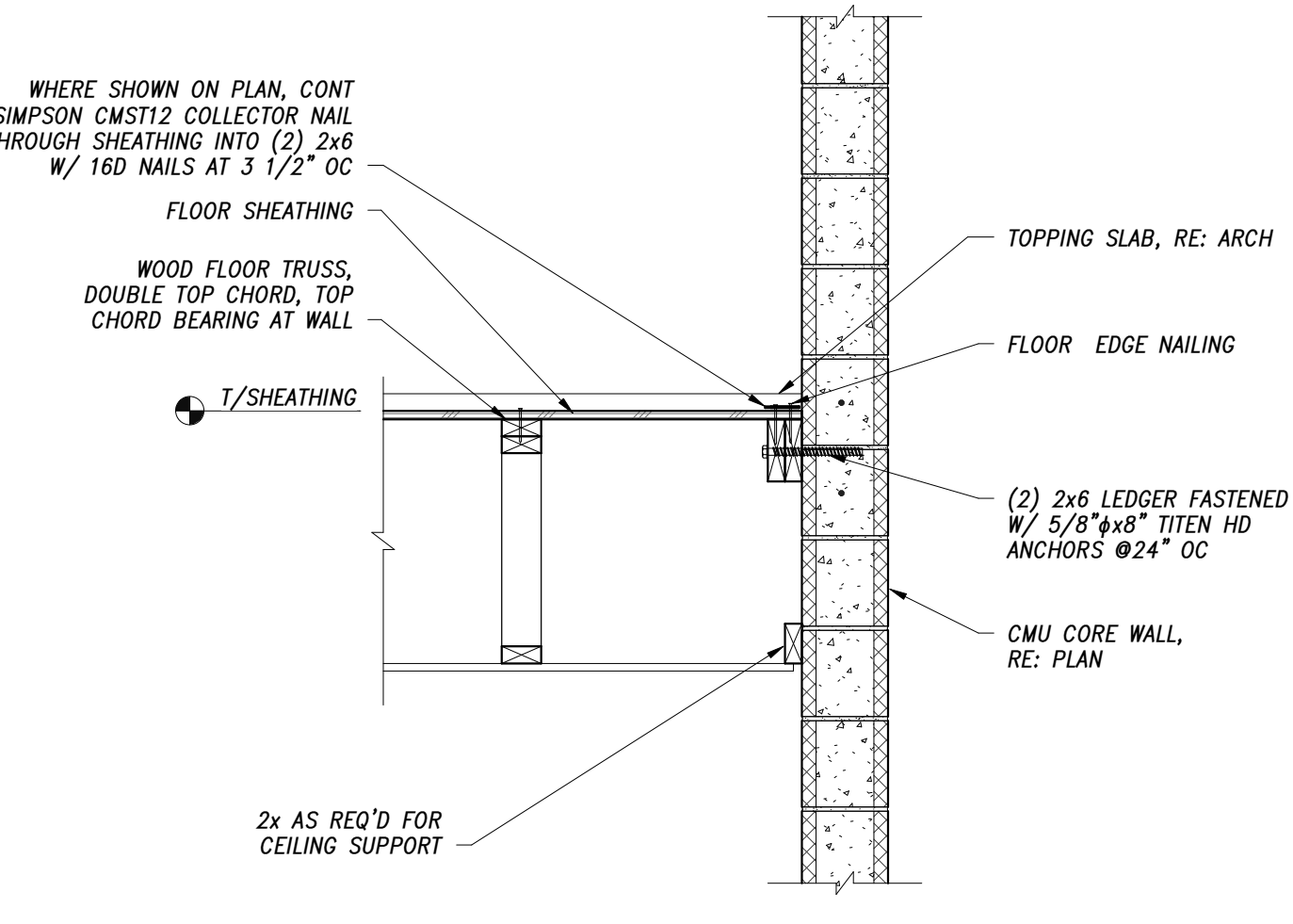
ISSUED FOR:
100% CD
SHEET TITLE:
DETAILS

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

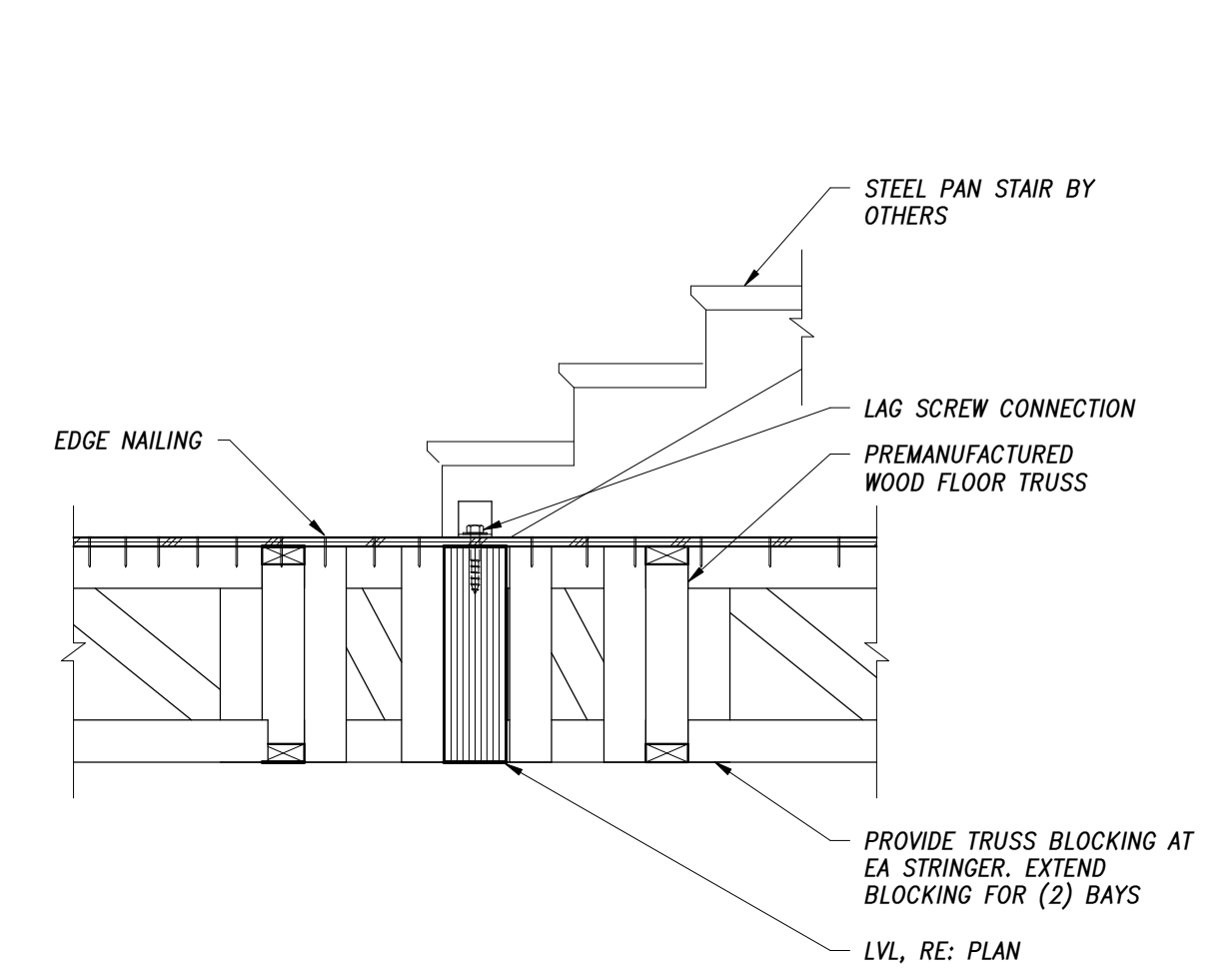
S-402



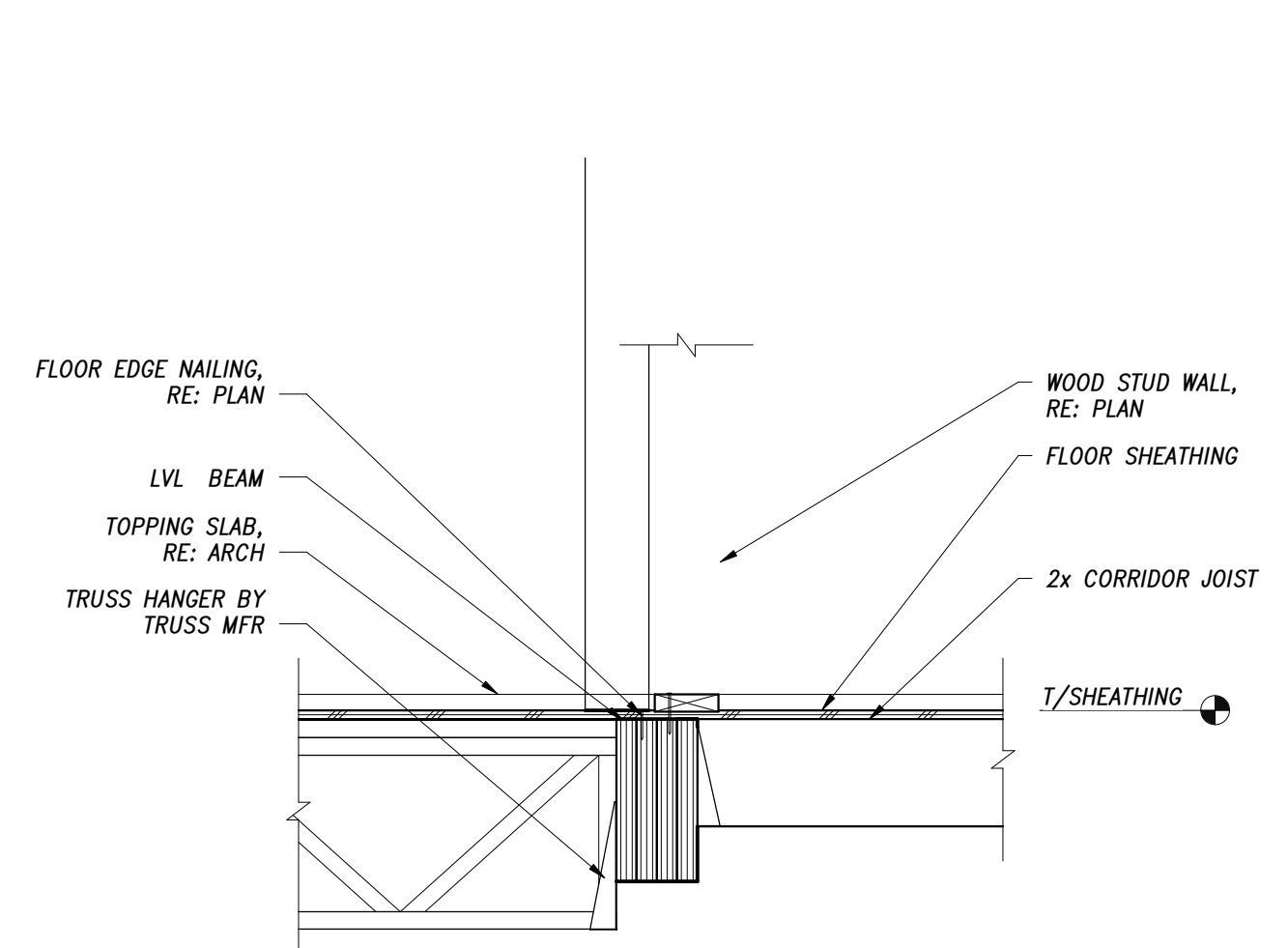
4 FLOOR TRUSS AT WOOD TRANSFER BEAM
3/4" = 1'-0"



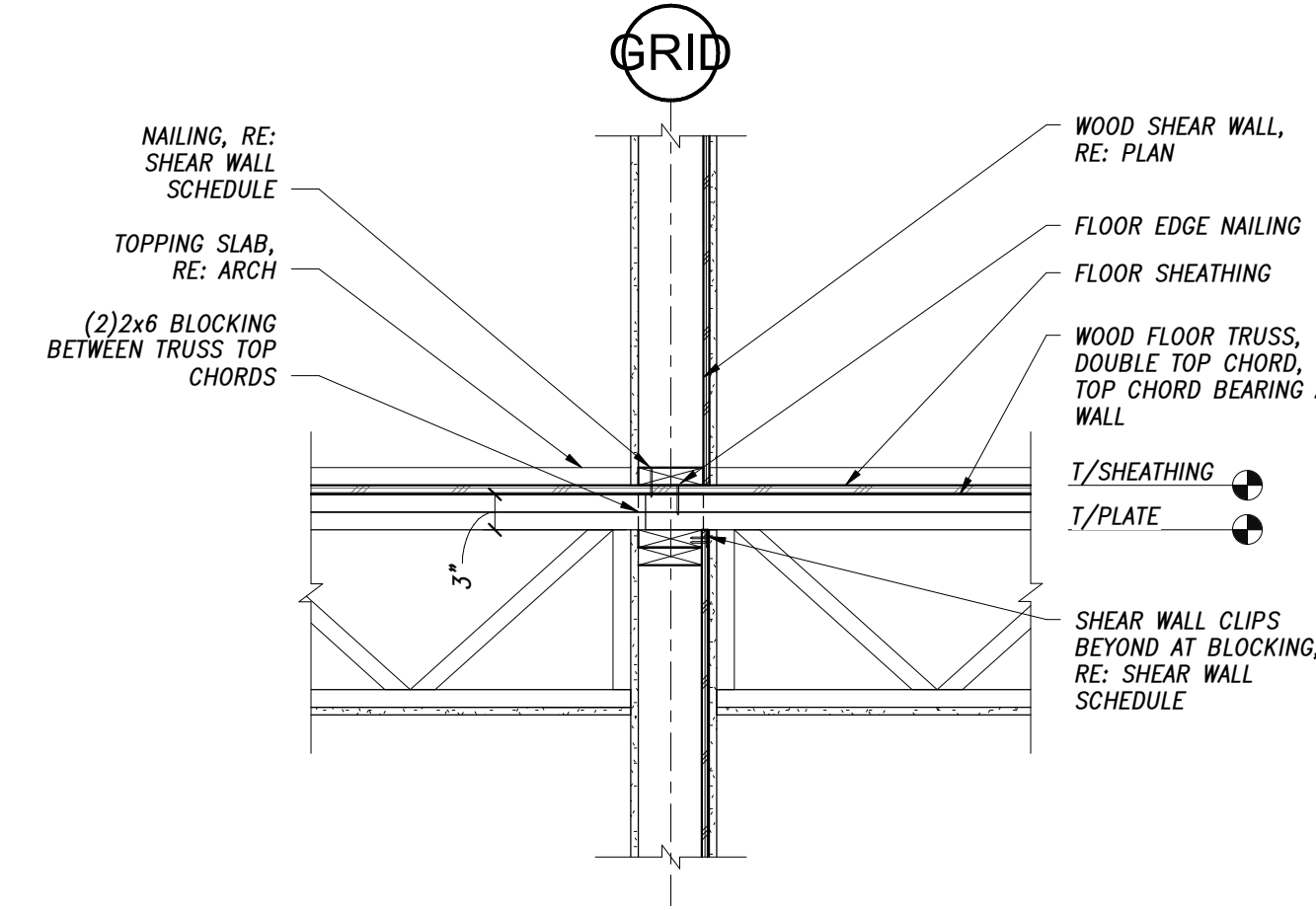
8 FLOOR TRUSS PARALLEL TO CMU CORE
3/4" = 1'-0"



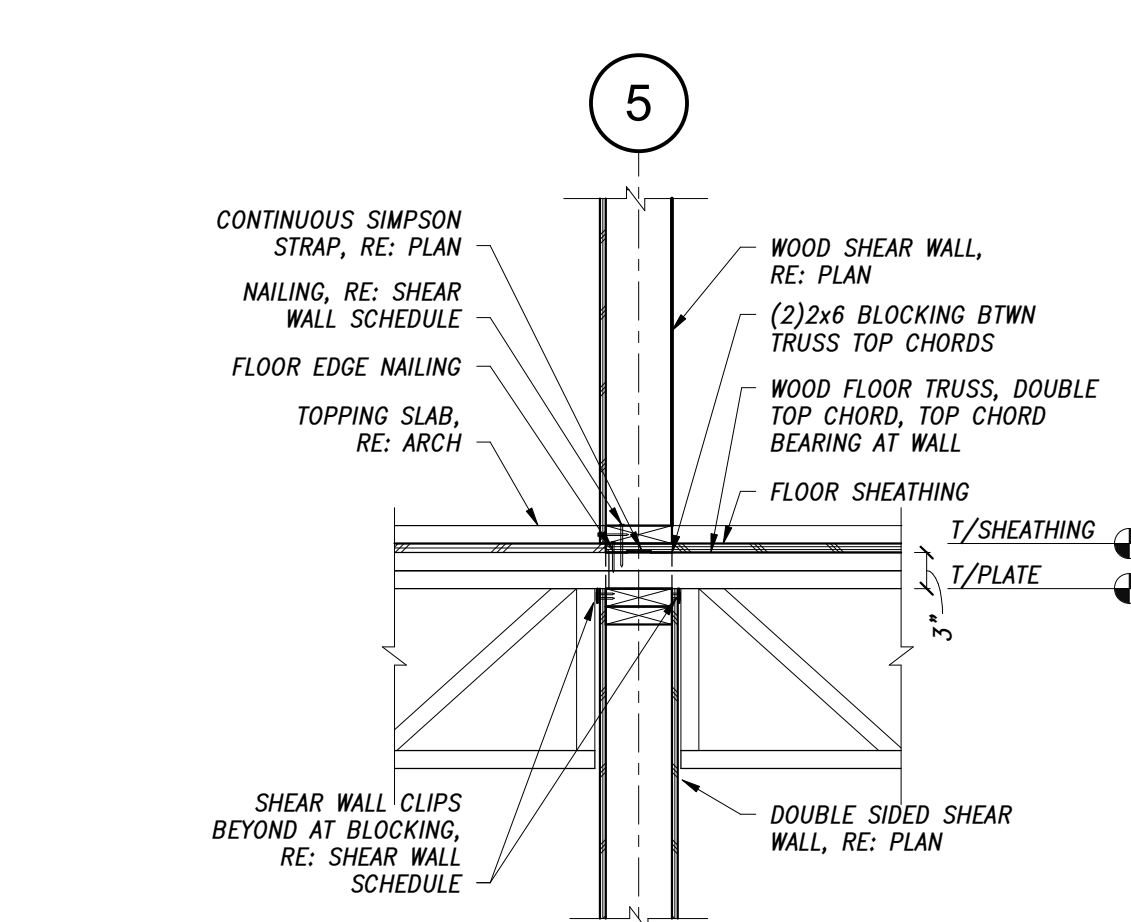
12 FLOOR FRAMING AT STAIR DETAIL
3/4" = 1'-0"



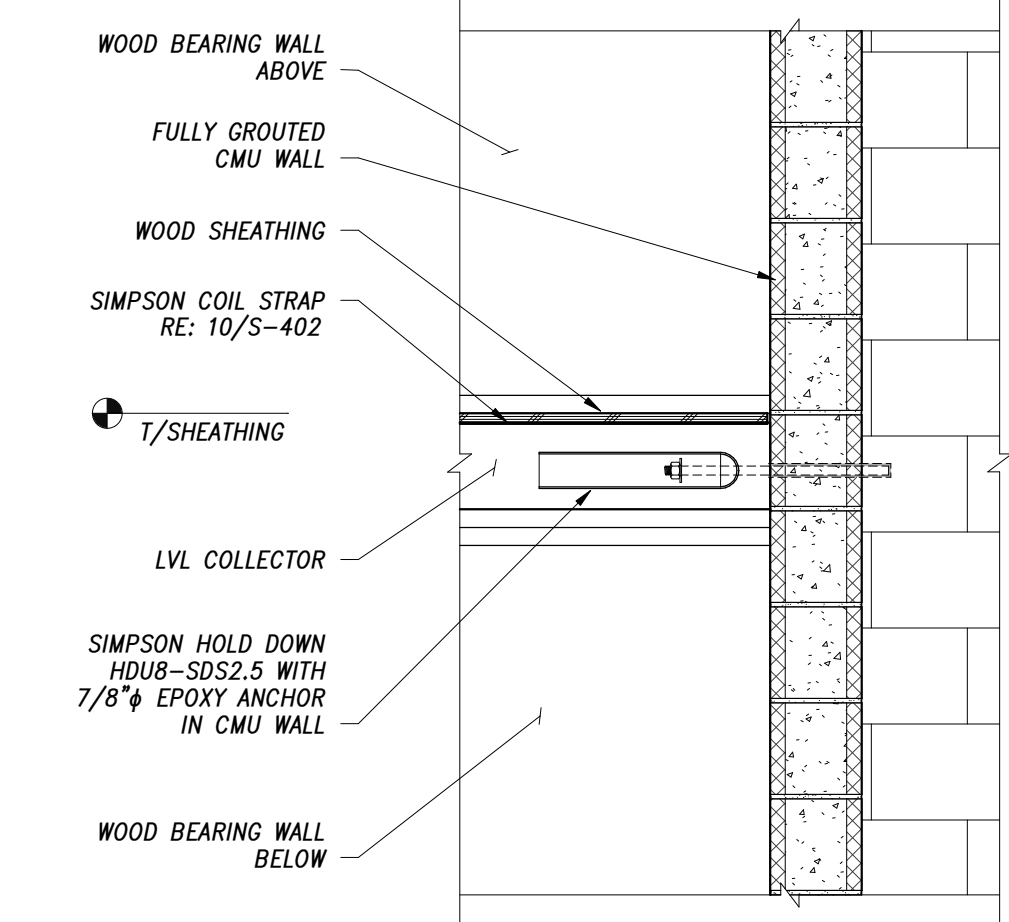
16 LVL BEAM AT CORE
3/4" = 1'-0"



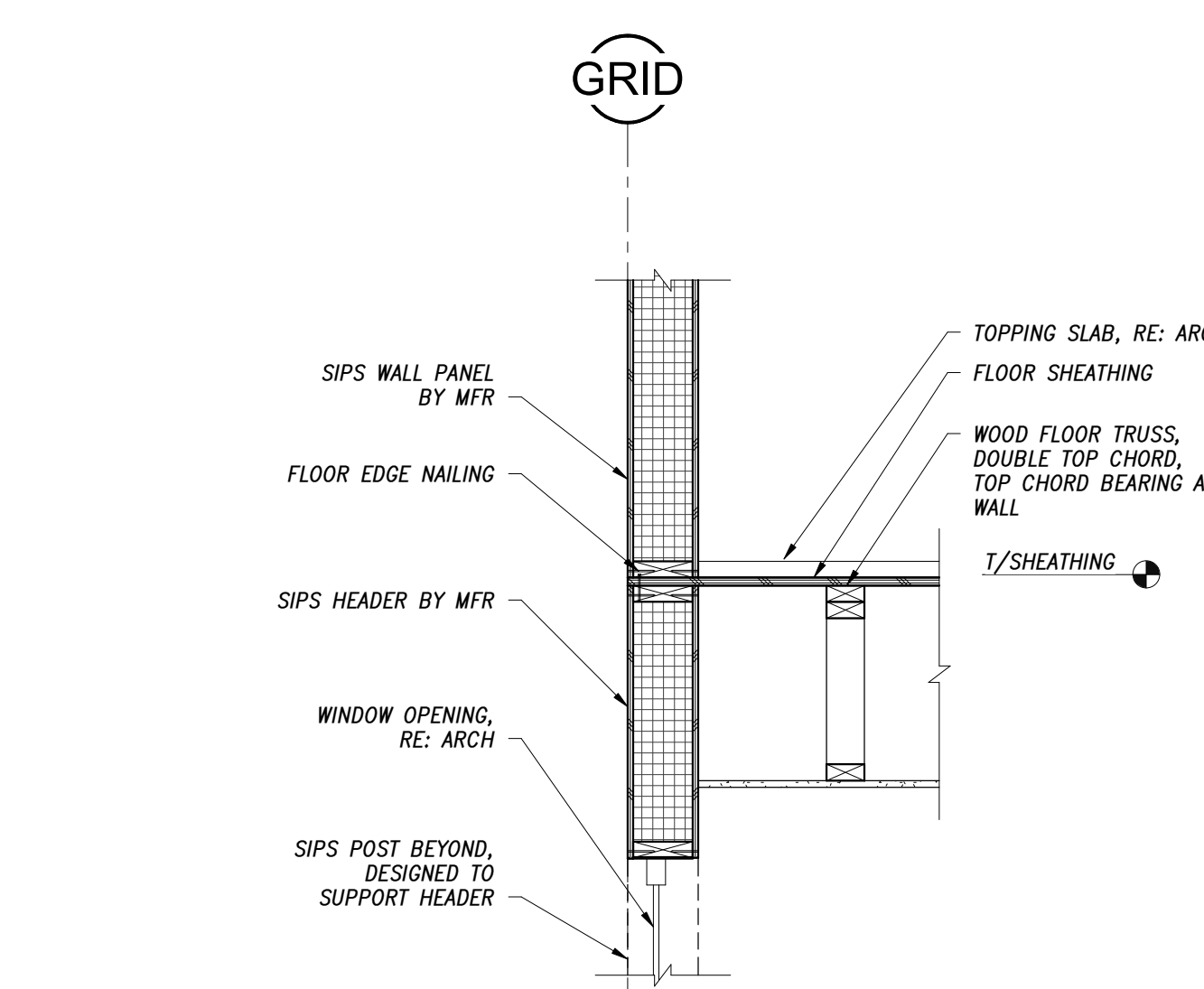
3 FLOOR TRUSS FRAMING AT DEMISING WALL
3/4" = 1'-0"



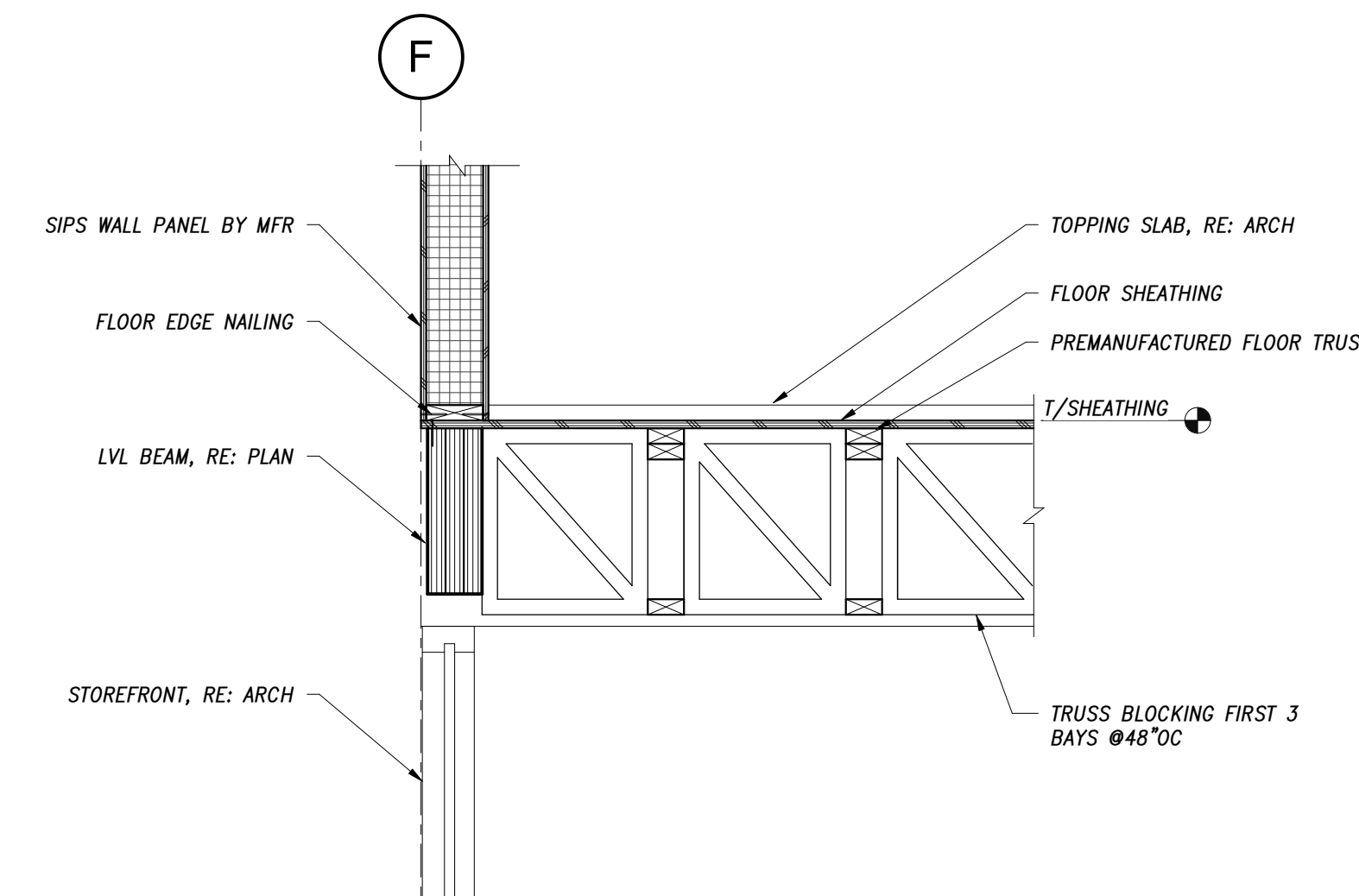
5 FLOOR FRAMING AT DOUBLE SIDED SHEAR WALL
3/4" = 1'-0"



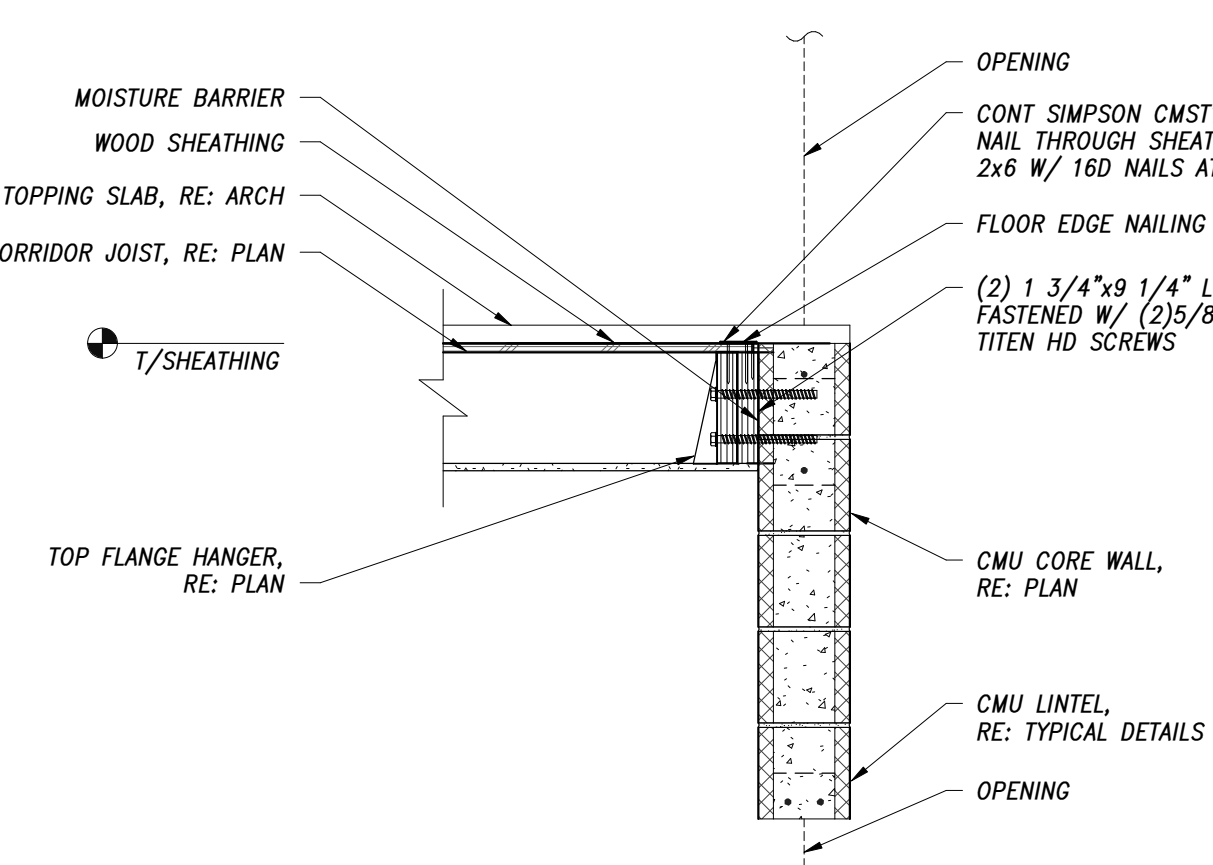
11 COLLECTOR TO CMU CONNECTION
3/4" = 1'-0"



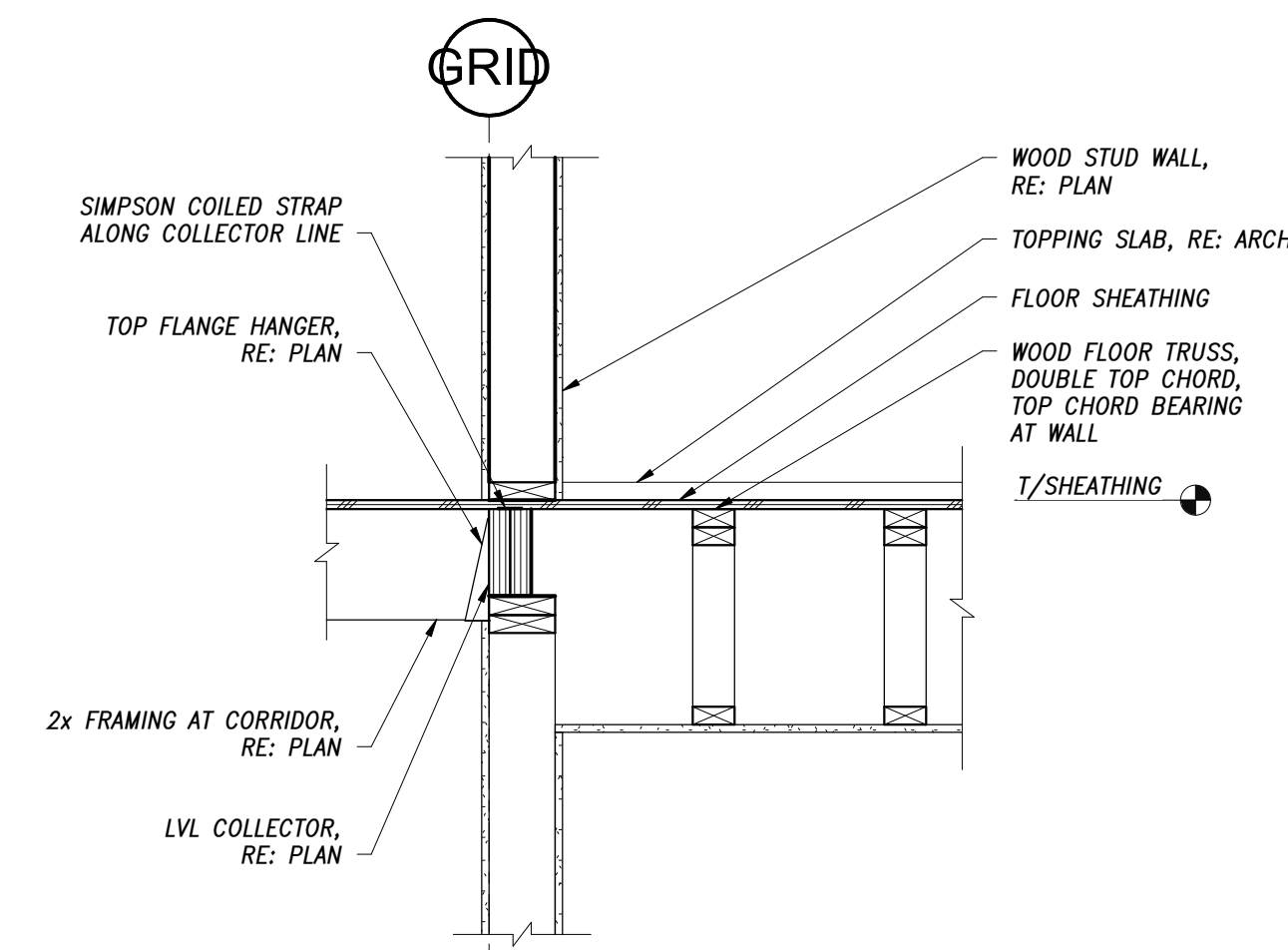
15 SIPS HEADER DETAIL
3/4" = 1'-0"



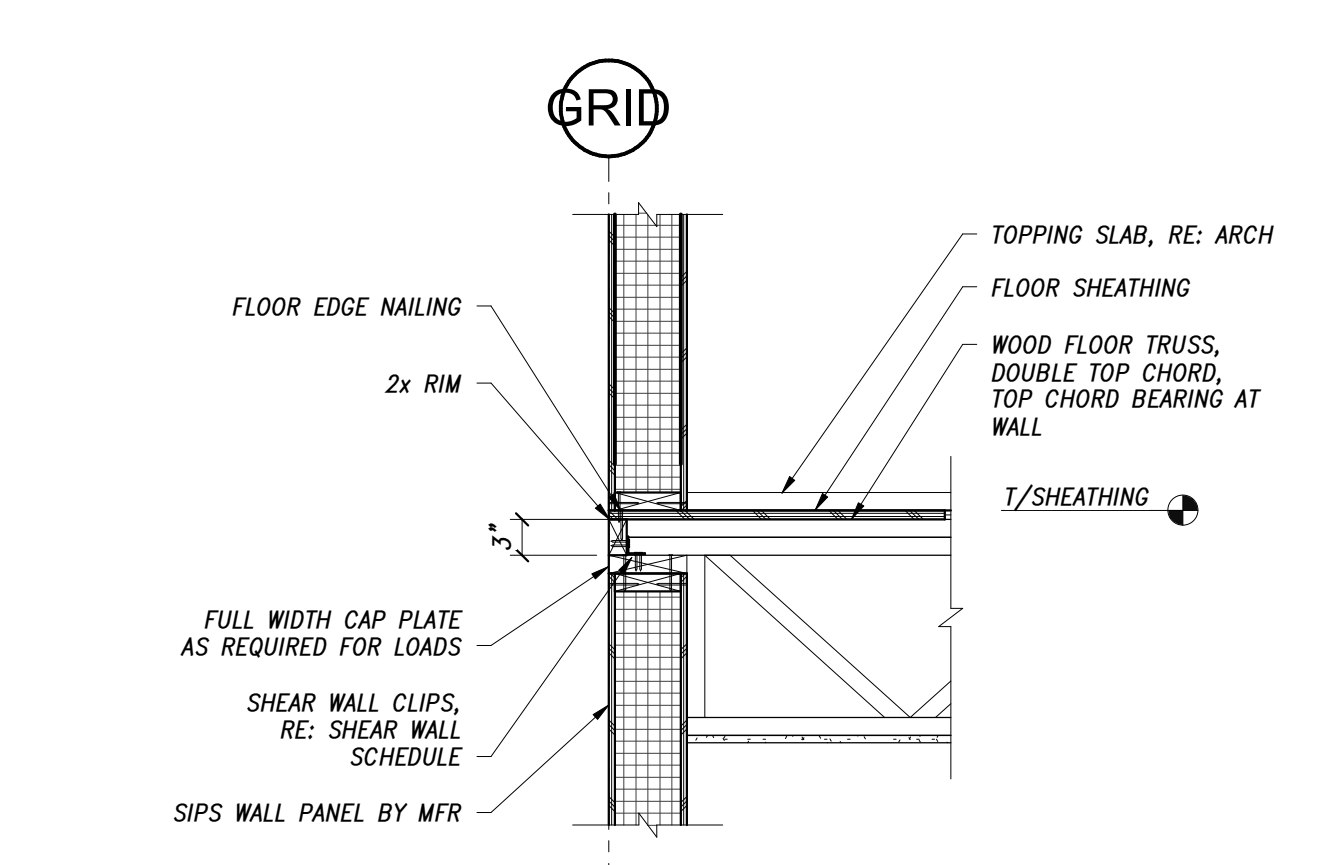
14 GLULAM AT STOREFRONT DETAIL
3/4" = 1'-0"



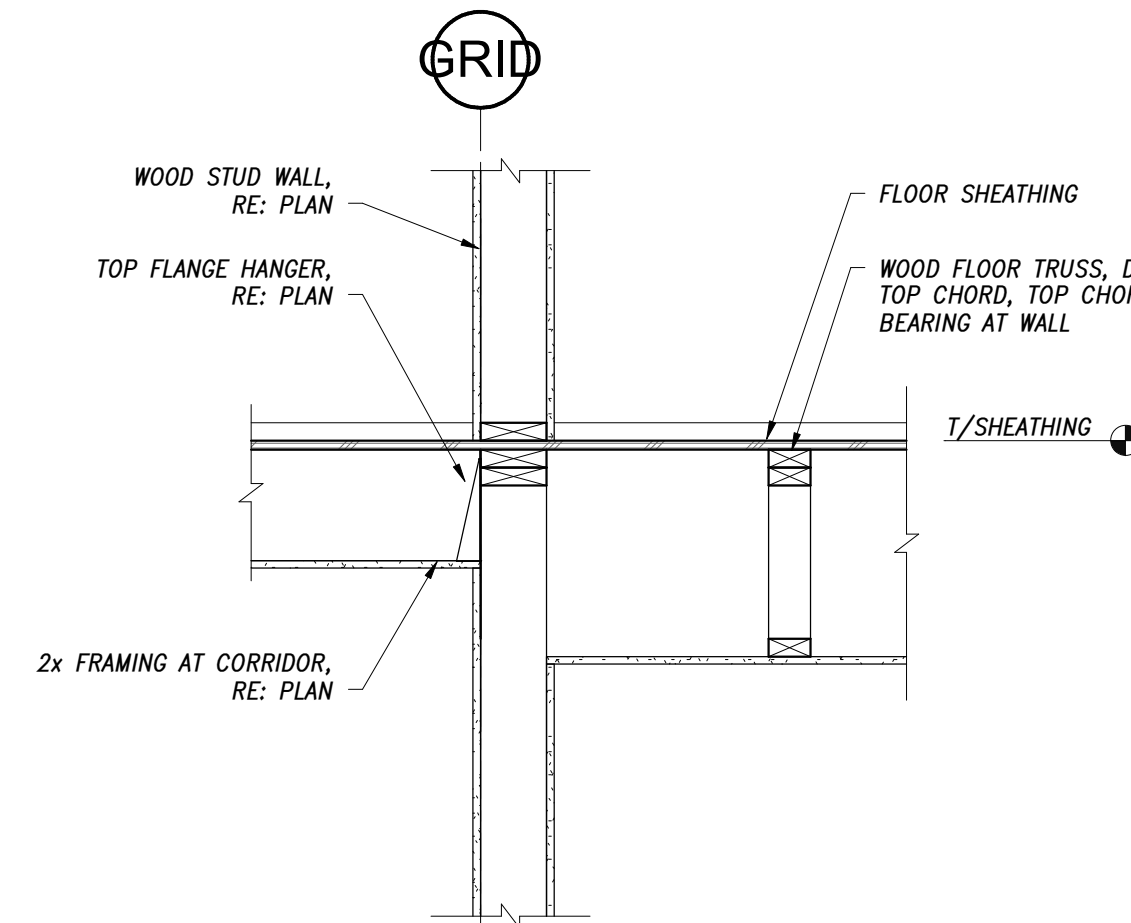
10 CORRIDOR JOIST AT CMU CORE
3/4" = 1'-0"



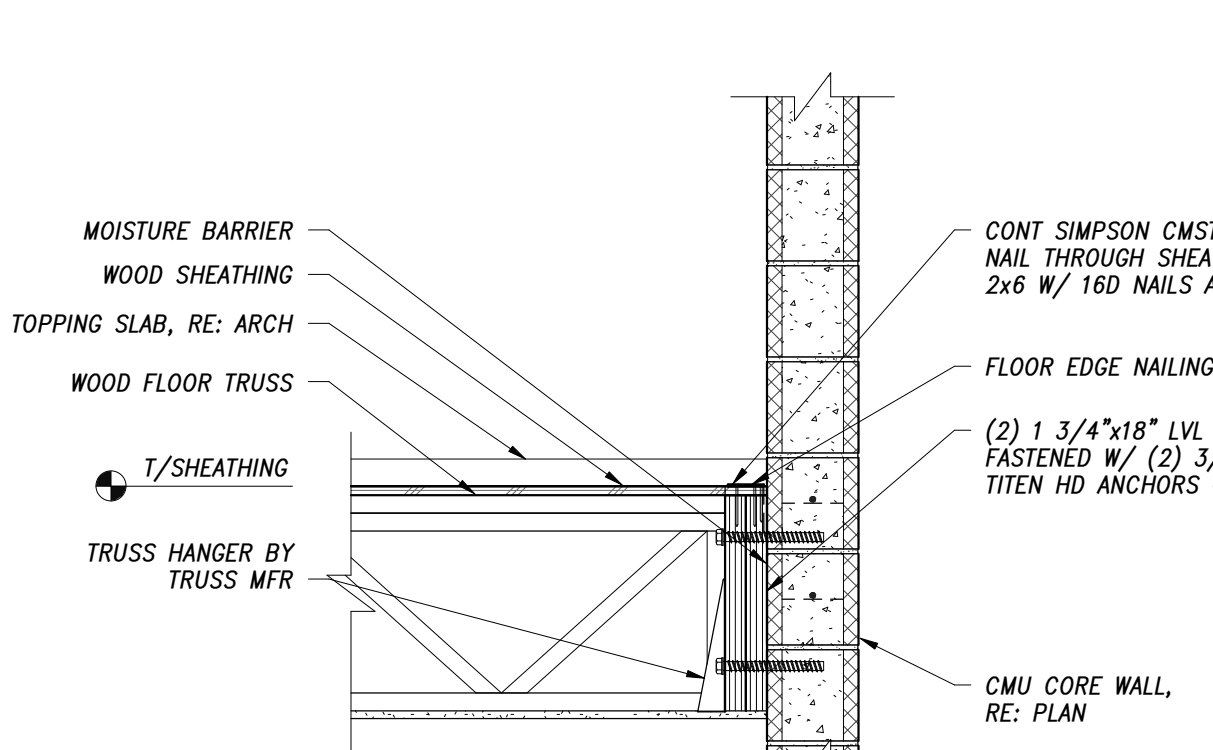
6 COLLECTOR TRUSS AT CORRIDOR
3/4" = 1'-0"



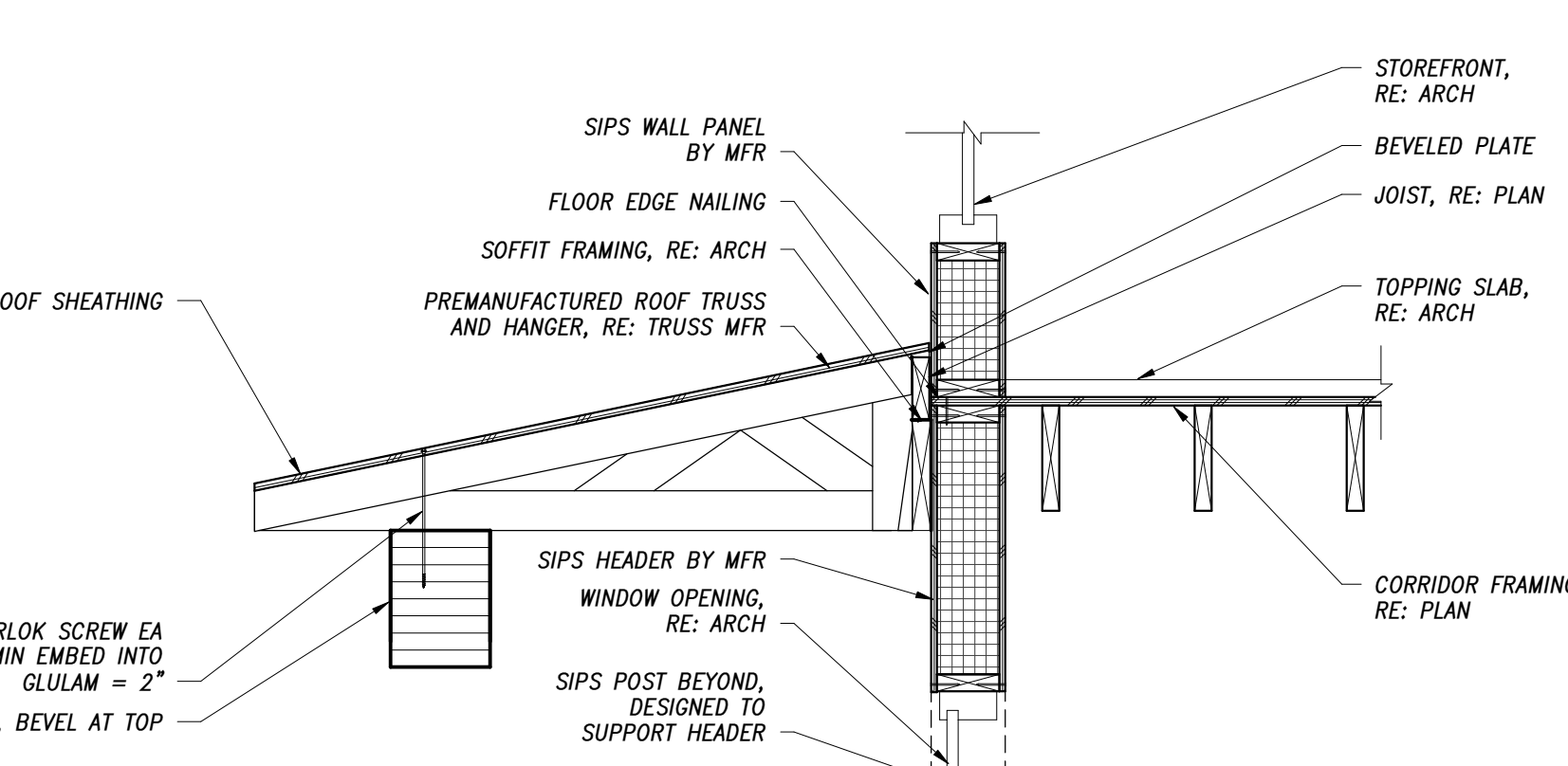
2 FLOOR TRUSS PERPENDICULAR TO EXT SIPS WALL
3/4" = 1'-0"



5 FLOOR TRUSS FRAMING AT CORRIDOR
3/4" = 1'-0"

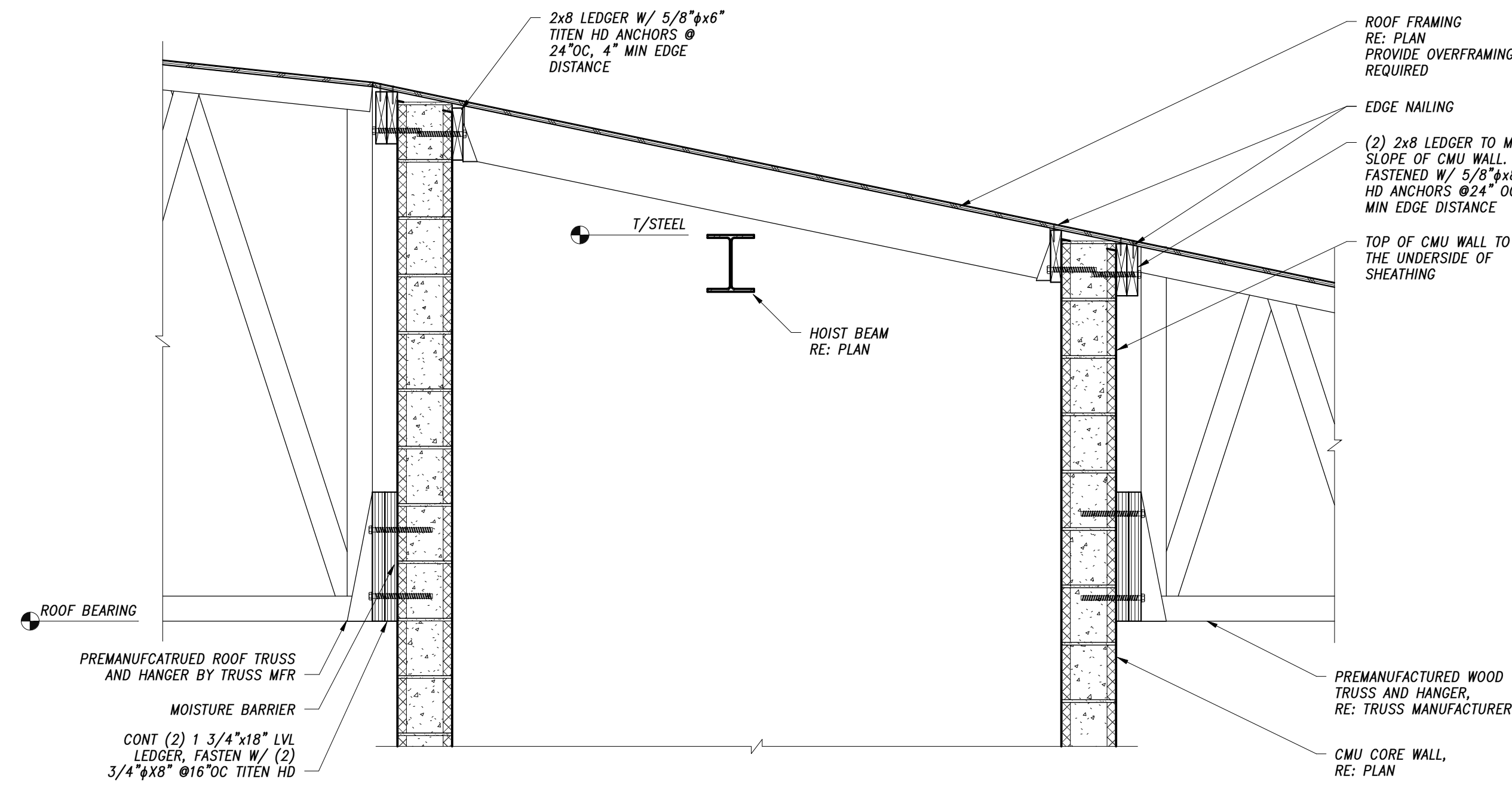


9 CMU LEDGER PERPENDICULAR TO FLOOR TRUSS
3/4" = 1'-0"

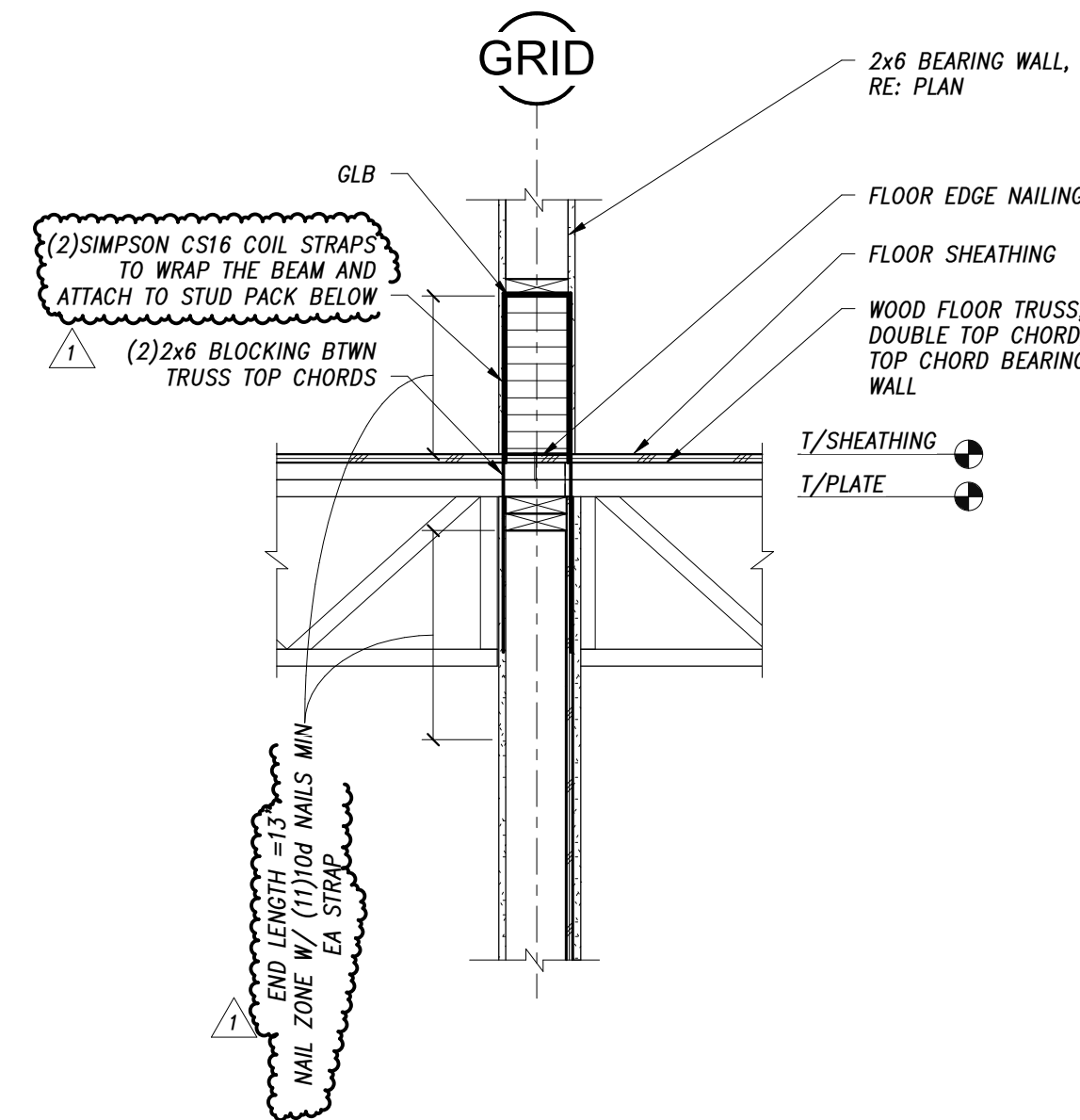


13 CANOPY DETAIL
3/4" = 1'-0"

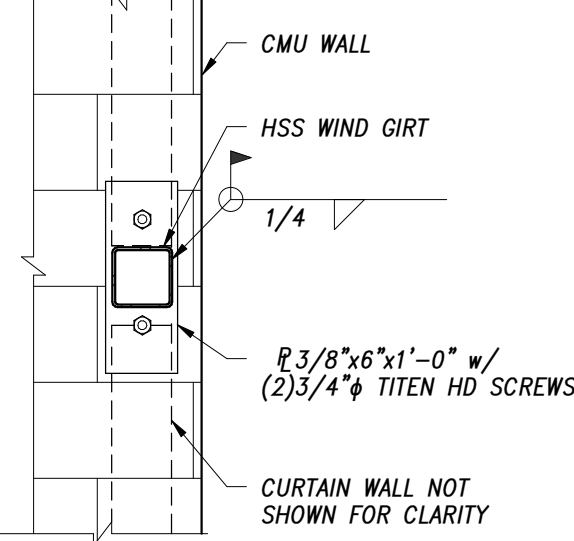
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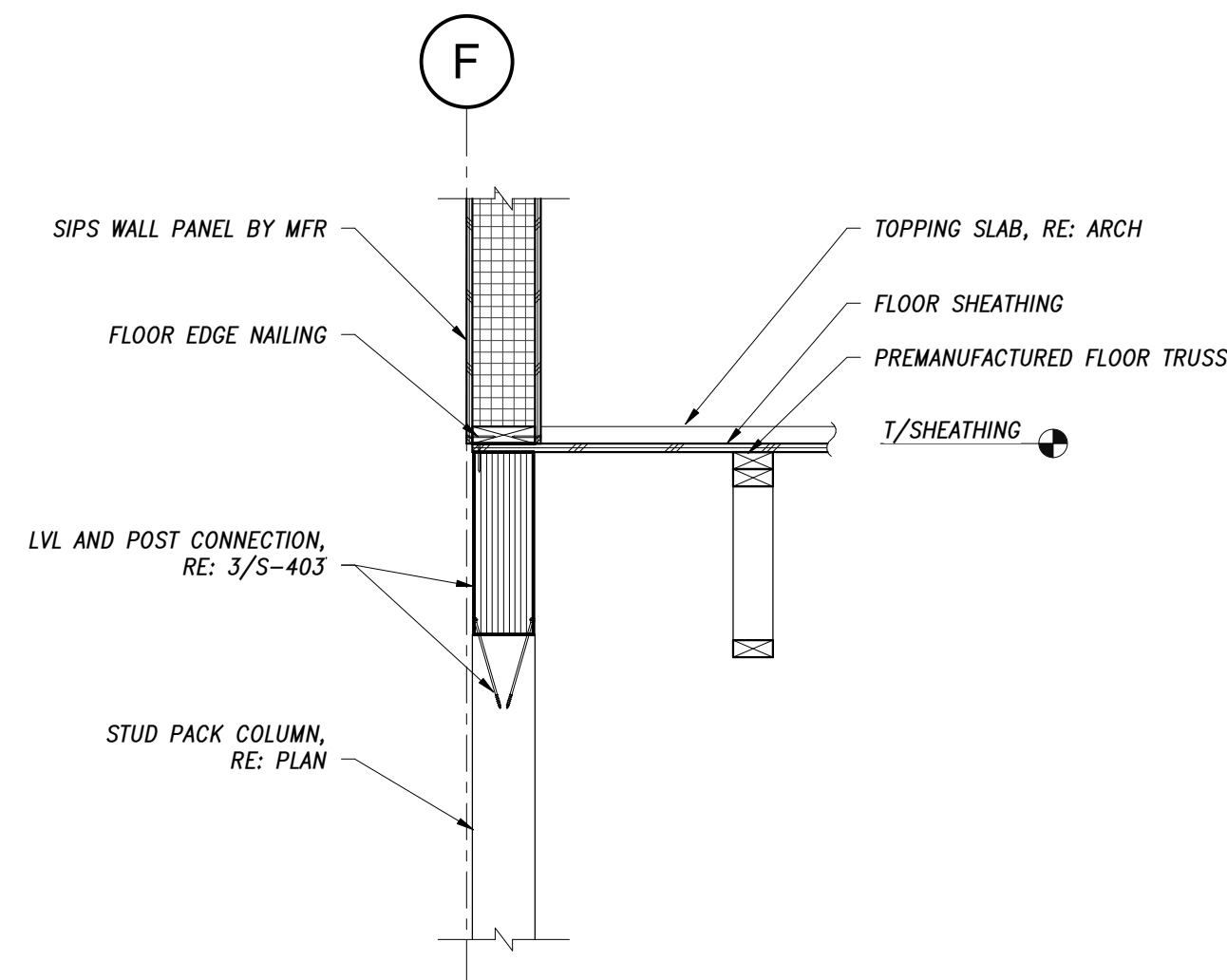
11 ROOF FRAMING AT ELEVATOR CORE
3/4" = 1'-0"



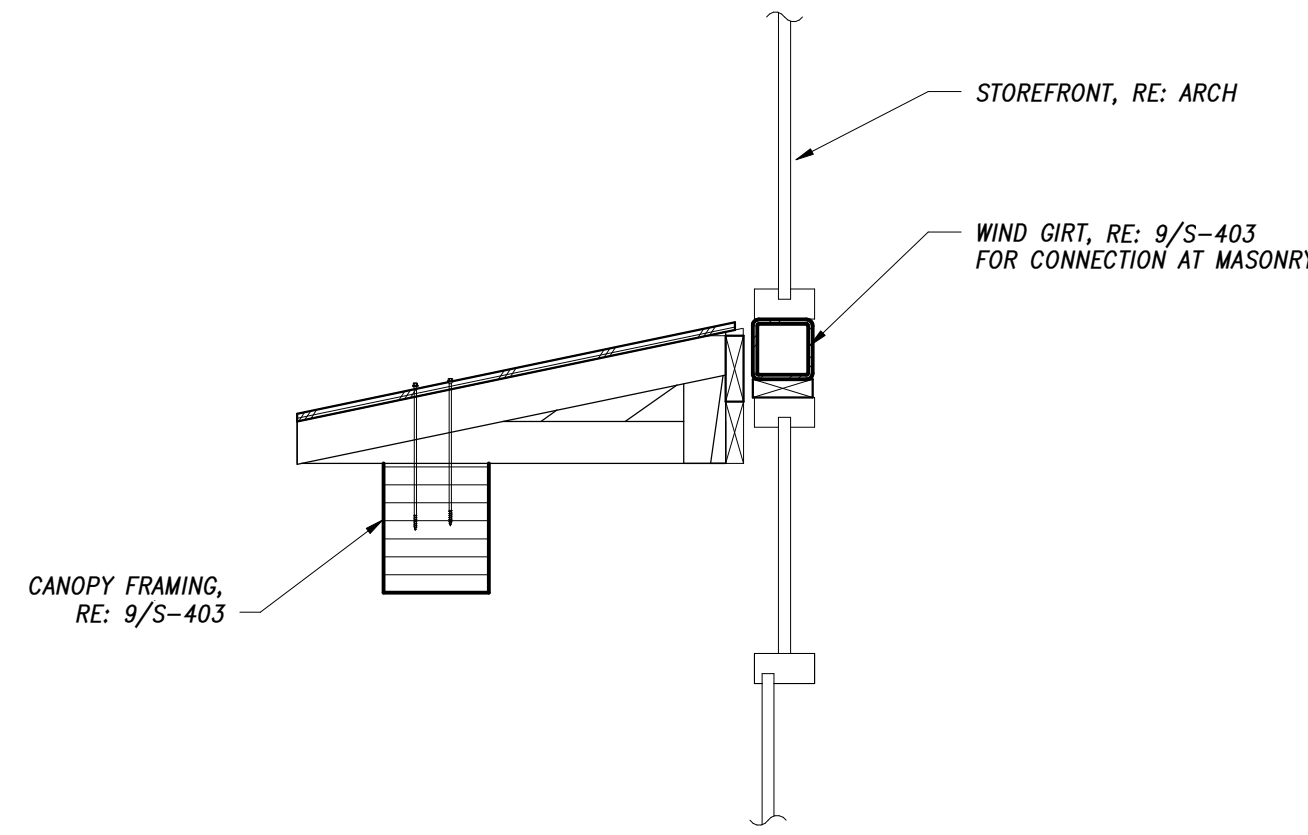
10 CANOPY DETAIL
3/4" = 1'-0"



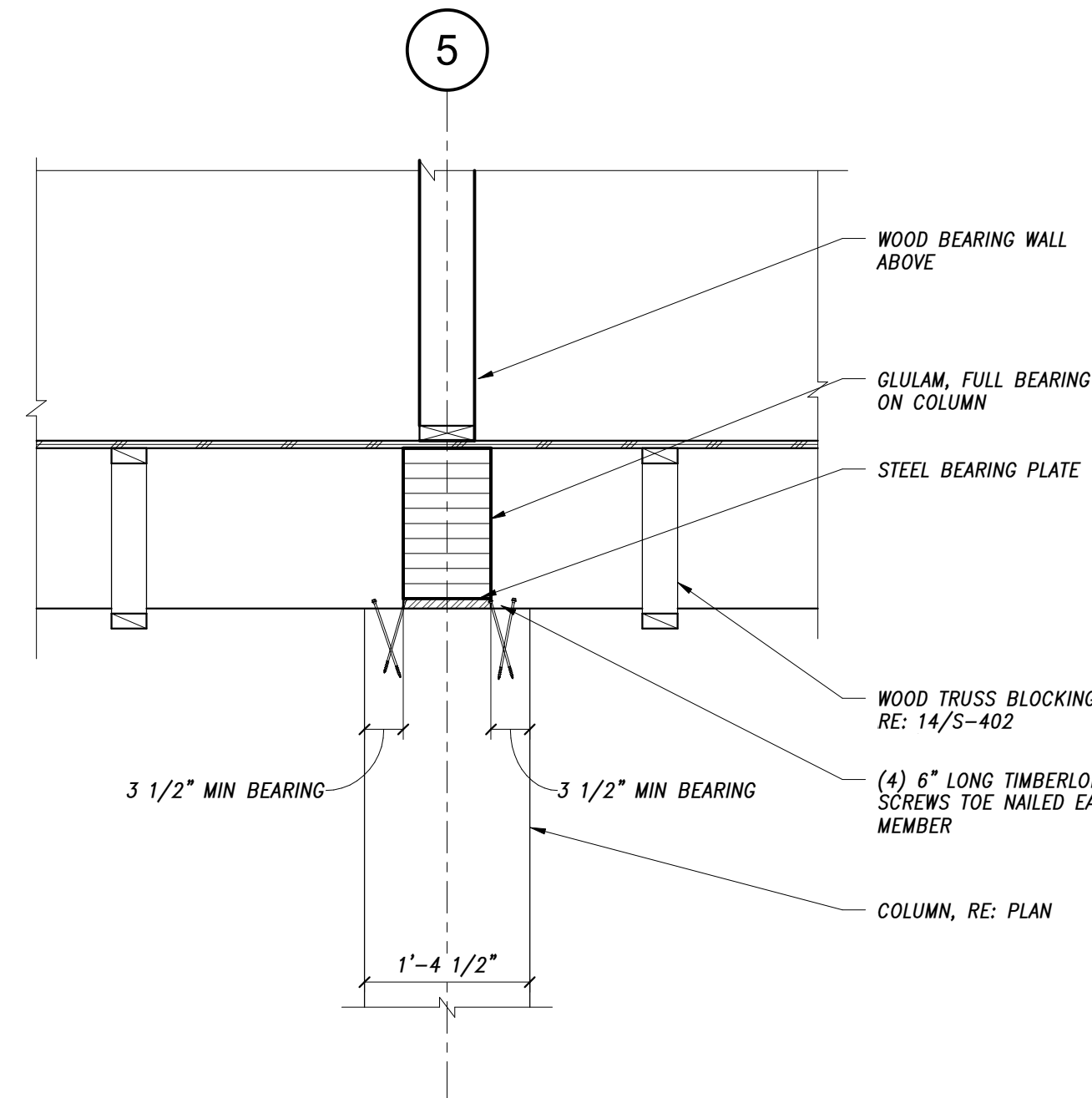
9 WIND GIRT CONNECTION AT CMU
3/4" = 1'-0"



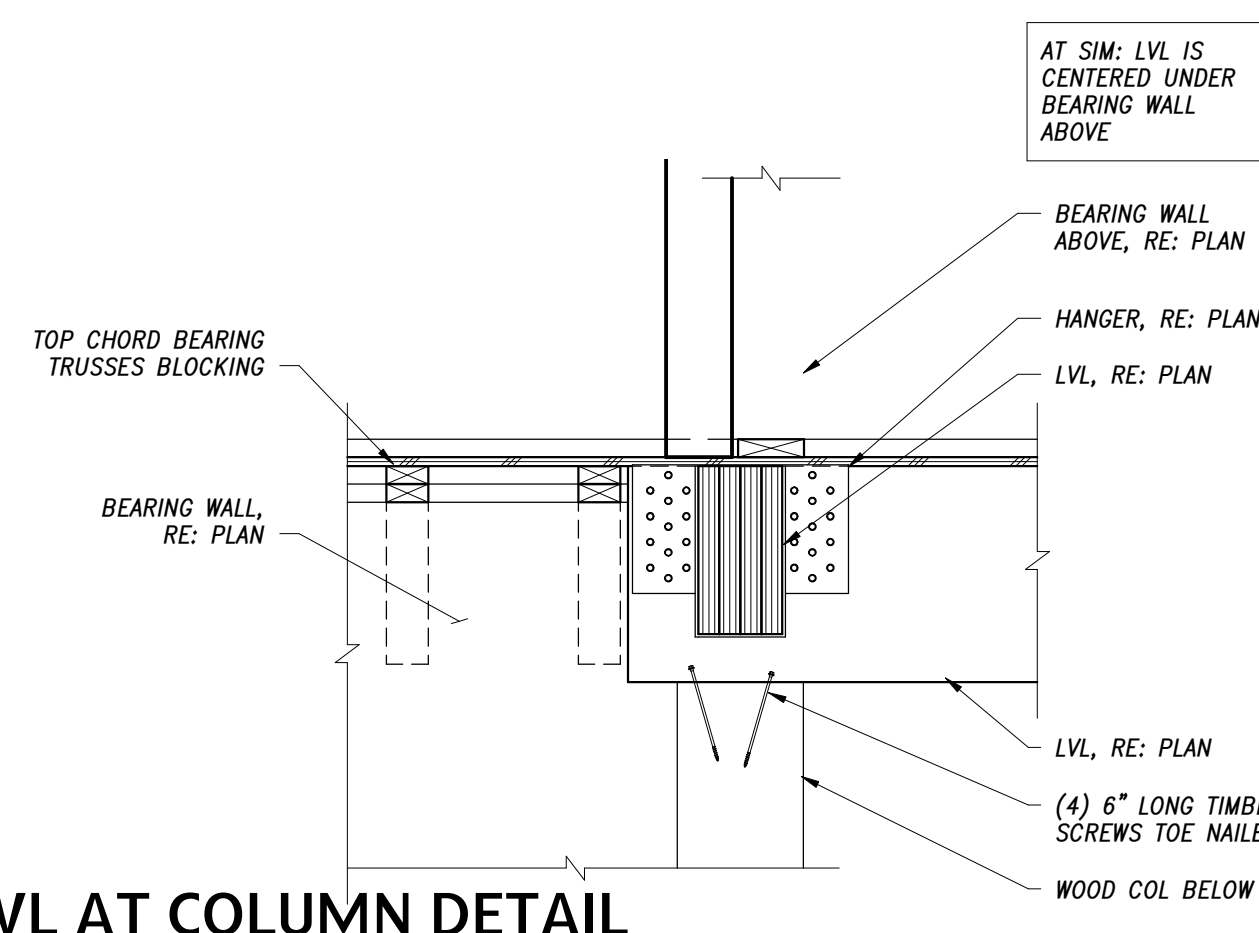
8 LVL AT COLUMN DETAIL
3/4" = 1'-0"



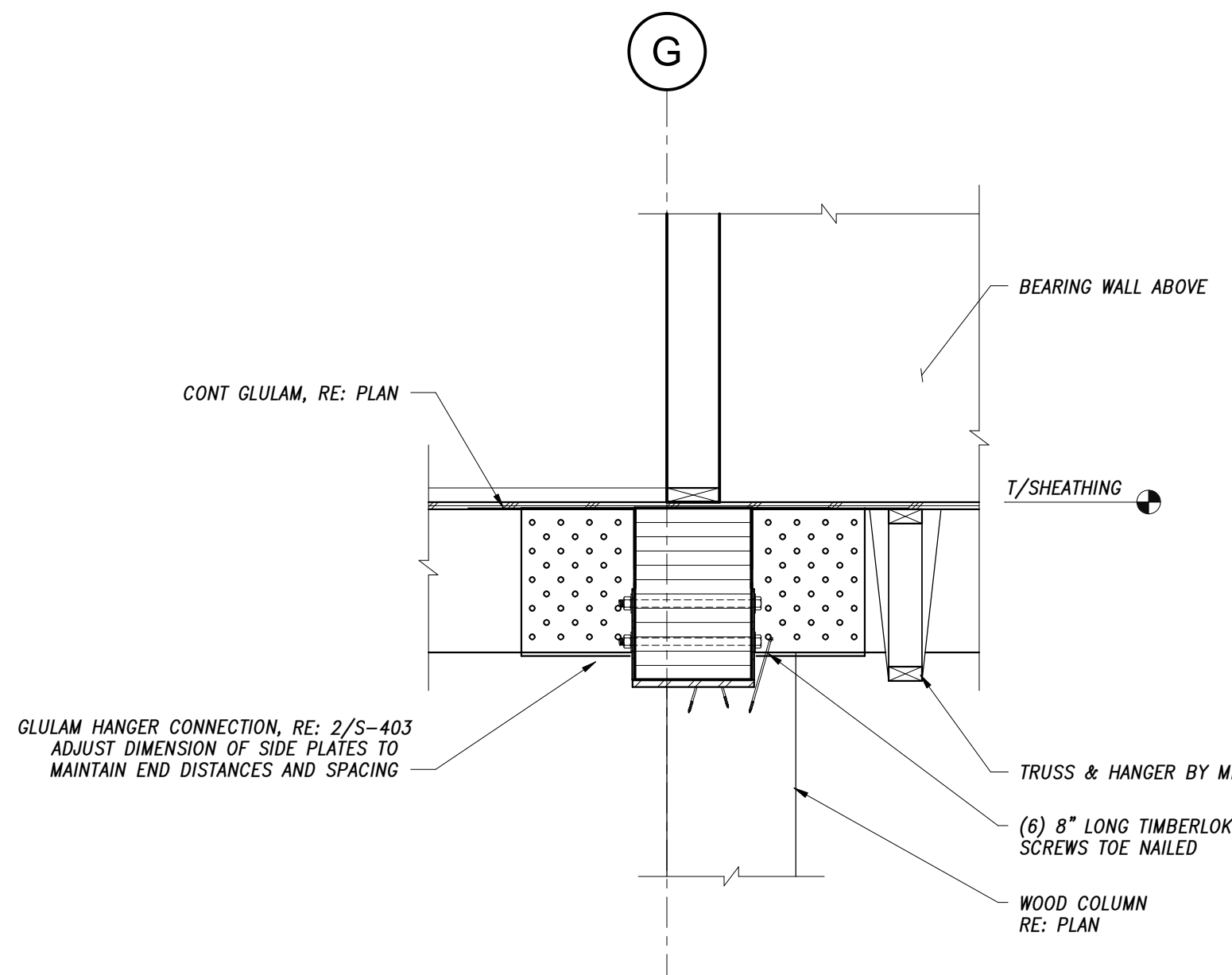
7 CANOPY AT CORE DETAIL
3/4" = 1'-0"



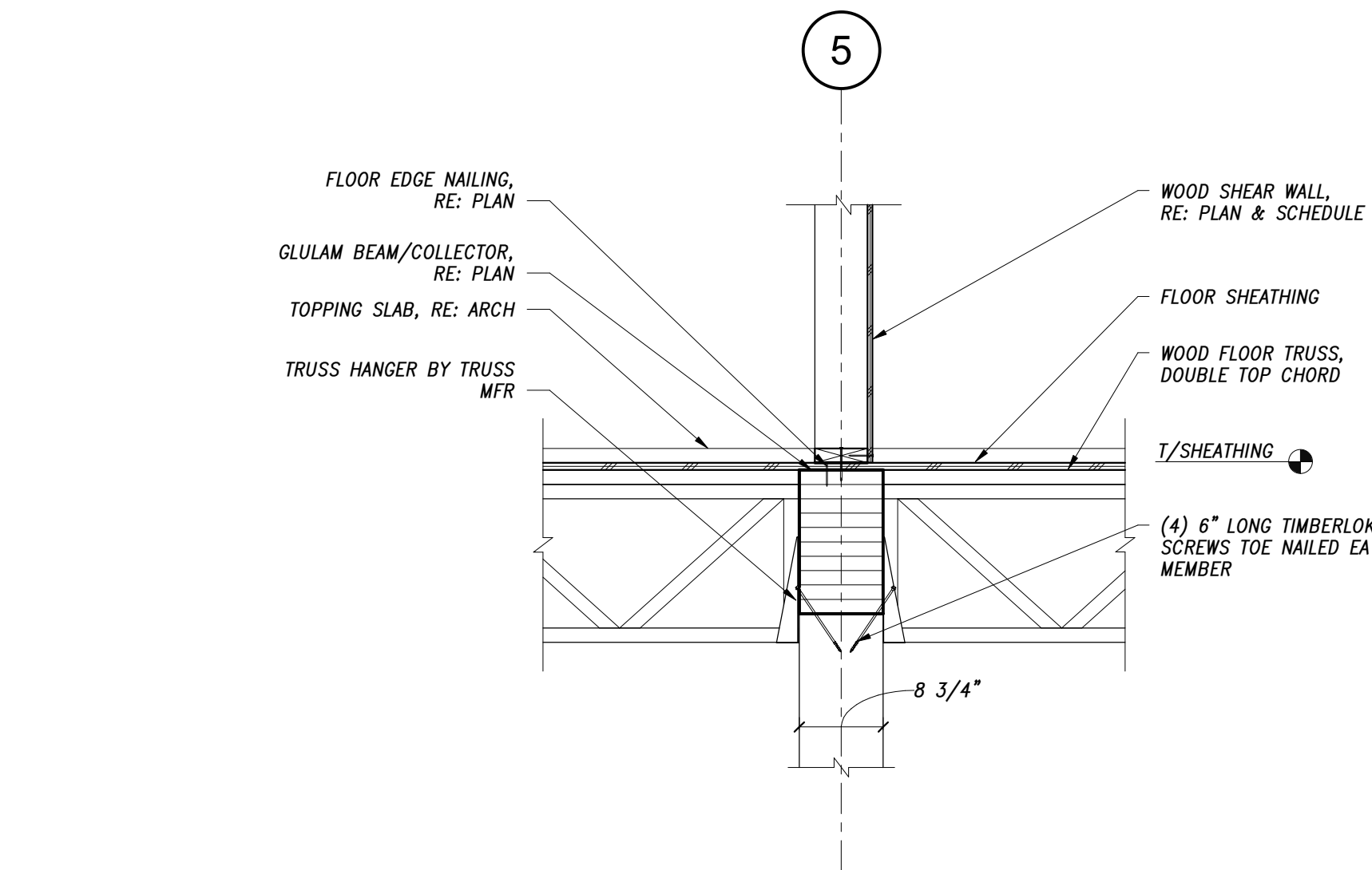
6 CONNECTION DETAIL
3/4" = 1'-0"



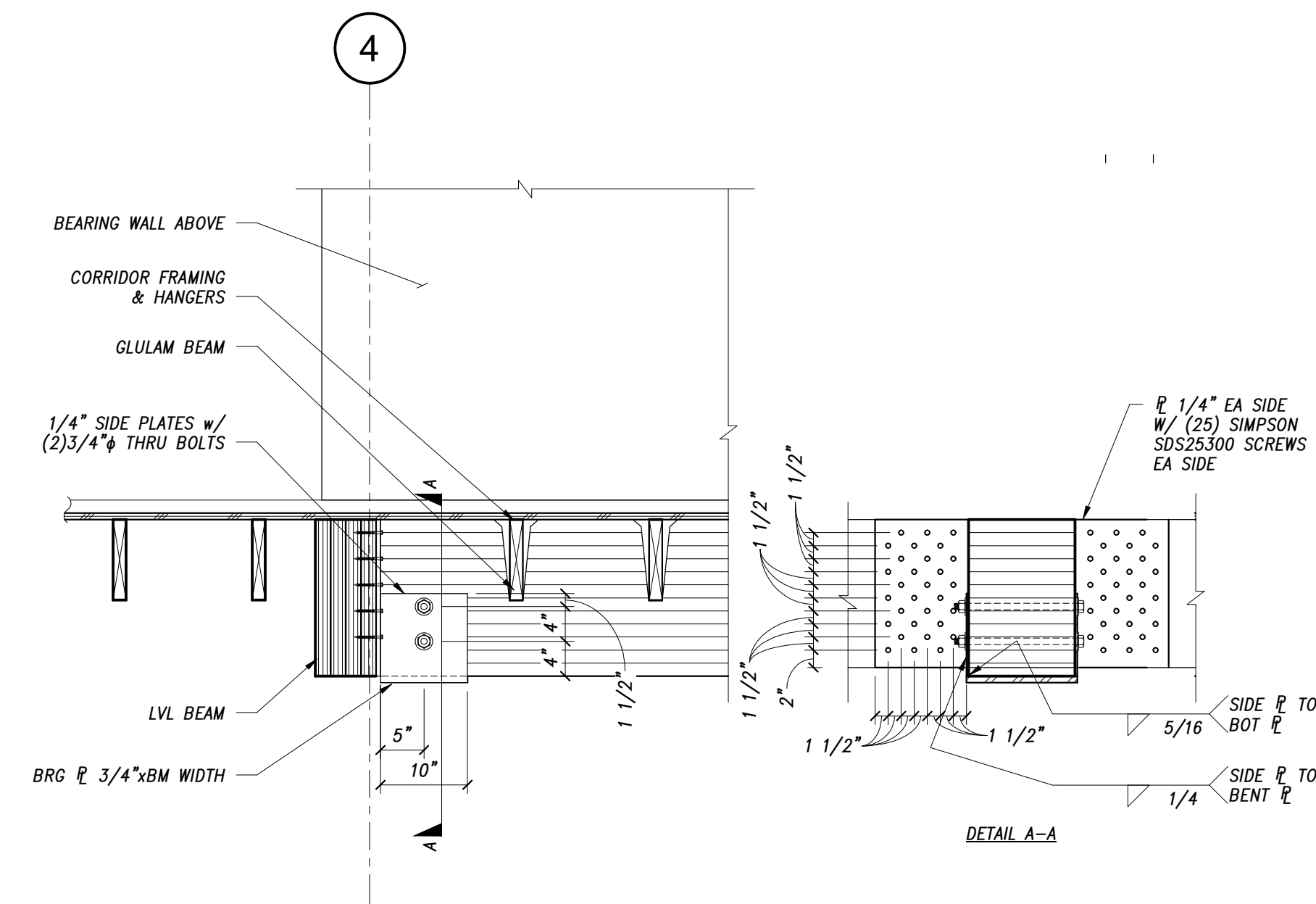
5 LVL AT COLUMN DETAIL
3/4" = 1'-0"



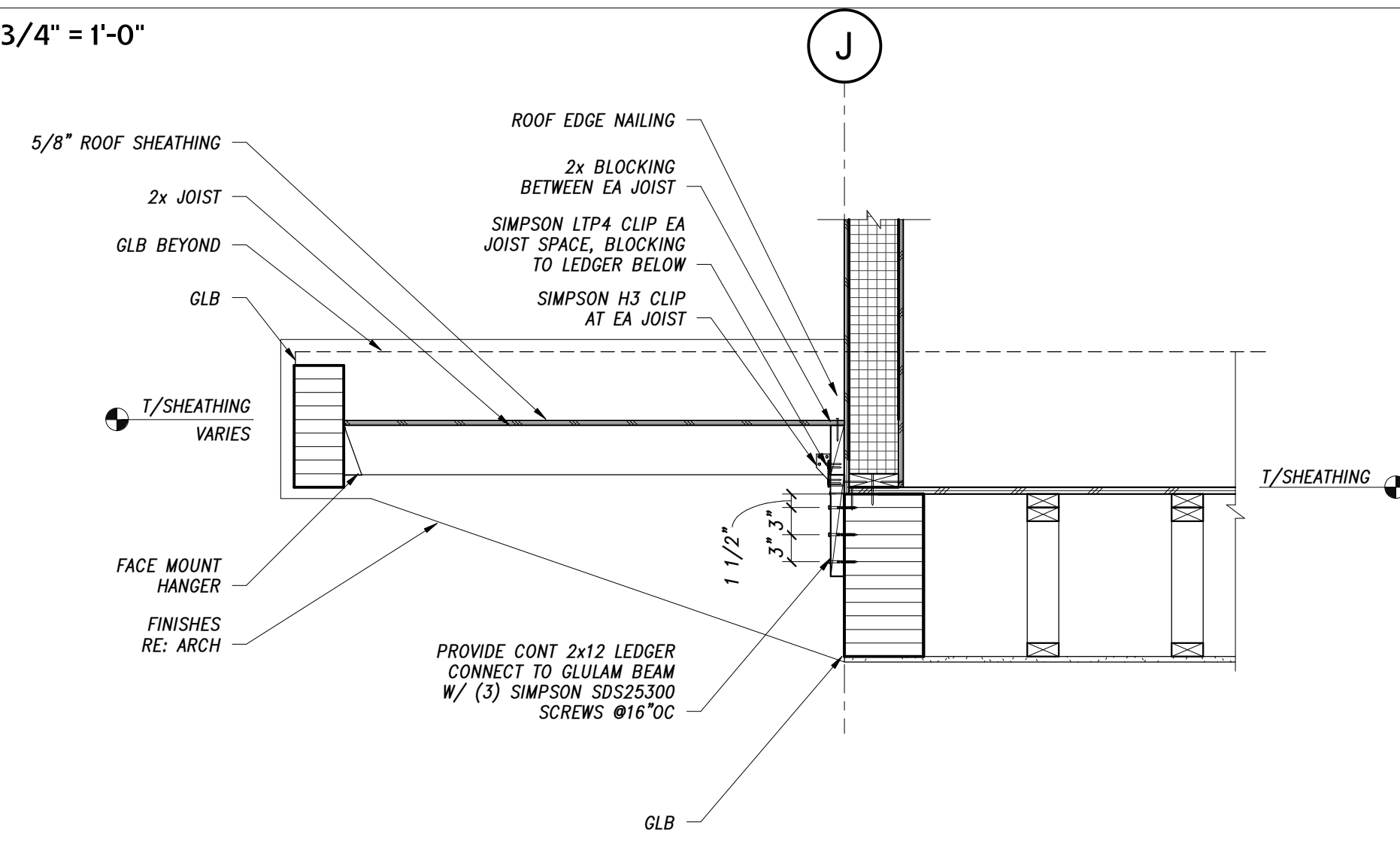
4 GLULAM HANGER AT COLUMN
3/4" = 1'-0"



3 LVL CONTINUOUS OVER COLUMN DETAIL
3/4" = 1'-0"



2 GLULAM HANGER DETAIL
3/4" = 1'-0"



1 CANOPY DETAIL
3/4" = 1'-0"

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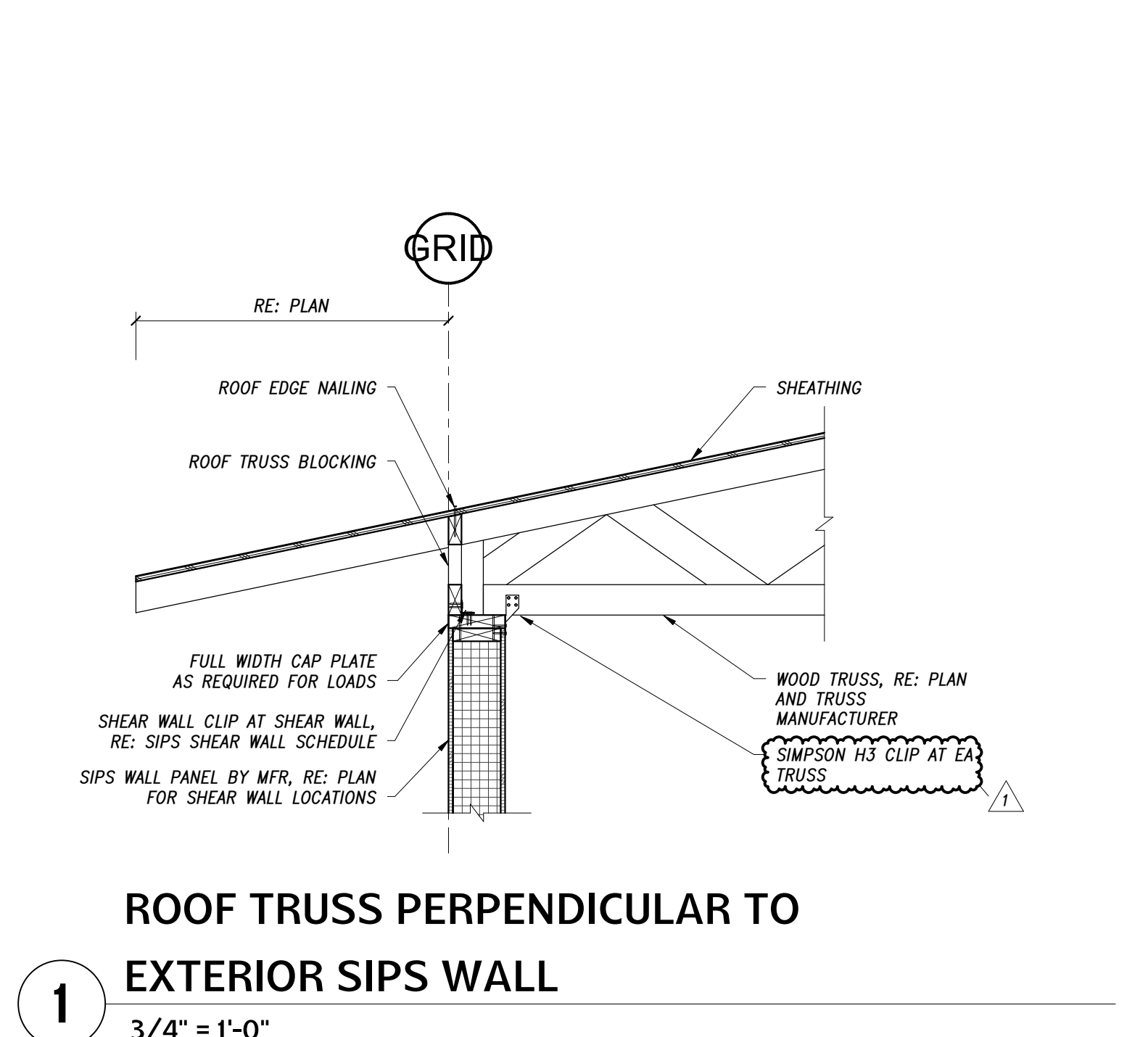
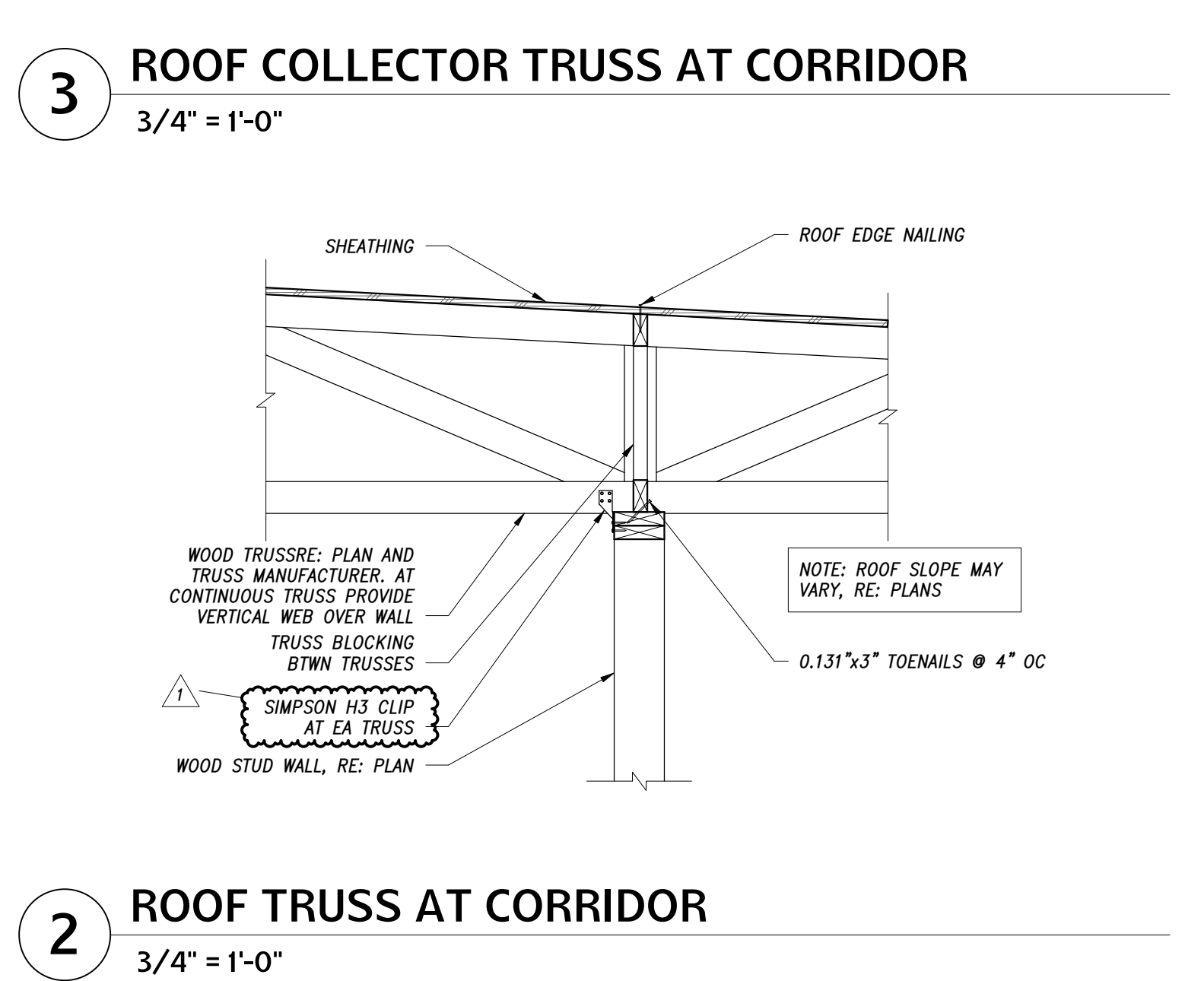
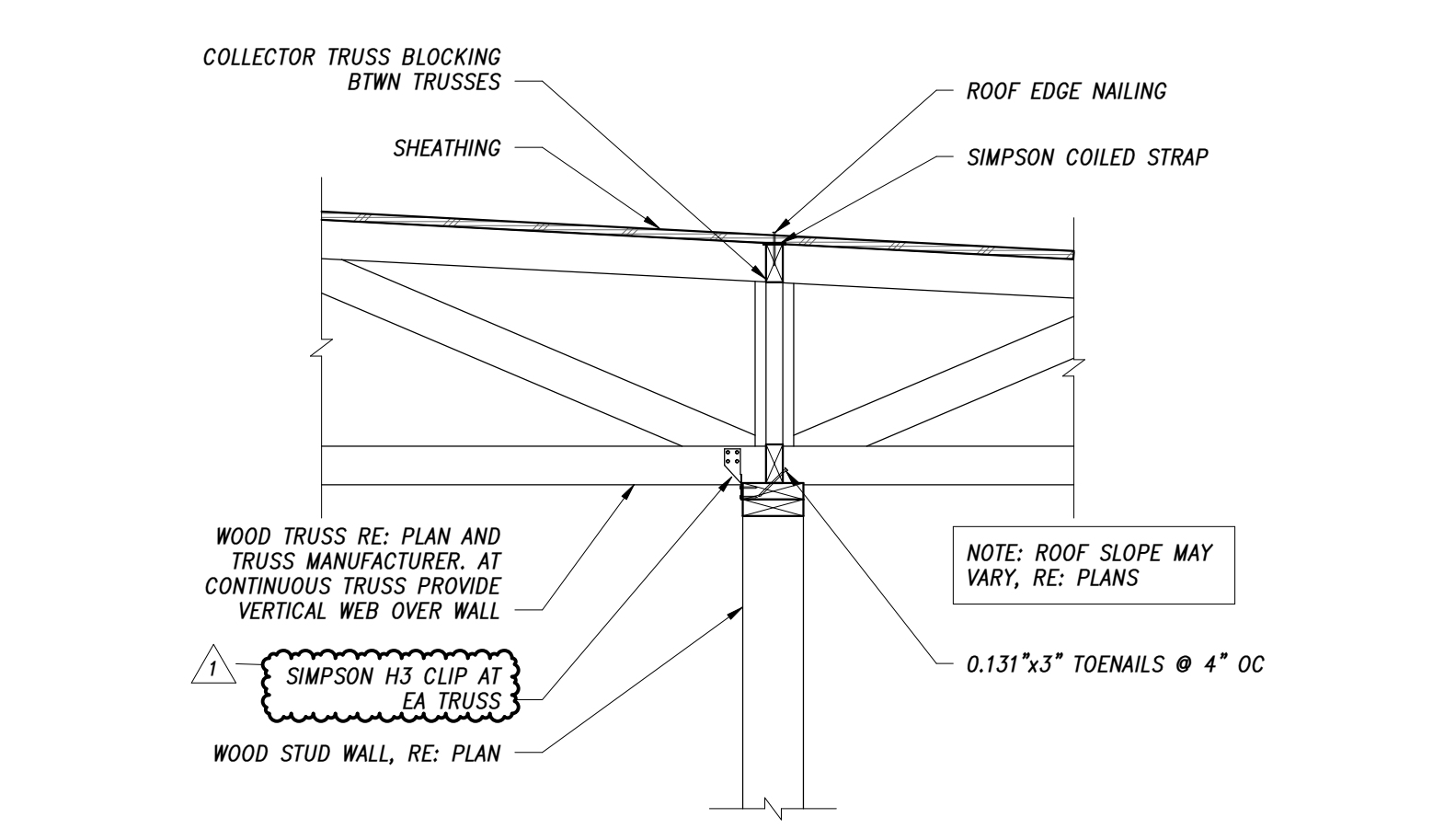
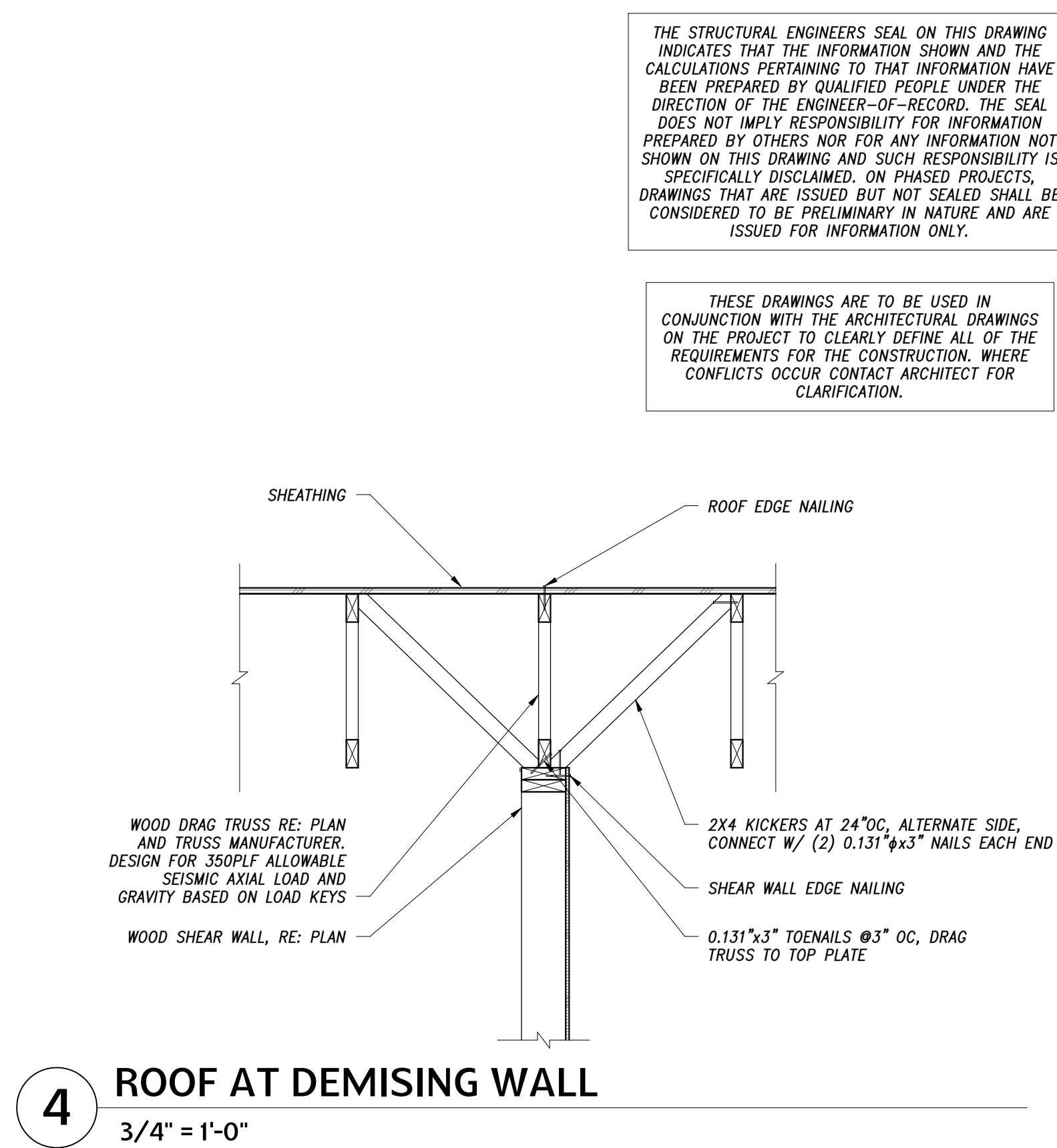
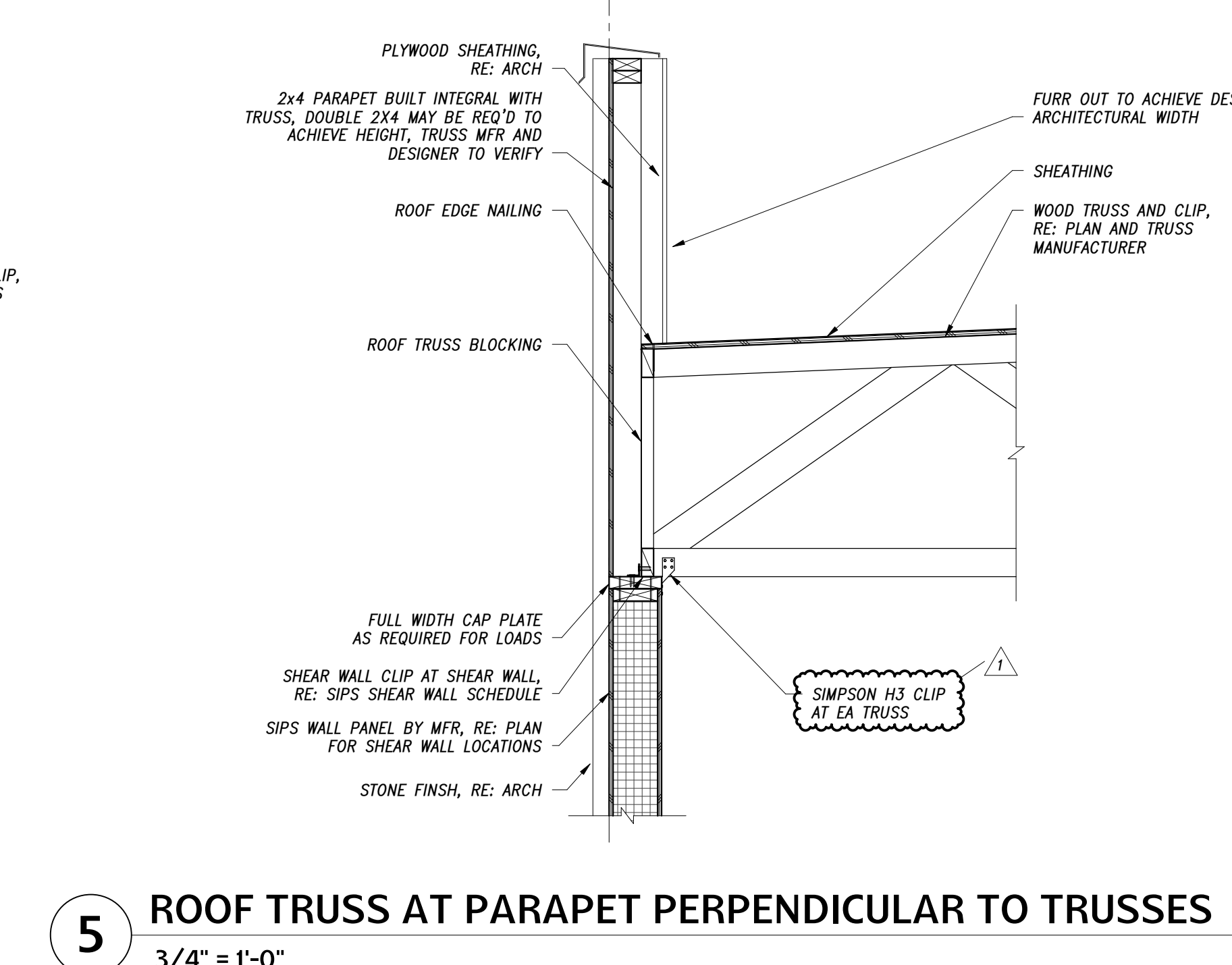
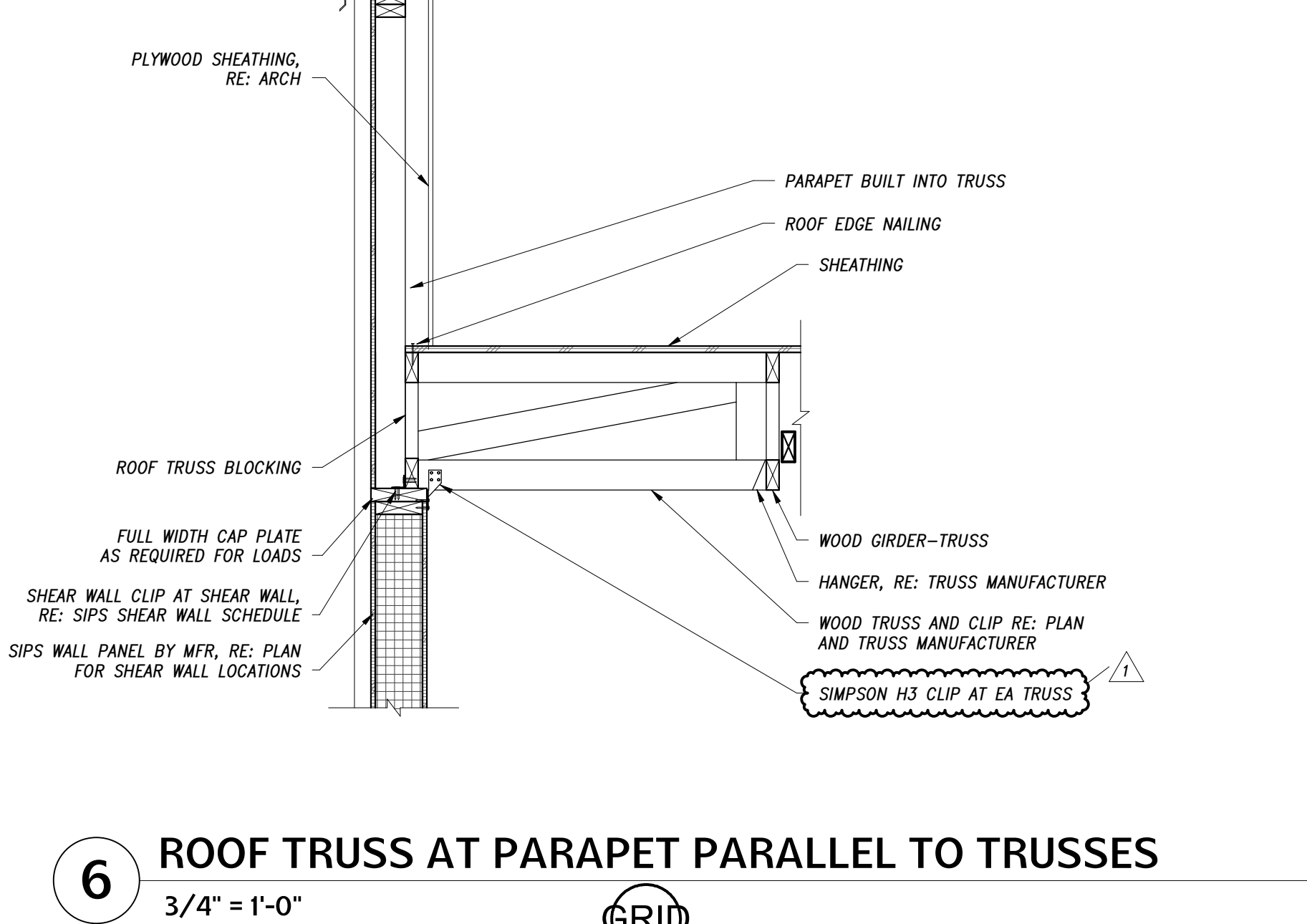
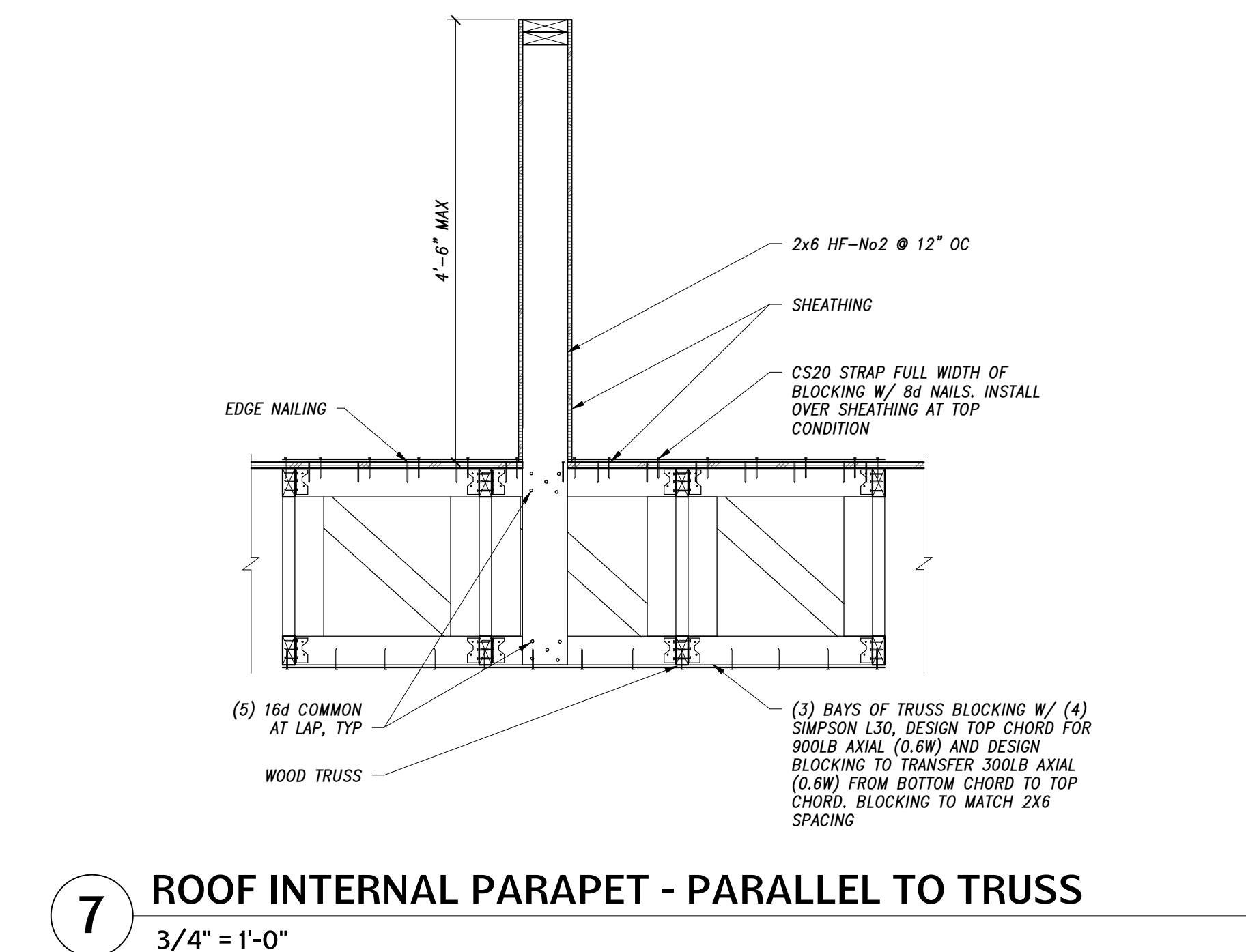
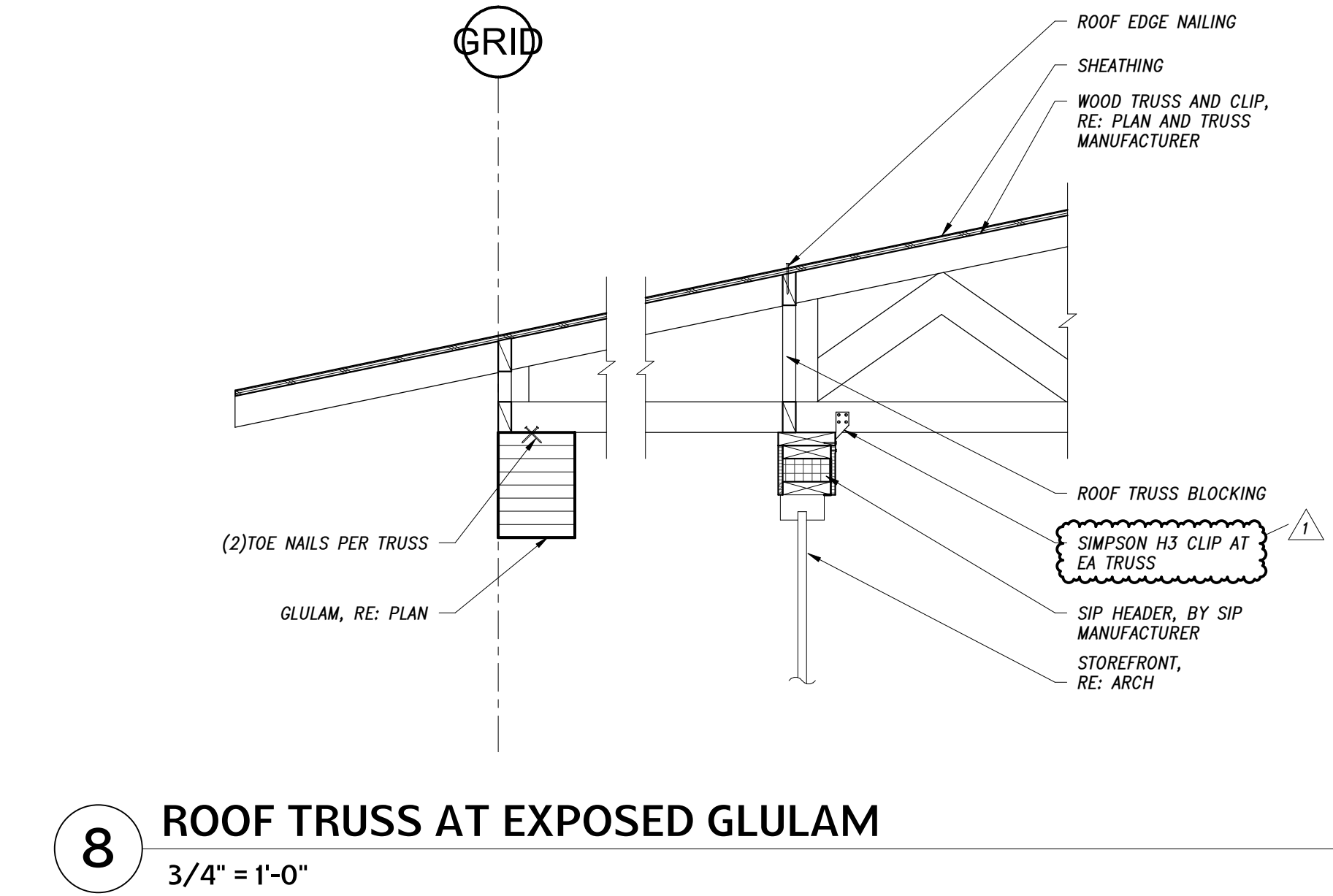
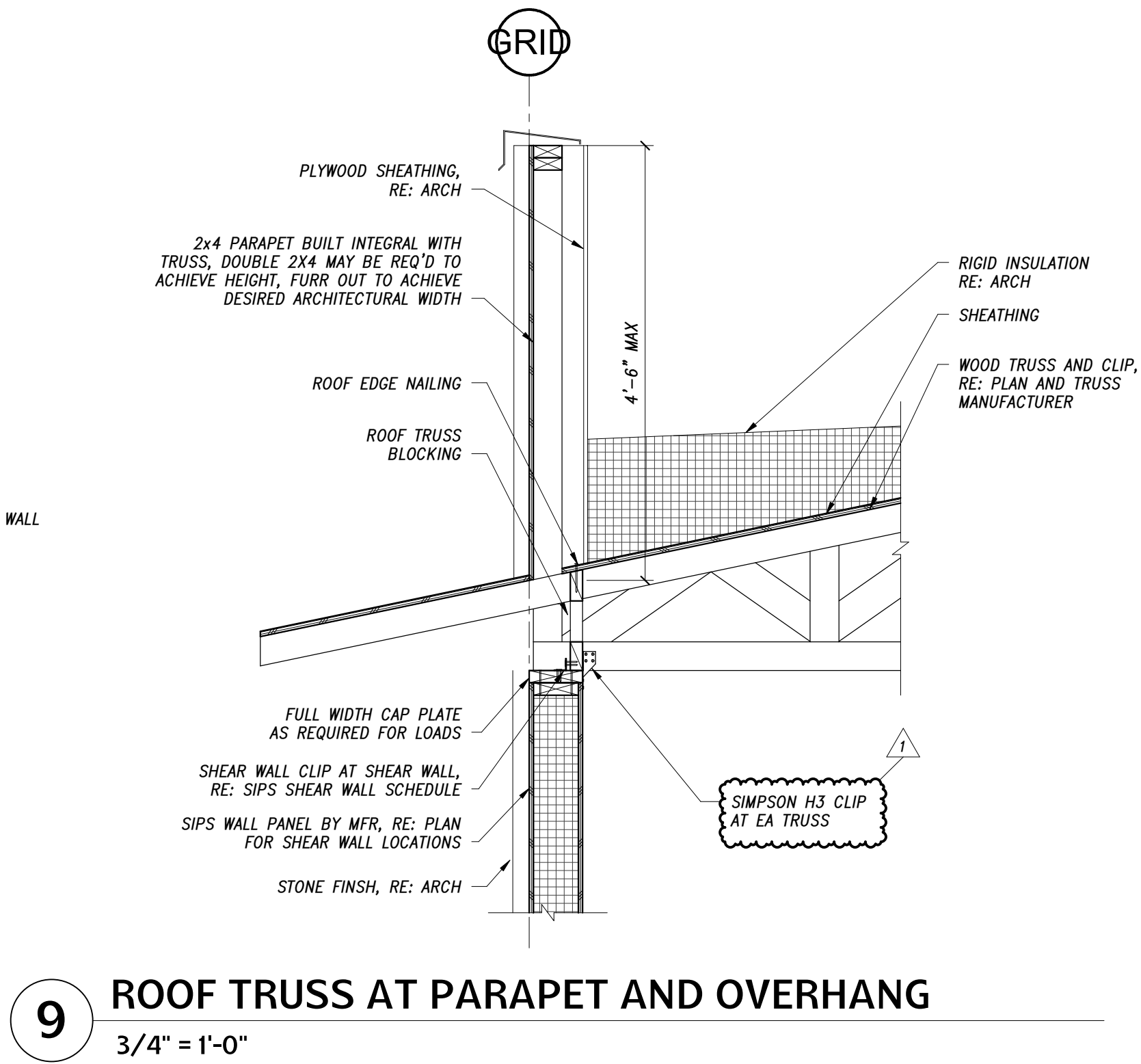
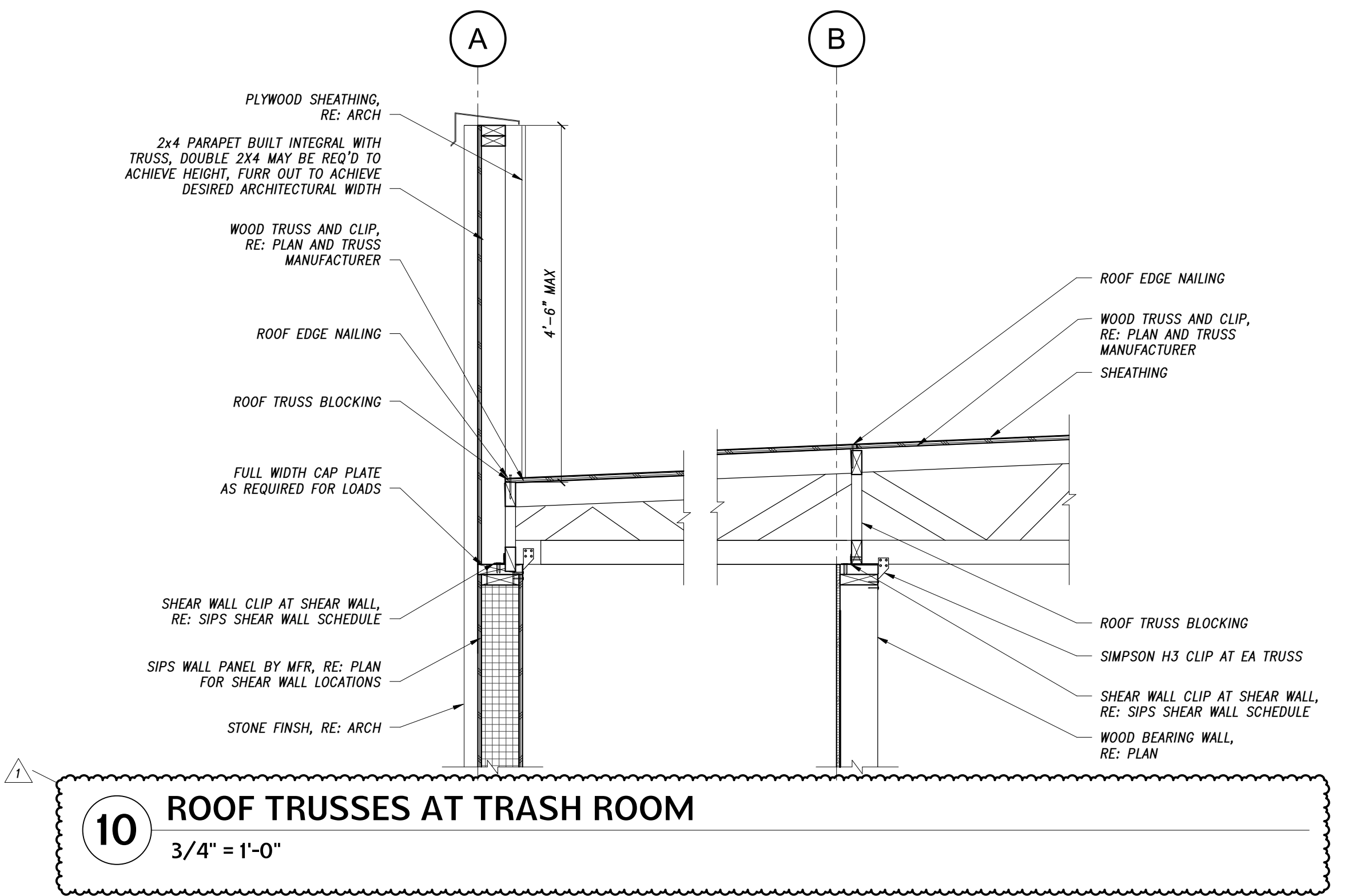
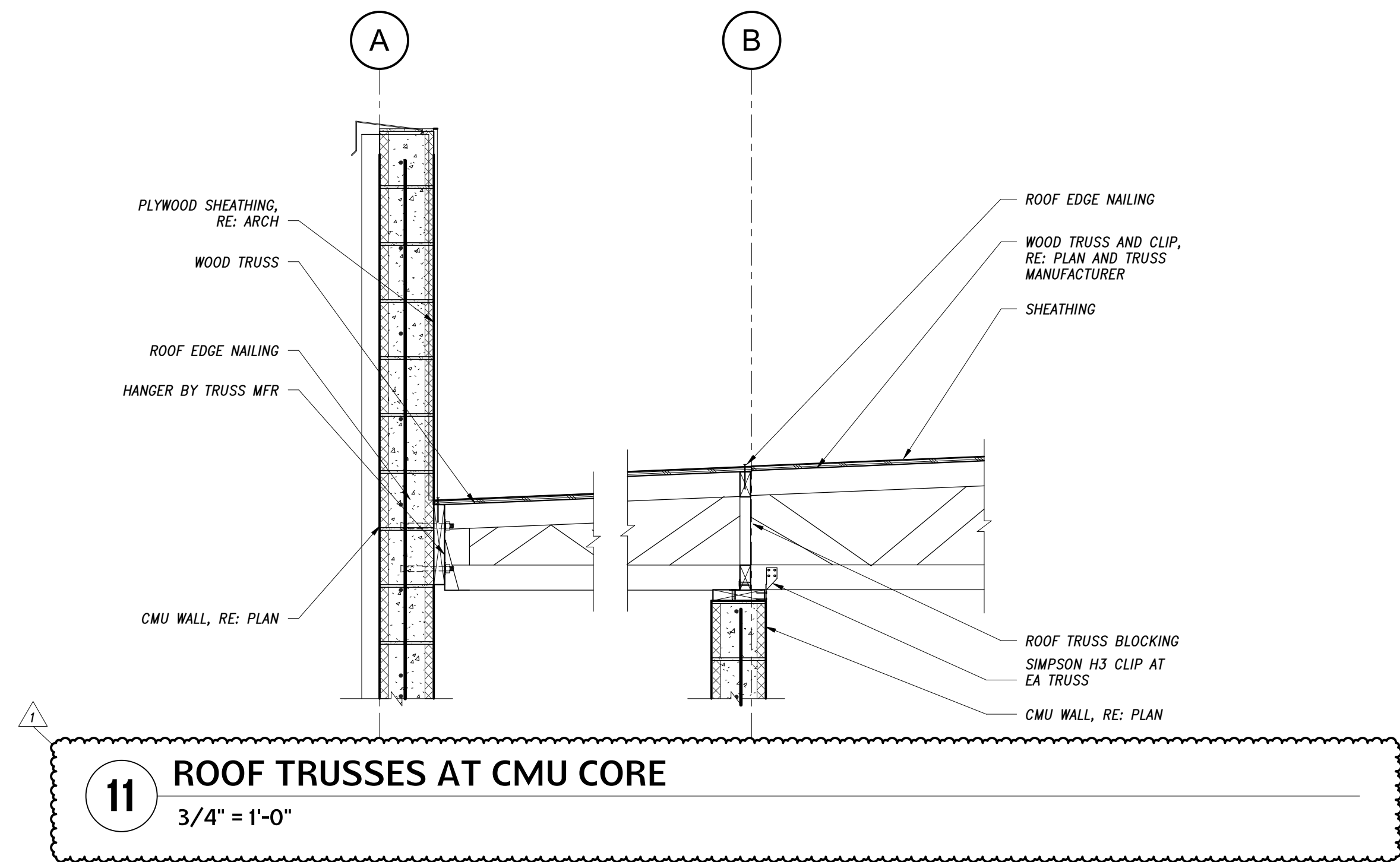
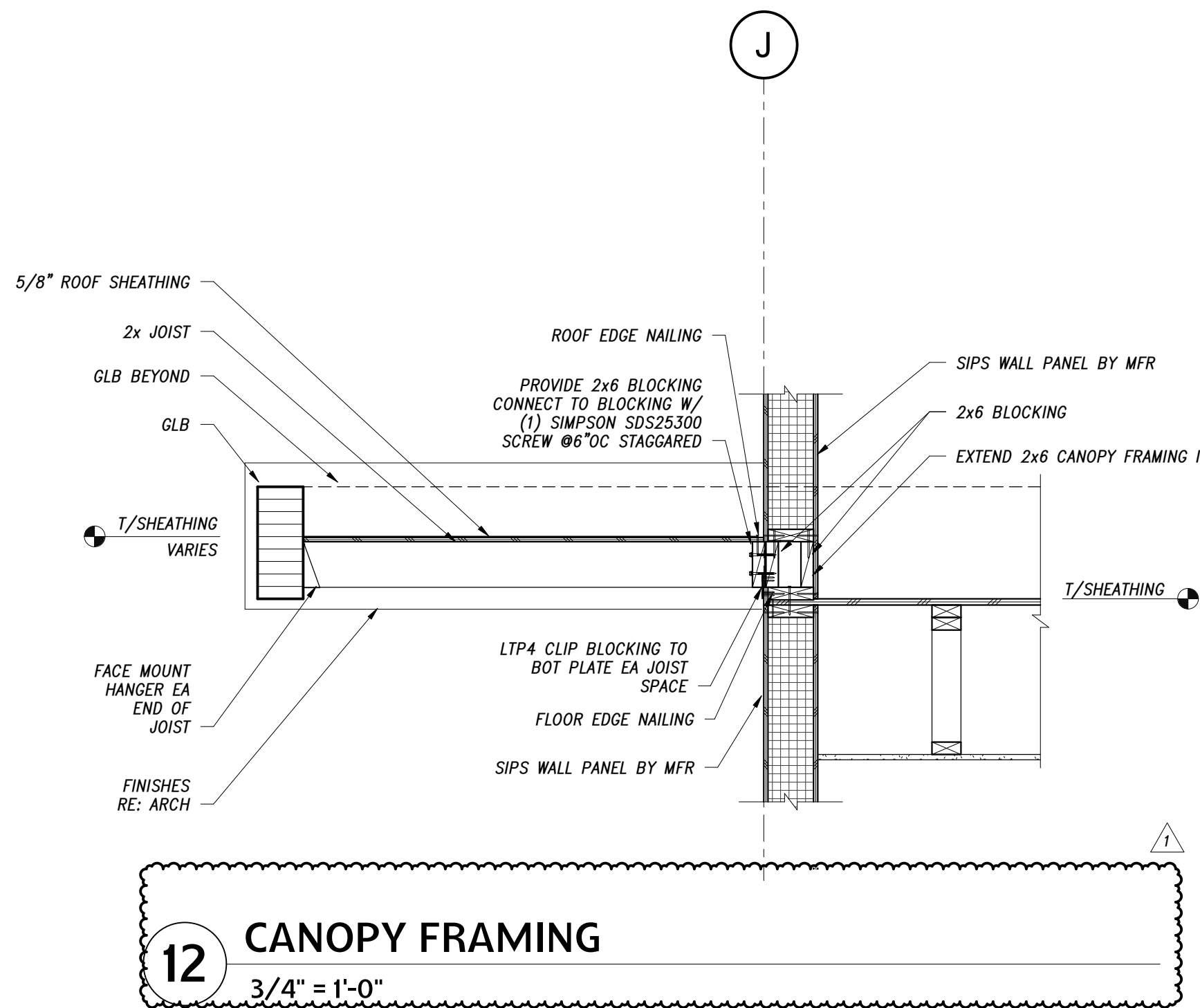


2814 PATTERSON ROAD

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SHEET TITLE:
DETAILS

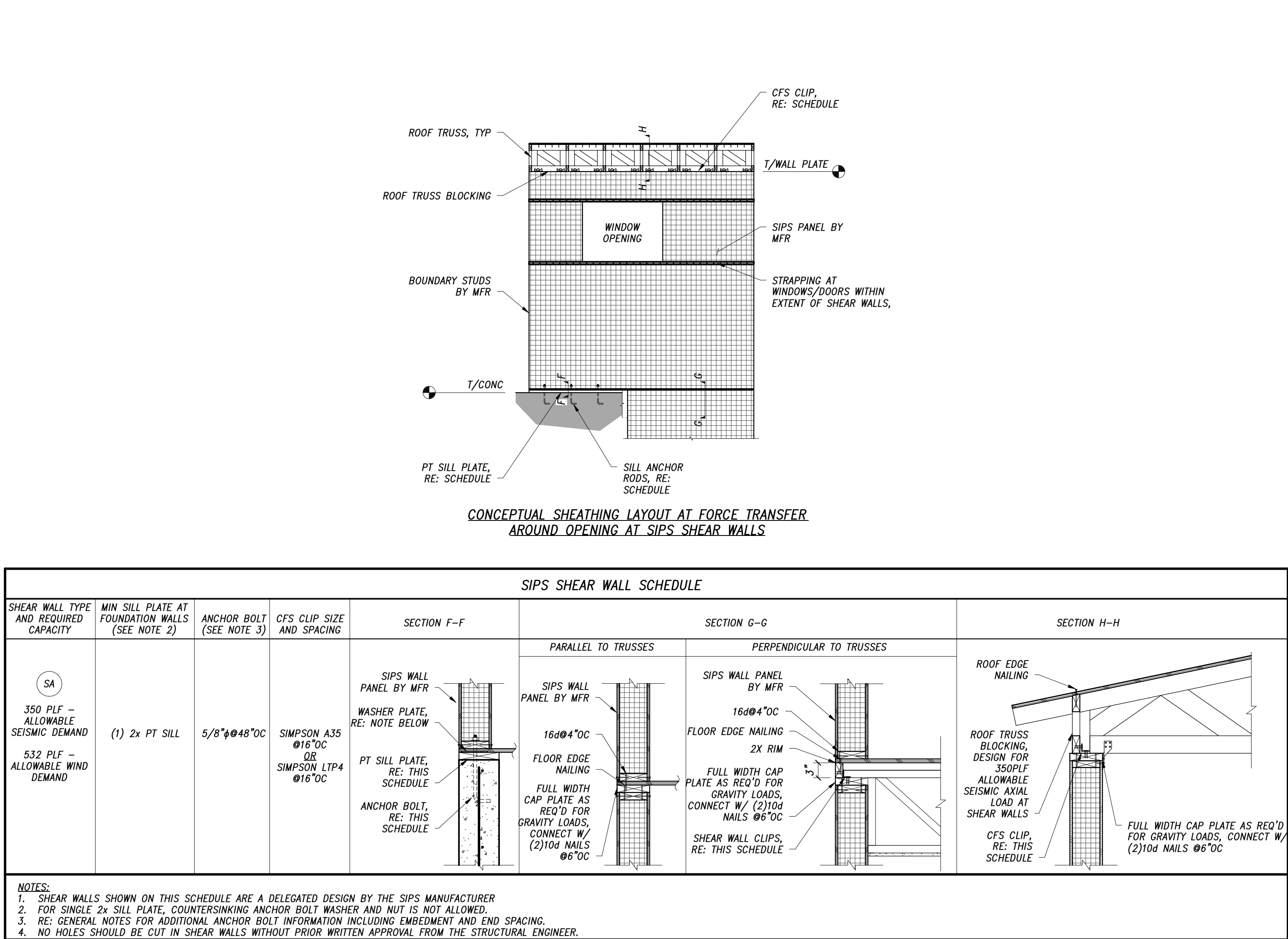
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SHEET NUMBER

S-403

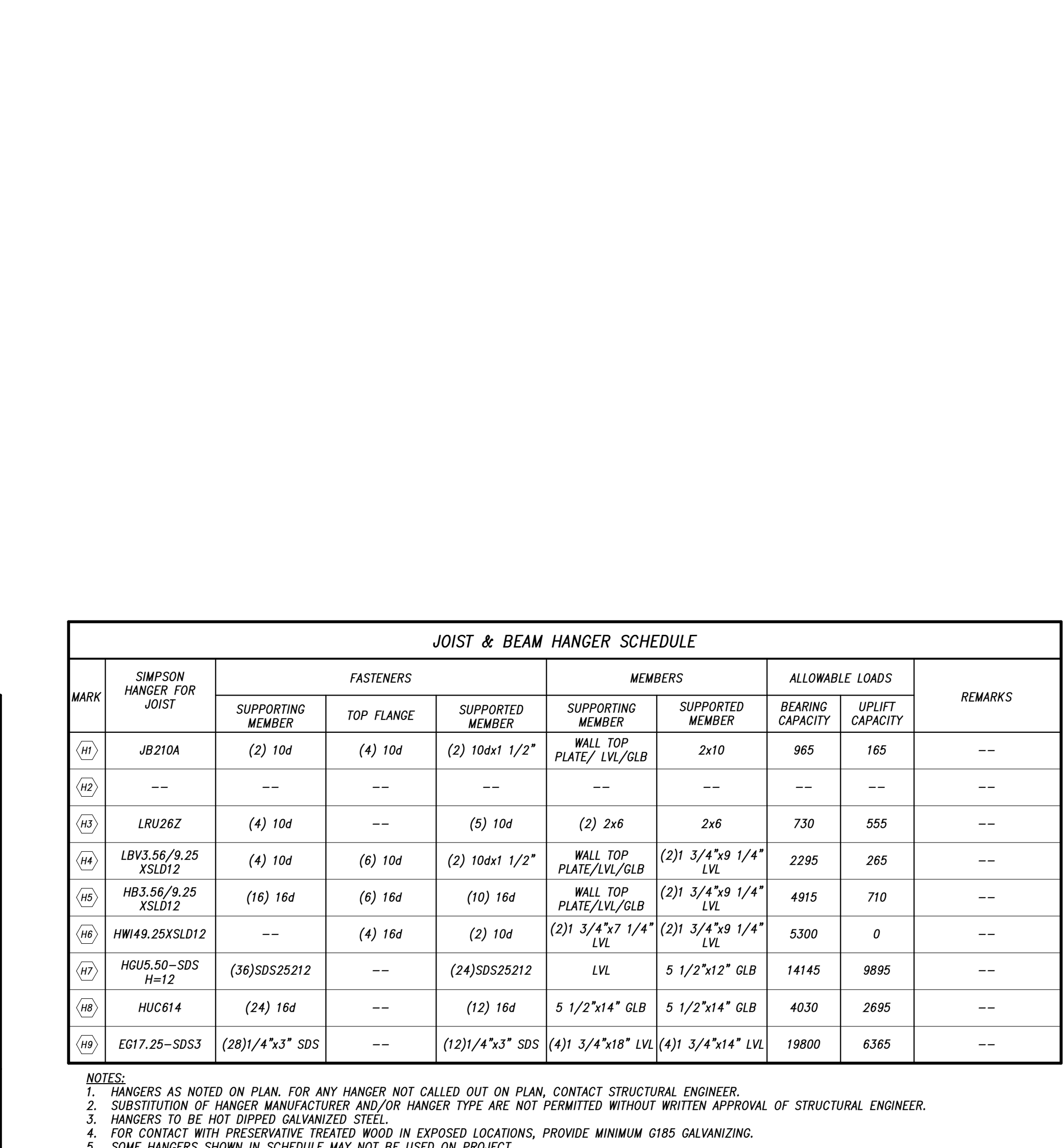


THE STRUCTURAL ENGINEER'S SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

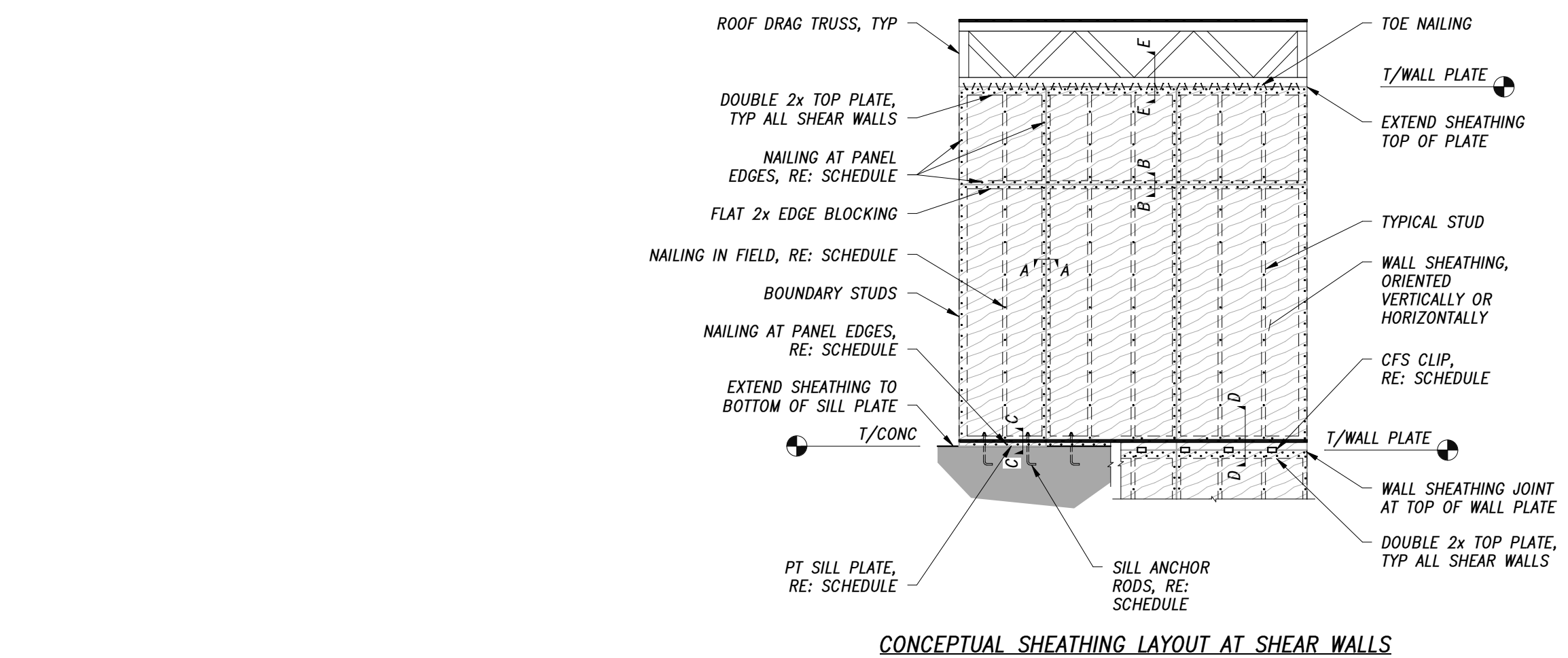
THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.



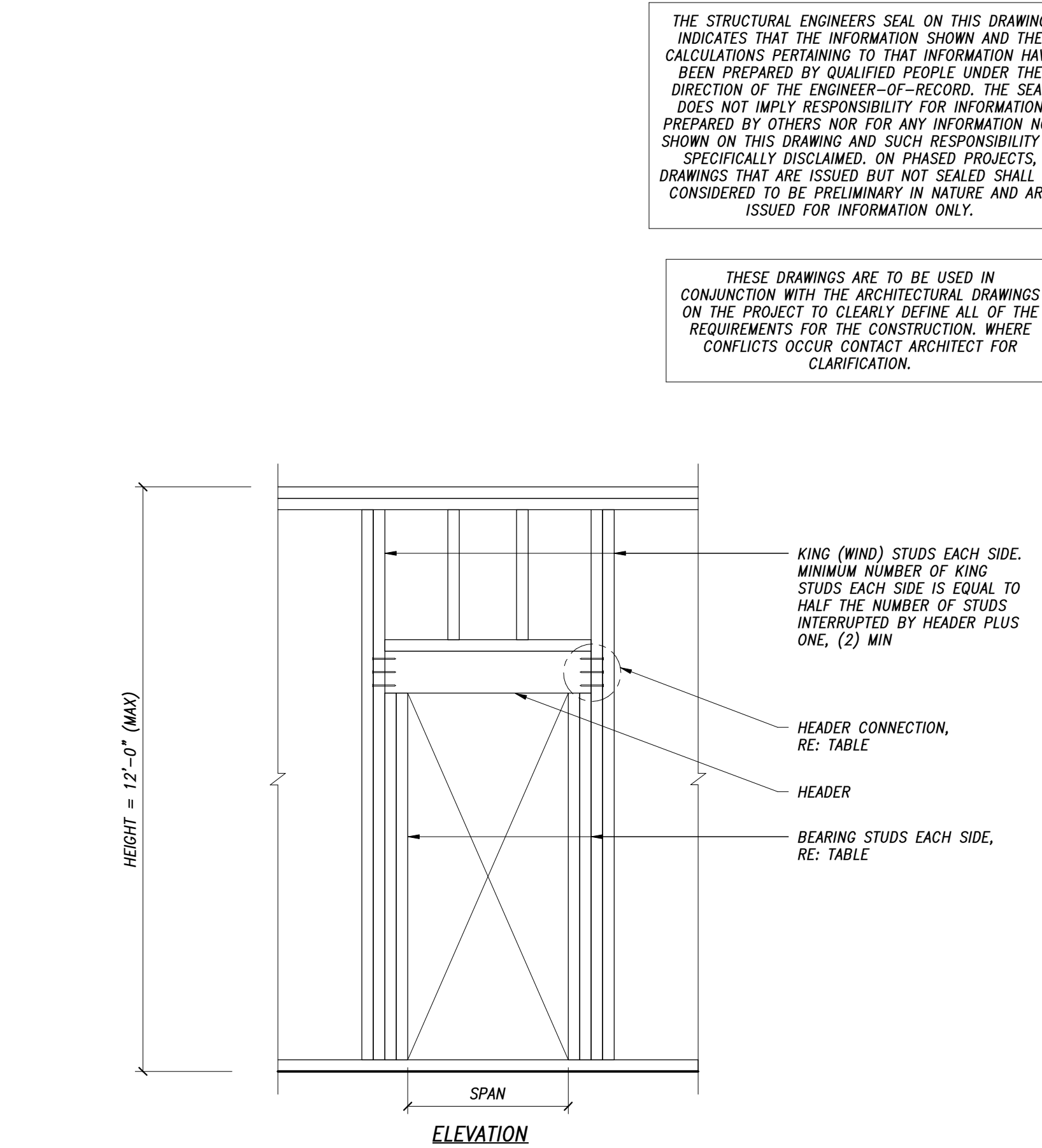
5 SIPS SHEAR WALL SCHEDULE
NTS



4 HANGER SCHEDULE
NTS



3 TYPICAL WOOD SHEAR WALLS - NAILING SCHEDULE AND DETAILS
NTS



HEADERS IN LOAD BEARING WALLS

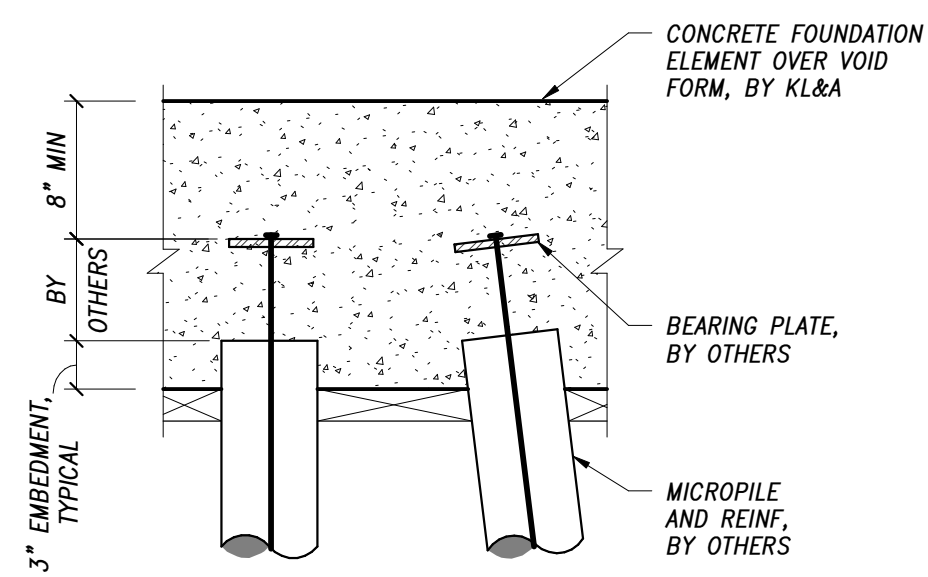
SPAN	DIMENSIONED LUMBER HEM-FIR	LSL ALTERNATES	LVL ALTERNATES	GLULAM ALTERNATES	NO OF BEARING STUDS EACH END	HEADER CONNECTION
3'-0"	(3) 2x6	(2) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	4x10d
4'-0"	(3) 2x6	(2) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	4x10d
5'-0"	(3) 2x8	(3) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	4x10d
6'-0"	(3) 2x10	(2) 1 3/4"x7 1/4"	(2) 1 3/4"x7 1/4"	3 1/2"x7 1/2"	2	6x10d
7'-0"	(3) 2x12	(2) 1 3/4"x8 1/2"	(3) 1 3/4"x7 1/4"	3 1/2"x7 1/2"	2	6x10d

RECOMMENDED HEADERS IN INTERIOR NON-LOAD BEARING WALLS¹⁰

SPAN	DIMENSIONED LUMBER HEM-FIR	LSL ALTERNATES	LVL ALTERNATES	GLULAM ALTERNATES	NO OF BEARING STUDS EACH END	HEADER CONNECTION
3'-0"	(2) 2x4	(2) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	2x10d
4'-0"	(3) 2x4	(2) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	2x10d
5'-0"	(2) 2x6	(2) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	2x10d
6'-0"	(3) 2x6	(2) 1 3/4"x5 1/2"	(2) 1 3/4"x5 1/2"	3 1/2"x6"	1	2x10d
7'-0"	(2) 2x8	(3) 1 3/4"x5 1/2"	(3) 1 3/4"x5 1/2"	3 1/2"x6"	1	2x10d
8'-0"	(3) 2x8	(2) 1 3/4"x7 1/4"	(2) 1 3/4"x7 1/4"	3 1/2"x7 1/2"	1	2x10d
9'-0"	(3) 2x10	(3) 1 3/4"x7 1/4"	(2) 1 3/4"x7 1/4"	3 1/2"x7 1/2"	1	2x10d
10'-0"	(3) 2x10	(2) 1 3/4"x8 1/2"	(3) 1 3/4"x7 1/4"	3 1/2"x7 1/2"	1	2x10d

NOTES:
1. THIS TABLE APPLIES TO HEADERS WHICH ARE NOT EXPLICITLY CALLED OUT ON PLAN WITH SPANS OF 7'-0" OR LESS.
2. HEADERS IN LOAD BEARING WALLS DESIGNED FOR 1000 PLF DEAD + LIVE LOAD/SNOW LOAD.
3. HEADERS IN NON-LOAD BEARING WALLS DESIGNED FOR 400 PLF DEAD + LIVE LOAD.
4. DIMENSIONED LUMBER HEADERS TO BE HEM-FIR No.2.
5. LVL = LAMINATED VENEER LUMBER: Fb = 2800 PSI, E = 2000 KSI
6. LSL = LAMINATED STRAND LUMBER: Fb = 2250 PSI, E = 1500 KSI
7. GLULAM GRADE IS 24E-F4 DF
8. LIVE LOAD DEFLECTION CRITERIA IS L/360
9. HEADERS SUPPORTING POINT LOADS FROM BEAMS OR COLUMNS SHOULD NOT BE SIZED FROM THIS TABLE. NOTIFY STRUCTURAL ENGINEER.
10. RE: ARCH FOR LOCATIONS OF NON-LOAD BEARING WALLS.

2 TYPICAL WOOD HEADER TABLE
NTS



MICROPILE FOUNDATION SCHEDULE

MARK	REQUIRED COMPRESSION CAPACITY (KIPS)	REQUIRED TENSION CAPACITY (KIPS)	ANGLE OF BATTERED MICROPILE RELATIVE TO VERTICAL (SEE NOTE 5)	REMARKS
P1	40	--	--	--
P2	65	--	--	--
P3	70	70	15°	--
P4	40	40	--	PILE UNDER CORE

NOTES:
1. REQUIRED CAPACITIES IN THIS TABLE ARE UNFACTORED/SERVICE LEVEL CAPACITIES.
2. RE: GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. MICROPILE DESIGNS BY SPECIALTY ENGINEER. MICROPILE CONNECTIONS BY SPECIALTY ENGINEER.
4. RE: PROJECT SPECIFICATIONS FOR TESTING REQUIREMENTS.
5. MICROPILE BATTERING ANGLE, θ , IS DEFINED IN THE DRAWING BELOW AND DIRECTION IS CALLED OUT ON PLAN:

CAP ABOVE

VERTICAL

θ

1 MICROPILE SCHEDULE
NTS



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PROJ. NO. 118185.00
DRAWN: LAJ/BWB
CHECKED: LAJ
APPROVED:DPD
DATE: 4/05/2019



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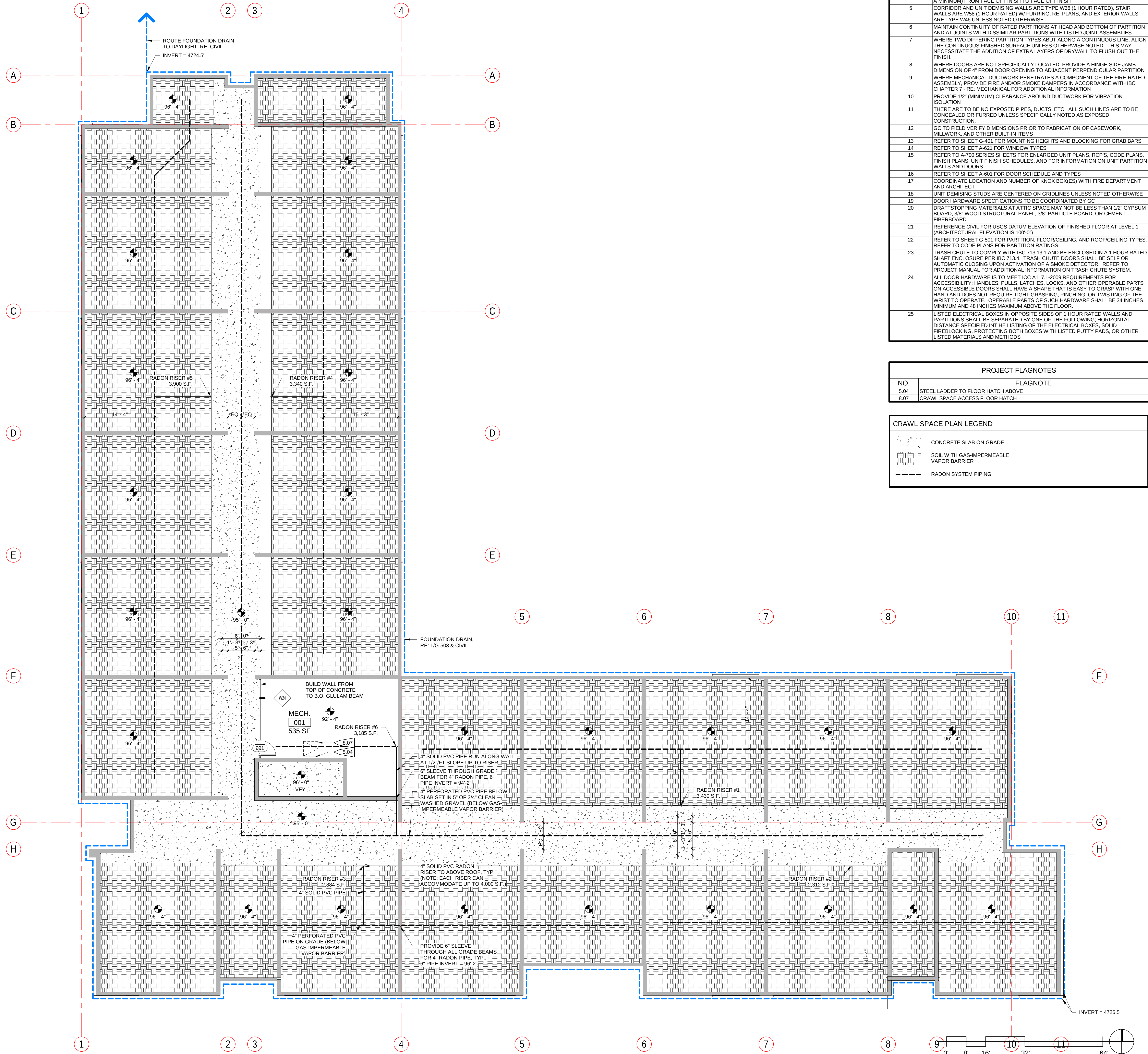
SHEET TITLE:
SCHEDULES

SCALE: As indicated
SHEET NUMBER

S-501

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4/5/2019 7:02:36 PM



1 CRAWL SPACE PLAN

GENERAL PLAN NOTES	
Key Name	Comments
1	ALL DIMENSIONS ARE TO FACE OF STUD OR CENTERLINE OF COLUMN OR WINDOW UNLESS NOTED OTHERWISE
2	FURNITURE IS NOT IN CONTRACT UNLESS NOTED OTHERWISE
3	ALL BUILDING AREAS SHALL BE FULLY SPRINKLERED PER NFPA-13R
4	WHERE "CLEAR" IS CALLED OUT ON A DIMENSION, PROVIDE DIMENSION NOTED (AT A MINIMUM) FROM FACE OF FINISH TO FACE OF FINISH
5	CORRIDOR AND UNIT DEMISING WALLS ARE TYPE W36 (1 HOUR RATED), STAIR WALLS ARE W36 (1 HOUR RATED) W/ FURRING, RE-PLANS, AND EXTERIOR WALLS ARE TYPE W46 UNLESS NOTED OTHERWISE
6	MAINTAIN CONTINUITY OF RATED PARTITIONS AT HEAD AND BOTTOM OF PARTITION AND AT JOINTS WITH DISSIMILAR PARTITIONS WITH LISTED JOINT ASSEMBLIES
7	WHERE TWO DIFFERING PARTITION TYPES ABUT ALONG A CONTINUOUS LINE, ALIGN THE CONTINUOUS FINISHED SURFACE UNLESS OTHERWISE NOTED. THIS MAY NECESSITATE THE ADDITION OF EXTRA LAYERS OF DRYWALL TO FLUSH OUT THE FINISH.
8	WHERE DOORS ARE NOT SPECIFICALLY LOCATED, PROVIDE A HINGE-SIDE JAMB DIMENSION OF 4" FROM DOOR OPENING TO ADJACENT PERPENDICULAR PARTITION.
9	WHERE MECHANICAL DUCTWORK PENETRATES A COMPONENT OF THE FIRE-RATED ASSEMBLY, PROVIDE FIRE AND/OR SMOKE DAMPERS IN ACCORDANCE WITH IBC CHAPTER 7 - RE. MECHANICAL FOR ADDITIONAL INFORMATION
10	PROVIDE 1/2" (MINIMUM) CLEARANCE AROUND DUCTWORK FOR VIBRATION ISOLATION
11	THERE ARE TO BE NO EXPOSED PIPES, DUCTS, ETC. ALL SUCH LINES ARE TO BE CONCEALED OR FURRED UNLESS SPECIFICALLY NOTED AS EXPOSED CONSTRUCTION
12	GC TO FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION OF CASEWORK, MILLWORK, AND OTHER BUILT-IN ITEMS
13	REFER TO SHEET G-401 FOR MOUNTING HEIGHTS AND BLOCKING FOR GRAB BARS
14	REFER TO SHEET A-621 FOR WINDOW TYPES
15	REFER TO A-700 SERIES SHEETS FOR ENLARGED UNIT PLANS, RCP'S, CODE PLANS, FINISH PLANS, UNIT FINISH SCHEDULES, AND FOR INFORMATION ON UNIT PARTITION WALLS AND DOORS
16	REFER TO SHEET A-601 FOR DOOR SCHEDULE AND TYPES
17	COORDINATE LOCATION AND NUMBER OF KNOX BOX(ES) WITH FIRE DEPARTMENT AND ARCHITECT
18	UNIT DEMISING STUDS ARE CENTERED ON GRIDLINES UNLESS NOTED OTHERWISE
19	DOOR HARDWARE SPECIFICATIONS TO BE COORDINATED BY GC
20	DRAFTSTOPPING MATERIALS AT ATTIC SPACE MAY NOT BE LESS THAN 1/2" GYPSUM BOARD, 3/8" WOOD STRUCTURAL PANEL, 3/8" PARTICLE BOARD, OR CEMENT FIBERBOARD
21	REFERENCE CIVIL FOR USGS DATUM ELEVATION OF FINISHED FLOOR AT LEVEL 1 (ARCHITECTURAL ELEVATION IS 100'-0")
22	REFER TO SHEET G-501 FOR PARTITION, FLOOR/CEILING, AND ROOF/CEILING TYPES. REFER TO CODE PLANS FOR PARTITION RATINGS.
23	TRASH CHUTE TO COMPLY WITH IBC 713.13.1 AND BE ENCLOSED IN A 1 HOUR RATED SHAFT ENCLOSURE PER IBC 713.4. TRASH CHUTE DOORS SHALL BE SELF OR AUTOMATIC CLOSING UPON ACTIVATION OF A SMOKE DETECTOR. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON TRASH CHUTE SYSTEM.
24	ALL DOOR HARDWARE IS TO MEET ICC A117.1-2009 REQUIREMENTS FOR ACCESSIBILITY: 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 INCHES MINIMUM AND 48 INCHES MAXIMUM ABOVE THE FLOOR.
25	LISTED ELECTRICAL BOXES IN OPPOSITE SIDES OF 1 HOUR RATED WALLS AND PARTITIONS SHALL BE SEPARATED BY ONE OF THE FOLLOWING: HORIZONTAL DISTANCE SPECIFIED IN THE LISTING OF THE ELECTRICAL BOXES, SOLID FIREBLOCKING, PROTECTING BOTH BOXES WITH LISTED PUTTY PADS, OR OTHER LISTED MATERIALS AND METHODS

PROJECT FLAGNOTES	
NO.	FLAGNOTE
5.04	STEEL LADDER TO FLOOR HATCH ABOVE
8.07	CRAWL SPACE ACCESS FLOOR HATCH

CRAWL SPACE PLAN LEGEND	
	CONCRETE SLAB ON GRADE
	SOIL WITH GAS-IMPERMEABLE VAPOR BARRIER
	RADON SYSTEM PIPING



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APPROVED: OZ
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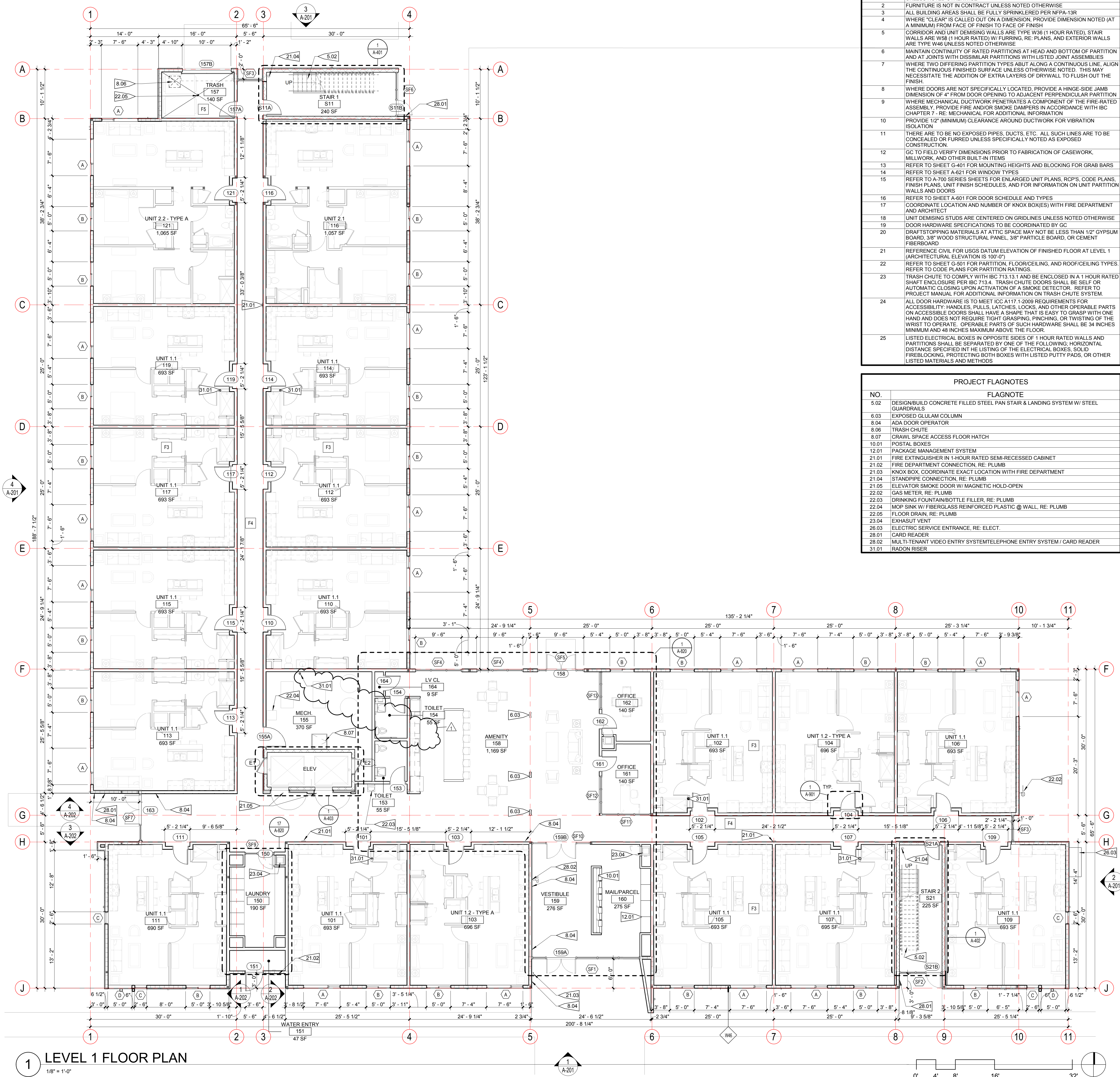
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DOCUMENTS

SHEET TITLE:
CRAWL SPACE PLAN

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

A-100

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1 LEVEL 1 FLOOR PLAN
1/8" = 1'-0"

GENERAL PLAN NOTES	
Key Name	Comments
1	ALL DIMENSIONS ARE TO FACE OF STUD OR CENTERLINE OF COLUMN OR WINDOW UNLESS NOTED OTHERWISE
2	FURNITURE IS NOT IN CONTRACT UNLESS NOTED OTHERWISE
3	ALL BUILDING AREAS SHALL BE FULLY SPRINKLERED PER NFPA-13R
4	WHERE "CLEAR" IS CALLED OUT ON A DIMENSION, PROVIDE DIMENSION NOTED (AT A MINIMUM) FROM FACE OF FINISH TO FACE OF FINISH
5	CORRIDOR AND UNIT DEMISING WALLS ARE TYPE W38 (1 HOUR RATED), STAIR WALLS ARE W38 (1 HOUR RATED) W/ FURNITURE PLANS, AND EXTERIOR WALLS ARE TYPE W46 UNLESS NOTED OTHERWISE
6	MAINTAIN CONTINUITY OF RATED PARTITIONS AT HEAD AND BOTTOM OF PARTITION AND AT JOINTS WITH DISSIMILAR PARTITIONS WITH LIGRO, JOINT ASSEMBLIES
7	WHERE TWO DIFFERING PARTITION TYPES ABUT ALONG A CONTINUOUS LINE, ALIGN THE CONTINUOUS FINISHED SURFACE UNLESS OTHERWISE NOTED. THIS MAY NECESSITATE THE ADDITION OF EXTRA LAYERS OF DRYWALL TO FLUSH OUT THE FINISH.
8	WHERE DOORS ARE NOT SPECIFICALLY LOCATED, PROVIDE A HINGE-SIDE JAMB DIMENSION OF 4" FROM DOOR OPENING TO ADJACENT PERPENDICULAR PARTITION
9	WHERE MECHANICAL DUCTWORK PENETRATES A COMPONENT OF THE FIRE-RATED ASSEMBLY, PROVIDE FIRE AND/OR SMOKE DAMPERS IN ACCORDANCE WITH IBC CHAPTER 7 - RE: MECHANICAL FOR ADDITIONAL INFORMATION
10	PROVIDE 1/2" (MINIMUM) CLEARANCE AROUND DUCTWORK FOR VIBRATION ISOLATION
11	THERE ARE TO BE NO EXPOSED PIPES, DUCTS, ETC. ALL SUCH LINES ARE TO BE CONCEALED OR FURRED UNLESS SPECIFICALLY NOTED AS EXPOSED CONSTRUCTION
12	GC TO FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION OF CASEWORK, MILLWORK, AND OTHER BUILT-IN ITEMS
13	REFER TO SHEET G-401 FOR MOUNTING HEIGHTS AND BLOCKING FOR GRAB BARS
14	REFER TO SHEET A-421 FOR WINDOW TYPES
15	REFER TO A-700 SERIES SHEETS FOR ENLARGED UNIT PLANS, RCP'S, CODE PLANS, FINISH PLANS, UNIT FINISH SCHEDULES, AND FOR INFORMATION ON UNIT PARTITION WALLS AND DOORS
16	REFER TO SHEET A-601 FOR DOOR SCHEDULE AND TYPES
17	COORDINATE LOCATION AND NUMBER OF KNOX BOXES) WITH FIRE DEPARTMENT AND ARCHITECT
18	UNIT DEMISING STUDS ARE CENTERED ON GRIDLINES UNLESS NOTED OTHERWISE
19	DOOR HARDWARE SPECIFICATIONS TO BE COORDINATED BY GC
20	DRAFTSTOPPING MATERIALS AT ATTIC SPACE MAY NOT BE LESS THAN 1/2" GYPSUM BOARD, 3/8" WOOD STRUCTURAL PANEL, 3/8" PARTICLE BOARD, OR CEMENT FIBERBOARD
21	REFERENCE CIVIL FOR USGS DATUM ELEVATION OF FINISHED FLOOR AT LEVEL 1 (ARCHITECTURAL ELEVATION IS 100'-0")
22	REFER TO SHEET G-501 FOR PARTITION, FLOOR/CEILING, AND ROOF/CEILING TYPES. REFER TO CODE PLANS AND FOR PARTITION RATINGS
23	TRASH CHUTE TO COMPLY WITH IBC 713.13.1 AND BE ENCLOSED IN A 1 HOUR RATED SHAFT ENCLOSURE PER IBC 713.4. TRASH CHUTE DOORS SHALL BE SELF OR AUTOMATIC CLOSING UPON ACTIVATION OF A SMOKE DETECTOR. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON TRASH CHUTE SYSTEM
24	ALL DOOR HARDWARE IS TO MEET ICC A117.1-2009 REQUIREMENTS FOR ACCESSIBILITY: 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 INCHES MINIMUM AND 46 INCHES MAXIMUM ABOVE THE FLOOR
25	LISTED ELECTRICAL BOXES IN OPPOSITE SIDES OF 1 HOUR RATED WALLS AND PARTITIONS SHALL BE SEPARATED BY ONE OF THE FOLLOWING: HORIZONTAL DISTANCE SPECIFIED IN THE LISTING OF THE ELECTRICAL BOXES; SOLID FIREBLOCKING, PROTECTING BOTH BOXES WITH LISTED PUTTY PADS, OR OTHER LISTED MATERIALS AND METHODS

PROJECT FLAGNOTES	
NO.	FLAGNOTE
5.02	DESIGN/BUILD CONCRETE FILLED STEEL PAN STAIR & LANDING SYSTEM W/ STEEL GUARDRAILS
6.03	EXPOSED GLULAM COLUMN
8.04	ADA DOOR OPERATOR
8.06	TRASH CHUTE
8.07	CRAWL SPACE ACCESS FLOOR HATCH
10.01	POSTAL BOXES
12.01	PACKAGE MANAGEMENT SYSTEM
21.01	FIRE EXTINGUISHER IN 1-HOUR RATED SEMI-RECESSED CABINET
21.02	FIRE DEPARTMENT CONNECTION, RE: PLUMB
21.03	KNOX BOX, COORDINATE EXACT LOCATION WITH FIRE DEPARTMENT
21.04	STANDPIPE CONNECTION, RE: PLUMB
21.05	ELEVATOR SMOKE DOOR W/ MAGNETIC HOLD-OPEN
22.02	GAS METER, RE: PLUMB
22.03	DRINKING FOUNTAIN/BOTTLE FILLER, RE: PLUMB
22.04	MOP SINK W/ FIBERGLASS REINFORCED PLASTIC @ WALL, RE: PLUMB
22.05	FLOOR DRAIN, RE: PLUMB
23.04	EXHAUST VENT
26.03	ELECTRIC SERVICE ENTRANCE, RE: ELECT.
28.01	CARD READER
28.02	MULTI-TENANT VIDEO ENTRY SYSTEM/TELEPHONE ENTRY SYSTEM / CARD READER
31.01	RADON RISER



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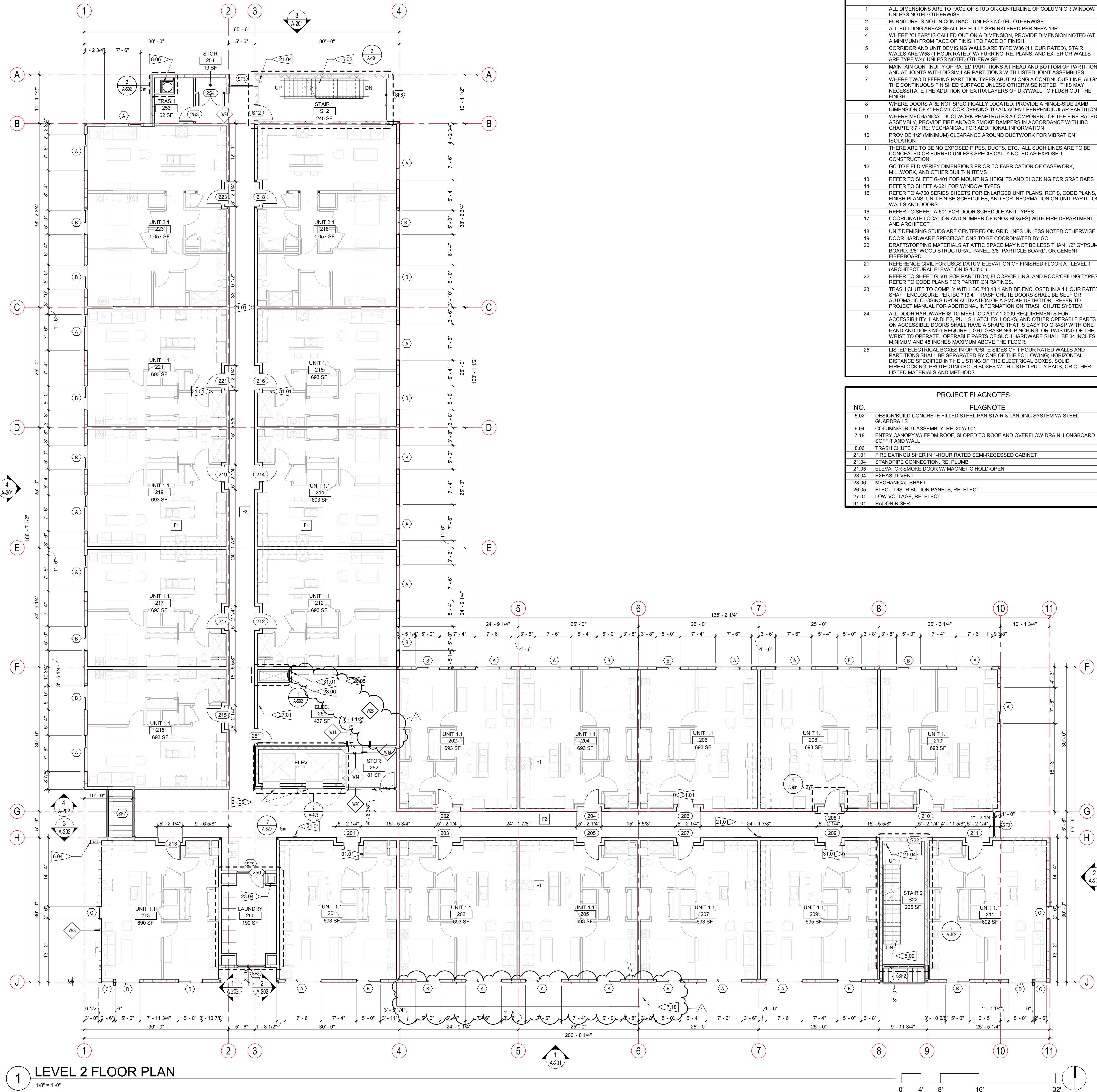
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100% CONSTRUCTION
DOCUMENTS

SHEET TITLE:
LEVEL 1 FLOOR PLAN

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

A-101

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GENERAL PLAN NOTES	
Key Name	Comments
1	ALL DIMENSIONS ARE TO FACE OF STUD OR CENTERLINE OF COLUMN OR WINDOW UNLESS NOTED OTHERWISE
2	FURNITURE IS NOT IN CONTRACT UNLESS NOTED OTHERWISE
3	ALL BUILDING AREAS SHALL BE FULLY SPRINKLERED PER NFPA-13R
4	WHERE "CLEAR" IS CALLED OUT ON A DIMENSION, PROVIDE DIMENSION NOTED (AT A MINIMUM) FROM FACE OF FINISH TO FACE OF FINISH
5	CORRIDOR AND UNIT DEMISING WALLS ARE TYPE W36 (1 HOUR RATED), STAIR WALLS ARE W55 (1 HOUR RATED) W/ FURRING, RE. PLANS, AND EXTERIOR WALLS ARE TYPE W46 UNLESS NOTED OTHERWISE
6	MAINTAIN CONTINUITY OF RATED PARTITIONS AT HEAD AND BOTTOM OF PARTITION AND AT JOINTS WITH DISSIMILAR PARTITIONS WITH LISTED JOINT ASSEMBLIES
7	WHERE TWO DIFFERING PARTITION TYPES ABUT ALONG A CONTINUOUS LINE, ALIGN THE CONTINUOUS FINISHED SURFACE UNLESS OTHERWISE NOTED. THIS MAY NECESSITATE THE ADDITION OF EXTRA LAYERS OF DRYWALL TO FLUSH OUT THE FINISH.
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22	REFER TO SHEET G-501 FOR PARTITION, FLOOR/CEILING, AND ROOF/CEILING TYPES. REFER TO CODE PLANS FOR PARTITION RATINGS
23	TRASH CHUTE TO COMPLY WITH IBC 713.13.1 AND BE ENCLOSED IN A 1 HOUR RATED SHAFT ENCLOSURE PER IBC 713.4. TRASH CHUTE DOORS SHALL BE SELF OR AUTOMATIC CLOSING UPON ACTIVATION OF A SMOKE DETECTOR. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON TRASH CHUTE SYSTEM.
24	ALL DOOR HARDWARE IS TO MEET ICC A117.1-2009 REQUIREMENTS FOR ACCESSIBILITY: 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 INCHES MINIMUM AND 46 INCHES MAXIMUM ABOVE THE FLOOR.
25	LISTED ELECTRICAL BOXES IN OPPOSITE SIDES OF 1 HOUR RATED WALLS AND PARTITIONS SHALL BE SEPARATED BY ONE OF THE FOLLOWING: HORIZONTAL DISTANCE SPECIFIED IN THE LISTING OF THE ELECTRICAL BOXES; SOLID FIREBLOCKING, PROTECTING BOTH BOXES WITH LISTED PUTTY PADS, OR OTHER LISTED MATERIALS AND METHODS

PROJECT FLAGNOTES	
NO.	FLAGNOTE
5.02	DESIGN/BUILD CONCRETE FILLED STEEL PAN STAIR & LANDING SYSTEM W/ STEEL GUARDRAILS
6.04	COLUMN/STRUT ASSEMBLY, RE: 20A-501
7.18	ENTRY CANOPY W/ EPDM ROOF, SLOPED TO ROOF AND OVERFLOW DRAIN, LONGBOARD SOFFIT AND WALL
8.06	TRASH CHUTE
21.01	FIRE EXTINGUISHER IN 1-HOUR RATED SEMI-RECESSED CABINET
21.04	STANDPIPE CONNECTION, RE: PLUMB
21.05	ELEVATOR SMOKE DOOR W/ MAGNETIC HOLD-OPEN
23.04	EXHAUST VENT
23.06	MECHANICAL SHAFT
26.05	ELECT. DISTRIBUTION PANELS, RE: ELECT
27.01	LOW VOLTAGE, RE: ELECT
31.01	RADON RISER



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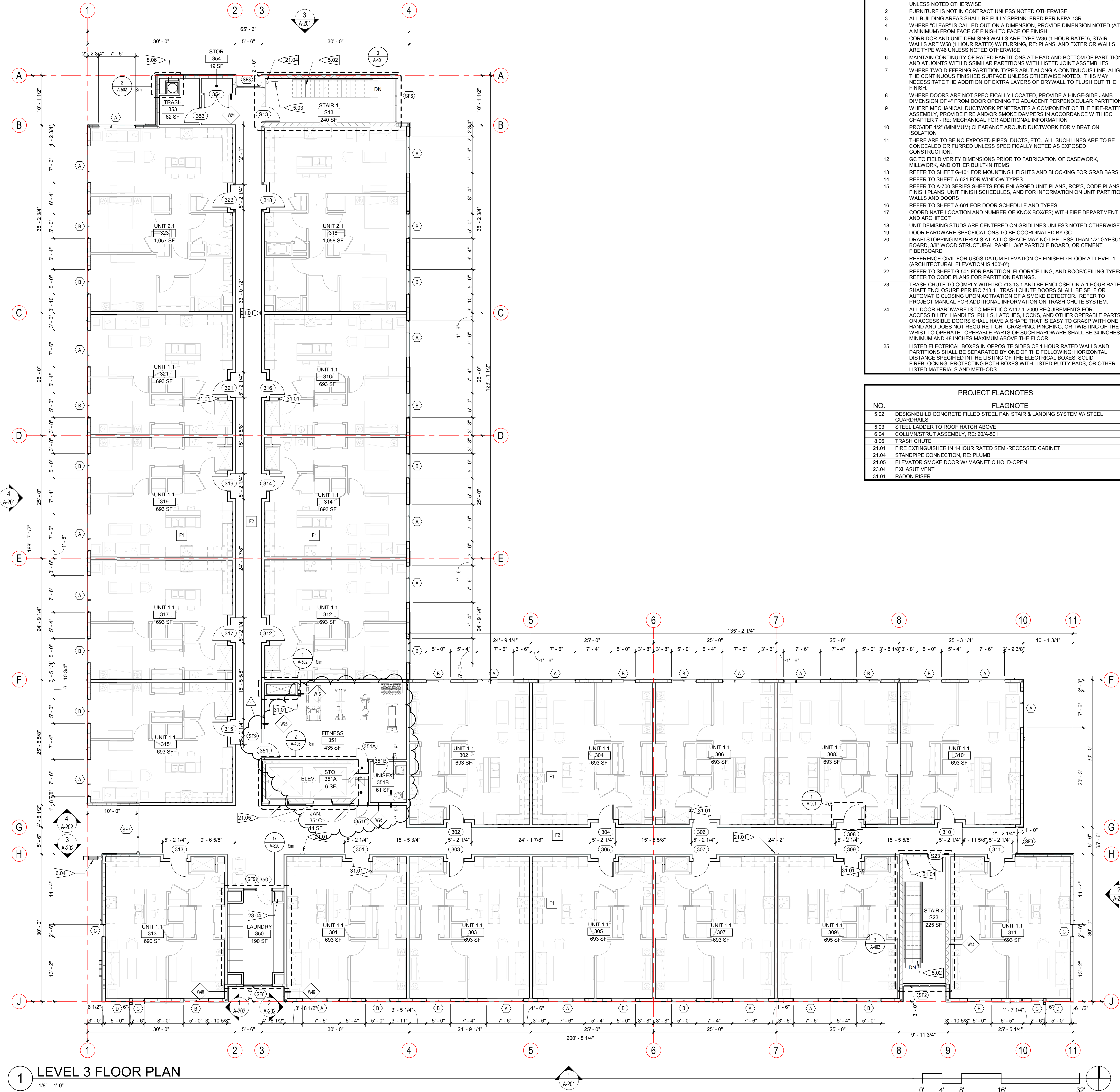
ISSUED FOR:
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DOCUMENTS

SHEET TITLE:
LEVEL 2 FLOOR PLAN

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

A-102

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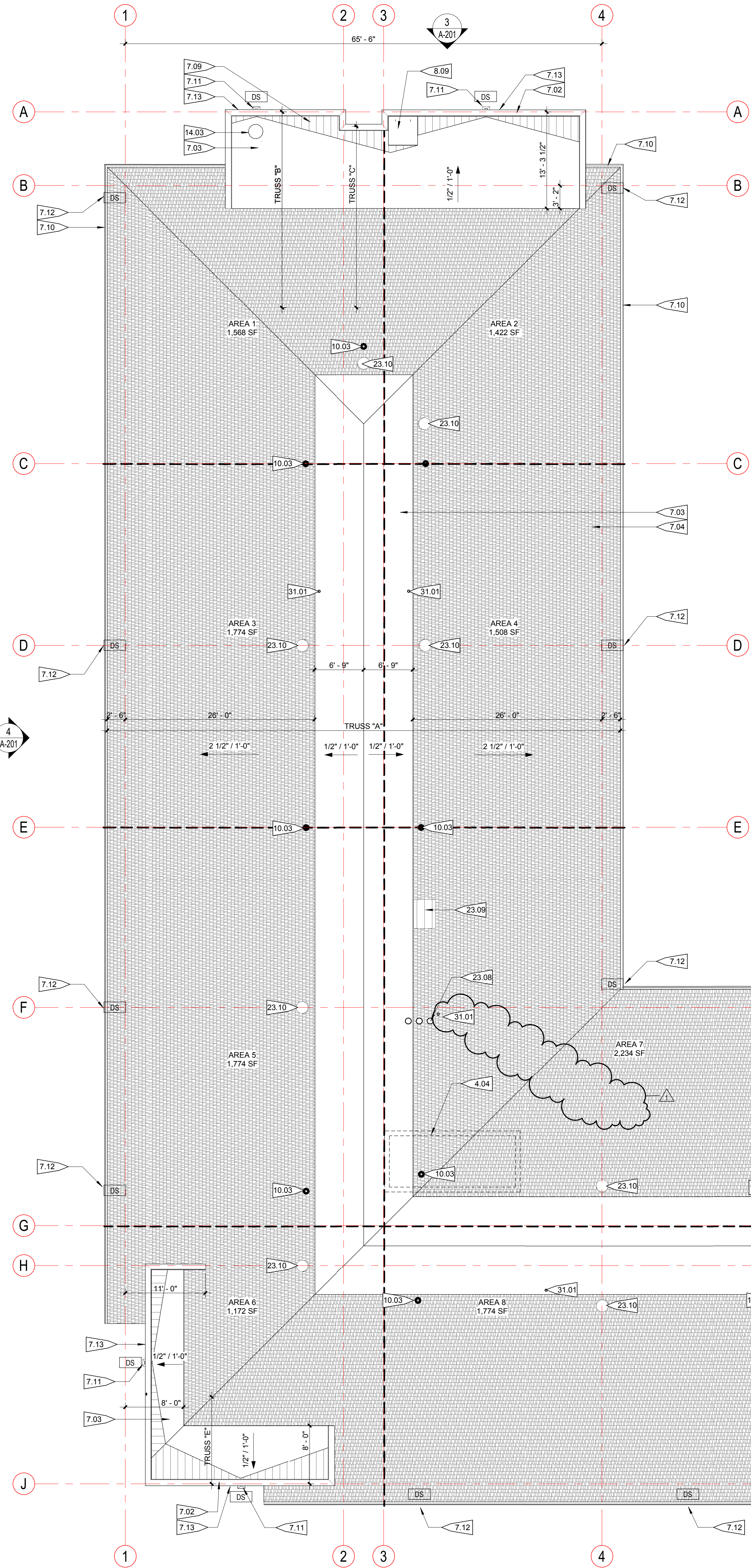
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SHEET TITLE:
LEVEL 3 FLOOR PLAN

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

A-103

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1 ROOF PLAN
1/8" = 1'-0"

Master Flow® Power Attic Vent – Roof Mount
ERV4, ERV5, & ERV6 Basic Specification Sheet

- **Cool The Attic...** Help remove hot and humid air from the attic
- **PSC Motors...** Permanent split capacitor motors provide enhanced efficiency
- **Resists Infestation...** Heavy-duty internal screen helps prevent animal infestation
- **Weather-Resistant...** Pass the 110 mph wind-driven rain test*

*Under controlled laboratory testing

ERV4
➤ For attics up to 1,600 sq. ft.
➤ 1,000 cubic feet per minute airflow
➤ Adjustable thermostat
➤ Colors: Mill, Black, Brown, Weathered Wood
➤ 5-year ltd. warranty with 2-year Labor Plus Protection**

ERV5
➤ For attics up to 2,200 sq. ft.
➤ 1,250 cubic feet per minute airflow
➤ Adjustable thermostat, optional humidistat available
➤ Colors: Mill, Black, Brown, Weathered Wood
➤ Optional humidistat/thermostat available
➤ 10-year ltd. warranty with 3-year Labor Plus Protection**

ERV6
➤ For attics up to 2,800 sq. ft.
➤ 1,500 cubic feet per minute airflow
➤ Adjustable thermostat, optional humidistat available
➤ Color: ShingleMatch® Weathered Wood
➤ 10-year ltd. warranty with 5-year Labor Plus Protection**

** See Master Flow® Powered Ventilation Products Ltd. Warranty for complete coverage and restrictions

Total Attic Size (Sq. Ft.)	Recommended Power Attic Vent	Minimum Intake Ventilation Needed (Net Free Area in Sq. In.)
Up to 1600	ERV4	480
Up to 2200	ERV5	600
Up to 2800	ERV6	720

Image of Master Flow Power Attic Vent unit with Miami-Dade Product Control Approval label.

AREA 1 1,568 S.F.
• LOW: 540 SQ. IN.
• HIGH: ERV4

AREA 2 1,422 S.F.
• LOW: 440 SQ. IN.
• HIGH: ERV4

AREA 3 1,774 S.F.
• LOW: 500 SQ. IN.
• HIGH: ERV4

AREA 4 1,508 S.F.
• LOW: 500 SQ. IN.
• HIGH: ERV4

AREA 5 1,774 S.F.
• LOW: 550 SQ. IN.
• HIGH: ERV4

AREA 6 1,172 S.F.
• LOW: 300 SQ. IN.
• HIGH: ERV4

AREA 7 2,234 S.F.
• LOW: 440 SQ. IN.
• HIGH: ERV5

AREA 8 1,774 S.F.
• LOW: 540 SQ. IN.
• HIGH: ERV4

AREA 9 1,508 S.F.
• LOW: 500 SQ. IN.
• HIGH: ERV4

AREA 10 1,774 S.F.
• LOW: 500 SQ. IN.
• HIGH: ERV4

AREA 11 1,508 S.F.
• LOW: 860 SQ. IN.
• HIGH: ERV4

AREA 12 2,089 S.F.
• LOW: 500 SQ. IN.
• HIGH: ERV5

ROOF VENTILATION CALCULATIONS

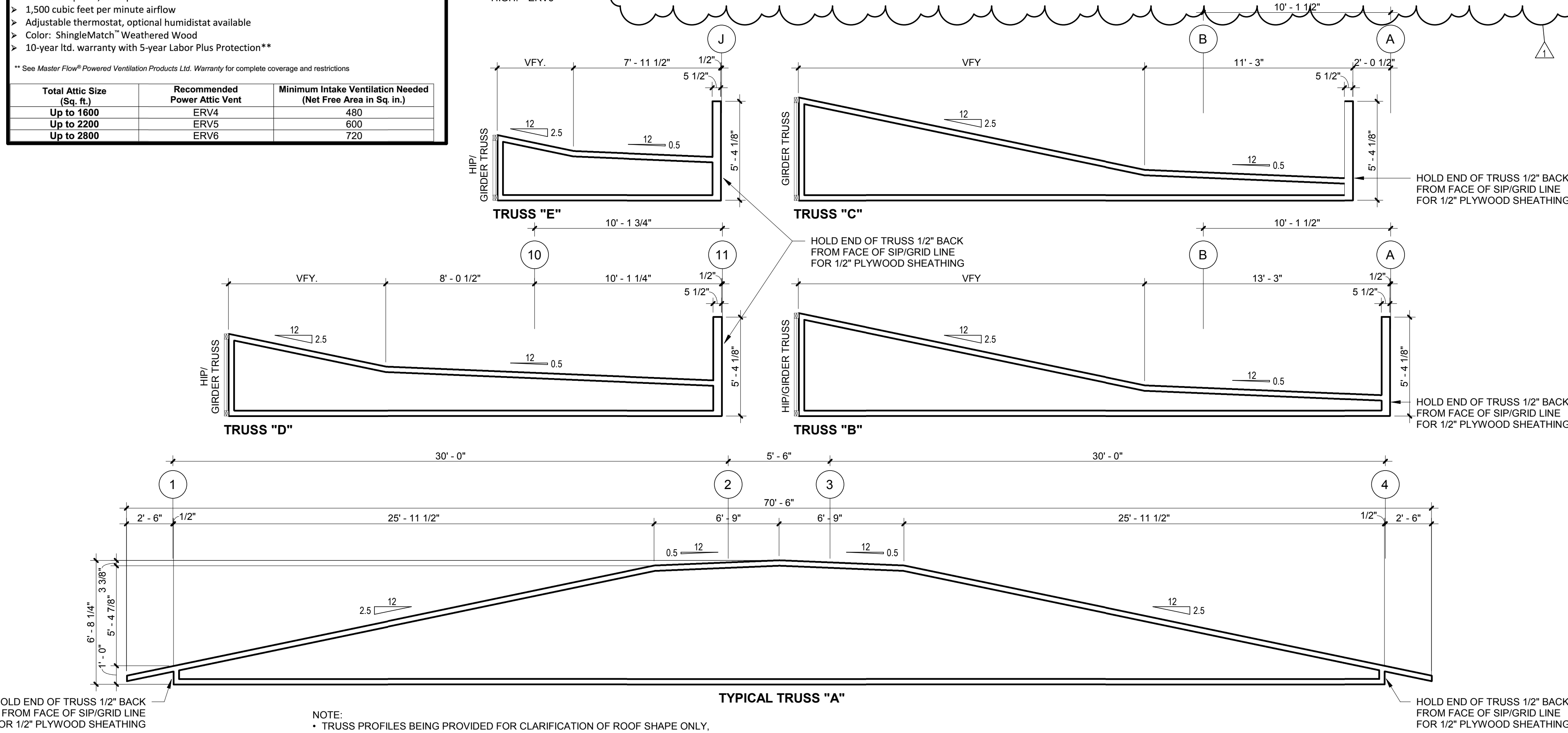
- PER IRC 1203.2, EXCEPTION 1: ATTIC SPACES SHALL HAVE A NET FREE VENTILATING AREA OF NOT LESS THAN 1/300TH OF THE AREA OF THE SPACE VENTILATED PROVIDED THAT NOT LESS THAN 50% OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE, AT LEAST 3' ABOVE THE EAVE VENTS, WITH THE BALANCE OF THE VENTILATION PROVIDED BY EAVE VENTS
- ROOF EAVE VENTS ARE CALCULATED USING LP SMARTSIDE VENTILATED SOFFIT PANELS, WHICH HAVE A NET FREE VENTILATING AREA OF 10.0 SQ. IN./L.F.
- RIDGE VENTS ARE CALCULATED USING GAF MASTER FLOW POWER ATTIC VENTS ERV4 OR ERV5, REFER TO NOTES AND CUT SHEET FOR WHICH VENTS GO AT WHICH ROOF AREA
- IF GC PROPOSES ALTERNATE VENTS, GC MUST PROVIDE CALCULATIONS SHOWING ALTERNATES VENTS PROVIDE THE CODE-REQUIRED VENTILATION

ROOF AREA: 20,257 S.F.
VENTILATING AREA REQUIRED: 20,257 S.F. / 300 = 67.5 S.F. (144) = 9,723 SQ. IN.
LOW VENTILATION PROVIDED: 10.0 SQ. IN./L.F. (604') = 6,040 SQ. IN.
HIGH VENTILATION PROVIDED: REFER TO NOTES TO THE LEFT

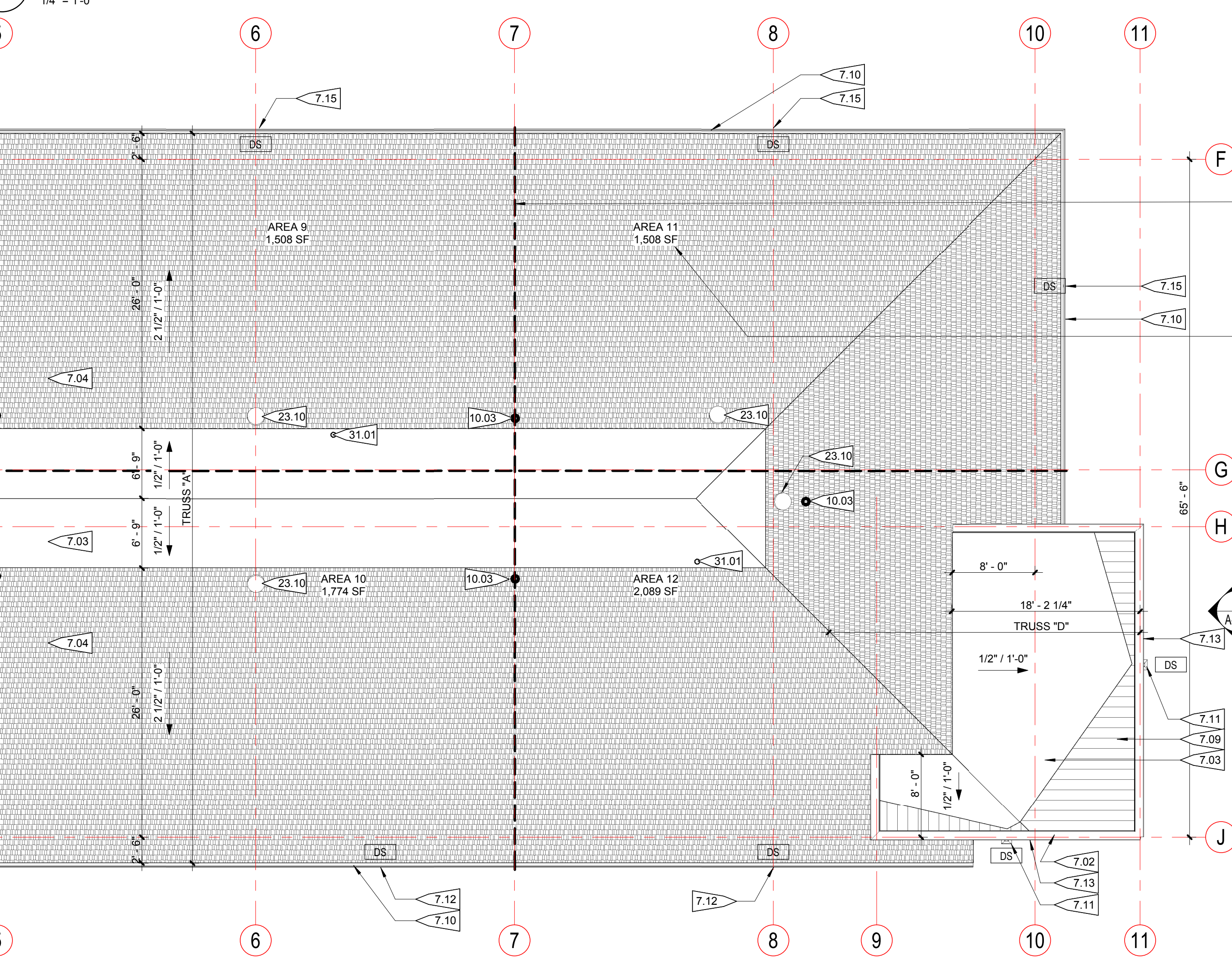
ROOF PLAN NOTES

- 1 MAINTAIN MINIMUM SLOPE OF 1/4" PER FOOT AT ROOF AREAS (INCLUDING CRICKETS). SLOPE VALLEYS A MINIMUM OF 1/8" PER FOOT.
- 2 RADON VENTS TO RUN STRAIGHT UP THROUGH ROOF BUT ALL OTHER PLUMBING VENTS AND ROOF PENETRATIONS ARE TO BE COLLECTED INTO A MINIMUM NUMBER OF ROOF PENETRATIONS (AS CODE ALLOWS) AND ROUTED TO THE BACK SIDE OF THE ROOF. SO NOT VISIBLE FROM PATTERSON ROAD DRAINS.
- 3 OVERFLOW LAMB'S TONGUE DRAINS ARE TO BE 2" ABOVE PRIMARY ROOF DRAINS.
- 4 PROVIDE TOP-HINGED PANELS THROUGH DRAFTSTOPPING TO PROVIDE ACCESS TO ALL SEPARATE DRAFTSTOPPED AREAS

PROJECT FLAGNOTES	
NO.	FLAGNOTE
4.04	CMU ELEVATOR CORE BELOW. BUILD TO UNDERSIDE OF ROOF SHEATHING
7.02	PREFINISHED SHEET METAL PARAPET CAP FLASHING
7.03	EPDM ROOFING
7.04	ASPHALT SHINGLE ROOFING
7.09	CRICKET. AS REQ'D TO MAINTAIN 1/4" / FOOT SLOPE
7.10	GUTTER
7.11	THRU WALL SCUPPER / CONDUCTOR HEAD / DOWNSPOUT
7.12	DOWNSPOUT
7.13	OVERFLOW LAMB'S TONGUE
7.15	STUCCO CONTROL JOINT
8.09	ROOF HATCH WITH SAFETY RAILING
10.03	ROOF ANCHOR
14.03	TRASH CHUTE VENT THROUGH ROOF
23.08	MECHANICAL VENTS UP FROM BELOW. RE: MECH.
23.09	GRAVITY RELIEF VENTILATOR ON MANUFACTURER-SUPPLIED ALUMINUM ROOF CRACK. PER CRACK
26.10	POWERED ROOF VENT. RE: ROOF VENT CALCS FOR MODEL # AT EACH DRAFTSTOPPED ROOF AREA
31.01	RADON RISER



2 TRUSS PROFILES
1/4" = 1'-0"



DRAFTSTOPPING IN ATTIC PER IRC 718.4, IN LINE WITH UNIT DEMISING WALL BELOW. PROVIDE ACCESS DOOR AT DRAFTSTOPPING BETWEEN TWO SIDES OF ATTIC. TYP. / OR PROVIDE 1-HOUR RATED ATTIC ACCESS HATCHES AT LEVEL 3 BELOW AT EACH DRAFTSTOPPED AREA. DRAFTSTOPPING MATERIALS PER IRC 718.3.1 INCLUDE GYPSUM BOARD, WOOD STRUCTURAL PANELS, OSB, 1-INCH NOMINAL LUMBER, CEMENT FIBERBOARD, BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER, OR OTHER APPROVED MATERIALS ADEQUATELY SUPPORTED.

ROOF VENTILATION CALCULATIONS PER IRC 1203.2: ATTIC SPACES SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE. NET FREE VENTILATING AREA SHALL BE NOT LESS THAN 1/300 OF THE AREA OF THE SPACE VENTILATED (PER EXCEPTION 2). SEE PLAN FOR AREAS 1-12.

NOTE:

- RADON VENTS TO RUN STRAIGHT UP THROUGH ROOF BUT ALL OTHER PLUMBING VENTS AND ROOF PENETRATIONS ARE TO BE COLLECTED INTO A MINIMUM NUMBER OF ROOF PENETRATIONS (AS CODE ALLOWS) AND ROUTED TO THE BACK SIDE OF THE ROOF, SO NOT VISIBLE FROM PATTERSON ROAD
- PROVIDE TOP-HINGED PANELS THROUGH DRAFTSTOPPING TO PROVIDE ACCESS TO ALL SEPARATE DRAFTSTOPPED AREAS

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ROOF PLAN

SCALE: As indicated
SHEET NUMBER

A-104



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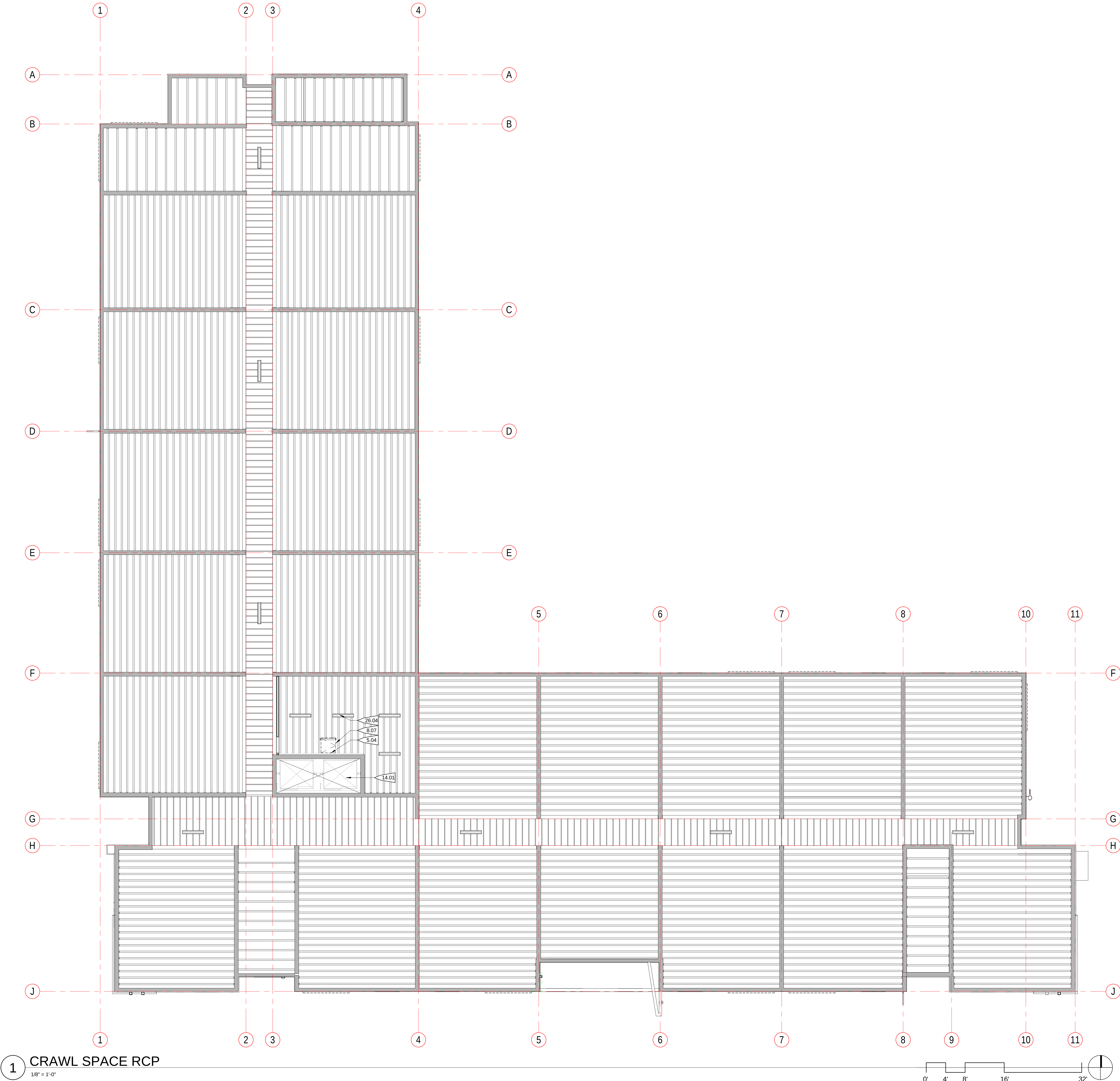
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SHEET TITLE:
CRAWL SPACE RCP

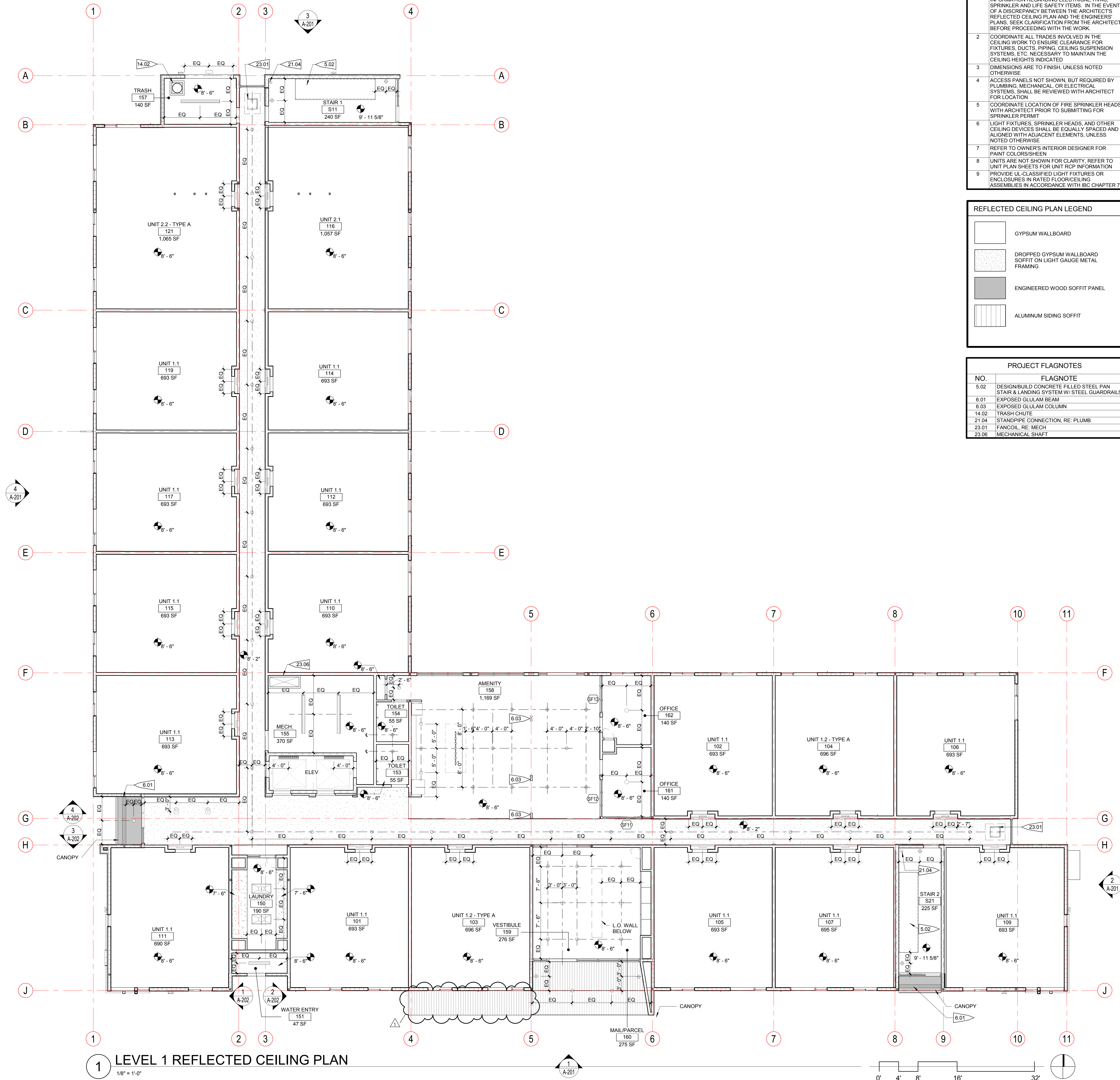
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SHEET NUMBER

A-130

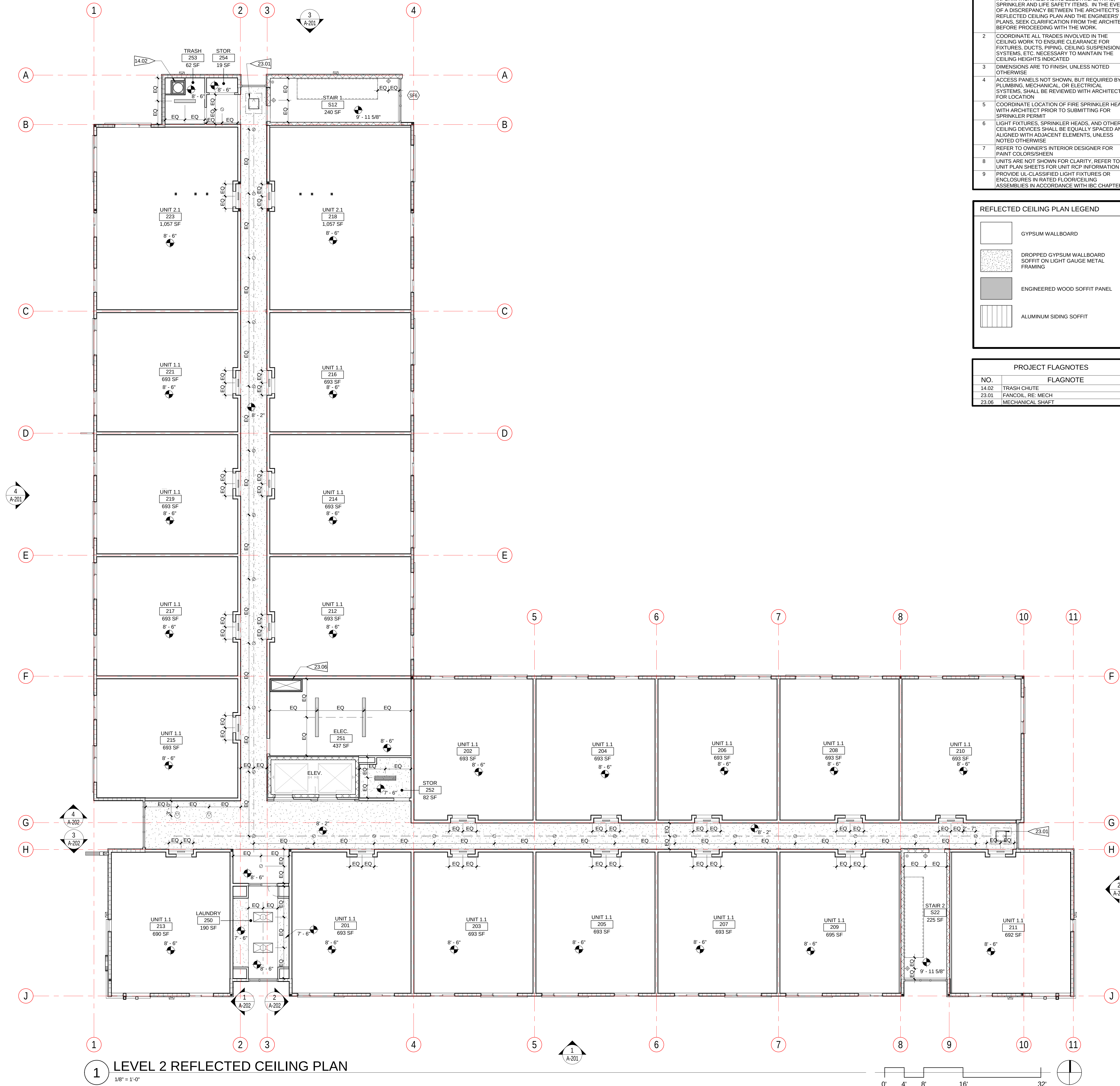


1 CRAWL SPACE RCP
1/8" = 1'-0"

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SHEET TITLE:
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SCALE: As indicated
SHEET NUMBER

A-132



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SHEET TITLE:
LEVEL 3 RCP

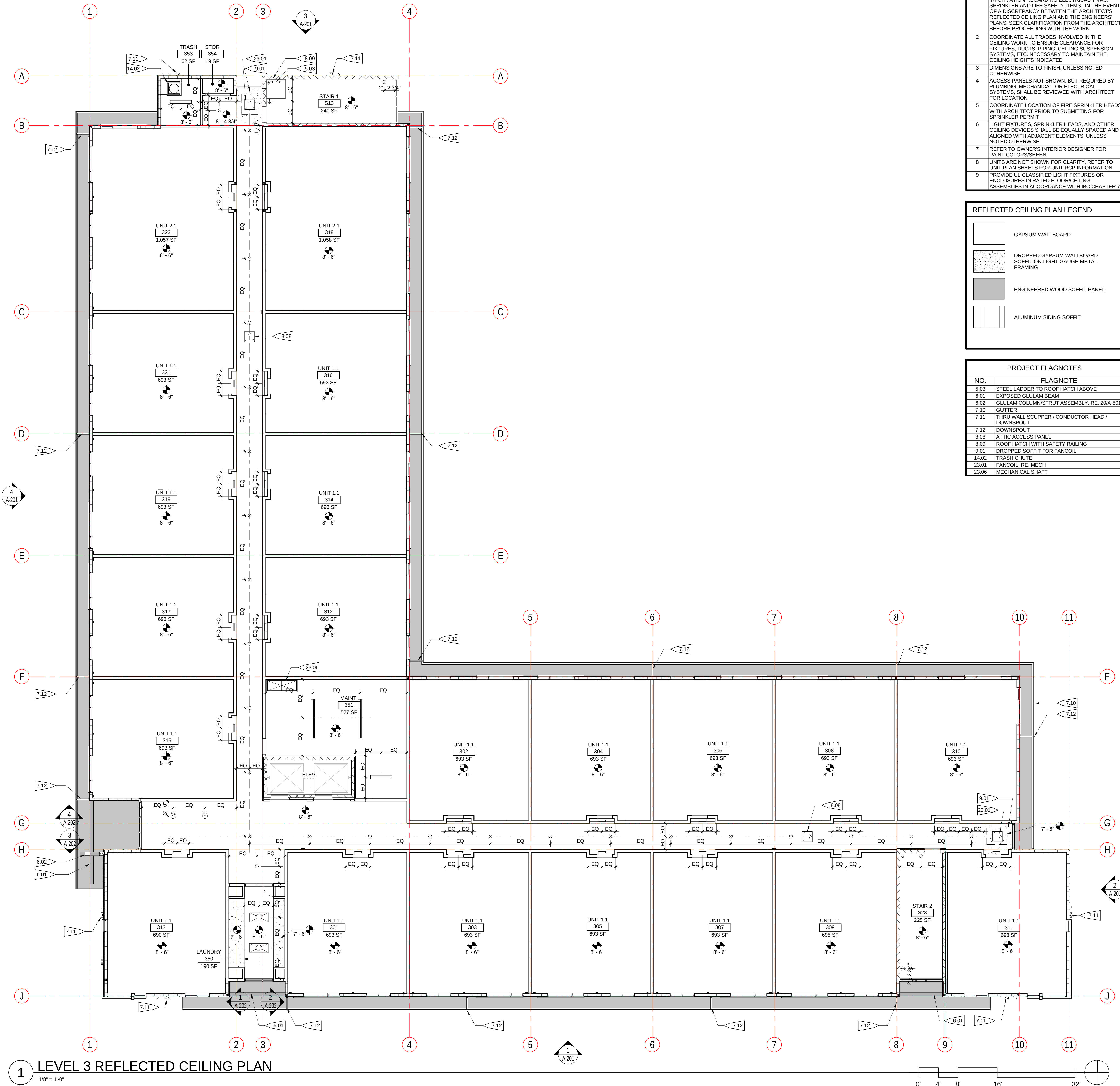
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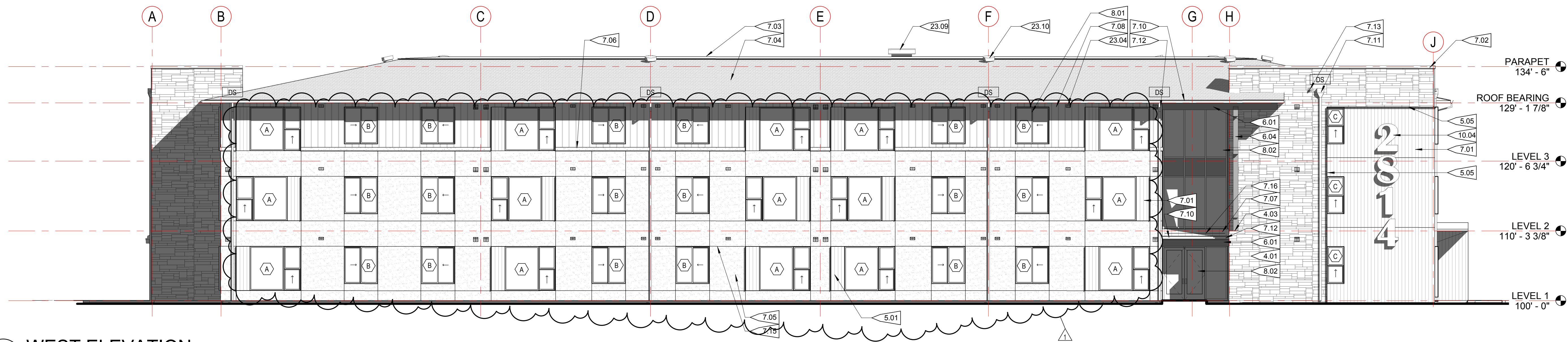
A-133

REFLECTED CEILING PLAN NOTES	
1	REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY ITEMS. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEERS PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2	COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED
3	DIMENSIONS ARE TO FINISH, UNLESS NOTED OTHERWISE
4	ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION
5	COORDINATE LOCATION OF FIRE SPRINKLER HEADS WITH ARCHITECT PRIOR TO SUBMITTING FOR SPRINKLER PERMIT
6	LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS, UNLESS NOTED OTHERWISE
7	REFER TO OWNER'S INTERIOR DESIGNER FOR PAINT COLORS/SHEEN
8	UNITS ARE NOT SHOWN FOR CLARITY. REFER TO UNIT PLAN SHEETS FOR UNIT RCP INFORMATION
9	PROVIDE UL-Classified LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7

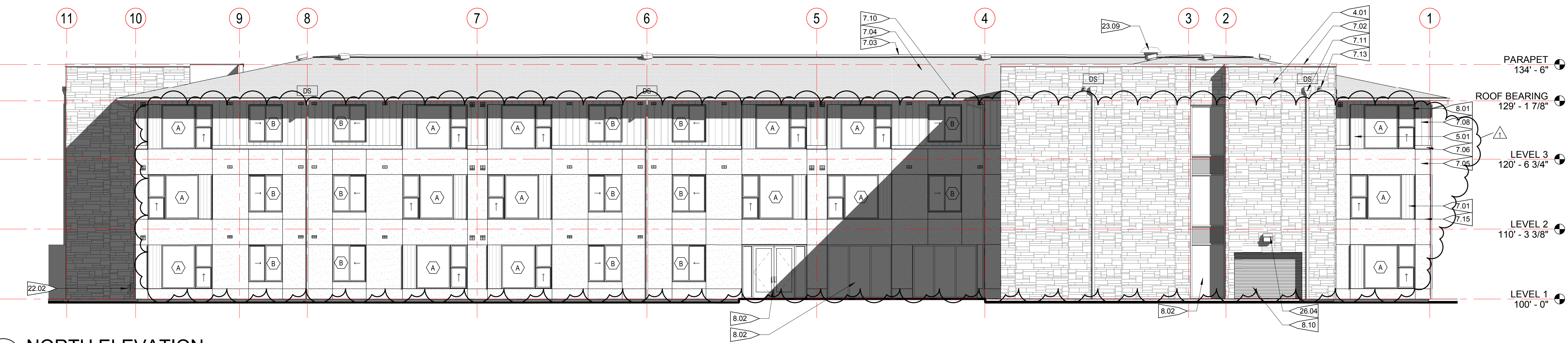
REFLECTED CEILING PLAN LEGEND	
	GYPSUM WALLBOARD
	DROPPED GYPSUM WALLBOARD SOFFIT ON LIGHT GAUGE METAL FRAMING
	ENGINEERED WOOD SOFFIT PANEL
	ALUMINUM SIDING SOFFIT

PROJECT FLAGNOTES	
NO.	FLAGNOTE
5.03	STEEL LADDER TO ROOF HATCH ABOVE
6.01	EXPOSED GLULAM BEAM
6.02	GLULAM COLUMN/STRUT ASSEMBLY, RE: 201A-501
7.10	GUTTER
7.11	THRU WALL SCUPPER / CONDUCTOR HEAD / DOWNSPOUT
7.12	DOWNSPOUT
8.06	ATTIC ACCESS PANEL
8.09	ROOF HATCH WITH SAFETY RAILING
9.01	DROPPED SOFFIT FOR FANCOIL
14.02	TRASH CHUTE
23.01	FANCOIL, RE. MECH
23.06	MECHANICAL SHAFT

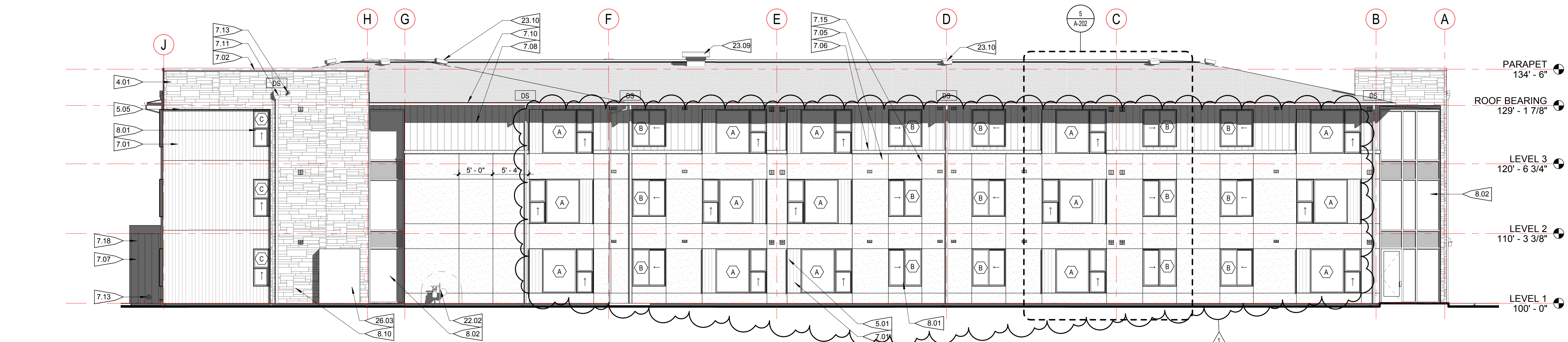




4 WEST ELEVATION
1/8" = 1'-0"



3 NORTH ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"



1 SOUTH ELEVATION
1/8" = 1'-0"

PROJECT FLAGNOTES	
NO.	FLAGNOTE
4.01	THIN STONE VENEER
4.03	PRECAST ARCHITECTURAL CAP
5.01	STEEL WINDOW FIN. TYP. AT ALL A TYPE
5.05	STEEL WINDOW SURROUND
6.01	EXPOSED GLULAM BEAM
6.04	COLUMN/STRUT ASSEMBLY, RE: 20A-501
7.01	ALUMINUM SIDING SYSTEM
7.02	PREFINISHED SHEET METAL PARAPET CAP FLASHING
7.03	EPDM ROOFING
7.04	ASPHALT SHINGLE ROOFING
7.05	STUCCO, COLOR 1
7.06	STUCCO ACCENT BAND, COLOR 2
7.07	STANDING SEAM METAL ROOFING
7.08	ENGINEERED WOOD SIDING ON RAINSCREEN MATRIX
7.10	GUTTER
7.11	THRU WALL SCUPPER / CONDUCTOR HEAD / DOWNSPOUT
7.12	DOWNSPOUT
7.13	OVERFLOW LAMB'S TONGUE
7.15	STUCCO CONTROL JOINT
7.16	SNOW GUARD SYSTEM
7.18	ENTRY CANOPY W/ EPDM ROOF SLOPED TO ROOF AND OVERFLOW DRAIN, LONGBOARD SOFFIT AND WALL
7.19	ENGINEERED WOOD TRIM
8.01	COMPOSITE WINDOW
8.02	STOREFRONT WINDOW / DOOR
8.03	HOLLOW METAL DOOR / FRAME
8.10	COILING DOOR
10.04	BACK-LIT ADDRESS SIGN, RE: G-201
22.02	GAS METER, RE: PLUMB
22.06	FIRE DEPARTMENT CONNECTION, RE: CIVIL & PLUMB
23.04	EXHAUST VENT
23.09	GRAVITY RELIEF VENTILATOR ON MANUFACTURER-SUPPLIED ALUMINUM ROOF CURB, RE: MECH.
23.10	POWERED ROOF VENT, RE: ROOF VENT CALCS FOR MODEL # AT EACH DRAFTSTOPPED ROOF AREA
26.03	ELECTRIC SERVICE ENTRANCE, RE: ELECT.
26.04	LIGHT FIXTURE, RE: ELECT.

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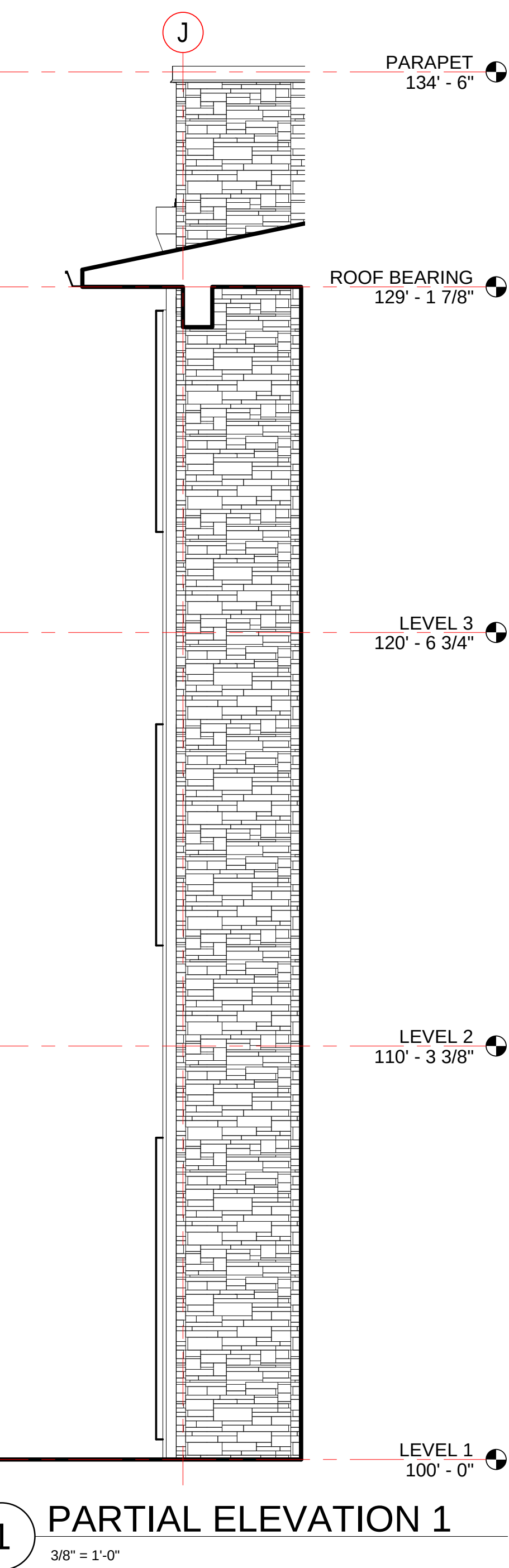
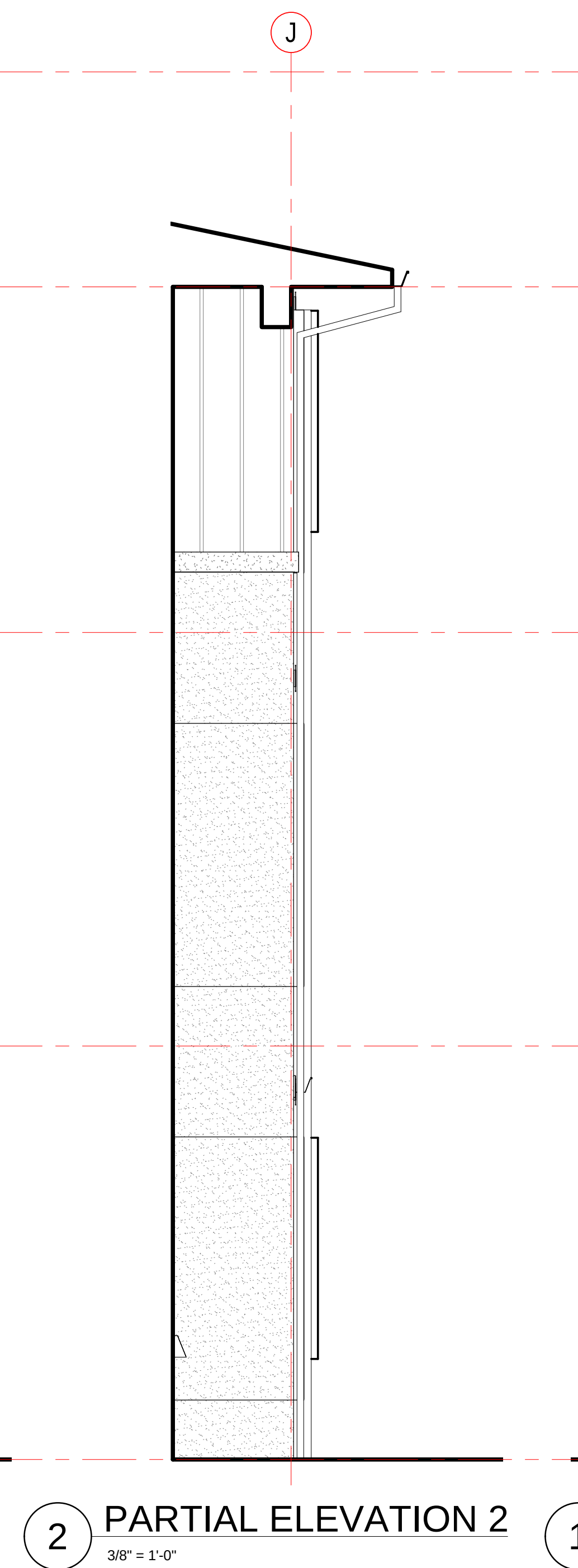
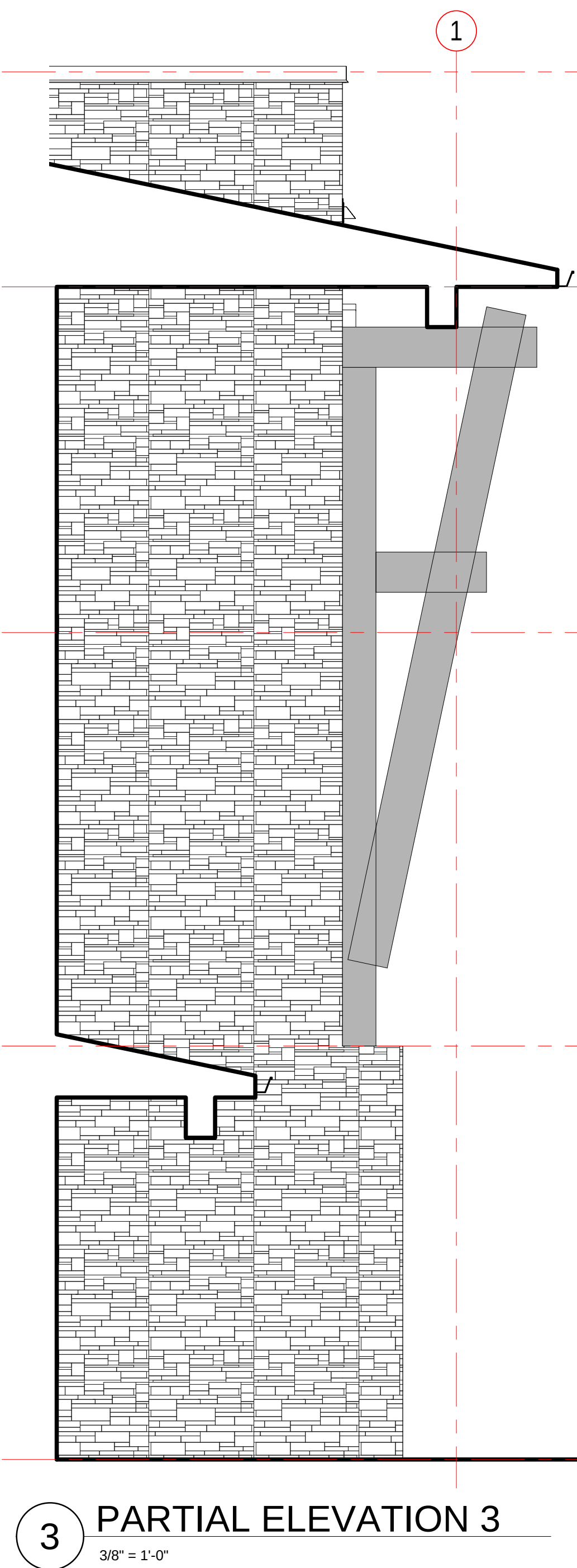
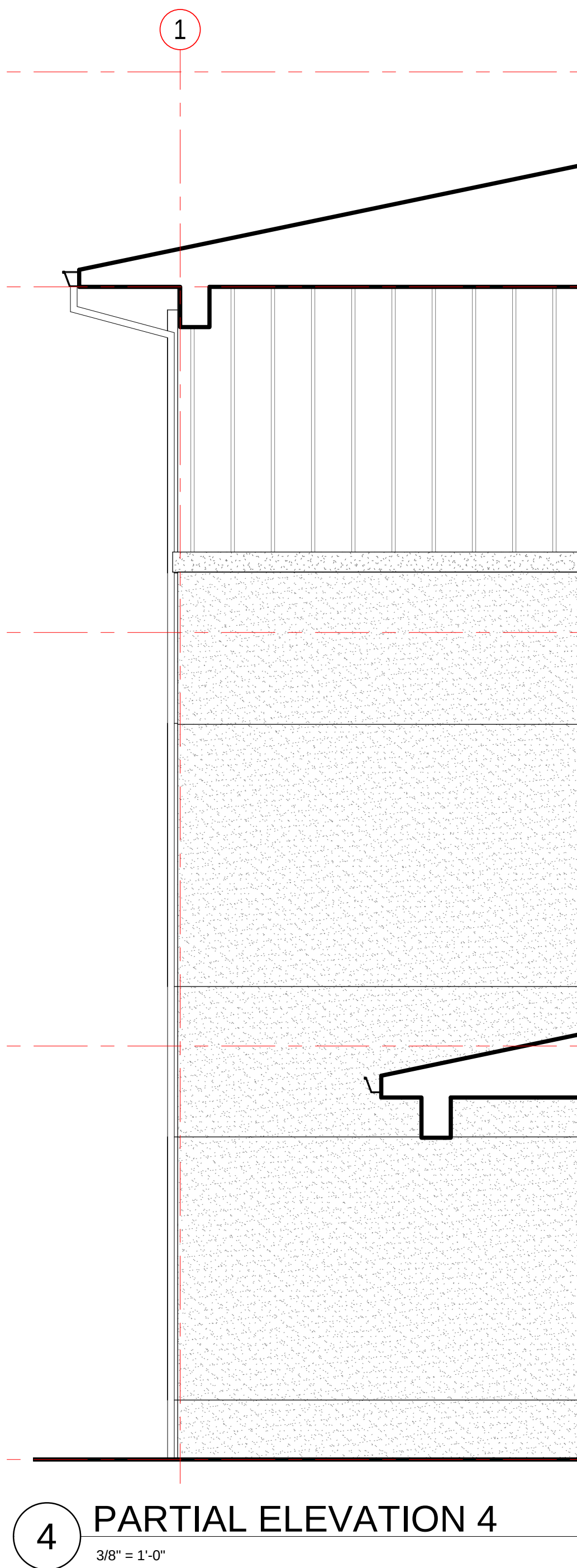
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SHEET TITLE:
EXTERIOR
ELEVATIONS

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

A-201

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SHEET TITLE:
ENLARGED EXTERIOR
ELEVATIONS
SCALE: 3/8" = 1'-0"
SHEET NUMBER

A-202



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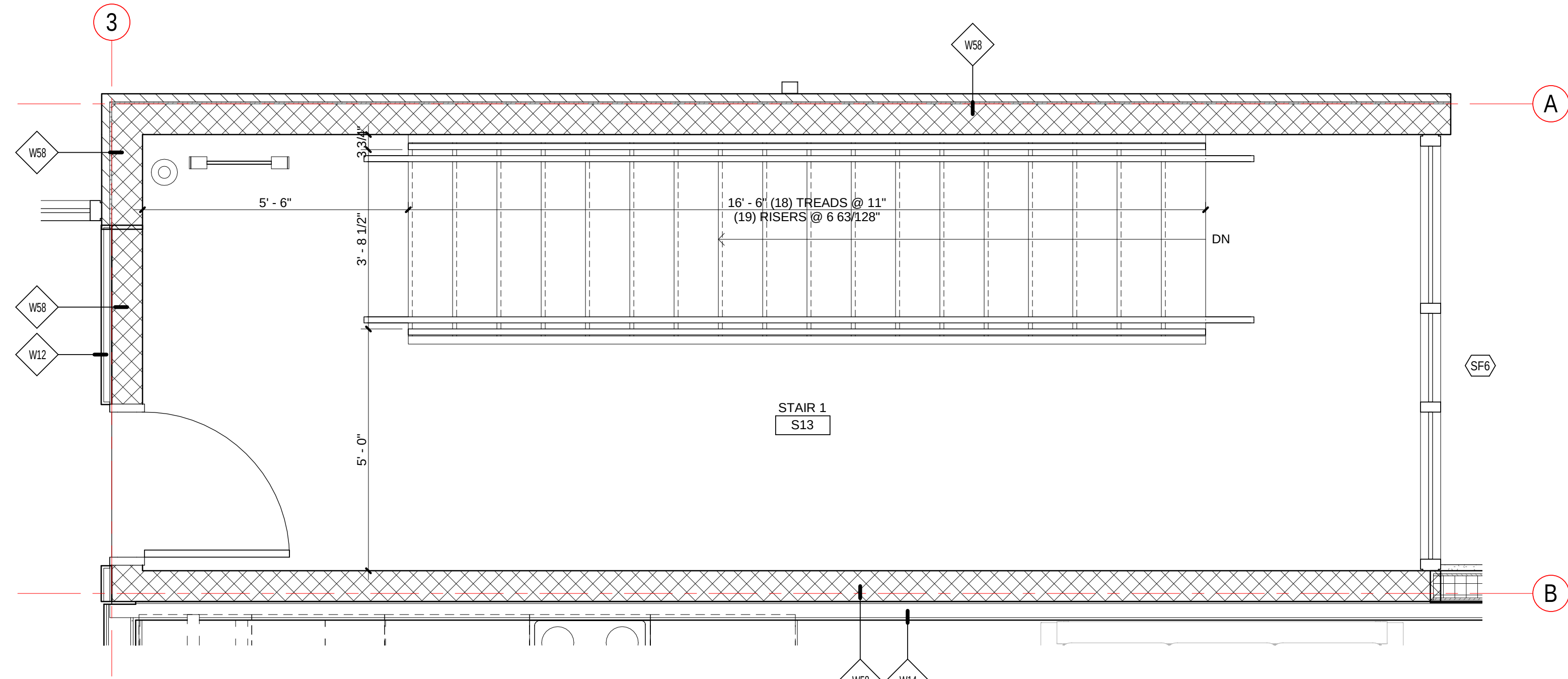
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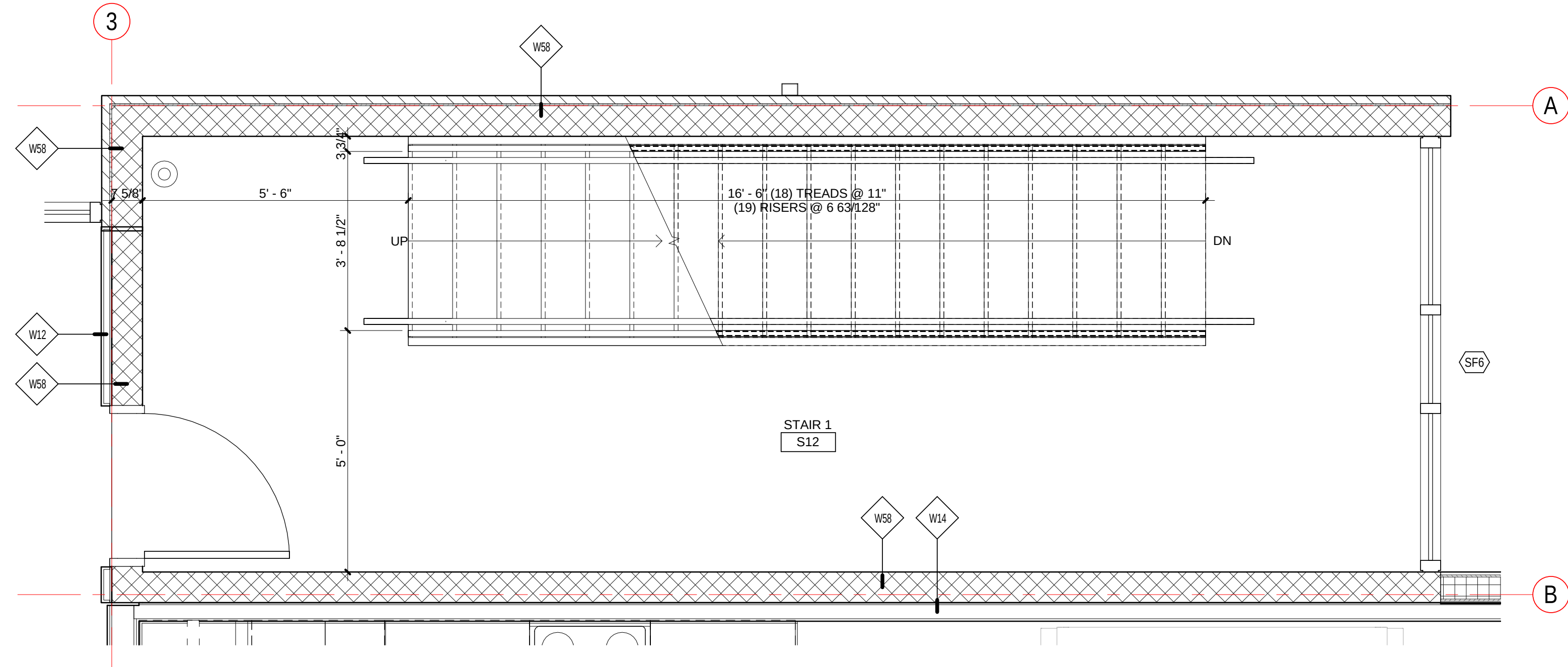
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STAIR 1 PLANS &
SECTIONS

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

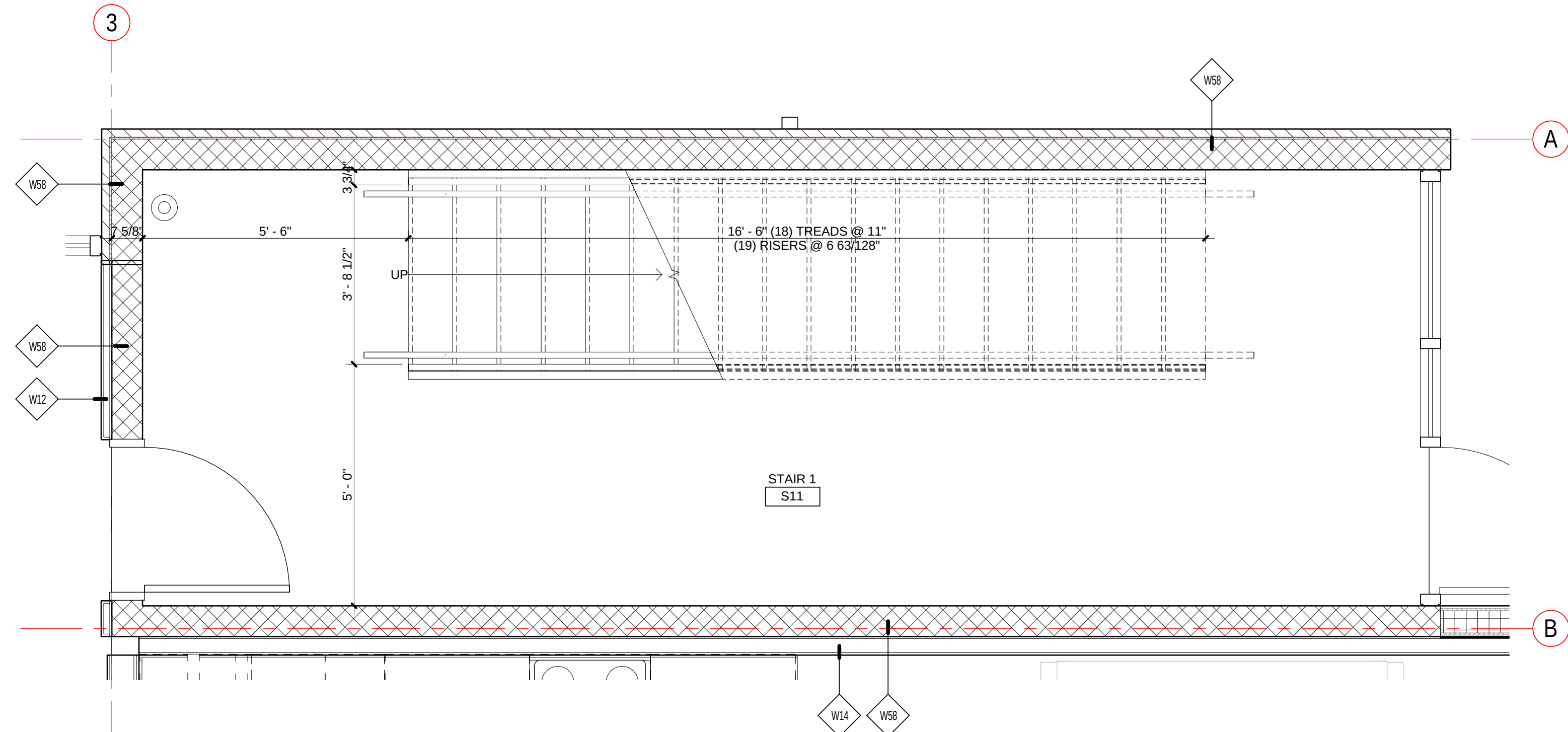
A-401



3 STAIR 1 - LEVEL 3
1/2" = 1'-0"



2 STAIR 1 - LEVEL 2
1/2" = 1'-0"



1 STAIR 1 - LEVEL 1
1/2" = 1'-0"



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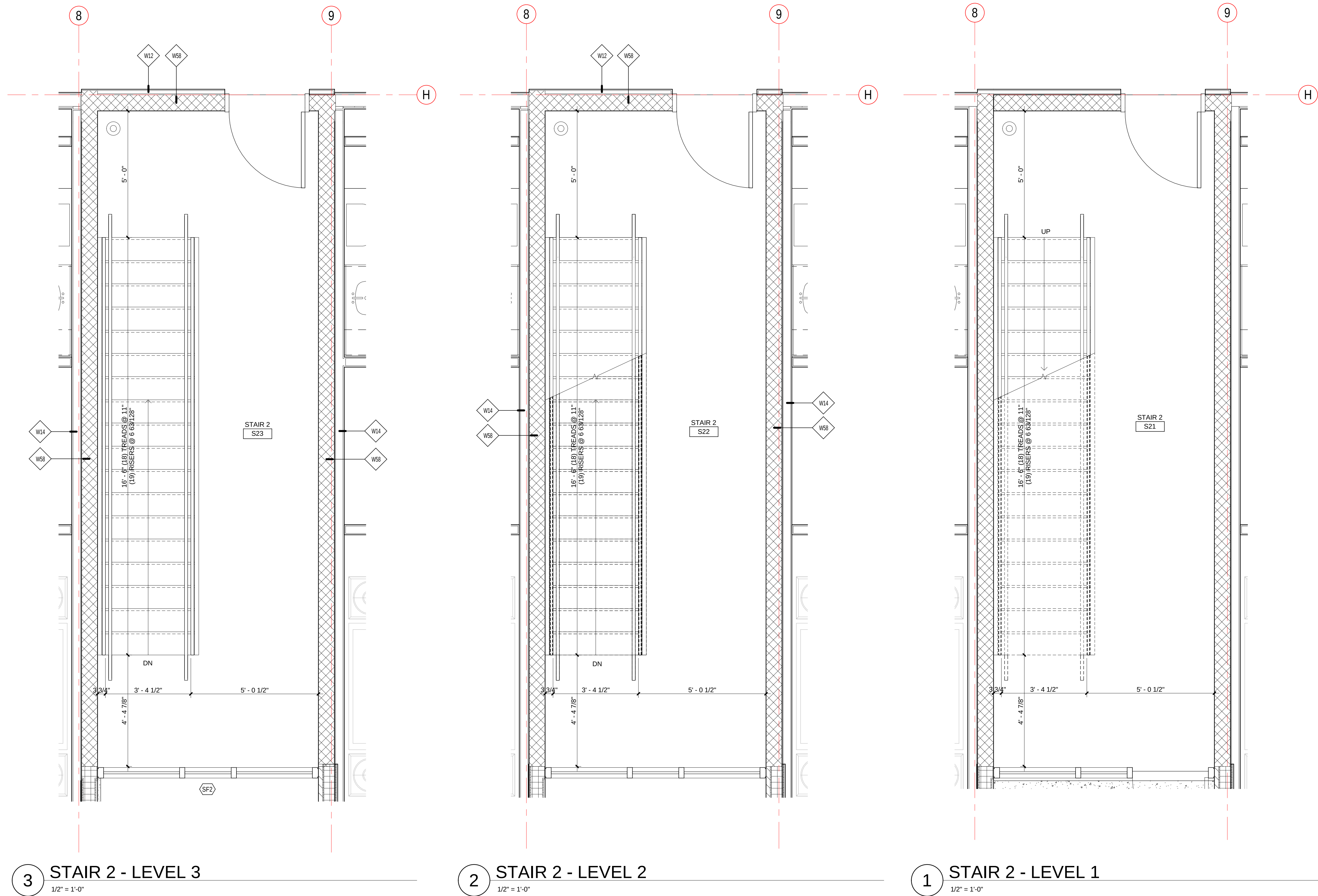
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100% CONSTRUCTION
DOCUMENTS

SHEET TITLE:
STAIR 2 PLANS &
SECTIONS

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

A-402





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phone 303.861.5704
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2814 PATTERSON ROAD
2814 PATTERSON ROAD, GRAND JUNCTION, CO 81506

PROJ. NO. 118185.00
DRAWN: OZ
CHECKED: OZ
APPROVED: OZ
DATE: 4/05/2019

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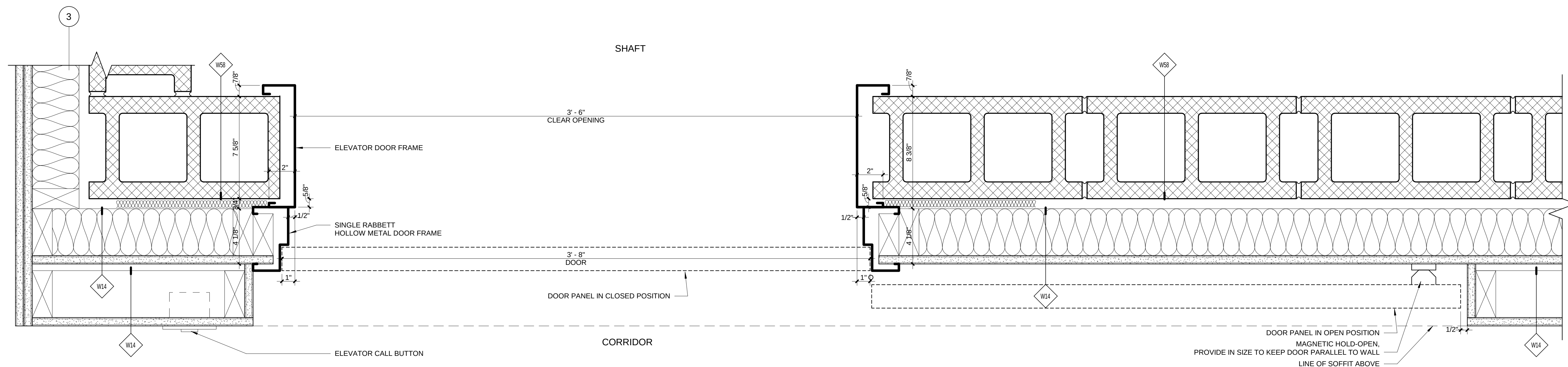
2814 PATTERSON ROAD

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DOCUMENTS

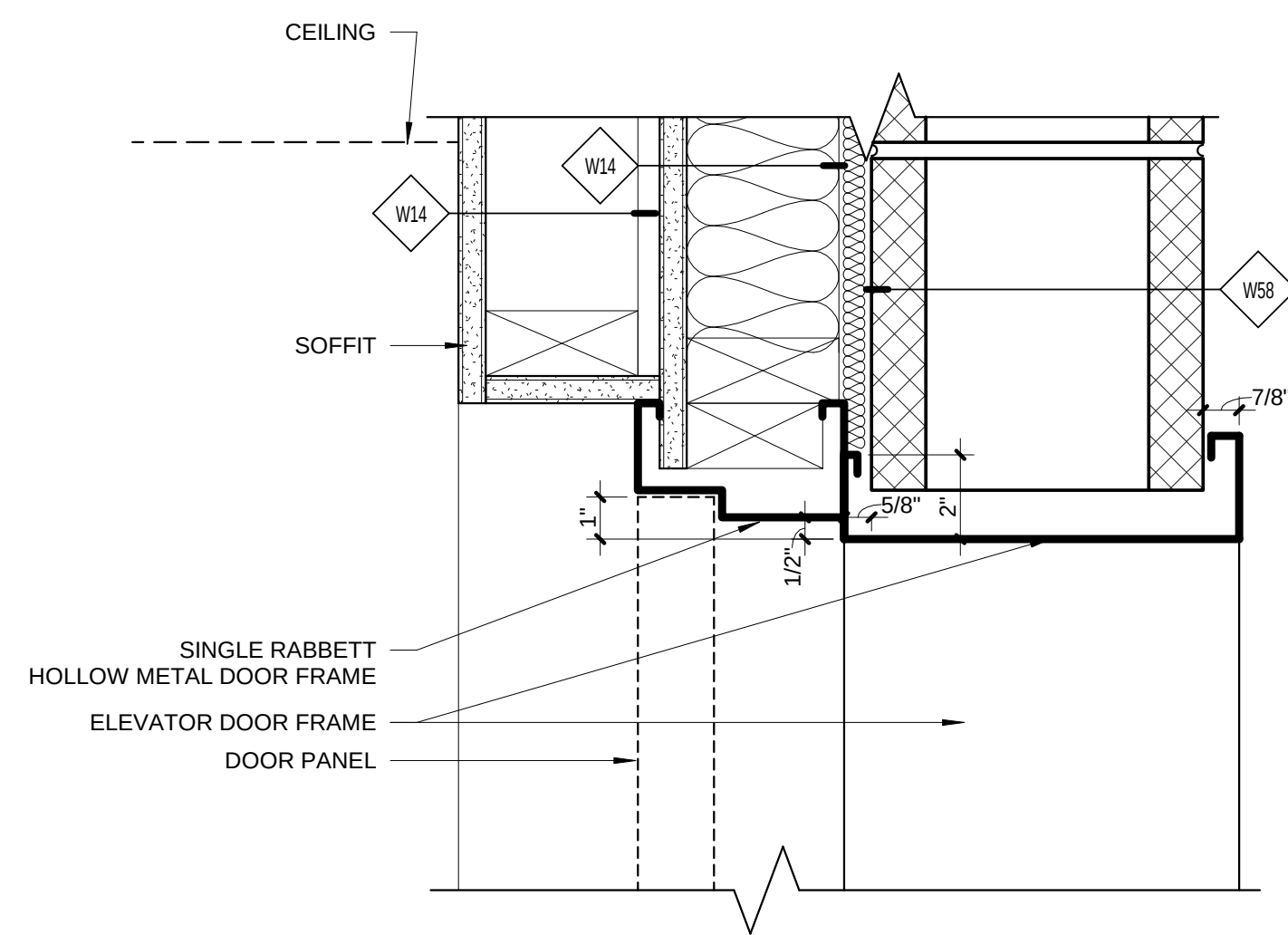
SHEET TITLE:
ELEVATOR PLANS,
SECTIONS, & DETAILS

SCALE: As indicated
SHEET NUMBER

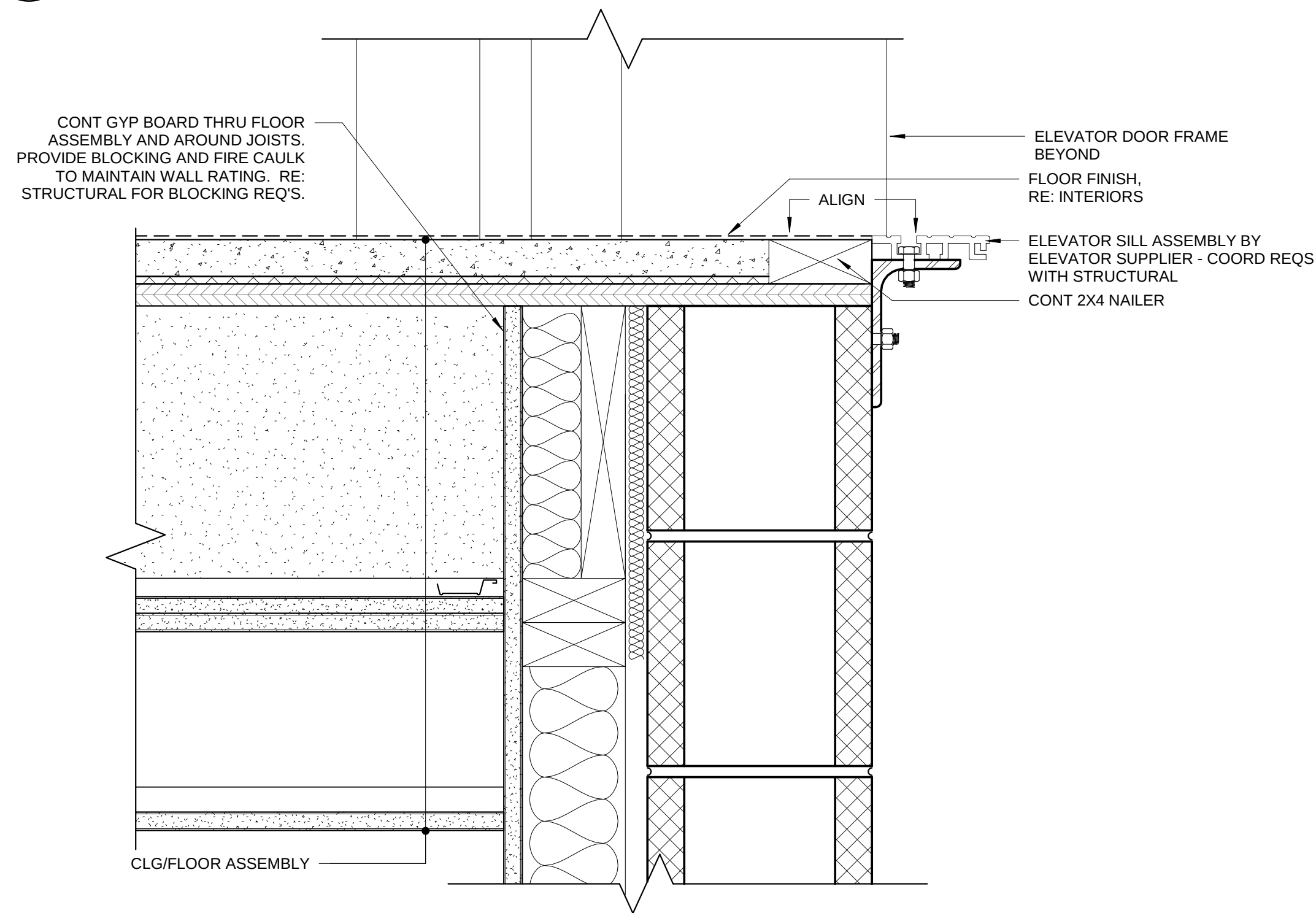
A-403



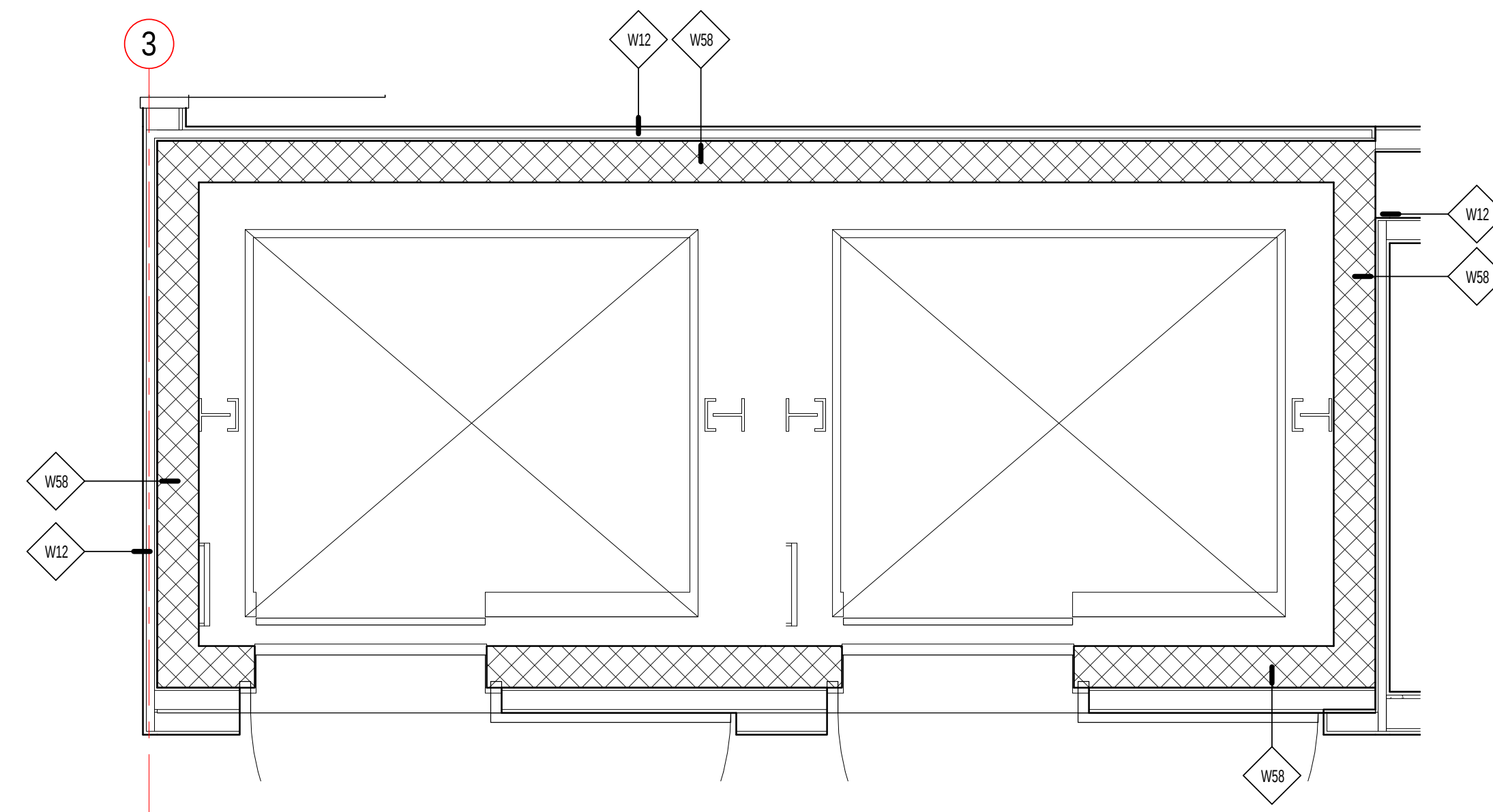
5 ELEVATOR DOOR / JAMB
3" = 1'-0"



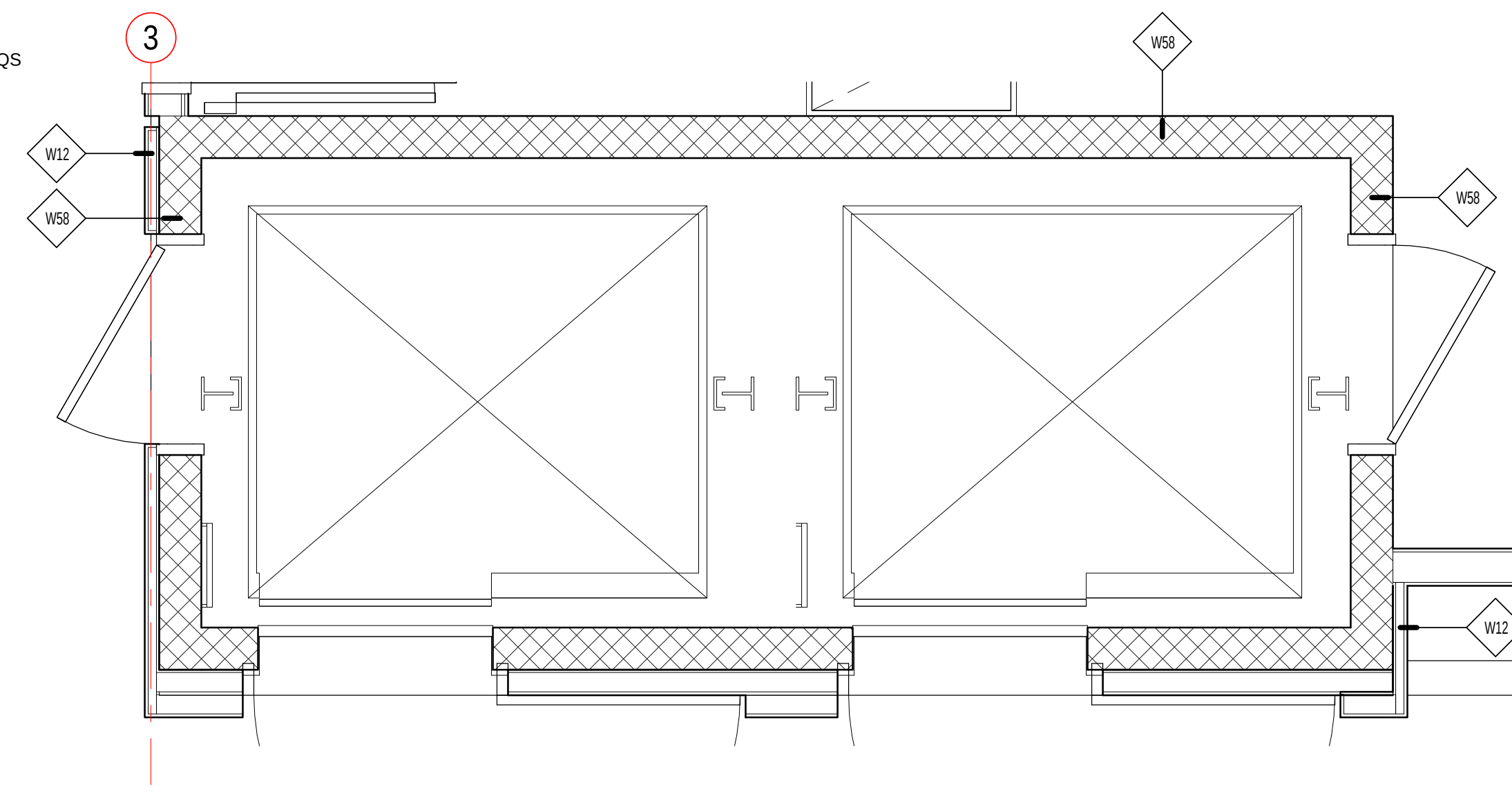
4 TYP ELEVATOR HEAD
3" = 1'-0"



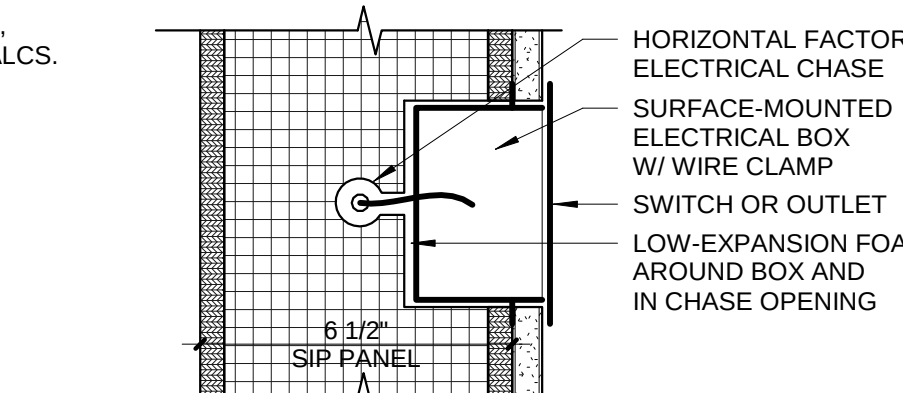
3 TYP ELEVATOR THRESHOLD
3" = 1'-0"



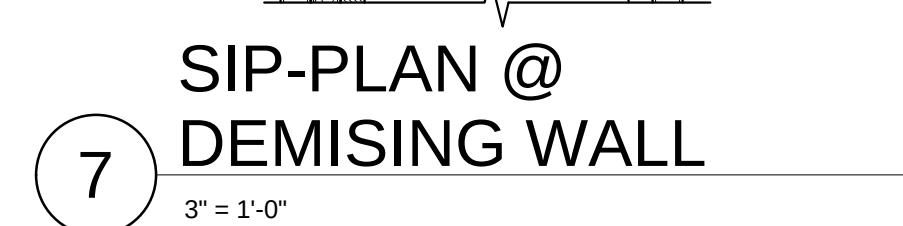
2 ELEVATOR PLAN - LEVELS 2 & 3
1/2" = 1'-0"



1 ELEVATOR PLAN - LEVEL 1
1/2" = 1'-0"



3 SIP-SECTION @ ROOF
3" = 1'-0"



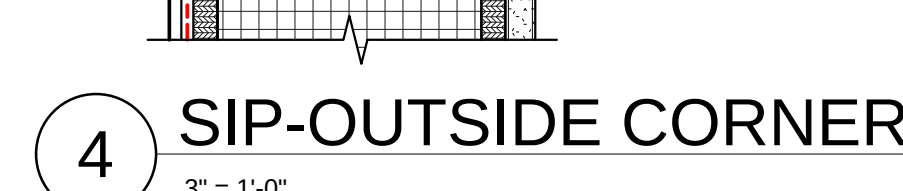
**SIP-PLAN @
DEMISING WALL**



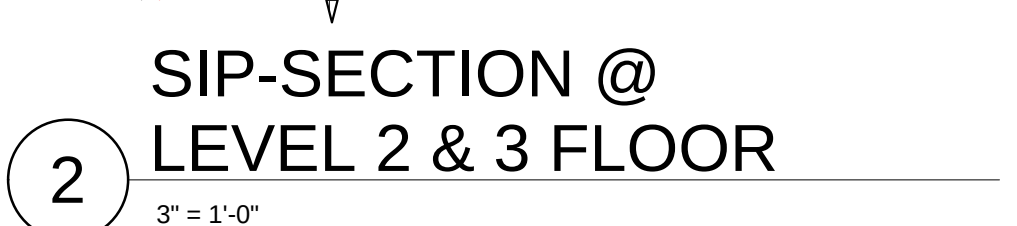
6 SIP-PLAN @ SPLINE



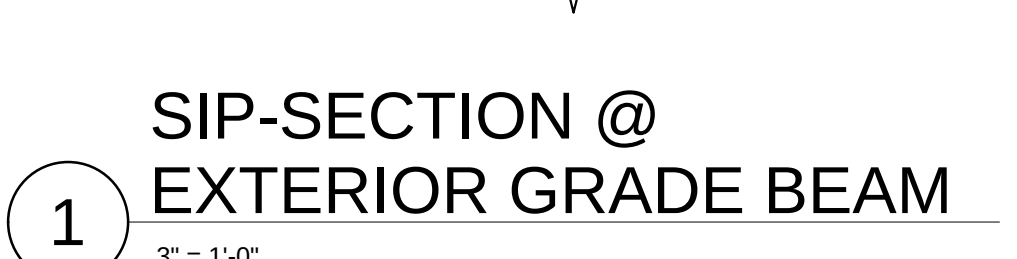
5 SIP-INSIDE CORNER



4 SIP-OUTSIDE CORNER
3" = 1'-0"



SIP-SECTION @
LEVEL 2 & 3 FLOOR



1 SIP-SECTION @
EXTERIOR GRADE BEAM



20 COLUMN/STRUT ASSEMBLY



14 STUCCO CONTROL JOINT



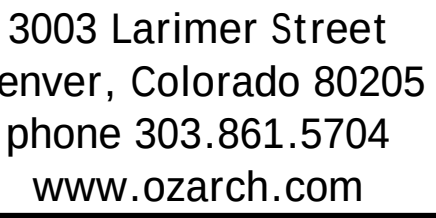
ALUM. SIDING @
OUTSIDE CORNER



10 SIP-HEADER
3" = 1'-0"



9 SIP-SECTION @ TOP-CHORD BEARING TRUS



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AWN: Author
ECKED: Checker
PROVED: Approver
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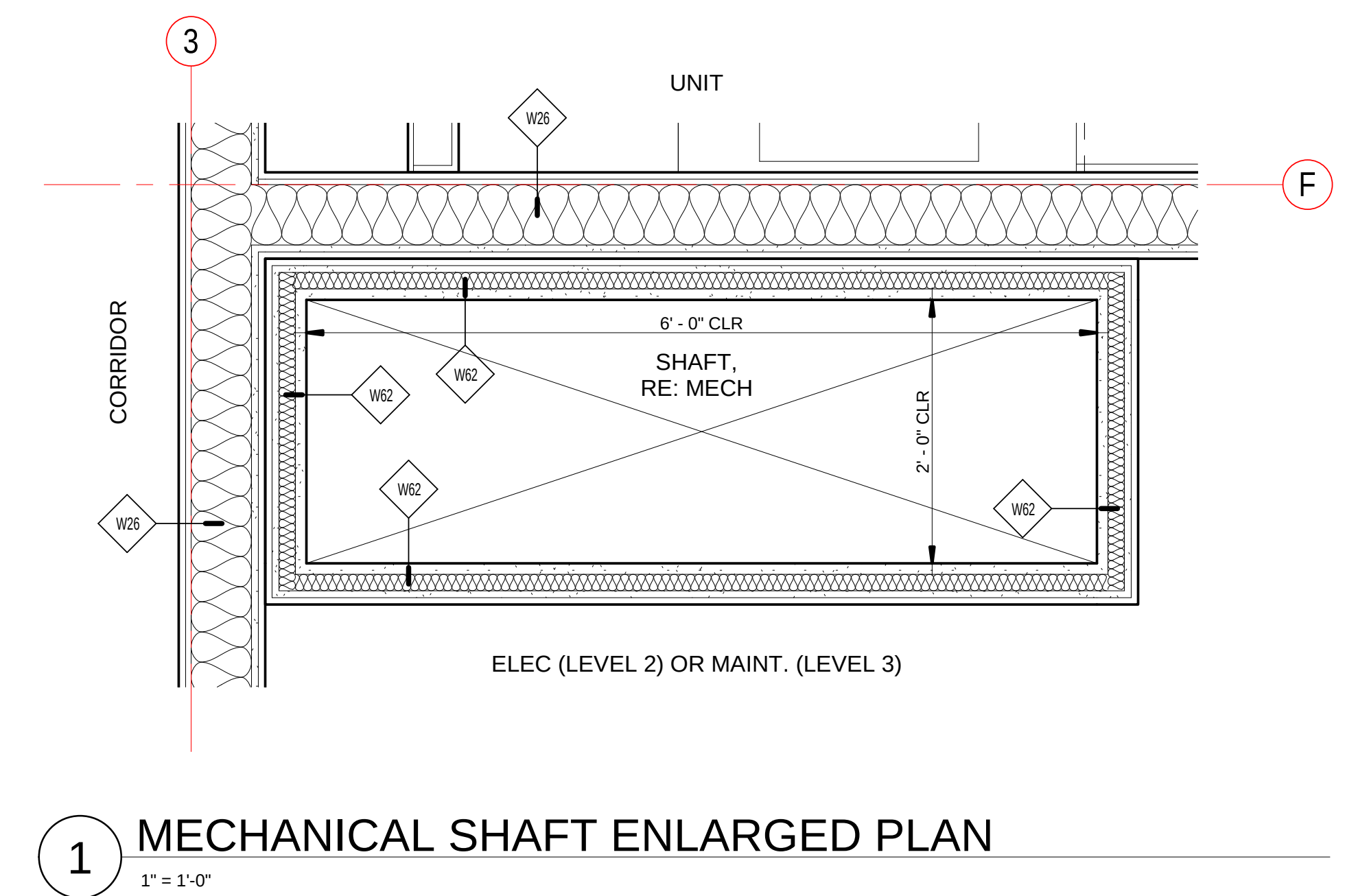
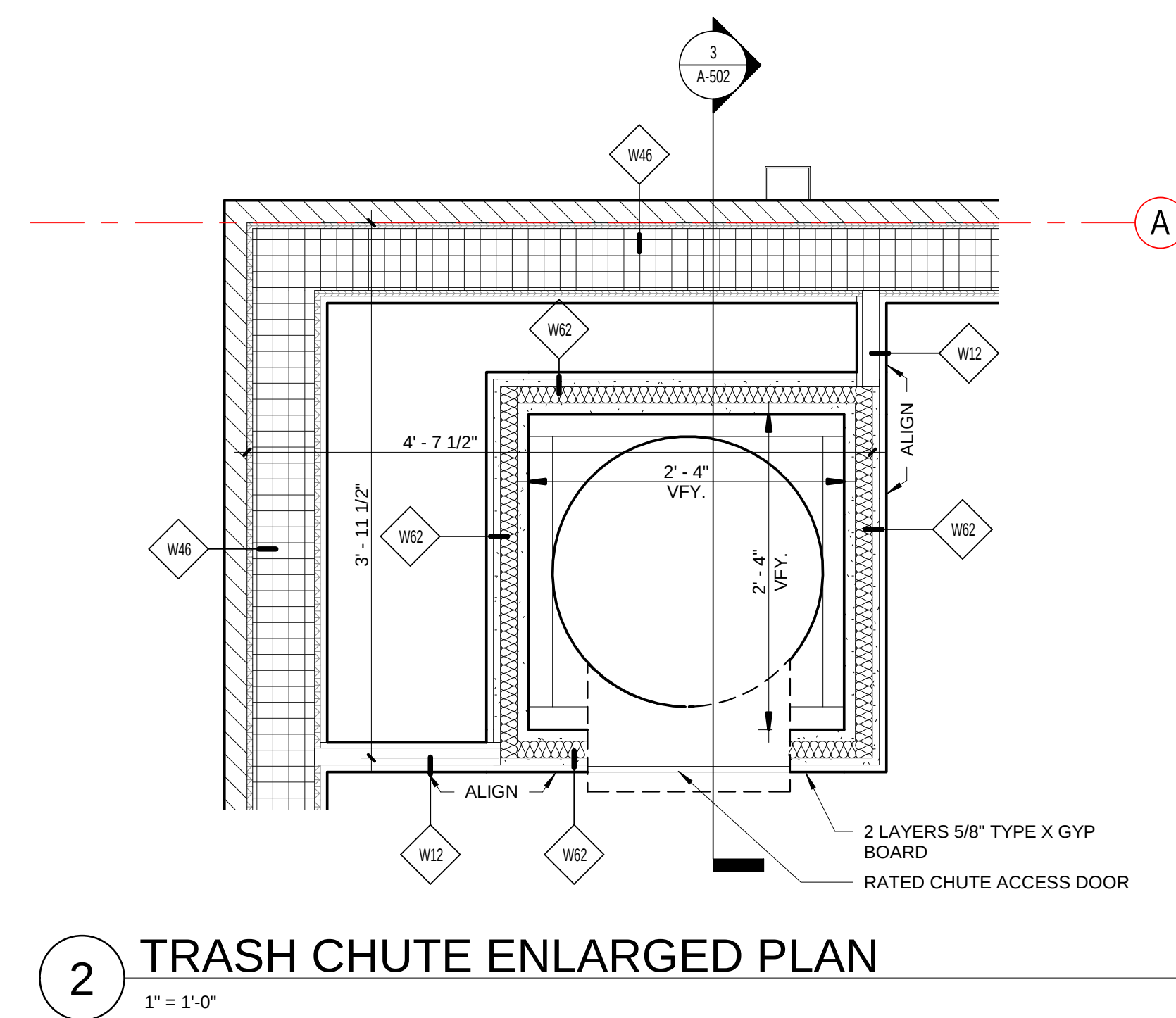
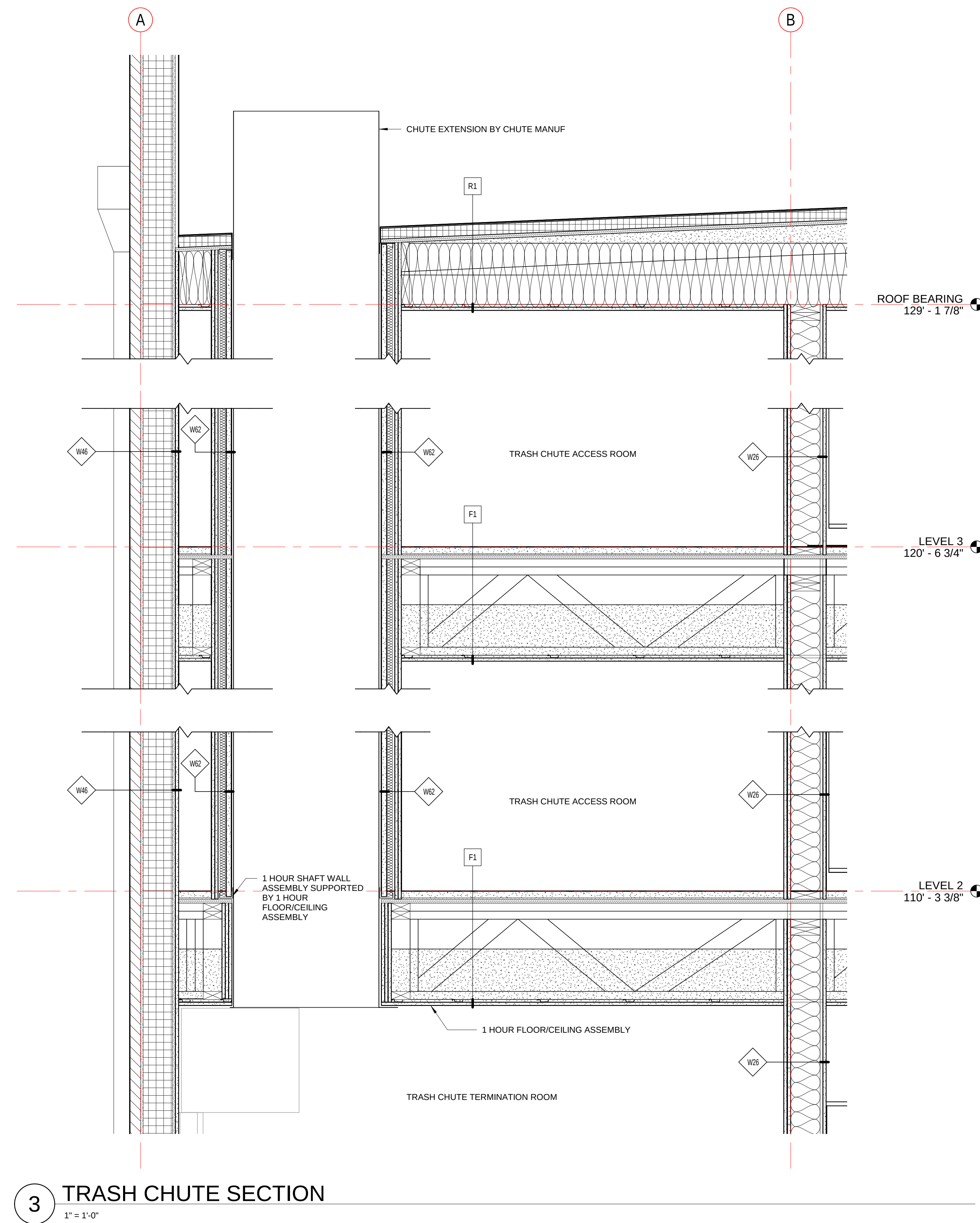
OZ ARCHITECTURE

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DOCUMENTS

HEET TITLE:
DETAILS

SCALE: 1" = 1'-0"
SHEET NUMBER

A-502



C:\Revit Local Files\118185.00 Village Park Phase II_A19_CENTRAL_dcarlson.rvt

4/5/2019 7:05:24 PM



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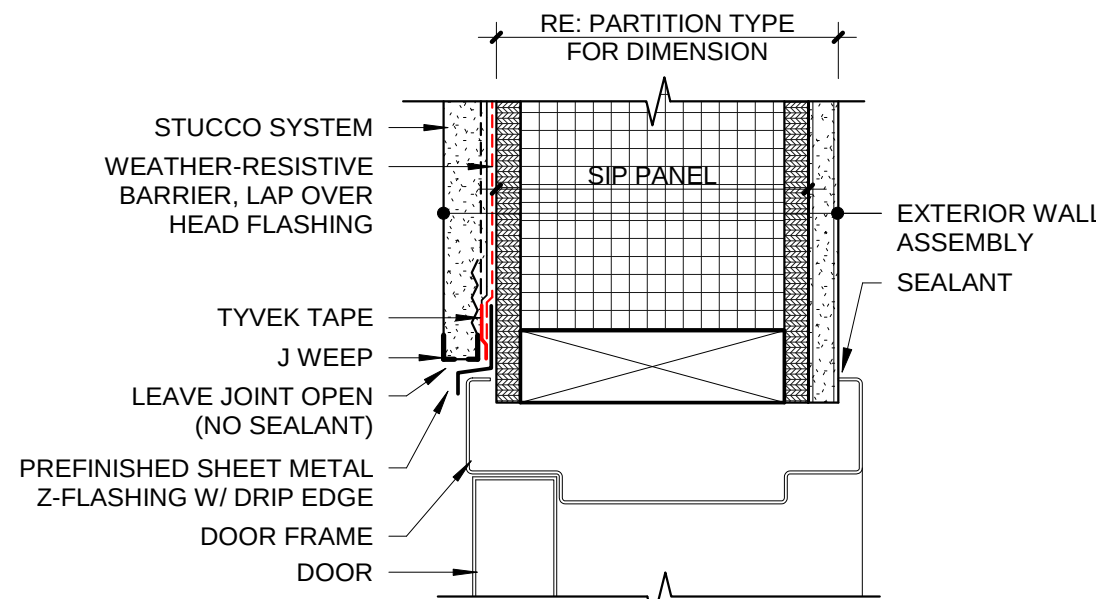
2814 PATTERSON ROAD
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SHEET TITLE:
DOOR TYPES,
SCHEDULE, & DETAILS

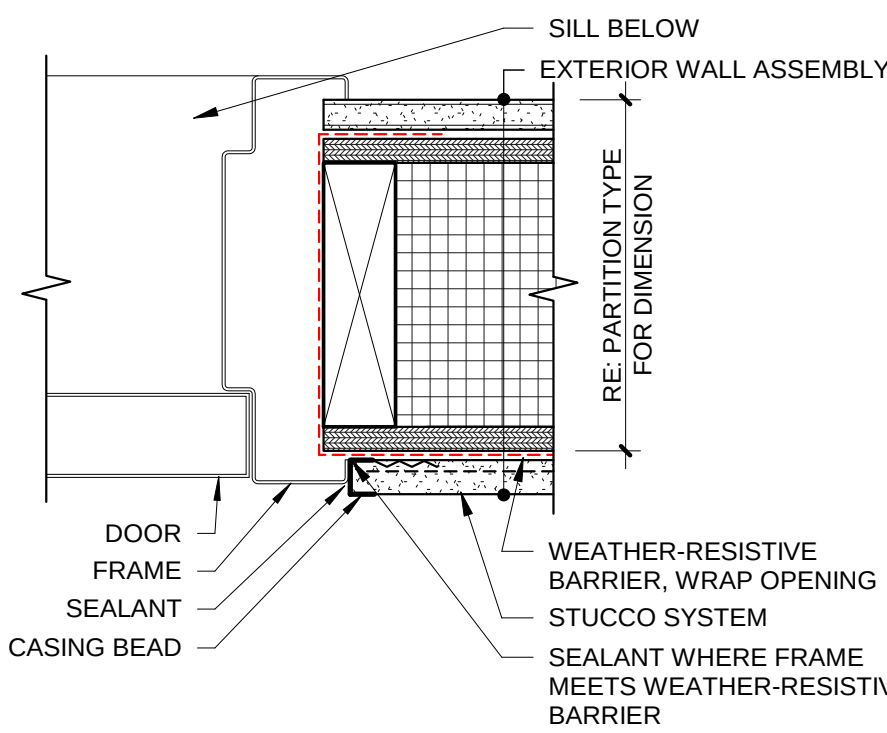
SCALE: As indicated
SHEET NUMBER

A-601

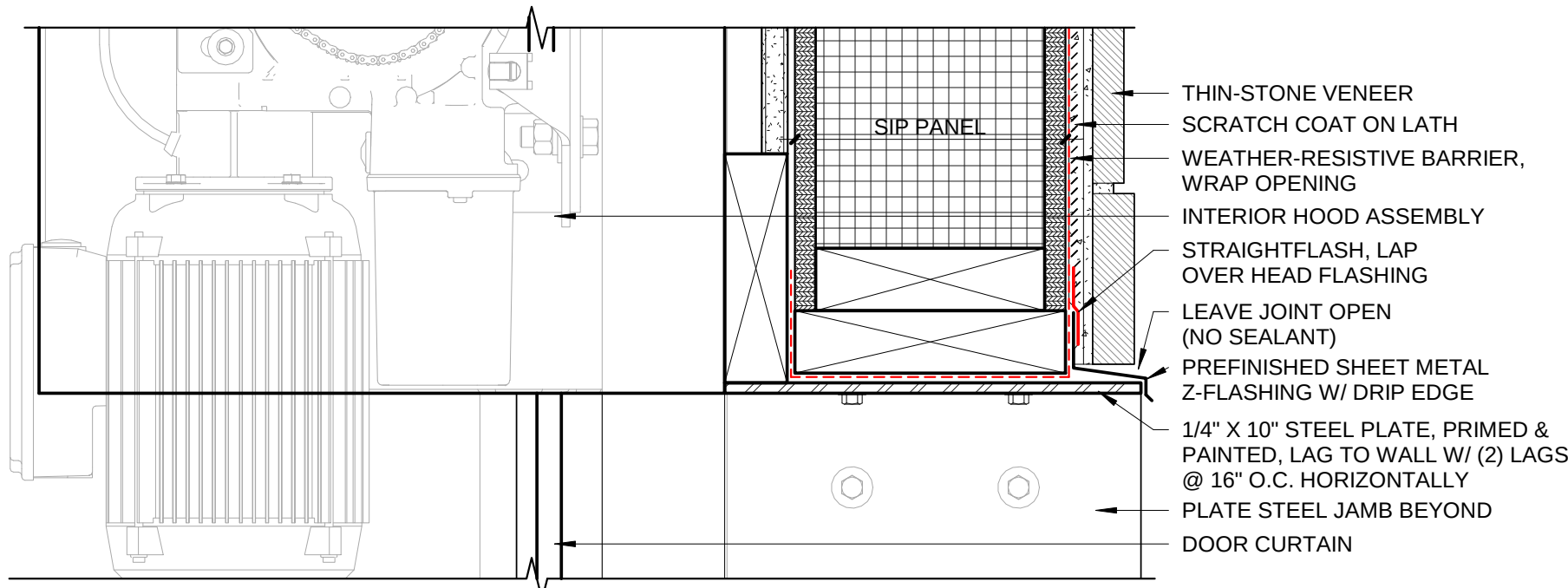
DOOR SCHEDULE																
DOOR NUMBER	PANEL TYPE	LEAF QUANTITY	DOOR						ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME					COMMENTS
			LEAF WIDTH	OPENING WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH			FRAME TYPE	MATERIAL	FINISH	HEAD	JAMB	
LEVEL 1																
101	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
102	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
103	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
104	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
105	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
106	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
107	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
109	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
110	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
111	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
112	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
113	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
114	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
115	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
116	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
117	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
119	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
121	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
150	FG	1	3'-0"	3'-0"	7'-0"	1 3/4"	AL	PREFIN	20		1	AL	PREFIN			
151	F	1	3'-6"	3'-6"	7'-10"	1 3/4"	HM	PT	0		1	HM	PT			
153	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
154	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
155A	F	1	4'-0"	4'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
157A	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	60		1	HM	PT			
157B	OHC			10'-0"	6'-10"	7/8"	STL	PT	0		OH	STL	PT			
158	FG	2	3'-0"	6'-0"	7'-10"	1 3/4"	AL	PREFIN	0		2	AL	PREFIN			
159A	FG	2	3'-0"	6'-0"	7'-10"	1 3/4"	AL	PREFIN	0		2	AL	PREFIN			
159B	FG	2	3'-0"	6'-0"	7'-10"	1 3/4"	AL	PREFIN	20		2	AL	PREFIN			
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162	FG	1	3'-0"	3'-0"	7'-0"	1 3/4"	AL	AL	20		1	AL	AL			
163	FG	2	3'-0"	6'-0"	7'-10"	1 3/4"	AL	PREFIN	0		2	AL	PREFIN			
164	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	0		1	HM	PT			
LEVEL 2																
201	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
202	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
203	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
204	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
205	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
206	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
207	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
208	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
209	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
210	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
211	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
212	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
213	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
214	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
215	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
216	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
217	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
218	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
219	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
221	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
223	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
250	FG	1	3'-0"	3'-0"	7'-0"	1 3/4"	AL	PREFIN	20		1	AL	PREFIN			
251	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
252	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
253	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	45		1	HM	PT			
254	F	2	2'-6"	5'-0"	7'-0"	1 3/4"	WD	PT	0		2	HM	PT			
LEVEL 3																
301	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
302	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
303	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
304	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
305	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
306	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
307	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
308	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
309	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
310	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
311	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
312	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
313	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
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315	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
316	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
317	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
318	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
319	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
321	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
323	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
350	FG	1	3'-0"	3'-0"	7'-0"	1 3/4"	AL	PREFIN	20		1	AL	PREFIN			
351	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	20		1	HM	PT			
353	F	1	3'-0"	3'-0"	7'-0"	1 3/4"	WD	PT	45		1	HM	PT			
354	F	2	2'-6"	5'-0"	7'-0"	1 3/4"	WD	PT	0		2	HM	PT			



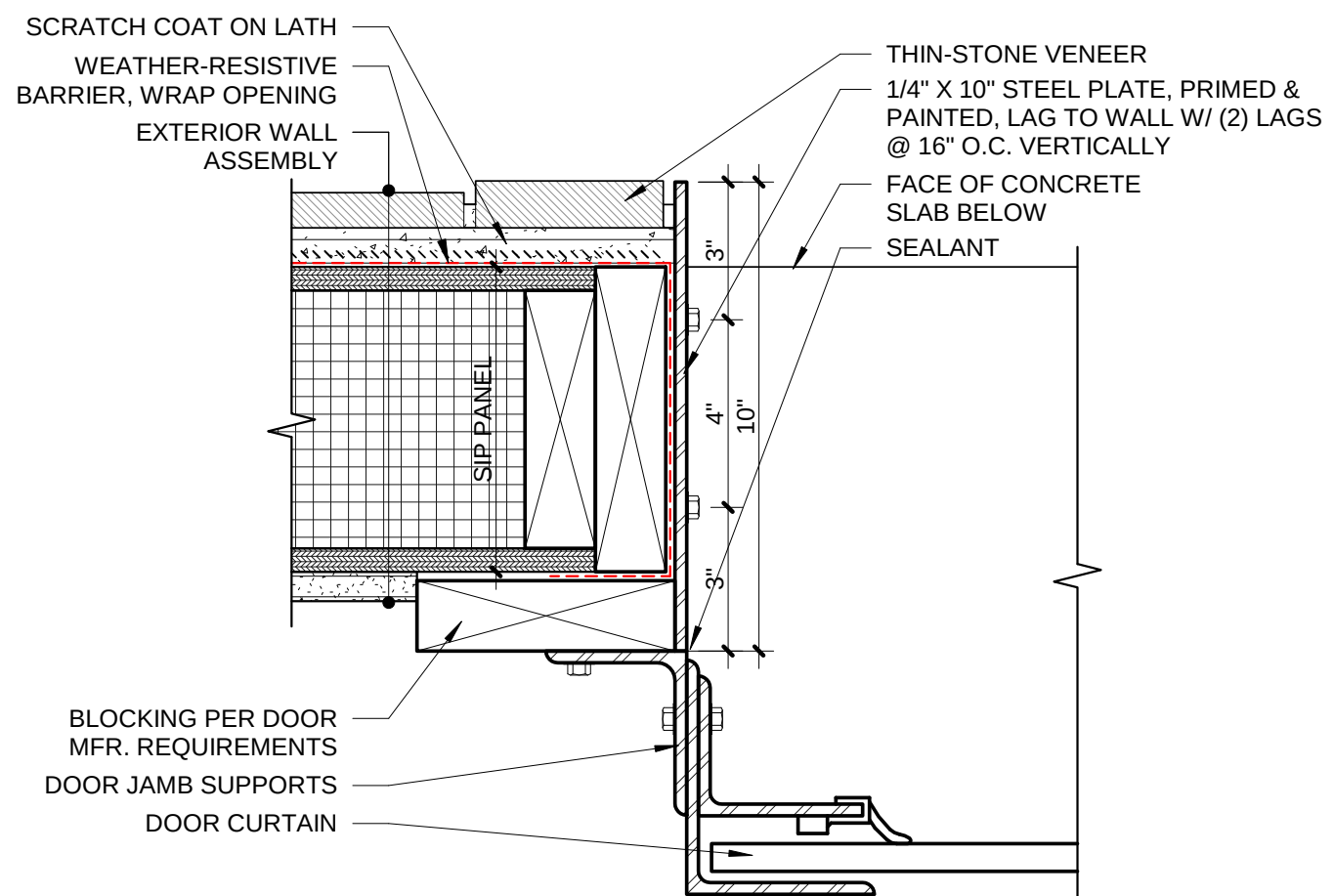
4 HM DOOR HEAD @ STUCCO
3" = 1'-0"



3 HM DOOR JAMB @ STUCCO
3" = 1'-0"

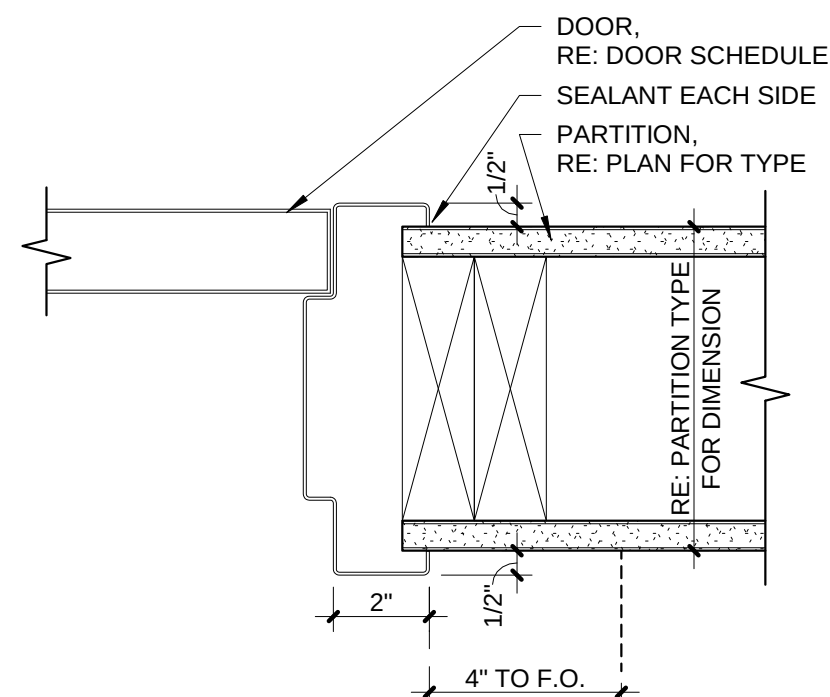


8 OVERHEAD DOOR HEAD @ STONE
3" = 1'-0"

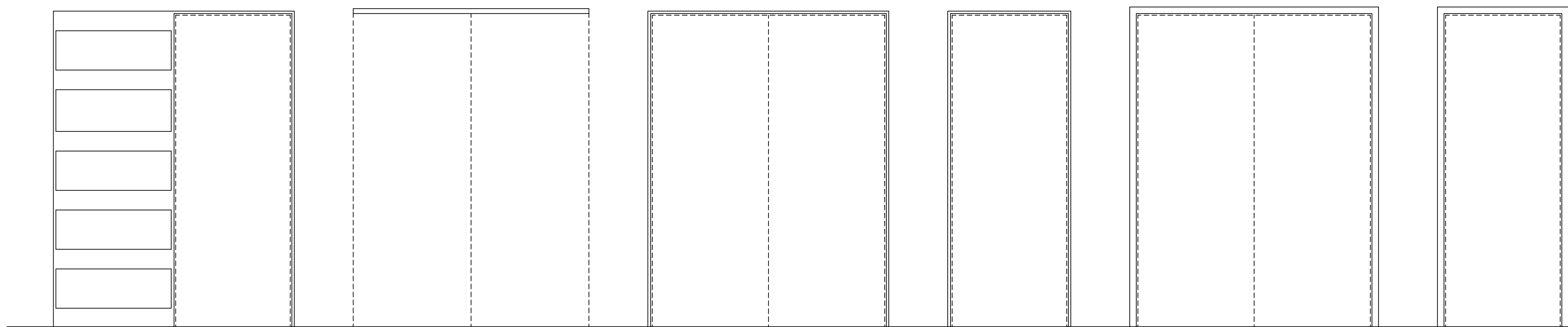


7 OVERHEAD DOOR JAMB @ STONE
3" = 1'-0"

2 INTERIOR HM DOOR HEAD
3" = 1'-0"



1 INTERIOR HM DOOR JAMB
3" = 1'-0"



FRAME TYPE 6
POCKET

FRAME TYPE 5
TOP HUNG BI-PASS

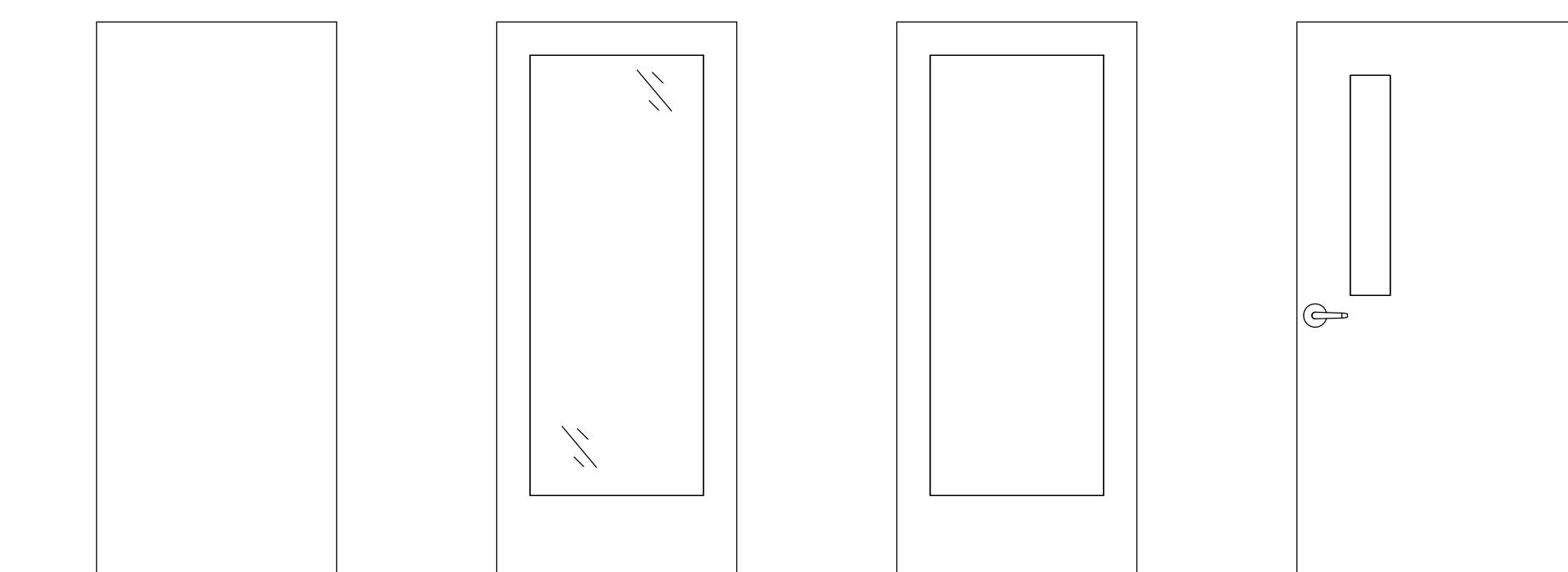
FRAME TYPE 4
WOOD
DOUBLE

FRAME TYPE 3
WOOD
SINGLE

FRAME TYPE 2
HOLLOW METAL
DOUBLE

FRAME TYPE 1
HOLLOW METAL
SINGLE

DOOR FRAME TYPE ELEVATIONS



PANEL TYPE F
FLUSH

PANEL TYPE FG
GLASS PANEL

PANEL TYPE FP
SOLID PANEL

PANEL TYPE N
VISION GLASS

DOOR PANEL TYPES



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PROJ. NO: 118185.00

DRAWN: OZ

CHECKED: OZ

APPROVED: OZ

DATE: 4/05/2019

REVISIONS:

1 01/13/2020 ASI 01

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SHEET TITLE:
WINDOW TYPES &
DETAILS

SCALE: As indicated
SHEET NUMBER

A-621

Integral Flanged Window AFTER Water-Resistive Barrier (WRB) is Installed

Method applies to the following products:

- DuPont™ StraightFlash™, DuPont™ FlexWrap™ NF and DuPont™ Flashing Tape

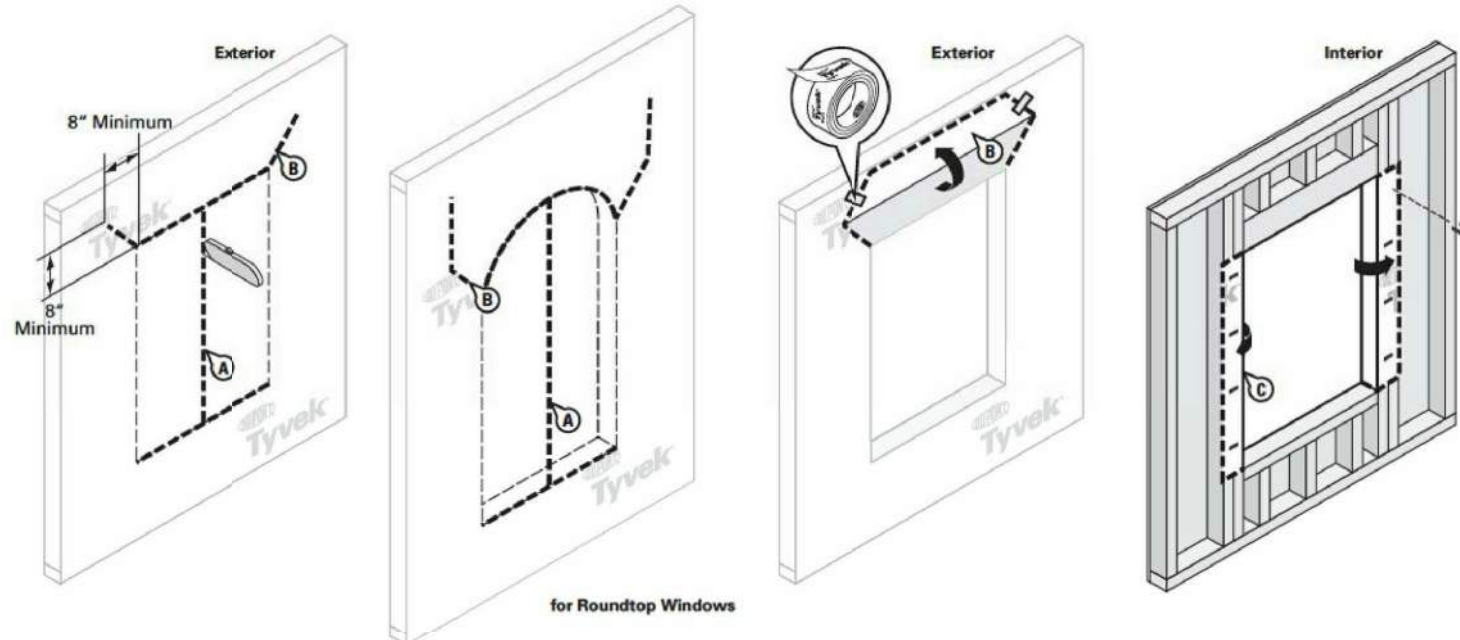
STEP 1

Prepare the DuPont™ Tyvek® WRB for window installation:

- Make an "I-Cut" (Standard I-Cut) in the DuPont™ Tyvek® WRB (modified I-Cut is also accepted). For an "I-Cut", begin with a horizontal cut across the bottom and the top of the window frame (for round top windows, the cut should begin above the mull joint). From the center, cut straight down to the sill.
- Cut two 45 degree slits a minimum of 8" extending from the corner of the window head, up and away from the window opening. This will create a flap above the rough opening to expose sheathing or framing members to allow head flashing installation (see step 4). Flip head flap up and temporarily secure with DuPont™ Tyvek® Tape.

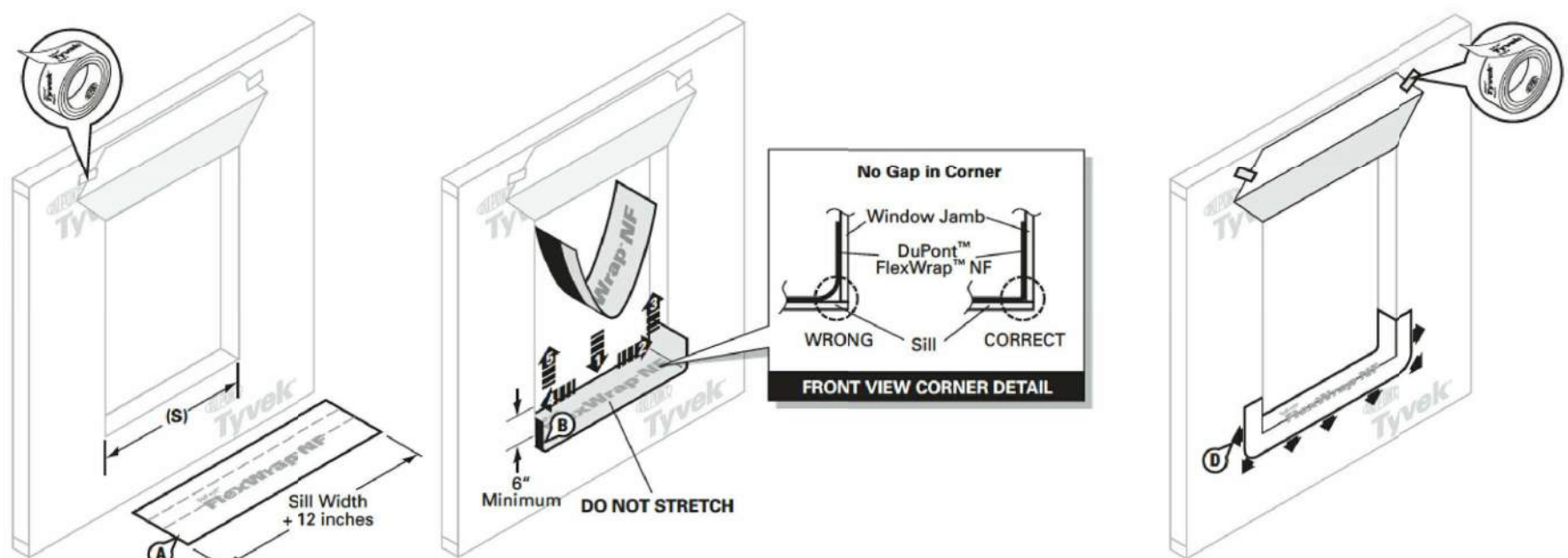
NOTE: Some windows and flashing widths may require longer slits.

- Fold side flaps into rough opening and secure to inside wall. Cut off excess flaps if desired.



STEP 2

- Cut DuPont™ FlexWrap™ NF at least 12" **LONGER** than width of rough opening sill (S).
- Remove first piece of release paper, cover horizontal sill by aligning inside edge of sill, and adhere into rough opening along sill and up jambs (min. 6" on each side).
- Remove second release paper.
- Fan out DuPont™ FlexWrap™ NF at bottom corners onto face of wall. Coverage of DuPont™ FlexWrap™ NF should be 2" to 3" onto the face of the wall.



STEP 3

Apply DuPont™ Residential Sealant, DuPont™ Commercial Sealant or recommended sealant on three sides (jambs and head) as shown below. If sealant is applied to the sill, ensure that there are at least two (2) 2" gaps in the sealant bead for every 4' of window to allow for drainage.

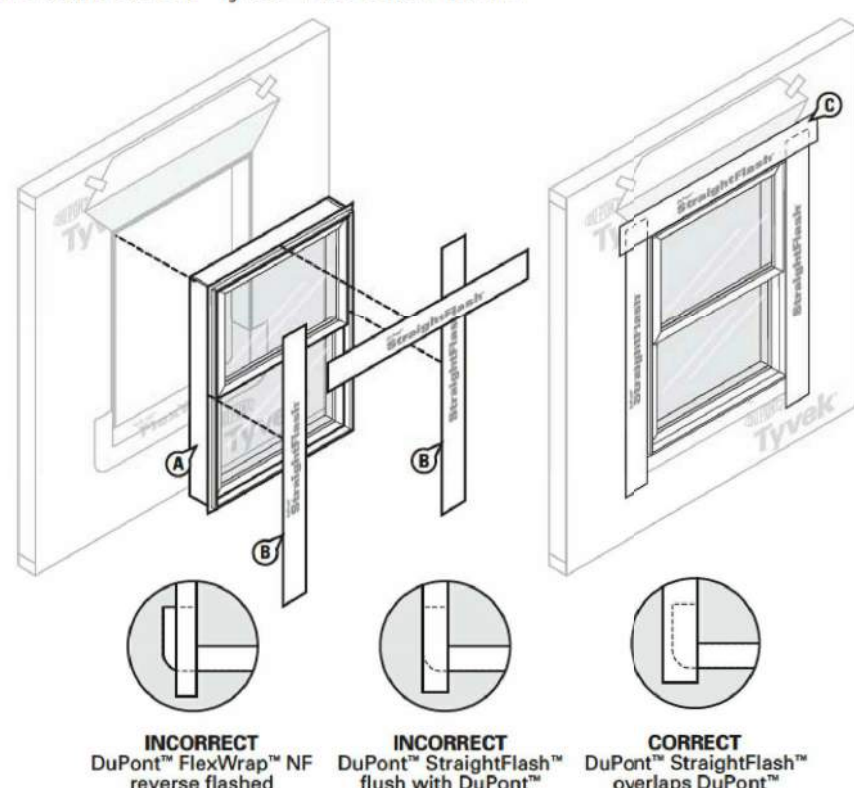


FOR RECTANGULAR WINDOWS

STEP 4

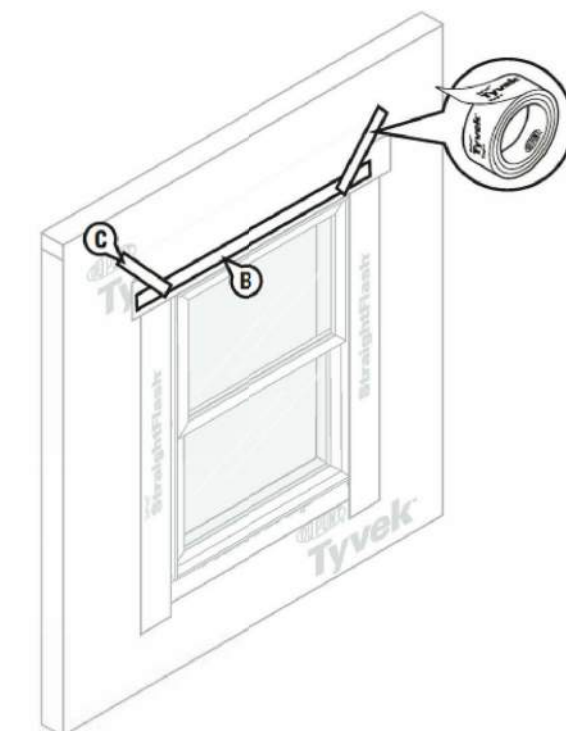
- Install window according to manufacturer's instructions.
- Cut two pieces of DuPont™ StraightFlash™, DuPont™ FlexWrap™ NF, or DuPont™ Flashing Tape for jamb flashing extending 1" above window head flange and below bottom edge of sill flashing. Remove release paper and press tightly along sides of window frame.
- Cut a piece of DuPont™ StraightFlash™, DuPont™ FlexWrap™ NF, or DuPont™ Flashing Tape for head flashing, long enough to extend beyond outer edges of jamb flashings. Remove release paper and install completely covering flange and adhering to exposed sheathing or framing members.

NOTE: Ensure proper shingling. DuPont™ StraightFlash™, DuPont™ FlexWrap™ NF, or DuPont™ Flashing Tape at jambs must overlap the DuPont™ FlexWrap™ NF at the sill and adhere to the DuPont™ Tyvek® WRB below the sill.



STEP 5

- Flip down upper flap of DuPont™ Tyvek® WRB so it lays flat across head flashing.
- Tape seams as shown. **DO NOT TAPE** at bottom of window. At the head, continuous tape seams as shown with DuPont™ Tyvek® Tape. Skip taping at the head is acceptable if an air barrier is not required or if additional drainage is desired.
- Tape down diagonal seams of DuPont™ Tyvek® WRB.



STEP 6

Final Step

Install DuPont™ Residential Sealant, DuPont™ Commercial Sealant or recommended sealant (and backer rod as necessary) around the window opening at the interior. It is also acceptable to use DuPont™ Window & Door Foam or recommended foam. The seal created by the sealant (and backer rod as necessary) or foam will also serve as a back dam. DuPont™ Residential Sealant or DuPont™ Commercial Sealant should be tooled flat to allow the natural curing process to create a concave shape. Be sure that the sealant penetrates the grooves of the DuPont™ FlexWrap™ NF around the sill.

NOTE: Installations that specify a window/door design rating of DP45 or greater require extra precautions. See General Instructions for performance requirements exceeding this design rating.



3 WINDOW FLASHING

3/8" = 1'-0"

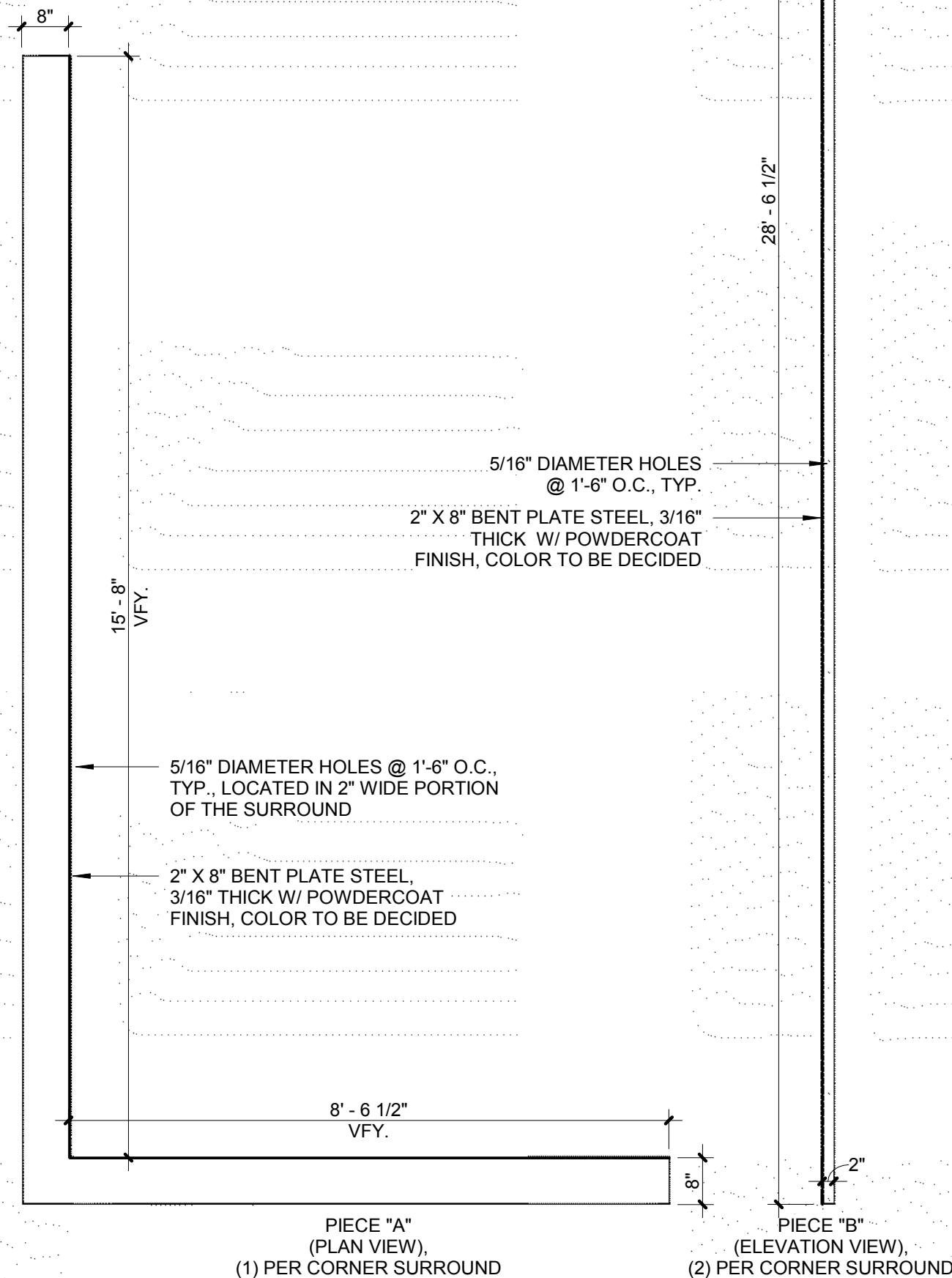
REFER TO INSTALLATION INSTRUCTIONS IN "DUPONT FLASHING SYSTEMS INSTALLATION GUIDELINES - INSTALLATION INSTRUCTIONS FOR WINDOWS AND DOORS AFTER WATER-RESISTIVE BARRIER (WRB) IS INSTALLED" FOR FULL INSTALLATION REQUIREMENTS.

1-1/2"X1-1/2"X1/8" STEEL
ANGLE BACK-DAM
CONTINUOUS WELD
BENT STEEL PLATE
WINDOW SURROUND

ALIGN

4 SURROUND BACK-DAM

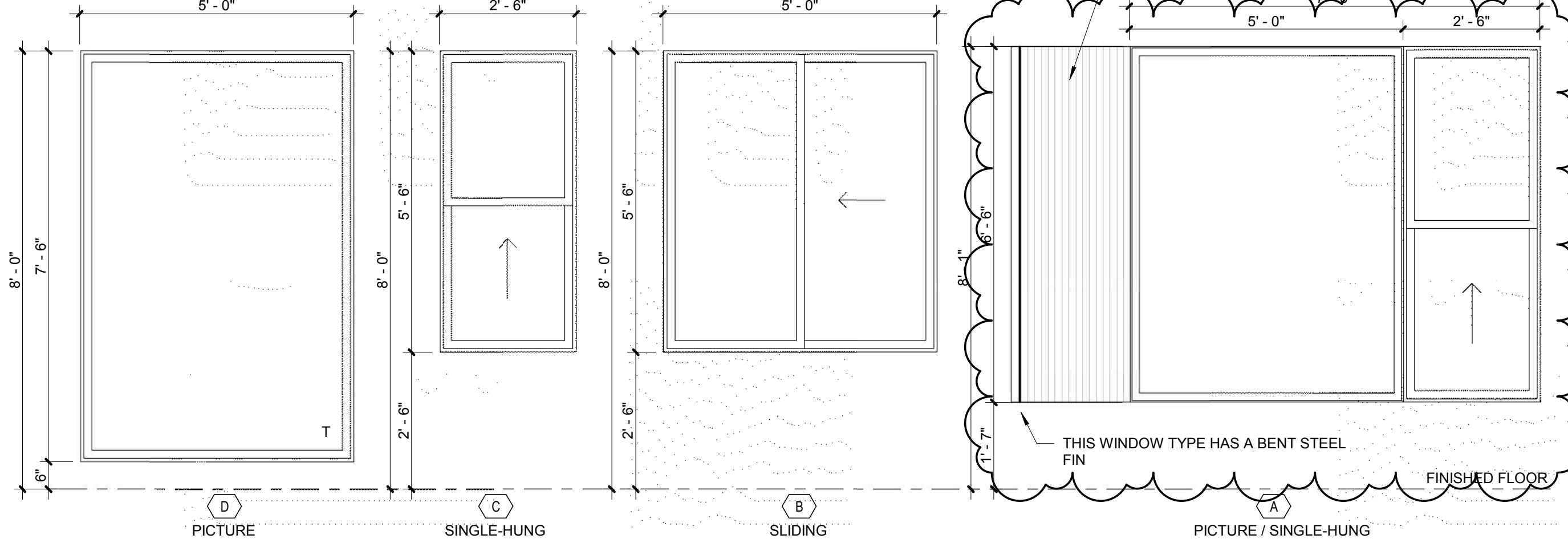
6" = 1'-0"



2 CORNER WINDOW SURROUND

1/2" = 1'-0"

- WINDOW GENERAL NOTES:**
- WINDOW TYPE B IS AN EMERGENCY ESCAPE AND RESCUE OPENING @ ALL SLEEPING ROOMS. IF ALTERNATE WINDOW MANUFACTURER CHOSEN, GC TO VERIFY WINDOW OPENINGS MEET CODE REQUIREMENTS.
 - PER ANSI, REACH RANGES FOR ALL OPERABLE AND LOCK HARDWARE AT TYPE A UNITS ARE TO BE A MAXIMUM OF 48" ABOVE FINISH FLOOR. WINDOWS AT TYPE A UNITS TO HAVE A MAXIMUM OPERATING FORCE OF 8.5#.
 - WINDOWS MAY BE MIRRORRED. REFER TO EXTERIOR ELEVATIONS FOR ACTUAL WINDOW ORIENTATIONS.
 - PROVIDE WINDOW OPENING CONTROL DEVICES AT ALL OPERABLE WINDOWS ABOVE LEVEL ONE TO LIMIT OPENING TO 4".
 - PROVIDE FIBERGLASS MESH SCREENS AT ALL OPERABLE WINDOWS.
 - DIMENSIONS NOTED AT WINDOWS BELOW ARE ROUGH OPENING SIZES, WINDOWS TO BE 1/2" SMALLER IN HEIGHT AND WIDTH.
 - T = TEMPERED



WINDOW TYPE ELEVATIONS



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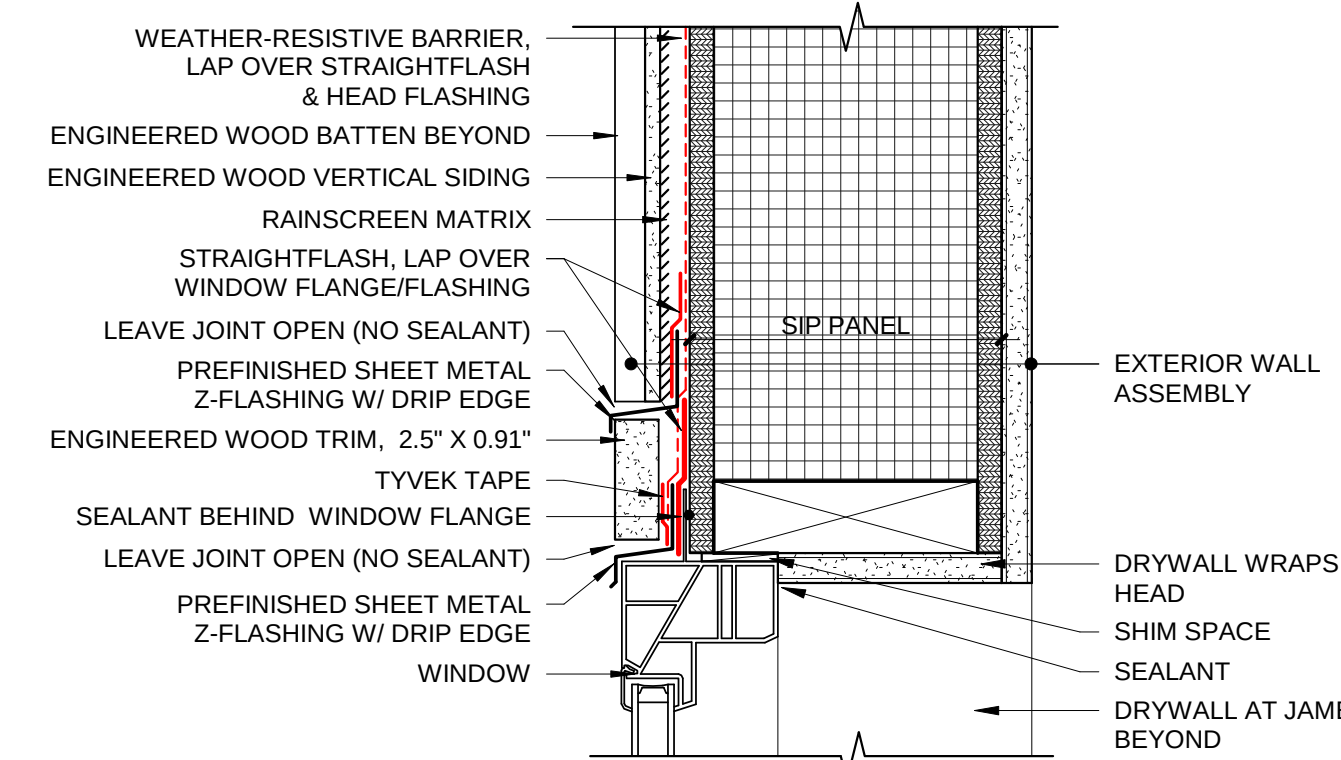
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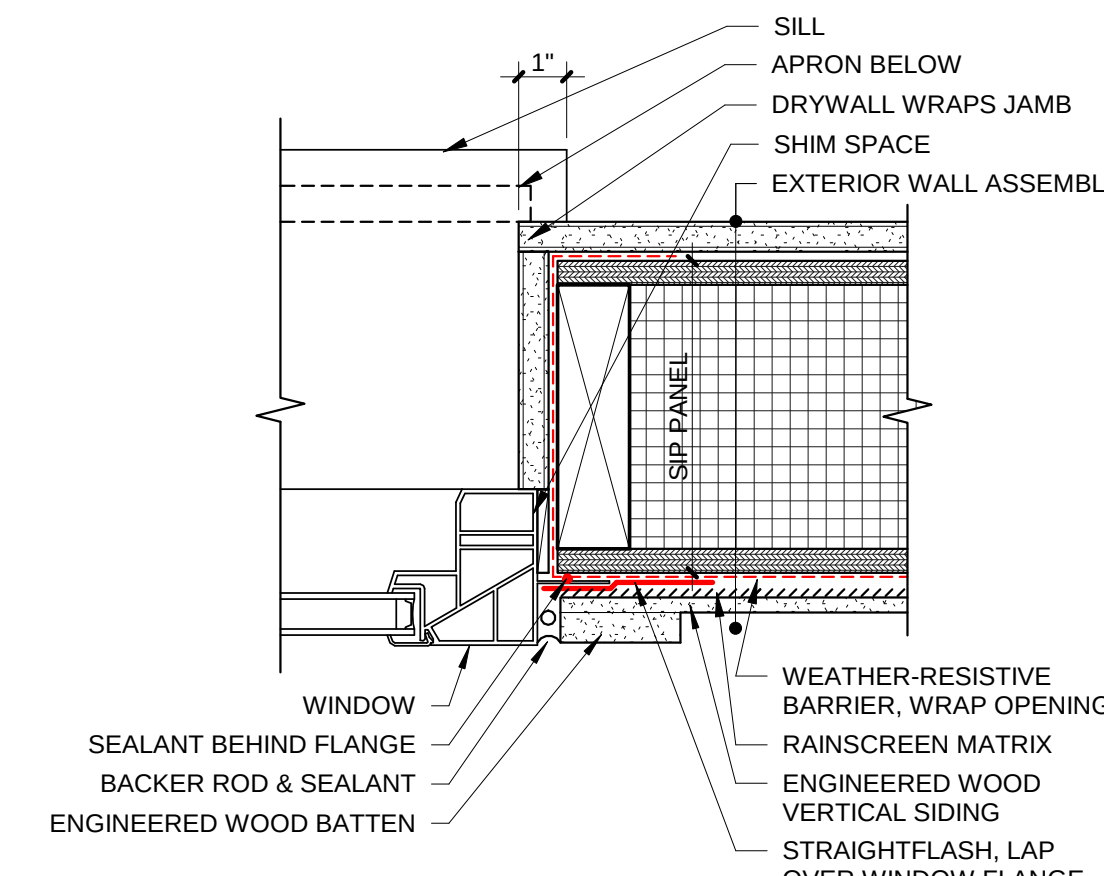
SHEET TITLE:
WINDOW DETAILS

SCALE: 3" = 1'-0"
SHEET NUMBER

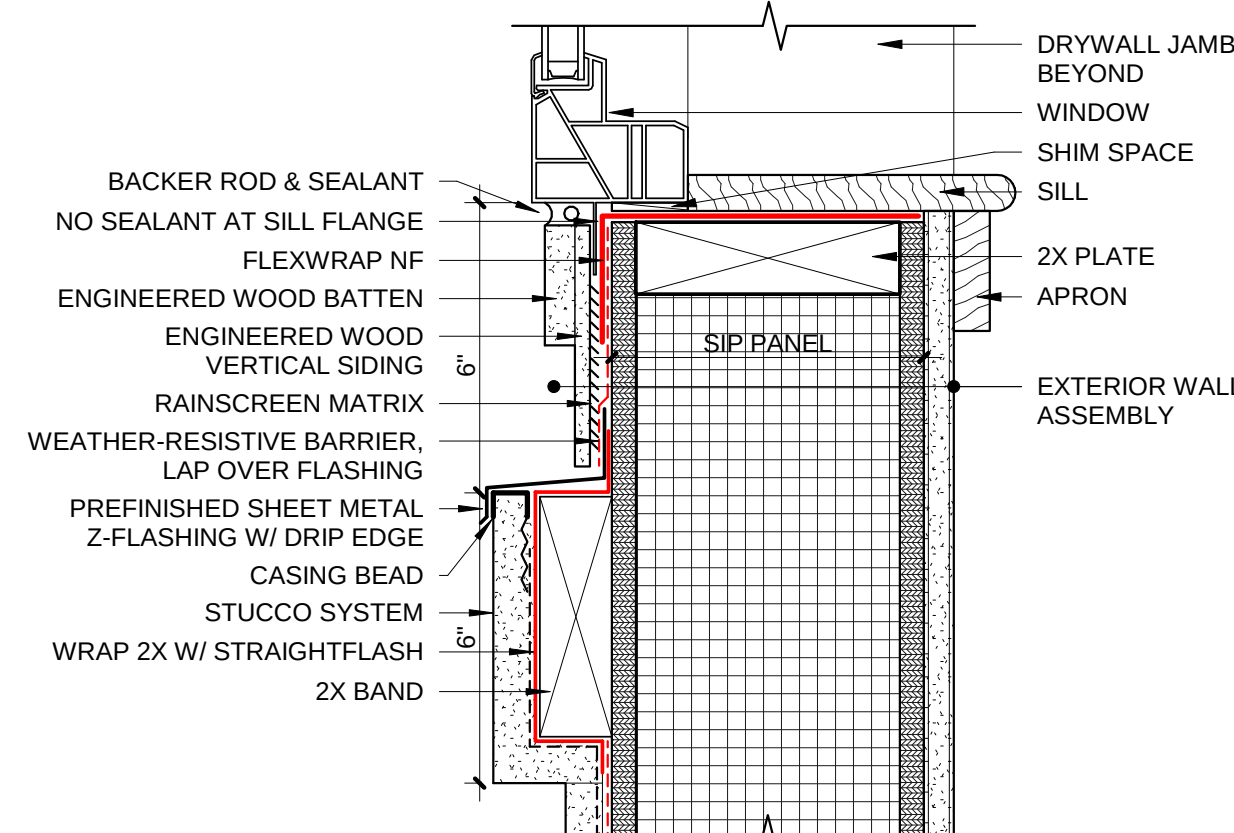
A-622



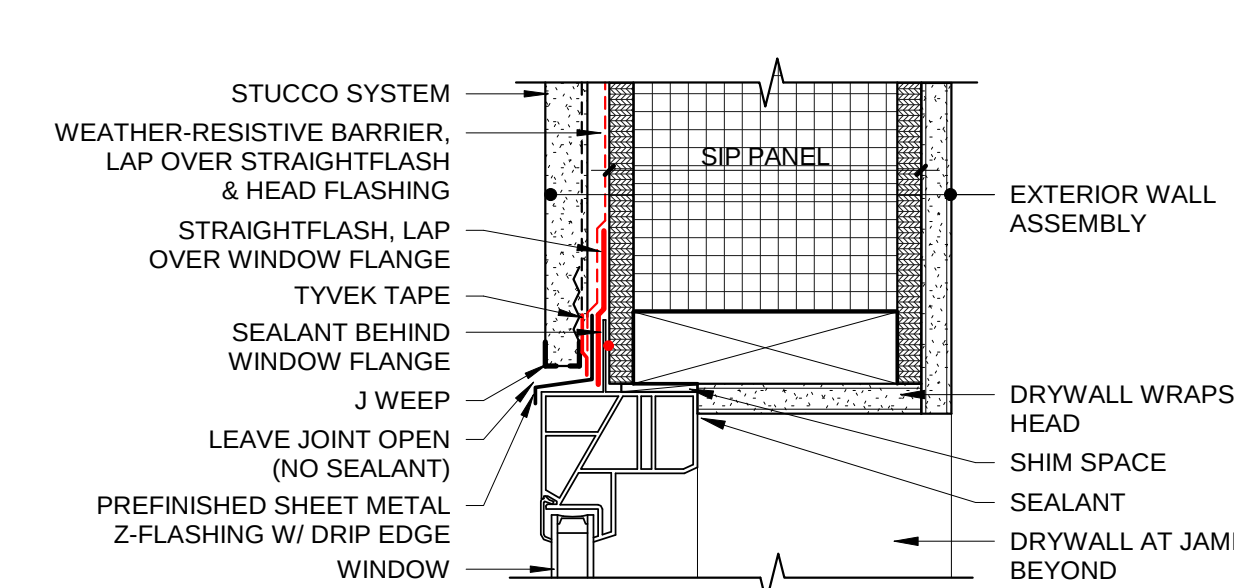
6 WINDOW HEAD @ BOARD & BATT.
3" = 1'-0"



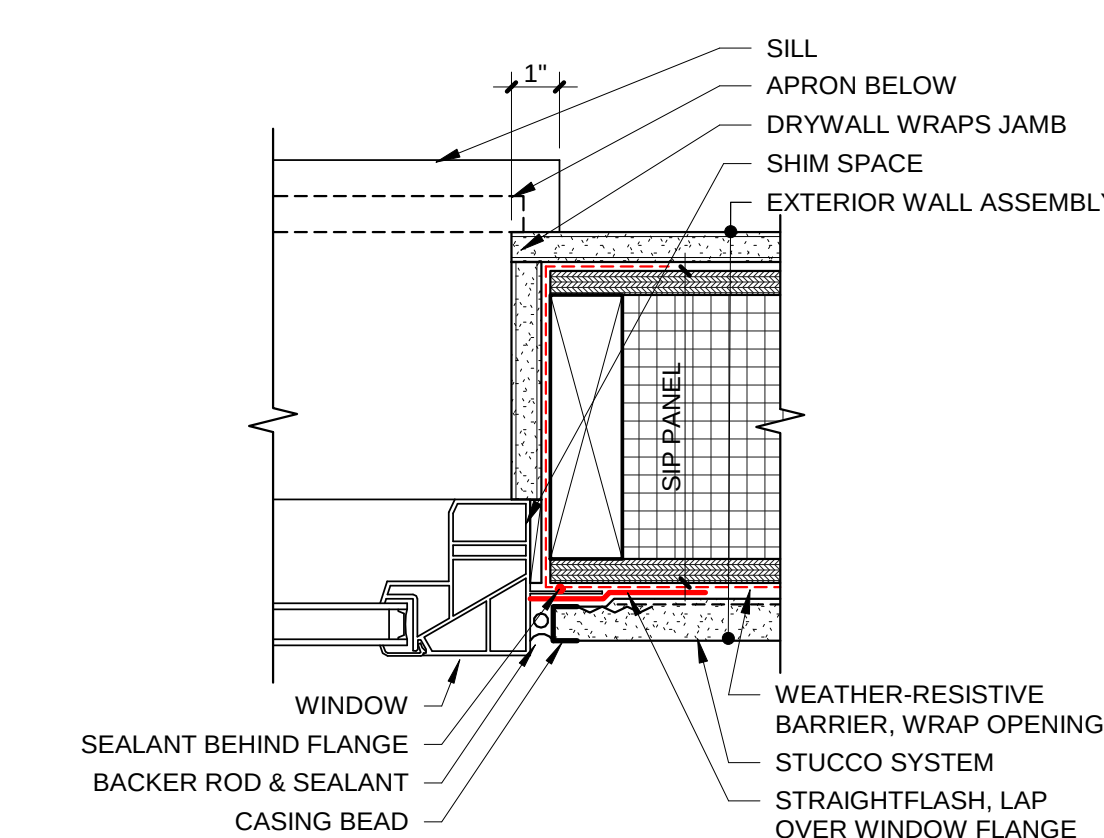
5 WINDOW JAMB @ BOARD & BATT.
3" = 1'-0"



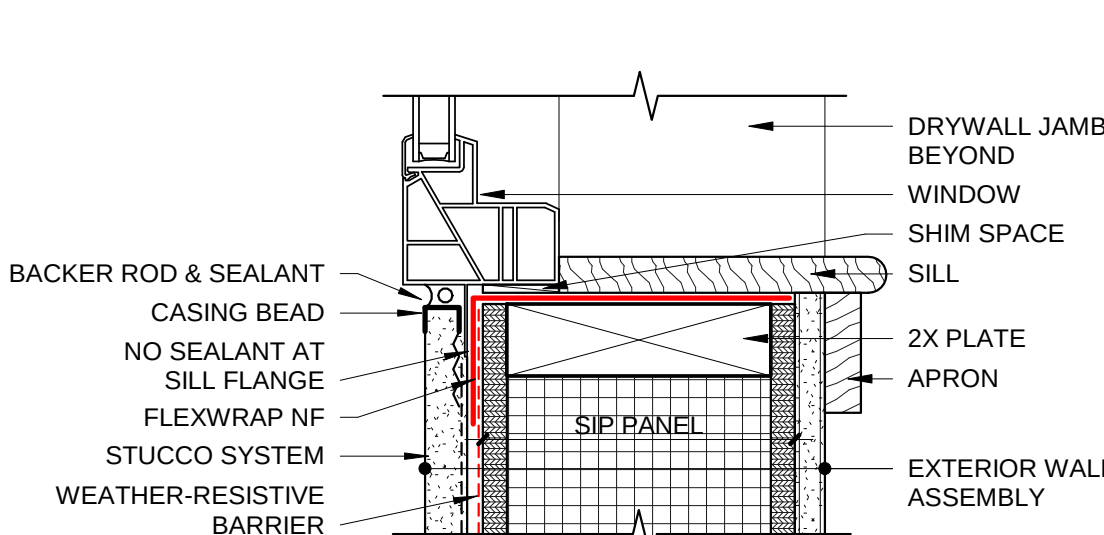
4 WINDOW SILL @ BOARD & BATT.
3" = 1'-0"



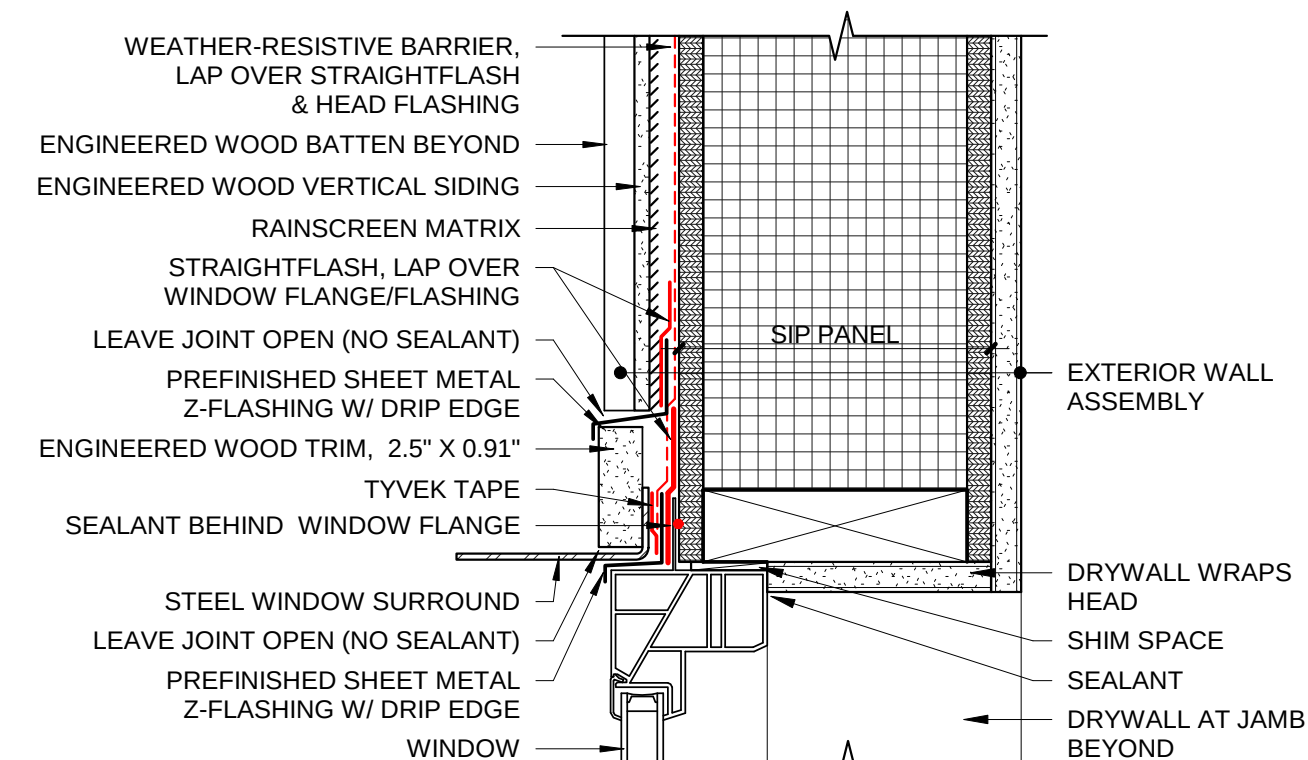
3 WINDOW HEAD @ STUCCO
3" = 1'-0"



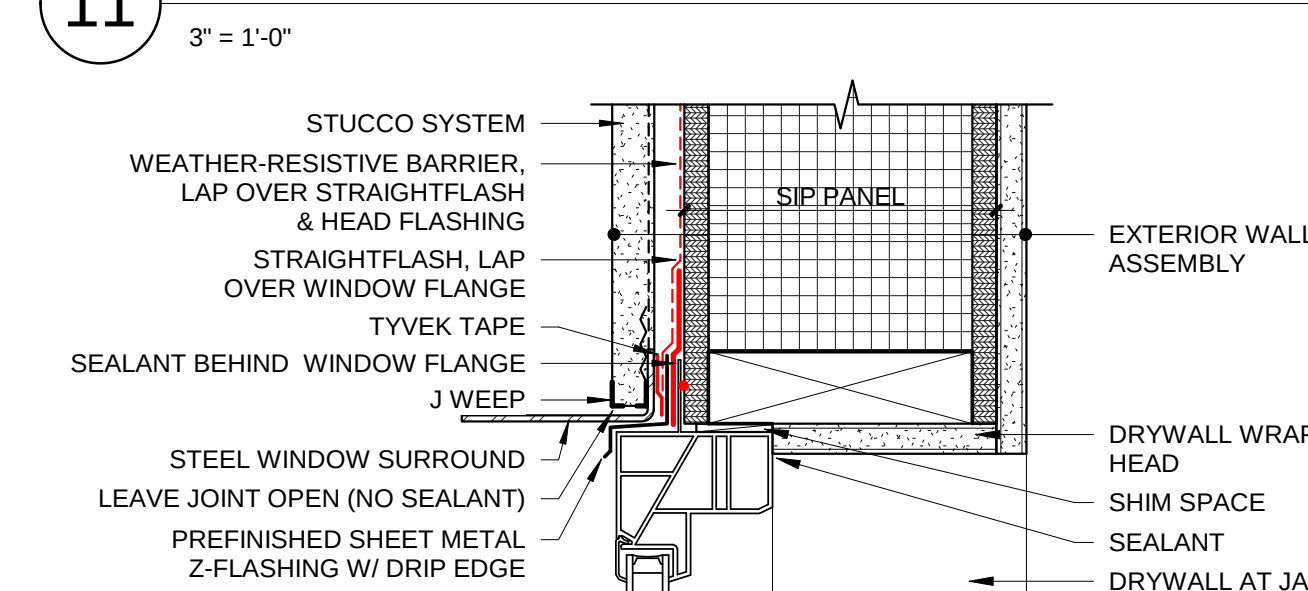
2 WINDOW JAMB @ STUCCO
3" = 1'-0"



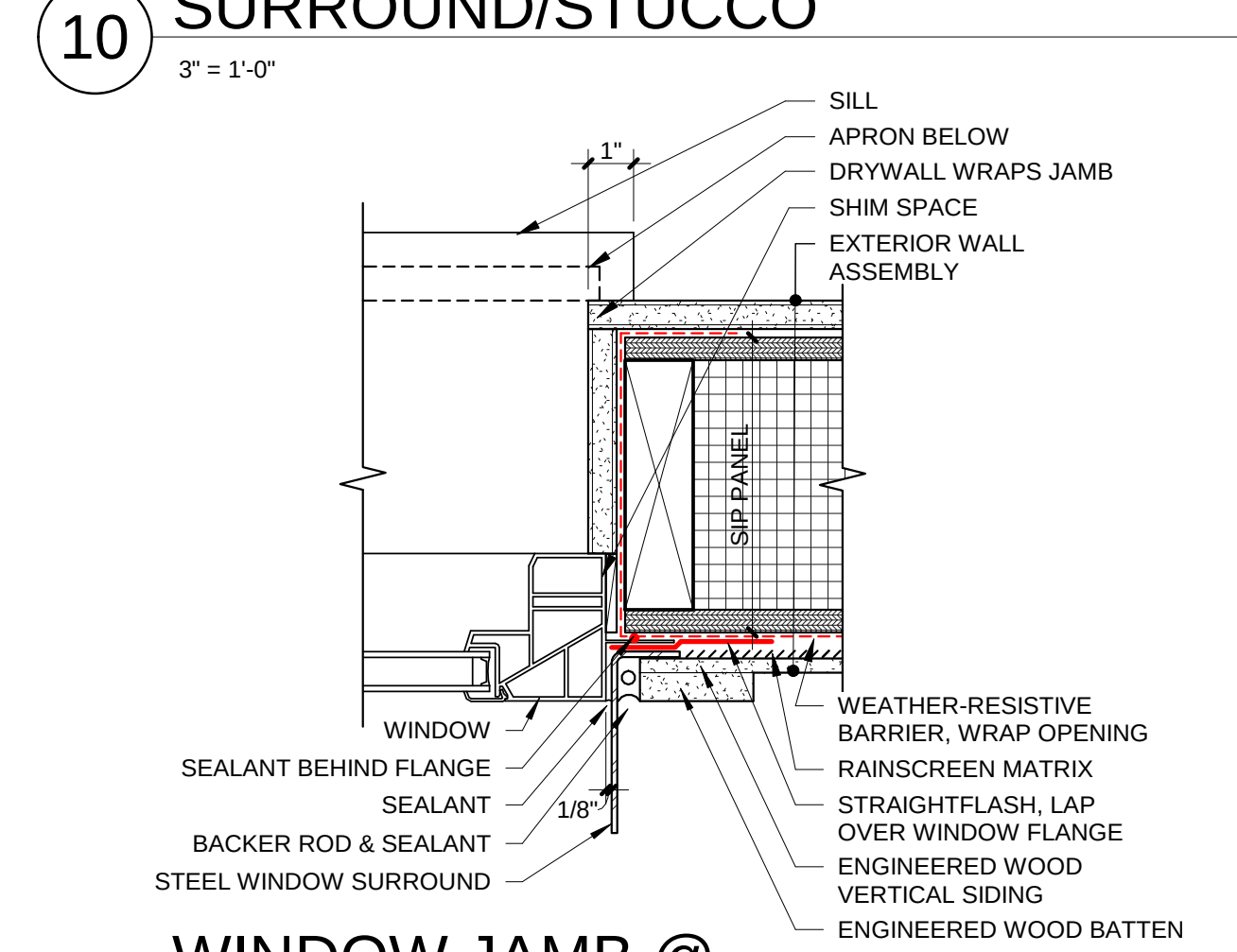
1 WINDOW SILL @ STUCCO
3" = 1'-0"



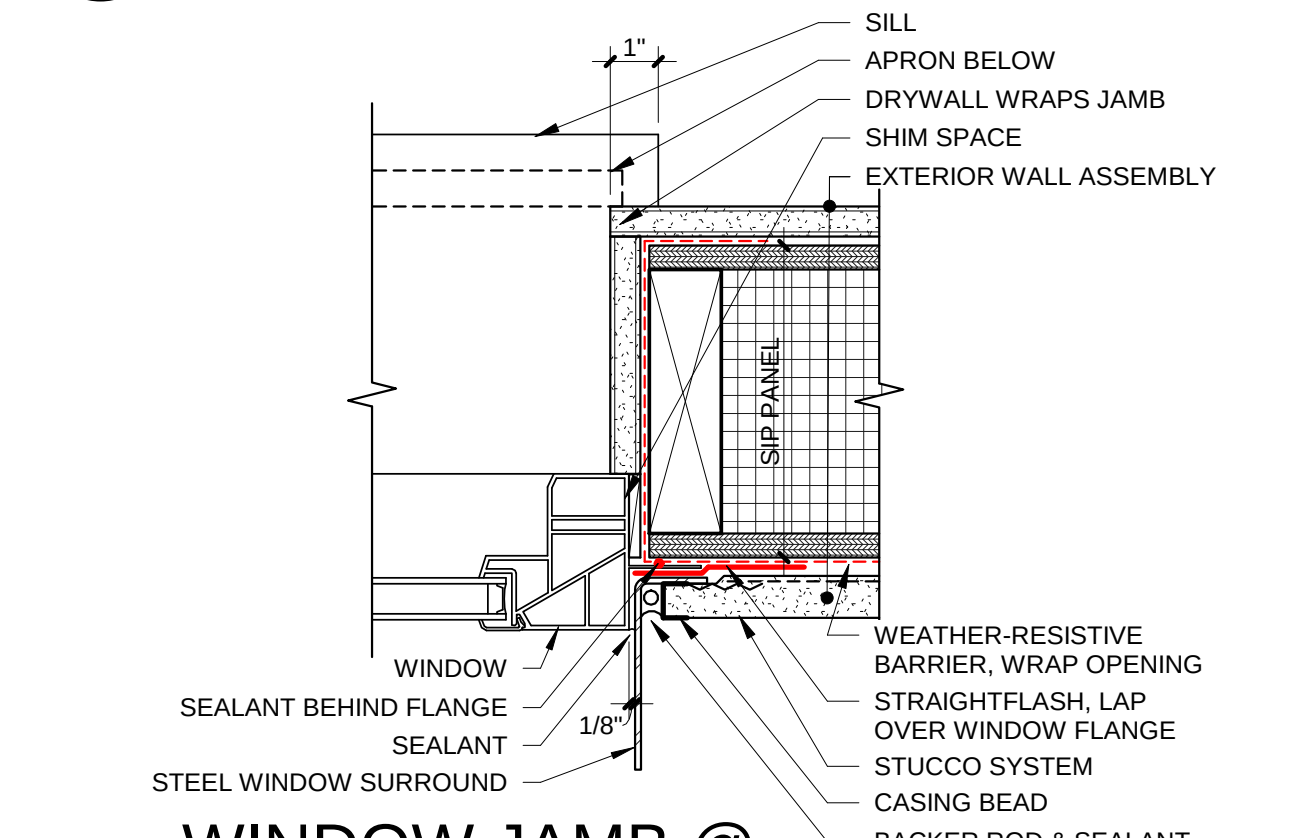
11 WINDOW HEAD @ SURROUND/BOARD & BATT.
3" = 1'-0"



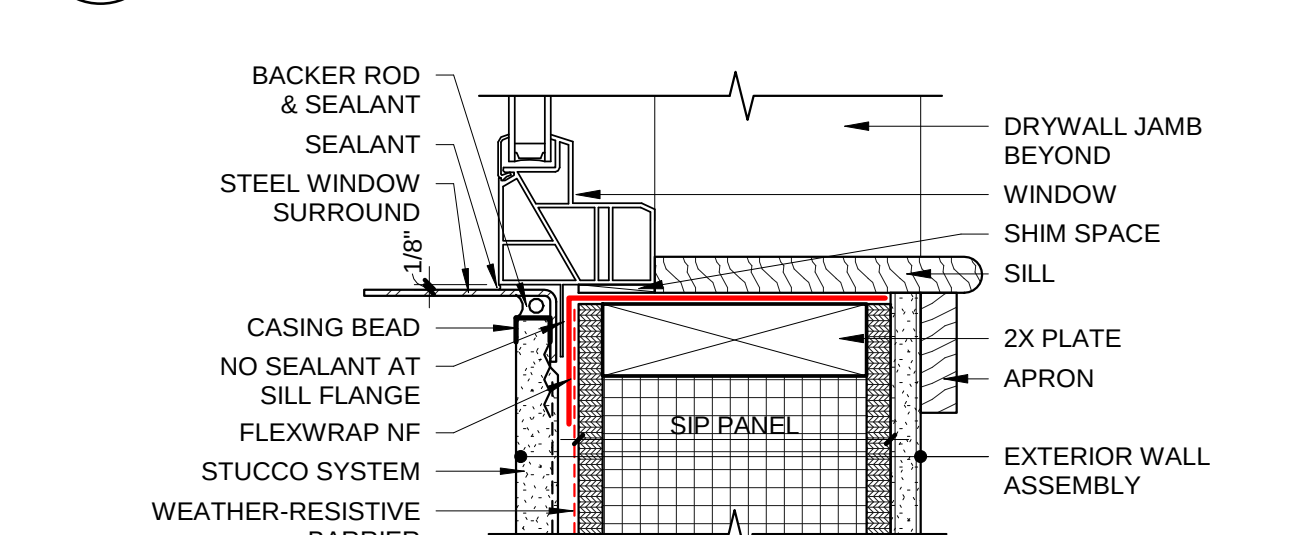
10 WINDOW HEAD @ SURROUND/STUCCO
3" = 1'-0"



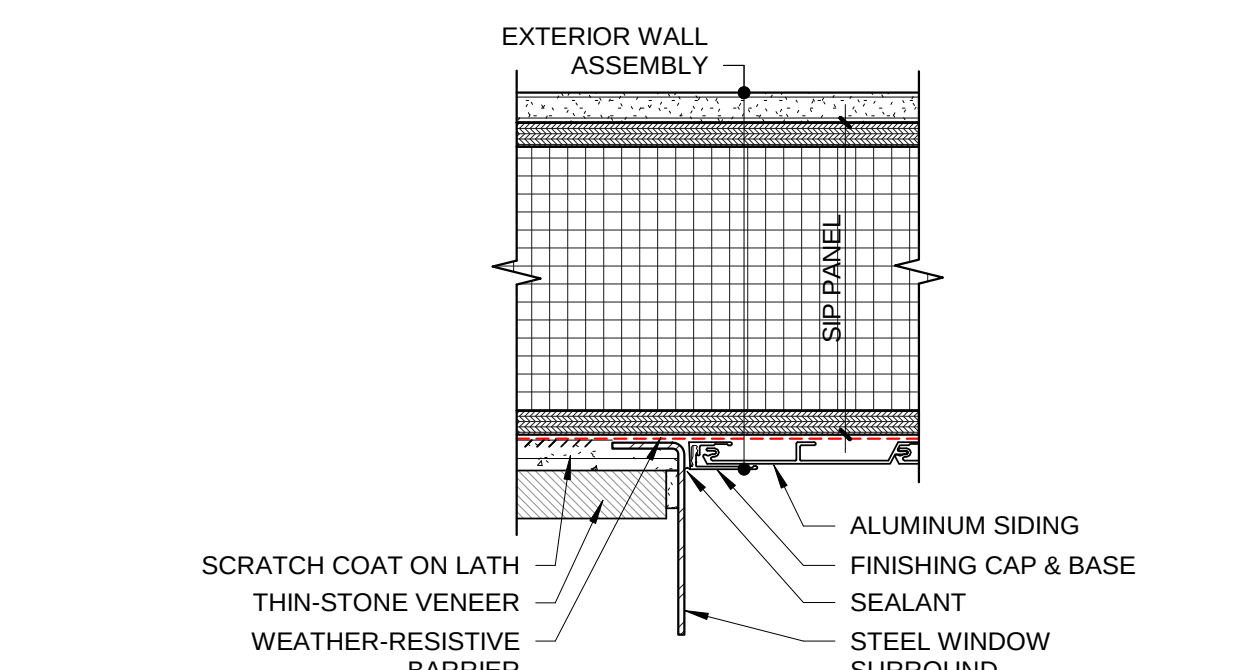
9 WINDOW JAMB @ SURROUND/BOARD & BATT.
3" = 1'-0"



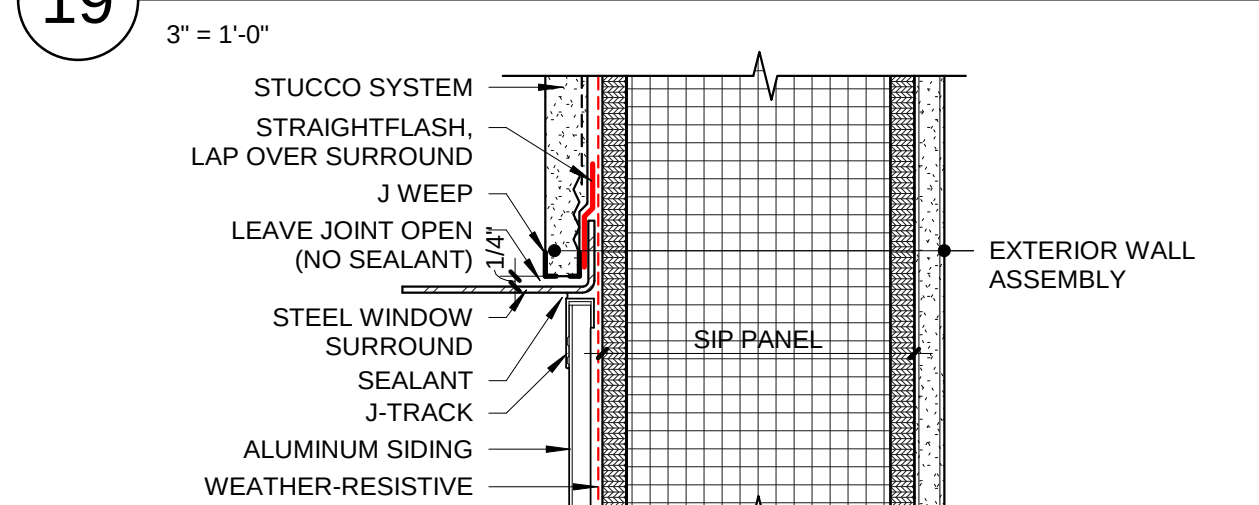
8 WINDOW JAMB @ SURROUND/STUCCO
3" = 1'-0"



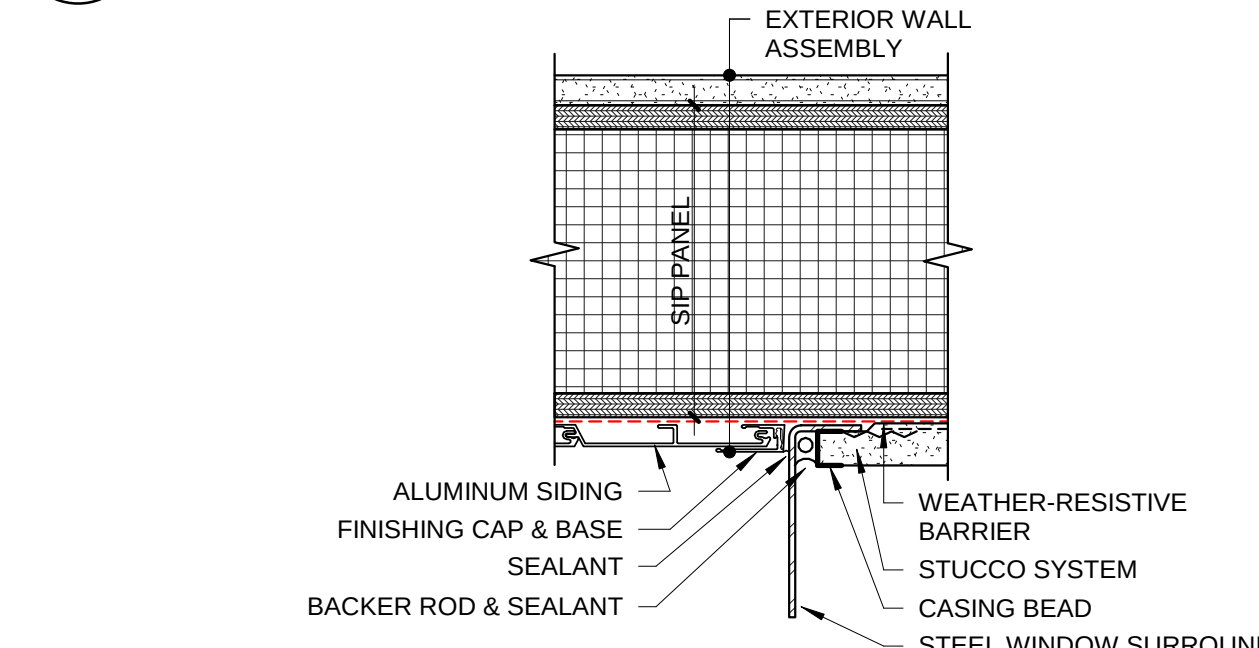
7 WINDOW SILL @ SURROUND/STUCCO
3" = 1'-0"



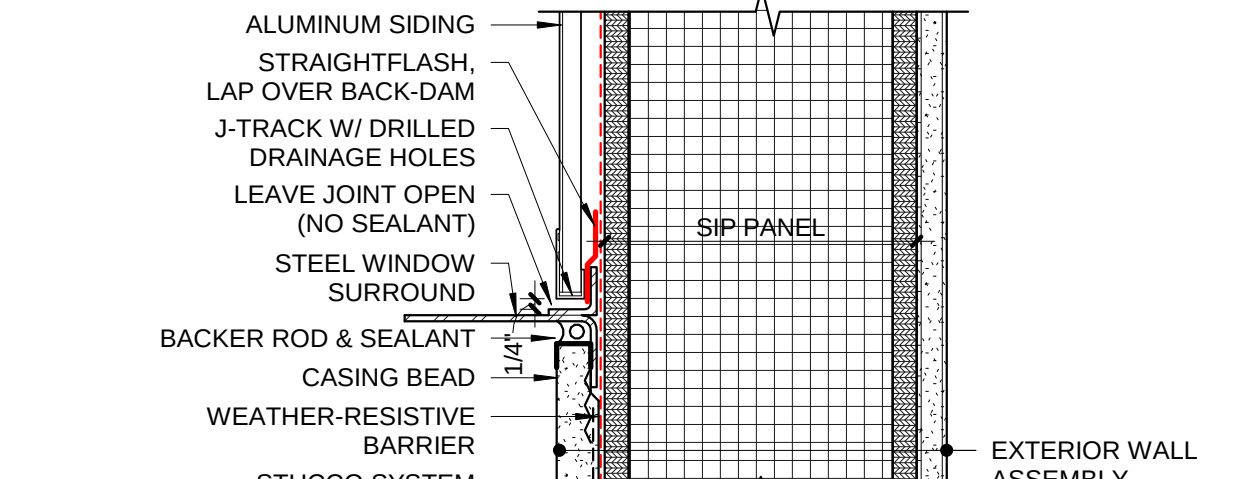
19 SURROUND @ STONE/ALUM. SIDING
3" = 1'-0"



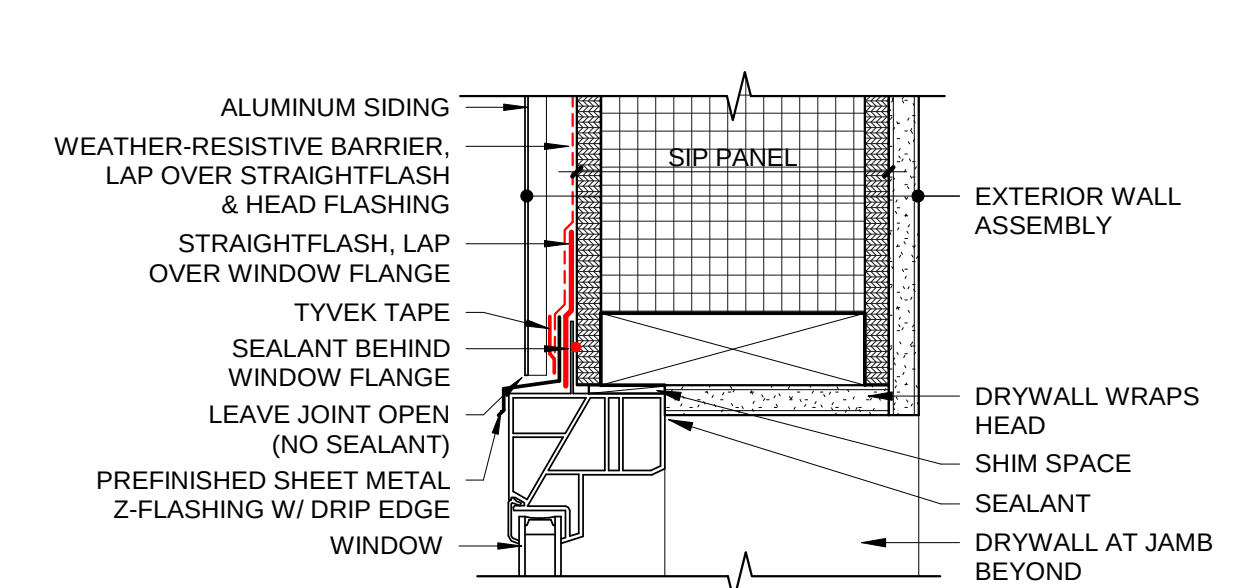
18 SURROUND HEAD @ ALUM. SIDING
3" = 1'-0"



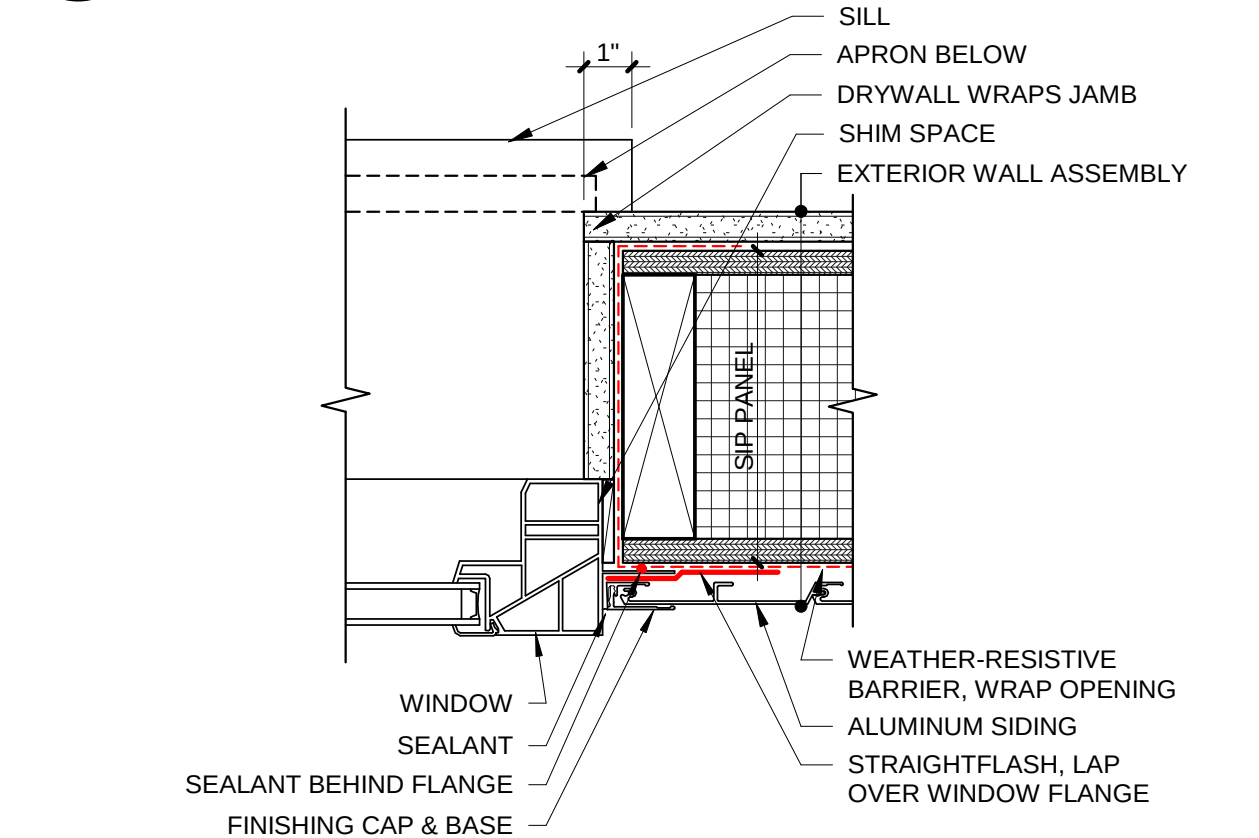
17 SURROUND JAMB @ ALUM. SIDING
3" = 1'-0"



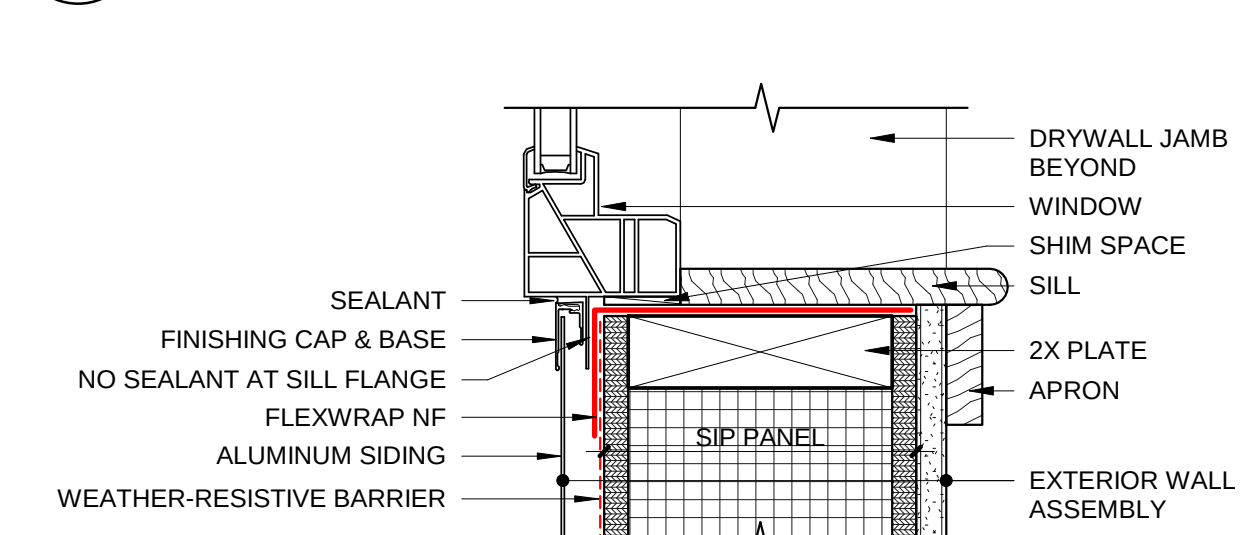
16 SURROUND SILL @ ALUM. SIDING
3" = 1'-0"



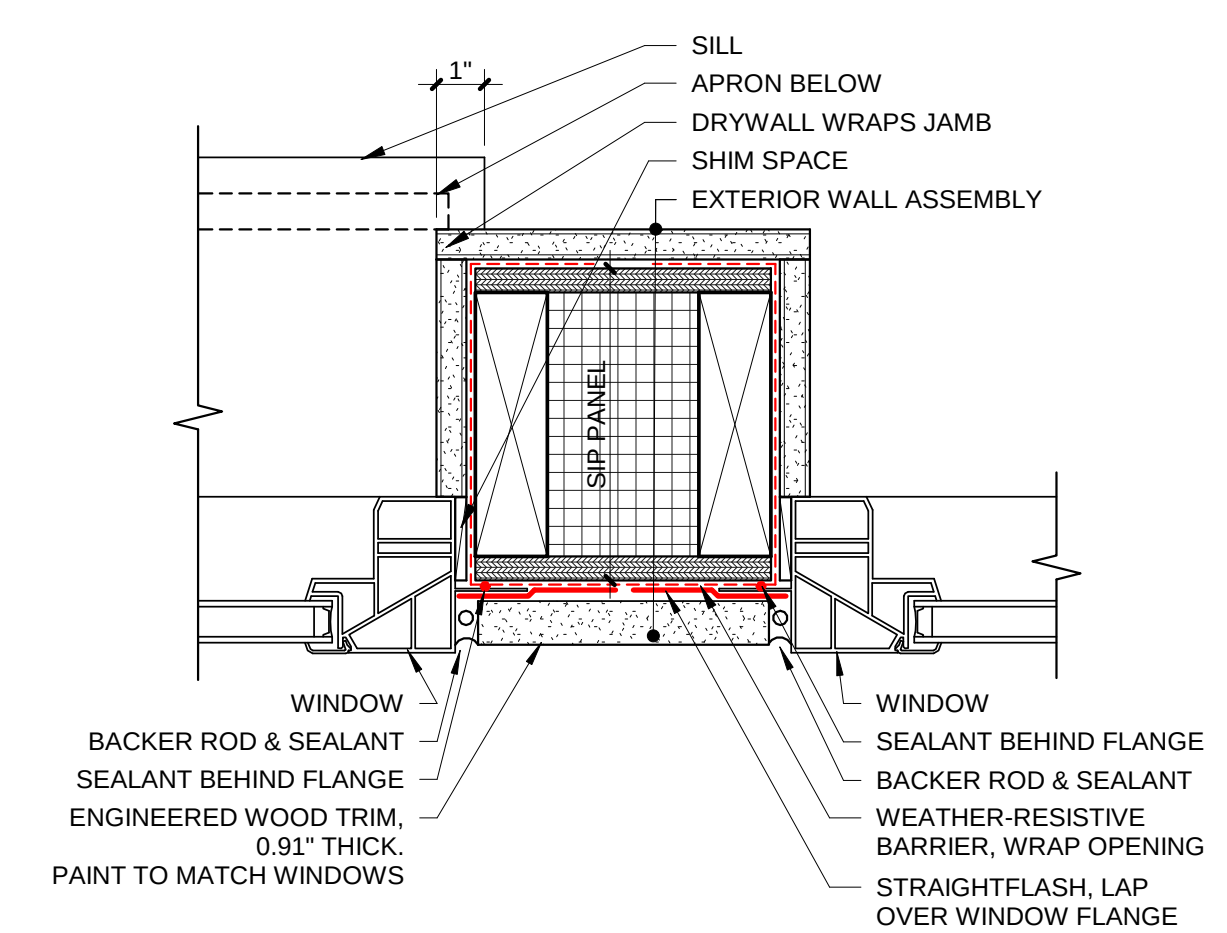
15 WINDOW HEAD @ ALUM. SIDING
3" = 1'-0"



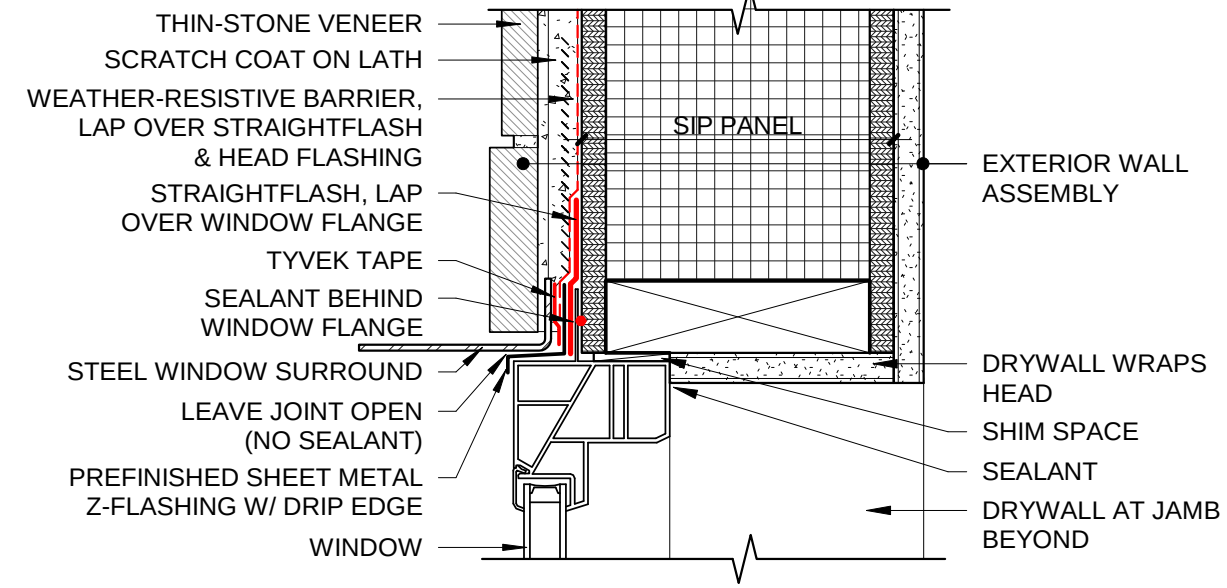
14 WINDOW JAMB @ ALUM. SIDING
3" = 1'-0"



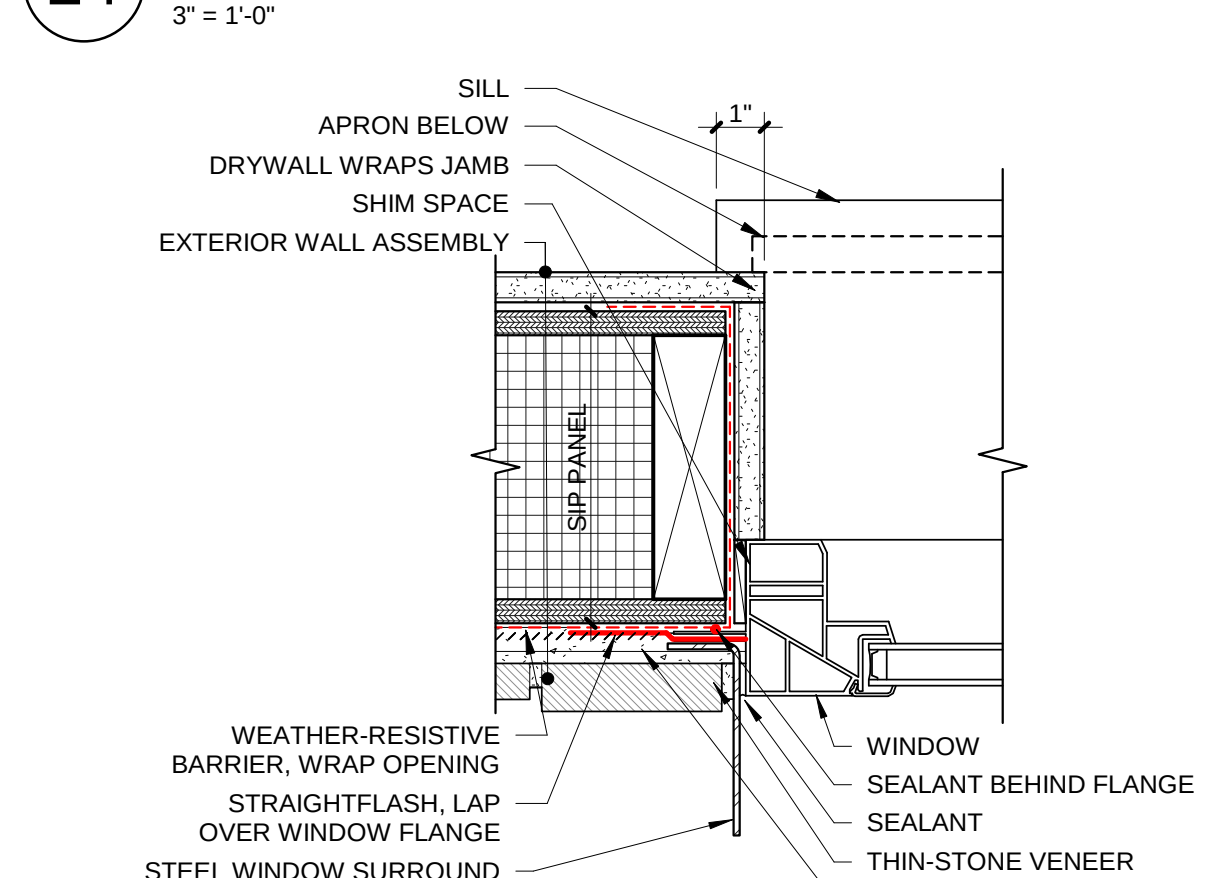
13 WINDOW SILL @ ALUM. SIDING
3" = 1'-0"



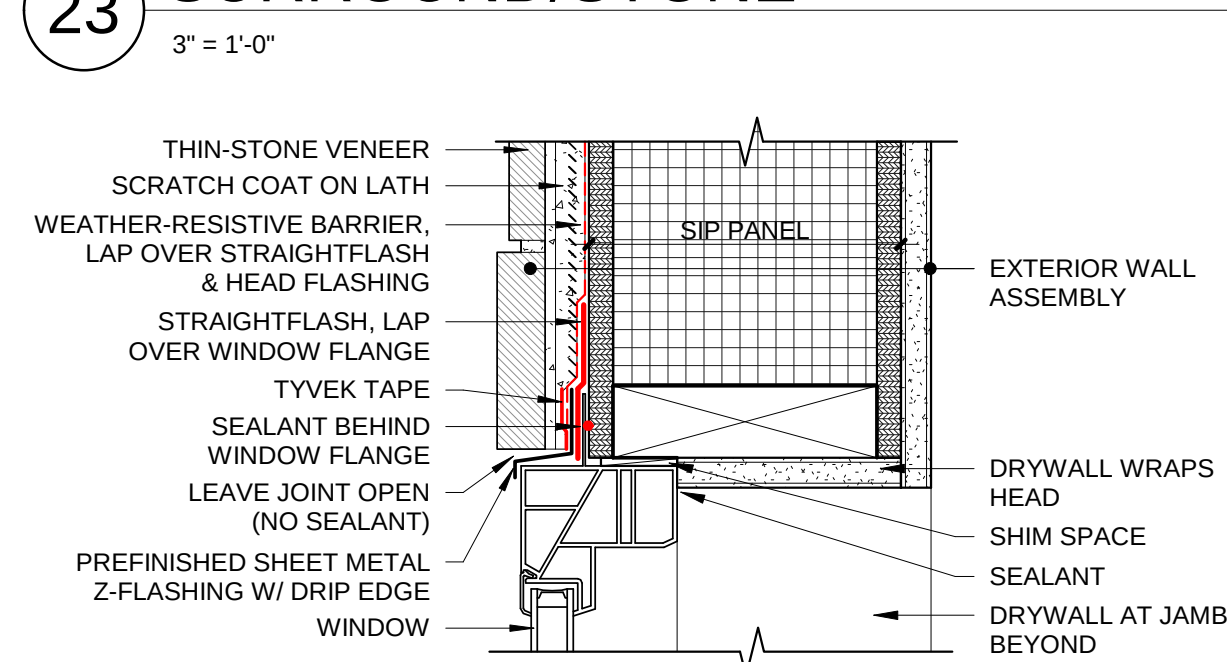
25 WINDOW JAMBS @ TRIM
3" = 1'-0"



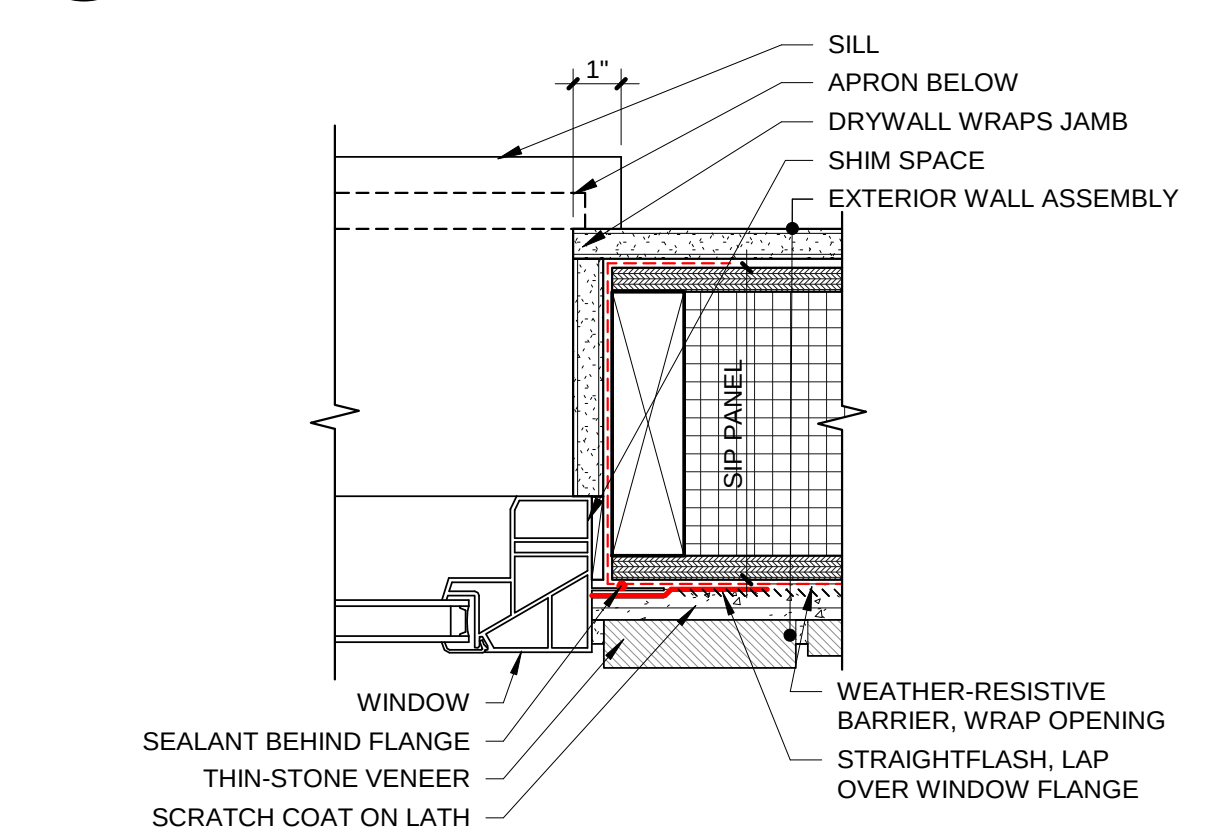
24 WINDOW HEAD @ SURROUND/STONE
3" = 1'-0"



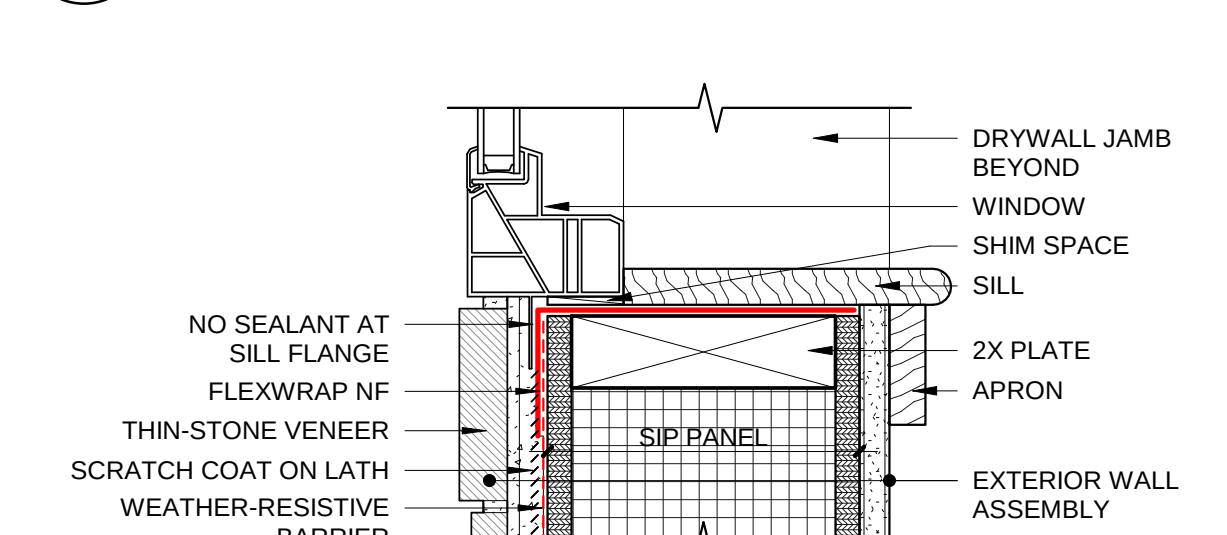
23 WINDOW JAMB @ SURROUND/STONE
3" = 1'-0"



22 WINDOW HEAD @ STONE
3" = 1'-0"



21 WINDOW JAMB @ STONE
3" = 1'-0"



20 WINDOW SILL @ STONE
3" = 1'-0"



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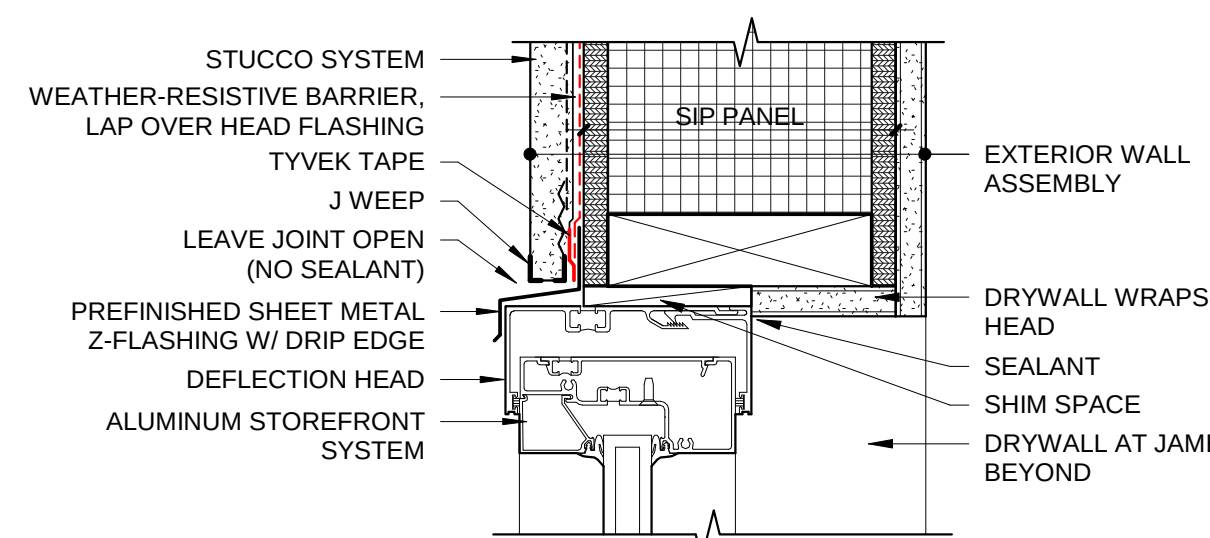
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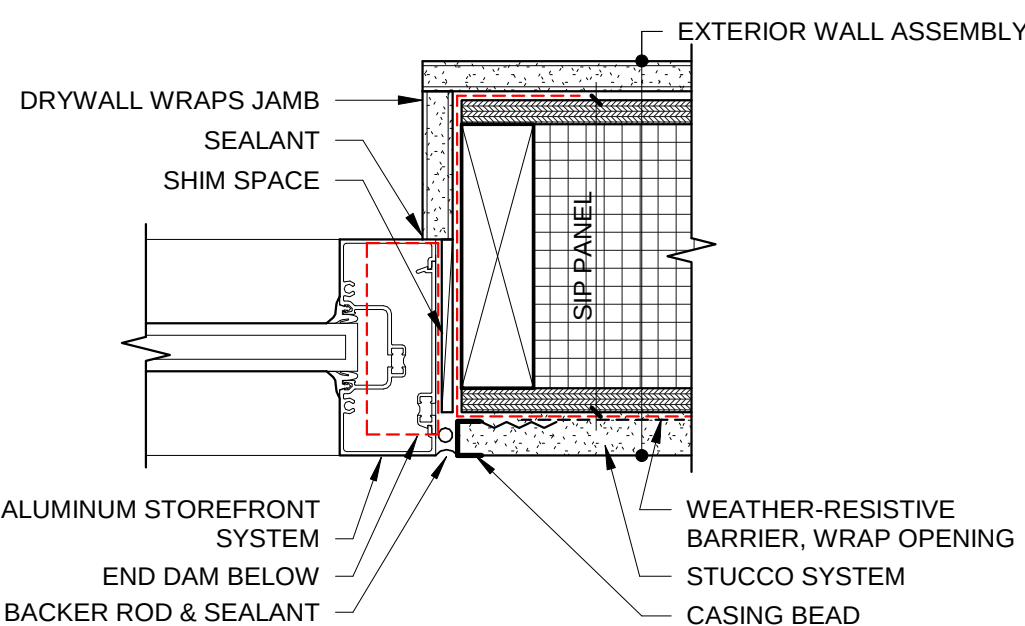
SHEET TITLE:
STOREFRONT TYPES &
DETAILS

SCALE: As indicated
SHEET NUMBER

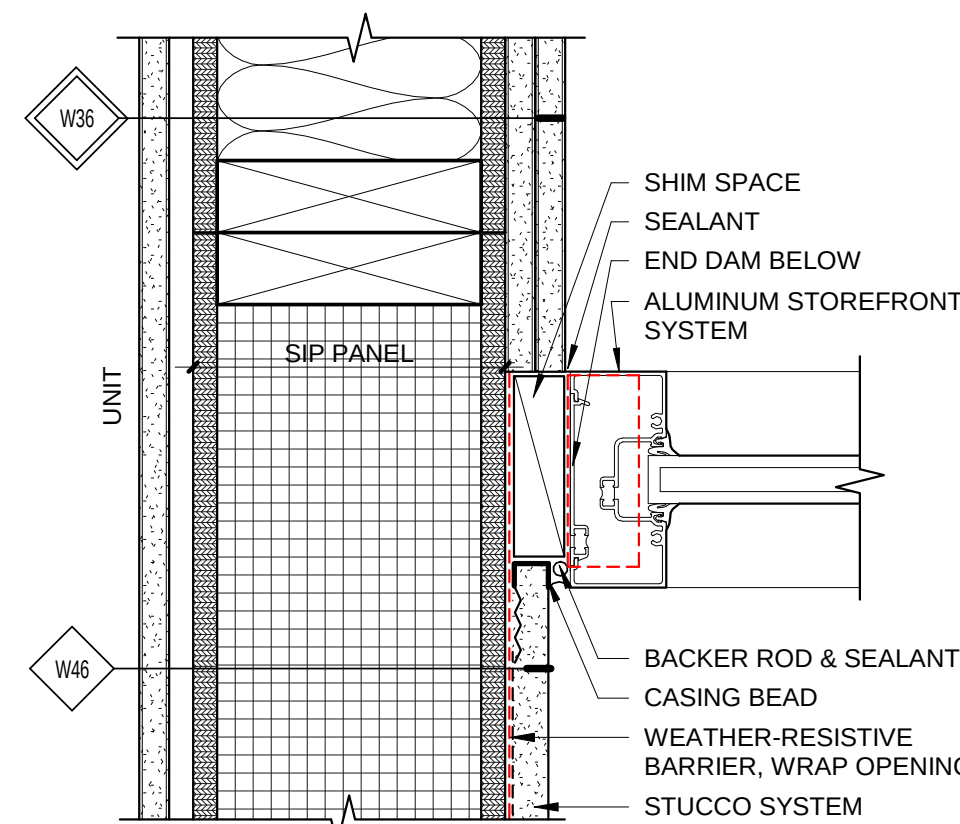
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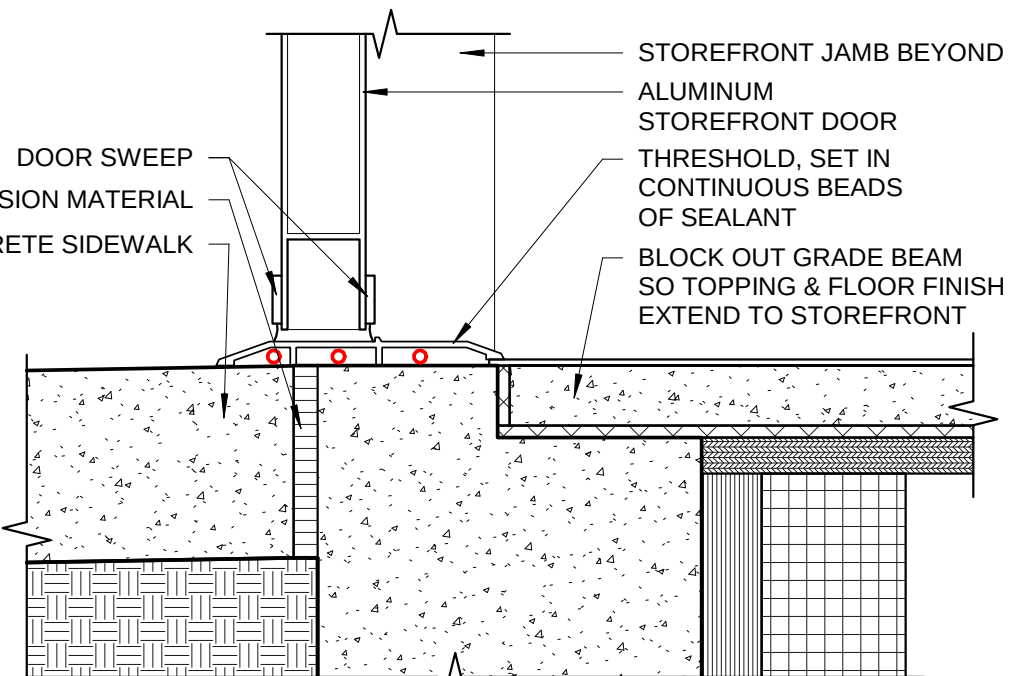
3 STOREFRONT HEAD @ STUCCO
3" = 1'-0"



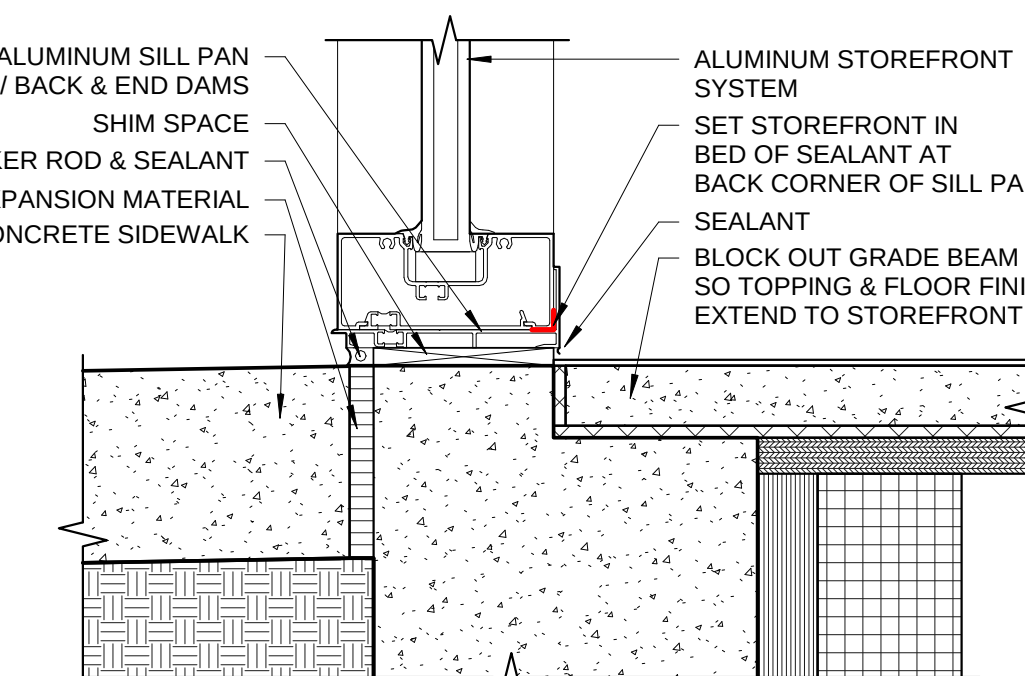
2 STOREFRONT JAMB @ STUCCO
3" = 1'-0"



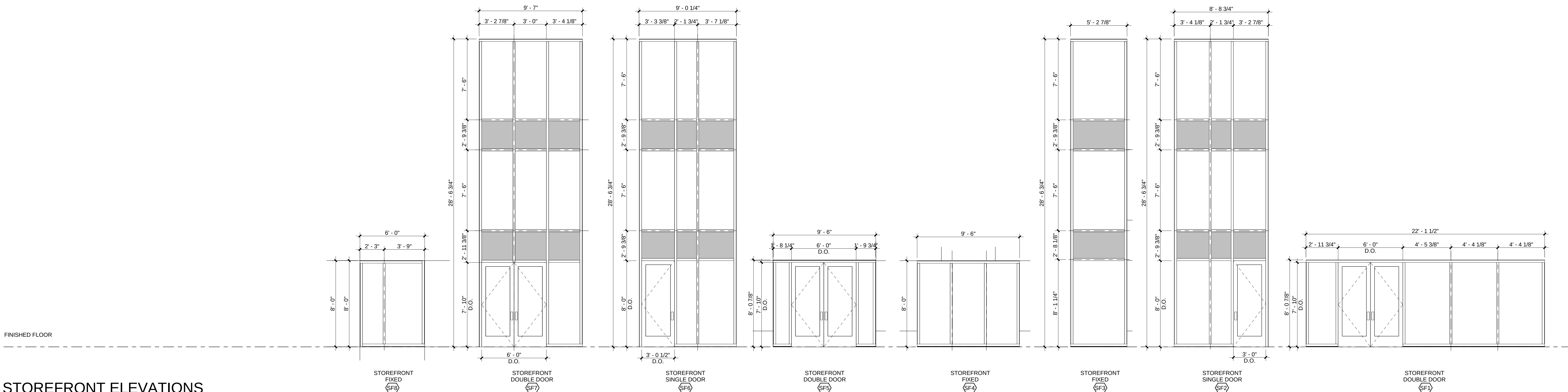
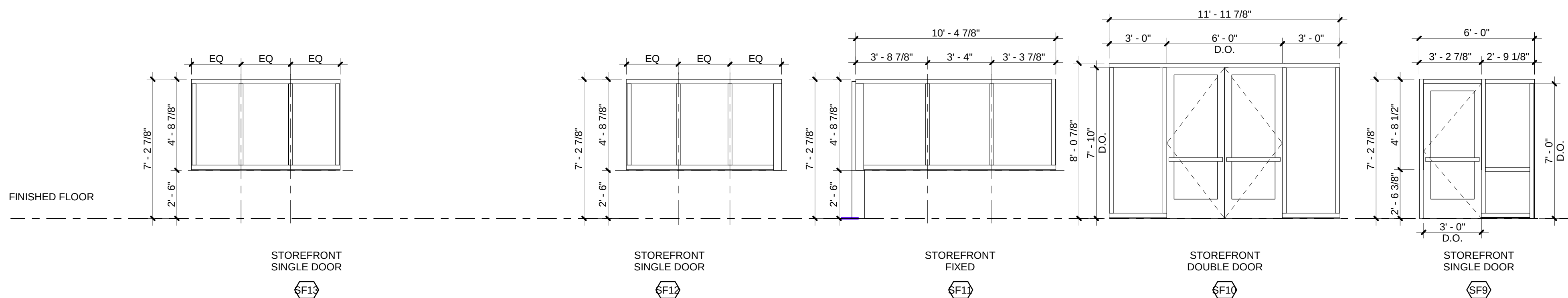
5 STOREFRONT JAMB @ STUCCO - 2
3" = 1'-0"



4 STOREFRONT DOOR SILL
3" = 1'-0"

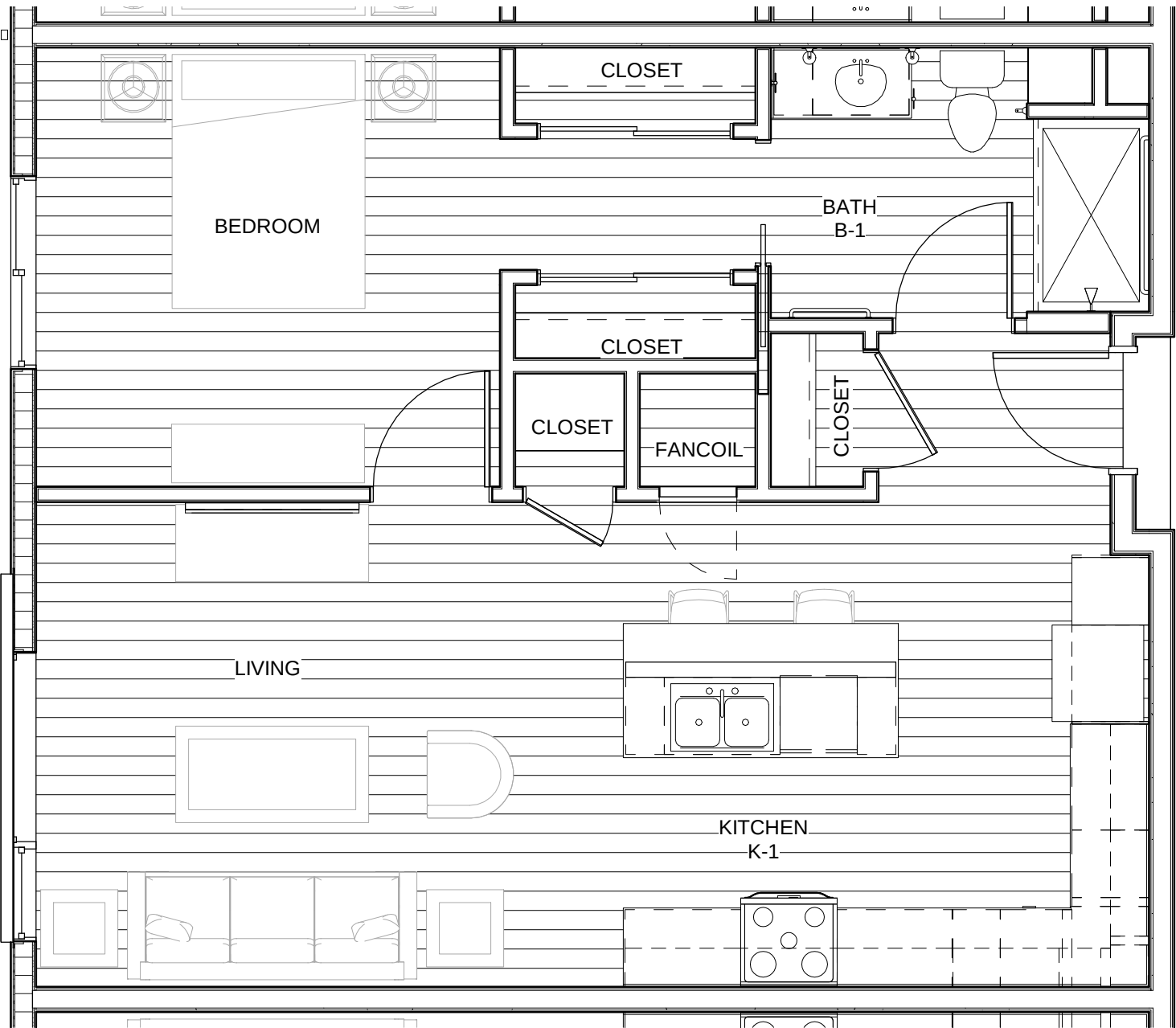


1 STOREFRONT WINDOW SILL
3" = 1'-0"

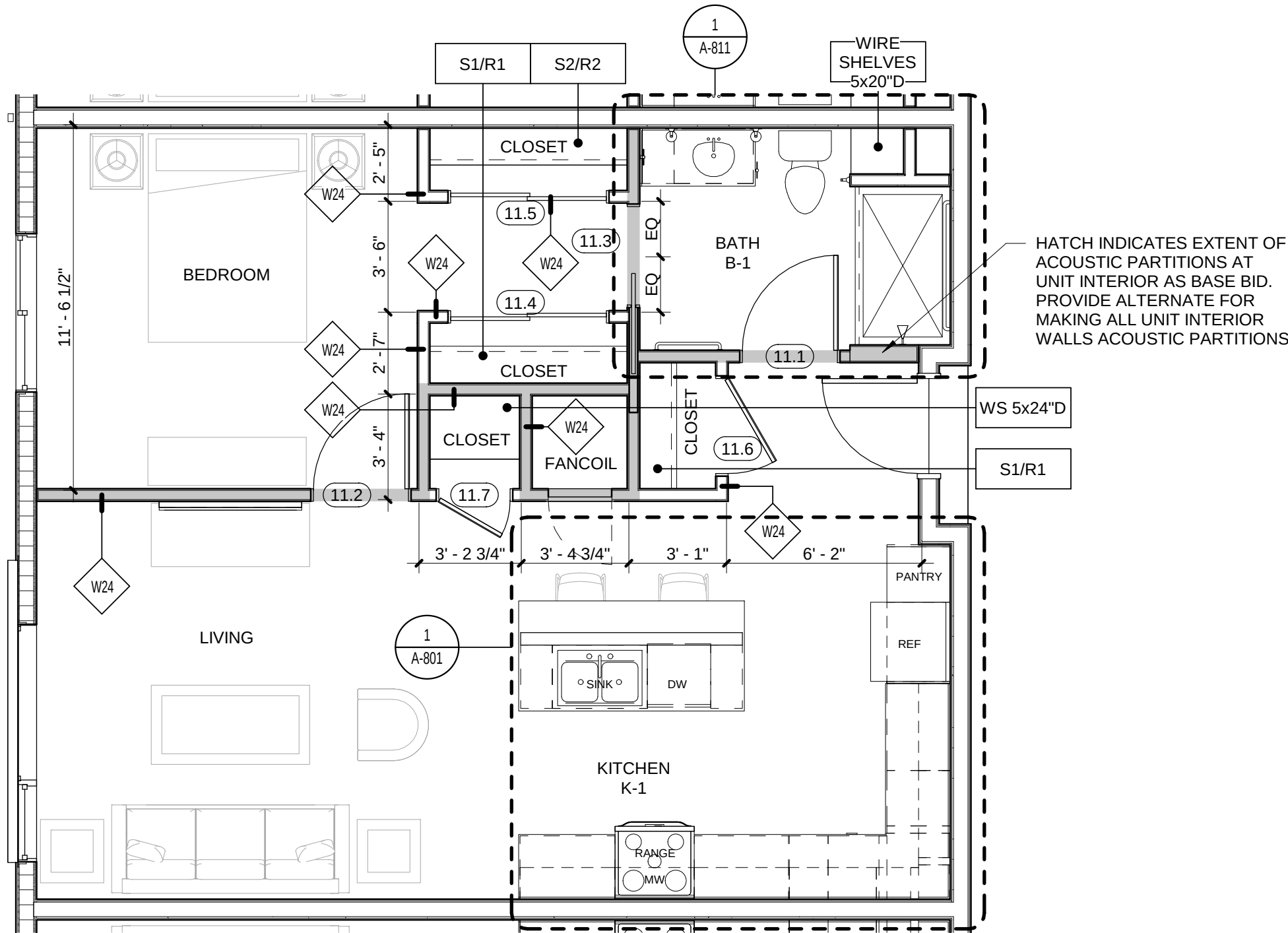


STOREFRONT ELEVATIONS

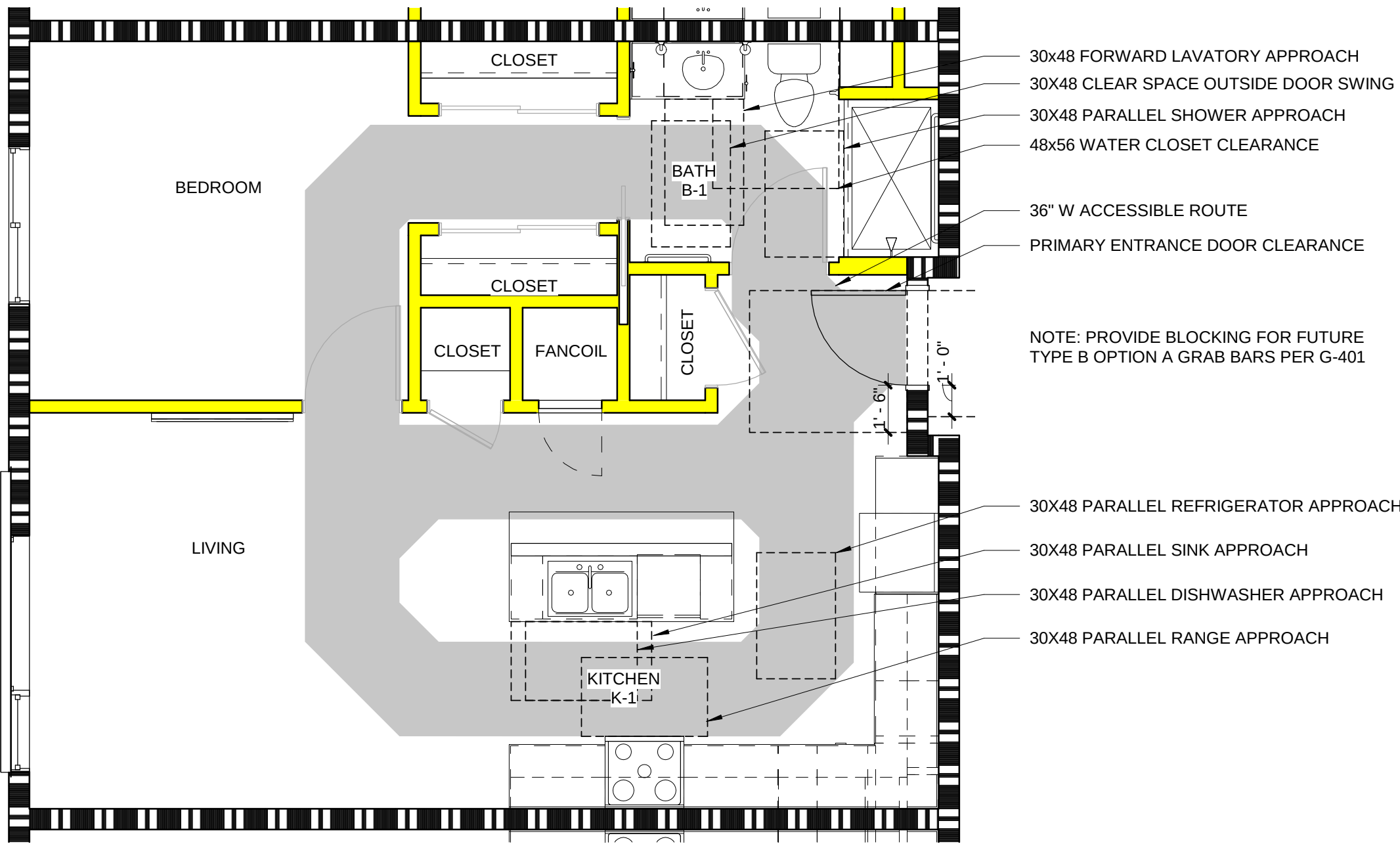
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2 UNIT 1.1 - FINISH PLAN
1/4" = 1'-0"



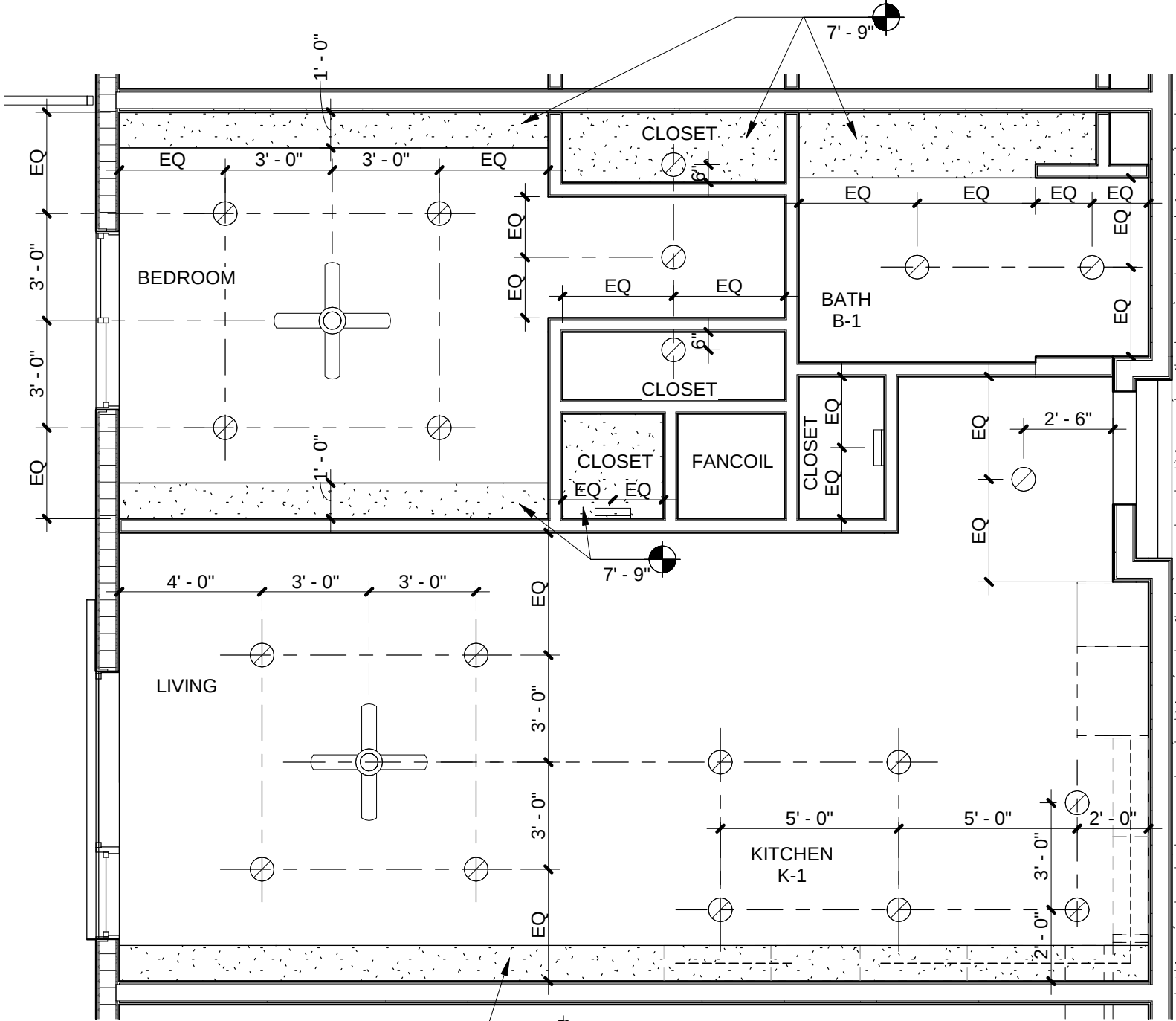
1 UNIT 1.1 - FLOOR PLAN
1/4" = 1'-0"



BATH TYPE:
TYPE B, OPTION A

4 UNIT 1.1 - CODE PLAN
1/4" = 1'-0"

UNIT 1.1 DOOR SCHEDULE														
DOOR NUMBER	PANEL TYPE	LEAF QUANTITY	LEAF WIDTH	DOOR			MATERIAL	FINISH	ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME			COMMENTS
				OPENING WIDTH	HEIGHT	THICKNESS					FRAME TYPE	MATERIAL	FINISH	
11.1	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
11.2	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
11.3	FP	1	3'-2"	3'-2"	6'-8"	1 3/8"	COMPOSITE	PT	0		6	WD	PT	
11.4	FP	2	2'-6"	5'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		5	WD	PT	
11.5	FP	2	2'-6"	5'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		5	WD	PT	
11.6	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
11.7	FP	1	2'-3"	2'-3"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	



NOTE: SOFFIT / DROPPED
CEILING AT LEVEL 3 ONLY

3 UNIT 1.1 - REFLECTED CEILING PLAN
1/4" = 1'-0"

UNIT PLAN NOTES	
1	UNIT PLANS MAY BE MIRRORED AND/OR ROTATED RELATIVE TO THE FLOOR PLAN. REFER TO OVERALL FLOOR PLANS FOR LOCATION AND ORIENTATION OF UNITS.
2	SEE OVERALL FLOOR PLANS FOR DEMISING PARTITIONS, UNIT/CORRIDOR PARTITIONS, UNIT ENTRY DOORS AND EXTERIOR DOORS AND WINDOWS.
3	DIMENSIONS ARE TO FACE OF STUD OR COLUMN CENTERLINE UON.
4	DIMENSIONS DESIGNATED AS "CLEAR" OR "HOLD" SHALL BE MAINTAINED.
5	FURNITURE IS SHOWN FOR LAYOUT PURPOSES ONLY AND IS NIC.
6	"TYPE A" AND "TYPE B" ACCESSIBLE UNITS ARE TO MEET IBC CHAPTER 11 AND ICC A117.1 CHAPTER 10.
7	DEVICES SHALL BE MOUNTED BETWEEN 18" - 48" AFF. DEVICES INCLUDE OUTLETS, THERMOSTATS, SWITCHES, CONTROLS, AND OTHER DEVICES.
8	PROVIDE GRAB BAR REINFORCEMENT AT ALL BATHROOMS. SEE SHEET G-401.
9	FLOORING TO BE CONTINUOUS AND WALLS/CABINETS TO BE FINISHED UNDER APPLIANCES AND REMOVABLE CABINETS AT "TYPE A" ACCESSIBLE UNITS.
10	SEE SHEET G-503 FOR PARTITION TYPES. PARTITIONS WITHIN UNITS ARE TYPE W206 (ACOUSTICAL) UON.
11	SEE SHEET A-600 FOR DOOR SCHEDULE.
12	SEE A-800 SERIES SHEETS FOR KITCHEN TYPES.
13	SEE A-810 SERIES SHEETS FOR BATHROOM TYPES.
14	SEE A-850 SERIES SHEETS FOR TYPICAL INTERIOR DETAILS AND FLOOR TRANSITIONS.
15	SEE SHEET G-401 FOR TYPICAL MOUNTING HEIGHTS.

UNIT RCP NOTES	
1	REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEER'S PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2	COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED.
3	DIMENSIONS ARE TO FINISH U.N.O.
4	ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION.
5	COORDINATE LOCATION OF FIRE SPRINKLER HEADS WITH ARCHITECT.
6	LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS AND CENTERED ON CEILING TILE U.N.O.
7	PAINT GYPSUM BOARD CEILINGS P _ U.N.O.
8	PAINT GYP BOARD SOFFITS (VERTICAL AND HORIZONTAL SURFACES) P _ U.N.O.
9	PROVIDE UL-Classified LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7.

UNIT ELEVATION NOTES	
1	DIMENSIONS ARE TO FINISH U.N.O.
2	EXPOSED SIDES AND BACKS OF CABINETS TO HAVE FINISHED PANELS.
3	FOR SINGLE VANITY, CENTER SCONCE ON VANITY. FOR DOUBLE VANITY, CENTER SCONCES ON LAVATORIES.
4	APPLIANCES AND PLUMBING FIXTURES TO COMPLY WITH ICC/ANSI A117.1 309.
5	KITCHEN AND BATHROOM AND CABINETS TO BE _.
6	KITCHEN COUNTERS AND 4" BACKSPLASHES TO BE _.
7	BATHROOM COUNTERS AND 4" BACKSPLASHES TO BE _.
8	TUB AND SHOWER SURROUNDS TO BE _.
9	CABINET DOORS AND DRAWERS TO HAVE 4" D-PULLS U.N.O.
10	SEE SHEET G-401 FOR MOUNTING HEIGHTS.
11	SEE SHEET A-700 FOR UNIT SCHEDULES.
12	SEE A-850 SERIES SHEETS FOR UNIT DETAILS.

UNIT FINISH NOTES	
1	DIMENSIONS ARE TO FINISH U.N.O.
2	FURNITURE IS INDICATED FOR REFERENCE ONLY AND IS NIC.
3	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
4	FLOORING TO EXTEND UNDER COUNTERS, APPLIANCES, AND REMOVABLE BASE CABINETS.
5	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
6	CARPET TO BE CPT _ U.N.O.
7	BASE TO BE B _ U.N.O.
8	PAINT GYP BOARD WALLS P _ U.N.O.
9	PAINT BASE, CASING, AND TRIM P _ U.N.O.
10	PAINT DOORS (INCLUDING INTERIOR FACE OF UNIT ENTRY DOOR) P _ U.N.O.
11	WINDOWS TO RECEIVE WINDOW TREATMENT _.
12	SLIDING GLASS DOORS TO RECEIVE WINDOW TREATMENT _.
13	SWING GLASS DOORS TO RECEIVE WINDOW TREATMENT _.
14	SEE SHEET _ FOR FINISH SCHEDULE.
15	SEE INTERIOR ELEVATIONS AND REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION.
16	SEE SHEET _ FOR FLOOR AND BASE TRANSITION DETAILS.

UNIT CODE PLAN NOTES	
1	REFER TO OVERALL BUILDING CODE PLANS FOR ADDITIONAL CODE INFORMATION.
2	REFER TO SHEET G-402 FOR FHA INFORMATION.
3	CLEAR SPACES ARE MEASURED FROM OUTERMOST SURFACE OF APPLIANCES (INCLUDING HANDLES), COUNTERTOPS, OR OTHER PROTRUDING ITEMS.
4	ALL UNITS SHALL HAVE A 36" WIDE ACCESSIBLE ROUTE AS SHOWN ON THE UNIT CODE PLANS. REQUIRED CLEAR WIDTH AT PASSAGE DOORS MAY BE REDUCED TO 32" @ TYPE A UNITS AND 31 3/4" @ TYPE B UNITS.



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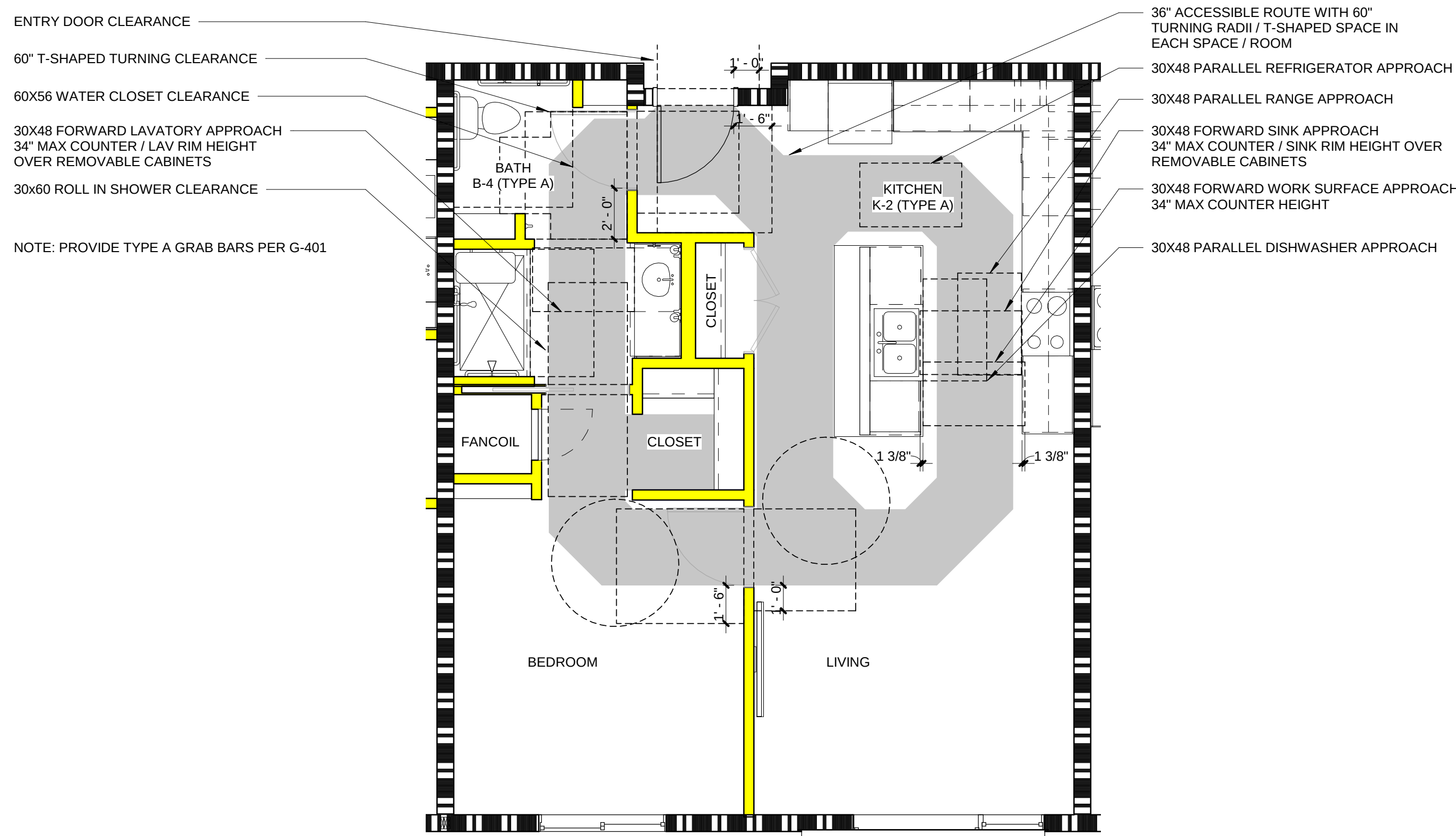
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SHEET TITLE:
UNIT 1.1
(PLAN/RCP/FINISH/CODE)

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

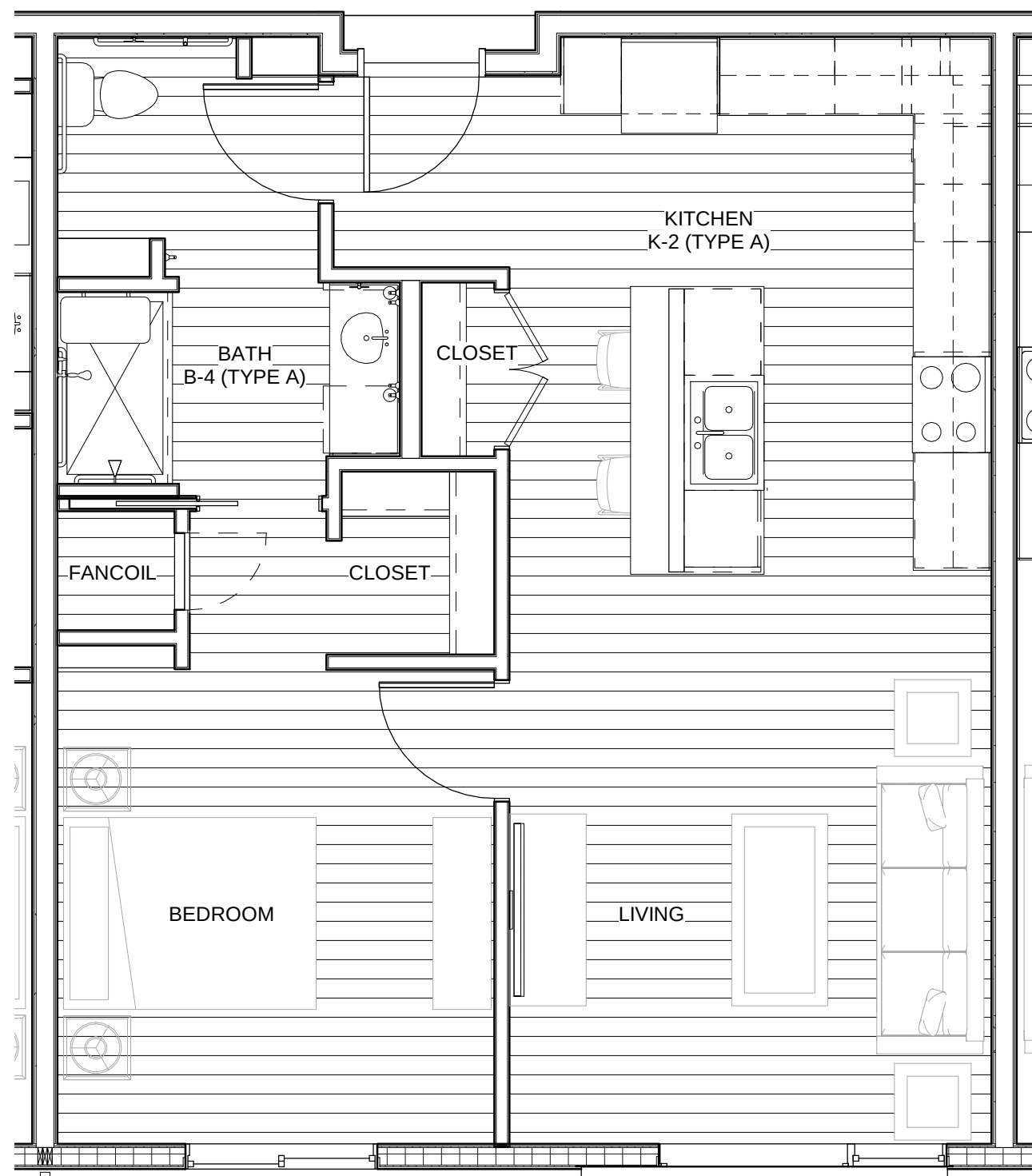
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4 UNIT 1.2 (TYPE A) - CODE PLAN

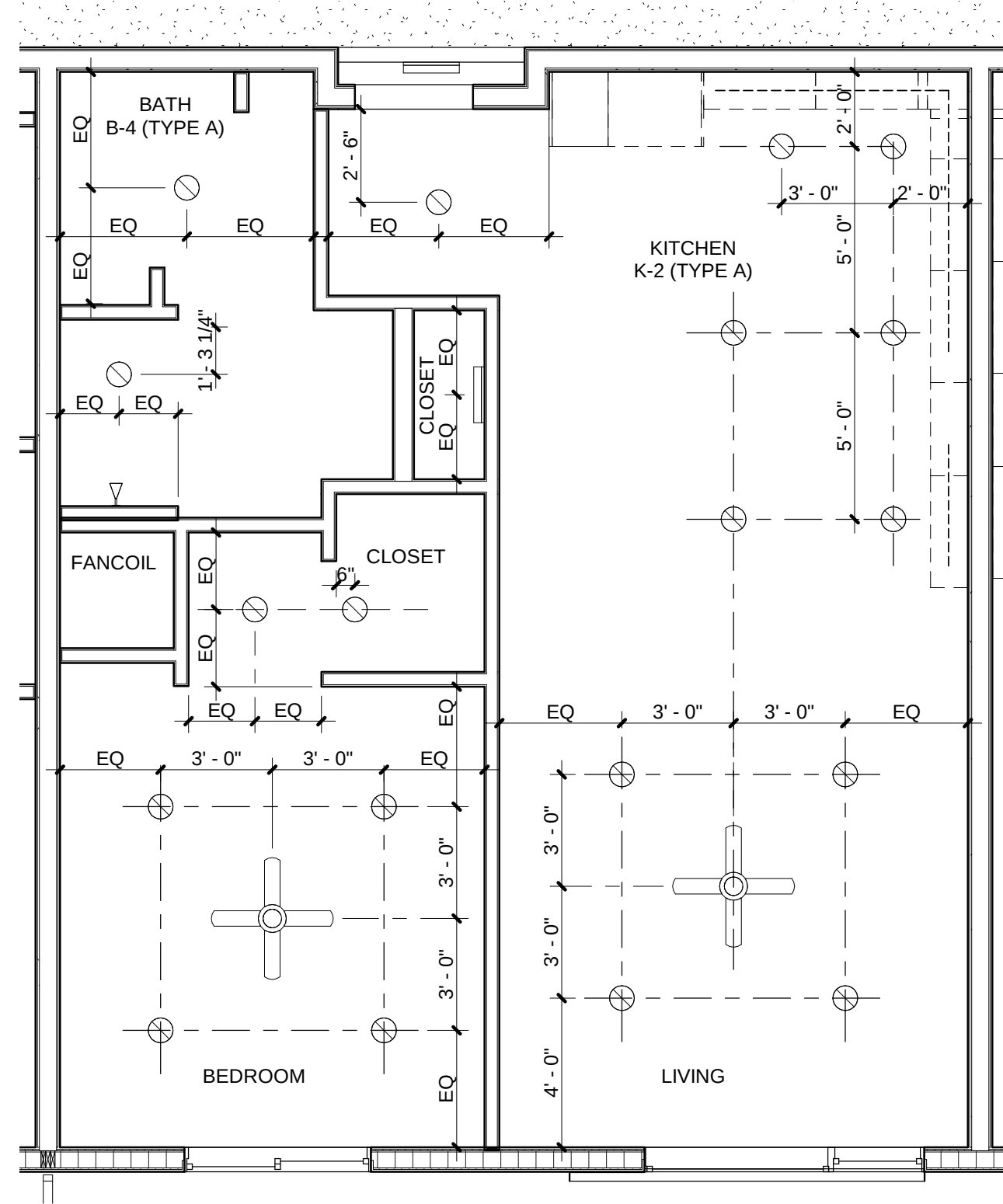
1/4" = 1'-0"



2 UNIT 1.2 (TYPE A) - FINISH PLAN

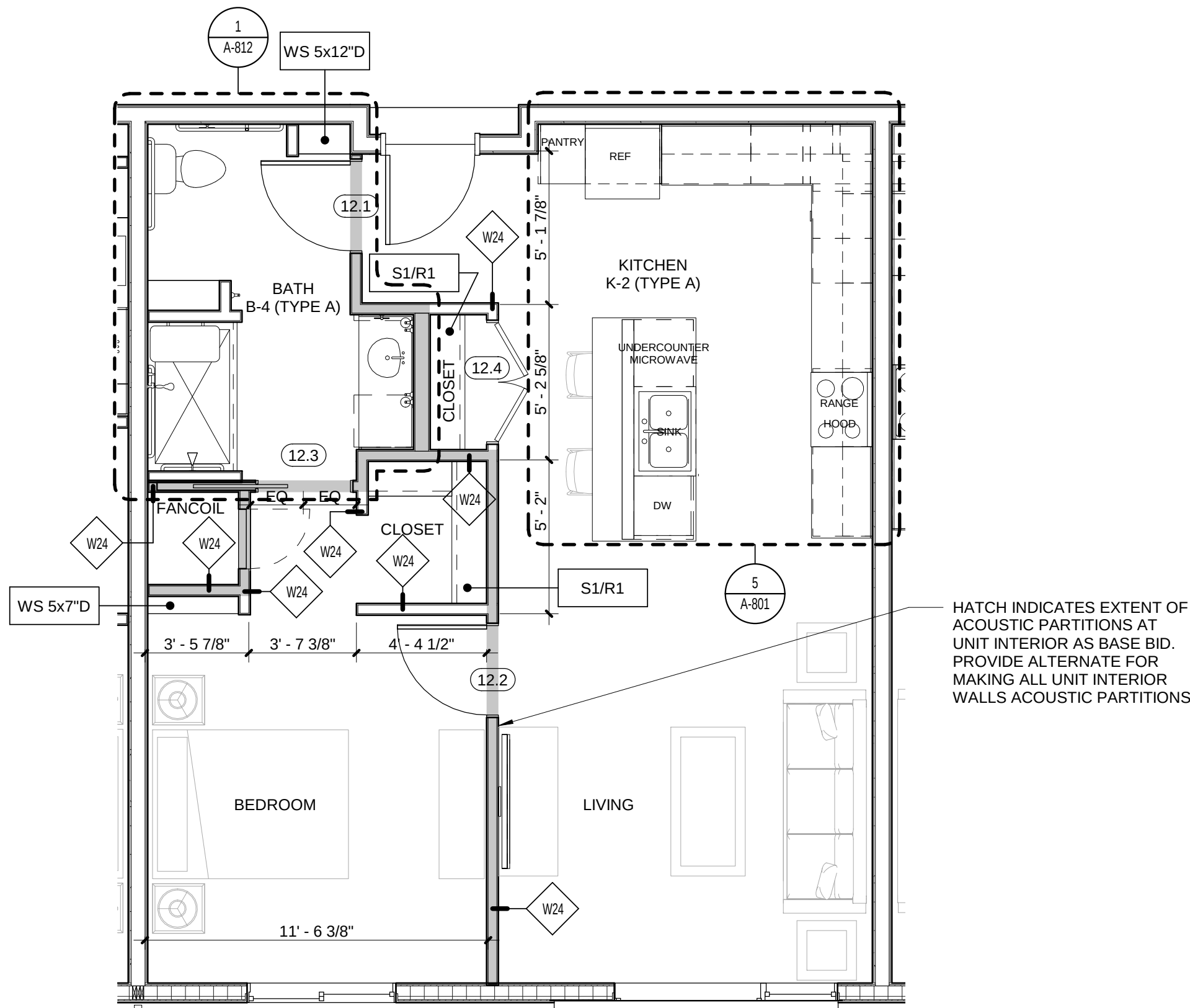
1/4" = 1'-0"

UNIT 1.2 DOOR SCHEDULE														
DOOR NUMBER	DOOR								ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME			COMMENTS
	PANEL TYPE	LEAF QUANTITY	LEAF WIDTH	OPENING WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH			FRAME TYPE	MATERIAL	FINISH	
12.1	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
12.2	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
12.3	FP	1	3'-2"	3'-2"	6'-8"	1 3/8"	COMPOSITE	PT	0		6	WD	PT	
12.4	FP	2	2'-0"	4'-0"	6'-8"	1 3/4"	COMPOSITE	PT	0		4	WD	PT	



3 UNIT 1.2 (TYPE A) - REFLECTED CEILING PLAN

1/4" = 1'-0"



1 UNIT 1.2 (TYPE A) - FLOOR PLAN

1/4" = 1'-0"

UNIT PLAN NOTES	
1	UNIT PLANS MAY BE MIRRORED AND/OR ROTATED RELATIVE TO THE FLOOR PLAN. REFER TO OVERALL FLOOR PLANS FOR LOCATION AND ORIENTATION OF UNITS.
2	SEE OVERALL FLOOR PLANS FOR DEMISING PARTITIONS, UNIT/CORRIDOR PARTITIONS, UNIT ENTRY DOORS AND EXTERIOR DOORS AND WINDOWS.
3	DIMENSIONS ARE TO FACE OF STUD OR COLUMN CENTERLINE UON.
4	DIMENSIONS DESIGNATED AS "CLEAR" OR "HOLD" SHALL BE MAINTAINED.
5	FURNITURE IS SHOWN FOR LAYOUT PURPOSES ONLY AND IS NIC.
6	"TYPE A" AND "TYPE B" ACCESSIBLE UNITS ARE TO MEET IBC CHAPTER 11 AND ICC A117.1 CHAPTER 10.
7	DEVICES SHALL BE MOUNTED BETWEEN 18" - 48" AFF. DEVICES INCLUDE OUTLETS, THERMOSTATS, SWITCHES, CONTROLS, AND OTHER DEVICES.
8	PROVIDE GRAB BAR REINFORCEMENT AT ALL BATHROOMS. SEE SHEET G-401.
9	FLOORING TO BE CONTINUOUS AND WALLS/CABINETS TO BE FINISHED UNDER APPLIANCES AND REMOVABLE CABINETS AT "TYPE A" ACCESSIBLE UNITS.
10	SEE SHEET G-503 FOR PARTITION TYPES. PARTITIONS WITHIN UNITS ARE TYPE W206 (ACOUSTICAL) UON.
11	SEE SHEET A-600 FOR DOOR SCHEDULE.
12	SEE A-800 SERIES SHEETS FOR KITCHEN TYPES.
13	SEE A-810 SERIES SHEETS FOR BATHROOM TYPES.
14	SEE A-850 SERIES SHEETS FOR TYPICAL INTERIOR DETAILS AND FLOOR TRANSITIONS.
15	SEE SHEET G-401 FOR TYPICAL MOUNTING HEIGHTS.

UNIT RCP NOTES	
1	REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEER'S PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2	COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED.
3	DIMENSIONS ARE TO FINISH U.N.O.
4	ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION.
5	COORDINATE LOCATION OF FIRE SPRINKLER HEADS WITH ARCHITECT.
6	LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS AND CENTERED ON CEILING TILE U.N.O.
7	PAINT GYPSUM BOARD CEILINGS P _ U.N.O.
8	PAINT GYP BOARD SOFFITS (VERTICAL AND HORIZONTAL SURFACES) P _ U.N.O.
9	PROVIDE UL-Classified LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7.

UNIT ELEVATION NOTES	
1	DIMENSIONS ARE TO FINISH U.N.O.
2	EXPOSED SIDES AND BACKS OF CABINETS TO HAVE FINISHED PANELS.
3	FOR SINGLE VANITY, CENTER SCONCE ON VANITY. FOR DOUBLE VANITY, CENTER SCONCES ON LAVATORIES.
4	APPLIANCES AND PLUMBING FIXTURES TO COMPLY WITH ICC/ANSI A117.1 309.
5	KITCHEN AND BATHROOM AND CABINETS TO BE
6	KITCHEN COUNTERS AND 4" BACKSPLASHES TO BE
7	BATHROOM COUNTERS AND 4" BACKSPLASHES TO BE
8	TUB AND SHOWER SURROUNDS TO BE
9	CABINET DOORS AND DRAWERS TO HAVE 4" D-PULLS U.N.O.
10	SEE SHEET G-401 FOR MOUNTING HEIGHTS.
11	SEE SHEET A-700 FOR UNIT SCHEDULES.
12	SEE A-850 SERIES SHEETS FOR UNIT DETAILS.

UNIT FINISH NOTES	
1	DIMENSIONS ARE TO FINISH U.N.O.
2	FURNITURE IS INDICATED FOR REFERENCE ONLY AND IS NIC.
3	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
4	FLOORING TO EXTEND UNDER COUNTERS, APPLIANCES, AND REMOVABLE BASE CABINETS.
5	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
6	CARPET TO BE CPT _ U.N.O.
7	BASE TO BE B _ U.N.O.
8	PAINT GYP BOARD WALLS P _ U.N.O.
9	PAINT BASE, CASING, AND TRIM P _ U.N.O.
10	PAINT DOORS (INCLUDING INTERIOR FACE OF UNIT ENTRY DOOR) P _ U.N.O.
11	WINDOWS TO RECEIVE WINDOW TREATMENT
12	SLIDING GLASS DOORS TO RECEIVE WINDOW TREATMENT
13	SWING GLASS DOORS TO RECEIVE WINDOW TREATMENT
14	SEE SHEET _ FOR FINISH SCHEDULE.
15	SEE INTERIOR ELEVATIONS AND REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION.
16	SEE SHEET _ FOR FLOOR AND BASE TRANSITION DETAILS.

UNIT CODE PLAN NOTES	
1	REFER TO OVERALL BUILDING CODE PLANS FOR ADDITIONAL CODE INFORMATION
2	REFER TO SHEET G-402 FOR FHA INFORMATION.
3	CLEAR SPACES ARE MEASURED FROM OUTERMOST SURFACE OF APPLIANCES (INCLUDING HANDLES), COUNTERTOPS, OR OTHER PROTRUDING ITEMS
4	ALL UNITS SHALL HAVE A 36" WIDE ACCESSIBLE ROUTE AS SHOWN ON THE UNIT CODE PLANS. REQUIRED CLEAR WIDTH AT PASSAGE DOORS MAY BE REDUCED TO 32" @ TYPE A UNITS AND 31 3/4" @ TYPE B UNITS.



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DRAWN: OZ
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DOCUMENTS

SHEET TITLE:
UNIT 1.2 - TYPE A
(PLAN/RCP/FINISH/CODE)

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

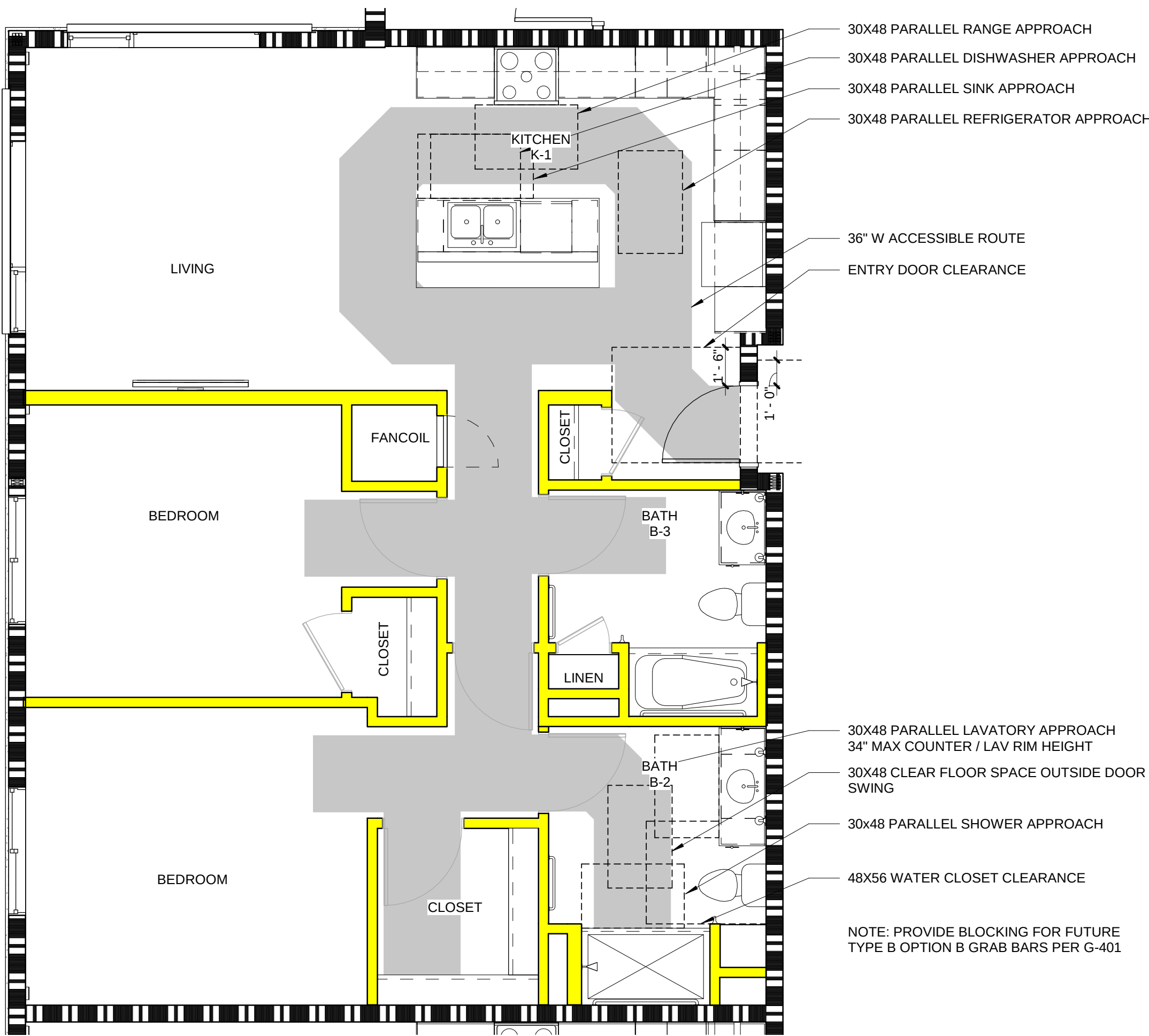
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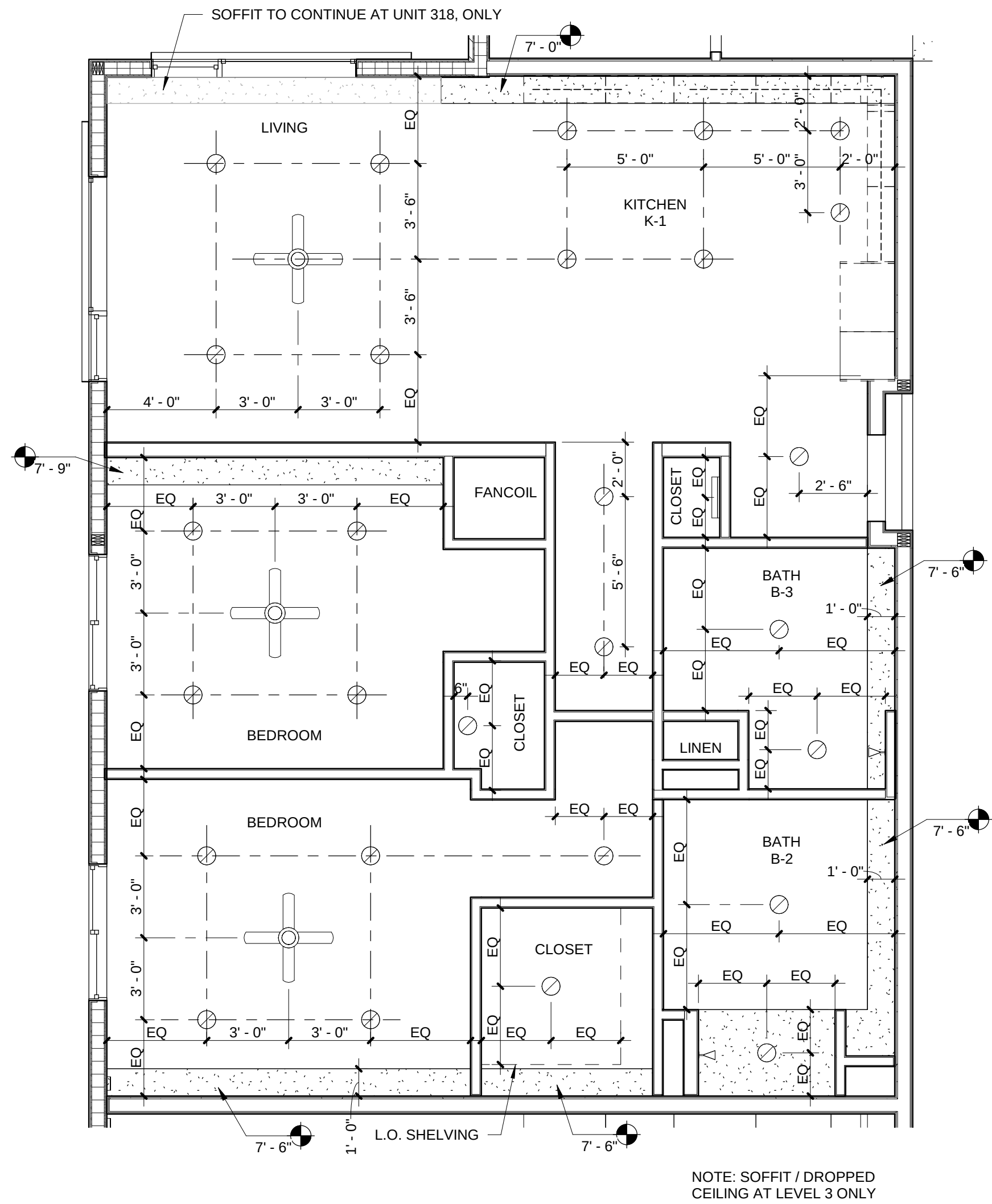
2 UNIT 2.1 - FINISH PLAN
1/4" = 1'-0"



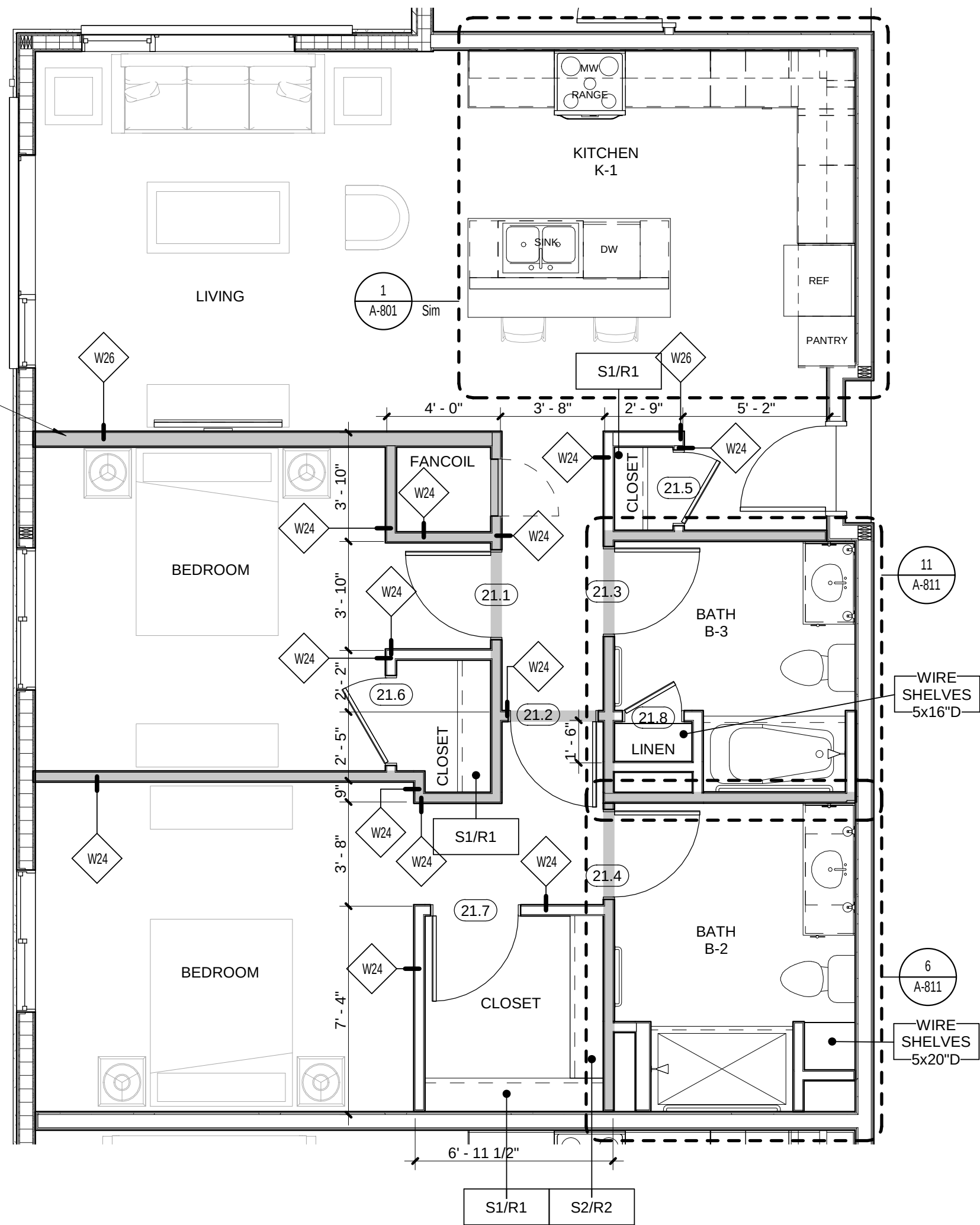
4 UNIT 2.1 - CODE PLAN
1/4" = 1'-0"

BATH TYPE:
TYPE B, OPTION B

UNIT 2.1 DOOR SCHEDULE														
DOOR NUMBER	DOOR								ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME			COMMENTS
	PANEL TYPE	LEAF QUANTITY	LEAF WIDTH	OPENING WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH			FRAME TYPE	MATERIAL	FINISH	
21.1	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.2	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.3	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.4	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.5	FP	1	2'-6"	2'-6"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.6	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.7	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
21.8	FP	1	2'-0"	2'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	



3 UNIT 2.1 - REFLECTED CEILING PLAN
1/4" = 1'-0"



1 UNIT 2.1 - FLOOR PLAN
1/4" = 1'-0"

UNIT PLAN NOTES	
1	UNIT PLANS MAY BE MIRRORED AND/OR ROTATED RELATIVE TO THE FLOOR PLAN. REFER TO OVERALL FLOOR PLANS FOR LOCATION AND ORIENTATION OF UNITS.
2	SEE OVERALL FLOOR PLANS FOR DEMISING PARTITIONS, UNIT/CORRIDOR PARTITIONS, UNIT ENTRY DOORS AND EXTERIOR DOORS AND WINDOWS.
3	DIMENSIONS ARE TO FACE OF STUD OR COLUMN CENTERLINE UON.
4	DIMENSIONS DESIGNATED AS "CLEAR" OR "HOLD" SHALL BE MAINTAINED.
5	FURNITURE IS SHOWN FOR LAYOUT PURPOSES ONLY AND IS NIC.
6	"TYPE A" AND "TYPE B" ACCESSIBLE UNITS ARE TO MEET IBC CHAPTER 11 AND ICC A117.1 CHAPTER 10.
7	DEVICES SHALL BE MOUNTED BETWEEN 18" - 48" AFF. DEVICES INCLUDE OUTLETS, THERMOSTATS, SWITCHES, CONTROLS, AND OTHER DEVICES.
8	PROVIDE GRAB BAR REINFORCEMENT AT ALL BATHROOMS. SEE SHEET G-401.
9	FLOORING TO BE CONTINUOUS AND WALLS/CABINETS TO BE FINISHED UNDER APPLIANCES AND REMOVABLE CABINETS AT "TYPE A" ACCESSIBLE UNITS.
10	SEE SHEET G-503 FOR PARTITION TYPES. PARTITIONS WITHIN UNITS ARE TYPE W206 (ACOUSTICAL) UON.
11	SEE SHEET A-600 FOR DOOR SCHEDULE.
12	SEE A-800 SERIES SHEETS FOR KITCHEN TYPES.
13	SEE A-810 SERIES SHEETS FOR BATHROOM TYPES.
14	SEE A-850 SERIES SHEETS FOR TYPICAL INTERIOR DETAILS AND FLOOR TRANSITIONS.
15	SEE SHEET G-401 FOR TYPICAL MOUNTING HEIGHTS.

UNIT RCP NOTES	
1	REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEER'S PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2	COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED.
3	DIMENSIONS ARE TO FINISH U.N.O.
4	ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION.
5	COORDINATE LOCATION OF FIRE SPRINKLER HEADS WITH ARCHITECT.
6	LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS AND CENTERED ON CEILING TILE U.N.O.
7	PAINT GYPSUM BOARD CEILINGS P _ U.N.O.
8	PAINT GYP BOARD SOFFITS (VERTICAL AND HORIZONTAL SURFACES) P _ U.N.O.
9	PROVIDE UL-CLASSIFIED LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7.

UNIT ELEVATION NOTES	
1	DIMENSIONS ARE TO FINISH U.N.O.
2	EXPOSED SIDES AND BACKS OF CABINETS TO HAVE FINISHED PANELS.
3	FOR SINGLE VANITY, CENTER SCONCE ON VANITY. FOR DOUBLE VANITY, CENTER SCONCES ON LAVATORIES.
4	APPLIANCES AND PLUMBING FIXTURES TO COMPLY WITH ICC/ANSI A117.1 309.
5	KITCHEN AND BATHROOM AND CABINETS TO BE _.
6	KITCHEN COUNTERS AND 4" BACKSPLASHES TO BE _.
7	BATHROOM COUNTERS AND 4" BACKSPLASHES TO BE _.
8	TUB AND SHOWER SURROUNDS TO BE _.
9	CABINET DOORS AND DRAWERS TO HAVE 4" D-PULLS U.N.O.
10	SEE SHEET G-401 FOR MOUNTING HEIGHTS.
11	SEE SHEET A-700 FOR UNIT SCHEDULES.
12	SEE A-850 SERIES SHEETS FOR UNIT DETAILS.

UNIT FINISH NOTES	
1	DIMENSIONS ARE TO FINISH U.N.O.
2	FURNITURE IS INDICATED FOR REFERENCE ONLY AND IS NIC.
3	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
4	FLOORING TO EXTEND UNDER COUNTERS, APPLIANCES, AND REMOVABLE BASE CABINETS.
5	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
6	CARPET TO BE CPT _ U.N.O.
7	BASE TO BE B _ U.N.O.
8	PAINT GYP BOARD WALLS P _ U.N.O.
9	PAINT BASE, CASING, AND TRIM P _ U.N.O.
10	PAINT DOORS (INCLUDING INTERIOR FACE OF UNIT ENTRY DOOR) P _ U.N.O.
11	WINDOWS TO RECEIVE WINDOW TREATMENT _.
12	SLIDING GLASS DOORS TO RECEIVE WINDOW TREATMENT _.
13	SWING GLASS DOORS TO RECEIVE WINDOW TREATMENT _.
14	SEE SHEET _ FOR FINISH SCHEDULE.
15	SEE INTERIOR ELEVATIONS AND REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION.
16	SEE SHEET _ FOR FLOOR AND BASE TRANSITION DETAILS.

UNIT CODE PLAN NOTES	
1	REFER TO OVERALL BUILDING CODE PLANS FOR ADDITIONAL CODE INFORMATION.
2	REFER TO SHEET G-402 FOR FHA INFORMATION.
3	CLEAR SPACES ARE MEASURED FROM OUTERMOST SURFACE OF APPLIANCES (INCLUDING HANDLES), COUNTERTOPS, OR OTHER PROTRUDING ITEMS.
4	ALL UNITS SHALL HAVE A 36" WIDE ACCESSIBLE ROUTE AS SHOWN ON THE UNIT CODE PLANS. REQUIRED CLEAR WIDTH AT PASSAGE DOORS MAY BE REDUCED TO 32" @ TYPE A UNITS AND 31 3/4" @ TYPE B UNITS.



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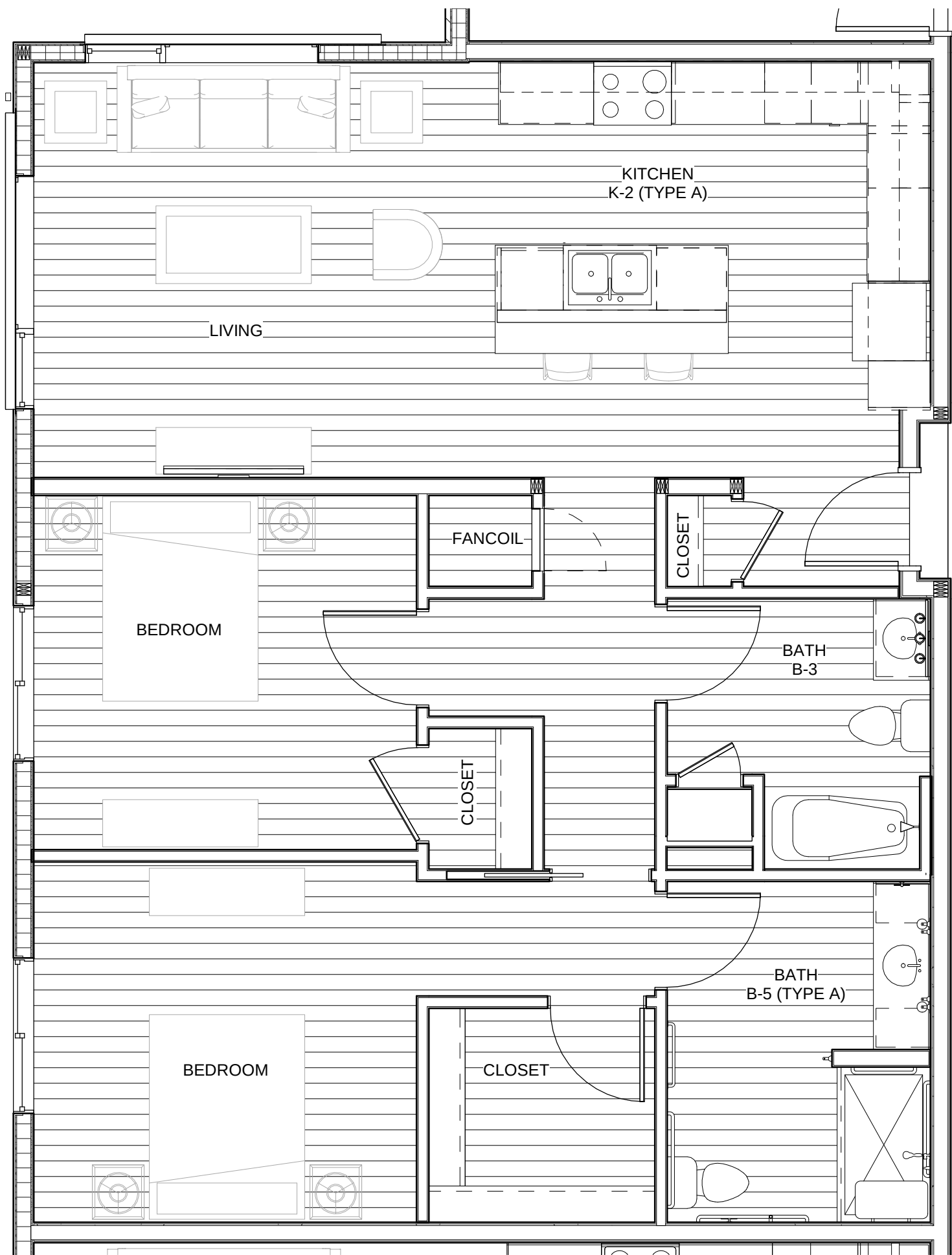
ISSUED FOR:
100% CONSTRUCTION
DOCUMENTS

SHEET TITLE:
UNIT 2.1
(PLAN/RCP/FINISH/CODE)

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

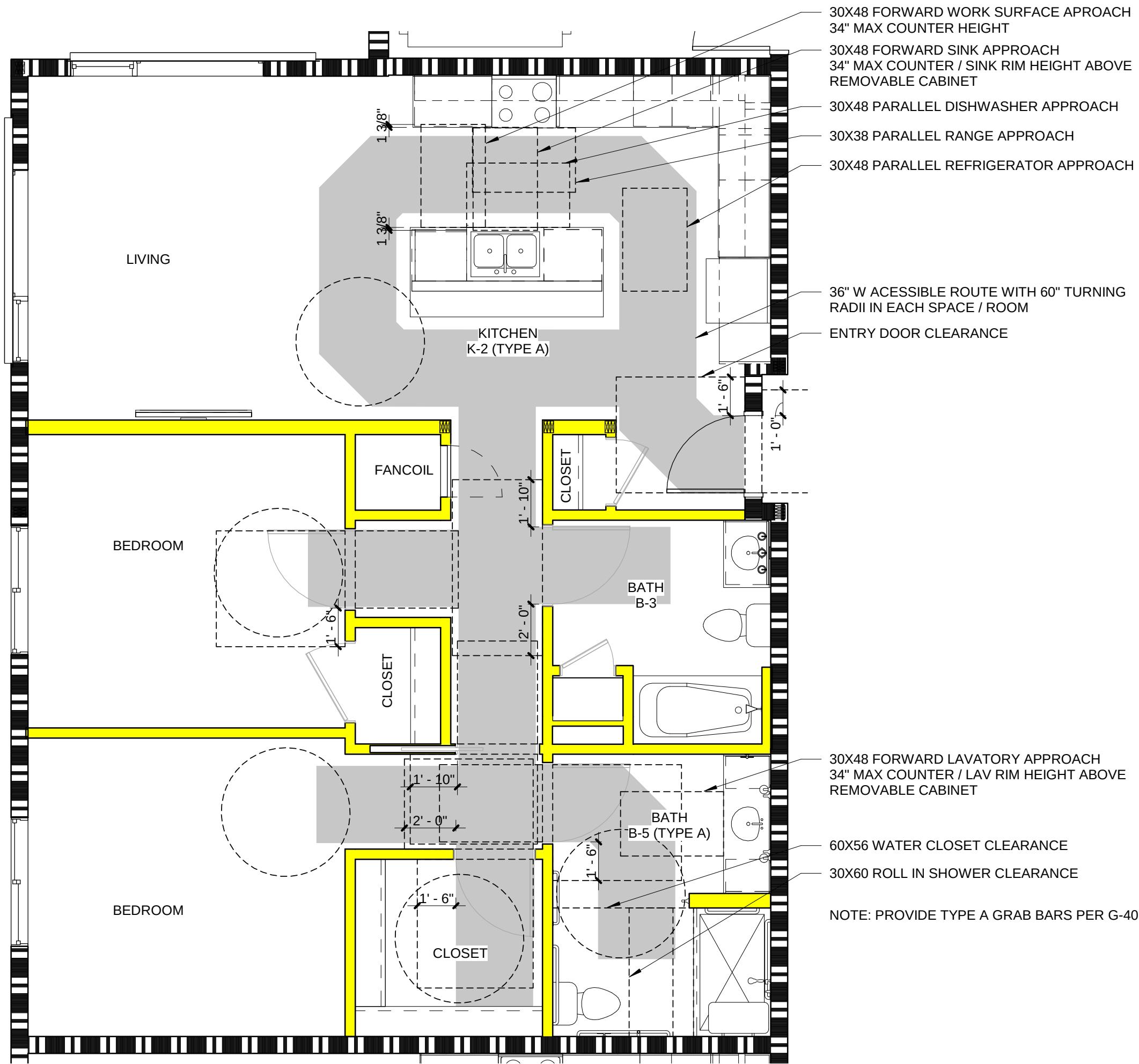
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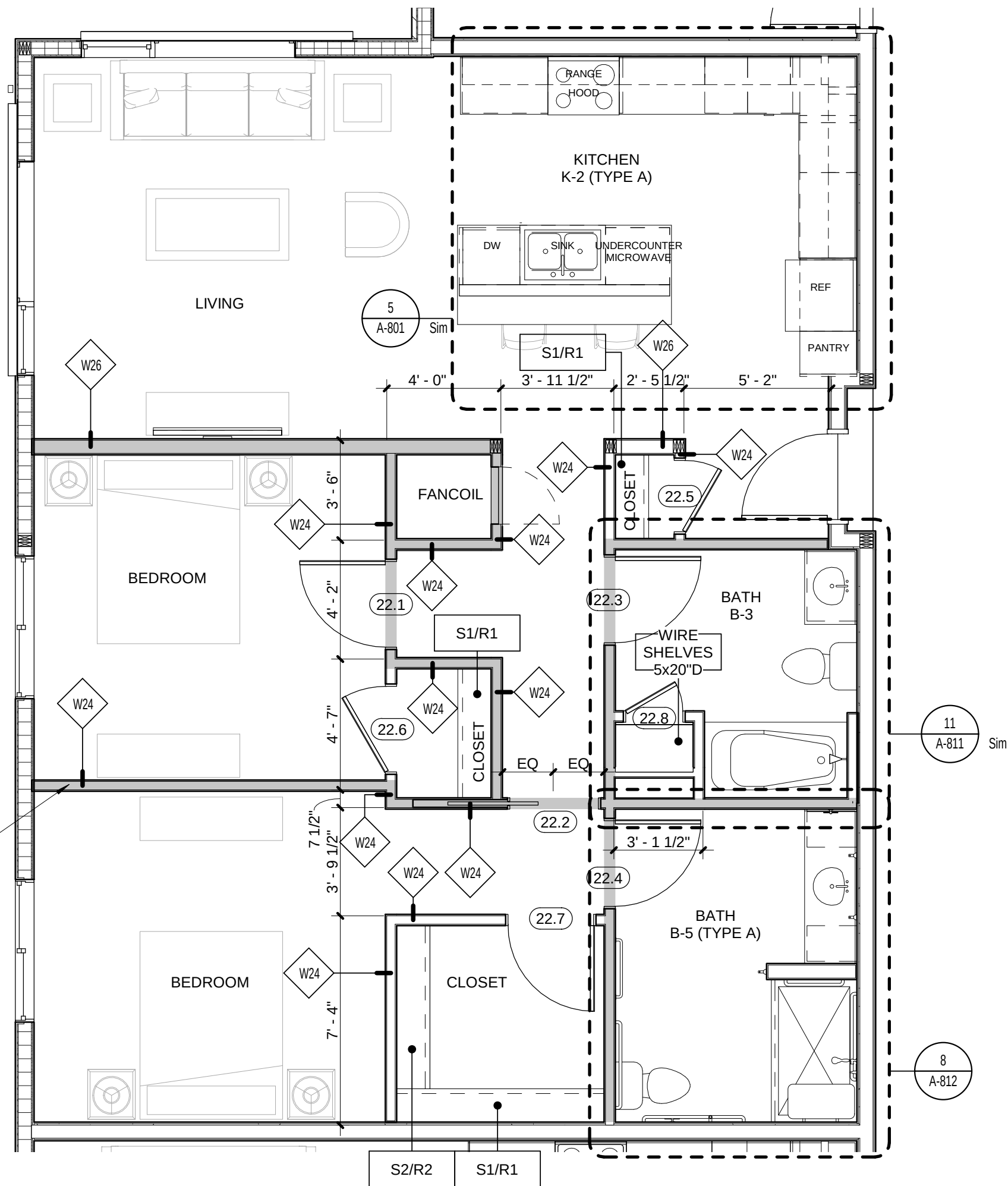


2 UNIT 2.2 (TYPE A) - FINISH PLAN
1/4" = 1'-0"

4 UNIT 2.2 (TYPE A) - CODE PLAN
1/4" = 1'-0"

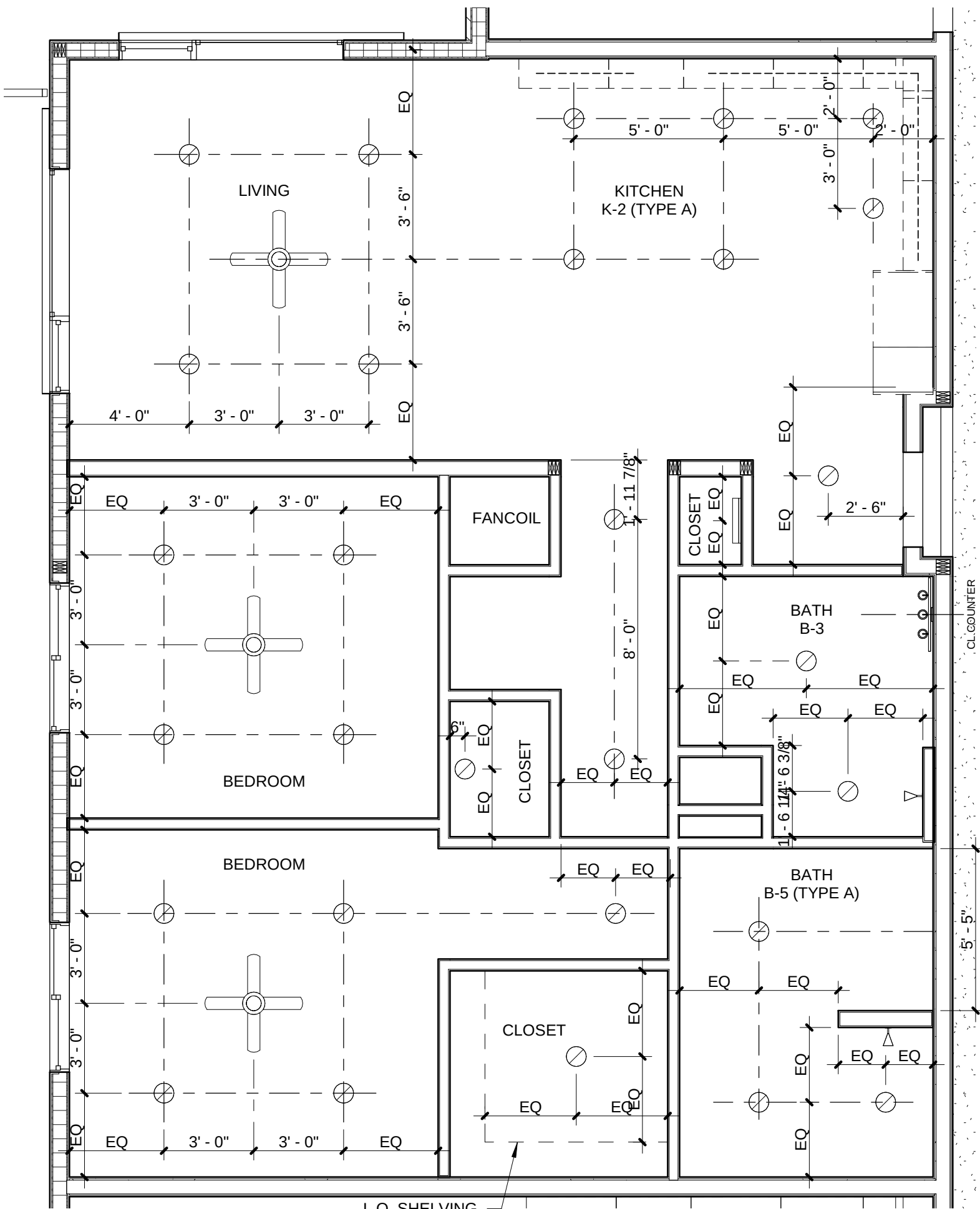


UNIT 2.2 DOOR SCHEDULE														
DOOR NUMBER	PANEL TYPE	LEAF QUANTITY	LEAF WIDTH	DOOR			MATERIAL	FINISH	ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME			COMMENTS
				OPENING WIDTH	HEIGHT	THICKNESS					FRAME TYPE	MATERIAL	FINISH	
22.1	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
22.2	FP	1	3'-2"	3'-2"	6'-8"	1 3/8"	COMPOSITE	PT	0		6	WD	PT	
22.3	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
22.4	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
22.5	FP	1	2'-6"	2'-6"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
22.6	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
22.7	FP	1	3'-0"	3'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	
22.8	FP	1	2'-0"	2'-0"	6'-8"	1 3/8"	COMPOSITE	PT	0		3	WD	PT	



1 UNIT 2.2 (TYPE A) - FLOOR PLAN
1/4" = 1'-0"

3 UNIT 2.2 (TYPE A) - REFLECTED CEILING PLAN
1/4" = 1'-0"



- UNIT PLAN NOTES
- 1 UNIT PLANS MAY BE MIRRORED AND/OR ROTATED RELATIVE TO THE FLOOR PLAN. REFER TO OVERALL FLOOR PLANS FOR LOCATION AND ORIENTATION OF UNITS.
 - 2 SEE OVERALL FLOOR PLANS FOR DEMISING PARTITIONS, UNIT/CORRIDOR PARTITIONS, UNIT ENTRY DOORS AND EXTERIOR DOORS AND WINDOWS.
 - 3 DIMENSIONS ARE TO FACE OF STUD OR COLUMN CENTERLINE UNL.
 - 4 DIMENSIONS DESIGNATED AS "CLEAR" OR "HOLD" SHALL BE MAINTAINED.
 - 5 FURNITURE IS SHOWN FOR LAYOUT PURPOSES ONLY AND IS NIC.
 - 6 "TYPE A" AND "TYPE B" ACCESSIBLE UNITS ARE TO MEET IBC CHAPTER 11 AND ICC A117.1 CHAPTER 10.
 - 7 DEVICES SHALL BE MOUNTED BETWEEN 18" - 48" AFF. DEVICES INCLUDE OUTLETS, THERMOSTATS, SWITCHES, CONTROLS, AND OTHER DEVICES.
 - 8 PROVIDE GRAB BAR REINFORCEMENT AT ALL BATHROOMS. SEE SHEET G-401.
 - 9 FLOORING TO BE CONTINUOUS AND WALLS/CABINETS TO BE FINISHED UNDER APPLIANCES AND REMOVABLE CABINETS AT "TYPE A" ACCESSIBLE UNITS.
 - 10 SEE SHEET G-503 FOR PARTITION TYPES. PARTITIONS WITHIN UNITS ARE TYPE W26G (ACOUSTICAL) UNL.
 - 11 SEE SHEET A-600 FOR DOOR SCHEDULE.
 - 12 SEE A-800 SERIES SHEETS FOR KITCHEN TYPES.
 - 13 SEE A-810 SERIES SHEETS FOR BATHROOM TYPES.
 - 14 SEE A-850 SERIES SHEETS FOR TYPICAL INTERIOR DETAILS AND FLOOR TRANSITIONS.
 - 15 SEE SHEET G-401 FOR TYPICAL MOUNTING HEIGHTS.

- UNIT RCP NOTES
- 1 REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEER'S PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
 - 2 COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED.
 - 3 DIMENSIONS ARE TO FINISH U.N.O.
 - 4 ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION.
 - 5 COORDINATE LOCATION OF FIRE SPRINKLER HEADS WITH ARCHITECT.
 - 6 LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS AND CENTERED ON CEILING TILE U.N.O.
 - 7 PAINT GYPSUM BOARD CEILINGS P U.N.O.
 - 8 PAINT GYP BOARD SOFFITS (VERTICAL AND HORIZONTAL SURFACES) P U.N.O.
 - 9 PROVIDE UL-Classified LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7.

- UNIT ELEVATION NOTES
- 1 DIMENSIONS ARE TO FINISH U.N.O.
 - 2 EXPOSED SIDES AND BACKS OF CABINETS TO HAVE FINISHED PANELS.
 - 3 FOR SINGLE VANITY, CENTER SCONCE ON VANITY. FOR DOUBLE VANITY, CENTER SCONCES ON LAVATORIES.
 - 4 APPLIANCES AND PLUMBING FIXTURES TO COMPLY WITH ICC/ANSI A117.1 309.
 - 5 KITCHEN AND BATHROOM AND CABINETS TO BE
 - 6 KITCHEN COUNTERS AND 4" BACKSPLASHES TO BE
 - 7 BATHROOM COUNTERS AND 4" BACKSPLASHES TO BE
 - 8 TUB AND SHOWER SURROUNDS TO BE
 - 9 CABINET DOORS AND DRAWERS TO HAVE 4" D-PULLS U.N.O.
 - 10 SEE SHEET G-401 FOR MOUNTING HEIGHTS.
 - 11 SEE SHEET A-700 FOR UNIT SCHEDULES.
 - 12 SEE A-850 SERIES SHEETS FOR UNIT DETAILS.

- UNIT FINISH NOTES
- 1 DIMENSIONS ARE TO FINISH U.N.O.
 - 2 FURNITURE IS INDICATED FOR REFERENCE ONLY AND IS NIC.
 - 3 FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
 - 4 FLOORING TO EXTEND UNDER COUNTERS, APPLIANCES, AND REMOVABLE BASE CABINETS.
 - 5 PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
 - 6 CARPET TO BE CPT U.N.O.
 - 7 BASE TO BE B U.N.O.
 - 8 PAINT GYP BOARD WALLS P U.N.O.
 - 9 PAINT BASE, CASING, AND TRIM P U.N.O.
 - 10 PAINT DOORS (INCLUDING INTERIOR FACE OF UNIT ENTRY DOOR) P U.N.O.
 - 11 WINDOWS TO RECEIVE WINDOW TREATMENT
 - 12 SLIDING GLASS DOORS TO RECEIVE WINDOW TREATMENT
 - 13 SWING GLASS DOORS TO RECEIVE WINDOW TREATMENT
 - 14 SEE SHEET FOR FINISH SCHEDULE.
 - 15 SEE INTERIOR ELEVATIONS AND REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION.
 - 16 SEE SHEET FOR FLOOR AND BASE TRANSITION DETAILS.

- UNIT CODE PLAN NOTES
- 1 REFER TO OVERALL BUILDING CODE PLANS FOR ADDITIONAL CODE INFORMATION
 - 2 REFER TO SHEET G-402 FOR FHA INFORMATION
 - 3 CLEAR SPACES ARE MEASURED FROM OUTERMOST SURFACE OF APPLIANCES (INCLUDING HANDLES), COUNTERTOPS, OR OTHER PROTRUDING ITEMS
 - 4 ALL UNITS SHALL HAVE A 36" WIDE ACCESSIBLE ROUTE AS SHOWN ON THE UNIT CODE PLANS. REQUIRED CLEAR WIDTH AT PASSAGE DOORS MAY BE REDUCED TO 32" @ TYPE A UNITS AND 31 3/4" @ TYPE B UNITS



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DOCUMENTS

SHEET TITLE:
UNIT 2.2 - TYPE A
(PLAN/RCP/FINISH/CODE)

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

A-722



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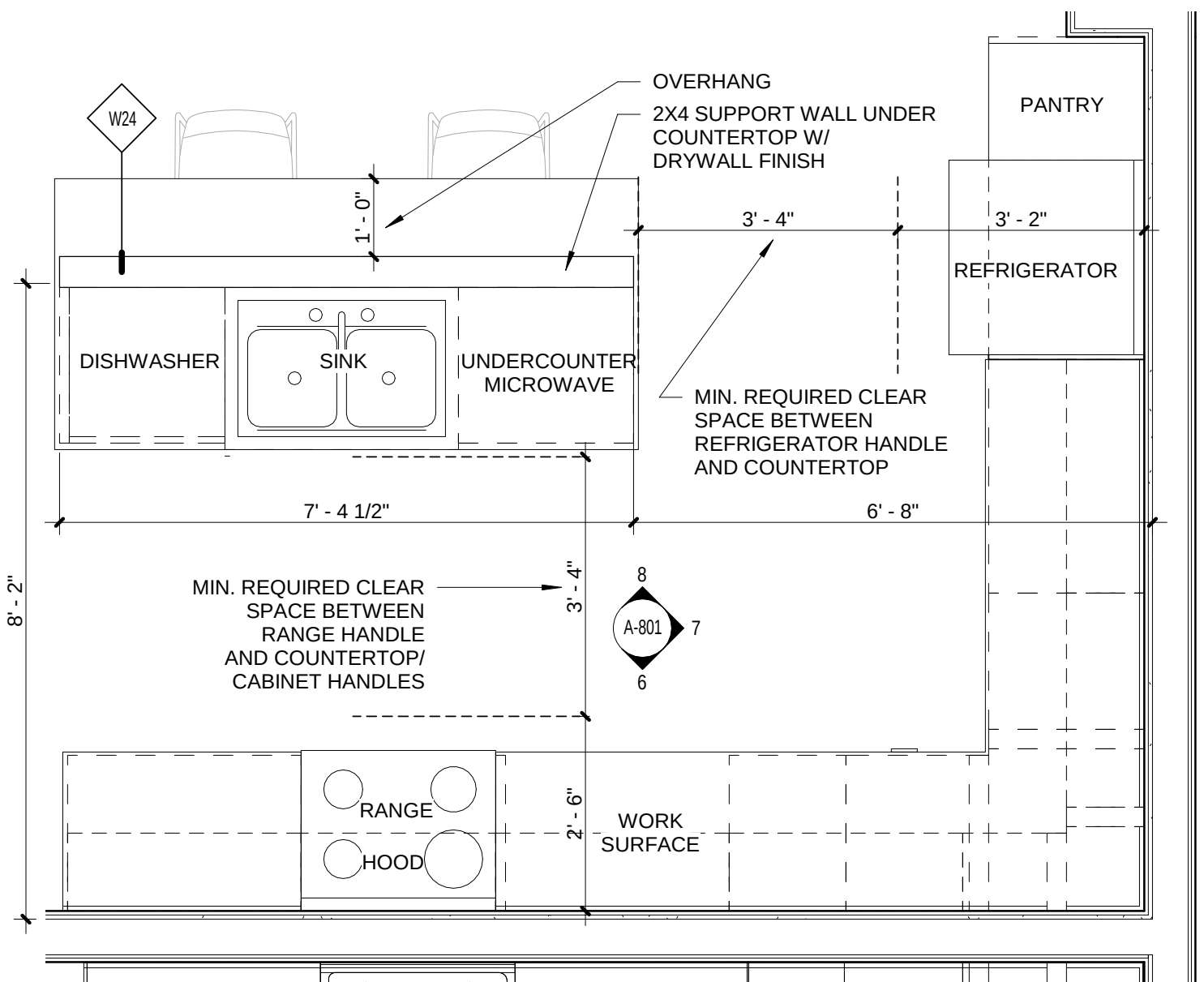
2814 PATTERSON ROAD
2814 PATTERSON ROAD, GRAND JUNCTION, CO 81506

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DRAWN: OZ
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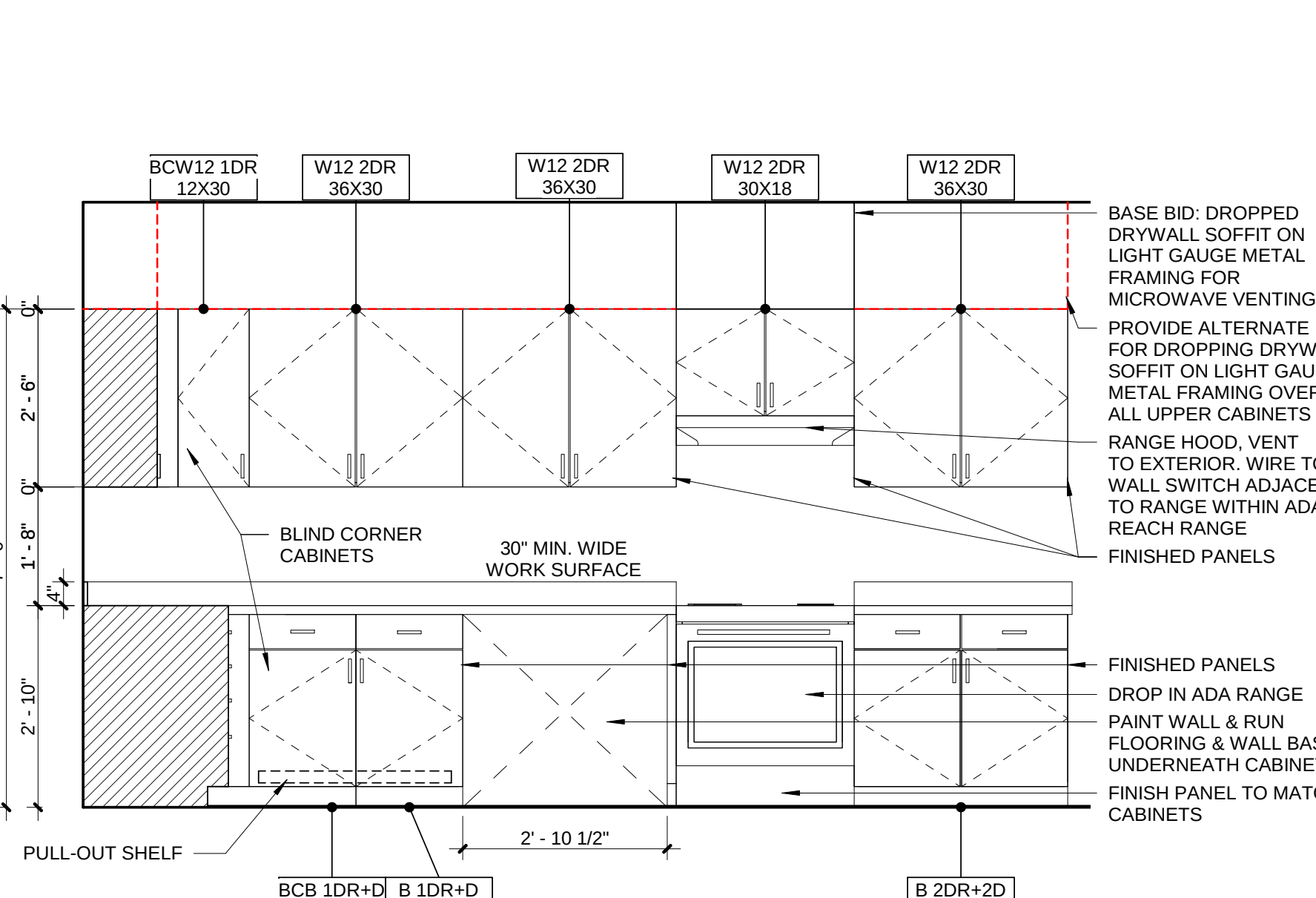
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2814 PATTERSON ROAD
ISSUED FOR:
100% CONSTRUCTION
DOCUMENTS
SHEET TITLE:
UNIT KITCHEN
ELEVATIONS
SCALE: 1/2" = 1'-0"
SHEET NUMBER

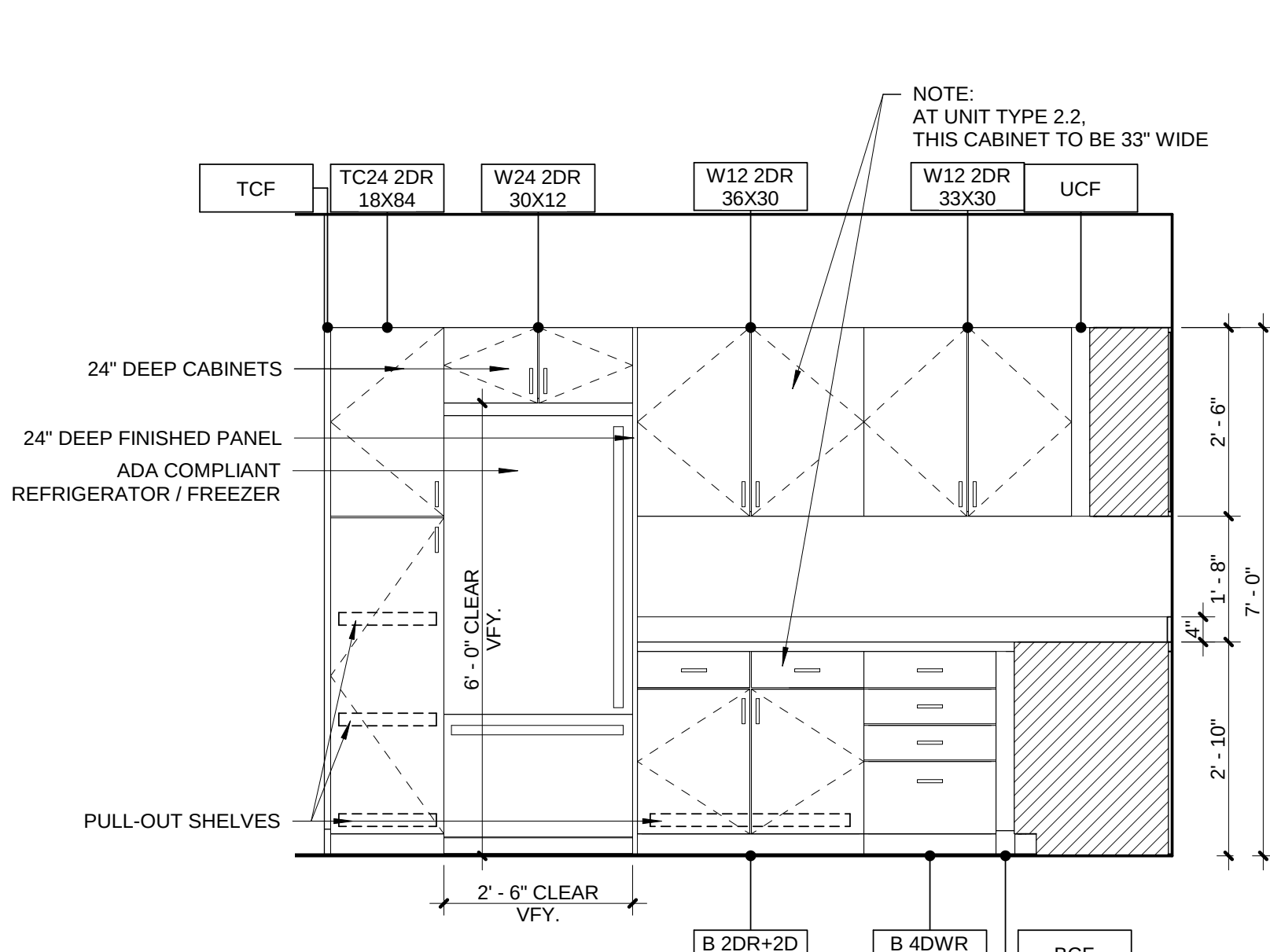
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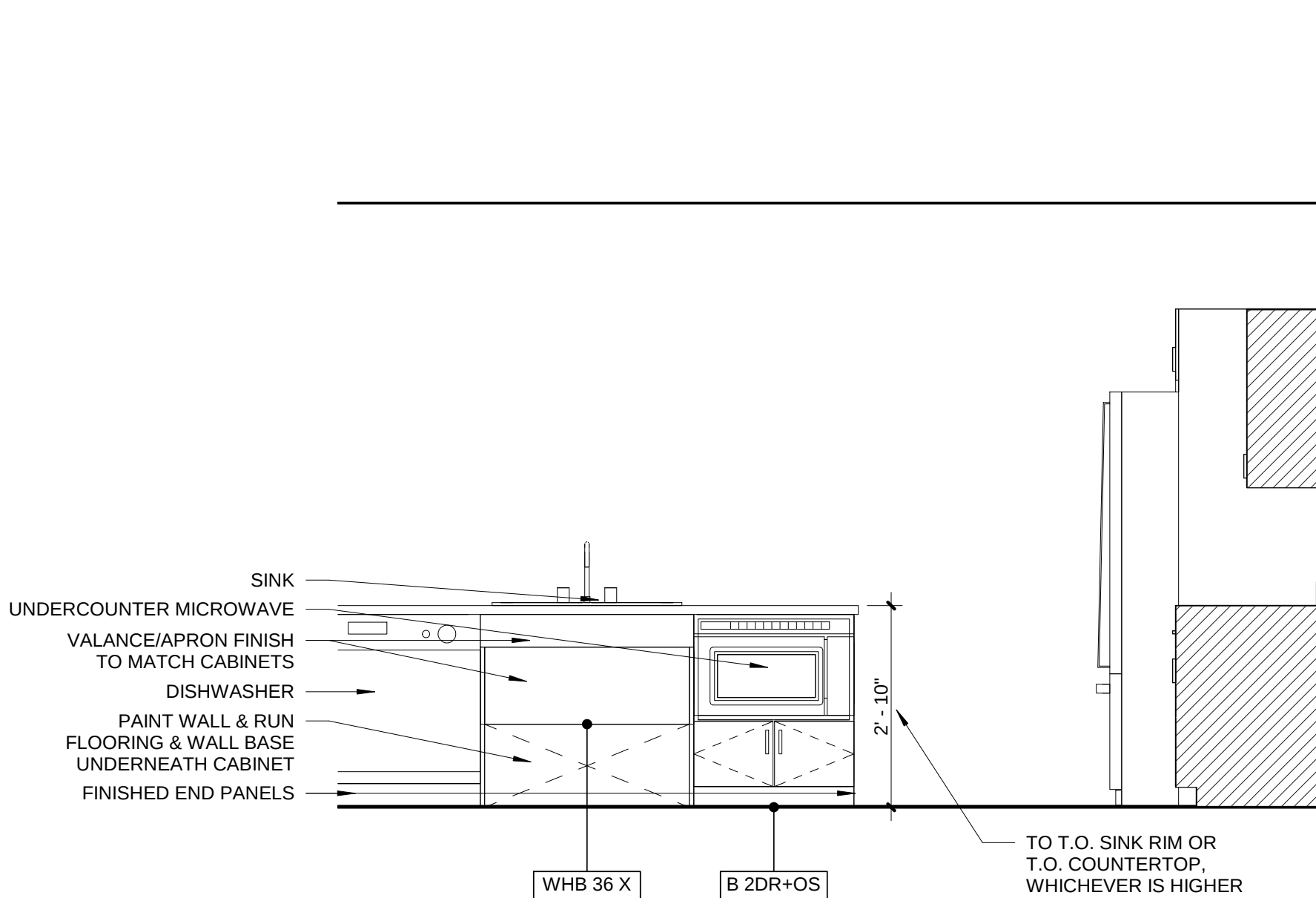
5 UNIT KITCHEN TYPE K-2 (TYPE A)
1/2" = 1'-0"



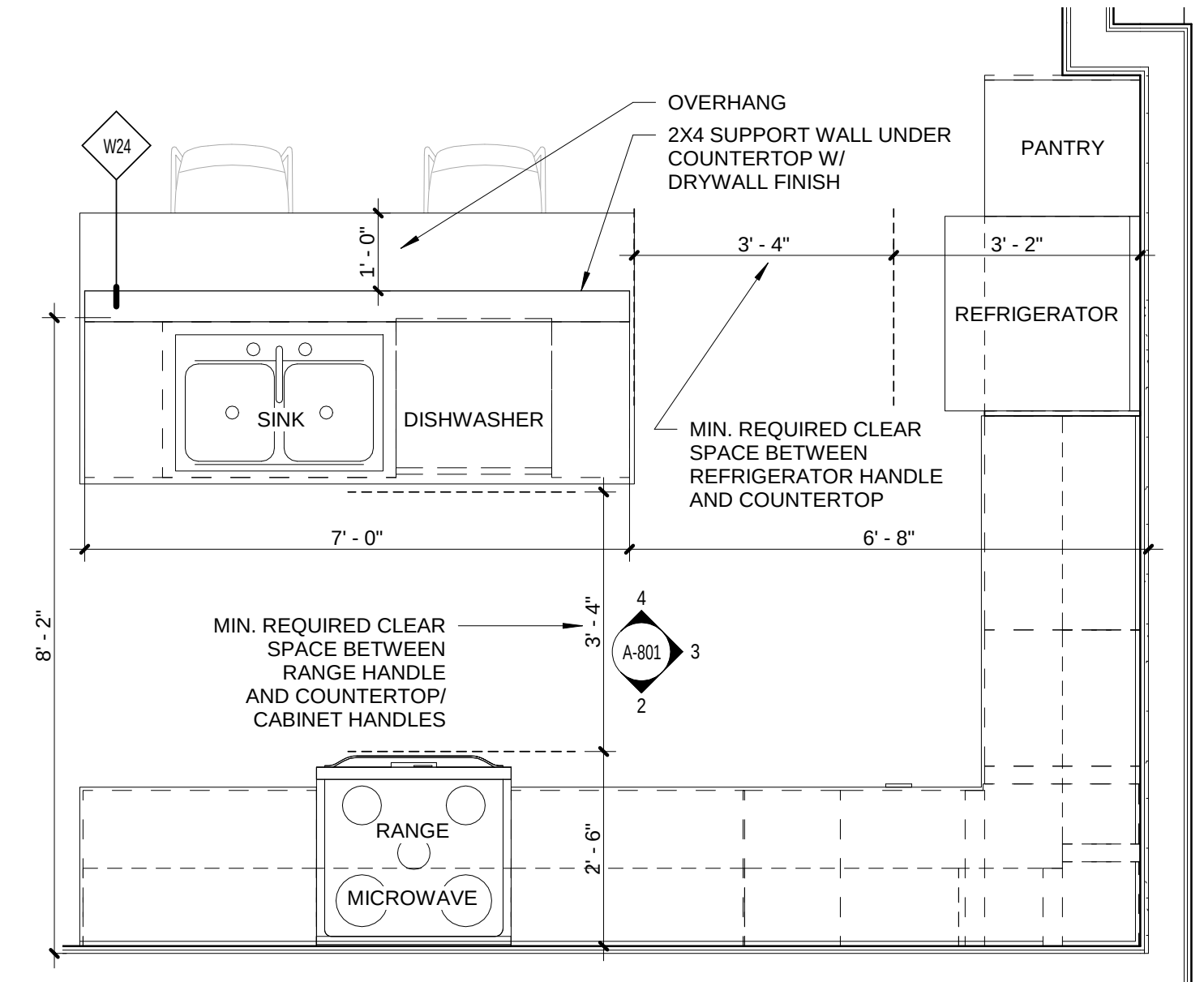
6 KITCHEN TYPE K-2 (TYPE A) - ELEV 1
1/2" = 1'-0"



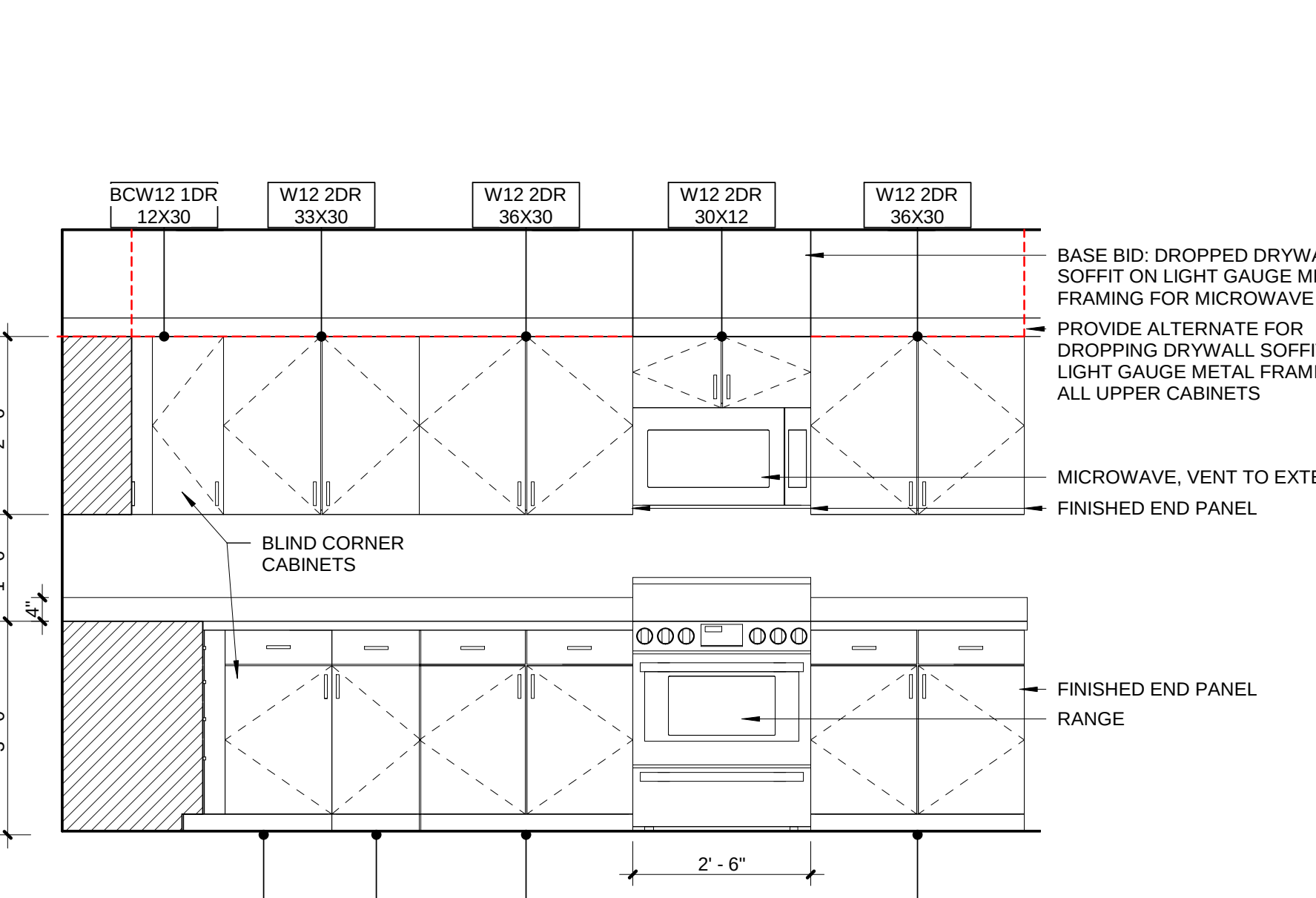
7 KITCHEN TYPE K-2 (TYPE A) - ELEV 2
1/2" = 1'-0"



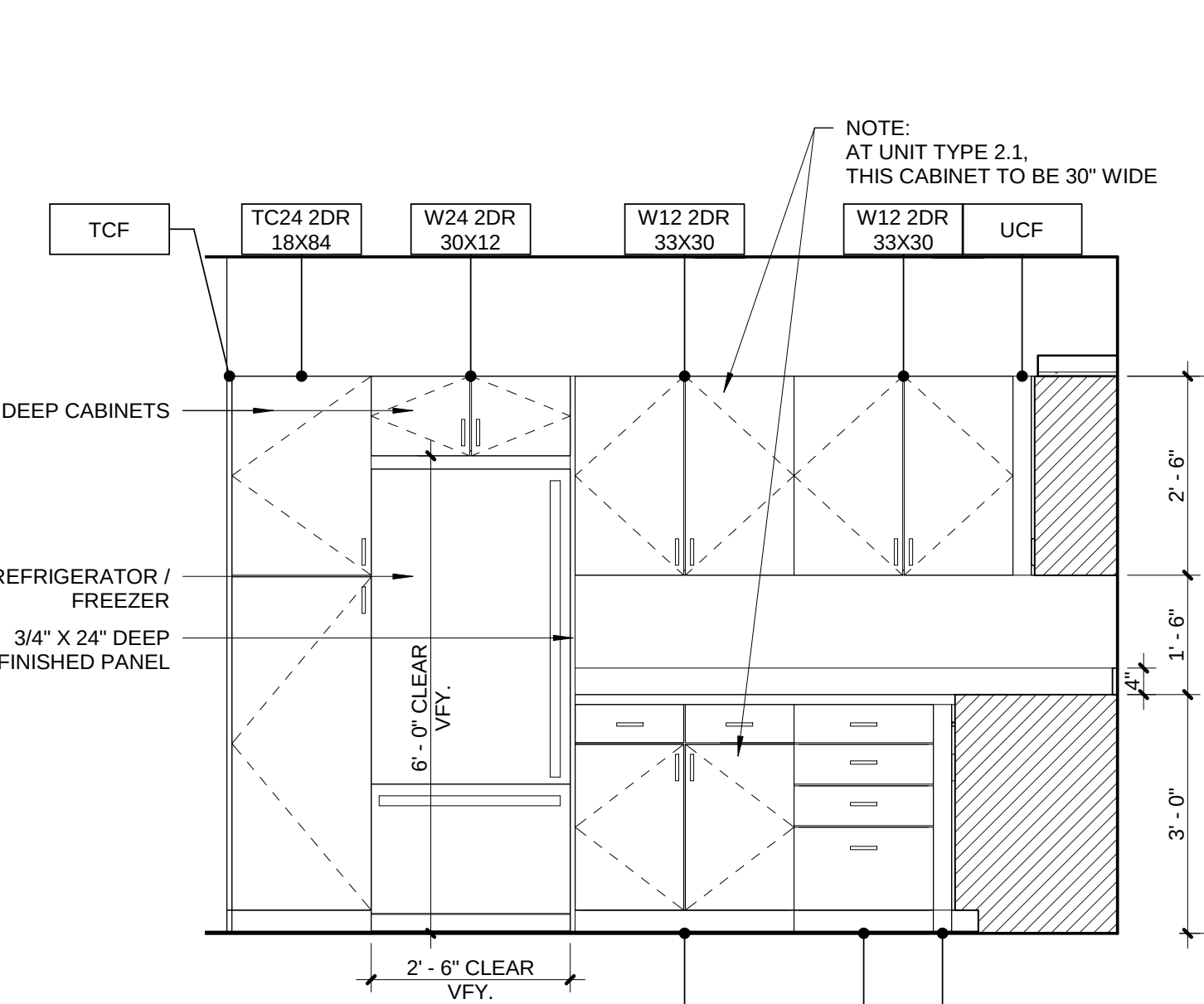
8 KITCHEN TYPE K-2 (TYPE A) - ELEV 3
1/2" = 1'-0"



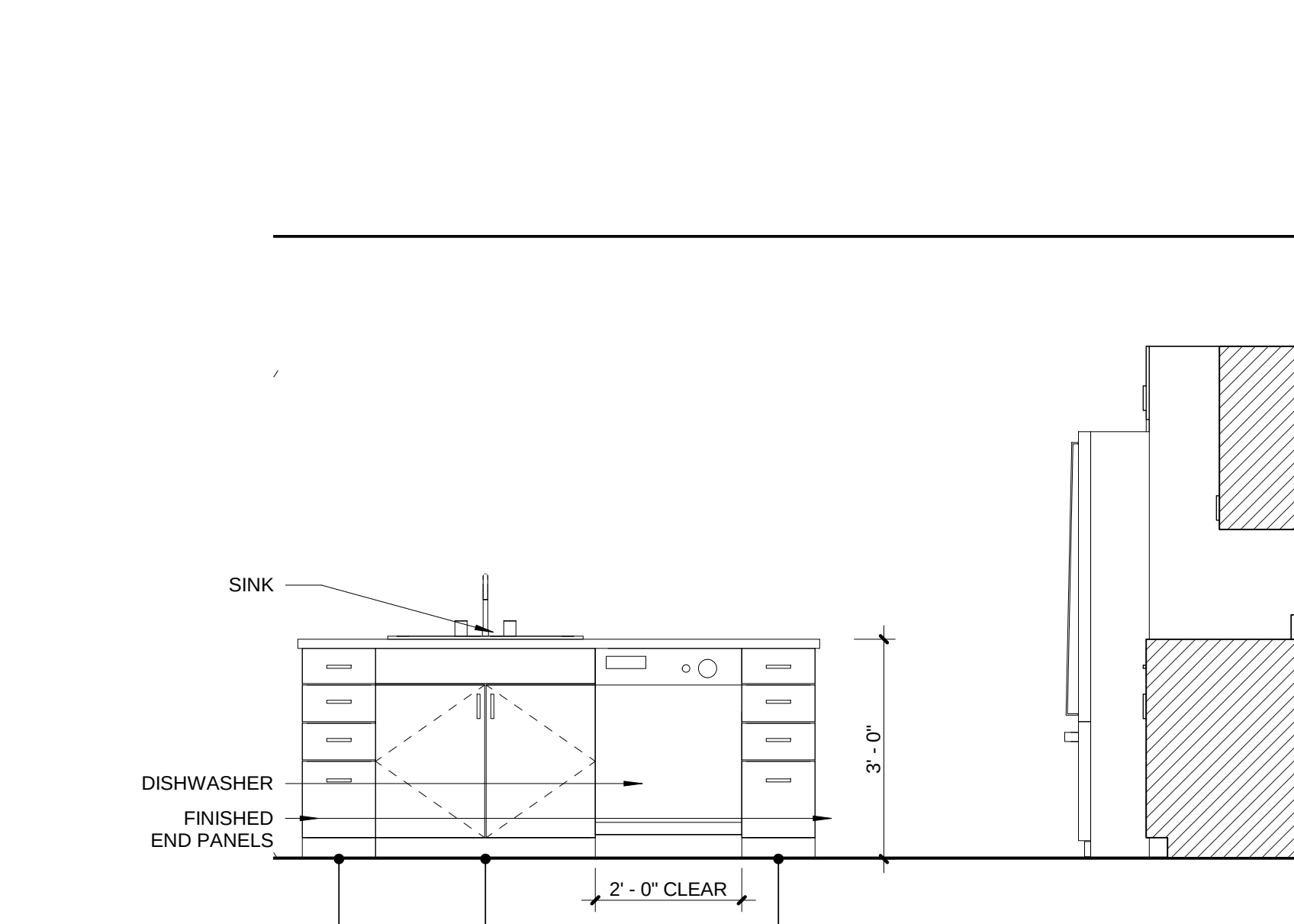
1 UNIT KITCHEN TYPE K-1
1/2" = 1'-0"



2 KITCHEN TYPE K-1 - ELEV 1
1/2" = 1'-0"



3 KITCHEN TYPE K-1 - ELEV 2
1/2" = 1'-0"



4 KITCHEN TYPE K-1 - ELEV 3
1/2" = 1'-0"



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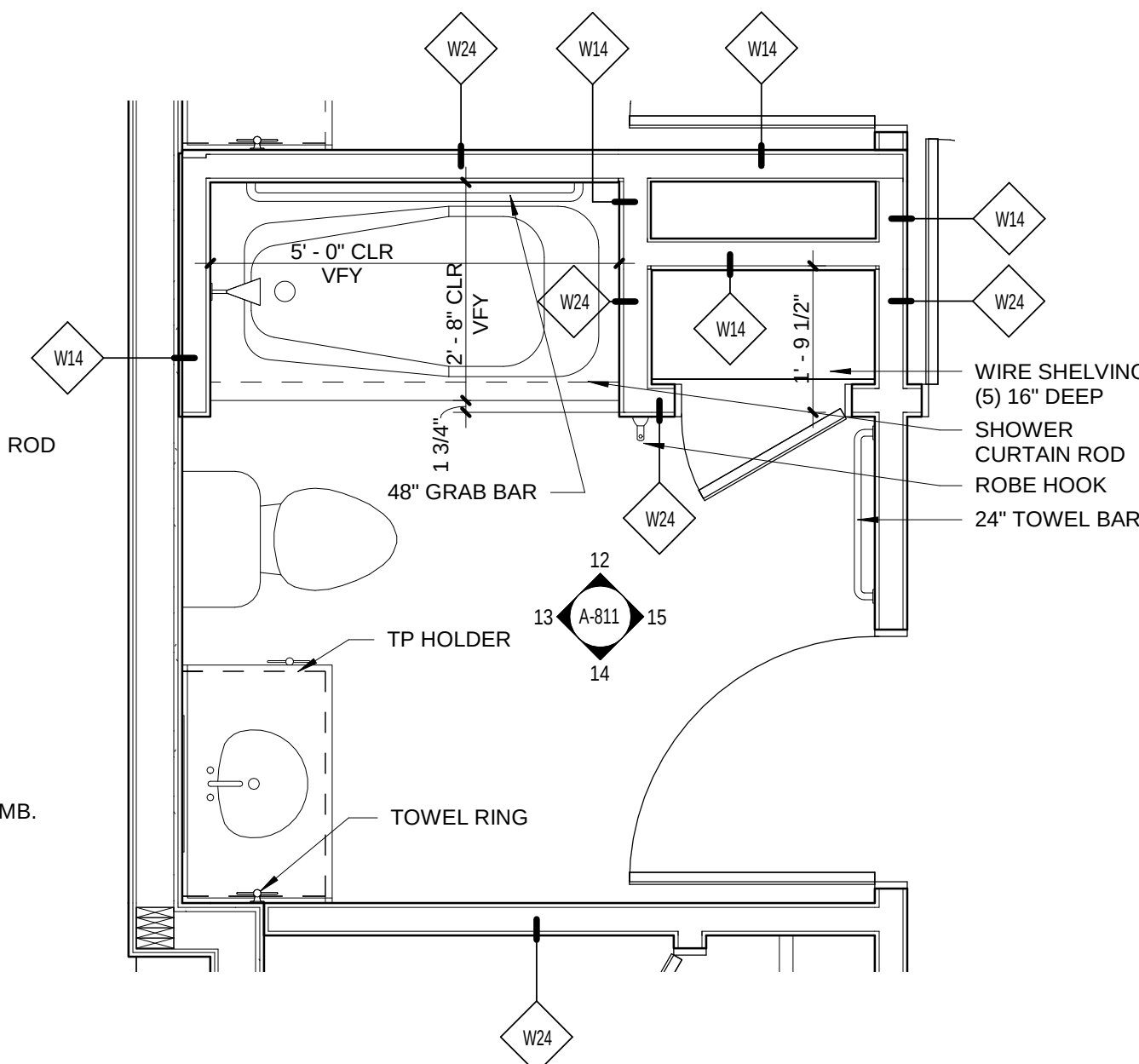
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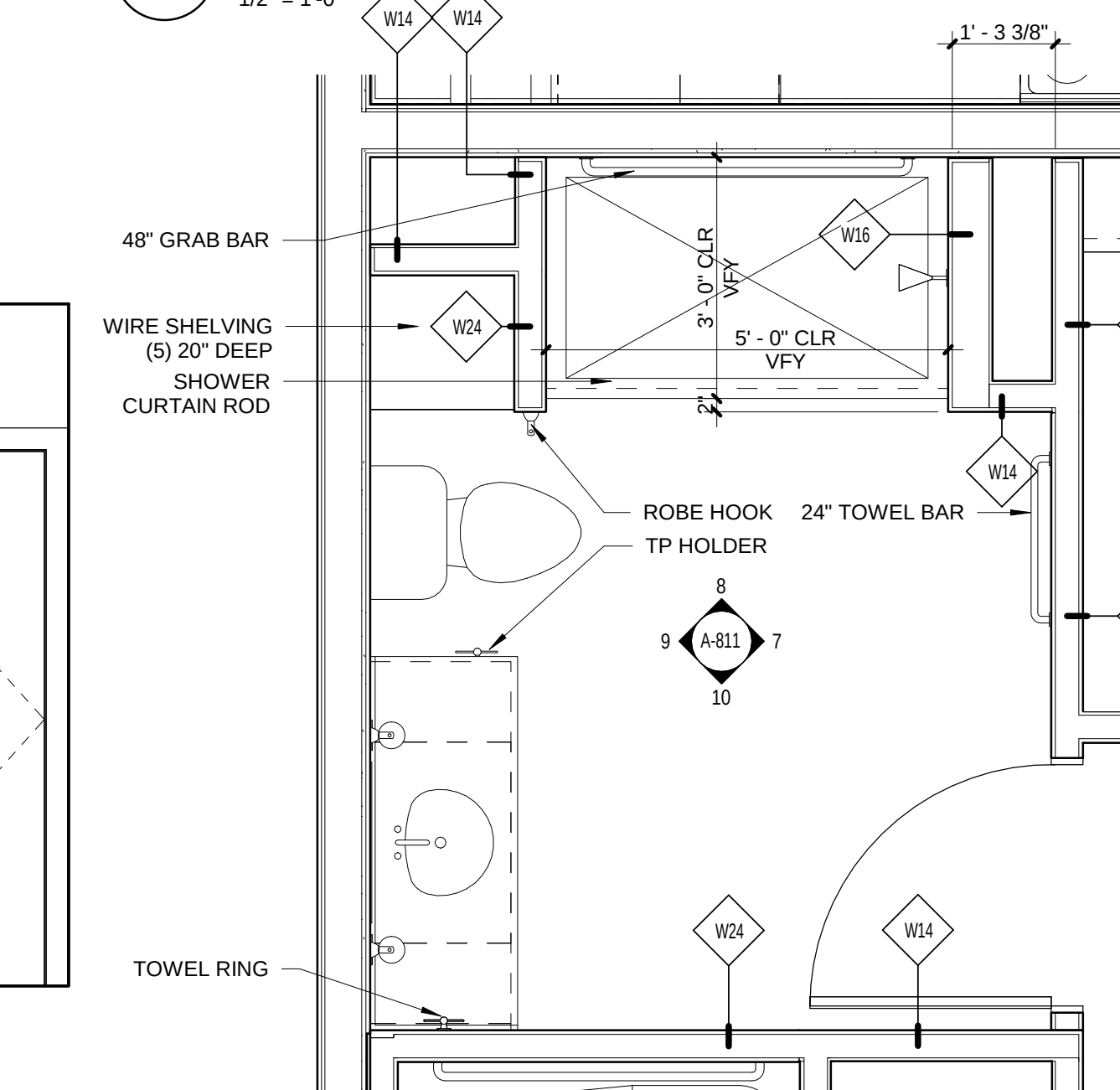
SHEET TITLE:
UNIT BATH
ELEVATIONS

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

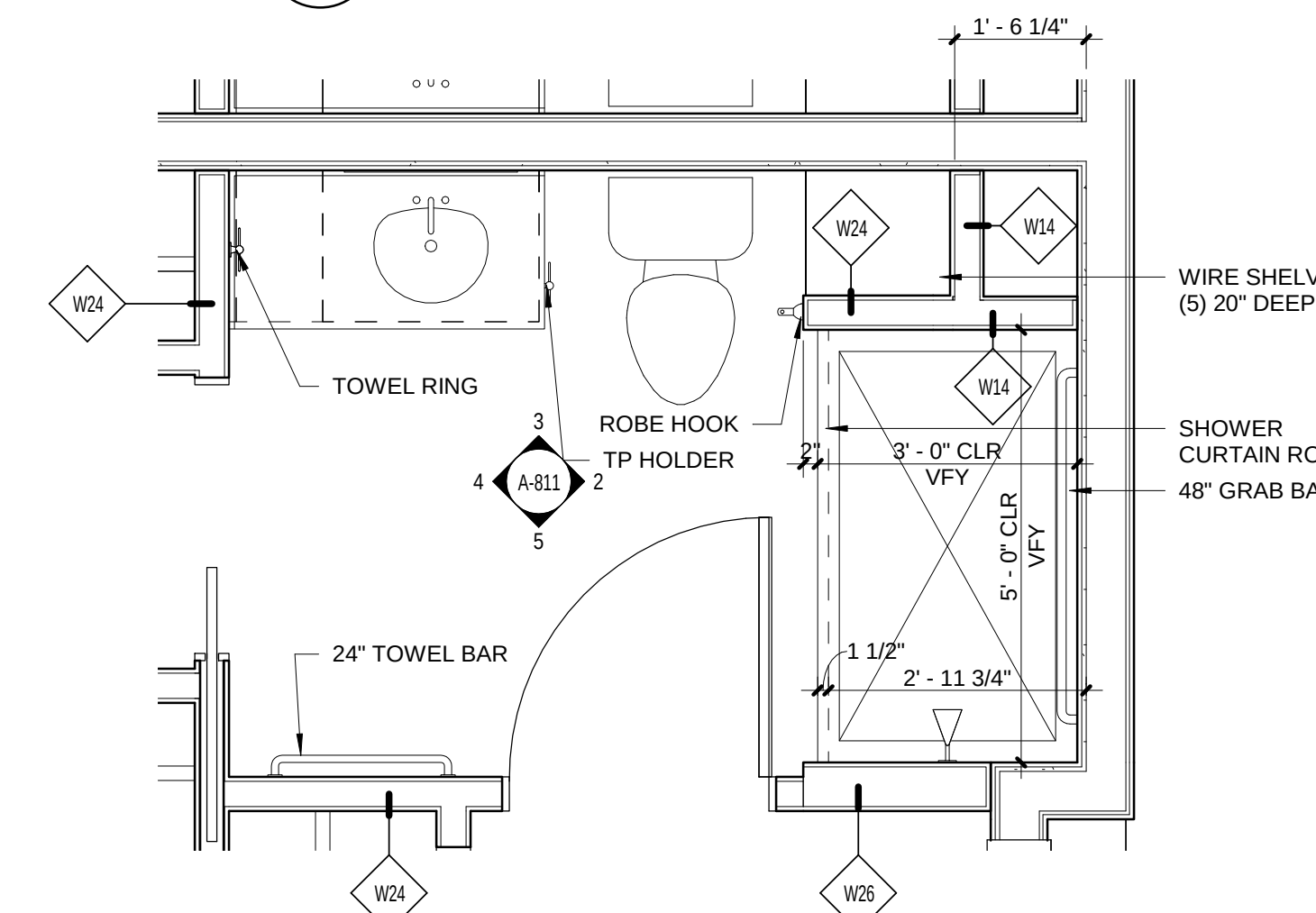
A-811



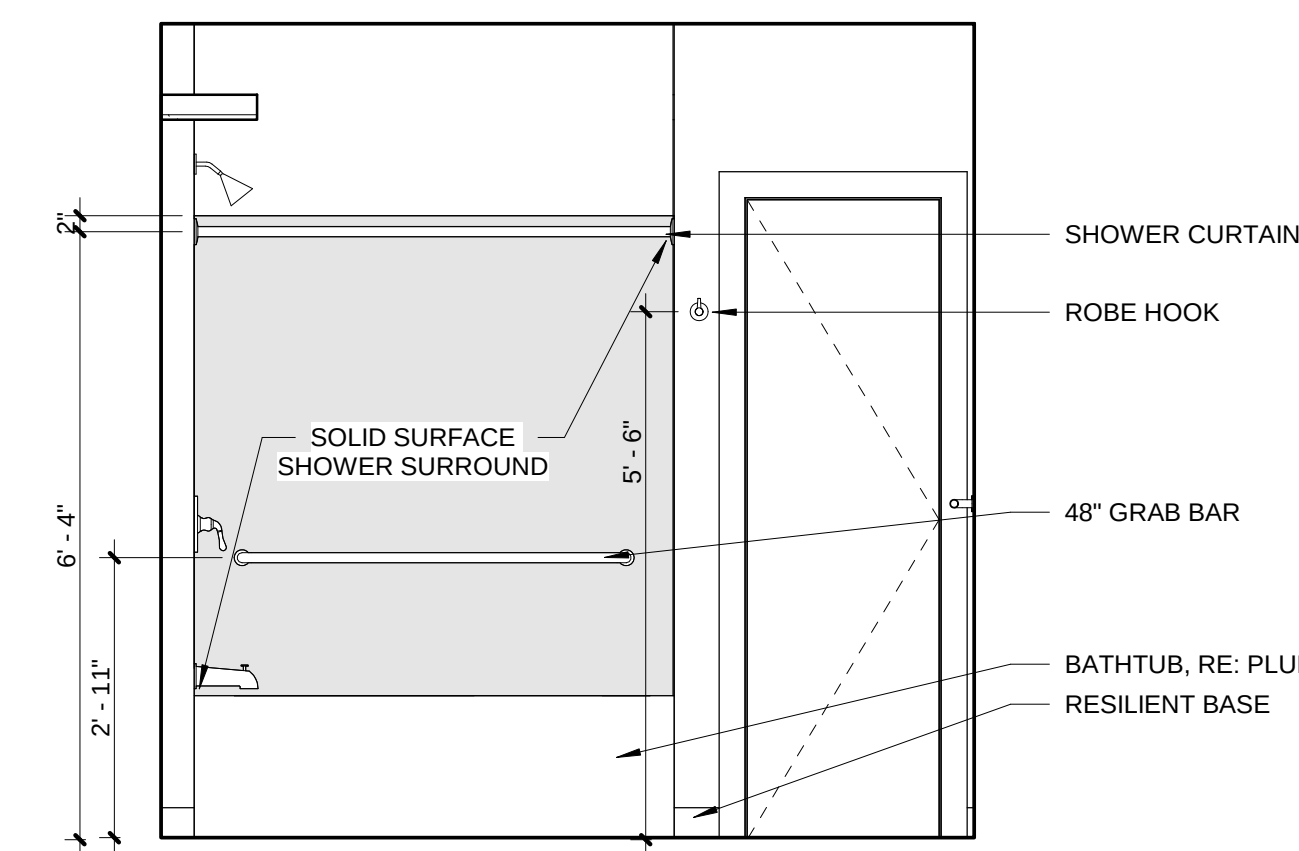
11 UNIT BATH TYPE B-3
1/2" = 1'-0"



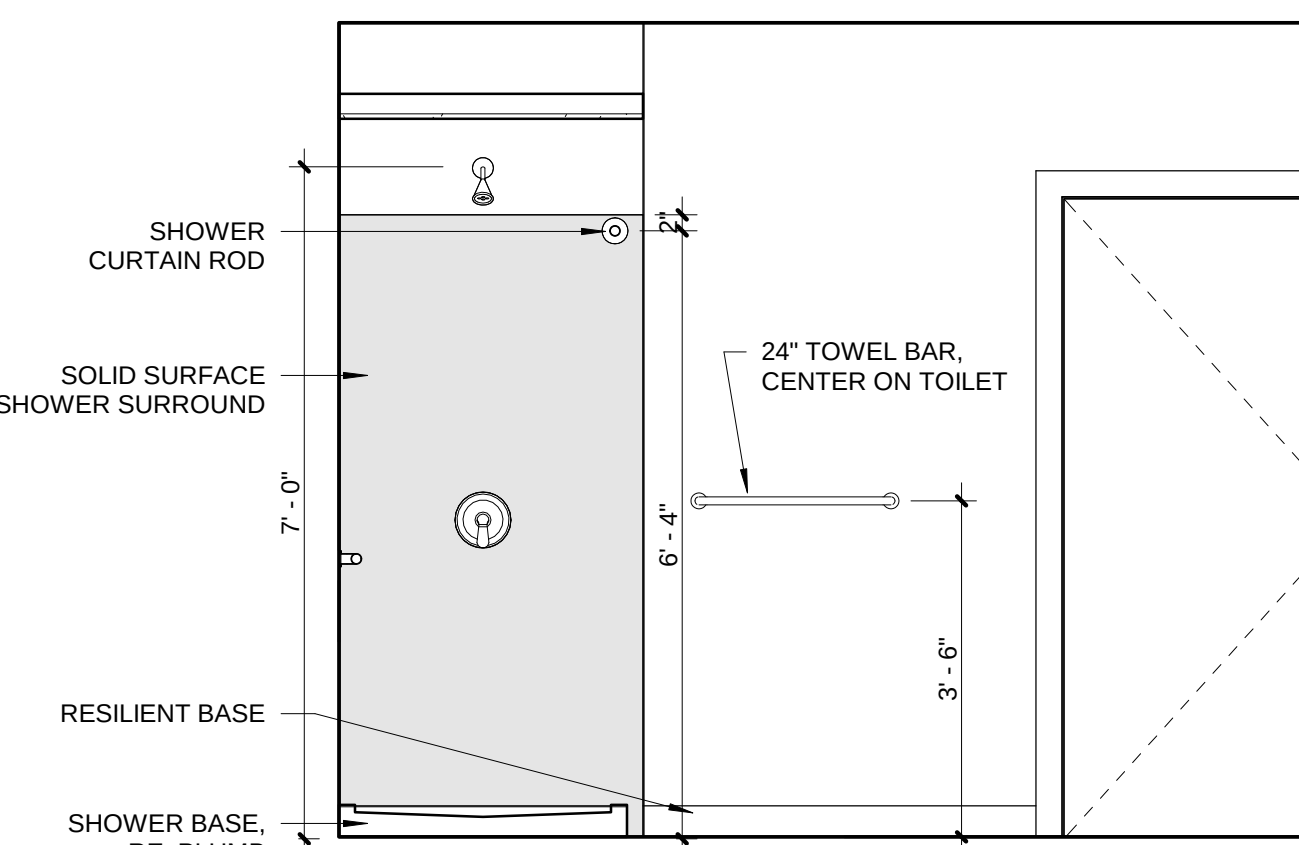
6 UNIT BATH TYPE B-2
1/2" = 1'-0"



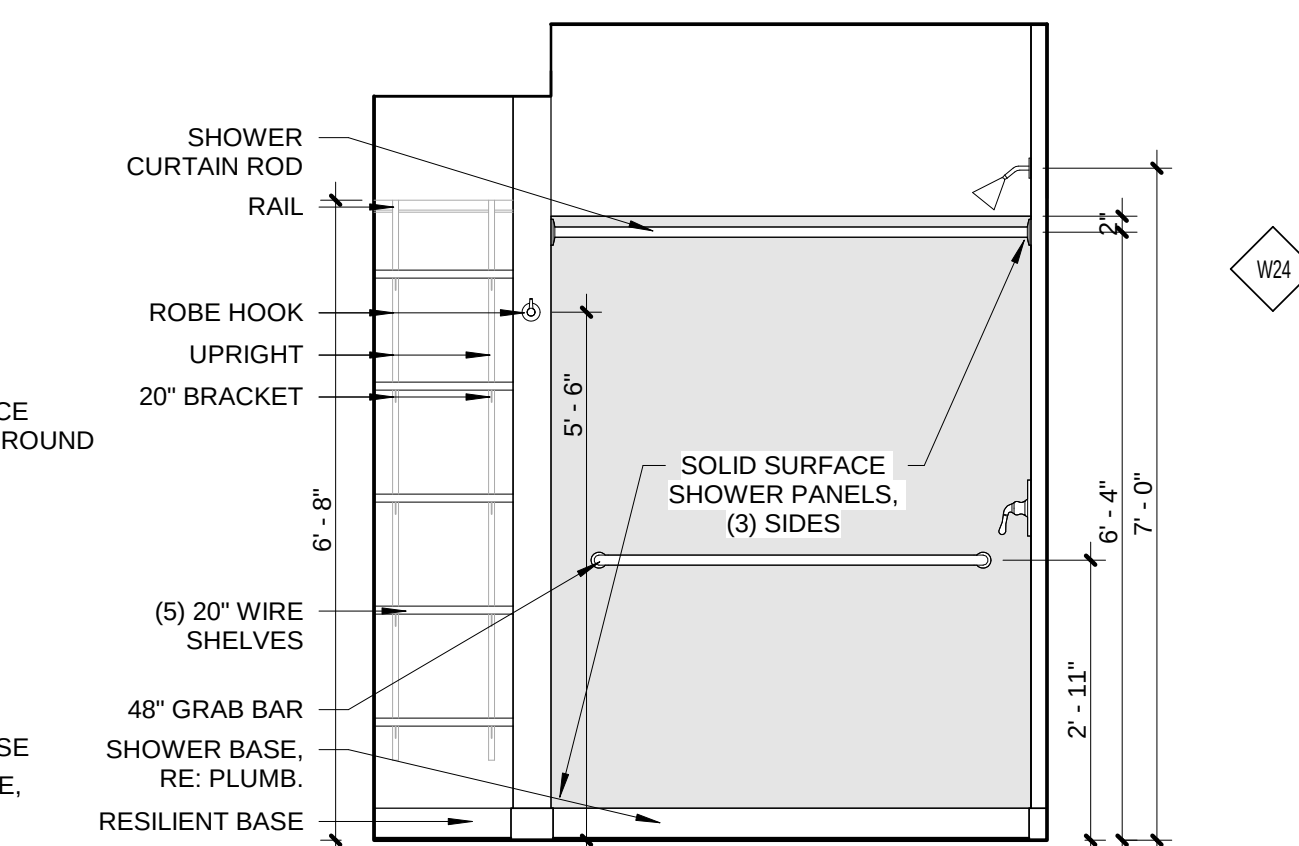
1 UNIT BATH TYPE B-1
1/2" = 1'-0"



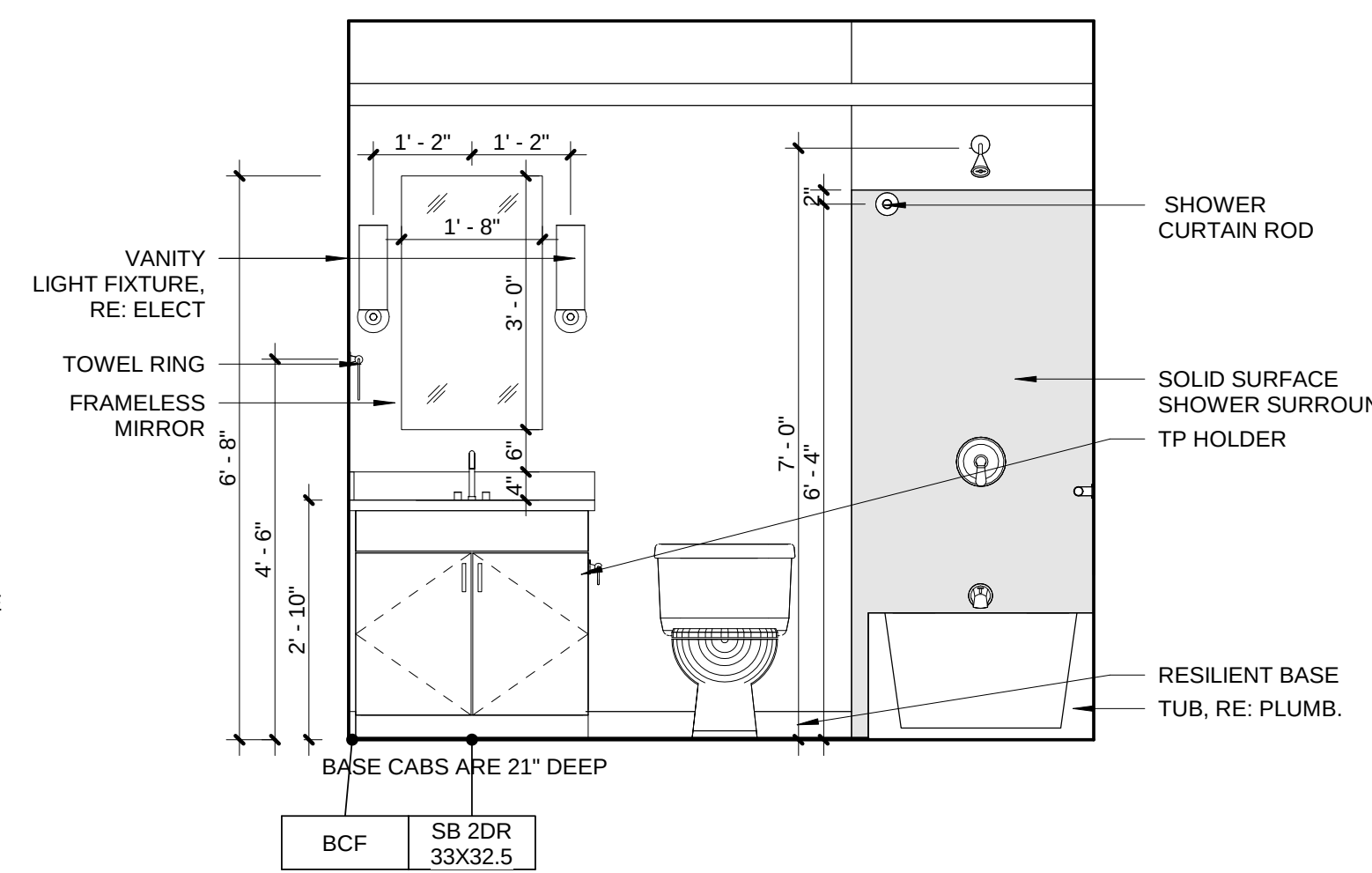
12 BATH TYPE B-3 - ELEV 1
1/2" = 1'-0"



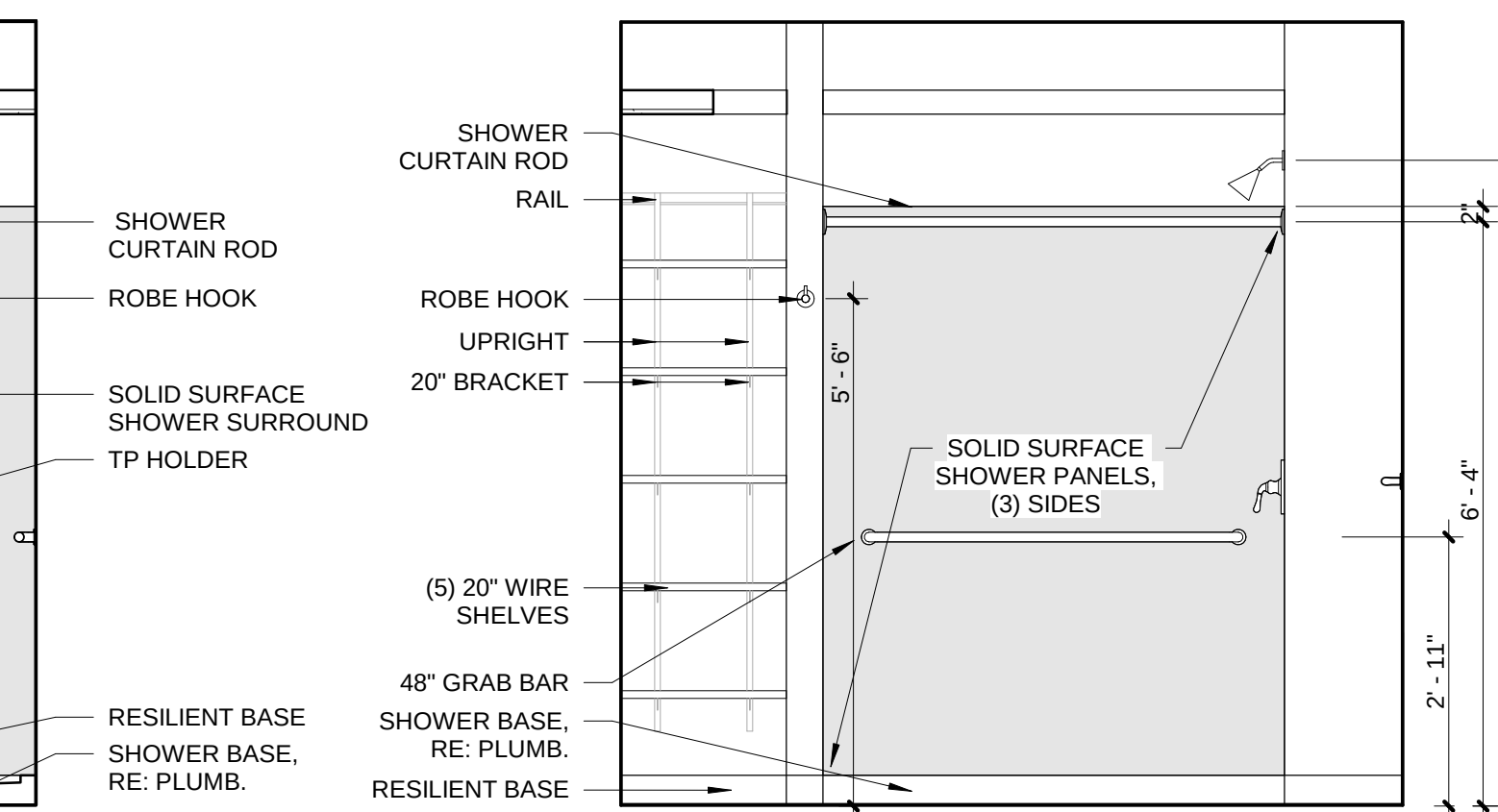
7 BATH TYPE B-2 - ELEV 1
1/2" = 1'-0"



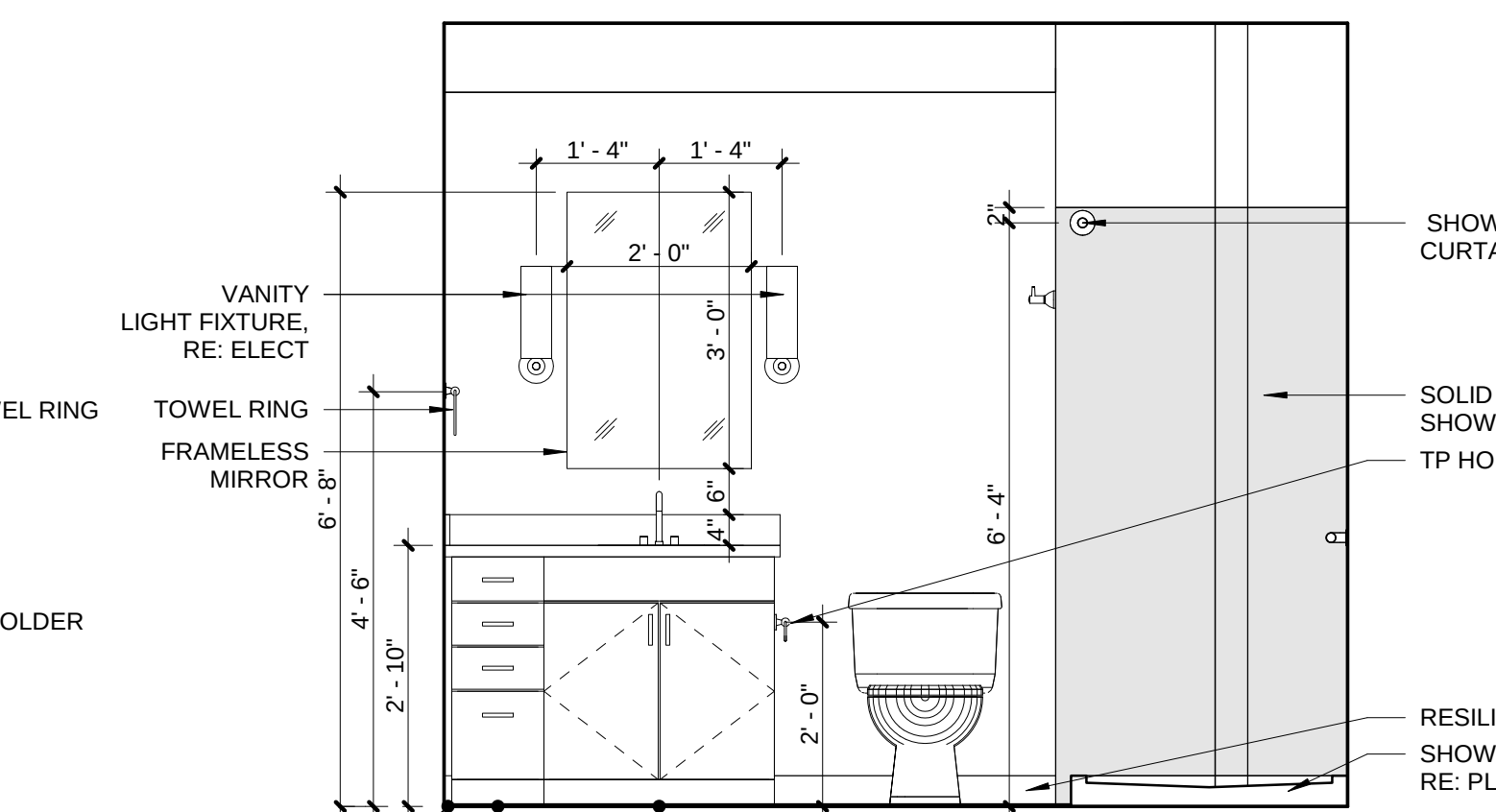
2 BATH TYPE B-1 - ELEV 1
1/2" = 1'-0"



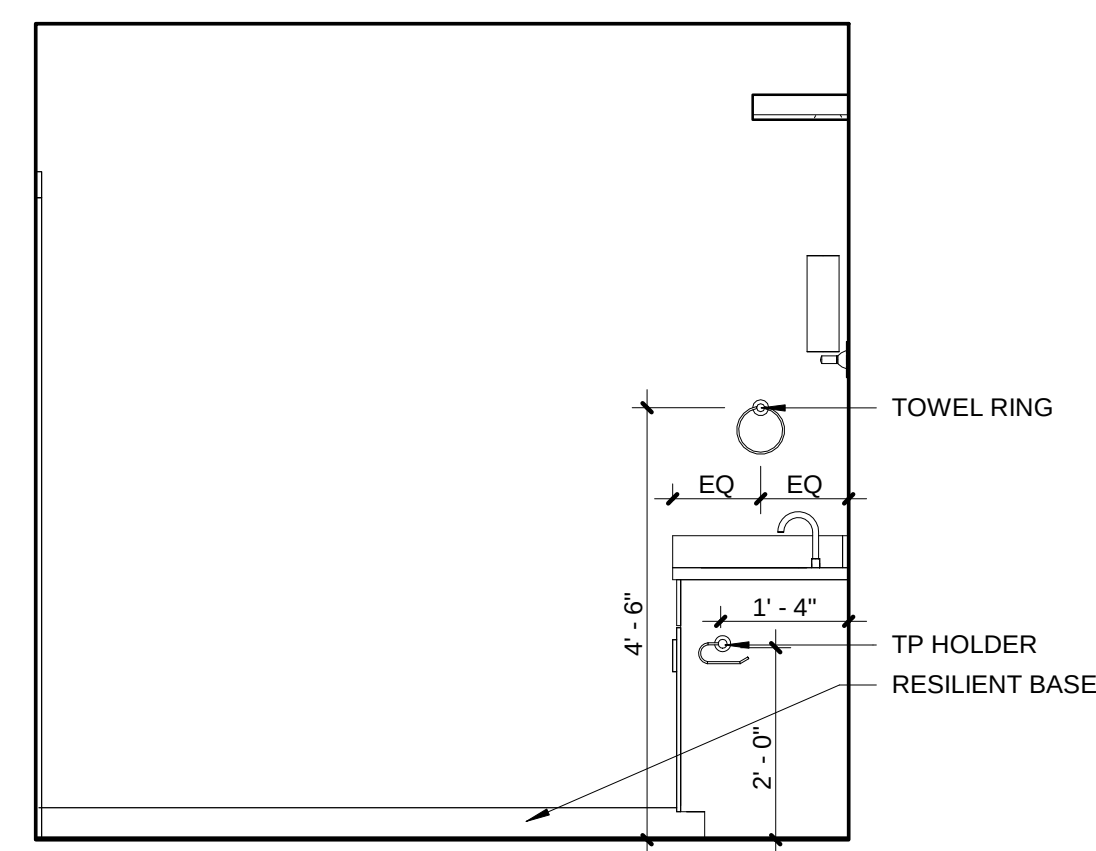
13 BATH TYPE B-3 - ELEV 2
1/2" = 1'-0"



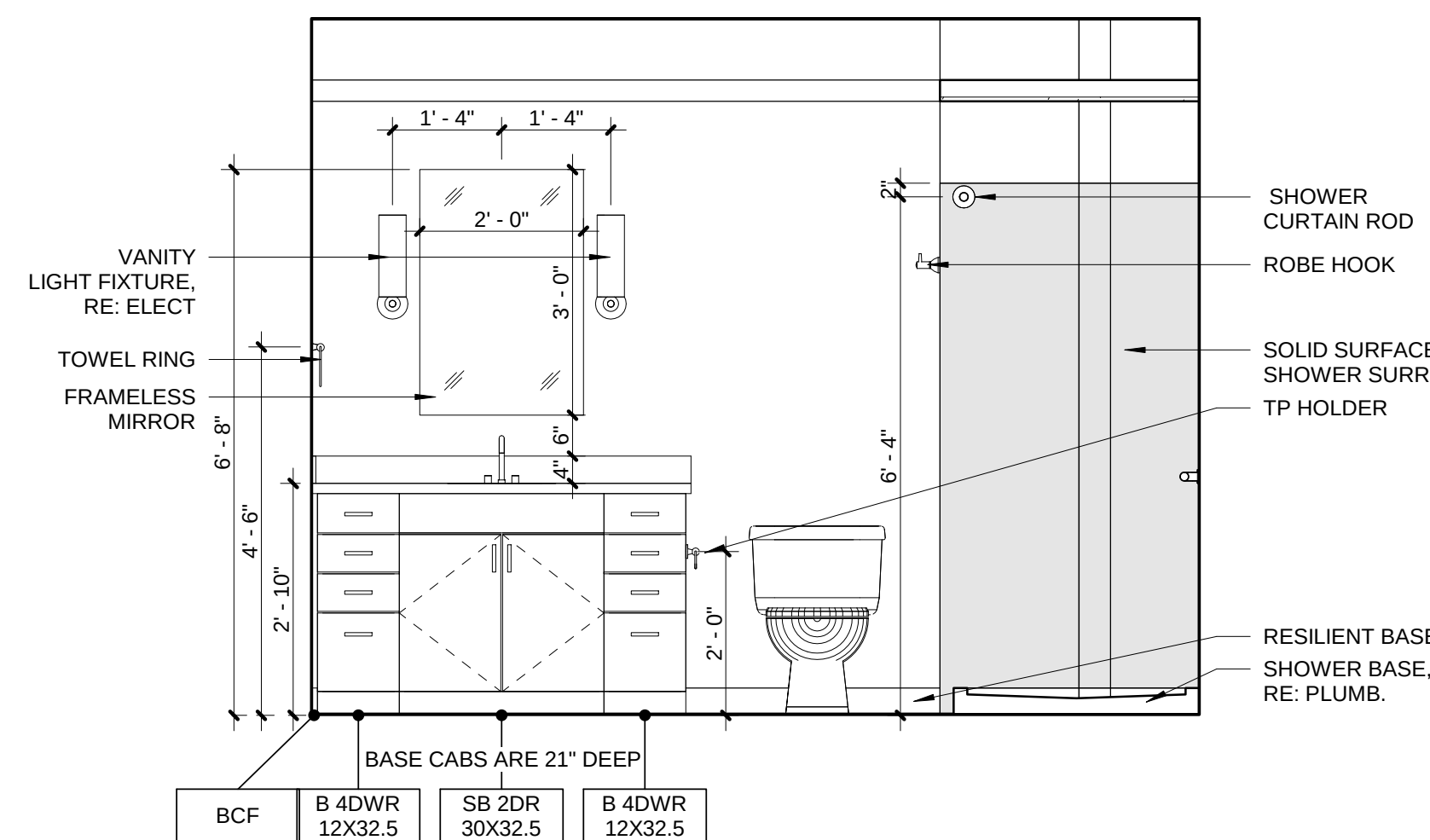
8 BATH TYPE B-2 - ELEV 2
1/2" = 1'-0"



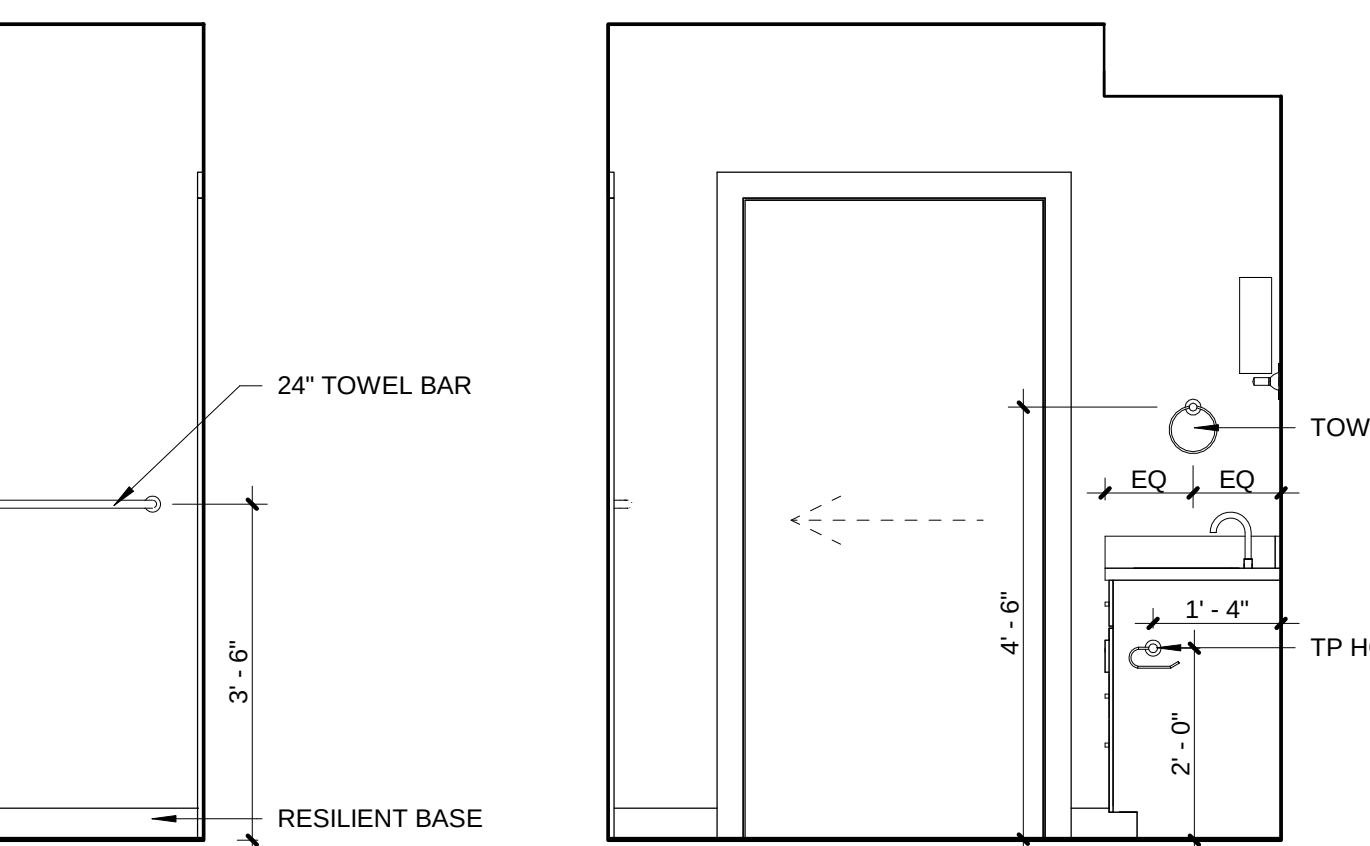
3 BATH TYPE B-1 - ELEV 2
1/2" = 1'-0"



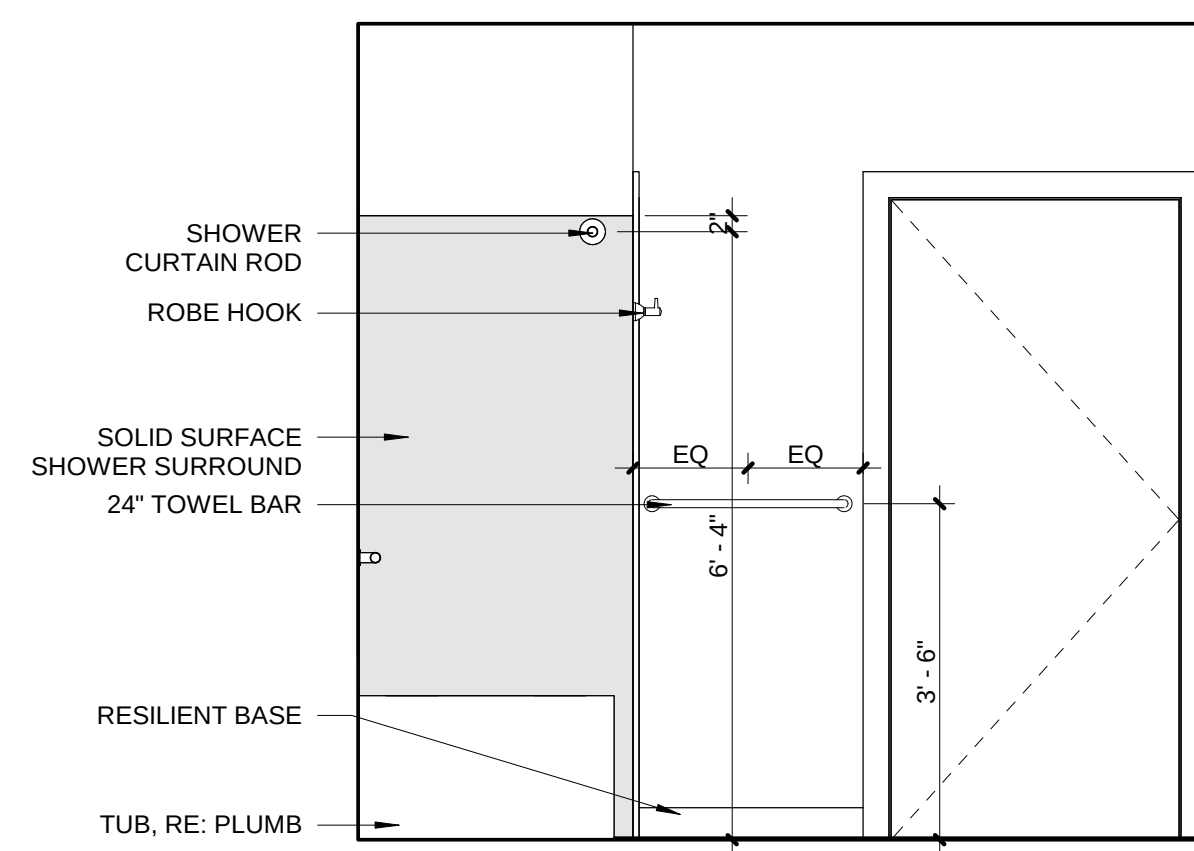
14 BATH TYPE B-3 - ELEV 3
1/2" = 1'-0"



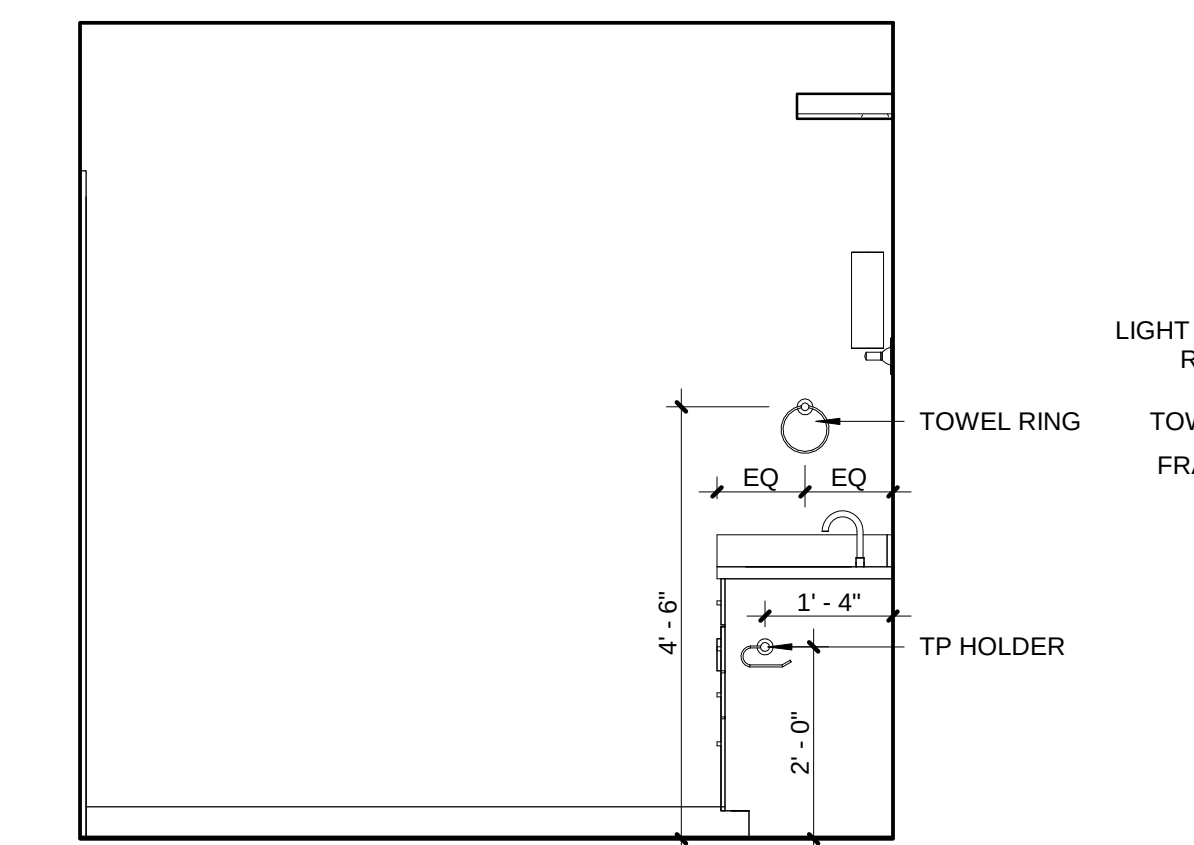
9 BATH TYPE B-2 - ELEV 3
1/2" = 1'-0"



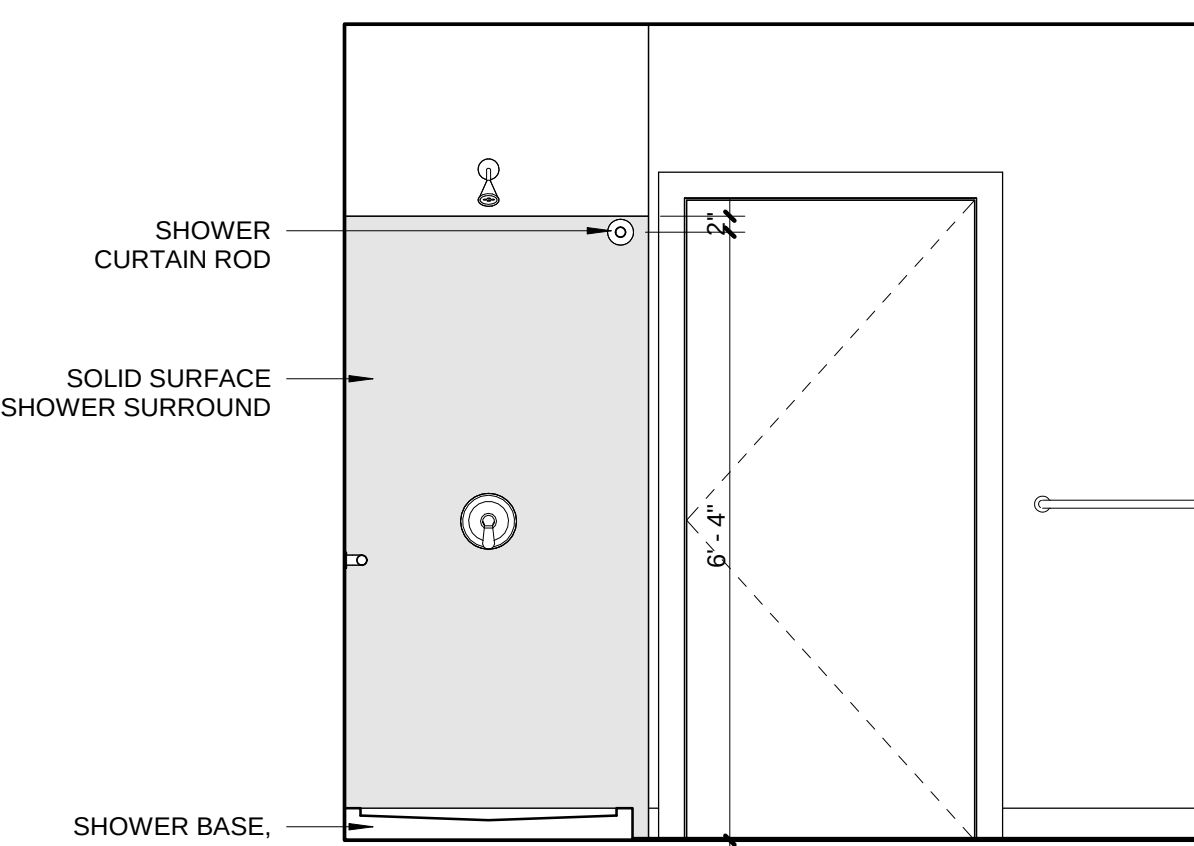
4 BATH TYPE B-1 - ELEV 3
1/2" = 1'-0"



15 BATH TYPE B-3 - ELEV 4
1/2" = 1'-0"



10 BATH TYPE B-2 - ELEV 4
1/2" = 1'-0"



5 BATH TYPE B-1 - ELEV 4
1/2" = 1'-0"



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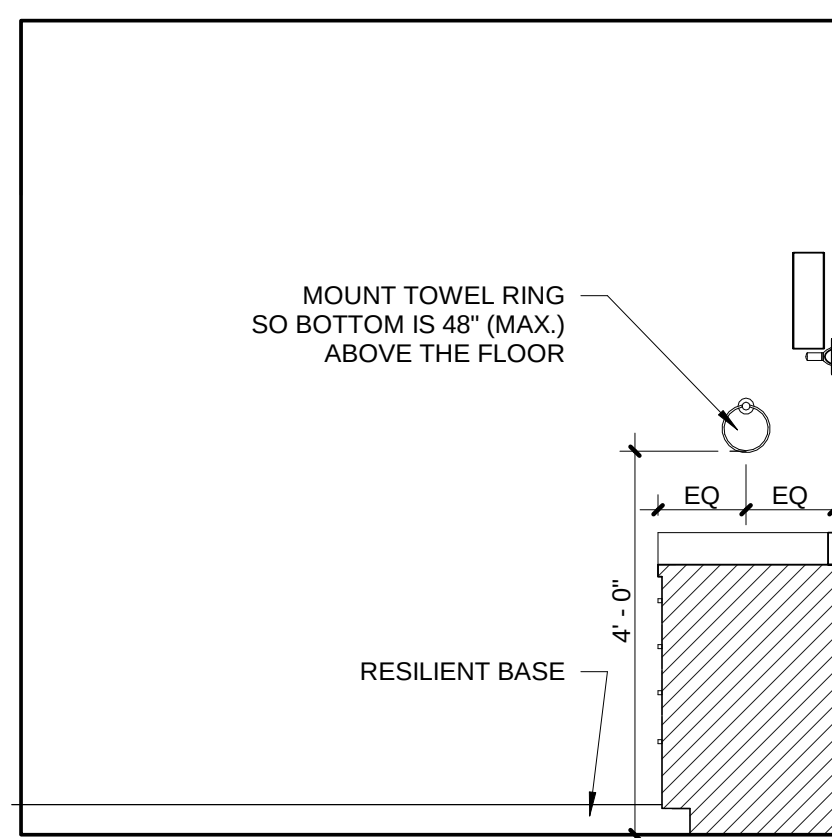
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SHEET TITLE:
UNIT BATH
ELEVATIONS

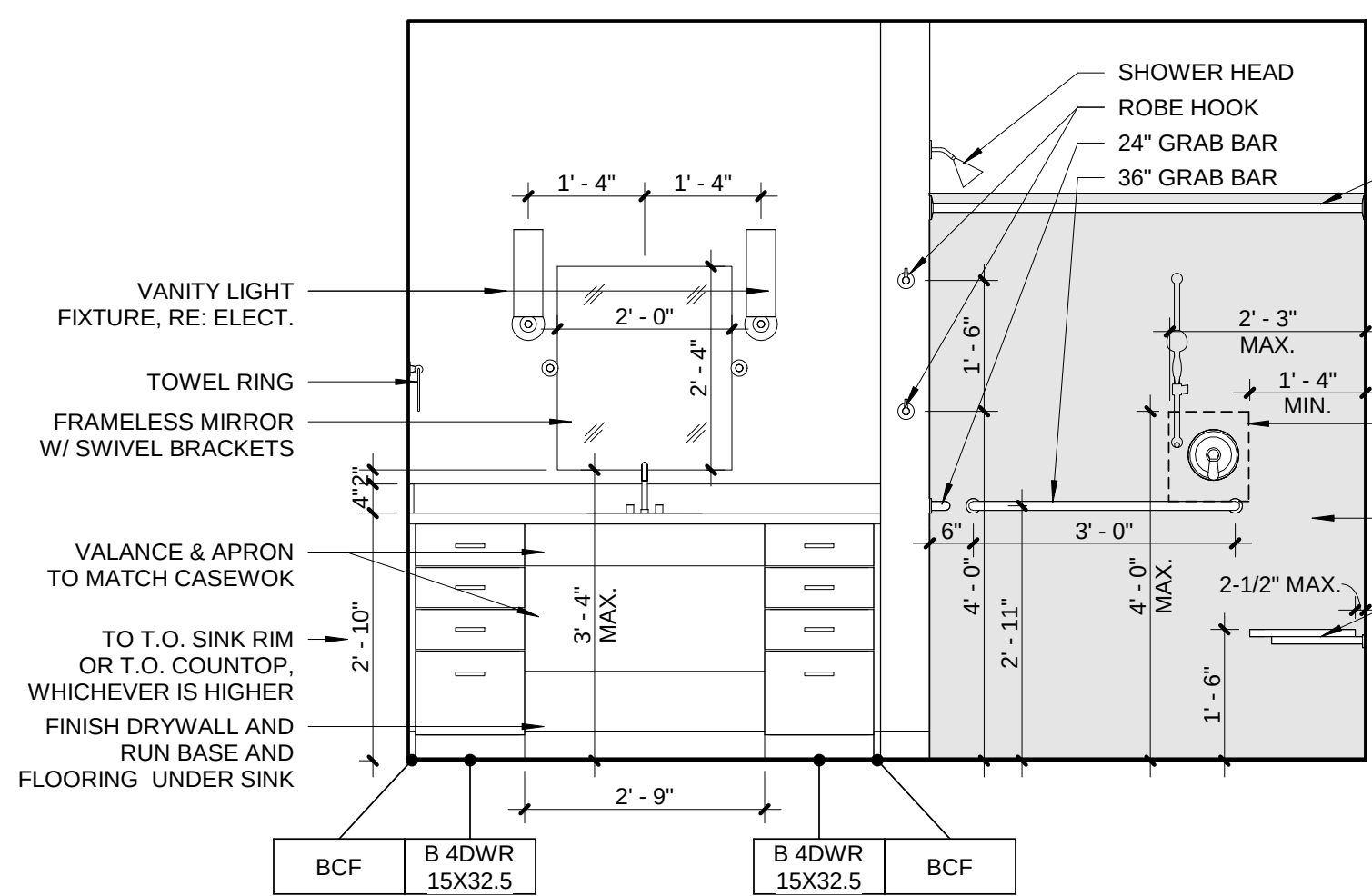
SCALE: 1/2" = 1'-0"
SHEET NUMBER

A-812



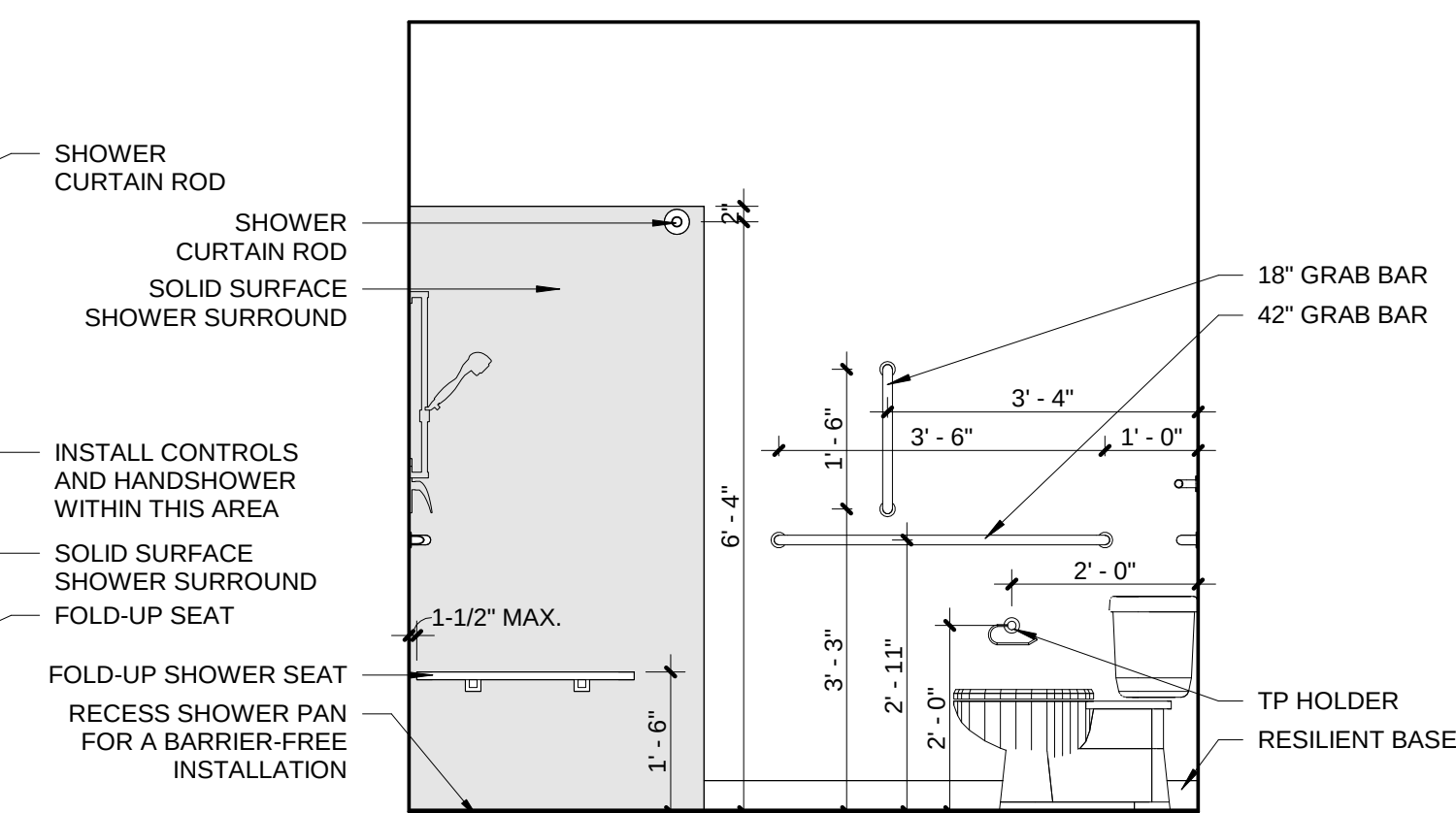
BATH TYPE B-5 (TYPE A) -
ELEV 4

1/2" = 1'-0"



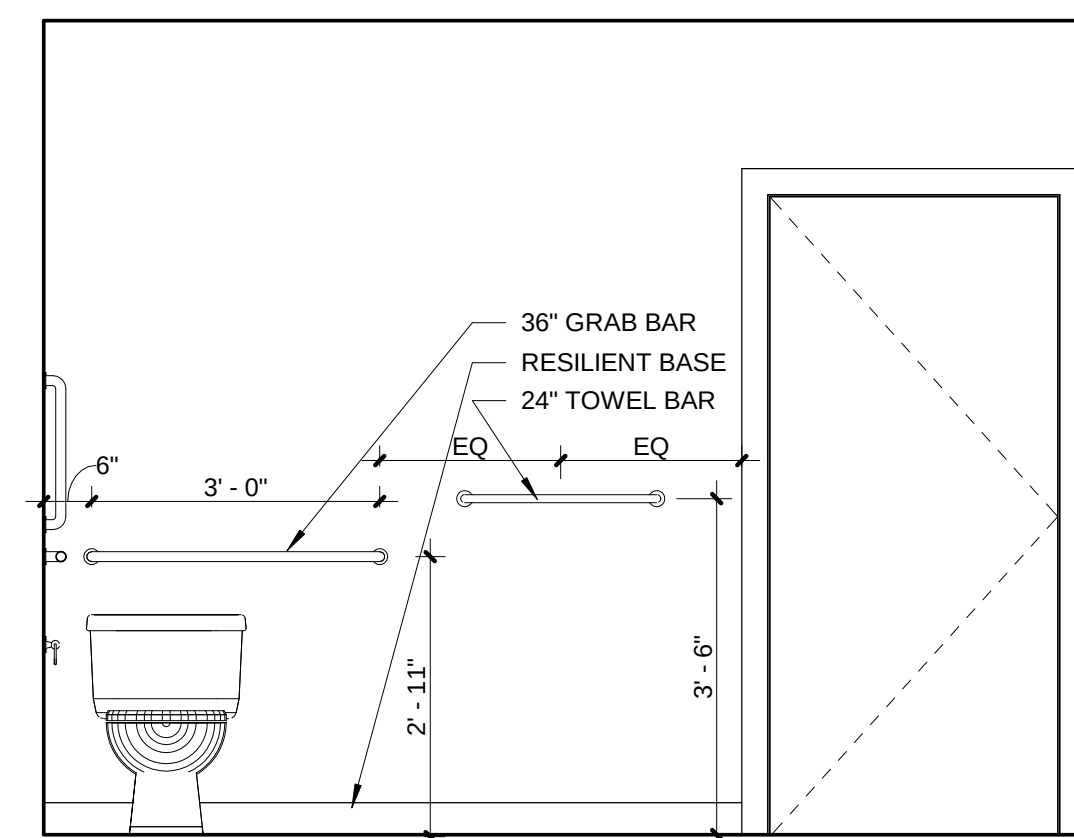
BATH TYPE B-5 (TYPE A) - ELEV 3

1/2" = 1'-0"



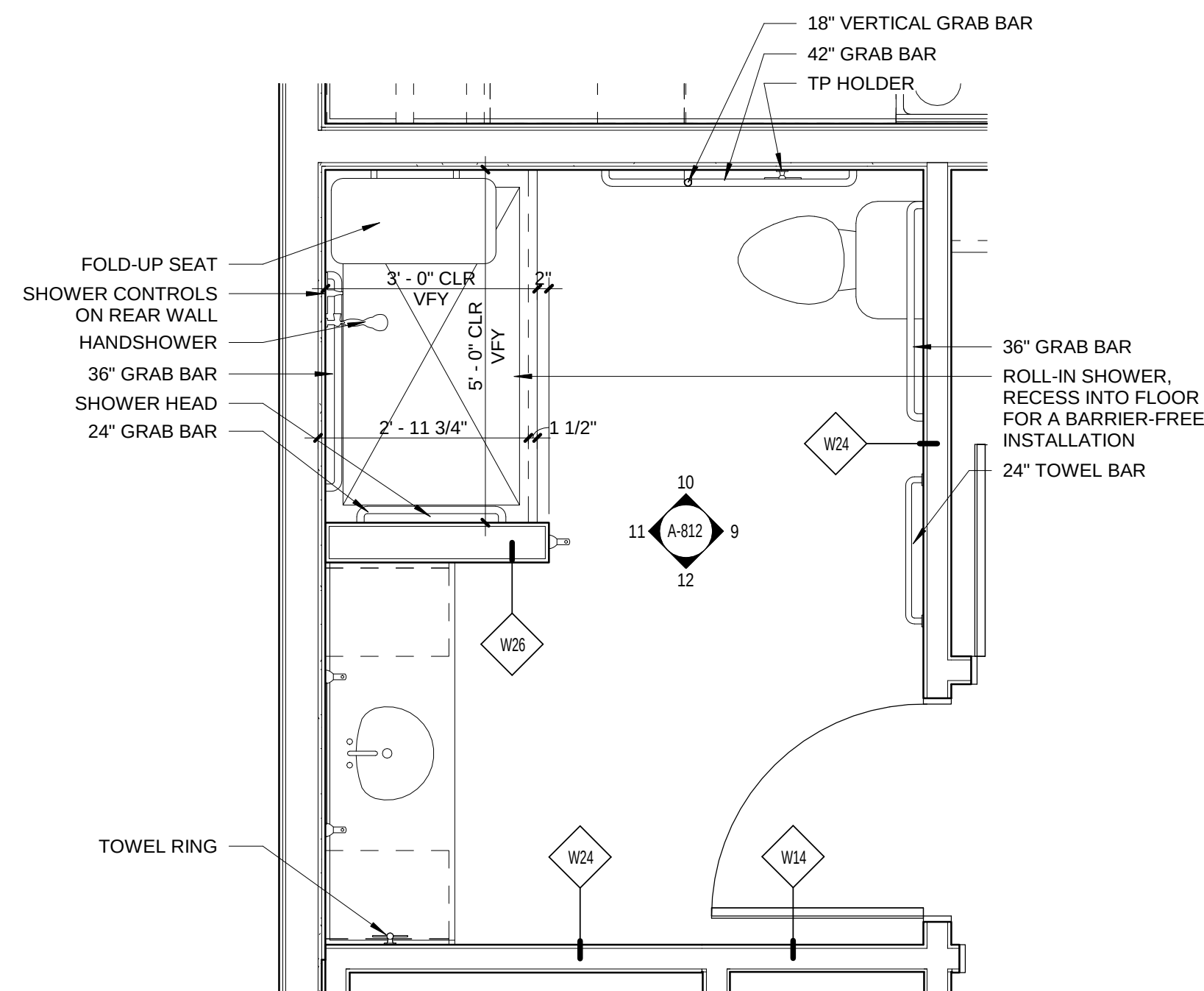
BATH TYPE B-5 (TYPE A) - ELEV 2

1/2" = 1'-0"



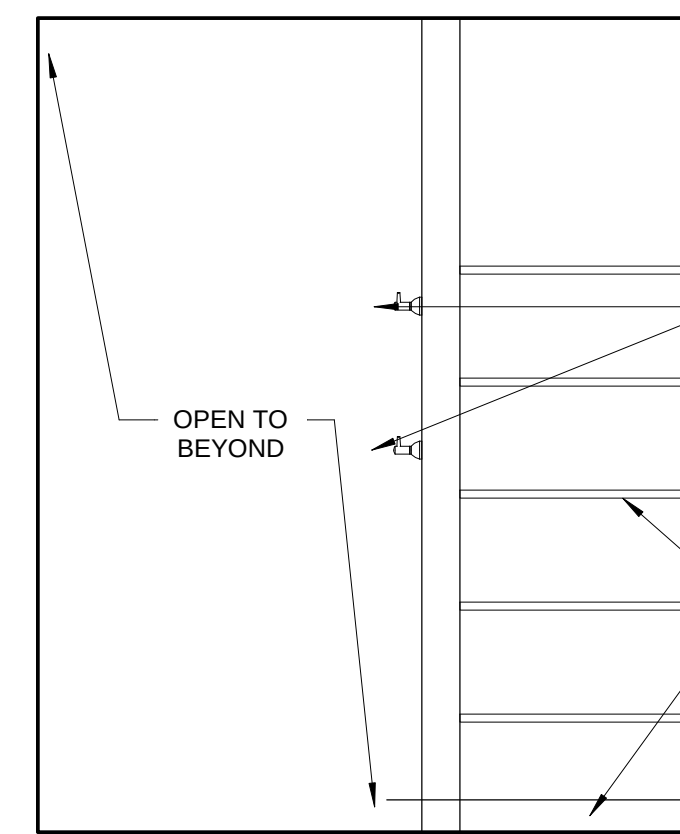
BATH TYPE B-5 (TYPE A) - ELEV 1

1/2" = 1'-0"



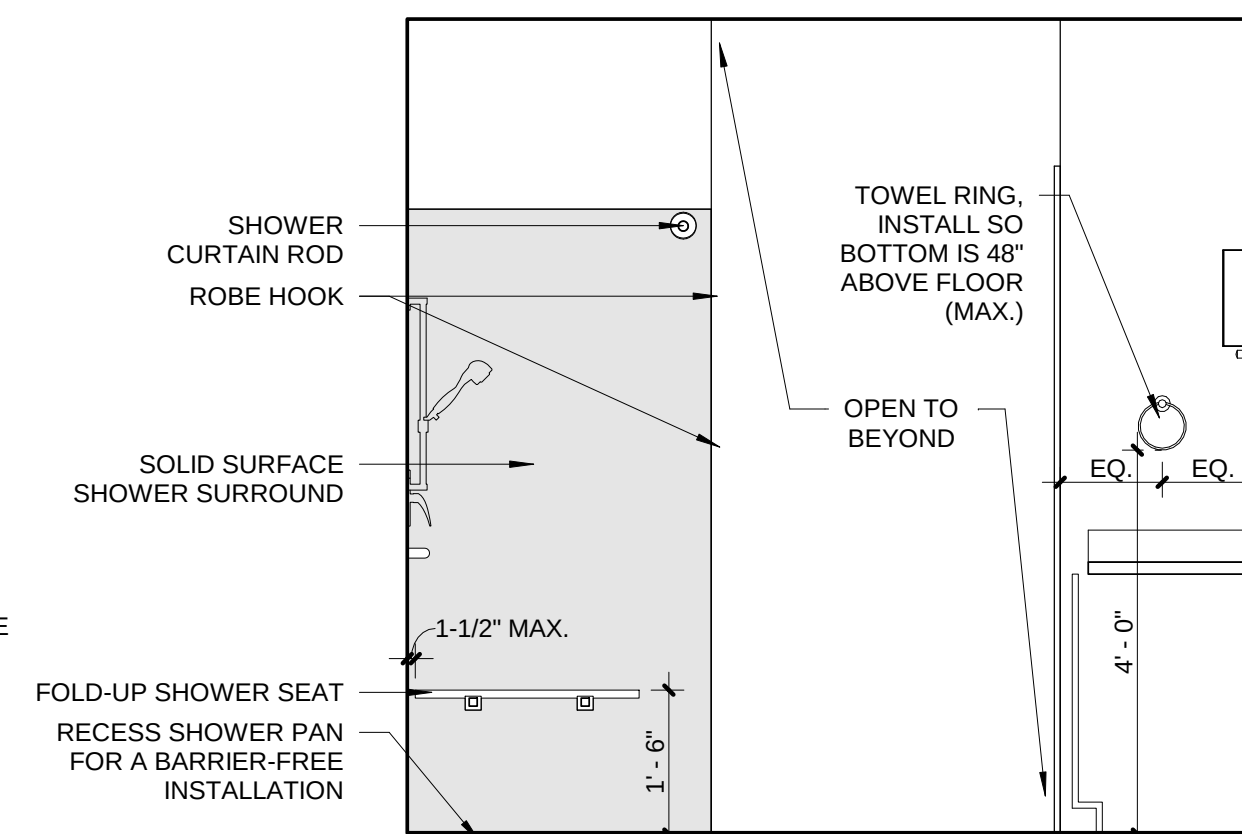
UNIT BATH TYPE B-5 (TYPE A)

1/2" = 1'-0"



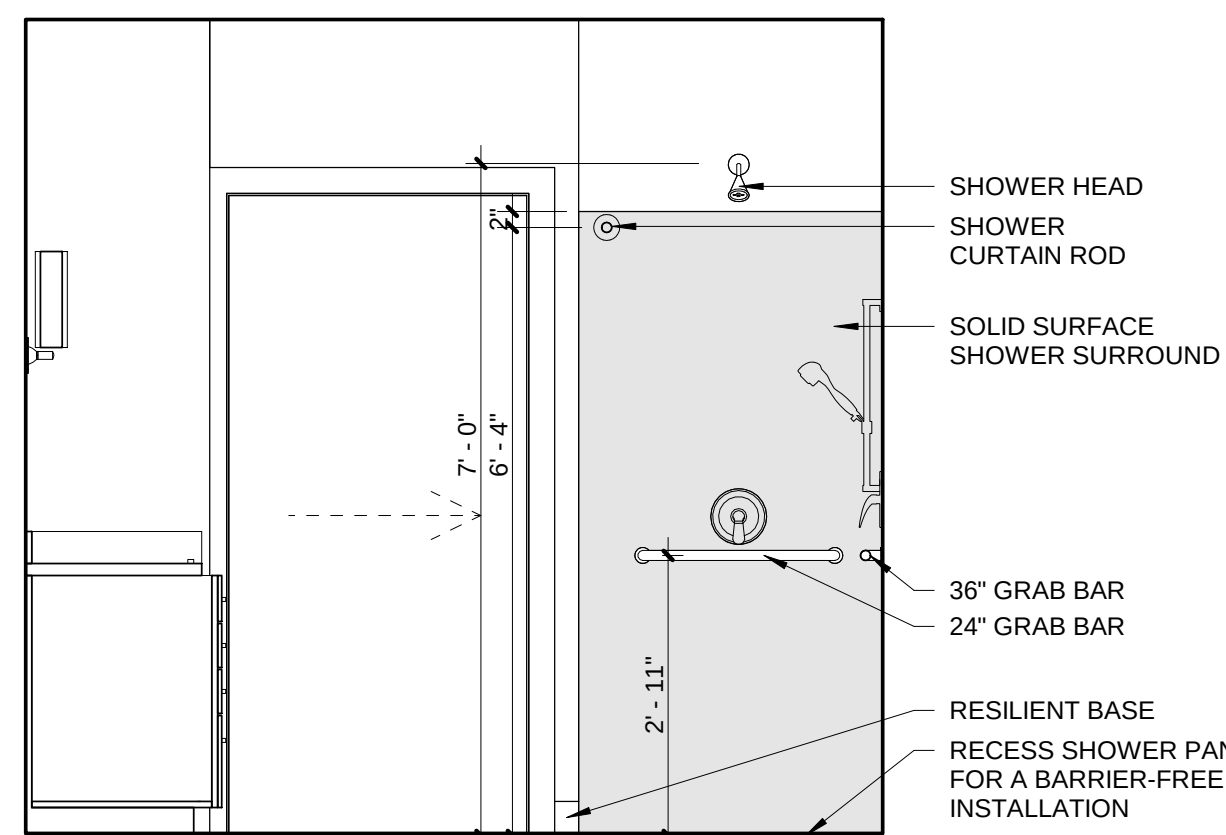
BATH TYPE B-4 (TYPE A) -
ELEV 6

1/2" = 1'-0"



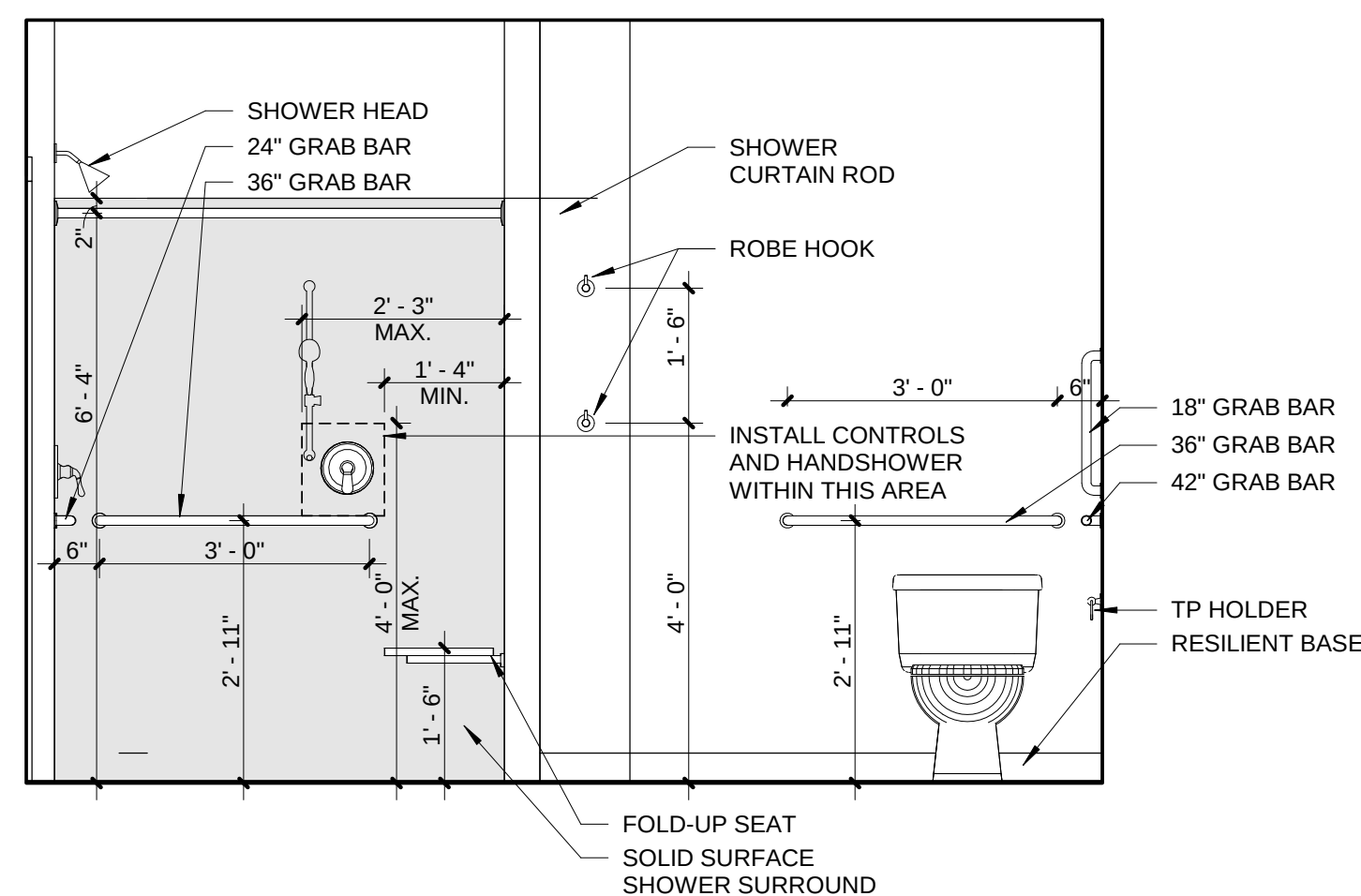
BATH TYPE B-4 (TYPE A) -
ELEV 5

1/2" = 1'-0"



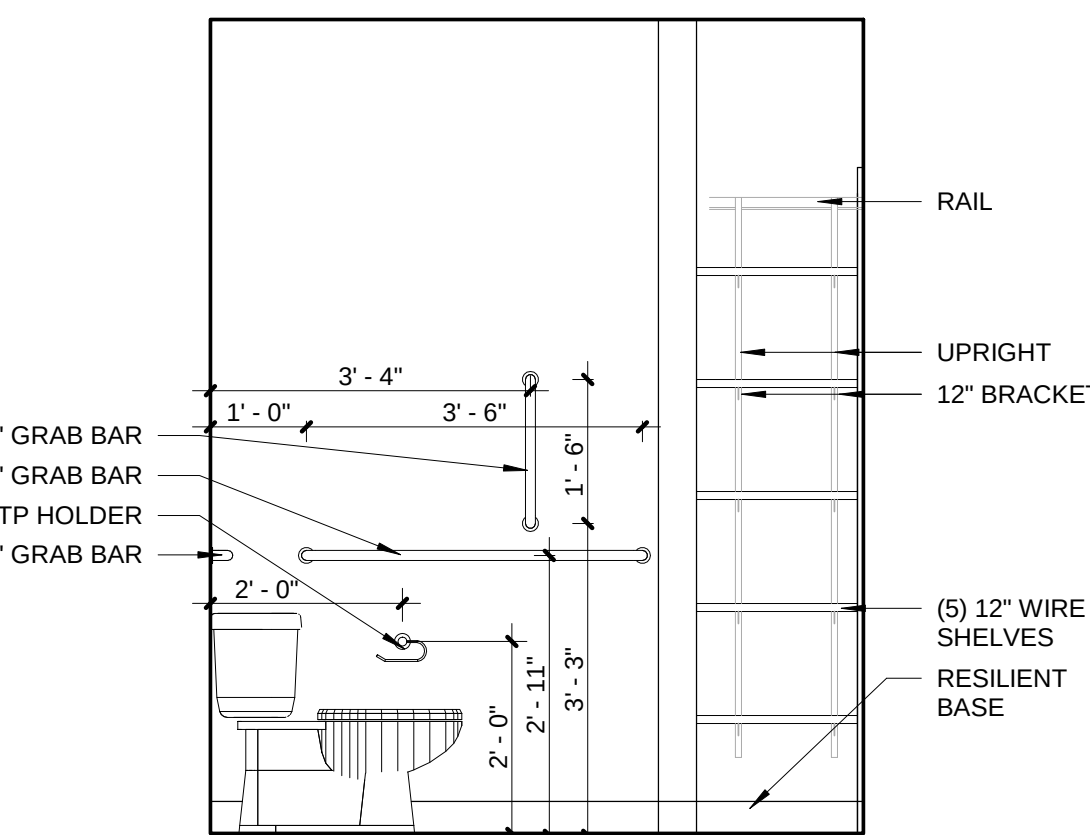
BATH TYPE B-4 (TYPE A) - ELEV 4

1/2" = 1'-0"



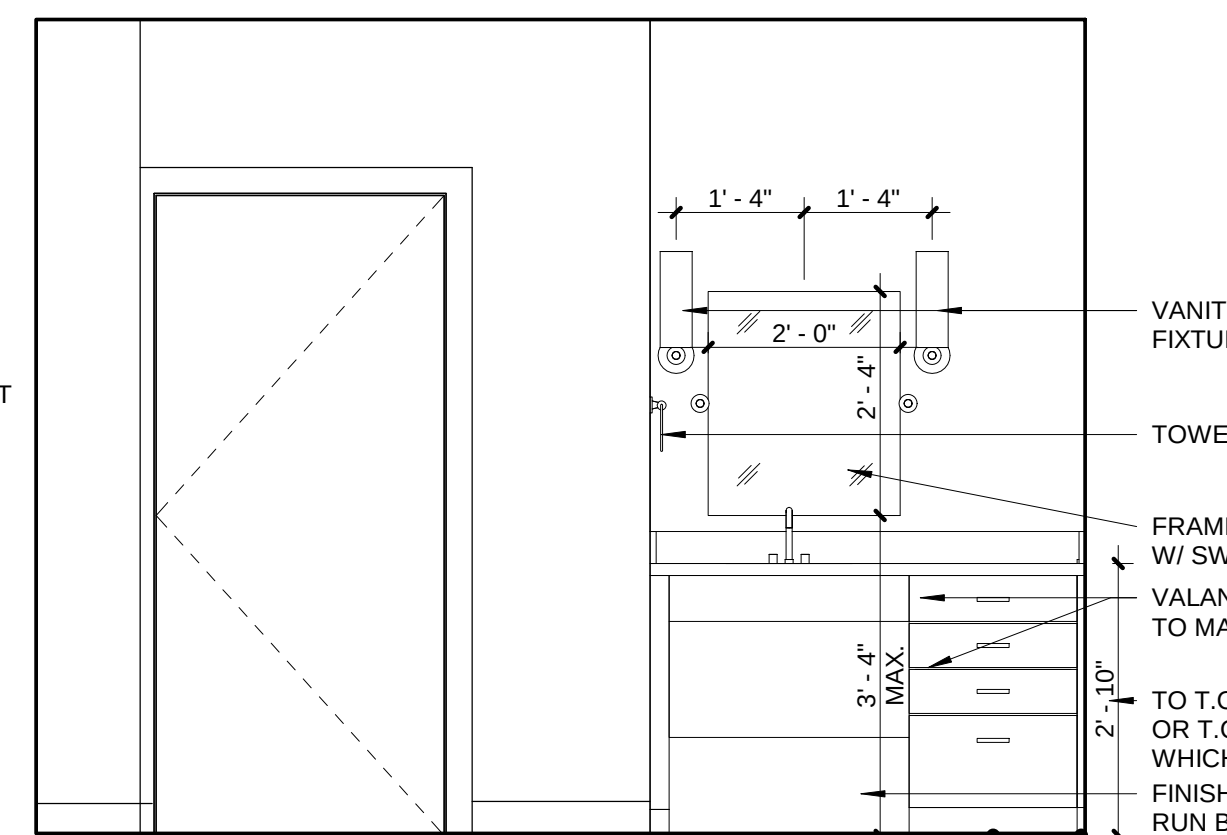
BATH TYPE B-4 (TYPE A) - ELEV 3

1/2" = 1'-0"



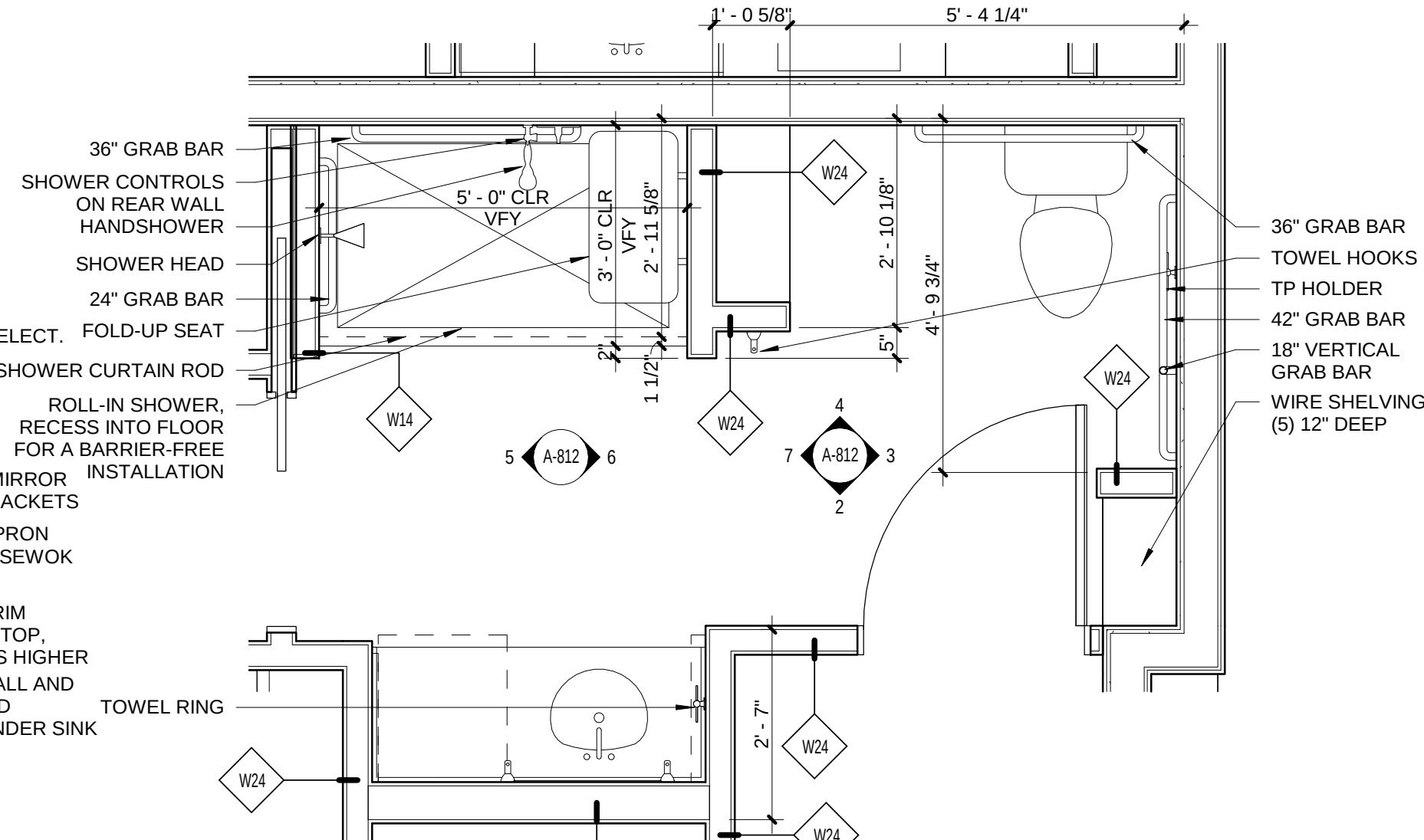
BATH TYPE B-4 (TYPE A) -
ELEV 2

1/2" = 1'-0"



BATH TYPE B-4 (TYPE A) - ELEV 1

1/2" = 1'-0"



UNIT BATH TYPE B-4 (TYPE A)

1/2" = 1'-0"

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4/5/2019 7:03:37 PM



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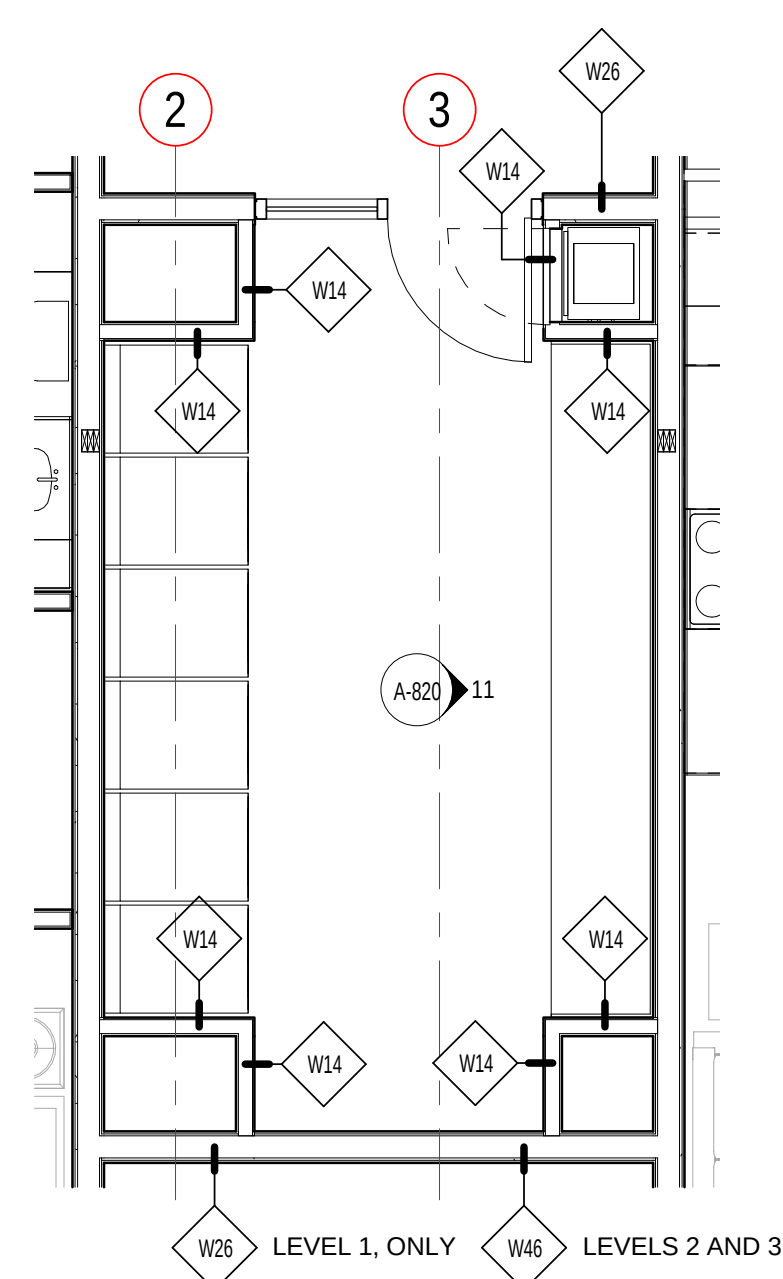
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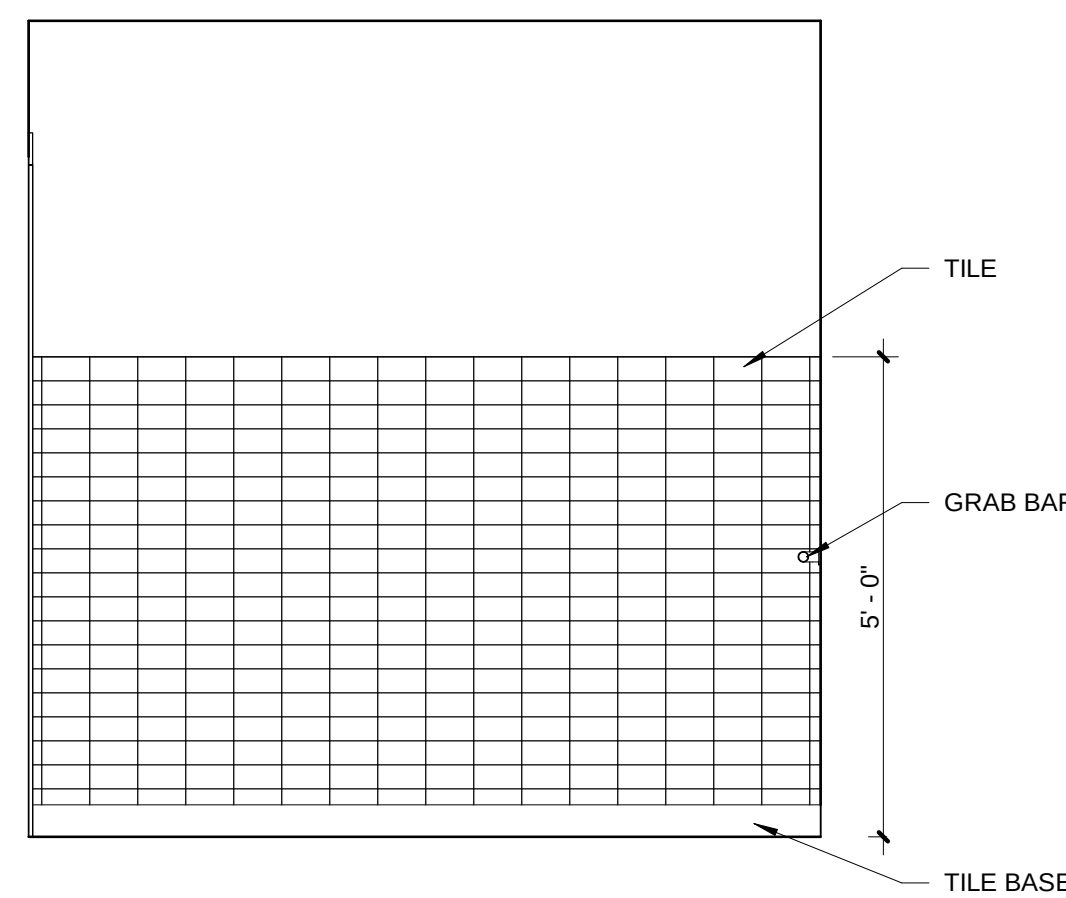
SHEET TITLE:
AMENITY ENLARGED
PLANS & ELEVATIONS

SCALE: As indicated
SHEET NUMBER

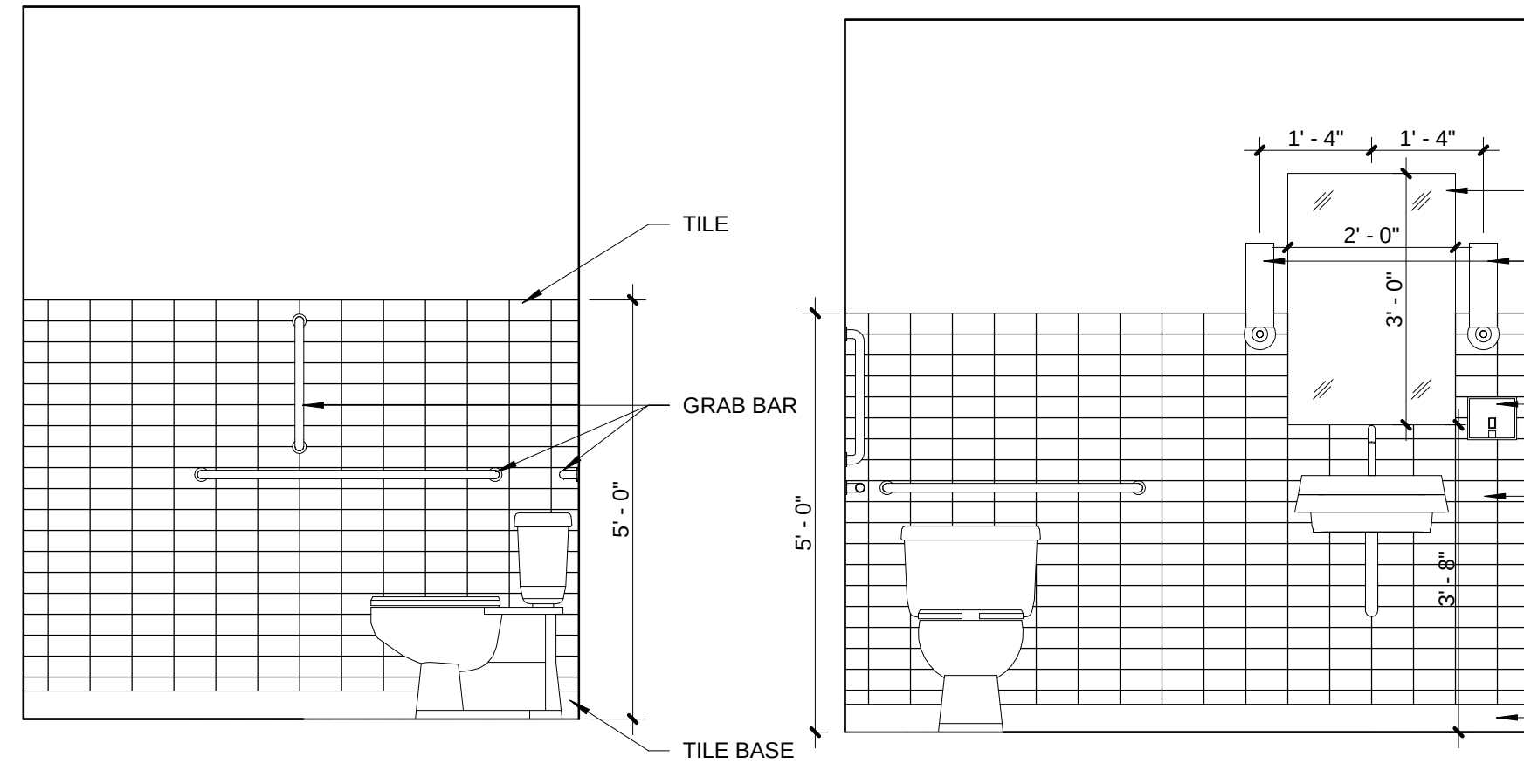
A-820



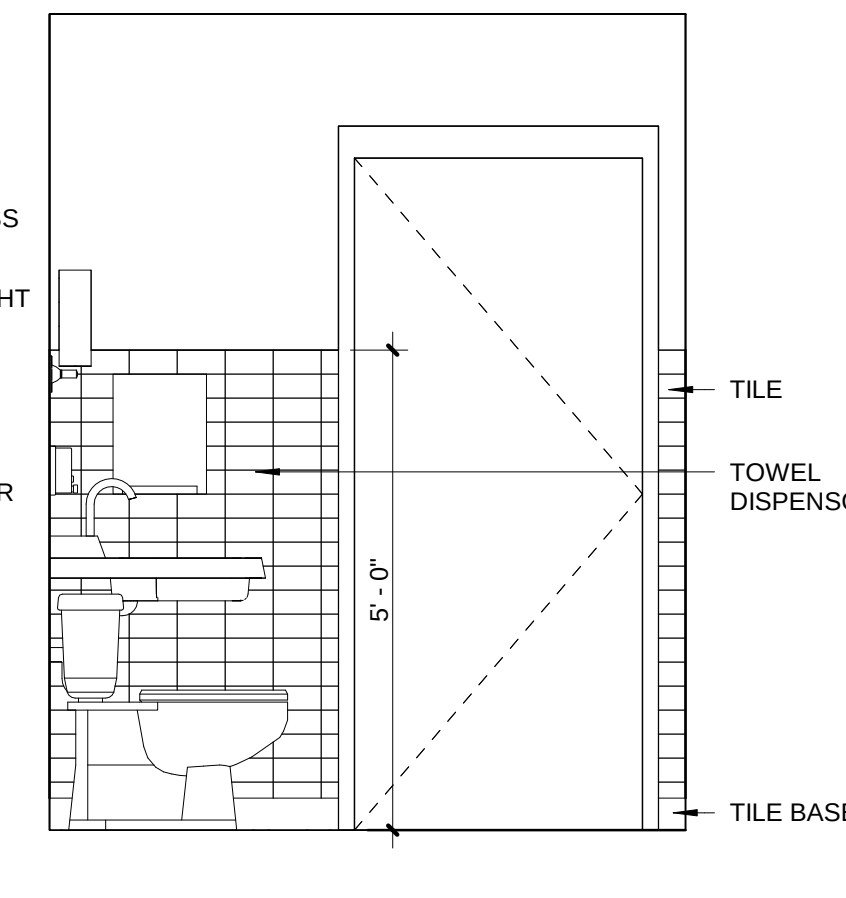
16 TOILET ROOM - ELEV 4
1/2" = 1'-0"



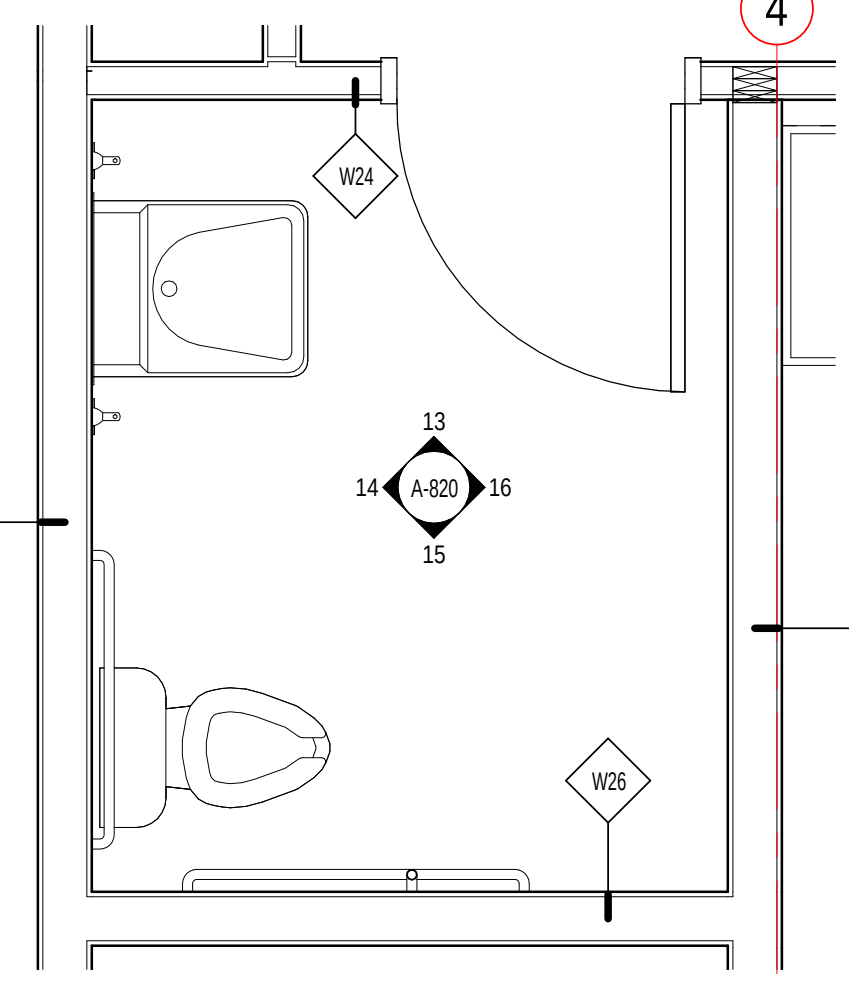
15 TOILET ROOM - ELEV 3
1/2" = 1'-0"



14 TOILET ROOM - ELEV 2
1/2" = 1'-0"

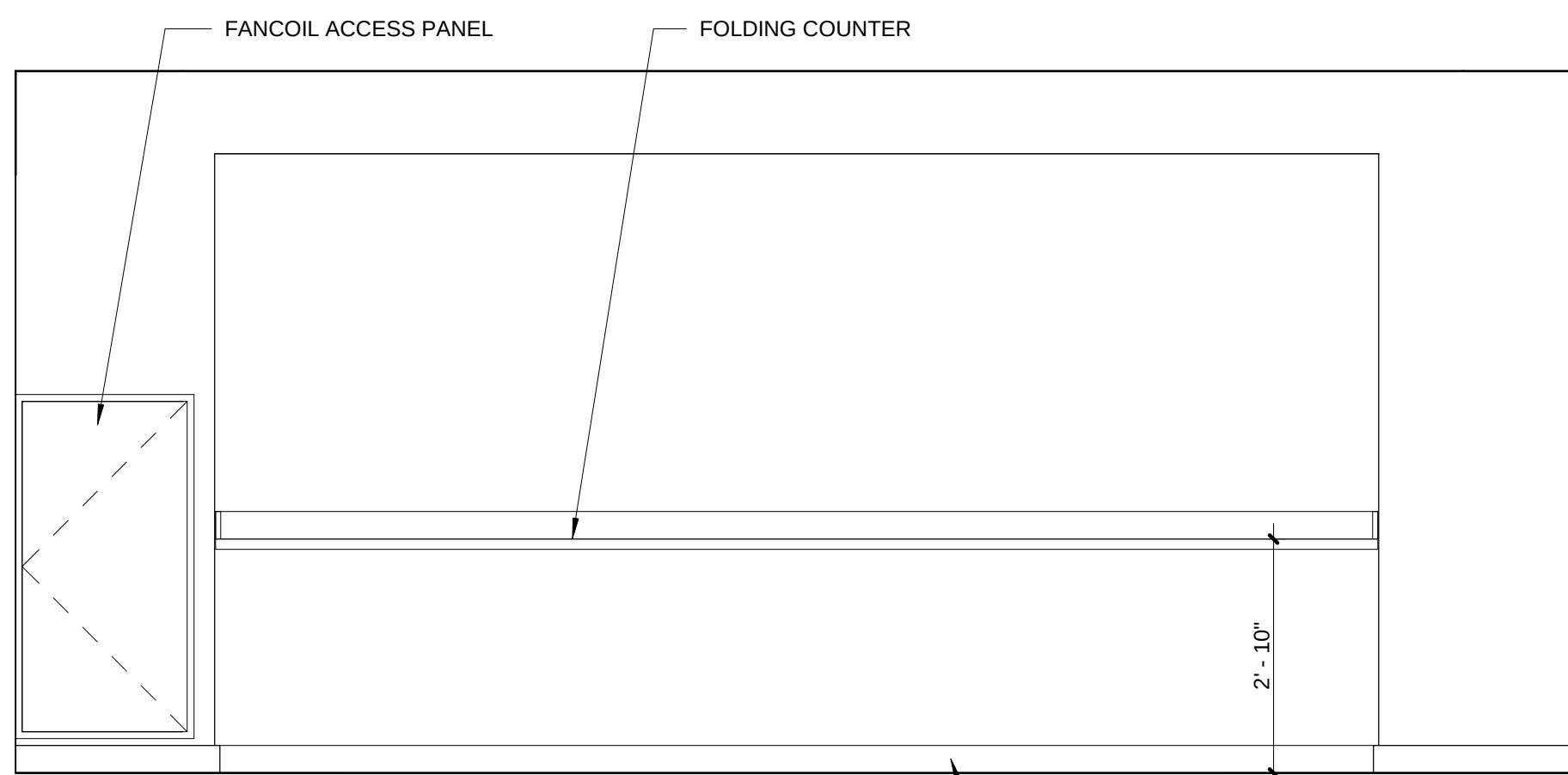


13 TOILET ROOM - ELEV 1
1/2" = 1'-0"

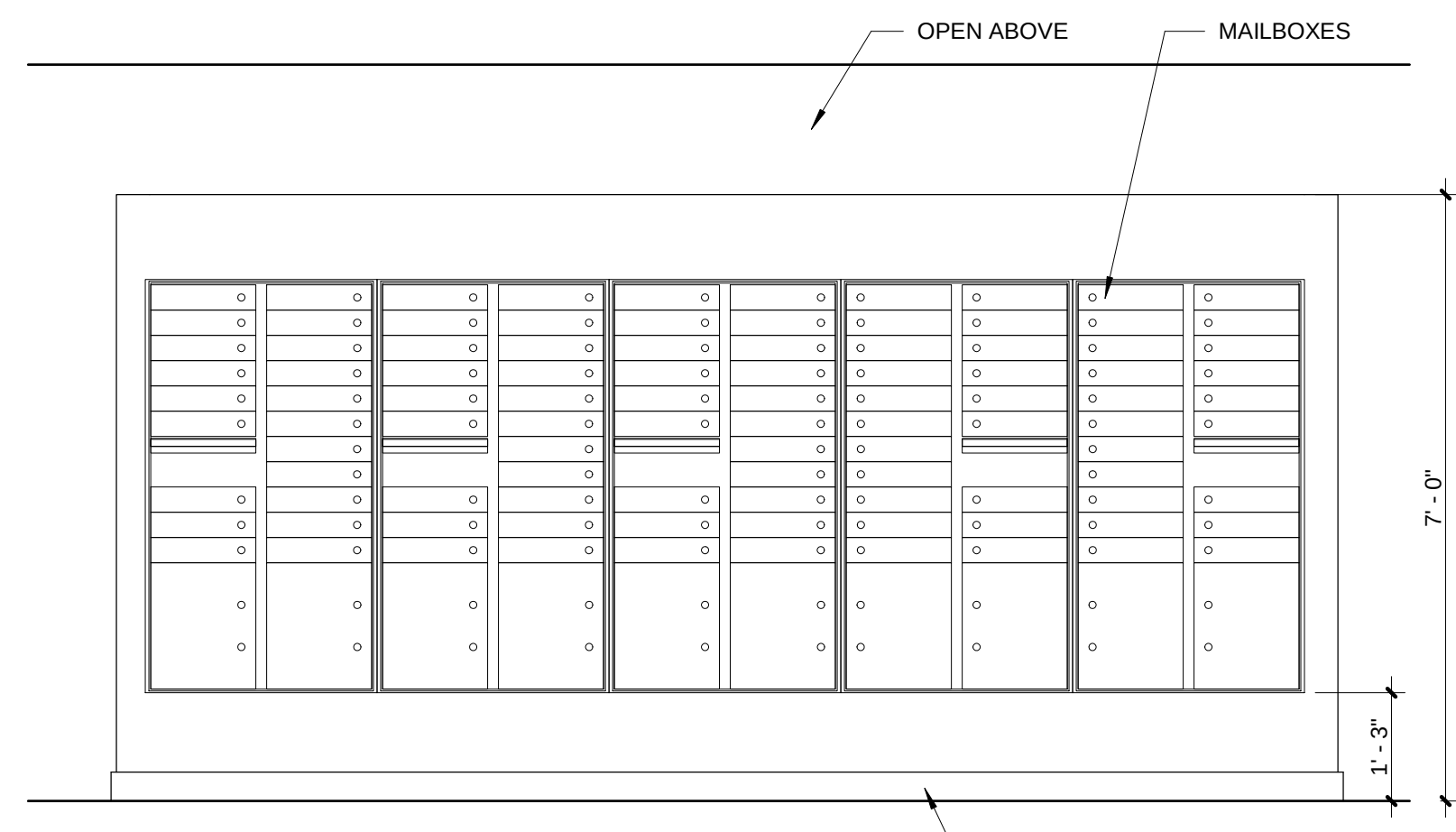


12 AMENITY TOILET ROOM PLAN
1/2" = 1'-0"

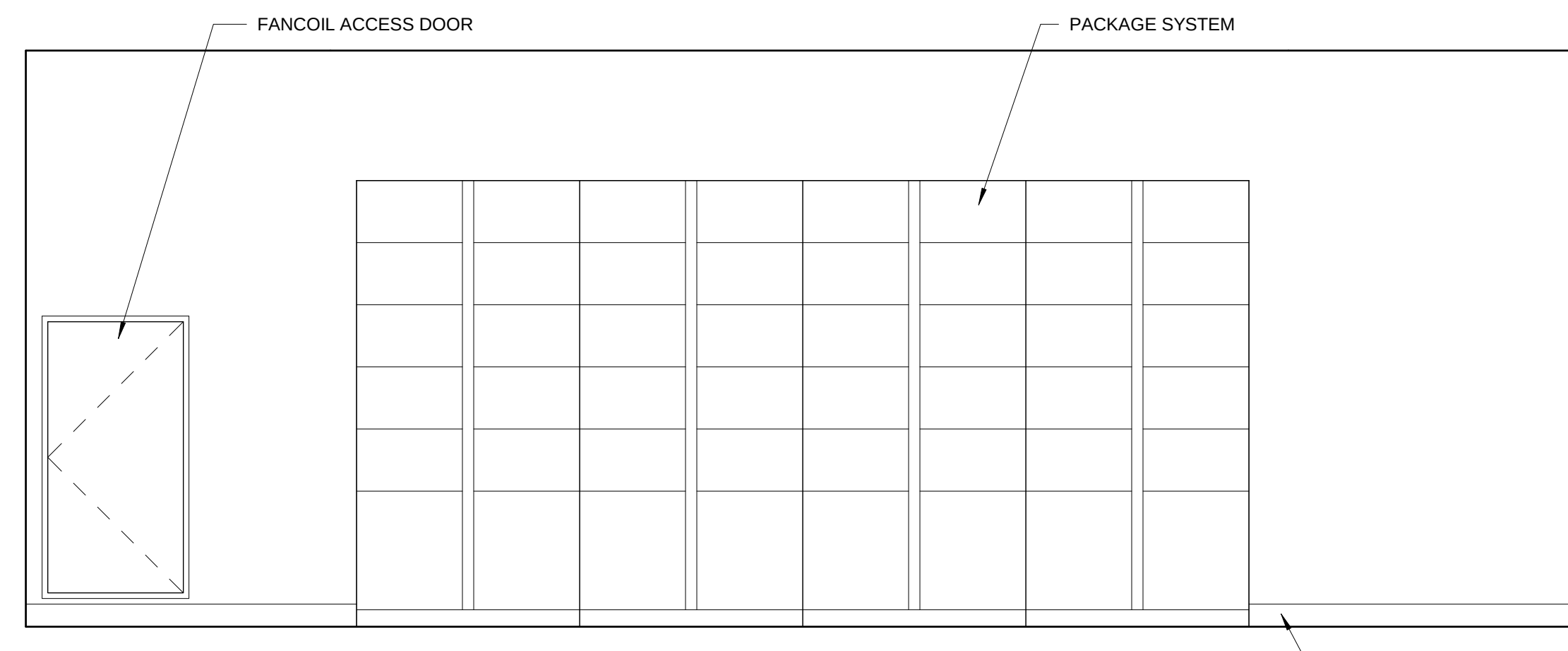
17 ENLARGED LAUNDRY ROOM, TYP.
1/4" = 1'-0"



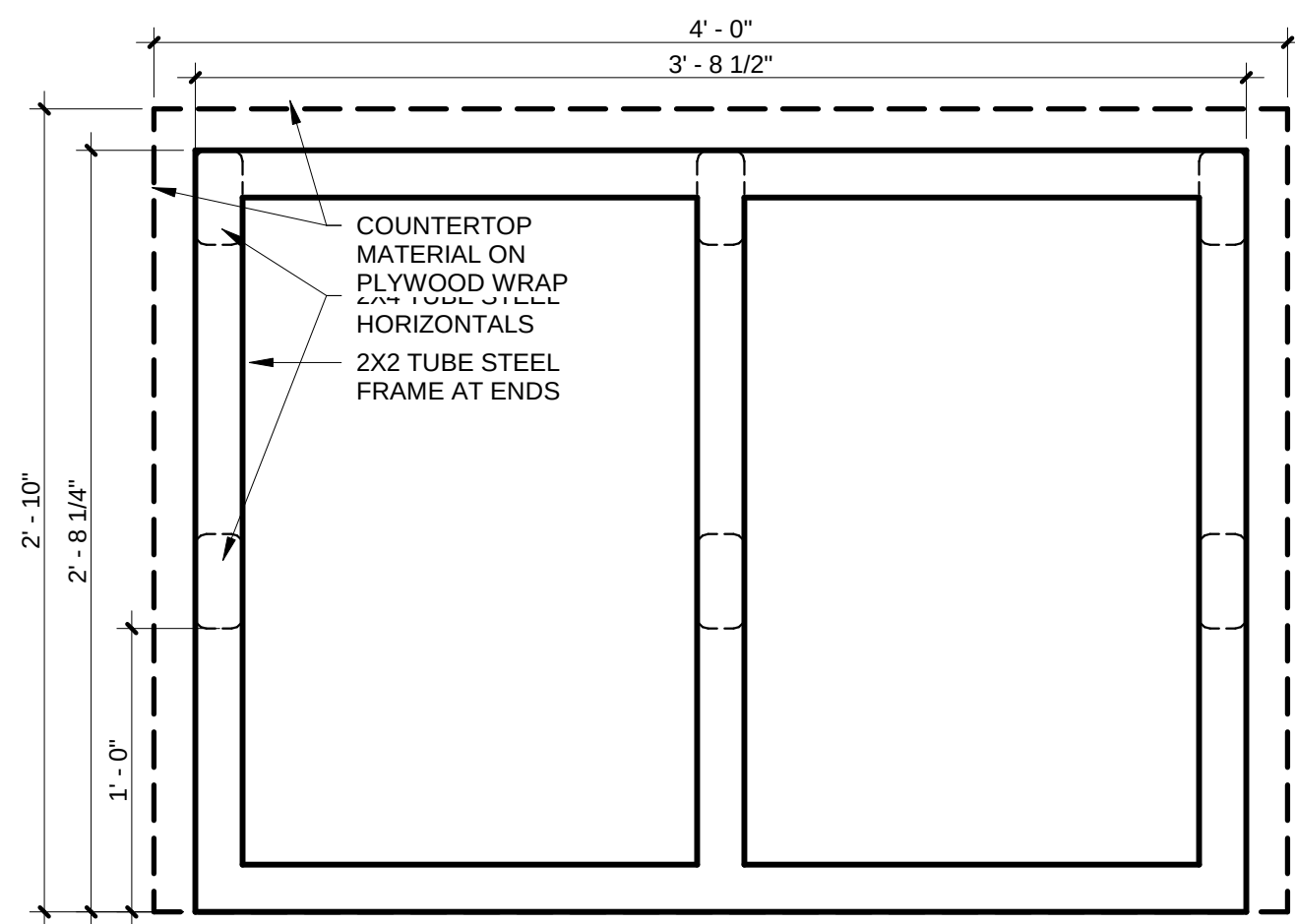
11 LAUNDRY - ELEV 1
1/2" = 1'-0"



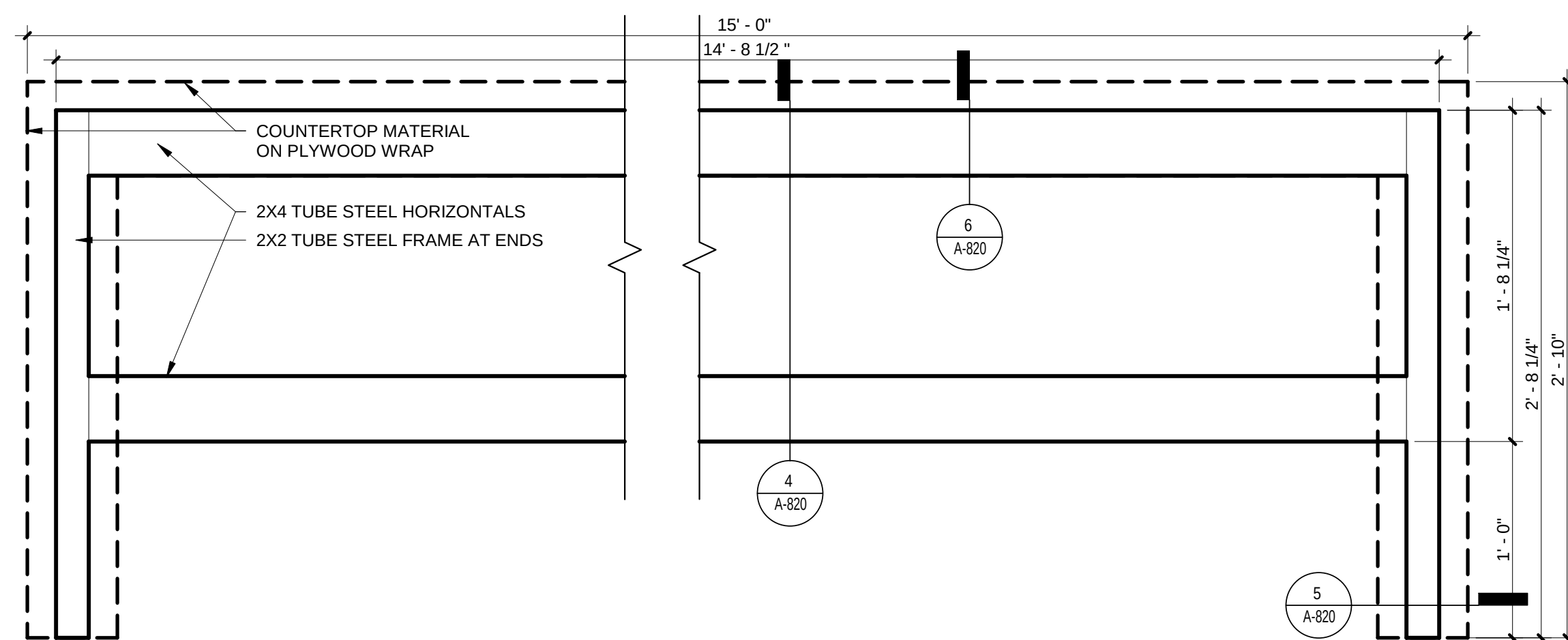
10 MAIL / PARCEL - ELEV 2
1/2" = 1'-0"



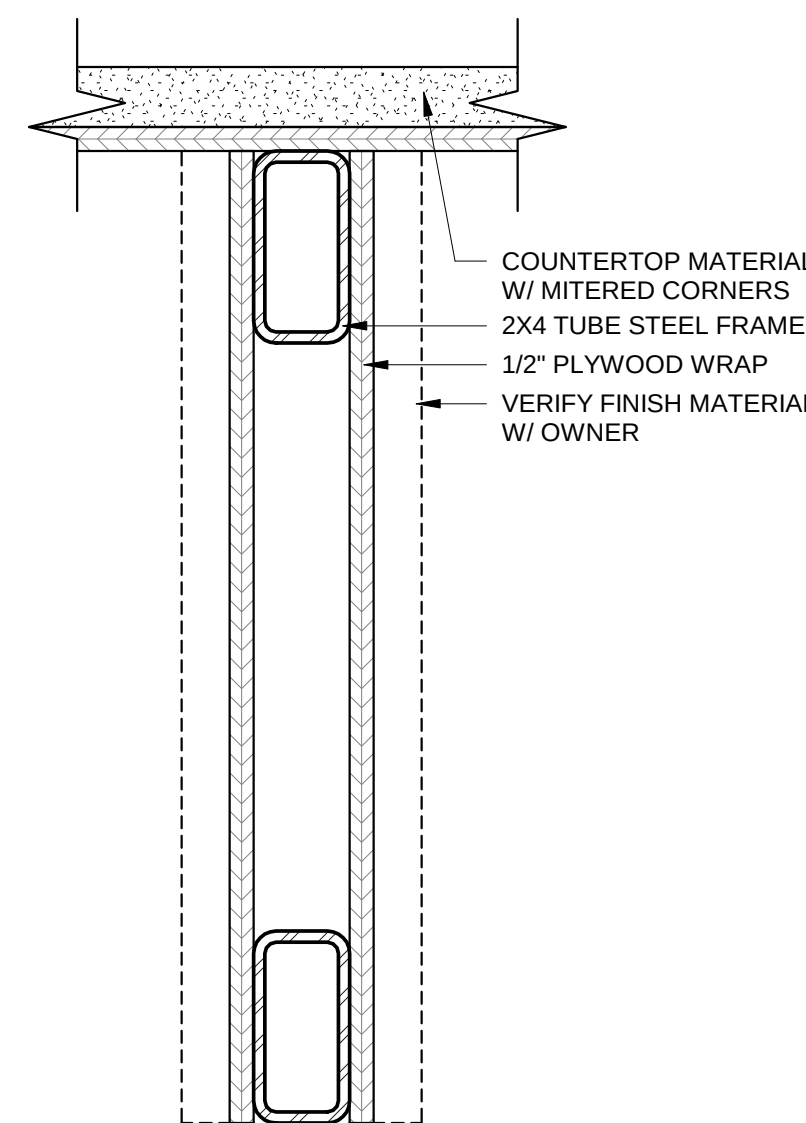
9 MAIL / PARCEL - ELEV 1
1/2" = 1'-0"



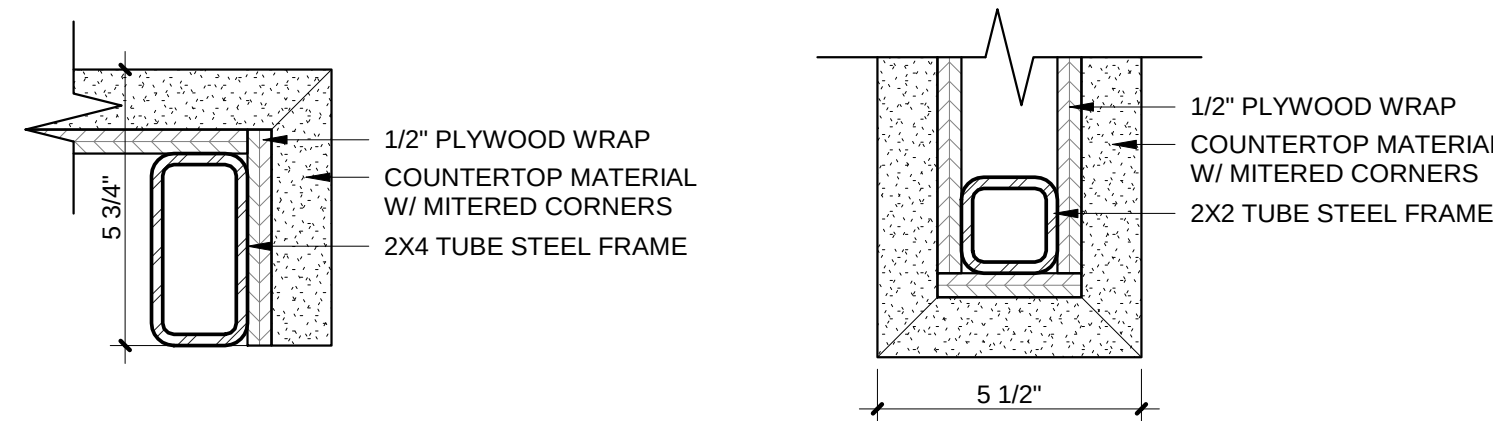
8 ISLAND FRAME ELEV 2
1 1/2" = 1'-0"



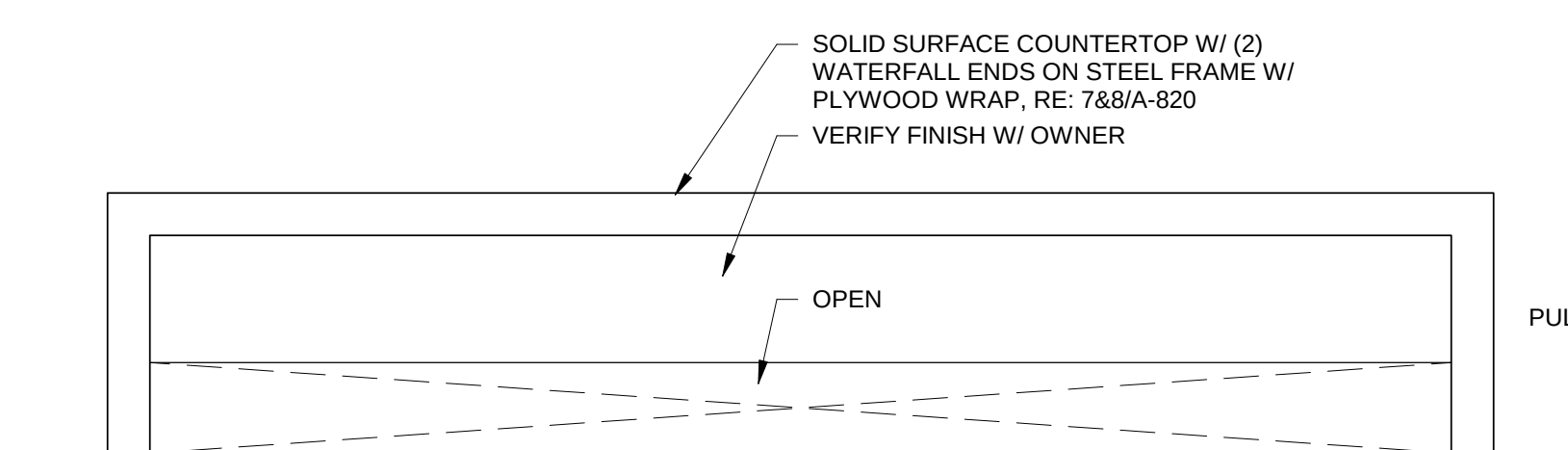
7 ISLAND FRAME ELEV 1
1 1/2" = 1'-0"



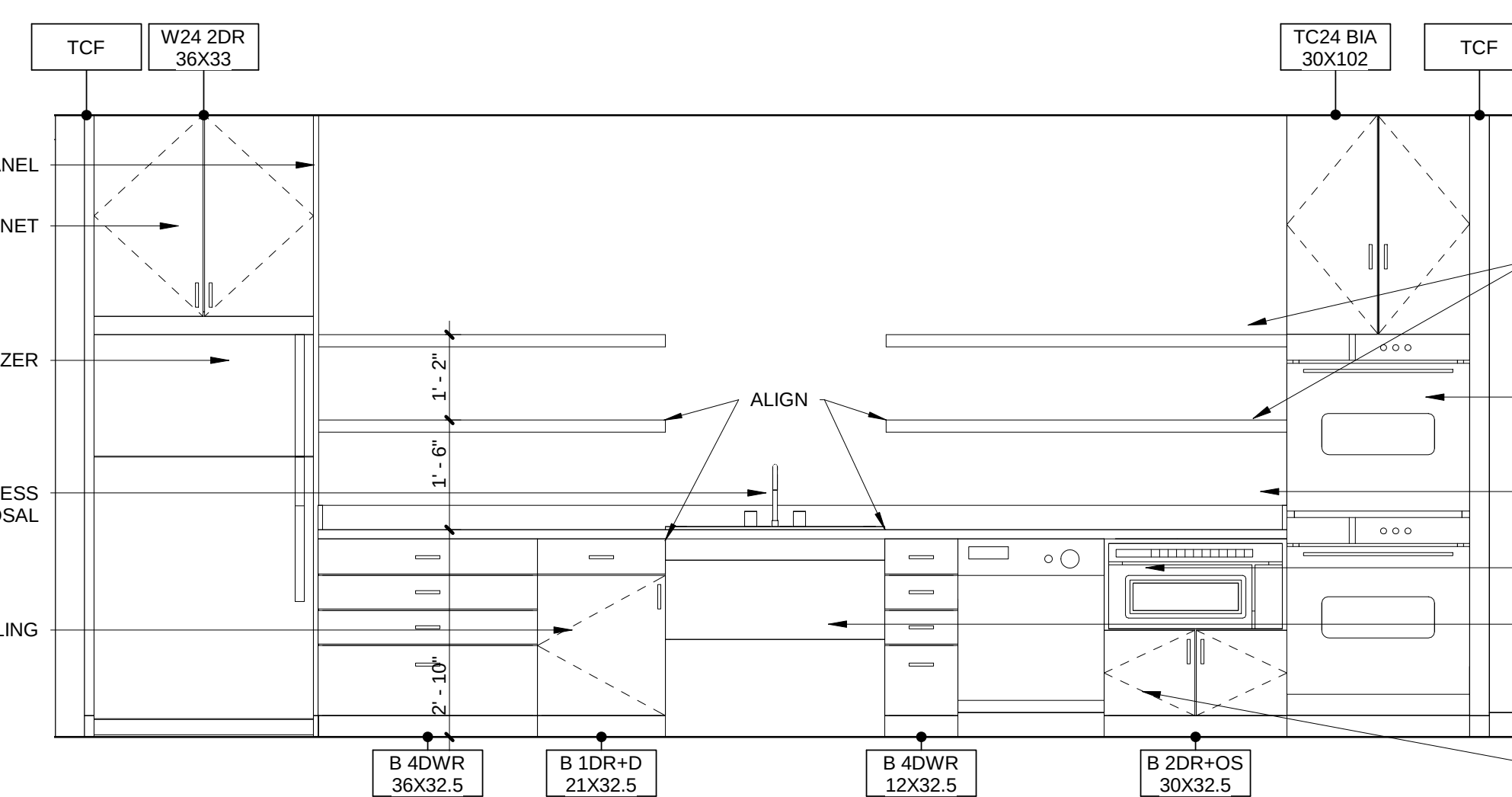
6 EDGE DETAIL @ ISLAND
3" = 1'-0"



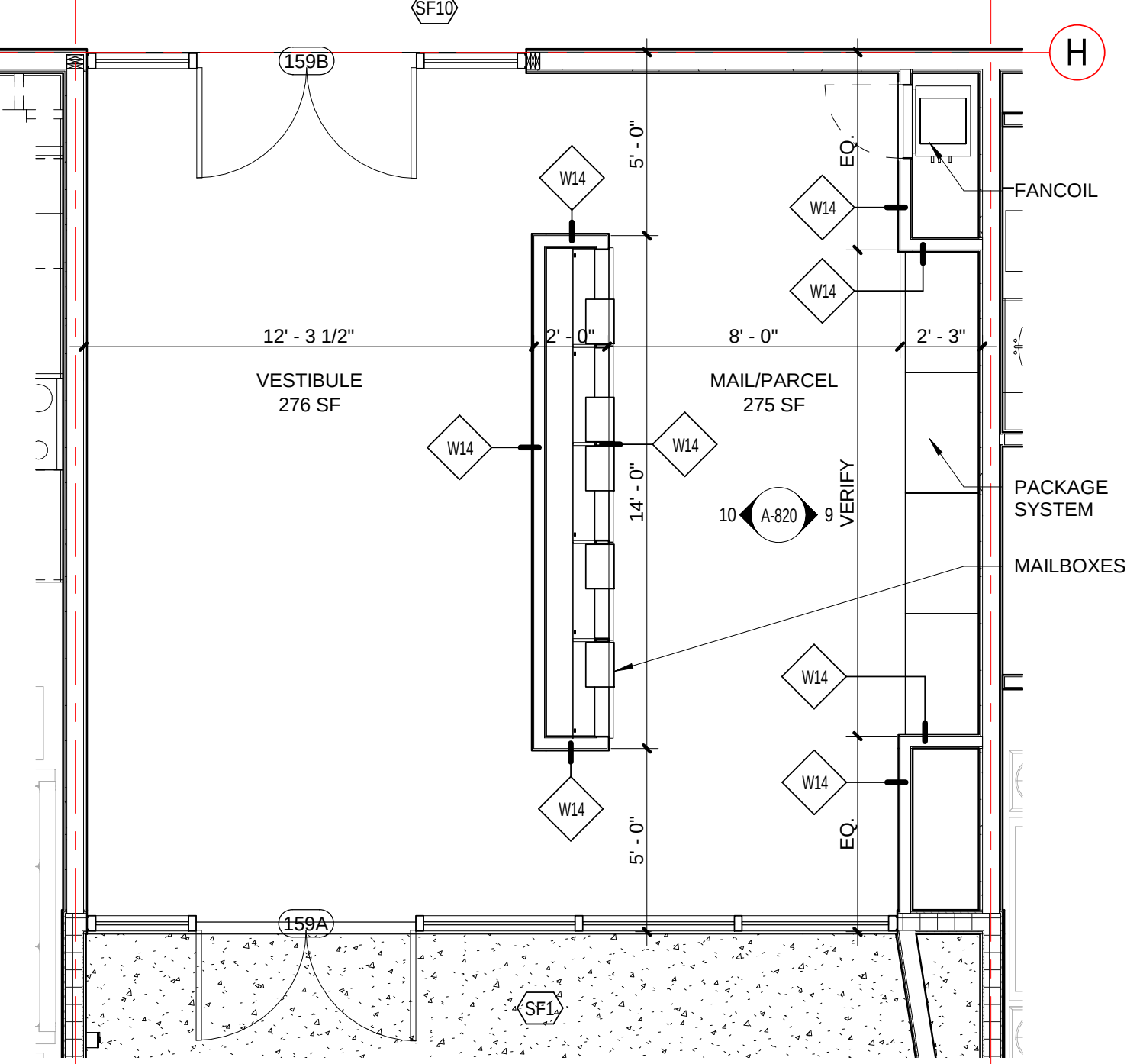
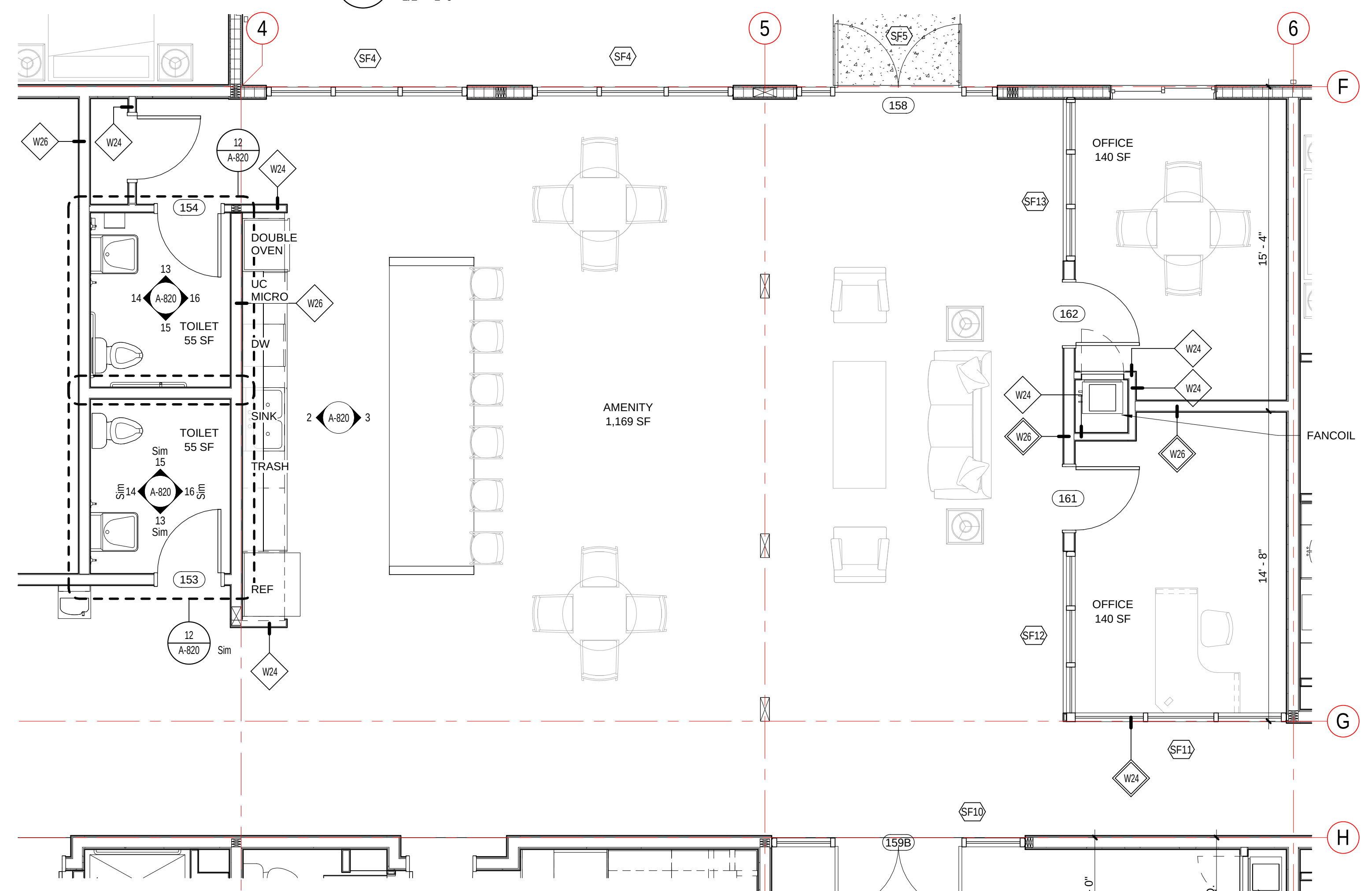
5 WATERFALL END DETAIL
3" = 1'-0"



3 AMENITY KITCHEN - ELEV 2
1/2" = 1'-0"



2 AMENITY KITCHEN - ELEV 1
1/2" = 1'-0"



1 ENLARGED AMENITY PLAN
1/4" = 1'-0"



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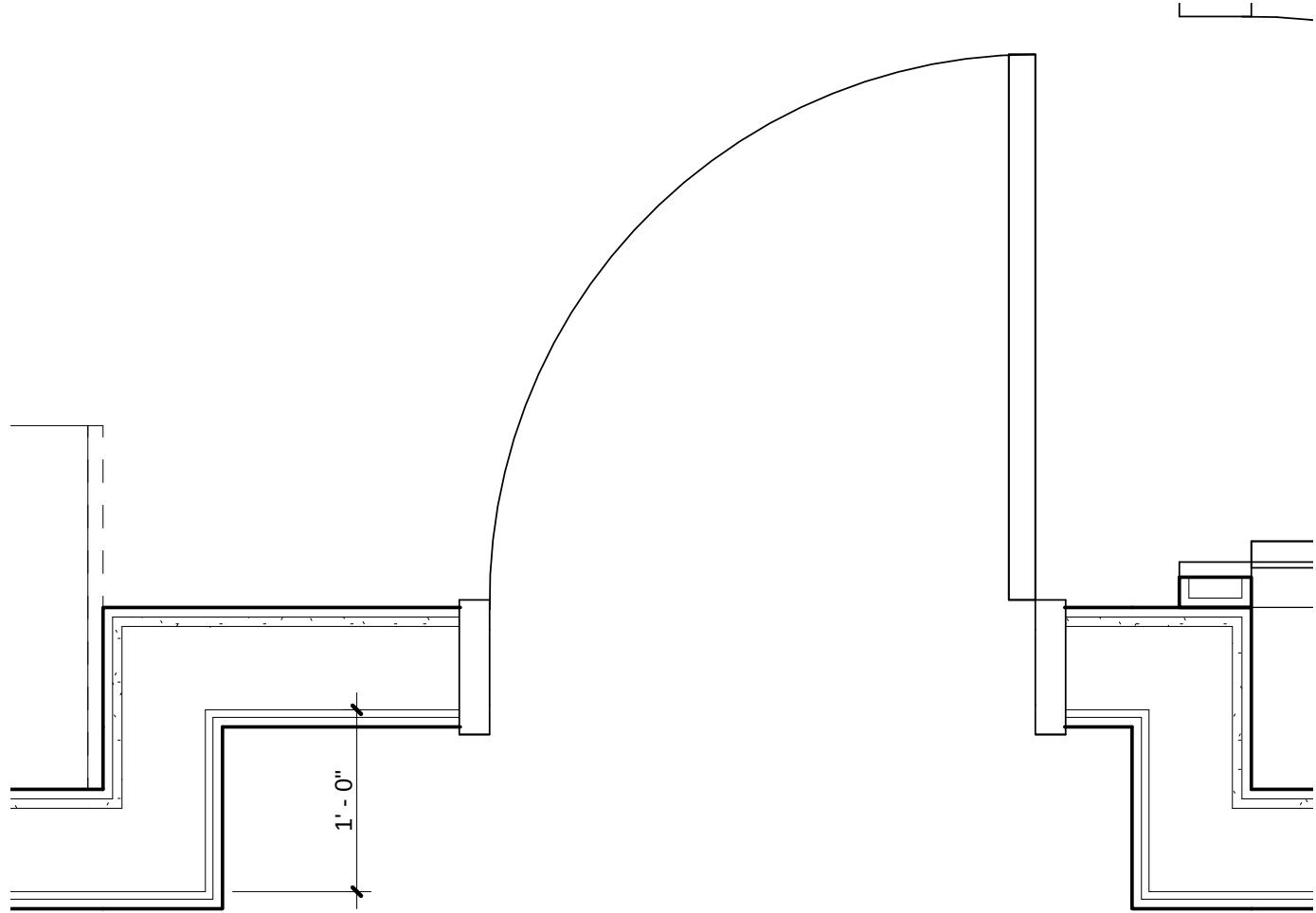
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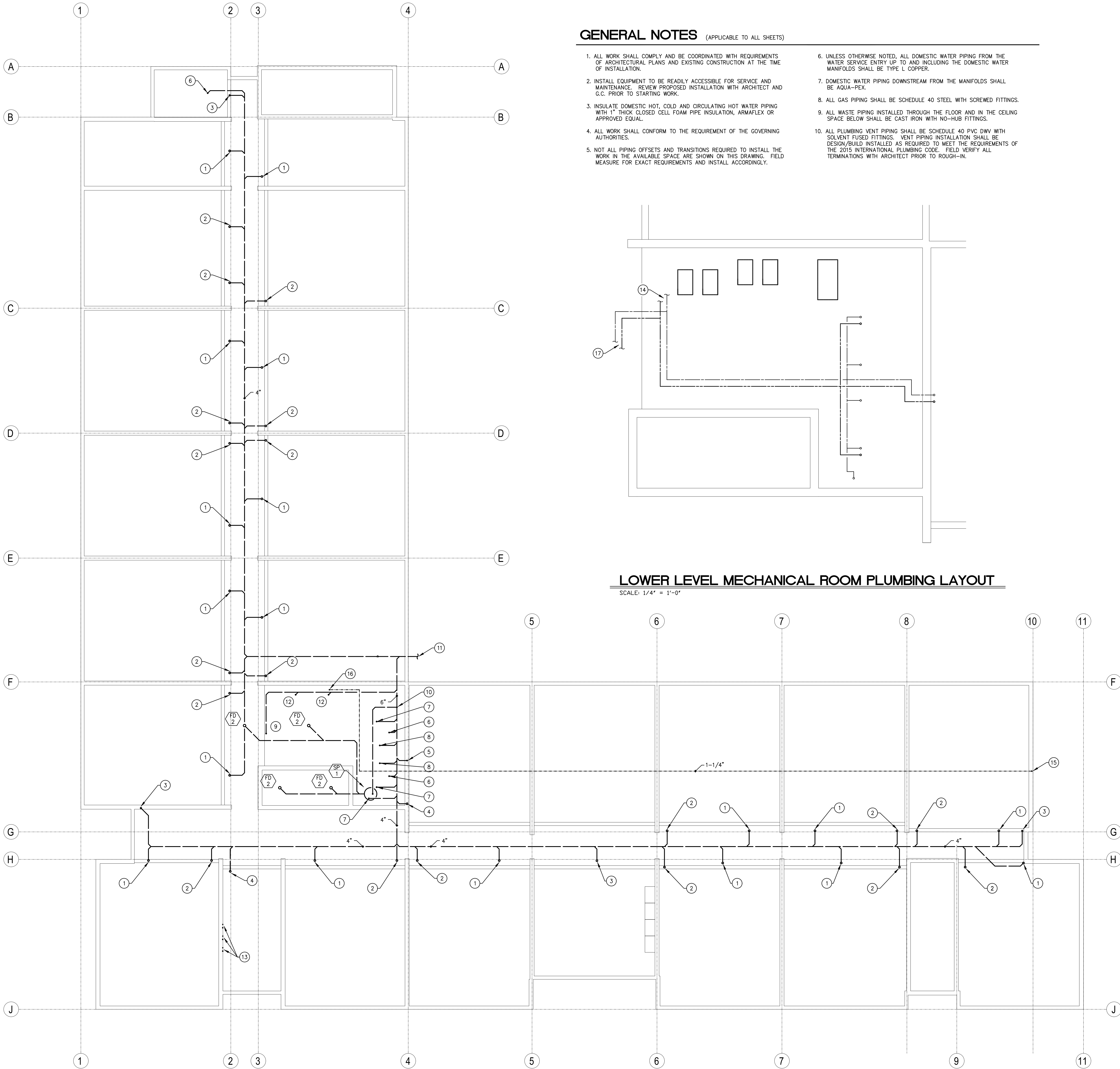
SHEET TITLE:
UNIT DETAILS

SCALE: 1" = 1'-0"
SHEET NUMBER

A-901



1 ENLARGED UNIT ENTRY PLAN
1" = 1'-0"



GENERAL NOTES (APPLICABLE TO ALL SHEETS)

1. ALL WORK SHALL COMPLY AND BE COORDINATED WITH REQUIREMENTS OF ARCHITECTURAL PLANS AND EXISTING CONSTRUCTION AT THE TIME OF INSTALLATION.

2. INSTALL EQUIPMENT TO BE READILY ACCESSIBLE FOR SERVICE AND MAINTENANCE. REVIEW PROPOSED INSTALLATION WITH ARCHITECT AND G.C. PRIOR TO STARTING WORK.

3. INSULATE DOMESTIC HOT, COLD AND CIRCULATING HOT WATER PIPING WITH 1" THICK CLOSED CELL FOAM PIPE INSULATION, ARMAFLEX OR APPROVED EQUAL.

4. ALL WORK SHALL CONFORM TO THE REQUIREMENT OF THE GOVERNING AUTHORITIES.

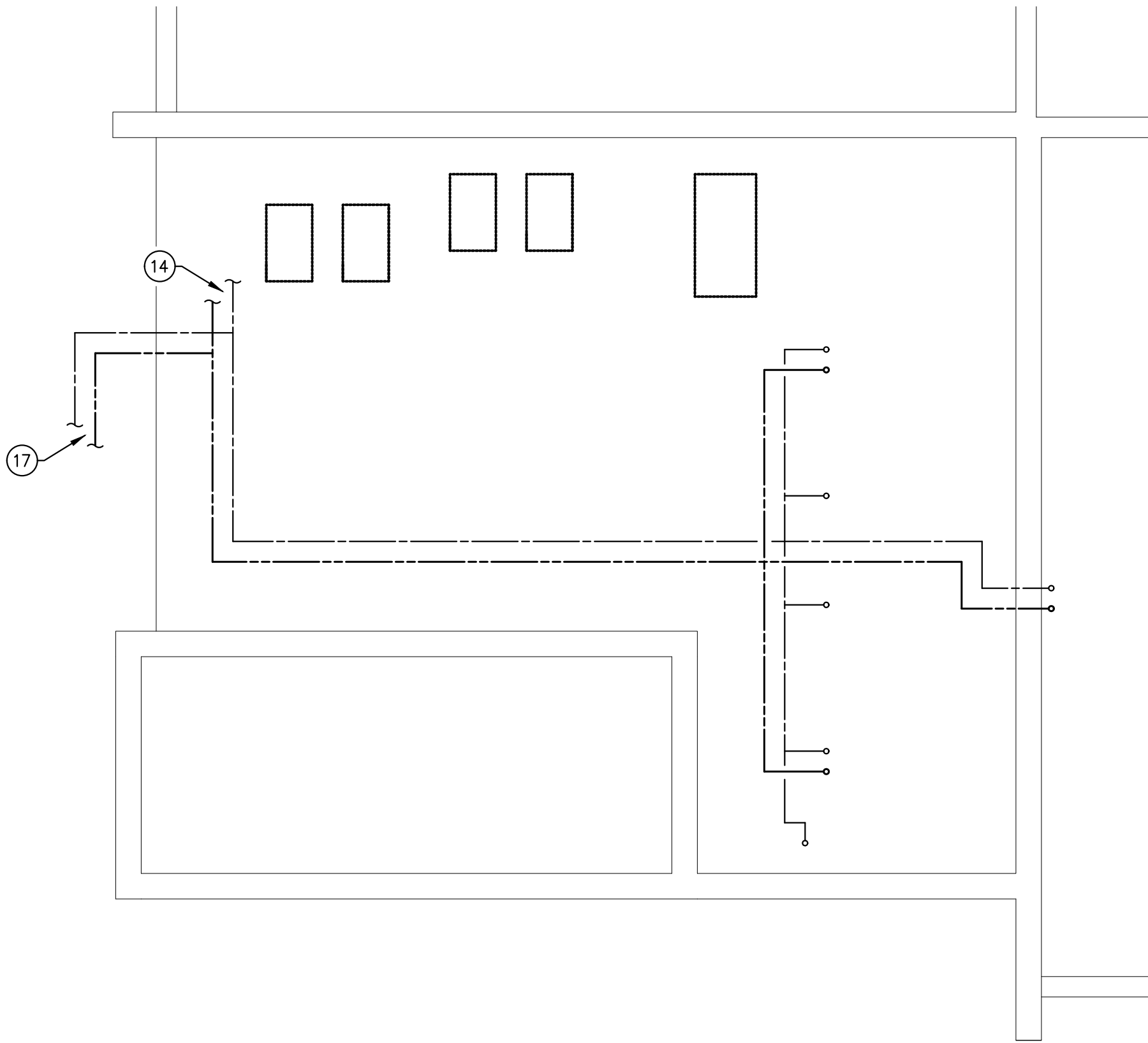
5. NOT ALL PIPING OFFSETS AND TRANSITIONS REQUIRED TO INSTALL THE WORK IN THE AVAILABLE SPACE ARE SHOWN ON THIS DRAWING. FIELD MEASURE FOR EXACT REQUIREMENTS AND INSTALL ACCORDINGLY.
6. UNLESS OTHERWISE NOTED, ALL DOMESTIC WATER PIPING FROM THE WATER SERVICE ENTRY UP TO AND INCLUDING THE DOMESTIC WATER MANIFOLDS SHALL BE TYPE L COPPER.

7. DOMESTIC WATER PIPING DOWNSTREAM FROM THE MANIFOLDS SHALL BE AQUA-PEX.

8. ALL GAS PIPING SHALL BE SCHEDULE 40 STEEL WITH SCREWED FITTINGS.

9. ALL WASTE PIPING INSTALLED THROUGH THE FLOOR AND IN THE CEILING SPACE BELOW SHALL BE CAST IRON WITH NO-HUB FITTINGS.

10. ALL PLUMBING VENT PIPING SHALL BE SCHEDULE 40 PVC DWV WITH SOLVENT FUSED FITTINGS. VENT PIPING INSTALLATION SHALL BE DESIGN/BUILD INSTALLED AS REQUIRED TO MEET THE REQUIREMENTS OF THE 2015 INTERNATIONAL PLUMBING CODE. FIELD VERIFY ALL TERMINATIONS WITH ARCHITECT PRIOR TO ROUGH-IN.



LOWER LEVEL MECHANICAL ROOM PLUMBING LAYOUT

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

PLAN NOTES

- 1 EXTEND 2" SANITARY WASTE RISER DOWN FROM ABOVE.

2 EXTEND 3" SANITARY WASTE RISER DOWN FROM ABOVE.

3 EXTEND 3" CLEAN-OUT RISER UP IN WALL ABOVE.

4 EXTEND 4" SANITARY WASTE RISER DOWN FROM ABOVE.

5 MAKE 1-1/2" CONNECTION TO SK-1 ABOVE. RE: DWG P-2 FOR DETAILED LOCATION.

6 MAKE 2" CONNECTION TO FD-1 ABOVE. RE: DWG P-2 FOR DETAILED LOCATION.

7 MAKE 1-1/4" CONNECTION TO LV-2 OR DF-1 ABOVE. RE: DWG P-2 FOR DETAILED LOCATION.

8 MAKE 3" CONNECTION TO WC-1 ABOVE. RE: DWG P-2 FOR DETAILED LOCATION.

9 MAKE 2" CONNECTION TO MS-1 ABOVE. RE: DWG P-2 FOR DETAILED LOCATION.

10 MAKE 2" PUMPED WASTE CONNECTION BETWEEN SP-1 AND 4" GRAVITY WASTE LINE.

11 EXTEND 6" SANITARY SERVICE TO SITE WASTE CONNECTION. RE: DRAWING P-2 FOR CONTINUATION.

12 MAKE 3" CONNECTION TO FLOOR SINK ABOVE. RE: DWG P-2 FOR DETAILED LOCATION.

13 EXTEND 1" HW AND CW RISERS UP TO SERVE LAUNDRY ROOM WASHER WALL BOXES. RE: DWG P-2 FOR CONTINUATION.

14 MAKE 1" HW AND CW CONNECTIONS TO HS AND CHS SERVICE - RE: DWG M-1. EXTEND PIPING AS REQUIRED TO SERVE LAUNDRY ROOM RISER (RE: PLAN NOTE 13), MS-1 AND DOMESTIC WATER SERVICE TO TOILET RM 163, TOILET ROOM 164, DF-1 AND AMENITY BAR SINK.

15 EXTEND 1-1/4" MEDIUM PRESSURE GAS SERVICE DN FROM ABOVE. ROUTE HORIZONTALLY IN CEILING OF CRAWLSPACE.

16 EXTEND 1-1/4" MEDIUM PRESSURE GAS UP INTO MECHANICAL ROOM ABOVE. RE: DWG P-2 FOR CONTINUATION.

17 EXTEND 1" HW AND CW TO LAUNDRY ROOM RISER. RE: PLAN NOTE 13.

PLUMBING LEGEND	
NOT ALL SYMBOLS LISTED BELOW ARE USED ON THIS SET OF DRAWINGS	
SYMBOL	DESCRIPTION
— RD —	ROOF DRAIN LEADER
— RDLO —	ROOF DRAIN LEADER - OVERFLOW
➔	DIRECTION OF FLOW
—]	PIPE CAP OR PLUG
— ○	PIPING UP
— ⤵	PIPING DOWN
----	DOMESTIC COLD WATER (CW)
----	DOMESTIC HOT WATER (HW)
----	HOT WATER CIRCULATING (HWC)
----	WASTE
-----	VENT
— RD —	ROOF DRAIN
— G —	NATURAL GAS
— LP —	LP GAS
— CA —	COMPRESSED AIR
⊥	HOSE BIBB / WALL HYDRANT
⏏	BACKFLOW PREVENTER
⏏	FUNNEL DRAIN
⊕	FLOOR DRAIN
⏏	FLOOR SINK
⏏	VENT THROUGH ROOF (VTR)
⏏	WATER METER
⏏	GAS METER
(E)	EXISTING
(N)	NEW
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
C.O.T.G.	CLEANOUT TO GRADE
F.C.O.	FLOOR CLEANOUT
R.D.	ROOF DRAIN
R.D.O.	OVERFLOW ROOF DRAIN
A.F.F.	ABOVE FINISHED FLOOR

CRAWLSPACE PLUMBING PLAN

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



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(970) 240-5990 mburggauf@ba-inc.biz

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GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
CRAWLSPACE
PLUMBING PLAN

DATE: 03/18/19
SCALE: 1/8" = 1'-0"
PROJ NO: 8077
DRAWN BY: BAI
CHKD BY: MAB

DRAWING NO.

P-1

OF 5



- ① EXTEND 2" SANITARY WASTE RISER DOWN FROM ABOVE. MAKE CONNECTIONS FROM THIS LEVEL, AND EXTEND DOWN IN WALL BELOW.
- ② EXTEND 3" SANITARY WASTE RISER DOWN FROM ABOVE. MAKE CONNECTIONS FROM THIS LEVEL, AND EXTEND DOWN IN WALL BELOW.
- ③ EXTEND 3" SANITARY WASTE RISER DOWN FROM ABOVE. MAKE CONNECTIONS FROM THIS LEVEL, AND EXTEND HORIZONTALLY IN CEILING SPACE BELOW.
- ④ EXTEND 3" SANITARY WASTE RISER DOWN FROM ABOVE. MAKE CONNECTIONS FROM THIS LEVEL, AND EXTEND HORIZONTALLY IN CEILING SPACE BELOW.
- ⑤ EXTEND 4" SANITARY WASTE RISER DOWN IN WALL BELOW. RE: DWG P-2 FOR CONTINUATION.
- ⑥ EXTEND 1" HW / CW RISERS UP IN CHASE FROM BELOW. MAKE 3/4" TAP TO THIS LEVEL AND EXTEND AS REQUIRED TO SERVE WB-1 (3X). CONTINUE 1" SERVICE UP IN RISER. RE: DWG P-3 FOR CONTINUATION.
- ⑦ FIRE RISER STAND-PIPE. RE: FIRE SPRINKLER DRAWINGS FOR INSTALLATION DETAILS.

BAI

BURGRAAF ASSOCIATES INC.
CONSULTING ENGINEERS
1404 Hawk Parkway, Suite 218
MONTROSE, COLORADO 81401
(970) 240-5990 mburggraaf@aol-eng.biz

2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
**LEVEL 2
PLUMBING PLAN**

DATE: 01/14/19

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

PROJ. NO. 30771

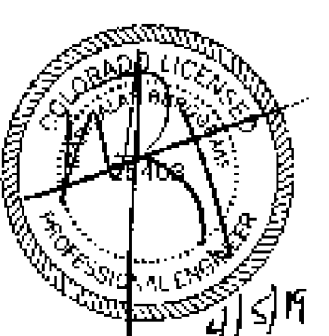
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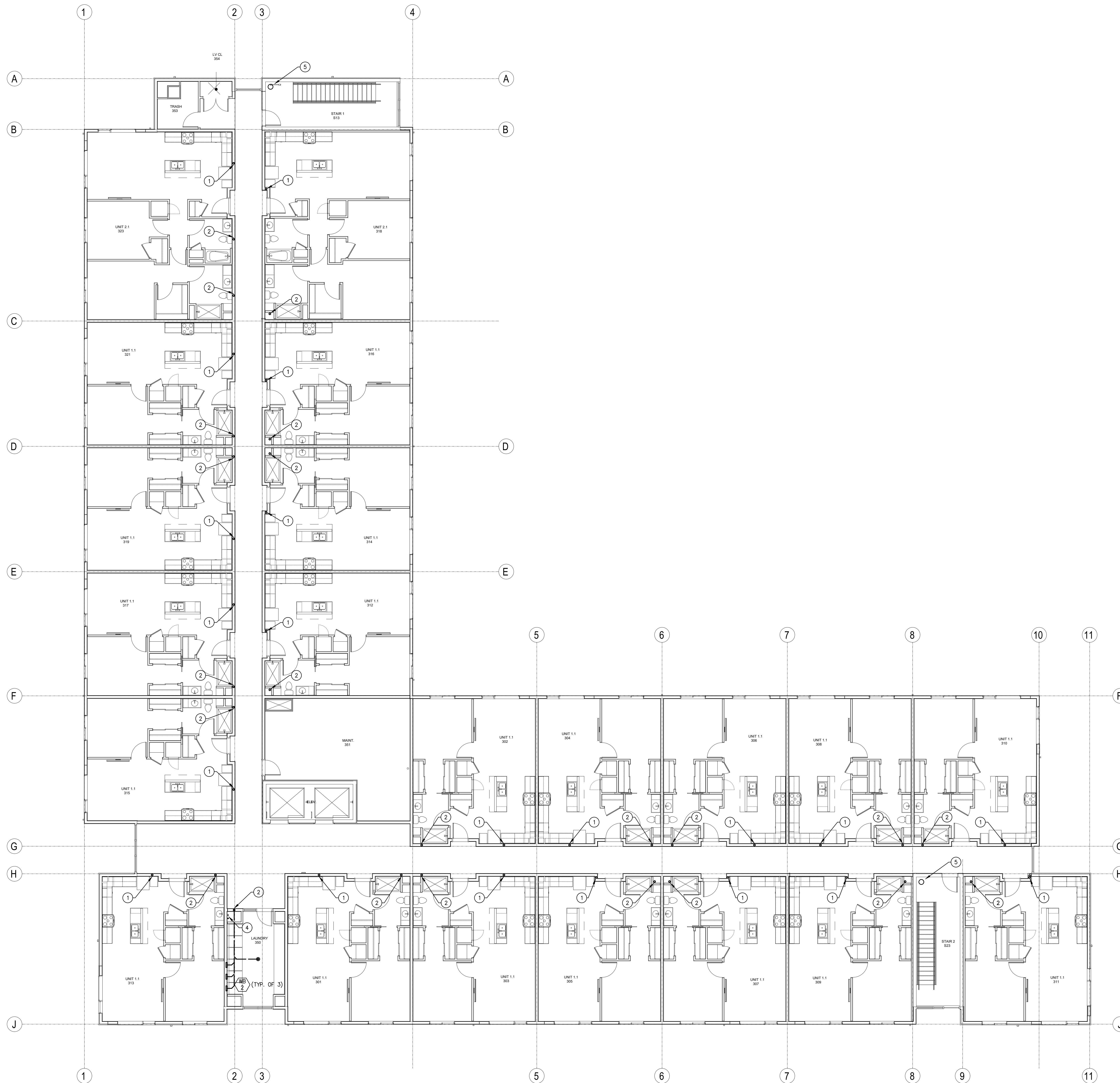
CHECKED BY: MAB

DRAWING NO.

P-3

OF 5





PLAN NOTES

- 1 EXTEND 1-1/2" SANITARY WASTE RISER DOWN IN WALL BELOW.
- 2 EXTEND 3" SANITARY WASTE RISER DOWN IN WALL OR CHASE BELOW.
- 3 EXTEND 3" SANITARY WASTE RISER DOWN FROM ABOVE. MAKE CONNECTIONS FROM THIS LEVEL AND EXTEND HORIZONTALLY IN CEILING SPACE BELOW.
- 4 EXTEND 3/4" HW / CW RISERS UP IN CHASE FROM BELOW. EXTEND HORIZONTALLY IN LAUNDRY WALL AS REQUIRED TO SERVE WB-1 (3X).
- 5 FIRE RISER STAND-PIPE. RE: FIRE SPRINKLER DRAWINGS FOR INSTALLATION DETAILS.

LEVEL 3 PLUMBING PLAN
SCALE: 1/8"=1'-0"

BAI

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1404 Hawk Parkway, Suite 218
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2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
LEVEL 3
PLUMBING PLAN

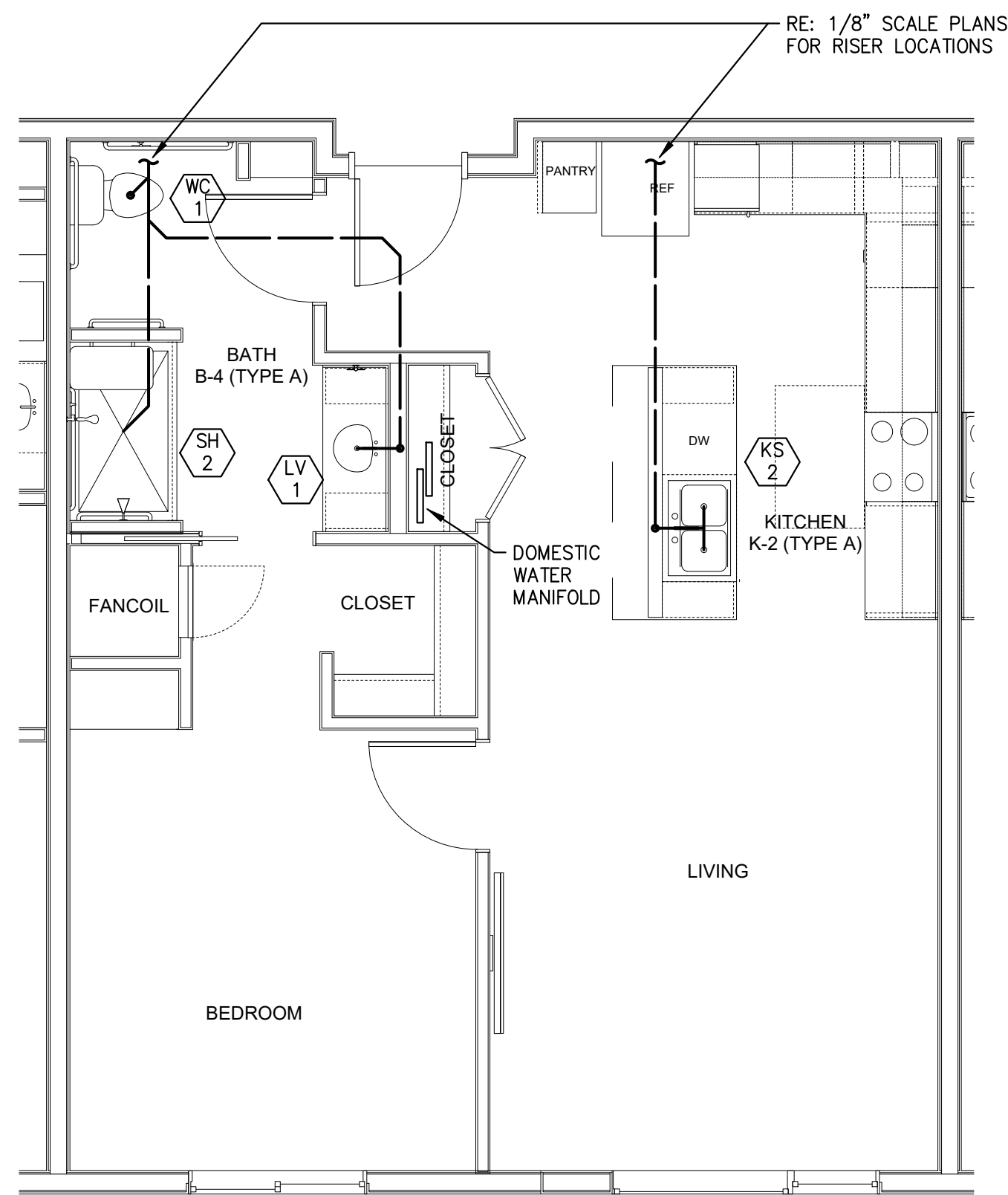
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SCALE: 1/8" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAB

DRAWING NO.

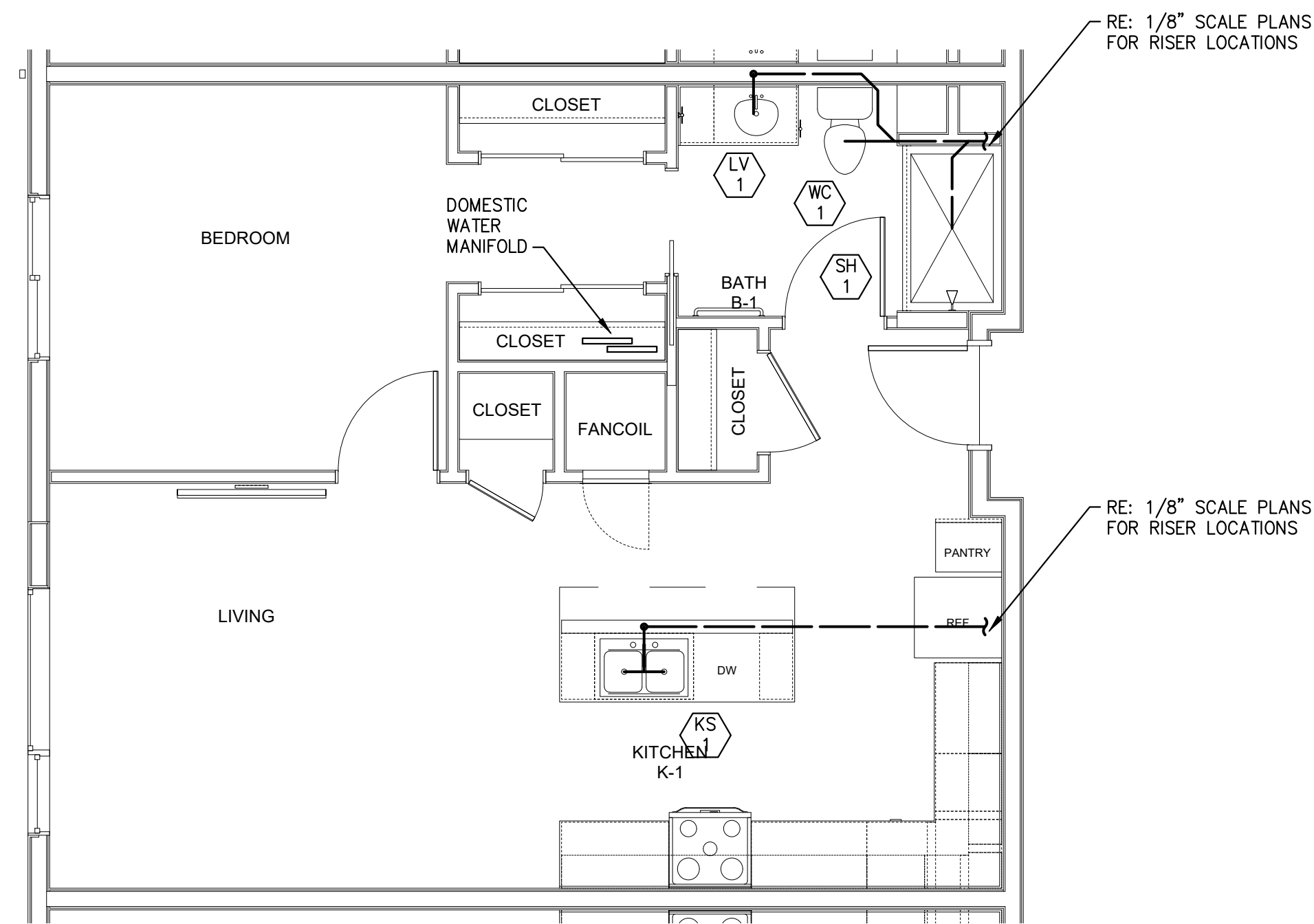
P-4

OF 5

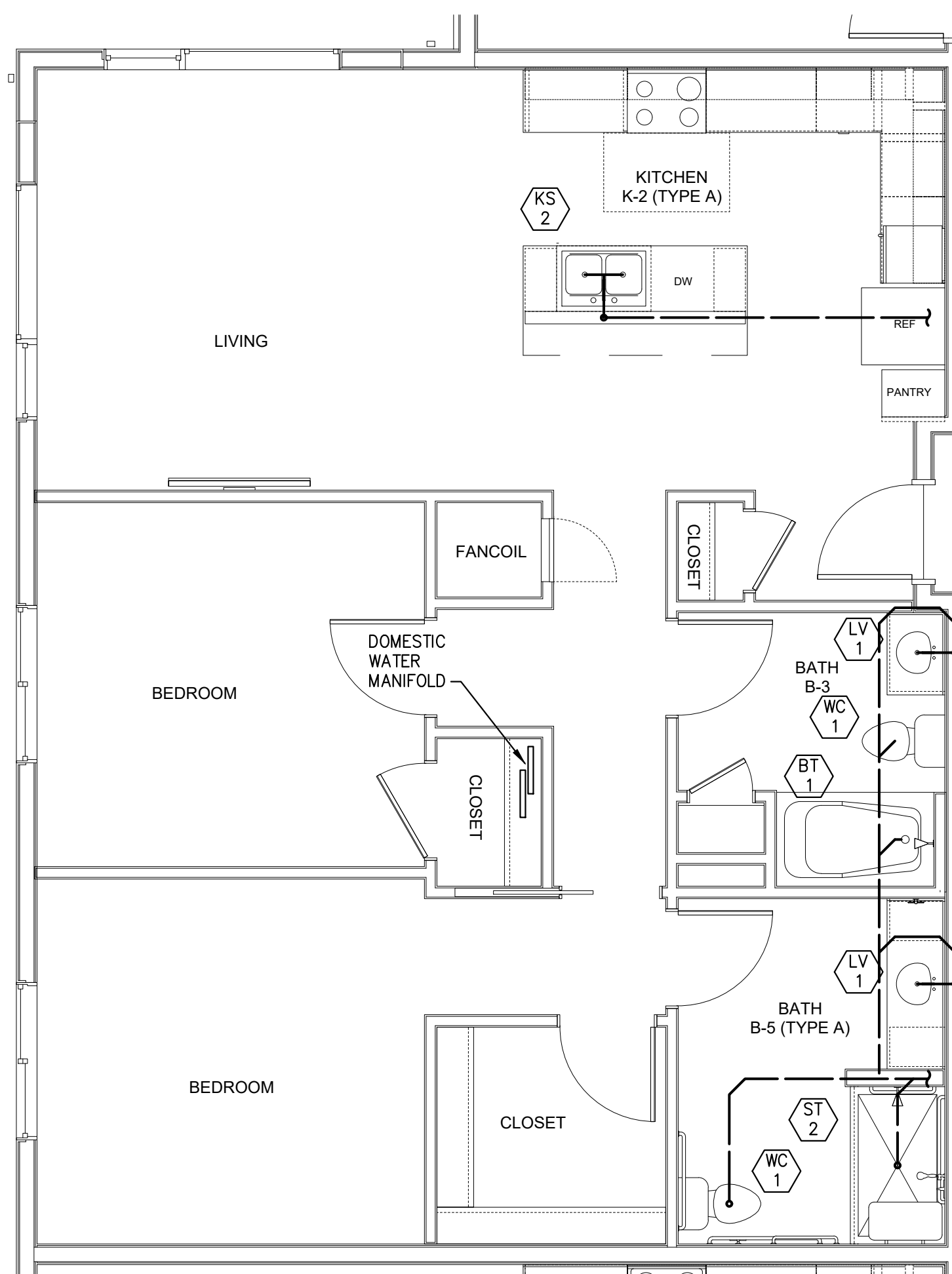




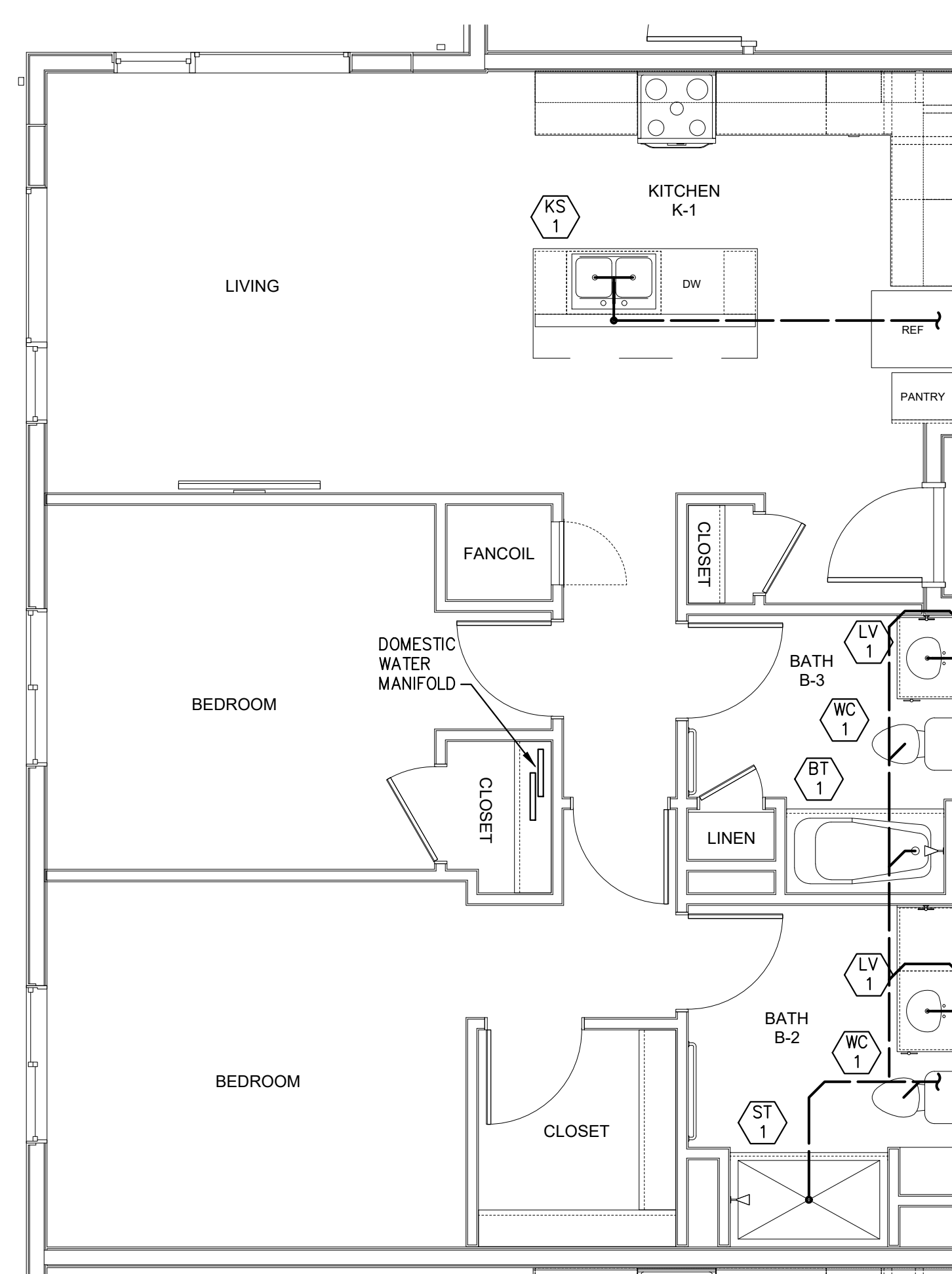
UNIT 1.2 - PLBG PLAN



UNIT 1.1 – PLBG PLAN
SCALE: 1/4"=1'-0"



UNIT 2.2 – PLBG PLAN
SCALE: 1/4"=1'-0"



UNIT 2.1 – PLBG PLAN

PLUMBING FIXTURE / EQUIPMENT LIST

KS-1 KITCHEN SINK
ELKAY MODEL D23321 - EQUAL DOUBLE COMPARTMENT
33" x 21-1/4" x 6-9/16" DEEP, 22 GAUGE STAINLESS STEEL
PROVIDE COMPLETE WITH MOEN MODEL 7430 1.5 GPM, SINGLE HANDLE
FAUCET WITH SIDE SPRAY AND 1/4 TURN STOP VALVES.

ADDITIONALLY, PROVIDE INSINKERATOR BADGER 1, 1/3 HP, 120 VOLT
GARBAGE DISPOSAL WITH SINK STOPPER.

KS-2 KITCHEN SINK - ACCESSIBLE
ELKAY MODEL D23321 - EQUAL DOUBLE COMPARTMENT
33" x 21-1/4 x 6-9/16" DEEP, 22 GAUGE STAINLESS STEEL
PROVIDE COMPLETE WITH MOEN MODEL 7430 1.5 GPM, SINGLE HANDLE
FAUCET WITH SIDE SPRAY AND 1/4 TURN STOP VALVES.

ADDITIONALLY, PROVIDE INSINKERATOR BADGER 1, 1/3 HP, 120 VOLT
GARBAGE DISPOSAL WITH SINK STOPPER.

INSTALL WITH OFFSET DRAIN AS REQUIRED TO PROVIDE 19" DEEP
CLEARANCE UNDER SINK. INSTALL 1/2" CLOSED CELL FOAM PIPE
INSULATION ON WASTE AND DOMESTIC HW / CW LINES PER ADA RMQTS.

LV-1 DROP-IN LAVATORY
AMERICAN STANDARD MODEL # 0476.028 - "AQUALYN"
PROVIDE COMPLETE WITH MOEN L4621 SINGLE HANDLE LAVATORY
FAUCET (1.2 GPM MAX FLOW) WITH POP-UP WASTE ASSEMBLY, 1-1/4"
TAILPIECE, OFFSET P-TRAP FOR ACCESSIBLE INSTALLATION, AND 1/4 TUR-
STOP VALVES.

COLOR: WHITE

INSTALL 1/2" CLOSED CELL FOAM PIPE INSULATION ON WASTE AND DOMESTIC HOT AND COLD WATER LINE PER ADA REQUIREMENTS.

LV-2 WALL MOUNT LAVATORY
AMERICAN STANDARD MODEL 0355.012
PROVIDE COMPLETE WITH MOEN L4601 SINGLE HANDLE LAVATORY
FAUCET (1.2 GPM MAX FLOW) LESS WASTE ASSEMBLY, GRID DRAIN, 1-1/4"
TAILPIECE, OFFSET P-TRAP FOR ACCESSIBLE INSTALLATION, 1/4" TURN
STOP VALVES AND ZURN MODEL Z-1224 WALL CARRIER.

COLOR: WHITE

INSTALL 1/2" CLOSED CELL FOAM PIPE INSULATION ON WASTE AND DOMESTIC HOT AND COLD WATER LINES PER ADA REQUIREMENTS.

SH-1 SHOWER
FLORESTONE MODEL 60-3W - GEL-COATED FIBERGLASS
60" x 31-1/2" X 79" ID (62" x 35" x 73" TALL)
PROVIDE COMPLETE WITH 2" BRASS DRAIN, MOEN MODEL 2352
PRESSURE BALANCED CONTROL VALVE, LEVER HANDLE, AND 2.5 GPM
SHOWERHEAD,

COLOR: WHITE

COORDINATE FLOOR RECESS REQUIREMENTS FOR ROLL-IN INSTALLATION WITH
GENERAL CONTRACTOR DURING FRAMING / ROUGH-IN.

SH-2 SHOWER - ACCESSIBLE
FLORESTONE 1/2" 35-62H - GEL-COATED FIBERGLASS
60" x 31-1/2" x 79" ID (62" x 34" x 80" TALL O.D.)
ENCLOSURE COMPLETE WITH FOLDING 3" WHEELCHAIR TRANSFER SEAT, 2" BRASS
DRAIN, SYMONS PRESSURE-BALANCE MIXING VALVE WITH CONCEALED STOPS,
1.5 GPM MOEN HAND-HELD SHOWER HEAD WITH HOSE AND STAINLESS STEEL
SLIDE BAR / GRAB BAR, STAINLESS STEEL CORNER GRAB BAR, STAINLESS
STEEL RECESSED SOAP DISH, AND STAINLESS STEEL CURTAIN ROD.

COLOR: WHITE

COORDINATE FLOOR RECESS REQUIREMENTS FOR ROLL-IN INSTALLATION WITH
GENERAL CONTRACTOR DURING FRAMING / ROUGH-IN.

BT-1 TUB / SHOWER
AMERICAN STANDARD MODEL 2946.102 / 202 - "STUDIO" W/ INTEGRAL APRON
60" x 32" ACRYLIC W/ FIBERGLASS REINFORCEMENT
PROVIDE COMPLETE WITH AMERICAN STANDARD MODEL 2946.BW BATH
WALL SET. 1.5 GPM SHOWER HEAD AMERICAN STANDARD MODEL 1375.248
BATH / SHOWER TRIM KIT W/ 1.5 GPM SHOWER HEAD, AMERICAN
STANDARD MODEL R115 VALVE BODY W/ PEX INLETS / UNIVERSAL
OUTLETS, AND AMERICAN STANDARD MODEL 1583.740 ROTARY DRAIN
AND OVERFLOW W/ POP-UP DRAIN.

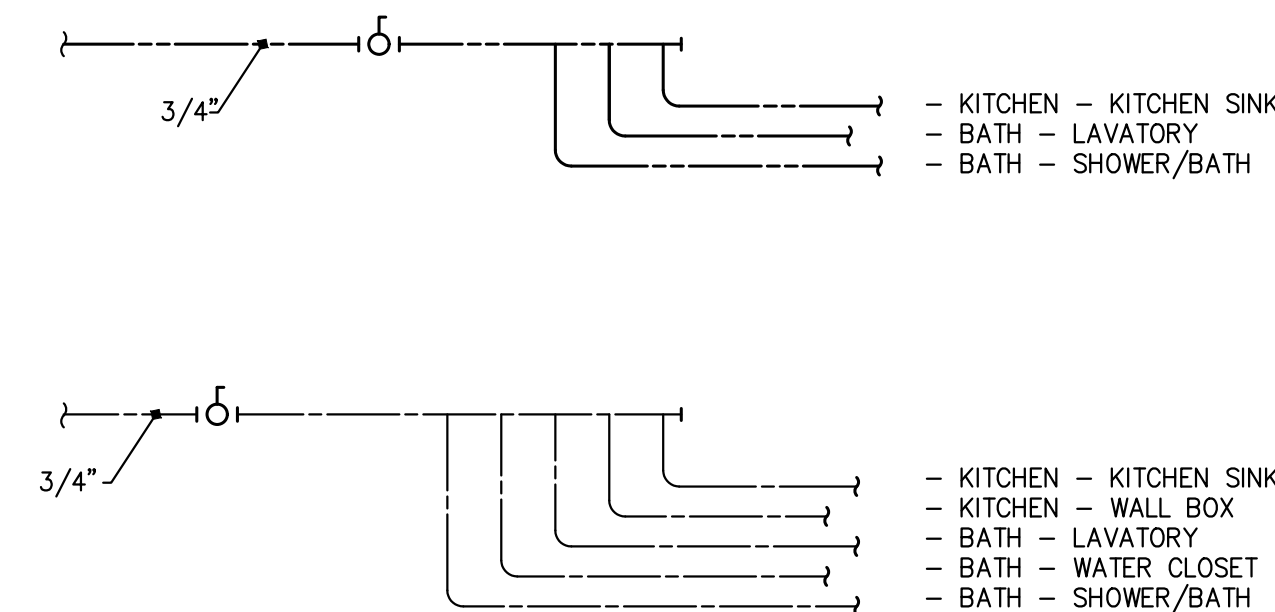
COLOR: WHITE

WC-1 WATER CLOSET - ELONGATED, RIGHT HEIGHT
AMERICAN STANDARD MODEL 221AA.104/105 - "COLONY"
1.28 GALLON PER FLUSH
12" ROUGH-IN
16-1/2" RIM HEIGHT - ACCESSIBLE

PROVIDE COMPLETE WITH SOLID PLASTIC CLOSED FRONT ELONGATED SEAT WITH COVER AND 1/4 TURN STOP VALVE.

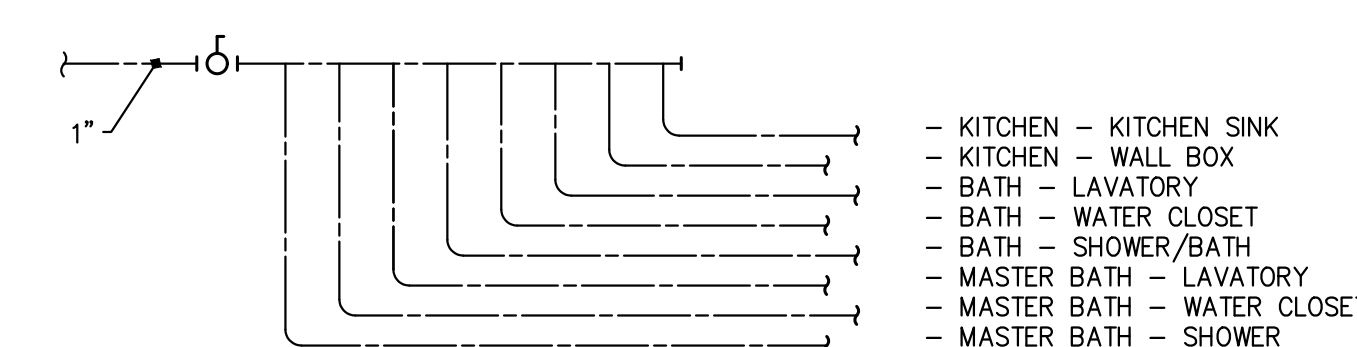
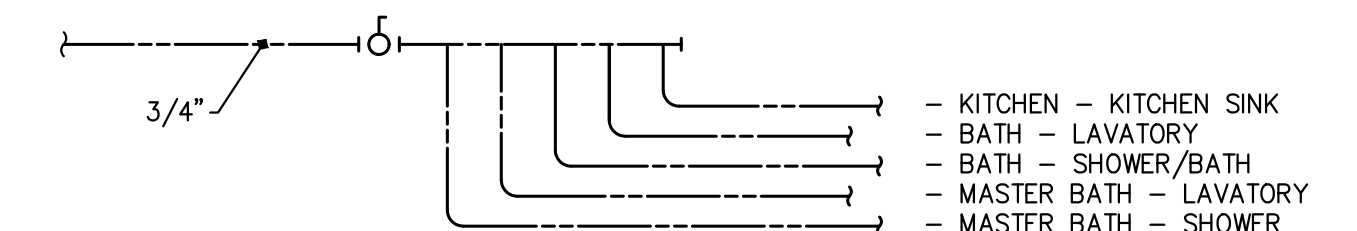
VERIFY RIGHT / LEFT TRIP LEVER AS REQUIRED FOR ACCESSIBLE COMPLIANCE.

COLOR: WHITE



HW / CW DOMESTIC WATER MANIFOLD - 1-BDRM UNIT

NOT TO SCALE



HW / CW DOMESTIC WATER MANIFOLD - 2-BDRM UNIT

NOT TO SCALE



REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
**LARGE SCALE
PLUMBING PLANS AND
FIXTURE SCHEDULES**

DATE: 01/14/19

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

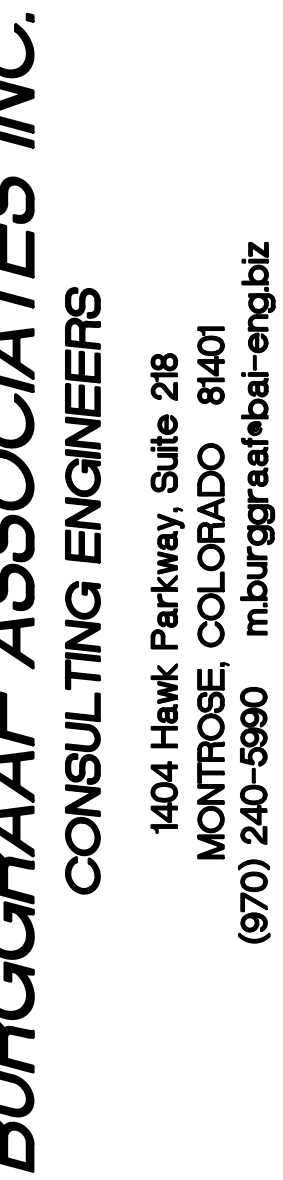
PROJ. NO. 8071

DRAWN BY: BAI

CHKD BY: MAB

DRAWING NO.

P-5



2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
**CRAWLSPACE
HVAC PLAN**

DATE: 03/18/19

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

PROJ. NO. 80771

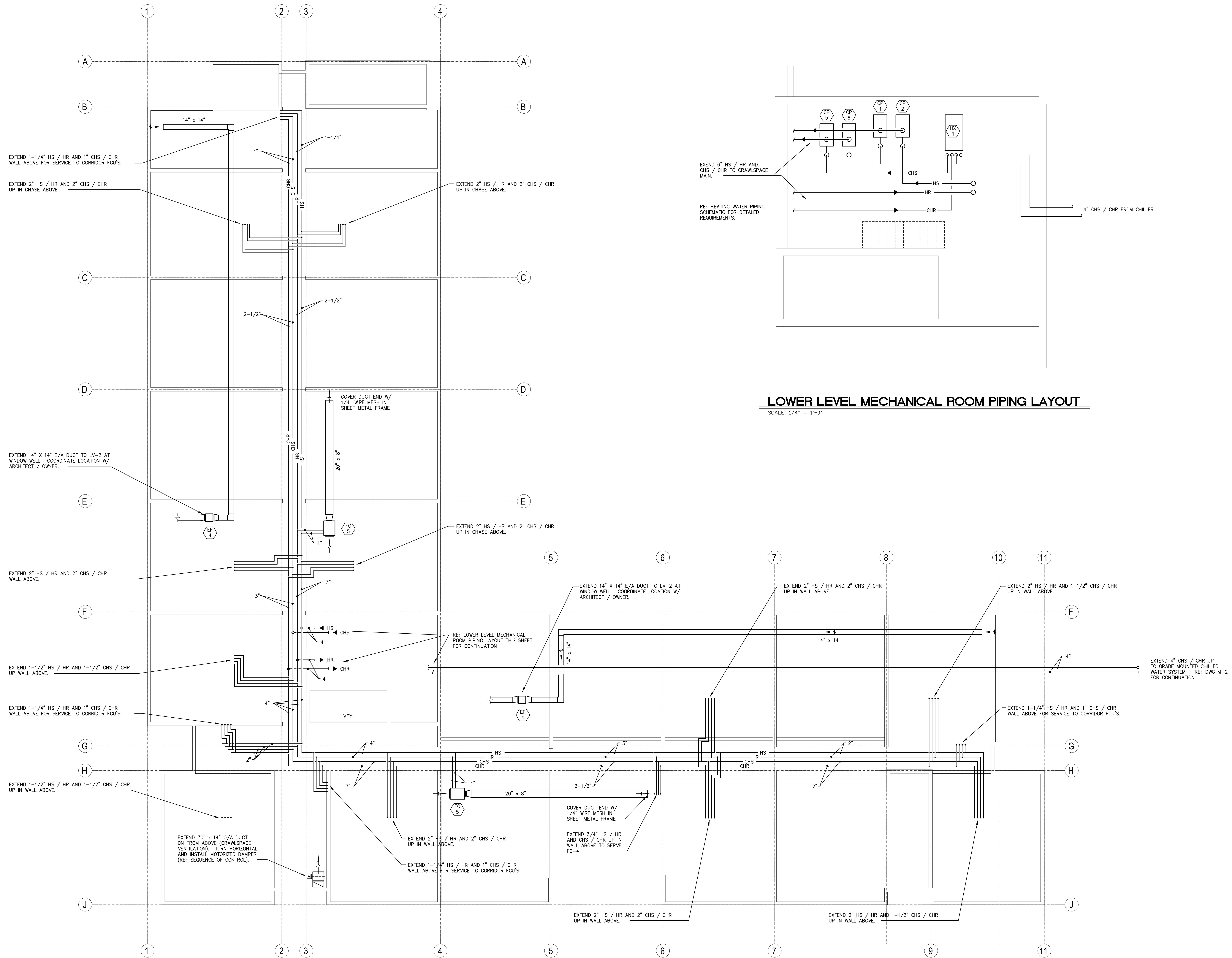
DRAWN BY: DAI

CHKD BY: MAB

DRAWING NO.

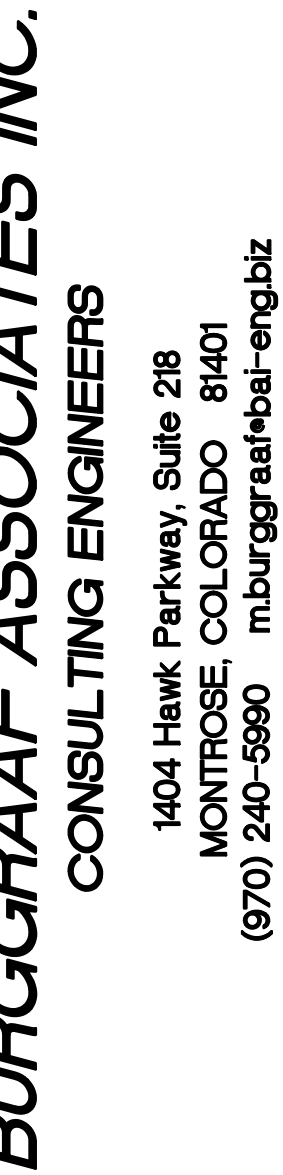
M-1

6



CRAWLSPACE HVAC PLAN





2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19
ASI #1	01/08/20

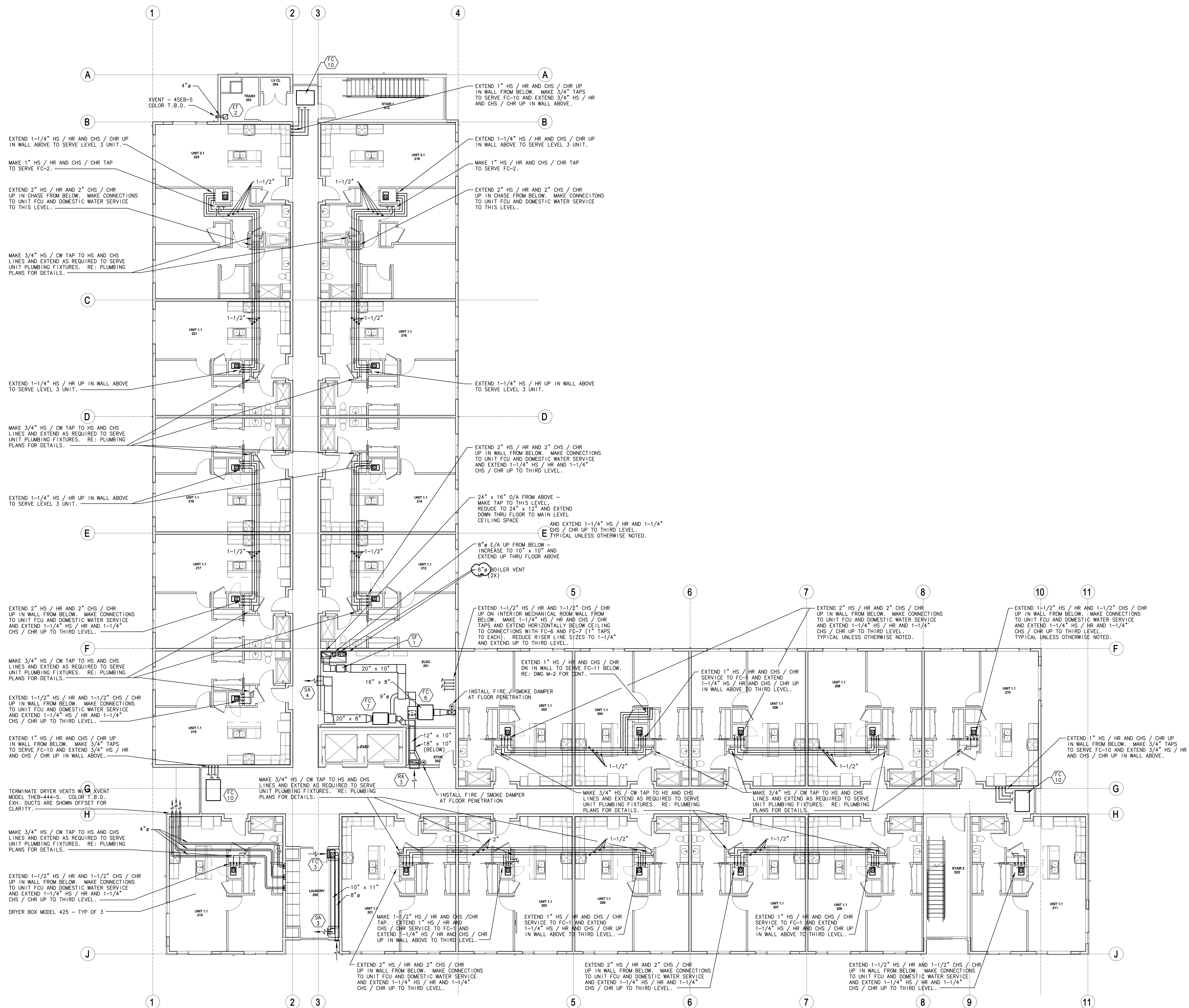
DRAWING TITLE:
**LEVEL 2
HVAC PLAN**

DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO. 8077
DRAWN BY: DAI
CHKD BY: MAB

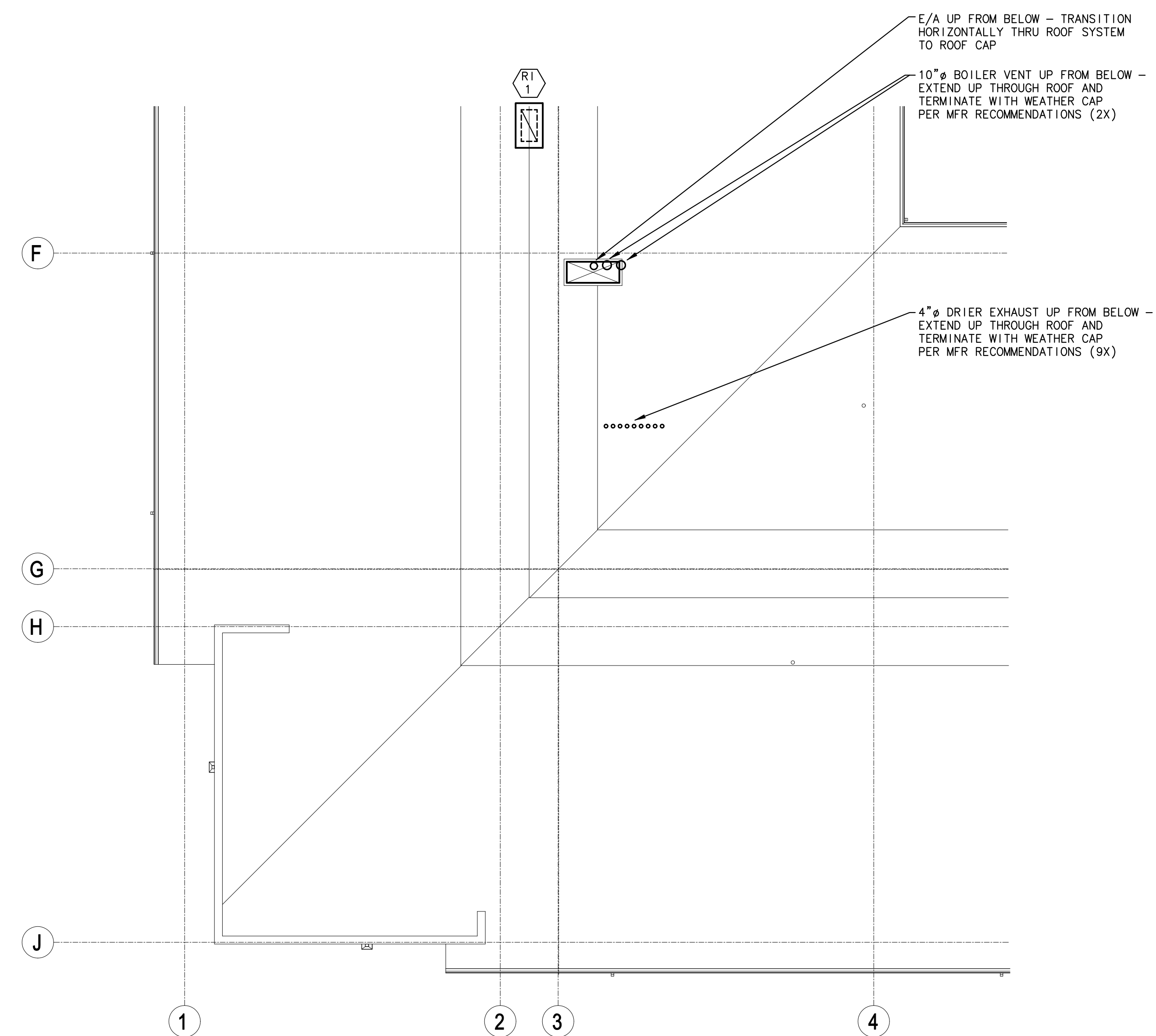
DRAWING NO.

M-3

6



LEVEL 2 HVAC PLAN



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

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

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19
AS1 #1	01/08/20

DRAWING TITLE:
LARGE SCALE
UNIT HVAC PLANS
MECHANICAL EQUIPMENT

DATE: 01/14/19
SCALE: 1/4" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.
M-5
OF 6

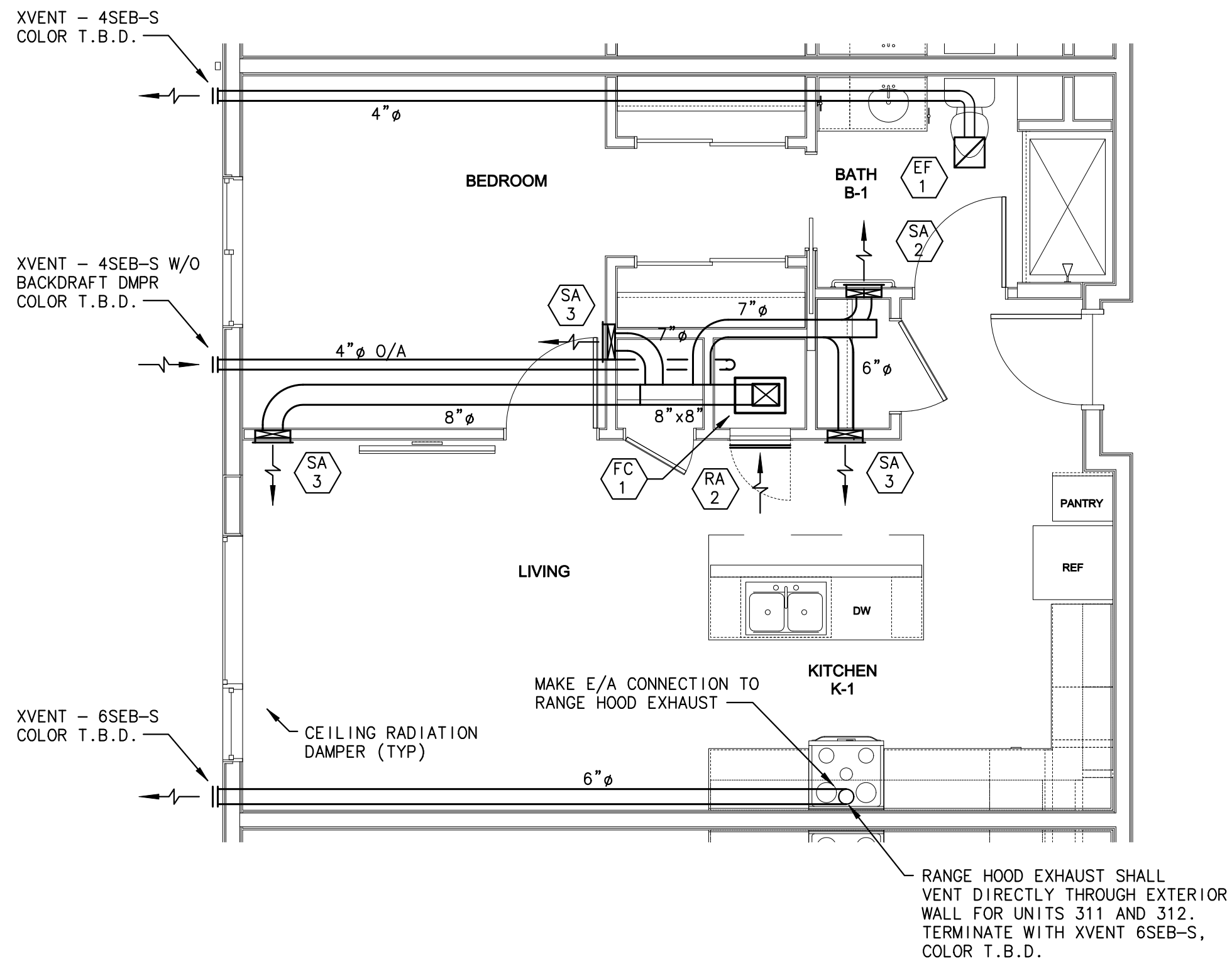
MECHANICAL EQUIPMENT LIST

- BL-1 DOMESTIC HOT WATER BOILER
P-K SONIC SCD-1000
1,000 MBH INPUT - NATURAL GAS
923 MBH OUTPUT - 4,600 FT. ELEV.
10 AMPS, 120 VOLTS
- PROVIDE COMPLETE WITH:
- MFR SUPPLIED CIRCULATING PUMPS
- CONDENSATE NEUTRALIZATION KIT
- SMART TOUCH PC SOFTWARE
- MODBUS COMMUNICATIONS
- TYPICAL FOR BL-2
- BP-1 BOILER CIRCULATING PUMP
B & G ECOCIRC XL 40-200 (VARIABLE SPEED)
92 GPM, 28 FT. HD.
1 HP, 208 VOLT, 3 PHASE
- TYPICAL FOR BP-2
- ST-1 DOMESTIC HOT WATER STORAGE TANK
300 GALLON
- TYPICAL FOR ST-2
- CP-1 DOMESTIC HOT WATER / HEATING WATER CIRCULATING PUMP
TACO FI 2507
233 GPM, 30 FT. HD.
5 HP, 208 VOLT, 3 PHASE - V.F.D. RATED
- CP-2 IS TYPICAL (PIPED IN PARALLEL)
- PUMPS SHALL BE NSF 61 - DOMESTIC WATER CERTIFIED
- CH-1 AIR COOLED WATER CHILLER
COAM 060 A
NOMINAL 60 TON COOLING CAPACITY
237.2 RLA, 257 MCA, 300 MFS
208 VOLT, 3 PHASE
- PROVIDE COMPLETE WITH:
- UL LISTING
- FULL FACTORY REFRIGERANT CHARGE
- ACROSS THE LINE STARTER
- SINGLE POINT POWER CONNECTION W/ GFCI RECEPTACLE
- CIRCUIT BREAKER W/ HIGH FAULT RATED CONTROL PANEL
- BACNET INTERFACE
- FACTORY INSTALLED WATER STRAINER
- SUPER QUIET SOUND ATTENUATOR PACKAGE
- FACTORY START-UP AND TEST WITH REPORT
- CP-3 CHILLED WATER CIRCULATING PUMP
TACO FI 2507
128 GPM, 45 FT. HD.
5 HP, 208 VOLT, 3 PHASE
- CP-4 IS TYPICAL
- HX-1 CHILLED WATER FLAT PLAT HEAT EXCHANGER
512 MBH TOTAL HEAT EXCHANGE
PRIMARY SIDE
- 128 GPM, 42 F E.W.T., 30% PROPYLENE GLYCOL
SECONDARY SIDE
- 208 GPM, 50 F E.W.T., DOMESTIC WATER (NO GLYCOL)
- CP-5 DOMESTIC COLD WATER / CHILLED WATER SERVICE
TACO FI 2507
208 GPM, 30 FT. HD.
5 HP, 208 VOLT, 3 PHASE - V.F.D. RATED
- CP-6 IS TYPICAL (PIPED IN PARALLEL)
- PUMPS SHALL BE NSF 61 - DOMESTIC WATER CERTIFIED
- ET-1 CHILLED WATER EXPANSION TANK
TACO MODEL CX-30
8 GAL. VOLUME, 5 GAL. MIN. ACCEPTANCE
- ET-2 DOMESTIC HOT WATER EXPANSION TANK
TACO MODEL PAX-130
34 GALLON VOLUME, 15 GAL. MIN. ACCEPTANCE
- EF-1 BATHROOM EXHAUST FAN
PANASONIC MODEL FV-11V05
90 CFM, 0.25" S.P., 0.5 SONES
21 WATTS, 120 VOLTS
- EF-2 RESTROOM / LEVEL 2 - 3 TRASH ROOMS
PANASONIC MODEL FV-08V04
60 CFM, 0.25" S.P., 0.4
15 WATTS, 120 VOLTS
- EF-3 TRASHROOM EXHAUST FAN
PANASONIC MODEL FV-20V03
150 CFM, 0.25" S.P., 1.4 SONES
44 WATTS, 120 VOLTS
- EF-4 CRAWLSPACE EXHAUST FAN
COOK SOIB 120
1360 CFM, 0.5" S.P.
1/2 HP, 120 VOLT
- TYPICAL OF 2 UNITS
- SF-1 LVL 1-2 O/A SUPPLY FAN
COOK 120SON280 (VF)
1250 CFM, 0.5" S.P.
1/3 HP, 120 VOLT
- PROVIDE EC MOTOR WITH 0-10 VOLT CONTROL INPUT.
- EH-1 ELECTRIC WALL HEATER - STAIR
BERKO MODEL VKF151
1500 WATTS, 208 VOLT, 1 PHASE
- PROVIDE COMPLETE WITH UNIT MOUNTED THERMOSTAT,
VKFSM SURFACE MOUNTING FRAME, AND VKF-SFK 14 GAUGE
SECURITY COVER

- FC-1 HEATING / COOLING FAN COIL UNIT - TYP FOR ONE BDRM UNIT
WILLIAMS MODEL CV-B-600 - RATED FOR USE WITH DOMESTIC WATER
600 CFM, 0.5" E.S.P.
25.0 MBH HEATING, 2-ROW HEATING COIL, 3.3 GPM, 120F E.W.T.
7.7 MBH SENS. CLG, 8.2 MBH TOTAL CLG, 2.1 GPM, 45F E.W.T.
1/4 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- TYPICAL FOR 54 UNITS
- FC-2 HEATING / COOLING FAN COIL UNIT - TYP FOR TWO BDRM UNIT
WILLIAMS MODEL CV-B-800 - RATED FOR USE WITH DOMESTIC WATER
800 CFM, 0.5" E.S.P.
33.9 MBH HEATING, 2-ROW HEATING COIL, 4.5 GPM, 120F E.W.T.
9.3 MBH SENS. CLG, 10.1 MBH TOTAL CLG, 2.5 GPM, 45F E.W.T.
1/4 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- TYPICAL FOR 6 UNITS
- FC-3 HEATING / COOLING FAN COIL UNIT - TYP FOR LAUNDRY ROOM SERVICE
WILLIAMS MODEL CV-B-600 - RATED FOR USE WITH DOMESTIC WATER
600 CFM, 300 CFM O/A, 0.5" E.S.P.
33.6 MBH HEATING, 2-ROW HEATING COIL, 4.5 GPM, 120F E.W.T.
8.3 MBH SENS. CLG, 8.3 MBH TOTAL CLG, 2.1 GPM, 45F E.W.T.
1/4 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- TYPICAL FOR 3 UNITS
- FC-4 HEATING / COOLING FAN COIL UNIT - SOUTH ENTRY VESTIBULE / MAIL
WILLIAMS MODEL CV-B-600 - RATED FOR USE WITH DOMESTIC WATER
600 CFM, 300 CFM O/A, 0.5" E.S.P.
17.0 MBH HEATING, 2-ROW HEATING COIL, 2.3 GPM, 120F E.W.T.
6.3 MBH SENS. CLG, 6.3 MBH TOTAL CLG, 1.6 GPM, 45F E.W.T.
1/4 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- FC-5 HEATING FAN COIL UNIT - CRAWLSPACE TEMPERED AIR SERVICE
WILLIAMS MODEL AH-B-1600 - RATED FOR USE WITH DOMESTIC WATER
1,200 CFM, 0.5" E.S.P.
100 MBH HEATING, 4-ROW HEATING COIL, 1002 GPM, 120F E.W.T.
1/2 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 1" MODULATING HEATING WATER ZONE VALVE
AND BALANCE VALVES SIMILAR TO CALEFFI MODEL 132772A.
SEE PIPING SCHEMATIC, DWG M-6
- TYPICAL FOR 2 UNITS
- FC-6 HEATING FAN COIL UNIT - SERVICE TO MAIN LEVEL ENTRY
WILLIAMS MODEL AH-B-1600 - RATED FOR USE WITH DOMESTIC WATER
1,500 CFM, 300 CFM O/A, 0.5" E.S.P.
103.7 MBH HEATING, 4-ROW HEATING COIL, 10.4 GPM, 120F E.W.T.
27.8 MBH SENS. CLG, 27.8 MBH TOTAL CLG, 7.0 GPM, 45F E.W.T.
3/4 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132772A (HW) AND 132552A (CW). SEE PIPING SCHEMATIC, DWG M-6
- FC-7 HEATING / COOLING FAN COIL UNIT - SERVICE TO 2ND LVL CORRIDOR
WILLIAMS MODEL AH-B-1200 - RATED FOR USE WITH DOMESTIC WATER
1000 CFM, 100 CFM O/A, 0.25" E.S.P.
30.6 MBH HEATING, 2-ROW HEATING COIL, 4.1 GPM, 120F E.W.T.
16.0 MBH SENS. CLG, 16.0 MBH TOTAL CLG, 4.0 GPM, 45F E.W.T.
1/2 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- FC-8 (SERVICE TO 3RD LVL CORRIDOR IS TYPICAL)
- FC-9 HEATING / COOLING FAN COIL UNIT - SERVICE TO CORRIDOR END
WILLIAMS MODEL LH-E-06 - RATED FOR USE WITH DOMESTIC WATER
400 CFM, FREE DISCHARGE
7.2 MBH HEATING, 3.0 GPM, 120F E.W.T.
5.4 MBH SENS. CLG, 5.4 MBH TOTAL CLG, 1.4 GPM, 45F E.W.T.
1/20 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- TYPICAL FOR 8 UNITS
- FC-10 HEATING / COOLING FAN COIL UNIT - SERVICE TO CORRIDOR END
WILLIAMS MODEL LH-E-06 - RATED FOR USE WITH DOMESTIC WATER
400 CFM, FREE DISCHARGE
7.2 MBH HEATING, 3.0 GPM, 120F E.W.T.
5.4 MBH SENS. CLG, 5.4 MBH TOTAL CLG, 1.4 GPM, 45F E.W.T.
1/10 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6
- TYPICAL FOR 8 UNITS
- FC-11 HEATING / COOLING FAN COIL UNIT - SERVICE TO OFFICE / WEST AMENITY
WILLIAMS MODEL CV-B-600 - RATED FOR USE WITH DOMESTIC WATER
600 CFM, 0.5" E.S.P.
25.0 MBH HEATING, 2-ROW HEATING COIL, 3.3 GPM, 120F E.W.T.
7.7 MBH SENS. CLG, 8.2 MBH TOTAL CLG, 2.1 GPM, 45F E.W.T.
1/6 HP, 120 VOLT
- PROVIDE COMPLETE WITH MERV 8 PLEATED MEDIA FILTER
- PROVIDE COMPLETE WITH 3/4" CHILLED WATER AND HEATING WATER
ZONE VALVES AND BALANCE VALVES SIMILAR TO CALEFFI MODEL
132552A. SEE PIPING SCHEMATIC, DWG M-6

AIR DEVICES

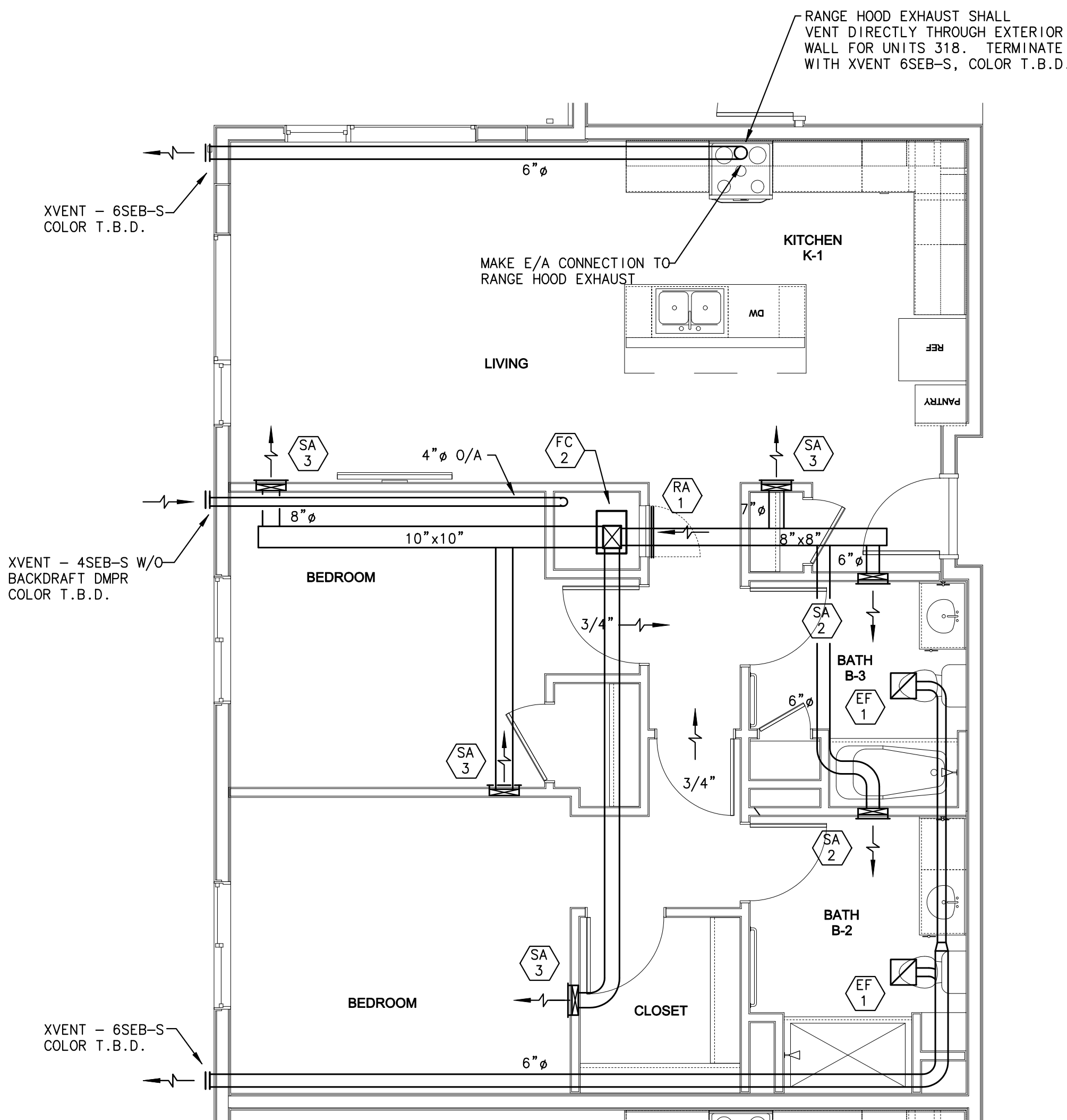
- LV-1 CRAWLSPACE INTAKE LOUVER
RUSKIN ELF375DXH
30" X 24" TALL
PROVIDE LOUVER COMPLETE WITH 1/4" ALUMINUM INSECT SCREEN
- LV-2 CRAWLSPACE EXHAUST LOUVER - 2 REQUIRED
RUSKIN ELF375DXH
24" X 18" TALL
PROVIDE LOUVER COMPLETE WITH 1/4" ALUMINUM INSECT SCREEN
- SA-1 CURVED BLADE REGISTER
KRUEGER 180
14" X 6"
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
AND FACE ADJUSTABLE OPPOSED BLADE DAMPER
- PROVIDE WITH 3-WAY DIRECTIONAL DISCHARGE
- SA-2 DOUBLE DEFLECTION WALL REGISTER
KRUEGER 5885 - HORIZONTAL FACE BLADES
10" X 6"
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
AND FACE ADJUSTABLE OPPOSED BLADE DAMPER
- SA-3 DOUBLE DEFLECTION REGISTER
KRUEGER 5885
14" X 6"
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
AND FACE ADJUSTABLE OPPOSED BLADE DAMPER
- SA-4 DOUBLE DEFLECTION REGISTER
KRUEGER 5885
24" X 10"
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
AND FACE ADJUSTABLE OPPOSED BLADE DAMPER
- SA-5 DOUBLE DEFLECTION REGISTER
KRUEGER 5885
12" X 4"
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
AND FACE ADJUSTABLE OPPOSED BLADE DAMPER
- RA-1 RETURN AIR GRILLE
KRUEGER S80
8" X 18" TALL
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
- RA-2 RETURN AIR GRILLE
KRUEGER S80
30" X 6" TALL
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
- RA-3 RETURN AIR GRILLE
KRUEGER S80
24" X 10" TALL
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
- RA-3 RETURN AIR GRILLE
KRUEGER S80
18" X 6" TALL
PROVIDE COMPLETE WITH FRAME FOR SURFACE MOUNTING
- RI-1 GRAVITY ROOF INTAKE
COOK MODEL 18 X 36 GR
- PROVIDE COMPLETE WITH 14" TALL ROOF CURB



UNIT 11 - HVAC PLAN

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

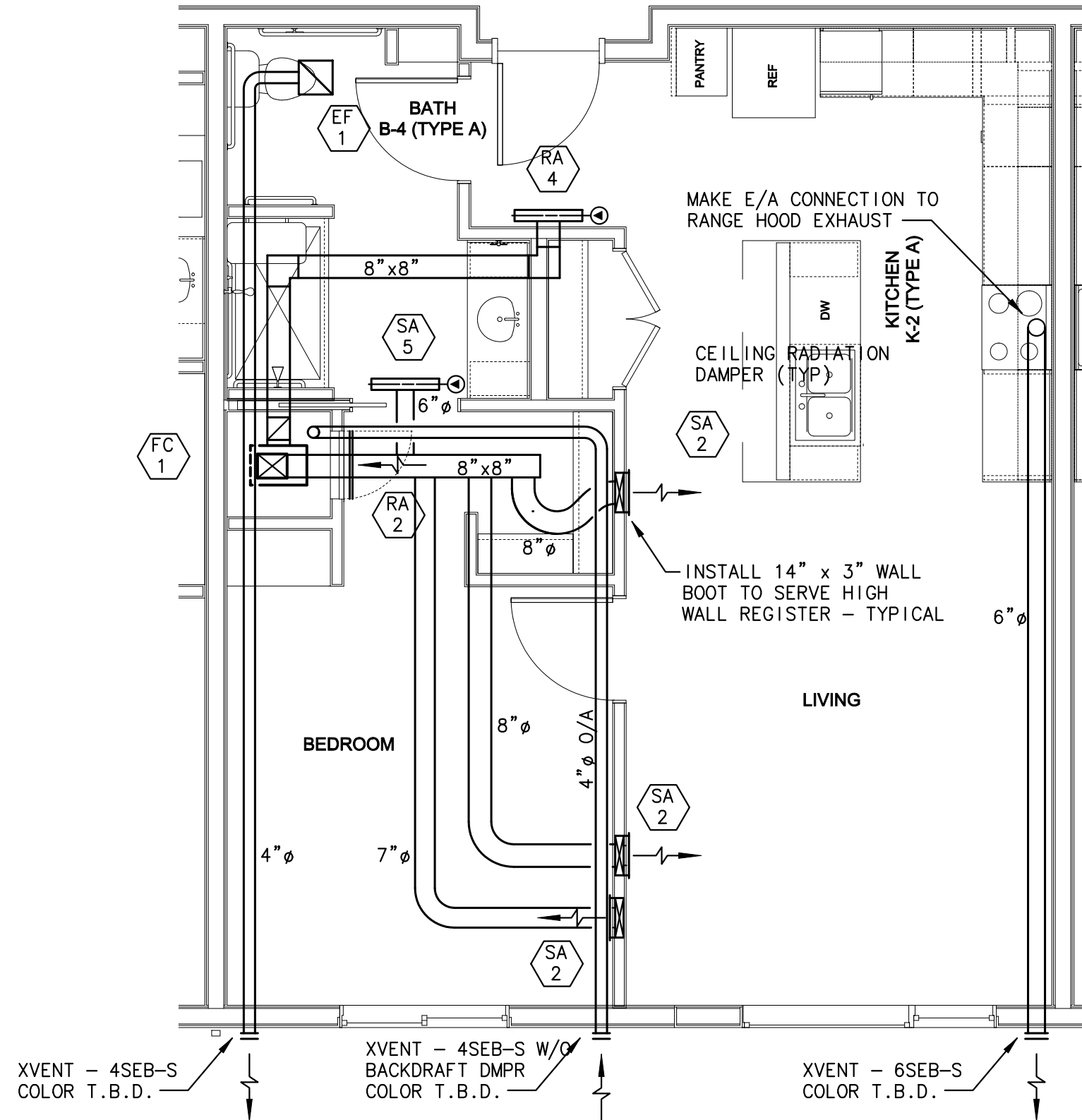
UNLESS OTHERWISE NOTED, ALL HORIZONTAL SUPPLY AND EXHAUST DUCTS
SHALL BE ROUTED IN CEILING SPACE. HORIZONTAL EXHAUST DUCTS
SERVING THE THIRD LEVEL SHALL BE ROUTED IN SOFFITS - RE: ARCH. RCP.



UNIT 2.1 - HVAC PLAN

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

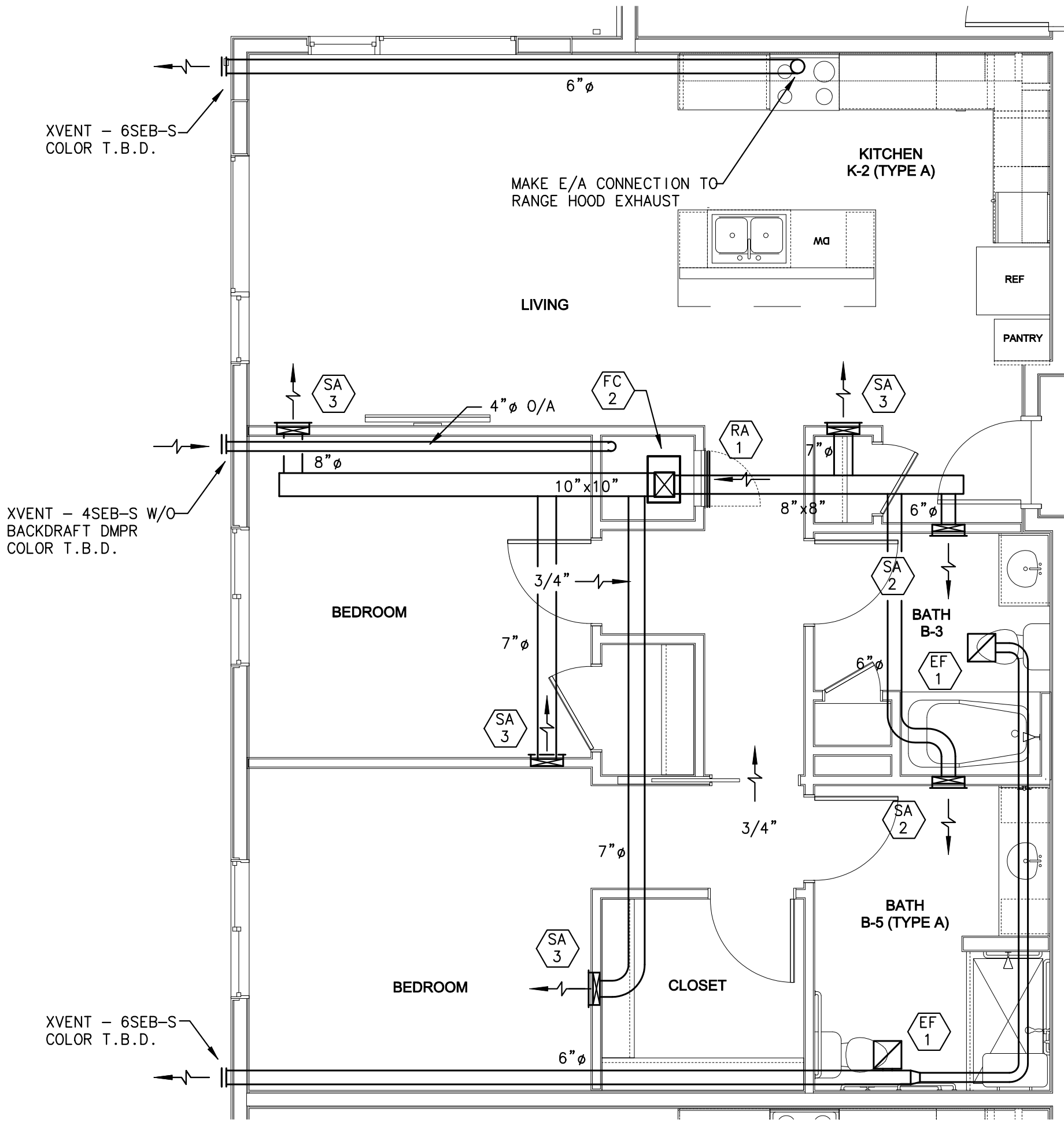
UNLESS OTHERWISE NOTED, ALL HORIZONTAL SUPPLY AND EXHAUST DUCTS
SHALL BE ROUTED IN CEILING SPACE. HORIZONTAL EXHAUST DUCTS
SERVING THE THIRD LEVEL SHALL BE ROUTED IN SOFFITS - RE: ARCH. RCP.



UNIT 12 - HVAC PLAN

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

UNLESS OTHERWISE NOTED, ALL HORIZONTAL SUPPLY AND EXHAUST DUCTS
SHALL BE ROUTED IN CEILING SPACE. HORIZONTAL EXHAUST DUCTS
SERVING THE THIRD LEVEL SHALL BE ROUTED IN SOFFITS - RE: ARCH. RCP.



UNIT 2.2 - HVAC PLAN

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

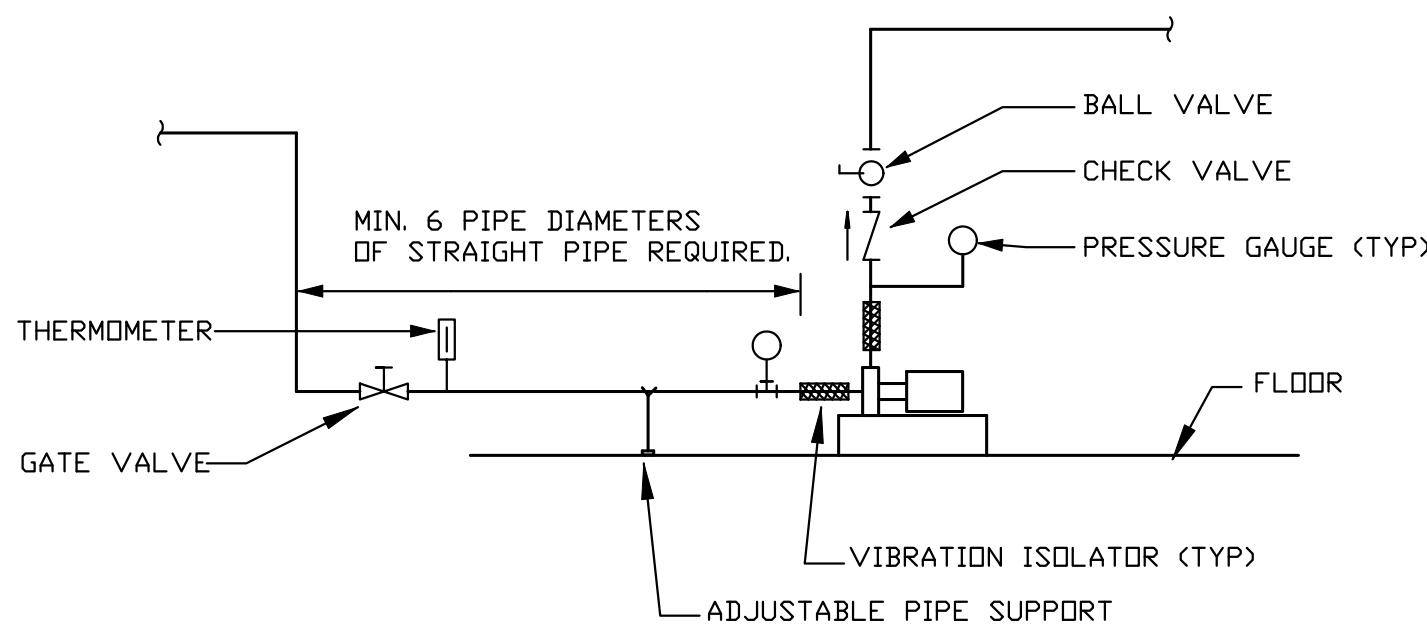
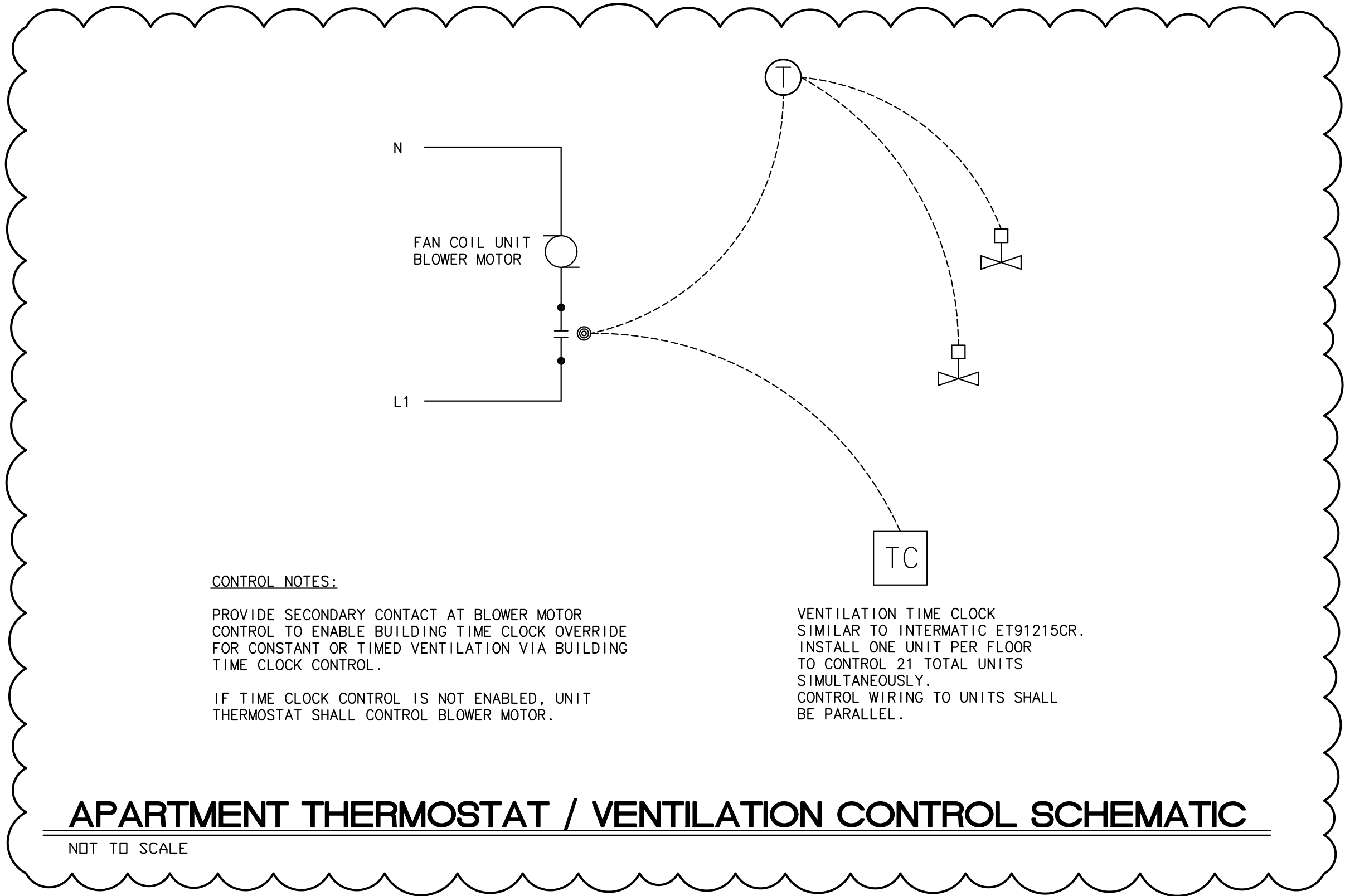
UNLESS OTHERWISE NOTED, ALL HORIZONTAL SUPPLY AND EXHAUST DUCTS
SHALL BE ROUTED IN CEILING SPACE. HORIZONTAL EXHAUST DUCTS
SERVING THE THIRD LEVEL SHALL BE ROUTED IN SOFFITS - RE: ARCH. RCP.

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% CD	03/18/19
100% CD	04/05/19
AS1 #1	01/08/20

DRAWING TITLE:
HVAC PIPING
SCHEMATICS

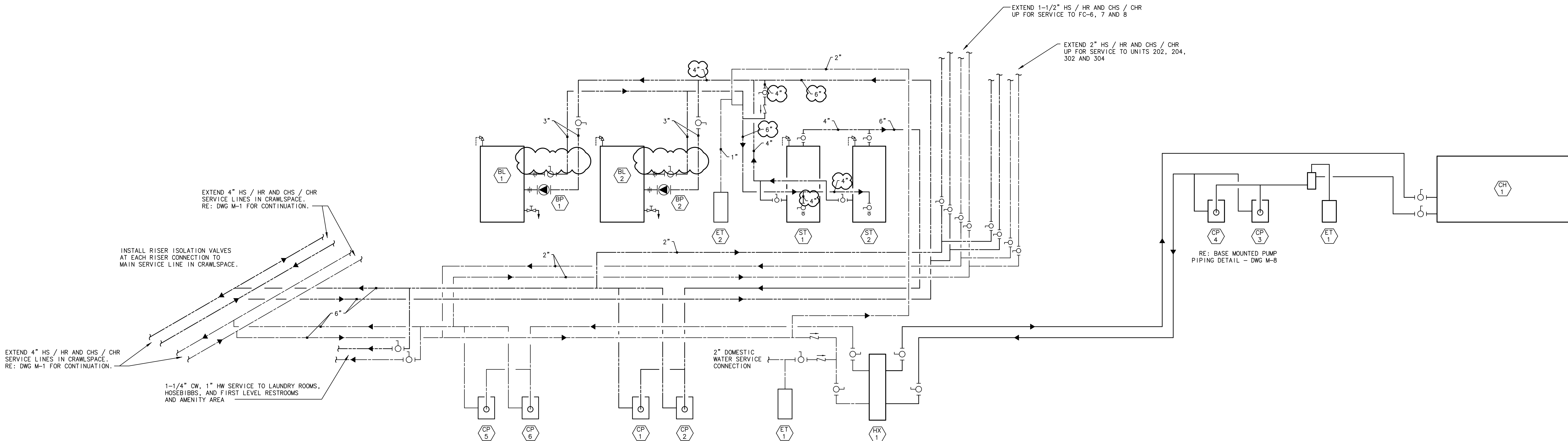
DATE: 01/14/19
SCALE: 1/4" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

HVAC/PLUMBING LEGEND			
NOT ALL SYMBOLS LISTED BELOW ARE USED ON THIS SET OF DRAWINGS			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— HS —	HEATING WATER SUPPLY	⊗	FIRE DAMPER
— HR —	HEATING WATER RETURN	— M —	MANUAL VOLUME DAMPER
— CHS —	CHILLED WATER SUPPLY	⊗ M	MOTORIZED DAMPER
— CHR —	CHILLED WATER RETURN	⊗	POINT OF CONNECTION (N TO E)
— 120° HS —	120° HEATING WATER SUPPLY	⊗	PUMP
— 120° HR —	120° HEATING WATER RETURN	⊗	STRAINER
— S —	STEAM	⊗	THERMOSTATIC STEAM TRAP
— C —	CONDENSATE	⊗	F/T STEAM TRAP
— PC —	PUMPED CONDENSATE	⊗	INVERTED BUCKED STEAM TRAP
— RL —	REFRIGERANT LIQUID	⊗	DOMESTIC COLD WATER (CW)
— RS —	REFRIGERANT SUCTION	⊗	DOMESTIC HOT WATER (HW)
— RHG —	REFRIGERANT HOT GAS	⊗	HOT WATER CIRCULATING (HWC)
— RDL —	ROOF DRAIN LEADER	⊗	WASTE
— RDLO —	ROOF DRAIN LEADER — OVERFLOW	⊗	VENT
→	DIRECTION OF FLOW	⊗	ROOF DRAIN
— P —	PIPE CAP OR PLUG	⊗	NATURAL GAS
— P —	PIPING UP	⊗	LP GAS
— P —	PIPING DOWN	⊗	COMPRESSED AIR
— P —	EXPANSION JOINT	⊗	HOSE BIBB / WALL HYDRANT
— P —	FLEXIBLE CONNECTOR	⊗	BACKFLOW PREVENTER
— P —	BALANCING VALVE	⊗	FUNNEL DRAIN
— P —	2-WAY T.C. VALVE	⊗	FLOOR DRAIN
— P —	3-WAY T.C. VALVE	⊗	FLOOR SINK
— P —	SOLENOID VALVE	⊗	VENT THROUGH ROOF (VTR)
— P —	PRESSURE REDUCING VALVE	⊗	WATER METER
— P —	PLUG VALVE	⊗	GAS METER
— P —	BALL VALVE	(E)	EXISTING
— P —	PRESSURE/TEMPERATURE TAP	(N)	NEW
— P —	SHUT-OFF VALVE	NIC	NOT IN CONTRACT
— P —	CHECK VALVE	N.T.S.	NOT TO SCALE
— P —	UNION	C.O.T.G.	CLEANOUT TO GRADE
— P —	THERMOMETER	F.C.O.	FLOOR CLEANOUT
— P —	PRESSURE GAUGE	R.D.	ROOF DRAIN
— P —	PRESSURE RELIEF VALVE	R.D.O.	OVERFLOW ROOF DRAIN
— P —	THERMOSTAT	A.F.F.	ABOVE FINISHED FLOOR
— P —	HUMIDISTAT		



HS/HR - CHS/CHR UNIT SERVICE DETAIL
NOT TO SCALE

NOTE: PIPING SCHEMATIC IS TYPICAL FOR FAN COIL UNITS FC-3 THROUGH 11 EXCEPT WITHOUT DOMESTIC WATER CONNECTION



DOMESTIC HOT WATER AND CHILLED WATER PIPING SCHEMATIC

SECTION 15010 – BASIC MECHANICAL REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and all other sections of Division 15.
- B. The Drawings and Specifications are complementary. What is called for in either is binding for both.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements for mechanical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 1:
- Codes, standards
 - Fees
 - Inspections
 - Work included
 - Quality assurance
 - Submittals
 - Coordination drawings
 - Record documents
 - Maintenance manuals
 - Rough-ins
 - Mechanical installations.

1.3 CODES, STANDARDS:

- A. Compliance: All work shall comply with the following codes and standards, latest editions, as applicable, where no conflict develops between laws, ordinances, standards or this Specification. Where differences occur, the most demanding and the highest level of material or workmanship shall apply as determined by the Architect.
- State or local laws, ordinances, or regulations.
 - Regulations of utility companies.
 - National Fire Code, NFPA (National Fire Protection Association)
 - IBC (International Building Code, I.C.B.O.), 2015
 - IPC (International Plumbing Code, I.C.B.O.), 2015
 - IMC (International Mechanical Code, I.C.B.O.), 2015
 - IECC (International Energy Conservation Code, I.C.B.O.), 2015

1.4 INSPECTIONS:

- A. Notify proper authorities when work is ready for inspections required by applicable codes, rules and regulations, allowing sufficient time for inspections. Receive, record and submit written approvals of authorities to General Contractor within ten days of each inspection.

1.5 WORK INCLUDED:

- A. The mechanical systems required for this work are to be as indicated on the Drawings and include, but are not necessarily limited to:
- Building utilities services complete, to a point of connection with the serving utility companies or as noted on Drawings.
 - Main domestic water distribution system and all necessary metering complete.
 - Complete water distribution systems to and including all plumbing fixtures, meter, headers, etc.
 - Waste and vent systems complete from all plumbing fixtures.
 - Heating, ventilating and air conditioning systems complete, with all equipment, connecting piping, and ductwork.
 - Fire protection systems including piping, valves and all distribution systems.
 - Insulation of all piping, valves, fittings, ductwork, etc., as required by Drawings and Specifications.
 - Mechanical equipment controls as required by the Drawings and Specifications.
 - Testing and balancing of all mechanical systems as required by the Drawings and Specifications.
 - System commissioning as required by the Specifications.

1.6 QUALITY ASSURANCE:

- A. Qualifications of Installers:
- For the actual fabrication, installation, and testing of the work of this Section, the Contractor shall use only thoroughly trained and experienced personnel who are completely familiar with the requirements for this work and with the installation recommendations of the manufacturers of the specified items.
 - Contractors shall have in charge of the work at all times during construction, a thoroughly competent superintendent with experience in the type of work to be installed under these Specifications. Changes in job superintendents shall be made only upon written consent of the General Contractor.
 - In acceptance or rejection of installed systems, no allowance will be made for lack of skill on the part of the installers.
- B. Manufacturer's material or equipment listed in schedules or on Drawings are types to be provided for establishment of size, capacity, grade, and quality. The burden of proof for equality of equipment shall rest with the Contractor. If other acceptable manufacturers are used, cost of any change in construction required by their use shall be borne by Contractor.

1.7 SUBMITTALS

- A. Before starting work, submit equipment shop drawings and submittals required for project. This includes materials and equipment specified in individual Sections which follow.
- B. Identify each item with sufficient data to certify compliance with Specifications.
- C. Purpose of shop drawings and submittals is to demonstrate that Contractor understands design concept, and that he demonstrates understanding by indicating and detailing fabrication and installation methods he intends to use. If deviations, discrepancies, or conflicts between shop drawings and submittals and Contract Documents are discovered either prior to or after submittals are processed, design Drawings and Specifications take precedence.

1.8 RECORD DOCUMENTS

- A. Maintain a current set of drawings with all changes and deviations from contract documents marked in red. Prior to substantial completion date, transfer all data from the red marked set to a set provided by the Architect for inclusion with the operations and maintenance manuals.

1.9 OPERATION AND MAINTENANCE MANUALS

- A. Prepare operation and maintenance manuals including the following information for equipment items:
- Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
 - Manufacturer's printed operating procedures including start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
 - Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly, aligning and adjusting instructions.
 - Servicing instructions and lubrication charts and schedules.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.
- B. Coordinate delivery of materials and equipment to site with other trades.
- C. Use all means necessary to protect materials before, during and after installation and to protect the installed work and materials of other trades.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.1 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

3.2 MECHANICAL INSTALLATIONS

- A. General: Sequence, coordinate, and integrate the various elements of mechanical systems, materials, and equipment. Comply with the following requirements:
- Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting installation and application of mechanical equipment. Do not proceed with installation until unsatisfactory conditions have been corrected.
 - Make provisions for introduction into building of equipment too large to pass through finished openings. Provide for hoisting of equipment.
 - Coordinate mechanical systems, equipment, and materials installation with other building components.
 - Verify all dimensions by field measurements.
 - Arrange for chases, slots, and openings in other building components during progress of construction, to allow for mechanical installations.
 - Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
 - Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
 - Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
 - Coordinate connection of mechanical systems with exterior underground utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.

- Install systems, materials, and equipment as required to conform with manufacturer's instructions and approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Verify and coordinate connection requirements with other trades and within Division 15. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
- Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces. Install piping hangers and supports as required to provide required slopes.
- Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
- Install access panel or doors where equipment or valving is concealed behind finished surfaces.
- Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

END OF SECTION 15010

SECTION 15050 – BASIC MECHANICAL MATERIALS AND METHODS

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes limited scope general construction materials and methods for application with mechanical installations as follows:
- Miscellaneous metals for support of mechanical materials and equipment.
 - Joint sealers for sealing penetrations in fire and smoke barriers, floors, and foundation walls.
 - Access panels and doors in walls, ceilings, and floors for access to mechanical materials and equipment.

1.2 SUBMITTALS

- A. Product data for the following products:
- Access panels and doors.

1.3 QUALITY ASSURANCE

- A. Provide UL Label on each fire-rated access door.

PART 2 – PRODUCTS

2.1 MISCELLANEOUS METALS

- A. Steel plates, shapes, bars, and bar grating: ASTM A 36.
- B. Cold-Formed Steel Tubing: ASTM A 500.
- C. Hot-Rolled Steel Tubing: ASTM A 501.
- D. Steel Pipe: ASTM A 53, Schedule 40, welded.
- E. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout, recommended for interior and exterior applications.

2.2 JOINT SEALERS

- A. General: Joint sealers, joint fillers, and other related materials compatible with each other and with joint substrates under conditions of service and application.
- B. Fire-Resistant Joint Sealers: Two-part, foamed-in-place, silicone sealant formulated for use in through-penetration fire-stopping around cables, conduit, pipes, and duct penetrations through fire-rated walls and floors. Sealants and accessories shall have fire-resistance ratings indicated for installed assembly as established by UL.
- C. Locking Devices: Flush, screwdriver-operated cam locks.

PART 3 – EXECUTION

3.1 APPLICATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed application instructions applicable to products and applications indicated.
- B. Installation of Fire-Stopping Sealant: Install sealant, including forming, packing, and other accessory materials, to fill openings around mechanical services penetrating floors and walls, to provide fire-stops with fire-resistance ratings indicated for floor or wall assembly in which penetration occurs.

3.2 INSTALLATION OF ACCESS DOORS

- A. Set frames accurately in position and securely attached to supports, with face panels plumb and level in relation to adjacent finish surfaces.
- B. Adjust hardware and panels after installation for proper operation.

END OF SECTION 15050

SECTION 15055 – BASIC PIPING MATERIALS AND METHODS

PART 1 – GENERAL

1.1 SUMMARY:

- A. This Section specifies piping materials and installation methods common to more than one section of Division 15 and includes joining materials, piping specialties, and basic piping installation instructions.
- B. Welder's Qualifications: All welders shall be qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications.
- C. Welding procedures and testing shall comply with ANSI Standard B31.1.0 – Standard Code for Pressure Piping, Power Piping, and The American Welding Society, Welding Handbook.
- C. Soldering and Brazing procedures shall conform to ANSI B9.1 Standard Safety Code for Mechanical Refrigeration.

PART 2 – PRODUCTS

2.1 PIPE AND TUBING MATERIALS

- A. Drawn Temper Copper Tubing: ASTM B 88, Type L.
- B. Annealed Temper Copper Tubing: ASTM B 88, Type K.
- C. Steel Pipe: ASTM A53, schedule 40, seamless, black steel pipe, plain ends.
- D. Ductile-Iron Pipe: AWWA C151 or AWWA C115 ductile-iron pipe, with AWWA C104 cement-mortar lining.
- E. PVC, Type DWV Pipe And Fittings: ASTM D2665 pipe and fittings, with solvent cemented joints; DWV plastic fitting patterns shall conform to ASTM D3311.
- F. Hubless Cast-Iron Soil Pipe: CISPI Standard 301, service weight, cast-iron soil pipe and fittings, with neoprene gaskets conforming to CISPI Standard 310.

2.2 FITTINGS

- A. Malleable-Iron Threaded Fittings: ANSI B16.3, Class 150, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.
- B. Steel Fittings: ASTM A 234, seamless or welded, for welded joints.
- C. Wrought-Copper Fittings: ANSI B16.22, streamlined pattern.
- D. Steel Flanges and Flanged Fittings: ANSI B16.5, including bolts, nuts and gaskets; end connections to be butt welded.
- E. Cast Bronze Flanges: ANSI B16.24, Class 150; raised ground face, bolt holes spot faced.
- F. Ductile-Iron Gasketed Fittings: AWWA C110 or AWWA C153, 150 PSI rating, with cement mortar lining and AWWA C111 rubber gaskets.

2.3 JOINING MATERIALS:

- A. Welding Materials: Comply with Section II, Part C, ASME Boiler and Pressure Vessel Code for welding materials appropriate for the wall thickness and chemical analysis of the pipe being welded.
- B. Brazing Materials: Comply with SFA-5.8, Section II, ASME Boiler and Pressure Vessel Code for brazing filler metal materials appropriate for the materials being joined.
- C. Soldering Materials: Use 95% tin, 5% antimony lead-free solder and ASTM B813-91 non-corrosive STM 1.0 flux.
- D. Gaskets for Flanged Joints: Gasket material shall be full-faced for cast-iron and cast bronze flanges and raised-face for steel flanges. Select materials to suit the service of the piping system in which installed and which conform to their respective ANSI Standard (A21.11, B16.20, or B16.21). Provide materials that will not be detrimentally affected by the chemical and thermal conditions of the fluid being carried.
- E. Solvent for PVC type DWV joints: ASTM D2564.
- F. Screwed fittings: 4" wide white Teflon pipe joint sealant tape applied to male threads only.

2.4 PIPING SPECIALTIES:

- A. Escutcheons: Chrome-plated, stamped steel, hinged, split-ring escutcheon, with set screw. Inside diameter shall closely fit pipe outside diameter, or outside of pipe insulation where pipe is insulated. Outside diameter shall completely cover the opening in floors, walls, or ceilings.
- B. Unions: Malleable-iron, Class 150; hexagonal stock, with ball-and-socket joints, metal-to-metal bronze seating surfaces; female threaded ends.
- C. Dielectric Unions: Provide dielectric unions with appropriate end connections for the pipe materials in which installed (screwed, soldered, or flanged), which effectively isolate dissimilar metals, prevent galvanic action, and stop corrosion.
- D. Sleeves:
- For bearing walls, waterproofing membrane floors, wet areas shall be steel pipe or cast iron pipe.
 - For non-bearing walls, floors, ceilings shall be steel pipe, cast iron pipe, or galvanized sheet metal with lock-type longitudinal seam.
- E. Mechanical Sleeve Seals: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

PART 3 – EXECUTION

3.1 PREPARATION:

- A. Ream ends of pipes and tubes, and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris for both inside and outside of piping and fittings before assembly.

3.2 INSTALLATIONS:

- A. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of the piping systems. Location and arrangement of piping layout take into consideration pipe sizing and friction loss, expansion, pump sizing, and other design considerations. So far as practical, install piping as indicated. Refer to individual system specifications for requirements for coordination drawing submittals.
- B. Verify existing grades, inverts, utilities, obstacles, and topographical conditions prior to installations.
- C. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated otherwise.
- D. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.
- E. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated on the Drawings.
- F. Install piping tight to slabs, beams, joists, columns, walls and other permanent elements of the building. Provide space to permit insulation applications, with 1" clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.
- G. Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.
- H. Install drains at low points in mains, risers, and branch lines consisting of a tee fitting, 3/4" ball valve, and short 3/4" threaded nipple and cap.
- I. Close ends of pipe immediately after installation. Leave closure in place until removal is necessary for completion of installation.
- J. Flush each piping system and prove clean.
- K. Exterior Wall Penetrations: Seal pipe penetrations through exterior walls using sleeves and mechanical sleeve seals. Pipe sleeves smaller than 6" shall be steel.
- L. Fire Barrier Penetrations: Where pipes pass through fire rated walls, partitions, ceilings, or floors, the fire rated integrity shall be maintained.

3.3 FITTINGS AND SPECIALTIES:

- A. Use fittings for all changes in direction and all branch connections.
- B. Install unions adjacent to each valve, and at the final connection to each piece of equipment and plumbing fixture having 2" and smaller connections, and elsewhere as indicated.
- C. Install Flanges in piping 2-1/2" and larger, where indicated, adjacent to each valve, and at the final connection to each piece of equipment.
- D. Install dielectric fittings to connect piping materials of dissimilar metals.

3.4 SLEEVES

- A. Provide pipe sleeves to applicable trades with precise rough-in locations for pipes passing through concrete or masonry construction. Unless otherwise indicated, sleeves shall be of size to provide from 1/4" to 1" clearance between bare pipe and sleeve or between insulation jacket and sleeve. Where pipe passes through concrete floor, extend sleeve minimum 1/2" above finished floor.
- B. Where pipe penetrations occur in non-fire rated floors or walls, pack space between pipe and sleeve or insulation insert and sleeve on each end with mineral wool or other non-combustible material.
- C. Seal pipe penetrations through exterior walls using sleeves and mechanical sleeve seals. Pipe sleeves smaller than 6" shall be steel; pipe sleeves 6" and larger shall be sheet metal.
- D. After painting is completed, install chrome plated escutcheons on all pipes passing through finished walls and floors.

3.5 HANGERS AND SUPPORTS

- A. Hanger, supports and anchors are specified elsewhere in Division 15. Install hangers for horizontal piping with the following maximum spacing and minimum rod sizes:

Nominal Pipe Size (in.)	Maximum Hanger Spacing (ft.)	Hanger Rod Diameter (in.)
	Steel	Copper
3/4, 1, 1-1/4	8	8
1-1/2, 2, 2-1/2	10	10
3	12	12
4	14	12
		5/8

- B. Support vertical steel pipe and copper tube at each floor.
- C. Support PVC pipe from 3/8" diameter hanger rods at 4 foot maximum spacing.
- D. Support cast iron and ductile iron pipe from 5/8" diameter hanger rods at 5 foot maximum spacing.

END OF SECTION 15055

BAI

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2814 PATTERSON ROAD – HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
MECHANICAL
SPECIFICATIONS

DATE: 03/18/19

SCALE: N.T.S.

PROJ. NO: 8077

DRAWN BY: BAI

CHECK BY: MAP

DRAWING NO.

M-SPEC-1

SECTION 15100 – VALVES

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes general duty valves common to most mechanical piping systems.

1.2 SUBMITTALS

- A. Product data, including body material, valve design, pressure and temperature classification, and connection details, seating materials, trim material and arrangement, dimensions and required clearances, and installation instructions.

1.3 QUALITY ASSURANCE

- A. Single Source Responsibility: Unless required by schedule, all valves shall be by a single manufacturer.

PART 2 – PRODUCTS

2.1 VALVE FEATURES, GENERAL

- A. Pressure and Temperature Ratings: As scheduled and required to suit system pressures and temperatures.
- B. Sizes: Same size as upstream pipe, unless otherwise indicated.

2.2 BALL VALVES

- A. Non-Ferrous Pipe: Bronze body, reinforced teflon seat, chrome plated ball, Threaded follower, blowout proof stem, two piece body. Milwaukee No. BA-100 or BA-150.

2.3 BUTTERFLY VALVES

- A. Ferrous Pipe: Full lug pattern, drilled & tapped, 200 # W.O.G., Cast Iron body, Stainless Steel stem, EPDM Cartridge style liner, Aluminum-Bronze disc. Milwaukee CL-123-E. Provide 10 position lever handle.

2.4 CHECK VALVES

- A. Non-Ferrous Pipe: Bronze, Teflon disc, swing check, Milwaukee No. 509-T or 1509-T.
- B. Ferrous Pipe 2-1/2 Inches and Larger: Iron body bronze mounted, swing check (screwed optional to three inch size), 125 lb. S.W.P., 200 lb. W.O.G., Milwaukee No. F-2974

PART 3 – EXECUTION

3.1 VALVE INSTALLATIONS

- A. Refer to piping system details and schematic drawings for specific valve applications and arrangements.
- B. Locate valves for easy access and provide separate support where necessary.
- C. Install valves and unions for each fixture and item of equipment arranged to allow equipment removal without system shutdown. Unions are not required on flanged devices.
- D. Install valves in a position to allow full handle movement.

END OF SECTION 15100

SECTION 15135 – METERS AND GAGES

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes the following types of meters and gages:
- Temperature gages and fittings.
 - Pressure gages and fittings.
 - Flow meters.

1.2 SUBMITTALS

- A. Product data for each type of meter and gage.

PART 2 – PRODUCTS

2.1 THERMOMETERS

- A. Accuracy: Plus or minus 1 percent of range span or plus or minus one scale division to maximum of 1.5 percent of range span.
- B. Case: Die cast, aluminum finished, in baked epoxy enamel, glass front, spring secured, 9 inches long.
- C. Adjustable Joint: Finished to match case, 180-degree adjustment in vertical plane, 360-degree adjustment in horizontal plane, with locking device.
- D. Tube: Red reading, mercury filled, magnifying lens.
- E. Scale: Satin-faced, nonreflective aluminum, with permanently etched markings.
- F. Scale range: Temperature ranges for services listed as follows:
- Domestic Hot Water: 30 to 240°F with 2-degree scale divisions.
 - Chilled Water: 0 to 100°F with 2-degree scale divisions.
- G. Stem: Copper-plated steel, aluminum or brass, for separable socket, length to suit installation.

2.2 THERMOMETER WELLS

- A. Thermometer Wells: Brass or stainless steel, pressure rated to match piping system design pressure, with 2-inch extension for insulated piping and threaded cap nut with chain permanently fastened to well and cap.

2.3 PRESSURE GAGES

- A. Type: General use, ASME B40.1, Grade A, phosphor bronze bourdon-tube type, bottom connection.
- B. Case: Drawn steel or brass, glass lens, 4-1/2-inches diameter.
- C. Connector: Brass, 1/4-inch NPS.
- D. Scale: White coated aluminum, with permanently etched markings.
- E. Accuracy: Plus or minus 1 percent of range span.
- F. Range: 2 times operating pressure.

2.4 FLOW MEASURING DEVICES

- A. 2" and Smaller:
- Orifice or venturi type, factory assembled with 300 psig rated ball valve.
 - Ball valve: Two piece bronze body with Teflon seats, blow out proof stem, and positive shut-off. Handle extension and adjustment memory stop.
 - Schrader type pressure test ports and caps with port extensions.
 - Chained metal tag indicating location, GPM, and meter reading.
- B. 2-1/2" and Larger
- Averaging pitot-type flow elements, similar to Annubar model ANF-C25 for hot water and ANW-C25 for chilled water and condenser water, 316 stainless steel diamond shaped sensing elements. Permanent pressure loss to system shall not exceed 5" water column.
 - Machined and calibrated venturi, maximum pressure drop 40" water column.
 - Accurate within 2%.
 - Complete with 1/4" SAE flare safety shut-off instrument valves and Schrader type pressure test ports and caps, chained metal tag indicating location, GPM, and meter reading.

PART 3 – EXECUTION

3.1 THERMOMETERS INSTALLATION

- A. Install thermometers in vertical and tilted positions as required to allow reading by observer standing on floor.

3.2 INSTALLATION OF PRESSURE GAGES

- A. Install pressure gages in piping tee with pressure gage valve, located on pipe at most readable position.

3.3 INSTALLATION OF FLOW-MEASURING DEVICES

- A. General: Install flow measuring elements for piping systems located in accessible locations at most readable position.
- B. Locations: Install flow measuring elements where shown on the Drawings.

END OF SECTION 15135

SECTION 15140 – SUPPORTS AND ANCHORS

PART 1 – GENERAL

1.1 SUMMARY

- A. This section includes the following:

- Horizontal-piping hangers and supports.
- Vertical-piping clamps.
- Hanger-rod attachments.
- Building attachments.
- Equipment supports and bases.

1.2 QUALITY ASSURANCE

- A. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code – Steel."
- B. NFPA Compliance: Hangers and supports shall comply with NFPA standard No. 13 and shall be listed and labeled by UL and FM when used as a component of a fire protection system.

PART 2 – PRODUCTS

2.1 MANUFACTURED UNITS

- A. Hangers and support components shall be factory fabricated of materials, design, and manufacturer complying with MSS SP-58.
- Components shall have galvanized coatings where installed for piping and equipment that will not have field-applied finish.
 - Pipe attachments shall have nonmetallic coating for electrolytic protection where attachments are in direct contact with copper tubing.

PART 3 – EXECUTION

3.1 INSTALLATION OF HANGERS AND SUPPORTS

- A. General: Install hangers, supports, clamps and attachments to support piping properly from building structure. Arrange for grouping of parallel runs of horizontal piping supported together on field-fabricated, heavy-duty trapeze hangers where possible. Where piping of various sizes is supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe.
- B. Install building attachments within concrete or to structural steel. Space attachments within maximum piping span length. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten insert to forms.
- C. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
- D. Support fire protection systems piping independently from other piping systems.
- E. Install hangers and supports to allow controlled movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends and similar units.
- F. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
- G. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes.
- H. Insulated Piping: Comply with the following installation requirements.
- Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation.
 - Shields: Install protective shields on cold and chilled water piping that has vapor barrier. Shields shall span an arc of 180 degrees.
 - Pipes 4 inches and larger shall have thermal hanger shield inserts with insulation of same thickness as piping insulation. Insert material shall be at least as long as the protective shield.

3.2 INSTALLATION OF ANCHORS

- A. Where expansion compensators are indicated, install anchors in accordance with expansion unit manufacturer's written instructions to control movement to compensators.
- B. Anchor Spacings: Where not otherwise indicated, install anchors at ends of principal pipe runs, at intermediate points in pipe runs between expansion loops and bends. Make provisions for preset of anchors as required to accommodate both expansion and contraction of piping.

3.3 EQUIPMENT SUPPORTS AND BASES

- A. Fabricate structural steel stands to suspend equipment from structure above or support equipment above floor.
- B. Construct concrete equipment pads as follows:
- Coordinate size of equipment bases with actual unit sizes provided. Construct base 4 inches larger in both directions than the overall dimensions of the supported unit.
 - Form concrete pads with framing lumber with form release compounds. Chamfer top edge and corners of pad.
 - Install reinforcing bars, tied to frame, and place anchor bolts and sleeves to facilitate securing units.
 - Place concrete and allow to cure before installation of units. Use Portland Cement conforming to ASTM C 150, 4,000 psi compressive strength, and normal weight aggregate.

3.4 ADJUSTING

- A. Hanger Adjustment: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

END OF SECTION 15140

SECTION 15190 – MECHANICAL IDENTIFICATION

PART 1 – GENERAL

1.1 SUMMARY:

- A. Types of identification devices specified in this section include the following:

- Painted Identification Materials.
- Plastic Pipe Markers.
- Underground-Type Plastic Line Marker.
- Valve Tags.
- Engraved Plastic-Laminate Signs.
- Plastic Equipment Markers.

1.2 QUALITY ASSURANCE:

- A. Codes and Standards:
- ANSI Standards: Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. All identification materials shall be the product of a single manufacturer and shall meet the installation requirements noted below.

2.2 MECHANICAL IDENTIFICATION MATERIALS:

- A. General: Provide manufacturer's standard products of categories and types required for each application.

2.3 PLASTIC PIPE MARKERS:

- A. Snap-On Type: Provide manufacturer's standard pre-printed, semi-rigid snap-on, color-coded pipe markers, complying with ANSI A13.1
- B. Pressure-Sensitive Type: Provide manufacturer's standard pre- printed, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers, complying with ANSI A13.1
- C. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as a separate unit of plastic.

2.4 UNDERGROUND-TYPE PLASTIC LINE MARKER:

- A. General: Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide tape with printing which most accurately indicates the type of service of buried pipe.
- Provide multi-ply tape consisting of solid aluminum foil core between 2-layers of plastic tape.

PART 3 – EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS:

- A. Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, including valve tags in finished mechanical spaces, install identification after completion of covering and painting.

3.2 PIPING SYSTEM IDENTIFICATION:

- A. General: Install pipe markers on each system and include arrows to show normal direction of flow:
- B. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior non-concealed locations.
- Near each valve and control device.
 - Near each branch, excluding short take-offs for fixtures and terminal units; mark each pipe at branch, where there could be question of flow pattern.
 - Near locations where pipes pass through walls or floors/ ceilings, or enter non-accessible enclosures.
 - At access doors, manholes and similar access points which permit view of concealed piping.
 - Near major equipment items and other points of origination and termination.
 - Spaced intermediately at maximum spacing of 50' along each piping run, except reduce spacing to 25' in congested areas of piping and equipment.

3.3 UNDERGROUND PIPING IDENTIFICATION:

- A. General: During back-filling/top-soiling of each exterior underground piping systems, install continuous underground-type plastic line marker, located directly over buried line at 6" to 8" below finished grade. Where multiple small lines are buried in common trench and do not exceed overall width of 16", install single line marker.

END OF SECTION 15190

SECTION 15250 – MECHANICAL INSULATION

PART 1 – GENERAL

1.1 SUMMARY:

- A. Types of mechanical insulation specified in this section include the following:

- Piping Systems Insulation:
 - Fiberglass.
 - Closed cell foam.

1.2 QUALITY ASSURANCE:

- A. Installer's Qualifications: Firm with at least 5 years successful installation experience on projects with mechanical insulations similar to that required for this project.
- B. Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.

1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data and installation instructions for each type of mechanical insulation. Submit schedule showing manufacturer's product number, k-value, thickness, and furnished accessories for each mechanical system requiring insulation.

PART 2 – PRODUCTS

2.1 PIPING INSULATION MATERIALS:

- A. Fiberglass Piping Insulation: ASTM C 547, Class 1 unless otherwise indicated.
- B. Closed cell foam pipe insulation.

2.2 EQUIPMENT INSULATION MATERIALS:

- A. Rigid Fiberglass Equipment Insulation: ASTM C 612, Class 2.
- B. Equipment Insulation Compounds: Provide adhesives, cements, sealers, mastics and protective finishes as recommended by insulation manufacturer for applications indicated.
- C. Equipment Insulation Accessories: Provide staples, bands, wire, wire netting, tape, corner angles, anchors and stud pins as recommended by insulation manufacturer for applications indicated.

PART 3 – EXECUTION

3.1 PLUMBING PIPING SYSTEM INSULATION:

- A. Insulation Omitted: Omit insulation on chrome-plated exposed piping (except for handicapped fixtures), air chambers, unions, strainers, check valves, balance cocks, flow regulators, drain lines from water coolers, drainage piping located in crawl spaces or tunnels, buried piping, fire protection piping, and pre-insulated equipment.

B. Cold Piping:

- Application Requirements: Insulate the following cold plumbing piping systems:
 - Potable cold water piping.
 - Plumbing vents within 6 lineal feet of roof outlet.
- Insulate each piping system specified above with one of the following types and thicknesses of insulation:
 - Fiberglass: 1" thickness (distribution mains).
 - Closed foam pipe insulation: 1" thickness (aqua-pex service lines to manifolds).

C. Hot Piping:

- Application Requirements: Insulate the following hot plumbing piping systems:
 - Potable hot water piping.
- Insulate each piping system specified above with one of the following types and thicknesses of insulation:
 - Fiberglass: 1" thickness (distribution mains).
 - Closed foam pipe insulation: 1" thickness (aqua-pex service lines to manifolds).

3.2 HVAC PIPING SYSTEM INSULATION:

- A. Insulation Omitted: Omit insulation on hot piping within radiation enclosures or unit cabinets; on heating piping beyond control valve, located within heated space; and on unions, flanges, strainers, flexible connections, and expansion joints.

B. Cold (chilled water) Piping:

- Insulate each piping system specified above with one of the following types and thicknesses of insulation:
 - Fiberglass: 1" thickness (distribution mains).
 - Closed foam pipe insulation: 1" thickness (aqua-pex service lines to manifolds).

3.3 EQUIPMENT INSULATION:

- A. Hot Equipment (Above Ambient Temperature):

- Application Requirements: Insulate the following hot equipment:
 - Hot water storage tanks.
- Insulate each item of equipment specified above with one of the following types and thicknesses of insulation:
 - Fiberglass: 2" thick.

3.4 INSTALLATION OF PIPING INSULATION:

- A. Install insulation on pipe systems subsequent to installation of heat tracing, painting, testing, and acceptance of tests.
- B. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with a single cut piece to complete run. Do not use cut pieces or scraps abutting each other.
- C. Maintain integrity of vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage.
- D. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.

3.5 INSTALLATION OF EQUIPMENT INSULATION:

- A. Install insulation materials with smooth and even surfaces and on clean and dry surfaces. Redo poorly fitted joints. Do not use mastic or joint sealer as filler for gaping joints and excessive voids resulting from poor workmanship.
- B. Maintain integrity of vapor-barrier on equipment insulation and protect it to prevent puncture and other damage.
- C. Apply insulation using the staggered joint method for both single and double layer construction, where feasible. Apply each layer of insulation separately.
- D. Coat insulated surfaces with layer of insulating cement, troweled in workmanlike manner, leaving a smooth continuous surface. Fill in scored block, seams, chipped edges and depressions, and cover over wire netting and joints with cement of sufficient thickness to remove surface irregularities.
- E. Cover insulated surfaces with all-service jacketing neatly fitted and firmly secured. Lap seams at least 2". Apply over vapor barrier where applicable.
- F. Do not insulate handholes, cleanouts, ASME stamp, and manufacturer's nameplate. Provide neatly beveled edge at interruptions of insulation.

END OF SECTION 15250

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REVISION NO.	DATE
50% CD	03/18/19
100% CD	04/05/19

DRAWING TITLE:
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SPECIFICATIONS

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PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.

M-SPEC-2

OF 4



SECTION 15300 – FIRE PROTECTION

PART 1 – GENERAL

1..1 SUMMARY

- A. Provide all necessary material, labor and equipment; apply for and pay all necessary fees and permits for installation of complete, single supply, wet pipe and dry pipe, automatic sprinkler fire protection in accordance with the standards set forth in this section. Installation shall include necessary underground supply mains, detector checks or other devices as required to make a complete and approved system.
 - B. Install automatic fire sprinkler system complete in all respects with requirements of the insurance underwriter and local fire marshal and/or other designated authorities.
 - C. Design and installation of the system shall conform basically to the latest requirements of NFPA 13.
- 1..2 SUBMITTALS
- A. Shop Drawings: Within thirty (30) days after award of contract and prior to fabrication, prepare complete shop drawings of the sprinkler system and submit for approval as required.
 - B. All piping shall be hydraulically calculated per NFPA No. 13. Calculations shall be based on the supply available at the connection to the city main. Include complete hydraulic calculations and graph sheet showing supply and demand.
 - C. The sprinkler contractor shall refer to the architectural, structural, mechanical and electrical Drawings and coordinate the system layout to not interfere with lighting fixtures and air outlets. No cutting of structural members shall be allowed without prior approval of Architect. Escutcheons shall not be permitted closer than six inches to T-bar ceiling members if the economies of system design do not permit centering in the tiles.
 - D. Sprinkler piping shall be concealed above the ceiling in finished areas.
- 1..3 QUALITY ASSURANCE

- A. The subcontractor for the fire protection installation shall be a fire protection contractor, licensed by the state of Colorado and the local authority, regularly engaged only in the installation of automatic fire sprinkler systems and other fire protection equipment, and fully familiar with all local conditions, codes and requirements.
 - B. Regulatory Requirements: Comply with the requirements of the following codes:
 - 1. UL and FM Compliance: Fire protection system materials and components shall be Underwriter's Laboratories listed and labeled, and Factory Mutual approved for the application anticipated.
 - 2. NFPA No. 13, 17 and 24.
 - 3. OSHA requirements.
 - 4. All work shall meet the requirements of Factory Mutual, ISO and all other city, county, and state authorities having jurisdiction.
- 1..4 EXTRA MATERIALS

- A. Valve Wrenches: Furnish to Owner, 2 valve wrenches for each type of sprinkler head installed.
- B. Sprinkler Heads and Cabinets: Furnish six extra sprinkler heads of each style included in the project. Furnish each style with its own sprinkler head cabinet and special wrenches as specified in this Section.

PART 2 – PRODUCTS

2..1 EQUIPMENT:

- A. All fire protection devices, materials and equipment used in the installation shall be Underwriters' Laboratories labeled or Factory Mutual approved for its intended use.

PART 3 – EXECUTION

3..1 INSTALLATION:

- A. Install in accordance with approved shop drawings, applicable code and insurance underwriter's requirements.

3..2 PIPING INSTALLATIONS

- A. Use approved fittings to make all changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
- B. Install unions in pipes 2 inch and smaller, adjacent to each valve. Unions are not required on flanged devices or in piping installations using grooved mechanical couplings.
- C. Install flanges or flange adapters on valves, apparatus, and equipment having 2-1/2 inch and larger connections.
- D. Install pressure gage on the riser or feed main at or near each test connection. Provide gage with a connection not less than 1/4 inch and having a soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and where they will not be subject to freezing.

3..3 SPRINKLER HEAD INSTALLATIONS

- A. Use proper tools to prevent damage during installations.

3..4 TESTS:

- A. Make and pay for all tests required by the authorities having jurisdiction during and after completion of the work and correct any defects in the systems indicated by the tests to the satisfaction of the authorities.
- B. Contractor shall thoroughly flush the underground main prior to connection to overhead piping. All underground and overhead piping shall be properly pressure tested according to NFPA 13. All tests shall be witnessed by a representative of the Architect or General Contractor and local approving authority as necessary. Upon completion of installation, Contractor shall thoroughly check all equipment using a "Contractors Material and Test Certificate" form and mail form, properly signed, to fire insurance underwriter and a copy to the Architect. This form will serve as notice that the system has been properly installed, tested and placed in service.

3..5 ACCEPTANCE:

- A. Upon final completion of the work, furnish satisfactory written evidence to Architect of compliance with all requirements and that the work is acceptable to insurance underwriter having jurisdiction.

3..6 INSTRUCTION TO OWNER:

- A. Contractor shall provide instruction to the Owner, through the Architect, on the operation of the system.

END OF SECTION 15300

SECTION 15411 – WATER DISTRIBUTION PIPING

PART 1 – GENERAL

1..1 SUMMARY

- A. This Section includes potable cold and hot water , and circulation hot water piping, fittings, and specialties within the building to a point 5 feet outside the building.
- B. Products installed but not furnished under this Section include water meters that will be provided by the utility company to the site and ready for installation.

1..2 EXTRA MATERIALS

- A. Maintenance Stock: Furnish one valve key for each key-operated wall hydrant, hose bibb, fixture supply, or faucet installed.

PART 2 – PRODUCTS

2..1 PIPING SPECIALTIES

- A. Water Hammer Arresters: Bellows type, with stainless steel casing and bellows, pressure rated for 250 psi, tested and certified in accordance with PDI Standard WH-201.
- B. Backflow Preventers: Reduced-pressure-principle assembly consisting of shutoff valves on inlet and outlet and strainer on inlet. Assemblies shall include test cocks and pressure-differential relief valve located between 2 positive seating check valves and comply with requirements of ASSE Standard 1013.
- C. Pressure-Regulating Valves: Single-seated, direct-operated type, having bronze body with integral strainer and complying with requirements of ASSE Standard 1003. Select proper size for maximum flow rate and inlet and outlet pressures indicated.

PART 3 – EXECUTION

3..1 PIPE APPLICATIONS

- A. Install Type L, drawn copper tube with wrought copper fittings and solder joints for pipe sizes 4 inches and smaller, above ground, within building.
- B. Install aqua-pex tubing for all distribution piping between hot and cold water mains and manifolds / air conditioning equipment. Install aqua-pex tubing between domestic water distribution manifolds and plumbing fixtures.

3..2 FIELD QUALITY CONTROL

- A. Inspections: Inspect water distribution piping as follows:
 - 1. Do not enclose, cover, or put into operation water distribution piping system until it has been inspected and approved by the authority having jurisdiction.
 - 2. During the progress of the installation, notify the plumbing official having jurisdiction at least 24 hours prior to the time such inspection must be made.

3..3 ADJUSTING AND CLEANING

- A. Clean and disinfect water distribution piping as follows:
 - 1. Purge all new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired prior to use.
 - 2. Use the purging and disinfecting procedure proscribed by the authority having jurisdiction.
- B. Prepare reports for all purging and disinfecting activities.

END OF SECTION 15411

SECTION 15420 – DRAINAGE AND VENT SYSTEMS

PART 1 – GENERAL

1..1 SUMMARY

- A. This Section includes building sanitary drainage and vent piping systems, including drains and drainage specialties.

1..2 SUBMITTALS

- A. Product data for the following products:
 - 1. Floor drains
 - 2. Trench drains
 - 3. Roof drains

PART 2 – PRODUCTS

2..1 DRAINAGE PIPING SPECIALTIES

- A. Cleanout Plugs: Cast-bronze or brass, threads complying with ANSI B2.1, countersunk head.
- B. Floor Cleanouts: Cast-iron body and frame, with cleanout plug and adjustable round top as follows:
 - 1. Nickel-Bronze Top: Manufacturer's standard cast unit with standard non-slip scored or abrasive finish
- C. Wall Cleanouts: Cast-iron body adaptable to pipe with cast-bronze or brass cleanout plug; stainless steel cover including screws.
- D. Vent Flashing Sleeves: Similar to Pate Pipe Seal PPS series. Spun aluminum base with 5" roof surface flange, stepped pvc boot secured to the base and to the pipe with stainless steel clamps.

PART 3 – EXECUTION

3..1 PIPE APPLICATIONS – ABOVE GROUND

- A. Install hubless cast-iron soil pipe and fittings for drainage pipe from the second floor down to the floor of of the garage.
- B. Install PVC DWV pipe with solvent fused joints for all vent piping.

3..2 PIPE APPLICATIONS – BELOW GROUND

- A. Install PVC DWV pipe with solvent fused joints below grade.

3..3 FIELD QUALITY CONTROL

- A. During the progress of the installation, notify the plumbing official having jurisdiction, at least 24 hours prior to the time such inspection must be made.

END OF SECTION 15420

SECTION 15488 – NATURAL GAS SYSTEMS

PART 1 – GENERAL

1..1 SUMMARY

- A. This Section includes distribution piping systems for natural gas within the building and extending from the point of delivery to the connections with gas utilization devices. Piping materials and equipment specified in this Section include:
 - 1. Pipes, fittings, and specialties;
 - 2. Special duty valves.
- B. Gas pressures for systems specified in this section are limited to 2 psig.
- C. Products installed but not furnished under this Section include gas meters which will be provided by the utility company, to the site, ready for installation.

1..2 INTERRUPTIONS

- A. Notification of Interruption of Service: Except in the case of an emergency, notify all affected users when the gas supply is to be turned off.
- B. Work Interruptions: When interruptions in work occur while repairs or alterations are being made to an existing piping system, leave the system in safe condition.

PART 2 – PRODUCTS

2..1 PIPING SPECIALTIES

- A. Unions: ANSI B16.39, Class 150, black malleable iron; female pattern; brass to iron seat; ground joint.

2..2 VALVES

- A. Gas Cocks 2 Inch and Smaller: 150 psi WOG, bronze body, straightaway pattern, square head, threaded ends.
- B. Gas Cocks 2-1/2 Inch and Larger: MSS SP-78; 175 psi, lubricated plug type, semi-steel body, single gland, wrench operated, flanged ends.

PART 3 – EXECUTION

3..1 PIPE APPLICATIONS

- A. Install steel pipe with threaded joints and malleable iron fittings for 2 inch and smaller, and with welded joints for 2-1/2 inch and larger.

3..2 PIPING INSTALLATIONS

- A. Install unions in pipes 2 inch and smaller, adjacent to each valve, at final connections each piece of equipment, and elsewhere as indicated. Unions are not required on flanged devices.
- B. Install flanges on valves, apparatus, and equipment having 2-1/2 inch and larger connections.

3..3 FIELD QUALITY CONTROL

- A. Piping Tests: Inspect, test, and purge natural gas systems in accordance with NFPA 54 and local utility requirements.

END OF SECTION 15488

SECTION 15891 – METAL DUCTWORK

PART 1 – GENERAL

1..1 SUMMARY:

- A. Extent of metal ductwork is indicated on Drawings and by requirements of this section.

1..2 QUALITY ASSURANCE:

- A. Field Reference Manual: Have available for reference at project field office, copy of SMACNA "HVAC Duct Construction Standards, Metal and Flexible".

PART 2 – PRODUCTS

2..1 MISCELLANEOUS DUCTWORK MATERIALS:

- A. General: Provide miscellaneous materials and products of types and sizes indicated and, where not otherwise indicated, provide type and size required to comply with ductwork system requirements including proper connection of ductwork and equipment.
- B. Fittings: Provide radius type fittings fabricated of multiple sections with maximum 15 degree change of direction per section. Unless specifically detailed otherwise, use 45 degree laterals and 45 degree elbows for branch takeoff connections. Where 90 degree branches are indicated, provide conical type tees.
- C. Duct Liner: Fibrous glass, complying with Thermal Insulation Manufacturers Association (TIMA) AHG-101; 1/2" thick, 3 PCF density.
- D. Duct Liner Adhesive: Comply with ASTM C 916 "Specifications for Adhesives for Duct Thermal Insulation".
- E. Duct Liner Fasteners: Comply with SMACNA HVAC Duct Construction Standards, Article S2.11.
- F. Duct Sealant: Non-hardening, non-migrating mastic or liquid elastic sealant, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for sealing joints and seams in ductwork.
- G. Ductwork Support Materials: Provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork.
- H. Flexible Ducts ARE NOT ALLOWED.

PART 3 – EXECUTION

3..1 INSTALLATION OF METAL DUCTWORK:

- A. General: Assemble and install ductwork in accordance with recognized industry practices which will achieve air-tight and noiseless systems, capable of performing each indicated service.
- B. Coordination: Coordinate duct installations with installation of accessories, dampers, equipment, controls and other associated work of ductwork system.

3..2 TESTING, ADJUSTING AND CLEANING:

- A. All ductwork shall be visually inspected by Owner or Engineer prior to concealment. Duct sealant installation shall limit air leakage to less than or equal to 8 CFM per 100 square fee of conditioned floor area at a test pressure of 0.1 inches w.g. (25 Pa). Owner shall have the option of testing any portion (or all) of the ductwork installation. Duct work failing to meet the specified leakage requirements shall be re-tested at the installing contractor's expense.
- B. Upon completion of supply and return air duct installations, clean entire duct system with high power vacuum machines.
- C. Temporary Closure: At ends of ducts which are not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering which will prevent entrance of dust and debris until time connections are to be completed.

END OF SECTION 15891

SECTION 15910 – DUCTWORK ACCESSORIES

PART 1 – GENERAL

1..1 SUMMARY:

- A. Extent of ductwork accessories work is indicated on Drawings and in schedules, and by requirements of this section.
- B. Types of ductwork accessories required for project include the following:
 - 1. Fire dampers (radiation dampers)

1..2 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data for fire and radiation dampers, including dimensions, capacities, materials of construction, and installation instructions.

PART 2 – PRODUCTS

2..1 FLEXIBLE CONNECTORS:

- A. General: Provide flexible duct connections wherever ductwork connects to vibration isolated equipment. Construct flexible connections of neoprene-coated fireproof fabric crimped into duct flanges for attachment to duct and equipment. Make airtight joint. Provide adequate joint flexibility to allow for thermal, axial, transverse, and torsional movement, and also capable of absorbing vibration of connected equipment.

PART 3 – EXECUTION

3..1 FIELD QUALITY CONTROL:

- A. Operate installed ductwork accessories to demonstrate compliance with requirements. Test for air leakage while system is operating. Repair or replace faulty accessories, as required to obtain proper operation and leakproof performance.

END OF SECTION 15910

SECTION 15971 – ELECTRIC CONTROL SYSTEMS

PART 1 – GENERAL

1..1 SUMMARY:

- A. Extent of electric control systems work required by this section is indicated on Drawings, by requirements of this section, and by the requirements of the control sequences specified in Section 15985.
- B. Provide the following electrical work as work of this section, complying with requirements of Division-16 sections:
 - 1. Control wiring between field-installed controls, indicating devices, and unit control panels.
 - 2. Interlock wiring between electrically-operated equipment units; and between equipment and field-installed control devices.

1..2 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of electric control equipment, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Installer's Qualifications: Firms specializing and experienced in electric control system installations for not less than 5 years.
- C. Codes and Standards:
 - 1. Electrical Standards: Provide electrical products which have been tested, listed and labeled by UL and comply with NEMA standards.

1..3 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data for each control device furnished, including dimensions, capacities, performance characteristics, electrical characteristics, finishes of materials, and including installation instructions and start-up instructions.
- B. Shop Drawings: Submit shop drawings for each electric control system, containing the following information:
 - 1. Schematic flow diagram of system showing fans, pumps, coils, dampers, valves, and control devices.
 - 2. Label each control device with setting or adjustable range of control.
 - 3. Indicate all required electrical wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.
 - 4. Provide details of faces of control panels, including controls, instruments, and labeling.
 - 5. Include verbal description of sequence of operation.

PART 2 – PRODUCTS

2..1 MATERIALS AND EQUIPMENT:

- A. General: Provide electric control products in sizes and capacities indicated, consisting of valves, dampers, thermostats, clocks, sensors, controllers, and other components as required for a complete installation. Except as otherwise indicated, provide manufacturer's standard control system components as indicated by published product information, designed and constructed as recommended by manufacturer. Provide electric control systems with following functional and construction features as indicated.
- B. Local Control Panels: Provide control panels with suitable brackets for wall mounting, for each mechanical room.
 - 1. Provide standard steel cabinets as required to contain temperature controllers, relays, switches, and similar devices, except limit controllers and other devices excluded in sequence of operations. Provide full-enclosure cabinets, with painted gray finish.

PART 3 – EXECUTION

3..1 INSTALLATION OF ELECTRIC CONTROL SYSTEMS:

- A. General: Install systems and materials in accordance with manufacturer's instructions and roughing-in drawings, and details on Drawings. Install electrical components and use electrical products complying with requirements of applicable Division-16 sections of these specifications. Mount controllers at convenient locations and heights.
- B. Control Wiring: The term "control wiring" is defined to include providing of wire, conduit and miscellaneous materials as required for mounting and connecting electric control devices.
- C. Wiring System: Install complete control wiring system for electric control systems. Install all control wiring in conduit. Conceal conduit and wiring except in mechanical rooms and areas where other conduit and piping are exposed. Provide multi-conductor instrument harness (bundle) for control panels in place of single conductors where number of conductors can be run along common path. Fasten flexible conductors bridging cabinets and doors, neatly along hinge side, and protect against abrasion. Tie and support conductors neatly.
- D. Number-code or color-code conductors, excluding those used for local individual room controls, appropriately for future identification and servicing of control system.
- E. Reset Limit Controls: Install manual-reset limit controls to be independent of power controllers.
- F. Thermostats: Mount at 48" A.F.F.

3..2 ADJUSTING AND CLEANING:

- A. Start-Up: Start-up, test, and adjust electric control systems. Demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.
- B. Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.
- C. Final Adjustment: After completion of installation, adjust thermostats, control valves, motors and similar equipment provided as work of this section.

3..3 CLOSEOUT PROCEDURES:

- A. Owner's Instructions: Provide services of manufacturer's technical representative for one 8-hour day to instruct Owner's personnel in operation and maintenance of electric control systems.

END OF SECTION 15971

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REVISION NO.	DATE
50% CD	03/18/19
100% CD	04/05/19
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DRAWING TITLE:
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DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.
M-SPEC-3
OF 4

SECTION 15999 - MECHANICAL SYSTEM COMMISSIONING

PART 1 – GENERAL

1.1 SUMMARY:

- A. Section includes general requirements that apply to implementation of commissioning of HVAC systems, assemblies and components.
- 1.2 DESCRIPTION
- A. The purpose of commission is to ensure that work has been completed as specified and that systems are functioning in the manner specified.
- B. Commission will commence after preliminary punch list items are completed by Subcontractors.
- C. The steps associated with commissioning are outlined below:
1. Step One – Installation Verification
 2. Step Two – System Start-Up.
 3. Step Three – Functional Performance Testing (FPT).
- D. The Commissioning Team will include the Engineer, installing Subcontractors, Test and Balance Subcontractor, and Control Subcontractor.

1.3 SYSTEMS TO BE COMMISSIONED

- A. Commissioning will be performed on the following systems:
1. Residential Unit Fan Coil Units
 2. Common Space Fan Coil Units
 3. Mechanical Room Ventilation / Fan Coil Unit
 4. Chilled Water System
 5. Heating Hot Water System
- 1.4 SUBMITTALS
- A. Commissioning Plan as prepared by Engineer.
- B. Prime subcontractors or his Commissioning Agent shall provide Functional Performance Tests and the procedures for the above listed systems. Prime subcontractors or his Commissioning Agent shall provide system narrative descriptions as part of the FPT procedures.

A. A narrative description

- of operation.

2.3.3 FUNCTIONAL PERFORMANCE TESTS (FPT) PROCEDURES

1. Narrative Description: This section provides a narrative description of the design intents of the systems and their intended modes of sequences of operation.
2. Testing Prerequisite: This section contains verification that primary mechanical, electrical, and controls systems that support or interact with the system that the FPT is prepared against are completed, tested and operational.
3. Installation Verification: This section contains verification that the system installation is completed and is ready for commissioning.
4. Commencement of Functional Performance Testing: This section records the date and time of the start of system commissioning.
5. System Condition Prior to Starting Performance Testing: This section records the current set points and parameters of the system at the start of commissioning.
6. Functional Performance Test: This section shall provide the following:
 - a. Sequential steps required to set parameters and conditions required to test component and functions throughout intended ranges of operation.
 - b. Full range of checks and tests carried out.
 - c. All modes and sequences of control operations.
7. End of Functional Performance Test: This section records the date and time of the end of system commissioning.
8. Field Notes: This section records notes or remarks during system commissioning.
9. List problems discovered during Commissioning that were corrected.
10. List problems discovered during Commissioning that were not corrected.
11. List recommended party that should take action on these problems.

are

3.

4. Commencement of Functional Performance Testing: This section records the date and time of start of system commissioning.
 5. System Condition Prior to Storing Performance Testing: This section records the current set point and parameters of the system at the start of commissioning.
 6. Functional Performance Test: This section shall provide the following:
 - a. Sequential steps required to set parameters and conditions required to test component and functions throughout intended ranges of operation.
 - b. Full range of checks and tests carried out.
 - c. All modes and sequences of control operations.
 7. End of Functional Performance Test: This section records the date and time of the end of system commissioning.
 8. Field Notes: This section records all field notes or remarks during system commissioning.
 9. List problems discovered during Commissioning that were corrected.
 10. List problems discovered during Commissioning that were not corrected.
 11. List recommended party that should take action on these problems.
- PART 3 – EXECUTION**
- 3.1 GENERAL**
- A. The Subcontractors shall be responsible for performing procedures presented in specification and contract drawings as detailed in the Functional Performance Tests (FPT). Members of the designated Commissioning Team shall witness various portions of the commissioning process. The Commissioning Team shall include representatives of the following sections after verifying installation, operation, or documentation. Final sign-off shall be by the Engineer of Record.

Commission
operation

- B. Any test ports, gauges, test equipment, etc., needed to accomplish the functional performance tests shall be provided by Subcontractors.
- 3.2 INSTRUMENTATION**
- A. Instrumentation will be provided by the Subcontractor. Instruments used for measurements shall be accurate. Calibration histories for each instrument shall be available for examination. Calibration and maintenance of instruments shall be in accordance with the requirements of NEBB or AABC Standards.
- B. Application of instruments and accuracy of measurements shall be in accordance with NEBB or AABC Standards.

3.3.3 DOCUMENTATION

- A. The installing Subcontractor shall be responsible for collection of pertinent data during system start-up and functional performance testing. The Subcontractor shall submit to the Commissioning Agent documentation of tests performed prior to and after system start-up. Documentation shall also include start-up procedures as approved by Commissioning Team.

3.4 STEP ONE – INSTALLATION VERIFICATION

- A. General Commissioning responsibilities:
1. Before system start-up begins, the Commission Team shall conduct a final installation verification audit. The Subcontractor shall be responsible for completion of work including change orders and punch-list items to the Engineer's satisfaction. The audit shall include, but not be limited to, checking of:
 - a. Piping specialties including balance, control, and isolation valves.
 - b. Ductwork specialties including turning devices, balance, fire, smoke, control dampers, and access doors.
 - c. Control sensor types and location.
 - d. Identification of piping, valves, equipment, controls, etc.
 - e. Major equipment, pumps, valves, starters, gauges, thermometers, etc.
 - f. Documentation of prestart-up tests performed, including manufacturer's factory tests.
 2. If work is found to be incomplete, incorrect, or non-functional, the Subcontractor shall correct the deficiency before system start-up work proceeds.

3.5 STEP TWO – SYSTEM START-UP

- A. General Commissioning Responsibilities:
1. A start-up plan shall be developed and submitted by the installing Subcontractor. Start-up plan to include the following:
 - a. Flushing and cleaning of pipe.
 - b. Filters, strainers, and screens.
 - c. Valve/damper positions.
 - d. Pressure tests.
 - e. Solenoid.
 - f. Manufacturer's tests.
 2. Designated systems requiring test and balance work shall have this activity commenced after systems have successfully completed start-up. System and equipment deficiencies observed during this activity is to be noted and corrected.

3.6 STEP THREE – FUNCTIONAL PERFORMANCE TESTING

- A. General Commissioning responsibilities shall include, but not be limited to, the following:
1. Commissioning responsibilities shall begin prior to construction and shall continue through the completion of the systems have been completed by the Subcontractors.
 2. The objective of the Commissioning process shall be to advance the building systems from a state of substantial completion to full dynamic operation in accordance with the specified design requirements and design intent.
 3. Obtaining this objective shall be achieved by developing individual systems testing protocols which, when implemented by the Subcontractor, will allow the Commissioning Team to observe, evaluate, identify deficiencies, recommend modifications, tune, and document the systems and system equipment.
 4. Functional Performance tests for the systems to be commissioned are defined in the Commissioning Plan. These tests shall be deemed to be conclusive but may require minor modifications as system operation dictates.

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DRAWING TITLE:
**MECHANICAL
SPECIFICATIONS**

DATE: 03/18/19

SCALE: N.T.S.

PROJ. NO. 8077

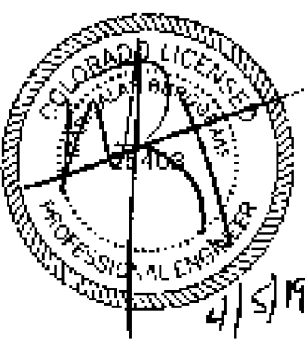
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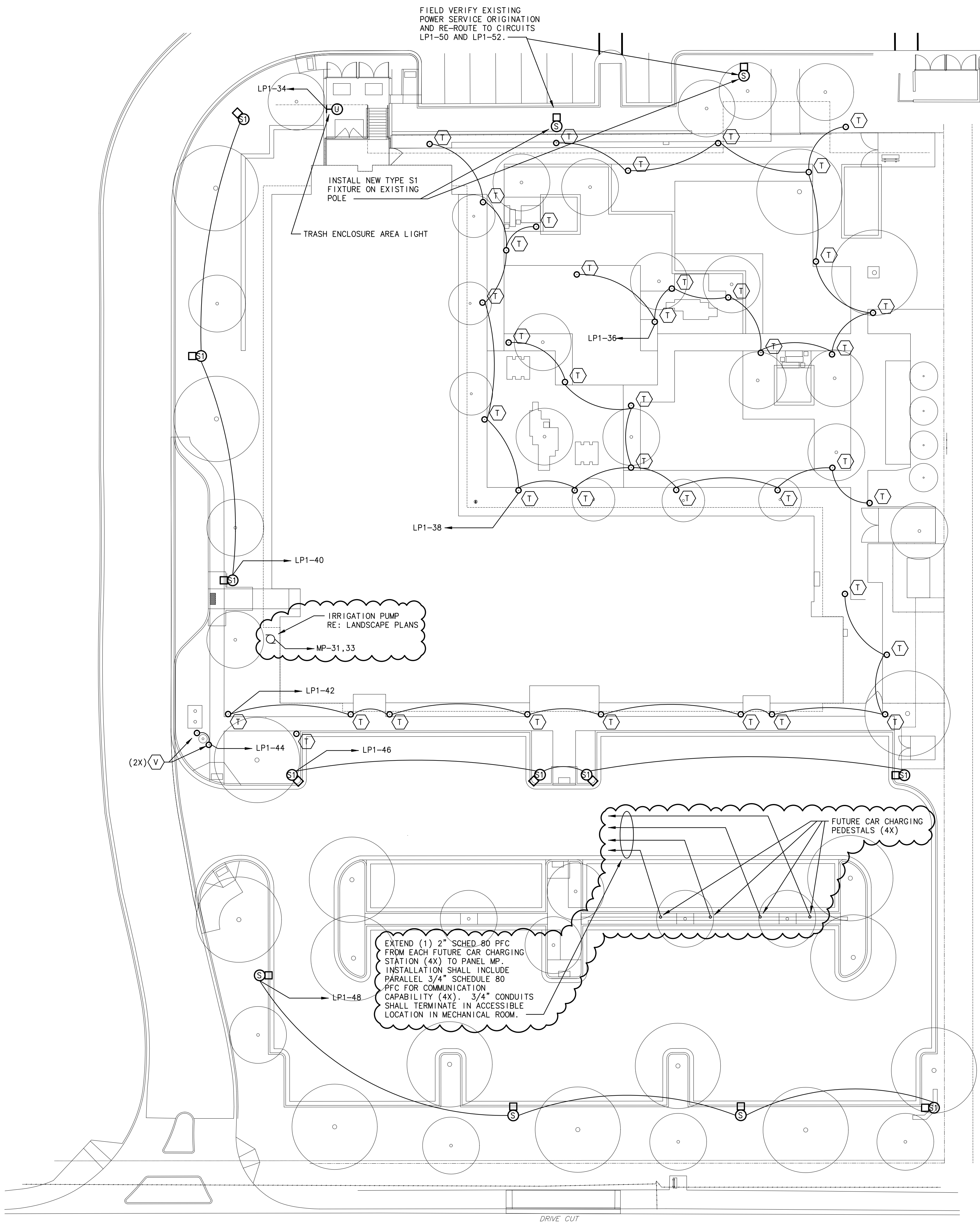
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M-SPEC-4

OF **4**

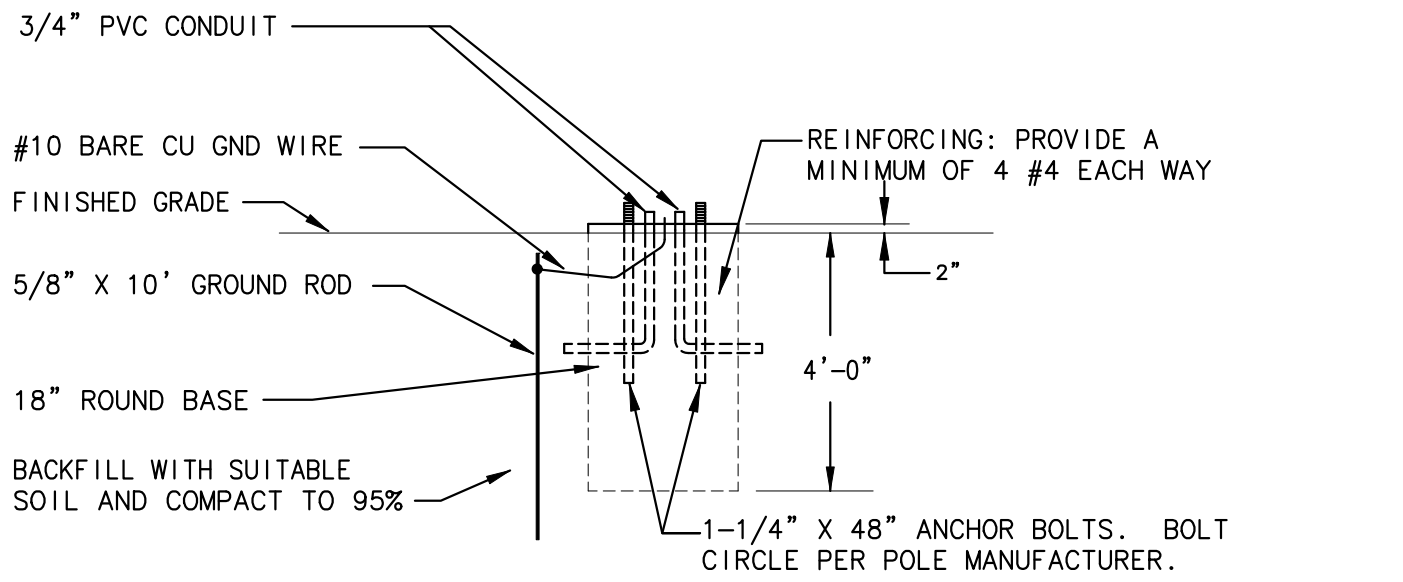




SITE LIGHTING PLAN
SCALE: 1"=20'-0"

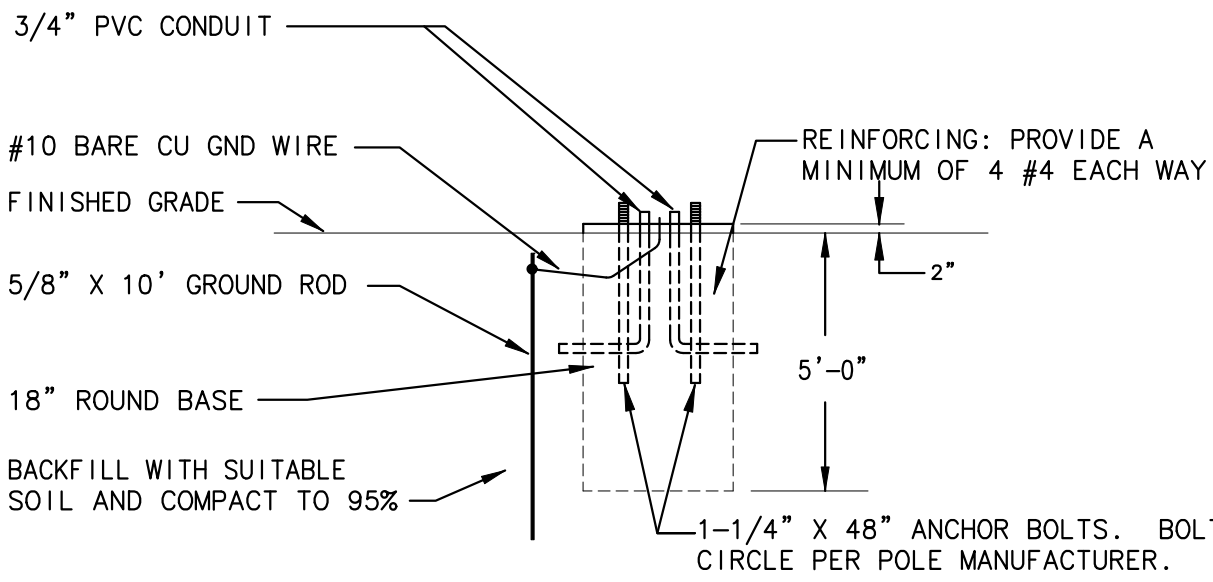
LIGHTING FIXTURE SCHEDULE - EXTERIOR LIGHTING				
D E S	MANUFACTURER CATALOG NUMBER	VOLTAGE MOUNTING # OF LAMPS	BALLAST TYPE LAMP TYPE WATTS	DESCRIPTION
S	LITHONIA KAX1 LED P3 30K R3 MVOLT SPA DDBXD	120 POLE ---	ELECTRONIC LED ---	EXTERIOR SITE LIGHT - INSTALL AT 22 FEET ABOVE GRADE, NOMINAL 15,500 LUMEN, TYPE III DISTRIBUTION, SQUARE POLE MOUNTING, DARK BRONZE
S1	LITHONIA KAX1 LED P1 30K R3 MVOLT SPA DDBXD	120 POLE ---	ELECTRONIC LED ---	EXTERIOR SITE LIGHT - INSTALL AT 12 FEET ABOVE GRADE, NOMINAL 6,200 LUMEN, TYPE III DISTRIBUTION, SQUARE POLE MOUNTING, DARK BRONZE
T	LITHONIA KBAB LED 16C 350 30K SYM MVOLT H36 DDBXD	120 GROUND ---	ELECTRONIC LED ---	EXTERIOR BOLLARD LIGHT, NOMINAL 1,500 LUMEN, SYMMETRIC DISTRIBUTION, 36" TALL, DARK BRONZE
U	LITHONIA TWRI LED ALD	120 WALL ---	ELECTRONIC LED ---	WALL PAK, TEXTURED DARK BRONZE, FIELD ADJUSTABLE OUTPUT (1,100 - 6,200 LUMEN)
V	HIKLEY 15705BZ-12W3K ---	120 GROUND ---	ELECTRONIC LED ---	FLAG-POLE UP-LIGHTING, ALUMINUM CONSTRUCTION, GLASS LENS, GRILLE TOP - INCLUDE LV TRANSFORMER AS REQUIRED

NOTE: ALL SITE LIGHTING CIRCUITS SHALL BE CONTROLLED THROUGH INTERMATIC ASTRONOMIC ELECTRONIC TIME CLOCK MODEL ET91215CR LOCATED IN THE 1ST LEVEL MECHANICAL ROOM. RE: DRAWING E-2 FOR LOCATION.



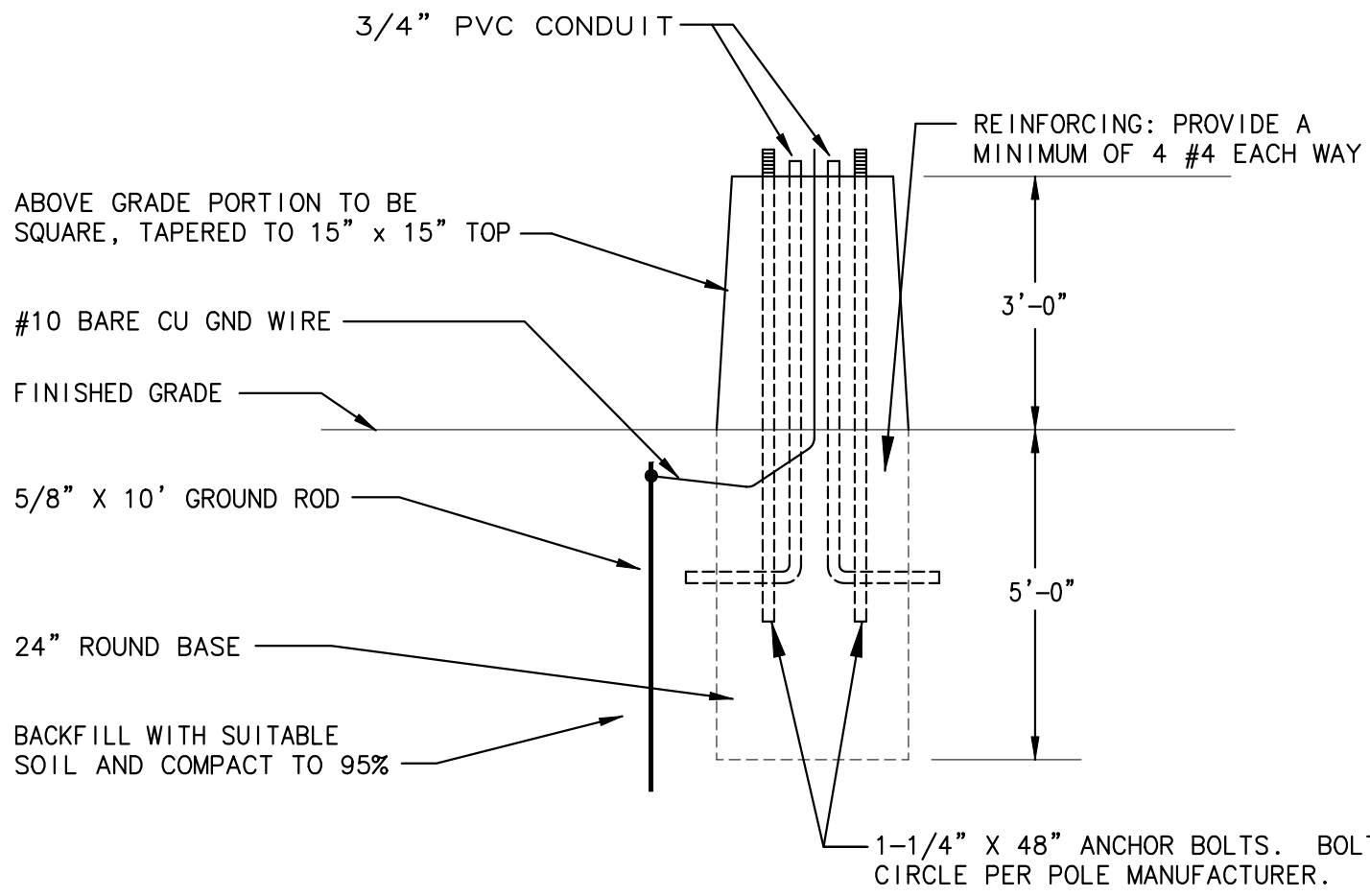
LIGHTING FIXTURE "T" BOLLARD BASE DETAIL

NOT TO SCALE



LIGHTING FIXTURE "S1" POLE BASE DETAIL

NOT TO SCALE



LIGHTING FIXTURE "S" POLE BASE DETAIL

NOT TO SCALE

GENERAL NOTES:

APPLICABLE TO ALL ELECTRICAL SHEETS

- PROVIDE LABOR AND MATERIAL REQUIRED FOR COMPLETE AND OPERATIONAL ELECTRICAL SYSTEMS.
- PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES.
- COORDINATE WORK WITH OTHER TRADES TO ELIMINATE CONFLICTS. CONFIRM MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL LOADS PRIOR TO ROUGH-IN.
- ALL WORK SHALL BE SUBJECT TO INSPECTION AT ANY TIME BY THE ARCHITECT, OWNER, OR ENGINEER.
- NOTIFY PROPER AUTHORITIES WHEN WORK IS READY FOR ANY INSPECTIONS REQUIRED.
- ALL WORK, MATERIAL, AND EQUIPMENT SHALL BE PROTECTED FROM DAMAGE OR LOSS DUE TO THEFT, WEATHER, ETC., UNTIL FINAL WRITTEN ACCEPTANCE BY THE OWNER.
- POST DANGER SIGNS AND PHYSICAL BARRIERS TO PROTECT PEOPLE AGAINST HAZARDS CREATED BY THE WORK.
- PROVIDE AND INSTALL ENGRAVED LAMINATED BLACK AND WHITE PHENOLIC NAMEPLATES FOR ALL SERVICE SWITCHES, PANELBOARDS, SAFETY SWITCHES, CABINETS, AND STARTERS.
- ALL EQUIPMENT SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER UNLESS SPECIFICALLY INDICATED OTHERWISE.
- PROVIDE FOR NECESSARY CHASES, HOLES, SLEEVES, BOXES, INSERTS, AND HANGERS BY ARRANGEMENT WITH CONTRACTORS OF OTHER TRADES.
- OBTAIN WRITTEN APPROVAL FROM THE ARCHITECT BEFORE NOTCHING, CHIPPING, BURNING, DRILLING, OR WELDING OF STRUCTURAL MEMBERS.
- ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE OF THE TYPE AND QUALITY SPECIFIED, NEW, AND, WHEN LISTED BY UNDERWRITERS LABORATORIES, SHALL MEET THEIR REQUIREMENTS AND BEAR THEIR LABEL WHEREVER STANDARDS HAVE BEEN ESTABLISHED AND LABEL SERVICE REGULARLY FURNISHED.
- RACEWAYS SHALL BE RIGID STEEL OR INTERMEDIATE METALLIC CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT) AS INDICATED.
- CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SLABS SHALL BE RIGID SCHEDULE 40 PVC, WITH A GROUND WIRE SIZED PER THE NEC AND BONDED TO THE BUILDING GROUND SYSTEM.
- CONDUIT EXPOSED TO MECHANICAL DAMAGE SHALL BE RIGID STEEL GALVANIZED. ALL OTHER CONDUITS MAY BE ELECTRIC METALLIC TUBING OR INTERMEDIATE METALLIC CONDUIT. FLEXIBLE CONDUIT MAY BE USED WHERE CONDITIONS WARRANT.
- RUN CONCEALED CONDUITS IN A DIRECT LINE. RUN EXPOSED CONDUITS PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE BUILDING. INSTALL ALL CONDUITS AT LEAST SIX INCHES AWAY FROM HOT WATER PIPES. SUPPORT ON APPROVED WALL BRACKETS, CEILING TRAPEZE HANGERS, OR CONDUIT STRAPS, SUITABLY ANCHORED TO THE BUILDING STRUCTURE.
- UNLESS INDICATED OTHERWISE, ALL CONDUCTORS SHALL BE HIGH-CONDUCTIVITY COPPER, #12 OR LARGER, WITH 600 VOLT INSULATION, SIZED AS INDICATED.
 - #12 THROUGH #6, DRY LOCATIONS: TYPE THHN, 90 DEGREE C.
 - #12 THROUGH #6, IN SLABS OR WET LOCATIONS: TYPE THWN, 75 DEGREE C.
 - #4 AND LARGER: TYPE THW 75 DEGREE C.
 - WIRE #10 AND SMALLER: SOLID.
 - WIRE #8 AND LARGER: STRANDED.

SYMBOL LEGEND	
ONE LINE DIAGRAM FEEDER: 2-2" PVC 3 #4/0 THW - AL M ○ METER LP1 PANELBOARD - SEE SCHEDULE LP1 = DESIGNATION CURRENT TRANSFORMER 60/3 FUSED SWITCH 60 AMP 3 POLE FRAME 50 KTRN 50 AMP KTRN FUSE	SERVICE ENTRANCE METER MH = 5'-6" TO CENTER TELEPHONE TERMINAL MH = 4'-6" TO CENTER PAD MOUNTED TRANSFORMER MDC MAIN DISTRIBUTION CENTER CONDUIT ----- CONCEALED IN WALLS OR CEILING ----- UNDER FLOOR OR UNDERGROUND
EQUIPMENT UNFUSED DISCONNECT MH = 4'-6" TO TOP MOTOR PANELBOARD WALL MOUNT SMOKE DETECTOR LINE VOLTAGE THERMOSTAT	OUTLETS MH = 1'-6" TO CENTER DUPLEX RECEPTACLE WP = WEATHERPROOF GFI = GROUND FAULT INTERRUPTER SPECIAL - SEE EQUIPMENT SCHEDULE TELEPHONE - WALL FOURPLEX SWITCH HEAD CABLE T.V. FLOOR OUTLET

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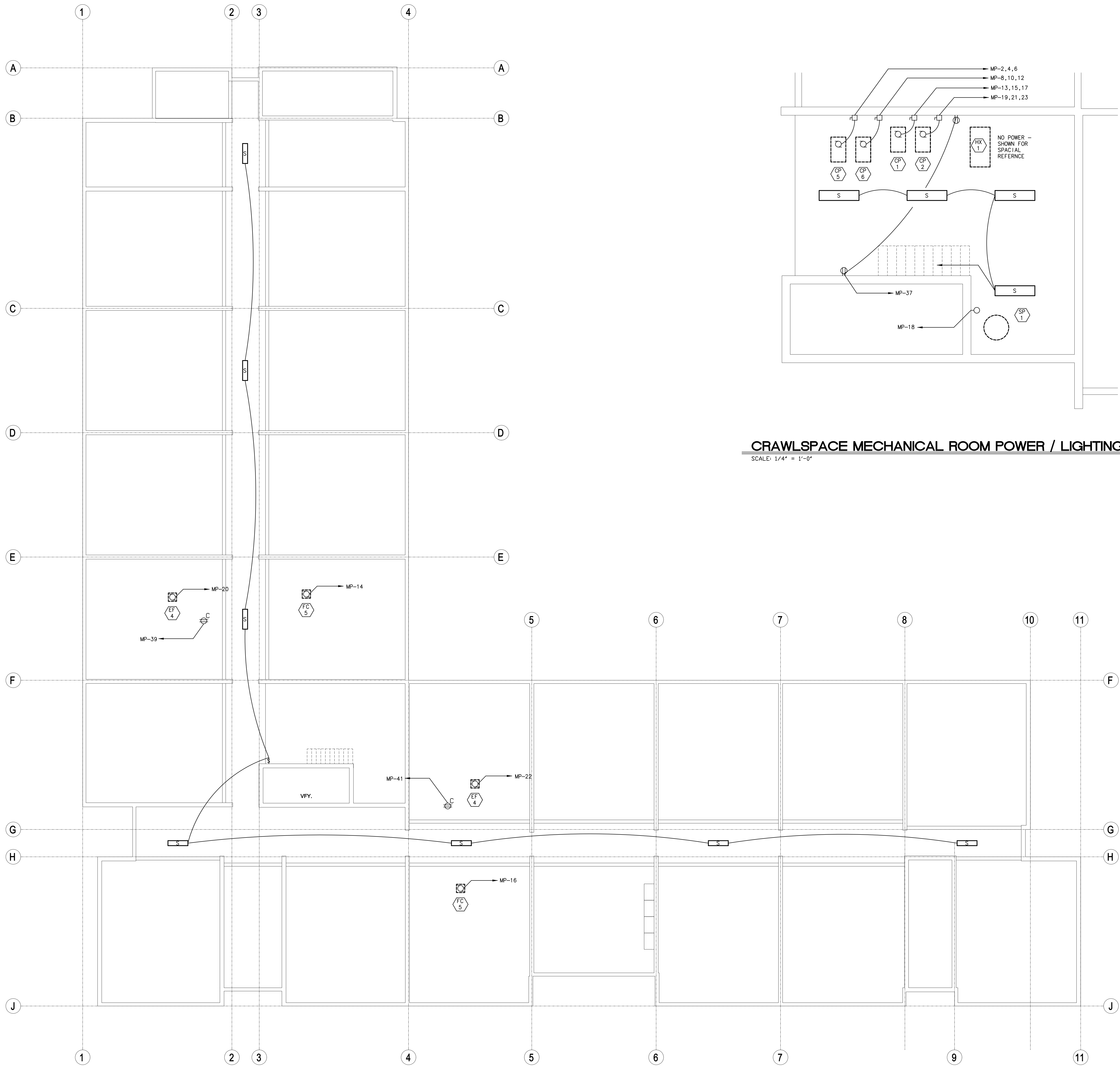
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DESIGN DEV	02/01/19
50% C.D.	03/18/19
100% C.D.	04/05/19
AS1 #1	01/08/20

DRAWING TITLE:
**ELECTRICAL
SITE POWER AND
LIGHTING PLAN**

DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.

ES-1



CRAWLSPACE MECHANICAL ROOM POWER / LIGHTING
SCALE: 1/4" = 1'-0"

CRAWLSPACE POWER AND LIGHTING PLAN
SCALE: 1/8"=1'-0"



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DRAWING TITLE:
**CRAWLSPACE
ELECTRICAL SYSTEMS
+ LIGHTING PLAN**

DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.
E-1
OF 10



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DRAWING TITLE:
**LEVEL 2
ELECTRICAL
POWER PLAN**

DATE: 01/14/19

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

PROJ. NO. 8077

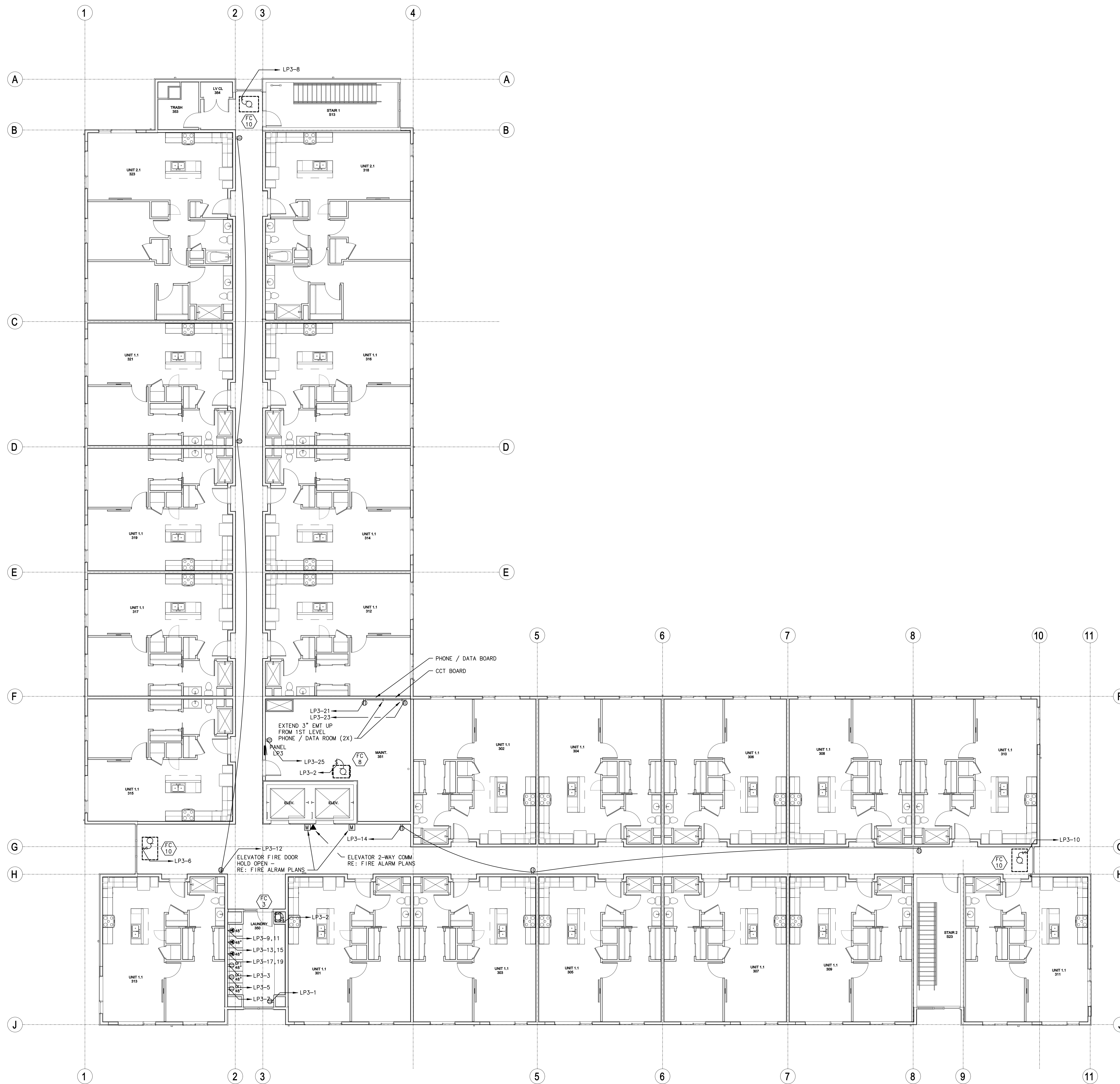
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CHECKD BY: MAB

DRAWING NO.

E-3

OF 10



LEVEL 3 ELECTRICAL PLAN
SCALE: 1/8"=1'-0"



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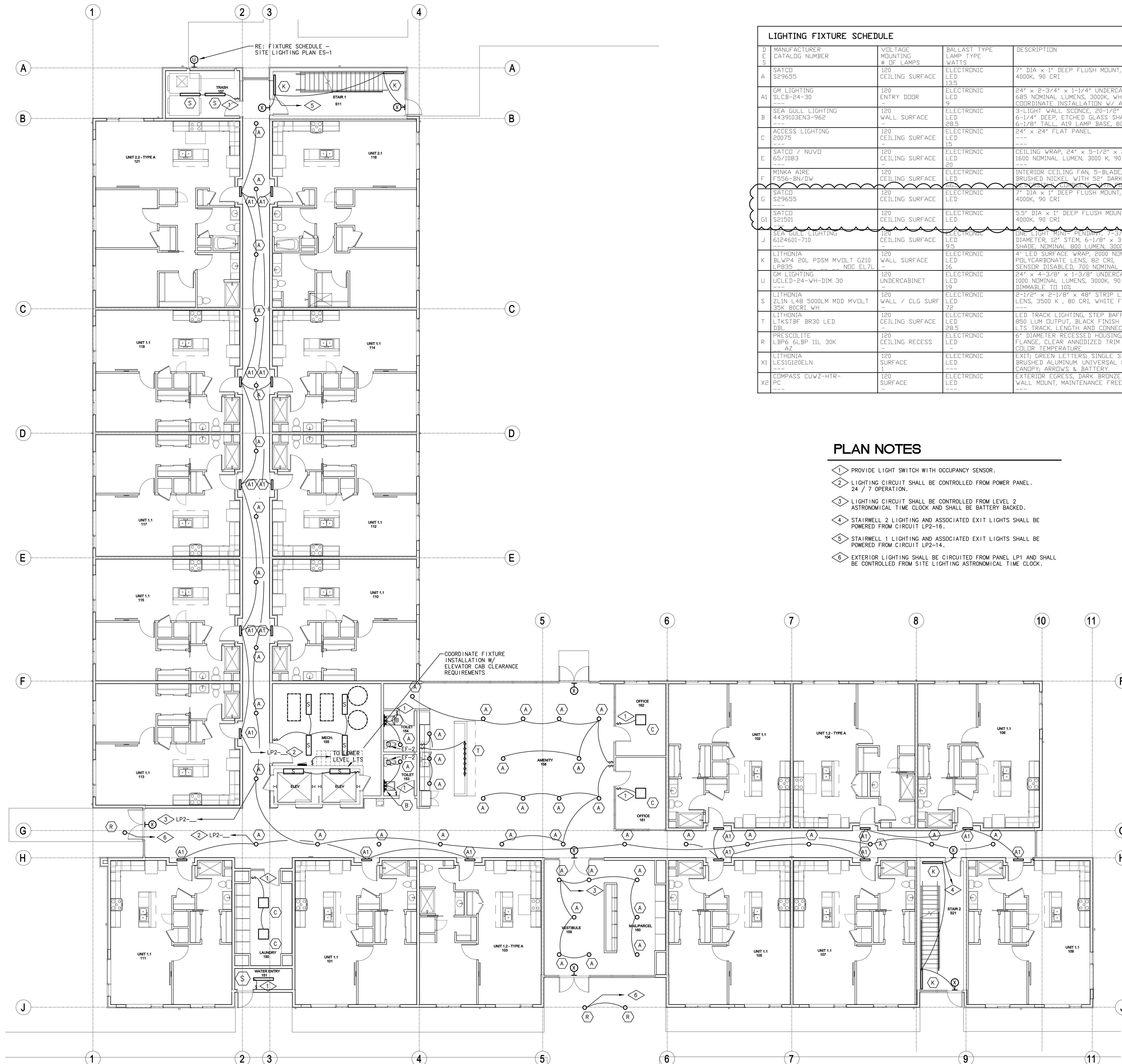
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LEVEL 3
ELECTRICAL
POWER PLAN

DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO: 8077
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DRAWING NO.

E-4

OF 10



LIGHTING FIXTURE SCHEDULE			
DESIGNATION	MANUFACTURER CATALOG NUMBER	VOLTAGE MOUNTING # OF LAMPS	BALLAST TYPE LAMP TYPE WATTS
A	SATCO S29655	120 CEILING SURFACE	ELECTRONIC LED 18.5
A1	GM LIGHTING SLCB-24-30	120 ENTRY DOOR	ELECTRONIC LED 9
B	SEA GULL LIGHTING 4439103EN3-962	120 WALL SURFACE	ELECTRONIC LED 28.5
C	ACCESS LIGHTING 20075	120 CEILING SURFACE	ELECTRONIC LED 15
E	SATCO / NUVB 65/1083	120 CEILING SURFACE	ELECTRONIC LED 20
F	MINKA AIRE F556-BN/DW	120 CEILING SURFACE	ELECTRONIC LED 66
G	SATCO S29655	120 CEILING SURFACE	ELECTRONIC LED 18.5
G1	SATCO S21501	120 CEILING SURFACE	ELECTRONIC LED 650
J	SEA GULL LIGHTING 6124601-710	120 CEILING SURFACE	ELECTRONIC LED 9.5
K	LITHONIA BLWP4 20L PDSM MVOLT GZ10 LP835	120 WALL SURFACE	ELECTRONIC LED 16
U	GM LIGHTING UCLD-24-WH-DIM 30	120 UNDERCABINET	ELECTRONIC LED 19
S	LITHONIA ZLIN L48 5000LM MDD MVOLT 35K 80CRI WH	120 WALL / CLG SURF	ELECTRONIC LED 72
T	LITHONIA LTKSTBF BR30 LED DBL	120 CEILING SURFACE	ELECTRONIC LED 28.5
R	PRESCOLITE LBP6 6LBP 11L 30K	120 CEILING RECESS	ELECTRONIC LED 1
X1	LITHONIA LESTIG120ELN	120 SURFACE	ELECTRONIC LED 1
X2	COMPASS CUW2-HTR-PC	120 SURFACE	ELECTRONIC LED 1
DESCRIPTION			
7" DIA x 1" DEEP FLUSH MOUNT, 860 NOMINAL LUMEN, 4000K, 90 CRI			
24" x 2-3/4" x 1-1/4" UNDERCABINET LIGHT, 685 NOMINAL LUMENS, 3000K, WHITE FINISH COORDINATE INSTALLATION W/ ARCH ENTRY DOOR DETAIL			
3-LIGHT WALL SCIENCE, 20-1/2" WIDE x 7-7/8" TALL x 6-1/4" DEEP, ETCHED GLASS SHADE, 3-1/2" DIA x 6-1/8" TALL, A19 LAMP BASE, 800 LUMEN, 3000 K, 90 CRI			
24" x 24" FLAT PANEL			
CEILING WRAP, 24" x 5-1/2" x 2-5/8" TALL, 1600 NOMINAL LUMEN, 3000 K, 90 CRI			
INTERIOR CEILING FAN, 5-BLADE, 3/4" x 6" DOWNROD, BRUSHED NICKEL, WITH 52" DARK WALNUT BLADES, 7" DIA x 1" DEEP FLUSH MOUNT, 860 NOMINAL LUMEN, 4000K, 90 CRI			
5.5" DIA x 1" DEEP FLUSH MOUNT, 650 NOMINAL LUMEN, 4000K, 90 CRI			
ONE-LIGHT MINI PENDANT, 7-3/8" TALL x 3-1/2" DIA, 12" STEM, 6-1/8" x 3-1/3" ETCHED GLASS SHADE, NOMINAL 800 LUMEN, 3000 K, 90 CRI			
4" LED SURFACE WRAP, 2000 NOMINAL LUMEN, CURVED POLYCARBONATE LENS, 82 CRI, 3500 K, OCCUPANCY SENSOR DISABLED, 700 NOMINAL LUMEN BATTERY PACK			
24" x 4-3/8" x 1-3/8" UNDERCABINET LIGHT, 1000 NOMINAL LUMENS, 3000K, 90 CRI, WHITE FINISH - DIMMABLE TO 10%			
2-1/2" x 2-1/8" x 48" STRIP LIGHT, MEDIUM DIFFUSE, LENS, 3500 K, 80 CRI, WHITE FINISH - NO DIMMING			
LED TRACK LIGHTING, STEP Baffle TRACK HEAD, 850 LUM OUTPUT, BLACK FINISH - PROVIDE LITHONIA LTS TRACK LENGTH AND CONNECTORS AS REQUIRED.			
6" DIAMETER RECESSED HOUSING, 6" MATTE WHITE FLANGE, CLEAR ANODIZED TRIM MODULE, 3000 K COLOR TEMPERATURE			
EXIT; GREEN LETTERS; SINGLE STENCIL FACE. BRUSHED ALUMINUM UNIVERSAL MOUNTING CANDLEY; ARROWS & BATTERY.			
EXTERIOR EGRESS, DARK BRONZE FINISH, LED LAMP, WALL MOUNT, MAINTENANCE FREE NI-CAD BATTERY			

PLAN NOTES

- 1 PROVIDE LIGHT SWITCH WITH OCCUPANCY SENSOR.
- 2 LIGHTING CIRCUIT SHALL BE CONTROLLED FROM POWER PANEL. 24 / 7 OPERATION.
- 3 LIGHTING CIRCUIT SHALL BE CONTROLLED FROM LEVEL 2 ASTRONOMICAL TIME CLOCK AND SHALL BE BATTERY BACKED.
- 4 STAIRWELL 2 LIGHTING AND ASSOCIATED EXIT LIGHTS SHALL BE POWERED FROM CIRCUIT LP2-16.
- 5 STAIRWELL 1 LIGHTING AND ASSOCIATED EXIT LIGHTS SHALL BE POWERED FROM CIRCUIT LP2-14.
- 6 EXTERIOR LIGHTING SHALL BE CIRCUITED FROM PANEL LP1 AND SHALL BE CONTROLLED FROM SITE LIGHTING ASTRONOMICAL TIME CLOCK.

LEVEL 1 LIGHTING PLAN

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

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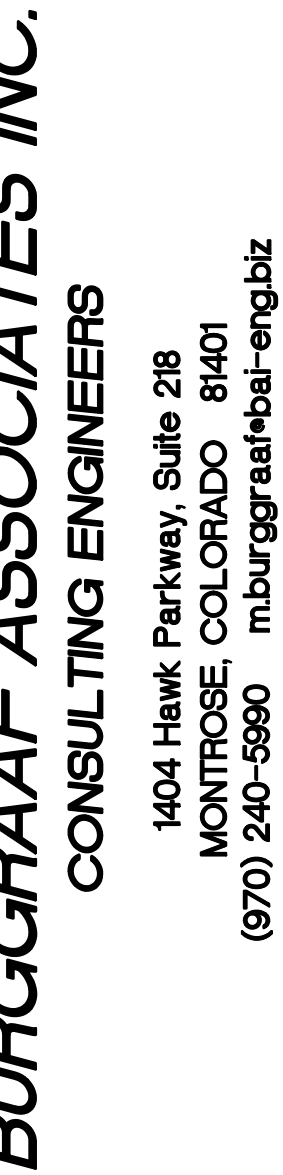
2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% C.D.	03/18/19
100% C.D.	04/05/19
AS1 #1	01/08/20

DRAWING TITLE:
LEVEL 1
LIGHTING
PLAN

DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.
E-5
OF 10



2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% C.D.	03/18/19
100% C.D.	04/05/19

DRAWING TITLE:

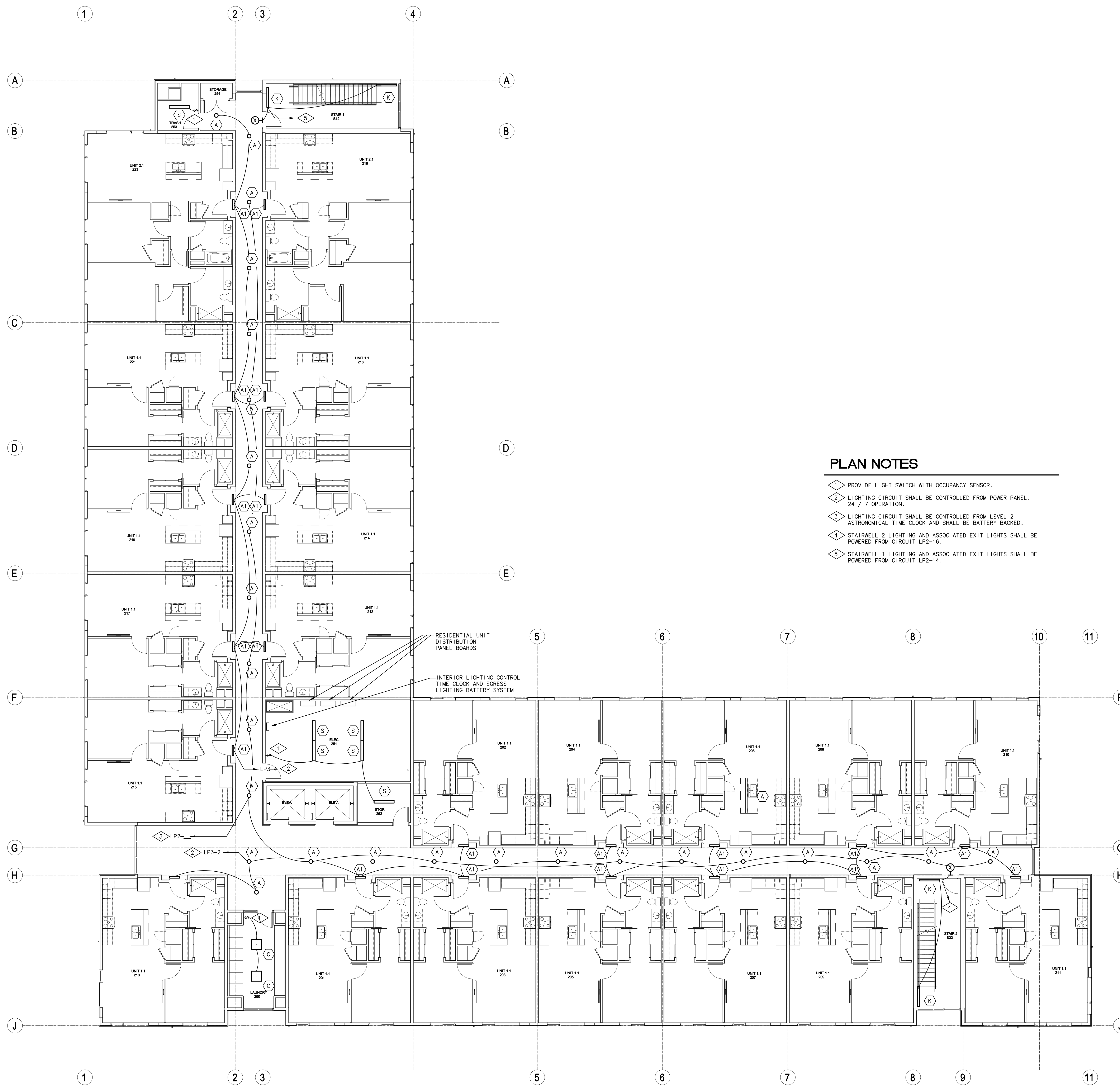
**LEVEL 2
LIGHTING
PLAN**

DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO. 8077
DRAWN BY: DAI
CHKD BY: MAB

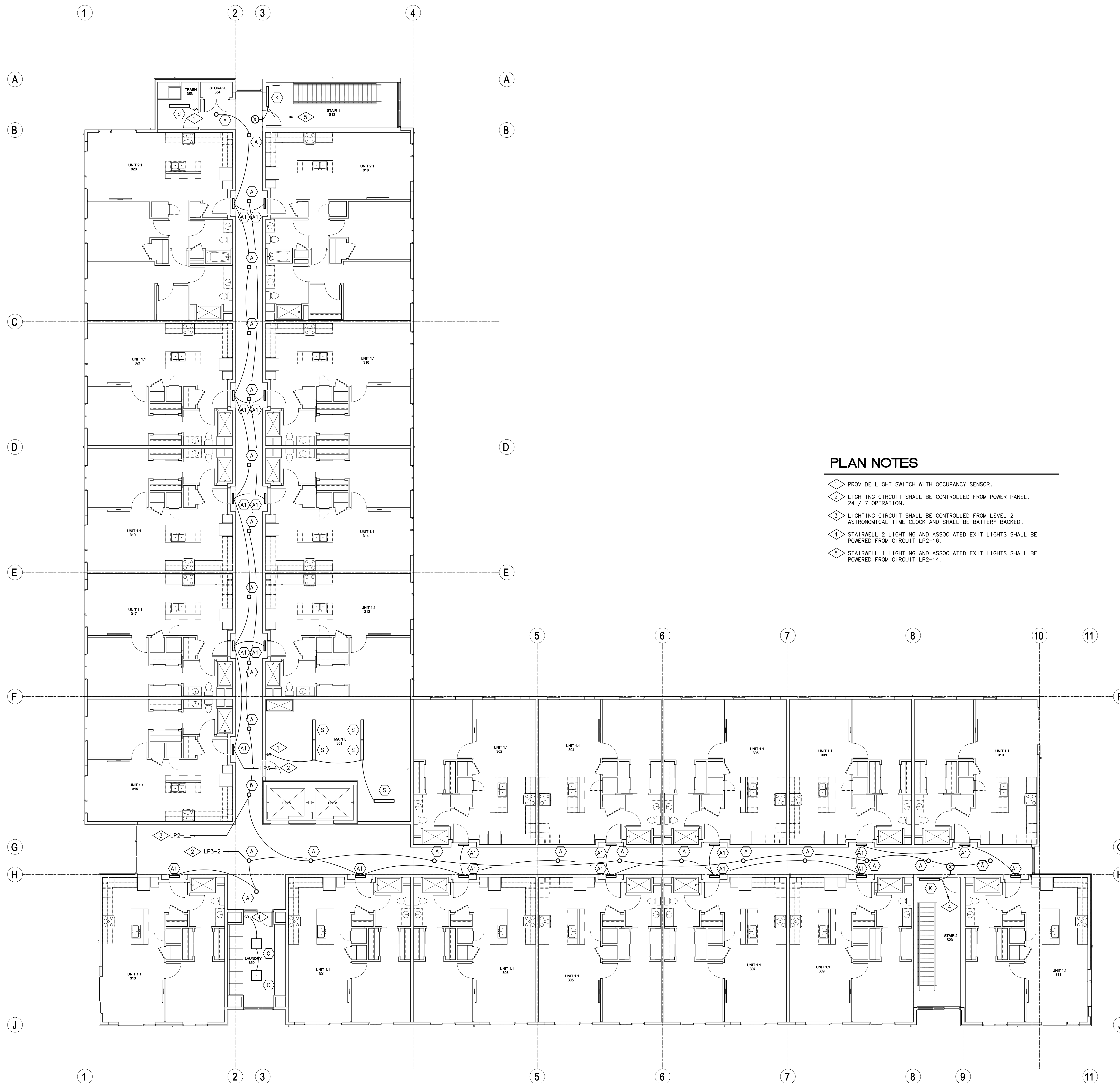
DRAWING NO.

III-6

10



LEVEL 2 LIGHTING PLAN



PLAN NOTES

- 1 PROVIDE LIGHT SWITCH WITH OCCUPANCY SENSOR.
- 2 LIGHTING CIRCUIT SHALL BE CONTROLLED FROM POWER PANEL. 24 / 7 OPERATION.
- 3 LIGHTING CIRCUIT SHALL BE CONTROLLED FROM LEVEL 2 ASTRONOMICAL TIME CLOCK AND SHALL BE BATTERY BACKED.
- 4 STAIRWELL 2 LIGHTING AND ASSOCIATED EXIT LIGHTS SHALL BE POWERED FROM CIRCUIT LP2-16.
- 5 STAIRWELL 1 LIGHTING AND ASSOCIATED EXIT LIGHTS SHALL BE POWERED FROM CIRCUIT LP2-14.

LEVEL 3 LIGHTING PLAN
SCALE: 1/8"=1'-0"

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2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% C.D.	03/18/19
100% C.D.	04/05/19

DRAWING TITLE:
**LEVEL 3
LIGHTING
PLAN**

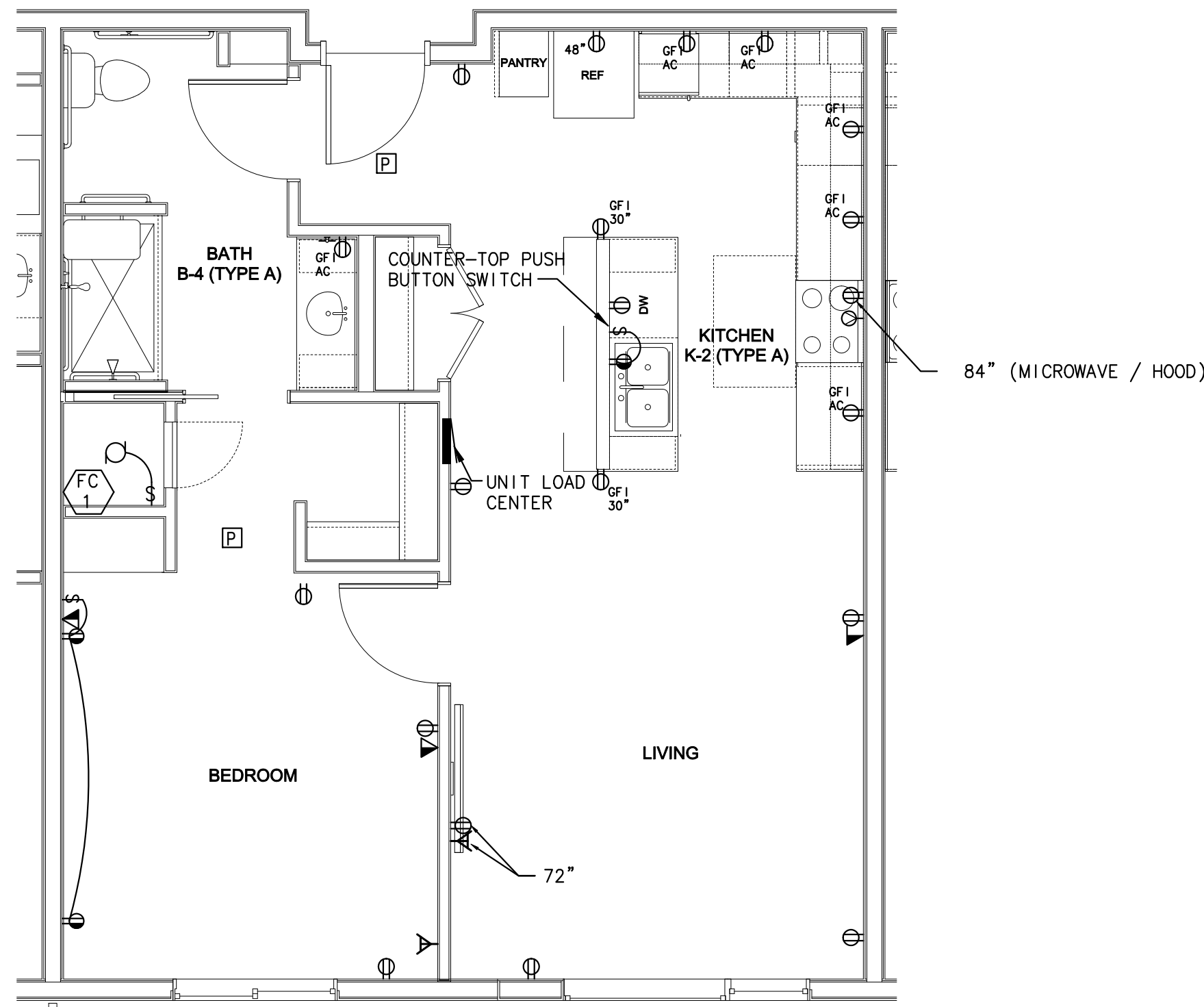
DATE: 01/14/19
SCALE: 1/8" = 1'-0"
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP

DRAWING NO.

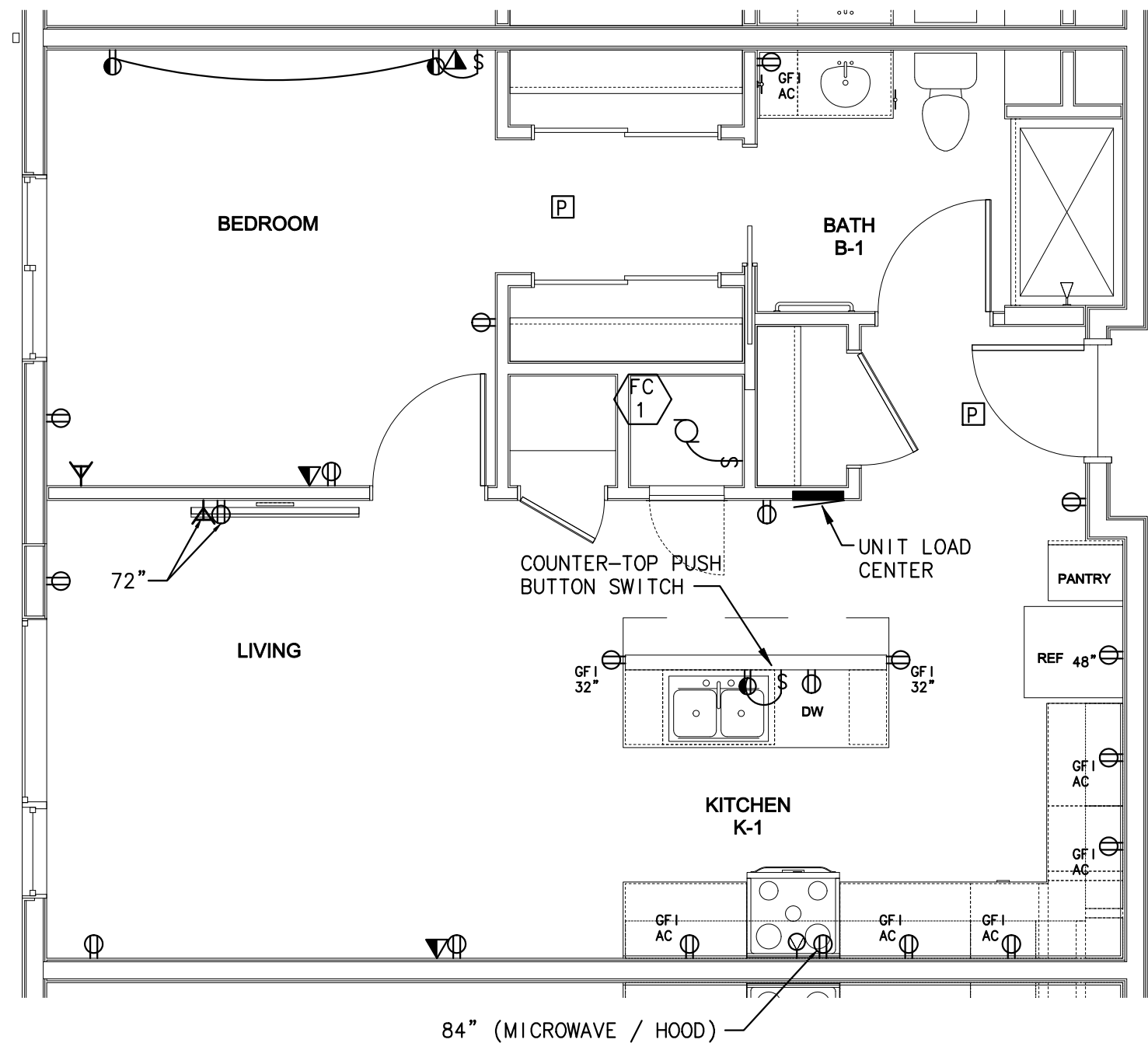
E-7

OF 10

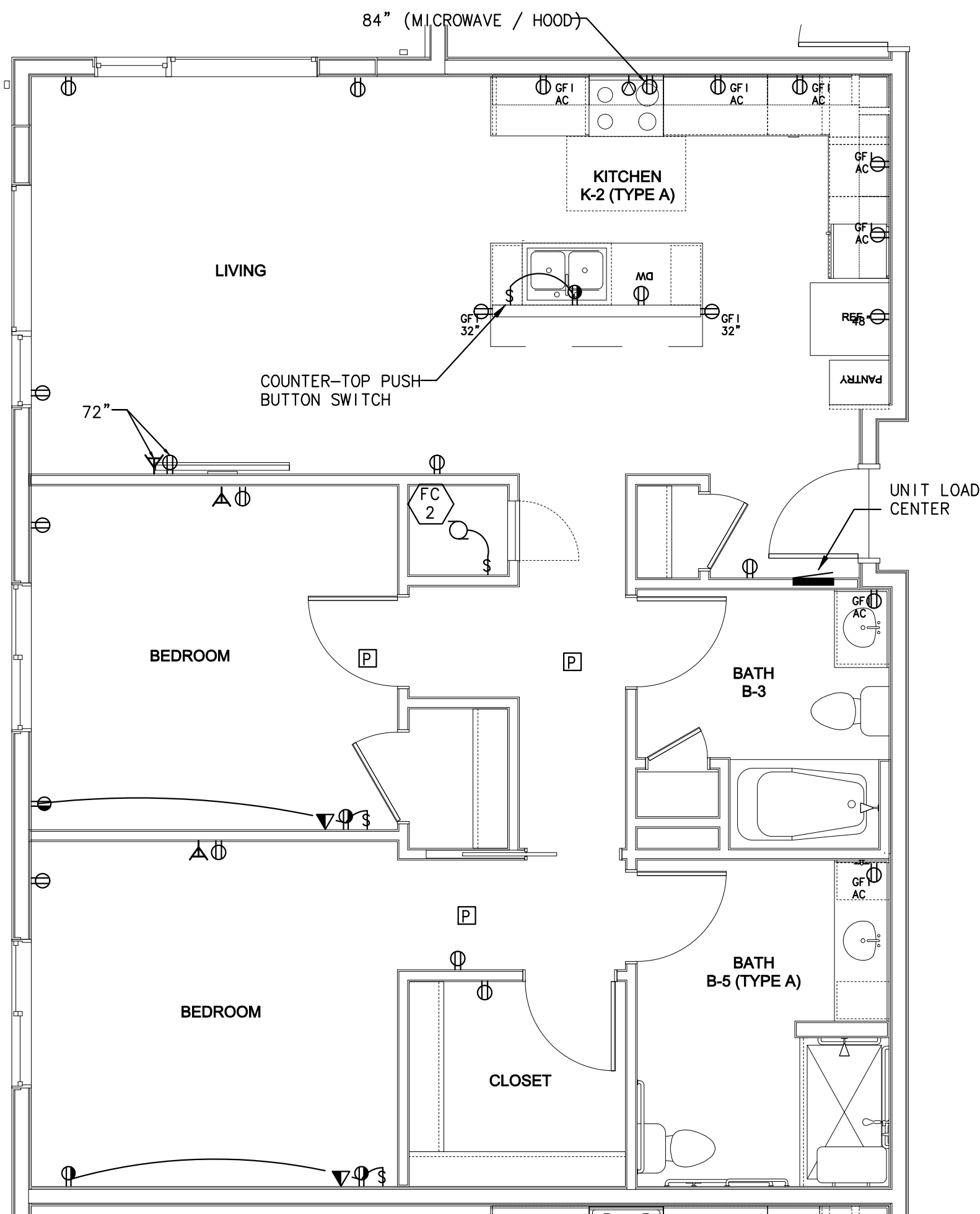




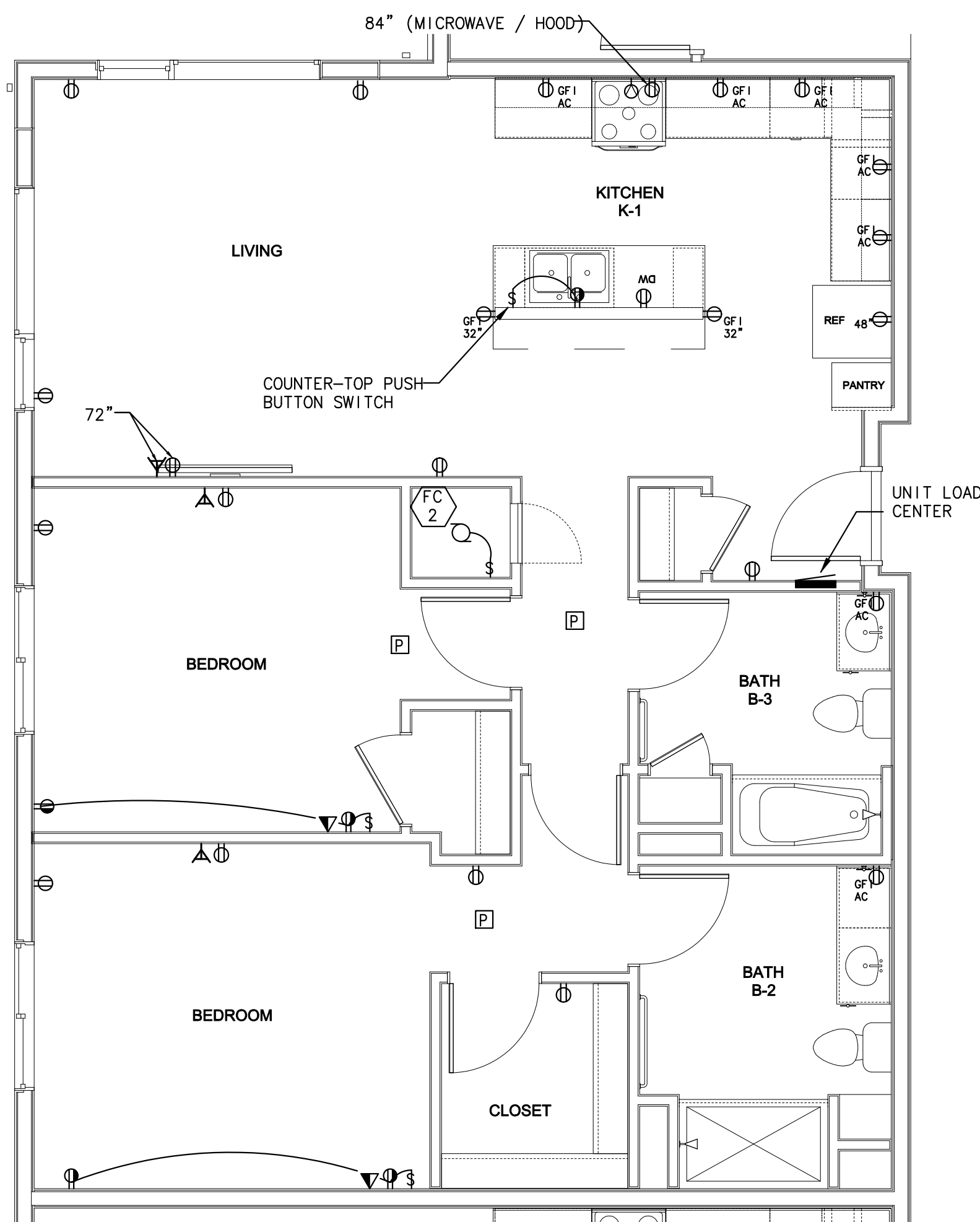
TYPICAL ASSIBLE ONE BEDROOM UNIT -POWER/SYSTEMS PLAN
 SCALE: 1/8"=1'-0"



TYPICAL ONE BEDROOM UNIT - POWER/SYSTEMS PLAN
 SCALE: 1/4" = 1'-0"



TYPICAL ACCESSIBLE TWO BEDROOM UNIT - POWER/SYSTEMS PLAN
 SCALE: 1/8"=1'-0"



TYPICAL TWO BEDROOM UNIT - POWER/SYSTEMS PLAN
 SCALE: 1/8"=1'-0"

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2814 PATTERSON ROAD - HOUSING
2814 PATTERSON ROAD
GRAND JUNCTION, CO

REVISION NO.	DATE
DESIGN DEV	02/01/19
50% C.D.	03/18/19
100% C.D.	04/05/19

DRAWING TITLE:
**LARGE SCALE UNIT
 ELECTRICAL POWER**

DATE: 01/14/19
 SCALE: 1/4" = 1'-0"
 PROJ NO: 8077
 DRAWN BY: BAI
 CHKD BY: MAP

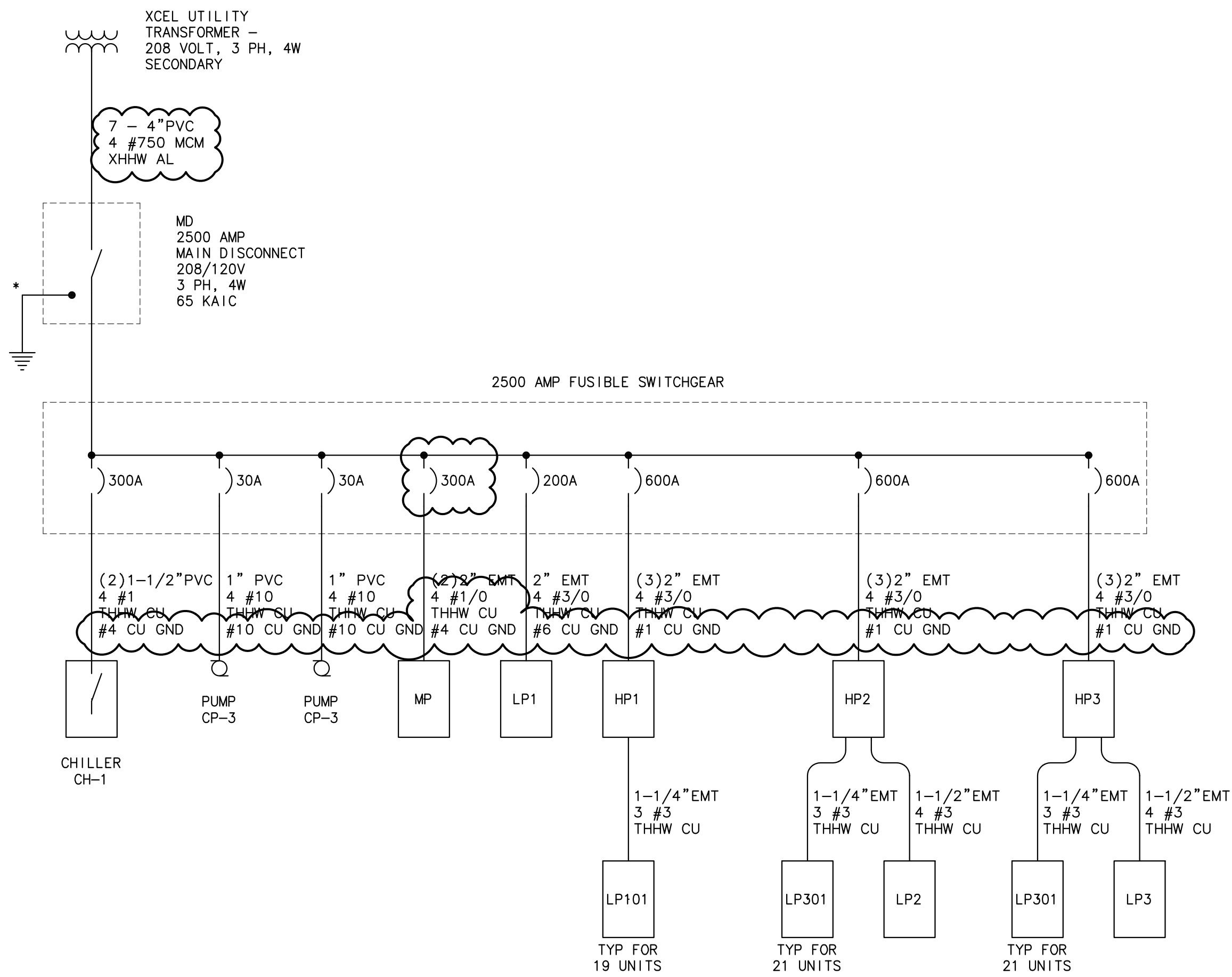
DRAWING NO.
E-8
 OF 10



PANEL SCHEDULE - PANEL HP3				POWER - UNIT DISTRIBUTION - 3RD LEVEL										
PANEL TYPE:	PANEL BOARD	PHASES:	3	VOLTAGE	120/208 V	PHASE A CONNECTED:	XXX	W	PHASE B CONNECTED:	XXX	W	PHASE C CONNECTED:	XXX	W
MAIN BREAKER:	600A	WIRES:	4	CONNECTED TO:	XXX	DEMAND:	XXX	W	DEMAND:	XXX	W	DEMAND:	XXX	W
BUS TYPE:	600 A	MOUNTING:	SURFACE											
				A M P S	P O W E R	P O W E R	P O W E R	A M P S	LOAD TYPE AND DESCRIPTION					
				H E R F	H E R F	H E R F	H E R F		LOAD TYPE AND DESCRIPTION					
SUB-PANEL	---	---	---	1	2	---	SUB-PANEL	ONE-BE-BRITUM						
SUB-PANEL	PANEL LP3	100A	3P	3	4	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	5	6	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	---	100A	2P	7	8	---	SUB-PANEL	---						
SUB-PANEL	ONE-BE-BRITUM	---	---	9	10	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	11	12	---	SUB-PANEL	---						
SUB-PANEL	---	100A	2P	13	14	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	15	16	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	17	18	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	19	20	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	21	22	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	23	24	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	25	26	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	27	28	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	29	30	2P	100A	SUB-PANEL	ONE-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	31	32	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	33	34	2P	100A	SUB-PANEL	TWO-BE-BRITUM					
SUB-PANEL	ONE-BE-BRITUM	---	---	35	36	---	SUB-PANEL	---						
SUB-PANEL	---	---	---	37	38	---	SPACE:	---						
SUB-PANEL	W/O-BE-BRITUM	---	---	39	40	---	SPACE:	---						
SUB-PANEL	---	---	---	41	42	---	SPACE:	---						

BUILDING LOAD CALCULATION

LOAD	VA CONNECTED	VA DEMAND
ONE BEDROOM UNIT (54)	1,215,216	860,058
TWO BEDROOM UNIT (8)	140,964	97,638
	1,356,180	957,696
DEMAND FACTOR REDUCTION		
- ELECTRIC RANGES (25 KW + .75 KW / RANGE) = 70,000 VA		
- DMD LOAD FROM RANGES (UNIT LOAD CALCS) = 480,000		
- DEMAND LOAD FROM RANGES (UNIT LOAD CALCS)		
- DEMAND FACTOR ADJUSTMENT =		(410,000)
OFFICE/ENTRY POWER - LIGHTING	11,874	11,874
COMMON AREA LIGHTING	3,684	3,684
EXTERIOR LIGHTING (ALLOWANCE)	10,000	10,000
CLOTHES WASHERS - 9 @ 1,500 VA	13,500	13,500
ELECTRIC DRYERS - 9 @ 5,000 VA	45,000	24,750
COMMON AREA HVAC	1,587	
- FC-3 (1/4 HP) - 3 ea	2,001	2,001
- FC-4 (1/4 HP)	667	667
- FC-6 (3/4 HP)	1,587	1,587
- FC-7 (3/4 HP)	1,587	1,587
- FC-7 (1/2 HP)	1,127	1,127
- FC-8 (1/2 HP)	1,127	1,127
- FC-9 (1/8 HP)	508	508
- FC-10 (1/6 HP) - 8 ea	4,048	4,048
MECHANICAL SYSTEMS (SUMMER)		
- BOILER	1,862	1,862
- BOILER PUMP - BP-1	587	587
- CP-1 / CP-2 (5 HP)	9,014	9,014
- CHILLER	164,087	164,087
- CP-3 / CP-4 (5 HP)	9,014	9,014
- CP-5 / CP-6 (5 HP)	9,014	9,014
ELEVATOR (40 HP)	41,022	41,022



NOT TO SCALE

MAIN SERVICE GROUNDING:

PROVIDE A #2/0 COPPER GROUNDING ELECTRODE CONDUCTOR TO THE WATER SERVICE, THE FOUNDATION STEEL, TO THE BUILDING STEEL AND TO A 10' X 5/8" DRIVEN ROD.

PANEL SCHEDULE - PANEL LP3			GENERAL LIGHTING / POWER - 3RD LEVEL									
PANEL TYPE:	PANEL BOARD	PHASES:	3	4	VOLTAGE:		120/208	V	PHASE A CONNECTED:		XXX	W
MAIN BREAKER:	---	WIRES:	4	4	CONNECTED:		100	W	PHASE B CONNECTED:		XXX	W
BUS SIZE:	100 A	WIRING:	SURFACE		REMARKS:		---	W	PHASE C CONNECTED:		XXX	W
LOAD TYPE AND DESCRIPTION			A M P S	P H A S E S	C I R C U I T S	C O D E	A M P S	LOAD TYPE AND DESCRIPTION				
RECEPTACLE:	LAUNDRY - GENERAL	20A	1	1	1	20A	MECH	FC-3 (LAUNDRY)				
RECEPTACLE:	LAUNDRY - CLOTHESWASHER	20A	1	3	4	20A	MECH	FC-8 (CORRIDOR)				
RECEPTACLE:	LAUNDRY - CLOTHESWASHER	20A	1	3	6	20A	MECH	FC-10 (WEST)				
RECEPTACLE:	LAUNDRY - CLOTHESWASHER	20A	1	2	8	20A	MECH	FC-10 (INDR)				
MISC:	LAUNDRY - CLOTHES DRYER	40A	1	2	10	20A	MECH	FC-10 (EAST)				
MISC:	---	---	---	1	1	12	20A	RECEPTACLE: EAST / WEST CORRIDOR				
MISC:	LAUNDRY - CLOTHES DRYER	40A	1	14	14	20A	RECEPTACLE:	NORTH / SOUTH CORRIDOR				
MISC:	---	---	---	13	16	20A	---	UNALLOCATED FUTURE				
MISC:	LAUNDRY - CLOTHES DRYER	40A	1	17	18	20A	SPARE:	UNALLOCATED FUTURE				
MISC:	---	---	---	19	20	---	SPACE:	---				
RECEPTACLE:	LV CLOSET - PHONE BOARD	20A	1	1	2	---	SPACE:	---				
RECEPTACLE:	CEVY BOARD	20A	1	23	24	---	SPACE:	---				
RECEPTACLE:	STORAGE ROOM	20A	1	25	26	---	SPACE:	---				
SPARE:	UNALLOCATED FUTURE	20A	1	27	28	---	SPACE:	---				
SPARE:	UNALLOCATED FUTURE	20A	1	29	30	---	SPACE:	---				

[illegible]

NOTE :

- ALL LIGHTING / RECEPTACLE CIRCUIT BREAKERS SHALL BE ARC-FAULT TYPE

- PANEL SCHEDULE IS TYPICAL FOR 54 UNITS

PANEL SCHEDULE - LP-116			TWO BEDROOM RES. UNIT			50% C.D. 03/18/19			POWER AND LIGHTING PANEL		
PANEL TYPE:	LOAD CENTER	PHASES	1	VOLTAGE	120/208 V	PHASE A CONNECTED	XXX W	PHASE B CONNECTED	XXX W	PHASE C CONNECTED	XXX W
BUS SIZE:	100 A	WIRING MOUNTING:	3 RECESSED	DEMAND	150.07	PHASE A CONNECTED	0 W	PHASE B CONNECTED	0 W	PHASE C CONNECTED	0 W
LOAD TYPE AND DESCRIPTION			A M P S	P H A S E	D E M A N D	C O D E	L O A D T Y P E	LOAD TYPE AND DESCRIPTION			
RECEPTACLE: KITCHEN	20A	1P 1A 2 1P 1SA	RECEPTACLE: LIGHTING / RECEPTABLES								
RECEPTACLE: KITCHEN	20A	1P 3 1A 2 1P 1SA	RECEPTACLE: LIGHTING / RECEPTABLES								
RECEPTACLE: KITCHEN - DISPOSAL	20A	1P 3 1A 2 1P 1SA	RECEPTACLE: LIGHTING / RECEPTABLES								
RECEPTACLE: KITCHEN - REFRIGERATOR	20A	1P 7 8 1P 1SA	RECEPTACLE: BATHROOM								
RECEPTACLE: KITCHEN MICROWAVE / HOOD	20A	1P 9 1A 10 1P 1SA	RECEPTACLE: BATHROOM								
DISPENSER	20A	1P 11 1A 12 1P 1SA	20A 1P 11 1A 12 1P 1SA	CLUB FAN FAN COIL UNIT							
MISC.	---	---	13 A 14 20	---	---	---	SPACE				
SPACE	---	---	15 16 16	---	---	---	SPACE				
SPACE	---	---	17 18 18	---	---	---	SPACE				
SPACE	---	---	19 19 20	---	---	---	SPACE				

NOTE :

- ALL LIGHTING / RECEPTACLE CIRCUIT BREAKERS SHALL BE ARC-FAULT TYPE

- PANEL SCHEDULE IS TYPICAL FOR 6 UNITS

REVISION NO.	DATE
50% C.D.	03/18/19
100% C.D.	04/05/19

DRAWING TITLE:
**ELECTRICAL
SPECIFICATIONS**

DATE: 03/18/19
SCALE: N.T.S.
PROJ. NO: 8077
DRAWN BY: BAI
CHKD BY: MAP



SECTION 16740 – TELEPHONE SIGNAL DISTRIBUTION SYSTEM

PART 1.00 GENERAL

1.01 WORK INCLUDED:

- A. Provide and install a complete wiring system for telephone / data service as indicated herein and also per the construction documents.
- B. Confirm location point of service and in general, coordinate the service to the building with the local telephone company prior to commencement of work.
- C. Confirm outlet locations with Architect or Owner prior to rough-in.
- E. The work shall include, but not be limited to the following:
 - 1. Conduit stub out of dwelling.
 - 2. Branch cables.
 - 3. Outlets and coverplates.
 - 4. Terminal strip mounting board.

PART 2.00 PRODUCTS

2.01 TELEPHONE CABLE / OUTLETS

- A. Telephone cable shall be 3 pair #22 solid. West Penn #394-6 (3 pair #22 solid). Outlets shall be Pass and Seymour #1PTETW or approved equal.

PART 3.00 EXECUTION (not used)

END OF SECTION 16740

SECTION 16750 – TELEVISION SIGNAL DISTRIBUTION SYSTEM

PART 1.00 GENERAL

1.01 WORK INCLUDED:

- A. Provide and install a complete wiring system for cable television as indicated herein and also per the construction documents.
- B. Confirm location point of service and in general, coordinate the service to the dwelling with the local cable company prior to commencement of work.
- C. Confirm jacks and cable specified will work with cable company's equipment prior to release of materials order.
- D. Confirm outlet locations with Architect or Owner prior to rough-in.
- E. The work shall include, but not be limited to the following:
 - 1. Conduit stub out of dwelling.
 - 2. Branch cables.
 - 3. Outlets and coverplates.

PART 2.00 PRODUCTS

2.01 TELEPHONE CABLE MANUFACTURER:

- A. Television cable shall be RG 59/U #20 COAX. Outlets shall be Leviton LEV80781W or approved equal.

PART 3.00 EXECUTION (not used)

END OF SECTION 16750

SECTION 16851 – MECHANICAL/ELECTRICAL COORDINATION

PART 1.00 – GENERAL

1.01 WIRING FOR EQUIPMENT:

- A. Furnish and install circuits, outlets, feeders and thermal overload switches in all phases. Make all connections to motors and controls for building mechanical equipment such as plumbing, heating, ventilating, and air conditioning equipment as indicated on drawings and herein specified and in accordance with the following "Schedule of Wiring". Refer also to drawings and specifications included in DIVISION 15. Provide 120 volt weatherproof receptacle outlet within 25 feet of all heating and air conditioning units located outdoors. Provide connections to controls only to extent as herein specified.

1.02 SCHEDULE OF WIRING:

- A. Unless otherwise indicated, all motors and controls shall be furnished, set in place and wired in accordance with the following schedule. (M is Mechanical Division; E is Electrical Division.)

ITEM	FURNISHED UNDER	SET IN PLACE UNDER	CONTROL WIRING	POWER WIRING
Combination Motor Starters	M	E(1)	E(1)	E
Contactors	E	E	E	E
Disconnect Switches	E	E	—	E
Smoke Detectors	E	E	E	E
Fuses	E	E	—	—
Control Panels	M	M	M	E

(1) If furnished as part of factory wired equipment, responsibility is under Mechanical Division.

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION (not used)

END OF SECTION 16851

SECTION 16570 – DIMMERS

PART 1.00 – GENERAL

1.01 WORK INCLUDED:

- A. Provide and install LED dimmers as indicated on the plans.
- B. Submit shop drawings for approval prior to ordering dimmers.

PART 2.00 – PRODUCTS

2.01 LED DIMMERS:

- A. Dimmers shall be of the slide type, color per Architect, solid state design.

PART 3.00 – EXECUTION

3.01 INSTALLATION:

- A. Prior to rough-in, confirm that all dimmers as indicated on the plans are properly sized to carry the load indicated.

END OF SECTION 16570

SECTION 16720 – FIRE ALARM SYSTEM

PART 1.00 – GENERAL

1.01 WORK INCLUDED:

- A. Furnish and install a complete fire alarm and detection system as herein specified. Furnish and install all equipment, devices, components and wiring necessary for a completely operating and functioning system to conform to requirements of National Fire Protection Association Standard 720, local fire codes and local fire and building department authorities having jurisdiction. All components of the entire fire alarm and detection system shall be listed, labeled and approved by Underwriters' Laboratories, Inc. for application as fire alarm equipment.

1.02 DESCRIPTION OF SYSTEM:

- A. This fire alarm and detection system shall be zoned, non-coded, continuous alarm sounding, closed circuit and electrically supervised. The system shall be designed to operate whenever an actuating signal is received from a manually operated fire alarm pull station or when the signal is automatically received from a smoke ionization, temperature, mechanical or electrical sensing device. The system shall be electrically supervised and designed to provide signals and alarm indications for troubles on the system. The system shall be designed to automatically transmit both alarm and trouble signals to a central station alarm watch service or local Fire Department. The system shall have separate alarm silence and system reset switches.

1.03 OPERATIONS OF SYSTEM:

- A. Fire Alarm Signal Actuation:
 - 1. Fire alarm signals shall be actuated by any of the following means or devices:
 - a. Smoke detectors or any other type of sensing device such as thermal detectors.
 - b. Manual fire alarm pull stations.
 - c. Sprinkler system flow switch.
 - 2. System trouble signal shall be activated by any of the following:
 - a. Open circuit.
 - b. Short circuit.
 - c. Closure of the sprinkler valve.
 - d. Ground fault.
- B. Operation Upon Fire Alarm Signal:
 - 1. Upon receipt of a fire alarm actuating signal, the following operation and functions shall occur.
 - a. A fire alarm signal shall be transmitted to the central station alarm watch service or the local Fire Department via a leased telephone line.
 - b. All alarm horns shall sound. (A switch shall be provided to silence the alarm horns for one signal, but to allow resounding of horns for subsequent signals.)
 - c. Zone indicating lamps on the control panel and remote annunciator shall be lighted.
 - d. Magnetic door holders shall release allowing door to close.
- C. Operation Upon System Trouble:
 - 1. Trouble on the system shall light a lamp on the remote annunciator, sound a trouble bell at the main control panel and transmit a signal to the local receiving station via a leased telephone line.
- D. Dwelling Unit Detector:
 - 1. The dwelling unit detector shall operate at 120v ac, and shall consist of a photo-electric detector, a heat detector, a horn and a set of auxiliary contacts. The horn shall be connected to the photo-electric detector only. The heat detector shall be connected to the system. All dwelling unit detectors within a single apartment or condo unit shall be connected in tandem.

1.04 PROJECT DATA AND SUBMITTALS:

- A. Refer to requirements for PROJECT DATA AND SUBMITTALS in SECTION 16011.

PART 2.00 PRODUCTS

2.01 GENERAL REQUIREMENTS:

The system and equipment furnished shall include, but not be limited to, all initiating, signalling and control circuitry; visual displays; relays; power supplies; batteries; chargers; initiating, monitoring and indicating devices; and all components, devices and accessories necessary to comprise a complete system operable and functional as specified herein. Provide the system with complete electrical supervision.

2.02 PRODUCTS:

- A. All equipment, devices and components of the system to be furnished under this specification shall be as furnished and/or manufactured by Pyrotechnics Company, Simplex, or Gamewell.

2.03 SUBSTITUTIONS:

- A. Substitutions will be considered on the basis of a total system and not individual items of equipment. All components shall be guaranteed and serviced by the supplier of the system. Substitute systems shall meet all requirements for performance, function and operation as specified herein.

PART 3.00 – EXECUTION

3.01 INSTALLATION:

- A. The entire fire alarm and detection system shall be installed in accordance with the manufacturer's directions and instructions, under the supervision of the manufacturer's representative and in accordance with the requirements of the local building department which has jurisdictional authority.
- B. All wiring and materials shall be in accordance with the latest requirements of the National Electrical Code and the requirements of the Local Fire Department which shall supersede the N.E.C. when these requirements are more restrictive than the N.E.C. All wiring shall be in conduits separate and distinct from all other systems. Provide 3/4 inch conduit from Control Panel to Telephone Terminal for connection to the Central Station Alarm Service or to local Fire Department leased line. Final terminations in the main fire alarm panel shall be made by the manufacturer's field representative.
- C. Receive interior and exterior gongs and "Sprinkler Valve Alarm" sign from the sprinkler contractor and install and wire to flow and tamper switches. Flow and tamper switches shall be 2 pole devices. One pole of the tamper switch shall be wired to the fire alarm panel. One pole of the flow switch shall be wired to a dedicated zone module in the fire alarm panel. The second pole of the flow and tamper switches shall be wired to the gongs via an emergency 120 volt circuit.

3.02 TESTING AND ACCEPTANCE:

- A. The system shall be checked out and tested by a factory trained representative of the manufacturer prior to final testing of the system for acceptance by the Owner. Final testing of the system shall be under the supervision of the manufacturer's representative and shall be conducted in the presence of the local Fire Department, Local Building Authority and representative of the Owner, Architect and Engineer. After the satisfactory completion of the tests, the manufacturer's representative shall submit a letter to the Owner, Architect and Engineer, certifying that the entire system is operational and has been placed in service.

3.03 OPERATING INSTRUCTIONS AND MANUALS:

- A. Prior to acceptance of the system, furnish to the Owner, three sets of operating instructions and manuals in accordance with "SECTION 16010 – ELECTRICAL SPECIAL PROVISIONS". Data to be furnished shall include, but is not limited to, "PROJECT DATA AND SUBMITTALS" as specified in SECTION 16011, plus all other data and information as requested by Owner and necessary for the proper operation and maintenance of the system.

3.04 GUARANTEE:

- A. The entire fire alarm and detection system shall be guaranteed and maintained by the system supplier for a period of one year from the date of acceptance of the system by the Owner at no additional cost to the Owner.

END OF SECTION 16720

SECTION 16160 – MAIN DISTRIBUTION CENTER

PART 1.00 – GENERAL

1.01 WORK INCLUDED:

- A. Provide 208/120 volt, 3 phase, 4 wire, wye connected, free standing, floor mounted, fusible type main distribution center, NEMA Class 2.

1.02 FUSIBLE SWITCHES:

- A. Provide switches which are fusible type, horsepower rated, quick-make, quick-break, designed for use with current limiting fuses of 200,000 ampere fault current capacity and furnished with interlocked doors.

1.03 SWITCHBOARD:

- A. Provide switchboard completely fabricated by manufacturer with copper busing throughout, integrally rated for available fault current, but in no case less than 100,000 amps symmetrical, and designed for minimum assembly in the field. All units shall be front connected for interchangeability with provisions on main bus for connection of future main switches and/or branch feeder switches and provisions for addition of future sections. All sections shall have full length busses.
- B. Provide 100% neutral bus throughout. Provide separate grounding bus throughout all sections of switchboard and separately ground each section of switchboard to this bus. Ground all conduit feeders entering main switchboard to ground bus by means of a grounding bushing and conductor. Switchboard frame only or conduit raceway will not be accepted as a grounding means.
- C. Provide laminated plastic identification escutcheon plates over each breaker and switch; mount with screws; adhesive backed plated not acceptable. Refer to paragraph for "IDENTIFICATION" included in these specifications. In addition, provide a red and white plastic laminated plate at the top of each section with engraved inscription: "CAUTION – REPLACE ONLY WITH IDENTICAL CURRENT LIMITING FUSES".

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION (not used)

END OF SECTION 16160

SECTION 16165 – BRANCH CIRCUIT LOAD CENTERS

PART 1.00 – GENERAL

1.01 WORK INCLUDED:

- A. Provide circuit breaker type load centers for dwelling units with main lugs only, or with main breakers where indicated, and of voltage and phase, with ampacity of bus, and with the number and size of full width thermal magnetic plug-on branch circuit breakers as indicated on the drawings. Provide load centers of dead front construction. Provide neatly typed directory cards in directory frames. "Water-thin" or Twin circuit breakers are not acceptable for new work. Load centers shall be mounted surface or flush as indicated on the drawings. Circuit breakers shall be rated for switching and shall be rated minimum 10,000 amperes symmetrical short circuit current at the load center for up to 250 volts. All bus bars shall be copper or electroplated tinned aluminum. Provide two and three pole breakers with common trip and single operating handle. Provide separate grounding terminal strip in all load centers. Where spaces on panels are indicated, load center interiors shall include provisions so that circuit breakers may be added in the future.

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION (not used)

END OF SECTION 16165

SECTION 16170 – NON-FUSIBLE SAFETY SWITCHES

PART 1.00 – GENERAL

1.01 WORK INCLUDED:

- A. Provide non-fusible, safety switches of rated voltage for service, circuit or feeder where installed, of sizes, ampacity, and with number of poles indicated. Switches shall be approved for main line service, horsepower rated, quick-make, quick-break, heavy duty and designed for use with remote type current limiting fuses of 200,000 ampere fault current interrupting capacity. Provide NEMA 3R raintight enclosures for switches where exposed to the weather. Identify switches for feeder or motor being supplied. All switches shall be of the type with a handle interlock to prevent opening when the switch is in "ON" position. Provide fusible type safety switches with fuses where installed as disconnect devices for equipment, and package heating, ventilating, and air conditioning units.

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION

3.01 INSTALLATION:

- A. Prior to ordering disconnect switches for mechanical equipment, confirm either via shop drawing review or by reading equipment nameplate that the disconnect switch size specified is proper. If not, inform the engineer of discrepancy and, with his approval, purchase proper size.

END OF SECTION 16170

SECTION 16400 – ELECTRICAL SERVICE ENTRANCE

PART 1.00 – GENERAL

1.01 ELECTRICAL WORK TO BE DONE:

- A. Furnish and install underground conduits, raceways, and conductors from exterior pad-mounted transformer to the main service equipment.
- B. Furnish and install potential and/or current transformer enclosure in the main distribution equipment. Install metering transformers and meter housings furnished by the power company.

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION (not used)

END OF SECTION 16400

SECTION 16450 – GROUNDING

PART 1.00 – GENERAL

1.01 WORK INCLUDED:

- A. Ground all electrical systems in accordance with the requirements of the National Electrical Code, local codes, and as specified herein. Ground neutral conductor and conduit systems at the main service entrance. Make ground connection to the main metallic cold water pipe and building structural steel with copper grounding conductor and rigid conduit sized as required by the National Electrical Code and local codes.

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION (not used)

END OF SECTION 16450

SECTION 16500 – LIGHTING SYSTEM

PART 1.00 – GENERAL

1.01 GENERAL LIGHTING SYSTEMS:

- A. Provide a complete lighting system, including all lighting fixtures and lamps as indicated on drawings and specified herein. Submit list of fixtures, including catalog cuts and dimensional data intended for actual installation, for review by Architect prior to purchase of fixtures. Submit samples of fixtures to Architect or Owner upon request. All fixtures installed, where exposed to weather and/or cold temperature, shall be weatherproof, of the low temperature type, and suitable for efficient operation at the temperatures and conditions encountered. All fixtures installed shall have Underwriters Laboratories, Inc. label of approval; installation of fixtures must be in conformance with limitations of approval.

PART 2.00 – PRODUCTS (not used)

PART 3.00 – EXECUTION

3.01 INSTALLATION OF LIGHTING FIXTURES AND LAMPS:

- A. Installation of general lighting fixtures shall conform to the following:
 - 1. Completely connect and securely mount all fixtures. Provide all additional supports and hangers as may be necessary to securely fasten and support all fixtures to ceiling or structure.
 - 2. Clean fixtures and lamps, remove construction dirt, dust, paint, etc., and leave fixtures and lamps in first class condition upon completion of work.

END OF SECTION 16500