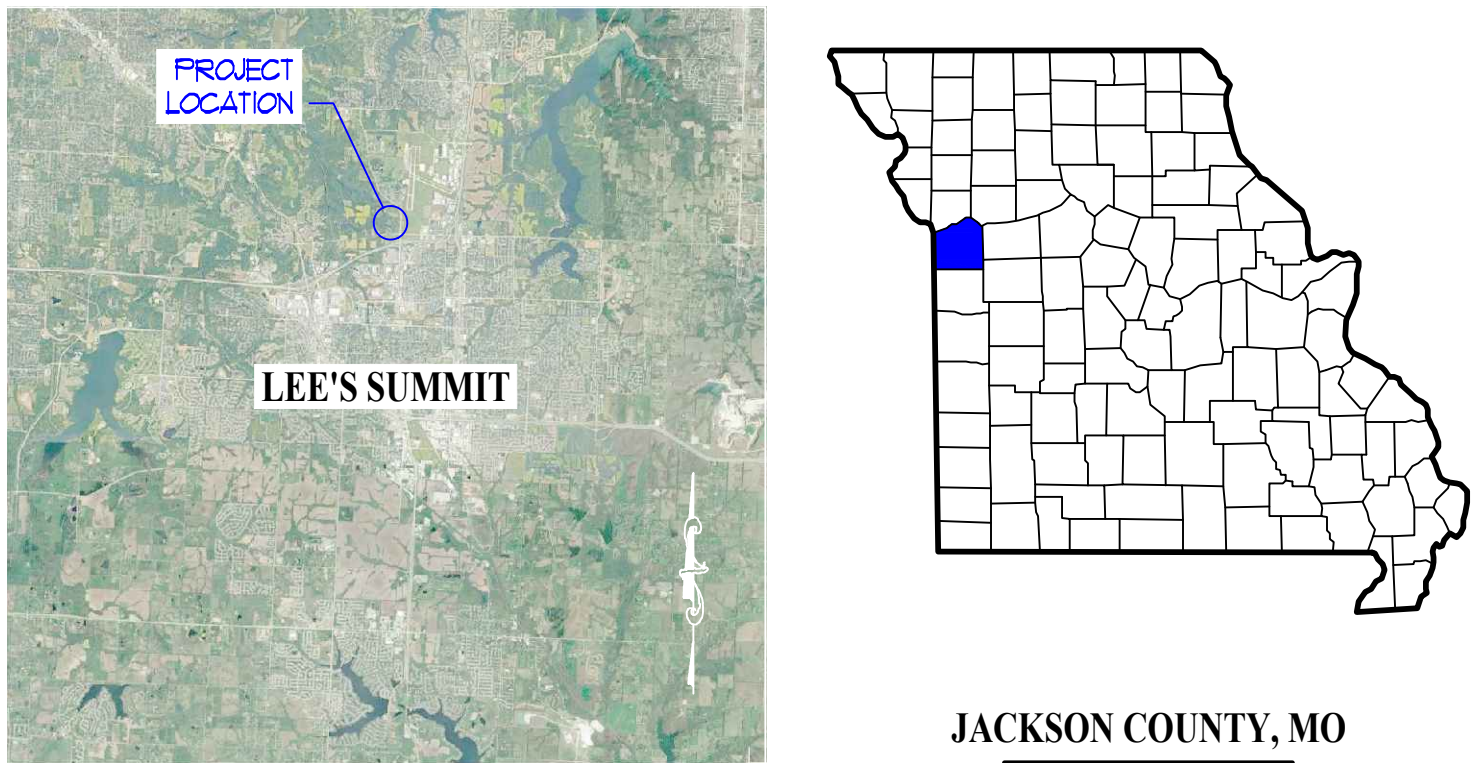




Discovery Pet Spa

1921 NE Trails Edge Boulevard

Lee's Summit, Jackson County, Missouri



ZONING & CODE REVIEW

PROJECT SCOPE:
NEW CONSTRUCTION OF AN APPROXIMATELY 10366 SF SINGLE STORY BUILDING OVER SLAB-ON-GRADE FOUNDATION ACCOMMODATING A B-BUSINESS USE AND LOCATED WITHIN THE CITY LIMITS OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI AND SUBJECT TO ALL STATE AND LOCAL DESIGN REQUIREMENTS WITHIN.

BUILDING CODES IN EFFECT:
IBC/2018, IRC/2018, IRC/2018, IFGC/2018, IFC/2018, NEC/2017, ICC/ANSI A117.1-2009 AS AMENDED AND ADOPTED BY THE CITY OF LEE'S SUMMIT, MISSOURI

ADMINISTRATION
• DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE
JAY D. BERENDZEN, ARCHITECT
PORTER, BERENDZEN & ASSOCIATES, P.C.
305 EAST BROADWAY, SUITE A
ASHLAND, MISSOURI 65010
573.657.2022 PHONE

USE & OCCUPANCY CLASSIFICATION
• B - BUSINESS

GENERAL BUILDING HEIGHTS & AREAS
• (USE GROUP B, CONSTRUCTION TYPE YB - SPRINKLERED)

HEIGHTS
• TABULAR ALLOWABLE BUILDING HEIGHT
• B-BUSINESS USE: 3 STORIES, 60 FEET
• ACTUAL BUILDING HEIGHT: 1 STORIES, 23 FEET

AREA
• TABULAR ALLOWABLE BUILDING AREA PER FLOOR:
• B BUSINESS USE: 36,000 SF
• FRONTAGE INCREASE + 75% = 9,000SF(0.75) = 6,750 SF
• TOTAL ALLOWABLE AREA = 42,750 SF
• ACTUAL BUILDING AREAS: 10,366 sf

TYPES OF CONSTRUCTION
• TYPE YB - SPRINKLERED

OWNER:
DPLS P1 LLC
3622 Endeavor Avenue, Suite 101
Columbia, Missouri 65201
bmaenner@intrinsicdevelopment.com
Brian P. Maenner

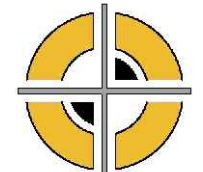
CLIENT:
INTRINSIC DEVELOPMENT

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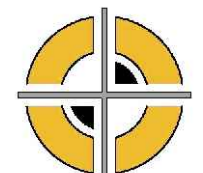
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573.657.2022 phone
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MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:
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573.234.4492 phone
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JP Watson, PE
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Jeremy Patrick
jeremy@j-squaredeng.com

SHEET INDEX

CVR - COVER SHEET / ARCHITECTURAL CODE REVIEW

CIVIL ENGINEERING DRAWINGS UNDER SEPARATE COVER

S100 - COVER / GENERAL STRUCTURAL DATA
S200 - FOUNDATION PLAN
S210 - FOUNDATION DETAILS
S211 - FOUNDATION DETAILS
S300 - ROOF FRAMING PLAN
S300A - SHEAR WALL PLAN
S310 - ROOF FRAMING DETAILS
S311 - ROOF FRAMING DETAILS

A100 - OVERALL FLOOR PLAN
A101 - FLOOR PLAN / LIFE SAFETY
A201 - DIMENSIONAL PLAN
A301 - REFLECTED CEILING PLAN
A401 - ROOF PLAN
A500 - EXTERIOR ELEVATIONS
A501 - EXTERIOR ELEVATIONS
A502 - EXTERIOR RENDERINGS
A600 - BUILDING SECTIONS / DETAILS
A601 - BUILDING SECTIONS / DETAILS
A602 - BUILDING SECTIONS / DETAILS
A603 - BUILDING SECTIONS / DETAILS
A700 - STOREFRONT ELEVATIONS / DETAILS
A800 - INTERIOR ELEVATIONS
A900 - SITE DETAILS / SCHEDULES

MEP1 - MECHANICAL ELECTRICAL PLUMBING COVER SHEET
MEP2 - SITE UTILITY / SITE LIGHTING PLAN
M101 - HVAC PLAN
M501 - HVAC DETAILS
M502 - HVAC DETAILS
M503 - HVAC DETAILS
M601 - HVAC SCHEDULES
EP101 - POWER PLAN
EL101 - LIGHTING PLAN
E501 - ELECTRICAL SCHEDULES
E601 - ELECTRICAL DETAILS
PS101 - SANITARY SEWER PLAN
PW101 - WATER & GAS PLAN
PS01 - PLUMBING DETAILS & SCHEDULES

GENERAL NOTES

IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND EACH OF HIS SUBCONTRACTORS TO REVIEW THE DRAWINGS TO ASSURE AND MAINTAIN THE COORDINATION OF ALL WORK AFFECTING EACH TRADE. FAILURE TO REVIEW ALL CONTRACT DOCUMENTS FOR APPLICABLE ITEMS OF WORK SHALL NOT RELIEVE THE RESPONSIBLE PARTY FROM PERFORMING ALL WORK REQUIRED.

- CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING - NOTIFY THE DESIGN TEAM & INTRINSIC DEVELOPMENT OF ALL CONFLICTS WITHIN THE WORK.
- DRAWINGS - THESE DRAWINGS SHALL NOT BE SCALED. REFER TO DIMENSIONS INDICATED, ACTUAL SIZES OF CONSTRUCTION ITEMS, OR OTHER METHODS OF LOCATING CONSTRUCTION. WHERE NO DIMENSION OR METHOD OF DETERMINING A LOCATION IS GIVEN, VERIFY CORRECT LOCATION WITH THE DESIGN TEAM & INTRINSIC DEVELOPMENT PRIOR TO INSTALLATION.
- DIMENSIONS - DIMENSIONS ON PLANS ARE FROM FACE OF CONCRETE, MASONRY, OR FRAMING UNLESS OTHERWISE NOTED. DIMENSIONS INDICATED AS "CLEAR" SHALL BE A MINIMUM DIMENSION, (FACE TO FACE) OF FINISH MATERIALS.
- COORDINATION - GENERAL CONTRACTOR SHALL COORDINATE REQUIREMENTS OF ALL TRADES TO ALLOW FOR TIMELY INCLUSION IN THE WORK SO AS NOT TO DELAY THE WORK OR THE WORK OF ANY SUBCONTRACTOR.
- EQUIPMENT - REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION. VERIFY ANY REQUIREMENTS FOR ROUGH-IN OR CONNECTION PRIOR TO CONSTRUCTION TO ASSURE CORRECT INSTALLATION, OPENINGS, ELECTRICAL, MECHANICAL, BLOCKING, ETC.
- DUCTS, PIPE, CONDUIT, ETC. - ALL VERTICAL AND HORIZONTAL DUCTS, PIPES, CONDUIT, ETC., (WHETHER SHOWN OR NOT) IN FINISHED ROOMS SHALL BE LOCATED WITHIN WALLS OR ABOVE FINISHED CEILINGS. ITEMS THAT CANNOT BE LOCATED WITHIN WALLS OR CEILINGS SHALL BE FURRED IN AND FINISHED TO MATCH ADJACENT SURFACES AND ANY REQUIRED WALL OR CEILING RATINGS. VERIFY ACCEPTABILITY WITH THE DESIGN TEAM & INTRINSIC DEVELOPMENT PRIOR TO ENCASEMENT.
- FIXTURES - LAVATORIES AND SINKS SHALL BE INSTALLED A MINIMUM OF 4" FROM FINISHED SIDE WALLS. FAUCETS SHALL BE INSTALLED WITH A MINIMUM OF 5" FROM THE OUTLET TO THE FLOOD RIM OF SINKS, INCLUDING THOSE EQUIPPED WITH VACUUM BREAKERS. WATER CLOSETS SHALL BE INSTALLED A MINIMUM OF 16" FROM FINISHED SIDE WALLS TO CENTERLINE OF FIXTURES.
- BLOCKING - BLOCKING OUTSIDE THE BUILDING ENVELOPE OR SUBJECT TO MOIST OR HUMID CONDITIONS SHALL BE PRESSURE TREATED AND USE CORROSION RESISTANT FASTENERS.
- ACCESS DOORS - FURNISH AND INSTALL ACCESS DOORS IN WALLS AND NON-ACCESSIBLE TYPE CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, FIRE PROTECTION, PLUMBING, ELECTRICAL OR OTHER EQUIPMENT IS REQUIRED. WHERE WALL OR CEILING IS REQUIRED TO BE RATED, PROVIDE ACCESS DOORS OF FIRE RATING EQUAL TO THE ASSEMBLY IN WHICH THEY OCCUR.
- EXISTING CONDITIONS - THE EXISTING CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED ON INFORMATION PROVIDED TO THE DESIGN TEAM & INTRINSIC DEVELOPMENT. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS ON THE JOB SITE, AND NOTIFY THE DESIGN TEAM & INTRINSIC DEVELOPMENT OF DEVIATIONS FROM THESE DRAWINGS PRIOR TO FABRICATION AND INSTALLATION OF THE WORK.
- PRECAUTIONS - IF UNFORESEEN CONDITIONS ARE DISCOVERED WHICH COULD RESULT IN DAMAGE TO THE STRUCTURE OR INJURY TO ITS OCCUPANTS, REPORT ANY SUCH CONDITION IMMEDIATELY TO THE DESIGN TEAM & INTRINSIC DEVELOPMENT. TAKE PRECAUTIONS TO PROPERLY SUPPORT THE STRUCTURE.
- HAZARDOUS MATERIALS - CONTRACTOR SHALL IMMEDIATELY REPORT THE DISCOVERY OF ANY HAZARDOUS MATERIALS TO THE DESIGN TEAM & INTRINSIC DEVELOPMENT.
- SITE USAGE - USE OF THE SITE FOR ANY CONSTRUCTION STAGING OR OTHER OPERATIONS SHALL BE COORDINATED WITH THE DESIGN TEAM & INTRINSIC DEVELOPMENT. TAKE CARE NOT TO BLOCK OR ADVERSELY AFFECT ANY PUBLIC OR ADJACENT OWNER AREAS.
- EXIT ACCESS - MAINTAIN FREE, SAFE, AND APPROVED MEANS OF EGRESS IN AND OUT OF PROJECT LOCATION IN ACCORDANCE WITH REQUIREMENTS OF APPLICABLE REGULATORY AGENCIES.

INTERIOR FINISHES (CHAPTER 2)

TABLE 203.13 INTERIOR WALL & CEILING FINISH REQUIREMENTS, SPRINKLERED, GROUP B)
• EXIT ENCLOSURES & EXIT PASSAGEWAYS:
• CLASS B - (FLAME SPREAD 26-75, SMOKE DEVELOPED 0-450)
• CORRIDORS:
• CLASS C - (FLAME SPREAD 76-200, SMOKE DEVELOPED 0-450)
• ROOMS & ENCLOSED SPACES:
• CLASS C - (FLAME SPREAD 76-200, SMOKE DEVELOPED 0-450)

FIRE PROTECTION SYSTEM (CHAPTER 9)

• AN AUTOMATIC FIRE SPRINKLER SYSTEM IS NOT REQUIRED, HOWEVER IS PROVIDED FOR THIS BUILDING.
• A MANUAL FIRE ALARM SYSTEM IS NOT REQUIRED FOR THIS BUILDING (907.2.2)

THE GENERAL CONTRACTOR SHALL PROVIDE & INSTALL PORTABLE FIRE EXTINGUISHER(S) WITH NO MORE THAN 75 FEET OF TRAVEL DISTANCE TO FIRE EXTINGUISHERS LOCATED AS DIRECTED BY THE FIRE MARSHAL.

A KNOX BOX IS REQUIRED AT 6'-0" ABOVE SIDEWALK IN THE LOCATION AS DIRECTED BY THE FIRE MARSHAL.

MEANS OF EGRESS (CHAPTER 10)

SEE LIFE SAFETY / EGRESS PLAN ON FOLLOWING SHEET A101 FOR DETAILS & INFORMATION.

ACCESSIBILITY (CHAPTER 11)

• ACCESSIBLE ROUTES WITHIN THE SITE SHALL BE PROVIDED FROM PUBLIC TRANSPORTATION STOPS, ACCESSIBLE PARKING, ACCESSIBLE PASSENGER LOADING ZONES, AND PUBLIC STREETS OR SIDEWALKS TO THE ACCESSIBLE BUILDING ENTRANCE SERVED (SECTION 1104.1) AT LEAST 60% OF ALL PUBLIC ENTRANCES SHALL BE MADE ACCESSIBLE.
• AT LEAST 2 PERCENT, BUT NOT LESS THAN ONE, OF EACH TYPE OF PARKING SPACE PROVIDED SHALL BE AN ACCESSIBLE SPACE.
• THIS BUILDING SHALL CONFORM TO: THE AMERICAN NATIONAL STANDARD FOR ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (ICC/ANSI A117.1-2017) AND THE LATEST EDITION OF THE AMERICANS WITH DISABILITIES ACT.

PLUMBING FIXTURES, FAUCETS, & FIXTURE FITTINGS - (IFC 2018)

MINIMUM NUMBER OF PLUMBING FACILITIES

OCCUPANT LOAD: 49 OCCUPANTS

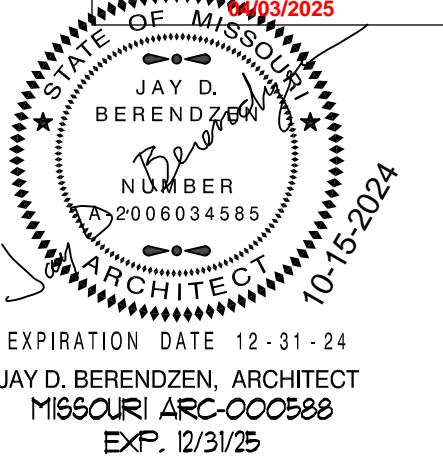
FIXTURE COUNT TO BE DESIGNED WITH A 50/50 DISTRIBUTION BETWEEN SEXES (M MEN / W WOMEN)

• WATER CLOSETS: 1 WC / 25 FOR 1st 50, THEN 1 WC / 50 REMAINDER EXCEEDING 50 OCCUPANTS
• WATER CLOSETS REQUIRED: (1) MEN'S / (1) WOMEN'S
• WATER CLOSETS PROVIDED = (1) MEN'S / (1) WOMEN'S

• LAVATORIES: 1 LAV / 40 FOR 1st 80, THEN 1 LAV / 80 REMAINDER EXCEEDING 80 OCCS
• LAVATORIES REQUIRED: (1) MEN'S / (1) WOMEN'S
• LAVATORIES PROVIDED = (1) MEN'S / (1) WOMEN'S

• DRINKING FOUNTAINS: 1 DF / 100 OCCUPANTS
• DRINKING FOUNTAINS REQUIRED: 1 REQUIRED
• DRINKING FOUNTAINS PROVIDED = 1 PROVIDED

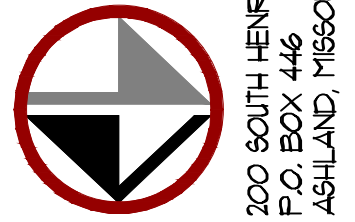
• SERVICE SINKS:
• SERVICE SINKS REQUIRED = 1 REQUIRED
• SERVICE SINK PROVIDED = 3 PROVIDED



JAY D. BERENDZEN, ARCHITECT
MISSOURI ARC-000588
EXP. 12/31/25

THE PROFESSIONAL ARCHITECT'S SEAL APPLIED TO HIS SHEETS AND THESE BUILDING PERMITS OR OTHER DOCUMENTS NOT EXISTING UNLESS THE ARCHITECT CONSIDERS PREPARED BY THIS ARCHITECT, AND THE ARCHITECT EXEMPTED FROM ANY AND ALL PLAN DRAWINGS OR DOCUMENTS NOT EXHIBITING THIS SEAL.

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PROJECT

Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

ISSUE

ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024
2	REVISION #1	10/14/2024

PROJECT NO.

FB24248

SHEET TITLE

COVER SHEET

SHEET NUMBER

CVR

Discovery Pet Spa

Lee's Summit, Jackson County, Missouri

GENERAL NOTES

ELEVATION DATUM
SEE ARCHITECTURAL DRAWINGS OR SITE PLAN FOR FINISH FLOOR ELEVATIONS

DESIGN SPECIFICATIONS
2018 INTERNATIONAL BUILDING CODE

EARTHWORK
EARTHWORK OPERATIONS SHALL BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL TESTING AGENCY TO ASSURE COMPLIANCE WITH THE RECOMMENDATIONS OF THE SOILS REPORT BY OWN INC. DATED APRIL 15, 2024.

CONCRETE

CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE CURRENT ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 305 SPECIFICATIONS FOR HOT WATER CONCRETE, AND ACI 306 SPECIFICATIONS FOR COLD WEATHER CONCRETE, WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

- CONCRETE SHALL DEVELOP THE FOLLOWING 28-DAY MINIMUM COMPRESSIVE STRENGTH:

FOUNDATIONS	—	3,000 PSI
CAST-IN-PLACE WALLS	—	3,500 PSI
FLOOR SLAB	—	4,000 PSI
EXTERIOR SLABS, WALLS AND CURBS	—	4,000 PSI
- ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR ENGINEERED FILL.
- CHLORIDE- BASED ADMIXTURES ARE PROHIBITED IN ALL REINFORCED CONCRETE.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, A616, OR A617, GRADE 60.
- ALL CONTINUOUS REINFORCING STEEL THAT MEETS AT A CORNER SHALL BE TIED TOGETHER WITH A CORNER BAR THAT HAS SUFFICIENT LAP DISTANCE IN EACH DIRECTION
- CONTINUOUS REINFORCING BARS LAP LENGTH SHALL BE A MINIMUM OF 48 BAR DIAMETERS UNLESS NOTED OTHERWISE
- CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C- 143) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY. NO WATER MAY BE ADDED TO THE CONCRETE MIX ON SITE UNLESS WATER IS WITHHELD AT THE BATCHING FACILITY. IF WATER IS WITHHELD AT THE BATCHING FACILITY IT SHOULD BE REFLECTED ON THE LOAD TICKET. THE TOTAL AMOUNT OF WATER IN THE MIX SHALL NOT EXCEED WHAT IS NOTED ON THE APPROVED MIXED. THIS SHALL BE NOTED IN THE SPECIAL INSPECTOR'S RECORDS.
- CONCRETE EXPOSED TO WEATHER, VEHICLES, AND/OR DEICING CHEMICALS SHALL BE AIR-ENTRAINED WITH 6% (+/-) 1.5% ENTRAINED AIR BY VOLUME AT POINT OF DISCHARGE. DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3%.
- SUBMIT CONCRETE MIX PROPORTIONS PRIOR TO START OF WORK. DO NOT BEGIN CONCRETE PRODUCTION UNTIL MIXES HAVE BEEN REVIEWED AND ARE ACCEPTABLE TO THE ENGINEER.
- READY MIX CONCRETE SHALL COMPLY WITH REQUIREMENTS OF ASTM C94.
- CONCRETE WORK EXECUTION
 - CONSTRUCT FORMS TO CORRECT SIZE, SHAPE, ALIGNMENT, ELEVATION AND POSITION; AND TO SUPPORT VERTICAL AND LATERAL LOADS.
 - POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE, UNLESS NOTED OTHERWISE ON THE DRAWINGS:

CAST AGAINST AND EXPOSED TO EARTH.....	3 INCHES
EXPOSED TO EARTH OR WEATHER.....	2 INCHES
NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH.....	1 ½ INCHES
 - PROVIDE CONTROL JOINTS IN SLABS-ON-GRADE AT NOT GREATER THAN 15 FEET ON CENTER IN EACH DIRECTION. SAW CUT CONTROL JOINTS MINIMUM ¼ OF SLAB DEPTH, AS SOON AFTER SLAB FINISHING WITHOUT DISLOGGING AGGREGATE.
 - STEEL TROWEL FINISH ALL INTERIOR CONCRETE SLABS, BROOM FINISH ALL EXTERIOR CONCRETE SLABS.
 - CURE ALL CONCRETE IN COMPLIANCE WITH ACI 301, USING A LIQUID TYPE MEMBRANE, NON-RESIDUAL, CURING COMPOUND COMPLYING WITH ASTM C309. ASSURE COMPATIBILITY WITH FINISH FLOOR COVERING.

STRUCTURAL STEEL

- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES AND CURRENT OSHA STANDARDS.
- WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. STRUCTURAL TUBES SHALL CONFORM TO ASTM A500 GRADE B. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
- BOLTS, UNLESS OTHERWISE SHOWN, SHALL CONFORM TO ASTM A325-N, SIZE AS PER PLAN.
- ANCHOR BOLTS, UNLESS OTHERWISE SHOWN, SHALL CONFORM TO ASTM F1554 GRADE 36.
- SPLICING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT AS DETAILED.
- ALL STRUCTURAL AND MISCELLANEOUS STEEL ITEMS SHALL RECEIVE ONE COAT OF "IRONCLAD RETARDO RUST INHIBITIVE PAINT 163" (BENJAMIN MOORE) OR APPROVED EQUAL UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS. ALL STEEL SURFACES EMBEDDED IN CONCRETE SHALL NOT BE PAINTED. PREPARATION OF STEEL SURFACES SHALL MEET THE REQUIREMENTS OF THE STEEL STRUCTURES PAINTING COUNCIL (SSPC-SP1) AND THE REMOVAL OF GREASE AND OIL BY SOLVENT CLEANING (SSPC-SP1) AND THE REMOVAL OF MILL SCALE, RUST, WELD FLUX AND SLAG BY HAND TOOL CLEANING (SSPC-SP2). PRIMER SHALL BE APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE BUT NOT LESS THAN ONE GALLON PER 400 SQ.FT. THEREBY DEPOSITING A DRY FILM THICKNESS OF NOT LESS THAN 1.5 MILS. ANY SCARRED AREAS SHALL BE TOUCHED UP WITH THE SAME PAINT AFTER ERECTION.
- ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS STRUCTURAL WELDING CODE. WELDING ELECTRODES SHALL BE E70XX.

POST-INSTALLED ANCHORS

- ALL POST-INSTALLED ANCHORS SHALL MEET THE REQUIREMENTS OF THE CODE-CITED EDITION OF ACI 318, APPENDIX "D", AND SHALL BE ACCEPTABLE FOR BOTH CRACKED AND UNCRACKED CONCRETE.
- EXPANSION ANCHORS HAVE BEEN DESIGNED AS HILTI KWIK BOLT TZ ANCHORS, UNLESS NOTED OTHERWISE.
- ADHESIVE ANCHORS HAVE BEEN DESIGNED TO USE HILTI HIT HY 200 ADHESIVE IN CONCRETE OR SOLID MASONRY, UNLESS NOTED OTHERWISE.
- EQUIVALENT ANCHORS MAY BE SUBMITTED FOR THE ENGINEER'S APPROVAL. SUBMITTALS ARE THE CONTRACTOR'S RESPONSIBILITY AND MUST INCLUDE EVALUATION REPORTS FROM THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO).
- EMBEDMENT DEPTH IS DEFINED AS THE DISTANCE FROM THE SURFACE OF THE LOAD-BEARING BASE MATERIAL TO THE DEEPEST PART OF THE ANCHOR AFTER THE ANCHOR HAS BEEN DRIVEN INTO THE HOLE BUT NOT YET EXPANDED.
- ADHESIVE ANCHORS SHALL BE ACCEPTABLE FOR LONG-TERM LOADING. WHEN BASE MATERIAL TEMPERATURES ARE BELOW 40 DEG F, ONLY NON-EPOXY-BASED ADHESIVES SHALL BE USED.
- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE DRAWINGS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLANE ANCHORS. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING BARS. HOLES SHALL BE DRILLED AND CLEANED PER ANCHOR MANUFACTURER'S SPECIFICATIONS.
- STAINLESS STEEL ANCHORS ARE REQUIRED AT ALL PERMANENTLY EXPOSED WEATHER CONDITIONS.

TIMBER

TIMBER WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE CURRENT ANSI/AWC NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION WITH 2018 NDS SUPPLEMENT FOR WOOD CONSTRUCTION, WITH THE FOLLOWING SUPPLEMENTAL REQUIREMENTS:

- FOR COMMON MEMBER SIZES, THE SPECIES AND GRADES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

A.	2X4	SPF No.1/No.2
B.	2X6	SPF No.1/No.2
C.	2X8	DF-L No.2
D.	2X10	DF-L S.S.
E.	2X12	DF-L S.S.

EQUIVALENT (OR BETTER) GRADES & SPECIES MAY BE SUBMITTED FOR THE ENGINEER'S APPROVAL.

- SIZES SHOWN FOR LUMBER ARE NOMINAL SIZES.
- TIMBER EXPOSED TO WEATHER OR GROUND, OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-IMPREGNATED BY AN APPROVED PROCESS AND PRESERVATIVE.
- SPLICING OF JOISTS, STUDS, OR HEADERS IS PROHIBITED EXCEPT AS SHOWN.
- BOLTS SHALL CONFORM TO ASTM A307. HOLES SHALL BE DRILLED PER SECTION 12.1.3 OF THE 2018 ANSI/AWC NDS FOR WOOD CONSTRUCTION NDS SUPPLEMENT.
- LAG SCREWS AND WOOD SCREWS SHALL BE INSTALLED PER SECTIONS 12.1.4 & 12.1.5 RESPECTIVELY, OF THE 2018 ANSI/AWC NDS FOR WOOD CONSTRUCTION WITH 2018 NDS SUPPLEMENT.
- COMMON NAILS SHALL BE USED, UNLESS NOTED OTHERWISE. IN ADDITION, NAILS SHALL BE GALVANIZED, IF EXPOSED TO WEATHER OR MOISTURE. TOE-NAILS SHALL BE DRIVEN PER SECTION 12.1.6.3 OF THE 2018 ANSI/AWC NDS FOR WOOD CONSTRUCTION WITH 2018 NDS SUPPLEMENT.
- FASTENING SHALL BE PER THE IBC MINIMUM FASTENING SCHEDULE, TABLE 2304.10.1, UNLESS NOTED OTHERWISE.
- CONNECTIONS/CONNECTORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

BRICK LINTEL

- ALL STEEL LINTELS TO BE A36 STEEL, A992 GRADE 50, OR A500 GRADE B. ALL LINTELS TO BE HOT DIPPED GALVANIZED.

PREFABRICATED WOOD TRUSSES

- FLOOR & ROOF TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE TRUSS PLATE INSTITUTE (TPI) DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES, AND THE ANSI/NF&PA NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION.
- PROVIDE TEMPORARY AND PERMANENT BRACING ON ALL TRUSSES, AS REQUIRED TO PROVIDE MEMBER AND TRUSS STABILITY.
- FLOOR & ROOF TRUSSES SHALL BE DESIGNED AND CONSTRUCTED FOR A MAXIMUM TOTAL LOAD DEFLECTION OF L/360 AND TO SAFELY SUPPORT THE FOLLOWING LOADS:
 - DEAD, LIVE, SNOW, WIND, EARTHQUAKE: SEE PROJECT DESIGN DATA ON COVER SHEET.
 - MECHANICAL PIPE LOAD: TRUSSES SHALL BE DESIGNED FOR A CONCENTRATED LOAD OF 250 LBS HUNG ANYWHERE ALONG THE BOTTOM CHORD.
 - OVER-FRAMING LOAD: TRUSSES SHALL ALSO BE DESIGNED TO SUPPORT ADDITIONAL OVERBUILD FRAMING, SUCH AS THAT WHICH FORMS VALLEYS AND HIPS ON ROOFS.
 - DRIFTED SNOW LOAD: TRUSSES SHALL BE DESIGNED TO SUPPORT DRIFTED SNOW LOADS IN ACCORDANCE WITH THE APPROPRIATE BUILDING CODE.
 - IN-PLANE LATERAL LOADS: TRUSSES SHALL BE DESIGNED TO SUPPORT ANY LATERAL LOADS CARRIED ANXALLY IN THE PLANE OF THE TRUSS, AS SHOWN ON THE PLANS.
- CABLED END TRUSSES SHALL HAVE VERTICAL MEMBERS SPACED AT 16" O.C. MAXIMUM.
- SUBMITTALS SHALL INCLUDE THE FOLLOWING:
 - SHOP DRAWINGS PREPARED UNDER THE SUPERVISION OF, AND SIGNED AND SEALED BY, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BUILT. THESE DRAWINGS SHALL INDICATE SPECIES, GRADE, AND SIZES OF LUMBER TO BE USED; PITCH, SPAN, CAMBER, CONFIGURATION, AND SPACING FOR EACH TYPE OF TRUSS REQUIRED; TYPE, SIZE, MATERIAL, FINISH, AND LOCATION OF METAL CONNECTOR PLATES; AND BEARING DETAILS. SHOW TRUSS LAYOUT AND ALL REQUIRED TEMPORARY AND PERMANENT BRACING AFFECTING THE STRUCTURAL CAPACITY OF THE TRUSSES.

PROVIDE COMPLETE ENGINEERING DESIGN CALCULATIONS THAT INCLUDE DESIGN VALUES, DESIGN ANALYSIS INDICATING LOADING, ASSUMED ALLOWABLE STRESSES, STRESS DIAGRAM, AND CALCULATIONS, AND ANY OTHER INFORMATION NEEDED FOR REVIEW. THE CALCULATIONS SHALL HAVE BEEN SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE WHERE THE PROJECT IS BUILT AND WHO IS RESPONSIBLE FOR PREPARATION OF THE CALCULATIONS.

SPECIAL INSPECTIONS

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

- CONCRETE GROUT DESIGN MIX (PERIODIC)
- PLACING OF CONCRETE AND REINFORCING STEEL (CONTINUOUS OF CONCRETE SAMPLING / PERIODIC OF REINFORCING)
- BOLTS & ANCHORS EMBEDDED IN CONCRETE (PERIODIC)
- STRUCTURAL STEEL FABRICATIONS (UNLESS AISC APPROVED) (PERIODIC)
- STRUCTURAL STEEL BOLTING & WELDING (PERIODIC)
- POST INSTALLED ANCHORS IN CONCRETE (CONTINUOUS)
- IN-SITU SOILS, EXCAVATIONS, FILLING & COMPACTION (PERIODIC)
- WOOD FRAMING:
 - SHEAR WALLS; WALL SIZE, CONFIGURATION, BLOCKING, PANEL GRADE, PANEL THICKNESS, AND FASTENING. (PERIODIC)
 - DIAPHRAGMS (FLOOR AND ROOF SHEATHING); SIZE, CONFIGURATION, BLOCKING, PANEL GRADE, PANEL THICKNESS, AND FASTENING. (PERIODIC)
 - FRAMING MEMBERS AND DETAILS (PERIODIC)
 - MATERIAL GRADE (PERIODIC)
 - CONNECTIONS; HANGERS, HOLD DOWNS, BUILT-UP COLUMNS, BUILT-UP BEAMS (PERIODIC)
 - PRE-ENGINEERED TRUSSES; FRAMING, CONNECTIONS, BRIDGING (PERIODIC)

THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK.

DESIGN DATA	
2018 INTERNATIONAL BUILDING CODE / ASCE 7-16	
BUILDING OCCUPANCY CATEGORY:	II
ROOF LOAD DATA	
LIVE LOAD	20
ASPHALT SHINGLES + FELT	4.0
5/8" OSB ROOF SHEATHING	3.0
PRE-ENGINEERED WOOD TRUSSES @ 2'-0" O.C.	4.0
INSULATION (BLOWN)	10
MECHANICAL ALLOWANCE	6.0
5/8" GYP. CEILING	2.0
FUTURE SOLAR	5.0
TOTAL TO TRUSSES	45 lbs/sqft
RAIN LOAD DATA	
15 MINUTE RAIN INTENSITY	7.49 in/hr
60 MINUTE RAIN INTENSITY	3.52 in/hr
ROOF SNOW LOAD DATA* (*UNBALANCED & DRIFTING SNOW TO BE DETERMINED IN ADDITION TO UNIFORM LOAD, WHERE APPLICABLE)	
$P_s =$	20 lbs/sqft
$C_s =$	1.0
$I_s =$	1.0
$C_d =$	1.0
$P_f =$	14.00 lbs/sqft
WIND DESIGN DATA	
$V_{50} =$	109 MPH (3-SECOND GUST)
RISK CATEGORY	II
EXPOSURE	C
INTERNAL PRESSURE COEFFICIENT =	± 0.18
MAXIMUM COMPONENTS & CLADDING WIND	±/-3232 lbs/sqft
EARTHQUAKE DESIGN DATA	
RISK CATEGORY	II
$I_E =$	1.0
$S_S =$	0.1
$S_1 =$	0.068
SITE CLASS	D
$S_{MS} =$	0.107
$S_{M1} =$	0.109
SEISMIC DESIGN CATEGORY	B
BASIC SEISMIC-FORCE-RESISTING SYSTEM = LIGHT-FRAME (WOOD) WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE	
$R =$	6.5
$\Omega_D =$	3.0
$C_d =$	4.0
DESIGN BASE SHEAR	$V = 0.016 W$
EQUIVALENT LATERAL FORCE PROCEDURE	
NET ALLOWABLE SOIL BEARING	2,500 lbs/sqft**
(**PER GEOTECHNICAL REPORT BY OWN INC. DATED APRIL 15, 2024)	

INDEX OF SHEETS	
COVER / GENERAL STRUCTURAL DATA	S100
FOUNDATION PLAN	S200
FOUNDATION DETAILS	S210-S211
ROOF FRAMING PLAN	S300
SHEAR WALL PLAN	S300A
ROOF FRAMING DETAILS	S310

REVISIONS:

No.	Date
PERMIT SET	09/19/2024

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY



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Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#200310101

CLIENT:
INTRINSIC DEVELOPMENT
3622 ENDEAVOR AVE. STE. 101
COLUMBIA, MO 65201

DISCOVERY PET SPA
1901 NE TRAILS EDGE BOULEVARD
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

GENERAL
STRUCTURAL DATA

DESIGNED: JWV

DRAWN: ELT

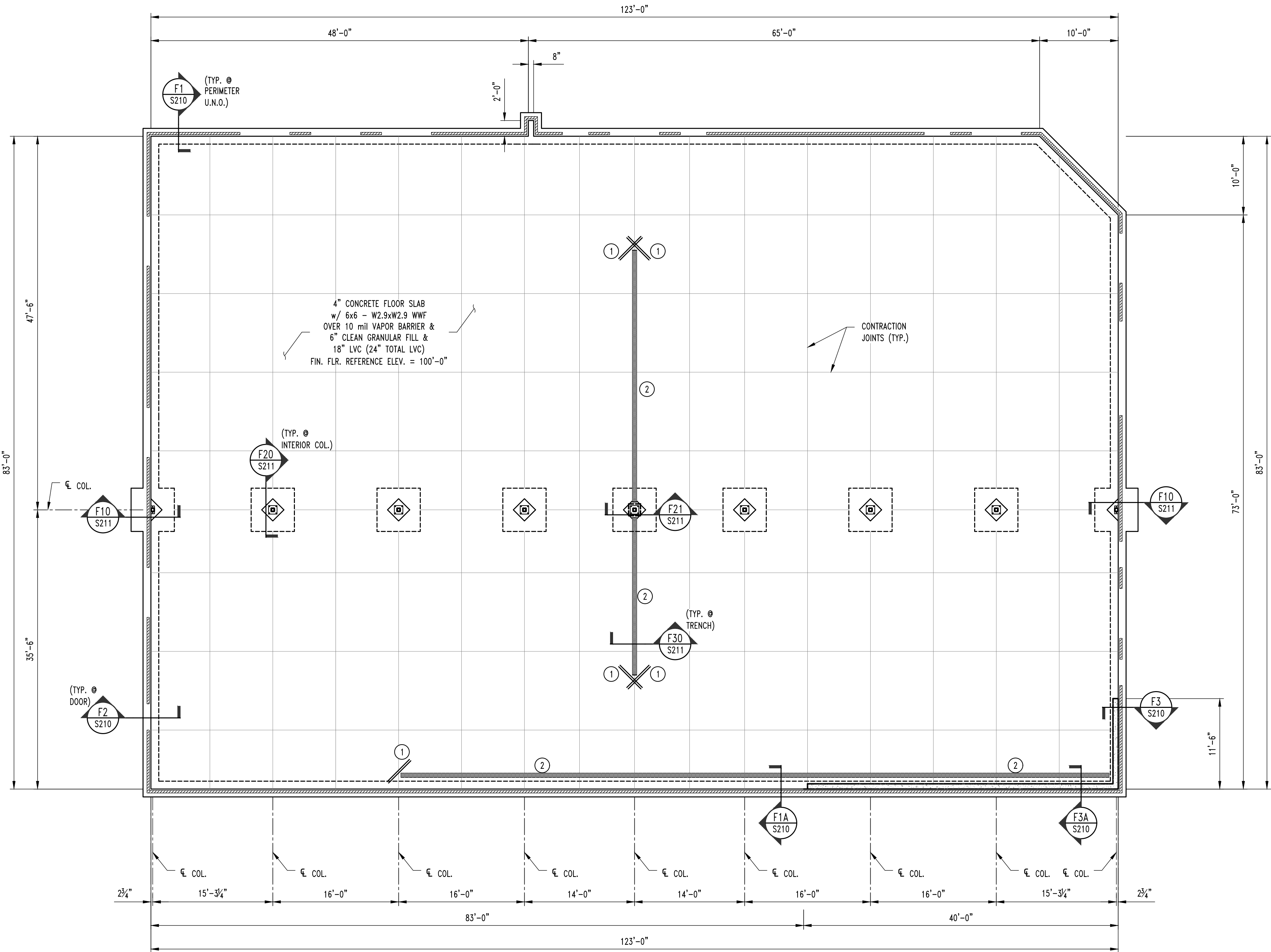
PROJECT NO.: 230286

SHEET:
S100

NOTE:
ALL DIMENSIONS ARE FROM FACE OF FOUNDATION WALL OR FRAMING;
EDGE OF SLAB OR TRUSS/RAFTER; OR CENTERLINE
OF COLUMN, BEAM, OR JOIST UNLESS NOTED OTHERWISE.

FOUNDATION NOTES

- ① REENTRANT CORNER BARS, REFER TO TYPICAL CRACK
CONTROL REINFORCING DETAIL ON SHEET S210.
- ② FLOOR DRAIN REFER TO MEP FOR
ADDITIONAL INFORMATION.



FOUNDATION PLAN
SCALE: 1/8" = 1'-0"
PLAN NORTH

REVISIONS:	
No.	Date
1	09/19/2024
2	
3	
4	
5	
6	
7	
8	
9	
10	

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DRAWING INCLUDES:

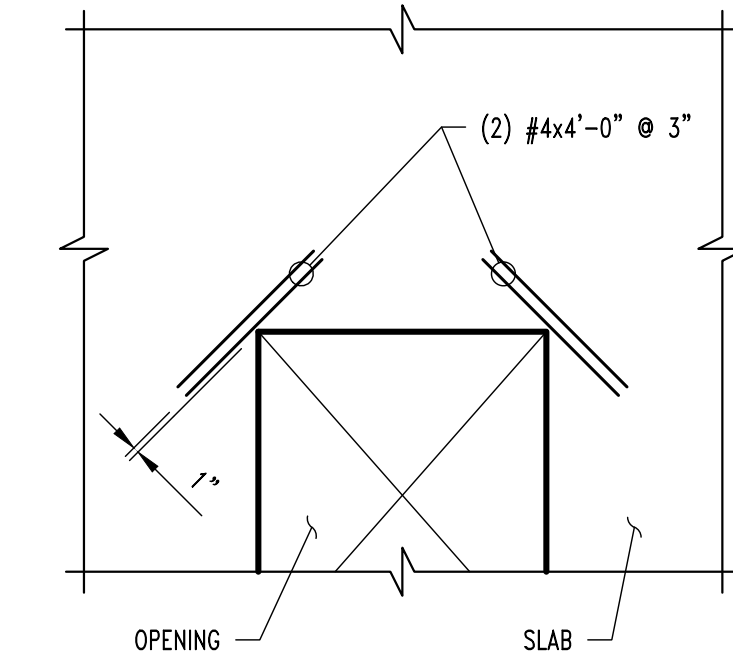
FOUNDATION
PLAN

DESIGNED: JWV

DRAWN: ELT

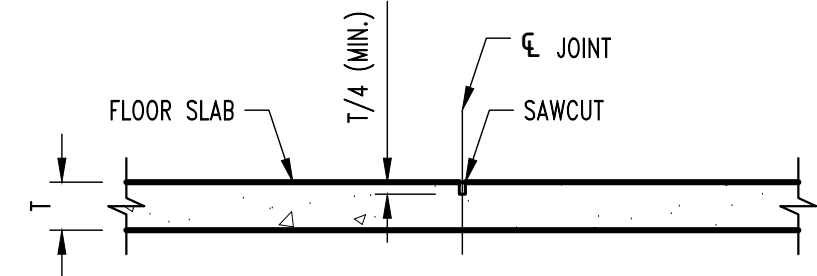
PROJECT NO.: 230286

SHEET:
S200

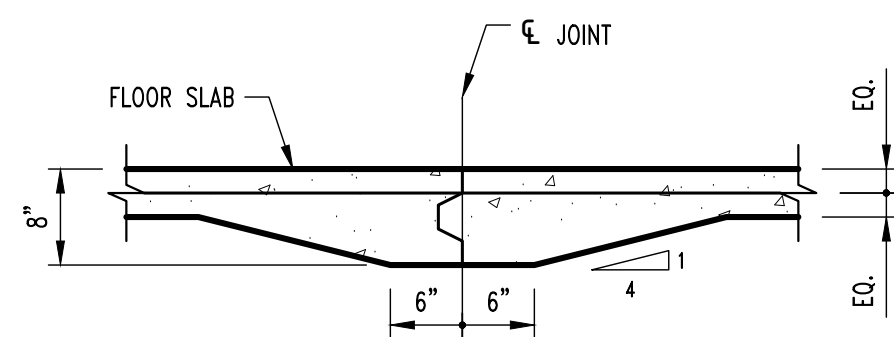


NOTE:
TYPICAL AT ALL REENTRANT CORNERS FOR
SLAB-ON-GRADE & STRUCTURAL SLAB.
REINFORCING TO BE CENTERED IN SLAB THICKNESS.

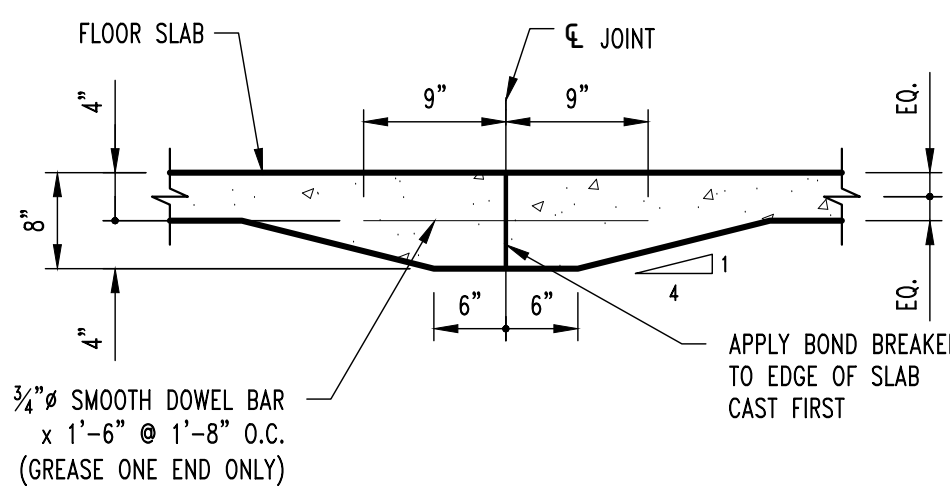
CRACK CONTROL REINFORCING



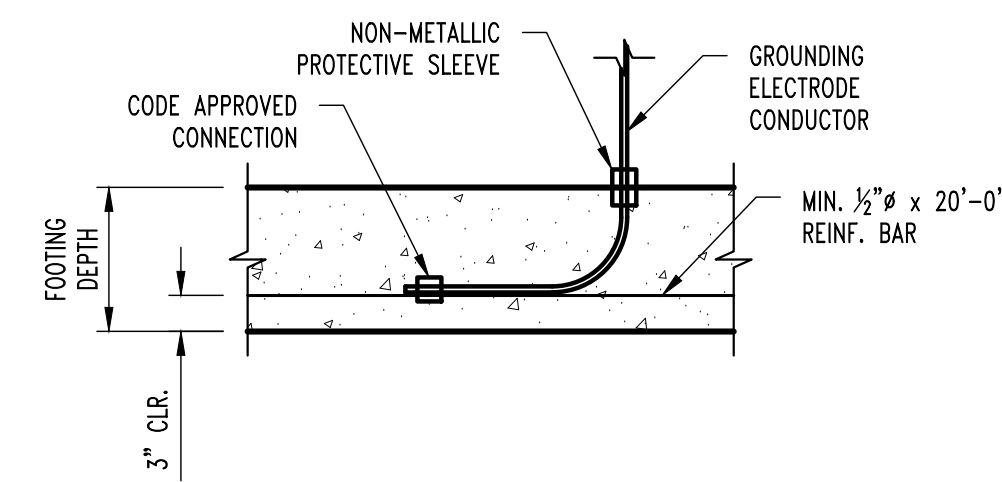
CONTRACTION JOINT



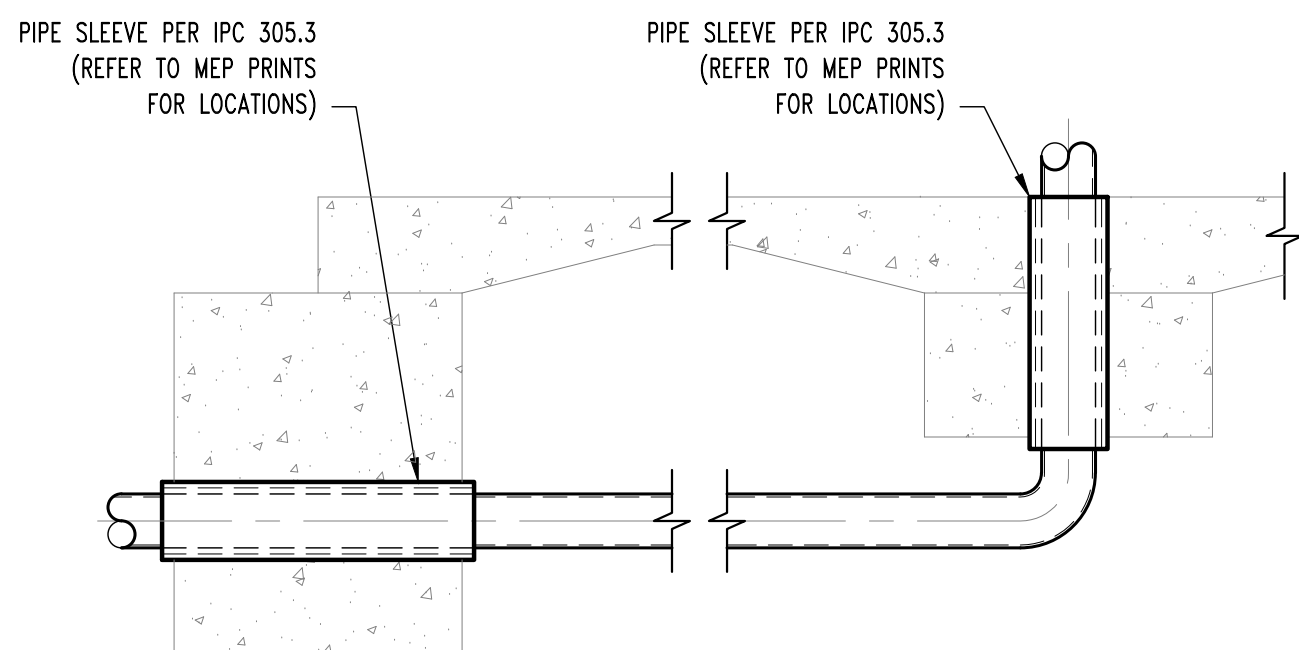
CONSTRUCTION JOINT



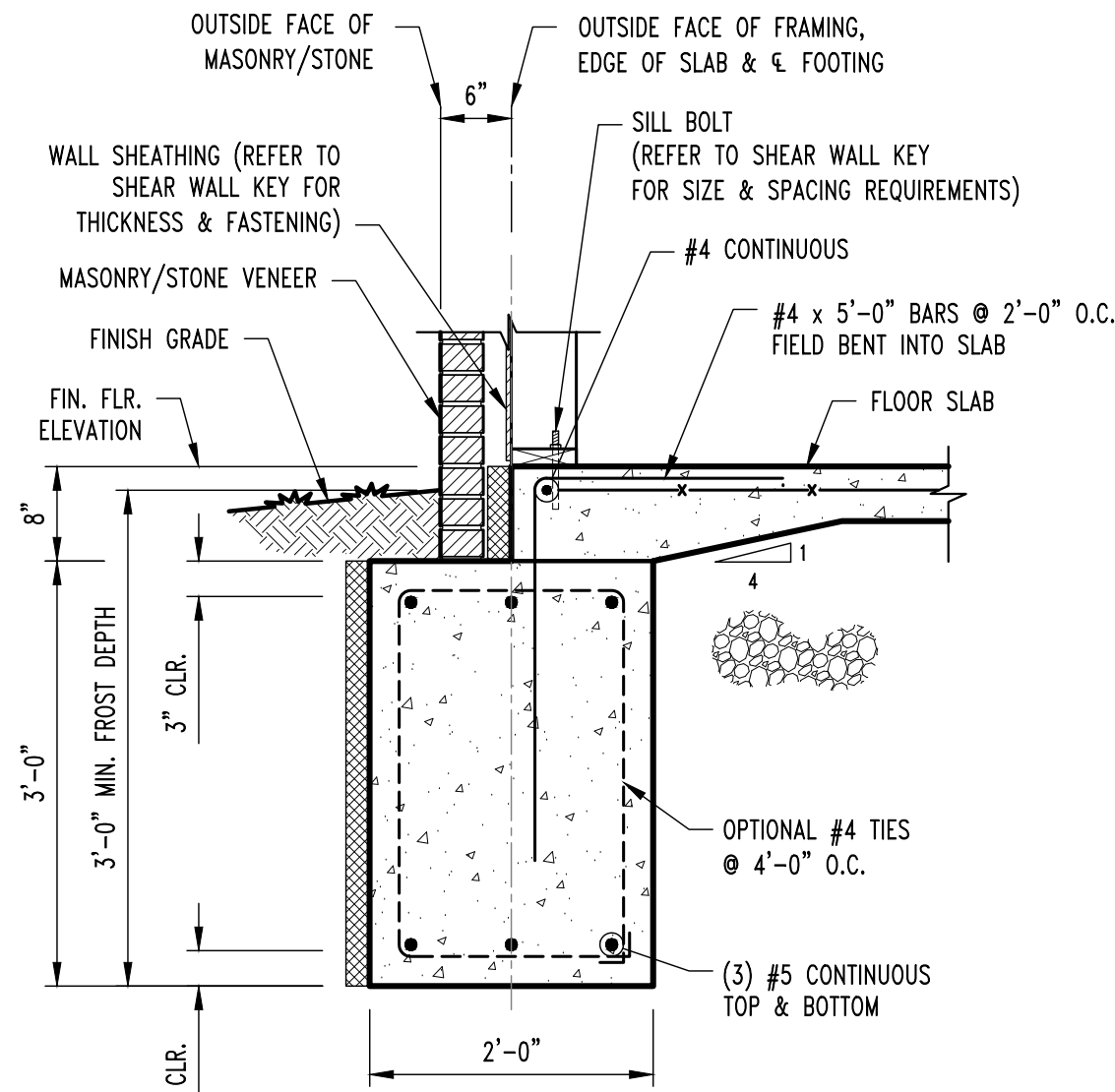
CONSTRUCTION JOINT



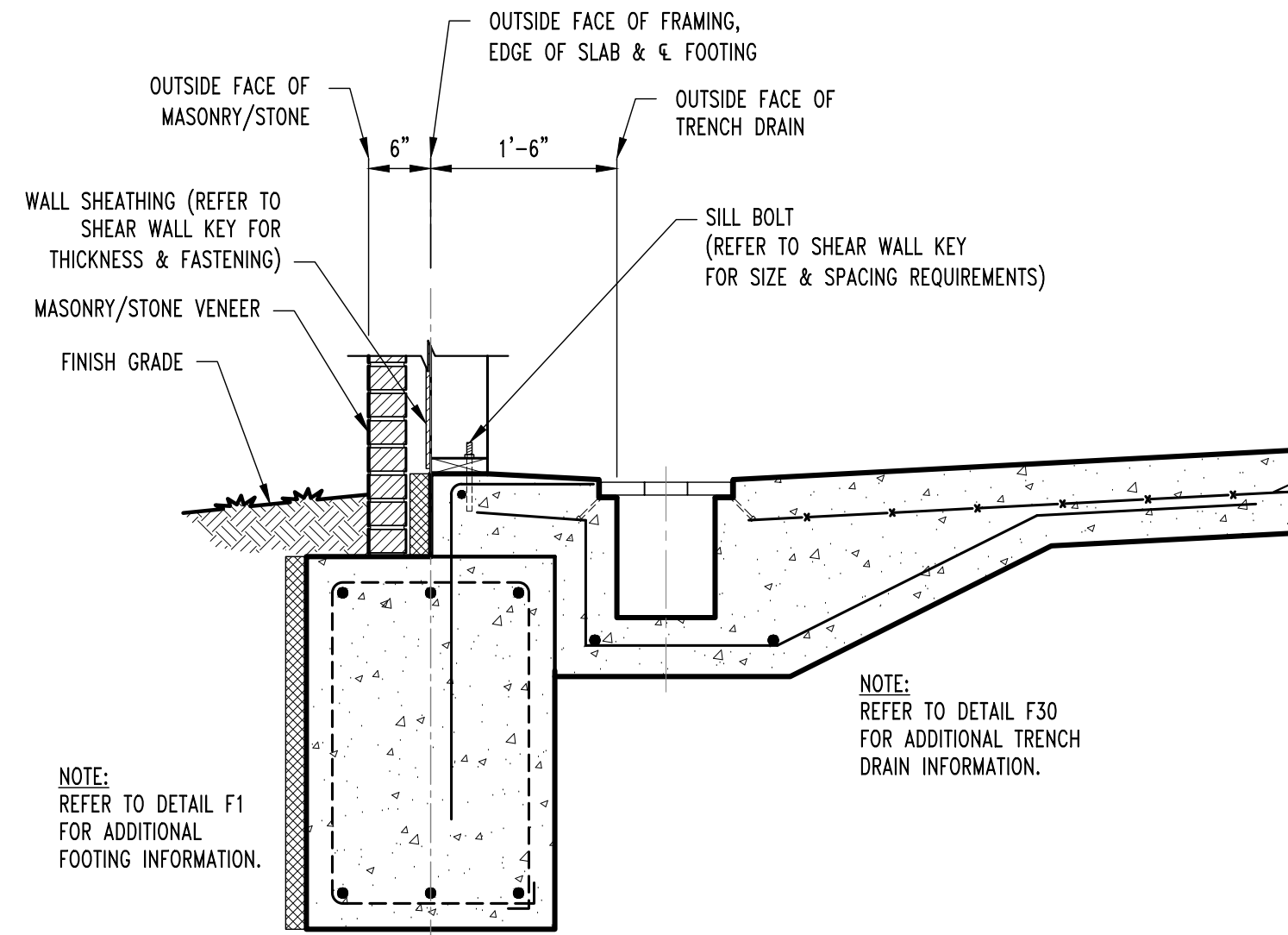
TYP. ELECTRICAL GROUNDING DETAIL @ FOOTING



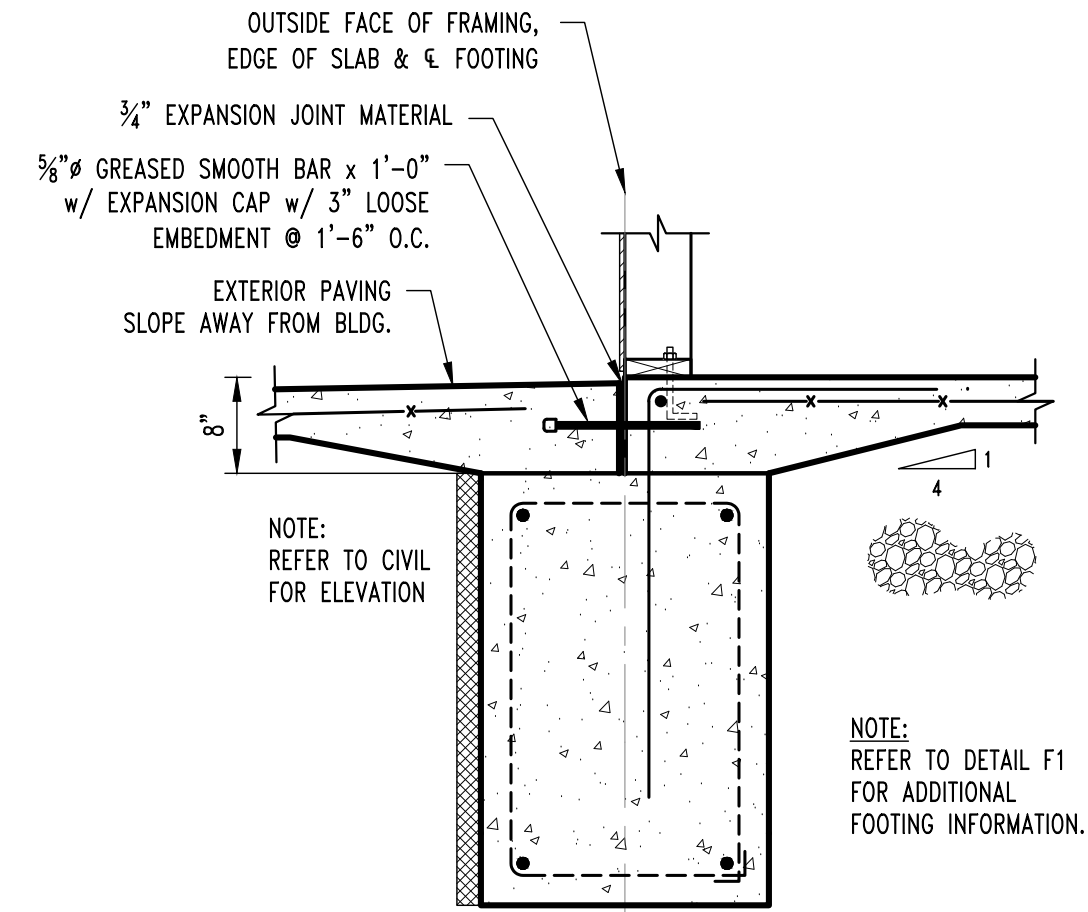
TYP. PLUMBING COORDINATION DETAILS



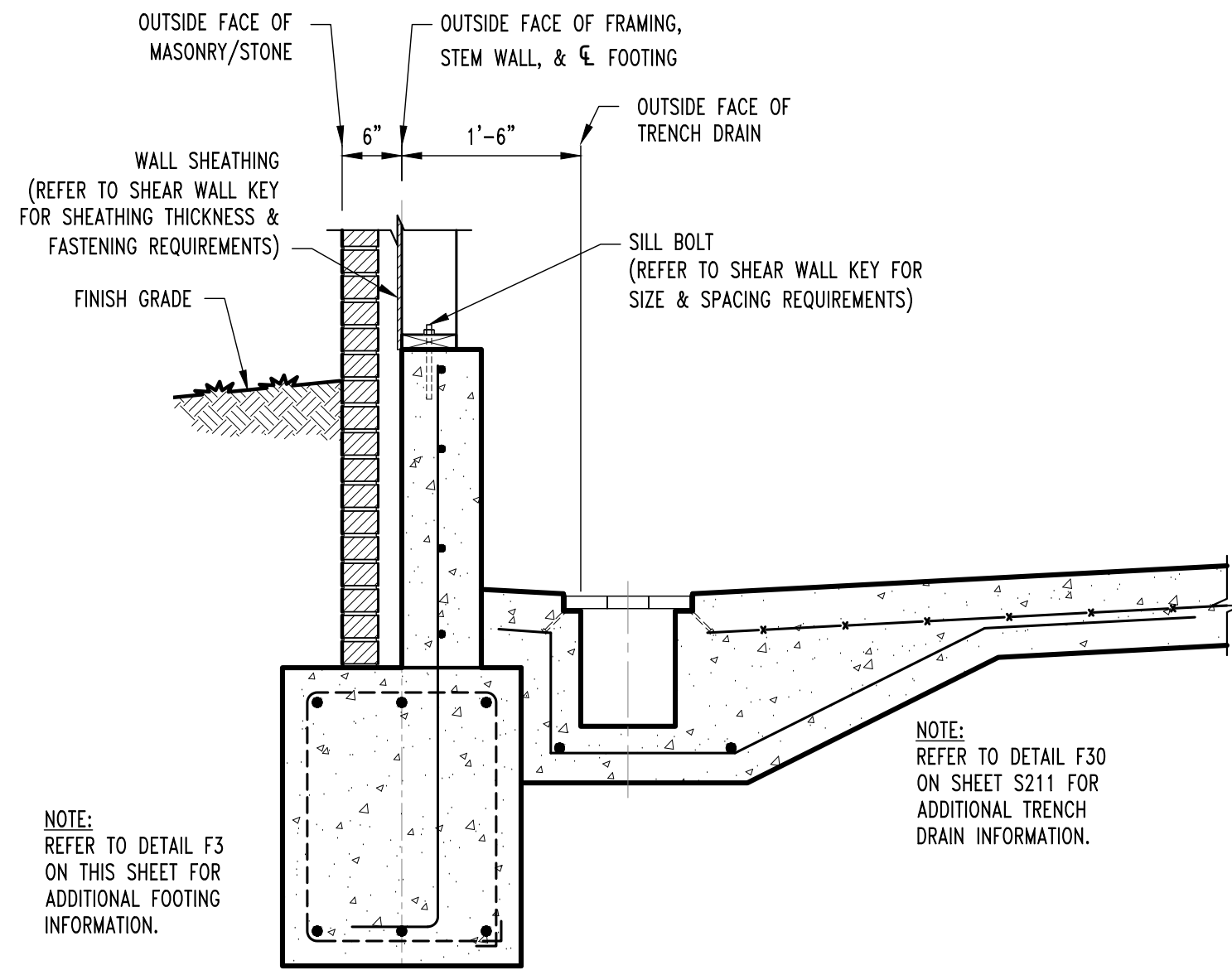
F1
S200
CONT. FOOTING SECTION
SCALE: 3/4" = 1'-0"



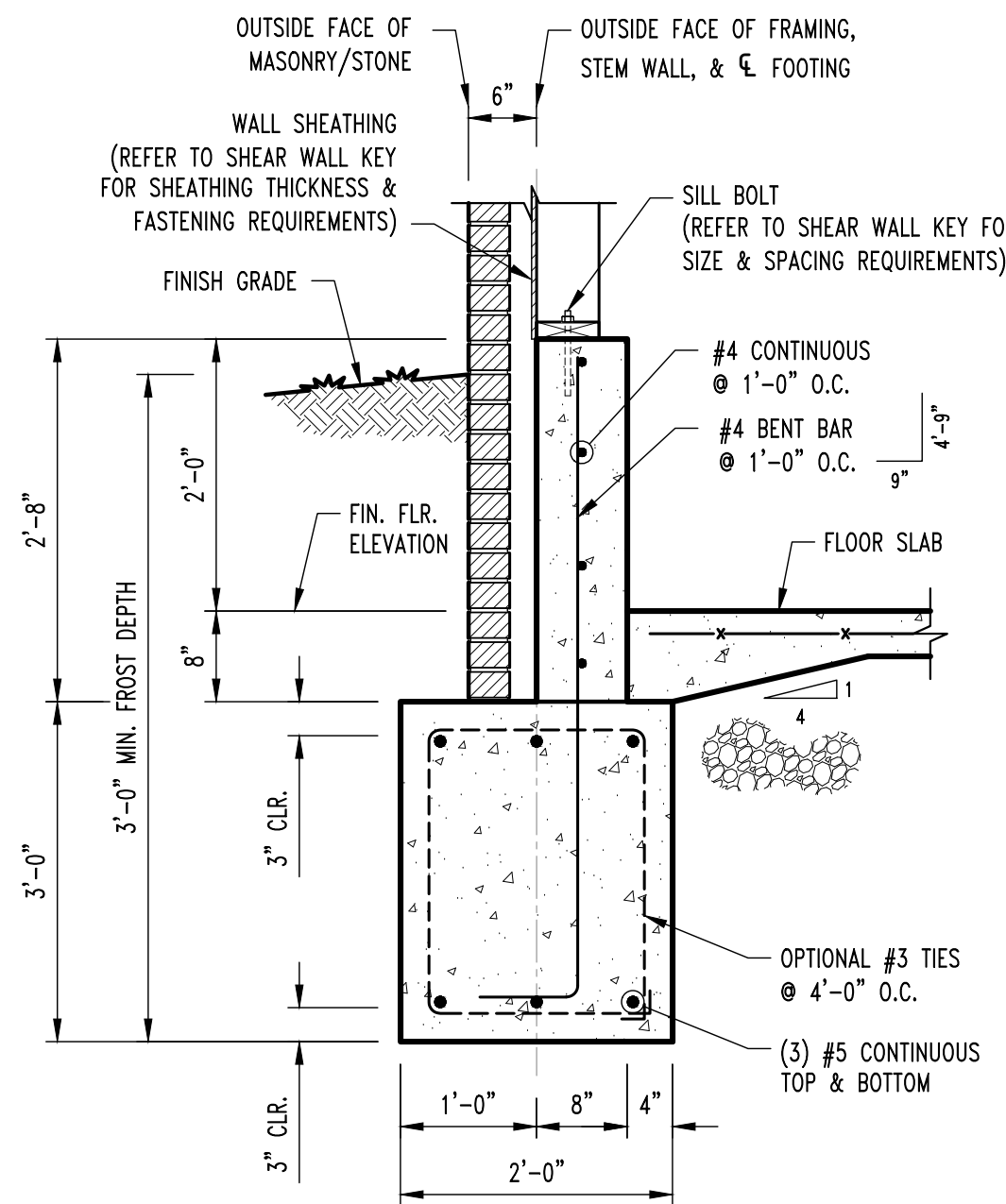
F1A
S200
CONT. FOOTING SECTION
SCALE: 3/4" = 1'-0"



F2
S200
CONT. FOOTING SECTION @ DOOR
SCALE: 3/4" = 1'-0"



F3A
S200
CONT. FOOTING SECTION
SCALE: 3/4" = 1'-0"



F3
S200
CONT. FOOTING SECTION
SCALE: 3/4" = 1'-0"

REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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3822 ENDEAVOR AVE. STE. 101
COLUMBIA, MO 65201

DISCOVERY PET SPA
1901 NE TRAILS EDGE BOULEVARD
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

FOUNDATION
DETAILS

DESIGNED: JWV

DRAWN: ELT

PROJECT NO.: 230286

SHEET:

S210

REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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DRAWING INCLUDES:

FOUNDATION
DETAILS

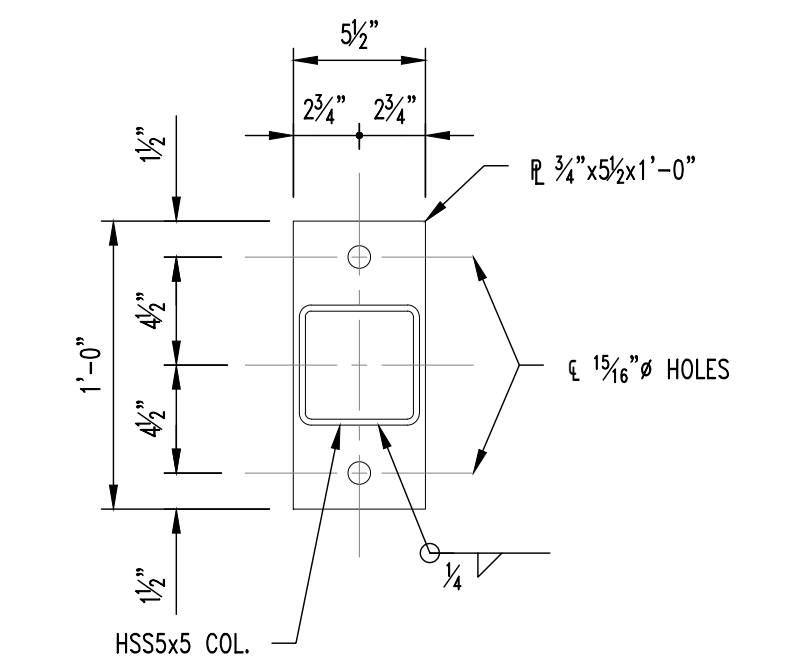
DESIGNED: JWV

DRAWN: ELT

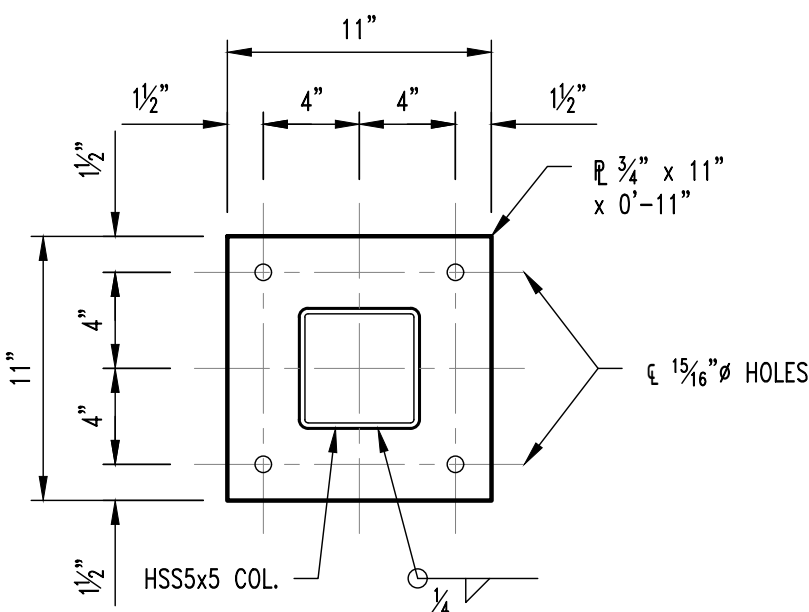
PROJECT NO.: 230286

SHEET:

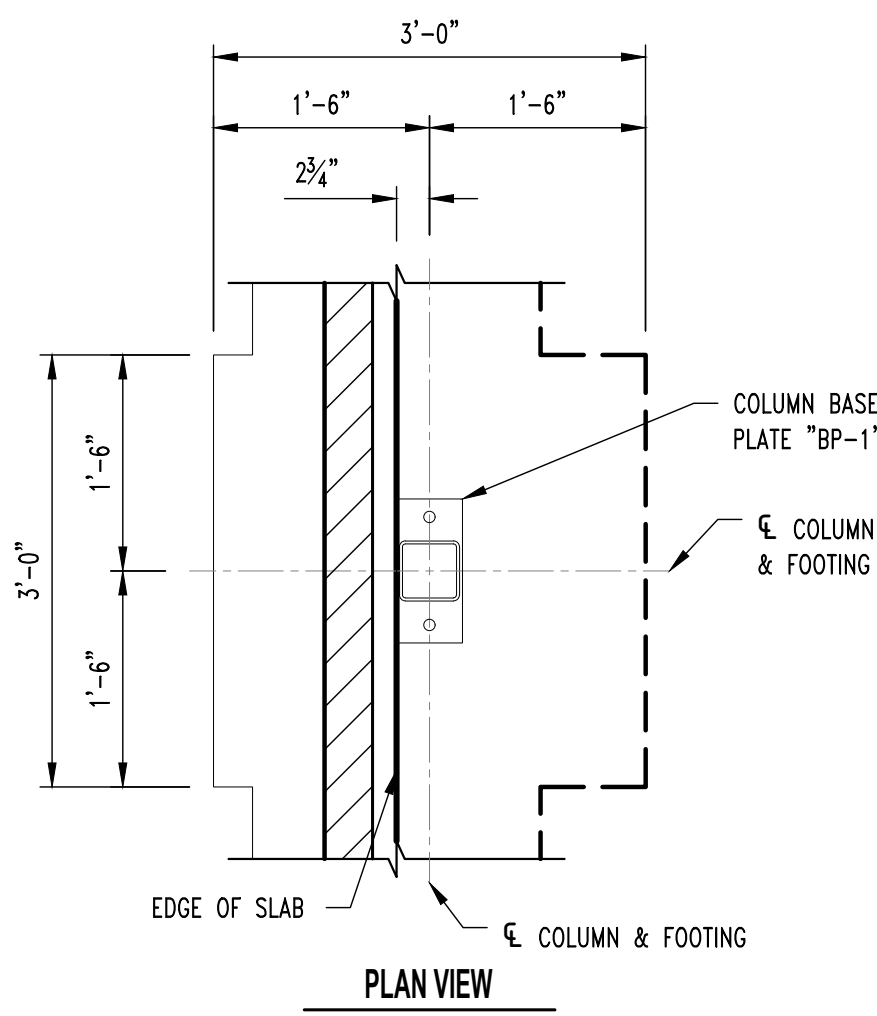
S211



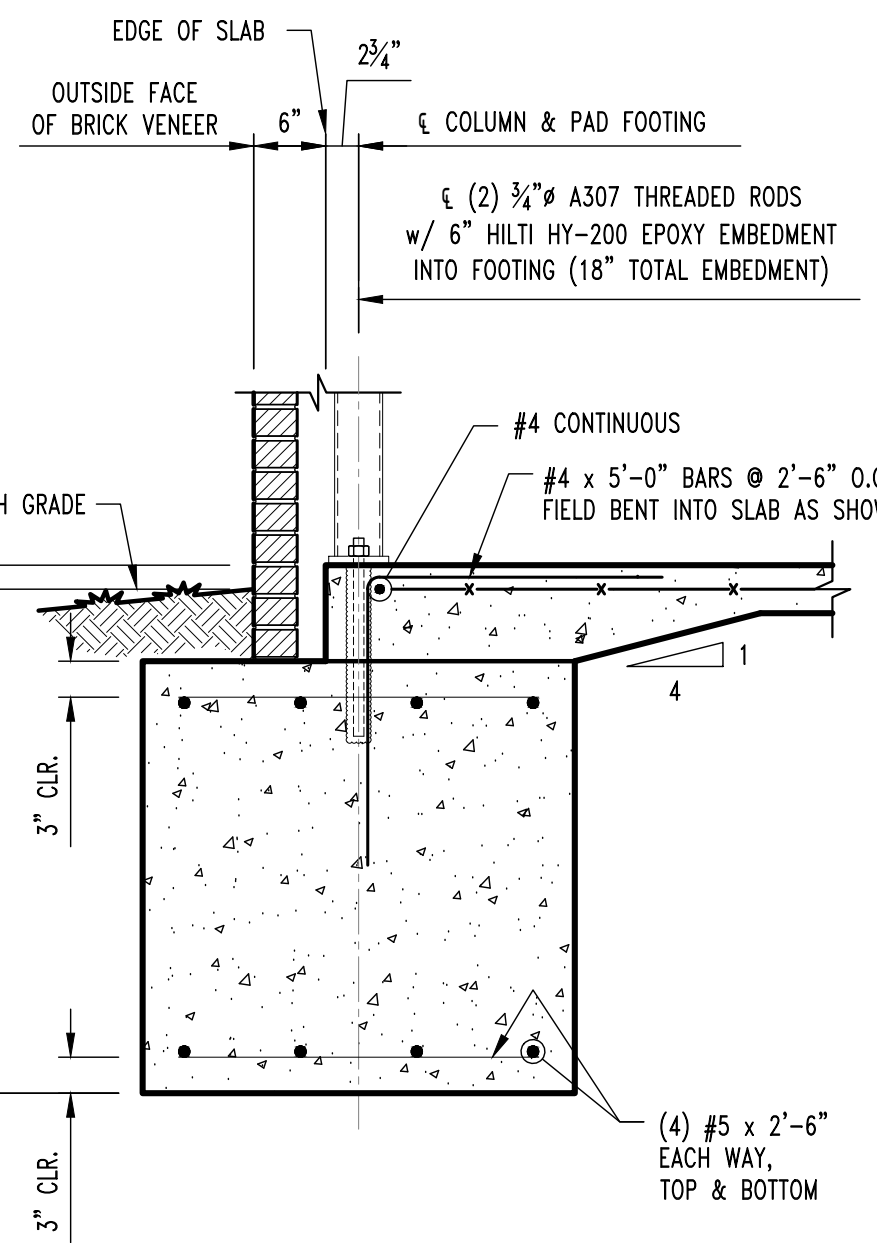
BASE PLATE "BP-1"



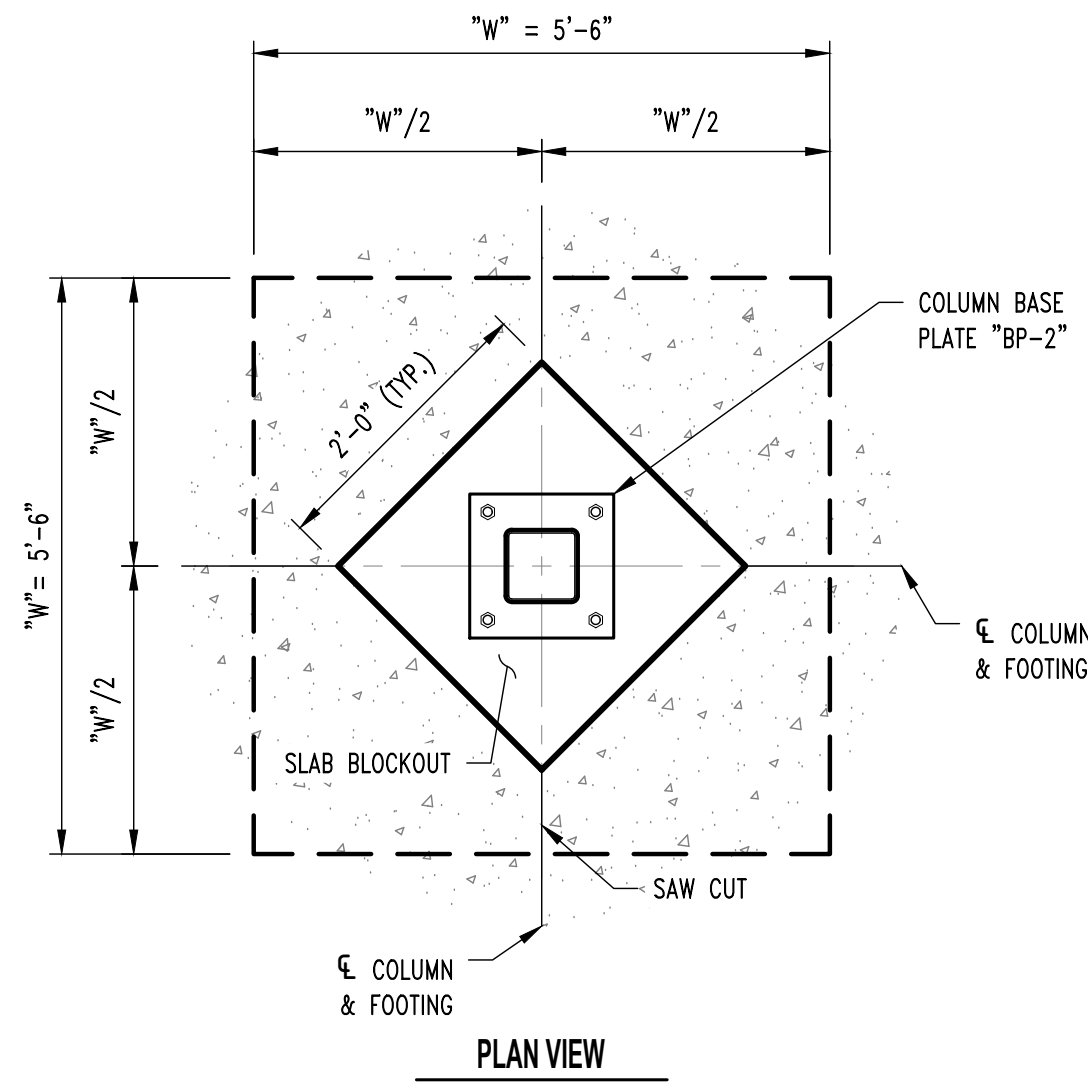
BASE PLATE "BP-2"



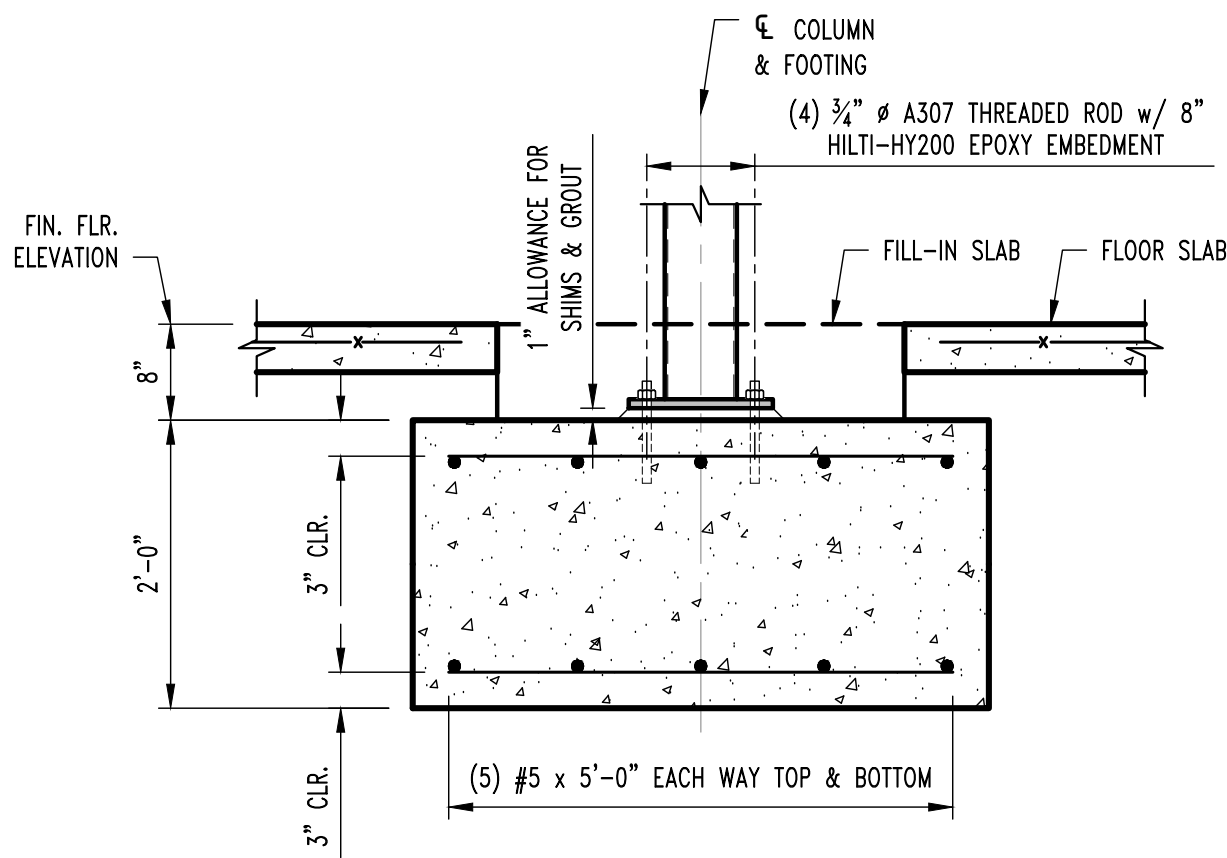
PLAN VIEW



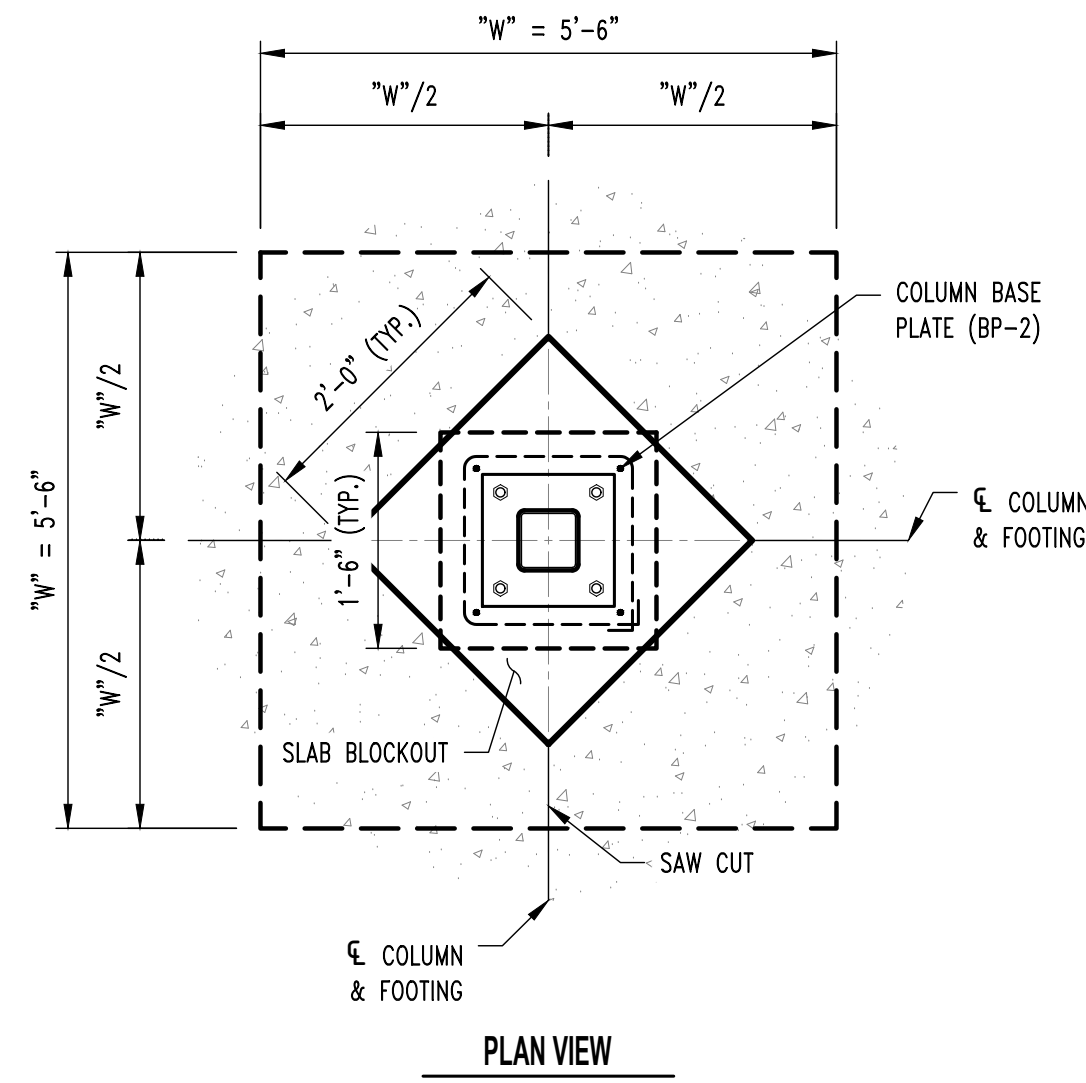
F10
S200
COLUMN FOOTING SECTION
SCALE: 3/4" = 1'-0"



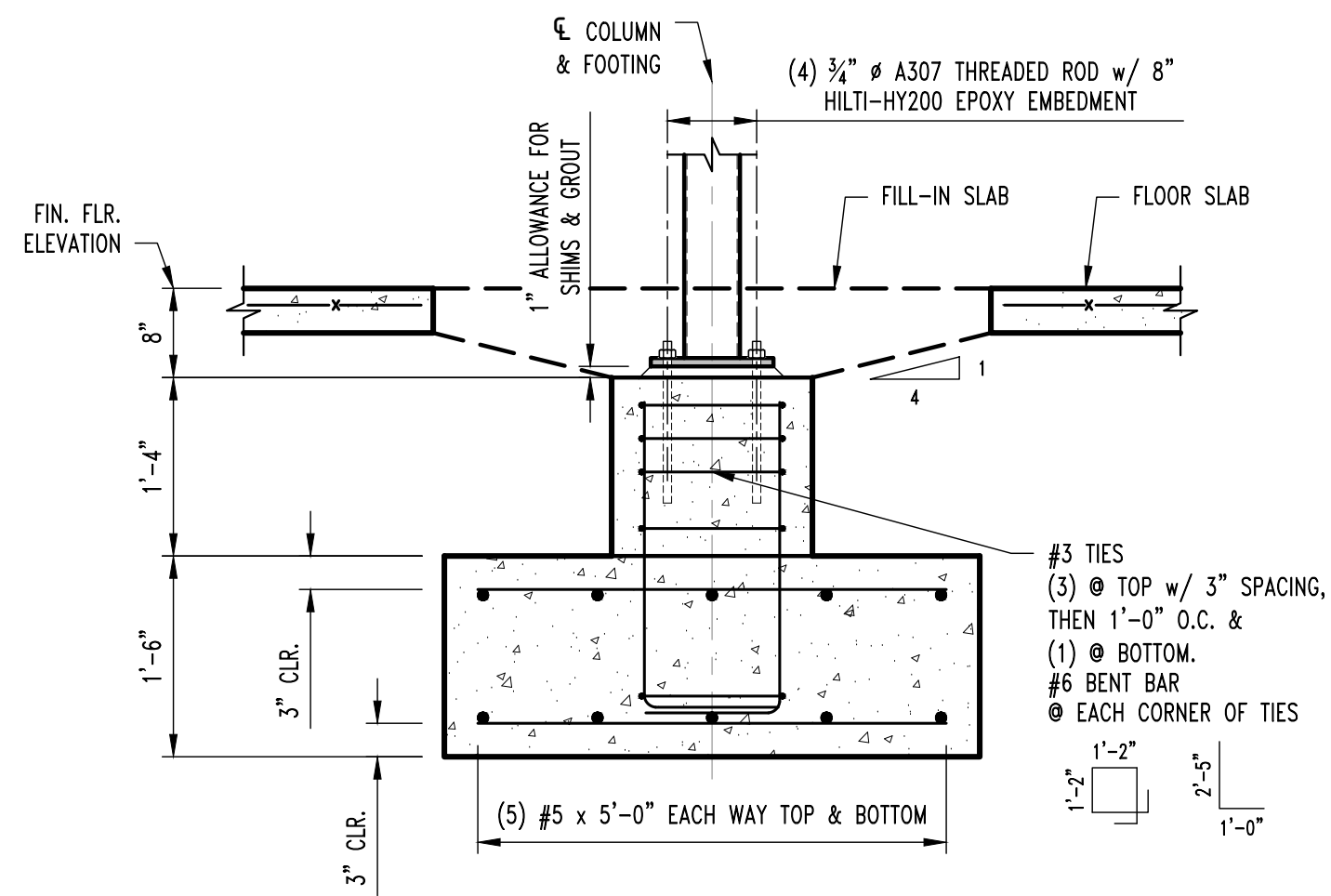
PLAN VIEW



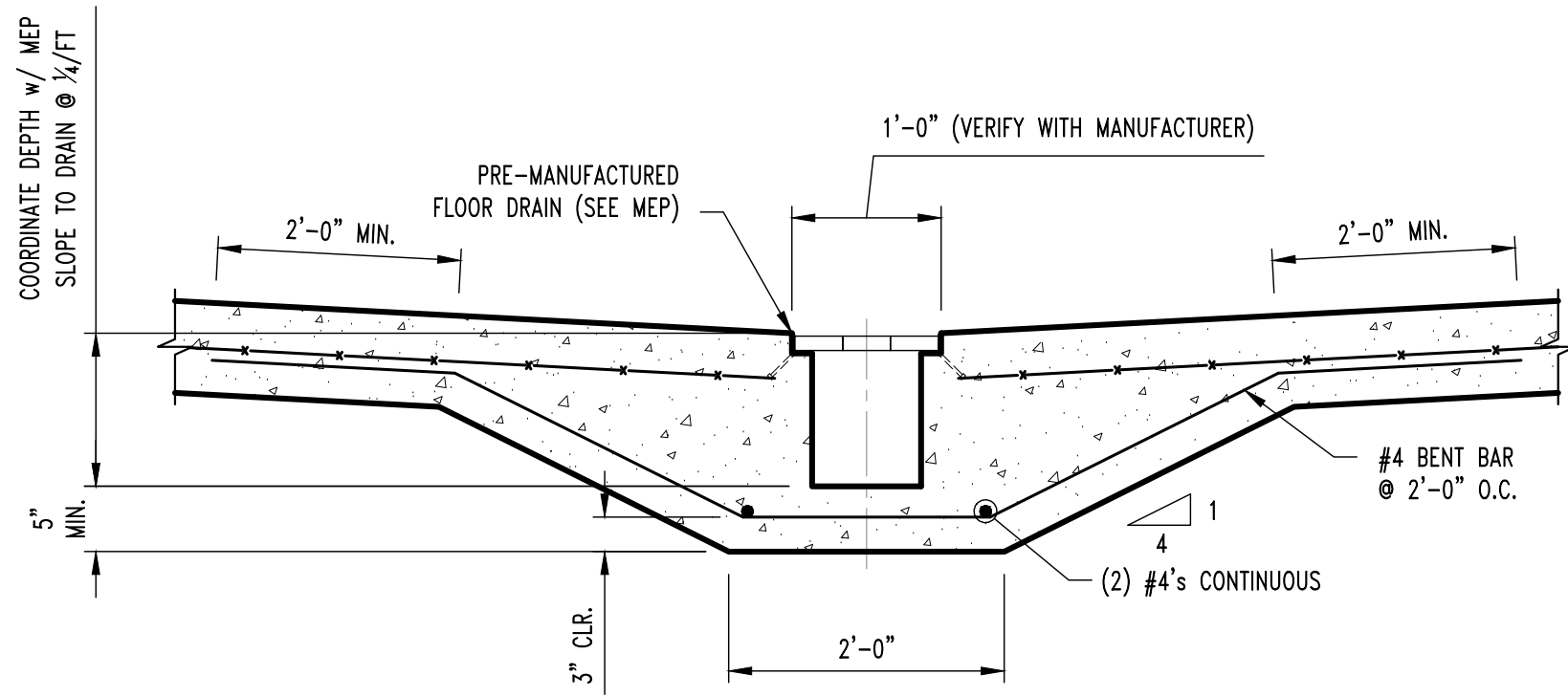
F20
S200
COLUMN FOOTING SECTION
SCALE: 3/4" = 1'-0"



PLAN VIEW

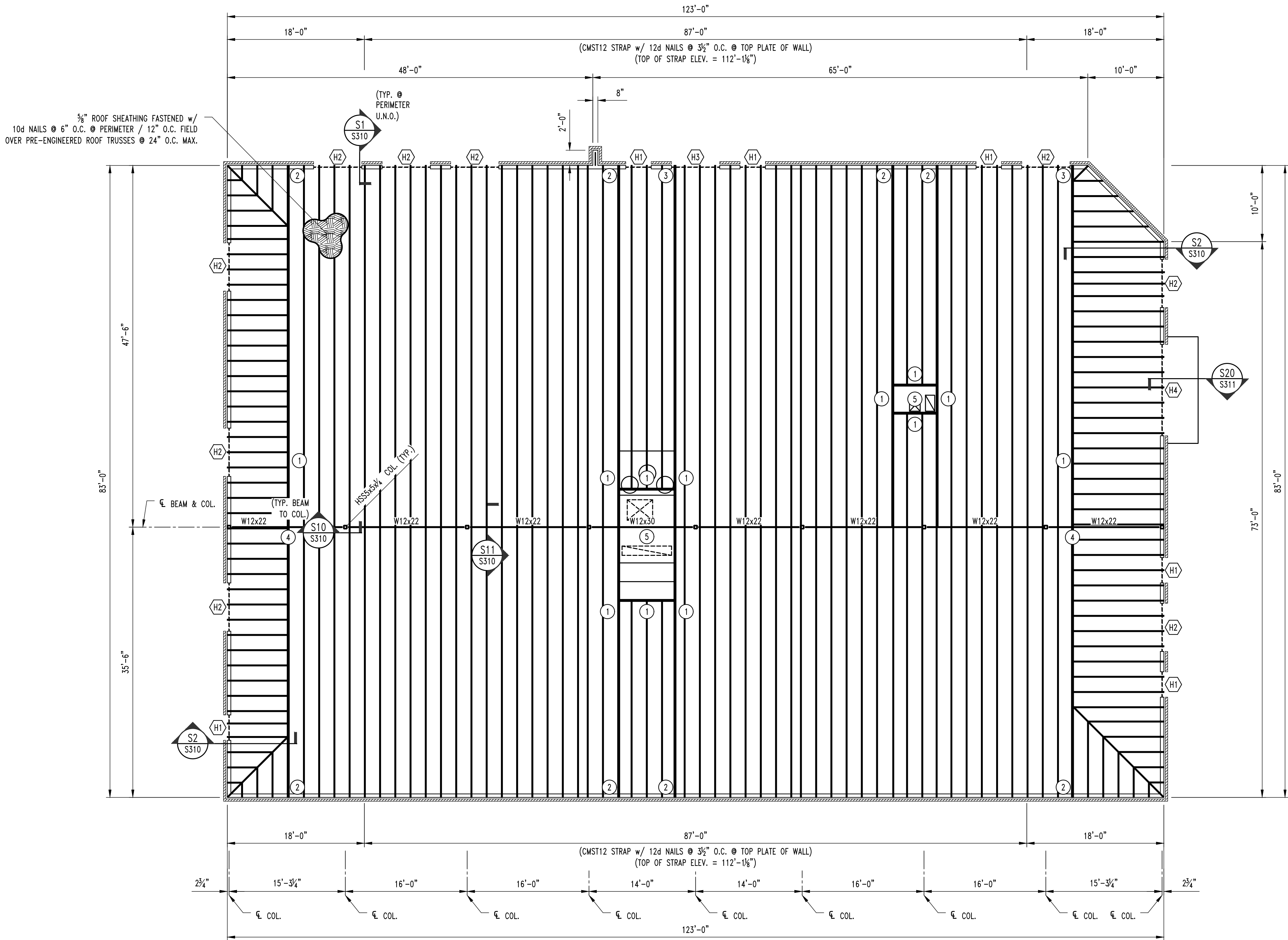


F21
S200
COLUMN FOOTING SECTION
SCALE: 3/4" = 1'-0"



F30
S200
CONT. TRENCH DRAIN SECTION
SCALE: 3/4" = 1'-0"

NOTE:
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1
S300

ROOF FRAMING PLAN

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



ROOF FRAMING NOTES

- 1 GIRDER TRUSS
- 2 3-PLY BUILT-UP POST BENEATH GIRDER TRUSS THIS LEVEL TO FLOOR SLAB CONNECTIONS ARE AS FOLLOWS:
FLOOR SLAB: SIMPSON LITF2.
ROOF TRUSS: BY TRUSS MANUFACTURER
- 3 GIRDER TO HEADER, REFER TO DETAIL TYP.
GIRDER TO HEADER DETAIL ON SHEET S311
FOR ADDITIONAL INFORMATION.
- 4 PROVIDE SOLID WOOD BLOCKING FASTENED w/ (8) #12
TEK SCREWS IN WEB OF W12 TO FASTEN SIMPSON LGT2
TIEDOWN w/ 16d SINKER NAILS TO BLOCKING & GIRDER
- 5 RTU, COORDINATE WITH MEP DRAWINGS FOR EXACT
SIZE, WEIGHT, & LOCATION.

LINTEL SCHEDULE

LENGTH OF SPAN	MEMBER SIZE (GALVANIZED)
3'-4"	L4x4x1/4 WITH 6" BEARING EACH END
12'-0" & Less	L6x6x3/8 (LLV) WITH 6" BEARING EACH END

HEADER SCHEDULE

LABEL	HEADER	CRIPPLE/JACK	JAMBUKING
H1	2 Ply 2x6 SPF No.1/No.2	Single Ply 2x6 So. SPF No.1/No.2	2 Ply 2x6 SPF No.1/No.2
H2	2 Ply 2x12 Doug. Fir Sel. Struct.	Single Ply 2x6 So. SPF No.1/No.2	4 Ply 2x6 SPF No.1/No.2
H3	3 Ply 2x12 Doug. Fir Sel. Struct.	Single Ply 2x6 So. SPF No.1/No.2	5 Ply 2x6 So. Pine Sel. Struct.
H4	3 Ply 1.75x11.25 MicroLam 2.0E	Single Ply 2x6 So. SPF No.1/No.2	5 Ply 2x6 So. Pine Sel. Struct.

REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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Missouri Certificate of Authority
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CLIENT:
**INTRINSIC
DEVELOPMENT**
3822 ENDEAVOR AVE. STE. 101
COLUMBIA, MO 65201

DISCOVERY PET SPA

1901 NE TRAILS EDGE BOULEVARD
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

ROOF FRAMING
PLAN

DESIGNED: JWV

DRAWN: ELT

PROJECT NO.: 230286

SHEET:

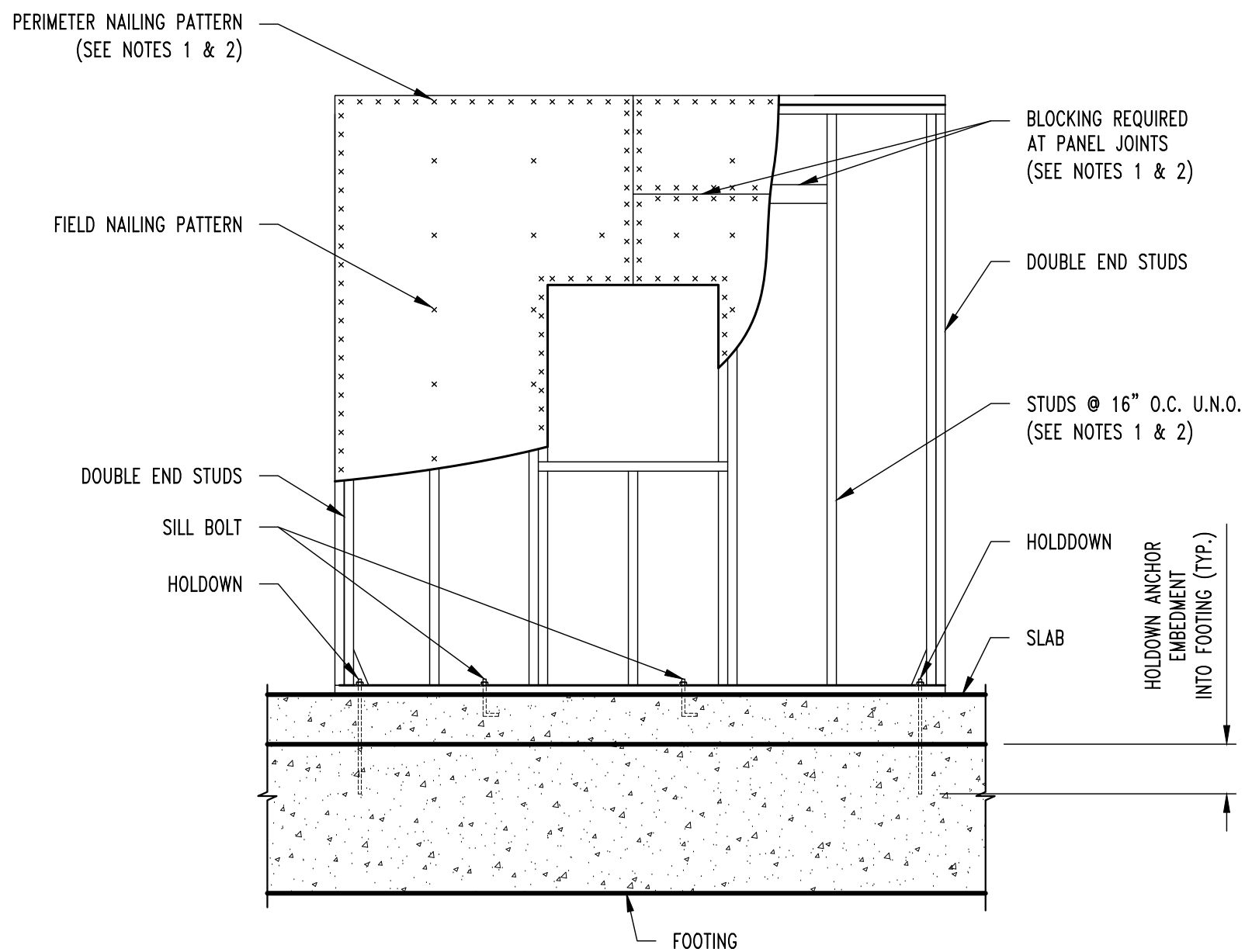
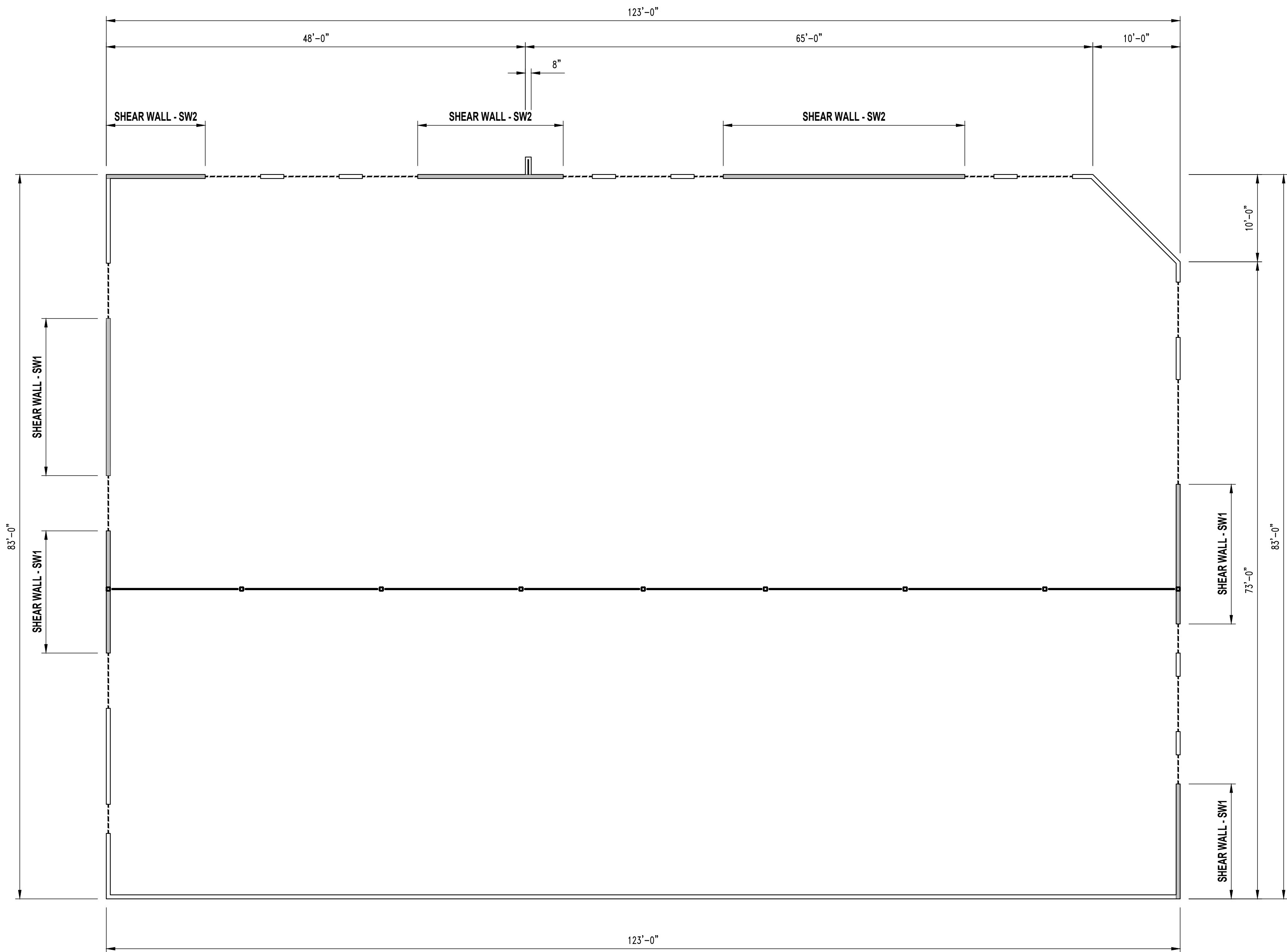
S300

**RELEASED FOR
CONSTRUCTION**
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
04/03/2025

NOTE:
ALL DIMENSIONS ARE FROM FACE OF FOUNDATION WALL OR FRAMING;
EDGE OF SLAB OR TRUSS/RAFTER; OR CENTERLINE
OF COLUMN, BEAM, OR JOIST UNLESS NOTED OTHERWISE.

SHEAR WALL NOTES

- ① ALL SHEATHING TO BE CONTINUOUS, UNBROKEN FOR FULL LENGTH OF DIMENSIONED SHEAR WALL.



NOTES:

1. WHERE TWO SHEETS MEET, BOTH SHEETS SHOULD BE NAILED TO THE SAME FRAMING MEMBER.
2. WHEN SHEATHING NAILS ARE SPACED AT 2" O.C. FOR 8d NAILS OR 3" O.C. FOR 10d NAILS, 3x OR DOUBLE 2x FRAMING MEMBERS ARE REQUIRED WHERE SHEETS MEET. FACE NAIL DOUBLE 2x MEMBERS TOGETHER w/ 16d NAILS @ 2½" O.C. STAGGERED EACH FACE OF STUD.
3. SEE WALL SECTIONS FOR ADDITIONAL INFORMATION.

TYP. SHEAR WALL DETAIL

SHEAR WALL KEY

SW1 SHEAR WALL

- 7/16" OSB SHEATHING FASTENED WITH 8D NAILS @ 2" O.C. @ PERIMETER / 12" O.C. FIELD
- 1/2" DIAMETER F1554 GRADE 36 STANDARD "J" BOLTS W/ 7" EMBEDMENT @ 1'-0" O.C.
- REQUIRES SIMPSON HDU11-SDS2.5 HOLDOWN FASTENED TO 3-PLY STUDS W/ (30) 3/4x2 1/2 SDS W/ 1" DIAMETER A307 THREADED ROD W/ 20" TOTAL (12" INTO FOOTING) SIMPSON "AT-36" EPOXY EMBEDMENT AT EACH END OF THE SHEAR WALL

SW2 SHEAR WALL

- 7/16" OSB SHEATHING FASTENED WITH 8D NAILS @ 6" O.C. @ PERIMETER / 12" O.C. FIELD
- 1/2" DIAMETER F1554 GRADE 36 STANDARD "J" BOLTS W/ 7" EMBEDMENT @ 2'-0" O.C.
- REQUIRES SIMPSON HDU4-SD5.5 HOLDDOWN FASTENED TO 2-PLY STUDS W/ (FOOTING) SIMPSON "AT-3G" EPOXY ANCHOR AT EACH END OF THE SHEAR WALL

TYPICAL WALL UNLESS NOTED

- 7/16" OSB SHEATHING FASTENED WITH 8D NAILS @ 6" O.C. @ PERIMETER / 12" O.C. FIELD
- 1/2" DIAMETER F1554 GRADE 36 STANDARD "J" BOLTS W/ 7" EMBEDMENT @ 4'-0" O.C.
- NO HOLDDOWNS REQUIRED

[illegible]

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STRUCTURAL ENGINEER:

CRACKETT

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DRAWING INCLUDES:

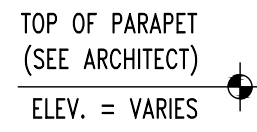
SHEAR WALL
PLAN

DESIGNED: JWW

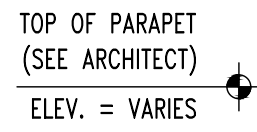
DRAWN: ELT

PROJECT NO.: 230286

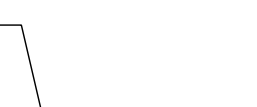
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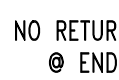
ROOF FRAMING SECTION



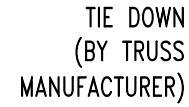
ROOF FRAMING SECTION



TYP. TRUSS BLOCKING SECTION



TYP. BEAM TO COLUMN SECTION



ROOF FRAMING SECTION

No.	Date
-----	------

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DRAWING INCLUDES:

ROOF FRAMING
DETAILS

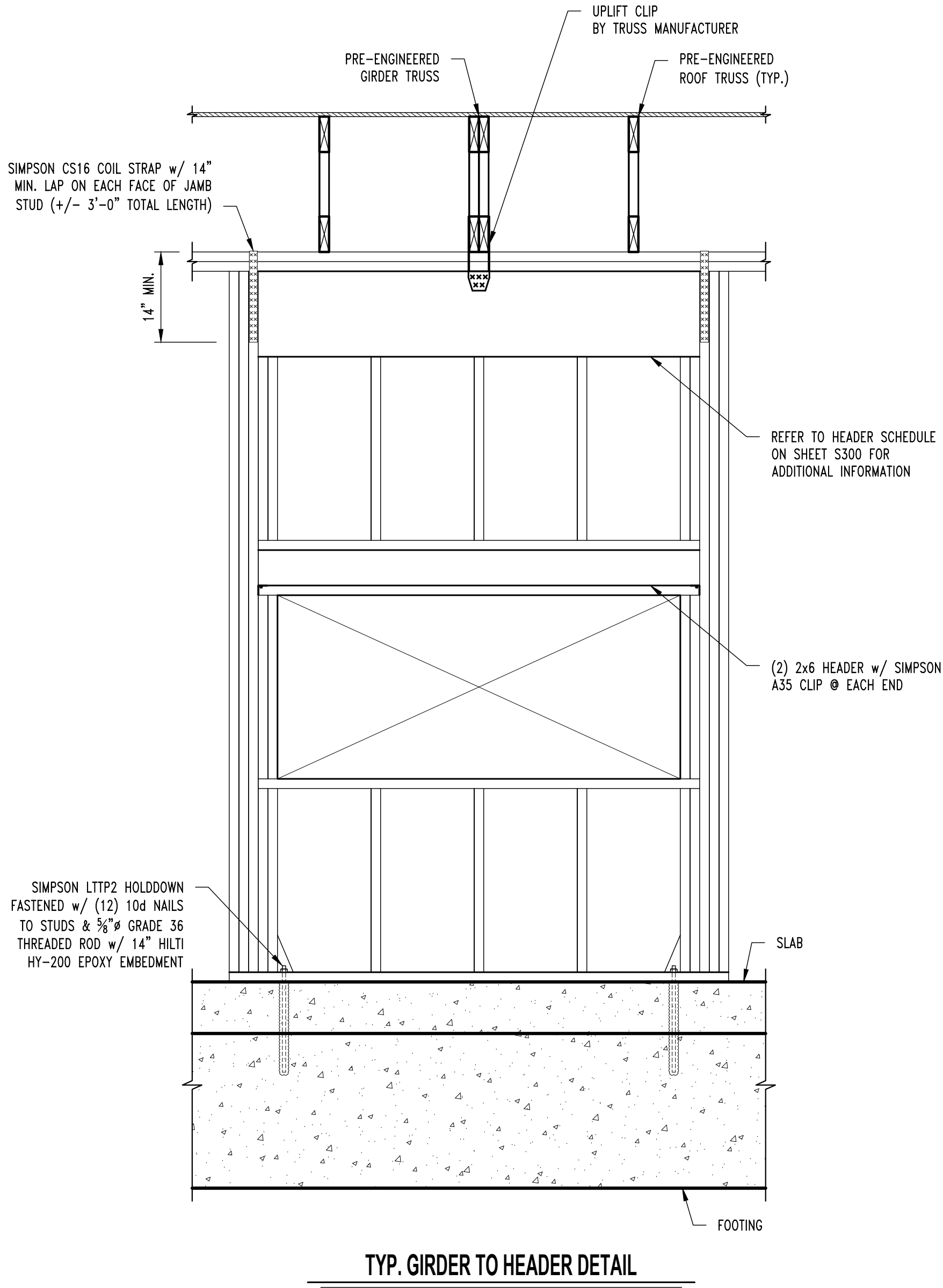
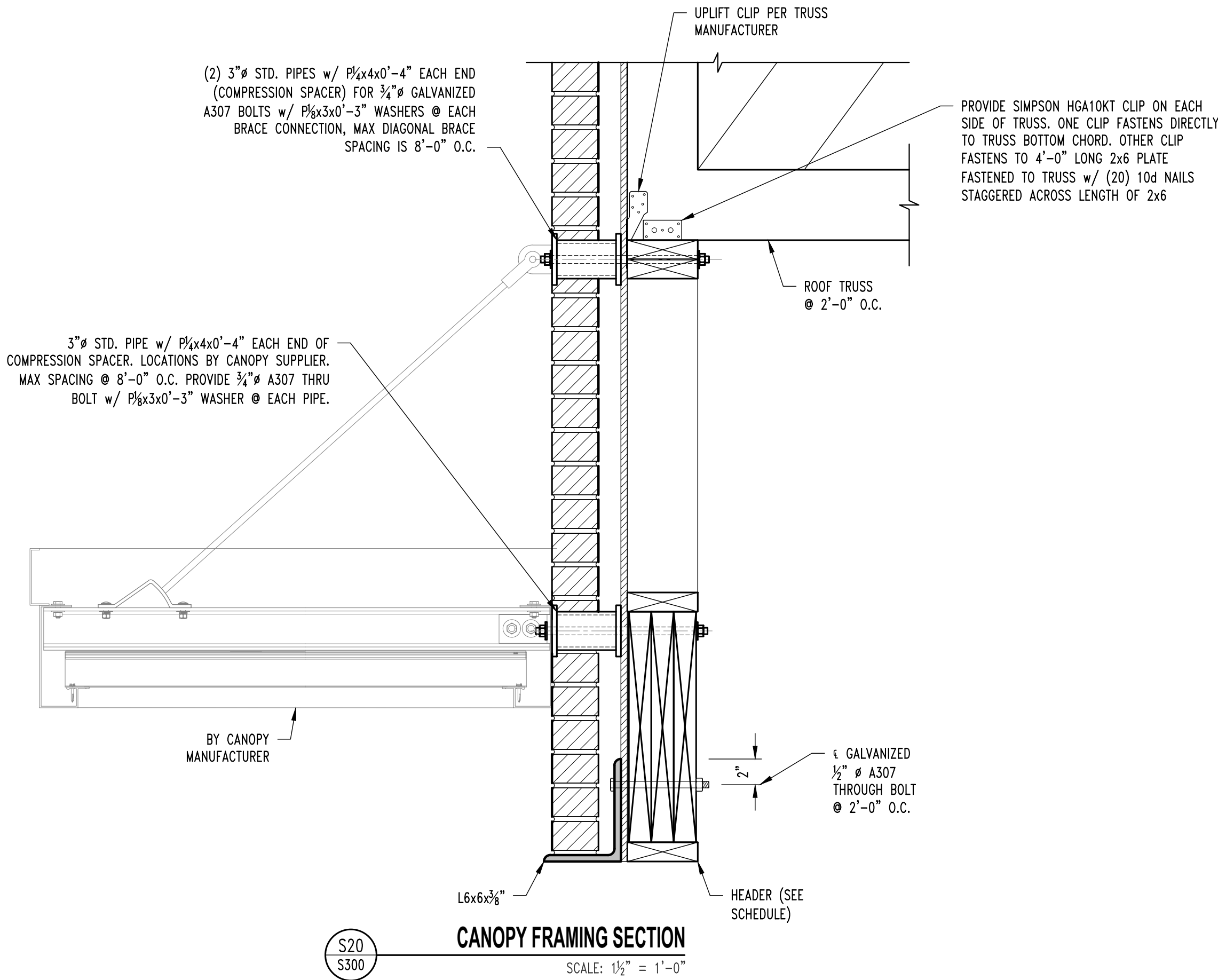
DESIGNED: JWV

DRAWN: ELT

PROJECT NO.: 230286

SHEET:

S310



REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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STRUCTURAL ENGINEER:
CROCKETT
ENGINEERING CONSULTANTS
1000 W. Nifong Blvd., Suite 1
Columbia, Missouri 65203
(573) 447-0992
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#200010101

CLIENT:
**INTRINSIC
DEVELOPMENT**
3822 ENDEAVOR AVE. STE. 101
COLUMBIA, MO 65201

DISCOVERY PET SPA
1901 NE TRAILS EDGE BOULEVARD
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

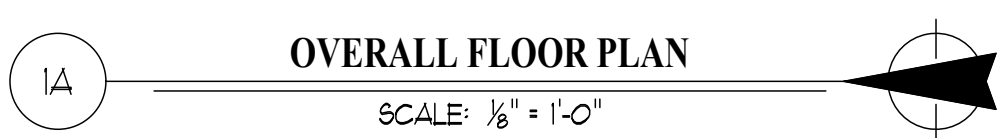
ROOF FRAMING
DETAILS

DESIGNED: JWV

DRAWN: ELT

PROJECT NO.: 230286

SHEET:
S311



LIFE SAFETY & EGRESS NOTES:

CONSTRUCTION TYPE: TYPE VB - SPRINKLERED

OCCUPANCY: BUSINESS USE OCCUPANCY

BLDG. DESIGN OCCUPANT LOAD: 49 OCCUPANTS
(SEE OCCUPANT LOAD CALCULATION BELOW)

MINIMUM NUMBER OF EXITS REQUIRED = 2 EXITS
PROPOSED EXITS PROVIDED = 3 EXITS

SPACES WITH SINGLE EXIT = 49 OCCS.
75 FEET T.D.

EXIT ACCESS TRAVEL DISTANCE: 300 FEET

EGRESS WIDTH:
REQUIRED = 49 x 0.15' = 7.35"
PROVIDED = 7.35"

EGRESS DOORS SHALL HAVE A MINIMUM CLEAR OPENING WIDTH OF NOT LESS THAN 32"

EVERY EXIT DOOR SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIFIC KNOWLEDGE OR EFFORT.

CORRIDORS:
FIRE RESISTANCE RATING REQUIRED = 0 HOURS
MINIMUM CORRIDOR WIDTH = 44 INCHES
DEAD END CORRIDORS SHALL NOT EXCEED 50 FEET

OCCUPANCY CALCULATIONS

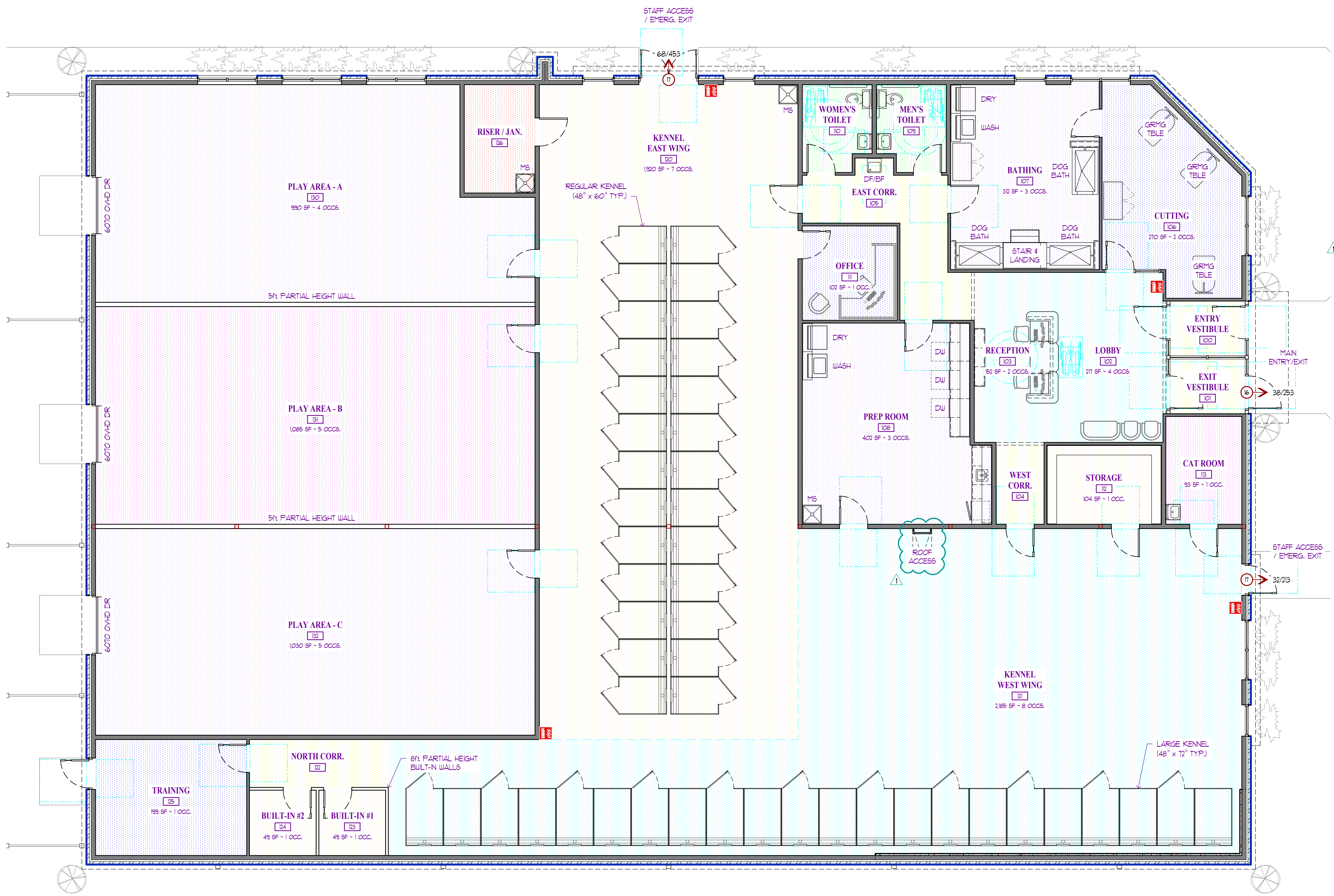
DESIGN LOADING:
ASSEMBLY UNCONCENTRATED: 1 OCC / 15 SF
OFFICE / BUSINESS: 1 OCC / 150 SF
KENNELS / PLAY ROOMS: 1 OCC / 300 SF
STORAGE / STOCK AREA: 1 OCC / 300 SF

LOBBY 102: 217sf / (4) SEATS = 4 OCCS
RECEPTION 103: 152sf / 150 = 1 OCC
CUTTING 106: 270sf / 150 = 2 OCCS
BATHING 107: 312sf / 150 = 3 OCCS
PREP RM 108: 402sf / 150 = 3 OCCS
OFFICE III: 102sf / 150 = 1 OCC
STORAGE 112: 104sf / 300 = 1 OCC
CAT ROOM 113: 93sf / 300 = 1 OCC
TOTAL OCC LOAD THIS AREA = 17 OCCS

KENNEL EW 120: 1920sf / 300 = 7 OCCS
KENNEL WW 121: 2158sf / 300 = 8 OCCS
BUILT-IN #1 123: 49sf / 300 = 1 OCC
BUILT-IN #2 124: 49sf / 300 = 1 OCC
TRAINING 125: 199sf / 300 = 1 OCC
TOTAL OCC LOAD THIS AREA = 18 OCCS

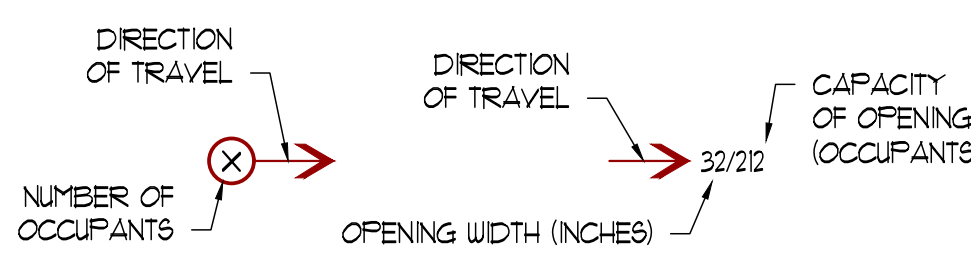
PLAY "A" 130: 990sf / 300 = 4 OCCS
PLAY "B" 131: 1085sf / 300 = 5 OCCS
PLAY "C" 132: 1030sf / 300 = 5 OCCS
TOTAL OCC LOAD THIS AREA = 14 OCCS

TOTAL BUILDING OCC LOAD = 49 OCCS



1B FLOOR PLAN / LIFE SAFETY PLAN
SCALE: 3/8" = 1'-0"

PORTABLE FIRE EXTINGUISHER: COORDINATE AND VERIFY ALL LOCATIONS WITH FIRE CODE OFFICIAL PRIOR TO INSTALLATION



ISSUE	ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024	
2	REVISION #1	10/14/2024	

PROJECT NO.
FB242418

SHEET TITLE

REFLECTED
CEILING PLAN

SHEET NUMBER

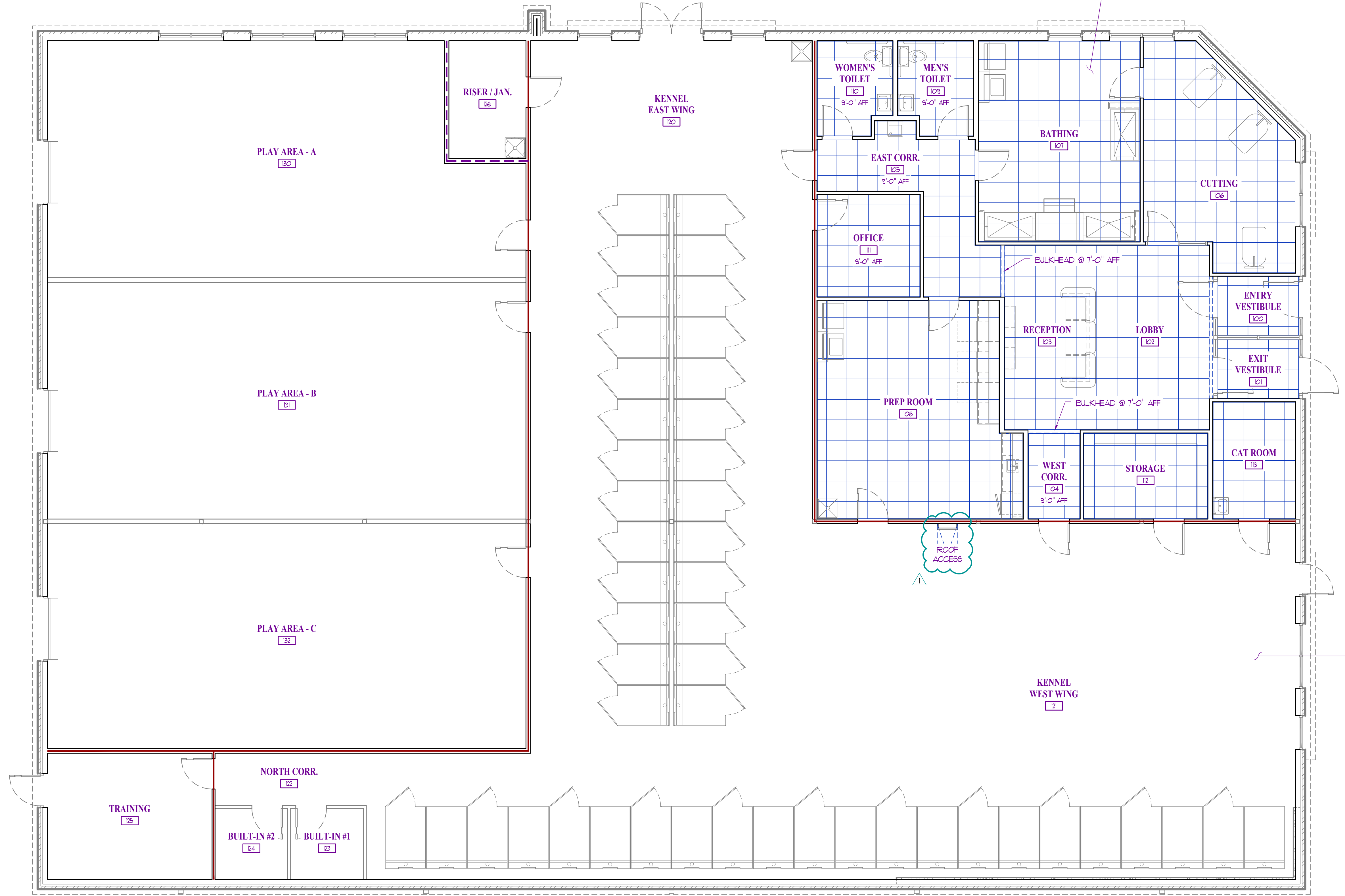
A301

RCP GENERAL NOTES:

- SEE ROOM FINISH SCHEDULE ON SHEET A300 FOR ADDITIONAL INFORMATION.
- FOR REFERENCE ONLY. TRADE CONTRACTOR TO VERIFY LOCATION OF ALL CEILING FEATURES AND CEILING MOUNTED EQUIPMENT & FIXTURES.
- REFER TO MECHANICAL-ELECTRICAL-PLUMBING DRAWINGS FOR EXACT EQUIPMENT AND LIGHTING PLACEMENT AND SPECIFICATIONS.
- METAL SUSPENSION SYSTEMS & ACOUSTICAL TILE SHALL BE INSTALLED IN ACCORDANCE WITH IBC 2018.
- GENERAL CONTRACTOR SHALL VERIFY & COORDINATE CEILING HEIGHTS WITH ALL TRADES PRIOR TO INSTALLATION. ANY ADJUSTMENTS SHALL BE COORDINATED WITH OWNER AND GENERAL CONTRACTOR.
- CEILING TILES AND GRIDWORK TO BE CENTERED IN BOTH DIRECTIONS FOR EVERY ROOM OR SPACE UNLESS OTHERWISE DIMENSIONED.
- LIGHTING FIXTURES AND AIR DIFFUSERS SHALL BE SUPPORTED DIRECTLY BY WIRES TO THE STRUCTURE ABOVE.
- ALL DIMENSIONS TO THE FINISHED FACE OF WALL OR CENTERLINE OF CEILING GRID UNLESS NOTED OTHERWISE.

ALL CEILINGS TO BE 24" x 24" ACOUSTICAL TILE
INSTALLED AT 10'-10" AFF UNLESS NOTED OTHERWISE
(SEE FINISH SCHEDULE ON AXXX FOR REMAINING INFO)

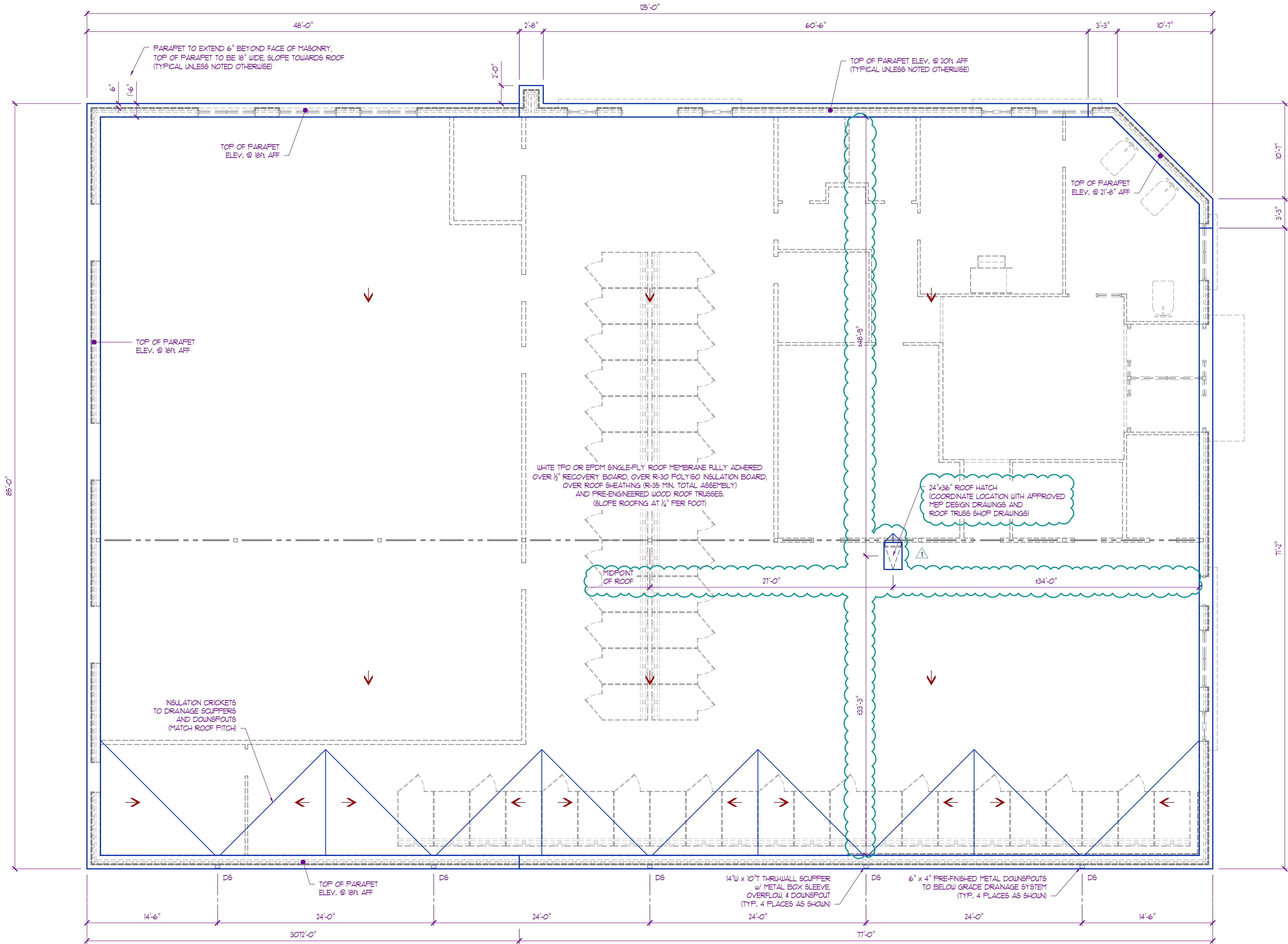
REMAINING AREAS TO HAVE EXPOSED STRUCTURE.
ALL WALLS, TRUSSES, BRACING, PIPING, ETC.
ABOVE 12' AFF TO BE PAINTED GRAY
(TYPICAL UNLESS NOTED OTHERWISE)



3 REFLECTED CEILING PLAN
SCALE: 3/8" = 1'-0"

INDICATES FRAMING & GYPSUM BOARD TO TERMINATE
AT LONG LEG DEFLECTION TRACK BELOW ROOF LID / STRUCTURE
INSTALL SOUND BATT FULL HEIGHT OF WALL

INDICATES FRAMING & GYPSUM BOARD TO TERMINATE
AT LONG LEG DEFLECTION TRACK BELOW ROOF LID / STRUCTURE



- ROOF PLAN GENERAL NOTES:
1. VERIFY AND COORDINATE ALL BLOCKING, NALERS, INSULATION STOPS, CRICKETS, FLASHING, ETC. FOR COMPLETE INSTALLATION OF ROOFING SYSTEM.
 2. ROOFING SYSTEM TO BE WARRANTED AND WATERTIGHT.
 3. VERIFY AND COORDINATE ALL ROOFTOP EQUIPMENT, CURBS, GAS LINES, PLUMBING PENETRATIONS, ETC. (12\"/>

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Summit, Missouri
03/2025

JAY D. BERENDZEN
ARCHITECT
NUMBER 2000034588
EXPIRATION DATE 12-31-24
JAY D. BERENDZEN, ARCHITECT
MISSOURI ARC-000588
EXP. 12/31/25

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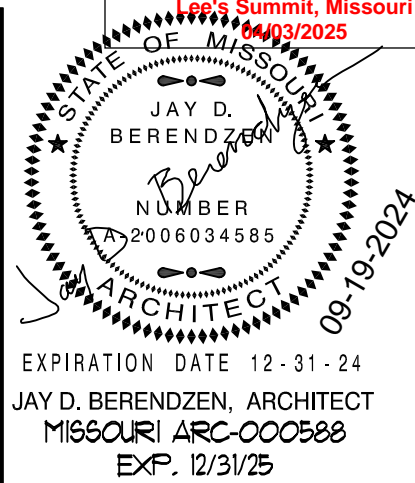
PROJECT

Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

ISSUE		
ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024
2	REVISION #1	10/14/2024

PROJECT NO. FBA2418
SHEET TITLE

ROOF PLAN
SHEET NUMBER



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PROJECT

Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024

PROJECT NO.
FB24248

SHEET TITLE

EXTERIOR
ELEVATIONS

SHEET NUMBER

A500

- ELEVATION GENERAL NOTES:
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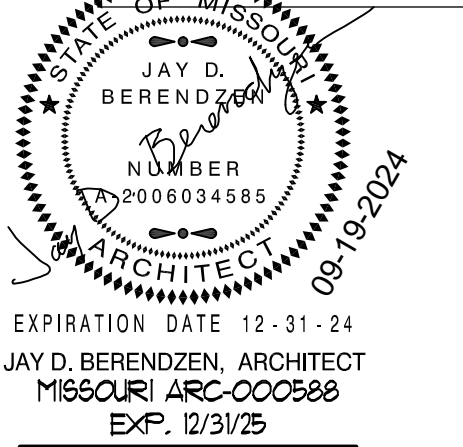
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ISSUE		
ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024

EXTERIOR
ELEVATIONS

A501





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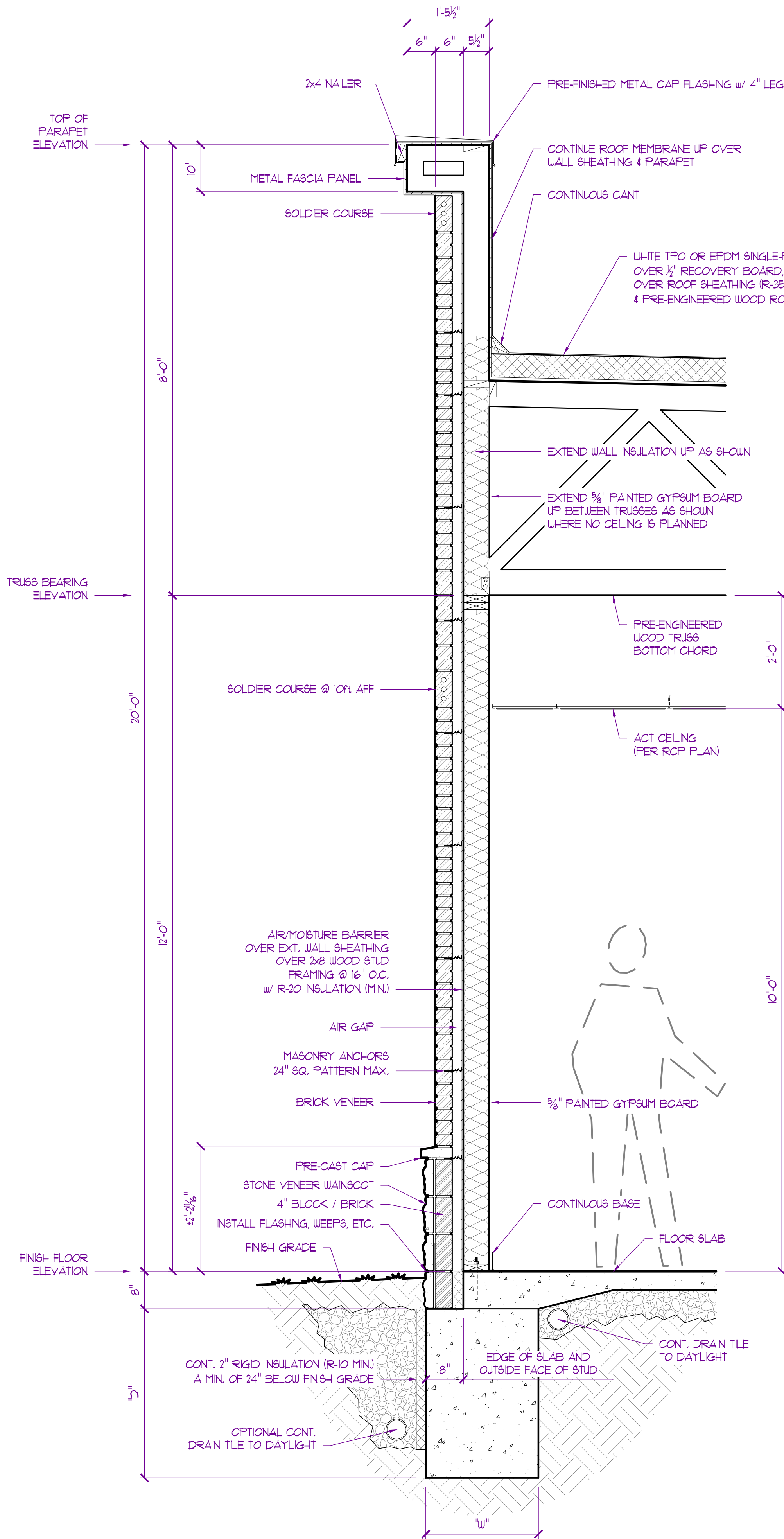
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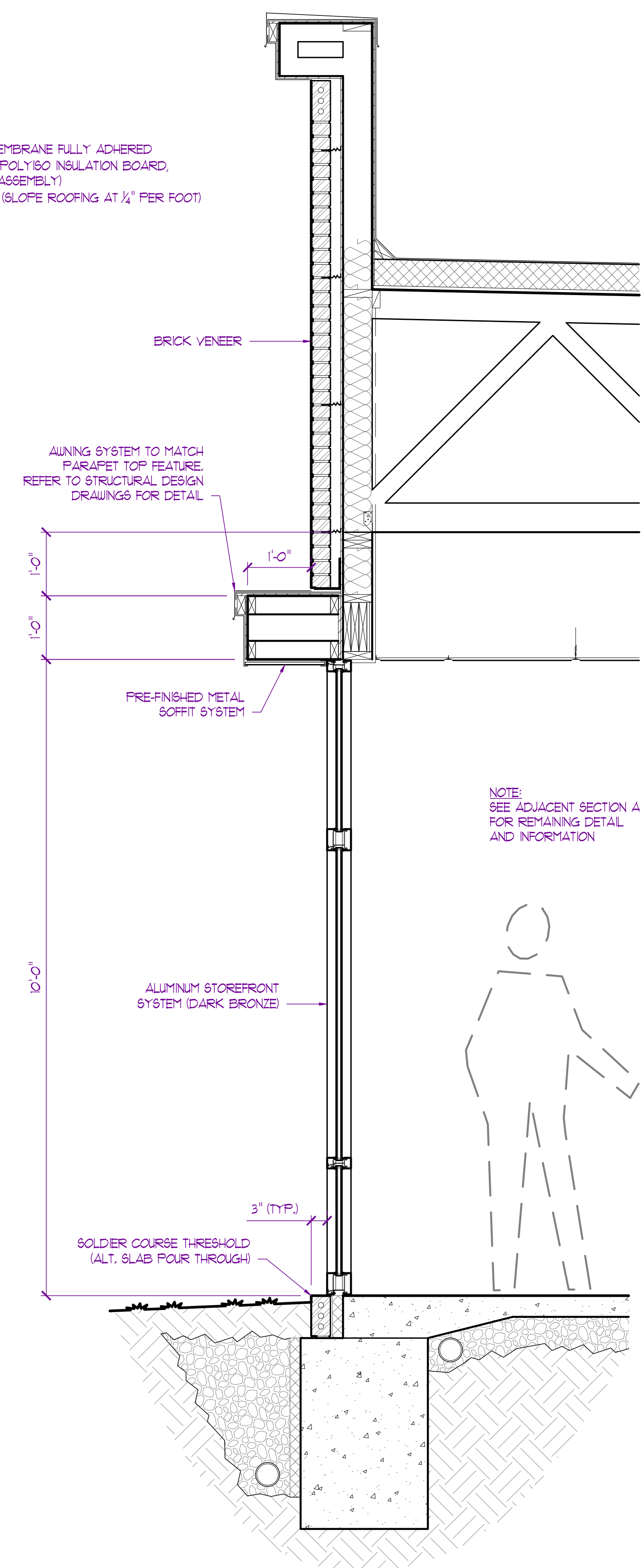
PROJECT

Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

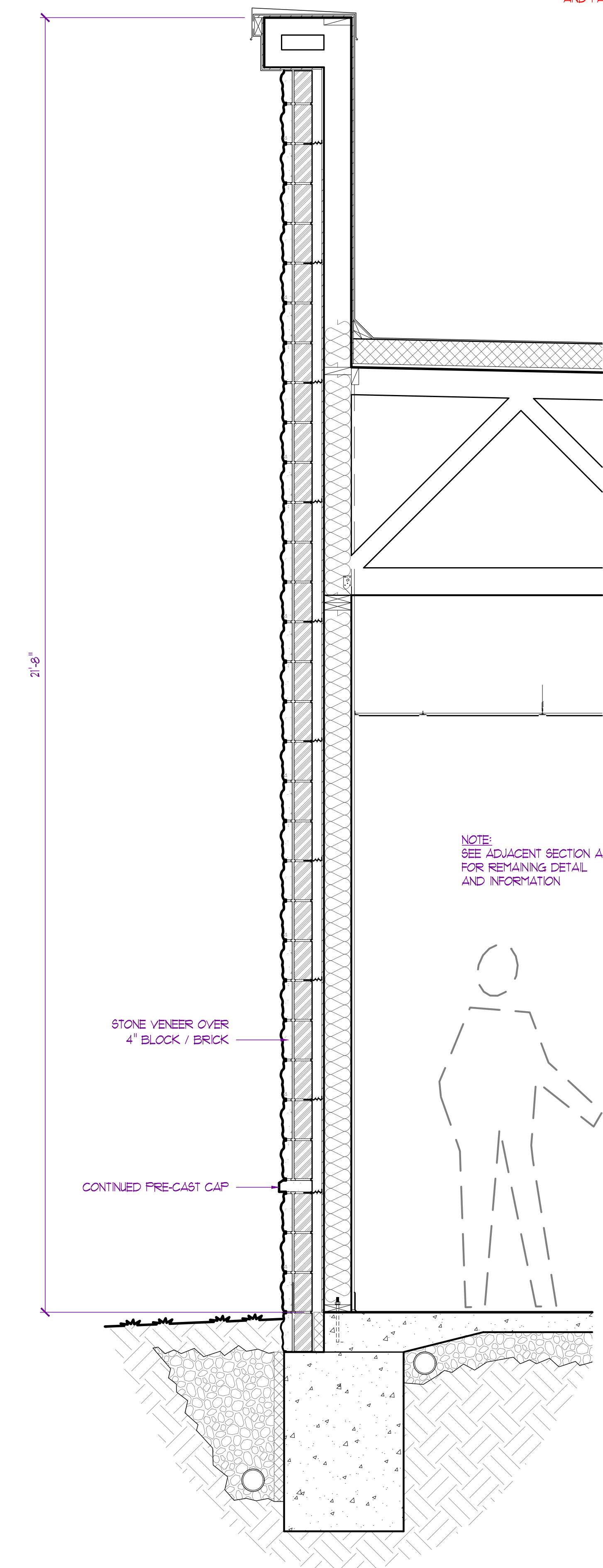
ISSUE		
ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024
PROJECT NO. FB24248		
SHEET TITLE EXTERIOR RENDERINGS		
SHEET NUMBER A502		



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



SECTION - A-I
SCALE: 3/4" = 1'-0"



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

NOTE:
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CONSTRUCTION
As Noted on Plans Review
JAY D. BERENDZEN
ARCHITECT
2006034588
09-19-2024

EXPIRATION DATE 12-31-24
JAY D. BERENDZEN, ARCHITECT
MISSOURI ARC-000588
EXP. 12/31/25

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PROJECT
**Discovery Park
Discovery Pet Spa**
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

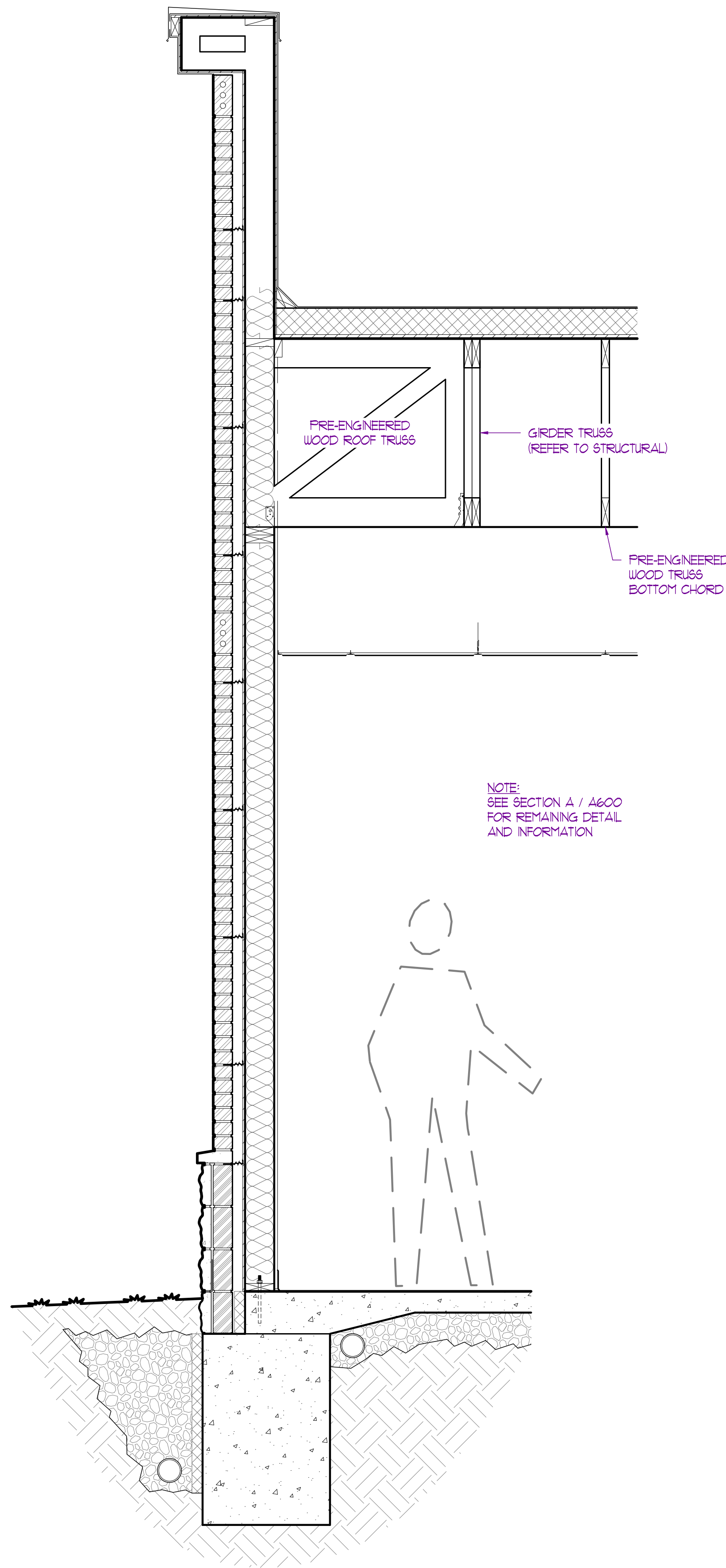
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1	PERMIT	9/19/2024

PROJECT NO.
FBA2418

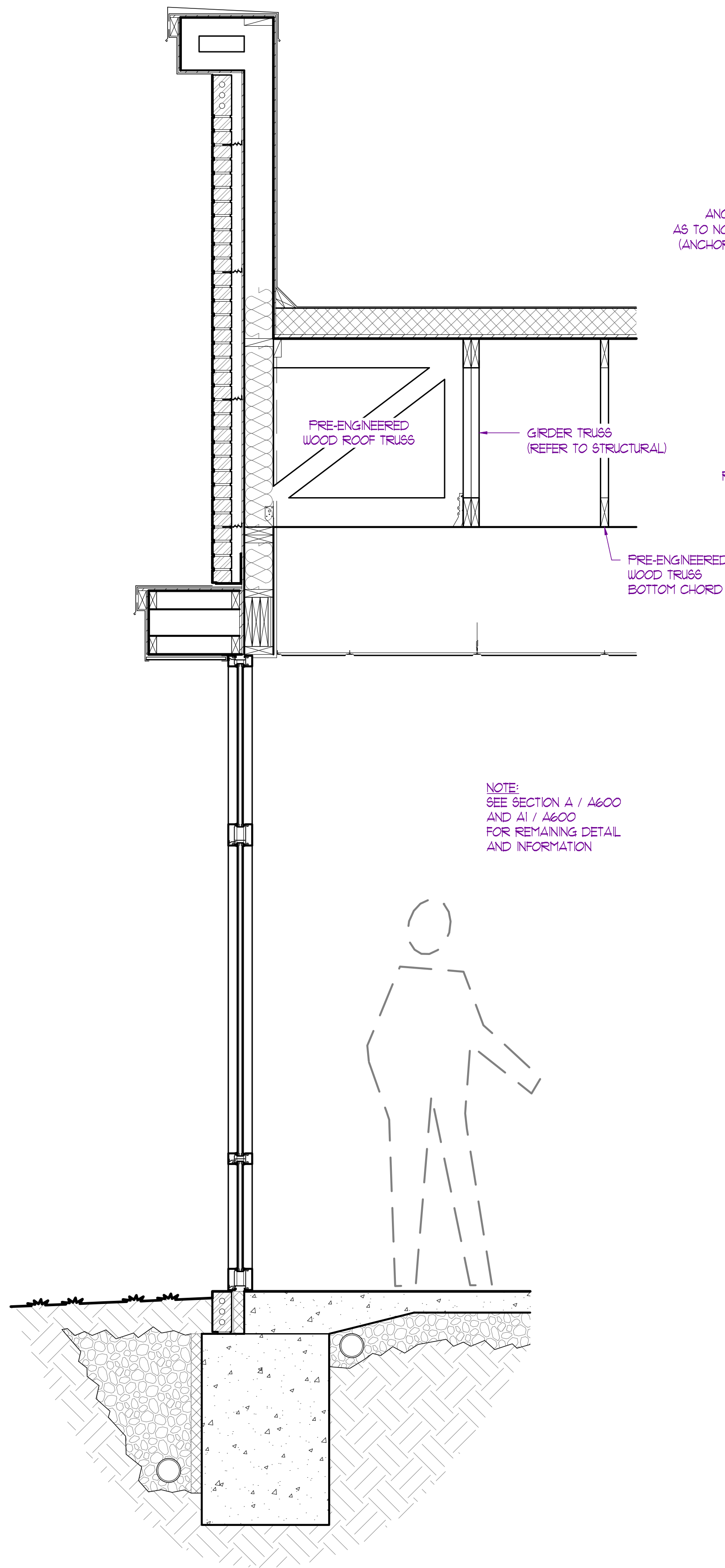
SHEET TITLE
BUILDING
/ WALL SECTIONS

SHEET NUMBER
A600



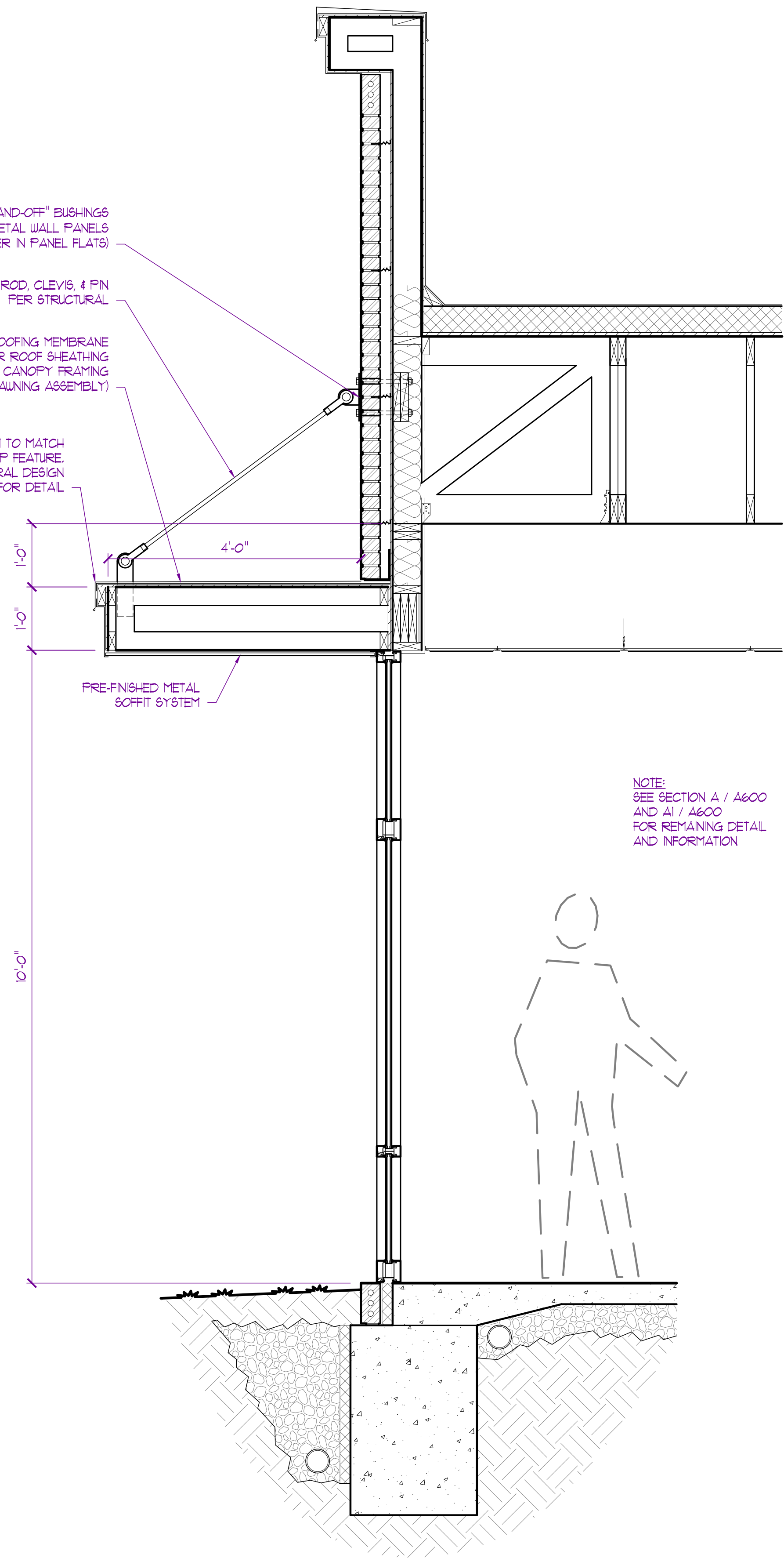
C
A201

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



C1
A201

SECTION - C1
SCALE: 3/4" = 1'-0"



D
A201

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

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Summit, Missouri
03/2025

JAY D.
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PROJECT

Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

ISSUE		
ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024

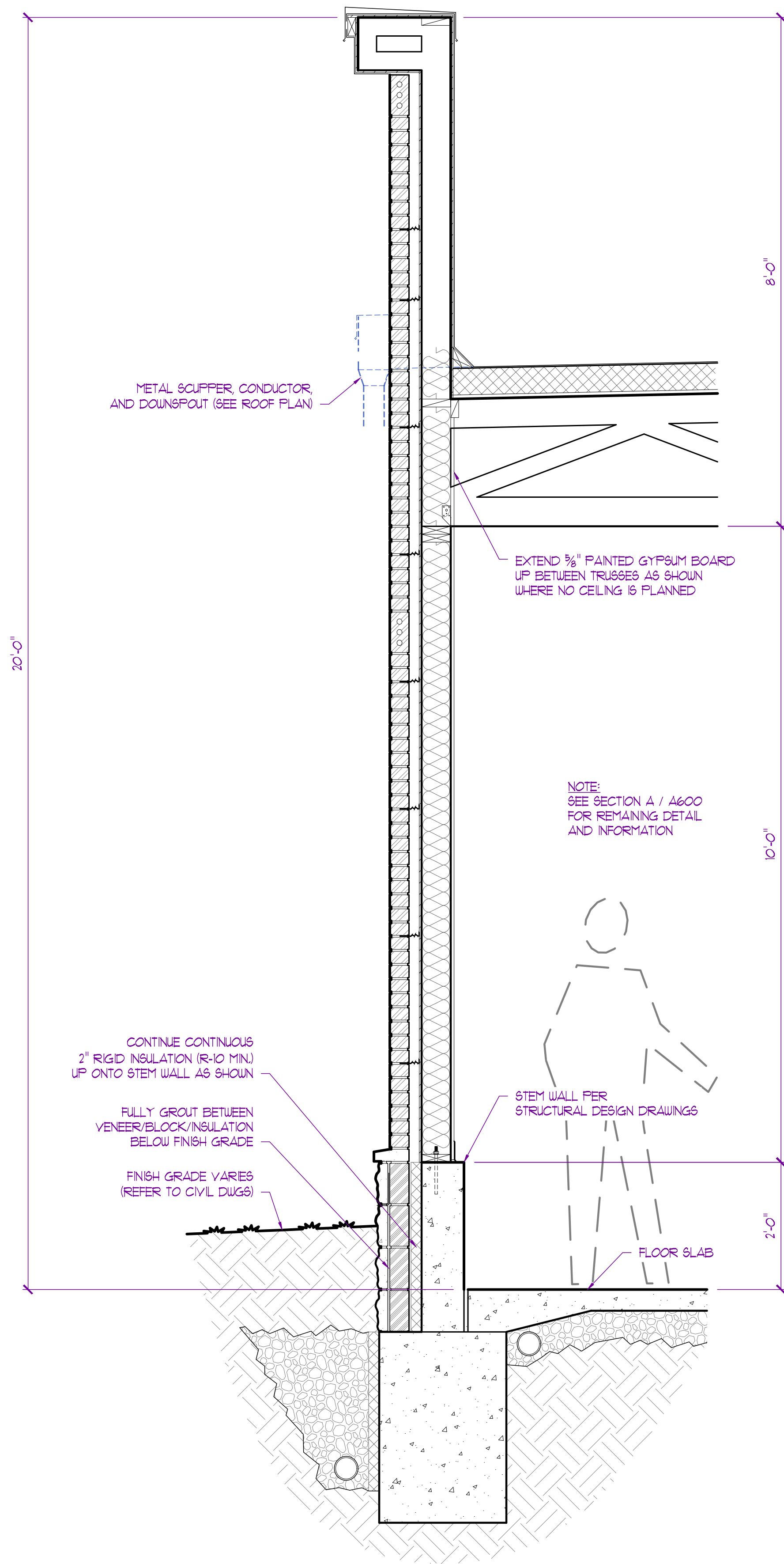
PROJECT NO.
FB24248

SHEET TITLE

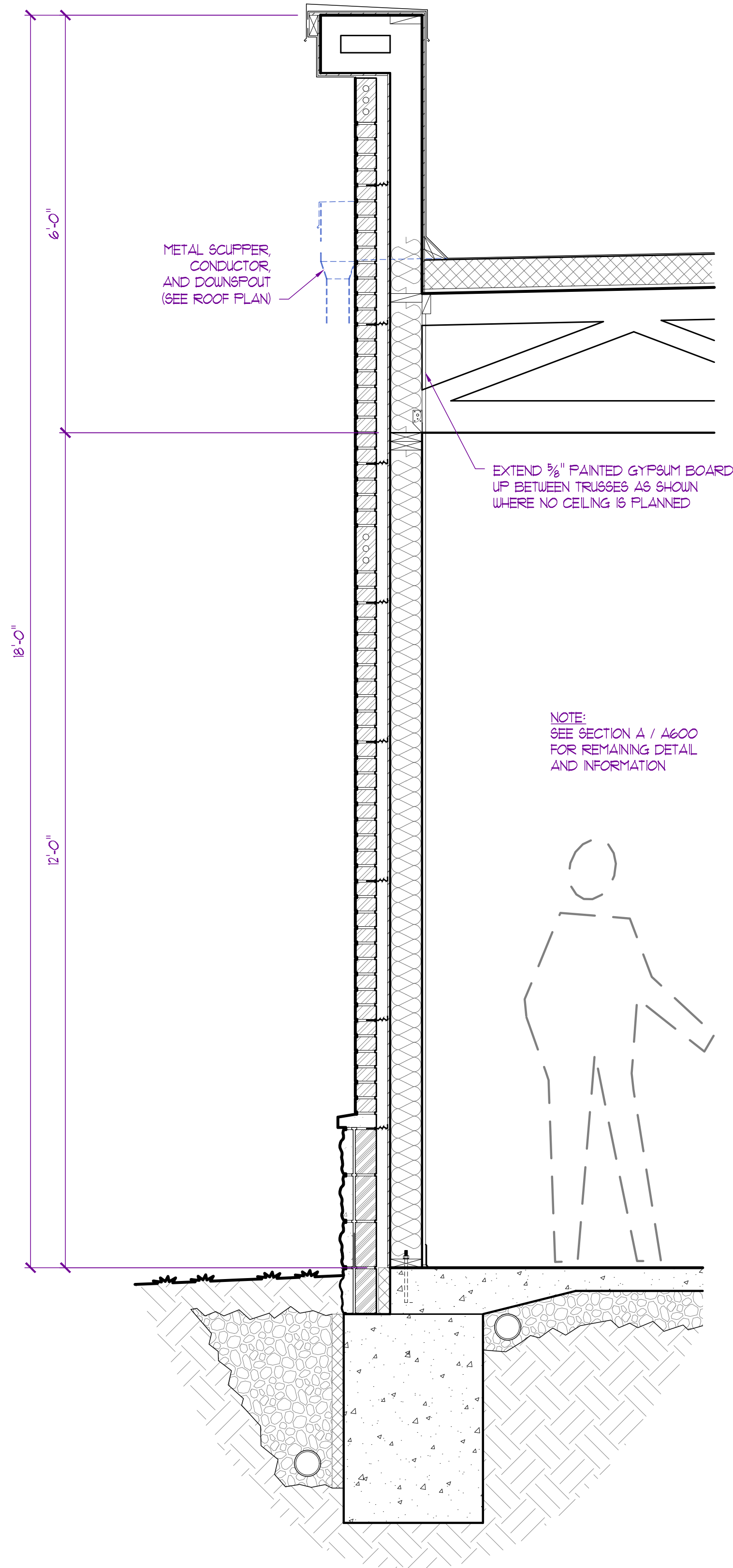
BUILDING
/ WALL SECTIONS

SHEET NUMBER

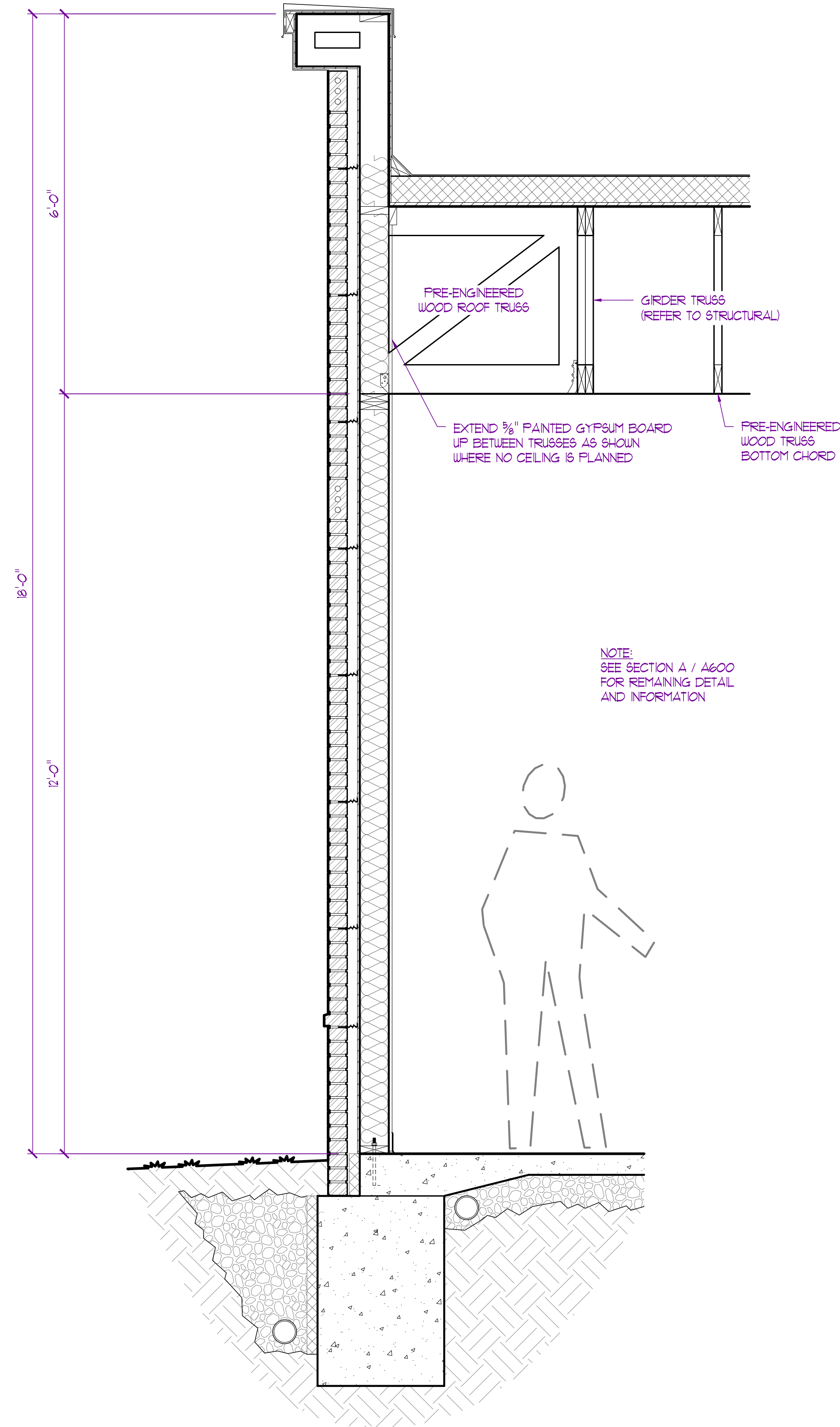
A601



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



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



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

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11/03/2025

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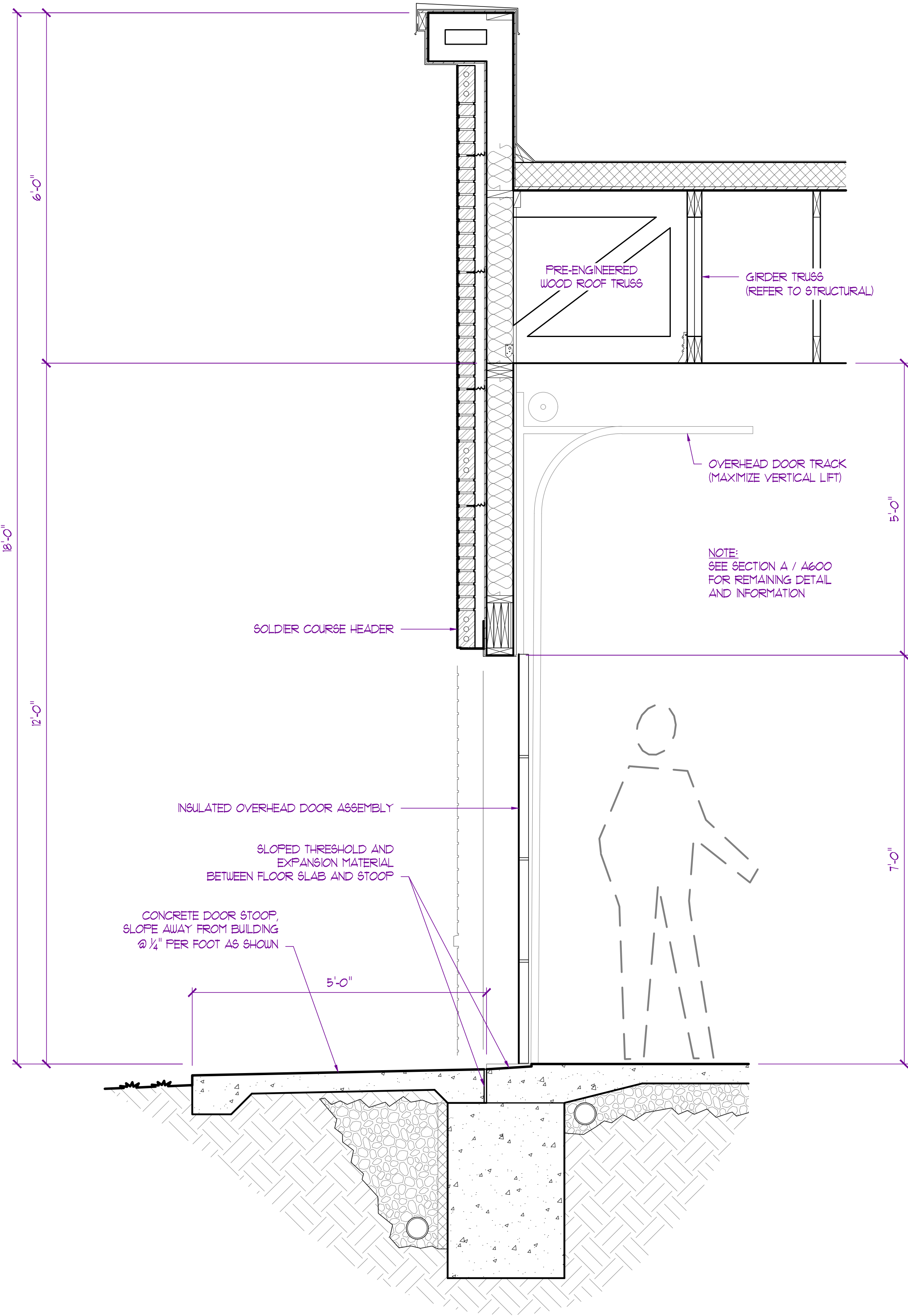
PROJECT
Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

ISSUE
ID DESCRIPTION DATE
1 PERMIT 9/19/2024

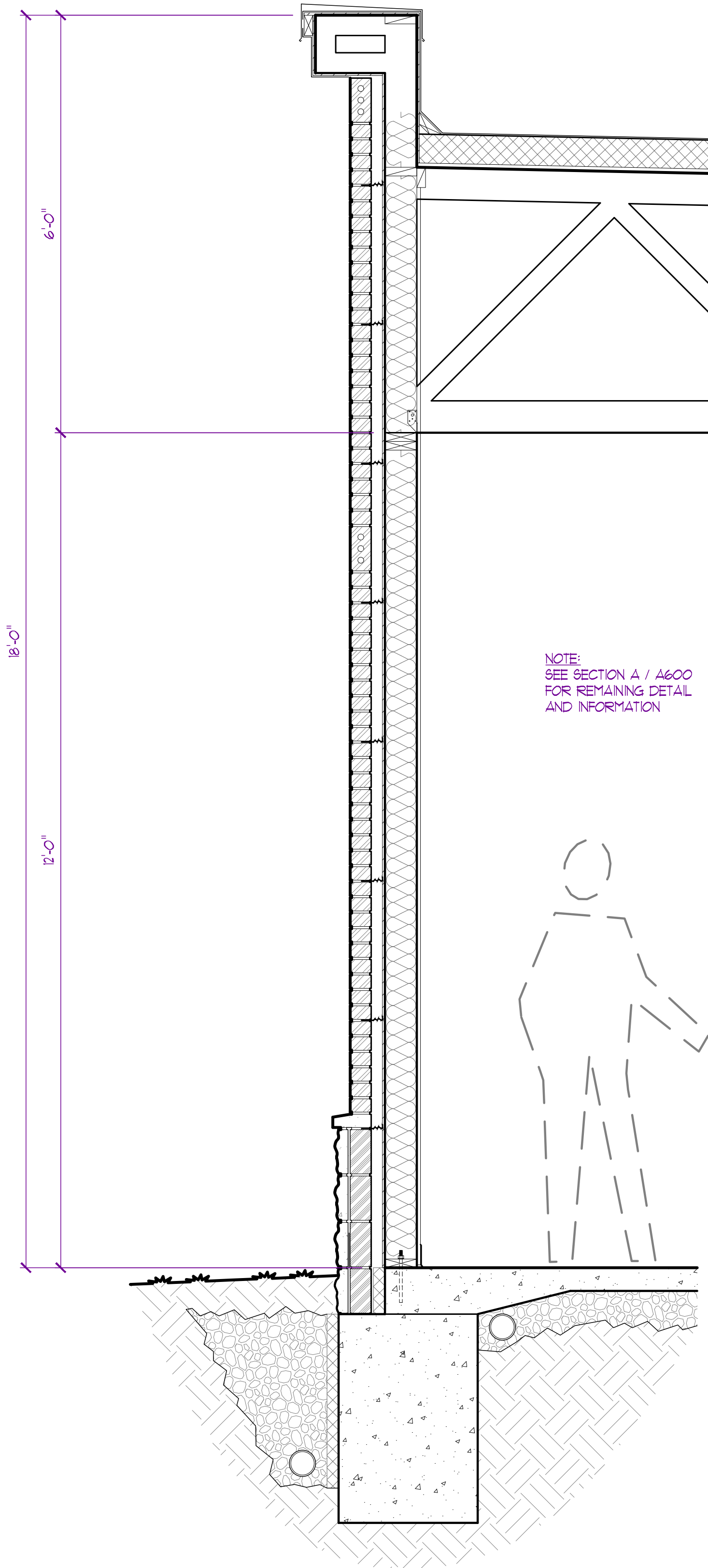
PROJECT NO.
FB24248

SHEET TITLE
BUILDING
/ WALL SECTIONS

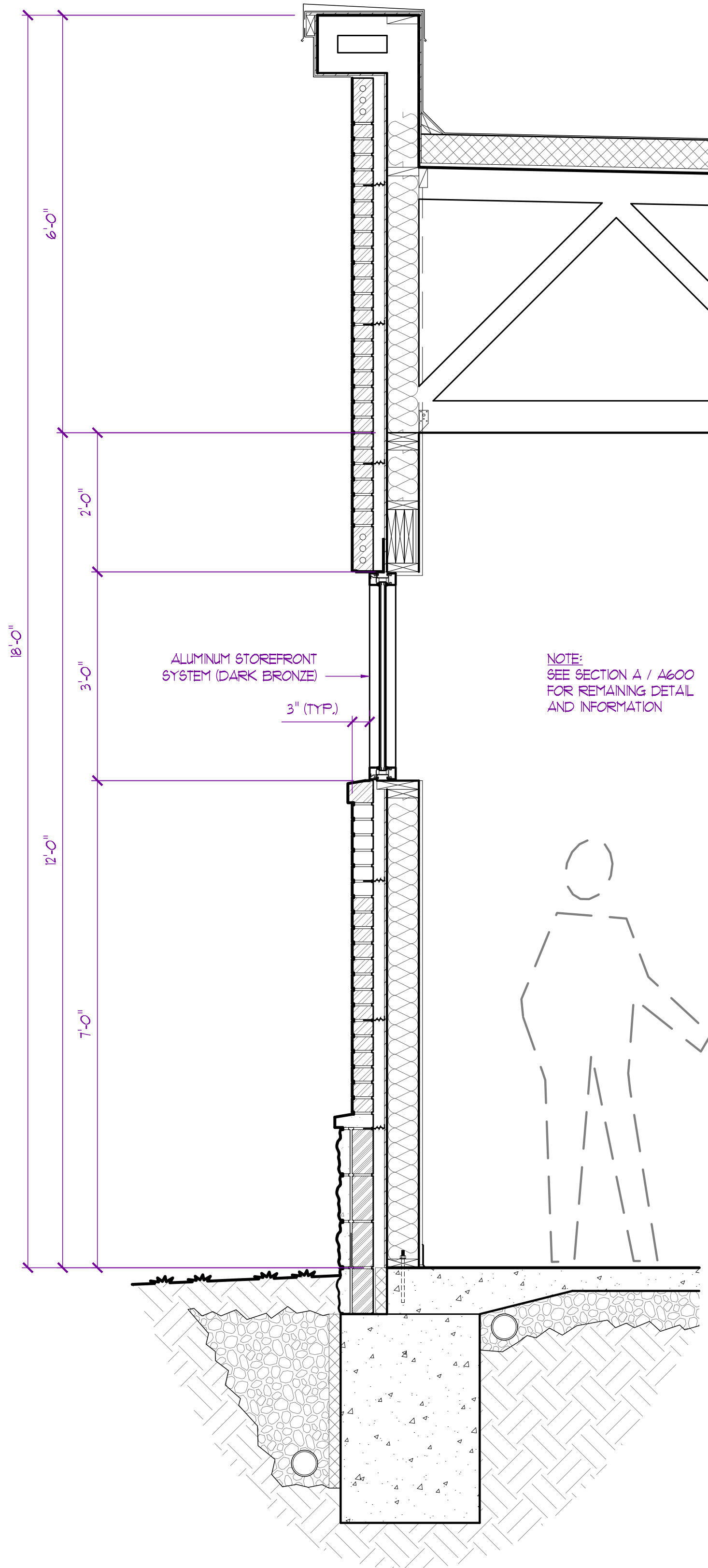
SHEET NUMBER
A602



G-I
SECTION - G-I
SCALE: 3/4" = 1'-0"



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



H-I
SECTION - H-I
SCALE: 3/4" = 1'-0"

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Development Services Department
JAY D. BERENDZEN
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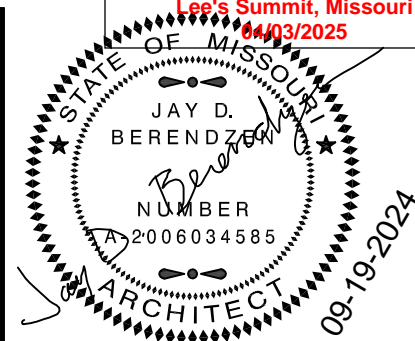
PROJECT
Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
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ID DESCRIPTION DATE
1 PERMIT 9/19/2024

PROJECT NO.
FB24248

SHEET TITLE
BUILDING
/ WALL SECTIONS

SHEET NUMBER
A603



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PROJECT

Discovery Park
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ISSUE		
ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024

PROJECT NO.
FB24248

SHEET TITLE

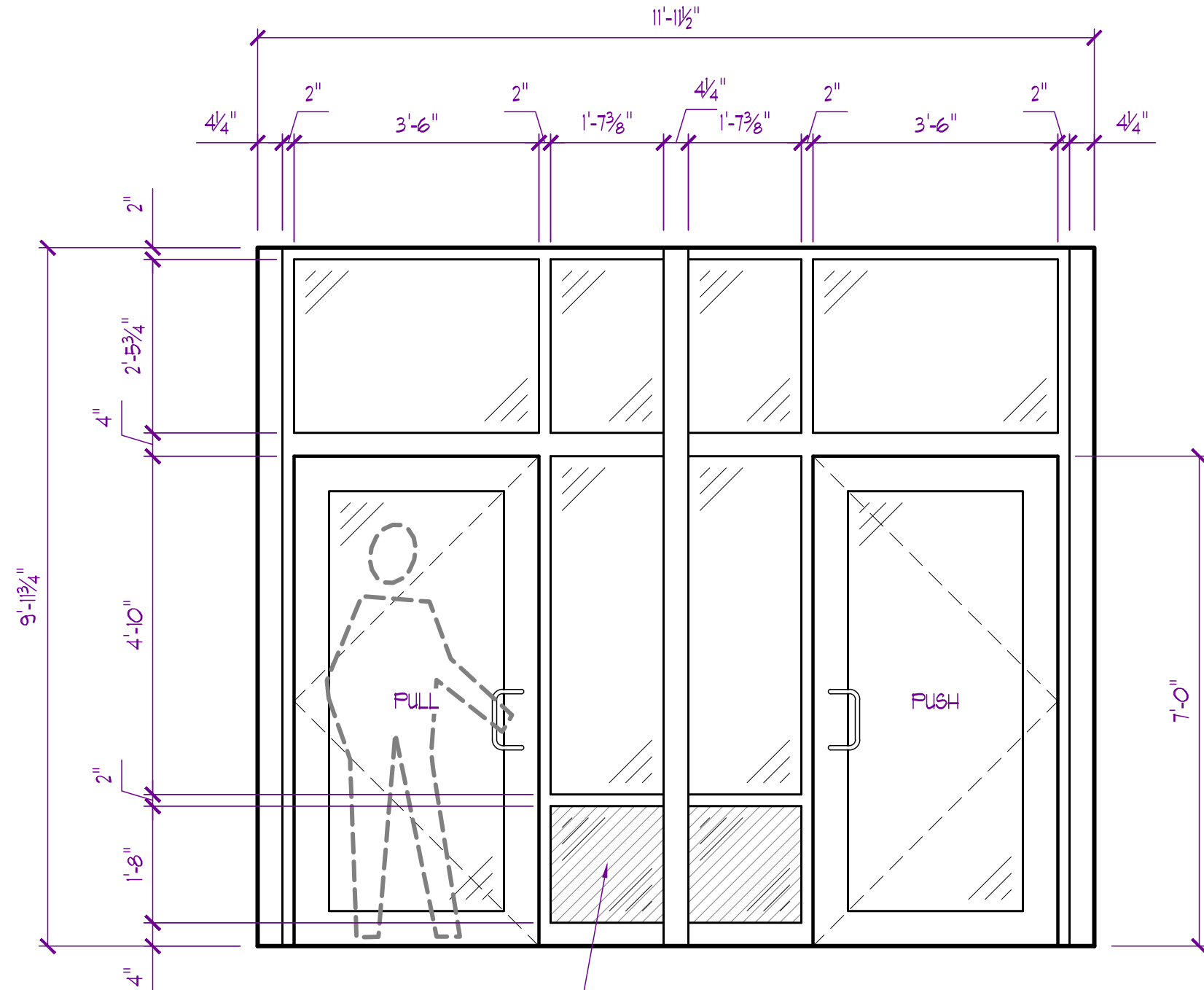
STOREFRONT
ELEVATIONS / DETAILS

SHEET NUMBER

A700

ALUMINUM STOREFRONT NOTES:

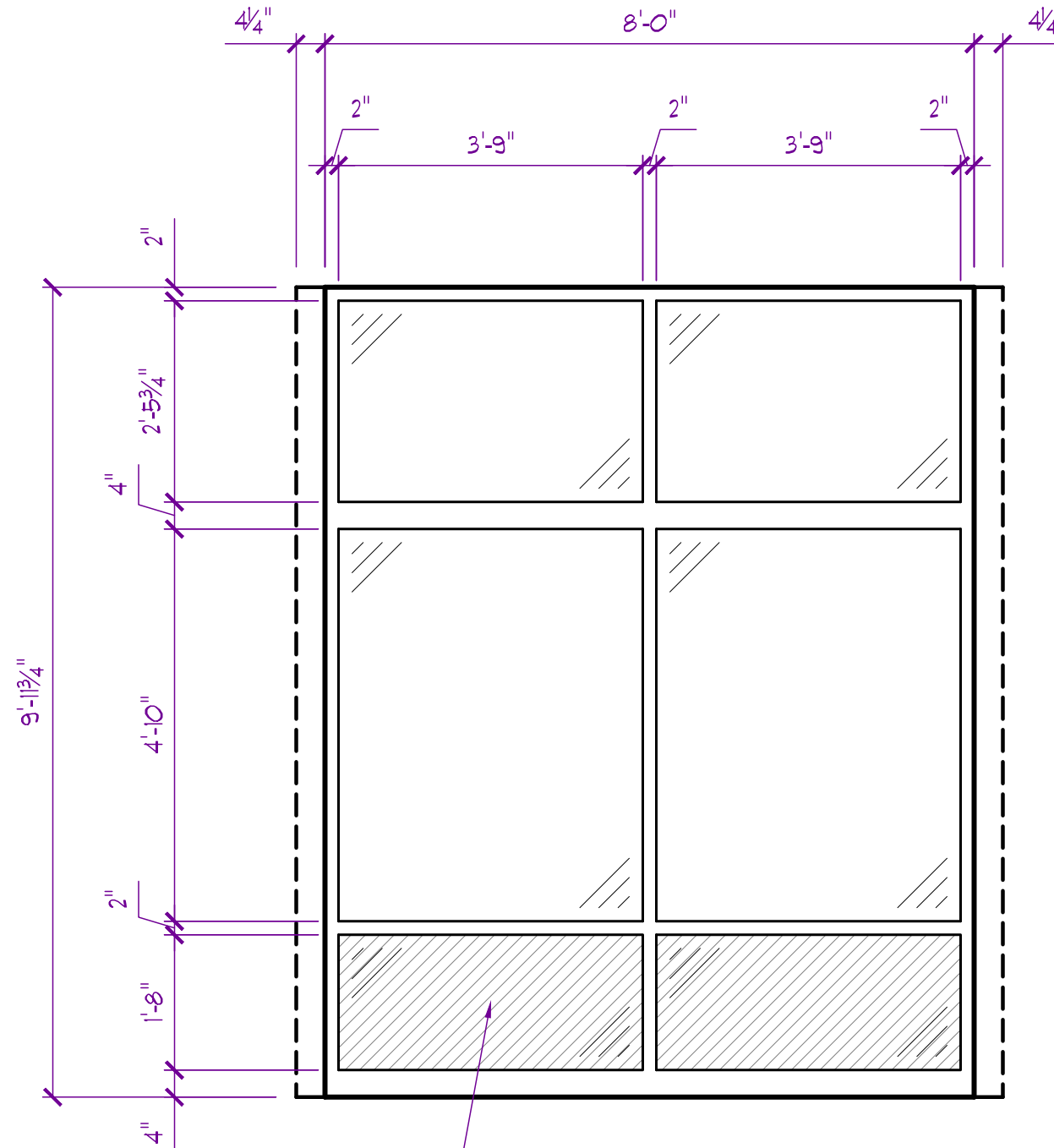
- ALL ASSEMBLIES SHOWN ARE FROM EXTERIOR VIEW UNLESS NOTED OTHERWISE
- GENERAL CONTRACTOR TO FIELD VERIFY ALL DOOR / WINDOW ROUGH OPENINGS PRIOR TO FABRICATION
- PROVIDE SEALANT AT JOINTS AND OPENINGS FOR WEATHER TIGHT INSTALLATION
- ALL STOREFRONT ASSEMBLIES TO MEET U-FACTOR VALUES AS INDICATED IN BUILDING ENVELOPE REPORT
- ALL STOREFRONT DOORS / WINDOWS, TRIM, ACCESSORIES, BREAK METAL, ETC. PROVIDED BY SAME MANUFACTURER
- ALL STOREFRONT FRAMES TO BE DARK BRONZE OR EQUAL
- ALL EXTERIOR GLAZING TO BE LOW E INSULATED GLASS w/ GRAY TINT (SAFETY GLASS WHERE INDICATED OR REQUIRED BY CODE)
- ALL INTERIOR GLAZING TO BE 1/2" SINGLE PANE FLOAT GLASS (SAFETY GLASS WHERE INDICATED OR REQUIRED BY CODE)
- SEE DOOR SCHEDULE ON SHEET A800 FOR REMAINING DOOR INFORMATION



SOLID PANEL TO MATCH FRAME COLOR
INDICATED BY HATCHED AREA

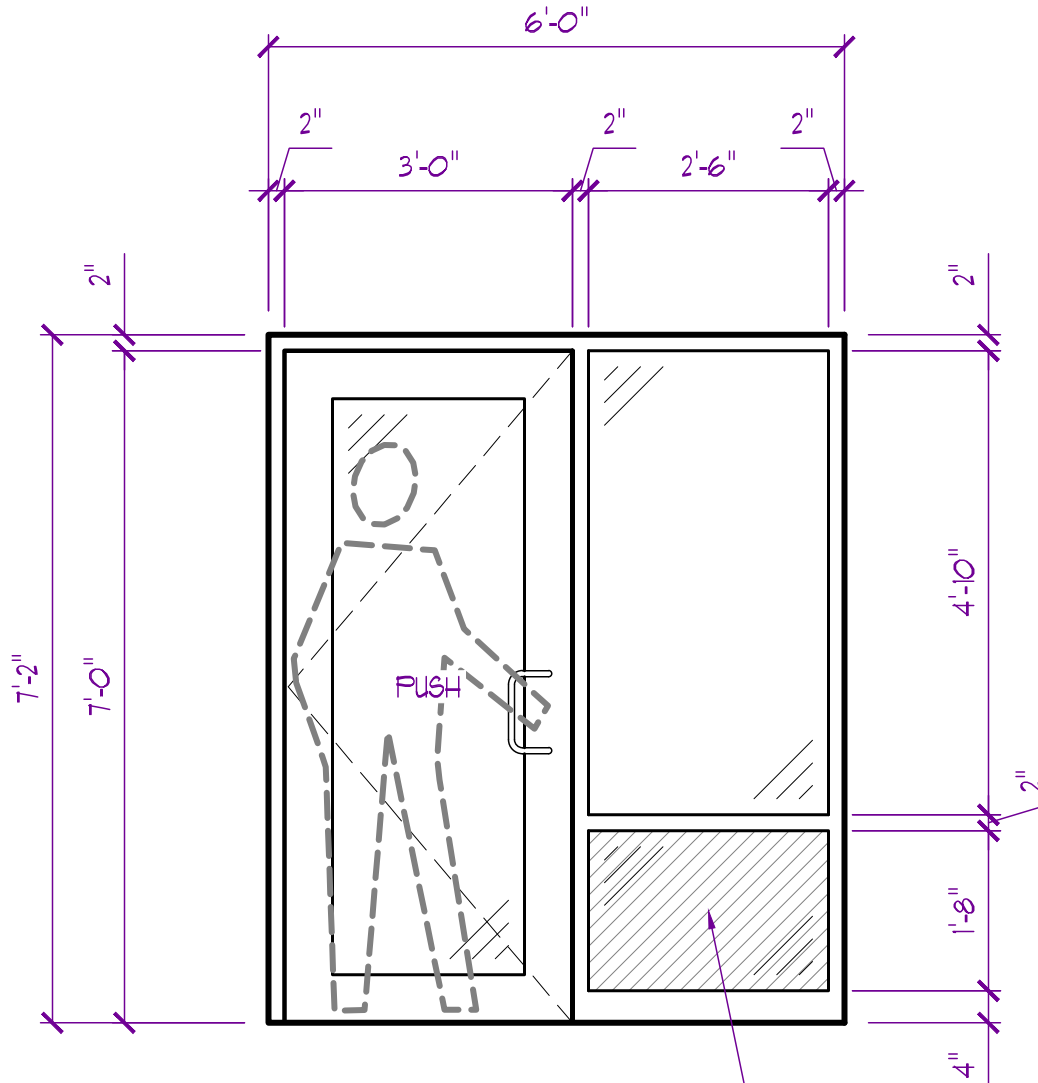
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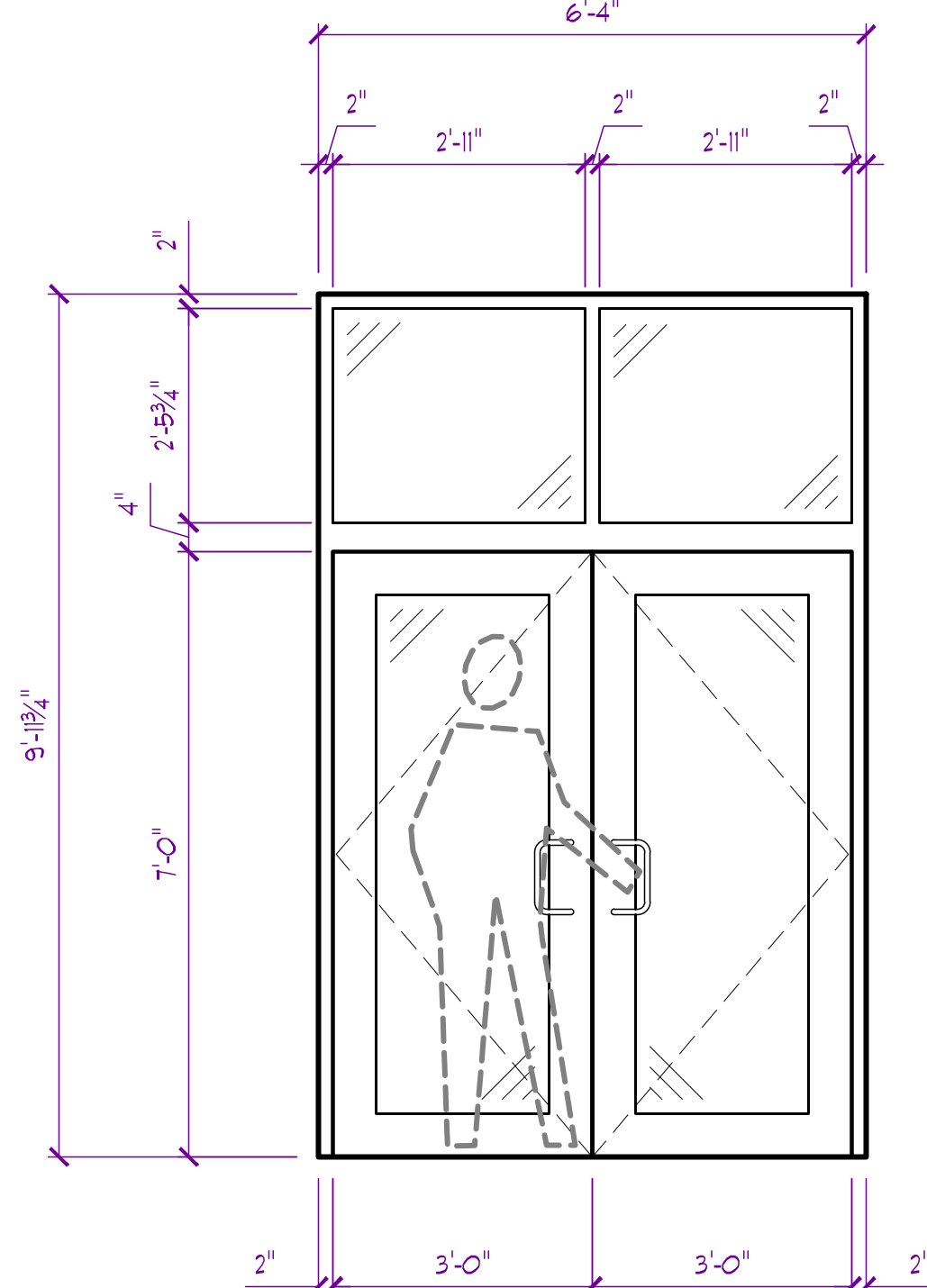
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INDICATED BY HATCHED AREA

B

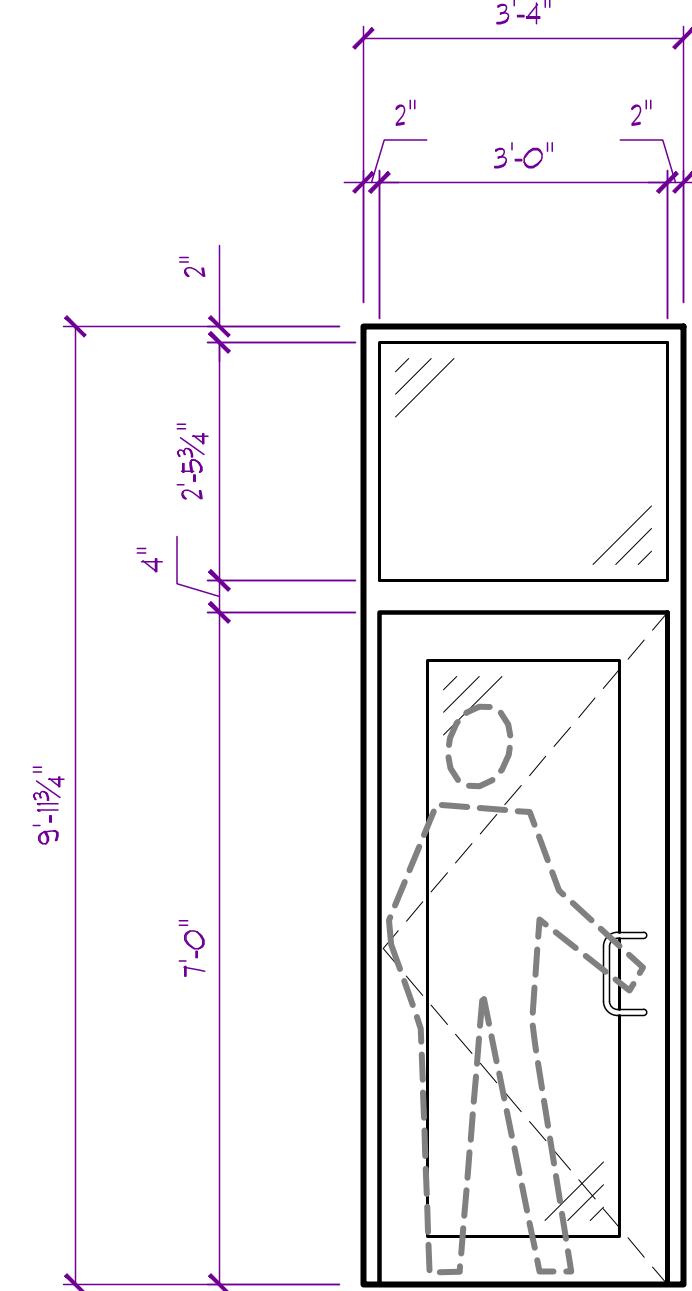


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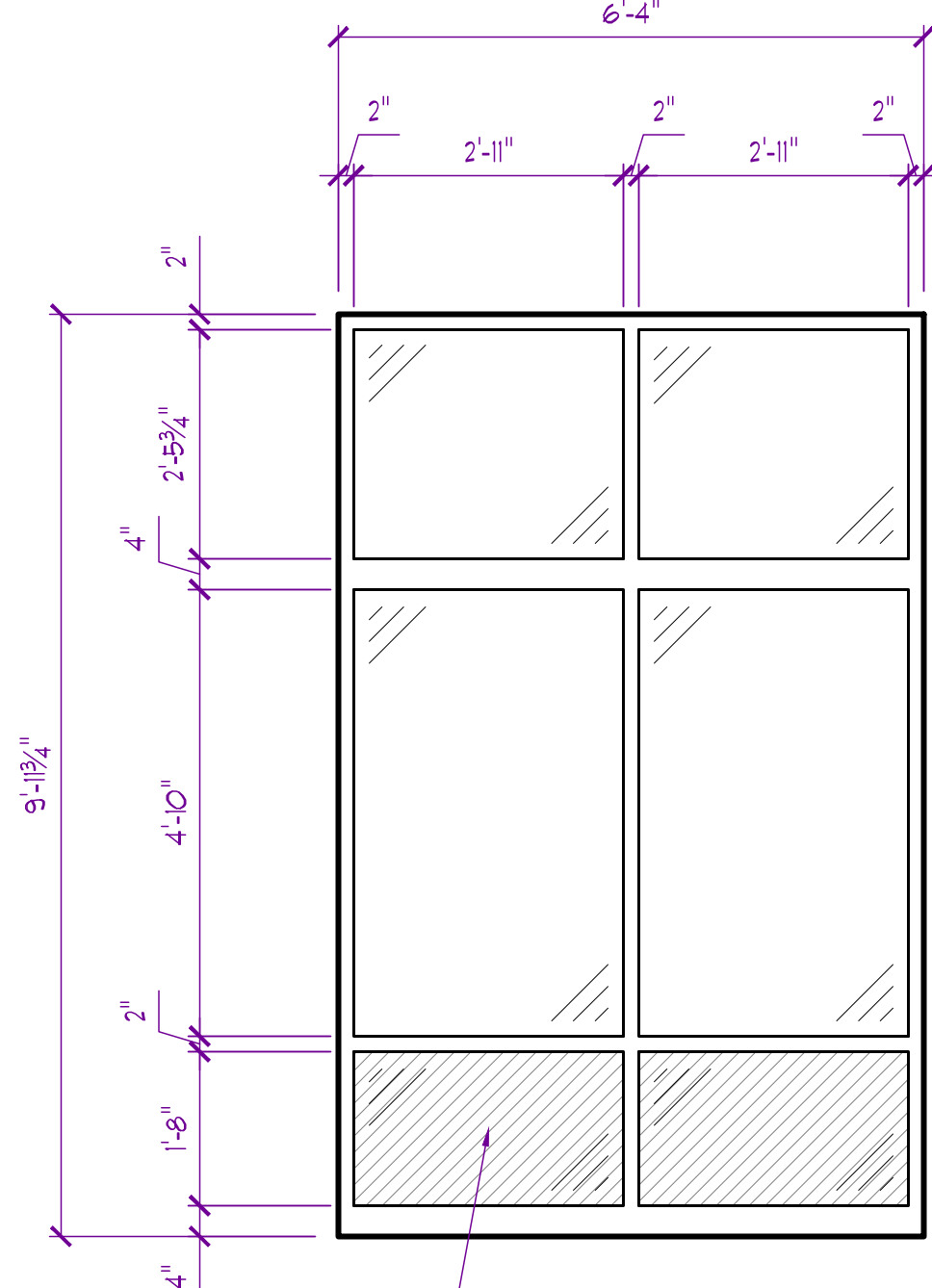
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D



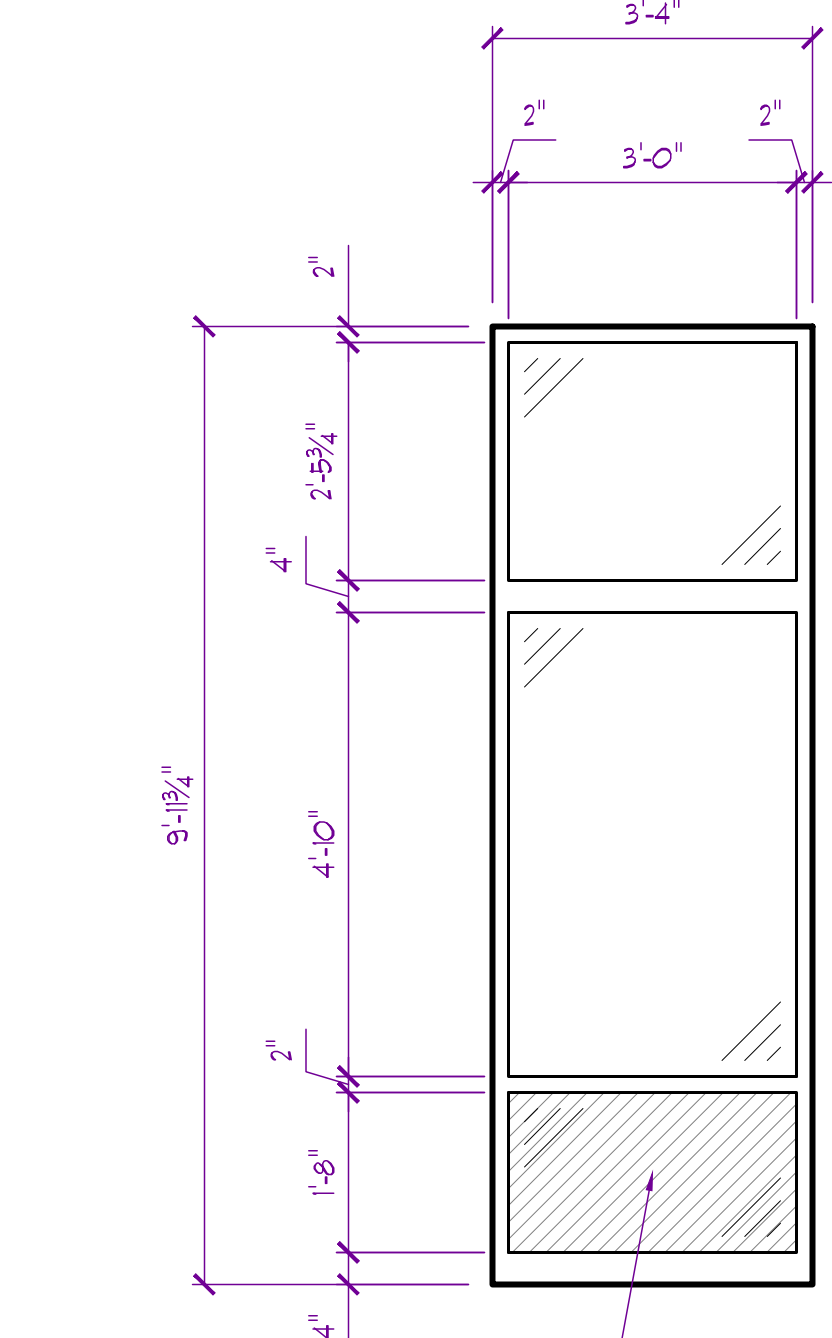
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SOLID PANEL TO MATCH FRAME COLOR
INDICATED BY HATCHED AREA

F

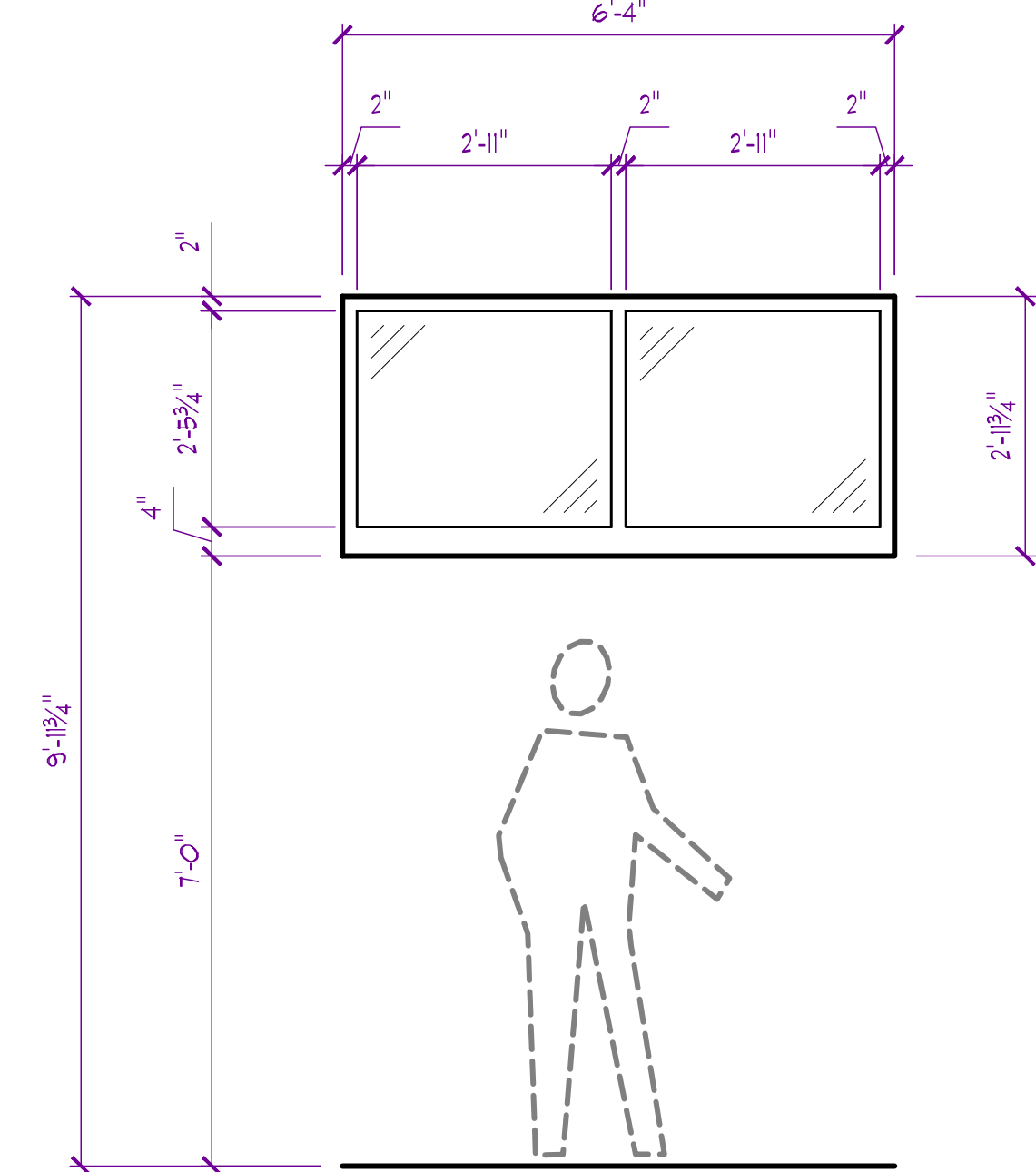
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SOLID PANEL TO MATCH FRAME COLOR
INDICATED BY HATCHED AREA

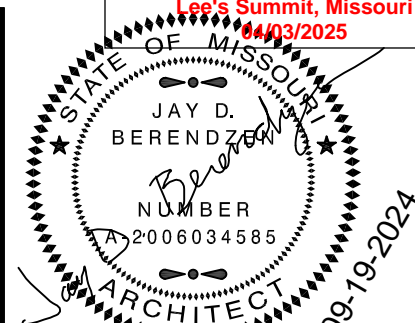
G

QUANTITY = 4



H

QUANTITY = 3



JAY D. BERENDZEN, ARCHITECT
MISSOURI ARC-000588
EXP. 12/31/25

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PROJECT

Discovery Park
Discovery Pet Spa
1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

ISSUE		
ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024

PROJECT NO.
FB242418

SHEET TITLE

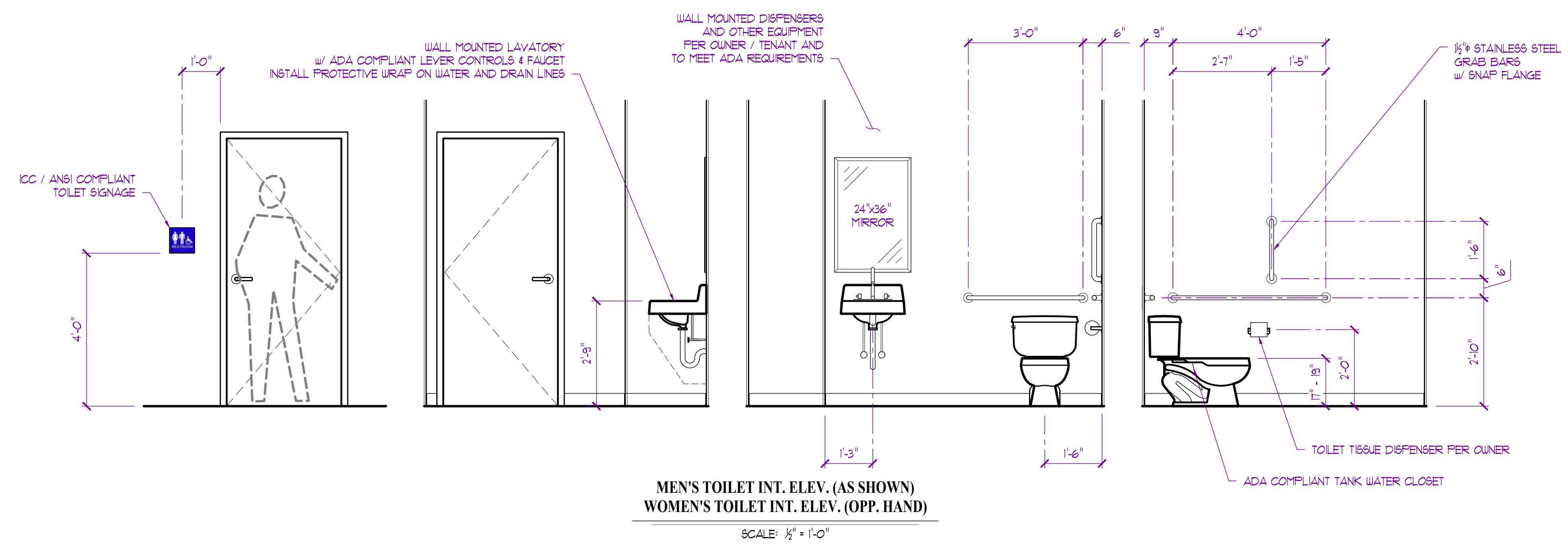
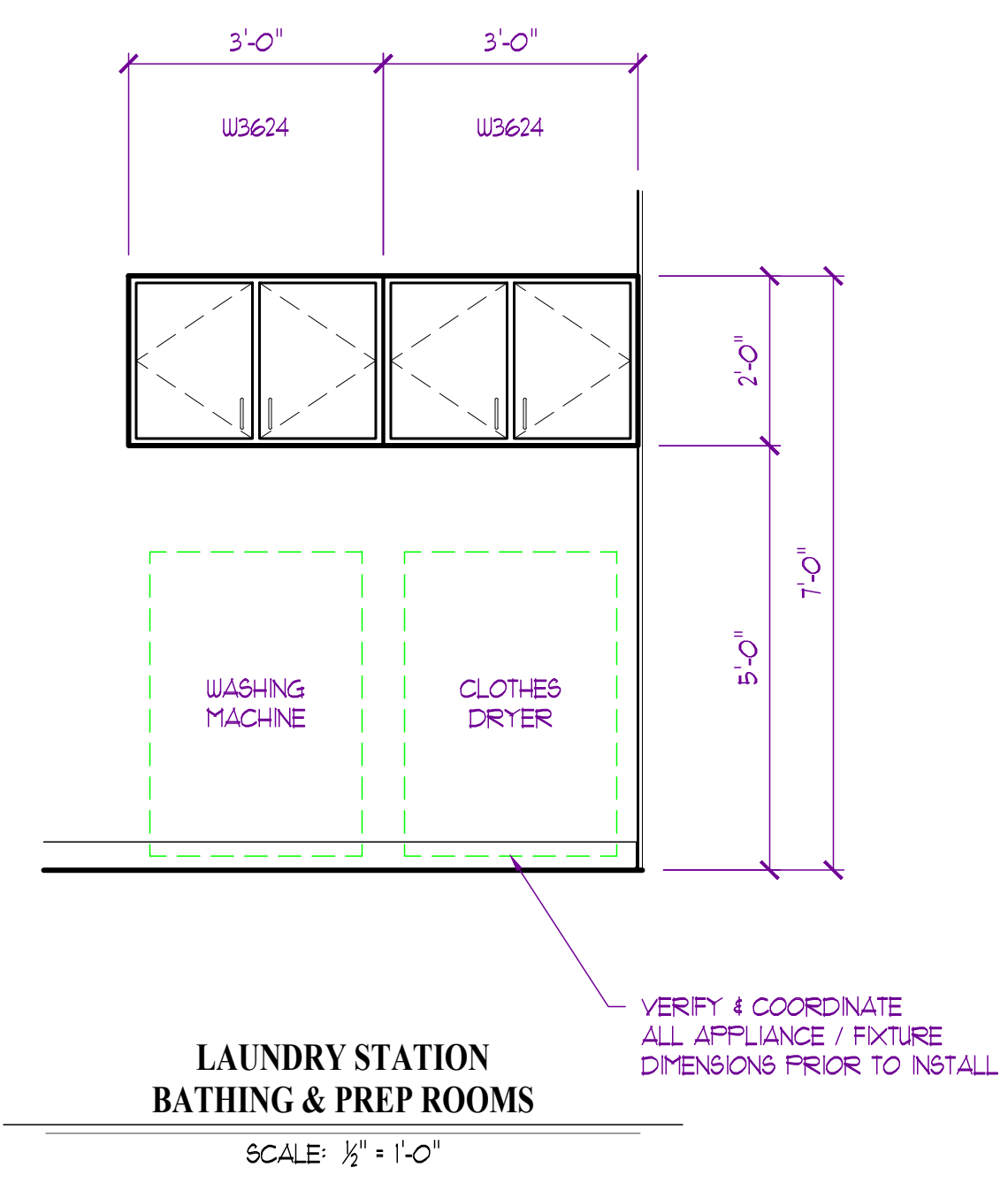
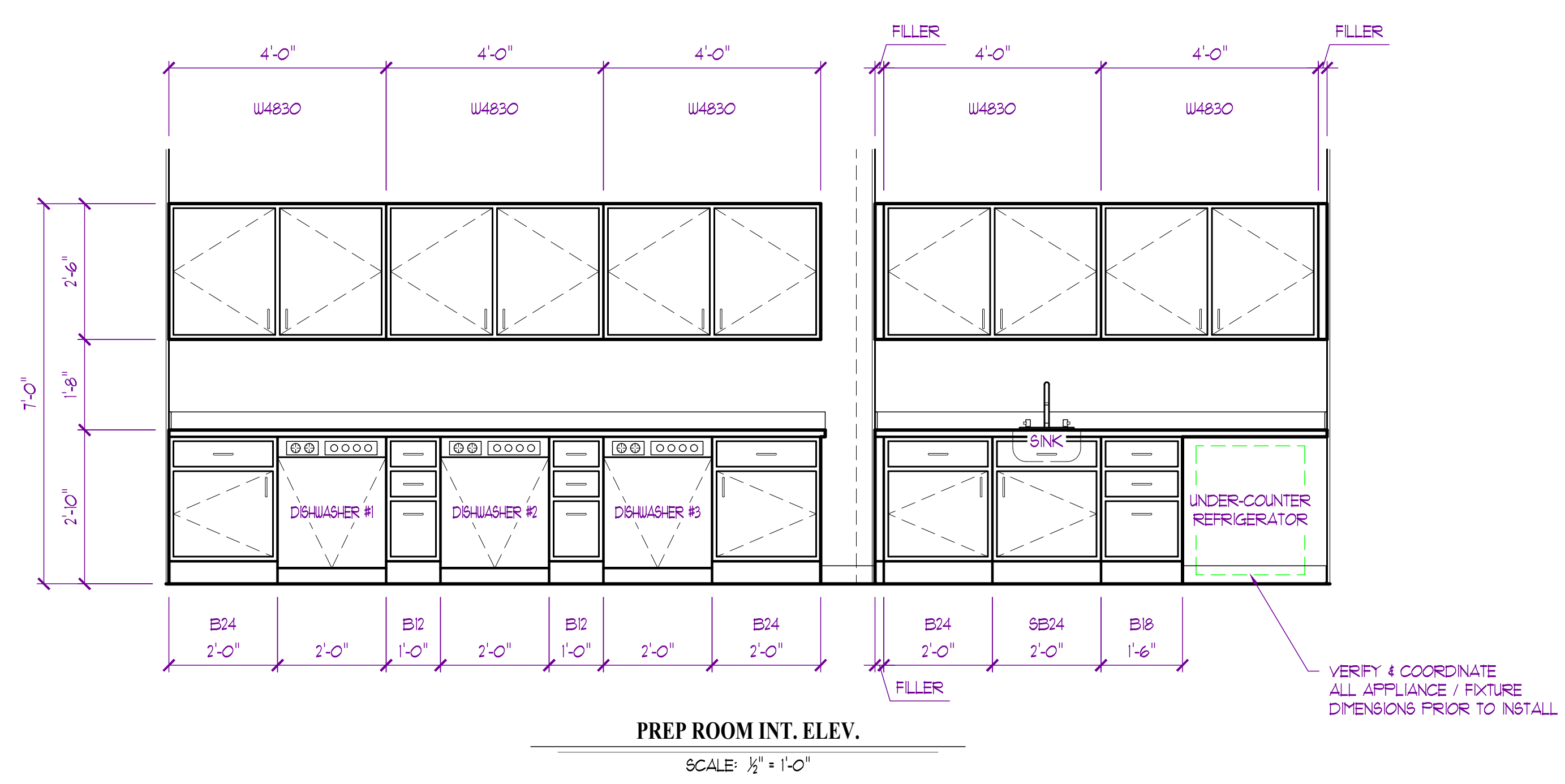
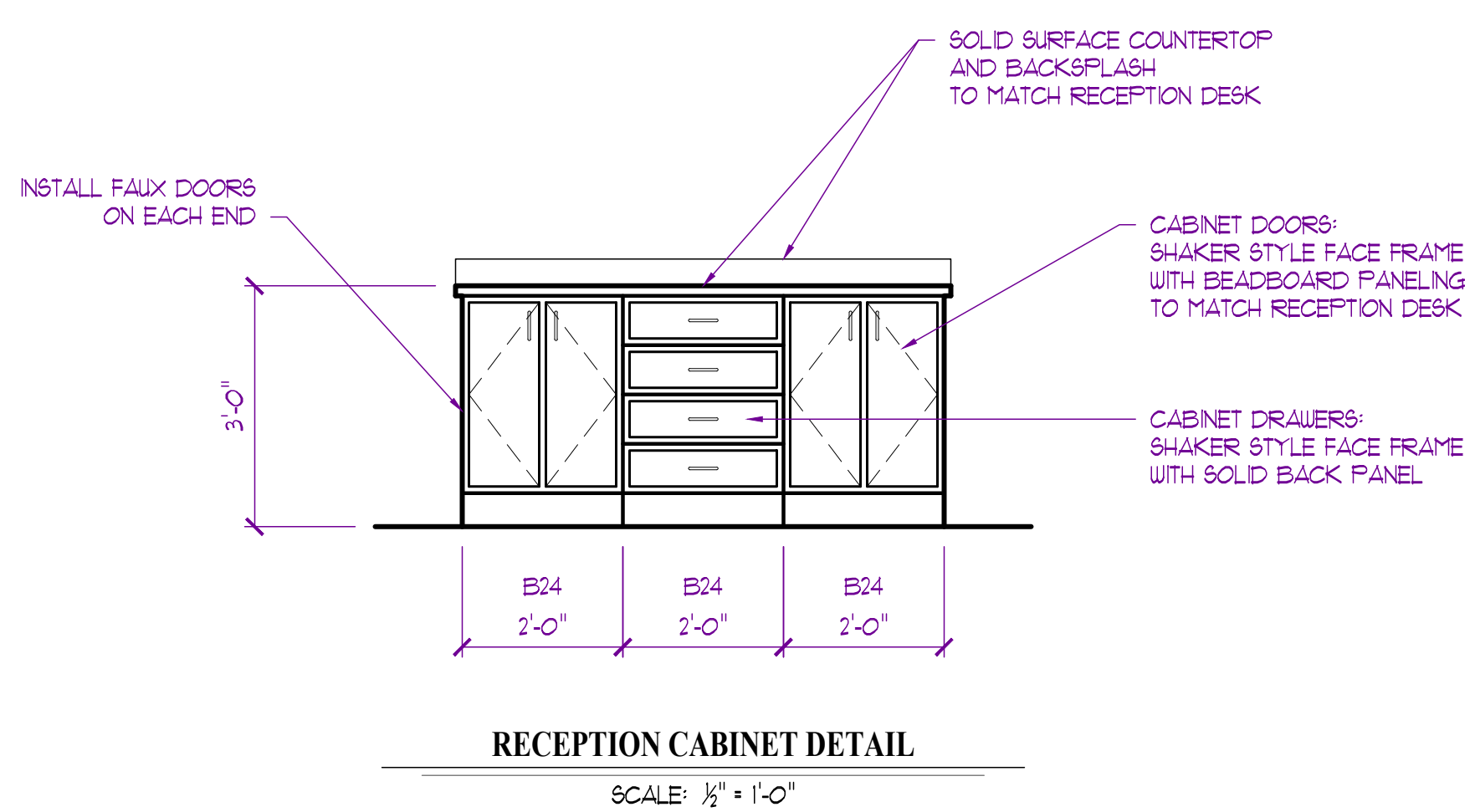
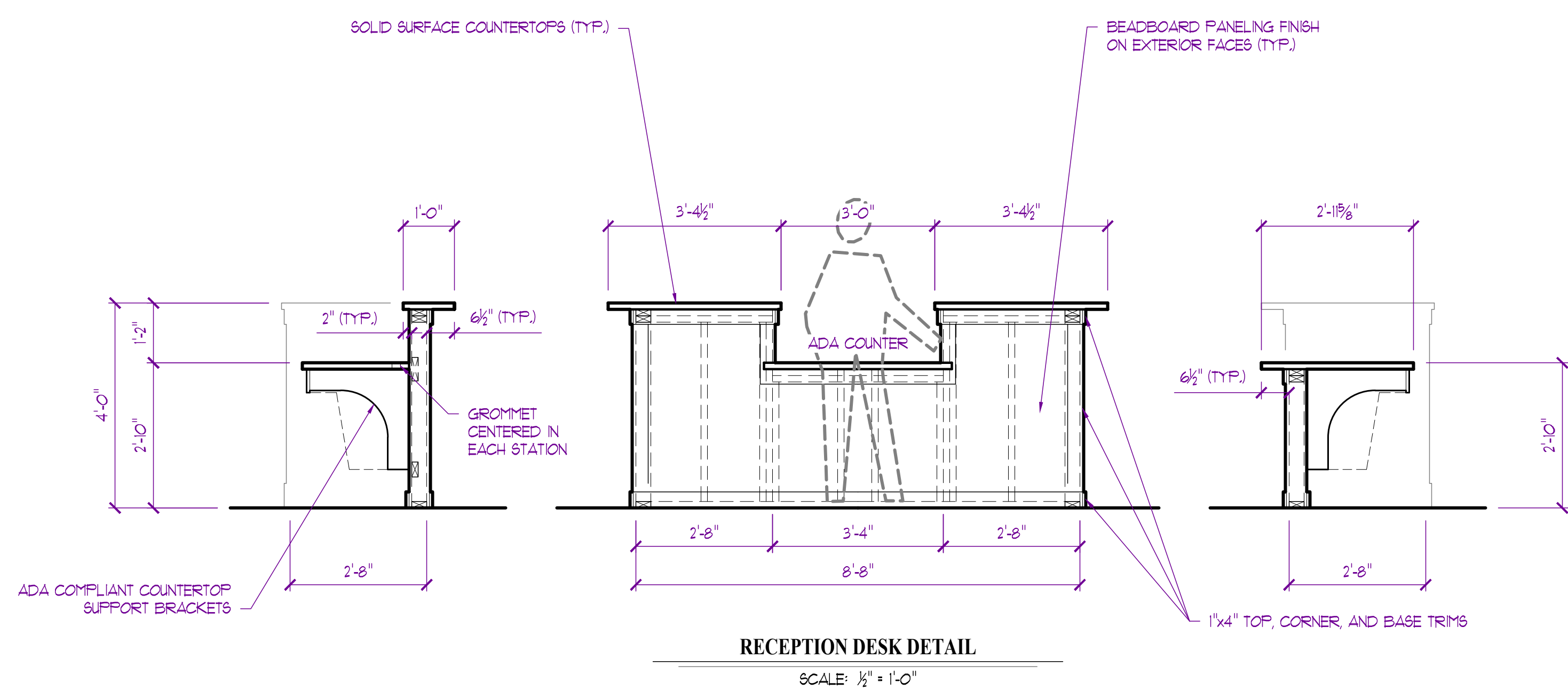
INTERIOR
ELEVATIONS / DETAILS

SHEET NUMBER

A800

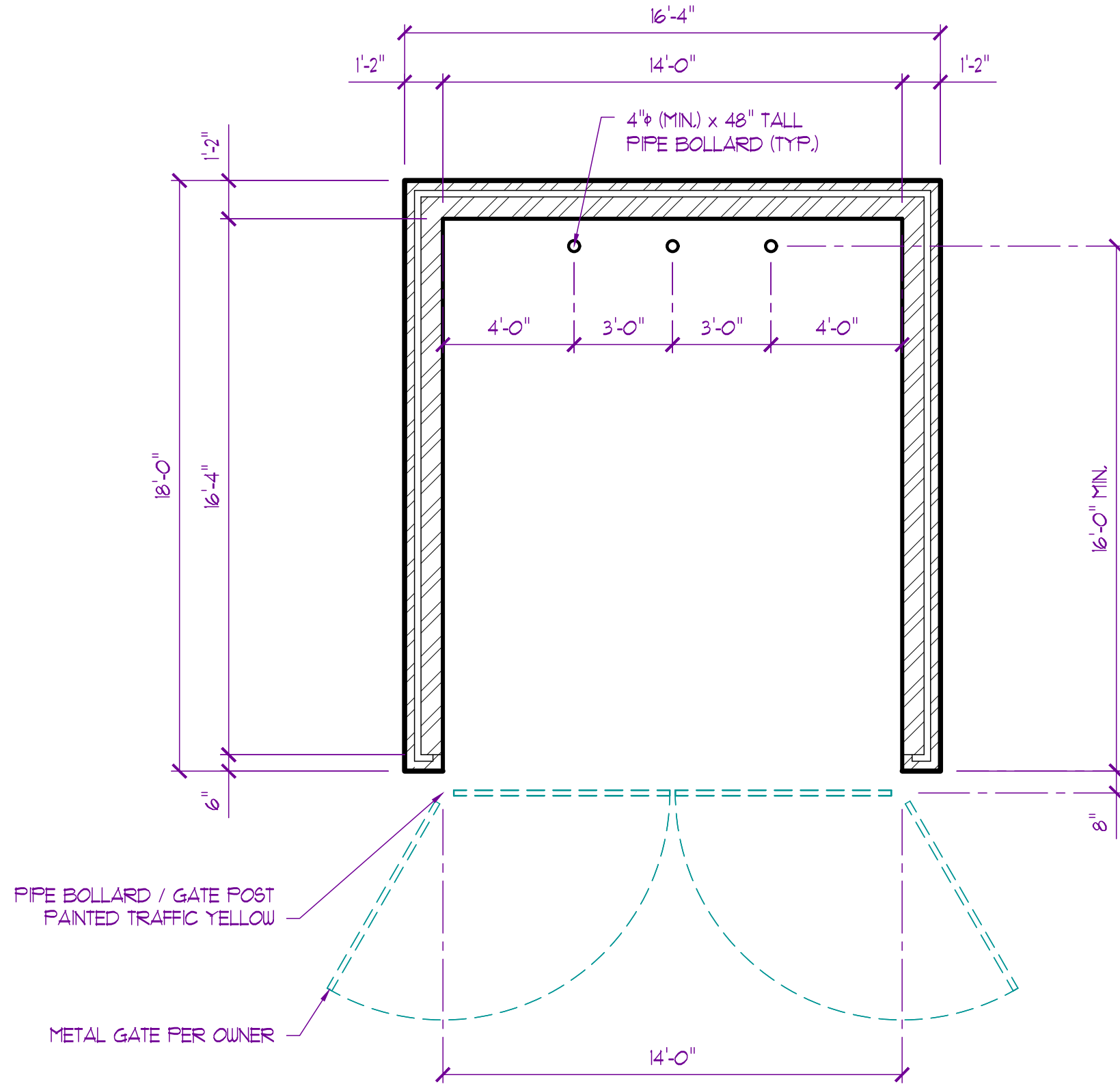
INTERIOR ELEVATION NOTES:

- ALL ELEVATIONS TAKEN FROM TOP OF FINISH FLOOR SLAB, ASSUMED AT 0'-0".
- ALL DIMENSIONS TO **FINISH FACE OF WALL** UNLESS NOTED OTHERWISE.
- OWNER/TENANT TO VERIFY ALL FINISHES/MATERIALS PRIOR TO CONSTRUCTION.
- SEE ROOM FINISH SCHEDULE ON SHEET A800 FOR REMAINING INFORMATION.
- ALL WORK TO COMPLY WITH AMERICAN NATIONAL STANDARD (ANSI) ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES.
- BASE CABINETRY TO BE 24" IN DEPTH / WALL CABINETRY TO BE 12" IN DEPTH, TYPICAL UNLESS NOTED OTHERWISE.
- ALL COUNTERTOPS TO BE PLASTIC LAMINATE (STYLE / COLORS PER TENANT) WITH 3mm PVC EDGE BANDING, ADJACENT BACKSPLASH / SIDESPLASH TO MATCH. (26"D BASE / 12" SHELVE) TYPICAL UNLESS NOTED OTHERWISE.
- INSTALL ALL FINISHES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS



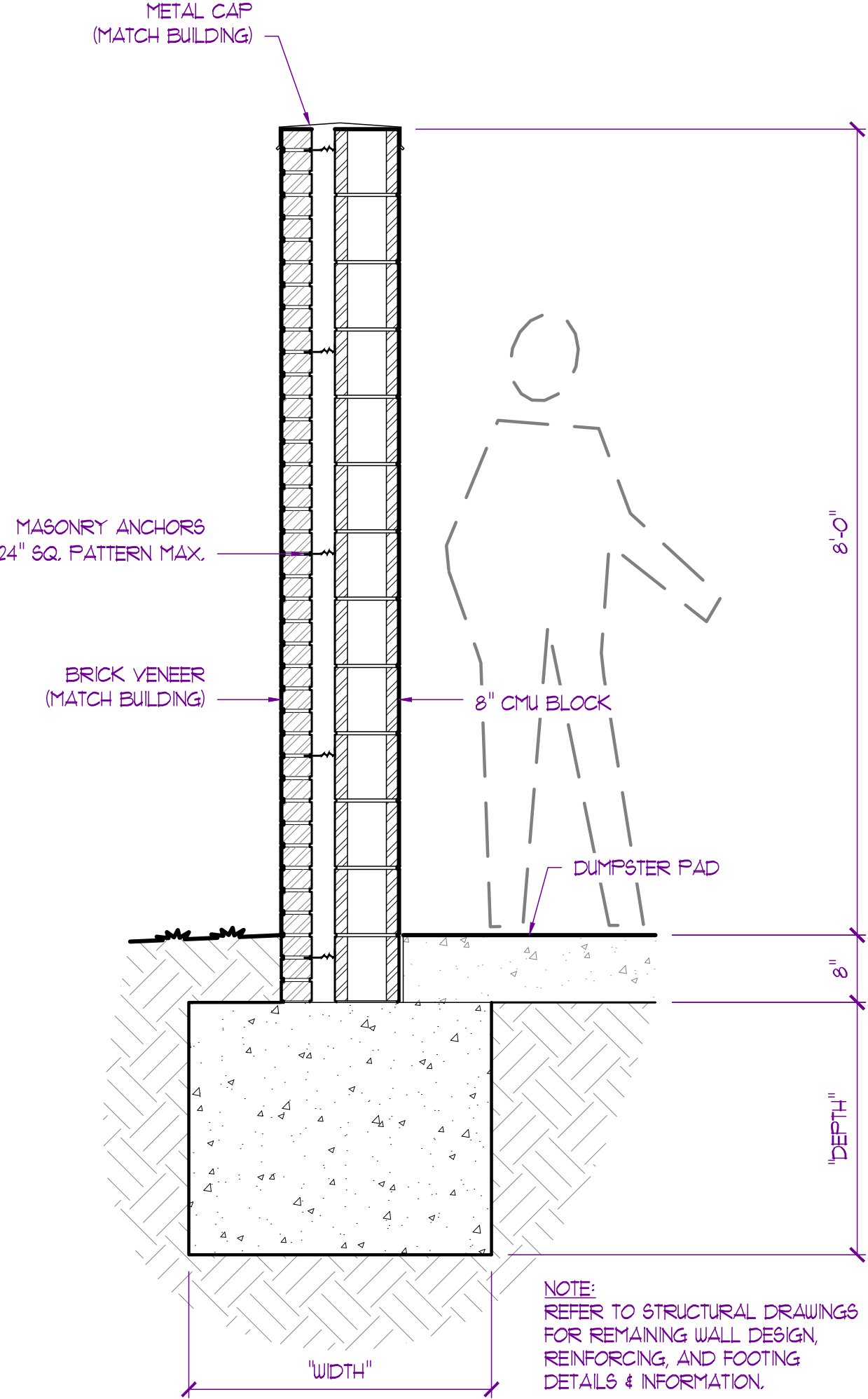
SITE DETAIL GENERAL NOTES:

- FOR REFERENCE ONLY. REFER TO CIVIL DRAWINGS FOR LOCATIONS
- ALL MATERIALS & FINISHES TO BE SELECTED AND APPROVED BY OWNER / TENANT PRIOR TO ANY WORK



DUMPSTER ENCLOSURE PLAN

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



TYP. ENCLOSURE WALL SECTION

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

ROOM FINISH SCHEDULE

ROOM		FLOORING		WALLS				CEILINGS		REMARKS
No.	NAME	TYPE	BASE	NORTH	EAST	SOUTH	WEST	FINISH	HT.	
100	ENTRY VESTIBULE	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	
101	EXIT VESTIBULE	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	
102	LOBBY	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	
103	RECEPTION	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	
104	WEST CORRIDOR	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	9R	
105	EAST CORRIDOR	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	9R	
106	CUTTING ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	FRP-1 TO 8R AFF ALL WALLS
107	BATHING ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	FRP-1 TO 8R AFF ALL WALLS
108	PREP ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	FRP-1 TO 8R AFF N, E, & W WALLS
109	MEN'S TOILET	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	9R	FRP-1 TO 8R AFF ALL WALLS
110	WOMEN'S TOILET	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	9R	FRP-1 TO 8R AFF ALL WALLS
111	OFFICE	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	9R	
112	STORAGE	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	
113	CAT ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ACT-1	10R	
120	KENNEL EAST WING	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
121	KENNEL WEST WING	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
122	NORTH CORRIDOR	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
123	BUILT-IN#1	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
124	BUILT-IN#2	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
125	TRAINING ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
126	RISER / JANITOR	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		
130	PLAY AREA "A"	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
131	PLAY AREA "B"	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
132	PLAY AREA "C"	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR		FRP-1 TO 8R AFF ALL WALLS
LEGEND: FLOORING				LEGEND: WALLS				LEGEND: CEILING		
EXST	Existing Flooring to Remain			EXST	Existing to Remain			EXST	Existing to Remain	
SC-1	Sealed Concrete Floor			PGB-1	Painted Gypsum Board Color per Owner / Tenant			ACT-1	Acoustical Tile & Grid 24x24 Tegal Edge (Colors per Owner / Tenant)	
SSC-1	Stained & Sealed Concrete F			PGB-E	Painted Gypsum Board Epoxy Based in compliance with IBC 2018 1209.2.1 thru 1209.2.4			PGB-10	Painted Gyp. Board Color per Owner / Tenant	
LVT-1	Luxury Vinyl Tile			FRP-1	Fiberglass Reinforced Plastic Panel			ESTR	Exposed Structure	
CPT-1	Carpet Tile & Pad									
B-1	Wall Base		4" Vinyl Base							
CRNR	Corner Guard									

DOOR SCHEDULE

No.	DOOR SIZE			DOOR			FRAME			HARDWARE					REMARKS / NOTES
	WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH	ACTION	MATERIAL	FINISH	WALL THICKNESS	HINGES	LOCKSETS	CLOSER	DOOR STOP	ACCESSORIES	
100	3'-6"	7'-0"	BM	ASF	PF	RH	ASF	PF		BM	DB-1	CL-1			ACCESS CONTROLS
101	3'-6"	7'-0"	BM	ASF	PF	RH	ASF	PF		BM	DB-1	CL-1			
102	3'-6"	7'-0"	BM	ASF	PF	RH	ASF	PF		BM	DB-1	CL-1			
103	3'-6"	7'-0"	BM	ASF	PF	LHR	ASF	PF		BM	DB-1	CL-1			
104	6'-0"	7'-0"	BM	ASF	PF	PAIR	ASF	PF		BM	DB-1	CL-1			ACCESS CONTROLS
105	3'-0"	7'-0"	BM	ASF	PF	LHR	ASF	PF		BM	DB-1	CL-1			ACCESS CONTROLS
106	3'-0"	7'-0"	BM	BM-1	PT	LHR	HMF	PT	MSRY	H-1	DB-1	CL-1			NARROW LITE
110	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	6.75"	H-1	PL-1	CL-1		AC	NARROW LITE
111	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	6.75"	H-1	PL-1	CL-1		AC	NARROW LITE
112	3'-0"	7'-0"	BM	ASF	PF	LH	ASF	PF		BM	PL-1		DB-1	AC	
113	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	4.75"	H-1	PL-1		DB-1	AC	HALF LITE
114	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	4.75"	H-1	PL-1		DB-1	AC	
115	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	4.75"	H-1	PL-1		DB-1	AC	NARROW LITE
116	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	4.75"	H-1	PV-1		DB-1		
117	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	4.75"	H-1	PV-1		DB-1		
118	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	6.75"	H-1	PV-1		DB-1	AC	NARROW LITE
119	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	6.75"	H-1	PV-1	CL-1		AC	NARROW LITE
120	3'-0"	7'-0"	1 3/4"	WD-1	STN	RHR	HMF	PT	6.75"	H-1	PL-1		DB-3		
121	3'-0"	7'-0"	1 3/4"	WD-1	STN	RHR	HMF	PT	6.75"	H-1	PL-1	CL-1		AC	NARROW LITE
122	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	4.75"	H-1	PL-1		DB-3		NARROW LITE
123	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	4.75"	H-1	PL-1		DB-3		NARROW LITE
124	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	4.75"	H-1	PL-1		DB-1	AC	NARROW LITE
125	3'-0"	7'-0"	1 3/4"	WD-1	STN	RHR	HMF	PT	6.75"	H-1	PL-1		DB-3		
126	3'-0"	7'-0"	1 3/4"	WD-1	STN	LH	HMF	PT	6.75"	H-1	PL-1		DB-3	AC	NARROW LITE
127	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	6.75"	H-1	PL-1		DB-3	AC	NARROW LITE
128	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	6.75"	H-1	PL-1		DB-3	AC	NARROW LITE
150	6'-0"	7'-0"	BM	IOD-1	PF	OVHD	HMF	PT	MSRY						PER OWNER
151	6'-0"	7'-0"	BM	IOD-1	PF	OVHD	HMF	PT	MSRY						PER OWNER
152	6'-0"	7'-0"	BM	IOD-1	PF	OVHD	HMF	PT	MSRY						PER OWNER

BM By Manufacturer

DOORS:

ASF Aluminum Glass Storefront
WD-1 Solid Core Wood Door
IHM-1 Insulated Hollow Metal Door
HM-1 Hollow Metal Door
IOD-1 Insulated Overhead Door

FRAMES:

HMF Hollow Metal Frame Painted

LOCKS & OPERATORS:

PL-1 Passage Lockset
PV-1 Office / Privacy Lockset
DB-1 Dead Bolt
PPL-1 Push / Pull Plates
Keyed Deadbolt w/ Deadlatch Push Paddle
4"x1 6" Standard Push/Pull Plates w/ Optional Kick Plates Each Side

HARDWARE:

H-1 Hinge
H-2 Hinge
C-1 Closer
DS-1 Door Stop
DS-2 Door Stop
DS-3 Door Stop
1 1/2" Pair Full Mortise Template Ball Bearing Standard Weight Hinges, Finish per Owner / Tenant
3 Pair Full Mortise Template Ball Bearing Heavy Weight Hinges, Finish per Owner / Tenant
Surface Closer (Finish to Match Adjacent Hardware)
Wall Mounted Door Stop
Floor Mounted Door Stop
Hinge Mounted Door Stop

FINISHES:

PF Pre-Finished By Manufacturer (per Owner / Tenant)
PT Paint (per Owner / Tenant)

ACCESSORIES:

AC Acoustic Set
Acoustical Sweep & Gasketing

NOTES:

- Set All Thresholds in Sealant
- All Doors and Hardware shall meet Accessibility Standards

PROJECT

ISSUE

ID	DESCRIPTION	DATE
1	PERMIT	9/9/2024

PROJECT NO.

FBA2418

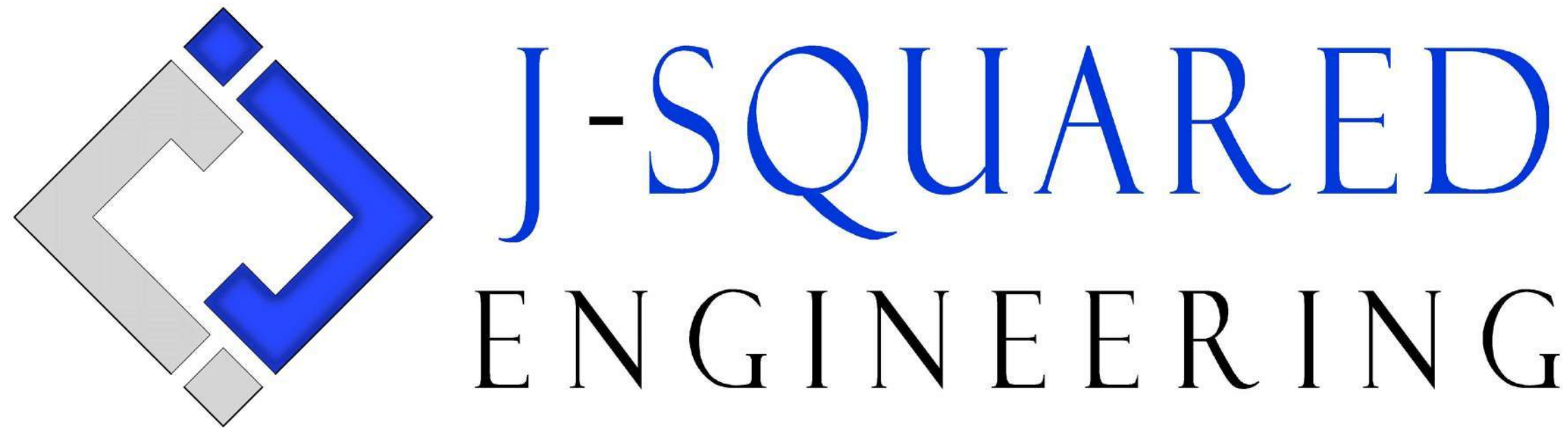
SHEET TITLE

SITE DETAILS

SCHEDULES

SHEET NUMBER

A900



MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Discovery Park
Discovery Pet Spa

1921 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri 64064

GENERAL MEP SPECIFICATIONS

1. GENERAL
- 1.1.

ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH LOCALLY ADOPTED CODES AND ORDINANCES. IT IS THE RESPONSIBILITY OF CONTRACTOR TO REVIEW AND UNDERSTAND ALL DRAWINGS AND SPECIFICATIONS IN CONTRACT DOCUMENTS. EACH CONTRACTOR IS RESPONSIBLE FOR ALL WORK ASSOCIATED WITH THEIR TRADE, REGARDLESS OF WHERE WORK IS DEPICTED IN PROJECT DRAWINGS OR SPECIFICATIONS.
- 1.2.

LAYOUT OF SYSTEMS SHOWN ON PLANS ARE APPROXIMATE AND SCHEMATIC IN NATURE. ALL SYSTEMS WILL NEED TO BE FIELD-COORDINATED. CONTRACTOR SHALL INCLUDE THIS COORDINATION IN THEIR SCOPE AND INCLUDE ALL COSTS OF MODIFYING LAYOUT AS REQUIRED IN THEIR BID. PLANS ARE NOT INTENDED TO BE SHOP DRAWINGS FROM WHICH MATERIALS CAN BE ORDERED, FABRICATED, OR INSTALLED WITHOUT ADDITIONAL FIELD MEASUREMENTS AND COORDINATION.
- 1.3.

NOT ALL SPECIFIC PIECES AND COMPONENTS OF EACH SYSTEM ARE DETAILED OR OUTLINED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND LABOR TO PRODUCE A COMPLETE AND FULLY OPERATIONAL SYSTEM UNLESS STATED OTHERWISE ON PLANS. CONTRACTOR IS TO PROVIDE AND INCLUDE ALL EQUIPMENT AND MATERIAL NEEDED TO COMPLETE WORK ASSOCIATED WITH THEIR BID UNLESS ANY ITEMS ARE SPECIFICALLY NOTED ON PLANS AS PROVIDED BY OTHERS. ALL MATERIALS TO BE NEW, FIRST CLASS, AND INSTALLED PER MANUFACTURER'S PUBLISHED INSTRUCTIONS.
- 1.4.

WHERE CONFLICTS EXIST BETWEEN MEP PLANS AND CIVIL, ARCHITECTURAL, OR STRUCTURAL PLANS, NOTIFY MEP ENGINEER OF DISCREPANCIES FOR CLARIFICATION PRIOR TO PERFORMING ANY WORK THAT MAY CONTRADICT INFORMATION ELSEWHERE IN THE PROJECT PLANS.
- 1.5.

THESE PLANS ARE NOT TO BE SCALED. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE THERE IS A CONFLICT BETWEEN ARCHITECTURAL DIMENSIONS AND MEP DIMENSIONS, ARCHITECTURAL SHALL GOVERN.
- 1.6.

CONTRACTOR IS TO INCLUDE IN THEIR SCOPE THE COST OF ALL PERMITS, INSPECTIONS, METERING, TAPS, ETC. ASSOCIATED WITH THEIR WORK.
- 1.7.

CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, CUTTING, CORING, PATCHING, AND BACKFILL REQUIRED TO COMPLETE THEIR WORK, UNLESS NOTED OTHERWISE ON PLANS.
- 1.8.

SPECIFIC EQUIPMENT MANUFACTURERS AND/OR MODEL NUMBERS LISTED ON PLANS ARE TO ESTABLISH A BASIS-OF-DESIGN FOR QUALITY AND PERFORMANCE, VERIFY THAT SUBSTITUTIONS WILL BE ACCEPTABLE PRIOR TO PURCHASE & INSTALLATION.
- 1.9.

NOTIFY ENGINEER OF ANY MAJOR PLAN DISCREPANCIES OR CONFLICTS PRIOR TO PROVIDING BIDS OR COMPLETING ANY WORK.
- 1.10.

SEE DISCIPLINE SHEETS FOR ADDITIONAL TRADE SPECIFIC SPECIFICATIONS.
- 1.11.

WHERE SHUTDOWN OF ANY EXISTING UTILITY OR SERVICE TO BUILDING IS REQUIRED FOR COMPLETION OF WORK, COORDINATE OUTAGE WITH OWNER AS TO NOT DISRUPT TYPICAL OPERATIONS.
- 1.12.
2. WORKMANSHIP
- 2.1.

SYSTEMS SHALL BE INSTALLED IN A FIRST-CLASS MANNER USING BEST ACCEPTABLE METHODS AND PRACTICES.
- 2.2.

ALL SYSTEMS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION. COMPONENTS SHALL BE INSTALLED LEVEL AND PLUMB WITH ATTENTION GIVEN TO OVERALL AESTHETICS.
- 2.3.

CONTRACTOR IS RESPONSIBLE FOR COORDINATING EQUIPMENT LOCATIONS AND SYSTEM ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
- 2.4.

CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE THE COMPLETED PROJECT IS RELEASED TO THE OWNER, UNLESS NOTED OTHERWISE ON PLANS.
- 2.5.

DURING INSTALLATION OF MATERIALS OR ACTIVITIES IN NEW WORK SCOPE, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. ANY DAMAGE TO EXISTING SURFACES OR EQUIPMENT SHALL BE CORRECTED AT NO COST TO OWNER.

DEFERRED SUBMITTAL NOTES

1. FIRE ALARM SYSTEM
- 1.1.

FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.
- 1.2.

FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.
2. FIRE SPRINKLER SYSTEM
- 2.1.

WHERE COMBINED FIRE & DOMESTIC WATER SUPPLY LINES ARE SHOWN ON PLANS, INSTALLING CONTRACTOR SHALL VERIFY WITH FIRE SPRINKLER CONTRACTOR THAT INCOMING LINE SIZE IS ADEQUATE FOR FIRE SUPPRESSION SYSTEM.
- 2.2.

FIRE SPRINKLER CONTRACTOR TO PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE SPRINKLER SYSTEM. SUBMITTAL SHALL INCLUDE HYDRAULIC CALCULATIONS AND SPRINKLER SYSTEM DRAWINGS SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.

REFERENCED CODES IN EFFECT

- PROJECT HAS BEEN DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES LISTED BELOW, BUT THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL REQUIREMENTS.
- 2018 INTERNATIONAL MECHANICAL CODE
 - 2018 INTERNATIONAL PLUMBING CODE
 - 2018 INTERNATIONAL FUEL GAS CODE
 - 2018 INTERNATIONAL FIRE CODE
 - 2017 NATIONAL ELECTRIC CODE

SHEET LIST TABLE

SHEET #	SHEET TITLE
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MEP2	SITE UTILITIES - SITE LIGHTING
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EP101	POWER PLAN
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PW101	WATER & GAS PLAN
P501	PLUMBING DETAILS & SCHEDULES

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Professional Services Department
Missouri Department of Transportation

STATE OF MISSOURI

JAMES P. WATSON

NUMBER
PE-2015017071

PROFESSIONAL ENGINEER

James Watson, P.E. September 19, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21205
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT	09-19-2024

Mechanical - Electrical - Plumbing Design Drawings for
Discovery Park

Discovery Pet Spa

1901 NE Trails Edge Boulevard
Lee's Summit, Jackson County, Missouri

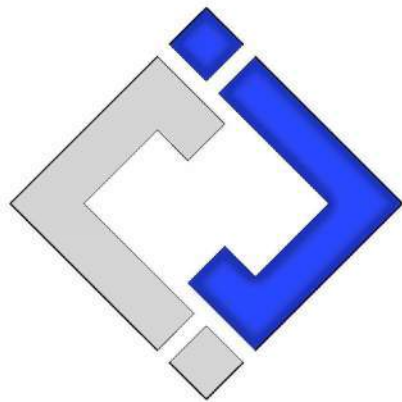
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SHEET TITLE

MECHANICAL
ELECTRICAL
PLUMBING
COVER SHEET

SHEET NUMBER

MEP1



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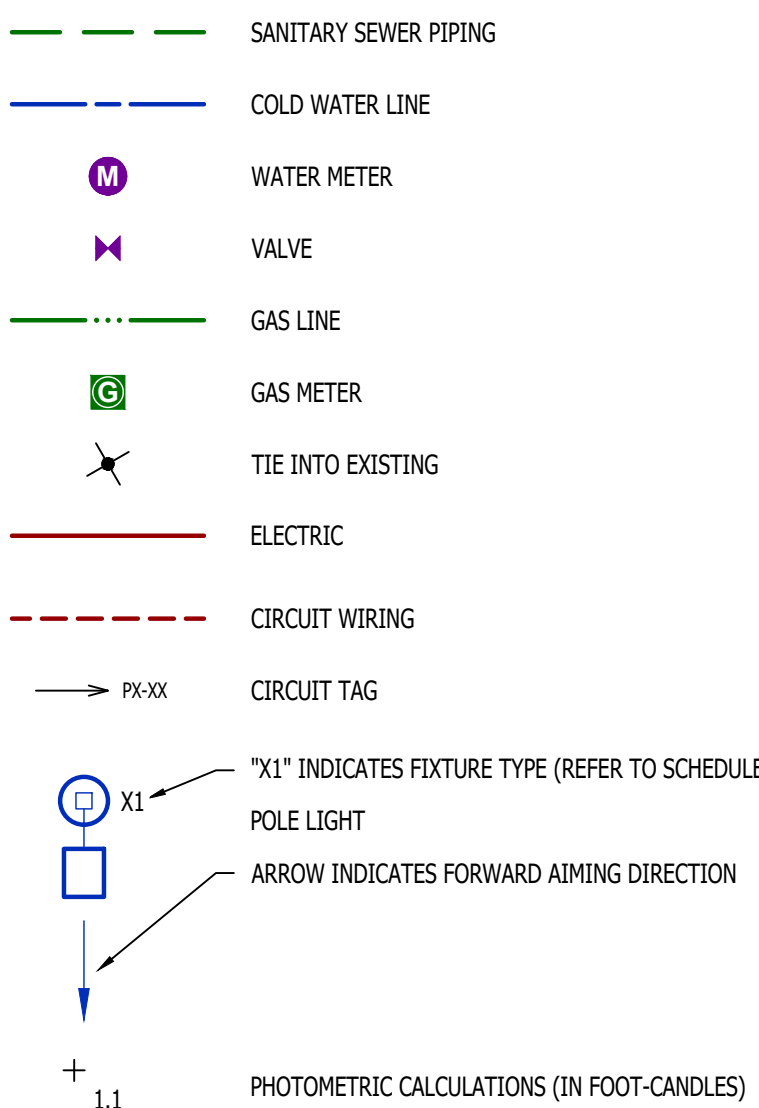
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SITE LIGHTING FIXTURE SCHEDULE										
TAG	MANUFACTURER (OR EQUAL)	MODEL NUMBER (OR EQUAL)	DESCRIPTION	MOUNTING	LUMEN OUTPUT	CCT (°K)	CRI	VOLTS	WATTS	NOTES
PL1	MCGRAW-EDISON	PRV-XL-PA4A-740-U-5WQ	LED SITE LUMINAIRE	20' POLE ON 30" BASE	33,525	4000	70	UNV	245	WITH #MS/DIM-L40 MOTION SENSING DIMMING
PL2	MCGRAW-EDISON	PRV-XL-PA4B-740-U-T4W-HSS	LED SITE LUMINAIRE	20' POLE ON 30" BASE	28,286	4000	70	UNV	303	WITH #MS/DIM-L40 MOTION SENSING DIMMING
NOTES: 1. VERIFY LIGHT FIXTURE FINISHES WITH OWNER / ARCHITECT PRIOR TO ORDERING.										

SITE LIGHTING CALCULATION SUMMARY							
AREA / LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
DOG RUN	ILLUMINANCE	FC	1.42	1.57	0.0	N.A.	N.A.
SIDEWALK AREAS	ILLUMINANCE	FC	1.30	3.50	0.6	2.2:1	5.8:1
SITE	ILLUMINANCE	FC	2.05	6.60	0.6	3.4:1	11.0:1
NOTES: 1. PHOTOMETRIC CALCULATIONS DO NOT INCLUDE EXISTING LIGHTING							

SITE UTILITIES - SITE LIGHTING PLAN SYMBOL LEGEND

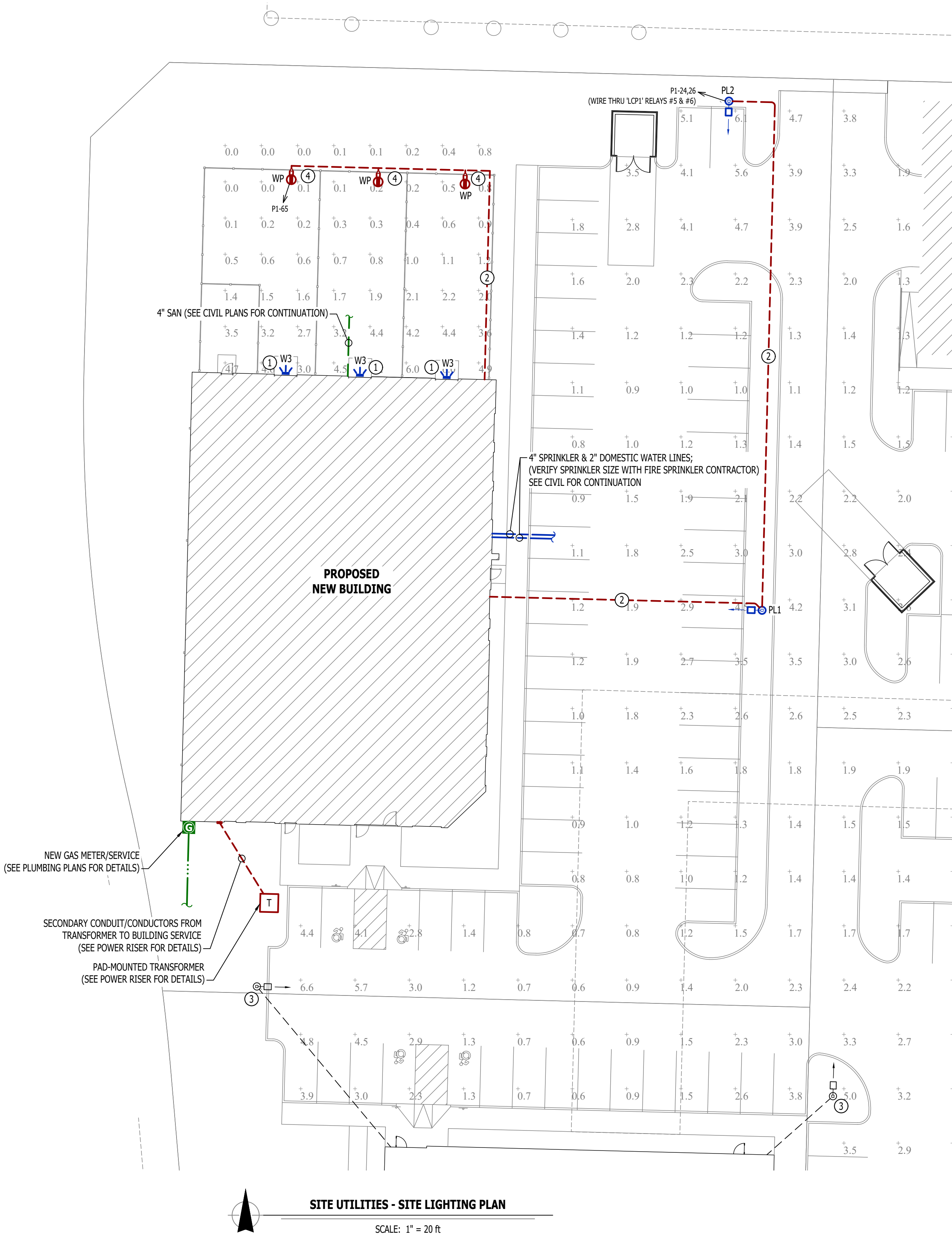
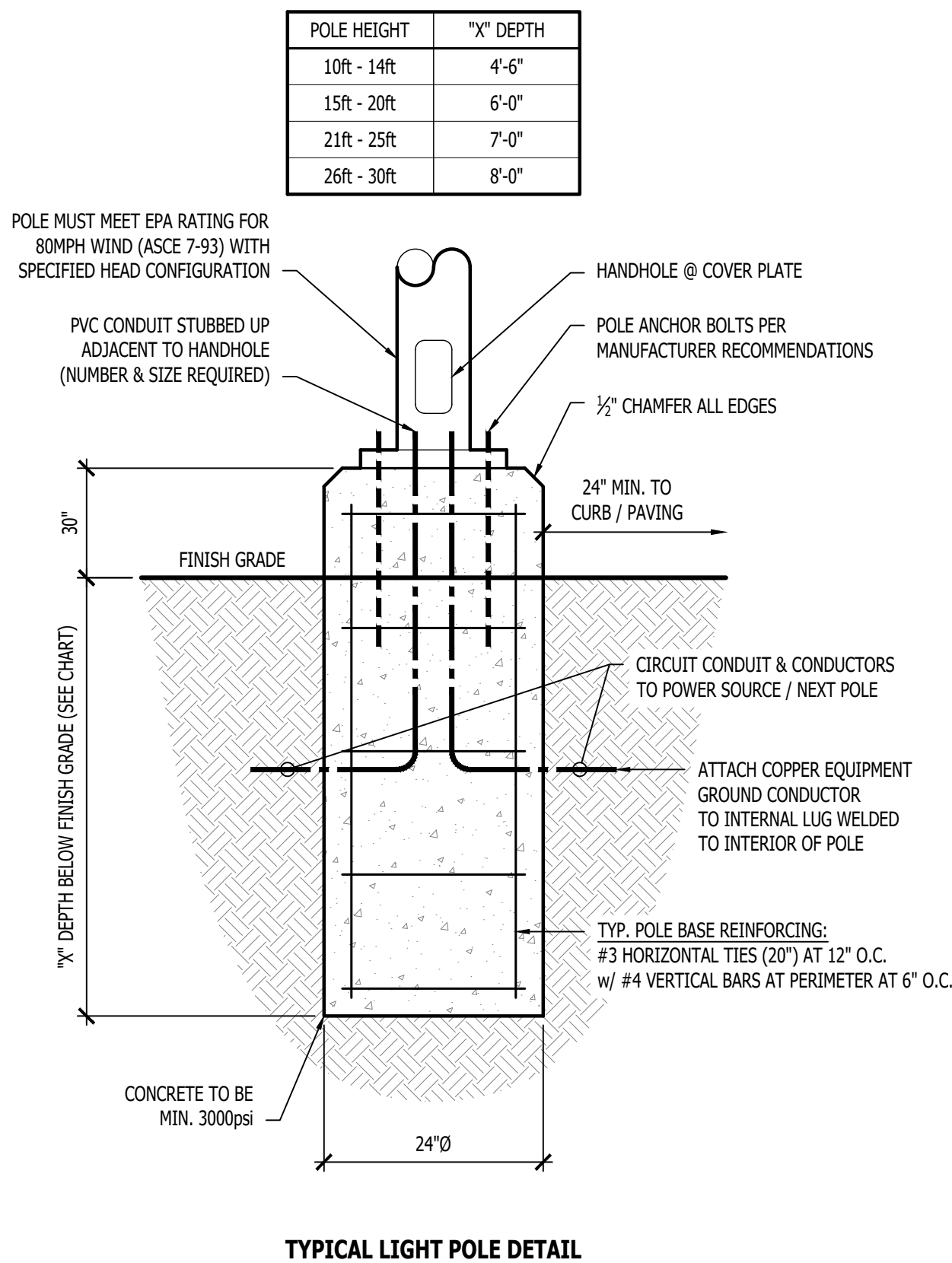


SITE UTILITIES - SITE LIGHTING PLAN GENERAL NOTES:

- REFER TO CIVIL PLANS FOR EXACT UTILITY LOCATIONS, CONNECTIONS, DETAILS, ETC.
- SITE PHOTOMETRIC VALUES SHOWN HAVE BEEN CALCULATED PER SPECIFIED LIGHT FIXTURES AT INDICATED MOUNTING HEIGHTS. ANY CHANGES OR ALTERATIONS TO LIGHTING LAYOUT SHOWN WILL REQUIRE RECALCULATING SITE PHOTOMETRICS AND WILL THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR / EQUIPMENT SUPPLIER.
- PHOTOMETRIC CALCULATIONS SHOWN DO NOT INCLUDE EXISTING LIGHT FIXTURE(S), ONLY NEW POLE LIGHT FIXTURE(S) SHOWN.

SITE UTILITIES - SITE LIGHTING PLAN KEY NOTES:

- REFER TO BUILDING LIGHTING PLANS FOR WALLPACK INFORMATION.
- 1" CONDUIT WITH (2) #10 CU. & (1) #10 CU. EQ. GRD.
- EXISTING POLE LIGHT FED FROM ADJACENT BUILDING (DATA INCLUDED IN PHOTOMETRIC CALCULATION)
- WEATHERPROOF GFCI RECEPTACLE MOUNTED TO FENCE, COORDINATE WITH G.C.



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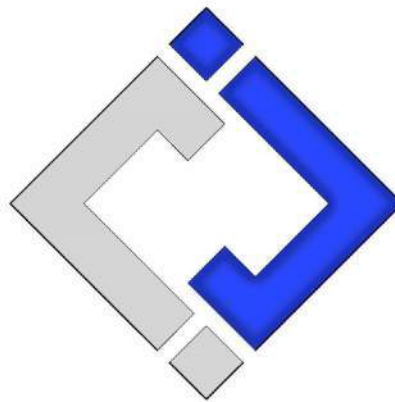
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SHEET TITLE

SITE UTILITIES
- SITE
LIGHTING

SHEET NUMBER

MEP2



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AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN

SHEET NUMBER

M101

HVAC PLAN SYMBOL LEGEND

- X

#

←

EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- ←

EQUIPMENT REFERENCE NUMBER
- X

#
- ←
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)

X

#

←

CUBIC FEET PER MINUTE (CFM) / FACE SIZE

—

SUPPLY DUCTWORK

- - -

RETURN DUCTWORK

- · - · -

EXHAUST DUCTWORK

~~~~~

FLEX DUCT

⊠

SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")

⊞

RETURN DIFFUSER

—|—

BALANCE DAMPER

Ⓢ

THERMOSTAT

#### HVAC PLAN GENERAL NOTES:

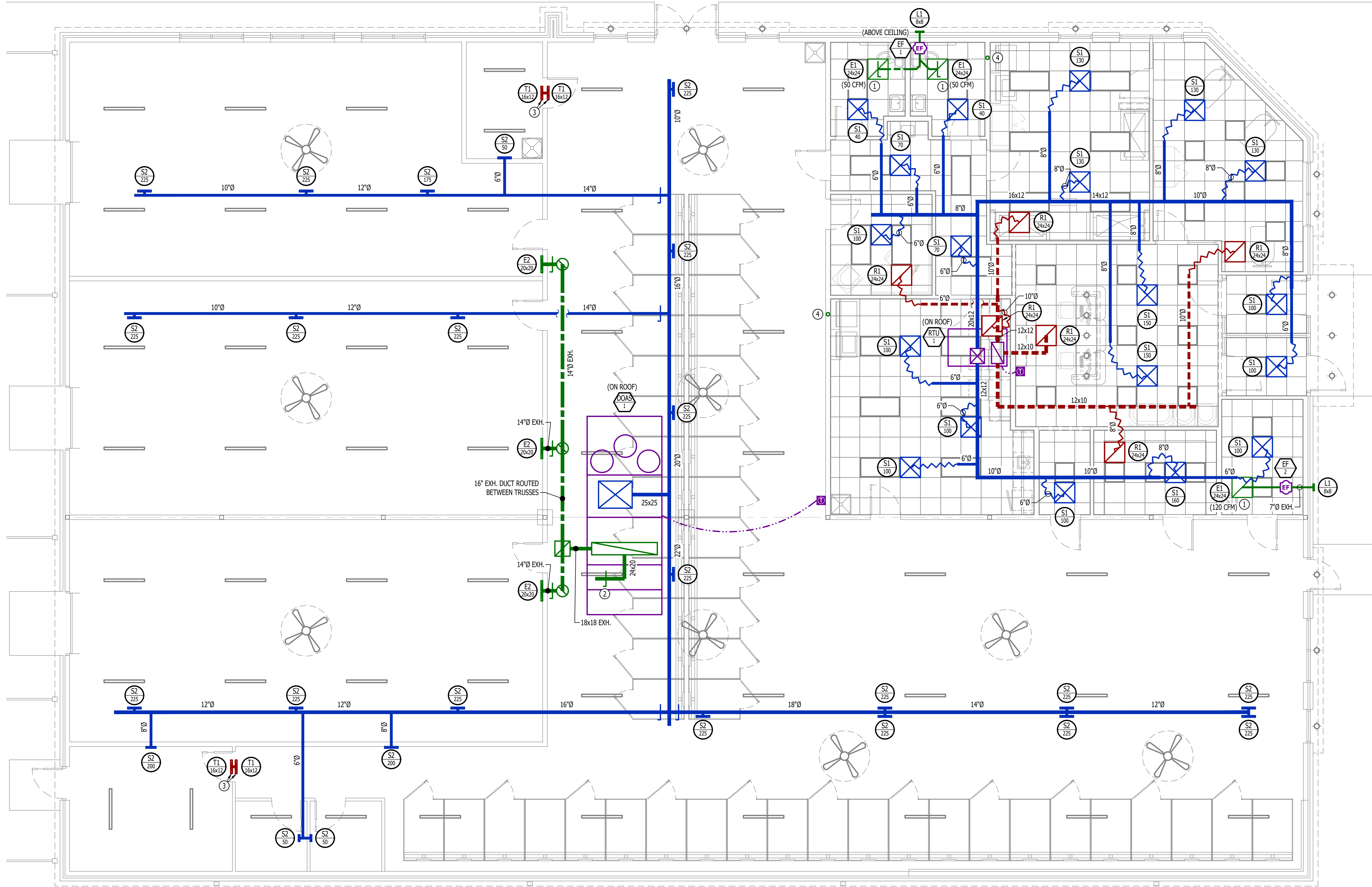
- REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- HVAC CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK, REFRIGERANT PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

#### HVAC PLAN KEY NOTES:

- BALANCE AIRFLOW TO AMOUNT SHOWN (XXX CFM).
- 24x20 (OR EQUAL) OPEN-ENDED EXHAUST DUCT WITH BALANCE DAMPER; BALANCE EXHAUST FLOW TO 2,925 CFM.
- TRANSFER GRILLE CENTERED ABOVE DOOR.
- 4" DRYER VENT UP THRU ROOF TO GOOSENECK.

#### SEQUENCE OF OPERATIONS NOTES:

- DOAS-1 ONE SUPPLY / EXHAUST FAN TO RUN CONTINUOUSLY.
  - DISCHARGE AIR TEMPERATURE TO MODULATE AS NEEDED FOR SPACE CONDITIONING.
- RTU-1 TO DELIVER OA DURING OCCUPIED HOURS.
- EXHAUST FANS TO OPERATE DURING OCCUPIED HOURS.
- SEE BUILDING AIR BALANCE SUMMARY AND HVAC EQUIPMENT SCHEDULES FOR DETAILS.



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



HVAC SPECIFICATIONS

1.

GENERAL
- 1.1.

REFER TO GENERAL MEP SPECIFICATIONS SECTION FOR ADDITIONAL REQUIREMENTS.
2.

WORKMANSHIP
- 2.1.

COORDINATE WITH ALL OTHER TRADES SO THAT HVAC EQUIPMENT AND DUCT WORK DOES NOT BLOCK REQUIRED ACCESS OR CLEARANCE TO ANY EQUIPMENT, ACCESS PANELS, ELECTRICAL JUNCTION BOXES, ELECTRICAL PANELS, ETC.
- 2.2.

ALL HVAC EQUIPMENT IS TO BE INSTALLED PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND/OR INSTALLATION INSTRUCTIONS.
- 2.3.

ALL EQUIPMENT TO BE INSTALLED LEVEL AND PLUMB, PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 2.4.

ROOFTOP MOUNTED RTU'S SHALL BE INSTALLED ON CURBS PER MANUFACTURER'S INSTRUCTIONS. CURB HEIGHT SHALL PROVIDE A MINIMUM OF 6' BETWEEN EQUIPMENT AND TOP OF ROOF IN ALL LOCATIONS.
- 2.5.

GRADE MOUNTED RTUS, CONDENSING UNITS, AND HEAT PUMPS TO BE INSTALLED ON 4" REINFORCED CONCRETE PAD EXTENDING 4" BEYOND EACH EDGE OF THE EQUIPMENT, OR A MANUFACTURER APPROVED PRE-MANUFACTURED BASE.
- 2.6.

APPROPRIATE ATTENTION SHALL BE GIVEN TO INDOOR AIR QUALITY THROUGHOUT CONSTRUCTION; PROTECT INSIDE OF NEW DUCTWORK & AIR-HANDLING EQUIPMENT FROM DUST, DIRT, DEBRIS, PAINT, MOISTURE, ETC. INSULATION SHALL BE REPLACED IF EXPOSED TO MOISTURE. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL CLEAN ALL NEW DUCTWORK IF EQUIPMENT WAS USED DURING CONSTRUCTION, AND EQUIPMENT/COILS SHALL ALSO BE THOROUGHLY CLEANED.
- 2.7.

FIELD COORDINATE LOCATIONS OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. WITH LIGHT FIXTURE LOCATIONS AND ADJUST AS NECESSARY.
3.

EQUIPMENT
- 3.1.

ALL EQUIPMENT SHOWN ON MECHANICAL PLANS SHALL BE PROVIDED & INSTALLED BY MECHANICAL CONTRACTOR UNLESS NOTED OTHERWISE.
- 3.2.

ALL EQUIPMENT MUST PROVIDE PERFORMANCE AS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
- 3.3.

CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
- 3.4.

CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL OR PLUMBING REQUIREMENTS WITH RESPECTIVE CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.
- 3.5.

ALL EQUIPMENT SHOWN ON PLANS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS WITH ADEQUATE ACCESS AND CLEARANCE FOR SERVICING OR REPLACEMENT.
- 3.6.

ALL HORIZONTAL FURNACES WITH AC COILS SHALL BE EQUIPPED WITH CORROSION RESISTANT DRAIN PAN. DRAIN PAN TO DISCHARGE TO SANITARY WASTE VIA INDIRECT CONNECTION WITH AIR GAP. DRAIN PAN TO PROVIDE SECONDARY OVERFLOW OR FLOAT SWITCH INTERLOCKED WITH UNIT TO SHUT DOWN UNIT ON HIGH WATER SIGNAL.
- 3.7.

ALL EXTERIOR REFRIGERANT COILS TO BE PROTECTED BY FACTORY EQUIPPED HAIL GUARDS.
- 3.8.

REFRIGERANT PIPING TO BE ACR COPPER OR TYPE L COPPER.
- 3.9.

ALL AIR HANDLING EQUIPMENT SHALL BE EQUIPPED WITH MERV-8 FILTRATION AT RETURN OPENING UNLESS OTHERWISE NOTED.
- 3.10.

ALL AIR FILTERS SHALL BE SIZED FOR A MAXIMUM FACE VELOCITY OF 500FPM.
- 3.11.

PROVIDE & INSTALL ALL EQUIPMENT FLUES/VENTS PER MANUFACTURER'S SPECIFICATIONS. TERMINATIONS SHALL BE AT LEAST 10' FROM ANY FRESH AIR INTAKE.
- 3.12.

PROVIDE NEW AIR FILTERS IN ALL EQUIPMENT PRIOR TO TESTING & BALANCING AND BEFORE TURNING OVER SYSTEM(S) TO OWNERSHIP.
- 3.13.

IF ANY EXISTING EQUIPMENT IS TO BE REUSED, CLEAN AND INSPECT EQUIPMENT PRIOR TO BEGINNING WORK. VERIFY THAT EQUIPMENT IS IN GOOD WORKING CONDITION, REPORT ANY DEFICIENCIES TO ENGINEER.
4.

DUCTWORK
- 4.1.

DUCTWORK TO BE GALVANIZED STEEL, SEAL CLASS B, CONSTRUCTED PER SMACNA STANDARDS.
- 4.2.

DUCTWORK THICKNESS:
- 4.2.1.

26 GA. MINIMUM UP TO 16" DUCT
- 4.2.2.

24 GA. UP TO 20"
- 4.2.3.

22 GA. UP TO 24"
- 4.2.4.

20 GA. UP TO 28"
- 4.2.5.

18 GA. UP TO 36"
- 4.3.

TURNING VANES SHALL BE PROVIDED AND INSTALLED AT ALL 90° BENDS AND TEES.
- 4.4.

ALL DUCT DIMENSIONS LISTED ARE TO INTERIOR OF DUCT LINER UNLESS NOTED OTHERWISE ON PLANS.
- 4.5.

BALANCE DAMPERS MUST BE PROVIDED TO ALLOW ADJUSTMENT AT EACH AIR TERMINAL.
- 4.5.1.

WHERE BRANCH TAKEOFF IS ACCESSIBLE (ABOVE LAY-IN CEILING OR EXPOSED DUCT), BALANCE DAMPER IS TO BE INSTALLED AT TAKEOFF.
- 4.5.2.

WHERE TAKEOFF IS INACCESSIBLE (IN ATTIC OR SOFFIT), BALANCE DAMPER IS TO BE LOCATED SUCH THAT IT IS ACCESSIBLE FROM FACE OF AIR DEVICE.
- 4.6.

HVAC CONTRACTOR RESPONSIBLE FOR ALL DUCTWORK TRANSITIONS AND FITTINGS AS REQUIRED FOR FINAL CONNECTIONS TO HVAC EQUIPMENT.
- 4.7.

UNLESS NOTED OTHERWISE ON PLANS, FLEXIBLE DUCT CONNECTIONS MAY USED FROM BRANCH DUCTS TO FINAL AIR DEVICES, BUT SHALL NOT EXCEED 8'-0" IN LENGTH. FLEXIBLE DUCT CONNECTORS MUST BE SUPPORTED PER PLAN DETAILS.
5.

INSULATION
- 5.1.

DUCTWORK
- 5.1.1.

SEE "TYPICAL DUCT INSULATION DIAGRAM" FOR INSTALLATION SPECIFIC REQUIREMENTS.
- 5.1.2.

INTERNAL DUCT LINER TO BE EQUAL TO 'JOHNS MANVILLE LINACOUSTIC R-300'.
- 5.1.3.

EXTERNAL DUCT WRAP TO INCLUDE VAPOR BARRIER. EQUAL TO 'JOHNS MANVILLE MICROLITE' WITH FSK JACKET.
- 5.2.

REFRIGERANT PIPING
- 5.2.1.

SPLIT SYSTEM (SUCTION LINE ONLY) - 1" CLOSED CELL ELASTOMERIC FOAM (EQUAL TO 'ARMAFLEX AP').
- 5.3.

VRV/VRF SYSTEMS (BOTH SUCTION AND HOT GAS LINES) 1 1/2" EPDM (EQUAL TO 'AEROFLEX AEROCEL AC') WITHIN CONDITIONED SPACES & 2" EPDM (EQUAL TO 'AEROFLEX AEROCEL AC') IN UNCONDITIONED SPACES, AND WITH BANDED ALUMINUM SHIELDING IN EXTERIOR SPACES.
- 5.4.

CONDENSATE PIPING
- 5.4.1.

SPLIT SYSTEMS - WHERE CONDENSATE PIPING IS LOCATED IN UNCONDITIONED SPACE, INSULATE WITH 1/2" ELASTOMERIC. NO INSULATION REQUIRED WITHIN CONDITIONED SPACES.
- 5.4.2.

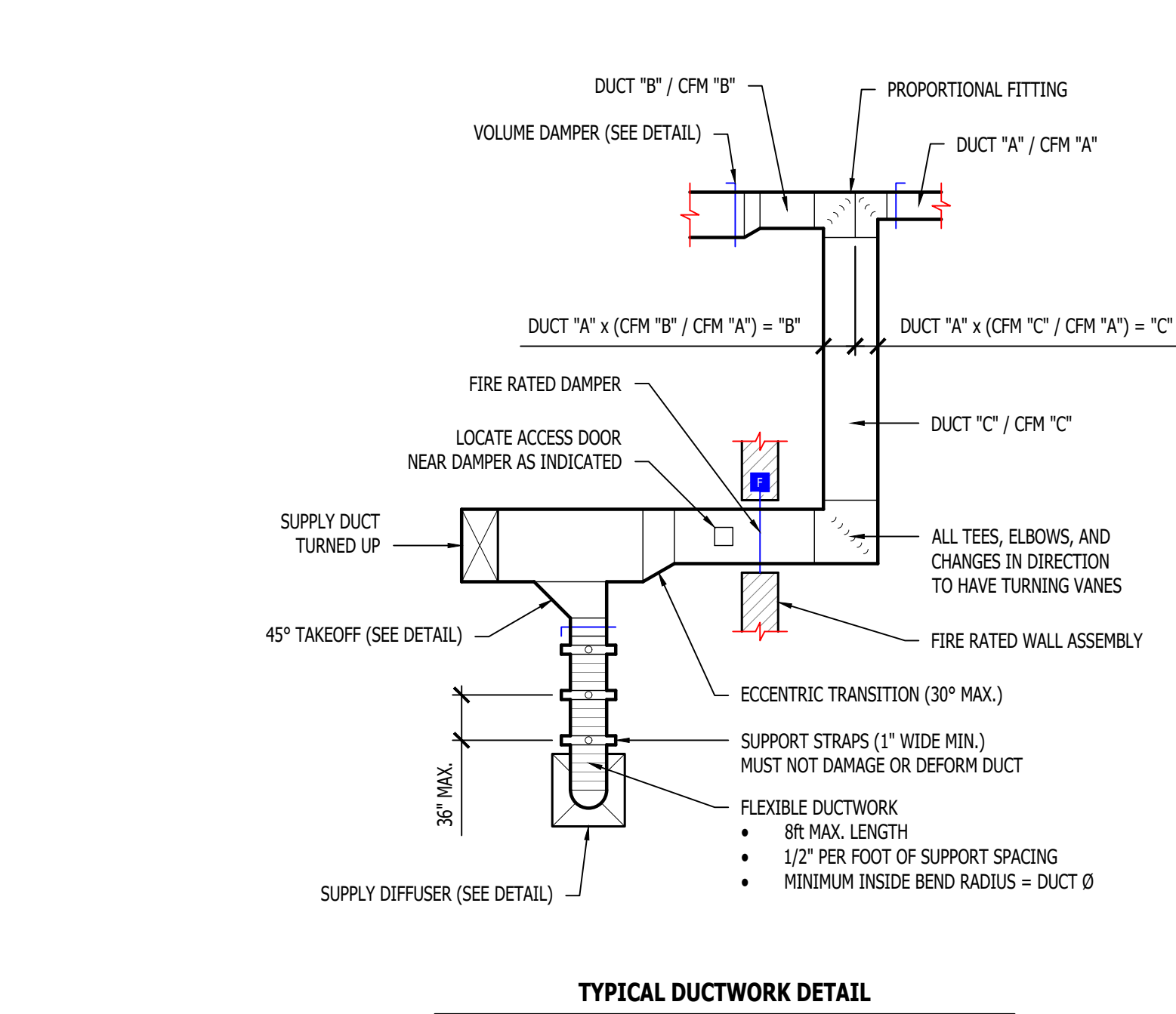
VRV/VRF - INSULATE WITH 1/2" ELASTOMERIC.
6.

TESTING AND BALANCING
- 6.1.

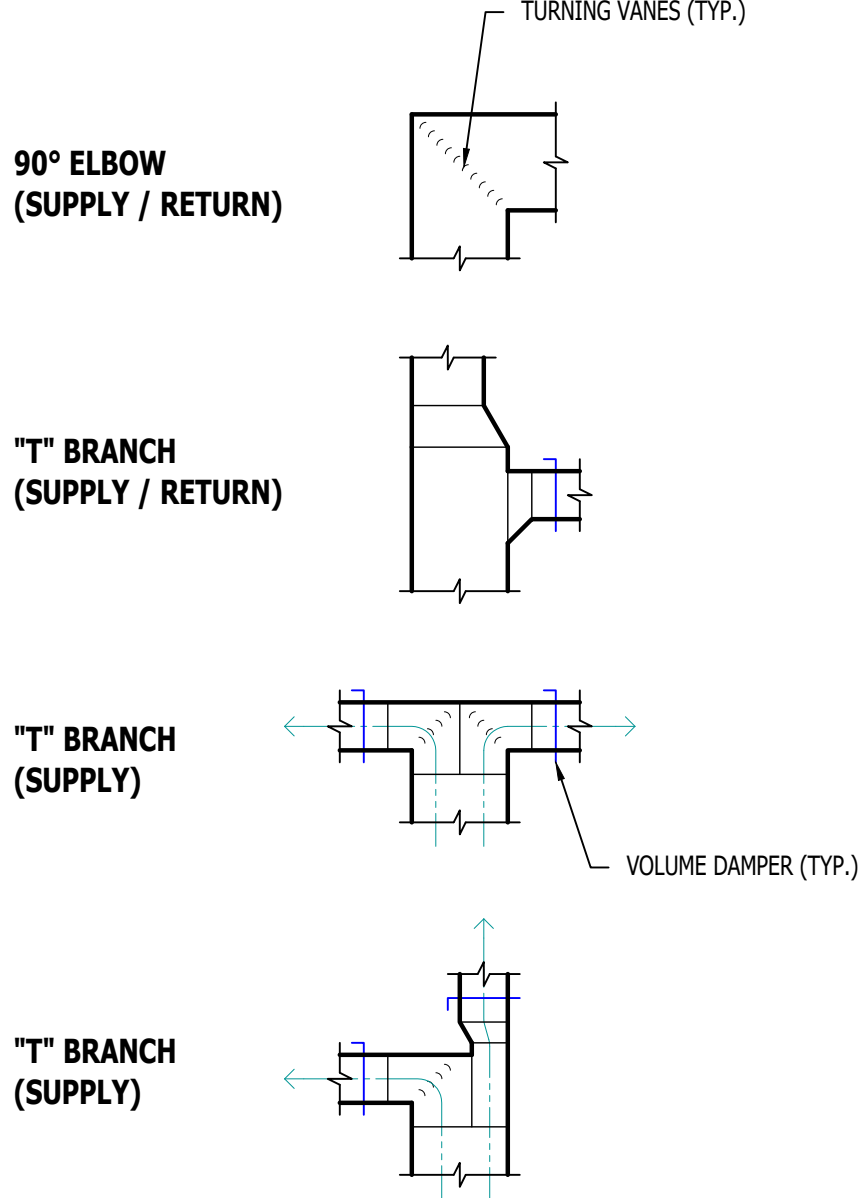
ALL SYSTEMS MUST BE BALANCED TO WITHIN 10% OF VALUES INDICATED ON PLAN.
- 6.2.

HVAC CONTRACTOR TO PROVIDE WRITTEN BALANCE REPORT INCLUDING FLOW VALUES INDICATED ON PLANS, INITIAL MEASURED FLOW VALUES, AND FINAL MEASURED VALUES.
- 6.3.

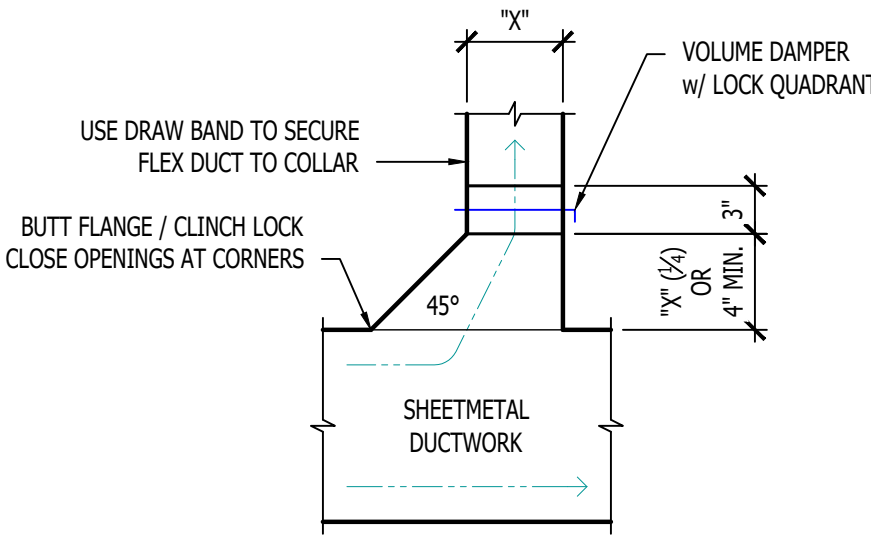
THIRD PARTY CERTIFIED TEST AND BALANCE NOT REQUIRED UNLESS OTHERWISE NOTED ON PLANS OR WITHIN PROJECT MANUAL.



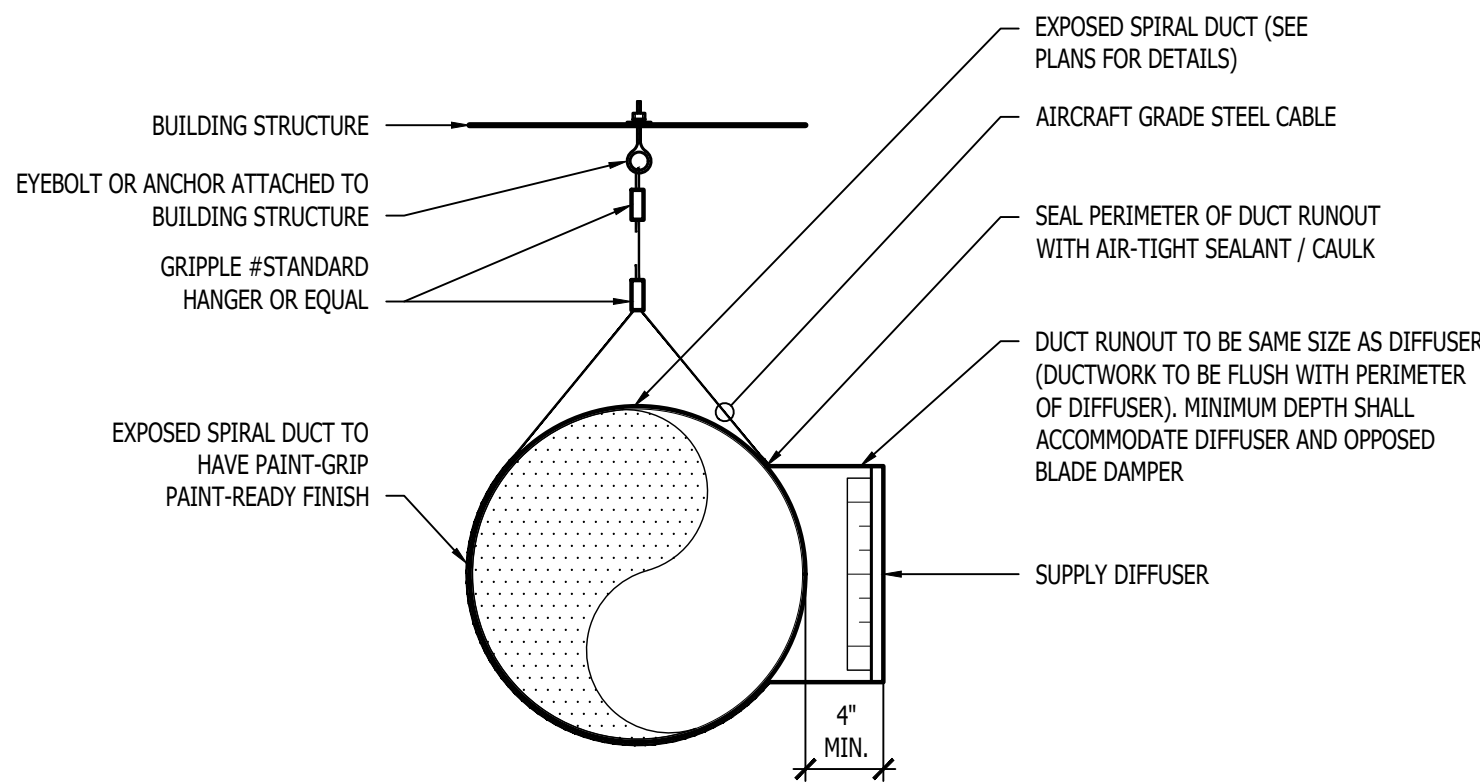
TYPICAL DUCTWORK DETAIL



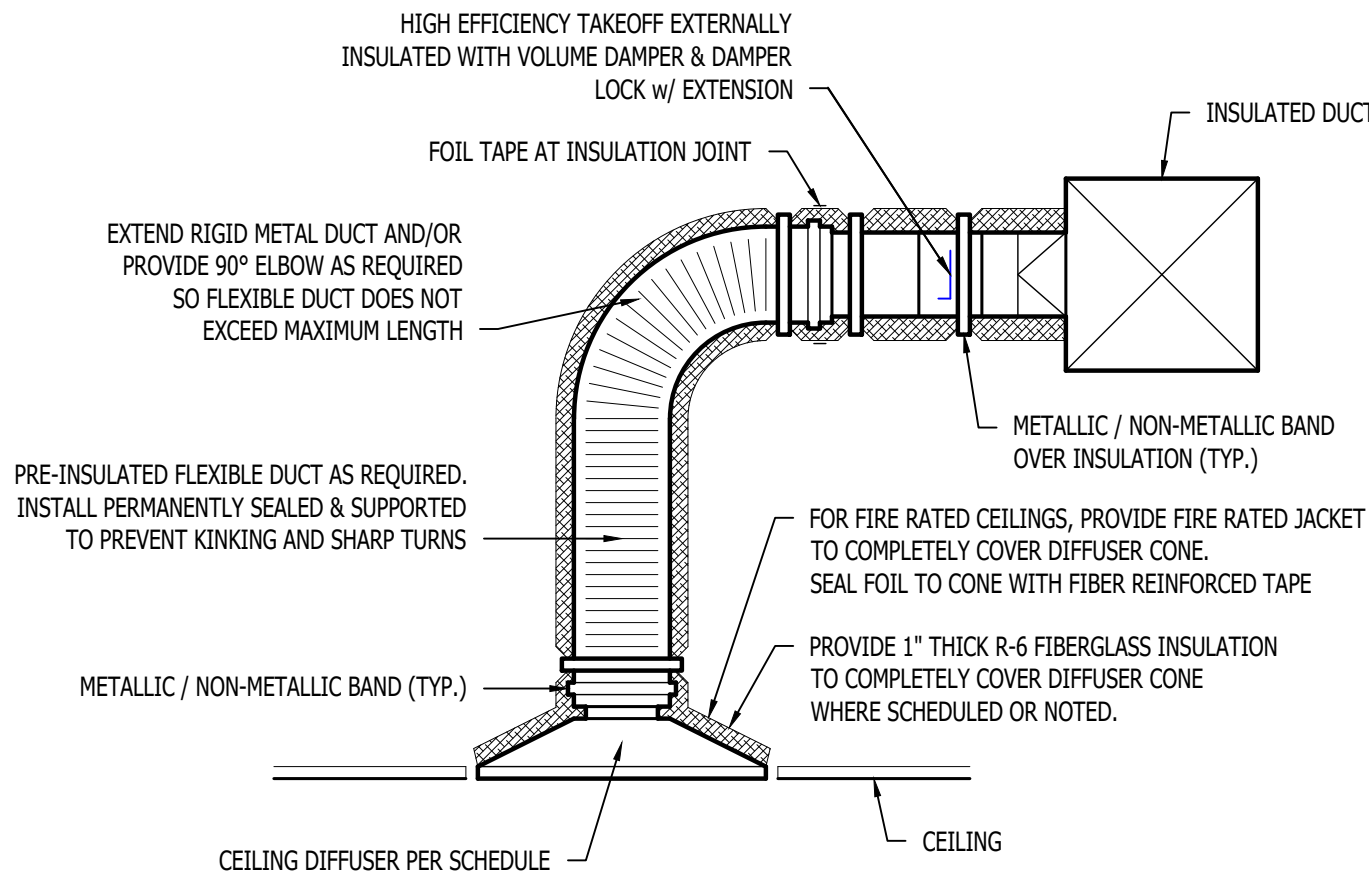
TYPICAL DUCTWORK FITTINGS DETAIL



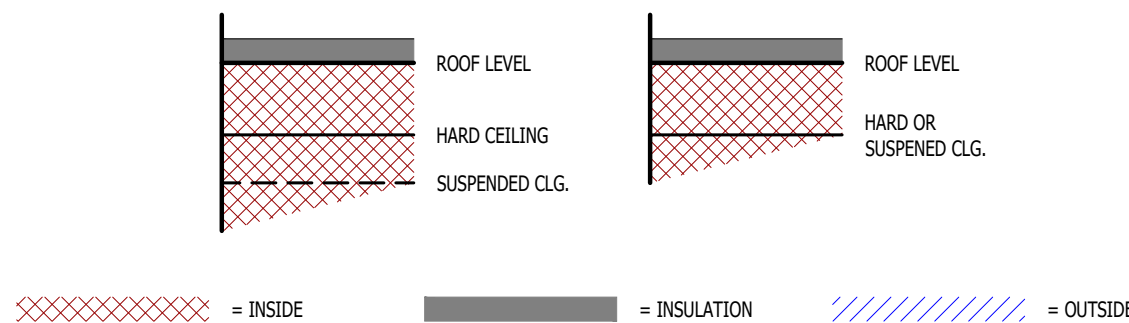
TYPICAL 45° TAKEOFF DETAIL



EXPOSED SPIRAL DUCT SECTION DETAIL



TYPICAL LAY-IN DIFFUSER DETAIL



DUCT INSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

- RECTANGULAR
- SUPPLY = 1" LINER
  - RETURN = 1" LINER
  - EXHAUST = NONE
  - OUTSIDE AIR = 2" WRAP

- ROUND
- SUPPLY = 1 1/2" WRAP
  - RETURN = NONE
  - EXHAUST = NONE
  - OUTSIDE AIR = 2" WRAP

- SPIRAL
- SUPPLY = NONE
  - RETURN = NONE
  - EXHAUST = NONE
  - OUTSIDE AIR = 2" WRAP

DUCT OUTSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

- RECTANGULAR
- SUPPLY = 1" LINER & 1 1/2" WRAP
  - RETURN = 1" LINER & 1 1/2" WRAP
  - EXHAUST = 1 1/2" WRAP
  - OUTSIDE AIR = NONE

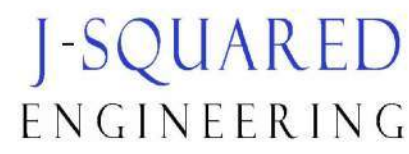
- ROUND
- SUPPLY = 2" WRAP
  - RETURN = 2" WRAP
  - EXHAUST = 1 1/2" WRAP
  - OUTSIDE AIR = NONE

- SPIRAL
- SUPPLY = 2" WRAP
  - RETURN = 2" WRAP
  - EXHAUST = 1 1/2" WRAP
  - OUTSIDE AIR = NONE

TYPICAL BUILDING INTERIOR DUCT INSULATION DIAGRAM

|                |            |
|----------------|------------|
| J2 PROJECT No: | J21205     |
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**Mechanical - Electrical - Plumbing Design Drawings for**  
Discovery Park

# Discovery Pet Spa

**1901 NE Trails Edge Boulevard  
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AHJ APPROVAL STAMP


SHEET TITLE

## HVAC DETAILS

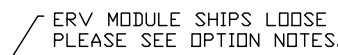
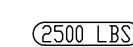
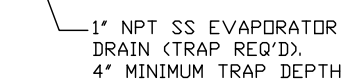
SHEET NUMBER

# M502

NOTES:

1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2.  DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
5. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.

\*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANE. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRAMATICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.  
SUGGESTED STRAIGHT DUCT SIZE IS 30.875" x 39.75".



| Insulation R-Value Recommendations |                 |                                       |
|------------------------------------|-----------------|---------------------------------------|
| Supply Duct Type                   | Minimum R-value | Space Type                            |
| Single Wall - S & -HC              | N/A             | Conditioned Space Only                |
| Double Wall - 1S                   | R-4             | Unconditioned Interior Space Only     |
| Double Wall - 2S                   | R-8             | Unconditioned Space Climate Zones 1-4 |
| Double Wall - 3S                   | R-12            | Unconditioned Space Climate Zones 5-8 |

DOUBLE WALL SUPPLY DUCT IS INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.  
AIR DIFFUSION SUPPLY DUCT COMPLIES WITH SMACNA (SHEET METAL AND AIR CONDITIONING CONTRACTORS) BEST PRACTICES.  
POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE, SEE NFPA 13, TABLE 8.2.5.1.1.

## TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW. USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS, SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-1X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.



NOTE: ALL MODEL NUMBERS ON THIS SHEET ARE CAPTIVE-AIRE.



## DOAS/RTU FAN SCHEDULE - JOB#6933699

| FAN INFORMATION                                                                                                                                             |     |     |                           |              |            |                |                     |           |              | ELECTRICAL INFORMATION |      |       |      |        |      |                   |                 |                   |        | COOLING INFORMATION |        |        |       |                 |             |          |                       |          |             | REHEAT INFORMATION |           |                             |         |        |                                     |      |                          |  |  | GAS HEAT INFORMATION |  |  |  |  |  |  |  |  |  | NOTES |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------|--------------|------------|----------------|---------------------|-----------|--------------|------------------------|------|-------|------|--------|------|-------------------|-----------------|-------------------|--------|---------------------|--------|--------|-------|-----------------|-------------|----------|-----------------------|----------|-------------|--------------------|-----------|-----------------------------|---------|--------|-------------------------------------|------|--------------------------|--|--|----------------------|--|--|--|--|--|--|--|--|--|-------|--|--|--|--|
| FAN UNIT NO                                                                                                                                                 | TAG | QTY | DOAS/RTU MODEL #          | MANUFACTURER | BLOWER     | RETURN AIR CFM | MAX OUTSIDE AIR CFM | TOTAL CFM | WEIGHT (LBS) | ESP                    | HP   | PHASE | VOLT | MCA    | MDCP | OUTSIDE AIR DB WB | MIXED AIR DB WB | LEAVING AIR DB WB | DP     | TOTAL               | SENS.  | IEER   | ISMRE | DISCHARGE DB WB | DESIRED MAX | CAPACITY | MOISTURE REMOVAL RATE | GAS TYPE | INPUT BTU/H | OUTPUT BTU/H       | TEMP RISE | REQUIRED INPUT GAS PRESSURE |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 1                                                                                                                                                           |     | 1   | CAS-HVAC4-1600-30-30T-ERV | CAPTIVEAIRE  | 30MF-4-RTU | 0              | 5000                | 5000      | 6636         | 1.000                  | 7.50 | 3     | 208  | 173.4A | 175A | B6.7°F            | 79.0°F          | 78.4°F            | 68.9°F | 41.4°F              | 41.4°F | 41.4°F | 378.1 | 20.2            | MBH         | 17.8     | 4.8                   | 70.0°F   | 54.8°F      | 158.7 MBH          | 260 MBH   | 153.4 LBS/HR                | NATURAL | 600000 | 486000                              | 82°F | 7 IN. W.C. - 14 IN. W.C. |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| NOTES:                                                                                                                                                      |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        | 18. HAIL GUARD FOR CONDENSING COIL. |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL.                                                   |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        | 19. BAROMETRIC RELIEF DAMPER.       |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.                                                                                      |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        | 20. DOWN DISCHARGE/DOWN RETURN.     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.                                                                                           |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE.                                            |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 5. EC MOTOR CONDENSING FAN.                                                                                                                                 |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE.                                                                                                          |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 7. SUCTION LINE ACCUMULATOR.                                                                                                                                |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER.                                                    |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT).                                           |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ 6-12 INSULATION-MINIMUM 200" EXTERIOR W/ 1/4" GA. BASE.                                                           |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 11. TOTAL ENERGY RECOVERY WHEEL WITH SPEED CONTROLS FOR FROST PROTECTION AND MODULATION TO CAPACITY. INCLUDES SUPPLY AND EXHAUST FILTER & WHEEL MONITORING. |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 12. 80% EFFICIENT FURNACE WITH MODULATING BURNER TO MAINTAIN COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 16:1 TURNDOWN WITH NG AND 19:1 TURNDOWN WITH LP.    |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 13. EXHAUST CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.                                                        |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 14. FILTERED SUPPLY AND EXHAUST AIR STREAMS WITHIN ENERGY RECOVERY VENTILATOR MODULE.                                                                       |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 15. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.                                                         |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 16. FULLY MODULATING HOT GAS REHEAT.                                                                                                                        |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |
| 17. 4" MERV-15 IN-UNIT FILTRATION.                                                                                                                          |     |     |                           |              |            |                |                     |           |              |                        |      |       |      |        |      |                   |                 |                   |        |                     |        |        |       |                 |             |          |                       |          |             |                    |           |                             |         |        |                                     |      |                          |  |  |                      |  |  |  |  |  |  |  |  |  |       |  |  |  |  |

FOR QUESTIONS, CALL THE  
St. Louis Mechanical  
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PHONE: (636) 229 - 9777  
EMAIL: reg109scaptive.com

## DOAS/RTU ENERGY RECOVERY SCHEDULE

| FAN UNIT NO | TAG | EXHAUST AIR FAN (ECM) |     |          |          | SUPPLY AIR SUMMER           |                            |           | RETURN AIR DB/WB TEMP(°F) | DESIGN RECOVERED SUMMER CAPACITY |          |                             | SUPPLY AIR WINTER          |           |           | RETURN AIR DB/WB TEMP(°F) | DESIGN RECOVERED WINTER CAPACITY |          |  |
|-------------|-----|-----------------------|-----|----------|----------|-----------------------------|----------------------------|-----------|---------------------------|----------------------------------|----------|-----------------------------|----------------------------|-----------|-----------|---------------------------|----------------------------------|----------|--|
|             |     | CFM                   | ESP | MOTOR HP | V/φ/Hz   | ENTERING AIR DB(WB TEMP(°F) | LEAVING AIR DB(WB TEMP(°F) | TOTAL     |                           | SENSIBLE                         | LATENT   | ENTERING AIR DB(WB TEMP(°F) | LEAVING AIR DB(WB TEMP(°F) | TOTAL     | SENSIBLE  |                           | LATENT                           |          |  |
|             |     |                       |     |          |          |                             |                            |           |                           |                                  |          |                             |                            |           |           |                           |                                  |          |  |
| 1           |     | 4900                  | 1   | 4.8      | 208/3/60 | 86.7/79.0                   | 78.4/68.3                  | 75.0/62.0 |                           | 212.0 MBH                        | 41.4 MBH | 170.7 MBH                   | 9.0/6.3                    | 49.6/42.3 | 69.0/55.0 | 304.9 MBH                 | 216.1 MBH                        | 88.8 MBH |  |

## FAN OPTIONS

| FAN UNIT NO | TAG | QTY | DESCRIPTION                                                                                                                                                                                                         | IMPORTANT NOTE |
|-------------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1           |     | 1   | INLET PRESSURE GAUGE, 0-35"                                                                                                                                                                                         |                |
| 1           |     | 1   | TOTAL CFM MONITORING                                                                                                                                                                                                |                |
| 1           |     | 1   | INTAKE FIRESTAT SET TO 135°F                                                                                                                                                                                        |                |
| 1           |     | 1   | PRECESTAT                                                                                                                                                                                                           |                |
| 1           |     | 1   | DISCHARGE FIRESTAT SET TO 240°F                                                                                                                                                                                     |                |
| 1           |     | 1   | SHIP LOOSE GAS STRAINER 1"                                                                                                                                                                                          |                |
| 1           |     | 1   | SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE ERV, HAZ, HAV, OR EEP PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE. |                |
| 1           |     | 1   | CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED                                                                                                                                       |                |
| 1           |     | 1   | RTU4 DOWN DISCHARGE                                                                                                                                                                                                 |                |
| 1           |     | 1   | OVERHEAT STAT                                                                                                                                                                                                       |                |
| 1           |     | 1   | VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE                                                                                                                                                   |                |
| 1           |     | 1   | 38 TON MODULATING COOLING OPTION, 208/230V, 30CF, R410A REFRIGERANT, VARIABLE                                                                                                                                       |                |
| 1           |     | 1   | 38 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R410A                                                                                                                                                    |                |
| 1           |     | 1   | RTU INTAKE/RETURN DAMPER - DA PERCENTAGE CONTROL                                                                                                                                                                    |                |
| 1           |     | 1   | RTU4 HAIL GUARD                                                                                                                                                                                                     |                |
| 1           |     | 1   | RTU4 DOWN RETURN                                                                                                                                                                                                    |                |
| 1           |     | 1   | VAV PACKAGE W/ MANUAL/DCO CONTROL (571 VFD INCLUDED)                                                                                                                                                                |                |
| 1           |     | 1   | 4" MERV 15 FILTERS FOR RTU GTY, 12"                                                                                                                                                                                 |                |
| 1           |     | 1   | RTU4 POWERED CONVENIENCE OUTLET (GFCI), 15 AMP                                                                                                                                                                      |                |
| 1           |     | 1   | OCCUPIED SCHEDULING                                                                                                                                                                                                 |                |
| 1           |     | 1   | ENERGY RECOVERY VENTILATOR FOR 208/230V RTU4 - ERV MODULE SHIPS LOOSE, AND SHALL BE CONNECTED TO THE MAIN UNIT IN THE FIELD PER THE INSTRUCTIONS OUTLINED IN THE OWNER INSTALL MANUAL.                              |                |
| 1           |     | 1   | RTU4 ECONOMIZER BAROMETRIC RELIEF                                                                                                                                                                                   |                |
| 1           |     | 1   | 2" MERV 13 SUPPLY FILTERS FOR ERV4                                                                                                                                                                                  |                |
| 1           |     | 1   | 4" MERV 15 RETURN FILTERS FOR ERV4                                                                                                                                                                                  |                |
| 1           |     | 1   | RTU4 CURB DUCT HANGER                                                                                                                                                                                               |                |
| 1           |     | 1   | DUCT MOUNTED SMOKE DETECTOR - SHIPS LOOSE                                                                                                                                                                           |                |
| 1           |     | 1   | ERV EXHAUST FAN - SUPPLY FAN REFERENCE CONTROL                                                                                                                                                                      |                |
| 1           |     | 1   | HIGH TURNDOWN OPTION FOR DOAS UNITS                                                                                                                                                                                 |                |
| 1           |     | 1   | MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 2 FURNACES                                                                                                                                                                    |                |
| 1           |     | 1   | 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)              |                |
| 1           |     | 1   | EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET                                                                                                                               |                |

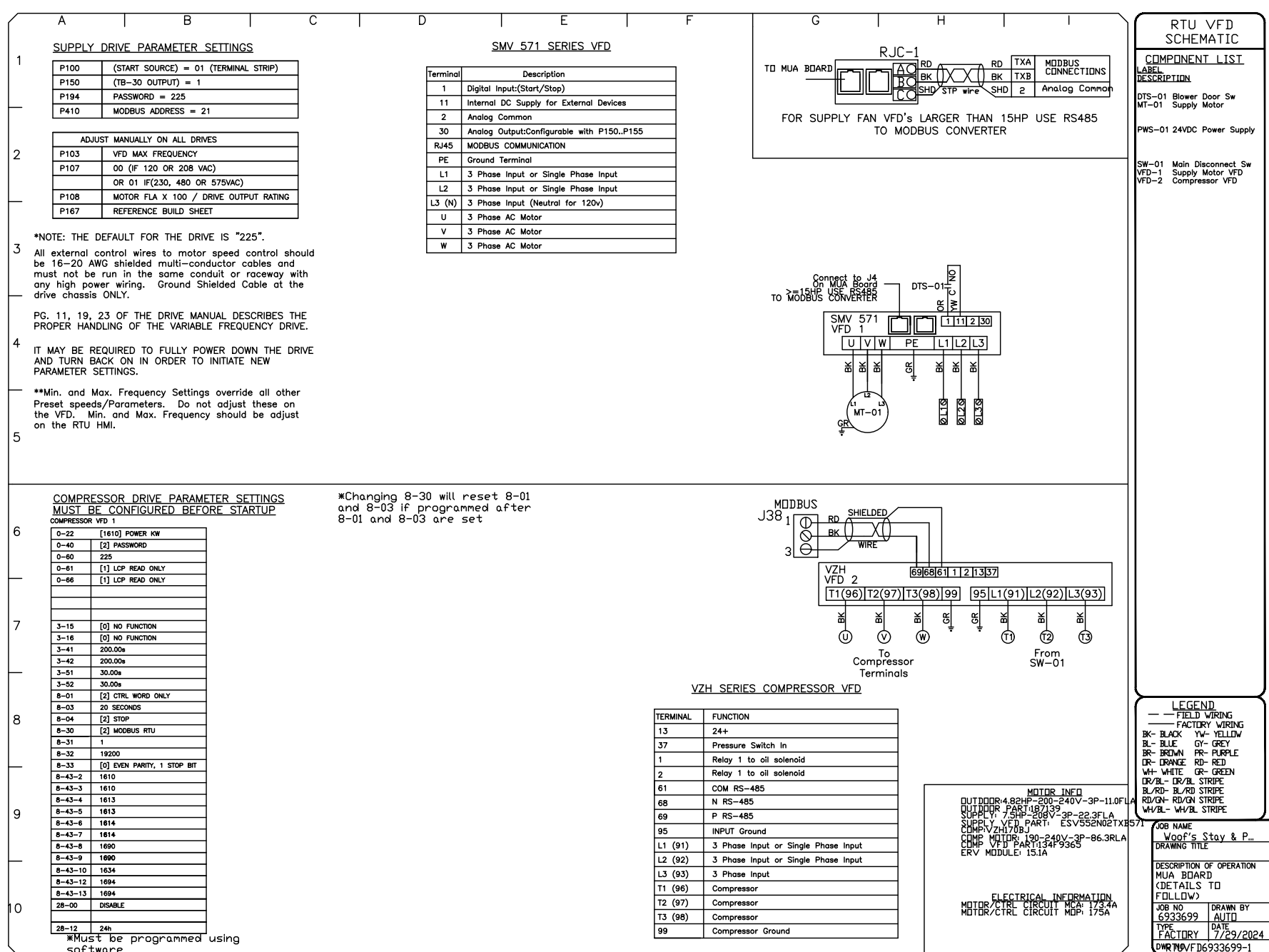
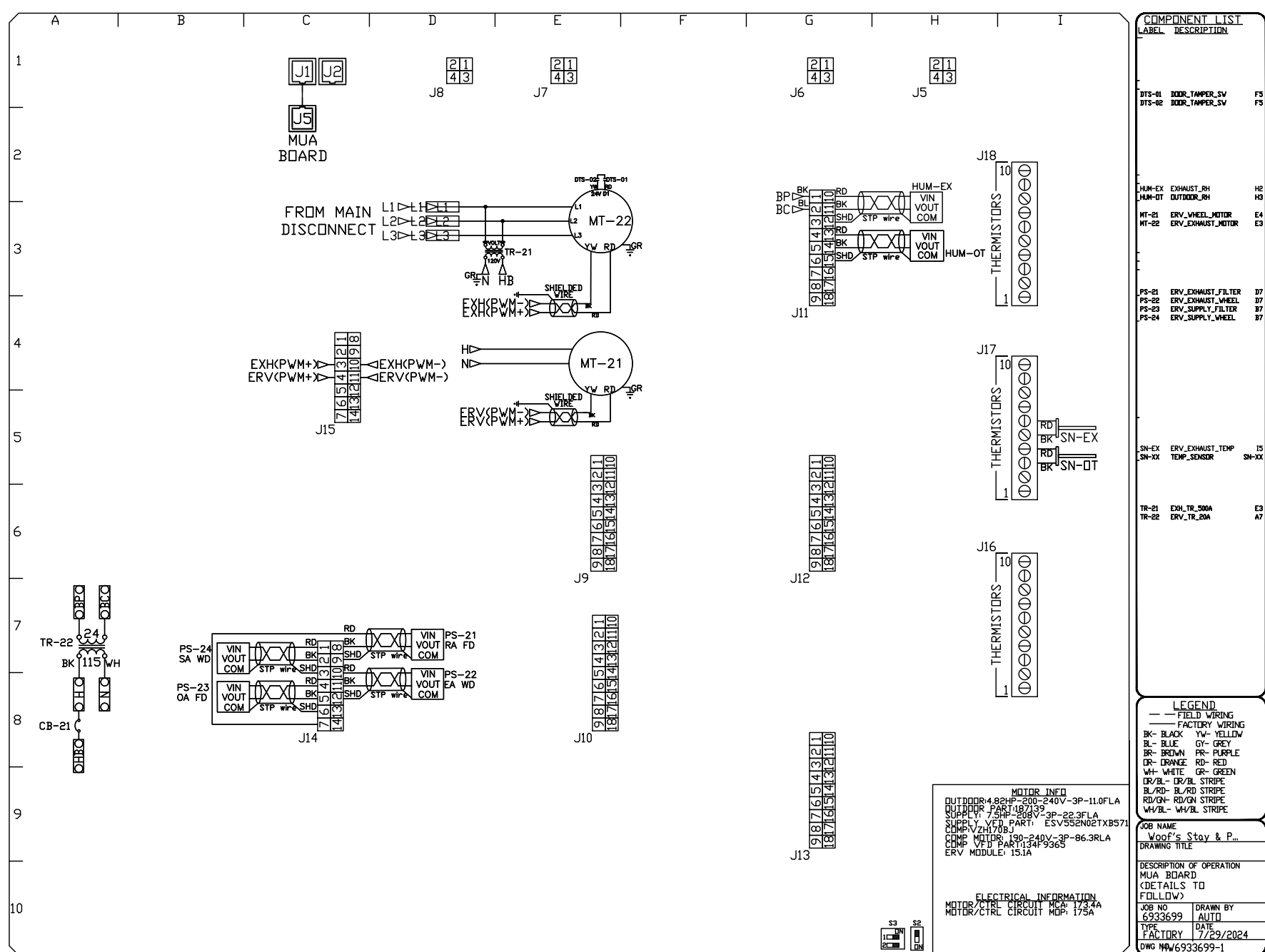
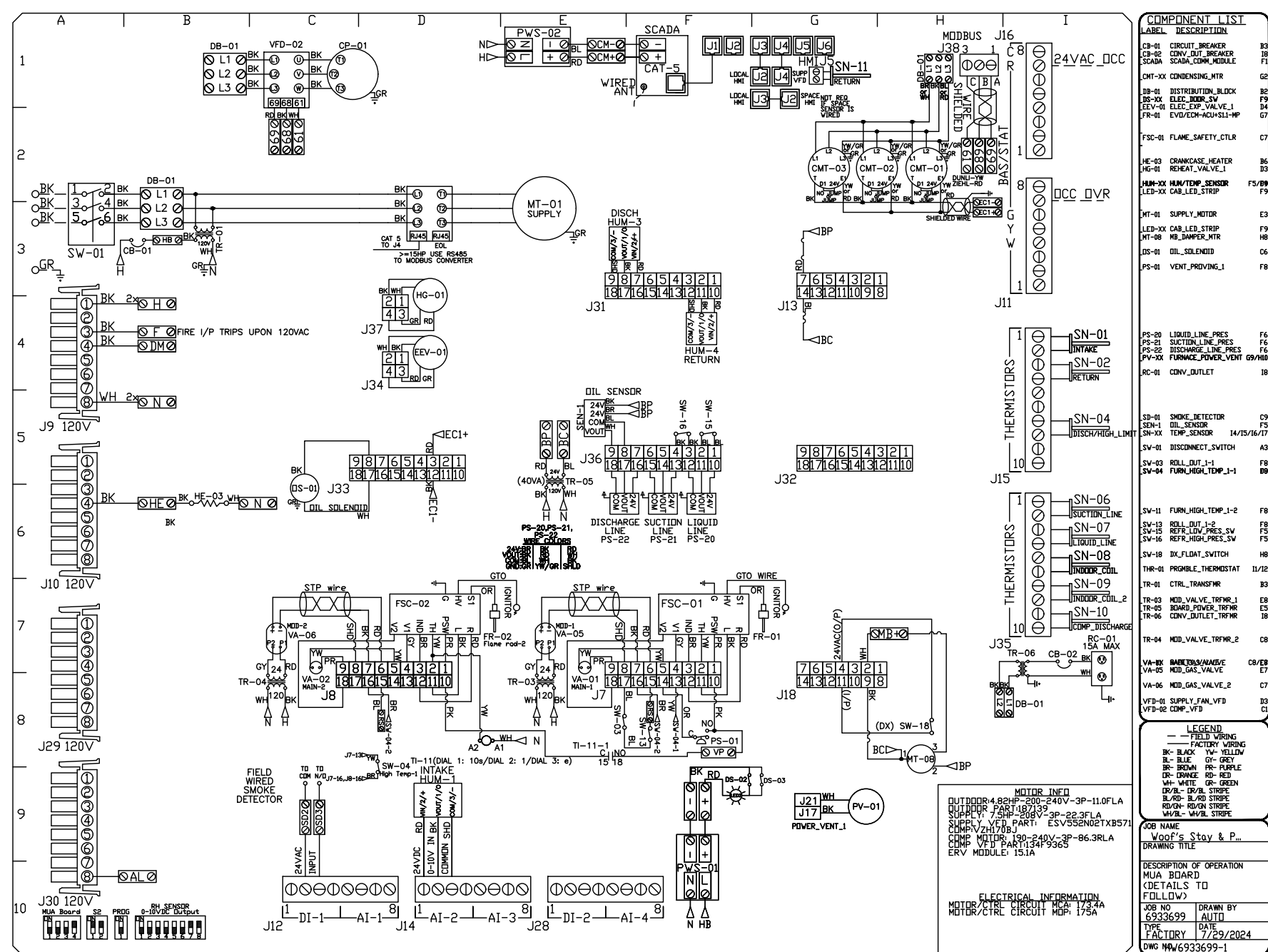
## CURB ASSEMBLIES

| NO | ON FAN | WEIGHT  | ITEM | SIZE                                              |
|----|--------|---------|------|---------------------------------------------------|
| 1  | # 1    | 436 LBS | CURB | 80.000"W X 16.950"D X 20.000"H INSULATED 16 GAUGE |

## CONTROLS DESIGN SERVICE

BIENNIAL ANALYSIS OF EQUIPMENT PERFORMANCE REQUIRED BY THE MANUFACTURER TO OPTIMIZE SYSTEM FIRST INSTALL. DETAILED PERFORMANCE REPORT TO BE PRESENTED TO OWNER/DP ON QUARTERLY BASIS FOR THE FIRST YEAR.

| HMI SCHEDULE |                |              |                |                |
|--------------|----------------|--------------|----------------|----------------|
| UNIT NUMBER  | HMI #          | HMI LOCATION | TEMP AVERAGING | MODBUS ADDRESS |
| FAN #1       | HMI #1 - UNIT  | IN UNIT      | NOT AVERAGED   | 55             |
| FAN #1       | HMI #2 - SPACE | SPACE        | AVERAGED       | 56             |



NOTE: ALL MODEL NUMBERS ON THIS SHEET ARE CAPTIVE-AIRE.

## SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

RELEASED FOR CONSTRUCTION  
As Noted on Plans Review

James P. Watson, P.E.  
Professional Engineer  
No. 1000000000  
Missouri  
PE-2015017071

James Watson, P.E. September 19, 2024  
PE-2015017071  
MO Certificate of Authority # 2018029680

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| J2 PROJECT No: | J21205 |
| J2 DESIGN:     | ACW    |

|             |            |
|-------------|------------|
| ISSUE TITLE | DATE       |
| PERMIT      | 09-19-2024 |

Mechanical - Electrical - Plumbing Design Drawings for  
Discovery Park  
Discovery Pet Spa

1901 NE Trails Edge Boulevard  
Lee's Summit, Jackson County, Missouri

HAH APPROVAL STAMP

SHEET TITLE

HVAC DETAILS

SHEET NUMBER

M503



| DEDICATED OUTSIDE AIR SYSTEM (DOAS) SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                              |                  |                    |                  |                    |     |                    |                   |                  |                 |                             |                              |                   |              |              |              |              |                                |                                 |      |            |       |     |                       |                 |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------|------------------|--------------------|------------------|--------------------|-----|--------------------|-------------------|------------------|-----------------|-----------------------------|------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------------------------|---------------------------------|------|------------|-------|-----|-----------------------|-----------------|--------|
| TAG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MANUFACTURER<br>( OR EQUAL ) | MODEL NUMBER<br>( OR EQUAL ) | AIRFLOW          |                    |                  |                    |     | ENERGY RECOVERY    |                   |                  |                 | GAS HEATING                 |                              |                   | COOLING      |              |              |              |                                |                                 |      | ELECTRICAL |       |     | PHYSICAL              |                 | NOTES  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                              | SUPPLY FAN       |                    | EXHAUST FAN      |                    |     | RECOVERED CAPACITY |                   | MIXED AIR L.A.T. |                 | INPUT<br>CAPACITY<br>(kBtu) | OUTPUT<br>CAPACITY<br>(kBtu) | TEMP RISE<br>(°F) | E.A.T.       |              | L.A.T.       |              | SENSIBLE<br>CAPACITY<br>(kBtu) | NET TOTAL<br>CAPACITY<br>(kBtu) | IEER | VOLTS/ PH  | MCA   | OCP | DIMENSIONS<br>(LxWxH) | WEIGHT<br>(LBS) |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                              | AIRFLOW<br>(CFM) | E.S.P<br>(in. H2O) | AIRFLOW<br>(CFM) | E.S.P<br>(in. H2O) | HP  | COOLING<br>(kBtu)  | HEATING<br>(kBtu) | COOLING<br>(°F)  | HEATING<br>(°F) |                             |                              |                   | D.B.<br>(°F) | W.B.<br>(°F) | D.B.<br>(°F) | W.B.<br>(°F) |                                |                                 |      |            |       |     |                       |                 |        |
| DOAS-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CAPTIVEAIRE                  | CAS-HVAC4-L600-30-30T-ERV    | 5000             | 1.0                | 4900             | 1.0                | 4.8 | 212.0              | 304.9             | 75/62            | 69/55           | 600                         | 486                          | 82                | 78.4         | 68.3         | 41.4         | 41.4         | 201.2                          | 378.1                           | 17.8 | 208/3      | 173.4 | 175 | 241x90x96             | 6636            | 1 - 21 |
| NOTES:<br>1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL.<br>2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.<br>3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.<br>4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH INTERFACE.<br>5. EC MOTOR CONDENSING FANS<br>6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE.<br>7. SUCTION LINE ACCUMULATOR.<br>8. FACTORY COMMISSIONING WITH 5-YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER.<br>9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSORS TO BE FACTORY MOUNTED WITHIN UNIT).<br>10. 2" EXTERIOR DUAL-WALL CONSTRUCTION WITH R-13 INSULATION MINIMUM 20GA EXTERIOR WITH 14GA BASE<br>11. TOTAL ENERGY RECOVERY WHEEL WITH SPEED CONTROLS FOR FROST PROTECTION AND MODULATION TO CAPACITY. INCLUDES SUPPLY & EXHAUST FILTER & WHEEL MONITORING.<br>12. 81% EFFICIENT FURNACE, WITH MODULATING INDUCTER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 16:1 TURNDOWN WITH NATURAL GAS.<br>13. EXHAUST CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.<br>14. FILTERED SUPPLY AND EXHAUST AIR STREAMS WITHIN ENERGY RECOVERY VENTILATOR MODULE.<br>15. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL VALVE.<br>16. FULL MODULATING HOT GAS REHEAT.<br>17. 4" MERV-15 IN-UNIT FILTRATION.<br>18. HAIL GUARD FOR CONDENSING COIL.<br>19. BAROMETRIC RELIEF DAMPER.<br>20. DOWN DISCHARGE / DOWN RETURN.<br>21. WITH CURB-MOUNTED SCREENING SYSTEM EQUAL TO CURBS-PLUS NUVIEW SYSTEM WITH SMOOTH PANEL PROFILE, FLAT TRIM, STANDARD COLOR DETERMINED BY ARCHITECT. |                              |                              |                  |                    |                  |                    |     |                    |                   |                  |                 |                             |                              |                   |              |              |              |              |                                |                                 |      |            |       |     |                       |                 |        |

| RTU SCHEDULE                                                                                                                                                                                                                                           |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------|-------------|---------------------|------------------|----------------------------|--------------|---------------|---------------------------------------|--------------|-----------------|---------------|-----|-----|------------------------|
| TAG                                                                                                                                                                                                                                                    | EQUIPMENT DESCRIPTION | SIZE (TONS) | ORIENTATION | TOTAL AIRFLOW (CFM) | E.S.P. (in. H20) | OA AIRFLOW MAX / MIN (CFM) | GAS HEATING  |               | COOLING (IA: 80 DB/ 67 WB, OA: 95 DB) |              |                 | ELECTRICAL    |     |     | NOTES                  |
|                                                                                                                                                                                                                                                        |                       |             |             |                     |                  |                            | INPUT (kBtu) | OUTPUT (kBtu) | SENSIBLE (kBtu)                       | TOTAL (kBtu) | MIN. EFFICIENCY | VOLTS / PHASE | MCA | OCF |                        |
| RTU-1                                                                                                                                                                                                                                                  | ROOF TOP UNIT         | 5.0         | DOWN FLOW   | 2000                | 1.0              | 200 / 200                  | 130          | 104           | 47.3                                  | 63.5         | 13.4 SEER2      | 208/3         | 29  | 40  | 1, 2, 3, 4, 5, 6, 7, 8 |
|                                                                                                                                                                                                                                                        |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| NOTES:                                                                                                                                                                                                                                                 |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 1. PROVIDE AND INSTALL 7 DAY PROGRAMABLE HONEYWELL THERMOSTAT. COORDINATE EXACT MOUNTING LOCATION WITH OWNER.                                                                                                                                          |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 2. WITH FACTORY HAIL GUARD.                                                                                                                                                                                                                            |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 3. WITH FACTORY INSTALLED DISCONNECT.                                                                                                                                                                                                                  |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 4. ECONOMIZER (WITH EITHER BAROMETRIC RELIEF SIZED AT 100% OF FLOW AT 1/10" RETURN DUCT STATIC PRESSURE, OR POWERED EXHAUST); CONTROL TO BE ADJUSTABLE FIXED POINT SET AT 65°F. ECONOMIZER TO BE IECC COMPLIANT WITH FAULT DETECTION AND NOTIFICATION. |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 5. WITH POWERED WEATHERPROOF GFCI RECEPTACLE.                                                                                                                                                                                                          |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 6. WITH HOT GAS REHEAT/DEHUMIDIFICATION OPTION.                                                                                                                                                                                                        |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 7. WITH NEEDLE-POINT IONIZATION FILTRATION SYSTEM EQUAL TO GPS SYSTEMS #GPS-FC24-AC                                                                                                                                                                    |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |
| 8. WITH CURB-MOUNTED SCREENING SYSTEM EQUAL TO CURBS-PLUS NUVIEW SYSTEM WITH SMOOTH PANEL PROFILE, FLAT TRIM, STANDARD COLOR DETERMINED BY ARCHITECT                                                                                                   |                       |             |             |                     |                  |                            |              |               |                                       |              |                 |               |     |     |                        |

| EXHAUST FAN SCHEDULE                                                                      |                     |                            |                     |      |      |            |     |      |  |          |        |       |
|-------------------------------------------------------------------------------------------|---------------------|----------------------------|---------------------|------|------|------------|-----|------|--|----------|--------|-------|
| TAG                                                                                       | EQUIPMENT TYPE      | MANUFACTURER<br>(OR EQUAL) | MODEL<br>(OR EQUAL) | FLOW |      | ELECTRICAL |     |      |  | PHYSICAL |        | NOTES |
|                                                                                           |                     |                            |                     | CFM  | S.P. | VOLT/PH    | MCA | OCF  |  | DIM.     | WEIGHT |       |
| EF-1                                                                                      | IN-LINE EXHAUST FAN | SOLER & PALAU              | TD-SILENT           | 100  | 3/8" | 120/1      | 1   | 20-1 |  | 19x11x9  | 14     | 1, 2  |
| EF-2                                                                                      | IN-LINE EXHAUST FAN | SOLER & PALAU              | TD-SILENT           | 120  | 3/8" | 120/1      | 1   | 20-1 |  | 19x11x9  | 14     | 1, 2  |
|                                                                                           |                     |                            |                     |      |      |            |     |      |  |          |        |       |
| <div>NOTES:</div> <div>1. WITH BACKDRAFT DAMPER</div> <div>2. WITH SPEED CONTROLLER</div> |                     |                            |                     |      |      |            |     |      |  |          |        |       |

| AIR DEVICE SCHEDULE                                                                                   |          |                            |                     |              |                   |                         |
|-------------------------------------------------------------------------------------------------------|----------|----------------------------|---------------------|--------------|-------------------|-------------------------|
| TAG                                                                                                   | SERVICE  | MANUFACTURER<br>(OR EQUAL) | MODEL<br>(OR EQUAL) | SIZE         | COLOR /<br>FINISH | NOTES                   |
| E1                                                                                                    | EXHAUST  | PRICE                      | 80                  | AS INDICATED | WHITE             |                         |
| E2                                                                                                    | EXHAUST  | PRICE                      | 530                 | AS INDICATED | WHITE             |                         |
| L1                                                                                                    | EXHAUST  | POTTORFF                   | EFD                 | AS INDICATED | PRIMED            | PAINT TO MATCH EXTERIOR |
| R1                                                                                                    | RETURN   | PRICE                      | 80                  | AS INDICATED | WHITE             |                         |
| S1                                                                                                    | SUPPLY   | PRICE                      | SPD                 | 24x24        | WHITE             |                         |
| S2                                                                                                    | SUPPLY   | PRICE                      | S20                 | 12x6         | WHITE             |                         |
| T1                                                                                                    | TRANSFER | PRICE                      | STG                 | AS INDICATED | WHITE             |                         |
| <div>NOTES:</div> <div>1. VERIFY AIR DEVICE FINISHES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION</div> |          |                            |                     |              |                   |                         |

| BUILDING AIR BALANCE SUMMARY                                                                                                                                                                           |             |                  |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|--------------|
| EQUIPMENT                                                                                                                                                                                              | OA<br>(CFM) | EXHAUST<br>(CFM) | NET<br>(CFM) |
| RTU-1                                                                                                                                                                                                  | 200         | 0                | 200          |
| DOAS-1                                                                                                                                                                                                 | 5000        | 4900             | 100          |
| EF-1                                                                                                                                                                                                   | 0           | 100              | -100         |
| EF-2                                                                                                                                                                                                   | 0           | 120              | -120         |
|                                                                                                                                                                                                        |             |                  |              |
|                                                                                                                                                                                                        |             |                  |              |
| TOTAL                                                                                                                                                                                                  | 5200        | 5120             | 80           |
| <div>NOTES:</div> <div>1. DOAS-1 OPERATES CONTINUOUSLY</div> <div>2. EF-2 OPERATES CONTINUOUSLY</div> <div>3. EF-1 OPERATES DURING OCCUPIED HOURS</div> <div>4. RTU BLOWER OPERATES CONTINUOUSLY</div> |             |                  |              |

| DIFFUSER NECK SIZING SCHEDULE |                   |
|-------------------------------|-------------------|
| AIRFLOW<br>(CFM)              | NECK SIZE<br>(in) |
| 0 - 120                       | 6"                |
| 120 - 210                     | 8"                |
| 210 - 325                     | 10"               |
| 325 - 470                     | 12"               |
| 470 - 640                     | 14"               |



FIRE ALARM PLAN SYMBOL LEGEND

- M** MODULE  
**SD** SMOKE DETECTOR  
**HS** HORN STROBE - WALL MOUNT

POWER PLAN SYMBOL LEGEND

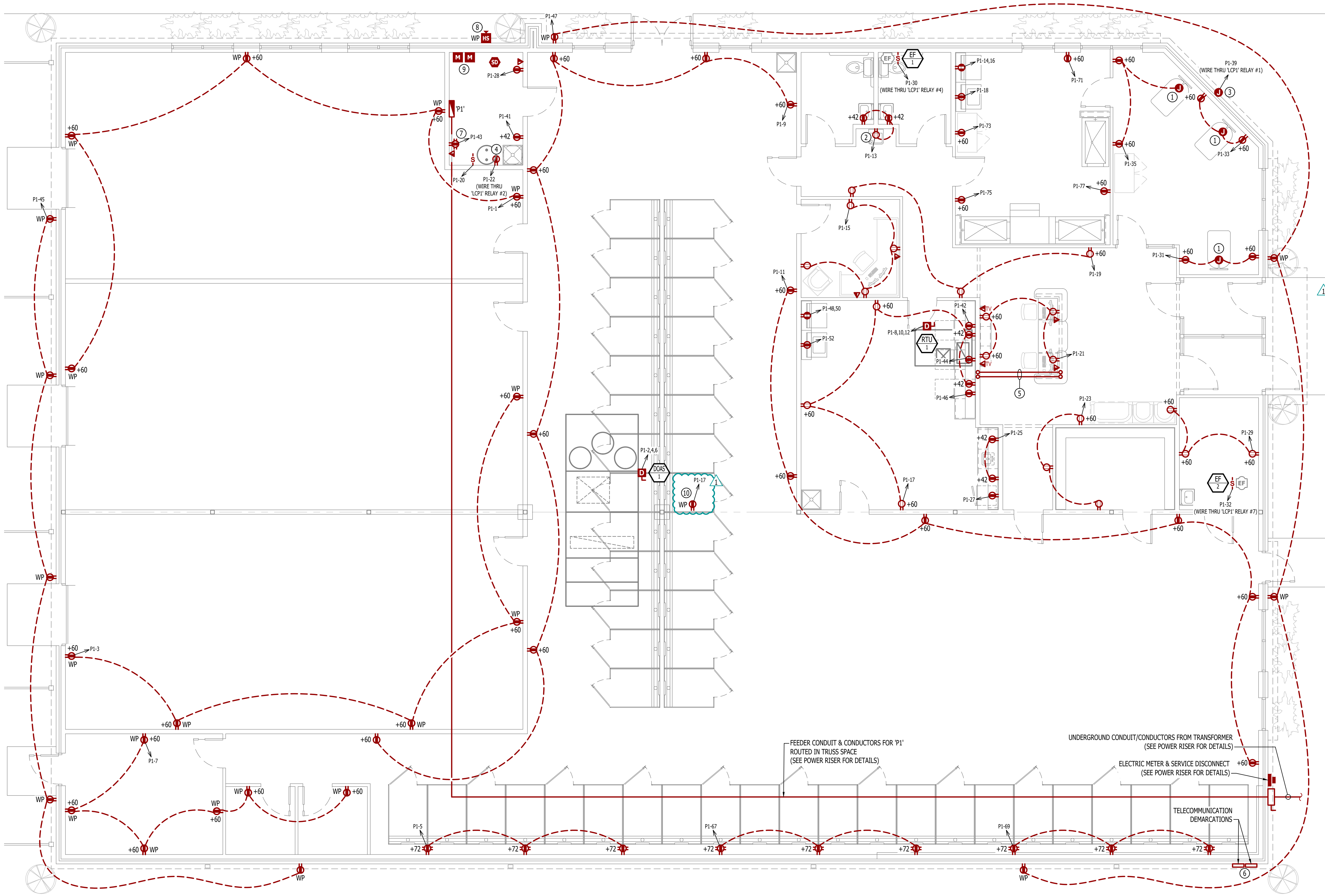
- CIRCUIT WIRING  
--> PX-XX CIRCUIT TAG  
**J** JUNCTION BOX  
XX +42 RECEPTACLE  
INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
"WP" = WEATHERPROOF OUTDOOR RECEPTACLE  
"AW" = ABOVE WINDOW RECEPTACLE  
"AC" = ABOVE CEILING RECEPTACLE  
"EX" = EXISTING RECEPTACLE TO REMAIN  
 GFCI DUPLEX CONVENIENCE RECEPTACLE  
 208V RECEPTACLE  
 QUADPLEX CONVENIENCE RECEPTACLE  
 DATA / PHONE JACK  
BOX WITH 1" CONDUIT & PULL STRING UP TO CEILING SPACE (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
 DISCONNECT

POWER PLAN GENERAL NOTES:

- REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

POWER PLAN KEY NOTES:

- POWER FOR CORD REEL EQUAL TO KH INDUSTRIES MODEL RTAG3LW-WCS20-112F, 120V, 20A CORD REEL. CORD REEL SHALL BE MOUNTED AT CEILING GRID HEIGHT; SUPPORT FROM BUILDING STRUCTURE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- WIRE DRINKING FOUNTAIN RECEPTACLE DOWNSTREAM OF GFCI RECEPTACLE SO THAT DRINKING FOUNTAIN RECEPTACLE IS GFCI PROTECTED.
- POWER FOR EXTERIOR SIGNAGE; COORDINATE EXACT LOCATION & REQUIREMENTS WITH SIGNAGE SUPPLIER/INSTALLER.
- POWER FOR HOT WATER RECIRCULATION PUMP; COORDINATE EXACT LOCATION & REQUIREMENTS WITH PLUMBING CONTRACTOR.
- 3/4" CONDUIT BELOW SLAB FOR RECEPTION DESK POWER/DATA; COORDINATE EXACT LOCATION & REQUIREMENTS WITH OWNER.
- PROVIDE & INSTALL (2) 3" CONDUIT FROM DEMARCS TO MECHANICAL ROOM; COORDINATE EXACT LOCATION & REQUIREMENTS WITH OWNER.
- POWER FOR I.T. EQUIPMENT; COORDINATE EXACT LOCATION & REQUIREMENTS WITH OWNER.
- WEATHERPROOF HORN/STROBE NOTIFICATION DEVICE NEAR FDC. COORDINATE WITH SPRINKLER CONTRACTOR.
- MONITOR MODULES FOR TAMPER/FLOW SWITCHES & FIRE ALARM CONTROL PANEL IN RISER ROOM; COORDINATE EXACT LOCATIONS & REQUIREMENTS WITH SPRINKLER CONTRACTOR.
- RECEPTACLE MOUNTED ON ROOFTOP.



POWER PLAN

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



|                |            |
|----------------|------------|
| J2 PROJECT No: | J21205     |
| J2 DESIGN:     | ACW        |
| ISSUE TITLE    | DATE       |
| PERMIT         | 09-19-2024 |
|                |            |
|                |            |
|                |            |
|                |            |

AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN

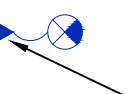


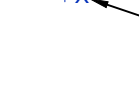
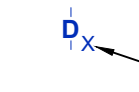

SHEET NUMBER

EL101

LIGHTING PLAN SYMBOL LEGEND

- X1

EM

NL
- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)  
LIGHTING FIXTURE  
"EM" INDICATES EMERGENCY BATTERY BACKUP  
"NL" INDICATES UN-SWITCHED NIGHT LIGHT
- 
- EXIT LIGHT
- 
- INDICATES REQUIRED REMOTE HEAD
- 
- EMERGENCY EGRESS LIGHT
- 
- SWITCH (WALL MOUNTED)
- SWITCH TYPE:
  - 3 = 3-WAY
  - 4 = 4-WAY
  - OP = PASSIVE INFRARED OCCUPANCY SENSOR
  - OU = ULTRASONIC OCCUPANCY SENSOR
  - OT = DUAL-TECHNOLOGY OCCUPANCY SENSOR
  - VP = PASSIVE INFRARED VACANCY SENSOR
  - VU = ULTRASONIC VACANCY SENSOR
  - VT = DUAL-TECHNOLOGY VACANCY SENSOR
  - M = MOMENTARY SWITCH
  - SS = SCENE SWITCH
  - SC = SPEED CONTROLLER (CEILING FAN)
- 
- DIMMER SWITCH (WALL MOUNTED)
- SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- 
- SWITCH (CEILING MOUNTED)
- SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS

- OCCUPANCY SENSOR**
- AUTO FULL-ON (OR 50% IF NOTED)
  - AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
  - WITH MANUAL OVERRIDE CONTROL (IF NOTED)

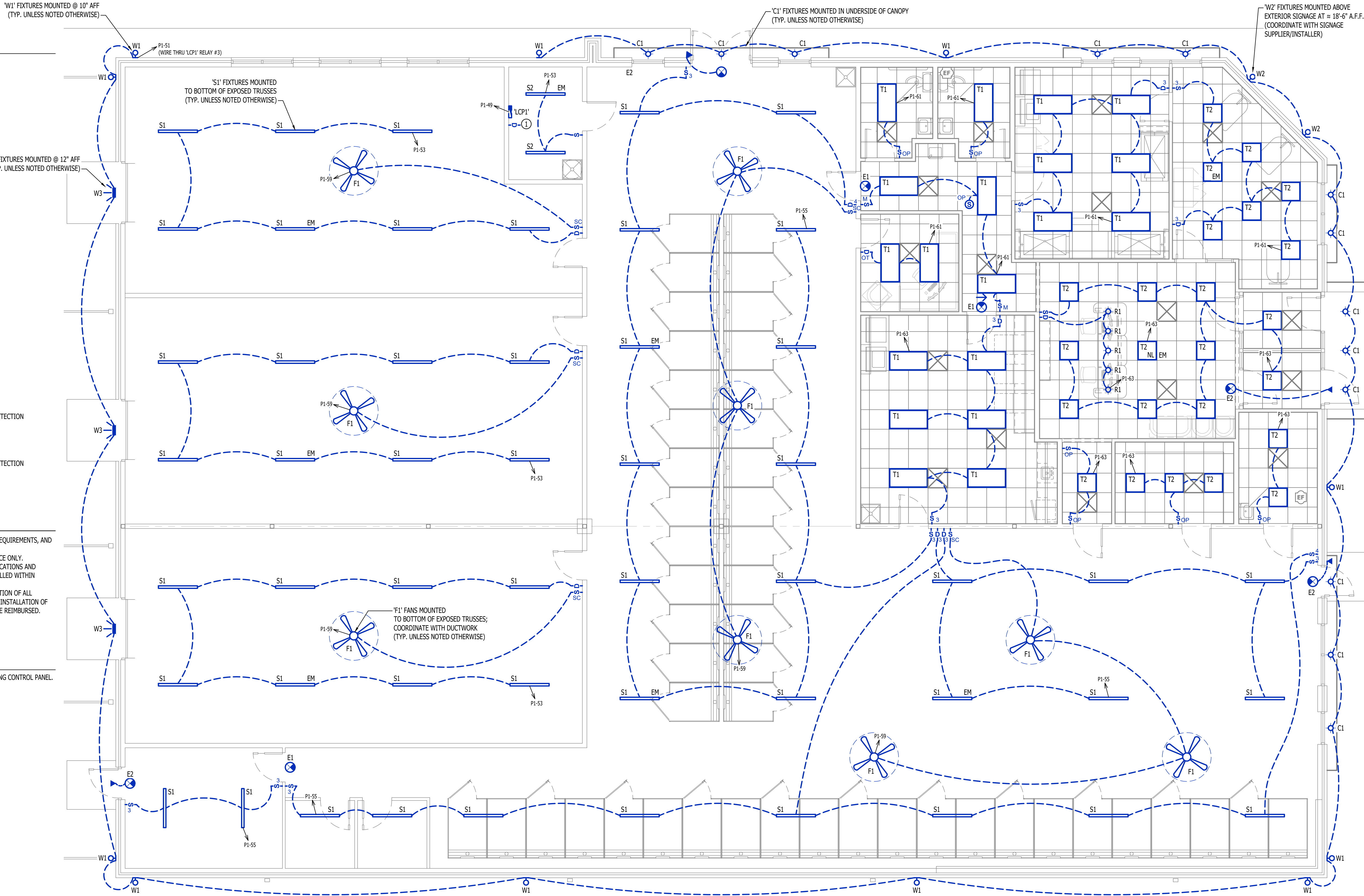
- VACANCY SENSOR**
- MANUAL FULL-ON
  - AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
  - WITH MANUAL OVERRIDE CONTROL (IF NOTED)

LIGHTING PLAN GENERAL NOTES:

- REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- OCCUPANCY/VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE & INSTALL SENSOR WITH SPACING PER MANUFACTURER'S SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURER'S ACCEPTABLE MOUNTING HEIGHT RANGE.
- ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL FIXTURES, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

LIGHTING PLAN KEY NOTES:

- ① INCLUDE INLINE DIMMER SWITCH FOR EXTERIOR LIGHTING CIRCUIT LOCATED NEAR LIGHTING CONTROL PANEL.





ELECTRICAL SPECIFICATIONS

1.

GENERAL
- 1.1.

CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY PIECES AND COMPONENTS TO PROVIDE A COMPLETE AND COMPLIANT ELECTRICAL SYSTEM UNLESS OTHERWISE NOTED ON PLANS.
- 1.2.

THE ENTIRE ELECTRICAL SYSTEM SHALL BE CONTINUOUSLY GROUNDED. EVERY BRANCH CONDUIT SHALL INCLUDE A GREEN GROUND CONDUCTOR SIZED PER NEC.
- 1.3.

ARC-FAULT CIRCUITS SHALL BE RUN WITH A DEDICATED NEUTRAL AS REQUIRED BY MANUFACTURER.
- 1.4.

PROVIDE PERMANENT ARC-FLASH LABEL AFFIXED TO EVERY DISCONNECT AND PANEL.
- 1.5.

PROVIDE TYPE WRITTEN PANEL SCHEDULE FOR EACH PANEL.
2.

WORKMANSHIP
- 2.1.

ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 2.2.

ALL ELECTRICAL DEVICES AND LIGHT FIXTURES SHALL BE INSTALLED IN A SAFE, FIRST-CLASS MANNER WITH ATTENTION GIVEN TO OVERALL AESTHETICS.  
CARE SHOULD BE TAKEN TO ALLOW FOR FUTURE REPLACEMENT AND ACCESS FOR SERVICE.
3.

MATERIALS
- 3.1.

CONDUIT & CONDUCTORS
- 3.1.1.

ALL CONDUCTORS SIZES INDICATED ARE COPPER UNLESS NOTED OTHERWISE ON PLANS.
- 3.1.2.

ABOVE GRADE CONDUCTORS SHALL BE TYPE THHN.  
BELOW GRADE CONDUCTORS SHALL BE TYPE XHHW-2.
- 3.1.3.

MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE. 120-VOLT, 20-AMP CIRCUITS WITH CONDUCTOR LENGTHS GREATER THAN 100' SHALL BE #10 AWG MINIMUM.  
ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MEASURING ACTUAL CONDUCTOR LENGTH AND INCREASING CONDUCTOR SIZE TO COMPENSATE FOR VOLTAGE DROP AS REQUIRED BY NEC.
- 3.1.4.

RIGID GALVANIZED OR SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR SERVICE WIRING, BELOW GRADE INSTALLATIONS, OR WHERE EXPOSED TO WEATHER.
- 3.1.5.

IN APPLICATIONS OTHER THAN THOSE LISTED IN 3.1.4, EMT OR MC CABLE IS ACCEPTABLE.  
WHERE CONDUCTORS ARE PROTECTED FROM DAMAGE, ENCLOSED IN BUILDING MATERIALS, AND CONSTRUCTION IS OF A PERMITTED TYPE, NM CABLE MAY BE USED.
- 3.1.6.

FOR CAST-IN-PLACE CONCRETE, TILT-UP WALL CONSTRUCTION, OR PRE-MANUFACTURED WALL SYSTEMS, COORDINATE EXACT LOCATIONS OF ALL DEVICES WITHIN WALLS WITH WALL SUPPLIER.  
CONDUIT EMBEDDED IN WALLS SHALL BE SCHEDULE 80 PVC OR LFMC, OR OTHER SYSTEM APPROVED BY WALL MANUFACTURER.
- 3.1.7.

EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES, VERIFY COLOR WITH ARCHITECT/OWNER.
- 3.2.

DEVICES
- 3.2.1.

CONTRACTOR TO PROVIDE J-BOXES, COVER PLATES, AND ANY ACCESSORIES REQUIRED TO PROVIDE A COMPLETE SYSTEM. SEE ARCHITECTURAL PLANS FOR DEVICE COLORS.
- 3.2.1.

DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT, 20-AMP, EQUAL TO LEVITON #TBR-20.
- 3.2.2.

SINGLE POLE TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS120-2.  
THREE-WAY TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS320-2.
- 3.2.3.

DIMMER SWITCHES SHALL BE TESTED WITH FIXTURES AND LAMPS FOR COMPATIBILITY. SEE LIGHTING PLANS FOR DETAILS.
- 3.2.4.

WHERE GFCI PROTECTION IS SHOWN ON PLANS AND UNLESS OTHERWISE NOTED, PROVIDE A LISTED GFCI-PROTECTED RECEPTACLE WHERE THE RECEPTACLE IS ACCESSIBLE ON PLANS. IF THE RECEPTACLE LOCATION IS NOT ACCESSIBLE AS DEFINED BY NEC, PROVIDE GFCI PROTECTION AT CIRCUIT BREAKER.
- 3.2.5.

DO NOT INSTALL OCCUPANCY/VACANCY SENSORS WITHIN 48" OF HVAC DIFFUSERS/GRILLES OR SIMILAR OBSTRUCTION THAT MAY AFFECT SENSOR FUNCTIONALITY. ALL SENSORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- 3.2.6.

ALL APPLICABLE SWITCHES, RECEPTACLES, CONTROLS, ETC. SHALL BE MOUNTED AT ADA-ACCESSIBLE HEIGHTS.
- 3.2.7.

WIRING DEVICES SHOWN ON PLANS NEXT TO ONE ANOTHER SHALL UTILIZE A SINGLE COVER PLATE UNLESS NOTED OTHERWISE.
- 3.2.8.

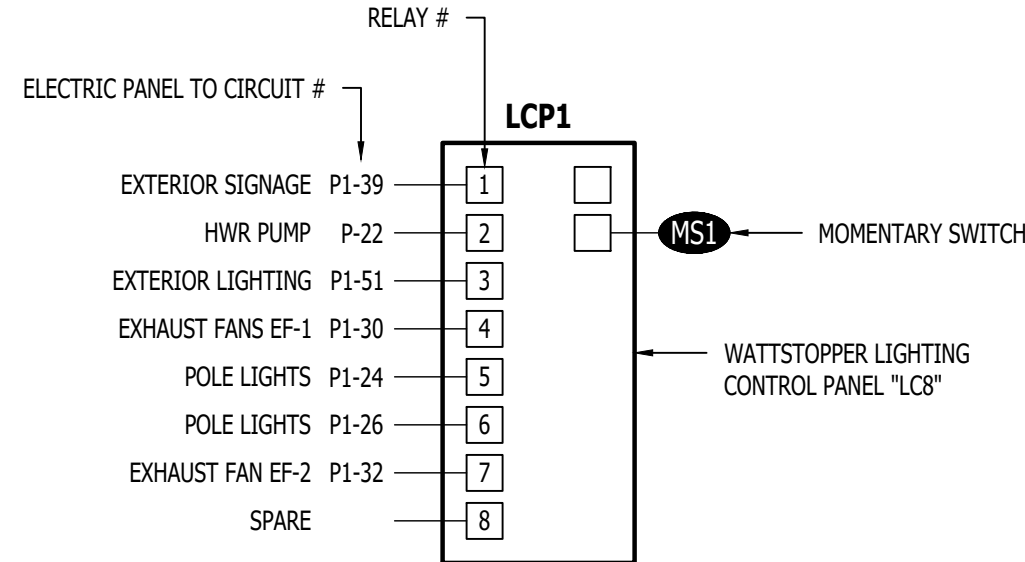
WIRING DEVICES SHOWN BACK-TO-BACK ON EACH SIDE OF A WALL SHALL BE OFFSET TO REDUCE SOUND TRANSMISSION.
- 3.2.9.

EACH RECEPTACLE COVER SHALL BE NEATLY AND LEGIBLY LABELED WITH CORRESPONDING PANEL AND CIRCUIT NUMBER FOR CIRCUIT IDENTIFICATION.
4.

EMERGENCY LIGHTING
- 4.1.

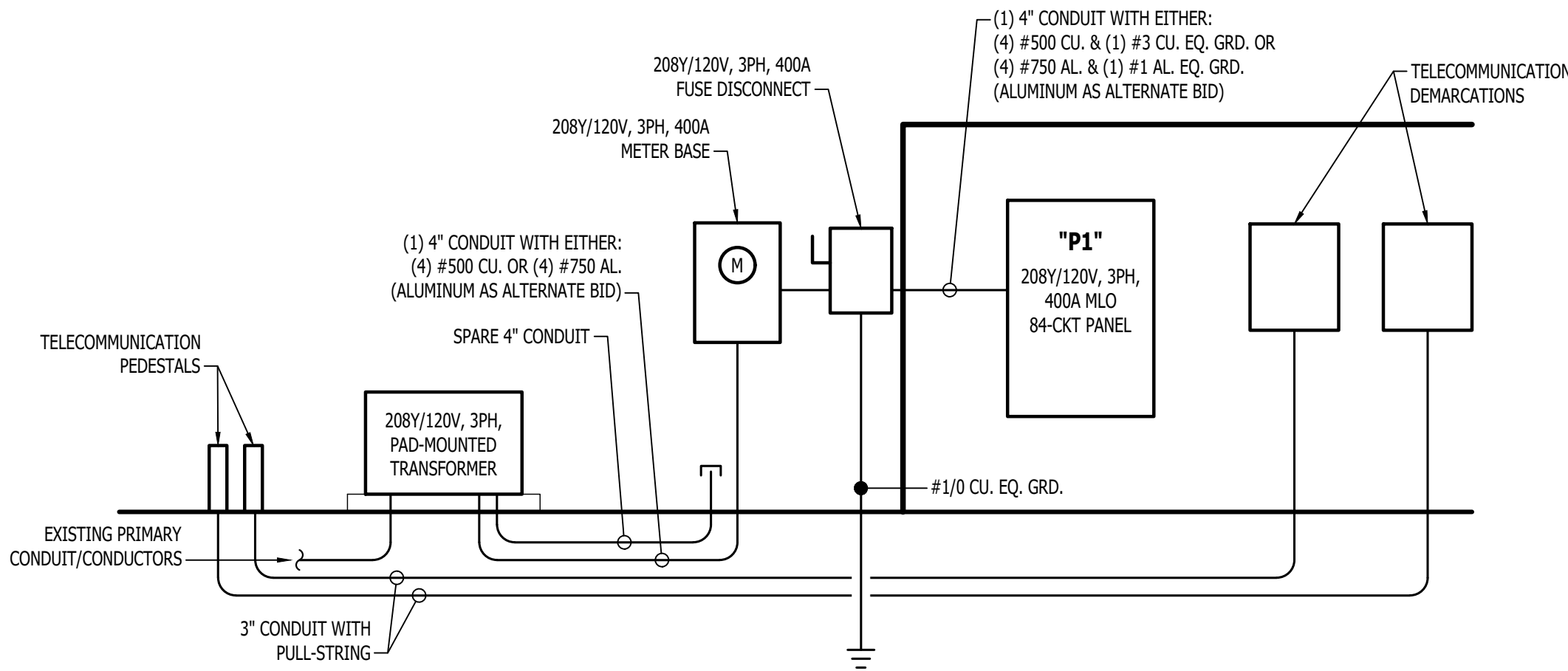
BRANCH CIRCUIT FEEDING EMERGENCY FIXTURE(S) SHALL BE SAME BRANCH CIRCUIT AS THAT SERVING NORMAL LIGHTING IN SAME AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES.
- 4.2.

EMERGENCY LIGHTING SYSTEM SHALL PROVIDE 1FC AVERAGE AND 0.1FC MINIMUM ALONG EGRESS PATHS. ADJUST ANY EMERGENCY FIXTURES AS NECESSARY TO PROVIDE PROPER ILLUMINATION WITHOUT OBSTRUCTION FROM FURNITURE OR OBSTACLES.



| LIGHTING CONTROL PANEL SCHEDULE |                |                          |
|---------------------------------|----------------|--------------------------|
| RELAY #                         | VERRIDE SWITCH | OPERATIONAL SCHEDULE     |
| 1                               | NO             | ON DURING OCCUPIED HOURS |
| 2                               | NO             | ON DURING OCCUPIED HOURS |
| 3                               | YES            | ON DURING NIGHT HOURS    |
| 4                               | NO             | ON DURING OCCUPIED HOURS |
| 5                               | YES            | ON DURING NIGHT HOURS    |
| 6                               | YES            | ON DURING NIGHT HOURS    |
| 7                               | NO             | ON DURING OCCUPIED HOURS |
| 8                               | -              | -                        |

LIGHTING CONTROL PANEL



POWER RISER NOTES:

1.

COORDINATE DETAILS & REQUIREMENTS OF NEW ELECTRIC SERVICE WITH EVERY.
2.

ALL NEW METERING EQUIPMENT MUST BE APPROVED BY EVERY.
3.

EACH METER MUST BE PERMANENTLY LABELED.
4.

AIC-RATINGS BASED ON:

4.1.

TRANSFORMER: 75kVA, 100% POWER FACTOR, 3.50% Z, LOCATED APPROXIMATELY WHERE SHOWN ON PLANS.

4.2.

METER LOCATION INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.

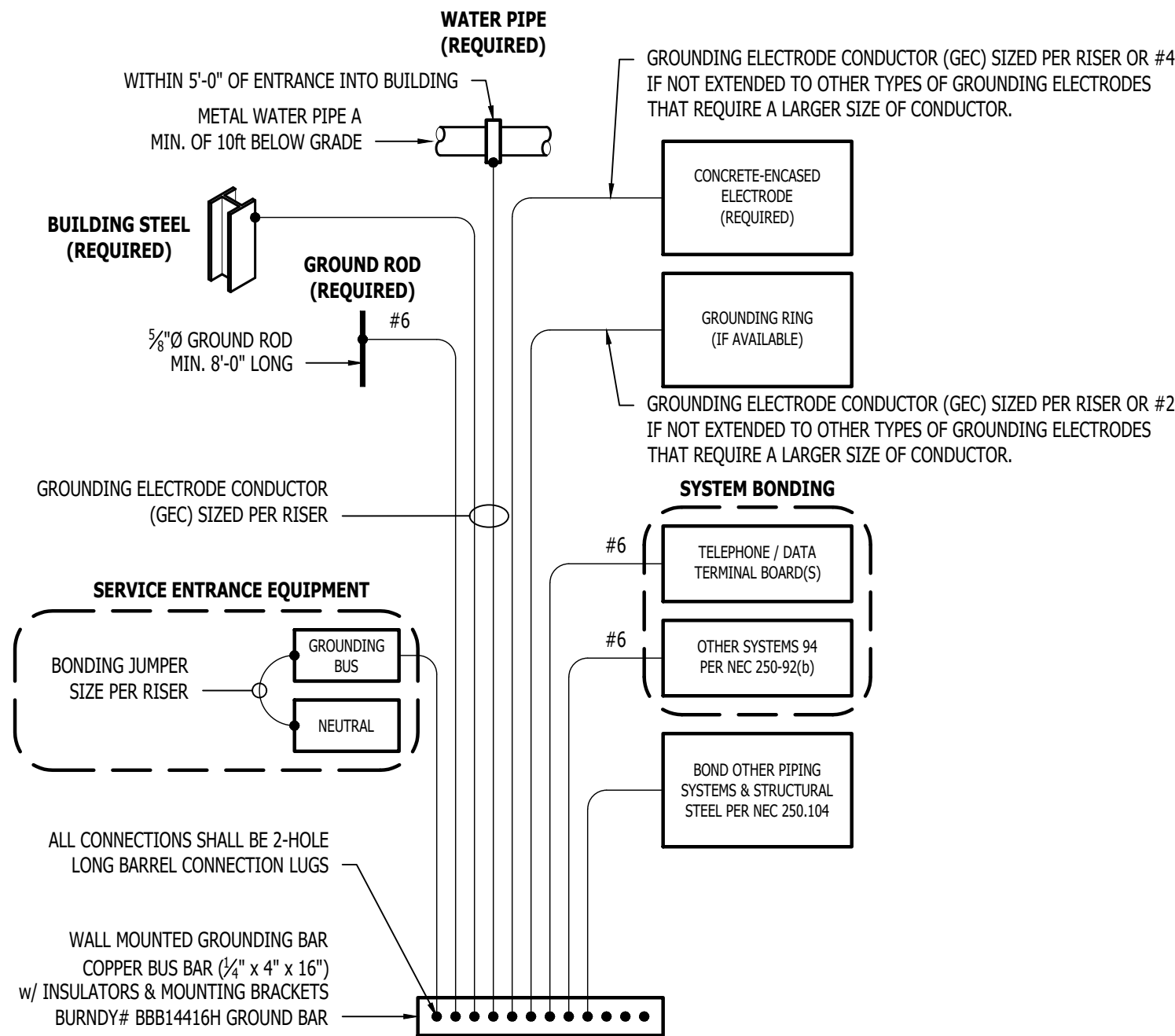
4.3.

ELECTRICAL PANEL LOCATION INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.

4.4.

CONTRACTOR TO FIELD VERIFY FINAL EQUIPMENT LOCATIONS AND PERFORM ADDITIONAL AIC RATING CALCULATIONS IF NECESSARY.

POWER RISER

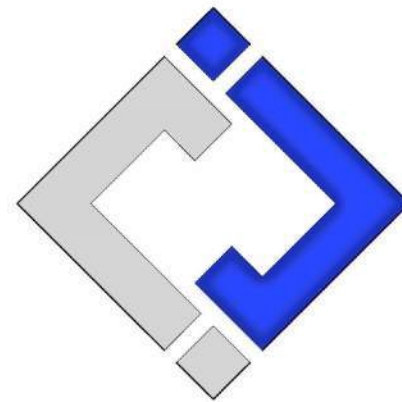


TYPICAL GROUNDING & BONDING DETAIL

RELEASED FOR CONSTRUCTION  
As Noted on Plans Review

Professional Services Department  
Missouri  
James Watson, P.E.  
NUMBER  
PE-2015017071  
PROFESSIONAL ENGINEER

James Watson, P.E. September 19, 2024  
PE-2015017071  
MO Certificate of Authority # 2018029680



J-SQUARED  
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|                |        |
|----------------|--------|
| J2 PROJECT No: | J21205 |
| J2 DESIGN:     | ACW    |

| ISSUE TITLE |  | DATE       |
|-------------|--|------------|
| PERMIT      |  | 09-19-2024 |
|             |  |            |
|             |  |            |
|             |  |            |
|             |  |            |

Mechanical - Electrical - Plumbing Design Drawings for  
Discovery Park

Discovery Pet Spa

1901 NE Trails Edge Boulevard  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

ELECTRICAL  
SCHEDULES

SHEET NUMBER

E501







|                |            |
|----------------|------------|
| J2 PROJECT No: | J21205     |
| J2 DESIGN:     | ACW        |
| ISSUE TITLE    | DATE       |
| PERMIT         | 09-19-2024 |
|                |            |
|                |            |
|                |            |

AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN

SHEET NUMBER

PS101

SANITARY SEWER PLAN SYMBOL LEGEND

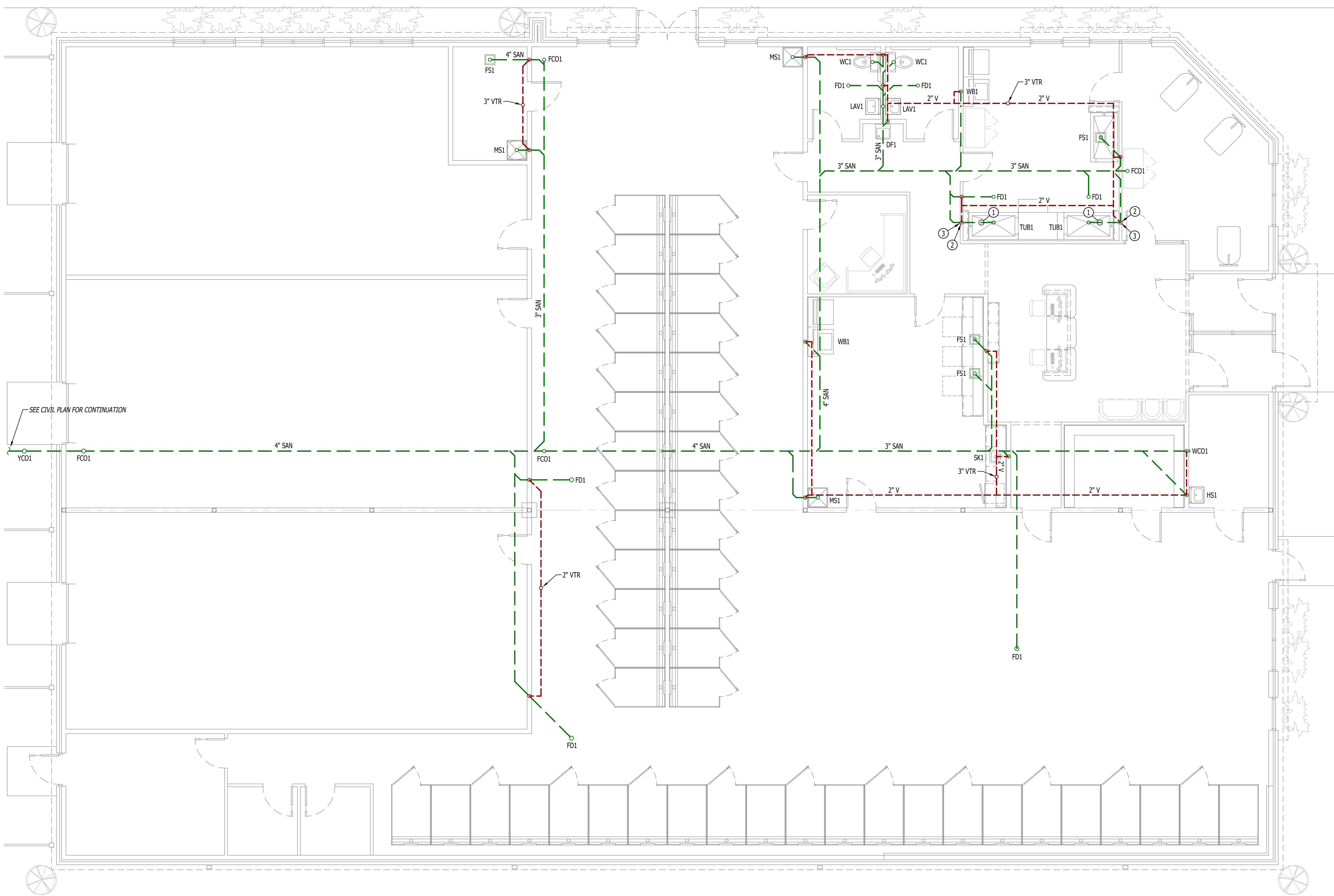
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

- REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.
- ANY EXISTING SANITARY/VENT PIPING SHOWN IS FOR REFERENCE ONLY. PLUMBING CONTRACTOR TO FIELD VERIFY EXACT PIPING SIZE, LOCATIONS, DEPTH, DIRECTION, CONDITION, ETC. PRIOR TO INSTALLATION OF ANY MATERIAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

SANITARY SEWER PLAN KEY NOTES:

- 2" TUB DRAIN ABOVE SLAB WITHIN CASEWORK.
- 2" TUB DRAIN DOWN TO BELOW SLAB.
- 2" VENT UP IN WALL.



SANITARY SEWER PLAN  
SCALE: 3/16" = 1'-0"













|                |            |
|----------------|------------|
| J2 PROJECT No: | J21205     |
| J2 DESIGN:     | ACW        |
| ISSUE TITLE    | DATE       |
| PERMIT         | 09-19-2024 |
|                |            |
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AHJ APPROVAL STAMP

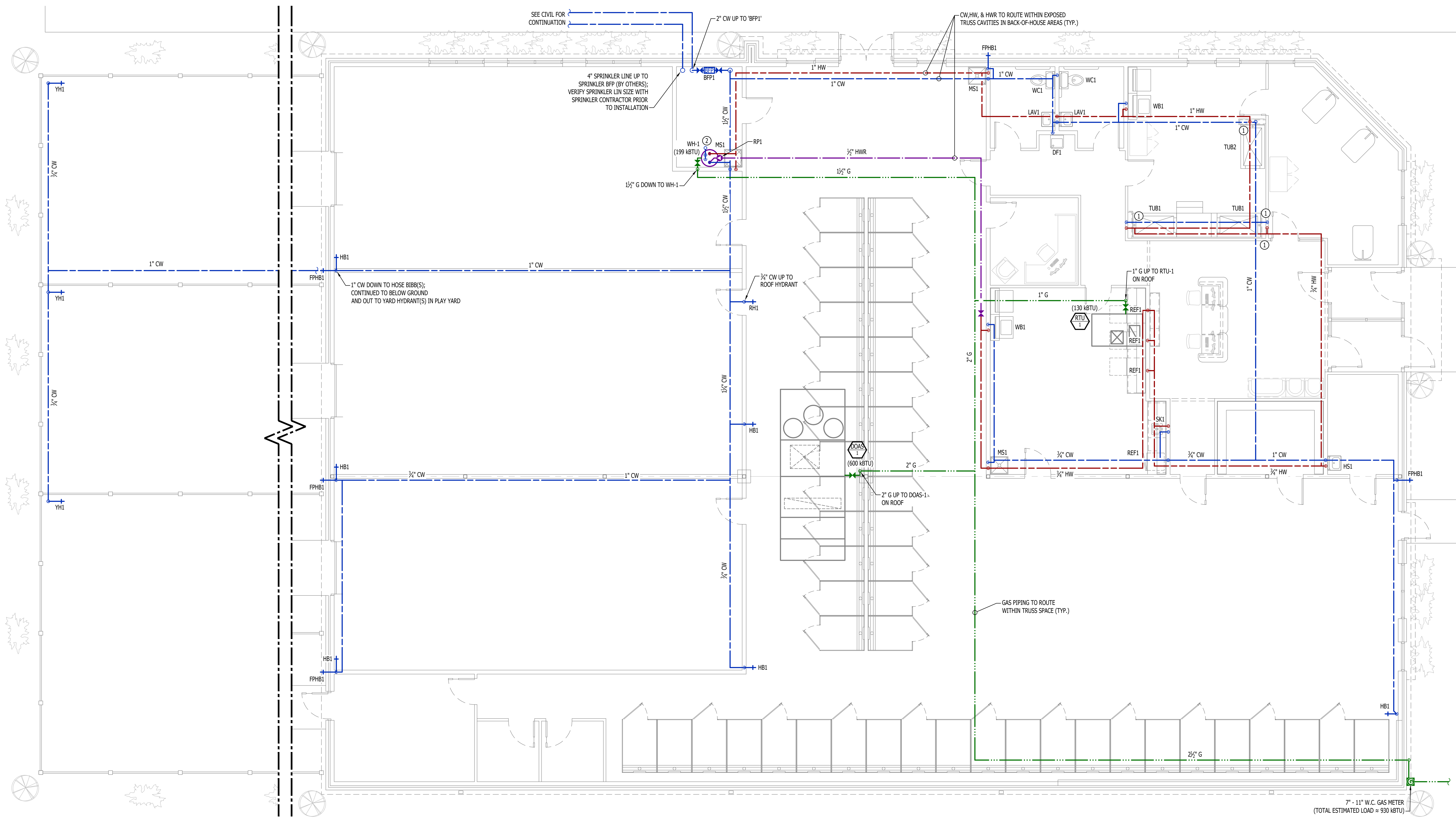
SHEET TITLE

WATER & GAS PLAN

| WATER & GAS PLAN SYMBOL LEGEND                                                    |                                |                                                                                   |                   |
|-----------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------|-------------------|
|  | COLD WATER LINE                |  | WATER METER       |
|  | HOT WATER LINE                 |  | VALVE             |
|  | HOT WATER RECIRCULATION LINE   |  | PUMP              |
|  | GAS LINE                       |  | GAS METER         |
|  | PIPING TURNED DOWN / TURNED UP |  | TIE INTO EXISTING |

- WATER & GAS PLAN GENERAL NOTES:
1. REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
  2. PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

- WATER & GAS PLAN KEY NOTES:
- ① 1/2" CW & 1/2" HW DOWN IN WALL TO GROOMING TUB; COORDINATE EXACT DETAILS & REQUIREMENTS WITH EQUIPMENT INSTALLER/SUPPLIER
  - ② WATER HEATER VENT & COMBUSTION AIR ROUTED/TERMINATED UP THRU ROOF PER MANUFACTURER'S SPECIFICATION.



WATER & GAS PLAN  
SCALE: 3/16" = 1'-0"

7" - 11" W.C. GAS METER  
(TOTAL ESTIMATED LOAD ≈ 930 kBTU)

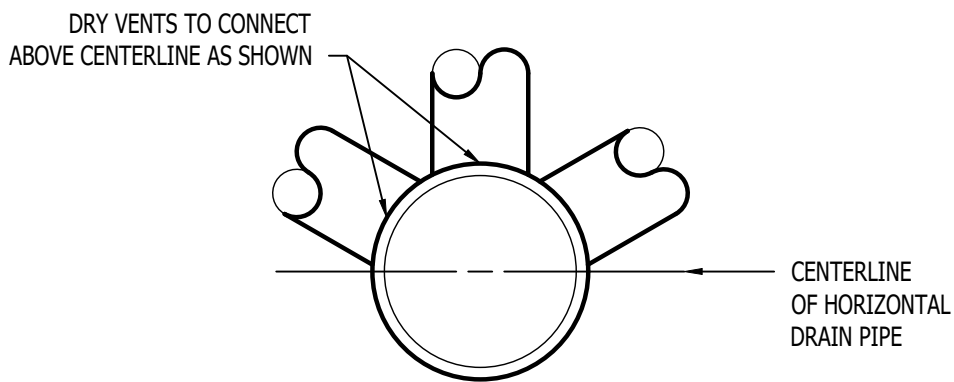


PLUMBING SPECIFICATIONS

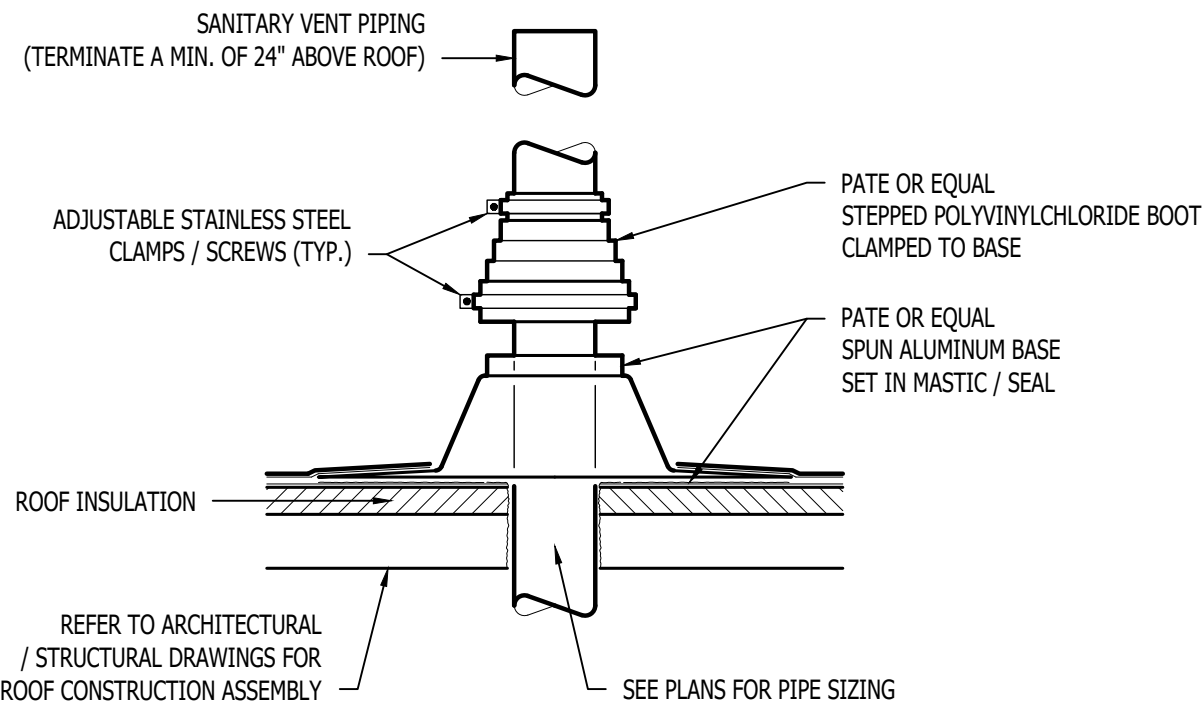
1. GENERAL
- 1.1. PLUMBING CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL ESCUTCHEONS, ¼ TURN STOPS, P-TRAPS, AND SUPPLY LINES TO PROVIDE A COMPLETE SYSTEM AT EACH FIXTURE INDICATED ON PLANS UNLESS NOTED OTHERWISE.
- 1.2. ALL PLUMBING SYSTEMS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 1.3. COORDINATE ALL PIPING INSTALLATIONS WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THRU STRUCTURAL ELEMENTS AS NECESSARY, VERIFY WITH STRUCTURAL ENGINEER.
- 1.4. VERIFY ALL UTILITY CONNECTION POINTS WITH PROPOSED PLUMBING LAYOUTS PRIOR TO BEGINNING WORK.
- 1.5. CLEAN ALL PLUMBING FIXTURES AND CHANGE FAUCET AERATORS AND SINK STRAINERS AT PROJECT COMPLETION PRIOR TO TURNING OVER TO OWNERSHIP.
2. EQUIPMENT / FIXTURES
- 2.1. ALL EQUIPMENT AND/OR FIXTURES MUST MEET OR EXCEED THE PERFORMANCE, FUNCTIONAL INTENT, AND AESTHETICS AS MODELS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS OR WITHIN SCHEDULES, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
- 2.2. CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
- 2.3. CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.
3. SANITARY
- 3.1. BELOW AND ABOVE GRADE WASTE AND VENT PIPING IN BUILDING TO BE SOLID CORE SCHEDULE 40 PVC LISTED FOR DWV APPLICATIONS.
- 3.2. NO WASTE OR VENT PIPING INSTALLED BELOW GRADE SHALL BE SMALLER THAN 2".
- 3.3. MINIMUM SLOPES FOR WASTE PIPING (UNLESS NOTED OTHERWISE ON PLANS):
- 3.3.1. 2 ½" OR LESS DIAMETER: ¼" PER FOOT
- 3.3.2. 3" TO 6" DIAMETER: ½" PER FOOT
- 3.3.3. 8" OR LARGER DIAMETER: ¾" PER FOOT
- 3.4. ACCESSIBLE FULL PIPE SIZE CLEANOUTS SHALL BE PROVIDED & INSTALLED ON BUILDING SANITARY LINES AT LOCATIONS SHOWN ON PLANS, AT INTERVALS OF NO MORE THAN 100', AT EVERY CHANGE IN DIRECTION GREATER THAN 45°, AND AT THE BASE OF EACH WASTE STACK.
- 3.5. WASTE AND VENT PIPING IN PLENUMS SHALL BE CAST IRON, PLENUM-RATED CPVC, OR PVC WITH AN INSULATION WRAP LISTED FOR USE AS SUCH AN ASSEMBLY.
- 3.6. ALL VENT PIPE TERMINATIONS SHALL BE LOCATED EITHER 10' HORIZONTALLY OR 3' ABOVE MECHANICAL AIR INTAKE LOCATIONS. TERMINATIONS SHALL NOT BE INSTALLED UNDER ANY OPERABLE BUILDING OPENING OR OPERABLE ADJACENT BUILDING OPENING. CONTRACTOR TO OFFSET VENT PIPING AS NECESSARY TO MEET THESE REQUIREMENTS.
4. DOMESTIC WATER
- 4.1. ALL DOMESTIC WATER PIPING TO BE EITHER COPPER OR PEX, SHALL CONFORM TO NSF 61 AND BE LISTED FOR USE IN POTABLE WATER SYSTEMS.
- 4.1.1. WHERE PEX PIPING IS USED, IT SHALL BE INCREASED ONE PIPE SIZE FROM WHAT IS INDICATED ON PLANS FOR ALL PORTIONS OF DISTRIBUTION SYSTEM.
- 4.1.2. PEX-A MAY BE INSTALLED AT SIZES INDICATED ON PLANS ONLY IF AN ENGINEERED PLAN IS SUBMITTED SHOWING ACCEPTABLE PRESSURE DROPS AND FLUID VELOCITIES, APPROVAL MUST BE GRANTED PRIOR TO PURCHASE AND INSTALLATION.
- 4.1.3. COPPER WATER PIPING BELOW GRADE SHALL BE TYPE "K". BELOW GRADE JOINTS SHALL BE SILVER SOLDERED. THERE SHALL BE NO JOINTS IN WATER PIPING LOCATED BENEATH BUILDING SLAB.
- 4.1.4. COPPER WATER PIPING ABOVE GRADE SHALL BE TYPE "L".
- 4.2. PROVIDE WATER HAMMER ARRESTORS AT ALL QUICK-CLOSE VALVES. FIXTURES REQUIRING WATER HAMMER ARRESTORS INCLUDE BUT ARE NOT LIMITED TO FLUSH VALVES, SENSOR FAUCETS, AND WASHING MACHINE BOXES. AIR CHAMBERS SHALL NOT BE PERMITTED.
- 4.3. ALL DOMESTIC WATER PIPING SHALL BE ROUTED WITHIN BUILDING THERMAL ENVELOPE AND WITHIN WALL CAVITIES, ABOVE FINISHED CEILINGS, OR BELOW SLAB TO REMAIN CONCEALED UNLESS OTHERWISE NOTED. NOTIFY ENGINEER OF ANY NECESSARY ADJUSTMENTS THAT REQUIRE PIPING TO BE EXPOSED.
- 4.4. DOMESTIC WATER PIPING INSULATION
- 4.4.1. ALL HW PIPING, WHETHER COPPER OR PEX, SHALL BE INSULATED WITH PLENUM RATED CLOSED CELL ELASTOMERIC INSULATION.
- 4.4.1.1. FOR PIPING LESS THAN 1½", INSULATION THICKNESS TO BE 1".
- 4.4.1.2. FOR PIPING 1½" OR GREATER, INSULATION THICKNESS SHALL BE 1½".
- 4.4.2. CW COPPER PIPING TO INSULATED WITH ½" PLENUM RATED CLOSED CELL ELASTOMERIC INSULATION. CW PEX NEED NOT BE INSULATED UNLESS NOTED OTHERWISE ON PLANS.
5. GAS PIPING
- 5.1. GAS PIPING SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 5.2. QUARTER-TURN FULL-PORT SHUTOFF VALVES SHALL BE INCLUDED AT EACH APPLIANCE CONNECTION, AS WELL AS AN IN-LINE REGULATOR FROM DELIVERY PRESSURE TO APPLIANCE OPERATING PRESSURE IF REQUIRED. INCLUDE SEDIMENT TRAPS PER IFGC REQUIREMENTS.
- 5.1. NATURAL GAS AND LIQUID PROPANE (LP) PIPING TO SHALL BE SCHEDULE 40 BLACK STEEL.
- 5.2. PIPE JOINTS SHALL BE THREADED WITH CLASS 150 FITTINGS, OR WELDED. NOTIFY OWNER/GC OF ANY NECESSARY HOT-WORK ASSOCIATED WITH WELDED CONNECTIONS.
- 5.3. WHERE PIPING IS EXPOSED ON EXTERIOR FACE OF BUILDING, PAINT TO MATCH BUILDING. PAINT YELLOW IN ALL OTHER LOCATIONS.
- 5.4. ON ROOFTOPS, INSTALL GAS PIPE WITH "ROOFTOP BLOX" PER MANUFACTURER'S INSTRUCTION.
6. STORM DRAIN PIPING
- 6.1. ABOVE AND BELOW GRADE STORM PIPING SHALL BE SOLID CORE SCHEDULE 40 PVC.
- 6.2. ALL PRIMARY & SECONDARY STORM DRAIN PIPING & FITTINGS SHALL BE INSULATED WITH ½" FIBERGLASS INSULATION WITH ASJ JACKET.
- 6.3. STORM DRAIN PIPING IN PLENUMS SHALL BE CAST IRON, PLENUM-RATED CPVC, OR PVC WITH AN INSULATION WRAP LISTED FOR USE AS SUCH AN ASSEMBLY.

| PLUMBING FIXTURE SCHEDULE                                                                                                                                                                 |                                          |                         |                  |                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------|------------------|-------------------------------------------------------------------------------------------------------------|
| TAG                                                                                                                                                                                       | DESCRIPTION                              | MANUFACTURER (OR EQUAL) | MODEL (OR EQUAL) | NOTES                                                                                                       |
| BFP1                                                                                                                                                                                      | BACKFLOW PREVENTER                       | WILKINS                 | 975XL2           | 1-1/2" RPZ                                                                                                  |
| DF1                                                                                                                                                                                       | DRINKING FOUNTAIN & BOTTLE FILLER        | ELKAY                   | LZ58WSLP         |                                                                                                             |
| EXP1                                                                                                                                                                                      | EXPANSION TANK                           | WATTS                   | PLT-12           |                                                                                                             |
| FCO1                                                                                                                                                                                      | FLOOR CLEANOUT                           | ZURN                    | 1400             |                                                                                                             |
| FD1                                                                                                                                                                                       | FLOOR DRAIN                              | ZURN                    | Z415-BZ          | WITH Z1072 TRAP SEAL                                                                                        |
| FPHB1                                                                                                                                                                                     | FROST PROOF HOSE BIB                     | WOODFORD                | MODEL 67         |                                                                                                             |
| FS1                                                                                                                                                                                       | FLOOR SINK                               | ZURN                    | FD2370           | WITH DOME STRAINER AND HALF-GRATE                                                                           |
| HB1                                                                                                                                                                                       | HOSE BIB                                 | JR SMITH                | 5670-H           | INTERIOR HOSE BIB WITH VACUUM BREAKER                                                                       |
| HS1                                                                                                                                                                                       | HAND SINK - WALL MOUNT                   | REGENCY                 | 600HS12EFW       | WITH HANDS-FREE GOOSENECK FAUCET                                                                            |
| LAV1                                                                                                                                                                                      | LAVATORY (WALL HUNG W/MANUAL FAUCET)     | AMERICAN STANDARD       | 0355.012         | WITH ZURN Z81104-XL FAUCET, 1/4 TURN STOPS, BRAIDED STAINLESS STEEL SUPPLIES, TRIUBRO LAV GUARD 2, & 'TMV1' |
| MS1                                                                                                                                                                                       | MOP SINK                                 | FIAT                    | MSB2424          | WITH ZURN Z843M1 FAUCET WITH WALL HOOK                                                                      |
| REF1                                                                                                                                                                                      | REFRIGERATOR BOX                         | SIOUX CHIEF             | 696-G1000        |                                                                                                             |
| RH1                                                                                                                                                                                       | ROOF HYDRANT                             | WOODFORD                | SRH-MS           |                                                                                                             |
| RP1                                                                                                                                                                                       | RECIRCULATION PUMP                       | GRUNDFOS                | UP10-16 AUTO     |                                                                                                             |
| SK1                                                                                                                                                                                       | ADA SINGLE COMPARTMENT SINK (19x18x5.5)  | ELKAY                   | LRAD191855       | WITH TWO HANDLED ZURN Z871C4-XL FAUCET                                                                      |
| TMV1                                                                                                                                                                                      | THERMOSTATIC MIXING VALVE - POINT OF USE | WATTS                   | LFUSG            |                                                                                                             |
| TUB1                                                                                                                                                                                      | ELEVATED WALK-IN PET TUB                 | PETLIFT                 | BT-MB58          | VERIFY WITH OWNER; WITH MOEN POSI-TEMP MIXING VALVE AND HANDHELD SHOWER ASSEMBLY                            |
| TUB2                                                                                                                                                                                      | WALK-IN PET TUB (AT FINISHED FLOOR)      | K9 SPA                  | CLASSIC SPA      | VERIFY WITH OWNER; WITH MOEN POSI-TEMP MIXING VALVE AND HANDHELD SHOWER ASSEMBLY                            |
| WB1                                                                                                                                                                                       | WASHER BOX                               | OATEY                   | 38529            | WASHER BOX W/ 1/4 TURN VALVES                                                                               |
| WC1                                                                                                                                                                                       | WATER CLOSET - ADA HEIGHT - TANK         | AMERICAN STANDARD       | Z15AA.004        | WITH CHURCH 9500SSCT SELF SUSTAINING SEAT, STAINLESS BRAIDED SUPPLY, AND 1/4 TURN SHUT-OFF.                 |
| WH1                                                                                                                                                                                       | WATER HEATER - GAS                       | A.O. SMITH              | BTH-199          | 100 GALLON, 199KBTU NATURAL GAS, WITH 'EXP1'                                                                |
| YCO1                                                                                                                                                                                      | YARD CLEAN OUT                           | ZURN                    | Z1400            |                                                                                                             |
| YH1                                                                                                                                                                                       | YARD HYDRANT                             | WOODFORD                | Y34              |                                                                                                             |
| NOTES:<br>1. VERIFY NECESSARY FIXTURES MEET ADA REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION.<br>2. VERIFY FIXTURE SELECTIONS AND FINISHES WITH OWNER / ARCHITECT PRIOR TO PURCHASE. |                                          |                         |                  |                                                                                                             |

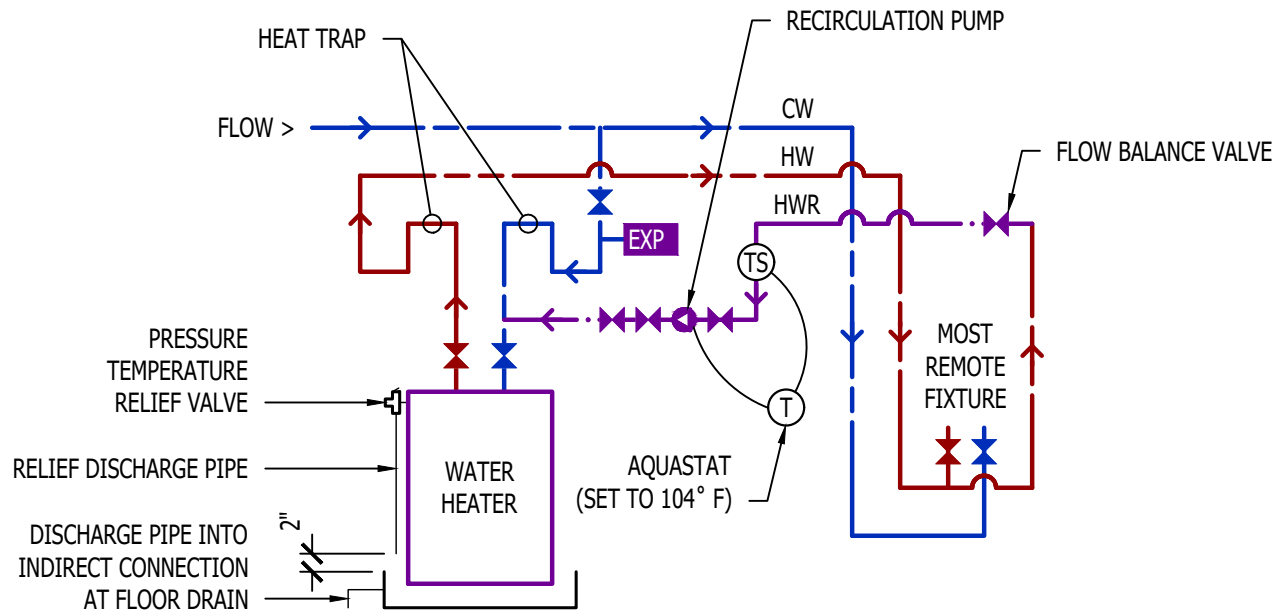
| PLUMBING CONNECTION SIZING SCHEDULE                                        |                      |                  |                 |                       |                      |
|----------------------------------------------------------------------------|----------------------|------------------|-----------------|-----------------------|----------------------|
| FIXTURE                                                                    |                      | SANITARY PIPING  |                 | SUPPLY PIPING         |                      |
| TYPE                                                                       | TYPICAL ABBREVIATION | WASTE CONNECTION | VENT CONNECTION | COLD WATER CONNECTION | HOT WATER CONNECTION |
| DRINKING FOUNTAIN                                                          | DF                   | 1-1/2"           | 1-1/4"          | 1/2"                  | -                    |
| FLOOR DRAIN                                                                | FD                   | 3"               | 2"              | -                     | -                    |
| HAND / HAIR SINK                                                           | HS / SK              | 2"               | 1-1/4"          | 1/2"                  | 1/2"                 |
| HOSE BIBB                                                                  | HB                   | -                | -               | 3/4"                  | -                    |
| LAVATORY                                                                   | LAV                  | 1-1/2"           | 1-1/4"          | 1/2"                  | 1/2"                 |
| MOP SINK                                                                   | MS                   | 3"               | 1-1/2"          | 1/2"                  | 1/2"                 |
| ICE MAKER OUTLET BOX                                                       | REF                  | -                | -               | 1/2"                  | -                    |
| SHOWER                                                                     | SH                   | 3"               | 1-1/2"          | 1/2"                  | 1/2"                 |
| URINAL                                                                     | UR                   | 2"               | 1-1/4"          | 3/4"                  | -                    |
| WATER CLOSET (FLUSH TANK)                                                  | WC                   | 3"               | 2"              | 1/2"                  | -                    |
| WATER CLOSET (FLUSH VALVE)                                                 | WC                   | 3"               | 2"              | 1"                    | -                    |
| NOTES:<br>1. SIZES SHOWN ABOVE ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS |                      |                  |                 |                       |                      |



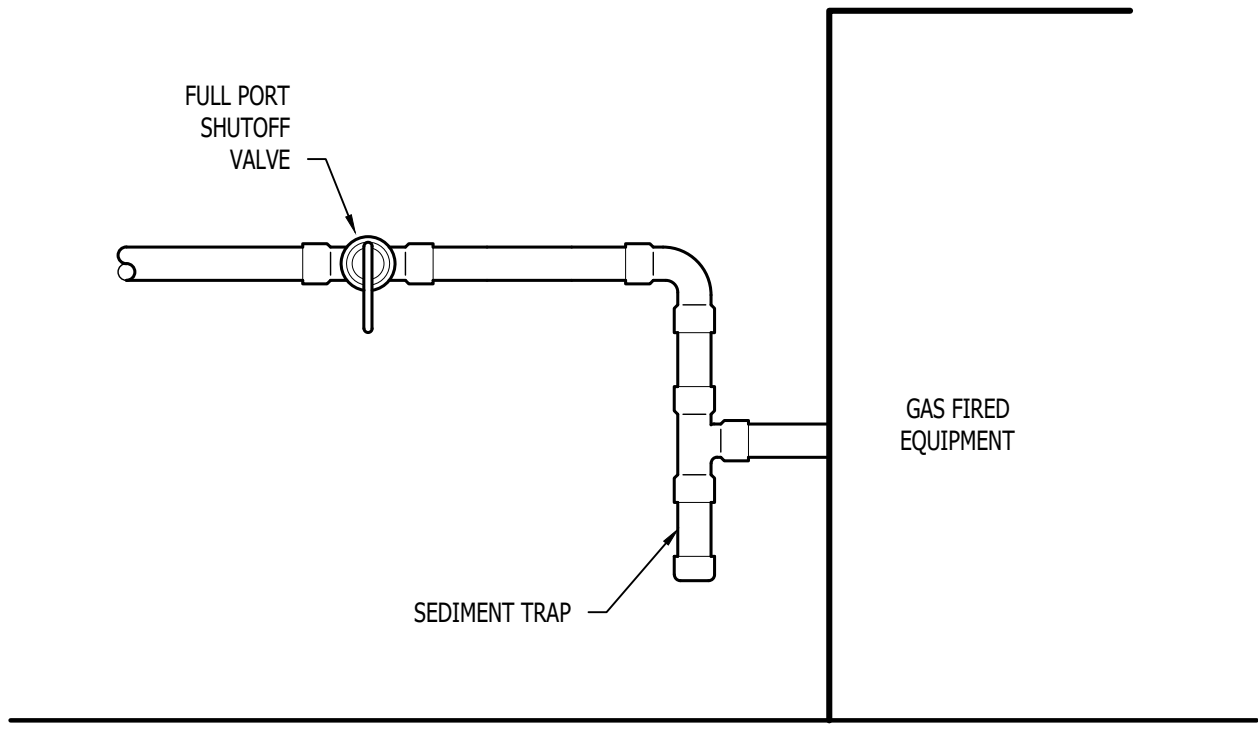
DRY VENT DETAIL



SANITARY VENT THRU ROOF DETAIL



HOT WATER RECIRCULATION DETAIL

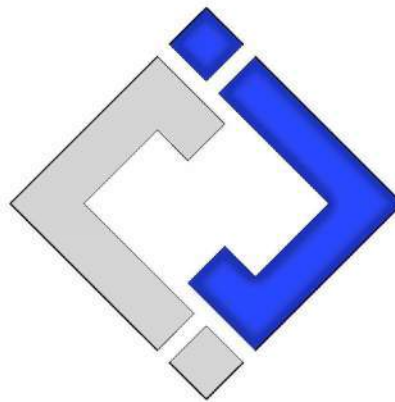


GAS EQUIPMENT SUPPLY DETAIL W/O REGULATOR

RELEASED FOR CONSTRUCTION  
As Noted on Plans Review

James Watson, P.E.  
Professional Engineer  
Missouri  
PE-2015017071

James Watson, P.E.  
September 19, 2024  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21205

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT 09-19-2024

Mechanical - Electrical - Plumbing Design Drawings for  
Discovery Park

Discovery Pet Spa

1901 NE Trails Edge Boulevard  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

PLUMBING DETAILS & SCHEDULES

SHEET NUMBER

P501