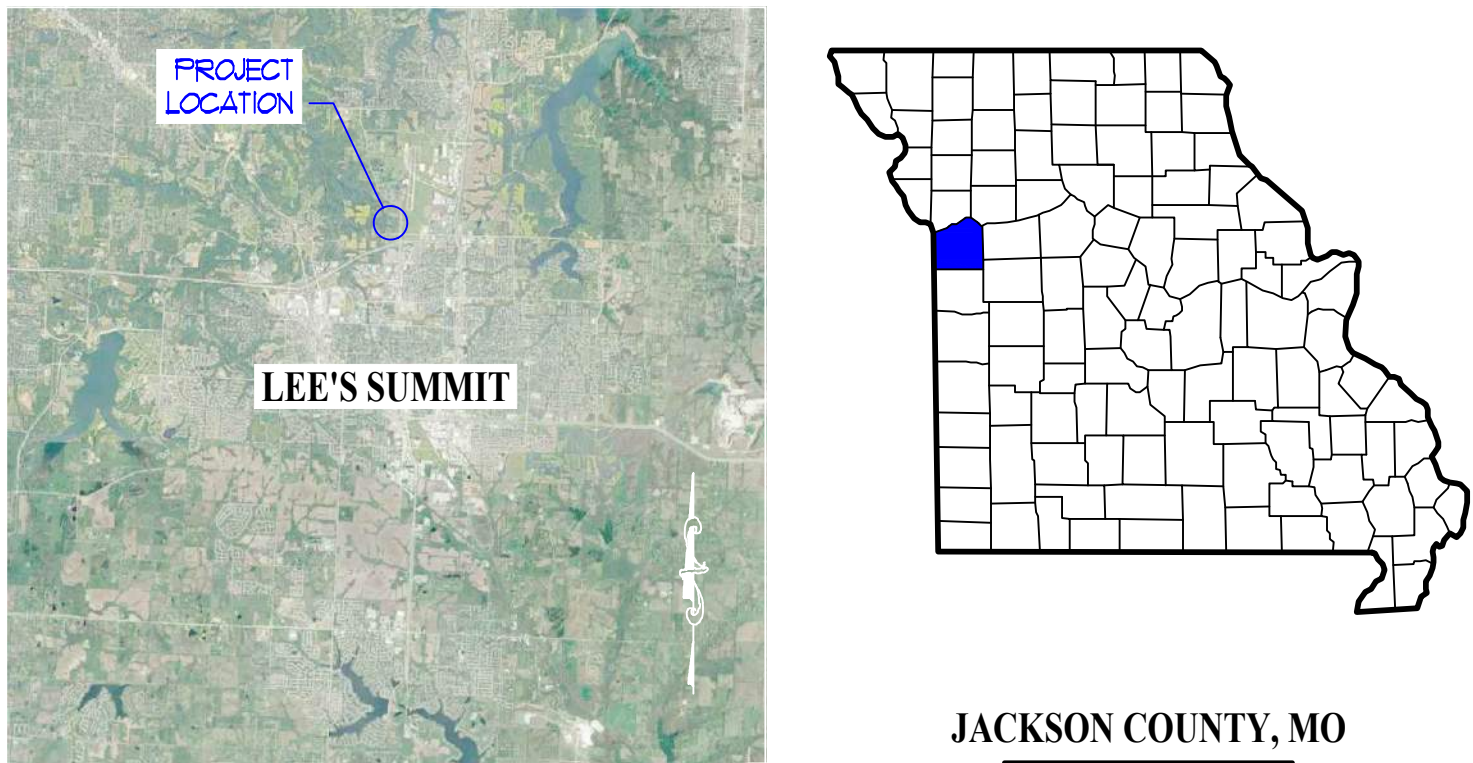




# Discovery Pet Spa

## 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  
Brian P. Maenner  
bpmaenner@intrinsicdevelopment.com

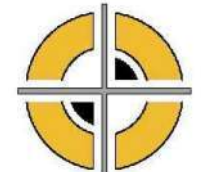
**CLIENT:**  
INTRINSIC DEVELOPMENT

3622 Endeavor Avenue, Suite 101  
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573.881.0280 phone  
intrinsicdevelopment.com  
Brian P. Maenner  
bpmaenner@intrinsicdevelopment.com

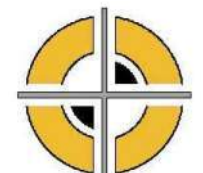
**ARCHITECT:**  
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 200 South Henry Clay Blvd.  
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pba-architecture.com  
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**CIVIL ENGINEERING:**  
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**MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:**  
J-SQUARED ENGINEERING

 2400 Bluff Creek Drive #101  
Columbia, Missouri 65201  
573.234.4492 phone  
j-squaredeng.com  
JP Watson, PE  
jp@j-squaredeng.com  
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  
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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 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: 50 OCCUPANTS

FIXTURE COUNT TO BE DESIGNED WITH A 50/50 DISTRIBUTION BETWEEN SEXES (25 MEN / 25 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

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.

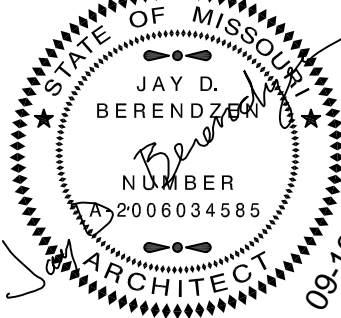
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SHEET TITLE

COVER SHEET

SHEET NUMBER

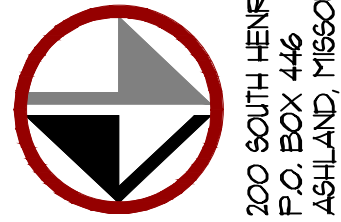
CVR



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

THE PROFESSIONAL ARCHITECT'S SEAL APPLIED TO THIS SHEET IS VALID FOR THE PROJECT AND THESE BUILDING PERMITS. ALL OTHER DRAWINGS, INSTRUMENTS OR OTHER DOCUMENTS NOT EXEMPT FROM THE SEAL REQUIREMENTS SHALL BE CONSIDERED PREPARED BY THIS ARCHITECT, AND THE ARCHITECT EXPRESSLY DISCLAIMS ANY AND ALL LIABILITY FOR SUCH DOCUMENTS. PLAN DRAWINGS OR DOCUMENTS NOT EXEMPTING THIS SEAL.

PORTER, BERENDZEN & ASSOCIATES, P.C.  
ARCHITECTS  
573.657.2022 PHONE  
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# 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)	1.0
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)

$P_g$ =	20 lbs/sqft
$C_e$ =	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
$S_s$ =	.01
$S_1$ =	0.068
SITE CLASS	D
$S_{as}$ =	0.107
$S_{d1}$ =	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
$\Omega_g$ =	3.0
$C_d$ =	4.0

DESIGN BASE SHEAR  
EQUIVALENT LATERAL FORCE PROCEDURE

$V = 0.016 W$

NET ALLOWABLE SOIL BEARING  
(\*\*PER GEOTECHNICAL REPORT BY OWN INC. DATED APRIL 15, 2024)

2,500 lbs/sqft\*\*

#### 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,  
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STRUCTURAL ENGINEER:  
**CROCKETT**  
ENGINEERING CONSULTANTS  
1000 W. Nifong Blvd., Suite 1  
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Missouri Certificate of Authority  
#200318101

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.

REVISIONS:

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COLUMBIA, MO 65201

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

DRAWING INCLUDES:

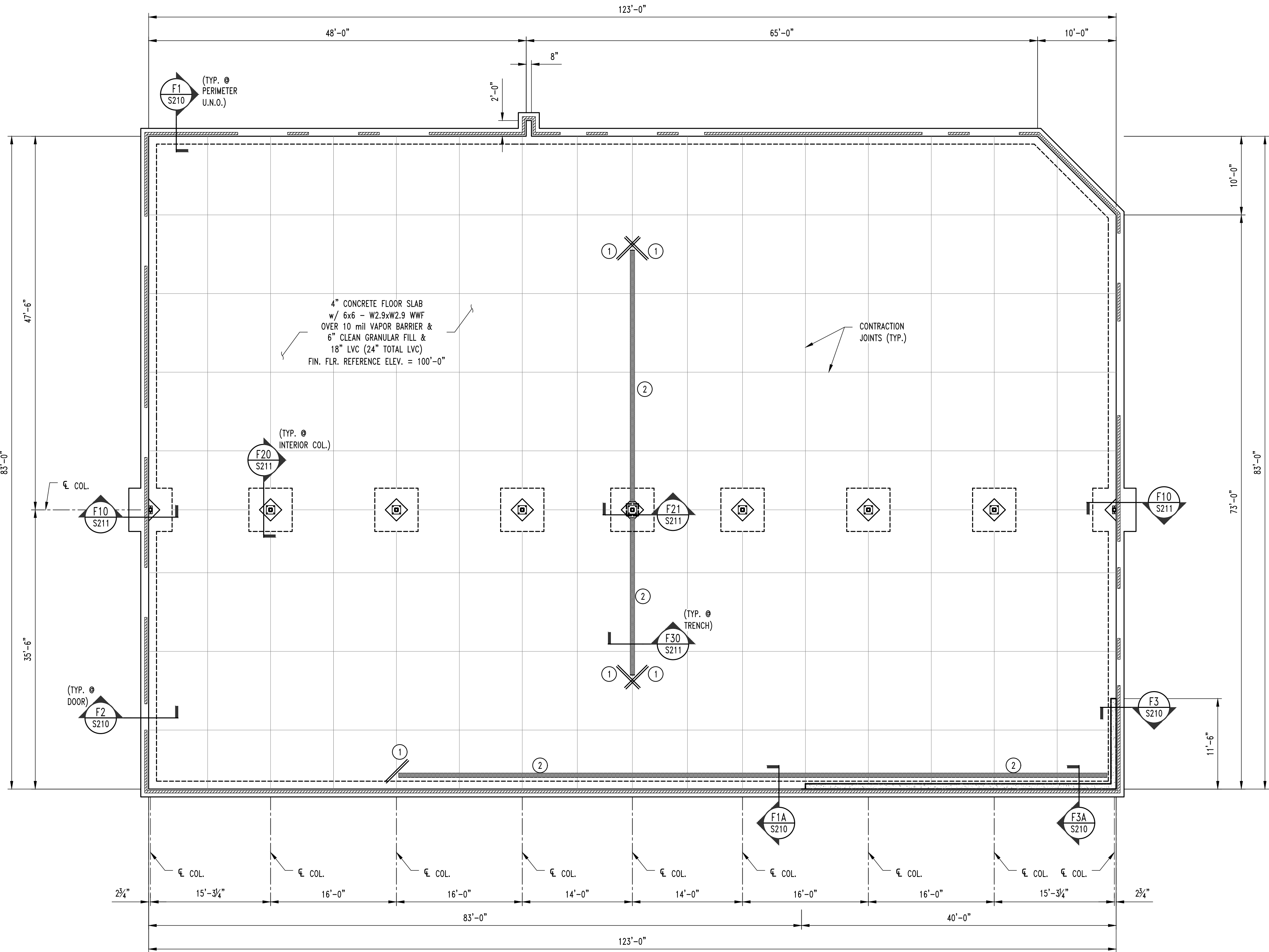
FOUNDATION  
PLAN

DESIGNED: JWV

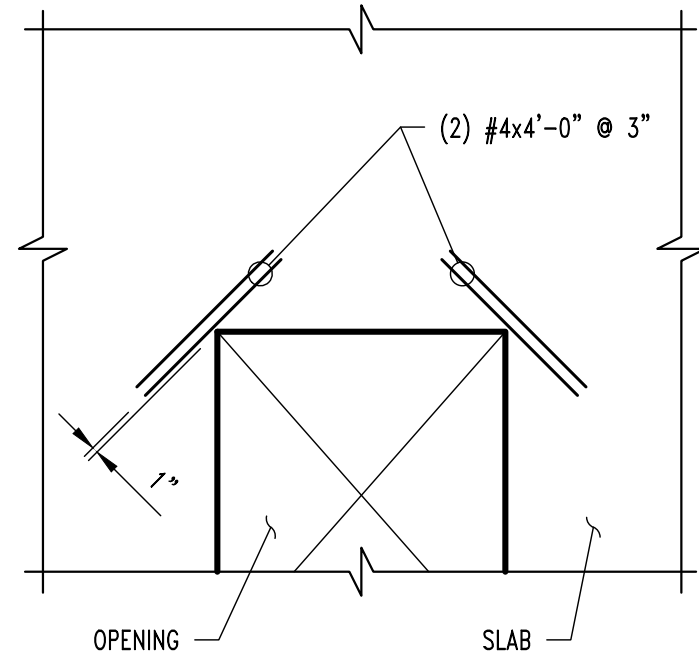
DRAWN: ELT

PROJECT NO.: 230286

SHEET:  
S200

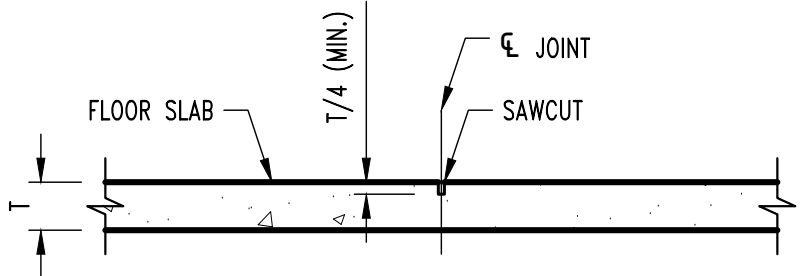


FOUNDATION PLAN  
SCALE: 1/8" = 1'-0"  
PLAN NORTH

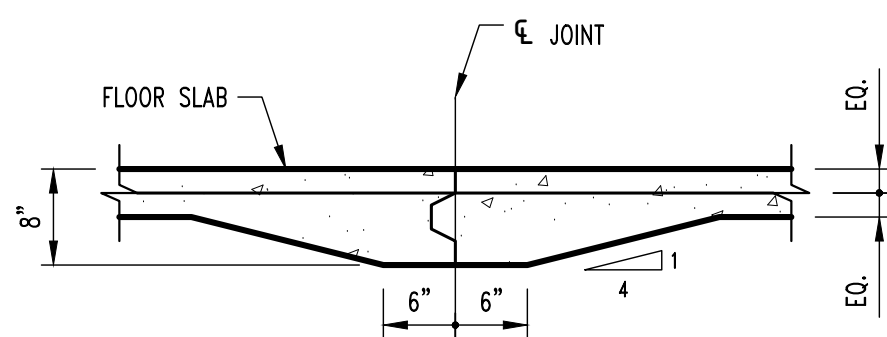


NOTE:  
TYPICAL AT ALL REENTRANT CORNERS FOR  
SLAB-ON-GRADE & STRUCTURAL SLAB.  
REINFORCING TO BE CENTERED IN SLAB THICKNESS.

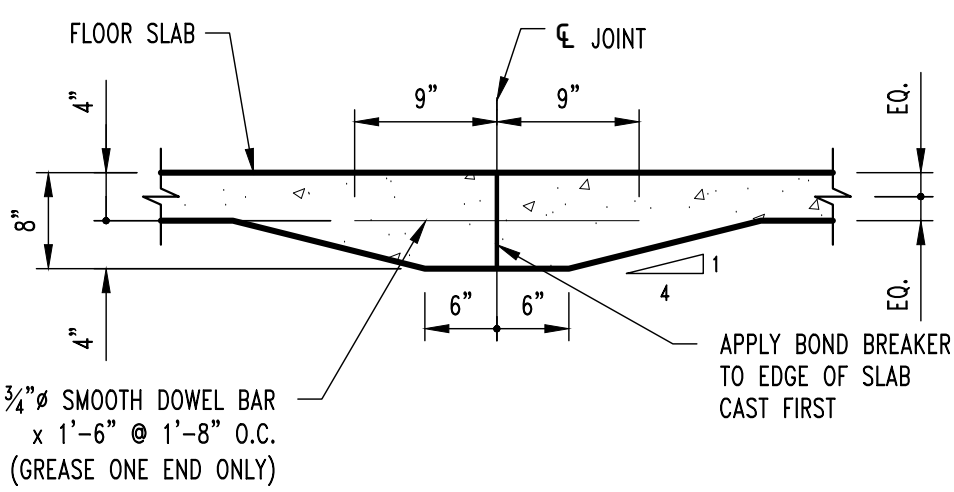
### CRACK CONTROL REINFORCING



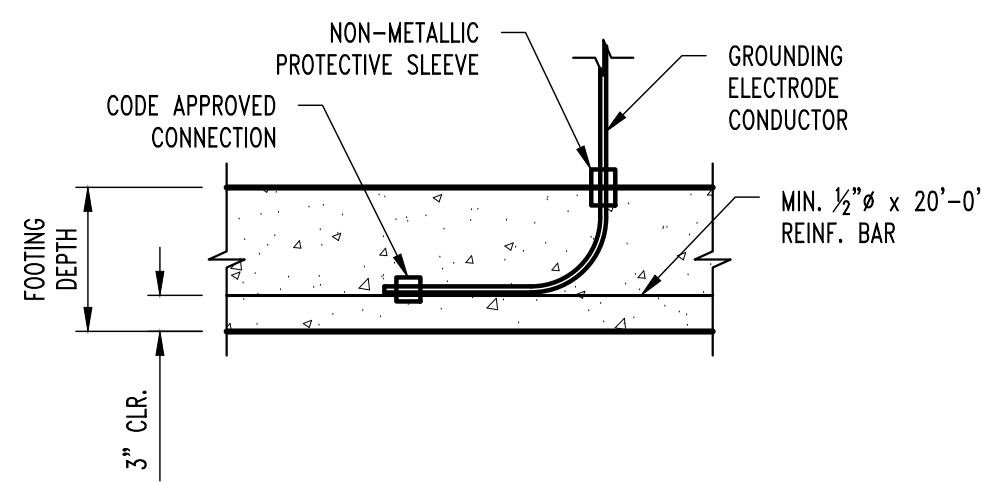
### CONTRACTION JOINT



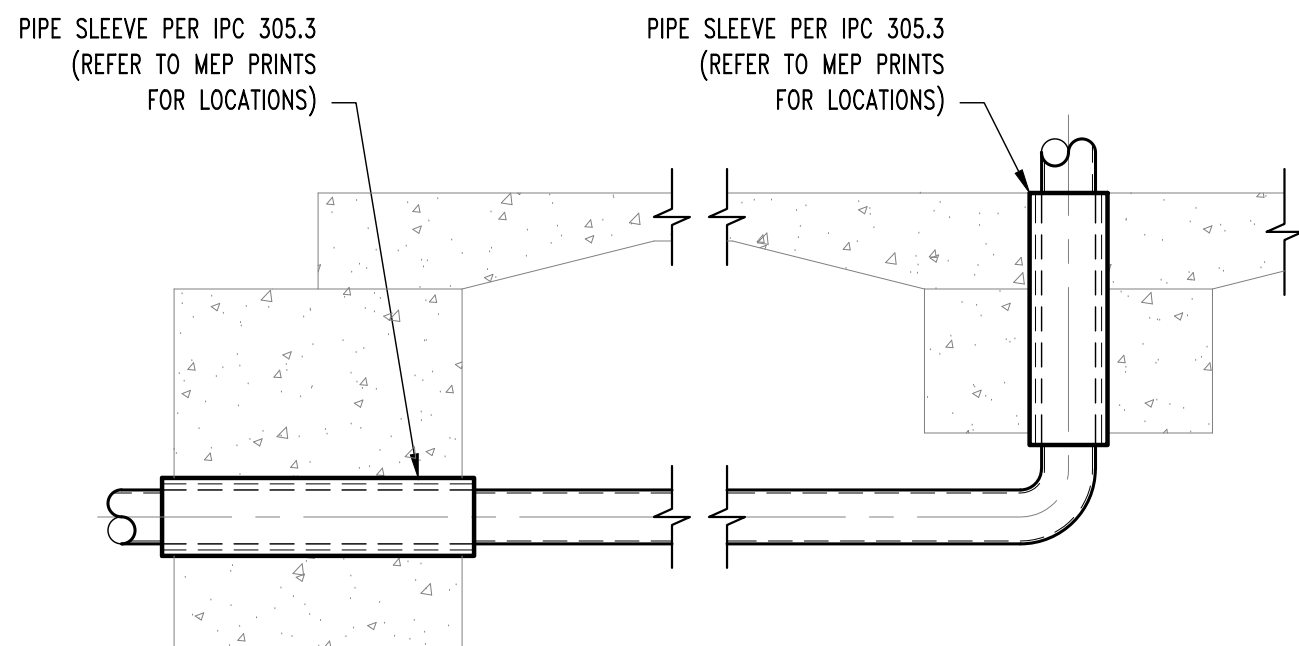
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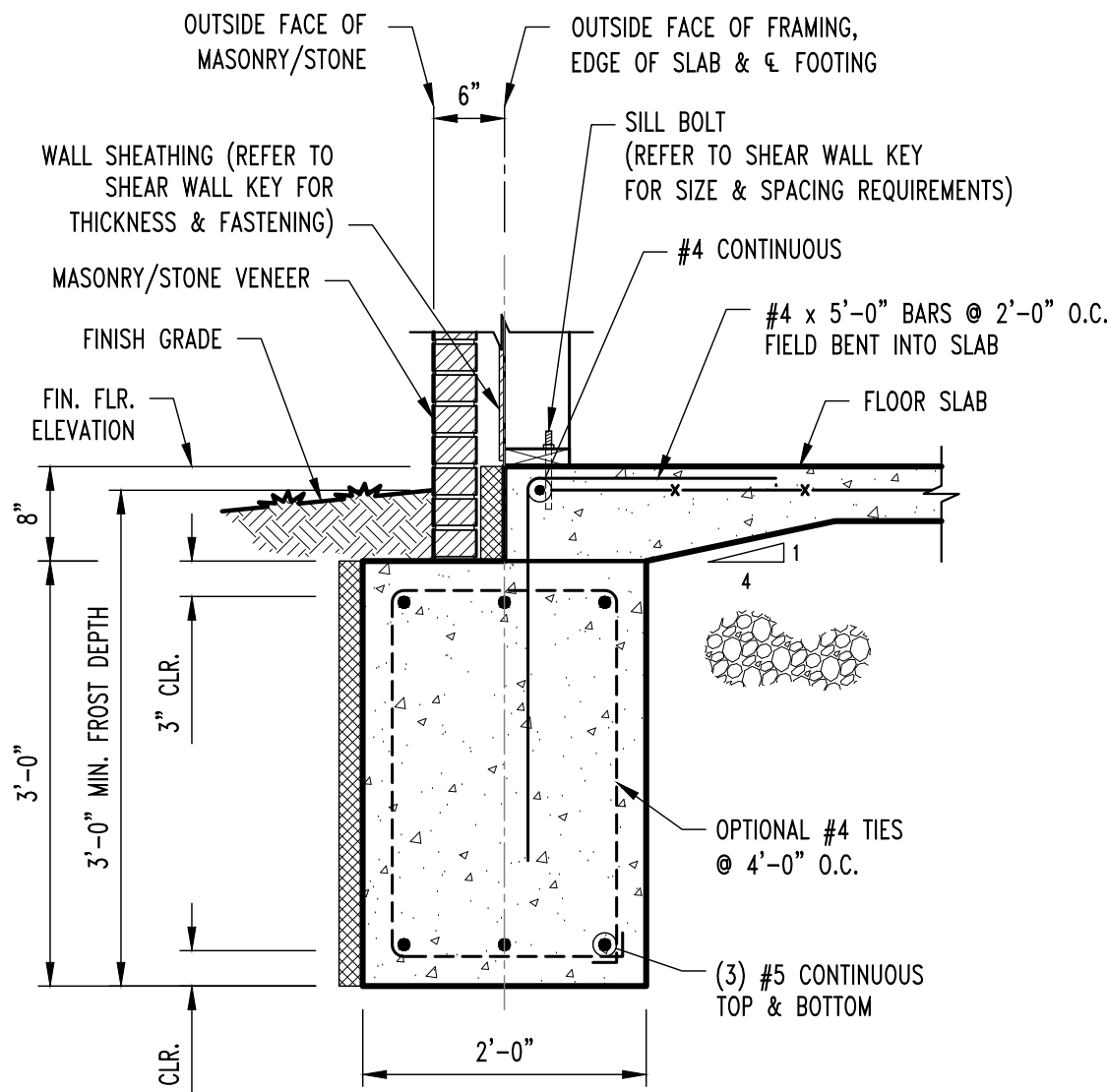
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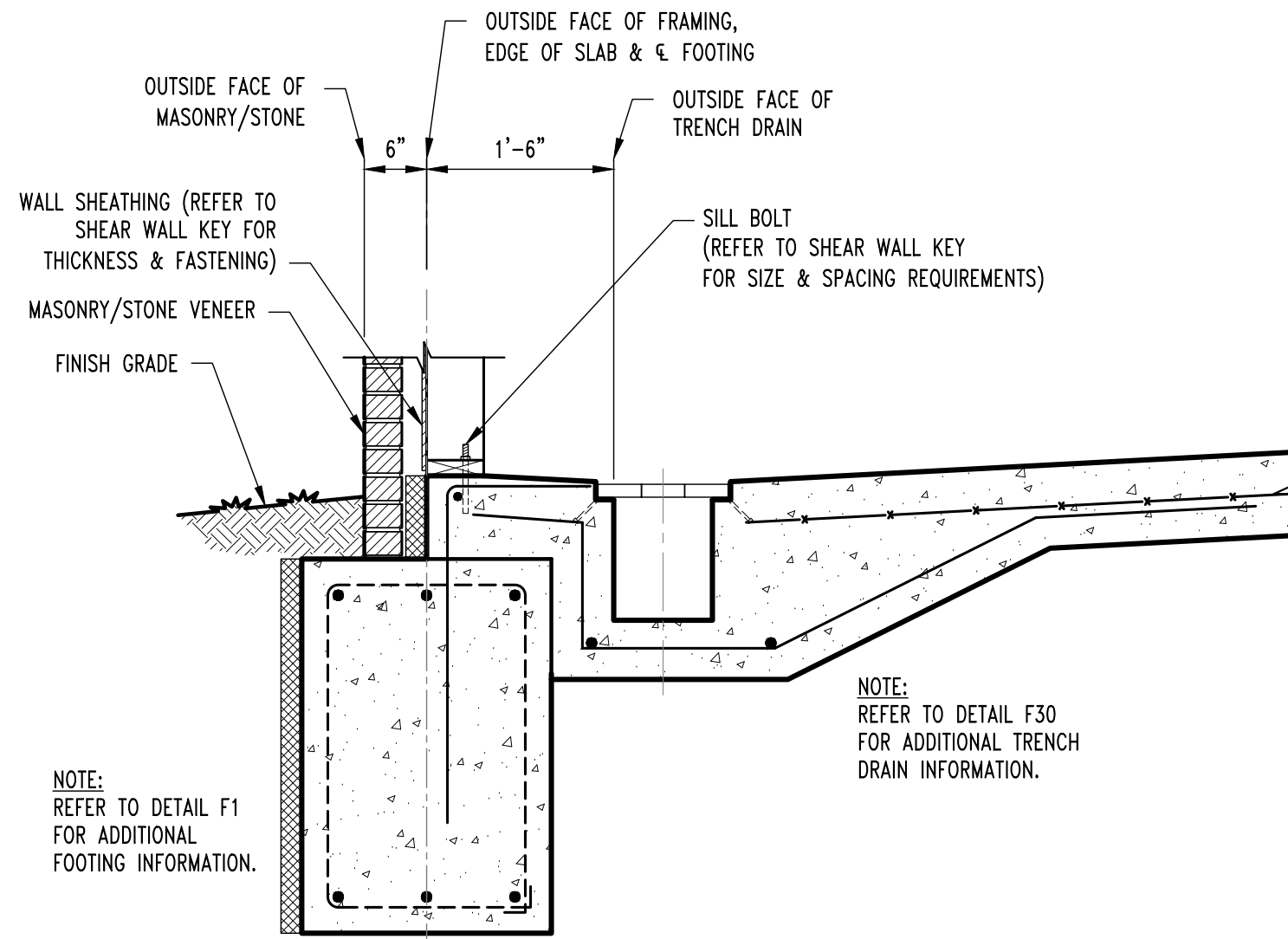
### TYP. ELECTRICAL GROUNDING DETAIL @ FOOTING



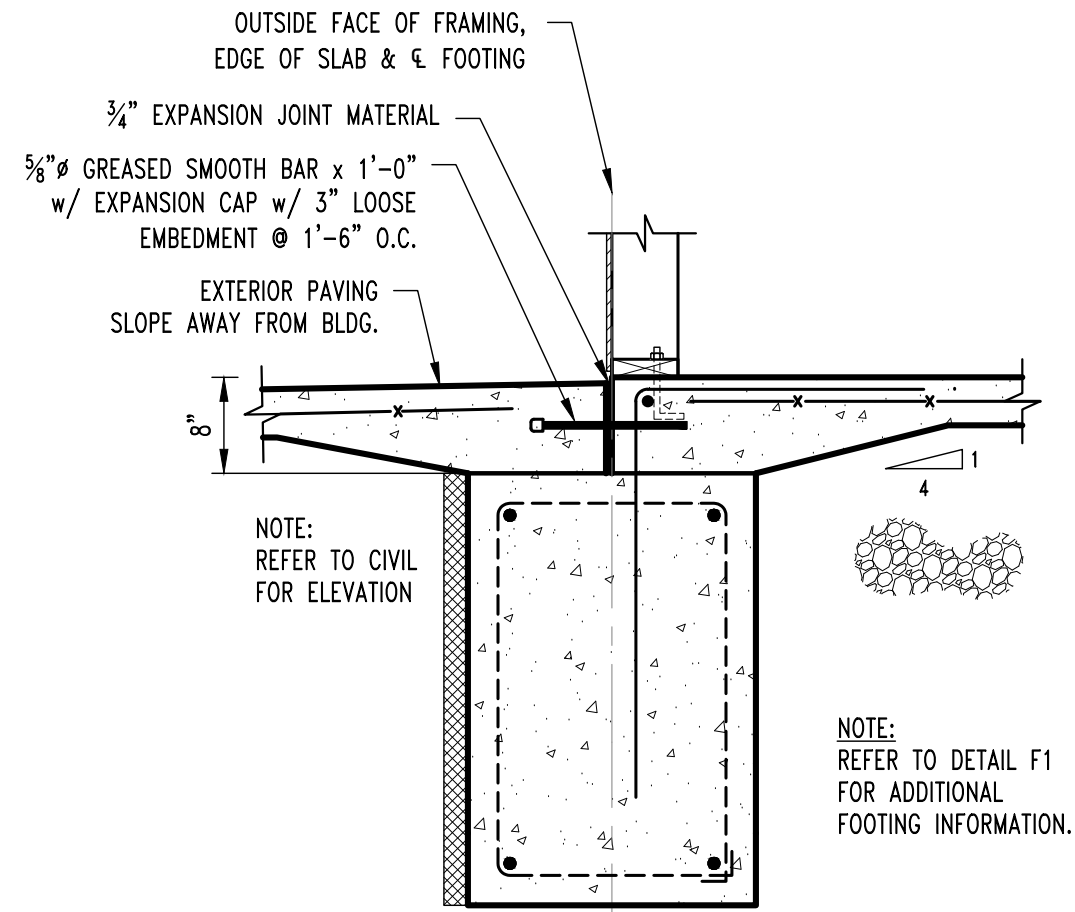
### TYP. PLUMBING COORDINATION DETAILS



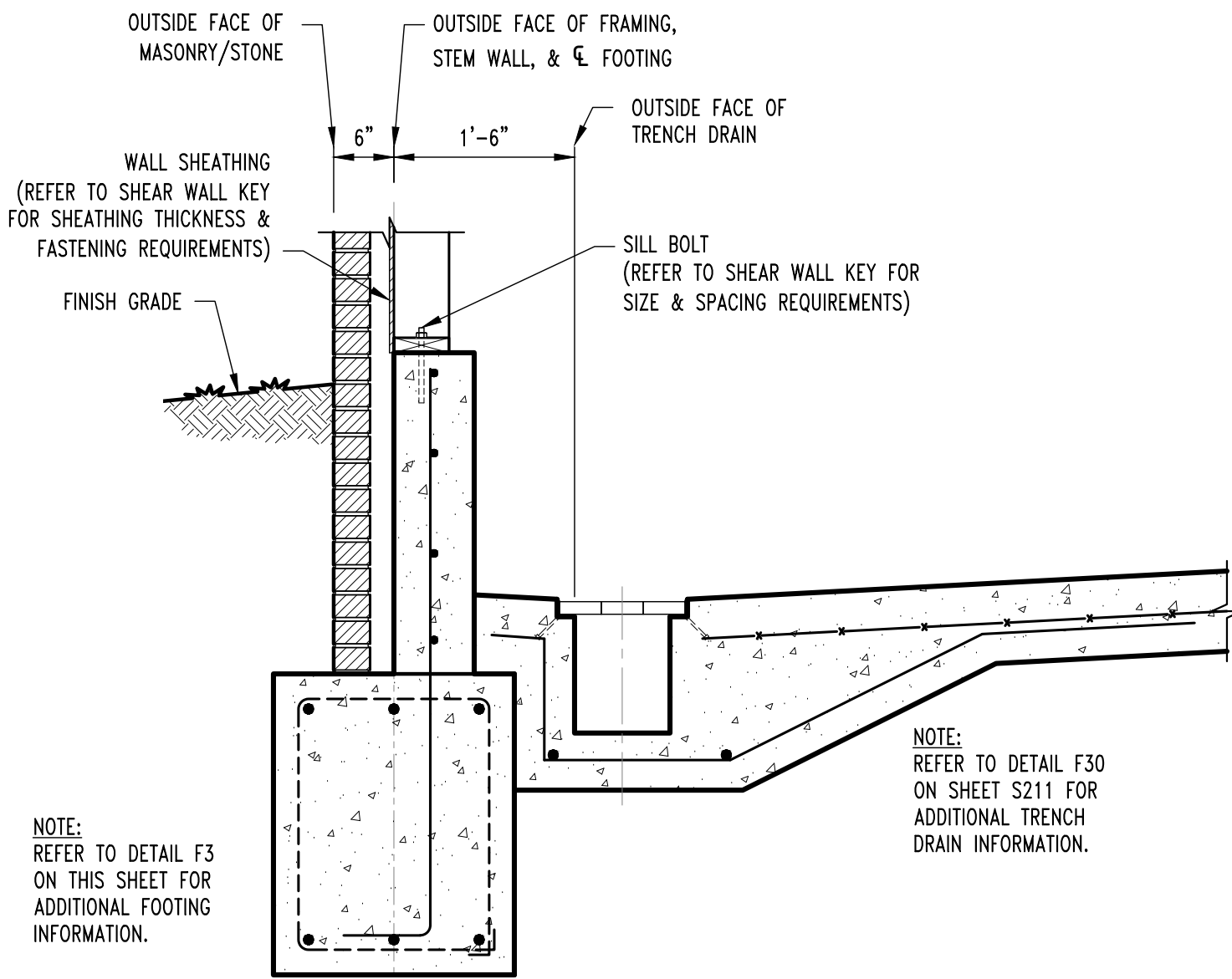
F1  
S200  
CONT. FOOTING SECTION  
SCALE: 3/4" = 1'-0"



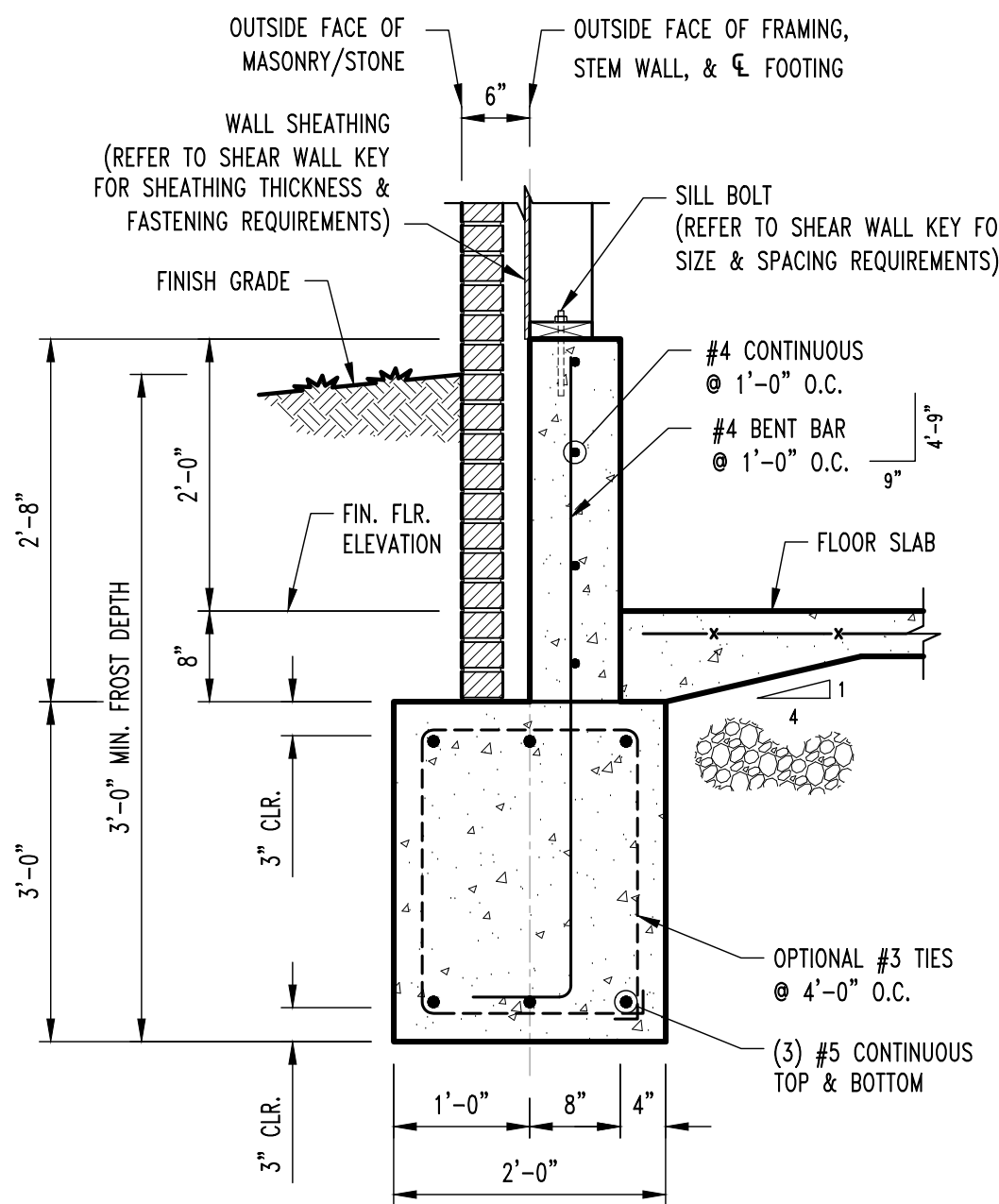
F1A  
S200  
CONT. FOOTING SECTION  
SCALE: 3/4" = 1'-0"



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



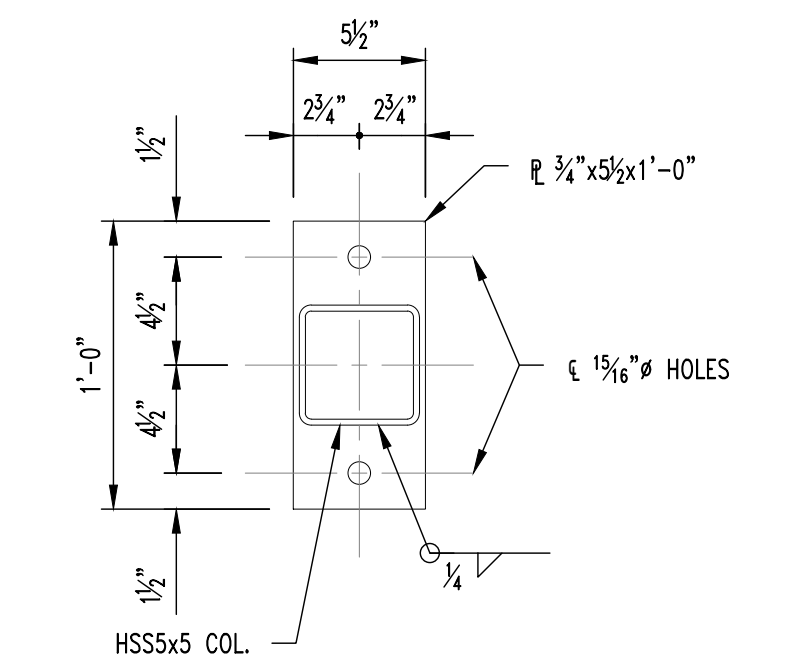
F3A  
S200  
CONT. FOOTING SECTION  
SCALE: 3/4" = 1'-0"



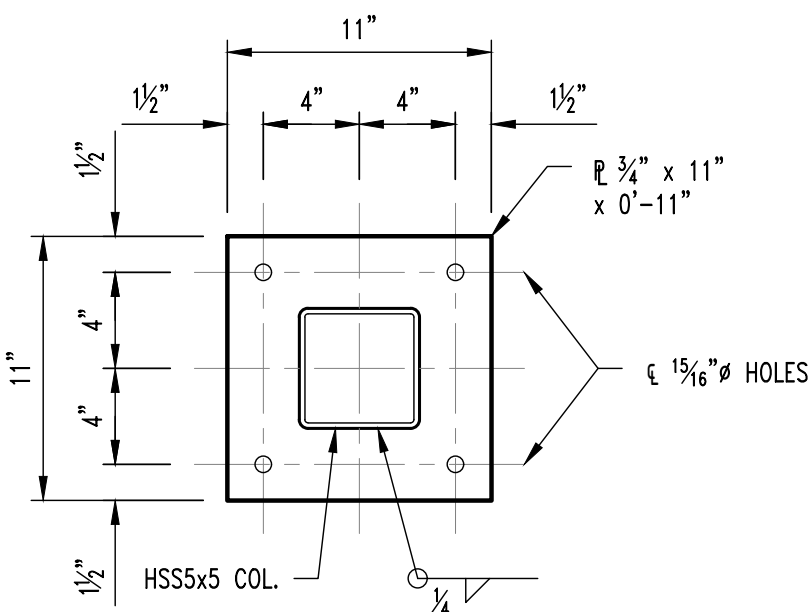
F3  
S200  
CONT. FOOTING SECTION  
SCALE: 3/4" = 1'-0"

REVISIONS:	
No.	Date
PERMIT SET	09/19/2024
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STRUCTURAL ENGINEER: <b>CROCKETT</b> ENGINEERING CONSULTANTS 1000 W. N. Hwy. Blvd. 1 Columbia, Missouri 65203 (573) 447-0992 www.crockettengineering.com Crockett Engineering Consultants, LLC Missouri Certificate of Authority #200310101	
CLIENT: <b>INTRINSIC DEVELOPMENT</b> 3822 ENDEAVOR AVE. STE. 101 COLUMBIA, MO 65201	
<b>DISCOVERY PET SPA</b> 1901 NE TRAILS EDGE BOULEVARD LEE'S SUMMIT, JACKSON COUNTY, MISSOURI	
DRAWING INCLUDES:  FOUNDATION DETAILS	
DESIGNED:	JWW
DRAWN:	ELT
PROJECT NO.:	230286
SHEET:	S210

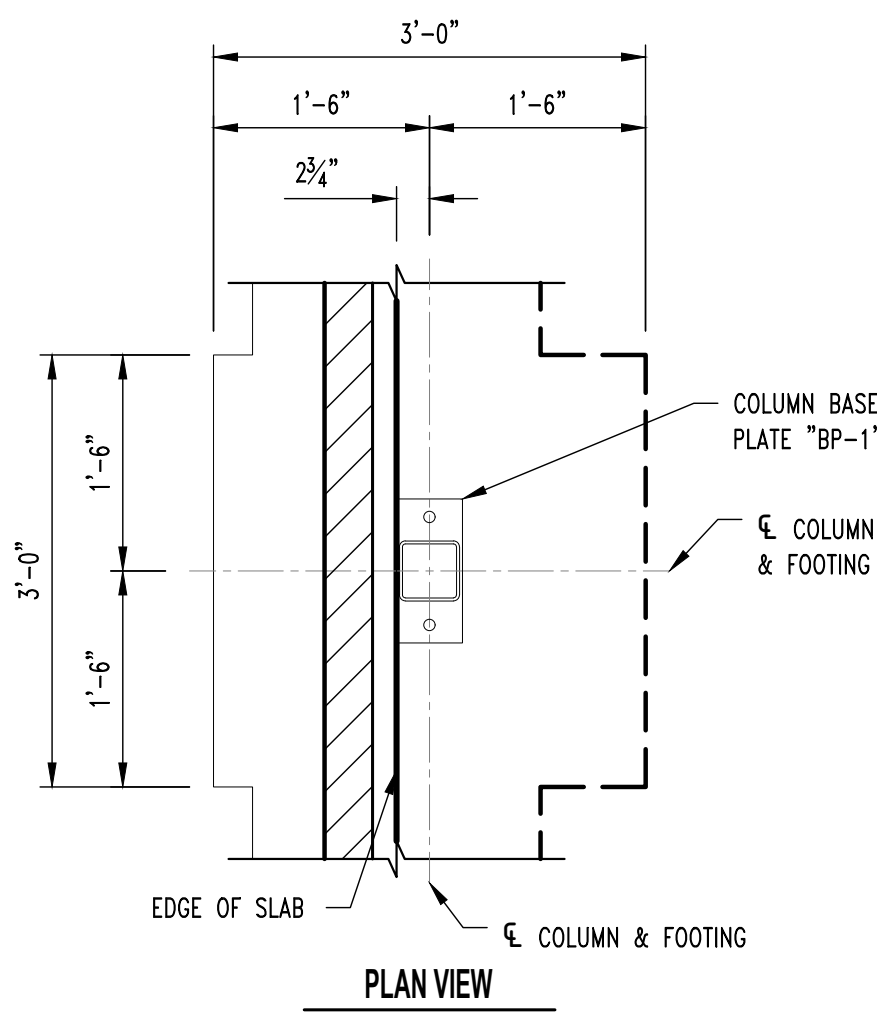




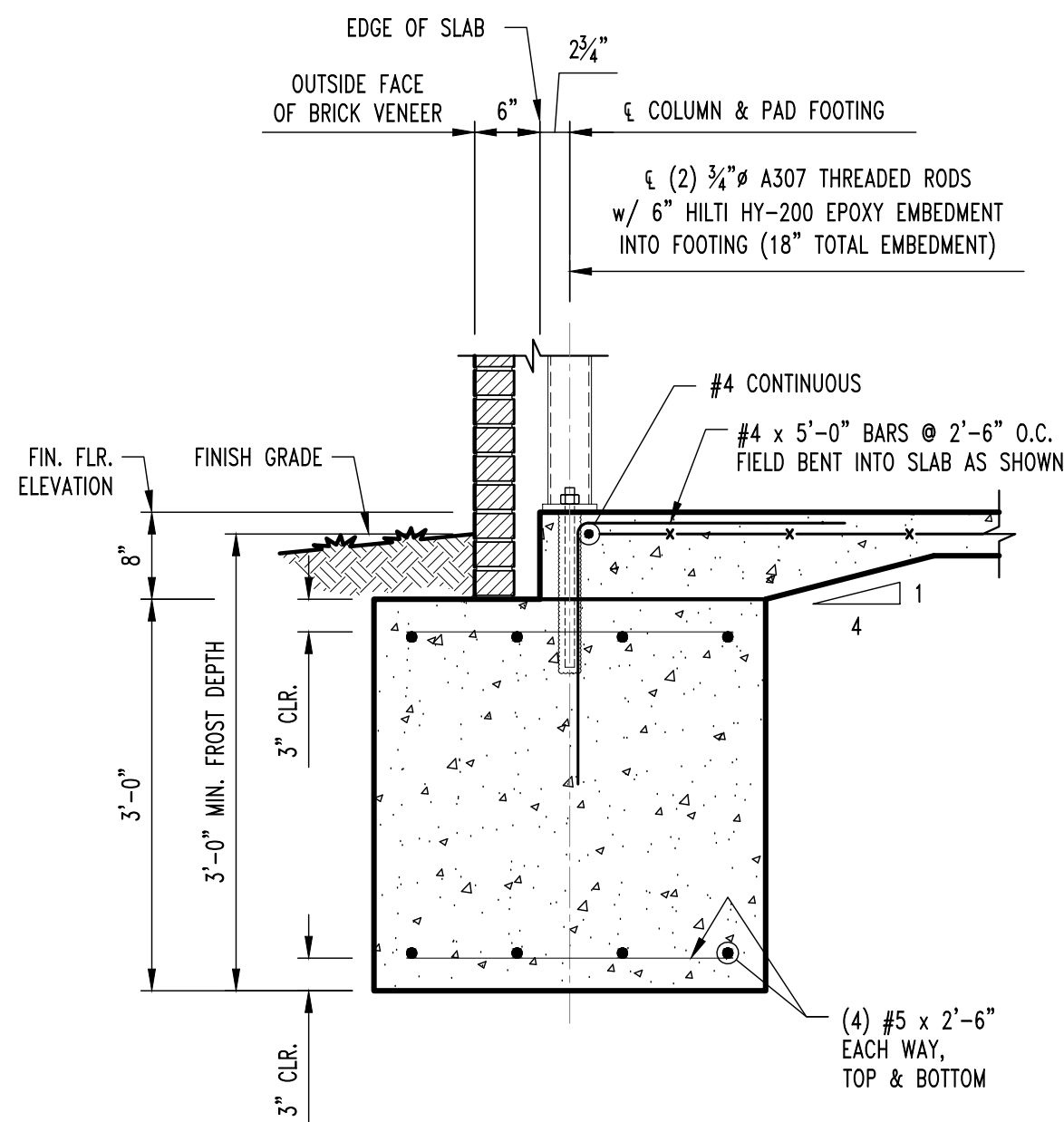
BASE PLATE "BP-1"



BASE PLATE "BP-2"

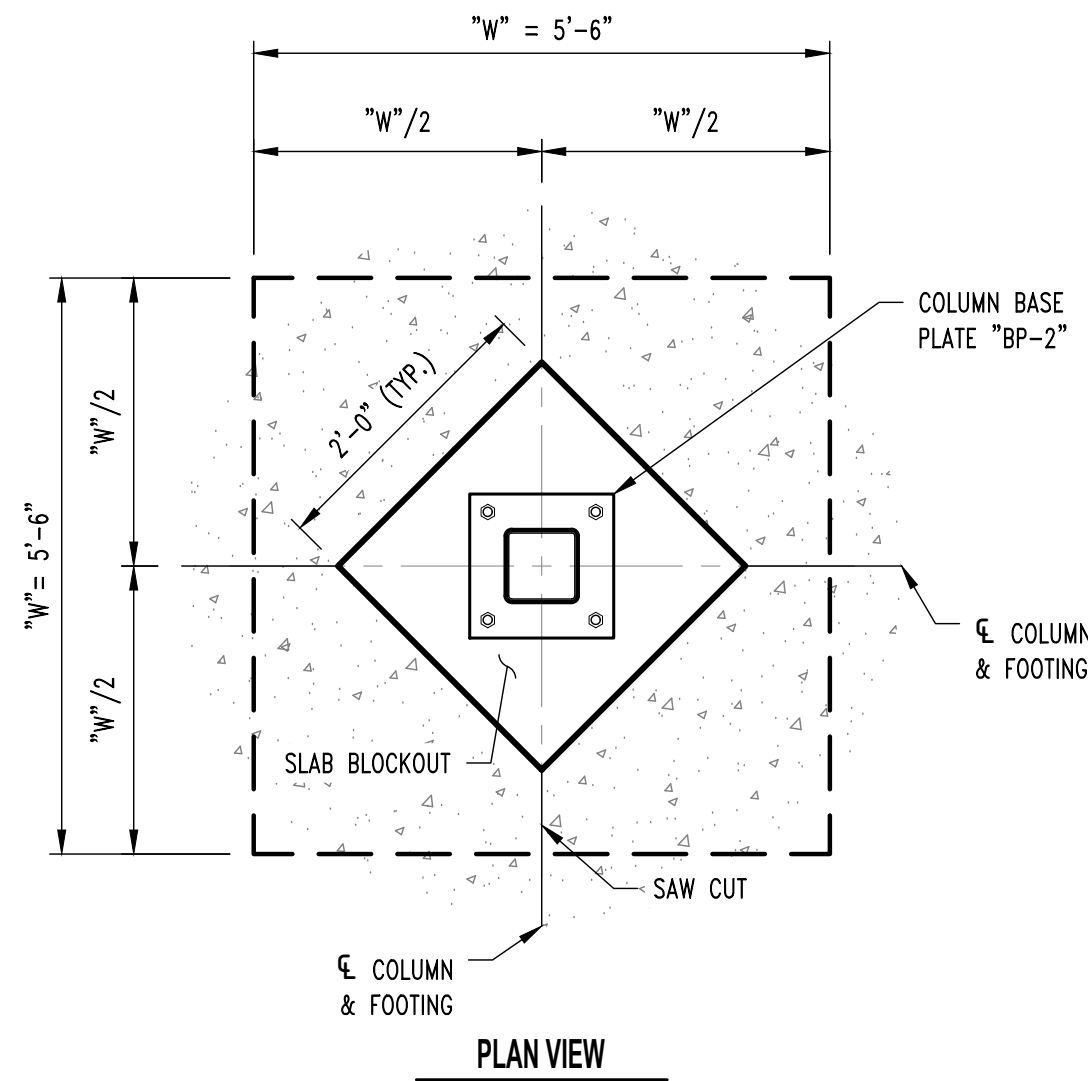


PLAN VIEW

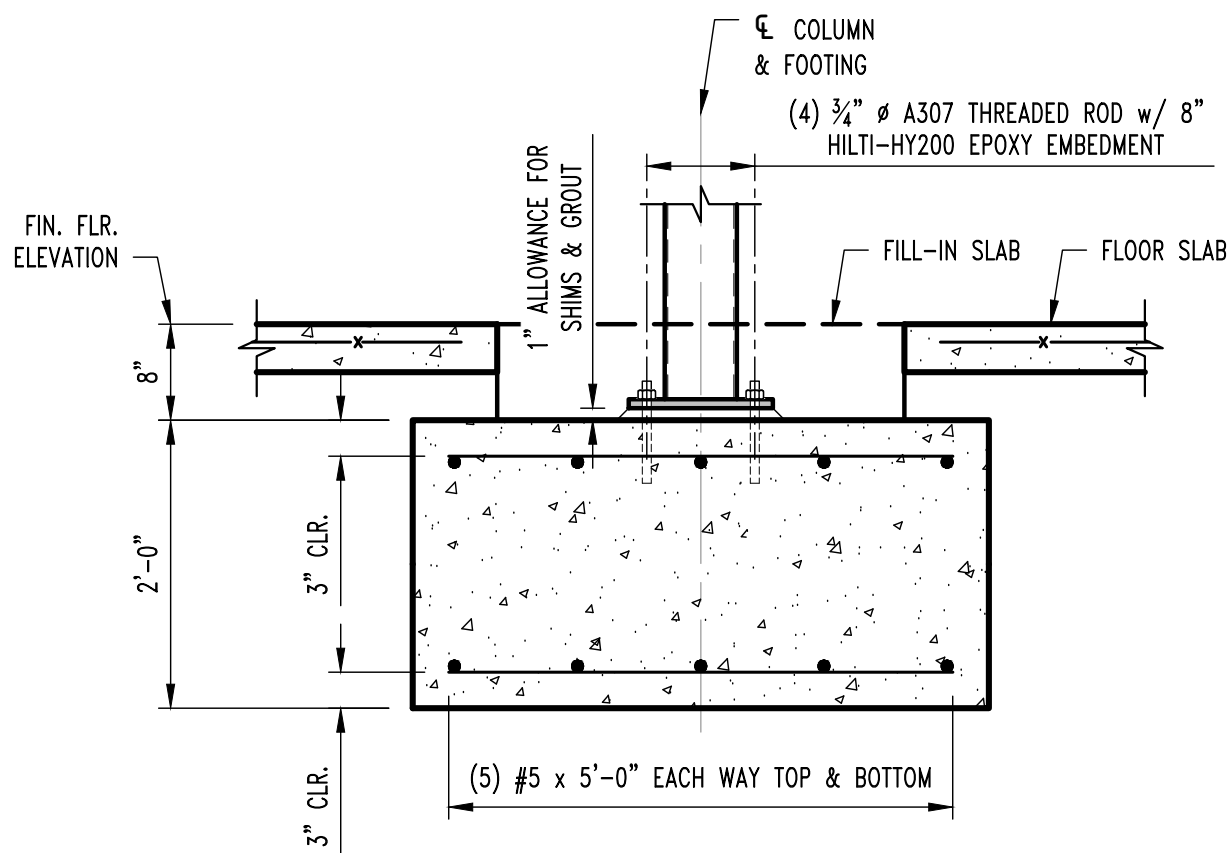


COLUMN FOOTING SECTION

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

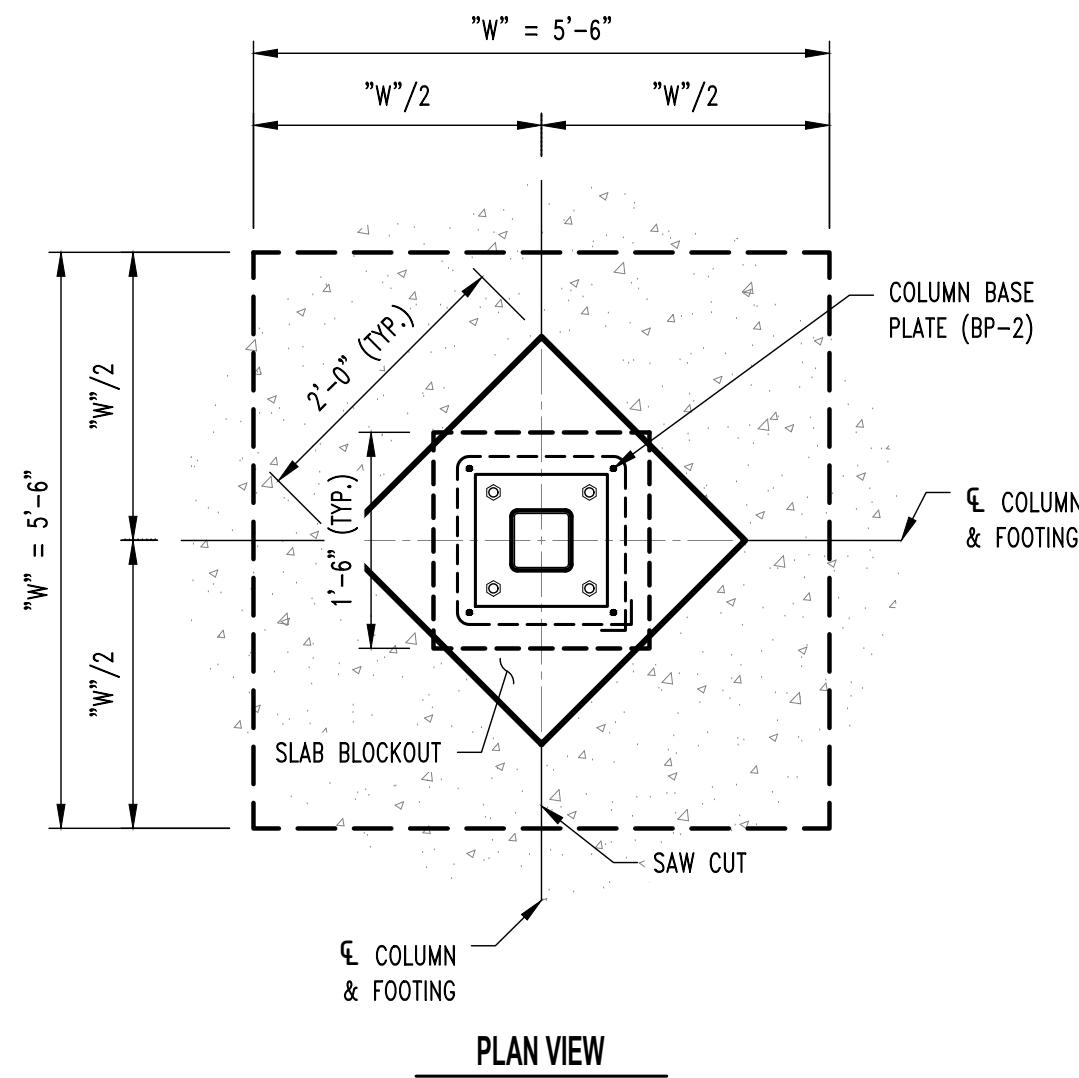


PLAN VIEW

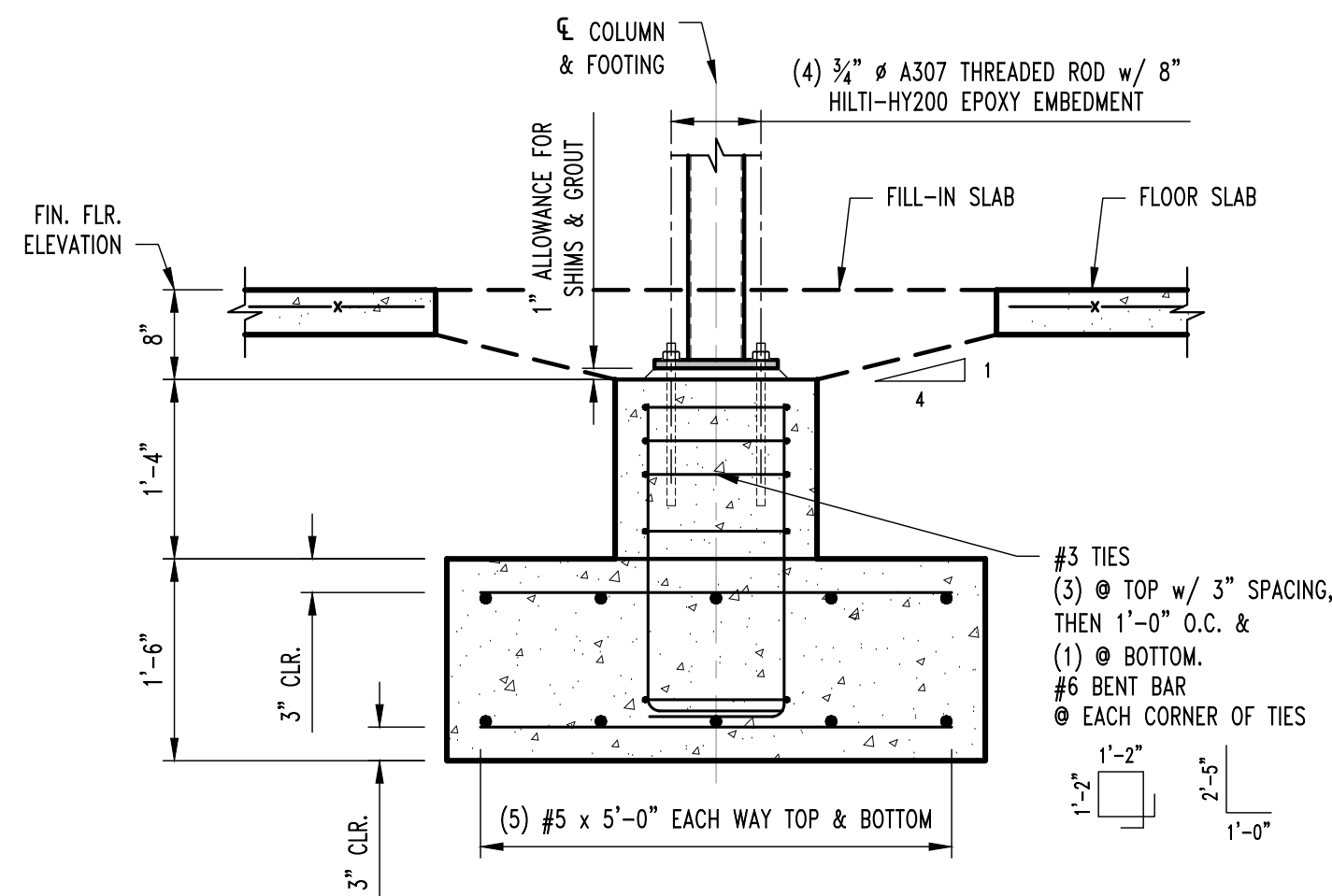


COLUMN FOOTING SECTION

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

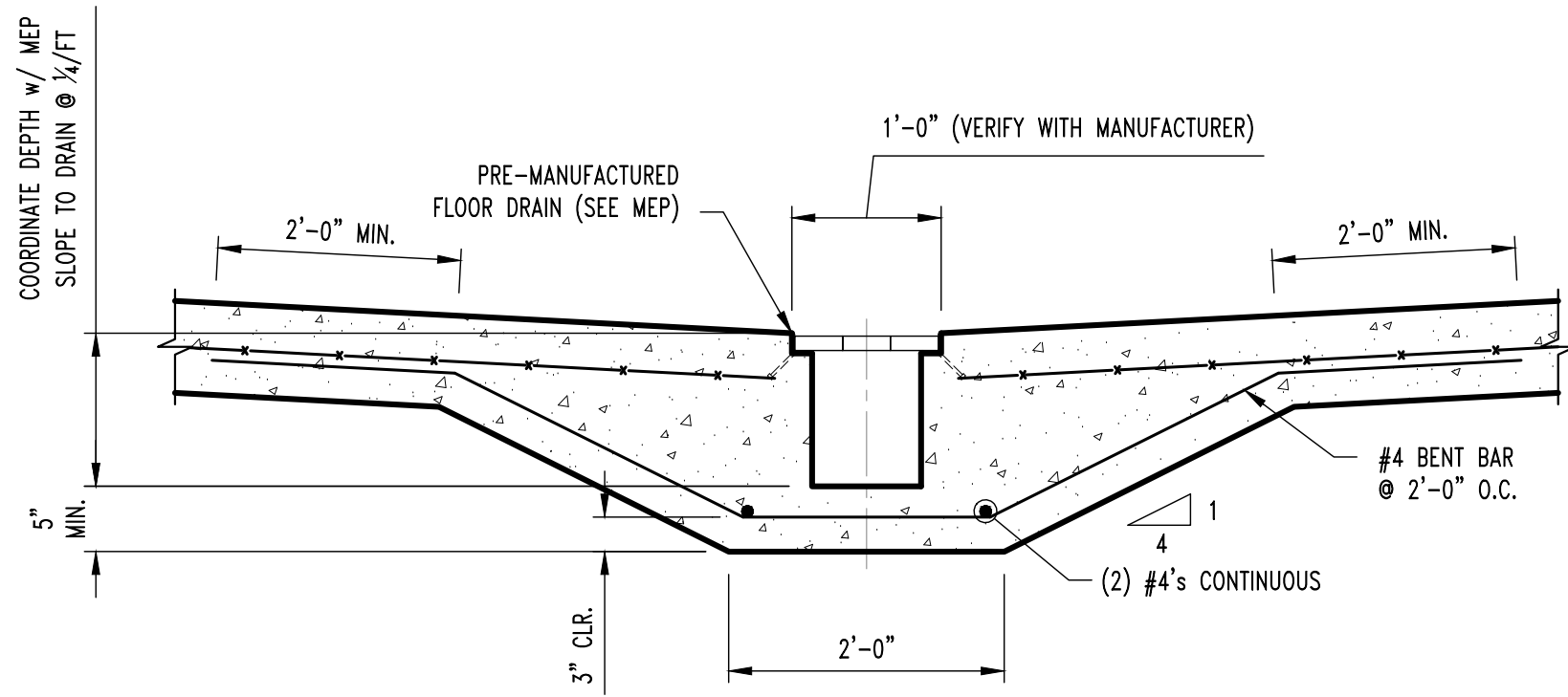


PLAN VIEW



COLUMN FOOTING SECTION

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



CONT. TRENCH DRAIN SECTION

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

REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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Crockett Engineering Consultants, LLC  
Missouri Certificate of Authority  
#200313101

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:

FOUNDATION  
DETAILS

DESIGNED: JWV

DRAWN: ELT

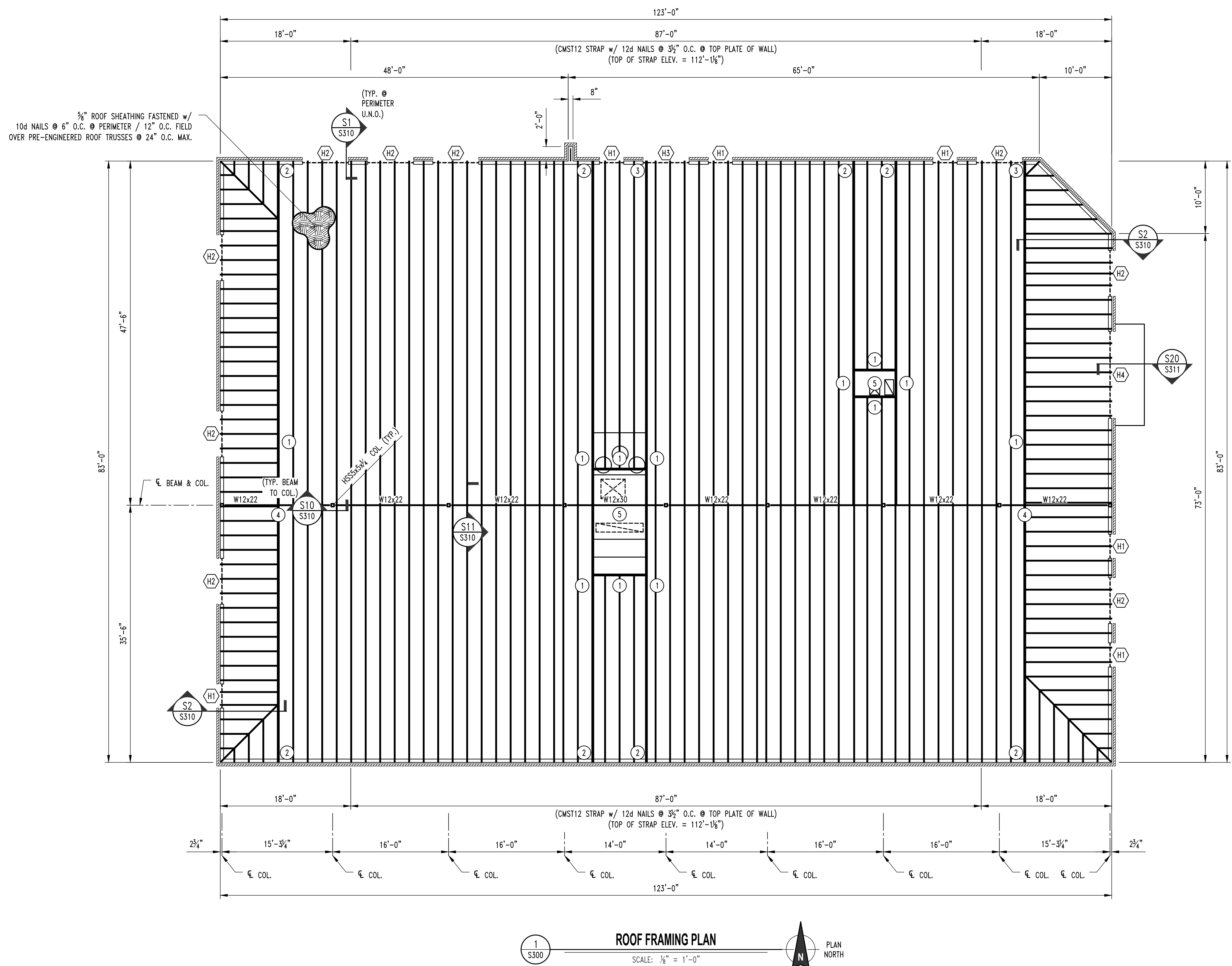
PROJECT NO.: 230286

SHEET:

S211



**NOTE:**  
ALL DIMENSIONS ARE FROM FACE OF FOUNDATION WALL OR FRAMING;  
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OF COLUMN, BEAM, OR JOIST UNLESS NOTED OTHERWISE.



## 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 LTP2.  
FLOOR 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  
RTU SCREWS IN WEB OF W12 TO FASTEN SIMPSON LG7.  
TIEDOWN W/ 16d SINKER NAILS TO BLOCKING & GIRDER
- 5 RTU, COORDINATE WITH MEP DRAWINGS FOR EXACT  
SIZE, WEIGHT, & LOCATION.

[illegible]

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[www.crockettengineering.com](http://www.crockettengineering.com)  
Crockett Engineering Consultants, LLC  
Missouri Certificate of Authority  
#2000151301

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COLUMBIA, MO 65201

**DISCOVERY PET SPA**

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

DRAWING INCLUDES:

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	CRIPPLEJACK	JAMB/IKING
"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. Fr Sel. Struct.	Single Ply 2x6 So. SPF No.1/No.2	4 Ply 2x6 SPF No.1/No.2
"H3"	3 Ply 2x12 Doug. Fr 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.

DESIGNED: JWV

DRAWN: ELT

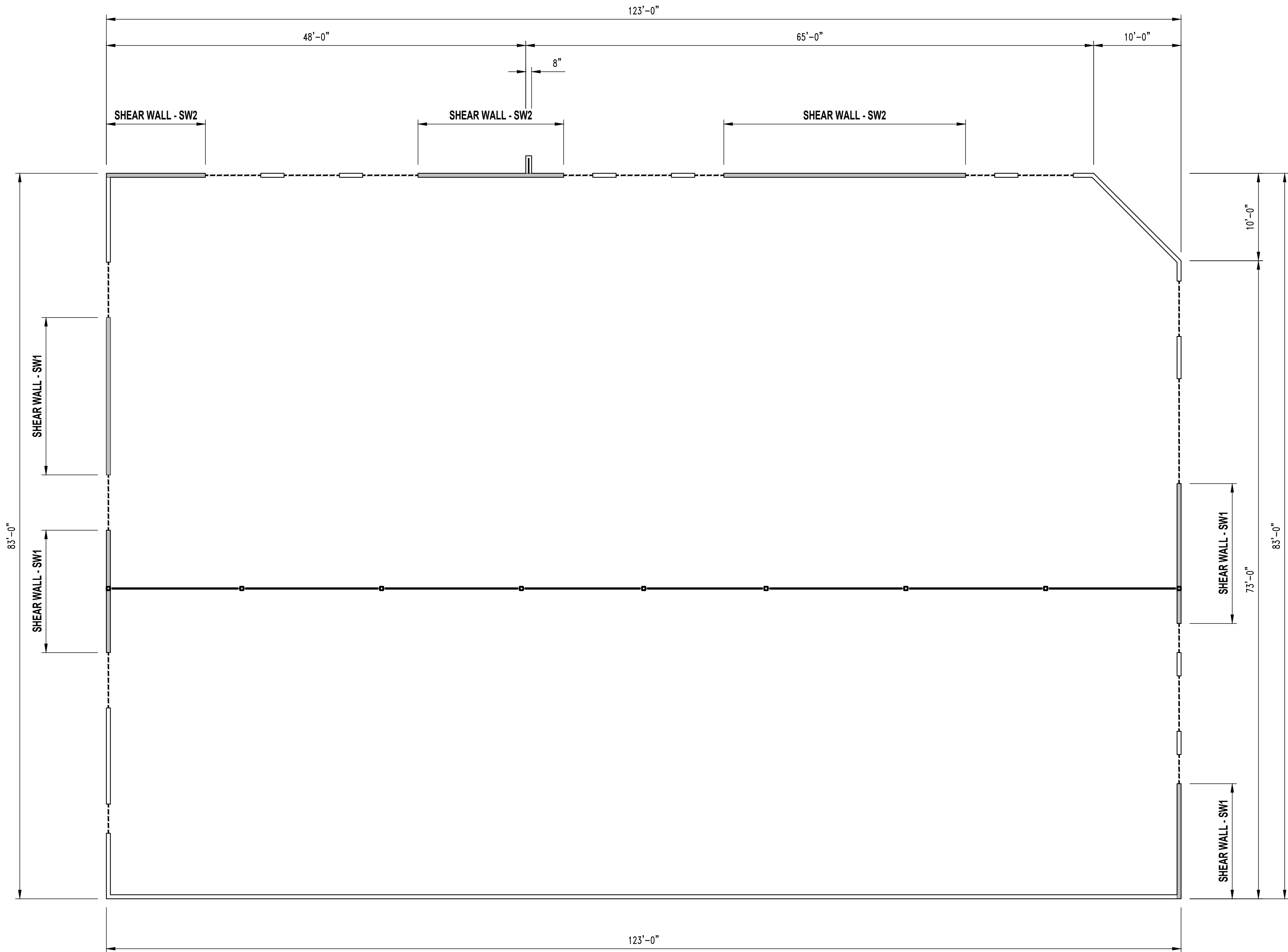
PROJECT NO.: 230286

SHEET:

# S300



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EDGE OF SLAB OR TRUSS/RAFTER; OR CENTERLINE  
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1  
S300A

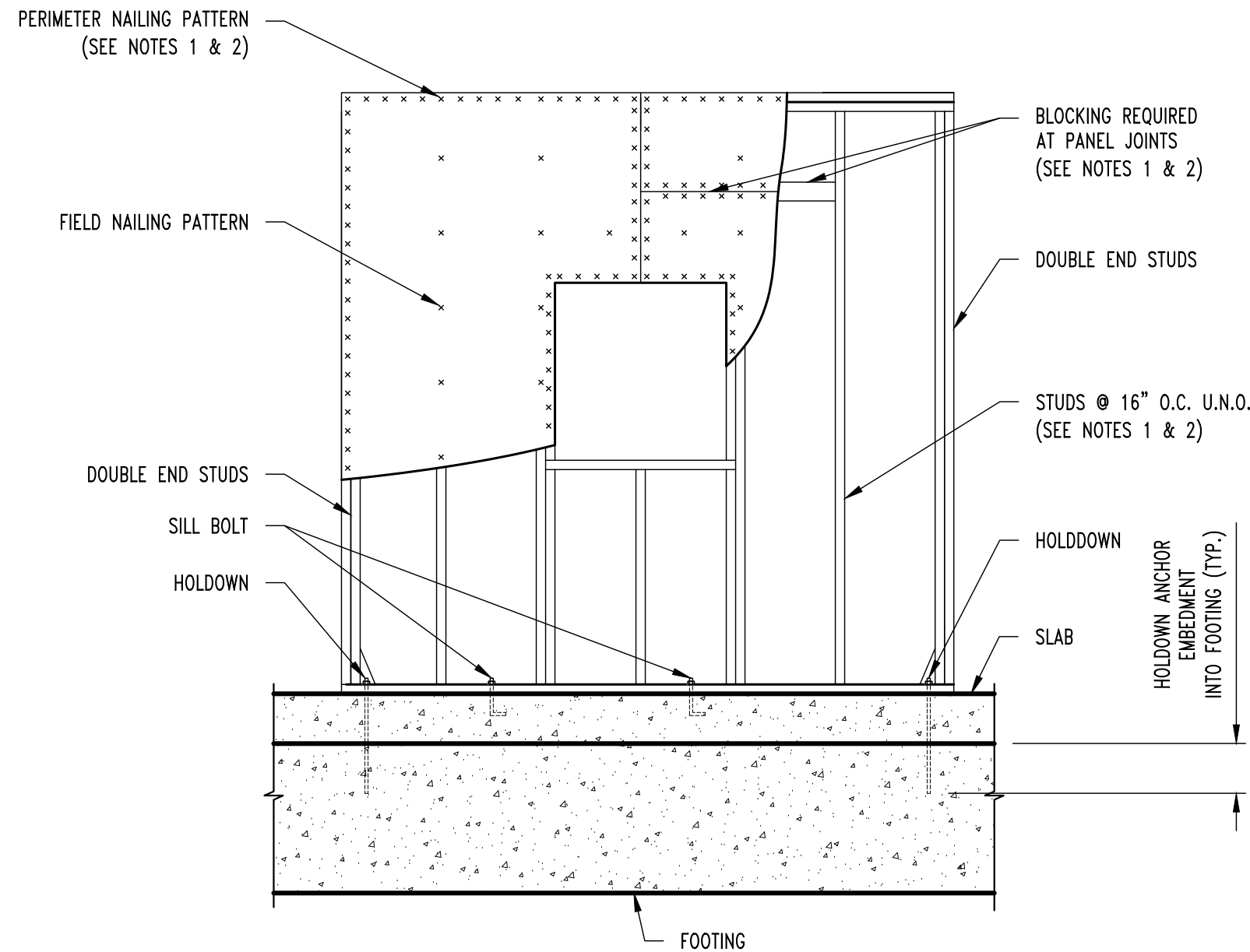
### SHEAR WALL PLAN

SCALE:  $\frac{3}{8}" = 1'-0"$



### SHEAR WALL NOTES

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



#### NOTES:

- WHERE TWO SHEETS MEET, BOTH SHEETS SHOULD BE NAILED TO THE SAME FRAMING MEMBER.
- 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.
- 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) ¾x2½ SDS W/ 1" DIAMETER A307 THREADED ROD W/ 20" TOTAL (12" INTO FOOTING) SIMPSON "AT-3G" 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-SDS2.5 HOLDOWN FASTENED TO 2-PLY STUDS W/ (10) ¾ x 2 ½ SDS W/ 5/8" DIAMETER A307 THREADED ROD W/ 16" TOTAL (8" INTO FOOTING) SIMPSON "AT-3G" EPOXY EMBEDMENT 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

#### REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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Missouri Certificate of Authority  
#00000001

CLIENT:  
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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:

SHEAR WALL  
PLAN

DESIGNED: JWV

DRAWN: ELT

PROJECT NO.: 230286

SHEET:

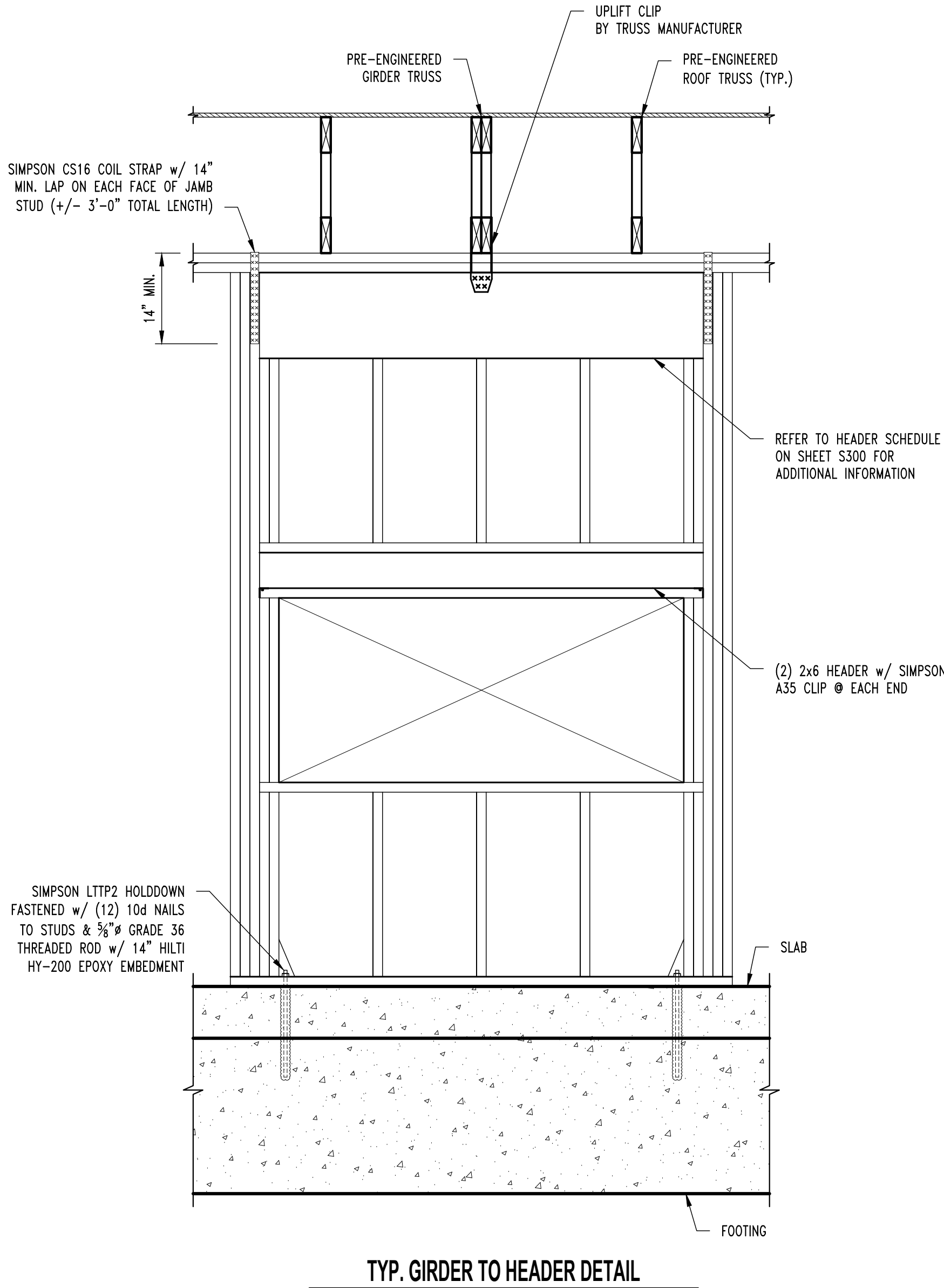
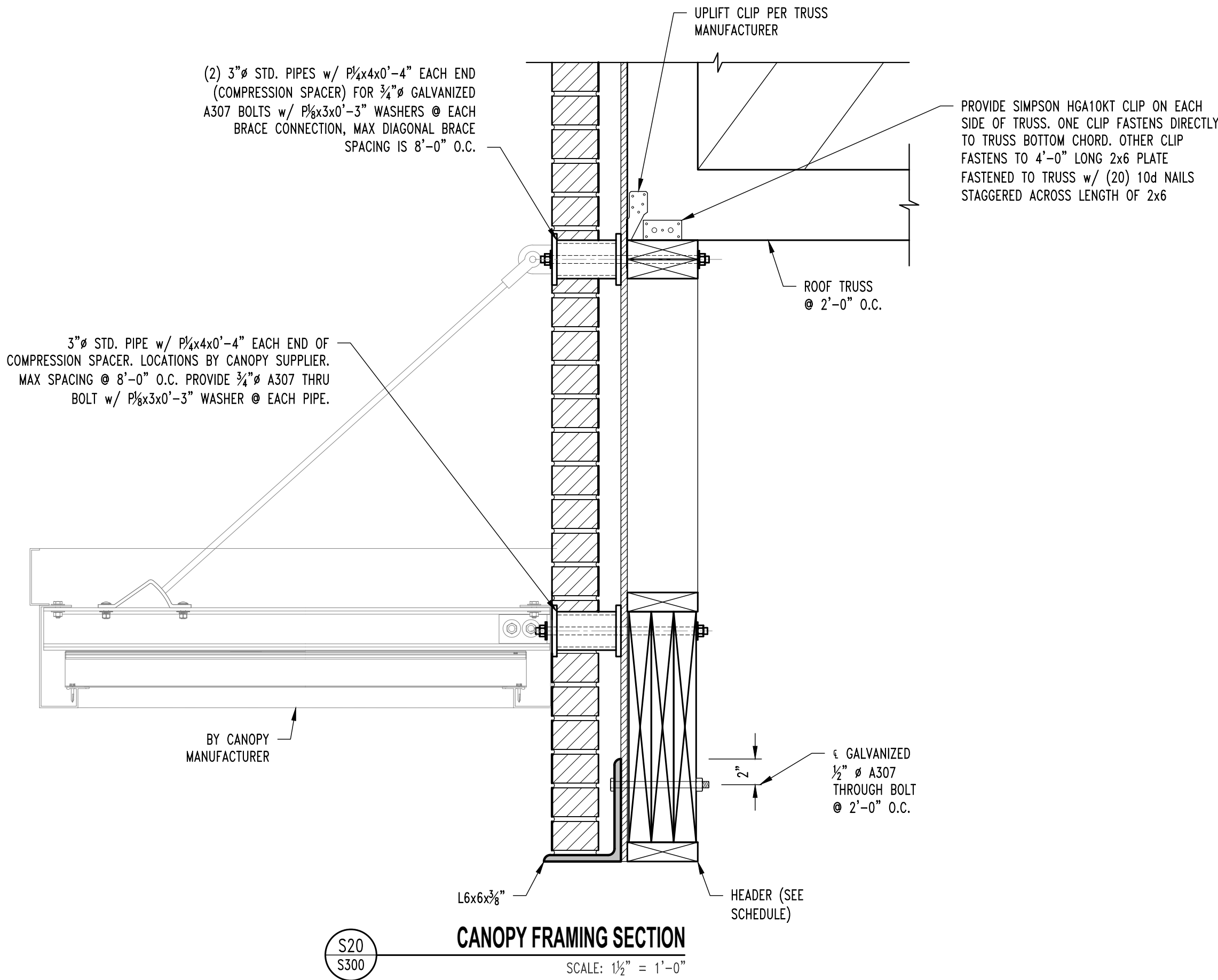
S300A





DESIGNED:	JWV
DRAWN:	ELT
PROJECT NO.:	230286
SHEET:	S310





REVISIONS:

No.	Date
PERMIT SET	09/19/2024

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SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI  
JARED W. VORLUBES  
NUMBER  
PE-2017000387  
PROFESSIONAL ENGINEER  
9/19/2024

STRUCTURAL ENGINEER:  
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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:

ROOF FRAMING  
DETAILS

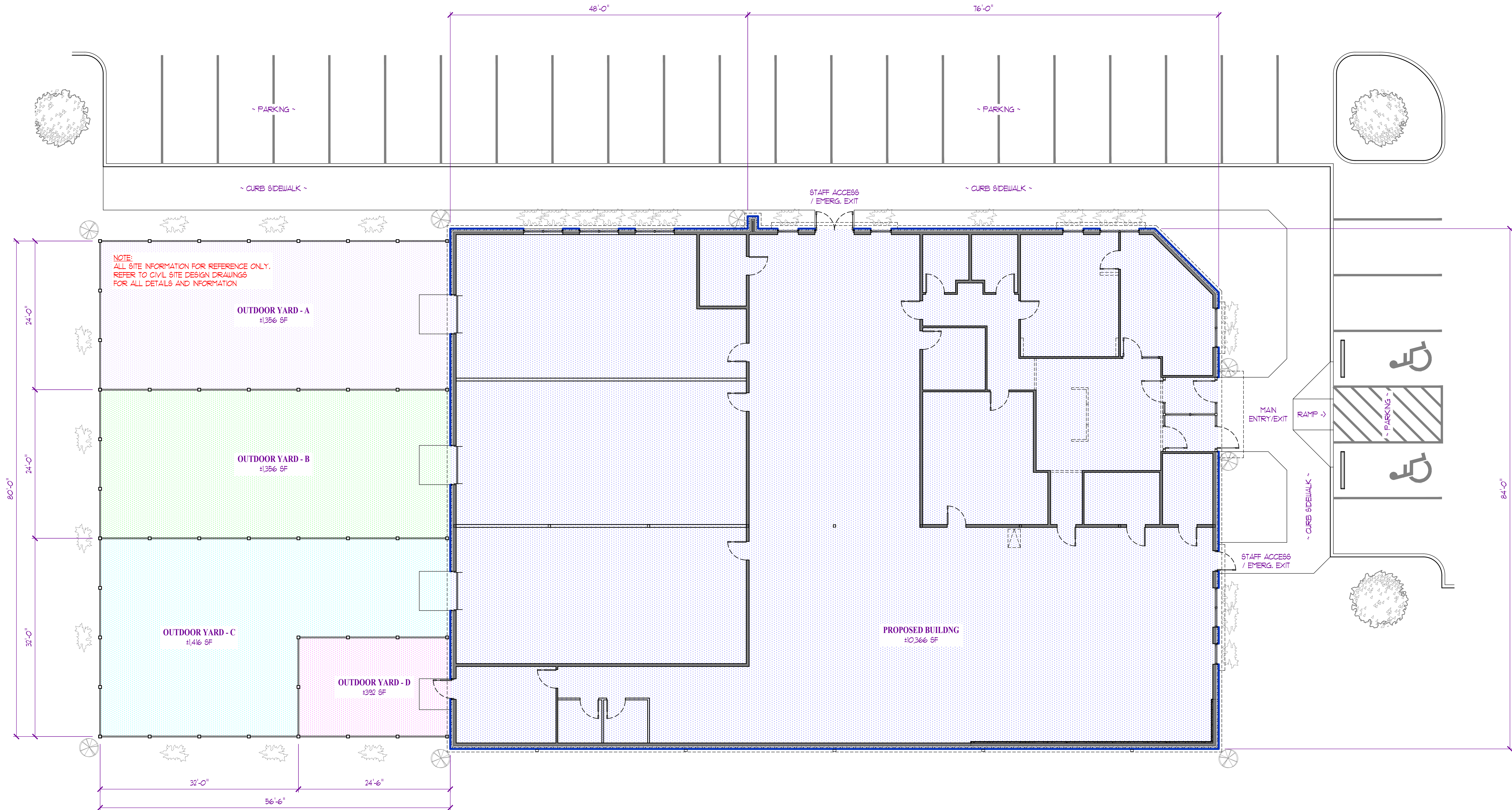
DESIGNED: JWV

DRAWN: ELT

PROJECT NO.: 230286

SHEET:  
S311





1A OVERALL FLOOR PLAN  
SCALE:  $\frac{1}{8}" = 1'-0"$

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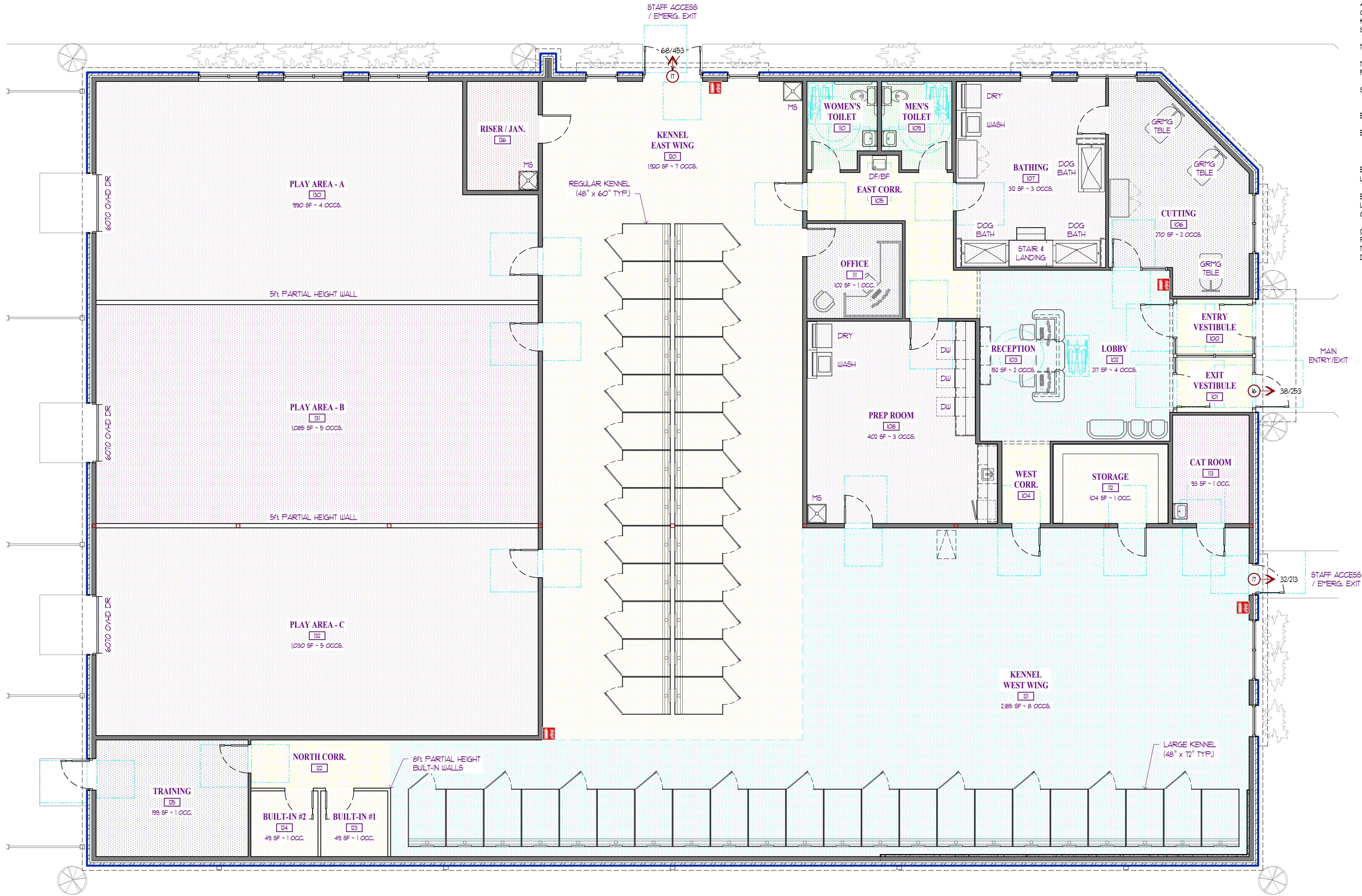
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P.O. BOX 4146  
ASHLAND, MISSOURI 65002

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.: FB24218  
SHEET TITLE: OVERALL FLOOR PLAN  
SHEET NUMBER: A100





**LIFE SAFETY & EGRESS NOTES:**

CONSTRUCTION TYPE: TYPE VB - SPRINKLERED

OCCUPANCY: BUSINESS USE OCCUPANCY

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

MIN. OCCUPANT LOAD: 50 OCCUPANTS

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

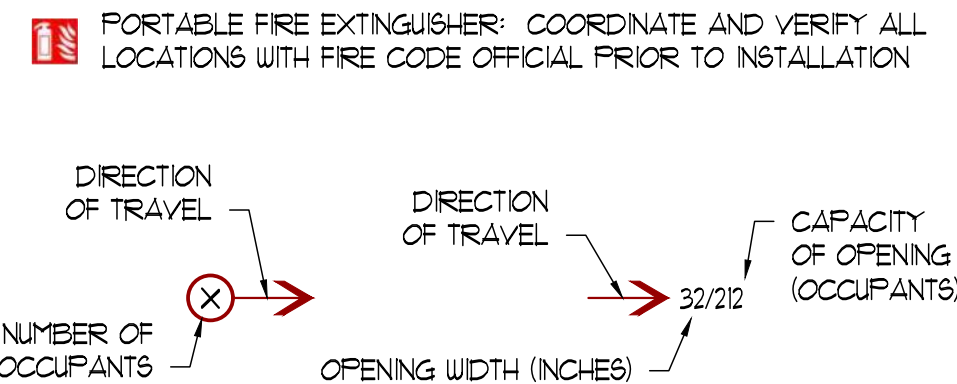
EGRESS WIDTH:  
REQUIRED = 50 x 0.15" = 7.5"  
PROVIDED = 138"

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

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



STATE OF MISSOURI  
JAY D. BERENDZEN  
ARCHITECT  
NUMBER 2006034588  
EXPIRATION DATE 12-31-24  
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Discovery Park  
Discovery Pet Spa  
1921 NE Trails Edge Boulevard  
Lee's Summit, Jackson County, Missouri

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PROJECT NO.  
FBA2418

SHEET TITLE  
FLOOR PLAN  
LIFE SAFETY PLAN

SHEET NUMBER  
A101

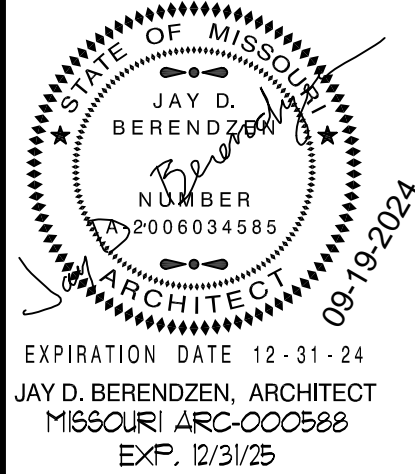






RCP GENERAL NOTES:

- 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.



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PROJECT  
**Discovery Park**  
**Discovery Pet Spa**  
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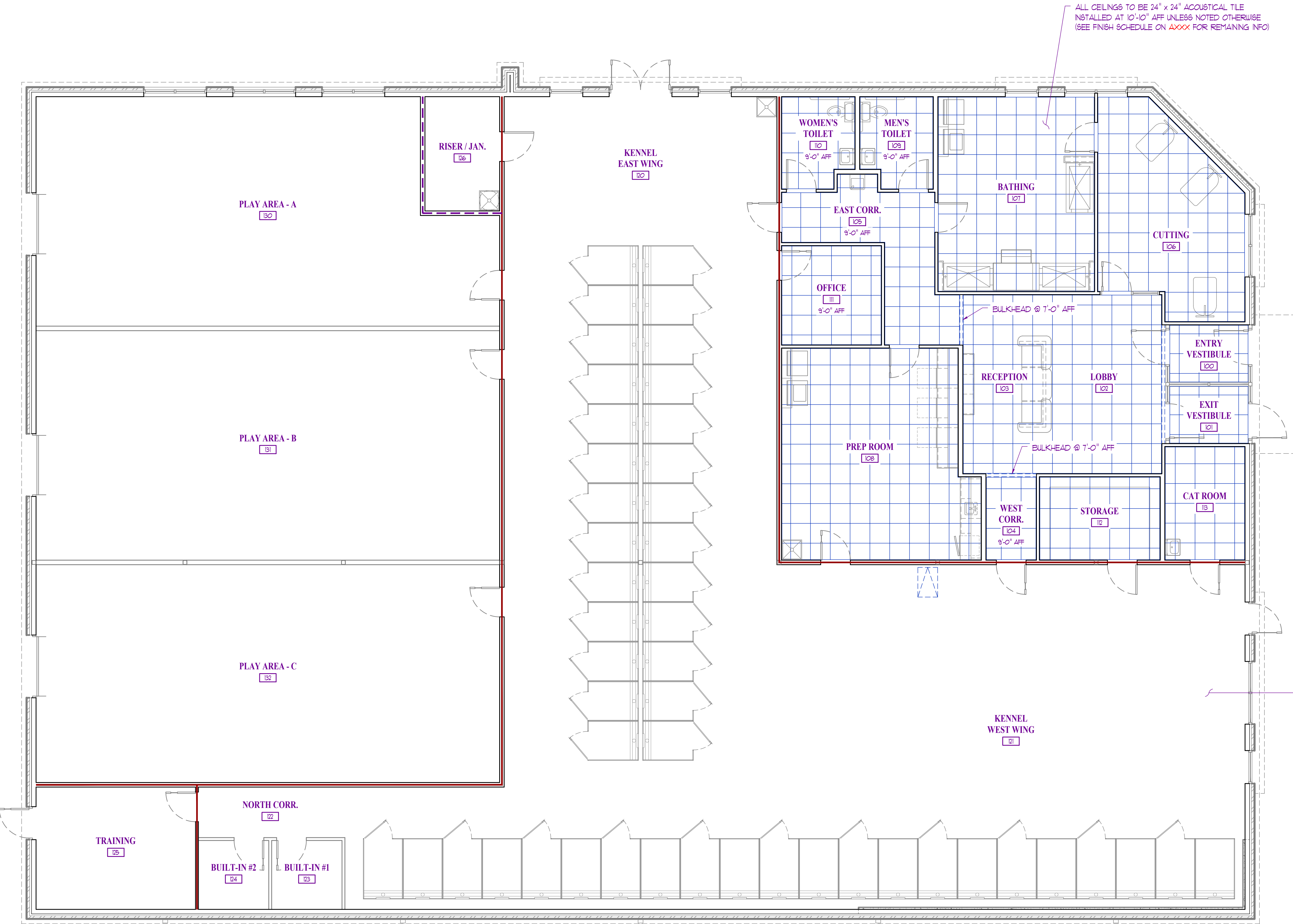
PROJECT NO.  
FB24248

SHEET TITLE

REFLECTED  
CEILING PLAN

SHEET NUMBER

A301

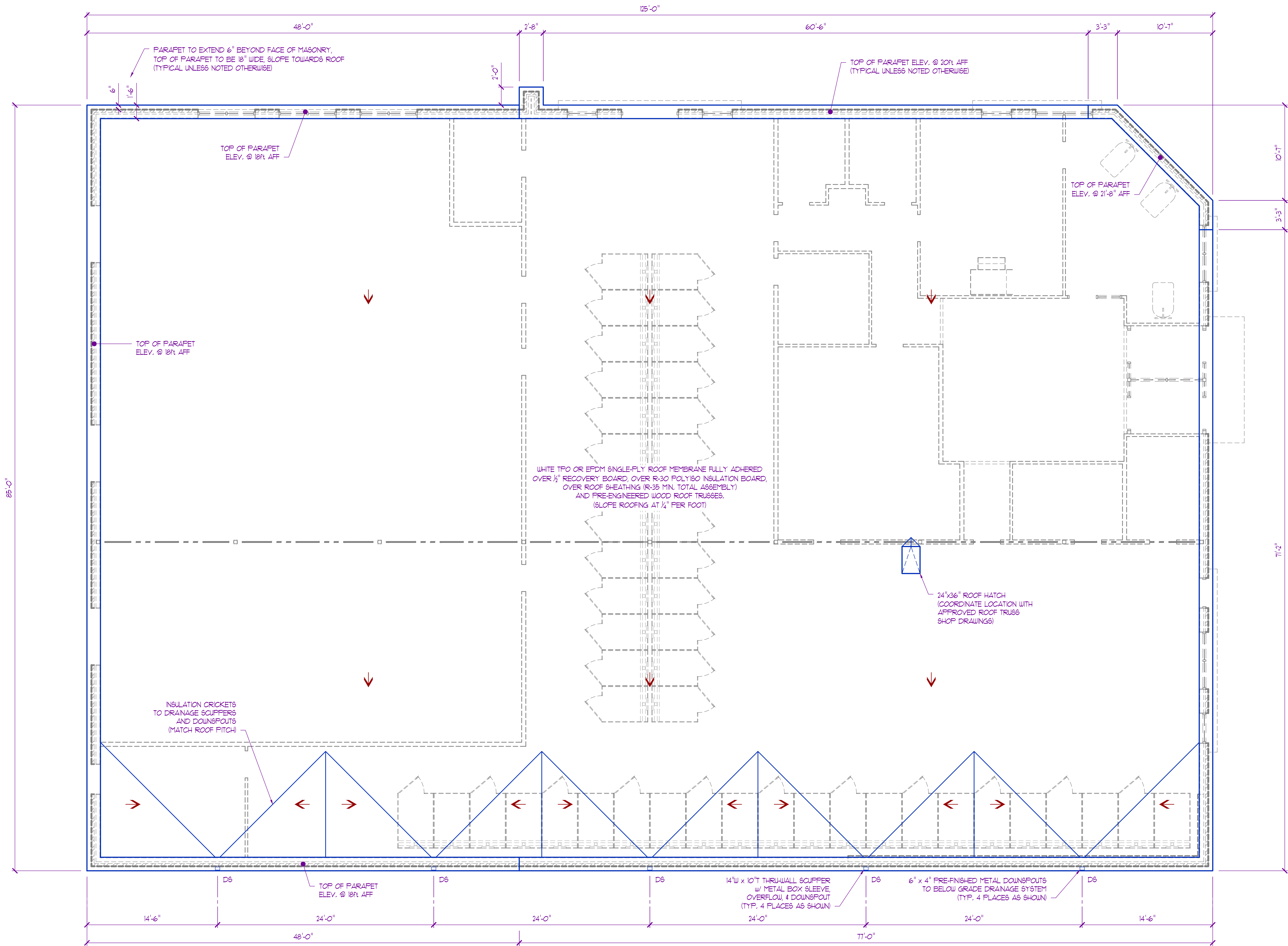


3 REFLECTED CEILING PLAN  
SCALE: 3/8" = 1'-0"

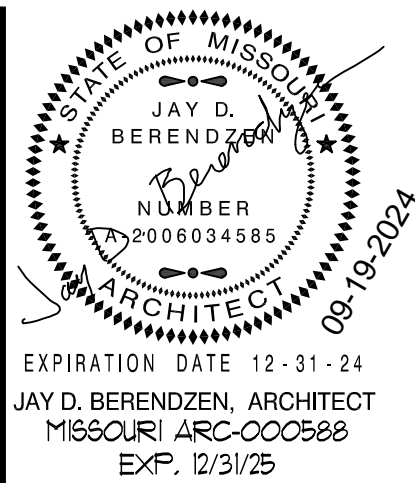
INDICATES FRAMING & GYPSUM BOARD TO TERMINATE AT LONG LEG DEFLECTION TRACK BELOW ROOF LID / STRUCTURE. INSTALL SOUND BATT FULL HEIGHT OF WALL.

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" MIN. ABOVE FINISH ROOF)
  4. EXHAUST FANS & VENTING TO DISCHARGE A MIN. OF 10'-0" FROM ROOFTOP UNITS.
  5. PROVIDE MOLDED ROOF WALK PADS TO AND AROUND ROOFTOP UNITS & OTHER EQUIPMENT AS NECESSARY.



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PROJECT

Discovery Park  
**Discovery Pet Spa**  
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PROJECT NO. FB242418  
SHEET TITLE

ROOF DRAINAGE CALCULATIONS:

TOTAL ROOF DRAINAGE AREA: ± 10,575 SF

PROPOSED ROOF DRAINS: (4) @ 2,130 SF  
± 10,680 SF

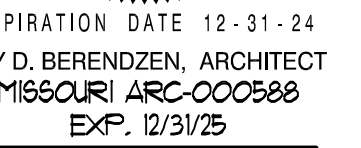
RAINFALL RATE: 3.5" / HOUR

14'W x 10'T x 12'D CONDUCTOR HEAD:  
4,600 SF OF DRAINAGE AREA CAPACITY


(EXTEND TOP OF CONDUCTOR TO CONCEAL SCUPPER OPENING, INSTALL OVERFLOW IN CONDUCTOR AT ROOF DRAINAGE ELEVATION)



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Discovery Park  
Discovery Pet Spa  
1921 NE Trails Edge Boulevard  
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NO	DESCRIPTION	DATE
1	PERMIT	9/19/2024

PROJECT NO.  
PBA2418

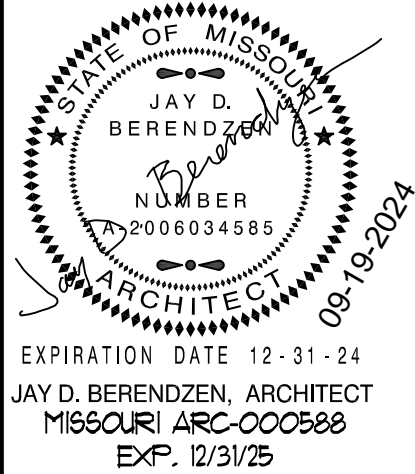
EXTERIOR  
ELEVATIONS

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## A500







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

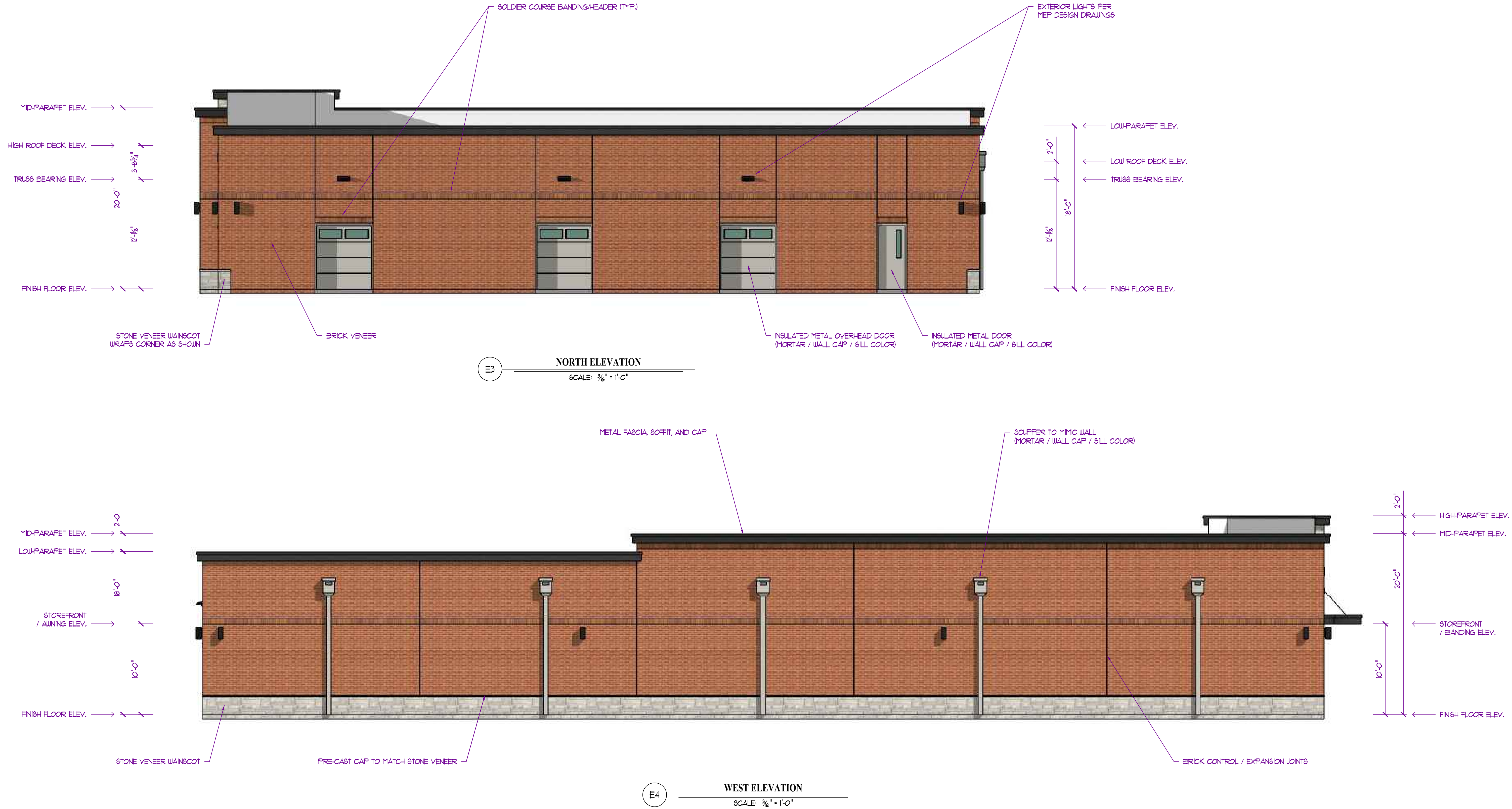
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ID	DESCRIPTION	DATE
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PROJECT NO.  
**FB24248**

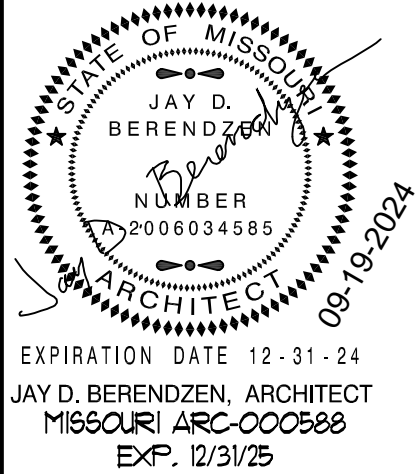
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EXTERIOR  
ELEVATIONS

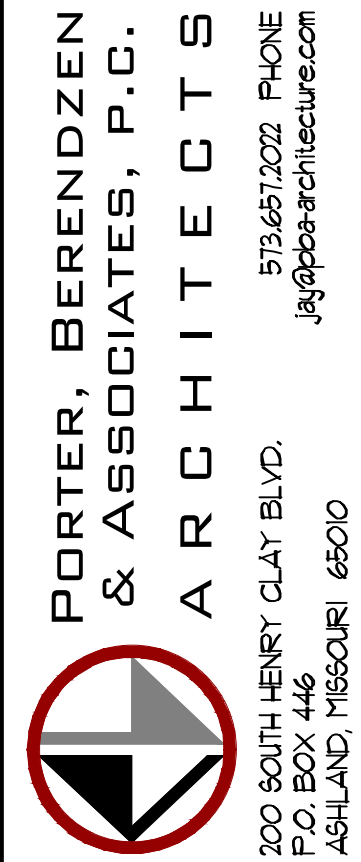
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PROJECT  
Discovery Park  
**Discovery Pet Spa**  
1921 NE Trails Edge Boulevard  
Lee's Summit, Jackson County, Missouri

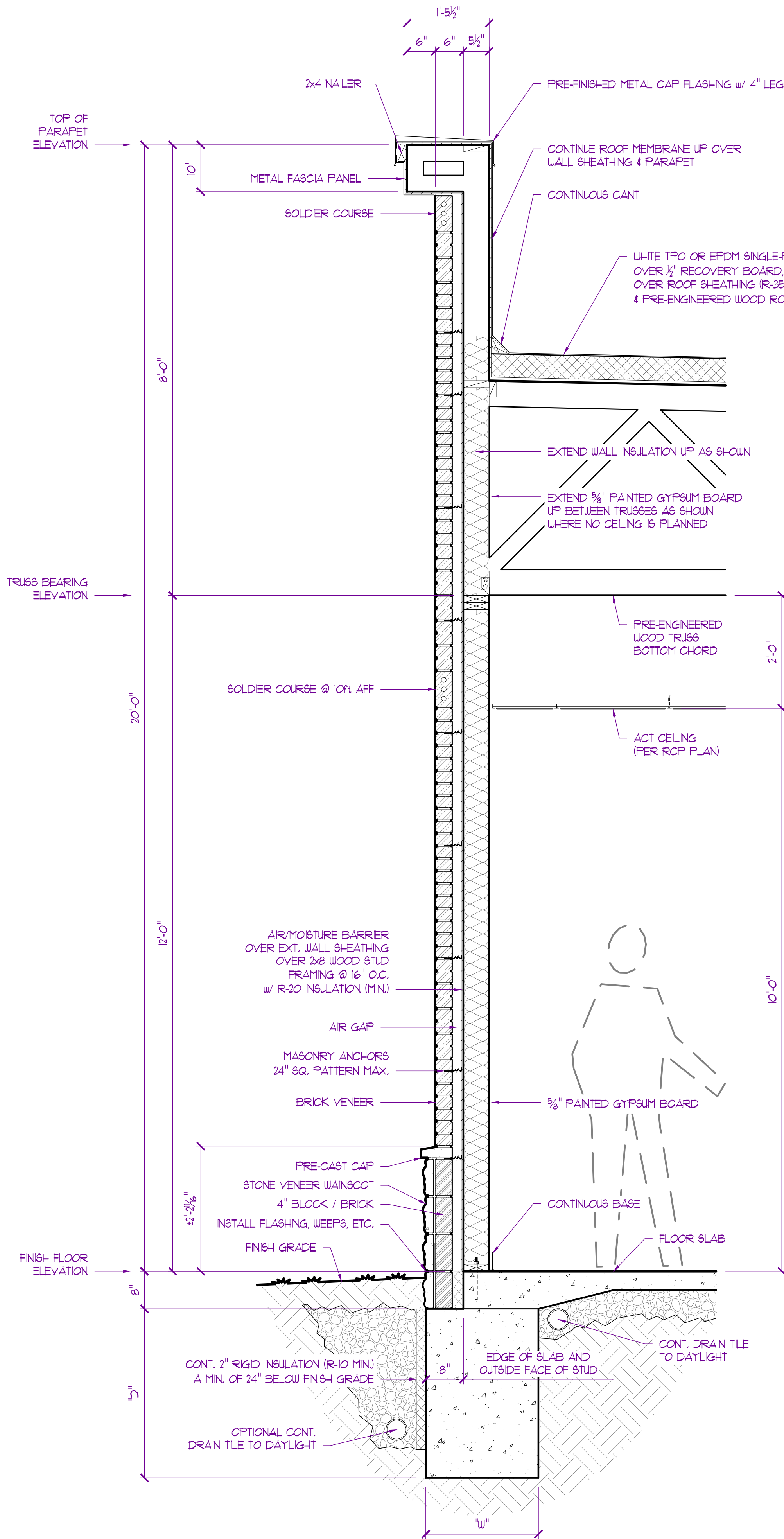
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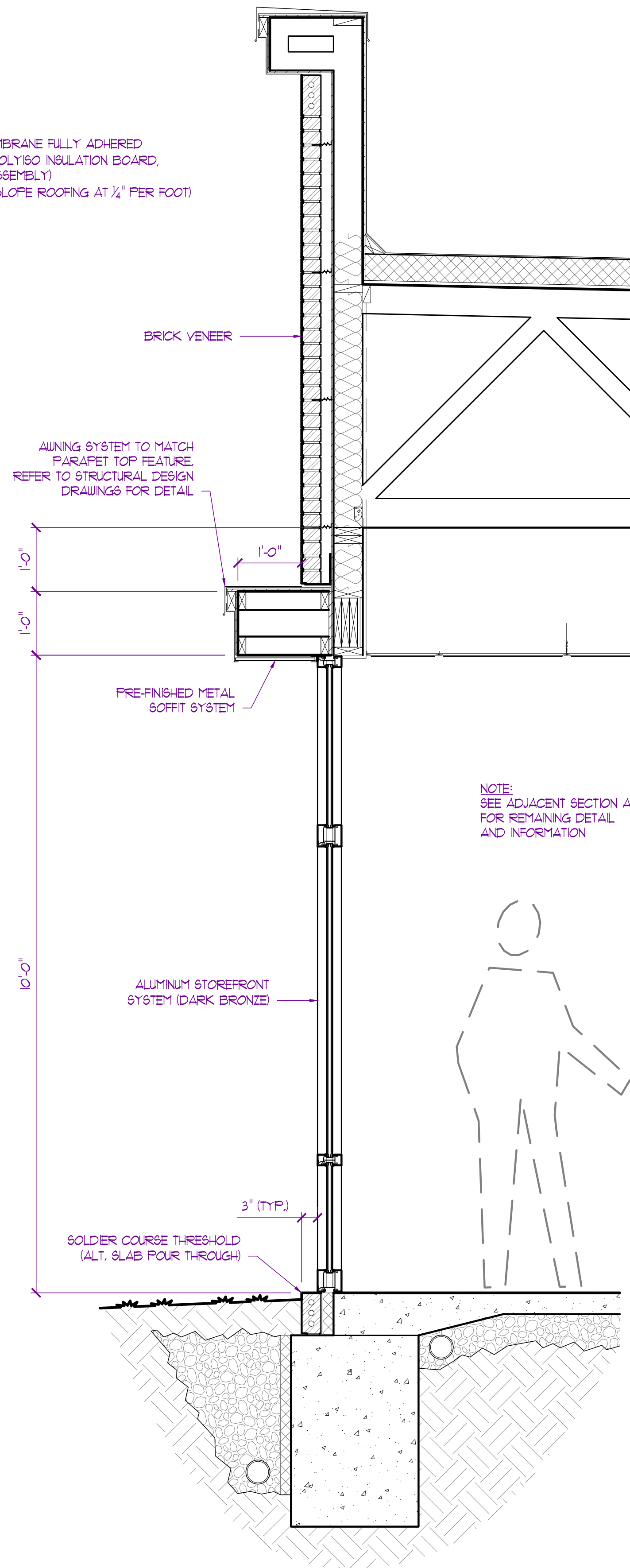
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EXTERIOR  
RENDERINGS

SHEET NUMBER

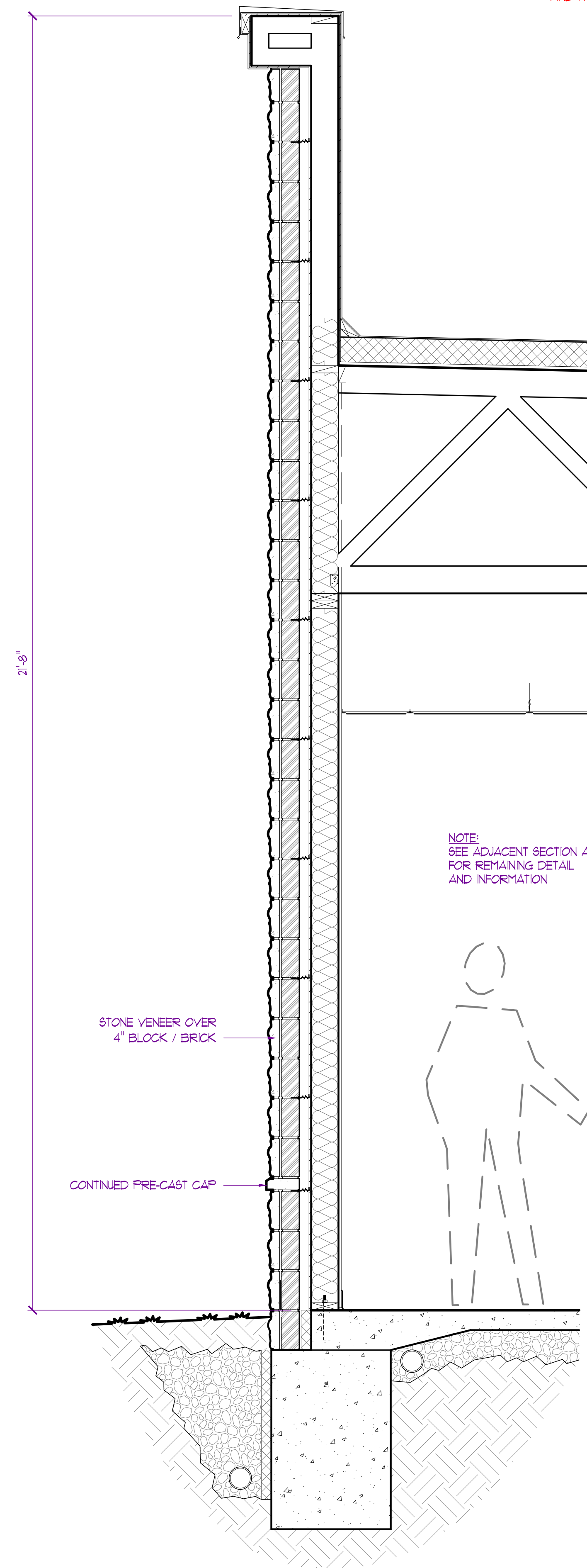




**SECTION - A**  
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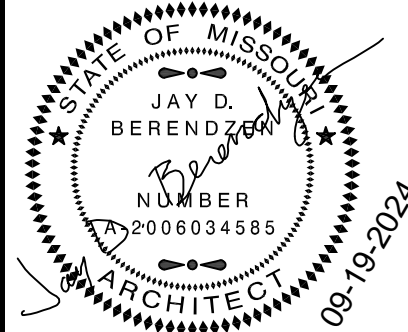


**SECTION - A1**  
SCALE: 3/4" = 1'-0"



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

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PROJECT

Discovery Park  
**Discovery Pet Spa**  
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Lee's Summit, Jackson County, Missouri

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FB24248

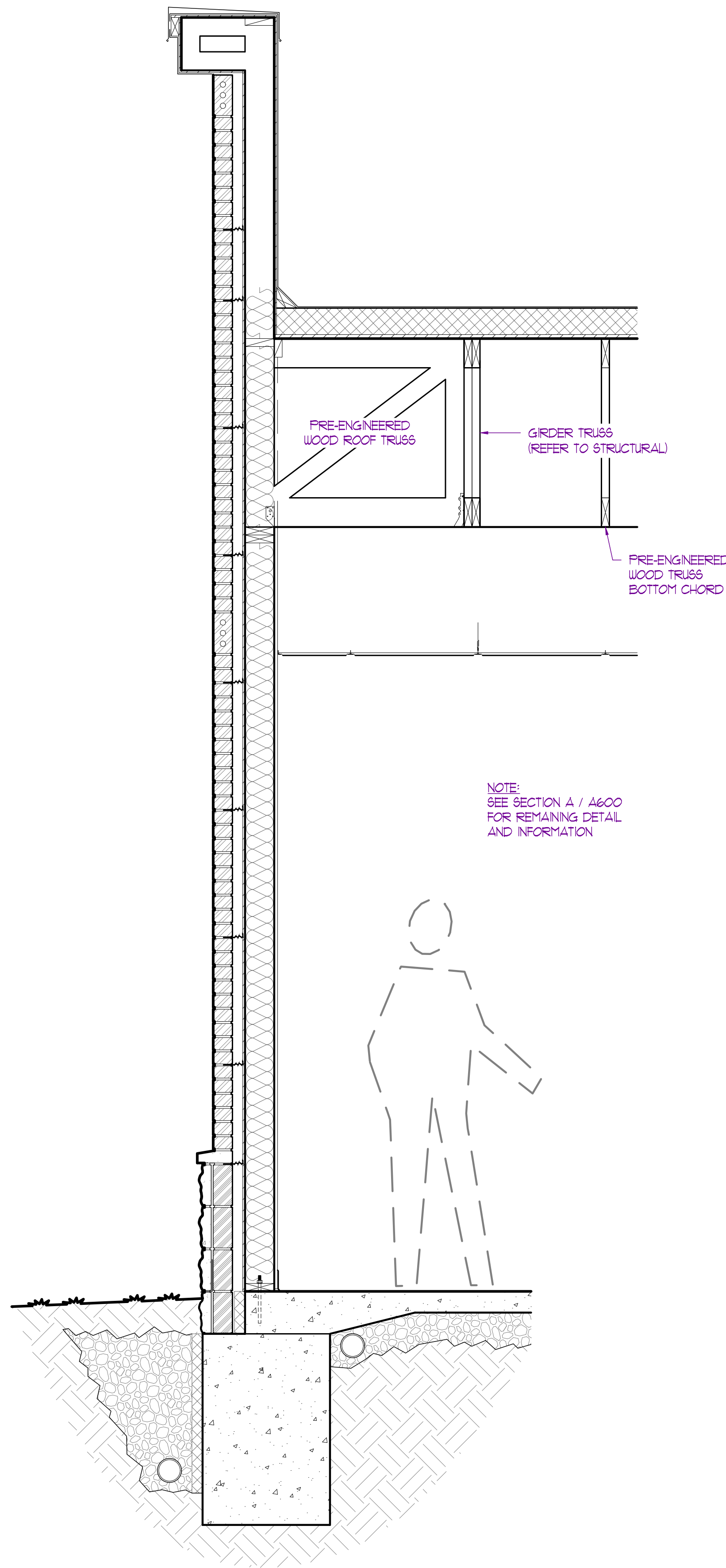
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BUILDING  
/ WALL SECTIONS

SHEET NUMBER

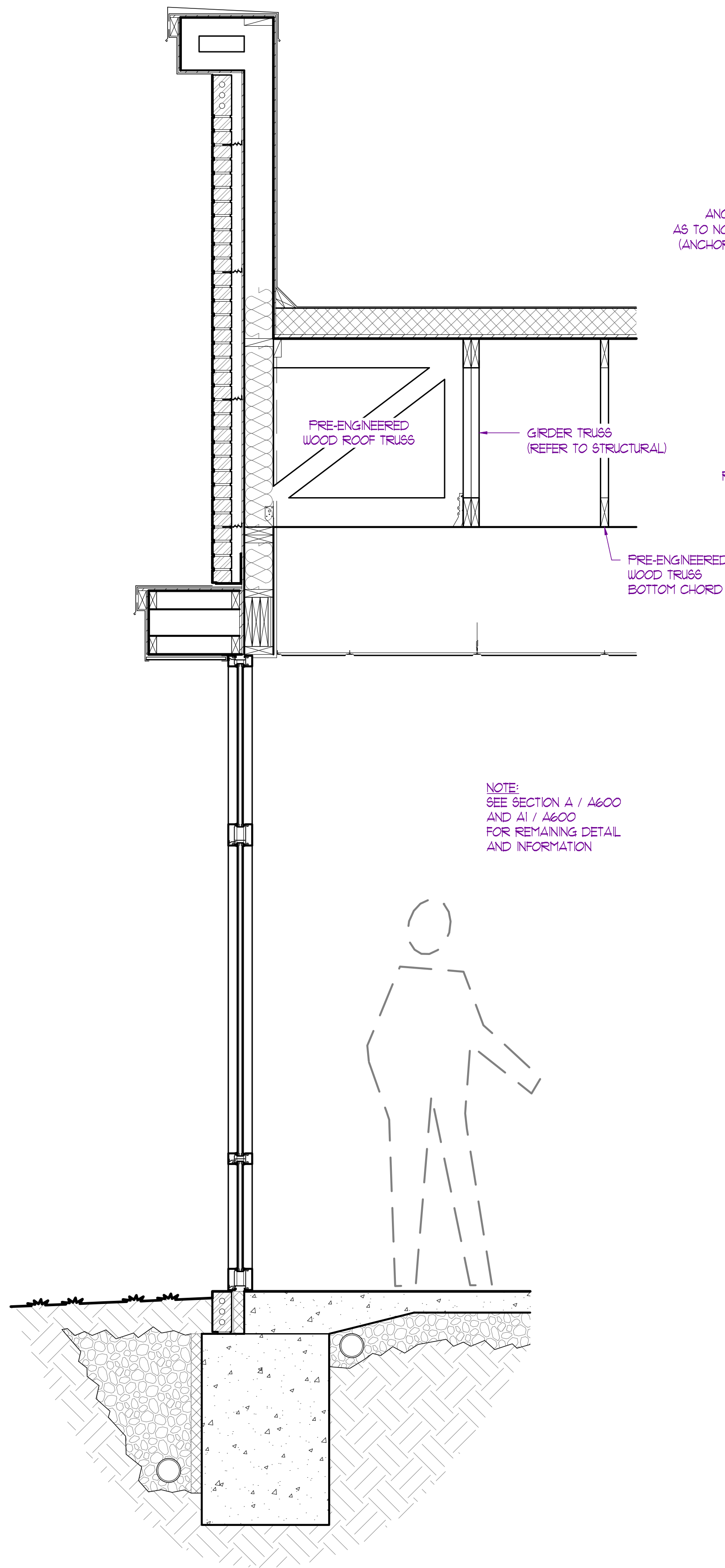
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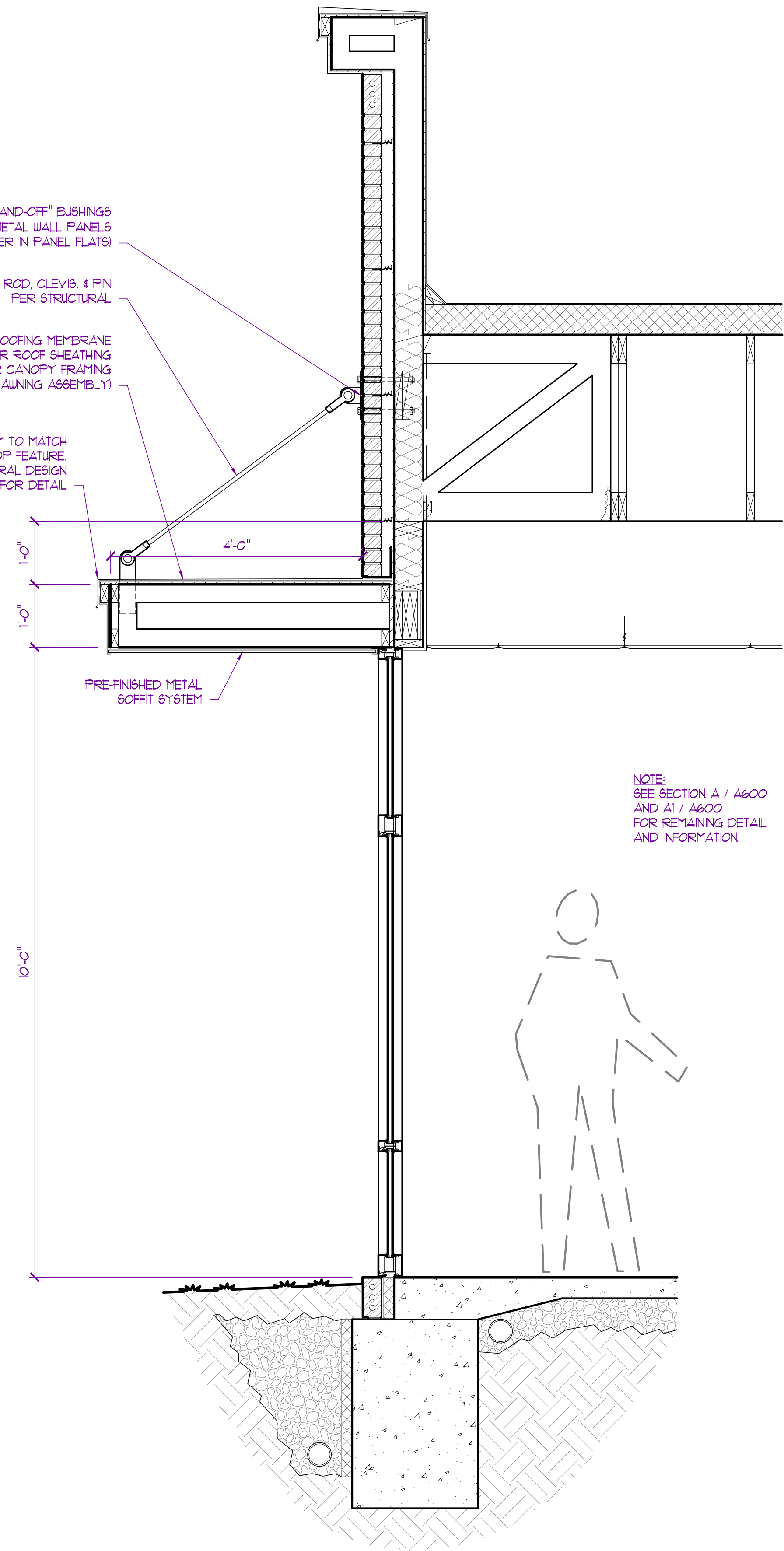
C  
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SECTION - C  
SCALE: 3/4" = 1'-0"



C1  
A201

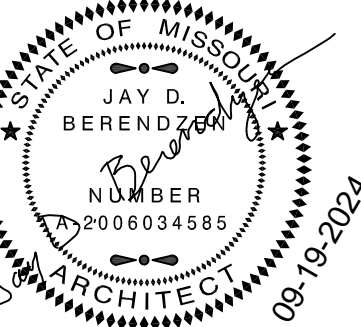
SECTION - C1  
SCALE: 3/4" = 1'-0"



D  
A201

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

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PROJECT

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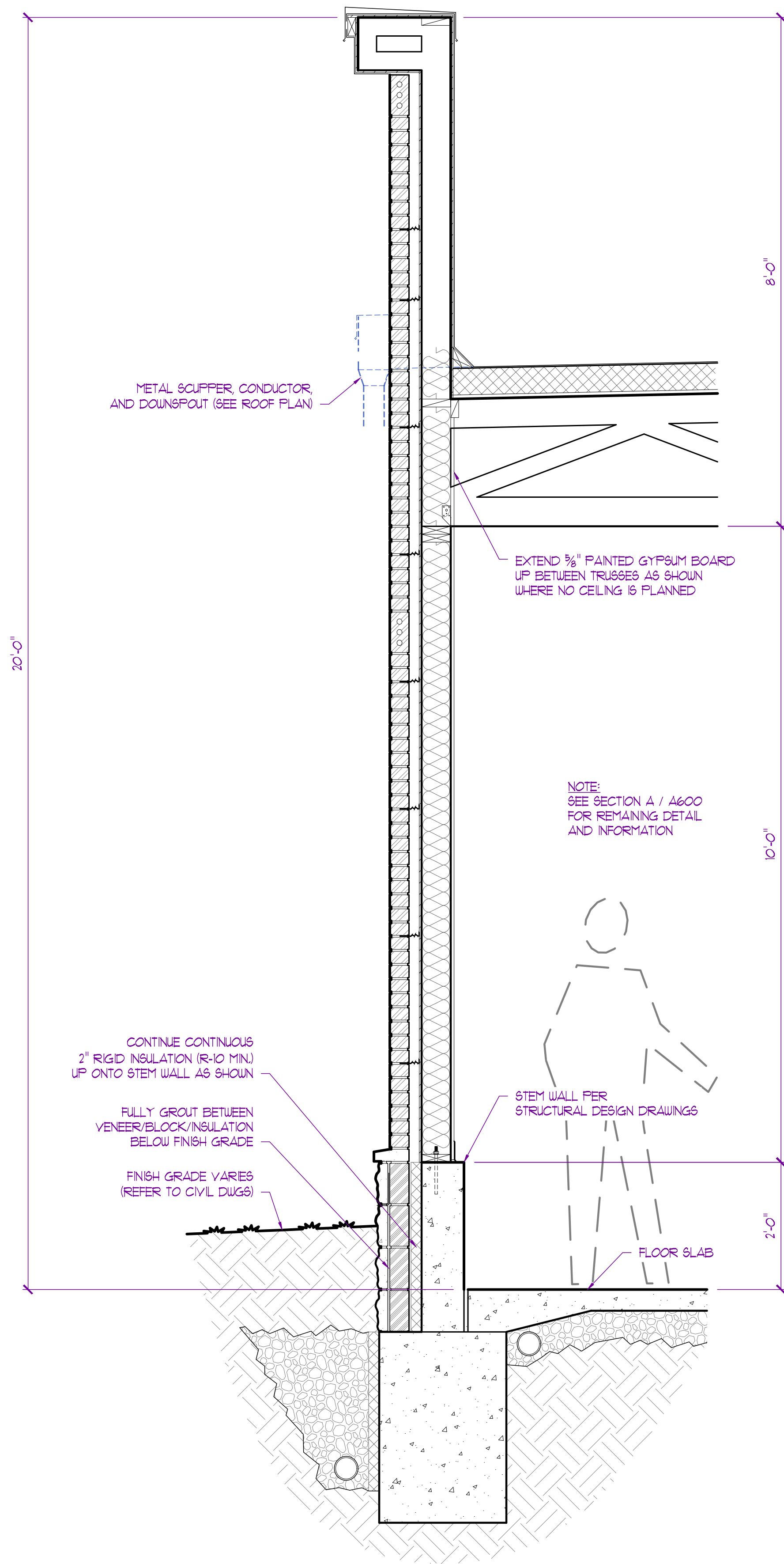
SHEET TITLE

BUILDING  
/ WALL SECTIONS

SHEET NUMBER

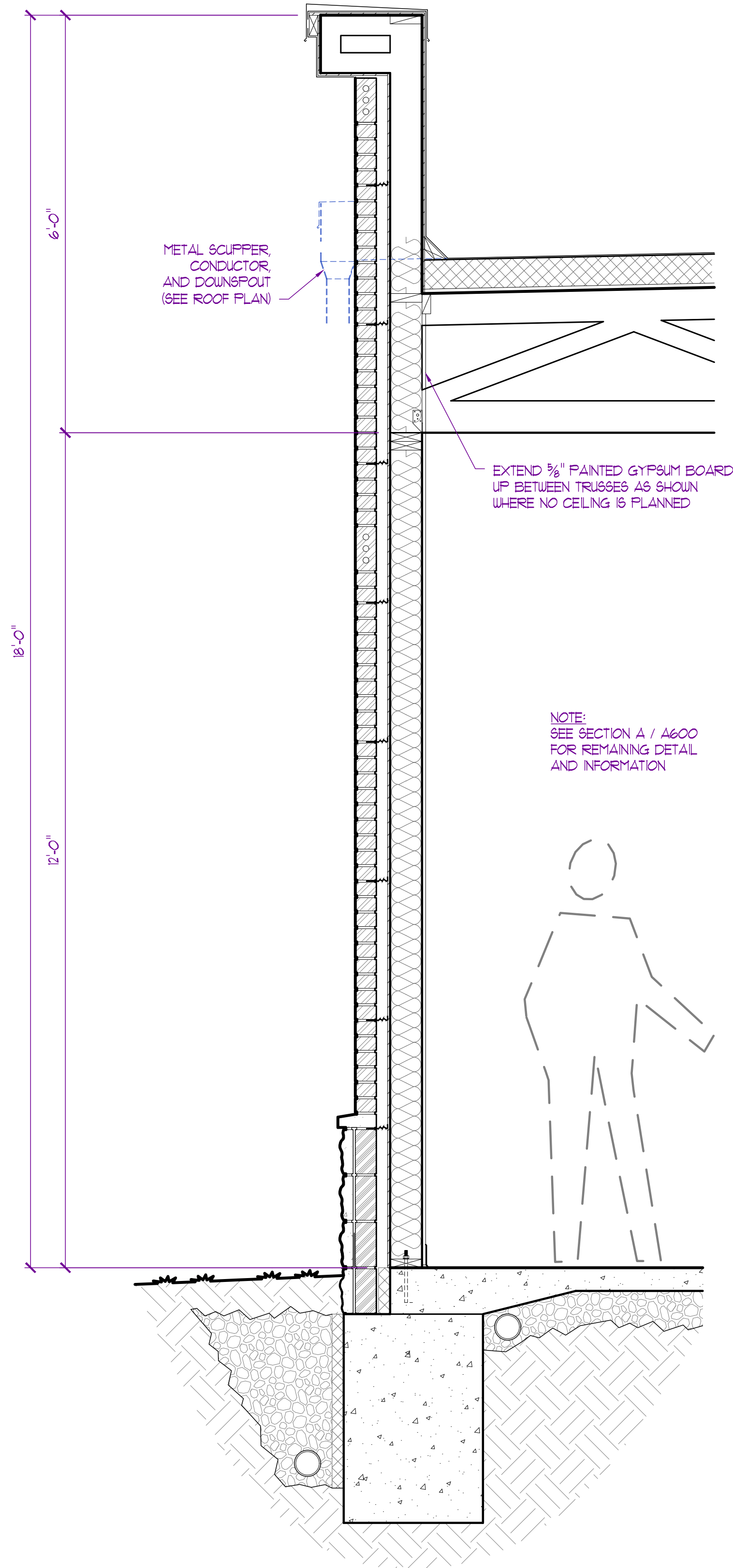
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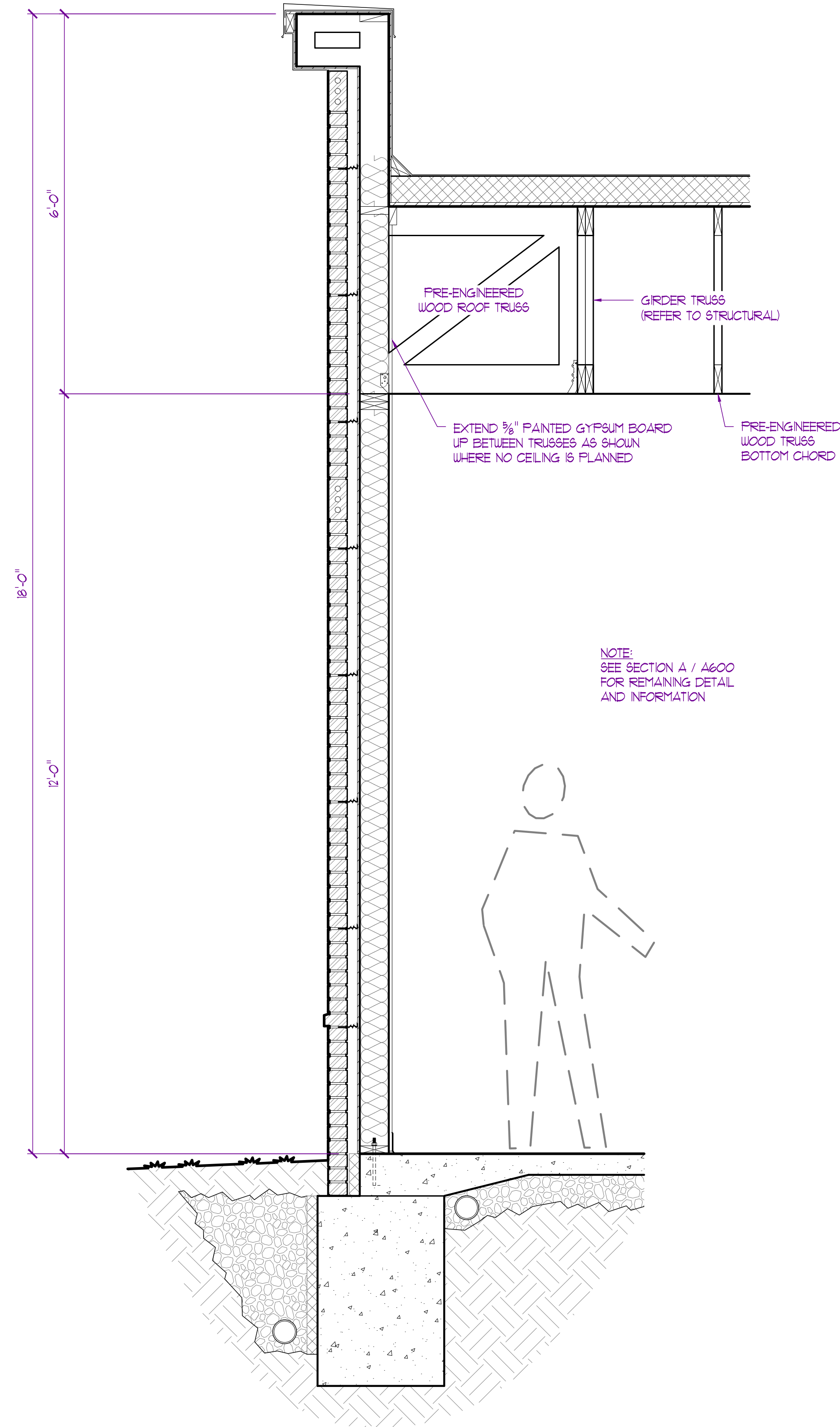
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A201

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



F  
A201

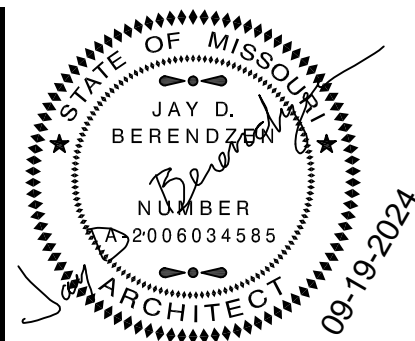
SECTION - F  
SCALE: 3/4" = 1'-0"



G  
A201

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

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PROJECT

Discovery Park  
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FB24248

SHEET TITLE

BUILDING  
/ WALL SECTIONS

SHEET NUMBER

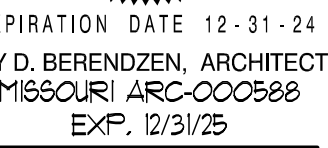
A602








1. ALL ASSEMBLIES SHOWN ARE FROM EXTERIOR VIEW UNLESS NOTED OTHERWISE
2. GENERAL CONTRACTOR TO FIELD VERIFY ALL DOOR / WINDOW ROUGH OPENINGS PRIOR TO FABRICATION
3. PROVIDE SEALANT AT JOINTS AND OPENINGS FOR WEATHER TIGHT INSTALLATION
4. ALL STOREFRONT ASSEMBLIES TO MEET U-FACTOR VALUES AS INDICATED IN BUILDING ELEVATION REPORT
5. ALL STOREFRONT DOORS / WINDOWS, TRIM, ACCESSORIES BE IN METAL, ETC. PROVIDED BY SAME MANUFACTURER
6. ALL STOREFRONT FRAMES TO BE DARK BRONZE OR EQUAL
7. ALL EXTERIOR GLAZING TO BE LOW E INSULATED GLASS W/ GRAY TINT (SAFETY GLASS WHERE INDICATED OR REQUIRED BY CODE)
8. ALL INTERIOR GLAZING TO BE 1/4" SINGLE PANE FLOAT GLASS (SAFETY GLASS WHERE INDICATED OR REQUIRED BY CODE)
9. SEE DOOR SCHEDULE ON SHEET A300 FOR RETAINING DOOR INFORMATION



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PROJECT

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

QUE

ID	DESCRIPTION	DATE
1	PERMIT	9/19/2024

PROJECT NO. \_\_\_\_\_

PBA2418

**SHEET TITLE**

## STOREFRONT ELEVATIONS / DETAILS

SHEET NUMBER

## A700



QUANTITY = 2



QUANTITY = 3

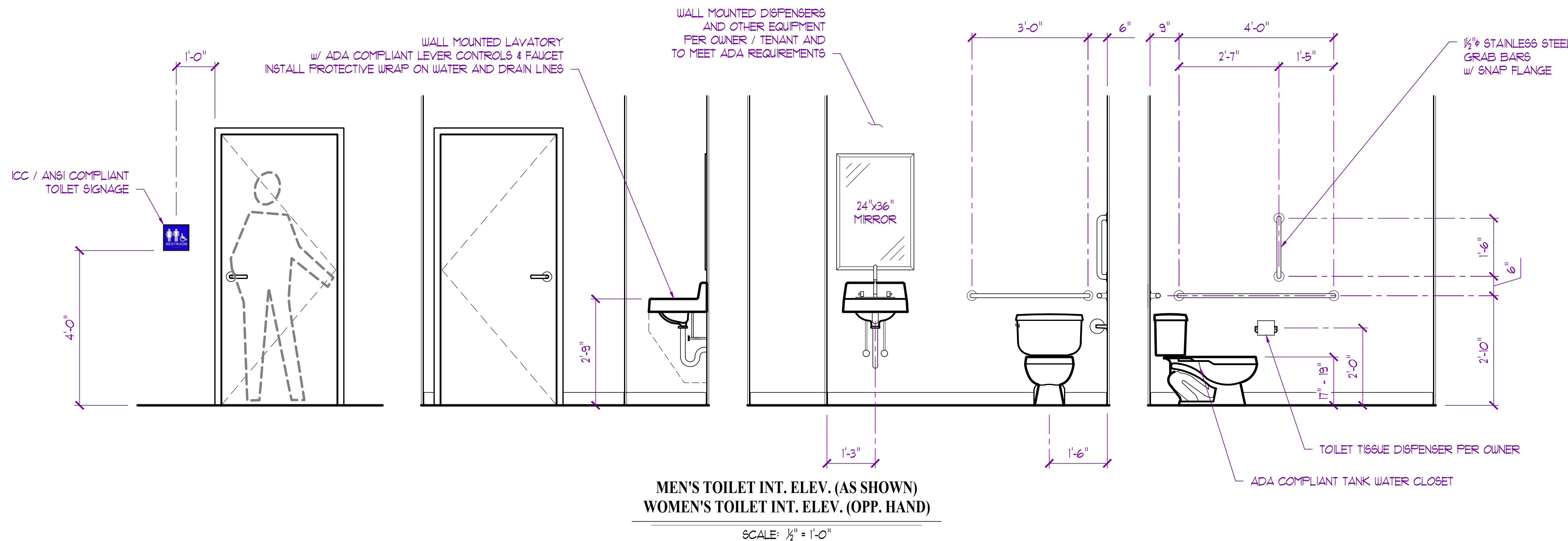
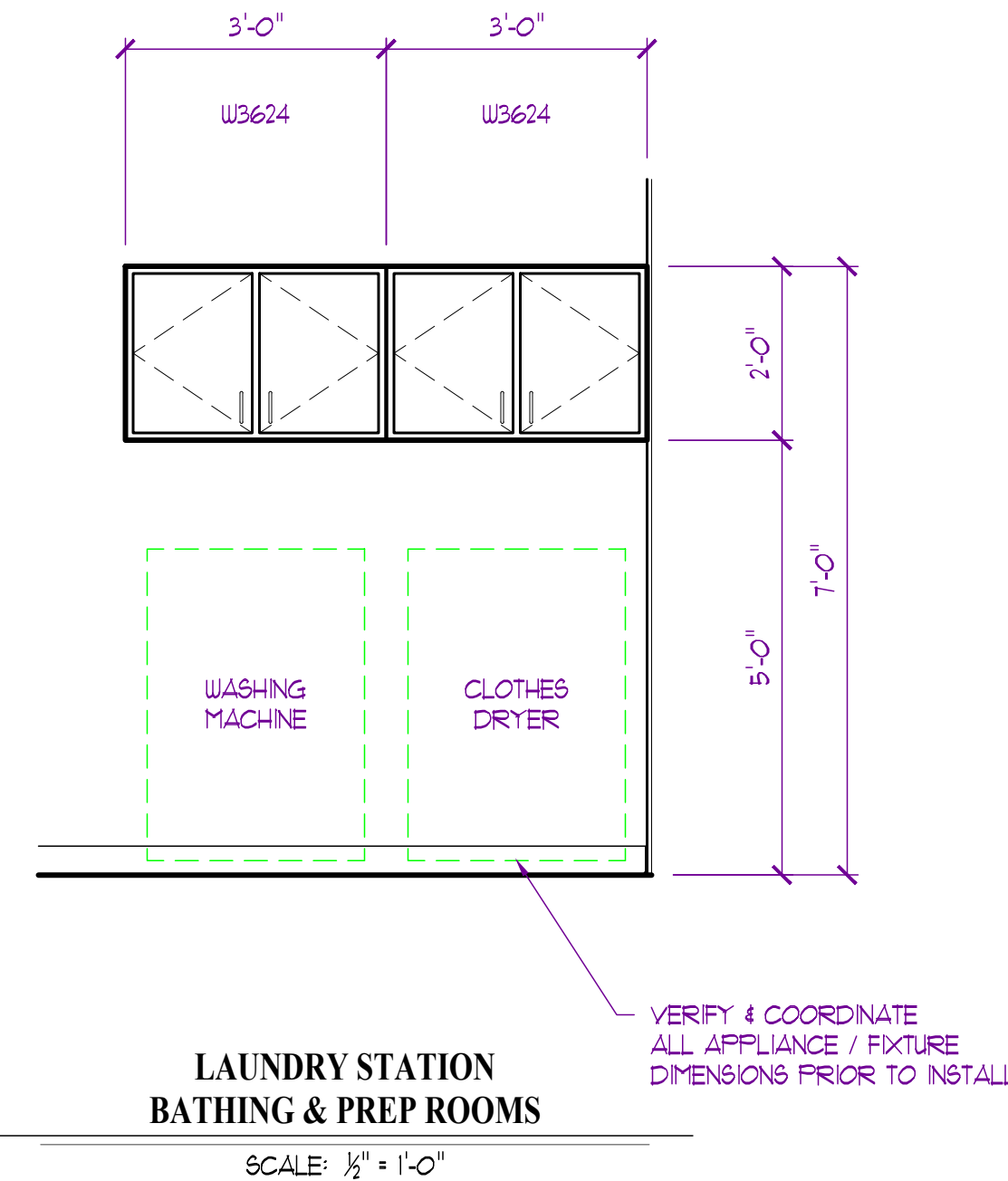
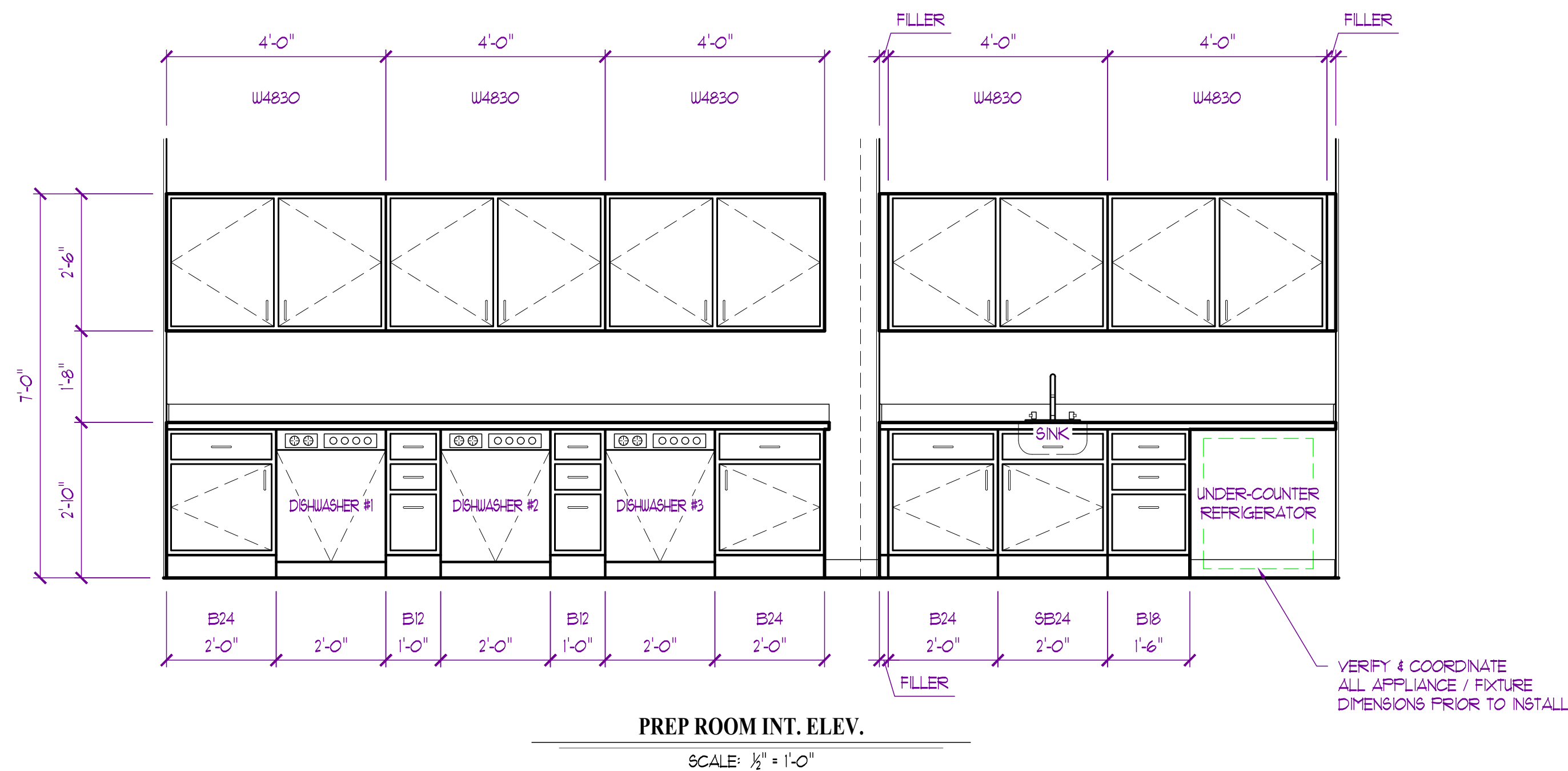
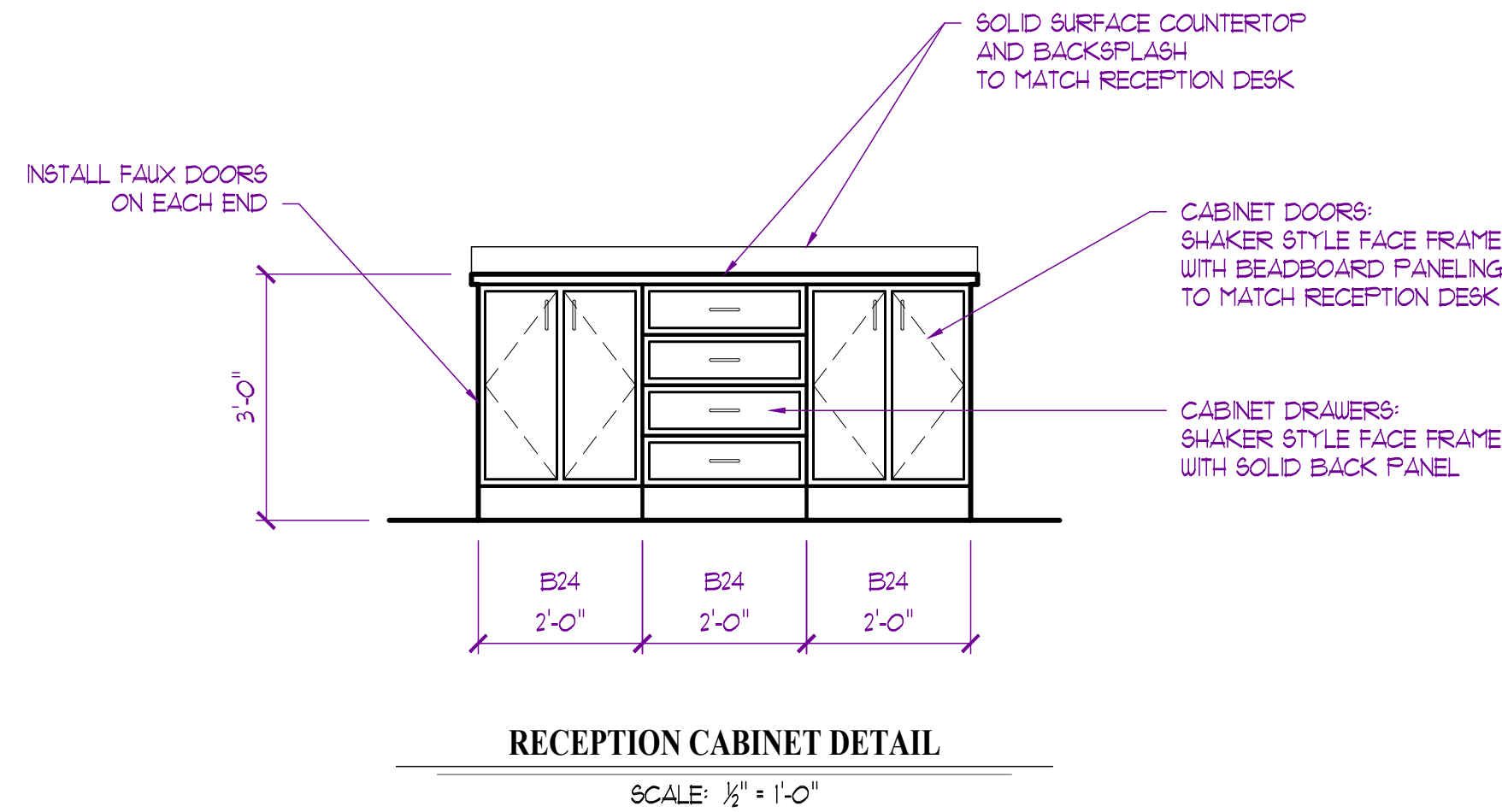
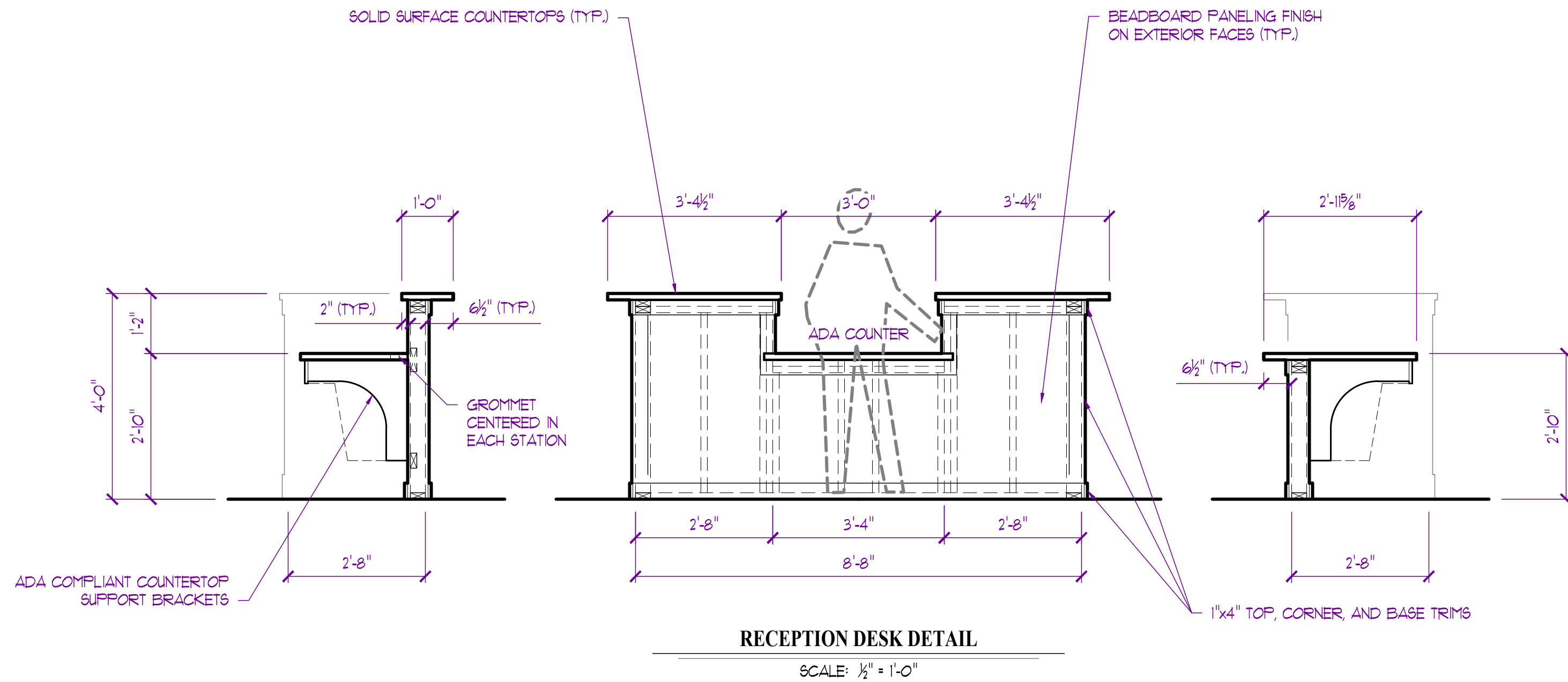


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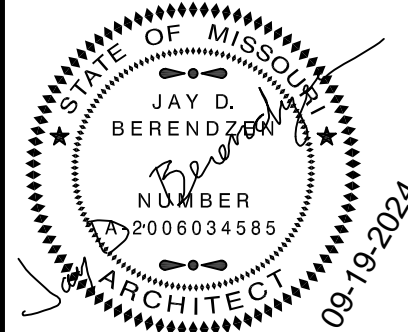
QUANTITY = 3





# 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" SHELVING) TYPICAL UNLESS NOTED OTHERWISE.
- INSTALL ALL FINISHES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



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

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**PORTER, BERENDZEN & ASSOCIATES, P.C. ARCHITECTS**  
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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. FB242418

SHEET TITLE

INTERIOR  
ELEVATIONS / DETAILS

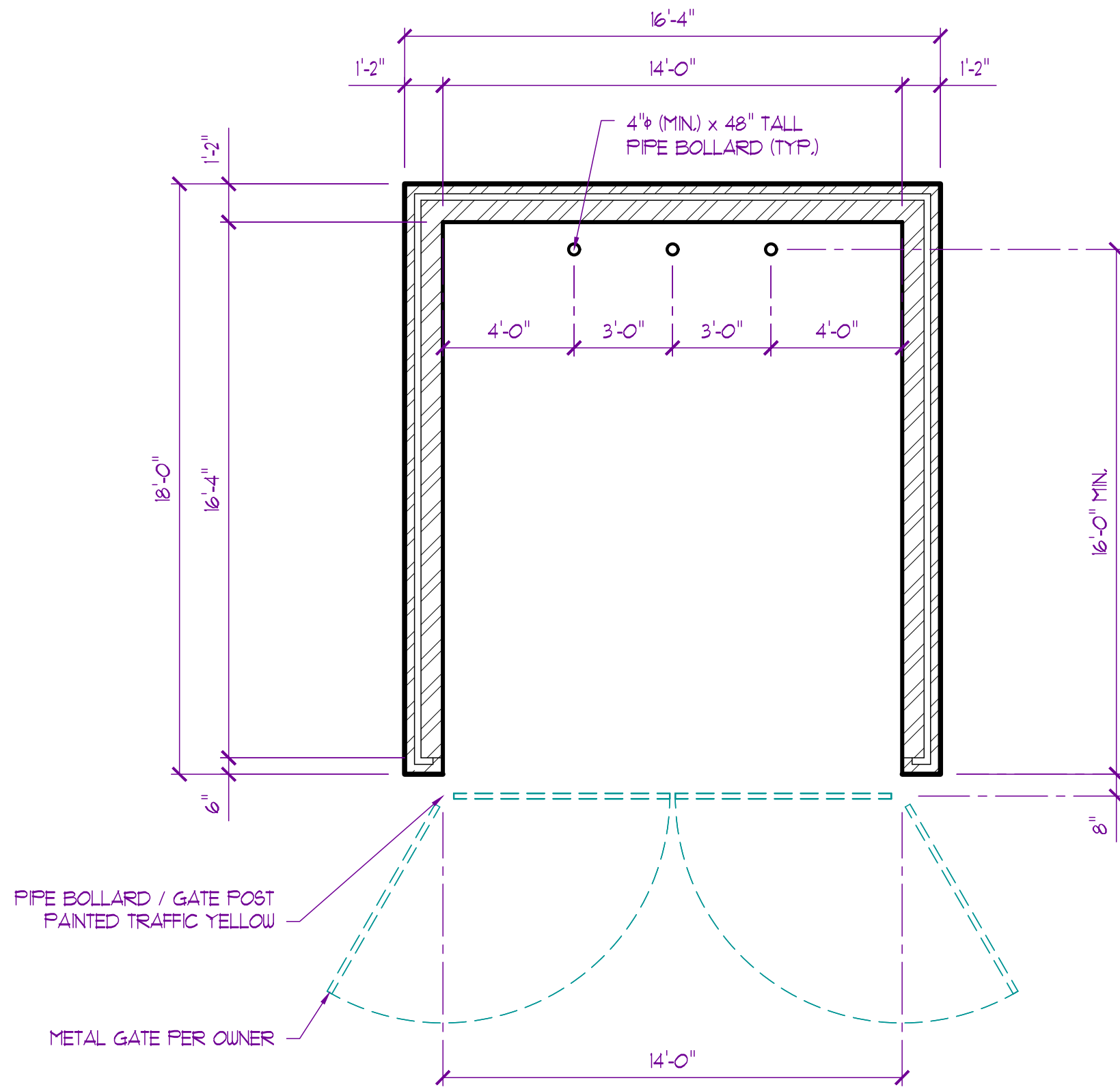
SHEET NUMBER

**A800**



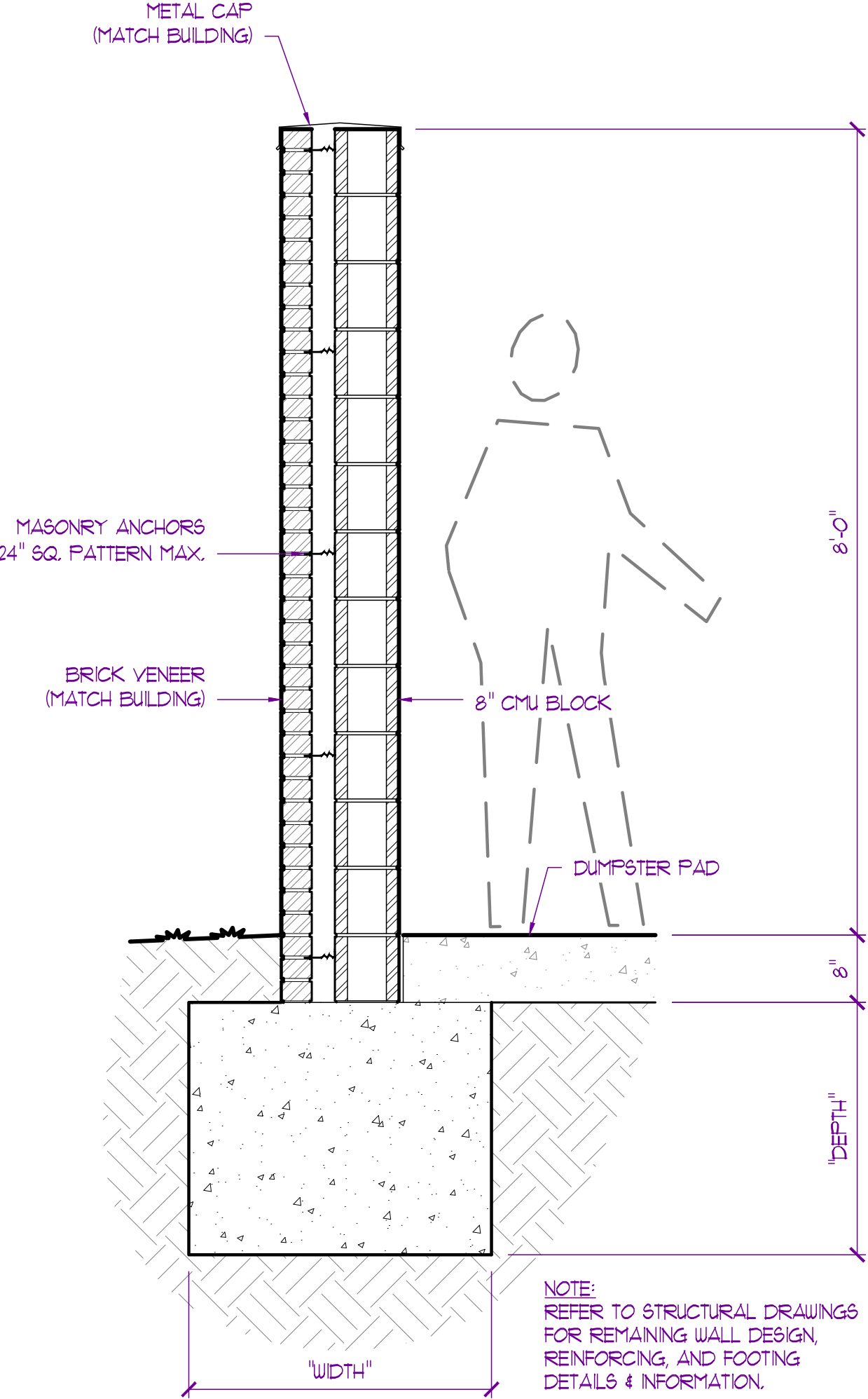
SITE DETAIL GENERAL NOTES:

- 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"



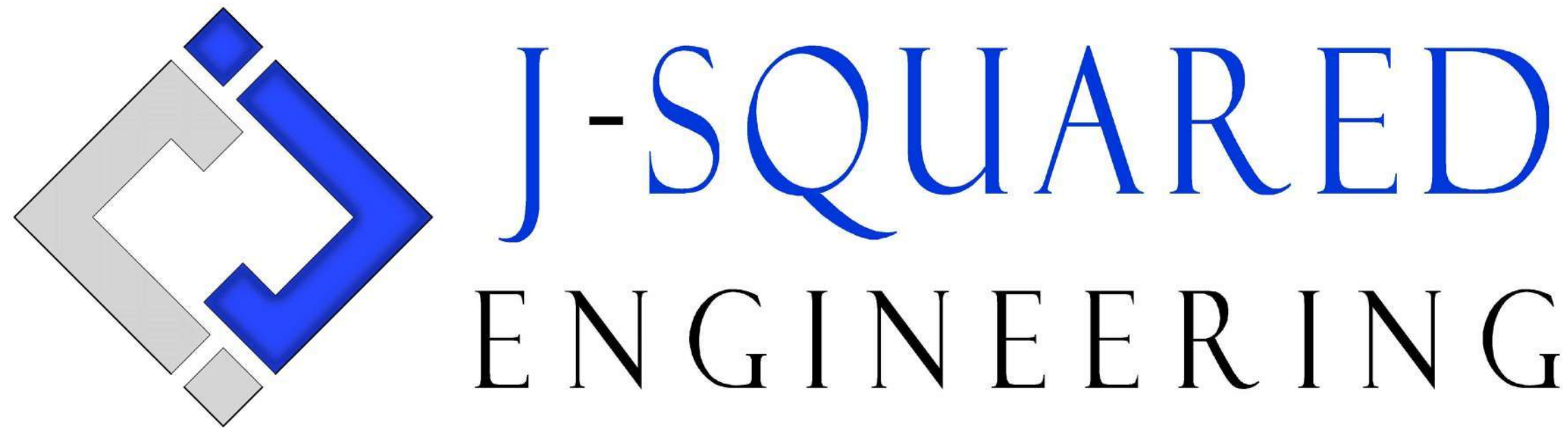
TYP. ENCLOSURE WALL SECTION

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

ROOM FINISH SCHEDULE									
ROOM		FLOORING		WALLS				CEILINGS	
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	FRP-1 TO 8R AFF ALL WALLS	
107	BATHING ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	FRP-1 TO 8R AFF ALL WALLS	
108	PREP ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	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	FRP-1 TO 8R AFF ALL WALLS	
110	WOMEN'S TOILET	LVT-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	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	
121	KENNEL WEST WING	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
122	NORTH CORRIDOR	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
123	BUILT-IN#1	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
124	BUILT-IN#2	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
125	TRAINING ROOM	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
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	
131	PLAY AREA "B"	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
132	PLAY AREA "C"	SC-1	B-1	PGB-1	PGB-1	PGB-1	PGB-1	ESTR	
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	DOORSTOP		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	IHM-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			NARROW LITE
111	3'-0"	7'-0"	1 3/4"	WD-1	STN	RH	HMF	PT	6.75"	H-1	PL-1	CL-1			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"x16" Standard Push/Pull Plates w/ Optional Kick Plates Each Side															
HARDWARE:															
H-1	Hinge				1 1/2" Pair Full Mortise Template Ball Bearing Standard Weight Hinges, Finish Per Owner / Tenant										
H-2	Hinge				3 Pair Full Mortise Template Ball Bearing Heavy Weight Hinges, Finish Per Owner / Tenant										
C-1	Closer				Surface Closer ( Finish to Match Adjacent Hardware )										
DS-1	Door Stop				Wall Mounted Door Stop										
DS-2	Door Stop				Floor Mounted Door Stop										
DS-3	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:															
1 Set all Thresholds in Sealant															
2 All Doors and Hardware shall meet Accessibility Standards															





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.
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

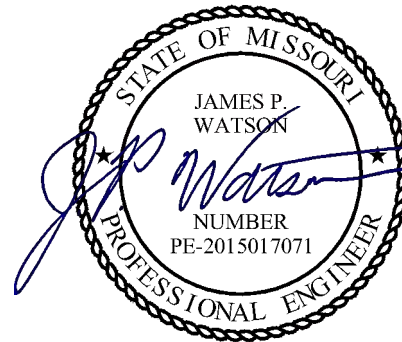
1. FIRE ALARM SYSTEM
- 1.1. FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.
-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

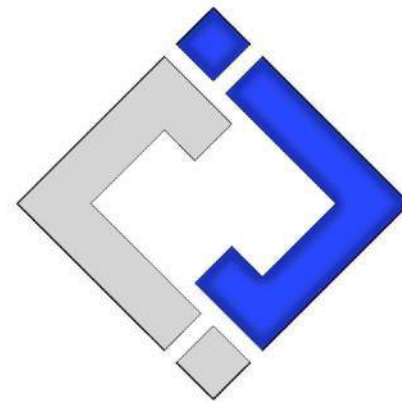
- PROJECT HAS BEEN DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES LISTED BELOW, BUT THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL REQUIREMENTS.
- 2018 INTERNATIONAL MECHANICAL CODE
  - 2018 INTERNATIONAL PLUMBING CODE
  - 2018 INTERNATIONAL FUEL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

SHEET LIST TABLE

SHEET #	SHEET TITLE
MEP1	MECHANICAL ELECTRICAL PLUMBING COVER SHEET
MEP2	SITE UTILITIES - SITE LIGHTING
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
P501	PLUMBING DETAILS & SCHEDULES



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



J-SQUARED  
ENGINEERING  
2400 Bluff Creek Drive, Suite 101  
Columbia, Missouri 65201  
573 - 234 - 4492 phone  
www.j-squaredeng.com

J2 PROJECT No: J21205

J2 DESIGN: ACW

ISSUE TITLE DATE

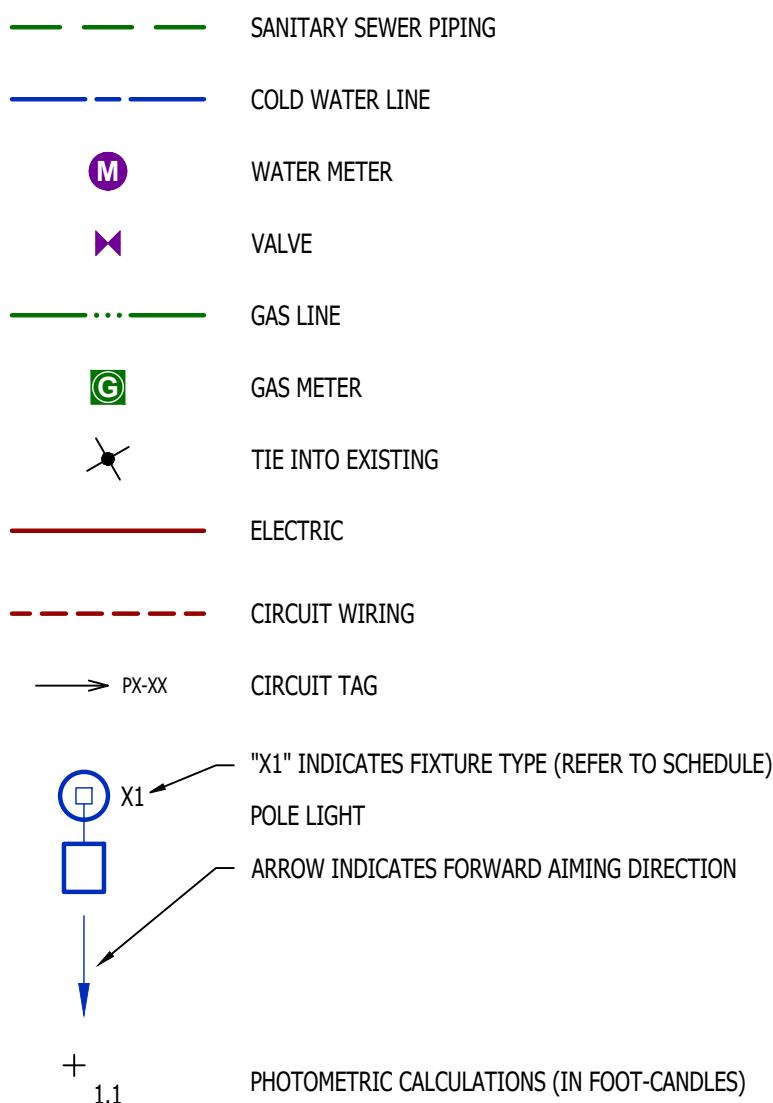
PERMIT 09-19-2024



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

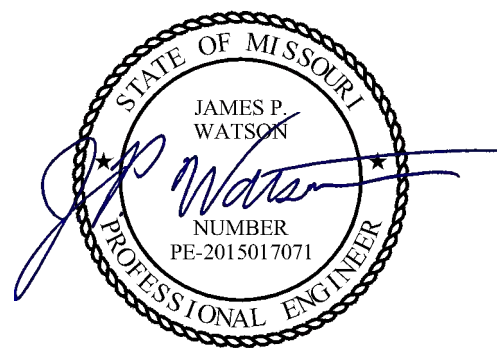
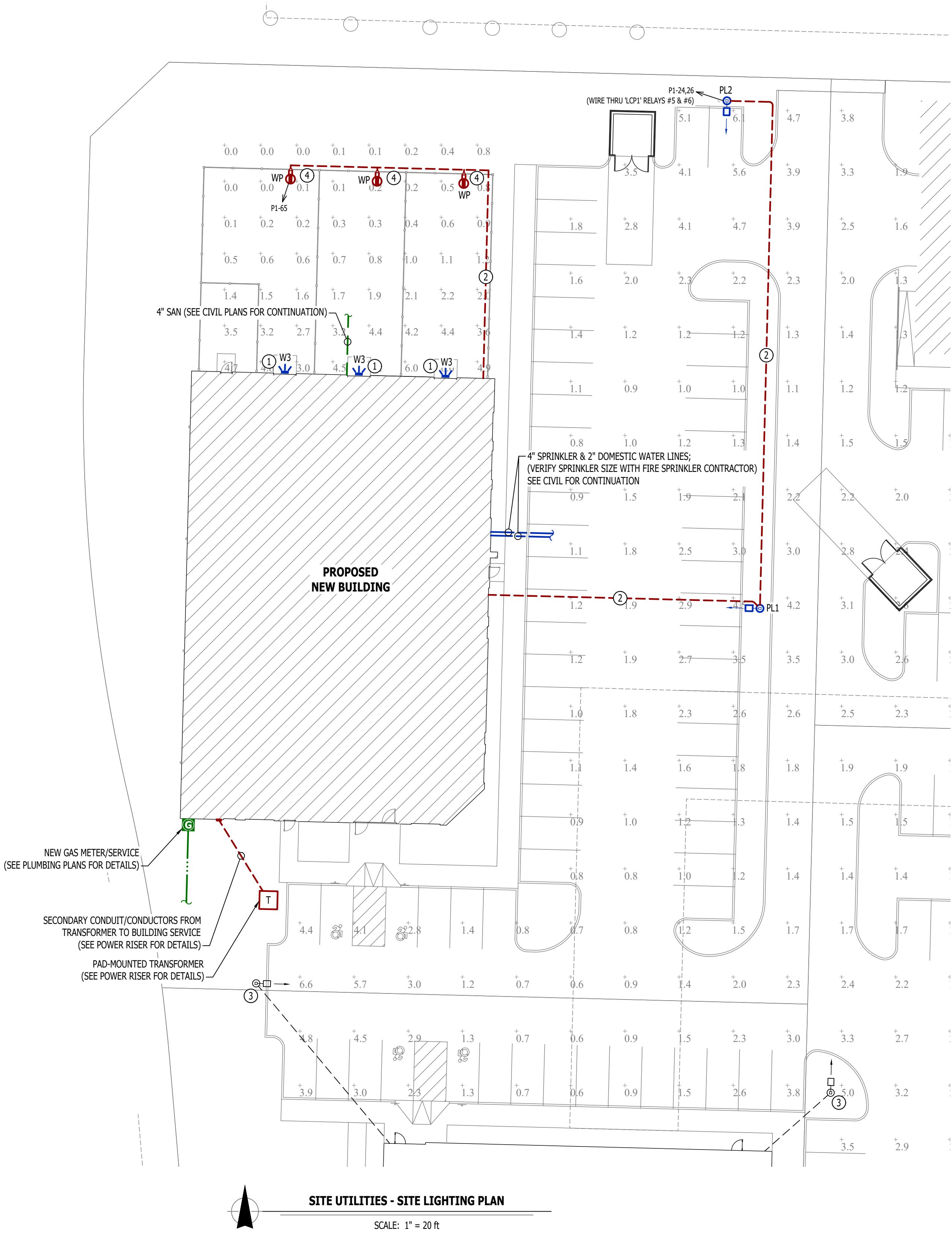
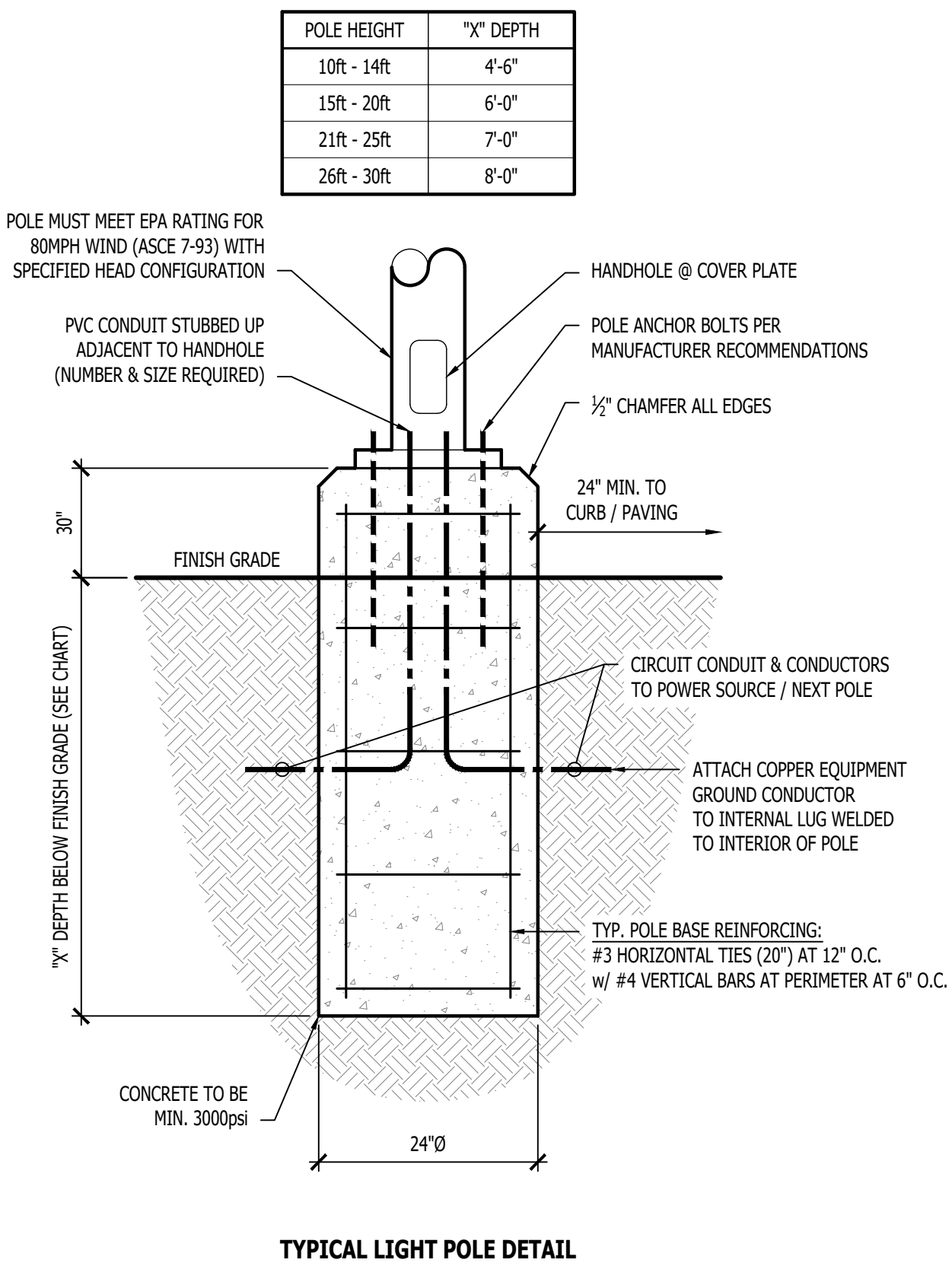


SITE UTILITIES - SITE LIGHTING PLAN GENERAL NOTES:

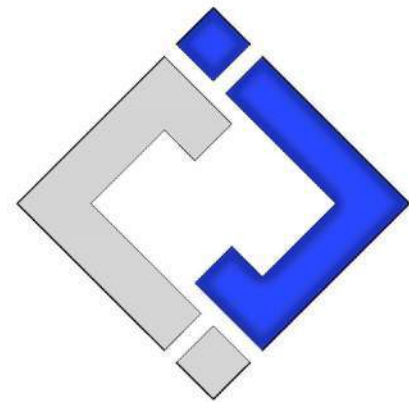
- REFER TO CIVIL PLANS FOR EXACT UTILITY LOCATIONS, CONNECTIONS, DETAILS, ETC.
- SITE PHOTOMETRIC VALUES SHOWN HAVE BEEN CALCULATED PER SPECIFIED LIGHT FIXTURES AT INDICATED MOUNTING HEIGHTS. ANY CHANGES OR ALTERATIONS TO LIGHTING LAYOUT SHOWN WILL REQUIRE RECALCULATING SITE PHOTOMETRICS AND WILL THE 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.



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

A43 APPROVAL STAMP

SHEET TITLE

SITE UTILITIES  
- SITE  
LIGHTING

SHEET NUMBER

MEP2



HVAC PLAN SYMBOL LEGEND

- ← EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)  
← EQUIPMENT REFERENCE NUMBER  
← DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)  
← 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  
T THERMOSTAT

HVAC PLAN GENERAL NOTES:

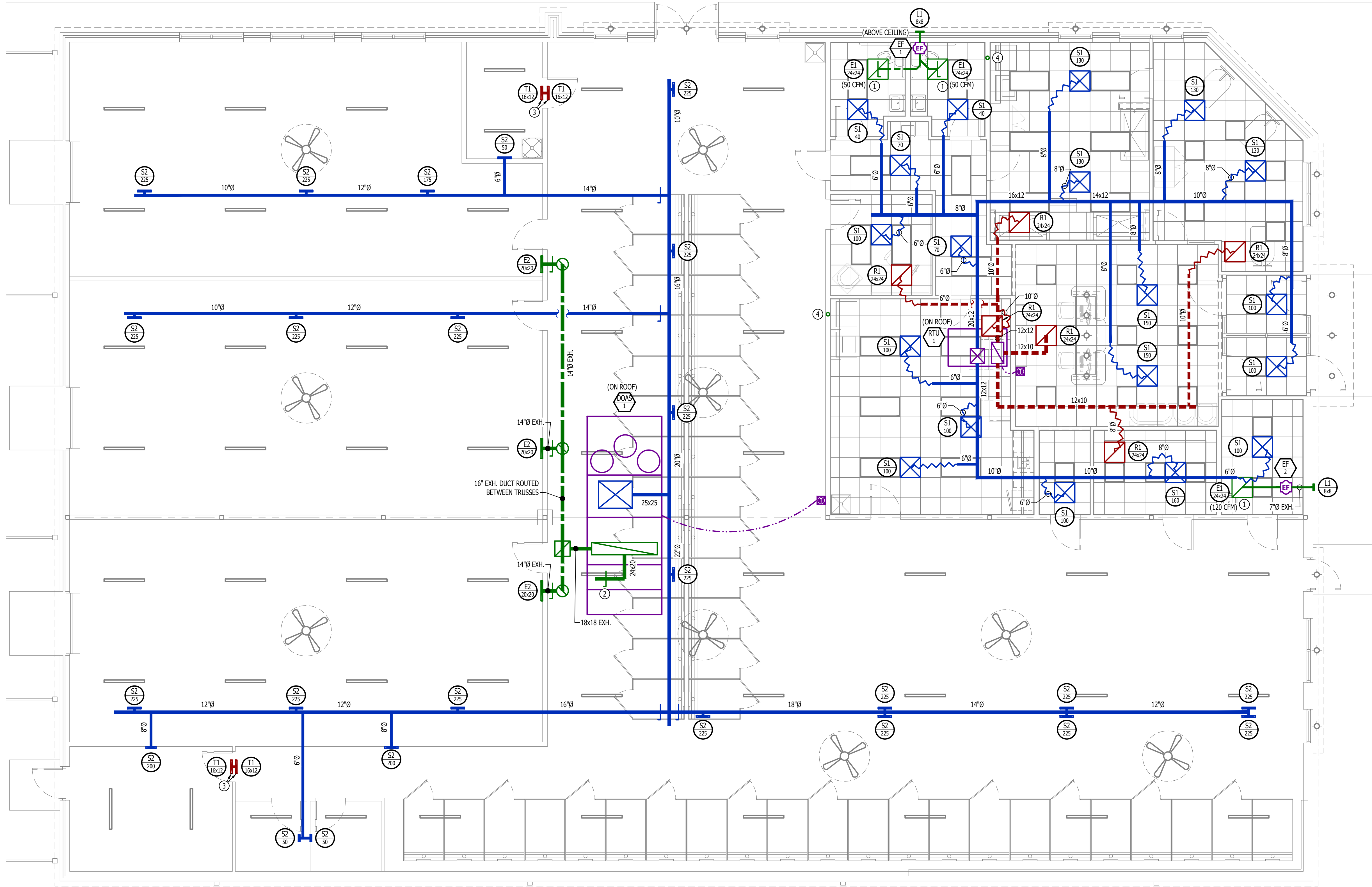
- REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- HVAC CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK, REFRIGERANT PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL 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 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.

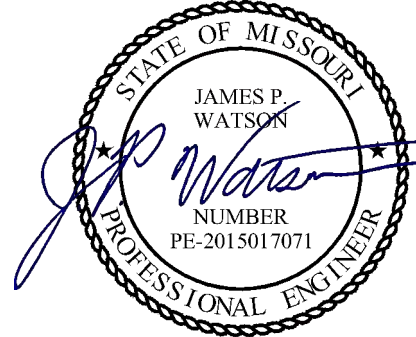
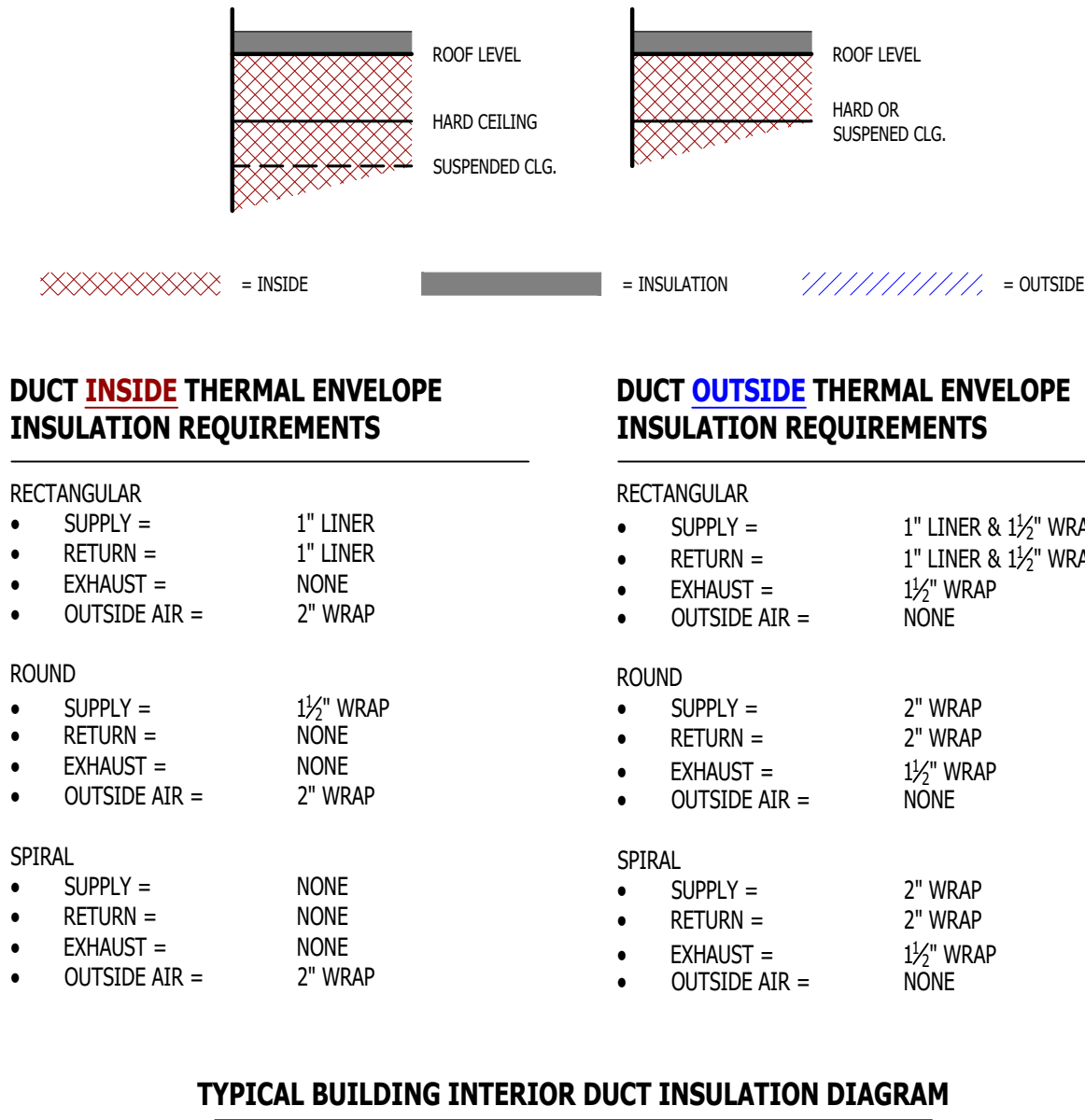
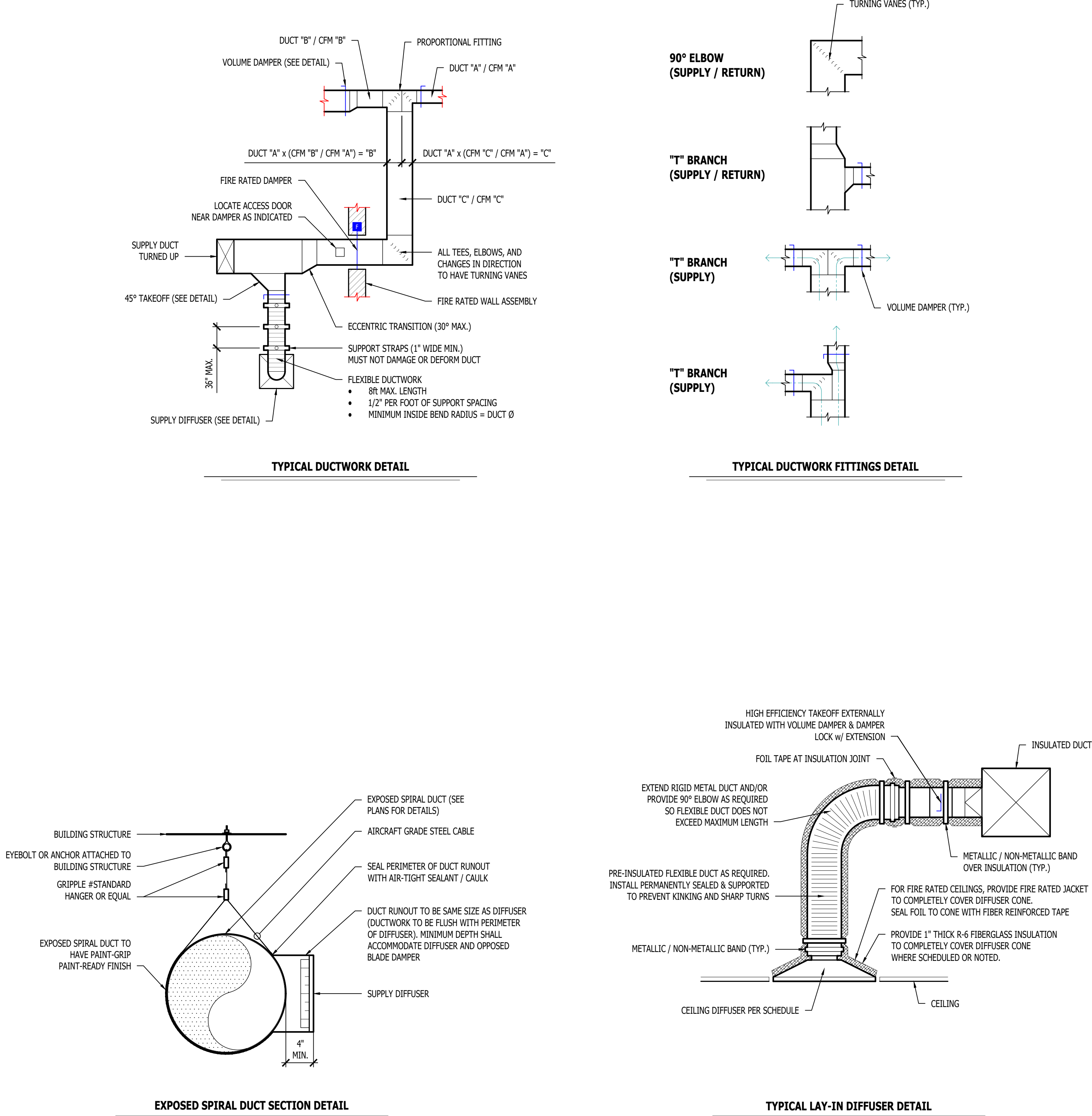
VRV/VRF - INSULATE WITH 1/2" ELASTOMERIC.
6.

TESTING AND BALANCING
- 6.1.

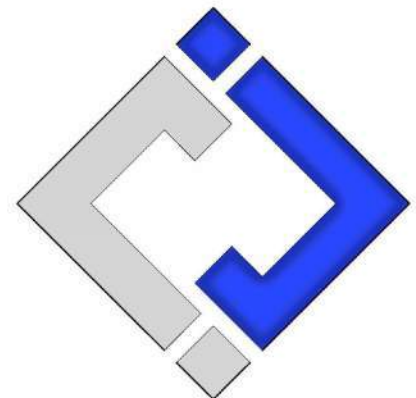
ALL SYSTEMS MUST BE BALANCED TO WITHIN 10% OF VALUES INDICATED ON PLAN.
- 6.2.

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.



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


HVAC DETAILS

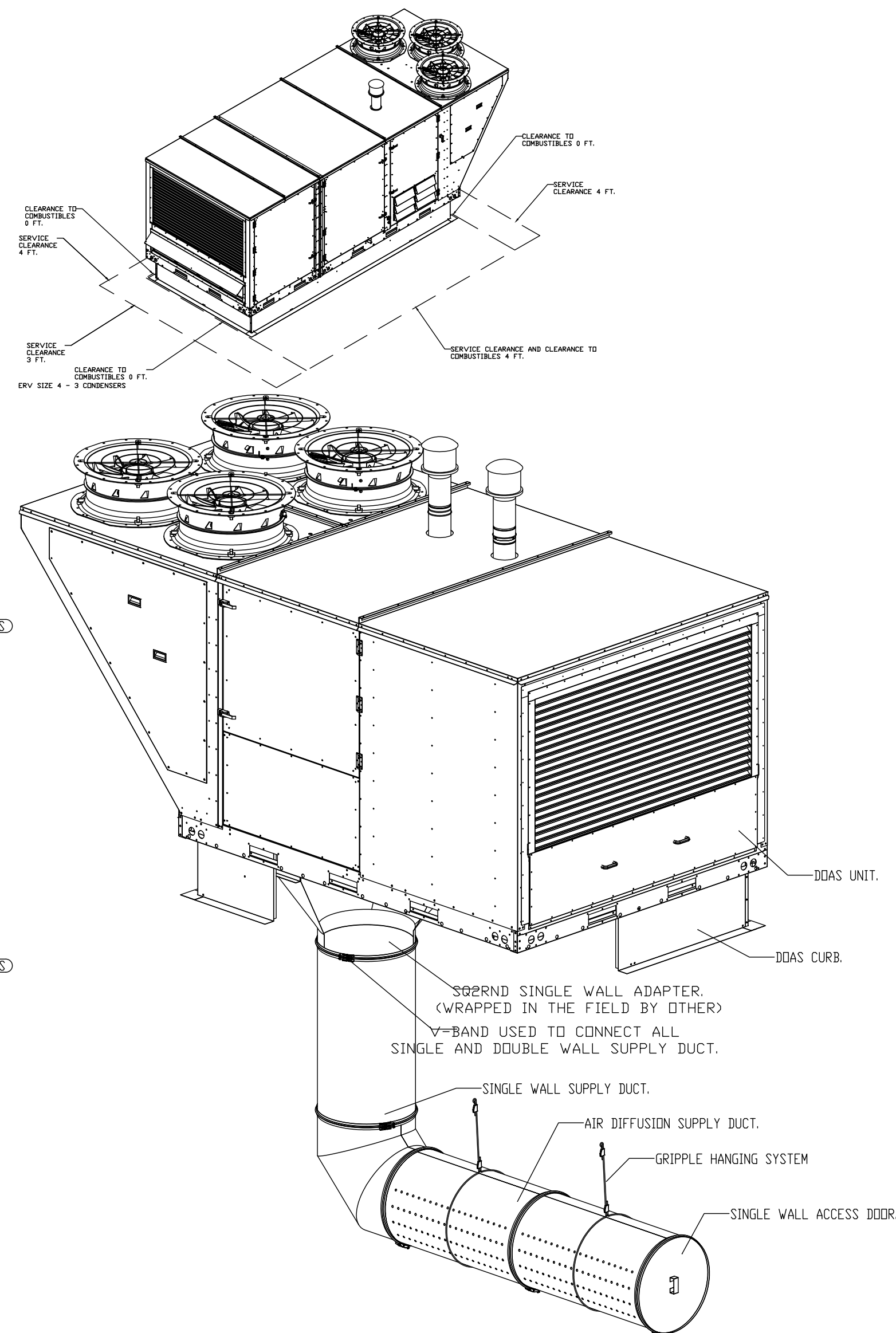
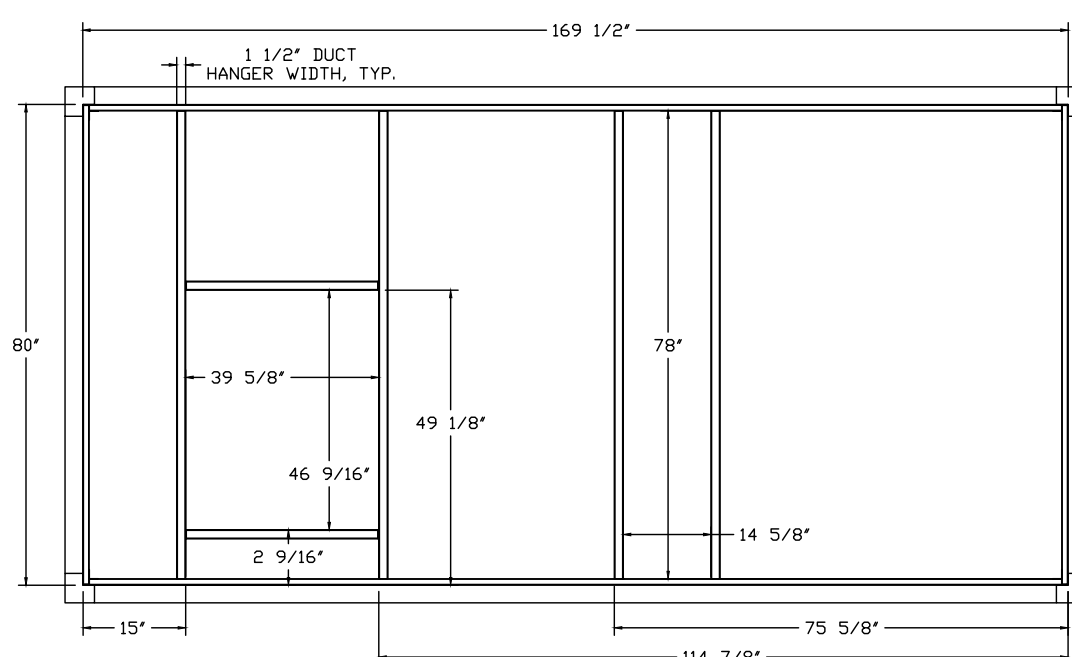
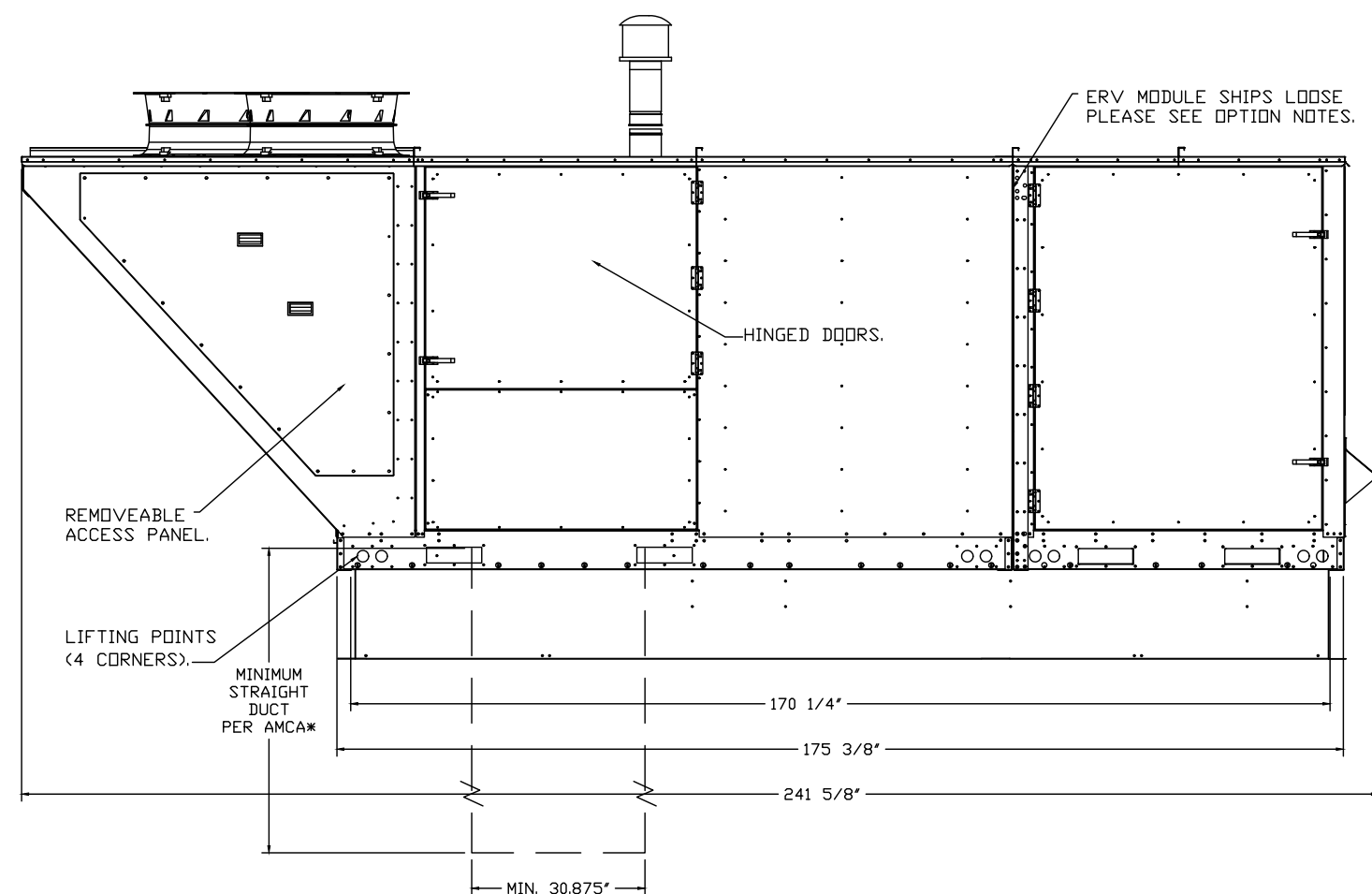
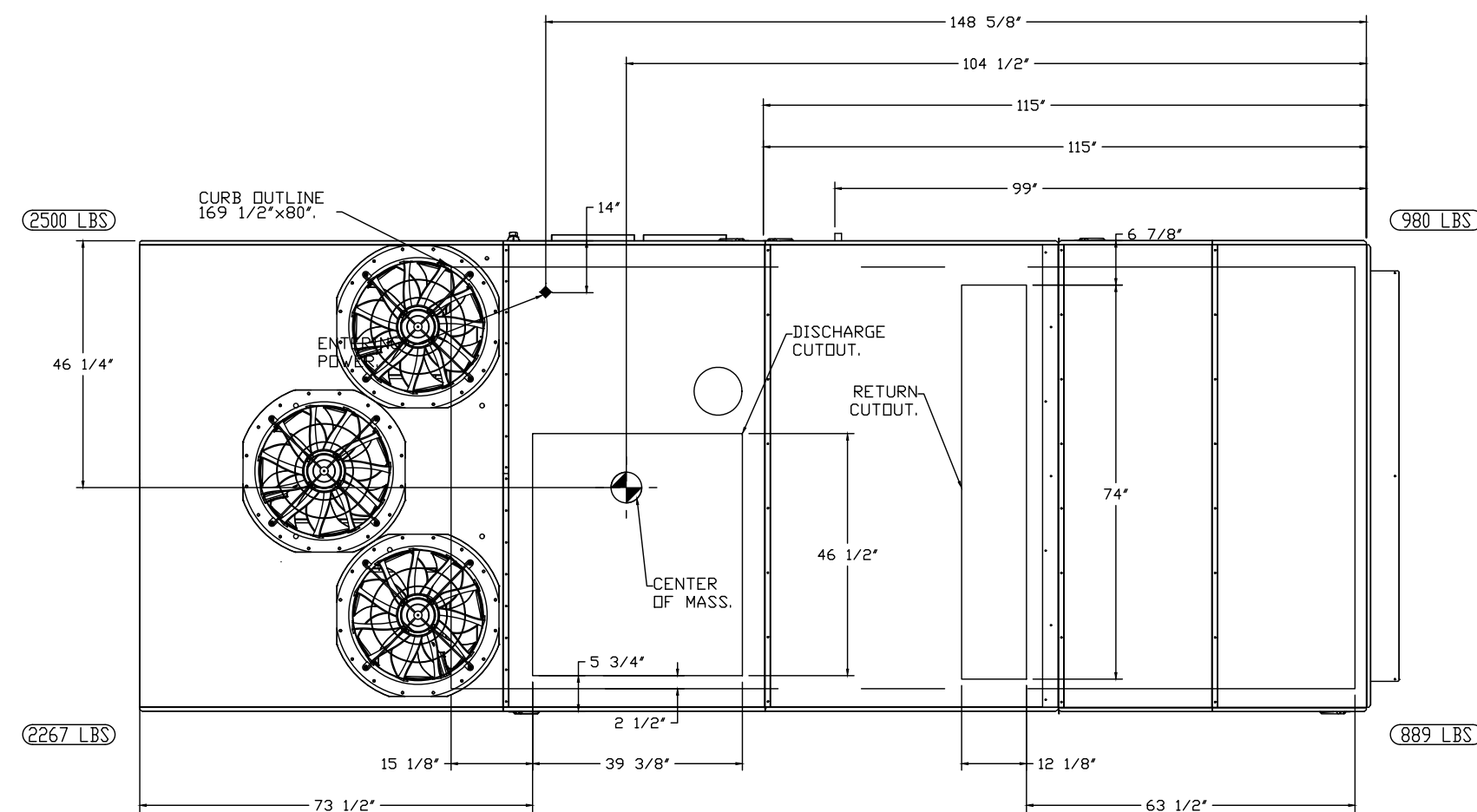
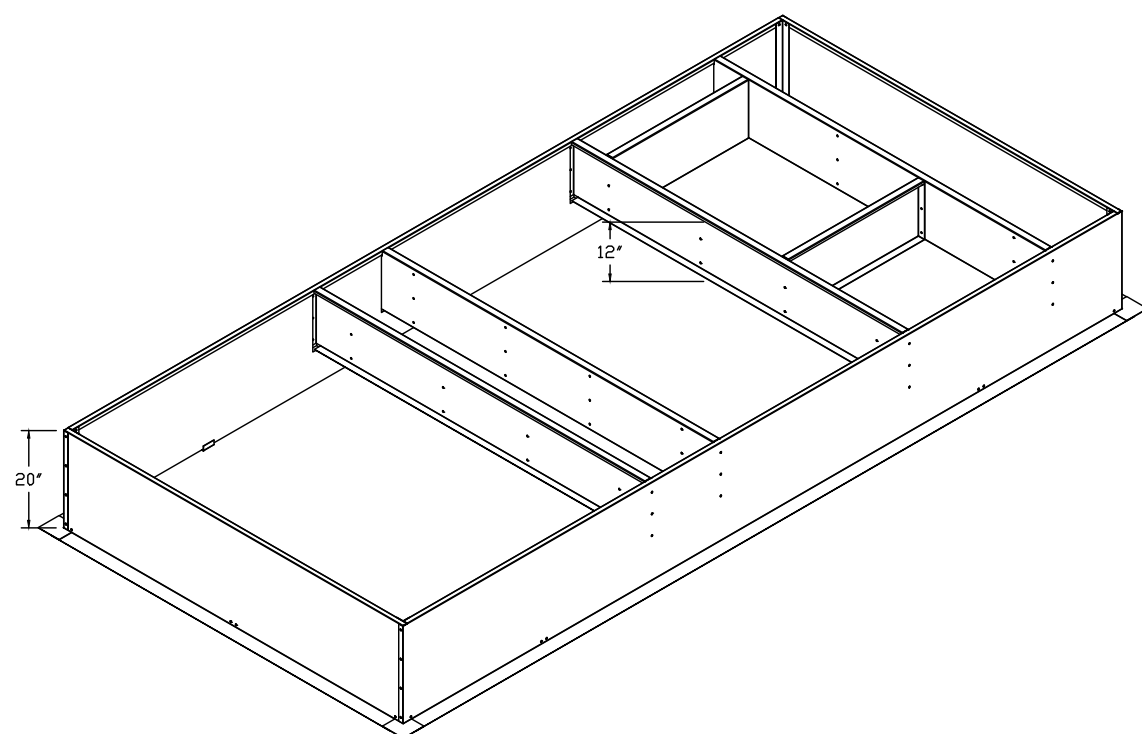
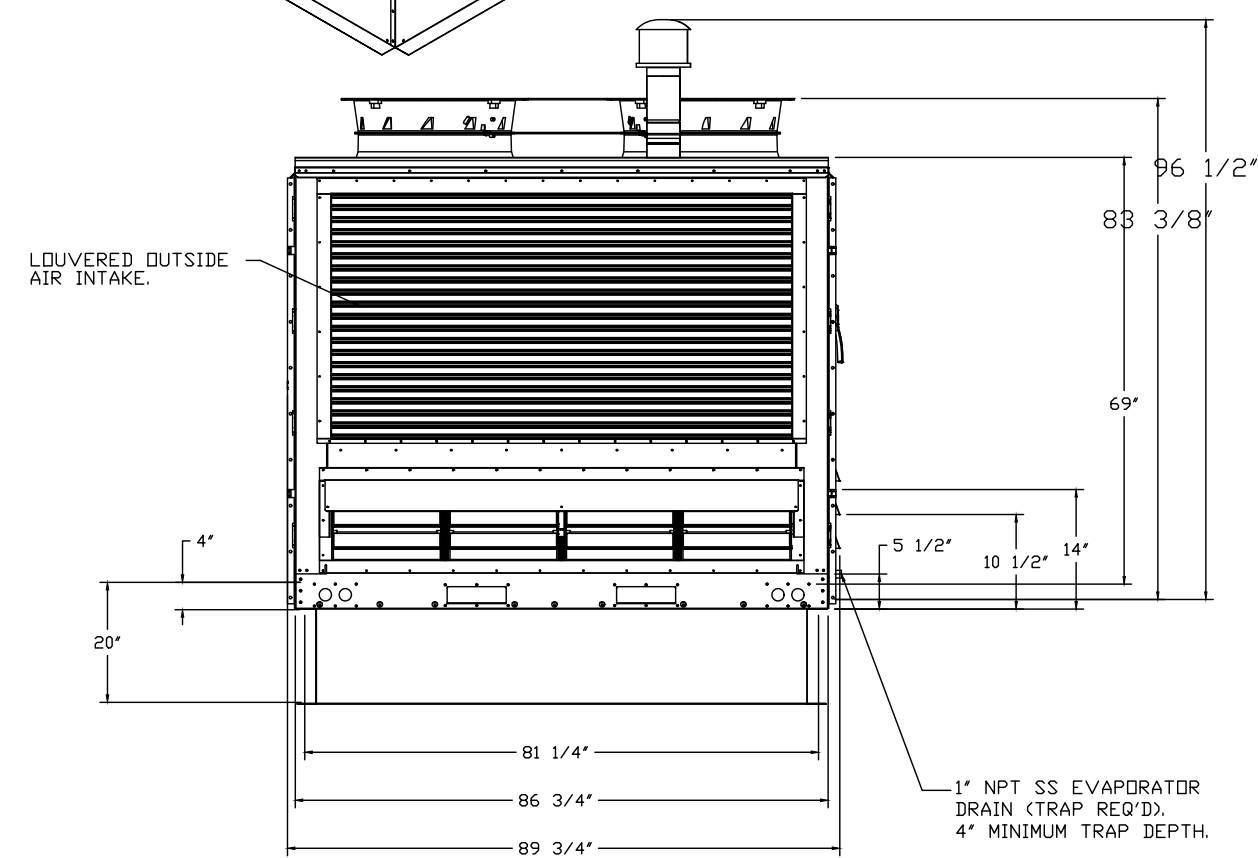
SHEET NUMBER

**M501**



NOTES:

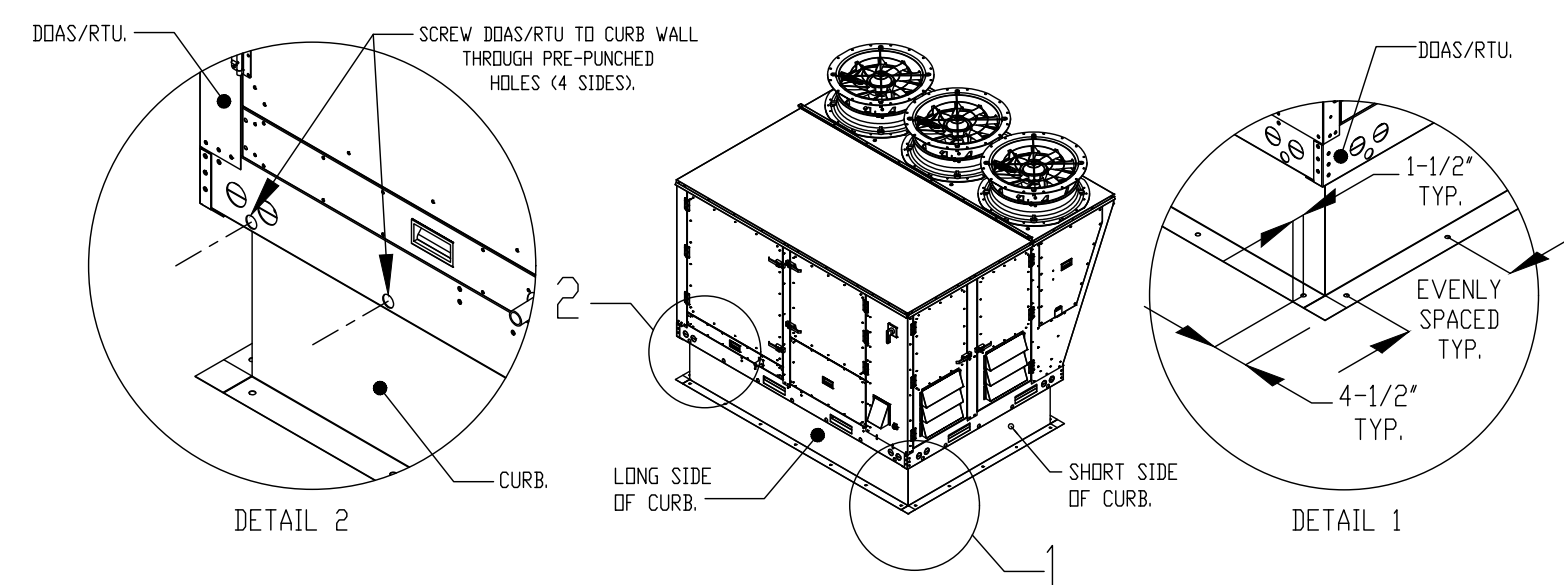
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2.  DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
5. EXTERIOR GAS CONNECTION PROVIDED BY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



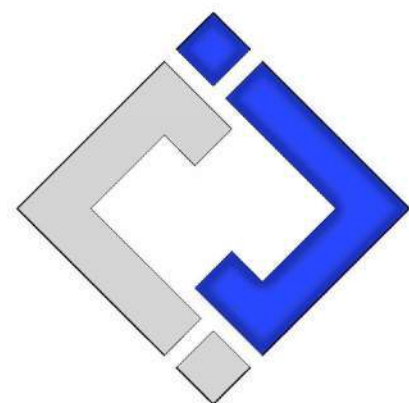
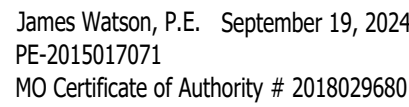
Insulation R-Value Recommendations		
Supply Duct Type	Minimum R-value	Space Type
Single Wall - S & +HC	N/A	Conditioned Space Only
Double Wall - 1S	R-4	Unconditioned Interior Space Only
Double Wall - 2S	R-8	Unconditioned Space Climate Zones 1-4
Double Wall - 3S	R-12	Unconditioned Space Climate Zones 5-8

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 8.12.5.1.1.

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 IN EACH SHORT SIDE, AND (7) LAG BOLTS IN EACH LONG SIDE IS REQUIRED.
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 x 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.



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12 PROJECT No: 121205

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT	09-19-2024
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[illegible][illegible][illegible][illegible]

## 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

## HVAC DETAILS

SHEET NUMBER

# M502



## 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 CAPACITY	CAPACITY	IEER	ISMRE	DISCHARGE DB WB	DESIRED		MAX	MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTU/H	OUTPUT BTU/H	TEMP RISE	REQUIRED INPUT GAS PRESSURE								
		1	CAS-HVAC4-1600-30-30T-ERV	CAPTIVEAIRE	30MF-4-RTU	0	5000	5000	6636	1.000	7.50	3	208	173.4A	175A	86.7°F	79.0°F	78.4°F	68.3°F	41.4°F	41.4°F	41.4°F	37B.1	20L.2	MBH	17.8	4.8	70.0°F	54.8°F	15B.7	MBH	26.0	MBH	153.4	LBS/HR	NATURAL	600000	466000	62°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
<b>NOTES:</b> 1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL. 2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE. 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 INPUT TO MAINTAIN CONSTANT 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. 18. HAIL GUARD FOR CONDENSING COIL. 19. BAROMETRIC RELIEF DAMPER. 20. DOWN DISCHARGE/DOWN RETURN.																																									

FOR QUESTIONS, CALL THE  
St. Louis Mechanical  
REGION 109  
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 80% R47, 1" MAX OR 1/2" 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	30 TON MODULATING COOLING OPTION, 208/230V, 3CFS. R410A REFRIGERANT, VARIABLE	
1		1	30 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/DC 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	

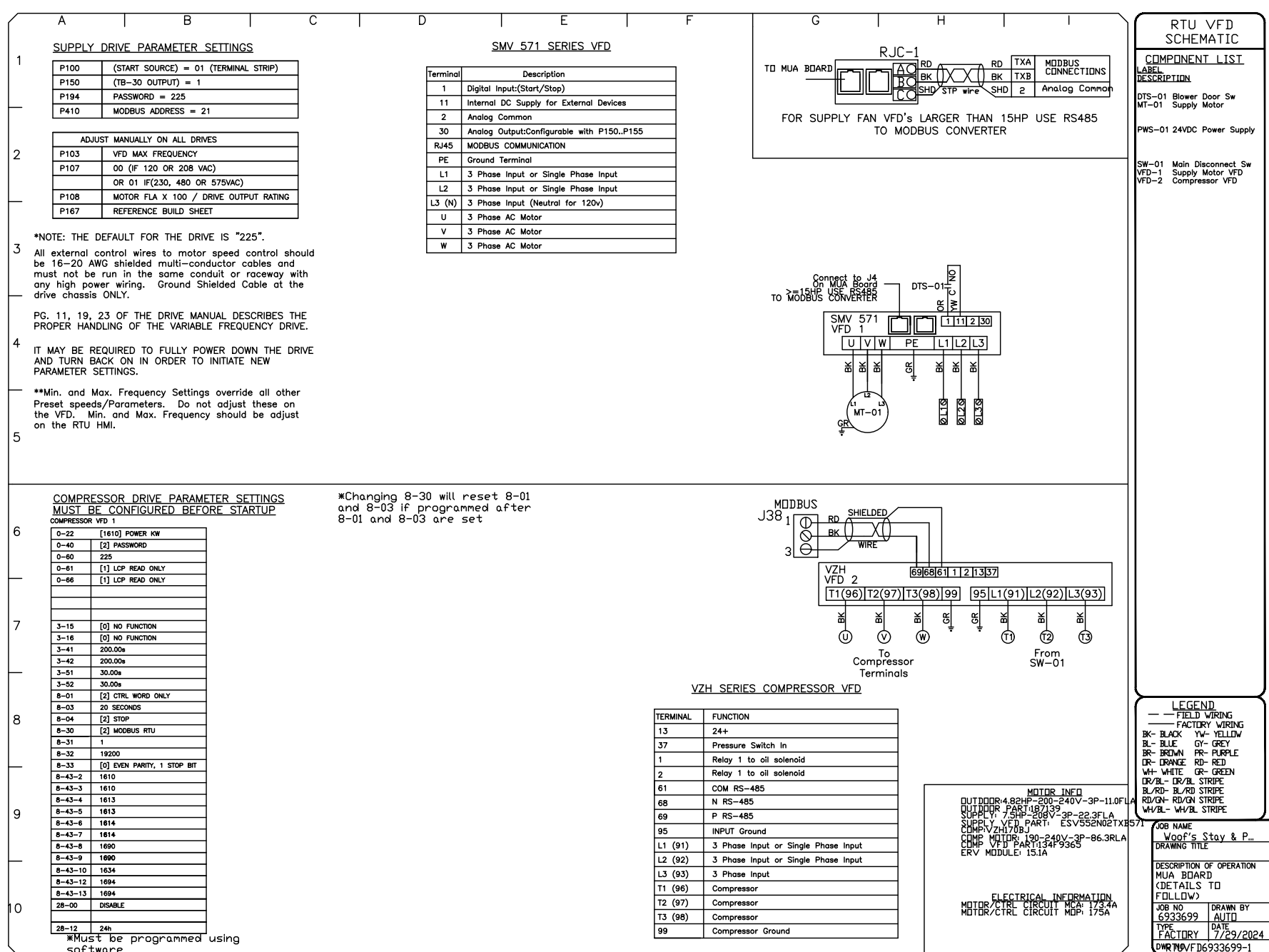
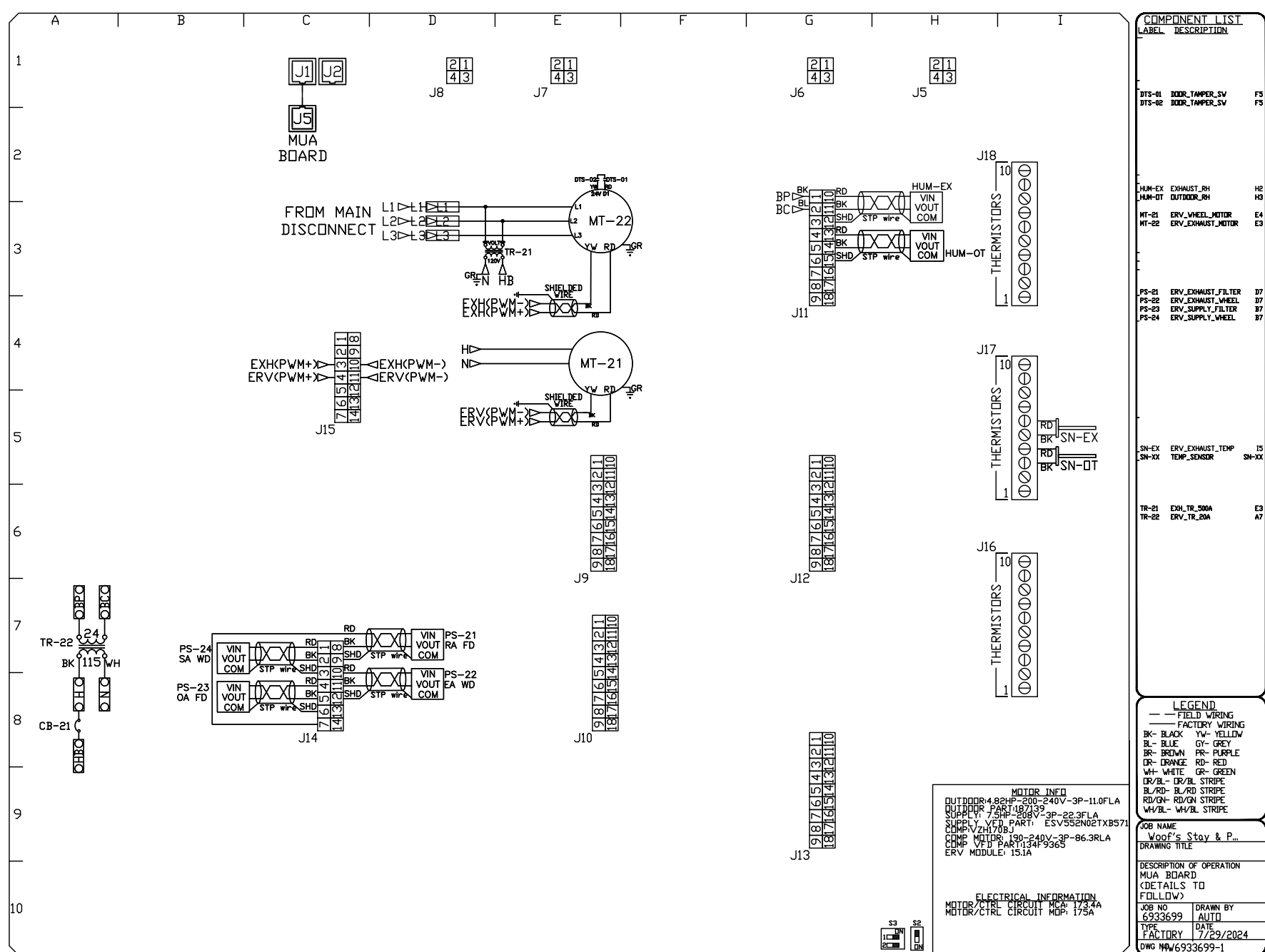
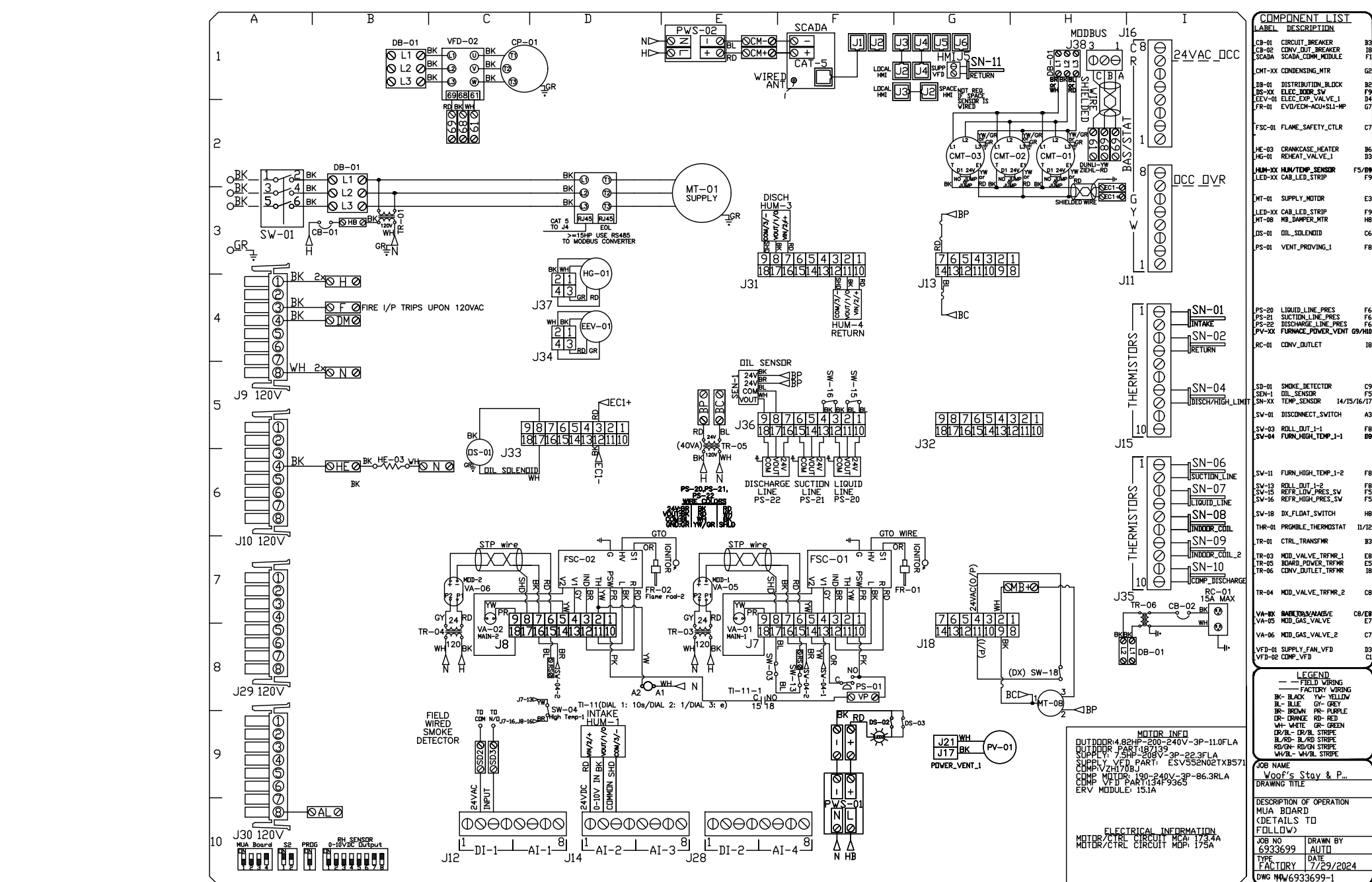
## CURB ASSEMBLIES

NO	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	436 LBS	CURB	80.000" W X 16.950" L 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



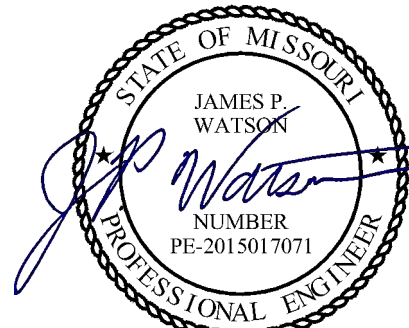
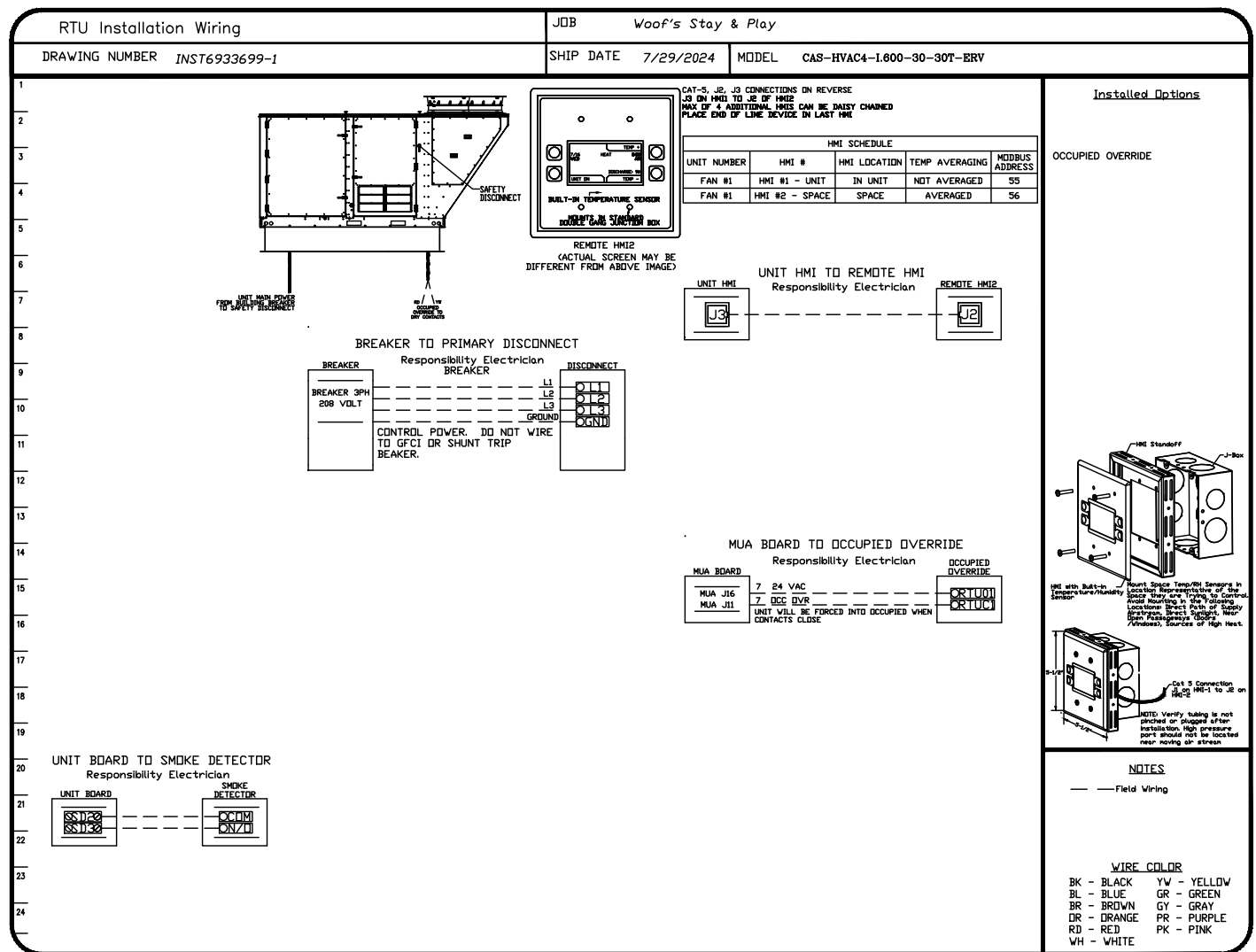
NOTE: ALL MODEL NUMBERS ON THIS SHEET ARE CAPTIVE-AIRE.

## SYSTEM DESIGN VERIFICATION (SDV)

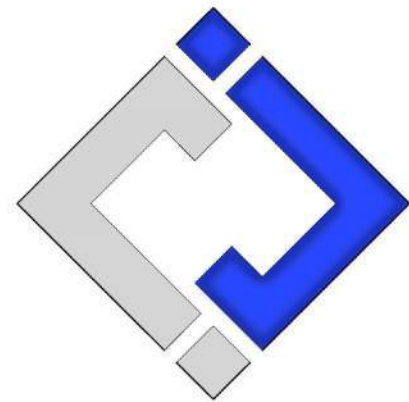
IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

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.



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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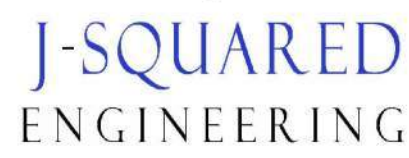
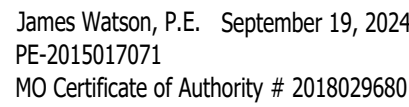
SHEET TITLE

HVAC DETAILS

SHEET NUMBER

M503





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## 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

## HVAC SCHEDULES

SHEET NUMBER

# M601

DEDICATED OUTSIDE AIR SYSTEM (DOAS) SCHEDULE																											
TAG	MANUFACTURER ( OR EQUAL )	MODEL NUMBER ( OR EQUAL )	AIRFLOW					ENERGY RECOVERY				GAS HEATING			COOLING							ELECTRICAL			PHYSICAL		NOTES
			SUPPLY FAN		EXHAUST FAN			RECOVERED CAPACITY		MIXED AIR L.A.T.		INPUT CAPACITY (kBtu)	OUTPUT CAPACITY (kBtu)	TEMP RISE (°F)	E.A.T.		L.A.T.		SENSIBLE CAPACITY (kBtu)	NET TOTAL CAPACITY (kBtu)	IEER	VOLTS/PH	MCA	OCP	DIMENSIONS (LxWxH)	WEIGHT (LBS)	
			AIRFLOW (CFM)	E.S.P (in. H2O)	AIRFLOW (CFM)	E.S.P (in. H2O)	HP	COOLING (kBtu)	HEATING (kBtu)	COOLING (°F)	HEATING (°F)				D.B. (°F)	W.B. (°F)	D.B. (°F)	W.B. (°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 - 20
NOTES:																											
1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL.																											
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.																											
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.																											
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH INTERFACE.																											
5. EC MOTOR CONDENSING FANS																											
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 SENSORS TO BE FACTORY MOUNTED WITHIN UNIT).																											
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION WITH R-13 INSULATION MINIMUM 20GA EXTERIOR WITH 14GA BASE																											
11. TOTAL ENERGY RECOVERY WHEEL WITH SPEED CONTROLS FOR FROST PROTECTION AND MODULATION TO CAPACITY. INCLUDES SUPPLY & EXHAUST FILTER & WHEEL MONITORING.																											
12. 81% EFFICIENT FURNACE, WITH MODULATING INDUCTOR TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 16:1 TURNDOWN WITH NATURAL GAS.																											
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 VALVE.																											
16. FULL MODULATING HOT GAS REHEAT.																											
17. 4" MERV-15 IN-UNIT FILTRATION.																											
18. HAIL GUARD FOR CONDENSING COIL.																											
19. BAROMETRIC RELIEF DAMPER.																											
20. DOWN DISCHARGE / DOWN RETURN.																											

RTU SCHEDULE															
TAG	EQUIPMENT DESCRIPTION	SIZE (TONS)	ORIENTATION	TOTAL AIRFLOW (CFM)	E.S.P. (In. H2O)	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	OCp	
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
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															

EXHAUST FAN SCHEDULE											
TAG	EQUIPMENT TYPE	MANUFACTURER (OR EQUAL)	MODEL (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
NOTES:											
1. WITH BACKRAFT DAMPER											
2. WITH SPEED CONTROLLER											

AIR DEVICE SCHEDULE						
TAG	SERVICE	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	SIZE	COLOR / 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	520	12x6	WHITE	
T1	TRANSFER	PRICE	STG	AS INDICATED	WHITE	

**NOTES:**

1. VERIFY AIR DEVICE FINISHES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION

<b>BUILDING AIR BALANCE SUMMARY</b>			
<b>EQUIPMENT</b>	<b>OA (CFM)</b>	<b>EXHAUST (CFM)</b>	<b>NET (CFM)</b>
RTU-1	200	0	200
DOAS-1	5000	4900	100
EF-1	0	100	-100
EF-2	0	120	-120
<b>TOTAL</b>	<b>5200</b>	<b>5120</b>	<b>80</b>

**NOTES:**

1. DOAS-1 OPERATES CONTINUOUSLY
2. EF-2 OPERATES CONTINUOUSLY
3. EF-1 OPERATES DURING OCCUPIED HOURS
4. RTU BLOWER OPERATES CONTINUOUSLY

DIFFUSER NECK SIZING SCHEDULE	
AIRFLOW (CFM)	NECK SIZE (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

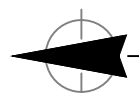
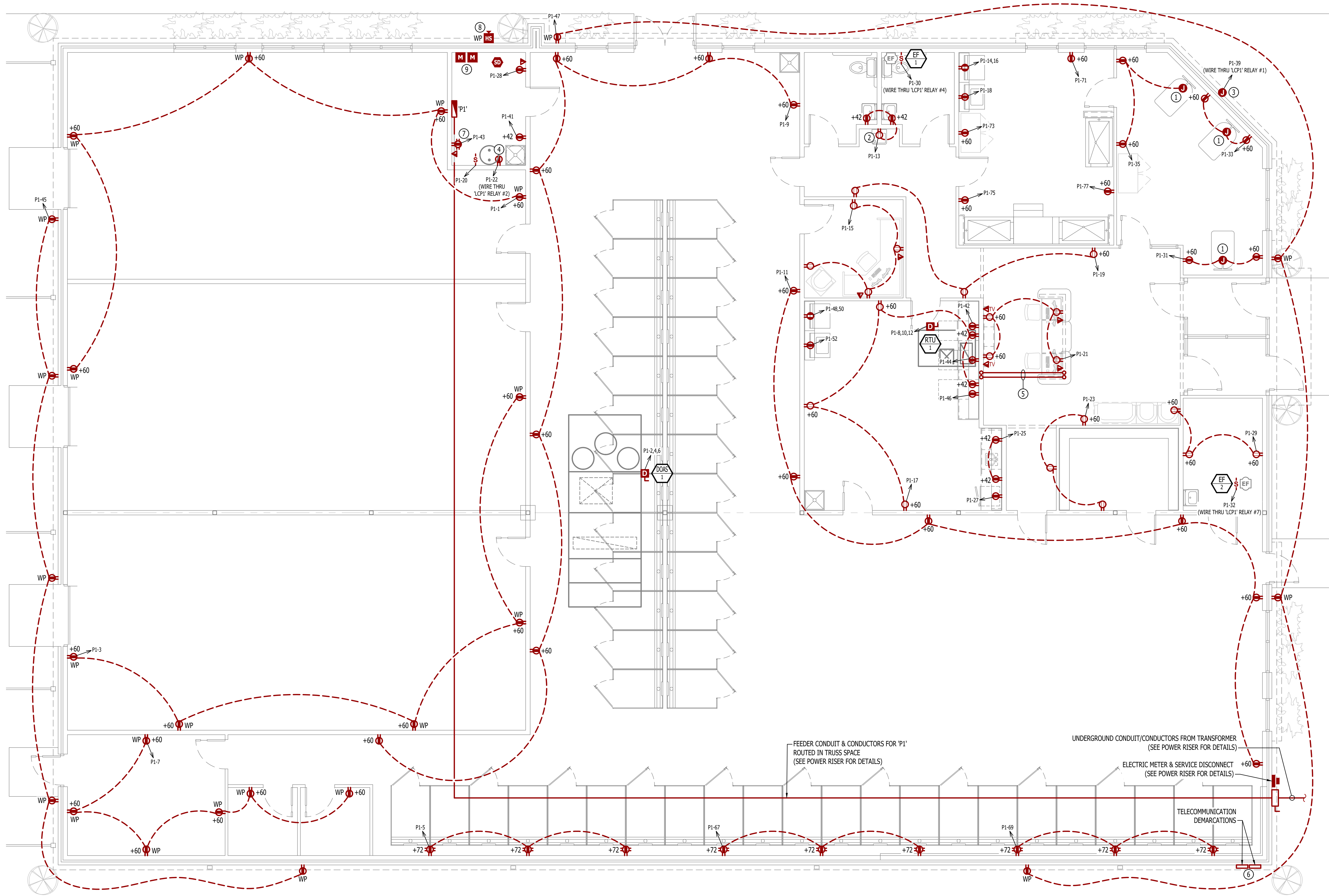
- CIRCUIT WIRING  
→ P1-XX CIRCUIT TAG  
**J** JUNCTION BOX  
XX +42 RECEPTACLE  
INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
"WP" = WEATHERPROOF OUTDOOR RECEPTACLE  
"AW" = ABOVE WINDOW RECEPTACLE  
"AC" = ABOVE CEILING RECEPTACLE  
"EX" = EXISTING RECEPTACLE 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.

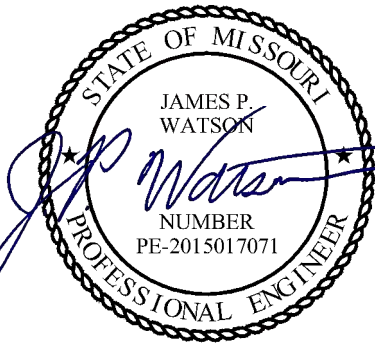
POWER PLAN KEY NOTES:

- 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.

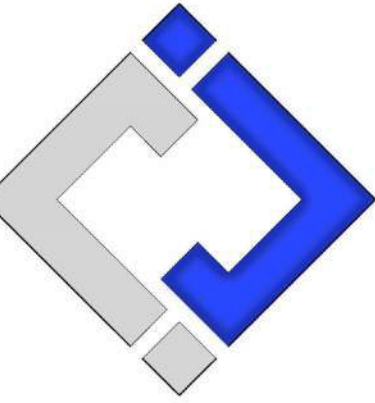


POWER PLAN

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



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

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Mechanical - Electrical - Plumbing Design Drawings for  
Discovery Park

## Discovery Pet Spa

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Lee's Summit, Jackson County, Missouri

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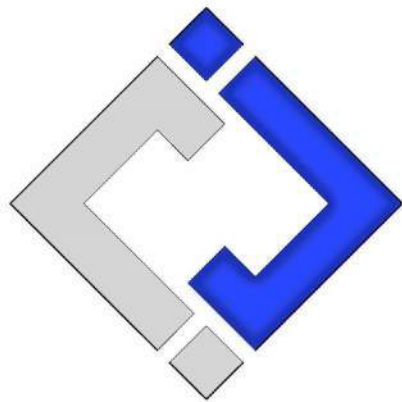
SHEET TITLE

POWER PLAN

SHEET NUMBER

**EP101**





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#### LIGHTING PLAN SYMBOL LEGEND

- X1 ← "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)  
LIGHTING FIXTURE  
EM ← "EM" INDICATES EMERGENCY BATTERY BACKUP  
NL ← "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:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. 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.
3. 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.

"W1" FIXTURES MOUNTED @ 10" AFF  
(TYP. UNLESS NOTED OTHERWISE)

"W3" FIXTURES MOUNTED @ 12" AFF  
(TYP. UNLESS NOTED OTHERWISE)

"S1" FIXTURES MOUNTED  
TO BOTTOM OF EXPOSED TRUSSES  
(TYP. UNLESS NOTED OTHERWISE)

"C1" FIXTURES MOUNTED IN UNDERSIDE OF CANOPY  
(TYP. UNLESS NOTED OTHERWISE)

"W2" FIXTURES MOUNTED ABOVE  
EXTERIOR SIGNAGE AT ≈ 18'-6" A.F.F.  
(COORDINATE WITH SIGNAGE  
SUPPLIER/INSTALLER)

"F1" FANS MOUNTED  
TO BOTTOM OF EXPOSED TRUSSES;  
COORDINATE WITH DUCTWORK  
(TYP. UNLESS NOTED OTHERWISE)

LIGHTING PLAN

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

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

LIGHTING PLAN

SHEET NUMBER

EL101



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.  
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.

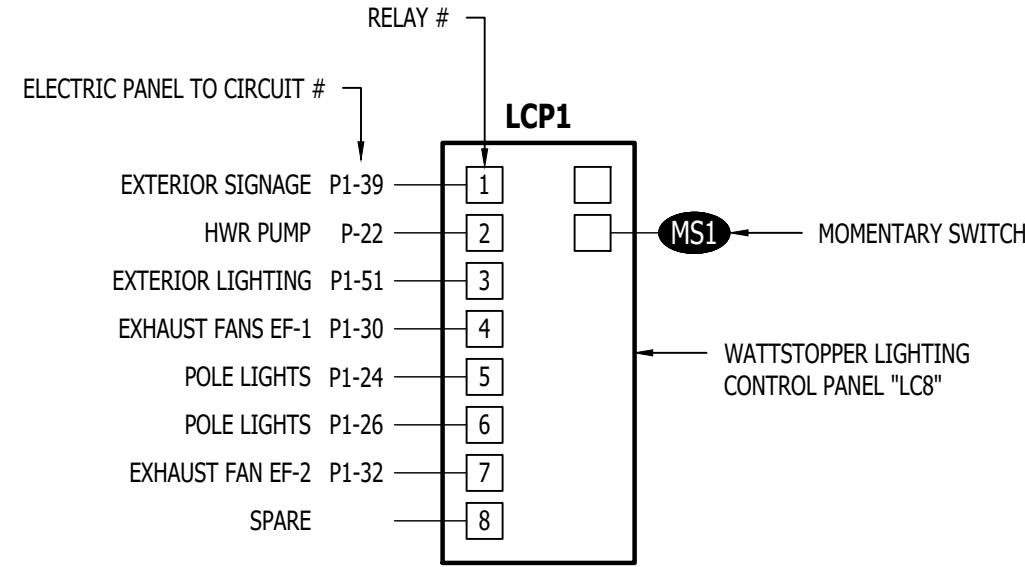
WIRING DEVICES SHOWN BACK-TO-BACK ON EACH SIDE OF A WALL SHALL BE OFFSET TO REDUCE SOUND TRANSMISSION.
- 3.2.9.

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

EMERGENCY LIGHTING
- 4.1.

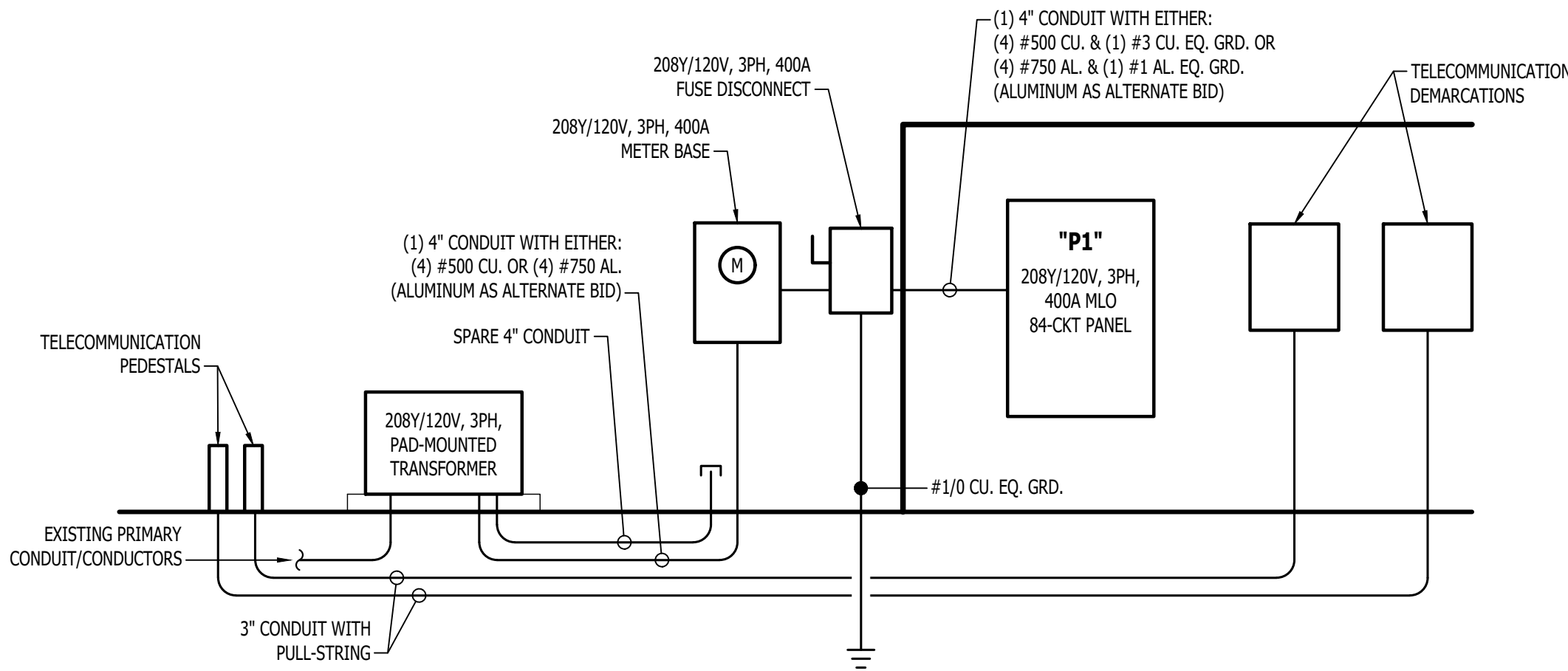
BRANCH CIRCUIT FEEDING EMERGENCY FIXTURE(S) SHALL BE SAME BRANCH CIRCUIT AS THAT SERVING NORMAL LIGHTING IN SAME AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES.
- 4.2.

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 #	OVERRIDE 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.

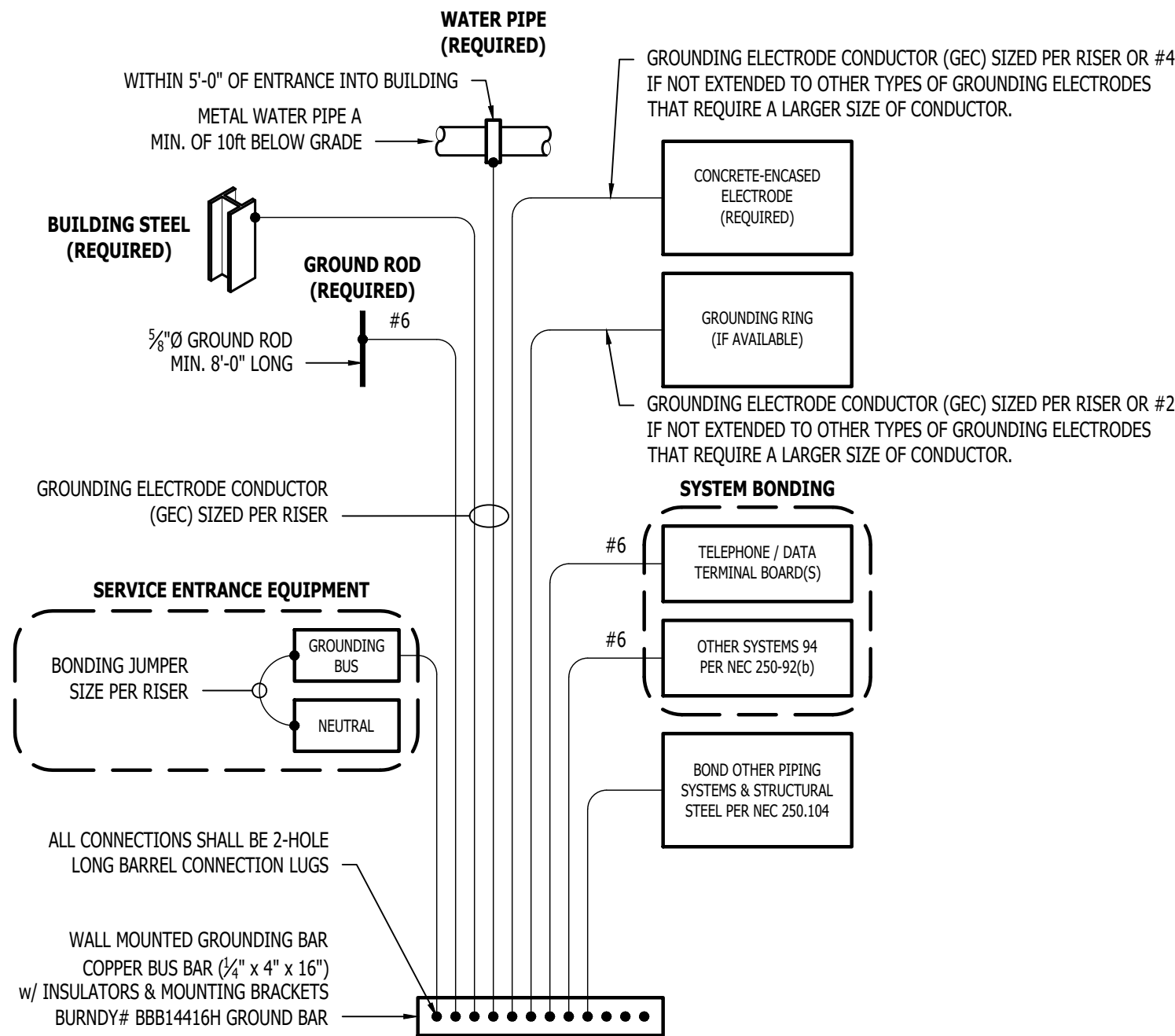
4.3.

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

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

J-SQUARED  
ENGINEERING

2400 Bluff Creek Drive, Suite 101  
Columbia, Missouri 65201  
573 - 234 - 4492 phone  
www.j-squaredeng.com

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

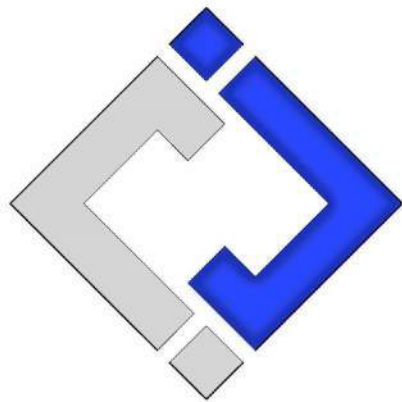
SHEET NUMBER

E501









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AHJ APPROVAL STAMP

SHEET TITLE

**SANITARY SEWER PLAN**

SHEET NUMBER

**PS101**

**SANITARY SEWER PLAN SYMBOL LEGEND**

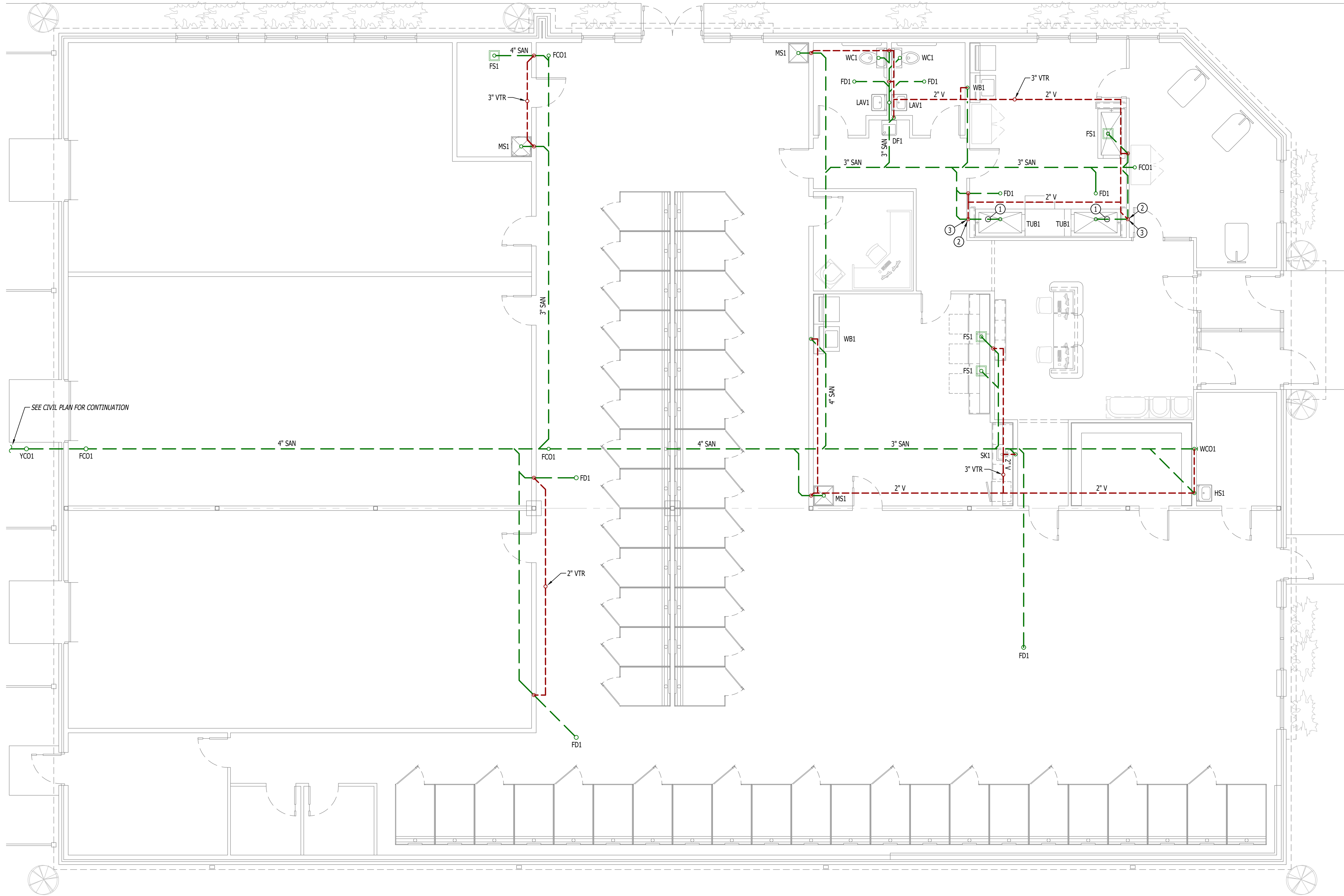
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

**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"



WATER & GAS PLAN SYMBOL LEGEND

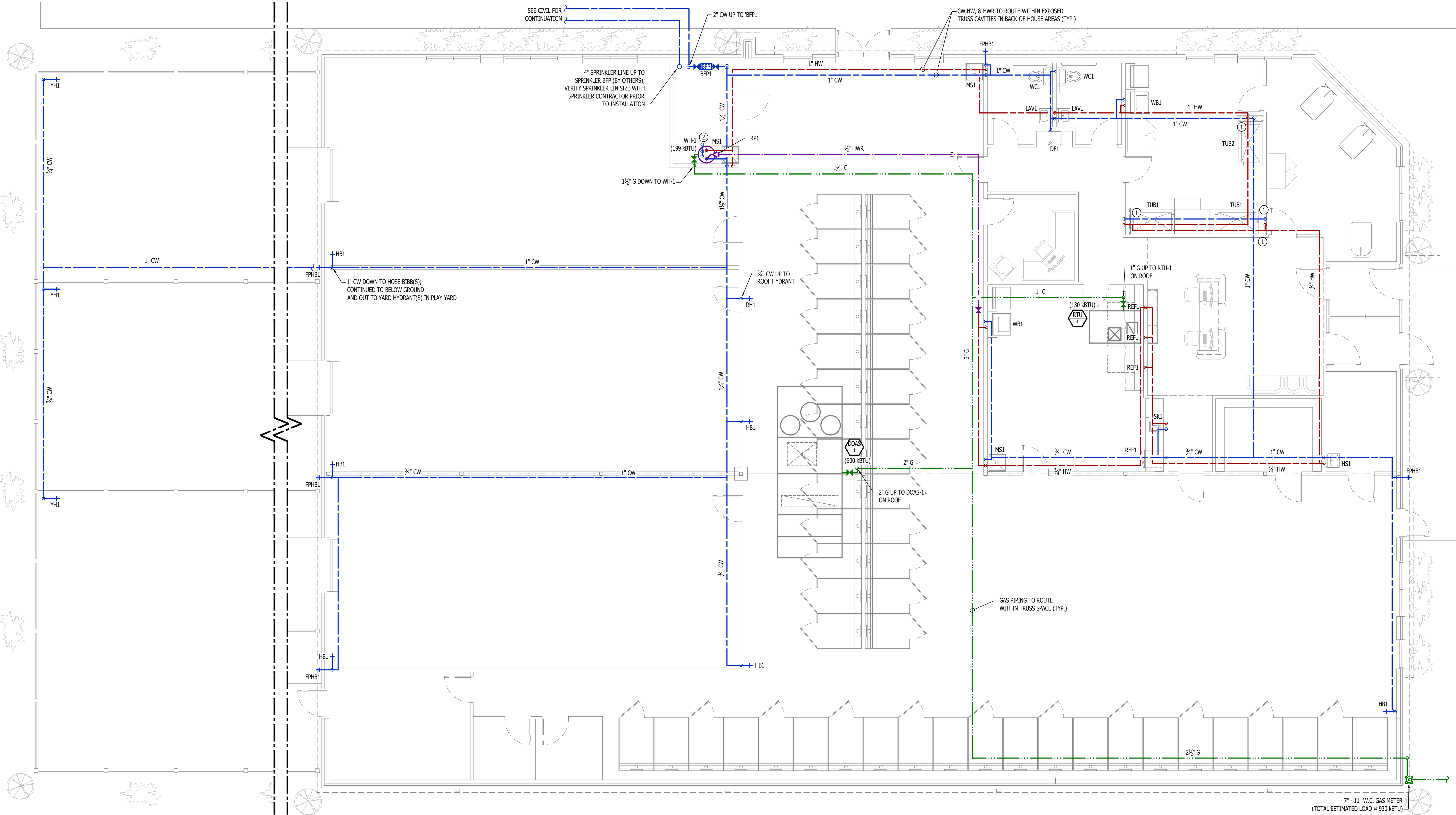
	COLD WATER LINE		WATER METER
	HOT WATER LINE		VALVE
	HOT WATER RECIRCULATION LINE		PUMP
	GAS LINE		GAS METER
	PIPING TURNED DOWN / TURNED UP		TIE INTO EXISTING

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.



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



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	LZS8WSLP	
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 ZB1104-XL FAUCET, 1/4 TURN STOPS, BRAIDED STAINLESS STEEL SUPPLIES, TRIUBRO LAV GUARD 2, & 'TMV1'
MS1	MOP SINK	FIAT	MSB2424	WITH ZURN ZB43M1 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 ZB71C4-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: 1. VERIFY NECESSARY FIXTURES MEET ADA REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION. 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: 1. SIZES SHOWN ABOVE ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS					

