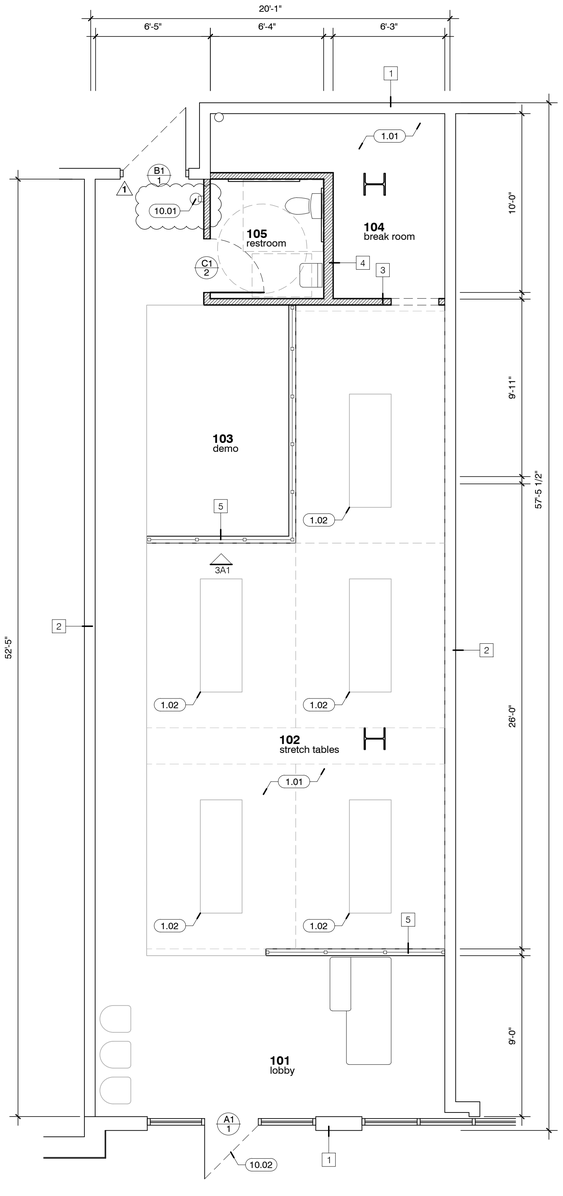
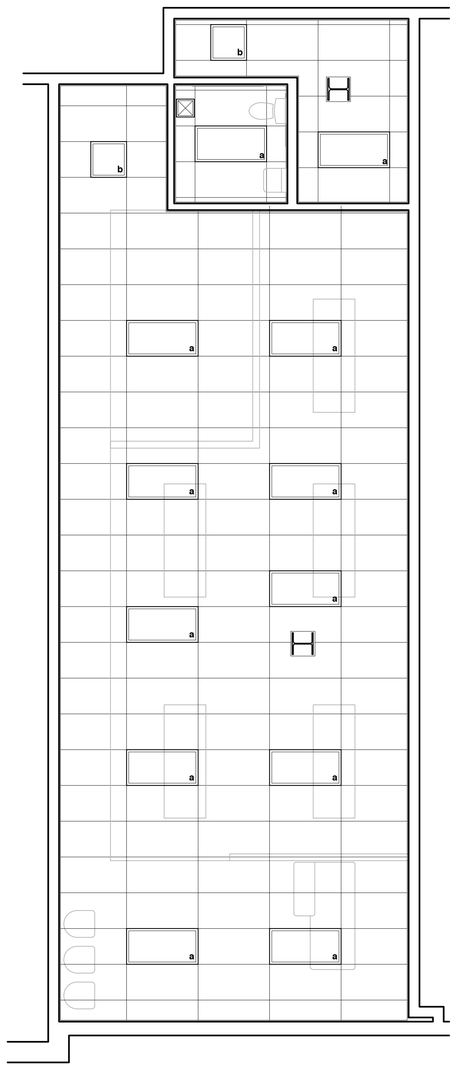




Symbols

- existing construction to remain
- new metal stud partitions
- 42" high wall with glass partition above
- new door and frame
- existing door
- door . hardware indicator
- 6.01 reference notes
- 0 wall . partition type
- a 2'-0" x 4'-0" Recessed Led Architectural Lensed Troffer. Steel Housing And Door Frame With White Powder Coat Finish, Round, Smooth Acrylic Lens, 0-10v 10% Dimming Led Driver.
- b 2'-0"x2'-0" Recessed Led Architectural Lensed Troffer. Steel Housing And Door Frame With White Powder Coat Finish, Round, Smooth Acrylic Lens, 0-10v 10% Dimming Led Driver.
- suspended acoustical tile system . landlord provided
- exhaust fan . refer MEP
- HVAC supply grille . refer MEP
- HVAC return grille . refer MEP

Toilet Accessories . Standards

Restrooms are to be equipped with and constructed to the following tolerances:
(dimensions noted to top of units aff and centerline of units horizontally unless noted otherwise)
[00.00] indicates ADADG Section reference unless noted otherwise

Wheelchair Turning Space
60 inch diameter turning space [304.3.1]
Water Closet Clear Floor Space
60 x 56 inch clear floor space [604.3.1]
Lavatory Clear Floor Space
30 x 48 inch clear floor space [606.2]
Signage
Provide ADA compliant placard at 60" aff to horizontal centerline of sign . mount on door
Double Toilet Paper Holder
Mount 32" from rear wall and 24" aff [604.7]
Paper Towel Dispenser
Stainless steel C-fold towel dispenser [302.2.1]
Mirror
Mount centered over lavatory and 40" aff to bottom [603.3]
Grab Bars *Bobrick* or equal
Rear: 1 1/4" dia x 36" [604.5.2] *Model B-6806.99x36*
Mount with centerline at 34" aff 6" from side wall
Side: 1 1/4" dia x 42" [604.5.1] *Model B-6806.99x42*
Mount with centerline at 34" aff 12" from rear wall
Vertical: 1 1/4" dia x 18" . *Model B-6806.99x18*
Mount vertical at 40" from rear wall with bottom at 40" aff
Sink Piping
All exposed under sink piping to be insulated

Door Schedule

Door . Frame . Size

- **A1** **Existing Exterior Door** 3-0 x 7-0
  Medium stile full lite aluminum storefront door
- **B1** **Existing Exterior Door** 3-0 x 7-0
  Hollow metal door and frame
- **C1** **Interior Door** 3-0 x 7-0
  Solid core flush panel paint grade door in hollow metal frame to match existing

Hardware

-Unless indicated otherwise, all door sets to be 'Schlage' or equal commercial [grade 2] ADA compliant lever type . nickel finish

1. Verify existing hardware is in good working order . provide new panic hardware
2. Privacy set . 1.5 pair bb butt hinges . wall stop . silencers

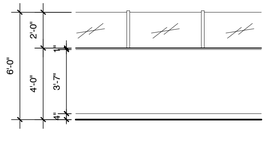
Wall . Partition Schedule

1. **Exterior Wall Assembly** existing
   Masonry exterior wall with exterior plaster finish . brick veneer as occurs
2. **Interior Demising Wall** existing
   Existing full height [to deck] wall assembly to remain . prepare existing gypsum board for scheduled finishes
3. **Interior Partition**
   3 5/8" 25 ga studs at 16" oc with 5/8" gypsum board each side to bottom of structure . brace to structure above . full mud.tape.finish . wr gypsum board at wet locations
4. **Interior Partition**
   6" 25 ga studs at 16" oc with 5/8" gypsum board each side to bottom of structure . brace to structure above . full mud.tape.finish . wr gypsum board at wet locations
5. **Interior Partition** partial wall
   3 5/8" 25 ga studs at 16" oc with 5/8" gyp bd each side . full mud.tape.finish . top of metal framing at 48" aff with 2x nailer atop with stikwood cap . provide *Hilti 3478046 4-0 Knee Wall Support* at unsupported ends . 36" glass partition installed on top of partial wall

Reference Notes

01 **General**
1.01 All furnishings and equipment provided by Tenant and installed by GC except as specifically indicated
1.02 Patient tables . coordinate location and spacing with Tenant

1 10 **Specialties**
10.01 2A108C fire extinguisher on bracket . verify final location with Fire Inspector
~~**10.02** Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches high with a minimum stroke width of 0.5 inch.~~



Project Description

Project scope includes limited demolition to existing framed partitions, new framed partitions, drywall, limited electrical systems, doors and hardware, and related elements.

Existing building construction is comprised of concrete floor slabs . steel building frame . exterior brick and plaster systems. interior metal stud partitions . membrane roofing

General Notes

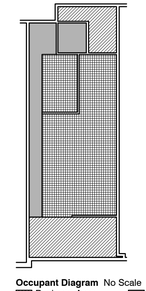
1. All construction and installations shall meet the requirements of applicable Codes and Ordinances
2. Contractor and subcontractors to field verify all dimensions and conditions prior to fabrications and installations
3. All material shall be new and unused unless indicated otherwise; construction, installations, fit, and finishes shall exhibit first class workmanship
4. Drawings indicate design intent only: operations, methods, and installations sole responsibility of General and Sub Contractors
5. Unless noted or indicated otherwise dimensions are to face of finished wall and other vertical elements
6. Subcontractors shall visit project site, acquaint themselves with and verify existing conditions prior to fabrication and/or installation of any work - notify Architect immediately of any discrepancies discovered
7. Do not scale drawings - perform layouts from dimensions only - notify Architect immediately of any discrepancies discovered
8. Unless indicated otherwise, new wall construction not specifically dimensioned aligns with existing construction
9. Each trade responsible for protecting existing work in place from damage and responsible for repairing to original condition any affected materials and/or installations
10. Subcontractors shall coordinate their work with that of other trades
11. Subcontractors shall remove daily from premises trash, waste, and debris generated from their work
12. All work shall conform with latest published safety standards as established by OSHA and ANSI
13. Procedure with work constitutes acceptance of existing conditions . substrates
14. Premises shall be left fully cleaned and ready for Owner acceptance at completion of work
15. All materials and assemblies to be installed in strict accordance with manufacturer requirements and industry standards unless specifically indicated otherwise

Project Code Data

Building Code
2018 International Building Code
Electrical Code
2017 National Electrical Code
Mechanical Code
2018 International Mechanical Code
Fire Protection
2018 International Fire Code
Plumbing Code
2018 International Plumbing Code
Accessibility
Americans with Disabilities Act Accessibility Guidelines
2010 Accessible and Usable Buildings
Use Group
'B' Business . Section 304
Gross Tenant Area
1,139 gross square feet
[calculated to exterior face of perimeter walls and centerline of demising walls]
Construction Type
II-B Section 605-2 . Table 601

1 **Occupant Load** Table 1004.5

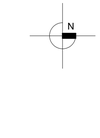
Area Standards	
Accessory Areas	1 occ / 300 sf
Business Areas	1 occ / 150 sf
Institutional Outpatient Areas	1 occ / 100 sf
Area Allocations [net sf]	
Accessory Areas	189 sf = 1 occ
Business Areas	263 sf = 2 occ
Institutional Outpatient Areas	594 sf = 6 occ
Total Per Code	*9 occupants*
Outpatient Max	= 9 occ
Total	*12 occupants*



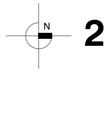
Occupant Diagram No Scale
Business Area . Accessory Areas . Excercise Area

Egress Width
0.20" per occupant Table 1005.3.2

Required	12 occ x 0.20" = 2.4" (1 exits)
Provided	72.00" (2 exits)



1 proposed
Floor Plan
1/4" = 1'-0"
0 5
note all elements existing to remain unless indicated otherwise



2 proposed
Ceiling Plan
1/4" = 1'-0"
0 5 10
note all elements existing to remain unless indicated otherwise

3 proposed
Half Wall with Glass Partition
1/4" = 1'-0"

Interior Improvements for
Stretchzone
Lees Summit
Missouri
Interior Improvement Package

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STATE OF MISSOURI
JOSEPH RAY STEWART
NUMBER A-2017032055
ARCHITECT

signed 09 July 2021

Project Number 21.192.02

ADA Compliance Certification

To best of my professional knowledge, the facility as indicated is in compliance with the Americans with Disabilities Act, including the current ADA Title III Design Guidelines.

Joseph Ray Stewart
Missouri Architect A-2017032055

Revisions

1 **23 July 2021**
City Comments

interior improvements for
Stretchzone
940 NW Pryor Rd . Suite B
Lee's Summit . Missouri

sheet
A1
Project Information & Floor Plan

permit . bid
09 July 2021

GENERAL NOTES:

1. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND OTHER DISCIPLINE'S DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, TENANT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO SUBMISSION OF BID.
2. EXISTING CONDITIONS WERE TAKEN FROM AS BUILT DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. COORDINATE DEMOLITION WORK AND NEW WORK WITH EXISTING CONDITIONS AND OTHER TRADES PRIOR TO CONSTRUCTION.
3. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE PLUMBING SYSTEMS. VERIFY CHASE AND PENETRATION LOCATIONS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR PIPING MEET REQUIREMENTS.
4. INSTALL PIPING PARALLEL TO BUILDING LINES, UNLESS NOTED OTHERWISE.
5. COORDINATE LOCATION OF EQUIPMENT AND SUPPORTS WITH LOCATION OF ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT. IF NO ACCESS PANEL IS SHOWN, PROVIDE ACCESS PANEL IN SIZE REQUIRED FOR MAINTENANCE OF EQUIPMENT, COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
6. SEAL PENETRATIONS THROUGH BUILDING COMPONENTS IN ACCORDANCE WITH LOCAL CODES. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.

PLAN NOTES:

(1) CONNECT NEW UNDERGROUND SAN TO EXISTING UNDERGROUND SAN MAIN. FIELD VERIFY EXACT LOCATION PRIOR TO INSTALLATION.

(2) 2" SAN UP TO 2" HUB DRAIN ABOVE.

(3) 1" CW, EXTEND TO EXISTING BUILDING SERVICE ENTRANCE AND CONNECT. FIELD VERIFY EXACT LOCATION.

(4) 2" V, EXTEND TO NEAREST VENT RISER OF EQUAL OR GREATER SIZE AND CONNECT. FIELD VERIFY EXACT LOCATION.

(5) INSTALL MIXING VALVE SCHEDULED IN PLUMBING FIXTURE SCHEDULE. INSTALL MIXING VALVE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS

(6) 1/2" CW DOWN TO L-1 & IWH-1 BELOW.

(7) 1" HVAC CONDENSATE, ROUTE TO HUB DRAIN PROVIDED BY PLUMBER AND TERMINATE.

(8) PROVIDE AND INSTALL OVERFLOW CONDENSATE DRAIN PAN UNDER DX PORTIONS OF UNIT. PROVIDE AND INSTALL MOISTURE SENSING DEVICE IN DRAIN PAN TO SHUT DOWN AHU WHEN MOISTURE IS SENSED IN OVERFLOW DRAIN PAN.

PLUMBING FIXTURE CONN. SCHEDULE

FIXTURE	MARK	CW	HW	WASTE	VENT
LAVATORY	L-1	1/2"	1/2"	2"	1-1/2"
FLUSH TANK WATER CLOSET	WC-1	1-1/2"	--	4"	2"
2" HUB DRAIN	2"HD-1	--	--	2"	1-1/2"

DUCT INSULATION SCHEDULE

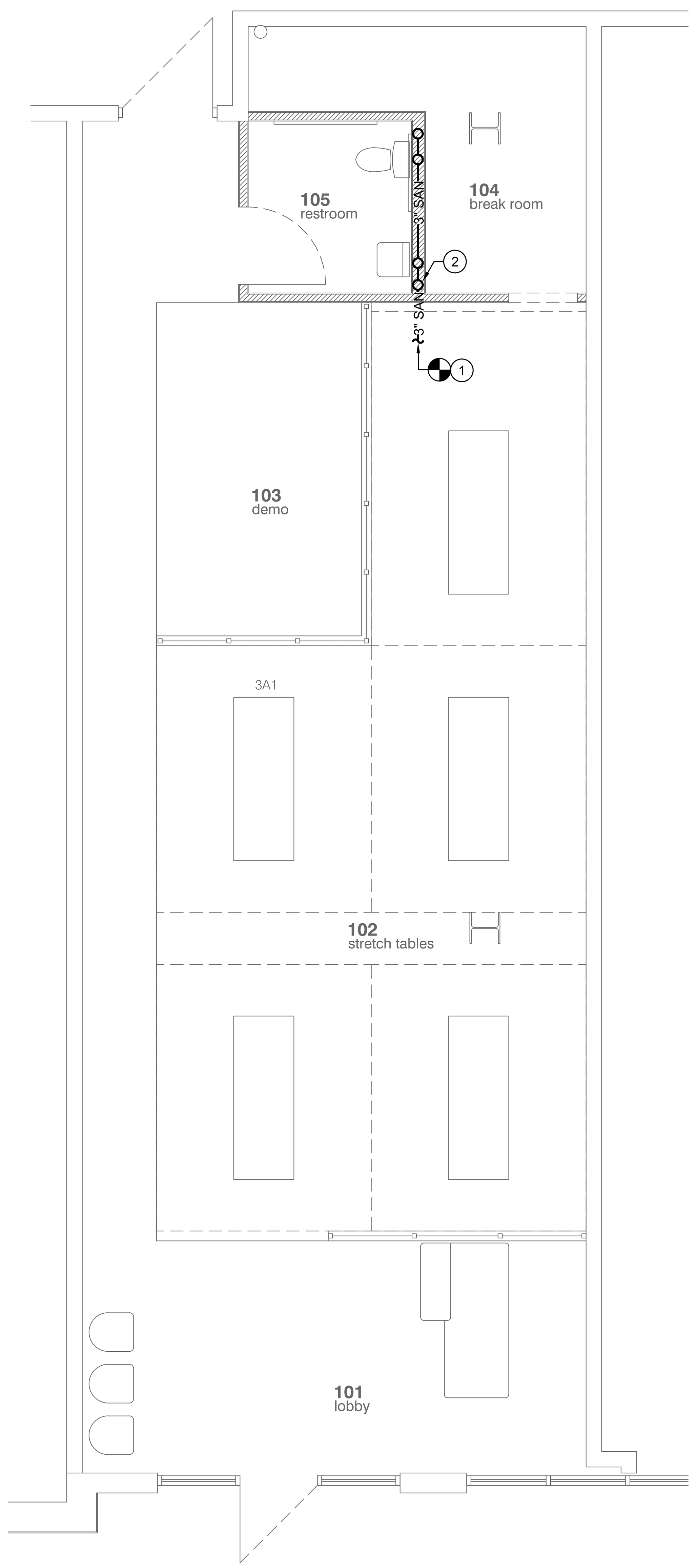
INDOOR SUPPLY AIR DUCT	FIBERGLASS BLANKET: 1-1/2" THICK, 0.75-LB/CU. FT
INDOOR RETURN AIR DUCT	FIBERGLASS BLANKET: 1-1/2" THICK, 0.75-LB/CU. FT
INDOOR EXHAUST DUCT	NONE
OUTDOOR SUPPLY AIR DUCT	FIBERGLASS BLANKET: 3" THICK, 1.5-LB/CU. FT WITH PAINTABLE ALUMINUM JACKET
OUTDOOR EXHAUST AIR DUCT	FIBERGLASS BLANKET: 3" THICK, 1.5-LB/CU. FT WITH PAINTABLE ALUMINUM JACKET

PIPE INSULATION SCHEDULE

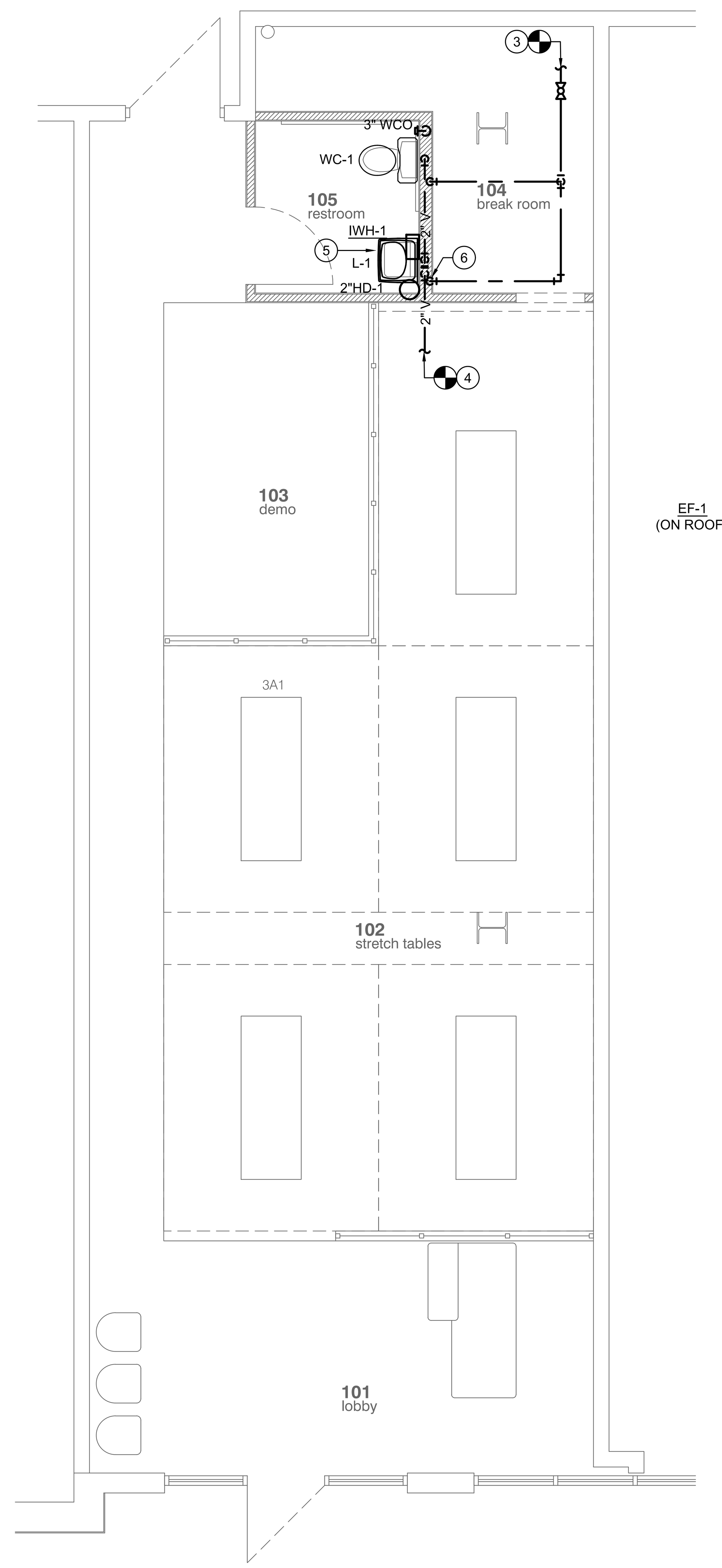
DOMESTIC COLD WATER	PREFORMED FIBERGLASS WITH ASJ : 1" THICK, 3.5-LB/CU. FT
DOMESTIC HOT WATER	PREFORMED FIBERGLASS WITH ASJ : 1" THICK, 3.5-LB/CU. FT
DOMESTIC RECIRCULATING HOT WATER	PREFORMED FIBERGLASS WITH ASJ : 1" THICK, 3.5-LB/CU. FT
INTERIOR HVAC CONDENSATE	ARMAFLEX: 1/2" THICK
REFRIGERANT LINES	ARMAFLEX: 1/2" THICK

AIR TERMINAL DEVICES SCHEDULE

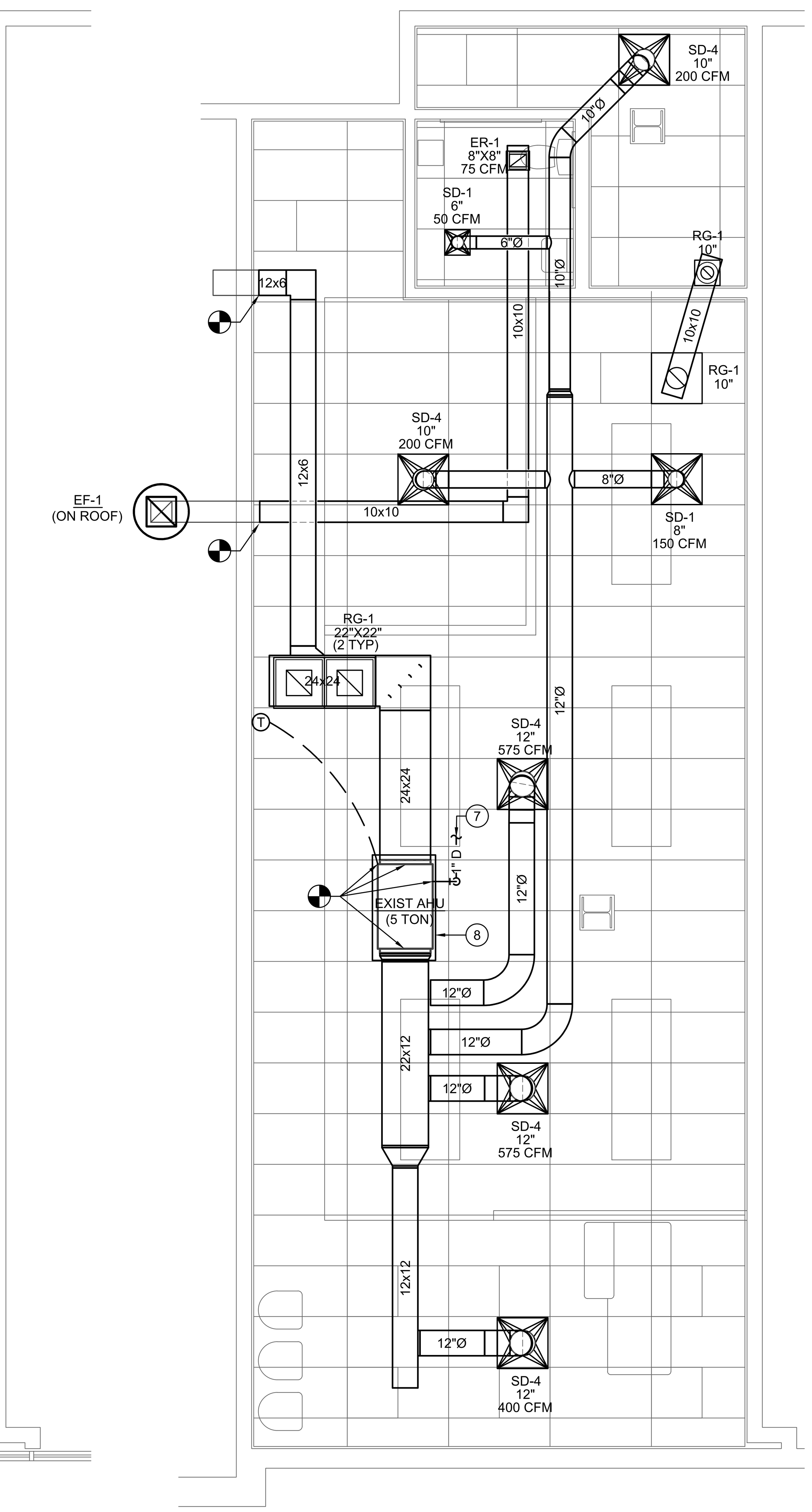
PLAN MARK	QUANTITY	MANUFACTURER	MODEL	SERVICE	MOUNT TYPE	BORDER SIZE	NECK SIZE	VOLUME DAMPER
ER-1	1	TITUS	350FL	EXHAUST	SURFACE	--	8"X8"	YES
RG-1	1	TITUS	PAR	RETURN	LAY-IN	12"X12"	10"	NO
RG-1	2	TITUS	PAR	RETURN	LAY-IN	24"X24"	22"X22"	NO
RG-1	1	TITUS	PAR	RETURN	LAY-IN	24"X24"	10"	NO
SD-1	1	TITUS	OMNI	SUPPLY	LAY-IN	12"X12"	6"	YES
SD-1	1	NAILOR	RNS2	SUPPLY	LAY-IN	24"X24"	8"	YES
SD-4	2	TITUS	OMNI	SUPPLY	LAY-IN	24"X24"	10"	YES
SD-4	3	TITUS	OMNI	SUPPLY	LAY-IN	24"X24"	12"	YES



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



2 UNDERSLAB PLAN - PLUMBING
1/4"=1'-0"



1 FLOOR PLAN - HVAC
1/4"=1'-0"

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7-20-21

Project Number 21.192.02

Revisions

interior improvements for
Stretchzone
940 NW Pryor Rd . Suite B
Lee's Summit . Missouri

sheet
M1
MECHANICAL PLANS

permit . bid
20 July 2021

PLUMBING FIXTURE SCHEDULE

PLAN MARK	MANUFACTURER AND MODEL	FIXTURE DESCRIPTION	ACCESSORIES MANUFACTURER AND MODEL	ACCESSORIES DESCRIPTION	SIZE	NOTES
2"HD-1	MIFAB MI-950-F	2" FUNNEL DRAIN WITH DEEP SEAL TRAP				
L-1	AMERICAN STANDARD LUCERNE 0356.041	VITREOUS CHINA, ADA COMPLIANT, D-SHAPED BOWL WALL HUNG LAVATORY.	1.) AMERICAN STANDARD COLONY 2175.205 2.) LAWLER TMM-1070	1.) SINGLE CONTROL CENTERSET FAUCET WITH METAL LEVER HANDLE. 2.) ASSE1070 COMPLIANT POINT OF USE THERMOSTATIC MIXING VALVE WITH BRONZE BODY, TAMPER RESISTANT COVER AND CHECK VALVES. SET OUTLET TEMPERATURE TO 95 DEG F.	-	PROVIDE CHROME PLATED BRASS TAILPIECE AND GRID DRAIN, CHROME PLATED BRASS P-TRAP, ANGLED STOP VALVES AND FLEXIBLE RISERS. INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS WITH ADA COMPLIANT INSULATION. MOUNT MIXING VALVE BELOW SINK AND PROVIDE A SINGLE TEMPERED WATER CONNECTION TO FAUCET.
WC-1	AMERICAN STANDARD CADET 3 FLOWISE 2832.128	ADA COMPLIANT, FLOOR MOUNTED, FLUSH TANK, VITREOUS CHINA WATER CLOSET.	CHURCH 9500 C	SEAT: SOLID PLASTIC, OPEN FRONT, WHITE ELONGATED BOWL, INTEGRAL BUMPERS, EXTERNAL CHECK HINGES WITH STAINLESS STEEL POSTS.	-	

EXHAUST FAN SCHEDULE

UNIT CALLOUT	UNIT INFORMATION							NOTES
	MFG	MODEL NO.	TYPE	EXT STATIC (IN WC)	FLOW (CFM)	HP	VOLT/ PHASE	
EF-1	COOK	ACE	DNBLAST	1.1	75	1/2	120/1	1

NOTES:

1. SUPPLY WITH FACTORY STARTER, ECM MOTOR WITH SPEED CONTROLLER, DISCONNECT, INSECT SCREEN AND ROOF CURB.

INSTANTANOUS ELECTRIC WATER HEATER SCHEDULE

UNIT CALLOUT	UNIT INFORMATION							NOTES
	MFG	MODEL NO.	CAP. (GPM)	EWT (°F)	LWT (°F)	TOTAL INPUT (KW)	VOLT/ PH	
IWH-1	EEMAX	SPEX2412	0.28	50	109	2.4	120/1	--

Az= Floor area
Pz= Zone Population
Rp= People Outdoor Air Rate
Ra= Area Outdoor Air Rate

Existing AHU-1 Ventilation Calculation 5 Ton

Room Name	Occupancy Classification	Occupant Density	Az	Pz	Rp	Ra	Ez	Vbz	Voz
Reception	Office Space	5	205	1	5	0.06	0.8	17	22
Stretch Tables	Med Prc. Rm	20	290	6	15	0	0.8	87	109
Stretch Tables	Corridor	0	290	0	0	0.06	0.8	17	22
Demo	Med Prc. Rm	20	220	4	15	0	0.8	66	83
Tlt	Toilet Room	0	60	0	0	0	0.8	0	0
Break	Conference	50	100	5	5	0.06	0.8	31	39
Vot									274 cfm

3 VENTILATION SCHEDULE

GENERAL

- (1) MECHANICAL NOTE REFERENCE
- (2) DEMOLITION NOTE REFERENCE
- (3) REVISION NOTE REFERENCE
- CONNECT TO EXISTING WORK

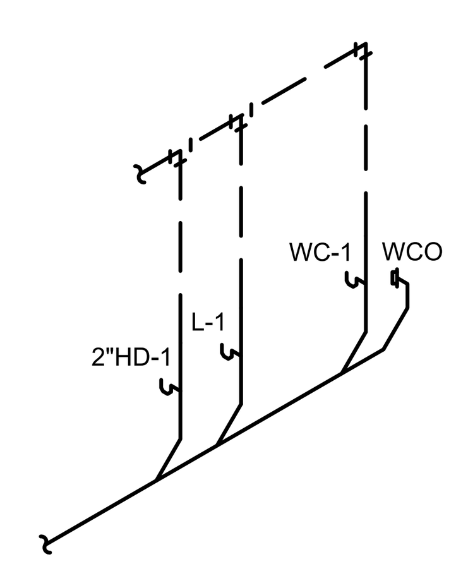
HVAC

- —D— HVAC CONDENSATE DRAIN
- (T) THERMOSTAT
- SUPPLY DIFFUSER
- RETURN GRILLE/EXHAUST REGISTER
- RETURN AND EXHAUST AIR FLOW INDICATOR
- DUCT MOUNTED MANUAL BALANCING DAMPER

PLUMBING

- —SAN— SOIL OR WASTE ABOVE GRADE OR FLOOR
- – –SAN– – SOIL OR WASTE BELOW GRADE OR FLOOR
- – – –V– – – PLUMBING VENT
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- —G— GAS (NATURAL)
- FCO FLOOR CLEAN OUT
- WCO WALL CLEAN OUT
- HB HOSE BIBB
- FLOOR SINK, FLOOR DRAIN, AREA DRAIN
- P/# PLUMBING VENT RISER CALL-OUT
- ELBOW DOWN
- ELBOW UP
- TEE UP
- TEE DOWN

1 MECHANICAL SYMBOLS



2 PLUMBING RISER DIAGRAM

MECHANICAL SPECIFICATIONS

1. HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT

DEFINITIONS

Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

PERFORMANCE REQUIREMENTS

Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

PRODUCTS

STEEL PIPE HANGERS AND SUPPORTS

Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

TRAPEZE PIPE HANGERS

Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

METAL FRAMING SYSTEMS

Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

EXECUTION

HANGER AND SUPPORT APPLICATIONS

Specific hanger and support requirements are specified in Sections specifying piping systems and equipment. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types: Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30 (DN 15 to DN 750). Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8 (DN 15 to DN 200).

Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42 (DN 50 to DN 1050), if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.

Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

Steel Clevises (MSS Type 14): For 120 to 450 deg F (49 to 232 deg C) piping installations.

Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types: Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.

Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

2. MECHANICAL INSULATION

PRODUCTS

INSULATION MATERIALS

Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

FiberGlass: Inorganic, incombustible, foamed or cellulated glass with annealed, rigid, hermetically sealed cells, with factory applied All Service Jacket (ASJ) painted in color selected by architect.

INSULATING CEMENTS

Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449/C 449M.

FACTORY-APPLIED JACKETS

Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.

EXECUTION

PREPARATION

Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

GENERAL INSTALLATION REQUIREMENTS

Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment, ducts and fittings, and piping including fittings, valves, and specialties. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment, duct system, and pipe system as specified in insulation system schedules. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state. Install insulation with longitudinal seams at top and bottom of horizontal runs. Install multiple layers of insulation with longitudinal and end seams staggered. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

Keep insulation materials dry during application and finishing.

Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer. Install insulation with least number of joints practical. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic. Install insulation continuously through hangers and around anchor attachments. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses. Apply mastic on seams and joints and at ends adjacent to duct and pipe flanges and fittings. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches (100 mm) beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

PENETRATIONS

Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions. Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches (50 mm).

Pipe: Install insulation continuously through floor penetrations. Seal penetrations through fire-rated assemblies.

DUCT INSULATION SCHEDULE, GENERAL

Plenums and Ducts Requiring Insulation:

Indoor, concealed supply and outdoor air. Indoor, exposed outdoor air. Indoor, concealed return located in nonconditioned space. Indoor, concealed.

INDOOR DUCT AND PLENUM INSULATION SCHEDULE

Supply-Air, Return-Air and Make Up Air Duct Insulation: Fiberglass blanket, 1-1/2 inches (38 mm) thick and 1.5-lb/cu. ft. (24-kg/cu. M) nominal density.

PIPING INSULATION SCHEDULE, GENERAL

Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

INDOOR PIPING INSULATION SCHEDULE

Domestic Cold Water, Hot Water and Hot Water Recirc. Fiberglass: 3/4 inches thick.

3. DOMESTIC WATER PIPING

PRODUCTS

PIPING MATERIALS

Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

COPPER TUBE AND FITTINGS

Hard Copper Tube: ASTM B 88, Type L (ASTM B 88M, Type B)

PIPING JOINING MATERIALS

Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

FLEXIBLE CONNECTORS

Stainless-Steel-Hose Flexible Connectors: Corrugated-stainless-steel tubing with stainless-steel wire-braid covering and ends welded to inner tubing.

EXECUTION

PIPING INSTALLATION

Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space. Install piping adjacent to equipment and specialties to allow service and maintenance.Install piping to permit valve servicing. Install piping free of sags and bends. Install fittings for changes in direction and branch connections. Install shut off valves with unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

JOINT CONSTRUCTION

Ream ends of pipes and tubes and remove burrs. Bevel plain ends o steel pipe. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

VALVE INSTALLATION

Install shutoff (ball) valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops.

Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping.

CONNECTIONS

Install piping adjacent to equipment and machines to allow service and maintenance. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.

ESCUTCHEON INSTALLATION

Install escutcheons for penetrations of walls, ceilings, and floors.

PIPING SCHEDULE

Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

Aboveground domestic water piping, shall be Hard copper tube, ASTM B 88, Type L.

4. INTERIOR SANITARY WASTE AND VENT PIPING

PRODUCTS

PIPING MATERIALS

PVC Pipe: ASTM D 2665, solid-wall drain, waste, and vent.

EXECUTION

PIPING APPLICATIONS

Aboveground, Interior, soil, waste, and vent piping shall be PVC Pipe with socket fittings and solvent welded joints. Underground, soil, waste, and vent shall be PVC Pipe with socket fittings and solvent welded joints.

PIPING INSTALLATION

Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed. Install soil and waste drainage and vent piping at the code required minimum slopes. Install PVC soil and waste drainage and vent piping according to ASTM D 2665. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

JOINT CONSTRUCTION

PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

5. FACILITY NATURAL-GAS PIPING

PRODUCTS

PIPES, TUBES, AND FITTINGS

Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

JOINING MATERIALS

Joint Compound and Tape: Suitable for natural gas.

Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

MANUAL GAS SHUTOFF VALVES

Bronze Plug Valves: MSS SP-78.

MOTORIZED GAS VALVES

Electrically Operated Valves: Comply with UL 429.

EXECUTION

OUTDOOR PIPING INSTALLATION

Comply with NFPA 54 for installation and purging of natural-gas piping.

INDOOR PIPING INSTALLATION

Comply with NFPA 54 for installation and purging of natural-gas piping. Arrange for pipe spaces, chases, slots, sleeves, and openings in building structure during progress of construction, to allow for mechanical installations. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal. Locate valves for easy access. Install natural-gas piping at uniform grade of 2 percent down toward drip and sediment traps. Install piping free of sags and bends. Install fittings for changes in direction and branch connections. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Verify final equipment locations for roughing-in. Drips and Sediment Traps: Install drips at points where condensate may collect, including service-meter outlets. Locate where accessible to permit cleaning and emptying. Do not install where condensate is subject to freezing. Extend relief vent connections for service regulators, line regulators, and verpressure protection devices to outdoors and terminate with weatherproof vent cap. Conceal pipe installations in walls, pipe spaces, utility spaces, above ceilings, below grade or floors, and in floor channels unless indicated to be exposed to view.

CONNECTIONS

Connect to utility's gas main according to utility's procedures and requirements. Install natural-gas piping electrically continuous, and bonded to gas appliance equipment grounding conductor of the circuit powering the appliance according to NFPA 70. Install piping adjacent to appliances to allow service and maintenance of appliances. Connect piping to appliances using manual gas shutoff valves and unions. Install valve within 72 inches (1800 mm) of each gas-fired appliance and equipment. Install union between valve and appliances or equipment. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

OUTDOOR & INDOOR PIPING SCHEDULE

Aboveground natural-gas piping shall be Steel pipe with wrought-steel fittings and welded joints.

6. ROOF TOP UNITS

SUBMITTALS

Product Data: Include rated capacities, furnished specialties, and accessories.

PACKAGED UNITS

Factory-assembled, prewired, self-contained unit consisting of cabinet, supply fan, controls, filters, DX cooling system and direct-fired gas furnace to be installed outside the building.

AIR FILTERS

Comply with NFPA 90A.

DIRECT-FIRED GAS FURNACE

Description: Factory assembled, piped, and wired; and complying with ANSI Z83.4, "Direct Gas-Fired Make-Up Air Heaters"; ANSI Z83.18, "Direct Gas-Fired Industrial Air Heaters"; and NFPA 54, "National Fuel Gas Code."

CONTROLS

Factory-wired, fuse-protected control transformer, connection for power supply and field-wired unit to remote control panel.

EXECUTION

INSTALLATION

Install gas-fired units according to NFPA 54, "National Fuel Gas Code." Install roof curb on roof structure, according to ARI Guidelines. Install controls and equipment shipped by manufacturer for field installation with direct-fired H&V units.

7. METAL DUCTS

RECTANGULAR DUCTS AND FITTINGS

General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

ROUND DUCTS AND FITTINGS

General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.

General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

EXECUTION

DUCT INSTALLATION

Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated. Install round ducts in maximum practical lengths. Install ducts with fewest possible joints. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building. Install ducts with a clearance of 1 inch (25 mm), plus allowance for insulation thickness. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches (38 mm).

Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers.

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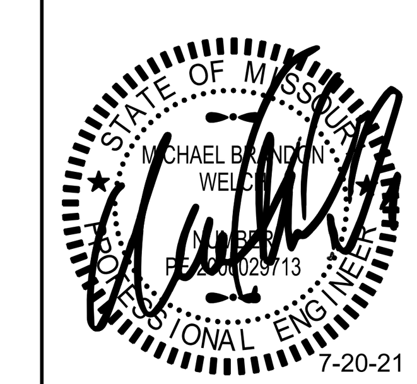


7-20-21

Project Number 21.192.02

Revisions

interior improvements for
Stretchzone
940 NW Pryor Rd . Suite B
Lee's Summit . Missouri

sheet
M2
MECHANICAL SCHEDULES

permit . bid
20 July 2021

OCCUPANCY SENSOR SCHEDULE

TAG	QTY (CONFIRM WITH PLANS)	MANUFACTURER	MODEL	MOUNTING	TYPE	TIME DELAY SETTING	NOTES
OS-1	1	LEVITON	MDS10-ID	WALL	PASSIVE INFRARED	15 MIN	
OS-2	1	LEVITON	OSC10-RMW	CEILING	DUAL TECHNOLOGY	15 MIN	FURNISH WITH POWER PACK(S) AND ISOLATED RELAY

LIGHT FIXTURE SCHEDULE

TAG	QUANTITY (CONFIRM WITH PLANS)	DESCRIPTION	VOLTAGE	MOUNTING	LAMPING			MANU/SERIES	VA
					QTY	WATTAGE	TYPE/COLOR TEMP		
A	12	2'-0"X4'-0" RECESSED LED ARCHITECTURAL LENSED TROFFER. STEEL HOUSING AND DOOR FRAME WITH WHITE POWDER COAT FINISH, ROUND, SMOOTH ACRYLIC LENS, 0-10V 10% DIMMING LED DRIVER.	120	RECESSED GRID	--	38	LED/4000K/4800 LUMEN	LITHONIA#2BLT4-48L-ADSM	38
B	2	2'-0"X2'-0" RECESSED LED ARCHITECTURAL LENSED TROFFER. STEEL HOUSING AND DOOR FRAME WITH WHITE POWDER COAT FINISH, ROUND, SMOOTH ACRYLIC LENS, 0-10V 10% DIMMING LED DRIVER.	120	RECESSED GRID	--	27	LED/4000K/3300LM	LITHONIA#2BLT2-48L-ADSM	27
XE	2	EXISTING COMBINATION EXIT SIGN/EMERGENCY LIGHT TO REMAIN. RECIRCUIT WHERE SHOWN.	120	WALL	3	6	LED	EXISTING	5

Panel R1B Schedule

VOLTAGE: 120/208 V | BUS RATING: 225 A | MOUNTING: SURFACE | FED FROM: ----

PHASE/WIRE: 3 PH /4 W | MAIN TYPE & SIZE: 225 A MLO | MIN AIC: 10000

CIRC	CIRCUIT DESCRIPTION	OCPD AMP	OCPD POLE	PHASE LOAD VA A		PHASE LOAD VA B		PHASE LOAD VA C		OCPD POLE	OCPD AMP	CIRCUIT DESCRIPTION	CIRC
1,3	AHU (EXISTING)	70	2	6000	2912	6000	2912	0	0	2	50	ACCU (EXISTING)	2,4
5	LIGHTING (NEW)	20	1	0	0	0	0	640	2400	1	25	WATER HEATER (NEW)	6
7	RECEPTS (NEW)	20	1	720	720	0	0	0	0	1	20	RECEPTS (NEW)	8
9	RECEPTS (NEW)	20	1	0	0	540	180	0	0	1	20	BREAK REC (NEW)	10
11	BREAK REC (NEW)	20	1	0	0	0	0	180	0	1	0	SPACE	12
13	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	14
15	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	16
17	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	18
19	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	20
21	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	22
23	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	24
25	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	26
27	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	28
29	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	30
31	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	32
33	SPARE	0	1	0	0	0	0	0	0	1	0	SPARE	34
35	SPARE	0	1	0	0	0	0	0	0	1	0	SPACE	36
37	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	38
39	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	40
41	SPACE	0	1	0	0	0	0	0	0	1	0	SPACE	42
	TOTAL CONN. PHASE LOAD			10352		9632		3220					

LOAD CATEGORY	CONN. LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Heat	12.0	0.00	0.0
Lighting	0.5	1.25	0.7
Motor - Air Conditioning	0.0	1.00	0.0
Motor - Air Conditioning (Largest)	5.8	1.25	7.3
Motor - Non AC	0.0	1.00	0.0
Motor - Non AC (Largest)	0.1	1.25	0.1
Other	2.4	1.00	2.4
Receptacles (0 - 10 KVA)	2.3	1.00	2.3
TOTAL	23.2		12.8
TOTAL DEMAND	35.6	AMPS	
TOTAL PANEL SPARE	164.4	AMPS	

NOTES: GFI - GROUND FAULT CIRCUIT BREAKER
LCK - HANDLE PADLOCK ATTACHMENT
ST - SHUNT TRIP

PANEL IS EXISTING, PROVIDE NEW CIRCUIT BREAKERS FOR NEW CIRCUITS AS REQUIRED.

GENERAL

- 1 — ELECTRICAL NOTE REFERENCE
- 1 — REVISION NOTE REFERENCE
- CONNECT TO EXISTING WORK
- X / XX — DETAIL REFERENCE - NO./SHEET NO.

CONDUIT AND WIRE

- IG / LP-1 — CONDUIT HOMERUN TO PANEL NOTED WITH (2)#12 AND (1)#12 AWG GROUND UNLESS NOTED OTHERWISE. SHORT TICK MARKS INDICATE CONDUCTORS, LONG MARKS INDICATE NEUTRAL CONDUCTORS.
- GROUND WIRE. #12 AWG UNLESS NOTED OTHERWISE.
- CONDUIT CONCEALED IN WALL OR ABOVE CEILING WITH (2)#12 AND (1)#12 AWG GROUND UNLESS NOTED OTHERWISE.
- CONDUIT BELOW GRADE OR FLOOR WITH WITH (2)#12 AND (1)#12 AWG GROUND UNLESS NOTED OTHERWISE.

LIGHTING

NOTE: FIXTURE DESIGNATIONS INDICATE TYPE, REFER TO LIGHT FIXTURE SCHEDULE

- A90 — WALL/CEILING MOUNTED EMERGENCY LIGHTING UNIT
- LIGHT FIXTURE
- CEILING MOUNTED SURFACE/RECESSED LIGHT
- CEILING/WALL MOUNTED EXIT LIGHT. SHADING INDICATES FACES, ARROWS AS INDICATED

COMMUNICATIONS

- TELEPHONE OUTLET
- DATA OUTLET
- TELEPHONE/DATA OUTLET
- ABOVE COUNTER DEVICE, MOUNT 5" ABOVE BACKSPLASH OR COUNTER TOP, WHICHEVER IS HIGHER.
- TV — TELEVISION OUTLET
- PLYWOOD BOARD FOR EQUIPMENT MOUNTING

POWER DEVICE AND CONTROLS

- 30/3/NF — DISCONNECT SWITCH. 30/3/NF INDICATES AMPERAGE, NUMBER OF POLES, AND FUSING. NF = NON FUSED. MATCH CIRCUIT VOLTAGE. 240 VOLT, 3 POLE, 30 AMP NON FUSED IF BLANK.
- MOTOR
- PANELBOARD
- PC — PHOTOCELL
- J — JUNCTION BOX

FIRE ALARM

MOUNT VISIBLE NOTIFICATION DEVICES WITH LENS AT 80-96" AFF AND A MINIMUM OF 6" BELOW CEILING. MOUNT HORNS AT 88" TO TOP OF DEVICE.

- L / 110 — WALL MOUNTED VISIBLE NOTIFICATION DEVICE. NUMBER INDICATES CANDELA RATING, 15 CD IF NOT NOTED.
- HS / 110 — WALL MOUNTED COMBINATION VISIBLE/AUDIBLE NOTIFICATION DEVICE. NUMBER INDICATES CANDELA RATING, 15 CD IF NOT NOTED.

WIRING DEVICES

NOTE: REFER TO SPECIFICATIONS FOR MOUNTING HEIGHTS NOT LISTED.

- SIMPLEX, DUPLEX, AND QUAD RECEPTACLE. MOUNT AT 18" AFF TO CENTER OF DEVICE UNLESS NOTED OTHERWISE.
- ABOVE COUNTER RECEPTACLE, MOUNT 5" ABOVE BACKSPLASH OR COUNTER TOP, WHICHEVER IS HIGHER.
- GFI GFI GFI — RECEPTACLE DESIGNATIONS:
  - GFI - GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
  - WP - WEATHER RESISTANT RECEPTACLE WITH "IN-USE" COVER.
  - U - DUPLEX RECEPTACLE WITH (2) USB CHARGING PORTS, LEVITON T5832 OR EQUAL
- $ — WALL SWITCH, SINGLE POLE. MOUNT AT 46" AFF TO CENTER OF DEVICE UNLESS NOTED OTHERWISE
- $3 — WALL SWITCH DESIGNATIONS:
  - 3 - THREE POLE SWITCH
  - 4 - FOUR-WAY WALL SWITCH
  - D - 0-10V WALLBOX DIMMER
- OS MS-1 — MOTION SENSOR, CEILING MOUNTED. DESIGNATION INDICATES TYPE - REFER TO OCCUPANCY SENSOR SCHEDULE
- OS MS-1 — MOTION SENSOR, WALL MOUNTED. DESIGNATION INDICATES TYPE - REFER TO OCCUPANCY SENSOR SCHEDULE. MOUNT AT 46" AFF TO CENTER OF DEVICE
- 6-20R — NEMA RECEPTACLE, DESIGNATION INDICATES NEMA TYPE.

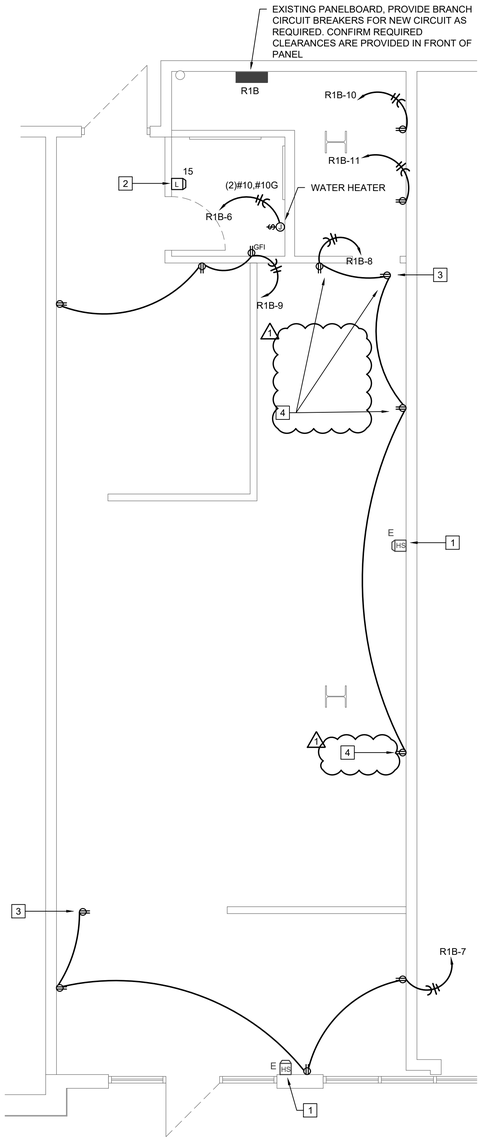
3 ELECTRICAL SYMBOLS
NO SCALE

GENERAL NOTES:

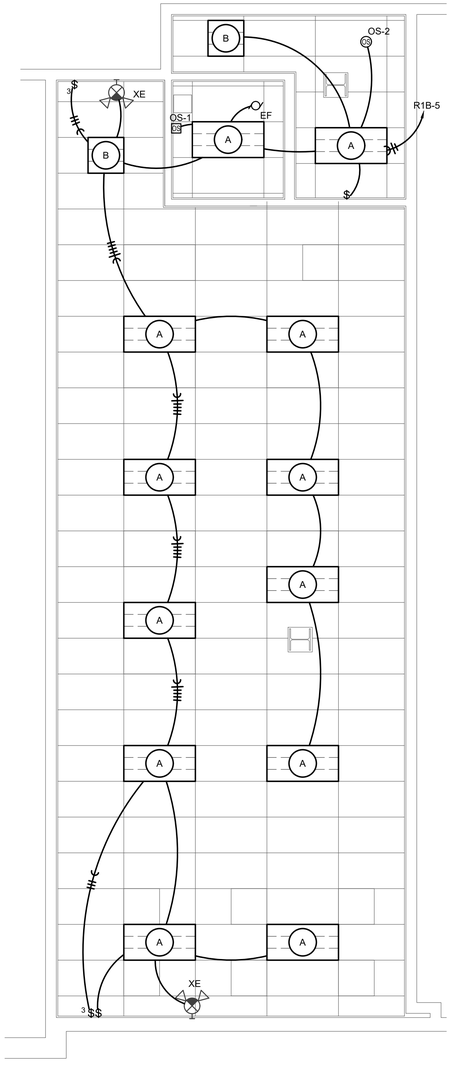
1. AT LOCATIONS OF COMMUNICATIONS OUTLETS, UNLESS NOTED OTHERWISE, PROVIDE A 4"X4" BOX AT 18" AFF WITH (1) 3/4" CONDUIT WITH PULL STRING TO ABOVE THE CEILING.
2. CONNECT ALL FIRE ALARM DEVICES TO THE EXISTING BUILDING FIRE ALARM PANEL.
3. MAINTAIN THE ELECTRICAL CONNECTIONS TO THE EXISTING AHU AND CONDENSING UNIT.

PLAN NOTES:

1. EXISTING FIRE ALARM DEVICE.
2. NEW FIRE ALARM DEVICE, CONNECT TO THE EXISTING BUILDING FIRE ALARM SYSTEM.
3. MOUNT FLUSH IN CEILING, COORDINATE EXACT LOCATION WITH TENANT.
4. CIRCUITING SERVING THE RECEPTACLES IN THIS PATIENT TREATMENT AREA SHALL MEET THE REQUIREMENTS OF NEC 517.13 (A) AND (B) FOR REDUNDANT GROUNDING. EITHER METAL RACEWAY WITH A GROUND WIRE, OR HOSPITAL GRADE TYPE MC CABLING SHALL BE INSTALLED. HOSPITAL GRADE MC CABLING SHALL BE EQUIPPED WITH AN ALUMINUM INTERLOCKED ARMOR COVER MEETING THE GROUNDING RETURN PATH REQUIREMENTS OF NEC 250.118.



2 FLOOR PLAN - POWER
1/4"=1'-0"



1 FLOOR PLAN - LIGHTING
1/4"=1'-0"

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STATE OF MISSOURI
CORY A. MITCHELL
NUMBER A-2007005928
PROFESSIONAL ENGINEER
8-2-21

Project Number 21.192.02

Revisions
1 City Comments 8-2-21

interior improvements for
Stretchzone
940 NW Pryor Rd . Suite B
Lee's Summit . Missouri

sheet
E1
ELECTRICAL PLANS
permit . bid
20 July 2021

ELECTRICAL SPECIFICATIONS

1.COMMON WORK RESULTS FOR ELECTRICAL

COORDINATION
Coordinate arrangement, mounting, and support of electrical equipment:
To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
To provide for ease of disconnecting the equipment with minimum interference to other installations.
To allow right of way for piping and conduit installed at required slope.
So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed.

EXECUTION

COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION
Comply with NECA 1.
SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS
Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
Cut sleeves to length for mounting flush with both surfaces of walls.
Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials.
Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
FIRESTOPPING
Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

2.GROUNDING AND BONDING

QUALITY ASSURANCE
Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
Comply with UL 467 for grounding and bonding materials and equipment.

PRODUCTS

CONDUCTORS
Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
Bare Copper Conductors:
Solid Conductors: ASTM B 3.
Stranded Conductors: ASTM B 8.
Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches (6 by 50 mm) in cross section, unless otherwise indicated; with insulators.

EXECUTION

APPLICATIONS
Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated. Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
EQUIPMENT GROUNDING
Install insulated equipment grounding conductors with all feeders and branch circuits.
Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6-by-50-by-300-mm) grounding bus.

3.HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

QUALITY ASSURANCE
Comply with NFPA 70.

PRODUCTS

SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS
Raceway and Cable Supports: As described in NECA 1 and NECA 101.
Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

EXECUTION

APPLICATION
Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
Secure raceways and cables to these supports with two-bolt conduit clamps.
SUPPORT INSTALLATION
Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
To Wood: Fasten with lag screws or through bolts.
To New Concrete: Bolt to concrete inserts.
To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
To Existing Concrete: Expansion anchor fasteners.
Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
To Light Steel: Sheet metal screws.
Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

4. CONDUCTORS AND CABLES

QUALITY ASSURANCE
Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
Comply with NFPA 70.

PRODUCTS

CONDUCTORS AND CABLES
Manufacturers: Subject to compliance with requirements, provide products by one of the following:
Alcan Products Corporation; Alcan Cable Division.
American Insulated Wire Corp.; a Leviton Company.
General Cable Corporation.
Senator Wire & Cable Company.
Southwire Company.
Copper Conductors: Comply with NEMA WC 70.
Conductor Insulation: Comply with NEMA WC 70 for Type THHN-THWN.
Multiconductor Cable: Comply with NEMA WC 70 for metal-clad cable, Type MC with ground wire.
CONNECTORS AND SPLICES
Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
AFC Cable Systems, Inc.
Hubbell Power Systems, Inc.
O-Z/Gedney; EGS Electrical Group LLC.
3M; Electrical Products Division.
Tyco Electronics Corp.
Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

EXECUTION

CONDUCTOR MATERIAL APPLICATIONS
Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE
APPLICATIONS AND WIRING METHODS
Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
Branch Circuits not Concealed in Concrete: Type THHN-THWN, single conductors in raceway or Metal-clad Cable, Type MC.
INSTALLATION OF CONDUCTORS AND CABLES
Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
Identify and color-code conductors and cables according to Section "Hangers and Supports for Electrical Systems."

5.RACEWAYS AND BOXES

QUALITY ASSURANCE
Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
Comply with NFPA 70.

PRODUCTS

METAL CONDUIT AND TUBING
Manufacturers: Subject to compliance with requirements, provide products by one of the following:
Allied Tube & Conduit; a Tyco International Ltd. Co.
O-Z Gedney; a unit of General Signal.
Wheatland Tube Company.
Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
Fittings for EMT: Steel or die-cast, set-screw or compression type for concealed locations. Steel or die-cast, compression type for exposed locations.
BOXES, ENCLOSURES, AND CABINETS
Manufacturers: Subject to compliance with requirements, provide products by one of the following:
Hoffman.
Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
O-Z/Gedney; a unit of General Signal.
RACO; a Hubbell Company.
Thomas & Betts Corporation.
Walker Systems, Inc.; Wiremold Company (The).

EXECUTION

RACEWAY APPLICATION
Comply with the following indoor applications, unless otherwise indicated:
Exposed: EMT.
Concealed in Ceilings and Interior Walls and Partitions: EMT, unless MC allowed per “Conductors and Cables” section.
Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
Raceways for Optical Fiber or Communications Cable: EMT.
Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations.
Minimum Raceway Size: 1/2-inch (16-mm) trade size.
Do not install aluminum conduits in contact with concrete.
INSTALLATION
Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
Support raceways as specified in "Hangers and Supports for Electrical Systems."
Arrange stub-ups so curved portions of bends are not visible above the finished slab.
Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
Raceways Embedded in Slabs:
Run conduit larger than 1-inch (27-mm) trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
Arrange raceways to cross building expansion joints at right angles with expansion fittings.
Change from ENT to RNC, Type EPC-40-PVC, rigid steel conduit, or IMC before rising above the floor.
Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.
Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire.
Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.
Flexible Conduit Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
Use LFMC in damp or wet locations subject to severe physical damage.
Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

6.WIRING DEVICES

QUALITY ASSURANCE
Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
Comply with NFPA 70.
COORDINATION
Receptacles for Owner-Furnished Equipment: Match plug configurations.
Cord and Plug Sets: Match equipment requirements.

PRODUCTS

STRAIGHT BLADE RECEPTACLES
Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.
Products: Subject to compliance with requirements, provide one of the following:
Cooper; 5351 (single), 5352 (duplex).
Hubbell; HBL5351 (single), CR5352 (duplex).
Leviton; 5891 (single), 5352 (duplex).
Pass & Seymour; 5381 (single), 5352 (duplex).
GFCI RECEPTACLES
Duplex GFCI Convenience Receptacles, 125 V, 20 A:
Products: Subject to compliance with requirements, provide one of the following:
Cooper; GF20.
Pass & Seymour; 2084.
Hubbell Equal
Leviton Equal.
SNAP SWITCHES
Switches, 120/277 V, 20 A:
Products: Subject to compliance with requirements, provide one of the following:
Cooper; 2221 (single pole), 2222 (two pole), 2223 (three way), 2224 (four way).
Hubbell; CS1221 (single pole), CS1222 (two pole), CS1223 (three way), CS1224 (four way).
Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).
Pass & Seymour; 20AC1 (single pole), 20AC2 (two pole), 20AC3 (three way), 20AC4 (four way).
WALL PLATES
Single and combination types to match corresponding wiring devices.
Plate-Securing Screws: Metal with head color to match plate finish.
Material for Finished Spaces: Smooth, high-impact thermoplastic.
Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

EXECUTION

INSTALLATION
Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top.
Group adjacent switches under single, multigang wall plates.
Mounting Heights. Mount devices at the following heights above finished floor unless noted otherwise.
Receptacles and communications outlets: 18” to center of device. Above counter receptacles and communications outlets: 5” above the backsplash or counter top, whichever is higher.
Switches: 46” to center of device.

7.LIGHTING

SUBMITTALS
Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, finishes, and the following:
Physical description of lighting fixture including dimensions.
Emergency lighting units including battery and charger.
Ballast.
Energy-efficiency data.
Photometric data, in IESNA format, based on laboratory tests of each lighting fixture type, outfitted with lamps, ballasts, and accessories identical to those indicated for the lighting fixture as applied in this Project.

EXECUTION

INSTALLATION
Support for Lighting Fixtures in or on Grid-Type Suspended Ceilings: Use grid as a support element.
Install a minimum of four ceiling support system rods or wires for each fixture. Locate not more than 6 inches (150 mm) from lighting fixture corners.
Support Clips: Fasten to lighting fixtures and to ceiling grid members at or near each fixture corner with clips that are UL listed for the application.
Fixtures of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch (20-mm) metal channels spanning and secured to ceiling tees.
Install at least one independent support rod or wire from structure to a tab on lighting fixture. Wire or rod shall have breaking strength of the weight of fixture at a safety factor of 3.

COMcheck Software Version 4.1.2.0

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title:
Project Type: Alteration

Construction Site: Owner/Agent: Designer/Contractor:

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-break room (Common Space Types:Lounge/Breakroom)	94	0.62	58
2-restroom (Common Space Types:Restrooms)	46	0.85	39
3-lobby (Common Space Types:General Seating Area)	177	0.42	74
4-stretch area (Healthcare Facility:Exam/Treatment)	746	1.68	1253
		Total Allowed Watts =	1425

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
break room (Common Space Types:Lounge/Breakroom 94 sq.ft.)				
LED 1: a: 2x4 led: LED Panel 38W:	1	1	38	38
LED 2: b: 2x2 led: LED Panel 33W:	1	1	27	27
restroom (Common Space Types:Restrooms 46 sq.ft.)				
LED 1: a: 2x4 led: LED Panel 38W:	1	1	38	38
lobby (Common Space Types:General Seating Area 177 sq.ft.)				
LED 1: a: 2x4 led: LED Panel 38W:	1	2	38	76
stretch area (Healthcare Facility:Exam/Treatment 746 sq.ft.)				
LED 1: a: 2x4 led: LED Panel 38W:	1	8	38	304
LED 2: b: 2x2 led: LED Panel 33W:	1	1	27	27
		Total Proposed Watts =		510

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.2.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Cory Mitchell - designer — Signature — 7-20-21
Name - Title — Date

Project Title: Report date: 07/20/21
Data filename: C:\Users\kcami\OneDrive - Welch & Mitchell, Inc\Public\WMI\Projects\2021\2118500 Stretch Zone\Lee's Summit\Design\comcheck.cck Page 1 of 6

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REGISTERED PROFESSIONAL ENGINEER
7-20-21

Project Number 21.192.02

Revisions

interior improvements for
Stretchzone
940 NW Pryor Rd . Suite B
Lee's Summit . Missouri

sheet
E2
ELECTRICAL SPECIFICATIONS

permit . bid
20 July 2021