DOOR		DOOR					FRAME			RATING	HARDWARE	REMARKS
NO.	WIDTH	HEIGHT	THICK	TYPE	MATERIAL	FINISH	MATERIAL	FINISH	HEAD			
100	3'-0"	7'-0"	1 3/4"	A	AL	ANOD	AL	ANOD	–	–	1	NOTE: 1, 2, 3.
101	3'-0"	7'-0"	1 3/4"	B	HM	PAINT	HM	PAINT	4A1.0	–	2	

NOTE: FIELD VERIFY ALL ROUGH OPENING DIMENSIONS PRIOR TO FINAL FABRICATION. ALL NEW LOCKS TO BE BEST OR FALCON

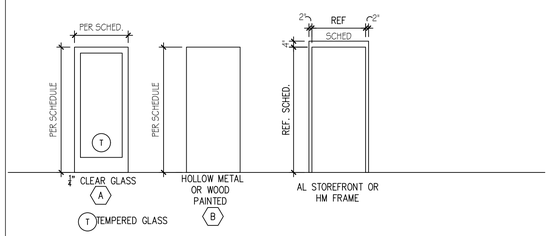
NOTE 1: MEDIUM STILE ALUM STOREFRONT DOOR W/ ¼ TEMPERED GLASS RE: ELEVATIONS AND SECTIONS FOR REMAINDER OF INFORMATION

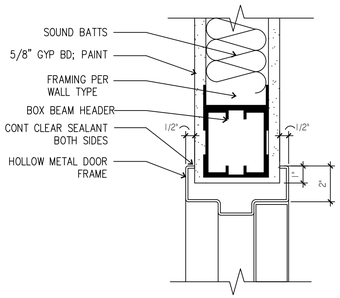
NOTE 2: FOR ALL DOOR THRESHOLDS, SEAL WATER TIGHT FOR NO MOISTURE PENETRATION. SET IN FULL SEALANT BED.

NOTE 3: ALUMINUM FRAME COLOR: MATCH EXISTING

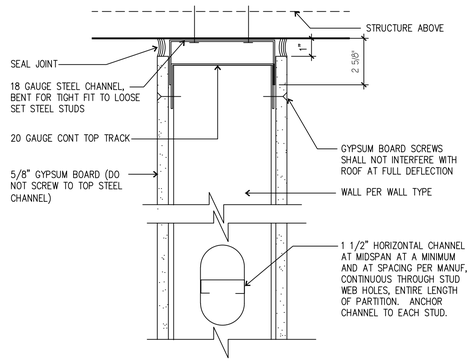
SET #1
ALUMINUM STOREFRONT DOOR:
CONTINUOUS HINGE (FINISH TO MATCH DOORS)
PANIC DEVICES (PUSH PAD-NOT BAR TYPE) BOTH W/ CYLINDER DOGGING
1 KEYED TO EXTERIOR FOR ENTRY
3 CYLINDERS (VERIFY TYPE- 1 @ DOOR - 2 FOR PANIC DOGGING)
1 SETS 1" DIA TUBULAR S/S PULL SET (KANNEER #CD-SCP-1 OR EQUAL) W/ 9" H OFFSET PULL (OUTSIDE) & HORZ PUSH BAR (INSIDE)
1 CLOSER W/ CAST-IRON CYLINDER & STOP (LCN 4040 OR EQUAL)
1 DOOR BOTTOM SWEEP
1/2" MAX THRESHOLD W/ DOOR SEAL: PEMKO 2005AV OR EQ
WEATHERSTRIPPING ALL AROUND FRAME

SET #2
INTERIOR DOORS:
3 - BUTTS, TA 2714
1 - LEVER LOCK SET PASSAGE FUNCTION
1 - WALL STOP
3 - SILENCER, GLYNN-JOHNSON, GJ64





HEAD DETAIL 4
SCALE: N.T.S.



SLIP TRACK DETAIL 3
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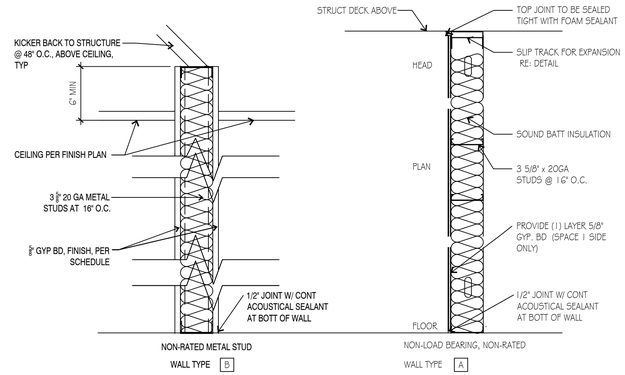


WALL TYPE 2
SCALE: N.T.S.

CODE DATA:

APPLICABLE CODES: ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS AND DRAWINGS, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS OF ALL GOVERNING BODIES INVOLVED. ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR INVOLVED. APPLICABLE CODES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

BUILDING CODE	2018 International Building Code
ELECTRICAL CODE	2017 NATIONAL ELECTRICAL CODE
MECHANICAL CODE	2018 INTERNATIONAL MECHANICAL CODE
PLUMBING CODE	2018 INTERNATIONAL PLUMBING CODE
FIRE PROTECTION	2018 INTERNATIONAL FIRE CODE . NFPA 13
ACCESSIBILITY	2010 AMERICANS WITH DISABILITIES ACT . DESIGN GUIDELINES

OCCUPANCY TYPE:

B – BUISNESS

CONSTRUCTION TYPE:

TYPE V–B NON–COMBUSTIBLE (SPRINKLED)

OCCUPANT LOAD:

BUILDING GROSS AREA: EXISTING= 11,204 SF

OFFICE SPACE 1 OCCUPANT LOAD:

OFFICE SPACE 1 = 1,692 SF/150 = 12 OCC

OFFICE SPACE 1 EXIT CALCULATION:

OCC. LOAD 12 = 1 REQD. EXIT
PROVIDED= 1 EXITS

EXIT WIDTH:
12 OCCUPANTS X .2 = 2.4 INCHES
PROVIDED = 34 INCHES

PLUMBING FIXTURE CALCS:

RESTROOM FIXTURES (Table 2902.1)
Required - 1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50.

Restroom Fixtrues
Required 12 occ = 1 water closets
Provided 1 water closets

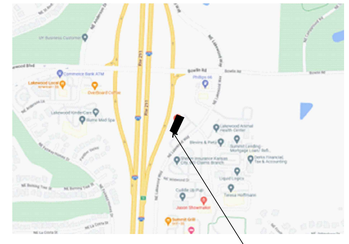
Drinking fountain and mop sink are not required for occupant loads under 15

DRAWING INDEX

ARCHITECTURAL:

MEP:

VICINITY MAP:



REMODELING NOTES:

MAINTAIN EXISTING EXITS, EXIT ACCESS AND PROVIDE APPROPRIATE FIRE PREVENTION PROCEDURES DURING CONSTRUCTION.

PROTECT EXISTING CONSTRUCTION FROM DAMAGE AND REPAIR DAMAGE DUE TO CONSTRUCTION OPERATIONS AT NO COST TO OWNER.

VERIFY LOCATIONS OF EXISTING UTILITY SERVICE CONNECTIONS AND MAKE ALL CONNECTIONS REQUIRED. LOCATIONS OF EXISTING UTILITIES INDICATED IN THE DRAWINGS ARE APPROXIMATE, ARE BASED ON INFORMATION PROVIDED. PROVIDE CONNECTIONS AS REQUIRED BY ACTUAL UTILITY CONNECTION POINTS AT NO ADDITIONAL COST TO THE OWNER.

PROVIDE ALL CUTTING AND PATCHING OF EXISTING CONSTRUCTION TO ACCOMMODATE NEW CONSTRUCTION WORK

ALIGN NEW FINISHES WITH EXISTING FINISHES EXCEPT AS OTHERWISE INDICATED.

PATCH ALL EXISTING WALL PENETRATIONS AND REFINISH TO MATCH ADJACENT SURFACES TYPICALLY.

PHASE CONSTRUCTION AT PARKING AREAS SO THAT ADEQUATE PARKING WILL BE AVAILABLE AT ALL TIMES.

REFER TO OTHER SHEETS IN THIS SET FOR ADDITIONAL DEMOLITION REQUIREMENTS, WHICH SHALL BE BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

REMOVE UNUSED UTILITIES NOT REUSED, CAPPED BELOW FINAL FINISH SURFACES.

REMOVE ALL EXISTING ELEMENTS WHICH CONFLICT WITH THE NEW WORK, WHETHER OR NOT SHOWN ON THE DRAWINGS.

DEMOLITION PLAN SHOWS APPROXIMATE LAYOUT OF EXISTING BUILDING AND IS NOT INTENDED TO REPRESENT "AS-BUILT" CONDITIONS. VISIT SITE AND OTHERWISE BECOME FAMILIAR WITH ACTUAL CONDITIONS WHEN BIDDING THE WORK

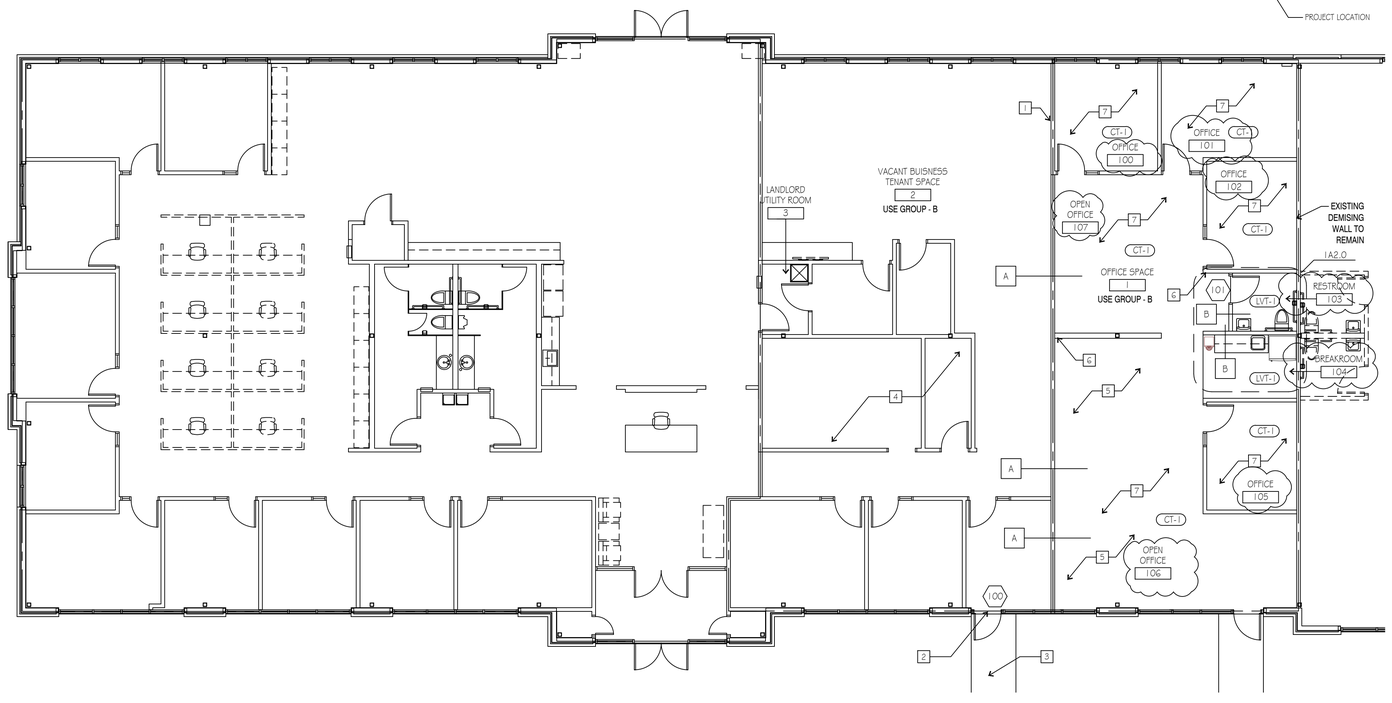
WALLS, PARTITIONS, DOORS, FRAMES, AND OTHER ITEMS TO BE REMOVED ARE SHOWN DASHED. SERVICES WITHIN WALLS AND PARTITIONS SHALL ALSO BE REMOVED. EDGES OF WALLS SHOWN TO REMAIN SHALL BE CLEANLY CUT TO ACCEPT NEW CONSTRUCTION. REPAIR AND PATCH EXISTING WALLS SHOWN TO REMAIN WHERE INTERSECTING WALLS, DOORS, FRAMES, ETC. ARE SHOWN TO BE REMOVED AND WHERE EXISTING CONSTRUCTION WILL NOW BE EXPOSED IN THE NEW CONSTRUCTION.

PROVIDE TEMPORARY WEATHER PROTECTION AND SECURITY DEVICES DURING INTERVAL BETWEEN DEMOLITION AND REMOVAL OF EXISTING CONSTRUCTION ON EXTERIOR SURFACES AND INSTALLATION OF NEW CONSTRUCTION TO ENSURE THAT NO WATER LEAKAGE OR DAMAGE OCCURS TO STRUCTURE OR INTERIOR AREAS OF EXISTING BUILDING

FLOOR PLAN KEYNOTES

1. EXTEND EXISTING WALLS TO DECK PER WALL TYPE
2. MODIFY EXISTING STOREFRONT AS REQUIRED TO ACCOMMODATE NEW STOREFRONT DOOR
3. NEW 5' WIDE SIDEWALK, 4" CONCRETE OVER 4" DRAINAGE FILL. MAX 2% CROSS SLOPE AND SLOPE 5' OUT FROM DOOR. PROVIDE (2) 12" L #4 DOWELS ANCHORED INTO EXISTING FOOTING A MIN OF 5"
4. VACANT TENANT SPACE, FINAL BUILD OUT DRAWINGS UNDER SEPARATE PERMIT BY TENANT
5. INFILL CEILING AND RELOCATE LIGHTS AS REQUIRED TO MATCH EXISTING CEILING LAYOUT AFTER REMOVAL OF OFFICE WALLS
6. PATCH WALL AS REQUIRED TO MATCH EXISTING CONDITIONS, TYP
7. INSTALL NEW CARPET, 4" RUBBER BASE, AND PAINT ALL WALLS THIS SPACE ONLY. COORDINATE FINISHES W/ OWNER

NOTE: MODIFY EXISTING CEILING AS REQUIRED TO ACCOMMODATE NEW WALL, REINSTALL CEILING ON TENANT SPACE 1 SIDE.



%FLOOR PLAN 1
SCALE: 1/8"= 1'-0"

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STATE OF MISSOURI
DAVID L ESKOV
NUMBER A-2021003214
ARCHITECT

DATE SIGNED 07/19/2024

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.

David Eskov

PERMIT
JULY 19, 2024

Revisions

TENANT SPLIT PHASE 2
EXECUTIVE LAKES
5000 NE LAKEWOOD PARKWAY
LEE'S SUMMIT, MO

sheet
A1.0
FLOOR PLAN, WALL TYPE, AND DOOR SCHEDULE

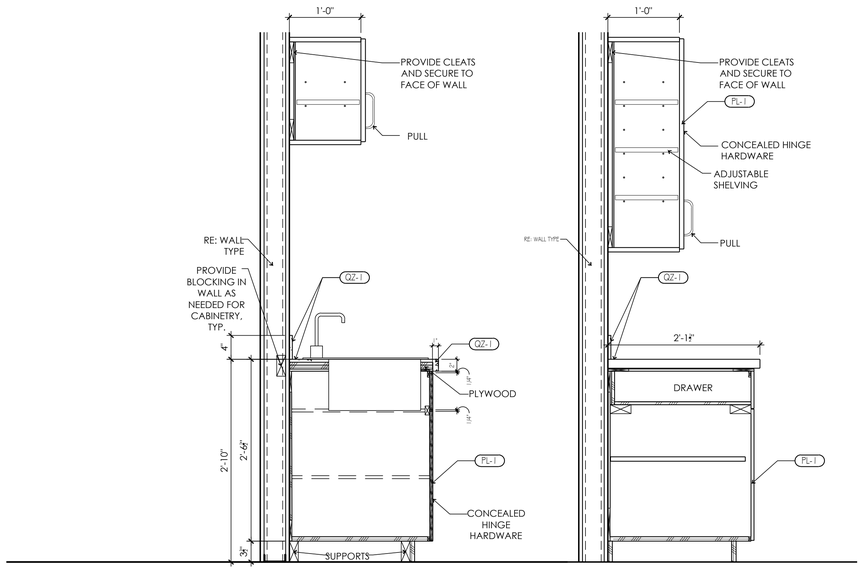
FINISH LEGEND

TAG	MATERIAL	MANUFACTURE	STYLE & COLOR
P-1	PAINT	TBD	TBD
T-1	WALL TILE	TBD	TBD (PROVIDE MATERIAL ALLOWANCE)
PL-1	PLASTIC LAMINATE	TBD	TBD
QZ-1	QUARTZ COUNTER	TBD	TBD (PROVIDE MATERIAL ALLOWANCE)
LVT-1	LUXURY VINYL TILE	TBD	TBD (PROVIDE MATERIAL ALLOWANCE)
CT-1	CARPET TILE	TBD	TBD (PROVIDE MATERIAL ALLOWANCE)
RB-1	4" RUBBER BASE	TBD	TBD
ACT-1	ACOUSTICAL TILE (2x2)	TBD	TBD (PROVIDE MATERIAL ALLOWANCE)

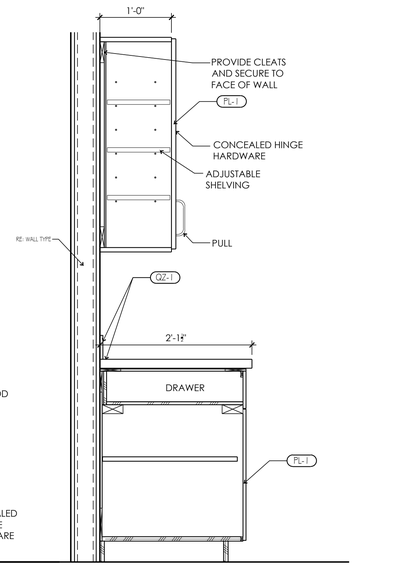
finish notes:

- All surfaces shall be cleaned and conditioned to receive new finish as required by finish product manufacturer. Surfaces shall be smooth, free from depressions,
- All patterned flooring shall be centered in both directions and generated from center of room outward toward partitions, unless otherwise noted.

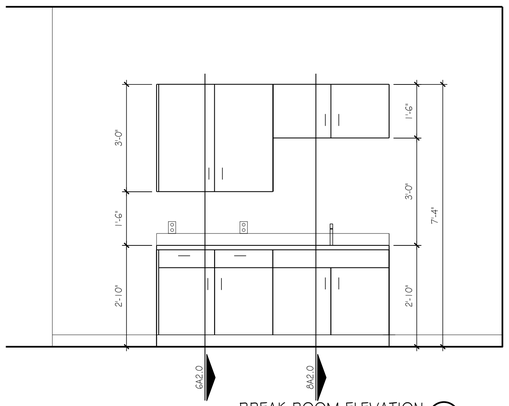
- All walls shall receive a level 4 finish.
- Install base at all casework where exposed unless noted otherwise.
- Paint to be eggshell on walls typ. Use epoxy paint in wet areas (utiltiy rooms, restrooms, etc) semi-gloss enamel at metal doors/frames, flat at exposed ceilings, ductworks, etc.
- verify existing floor RH prior to purchasing flooring materials and verify meets manufacture required
- remove adhesive/old finish and prep floor for polished concrete, typ



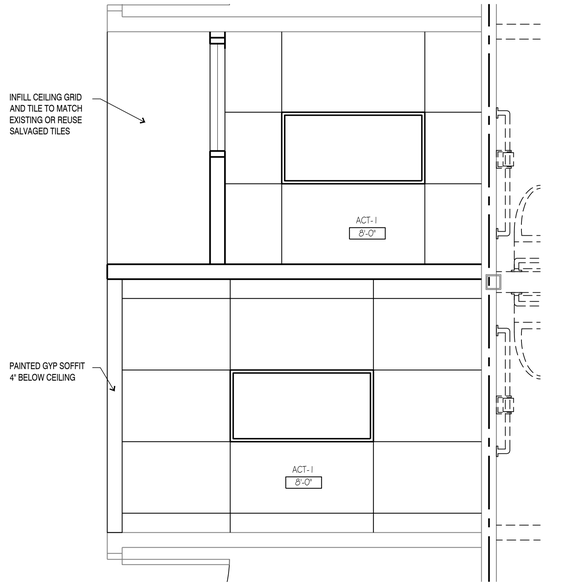
CASEWORK SECTION 8
SCALE: 1/2"= 1'-0"



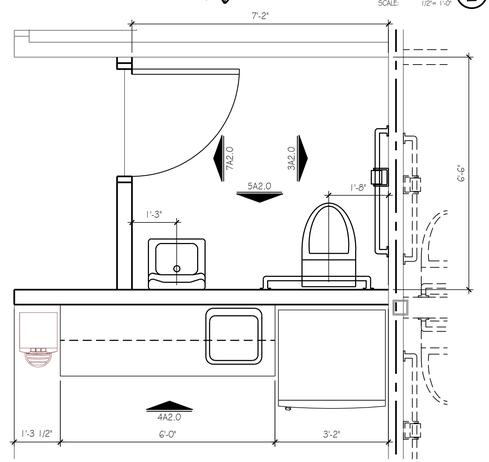
CASEWORK SECTION 6
SCALE: 1/2"= 1'-0"



BREAK ROOM ELEVATION 4
SCALE: 1/2"= 1'-0"



ENLARGED RESTROOM RCP 2
SCALE: 1/2"= 1'-0"



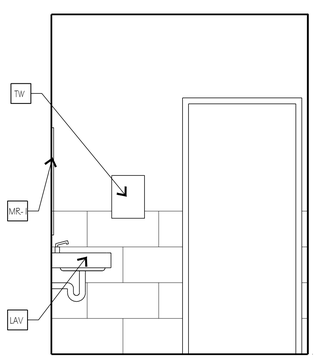
ENLARGED RESTROOM PLAN 1
SCALE: 1/2"= 1'-0"

RESTROOM ACCESSORY SCHEDULE

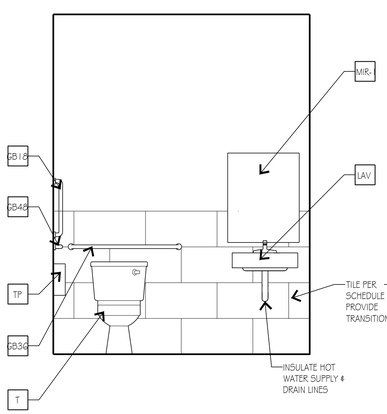
NO	DESCRIPTION
GB3G	GRAB BAR, 36" LONG, PROVIDE BLOCKING
GB42	GRAB BAR, 42" LONG, PROVIDE BLOCKING
GB18	VERTICAL GRAB BAR, 18" HIGH, PROVIDE BLOCKING
MR-1	NEW MIRROR - BOBRICK B-2902436 WELDED FRAME MIRROR (24" X 36")
LAV	LAVATORY, RE: MEP COORDINATE MOUNTING SUPPORTS W/ MANUFACTURER
TP	TOILET TISSUE DISPENSER - BOBRICK B-2888 CLASSIC SERIES
TW	TOWEL DISPENSER: BOBRICK B-3699 SURFACE MOUNTED PAPER TOWEL DISPENSER / WASTE RECEPTACLE

NOTES:

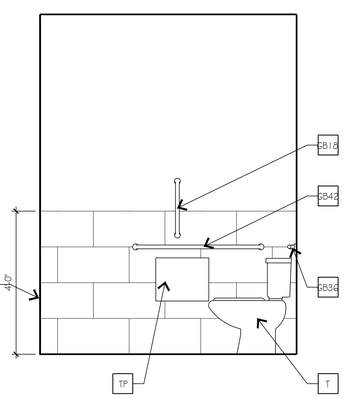
1. DIMENSIONS ARE TO FACE OF FINISH
2. INSTALL BLOCKING IN WALLS FOR GRAB BARS, PARTITIONS, ACCESSORIES AS REQUIRED FOR SUPPORT.
3. LAVATORY TO BE INSTALLED PRIOR TO PARTITIONS.
4. REFER TO SHEET A003 FOR CLEAR FLOOR SPACE INFORMATION AND FIXTURE MOUNTING HEIGHTS, E.G. GRAB BARS, TOILET FIXTURES, AND ACCESSORIES.
5. REFER TO A611 & A621 FOR WALL AND DOOR TYPES
6. PROVIDE COAT HOOKS ON THE INSIDE OF ALL PARTITION DOORS



RESTROOM ELEVATION 7
SCALE: 1/2"= 1'-0"



RESTROOM ELEVATION 5
SCALE: 1/2"= 1'-0"



RESTROOM ELEVATION 3
SCALE: 1/2"= 1'-0"

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DATE SIGNED 07/19/2024

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.

David Eskov

PERMIT
JULY 19, 2024

Revisions

TENANT SPLIT PHASE 2
EXECUTIVE LAKES
5000 NE LAKEWOOD PARKWAY
LEE'S SUMMIT, MO

sheet
A2.0
ENLARGED RESTROOM, & INTERIOR ELEVATIONS

GENERAL DEMOLITION NOTES:

1. DO NOT REMOVE STRUCTURAL MEMBERS UNLESS NOTED OTHERWISE.

2. PROTECT ALL ELEMENTS OF EXISTING CONSTRUCTION WHICH ARE TO REMAIN.

3. PERFORM ALL DEMOLITION WORK IN ACCORDANCE WITH THE LANDLORD'S CRITERIA. COORDINATE DEMOLITION WITH LANDLORD'S REPRESENTATIVE AND CONTACT LANDLORD IN ADVANCE OF ANY WORK INVOLVING CONNECTION TO LANDLORD'S BUILDING SYSTEMS OR REQUIRING TEMPORARY SHUT DOWN OF UTILITIES.

4. REMOVE UNUSED UTILITIES NOT REUSED, CAPPED BELOW FINAL FINISH SURFACES.

5. MAINTAIN SAFE EXITING AND FIRE SAFETY DURING ALL DEMOLITION AND CONSTRUCTION OPERATIONS.

6. REMOVE ALL EXISTING EQUIPMENT NOT REUSED. COORDINATE WITH OWNER FOR SALVAGE REQUIREMENTS.

7. WHERE INDICATED REMOVE EXISTING PARTITIONS, CEILINGS, SOFFITS AND ASSOCIATED FRAMING AND BRACING BACK TO STRUCTURE. PROTECT EXISTING STRUCTURAL ELEMENTS NECESSARY FOR THE BUILDING SHELL

8. REMOVE ALL EXISTING FLOORING TO SUBFLOOR U.N.O., PREPARE TO RECEIVE NEW FINISH

9. DISPOSE OF ALL DEMOLITION DEBRIS LEGALLY.

10. CONTRACTOR SHALL DESIGN AND PROVIDE SHORING TO SAFELY SUPPORT EXISTING CONSTRUCTION TO REMAIN DURING DEMOLITION OPERATIONS.

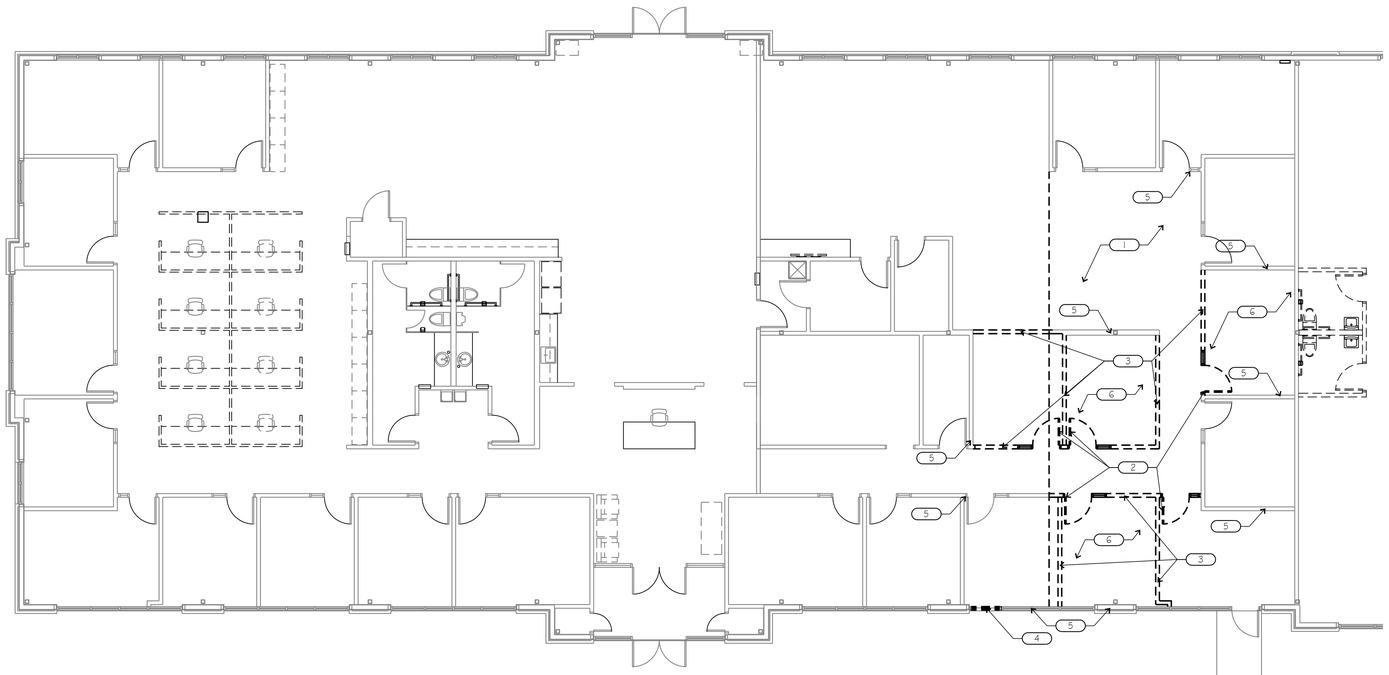
11. SAFETY DURING DEMOLITION OPERATIONS SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY.

12 DEMOLITION PLAN SHOWS APPROXIMATE LAYOUT OF EXISTING BUILDING AND IS NOT INTENDED TO REPRESENT "AS-BUILT" CONDITIONS. VISIT SITE AND OTHERWISE BECOME FAMILIAR WITH ACTUAL CONDITIONS WHEN BIDDING THE WORK.

13. WALLS, PARTITIONS, DOORS, FRAMES, AND OTHER ITEMS TO BE REMOVED ARE SHOWN DASHED. SERVICES WITHIN WALLS AND PARTITIONS SHALL ALSO BE REMOVED. EDGES OF WALLS SHOWN TO REMAIN SHALL BE SAWCUT OR CLEANLY TOOTHED TO ACCEPT NEW CONSTRUCTION. REPAIR AND PATCH EXISTING WALLS SHOWN TO REMAIN WHERE INTERSECTING WALLS, DOORS, FRAMES, ETC. ARE SHOWN TO BE REMOVED AND WHERE EXISTING CONSTRUCTION WILL NOW BE EXPOSED IN THE NEW CONSTRUCTION.

DEMO PLAN KEYNOTES

- X — DEMO PLAN KEYNOTES
- 1 — REMOVE EXISTING FLOOR FINISH, PREP FOR NEW CARPET, TYP
- 2 — REMOVE EXISTING DOOR & FRAME, SALVAGE AS REQUIRED FOR RELOCATING
- 3 — REMOVE EXISTING WALL AS REQUIRED TO ACCOMMODATE NEW WORK, PATCH WALL TO REMAIN, RELOCATE LIGHT SWITCHES, OUTLETS, POWER, ETC AS REQUIRED
- 4 — REMOVE PORTION OF EXISTING STOREFRONT TO ACCOMMODATE NEW DOOR
- 5 — EXISTING TO REMAIN
- 6 — REMOVE EXISTING CEILING AND LIGHTS, THIS ROOM, SALVAGE AND REUSE IF POSSIBLE.



DEMO PLAN (1)
SCALE: 1/8" = 1'-0"

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sheet
D1.0
DEMOLITION PLAN

ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.

B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.

E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.

F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.

G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.

2. OPERATION AND MAINTENANCE MANUALS:

A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.

C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.

3. MANUFACTURERS:

A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.

4. TESTING, AND BALANCING:

A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.

B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.

C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.

5. RACEWAYS:

A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.

B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.

C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.

D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".

6. CONDUCTORS:

A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.

B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.W.G., 600 VOLT.

C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.

D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.

E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.

F. ALUMINUM SERVICE WIRE MAY BE USED FOR SERVICE ENTRANCE CONDUCTORS AND/OR PANEL FEEDERS ONLY. ALL OTHER WIRING SHALL BE COPPER CONDUCTORS AS HEREINBEFORE SPECIFIED.

G. ALUMINUM CONDUCTORS SHALL BE TYPE "XHHW-2", ALCAN, "STABLOY" TYPE ALLOY CONDUCTORS UTILIZING "AA-8030" ALUMINUM ALLOY. CONDUCTORS SHALL BE UL LISTED.

H. ALL ALUMINUM CONDUCTORS SHALL BE TERMINATED IN CONNECTIONS OR LUGS WHICH ARE DUAL RATED (AL7CU OR AL9CU) AND ARE LISTED BY UL FOR USE WITH ALUMINUM OR COPPER CONDUCTORS AND SHALL BE SIZED TO ACCEPT ALUMINUM CONDUCTORS OF THE AMPACITY SPECIFIED.

7. MC CABLE:

A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83 THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED STEEL.

B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.

8. WIRING DEVICES:

A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.

1) SINGLE POLE: HUBBELL #CS1221-X, OR EQUAL.
2) THREE WAY: HUBBELL #CS1223-X, OR EQUAL.
3) AS SPECIFIED ON PLANS

B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL.

C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CR5352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED 'WEATHER-RESISTANT' HUBBEL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WP1010MXD OR #WP1010HMXD DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.

F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.

9. BOXES:

A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.

B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.

ELECTRICAL SPECIFICATIONS (CONTINUED)

10. PANELBOARDS:

A. FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE EQUAL TO SQUARE D TYPE NQ OR NF WITH BOLT IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 75°C.

1) CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.

B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 489 AND NEMA AB-L. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40° C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITION.

a) BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.

C. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE PIECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.

D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH ALUMINUM BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID ALUMINUM NEUTRAL AND GROUND BUS.

E. BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS.

F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVED, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT NUMBER LABELS AS HEREINBEFORE SPECIFIED.

11. DISCONNECTS:

A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.

B. INDOOR SWITCHES SHALL BE NEMA I AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

12. FUSES:

A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.

B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.

13. LIGHT FIXTURES:

A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.

B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.

C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.

14. SLEEVES:

A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.

B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.

C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

15. GROUNDING:

A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.

B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).

16. REMODELING WORK:

A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.

B. EQUIPMENT TO BE SALVAGED:

1) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.

2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.

C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.

D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.

E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS, INTEGRATING THE NEW AND EXISTING AREAS. LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.

1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.

2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED (BELOW THE FLOOR OR ABOVE THE CEILING) SO NOT TO CREATE AN OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.

3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REROUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE, BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REROUTED CONDUIT SHALL BE APPROVED BY THE ARCHITECT.

4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.

5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE REMOVED.

6) WHERE A TELEPHONE CIRCUIT EXTENDS BEYOND AN OUTLET IN AN EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, PROVIDE NECESSARY EMPTY CONDUIT AND NOTIFY THE OWNER WHO WILL REQUEST THE OWNER TO ARRANGE WITH THE TELEPHONE COMPANY FOR NEW WIRING TO OUTLETS THAT REMAIN.

7) WHERE EXISTING CONDUIT AND WIRE RUNS ARE LOCATED IN OR ATTACHED TO AN EXISTING WALL, CEILING OR FLOOR TO BE REMOVED, THEY SHALL BE REROUTED IN EITHER NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF CIRCUITS UNLESS OTHERWISE INDICATED.

8) CONDUIT SHALL BE CONCEALED WITHIN THE EXISTING BUILDING CONSTRUCTION WHEREVER POSSIBLE, EXCEPT WHERE OTHERWISE INDICATED.

9) EXISTING WIRE SHALL BE DISCONNECTED AND REMOVED WHEREVER EXISTING CIRCUITS ARE ABANDONED.

17. BOXES IN FIRE RATED ASSEMBLIES:

A. OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL INCHES TO OTHER OUTLET BOXES.

B. IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY + OR EQUAL.

ELECTRICAL SYMBOLS LIST

CIRCUITING & NOTES	
+46"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
(E)	EXISTING DEVICE TO REMAIN
(R)	RELOCATE EXISTING LIGHT FIXTURE TO NEW CEILING GRID
X (X)	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
LP 2	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
LIGHTING	
	EMERGENCY TWIN HEAD LIGHT FIXTURE
	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
A	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
POWER DEVICES	
	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD
	PANEL BOARD, TOP OF BOX 6'-0" AFF
J	JUNCTION BOX
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
M	MOTOR WITH DESIGNATION
CONTROLS	
S	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
OCCUPANCY SENSORS	
S o	WALL MOUNTED DUAL-TECHNOLOGY OCCUPANCY SENSOR, ACUITY SENSORSWITCH #WSX-PDT-SA OR EQUAL, TOP OF BOX AT 48" AFF. SENSORS SHALL BE PROGRAMMED FOR MANUAL-ON OPERATION.
COMMUNICATIONS	
	DATA/TELEPHONE OUTLET WITH MINIMUM ¾" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING
FIRE ALARM	
DD	DUCT MOUNT SMOKE DETECTOR

ELECTRICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
3. ALL EXPOSED RACEWAYS SHALL BE EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
4. ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
5. ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.
6. ALL ELECTRICAL DEVICES ARE EXISTING AND TO REMAIN UNLESS NOTED OTHERWISE OR CONFLICT WITH NEW CONSTRUCTION. MAINTAIN PROPER OPERATION OF ALL EXISTING ELECTRICAL.
7. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
8. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
9. PLANS INDICATE MINIMUM WIRE SIZES PER NEC. ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.
10. WHEREVER POSSIBLE, CONDUIT SHALL BE RUN CONCEALED WITHIN WALLS, CEILINGS, SOFFITS, ETC. SURFACE MOUNTED CONDUIT IN FINISHED SPACES MUST BE APPROVED BY THE ENGINEER OR ARCHITECT PRIOR TO INSTALLATION. EXTERIOR CONDUIT SHALL NOT BE RUN EXPOSED IN PUBLICLY VISIBLE AREAS WITHOUT APPROVAL OF THE ARCHITECT OR ENGINEER.

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8/12/2024

STATE OF MISSOURI
DARIN T. SEIDEL
NUMBER PE-2009003629
REGISTERED PROFESSIONAL ENGINEER

PERMIT
JULY 25, 2024

Revisions
⚠ AUGUST 13, 2024

TENANT SPLIT PHASE 2
EXECUTIVE LAKES
5000 NE LAKEWOOD PARKWAY
LEE'S SUMMIT, MO

BC PROJECT #: 24543
MISSOURI PE COA #2009003629

BC ENGINEERS INCORPORATED
5720 Reeder Shawnee, KS 66203 (913)262-1772

sheet
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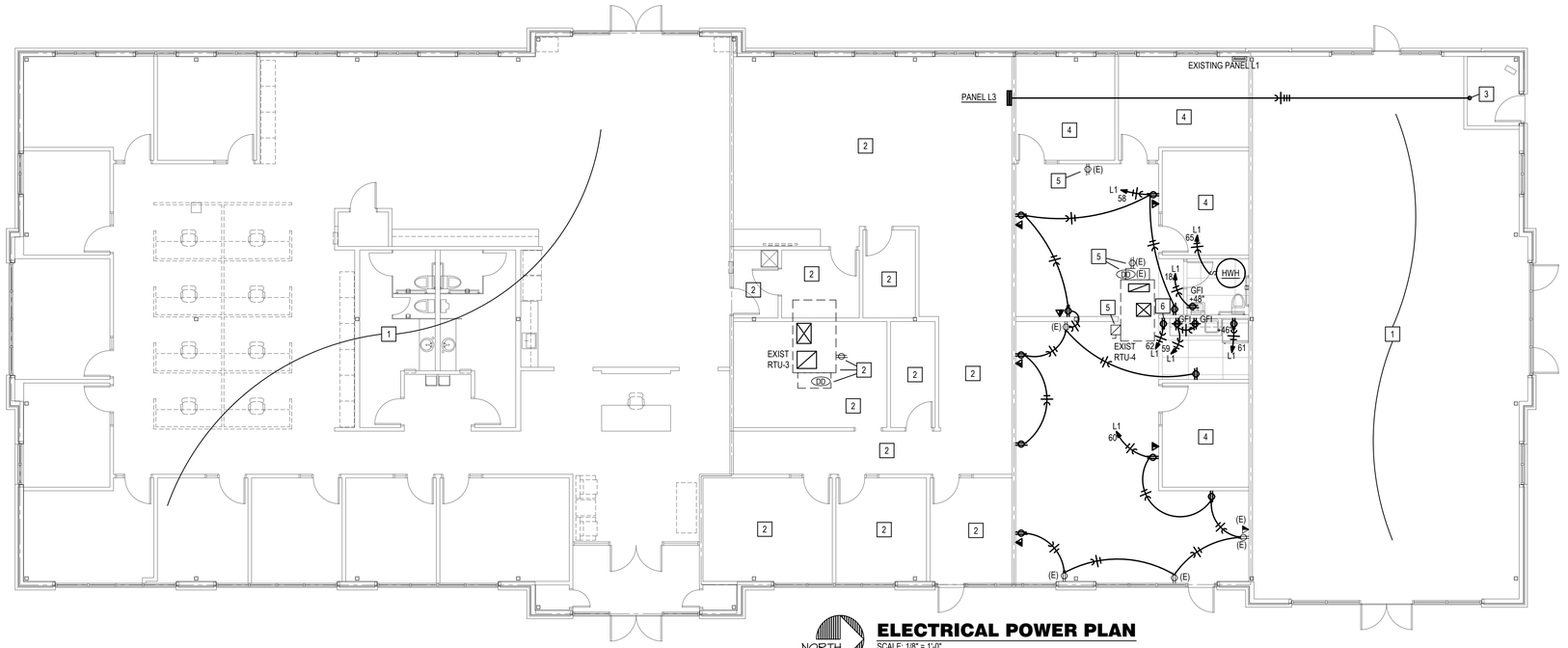
ELECTRICAL SPECIFICATIONS

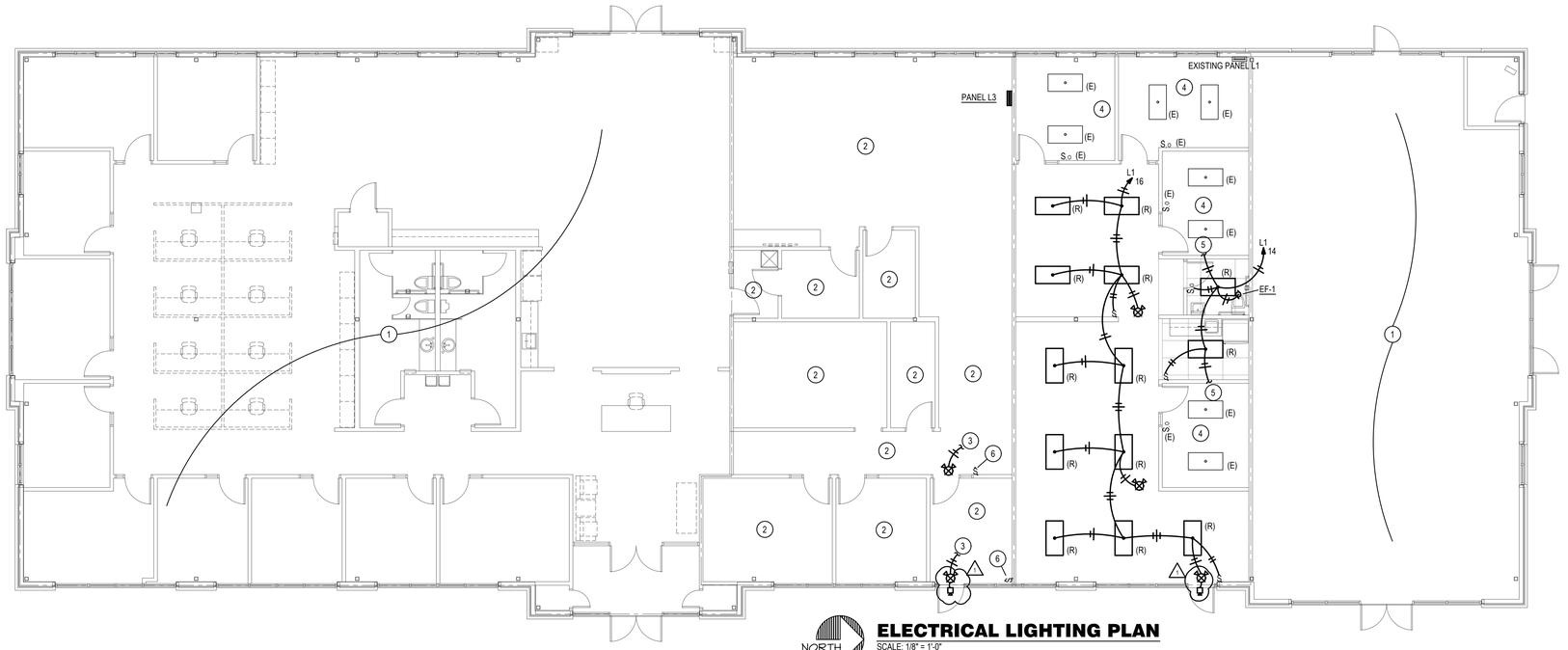


ELECTRICAL POWER PLAN

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

POWER PLAN NOTES:

1. EXISTING ADJACENT TENANT TO REMAIN.
2. INTERCEPT ALL EXISTING POWER CIRCUITS IN ADJACENT TENANT SPACE AND RE-ROUTE TO MATCHING BREAKERS IN NEW PANEL "L3"
3. INTERCEPT EXISTING 2.5"C STUB IN LANDLORD UTILITY ROOM AND EXTEND TO NEW PANEL L3 LOCATION AS REQUIRED.
4. EXISTING RECEPTACLES IN THIS SPACE, ON EXISTING CIRCUIT, TO REMAIN.
5. EXISTING RECEPTACLE, DISCONNECT, OR OTHER DEVICE, ON EXISTING CIRCUIT, TO REMAIN.
6. RECEPTACLE FOR WATER DISPENSER. COORDINATE WITH MANUFACTURER'S REQUIREMENTS.



ELECTRICAL LIGHTING PLAN

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

LIGHTING PLAN NOTES:

1. EXISTING ADJACENT TENANT TO REMAIN.
2. INTERCEPT ALL EXISTING LIGHTING CIRCUITS IN ADJACENT TENANT SPACE AND RE-ROUTE TO MATCHING BREAKERS IN NEW PANEL "L3".
3. CONNECT TO LIGHTING CIRCUIT SERVING THIS ROOM. PROVIDE UNSWITCHED "HOT" CONDUCTOR ROUTED AHEAD OF LIGHTING CONTROLS.
4. EXISTING LIGHTS AND CONTROLS IN THIS SPACE, ON EXISTING CIRCUIT, TO REMAIN.
5. CONNECT RESTROOM AND KITCHENETTE LIGHTS TO EXISTING CIRCUIT SERVING ADJACENT OFFICES.
6. PROVIDE NEW LIGHT SWITCH FOR CONTROL OF LIGHTS IN THIS AREA.

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8/12/2024

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sheet
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ELECTRICAL PLANS

EXIST PANEL: L1		VOLTS: 120/208V			PH: 3Ø		WIRE: 4W		LOCATION: OFFICE					MOUNTING: SURFACE	
BUS: 400A		MAIN: 400A MLO												FEEDER: SEE RISER DIAGRAM	
CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØC	ØA	ØB	ØC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO
1	SPARE	50	3									3	50	SPARE	2
3															4
5															6
7	SPARE	50	3					3,360			8	3	35	EXIST RTU-4	8
9									3,360						10
11										3,360					12
13	SPARE	20	1					990			12	1	20	LIGHTING	14
15	SPARE	20	1						1,056		12	1	20	LIGHTING	16
17	SPARE	20	1							180	12	1	20	REC - RESTROOM	18
19	SPARE	20	1									1	20	SPARE	20
21	SPARE	20	1									1	20	SPARE	22
23	SPARE	20	1									1	20	SPARE	24
25	SPARE	20	1									1	20	SPARE	26
27	SPARE	20	1									1	20	SPARE	28
29	SPARE	20	1									1	20	SPARE	30
31	SPARE	20	1									1	20	SPARE	32
33	SPARE	20	1									1	20	SPARE	34
35	SPARE	20	1									1	20	SPARE	36
37	SPARE	20	1									1	20	SPARE	38
39	SPARE	20	1									1	20	SPARE	40
41	SPARE	20	1									1	20	SPARE	42
SECTION 2															
43	SPARE	20	1									1	20	SPARE	44
45	SPARE	20	1									1	20	SPARE	46
47	SPARE	20	1									1	20	SPARE	48
49	SPARE	20	1									1	20	SPARE	50
51	SPARE	20	1									1	20	SPARE	52
53	SPARE	20	1									1	20	SPARE	54
55	EXIST OFFICE RECEPTACLES	20	1	12	720			540			12	1	20	EXIST OFFICE RECEPTACLES	56
57	EXIST OFFICE RECEPTACLES	20	1	12		1,080			1,440		12	1	20	OFFICE RECEPTACLES	58
59	RECEPTS - KITCHENETTE	20	1	12			360			1,080	12	1	20	OFFICE RECEPTACLES	60
61	REFRIGERATOR [GF]	20	1	12	1,200			180			12	1	20	RECEPT - WATER DISPENSER [GF]	62
63	EXIST RTU RECEPTACLE	20	1	12		360						2	35	SPARE	64
65	WATER HEATER HWH	30	1	10			2,500								66
67	SPARE	20	1									1	20	SPARE	68
69	SPARE	20	1									1	20	SPARE	70
71	SPARE	20	1									1	20	SPARE	72
73	SPARE	20	1									1	20	SPARE	74
75	SPARE	20	1									1	20	SPARE	76
77	SPARE	20	1									1	20	SPARE	78
79	SPARE	20	1									1	20	SPARE	80
81	SPARE	20	1									1	20	SPARE	82
83	SPARE	20	1									1	20	SPARE	84
NOTES:					1,920	1,440	2,860	5,070	5,856	4,620					
[GF]-GFCI BRKR 5mA					6,990		7,296		7,480						

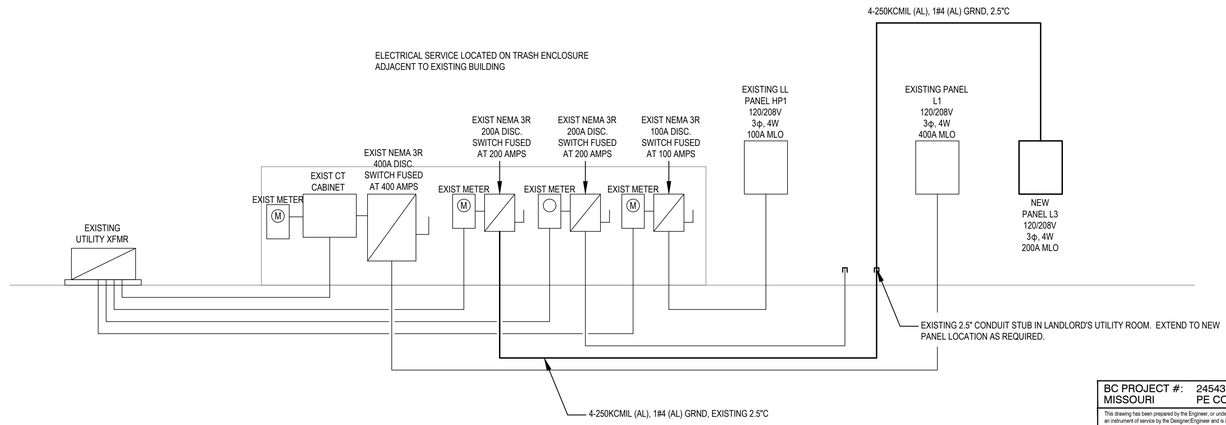
TOTAL CONNECTED LOAD:	21,706 VA
NEC DEMAND LOAD:	22,903 VA
DEMAND AMPS @ 208 VOLT / 3Ø:	63.57 A

PANEL: L3		VOLTS: 120/208V			PH: 3Ø		WIRE: 4W		LOCATION: TENANT OPEN OFFICE					MOUNTING: SURFACE	
BUS: 225A		MAIN: 200A MLO			IC: 10,000 RMS SYM AMPS									FEEDER: SEE RISER DIAGRAM	
CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØC	ØA	ØB	ØC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO
1	RTU 3	50	3	6	4,800			2,250			8	2	35	WATER HEATER	2
3						4,800			2,250						4
5							4,800					1	20	SPARE	6
7	LIGHTING	20	1	12	192							1	20	SPARE	8
9	LIGHTING	20	1	12		288			768		12	1	20	LIGHTING	10
11	LIGHTING	20	1	12			1,104			576	12	1	20	LIGHTING	12
13	COVE LIGHTING	20	1	12	146							1	20	SPARE	14
15	SPARE	20	1						180		12	1	20	TV RECEPTACLES	16
17	FLOOR BOX	20	1	12			1,000			1,000	12	1	20	FLOOR BOX	18
19	SPARE	20	1					720			12	1	20	IT ROOM	20
21	SPARE	20	1						720		12	1	20	IT ROOM	22
23	OFFICE RECEPTACLES	20	1	12			720			180	12	1	20	CUBE RECEPTACLE	24
25	SPARE	20	1									1	20	SPARE	26
27	SPARE	20	1						180		12	1	20	OFFICE RECEPTACLE	28
29	SPARE	20	1									1	20	SPARE	30
31	OFFICE RECEPTACLES	20	1	12	900			540			12	1	20	OFFICE RECEPTACLES	32
33	RTU RECEPTACLE	20	1	12		180						1	20	SPARE	34
35	SPARE	20	1									1	20	SPARE	36
37	SPARE	20	1									1	20	SPARE	38
39	SPARE	20	1									1	20	SPARE	40
41	SPARE	20	1									1	20	SPARE	42
NOTES:					6,038	5,268	7,624	3,510	4,098	1,756					
					9,548		9,366		9,380						

TOTAL CONNECTED LOAD:	28,294 VA
NEC DEMAND LOAD:	30,188 VA
DEMAND AMPS @ 208 VOLT / 3Ø:	83.79 A

LIGHT FIXTURE SCHEDULE

MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION	EQUIVALENT MANUFACTURERS
	DUAL-LITE EVC-U-R-W	120 3	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN LED EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, BATTERY BACKUP	SURE-LITES LITHONIA OR EQUAL
	DUAL-LITE EVC-U-R-W-D4 WITH EVO-D-X	120 5	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN 6W EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, HIGH CAPACITY BATTERY BACKUP AND REMOTE TWIN HEAD OUTDOOR RATED FIXTURE	SURE-LITES LITHONIA OR EQUAL



ELECTRICAL RISER DIAGRAM

SCALE: NONE

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8/12/2024

STATE OF MISSOURI
DARIN T. SEIDEL
NUMBER PE-2009003629
REGISTERED PROFESSIONAL ENGINEER

PERMIT
JULY 25, 2024

Revisions
1 AUGUST 13, 2024

TENANT SPLIT PHASE 2
EXECUTIVE LAKES
5000 NE LAKEWOOD PARKWAY
LEE'S SUMMIT, MO

BC PROJECT #: 24543
MISSOURI PE COA #2009003629

BC ENGINEERS INCORPORATED
5720 Reeder Shawnee, KS 66203 (913)262-1772

sheet
E2.0
ELECTRICAL PANEL SCHEDULES

MECHANICAL AND PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:
   A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
   B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
   C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
   D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
   E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
   F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
   G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
2. OPERATION AND MAINTENANCE MANUALS:
   A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
   B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
   C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.
3. MANUFACTURERS:
   A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. MOTORS:
   A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.
5. TESTING, BALANCING, AND CLEANING:
   A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
   B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
   C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
   D. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
   E. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES.
      1) BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION OF PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
      2) WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.
6. PLUMBING:
   A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
   B. ALL EXPOSED WASTE PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
   C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.
   D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
   E. CLEANOUTS:
      1) VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL.
      2) QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL.
      3) CARPETED FLOOR: JR SMITH #4020-Y, OR EQUAL.
      4) UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL.
      5) WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
   F. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS.
   G. WATER HEATERS:
      1) EVERY WATER HEATER SHALL HAVE AN APPROVED MEANS INSTALLED ON THE COLD WATER SUPPLY LINE ABOVE THE EQUIPMENT TO PREVENT SIPHONING OF A STORAGE WATER HEATER OR TANK.
      2) BOTTOM FED WATER HEATERS AND TANKS CONNECT TO WATER HEATERS SHALL HAVE A VACUUM RELIEF VALVE INSTALLED. ANSI Z21.22.
      3) STORAGE HEATERS OPERATING ABOVE ATMOSPHERIC PRESSURE SHALL HAVE AN APPROVED PRESSURE RELIEF VALVE AND/OR TEMPERATURE RELIEF VALVE.
   H. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
      1) INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
      2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
7. PIPING:
   A. DOMESTIC COLD AND HOT WATER (ABOVE GROUND)
      1) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88.
         a) WROUGHT COPPER SOLDERED FITTINGS, ASTM B75 ALLOY C12200. ANSI B16.22. MSS SP-104.
         b) MECHANICAL PRESS COPPER FITTINGS FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS. ASME B16.22, ASME B16.51, or ASME B16.18. MECHANICAL PRESS COPPER FITTINGS SHALL CONFORM TO IAPMO PS-117 OR ASME B16.51.
      2) PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-4/03.
         (MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE)
         a) PEX-A AND PEX-B MEETING ANSI/NSF61 AND ANSI/NSF372 STANDARDS FOR POTABLE WATER SAFETY AND LEAD-FREE STANDARDS AND MUST BE MARKED WITH "PW-C", "NSF-61-O" OR OTHER NSF-APPROVED MARKING. ASTM F2023 FOR USE WITH CHLORINATED WATER.
         (MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE)
         b) PEX MECHANICAL, CRIMP/INSERT OR EXPANSION FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. INCREASE PEX PIPING SIZE TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER FOR SUPPLY MAINS.
         (MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE)
      3) VALVES
         a) TO BE INSTALLED ON THE FIXTURE SUPPLY TO EACH PLUMBING FIXTURE.
         b) TO BE INSTALLED ON THE WATER SUPPLY SIDE TO EACH APPLIANCE OR MECHANICAL EQUIPMENT.
         c) TYPES:
            1. GATE VALVE: JOMAR T/S-301G OR EQUAL. LEAD-FREE NSF 61, ANSI B1.20.1.
            2. GLOBE VALVE: JOMAR TGG OR EQUAL.
            3. BALL VALVE: JOMAR JP100PxP OR EQUAL COMPACT LEAD FREE BRASS BALL VALVE. UL842, CSA 3371-12 & 3371-92, FM. CALIFORNIA CODE AB1953, NSF61 ANNEX G APPROVED.
            4. BALL VALVE: JOMAR T-100NE OR EQUAL. UL842, FM, CSA, NSF 61-8, MSS SP-110
   B. LEAD CONTENT OF WATER SUPPLY PIPE AND FITTINGS:
      1) PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, UTILIZED IN THE WATER SUPPLY SYSTEM SHALL NOT HAVE MORE THAN 8% LEAD CONTENT.
      2) PIPE, PIPE FITTINGS, JOINTS, VALVES, FAUCETS, AND FIXTURE FITTINGS UTILIZED TO SUPPLY WATER FOR DRINKING OR COOKING PURPOSES SHALL COMPLY WITH NSF 372 AND SHALL HAVE A WEIGHTED AVERAGE LEAD CONTENT OF 0.25% OR LESS.
   C. SANITARY SEWER AND VENTS.
      (UNDERGROUND, INTERIOR TO THE BUILDING).
      1) ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE: ASTM D 2661, SCHEDULE 40. ABS SOCKET FITTINGS: ASTM D 2661, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS. SOLVENT CEMENT: ASTM D 2235.
      2) PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2665, DRAIN, WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 656. SOLVENT CEMENT: ASTM D 2564.
      3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
      4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.
   D. SANITARY SEWER AND VENTS.
      (ABOVE GROUND, INTERIOR TO THE BUILDING)
      1) ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE: ASTM D 2661, SCHEDULE 40. CELLULAR-CORE ABS PIPE: ASTM F 628, SCHEDULE 40 ABS SOCKET FITTINGS: ASTM D 2661, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS. SOLVENT CEMENT: ASTM D 2235.
         (NOT FOR USE IN A RETURN AIR PLENUM)
      2) PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2665, DRAIN, CELLULAR-CORE PVC PIPE: ASTM F 891, SCHEDULE 40, WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 656. SOLVENT CEMENT: ASTM D 2564.
         (NOT FOR USE IN A RETURN AIR PLENUM)
      3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
      4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.
   E. CONDENSATE DRAINS & INDIRECT WASTE (ABOVEGROUND).
      1) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (INDIRECT WASTE).
   F. NATURAL GAS.
      1) BLACK STEEL PIPE, SCHEDULE 40, ASTM A53.
         a) PIPE 3" AND SMALLER; 150 LB. MALLEABLE IRON, THREADED FITTINGS.
         b) PIPE 4" AND SMALLER; VIEGA MEGAPRESS G FOR WATER AND GAS. CSA LC4, TSSA/ASME B31 FOR USE WITH ASTM A53 SCHEDULE 40 BLACK IRON PIPE.
         c) PIPE 2-1/2" AND LARGER, WELDED.
         d) PLUG VALVE: ROCKWELL NORDSTROM FIGURE NO. 142 OR 143.
         e) BALL VALVE: JOMAR T-100NE. APPROVALS- UL842, FM, CSA, NSF 61-8, MSS SP-110
      2) GAS PIPING PAINTING.
         a) ALL BLACK STEEL GAS PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE PRIMED AND PAINTED TO EITHER MATCH ADJACENT EXTERIOR WHERE LOCATED ON OR NEAR EXTERIOR WALL AND PAINTED SAFETY YELLOW WHERE LOCATED ON THE ROOF.
   G. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
   H. SLEEVES.
      1) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
      2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT
      3) ROOF: PROSET OR EQUAL MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

MECHANICAL AND PLUMBING SPECIFICATIONS (CONTINUED)

      4) PROTECTION AGAINST CONTACT: METALLIC PIPING, EXCEPT FOR CAST IRON, DUCTILE IRON AND GALVANIZED STEEL SHALL NOT BE PLACED IN DIRECT CONTACT WITH STEEL FRAMING MEMBERS, CONCRETE, OR CINDER WALLS AND FLOORS OR OTHER MASONRY. METALLIC PIPING SHALL NOT BE PLACED IN DIRECT CONTACT WITH CORROSIVE SOIL. SHEATHING USED TO PREVENT DIRECT CONTACT SHALL HAVE A THICKNESS OF GREATER THAN .008: AND THE SHEATHING SHALL BE MADE OF PLASTIC. ANY PIPE THAT PASSES THROUGH A FOUNDATION WALL OR FOOTING SHALL BE PROVIDED WITH A RELIEVING ARCH, OR A PIPE SLEEVE SHALL BE BUILT INTO THE FOUNDATION WALL. THE SLEEVE SHALL BE TWO SIZES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.
      5) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
   I. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.
8. WATER HEATERS
   A. COMMERCIAL, LIGHT-DUTY, STORAGE, ELECTRIC, DOMESTIC-WATER HEATERS:
      1. STANDARD: UL 174
      2. STORAGE-TANK CONSTRUCTION: STEEL, VERTICAL ARRANGEMENT.
         a. PRESSURE RATING: 150 PSIG.
         b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 372 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING LINING MATERIAL INTO TAPPINGS.
      3. FACTORY-INSTALLED, STORAGE-TANK APPURTENANCES:
         a. ANODE ROD: REPLACEABLE MAGNESIUM.
         b. DIP TUBE: REQUIRED UNLESS COLD-WATER INLET IS NEAR BOTTOM OF TANK.
         c. DRAIN VALVE: CORROSION-RESISTANT METAL WITH HOSE-END CONNECTION.
         d. INSULATION: COMPLY WITH ASHRAE/IES 90.1
         e. JACKET: STEEL WITH ENAMELED FINISH OR HIGH-IMPACT COMPOSITE MATERIAL.
         f. HEAT-TRAP FITTINGS: INLET TYPE IN COLD-WATER INLET AND OUTLET TYPE IN HOT-WATER OUTLET.
         g. HEATING ELEMENTS: ELECTRIC, SCREW-IN IMMERSION TYPE.
         h. TEMPERATURE CONTROL: ADJUSTABLE THERMOSTAT.
         i. SAFETY CONTROL: HIGH-TEMPERATURE-LIMIT CUTOFF DEVICE OR SYSTEM.
         j. RELIEF VALVE: ASME RATED AND STAMPED FOR COMBINATION TEMPERATURE-AND-PRESSURE RELIEF VALVES. INCLUDE RELIEVING CAPACITY AT LEAST AS GREAT AS HEAT INPUT, AND INCLUDE PRESSURE SETTING LESS THAN WORKING-PRESSURE RATING OF DOMESTIC-WATER HEATER. SELECT RELIEF VALVE WITH SENSING ELEMENT THAT EXTENDS INTO STORAGE TANK.
   B. DOMESTIC-WATER EXPANSION TANKS:
      1. DESCRIPTION: STEEL, PRESSURE-RATED TANK CONSTRUCTED WITH WELDED JOINTS AND FACTORY-INSTALLED, BUTYL-RUBBER DIAPHRAGM. INCLUDE AIR PRECHARGE TO MINIMUM SYSTEM-OPERATING PRESSURE AT TANK.
      2. CONSTRUCTION:
         a. TAPPINGS: FACTORY-FABRICATED STEEL, WELDED TO TANK BEFORE TESTING AND LABELING. INCLUDE ASME B1.20.1 PIPE THREAD.
         b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 372 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING FINISH INTO AND THROUGH TANK FITTINGS AND OUTLETS.
         c. AIR-CHARGING VALVE: FACTORY INSTALLED.
      3. CAPACITY AND CHARACTERISTICS:
         a. WORKING-PRESSURE RATING: 150 PSIG .
9. INSULATION AND DUCT LINING:
   A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPED RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
   B. PIPE INSULATION - ABOVE GRADE:
      1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER in/hr*sqft*° OR LESS.
      2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET. FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT. NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
      3) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION. UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
      4) FOR NON CIRCULATING SYSTEMS, THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
      5) FOR CIRCULATING SYSTEMS, ALL HOT WATER PIPING IN THE CIRCULATION LOOP MUST BE INSULATED AS SPECIFIED BELOW.
      6) INSULATION SCHEDULE:
         a) DOMESTIC COLD WATER 1/2"
         b) DOMESTIC HOT WATER 1" FOR PIPING UP TO 1-1/4"Ø, & 1-1/2" FOR PIPING 1-1/2"Ø AND LARGER
   C. EQUIPMENT INSULATION:
      1) FLEXIBLE FIBERGLASS: GLASS FIBER INSULATION, ASTM C 553, TYPE 1, CLASS B-4, SEMI-RIGID BOARD, WITH FACTORY LAMINATED KRAFT ALUMINUM FOIL (ALL SERVICE JACKET), VAPOR BARRIER, OWENS/CORNING PIPE AND TANK INSULATION.
   D. DUCTWORK; THERMAL INSULATION.
      1) DUCT COVERING: 3/4 LB/CF. FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
         a) DUCT COVERING SCHEDULE: MINIMUM R-6
         (1) ROUND SUPPLY DUCT 2"
10. DUCTWORK:
   A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 653, LOCKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 924, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
   B. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR PAINTING.
   C. DUCTWORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC PRESSURE.
      1) RECTANGULAR DUCT:
         a) ELBOWS, UNLESS INDICATED OTHERWISE SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOW WITH DOUBLE WALL STREAMLINE VANES.
         b) RETURN AIR ACOUSTICAL ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
         c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
      2) ROUND AND OVAL SPIRAL SEAM DUCT:
         a) PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE, USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
         b) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
         c) AS AN OPTION, PROVIDE FACTORY-FABRICATED DUCT AND FITTINGS, IN LIEU OF SHOP-FABRICATED DUCT AND FITTINGS.
            (1) ELBOWS: ONE PIECE CONSTRUCTION FOR 90 DEGREES AND 45 DEGREE ELBOW 14" AND SMALLER. PROVIDE MULTIPLE GORE CONSTRUCTION FOR LARGER DIAMETERS WITH STANDING SEAM CIRCUMFERENTIAL JOINT.
            (2) DIVIDED FLOW FITTINGS: 90 DEGREE TEES, CONSTRUCTED WITH SADDLE TAP SPOT WELDED AND BONDED TO DUCT FITTING BODY.
         d) ROUND LONGITUDINAL SEAM DUCT. USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS, UNLESS OTHERWISE INDICATED.
   D. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEETMETAL SIZES; ALLOWANCE FOR DUCT LINER HAS BEEN MADE WHERE APPLICABLE.
   E. INSTALLATION OF METAL DUCTWORK:
      1) GENERAL: ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES WHICH WILL ACHIEVE AIR-TIGHT SYSTEMS (MAXIMUM 5% LEAKAGE), WITH NO OBJECTIONABLE NOISE, AND CAPABLE OF PERFORMING INDICATED SERVICE. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY WITH INTERNAL SURFACES SMOOTH. SUPPORT DUCTS RIGIDLY WITH SUITABLE STRAPS, BRACES, HANGERS AND ANCHORS IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION. DUCT HANGERS SHALL BE OF THE TYPE WHICH WILL HOLD DUCTS TRUE-TO-SHAPE AND TO PREVENT BUCKLING. SUPPORT VERTICAL DUCTS AT EVERY FLOOR.
      2) AUXILIARY STEEL: PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
      3) ROUTING: LOCATE DUCTWORK RUNS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN SHORTEST ROUTE WHICH DOES NOT OBSTRUCT USABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT. HOLD DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING. WHEREVER POSSIBLE IN FINISHED AND OCCUPIED SPACES, CONCEAL DUCTWORK FROM VIEW, BY LOCATING IN MECHANICAL SHAFTS, HOLLOW WALL CONSTRUCTION OR ABOVE SUSPENDED CEILINGS. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS, EXCEPT AS SPECIFICALLY SHOWN. COORDINATE LAYOUT WITH SUSPENDED CEILING AND LIGHTING LAYOUTS AND SIMILAR FINISHED WORK.
      4) DO NOT ROUTE DUCTWORK THROUGH ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES, UNLESS INDICATED OTHERWISE.
      5) PENETRATIONS:
         a) WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.
         b) WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
      6) COORDINATION: COORDINATE DUCT INSTALLATIONS WITH INSTALLATION OF ACCESSORIES, DAMPERS, COIL FRAMES, EQUIPMENT, CONTROLS, AND OTHER ASSOCIATED WORK OF THE DUCTWORK SYSTEM.
      7) INSTALLATION: INSTALL METAL DUCTWORK IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION.
   F. EQUIPMENT CONNECTIONS:
      1) CONNECT METAL DUCTWORK TO EQUIPMENT AS INDICATED, PROVIDE FLEXIBLE CONNECTION FOR EACH DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT CONTAINING ROTATING MACHINERY. PROVIDE ACCESS DOORS AS REQUIRED.
   G. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW.

1) UNCONDITIONED SPACES	CLASS B	CLASS A	CLASS C	CLASS B
2) CONDITIONED SPACES (PLENUM)	CLASS C	CLASS B	CLASS B	CLASS C
	SUPPLY ≤ 2" W.C.	SUPPLY > 2" W.C.	EXHAUST/DRYER	RETURN

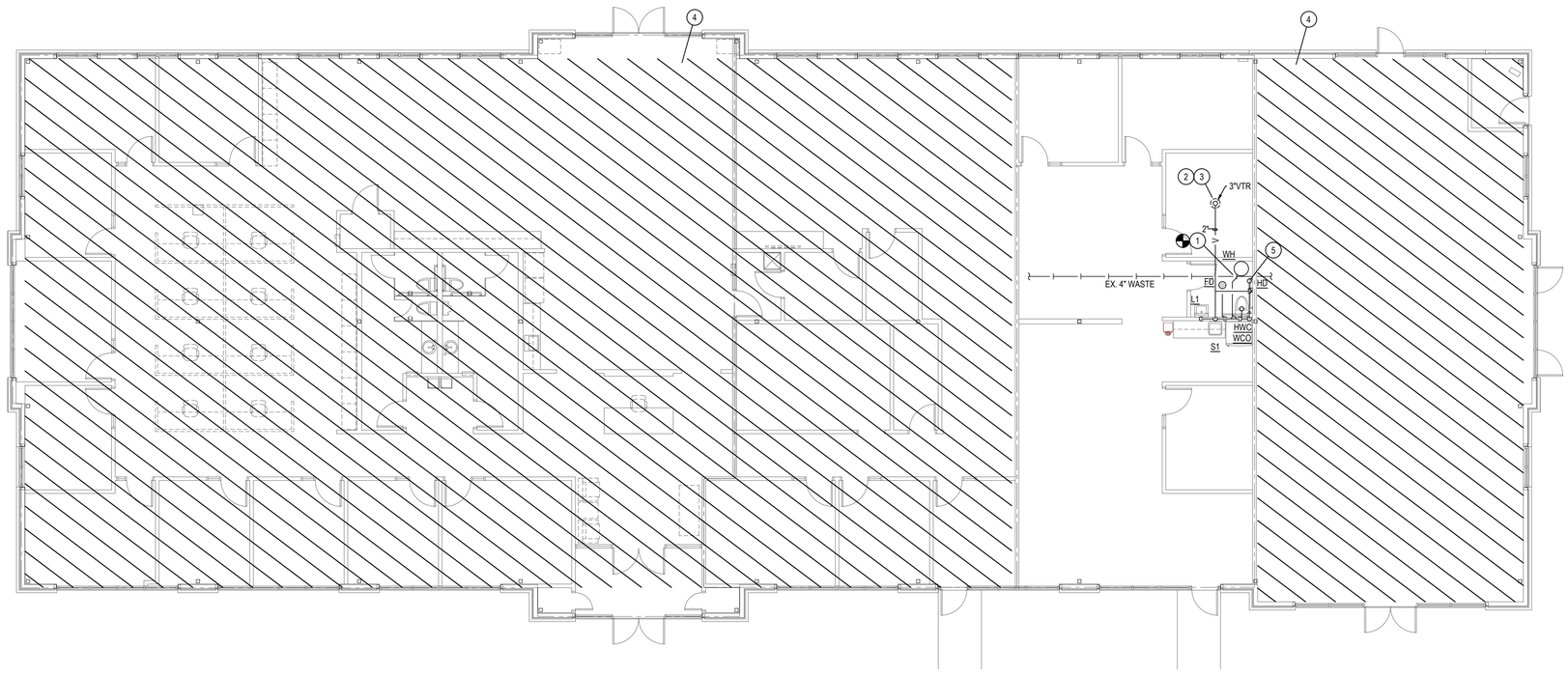
11. FLEXIBLE DUCT:
   A. ATCO #086 (R-6), OR EQUAL.
   B. FACTORY APPLIED INSULATION AND VAPOR BARRIER.
12. EXHAUST FANS:
   A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.
13. REMODELING WORK:
   A. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
   B. EQUIPMENT TO B

PLUMBING SYMBOLS

	SOIL AND WASTE PIPING BELOW FLOOR/GRADE
	SOIL AND WASTE PIPING ABOVE FLOOR/GRADE
V	SANITARY VENT PIPING ABOVE GRADE
V	SANITARY VENT PIPING BELOW GRADE
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRCULATION PIPING
G	GAS PIPING
	PIPING TURNING DOWN
	PIPING TURNING UP
	TEE TOP CONNECTION
	UNION
	BACKFLOW PREVENTER
FD	FLOOR DRAIN
FCO	FLOOR CLEAN OUT
WCO	WALL CLEAN OUT
GCO	GRADE CLEAN OUT
	VALVE
	CONNECT TO EXISTING
I.E.	INVERT ELEVATION OF PIPE
A	MATCH MARKS ON PLUMBING RISER DIAGRAM

PLUMBING PLAN NOTES:

1. CONNECT WASTE TO EXISTING 4" SANITARY SEWER AS REQUIRED. VERIFY EXACT LOCATION AND ELEVATION PRIOR TO INSTALLATION OF ANY PIPING.
2. LOCATION OF 3" VTR. VERIFY 10' CLEARANCE FROM ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.
3. CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING WORK.
4. NO WORK TO OCCUR IN THIS AREA.
5. PROVIDE RELIEF DRAIN FROM WATER HEATER TO HUB DRAIN WITH INDIRECT DRAIN.



NORTH

PLUMBING WASTE AND VENT FLOOR PLAN

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

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STATE OF MISSOURI REGISTERED ENGINEER
ERIK B. KNUDSEN
NUMBER PE-2004026504
PROFESSIONAL

PERMIT
JULY 25, 2024

Revisions

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LEE'S SUMMIT, MO

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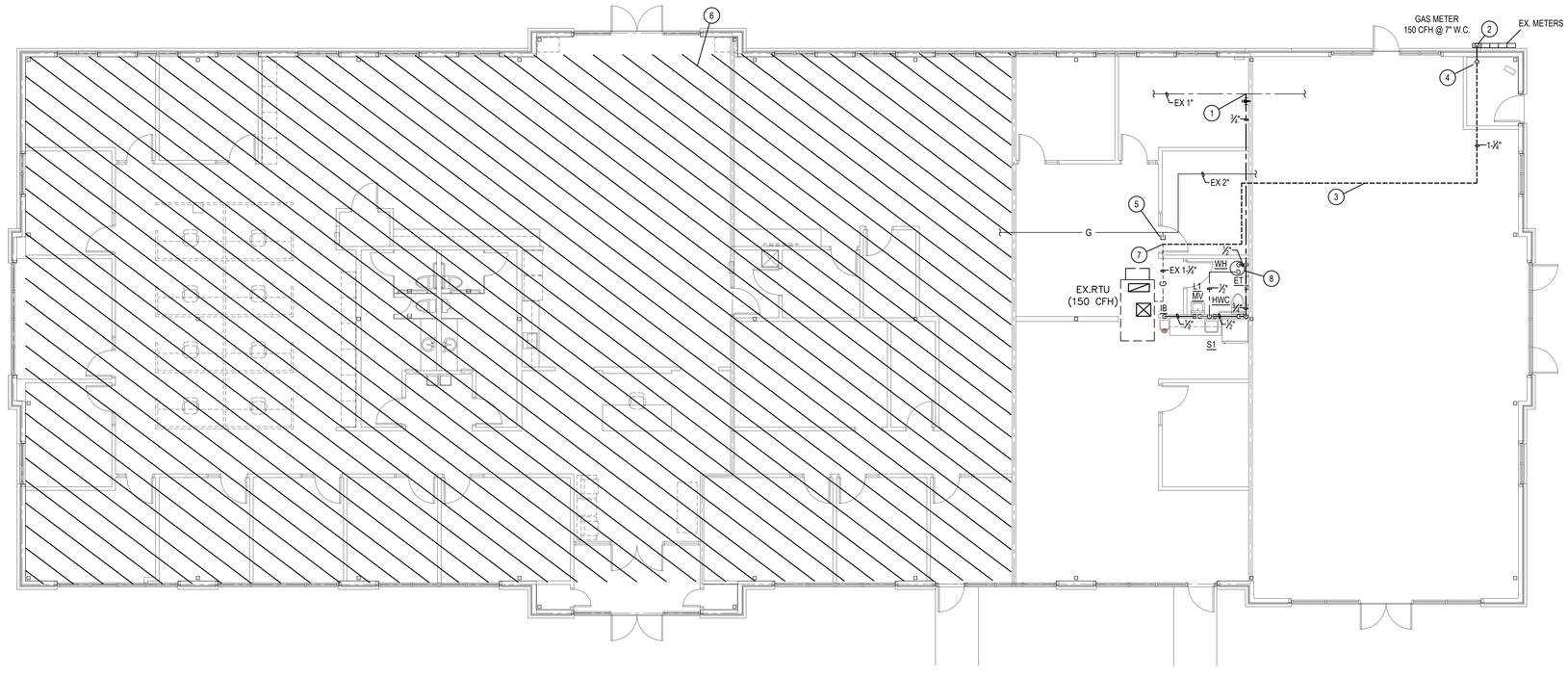
sheet
MP1.0
PLUMBING WASTE AND VENT FLOOR PLAN

PLUMBING PLAN NOTES:

1. CONNECT 3/4" CW TO EXISTING DOMESTIC CW WITH SHUT OFF VALVE. VERIFY EXACT LOCATION AND SIZE OF EXISTING WATER LINE PRIOR TO INSTALLATION OF ANY PIPING.
2. COORDINATE WITH GAS COMPANY FOR INSTALLATION OF A METER WITH CAPACITY FOR 150 CFH @ 7"W.C.. ROUTE PIPING UP INSIDE THE MECHANICAL ROOM AND PENETRATE ONTO ROOF SIMILAR TO EXISTING. ALL CONCEALED JOINTS ARE TO BE WELDED OR USE FITTINGS APPROVED FOR CONCEALED USE. VERIFY ALL EQUIPMENT GAS CAPACITIES AND OPERATING PRESSURES PRIOR TO INSTALLATION OF ANY PIPING. SEAL WALL PENETRATION WEATHER TIGHT.
3. GAS PIPING ON ROOF. SUPPORT AS REQUIRED AND AS DETAILED.
4. CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING WORK.
5. SEPARATE BRANCH PIPING FROM GAS PIPING MAIN AND CAP MAIN AS REQUIRED.
6. NO WORK TO OCCUR IN THIS AREA.
7. CONNECT TO EXISTING GAS PIPING AS REQUIRED.
8. SUPPORT WATER HEATER FROM STRUCTURE ABOVE CEILING AS REQUIRED. SEE RISER DIAGRAM FOR WATER HEATER PIPING DIAGRAM. REFER TO MANUFACTURER'S INSTRUCTIONS FOR EXACT REQUIREMENTS. PROVIDE THERMAL EXPANSION TANK. INSTALL HIGH ENOUGH TO ALLOW T&P AND DRAIN PAN TO DRAIN INTO HUB DRAIN IN CEILING.



NORTH

PLUMBING WATER AND GAS FLOOR PLAN

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

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TENANT SPLIT PHASE 2

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LEE'S SUMMIT, MO

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MISSOURI PE COA #2009003629

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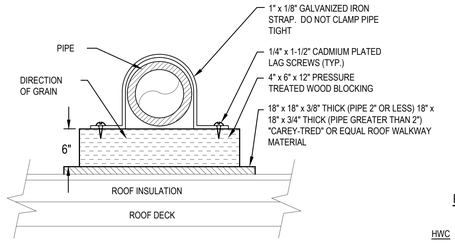
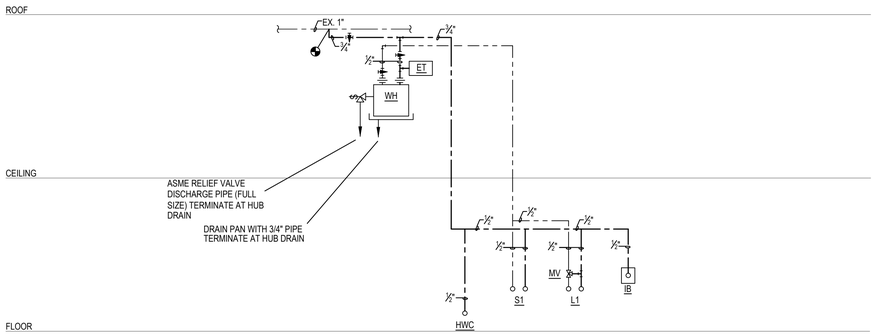
PLUMBING WATER AND GAS FLOOR PLAN

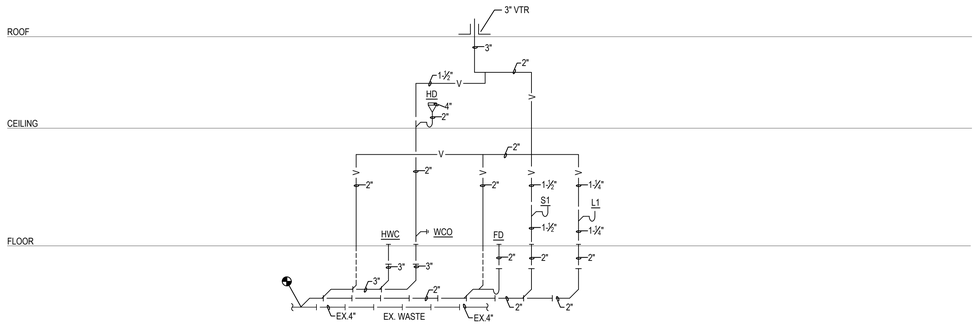


ROOF PIPE SUPPORT DETAIL

SCALE: NONE



HOT & COLD WATER



WASTE & VENT

PLUMBING RISER DIAGRAMS

SCALE: NONE

PLUMBING FIXTURE SCHEDULE:

HWC — HANDICAP WATER CLOSET: TOTO, #CST744SL, "DRAKE CLOSE COUPLED TOILET", 1.6 GALLON FLUSH, 16-1/2" HIGH ELONGATED BOWL, FLOOR MOUNTED, FLOOR OUTLET, TANK TYPE, VITREOUS CHINA, SIPHON-JET ACTION, #SC534 OPEN FRONT SEAT WITH CHECK HINGE AND LESS COVER, CHROME PLATED ANGLE STOP AND RISER. HANDLE ON WIDE SIDE OF FIXTURE.

L1 — HANDICAP LAVATORY, WALL HUNG: TOTO #LT307, 20"x 18", VITREOUS CHINA,FRONT OVERFLOW, DELTA #501 FAUCET WITH SINGLE METAL LEVER FAUCET,OFFSET GRID ELBOW DRAIN AND 1-1/4" TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT (MOUNTED PARALLEL WITH WALL), CHROME PLATED LOOSE KEY ANGLE STOPS AND RISERS, FLOOR MOUNTED CONCEALED ARM LAVATORY SUPPORT, INSULATE EXPOSED DRAIN, WATER SUPPLIES, AND VALVES WITH PROWRAP SEAMLESS MOLDED CLOSED CELL VINYL INSULATION.

FD — FLOOR DRAIN: SIOUX CHIEF, #842, PVC FLOOR DRAIN WITH ADJUSTABLE TOP AND CAST BRASS STRAINER.

S1 — SINK: ELKAY, #LRAD-2222, 19"x16"x 6-1/2" DEEP BOWL,21-3/8"x 21-3/8" CUT-OUT, ADA COMPLIANT, SINGLE COMPARTMENT, SELF-RIMMING STAINLESS STEEL SINK WITH SATIN FINISH AND SOUND DAMPENING UNDERCOATING, #LK-1000CR FAUCET, SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS.

WH — WATER HEATER: AO SMITH #DEL-10, 10 GALLON STORAGE, 120 VOLT, 2500 WATT ELEMENT, ASME TEMPERATURE AND PRESSURE RELIEF VALVE.

MV — MIXING VALVE: WATTS, #LFUSG-B, THERMOSTATIC CONTROLLED MIXING VALVE. LEAD FREE BRONZE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP (VANDAL RESISTANT), COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH BRASS SHUTTLE, STAINLESSSTEEL SPRINGS, INTEGRAL CHECK VALVES ON HOT AND COLD INLETS. (SET TO 110°F). ASSE 1070 LISTED.

ET — HOT WATER EXPANSION TANK: AMTROL, #ST-5, 2 GALLON EXPANSION TANK WITH DIAPHRAGM.

IB — ICE BOX. SIOUX CHIEF, #696-G1000. ICE BOX WITH 1/2" INLET, CONNECTION AND 1/4-TURN SHUT-OFF VALVE.

HD — HUB DRAIN: SIOUX CHIEF, #832, PVC WASTE DRAIN, TRAP SEAL.

PLUMBING FIXTURE CALCULATIONS (BASED ON 2018 IPC)

PLUMBING FIXTURE	QUANTITY	CW WSFU	CW WSFU TOTAL	HW WSFU	HW WSFU TOTAL	COMBINED WSFU	COMBINED WSFU TOTAL	DFU	DFU TOTAL
WATER CLOSET (FLUSH TANK)	1	5	5	0	0	5	5	4	4
LAVATORY	1	1.5	1.5	1.5	1.5	2.0	2.0	1.0	1.0
SINK	1	3.0	3.0	3	3	4	4	2.0	2.0
FLOOR DRAIN	1	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0
HUB DRAIN	1	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0
WATER COOLER SUPPLY BOX	1	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0
TOTAL			10.0		4.5		11.5		11.0

PIPE HANGER SCHEDULE

PIPE MATERIAL	MAXIMUM HANGER SPACING	HANGER ROD DIAMETER
ABS (All sizes)	4'	3/8"
PVC (All Sizes)	4'	3/8"
CPVC, 1 inch and smaller	3'	1/2"
CPVC, 1–1/4 inches and larger	4'	1/2"
Cast Iron (All Sizes)	5'	5/8"
Cast Iron (All Sizes) with 10 foot length of pipe	10'	5/8"
Copper Tube, 1–1/4 inches and smaller	6'	1/2"
Copper Tube, 1–1/2 inches and larger	10'	1/2"
Steel, 3 inches and smaller	12'	1/2"
Steel, 4 inches and larger	12'	5/8"
Pex, 1" and below without support channel	32"	3/8"
Pex, 1–1/4" and above without support channel	48"	3/8"
Pex ¾" and below with support channel	6'	3/8"
Pex 1" and above with support channel	8'	3/8"

PLUMBING FIXTURE BRANCH PIPING SCHEDULE

FIXTURE	WASTE	VENT	CW	HW
WATER CLOSET (TANK TYPE)	3"	2"	1/2"	--
LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"
SINK	1-1/2"	1-1/2"	1/2"	1/2"
FLOOR DRAIN	2"	2"	--	--
HUB DRAIN	2"	1-1/2"	--	--
SUPPLY BOX	--	--	1/2"	--

NOTE: INDIVIDUAL VENTS FOR FIXTURES ON PLANS AND RISER DIAGRAMS HAVE BEEN INCREASED WHERE HORIZONTAL VENT LENGTH IS IN EXCESS OF THE MAXIMUM DISTANCE INDICATED BY THE CODE.

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7/26/24

STATE OF MISSOURI — ERIK B. KNUDSEN — NUMBER PE-2004026504 — REGISTERED PROFESSIONAL ENGINEER

PERMIT
JULY 25, 2024

Revisions

TENANT SPLIT PHASE 2
EXECUTIVE LAKES
5000 NE LAKEWOOD PARKWAY
LEE'S SUMMIT, MO

sheet
MP3.0
PLUMBING DETAILS AND SCHEDULES

BC PROJECT #: 24543
MISSOURI PE COA #2009003629

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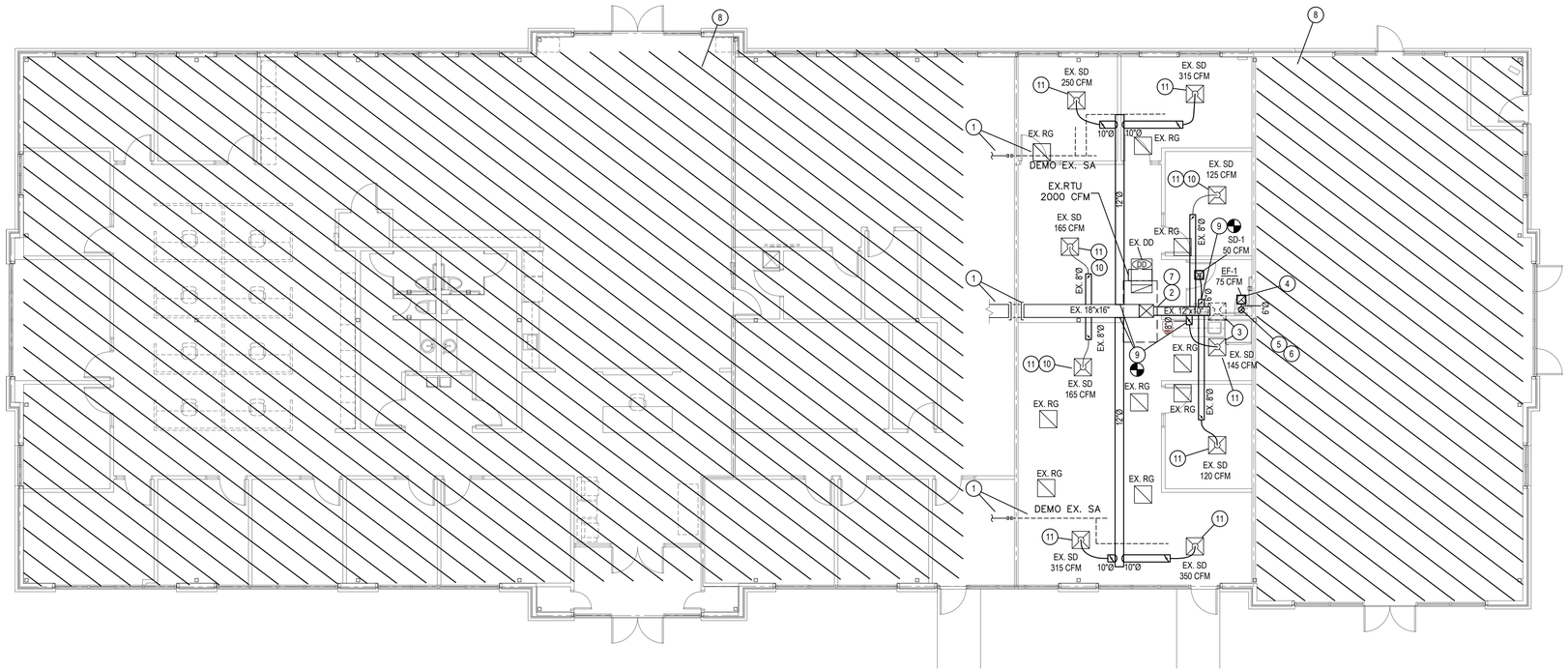
MECHANICAL SYMBOLS

- NEW SUPPLY DIFFUSER
- NEW RETURN AIR GRILLE
- EXHAUST GRILLE/FAN
- DD — DUCT-MOUNTED SMOKE DETECTOR
- NEW DUCTWORK
- 32"x14" — SIZE OF RECTANGULAR DUCT
- 6"Ø — SIZE OF ROUND DUCT
- FLEXIBLE DUCTWORK
- FLEXIBLE CONNECTION TO FAN
- (3) — FLOOR PLAN NOTE DESIGNATION
- S.A. — SUPPLY AIR
- R.A. — RETURN AIR
- EXH. — EXHAUST AIR
- TRANSITION IN DUCT SIZE
- ELBOW WITH TURNING VANES
- MANUAL VOLUME DAMPER
- M — MANUAL VOLUME DAMPER
- MOTORIZED CONTROL DAMPER
- FD — FIRE DAMPER
- SPLITTER DAMPER WITH HORIZONTAL REGULATOR
- SUPPLY AIR DUCT UP/DOWN
- RETURN AIR DUCT UP/DOWN
- EXHAUST AIR DUCT UP/DOWN
- UP — CHANGE IN ELEVATION UP (UP) DOWN (DN) IN DIRECTION OF FLOW
- RTU-1 — SCHEDULED MECHANICAL EQUIPMENT
- EXIST'G DUCT TO REMAIN
- EXIST'G DUCT TO BE REMOVED
- EXISTING FLEXIBLE DUCTWORK
- 32"x14"E — SIZE OF EXISTING DUCT
- EXISTING SUPPLY DIFFUSER
- CONNECT TO EXISTING

MECHANICAL PLAN NOTES:

1. DEMOLISH EXISTING DUCTWORK PAST DEMISING WALL AND CAP. SEAL AIR TIGHT.
2. EXISTING RTU TO REMAIN.
3. RELOCATE EXISTING DIFFUSER AS SHOWN. EXTEND OR CUT DUCT WORK AS NECESSARY.
4. SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
5. CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING WORK.
6. ROUTE 6" DIAMETER EXHAUST DUCT UP THROUGH ROOF TO WEATHER-HEAD WITH A BACK DRAFT DAMPER. MAINTAIN 10' CLEARANCE FROM ALL OUTDOOR AIR INTAKES.
7. BALANCE EX. RTU OUTSIDE AIR TO 400 CFM AS REQUIRED. FIELD VERIFY RTU INTAKES, PROVIDE AND INSTALL IF NONE FOUND TO BE EXISTING.
8. NO WORK TO OCCUR IN THIS AREA.
9. CONNECT DUCT TO EXISTING SUPPLY DUCTWORK AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY DUCTWORK.
10. REBALANCE DIFFUSER TO LISTED CFM.
11. CLEAN DIFFUSER/GRILLE TO "LIKE NEW" CONDITION AS REQUIRED.



NORTH

MECHANICAL FLOOR PLAN

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

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MECHANICAL FLOOR PLAN

ALL EXISTING HVAC UNITS SHOULD HAVE A PREVENTATIVE MAINTENANCE CHECK-UP TO INCLUDE THE FOLLOWING CRITERIA

1. CHANGE ALL FILTERS.
2. CLEAN ALL CONDENSATE DRAIN PANS AND FLUSH ALL CONDENSATE DRAIN LINES.
3. CLEAN ALL EVAPORATOR AND CONDENSER COILS WITH A NON-ACID CLEANER.
4. CHECK REFRIGERANT CHARGE (GUAGES OR RETURN/SUPPLY TEMPERATURE VARIANCE).
5. PROVIDE COMPLETE LUBRICATION OF ALL SHAFTS AND BEARINGS THAT HAVE LUBRICATION ZERKS.
6. THE REPLACEMENT OF ALL BELTS, HOSES AND FABRIC/RUBBER COATED ITEMS THAT ARE SUBJECT TO WEAR.
7. CHECK AMPS OF THE INDOOR, OUTDOOR MOTORS, AND COMPRESSORS
8. TURN UNIT POWER OFF - TIGHTEN ALL ELECTRICAL CONNECTIONS, CONTACTORS, ETC.
9. EXAMINE AND REPAIR ALL ELECTRICAL WIRING, CONTROLS, STARTERS, RELAYS, CAPACITORS AND LIKE ITEMS THAT TEND TO DETERIORATE OVER TIME OR BECOME NON-OPERATIONAL. THIS INCLUDES SMOKE DETECTORS.
10. GREASE ALL FITTINGS
11. CHECK DUCTWORK CONNECTIONS AND REPAIR AS NEEDED.
12. NOTIFY GENERAL CONTRACTOR OF ANY REQUIRED PARTS OR REPAIRS NOT INCLUDED IN THIS LIST. ALL UNITS SHALL BE FUNCTIONING AND COOLING PROPERLY AT COMPLETION OF JOB.
13. CHECK THE ECONOMIZER FOR PROPER FUNCTION AND CORRECT OPERATION OF THE SYSTEM WHEN A CALL FOR COOLING COMES FROM THE THERMOSTAT. REPAIR AND ADJUST AS NEEDED.
14. VERIFY ANY WORK REQUIRED BY THE LANDLORD PRIOR TO BID.
15. ALL FINDINGS AND VALUES TO BE NOTED AND PROVIDED TO TENANT'S CONSTRUCTION MANAGER & OR TENANT'S MAINTENANCE DIRECTOR.

DIFFUSER SCHEDULE

MARK	MFGR	MODEL	BORDER TYPE	NECK SIZE	FACE SIZE	FINISH	DAMPER	ACCESSORIES	NOTES
SD-1	TITUS	PAS/3	3	6"Ø	12"x12"	WHITE	-		-

EXHAUST FAN SCHEDULE

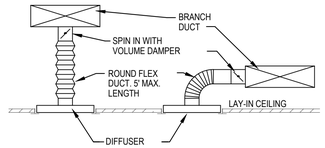
MARK	MFGR	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	CONTROLS	NOTES
						VOLT/Ø/HZ	PWR			
EF-1	COOK	GC-128	75	0.1	750	120/1/60	29 W	CEILING EXH.	SWITCH	1

NOTES: 1. PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, VARI-SPEED CONTROLLER (NEAR FAN AND ABOVE CEILING), FACTORY MEANS OF DISCONNECT AND WEATHER HEAD.

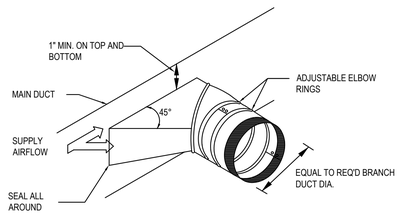
2018 IMC

OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
	426	Office spaces	5	5	0.06		36	0.8	45
	75	Break Room	25	5	0.06		14	0.8	17
	68	Toilet rooms public	0	0	0	5/70	0	0.8	0
	1036	Martial Arts	10	20	0.06		269	0.8	337
								Total	399



DIFFUSER DETAIL
SCALE: NONE



BRANCH DUCT TAKEOFF DETAIL
SCALE: NONE

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7/26/24

STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER
ERIK B. KNUDSEN
NUMBER PE-2004026504

PERMIT
JULY 25, 2024

Revisions

TENANT SPLIT PHASE 2
EXECUTIVE LAKES
5000 NE LAKEWOOD PARKWAY
LEE'S SUMMIT, MO

BC PROJECT #: 24543
MISSOURI PE COA #2009003629

BC ENGINEERS INCORPORATED
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MECHANICAL CALCULATIONS, SCHEDULES