Joe Frogge

Digitally signed by Joe Frogge
DN: CN=Joe Frogge, OU=Development, OU=LS Users, DC=COLS, DC=LOC
Date: 2023.11.30 16:39:53-06'00'

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
11/30/2023

BUILDING 31 - UNIT 430 - SUITE 100

clockwork

423 DELAWARE, STE 102
KANSAS CITY, MISSOURI 64105
www.clockwork-ad.com

GENERAL NOTES

1. GENERAL CONTRACTOR AND ALL OTHER CONTRACTORS WORKING ON THIS CONSTRUCTION PROJECT SHALL MEET ALL APPLICABLE CODE REQUIREMENTS. ALL CONSTRUCTION AND MATERIALS SHALL COMPLY WITH ANY AND ALL APPLICABLE CODES, REGULATIONS, DIRECTIVES AND LAWS. CONTRACTOR SHALL BE KNOWLEDGEABLE OF ALL CITY REGULATIONS AND CODE ISSUES AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT UPON DISCOVERY OF ANY DISCREPANCIES ON THE DOCUMENTS OR CONDITIONS OF THE PROJECT SITE.

2. SUBSTANTIAL COMPLETION SHALL BE ESTABLISHED ON DELIVERY OF OCCUPANCY PERMIT. FINAL COMPLETION SHALL BE DEEMED COMPLETED WHEN ALL PUNCH LIST ITEMS ARE COMPLETED AND APPROVED, ALL SUPPORT EQUIPMENT INSTALLED AND COMPLETE. OWNER WILL DETERMINE FINAL COMPLETION.

3. THE RESPONSIBILITIES CONCERNING THE PREPARATION AND REVIEW OF THE APPLICATION FOR PAYMENT AND PAYMENT SCHEDULE SHALL BE ADDRESSED IN THE AGREEMENTS BETWEEN THE OWNER, ARCHITECT, AND CONTRACTOR.

4. THE ARCHITECT WILL BE AVAILABLE TO THE OWNER AND CONTRACTOR DURING CONSTRUCTION. THE ARCHITECT WILL ASSIST THE OWNER AND/OR CONTRACTOR IN OBTAINING A BUILDING PERMIT.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE CONSTRUCTION PROCESS, MATERIAL VERIFICATION, AND WORKER SAFETY.

6. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, AND FOR TECHNIQUES OF ASSEMBLY.

7. ALL CUTTING AND PATCHING SHALL BE PERFORMED IN A NEAT AND WORKMAN LIKE MANNER. ANY EXISTING FINISHES DISTURBED OR DAMAGED BY THE CONTRACTOR OR TRADES UNDER CONTRACT DURING THE COURSE OF THE WORK SHALL BE REPAIRED TO MATCH EXISTING.

8. NO SUBSTITUTES OF SPECIFIED CONSTRUCTION ITEMS, EQUIPMENT AND FINISHES WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE OWNER AND ARCHITECT.

9. ALL BIDDING CONTRACTOR(S) SHALL VISIT THE SITE OF THE PROPOSED WORK AND FULLY ACQUAINT THEMSELVES WITH THE EXISTING CONDITIONS OF THE PROJECT SITE, AS THEY CURRENTLY EXIST, SO THEY MAY FULLY UNDERSTAND THE FACILITIES, DIFFICULTIES AND RESTRICTIONS PRIOR TO SUBMITTING ANY BIDS.

10. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH SCHEDULING INFORMATION PRIOR TO CONSTRUCTION, WHICH WILL BE UPDATED IF THERE ARE ANY CHANGES.

11. ALL REQUIRED COMMUNICATION SHALL BE THROUGH THE ARCHITECT AND OWNER.

12. DO NOT SCALE DRAWINGS. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOBSITE. INFORMATION CONTAINED IN THESE DRAWINGS IS GENERAL AND NOT BASED ON EXISTING DOCUMENTS AND FIELD MEASUREMENTS. THE INFORMATION CONTAINED HEREIN MAY REQUIRE ADJUSTMENTS OR MODIFICATIONS TO CONFORM TO EXISTING CONDITIONS AND DESIGN INTENT OF DOCUMENTS. THE CONTRACTOR MUST NOTIFY ARCHITECT OF ANY CONFLICTS AND/OR VARIATIONS.

13. CONTRACTOR SHALL FURNISH & INSTALL ALL ITEMS SHOWN ON THE DRAWINGS UNLESS SPECIFICALLY NOTED OTHERWISE.

18. ALL CONTRACTORS SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT; BOTH AS TO MATERIAL AND WORKMANSHIP, FOR A PERIOD OF TWELVE MONTHS AFTER DATE OF SUBSTANTIAL COMPLETION. IN ADDITION, ANY DAMAGE TO ADJACENT AREAS/SURFACES CAUSED BY FAULTY MATERIALS OR WORKMANSHIP SHALL ALSO BE REPAIRED TO THE OWNER'S SATISFACTION AT NO ADDITIONAL COST.

20. CONTRACTOR TO INSTALL ALL MATERIAL PER MANUFACTURERS' REQUIREMENTS, UL RATING REQUIREMENTS, SPECIFIC TRADE GUIDELINES, INDUSTRY STANDARDS, AND BUILDING CODES. ALL NEW FINISHES TO COMPLY WITH IBC CHAPTER 8.

21. PROVIDE SIGNAGE MEETING ADA REQUIREMENTS AND LOCATIONS DICTATED BY THE CITY AND LOCAL CODES. DESIGN, CONTENT, AND LOCATIONS SHALL BE PROVIDED TO THE OWNER AND ARCHITECT PRIOR TO INSTALLATION.

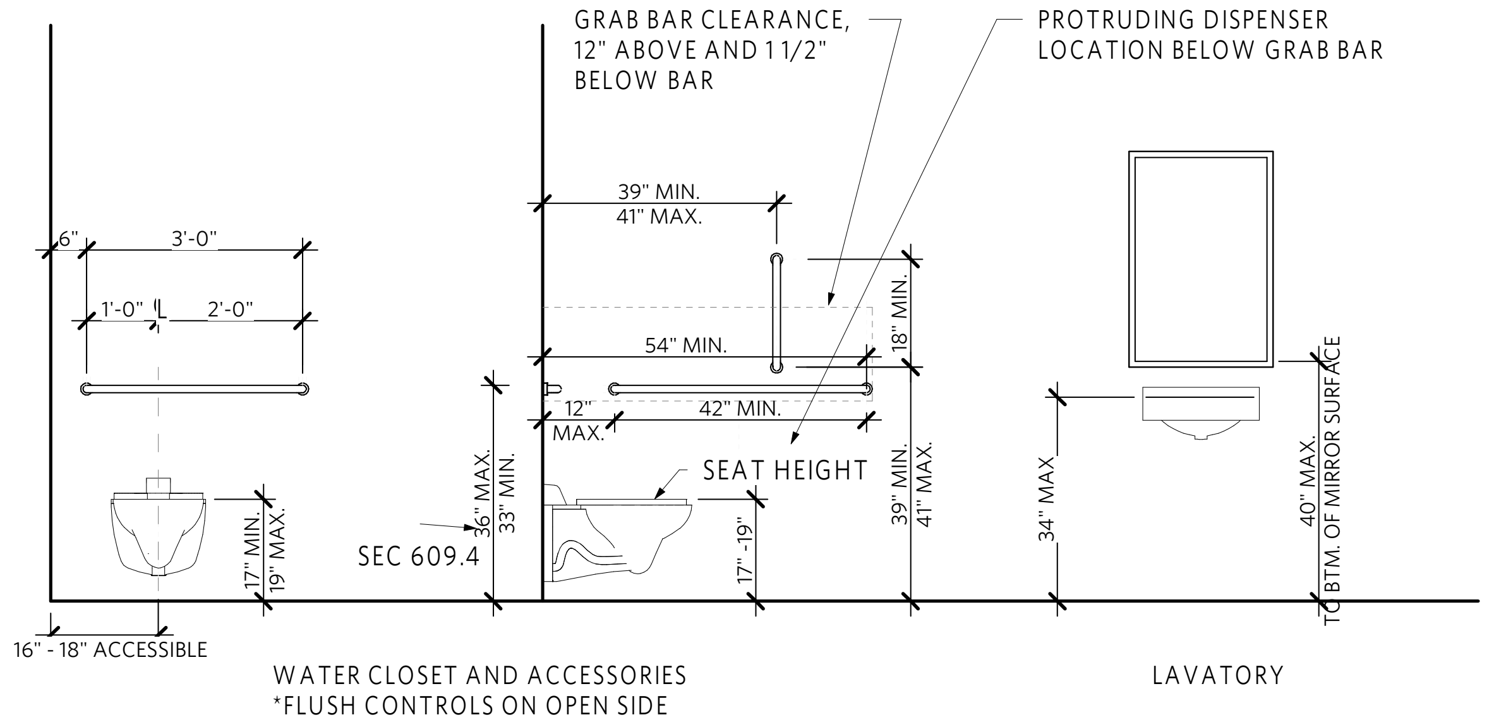
25. THE CONTRACTOR MUST SUBMIT TO OWNER AN INSURANCE CERTIFICATE WITH MINIMUM COVERAGE OF $1,000,000 IN GENERAL LIABILITY OR EQUAL. THIS CERTIFICATE MUST NAME THE OWNER AS ADDITIONAL INSURED.

26. ALL CHANGES, DEVIATIONS, MODIFICATIONS, ADDITIONS OR DELETIONS FROM THE CONTRACT OF CONSTRUCTION OF APPROVED ARCHITECTURAL PLANS SHALL BE APPROVED BY THE OWNER AND ARCHITECT.

27. DIMENSIONS ARE FROM OUTSIDE FACE OF FULL BED MASONRY, OR FROM FACE OF MTL STUD ON ALL OTHER MATERIALS, UNLESS NOTED OTHERWISE. (THIN BRICK & THIN STONE VENEERS ARE DIMENSIONED TO FACE OF STUD).

28. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ALL INTERIOR SURFACES AND EXTERIOR DEBRIS SPECIFIC TO CONSTRUCTION ACTIVITIES PRIOR TO OCCUPANCY OF THE SPACES BY THE OWNER. ADDITIONAL CLEANING FOLLOWING THE RECONCILIATION OF PUNCHLIST ITEMS SHALL ALSO BE INCLUDED. FINAL CLEANUP SHALL CONSIST OF THE FOLLOWING:
    a. REMOVE ALL CONSTRUCTION DEBRIS, UNUSED MATERIALS, TOOLS, ETC.
    b. CLEAN INTERIOR AND EXTERIOR SURFACES OF STOREFRONT GLASS AND FRAMES
    c. CLEAN ALL FLOORS
    d. REPLACE ALL FILTER MEDIA IN HVAC SYSTEMS

ADA MOUNTING HEIGHT



WATER CLOSET AND ACCESSORIES
*FLUSH CONTROLS ON OPEN SIDE

LAVATORY

LOCATOR PLAN

SITE LOCATION:
3140 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

SCOPE SUMMARY

INTERIOR RENOVATION OF AN EXISTING OFFICE SPACE (T.I.). SCOPE INCLUDES INSTALLATION OF OPEN WORKSTATIONS, OFFICE, CONFERENCE ROOM, ADA COMPLIANT RESTROOM, KITCHENETTE AND REQUIRED MEP SYSTEMS. EXISTING HVAC TO BE MODIFIED AS REQUIRED FOR NEW LAYOUT.

PROJECT TEAM

OWNER + TENANT:

873 SW LEMANS LN
LEES SUMMIT, MO 64082
CONTACT: MARK ROYALTY
P: 816.744.8131
E: mark.royalty.vaakbn@statefarm.com

MEP:

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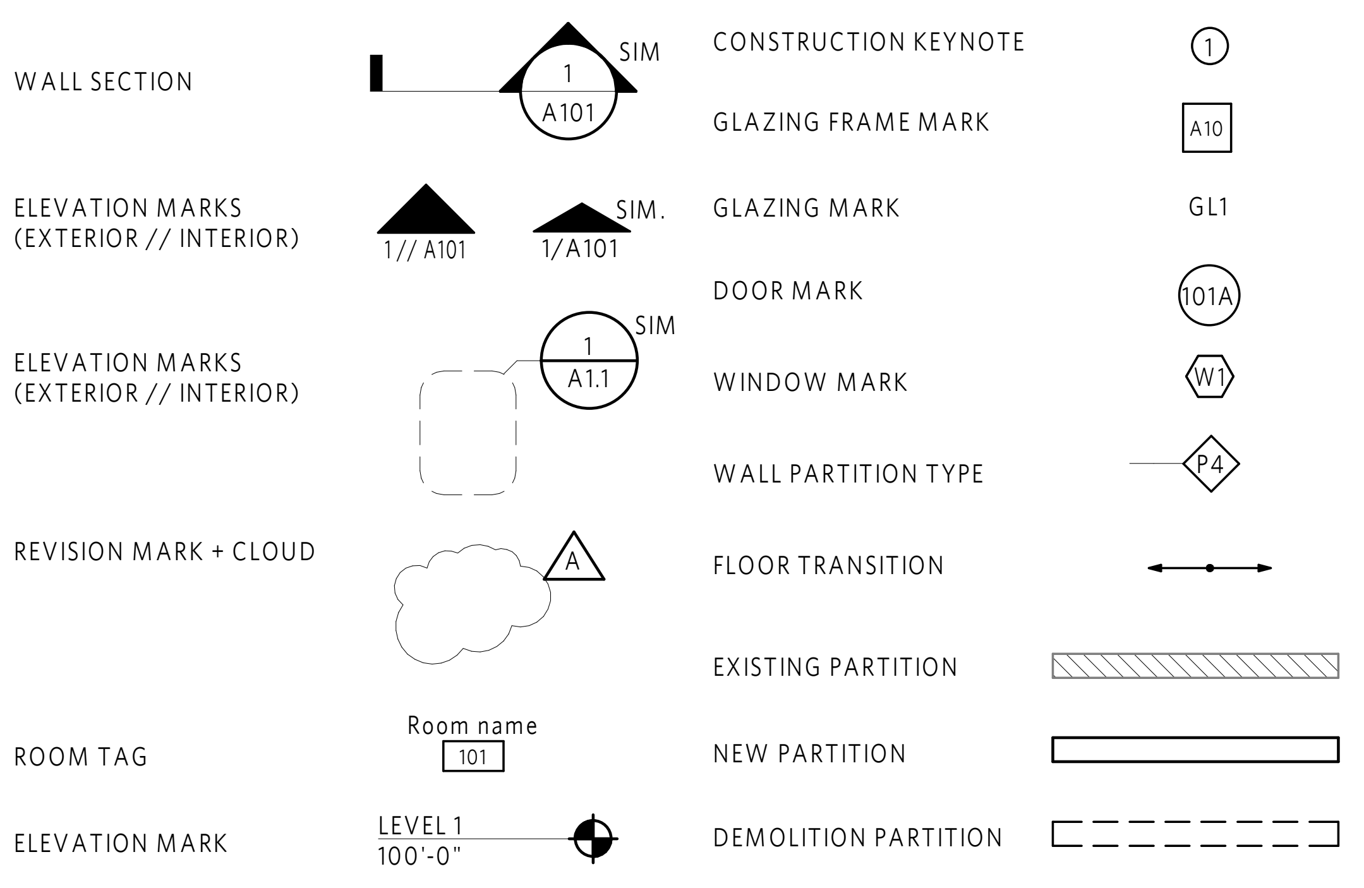
ARCHITECTURAL:

CLOCKWORK
423 DELAWARE ST. SUITE 102
KANSAS CITY, MO 64105
CONTACT: JEFF WINDMEYER
P: 660.815.1316
E: jeff@clockwork-ad.com

CONTRACTOR:

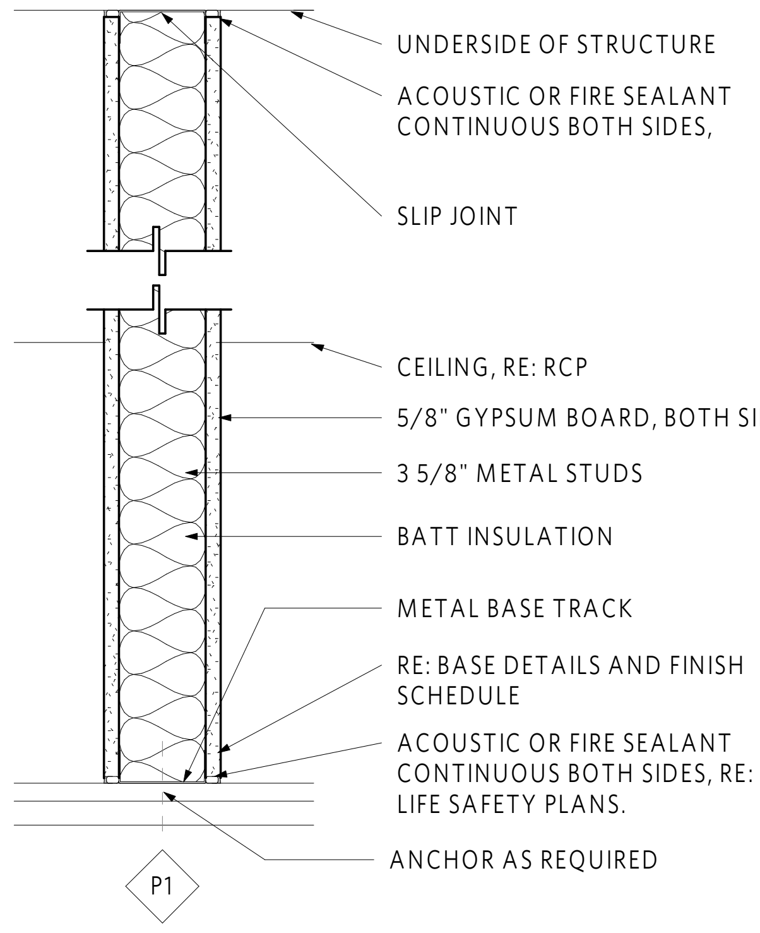
CREATIVE CONTRACTORS
CONTACT: RON HUFF
P: 816.682.5482
E: ron.huff06@gmail.com

DRAWING SYMBOLS

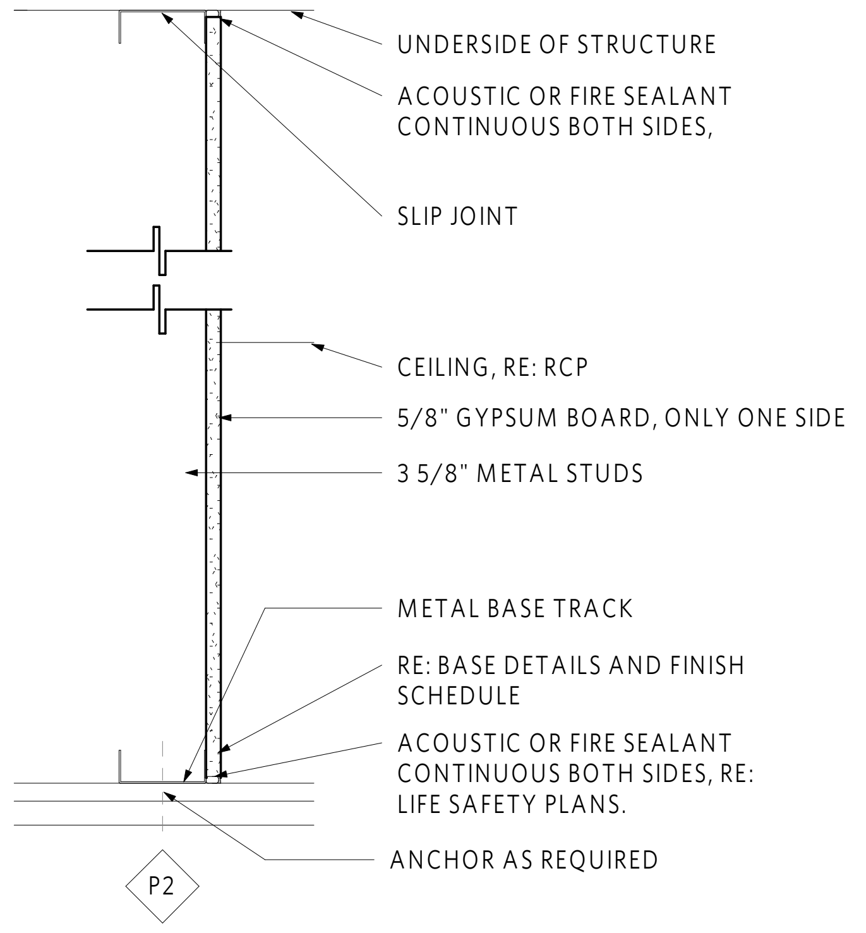


WALL TYPES

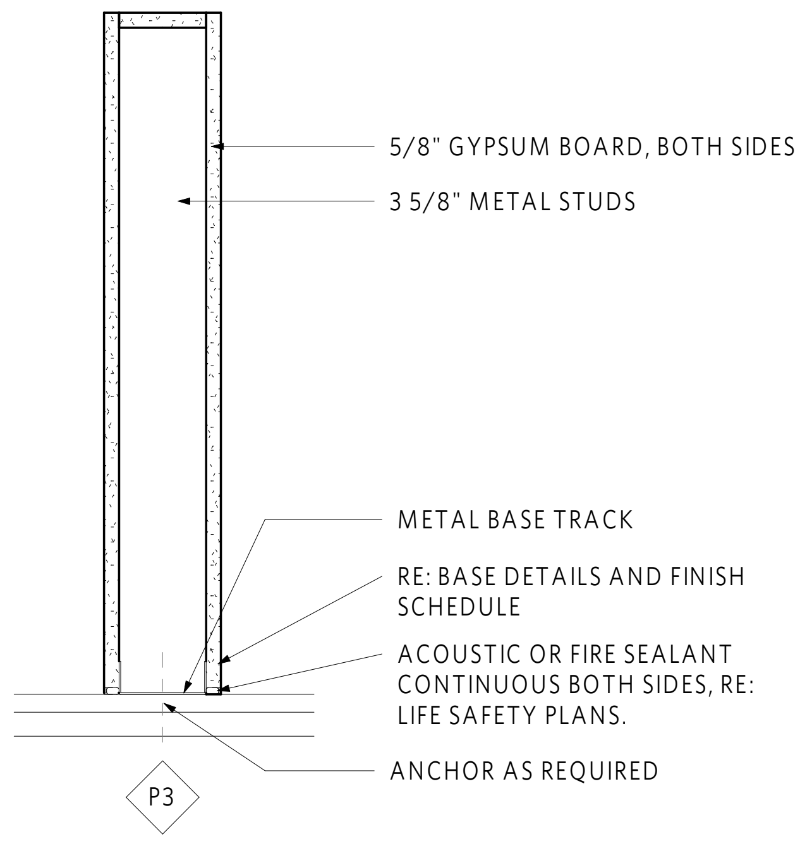
1. GYP. BD. TO BE HELD OFF FINISH FLOOR 1/2" MIN. TYPICAL.
2. METAL CORNER BEAD TO BE USED ON ALL OUTSIDE CORNERS OR TOP OF PARTIAL HEIGHT WALLS WHERE GYP. BD. WRAPS.
3. ALL BLOCKING SHALL SPAN FULLY BETWEEN BOTH ADJACENT STUDS AT A MINIMUM.
4. ALL WALLS TO BE LEVEL 4 FINISH, U.N.O. WALLS TO RECEIVE VINYL GRAPHICS TO BE LEVEL 5 FINISH.
5. PROVIDE ACOUSTICAL BATT INSULATION AT ALL RESTROOM WALLS AND ABOVE ALL RESTROOM CEILINGS
6. PROVIDE MOISTURE RESISTANT GYP. BD. OR DUROCK IN ALL WET LOCATIONS (I. E. RESTROOMS)
7. ALL GYP EXTENDING TO UNDERSIDE OF STRUTURE TO BE CUT TIGHT AROUND FLUTES AND SEALED.



WALLS TO DECK



WALLS TO DECK



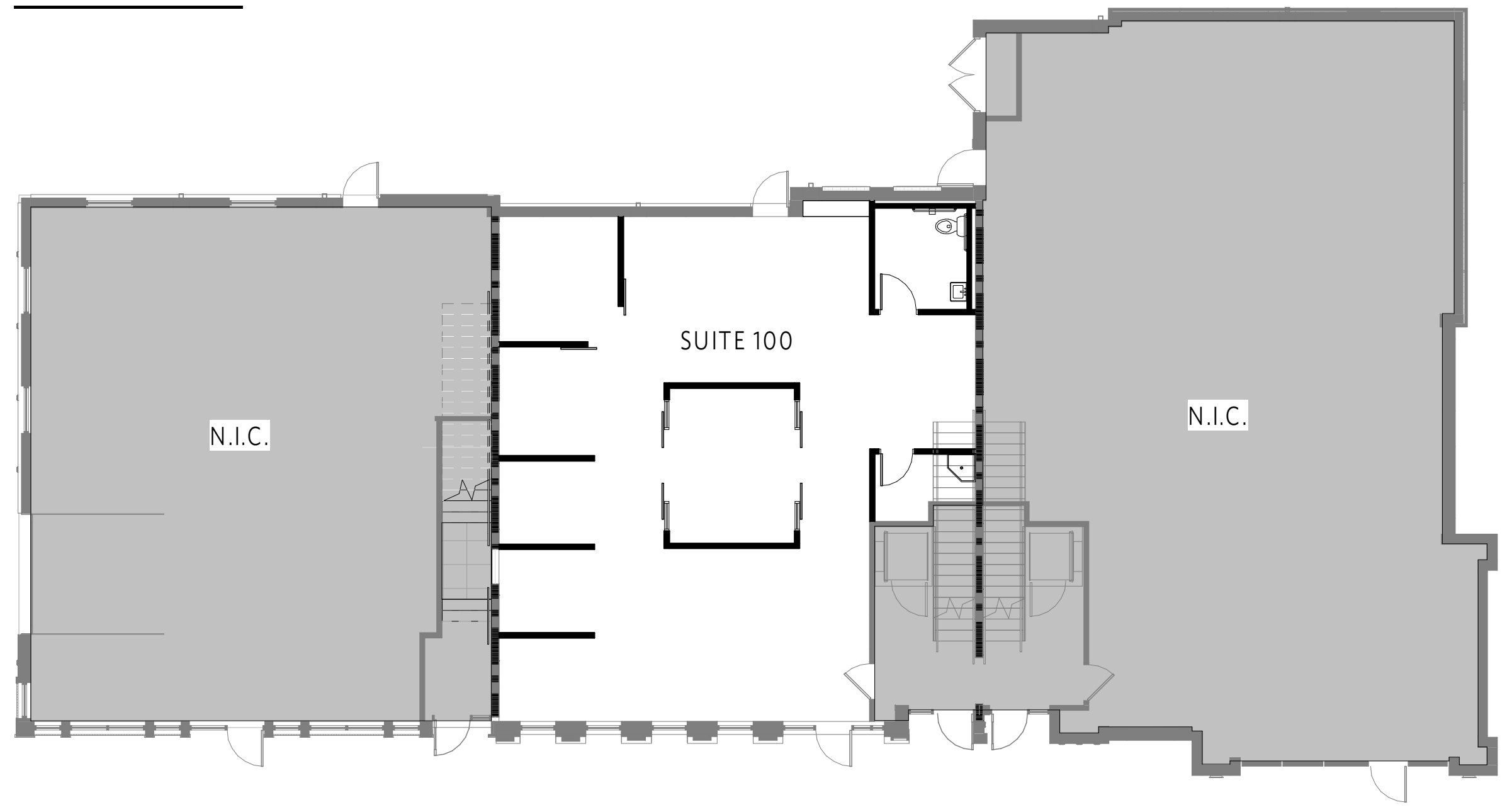
HEIGHT PER PLAN

SHEET INDEX

ARCHITECTURAL

MEP

KEY PLAN



BUILDING 31 - UNIT 430 - SUITE 100
430 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

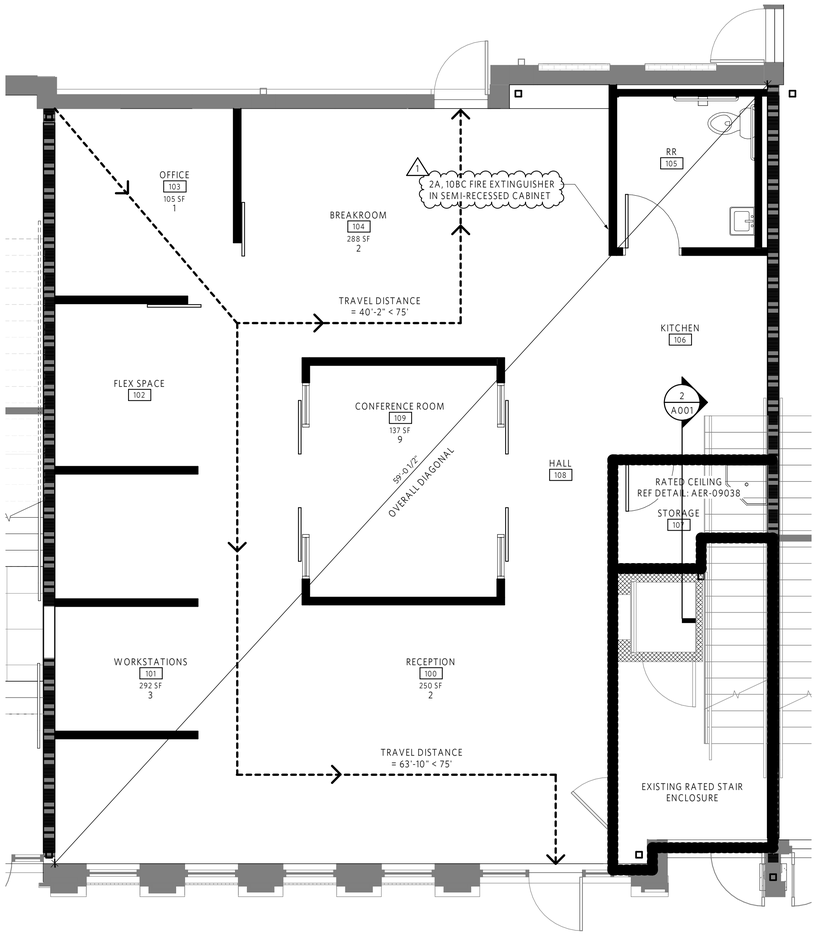
CHRISTIAN J. ARNOLD
NUMBER A-2003027158

REV	ISSUE	DATE
	PERMIT SUBMITTAL	10.30.2023

Title Sheet

A000

20.01 NLV BUILDING 31



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

CODE LEGEND

101	AREA TAG
●●●●●●●●●●●●	1 HOUR RATED
- - - - - - - - -	PRIMARY EXIT ACCESS
FE	FULLY RECESSED 2A10BC FIRE EXTINGUISHER

CODE REVIEW

APPLICABLE CODES:

2018 International Existing Building Code
2018 Uniform Plumbing Code
2018 International Energy Conservation Code
2018 International Mechanical Code
2018 International Fuel Gas Code
2018 International Fire Code
2017 National Electrical Code
ICC/ANSI A117.1-2009, Accessible and Usable Buildings and Facilities

CHAPTER 3 *USE AND OCCUPANCY CLASSIFICATION*

BUSINESS, GROUP B

CHAPTER 5 *GENERAL BUILDING HEIGHTS AND AREAS [TABLE 503]*

THIS SCOPE OF WORK DOES NOT INCREASE THE AREA OF THE EXISTING BUILDING/TENANT SPACE.

TENANT RENOVATION AREA = 1,549 SF

CHAPTER 6 *TYPE OF CONSTRUCTION*

CONSTRUCTION TYPE, IIB
NON SPRINKLED

CHAPTER 9 *FIRE PROTECTION SYSTEMS*

907 - FIRE ALARMS ARE PROVIDED

FIRE EXTINGUISHERS TO BE PROVIDED IN ACCORDANCE WITH THE IBC
NFPA 10 REQUIRED SMOKE DETECTORS TO BE PROVIDED
ALL PROVIDED AND INSTALLED BY GENERAL CONTRACTOR

CHAPTER 10 *MEANS OF EGRESS*

THE EXISTING BUILDING MEETS THE REQUIREMENTS FOR MEANS OF EGRESS.

OCCUPANT LOAD:
BUSINESS (1 PER 150 GSF) = 1,549 SF/150 = 11 OCC
(LOAD PER ROOM LAYOUT) = 17 OCC

CHAPTER 11 *ACCESSIBILITY*

THE EXISTING BUILDING MEETS THE REQUIREMENTS FOR ACCESSIBLE ENTRIES. THE EXISTING PARKING SPACES MEET THE REQUIREMENTS FOR ACCESSIBLE PARKING.

CHAPTER 29 PLUMBING SYSTEMS

ONE NEW ADA COMPLIANT RESTROOM HAS BEEN PROVIDED

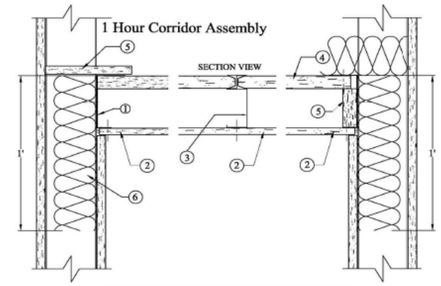
PLUMBING FIXTURE COUNTS:

TOILETS:	1/25 REQ'D - 1 PROVIDED
LAVATORIES:	1/40 REQ'D - 1 PROVIDED
DRINKING FOUNTAIN:	1 REQ'D - BOTTLED WATER PROVIDED
SERVICE SINK:	1 REQ'D - 1 PROVIDED (ONLY REQUIRED IF OCCUPANCY IS GREATER THAN 15)

AER-09038 **AER-09038**

One Hour Corridor Ceiling or Underside Stair Applications, See Figure 8

1. A minimum 2-1/2-in deep 24 gauge J-runner attached horizontally to perimeter or boundary walls with a power actuated fasteners.
2. Gypsum Wall Board:
   a. For a one (1) hour assembly: Attach one (1) layer of 5/8-in thick SHEETROCK® Brand FIRECODE® Core Gypsum Panel (Type X), to the underside of the "Corridor Ceiling" of the C-H stud and the perimeter J-runners. Use 1-in long Type G screws that are spaced 12-in o.c. in the field and at the edges.
3. Install the C-H studs perpendicular to the J-runner spaced 24-in o.c. with the C-section of the C-H stud facing downward towards the corridor side of the assembly with two (2) screws a minimum 1/2-in long Type S-12 screws, one on each side.
4. 1-in thick SHEETROCK® Brand Gypsum Liner Panel - Friction-fitted in "H" portion of C-H studs.
5. Ripper Board:
   a. Where the liner panel (item 4) is cut short to be installed, gaps must be filled by using a strip of 1-in thick SHEETROCK Brand Gypsum Liner Panel.
   b. As an alternative you can use mineral fiber insulation to prevent exposure to the top leg of the J-runner that forms the ceiling.
   c. Where the wall section extends above the corridor ceiling, above corridor height a rip of board must be used to cap the opening between studs and a strip of mineral fiber insulation as described in item 6 must be used.
6. In order to prevent the passage of heat and gases, a 12-in long strip of mineral fiber insulation must be used to fill in the stud cavity of the walls.



1-Hour Exit Corridor Ceiling and Stair Soffits[1]	
Single layer 5/8-in gypsum panels	Maximum Span
212CH25-18[2]	8-ft - 6-in
212CH20-34[3]	10-ft - 4-in
400CH25-18[2]	9-ft - 3-in
400CH20-34[3]	14-ft - 11-in
600CH20-34[3]	20-ft - 10-in

Notes:
1. Based on L/240 allowable deflection with studs at 24-in o.c. and JR24 runner.
2. J-Runner connection to wall/building must meet or exceed 189-lbs capacity at every stud location (24-in o.c.).
3. J-Runner connection to wall/building must meet or exceed 386-lbs capacity at every stud location (24-in o.c.).

Figure 8 - One Hour Corridor Ceiling or Underside Stair Assembly and Limiting Spans

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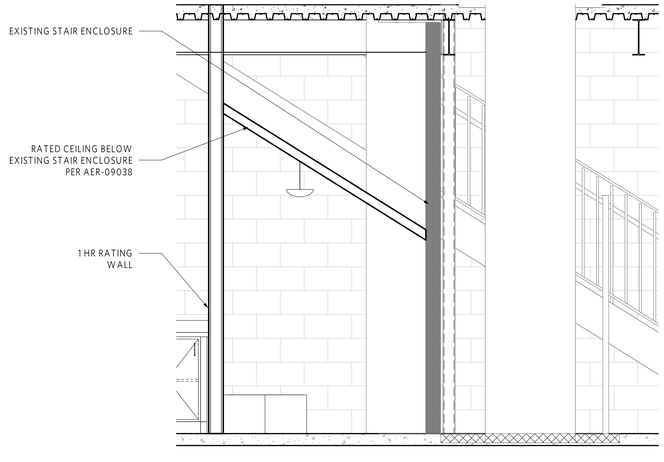

2 WALL SECTION
1/2" = 1'-0"

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STATE OF MISSOURI
CHRISTIAN J. ARNOLD
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1	Permit Review	11.15.2023

CODE PLAN

A001

20.01 NLV BUILDING 31

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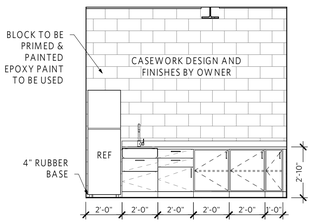
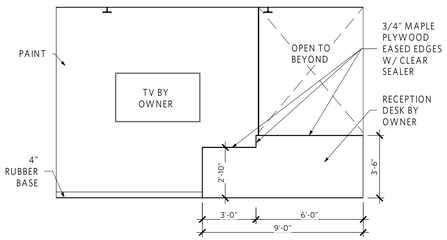


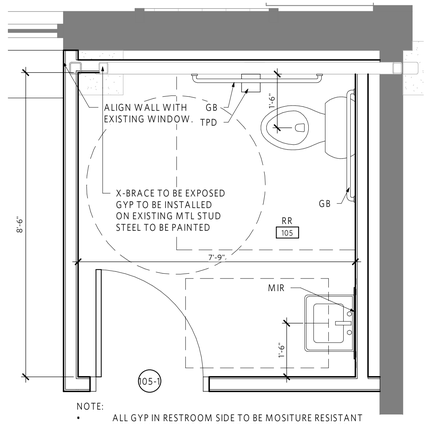
5 KITCHEN ELEVATION

1/4" = 1'-0"



4 RECEPTION ELEVATION

1/4" = 1'-0"



NOTE:

- ALL GYP IN RESTROOM SIDE TO BE MOSITURE RESISTANT
- NEW WALLS TO BE 3 5/8" MTL STUD W/ 5/8" GYP. BD
- WALLS ON TENANT SIDE TO EXTEND TO DECK ABOVE - CUT GYP TIGHT W/ CONT. SEALANT ALONG FLUTES.

3 ENLARGED RESTROOM PLAN

1/2" = 1'-0"

DOOR SCHEDULE

103-1 3'-0"x7'-0" SLIDING WOOD DOOR W/ TEMPERED GLASS
DOOR TO HAVE STANDARD FINISH SIM TO VT INDUSTRIES
SLIDING DOOR HARDWARE W/ BEVELED ENDS FOR CORNER JOINT
SOUND GASKETS & CORNER JOINT HARDWARE
PASSAGE - 48" H BLACK BACK-TO-BACK LADDER PULLS

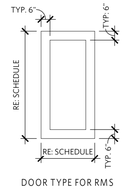
103-2 3'-0"x7'-0" SLIDING WOOD DOOR W/ TEMPERED GLASS
DOOR TO HAVE STANDARD FINISH SIM TO VT INDUSTRIES
SLIDING DOOR HARDWARE W/ BEVELED ENDS FOR CORNER JOINT
SOUND GASKETS & CORNER JOINT HARDWARE
PASSAGE - 48" H BLACK BACK-TO-BACK LADDER PULLS

105-1 3'-0"x7'-0" SOLID CORE WOOD DOOR IN HM FRAME.
DOOR TO HAVE STANDARD FINISH SIM TO VT INDUSTRIES
(3) 5 KNUCKLE HINGES
SOUND GASKETS
BATHROOM LOCKSET W/ OCCUPANCY INDICATOR & WALL STOP

107-1 2'-8"x7'-0" SOLID CORE DOOR IN HM FRAME - 20 MIN FIRE RATING
DOOR TO HAVE STANDARD FINISH SIM TO VT INDUSTRIES
(3) 5 KNUCKLE HINGES
KEYED LOCKSET W/ WALL STOP

109-1 3'-0"x7'-0" (2) SLIDING WOOD DOOR W/ TEMPERED GLASS
DOOR TO HAVE STANDARD FINISH SIM TO VT INDUSTRIES
SLIDING DOOR HARDWARE
SOUND GASKETS
PASSAGE - 48" H BLACK BACK-TO-BACK LADDER PULLS

109-2 3'-0"X7'-0" (2) SLIDING WOOD DOOR W/ TEMPERED GLASS
DOOR TO HAVE STANDARD FINISH SIM TO VT INDUSTRIES
SLIDING DOOR HARDWARE
SOUND GASKETS
PASSAGE - 48" H BLACK BACK-TO-BACK LADDER PULLS



DOOR TYPE FOR RMS
103-1 & 103-2
109-1 & 109-2

RESTROOM ACCESSORY SCHEDULE

GB 42", 36", & 18" ADA GRAB BARS IN MATTE BLACK FINISH
ASI - 3801-42-41; 3801-36-41; 3801-18-41

TPD TOILET PAPER DISPENSER IN MATTE BLACK FINISH
BOBRICK 540.MBLK DOUBLE TOILET ROLL HOLDER W/SHELF

MI ADA MIRROR ABOVE SINK
ASI 0600-2436-41 INTLK MIRROR 24X36 PG - MATTE BLACK

FINISH SCHEDULE

NOTE: COORDINATE ALL FINISHES WITH OWNER

FLOOR: SEALED CONCRETE FLOORS

WALLS: PAINT ALL GYP WALLS
EPOXY PAINT IN RESTROOM
FRP FROM BASE TO CEILING AROUND MOP SINK IN STORAGE
CONCRETE BLOCK SEALER / PRIMER & PAINT

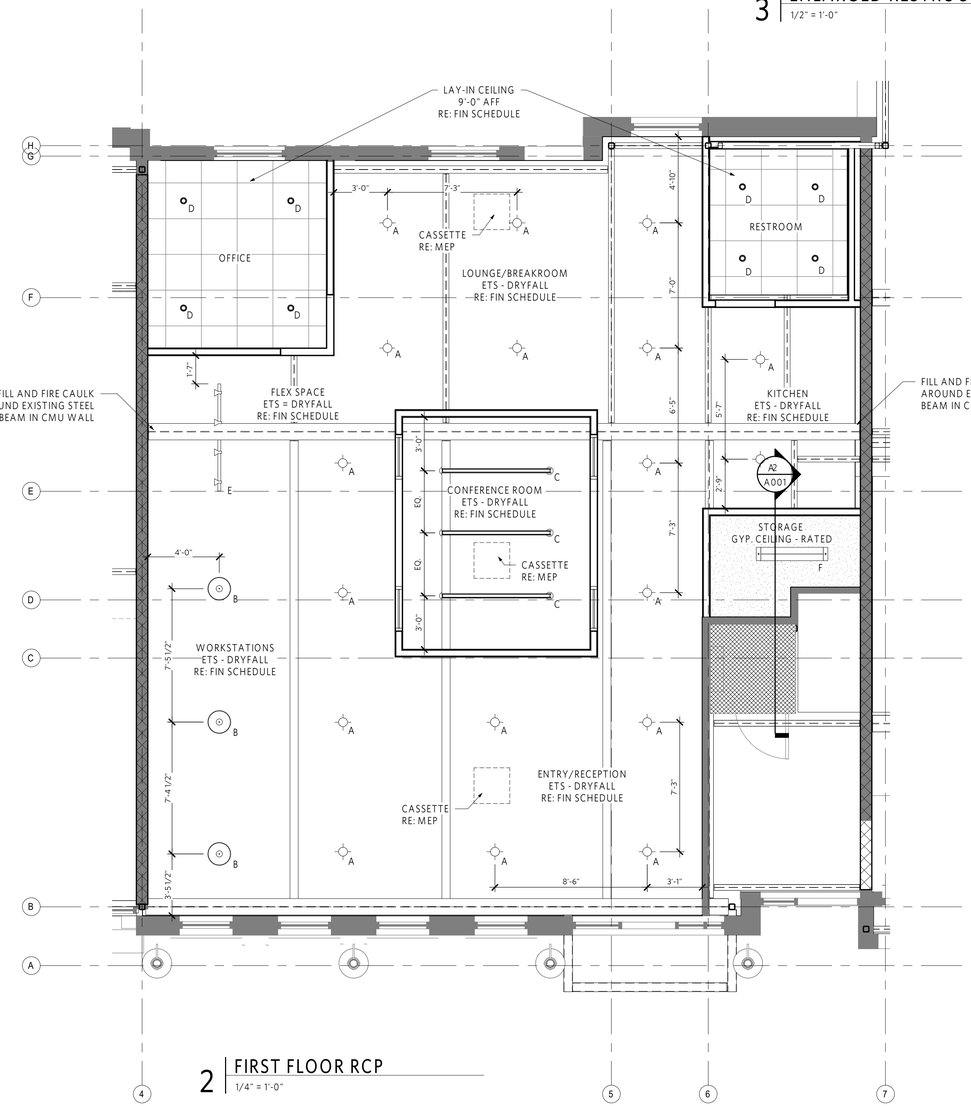
BASE: 4" RUBBER BASE WITH COVE

EXPOSED STRUCTURE: DRYFALL PAINT - DARK GRAY

LAY-IN CEILING (RESTROOM & OFFICE): 24x24 SQUARE TEGULAR - ARMSTRONG - DUNE W/ SUPRAFINE 9/16" GRID

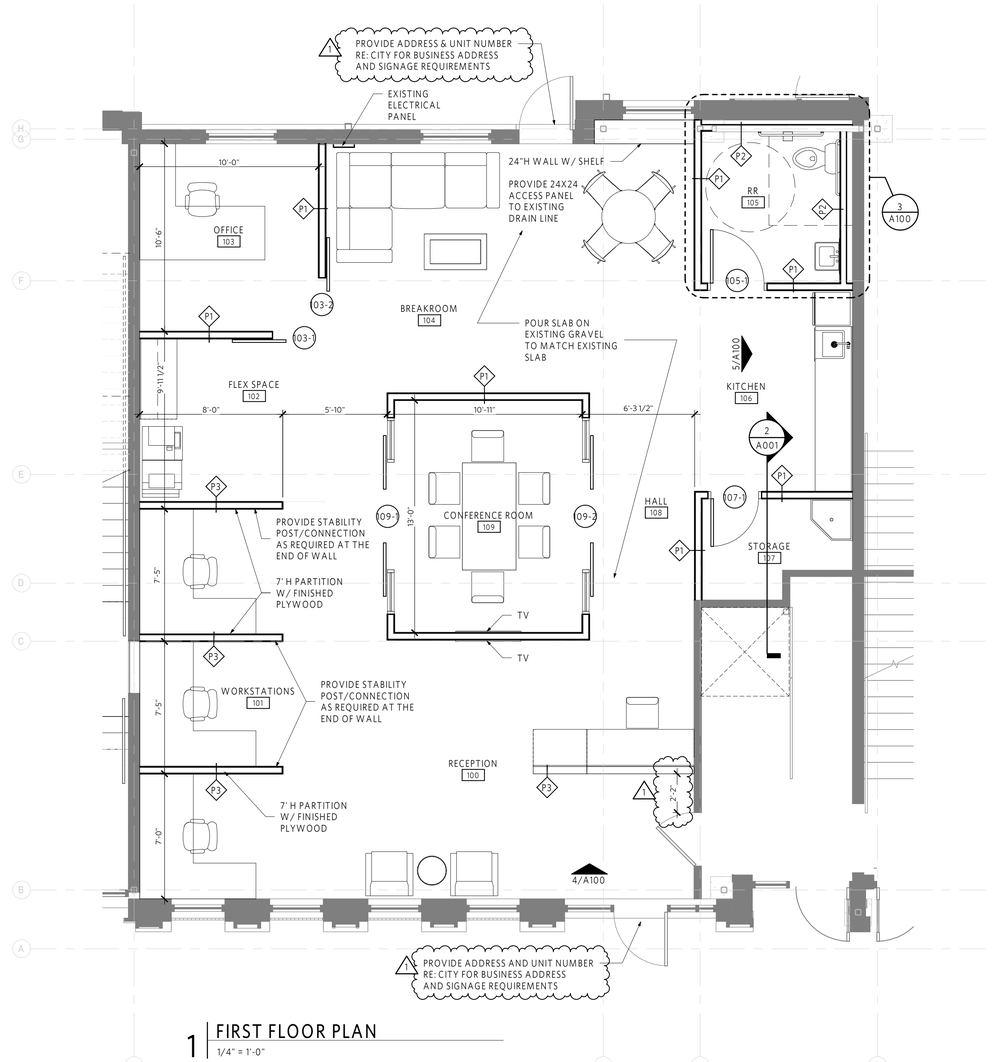
LIGHT FIXTURE SCHEDULE

FIXTURE A: CEILING MOUNT 4" CYLINDER LIGHT - WESTGATE MANUFACTURERING; ITEM: CMC4-MCTP-DD-BK
FIXTURE B: DECORATIVE PENDANT - IKEA: HEKTAR PENDANT - DARK GRAY 15"
FIXTURE C: SUSPENDED LINEAR FIXTURE - BARTCO: HUSH HL2 (6"RUN/8"H); FINISH: LAVA ROCK
FIXTURE D: RECESSED 4" CAN
FIXTURE E: 6' TRACK LIGHT - FINISH: BLACK
FIXTURE F: LED LINEAR STRIP LIGHT



2 FIRST FLOOR RCP

1/4" = 1'-0"



1 FIRST FLOOR PLAN

1/4" = 1'-0"

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PLANS, ELEVATIONS AND SCHEDULES

A100

20.01.NLV BUILDING 31

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LEGEND

LIGHTING

UPPER CASE LETTER INDICATES FIXTURE TYPE, LOWER CASE LETTER INDICATES SWITCHING DESIGNATION & UPPER CASE LETTER WITH NUMBER INDICATES CIRCUIT NUMBER

- RECESSED OR PENDANT MOUNT LIGHT WITH FIXTURE MARK.
- LIGHT WITH FIXTURE MARK, WALL BRACKET
- RECESSED OR PENDANT MOUNT LIGHT FIXTURE ON EMERGENCY POWER AS NOTED
- LIGHT WITH FIXTURE MARK, WALL BRACKET ON EMERGENCY POWER AS NOTED
- 12x48 LIGHT FIXTURE
- 12x48 LIGHT FIXTURE ON EMERGENCY POWER CIRCUITED SUCH THAT ONE LAMP ENERGIZES WHEN POWER IS LOST. PROVIDE EMERGENCY BATTERY BALLAST.
- 12x48 LIGHT FIXTURE ON EMERGENCY POWER
- 24x24 LIGHT FIXTURE
- 24x24 LIGHT FIXTURE ON EMERGENCY POWER CIRCUITED SUCH THAT ONE LAMP ENERGIZES WHEN POWER IS LOST. PROVIDE EMERGENCY BATTERY BALLAST.
- 24x24 LIGHT FIXTURE ON EMERGENCY POWER
- 24x48 LIGHT FIXTURE
- 12x48 LIGHT FIXTURE ON EMERGENCY POWER CIRCUITED SUCH THAT ONE LAMP ENERGIZES WHEN POWER IS LOST. PROVIDE EMERGENCY BATTERY BALLAST.
- 24x48 LIGHT FIXTURE ON EMERGENCY POWER
- 12x96 LIGHT FIXTURE
- 12x96 LIGHT FIXTURE ON EMERGENCY POWER CIRCUITED SUCH THAT ONE LAMP ENERGIZES WHEN POWER IS LOST. PROVIDE EMERGENCY BATTERY BALLAST.
- UNDERCOUNTER STRIP LIGHT
- TRACK LIGHT
- EXIT LIGHT SHOWING SINGLE DIRECTION OF EGRESS AND FACE. PROVIDE EMERGENCY BATTERY BALLAST.
- EXIT LIGHT SHOWING MULTIPLE DIRECTION OF EGRESS. PROVIDE EMERGENCY BATTERY BALLAST.
- EXIT LIGHT, WALL MOUNTED. SHOWING MULTIPLE DIRECTION OF EGRESS. PROVIDE EMERGENCY BATTERY BALLAST.
- EXIT LIGHT, BACK WALL MOUNTED, SINGLE FACE (PROVIDE EMERGENCY BATTERY.)
- EXIT LIGHT, END WALL MOUNTED, SINGLE FACE, ARROW INDICATES DIRECTION OF EGRESS. (PROVIDE EMERGENCY BATTERY.)
- EXIT LIGHT, END WALL MOUNTED, DOUBLE FACE, ARROWS INDICATE DIRECTION OF EGRESS. (PROVIDE EMERGENCY BATTERY.)
- EXIT LIGHT, CEILING MOUNTED, SINGLE FACE, ARROW INDICATES DIRECTION OF EGRESS. (PROVIDE EMERGENCY BATTERY.)
- EXIT SIGN WITH EMERGENCY LIGHT
- CEILING MOUNTED EMERGENCY LIGHT. LAMP ENERGIZES WHEN POWER IS LOST.
- WALL MOUNTED EMERGENCY. LAMP ENERGIZES WHEN POWER IS LOST.
- WALL SWITCH SINGLE POLE, CENTER 46" A.F.F.
- WALL SWITCH THREE - WAY, CENTER 46" A.F.F.
- WALL SWITCH FOUR - WAY, CENTER 46" A.F.F.
- WALL SWITCH WITH PILOT LIGHT, CENTER 46" A.F.F.
- KEY OPERATED WALL SWITCH, CENTER 46" A.F.F.
- DIMMER SWITCH, CENTER 46" A.F.F.
- MOTOR RATED WALL SWITCH
- COMBINATION OCCUPANCY SENSOR/SWITCH
- OCCUPANCY SENSOR - CEILING MOUNTED
- OCCUPANCY SENSOR - WALL MOUNTED
- a,b,c,d — INDICATES LIGHTING FIXTURE SWITCHING SCHEME
- NL — NIGHT LIGHT - UNSWITCHED FOR 24-HOUR OPERATION AS NOTED
- LIGHTING NOTE
- CONNECT TO EXISTING
- LIMIT OF DEMOLITION
- CONTINUATION

ELECTRICAL

- DUPLEX GROUNDING TYPE RECEPTACLE CENTERED 4" ABOVE BACK SPLASH, COUNTER OR SURFACE. COORDINATE WITH ARCHITECTURAL CASEWORK DOCUMENTS.
- DUPLEX GROUNDING TYPE RECEPTACLE. CENTER 18" A.F.F. UNLESS NOTED.
- GROUND FAULT INTERRUPTING RECEPTACLE. CENTER 18" A.F.F. UNLESS NOTED.
- SPECIAL RECEPTACLE AS NOTED
- FLOOR MOUNTED COMBINATION DATA/POWER RECEPTACLE
- CEILING MOUNTED COMBINATION DATA/POWER RECEPTACLE
- DUPLEX GROUNDING TYPE RECEPTACLE ON EMERGENCY POWER, CENTER 18" A.F.F. UNLESS NOTED.
- SIMPLEX GROUNDING TYPE RECEPTACLE. CENTER 18" A.F.F. UNLESS NOTED.
- FLUSH FLOOR DUPLEX GROUNDING TYPE RECEPTACLE.
- DUPLEX RECEPTACLE ON ISOLATED GROUND. CENTER 18" A.F.F. UNLESS NOTED.
- QUADRUPLEX GROUNDING TYPE RECEPTACLE. CENTER 18" A.F.F. UNLESS NOTED.
- QUADRUPLEX GROUND FAULT INTERRUPTING RECEPTACLE. CENTER 18" A.F.F. UNLESS NOTED.
- GANG BOX
- GANG BOX ON ISOLATED GROUND
- DATA OUTLET. CENTER 18" A.F.F. UNLESS NOTED.
- TELEPHONE OUTLET. CENTER 18" A.F.F. UNLESS NOTED.
- COMBINATION DATA/TELEPHONE OUTLET. CENTER 18" A.F.F. UNLESS NOTED.
- FIRE DEPARTMENT EMERGENCY TELEPHONE OUTLET
- DATA OUTLET IN FLOOR BOX
- TELEPHONE OUTLET IN FLOOR BOX
- COMBINATION DATA/TELEPHONE OUTLET IN FLOOR BOX
- SPECIAL OUTLET IN FLOOR BOX
- FLOOR MOUNTED POWER POLE
- GROUND
- PANELBOARD, TOP 84" A.F.F.
- DISCONNECT SWITCH, SIZE AND TYPE AS NOTED IN DISCONNECT SWITCH SCHEDULE.
- MOTOR STARTER, SIZE AND TYPE AS NOTED.
- MOTOR STARTER/DISCONNECT SWITCH, SIZE AND TYPE AS NOTED.
- ELECTRIC THERMOSTAT/CONTROL, EQUIPMENT CONNECTION AS REQUIRED. CENTER 46" A.F.F.
- TRANSFORMER
- WALL MOUNTED TELEVISION SINGLE GANG BOX. PROVIDE WITH 3/4" CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING.
- CEILING MOUNTED JUNCTION BOX
- FLOOR MOUNTED JUNCTION BOX
- WALL MOUNTED JUNCTION BOX
- MOTOR SWITCH
- MOTOR
- DESK MOUNTED PUSH BUTTON CONTROL SWITCH
- PUSH BUTTON CONTROL SWITCH
- MAGNETIC OR ELECTRICAL DOOR HOLDER
- CARD READER
- POWER PACK
- PHOTOCELL
- CLOSED CIRCUIT TV
- MULTI - OUTLET ASSEMBLY WITH OUTLETS 12" ON CENTER (SINGLE OR DOUBLE CIRCUIT AS INDICATED ON DRAWINGS). ABOVE COUNTER
- HOME RUN TO PANEL. ANY CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2-#12 WIRE CIRCUIT WITH GROUND. A GREATER NUMBER OF WIRES IS INDICATED AS FOLLOWS: " 3-#12 WIRES WITH GROUND, " " 4-#12 WIRES WITH GROUND. CONDUIT SIZE PER N.E.C. IF HOME RUN IS ANNOTATED, SEE FEEDER AND BRANCH CIRCUIT SCHEDULE FOR SIZE.
- WP — WEATHER-PROOF
- ELECTRICAL NOTE
- CONNECT TO EXISTING
- LIMIT OF DEMOLITION
- CONTINUATION

GENERAL ANNOTATION ABBREVIATIONS

MEP	MECHANICAL, ELECTRICAL, PLUMBING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE

LEGEND

MECHANICAL

CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HWR	HEATING HOT WATER RETURN
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RDG	REFRIGERANT DISCHARGE GAS
LPC	LOW PRESSURE CONDENSATE
HPC	HIGH PRESSURE CONDENSATE
MPC	MEDIUM PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
HPS	HIGH PRESSURE STEAM
MPS	MEDIUM PRESSURE STEAM
XXXXXXX	PIPING TO BE DEMOLOISHED

MECHANICAL ABBREVIATIONS:

EA	EXHAUST AIR
FA	RELIEF AIR
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR

- SLOT DIFFUSER
- SPIN-IN WITH DAMPER IN NECK
- AIR FLOW DIRECTION
- RETURN GRILLE/DUCT
- SUPPLY DIFFUSER/DUCT
- EXHAUST GRILLE/DUCT
- MVD — MANUAL VOLUME DAMPER
- BDD — BACKDRAFT DAMPER
- FD — FIRE DAMPER
- FSD — FIRE/SMOKE DAMPER
- M — MOTORIZED DAMPER
- THERMOSTAT
- HUMIDISTAT
- BALL VALVE
- GLOBE VALVE
- CHECK VALVE
- BUTTERFLY VALVE
- BALANCING VALVE
- TRIPLE DUTY/STOP-CHECK VALVE
- ELECTRICALLY ACTIVATED VALVE
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- COOLING TOWER HAT/BALANCE VALVE
- TEMPERATURE INDICATOR
- PRESSURE INDICATOR
- PETE'S PLUG
- MANUAL AIR VENT
- ELBOW DOWN
- ELBOW UP
- FLEXIBLE PIPE CONNECTION
- SUCTION DIFFUSER
- STRAINER
- VAV / 4 — EQUIPMENT TYPE / EQUIPMENT ID
- C / 22x22 / - — TERMINAL DEVICE ID / NECK SIZE / DESIGN AIRFLOW (CFM)
- 1 — MECHANICAL NOTE
- CONNECT TO EXISTING
- LIMIT OF DEMOLITION
- CONTINUATION

INSTRUMENTATION

A.I.	ANALOG INPUT
A.O.	ANALOG OUTPUT
D.I.	DIGITAL INPUT
D.O.	DIGITAL OUTPUT
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
FIC	FLOW INDICATING CONTROLLER
H	HIGH
L	LOW
PAL	PRESSURE ALARM LOW
PDS	PRESSURE DIFFERENTIAL SWITCH
PI	PRESSURE INDICATOR
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATOR
TIC	TEMPERATURE INDICATING CONTROLLER
TS	THERMOSTAT
T	TEMPERATURE
TT	TRANSMITTER/THERMOSTAT
VFD	VARIABLE FREQUENCY DRIVE
YA	EVENT (FAULT) ALARM
YC	EVENT (FAN/PUMP) CONTROLLER
YI	EVENT STATUS INDICATION
YZ	EVENT ACTUATOR
ZS	POSITION SWITCH
I	INTERLOCK WIRING OR DEVICE

LEGEND

PLUMBING

CW	CW	DOMESTIC COLD WATER
FCW	FCW	FILTERED COLD WATER
SCW	SCW	SOFTENED COLD WATER
HW	HW	DOMESTIC HOT WATER
HWR	HWR	HOT WATER RECIRCULATION
THW	THW	TEMPERED HOT WATER
THWR	THWR	TEMPERED HOT WATER RECIRCULATION
V	V	SANITARY VENT
VBG	VBG	SANITARY VENT BELOW GRADE
S	S	SANITARY
W	W	SANITARY WASTE
GW	GW	GREASE WASTE
CA	CA	COMPRESSED AIR
CD	CD	CONDENSATE DRAIN
NG	NG	NATURAL GAS
LPG	LPG	LIQUEFIED PETROLEUM GAS
SD	SD	STORM DRAIN
OSD	OSD	OVERFLOW STORM DRAIN
SD	SD	STORM DRAIN BELOW GRADE
NPW	NPW	NON-POTABLE WATER
SP	SP	SUMP PUMP DISCHARGE OR SEWAGE PUMP DISCHARGE
NG	NG	NATURAL GAS ON ROOF
XXXXXXX		PIPING TO BE DEMOLISHED

PLUMBING ABBREVIATIONS:

N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
F.O.	FAIL OPEN
F.C	FAIL CLOSE
IW	INDIRECT WASTE

- FLOOR OR EXTERIOR CLEAN OUT
- CLEAN OUT
- WALL CLEAN OUT
- FLOOR DRAIN
- FLOOR SINK
- HB — HOSE BIBB
- WH — WALL HYDRANT
- VTR — VENT THROUGH ROOF
- BFP — BACKFLOW PREVENTER
- STRAINER
- BALL VALVE
- CHECK VALVE
- GATE VALVE
- PLUG VALVE
- ELECTRICALLY ACTIVATED VALVE
- PRESSURE REDUCING VALVE
- FLOW CONTROL VALVE
- PUMP
- WATER METER
- EXPANSION JOINT
- ANCHOR
- FLOW ARROW
- PIPE REDUCTION
- WATER HAMMER ARRESTOR
- TEMPERATURE INDICATOR
- PRESSURE INDICATOR
- PETE'S PLUG
- VACUUM RELIEF VALVE
- ELBOW DOWN
- TEE UP
- FLEXIBLE PIPE CONNECTION
- DRN01 — PLUMBING FIXTURE TAG
- ?? / ?? — DETAIL NUMBER / DETAIL TAG / SHEET DETAIL IS ON
- ?? — PLUMBING NOTE
- CONNECT TO EXISTING
- LIMIT OF DEMOLITION
- CONTINUATION

MEDICAL GAS

MA	MEDICAL AIR
N	NITROGEN (SUPPORT GAS)
OX	OXYGEN
VAC	VACUUM
CO2	CARBON DIOXIDE (SUPPORT GAS)

- OXYGEN OUTLET
- VACUUM OUTLET
- MEDICAL AIR OUTLET
- NITROGEN OUTLET
- ZONE VALVE

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
City of Lee's Summit
11/6/2023

clockwork
423 DELAWARE, STE 102
KANSAS CITY, MISSOURI 64105
www.clockwork-ad.com

BUILDING 31 - UNIT 430 - SUITE 100

430 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

STATE OF MISSOURI — LOGAN M. UNREIN — NUMBER PE-2022042437 — PROFESSIONAL ENGINEER
10/30/2023

CERTIFICATE OF AUTHORITY
MO #1999137647

REV	ISSUE	DATE
	Permit Set	10.30.2023

MEP LEGENDS AND SYMBOLS

MEP000

20.01.NLV BUILDING 31

10/31/2023 11:28:32 AM

GENERAL MEP & FP SPECIFICATIONS

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL BUILDING, MECHANICAL, PLUMBING CODES NATIONAL ELECTRICAL CODE, NATIONAL FIRE PROTECTION CODE, EPA REGULATIONS, AND OCCUPATIONAL SAFETY AND HEALTH ACT.

2. CONTRACTOR SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT TO PROVIDE COMPLETE AND FUNCTIONING INSTALLATIONS, AND ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED.

3. CONTRACTOR SHALL PROTECT ALL EXISTING WORK TO REMAIN, AND SHALL REPAIR ANY DAMAGED INCIDENTAL TO PERFORMANCE OF NEW WORK.

4. ACCEPTANCE OF WORK SHALL BE SUBJECT TO OWNER'S REPRESENTATIVE APPROVAL OF WORK IN PLACE AS WELL AS SHOP DRAWINGS AND SAMPLES OF MATERIALS AND EQUIPMENT WHICH SHALL BE CHECKED BY CONTRACTOR BEFORE SUBMITTAL.

5. CONTRACTOR SHALL SUBMIT MARKED UP CLEAN PRINTS OF AS-BUILT CONDITIONS SHOWING CONCEALED DEVIATIONS FROM DESIGN.

6. CONTRACTOR SHALL KEEP PREMISES OF WORK AREA CLEAN DAILY, CLEAN AT PROJECT COMPLETION, AND SHALL REMOVE ALL REFUSE FROM SITE REGULARLY.

7. CONTRACTOR SHALL BECOME COMPLETELY FAMILIAR WITH EXISTING CONDITIONS BEFORE STARTING NEW WORK. CONCEALED CONDITIONS SHALL BE ADDRESSED WITH DUE CAUTION SUCH THAT UTILITIES AND SYSTEMS ARE PROTECTED.

8. CONTRACTOR SHALL WARRANTY ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE AND SHALL REPAIR OR REPLACE ANY DEFECTIVE WORK INCLUDING MATERIAL, LABOR AND EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.

9. EXISTING CONDITIONS INDICATED ON THE DRAWINGS ARE TAKEN FROM THE BEST INFORMATION AVAILABLE AND ARE NOT TO BE CONSTRUED AS "AS-BUILT" CONDITIONS, BUT ARE TO INDICATE THE INTENT OF THIS WORK.

10. ALL PERMITS, LICENSES AND FEES THAT ARE REQUIRED BY GOVERNING AUTHORITIES FOR THE PERFORMANCE OF MECHANICAL AND ELECTRICAL WORK SHALL BE PROCURED AND PAID FOR BY THE CONTRACTOR.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL EQUIPMENT IN SUCH A MANNER AS TO CONTROL THE TRANSMISSION OF NOISE AND VIBRATION FROM ANY INSTALLED EQUIPMENT OR SYSTEM, SO THE SOUND LEVEL SHALL NOT EXCEED NC35, IN ANY OCCUPIED SPACE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY OBJECTIONABLE NOISE IN ANY OCCUPIED AREA DUE TO IMPROPERLY INSTALLED EQUIPMENT.

12. FIXTURES, APPLIANCES, EQUIPMENT AND MATERIALS, WHICH ARE SUBJECT TO UNDERWRITER'S LABORATORY TESTS, SHALL BEAR SUCH APPROVAL.

13. MANUFACTURER'S LISTED IN THE EQUIPMENT SCHEDULES ARE INTENDED TO ESTABLISH QUALITY ONLY AND DOES NOT LIMIT EQUAL PRODUCTS BY OTHER MANUFACTURERS. MECHANICAL AND ELECTRICAL DESIGNS ARE BASED ON THE REQUIREMENTS FOR THE SPECIFIED MANUFACTURERS LISTED ON THE EQUIPMENT SCHEDULES. CONDUIT, DISCONNECTS, MOTOR STARTERS, BREAKERS, FUSES AND WIRE SIZES ARE SELECTED ON BASIS OF SCHEDULED EQUIPMENT. INCREASED CURRENT REQUIREMENTS NECESSITATING LARGER WIRE, BREAKERS, SWITCHES, ETCETERA, TO ACCOMMODATE ANY ALTERNATE OR SUBSTITUTE MANUFACTURERS EQUIPMENT, OTHER THAN AS SHOWN ON DRAWINGS SHALL BE PROVIDED WITHOUT ANY INCREASE IN CONTRACT PRICE BY CONTRACTOR FURNISHING THE EQUIPMENT.

14. FOLLOW DRAWINGS IN LAYING OUT WORK. CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED, AND MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, THE ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION.

15. WORK INSTALLED BEFORE COORDINATING WITH OTHER TRADES CAUSING INTERFERENCE WITH WORK OF SUCH OTHER TRADES SHALL BE CHANGED TO CORRECT SUCH CONDITION WITHOUT INCREASE IN CONTRACT PRICE AND AS DIRECTED BY THE ARCHITECT.

16. WHERE SPECIFIC DETAILS AND DIMENSIONS ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL TAKE MEASUREMENTS AND MAKE LAYOUTS FOR THE PROPER INSTALLATION OF THE WORK AND COORDINATION WITH ALL OTHER WORK ON THE PROJECT.

17. DEFINITIONS:
   - A. "PIPING" INCLUDES, IN ADDITION TO PIPE, ALL FITTINGS, VALVES, SLEEVES, HANGERS, AND OTHER SUPPORTS AND ACCESSORIES RELATED TO SUCH PIPING.
   - B. "CONCEALED" MEANS HIDDEN FROM SIGHT IN CHASES, FURRED SPACES, SHAFTS, HUNG CEILINGS, EMBEDDED IN CONSTRUCTION, OR IN CRAWL SPACES.
   - C. "EXPOSED" MEANS NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
   - D. THE WORDS "FURNISH AND INSTALL", "PROVIDE", "FURNISH", "INSTALL", OR EQUIVALENT WORDS ARE USED OR ARE UNDERSTOOD, TO MEAN THE CONTRACTOR SHALL FURNISH AND COMPLETELY INSTALL THE SYSTEM, SERVICE, EQUIPMENT, OR MATERIAL NAMED, TOGETHER WITH OTHER ASSOCIATED DEVICES, EQUIPMENT, MATERIAL, WIRING, PIPING, ETCETERA AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION, AND CONFORMING TO THE MANUFACTURER'S STANDARDS AND RECOMMENDATIONS.
   - E. IT IS THE INTENT OF THE MECHANICAL SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION.

18. ASSEMBLE AND SUBMIT FOR REVIEW MANUFACTURER PRODUCT LITERATURE FOR MATERIAL AND EQUIPMENT TO BE FURNISHED AND/OR INSTALLED. LITERATURE SHALL INCLUDE SHOP DRAWINGS, MANUFACTURER PRODUCT DATA, PERFORMANCE SHEETS, SAMPLES AND OTHER SUBMITTALS REQUIRED BY THIS DIVISION. GENERAL PRODUCT CATALOG DATA NOT SPECIFICALLY NOTED TO BE PART OF THE SPECIFIED PRODUCT WILL BE REJECTED AND RETURNED WITHOUT REVIEW.
   - A. SEPARATE SUBMITTALS ACCORDING TO INDIVIDUAL SPECIFICATIONS. ONLY RESUBMIT THOSE SECTIONS REQUESTED FOR RESUBMITTAL
   - B. PROVIDE SUBMITTALS IN SUFFICIENT DETAIL SO AS TO DEMONSTRATE COMPLIANCE WITH THESE CONTRACT DOCUMENTS AND THE DESIGN CONCEPT. HIGHLIGHT, MARK, LIST OR INDICATE THE MATERIALS, PERFORMANCE CRITERIA AND ACCESSORIES THAT ARE BEING PROPOSED. ILLEGIBLE SUBMITTALS WILL BE REJECTED AND RETURNED WITHOUT REVIEW.
   - C. TRANSMIT SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW TWO WEEKS FOR ENGINEER REVIEW TIME, PLUS TO/FROM MAILING TIME VIA THE ARCHITECT, PLUS A DUPLICATION OF THIS TIME FOR RESUBMITTALS, IF REQUIRED. TRANSMIT SUBMITTALS AS SOON AS POSSIBLE AFTER NOTICE TO PROCEED AND BEFORE CONSTRUCTION STARTS.

MECHANICAL SPECIFICATIONS

1.1 DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCT SYSTEM. INDICATED DUCT LOCATIONS, CONFIGURATIONS, AND ARRANGEMENTS WERE USED TO SIZE DUCTS AND CALCULATE FRICTION LOSS FOR AIR-HANDLING EQUIPMENT SIZING AND FOR OTHER DESIGN CONSIDERATIONS. INSTALL DUCT SYSTEMS AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED. SIZES SHOWN ON DRAWINGS FOR RECTANGULAR DUCTS ARE AIR OPENING SIZES. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS FURNISH AND INSTALL ALL STEEL MEMBERS AND ACCESSORIES NECESSARY TO PROVIDE A COMPLETE AND FINISHED INSTALLATION. 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. CONSTRUCT TEES, BENDS, AND ELBOWS WITH RADIUS MINIMUM 1-1/2 TIMES WIDTH OF DUCT ON CENTER LINE.

1.2 DUCT SCHEDULE:
- A. FABRICATE DUCTS WITH GALVANIZED SHEET STEEL TYPE 1 HOOD EXHAUST DUCT TO BE WELDED MINIMUM 18-GAUGE OR 20-GAUGE STAINLESS STEEL
- B. SUPPLY DUCT PRESSURE CLASS:
  - 1. DUCTS BETWEEN CONSTANT-VOLUME AIR-HANDLING UNITS AND AIR OUTLETS: POSITIVE 2-INCH WG (500 PA).
  - 2. DUCTS CONNECTED TO EQUIPMENT NOT LISTED ABOVE: POSITIVE 2-INCH WG (500 PA)
- C. RETURN DUCT PRESSURE CLASS:
  - 1. DUCTS CONNECTED TO AIR HANDLING UNITS AND AIR INLETS: POSITIVE OR NEGATIVE 2-INCH WG (500 PA).
- D. LINER: (AHU SUPPLY AND RETURN DUCTS FOR A TOTAL OF 10 FEET)
  - 1. SUPPLY AIR DUCTS: FIBROUS GLASS, TYPE I, 1 INCH (25 MM) THICK.
  - 2. RETURN AIR DUCTS: FIBROUS GLASS, TYPE I, 1 INCH (25 MM) THICK.

1.3 DIFFUSERS, REGISTERS, AND GRILLES
- A. SOURCE QUALITY CONTROL
  - 1. VERIFICATION OF PERFORMANCE: RATE DIFFUSERS, REGISTERS, AND GRILLES ACCORDING TO ASHRAE 70, "METHOD OF TESTING FOR RATING THE PERFORMANCE OF AIR OUTLETS AND INLETS."
- B. INSTALLATION
  - 1. INSTALL DIFFUSERS, REGISTERS, AND GRILLES LEVEL AND PLUMB.
  - 2. INSTALL DIFFUSERS, REGISTERS, AND GRILLES WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS AND AIR EXTRACTORS.
- C. AFTER INSTALLATION, ADJUST DIFFUSERS, REGISTERS, AND GRILLES TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

1.4 TEST, BALANCE AND START-UP
- A. START-UP OF HEATING/COOLING SYSTEMS, INCLUDING FAN COIL UNITS WITH CONTROL SYSTEMS.
- B. TEST AND BALANCE OF EXHAUST AND HEATING/COOLING AIR SYSTEMS INCLUDING EACH AND EVERY DIFFUSER, GRILLE AND REGISTER AT AIR VOLUMES INDICATED ON THE DRAWINGS.
  - 1. ADJUST FAN COIL UNITS AND EXHAUST FANS TO DELIVER TOTAL INDICATED AIR FLOWS WITHIN THE MAXIMUM ALLOWABLE FAN SPEED LISTED BY THE MANUFACTURER.
  - 2. SUPPLY, RETURN, EXHAUST FANS AND EQUIPMENT ALONG WITH AIR OUTLETS AND INLETS SHALL BE ADJUSTED TO WITHIN PLUS OR MINUS 10 PERCENT.
- C. PREPARE AND SUBMIT FOR RECORD A REPORT OF THE SYSTEM TEST AND BALANCE INDICATING FINAL SETTINGS OF ALL EXHAUST FANS, HEATING/COOLING EQUIPMENT, CONTROL DAMPERS, DIFFUSERS, GRILLES AND REGISTERS.

1.5 MOTORS
- A. MOTOR SIZES: MINIMUM SIZE AS INDICATED. IF NOT INDICATED, LARGE ENOUGH SO DRIVEN LOAD WILL NOT REQUIRE MOTOR TO OPERATE IN SERVICE FACTOR RANGE ABOVE 1.0.
- B. ENCLOSURE TYPE: TOTALLY ENCLOSED, FAN COOLED.

1.6 HANGERS AND SUPPORTS
- A. EQUIPMENT SUPPORTS
  - 1. DESCRIPTION: WELDED, SHOP- OR FIELD-FABRICATED EQUIPMENT SUPPORT MADE FROM STRUCTURAL CARBON-STEEL SHAPES.
  - 2. EQUIPMENT SUPPORTS SHALL HAVE INTEGRAL BASE PLATE, WOOD NAILER, AND 18 GAUGE GALVANIZED STEEL FLASHING CAP.
- B. MISCELLANEOUS MATERIALS
  - 1. STRUCTURAL STEEL: ASTM A 36/A 36M, CARBON-STEEL PLATES, SHAPES, AND BARS; BLACK AND GALVANIZED.
  - 2. GROUT: ASTM C 1107, FACTORY-MIXED AND -PACKAGED, DRY, HYDRAULIC-CEMENT, NONSHRINK AND NONMETALLIC GROUT; SUITABLE FOR INTERIOR AND EXTERIOR APPLICATIONS.
    - a. PROPERTIES: NONSTAINING, NONCORROSIVE, AND NONGASEOUS.
    - b. DESIGN MIX: 5000-PSI, 28-DAY COMPRESSIVE STRENGTH.

1.7 CEILING-MOUNTED VENTILATORS
- A. HOUSING: STEEL, LINED WITH ACOUSTICAL INSULATION.
- B. FAN WHEEL: CENTRIFUGAL WHEELS DIRECTLY MOUNTED ON MOTOR SHAFT. FAN SHROUDS, MOTOR, AND FAN WHEEL SHALL BE REMOVABLE FOR SERVICE.
- C. GRILLE: PAINTED ALUMINUM, LOUVERED GRILLE WITH FLANGE ON INTAKE AND THUMBSCREW ATTACHMENT TO FAN HOUSING.
- D. ELECTRICAL REQUIREMENTS: JUNCTION BOX FOR ELECTRICAL CONNECTION ON HOUSING AND RECEPTACLE FOR MOTOR PLUG-IN.
- E. ACCESSORIES:
  - 1. VARIABLE-SPEED CONTROLLER: SOLID-STATE CONTROL TO REDUCE SPEED FROM 100 TO LESS THAN 50 PERCENT.
  - 2. MANUAL STARTER SWITCH: SINGLE-POLE ROCKER SWITCH ASSEMBLY WITH COVER AND PILOT LIGHT.
  - 3. ISOLATION: RUBBER-IN-SHEAR VIBRATION ISOLATORS.

ELECTRICAL SPECIFICATIONS

1.1 THE ENTIRE ELECTRICAL SYSTEM SHALL COMPLY WITH THE 2017 NATIONAL ELECTRICAL CODE AND ANY OTHER APPLICABLE LOCAL CODES.

1.2 GROUNDING SHALL CONSIST OF COPPER CONDUCTORS IN CONDUIT. GROUNDING AND BONDING SHALL COMPLY WITH NEC ARTICLE 250. ALL METALLIC RACEWAYS SHALL BE GROUNDED.

1.3 ELECTRICAL EQUIPMENT EXPOSED TO WEATHER SHALL BE WEATHERPROOF.

1.4 WIRE:
- A. ALL WIRE SHALL BE THWN FOR ALL EXTERIOR OR POSSIBLE WET LOCATIONS.
- B. ALL WIRE SHALL BE THWN OR THHN FOR ALL INTERIOR OR DRY LOCATIONS.
- C. ALL BUILDING WIRE SHALL BE 600 VOLTS COPPER.
- D. THE MINIMUM WIRE SIZE FOR POWER AND LIGHTING SHALL BE #12 AWG., FOR CONTROLS #14 AWG.
- E. THE USE OF ROMEX SHALL NOT BE PERMITTED.
- F. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONDUIT AND WIRE ROUTING. ANY LENGTHS EXCEEDING 75' SHALL HAVE VOLT LOSS CALCULATED AND WIRE SIZES ADJUSTED AS REQUIRED BY CODE.
- I. COLOR CODING
  - a. 208Y/120V: BLACK, RED, BLUE, WHITE. PROVIDE WITH SOLID GREEN GROUNDING CONDUCTOR.

1.5 RACEWAYS:
- A. ALL UNDERSLAB OR BELOW GRADE RACEWAYS SHALL BE SCHEDULE 40 PVC CONDUITS WITH RIGID GALVANIZED STEEL "RGS" ELBOWS AND RISERS TO ABOVE GRADE OR SLAB.
- B. ALL CONDUITS INSIDE BUILDING SHALL BE 1/2" ELECTRICAL METALLIC TUBING "EMT" MINIMUM.
- C. FLEXIBLE METAL CONDUIT MAY BE USED FOR FINAL CONNECTION TO LIGHT FIXTURES AND MOTORS 6' MAXIMUM LENGTH ALLOWED.
- D. RIGID OR INTERMEDIATE GALVANIZED STEEL CONDUIT SHALL BE USED FOR ALL EXTERIOR APPLICATIONS ABOVE GRADE.
- F. SEALTITE SHALL BE USED FOR ALL EXTERIOR CONNECTIONS TO EQUIPMENT.
- G. ALL RACEWAYS SHALL BE SUPPORTED FROM ROOF STRUCTURAL MEMBERS PER N.E.C. NO RACEWAYS SHALL BE ATTACHED DIRECTLY TO ROOF DECK.
- H. ALL RACEWAYS SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING WALLS OR FLOORS.
- I. PROVIDE PLASTIC BUSHINGS AT OPEN ENDS OF ALL CONDUITS WITH LOW VOLTAGE WIRING.
- J. SEAL ALL PENETRATIONS THROUGH WALLS OR FLOOR WITH APPROPRIATE CAULK OR GROUT. SEAL PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS, OR CEILINGS WITH UL LISTED FIRE STOP COMPOUND.
- K. WIRING PULLING EQUIPMENT:
  - 1. PROVIDE POLYETHYLENE CORDS FOR PULLING WIRE.
  - 2. PROVIDE PULLING WIRES FOR TELEPHONE AND OTHER EMPTY CONDUIT SYSTEMS REQUIRED, WITHOUT SPLICES AND WITH AMPLE EXPOSED LENGTHS AT EACH END.

1.6 LUMINARIES:
- A. ALL LIGHT FIXTURES SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR. REFER TO LIGHT FIXTURE SCHEDULE FOR SPECIFICATIONS.
- B. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO SUPPORT LIGHT FIXTURES. LIGHT FIXTURES IN LAY-IN CEILING SHALL BE INDEPENDENTLY SUPPORTED WITH WIRE AT ALL FOUR CORNERS OF FIXTURE.
- C. REPLACE DEFECTIVE LAMPS, LED ARRAYS, DRIVERS AND BALLASTS PRIOR TO PROJECT COMPLETION.

1.7 DEVICES
- A. POWER EQUIPMENT SHALL BE NEW AND BEAR A UL. LABEL.
- B. COORDINATE WIRING DEVICE COLORS WITH ARCHITECT, 20 AMP FEDERAL SPECIFICATION GRADE WITH STAINLESS STEEL COVER PLATES. COORDINATE FINISH COLOR WITH ARCHITECT. ALL SWITCHES, RECEPTACLES, ETC. SHALL BE HEAVY-DUTY, SPECIFICATION GRADE.

1.8 DISCONNECT SWITCHES
- A. MATERIAL: DISCONNECT SWITCHES SHALL BE NEMA TYPE HD (HEAVY DUTY) QUICK-MAKE, QUICK-BREAK DISCONNECT SWITCHES: NOT FURNISHED BY OTHERS WITH EQUIPMENT, OR WHERE REQUIRED BY CODE. SWITCHES SHALL BE NON-FUSIBLE UNLESS INDICATED TO BE FUSIBLE.
  - 1. MOTOR CIRCUIT DISCONNECT SWITCHES SHALL BE HORSEPOWER RATED TO MATCH THE MOTOR LOAD.
  - 2. NON-FUSIBLE DISCONNECTS SHALL BE RATED 30 AMPS UNLESS OTHERWISE INDICATED.
- B. ACCESSORIES: SWITCH ENCLOSURES SHALL BE RATED NEMA 3R FOR OUTDOOR AND WET LOCATIONS, UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS .
  - 1. ELECTRICAL INTERLOCK: SWITCH SHALL BE FURNISHED WITH INTERLOCK CONTACTS.
- C. CONTROLS: SWITCHES SHALL HAVE A DUAL COVER INTERLOCK TO PREVENT DOOR OPENING WITH SWITCH CLOSED AND TO PREVENT CLOSING SWITCH WITH DOOR OPEN.
  - 1. SWITCH SHALL BE PAD LOCKABLE IN "OPEN" AND "CLOSED" POSITION.

1.9 DISTRIBUTION EQUIPMENT:
- A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED IN ACCORDANCE WITH NFPA 70, BY QUALIFIED ELECTRICAL TESTING AGENCY RECOGNIZED BY AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- B. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES.
  - 1. MATERIAL: TIN-PLATED ALUMINUM.
  - 2. TERMINATIONS MUST ALLOW USE OF 75 DEG C RATED CONDUCTORS WITHOUT DERATING.
  - 3. SIZE: LUGS SUITABLE FOR INDICATED CONDUCTOR SIZES, WITH ADDITIONAL GUTTER SPACE, IF REQUIRED, FOR LARGER
- C. PANELBOARD NAMEPLATES: LABEL EACH PANELBOARD WITH NAMEPLATE WITH PERMANENT PLASTIC LAMINATE LABEL.
- D. DEVICE NAMEPLATES: LABEL EACH BRANCH CIRCUIT DEVICE IN POWER PANELBOARDS WITH NAMEPLATE.
- E. CIRCUIT DIRECTORY:
  - 1. PROVIDE DIRECTORY CARD INSIDE PANELBOARD DOOR, MOUNTED IN TRANSPARENT CARD HOLDER.
- F. ALL BREAKERS SHALL BE BOLT-ON TYPE.
- G. ALL BREAKERS SHALL BE RATED TO WITHSTAND INCOMING AVAILABLE FAULT CURRENT FROM UTILITY COMPANY TRANSFORMER.
- H. SERIES RATING MAY BE ALLOWED IF ACCEPTABLE BY LOCAL CODES. ALL SERIES RATED APPLICATION MUST MEET ALL N.E.C. REQUIREMENTS.

PLUMBING SPECIFICATIONS

1.1 UNIONS
- A. FOR USE WITH COPPER PIPING SHALL BE CAST BRASS OR CAST BRONZE WITH GROUND JOINT SPHERICAL SEAT AND WITH CAST BRASS OR BRONZE OR WROUGHT COPPER SWEAT ENDS.
- B. UNIONS FOR USE IN FERROUS PIPE SHALL BE MALLEABLE IRON WITH BRASS TO IRON GROUND JOINT SPHERICAL SEAT, SCREWED ENDS, AND RATED FOR NOT LESS THAN 300 PSI WATER WORKING PRESSURE.

1.2 BALL VALVES SHALL SHALL BE MSS SP-110, BRONZE, TWO PIECE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, BLOW-OUT PROOF STEM, LEVER HANDLE WITH BALANCING STOPS, SOLDER ENDS.

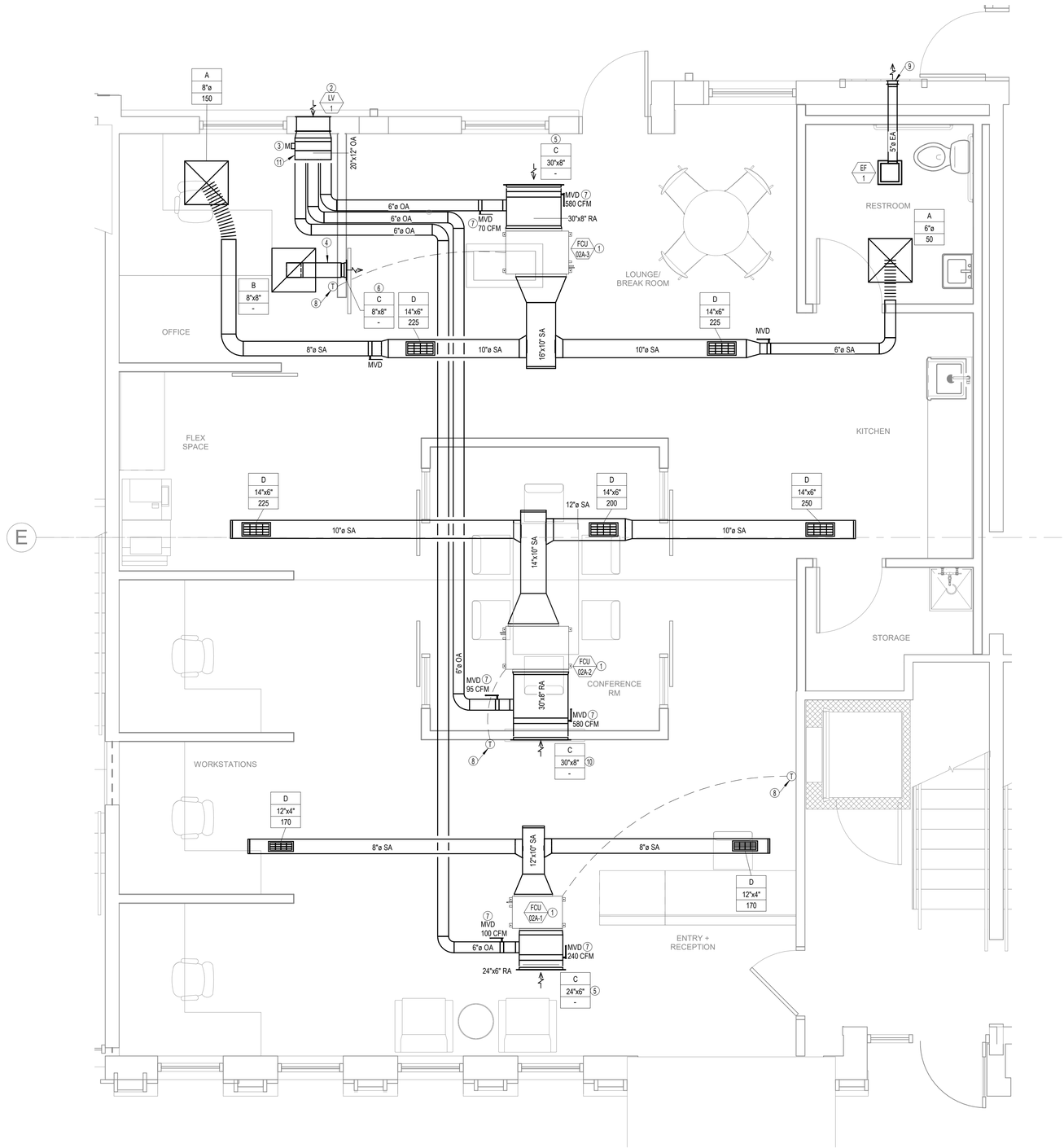
1.3 PLUG VALVES SHALL BE RATED AT 150 PSI WOG WITH BRONZE BODY, STRAIGHTAWAY PATTERN, SQUARE HEAD, AND THREADED ENDS.

1.4 PIPING INSTALLATION
- A. REAM PIPES AND TUBES. CLEAN OFF SCALE AND DIRT, INSIDE AND OUTSIDE BEFORE ASSEMBLY. REMOVE WELDING SLAG OR OTHER FOREIGN MATERIAL FROM PIPING. DURING CONSTRUCTION, UNTIL SYSTEM IS FULLY OPERATIONAL, KEEP ALL OPENINGS IN PIPING AND EQUIPMENT CLOSED EXCEPT WHEN ACTUAL WORK IS BEING PERFORMED ON THAT ITEM OR SYSTEM. PROVIDE CLOSURES, PLUGS, CAPS, BLIND FLANGES OR OTHER SIMILAR ITEMS SPECIFICALLY DESIGNED FOR THIS PURPOSE.
- B. RUN PIPE LINES STRAIGHT AND TRUE, PARALLEL TO BUILDING LINES WITH MINIMUM USE OF OFFSETS AND COUPLINGS. PROVIDE OFFSETS ONLY TO PROVIDE HEADROOM OR CLEARANCE AND TO PROVIDE FLEXIBILITY IN PIPE LINES. CHANGES IN DIRECTION OF PIPE LINES SHALL BE MADE ONLY WITH FITTINGS OR PIPE BENDS. CHANGES IN SIZE SHALL BE MADE ONLY WITH FITTINGS. DO NOT USE MITER FITTINGS. FACE OR FLUSH BUSHINGS OR STREET ELBOWS. ALL FITTINGS SHALL BE OF THE LONG RADIUS TYPE, UNLESS OTHERWISE INDICATED. USE FULL AND DOUBLE LENGTHS OF PIPE WHEREVER POSSIBLE.
- C. CUT PIPE TO EXACT MEASUREMENT AND INSTALL WITHOUT SPRINGING OR FORCING EXCEPT IN CASE OF EXPANSION LOOPS WHERE COLD SPRINGING IS INDICATED. TAKE PARTICULAR CARE TO AVOID CREATING, EVEN TEMPORARILY, UNDUE LOADS, FORCES OR STRAINS ON VALVES, EQUIPMENT OR BUILDING ELEMENTS WITH PIPING CONNECTIONS OR PIPING SUPPORTS.
- D. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTIONS.
- E. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND FOR ACCESS TO VALVES, AIR VENTS, DRAINS AND UNIONS.
- F. FINAL CONNECTIONS TO ALL EQUIPMENT AND FIXTURES SHALL BE MADE IN A MANNER THAT WILL PERMIT THE COMPLETE REMOVAL OF ANY FIXTURES OR ANY PIECE OF EQUIPMENT WITHOUT CUTTING PIPE LINES.
- G. USE MAIN SIZED SADDLE TYPE BRANCH CONNECTIONS FOR DIRECTLY CONNECTING BRANCH LINES TO MAINS IN STEEL PIPING SYSTEMS WHEN THE MAIN IS AT LEAST TWO PIPE SIZES LARGER THAN THE BRANCH PIPING. DO NOT PROJECT BRANCH PIPES INSIDE OF MAIN PIPES. USE MANUFACTURED TEE FITTINGS FOR BRANCH PIPES THAT ARE THE SAME SIZE AS THE MAIN OR ONE PIPE SIZE SMALLER THAN THE MAIN PIPES.
- H. PROVIDE UNIONS AT ALL FINAL CONNECTIONS TO EQUIPMENT, TRAPS AND VALVES TO FACILITATE DISMANTLING. ARRANGE PIPING AND PIPING CONNECTIONS SO THAT EQUIPMENT BEING SERVED MAY BE SERVICED OR TOTALLY REMOVED WITHOUT DISTURBING PIPING BEYOND FINAL CONNECTIONS AND ASSOCIATED SHUT-OFF VALVES.
- I. THREADED JOINTS SHALL BE FULL AND CLEAN CUT. JOINTS SHALL BE MADE UP TIGHT WITH JOINT COMPOUND OR TEFLON JOINT TAPE MANUFACTURED AND APPROVED FOR USE WITH THE CONTENTS TO FLOW WITHIN THE PIPE AND EXPOSED THREADS OF FERROUS PIPE SHALL BE PAINTED WITH ACID-RESISTING PAINT AFTER PIPING HAS BEEN TESTED AND PROVED TIGHT. NO CAULKING, LAMPWICK OR OTHER MATERIAL SHALL BE USED FOR CORRECTION OF DEFECTIVE JOINTS.
- J. WATER PIPING SHALL BE PITCHED TO DRAIN AT LOW POINTS. STEEL TO COPPER CONNECTIONS SHALL BE MADE WITH DIELECTRIC UNIONS.
- K. DRAIN PIPING FOR COIL DRAIN PANS SHALL EXTEND FULL SIZE OF OUTLET CONNECTION, OR MINIMUM OF ¾". USE PLUGS ON ALL JOINTS WITH CROSSES. PROVIDE DEEP SEAL TRAP ON DRAIN PAN OUTLETS ON AIR SYSTEMS TO PREVENT BLOWING THROUGH TRAP.
- L. BRANCH CONNECTIONS AND CHANGES IN DIRECTION IN SOIL AND WASTE LINES SHALL BE MADE WITH 45° "Y" FITTINGS OR LONG SWEEP ELBOWS, EXCEPT THAT SANITARY TEES OR SHORT SWEEP ELBOWS MAY BE USED IN VERTICAL STACKS AND CLOSET CONNECTIONS. PIPING SHALL BE GRADED TO A UNIFORM FALL OF 1/4" PER FOOT WHERE POSSIBLE. IN NO CASE SHALL PIPING BE PITCHED LESS THAN 1/8" PER FOOT. CLEANOUTS SHALL BE INSTALLED WHERE SHOWN ON DRAWINGS, AT CHANGES IN DIRECTION OF PIPING, WHERE NECESSARY FOR EASY CLEANING OF PIPING AND AS REQUIRED BY CODES. CLEANOUTS SHALL BE FULL SIZE OF PIPE UP TO 4" IN SIZE.
- M. VENT STACKS SHALL BE EXTENDED FULL SIZE OR A MINIMUM SIZE OF 3" DIAMETER THROUGH ROOF AND SHALL BE INSTALLED WITH SLEEVES AND WITH FLASHING/COUNTERFLASHING ASSEMBLY AS HEREIN SPECIFIED FOR A WATERTIGHT INSTALLATION.
- N. ADDITIONAL DROPS, RISERS, SWINGS, ETC. SHALL BE PROVIDED WHERE NECESSARY. PARALLEL LINES SHALL BE STRAIGHT, TRULY PARALLEL AND REGULARLY SPACED. PIPING SHALL BE CONCEALED IN UTILITY SPACES, PIPE SHAFTS, WALL VOIDS, CEILING VOIDS, PARTITIONS, ETC., IN FINISHED PORTIONS OF BUILDING. PIPING SHALL BE EXPOSED IN MECHANICAL EQUIPMENT ROOMS AND OTHER UNFINISHED AREAS.
- O. SUPPLIES SHALL BE EXTENDED AND CONNECTED TO ALL FIXTURES, APPLIANCES AND FITTINGS REQUIRING SERVICE. PIPING SHALL BE SIZED AS REQUIRED BY NUMBER AND TYPE OF FIXTURE SUPPLIED.
- P. FURNISH AND INSTALL SHUTOFF VALVES IN MAIN WATER SUPPLIES TO EACH FIXTURE GROUP.

PLUMBING SPECIFICATIONS (CONT.)

1.11 INSPECTION & CLEANING
- A. THE INSIDE AND OUTSIDE SURFACES OF ALL PIPE, TUBING, VALVES, AND FITTINGS SHALL BE CLEANED OF ALL DIRT, SAND, LOOSE MILL SCALE, AND OTHER FOREIGN MATERIALS IMMEDIATELY AFTER REMOVAL FROM STORAGE AND BEFORE ERECTION. AFTER COMPLETION OF ALL PIPING SYSTEMS, ALL LINES SHALL BE THOROUGHLY FLUSHED OR BLOWN OUT BEFORE BEING PLACED IN SERVICE. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO STARTING ANY POST ERECTING CLEANING OPERATION IN SUFFICIENT TIME TO ALLOW WITNESSING THE OPERATION. PRIOR TO BLOWING OR FLUSHING ERECTED PIPING SYSTEMS, THE CONTRACTOR SHALL DISCONNECT ALL INSTRUMENTATION AND EQUIPMENT, FULLY OPEN ALL VALVES, AND ENSURE THAT ALL STRAINER SCREENS ARE IN PLACE.
- B. PIPE AND COMPONENTS ON WATER SYSTEMS SHALL BE FLUSHED WITH CLEAN WATER UNTIL ALL DISCHARGE FROM THE SYSTEM IS CLEAN. A WATER SAMPLE FROM EACH SYSTEM SHALL BE ANALYZED FOR CLEANLINESS AFTER SYSTEM IS FLUSHED WITH CLEAN WATER. IF THE WATER ANALYSIS INDICATES THAT THE SYSTEM IS NOT CLEAN, THE SYSTEM SHALL BE FLUSHED WITH A PRECLEANING CHEMICAL DESIGNED TO REMOVE OIL, PIPE DOPE, LOOSE MILL SCALE, AND OTHER EXTRANEOUS MATERIALS. THE CONTRACTOR SHALL SUBMIT THE PROPOSED PRECLEANING CHEMICALS FOR APPROVAL. THIS CLEANING SHALL BE FOLLOWED BY WATER FLUSHING AS DESCRIBED. MINIMUM VELOCITIES OF 5 FEET/SECOND SHALL BE MAINTAINED AT ALL POINTS. FLOW SHALL BE IN SAME DIRECTION AS WHEN THE SYSTEM IS IN NORMAL OPERATION. DISCHARGE SHALL BE FROM LOW POINTS OF LINES, ENDS OR HEADERS, AND AS OTHERWISE REQUIRED TO FLUSH THE ENTIRE SYSTEM. AFTER FLUSHING, ANY RESIDUAL WATER SHALL BE DRAINED AND/OR BLOWN OUT PRIOR TO TESTING.

1.12 TESTING
- A. ALL HYDRAULIC TESTING SHALL CONFORM TO ANSI B31.1, B31.5, B31.8 AND B31.9. THE CONTRACTOR SHALL APPLY THE SPECIFIED TEST PRESSURE FOR A MINIMUM TIME AT LEAST EQUAL TO THE APPLICABLE STANDARD'S REQUIREMENTS.
- B. PERFORM TESTS ONLY AFTER THE PIPE AND CONTENTS HAVE STABILIZED AT AMBIENT TEMPERATURE AND THE SOURCE OF TEST PRESSURE IS SHUT OFF. PIPING TESTS SHALL APPLY TO PIPING ONLY, WITH ALL EQUIPMENT, AND INSTRUMENTS BLOCKED OFF OR DISCONNECTED. NO COMPONENT OR PIPING SHALL BE SUBJECTED TO PRESSURES, WHICH EXCEED THEIR RESPECTIVE PRESSURE RATINGS. PROVIDE TEMPORARY RESTRAINTS ON EXPANSION JOINTS AND FLEXIBLE CONNECTIONS DURING PRESSURE TESTING.
- C. HYDROSTATIC TESTS SHALL APPLY TO PIPING AS FOLLOWS:
  - 1. DOMESTIC WATER, 120 PSIG FOR TWO (2) HOURS.
  - 2. WASTE



1 MECHANICAL FIRST FLOOR PLAN

3/8" = 1'-0"

TRUE NORTH

GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT GENERAL SCOPE OF WORK. CONTRACTOR IS RESPONSIBLE TO REVIEW GENERAL CONSTRUCTION DRAWINGS, ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS AND ASSOCIATED SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF CONSTRUCTION. NOTIFY ARCHITECT OF ANY CONFLICT OR DISCREPANCIES PRIOR TO CONSTRUCTION.
2. DUCT SIZES SHOWN ARE AIR OPENING SIZE.
3. COORDINATE FINISH COLOR WITH ARCHITECT TO MATCH ADJACENT CEILING FINISH FOR ALL EXPOSED DUCTWORK.
4. SEE DETAIL 1/M600 FOR TYPICAL AIR INTLET OUTLET CONNECTION DETAIL.

PLAN NOTES: (?)

1. EXISTING FAN COIL UNIT TO REMAIN. SEE SCHEDULE ON SHEET M600 FOR BALANCING OF AIRFLOWS.
2. SEE DETAIL 2/M600 FOR INTAKE LOUVER WITH CONTROL DAMPER DETAIL.
3. PROVIDE MOTORIZED DAMPER IN OUTDOOR AIR DUCTWORK. PROVIDE RELAY TO PROGRAMMABLE THERMOSTAT FOR NEAREST FAN COIL UNIT SO THAT MOTORIZED DAMPER IS OPEN DURING OCCUPIED HOURS AND ALWAYS CLOSED DURING UNOCCUPIED HOURS.
4. SEE DETAIL 3/M600 FOR TYPICAL RETURN AIR BOOT DETAIL.
5. PROVIDE RETURN AIR GRILLE INSTALLED AT OPEN END OF RETURN AIR DUCT. INSTALL AT SAME HEIGHT AS FAN COIL UNIT.
6. INSTALL NEW RETURN AIR GRILLE ON OPEN END OF RETURN AIR BOOT ON WALL. INSTALL GRILLE AT 10'-6" AFF TO CENTER OF GRILLE.
7. BALANCE MANUAL VOLUME DAMPER TO AIRFLOW AS NOTED.
8. EXISTING THERMOSTAT IS SITTING ON TOP OF FAN COIL UNIT WITH 50'-0" OF WOUND CONTROL CABLING. EXTEND CABLING IN CONDUIT AND INSTALL THERMOSTAT AS SHOWN ON WALL.
9. PROVIDE AND INSTALL NEW 5" EXHAUST CAP WITH BACKDRAFT DAMPER AND BIRD SCREEN AT EXTERIOR WALL.
10. INSTALL NEW RETURN AIR GRILLE ON OPEN END OF RETURN AIR DUCT ON WALL. INSTALL GRILLE AT SAME HEIGHT AFF AS FAN COIL UNIT.
11. INSTALL AIR TIGHT PLENUM ON BACKSIDE OF INTAKE LOUVER WITH THREE (3) 6" ROUND TAPS ON END.

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
11/1/2023

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BUILDING 31 - UNIT 430 - SUITE 100

430 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

STATE OF MISSOURI
LOGAN M. UNREIN
NUMBER
PE-2022042437
PROFESSIONAL ENGINEER
10/30/2023

CERTIFICATE OF AUTHORITY
MO #1999137647

REV	ISSUE	DATE
	Permit Set	10.30.2023

MECHANICAL
FLOOR PLAN

M100

20.01.NLV BUILDING 31

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SPLIT SYSTEM SCHEDULE

INDOOR UNIT						OUTDOOR HEAT PUMP											
TAG	MANUFACTURER	MODEL	AIRFLOW (CFM)	ELECTRICAL		TAG	MANUFACTURER	MODEL	COOLING CAPACITY (MBTU/H	HEATING CAPACITY MBTU/H	HSPF	MINIMUM SEER	ELECTRICAL				NOTES
				VOLTAGE	PHASE								VOLTAGE	PHASE	MCA	MOCP	
FCU-02A-1	LENNOX	MMDB012S4	340	208	1	ACCU-02A-1	LENNOX	MPC012S4S	12	12	13.2	23.2	208	1	13	15	1
FCU-02A-2	LENNOX	MMDB018S4	675	208	1	ACCU-02A-2,3	LENNOX	MPC048S4M	49	50	11	20.5	208	1	35	50	1
FCU-02A-3	LENNOX	MMDB018S4	650	208	1												

NOTES:
1. SYSTEM IS EXISTING TO REMAIN. REBALANCE TO AIRFLOWS AS NOTED.

LOUVER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	SIZE		PRESSURE DROP (IN. WG)	FREE AREA (SQ. FT)	CFM	NOTES
				WIDTH (IN)	HEIGHT (IN)				
LV-1	RUSKIN	ELF6375DX	RAIN RESISTANT WEATHER INTAKE LOUVER	18	12	0.07	0.4	265	1,2,3

NOTES:
1. EXTRUDED ALUMINUM CONSTRUCTION.
2. INSTALLWITH BIRDSCREEN, RADIUS THROAT AND RAIN GUTTER TO PREVENT RAIN INFILTRATION.
3. COORDINATE WITH ARCHITECT FOR FINISH COLOR

EXHAUST FAN (EF) SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	CFM	ESTIMATED ESP (IN W.G.)	SONES	ELECTRICAL			NOTES
							VOLTAGE	PHASE	HP	
EF-1	COOK	GC-128	CEILING	75	0.125	0.9	115	1	1/25	1,2,3,4

NOTES:
1. UNIT TO BE SUPPLIED WITH FACTORY MOUNTED DISCONNECT AND FAN SPEED CONTROLLER.
2. FAN TO INCLUDE RUBBER IN SHEAR VIBRATION ISOLATION HANGERS WITH NEOPRENE MOUNT (ND BY MASON INDUSTRIES OR SIMILAR) AND BACKDRAFT DAMPER.
3. PROVIDE WITH BACKDRAFT DAMPER AND BIRD SCREEN.
4. EXHAUST FAN TO BE CONTROLLED FROM WALL MOUNTED LIGHT SWITCH.

AIR INLET/OUTLET SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	FACE SIZE	NOTES
A	TITUS	OMNI	STEEL SUPPLY DIFFUSER	24x24	1,2
B	TITUS	PAR	CEILING PERFORATED RETURN GRILLE	24x24	1
C	TITUS	350RL	WALL-MOUNTED RETURN GRILLE	(PER DWGS)	2,3
D	TITUS	S300FS	SPIRAL DUCT-MOUNTED SUPPLY DIFFUSER	(PER DWGS)	3,4

NOTES
1. UNIT TO BE WHITE UNLESS SPECIFIED BY ARCHITECT.
2. PROVIDE WITH OPPOSED BLADE DAMPER.
3. COORDINATE WITH ARCHITECT FOR FINISH COLOR.
4. PROVIDE WITH ADJUSTABLE AIR SCOOPER DAMPER ACCESSIBLE FROM GRILLE'S FACE.

BUILDING AIR BALANCE SCHEDULE

TAG	SUPPLY AIR CFM	OUTSIDE AIR CFM	EXHAUST AIR CFM	RETURN AIR CFM	PRESSURIZATION AIR CFM	NOTES
FCU-02A-1	340	100	-	240	100	2
FCU-02A-2	675	95	-	580	95	2
FCU-02A-3	650	70	-	580	70	2
EF-1	-	-	75	-	-75	1
TOTAL	1665	265	75	1400	190	

NOTES:
1. EXAUST FAN SIZED FOR 75CFM PER FLUSHABLE FIXTURE PER IMC CHAPTER 4 TABLE 403.3.1.1.
2. SIZED PER IMC CHAPTER 4 TABLE 403.3. SEE OUTSIDE AIR CALCUALTIONS ON THIS SHEET.

HVAC DESIGN PARAMETERS

SUMMER	INSIDE TEMPERATURE/HUMIDITY	74°F DB/50% RH
	OUTSIDE TEMPERATURE	96°F DB/77°F WB
WINTER	INSIDE TEMPERATURE	72°F DB
	OUTSIDE TEMPERATURE	6°F DB *
BUILDING	ROOF U-VALUE	0.04 BTU/(hxFT.SQ.x°F)
	WALL U-VALUE	0.2219 BTU/(hxFT.SQ.x°F)
	WINDOW U-VALUE	0.550 BTU/(hxFT.SQ.x°F)
	SHADING COEFFICENT	0.46
	LIGHTS	1.1 WATTS/S.F.
	PEOPLE	PER IMC 2012

* BASED ON ASHRAE 2013 FUNDAMENTALS

FCU 02A-3 OUTSIDE AIR CALCULATIONS

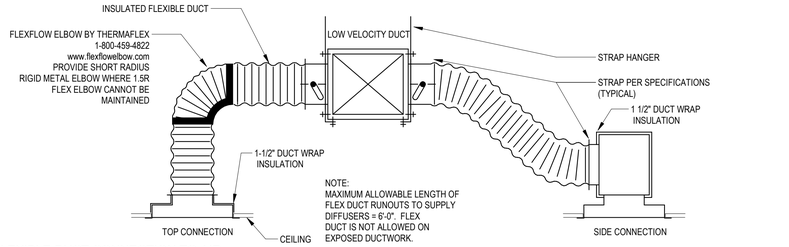
ROOM NAME	OCCUPANCY CLASSIFICATION	Az	Ra	OCCUPANT DENSITY	Pz	Rp	Ez	BASELINE RATE Voz	SUPPLY AIR	Ev	Vot
		SQFT	CFM/SQFT	#/1000	PEOPLE	CFM/person		CFM	CFM		CFM
OFFICE	OFFICE	110	0.06	5	1	5	0.8	12	150	1	12
LOUNGE/BREAK ROOM	BREAK ROOM	255	0.06	25	6	5	0.8	59	450	1	59
RESTROOM	RESTROOM	65	0	0	0	0	0.8	0	50	1	0
TOTALS		**430**	-	-	**7**	-	-	**71**	650	-	71

FCU 02A-2 OUTSIDE AIR CALCULATIONS

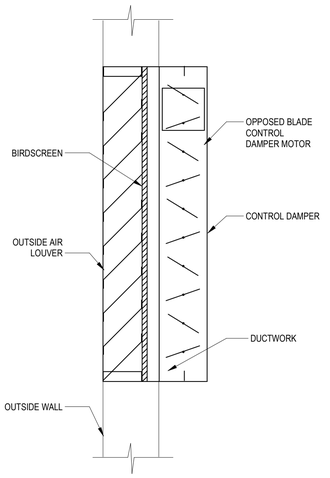
ROOM NUMBER	OCCUPANCY CLASSIFICATION	Az	Ra	OCCUPANT DENSITY	Pz	Rp	Ez	BASELINE RATE Voz	SUPPLY AIR	Ev	Vot
		SQFT	CFM/SQFT	#/1000	PEOPLE	CFM/person		CFM	CFM		CFM
FLEX SPACE	OFFICE	135	0.06	5	1	5	0.8	14	225	1	14
CONFERENCE ROOM	CONFERENCE	140	0.06	50	6	5	0.8	48	200	1	48
STORAGE	STORAGE	40	0.06	0	0	0	0.8	3	0	1	3
KITCHEN	BREAK ROOM	160	0.06	25	3	5	0.8	31	250	1	31
TOTALS		**475**	-	-	**10**	-	-	**96**	675	-	96

FCU 02A-1 OUTSIDE AIR CALCULATIONS

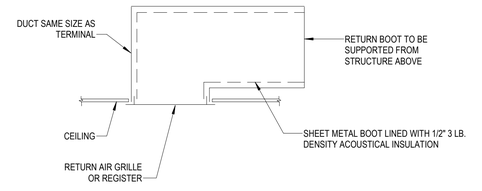
ROOM NUMBER	OCCUPANCY CLASSIFICATION	Az	Ra	OCCUPANT DENSITY	Pz	Rp	Ez	BASELINE RATE Voz	SUPPLY AIR	Ev	Vot
		SQFT	CFM/SQFT	#/1000	PEOPLE	CFM/person		CFM	CFM		CFM
WORKSTATIONS'	OFFICE	310	0.06	5	2	5	0.8	33	170	1	33
ENTRY/RECEPTION	RECEPTION	295	0.06	30	7	5	0.8	66	170	1	66
TOTALS		**605**	-	-	**9**	-	-	**99**	340	-	99



1 FLEXIBLE DUCT CONNECTION TO AIR OUTLET/INLET
NOT TO SCALE



2 LOUVER & CONTROL DAMPER (OPPOSED BLADE) CROSS SECTION DETAIL
NOT TO SCALE



3 RETURN BOOT DETAIL
NOT TO SCALE

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11/1/2023

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MECHANICAL SCHEDULES AND DETAILS

M600

20.01.NLV BUILDING 31

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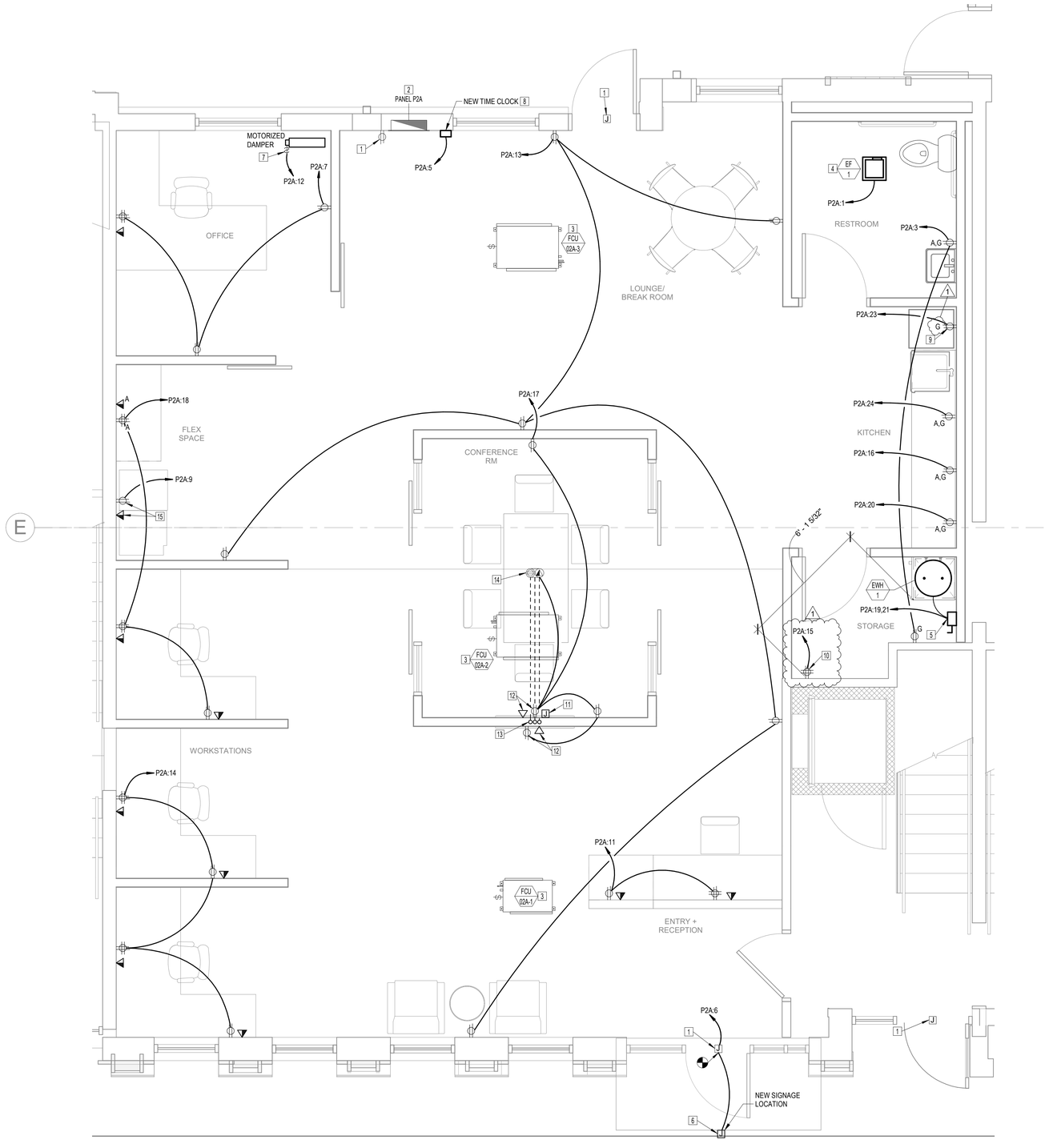

1 POWER FIRST FLOOR PLAN

3/8" = 1'-0"

TRUE NORTH

GENERAL NOTES

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2. COORDINATE ALL CAT5 CABLE TERMINATIONS FOR DATA AND SECURITY WITH OWNER PRIOR TO ROUGH-IN.
3. ALL FLOOR BOXES SHALL BE FULLY ADJUSTABLE CAST METAL BOXES LISTED FOR APPLICATION. PROVIDE TRIM AND COVER PLATE AS REQUIRED FOR APPLICATION. TRIM AND COVER PLATE FINISH TO BE BLACK.
4. PROVIDE PULL CORDS IN EMPTY CONDUITS TO BE PROVIDED FOR ALARM, NETWORK DATA AND MULTI-MEDIA OUTLETS.
5. ALL CONDUITS RUN THROUGH WALLS TO UNDERFLOOR TO BE ROUTED BETWEEN VAPOR BARRIER AND FLOOR SLAB AND CONCEALED UP IN WALL TO ACCESSIBLE SPACE ABOVE CEILING.
6. ALL EXPOSED MATERIALS AND DEVICES MUST BE RATED TO BE LOCATED IN A RETURN AIR PLENUM.
7. ALL ELECTRICAL RECEPTACLES TO BE LABELED WITH CIRCUIT BREAKER ID.
8. COORDINATE WITH ARCHITECT FOR FINISH COLOR OF ALL EXPOSED CONDUIT AND BOXES.

PLAN NOTES: ?

1. EXISTING DEVICE TO REMAIN. MAINTAIN EXISTING CIRCUITRY AND CIRCUIT BREAKER(S) UNLESS NOTED OTHERWISE.
2. EXISTING PANELBOARD TO REMAIN FOR USE IN NEW WORK. SEE PANELBOARD SCHEDULE ON SHEET E600 FOR ADDITIONAL INFORMATION.
3. ALL DEVICES ASSOCIATED WITH MECHANICAL EQUIPMENT TO REMAIN. MAINTAIN EXISTING CIRCUITRY AND CIRCUIT BREAKER(S) UNLESS NOTED OTHERWISE
4. CIRCUIT NEW EXHAUST FAN VIA LIGHTING CIRCUIT IN RESTROOM. PROVIDE 120V CONNECTION TO INTEGRAL DISCONNECTING MEANS. SEE SHEET EL100 FOR ADDITIONAL INFORMATION.
5. PROVIDE 208V, 30-AMP, 2-POLE, NON-FUSIBLE DISCONNECT SWITCH IN NEMA-1 ENCLOSURE AS DICONNECTING MEANS FOR NEW ELECTRIC WATER HEATER EWH-1.
6. PROVIDE JUNCTION BOX FOR STOREFRONT SIGNAGE INSTALLED AT EDGE OF CANOPY. SIGNAGE TO BE CIRCUITED THROUGH NEW TIME CLOCK. CONNECT TO EXISTING J-BOX INSTALLED FOR TENANT SIGNAGE AS PART OF CORE/SHELLS COPE. FIELD VERIFY LOCATION OF EXISTING POWER CONNECTION.
7. PROVIDE 15-AMP, 120V, MOTOR-RATED TOGGLE SWITCH ABOVE CEILING AS DISCONNECT MEANS FOR NEW MOTORIZED DAMPER CONTROLLER.
8. PROVIDE 7 DAY, 24 HOUR TIMECLOCK TO CONTROL SIGNAGE NOTED IN PLAN NOTE #6. PROVIDE OVERRIDE SWITCH NEXT TO TIME CLOCK.
9. DEDICATED RECEPTACLE AND BRANCH CIRCUIT FOR REFRIGERATOR MOUNTED AT 40" AFF.
10. PROVIDE AND INSTALL QUAD RECEPTACLE FOR COMMUNICATIONS RACK POWER. COORDINATE FINAL LOCATION WITH ARCHITECT AND TENANT PRIOR TO ROUGH-IN. ALL DATA CABLING WITHIN TENANT SPACE TO TERMINATE AT RACK.
11. PROVIDE BOX LOCATED BEHIND TV WITH OPEN FACEPLATE FOR HDMI/MISC. CABLE WHIP.
12. DUPLEX RECEPTACLE AND DATA OUTLET FOR WALL-MOUNTED TV. COORDINATE MOUNTING HEIGHT WITH ARCHITECT.
13. ROUTE 3/4" CONDUIT FOR POWER, 1-1/2" CONDUIT WITH PULLWIRE FOR TELEPHONE/DATA, AND 1-1/4" CONDUIT WITH PULL WIRE FOR MISC CABLES FROM J-BOX BEHIND TV FROM FLUSH FLOOR BOX BELOW FLOOR UP IN WALL TO ACCESSIBLE CEILING SPACE.
14. PROVIDE WIREMOLD FLUSH 4-GANG FLOOR BOX WITH (1) DUPLEX RECEPTACLE, (1) LOW VOLTAGE ACTIVATION PLATE (EFB455-OG/EFB45CTCAL OR APPROVED EQUAL) AND ONE WHIP FOR MISCELLAENOUS CABLING. EC TO EXTEND POWER CIRCUITRY AND DATA ROUGH-IN TO TABLE TOP DEVICES (IF APPLICABLE). COORDINATE WITH FURNITURE SUPPLIER.
15. DEDICATED RECEPTACLE AND BRANCH CIRCUIT WITH ACCESS TO DATA FOR COPIER/PRINTER.

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BUILDING 31 - UNIT 430 - SUITE 100

430 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

STATE OF MISSOURI
LOGAN M. UNREIN
NUMBER
PE-2022042437
PROFESSIONAL ENGINEER
11/15/2023

CERTIFICATE OF AUTHORITY
MO #1999137647

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1	Permit Review	11.15.2023

POWER FLOOR PLAN

E100

20.01.NLV BUILDING 31

11/14/2023 11:47:15 AM

PANELBOARD: P2A

BUS RATING: 225 A
MAIN TYPE: MCB - 200 A
VOLTAGE: 120/208 (3Ø-4W)
MOUNTING: FLUSH
ENCLOSURE: NEMA-1
SUPPLY FROM:
LOCATION:
MINIMUM AIC... 22,000A
ACCESSORIES:

NOTES	CKT	DESCRIPTION	AMP	P	A		B		C		P	AMP	DESCRIPTION	CKT	NOTES
(E)	1	**LIGHTING**	20	1	0.61	0.18					1	20	EXISTING RECEPT. BY PANEL	2	(E)
(E)	3	**RESTROOM GFCI RECEPT.**	20	1			0.36	0.00			1	20	SIGN/DISPLAY	4	(E)
(E)	5	**TIME CLOCK**	20	1					0.25	0.30	1	20	**FRONT SIGNAGE**	6	(E)
(E)	7	**MANAGER'S OFFICE RECEPT.**	20	1	0.72	0.00					1	20	SIGN/DISPLAY	8	(E)
(E)	9	**COPIER/PRINTER**	20	1			1.20	1.00			1	20	HEAT TRACE	10	(E)
(E)	11	**RECEPTION DESK RECEPT.**	20	1					0.54	0.12	1	20	**MOTORIZED DAMPER**	12	(E)
(N)	13	**CONVENIENCE RECEPT.**	**20**	**1**	1.08	1.08					**1**	**20**	**OFFICE DESK RECEPT.**	14	(N)
(N)	15	**IT RACK**	**20**	**1**			1.00	1.00			**1**	**20**	**ABOVE COUNTER BREAK RM. RECEPT.**	16	(N)
(N)	17	**CONFERENCE ROOM RECEPT.**	**20**	**1**					0.72	0.90	**1**	**20**	**OFFICE RECEPT.**	18	(N)
(N)	19	**WATER HEATER EWH-1**	**20**	**2**	1.50	1.00					**1**	**20**	**ABOVE COUNTER BREAK RM. RECEPT.**	20	(N)
	21						1.50	0.00			**1**	**20**	**SPARE**	22	--
(N)	23	**REFRIGERATOR**	**20**	**1**					1.00	1.00	**1**	**20**	**ABOVE COUNTER BREAK RM. RECEPT.**	24	(N)
--	25	**SPARE**	**20**	**1**	0.00	--					1	--	EQUIPPED SPACE	26	--
--	27	**SPARE**	**20**	**1**			0.00	--			**1**	**--**	EQUIPPED SPACE	28	--
--	29	EQUIPPED SPACE	**--**	**1**					--	--	**1**	**--**	EQUIPPED SPACE	30	--
--	31	EQUIPPED SPACE	**--**	**1**	--	--					1	--	EQUIPPED SPACE	32	--
--	33	EQUIPPED SPACE	**--**	**1**			--	--			1	--	EQUIPPED SPACE	34	--
(E)	35	CONDENSING UNIT ACCU-02A-2,3	50	2					2.91	--	1	--	EQUIPPED SPACE	36	--
	37				2.91	--					1	--	EQUIPPED SPACE	38	--
(E)	39	CONDENSING UNIT ACCU-02A-1	15	2			0.71	--			1	--	EQUIPPED SPACE	40	--
	41								0.71	--	1	--	EQUIPPED SPACE	42	--
			TOTAL KVA:		9.08 kVA		6.77 kVA		8.45 kVA						
			TOTAL AMPS:		78 A		56 A		73 A						

(E) = EXISTING TO REMAIN CIRCUIT BREAKER
(N) = NEW CIRCUIT BREAKER

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
EQUIPMENT	10200 VA	100.00%	10200 VA	**TOTAL CONNECTED KVA:**	24.05 kVA
HVAC	7239 VA	100.00%	7239 VA	**TOTAL ESTIMATED DEMAND KVA:**	24.15 kVA
Lighting	513 VA	100.00%	513 VA	**TOTAL CONNECTED CURRENT:**	67 A
MOTORS	120 VA	100.00%	120 VA	**TOTAL ESTIMATED DEMAND CURRENT:**	67 A
Motor	100 VA	125.00%	125 VA		
RECEPTACLE	5580 VA	100.00%	5580 VA		
SIGN/DISPLAY	300 VA	125.00%	375 VA		

PANEL SCHEDULE NOTES

1. PROVIDE TYPE WRITTEN PANEL DIRECTORIES AND INSERT IN CLEAR PLASTIC COVER ON INSIDE OF PANEL DOOR.
2. CONTRACTOR SHALL DETERMINE IF ANY CIRCUITS ARE NOT IN USE AFTER DEMOLITION. IF A CIRCUIT IS NOT IN USE, FLIP THE EXISTING BREAKER TO OFF POSITION AND LABEL AS "SPARE."
3. ALL BOLDED BRANCH CIRCUITS WITH A BOLDED TRIP RATING AND NUMBER OF POLES IS A NEW CIRCUIT BREAKER INSTALLED IN EXISTING SPACE(S). COORDINATE WITH PANELBOARD MANUFACTURER ON NEW BREAKER REQUIREMENTS.

Branch Circuit Feeder Schedule (3 Phase W/Neutral)

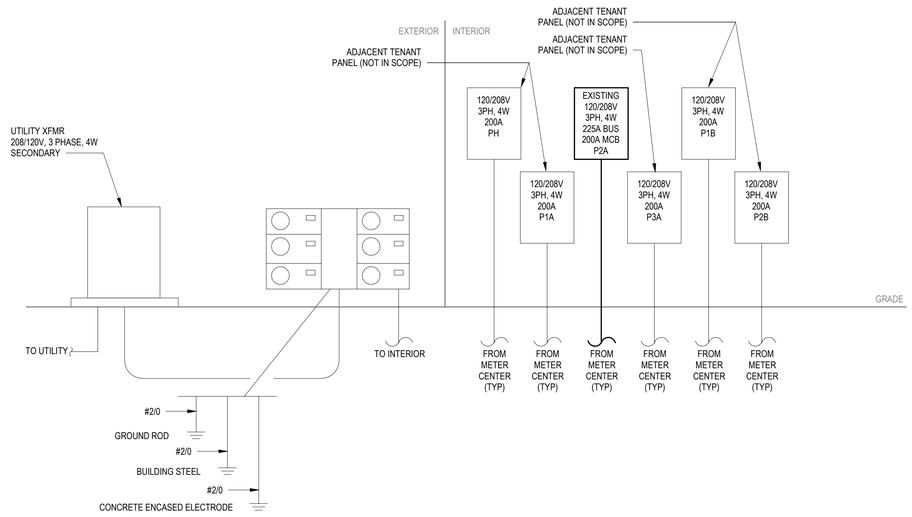
Circuit Breaker Size (Amps)	3 Phase W/ Neutral					3 Phase					1 Phase				
	3 Pole					3 Pole					2 Pole or 1 Pole				
	No. of Cond.	Hot	No. of Cond.	Ground	Conduit (Inches)	No. of Cond.	Hot	No. of Cond.	Ground	Conduit (Inches)	No. of Cond.	Hot	No. of Cond.	Ground	Conduit (Inches)
15	4	12	1	12	3/4	3	12	1	12	3/4	2	12	1	12	3/4
20	4	12	1	12	3/4	3	12	1	21	3/4	2	12	1	12	3/4
25	4	10	1	10	3/4	3	10	1	10	3/4	2	10	1	10	3/4
30	4	10	1	10	3/4	3	10	1	10	3/4	2	10	1	10	3/4
40	4	8	1	10	3/4	3	8	1	10	3/4	2	8	1	10	3/4
50	4	6	1	10	3/4	3	6	1	10	3/4	2	6	1	10	3/4
60	4	4	1	10	1	3	4	1	10	1	2	4	1	10	3/4
70	4	4	1	8	1	3	4	1	8	1	2	4	1	8	3/4
80	4	3	1	8	1-1/4	3	3	1	8	1	2	3	1	8	1
90	4	2	1	8	1-1/4	3	2	1	8	1	2	2	1	8	1
100	4	1	1	8	1-1/4	3	2	1	8	1-1/4	2	2	1	8	1-1/4
110	4	1	1	6	1-1/4	3	1	1	7	1-1/4	2	1	1	6	1-1/4
125	4	1	1	6	1-1/4	3	1	1	6	1-1/4	2	1	1	6	1-1/4
130	4	1	1	6	1-1/4	3	1	1	6	1-1/2	2	1	1	6	1-1/4
140	4	1/0	1	6	1-1/2	3	1/0	1	6	1-1/4	2	1/0	1	6	1-1/4
150	4	1/0	1	6	1-1/2	3	1/0	1	6	1-1/4	2	1/0	1	6	1-1/4
160	4	2/0	1	6	2	3	2/0	1	6	1-1/4	2	2/0	1	6	1-1/4
170	4	2/0	1	6	2	3	2/0	1	6	1-1/2	2	2/0	1	6	1-1/4
180	4	3/0	1	6	2	3	3/0	1	6	1-1/2	2	3/0	1	6	1-1/2
190	4	3/0	1	6	2	3	3/0	1	6	1-1/2	2	3/0	1	6	1-1/2
200	4	3/0	1	6	2	3	3/0	1	6	1-1/2	2	3/0	1	6	1-1/2

1 FOR EACH CIRCUIT, SIZE THE WIRE BASED ON CIRCUIT BREAKER SIZE SHOWN IN THE PANELBOARD SCHEDULES AS INDICATED ABOVE (UNLESS NOTED OTHERWISE).
2 HOT AND NEUTRAL CONDUCTOR SIZING IS BASED ON TABLE 310.16, COPPER CONDUCTORS.
3 GROUND CONDUCTOR SIZING IS BASED ON TABLE 250.122, COPPER GROUND CONDUCTOR.
4 CONDUIT SIZING IS BASED ON (EMT) WITH TYPE THHN/THWN CONDUCTOR INSULATION.

LIGHT FIXTURE SCHEDULE

TYPE MARK	MANUFACTURER	MODEL NUMBER	WATTAGE	LAMP TYPE	VOLTAGE	MOUNTING	DESCRIPTION
A	WESTGATE	CMC4-MCTP-DD-BK	9.0 VA	LED	120V	CEILING	CEILING MOUNTED 4" CYLINDER LIGHT. SUITABLE FOR MANUAL DIMMING.
AE	WESTGATE	CMC4-MCTP-DD-BK	9.0 VA	LED	120V	CEILING	CEILING MOUNTED 4" CYLINDER LIGH WITH. SUITABLE FOR MANUAL DIMMING. PROVIDE WITH EXTERNAL EMERGENCY BATTERY.
B	IKEA	HEKTAR PENDANT, DARK GRAY, 15"	40.0 VA	LED	120V	PENDANT	15" DECORATIVE PENDANT LIGHT. PROVIDE WITH LED COMATIBLE DIMMABLE BULB WITH CCT OF 3000K.
C	LITHONIA	WF4 LED 30K40K50K 90CRI MB	10.5 VA	LED	120V	RECESSED	4" ROUND DOWNLIGHT.
D	BARTCO	HL2-8-6-DB-1-WH-1-30-R1-RA-C8-04	31.2 VA	LED	120V	PENDANT	6' DIRECT/INDIRECT ACOUSTIC PANEL LUMINAIRE spaces with subtle to bold colors, while damping sound reflections. The 2" wide aperture fixture is clad with ½" thick felt acoustic panels in 8", 12" or 16" heights and twenty standard colors. Machined aluminum end caps are available in several architectural finishes, as well as optional RAL finishes to coordinate with panel colors. Add additional sound absorption in an architectural space with complimenting HB2 non-illuminated acoustic baffles.
G	JUNO	T327-BLB-BL	53.2 VA	LED	120V	TRACK	LED TRACK LIGHT. SUITABLE FOR MANUAL DIMMING. PROVIDE WITH JUNO T 8-FT BL 8'-0" TRACK. PROVIDE WITH (4) HEADS.

NOTE: ALL ELECTRICAL EQUIPMENT IS EXISTING TO REMAIN. ONE-LINE DIAGRAM SHOWN FOR REFERENCE ONLY.



1 ELECTRICAL ONE-LINE
NOT IN SCALE

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BUILDING 31 - UNIT 430 - SUITE 100

430 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

STATE OF MISSOURI
LOGAN M. UNREIN
NUMBER PE-2022042437
PROFESSIONAL ENGINEER
10/30/2023

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MO #1999137647

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ELECTRIAL SCHEDULES

E600

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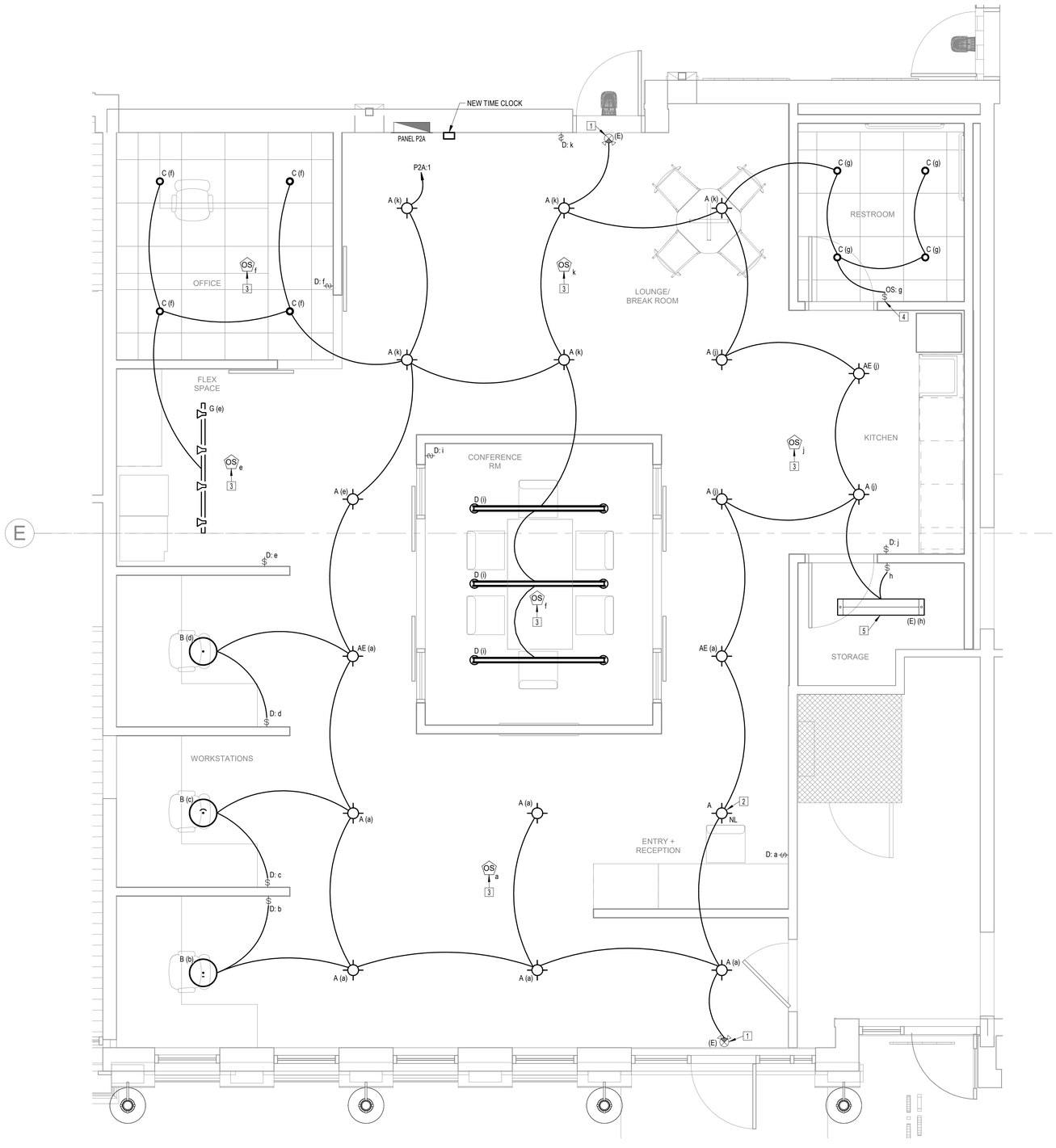

1 Level 1 - FLOOR PLAN - LIGHTING

3/8" = 1'-0"

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2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LIGHT FIXTURE LOCATIONS, DIMENSIONS, AND HEIGHTS.
3. ALL EXIT SIGNS AND EMERGENCY FIXTURES SHALL BE CONNECTED TO THE UN-SWITCHED "HOT" LEG OF LIGHTING CIRCUIT.
4. REMOVE EXISTING TEMPORARY STRIP LIGHTING IN SPACE. REMOVE ASSOCIATED WIRES AND CONDUITS BACK TO NEAREST J-BOX. COORDINATE DISPOSAL OF FIXTURES WITH LANDLORD. RELOCATE ONE (1) EXISTING STRIP LIGHT PER PLAN NOTE #5.
5. COORDINATE WITH ARCHITECT FOR FINISH COLOR OF ALL EXPOSED CONDUIT AND BOXES.

PLAN NOTES

1. EXISTING LIGHT FIXTURE TO REMAIN. MAINTAIN EXISTING CIRCUITRY AND CIRCUIT BREAKER(S).
2. CONNECT LIGHT FIXTURE TO UNSWITCHED CIRCUIT.
3. PROVIDE CEILING-MOUNTED DUAL-TECHNOLOGY OCCUPANCY SENSOR. CIRCUIT WITH CONTROLS AND LIGHT FIXTURES IN SAME ROOM OR AS NOTED.
4. PROVIDE DUAL-TECHNOLOGY OCCUPANCY SENSOR/LIGHT SWITCH COMBINATION. CIRCUIT WITH CONTROLS AND LIGHT FIXTURES IN THE SAME ROOM.
5. RELOCATED STRIP LIGHT FIXTURE. SWITCH AND CIRCUIT AS NOTED.

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LIGHTING FLOOR PLAN

EL100

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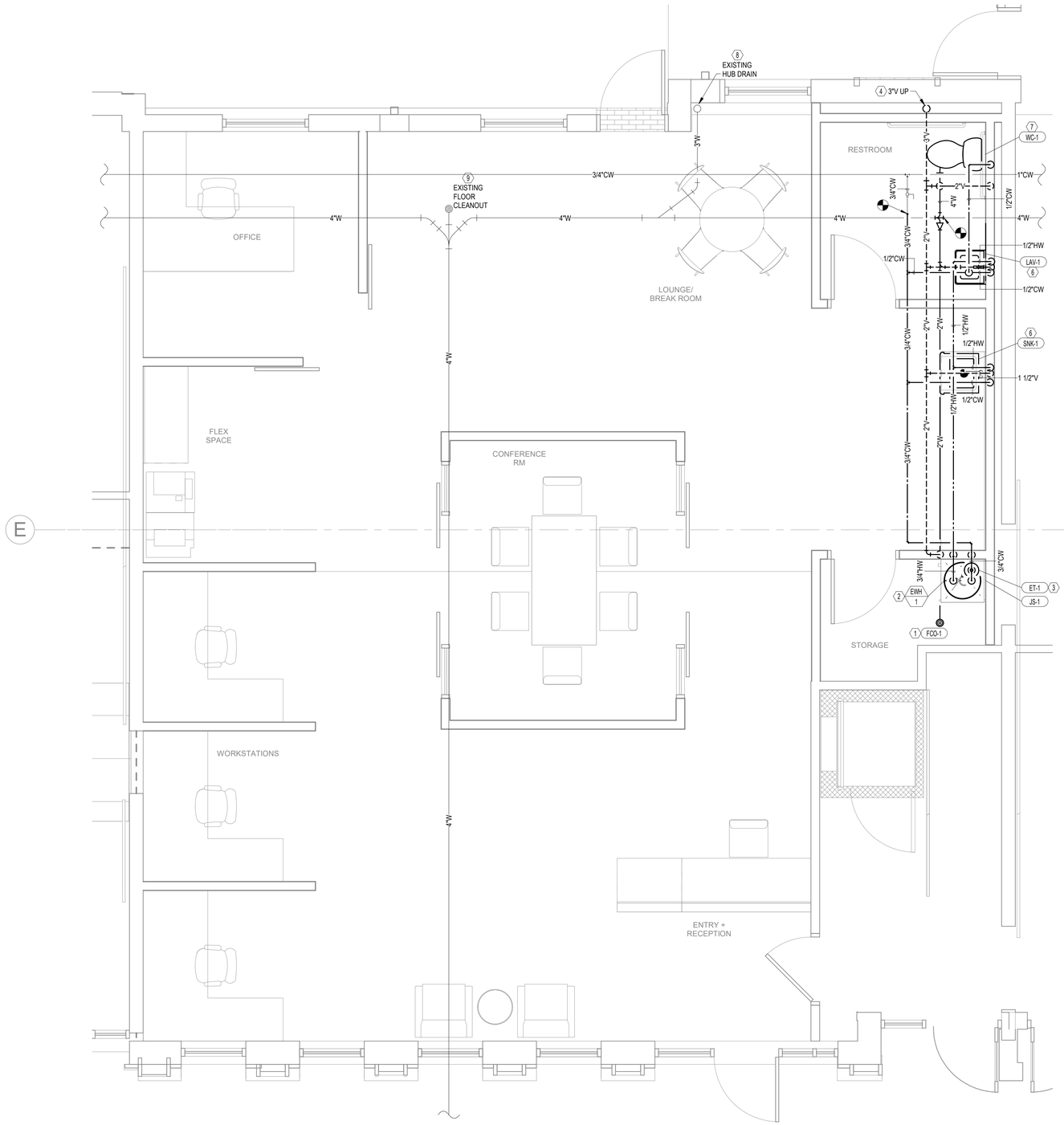

1 PLUMBING FIRST FLOOR PLAN

3/8" = 1'-0"

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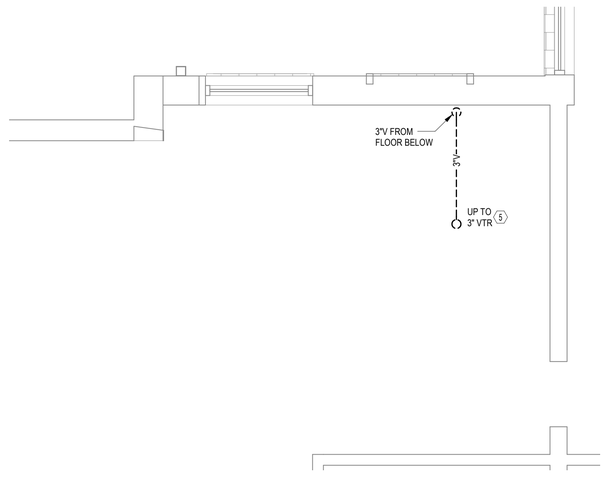

2 PARTIAL SECOND FLOOR PLUMBING PLAN

3/8" = 1'-0"

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2. SEE SHEET P700 FOR WASTE AND VENT RISER DIAGRAM AND PIPE SIZING NOT SHOWN ON PLANS.
3. SEE PIPE MATERIAL AND INSULATION SCHEDULE ON P600 SHEET FOR PIPING AND INSULATION REQUIREMENTS.
4. COORDINATE WITH ARCHITECT FOR FINISH COLOR OF ALL EXPOSED PIPING. PROVIDE PAINTABLE INSULATION, WHERE REQUIRED.

PLAN NOTES: (7)

1. SEE DETAIL 1/P500 FOR TYPICAL FLOOR CLEANOUT DETAIL.
2. SEE DETAIL 2/P500 FOR ELECTRIC WATER HEATER INSTALLED ON SHELF DETAIL.
3. SEE DETAIL 3/P500 FOR TYPICAL EXPANSION TANK DETAIL.
4. ROUTE NEW 3" VENT PIPE UP IN CHASE TO FLOOR ABOVE. SEE SHEET 2 ON THIS SHEET FOR CONTINUATION.
5. ROUTE UP TO NEW 3" VENT THRU ROOF. SEE DETAIL 4/P500.
6. PROVIDE 1/2" CW AND HW CONNECTION TO PLUMBING FIXTURE.
7. PROVIDE 1/2" CW CONNECTION TO TANK-TYPE WATER CLOSET.
8. MAINTAIN EXISTING HUB DRAIN FOR FAN COIL UNIT CONDENSATE DRAIN. PROTECT DURING CONSTRUCTION.
9. EXISTING FLOOR CLEANOUT TO REMAIN. POUR FLUSH WITH NEW CONCRETE FLOOR ONCE SLAB IS POURED.

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PLUMBING FLOOR PLAN

P100

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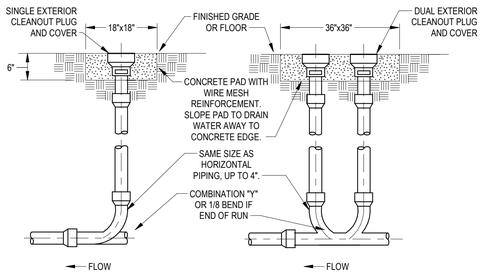
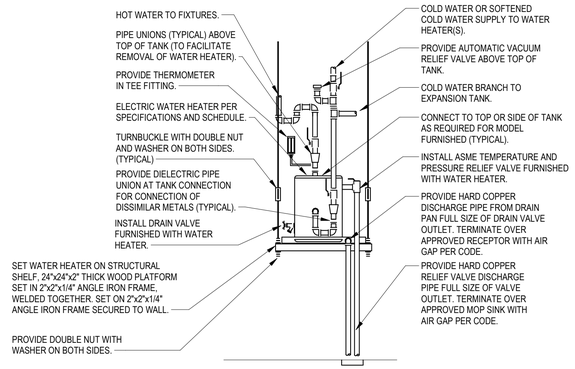


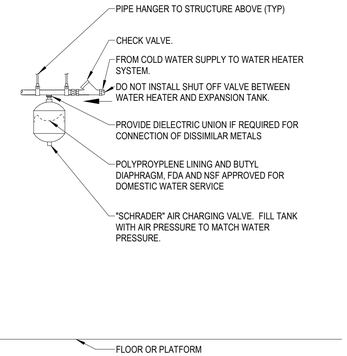
INTERIOR CLEANOUT SIMILAR, EXCEPT SET IN FLOOR SLAB WITH ADJUSTABLE TOP TO MATCH FINISHED FLOOR COVERING. PROVIDE MEMBRANE CLAMP WHEN INSTALLED ABOVE GRADE LEVEL.

1 SANITARY WASTE FLOOR CLEAN-OUT DETAIL
NOT TO SCALE



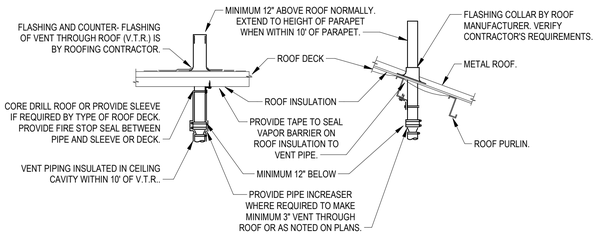
PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS, EQUIPMENT FURNISHED. REFER TO SPECIFICATIONS, SCHEDULES, AND NOTES FOR ADDITIONAL INFORMATION. PROVIDE SEISMIC STRAP(S) OR BRACING. REFERENCE ELECTRICAL PLANS FOR POWER AND MEANS OF DISCONNECT.

2 ELECTRIC WATER HEATER INSTALLED ON SHELF
NOT TO SCALE



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS, EQUIPMENT FURNISHED. REFER TO SPECIFICATIONS, SCHEDULES AND NOTES FOR ADDITIONAL INFORMATION. REFERENCE SCHEDULES TO CONFIRM SUSPENDED OR BASE MOUNTING INSTALLATION. BRANCH PIPING SHALL BE SAME SIZE AS TANK FITTING. VERIFY PROPER OPERATION WHEN INSTALLED.

3 THERMAL EXPANSION TANK DETAIL
NOT TO SCALE



LOCATE VENT THROUGH ROOF A MINIMUM THREE FEET FROM PROPERTY LINE, OR TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE. LOCATE VENT THROUGH ROOF MINIMUM 18" FROM ANY VERTICAL SURFACE, PARAPET, EXPANSION JOINTS, EQUIPMENT CURB, ETC. ANCHOR STACK VENT OR VENT STACK PIPE TO ROOF DECK OR PURLIN WITH U-BOLT AROUND PIPE AND ANGLE IRON WELDED OR SCREWED TO STRUCTURE. OFFSET IN CEILING SPACE WHERE REQUIRED TO MEET THESE REQUIREMENTS.

4 VENT THROUGH ROOF
NOT TO SCALE

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
11/1/2023

clockwork
423 DELAWARE, STE 102
KANSAS CITY, MISSOURI 64105
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BUILDING 31 - UNIT 430 - SUITE 100
430 SW LONGVIEW BLVD
LEE'S SUMMIT, MO, 64081

10/30/2023

CERTIFICATE OF AUTHORITY
MO #1999137647

REV	ISSUE	DATE
	Permit Set	10.30.2023

PLUMBING DETAILS

P500

20.01.NLV BUILDING 31

10/31/2023 11:28:33 AM

PLUMBING FIXTURE SCHEDULE

FIXTURES IN THIS SCHEDULE OR THEIR APPROVED EQUIVALENT ARE PROVIDED BY THE PLUMBING CONTRACTOR. IF THERE ARE ANY CONFLICTS BETWEEN MODEL NUMBER AND DESCRIPTION, THE DESCRIPTION SHALL PREVAIL. SUBMIT SHOP DRAWINGS ON EACH OF THESE ITEMS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION AND INSTALLATION REQUIREMENTS. VERIFY ROUGH-IN REQUIREMENTS WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE PLUMBING FIXTURE MOUNTING HEIGHTS.

MARK	DESCRIPTION	PIPE SIZE CONNECTION				
		COLD WATER	HOT WATER	MIXED WATER	WASTE	VENT
LAV-1	ADA COMPLIANT WALL HUNG LAVATORY: CERAMIC WS BATH COLLECTIONS UNIT 60, WITH WALL HANGERS, SINGLE CENTER FAUCET HOLE, ADA COMPLIANT, CERAMIC WHITE. FURNISH WITH AMERICAN STANDARD 2411.015 GRID DRAIN WITH 1-1/4" TAILPIECE, CHROME FINISH. PROVIDE WITH TEMPERATURE MIXING VALVE # TMV-1. FAUCET: MANUFACTURED BY MOEN SHALL BE: ONE-HANDLE, HIGH-ARC FAUCET RINZA 84627 "LEAD FREE", ADA COMPLIANT, DECK-MOUNTED MIXING FAUCET, COORDINATE WITH ARCHITECT FOR FINISH, DIE-CAST METAL SPOUT, 0.5 GPM VANDAL-RESISTANT LAMINAR FLOW OUTLET AND WATER SUPPLY CONNECTION WITH 24" LONG FLEXIBLE STAINLESS STEEL HIGH-PRESSURE BRAIDED HOSE FOR COMPRESSION FITTINGS AND STRAINER. PROVIDED WITH FILTERED SOLENOID VALVE WITH SERVICABLE STRAINER FILTER AND DECK-MOUNTING HARDWARE KIT. TRIM: LEAD FREE QUARTER TURN BALL VALVE ANGLE STOP VALVES WITH RISERS AND ESCUTCHEONS, PROVIDE WITH DEARBORN BRASS TUBULAR P-TRAP WITH CLEANOUT - (1-1/4" INLET TO 1-1/2" OUTLET) 17 GAUGE WASTE CHROME PLATED BRASS WASTE ARM AND ESCUTCHEON. INSULATE EXPOSED WASTE AND WATER LINES PER 2009 ANSI A117.1 - 606.6.	1/2"	1/2"	--	1-1/2"	1-1/2"
JS-1	SINK, JANITOR'S SINK: MANUFACTURED BY REGENCY OR APPROVED EQUAL SHALL BE: JANITOR'S SINK 28"x20" WITH 12" HIGH WALLS, OF STAINLESS STEEL CONSTRUCTION WITH BRASS DRAIN BODY INTEGRALLY CAST; PROVIDE WITH ONE PIECE STAINLESS STEEL CAP WITH TILING FLANGES, MINIMUM 1" TALL, FOR EACH ADJACENT WALL. PROVIDE SPLASH CATCHER PANEL OF 20 GAUGE, TYPE 304 STAINLESS STEEL FOR EACH ADJACENT WALL. PROVIDE 2" TRAPPED AND VENTED WASTE CONNECTION. PROVIDE THREE FOOT LONG REINFORCED HOSE WITH 3/4" CHROME COUPLING AND WALL HOOK. PROVIDE 24" STAINLESS STEEL MOP HANGER WITH THREE RUBBER SPRING LOADED GRIPS. FAUCET: MANUFACTURED BY ZURN OR APPROVED EQUAL SHALL BE: FAUCET ROUGH CHROME PLATED CAST BRASS FAUCET WITH QUARTER TURN CERAMIC DISK CARTRIDGES, INTEGRAL SERVICE STOPS, 6" LONG CAST BRASS SPOUT, ADJUSTABLE WALL BRACE, HOSE THREADS, PAIL HOOK, AND VACUUM BREAKER. SECURE FAUCET TO BLOCKING BEHIND WALL.	3/4"	3/4"	--	3"	2"
WC-1	WATER CLOSET, FLOOR-MOUNTED, TANK TYPE, ADA COMPLIANT: MANUFACTURED BY KOHLER CIMARRON COMFORT HEIGHT OR APPROVED EQUAL SHALL BE: TANK TYPE, 1.28 GPF (GALLONS PER FLUSH) WHITE VITREOUS CHINA FIXTURE WITH ELONGATED BOWL, SIPHON JET ACTION, 2-1/8" FULLY GLAZED TRAPWAY AND 10 X 8" WATER SURFACE, CHLORAMINE RESISTANT INTERNAL COMPONENTS WITH "MAP (MAXIMUM PERFORMANCE TESTING" SCORE OF 500 OR GREATER, 12" FROM WALL TO CENTERLINE OF OUTLET. PROVIDE WITH WHITE FINISH. TRIM: MANUFACTURED BY BEMIS (MODEL 1055SSC) OR APPROVED EQUAL SHALL BE: WHITE OPEN-FRONT CONTOURED, SOLID PLASTIC, HEAVY DUTY, SEAT LESS COVER WITH NON SELF-SUSTAINING CHECK HINGES AND STAINLESS STEEL BOLTS. McGUIRE MODEL # 2166CC ANGLE STOP VALVE WITH RISER AND CHROME-PLATED ESCUTCHEON. TRIM: MANUFACTURED BY McQUIRE OR APPROVED EQUAL SHALL BE: LEAD FREE QUARTER TURN BALL VALVE ANGLE STOPS WITH RISERS AND ESCUTCHEONS.	1/2"	--	--	4"	2"
SNK-1	SINK, SINGLE COMPARTMENT STAINLESS STEEL SINK, MANUFACTURED BY KOHLER OR APPROVED EQUAL SHALL BE: WHITEHAVEN K-5664 UNDERMOUNT, SINGLE-BOWL FARMHOUSE SINK WITH DIMENSIONS OF 22" x 21-9/16" x 9-5/8" AND BOWL DIMENSION OF 18-13/16" x 18-1/16" x 9" DEEP, SINGLE COMPARTMENT, ENAMELED CAST IRON, UNDERMOUNT COUNTER SINK, 3-1/2" DRAIN OPENINGS LOCATED 5" FROM REAR OF BOWL. UNDERMOUNTED ON COUNTERTOP WITH MOUNTING CLIPS OR U CHANNEL. UNDERNEATH SIDE FULLY COATED FOR SOUND DAMPENING AND REDUCTION OF CONDENSATION. PROVIDE WITH TEMPERATURE MIXING VALVE TMV-1. FAUCET: MOEN ALIGN 7565 SERIES, SHALL BE "LEAD FREE" MIXING FAUCET, ADA COMPLIANT SINGLE HOLE MOUNTING, SINGLE LEVER STYLE HANDLE WITH INTEGRAL SHANK, CARTRIDGE DESIGN, GOOSENECK SPOUT WITH PULLOUT SPRAY AND 68" BRAIDED HOSE, 1.5 GPM VANDAL-RESISTANT PRESSURE COMPENSATING AERATOR WITH FEMALE LAMINAR FLOW. CHROME.. TRIM: DEARBORN BRASS 11 THREADED BODY SINK BASKET STRAINER WITH STAINLESS STEEL BODY AND BASKET, OATEY SCS 1-1/2" TAIL PIECE, ZURN LEAD FREE CHROME PLATED SOLID BRASS ANGLE STOP VALVES WITH RISERS AND ESCUTCHEONS, ZURN 1-1/2" CHROME PLATED 17-GAUGE CAST BRASS BODY P-TRAP WITH CLEANOUT AND CHROME PLATED QUARTER-TURN ESCUTCHEON.	1/2"	1/2"	--	1-1/2"	1-1/2"
TMV-1	THEMOSTATIC MIXING VALVE: MANUFACTURED BY LEONARD OR APPROVED EQUAL SHALL BE: LEAD FREE BRASS BODY, COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH POLYMER THERMOPLASTIC SHUTTLE, STAINLESS STEEL SPRINGS, BUNA-N O-RINGS, INTEGRAL CHECKS, COLD WATER BY-PASS, MOUNTING BRACKET, VANDAL RESISTANT LOCKING TEMPERATURE ADJUSTMENT CAP, ASSE 1070 CERTIFIED, CAPABLE OF 1.7 GPM WITH A 5 PSI PRESSURE LOSS, CAPABLE OF 2.3 GPM WITH A 10 PSI PRESSURE LOSS AND A MINIMUM FLOW RATE OF 0.25 GPM. 3/8" INLET AND OUTLET CAN BE CONFIGURED TO SERVE EITHER A TWO HANDLE LAVATORY/SINK OR SINGLE INLET SENSOR FAUCET. TEMPERATURE ADJUSTMENT RANGE FROM 90 TO 140 DEGREES, UNIT IS NOT FACTORY PRESET CONTRACTOR SHALL SET OUTLET TEMPERATURE TO 105 DEGREES FAHRENHEIT. MOUNT BELOW THE PLUMBING FIXTURE WHERE INDICATED ON PLAN(S).	1/2"	1/2"	1/2"	--	--
ET-1	TANK, EXPANSION: REFERENCE PLUMBING SCHEDULES ON THIS SHEET.	--	--	--	--	--
FCO-1	CLEANOUT, FLOOR: MANUFACTURED BY ZURN OR APPROVED EQUAL SHALL BE: HEAVY DUTY ADJUSTABLE FLOOR CLEANOUT WITH CAST IRON BODY, GAS AND WATER TIGHT ABS TAPERED THREADED PLUG AND ADJUSTABLE ROUND, SECURED, SCORIATED HEAVY DUTY CAST IRON TOP. PROVIDE WITH PUSH ON CONNECTION AND FLASHING FLANGE WITH CLAMPING COLLAR OR ANCHOR FLANGE FOR GROUND LEVEL INSTALLATIONS; PROVIDE STAINLESS STEEL MARKER FOR INSTALLATION IN CARPETED FLOOR AREA(S); PROVIDE RECESSED TOP FOR INSTALLATION IN TILED FLOOR AREA(S), TERRAZZO AND SIMILAR FLOOR AREA(S). PROVIDE POLISHED NICKEL BRONZE LIGHT DUTY TOP ONLY IN PUBLIC AREAS, PROVIDE HEAVY DUTY TOP FOR INSTALLATION IN CONCRETE FLOORS.	--	--	--	4"	--

ELECTRIC WATER HEATER SCHEDULE

TAG	MANUFACT.	MODEL NUMBER	ENERGY SOURCE	TANK SIZE				INPUT (TOTAL KW)	VOLTAGE PHASE FREQUENCY	AMPERAGE	RECOVERY @ 100 DEGREE RISE	NOTES
				GALLONS	DIAMETER	HEIGHT	WEIGHT					
EWH-1	LOCHINVAR	JRC020FS	ELECTRIC	19	18"	24-3/4"	68 LBS	3 KW	208V/1PH/60HZ	14.4 A	21 GPH	1, 2, 3, 4, 5

1. 100 DEGREE TEMPERATURE RISE WITH 140 DEGREE OPERATING TEMPERATURE.
2. SET TEMPERATURE CONTROL TO FACTORY MINIMUM OF 115 DEGREES.
3. WATER HEATER TANKS SHALL HAVE A 3 YEAR LIMITED WARRANTY AGAINST LEAKS.
4. FURNISH WITH SURFACE MOUNTED THERMOSTAT.
5. WEIGHT LISTED DOES NOT INCLUDE WATER.

DOMESTIC WATER THERMAL EXPANSION TANK SCHEDULE

TAG	MANUFACTURER	MODEL NUMBER	TANK RATING	VOLUME (GALLONS)		TANK		WEIGHT AT CAPACITY *	SYSTEM CONNECTION	INITIAL FILL PRESSURE	SYSTEM	NOTES
				TANK	ACCEPTANCE	DIAMETER	HEIGHT					
ET-1	AMTROL	ST-5	NON-ASME	2.0	0.9	8.0	13.0	13 LBS.	3/4"	NOTE 1	EWH-1	1, 2, 3

1. UNIT IS PRECHARGED AT THE FACTORY. NON-ASME THERMAL EXPANSION TANKS PRECHARGED TO 40 PSI, ASME RATED THERMAL EXPANSION TANKS PRECHARGED TO 55 PSI, COMPLETE THE CHARGE TO THE STATIC SUPPLY PRESSURE AT THE TANKS LOCATION.
2. SUSPEND TANK FROM PIPING. PROPERLY SUPPORT PIPING IN EACH SIDE OF THE TANK.
3. TANK IS A NOT ASME RATED.

* WEIGHT INCLUDES ACCEPTANCE WATER AT CAPACITY, FOR A TANK RATED AT 150 PSI WORKING PRESSURE.

PIPING MATERIAL SCHEDULE

SYSTEM	PIPING SIZE	TYPE	SCHEDULE	GRADE	ASTM	MATERIAL	FITTINGS MATERIAL	FITTINGS TYPE	MAX. WORKING PRESSURE (PSI)	MAX. WORKING TEMP. (DEG. F.)	FIELD TEST PRESSURE (PSI)	FIELD TEST TIME
SANITARY WASTE/VENT (BELOW GRADE)	ALL	DWV	40	N/A	D2665	PVC	PVC	SW	-	-	10 FT. W.C.	2 HR
SANITARY WASTE/VENT (ABOVE GRADE)	ALL	N/A	N/A	N/A	A888	CI	CI	NH	-	-	10 FT. W.C.	2 HR
DOMESTIC COLD WATER (ABOVE GRADE)	ALL	L	N/A	N/A	B88	CP	WC	SJ	100	180	150	2 HR
DOMESTIC HOT WATER (ABOVE GRADE)	ALL	L	N/A	N/A	B88	CP	WC	SJ	100	180	150	2 HR

NOTES:

BLK- BLACK
CI-CAST IRON
CP- COPPER
CS- CARBON STEEL
MI-MALLEABLE IRON

S-BRAZED JOINT
SJ-SOLDER JOINT
THRD-THREADED
WELD-WELDED
PVC

SF - SOCKET FITTINGS
NH-NO HUB
WC - WROUGHT COPPER
SV - SOLVENT WELD

NOTE: PVC NOT ALLOWED IN OPEN AIR SPACE OR RETURN AIR PLENUMS.

INSULATION MATERIAL SCHEDULE

SYSTEM	INSULATION								
	TYPE	TEMPERATURE RATING	THERMAL CONDUCTIVITY	THICKNESS	PIPE SIZE	FITTING COVERS	LAGGING	PIPE SUPPORT	NOTES
DOMESTIC COLD WATER	TYPE 1, 1- PIECE MOLDED GLASS FIBER WITH ASJ	40 DEG. TO 450 DEG. F.	0.22 @ 75 DEG. F.	1/2"	ALL SIZES	1- PIECE PVC	--	INSULATION SHIELD	1
DOMESTIC HOTWATER	TYPE 1, 1- PIECE MOLDED GLASS FIBER WITH ASJ	40 DEG. TO 450 DEG. F.	0.22 @ 75 DEG. F.	1/2"	ALL SIZES	1- PIECE PVC	--	INSULATION SHIELD	1

NOTES:
1. 40 DEGREES F. AND ABOVE.

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BUILDING 31 - UNIT 430 - SUITE 100
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LEE'S SUMMIT, MO, 64081

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CERTIFICATE OF AUTHORITY
MO #1999137647

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PLUMBING SCHEDULES

P600

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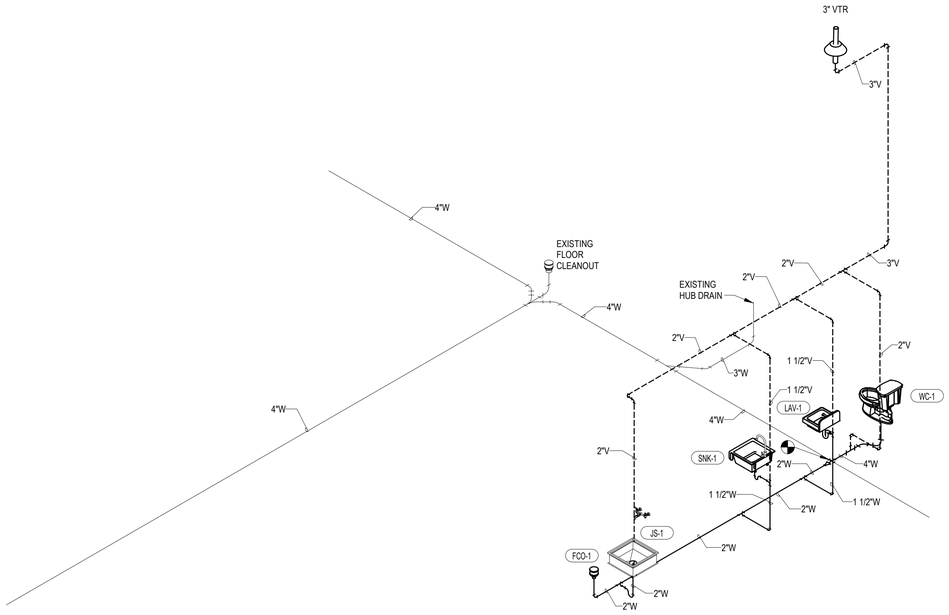
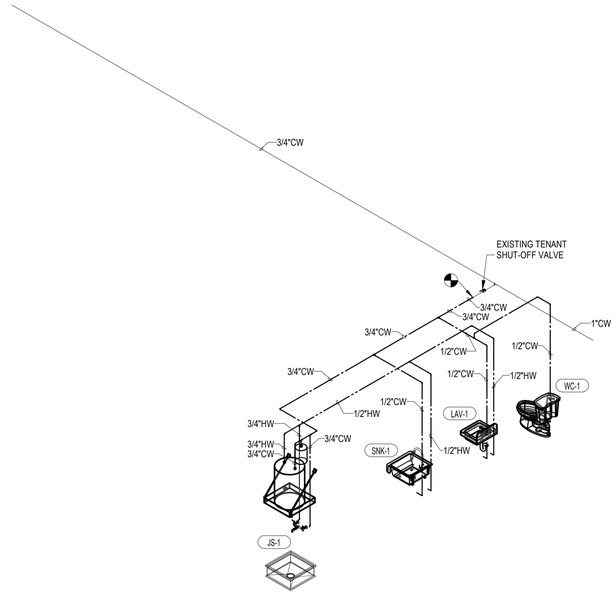


1 WASTE AND VENT PIPING ISOMETRIC



2 DOMESTIC WATER PIPING ISOMETRIC

INTERNATIONAL PLUMBING CODE
WATER FIXTURE UNITS

FIXTURE	FIXTURE BRANCH MINIMUM	FU*	1ST FLOOR NO.	1ST FLOOR TOTAL	NO.	TOTAL	TOTAL CW	TOTAL HW
DRINKING FOUNTAIN	3/8	0.25						
** SINK (KITCHEN)	1/2	1.4						
SINK (KITCHEN, HOTEL OR RESTAURANT)	1/2	4	1	4.00			3	3
** SINK (LAVATORY)	3/8	0.7						
SINK (LAVATORY)	3/8	2	1	2.00			1.5	1.5
SINK (SERVICE SINK, MOP SINK)	1/2	3	1	3.00			2.25	2.25
URINAL, 3/4" FLUSH VALVE	3/4	5						
URINAL, 1" FLUSH VALVE	1	10						
** WATER CLOSET (TANK)	3/8	2.2						
WATER CLOSET (TANK)	3/8	5	1	5.00			5	
WATER CLOSET (FLUSHOMETER TANK)	3/8	2						
** WATER CLOSET (FLUSH VALVE)	1	6						
WATER CLOSET (FLUSH VALVE)	1	10						
ITEMS BELOW NOT LISTED IN CODE TABLES								

*FU = PUBLIC OR PRIVATE/PUBLIC FIXTURE UNITS PER: 2003 INTERNATIONAL PLUMBING CODE (IPC), 2018 IPC

** FU = PRIVATE ONLY FIXTURE UNITS PER: 2003 INTERNATIONAL PLUMBING CODE (IPC), 2018 IPC

TOTAL FIXTURE UNITS PER FLOOR:	14.00			
TOTAL FIXTURE UNITS:	14.00		11.75	
COLD WATER SERVICE SIZE @ 5PSI:				6.75
FLUSH VALVE				
TANK TYPE FIXTURE	3/4"			
MAXIMUM GPM FLOW:				
FLUSH VALVE				
TANK TYPE FIXTURE	10.7			
VELOCITY IN FPS: [(0.408 x GPM)/inside Pipe Diameter Squared]	7.8			

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PLUMBING ISOMETRICS

P700

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