

MECHANICAL SYMBOLS LIST

AC-1	TXF-1	EQUIPMENT SYMBOL	CONTROLS AND SENSORS	
AIR DEVICES			ⓘ	THERMOSTAT
		CEILING DIFFUSER SUPPLY	ⓘs	TEMPERATURE SENSOR
DUCT ACCESSORIES			DUCTWORK	
			24X12	RECTANGULAR DUCT (WIDTH X DEPTH)
		VOLUME DAMPER W/ ACCESS DOOR		SUPPLY AIR RECTANGULAR DUCT CROSS SECTION
		FIRE DAMPER W/ ACCESS DOOR		RETURN AIR RECTANGULAR DUCT CROSS SECTION
		BACKDRAFT DAMPER	ø12	ROUND DUCT (DIAMETER)
		MOTORIZED DAMPER W/ ACCESS DOOR		ROUND DUCT CROSS SECTION
				POINT OF NEW CONNECTION
				POINT OF DISCONNECTION

MECHANICAL ABBREVIATIONS

RTU	ROOF TOP UNIT
VD	VOLUME DAMPER
CFM	CUBIC FEET PER MINUTE
CV	CONSTANT VOLUME
EA	EXHAUST AIR
ESP	EXTERNAL STATIC PRESSURE
EF	EXHAUST FAN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
SP	STATIC PRESSURE
(N)	NEW
DN	DOWN
EFF	EFFICIENCY
UP	UP
EQUIP	EQUIPMENT
EXH	EXHAUST
(E)	EXISTING
FPM	FEET PER MINUTE
FT	FEET
HP	HORSEPOWER
HZ	HERTZ
IN	INCHES
KW	KILOWATT
LB	POUND
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCp	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
PH	PHASE
V.I.F	VERIFY IN FIELD
RPM	REVOLUTIONS PER MINUTE
SPEC	SPECIFICATION
SF	SQUARE FEET
TEMP	TEMPERATURE
TON	TONS OF REFRIGERATION
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE
SAE	SAME AS EXISTING

MECHANICAL DRAWING LIST

M-001	MECHANICAL SYMBOLS LIST, ABBREVIATIONS, NOTES & SCHEDULES
M-101	MECHANICAL FLOOR PLAN
M-501	MECHANICAL DETAILS (1 OF 2)
M-502	MECHANICAL DETAILS (2 OF 2)

DESIGN CRITERIA

BASED ON 2021 ASHRAE CLIMATIC CONDITIONS(IP) SOUTH CAROLINA, USA  
1.OUTDOOR DESIGN CONDITION  
0.4% COOLING: 94.7°F / 74.5°F DB/WB  
99.6% HEATING: 20.3°F DB  
3.INDOOR DESIGN CONDITION  
SUMMER: 75°F DB/50% RH  
WINTER: 72°F DB

THERMOSTATS AND SENSORS

MANUF: HONEYWELL COMMERCIAL VISION PRO 8000 AND HONEYWELL T10 PRO SMART THERMOSTAT W/ REDLINK  
MODEL: TH8320R1003, TOUCHSCREEN 7-DAY, PROGRAMMABLE AND THX321WFS2001W

NOTES:  
VERIFY COMPATIBILITY WITH OWNER'S /LANDLORD'S REQUIREMENTS AND NEW RTU'S PRIOR TO INSTALLATION. MECHANICAL CONTRACTOR SHALL INSTALL AT 48" ABOVE FINISHED FLOOR AND WIRE TO EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS. CONTRACTOR SHALL PROGRAM THERMOSTAT SET POINTS (COORDINATE WITH THE OWNER). THERMOSTATS SHALL BE LOCATED IN THE OFFICE WITH MANUFACTURER'S REMOTE INDOOR AVERAGING/ BALANCING SENSORS THROUGHOUT THE LOBBY AND SPA AREAS. FURNISH MANUFACTURER'S OUTSIDE AIR SENSOR ASSEMBLY (INSTALL ON SHADED SIDE OF BUILDING OR ON RTU WITH WEATHER HOOD). DESIGN FOR CONTINUOUS FAN OPERATION DURING OCCUPIED HOURS.MECHANICAL CONTRACTOR SHALL PROVIDE CLEAR LOCK BOXES FOR THERMOSTATS.

CONTRACTOR TO VERIFY FINAL TYPE, MODEL, AND QUANTITY OF ALL MECHANICAL EQUIPMENT PRIOR TO BID

INSULATION SCHEDULE

ALL EXPOSED DUCTWORK IN CONDITIONED SPACES 1/2" LINED  
ALL EXTERIOR DUCTWORK MIN. R-8  
ALL CONCEALED SUPPLY AND RETURN DUCT MIN. R-5

NOTE:  
ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE THE BUILDING. WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-8 INSULATION.

ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS, MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

VENTILATION SCHEDULE

ROOM NAME	AREA (SQ.FT)	NO. OF PEOPLE 1000 SQ.FT AS PER IMC 2021	NO. OF PEOPLE AS PER IMC 2021	FINAL NO. OF PEOPLE AS PER PLAN	OUTSIDE AIR AS PER IMC 2021		REQ. OA CFM	PROVIDED OA CFM	EXHAUST AIRFLOW RATE (CFM/SQ.FT. OR CFM/FIXT.)	TOTAL EXHAUST REQUIRED CFM	PROVIDED EXHAUST CFM	
					CFM/PEOPLE	CFM/SQ.FT						
LOBBY & RECEPTION	650	10	5	5	7.5	0.06	140	600	0	0	0	
OFFICE	112	5	1	1	5	0.06	25		0	0	0	
HALLWAY	464	0	0	0	7.5	0.06	30		0	0	0	
ALL SUITES	1014	15	16	28	7.5	0.12	270		0	0	0	
COUPLE ROOM	164	15	16	4	7.5	0.06	50		0	0	0	
WAITING ROOM	110	15	16	2	7.5	0.06	20	65	0	0	0	
BREAK ROOM	276	0	0	0	0	0.06	0		160X2(DRYER EX.)	320	320	
REST ROOM-1	53	0	0	0	0	0	0		70	70	70	
REST ROOM-1	53	0	0	0	0	0	0	70	70	70	70	
TOTAL								600	600	-	TOTAL	480

SQUARE DIFFUSER SCHEDULE

SYMBOL	TAG	MANUF.	CATALOGUE #	FIXTURE DESCRIPTION	NECK SIZE	REMARKS
	A	TITUS	TMS	24x24 SUPPLY GRILLE 12x12 SUPPLY GRILLE	ø6" TO ø12"	STEEL CONSTRUCTION ROUND NECK SQUARE CEILING SUPPLY DIFFUSER, PROVIDED WITH OPPOSED BLADE DAMPER AND LAY-IN MOUNT TYPE WITH REMOVABLE CENTER CONE
	B	TITUS	50FF	24x24 RETURN GRILLE	--	EGGCRATE, BORDER TYPE 1, FILTER TYPE HINGED WITH FILTER

NOTE:  
1. ALL GRILLES IN GYP BOARD CEILING SHALL BE ORDERED WITH INTEGRAL BALANCING DAMPERS.  
2. PROVIDE RECTANGULAR ROUND ADAPTERS WHEREVER NECESSARY.  
3. NOT ALL DEVICES USED ON ALL JOBS.  
4. TRANSITION NECK SIZE ON SUPPLY AND RETURN AS NEEDED TO ENSURE SAME SIZE (WITHIN 2") SUPPLY AND RETURN REGISTERS FOR UNIFORM APPEARANCE.

DEHUMIDIFIER

MARK	AREA SERVED	TYPE	QTY	MANUFACTUERER	MODEL NUMBER	UNIT DIMENSION(IN.) (WxLxH)	ELECTRICAL		SOUND (dBA)	WEIGHT (LBS)
							POWER (V/PH/HZ)	FLA		
DH-1&2	SEE PLAN	INLINE	2	APRILAIRE	E130	20x30x18	120/1/60	8.3	50	98

NOTE: 1. INTERLOCK WITH RESPECTIVE AHUs AS MENTIONED ON PLAN.

AIR DEVICE NECK CHART

6"	- 0 TO 100 CFM
8"	- 101 TO 200 CFM
10"	- 201 TO 400 CFM
12"	- 401 TO 600 CFM
14"	- 601 TO 900 CFM

NOTE:  
1. USE ABOVE SIZES UNLESS A LARGER SIZE IS INDICATED.

EXHAUST FAN SCHEDULE

TAG	QTY.	MANUFACTURER	MODEL#	TYPE	DRIVE	CFM	BLOWER SELECTION		ELECTRICAL DATA		TOTAL UNIT WEIGHT [LBS.]
							E.S.P (IN.WC.)	RPM	INPUT WATTS	VOLT-PH-HZ [AMPS]	
EF-1,2 (E)	2	SAE	SAE	CEILING	DIRECT	70(V.I.F)	SAE	SAE	SAE	SAE	SAE

NOTE:  
1. SAE: SAME AS EXISTING.  
2. V:VERIFY IN FIELD.  
3. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH AND LINE WIRING.  
4. PROVIDE WITH BACK DRAFT DAMPER.  
5. CONTROLLED BY DEDICATED TIMER SWITCH.

AIR BALANCE SCHEDULE

UNIT	SUPPLY AIR	RETURN AIR	OUTSIDE AIR	EXHAUST	PRESSURE	REMARK
AHU-1(E)	2000	1800	200	--	+200	LOBBY/OFFICE
AHU-2(E)	2000	1600	400	-320 (DRYER EX.)	+80	BREAK ROOM
AC-3(E)	600	600	-	--	-	HALLWAY
EF-1(E)	--	--	--	-70 (V.I.F)	-70 (V.I.F)	RR
EF-2(E)	--	--	--	-70 (V.I.F)	-70 (V.I.F)	RR
TOTAL	4600	4000	600	-460	+140	--

DRYER VENT CALCULATION

DRYER-1

3'-0" - HORIZONTAL LENGTH  
14'-0" - VERTICAL LENGTH  
0'-0" - SUPPLEMENTAL LINT SCREEN  
0 - 45 DEGREE ELBOWS (5.0")  
2 - 90 DEGREE ELBOWS (5.0")  
27'-0" - TOTAL DUCT LENGTH

DRYER-2

3'-0" - HORIZONTAL LENGTH  
14'-0" - VERTICAL LENGTH  
0'-0" - SUPPLEMENTAL LINT SCREEN  
0 - 45 DEGREE ELBOWS (5.0")  
2 - 90 DEGREE ELBOWS (5.0")  
27'-0" - TOTAL DUCT LENGTH

NOTE:  
1.DRYER DUCT RUNS THAT EXCEED 15' SHALL BE INSULATED.  
2.PROVIDE INLINE BOOSTER FAN EQUAL TO TJERNLUND DRYER DUCT BOOSTER #LB2.THERE SHALL BE NO SEAMS BETWEEN BOOSTER FAN AND DRYER VENT CAP.  
3.REFER TO DETAILS ON SHEET M-501 FOR ADDITIONAL INFORMATION

SPLIT SYSTEM SCHEDULE

	SPLIT SYSTEM SCHEDULE			
	AHU-1(E)	AHU-2(E)	AC-3(E)	
UNIT TAG	COIL+GAS FURNACE	COIL+GAS FURNACE	HEAT PUMP	
AREA SERVED	SEE PLAN	SEE PLAN	SEE PLAN	
SUPPLY AIR (CFM)	2000 (V.I.F)	2000 (V.I.F)	600 (V.I.F)	
OUTSIDE AIR (CFM)	200	400	-	
STATIC PRESS. (E.S.P.)	(S.A.E)	(S.A.E)	(S.A.E)	
VOLTS/PH/HZ	120/1/60 (V.I.F)	120/1/60 (V.I.F)	120/1/60 (V.I.F)	
TOT. COOLING/HEATING CAP.(MBH)	60/- (V.I.F)	60/- (V.I.F)	18/9.3 (V.I.F)	
MANUFACTURER	ARCOAIRE (V.I.F)	ARCOAIRE (V.I.F)	ARCOAIRE (V.I.F)	
MODEL NO.	N92ESN120**(V.I.F)	N92ESN120**(V.I.F)	FJMA4X18*** (V.I.F)	
GAS FURNACE (INPUT/OUTPUT)	120/111(V.I.F)	120/111(V.I.F)	-	
WEIGHT, LBS	(S.A.E)	(S.A.E)	(S.A.E)	
MCA/MOP	13/15 (V.I.F)	13/15 (V.I.F)	7.6/15 (V.I.F)	
FAN MOTOR FULL LOAD AMPERAGE	-	-	1.8	
UNIT TAG	ACCU-1 (E)	ACCU-2 (E)	ACCU-3 (E)	
INDOOR SERVED	AHU-1 (E)	AHU-2 (E)	AC-3 (E)	
NOMINAL CAPACITY	5.0 TR (V.I.F)	5.0 TR (V.I.F)	1.5 TR (V.I.F)	
REFRIGERANT	(S.A.E)	(S.A.E)	(S.A.E)	
COMPRESSOR RLA/LRA	(S.A.E)	(S.A.E)	-	
OUTDOOR FAN FLA	(S.A.E)	(S.A.E)	-	
V/Ph/Hz	208-230/3/60(V.I.F)	208-230/3/60(V.I.F)	208/1/60 (V.I.F)	
M.C.A. / M.C.B. AMPS	21.4/30(V.I.F)	21.4/30(V.I.F)	13.4/20(V.I.F)	
MANUFACTURER	ARCOAIRE (V.I.F)	ARCOAIRE (V.I.F)	ARCOAIRE (V.I.F)	
MODEL# (CONDENSER)	N4A360*H****(V.I.F)	N4A360*H****(V.I.F)	R4H5S18AK*** (V.I.F)	
HSPF	-	-	(S.A.E)	
SEER	(S.A.E)	(S.A.E)	(S.A.E)	
WEIGHT, LBS	(S.A.E)	(S.A.E)	(S.A.E)	

SPLIT SYSTEM NOTES  
EXISTING SYSTEM WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.  
1. S.A.E - SAME AS EXISTING & V.I.F. : VERIFY IN FIELD.  
2. CONTRACTOR TO FIELD VERIFY IF ALL AHU & ACCU IS WORKING AT THEIR 100% RATED CAPACITIES/LOADS. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.  
3. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF UNITS ON SITE.  
4. PROVIDE NEW THERMOSTAT AND TEMPERATURE SENSORS COMPATIBLE WITH EXISTING AHU(SEE MODEL REQUIREMENT ON SHEET M-001). COORDINATE FINAL LOCATIONS OF T-STAT AND T-SENSORS WITH ARCHITECT/OWNER. REFER SEQUENCE OF OPERATION ON SHEET M-101 FOR MORE DETAILS.  
5. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING AHU TO MATCH VALUES MENTIONED IN ABOVE TABLE  
6. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF AHUs IN CEILING & ACCUs ON THE ROOF.  
7. REPLACE AIR FILTERS WITH NEW FILTERS IF REQUIRED.  
8. CONTRACTOR TO PROVIDE CONDENSATE DRAIN PUMP IF REQUIRED

CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTIONS,WIRE SIZES, BREAKERS, DISCONNECT ETC. PRIOR TO ORDERING AND BID.



MECHANICAL GENERAL NOTES

- COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
- EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.
- TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO GENERAL CONTRACTOR AND OWNER.
- PATCH THE EXTRA PENETRATIONS AS & IF REQUIRED OR CUT AN EXTRA PORTION OF THE ROOF IF EXISTING PENETRATION IS NOT FEASIBLE/WORKABLE. COORDINATE WITH ROOFING AND MECHANICAL CONTRACTOR.
- MATERIAL FROM EXISTING SYSTEM WHICH IS RENDERED USELESS SHALL BE REMOVED AND DISPOSED OF OFF SITE.
- CONTRACTOR SHALL BALANCE EACH DEVICE WITH THE CFM SHOWN ON PLAN.
- NEW DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR PIPING AND DUCTWORK ROUTING. OFFSET AND RUN PIPING, DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA PIPING, DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
- DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
- CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
- COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
- MOUNT DUCTWORK AS HIGH AS POSSIBLE.
- NEW DUCTWORK IN CONCEALED AREAS MAY BE RECTANGULAR WITH EQUIVALENT CROSS SECTIONAL FLOW AREA.
- PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR FIRE RATINGS OF THE WALLS.
- ARCHITECTURAL LAYOUT AND DIMENSIONS FOR EQUIPMENT TO TAKE PRECEDENCE OVER MEP.
- 1" CD SLOPED AT 1/8" PER FT TO BATHROOM SANITARY UNDER LAVATORY [OR FLOOR DRAIN] W/ AIR GAP FITTING COORDINATE W/PLUMBING DRAWING.
- RUN REFRIGERANT AND CONDENSATE PIPE TIGHT TO CEILING.
- PROVIDE HONEYWELL SMART ROOM SENSOR FOR EACH STUDIO AND CONNECT WITH RESPECTIVE HONEYWELL THERMOSTAT.

MECHANICAL PLAN KEY NOTES:

- CONTRACTOR TO FIELD VERIFY LOCATION & CONFIGURATION OF EXISTING CONDENSING UNITS & AIR HANDLING UNITS.
- Ø5" TOILET EXHAUST AIR DUCT GOING UP TO THE ROOF AND CONNECTED TO GOOSE NECK AND INSECT SCREEN.
- 1" CD SLOPE AT 1/8" PER FT TO BATHROOM SANITARY UNDER LAVATORY [OR FLOOR DRAIN] W/ AIR GAP FITTING COORDINATE W/PLUMBING DRAWING.
- PROVIDE INTERNAL INSULATION ON RETURN DUCT FOR NOISE ABATEMENT.
- Ø4" FLUE VENT FOR DRYER DUCT ROUTED OUT THROUGH ROOF. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS. EACH DRYER VENT TO HAVE MANUFACTURER APPROVED BACK DRAFT DAMPER IN THE DRYER TERMINAL.
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT, HONEYWELL WIFI VISION PRO 8000 FOR AHU-1(E) & AC-3(E), AND AUTO CHANGEOVER AND RELATED WIRING TO CONTROL EACH UNIT. MOUNT T-STAT AT 48" AFF, SENSOR AT 96" AFF.
- PROVIDE HONEYWELL T10 PRO SMART THERMOSTAT FOR AHU-2(E). ROOM TEMPERATURE SENSORS IN EACH OF THE STUDIOS SHALL BE INSTALLED AND TIED TO THERMOSTAT BY CONTRACTOR.
- CONTRACTOR SHALL REUSE EXISTING ROOF PENETRATION & CONNECT Ø2"/Ø3" CONCENTRIC VENT LINE FOR COMBUSTION AIR INTAKE / EXHAUST FROM GAS FIRED EQUIPMENT TO EXISTING ROOF TERMINATION. ROUTE PIPING FROM RESPECTIVE UNIT TO LOCATION INDICATED ON FLOOR PLAN. ROUTE PIPING WITH MINIMAL AMOUNT OF BENDS AND MINIMUM LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURER'S REQUIREMENTS. NOTIFY TO THE ENGINEER FOR ANY DISCREPANCIES.
- CONTRACTOR SHALL ENSURE THAT ALL FRESH AIR INTAKES ARE AT LEAST 10'-0" AWAY FROM EXHAUST SOURCES (PLUMBING VENTS, EXHAUST FANS, COMBUSTION EXHAUST, ETC.). PROVIDE OFFSETS AND ADJUST/RELOCATE EQUIPMENT AS NEEDED.
- BATHROOM EXHAUST SHALL TERMINATE 3 FEET FROM THE PROPERTY/ LOT LINE, 3 FEET FROM THE OPERABLE OPENING INTO THE BUILDING AND 10 FEET FROM THE MECHANICAL OUTSIDE AIR INTAKE OPENINGS. EXHAUST TO BE TERMINATE WITH GOOSENECK & WIRE-MESH AT ROOF.
- EXISTING DUCTWORK/PLENUM TO REMAIN. CONTRACTOR SHALL CLEAN AND REFURBISH TO 'LOOK LIKE' NEW CONDITION. VERIFY EXACT LOCATION AND SIZE IN FIELD. CONTRACTOR SHALL INSPECT, PATCH, REPAIR, AND/OR REPLACE INSULATION TO MAKE THE ENTIRE SYSTEM AIR-TIGHT. COORDINATE IN FIELD PRIOR TO BID.
- CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING DUCTWORK/AIR TERMINALS AS SHOWN WITH HIDDEN LINE. PATCH AND SEAL THE MAIN DUCT AIR TIGHT.
- PROVIDE NEW DEHUMIDIFIER. INTERLOCK OPERATION OF DH-1 & DH-2 WITH AHU-1(E) & 2(E) RESPECTIVELY. COORDINATE DRAIN REQUIREMENT WITH PLUMBING.
- CONTRACTOR SHALL REUSE EXISTING ROOF PENETRATION & CONNECT Ø4" VENT FROM GAS FIRED EQUIPMENT TO EXISTING ROOF TERMINATION. ROUTE PIPING FROM RESPECTIVE UNIT TO LOCATION INDICATED ON FLOOR PLAN. IF EXISTING ROOF VENT NOT PROVIDED THEN PROVIDE NEW Ø4" FLUE VENT FROM GAS FIRED EQUIPMENT DUCT ROUTED OUT THROUGH ROOF. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
- IN-LINE DEHUMIDIFICATION UNIT IS OPTIONAL. G.C. TO INCLUDE IN THEIR BID AS AN ADD-ALTERNATE. IF IN-LINE DEHUMIDIFICATION UNIT IS NOT UTILIZED, PROVIDE THE APPROPRIATE 10" CAPPED ROUND SIDE TAKEOFFS IN THE DUCT FOR POSSIBLE FUTURE INSTALLATION.
- 1" DOOR UNDERCUT FOR RETURN AIR.

AHU-2(E): SEQUENCE OF OPERATION

- A SINGLE HONEYWELL T10 PRO SMART THERMOSTAT WILL BE INSTALLED IN OFFICE AND CONNECTED TO AHU-2(E).
  - AT EACH STUDIO/SUITE, A HONEYWELL SMART ROOM TEMPERATURE SENSOR WILL BE INSTALLED CLOSE TO THE LIGHT SWITCH.
  - ACTIVE ROOMS FEATURE OCCUPIED MODE:
    - ENABLE "ACTIVE ROOMS" FEATURE IN THERMOSTAT.
  - ZONE TEMPERATURE IS DETERMINED BY THE AVERAGE OF SENSOR TEMPERATURE IN OCCUPIED ROOMS.
- UNOCCUPIED MODE:  
IF NO ROOMS ARE OCCUPIED THERMOSTAT'S INPUT TO CONTROL THE AHU IS PROVIDED BY ZONE TEMPERATURE MEASURED BY THERMOSTAT OR ANY ONE OF THE STUDIO ROOM (USER EDITABLE).

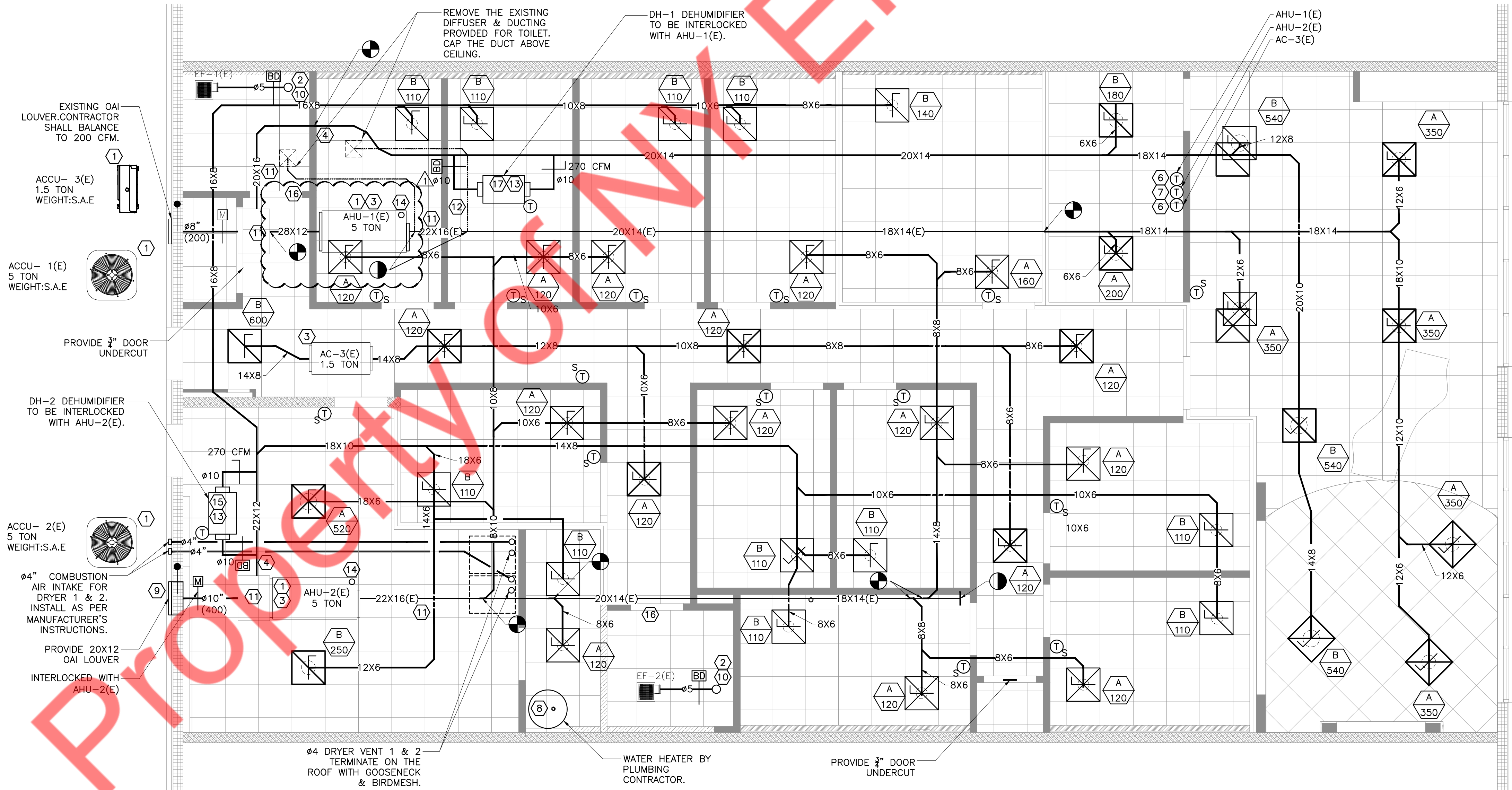






FIG. C shows a cross-section of a duct with a lining. The lining is labeled "DUCT LINING (A.L.)" and is shown as a dashed line within the duct. The duct itself is labeled "DUCT".



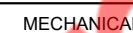
SCALE: NTS



## SCALE: NTS



SCALE: NTS



#### 4 DRYER VENT THROUGH ROOF DETAIL

## SCALE: NTS



SCALE: NTS



## SCALE: NTS



MINIMUM CONICAL TAP METAL GAUGE		
TAP DIA. (IN.)	GAUGE - GALV. STOCK	DAMPER GAUGE
8 AND BELOW	24	22
9 - 14	24	22
15 - 16	22	20
27 - 36	20	18
37 - 50	18	16

COALFAC



VANE SCHEDULE	
WIDTH	NO. OF VANES
≤ 12"	1
12"-24"	2
24"-36"	3
36"-60"	4
60"-84"	5
> 84"	6

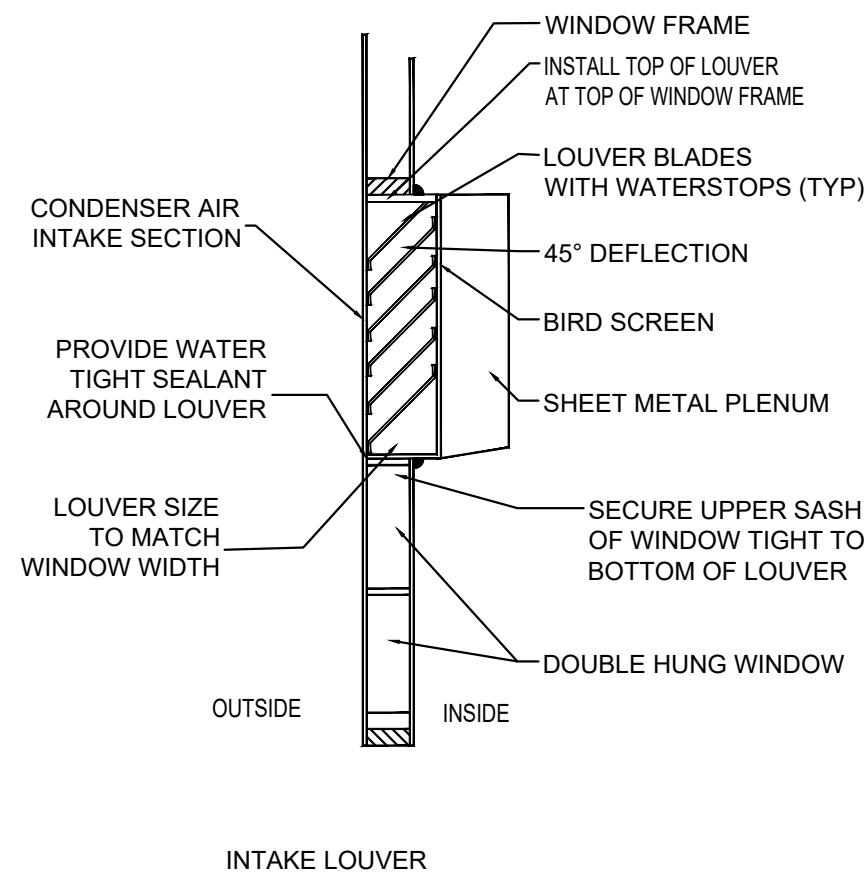
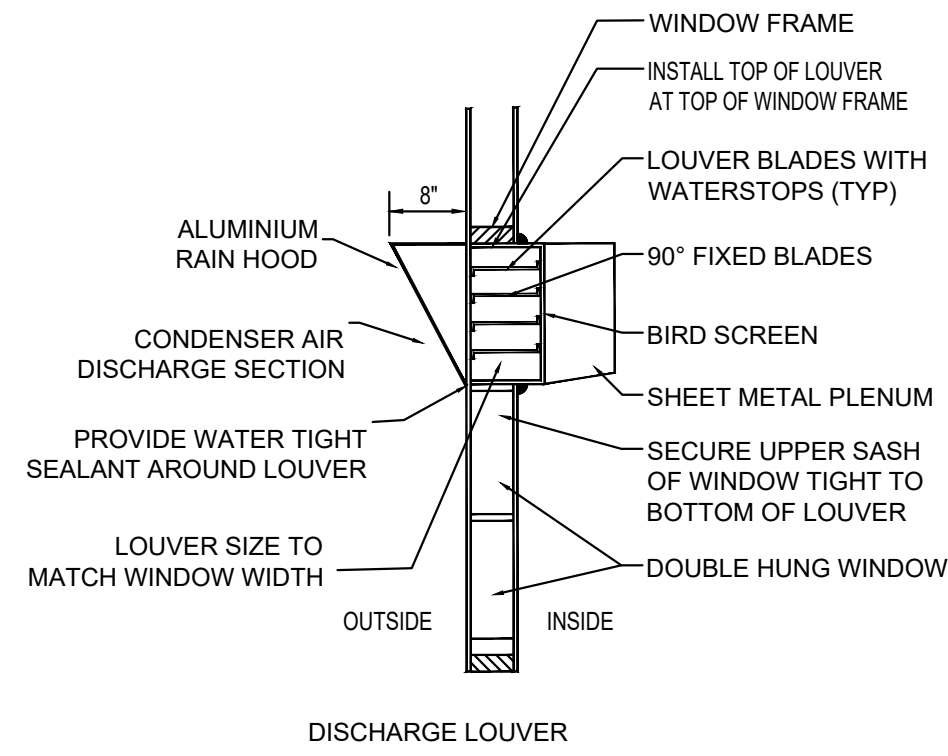
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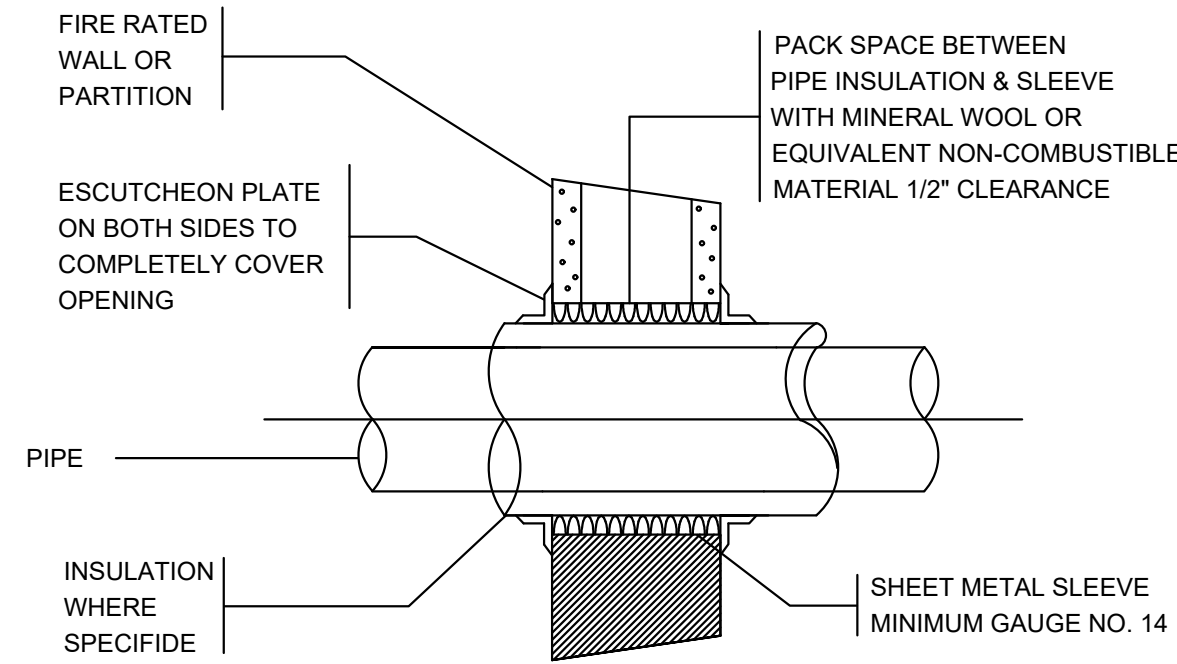
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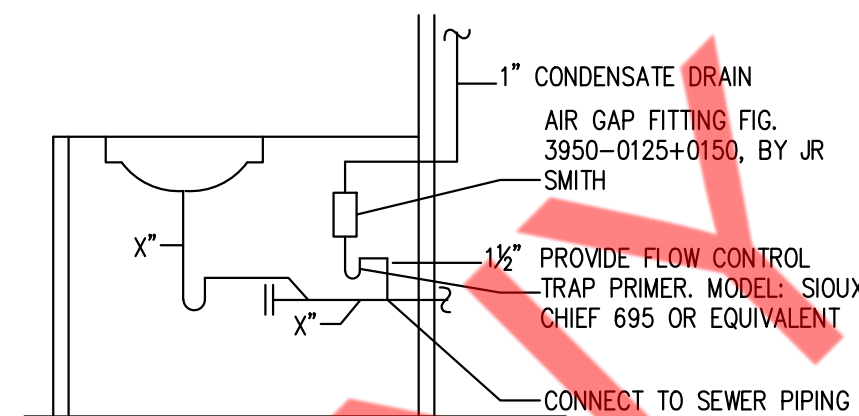


15 LOUVER DETAIL  
SCALE: NTS  
MECHANICAL



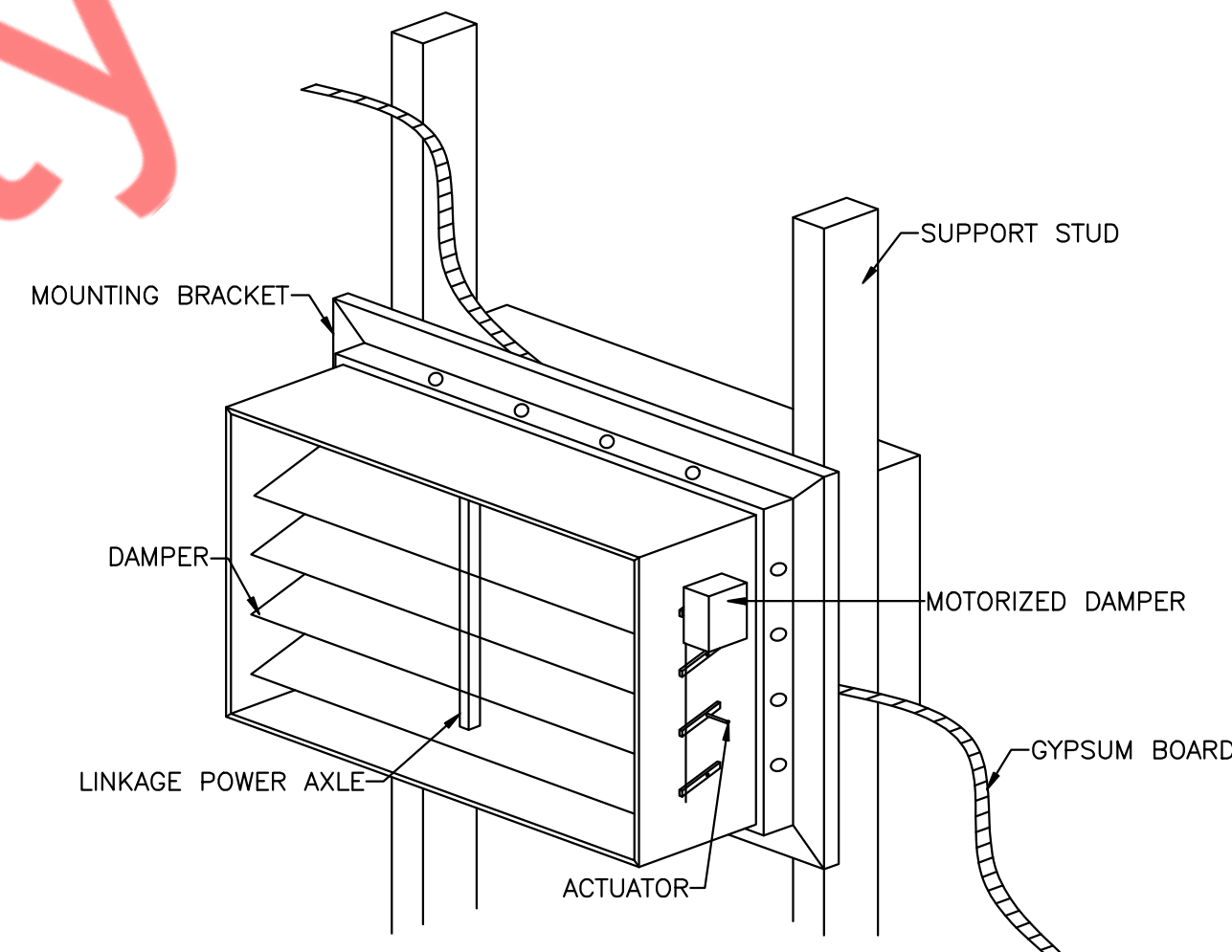
NOTE:  
1.) THE INSTALLATION OF FIRE STOPPING MATERIALS SHALL BE SUBJECT TO CONTROLLED INSPECTION IN ACCORDANCE WITH C26-106.3.

11 PIPE SLEEVE THRU RATED WALL  
SCALE: NTS  
MECHANICAL



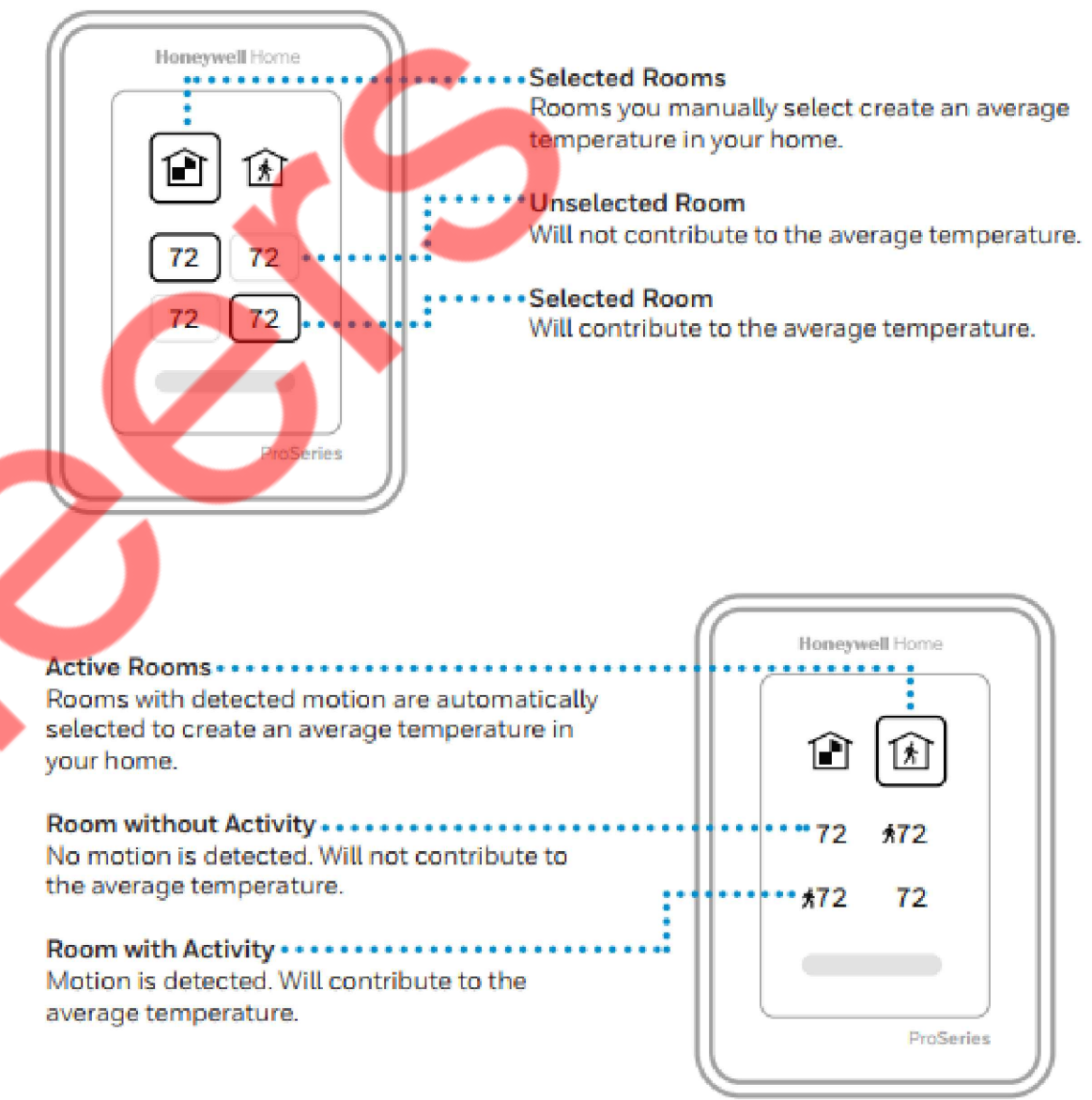
NOTE:  
LOCATE AIR GAP FITTING AND PIPING WITHIN SINK/LAVATORY ENCLOSURE.

13 AIR GAP FITTING DETAIL  
SCALE: NTS  
MECHANICAL

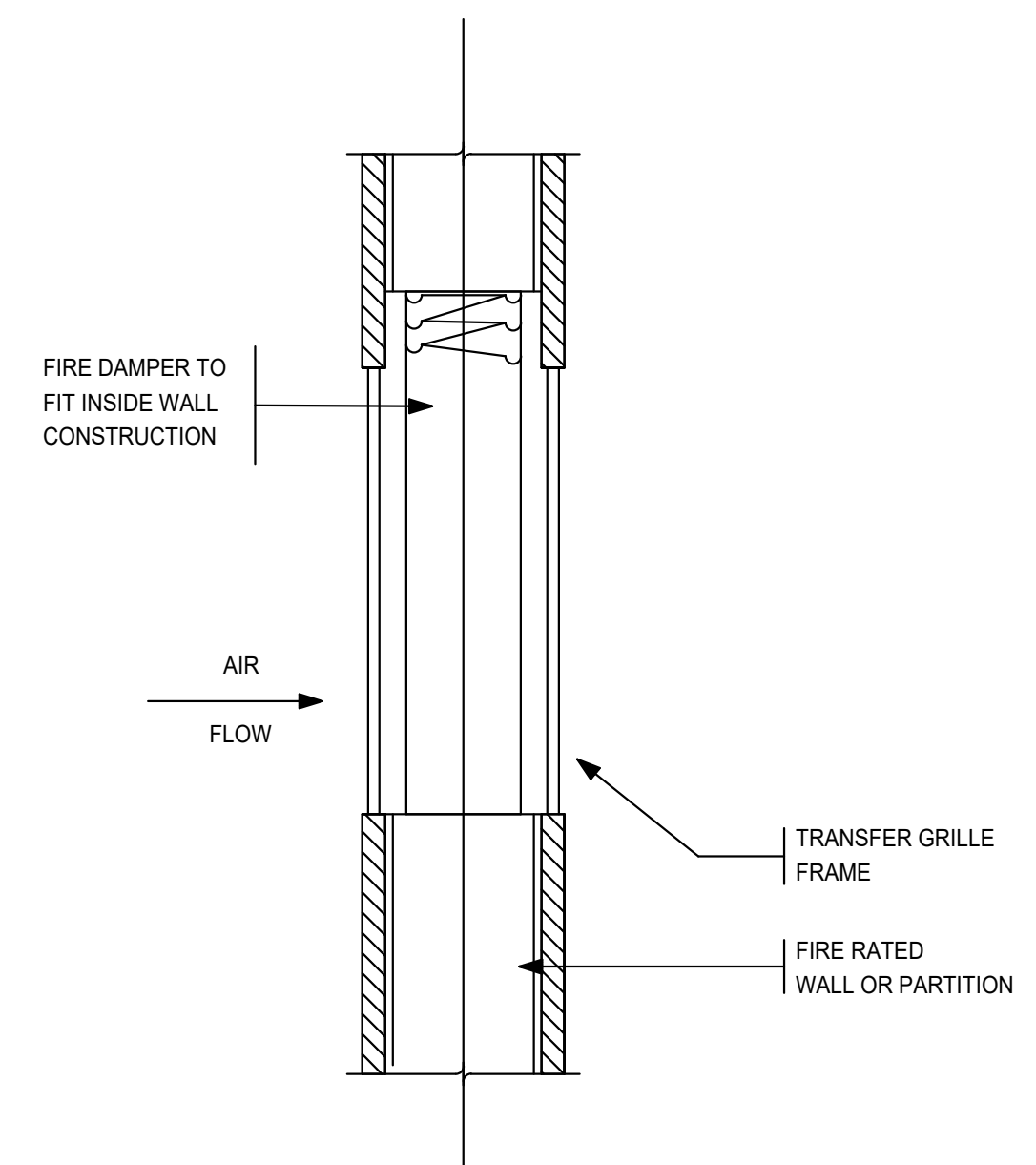


14 MOTORIZED DAMPER DETAIL  
SCALE: NTS  
MECHANICAL

## Honeywell Home T10Pro Smart Thermostat



10 THERMOSTAT DETAILS  
SCALE: NTS  
MECHANICAL



11 VERTICAL FIRE DAMPER  
SCALE: NTS  
MECHANICAL





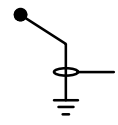


ELECTRICAL SYMBOLS LIST

LIGHTING AND SWITCHES

REFER TO SHEET E-201

WIRING SYSTEMS



CONDUIT AND WIRE TO BUILDING GROUND.

UNDERGROUND

EXISTING

NEW



CEILING MOUNTED SPEAKER

POWER AND TELECOMMUNICATION



FLOOR MOUNTED RECEPTACLE



CEILING MOUNTED RECEPTACLE



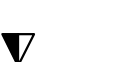
JUNCTION BOX WITH BLANK COVER PLATE, MOUNTED AS PER EQUIPMENT PLACEMENT.



DOUBLE DUPLEX RECEPTACLE – 20A-1P, 120V, NEMA 5-20R.



DUPLEX GFI RECEPTACLE



TELEPHONE/DATA OUTLET, 4”SQUARE OUTLET BOX WITH SINGLE GANG COLLAR AND BLANK PLATE. PROVIDE 3/4” E.C., U.O.N., UP TO HUNG CEILING AND TERMINATE WITH 90° ELBOW, BUSHING AND DRAG WIRE.



DATA OUTLET – (1) PORT UNO, +18” AFF, UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1” CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WITH 1 1/4” DIAMETER GROMMETED OPENING.

MOTORS AND CONTROLS



NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.

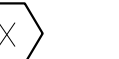


THERMAL SWITCH

ANNOTATION

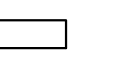
+24”

INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.



KEYED NOTE REFERENCE

POWER DISTRIBUTION



DISTRIBUTION PANELBOARD, 208Y/120V-SURFACE OR FLUSH MOUNTED.

ELECTRICAL DRAWING LIST

E-001	ELECTRICAL SYMBOL LIST & GENERAL NOTES
E-101	FLOOR PLAN – POWER
E-102	FLOOR PLAN – LIGHTING
E-201	LIGHTING FIXTURES & DETAILS
E-301	ELECTRICAL SCHEDULE & RISER DIAGRAM
E-401	ELECTRICAL SPECIFICATION SHEET – 1 OF 2
E-402	ELECTRICAL SPECIFICATION SHEET – 2 OF 2

ELECTRICAL ABBREVIATIONS

A	AMPERES	EA	EACH
A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
AT	AMP TRIP	ER	EXISTING TO BE RELOCATED
ATS	AUTOMATIC TRANSFER SWITCH	ETR	EXISTING TO REMAIN
AUTO	AUTOMATIC	EWf	ELECTRIFIED WORKSTATION FURNITURE
AWG	AMERICAN WIRE GAUGE	EWH	ELECTRIC WATER HEATER
C	CONDUIT	FA	FIRE ALARM
C/B,CB	CIRCUIT BREAKER	FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
CKT	CIRCUIT	FDR	FEEDER
CLG	CEILING	FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
COMM	COMMUNICATION	FIXT	FIXTURE
CT	CURRENT TRANSFORMER	FL	FLOOR
CU	COPPER	FLUOR	FLUORESCENT
°C	DEGREE CELSIUS	G	GROUND
°F	DEGREE FAHRENHEIT	GFI	GROUND FAULT INTERRUPTER
DIA	DIAMETER	GP	GENERAL PURPOSE
DISC	DISCONNECT	HC	HUNG CEILING
DN	DOWN	HP	HORSEPOWER
DP	DISTRIBUTION PANEL	HWH	HOW WATER HEATER
DWH	DOMESTIC WATER HEATER	HZ	HERTZ
DWG	DRAWING	IC	INTERRUPTING CAPACITY
JB	JUNCTION BOX	PP	POWER PANEL
KCMIL	ONE THOUSAND CIRCULAR MILS	PVC	POLYVINYL CHLORIDE
KV	KILOVOLT	PWR	POWER
KVA	KILOVOLT-AMPERES	R	REMOVE
KW	KILOWATTS	RE	RELOCATED EXISTING
LP	LIGHTING PANEL	REC	RECEPTACLE
LTG	LIGHTING	RGS	RIGID GALVANIZED STEEL
MAX	MAXIMUM	RR	REMOVE & RELOCATE
MC	MOTOR CONTROLLER	SECT	SECTION
MCB	MAIN CIRCUIT BREAKER	SPDT	SINGLE POLE DOUBLE THROW
MER	MECHANICAL EQUIPMENT ROOM	SPST	SINGLE POLE SINGLE THROW
MIN	MINIMUM	SPEC	SPECIFICATION
MLO	MAIN LUGS ONLY	SW	SWITCH
MTD	MOUNTED	SWBD	SWITCHBOARD
MTS	MANUAL TRANSFER SWITCH	SYM	SYMMETRICAL
N	NEUTRAL	SYS	SYSTEMS
NE	NEW DEVICE TO REPLACE EXISTING	TELE	TELEPHONE
NIC	NOT IN CONTRACT	TEMP	TEMPERATURE
NL	NIGHT LIGHT	TXF	TOILET EXHAUST FAN
NTS	NOT TO SCALE	TYP	TYPICAL
OC	ON CENTER	UON	UNLESS OTHERWISE NOTED
P	POLES	V	VOLT/VOLTAGE
PB	PULLBOX	VA	VOLT AMPERE
PC	PERSONAL COMPUTER	VAV	VARIABLE AIR VOLUME
ø	PHASE	VFD	VARIABLE FREQUENCY DRIVE
PNL	PANEL	VP	VAPORPROOF
W	WATT	WP	WEATHER PROOF
W	WIRE	XFMR	TRANSFORMER
WH	WALL HEATER	ZRT	ZONE REGISTER TERMINALS
E	EXISTING	IG	ISOLATED GROUND

GENERAL NOTES  
( APPLY TO ALL "E" DRAWINGS)

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NATIONAL ELECTRICAL CODE, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
- FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
- VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS; ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
- CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
- MINIMUM SIZE OF CONDUIT SHALL BE ¾", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
- CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
- PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CANCELED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
- SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
- FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
- ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RANTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
- ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
- ALL CONDUITS AND EQUIPMENT TO BE CONCEAL ED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
- ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
- OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
- COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITHR THE ENGINEER AND OWNER BEFORE INSTALLATION.
- COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATION OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOACTIONS OF ALL LUMINAIRES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
- LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
- NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

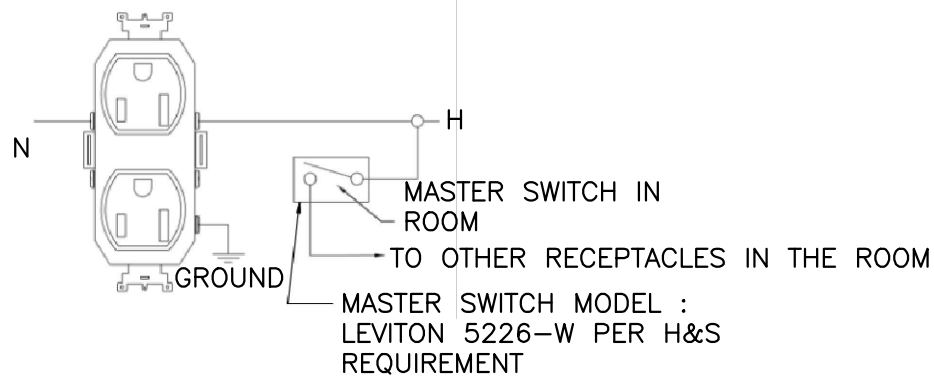


# FLOOR PLAN - POWER KEYED WORK NOTES

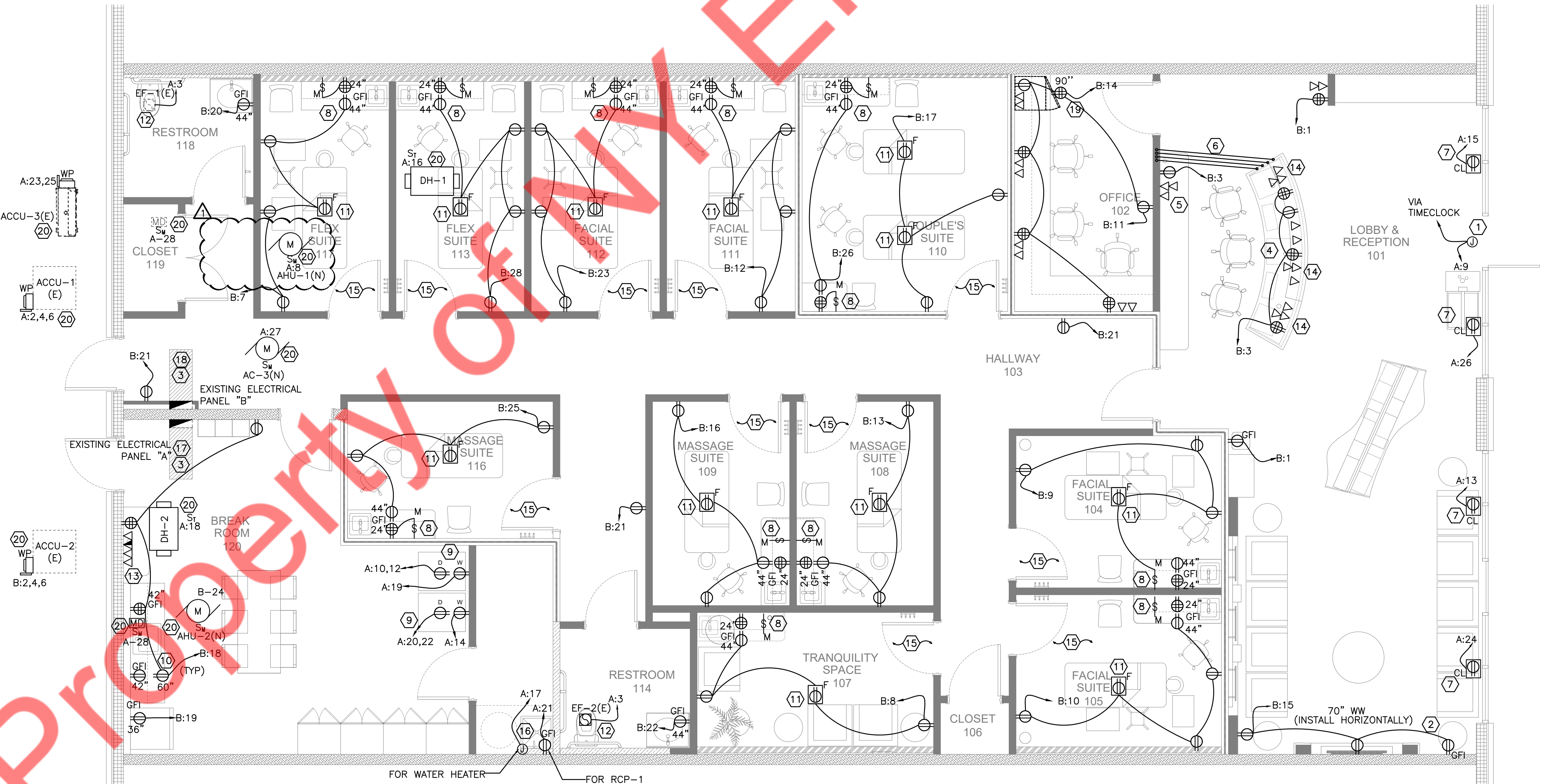
1. PROVIDE JUNCTION BOX, CONDUIT, AND 120V WIRING AS REQUIRED FOR EXTERIOR SIGNAGE. COORDINATE REQUIREMENTS WITH SIGN CONTRACTOR AND PROVIDE AS REQUIRED. TENANT'S GC SHALL COORDINATE WITH TENANT'S SIGN VENDOR AND CONFIRM POWER LOCATION(S) FOR ALL EXTERIOR SIGN(S)—VERIFY QUANTITY WITH FRANCHISEE PRIOR TO ROUGH-IN. SIGN VENDOR SHALL NOT BE RESPONSIBLE FOR PRIMARY ELECTRIC OR ACCESS TO ELECTRICAL CONNECTION. ALL JUNCTION BOXES FOR BUILDING SIGNAGE SHALL BE LOCATED WITHIN 6'-0" OF THE BUILDING SIGN LOCATION. WHERE REQUIRED, ACCESS PANELS SHALL BE PROVIDED.
2. PROVIDE DUPLEX RECEPTACLE BEHIND WATER FEATURE, FED DOWNSTREAM OF INDICATED FEED—THROUGH TYPE GFI RECEPTACLE, MOUNTED ON WALL ADJACENT TO WATER FEATURE. COORDINATE EXACT REQUIREMENTS WITH WATER FEATURE MANUFACTURER AND PROVIDE AS REQUIRED.
3. E.C. SHALL MAINTAIN CLEARANCE FOR ELECTRICAL PANELS PER NEC. 110.26 (A) (1).
4. VERIFY EXACT MOUNTING LOCATION AND REQUIREMENTS FOR DEVICES AT RECEPTION DESK WITH SUPPLIER PRIOR TO ROUGH-IN. ELECTRICAL CONTRACTOR TO DETERMINE BEST METHOD FOR SUPPLYING POWER TO RECEPTION DESK. CONDUIT SHALL BE CONCEALED IN BUILDING FINISHES. E.C. TO PROVIDE, AT MINIMUM, TWO(2) 1" C. FOR LOW VOLTAGE & ONE(1) 3/4" C. FOR LINE VOLTAGE TO SERVICE RECEPTION DESK. INSTALL PULL STRING WITH RINGS.
5. POWER AND DATA AT CREDENZA TO BE UNDER COUNTER WITHIN CABINET.
6. PROVIDE (4) 1 1/2" CONDUITS TO RECEPTION DESK, (2) FOR DATA, (1) FOR POWER, AND (1) SPARE/FUTURE WITH PULL STRING.
7. PROVIDE CEILING MOUNTED RECEPTACLES. MOUNT 6" OFF OF WINDOW CASING FOR SHOW WINDOW RECEPTACLES.
8. PROVIDE MASTER SWITCH (MODEL: LEVITON 5226-W) TO CONTROL RECEPTACLES WITHIN EACH ROOM (EXCEPT 44" DUPLEX OUTLET), AS DETAILED ON THIS SHEET, DETAIL DRAWING #2 FOR ADDITIONAL INFORMATION.
9. VERIFY MOUNTING LOCATIONS AND POWER REQUIREMENTS FOR WASHER/DRYER RECEPTACLES WITH ARCHITECT/OWNER AND PROVIDE/INSTALL AS REQUIRED.
10. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS PRIOR TO ROUGH-IN.
11. FLUSH MOUNTED FLOOR BOX (HUBBELL #PFBG1), BRASS COVER PLATE (HUBBELL #S3825), AND BRASS FLOOR BOX TRIM (HUBBELL #SB3083). REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION.
12. CONNECT EXHAUST FAN TO DEDICATED TIMER SWITCH PER DESIGN STANDARDS REQUIREMENTS.
13. POWER AND DATA FOR SCHEDULE MONITOR AND CPU. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT IN FIELD AND INSTALL AS REQUIRED.
14. PROVIDE SINGLE JACK FOR VOICE OUTLET AND TWO JACKS FOR DATA OUTLETS (TYPICAL).
15. ALL RECEPTACLES IN ROOM WIRED DOWNSTREAM FROM FIRST GFI TO BE PROTECTED.
16. NEW GAS WATER HEATER. REFER TO PLUMBING DRAWING FOR DETAILS.
17. EXISTING 200A, 208/120V, 3PH, 4W ELECTRICAL PANEL "A" FOR THE PROJECT SPACE SHALL REMAIN. E.C. SHALL VERIFY OPERABLE CONDITION IN FIELD. REPLACE IF FOUND IN-OPERABLE. BASE BID ACCORDINGLY.
18. EXISTING 200A, 208Y/120V, 3PH, 4W ELECTRICAL PANEL "B" FOR THE PROJECT SPACE SHALL REMAIN. E.C. SHALL VERIFY OPERABLE CONDITION IN FIELD. REPLACE IF FOUND IN-OPERABLE. BASE BID ACCORDINGLY.
19. SEE ARCHITECTURAL PLAN FOR EXACT LOCATION.
20. E.C. SHALL COORDINATE WITH MECHANICAL DRAWING FOR EXACT LOCATION OF MECHANICAL EQUIPMENT AND SHALL ALSO COORDINATE WITH MECHANICAL CONTRACTOR FOR THE EXACT POWER REQUIREMENT OF MECHANICAL EQUIPMENTS ON FIELD.

FLOOR PLAN - POWER GENERAL NOTES

1. E.C. SHALL VERIFY THE EXACT ELECTRICAL EQUIPMENT REQUIREMENTS INCLUDING RECEPTACLE, CIRCUIT BREAKER AND CABLES FOR ALL THE KITCHEN EQUIPMENTS WITH EQUIPMENTS SUPPLIER/OWNER IN FIELD AND ACCORDINGLY PROVIDE THE ELECTRICAL CONNECTION FOR ALL KITCHEN EQUIPMENTS PER MANUFACTURER RECOMMENDATION/ REQUIREMENTS. BASE BID ACCORDINGLY.
2. THE RECEPTACLES MARKED AS "GFI" ON THE FLOOR PLAN INDICATES THAT THE RECEPTACLE SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE GFI BREAKER IN PANEL IF GFI RECEPTACLE IS NOT READILY ACCESSIBLE OR FOR THE RECEPTACLES OTHER THAN 20A. COMPLY WITH NEC 210.8(B).
3. LOW VOLTAGE CABLING IS NOT TO BE RAN IN SAME CONDUIT AS LINE VOLTAGE.
4. G.C. TO INSTALL PULL STRINGS WITH RINGS AT ALL VOLUME CONTROLS & DATA DROPS.
5. IF LOCAL CODE REQUIRES ENCLOSED BOXES FOR VOLUME CONTROL, DEEP BOXES ARE TO BE INSTALLED.
6. IF CONDUIT NOT REQUIRED BY CODE, INSTALL SNAP-IN PROTECTIVE GROMMETS IN TOP TRACKS & PRE-PUNCHED METAL STUD OPENINGS TO PROTECT WIRES FROM FRICTION DAMAGE DURING INSTALL.



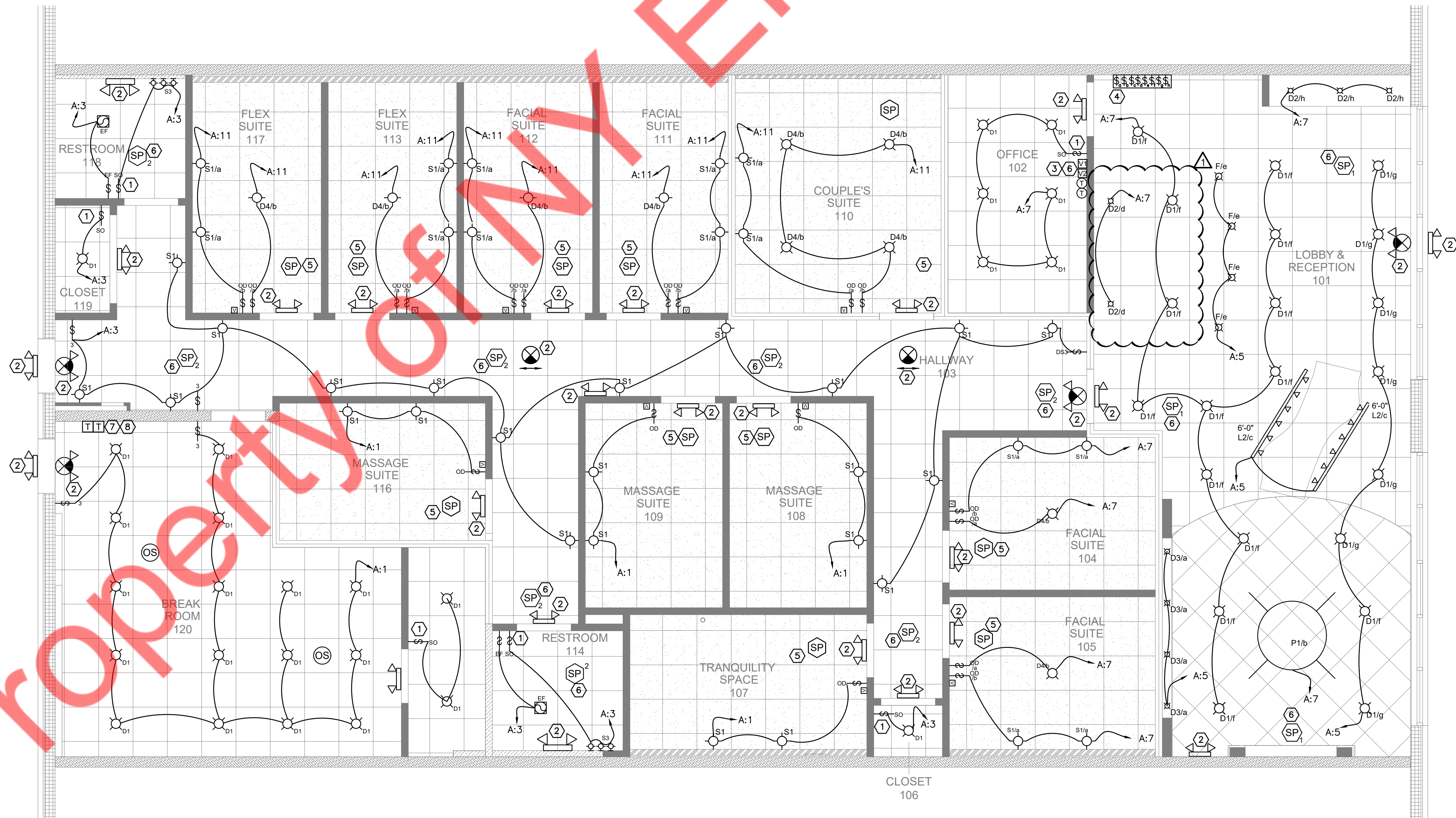
2 MASTER SWITCH  
SCALE: NTS





- # FLOOR PLAN -LIGHTING KEYED WORK NOTES
- 1 WALL MOUNTED OCCUPANCY SENSOR. TO BE USED IN RESTROOM, OFFICE APPLICATIONS.
  - 2 WIRE ALL EMERGENCY AND EXIT LIGHT TO THE NEAREST CIRCUIT AHEAD OF ALL CONTROLS & SWITCHING FOR CONTINUOUS OPERATION.
  - 3 VOLUME CONTROL FOR LOBBY AND HALL/RESTROOM SPEAKERS PER DESIGN STANDARD REQUIREMENTS.
  - 4 DIMMER SWITCH BANK COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER. DIMMER SWITCHES SHALL BE RATED FOR TOTAL LOAD OF SWITCHED CIRCUIT AND LAMP TYPE AS REQUIRED. DIMMERS SHALL BE PROVIDED WITH AN ON/OFF SWITCH.
  - 5 TERMINATE SPEAKER WIRE AT INDIVIDUAL SUITE CONTROLS.
  - 6 NUMBER INDICATES WHICH VOLUME STATION CONTROLS THE INDIVIDUAL SPEAKER. VOLUME CONTROL STATIONS FOR THESE SPEAKERS ARE LOCATED IN THE OFFICE.
  - 7 TIME CLOCK FOR CONTROL OF NEW EXTERIOR SIGNAGE.
  - 8 TIME CLOCK FOR INTERIOR LIGHTING CIRCUITS.

- FLOOR PLAN -LIGHTING GENERAL NOTES
- A. REFER SHEET E-201 FOR LIGHT FIXTURE SCHEDULE, MOUNTING DETAILS
  - B. CONTRACTOR IS ADVISED THAT ADJUSTMENTS TO EMERGENCY AND EXIT LIGHT FIXTURE LOCATIONS/QUANTITIES MAY BE REQUIRED BY AHJ UPON FINAL INSPECTION.
  - C. ALL EMERGENCY AND EXIT LIGHT FIXTURES SHALL BE CONNECTED AHEAD OF SWITCHED LIGHTING CIRCUIT.
  - D. SPEAKERS ARE INDICATED FOR REFERENCE ONLY. TO BE PROVIDED BY OTHERS.
  - E. REFER TO MASTER GUIDE FOR EXACT INFORMATION ABOUT LIGHTING FIXTURES AND LIGHTING CONTROLS MANUFACTURERS AND OTHERS.
  - F. INSTALL PULL STRINGS AND RINGS AT ALL VOLUME CONTROLS AND DATA DROPS. VOLUME CONTROLS AND WIRES ARE NOT TO SHARE A CONDUIT OR BOX WITH LINE VOLTAGE.
  - G. IF LOCAL CODE REQUIRES ENCLOSED BOXES FOR VOLUME CONTROLS, DEEP BOXES ARE TO BE INSTALLED.

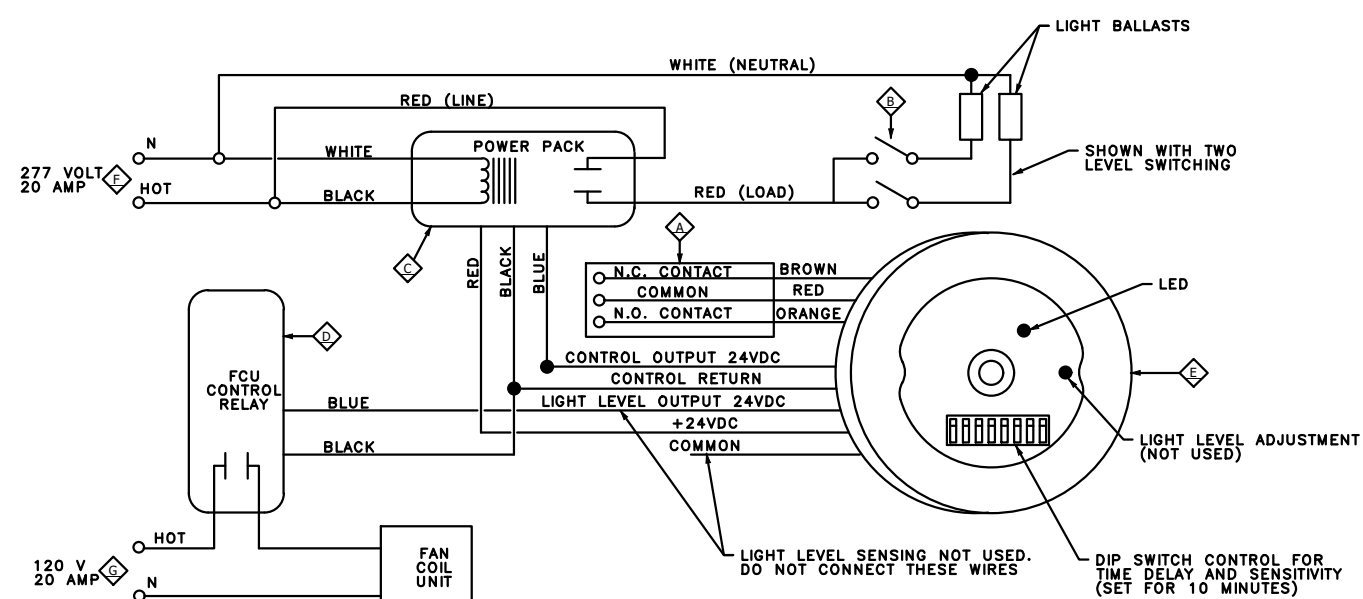


1 FLOOR PLAN - LIGHTING  
SCALE: 1/4" = 1'-0"



LIGHT FIXTURE AND SWITCH SCHEDULE							
TYPE	MANUFACTURER	MODEL #	DESCRIPTION	WATTS	LAMPS	NOTES	REQUIRED SWITCH WHERE CEILING MOUNTED OCCUPANCY SENSOR OR DAYLIGHT SENSOR CONTROL IS REQUIRED (REFERENCE PLAN)
S1	LBL LIGHTING	JW-681-LI-2D	FIONA WALL SCONCE	60	1	CENTER OF SCONCE TO BE 6'-0" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
S1 LAMP	TCP	LED9A19DA	9w A19 WARM DIM LED LAMP	9	--	--	
S2	LBL LIGHTING	LW-681-LI-LED	LED FIONA WALL SCONCE	10	1	CENTER OF SCONCE TO BE 6'-0" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
S3	THOMAS LIGHTING	SL7483-78	3 LT. PRESTIGE BATH LIGHT, SATIN NICKEL FINISH	7	3	CENTER ABOVE MIRROR IN RESTROOM	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
S3 LAMP	TCP	LED7A19D27K	7w A19 LED LAMP	7	--	--	
F	BOCK	P26-VW11754WH	BOCK PENDANT	60	1	"F" FIXTURE TO BE SELECTED BY FRANCHISEE; VERIFY CHOICE PRIOR TO ORDERING FIXTURE; INSTALL BOTTOM OF GLASS 6'-9" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
F ALT.	BESA LIGHTING	BESA 1JT-JUN 10CL-EDIL-SN WITH STACO S9892 LED LAMP	JUNI 10" CLEAR BUBBLED GLASS PENDANT	4.5	1	"F" FIXTURE TO BE SELECTED BY FRANCHISEE; VERIFY CHOICE PRIOR TO ORDERING FIXTURE; INSTALL BOTTOM OF GLASS 6'-9" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
F ALT. 2	BESA LIGHTING	1JT-FRIZLN-LED-SN	FRIZ PENDANT WHITE LINEN GLASS PENDANT	9	1	"F" FIXTURE TO BE SELECTED BY FRANCHISEE; VERIFY CHOICE PRIOR TO ORDERING FIXTURE; INSTALL BOTTOM OF GLASS 6'-9" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
F LAMP	TCP	LED9A19DA	9w A19 WARM DIM LED LAMP	9	--	--	
L2 TRACK	JUNO	T8WH; T21WH	WHITE ONE-CIRCUIT TRACK; LIVE END FEED WITH PLATE	--	--	--	LUTRON MRF2S-6ELV-120, 600W ELV DIMMER 120
L2 HEAD	JUNO	R600L-30	10w LED INTEGRAL TRACK HEAD, WHITE FINISH	10	1	PROVIDE (5) HEADS FOR AN 8'-0" LENGTH OF TRACK AND (4) HEADS FOR A 4'-0" LENGTH OF TRACK	LUTRON MRF2S-6ELV-120, 600W ELV DIMMER 120
P1	CTL	SNF-RLMS94DRF1-AB	48" LINEN SHADE DRUM PENDANT	36	4	INSTALL BOTTOM OF DRUM AT 7'-9" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
P2	CTL	RLM-594DRD1-AB	36" LINEN SHADE DRUM PENDANT	36	4	INSTALL BOTTOM OF DRUM AT 7'-9" AFF	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
P LAMP	TCP	LED9A19DA	9w A19 WARM DIM LED LAMP	9	--	--	
D1	HALO	H7T/TCP LED14-DR-5627K	6" DOWNLIGHT WITH WHITE RIM TRIM AND DIMMABLE LED MODULE	14	1	--	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
D2	LOTUS LED	LL-4G-27KWH	4" LED DOWNLIGHT WITH WALL WASH	11.4	1	--	
D3	LOTUS LED	LL-4RR-27KWH	4" LED DOWNLIGHT	14.5	1	--	
D4	TCP	LED10DR56DA	4" LED DOWNLIGHT	10	1	ALLUSION WITH LED LAMPS PAR38	LUTRON MRF2S-6ND-120, 600W VA SPEC-GRADE WIRE DIMMER
D5	JUNO	MD1LG2 RD 03LM 27K 80CRI FL	2" LED DOWNLIGHT	4.8	1	CENTER WITHIN NICHE HEAD	

SWITCH AND EMERGENCY LIGHT SCHEDULE				
↓ <sub>DS</sub>	DS	LUTRON	FIXTURE DEPENDANT	MAESTRO DIMMER FOR USE WITH OCCUPANCY OR DAYLIGHT SENSORS ONLY (SEE LIGHTING SCHEDULE FOR SPECIFIC SWITCH)
↓ <sub>DS3</sub>	DS3	LUTRON	FIXTURE DEPENDANT	MAESTRO DIMMER FOR USE WITH OCCUPANCY OR DAYLIGHT SENSORS ONLY (SEE LIGHTING SCHEDULE FOR SPECIFIC SWITCH)
↓ <sub>DS</sub>	DS	LUTRON	CTCL-153P-WH	600W NOVA 118 LED DIMMER, SINGLE POLE (USE FOR FIXTURES WITHOUT AN OCCUPANCY OR DAYLIGHT SENSOR CONTROL)
↓ <sub>DS3</sub>	DS3	LUTRON	N-1503P-WH	600W NOVA 118 LED DIMMER, THREE WAY (USE FOR FIXTURES WITHOUT AN OCCUPANCY OR DAYLIGHT SENSOR CONTROL)
↓ <sub>OD</sub>	DIM-1	LUTRON	MSCL-OP153M-WH	LINE VOLTAGE DIMMING OCC SENSOR
⊙ <sub>S</sub>	OS	LUTRON	LRF2-OCR2B-P-WH	RADIO POWER SACR WIRELESS OCCUPANCY CEILING SENSOR
⊙ <sub>L</sub>	DL	LUTRON	LRFX-DCRB-WH	RADIO POWER SACR WIRELESS DAYLIGHT SENSORS
↓ <sub>SO</sub>	SO	LUTRON	MS-OPS2-WH	MAESTRO 2-AMP SINGLE POLE OCC SENSOR SWITCH
⊗	EX	EXITRONIX	VEX-U-BP-WB-WH	LED EXIT SIGN WITH BATTERY
⊗ ⊗	EX/EM COMBO	EXITRONIX	VLED-1-WH-EL90	LED EXIT SIGN COMBO WITH BATTERY AND TOW EMERGENCY HEADS
↕	EM	EXITRONIX	LED51-WH	TWO-HEAD WALL EBU
△	R-EM2	EXITRONIX	VLED-1-WH-EL90-R-MLED1	ONE-HEAD REMOTE WATERPROOF EM LIGHT
▽	R-EM2	EXITRONIX	VLED-1-WH-EL90-R-MLED2	TWO-HEAD REMOTE WATERPROOF EM LIGHT



SENSOR SYSTEM- GENERAL NOTES:

1. ALL WIRING SHALL BE IN RACEWAYS.
2. USE TWO (OR MORE) JUNCTION BOXES, BOLTED TOGETHER AS NEEDED TO ACCOMMODATE WIRING OF DEVICES 80-277 VOLT, 120 VOLT AND 24 VOLT APPLICATIONS ARE NOT IN SAME BOX, OR RACEWAY. SUPPORT BOXES ABOVE CEILING, AT LOCATIONS OF SENSOR.
3. LIGHT SWITCHING WILL BE PLACED AT DOOR OF ROOM AND WILL ALLOW COMPLETE CONTROL OF LIGHTS WHEN ROOM IS OCCUPIED. PART OR ALL OF LIGHTING MAY BE TURNED OFF, OR BACK ON, AS NEEDED.
4. PROVIDE THREE-WAY SWITCHING IN NOTED ROOMS. IN SUCH ROOMS ONLY ONE "SENSOR SYSTEM" IS NEEDED. WIRE THREE-WAYS IN STANDARD FASHION.
5. NO OCCUPANCY SENSORS SHALL BE PLACED ON LIGHTING FOR CORRIDORS OR STAIRWAYS.
6. ALL SENSOR SYSTEM RELATED EQUIPMENTS SHALL BE FROM ONE MANUFACTURER.

SENSOR SYSTEM - REFERENCE NOTES:

- ◇ USE THESE CONTACTS FOR CONTROL OF HVAC VIA TEMPERATURE CONTROL SYSTEM. COORDINATE WIRING EXTENSIONS WITH TC CONTRACTOR.
- ◇ DIAGRAM SHOWS TWO LEVEL LIGHTING FOR (FIXTURES WITH 3 OR 4 LAMPS). FIXTURES WITH TWO LAMPS, OR AS NOTED OTHERWISE, WILL ONLY NEED AN LIGHT SWITCH.
- ◇ USE A 277 TO 24 VOLT POWER SUPPLY HAVING A 277 VOLTS, 20 AMP RATED CONTROL CONTACT CAPABLE OF SWITCHING POWER FOR LIGHTS. USE WATSTOPPER A277-E, OR A FUNCTIONALLY EQUIVALENT DEVICE THAT IS APPROVED FOR PURPOSE SHOWN.
- ◇ USE A 24 VOLT CONTROL RELAY WITH A 24 VOLT COIL AND A 120 VOLT, 20 AMP CONTACT. USE WATSTOPPER S-277-E, OR FUNCTIONALLY EQUIVALENT DEVICE THAT IS APPROVED FOR PURPOSE SHOWN.
- ◇ USE A DUAL TECHNOLOGY TYPE SENSOR UTILIZING PASSIVE INFRARED SENSOR AND ULTRASONIC DETECTION. SENSOR SHALL TURN ON WHEN BOTH TECHNOLOGIES ARE SENSED, AND SHALL TURN OFF WHEN NEITHER TECHNOLOGY IS SENSED. SENSOR TO COVER AREAS OF 10'x10' MIN. SQUARE AREA AND ADJUSTABLE ON. USE WATSTOPPER DT-100L WITH CM 100 MOUNTING BRACKET, OR FUNCTIONALLY EQUIVALENT DEVICE THAT IS APPROVED FOR PURPOSE SHOWN.
- ◇ SEE LIGHTING PLAN FOR CIRCUIT NUMBER. PLEASE NOTE THAT ONE CIRCUIT SERVES MULTIPLE ROOMS.
- ◇ SEE RECEPTACLE PANEL SCHEDULE FOR CIRCUIT NUMBERS. PLEASE NOTE THAT FAN COIL UNITS IN SEVERAL ROOMS MAY BE ON ONE CIRCUIT.

MANUAL MODE OPERATION:

1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.
2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

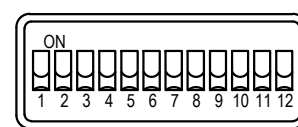
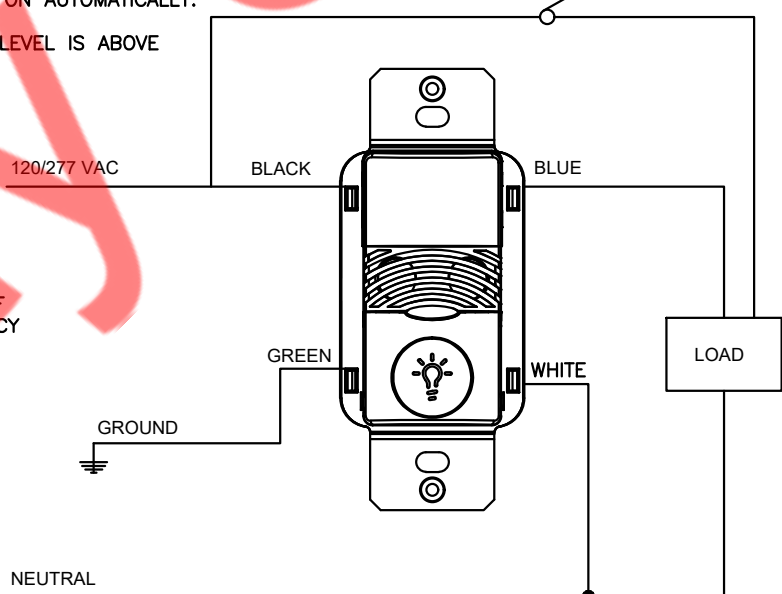
AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

SENSOR TYPES INCLUDE:

ONW-D-1001-MV-N

- 1 PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.



(ONW-D-1001-MV-N SENSORS)  
ON (UP) =  
3 MANUAL ON  
OFF (DOWN) =  
AUTO ON

1 SCHEMATIC FOR OS S (LIGHTS, HVAC, FCU, DUAL TECH)  
E-201 N.T.S

2 WIRING DIAGRAM-LOW VOLTAGE WALL SWITCH SENSOR(NEUTRAL CONNECTION) OCCUPANCY/VACANCY-SINGLE LEVEL  
E-201 N.T.S



PANEL: A (EXISTING)										MOUNTING: SURFACE				
208Y/120		VOLTS,		3	PHASE,		4	WIRE		PANEL LOCATION:			BREAK. ROOM	
MAIN CB: NA				MLO: 200A		BUS:		225A		MIN,		FED FROM: MAIN ELEC. SERVICE		
NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E: KITCHEN/EQUIPMENTS, C: REFRIGERATION, O : OTHER/MISC. (TYPICAL)														
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	BREAK ROOM,114,115,107,108,109_LIGHTING	L	0.77	2#12, #12G, 3/4"C	3.33				2.57	H			2
3	20	HALLWAY,CLOSET,RESTROOM+EF1+EF2	L	1.01	2#12, #12G, 3/4"C		3.58		3#10, #10G, 3/4"C	2.57	H	ACCU-1(E)	3P-30	4
5	20	LOBBY & RECEPTION LIGHTING	L	0.55	2#12, #12G, 3/4"C			3.10		2.57	H			6
7	20	LOBBY & RECEPTION, OFFICE,104,105_LIGHTING	L	0.85	2#12, #12G, 3/4"C	2.41			2#12, #12G, 3/4"C	1.56	H	AHU-1(E)	20	8
9	20	EXTERIOR SIGNAGE	L	1.20	2#12, #12G, 3/4"C		4.80			3.60	E		2P-40	10
11	20	110,111,112,116,117_LIGHTING	L	0.67	2#12, #12G, 3/4"C			4.27	2#8, #10G, 3/4"C	3.60	E	DRYER		12
13	20	SHOW WINDOW RECEPTACLE	L	1.50	2#12, #12G, 3/4"C	3.30			2#12, #12G, 3/4"C	1.80	E	WASHER	20	14
15	20	SHOW WINDOW RECEPTACLE	L	1.20	2#12, #12G, 3/4"C		2.45		2#12, #12G, 3/4"C	1.25	H	DH-1	20	16
17	20	WATER HEATER	O	0.10	2#12, #12G, 3/4"C		1.35		2#12, #12G, 3/4"C	1.25	H	DH-2	20	18
19	20	WASHER	E	1.80	2#12, #12G, 3/4"C	5.40				3.60	E		2P-40	20
21	20	RCP	M	0.18	2#12, #12G, 3/4"C		3.78		2#8, #10G, 3/4"C	3.60	E	DRYER		22
23	2P-20	ACCU-3(N)	H	1.39	2#12, #12G, 3/4"C			3.19	2#12, #12G, 3/4"C	1.50	L	SHOW WINDOW RECEPTACLE	20	24
25			H	1.39		2.59			2#12, #12G, 3/4"C	1.20	L	SHOW WINDOW RECEPTACLE	20	26
27	20	AC-3(N)	M	0.91	2#12, #12G, 3/4"C	1.11			2#12, #12G, 3/4"C	0.20	M	MOTORIZED DAMPERS	20	28
29	20	SPARE						0.00				SPARE	20	30
TOTAL CONNECTED LOAD (KVA)						17.04	15.71	11.91						

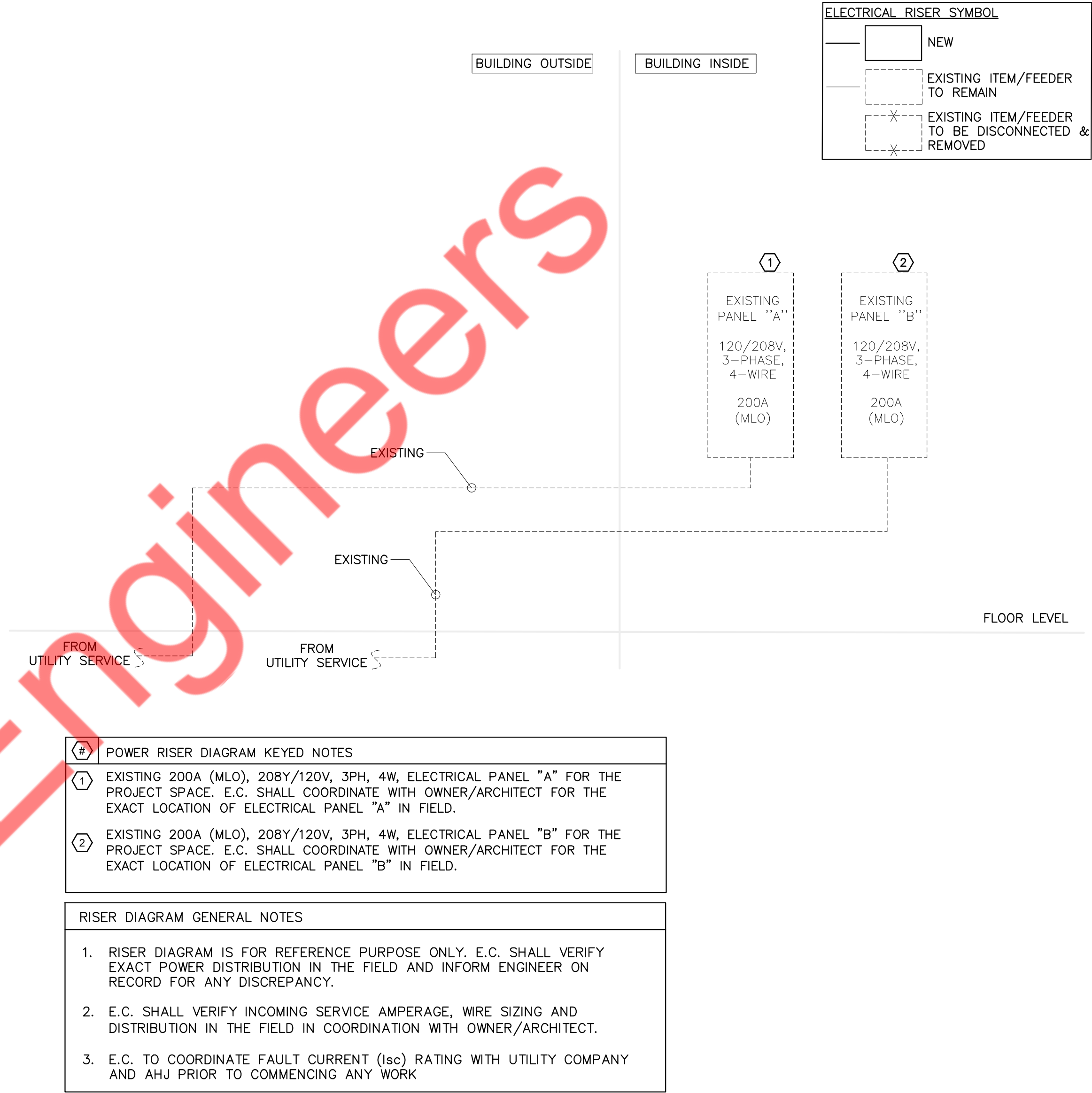
PANEL: B (EXISTING)										MOUNTING: SURFACE					
208Y/120		VOLTS,		3	PHASE,		4	WIRE		PANEL LOCATION: HALL WAY					
MAIN CB: NA				MLO: 200A			BUS: 225A		MIN,		FED FROM: MAIN ELEC. SERVICE				
NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E: KITCHEN/EQUIPMENTS, C: REFRIGERATION, O : OTHER/MISC. (TYPICAL)															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	LOBBY RECEPTACLES	R	0.72	2#12, #12G, 3/4"C	3.29				2.57	H			2	
3	20	RECEPTION DESK RECEPTACLES	R	1.44	2#12, #12G, 3/4"C		4.01		3#10, #10G, 3/4"C	2.57	H	ACCU-2(E)	3P-30	4	
5	20	SPARE	R	1.08	2#12, #12G, 3/4"C			3.65		2.57	H			6	
7	20	SUITE_117_RECEPTACLES	R	1.26	2#12, #12G, 3/4"C	2.34			2#12, #12G, 3/4"C	1.08	R	SUITE_107_RECEPTACLES	20	8	
9	20	SUITE_104_RECEPTACLES	R	1.26	2#12, #12G, 3/4"C		2.52		2#12, #12G, 3/4"C	1.26	R	SUITE_105_RECEPTACLES	20	10	
11	20	OFFICE RECEPTACLE	R	1.44	2#12, #12G, 3/4"C			2.70	2#12, #12G, 3/4"C	1.26	R	SUITE_111_RECEPTACLES	20	12	
13	20	SUITE_108_RECEPTACLES	R	1.08	2#12, #12G, 3/4"C	1.44			2#12, #12G, 3/4"C	0.36	R	OFFICE DEDICATED RECEPTACLE	20	14	
15	20	WATERWALL RECEPTACLE	R	0.54	2#12, #12G, 3/4"C		1.62		2#12, #12G, 3/4"C	1.08	R	SUITE_109_RECEPTACLES	20	16	
17	20	SUITE_110_RECEPTACLES	R	0.72	2#12, #12G, 3/4"C			1.98	2#12, #12G, 3/4"C	1.26	R	BREAK ROOM RECEPTACLES	20	18	
19	20	REFRIGERATOR	R	1.80	2#12, #12G, 3/4"C	1.98			2#12, #12G, 3/4"C	0.18	R	RESTROOM RECEPTACLES	20	20	
21	20	HALL AREA RECEPTACLES	R	0.54	2#12, #12G, 3/4"C		0.72		2#12, #12G, 3/4"C	0.18	R	RESTROOM RECEPTACLES	20	22	
23	20	SUITE_112_RECEPTACLES	R	1.26	2#12, #12G, 3/4"C			2.82	2#12, #12G, 3/4"C	1.56	H	AHU-2(E)	20	24	
25	20	SUITE_116_RECEPTACLES	R	1.08	2#12, #12G, 3/4"C	2.16			2#12, #12G, 3/4"C	1.08	R	SUITE_110_RECEPTACLES	20	26	
27	20	SPARE					1.26		2#12, #12G, 3/4"C	1.26	R	SUITE_113_RECEPTACLES	20	28	
29	20	SPARE						0.00				SPARE	20	30	
TOTAL CONNECTED LOAD (KVA)						11.21	10.13	11.15							

PANEL SCHEDULE GENERAL NOTES	
1.	WHEN A GFCI CIRCUIT BREAKER IS UTILIZED WITHIN CIRCUITS THAT ARE GROUPED TOGETHER IN A SINGLE HOMERUN, A SEPARATE NEUTRAL CONDUCTOR SHALL BE RUN FOR EACH PHASE CONDUCTOR.
2.	WHEN CIRCUIT ON PLANS SHOW GROUPED WITHIN A SINGLE HOMERUN, THE CIRCUIT BREAKERS THAT FEED THOSE CIRCUITS SHALL BE PROVIDED WITH ONE OF THE FOLLOWING PER NEC 210.4: A SEPARATE NEUTRAL FOR EACH CIRCUIT; A SINGLE HANDLE TIE TO SIMULTANEOUSLY DISCONNECT THE GROUPED CIRCUITS; OR A 2-POLE CIRCUIT BREAKER AS REQUIRED. THIS DOES NOT APPLY TO DEDICATED 2-POLE AND 3-POLE CIRCUITS.
3.	ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUIT REQUIREMENTS AND ELECTRICAL REQUIREMENTS AS PER EQUIPMENT MANUFACTURER RECOMMENDATIONS.INFORM ENGINEER FOR ANY DISCREPANCIES.
4.	ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
5.	ELECTRICAL CONTRACTOR SHALL VERIFY AIC RATING FOR PANELS AS PER AIC RATING AVAILABLE FROM UTILITY.

2

ELECTRICAL PANEL SCHEDULE

N.T.S.









ELECTRICAL SPECIFICATIONS (CONT.)

3) BOXES:

- a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH NIPK COVER, OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.
- b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE, BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

c. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIERS BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS ON METAL. BEAM CLAMPS ON FRAMEWORK. WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED. EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

d. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

e. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

f. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR

MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

- g. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS. SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.
- h. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

10. WIRE AND CABLE:

a. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

b. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

c. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

d. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFT-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

e. ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS. WHEN USED IN LIEU OF WIRING IN CONDUIT, STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE 'BX'.

f. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:  
BLACK FOR A PHASE  
RED FOR B PHASE  
BLUE FOR C PHASE

1) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

g. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.

h. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

i. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT C. CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

j. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

k. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

11. WIRING DEVICES:

a. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

b. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

c. STRAIGHT BLADE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

1) SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).

2) USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT,

d. INSERTION RECEPTACLES SHALL BE HOSPITAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT.

GROUNDED, EXCEPT AS NOTED.

1) HEALTH CARE FACILITIES:

a) DUPLEX, 20 AMP, 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT: SIMILAR TO HUBBELL NO. 8300 HOSPITAL GRADE.

b) SINGLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE, U GROUND SLOT: SIMILAR TO HUBBELL NO. 8310 HOSPITAL GRADE.

2) GROUND FAULT INTERRUPTER RECEPTACLES:

a. 20 AMP DUPLEX FEED-THROUGH TYPE. SIMILAR TO NO. GF8300.

e. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

f. COLORS: COORDINATE COLORS WITH ARCHITECT.

g. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

12. LIGHTING FIXTURES:

a. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

b. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.

c. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, E11 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH, TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

d. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

e. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.

f. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.

g. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL CONFORM TO THE ENERGY EFFICIENCY REQUIREMENTS OF CONSOLIDATED EDISON CO. AND QUALITY FOR A UTILITY REBATE TO OWNER UNDER CON EDISON'S ENLIGHTENED ENERGY LIGHTING REBATE PROGRAM. CONTRACTOR SHALL COORDINATE REBATE PROGRAM WITH UTILITY COMPANY AND ARRANGE FOR CON EDISON TO PERFORM A SURVEY TO INVENTORY ALL EXISTING FIXTURES PRIOR TO DEMOLITION.

h. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED FOR USE IN NEW YORK CITY. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. GROUNDING AND BONDING:

a. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH 2011 NATIONAL ELECTRICAL CODE WITH NYC AMENDMENTS, AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM.

b. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.

c. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.

d. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.

e. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:

1) CIRCUITS SERVING ANY WALL BOX DIMMER.

2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE, OR AS OTHER WISE NOTED ON DRAWINGS.

3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES

4) ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

14. PANELBOARDS:

a. PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE.

b. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. MINIMUM GUTTER SPACES SHALL BE 5-3/4". SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.

c. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.

d. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEEE STANDARD

RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

e. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE HINGED DOOR-IN-DOOR CONSTRUCTION WITH CYLINDER LOCKS AND CATCHES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.

f. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

g. ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.

h. FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

i. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE, WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.

j. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

k. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

l. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.

m. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN, WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM AND 14,000 AMPERES R.M.S. SYMMETRICAL FOR 480Y/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

n. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

p. APPROVED EQUAL.

q. LINE, LOAD AND GROUND CONDUCTORS SHALL BE INSTALLED IN LIQUID TIGHT FLEXIBLE CONDUIT NOT LESS THAN 18 INCHES LONG FOR FINAL CONNECTION TO TRANSFORMERS.

r. TRANSFORMER SECONDARY NEUTRAL SHALL BE CONNECTED TO A LUG AND BOLT INSIDE THE ENCLOSURE.

s. AFTER PERMANENT SERVICE TO THE TRANSFORMER IS ENERGIZED, THE CONTRACTOR SHALL DETERMINE THE VOLTAGE SUPPLIED AND SELECT TRANSFORMER TAPS TO PROVIDE THE VOLTAGE SPECIFIED ON THE DRAWINGS. CONTRACTOR SHALL RECHECK VOLTAGE AFTER BUILDING LOADS ARE BEING SERVED BY TRANSFORMER AND CHANGE TAPS WHERE REQUIRED TO PROVIDE THE SPECIFIED VOLTAGE ON THE DRAWINGS. TRANSFORMER TAPS SHALL BE ADJUSTED TO PROVIDE NOMINAL VOLTAGE WITH TOLERANCE OF +1% DURING OFF PEAK LOADS.

t. TRAPEZE MOUNTED TRANSFORMERS SHALL BE SUPPORTED FROM AUXILIARY SUPPORT STEEL BEAMS SECURED TO THE BUILDING SUPPORT BEAMS.



1/2"  
1"  
2"  
4"  
6"  
8"

PLUMBING SYMBOLS LIST	
	UNDERGROUND SANITARY PIPING
	EXISTING UNDERGROUND SANITARY WASTE PIPING
	VENT PIPING
	EXISTING COLD WATER PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	EXISTING GAS PIPING
	GAS PIPING
	P-TRAP
	PIPE UP
	PIPE DROP
	PLUGGED OUTLET/CLEANOUT
	SHUT-OFF VALVE
	CHECK VALVE
	STOP VALVE
	SLEEVE
	BALANCING VALVE
	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
	FLOOR DRAIN

PLUMBING ABBREVIATIONS	
AFF	ABOVE FINISH FLOOR
BFP	BACK FLOW PREVENTER
CW	COLD WATER
CM	COFFEE MACHINE
DN	DOWN
ET	EXPANSION TANK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FPHB	FREEZE PROTECTION HOSE BIBB
HW	HOT WATER
HWR	HOT WATER RETURN
HB	HOSE BIBB
LAV	LAVATORY
MS	MOP SINK
RCP	HOT WATER RE-CIRCULATION PUMP
SAN	SANITARY
SQ. FT.	SQUARE FEET
SH	SHOWER
SK	SINK
TYP.	TYPICAL
V	VENT
VTR	VENT THRU ROOF
W	WASTE
WH	HOT WATER HEATER
WC	WATER CLOSET
WB	WASHING MACHINE BOX
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
FD	FLOOR DRAIN

PLUMBING PIPE MATERIAL SCHEDULE		
PIPING SYSTEM	ABBREVIATION	PIPING MATERIAL
SANITARY DRAINAGE & VENT (ABOVE GRADE)	S, W OR V	SCH.40 PVC*, CAST IRON, COPPER
SANITARY DRAINAGE & VENT (BELOW GRADE)	S, W OR V	SCH.40 PVC*, CAST IRON, COPPER
POTABLE WATER (ABOVE GRADE)	CW, HW OR HWR	TYPE L HARD-DRAWN COPPER PIPE AND FITTINGS (CPVC PIPING AND FITTINGS OR PEX PIPING AND FITTINGS ALLOWED IF AHJ AND LANDLORD PERMITS).
POTABLE WATER - 2" & SMALLER (BELOW GRADE)	CW, HW OR HWR	TYPE K SOFT ANNEALED COPPER
*ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, GAS, WATER DISTRIBUTION PIPING SYSTEMS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 SOUTH CAROLINA PLUMBING CODE. PVC ONLY WHERE ALLOWABLE PER LOCAL AHJ. PVC SHALL NOT BE USED WHERE EXPOSED IN RETURN AIR PLENUM, OR WHERE WATER TEMPS EXCEED 140°F		

SLOPE OF HORIZONTAL DRAINAGE PIPE	
SIZE (INCHES)	MINIMUM SLOPE (INCH PER FOOT)
2 1/2" OR LESS	1/4
3" TO 6"	1/8
8 OR LARGER	1/16

- PLUMBING GENERAL NOTES**
- DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY THE ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
  - FURNISH A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE OWNER REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS PREPARED BY THE ENGINEER-OF-RECORD AFTER FINAL INSPECTION OF INSTALLED PLUMBING SYSTEMS.
  - FURNISH TO THE OWNER A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS.
  - PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
  - REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.
  - DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.
  - VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.
  - PIPING IN FINISHED AREAS SHALL BE ROUTED CONCEALED; EXPOSED PIPING, WHERE NECESSARY, SHALL BE ROUTED AS HIGH AS POSSIBLE AND TIGHT TO WALLS.
  - COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
  - COORDINATE PIPING INSTALLATION WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THROUGH GRADE BEAMS, FOOTING, ETC. WHERE REQUIRED AND AS NOTED ON PLANS. COORDINATE SLEEVE INSTALLATIONS WITH THE ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR AND GENERAL CONTRACTOR BEFORE CONCRETE IS INSTALLED.
  - CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.
  - PROVIDE TRAP PRIMERS WHERE REQUIRED BY LOCAL AUTHORITIES.
  - COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT ROUTE PIPING OVER ELECTRICAL PANELS.
  - PAINT ALL EXPOSED GAS PIPING USING RUST INHIBITOR PAINT. PAINT AND COLOR SHALL BE COORDINATED WITH THE ARCHITECT AND/OR OWNER.
  - COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10" MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.
  - INSULATE PIPING ROUTED IN EXTERIOR BUILDING WALLS WITH MINIMUM 2" BATT INSULATION TO PREVENT FREEZING. ALL COLD WATER LINES SHALL BE INSULATED WITH MINIMUM OF 3/4" FIBERGLASS INSULATION WITH VAPOR BARRIER. ALL HOT WATER AND HOT WATER RECIRCULATING LINES SHALL BE INSULATED WITH MINIMUM OF 1" INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER IN/HX°F.
  - PROVIDE SHIELDED ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON AT SLAB ON GRADE. SEE DIVISION 15 SPECIFICATION SECTION "DRAINAGE AND VENT SYSTEMS" FOR MORE INFORMATION.
  - WATER HAMMER ARRESTORS SHALL BE SIZE "A" UNLESS NOTED OTHERWISE.
  - PROVIDE CHECK VALVES IN HOT AND COLD WATER SUPPLIES FOR MOP SINK FAUCETS DOWNSTREAM OF SHUTOFF VALVES.
  - EXPOSED HOT WATER PIPES AND DRAINPIES UNDER HANDICAPPED ACCESSIBLE LAVATORIES SHALL BE CONFIGURED OR INSULATED TO PROTECT AGAINST CONTACT.
  - RPZ SHALL BE INSTALLED IN THE POTABLE WATER SUPPLY TO EACH LOCATION WHERE SANITIZING CHEMICALS OR DETERGENTS WILL BE ASPIRATED OR PUSHED BY WATER PRESSURE INTO CLEANSING/SANITIZING OPERATION.
  - DRAINAGE AND VENT SYSTEM SHALL BE PRESSURE TESTED WITH WATER OR AIR.
  - ALL PENETRATIONS OF FLOOR/CEILING ASSEMBLIES SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.
  - ALL DRY VENTS SHALL RISE VERTICALLY TO A MINIMUM OF 6 INCHES ABOVE THE FLOOD LEVEL RIM OF THE HIGHEST TRAP OR TRAPPED FIXTURE BEING VENTED.

PLUMBING FIXTURE SCHEDULE									
LEGEND	QUANTITY	PLUMBING FIXTURE	CONNECTION SIZE - INCHES				THERMOSTATIC MIXING VALVE	REMARKS	DESCRIPTION
			SOIL/WASTE	VENT	COLD WATER	HOT WATER			
WC	2	WATER CLOSET	4"	2"	3/4"	-	-	FLUSH TANK	KOHLER #K-3658, WHITE; TOILET SEAT: K=4731 1.28 GPF. PROVIDE COMPATIBLE OPEN FRONT TOILET SEAT, LESS COVER, ANT-MICROBIAL PROTECTION MTH STAINLESS STEEL CHECK HINGE, STOP VALVE, RIGID CHROME PLATED SUPPLY, QUARTER TURN STOP, TOILET FLANGE, WAX RINGS, STUDS, ECT.
LAV	2	LAVATORY	2"	1 1/2"	1/2"	1/2"	PROVIDE	P-TRAP	FIXTURE: KOHLER K-2699 DROP-IN SINK FAUCET: MOEN 8938; TWO HANDLE WIDESPREAD LAVATORY FAUCET. PROVIDE WITH THERMOSTATIC MIXING VALVE WATTS LFUSG OR EQUIVALENT. MIXING VALVE MUST COMPLY WITH ASSE1070.
SK-1	9	TREATMENT SINK	2"	1 1/2"	1/2"	1/2"	PROVIDE	P-TRAP	FIXTURE: ELKAY, MODEL DAYTON D115161 STAINLESS STEEL, SINGLE BOWL DROP-IN BAR SINK, 1 HOLE MODEL FAUCET: MOEN, MOEEL 5995 SERIES, CHROME, WTH PULLOUT SPRAYER EITHER AS PART OF FAUCET OR SEPARATE INSTALL, 1.5 GPM.
SK-2	1	BREAKROOM SINK	2"	1 1/2"	1/2"	1/2"	PROVIDE	P-TRAP	FIXTURE: ELKAY, MODEL DAYTON D117213 STAINLESS STEEL, SINGLE BOWL DROP-IN SINK, 3 HOLE, CENTER DRAIN FAUCET: KOHLER 10416-CP, 1.5 GPM, STRAINER AND SIDE SPRAY.
MS	1	MOP SINK	3"	2"	3/4"	3/4"	-	P-TRAP	FIAT MSB-2424, MOLDED STONE BASIN MTH 10" HIGH WALLS WITH STAINLESS STEEL STRAINER AND DRAIN FOR CAULKED CONNECTION FAUCET: CHICAGO FAUCETS #509CR43512.
WB	2	WASHING MACHINE BOX	3"	2"	3/4"	3/4"	-	P-TRAP	FIXTURES: ATLEY #38747 MITH INTEGRAL SHOCK ARRESTERS OR EQUAL
WCO	15	WALL CLEANOUT	LINE SIZED	-	-	-	-	P-TRAP	ZURN #ZAB-1468-VP OR EQUAL
WD	1	WATER DISPENSER	-	-	1/2"	-	-	-	WATER DISPENSER PROVIDED BY FRANCHISEE
REF	1	REFRIGERATOR	-	-	1/2"	-	-	-	VERIFY SPECIFICATION WITH FRANCHISEE
RPZ	1	REDUCED PRESSURE ZONE BACKFLOW PREVENTER	-	-	1 1/2"	-	-	-	WATTS MODEL LF009 OR EQUIVALENT. MODEL MUST COMPLY WITH ASSE 1013.
FD	2	FLOOR DRAIN	4"	2"	-	-	-	P-TRAP	ZURN MODEL Z415-BZ1-NH-P
NOTE: CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ALL PLUMBING FIXTURES SPECIFICATIONS AND MOUNTING HEIGHT INSTALLATION.									

EXPANSION TANK SCHEDULE					
ITEM	QUANTITY	SERVICE	GALLONS	MAKE	REMARKS
EXPANSION TANK (ET-1)	1	HOT WATER	4.4	THERM-X-TROL ST-12	DIMENSIONS- 15"(H)x11"(DIA.) SHIPPING WEIGHT- 5 LBS

RECIRCULATING PUMP SCHEDULE										
MARK	QUANTITY	MANUFACTURER	MODEL	GPM	TOTAL HEAD FT.	VOLATAGE	PHASE	WATTS	AMPS	NOTES
RCP-1	1	GRUNDFOS	UPS 15-18 BUCS	2	10	115	1	85	0.74A	1
NOTES: 1. RECIRCULATING PUMP: BRONZE BODY RECIRCULATING PUMP WITH AUTO ADAPT VARIABLE SPEED MOTOR. INSTALL NEAR WATER HEATER PER MANUFACTURERS INSTRUCTIONS. PROVIDE WIT ALPHA 3 PRONG PLUG AND COORDINATE WITH ELECTRICAL CONTRACTOR. PROVIDE WITH HONEYWELL L6006C SURFACE MOUNT AQUASTAT SET TO 5F BELOW WATER OPERATING TEMPERATURE										

GAS FIRED STORAGE HOT WATER HEATER								
TAG No.	MAX INPUT (MBH)	FIXTURES SERVING	QUANTITY	CAPACITY GAL.	RECOVERY 90°F RISE GALLON PER HOUR	TYPE	MANUFACTURER & MODEL NO.	REMARKS
WH-1	40	MOP SINK, BREAK ROOM SINK, TREATMENT ROOM SINK, LAVATORY & WASHER BOX	1	40	45.2	GAS STORAGE TYPE WATER HEATER	A.O SMITH GPDL-40	-DIMENSIONS 22" DIA X 58.25" HEIGHT -PROVIDE DRAIN PAN

THERMOSTATIC MIXING VALVE									
TAG No.	LOCATION	SERVICE	PIPE SIZE (INCHES)	CAPACITY RANGE (GPM)		TEMP. RANGE (°F)		MANUFACTURER & MODEL NO.	REMARKS
				MIN.	MAX.	MIN.	MAX.		
MX-1	WATER HEATER	HOT WATER	1	0.5	20	120	200	WATTS MODEL- LFMMVM1	-LEAD FREE COPPER SILICON ALLOY BODY CONSTRUCTION -ASSE 1017 LISTED

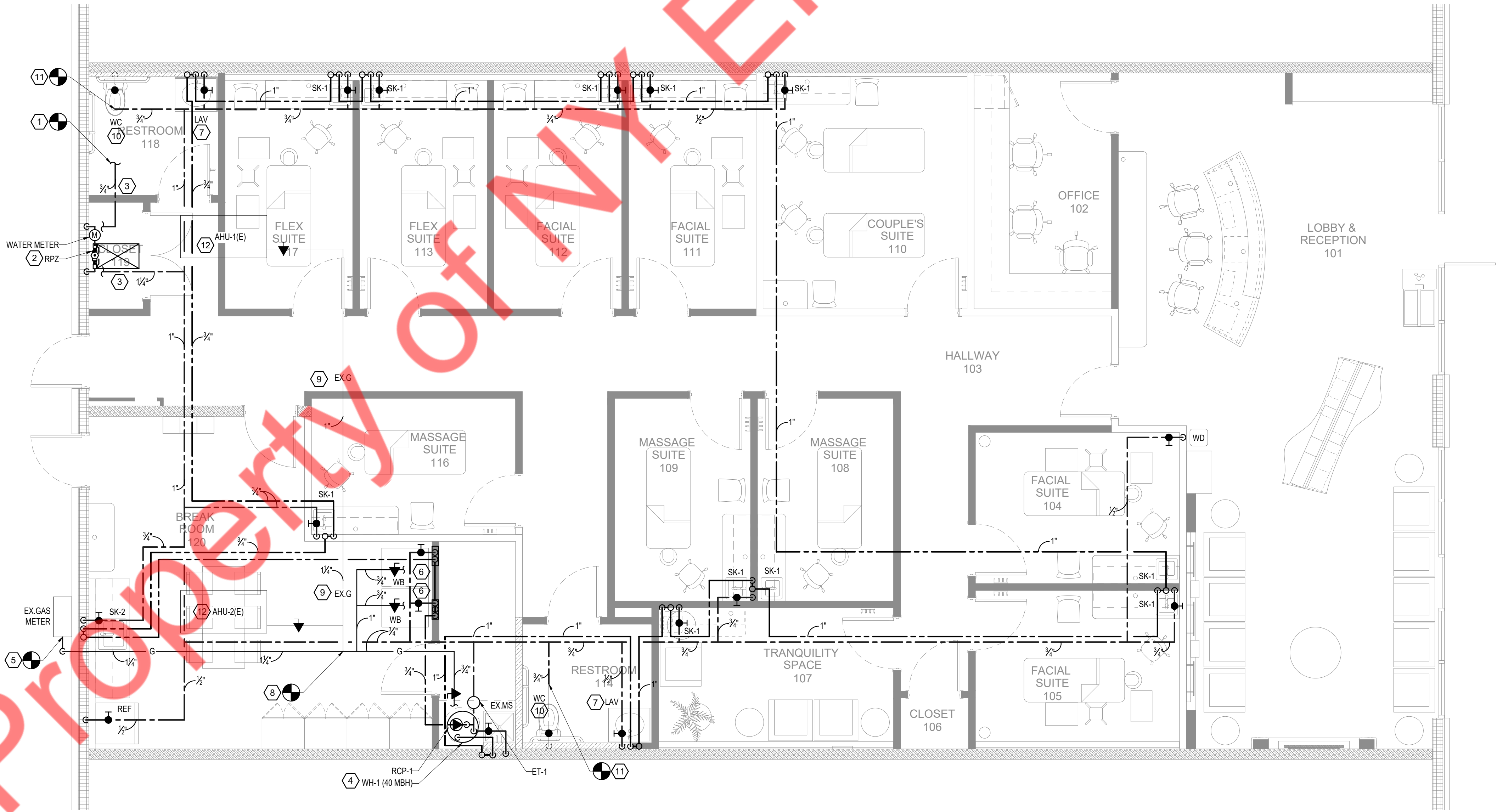


WATER AND GAS PLAN KEY NOTES:

- CONNECT NEW 3/4" WATER PIPING TO EXISTING WATER STUB-OUT. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION, SIZE AND LOCATION ON SITE. COORDINATE WITH THE LANDLORD.
- PROVIDE WATER METER & RPZ MODEL WATTS LF-009 (OR EQUIVALENT) IN CLOSET ROOM AS SHOWN ON DRAWING. PROVIDE ADEQUATE CLEARANCE FOR SERVICING. REMOVE ITEM IF EXISTING WATER METER/RPZ IS PROVIDED BY LANDLORD.
- DO NOT DISTRIBUTE CW PIPE BEFORE RPZ. INCREASE SIZE OF CW PIPE TO 1-1/4" AFTER RPZ.
- PROVIDE AND INSTALL TANK TYPE GAS WATER HEATER, PER SCHEDULE AND DETAIL 4 (SHEET P-502). WATER HEATER LOCATED ABOVE EXISTING MOP SINK.
- ROUTE NEW 1-1/4" GAS LINE TO EXISTING GAS METER. CONTRACTOR TO DETERMINE EXACT LOCATION OF EXISTING METER ON SITE.
- WE HAVE PROVIDED A GAS PROVISION FOR THE DRYER MODELS. BEFORE CONSTRUCTION, CONTRACTOR TO CONFIRM WITH CLIENT WHETHER OR NOT THEY REQUIRE THIS GAS PROVISION. IF THEY DO NOT, REMOVE GAS LINE & CONNECTIONS FROM BASE BID.
- PROVIDE THERMOSTATIC MIXING VALVES COMPLIANT TO ASSE 1070 TO ALL LAVATORIES. LIMIT TEMPERATURE TO 110 DEG F.
- CONNECT EXISTING GAS PIPING FROM EXISTING AHU UNITS TO NEW GAS PIPING.
- SHOWN EXISTING GAS PIPING IS TENTATIVE. CONTRACTOR TO DETERMINE EXACT GAS ROUTING IN FIELD AND CONNECT/SIZE GAS NETWORK ACCORDINGLY. RESIZE PIPING PER 2021 IFGC TABLE 402.4(2) IF REQUIRED.
- REPLACE EXISTING WATER CLOSET WITH NEW WATER CLOSET. CONNECT NEW WATER CLOSET TO EXISTING COLD WATER CONNECTION.
- CONNECT EXISTING COLD WATER LINE FROM EXISTING WATER CLOSET TO NEW COLD WATER LINE. CONTRACTOR TO VERIFY EXACT ROUTING OF EXISTING WATER LINE IN FIELD AND CONNECT ACCORDINGLY.
- REPLACE EXISTING AHU UNITS WITH NEW AHU UNIT. CONNECT EXISTING GAS LINES AND ACCESSORIES TO NEW UNIT. REFER MECHANICAL SET FOR EQUIPMENT SCHEDULE OF NEW AHU.

GENERAL NOTES:

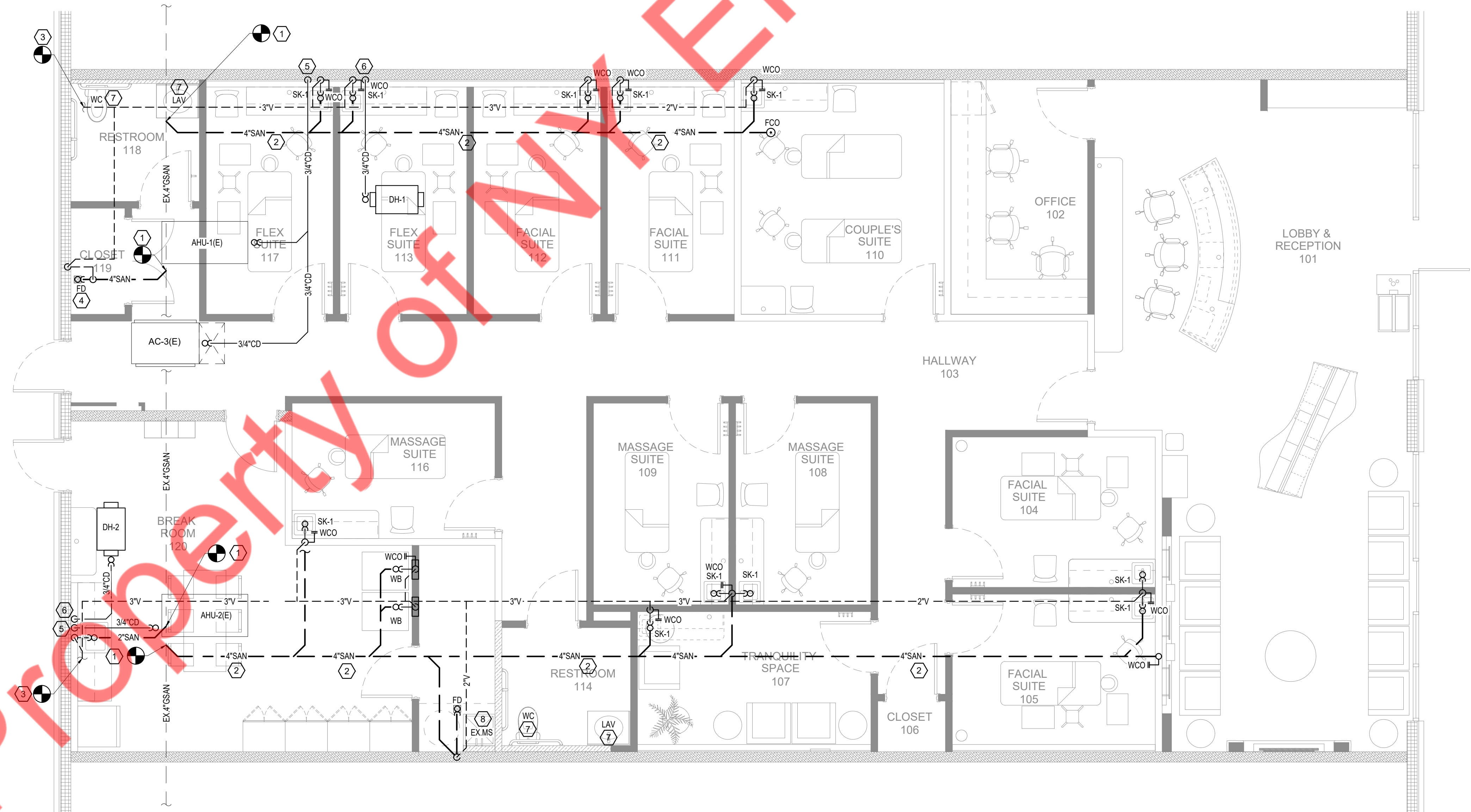
- SAWCUT EXISTING FLOOR AND WALL CONSTRUCTION AS REQUIRED IN ORDER TO ACCOMMODATE NEW WASTE, VENT AND WATER SUPPLY PIPING. PATCH ALL NEW WORK TO MATCH EXISTING CONSTRUCTION. DEMOLITION OF ALL PLUMBING WASTE LINES SHALL NOT RESULT IN DEAD ENDS GREATER THAN 10'-0" IN LENGTH AND ALL WATER SUPPLY PIPING DEAD ENDS SHALL NOT EXCEED 2'-0" IN LENGTH.
- PROVIDE DI-ELECTRIC UNIONS, COUPLINGS, ADAPTORS OR FLANGES AT ALL TRANSITIONS OF FERROUS PIPING TO NON-FERROUS PIPING.
- ALL EXPOSED WASTE PIPING LOCATED IN TOILET ROOMS SHALL BE CHROME PLATED BRASS WITH MATCHING STOPS ESCUTCHEONS. PROVIDE LOOSE KEY TYPE STOPS IN ALL PUBLIC AREAS OR WHERE VANDAL RESISTANT INSTALLATIONS ARE REQUIRED. ALL RISER TUBES SHALL BE CHROME PLATED COPPER.
- PLUMBING CONTRACTOR TO VERIFY ALL EXISTING WASTE, VENT AND WATER SUPPLY PIPING WHERE NEW CONNECTIONS ARE TO BE MADE PRIOR TO BID. VERIFY EXACT SIZE, LOCATION, INVERT, CONDITION AND REQUIREMENTS IN FIELD. REPORT ANY MAJOR DISCREPANCIES TO ARCHITECT/ENGINEER.
- ALL VALVES AND SPECIALTY EQUIPMENT FOR THE PLUMBING INSTALLATION IS TO BE RUN IN ACCESSIBLE CEILING AREAS. NO VALVES OR EQUIPMENT ARE TO BE INSTALLED ABOVE A DRYWALL CEILING OR WITHIN THE WALLS.
- COORDINATE ROUTING OF ALL PIPING SYSTEMS TO AVOID DUCTWORK, ELECTRICAL CONDUIT, BEAMS AND OTHER STRUCTURAL MEMBERS.
- PLUMBING CONTRACTOR TO RUN ALL PLUMBING WATER DISTRIBUTION PIPING AT THE SAME ELEVATION WHERE POSSIBLE. ALL PIPING IS TO BE LABELED AS TO TYPE AND DIRECTION OF FLOW ON THE OUTSIDE OF THE INSULATION SO THAT IT IS READABLE FROM THE GROUND.
- PROVIDE PROTECTIVE INSULATED PIPE COVERS ON P-TRAPS, ANGLE STOPS, OFFSET TAILPIECES, RISER SUPPLY TUBES, ETC. FOR ALL ADA ACCESSIBLE FIXTURES.
- ALL WORK MUST COMPLY WITH LOCAL AND STATE PLUMBING CODES.
- ALL CLEANOUTS ARE TO BE ACCESSIBLE WITHOUT REMOVAL OF ANY ANCHORED FIXTURE OR FURNITURE. CONTRACTOR TO COORDINATE LOCATIONS PRIOR TO INSTALLATION. WALL CLEANOUTS TO RUN AT FULL LINE SIZE UP FROM BELOW GROUND IN WALL.
- PIPE ROUTING SHOWN IS DIAGRAMMATIC AND SHALL BE ADJUSTED ACCORDINGLY PER ACTUAL FIELD CONDITIONS.
- WATER PIPING TO BE INSTALLED WITH ISOLATION VALVES IN COMPLIANCE WITH THE LOCAL PLUMBING CODE
- NO DEAD ENDS IN WATER SUPPLY OR SANITARY.
- JOINTS BETWEEN PLASTIC PIPE AND NON PLASTIC MATERIAL SHALL BE MADE ONLY WITH AN APPROPRIATE TYPE OF ADAPTER.
- CLEAN-OUTS TO BE PROVIDED PER PLUMBING CODE.
- ANY HEALTH OR SAFETY HAZARDS IN EXISTING PLUMBING SYSTEM MUST BE REVISED TO COMPLY WITH ALL CURRENT APPLICABLE CODES.
- COORDINATE ALL REQUIRED INSPECTIONS WITH LOCAL AHJ.



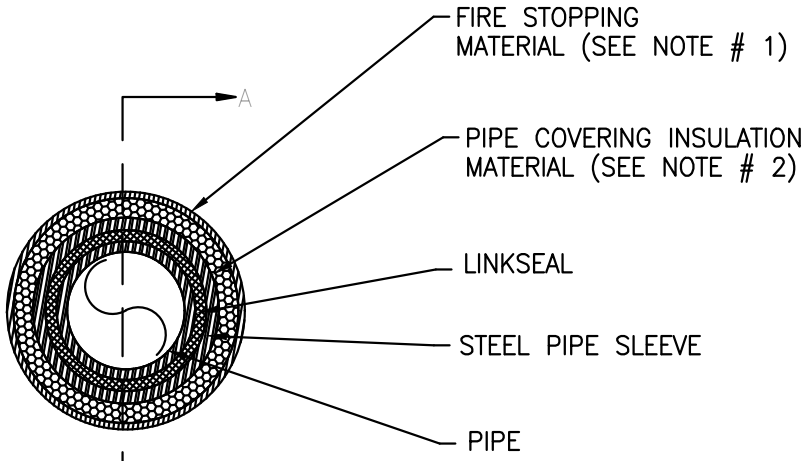
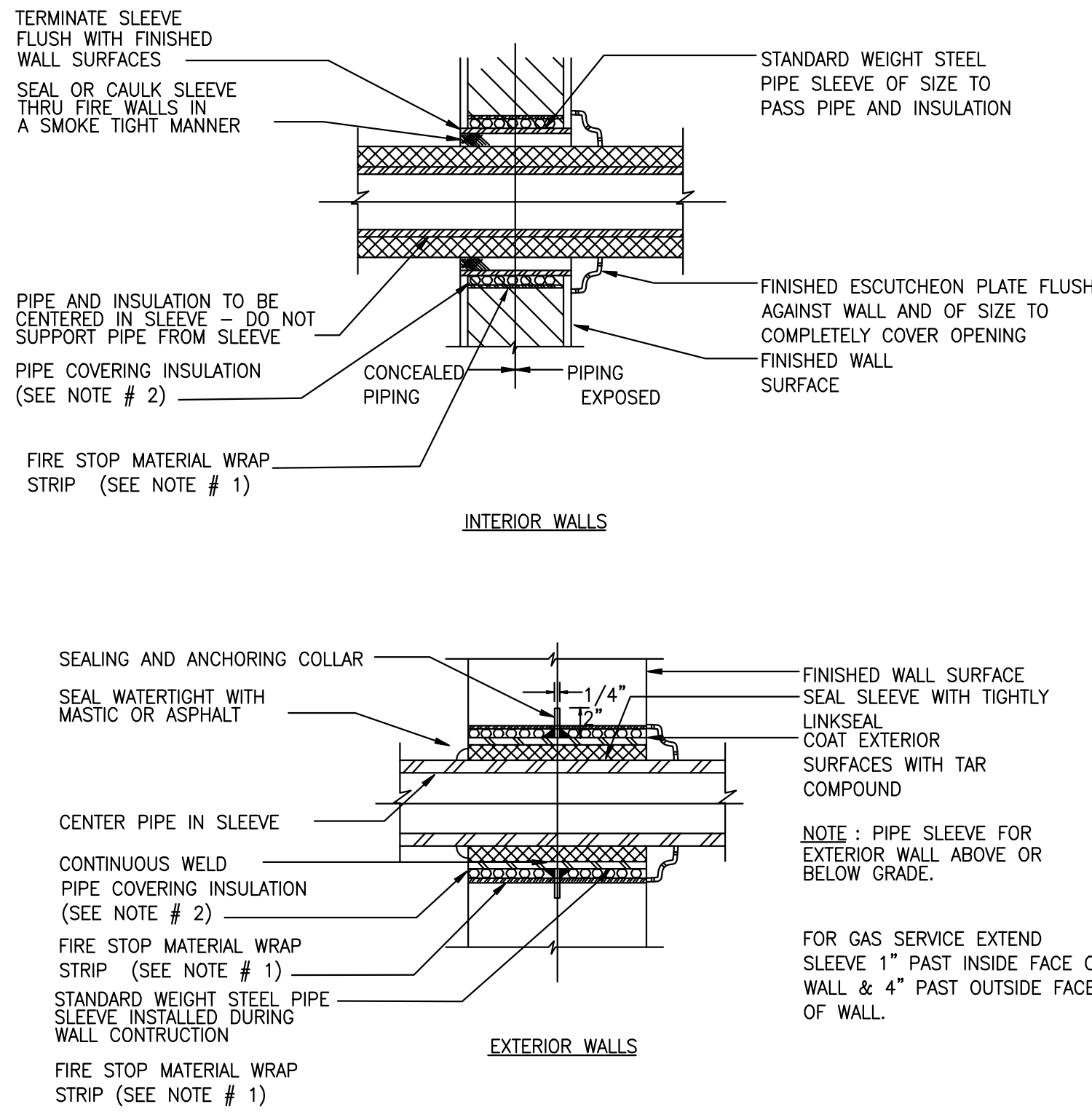


WASTE AND VENT PLAN KEY NOTES:

- 1 CONNECT NEW 4" SANITARY PIPING TO EXISTING SANITARY NETWORK. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION, INVERT AND DIRECTION OF FLOW OF EXISTING PIPE PRIOR TO CONNECTING ON SITE. VERIFY ALL PLUMBING CONDITIONS IN FIELD. CAP ANY UNUSED BRANCHES.
- 2 SLOPE UNDER-FLOOR 3 TO 6" SANITARY LINE AT 1/8" PER FOOT AND 2-1/2" OR SMALLER LINES AT 1/4" PER FOOT. VERIFY INVERTS IN FIELD.
- 3 CONNECT NEW 3" VENT PIPING TO EXISTING VTR. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION ON SITE.
- 4 ROUTE INDIRECT WASTE FROM BACKFLOW PREVENTOR IN CLOSET ROOM TO 4" FLOOR DRAIN WITH APPROVED AIR GAP. PLACE FLOOR DRAIN DIRECTLY UNDERNEATH LOCATION OF RPZ.
- 5 PROVIDE WYE BRANCH TAILPIECE ON SINK P-TRAP. ROUTE CONDENSATE DRAIN FROM AHU/AC UNIT IN CEILING TO SINK, ROUTE DOWN IN WALL AND CONNECT TO SINK P-TRAP VIA TAILPIECE.
- 6 PROVIDE WYE BRANCH TAILPIECE ON SINK P-TRAP. ROUTE CONDENSATE DRAIN FROM DEHUMIDIFIER UNIT IN CEILING TO SINK, ROUTE DOWN IN WALL AND CONNECT TO SINK P-TRAP VIA TAILPIECE.
- 7 REPLACE EXISTING RESTROOM FIXTURE BY NEW RESTROOM FIXTURES. CONNECT NEW FIXTURES TO ROUGH-IN FOR EXISTING SANITARY/VENT CONNECTIONS.
- 8 EXISTING MOP SINK WITH EXISTING SANITARY/VENT CONNECTIONS TO REMAIN.

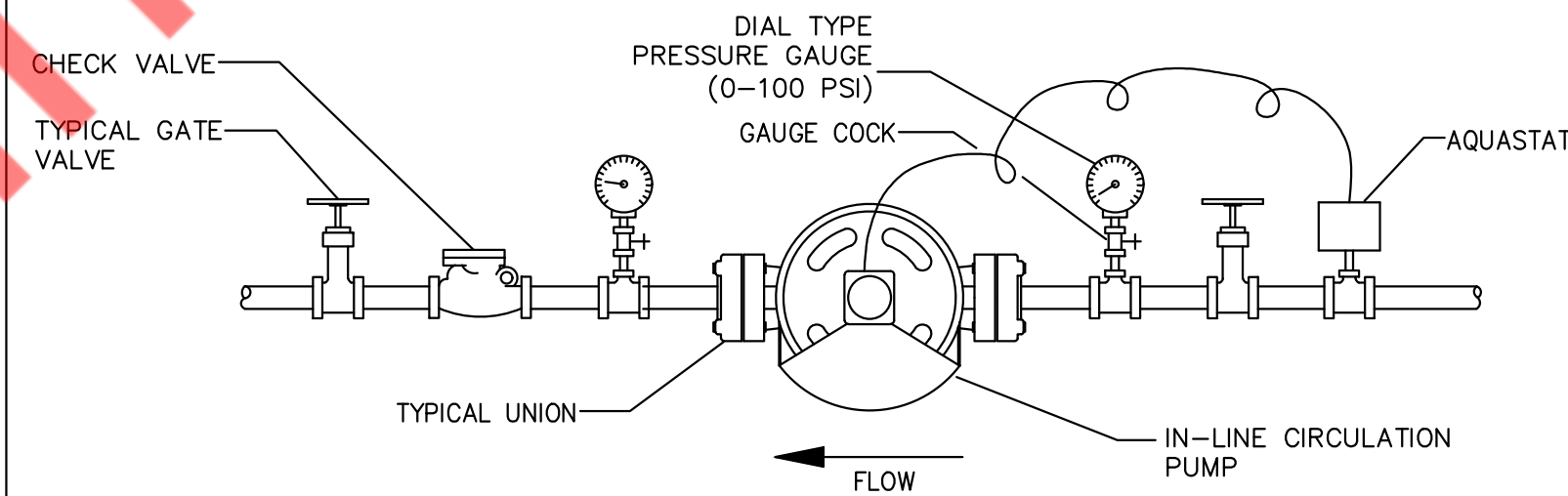
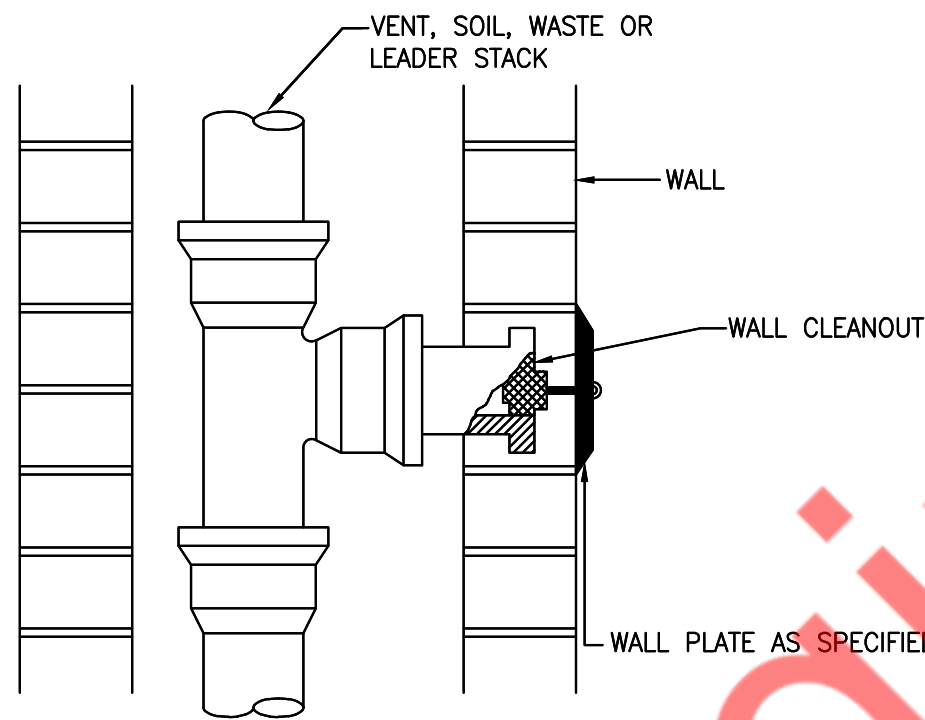






PIPE SLEEVE VIEW

- NOTES:
- FIRESTOP MATERIAL WRAP STRIP SHALL BE 1/4" THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL SUPPLIED IN 2 IN. WIDE STRIPS AND WRAP AROUND THE PIPE AS PER UL MATERIAL LISTED 3M COMPANY FS-195+ OR FILL CAVITY WITH CAULK OR SEALANT MIN. 1/4" DIA. CONTINUOUS BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED OF THE WRAP STRIP LAYER APPROX. 3/4" FROM WALL SURFACE. AS PER UL LISTED 3M COMPANY CP25WB+, IC 15WB+, FIRE DAM 150+CAULK.
  - PIPE COVERING INSULATION SHALL BE 2" THICK HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKETED. AS PER UL CLASSIFICATION AND MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.



1 PIPE SLEEVE THRU WALL SECTION  
P-501 N.T.S.

2 WALL CLEANOUT DETAIL  
P-501 N.T.S.

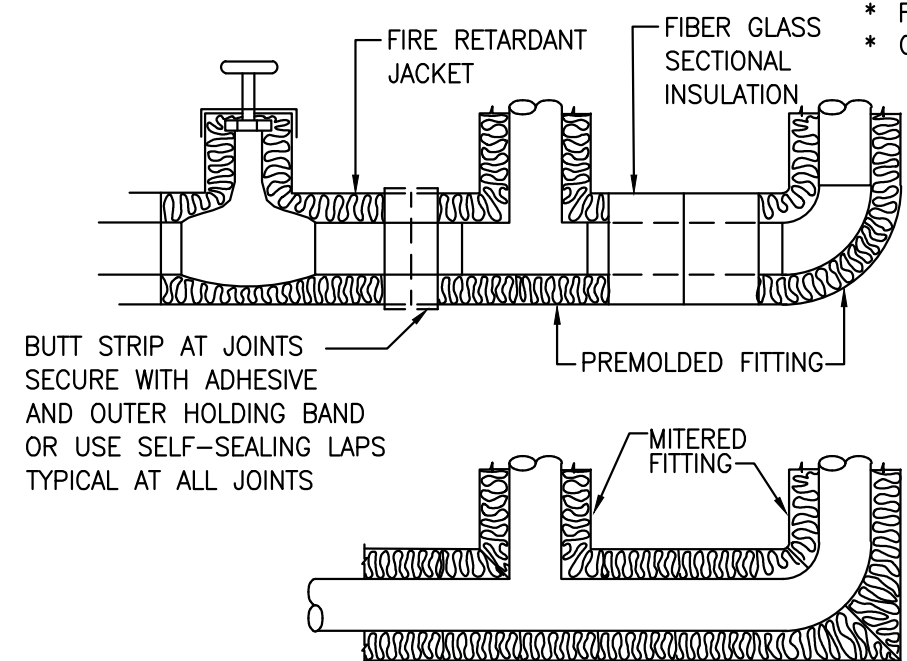
3 INLINE RECIRCULATING PUMP DETAIL  
P-501 N.T.S.

CONCEALED VALVES AND FITTINGS

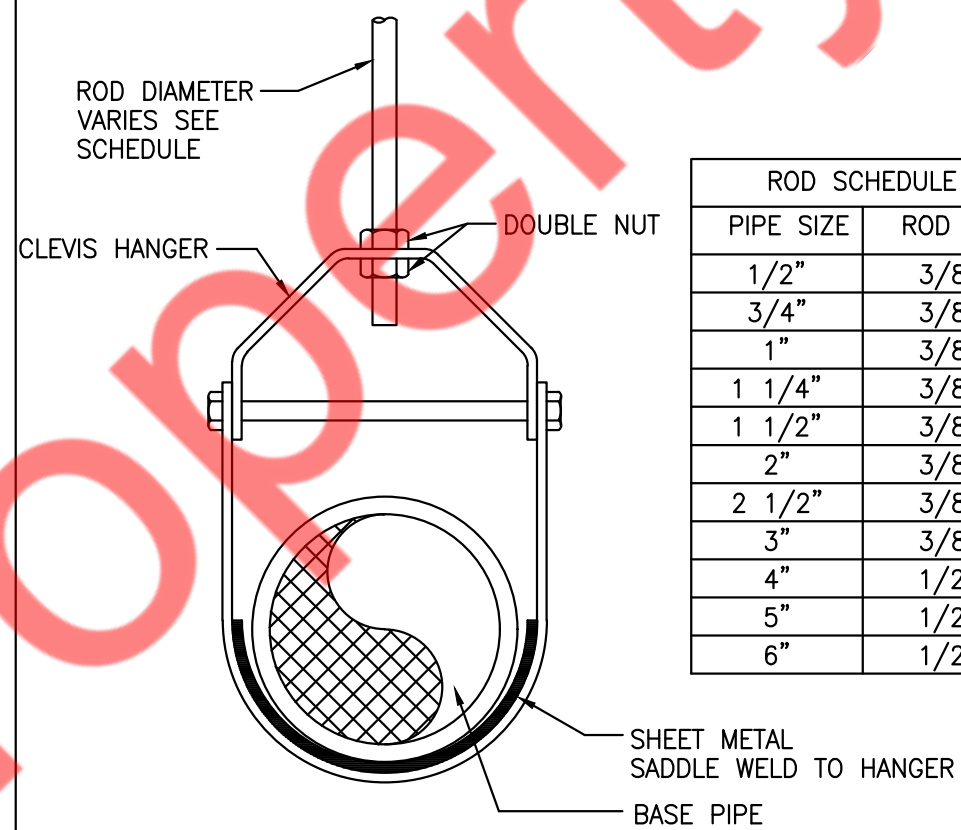
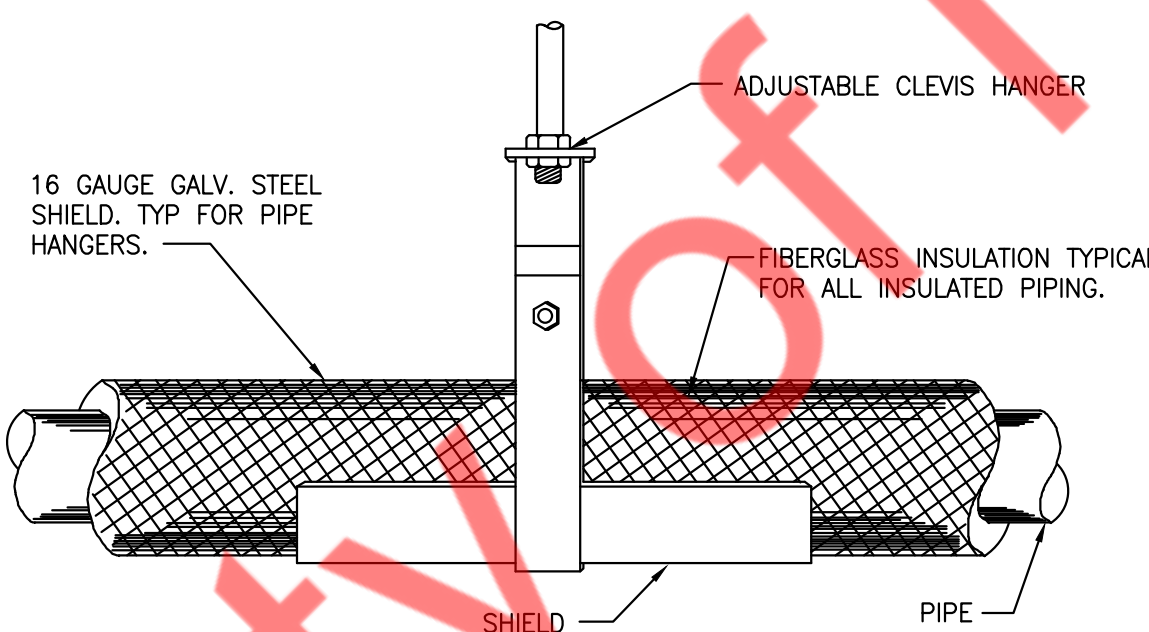
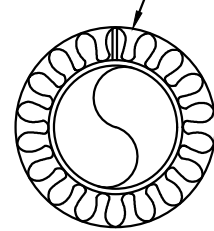
- WRAP WITH 1-INCH THICK, 1-POUND DENSITY TO REQUIRED PIPE INSULATION THICKNESS
- SECURE WITH WIRE OR TAPE.
- VAPOR SEAL COLD WATER, CHILLED WATER AND STORM WATER PIPING.

CONCEALED VALVES AND FITTINGS

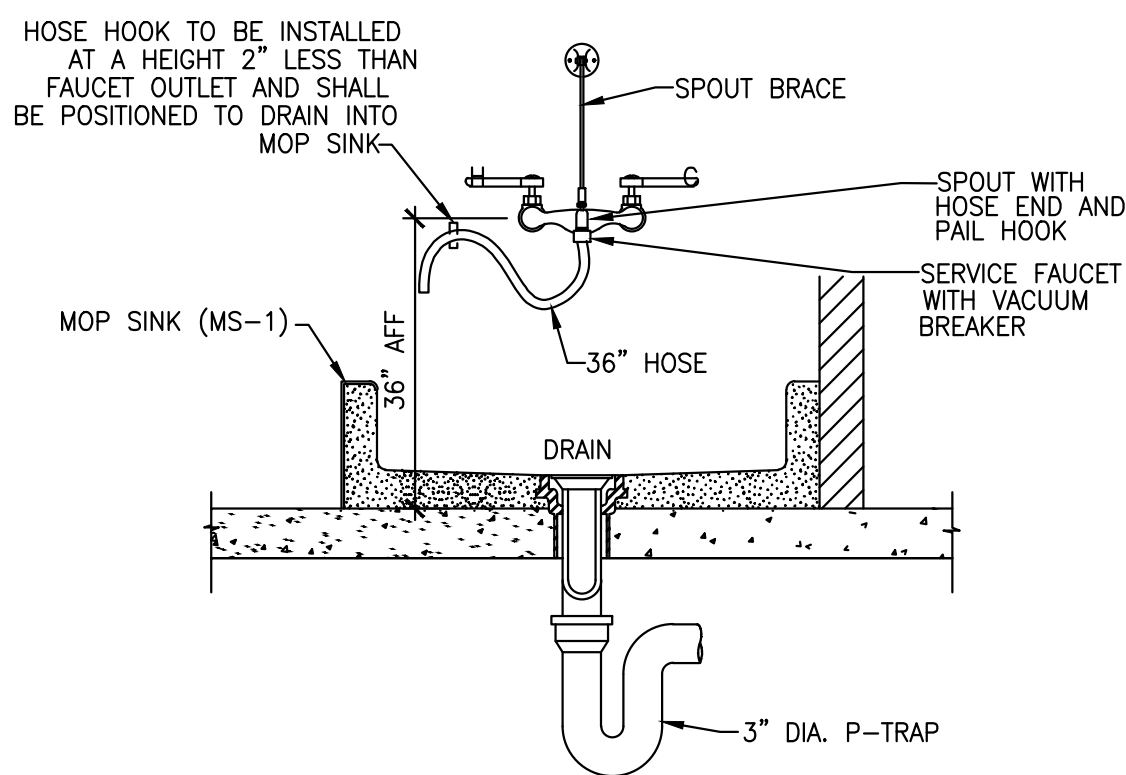
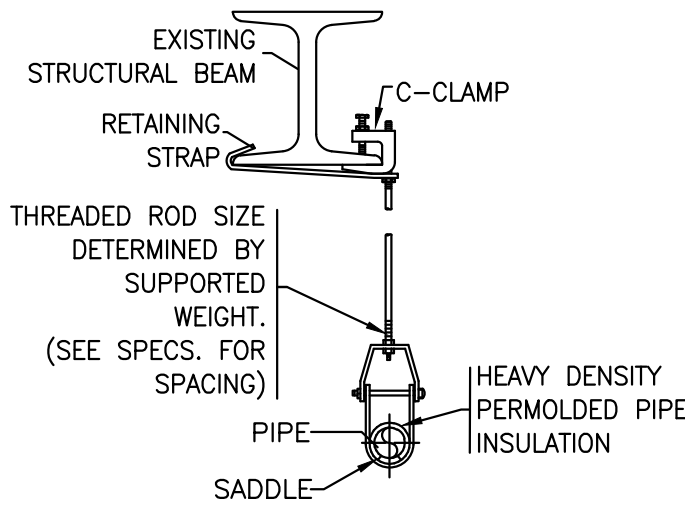
- PREMOLDED FIBER GLASS OR RADIAL MITERED PIPE INSULATION
- SKIM COAT OF INSULATION CEMENT
- COAT OF MASTIC
- WRAP WITH FIBER GLASS REINFORCING CLOTH.
- FINISH COAT OF MASTIC
- OVERLAP 2-INCHES ON PIPE INSULATION.



SEALING LAP SECURE WITH ADHESIVE ALL SEALS AND LAPS AT TOP.



ROD SCHEDULE	
PIPE SIZE	ROD SIZE
1/2"	3/8"
3/4"	3/8"
1"	3/8"
1 1/4"	3/8"
1 1/2"	3/8"
2"	3/8"
2 1/2"	3/8"
3"	3/8"
4"	1/2"
5"	1/2"
6"	1/2"

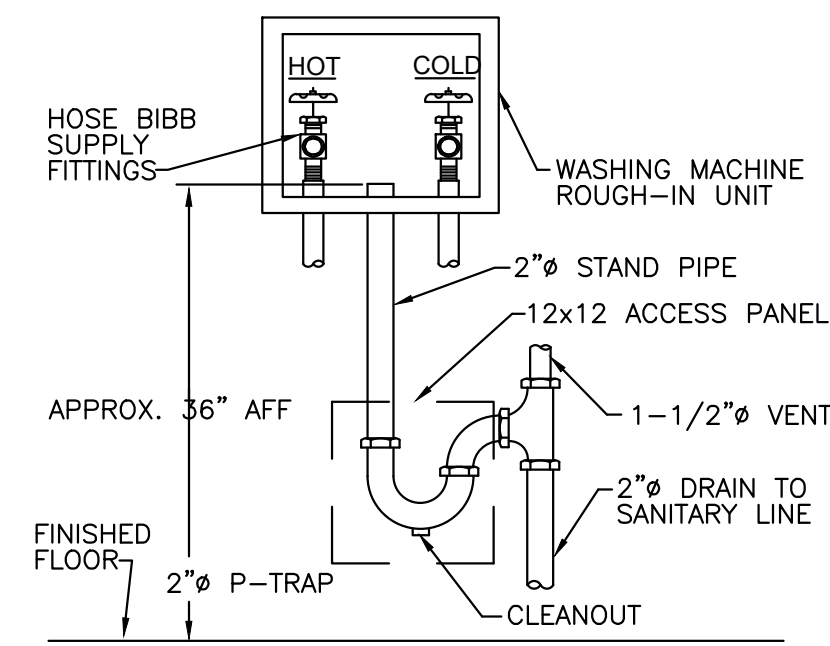


4 INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATION  
P-501 N.T.S.

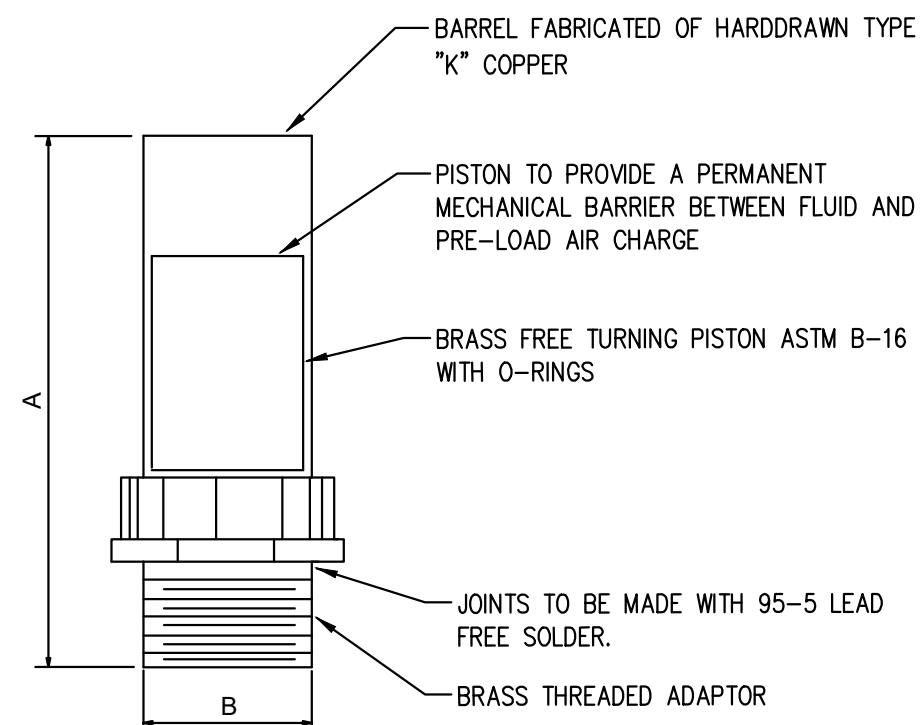
5 HANGER DETAIL  
P-501 N.T.S.

6 MOP SINK DETAIL  
P-501 N.T.S.





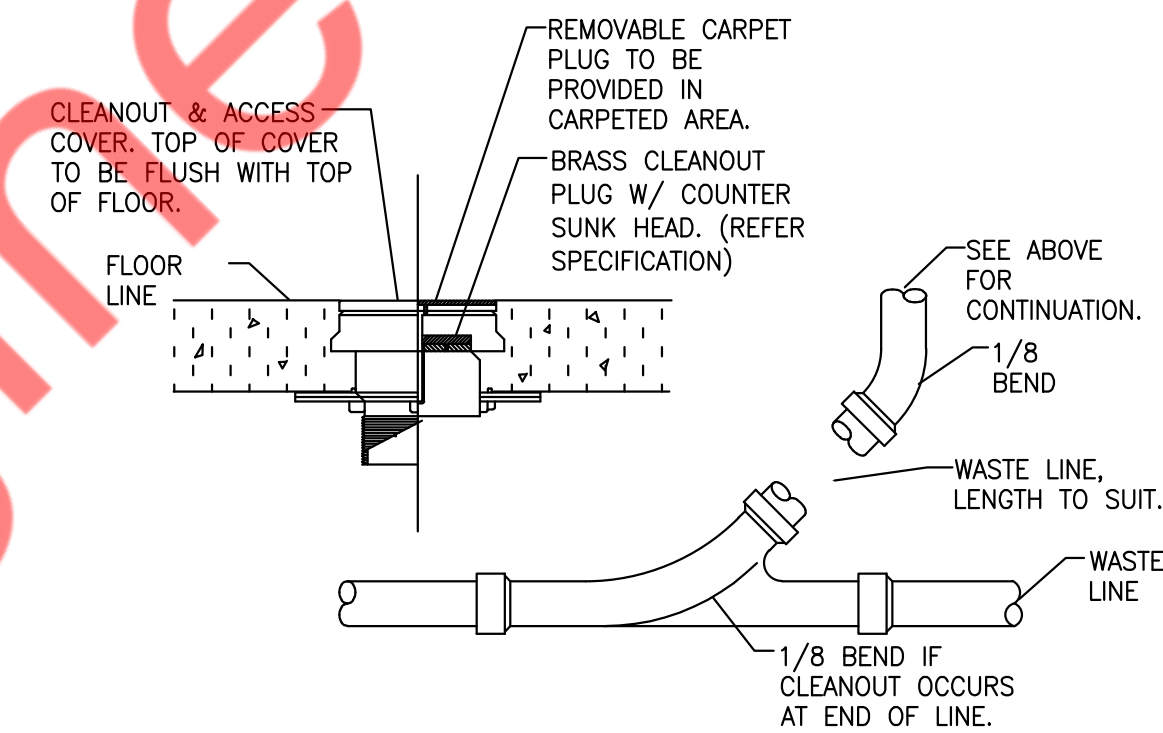
1 WASHING MACHINE HOOKUP DETAIL  
P-502 N.T.S



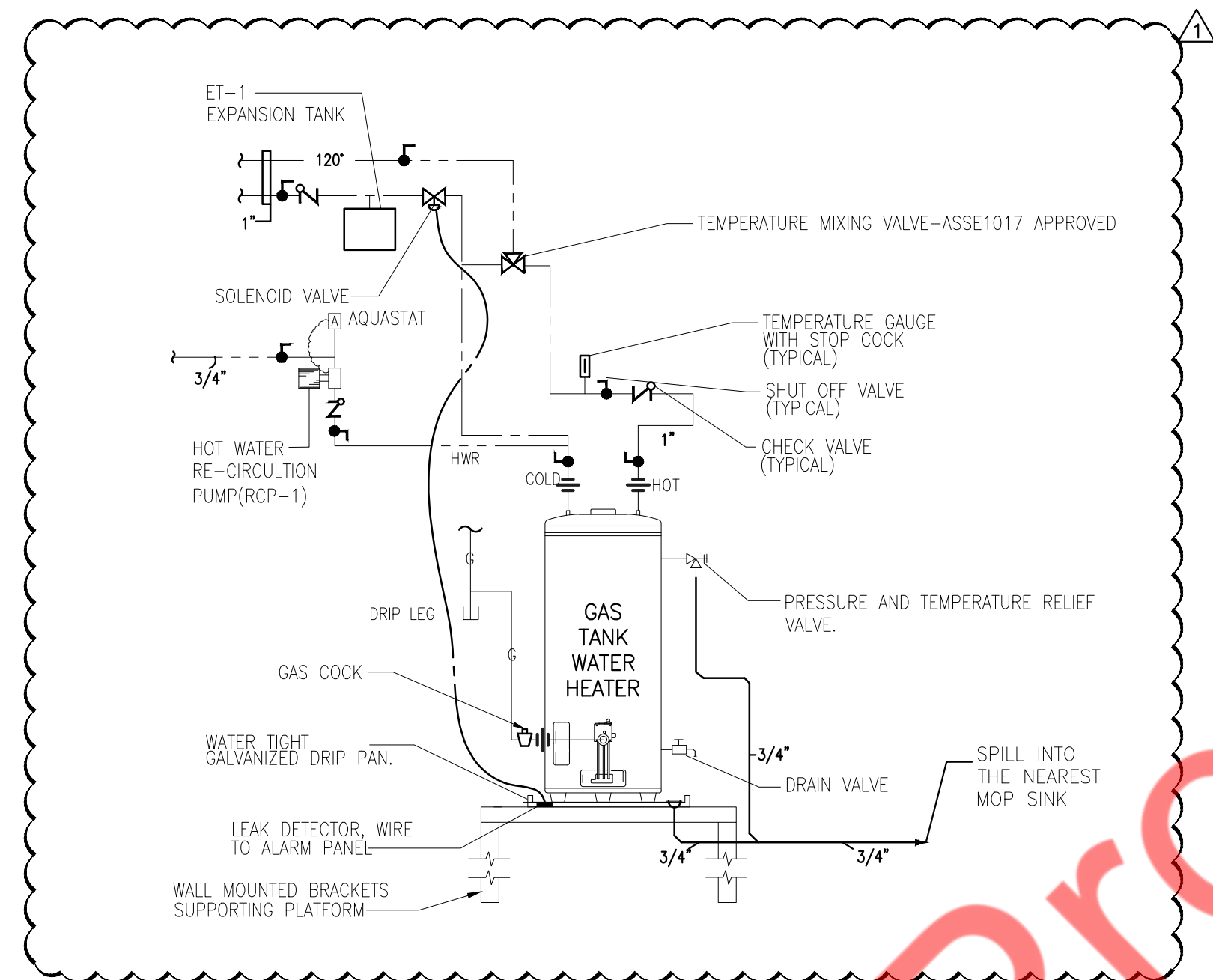
PIPE SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 - 11	5"	1/2"
3/4"	B	12 - 32	5"	3/4"
1"	C	33 - 60	7"	1"
1-1/4"	D	61 - 113	7"	1-1/4"
1-1/2"	E	114 - 154	9"	1-1/2"
2"	F	155 - 330	9"	2"

NOTE: LOCATE ONE FOR EACH BANK OF FLUSHOMETER FIXTURES AT LAST FIXTURE PROVIDE A STAINLESS STEEL ACCESS DOOR FOR EACH SUFFICIENT IN SIZE TO ALLOW REPLACEMENT OF ARRESTOR AT A FUTURE DATE.

2 WATER HAMMER ARRESTOR DETAIL  
P-502 N.T.S



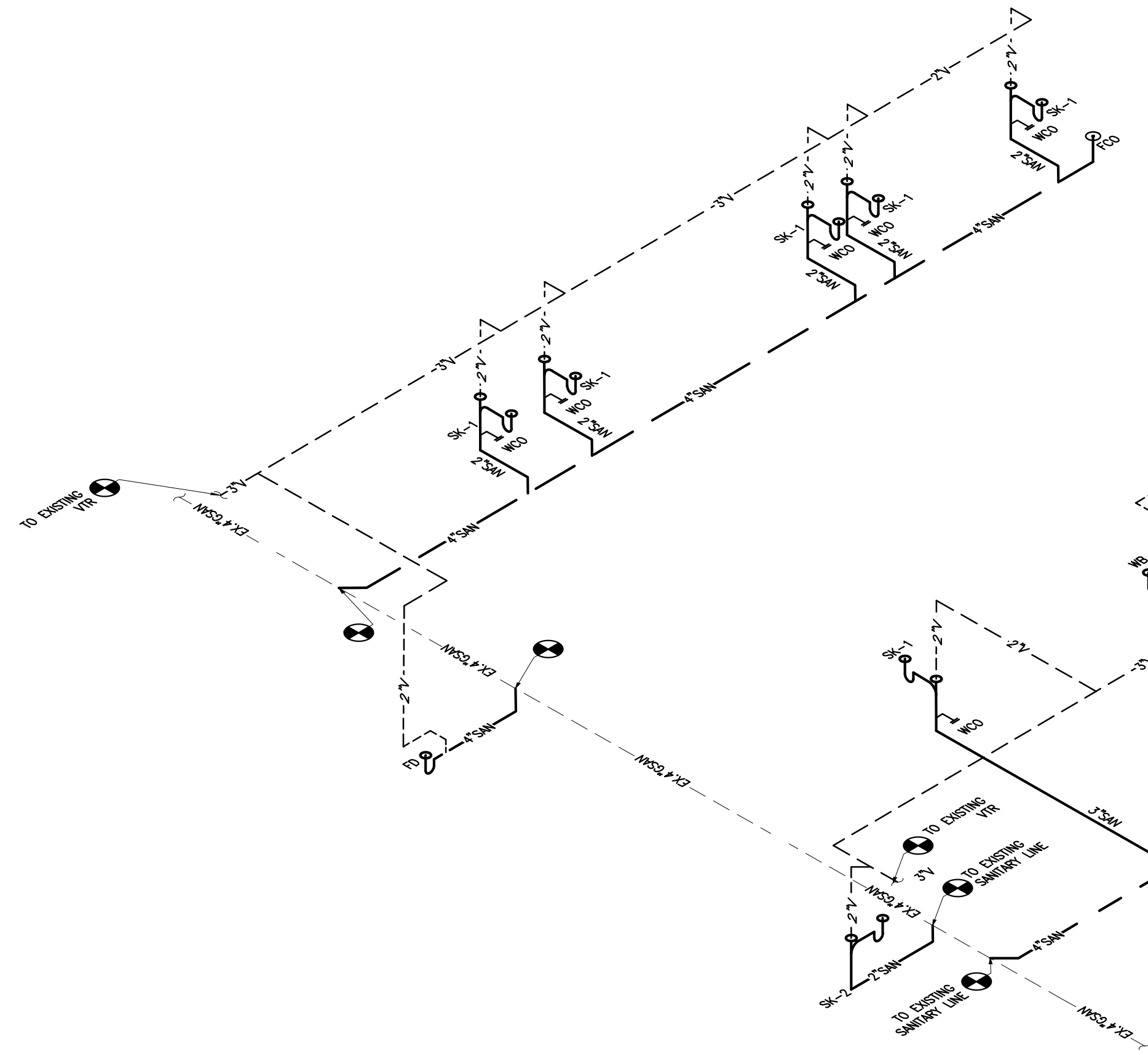
3 FLOOR CLEANOUT DETAIL  
P-502 N.T.S



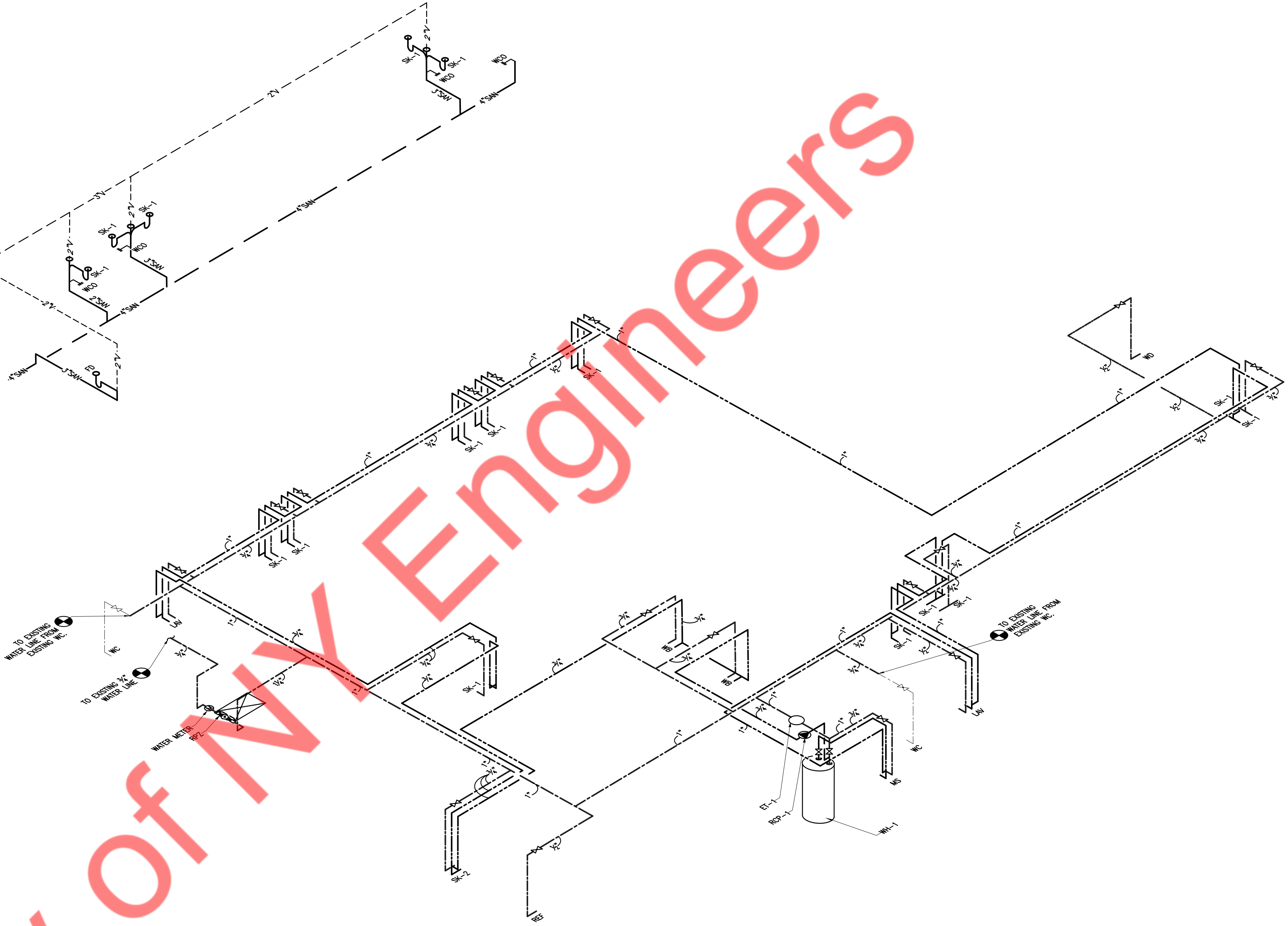
4 WATER HEATER DETAIL  
P-502 N.T.S



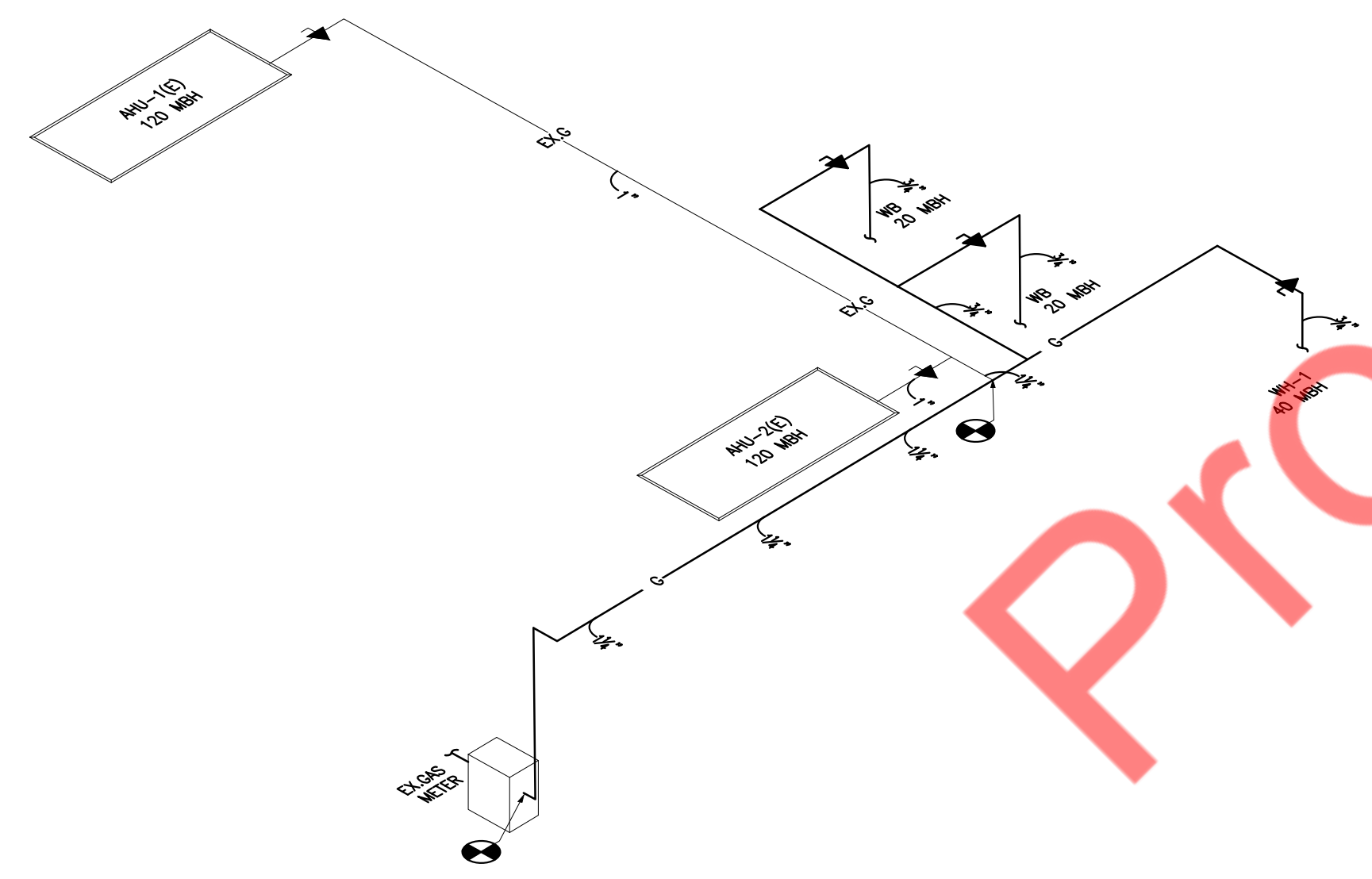




1 SANITARY RISER DIAGRAM  
NO SCALE



2 WATER RISER DIAGRAM  
NO SCALE



3 GAS RISER DIAGRAM  
NO SCALE

GAS PIPE SIZING PER TABLE 402.4(2) INTERNATIONAL FUEL GAS CODE (IFGC 2021)  
GAS INLET PRESSURE- LESS THAN 2 PSI.  
PRESSURE DROP- 0.5 PSI  
SPECIFIC GRAVITY- 0.60  
EQUIVALENT LENGTH OF PIPE = 90 FT

GAS LOAD SUMMARY		
EQUIPMENT	QTY	MBH LOAD
WH-1	1	40
AHU-1 (N)	1	120
AHU-2 (N)	1	120
WASHER DRYER (WB)	2	40
TOTAL LOAD		320

NATURAL GAS PIPING SYSTEM  
PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL. PROVIDE ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY NFPA-54 AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION. PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

NOTES:  
1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWD FITTINGS  
2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.  
3. VERIFY ALL EQUIPMENT BTUS'S PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING 2021 INTERNATIONAL FUEL GAS CODE(2021 IFGC), TABLE 402.4(2)  
4. ALL GAS EQUIPMENT SHALL BE PROVIDED WITH PRESSURE REGULATOR TO OPERATE EQUIPMENT SATISFACTORILY.

- GENERAL NOTES:
- BEFORE CONTRACTOR CUTS THE SLAB-ON-GRADE FOR INSTALL OF BELOW GROUND PLUMBING, CONTRACTOR SHALL SCAN THE SLAB FOR ANY BELOW PLUMBING THAT MAY EFFECT CONSTRUCTION AND OTHER TENANTS OPERATIONS.
  - TRENCHES MUST BE BACKFILLED AT NO MORE THAN 8" LIFTS AND BE COMPACTED WITH EACH LIFT. STONE BASE, MOISTURE BARRIER, AND TERMITE BARRIER MUST BE INSTALLED BEFORE NEW SLAB INSTALL.
  - NEW SLAB MUST BE INSTALLED WITH APPROPRIATE ANCHORS TO THE EXISTING SLAB (REFER TO STRUCTURAL ENGINEER RECOMMENDATION).