SCOPE OF WORK

REUSE ONE EXISTING 4.0 TON ELECTRIC HEAT ROOF TOP UNIT(LENNOX) AND REPLACE THE OTHER EXITING CARRIER UNIT WITH NEW 6.0 TON ELECTRIC HEAT UNIT AS PER SCHEDULE. PROVIDE COMPLETE NEW DUCTWORK AND PROVIDE NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEMS.

PROVIDE 2 NEW EXHAUST FANS FOR RESTROOM AND 1 NEW EXHAUST FAN FOR MOP SINK .

COORDINATE WITH GC FOR ANY ADDITIONAL REFRIGERATION WORK REQUIRED.

GENERAL NOTES

A. CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.

B. CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING, OR PROCEEDING WITH WORK.

C. DRAWINGS/DETAILS ARE TO BE CONSIDERED DIAGRAMMATIC, NOT NECESSARILY SHOWING IN DETAIL OR TO SCALE ALL MINOR ITEMS. UNLESS SPECIFIC DIMENSIONS ARE SHOWN, THE STRUCTURAL, ARCHITECTURAL AND SITE CONDITIONS SHALL GOVERN EXACT LOCATIONS. CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK, AND CHECK/COORDINATE DRAWINGS OF ALL TRADES.

D. COORDINATE WITH THE WORK OF OTHERS SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. PROVIDE DUCT RISES AND DRIPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.

E. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

F. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK. OBTAIN ALL INSPECTIONS REQUIRED BY CODE.

G. USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25, AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL EXPOSED WIRING IN THE PLENUM SHALL BE PLENUM RATED.

H. G.C.TO VERIFY LOCATION OF PERMISSIBLE NEW STRUCTURAL ROOF PENETRATIONS AND ADAPT THE REQUIRED DUCTS ACCORDINGLY. THE OPENINGS MUST BE LOCATED USING A REBAR LOCATOR, TRYING TO LEAVE A TRANSVERSE BAR WITHIN 4" FROM THE OPENING. LOCATE OPENINGS AT MID-DISTANCE BETWEEN THE STEMS OF THE DOUBLE TEE AND LONGITUDINAL REINFORCEMENT SHALL NEVER BE CUT. CALL THE ARCHITECT'S OFFICE IN CASE OF UNEXPECTED DIFFICULTIES.

I. ALL A/C ROUND EXPOSED DUCTS WILL BE SPIRAL GALVANIZED AND READY FOR PAINTING. ALL RECTANGULAR DUCTS OVER CEILINGS MAY BE SHEET METAL WITH EXTERNAL INSULATION AND ALL EXPOSED ROUND SHEET METAL DUCTS SHALL BE INTERNALLY INSULATED.

J. G.C. SHALL COORDINATE WITH LANDLORD APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ALL ROOF PENETRATIONS TO MAINTAIN ROOFING WARRANTY.

K. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 90 DAYS AFTER THE DATE OF ACCEPTANCE AND PROVIDE COPY TO LL.

L. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.

MECHANICAL SYMBOLS

- EXHAUST FAN
- SUPPLY OR OUTSIDE AIR DUCT
- RETURN OR EXHAUST AIR DUCT
- INSULATED RIGID DUCTWORK
- DUCT TRANSITION
- MANUAL VOLUME DAMPER
- FLEX DUCT
- ROOF MOUNTED EXHAUST FAN OUTLET
- ROOFTOP UNIT
- MOTORIZED DAMPER
- FIRE DAMPER
- SUPPLY DIFFUSER REFER TO DIFFUSER SCHEDULE FOR SPECIFICATIONS
- EXHAUST FAN WITH LIGHT
- OPPOSED BLADE DAMPER
- DUCT SMOKE DETECTOR
- PROGRAMMABLE THERMOSTAT
- HUMIDISTAT
- REMOTE SENSOR
- TEMPERATURE SENSOR
- ROUND DUCT DIAMETER
- CFM CUBIC FEET/ MINUTE
- S/A SUPPLY AIR
- R/A RETURN AIR
- SG SUPPLY GRILLE
- CD CONDENSATE PIPING
- BD BACK DRAFT DAMPER
- GC GENERAL CONTRACTOR
- RETURN DIFFUSER REFER TO DIFFUSER SCHEDULE FOR SPECIFICATIONS

NOTE: THIS PROJECT MAY NOT USE EVERY SYMBOL OR DEVICE APPEARING ON THIS LEGEND.

EXISTING CONDITION NOTES

STOP AND READ
THE CONTRACTOR AND SUB CONTRACTOR **SHALL NOT INITIATE ANY WORK UNTIL EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED**. WHEN DEMOLITION IS REQUIRED. THESE VERIFICATIONS SHALL INCLUDE BUT NOT LIMITED TO: DIMENSIONS BOTH HORIZONTAL AND VERTICAL ELECTRICAL SERVICE/PANELS LOCATION AND VOLTS/PHASE, LOCATION/QTY. OF ROOF MOUNTED HVAC EQUIPMENT, CONFIRM THAT INTERIOR HVAC HUNG UNITS HAVE PROPER SUPPORT CONNECTIONS FOR EXISTING STRUCTURE, FIRE SPRINKLER MAIN RUNS, TOILET ROOM DIMENSIONS, DOOR SWING FOR DOORS TO REMAINED ETC. IF NOT VERIFIED AND DISCOVERED AT A LATER TIME, THE CONTRACTOR SHALL REIMBURSE THE ARCHITECT FOR THE REDESIGN FEE. THIS DOES NOT INCLUDE HIDDEN WORK I.E. PITCH OF SANITARY LINES, ACTUAL CONDITIONS OF EXISTING HVAC EQUIPMENT, STRUCTURAL COLUMNS/BEARING WALLS OR CONDITIONS OF GREASE INTERCEPTORS AND ETC.

MECHANICAL PLAN NOTES

A. REUSE ONE EXISTING 4.0 TON ELECTRIC HEAT ROOF TOP UNIT(LENNOX) AND REPLACE THE OTHER EXITING CARRIER UNIT WITH NEW 6.0 TON ELECTRIC HEAT UNIT AS PER SCHEDULE. PROVIDE COMPLETE NEW DUCTWORK AND PROVIDE NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEMS. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AIR DUCT CONNECTIONS. INSTALL FIRE DAMPERS IN ANY FIRE WALLS AND BETWEEN FLOORS. TRANSITION TO DUCT SIZES SHOWN. PROVIDE DUCTWORK AND AIR DISTRIBUTION DEVICES AS INDICATED ON THE PLAN. REFER TO A/C UNIT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

B. FOR SYSTEM OVER 2,000 CFM CHECK FOR DUCT MOUNTED AIR SMOKE DETECTORS IF NOT PROVIDE ONE AND THAT MEET THE REQUIREMENTS OF U.L. 268A, INTERLOCKED TO SHUTDOWN ROOF TOP UNIT UPON DETECTION OF SMOKE. IF NECESSARY PROVIDE SMOKE DETECTOR WITH AN ANNUNCIATOR, ALARM AND POWER L.E.D.'S FOR VISIBLE AND AUDIBLE ALARM SIGNAL, AND VISIBLE TROUBLE SIGNAL. MOUNT ANNUNCIATOR ON ROOM SIDE OF CEILING.

C. ALL DUCTS SHALL BE MINIMUM 26 GAUGE SHEET METAL WITH EXTERNAL DUCT WRAP INSULATION FOR CONCEALED DUCTS AND ALL EXPOSED DUCTS WITH INTERNAL INSULATION. ALL DUCTS TO BE MANUFACTURED AND INSTALLED ACCORDING TO ASHRAE AND SMACNA METAL DUCT CONSTRUCTION STANDARD, LATEST EDITION. ALL MATERIALS WILL CONFORM TO NFPA 90A.

D. FACTORY-MADE FLEXIBLE AIR DUCTS AND CONNECTORS SHALL BE NOT MORE THAN 5 FEET IN LENGTH AND SHALL NOT BE USED IN LIEU OF RIGID ELBOW OR FITTINGS. FLEXIBLE AIR DUCTS SHALL BE PERMITTED TO BE USED AS AN ELBOW AT A TERMINAL DEVICE.

E. THERMOSTATS SHALL BE 7-DAY PROGRAMMABLE TYPE. MOUNT THERMOSTAT 48" A.F.F. COORDINATE LOCATION OF THERMOSTAT.

F. ALL INTERIOR AIR DUCTS WITH INSULATION SHALL HAVE A MINIMUM OF THICKNESS OF 1.5", R-6 INSULATION. EXTERIOR AIR DUCTS TO HAVE R-12 INSULATION. AS PER IECC 2015, 1

G. ALL SEAMS, JOINTS, ETC WILL BE SEALED TO MAKE AIR DUCT AIRTIGHT. PRESSURE SENSITIVE MATERIALS AND OTHERS APPROVED BY LATEST SMACNA. SEALING MATERIALS WILL BE USED.

H. ALL CONDENSATE DRAINS WILL BE PVC FULL DIAMETER OF OUTLET AND WILL TERMINATE IN THE NEAREST APPROVED PLACE OF DISPOSAL.

I. ALL EQUIPMENT AND MATERIALS WILL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND ACCORDING TO THE BEST PRACTICE.

J. TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH IECC - 2015, SECTION C408.2.2. BALANCING PROCEDURES SHALL BE IN ACCORDANCE WITH THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (N.E.B.B.), THE ASSOCIATED AIR BALANCE COUNCIL (A.A.B.C) NATIONAL STANDARDS OR EQUIVALENT PROCEDURES. 1

K. HANGER ATTACHMENTS TO THE STEEL STRUCTURE WILL BE RATED POWDER ACTUATED FASTENERS, "C" CLAMPS, WELDED STUDS, CLAMP HANGERS, JOIST CLAMPS OR OTHER METHODS RECOMMENDED BY SMACNA'S "METAL AND FLEXIBLE STANDARDS", CHAPTER 4, AND WILL HAVE A MINIMUM SAFETY MARGIN OF 4:1. SUSPENDED FROM TOP CHORD OF JOISTS, NOTHING FROM DECK OR CROSS BRACING.

L. ALL HVAC CONTROLS AND CONTROL WIRING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

M. DUCT DESIGNED TO OPERATE AT STATIC PRESSURE GREATER THAN 3" w.g.(750 PA) SHALL BE INSULATED AND SEALED IN ACCORDANCE WITH IMC 2015 SECTION 603.9 IN ADDITION. SUCH DUCTS AND PLENUMS SHALL BE LEAK TESTED IN ACCORDANCE WITH THE SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. 1

THERMOSTATIC CONTROLS

C403.2.4.1 THERMOSTATIC CONTROLS
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, AT LEAST ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED:

1. THE PERIMETER SYSTEM INCLUDES AT LEAST ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN +/-45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM); AND
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C403.2.4.1.1 HEAT PUMP SUPPLEMENTARY HEAT
HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT, EXCEPT DURING DEFROST, PREVENT SUPPLEMENTARY HEAT OPERATION WHERE THE HEAT PUMP CAN PROVIDE THE HEATING LOAD.

IN SYSTEMS WITH A COOLING CAPACITY OF LESS THAN 65,000 BTUH, A HEAT STRIP OUTDOOR TEMPERATURE LOCKOUT SHALL BE PROVIDED TO PREVENT SUPPLEMENTAL HEAT OPERATION IN RESPONSE TO THE THERMOSTAT BEING CHANGED TO A WARMER SETTING. THE LOCKOUT SHALL BE SET NO LOWER THAN 35°F AND NO HIGHER THAN 40°F.

C403.2.4.1.2 DEADBAND
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CAPABLE OF PROVIDING A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM.

EXCEPTIONS:
1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL.

C403.2.4.1.3 SETPOINT OVERLAP RESTRICTION
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE , A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE PROVIDED WITH THE CAPABILITY TO PREVENT THE HEATING SET POINT FROM EXCEEDING THE COOLING SET POINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.2.4.1.2.

C403.2.4.2 OFF-HOUR CONTROLS
EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

EXCEPTIONS:
1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A READILY ACCESSIBLE MANUAL SHUTOFF SWITCH.
3. HVAC SYSTEMS SERVING HOTEL/MOTEL GUESTROOMS OR OTHER RESIDENTIAL UNITS COMPLYING WITH SECTION C403.2.2 REQUIREMENTS.

C403.2.4.2.1 THERMOSTATIC SETBACK CAPABILITIES
THERMOSTATIC SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAINZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

C403.2.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

C403.2.4.2.3 AUTOMATIC START CAPABILITIES
AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM PROVIDED WITH SETBACK CONTROLS AND DIRECT DIGITAL CONTROL (DDC) SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY. 1

RTU SCHEDULE

	RTU-1 (E)	RTU-2 (E)
QUANTITY	1	1
UNIT	ELECTRIC HEAT	ELECTRIC HEAT
MANUFACTURER	CARRIER	LENNOX
MODEL	50FCA05	KCA048S4DN2Y
STATUS	EXISTING	EXISTING
MOUNTING	ROOF	ROOF
NOMINAL CAPACITY	4 TR	4 TR
TOTAL BTUH'S	S.A.E.	S.A.E.
SENSIBLE BTUH'S	S.A.E.	S.A.E.
EER	S.A.E.	S.A.E.
ELECTRICAL HEATER (kW)	15.8/21.0 (V.I.F)	15 (V.I.F.)
SUPPLY CFM	1600	1600
OUTDOOR AIR CFM	495	400
ESP (IN. WC)	S.A.E.	S.A.E.
VOLTAGE/PHASE/HZ	208-230/3/60 (V.I.F)	208-230/3/60 (V.I.F)
MCA (A)	66/ 75 (V.I.F)	47 (V.I.F)
MOCP (A)	70/ 80 (V.I.F)	50 (V.I.F)
WEIGHT (LBS) (APPROX.)	S.A.E.	S.A.E.

NOTES FOR EXISTING RTU
1. EXISTING RTU WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.
2. S.A.E : SAME AS EXISTING. V.I.F : VERIFY IN FIELD.
3. CONTRACTOR TO FIELD VERIFY IF ALL RTU ARE WORKING AT THEIR 100% RATED CAPACITIES / LOADS. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF UNIT ON SITE.
5. IF REQUIRED, PROVIDE NEW THERMOSTAT AND TEMPERATURE SENSOR COMPATIBLE WITH EXISTING RTU. CO-ORDINATE FINAL LOCATION OF T-SENSOR WITH ARCHITECT / OWNER.
6. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING RTU TO MATCH VALUES MENTIONED IN ABOVE TABLE.
7. REPLACE FILTERS, IF REQUIRED.
8. CONTRACTOR TO FIELD VERIFY AND CONFIRM THE EXISTING INSTALLED HEATER IS 15kW. IF NOT REPORT DESIGN ENGINEER BEFORE COMMENCING ANY WORK.

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

SPLIT SYSTEM SCHEDULE

AIR HANDLER DATA	UNIT TAG	AHU-1(N)
	UNIT TYPE	ELECTRIC HEAT
	AREA SERVED	REFER PLAN
	SUPPLY AIR (CFM)	600
	OUTSIDE AIR (CFM)	120
	STATIC PRESS. (E.S.P INCH OF W.C.)	0.5
	MANUFACTURER	CARRIER (OR EQUIVALENT)
	MODEL NO.	FB4CNF018 (OR EQUIVALENT)
	WEIGHT, LBS	120
	VOLTS/PH/HZ	208-230/1/60
	ELECTRIC HEATER	
	MCA (A)	3.5
	MOCP (A)	15
CONDENSING UNIT DATA	UNIT TAG	ACCU-1(N)
	AIR HANDLER SERVED	AHU-1(N)
	CAPACITY	1.5 TR
	REFRIGERANT	R410A
	TOT. COOLING CAP. (MBH)	18.1
	COOLING SENS. CAP. (MBH)	13.1
	COMPRESSOR RLA/LRA	8.8/42.6
	OUTDOOR FAN FLA	0.4
	VOLTS/PH/HZ	208-230/1/60
	M.C.A. (MAX. CKT. BRKR. AMPS	11.4/20
	MANUFACTURER	CARRIER (OR EQUIVALENT)
	MODEL	24SPA618 (OR EQUIVALENT)
	SEER	16
	WEIGHT, LBS	150

NOTES:-
1. UNIT TO BE PROVIDED BY TENANT.
2. PROVIDE DISCONNECT SWITCH & NON-POWERED GFI OUTLET.
3. COORDINATE FINAL LOCATION OF INDOOR AND OUTDOOR UNIT WITH ARCHITECT/OWNER/LANDLORD.
4. SUPPLY AIR CFM BASED ON HIGH SPEED. PROVIDE VARIABLE AIRFLOW ADJUSTMENT CONTROL FOR ALL UNITS.
5. REFRIGERANT R410A SHALL BE PROVIDED.
6. PROVIDE ALL ASSOCIATED ACCESSORIES.
7. ALL REFRIGERANT PIPING TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS.
8. CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEEDS THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.
9. PROVIDE DRAIN PAN WITH WATER LEAK DETECTOR.
10. VERIFY ALL DATA WITH MANUFACTURER PRIOR TO ORDERING EQUIPMENT.
11. PROVIDE CONDENSATE DRAIN PUMP IF REQUIRED. ROUTE CONDENSATE DRAIN FROM AHU-1(N) TO THE NEAREST PLUMBING DRAIN POINT WITH APPROVED MANNER. COORDINATE WITH PLUMBING CONTRACTOR.

OCCUPANCY CALCULATION PER IMC 2015, TABLE 403.3.1.1

RECEPTION	563 SQ. FT.	30 PEOPLE PER 1000 SQ.FT.	5 PEOPLE
WORKOUT AREA	1993 SQ. FT.	40 PEOPLE PER 1000 SQ.FT.	40 PEOPLE
OFFICE	81 SQ. FT.	5 PEOPLE PER 1000 SQ.FT.	2 PEOPLE
			47 PEOPLE

VENTILATION REQUIREMENTS PER IMC 2015 TABLE 403.3.1.1

RECEPTION	563 SQ. FT. X	0.06 CFM/SQ. FT. =	34	CFM
	5 PEOPLE. X	5 CFM/PEOPLE. =	25	CFM
WORKOUT AREA	1993 SQ. FT. X	0.06 CFM/SQ. FT. =	120	CFM
	40 PEOPLE. X	20 CFM/PEOPLE. =	800	CFM
OFFICE	81 SQ. FT. X	0.06 CFM/SQ. FT. =	5	CFM
	2 PEOPLE. X	5 CFM/PEOPLE. =	10	CFM
UTILITY CLOSET	38 SQ. FT. X	0.12 CFM/SQ. FT. =	5	CFM
HALLWAY	244SQ. FT. X	0.06 CFM/SQ. FT. =	15	CFM
OUTSIDE AIR REQUIRED			1014	CFM
MEN RESTROOM	70 CFM PER FIXTURE		70	CFM
WOMEN RESTROOM	70 CFM PER FIXTURE		70	CFM
UTILITY CLOSET	70 CFM PER FIXTURE		70	CFM
EXHAUST AIR REQUIRED			210	CFM
OUTSIDE AIR PROVIDED			1015	CFM
AIR BALANCE				
O/A PROVIDED THROUGH RTU-1(E)			495	CFM
O/A PROVIDED THROUGH RTU-2(E)			400	CFM
O/A PROVIDED THROUGH AHU-1(N)			120	CFM
BEF-1&2 (N)			-140	CFM
EF-1(N)			-70	CFM
BUILDING PRESSURE(BAROMETRIC RELIEF)			+805	CFM

NOTE:
1. CONTRACTOR TO ADJUST MOTORIZED/MANUAL DAMPER ON FRESH AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE. 1

DIFFUSER SCHEDULE

MANUFACTURER	TITUS	TITUS	TITUS
DESIGNATION	A	B	R
USE	SUPPLY	SUPPLY	RETURN
MODEL	TDC-AA	300FS	56FL
MOUNTING	SAT CEILING	SAT CEILING	SAT CEILING
LOCATION	AS SHOWN	AS SHOWN	AS SHOWN
FACE SIZE	24" X 24"	12" X 12"	24" X 24"
NECK SIZE	REFER TO TABLE A	-	-
FRAME TYPE	LAY IN	LAY IN	LAY IN

NOTES :
1. MAX. NC LEVEL 30 OR LESS.
2. PROVIDE SQUARE TO ROUND NECK ADAPTOR.
3. CO-ORDINATE WITH ARCHITECT FOR FINAL MOUNTING, FRAME TYPE, PAINT AND FINISH.
4. PROVIDE 4-WAY AIR THROW PATTERN UNLESS NOTED OR INDICATED.
5. PROVIDE INSULATED BACKS ON ALL DIFFUSERS.
6. PROVIDE VOLUME DAMPER FOR ALL DIFFUSERS.

ELECTRIC DUCT HEATER (BASED ON GREENHECK)

SYMBOL	MODEL	USE	HEATER TYPE	DIMENSIONS WXH (INCH)	HEATING CAPACITY kW	ELECTRICAL DATA AMPS	VOLTAGE
EDH-1(N)	IDHE	SUPPLY	FLANGED	20"X12"	5.0	13.9	208/3/60

NOTES:
1. INSTALL ELECTRIC DUCT HEATER AS PER MANUFACTURER'S RECOMMENDATION.
2. PROVIDE T-STAT AND WIRE TO HEATER.
3. PROVIDE SCR CONTROLLER, DISCONNECT SWITCH, VAPOR BARRIER, DUCT TIGHT BOX, AUTOMATIC THERMAL CUTOUT, AIR FLOW SWITCH AND FAN INTERLOCK SWITCH.
4. INTERLOCK WITH RTU-1(E).

NECK SIZE TABLE - A

NECK SIZE DIA	CFM RANGE
Ø6"	0-100
Ø8"	101-200
Ø10"	201-400
Ø12"	401-600

FAN SCHEDULE

DESIGNATION	BEF-1(N)	BEF-2(N)	EF-1(N)
STATUS	NEW	NEW	NEW
QUANTITY	1	1	1
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK
MODEL	SP-A90-130-VG	SP-A90-130-VG	SP-A90-130-VG
CFM	70 CFM AT 0.25" W.G. ESP	70 CFM AT 0.25" W.G. ESP	70 CFM AT 0.25" W.G. ESP
AMPS	0.29	0.29	0.29
WATTS	12	12	12
ACCESSORIES	BDD, LITE KIT	BDD, LITE KIT	BDD, LITE KIT
WEIGHT (LBS)	12	12	12
VOLTAGE	115/1/60	115/1/60	115/1/60
NOTES	1,2,3	1,2,3	2,3,4

NOTES :
1. BEF-1(N) & BEF-2(N) SHALL BE INTERLOCKED WITH RTU-2(E).
2. COORDINATE ELECTRICAL POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
3. PROVIDE BACK DRAFT DAMPER.
4. PROVIDE MANUAL SWITCH FOR EF-1(N).

HVAC PIPING INSULATION NOTES

1. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E-84), (ASA A2.5-1963). FLAMESPREAD: MAXIMUM 25. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE.
2. EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILINGS OR OPENING ACCESS PANELS.
3. CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.
4. OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER.

MINIMUM REFRIGERANT PIPE INSULATION THICKNESS (IN.)

FLUID OPERATING TEMP. RANGE & USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (IN.)				
	CONDUCTIVITY BTU.IN./(H.FT².°F)	MEAN RATING TEMP., °F	<1	1 TO<1-1/2	1-1/2 TO <4	4 TO <8	≥8
40 — 60	0.21 — 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 — 0.26	50	0.5	1.0	1.0	1.0	1.5

LAKEWOOD BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2015 IBC AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
2. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2015 IMC:
   A. VENTILATION SYSTEM- 2015 IMC 403.3.
3. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   A. DUCT CONSTRUCTION AND INSTALLATION- 2015 IMC 603
   B. AIR INTAKES, EXHAUSTS AND RELIEF - 2015 IMC 401.5
4. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
5. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2015 IMC 401.
6. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
7. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
8. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2015 INTERNATIONAL MECHANICAL CODE 401.
9. SMOKE DETECTOR SHALL MEET UL268A.
10. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
11. VENTILATION SYSTEMS SHALL BE BALANCED TO MAINTAIN THE MINIMUM VENTILATION AIRFLOW RATE AS SHOWN IN VENTILATION REQUIREMENT TABLE. THIS SYSTEM SHALL BE BALANCED BY APPROVED METHOD - 2015 INTERNATIONAL MECHANICAL CODE(2015 IMC) C403.3.1.5. CONTRACTOR TO SUBMIT THE AIR - BALANCE REPORT TO INSPECTOR. 1

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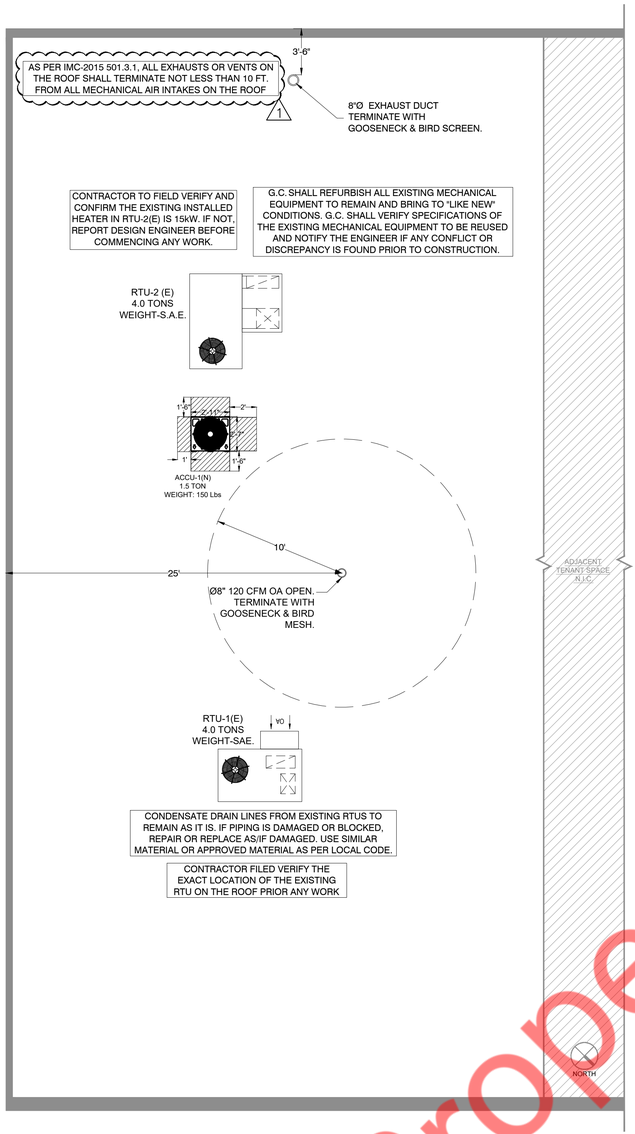
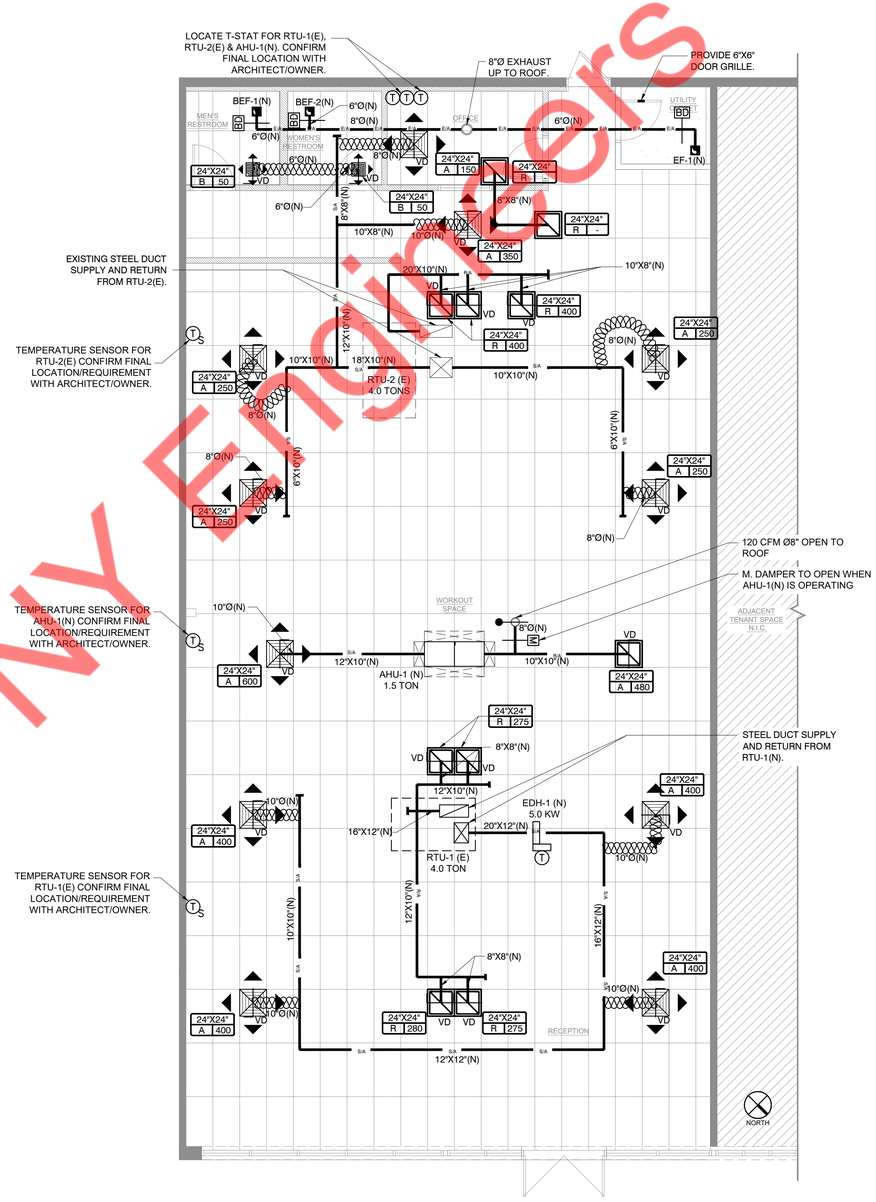


HVAC ROOF PLAN | SCALE 3/16" = 1'-0" | 2



HVAC FLOOR PLAN | SCALE 3/16" = 1'-0" | 1

NY ENGINEERS

PROJECT

FIT BODY BOOT CAMP

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1 06.19.23 BD COMMENTS

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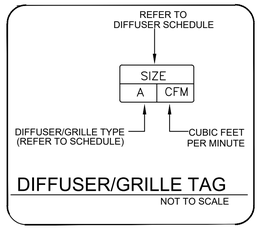
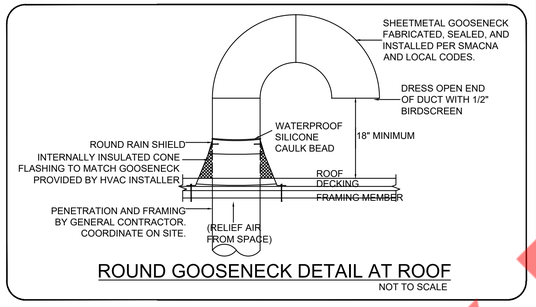
HVAC FLOOR & ROOF PLANS

M-2



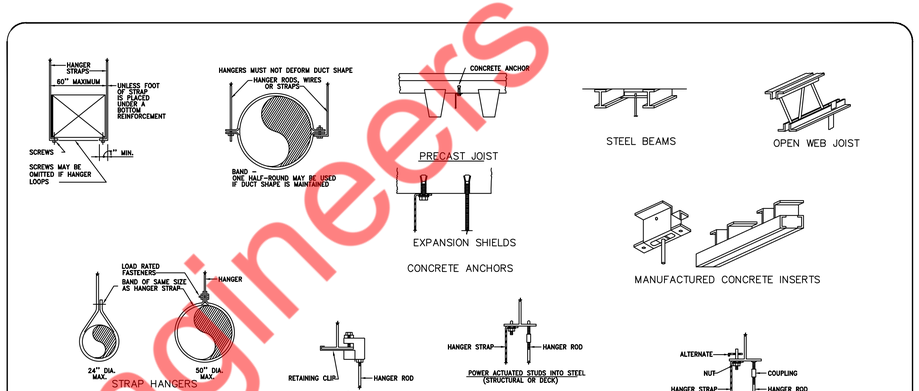
DIFFUSER/GRILLE TAG

NOT TO SCALE



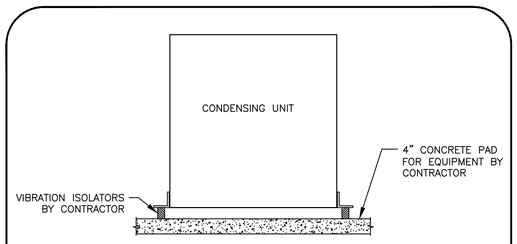
ROUND GOOSENECK DETAIL AT ROOF

NOT TO SCALE



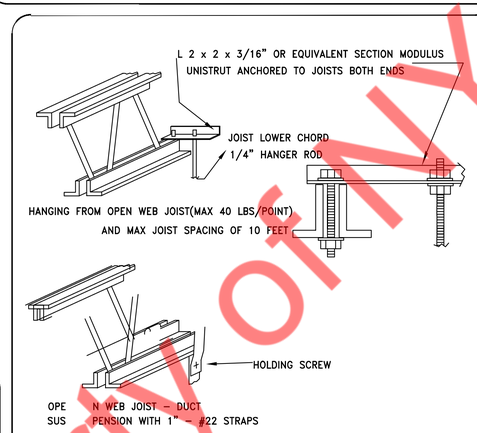
UPPER & LOWER ATTACHMENTS & DEVICES

NOT TO SCALE



CONDENSER MOUNTING DETAIL

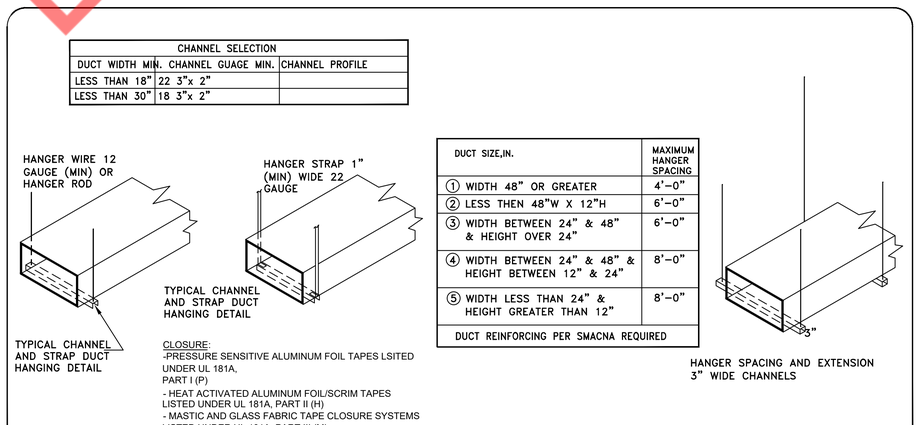
NOT TO SCALE



DUCT MOUNTING DETAIL

NOT TO SCALE

CHANNEL SELECTION		
DUCT WIDTH MIN.	CHANNEL GUAGE MIN.	CHANNEL PROFILE
LESS THAN 18"	22 3"x 2"	
LESS THAN 30"	18 3"x 2"	

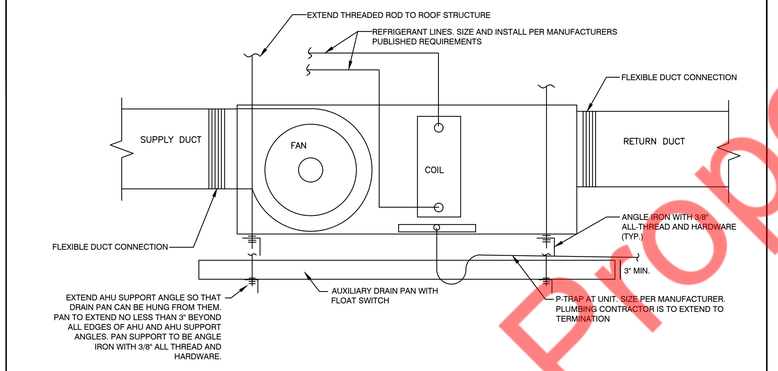


DUCT SIZE,IN.	MAXIMUM HANGER SPACING
① WIDTH 48" OR GREATER	4'–0"
② LESS THEN 48"W X 12"H	6'–0"
③ WIDTH BETWEEN 24" & 48" & HEIGHT OVER 24"	6'–0"
④ WIDTH BETWEEN 24" & 48" & HEIGHT BETWEEN 12" & 24"	8'–0"
⑤ WIDTH LESS THAN 24" & HEIGHT GREATER THAN 12"	8'–0"
DUCT REINFORCING PER SMACNA REQUIRED	

HANGER SPACING AND EXTENSION
3" WIDE CHANNELS

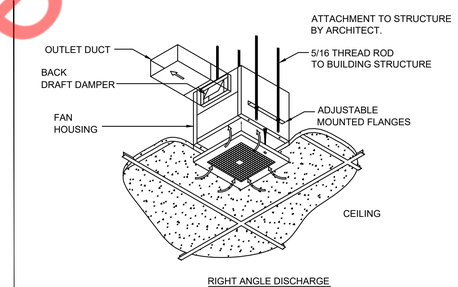
DUCT SUPPORTS

NOT TO SCALE



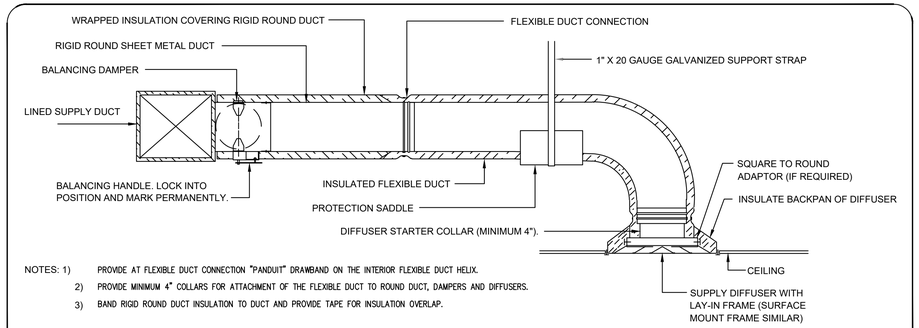
TYPICAL HORIZONTAL AIR HANDLER DETAIL

NOT TO SCALE



CEILING EXHAUST FAN DETAIL

NOT TO SCALE



NOTES: 1) PROVIDE AT FLEXIBLE DUCT CONNECTION "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX.

2) PROVIDE MINIMUM 4" COLLARS FOR ATTACHMENT OF THE FLEXIBLE DUCT TO ROUND DUCT, DAMPERS AND DIFFUSERS.

3) BAND RIGID ROUND DUCT INSULATION TO DUCT AND PROVIDE TAPE FOR INSULATION OVERLAP.

DIFFUSER CONNECTION DETAIL-FLEX DUCT

NOT TO SCALE

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MECHANICAL DETAILS

M-3

SCOPE OF WORK

REUSE EXISTING 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE FROM BASE BUILDING DISTRIBUTION FOR THE TENANT SPACE. AND REUSE EXISTING (1) 225A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". ALL NECESSARY EQUIPMENT, WIRING AND LIGHTING FOR THE PROJECT SPACE INCLUDING WIRING FOR VENTILATION EQUIPMENT. COORDINATE WITH G.C FOR LOW VOLTAGE WIRING.

ELECTRICAL PLAN NOTES

1. ELECTRICAL CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THIS SET.
2. CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT, NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING, OR PROCEEDING WITH WORK.
3. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED. CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, CONTRACTOR SHALL NOTIFY THE OWNER OR HIS REPRESENTATIVE AS SOON AS POSSIBLE AFTER DISCOVERY OF THE PROBLEM AND SHALL NOT PROCEED WITH THAT PORTION OF THE WORK UNTIL OWNER HAS DIRECTED CORRECTIVE ACTION TO BE TAKEN.
4. ELECTRICAL CONTRACTOR SHALL VISIT JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATIONS INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. EXISTING CONDITIONS OF ELECTRICAL EQUIPMENT, LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING HIS BID.
5. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRIC CODE AND ALL CODES AND ORDINANCES OF THE AUTHORITY HAVING JURISDICTION.
6. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION FOR ALL EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE.
7. ALL ELECTRICAL NOT BEING REUSED MUST BE REMOVED IN ITS ENTIRETY.
8. ALL CONDUIT IN OR UNDERGROUND OR IN CONCRETE MUST BE RIGID GALVANIZED STEEL.
9. CIRCUIT BREAKERS AND PANELS TO BE BOLT ON TYPE.
10. ALL EQUIPMENT SHALL BE APPROVED BY UL OR OTHER NATIONALLY RECOGNIZED TESTING COMPANY.
11. ALL RECEPTACLES SHALL BE GROUNDED AS REQUIRED BY NEC 250.146.
12. SUBMIT SERVICE ENTRANCE EQUIPMENT FOR SEPARATE APPROVAL.
13. ALL LOW VOLTAGE MUST BE IN CONDUIT TO ABOVE THE DROP CEILING. BRIDAL RINGS OR "J" HOOKS REQUIRED.
14. SEPARATE PERMITS ARE REQUIRED FOR ALL LOW VOLTAGE SUCH AS TELEPHONE, DATA, THERMOSTAT, MUSIC, ALARMS ETC.
15. SEPARATE PERMIT REQUIRED FOR SIGNAGE.
16. PRIOR TO ANY CONSTRUCTION WORK BEGINNING AN ON-SITE MEETING WITH GENERAL CONTRACTORS IS REQUIRED.
17. ELECTRICIAN MUST BE ON SITE FOR ALL INSPECTIONS.
18. MINIMUM WIRE SIZE SHALL BE #12 A.W.G. EXCLUDING CONTROL WIRING. ALL CONDUCTORS SHALL BE COPPER AND UNLESS OTHERWISE NOTED THHN INSULATION.
19. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, PLASTIC AND CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS, AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
20. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
21. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE N.E.C. OR LOCAL CODES.
22. ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.
23. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/ARCHITECT.
24. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
25. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE THAT CERTIFICATE OF OCCUPANCY IS ISSUED. WARRANTY SHALL BE PROVIDED IN WRITING. PROVIDE COPY TO LL.
26. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.
27. ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
28. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT.
29. THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF POWER AND TELEPHONE COMPANIES.
30. CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS AND PROVIDE ALL NECESSARY CONTROL WIRING.
31. ALL CIRCUIT BREAKERS FEEDING MECHANICAL EQUIPMENT SHALL BE HACR TYPE CIRCUIT BREAKERS.
32. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES, DEVICES, ETC. FOR ALL OUTLETS AS INDICATED.
33. MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UL LIST OF APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF N.E.C. NEMA, AND IECE.
34. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR CUT SHEETS OF LIGHTING FIXTURES, SWITCHES, AND OTHER ELECTRICAL ITEMS FOR APPROVAL BY ENGINEER/ARCHITECT.
35. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND FIRED CAULKING REQUIRED OF HIS WORK.
36. ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS W/TYPE WRITTEN DIRECTORIES.
37. ALL ELECTRICAL AND COMMUNICATIONS OUTLETS TO BE AT 24" A.F.F. UNLESS NOTED OTHERWISE, AND VERTICALLY MOUNTED.
38. ALL LIGHT SWITCHES TO BE AT 42" A.F.F.
39. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL ELECTRICAL WIRING FOR HVAC SYSTEM INCLUDING CONTROLS, THERMOSTATS, POWER, ETC. SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
40. BREAKER AND PANELS -- ALL CURRENT CARRYING BUSSES SHALL BE COPPER. ALL GROUND BUS BARS SHALL BE COPPER. PANEL BOARD ENCLOSURES SHALL BE FURNISHED WITHOUT FRE-PUNCHED CONCENTRIC HOLES. A.I.C. RATINGS SHALL BE AS INDICATED ON PANEL BOARD SCHEDULES.
41. DISCONNECT SWITCHES SHALL BE H.P. RATED, GENERAL DUTY, QUICK-MAKE, QUICK-BREAK ENCLOSURES AS REQUIRED BY EXPOSURE.
42. MOTOR STARTERS SHALL BE MANUAL OR MAGNETIC, WITH OVERLOAD RELAYS IN EACH HOT LEG.
43. THE TERM "PROVIDE" USED IN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS INDICATES THE CONTRACT SHALL FURNISH AND INSTALL.
44. CONTRACTOR SHALL CONFIRM WITH ANY AND ALL REQUIREMENTS SUCH AS: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, TRANSFORMER SIZE, SCHEDULED DOWN TIME FOR OWNERS CONFIRMATION, ETC. ANY CONFLICTS SHALL BE BROUGHT TO ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK.
45. VOLTAGE DROP FOR ALL BRANCH CONDUCTORS SHALL NOT EXCEED 3%, WHERE VOLTAGE DROP EXCEEDS 3%, CONTRACTOR SHALL INCREASE SIZE OF CONDUCTORS.
46. CONTRACTOR SHALL PROVIDE GFI TYPE BREAKER FOR ALL EXTERIOR 120V CIRCUITS OR GFI PROTECTION -- FOR THE WHOLE CIRCUIT.
47. GAS PIPING SHALL BE BONDED.
48. ELECTRICAL CONTRACTOR SHALL COORDINATE SERVICE ENTRY WITH SERVICE PROVIDER PRIOR TO DETERMINING EXACT LOCATION OF THE METER BOX IN ORDER TO AVOID DISCREPANCIES BETWEEN DRAWINGS AND JOB CONDITIONS.
49. ALL OUTDOOR EQUIPMENT SHALL BE WEATHERPROOF.
50. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF ACCEPTANCE. PROVIDE A COPY TO LL.
51. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.
52. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND FIRE CAULKING REQUIRED OF HIS WORK.
53. ABSOLUTELY NO FLEXIBLE CONDUIT IS PERMITTED IN DEMISING WALLS. FLEXIBLE CONDUIT IS PERMITTED FOR SHORT FINAL CONNECTIONS ONLY (6'-0" OR LESS).
54. EXPOSED CONDUIT SHALL BE INSTALLED IN STRAIGHT LINES, PARALLEL OR IN RIGHT ANGLES TO THE BUIDING STRUCTURE. DO NOT LOOP EXCESS FLEXIBLE CONDUIT IN CEILING SPACE OR WALL CAVITY. NO CONDUIT TO BE SUPPORTED FROM THE ROOF DECK.
55. CABLE TYPES AC AND NM CABLES ARE NOT ACCEPTABLE. TYPE MC CABLE, ELECTRIC METALLIC TUBING (EMT) AND RIGID GALVANIZED CONDUIT ARE PERMITTED.
56. ALL EQUIPMENT, DEVICES AND FIXTURES SHALL BE GROUNDED IN COMPLIANCE WITH NEC AND UL REQUIREMENTS.
57. ALL PANELS TO BE UL LABELED WITH BOLT-ON TYPE CIRCUIT BREAKERS.
58. 7-DAY 24-HOUR TIME CLOCK IS REQUIRED TO CONTROL STOREFRONT ENTRY LIGHTS, SHOW WINDOW LIGHTS, SHOW WINDOW RECEPTACLES AND STOREFRONT SIGNAGE. ILLUMINATED STOREFRONT SIGNS MUST REMAIN LIT DURING ALL MALL BUSINESS HOURS.
59. TENANT IS REQUIRED TO MAKE A FIELD SURVEY OF THE EXISTING ELECTRICAL SERVICE TO ENSURE THAT THE TOTAL CONNECTED LOAD DOES NOT EXCEED THE ELECTRIC SERVICE. ANY/ALL MODIFICATIONS OR UPGRADES NEEDED ARE SUBJECT TO LANDLORD'S PRIOR APPROVAL AND WILL BE COMPLETED BY TENANT/TENANT'S GC AT TENANT'S SOLE EXPENSE.
60. ALL ELECTRICAL PANELS TO BE MOUNTED ON PLYWOOD BACKER BOARD.
61. PANEL PHASE LOADS TO BE BALANCED WITHIN 10%.
62. ELECTRICAL PANELS MAY NOT BE RECESSED IN DEMISING PARTITIONS. SURFACEMOUNT OR FULL FUR OUT WALL TO ACHIEVE FLUSH FINAL APPEARANCE.
63. COORDINATE ALL CONCRETE TRENCHING/CORING TO ENSURE THAT ANY UNDERSLAB UTILITIES, ETC. ARE NOT DAMAGED DURING FLOOR CUT. ANY DAMAGE TO BEREPAIRED AT TENANT'S EXPENSE. PRIOR APPROVAL AND COORDINATION WITHPROPERTY MANAGEMENT IS REQUIRED FOR ALL CONCRETE CUTTING.
64. CONFIRM ELECTRICAL METER REQUIREMENTS WITH MALL OPERATIONS.

GENERAL LIGHTING NOTES

A. UPPER CASE LETTER NEXT TO LIGHT FIXTURE DENOTES FIXTURE TYPE.

B. ALL EMERGENCY FIXTURES SHALL BE CONNECTED TO AN UNSWITCHED HOT CONDUCTOR.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	EXHAUST FAN
	COMBINATION EXHAUST FAN/LIGHT (REFER TO MECHANICAL PLANS)
J	JUNCTION BOX
	BATTERY BACK UP EXIT LIGHT
	BATTERY BACK UP EMERGENCY LIGHT
$	WALL SWITCH (SINGLE, DOUBLE,)
$3	WALL SWITCH (3 WAY, 4 WAY)
$T	WALL SWITCH (TIMER)
$OS	OCCUPANCY SENSOR WALL SWITCH
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE, 46" TO AFF AT KITCHEN, BATHS AND TOPS
	HALF SWITCHED DUPLEX RECEPTACLE
	230 VOLT RECEPTACLE
	QUADRUPLEX RECEPTACLE
	FLOOR MOUNTED. FLUSH DUPLEX RECEPTACLE
	FLOOR MOUNTED. FLUSH QUAD. RECEPTACLE
	FLOOR MOUNTED. FLUSH 230 VOLT RECEPTACLE
CL	CEILING MOUNTED DUPLEX RECEPTACLE
	ELECTRICAL PANEL
	DISCONNECT SWITCH
	USB CHARGER RECEPTACLE
TV	TELEVISION OUTLET
	TELEPHONE OUTLET
	TELEPHONE/DATA OUTLET
	DATA OUTLET
	FLOOR MTD. FLUSH TELEPHONE/DATA OUTLET
RJ45	QUAD. DATA OUTLET RJ45
	DISCONNECT SWITCH

ABBREVIATIONS:

ABOVE FINISH FLOOR= A.F.F.	BELOW COUNTER= BC
COUNTER TOP LEVEL= C	PUSH BUTTON= PB
GROUND FAULT INTERRUPTER= GFCI	UNDER CABINET= UC
VERIFY PRIOR TO INSTALL= VH	VAPOR PROOF= VP
WEATHER PROOF= WP	ELECTRICAL CONTRACTOR=E.C.
EXHAUST FAN = EF	BATHROOM EXHAUST FAN=BEF
WATER HEATER= WH	RECIRCULATION PUMP=RCP
AUTHORITY HAVING JURISDICTION= A.H.J.	ELECTRIC DUCT HEATER=EDH

LIGHTING FIXTURE SCHEDULE

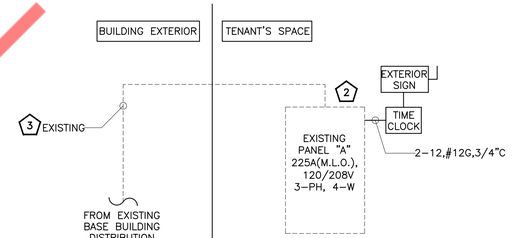
SYMBOL	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLT	NO. OF LAPMS	LAMP WATTAGE	MOUNTING
	A	2x4 RECESSED FLAT LED PANEL	TBD	TBD	120	46	38.8 WATTS	RECESSED
	B	2x2 RECESSED LED PANEL	TBD	TBD	120	13	30.8 WATTS	RECESSED
	C	RECESSED COMPACT LED PANEL	TBD	TBD	120	1	16 WATTS	RECESSED
	EU	EMERGENCY LIGHTS		LEDR1(B IF BLACK)	120	6	1 WATTS	WALL MOUNTED
$T	T	TIMER WALL SWITCH	INTERMATIC	ST700	120	-	-	WALL
$OS	OS	OCCUPANCY WALL SWITCH	INTERMATIC	IOS-DDR-WH	120	-	-	WALL
	(E)	EXISTING LIGHTING FIXTURE TO REMAIN	-	-	-	-	-	-

LIGHT FIXTURE SCHEDULE NOTES:

REFER TO SHEET A-2 - REFLECTED CEILING PLAN IN ARCHITECTURAL DRAWINGS FOR MORE INFORMATION ON COLORS AND TRIMS REQUIRED

(*) EXISTING FIXTURES ARE ACCEPTABLE. IF THEY NEED TO BE REPLACED, REPLACE W/ EXACT MATCH OR MATCH SCHEDULE

SUBSTITUTIONS TO THE ABOVE FIXTURE SCHEDULE MUST BE SUBMITTED 14 DAYS PRIOR TO BID & REVIEWED BY THE ARCHITECT, ENGINEER & OWNER. SUBSTITUTIONS WILL NOT BE REVIEWED AFTER THIS TIME. SUBMITTAL PACKAGES MUST INCLUDE COLOR, CUT SHEETS, ALL PHOTO METRICS & FIXTURE SAMPLES FOR ALL DECORATIVE FIXTURES, LANDSCAPE FIXTURES & OUTDOOR FIXTURES. WITHOUT THIS INFORMATION NO REVIEW WILL BE PROVIDED.



RISER DIAGRAM KEYED WORK NOTES:

1. EXISTING 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL INCOMING SERVICE UP TO THE ELECTRICAL PANEL"A" FOR THE LEASED SPACE FROM THE BASE BUILDING DISTRIBUTION TO REMAIN. E.C. SHALL COORDINATE WITH THE BASE BUILDING/LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION. REPORT TO ENGINEER ON RECORD FOR ANY DISCREPANCIES.
2. EXISTING 225A(M.L.O), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A" AND ITS INCOMING FEEDER TO REMAIN. E.C. TO FIELD VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF THE PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
3. E.C. SHALL VERIFY OPERABLE CONDITION OF THE EXISTING FEEDER IN THE FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

RISER DIAGRAM GENERAL NOTES:

A. ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (Isc) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO BID.

B. E.C. TO VERIFY AND OPERABLE CONDITIONS OF ALL EXISTING PANELS. FEEDER DISCONNECT, SWITCH ETC. IN FIELD. REPLACE IF FOUND IN OPERABLE. BASE BID ACCORDINGLY.

C. RISER DIAGRAM SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD.

ELECTRICAL RISER SYMBOLS:

- NEW
- EXISTING ITEM/FEEDER TO REMAIN
- EXISTING ITEM/FEEDER TO BE DISCONNECTED & REMOVED

ELECTRICAL RISER | SCALE N.T.S. | 1

NY ENGINEERS

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ELECTRICAL PLAN NOTES AND RISER DIAGRAM

E-1

GENERAL LIGHTING NOTES:

A. COORDINATE FINAL FIXTURE MAKE & MODEL WITH ARCHITECT/OWNER.

B. ALL LIGHT FIXTURES CONSIDERED TO BE AS 120 VOLT FIXTURE. E.C. SHALL INFORM ENGINEER ON RECORD OTHERWISE.

C. UPPER CASE LETTER NEXT TO LIGHT FIXTURE DENOTES FIXTURE TYPE.

D. ALL EMERGENCY FIXTURES SHALL BE CONNECTED TO AN UNSWITCHED HOT CONDUCTOR.

LIGHTING PLAN KEYED NOTES:

(A) CONNECT NEW EMERGENCY AND EGRESS LIGHTING FIXTURES TO THE NEAREST LIGHTING CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.

(B) COORDINATE EXACT LOCATION OF THE TIMER SWITCH BANK WITH OWNER/ARCHITECT.

(C) PROVIDE DISCONNECT SWITCH, TIMER AND OTHER ELECTRICAL CONNECTIONS FOR EXTERIOR SIGN. E.C SHALL COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING DETAILS WITH OWNER/LANDLORD & SIGN VENDOR.

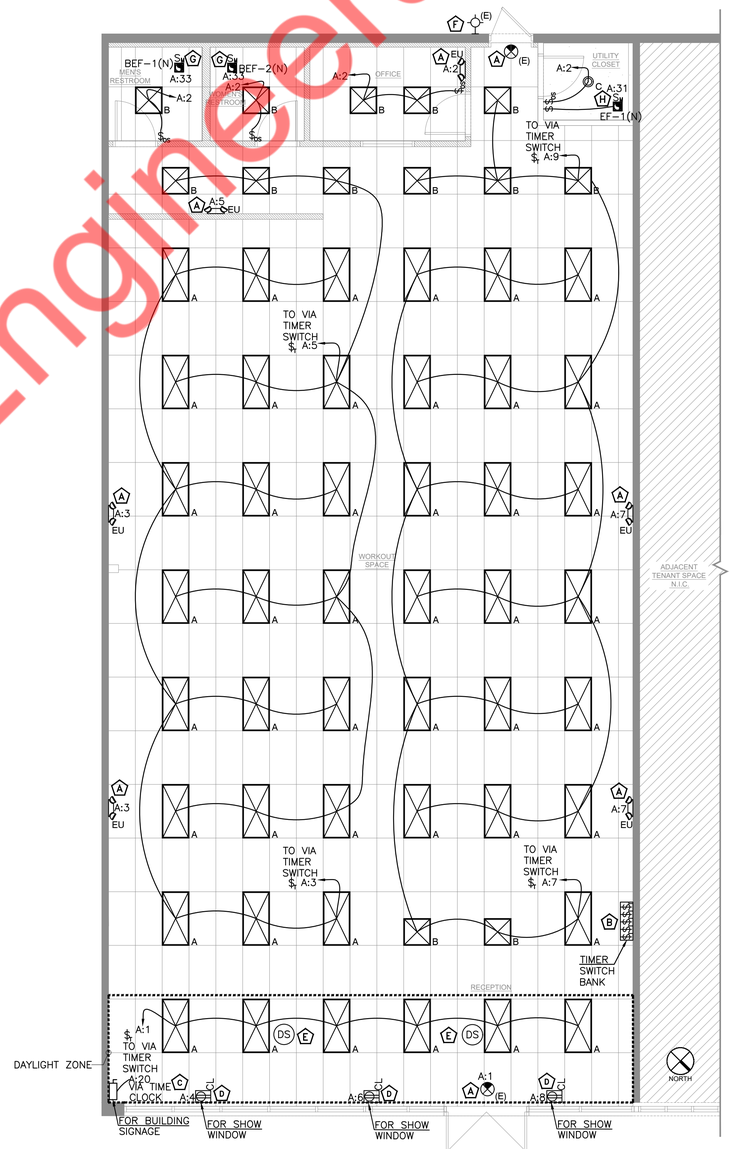
(D) PROVIDE SHOW WINDOW RECEPTACLE AS PER N.E.C. 210.62. VERIFY EXACT LOCATION WITH ARCHITECT.

(E) LIGHT FIXTURES IN THIS AREA SHALL BE CONTROLLED BY DAYLIGHT SENSOR FOR DAYLIGHT HARVESTING.

(F) EXISTING LIGHT FIXTURE IN THIS AREA DENOTED BY (E) SHALL REMAIN CONNECTED TO THE RESPECTED EXISTING HOUSE PANEL ALONG WITH THEIR CONTROLS. E.C. SHALL VERIFY THE CONTROLS IN FIELD AND REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

(G) BEF-1(N) & BEF-2(N) SHALL BE INTERLOCKED WITH RTU-2(E). E.C. SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR IN THE FIELD. PRIOR TO ROUGH IN.

(H) PROVIDE MANUAL SWITCH FOR EF-1(N). E.C TO COORDINATE WITH MECHANICAL DRAWINGS.



LIGHTING PLAN | SCALE 3/16" = 1'-0" | 1

NY ENGINEERS

PROJECT

FIT BODY BOOT CAMP

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CHECKED BY: NYE

ELECTRICAL LIGHTING PLAN

E-2

POWER PLAN GENERAL NOTES:

1. E.C. SHALL COORDINATE WITH THE EQUIPMENT VENDOR FOR EXACT RECEPTACLE REQUIREMENT AND WITH ARCHITECT/OWNER FOR EXACT LOCATION AND MOUNTING HEIGHT OF THE RECEPTACLES IN THE FIELD.
2. GENERAL USE CABLING SHALL BE OF #12 AWG MINIMUM AT 120V FOR CABLE UPTO 80 FEET. FOR CABLE ABOVE 80 FEET USE #10 AWG CABLES. ADJUST WIRE SIZE FOR A MAXIMUM VOLTAGE DROP OF 3%.
3. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR EXACT HEIGHT OF OUTLETS.
4. E.C SHALL VERIFY ANY THIRD PARTY INSPECTION REQUIRED BY THE LOCAL JURISDICTION PRIOR TO BIDDING THIS PROJECT.
5. ALL LOW VOLTAGE WIRING TO BE IN CONDUIT U.N.O BY AHJ.
6. E.C TO COORDINATE WITH MECHANICAL CONTRACTOR FOR RTU SENSOR AND THERMOSTAT LOCATION.

POWER PLAN KEYED NOTES:

(A) EXISTING 225A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A" TO REMAIN. E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.

(B) ELECTRICAL CONTRACTOR SHALL VERIFY THE INSTALLATION OF ELECTRICAL PANELS IN COMPLIANCE WITH N.E.C. ARTICLE 110.26(A) AND (B). E.C. SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE.

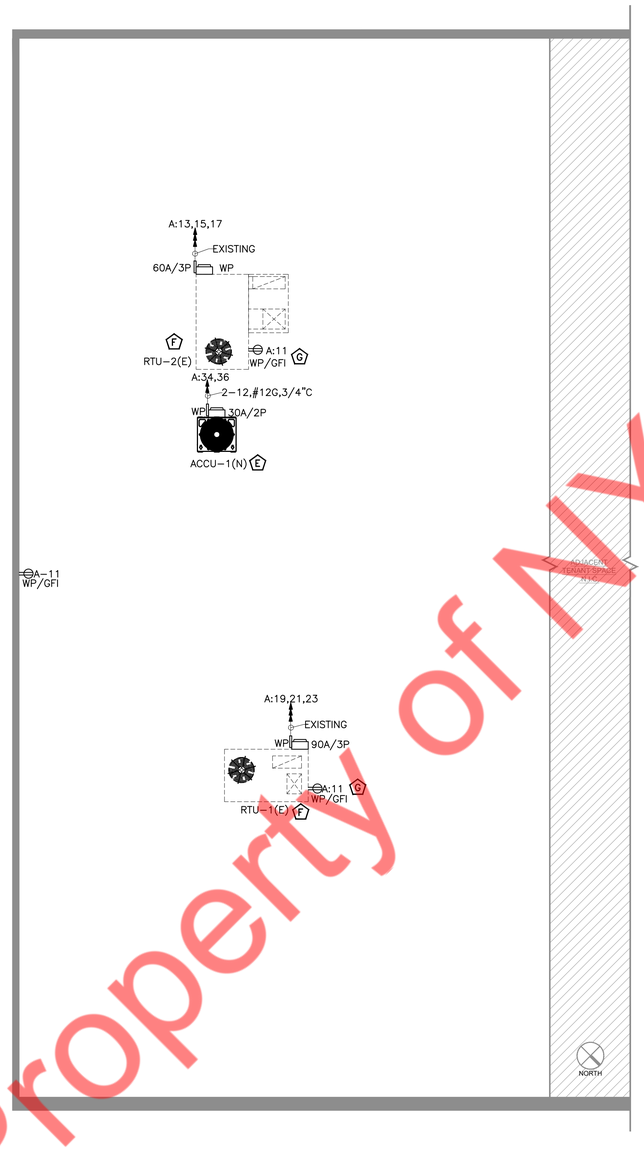
(C) ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER/LOW VOLTAGE VENDOR FOR EXACT LOCATION AND POWER REQUIREMENTS AND MAKE PROVISIONS ACCORDINGLY. BASE BID ACCORDINGLY.

(D) ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE WATER HEATER MANUFACTURER FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.

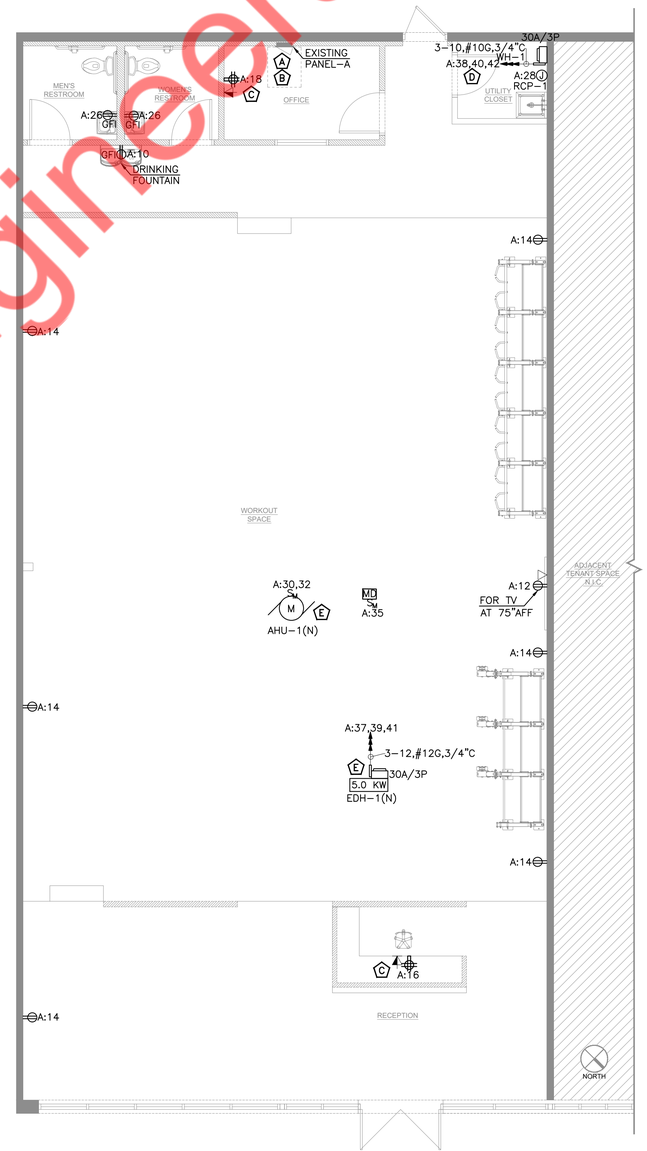
(E) ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR EXACT LOCATION AND POWER REQUIREMENT OF THE MECHANICAL UNITS IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.

(F) EXISTING RTU-1(E) & RTU-2(E) UNIT SHALL REMAIN & CIRCUITED TO THE ELECTRICAL PANEL "A". E.C. SHALL VERIFY THE OPERABLE CONDITION OF THE EXISTING BRANCH CIRCUIT AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY."

(G) EXISTING ROOF OUTLETS SHALL REMAIN WITH ITS BRANCH CIRCUITS. E.C. SHALL COORDINATE IN FIELD THE OPERABLE CONDITIONS OF THE SAME AND PROVIDE NEW IF FOUND INOPERABLE AS SHOWN ON THE DRAWINGS. BASE BID ACCORDINGLY.



ROOF PLAN | SCALE 3/16" = 1'-0" | 2



POWER PLAN | SCALE 3/16" = 1'-0" | 1

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ELECTRICAL POWER & ROOF PLAN

E-3

ELECTRICAL PANEL SCHEDULE:–

PANEL:	A(E)								MOUNTING:	RECESSED
208Y/120	VOLTS,	3	PHASE,	4	WIRE					
MAIN CB	NA	MLO:	225A	BUS:	EXISTING	MIN,				

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	PER PHASE (KVA) B	PER PHASE (KVA) C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
1	20	LIGHTING-RECEPTION	L	0.30	2#12, #12G, 3/4"C	0.60			2#12, #12G, 3/4"C	0.30	L	RESTROOM, OFFICE, UTILITY CLOSET LIGHTING	20	2	
3	20	LIGHTING-WORKOUT SPACE	L	0.60	2#12, #12G, 3/4"C		1.80		2#12, #12G, 3/4"C	1.20	L	RECEPTACLE-SHOW WINDOW	20	4	
5	20	LIGHTING-WORKOUT SPACE	L	0.60	2#12, #12G, 3/4"C			1.80	2#12, #12G, 3/4"C	1.20	L	RECEPTACLE-SHOW WINDOW	20	6	
7	20	LIGHTING-WORKOUT SPACE	L	0.60	2#12, #12G, 3/4"C	1.80			2#12, #12G, 3/4"C	1.20	L	RECEPTACLE-SHOW WINDOW	20	8	
9	20	LIGHTING-WORKOUT SPACE	L	0.60	2#12, #12G, 3/4"C		1.15		2#12, #12G, 3/4"C	0.55	R	RECEPTACLE-DRINKING FOUNTAIN	20	10	
A 11	20	RECEPTACLE-ROOFTOP	R	0.54	2#12, #12G, 3/4"C			0.72	2#12, #12G, 3/4"C	0.18	R	RECEPTACLE-TV	20	12	
13			H	5.64		6.72			2#12, #12G, 3/4"C	1.08	R	RECEPTACLE-GENERAL	20	14	
15	50/3P	RTU-2(E)	H	5.64	EXISTING		6.00		2#12, #12G, 3/4"C	0.36	R	RECEPTACLE-RECEPTION	20	16	A
17			H	5.64				6.00	2#12, #12G, 3/4"C	0.36	R	RECEPTACLE-OFFICE	20	18	
19			H	7.93		9.13			2#12, #12G, 3/4"C	1.20	L	EXTERIOR BUILDING SIGNAGE/TIMECLOCK	20	20	
21	70/3P	RTU-1(E)	H	7.93	EXISTING		7.93							22	
23			H	7.93				7.93				SPARE	70/3P	24	
25						0.00								26	
27	40/3P	SPARE					0.04		2#12, #12G, 3/4"C	0.04	M	RCP-1	20	28	
29								0.36	2#12, #12G, 3/4"C	0.36	H	AHU-1(N)	15/2P	30	E
31	20	EF-1(N)	M	0.01	2#12, #12G, 3/4"C	0.38				0.36	H			32	
33	20	BEF-1(N) & BEF-2(N)	M	0.02	2#12, #12G, 3/4"C		1.21		2#12, #12G, 3/4"C	1.19	H	ACCU-1(N)	20/2P	34	B
35	20	MOTORISED DAMPER	H	0.01	2#12, #12G, 3/4"C			1.20		1.19	H			36	
37			H	1.67		3.67				2.00	O			38	
C 39	20/3P	EDH-1(N)	H	1.67	3#12, #12G, 3/4"C		3.67		3#10, #10G, 3/4"C	2.00	O	WH-1	25/3P	40	D
41			H	1.67				3.67		2.00	O			42	
TOTAL CONNECTED LOAD (KVA)						22.29	21.79	21.68							

PANEL SCHEDULE GENERAL NOTES:

A. ALL THE CIRCUITING SHOWN FOR THE EXISTING PANEL "A" IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR DISCREPANCIES. ALL THE NEWLY ADDED CIRCUIT BREAKERS IN THE EXISTING ELECTRICAL PANEL "A" SHALL BE COMPATIBLE WITH THE PANEL.
B. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
C. E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE
D. CHECK COMPATIBILITY OF NEWLY ADDED BREAKER WITH THE EXISTING PANEL BEFORE PURCHASING. BASE BID ACCORDINGLY.

ELECTRICAL PANEL SCHEDULE KEYED WORK NOTE:

A. EXISTING (1) SPACE SHALL BE REPLACED WITH THE NEW (1) 20A/1P BREAKER BY E.C., E.C. SHALL BASE BID ACCORDINGLY.
B. EXISTING (2) 20A/1P SHALL BE REPLACED WITH THE NEW (1) 20A/2P BREAKER BY E.C., E.C. SHALL BASE BID ACCORDINGLY.
C. EXISTING (3) SPACES SHALL BE REPLACED WITH THE NEW (1) 20A/3P BREAKER E.C., E.C. SHALL BASE BID ACCORDINGLY.
D. EXISTING (2) 20A/1P & (1) SPACE SHALL BE REPLACED WITH THE NEW (1) 25A/3P BREAKER BY E.C., E.C. SHALL BASE BID ACCORDINGLY.
E. EXISTING (1) 30A/1P & (1) 20A/1P SHALL BE REPLACED WITH THE NEW (1) 15A/2P BREAKER BY E.C., E.C. SHALL BASE BID ACCORDINGLY.

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ELECTRICAL PANEL SCHEDULES

E-4

EXISTING CONTIDITONS NOTES

STOP AND READ

THE CONTRACTOR AND SUB-CONTRACTORS **SHALL NOT INITIATE ANY WORK UNTIL EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED**. THIS SHALL HOLD TRUE FOR FIRST GENERATION AND 2ND GENERATION SPACES. WHEN DEMOLITION IS REQUIRED, THAT WILL BE PERMITTED TO EXPOSE CONDITIONS. THESE VERIFICATIONS SHALL INCLUDE BUT NOT LIMITED TO: DIMENSIONS BOTH HORIZONTALLY AND VERTICAL, ELECTRICAL SERVICE /PANELS LOCATION AND VOLTS/PHASE, LOCATION/QTY OF ROOF MOUNTED HVAC EQUIPMENT, CONFIRM THAT INTERIOR HVAC HUNG UNITS HAVE PROPER SUPPORT CONNECTIONS FOR EXISTING STRUCTURE, FIRE SPRINKLER MAIN RUNS, TOILET ROOM DIMENSIONS, DOOR SWING FOR DOORS TO REMAIN AND ETC. IF NOT VERIFIED AND DISCOVERED AT A LATER TIME, THE CONTRACTOR SHALL REIMBURSE THE ARCHITECT FOR THE REDESIGN FEE. THIS DOES NOT INCLUDE HIDDEN WORK I.E. PITCH OF SANITARY LINES, ACTUAL CONDITIONS OF EXISTING HVAC EQUIPMENT, STRUCTURAL COLUMNS/BEARING WALLS OR CONDITIONS OF GREASE INTERCEPTORS AND ETC.

SCOPE OF WORK

PROVIDE ALL PLUMBING FOR HEALTH CLUB INCLUDING ALL WATER & SANITARY LINES AND CONNECT TO EXISTING UTILITIES. PROVIDE NEW ELECTRIC STORAGE WATER HEATER.

COORDINATE WITH GC AND MECH CONTRACTOR FOR ANY REQUIRED CONDENSING WATER LINES.

FIXTURE BRANCH SCHEDULES

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
LAVATORY	1/2"	1/2"	2"	1-1/2"
WATER CLOSET	1/2"	-	4"	2"
MOP SINK	1/2"	1/2"	3"	2"
DRINKING FOUNTAIN	1/2"	-	2"	1-1/2"

PLUMBING NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE LOCAL CODES, RULES AND ORDINANCES.
2. PLUMBING CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THIS SET. CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING OR PRECEDING WITH WORK.
3. ALL EQUIPMENT WHICH IS TO REMAIN MUST BE REFURBISHED TO A LIKE NEW CONDITION.
4. PLUMBING CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS.
5. ALL MATERIALS SHALL BE NEW.
6. ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE. ALL EXCAVATION AND BACKFILL AS REQUIRED FOR THIS PHASE OF CONSTRUCTION SHALL BE A PART OF THIS CONTRACT.
7. REQUIRED INSURANCE SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
8. PLUMBING CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTION AND TESTS. PLUMBING CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT. PLUMBING CONTRACTOR MUST BE PRESENT FOR ALL INSPECTIONS OF HIS WORK BY REGULATORY AUTHORITIES.
9. DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE FOR THE EXACT LOCATION OF FIXTURES, PIPING, EQUIPMENT, ETC.
10. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION. REPORT ANY DISCREPANCY TO ENGINEER/ARCHITECT PRIOR TO BEGINNING CONSTRUCTION.
11. VERIFY LOCATION, SIZE, DIRECTION OF FLOW AND INVERTS OF ALL EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION. ADVISE ENGINEER OF ANY DISCREPANCIES.
12. EXPOSED WATER PIPING SHALL BE TYPE "L" COPPER FOR 2" AND UNDER. WATER PIPING IN WALLS AND UNDERGROUND MAY BE "PEX" TYPE PIPING THAT MEETS ANSI/NSF STANDARD 61.
13. SOIL, WASTE, VENT AND RAINWATER PIPING SHALL BE PVC BUT MAY NOT RUN THRU RATED ASSEMBLIES OR IN PLENUMS.
14. ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE STOPS AND APPROPRIATELY MARKED ACCESS PANELS. COORDINATE LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION.
15. FURNISH AND INSTALL APPROVED AIR CHAMBERS AT EACH PLUMBING FIXTURE GROUP AS PER CODE AND WITH GOOD ENGINEERING PRACTICE.
16. DIELECTRIC COUPLINGS ARE REQUIRED BETWEEN ALL DISSIMILAR METAL IN PIPING AND EQUIPMENT CONNECTIONS; EXCEPT AT WATER HEATER AS PER CODE.
17. ISOLATE COPPER PIPE FROM HANGER OR SUPPORTS WITH ISOLATOR PAD.
18. ALL FIRE RATED FLOOR AND WALL PENETRATIONS SHALL BE PROPERLY PROTECTED FROM FIRE, SMOKE AND WATER PENETRATION BY FILLING VOIDS BETWEEN PIPE AND WALL/FLOOR SLEEVES WITH FIRE RATED FOAM, TO ACHIEVE THE SAME RATING AS WALLS OR FLOORS AS PART OF THE PLUMBER'S WORK.
19. PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF CERTIFICATE OF OCCUPANCY. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE WITHIN 72 HOURS OF NOTIFICATION AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED.
20. STUD OR MINI/MAXI AIR ADMITTANCE VALVES MAY NOT BE USED AS AN ALTERNATE TO VENT PIPING THRU ROOF.
21. PROVIDE CHROME PLATED COMBINATION COVER PLATE AND CLEAN OUT PLUG OR ACCESS PANEL FOR ALL CLEANOUTS.
22. NO COMBUSTIBLE MATERIAL TO BE USED IN MECHANICAL ROOMS OR IN CEILING SPACES WHERE USED AS RETURN AIR PLENUMS.
23. NO WATER, SANITARY OR DRAINAGE PIPING PERMITTED IN ELECTRICAL OR ELEVATOR EQUIPMENT ROOMS.
24. WATER PIPING INSULATION SHALL BE 1" THICK ARMAFLEX INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR ALL HOT WATER PIPING. WHERE DOMESTIC WATER TEMPERATURES CAN CAUSE SWEATING, ALL COLD WATER PIPING SHALL BE INSULATED WITH 1/2" THICK ARMAFLEX INSULATION.
25. CONDENSATE DRAIN LINES TO BE RUN UNDER SLAB IN PVC SCH40 PIPE AND STUBBED OUT OF WALL TO UNIT. TIE-IN OF A/C TO BE BY OTHERS. PVC PIPING WITH 1/2" THICK ARMAFLEX INSULATION MAY BE USED IN LOCATIONS WHERE ALLOWED BY LOCAL CODES. SEE PLUMBING DRAWINGS FOR SIZE AND LOCATION OF PIPING. PVC WILL BE MIN. SCHEDULE 40 FOR SIZE AND LOCATION OF PIPING. PVC WILL BE MIN. SCHEDULE 40.
26. PROVIDE ANGLE STOPS ON ALL WATER SERVICE LINES TO FIXTURES FOR INDIVIDUAL SHUT-OFF.
27. NO JOINTS UNDERGROUND FOR COPPER.
28. PLUMBING FIXTURES SHALL COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE.
29. WATER HAMMER ARRESTORS AS PER 2018 INTERNATIONAL PLUMBING CODE.
30. PLUMBING CONTRACTOR SHALL REVIEW ALL BID DOCUMENTATION.
31. PLUMBING CONTRACTOR SHALL REVIEW WALL FINISHES @ LOCATION REQUIRING BARRIER-FREE COMPLIANCE (EXAMPLE: CENTER LINE TO TOILET).
32. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF ACCEPTANCE.
33. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER. PROVIDE A COPY TO LL.

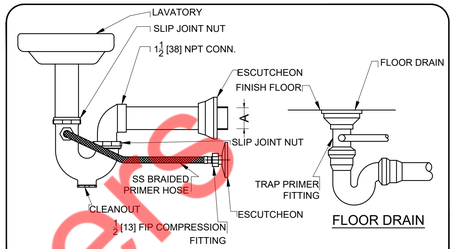
PLUMBING LEGEND

—SAN—	SANITARY SEWER PIPING
—V—	VENT PIPING
	DOMESTIC COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	PIPE UP
	PIPE DOWN
	BALANCING VALVE
	P-TRAP
S.O.V.	SHUT-OFF VALVE
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
WCO	WALL CLEAN OUT
	ISOLATION VALVE
	CHECK VALVE
FD	FLOOR DRAIN
	POINT OF CONNECTION
	THERMOSTATIC MIXING VALVE

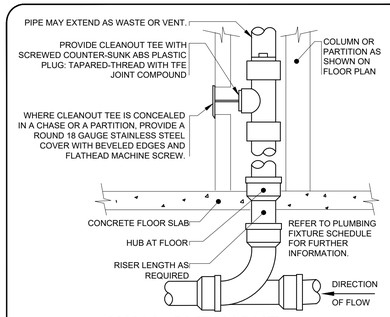
PLUMBING FIXTURE SCHEDULE

Item No.	Qty.	Description	MANUFACTURER	MODEL	WATER Hot	WATER Cold	WASTE Direct	Usage	Spec
B	2	LAVATORY	KOHLER	GREENWICH K-12643-O			2"		
C	2	***LAVATORY FAUCET	SLOAN	EAF250-BAT-ISM GR BATTERY FAUCETGRAPHITE FINISH	1/2"	1/2"		0.5	GPM
	2	THERMAL MIXING VALVES	WATTS	LFMMV	1/2"	1/2"			
	2	INSULATED PLUMBING COVERS	PLUMBEREX	HANDI SHIELD					
A	2	WATER CLOSET	AMERICAN STANDARD	2386.010		1/2"	4"	1.6	GPF
	2	ELONGATED SEAT	AMERICAN STANDARD	EXTRA HD COMMERCIAL TOILET SEA					
O	1	MOP SINK	-	-	1/2"	1/2"	3***		
	1	MOP SINK FAUCET	-	-					
N	1	DRINKING FOUNTAIN	ELKAY	EZH2O		1/2"	2"		
WH-1	1	+NEW WATER HEATER	SEE SCHEDULE	SEE SCHEDULE					
FD	2	*FLOOR DRAIN	ZURN	ZS415 W/ TYPE BS STRAINER			3"		

+ HOT WATER 140 DEG. *PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS/**ADAPTOR REQUIRED,*LAVATORY FAUCET MAXIMUM HOT WATER TEMPERATURE MUST BE REGULATED TO NOT EXCEED 110°F BY A DEVICE COMPLYING WITH ASSE 1070.



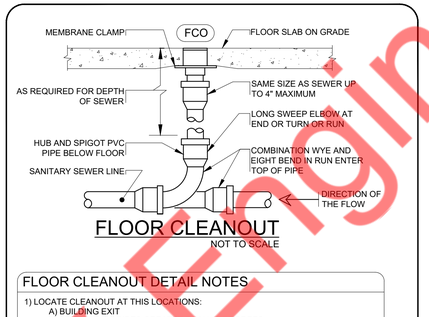
TRAP RESEAL DETAIL
NOT TO SCALE



WALL CLEANOUT
NOT TO SCALE

WALL CLEANOUT DETAIL NOTES

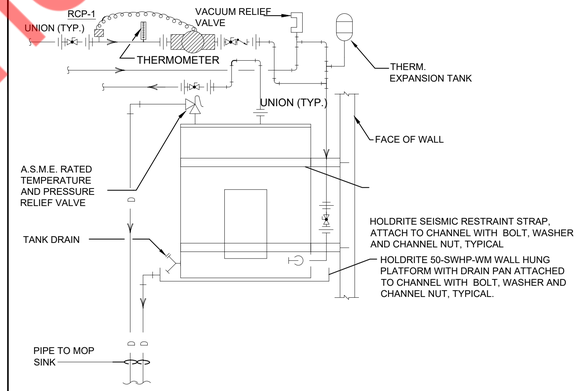
1) PROVIDE WCO WHERE SHOWN ON PLANE, AND ON SANITARY WASTE BRANCHES NOT SERVED WITH A FLOOR CLEANOUT
2) LOCATE ABOVE FIXTURE FLOOR RIM WITHIN 4' OF FLOOR.
3) CONSULT LOCAL CODES FOR OTHER WCO REQUIREMENTS.
4) LONG SWEEP AT END OF LINE OR COMBINATION WYE AND EIGHT BEND IN RUN OF LINE
5) CLEAN OUT FACE SHALL BE WITHIN 4" OF WALL SURFACE. PROVIDE A PIPE EXTENSION IF REQUIRED



FLOOR CLEANOUT
NOT TO SCALE

FLOOR CLEANOUT DETAIL NOTES

1) LOCATE CLEANOUT AT THIS LOCATIONS:
A) BUILDING EXIT
B) AT TURNS OF PIPES GREATER THAN 45 DEGREES
C) AT 90' INTERVALS ON STRAIGHT RUNS
D) WHERE IS SHOWN ON PLANS
E) WHERE IS 18" CLEAR AROUND



ELECTRIC WATER HEATER
NOT TO SCALE

1

ENERGY CONSERVATION NOTES

1. AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE C403.2.10 OF MINIMUM PIPE INSULATION THICKNESS.

MINIMUM PIPE INSULATION THICKNESS					
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)		
	CONDUCTIVITY BTU- IN./ (H- FT2- °F)	MEAN RATING TEMPERATURE, °F	<1	1 to < 1½	1½ to < 4
141-200	0.25-0.29	125	1.5	1.5	2.0
105-140	0.21-0.28	100	1.0	1.0	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0

2. AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.5.1, HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD. THE HOT WATER VOLUME FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER MAXIMUM PIPING LENGTH TABLE.

NOMINAL PIPE SIZE (INCHES)	MIXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
⅜"	3'	50'
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1¼"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

3.AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.6.1, AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RECIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.

4.AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.7, PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:

A. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.

B. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

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GENERAL NOTES, SCHEDULES & DETAILS

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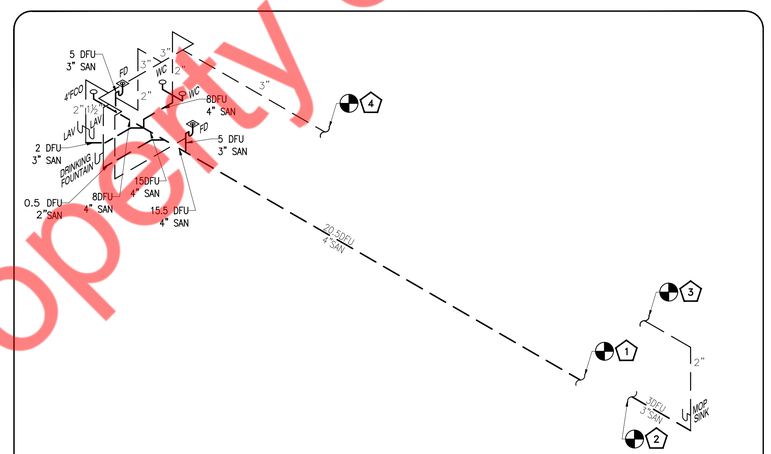
GENERAL NOTES

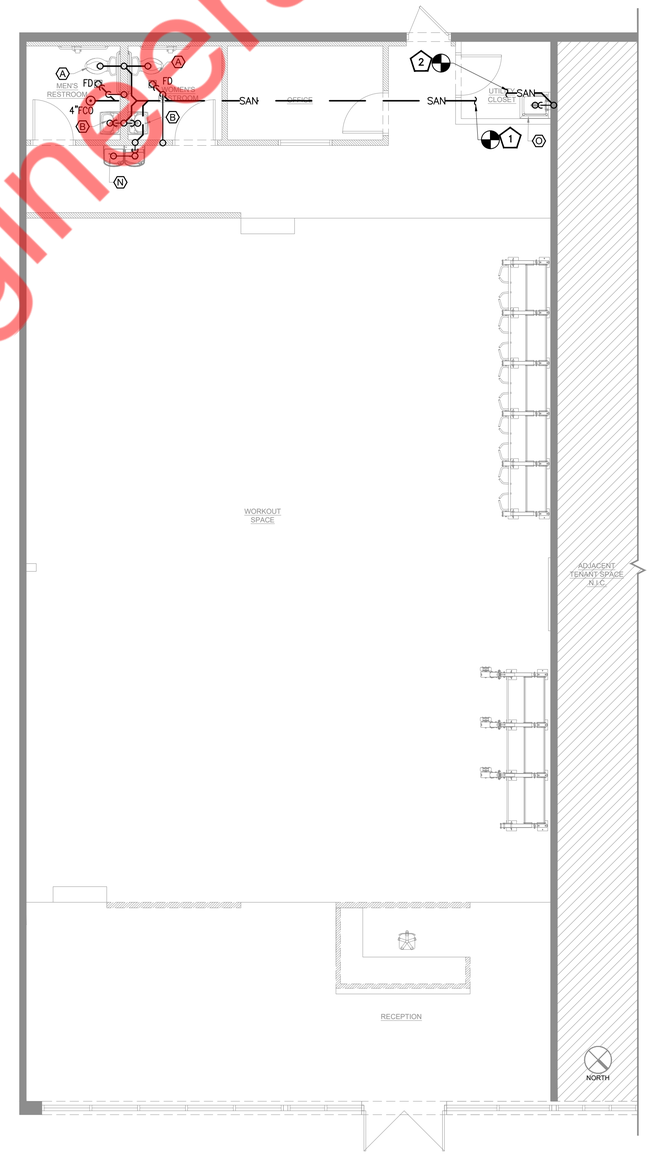
1. UNLESS OTHERWISE NOTED, SLOPE OF DRAINAGE SYSTEM TO BE 1/16" PER FOOT OF RUN FOR PIPE 8" AND OVER, 1/8" PER FOOT FOR PIPE 3" TO 6" and 1/4" PER FOOT FOR PIPE 2-1/2" AND SMALLER.
2. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
3. ALL MATERIAL INDICATED AND IMPLIED ON THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
4. PROVIDE ACCESS PANELS FOR CLEANOUTS AS REQUIRED.

SANITARY PLAN KEY NOTE

1. CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING SANITARY WASTE LINE OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION, ROUTING AND INVERT ON SITE.
2. CONNECT NEW 3" SANITARY WASTE PIPING TO EXISTING SANITARY WASTE LINE OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION, ROUTING AND INVERT ON SITE.
3. CONNECT NEW 2" VENT PIPING TO EXISTING VENT PIPING OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING VENT PIPING.
4. CONNECT NEW 3" VENT PIPING TO EXISTING VENT PIPING OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING VENT PIPING.



SANITARY RISER | SCALE N.T.S. | 2



SANITARY PLAN | SCALE 3/16" = 1'-0" | 1

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SANITARY PLAN & RISER

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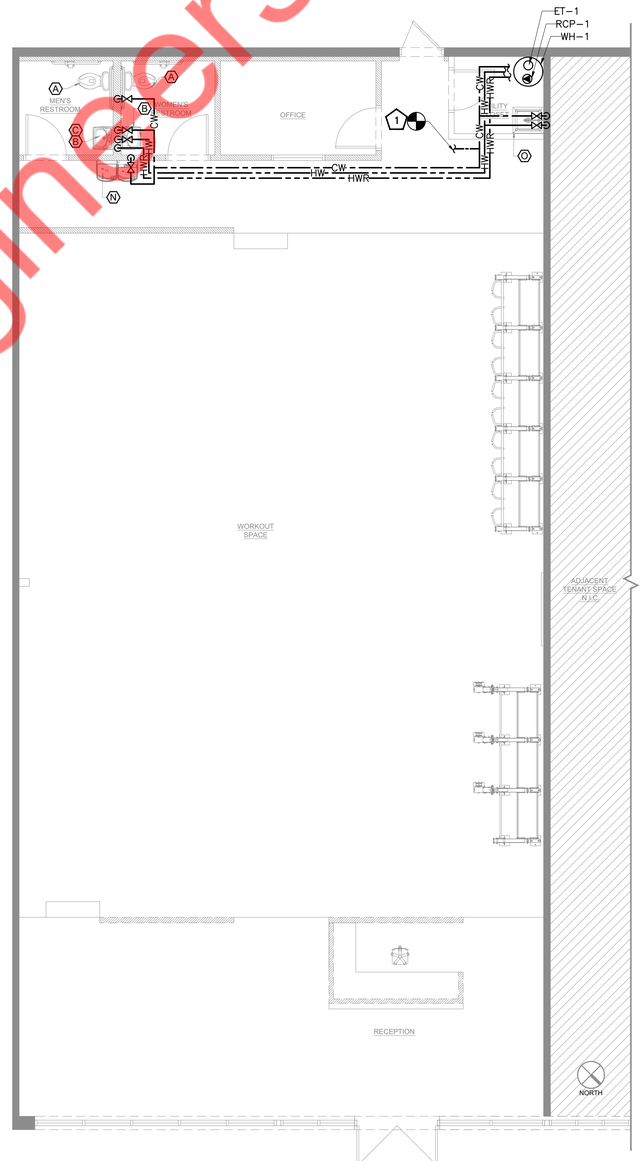


WATER HEATER SCHEDULE

MANUFACTURER	AO SMITH
MODEL	DEL-30
EQUIPMENT TAG	WH-1
STATUS	NEW
CAPACITY	33 GALLON
FUEL	ELECTRIC
HEATING ELEMENT	2
KW	6KW*
GPH	27**
EFFICIENCY	0.92
VOLTAGE	208/3/60
AMPERAGE	16.65
WEIGHT (EMPTY)	118 LBS.

NOTES
1. WATER HEATER SHALL BE WIRED FOR NON-SIMULTANEOUS OPERATIONS
** @ 90° F TEMPERATURE RISE
2. INSTALL NEW EXPANSION TANK (ET-1) AMTROL MODEL THERM-X-TROL ST-5.2.0 GAL PER LOCAL CODE REQUIREMENTS.

HOT WATER RECIRCULATION PUMP

MANUFACTURER	BELL AND GOSSETT
EQUIPMENT TAG	RCP-1
MODEL	NBF 8S/LW
STATUS	NEW
QUANTITY	1
FLOW RATE	2 GPM
HEAD	8 FT
MHP	39 WATTS
VOLTAGE	115/1/60

NOTE:
PROVIDE AQUA STAT WITH AUTOMATIC TIMER KIT FOR THE TEMPERATURE CONTROL OF HOT WATER SYSTEM. COORDINATE ELECTRICAL REQUIREMENTS FOR TIMER WITH ELECTRICAL CONTRACTOR.

GENERAL NOTES

1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2015 INTERNATIONAL ENERGY CONSERVATION NOTES (REFER SHEET P-1)
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR & SHUT-OFF VALVES AS REQUIRED.
4. WATER HEATERS DRAIN SPILLS TO MOP SINK.

WATER PIPING KEY NOTE

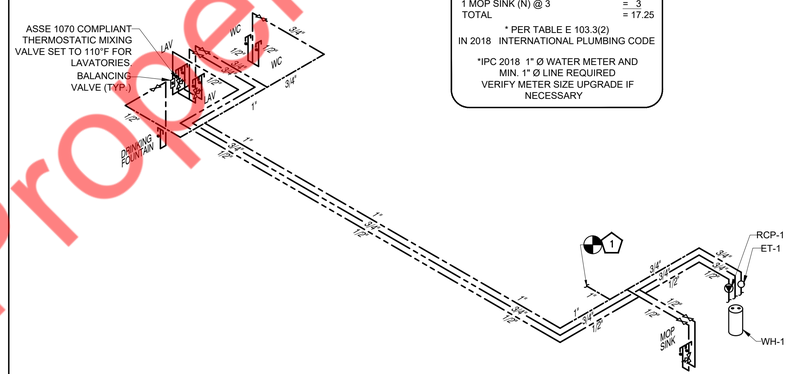
1. CONNECT NEW 1" CW LINE TO EXISTING WATER MAIN LINE. CONTRACTOR TO FIELD VERIFY SIZE AND LOCATION OF EXISTING WATER METER AND WATER LINE. PROVIDE RPZ AND WATER METER AS PER LOCAL BUILDING CODE IF NOT PROVIDED.

FIXTURE FACTOR VALUE *

2 WATER CLOSETS (N) @ 5	=	10
2 LAVATORIES (N) @ 2	=	4
1 DRINKING FOUNTAIN@ 0.25	=	0.25
1 MOP SINK (N) @ 3	=	3
TOTAL	=	17.25

* PER TABLE E 103.3(2)
IN 2018 INTERNATIONAL PLUMBING CODE

*IPC 2018 1" Ø WATER METER AND MIN. 1" Ø LINE REQUIRED
VERIFY METER SIZE UPGRADE IF NECESSARY



WATER RISER | SCALE N.T.S. | 2

WATER PLAN | SCALE 3/16" = 1'-0" | 1

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WATER PLAN & RISER

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