

**MECHANICAL PLAN NOTES**

- A. USE EXISTING 6 TON ROOF TOP UNIT WITH GAS HEAT AND PROVIDE ONE NEW 3 TON ROOF TOP UNIT WITH GAS HEAT. PROVIDE MODIFICATIONS TO DUCT SYSTEM AS SHOWN. 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 AND THAT MEET THE REQUIREMENTS OF U.L. 268A, INTERLOCKED TO SHUTDOWN A/C 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 WILL MINIMUM 26 GAUGE SHEET METAL WITH EXTERNAL DUCT WRAP 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. NO DUCT BOARD ALLOWED.
- D. THERMOSTAT & HUMIDISTAT SHALL BE 7-DAY PROGRAMMABLE TYPE. MOUNT THERMOSTAT & H-STAT 48" A.F.F. COORDINATE LOCATION OF THERMOSTAT & H-STAT WITH ARCHITECT.
- E. ALL INTERIOR AIR DUCTS WITH INSULATION SHALL HAVE A MINIMUM OF THICKNESS OF 1.5", R-6 INSULATION. EXTERIOR AIR DUCTS TO HAVE R-8 INSULATION ACCORDING TO 2018-IECC.
- F. 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.
- G. ALL EVAPORATOR UNITS SHALL HAVE A FLOAT SWITCH TO CONTROL OVERFLOW THAT WILL AUTOMATICALLY SHUT DOWN THE RTU SYSTEM. THE DEVICE SHALL BE ATTACHED TO THE SECONDARY DRAIN OUTLET ON THE UNIT.
- H. ALL RTU CONDENSATE DRAINS WILL BE COPPER FULL DIAMETER OF OUTLET AND WILL TERMINATE IN THE NEAREST ROOF DRAIN OR INDIRECT WASTE.
- 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 2018 IECC, 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.
- 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. FLEXIBLE DUCT CAN BE USED BETWEEN SUPPLY AIR TERMINAL AND MAIN BRANCH DUCT. ALL SA MAIN DUCT SHOULD BE RIGID.
- N. ALL RA DUCTS SHALL BE RIGID.
- O. ALL FLEXIBLE DUCTS SHALL BE CONSTRUCTED WITH CLASS 0 OR CLASS 1 DUCT MATERIAL AND SHALL COMPLY WITH UL 181. FIBROUS DUCT CONSTRUCTION SHALL CONFORM TO THE SMACNA/ANSI FIBROUS GLASS DUCT CONSTRUCTION STANDARDS OR NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. FLEXIBLE AIR DUCTS SHALL BE INSTALLED IN ACCORDANCE WITH IMC 2018 SECTION 304.1.

**THERMOSTATIC CONTROLS**

- A. GENERAL (MANDATORY):
  - 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, NOT FEWER THAN 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 THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:
    1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN 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).
    2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.
- B. C403.4.1.2 DEADBAND (MANDATORY)
  - WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS 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 AS APPROVED BY THE CODE OFFICIAL.
- C. C403.4.1.3 SETPOINT OVERLAP RESTRICTION (MANDATORY)
  - 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 CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.4.1.2.
- D. C403.4.2 OFF-HOUR CONTROLS (MANDATORY)
  - 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 MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.
- E. C403.4.2.1 THERMOSTATIC SETBACK (MANDATORY)
  - THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).
- F. C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN (MANDATORY)
  - 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 NOT FEWER THAN 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 CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.
- G. C403.4.2.3 AUTOMATIC START (MANDATORY)
  - AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

**SCOPE OF WORK**

USE EXISTING 6 TON ROOF TOP UNIT WITH GAS HEAT AND PROVIDE NEW 3 TON ROOF TOP UNIT WITH GAS HEAT. PROVIDE ALL DUCTWORK AND NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEM.

PROVIDE ONE NEW BATHROOM EXHAUST FAN, ONE NEW STAFF ROOM & ONE NEW EXHAUST FAN IN TREATMENT ROOM.

COORDINATE WITH GC ANY ADDITIONAL REFRIGERATION WORK REQUIRED AND WITH GC AND PLUMBING CONTRACTOR PROVIDING CONDENSATE LINES FOR MECHANICAL EQUIPMENT.

**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. PAY SPECIAL ATTENTION TO THE RESPONSIBILITY SCHEDULE. WORK DESIGNATED ON SCHEDULE SHALL BE CONSIDERED INCLUDED IN YOUR SCOPE OF WORK AND CONTRACT AMOUNT.
- 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 RISERS 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. 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 AND FRESH AIR ROUND EXPOSED DUCTS WILL BE SPIRAL GALVANIZED AND READY FOR PAINTING. ALL RECTANGULAR DUCTS OVER CEILINGS MAY BE SHEET METAL WITH EXTERNAL INSULATION. ALL SG SUPPLY GRILLS WILL BE DOUBLE DEFLECTION WITH VOLUME CONTROLS.
- J. G.C. SHALL CONTRACT LANDLORD-APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ALL ROOF PENETRATIONS TO MAINTAIN ROOFING WARRANTY.
- K. REQUIRED INSURANCE SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- L. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF ACCEPTANCE AND PROVIDE COPY TO LL.
- M. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.

**COUNTY OF ST. CLAIR BUILDING DEPARTMENT NOTES**

- ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2018 IBC AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.
1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
  2. 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.
  3. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2018 IMC CHAPTER 4.
  4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
    - A. DUCT CONSTRUCTION AND INSTALLATION- MC 603
    - B. AIR INTAKES, EXHAUSTS AND RELIEF - MC 401.5
  5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
  6. 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 MC 401.
  7. 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.
  8. MECHANICAL SYSTEMS SHALL BE COMMISSIONED PER IECC 2018 C408.2.5 FINAL COMMISSIONING REPORT SHALL BE DUE WITHIN 90 DAYS OF RECEIPT OF CERTIFICATE OF OCCUPANCY.
  9. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A LICENSED DESIGN PROFESSIONAL, MECHANICAL ENGINEER OR APPROVED AGENCY.
  10. A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY THE LICENSED DESIGN PROFESSIONAL, ELECTRICAL ENGINEER, MECHANICAL ENGINEER OR APPROVED AGENCY AND PROVIDED TO THE BUILDING OWNER OR OWNERS AUTHORIZED AGENT.
  11. A FINAL REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS "FINAL COMMISSIONING REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER OR OWNERS AUTHORIZED AGENT. THE REPORT SHALL BE ORGANIZED WITH MECHANICAL SYSTEM AND SERVICE HOT WATER SYSTEM FINDINGS IN SEPARATE SECTIONS TO ALLOW INDEPENDENT REVIEW.
  12. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
  13. SMOKE DETECTOR SHALL MEET UL268A.

**ROOF TOP UNIT SCHEDULE**

UNIT TAG	RTU -1 (E)	RTU -2 (N)
UNIT	GAS HEAT	GAS HEAT
MANUFACTURER	CARRIER	CARRIER
MODEL	48TCEA07B2A6A0F3C0	48GCDM04A2A6-0A0A0 (OR EQUIVALENT)
STATUS	EXISTING	NEW
MOUNTING	ROOF	ROOF
NOMINAL CAPACITY	6 TONS	3 TONS
TOTAL COOLING MBH	SAE	37.9
SENSIBLE MBH	SAE	27.2
SEER / EER	SAE	16.1 / 12.5
HEATING MBH (IN)	115	50
HEATING MBH (OUT)	93	40
THERMAL EFF. (%)	SAE	81
SUPPLY AIR (CFM)	2400	1200
OUTDOOR AIR (CFM)	520	160
VOLTAGE	SAE	460/3/60
MCA (A)	SAE	9
MOCP (A)	SAE	15
WEIGHT (LBS)	SAE	700

- INCLUDED SYSTEM OPTIONS FOR RTU-2(N)
- A. PROVIDE FULL PERIMETER 14" HIGH ROOF CURB.
  - B. PROVIDE 2" MERV-8 FILTERS.
  - C. PROVIDE HINGED PANELS FOR FILTER ACCESS, FAN MOTOR ACCESS, COMPRESSOR ACCESS AND CONTROL COMPARTMENT ACCESS.
  - D. CONTRACTOR TO PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT FOR RTU WITH HUMIDITY CONTROL(HUMIDIZER).
  - E. HALL LAMP - FLD.
  - F. PROVIDE NON FUSED DISCONNECT SWITCH.
  - G. PROVIDE WITH TUBE & FIN COIL SYSTEM.
  - H. PROVIDE WITH DRAIN PAN OVERFLOW SWITCH.
  - I. PROVIDE WITH STANDARD CAP AND PHASE MONITOR SYSTEM.
  - J. PROVIDE WITH GFCI FLD WIRE.
- RTU NOTES:
1. INSTALL AS PER MANUFACTURERS SPECIFICATIONS AND MAINTAIN ALL SERVICE CLEARANCES.
  2. PROVIDE CONDENSATE DRAIN "P" TRAP MINIMUM 3" DEEP OR TWICE THE TOTAL STATIC PRESSURE WHICHEVER IS GREATER.
  3. COMPRESSOR SHALL HAVE A MINIMUM 5 YEAR WARRANTY ALL OTHER EQUIPMENT SHALL HAVE MINIMUM 1 YEAR WARRANTY.
  4. RTUS ARE BASED ON AHRI STANDARD CONDITIONS OF 95°F DB, 67°F WB INDOOR ENTERING AIR TEMPERATURE AND 95°F DB ENTERING AIR FOR OUTDOOR UNIT.
  5. MUST MEET THE EER'S MINIMUM EFFICIENCY CODE REQUIREMENTS.

- NOTES FOR EXISTING RTU-1(E)
1. EXISTING RTU WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.
  2. S.A.E.: SAME AS EXISTING.
  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.

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

**DIFFUSER SCHEDULE**

MANUFACTURER	TITUS	TITUS	TITUS
DESIGNATION	A	B	R
USE	SUPPLY	SUPPLY	RETURN
MODEL	TDC-AA	TDC-AA	56FL
MOUNTING	CEILING	HARD CEILING	CEILING/WALL
LOCATION	ANY	BATHROOM	ANY
FACE SIZE	24" X 24"	12" X 12"	24" X 24"
NECK SIZE	REFER TABLE-A	REFER TABLE-A	REFER TABLE-A
FRAME TYPE	LAY IN	FLANGED	LAY IN
FINISH	WHITE	WHITE	WHITE
NOISE CRITERIA	<30	<30	<30
ACCESSORIES	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER

- NOTES:
1. MAX. NC LEVEL 30 OR LESS.
  2. PROVIDE SQUARE TO ROUND NECK ADAPTOR.
  3. SEE ARCHITECTURAL DRAWINGS FOR PAINT AND FINISH.
  4. PROVIDE 4-WAY AIR THROW PATTERN UNLESS NOTED OR INDICATED.
  5. CONFIRM WITH CLIENT/ARCHITECT & THEN PROVIDE INSULATED BACKS ON ALL DIFFUSERS.

**FAN SCHEDULE**

DESIGNATION	EF-1 (N)	EF-2(N)	EF-3 (N)
STATUS	NEW	NEW	NEW
QUANTITY	1	1	1
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK
MODEL	SP-A50-90-VG	SP-A50-90-VG	SP-A510-VG
CFM	70@0.3 ESP	70@0.3 ESP	510@0.3 ESP
FLA (AMPS)	0.29	0.29	2.45
FAN RPM	838	838	1238
ACCESSORIES	BDD,LITE KIT	BDD,LITE KIT	BDD,LITE KIT
WEIGHT (LBS)	12	12	39
VOLTAGE	115/1/60	115/1/60	115/1/60

- NOTES:
1. PROVIDE DISCONNECT SWITCH.
  2. PROVIDE WITH VARI-GREEN MOTOR.
  3. INTERLOCK EF-1(N) WITH RTU-2(N)
  4. PROVIDE BACK DRAFT DAMPER.
  5. PROVIDE WALL MOUNTED CONTROL SWITCH FOR EF-2(N) & EF-3(N).
  6. COORDINATE LOCATION OF SWITCH WITH OWNER/ARCHITECT.

**OCCUPANCY CALCULATION PER IMC 2018, TABLE 403.3.1.1**

LOBBY/RECEPTION	302 SQ. FT. @30 PEOPLE/1000SQ.FT.	9 PEOPLE
BREAK ROOM	284 SQ. FT. @100 PEOPLE/1000SQ.FT.	5 PEOPLE
TREATMENT AREA	835 SQ. FT. @25 PEOPLE/1000SQ.FT.	20 PEOPLE

(OCCUPANCY FOR VENTILATION CALCULATIONS IS CONSIDERED AS PER ARCHITECTURAL LAYOUT)

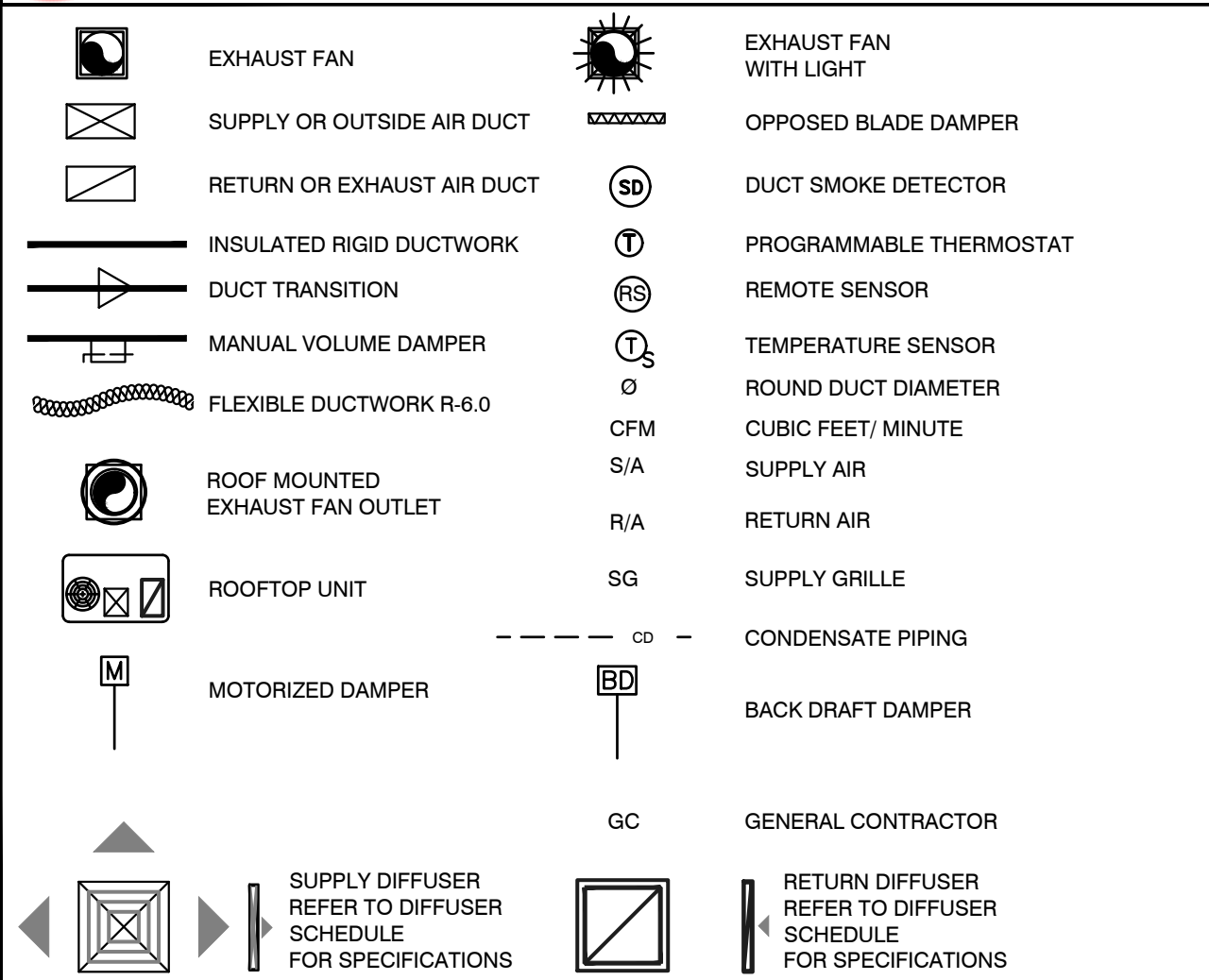
**VENTILATION REQUIREMENTS PER IMC 2018, TABLE 403.3.1.1**

LOBBY/RECEPTION	302 SQ. FT. X 0.06 CFM/SQ. FT. =	18 CFM
BREAK ROOM	9 PEOPLE X 5 CFM/PEOPLE. =	45 CFM
HALLWAY	100 SQ. FT. X 0.06 CFM/SQ. FT. =	6 CFM
BREAK ROOM	284 SQ. FT. X 0.18 CFM/SQ. FT. =	51 CFM
TREATMENT AREA	5 PEOPLE X 7.5 CFM/PEOPLE. =	38 CFM
TREATMENT AREA	835 SQ. FT. X 0.12 CFM/SQ. FT. =	100 CFM
	20 PEOPLE X 20 CFM/PEOPLE. =	400 CFM
OUTSIDE AIR REQUIRED		658 CFM
OUTSIDE AIR THROUGH RTU-1(E)		520 CFM
OUTSIDE AIR THROUGH RTU-2(N)		160 CFM
EXHAUST REQUIRED:		
EF-1 (N) (@70 CFM)		70 CFM
EF-2 (N)		70 CFM
EF-3 (N)(@0.06 CFM/SQ.FT.)		510 CFM
TOTAL EXHAUST		650 CFM
AIR BALANCE		
O/A PROVIDED		+680 CFM
TOTAL EXHAUST		-650 CFM
BUILDING PRESSURE		+30 CFM

**NECK SIZE TABLE - A**

FLEX DUCT DIA	CFM RANGE
Ø6"	0-125
Ø8"	126-250
Ø10"	251-400
Ø12"	>400

**MECHANICAL SYMBOLS**



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

NY ENGINEERS

PROJECT

LASH LOUNGE

REVISIONS DATES:

PROFESSIONAL SEAL

NOT FOR PERMIT OR BID  
NOT FOR CONSTRUCTION

ISSUE DATE: \_\_\_\_\_  
PROJECT #: \_\_\_\_\_  
DRAWN BY: NYE  
CHECKED BY: NYE

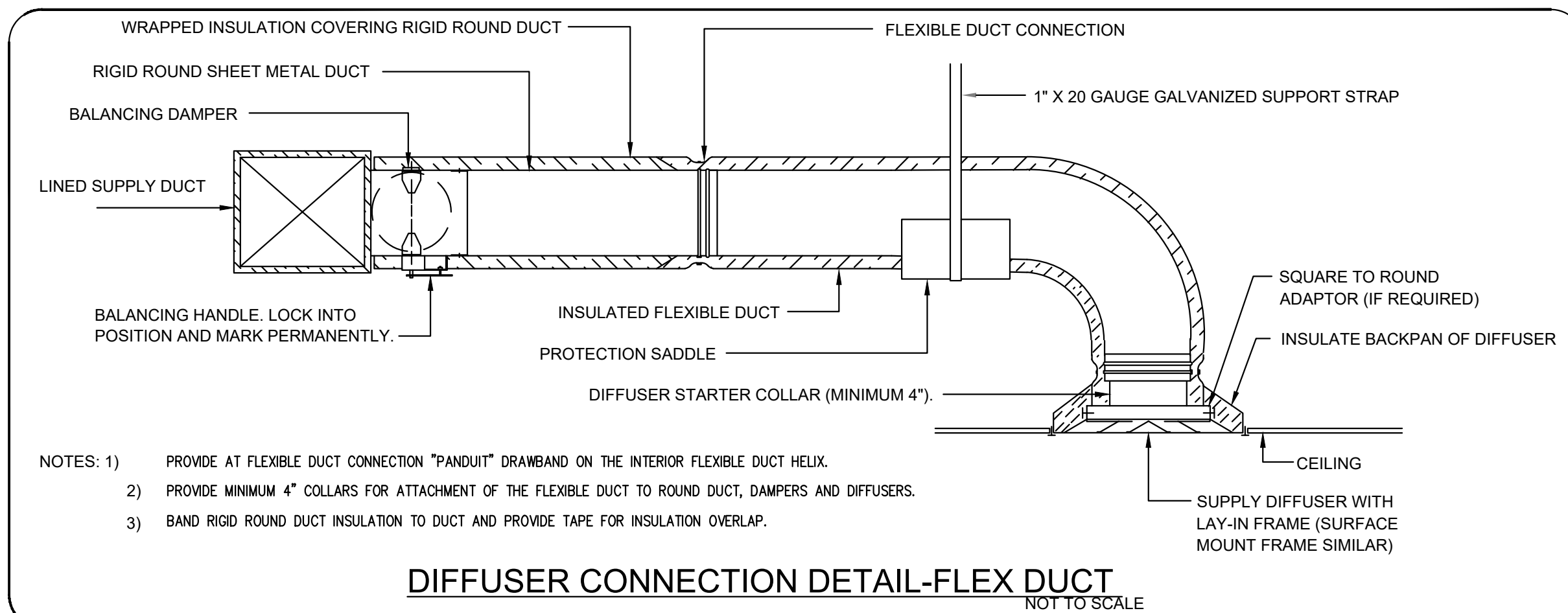
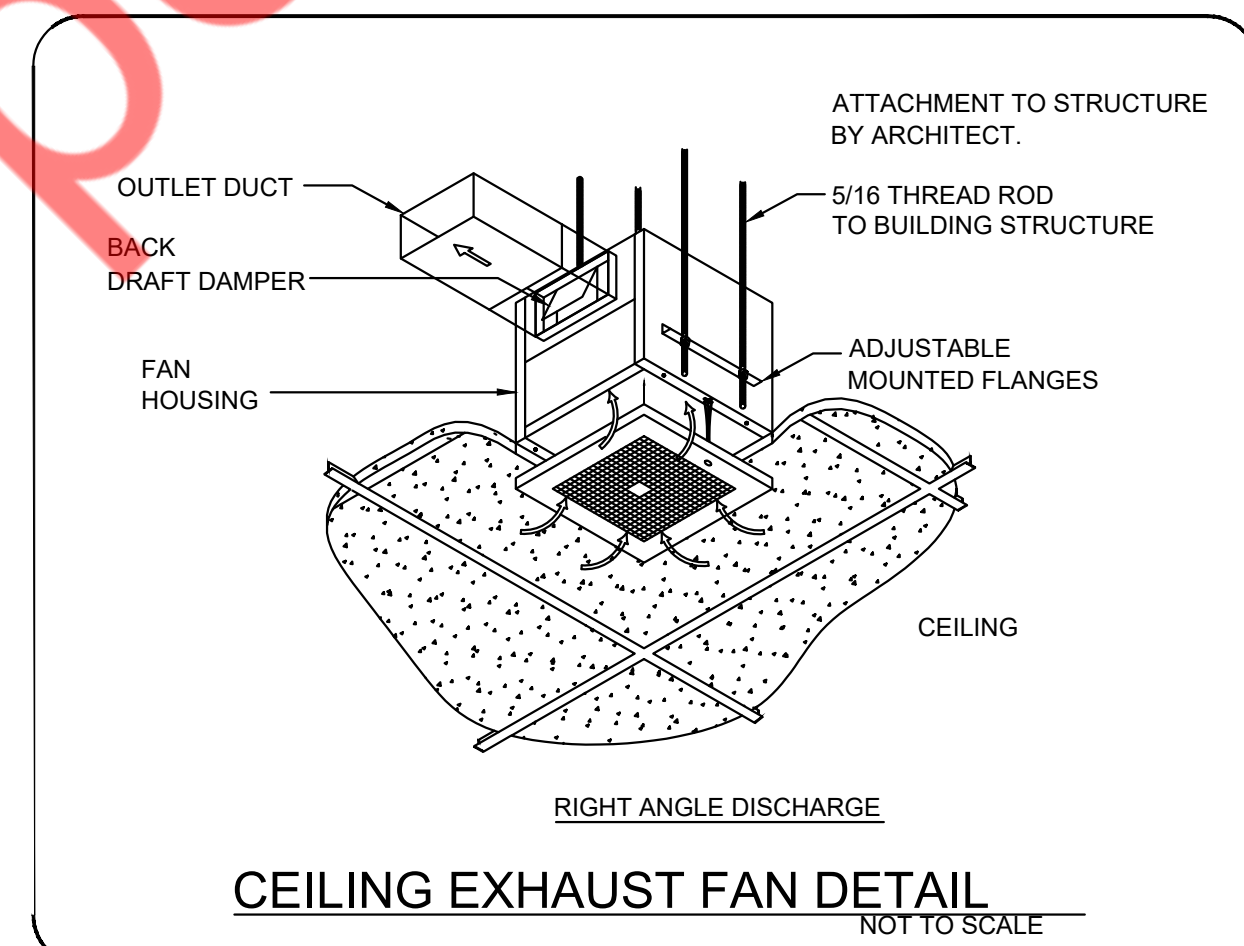
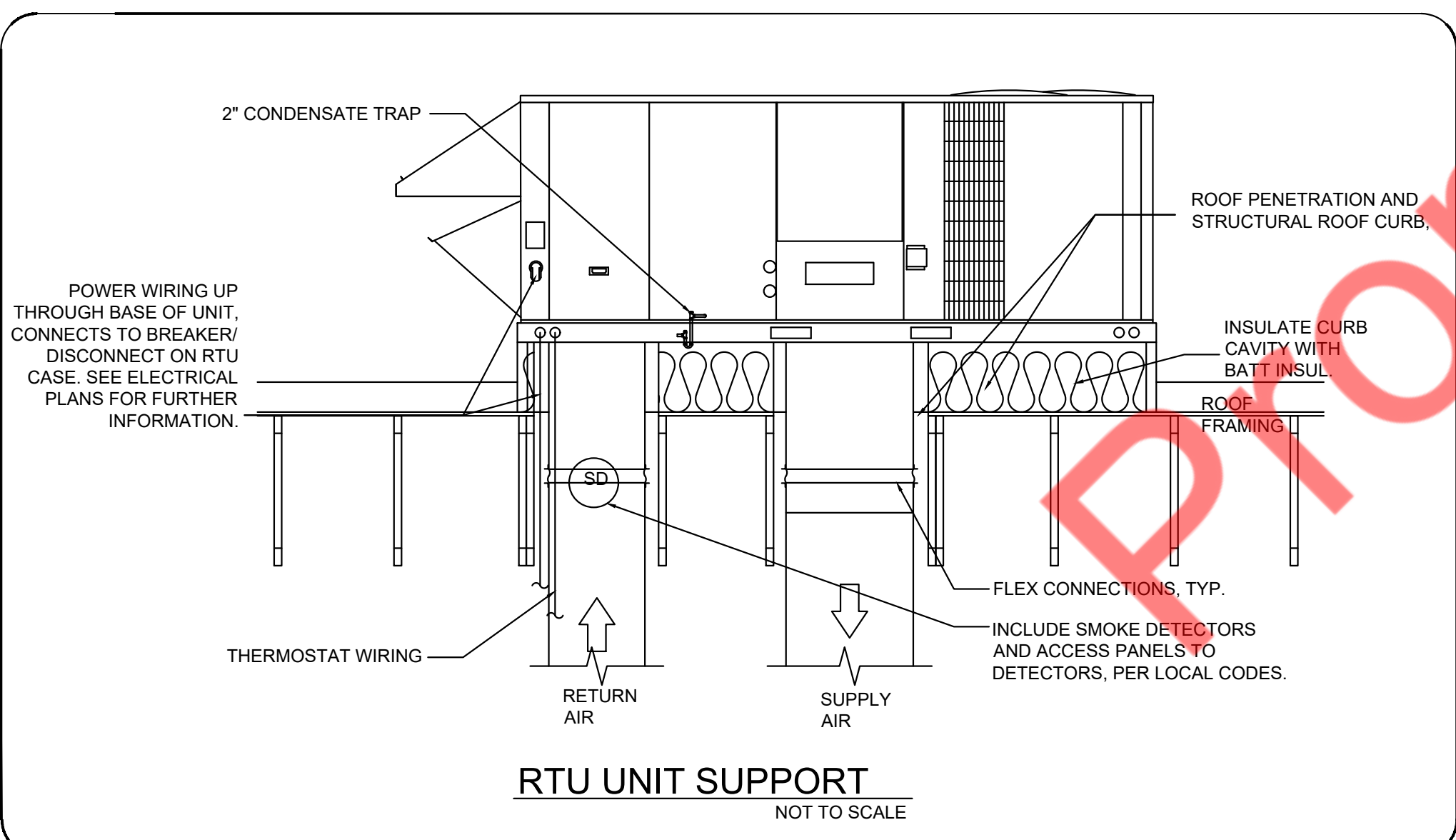
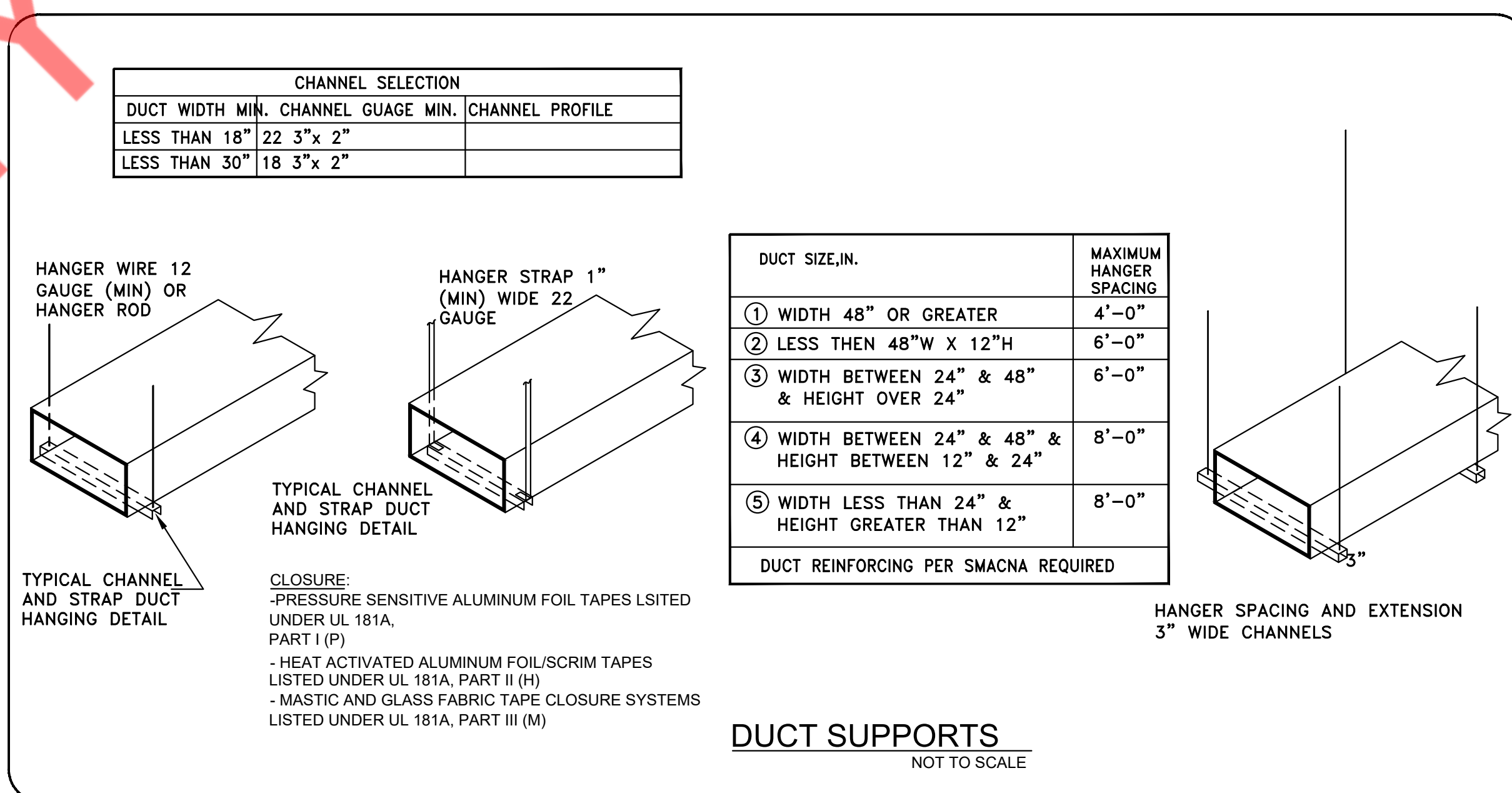
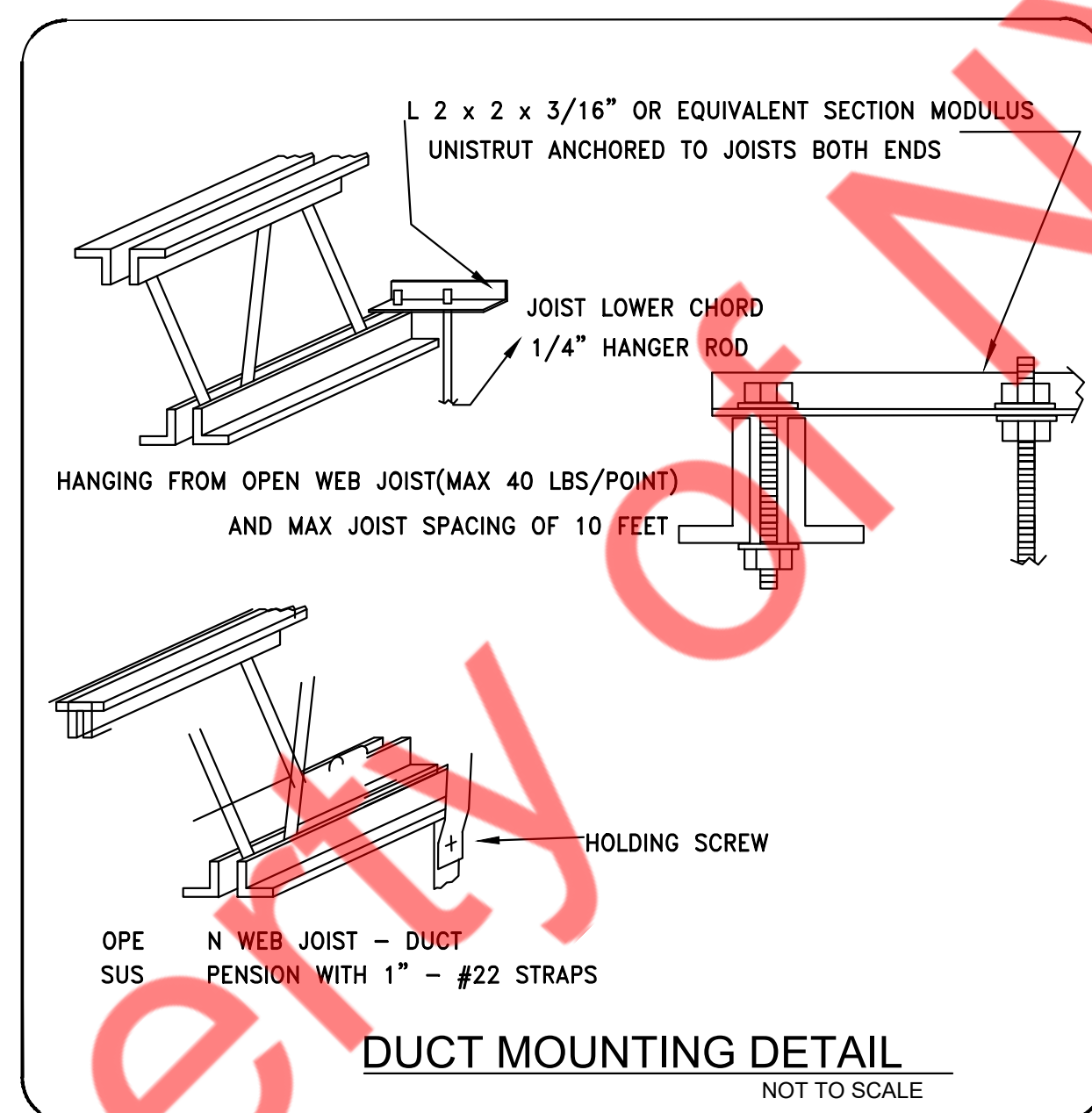
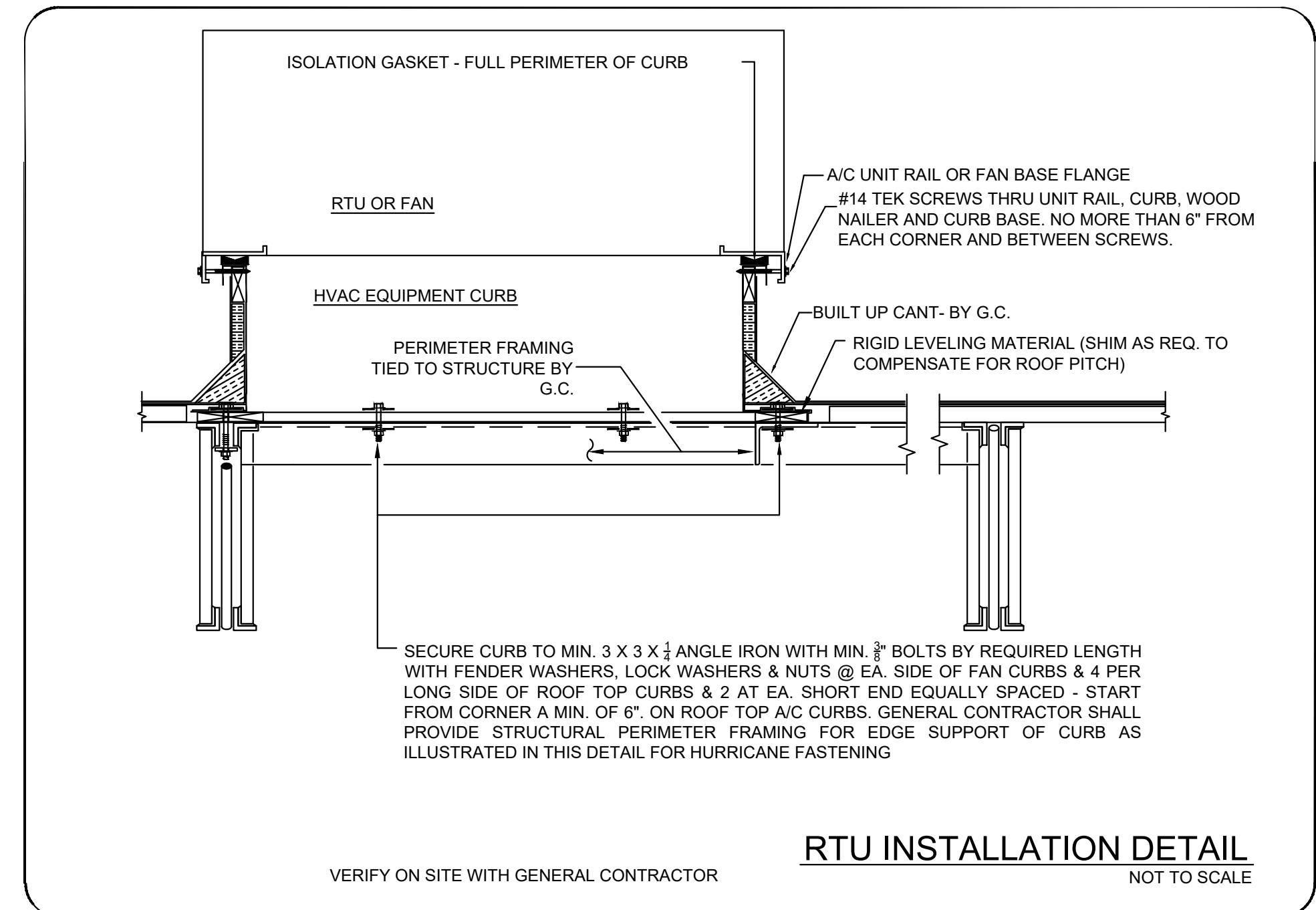
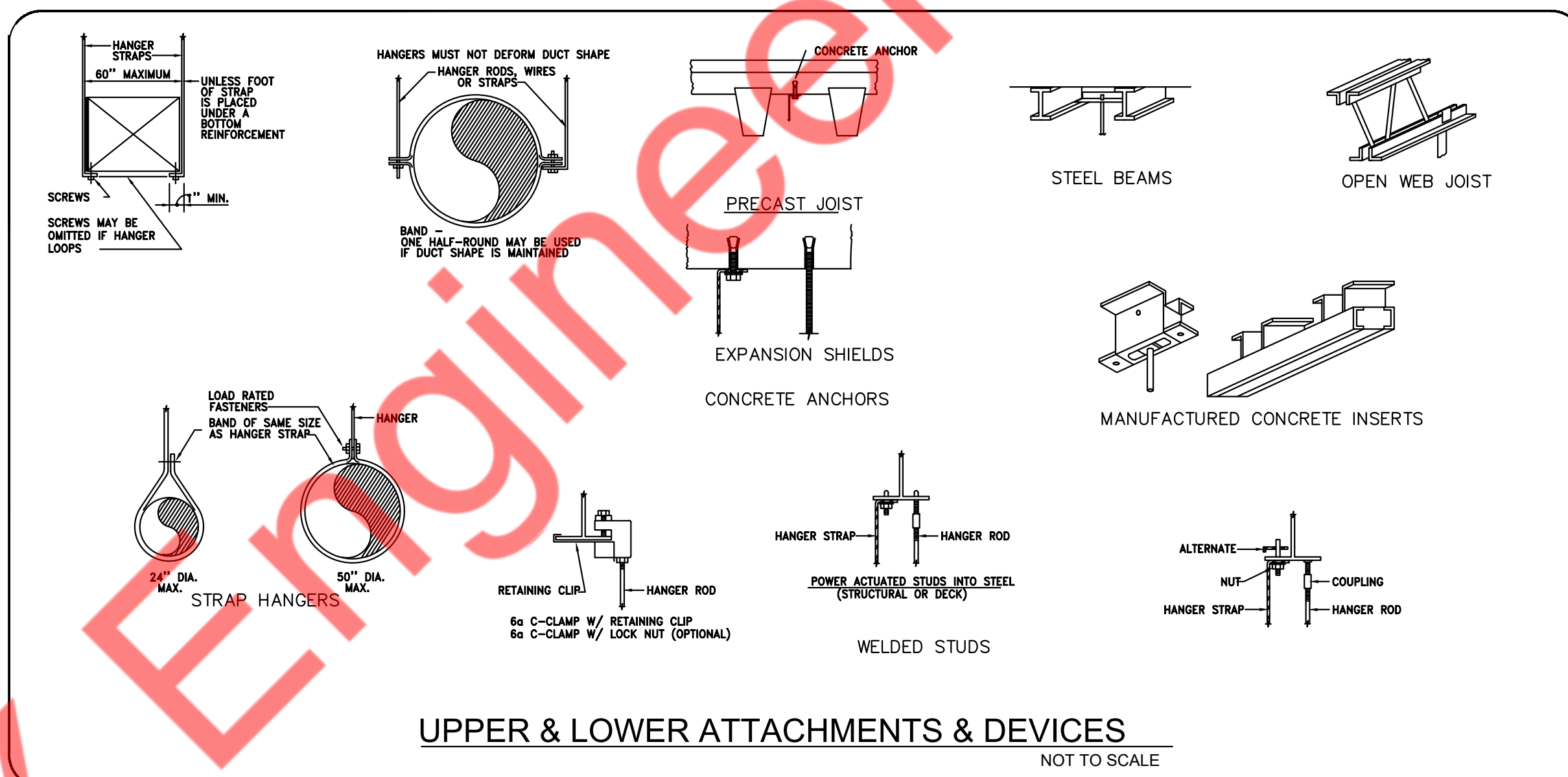
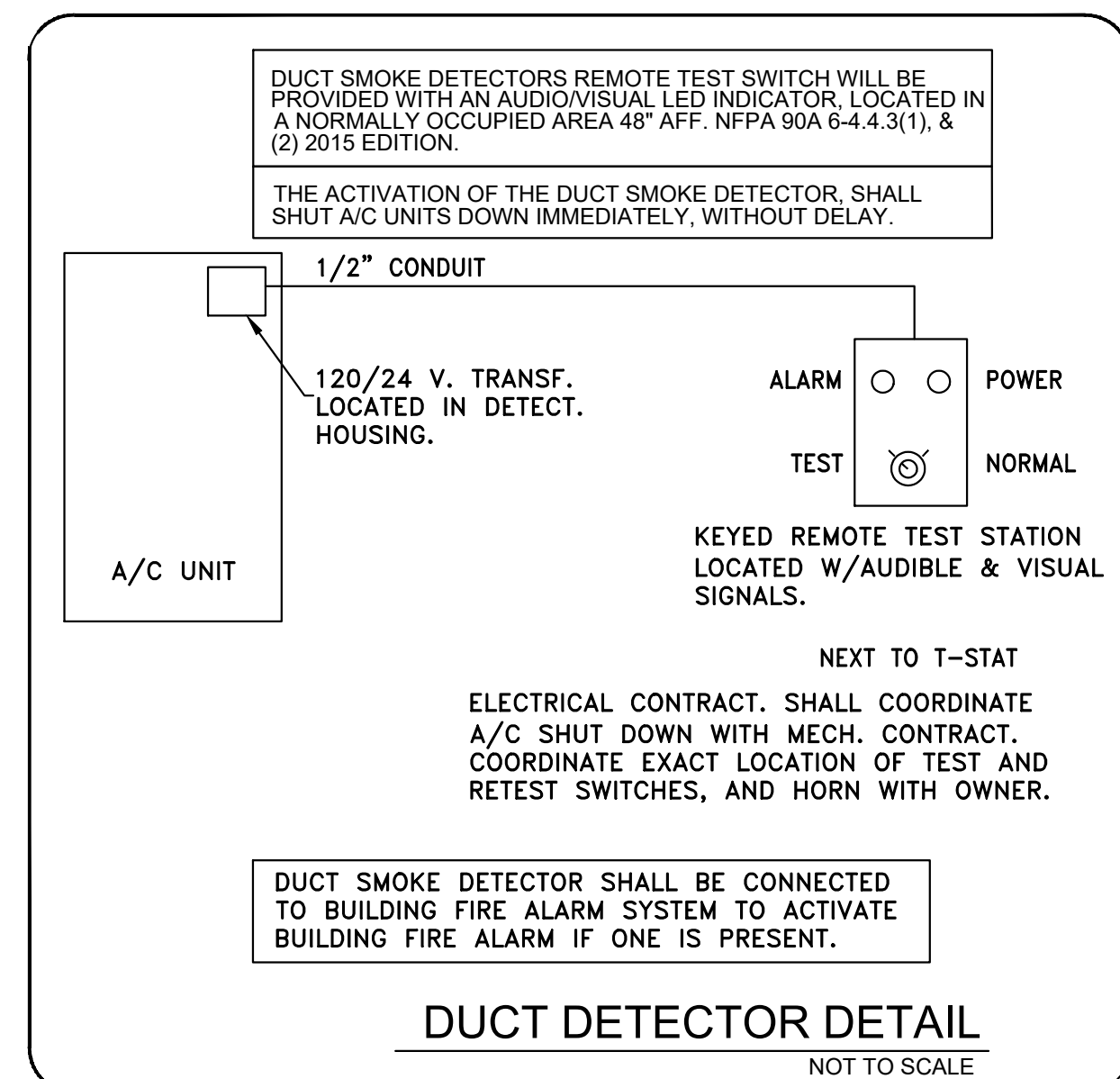
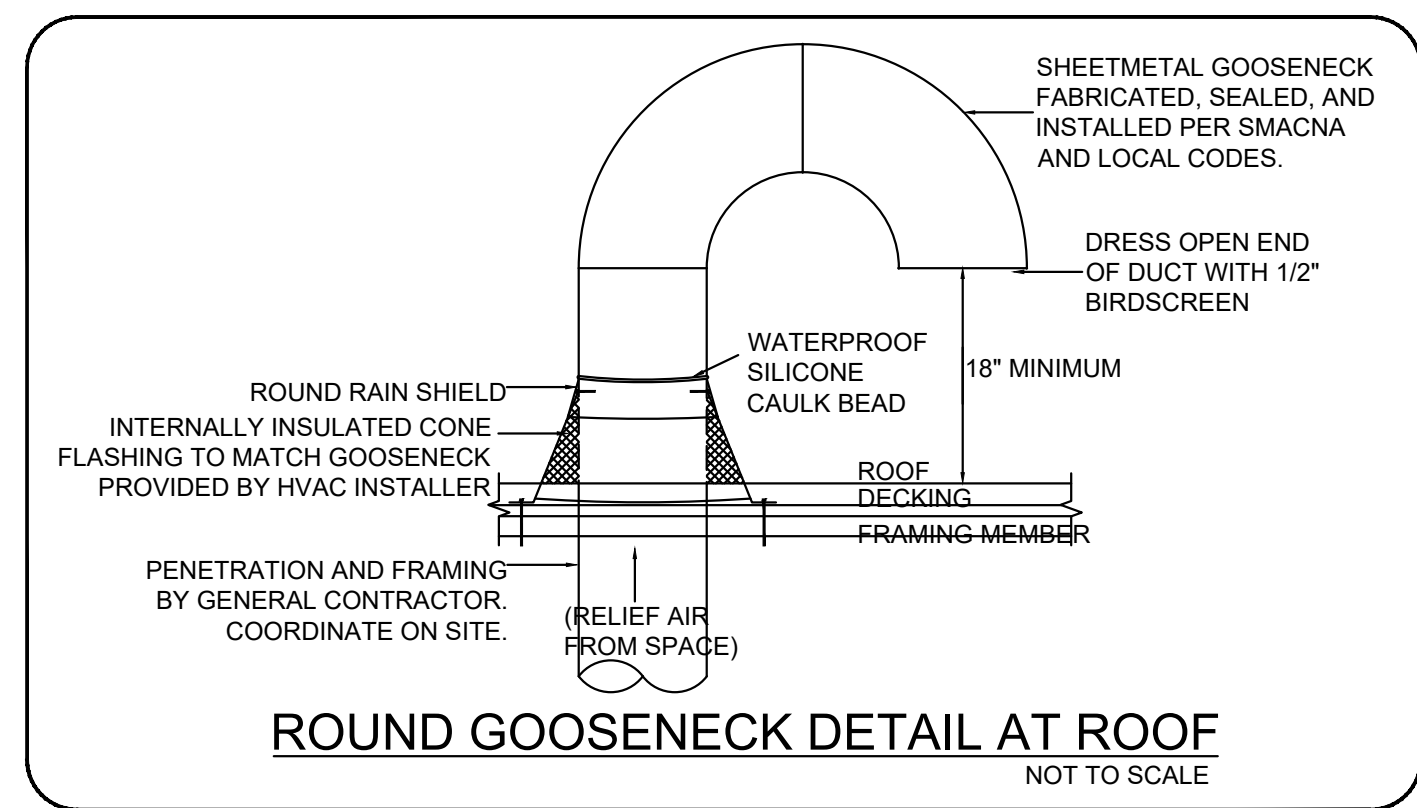
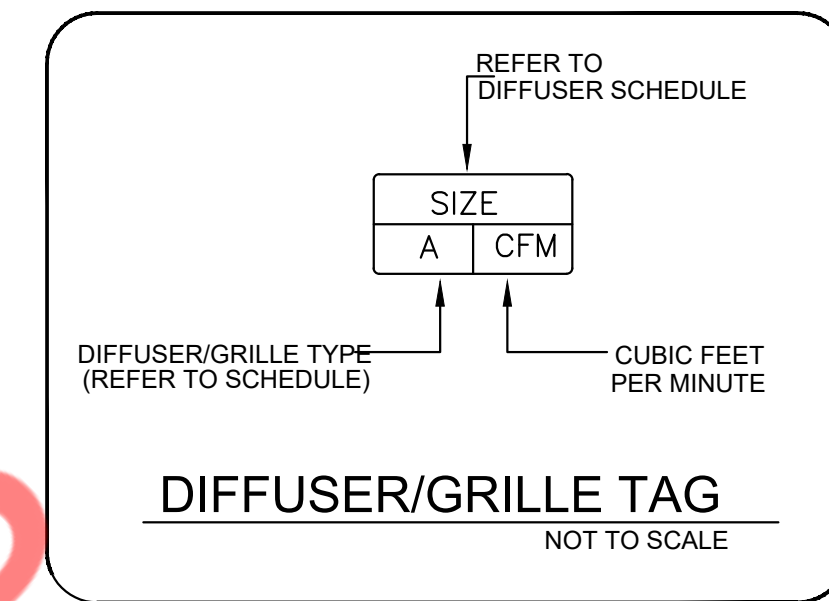
MECHANICAL  
NOTES &  
SCHEDULES

M-1









NOT FOR PERMIT OR BID  
 NOT FOR CONSTRUCTION




NOT FOR PERMIT OR BID  
NOT FOR CONSTRUCTION

ISSUE DATE: \_\_\_\_\_  
PROJECT #: \_\_\_\_\_  
DRAWN BY: NYE  
CHECKED BY: NYE

ELECTRICAL PLAN  
NOTES AND RISER  
DIAGRAM

**SCOPE OF WORK**

REUSE EXISTING 277/480V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE, METER, DISCONNECT SWITCH TO THE SPACE AND EXISTING (1) 250A(MLO), 277/480V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "HB2C" & EXISTING 30KVA TRANSFORMER WITH PRIMARY 277/480V & SECONDARY 120/208V. 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**

- ELECTRICAL 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 PROCEEDING WITH WORK.
- 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.
- 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.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL CODES AND ORDINANCES OF THE AUTHORITY HAVING JURISDICTION.
- DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION FOR ALL EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE.
- ALL ELECTRICAL NOT BEING REUSED MUST BE REMOVED IN ITS ENTIRETY.
- ALL CONDUIT IN OR UNDERGROUND OR IN CONCRETE MUST BE RIGID GALVANIZED STEEL.
- CIRCUIT BREAKERS AND PANELS TO BE BOLT ON TYPE.
- ALL EQUIPMENT SHALL BE APPROVED BY UL OR OTHER NATIONALLY RECOGNIZED TESTING COMPANY.
- ALL RECEPTACLES SHALL BE GROUNDED AS REQUIRED BY NEC 250.146.
- SUBMIT SERVICE ENTRANCE EQUIPMENT FOR SEPARATE APPROVAL.
- ALL LOW VOLTAGE MUST BE IN CONDUIT TO ABOVE THE DROP CEILING. BRIDAL RINGS OR "J" HOOKS REQUIRED.
- SEPARATE PERMITS ARE REQUIRED FOR ALL LOW VOLTAGE SUCH AS TELEPHONE, DATA, THERMOSTAT, MUSIC, ALARMS ETC.
- SEPARATE PERMIT REQUIRED FOR SIGNAGE.
- PRIOR TO ANY CONSTRUCTION WORK BEGINNING AN ON-SITE MEETING WITH GENERAL CONTRACTORS IS REQUIRED.
- ELECTRICIAN MUST BE ON SITE FOR ALL INSPECTIONS.
- MINIMUM WIRE SIZE SHALL BE #12 A.W.G. EXCLUDING CONTROL WIRING. ALL CONDUCTORS SHALL BE COPPER AND UNLESS OTHERWISE NOTED THHN INSULATION.
- 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.
- 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.
- ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE N.E.C. OR LOCAL CODES.
- ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.
- 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.
- ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
- 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.
- 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.
- ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT.
- THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF POWER AND TELEPHONE COMPANIES.
- CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS AND PROVIDE ALL NECESSARY CONTROL WIRING.
- ALL CIRCUIT BREAKERS FEEDING MECHANICAL EQUIPMENT SHALL BE HACR TYPE CIRCUIT BREAKERS.
- PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES, DEVICES, ETC. FOR ALL OUTLETS AS INDICATED.
- 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 IEC.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR CUT SHEETS OF LIGHTING FIXTURES, SWITCHES, AND OTHER ELECTRICAL ITEMS FOR APPROVAL BY ENGINEER/ARCHITECT.
- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND FIRED CAULKING REQUIRED OF HIS WORK.
- ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS W/TYPE WRITTEN DIRECTORIES.
- ALL ELECTRICAL AND COMMUNICATIONS OUTLETS TO BE AT 24" A.F.F. UNLESS NOTED OTHERWISE, AND VERTICALLY MOUNTED.
- ALL LIGHT SWITCHES TO BE AT 42" A.F.F.
- 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.
- BREAKER AND PANELS - ALL CURRENT CARRYING BUSES SHALL BE COPPER. ALL GROUND BUS BARS SHALL BE COPPER. PANEL BOARD ENCLOSURES SHALL BE FURNISHED WITHOUT PRE-PUNCHED CONCENTRIC HOLES. A.I.C. RATINGS SHALL BE AS INDICATED ON PANEL BOARD SCHEDULES.
- DISCONNECT SWITCHES SHALL BE H.P. RATED, GENERAL DUTY, QUICK-MAKE, QUICK-BREAK ENCLOSURES AS REQUIRED BY EXPOSURE.
- MOTOR STARTERS SHALL BE MANUAL OR MAGNETIC, WITH OVERLOAD RELAYS IN EACH HOT LEG.
- THE TERM "PROVIDE" USED IN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS INDICATES THE CONTRACT SHALL FURNISH AND INSTALL.
- 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.
- VOLTAGE DROP FOR ALL BRANCH CONDUCTORS SHALL NOT EXCEED 3%, WHERE VOLTAGE DROP EXCEEDS 3%, CONTRACTOR SHALL INCREASE SIZE OF CONDUCTORS.
- CONTRACTOR SHALL PROVIDE GFI TYPE BREAKER FOR ALL EXTERIOR 120V CIRCUITS OR GFI PROTECTION - FOR THE WHOLE CIRCUIT.
- GAS PIPING SHALL BE BONDED.
- 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.
- ALL OUTDOOR EQUIPMENT SHALL BE WEATHERPROOF.
- 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.
- OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.
- ABSOLUTELY NO FLEXIBLE CONDUIT IS PERMITTED IN DEMISING WALLS. FLEXIBLE CONDUIT IS PERMITTED FOR SHORT FINAL CONNECTIONS ONLY (6" OR LESS).
- EXPOSED CONDUIT SHALL BE INSTALLED IN STRAIGHT LINES, PARALLEL OR IN RIGHT ANGLES TO THE BUILDING STRUCTURE. DO NOT LOOP EXCESS FLEXIBLE CONDUIT IN CEILING SPACE OR WALL CAVITY. NO CONDUIT TO BE SUPPORTED FROM THE ROOF DECK.
- CABLE TYPES AC AND NM CABLES ARE NOT ACCEPTABLE. TYPE MC CABLE, ELECTRIC METALLIC TUBING (EMT) AND RIGID GALVANIZED CONDUIT ARE PERMITTED.
- ALL EQUIPMENT, DEVICES AND FIXTURES SHALL BE GROUNDED IN COMPLIANCE WITH NEC AND UL REQUIREMENTS.
- ALL PANELS TO BE UL LABELED WITH BOLT-ON TYPE CIRCUIT BREAKERS.
- 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.
- 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/TENANTS GC AT TENANT'S SOLE EXPENSE.
- ALL ELECTRICAL PANELS TO BE MOUNTED ON PLYWOOD BACKER BOARD.
- PANEL PHASE LOADS TO BE BALANCED WITHIN 10%.
- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND FIRE CAULKING REQUIRED FOR HIS WORK.
- ELECTRICAL PANELS MAY NOT BE RECESSED IN DIMINISHING PARTITIONS. SURFACE MOUNT OR FULL FUROUT WALL TO ACHIEVE FLUSH FINAL APPEARANCE.
- COORDINATE ALL CONCRETE TRENCHING/CORING TO ENSURE THAT ANY UNDER SLAB UTILITIES, ETC. ARE NOT DAMAGED DURING FLOOR CUT. ANY DAMAGE TO BE REPAIRED AT TENANT'S EXPENSE. PRIOR APPROVAL AND COORDINATION WITH PROPERTY MANAGEMENT IS REQUIRED FOR ALL CONCRETE CUTTING.
- CONFIRM ELECTRICAL METER REQUIREMENTS WITH MALL OPERATIONS.

**ELECTRICAL LEGEND**

SYMBOL	DESCRIPTION
	EXHAUST FAN
	SPEAKERS @ CEILING
	JUNCTION BOX
	BATTERY BACK UP EXIT LIGHT
	BATTERY BACK UP EMERGENCY LIGHT
	WALL SWITCH (SINGLE)
	WALL SWITCH (TIMER)
	DIMMER WALL SWITCH
	OCCUPANCY SENSOR WALL SWITCH
	DUPLEX RECEPTACLE
	QUADRUPLEX RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	ELECTRICAL PANEL
	TELEVISION OUTLET
	TELEPHONE/DATA OUTLET
	DATA OUTLET
	CEILING MOUNTED DATA OUTLET
	230 VOLT RECEPTACLE
	30A/240V NON FUSED DISCONNECT SWITCH
	60A/240V NON FUSED DISCONNECT SWITCH

**ABBREVIATIONS:**

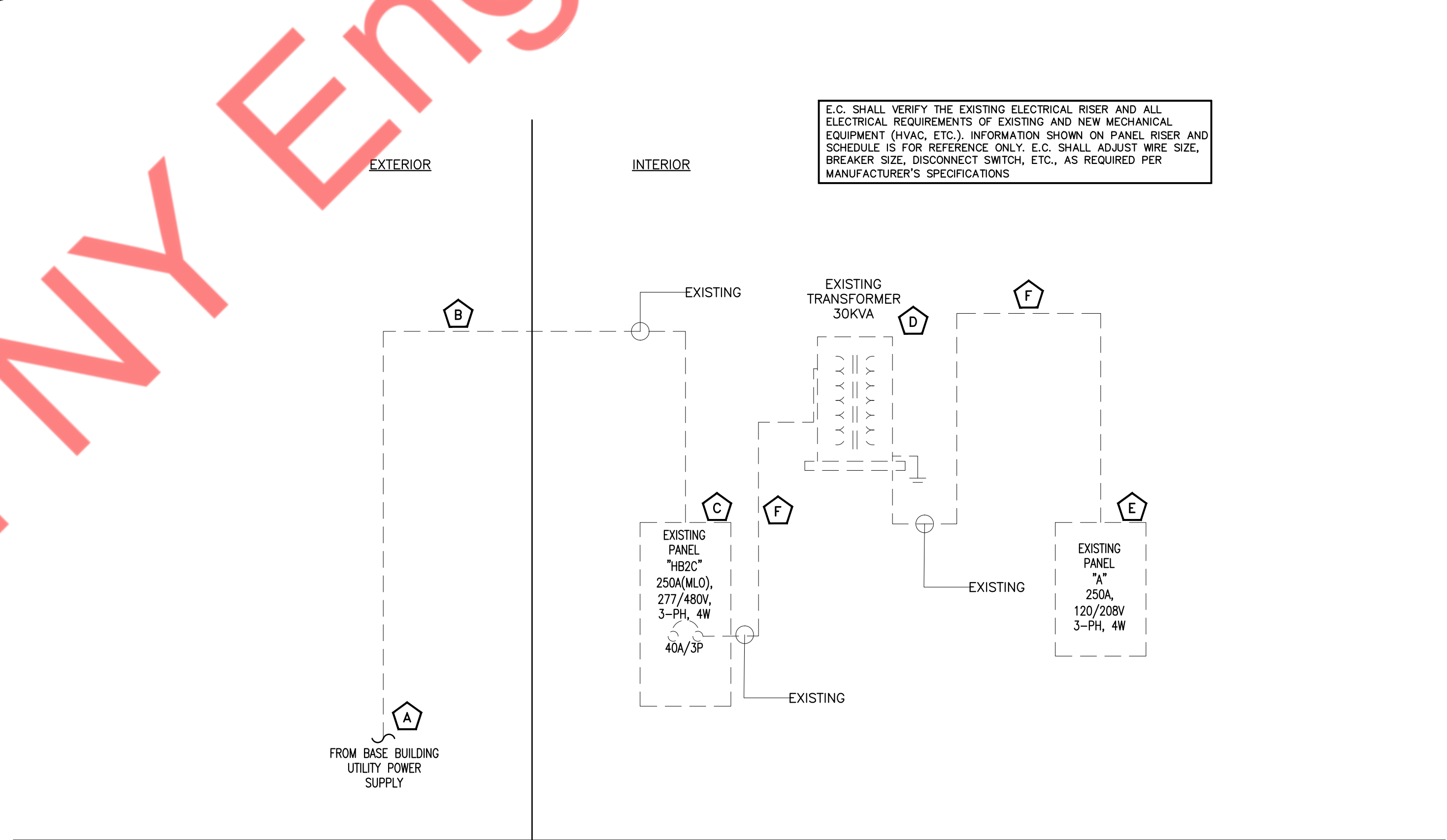
ABOVE FINISH FLOOR= A.F.F.	BELOW COUNTER= BC
COUNTER TOP LEVEL= C	PUSH BUTTON= PB
GROUND FAULT INTERRUPTER= GFCI	UNDER CABINET= UC
VERIFY PRIOR TO INSTALL= VH	VAPOR PROOF= VP
WEATHER PROOF= WP	SALVAGED= S
WA = WASHER	DR = DRYER

**GENERAL LIGHTING NOTES**

- UPPER CASE LETTER NEXT TO LIGHT FIXTURE DENOTES FIXTURE TYPE AND LOWER CASE LETTER DENOTES SWITCHING SCHEME.
- ALL EMERGENCY FIXTURES SHALL BE CONNECTED TO AN UNSWITCHED HOT CONDUCTOR

**LIGHTING FIXTURE SCHEDULE**

SYMBOL	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLT	NUMBER OF FIXTURES	LAMP TYPE	TOTAL WATTS	MOUNTING	REFER TO SHEET A-2 - REFLECTED CEILING PLAN IN ARCHITECTURAL DRAWINGS FOR MORE INFORMATION ON COLORS AND TRIMS REQUIRED.
	A	PENDENT LIGHTS	POSSINI	POSSINI 90454	120	3	20 WATTS LED	60 WATTS	RECESSED	REFER TO CS-5 FOR VENDORS INFORMATION.
	B	24" RECESSED LAY-IN LED WITH DIMMING	LITHONIA LIGHTING	EPANL 2X4 (3000K)	120	14	45 WATTS LED	630 WATTS	RECESSED	(1) EXISTING FIXTURES ARE ACCEPTABLE. IF THEY NEED TO BE REPLACED, REPLACE W/ EXACT MATCH OR MATCH SCHEDULE.
	C	6" RECESSED CAN LIGHT	LITHONIA LIGHTING	LDNS-30/20 L06 AR LD EZ1(3000K)	120	7	22.4 WATTS LED	156.8 WATTS	PENDENT	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 PHOTOMETRICS & FIXTURE SAMPLES FOR ALL DECORATIVE FIXTURES, LANDSCAPE FIXTURES & OUTDOOR FIXTURES. WITHOUT THIS INFORMATION NO REVIEW WILL BE PROVIDED.
	X	EXIT SIGNS	TBD	TBD	120	2	3 WATTS LED	6 WATTS	CEILING	
	EX	EXIT SIGNS/EMERGENCY LIGHT COMBO	TBD	TBD	120	2	5 WATTS LED	10 WATTS	WALL	
	EU	EMERGENCY LIGHT	TBD	TBD	120	4	3 WATTS LED	12 WATTS	WALL	
	OS	OCCUPANCY WALL SWITCH	LEVITON	ODS10	120				WALL	
	D	DIMMER SWITCH	LEVITON	R01-DWAA-1RW	120				WALL	
	T	TIMER SWITCH	LEVITON	DDS15-BDZ	120				WALL	

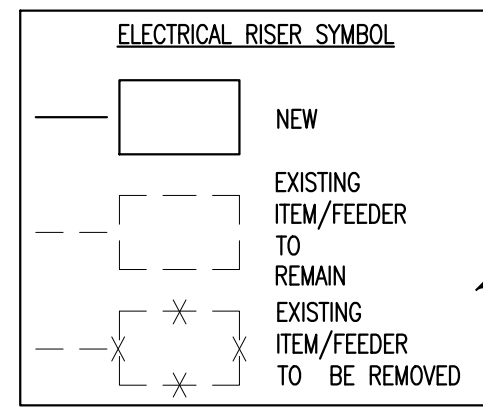


**RISER DIAGRAM KEYED WORK NOTES:**

- EXISTING 277/480V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE TO REMAIN. E.C. SHALL COORDINATE WITH OWNER/BASE BUILDING FOR EXACT POWER DISTRIBUTION.
- EXISTING ELECTRICAL INCOMING FEEDER FOR THE SPACE SHALL REMAIN. E.C. SHALL VERIFY EXACT SIZE AND OPERABLE CONDITION OF THE EXISTING FEEDER IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 250A(MLO), 277/480V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "HB2C" TO REMAIN. E.C TO FIELD VERIFY THE EXACT LOCATION, SIZE & OPERABLE CONDITION OF EXISTING PANEL, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 30KVA, 3-PHASE TRANSFORMER WITH PRIMARY 277/480V AND SECONDARY 120/208V TO REMAIN. E.C TO FIELD VERIFY THE EXACT LOCATION, SIZE & OPERABLE CONDITION OF EXISTING TRANSFORMER, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 250A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A" TO REMAIN. E.C TO FIELD VERIFY THE EXACT LOCATION, SIZE & OPERABLE CONDITION OF EXISTING PANEL, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING INCOMING FEEDERS TO REMAIN. E.C. TO VERIFY OPERABLE CONDITION OF FEEDER'S IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

**RISER DIAGRAM GENERAL NOTE:**

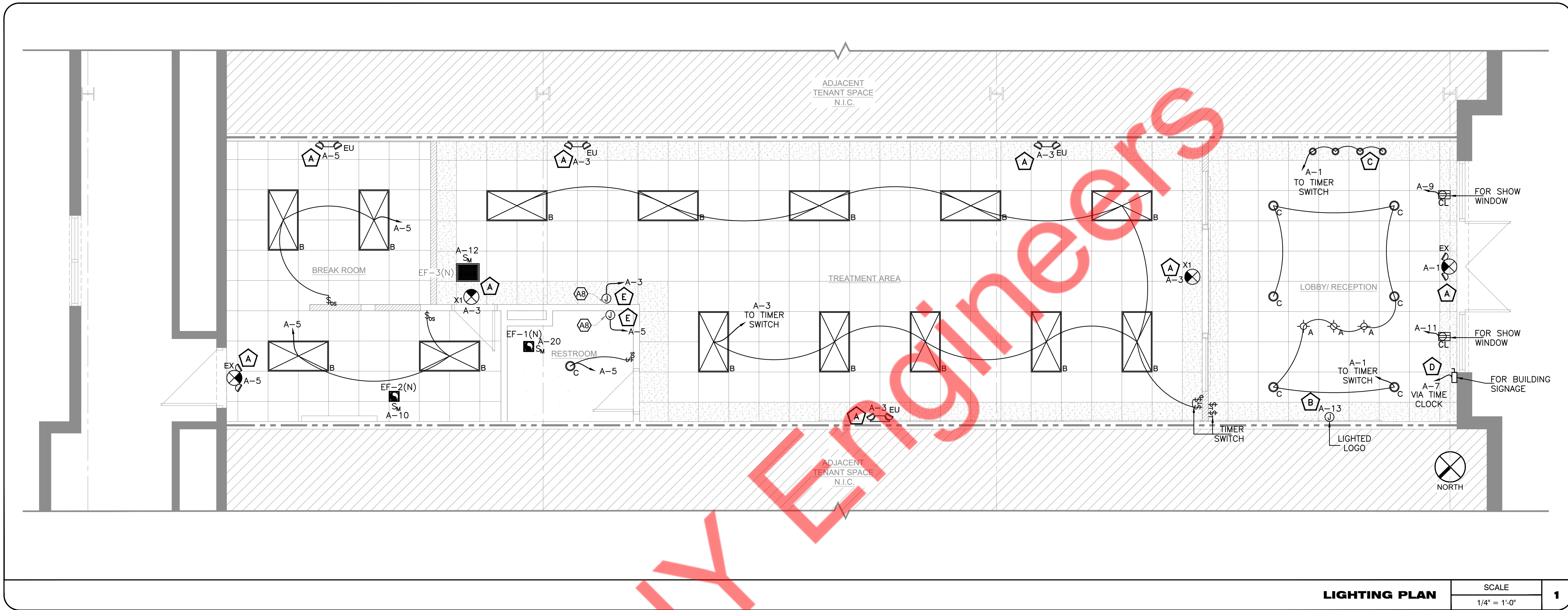
- E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
- E.C. SHALL VERIFY EXACT POWER DISTRIBUTION ON FIELD AND INFORM ENGINEER FOR ANY DISCREPANCY.





**ELECTRICAL PLAN KEYED WORK NOTES:**

- A** CONNECT ALL EMERGENCY EGRESS LIGHTING FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.
- B** JUNCTION BOX FOR LIGHTED LOGO. E.C. TO COORDINATE EXACT MOUNTING HEIGHT & LOCATION WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.
- C** LIGHTS INSTALLED IN MILLWORK. E.C. TO COORDINATE EXACT MOUNTING HEIGHT & LOCATION WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.
- D** E.C. TO COORDINATE THE BUILDING SIGNAGE CONNECTION REQUIREMENTS WITH SIGN VENDOR . BASE BID ACCORDINGLY.
- E** E.C. TO INSTALL REMOTE G.F.C.I. DEVICE (LEVITON GFRBF--W) AFTER SWITCH AND BEFORE MIRROR LIGHT ONLY. ALL OTHER LIGHTS AND RESTROOM EXHAUST FAN TO BE WIRED SEPARATE FROM G.F.C.I.



Property of NY Engineers

NY ENGINEERS

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PROJECT

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LASH LOUNGE

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REVISIONS DATES:


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PROFESSIONAL SEAL

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NOT FOR PERMIT OR BID  
NOT FOR CONSTRUCTION

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ISSUE DATE: \_\_\_\_\_  
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DRAWN BY: NYE  
CHECKED BY: NYE

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LIGHTING PLAN

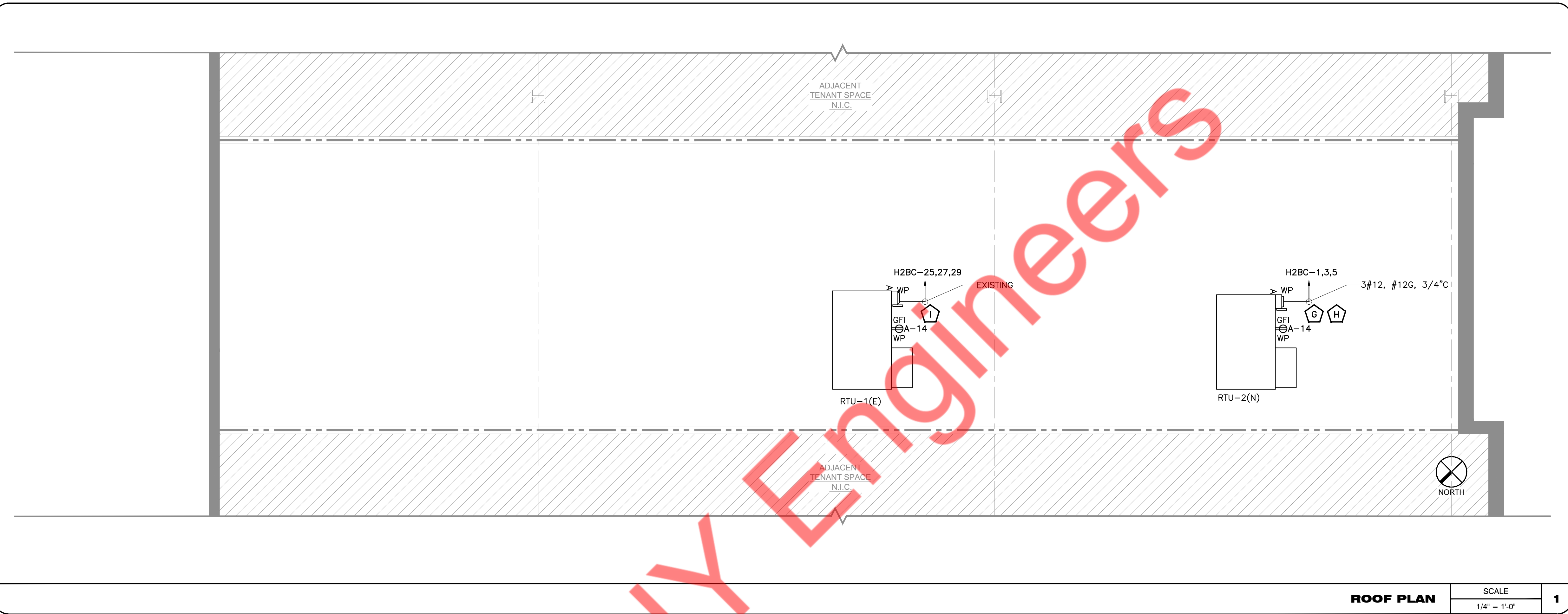
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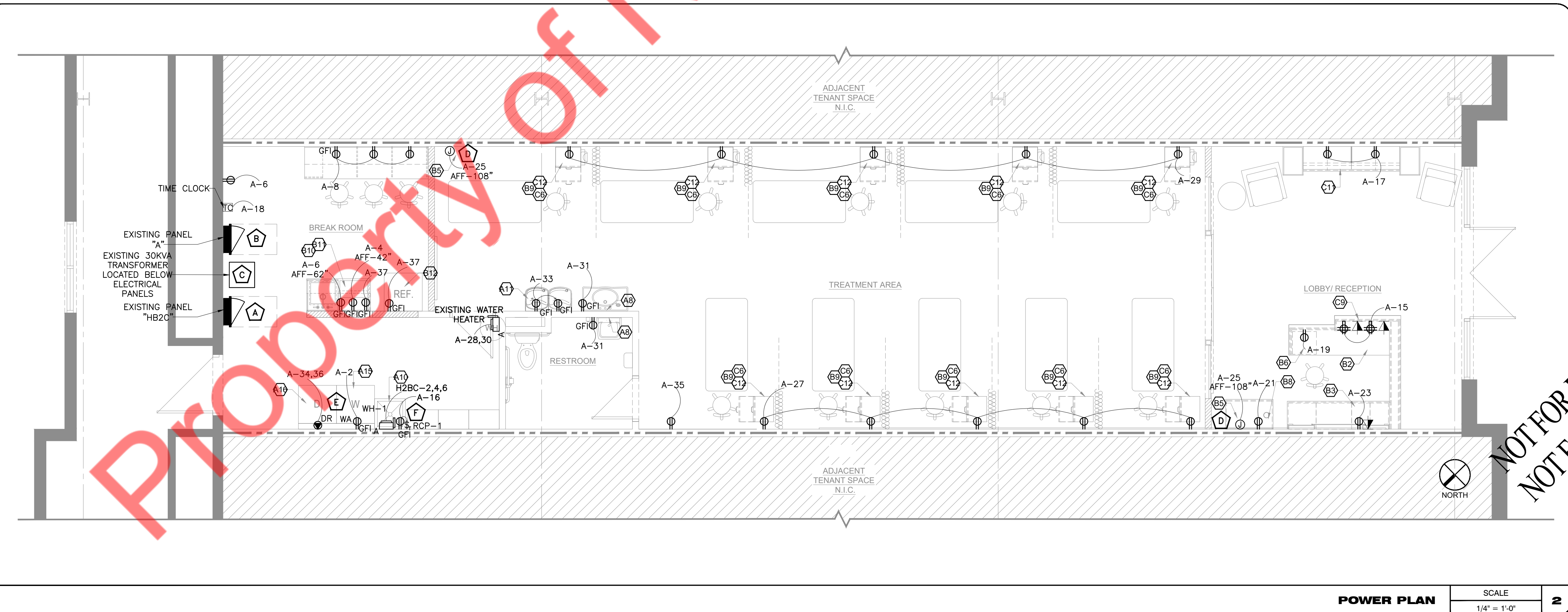
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ELECTRICAL PLAN KEYED WORK NOTES:

- A EXISTING 250A(MLO), 277/480V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "HB2C" TO REMAIN. E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- B EXISTING 250A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". E.C. SHALL COORDINATE LOCATION WITH ARCHITECT/OWNER.
- C EXISTING 30KVA, 3-PHASE TRANSFORMER WITH PRIMARY 277/480V AND SECONDARY 120/208V TO REMAIN. E.C. SHALL COORDINATE LOCATION WITH ARCHITECT/OWNER.
- D JUNCTION BOX FOR AUDIO EQUIPMENT. E.C. TO COORDINATE EXACT MOUNTING HEIGHT & LOCATION WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.
- E ELECTRICAL SUPPLY PROVISION FOR THE WASHER & DRYER. E.C. SHALL COORDINATE WITH THE OWNER/MANUFACTURER FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- F ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT MOUNTING HEIGHT & LOCATION OF RECIRCULATION PUMP WITH PLUMBING DRAWINGS.
- G ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MECHANICAL EQUIPMENTS WITH MECHANICAL DRAWINGS.
- H ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
- I EXISTING MECHANICAL UNIT SHALL REMAIN CONNECTED TO THE EXISTING ELECTRICAL PANEL. E.C. TO COORDINATE WITH MECHANICAL CONTRACTOR FOR ANY REQUIREMENT BASED ON FIELD CONDITION.



ROOF PLAN SCALE 1/4" = 1'-0" 1



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



PANEL SCHEDULE:

PANEL: H2BC (EX)												MOUNTING: SURFACE			
480Y/277		VOLTS,		3		PHASE,		4		WIRE		PANEL LOCATION: BREAK ROOM			
MAIN CB: NA		MLO: 250A		BUS: 250A		MIN.								FED FROM: PANEL_A VIA 30KVA TRANSFORMER	
NOTE:															
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			H	2.39		6.39				4.00	O			2	
3	15/3P	RTU-2(N)	H	2.39	3#12, #12G, 3/4"C		6.39		3#10, #10G, 3/4"C	4.00	O	WH-1	20/3P	4	
5			H	2.39				6.39		4.00	O			6	
7	20	SPARE				0.00						SPARE	20	8	
9	20	SPARE					0.00					SPARE	20	10	
11	20	SPARE						0.00				SPARE	20	12	
13	20	SPARE				0.00						SPARE	20	14	
15	20	SPARE					0.00					SPARE	20	16	
17	20	SPARE						0.00				SPARE	20	18	
19	20	SPARE				6.10			EXISTING	6.10	O		20		
21	20	SPARE					6.10			6.10	O	30KVA TRANSFORMER (EXISTING) ⓑ	40/3P	22	
23	20	SPARE						6.10		6.10	O		24		
25			H	4.29		4.29							26		
27	30/3P	RTU-1(E) ⓐ	H	4.29	EXISTING		4.29					SPARE	60/3P	28	
29			H	4.29			4.29						30		
TOTAL CONNECTED LOAD (KVA)						16.78	16.78	16.78							
LOAD CLASSIFICATION			CONNECTED LOAD (KVA)		DEMAND FACTOR		DEMAND LOAD (KVA)		PANEL TOTAL LOAD						
TOTAL LIGHTING		L	0.00	125%	0.00										
TOTAL RECEPTACLE		R	0.00	100%	0.00										
TOTAL HVAC		H	20.04	100%	20.04										
TOTAL MOTOR		M	0.00	100%	0.00										
TOTAL KITCHEN/EQUIPMENTS		E	0.00	65%	0.00										
TOTAL OTHER/MISCELLANEOUS		O	30.30	100%	30.30										
			TOTAL CONNECTED LOAD	50.34	KVA										
			TOTAL DEMAND LOAD	50.34	KVA										
			TOTAL CONNECTED CURRENT	60.62	AMP										
			TOTAL DEMAND CURRENT	60.62	AMP										
			SYSTEM VOLTAGE	120/208	Wye										

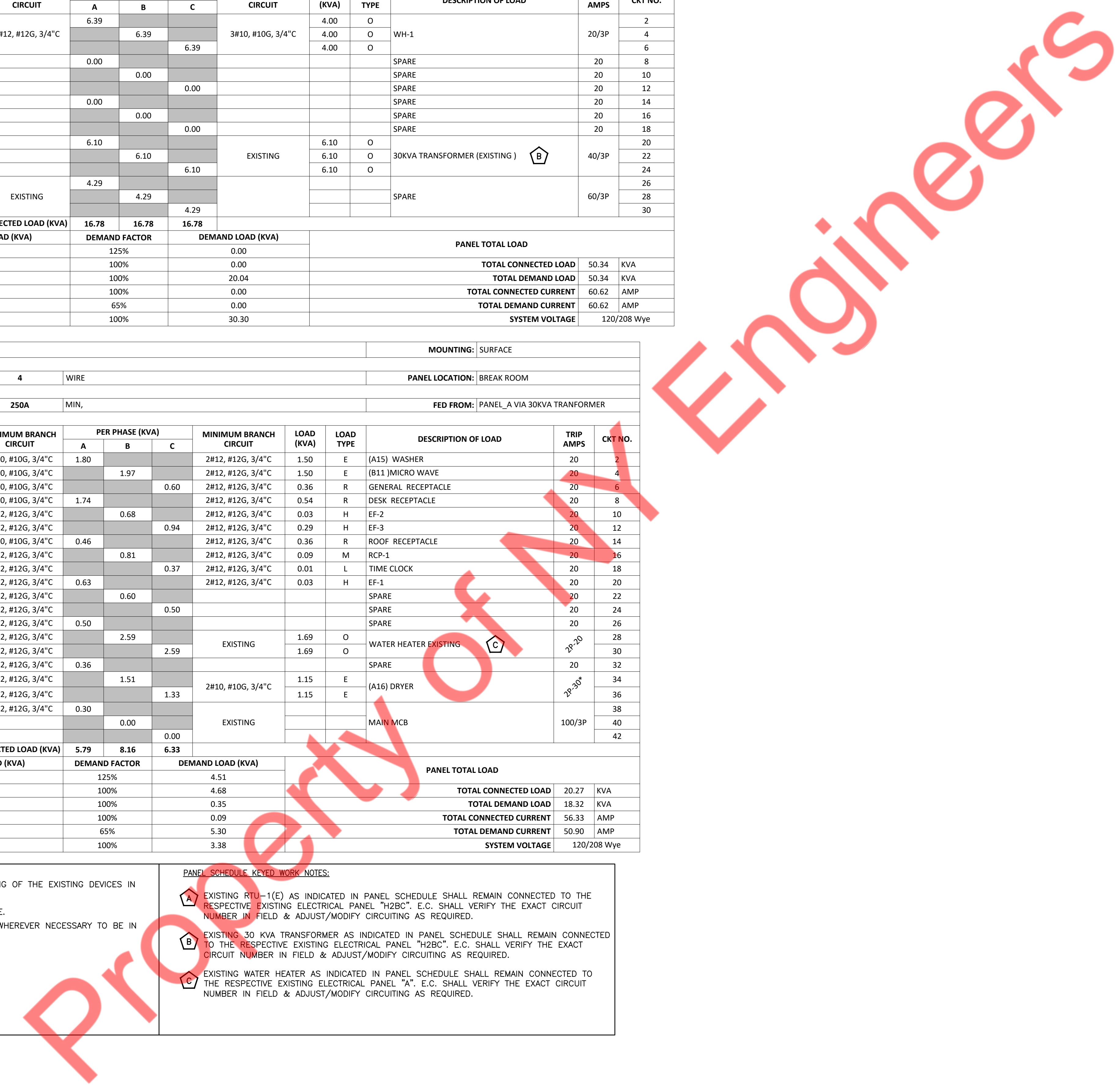
PANEL: A(E)												MOUNTING: SURFACE			
208Y/120		VOLTS,		3		PHASE,		4		WIRE		PANEL LOCATION: BREAK ROOM			
MAIN CB: NA		MLO: 250A		BUS: 250A		MIN.								FED FROM: PANEL_A VIA 30KVA TRANSFORMER	
NOTE:															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	LIGHTING-LOBBY (A,C)	L	0.30	2#10, #10G, 3/4"C	1.80			2#12, #12G, 3/4"C	1.50	E	(A15) WASHER	20	2	
3	20	LIGHTING-TREATMENT AREA (B)	L	0.47	2#10, #10G, 3/4"C		1.97		2#12, #12G, 3/4"C	1.50	E	(B11) MICRO WAVE	20	4	
5	20	LIGHTING-REST ROOM, BREAK ROOM AREA (A,C)	L	0.24	2#10, #10G, 3/4"C			0.60	2#12, #12G, 3/4"C	0.36	R	GENERAL RECEPTACLE	20	6	
7	20	BUILDING SIGNAGE	L	1.20	2#10, #10G, 3/4"C	1.74			2#12, #12G, 3/4"C	0.54	R	DESK RECEPTACLE	20	8	
9	20	SHOW WINDOW RECEPTACLE	L	0.65	2#12, #12G, 3/4"C		0.68		2#12, #12G, 3/4"C	0.03	H	EF-2	20	10	
11	20	SHOW WINDOW RECEPTACLE	L	0.65	2#12, #12G, 3/4"C			0.94	2#12, #12G, 3/4"C	0.29	H	EF-3	20	12	
13	20	LIGHTED LOGO	L	0.10	2#10, #10G, 3/4"C	0.46			2#12, #12G, 3/4"C	0.36	R	ROOF RECEPTACLE	20	14	
15	20	(C9) RECEPTACLE	R	0.72	2#12, #12G, 3/4"C		0.81		2#12, #12G, 3/4"C	0.09	M	RCP-1	20	16	
17	20	(C11) RECEPTACLE	R	0.36	2#12, #12G, 3/4"C			0.37	2#12, #12G, 3/4"C	0.01	L	TIME CLOCK	20	18	
19	20	(B6) UNDER COUNTER BEVERAGE COOLER	E	0.60	2#12, #12G, 3/4"C	0.63			2#12, #12G, 3/4"C	0.03	H	EF-1	20	20	
21	20	(B8) COFFE MACHINE	E	0.60	2#12, #12G, 3/4"C		0.60					SPARE	20	22	
23	20	(B3) PRINTER	E	0.50	2#12, #12G, 3/4"C			0.50				SPARE	20	24	
25	20	(B5) AUDIO EQUIPMENT	E	0.50	2#12, #12G, 3/4"C	0.50						SPARE	20	26	
27	20	WORK STATION RECEPTACLE	R	0.90	2#12, #12G, 3/4"C		2.59		EXISTING	1.69	O	WATER HEATER EXISTING ⓐ	20	28	
29	20	WORK STATION RECEPTACLE	R	0.90	2#12, #12G, 3/4"C			2.59		1.69	O		30		
31	20	GFCI RECEPTACLE	R	0.36	2#12, #12G, 3/4"C	0.36						SPARE	20	32	
33	20	(A11) DRINKING FOUNTAIN	E	0.36	2#12, #12G, 3/4"C		1.51		2#10, #10G, 3/4"C	1.15	E	(A16) DRYER	20	34	
35	20	GENERAL RECEPTACLE	R	0.18	2#12, #12G, 3/4"C			1.33		1.15	E		20	36	
37	20	(B10) UNDER COUNTER REFRIGERATOR	E	0.30	2#12, #12G, 3/4"C	0.30							20	38	
39	20	SPARE					0.00		EXISTING			MAIN MCB	100/3P	40	
41	20	SPARE						0.00					42		
TOTAL CONNECTED LOAD (KVA)						5.79	8.16	6.33							
LOAD CLASSIFICATION			CONNECTED LOAD (KVA)		DEMAND FACTOR		DEMAND LOAD (KVA)		PANEL TOTAL LOAD						
TOTAL LIGHTING		L	3.61	125%	4.51										
TOTAL RECEPTACLE		R	4.68	100%	4.68										
TOTAL HVAC		H	0.35	100%	0.35										
TOTAL MOTOR		M	0.09	100%	0.09										
TOTAL KITCHEN/EQUIPMENTS		E	8.16	65%	5.30										
TOTAL OTHER/MISCELLANEOUS		O	3.38	100%	3.38										
			TOTAL CONNECTED LOAD	20.27	KVA										
			TOTAL DEMAND LOAD	18.32	KVA										
			TOTAL CONNECTED CURRENT	56.33	AMP										
			TOTAL DEMAND CURRENT	50.90	AMP										
			SYSTEM VOLTAGE	120/208	Wye										

**PANEL SCHEDULE GENERAL NOTES:**

- ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR DISCREPANCIES.
- ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE.
- \* INDICATES GFCI CIRCUIT BREAKER.

**PANEL SCHEDULE KEYED WORK NOTES:**

- EXISTING RTU-1(E) AS INDICATED IN PANEL SCHEDULE SHALL REMAIN CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL "H2BC". E.C. SHALL VERIFY THE EXACT CIRCUIT NUMBER IN FIELD & ADJUST/MODIFY CIRCUITING AS REQUIRED.
- EXISTING 30 KVA TRANSFORMER AS INDICATED IN PANEL SCHEDULE SHALL REMAIN CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL "H2BC". E.C. SHALL VERIFY THE EXACT CIRCUIT NUMBER IN FIELD & ADJUST/MODIFY CIRCUITING AS REQUIRED.
- EXISTING WATER HEATER AS INDICATED IN PANEL SCHEDULE SHALL REMAIN CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL "A". E.C. SHALL VERIFY THE EXACT CIRCUIT NUMBER IN FIELD & ADJUST/MODIFY CIRCUITING AS REQUIRED.



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PANEL SCHEDULES

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E-4

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**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 NEW BEAUTY SALON INCLUDING ALL WATER, GAS & SANITARY LINES AND CONNECT TO EXISTING UTILITIES. PROVIDE NEW ELECTRIC STORAGE TYPE WATER HEATER.  
COORDINATE WITH GC AND MECHANICAL CONTRACTOR FOR ANY REQUIRED CONDENSATE LINES.

**PLUMBING NOTES**

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE LOCAL CODES, RULES AND ORDINANCES.
- 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.
- ALL EQUIPMENT WHICH IS TO REMAIN MUST BE REFURBISHED TO A LIKE NEW CONDITION.
- PLUMBING CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS.
- ALL MATERIALS SHALL BE NEW.
- ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANSHIP CATEGORY. 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.
- REQUIRED INSURANCE SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- 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.
- DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE FOR THE EXACT LOCATION OF FIXTURES, PIPING, EQUIPMENT, ETC.
- 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.
- VERIFY LOCATION, SIZE, DIRECTION OF FLOW AND INVERTS OF ALL EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION. ADVISE ENGINEER OF ANY DISCREPANCIES.
- 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 ANSISF STANDARD 61.
- SOIL, WASTE, VENT AND RAINWATER PIPING SHALL BE PVC BUT MAY NOT RUN THRU RATED ASSEMBLIES OR IN PLENUMS.
- ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE STOPS AND APPROPRIATELY MARKED ACCESS PANELS. COORDINATE LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION.
- FURNISH AND INSTALL APPROVED AIR CHAMBERS AT EACH PLUMBING FIXTURE GROUP AS PER CODE AND WITH GOOD ENGINEERING PRACTICE.
- DIELECTRIC COUPLINGS ARE REQUIRED BETWEEN ALL DISSIMILAR METAL IN PIPING AND EQUIPMENT CONNECTIONS; EXCEPT AT WATER HEATER AS PER CODE.
- ISOLATE COPPER PIPE FROM HANGER OR SUPPORTS WITH ISOLATOR PAD.
- 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 PLUMBERS WORK.
- 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. PROVIDE COPY TO LL.
- STUDOR MINIMAXI AIR ADMITTANCE VALVES MAY NOT BE USED AS AN ALTERNATE TO VENT PIPING THRU ROOF.
- PROVIDE CHROME PLATED COMBINATION COVER PLATE AND CLEAN OUT PLUG OR ACCESS PANEL FOR ALL CLEANOUTS.
- NO COMBUSTIBLE MATERIAL TO BE USED IN MECHANICAL ROOMS OR IN CEILING SPACES WHERE USED AS RETURN AIR PLENUMS.
- NO WATER, SANITARY OR DRAINAGE PIPING PERMITTED IN ELECTRICAL OR ELEVATOR EQUIPMENT ROOMS.
- 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.
- 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.
- PROVIDE ANGLE STOPS ON ALL WATER SERVICE LINES TO FIXTURES FOR INDIVIDUAL SHUT-OFF.
- NO JOINTS UNDERGROUND FOR COPPER.
- PLUMBING FIXTURES SHALL COMPLY WITH INTERNATIONAL PLUMBING CODE 2018.
- WATER HAMMER ARRESTORS AS PER INTERNATIONAL PLUMBING CODE 2018.
- PLUMBING CONTRACTOR TO PROVIDE ANTI-SCALDING VALVE FOR TUBS AND SHOWERS.
- PLUMBING CONTRACTOR SHALL REVIEW ALL BID DOCUMENTATION.
- PLUMBING CONTRACTOR SHALL REVIEW WALL FINISHES @ LOCATION REQUIRING BARRIER-FREE COMPLIANCE (EXAMPLE: CENTER LINE TO TOILET).
- 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.
- OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER. PROVIDE A COPY TO LL.

**PLUMBING LEGEND**

	SANITARY SEWER PIPING
	VENT PIPING
	DOMESTIC COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	GAS PIPING
	PIPE RISE
	PIPE DROP
	CAPPED END OF PIPE
	CLEAN OUT
	P-TRAP
	SHUT-OFF VALVE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RETURN
	GATE VALVE
	CHECK VALVE
	BALANCING VALVE
	GAS COCK
	WATER HAMMER ARRESTER
	FLOOR DRAIN
	POINT OF CONNECTION
	THERMOSTATIC MIXING VALVE

**RESTROOM FIXTURE SCHEDULE**

Item No.	Qty.	Description	Manufacturer	Model	WATER		WASTE		Spec
					Hot	Cold	Waste	Usage	
A1	1	LAVATORY	EXISTING TO REMAIN	EXISTING TO REMAIN	-	-	E	-	-
A1.1	1	LAVATORY FAUCET	EXISTING TO REMAIN	EXISTING TO REMAIN	E	E	-	-	-
4		THERMAL MIXING VALVES	MCGUIRE	8902	1/2"	1/2"	-	-	-
4		INSULATED PLUMBING COVERS	PLUMBEREX	HANDY SHIELD	-	-	-	-	-
A2	1	WATER CLOSET	EXISTING TO REMAIN	EXISTING TO REMAIN	E	E	-	-	-

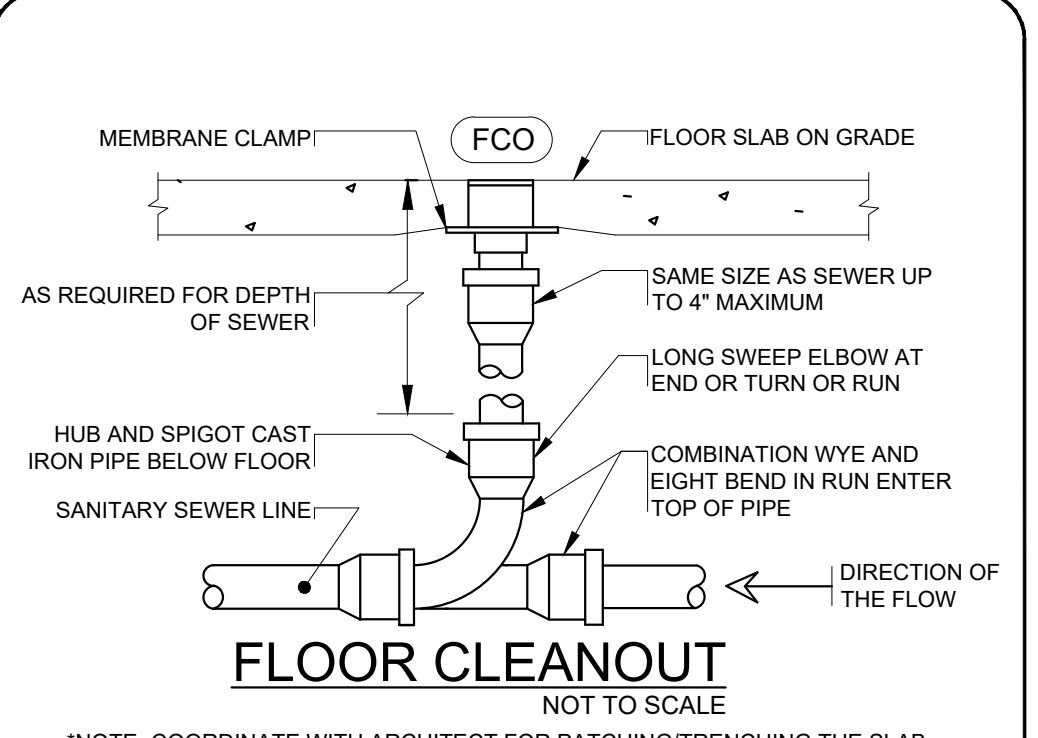
**KITCHEN EQUIPMENT PLUMBING SCHEDULE**

Item No.	Qty.	Description	MANUFACTURER	MODEL	WATER		WASTE	
					Hot	Cold	Direct	Indirect
A9	1	MOP SINK	FIAT	MSBIDT2424	-	-	-	3"
	1	MOP SINK FAUCET	FIAT	830-AA	1/2"	1/2"	-	-
A11	2	DRINKING FOUNTAIN	-	-	-	1/2"	2"	-
A13	1	CONSOLE SINK	FAUCETURE-IMPERIAL BASIN	VPB13678	-	-	-	2"
A13.1	1	FAUCET	DELTA WINDEMERE	B3596LF-SS	1/2"	1/2"	-	-
A14	1	KITCHEN SINK	ELKAY	LRAD1919553	-	-	-	2"
A14.1	1	FAUCET	MEON	87966	1/2"	1/2"	-	-
A15	1	WASHING MACHINE	-	-	1/2"	1/2"	3"	-
A10	1	WATER HEATER	SEE SCHEDULE	SEE SCHEDULE	3/4"	3/4"	-	-
	1	FLOOR DRAIN*	ZURN OR EQUAL	ZS415-J OR EQUAL	-	-	-	3"

\*HOT WATER 140°F. \*PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS.

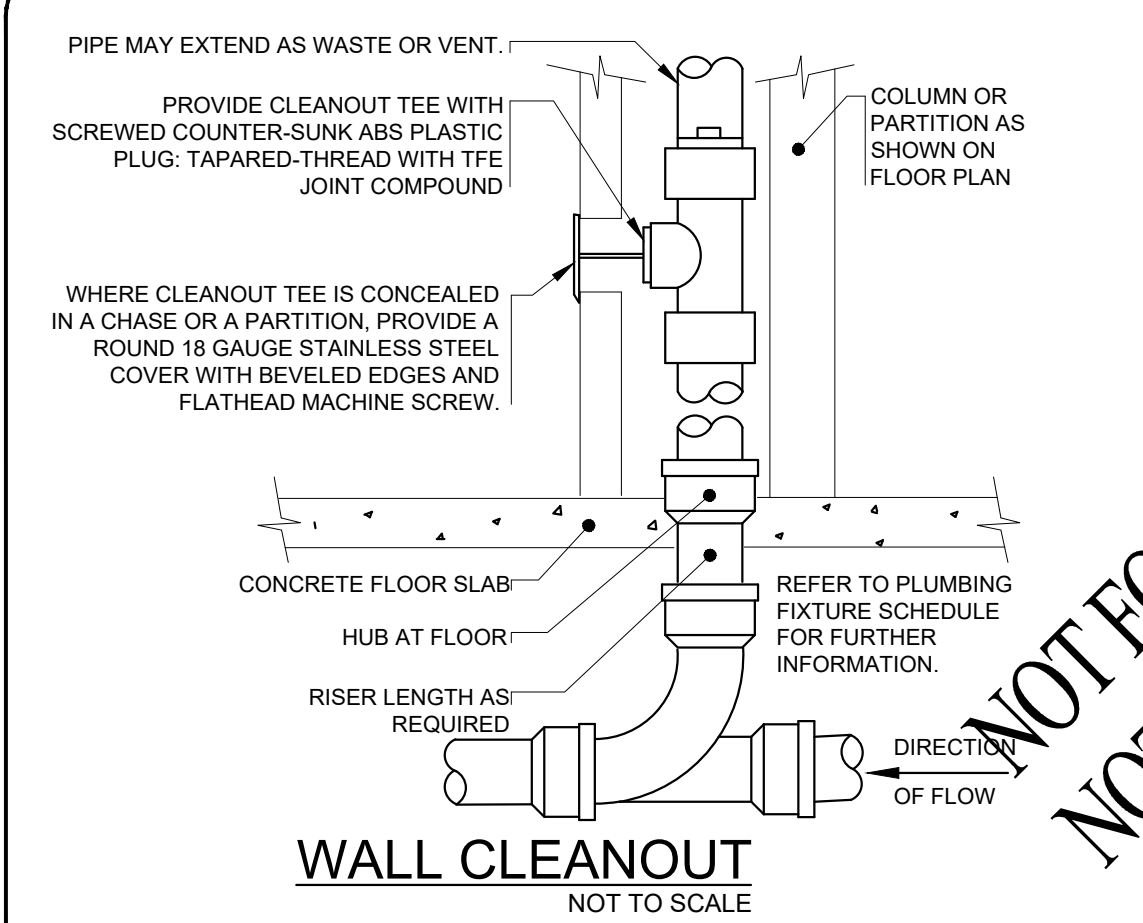
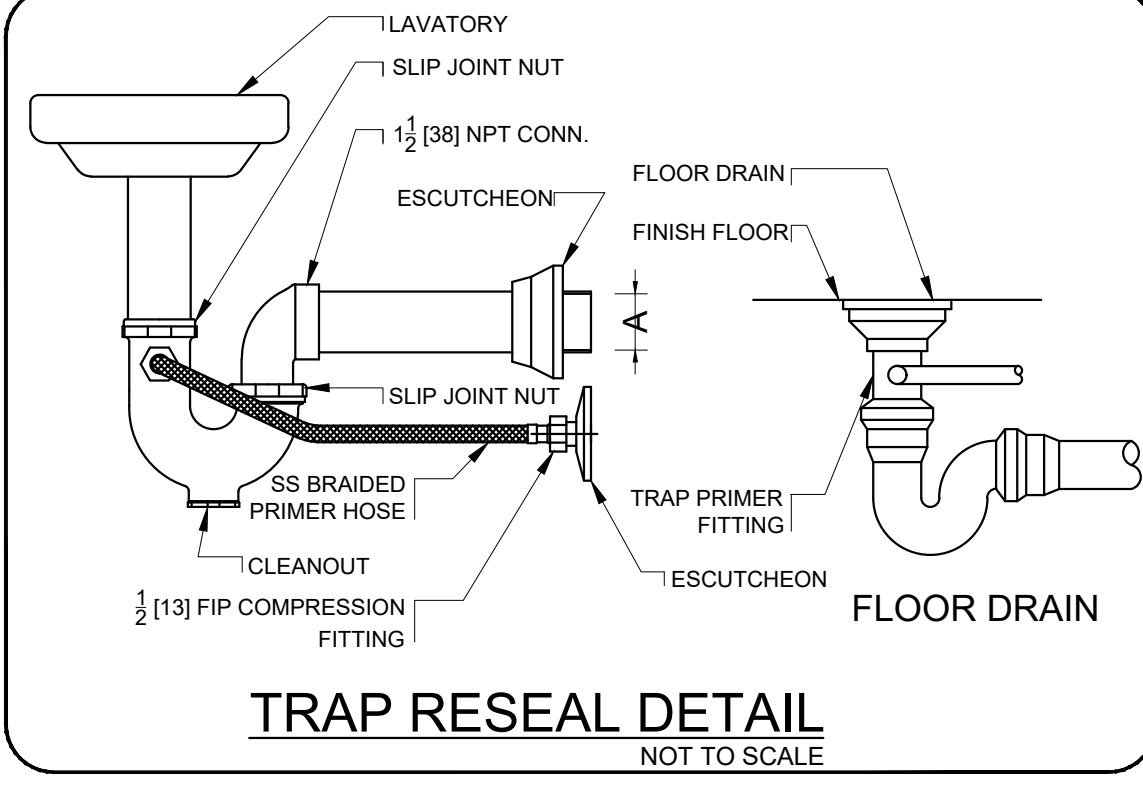
**ENERGY CONSERVATION NOTES**

- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, SECTION C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE C403.11.3 OF MINIMUM PIPE INSULATION THICKNESS.
- HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, C404.5.1. 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.
- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, C404.6.1, CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NOT DEMAND FOR HOT WATER.
- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, C404.7, THE CONTROLS SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO NOT GREATER THAN 104°F (40°C).



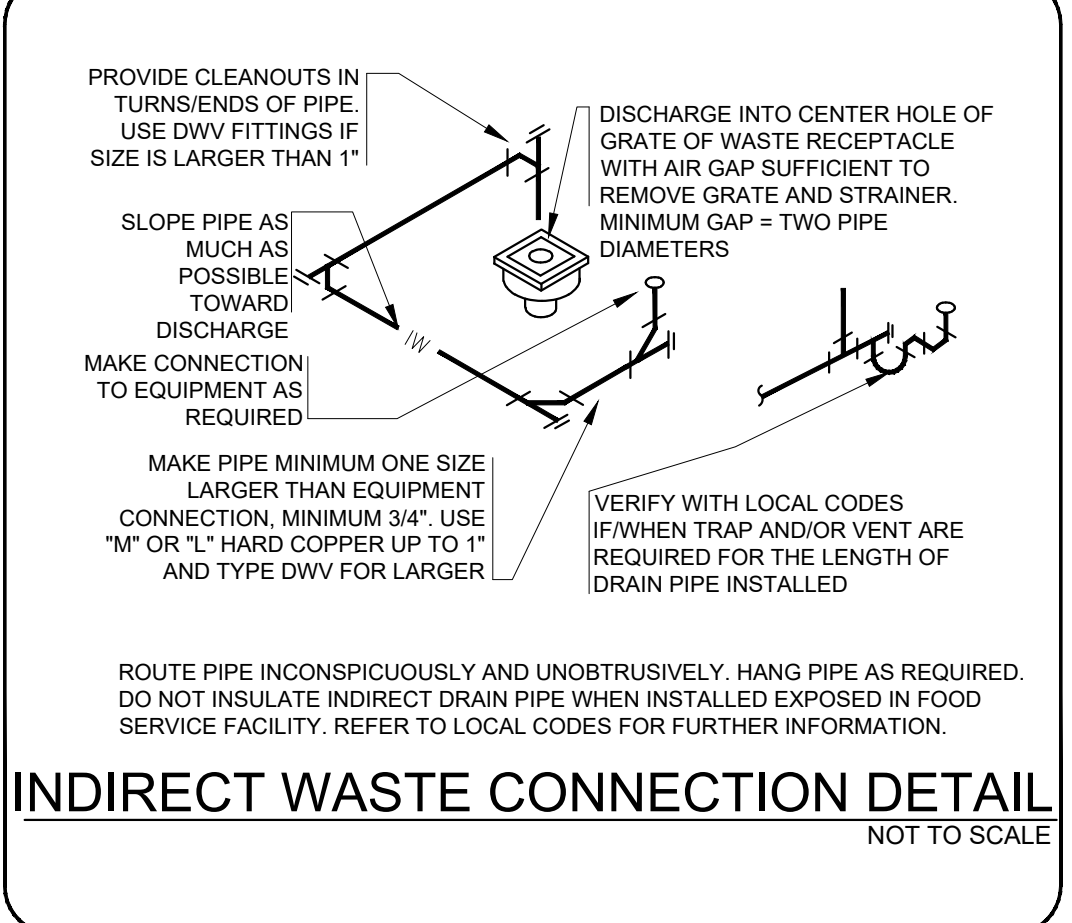
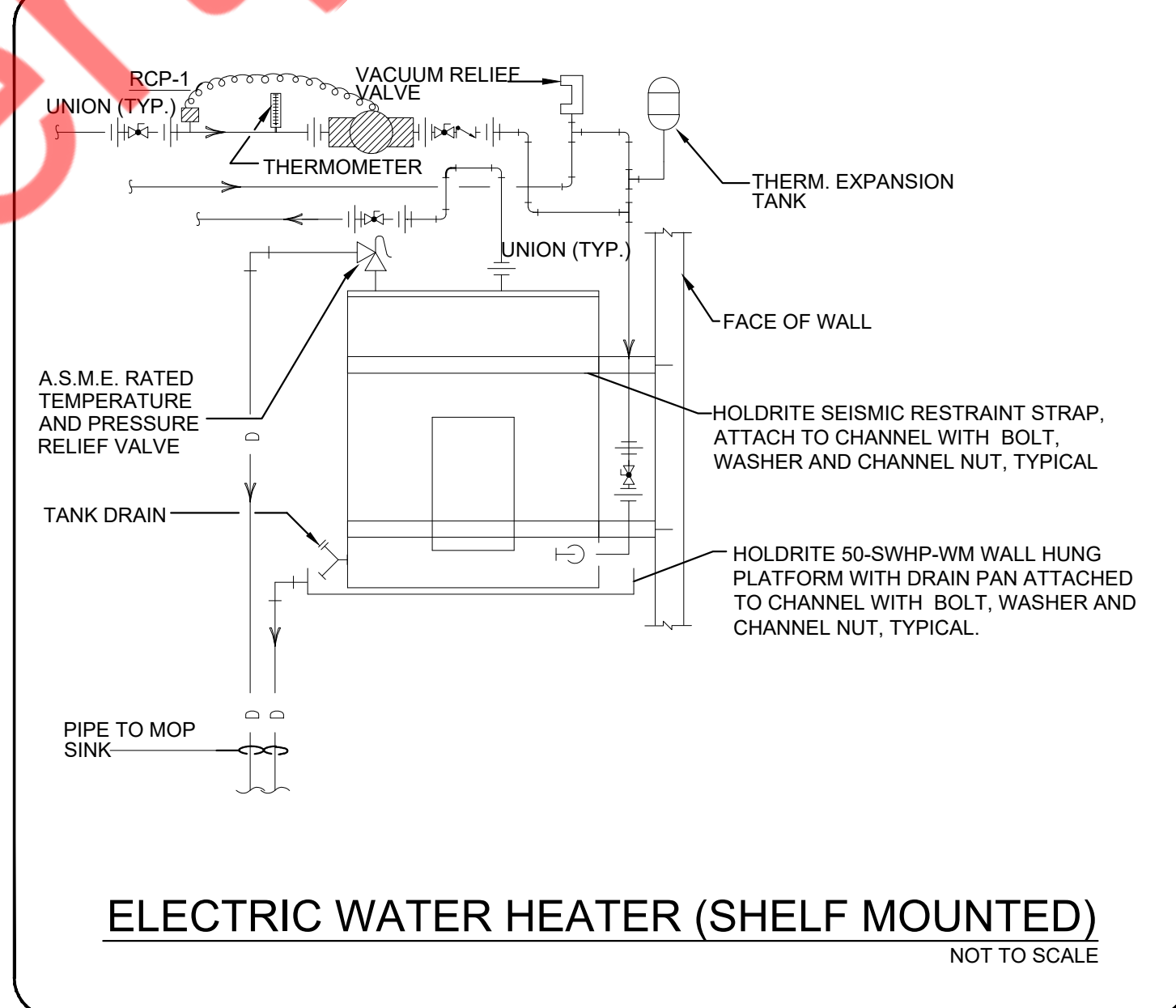
**FLOOR CLEANOUT DETAIL NOTES**

- LOCATE CLEANOUT AT THIS LOCATIONS:
  - BUILDING EXIT
  - AT TURNS OF PIPES GREATER THAN 45 DEGREES
  - AT 90° INTERVALS ON STRAIGHT RUNS
  - WHERE IS SHOWN ON PLANS
  - WHERE IS 18" CLEAR AROUND



**WALL CLEANOUT DETAIL NOTES**

- PROVIDE WCO WHERE SHOWN ON PLANS, AND ON SANITARY WASTE BRANCHES NOT SERVED WITH A FLOOR CLEANOUT
- LOCATE ABOVE FIXTURE FLOOR RIM WITHIN 4" OF FLOOR.
- CONSULT LOCAL CODES FOR OTHER WCO REQUIREMENTS.
- LONG SWEEP AT END OF LINE OR COMBINATION WYE AND EIGHT BEND IN RUN OF LINE
- CLEAN OUT FACE SHALL BE WITHIN 4" OF WALL SURFACE. PROVIDE A PIPE EXTENSION IF REQUIRED
- REFER TO PLUMBING FIXTURE SCHEDULE FOR FUTURE INFORMATION FOR (WCO)



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**PLUMBING NOTES, SCHEDULES & DETAILS**

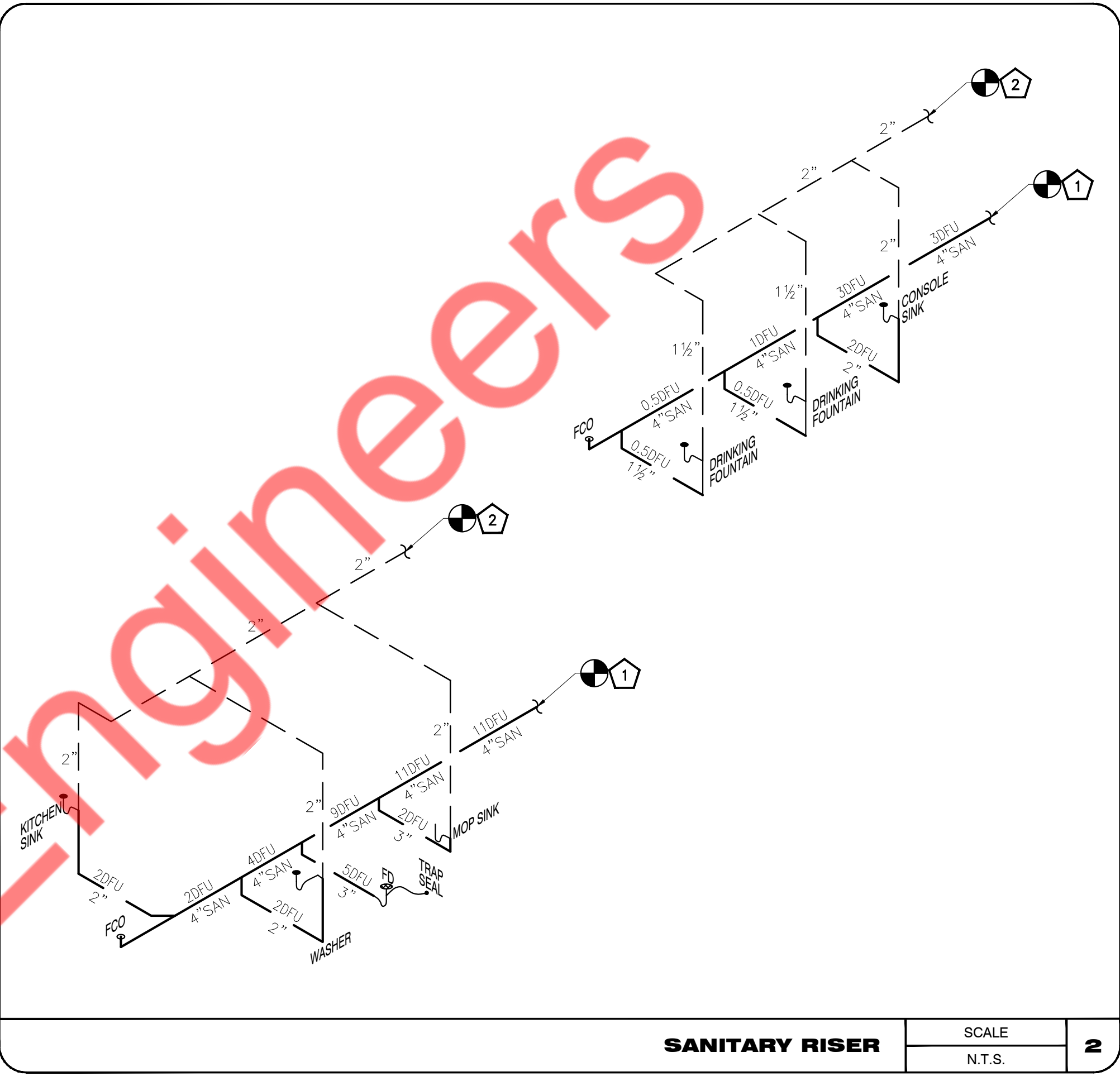
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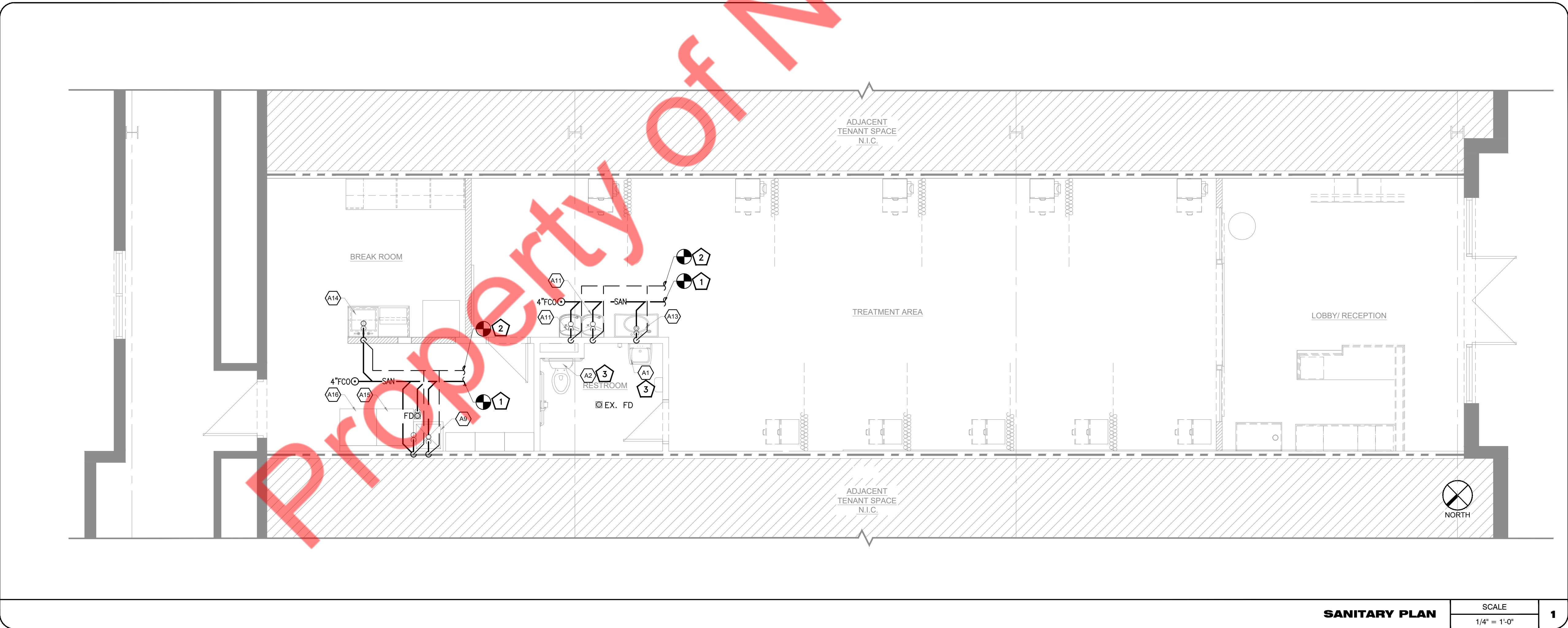
**FIXTURE BRANCH SCHEDULES**

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
WATER CLOSET (TANK)	E	--	E	E
LAVATORY (LAV)	E	E	E	E
SERVICE SINK (MS)	1/2"	1/2"	3"	2"
FLOOR DRAIN (FD)	--	--	3"	2"
DRINKING FOUNTAIN (DF)	1/2"	--	1-1/2"	1-1/2"

**SANITARY KEYED NOTES**

- 1 CONNECT NEW 4" SANITARY PIPE TO EXISTING SANITARY MAIN. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION AND INVERT IN FIELD.
- 2 CONNECT NEW 2" VENT PIPE TO EXISTING VENT PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION IN FIELD.
- 3 EXISTING FIXTURE TO REMAIN WITH ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.

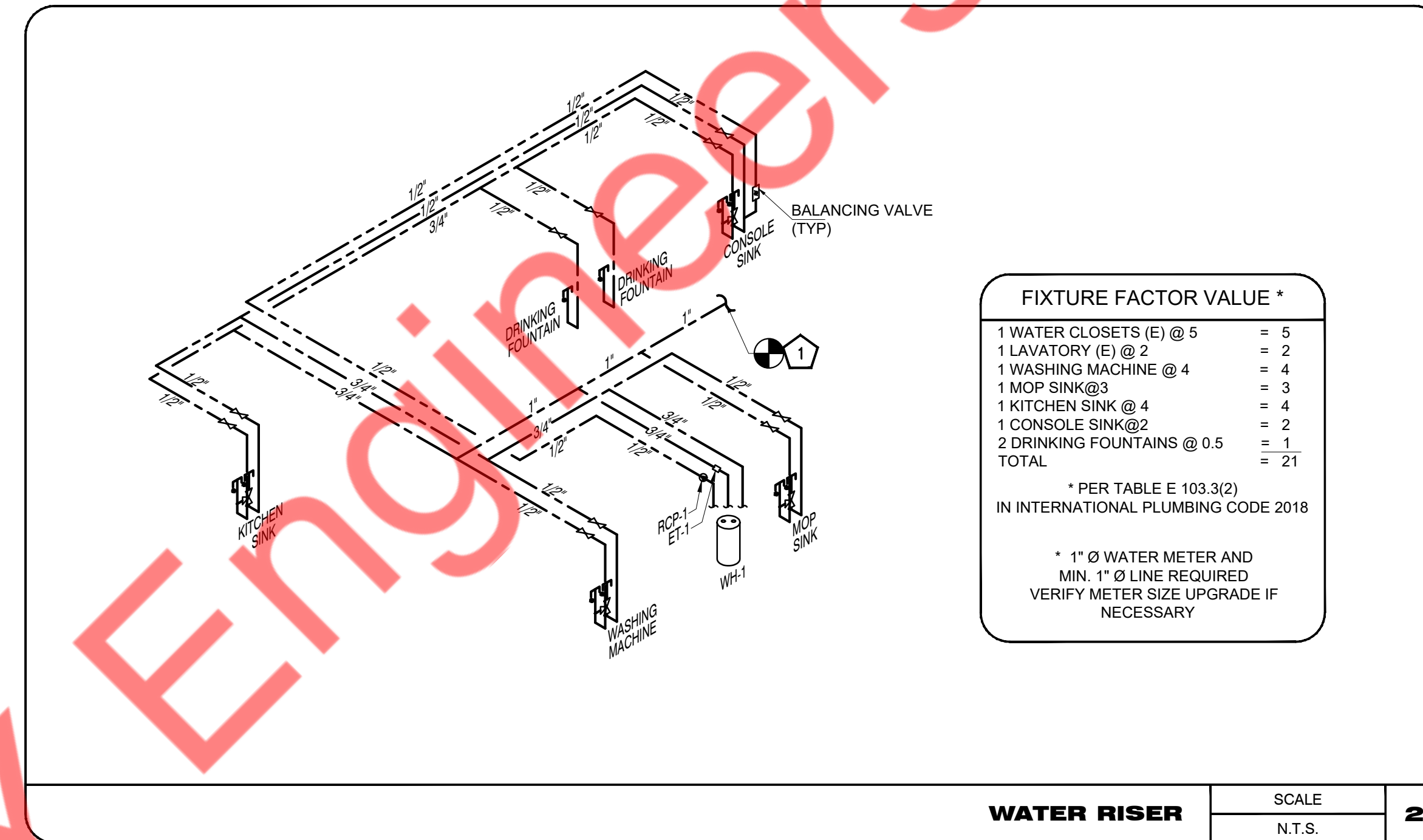
**SANITARY RISER** SCALE N.T.S. 2



**SANITARY PLAN** SCALE 1/4" = 1'-0" 1



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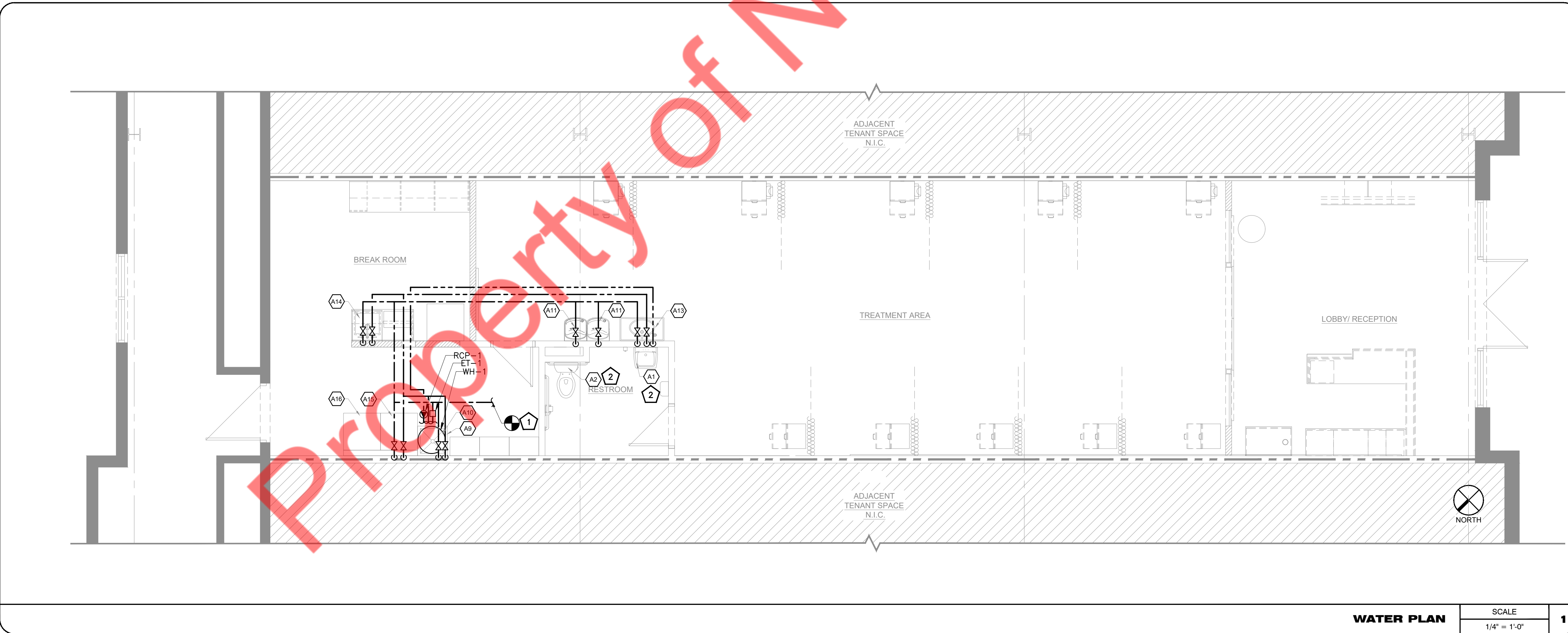
RECIRCULATION PUMP SCHEDULE	
MANUFACTURER & MODEL	GRUNDFOS UP 15-18 B5
EQUIPMENT TAG	RCP-1
STATUS	NEW
GPM	2
WATER TEMP. (°F)	140
PUMP TYPE	INLINE
MHP	86 WATTS
V/PH/Hz	115/1/60
RPM	2280
SERVICE FACTOR	1.0

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

WATER HEATER SCHEDULE	
MANUFACTURER	A.O. SMITH
MODEL	DEL-30
NO. ELEMENTS	1
EQUIPMENT TAG	WH-1
STATUS	NEW
CAPACITY	30 GALLON
TYPE	ELECTRICAL
KW	12
RECOVERY CAPACITY	54 GPH*
ENERGY FACTOR	0.92
VOLTS / PH / HZ	480/3/60
AMPERAGE	14.43
WEIGHT (EMPTY)	118 LBS.

\* SIMULTANEOUS ELEMENT OPERATION @ 90° F TEMPERATURE RISE  
INSTALL NEW EXPANSION TANK AMTROL MODEL THERM-X-TROL ST-5, 2.0 GAL PER LOCAL CODE REQUIREMENTS.

- WATER PLAN & RISER KEY NOTES**
- CONNECT NEW 1" CW LINE TO EXISTING WATER LINE. CONTRACTOR TO FIELD VERIFY SIZE & LOCATION. CONTRACTOR TO VERIFY WATER SUBMETER AND BACKFLOW PREVENTER REQUIREMENT WITH LANDLORD PRIOR TO BID.
  - EXISTING FIXTURE TO REMAIN WITH ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.



**WATER PLAN** SCALE 1/4" = 1'-0" **1**

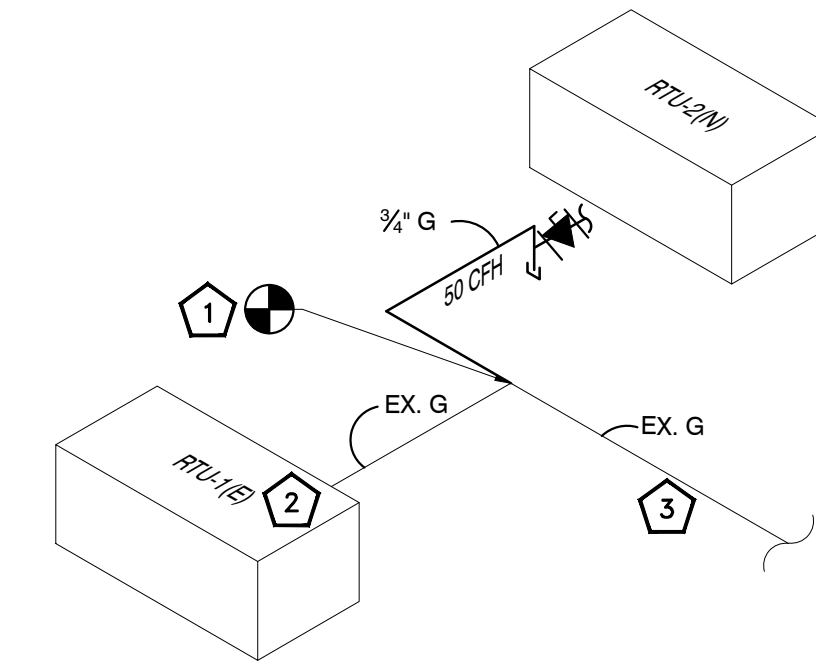


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**NATURAL GAS PIPING SYSTEM**  
 PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL. PROVIDE ALL UNIONS, 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 WITH 1/2" CAST IRON SCREWED FITTINGS
  2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
  3. VERIFY ALL EQUIPMENT BTU'S PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING INTERNATIONAL FUEL GAS CODE 2018, TABLE 402.4(2).

GAS PIPE SIZING PER TABLE 402.4(2) 2018 IFGC  
 EQUIVALENT LENGTH OF PIPE = 195+20+5 = 220 + FITTINGS (+40%) = 308 FEET



GAS SCHEDULE						
ITEM NO.	QTY.	DESCRIPTION	MANUFACTURER	MODEL	SIZE	BTU/HR.
-	1	RTU-1(E)	CARRIER	48TCEA07B2A6A0F3C0	1-1/4"	115,000
-	1	RTU-2(N)	CARRIER	48GCDM04A2A6-0A0A0 (OR EQUIVALENT)	3/4"	50,000
<b>TOTAL LOAD</b>						<b>165,000</b>

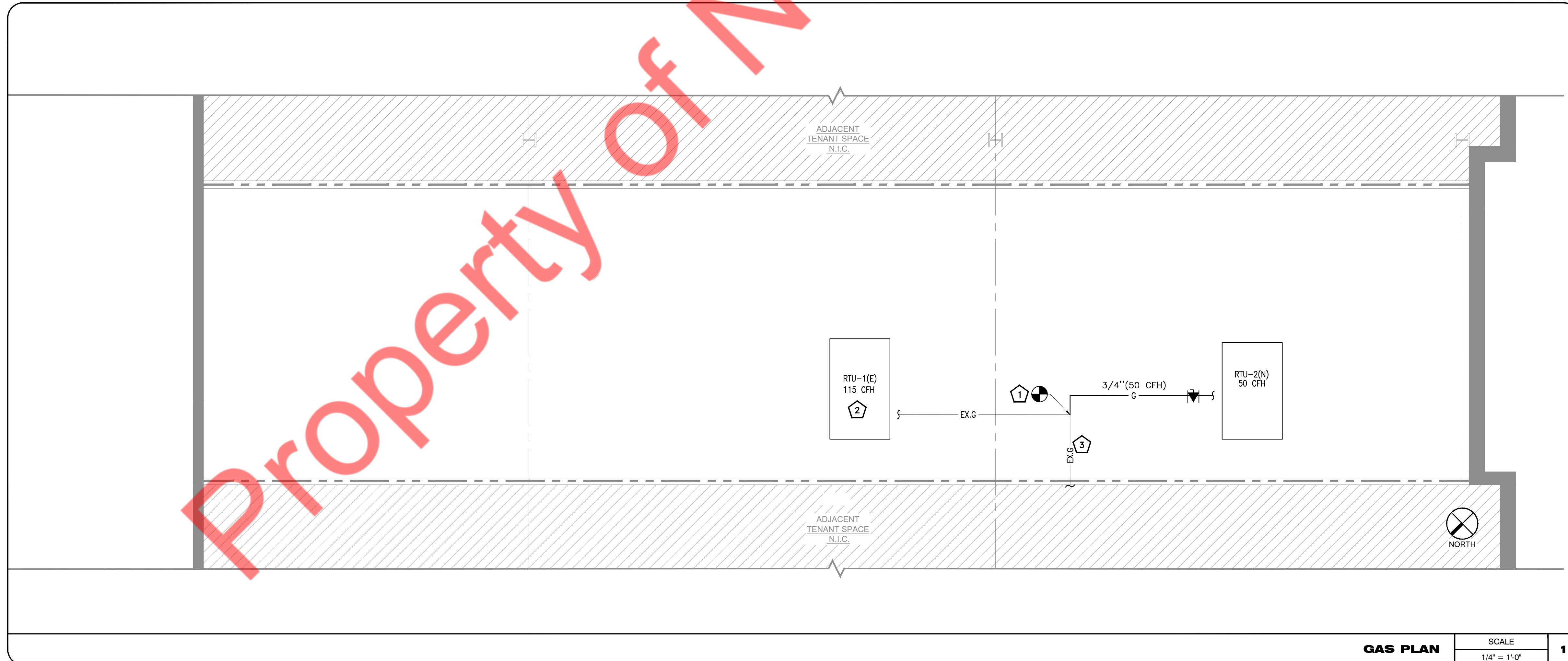
**GAS PIPING KEYS NOTES**

1. CONNECT NEW 3/4" GAS PIPING TO EXISTING GAS PIPING. CONTRACTOR TO FIELD VERIFY EXISTING SIZE, PRESSURE AND LOCATION IN FIELD AND UPGRADE IF REQUIRED.
2. EXISTING RTU TO REMAIN WITH EXISTING GAS PIPING. CONTRACTOR TO FIELD VERIFY EXISTING SIZE, PRESSURE AND LOCATION IN FIELD AND UPGRADE IF REQUIRED.
3. CONTRACTOR TO FIELD VERIFY EXISTING GAS PIPE LOCATION, SIZE, AVAILABLE PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR GAS FIRED EQUIPMENT.

**GAS RISER**

SCALE  
N.T.S.

2



**GAS PLAN**

SCALE  
1/4" = 1'-0"

1