

# MECHANICAL SYMBOLS LIST

EQUIPMENT SYMBOL	DESCRIPTION
	<b>AIR DEVICES</b>
	CEILING DIFFUSER SUPPLY
	CEILING DIFFUSER RETURN
	<b>DUCT ACCESSORIES</b>
	BACKDRAFT DAMPER
	VOLUME DAMPER W/ ACCESS DOOR
	FIRE DAMPER W/ ACCESS DOOR
	FIRE AND SMOKE DAMPER W/ ACCESS DOOR
	<b>CONTROLS AND SENSORS</b>
	THERMOSTAT
	DUCT SMOKE DETECTOR
	TEMPERATURE SENSOR
	HUMIDISTAT
	<b>DUCTWORK</b>
	AIR DUCT W/ 1.5" ACOUSTICAL LINING
	FLEXIBLE DUCT
	FLEXIBLE CONNECTION
	RECTANGULAR DUCT (WIDTH X DEPTH)
	SUPPLY AIR RECTANGULAR DUCT CROSS SECTION
	RETURN AIR RECTANGULAR DUCT CROSS SECTION
	ROUND DUCT (DIAMETER)
	ROUND DUCT CROSS SECTION
	POINT OF NEW CONNECTION

## ABBREVIATIONS

AL	ACOUSTIC LINING
BD	BACKDRAFT DAMPER
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
CFM	CUBIC FEET OF AIR PER MINUTE
CD	CONDENSATE DRAIN PIPE
DN	DOWN
(E)	EXISTING
EEER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FS	FIRE AND SMOKE DAMPER
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
RA	RETURN AIR
RG	RETURN AIR GRILLE
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
VD	VOLUME DAMPER

## NEW JERSEY BUILDING DEPARTMENT NOTES

- ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2021 INTERNATIONAL BUILDING CODE AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.
- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
  - VENTILATION FOR ALL AREA SHALL COMPLY WITH 2021 INTERNATIONAL MECHANICAL CODE CHAPTER 4.
  - AS PER ASHRAE 90.1, 2010 SECTION 9.0.1.3.1 CONSTRUCTION DOCUMENT SHALL REQUIRE THAT WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER.
  - AS PER ASHRAE 90.1, 2010 SECTION 6.7.3.2 CONSTRUCTION DOCUMENT SHALL REQUIRE THAT AN OPERATING MANUAL AND A MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
  - TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2021 INTERNATIONAL BUILDING CODE REQUIREMENTS AS OUTLINES IN SECTION (BC 1704).
  - 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.
  - TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2021 INTERNATIONAL MECHANICAL CODE:
    - VENTILATION SYSTEM BALANCING IMC 2021 - 403.1
    - SMOKE CONTROL SYSTEMS - IMC 2021 - 513
  - THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REQUIREMENTS OF THE STANDARD:
    - STANDARDS OF HEATING - IMC 2021 - 309.1
    - DUCT CONSTRUCTION AND INSTALLATION - IMC 2021 - 603
    - AIR INTAKES, EXHAUSTS AND RELIEF - IMC 2021 - 401.5 & 501.3
    - AIR FILTERS - IMC 2021 - 601
    - MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - IMC 2021 - 513
    - MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
  - 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 TO MAINTAIN THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY IMC 2021 - 403.3.
  - SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION IMC 2021 - 608 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
  - SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION IMC 2021 - 608 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
  - REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION & PROVIDE FIRE DAMPER FOR DUCT PENETRATING THOSE WALLS.

## GENERAL NOTES

- CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE ARCHITECT PRIOR TO SUBMITTING A PROPOSAL OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
- BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO THE OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
- THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
- THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON PLANS. WHEN NECESSARY, APPROPRIATE EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, MANNER, RESTORE EXISTING WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.
- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
- SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING TO STRUCTURE OR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE SLEET, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO TEE & MASON SERIES 8000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY WHEN SUPPORTING FROM BUILDING. USE BEAM CLAMPS IN APPROVED MANNER.
- PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, SCHEDULE, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.
- SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
- WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
- INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.

- REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND ACCESSIBLE LOCATIONS. PROVIDE ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.
- THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
- UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
- MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT TO FUNCTION PROPERLY UPON COMPLETION OF HIS WORK UPON SAID SYSTEM OR EQUIPMENT.
- SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.
- ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC. WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.
- INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
- THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
- SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
- WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY.

## DEFINITIONS:

- "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

## SCOPE OF WORK

- THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLANS) DESIGN, DETAIL DRAWINGS, NOTES, REFS, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
- THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS QUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING AND OTHER WORK WHICH IS NECESSARY TO REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

## GENERAL HVAC NOTES

### GENERAL:

- PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
- WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.

- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- LOCATE ALL TEMPERATURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP, AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
- ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
- ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
- LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
- ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
- ALL CONDENSATE DRAIN LINES FROM EACH ROOF TOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN OR GUTTER OR DOWN SPOUT PROVIDED THAT DOWNSPOUT DOES NOT DISCHARGE ONTO PAVEMENT. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.
- REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
- ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL AS THE MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.

## SPECIFICATIONS

### SECTION 0001 - NOTICE TO BIDDERS

- BIDDERS REPRESENTATIONS
  - THE BIDDER BY MAKING A BID REPRESENTS THAT:
    - THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS, TO THE EXTENT THAT SUCH DOCUMENTATION RELATES TO THE WORK FOR WHICH THE BID IS SUBMITTED, AND FOR OTHER PORTIONS OF THE PROJECT, IF ANY, BEING BID CONCURRENTLY OR PRESENTLY UNDER CONSTRUCTION.
    - THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.
    - THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.
    - SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.
    - THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.
  - THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND HAS CORRELATED THE BIDDER'S PERSONAL OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.
  - THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.
- RESPONSIBILITIES
  - THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.
  - THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.
  - THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUT-DOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUT-DOWNS ARE TO BE KEPT TO A MINIMUM.

### SECTION 230113 - METAL DUCTS

- CONSTRUCTION
  - EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.
  - ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 2" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:
    - WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.
    - RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.
    - HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 6 CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.
    - LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.
    - RECTANGULAR DUCTWORK 16 GAUGE AND HEAVIER, FILLED RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWS A5.2.
    - ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.
  - WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:
 

USG	MAX. SIDE INCHES	TRANSVERSE JOINTS AND BRACING
22	UP TO 12	5 SLIP DRIVE SLIP, ONE INCH POKET LOCK ON 8 FOOT CENTERS
22	13 TO 24	1"x1"x1/8" ANGLES ON 4 FOOT CENTERS
20	25 TO 35	1"x1"x1/8" ANGLES ON 2 FOOT CENTERS

### SECTION 0101 - QUALITY OF WORK

- WORKMANSHIP
    - ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
    - ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.
    - UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.
  - CODE COMPLIANCE
    - ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.
- END OF SECTION 0101
- ### SECTION 0102 - REQUIRED DOCUMENTS
- SHOP DRAWINGS
    - A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO: DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.
  - SUBMITTALS
    - EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.

### 1.3 RECORD DRAWINGS

- UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DETICATING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.

### 1.4 EQUIPMENT OPERATING INSTRUCTIONS

- ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
- THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.
- THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

### END OF SECTION 0102

### SECTION 230713 - DUCT INSULATION

#### 1.1 QUALITY ASSURANCE

- SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25 AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75 AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS, ACCORDING TO ASTM E84.

#### 1.2 FIELD QUALITY CONTROL

- FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.

#### 1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE:

- CONCEALED, RECTANGULAR, ROUND AND FLAT-OVAL, SUPPLY-RETURN, OUTDOOR-AND EXHAUST-AIR DUCT AND AIR PLENUM INSULATION:
- FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS:
 

	SA PLANUM	RA PLANUM
UNCONDITIONED SPACES:	R-6	R-6
EXTERIOR OF BUILDING:	R-12	R-12

#### 1.4 ITEMS NOT INSULATED:

- FIBROUS-GLASS DUCTS
- METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1.
- FACTORY-INSULATED FLEXIBLE DUCTS.
- FACTORY-INSULATED PLENUMS AND CASINGS.
- FLEXIBLE CONNECTORS.
- VIBRATION-CONTROL DEVICES.
- FACTORY-INSULATED ACCESS PANELS AND DOORS.
- DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

#### 1.5 PRODUCTS

- THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:
  - JOHNS-MANVILLE
  - OWENS-CORNING

#### 1.6 ACOUSTICAL TREATMENT

- WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.

### END OF SECTION 230713

### SECTION 233113 - METAL DUCTS

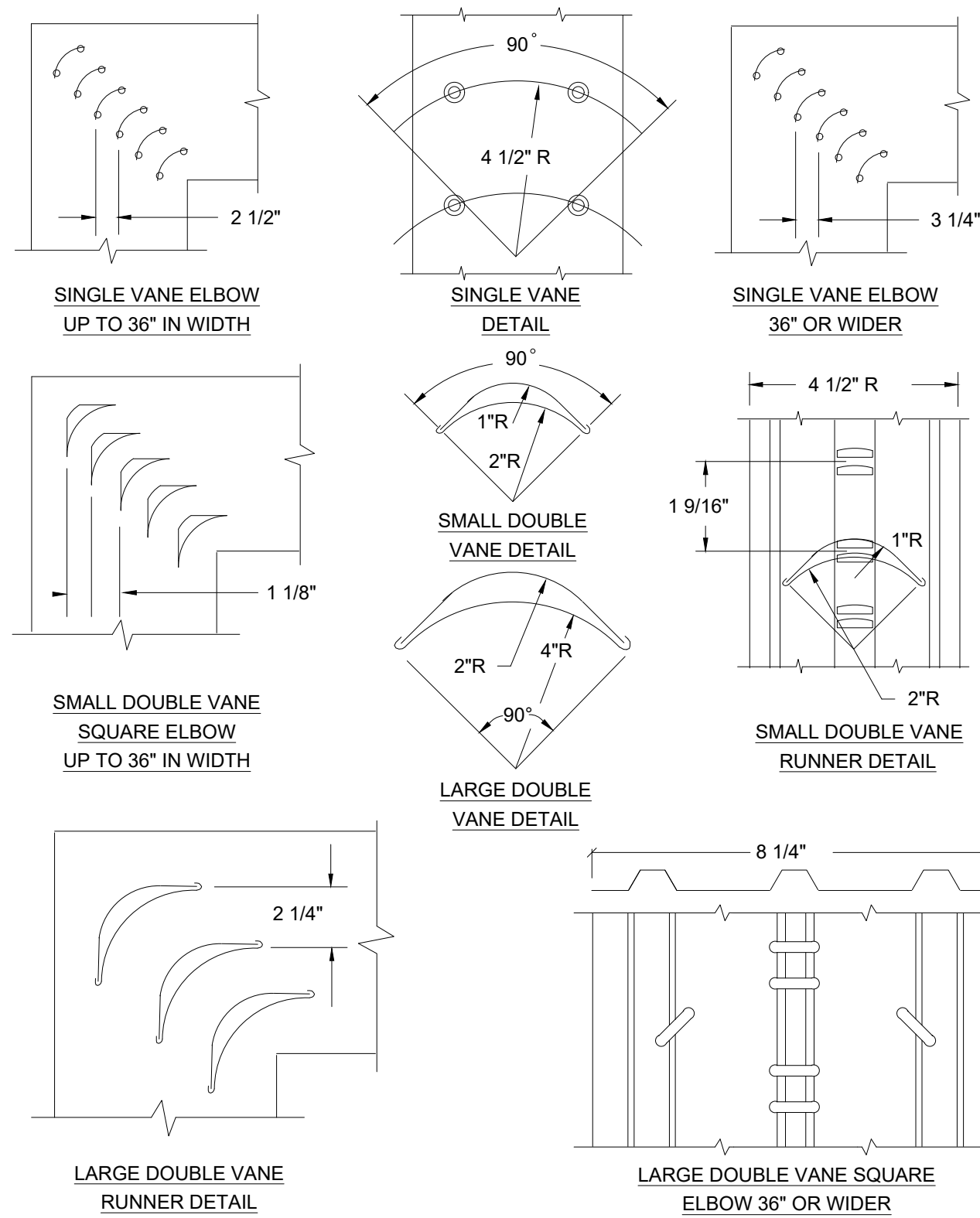
#### 1.1 CONSTRUCTION

- EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.
- ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 2" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:
  - WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.
  - RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.
  - HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 6 CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.
  - LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.
  - RECTANGULAR DUCTWORK 16 GAUGE AND HEAVIER, FILLED RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWS A5.2.
  - ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.
- WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:
 

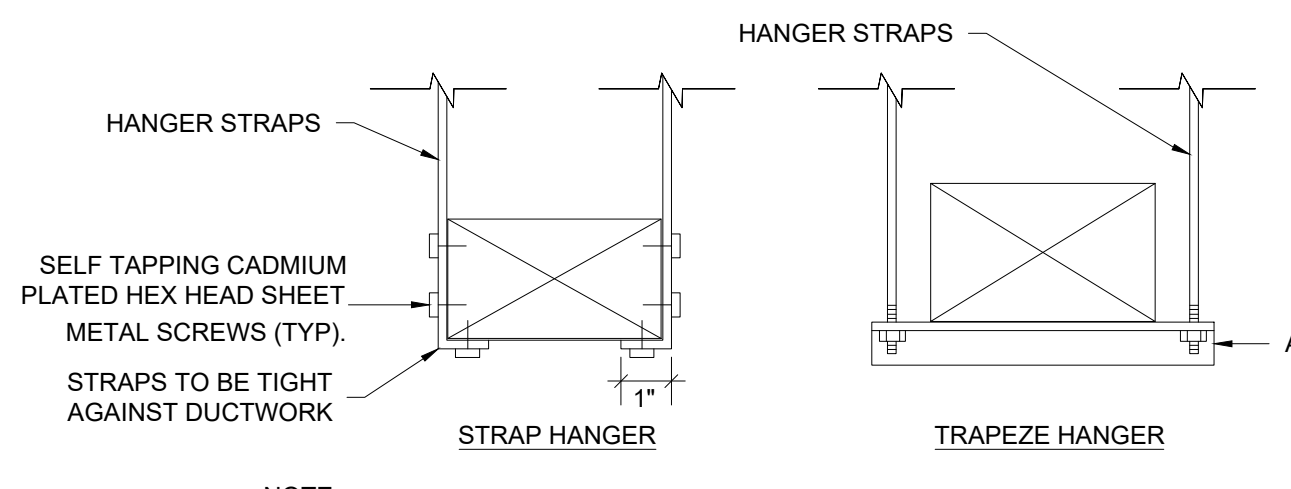
USG	MAX. SIDE INCHES	TRANSVERSE JOINTS AND BRACING
22	UP TO 12	5 SLIP DRIVE SLIP, ONE INCH POKET LOCK ON 8 FOOT CENTERS
22	13 TO 24	1"x1"x1/8" ANGLES ON 4 FOOT CENTERS
20	25 TO 35	1"x1"x1/8" ANGLES ON 2 FOOT CENTERS

#### 1.2 QUALITY ASSURANCE

- THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.
- EXECUTION
  - THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
  - THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.
  - PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.
  - THE CONTRACTOR SHALL HAVE TESTING AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS



1 LOW VELOCITY DUCTWORK ELBOWS  
M-0.2 N.T.S

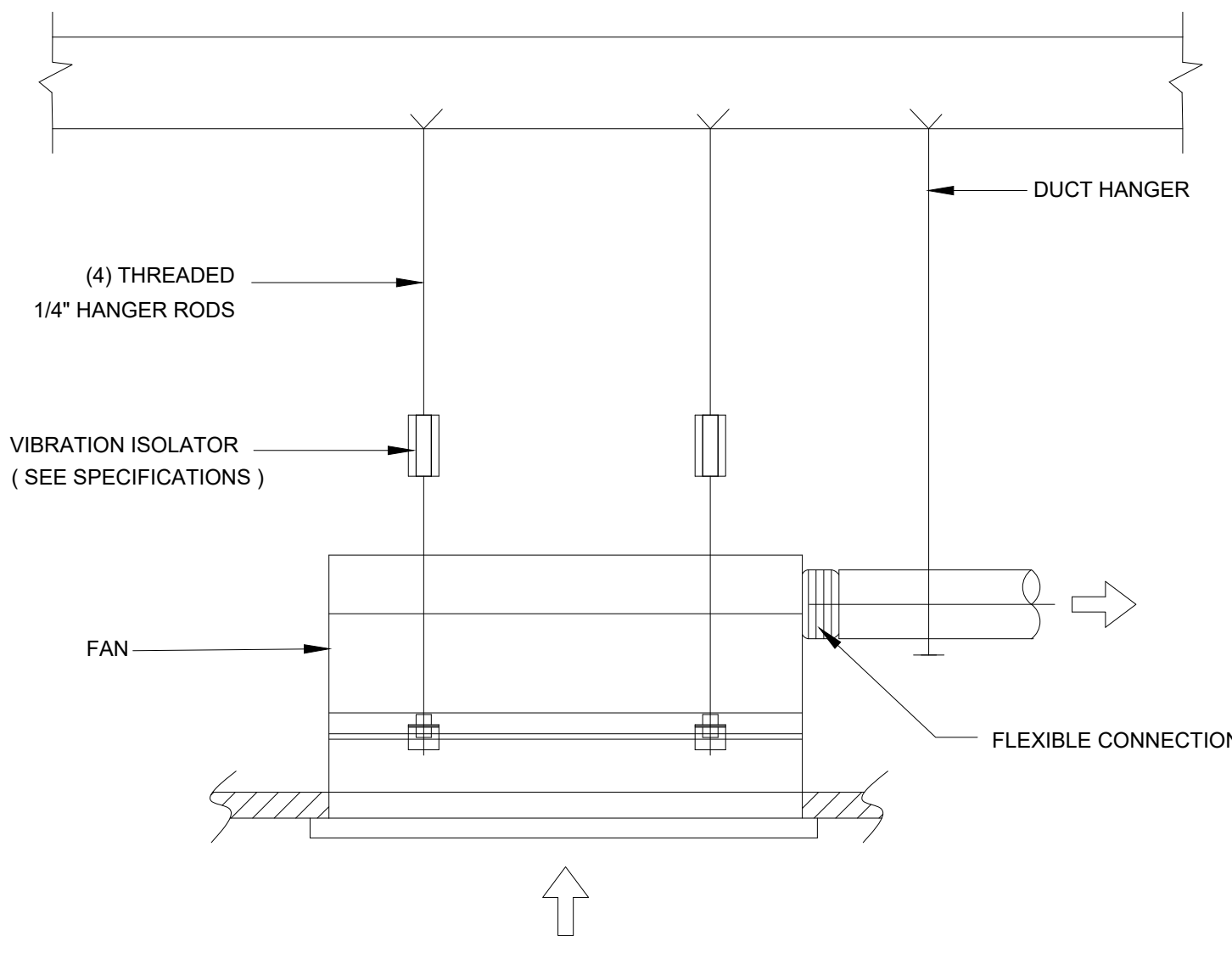


NOTE:  
NO POP RIVETS ALLOWED, USE SELF-TAPPING SHEETMETAL SCREWS ONLY.

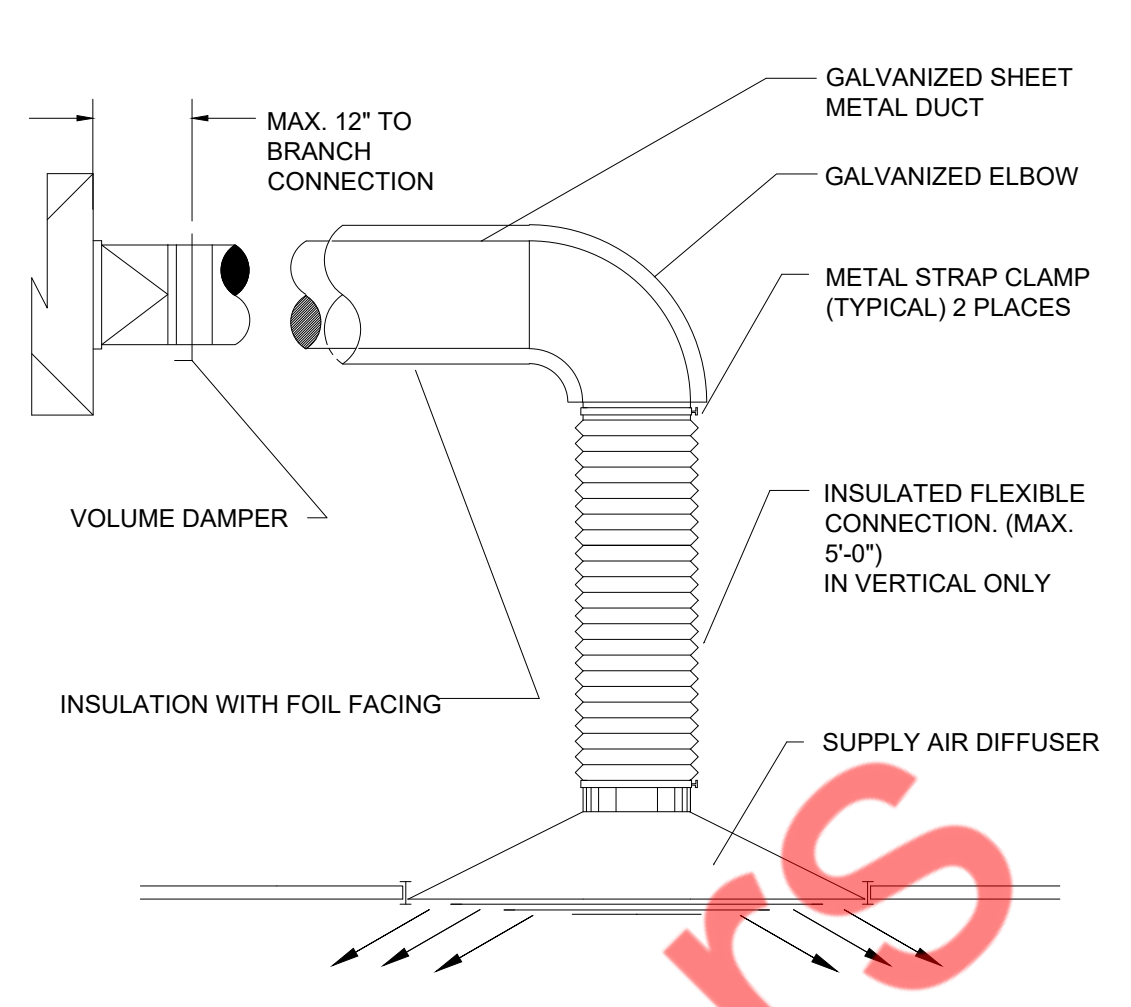
MAX. SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING
30"	1"x18" GAUGE STRAP	NONE REQUIRED	10'-0"
36"	1/4" ROD	1-1/2"x1-1/2"x1/8"	8'-0"
48"	1/4" ROD	2"x2"x1/8"	8'-0"
60"	5/16" ROD	2"x2"x1/8"	8'-0"
84"	3/8" ROD	2"x2"x1/8"	8'-0"

\*FOR RECTANGULAR DUCTS

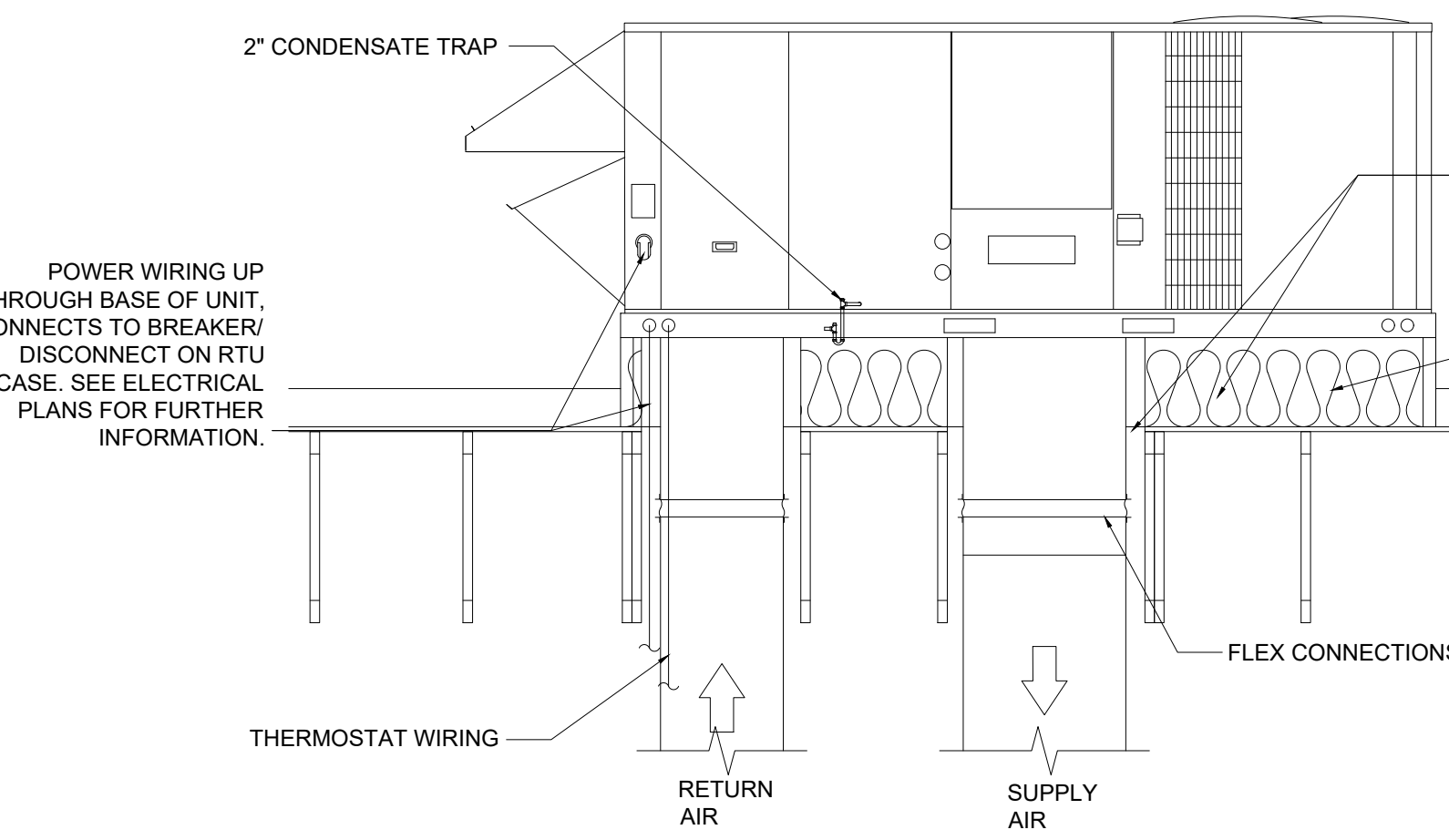
2 DUCT HANGING DETAILS  
M-0.2 N.T.S



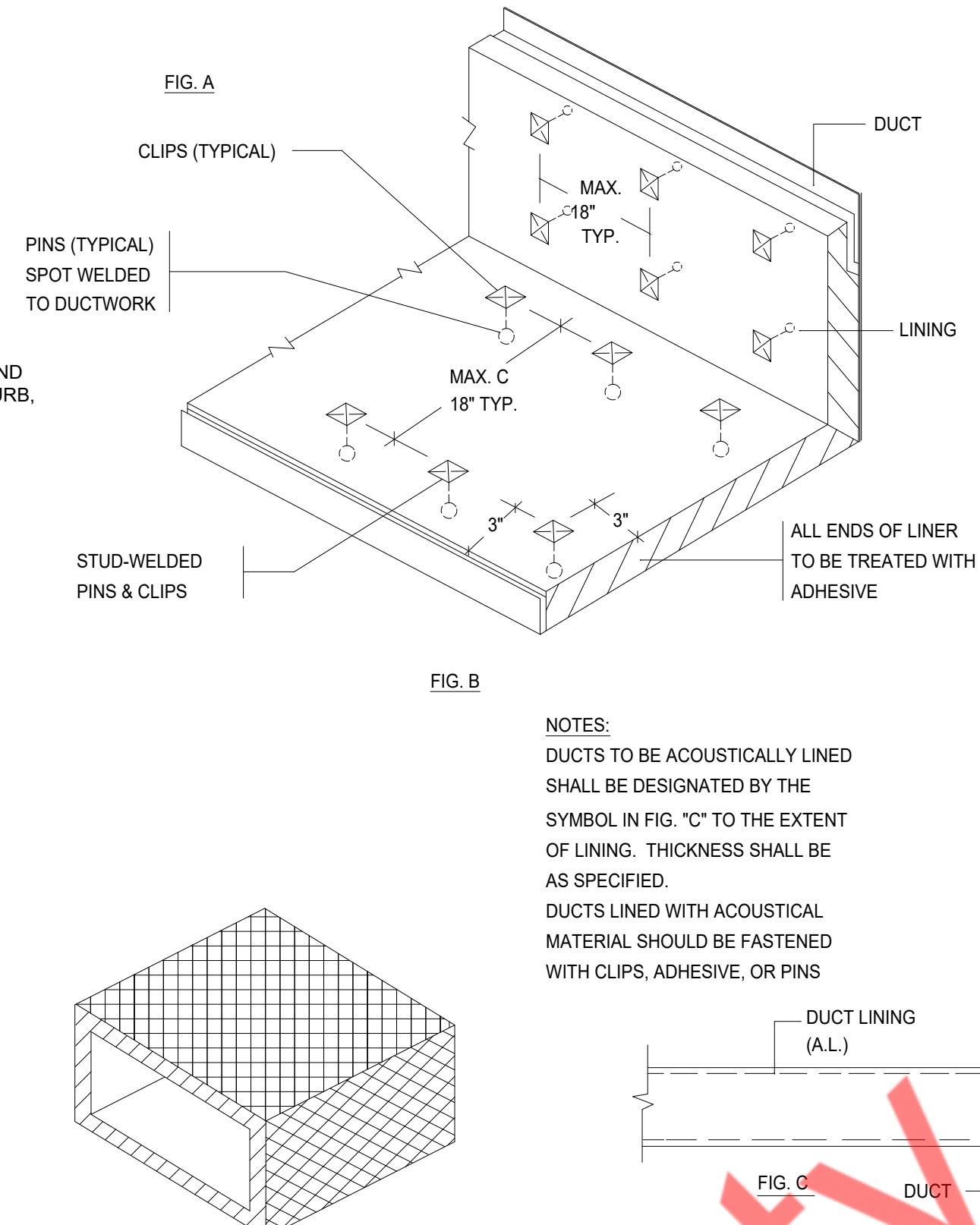
3 CEILING FAN HANGING SUPPORT DETAIL  
M-0.2 N.T.S



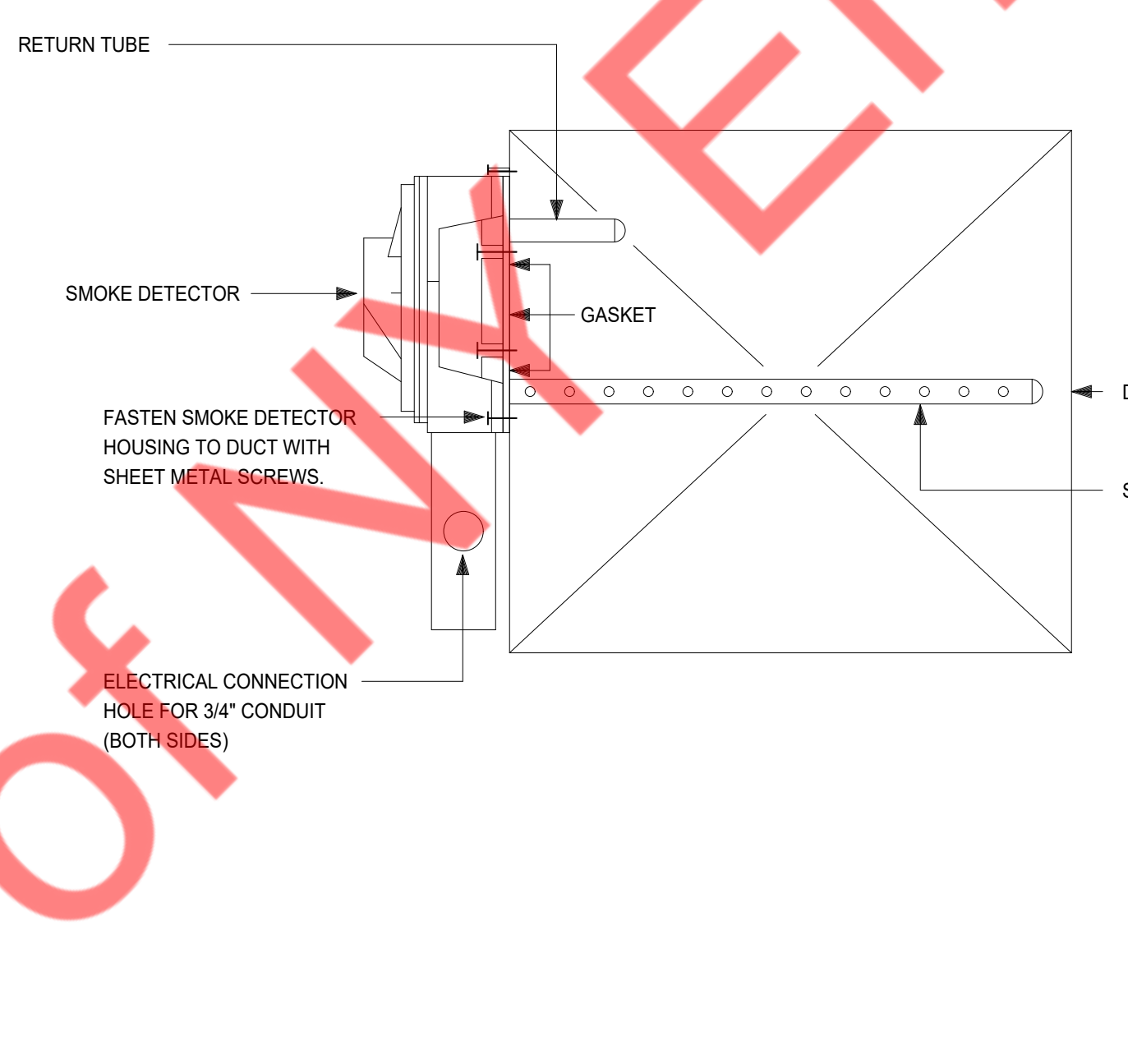
4 DIFFUSER DETAILS  
M-0.2 N.T.S



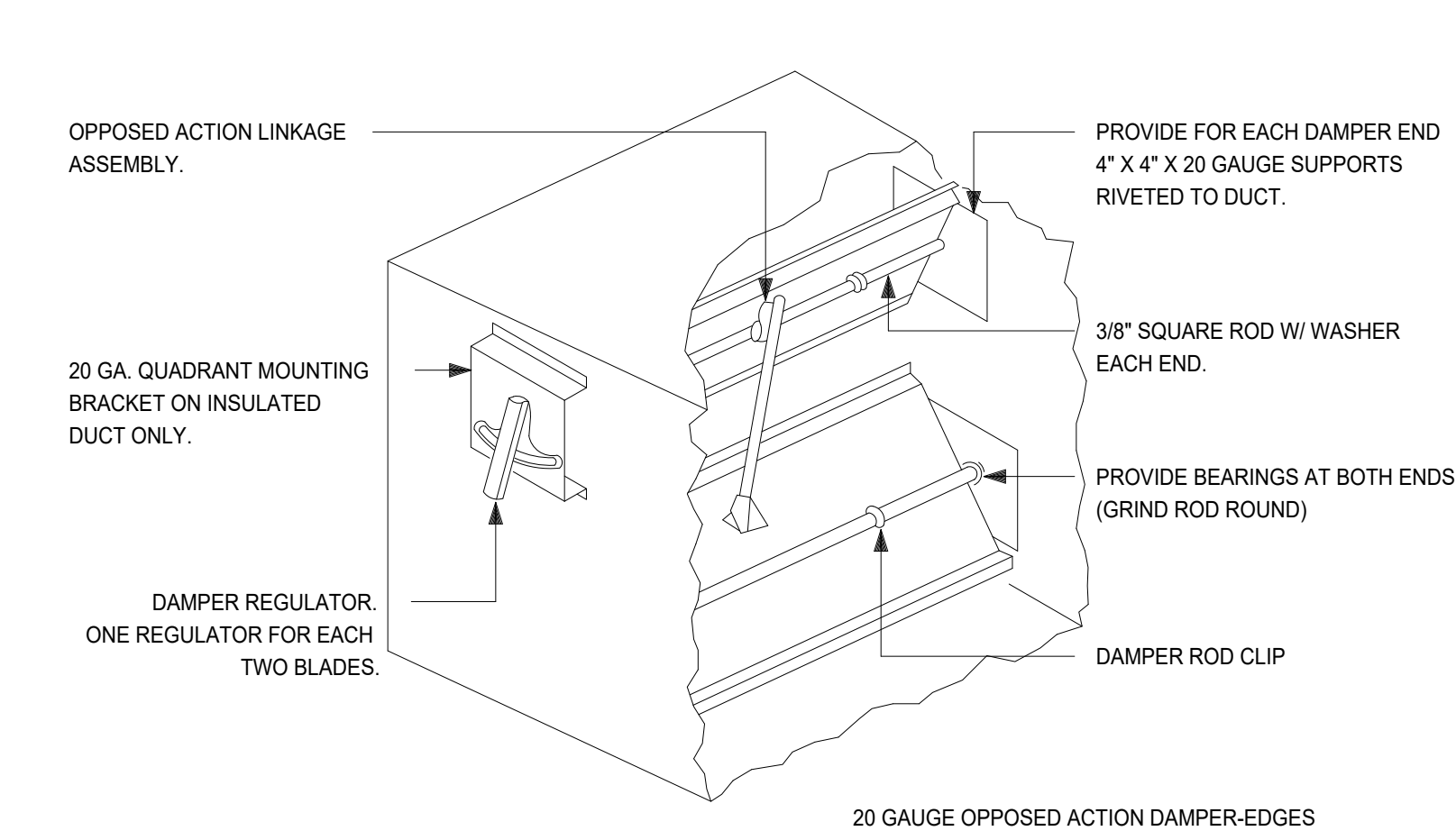
5 ROOF TOP UNIT DETAILS  
M-0.2 N.T.S



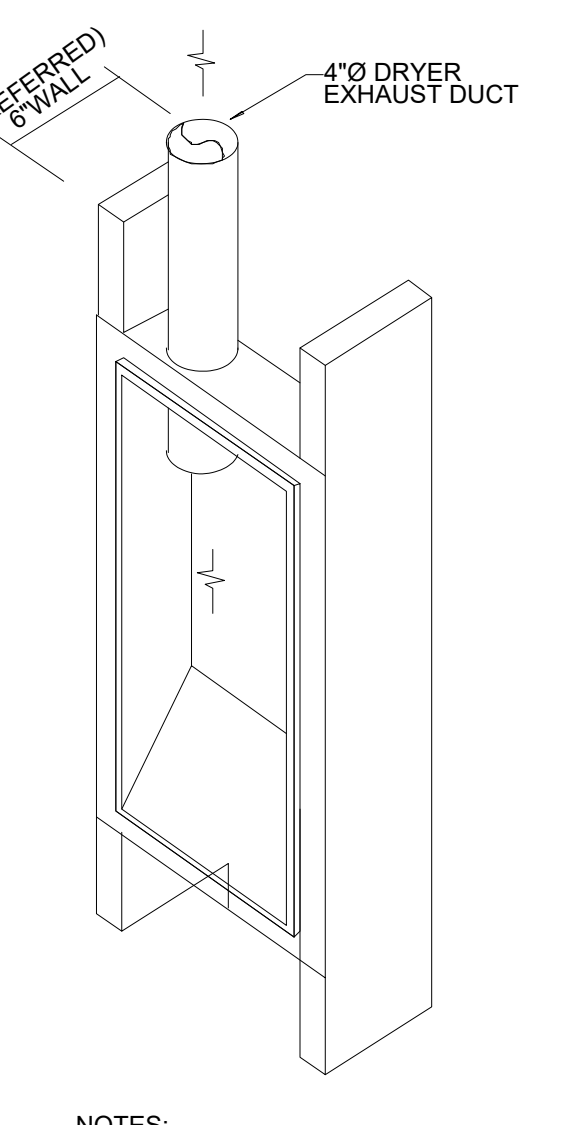
6 ACOUSTICAL TREATMENT DUCT LINING  
M-0.2 N.T.S



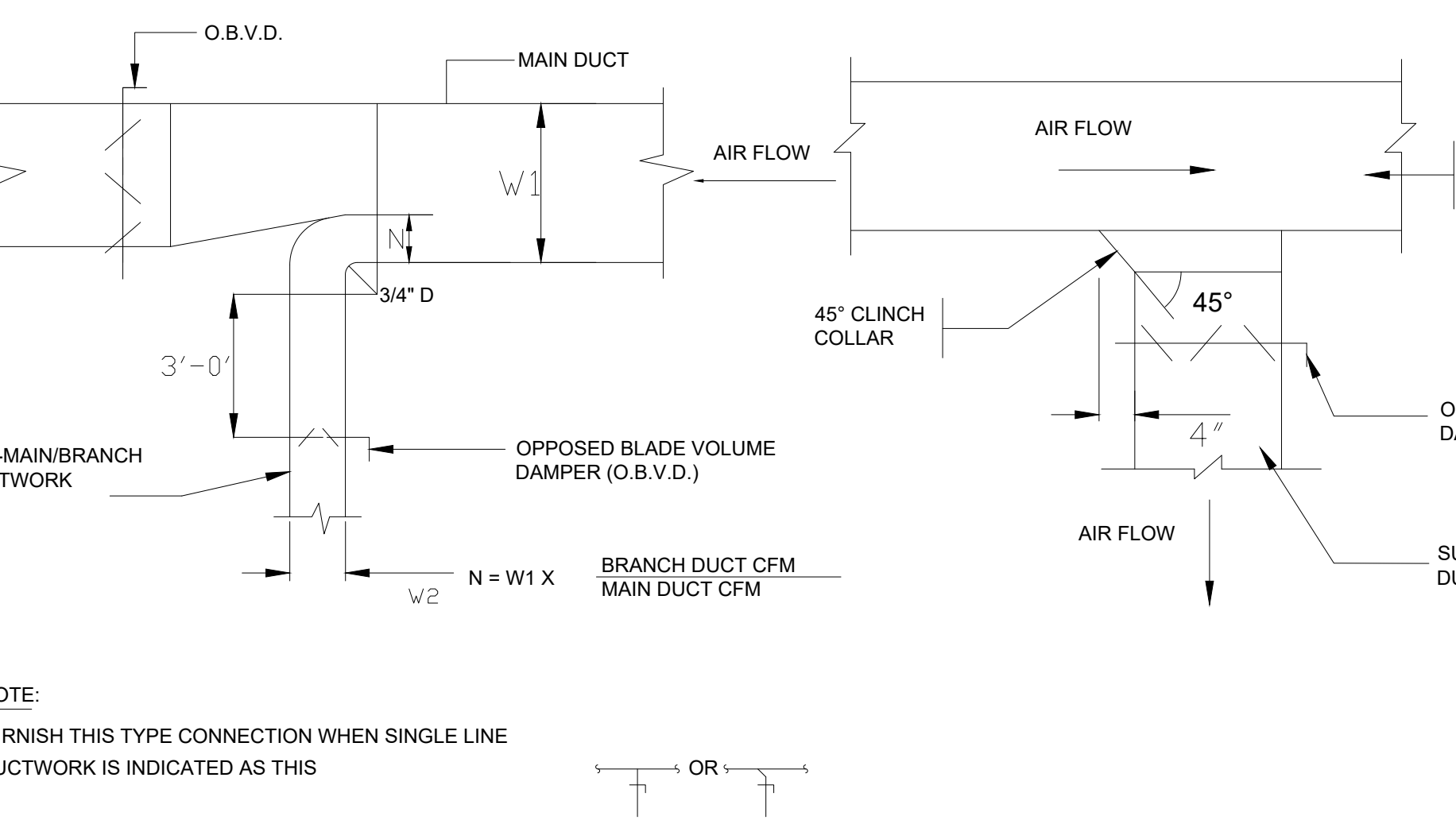
7 SMOKE DETECTOR MOUNTING DETAIL  
M-0.2 N.T.S



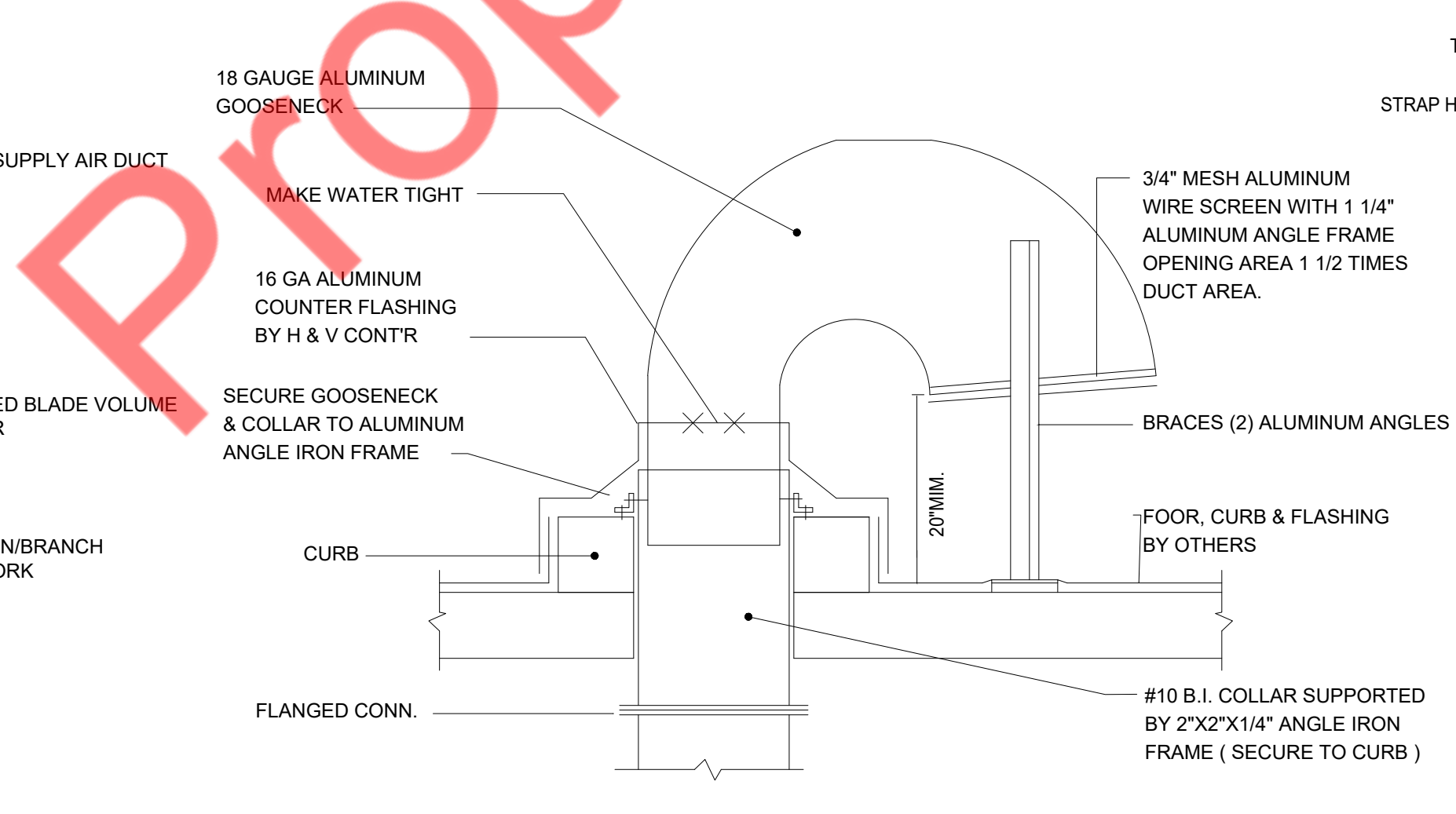
8 LOW PRESSURE BALANCING DAMPER  
M-0.2 N.T.S



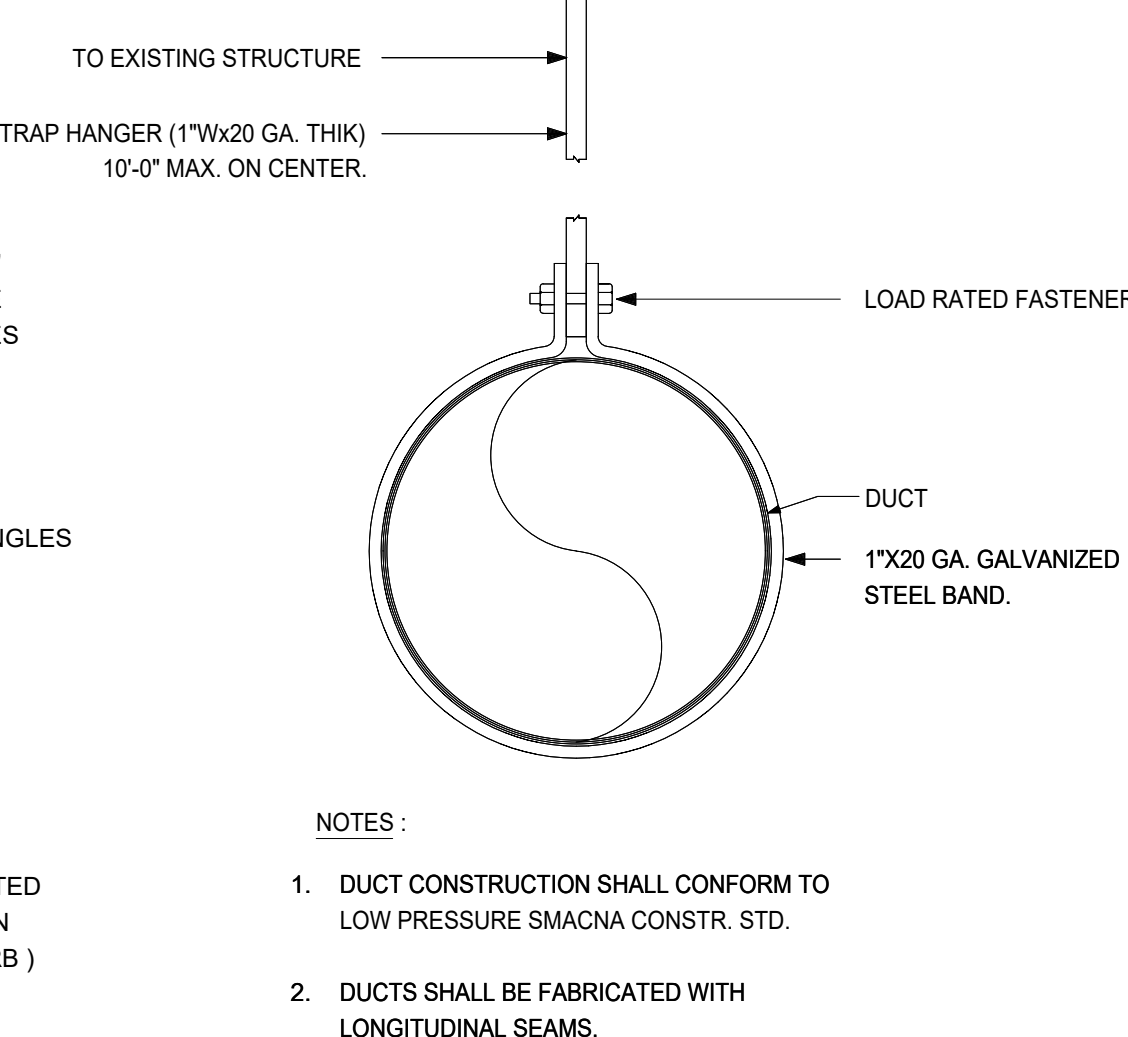
9 DRYER VENT BOX  
M-0.2 N.T.S



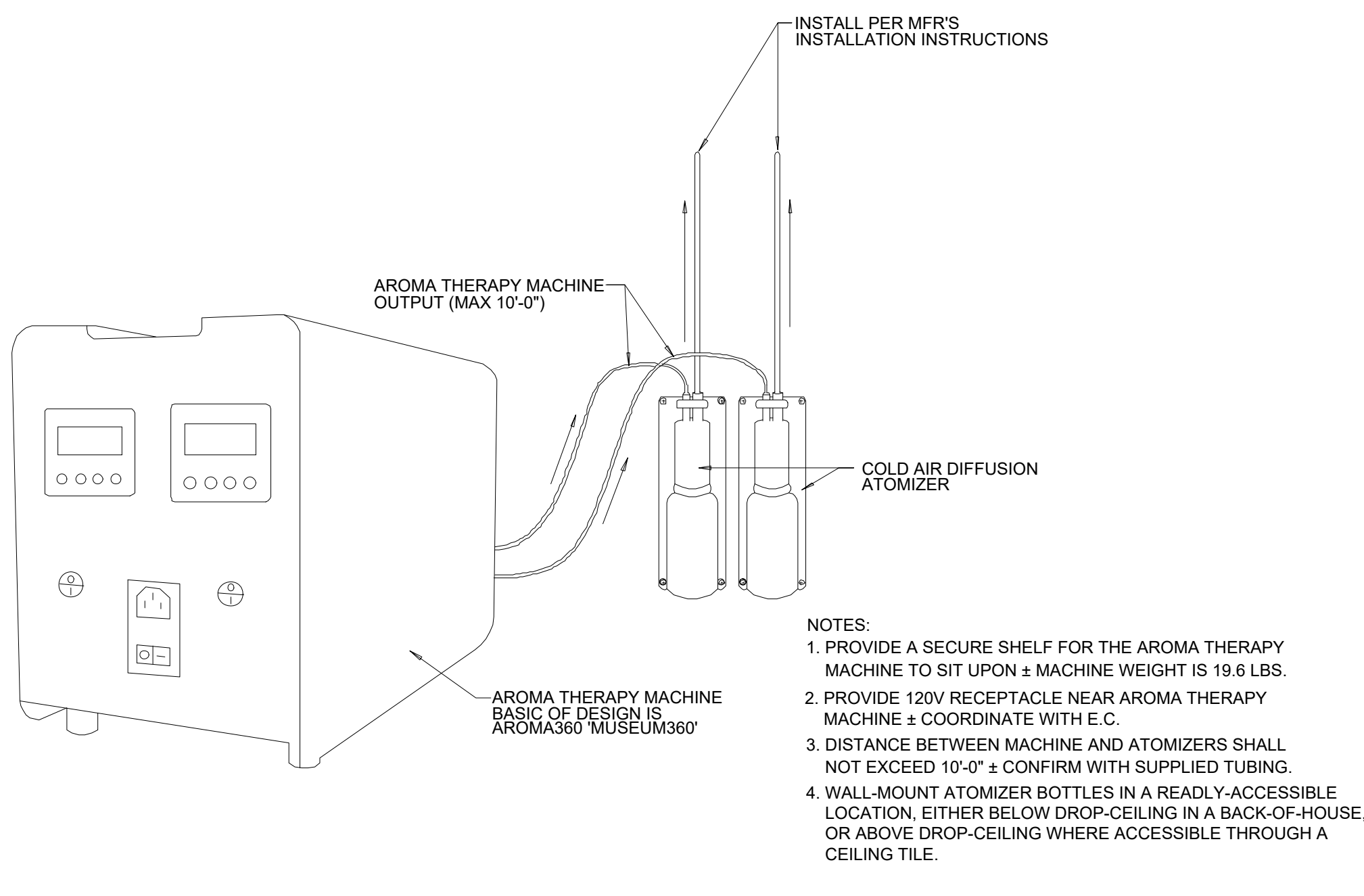
10 SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION  
M-0.2 N.T.S



11 TYPICAL DETAIL OF ROOF GOOSENECK  
M-0.2 N.T.S



12 ROUND DUCT HANGING DETAIL  
M-0.2 N.T.S



13 AROMA THERAPY UNIT DETAIL  
M-0.2 N.T.S

CONSULTANT (ENGINEER)  
**NY ENGINEERS**  
NEARBY ENGINEERS  
382 NE 191ST STREET SUITE  
49674, MIAMI, FL 33179  
PH-914.257.3455  
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 262696910. EXPIRATION DATE: 04/30/2026

CONTRACTOR'S NOTES:  
WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

DATE	REVISION
07/14/2025	IFC SET
05/29/2025	REVISION 1
05/16/2025	CLIENT COMMENTS

PROJECT INFORMATION:	
PROJECT NUMBER:	12115-24
DRAWN BY:	NYE
REVIEWED BY:	NYE
TOTAL SQ. FT.:	3,519
DATE:	04/25/25

DRAWING TITLE:  
**MECHANICAL ABBREVIATION, LEGENDS & DETAILS**

DRAWING NUMBER:  
**M-0.2**

LOCATION: N. BRUNSWICK, NJ

PROJECT: VIO MED SPA

PLOT SCALE: 1:1





**SPRINKLER SPECIFICATIONS**

**SPRINKLER GENERAL NOTES**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS**

- A. THE SPRINKLER CONTRACTOR SHALL BE A LICENSED, AUTHORIZED INSTALLER OF SPRINKLER SYSTEMS AND SHALL HAVE HAD A MINIMUM OF FIVE YEARS EXPERIENCE IN THE INSTALLATION OF SPRINKLER SYSTEMS IN THE CITY CODE.
- B. BEFORE SUBMITTING HIS BID, THE SPRINKLER CONTRACTOR SHALL VISIT THE SITE AND SHALL FULLY FAMILIARIZE HIMSELF WITH AND BECOME FAMILIAR WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. CONTRACTOR SHALL PERFORM THIS PRIOR TO SUBMITTING HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- C. UPON REVIEW OF THE DRAWINGS AND SPECIFICATIONS, PRIOR TO SUBMITTING HIS PROPOSAL, THE SPRINKLER CONTRACTOR SHALL INFORM ARCHITECT AND/OR ENGINEER OF ANY DISCREPANCIES OR REQUEST CLARIFICATION IN WRITING, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE SPRINKLER SYSTEM INSTALLATION. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS SHOULD SUCH PROCEDURE NOT BE FOLLOWED.
- D. THE SCHEDULING OF THE SPRINKLER WORK SHALL BE COORDINATED WITH BUILDING MANAGEMENT, WITH OTHER CONTRACTORS AND WITH THE ENGINEER.
- E. NECESSARY SHUT-DOWNS OF BASE BUILDING SPRINKLER SYSTEM MUST BE COORDINATED WITH BUILDING MANAGEMENT. SHUT-DOWNS OF BASE BUILDING SYSTEMS SHALL TAKE PLACE AFTER OR BEFORE NORMAL BUSINESS HOURS AND SHALL BE CONSIDERED OVERTIME WORK. THE CONTRACTOR MUST GIVE BUILDING MANAGEMENT AND CITY FIRE DEPARTMENT 48 HOURS NOTICE PRIOR TO SHUT-DOWN OF SPRINKLER, OR OTHER SYSTEMS.

**1.02 WORK INCLUDED**

- A. WORK SHALL INCLUDE ALL SPRINKLER WORK FURNISHED AND INSTALLED AS INDICATED ON THE PLANS AND AS SPECIFIED HEREIN.
  1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE CITY BUILDING CODE, N.F.P.A. STANDARD 13-2019, NEW JERSEY FIRE DEPARTMENT AND OWNERS INSURANCE RATINGS ORGANIZATION.
  2. PROVIDE COMPLETE NEW SPRINKLER SYSTEM CONNECTING TO EXISTING SPRINKLER SYSTEM ALARM CHECK VALVE ASSEMBLY.
  3. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF WORK. SCALED DIMENSIONS SHALL NOT BE USED. ANY DIMENSIONS NOT SHOWN SHALL BE OBTAINED FROM FIELD MEASUREMENTS.
  4. PROVIDE COMPUTER GENERATED HYDRAULIC CALCULATIONS IN ACCORDANCE WITH NEW JERSEY BUILDING CODE OR LOCAL A.H.J. BUILDING DEPARTMENT AND NFPA STANDARDS.

**1.03 SHOP DRAWINGS AND SUBMITTALS**

- A. THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, FULLY COORDINATED SHOP DRAWINGS, CAPACITY, DATA, AND CATALOG CUTS OF THE FOLLOWING:
  1. PIPE AND FITTINGS
  2. VALVES
  3. HANGERS AND SUPPORTS
  4. SPRINKLER PIPING LAYOUT
  5. TESTS
  6. SPRINKLER HEADS
- B. THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED. CONTRACTOR SHALL SUBMIT CALCULATIONS WITH SHOP DRAWINGS. CALCULATIONS SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF NFPA 13-2019, AND INTERNATIONAL BUILDING CODE.
- C. ADD APPROPRIATE HOSE ALLOWANCE.
- D. THE SPRINKLER CONTRACTOR SHALL OBTAIN THE LATEST FIRE PUMP TEST AT THE SITE TO VERIFY THE AVAILABLE WATER SUPPLY.

**1.04 BUILDING DEPARTMENT FILING, PERMITS AND CERTIFICATES**

- A. THE SPRINKLER CONTRACTOR SHALL FILE ALL REQUIRED DRAWINGS AND HYDRAULIC CALCULATIONS WITH THE BUILDING DEPARTMENT AND BE RESPONSIBLE FOR OBTAINING FINAL APPROVAL.
  - B. ARRANGE FOR INSPECTION AND TESTS OF ANY AND ALL PARTS OF THE WORK AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PAY ALL CHARGES FOR SAME.
- 1.05 INSPECTION AND TESTING**
- A. THE SPRINKLER SYSTEM SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY BUILDING CODE FIRE DEPARTMENT INSPECTOR.
  - B. THE SPRINKLER SYSTEM SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST FOR A PERIOD OF TWO HOURS AT A PRESSURE OF AT LEAST 200 PSIG OR 50 PSI IN EXCESS OF THE MAXIMUM PRESSURE TO BE MAINTAINED WHEN THE MAXIMUM PRESSURE IN THE SYSTEM IS IN EXCESS OF 150 PSI AS PER NFPA.
  - C. THE BUILDING DEPARTMENT SHALL BE NOTIFIED THAT THE SYSTEM IS READY FOR REINSPECTION AND TESTING. THE BUILDING DEPARTMENT INSPECTOR SHALL WITNESS THE TEST. FINAL APPROVAL OF THE SPRINKLER SYSTEM SHALL BE OBTAINED FROM BUILDING DEPARTMENT, AND FIRE DEPARTMENT.

**PART 2 - MATERIALS**

**2.01 GENERAL**

- A. THE SPRINKLER SYSTEM SHALL BE COMPLETE WITH ALL PIPE, FITTINGS, VALVES, DRAINAGE SYSTEM AND VALVES, HANGERS AND SUPPORTS. ALSO, MISCELLANEOUS WORK ITEMS, SUCH AS SIGNS AS REQUIRED, VALVE TAGS, ETC., AND ALL OTHER RELATED EQUIPMENT, APPARATUS AND MATERIAL ITEMS NECESSARY FOR COMPLETE, APPROVED TYPE SYSTEM, READY FOR FUTURE EXTENSION.
- 2.02 SPRINKLER PIPING**
- A. ALL SPRINKLER PIPING SHALL BE SCHEDULE 40 IN ACCORDANCE WITH NFPA 13. PIPE SHALL BE UL/FM APPROVED.
  - B. STEEL PIPE SHALL BE BETHLEHEM STEEL CO., ALLIED TUBE, BERGER INDUSTRIES OR APPROVED.
  - C. AS PER NFPA 13, PIPE OR TUBE USED IN SPRINKLER SYSTEMS SHALL BE OF THE MATERIALS SPECIFIED IN SECTION 16.3.
  - D. AS PER NFPA 13, FITTINGS USED IN SPRINKLER SYSTEMS SHALL BE OF THE MATERIALS LISTED IN TABLE 6.4.1. FITTING SHALL BE UL/FM APPROVED CONTRACTOR.
  - E. NONMETALLIC PIPES & FITTINGS USED IN MULTIPURPOSE PIPING SYSTEMS NOT EQUIPPED WITH A FIRE DEPARTMENT CONNECTION SHALL BE DESIGNED TO WITHSTAND A WORKING PRESSURE OF NOT LESS THAN 130PSI AT 120°F.

**2.03 CUTTING AND PATCHING**

- DO ALL CUTTING AND CORE DRILLING NECESSARY FOR THE INSTALLATION OF SPRINKLER WORK. ACCURATELY LAYOUT WORK FOR WHICH CUTTING IS REQUIRED. PATCH AND RESTORE ANY DAMAGE WORK TO LIKE NEW CONDITION.
- 2.04 CUTTING AND PATCHING**
- 1. DO ALL CUTTING AND CORE DRILLING NECESSARY FOR THE INSTALLATION OF SPRINKLER WORK. ACCURATELY LAYOUT WORK FOR WHICH CUTTING IS REQUIRED. PATCH AND RESTORE ANY DAMAGE WORK TO LIKE NEW CONDITION.
  - 2. FOR REPLACEMENT OF THE WORK REMOVED, MATCH EXISTING IN NATURE, CONSTRUCTION AND FINISH.
  - 3. MAINTAIN THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH COVERED BY THE WORK. REMOVE ALL SURPLUS MATERIALS, TOOLS ETC. AND LEAVE PREMISES CLEAN.

**2.05 FIRE STOPPING**

- INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURERS PUBLISHED DIRECTIONS AND PER FIRE TESTED DESIGNS THAT HAVE BEEN ACCEPTED BY THE APPROPRIATE CODE AUTHORITY HAVING JURISDICTION.

**2.06 PHASING**

- PHASING SHALL BE COORDINATED BETWEEN THE SPRINKLER CONTRACTOR AND GENERAL CONTRACTOR. SPRINKLER INSTALLATION SHALL BE PHASED IN A MANNER WHICH WILL ALLOW FULL OCCUPANCY OF THE EXISTING FACILITY WHILE THE INSTALLATION IS IN PROGRESS.

**2.07 ALTERNATES/SUBSTITUTIONS**

- CONTRACTOR SHALL STATE IN THEIR PROPOSAL ANY CONTRACTOR PROPOSED SUBSTITUTIONS OF THE MATERIALS OR METHODS OF INSTALLATION FROM THAT SPECIFIED. THESE ALTERNATIONS SHALL BE LISTED ON THE PROPOSAL AS CONTRACTOR AT THE ALTERNATE.

**2.08 LEAK DAMAGE**

- THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE DURING THE INSTALLATION AND TESTING PERIODS OF THE SPRINKLER SYSTEM FOR ANY LOSS OR DAMAGE TO THE WORK OF OTHERS, TO THE BUILDING, ITS CONTENTS ETC. CAUSED BY LEAKS IN THE EQUIPMENT, BY UNPLUGGED OR DISCONNECTED PIPES, FITTINGS ETC. OR BY OVERFLOW, AND SHALL PAY FOR THE NECESSARY REPLACEMENTS OR REPAIRS TO THE WORK OF OTHERS, DAMAGED BY SUCH LEAKAGE.

**2.09 INSERTS, HANGERS, ETC.**

- A. ALL SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED AND SHALL COMPLY WITH THE STANDARDS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION FOR THE INSTALLATION OF SPRINKLER SYSTEMS AND AS REQUIRED BY THE CITY BUILDING CODE.
- B. HANGERS AND THEIR COMPONENTS SHALL BE FERROUS. HANGERS SHALL BE ADJUSTABLE FLAT IRON TYPE OF CLEVIS TYPE.
- C. SPRINKLER PIPING OR HANGERS SHALL NOT BE USED TO SUPPORT NON-SYSTEM COMPONENTS.
- D. SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE WHICH MUST SUPPORT THE ADDED LOAD OF THE WATER FILLED PIPE PLUS A MINIMUM OF 250 LBS. APPLIED AT THE POINT OF HANGING. CONTRACTOR SHALL SUBMIT DETAIL OF SUPPORT FOR REVIEW AND APPROVAL.
- E. SPRINKLER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SHEATHING.
- F. WHEN SPRINKLER PIPING IS INSTALLED BELOW DUCTWORK, PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE, NOT FROM THE DUCTWORK.
- G. MAXIMUM DISTANCE BETWEEN HANGERS SHALL NOT EXCEED 12 FT. FOR 1 AND 1-1/4" SIZES NOR 15' FOR SIZES 1-1/2" AND LARGER.
- H. EXPANSION SHIELDS FOR SUPPORTING PIPES UNDER CONCRETE CONSTRUCTION MAYBE USED IN A HORIZONTAL POSITION IN THE SIDES OF BEAMS, IN CONCRETE HAVING GRAVEL OR CRUSHED STONE AGGREGATE. EXPANSION SHIELDS MAY BE USED IN THE VERTICAL POSITION TO SUPPORT PIPES 4" OR LESS IN DIAMETER.

**2.10 ESCUTCHEONS**

- PROVIDE ESCUTCHEONS ON ALL EXPOSED PIPING PASSING THROUGH WALLS, PARTITIONS, FLOORS AND CEILINGS. ESCUTCHEON SHALL BE HELD IN PLACE BY INTERNAL TENSION OR SET SCREW.

**2.11 AS-BUILT DRAWINGS**

- PREPARE AND SUBMIT "AS BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.

**2.12 SPRINKLER HEADS**

- A. SPRINKLERS SHALL BE RATED FOR ORDINARY TEMPERATURES (155 DEG. F) EXCEPT AS REQUIRED NEAR HEATERS OR LOCATIONS WHERE ELEVATED TEMPERATURES MAY NORMALLY BE EXPECTED OR AS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS.
- B. SPRINKLER HEADS SHALL BE BY TYCO SPRINKLER CO., INC. MANUFACTURE OR APPROVED EQUAL, UL AND FM APPROVED, AS FOLLOWS:
  1. SPRINKLER HEADS IN FINISHED CEILINGS WITH CONCEALED PIPING SHALL BE SAME AS EXISTING SPRINKLER MODEL.
  2. CONCEALED SPRINKLER HEADS SHOULD BE AUTOMATIC TYCO MODEL TY3531.
  3. UPRIGHT SPRINKLER HEADS SHOULD BE AUTOMATIC TYCO MODEL TY3121.

**2.13 PRESSURE GAUGE**

- A. ASHCROFT SERIES 1079, OR APPROVED OTHER, 4-1/2" DIAMETER, 0-300 P.S.I. RANGE, 5 P.S.I. INTERVALS.

**PART 3 - EXECUTION**

**3.01 GUARANTEE**

- A. GUARANTEE FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER, ALL MATERIALS, APPARATUS AND WORKMANSHIP WHETHER FURNISHED BY HIMSELF OR BY HIS SUBCONTRACTORS AND HE SHALL REPLACE OR REPAIR IN A MANNER APPROVED BY THE ARCHITECTS, WITHOUT COST TO THE OWNER, ANY PART OR PARTS OF THE WORK WHICH MAY PROVE DEFECTIVE OR UNSATISFACTORY WITH IN THE PERIOD OF THE GUARANTEE.

**3.02 INSTALLATION**

- A. PIPING
  1. INSTALL PIPING AS SHOWN ON THE CONTRACT DRAWINGS AND STRAIGHT AND DIRECT AS POSSIBLE, FORMING RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS, NEATLY SPACED, WITH RISERS PLUMB AND TRUE.
  2. SPRINKLER PIPING SHALL BE INSTALLED SO THAT THE SYSTEM CAN BE DRAINED.
  3. PIPE SHALL BE REMOVED BY REMAINING.
- B. BEFORE INSTALLING PIPE, THOROUGHLY CLEAN THE INSIDE FREE OF CUTTING AND FOREIGN MATTER. CUT ALL PIPE SQUARE AND SMOOTH AND MAKE UP ALL JOINTS TO REQUIRED LIMITS.
- C. PIPE JOINTS
  1. THREADED JOINTS SHALL BE MADE UP OF TIGHT USING PIPE JOINT TELON COMPOUND OR TAPE, APPLIED ON THE MALE THREADS ONLY.

**3. ALL SPRINKLER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13-2019 AND ALL LOCAL AUTHORITIES.**

- 2. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.

- 3. ALL SPRINKLER HEADS SHALL BE INSTALLED AT CENTER OF TILE IF CEILING IS PROVIDED.

- 4. GENERAL CONTRACTOR SHALL COORDINATE FINAL FURNITURE/ EQUIPMENT HEIGHT ELEVATIONS, AND LOCATIONS WITH SPRINKLER INSTALLATION. HEIGHT ELEVATIONS SHALL BE NOTIFIED WHEN FURNITURE/ EQUIPMENT IS LESS THAN 18" TO UNDERSIDE OF CEILING.

- 5. THE SPRINKLER SYSTEMS ARE TO BE HYDROSTATIC TESTED FOR A (2) HOUR MINIMUM AT 200 PSI. PRESSURE AND ARE TO BE WITNESSED BY AUTHORIZED BUILDING PERSONNEL. COORDINATE ALL TESTING WITH BUILDING MANAGER.

- 6. PIPES SIZES SHOWN ARE BASED ON DESIGN PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON THE INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN HIS CONTRACT PRICE.

- 7. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.

- 8. G.C. SHALL BE RESPONSIBLE FOR ALL FINAL TESTS AND INSPECTIONS OF COMPLETED WORK REQUIRED BY THE BUILDING MANAGEMENT PRIOR TO OCCUPANCY OF SPACE.

- 9. ALL SPRINKLER WORK SHALL BE TESTED AND MADE OPERATIONAL PRIOR TO CARPET AND FURNITURE INSTALLATION. G.C. SHALL REPAIR AND/OR REPLACE ALL FINISHES DAMAGED BY DEFECTIVE SPRINKLER WORK AT HIS EXPENSE.

- 10. ALL BURNING, CUTTING, SOLDERING AND WELDING SHALL BE COORDINATED WITH BUILDING FIRE SYSTEMS WITH BUILDING MANAGEMENT, AS REQUIRED.

- 11. G.C. SHALL BE RESPONSIBLE FOR OBTAINING PERMITS AND APPROVALS REQUIRED BY BUILDING INSPECTOR AND FIRE MARSHALL IN CONJUNCTION WITH CHANGES TO EXISTING SPRINKLER SYSTEM.

- 12. REFER TO ENGINEERING DRAWINGS FOR SPRINKLER HEADS, LIGHT SENSORS AND FIRE DETECTION DEVICES.

- 13. ALL WORK TO BE DONE DURING THE HOURS DESIGNATED BY OWNER.

- 14. UPON COMPLETION OF ALL SPRINKLER WORK, CONTRACTOR SHALL TEST AND INSPECT ENTIRE SPRINKLER SYSTEM. ENTIRE SYSTEM SHALL BE FULLY OPERATIONAL AND APPROVED IN COMPLIANCE WITH ALL A.H.J.

- 15. UPON SUCCESSFUL COMPLETION OF ALL TESTING, CONTRACTOR SHALL PRIME AND PAINT ALL EXPOSED SPRINKLER PIPING. COLOR AND FINISH SHALL BE AS PER ARCHITECT.

- 16. CONTRACTOR SHALL INCLUDE IN HIS BID THE COST TO PROVIDE (5) FIVE ADDITIONAL SPRINKLERS INSTALLED EXACT LOCATIONS OF THESE SPRINKLER HEADS SHALL BE DETERMINED IN FIELD.

- 17. FOR SPRINKLER WORK DONE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13-2019, HYDROSTATIC TESTS IN ACCORDANCE WITH REFERENCE STANDARD NFPA 13-2019, AS MODIFIED FOR NEW JERSEY ARE NECESSARY.

- 18. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND SHALL INSTALL NEW WORK TO CLEAR DUCTWORK AND LIGHTING FIXTURES.

- 19. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.

- 20. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.

- 21. PROVIDE AUXILIARY DRAINS AT TRAPPED SECTIONS OF PIPING AS REQUIRED BY NFPA.

- 22. COMPOSITE DRAWINGS
  - CONTRACTOR SHALL BE GIVEN A SEPIA TRANSPARENCIES TO IMPOSE THEIR WORK FOR A COORDINATED ALLOCATION OF SPACE. PROCEDURE SHALL INCLUDE HVAC CONTRACTOR TO INDICATE DUCT WORK, PIPING, STRUCTURAL AND ARCHITECTURAL DETAILS. SEPIAS SHALL BE GIVEN TO PLUMBING, SPRINKLER AND ELECTRICAL TRADES WHO WILL DRAW HIS WORK ON DRAWINGS. HVAC CONTRACTORS SHALL HOLD A COORDINATION MEETING WITH ALL CONTRACTORS TO ELIMINATE INTERFERENCE OR CONFLICTS IN INSTALLING WORK. IF UNABLE TO EACH AGREEMENT ISSUE, ARCHITECT SHALL MAKE BINDING DECISION.

**BUILDING DEPARTMENT SPRINKLER NOTES**

- 1. THE INSTALLATION, COMPONENTS, SIZING, SPACING, CLEARANCES, POSITION AND TYPE OF SYSTEMS SHALL CONFORM TO THE NEW JERSEY UCC BUILDING SUBCODE 2021 (ADOPTS WITH AMENDMENTS IBC 2021), SECTION 903.
- 2. ONLY APPROVED MATERIALS SHALL BE USED AS PER THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 104.9.
- 3. DIRECT CONNECTION OF SPRINKLERS TO THE PUBLIC WATER SYSTEM SHALL CONFORM TO THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 903.3.5.
- 4. SPRINKLER SHALL BE PROTECTED AGAINST FREEZING AND INJURY AS PER NFPA 13-2019 CHAPTER 6 SECTION 6.4.2.
- 5. THE OCCUPANCY OF THE AREAS TO BE SPRINKLERED IN ACCORDANCE WITH THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 903.2.
- 6. PIPING, FITTINGS, SPECIFICATIONS, PIPE SCHEDULES, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, DAMAGE VALVES, HANGERS, SPRINKLERS GUARDS AND SHIELDS SHALL BE AS PER WITH THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 903.
- 7. STOCK OF EXTRA SPRINKLERS WILL BE FURNISHED AS PER NFPA 13-2019 SECTION 16.3.7 (REQUIRED FOR EACH TEMPERATURE RATING).
- 8. SPRINKLER ALARM SHALL BE IN ACCORDANCE WITH THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 907.
- 9. SPACING, LOCATION AND POSITION OF SPRINKLER WILL BE AS PER THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 903.3.
- 10. ALL BLIND SPACES EXCEEDING 6" IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIAL WILL BE SPRINKLERED.
- 11. ALL PIPE PASSING THROUGH WALLS WILL COMPLY WITH SECTION THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 714.
- 12. THERE IS NO HIGH PILED STORAGE AS DEFINED IN THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 3201.
- 13. DISTANCE OF SPRINKLERS FROM HEAT SOURCE SHALL BE AS PER NFPA 13-2019, SECTION 9.4.2.5.
- 14. THIS APPLICATION IS NOT FILED AS A RESULT OF ACTION BY THE FIRE COMMISSIONER AS AUTHORIZED BY BS & A TO MODIFY THE CERTIFICATE OF OCCUPANCY NOR IS SUCH ACTION PENDING.
- 15. ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY NFPA 13-2019, SECTION 7.6.
- 16. A ONE PIECE REDUCING FITTING OF GOOD DESIGN SHOULD BE USED WHEREVER A CHANGE IS MADE IN THE SIZE OF PIPE, AS PER NFPA 13-2019, SECTION 16.8.5.
- 17. ALL VALVES ON CONNECTIONS TO WATER SUPPLIES TO SPRINKLER SHALL BE APPROVED O.S. & Y. OR APPROVED INDICATOR TYPE.
- 18. DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER NFPA-13-2019, SECTION 16.9.1.
- 19. HANGERS SHOULD BE SUPPORTED BY WROUGHT IRON U TYPE OR APPROVED ADJUSTABLE HANGERS. HANGERS SHALL BE OF THE TYPE APPROVED FOR USE WITH THE PIPE OR TUBE INVOLVED, AS PER NFPA-13-2019, SECTION 17.
- 20. TEMPERATURE RATING SHALL COMPLY WITH NFPA-13-2019, SECTION 9.4.2.
- 21. 18" MINIMUM CLEARANCE TO BELOW SPRINKLER DEFLECTOR AS PER NFPA-13-2019, SECTION 9.5.6
- 22. MINIMUM BRANCH PIPE SIZE TO BE ONE INCH (1").
- 23. THIS APPLICATION IS MADE ONLY FOR WORK INDICATED ON THE 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.
- 24. WET SPRINKLER SYSTEM SUBJECTED TO FREEZING SHOULD COMPLY WITH NFPA 13-2019, SECTION 8.6.
- 25. INSPECTION AND TESTS OF SPRINKLERS SHALL BE CONDUCTED AS PER THE NEW JERSEY UCC BUILDING SUBCODE 2021, SECTION 904.4.

SPRINKLER SCHEDULE											
SYMBOL	NAME	COVERAGE	AREA	METAL	TEMPERATURE (°F)	RESPONSE	K-FACTOR	NPT	MFG	MODEL#	APPROVALS
(N)	CONCEALED PENDENT	SAME AS EXISTING	LI/0H CEILING			SAME AS EXISTING					FM APPROVED

NOTE: 1. COORDINATE ALL SPRINKLER COLOR FINISHES WITH ARCHITECT.

**SPRINKLER DRAWING LIST**

- SP-0 SPRINKLER NOTES, SYMBOLS, SPECIFICATIONS AND DETAILS.
- SP-1.0 SPRINKLER PLAN

**SPRINKLER LEGENDS**

- (RE) EXISTING CONCEALED SPRINKLER HEAD TO BE RELOCATED
- (R) EXISTING SPRINKLER HEAD TO BE REMOVED

**SPACING BETWEEN SPRINKLER HEADS**

- LIGHT HAZARD: 15' MAX. ORDINARY HAZARD: 15' MAX
- NOTE: MAXIMUM DISTANCE BETWEEN SPRINKLER HEADS & WALLS IS 1/2 THE DISTANCE BETWEEN HEADS.

**HAZARD CLASSIFICATION AND DESIGN DENSITY**

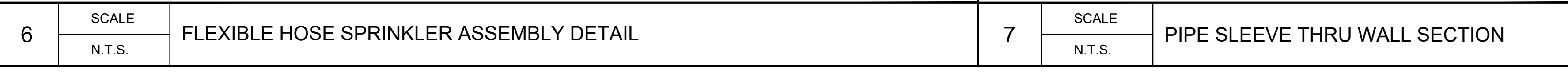
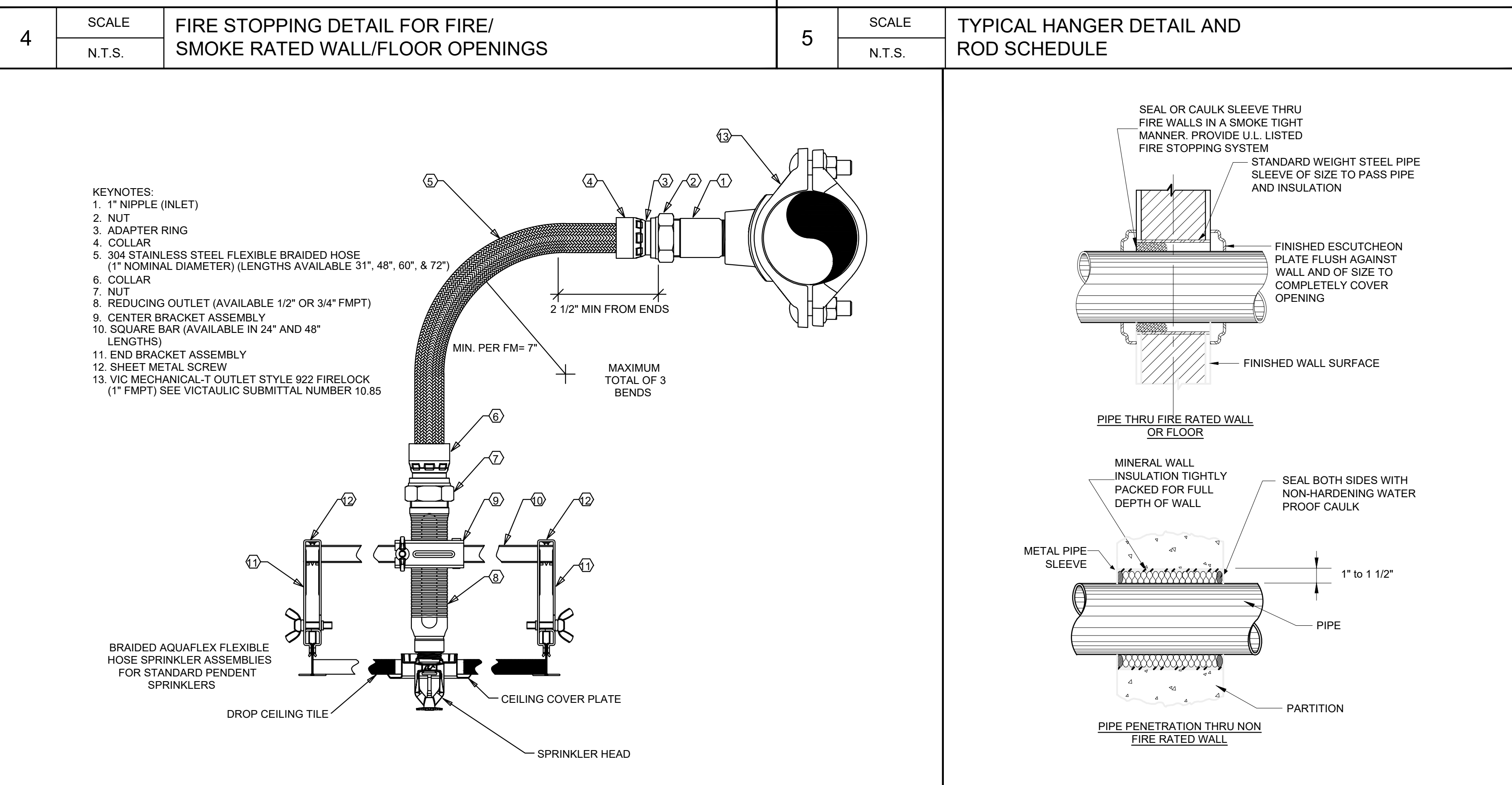
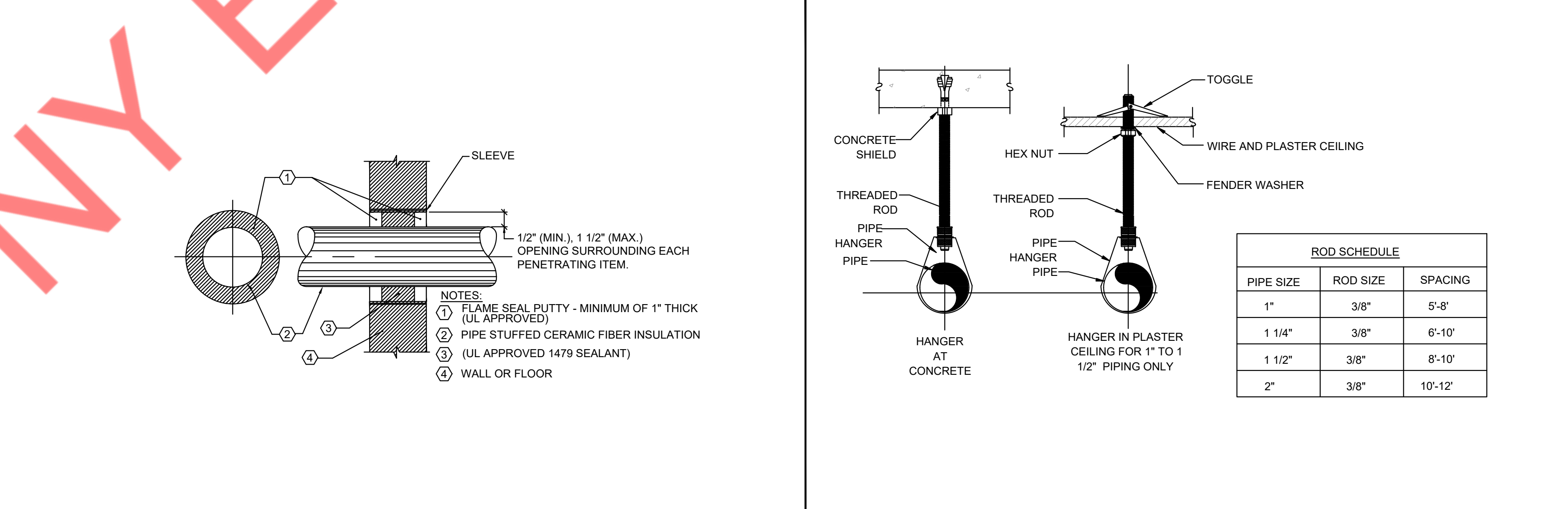
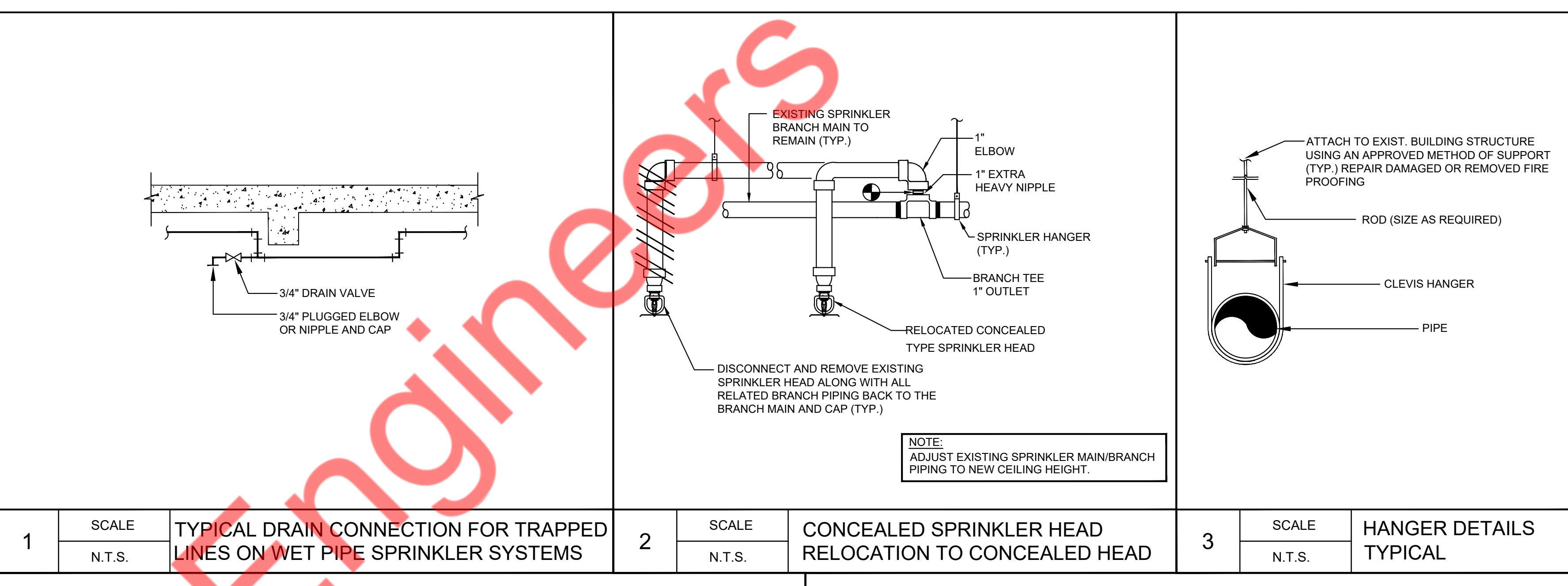
OCCUPANCY:	LIGHT HAZARD
MINIMUM DESIGN DENSITY:	0.10 GPM/SQ. FT.
OCCUPANCY:	ORDINARY HAZARD
MINIMUM DESIGN DENSITY:	0.15 GPM/SQ. FT.

**PROTECTION AREA OF SPRINKLER HEADS**

LIGHT HAZARD :	225 SQ. FT.
ORDINARY HAZARD :	130 SQ. FT.

**GENERAL NOTES:**

- 1. FOR SPRINKLER WORK ONLY.
- 2. ALL SPRINKLER HEADS MEET DESIGN CRITERIA PER COVERAGE.



ROD SCHEDULE		
PIPE SIZE	ROD SIZE	SPACING
1"	3/8"	5'-8"
1 1/4"	3/8"	6'-10"
1 1/2"	3/8"	8'-10"
2"	3/8"	10'-12"

**CONSULTANT (ENGINEER)**

**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH: 914.257.3455  
 WWW.NY-ENGINEERS.COM

**PROFESSIONAL SEAL:**

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 266269810. EXPIRATION DATE: 04/30/2026

**CONTRACTOR'S NOTES:**

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

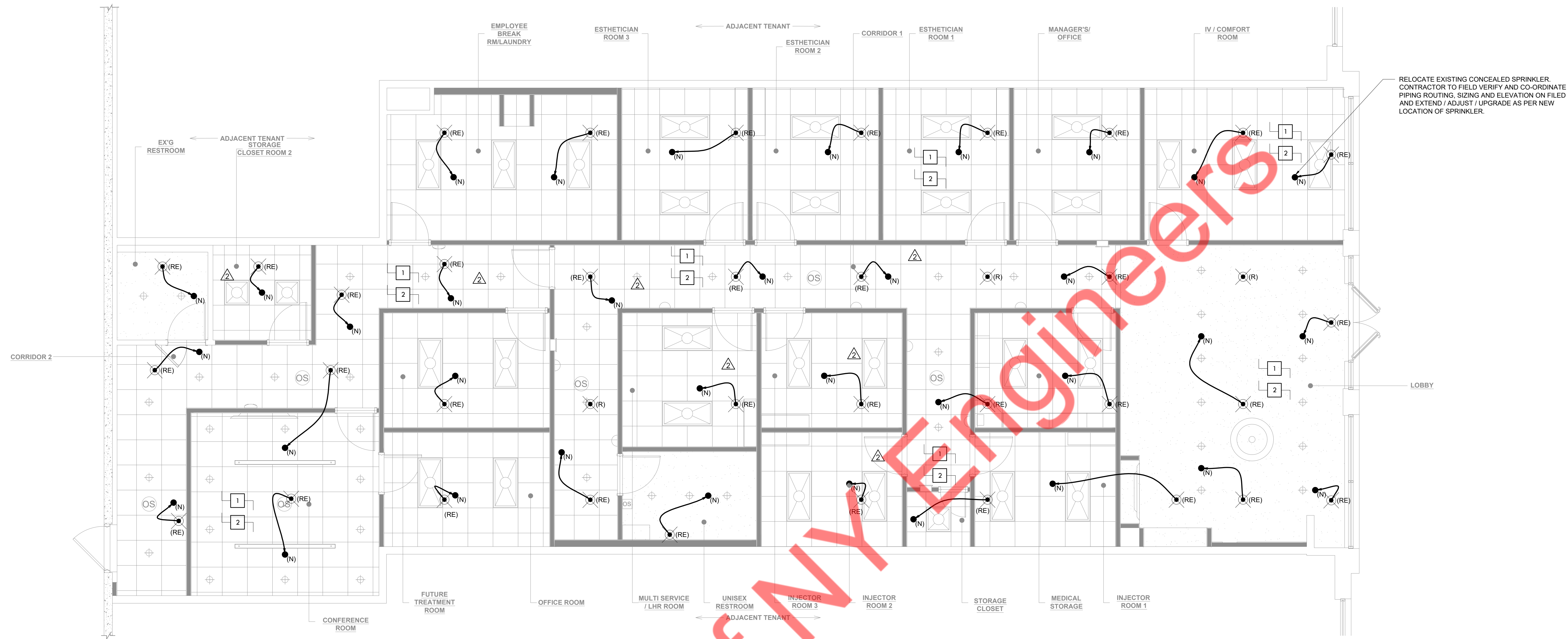
DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

PROJECT INFORMATION:	
PROJECT NUMBER:	12115-24
DRAWN BY:	NYE
REVIEWED BY:	NYE
TOTAL SQ. FT.:	3,519
DATE:	04/25/25
DRAWING TITLE:	
SPRINKLER NOTES, SYMBOLS, SPECIFICATION AND DETAILS	
DRAWING NUMBER:	
SP-0.1	

LOCATION: N. BRUNSWICK, NJ

PROJECT: VIO MED SPA

PLOT SCALE: 1:1



RELOCATE EXISTING CONCEALED SPRINKLER. CONTRACTOR TO FIELD VERIFY AND CO-ORDINATE PIPING ROUTING, SIZING AND ELEVATION ON FILED AND EXTEND / ADJUST / UPGRADE AS PER NEW LOCATION OF SPRINKLER.

- GENERAL NOTES:**
- CONTRACTOR TO FIELD VERIFY TO INSTALL ALL SPRINKLER HEADS TO BE MAX. 12" FROM CEILING.
  - ALL NEW SPRINKLER HEADS LOCATION TO BE COORDINATED WITH LIGHTING AND DIFFUSERS TO AVOID CONFLICT.
  - ALL SPRINKLER HEADS & PIPING TO BE COORDINATED OTHER TRADES.
  - ANY WORK SHOWN ON THE DRAWINGS AND NOT PARTICULARLY DESCRIBED IN THE SPECIFICATIONS OR DETAILS, OR ANY WORK WHICH MAY BE DEEMED NECESSARY TO COMPLETE THE CONTRACT SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THIS CONTRACT.
  - FOR PURPOSES OF CLEARNESS AND LEGIBILITY, SPRINKLER DRAWINGS ARE ESSENTIALLY DIAGNOSTIC AND SIZE AND LOCATION OF EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE. THE DRAWING INDICATE SIZE, CONNECTION POINTS, AND ROUTED OF PIPES. IT IS NOT INTENDED, HOWEVER, THAT ALL OFFSETS, RISES AND DROPS ARE SHOWN. PROVIDE PIPING AS REQUIRED TO FIT STRUCTURE, AVOID OBSTRUCTIONS, AND RETAIN CLEARANCES, HEADROOM OPENINGS AND PASSAGEWAYS. ALL PENDANT SPRINKLERS MUST BE SPACED AS FOLLOWS -  
 MAXIMUM 7' 6" FROM WALL  
 MAXIMUM DISTANCE BETWEEN 2 SPRINKLER HEADS IS 15'  
 MINIMUM DISTANCE BETWEEN 2 SPRINKLER HEADS IS 6'
  - COVERAGE AREA PER SPRINKLER SHALL BE MAX. 225 SQ.FT FOR LIGHT HAZARD AND 130 SQ.FT. FOR ORDINARY HAZARD.
  - ALL SPRINKLER HEADS MEET DESIGN CRITERIA PER COVERAGE.
  - AUXILIARY DRAIN SHALL BE PROVIDED AT THE TRAPPED SECTIONS.
  - FOR SPRINKLER WORK ONLY.
  - ALL BRANCH TAKE-OFF FOR EACH SPRINKLER TO BE MIN. 1".

- KEYED NOTES:**
- CONTRACTOR TO PROVIDE NEW SPRINKLER PIPING AS PER SPRINKLER HEAD LOCATION SHOWN ON THE PLAN. CONTRACTOR TO MAKE SURE SPRINKLER PIPE SIZING AS PER NFPA 13.
  - CONTRACTOR SHALL ENSURE THERE ARE NO COMBUSTIBLE MATERIALS IN THE ABOVE CEILING SPACE TO PREVENT THE NEED FOR SPRINKLERS IN THAT AREA AS PER NFPA 13.

**CONTRACTOR'S NOTE:**

THE SPRINKLER SUBCONTRACTOR IS REQUIRED TO VISIT THE SITE DURING BIDDING AND VERIFY LOCATIONS) OF WHERE SPRINKLER PIPING / EQUIPMENT IS INDICATED TO BE PLACED, THEIR ROUTE(S) AND POSSIBLE INTERSECTIONS) WITH OTHER EQUIPMENT / WORK / STRUCTURE (I.E. STEEL BEAMS, ETC.) TO BE INSTALLED AND/OR "EXISTING TO REMAIN". THIS SUBCONTRACTOR IS TO VERIFY HEIGHTS "TO BE INSTALLED" TO MAINTAIN DESIGNED CEILING HEIGHTS AND HEAD ROOM. ANY DISCREPANCIES BETWEEN DESIGNED AND ACTUAL TO BE TOLD TO THE GENERAL CONTRACTOR AND INDICATED ON THE BID FORM.

**HAZARD CLASSIFICATION AND DESIGN DENSITY**

OCCUPANCY:	LIGHT HAZARD
MINIMUM DESIGN DENSITY:	0.10 GPM/SQ. FT.
OCCUPANCY:	ORDINARY HAZARD
MINIMUM DESIGN DENSITY:	0.15 GPM/SQ. FT.

**SPRINKLER HEAD COUNT**

RELOCATED EXISTING CONCEALED SPRINKLER HEAD	35
REMOVED SPRINKLER HEAD	3



CONSULTANT (ENGINEER):  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH-914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 26269910. EXPIRATION DATE: 04/30/2026

**CONTRACTOR'S NOTES:**  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

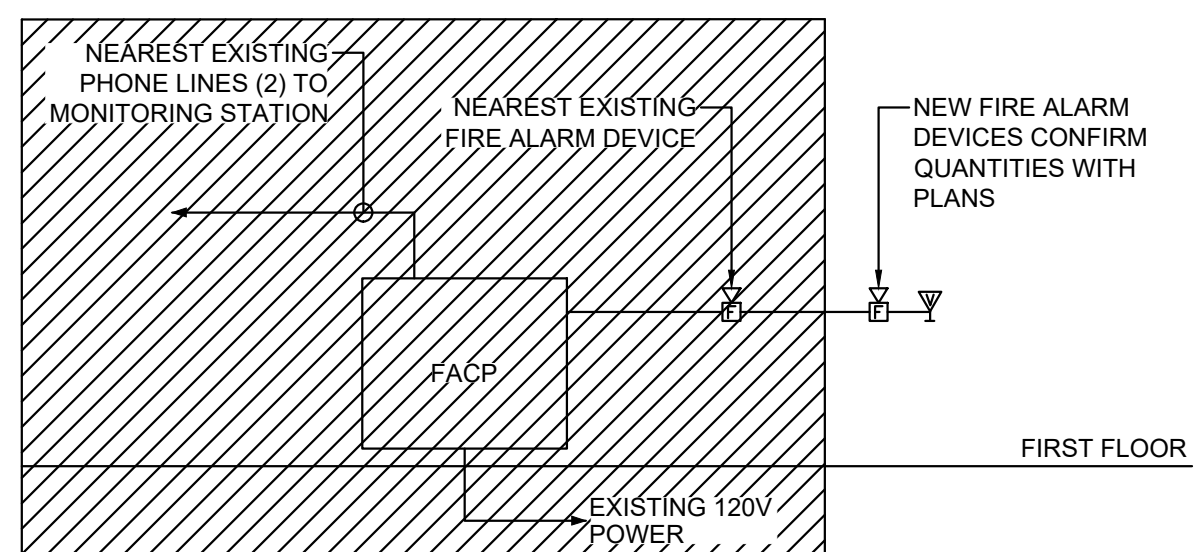
DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

**PROJECT INFORMATION:**

PROJECT NUMBER:	12115-24
DRAWN BY:	NYE
REVIEWED BY:	NYE
TOTAL SQ. FT.:	3,519
DATE:	04/25/25

DRAWING TITLE:  
**SPRINKLER PLAN**

DRAWING NUMBER:  
**SP-1.0**



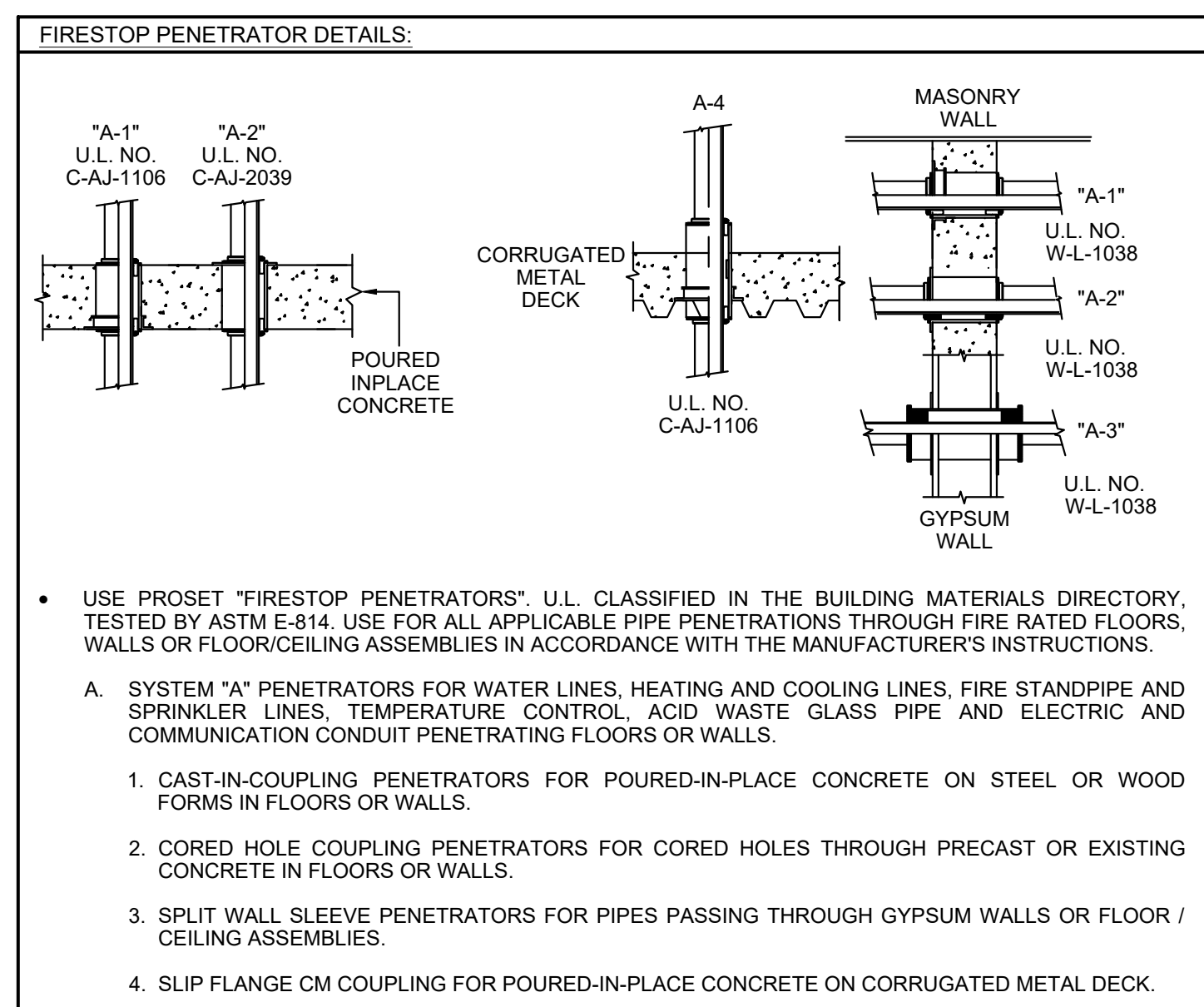
**1 PARTIAL FIRE ALARM RISER**  
Scale: N.T.S.

**FIRE ALARM GENERAL NOTES:**

- ALL WORK TO THE FIRE ALARM SYSTEM SHALL COMPLY WITH ALL LOCAL FIRE CODES, LAWS, REGULATIONS, ORDINANCES, AND THE REQUIREMENTS OF NFPA 72-2016 EDITION.
- ALL NEW FIRE ALARM DEVICES SHALL BE ADA APPROVED, COORDINATE COLOR WITH ARCHITECT AND BASE BUILDING DEVICES TO MATCH BASE BUILDING SYSTEM MANUFACTURER. PROVIDE ANY ADDITIONAL POWER AMPLIFIERS REQUIRED FOR INSTALLATION OF NEW ADA APPROVED DEVICES.
- ALL FIRE ALARM DEVICES, INCLUDING SPEAKERS, VISUALS, SMOKE DETECTORS, ETC., SHALL BE CONNECTED TO THE BASE BUILDING FIRE ALARM SYSTEM BY A LICENSED FIRE ALARM CONTRACTOR. COORDINATE CONNECTIONS WITH SYSTEM MANUFACTURER.
- ALL DEVICES SHALL BE 110 CANDELA, UNLESS OTHERWISE NOTED.
- THE ENTIRE LENS OF WALL MOUNTED VISUAL FIRE ALARM DEVICES SHALL BE MOUNTED AT LEAST 80" AFF.
- COORDINATE FIRE ALARM SYSTEM SHUTDOWNS AND REPROGRAMMING WITH LANDLORD.
- ALL FIRE ALARM DEVICES SHALL BE WHITE UNLESS OTHERWISE NOTED OR REQUIRED.
- EVACUATION SIGNAL SHALL BE 3 PULSE TEMPORAL.
- THE FIRE ALARM SYSTEM APPLIANCE LAYOUT INDICATED ON SHEET E-300.0 INDICATES NEW DEVICE PLACEMENT REQUIREMENTS FOR THIS TENANT UPRIT. NEW DEVICES SHALL BE INSTALLED INTO THE BASE BUILDING FIRE ALARM SYSTEM. PROVIDE ALL PROGRAMMING REQUIRED TO MAKE THE NEW DEVICES FUNCTIONAL AND ANY PROGRAMMING OR NEW EQUIPMENT REQUIRED TO MAKE ALL OF THE VISIBLE NOTIFICATION APPLIANCES ON THE FLOOR FLASH IN SYNCHRONIZATION.

**SEQUENCE OF OPERATION:**

- UPON CHANGE IN STATUS OF ANY DEVICE ON THE SYSTEM, THE FIRE ALARM CONTROL PANEL SHALL ACTIVATE AUDIBLE AND VISIBLE CHANGE INDICATORS AND DISPLAY THE SYSTEM POINT NUMBER, POINT DESCRIPTION, AND MESSAGE ASSOCIATED WITH THE POINT.
- ACTIVATION OF ANY MANUAL STATION, KITCHEN HOOD EXTINGUISHING SYSTEM, WATERFLOW DEVICE, SMOKE DETECTOR, HEAT DETECTOR, SUPERVISORY DEVICE OR OTHER INITIATING DEVICE WILL CAUSE THE FOLLOWING FUNCTIONS TO OCCUR:
  - MANUAL STATION OPERATION SHALL:
    - ACTIVATE AUDIBLE AND VISIBLE STATUS CHANGE INDICATORS AND DISPLAY THE SYSTEM POINT NUMBER, POINT DESCRIPTION, AND ANY MESSAGE ASSOCIATED WITH THE POINT ON THE PANEL.
    - TRANSMIT AN ALARM SIGNAL TO A UL LISTED SIGNAL STATION.
  - WATERFLOW SWITCH OPERATION SHALL:
    - ACTIVATE AUDIBLE AND VISIBLE STATUS CHANGE INDICATORS AND DISPLAY THE SYSTEM POINT NUMBER, POINT DESCRIPTION, AND ANY MESSAGE ASSOCIATED WITH THE POINT ON THE PANEL.
    - TRANSMIT AN ALARM SIGNAL TO A UL LISTED SIGNAL STATION.
    - ACTIVATE THE AUDIBLE AND VISIBLE NOTIFICATION APPLIANCES ON THE FLOOR.
    - SHUT DOWN AHUS.
  - SMOKE DETECTOR OR HEAT DETECTOR OPERATION SHALL:
    - ACTIVATE AUDIBLE AND VISIBLE STATUS CHANGE INDICATORS AND DISPLAY THE SYSTEM POINT NUMBER, POINT DESCRIPTION, AND ANY MESSAGE ASSOCIATED WITH THE POINT ON THE PANEL.
    - TRANSMIT AN ALARM SIGNAL TO A UL LISTED SIGNAL STATION.
    - ACTIVATE THE AUDIBLE AND VISIBLE NOTIFICATION APPLIANCES ON THE FLOOR.
    - SHUT DOWN AHUS.
  - DUCT SMOKE DETECTOR ACTIVATION SHALL:
    - ACTIVATE AUDIBLE AND VISIBLE STATUS CHANGE INDICATORS AND DISPLAY THE SYSTEM POINT NUMBER, POINT DESCRIPTION, AND ANY MESSAGE ASSOCIATED WITH THE POINT ON THE PANEL.
    - TRANSMIT SUPERVISORY SIGNAL TO A UL LISTED SIGNAL STATION.
    - SHUT DOWN AHUS.
  - SUPERVISORY DEVICE ACTIVATION, INCLUDING VALVE SUPERVISORY DEVICES SHALL:
    - ACTIVATE AUDIBLE AND VISIBLE STATUS CHANGE INDICATORS AND DISPLAY THE SYSTEM POINT NUMBER, POINT DESCRIPTION, AND ANY MESSAGE ASSOCIATED WITH THE POINT ON THE PANEL.
    - TRANSMIT SUPERVISORY SIGNAL TO A UL LISTED SIGNAL STATION, THIS SIGNAL SHALL BE DISTINCTLY DIFFERENT THAN A TROUBLE SIGNAL.
- REMOVAL OF ANY DEVICE, WIRING DISARRANGEMENT, OR SYSTEM COMPONENT FAILURE SHALL DISPLAY ON THE OPERATOR TERMINAL, THE CHANGE OF STATUS, TIME, DATE, POINT DESCRIPTION ON A POINT BY POINT BASIS, AND THE MESSAGE ASSOCIATED WITH THE POINT AND TRANSMIT A TROUBLE SIGNAL TO A UL LISTED CENTRAL STATION.



**ELECTRICAL SYSTEM AND EQUIPMENT**

METHOD OF COMPLIANCE  
PRESCRIPTIVE X PERFORMANCE \_\_\_\_\_ ENERGY COST BUDGET \_\_\_\_\_

PROVIDE A STANDARD RISER DIAGRAM WHICH INDICATES DESIGNATED POINTS FOR CHECK METERING.  
PROVIDE A STANDARD PANEL SCHEDULE DESCRIPTION WHICH IDENTIFIES DIFFERENT ENDUSE LOADS.  
STANDARD RISER DIAGRAM IS ON SHEET - E-04  
STANDARD PANEL SCHEDULES ARE ON - E-04

**LIGHTING SCHEDULE**

LAMP TYPE REQUIRED IN FIXTURE	SEE LIGHTING FIXTURE SCHEDULE ON SHEET E-2-0
NUMBER OF LAMPS IN FIXTURE	SEE LIGHTING FIXTURE SCHEDULE ON SHEET E-2-0
BALLAST TYPE USED IN THE FIXTURE	SEE LIGHTING FIXTURE SCHEDULE ON SHEET E-2-0
NUMBER OF BALLASTS IN FIXTURE	SEE LIGHTING FIXTURE SCHEDULE ON SHEET E-2-0
TOTAL WATTAGE PER FIXTURE	SEE LIGHTING FIXTURE SCHEDULE ON SHEET E-2-0

TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED  
COMMERCIAL STORE (HEALTH CARE CLINIC 3519 SQ. FT.); GROSS AREA OF 0.81W/SQ. FT.  
PER **ASHRAE 90.1 (2019 STANDARD)** STANDARD:  
ALLOWABLE \_\_\_\_\_ SPECIFIED \_\_\_\_\_  
SEE COMCHECK COMPLIANCE FORM ON SHEET E-2-0

TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED  
NOT APPLICABLE. (TENANT FIT-UP)

**ELECTRICAL DESIGNER STATEMENT**

I HEREBY CERTIFY THAT THE DESIGN OF THIS BUILDING COMPLIES WITH THE MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT REQUIREMENTS OF THE **ASHRAE 90.1 (2019 STANDARD)** STANDARD.  
SIGNED \_\_\_\_\_ DATE 09/05/2025

**NAME: MICHAEL TOBIAS**  
**TITLE: PROJECT ENGINEER**

**ELECTRICAL GENERAL NOTES:**

- ALL WORK THIS DIVISION SHALL COMPLY WITH ALL LOCAL BUILDING CODES, LAWS, REGULATIONS, ORDINANCES, AND THE REQUIREMENTS OF THE NEW JERSEY BUILDING CODE 2021 ADOPTS WITH AMENDMENTS INTERNATIONAL BUILDING CODE 2021 (IBC 2021). ALL WORK SHALL COMPLY WITH BASE BUILDING SPECIFICATIONS. OBTAIN A COPY OF SPECIFICATIONS FROM BUILDING MANAGER IF NECESSARY.
- THE CONTRACTOR SHALL KEEP A RECORD OF THE CHANGES WHICH ARE IN CONFLICT WITH THESE DRAWINGS AND SPECIFICATIONS. AT THE COMPLETION OF HIS WORK HE SHALL SUBMIT AS BUILT PRINTS TO THE OWNER.
- DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY FITTING AND DETAIL. ALL WORK SHALL BE INSTALLED SO THAT JUNCTION BOXES AND COMPONENTS WILL BE ACCESSIBLE FOR SERVICE.
- ALL SYSTEMS, EQUIPMENT, COMPONENTS, WORK, ETC. PROVIDED UNDER THIS DIVISION SHALL BE COVERED BY A ONE YEAR GUARANTEE STARTING AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. ANY DEFECTS IN THE WORK, SYSTEMS, EQUIPMENT, OR COMPONENTS FOUND DURING THIS YEAR SHALL BE CORRECTED AT NO CHARGE. THE GUARANTEE SHALL INCLUDE PROVIDING ALL NECESSARY CUTTING, PATCHWORK, REPAINTING, ETC. TO MAKE THE WORK COMPLETE AND NEW.
- ALL CONDUIT MUST BE CONCEALED IN THE WALLS OR ABOVE THE CEILING UNLESS OTHERWISE NOTED. MINIMUM CONDUIT SIZE IS 1/2".
- ALL CONDUCTORS SHALL BE COPPER WITH TYPE "THW" OR "THHN" INSULATION AND THE MINIMUM WIRE SIZE SHALL BE #12 A.W.G. WITH A 167 DEGREE TEMPERATURE RATING.
- ALL WORK MUST BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER ACCORDING TO GENERALLY ACCEPTED PRINCIPALS OF FIRST CLASS WORKMANSHIP.
- FASTEN ALL RECESSED LIGHTING FIXTURES TO STRUCTURE OR GRID PER N.E.C. 410.36.
- RECESSED INCANDESCENT FIXTURES SHALL BE SUPPORTED IN COMPLIANCE WITH N.E.C. 410.36.
- ALL PENETRATIONS THRU RATED WALLS, FLOORS AND CEILINGS SHALL BE FIRE STOPPED PER N.E.C. 300.21.
- PROVIDE ALL GROUNDING AS REQUIRED BY N.E.C.
- DEVICE MOUNTING HEIGHTS ARE TO BE MEASURED TO THE DEVICE CENTERLINE.
- ALL SWITCHES FOR FANS, LIGHTS, ETC. WHICH ARE SHOWN TO BE MOUNTED IN THE SAME GENERAL AREA SHALL SHARE A MULTI-GANG COVER PLATE AS REQUIRED.
- ALL CONDUIT SHALL BE 1/2" EMT WITH #12, #12G AWG CONDUCTORS UNLESS OTHERWISE NOTED.
- PROVIDE #12AWG GND. FOR ALL MECHANICAL EQUIPMENT UNLESS SHOWN OTHERWISE. ALL EQUIPMENT SHALL BE GROUNDED AT THE PANEL WHICH FEEDS THE EQUIPMENT.
- COORDINATE RECEPTACLE NEMA TYPE AND VOLTAGE WITH COPIERS AND EQUIPMENT.
- PROVIDE A NEW DIRECTORY FOR ALL PANELS. CORRECTLY LABEL ALL CIRCUITS, SPARES AND SPACES IN ACCORDANCE WITH N.E.C. 408.4(A).
- PROVIDE A SEPARATE GREEN, INSULATED, #12AWG EQUIPMENT GROUNDING CONDUCTOR ROUTED WITH THE BRANCH CIRCUIT HOMERUN CONDUCTORS.
- WHERE WORK BY THE GENERAL CONTRACTOR (WALL REMOVAL, NEW OR RELOCATED WALL OPENING, ETC.) RESULTS IN THE REMOVAL, RELOCATION OR REFEEDING OF ELECTRICAL DEVICES OR LIGHTING FIXTURES, THE ELEC. CONTRACTOR SHALL DISCONNECT OR RECONNECT AS REQUIRED ALL ACTIVE DEVICES REMAINING ON THAT CIRCUIT SYSTEM.
- DEVICE BOXES IN RATED WALLS SHALL MEET STANDARD BUILDING CODE SECTION 706.4.
- ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABEL LISTED BY A NEW JERSEY APPROVED THIRD PARTY TESTING AGENCY.
- DEDICATED RECEPTABLES TO RECEIVE VISUAL DESIGNATION.
- OUTLET BOX SHALL NOT BE MOUNTED BACK TO BACK.
- BLANK FACEPLATES ARE NOT ALLOWED, U.N.O. ANY EXISTING OUTLET OR TELEDATA LOCATION NOT USED OR SHOWN WITHIN THE SCOPE OF WORK IN THESE PLANS SHOULD BE REMOVED, PATCHED, AND REPAIRED.
- MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS PER N.E.C. 210.4(B).
- MULTIWIRE BRANCH CIRCUITS SUPPLYING POWER TO PERMANENTLY CONNECTED FREESTANDING PARTITIONS SHALL BE PROVIDED WITH A MEANS TO DISCONNECT SIMULTANEOUSLY ALL UNGROUNDED CONDUCTORS AT THE PANEL BOARD WHERE THE BRANCH CIRCUIT ORIGINATES PER N.E.C. 605.8.
- ARC-FLASH HAZARD WARNING SHALL BE PROVIDED ON ALL EQUIPMENT IN AFFECTED ELECTRICAL ROOMS PER N.E.C. 110.16.
- PROVIDE PLASTIC NAMEPLATE ON ALL PANELS (NEW AND EXISTING) INDICATING PANEL NAME AND SOURCE PER N.E.C. 408.4(B).
- ALL WIRING TERMINATIONS ARE ASSUMED TO BE 75DEG C RATED, UNLESS NOTED OTHERWISE. ALL WIRING UNDER 100A IS BASED ON A R005C C TERMINATION.

**PRE-CONSTRUCTION DEMOLITION NOTES:**

- REFER TO THE ARCHITECTURAL DEMOLITION PLANS FOR SCOPE RELATED TO THE LAYOUT OF WALLS, CEILING, ETC., TO BE REMOVED.
- COORDINATE ALL POWER SHUT-DOWNS AND FIRE ALARM SYSTEM MODIFICATIONS, WHERE APPLICABLE, WITH THE ONSITE FACILITIES MANAGEMENT TEAM.
- REMOVE ALL EXISTING DEVICES (RECEPTABLES, DATA OUTLETS, FIRE ALARM DEVICES, SWITCHES, EMPTY JUNCTION BOXES, ETC.) ASSOCIATED WITH ANY WALLS OR OTHER PARTITIONS IDENTIFIED TO BE REMOVED. REMOVE ALL ASSOCIATED CONDUIT AND WIRING BACK TO ITS SOURCE. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE" IN THE APPROPRIATE PANEL SCHEDULES.
- REMOVE ALL EXISTING DEVICES (RECEPTABLES, DATA OUTLETS, FIRE ALARM DEVICES, SWITCHES, EMPTY JUNCTION BOXES, ETC.) ON EXISTING TO REMAIN WALLS, BOTH INTERIOR AND PERIMETER, UNLESS SPECIFICALLY SHOWN AS EXISTING TO REMAIN ON SHEETS ELSEWHERE IN THIS SET. REMOVE ALL ASSOCIATED CONDUIT AND WIRING BACK TO ITS SOURCE. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE" IN THE APPROPRIATE PANEL SCHEDULES.
- NO BLANK COVERPLATES SHALL BE ALLOWED. REFER TO ARCHITECTURAL SET FOR DETAILS CONCERNING PATCHING OF EXISTING OPENINGS BASED ON THE PARTITION TYPE IT CURRENTLY RESIDES.
- REMOVE ALL EXISTING LIGHT FIXTURES AND EXIT SIGNS FROM THE SCOPE OF WORK AREA UNLESS SPECIFICALLY IDENTIFIED AS EXISTING TO REMAIN (E) OR EXISTING TO BE RELOCATED (R). REMOVE ALL ASSOCIATED CONDUIT AND WIRING BACK TO ITS SOURCE. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE" IN THE APPROPRIATE PANEL SCHEDULES.
- FOR ANY MECHANICAL EQUIPMENT BEING REMOVED, REMOVE ALL WIRING, CONDUIT, AND ASSOCIATED DISCONNECTS BACK TO ITS SOURCE. COORDINATE EXACT UNITS BEING REMOVED WITH DIVISION 22 & 23. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE" IN THE APPROPRIATE PANEL SCHEDULES.
- REFER TO THE FIRE ALARM FLOOR PLANS FOR EXACT FIRE ALARMS DEVICES TO EITHER BE REMOVED, RELOCATED, OR LEFT IN PLACE.
- REMOVE ALL ABANDONED EMPTY CONDUIT AND JUNCTION BOXES FROM THE CEILING SPACE.
- ANY EXISTING FLOOR BOX, ABANDONED CONDUIT PENETRATION, ETC., THROUGH THE SLAB WITHIN THE SCOPE OF WORK AREA NOT SPECIFICALLY IDENTIFIED TO REMAIN SHALL BE REMOVED AND THE FLOOR PATCHED TO A LIKE NEW CONDITION.
- COORDINATE WITH THE TENANT AND/OR LANDLORD EXACTLY WHICH DEVICES AND EQUIPMENT ARE REQUIRED TO BE TURNED OVER TO THE OWNER ONCE REMOVED.
- PROVIDE ADEQUATE PROTECTION OF ANY EXISTING TO REMAIN DEVICE OR FIXTURE SUCH THAT IT IS NOT DAMAGED DURING THE CONSTRUCTION PROCESS.

**ELECTRICAL SYMBOL LEGEND**

SYMBOL	DESCRIPTION	ON CENTER MTG. HT.
	CONCEALED CONDUIT IN CEILING OR WALL	
	CONCEALED CONDUIT IN FLOOR OR UNDERGROUND	
	CIRCUIT HOMERUN TO PANEL, EACH ARROWHEAD 1 CIRCUIT	
	NO. OF CONDUCTORS IN CONDUIT; EACH CROSSHATCH = 1 WIRE	
	FLEXIBLE CONDUIT OR S.O. COORD.	
	EXPOSED CONDUIT	
	CONDUIT STUBBED UP OR TURNED DOWN	
	PLYWOOD BACKBOARD	
	SURFACE MOUNTED RACEWAY	
	MULTI OUTLET SURFACE MOUNTED RACEWAY	
	WALL MOUNTED SINGLE RECEPTACLE OUTLET	18"
	WALL MOUNTED DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED DUPLEX RECEPTACLE OUTLET ABOVE COUNTER	AS REQUIRED
	WALL MOUNTED G.F.C.I. DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED G.F.C.I. DUPLEX RECEPTACLE OUTLET - ABOVE COUNTER	AS REQUIRED
	WALL MOUNTED ISOLATED GROUND DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED DOUBLE DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED SPECIAL PURPOSE RECEPTACLE (SEE EQUIPMENT SCHEDULE OR NOTES)	18"
	WALL MOUNTED 125 / 250V NEMA RECEPTACLE (SEE EQUIPMENT SCHEDULE OR NOTES)	AS REQUIRED
	FLOOR MOUNTED DUPLEX RECEPTACLE	
	CEILING FLOOR MOUNTED DUPLEX RECEPTACLE	
	JUNCTION BOX	
	FLOOR BOX WITH RECESSED RECEPTACLE KIT	
	WALL MOUNTED COMBINATION DATA/VOICE OUTLET. PROVIDE JUNCTION BOX WITH 3/4" CONDUIT TO ABOVE CEILING.	18"
	WALL MOUNTED VOICE OUTLET. PROVIDE JUNCTION BOX WITH 3/4" CONDUIT TO ABOVE CEILING.	18"
	WALL MOUNTED DATA OUTLET. PROVIDE JUNCTION BOX WITH 3/4" CONDUIT TO ABOVE CEILING.	18"
	JUNCTION BOX FOR TV. PROVIDE JUNCTION BOX WITH 3/4" CONDUIT TO ABOVE CEILING.	
	WIRELESS ACCESS POINT, CEILING MOUNTED (BY OTHERS)	
	CAMERA (UBIQUITI - UNIFI PROTECT G4-BULLET CAMERA)	
	SPEAKER (ATLAS)	
	STUB-UP DEVICES WITH POWER, TELE/ATA, AV PER PLANS (SEE DRAWINGS FOR MODEL#)	
	POKE-THRU DEVICES WITH POWER AND TELE/ATA PER PLANS (SEE DRAWINGS FOR MODEL)	
	POKE-THRU DEVICES WITH QUAD RECEPT & TELE/ATA OUTLETS (SEE DRAWINGS FOR MODEL)	
	JUNCTION BOX FOR POWER CONNECTION TO MODULAR FURNITURE. COORD. EXACT LOCATION WITH ARCH. PROVIDE ALL REQ. CONNECTIONS (THE OF WORKSTATIONS TO BE POWERED ARE DENOTED BY A NUMBER NEXT TO THE POWER JUNCTION)	
	JUNCTION BOX FOR TELE/ATA CONNECTION TO MODULAR FURN. COORD. EXACT LOCATION WITH ARCH. PROVIDE 1-1/4" EMPTY CONDUIT WITH PULLSTRING TO ABOVE ACCESSIBLE CEILING.	18"
	PROVIDE AND INSTALL JUNCTION BOX ABOVE CEILING TO SUPPLY POWER WHICH SHALL SUPPLY EACH WORKSTATION WITH TWO (2) DUPLEX AND ONE (1) VOICE DATA POWER POLE TO BE SUPPLIED BY TENANT AND INSTALLED BY E.C. (THE OF WORKSTATIONS TO BE POWERED ARE DENOTED BY A NUMBER NEXT TO THE POWER POLE)	18"
	277/480 VOLT OR 120/208 VOLT PANELBOARD AS NOTED ON PLAN DRAWINGS	
	RECESSED MOUNTED 120/208 VOLT PANELBOARD TRANSFORMER	
	LIGHT FIXTURE (REFER LIGHTING FIXTURE SCHEDULE ON LIGHTING PLAN)	
	EXIT SIGN - CEILING, WALL, MT.	
	LIGHT FIXTURE ON EMERGENCY CIRCUIT	
	WALL MOUNTED 3-P.S.T. TOGGLE SWITCH	AS REQUIRED
	WALL MOUNTED 3-WAY TOGGLE SWITCH	AS REQUIRED
	WALL MOUNTED 4-WAY TOGGLE SWITCH	AS REQUIRED
	WALL MOUNTED DIMMER SWITCH (WATTAGE AS REQUIRED)	AS REQUIRED
	WALL MOUNTED TIMER SWITCH	AS REQUIRED
	WALL MOUNTED MANUAL OVERRIDE SWITCH (TO OVERRIDE CIRCUIT DESIGNATED AT LIGHTING CONTACTOR PANEL)	AS REQUIRED
	ACUITY WSX-WH OCCUPANCY SENSOR SWITCH.	48"
	ACUITY WSXD-WH OCCUPANCY SENSOR SWITCH/ DIMMER SWITCH- RUN CONTROL WIRING FOR DIMMER.	48"
	VOLUME CONTROL SWITCH	
	CEILING MOUNTED OCCUPANCY SENSOR	
	TIME CLOCK	
	LIGHTING CONTACTORS	
	MOTOR RATED TOGGLE SWITCH	AS REQUIRED
	COMBINATION MOTOR STARTER/DISCONNECT SWITCH	
	DISCONNECT SWITCH (FRAME/POLES/FUSE/IFE REQUIRED)	
	MOTOR LOAD	
	FIRE ALARM ADA APPROVED VISUAL ALARM - WALL MOUNTED	80" A.F.F.
	FIRE ALARM ADA APPROVED VISUAL ALARM CEILING MOUNTED	
	FIRE ALARM ADA APPROVED AUDIO/VISUAL ALARM - WALL MOUNTED	80" A.F.F.
	FIRE ALARM ADA APPROVED AUDIO/VISUAL ALARM CEILING MOUNTED	
	FIRE ALARM PULL STATION	48" A.F.F.
	SMOKE DETECTOR - CEILING MOUNTED	
	DUCT MOUNTED SMOKE DETECTOR	
	MAGNETIC DOOR HOLD DEVICE TO INTERLOCK WITH FIRE ALARM SYSTEM	

**ELECTRICAL ABBREVIATIONS:**

F.B.O.	FURNISHED BY OTHERS
AFFI/AFG	ABOVE FINISHED FLOOR/ABOVE FINISHED GRADE
BC	BELOW CEILING
AC	ABOVE COUNTER
WP	WEATHER PROOF
E, EX/REN	EXISTING/RELOCATED/NEW
GFI	GROUND FAULT INTERRUPTING CIRCUIT
E.C.	EMPTY CONDUIT (PROVIDE PULLSTRING IN ALL EMPTY CONDUIT)
FPMR	FUSE PER MANUFACTURER'S RECOMMENDATION
IG	ISOLATED GROUND

**NOTES:**

- COORDINATE LOCATION AND SPECIFIC MOUNTING HEIGHT WITH ARCHITECT.
- MOUNTING HEIGHTS SHALL BE AS INDICATED IN THE LEGEND UNLESS OTHERWISE NOTED ON THE PLANS

**CONSULTANT (ENGINEER)**  
**NY ENGINEERS**  
NEARBY ENGINEERS  
382 NE 191ST STREET SUITE  
49674, MIAMI, FL 33179  
PH 914.257.3455  
WWW.NY-ENGINEERS.COM

**PROFESSIONAL SEAL:**

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 2602696910. EXPIRATION DATE: 04/30/2026

**CONTRACTOR'S NOTES:**

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

DATE	ISSUE
07/14/2025	IFC SET
05/29/2025	REVISION 1
05/16/2025	CLIENT COMMENTS
	REVISION

**PROJECT INFORMATION:**

PROJECT NUMBER: 12115-24  
DRAWN BY: NYE  
REVIEWED BY: NYE  
TOTAL SQ. FT.: 3,519  
DATE: 04/25/25

**DRAWING TITLE:**  
**ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES**

**DRAWING NUMBER:**  
**E-0.1**

Property

PROJECT: VIO MED SPA

PLOT SCALE: 1:1

SECTION 26010

ELECTRICAL GENERAL

1.0 GENERAL

1.01 SCOPE

A. DIVISION 26 INCLUDES ALL SPECIFICATIONS IN THE 26000 SERIES AND THE ACCOMPANYING ELECTRICAL DRAWINGS PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT AND ALL NECESSARY OPERATIONS TO PROVIDE THE COMPLETE SCOPE OF THE ELECTRICAL SYSTEMS INTENDED UNDER THIS DIVISION DIVISION 26 IS NOT A STAND-ALONE DOCUMENT, BUT A PART OF THE COMPLETE PROJECT DOCUMENTS.

B. ATTENTION IS CALLED TO THE FACT THAT THERE ARE MANY INTERFACES BETWEEN THE WORK REQUIRED IN THIS DIVISION AND THE WORK REQUIRED IN OTHER DIVISIONS. PROVIDE THE NECESSARY INTERFACE AND COORDINATION WITH OTHER DIVISIONS TO PROVIDE A COMPLETE PROJECT.

1.01 EXISTING CONDITIONS

A. ATTENTION IS CALLED TO THE FACT THAT THE WORK IS TO BE PERFORMED WITHIN AN EXISTING, OPERATIONAL FACILITY PRIOR TO THE SUBMISSION OF BIDS. EACH BIDDER SHALL VISIT THE PROJECT SITE, THOROUGHLY INVESTIGATE AND BE FAMILIAR WITH ALL EXISTING CONDITIONS WHICH WILL AFFECT THEIR WORK; ESPECIALLY THE WORK TO BE PERFORMED ABOVE THE EXISTING CEILING.

1.03 CODES AND REGULATIONS

A. ALL WORK UNDER THIS DIVISION SHALL COMPLY WITH ALL LOCAL BUILDING CODES, LAWS, REGULATIONS, ORDINANCES AND THE REQUIREMENTS OF THE NEW JERSEY BUILDING CODE 2021 ADOPTS WITH AMENDMENTS INTERNATIONAL BUILDING CODE 2021(IBC-2021).

1.04 DEFINITIONS

A. CONTRACT DOCUMENTS: THE COMPLETE SET OF PROJECT DRAWINGS AND SPECIFICATIONS.

1.05 DRAWINGS AND SPECIFICATIONS

A. THE DRAWINGS AND SPECIFICATIONS TOGETHER ARE TO BE CONSIDERED AS THE CONTRACT DOCUMENTS. ANY WORK SHOWN IN AND NOT SHOWN IN THE OTHER, OR IMPLIED BY EITHER, SHALL BE PROVIDED TO GIVE A COMPLETE PROJECT.

1.06 SITE VISIT

A. VISIT THE SITE AND BECOME FAMILIAR WITH ALL ASPECTS OF THE SITE AND EXISTING CONDITIONS BEFORE SUBMITTING CONTRACT PRICE.

1.06 DEVIATIONS

A. NO DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE FULL KNOWLEDGE AND WRITTEN CONSENT OF THE ARCHITECT.

2.0 PRODUCTS

2.01 CONDUIT

A. GALVANIZED RIGID STEEL CONDUIT SHALL BE LOW CARBON, HOT-DIPPED GALVANIZED BOTH INSIDE AND OUT WITH THREADED JOINTS.

2.02 SHOP DRAWINGS AND SUBMITTALS

A. THE ENGINEER'S REVIEW OF SHOP DRAWINGS OR SUBMITTALS IS A CURSORY REVIEW TO CHECK FOR GENERAL COMPLIANCE OF SUBMITTALS WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF COMPLYING WITH THE CONTRACT DOCUMENTS.

2.03 CONDUITORS

A. CONDUCTORS SHALL BE COPPER OF 85% CONDUCTIVITY, 600 VOLT INSULATION SIZE SPECIFIED ARE AWG GAUGE FOR NO. 4/0 AND SMALLER AND CIRCULAR MILS (CMC) FOR ALL SIZES LARGER THAN NO. 4/0. CONDUCTORS NO. 10 AND SMALLER SHALL BE SOLID AND TYPE THW OR THWN INSULATION. NO. 8 AND LARGER SHALL BE STRANDED AND TYPE THW OR XHHW INSULATION.

2.04 OUTLETS

A. OUTLET BOXES AND COVERS SHALL BE OF SUCH FORM AND DIMENSIONS AS TO BE ADAPTED TO THEIR SPECIFIED USAGE. LOCATIONS, SIZE AND QUANTITY OF CONDUIT AND SIZE AND QUANTITY OF CONDUCTORS ENTERING THE BOXES, IN SPECIAL, "FIRE RATED" PARTITIONS, OUTLETS SHALL COMPLY WITH ASTM NO. E119.

INITIALS THAT ALL COORDINATION HAS TAKEN PLACE. THE STAMP SHALL INCLUDE THE DATE, NAME OF THE CONTRACTING FIRM, THE SIGNATURE OF THE CONTRACTOR, CERTIFICATION OF COMPLIANCE AND APPROVAL. THIS STAMP SHALL BE ON THE SUBMITTAL BEFORE THE ENGINEER WILL REVIEW IT.

3.0 EXECUTION

3.01 COORDINATION

A. COORDINATE ALL SPACE REQUIREMENTS WITH ALL OTHER DIVISIONS BEFORE INSTALLING ANY WORK. INSTALL WORK SUCH THAT ADEQUATE SPACE WILL BE ALLOTTED FOR ALL OTHER WORK FROM OTHER DIVISIONS TO BE INSTALLED AND ALSO WILL ALLOW ROOM FOR FUTURE ACCESS FOR REPAIR AND MAINTENANCE.

3.02 PROTECTION OF MATERIALS

A. ALL EQUIPMENT SHALL HAVE THE ORIGINAL FINISH WHEN THE BUILDING IS TURNED OVER TO THE OWNER.

3.03 TESTS, DEMONSTRATION AND INSTRUCTIONS

3.04 GUARANTEE

A. ALL SYSTEMS, EQUIPMENT, COMPONENTS, WORK, ETC. PROVIDED UNDER THIS DIVISION SHALL BE GUARANTEED BY A ONE YEAR GUARANTEE STARTING AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER.

END OF SECTION

SECTION 26100

ELECTRICAL BASIC MATERIALS & METHODS

1.0 GENERAL

1.01 DESCRIPTION

A. ALL WORK SPECIFIED IN THIS SECTION SHALL COMPLY WITH THE PROVISIONS OF SECTION 260010.

2.0 PRODUCTS

2.01 CONDUIT

A. GALVANIZED RIGID STEEL CONDUIT SHALL BE LOW CARBON, HOT-DIPPED GALVANIZED BOTH INSIDE AND OUT WITH THREADED JOINTS.

2.02 CONDUIT FITTINGS

A. RIGID CONDUIT AND IMC CONDUIT FITTINGS SHALL BE ZINC-COATED, FERROUS METAL AND TAPER THREADED TYPE.

2.03 CONDUITORS

A. CONDUCTORS SHALL BE COPPER OF 85% CONDUCTIVITY, 600 VOLT INSULATION SIZE SPECIFIED ARE AWG GAUGE FOR NO. 4/0 AND SMALLER AND CIRCULAR MILS (CMC) FOR ALL SIZES LARGER THAN NO. 4/0. CONDUCTORS NO. 10 AND SMALLER SHALL BE SOLID AND TYPE THW OR THWN INSULATION. NO. 8 AND LARGER SHALL BE STRANDED AND TYPE THW OR XHHW INSULATION.

2.04 OUTLETS

A. OUTLET BOXES AND COVERS SHALL BE OF SUCH FORM AND DIMENSIONS AS TO BE ADAPTED TO THEIR SPECIFIED USAGE. LOCATIONS, SIZE AND QUANTITY OF CONDUIT AND SIZE AND QUANTITY OF CONDUCTORS ENTERING THE BOXES, IN SPECIAL, "FIRE RATED" PARTITIONS, OUTLETS SHALL COMPLY WITH ASTM NO. E119.

B. FLUSH CEILING OUTLETS FOR SURFACE OR PENDANT MOUNTED LIGHTING FIXTURES SHALL BE ONE-PIECE 4" SQUARE OCTAGONAL PRESSED STEEL BOXES. BOXES FOR DEVICES IN UNFINISHED MASONRY WALLS OR STUD WALLS SHALL BE PRESSED STEEL SQUARE CORNER SECTIONAL SWITCH BOXES OR SHALL BE 4" SQUARE BOX WITH A SQUARE CORNERED TIE WALL COVER. SET FLUSH WITH MASONRY. CONSTRUCTION BOXES IN CONCRETE CEILING SLAB SHALL BE OCTAGONAL, SHALLOW CONCRETE BOXES. WELDED BOXES ARE NOT ACCEPTABLE.

2.05 DISCONNECT SWITCHES

A. DISCONNECT SWITCHES SHALL BE "HEAVY-DUTY" TYPE, ENCLOSED SWITCHES OF QUICK-MAKE, QUICK-BREAK CONSTRUCTION. SWITCHES SHALL BE HORSEPOWER RATED FOR 600 VOLTS AC AS REQUIRED. LUGS SHALL BE UL LISTED FOR COPPER AND ALUMINUM.

2.06 NAMEPLATES

A. NAMEPLATES SHALL HAVE 3/8" HIGH ENGRAVED LETTERS.

2.07 WALL SWITCHES

A. WALL SWITCHES SHALL BE PLASTIC, TOTALLY ENCLOSED, EXISTING TYPE, SELF-GROUNDING, SIDE WIRED, 120V, 15A, RATINGS AND SHALL MATCH EXISTING IF POSSIBLE AND EQUAL THE FOLLOWING:

2.08 WALL MOUNTED OCCUPANCY SWITCHES

A. THE DUAL TECHNOLOGY OCCUPANCY SENSOR SHALL BE A COMPLETELY SELF-CONTAINED CONTROL SYSTEM THAT REPLACES A STANDARD TOGGLE SWITCH. SENSOR SHALL HAVE GROUND WIRE FOR SAFETY SWITCHING MECHANISM SHALL BE A LATCHING AIR GAP RELEASE COMPATIBLE WITH ELECTRONIC BALLASTS, COMPACT FLUORESCENT AND INDUCTIVE LOADS, TRIAC AND OTHER HARMONIC GENERATING DEVICES SHALL NOT BE ALLOWED.

2.09 RECEPTACLES

A. DUPLEX RECEPTACLES SHALL BE PLASTIC, TWO-POLE, THREE WIRE, SELF-GROUNDING, SIDE WIRED, 120V, 15A, RATINGS AND SHALL MATCH EXISTING IF POSSIBLE AND BE EQUAL TO THE FOLLOWING: DUPLEX RECEPTACLES SHALL BE HUBBELL NO. GR282 SERIES, OR EQUAL BY LEVITON, P&S OR COOPER. ISOLATED GROUND TYPE SHALL BE HUBBELL NO. GR5252G SERIES, OR EQUAL BY LEVITON, P&S OR COOPER.

2.09 COVERPLATES

A. COVERPLATES FOR FLUSH MOUNTED DEVICES SHALL BE STANDARD SIZE (COLOR OR FINISH TO BE SELECTED BY THE ARCHITECT), HUBBELL "P" SERIES OR EQUAL BY LEVITON, P&S OR COOPER.

2.11 PLYWOOD BACKBOARDS

A. PROVIDE PLYWOOD BACKBOARDS WHERE SHOWN. BACKBOARDS SHALL BE MINIMUM 3/4" THICK AND SIZED AS SHOWN OR TO ACCOMMODATE EQUIPMENT INDICATED TO BE MOUNTED THEREON.

2.12 SMOKE AND FIRE STOP FITTINGS

A. SMOKE AND FIRE STOP FITTINGS SHALL BE UL LISTED FOR THAT PURPOSE. THE FITTINGS USED TO SEAL CONDUIT EITHER ON THE OUTSIDE OF THE CONDUIT BUSWAY OR CABLE OR INTERNALLY SHALL HAVE HEAT ACTIVATED INTUMESCENT MATERIAL, WHICH EXPANDS TO FILL ALL VOIDS. SMOKE AND FIRE STOP FITTINGS SHALL BE 0.2 (GENEY "FIRE-SEAL" OR DOW CORNING SILICONE RTV FOM WITH AN HOURLY FIRE-RATING EQUAL TO OR HIGHER THAN THE RATING OF THE FLOOR, CEILING OR WALL THROUGH WHICH THE CABLE OR CONDUIT PASSES. THE SEALS FOR CONDUIT SHALL BE OF THE FLANGED TYPE.

2.13 FUSES

A. PROVIDE ALL MANUFACTURED, ALL FUSES SHALL BE OF THE SAME MANUFACTURER. ALL FUSES SHALL BE OF THE HIGH INTERRUPTING RATING (200,000 AMPERS). CURRENT LIMITING TYPE AND MANUFACTURED BY BUSSMANN. FUSES SHALL BE PROVIDED FOR EACH FLUSH CUTOUT AND THE SPECIFIED QUANTITY OF FUSES SHALL BE FURNISHED FOR SPARES.

3.05 NAMEPLATES

A. PROVIDE SPECIFIED NAMEPLATES ON THE MAIN SWITCHBOARD, DISTRIBUTION

LABORATORIES, INC. WITH AN INTERRUPTING RATING OF 200,000 AMPERES RMS SYMMETRICAL. THE FUSES SHALL BE UL CLASS 1.

3.0 EXECUTION

3.01 CONDUIT

A. RIGID STEEL OR IMC SHALL BE USED FOR SERVICE ENTRANCE AND ALL FEEDERS AND BRANCH CIRCUITS WHERE EXPOSED TO DAMAGE.

3.02 FLEXIBLE CONDUIT

A. PVC EXTRUDED COVER FLEXIBLE CONDUIT SHALL BE USED IN MAKING SHORT FLEXIBLE CONNECTIONS TO ROTATING OR VIBRATING MACHINERY OR EQUIPMENT. PROVIDE SPECIFICATIONS TO ROTATING DEVICES SHALL BE AS SHORT AS POSSIBLE, BUT SHALL HAVE A MINIMUM LENGTH OF 12".

3.03 WIRING

A. ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT. NO CONDUCTORS SHALL BE PULLED INTO THE CONDUIT UNTIL THE CONDUIT SYSTEM IS COMPLETE AND PLASTER HAD DRIED. WIRE PULLING LUBRICANTS SHALL BE GARDNER-BENDER 'WIREAIDE' OR IDEAL 'YELLOW 77'.

3.04 OUTLETS

A. PROVIDE GALVANIZED STEEL OR CAST TYPE BOXES FOR ALL OUTLETS.

3.05 NAMEPLATES

A. PROVIDE SPECIFIED NAMEPLATES ON THE MAIN SWITCHBOARD, DISTRIBUTION

PANELS, FEEDER SWITCHES, FEEDER BREAKERS, PANELBOARDS MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, CONTACTORS, STARTERS, TRANSFORMERS, START-STOP PUSH BUTTONS AND MOTOR SWITCHES.

3.06 WALL SWITCHES AND RECEPTACLES

A. WHERE MORE THAN ONE DEVICE IS INDICATED AT A LOCATION, THE DEVICES SHALL BE GANG-MOUNTED IN COMBINED MULTI-GANG BOXES AND COVERED JOINTLY BY A COMMON COVERPLATE. PROVIDE BARRIERS AS REQUIRED BY THE DEVICES AND VOLTAGES BEING USED.

3.07 COVERPLATES

A. AL JUNCTION BOXES, OUTLET BOXES, MULTI-GANG SWITCH BOXES, UTILITY BOXES, ETC., SHALL BE COVERED WITH A COVERPLATE. THE COVERPLATE SHALL BE A FINISHED PLATE AS SPECIFIED UNLESS DESIGNATED OTHERWISE.

3.08 GROUNDING

A. GROUND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

3.09 TELEPHONE CONDUIT SYSTEM

A. TELEPHONE SERVICE SHALL INCLUDE WOOD BACKBOARDS AND EQUIPMENT CABINETS WITH SERVICE ENTRANCE CONDUIT AS SHOWN.

3.10 CONNECTION TO EQUIPMENT

A. EQUIPMENT FURNISHED BY THE OWNER OR UNDER OTHER SECTIONS, SUCH AS MECHANICAL EQUIPMENT, ELEVATORS, ESCALATORS, SIGNS, KITCHEN EQUIPMENT, ETC., WILL BE INSTALLED BY OTHERS. PROVIDE ELECTRICAL SERVICE AND MAKE THE ELECTRICAL CIRCUIT CONNECTION TO THIS EQUIPMENT.

3.11 CORING, CUTTING AND PATCHING

A. SET SLEEVES FOR CONDUIT ACCURATELY BEFORE THE CONCRETE FLOORS ARE POURED, OR SET BOXES ON THE FORMS SO AS TO LEAVE OPENINGS IN THE FLOORS IN WHICH THE REQUIRED SLEEVES CAN BE SUBSEQUENTLY LOCATED. FILL IN THE VOIDS AROUND THE SLEEVES WITH CONCRETE.

3.12 EQUIPMENT ANCHORING

A. ALL ITEMS OF ELECTRICAL EQUIPMENT, SUCH AS SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, STANDBY GENERATOR, ETC., SHALL BE SECURELY ANCHORED TO THE BUILDING STRUCTURE. THE ANCHORING SHALL BE ACCOMPLISHED BY UTILIZING A MINIMUM SIZE OF 3/8" STEEL ANCHOR BOLTS IN THE STRUCTURE AND TO THE ITEM OF EQUIPMENT. A MINIMUM OF TWO (2) ANCHOR BOLTS SHALL BE PROVIDED ON EACH SIDE OF EACH ITEM OF EQUIPMENT WITH THE FOLLOWING EXCEPTIONS:

EXCEPTION NO. 1:

IF THE EQUIPMENT MANUFACTURER INCLUDES MORE THAN TWO (2) ANCHOR HOLES PER SIDE IN THE BASE OR FRAME FRAME OF THE EQUIPMENT ITEM, THEN THERE SHALL BE ONE ANCHOR FOR EACH ANCHOR HOLE.

EXCEPTION NO. 2:

IF THE EQUIPMENT MANUFACTURER RECOMMENDS A PARTICULAR QUANTITY GREATER THAN TWO (2) PER SIDE, THEN THAT QUANTITY OF ANCHORS SHALL BE PROVIDED.

END OF SECTION

CONSULTANT (ENGINEER)

NY ENGINEERS

NEARBY ENGINEERS

382 NE 191ST STREET SUITE 49674 MIAMI, FL 33179

PH 914.257.3455

WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 2602698910 EXPIRATION DATE: 04/30/2028

CONTRACTOR'S NOTES:

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE ISSUE

02/21/25 100% PERMIT SET

04/25/25 100% PERMIT SET

PROJECT INFORMATION:

PROJECT NUMBER: 12115-24

DRAWN BY: NYE

REVIEWED BY: NYE

TOTAL SQ. FT.: 3,519

DATE: 04/29/25

DRAWING TITLE:

ELECTRICAL SPECIFICATIONS SHEET 1 OF 2

DRAWING NUMBER:

E-0.2

1 SCALE ELECTRICAL SPECIFICATIONS

N.T.S.

PROJECT: VIO MED SPA

PLOT SCALE: 1:1

SECTION 262000

SERVICE AND DISTRIBUTION

1.0 GENERAL

1.01 DESCRIPTION

- A. ALL WORK SPECIFIED IN THIS SECTION SHALL COMPLY WITH THE PROVISIONS OF SECTION 260010.
B. PROVIDE A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM...
C. ALL DISTRIBUTION SWITCHGEAR (BRANCH CIRCUIT PANELBOARDS, SWITCHBOARD, DISTRIBUTION PANELBOARDS, TRANSFORMERS, BUSWAY, ETC.) SHALL BE THE UNIT RESPONSIBILITY OF ONE MANUFACTURER...
D. SHOP DRAWINGS FOR EQUIPMENT SPECIFIED IN THIS SECTION SHALL SHOW THAT ALL SPECIFIED REQUIREMENTS HAVE BEEN INCORPORATED.
E. ALL FLOOR MOUNTED DISTRIBUTION EQUIPMENT SHALL BE MOUNTED ON A 4" HIGH CONCRETE PAD.

1.02 ELECTRICAL SERVICE (EXISTING)

1.03 METERING (EXISTING)

2.0 PRODUCTS

2.01 BRANCH CIRCUIT PANELBOARDS

- A. PANELBOARDS (PANELS) SHALL BE GENERAL PURPOSE ENCLOSURES AND SHALL BE SURFACE OR FLUSH MOUNTED AS INDICATED...
B. BOXES AND TRIM SHALL BE MADE FROM CODE GAUGE STEEL...
C. HINGED DOOR COVERING ALL DEVICE HANDLES SHALL BE INCLUDED IN ALL PANEL TRIM...
D. TRIMS FOR FLUSH PANELS SHALL OVERLAP THE BOX BY AT LEAST 3/4" ALL AROUND...
E. ALL EXTERIOR AND INTERIOR STEEL SURFACES OF THE TRIM SHALL BE CLEANED AND FINISHED WITH GRAY PAINT OVER A RUST-INHIBITING PHOSPHATIZED COATING...
F. ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED WITH PROTECTIVE DEVICES, WIRE CONNECTORS, ETC. ALL WIRE CONNECTORS, EXCEPT SCREW TERMINALS, SHALL BE OF THE ANTI-TURN SOLDERLESS TYPE...
G. INTERIORS SHALL BE SO DESIGNED THAT DEVICES CAN BE REPLACED WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT REMOVING THE MAIN BUS CONNECTORS...
H. BUS BARS FOR THE MAINS SHALL BE OF COPPER SIZED IN ACCORDANCE WITH U.L. STANDARDS...
I. PHASE BUSSING SHALL BE FULL HEIGHT WITHOUT REDUCTION...
J. THE NEUTRAL BUS SHALL UTILIZE SETSCREWS TO BOND THE NEUTRAL WIRE TO THE NEUTRAL BUS THROUGH HOLES DRILLED IN THE NEUTRAL BAR...
K. SPACES FOR FUTURE DEVICES SHALL BE INCLUDED AS INDICATED...
L. ALL CIRCUIT BREAKERS SHALL BE MANUALLY OPERATED...
M. PANELS HAVING SUB-FEED LUGS FOR FEEDING THROUGH SHALL HAVE 8" MINIMUM EXTRA GUTTER SPACE AT THE LUG END AND ON ONE SIDE...
N. EACH PANEL AS A COMPLETE UNIT SHALL HAVE A SHORT-CIRCUIT CURRENT RATING EQUAL TO OR GREATER THAN THE EQUIPMENT RATING INDICATED...
O. PANELS SHALL BE AS MANUFACTURED BY SAME MANUFACTURER INSTALLED IN THE BASE BUILDING.

2.02 TRANSFORMERS

- A. BRANCH CIRCUIT AND DISTRIBUTION TRANSFORMERS SHALL BE THE DRY TYPE AND SHALL HAVE THE RATINGS INDICATED.
B. SINGLE PHASE TRANSFORMERS SHALL BE 480 VOLT PRIMARY AND 120/208 VOLT SECONDARY...
C. TRANSFORMERS SHALL HAVE A U.L. RECOGNIZED 220 DEGREE INSULATION SYSTEM AND SHALL BE DESIGNED SO THAT UNDER FULL LOAD, THE AVERAGE CONDUCTOR TEMPERATURE RISE DOES NOT EXCEED 115 DEGREE C...
D. TRANSFORMER COILS SHALL BE OF THE CONTINUOUS WOUND CONSTRUCTION AND SHALL BE IMPREGATED WITH NON-HYGROSCOPIC THERMOSETTING VARNISH...
E. TRANSFORMERS SHALL BE COMPLIANT WITH THE 2016 DOE EFFICIENCY STANDARDS.

TABLE 1.6 - ELECTRICAL EFFICIENCIES FOR ALL LOW-VOLTAGE DRY-TYPE DISTRIBUTION TRANSFORMER EQUIPMENT CLASSES

Table with 4 columns: Equipment Class, kVA, % Efficiency, and % Loss. Rows include Class 3 (Single-Phase) and Class 4 (Three-Phase) for various kVA ratings from 15 to 333.

- G. TRANSFORMERS THAT ARE OF THE FLOOR-MOUNTED TYPE SHALL BE MOUNTED ON KOPFLIND VIBRATION ELIMINATORS OF THE PAD TYPE.
H. TRANSFORMERS SHALL BE AS MANUFACTURED BY SAME MANUFACTURER INSTALLED IN THE BASE BUILDING.

3.0 EXECUTION

3.01 INSTALLATION

- A. PROVIDE A TYPEWRITTEN DIRECTORY UNDER PLASTIC FOR ALL PANELBOARDS WITH SPARES MARKED IN PENCIL...
B. PROVIDE ALL NECESSARY HARDWARE TO LEVEL AND SECURE THE SWITCHGEAR AS REQUIRED BY THE MANUFACTURER'S INSTRUCTIONS...
C. CLEAN ENCLOSURE OF ALL SWITCHGEAR OF ALL FOREIGN MATTER...
D. REMOVE ALL RUST MARKS AND REPAINT TO LEAVE SWITCHGEAR IN NEW CONDITION.

END OF SECTION

SECTION 263000

LIGHTING

1.0 GENERAL

1.01 DESCRIPTION

- A. ALL WORK IN THIS SECTION SHALL COMPLY WITH THE PROVISIONS OF SECTION 260010.
B. PROVIDE ALL LIGHTING FIXTURES AND LAMPS AS SPECIFIED HEREIN AND AS SHOWN.
C. ALL LAMPS SHALL BE OPERATING AT THE TIME OF THE FINAL INSPECTION AND FOR A PERIOD OF SIX (6) MONTHS AFTER THE FINAL ACCEPTANCE OF THE PROJECT BY THE OWNER.
D. CONFIRM EXACT LOCATIONS OF ALL LIGHTING FIXTURES BY COORDINATION WITH THE ARCHITECT'S REFLECTED CEILING PLANS AND MECHANICAL EQUIPMENT ABOVE OR ON THE CEILING.
E. CONFIRM ALL CEILING TYPES BEFORE ORDERING LIGHTING FIXTURES.
F. EACH LIGHTING FIXTURE SHALL HAVE BEEN TESTED AND CERTIFIED FOR PROPER OPERATION BY THE FIXTURE MANUFACTURER FOR THE TYPE MOUNTING AND CEILING ONWH, WHICH IT IS INSTALLED.

2.0 PRODUCTS

2.01 LIGHTING FIXTURES

- A. EACH LIGHTING FIXTURE SHALL BE AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE CORRESPONDING WITH ITS FIXTURE TYPE INDICATION (LETTER).
B. MOST LIGHTING FIXTURES ARE LETTERED OR GROUPS OF OUTLETS ARE INDICATED BY A LETTER.
C. EACH LIGHTING FIXTURE SHALL HAVE A MANUFACTURER'S LABEL AFFIXED AND SHALL COMPLY WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION.
D. THE LIGHTING FIXTURES THAT ARE INDICATED BY THE LETTERS SHALL BE AS INDICATED ON THE LIGHTING FIXTURE SCHEDULE.

2.02 LAMPS

- A. THE TYPE LAMPS SHALL BE AS SPECIFIED FOR EACH LIGHTING FIXTURE IN THE LIGHTING FIXTURE SCHEDULE.
B. THE LAMP CATALOG NUMBER IS THE CATALOG NUMBER IS GENERALLY FOR SYLVANIA LIGHTING AND IS GIVEN AS A STANDARD OF THE QUALITY AND PERFORMANCE REQUIRED...
C. FLUORESCENT LAMPS SHALL BE AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.
D. INCANDESCENT LAMPS SHALL BE AS SPECIFIED IN LIGHTING FIXTURE SCHEDULE.
E. ALL INCANDESCENT LAMPS, EXCEPT QUARTZ TUBES, SHALL BE RATED FOR 130 VOLT OPERATION.
F. HIGH INTENSITY DISCHARGE (HID) LAMPS SHALL BE AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.

2.03 BALLASTS

- A. FLUORESCENT BALLAST SHALL BE ELECTRONIC TYPE MANUFACTURED BY MOTOROLA, MAGNETEK OR ADVANCE.
B. BALLAST SHALL OPERATE LAMPS AT A FREQUENCY OR 25 KHZ OR HIGHER WITH LESS THAN 2% LAMP FLICKER.
C. BALLAST SHALL OPERATE AT AN INPUT VOLTAGE OF 108-132 VAC (120V LINE) OR 249 -305 VAC(277V LINE) AT AN INPUT FREQUENCY OF 60HZ...
D. BALLAST SHALL COMPLY WITH EMI AND RFI LIMITS SET BY THE FCC...
E. BALLAST SHALL WITHSTAND TRANSIENTS AS SPECIFIED BY ANSI C.62-41 FOR LOCATION CATEGORY A3 IN THE NORMAL MODE AND LOCATION CATEGORY A1 IN THE COMMON MODE.
F. BALLAST SHALL MEET APPLICABLE ANSII STANDARDS.
G. BALLAST SHALL HAVE A MINIMUM POWER FACTOR OF 0.99.
H. BALLAST SHALL NOT BE POTTED OR WEIGH MORE THAN 1.3 POUNDS.
I. BALLAST SHALL HAVE LESS THAN 10% TOTAL HARMONIC DISTORTION.
J. BALLAST SHALL HAVE LESS THAN 6% THIRD HARMONIC DISTORTION.
K. BALLAST HEIGHT SHALL BE LESS THAN OR EQUAL TO 1.5 INCHES.
L. BALLAST SHALL HAVE A POKE-IN WIRETRAP CONNECTOR.
M. BALLAST SHALL MEET SOUND RATING "A".
N. BALLAST MUST BE UNDERWRITERS LABORATORIES (UL) LISTED CLASS P, TYPE 1 OUTDOOR.
O. BALLAST SHALL PROVIDE NORMAL RATED LAMP LIFE AS STATED BY LAMP MANUFACTURERS.
P. RAPID START BALLASTS ARE SERIES WIRED AND SHALL MAINTAIN FULL CATHODE HEAT DURING OPERATION.
Q. RAPID START BALLAST SHALL HAVE LESS THAN A 1.5 LAMP CURRENT CREST FACTOR (LCCF) AND INSTANT START BALLASTS HAVE LESS THAN A 1.7 LCCF.
R. INSTANT START BALLAST SHALL HAVE PARALLEL LAMP OPERATION.
S. BALLAST FACTOR STANDARD IS 875+0.025 ON ALL NORMAL LIGHT OUTPUT PRODUCTS.
T. BALLASTS FOR "PL" FLUORESCENT LAMPS SHALL BE COORDINATED WITH LAMPS AND 2-PIN OR 4-PIN CONFIGURATION BALLASTS SHALL BE PROVIDED TO MATCH LAMPS.
U. BALLASTS FOR HIGH INTENSITY DISCHARGE (HID) LAMPS SHALL BE CONSTANT WATTAGE AUTOTRANSFORMER (CWA) TYPE OR EQUAL TYPE WITH MINIMUM POWER FACTOR OF 0.9.

2.04 DIFFUSERS

- A. UNLESS SPECIFIED OTHERWISE, ALL PRISMATIC DIFFUSERS FOR FLUORESCENT LIGHTING FIXTURES SHALL BE PRISMATIC ACRYLIC K5H K12 WITH A THICKNESS OF 0.125", MEASURED FROM THE BACK SIDE TO THE PEAK OF THE PRISM.
B. ALL WRAPAROUND LENSES SHALL BE VIRGIN ACRYLIC, ONE-PIECE AND INJECTION MOLDED.

2.05 EMERGENCY BATTERY LIGHTING

- A. LIGHTING FIXTURES INDICATED ON THE DRAWINGS TO BE PROVIDED WITH AN EMERGENCY BATTERY BALLAST SHALL PROVIDE EMERGENCY LIGHTING BY USING A STANDARD FLUORESCENT LAMP OR LAMPS AND AN EMERGENCY BATTERY BALLAST...
B. THE TEST BUTTON AND INDICATOR LIGHT SHALL BE INTEGRAL IN THE FIXTURE REFLECTOR AND SHALL BE POSITIONED WITHIN OR ON THE SURFACE OF THE FIXTURE SO AS TO BE ACCESSIBLE AND IDENTIFIABLE.
C. UNDER NORMAL MODE THE BATTERY BALLAST SHALL KEEP THE BATTERIES AT FULL CHARGE...
D. BATTERY RECHARGE TIME SHALL NOT EXCEED 16 HOURS TO FULLY RECHARGE AND SHALL NOT EXCEED 225 MILLIAMPERES CHARGING CURRENT.
E. THE LUMEN OUTPUT OF THE LAMP OR LAMPS POWERED BY BATTERY UNIT SHALL BE NOT LESS THAN 1,100 LUMENS INITIALLY FOR A FOUR-FOOT FLUORESCENT LAMP.
F. THE BATTERY BALLAST SHALL MEET OR EXCEED ALL THE REQUIREMENTS SET FORTH IN UL924 EMERGENCY LIGHTING AND POWER EQUIPMENT AND SHALL BE UL LISTED FOR INSTALLATION ON TOP OF OR REMOTE FROM THE FIXTURE...

2.06 LIGHT FIXTURE TRIM

- A. EACH RECESSED LIGHTING FIXTURE SHALL HAVE A TRIM TO MATCH THE TYPE OF SPARES MARKED IN PENCIL...
B. EACH LIGHTING FIXTURE RECESSED IN A PLASTERED CEILING OF ANY TYPE SHALL HAVE A PLASTER FRAME.
C. UNDER NORMAL MODE THE BATTERY BALLAST SHALL KEEP THE BATTERIES AT FULL CHARGE...
D. BATTERY RECHARGE TIME SHALL NOT EXCEED 16 HOURS TO FULLY RECHARGE AND SHALL NOT EXCEED 225 MILLIAMPERES CHARGING CURRENT.

2.07 RECESSED INCANDESCENT FIXTURES

- A. ALL RECESSED INCANDESCENT FIXTURES SHALL COMPLY WITH ARTICLE 410-110, C OF THE N.E.C.

2.08 FLUORESCENT FIXTURES

- A. ALL INDOOR FLUORESCENT FIXTURES UTILIZING DOUBLE ENDED LAMPS OR THAT ARE SUPPLIED FROM MULTIWIRE BRANCH CIRCUITS, SHALL HAVE A DISCONNECTING MEANS THAT COMPLIES WITH ARTICLE 410.130, G OF THE N.E.C.

2.09 LED LIGHTING FIXTURES

- A. LED LAMPS FOR INTERIOR USE SHALL BE 3500K, CRI 80 (MIN.), UNLESS NOTED OTHERWISE...
B. SYSTEM SHALL BE RATED AT A MINIMUM FOR 50,000 HOURS (MIN.) AT 70% LUMEN MAINTENANCE (L80).
C. SYSTEM SHALL COMPLY WITH THE FOLLOWING:
D. LED DRIVERS SHALL BE ELECTRONIC, THERMALLY PROTECTED AND HAVE AN INPUT VOLTAGE AT 120/277VAC, 60HZ WITH A POWER FACTOR OF >0.90.
E. LED BOARDS AND DRIVERS SHALL BE PROVIDED WITH PLUG-IN CONNECTIONS FOR TOOL-LESS REPLACEMENT OF COMPONENTS.
F. COMPATIBILITY OF DIMMING SWITCHES FOR CONTROL OF DIMMABLE LED DRIVERS SHALL BE CONFIRMED WITH LED FIXTURE MANUFACTURER.

3.0 EXECUTION

3.01 SUPPORT OF LIGHTING FIXTURES

- A. ALL LIGHTING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE...
B. FLUORESCENT FIXTURES INSTALLED RECESSED IN A SUSPENDED CEILING SYSTEM SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE...
C. FLUORESCENT FIXTURES INSTALLED IN OR ON ANY CEILING OTHER THAN A SUSPENDED CEILING SYSTEM SPECIFICALLY MENTIONED ABOVE SHALL BE SUPPORTED WITH CONCEALED STEEL RODS...
D. PENDANT MOUNTED INCANDESCENT FIXTURES SHALL BE STEM SUPPORTED BY A FIXTURE STUD MOUNTED IN THE OUTLET BOX...
E. SPECIAL ATTENTION SHALL BE GIVEN TO LIGHTING FIXTURES INDICATED TO BE MOUNTED WITHIN, UNDER, OR OTHERWISE INCORPORATED INTO MILLWORK OR CABINERY.
F. REFER TO THE ARCHITECTURAL DRAWINGS AND DETAILS FOR SPECIFIC DIMENSIONS...
C. THIS REQUIREMENT IS INTENDED TO PRECLUDE INCURRING ADDITIONS TO THE CONTRACT DUE TO FIXTURES BEING TOO SMALL OR TOO LARGE FOR THE SPACE.

3.02 AIMING OF ADJUSTABLE LIGHT FIXTURES

- A. ALL FIXTURES WITH LAMP POSITION, TILT, SHUTTERS, ROTATION, OR OTHER TYPES OF ADJUSTMENTS DURING THE FINAL INSPECTION, FIXTURES SERVING AREAS WHERE DAY LIGHTING IS PREDOMINANT WILL BE ADJUSTED AFTER SUNSET.

3.03 LIGHTING FIXTURES IN MILLWORK

- A. SPECIAL ATTENTION SHALL BE GIVEN TO LIGHTING FIXTURES INDICATED TO BE MOUNTED WITHIN, UNDER, OR OTHERWISE INCORPORATED INTO MILLWORK OR CABINERY.
B. REFER TO THE ARCHITECTURAL DRAWINGS AND DETAILS FOR SPECIFIC DIMENSIONS...
C. THIS REQUIREMENT IS INTENDED TO PRECLUDE INCURRING ADDITIONS TO THE CONTRACT DUE TO FIXTURES BEING TOO SMALL OR TOO LARGE FOR THE SPACE.

3.04 FINAL PREPARATION

- A. ALL PLASTIC COVERS SHALL BE REMOVED FROM FLUORESCENT FIXTURES.
B. CLEAN ALL LENS AND REFLECTORS FROM DEBRIS, FINGERPRINTS, DUST, ETC.

END OF SECTION

SECTION 269200

MOTOR CONTROLS AND WIRING

1.0 GENERAL

1.01 SCOPE

- A. ALL WORK SPECIFIED IN THIS SECTION SHALL COMPLY WITH THE PROVISIONS OF SECTION 260010.
B. ALL MOTORS SHALL BE PROVIDED UNDER DIVISION 22 AND 23.
C. A MOTOR STARTER SHALL BE PROVIDED UNDER THIS SECTION FOR EACH MOTOR EXCEPT FAN, EXHAUST, SPRING TYPE, WITH THE FOLLOWING EXCEPTIONS...
D. MOTOR POWER WIRING IS DEFINED AS THOSE CONDUCTORS BETWEEN THE ENERGY SOURCE AND THE MOTOR...
E. ALL CONTROL WIRING REQUIRED FOR AUTOMATIC STARTING AND STOPPING OF MOTORS SHALL BE PROVIDED UNDER DIVISION 22 OR 23...
F. POWER WIRING SHALL BE CONNECTED THROUGH ALL LINE VOLTAGE CONTROL DEVICES SUCH AS FIRESTATS AND THERMOSTATS.

2.0 PRODUCTS

2.01 MOTOR STARTERS

- A. STARTERS FOR MOTORS 1/3 HORSEPOWER OR SMALLER SHALL BE MANUAL UNLESS REMOTE OR AUTOMATIC STARTING IS REQUIRED...
B. EACH STARTER FOR A THREE-PHASE MOTOR SHALL BE FURNISHED WITH THREE (3) OVERLOAD RELAYS SIZED FOR THE FULL LOAD RUNNING CURRENT...
C. EACH OVERLOAD RELAY SHALL HAVE A NORMALLY OPEN ALARM CONTACT WHICH WILL CLOSE ONLY WHEN ACTUATED BY AN OVERLOAD...
D. INDIVIDUALLY MOUNTED MOTOR STARTERS SHALL BE IN A NEMA TYPE 1 GENERAL PURPOSE ENCLOSURE...
E. A CONTROL POWER TRANSFORMER SHALL BE PROVIDED AT EACH MOTOR STARTER FOR CONNECTION TO THE CONTROLS PROVIDED UNDER DIVISION 22 OR 23...
F. ALL MOTOR STARTERS, PUSH BUTTONS AND PILOT LIGHTS SHALL BE OF THE SAME MANUFACTURER AS THE SWITCHBOARD AND SHALL BE GENERAL ELECTRIC, SQUARE D, SIEMENS I.T.E., JOSLYN CLARK CONTROLS OR WESTINGHOUSE.

2.02 COMBINATION STARTERS

- A. COMBINATION STARTERS SHALL CONSIST OF A CIRCUIT BREAKER AND A MOTOR STARTER MOUNTED IN A COMMON NEMA TYPE 1 GENERAL PURPOSE ENCLOSURE.
B. THE MOTOR STARTER COMPONENTS SHALL BE AS SPECIFIED IN PARAGRAPH 2.01 FOR MOTOR STARTERS.
C. THE CIRCUIT BREAKER COMPONENT SHALL BE A MINIMUM 22,000 RMS INTERRUPTING CAPACITY AND SHALL BE AS REQUIRED IN SECTION 262000.

3.0 EXECUTION

3.01 INSTALLATION

- A. PROVIDE POWER WIRING TO AND INSTALL ALL MOTOR STARTERS, UNLESS INTEGRALLY FACTORY MOUNTED ON A PIECE OF EQUIPMENT.
B. PROVIDE POWER WIRING TO ALL MOTORS EXCEPT PACKAGED UNITS THAT ARE PREWIRED BETWEEN THE STARTER AND MOTOR.
C. WHERE LINE VOLTAGE CONTROL DEVICES ARE MOUNTED AT, ON OR INSIDE A UNIT, SUCH AS AQUASTATS, FIRESTAT FOR SINGLE PHASE DEVICES, ETC., THE POWER WIRING TO THE UNIT SHALL BE CONNECTED THROUGH SUCH A CONTROL DEVICE.
D. ON FINAL INSPECTION, IT SHALL BE DEMONSTRATED TO THE ARCHITECT OR HIS REPRESENTATIVE THAT EACH OVERLOAD RELAY CONTROL CIRCUIT IS PROPERLY WIRED AND FUNCTIONING CORRECTLY BY MANUALLY TRIPPING EACH OVERLOAD RELAY INDIVIDUALLY, ONE AT A TIME...
E. ON FINAL INSPECTION, IT SHALL BE DEMONSTRATED TO THE ARCHITECT OR HIS REPRESENTATIVE THAT EACH OVERLOAD RELAY CONTROL CIRCUIT IS PROPERLY WIRED AND FUNCTIONING CORRECTLY BY MANUALLY TRIPPING EACH OVERLOAD RELAY INDIVIDUALLY, ONE AT A TIME...

END OF SECTION

Table with 2 columns: Scale and Drawing Title. Row 1: Scale N.T.S., Drawing Title ELECTRICAL SPECIFICATIONS

CONSULTANT (ENGINEER) NY ENGINEERS NEARBY ENGINEERS 382 NE 191ST STREET SUITE 49674, MIAMI, FL 33179 PH-914.257.3455 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 266296910. EXPIRATION DATE: 04/30/2026

CONTRACTOR'S NOTES: WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE...

Table with 2 columns: DATE and ISSUE. Row 1: 02/21/25 90% PERMIT SET. Row 2: 04/25/25 100% PERMIT SET

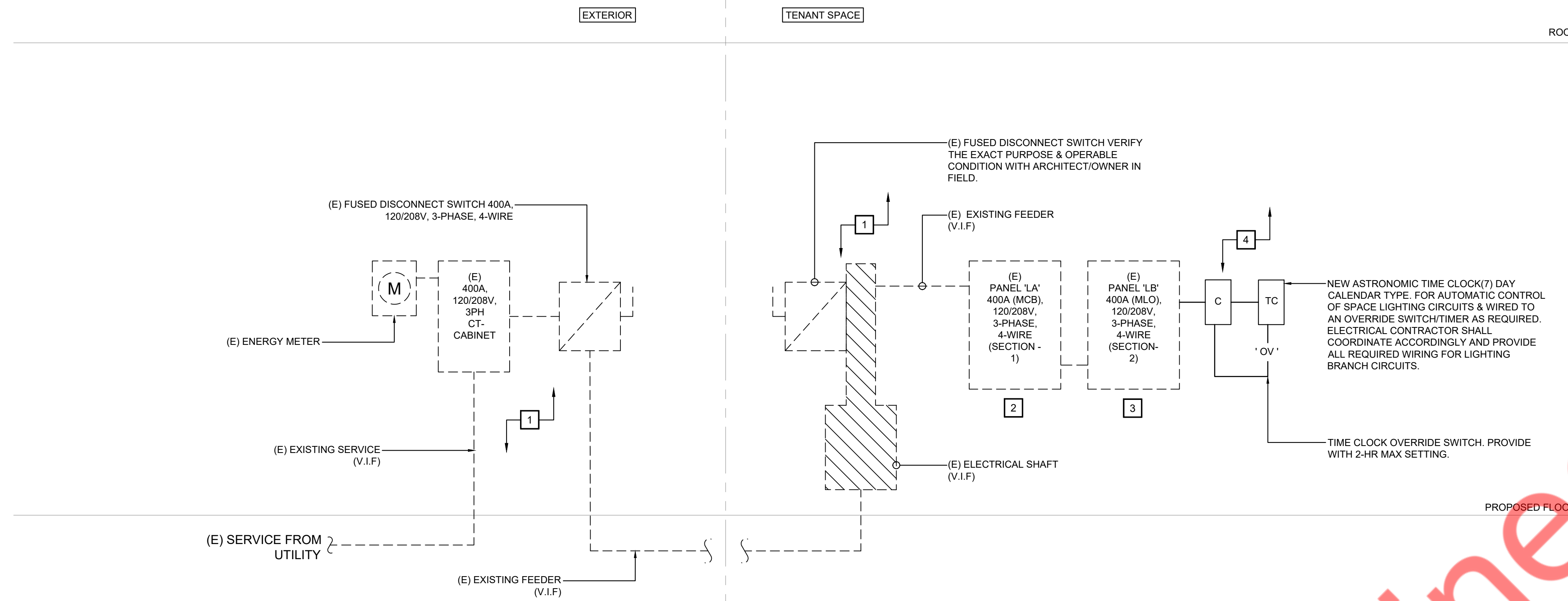
PROJECT INFORMATION: PROJECT NUMBER: 12115-24 DRAWN BY: NYE REVIEWED BY: NYE TOTAL SQ. FT.: 3,519 DATE: 04/25/25

DRAWING TITLE: ELECTRICAL SPECIFICATIONS SHEET 2 OF 2

DRAWING NUMBER: E-0.3

PROJECT: VIO MED SPA PROJECT: N. BRUNSWICK, NJ PROJECT: NY: 12115-24 PROJECT SCALE: 1:1

LEGEND:  
 - - - - - NEW  
 - - - - - EXISTING



- GENERAL NOTES:**
- PROPER CLEARANCE MUST BE MAINTAINED ABOUT ELECTRICAL EQUIPMENT PER N.E.C. FIELD VERIFY EXACT MOUNTING SPACE AVAILABLE IN ELECTRICAL ROOM/AREA PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT.
  - MAKE ALL FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM. ALL CONNECTIONS/DISCONNECTIONS TO LANDLORDS/UTILITIES SERVICE EQUIPMENT SHALL BE AS DIRECTED BY LANDLORDS/UTILITIES SITE REPRESENTATIVE. TENANT GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TERMINATION/DETERMINATION EXPENSES.
  - SYSTEM SHALL BE GROUNDED TO THE MAIN BUILDING'S GROUNDING SYSTEM.
  - DISCONNECT SWITCHES AND PANELS SHALL BE INSTALLED ON PLYWOOD BACKBOARDS.
  - TENANT CONTRACTOR MUST VERIFY ELECTRICAL SERVICE, SUB-FEED WIRING AND PANELS PRIOR TO START OF TENANT'S ELECTRICAL WORK. TENANT GENERAL CONTRACTOR SHALL MAKE APPLICATION TO THE LOCAL UTILITY FOR CONTINUED METERED ELECTRIC SERVICE IN THE TENANT'S NAME. TENANT GENERAL CONTRACTOR SHALL CONFIRM ALL LOCAL UTILITY GUIDELINES AND REQUIREMENTS PRIOR TO BID. SHALL INCLUDE THE COSTS OF THESE REQUIREMENTS IN THE BID, AND SHALL COMPLY WITH THEM DURING CONSTRUCTION. AVAILABLE FAULT CURRENT AT SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER NATIONAL ELECTRICAL CODE (NEC) OF ARTICLE 110.24.
  - CONTRACTOR SHALL COORDINATE SHORT CIRCUIT RATING (ISC) WITH UTILITY & AHJ, PRIOR TO COMMENCING ANY WORK, TYPICAL FOR ALL ELECTRICAL EQUIPMENT.
  - CONTRACTOR SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
  - CONTRACTOR SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION OF THE EXISTING SWITCH GEAR AND EXACT POWER DISTRIBUTION.
  - CONTRACTOR SHALL VERIFY OPERABLE CONDITION INFIELD OF ALL EXISTING TO REMAIN ELECTRICAL DEVICES/EQUIPMENTS AND REPLACE WITH NEW IF FOUND INOPERABLE.
  - DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. ALL CONDUIT ROUTING AND OFFSETS, DROPS AND RISES OF RUNS ARE NOT SHOWN ON THE PLANS AND ARE SHOWN DIAGRAMMATICALLY IN THE RISERS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.
- KEYED NOTES:**
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION, LOCATION PRIOR TO COMMENCING ANY WORK. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES. OTHERWISE, PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
  - EXISTING 400A (M.C.B.) 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL 'LA' (SECTION-1) TO REMAIN. ELECTRICAL CONTRACTOR TO FIELD VERIFY THE OPERABLE CONDITION OF THE PANEL, REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
  - EXISTING 400A (M.C.B.) 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL 'LB' (SECTION-2) TO REMAIN. ELECTRICAL CONTRACTOR TO FIELD VERIFY THE OPERABLE CONDITION OF THE PANEL, REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
  - NEW TIME CLOCK WITH LIGHTING CONTACTOR. CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND REQUIREMENT WITH ARCHITECT/OWNER PRIOR TO ROUGH IN. BASE BID ACCORDINGLY.

- VERIFY THE FOLLOWING PRIOR TO BID/PRICING:**
- EXISTING CONDUIT AND FEEDERS SIZE BETWEEN TENANT SPACE AND LANDLORD SWITCHBOARD.
  - EXISTING MAIN SERVICE DISCONNECT RATING.
  - EXISTING METER.
- IF THE EXISTING SERVICE DISCONNECT AND FEEDERS ARE RATED FOR LESS THAN THE RATING SHOWN ON THIS RISER, NOTIFY THE PROJECT MANAGER AND ENGINEER IMMEDIATELY PRIOR TO SUBMITTING BID/PRICING PACKAGE SO DRAWINGS CAN BE REVISED AND UPDATED ACCORDINGLY.

**ELECTRICAL PANEL SCHEDULE**

PANELBOARD PANEL TYPE NEMA TYPE ENCLOSURE	LA (SECTION - 1) MCB 1	VOLTAGE 120 / 208 V 400A MCB SURFACE	PHASE BUS RATING OPTIONS	3			4			DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.	
				WIRE 400A	WIRE AIC RATING	POLE	WIRE 400A	WIRE AIC RATING	POLE					EXISTING PANEL
1	(N)	12	20	460	A	1,500	20	12	1	INTERIOR SIGNAGE	(N)	TC/OV	2	
3	(N)	12	20	550	B	1,500	20	12	1	STOREFRONT SIGN	(N)	TC	4	
5	(N)	12	20	540	C	200	20	12	1	SPARE	(N)		6	
7	TC	(N)	12	20	420	A	1,900	20	12	1	S/W RECEPTACLE	(N)		8
9	TC	(N)	12	20	900	B	1,900	20	12	1	S/W RECEPTACLE	(N)		10
11	TC	(N)	12	20	500	C	300	20	12	1	LARGE RETAIL DISPLAY	(N)		12
13			12	20		A	200	20	12	1	TIME CLOCK	(N)		14
15	(N)		12	20	200	B	540	20	12	1	TREATMENT RM MIRROR LGTS	(N)		16
17	(N)		12	20	360	C	540	20	12	1	TREATMENT RM MIRROR LGTS	(N)		18
19	(N)		12	20	500	A	500	30	10	2	LASER HAIR REMOVAL	(N)		20
21	(N)		12	20	600	B	500	30	10	2	LASER HAIR REMOVAL	(N)		22
23	(N)		12	20	720	C	200	20	12	1	AROMA SYSTEM	(N)		24
25	(N)		12	20	900	A	360	20	12	1	RESTROOM FAUCET	(N)		26
27	(N)		12	20	720	B	200	20	12	1	SPARE	(N)		28
29	(N)		12	20	900	C	200	20	12	1	SPARE	(N)		30
31	(N)		12	20	360	A	100	20	12	1	RCP-1	(N)		32
33	(N)		12	15	90	B	200	20	12	2	AIR CURTAIN (AC-1)	(N)		34
35			12	20		C	200	20	12	1	SPARE	(N)		36
37			12	20		A	1,500						38	
39	(N)		3	3	100	B	1,500	20	12	3	ELECTRIC WATER HEATER	(N)		40
41			12	20		C	1,500						42	

ALL PHASES TO BE BALANCED TO WITHIN 7%  
 A= 17,586 WATTS  
 B= 18,076 WATTS  
 C= 14,646 WATTS

(E) EXISTING TO REMAIN  
 (N) NEW CIRCUIT  
 GFCI GROUND FAULT CURRENT INTERRUPTER  
 IG CIRCUITS WITH ISOLATED GROUND  
 TC CIRCUITS ON TIMECLOCK  
 OV OVERRIDE THROUGH CONTACTOR  
 C BREAKER LOCK  
 a,b,c SWITCHES CONTROLLING LIGHTS

TOTAL CONNECTED LOAD 50,309 WATTS 140 AMPS  
 TOTAL DEMAND LOAD 52,926 WATTS 148 AMPS

**ELECTRICAL PANEL SCHEDULE**

PANELBOARD PANEL TYPE NEMA TYPE ENCLOSURE	LB (SECTION - 2) MLO 1	VOLTAGE 120 / 208 V 400A MCB SURFACE	PHASE BUS RATING OPTIONS	3			4			DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.	
				WIRE 400A	WIRE AIC RATING	POLE	WIRE 400A	WIRE AIC RATING	POLE					EXISTING PANEL
1	(N)	2	10	30	2,500	A	1,464	20	12	1	HAND DRYER	(N)	GFCI	2
3	(N)	2	10	30	2,500	B	1,464	20	12	1	HAND DRYER	(N)	GFCI	4
5	(N)	1	12	20	1,800	C	360	20	12	1	RESTROOM RCPT	(N)		6
7	(N)	1	12	20	600	A	720	20	12	1	SINK RCPTS	(N)		8
9	(N)	1	12	20	600	B	720	20	12	1	SINK RCPTS	(N)		10
11	(N)	1	12	20	500	C	200	20	12	1	FIRE ALARM CONTROL PANEL	(E)		12
13	(N)	1	12	20	200	A	1,080	20	12	1	INJECTOR RM 3 MULTI-SERVICE/LHR RM GNRL RCPT	(N)		14
15	(N)	1	12	20	360	B	720	20	12	1	FUTURE TREATMENT RM GNRL RCPT	(N)		16
17	(N)	1	12	20	720	C	1,080	20	12	1	ESTHETICIAN RM 2 & 3 GNRL RCPT	(N)		18
19	(N)	1	12	20	600	A	1,080	20	12	1	ESTHETICIAN 1 & IV/COMFORT RM GNRL RCPT	(N)		20
21	(N)	1	12	20	300	B	900	20	12	1	MEDICAL STORAGE & STORAGE CLOSET	(N)		22
23	(N)	1	12	20	300	C	1,080	20	12	1	CONFERENCE RM RCPT	(N)		24
25	(N)	1	12	20	300	A	1,080	20	12	1	BREAK ROOM GNRL RCPT	(N)		26
27	(N)	1	12	20	300	B	540	20	12	1	RECEPTION GENERAL RCPT	(N)		28
29	(N)	1	12	20	300	C	180	20	12	1	STORAGE ROOM RCPT	(N)		30
31	(N)	1	12	20	300	A	180	20	12	1	HVAC GENERAL RCPT	(N)		32
33	(N)	1	12	20	300	B	1,080	20	12	1	INJECTOR RM 1 & 2 GNRL RCPT	(N)		34
35	(N)	1	12	20	300	C	200	20	12	1	SPARE	(N)		36
37	(N)	1	12	20	300	A	200	20	12	1	SPARE	(N)		38
39	(N)	1	12	20	300	B	200	20	12	1	SPARE	(N)		40
41		1	12	20		C	200	20	12	1	SPARE	(N)		42

ALL PHASES TO BE BALANCED TO WITHIN 7%  
 A= 10,404 WATTS  
 B= 10,084 WATTS  
 C= 6,820 WATTS

(E) EXISTING TO REMAIN  
 (N) NEW CIRCUIT  
 GFCI GROUND FAULT CURRENT INTERRUPTER  
 IG CIRCUITS WITH ISOLATED GROUND  
 TC CIRCUITS ON TIMECLOCK  
 EMS ROUTING TO THE EMS PANEL  
 C BREAKER LOCK  
 a,b,c SWITCHES CONTROLLING LIGHTS

TOTAL CONNECTED LOAD 27,308 WATTS 76 AMPS  
 TOTAL DEMAND LOAD 21,154 WATTS 59 AMPS

**ELECTRICAL LOAD SUMMARY**

DESCRIPTION	NEC CONNECTED KW	VOLT	PHASE	NEC DEMAND FACTOR	NEC DEMAND KW
LIGHTING - 120V	3.7	120	1	1.25	4.6
RECEPTACLES	30.5	120	1	>10KW=10+(0.5*(KW-10))	20.3
STOREFRONT SIGN	1.5	120	1	1.25	1.9
S/W OUTLETS	3.8	120	1	1.25	4.8
EXH. FANS	0.1	120	1	1.00	0.1
DRYER	5.0	208	1	1.00	5.0
AIR CURTAIN	0.4	208	1	1.00	0.4
INTERIOR SIGNAGE	1.5	120	1	1.25	1.9
ROOFTOP UNITS	26.7	208	3	1.00	26.7
HOT WATER HEATER	4.5	208	3	1.00	4.5
<b>TOTALS</b>	<b>77.6</b>				<b>70.0</b>

NOTES:  
 \* USE GREATER VALUE OF THE TWO CATEGORIES.  
 \*\* 125% OF THE LARGEST MOTOR OR COMPRESSOR IN SYSTEM APPLIED ONLY ON ONE UNIT.  
 \*\*\* N.E.C. ARTICLE 220-12 REQUIREMENT (200 VA PER FOOT OF SHOW WINDOW)  
 MINUS ACTUAL SHOW WINDOW LIGHTING KVA.

N.E.C. DEMAND KVA x 1.000 = 70.0  
 SYSTEM VOLTAGE x 1.732 = 194.3 AMPS USE (EXISTING) 400AMP SERVICE.

208 x 1.732 = 360

CONSULTANT (ENGINEER)  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH:914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 262269910. EXPIRATION DATE: 04/30/2026

CONTRACTOR'S NOTES:  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

07/14/2025 IFC SET  
 05/29/2025 REVISION 1  
 05/16/2025 CLIENT COMMENTS

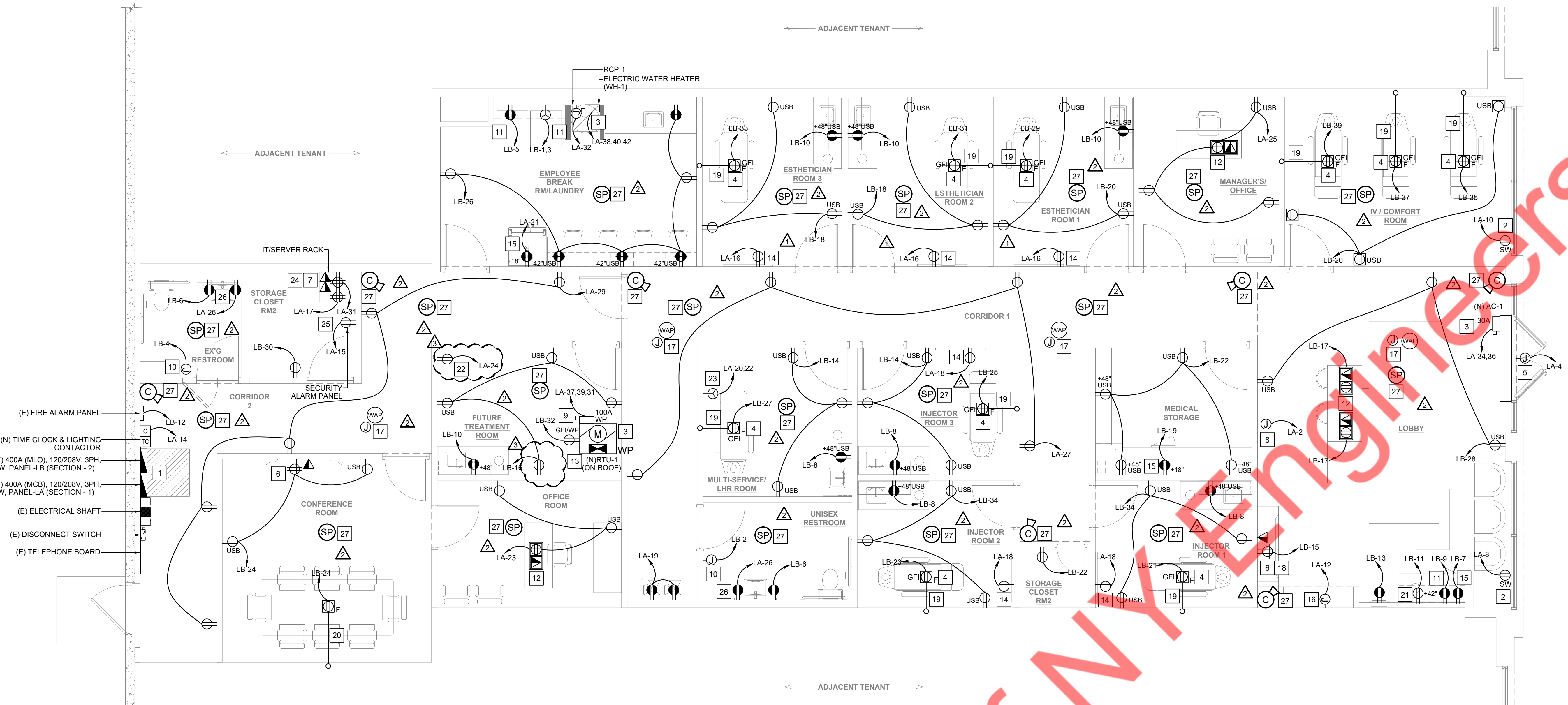
PROJECT INFORMATION:  
 PROJECT NUMBER: 12115-24  
 DRAWN BY: NYE  
 REVIEWED BY: NYE  
 TOTAL SQ. FT.: 3,519  
 DATE: 04/25/25

DRAWING TITLE:  
**ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES**

DRAWING NUMBER:  
**E-0.4**

PROJECT NO.: 12115-24  
 LOCATION: N. BRUNSWICK, NJ  
 PROJECT: VIO MED SPA  
 PLOT SCALE: 1:1

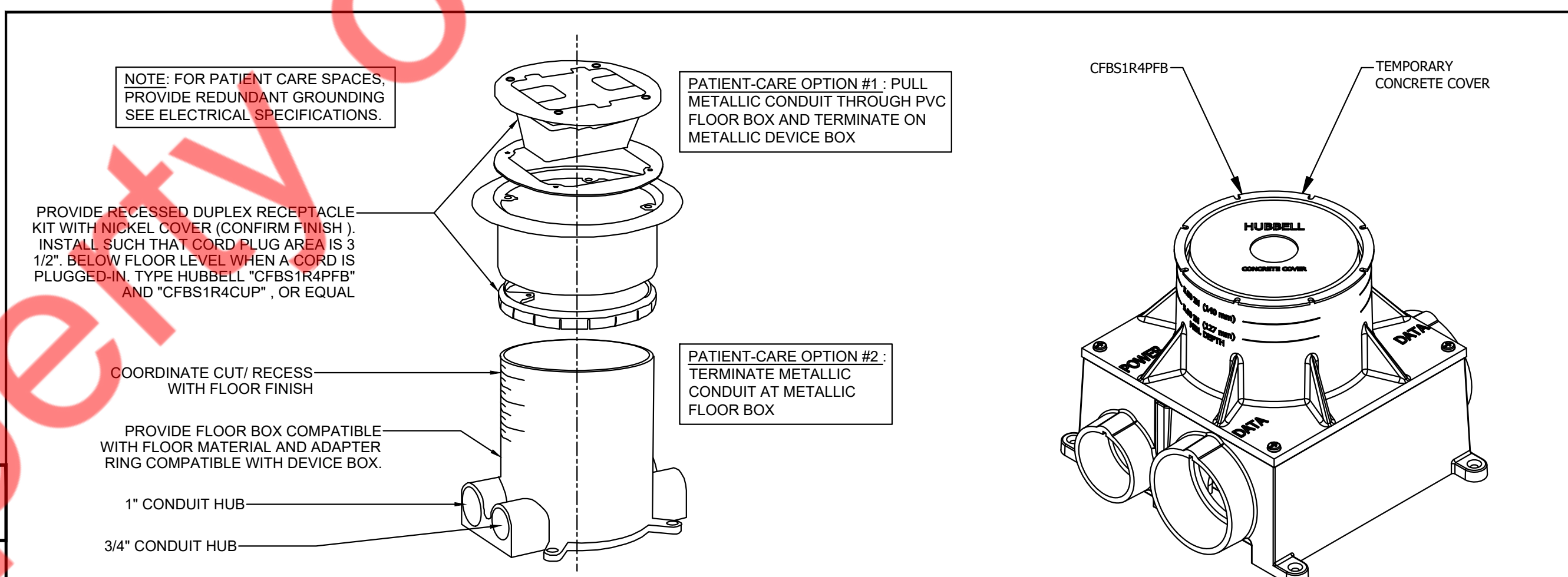
LEGEND:  
 --- NEW  
 - - - - - EXISTING



- GENERAL NOTES:**
- ELECTRICAL CONTRACTOR SHALL VERIFY ALL CONNECTION REQUIREMENTS FOR ALL EQUIPMENT SUPPLIED BY OTHERS PRIOR TO ROUGH-IN. COORDINATE NEMA PLUG CONFIGURATION FOR EQUIPMENT AND PROVIDE MATCHING RECEPTACLE WHERE APPLICABLE.
  - COORDINATE AND VERIFY ALL QUANTITIES AND LOCATIONS OF ALL POWER, TELECOM, AND DATA WITH TENANT PRIOR TO FINAL BID AND INSTALLATION.
  - ALL OUTLETS AND RECEPTACLES TO BE MOUNTED 18" AFF UNLESS NOTED OTHERWISE.
  - G.C. TO COORDINATE LOCATIONS OF OUTLETS WITH TENANT SUPPLIED RECEPTION DESK, FURNITURE & EQUIPMENT.
  - ALL CONSTRUCTION SHALL BE CODE-COMPLIANT WITH THE NATIONAL ELECTRICAL CODE.
  - ALL RECEPTACLES IN WET LOCATIONS, WITHIN 6'-0" OF A SINK, AND IN ALL OTHER LOCATIONS REQUIRED BY THE NEC SHALL BE GFCI-PROTECTED.
  - ALL RECEPTACLES INDICATED AS GFCI-PROTECTED AND NOT LOCATED IN A READILY-ACCESSIBLE LOCATION SHALL BE PROVIDED WITH GECI RESET IN A READILY-ACCESSIBLE LOCATION (E.G. DEAD-FRONT GFCI OR GFCI BREAKER).
  - FIELD-VERIFY NEMA-3R, NON-FUSED SERVICE DISCONNECTS FOR ALL EXTERIOR EQUIPMENT.
  - CONFIRM EXISTING SERVICE RECEPTACLE WITH WEATHERPROOF-IN-USE BOX HOOD WITHIN 25'-0" OF ALL EXTERIOR EQUIPMENT.
  - PROVIDE 120V BRANCH CIRCUITS AND ROUGH-IN BOXES CONDUIT FOR LOW-VOLTAGE SYSTEMS. LOW-VOLTAGE WIRING AND TERMINATIONS SHALL BE BY LOW-VOLTAGE CONTRACTOR IF INVOLVED OR ELECTRICAL CONTRACTOR.
  - PRIOR TO ROUGH-IN OF ANY SAW-CUTS THROUGH SLAB, THE E.C. SHALL CONFIRM THE LOCATIONS OF ALL NEW FLOOR BOXES WITH THE TENANT. BOX LOCATIONS SHALL BE COORDINATED WITH FINAL FURNITURE LAYOUT.
  - THE HVAC SYSTEM UTILIZES A RETURN-AIR FLENUM. ALL ELECTRICAL MATERIALS LOCATED ABOVE-CEILING MUST BE FLENUM-RATED.
  - COORDINATE MECHANICAL AND PIPING SIZE REQUIREMENTS WITH OTHER TRADES.
  - PROVIDE HOSPITAL GRADE 120V, 20A DUPLEX RECEPTACLES FOR ALL THE HEALTHCARE/TREATMENT ROOMS.

- KEYED NOTES:**
- ELECTRICAL CONTRACTOR SHALL VERIFY THE LOCATION OF ELECTRICAL PANELS IN COMPLIANCE WITH 2020 NEC ARTICLE 110.2(A) AND (B). ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE.
  - PROVIDE CEILING MOUNT SHOW WINDOW RECEPTACLE AS PER NEC 210.62 AS REQUIRED. ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT HEIGHT AND LOCATION PRIOR TO ROUGH-IN.
  - PLUMBING/MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH THE REQUIRED ROUGH-INS, MOCOP, AND WIRE SIZE REQUIREMENTS. THE ELECTRICAL CONTRACTOR MUST COORDINATE WITH THE MANUFACTURER FOR THE EXACT TYPE OF ROUGH-INS AND WIRE SIZE BEFORE THE COMMENCEMENT OF WORK.
  - PROVIDE HOSPITAL GRADE DUPLEX RECEPTACLE IN RECESSED FLOOR BOX (HUBBELL "CFBS1R4PFB" 4" CONCRETE FLOOR BOX, "S1R4SPSTLE" MOUNTING PLATE, AND "CFBS1R4CVRNKL" SATIN NICKEL COVER) PER NEC 517.13 (A) AND (B) WHERE INDICATED FOR TREATMENT ROOM CHAIR, IT SHOULD BE POSITIONED UNDER THE CHAIR. CONTRACTOR SHALL COORDINATE THE FINAL LOCATION WITH THE ARCHITECT/OWNER AND EXACT ELECTRICAL REQUIREMENTS WITH THE EQUIPMENT VENDOR PRIOR TO ROUGH-IN. INSTALLATION SHALL BE DONE PER THE MANUFACTURER'S RECOMMENDATION.
  - JUNCTION BOX FOR EXTERIOR SIGNAGE. CONTRACTOR TO COORDINATE EXACT LOCATION, HEIGHT & POWER REQUIREMENT WITH VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
  - WALL MOUNTED TV. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT FOR EXACT LOCATION, MOUNTING HEIGHT AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED.
  - NEW IT RACK. PROVIDE NEW DATA, PHONE, AUDIO EQUIPMENT TO MEET FRANCHISE REQUIREMENTS. CONTRACTOR TO COORDINATE EXACT LOCATION, MOUNTING HEIGHT WITH SYSTEM VENDOR/OWNER IN FIELD. BASE BID ACCORDINGLY.
  - J-BOX FOR LOBBY SIGNAGE. TBD. G.C. TO CONFIRM WITH THE OWNER AND CORPORATE PRIOR TO BID, ORDER AND INSTALLATION.
  - ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE NEMA 3R RATED. COORDINATE EXACT ELECTRICAL REQUIREMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. CIRCUIT FACTORY INSTALLED RECEPTACLE AS REQUIRED. OTHERWISE PROVIDE NEW AS SHOWN.
  - CONTRACTOR SHALL PROVIDE POWER PROVISION FOR HAND DRYER. CONTRACTOR SHALL COORDINATE THE FINAL LOCATION WITH THE ARCHITECT/OWNER AND EXACT ELECTRICAL REQUIREMENTS WITH THE EQUIPMENT VENDOR PRIOR TO ROUGH-IN. INSTALLATION SHALL BE DONE PER THE MANUFACTURER'S RECOMMENDATION.
  - ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS WITH THE OWNER/ARCHITECT MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.
  - STUB CONDUITS OUT OF FLOOR AND INTO BOTTOM OF RECEPTION/OFFICE DESK AND CONNECT TO A RECESSED BOX IN THE BACK INSIDE WALL OF THE CABINET WITH RECEPTACLES AND TELE/DATA CONNECTIONS AS SHOWN. PROVIDE 1" CONDUIT FROM LOW-VOLTAGE SECTIONS IN SLAB AND UP NEAREST WALL TO ABOVE ACCESSIBLE CEILING.
  - ELECTRICAL CONTRACTOR SHALL INSURE FACTORY-MOUNTED CONVENIENCE OUTLET IS POWERED; IF NOT, WIRE IT TO THE CIRCUIT AS SHOWN. ELECTRICAL CONTRACTOR TO VERIFY POWERED OUTLETS WITHIN 25 FEET OF EACH HVAC UNIT. INSTALL A 120V 20A GFI WEATHERPROOF RECEPTACLE. COORDINATE FINAL HVAC PLACEMENT AND ADD EXTRA RECEPTACLES AS NEEDED.
  - ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS FOR MIRROR WITH THE OWNER/ARCHITECT MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.
  - ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS FOR REFRIGERATOR WITH THE OWNER/ARCHITECT MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.
  - PROVIDE POWER FOR WALL UNIT WITH LED LIT SHELVES PRIOR TO ROUGH-IN. COORDINATE EXACT ELECTRICAL REQUIREMENTS WITH ARCHITECT/OWNER IN FIELD.
  - NEW CEILING-MOUNTED JUNCTION BOX. FOR WIRELESS ACCESS POINT (WIFI) HUB. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH ARCHITECT & COORDINATE WITH VENDOR FOR REQUIREMENTS PRIOR TO ROUGH-IN.
  - PROVIDE RECEPTACLE FOR LED LIT SHELVES AT 40" AFF. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER IN FIELD.
  - PROVIDE UNDER-SLAB POWER CONDUIT FROM FLOOR BOX TO NEARBY STUD WALL WITH CONDUIT UP TO ACCESSIBLE CEILING. PRIOR TO SAW-CUT THROUGH SLAB, CONFIRM EXACT LOCATION WITH ARCHITECT/OWNER IN FIELD.
  - PROVIDE (2) 2" UNDER-SLAB POWER CONDUIT FROM FLOOR BOX TO NEARBY STUD WALL WITH CONDUIT UP TO ACCESSIBLE CEILING. PRIOR TO SAW-CUT THROUGH SLAB, CONFIRM EXACT LOCATION WITH ARCHITECT/OWNER IN FIELD.
  - ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS FOR COFFEE MAKER WITH THE OWNER/ARCHITECT MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET.
  - PROVIDE OUTLET FOR AROMA THERAPY SYSTEM. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENT AND MOUNTING LOCATION FOR AROMA THERAPY SYSTEM WITH THE OWNER/ARCHITECT MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. ADDITIONALLY REFER TO MECHANICAL SHEET 1M-1.0 FOR MORE INFORMATION. BASE BID ACCORDINGLY.
  - FOR LASER HAIR REMOVAL EQUIPMENT PROVIDE 208V, NEMA L5-30R TWIST LOCK RECEPTACLE. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS AND LOCATION FOR LASER HAIR REMOVAL EQUIPMENT WITH THE OWNER/ARCHITECT MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.
  - COORDINATE TENANT-PROVIDED ITEMS (E.G. NETWORK SWITCH, VOIP HARDWARE, ETC.).
  - FOR SECURITY ALARM PANEL, PROVIDE DUPLEX RECEPTACLE MOUNTED HIGH ON WALL AND 120V, 1-PHASE POWER. CONTRACTOR TO COORDINATE EXACT LOCATION, MOUNTING HEIGHT WITH TENANT'S SECURITY VENDOR/OWNER IN FIELD. BASE BID ACCORDINGLY.
  - PROVIDE RECEPTACLE FOR (OPTIONAL) PLUG-IN SENSOR FAUCET. PER BRAND STANDARDS, CONTRACTOR SHALL COORDINATE THE FINAL LOCATION WITH THE ARCHITECT/OWNER AND EXACT ELECTRICAL REQUIREMENTS WITH THE EQUIPMENT VENDOR PRIOR TO ROUGH-IN. INSTALLATION SHALL BE DONE PER THE MANUFACTURER'S RECOMMENDATION.
  - LOW VOLTAGE DEVICES (I.E., SPEAKERS, SECURITY SYSTEM DEVICES & CAMERAS) ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE THE FINAL LOCATION AND QUANTITY WITH THE ARCHITECT/OWNER AND THE EXACT ELECTRICAL REQUIREMENTS WITH THE SYSTEM VENDOR PRIOR TO THE ROUGH-IN PER THE SITE CONDITIONS.

- (E) FIRE ALARM PANEL
- (N) TIME CLOCK & LIGHTING CONTACTOR
- (E) 400A (MLO), 120/208V, 3PH, 4W, PANEL-LB (SECTION - 2)
- (E) 400A (MCB), 120/208V, 3PH, 4W, PANEL-LA (SECTION - 1)
- (E) ELECTRICAL SHAFT
- (E) DISCONNECT SWITCH
- (E) TELEPHONE BOARD



**CAMERA SYSTEM:**

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY WORK TO PROVIDE A COMPLETE CCTV CAMERA SYSTEM WITH POE CAMERAS.
- CONTRACTOR SHALL PROVIDE A SINGLE-GANG J-BOX AND A SINGLE ETHERNET CONNECTION AT EACH CAMERA LOCATION. AT MINIMUM, (1) CAMERA SHALL BE MONITORING EACH OF THE FOLLOWING LOCATIONS:
  - LOBBY
  - HALLWAY
  - BACKDOOR
  - MEDICAL STORAGE ROOM(S)

**TV SYSTEM:**

THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY WORK TO COMPLY WITH THE FRANCHISE'S TV SYSTEM STANDARDS. THIS SHALL INCLUDE:

- PROVIDE TV POWER AND A/V OUTLETS. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT FOR EXACT LOCATION, MOUNTING HEIGHT AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED.
- PROVIDE (1) BRIGHT SIGN SERIES CONTENT CONTROLLER FOR EACH TV IN LOBBY AREA.
- PROVIDE ANY ADDITIONAL EQUIPMENT OR A/V WIRING AS REQUIRED COORDINATE EQUIPMENT WITH TENANT PRIOR TO PROCUREMENT.

**SPEAKER SYSTEM:**

THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY WORK TO COMPLY WITH THE FRANCHISE'S SPEAKER SYSTEM STANDARDS. THIS SHALL INCLUDE:

- SPEAKERS ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE THE FINAL LOCATION AND QUANTITY WITH THE ARCHITECT/OWNER AND THE EXACT ELECTRICAL REQUIREMENTS WITH THE SYSTEM VENDOR PRIOR TO THE ROUGH-IN PER THE SITE CONDITIONS.
- PROVIDE (1) VOLUME CONTROL IN EACH OFFICE, TREATMENT, & CONFERENCE ROOM.
- WIRE SPEAKERS WITH MASTER VOLUME CONTROL. WALL-MOUNTED AT 48" AFF. PROVIDE ANY ADDITIONAL SPEAKERS OR VOLUME CONTROLS AS REQUIRED COORDINATE WITH TENANT.

2 SCALE N.T.S. FLOOR BOX WITH RECESSED RECEPTACLE KIT

**EQUIPMENT SCHEDULE:**

EQUIPMENT NAME	QTY.	ELECTRICAL							MANUFACTURER	MODEL NUMBER
		VOLTS	PHASE	AMPS	WATT	HP	DIRECT	PLUG		
WATER DISPENSER	1	115	1	1.5	165	-	-	X	EKLAY	LBWD06
DRINK STATION COOLER	1	120	1	-	-	-	-	X	3C STORE FIXTURES	-
UC REFRIGERATOR	2	120	1	-	-	-	-	X	-	-
TREATMENT ROOM CHAIR	10	120	1	-	300	-	-	X	SILVERFOX	2246EBN
DRYER	1	120 / 240	1	30	-	-	-	X	SAMSUNG	DVE45T6000W
WASHER	1	120	1	15	-	-	-	X	SAMSUNG	WF45T6000AW

**EQUIPMENT SCHEDULE GENERAL NOTE:**  
 ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS & LOCATION OF ALL EQUIPMENT WITH THE ARCHITECT/MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.

CONSULTANT (ENGINEER)  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH: 914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY.  
 LICENSE NO. 260294910  
 EXPIRATION DATE: 04/30/2026

**CONTRACTOR'S NOTES:**

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

NO.	DATE	DESCRIPTION
1	07/14/2025	IFC SET
2	05/29/2025	REVISION 1
3	05/16/2025	CLIENT COMMENTS
4		REVISION

**PROJECT INFORMATION:**  
 PROJECT NUMBER: 12115-24  
 DRAWN BY: NYE  
 REVIEWED BY: NYE  
 TOTAL SQ. FT.: 3,519  
 DATE: 04/25/25

**DRAWING TITLE:**  
 ELECTRICAL POWER PLAN

**DRAWING NUMBER:**  
 E-1.0

LEGEND:  
 --- NEW  
 --- EXISTING

GENERAL NOTES:

- COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS WITH ARCHITECTURAL PLANS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS, DETAILS, AND LIGHTING NOTES FOR FURTHER INFORMATION OF DEVICE PLACEMENT AND OTHER RELEVANT INFORMATION.
- HATCHED AREA IS NOT IN SCOPE OF WORK.
- CONTRACTOR WILL NOTIFY ARCHITECT OF DISCREPANCIES AND CONFLICTS IN INTENT IN ACCOMPLISHING CEILING WORK PRIOR TO AWARDING CONTRACT OR SHALL BE ASSUMED THAT ALL NECESSARY WORK AND COSTS ARE INCLUDED.
- CONTRACTOR WILL REVIEW DUCTWORK RUNS AND HEIGHTS AND COORDINATE AND ACCOMMODATE DESIRED DESIGN CRITERIA.
- SPEAKERS, EMERGENCY LIGHTS, AND DIFFUSERS TO BE LOCATED ON CENTERLINE OF CEILING TILE AND CENTERED OR EQUALLY SPACED BETWEEN LIGHT FIXTURES.
- CONTRACTOR WILL CHECK AND VERIFY ALL CEILING PLENUM CONDITIONS FOR CLEARANCES OF DUCTWORK, SPRINKLER, LIGHT FIXTURES, ETC. BEFORE PROCEEDING WITH WORK AND WILL NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- CEILING LIGHTS WILL BE INSTALLED ACCORDING TO MANUFACTURERS DIRECTIONS AND STANDARD BUILDING PRACTICES.
- COORDINATE WITH MECHANICAL CONTRACTOR FOR ALL HVAC SUPPLY, RETURN AIR DIFFUSERS AND EXHAUST FANS.
- LIGHT SWITCHES TO BE INSTALLED 48" A.F.F. WITH CENTER LINE OF FIRST SWITCH 5" FROM ADJACENT DOOR BUCK OR ADJACENT WALL INTERSECTION UNLESS OTHERWISE NOTED. WHERE MORE THAN ONE SWITCH OCCURS IN THE SAME LOCATION, THEY SHALL BE INSTALLED IN GANG-TYPE BOX UNDER ONE COVER PLATE. ACOUSTICAL TILE CEILING SHALL BE CLASS "A" NON-COMBUSTIBLE RATING UNLESS OTHERWISE REQUIRED BY CODE. ARMSTRONGS PANELS CLASS "A" WITH UL LABEL. GRID RUNNERS TO BE 2.0 O.C. IN AREAS INDICATED ON DRAWINGS SUPPLY ALL NECESSARY FITTINGS AND ACCESSORIES FOR A COMPLETE AND SECURE INSTALLATION. PROVIDE GALVANIZED #12 GAUGE ANGLE HANGER WIRE 4" O.C. IN EACH DIRECTION MAX. (SEE DETAIL) SECURED ONLY TO ROOF JOISTS (SPAN W/ INTRUST AS REQ'D). 1 1/2" MAIN RUNNER CHANNELS (16 GAUGE) AT 4.0 O.C. CEILING CONTRACTOR TO PROVIDE ADDITIONAL SUPPORT HANGERS FOR LIGHTING FIXTURES AS REQUIRED. CEILING CONTRACTOR TO COORDINATE CEILING INSTALLATION WITH SPRINKLER HEADS AND HVAC SYSTEM AND TO PROVIDE CUT-OUTS IN PANELS FOR NEW RECESSED LIGHTS AND DIFFUSERS. COORDINATE ALL RESPECTIVE WORK WITH ELECTRICAL AND MECHANICAL CONTRACTORS AND ALL OTHER TRADES.
- ALL LIGHT FIXTURES TO ALIGN, UNLESS OTHERWISE NOTED. ALL DIMENSIONS OF LIGHTING FIXTURES ARE GIVEN CENTER TO CENTER UNLESS OTHERWISE INDICATED.
- ALL SWITCHES FOR LIGHTS, SHADES, ETC. WHICH ARE SHOWN TO BE MOUNTED IN THE SAME GENERAL AREA SHALL BE GANGED TOGETHER AND SHARE A MULTI-GANG COVER PLATE WHERE POSSIBLE.
- CIRCUIT HOMERUN DESIGNATIONS ARE NOTED FOR DESIGN INTENT ONLY BASED ON FIELD OBSERVATIONS OF EXISTING PANEL SCHEDULES, WHERE AVAILABLE. CONTRACTOR TO CONFIRM ALL SPARE CIRCUIT BREAKERS AND THOSE MADE AVAILABLE DUE TO DEMOLITION.

KEYED NOTES: #

- EXIT/EMERGENCY LIGHT. CONNECT (ALWAYS HOT) TO LOCAL LIGHTING CIRCUIT AHEAD OF SWITCHING.
- PROVIDE LIGHTING CONTROL SWITCH/DIMMER BANK FOR CONTINUOUS DIMMING. SEE DETAIL 2/E-2.0 FOR ADDITIONAL INFORMATION. COORDINATE FINAL LOCATION PRIOR TO ROUGH-IN.
- NEW EXHAUST FAN INTERLOCKED WITH LIGHT SWITCH. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION AND SPECIFICATIONS. COORDINATE FINAL LOCATION PRIOR TO ROUGH-IN.
- CEILING MOUNTED EXHAUST FAN TO BE INTERLOCKED WITH SEPARATE 60 MINUTE SWING WOUND TIMER. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION AND SPECIFICATIONS. COORDINATE FINAL LOCATION PRIOR TO ROUGH-IN.
- NEW TIME CLOCK AND LIGHTING CONTACTOR FOR PROJECT SPACE. E.C. SHALL COORDINATE EXACT LOCATION, ELECTRICAL REQUIREMENTS IN FIELD PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- ELECTRICAL SWITCHES TO MATCH BLACK AND WHITE ROOMS.
- COORDINATE FINAL SWITCH LOCATIONS THROUGHOUT THE PROJECT AREA WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN.
- VOLUME CONTROL SWITCHES ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE FINAL LOCATION, QUANTITY WITH ARCHITECT/OWNER, AND EXACT ELECTRICAL REQUIREMENTS WITH SYSTEM VENDOR PRIOR TO ROUGH PER THE SITE CONDITIONS.
- PROVIDE CEILING-MOUNTED OCCUPANCY SENSOR FOR AUTOMATIC SHUTOFF ON 20- MINUTE TIMER.
- E.C. SHALL COORDINATE LINEAR PENDANT HANGER LOCATION WITH ARCHITECT/ OWNER IN FIELD. PRIOR TO ROUGH IN.
- EXISTING LIGHT FIXTURES & ITS CIRCUITING SHALL REMAIN. E.C. TO FIELD VERIFY THE EXACT BRANCH BREAKER CIRCUIT/ FEEDER CONNECTION FOR THE EXISTING LIGHT FIXTURES. REUSE IF POSSIBLE OTHERWISE PROVIDE NEW FEEDER CONNECTION & CIRCUIT. BASE BID ACCORDINGLY.

**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH: 914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW YORK.  
 LICENSE NO. 0262696910  
 EXPIRATION DATE: 04/30/2026

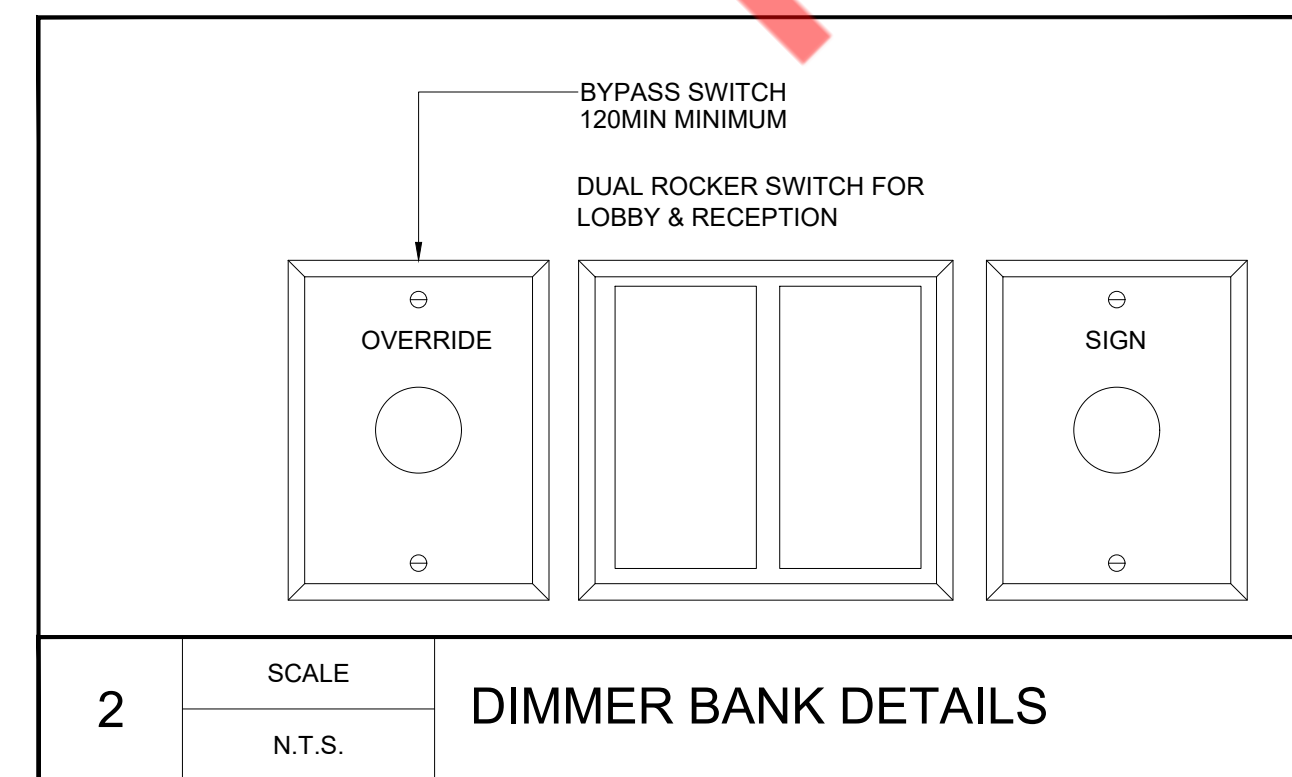
**CONTRACTOR'S NOTES:**  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

**COMcheck Software Version COMcheckWeb**  
**Interior Lighting Compliance Certificate**

<b>Project Information</b>			
Energy Code:	90.1 (2019) Standard		
Project Title:	V/O MED SPA, NORTH BRUNSWICK, NJ		
Project Type:	Alteration		
Construction Site:	Owner/Agent:	Designer/Contractor:	
SPACE #541 THE SHOPPES AT NORTH BRUNSWICK, 650 SHOPPES BOULEVARD NORTH BRUNSWICK, New Jersey 08902	MICHAEL TOBIAS NY ENGINEERS 382 NE 191ST STREET SUITE 49674 MIAMI, Florida 33179		
<b>Allowed Interior Lighting Power</b>			
Area Category	B Floor Area (ft <sup>2</sup> )	C Allowed Watts / ft <sup>2</sup>	D Allowed Watts
V/O MED SPA, NORTH BRUNSWICK, NJ (Health Care-Clinic)	3519	0.81	2850
		Total Allowed Watts =	2850
<b>Proposed Interior Lighting Power</b>			
Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	A	B Lamps/ # of Fixture	C D E Watt. (C X D)
V/O MED SPA, NORTH BRUNSWICK, NJ (Health Care-Clinic, 3519 sq.ft.)			
LED, LT-1: 6" LED BAFFLE, Other:	1	48	13 624
LED, LT-2: 2X4 EDGE LIT FLAT PANEL, Other:	1	28	38 1064
LED, LT-3: 2X2 EDGE LIT FLAT PANEL, Other:	1	3	28 84
LED, LT-4: DECORATIVE WALL SCENE, Other:	1	7	10 70
LED, LT-5: CONFERENCE ROOM LIGHT, Other:	1	2	62 124
LED, LT-6: CRYSTAL HALO CHANDELIER-41, Other:	1	1	640 640
LED, EX1: EXISTING LIGHT, Other:	1	1	40 40
		Total Proposed Watts =	2646
<b>Interior Lighting PASSES</b>			
<b>Interior Lighting Compliance Statement</b>			
Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.			
MICHAEL TOBIAS	Signature	Date:	05/05/25
Project Title: V/O MED SPA, NORTH BRUNSWICK, NJ Report date: 05/05/25			

LIGHTING FIXTURE SCHEDULE							
SYMBOL	MARK	TYPE	MANUFACTURER	MODEL NUMBER	DESCRIPTION	VOLTAGE	WATTAGE
⊕	LT-1	6" LED BAFFLE	BRAND: JUNO	SERIES: WF6-6" WAFER-THIN LED DOWNLIGHT	Series: WF6 - 6" wafer-thin LED Downlight Lumens: 970L Nominal at 3000k (set to 4000k) CRI: 90+ Voltage Rating: 120V Color Temp: Set to 4000k (defaults at 3000k) Finish: White	120V	13W
⊕	LT-2	2X4 EDGE LIT FLAT PANEL	SUPPLIED BY: MARS ELECTRIC	CBT24-LSCS	2X4 BACK-LIT TROFFER, 5500/4400/3300 SWITCHABLE LUMENS, 3500/4000/5000K SWITCHABLE CCT	120V	28-48W
⊕	LT-3	2X2 LAY-IN LED LIGHT	SUPPLIED BY: MARS ELECTRIC	CBT22-LSCS	2X2 BACK-LIT TROFFER, 5500/4400/3300 SWITCHABLE LUMENS, 3500/4000/5000K SWITCHABLE CCT	120V	24-38W
⊕	LT-4	DECORATIVE WALL SCENE BACK UP LIGHT	VENDOR: MARS ELECTRIC	-	PLACEMENT: AT HEIGHT OF 5'6" TO THE MIDDLE OF THE SCENE FROM THE FLOOR	120V/277V	10W
⊕	LT-5	CONFERENCE ROOM LIGHT	BRAND: ACUTY BRANDS VENDOR: MARS ELECTRIC	SERIES: S4PID	LUMENS: 300L PER FT VOLTAGE: 120-277V CRI: 80 COLOR TEMPERATURE: 4000K	120V/277V	62W
⊕	LT-6	CRYSTAL HALO CHANDELIER-41	MARS ELECTRIC	1057P40-16-601 CHANDELIER-41	SIZE: 5" H x 40" W x 40" W CHANDELIER BULB SPECIFICATION: Finish: Clear Shape: T4 Lumens: 360L Volts: 120V - 130V Color Temperature: 5000K	120V	640W
⊕	E1	EXIT SIGN/EMS LIGHT	BRAND: LITHONIA LIGHTING VENDOR: MARS ELECTRIC	ECRG HO RD M6	Series: ECRG HO RD M6 Voltage: 120-277V, Input Wattage: 2.8W Finish: White	120V	2.8W
⊕	E2	EMERGENCY BACK UP LIGHTING	BRAND: LITHONIA LIGHTING VENDOR: MARS ELECTRIC	LITHONIA LIGHTING: ELM4L	Brand: Lithonia Lighting Series: ELM4L Lumens: 640L Finish: White	120V	-
⊕	E3	DIRECTIONAL EXIT LIGHT	BRAND: LITHONIA LIGHTING VENDOR: MARS ELECTRIC	PVT-U (B-WITH BATTERY)	Series: PVT-U (B-with battery) Finish: Brushed Aluminum (Red letters)	120V	-
⊕	E4	EXTERIOR EXIT LIGHT	BRAND: MULE LIGHTING VENDOR: MARS ELECTRIC	MULE LIGHTING: RASRLED-2-WP-GR	Series: RASRLED-2-WP-GR Voltage: 120-277V, Finish: Gray	120V/277V	-
⊕	OS	CEILING MOUNT OCCUPANCY SENSOR	BRAND: SENSOR SWITCH VENDOR: MARS ELECTRIC	SERIES: CM PDT 10	Series: CM PDT 10 Finish: White	-	-
⊕	EX	EXISTING EXTERIOR WALL MOUNTED LIGHT	EXISTING	EXISTING	EXISTING EXTERIOR WALL MOUNTED LIGHT TO REMAIN. RELAMP AS REQUIRED.	120V	-
⊕	EX1	EXISTING LIGHT	EXISTING	EXISTING	EXISTING LIGHT FIXTURE TO REMAIN. RELAMP AS REQUIRED.	120V	-



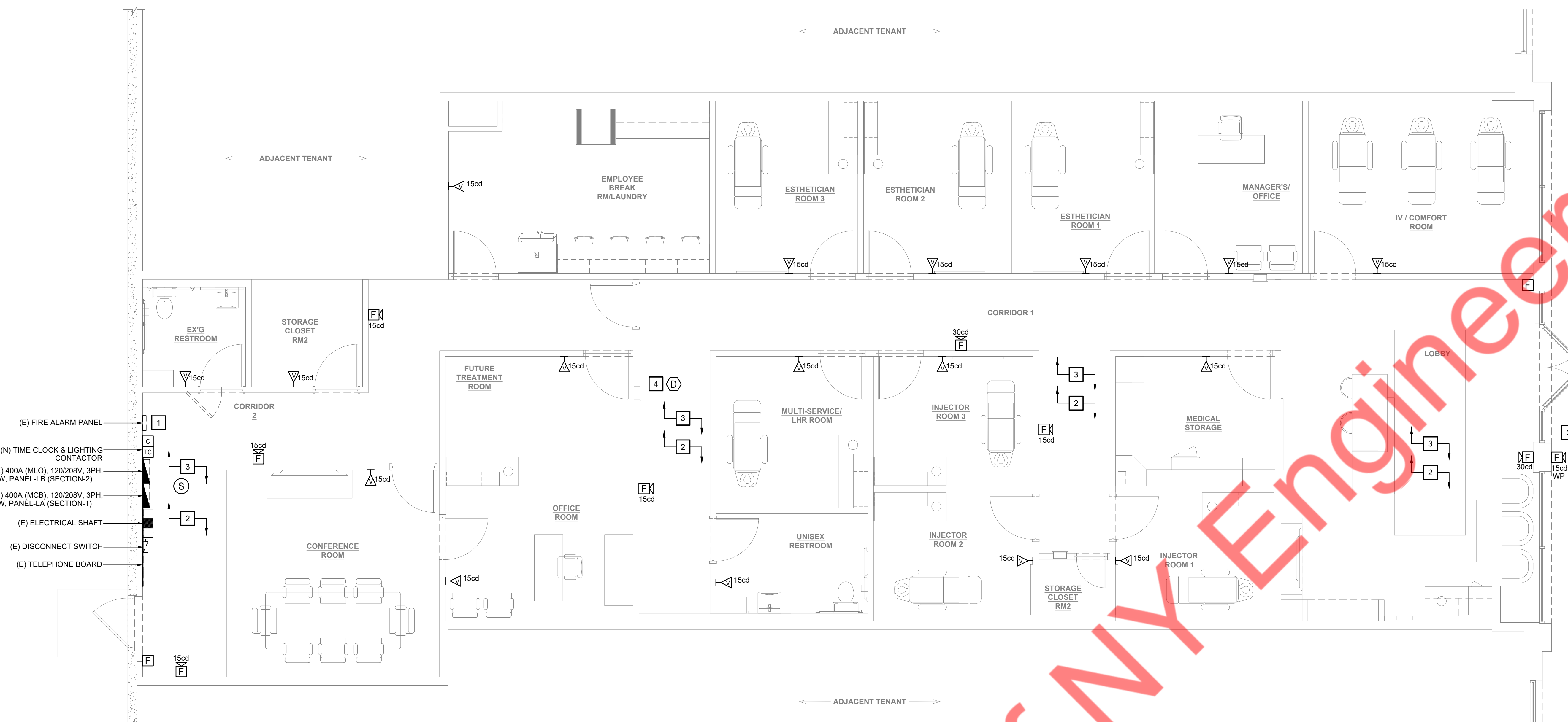
LEGEND:  
 - - - - - NEW  
 - - - - - EXISTING

GENERAL NOTES:

- COORDINATE ALL DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH THE ARCHITECT & FURNITURE VENDOR PRIOR TO INSTALLATION.
- HATCHED AREA NOT IN THIS SCOPE OF WORK.
- 'E' DENOTES EXISTING DEVICE TO REMAIN. 'R' DENOTES EXISTING DEVICE TO BE RELOCATED.
- ALL FIRE ALARM CABLING SHALL BE IN EMT WHERE EXPOSED. ANY FIRE ALARM CABLING ABOVE THE CEILING SHALL BE PLENUM RATED.
- FOR EXISTING AND/OR RELOCATED DEVICES ADJUST STROBE LEVELS TO APPROPRIATE RATING SHOWN. IF ADJUSTABILITY IS UNAVAILABLE REPLACE WITH NEW.
- FIRE ALARM SOUND LEVELS AND INTELLIGIBILITY SHALL COMPLY WITH CHAPTER 9 OF THE APPLICABLE STATE BUILDING CODE.
- VERIFY PROPER FUNCTIONALITY OF ALL EXISTING AND RELOCATED FIRE ALARM DEVICES, INCLUDING THEIR HOUSING, LENSES, ETC., PROVIDE REPLACEMENTS AS REQUIRED IF ANY ARE NOT OPERATING AS INTENDED OR HAVE ABOVE NORMAL WEAR OR DEFECTS.
- FIRE ALARM CONTRACTOR SHALL COORDINATE ALL THE FIRE ALARM DEVICE LOCATION WITH THE REFLECTED CEILING PLAN AND CONFIRM IN THE FIELD WITH ARCHITECT/OWNER.
- ALL DEVICES SHALL BE COMPATIBLE WITH AND MAINTAIN THE UL LISTING OF EXISTING FA SYSTEM.
- G.C. SHALL FIELD VERIFY EXACT REQUIREMENTS FOR FIRE ALARM SYSTEM PRIOR TO BID. SUPPLY AND INSTALL ALL NECESSARY EQUIPMENT AS REQUIRED.
- REFER TO DRAWING E-0.1 FOR FIRE ALARM NOTES, SYMBOL LIST, ABBREVIATIONS.
- FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE OWNER.
- CONFIRM REQUIRED DEVICES AND SEQUENCE OF OPERATION WITH FIRE ALARM CONTRACTOR.

KEYED NOTES: #

- EXISTING FIRE ALARM PANEL FOR THE PROJECT SPACE TO REMAIN. CONTRACTOR SHALL COORDINATE WITH LANDLORD/OWNER FOR ITS EXACT OPERABLE CONDITION. PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- ALL DEVICES SHALL BE COMPATIBLE WITH AND MAINTAIN THE UL LISTING OF THE EXISTING FA SYSTEM. CONNECT ALL NEW FIRE ALARM SYSTEM DEVICES TO EXISTING FIRE ALARM CONTROL PANEL AS REQUIRED. BASE BID ACCORDINGLY.
- FIRE ALARM CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF TAMPER AND WATER FLOW SWITCHES IN FIELD. COORDINATE THE EXACT QUANTITY OF TAMPER AND WATER FLOW SWITCHES WITH SPRINKLER CONTRACTOR IN FIELD. BASE BID ACCORDINGLY.
- CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF DUCT SMOKE DETECTOR IN FIELD WITH MECHANICAL CONTRACTOR. BASE BID ACCORDINGLY.



- (E) FIRE ALARM PANEL
- (N) TIME CLOCK & LIGHTING CONTACTOR
- (E) 400A (MLO), 120/208V, 3PH, 4W, PANEL-LB (SECTION-2)
- (E) 400A (MCB), 120/208V, 3PH, 4W, PANEL-LA (SECTION-1)
- (E) ELECTRICAL SHAFT
- (E) DISCONNECT SWITCH
- (E) TELEPHONE BOARD

Property of NY Engineers

CONSULTANT (ENGINEER)  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH-914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 266294910. EXPIRATION DATE: 04/30/2026

CONTRACTOR'S NOTES:  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

DATE	REVISION
07/14/2025	IFC SET
05/29/2025	REVISION 1
05/16/2025	CLIENT COMMENTS

PROJECT INFORMATION:  
 PROJECT NUMBER: 12115-24  
 DRAWN BY: NYE  
 REVIEWED BY: NYE  
 TOTAL SQ. FT.: 3,519  
 DATE: 04/25/25

DRAWING TITLE:  
**FIRE ALARM PLAN**

DRAWING NUMBER:  
**E-3.0**

1.0 GENERAL  
1.01 DESCRIPTION

A. THIS DIVISION 22 AND THE ACCOMPANYING DRAWINGS COVER THE PROVISION OF ALL LABOR, EQUIPMENT, APPLIANCES, AND MATERIALS AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE CONSTRUCTION OF THE PLUMBING SYSTEMS AS SPECIFIED HEREIN AND AS SHOWN.  
B. ALL WORK SPECIFIED IN THIS SECTION IS GOVERNED BY THE COMMON WORK RESULTS FOR PLUMBING 22 05 00.  
C. THE GENERAL PROVISIONS AND DIVISION 1, INCLUDING THE GENERAL, SUPPLEMENTARY AND OTHER CONDITIONS AND OTHER DIVISIONS, AS APPROPRIATE, APPLY TO WORK SPECIFIED IN THIS DIVISION.

1.02 EXISTING CONDITIONS

A. ATTENTION IS CALLED TO THE FACT THAT THE WORK IS TO BE PERFORMED WITHIN AN EXISTING OPERATIONAL FACILITY. PRIOR TO THE SUBMISSION OF BIDS, EACH BIDDER SHALL VISIT THE PROJECT SITE, THOROUGHLY INVESTIGATE AND BE FAMILIAR WITH ALL EXISTING CONDITIONS WHICH WILL AFFECT THE WORK. ESPECIALLY THE WORK TO BE PERFORMED ABOVE THE EXISTING CEILING.  
B. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND WORKMANLIKE MANNER. WHERE AN EXISTING STRUCTURE MUST BE CUT OR EXISTING UTILITIES INTERFERE, SUCH OBSTRUCTIONS SHALL BE BYPASSED, REMOVED, REPLACED OR RELOCATED, PATCHED AND REPAIRED, WORK DISTURBED OR DAMAGED SHALL BE REPLACED OR REPAIRED TO ITS PRICE CONDITION.  
C. PRIOR TO THE START OF ANY DEMOLITION OR CONSTRUCTION, SECURE THE SERVICES OF A QUALIFIED EPA CERTIFIED ASBESTOS ABATEMENT AGENCY TO CHECK THE EXISTING INSULATION, ETC. FOR ASBESTOS. SHOULD ASBESTOS BE FOUND, DO NOT PROCEED WITH DEMOLITION OR CONSTRUCTION; NOTIFY THE ARCHITECT IN ANY CASE IN WRITING OF THE AGENCY'S FINDINGS.

1.03 INTENT OF DRAWINGS AND SPECIFICATIONS

A. THE IMPLIED AND STATED INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO ESTABLISH MINIMUM ACCEPTABLE STANDARDS FOR MATERIALS, EQUIPMENT AND WORKMANSHIP, AND TO PROVIDE OPERABLE PLUMBING SYSTEMS COMPLETE IN EVERY RESPECT.  
B. THE ENGINEERING DRAWINGS ARE DIAGRAMMATIC, INTENDED TO SHOW GENERAL ARRANGEMENT AND SIZES OF SYSTEM COMPONENTS, AND SHALL NOT BE CALLED, RATHER, THE ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL GOVERN SPACE CONSTRAINTS, DIMENSIONS AND FINISHES. AN OFFSETS AND FITTINGS WHICH WILL BE NECESSARY TO ACCOMPLISH THE FINISHED INSTALLATION SHALL BE PROVIDED AT NO ADDITIONAL COST OR INCREASE IN THE CONTRACT.

1.04 SPACE PRIORITY

A. ENSURE OPTIMUM USE OF AVAILABLE SPACE FOR MATERIALS AND EQUIPMENT INSTALLED ABOVE CEILING. ALL LOCATE SPACE IN THE ORDER OF PRIORITY AS LISTED BELOW EXCEPT AS OTHERWISE DETAILED. ITEMS ARE LISTED IN THE ORDER OF PRIORITY, WITH ITEMS OF EQUAL IMPORTANCE LISTED UNDER A SINGLE PRIORITY NUMBER.

- GRAVITY FLOW PIPING SYSTEMS
- VENT PIPING SYSTEMS
- RECESSED LIGHTING FIXTURES
- CONCEALED HVAC TERMINALS AND EQUIPMENT
- AIR DUCT SYSTEMS
- SPRINKLER PIPING SYSTEMS
- PRESSURIZED PIPING SYSTEMS
- ELECTRICAL CONDUIT, WIRING, CONTROL AIR TUBING

B. ORDER OF SPACE PRIORITY DOES NOT DICTATE INSTALLATION SEQUENCE. INSTALLATION SEQUENCE SHALL BE AS REQUIRED TO INSTALL ALL AFFECTED TRENDS.  
C. THE WORK OF THIS DIVISION 22 SHALL NOT OBSTRUCT ACCESS FOR INSTALLATION, OPERATION AND MAINTENANCE OF THE WORK OF ANY OTHER DIVISION.  
D. ALL MAJOR ITEMS OF EQUIPMENT SHALL BE ARRANGED SO AS TO PROVIDE A MINIMUM OF 28" CLEAR ASLE SPACE. ADDITIONAL SPACE SHALL BE PROVIDED BETWEEN AND AROUND EQUIPMENT FOR MAINTENANCE AND PROPER OPERATION AS SHOWN IN THE EQUIPMENT MANUFACTURER'S LITERATURE.

1.05 COORDINATION

A. COORDINATE ALL WORK UNDER THIS DIVISION 22 WITH WORK UNDER AL OTHER DIVISIONS, PROVIDING ADJUSTMENT AS NECESSARY.  
B. COORDINATION OF SPACE REQUIREMENTS WITH RESPECT TO DIVISION 26 SHALL BE PERFORMED SUCH THAT:  
1. NO EQUIPMENT, PIPING OR DUCTWORK, OTHER THAN ELECTRICAL, SHALL BE INSTALLED WITHIN 42" OF SWITCHBOARDS OR PANEL BOARDS.  
2. NO PIPING OR DUCTWORK WHICH EVER OPERATES AT A TEMPERATURE IN EXCESS OF 120°F SHALL BE INSTALLED WITHIN 3" OF ANY ELECTRICAL CONDUCTOR.  
C. ALL ITEMS MOUNTED IN OR BELOW THE CEILING, AND ALL ITEMS PENETRATING THE CEILING, SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. IF ANY ITEMS ARE NOT SHOWN ON THESE PLANS, OR ANY ITEMS NEED TO BE RELOCATED FOR COORDINATION PURPOSES, PREPARE A REFLECTED CEILING PLAN AND SUBMIT IT TO THE ARCHITECT FOR APPROVAL.

1.06 CODE COMPLIANCE

A. ALL WORKMANSHIP AND MATERIALS PROVIDED UNDER THIS DIVISION 22 SHALL COMPLY WITH ALL LAWS, ORDINANCES, CODES AND REGULATIONS OF ALL FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION.  
B. ALL FIRE SUPPRESSION, PLUMBING, HEATING, VENTILATION, AND A CONDITIONING MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL CODES AND THE FOLLOWING STANDARDS AS MINIMUM REQUIREMENTS:

- NEW JERSEY UCC ELECTRICAL SUBCODE 2020 (NFPFA 70.2020)
- NEW JERSEY UCC BUILDING SUBCODE 2021 (IBC 2021)
- NEW JERSEY COMMERCIAL ENRGEY CODE 2019 (ASHRAE 90.1.2019)
- NEW JERSEY UCC MECHANICAL SUBCODE 2021 (IMC 2021)
- NEW JERSEY UCC PLUMBING SUBCODE 2021 (NSCP 2021)

C. SECURE AND PAY ALL FEES ASSOCIATED WITH ALL PERMITS AND LICENSES REQUIRED FOR EXECUTION OF THE CONTRACT. ARRANGE FOR ALL INSPECTIONS REQUIRED BY CITY, COUNTY, STATE AND OTHER AUTHORITIES HAVING JURISDICTION, AND DELIVER CERTIFICATES OF APPROVAL TO THE ARCHITECT.  
D. THE CODE REQUIREMENTS ARE STRICTLY A MINIMUM AND SHALL BE MET WITHOUT INCURRING ADDITIONS TO THE CONTRACT. WHERE REQUIREMENTS OF THE DRAWINGS OR SPECIFICATIONS EXCEED THE CODE REQUIREMENTS, THE WORK SHALL BE PROVIDED IN ACCORDANCE WITH THESE DRAWINGS OR SPECIFICATIONS. IN THE EVENT OF CONFLICT OR AMBIGUITY BETWEEN THE VARIOUS CODES, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.

1.07 ELECTRICAL REQUIREMENTS AND INTERFACE

A. ALL ELECTRICAL EQUIPMENT AND WIRING PROVIDED UNDER THIS DIVISION 22 SHALL COMPLY WITH THE ELECTRICAL SYSTEM CHARACTERISTICS INDICATED ON THE ELECTRICAL DRAWINGS WITH SPECIFIED IN DIVISION 26.  
B. ELECTRIC CONTROLS, CONTRACTORS, STARTERS, PILOT LIGHTS, PUSH BUTTONS, ETC., SHALL BE PROVIDED COMPLETE AS PORT OF THE MOTOR. HEATER OR OTHER EQUIPMENT WHICH IT OPERATES. AN ELECTRICAL COMPONENT SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND DIVISION 26. STARTERS SHALL BE WYE-DELTA, CLOSED TRANSITION TYPE. REFERENCE DIVISION 26 AND THE ELECTRICAL ENGINEERING DRAWINGS FOR THOSE MOTOR STARTERS PROVIDED UNDER DIVISION 26. ALL STARTERS NOT SHOWN SHALL BE PROVIDED UNDER THIS DIVISION 22, UNLESS SPECIFIED OTHERWISE UNDER OTHER INDIVIDUAL EQUIPMENT SECTIONS. MOTOR STARTERS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS:  
1. STARTERS FOR MOTORS 1/3 HORSEPOWER OR SMALLER SHALL BE MANUAL UNLESS REMOTE OR AUTOMATIC STARTING IS REQUIRED, IN WHICH CASE THE STARTERS SHALL BE MAGNETIC, FULL VOLTAGE, NON-REVERSING, SINGLE-SPEED, UNLESS OTHERWISE INDICATED. ALL OTHER STARTERS SHALL BE MAGNETIC.  
2. EACH STARTER FOR A THREE-PHASE MOTOR SHALL BE FURNISHED WITH THREE (3) OVERLOAD RELAYS SIZED FOR THE FULL LOAD RUNNING CURRENT OF THE MOTOR PROVIDED PROVIDE AN EXTERNAL "HAND-OFF-AUTO" SELECTOR SWITCH WITH RED "RUNNING" LIGHT. PROVIDE A GREEN PILOT LIGHT TO INDICATE MOTOR "STOPPED". EACH PILOT LIGHT SHALL HAVE A LEGEND PLATE PROVIDING REASON FOR SIGNAL.  
3. EACH OVERLOAD RELAY SHALL HAVE A NORMALLY OPEN ALARM CONTACT, WHICH WILL CLOSE ONLY WHEN ACTUATED BY AN OVERLOAD (NOT TO BE CONFUSED WITH N.O. OR N.C. AUXILIARY CONTACTS). THESE CONTACTS SHALL BE PROPERLY WIRED TO THEIR RESPECTIVE BLUE PLOT LIGHT (NOT PROVIDED ON THE STARTER FRONT COVER AND HAVE 0 "TRIPPED" LEGEND PLATE).  
4. INDIVIDUALLY MOUNTED MOTOR STARTERS SHALL BE IN A NEMA TYPE 1 GENERAL PURPOSE ENCLOSURE IN UNFINISHED AREAS AND SHALL BE FLUSH MOUNTED IN ALL FINISHED AREAS. ALL STARTERS MOUNTED IN EXTERIOR AREAS SHALL HAVE A NEMA 3R ENCLOSURE. EACH STARTER SHALL HAVE A LAMINATED NAMEPLATE TO INDICATE EQUIPMENT UNIT NUMBER, FUNCTION, AND CIRCUIT NUMBER.  
5. ALL MOTOR STARTERS, PUSH BUTTONS AND PILOT LIGHTS SHALL BE OF THE SAME MANUFACTURER AS THE SWITCHBOARD AND SHALL BE GENERAL ELECTRIC, SQUARE, SIEMENS, OR WESTINGHOUSE.  
6. MOTOR STARTERS FOR THE FOLLOWING EQUIPMENT SHALL BE PROVIDED UNDER DIVISION 22 BY THE MANUFACTURER OF THE EQUIPMENT:  
7. PUMPS WITHOUT VFDS.  
8. OTHER EQUIPMENT HEREIN AFTER SPECIFIED IN OTHER SECTIONS TO BE PROVIDED WITH INTEGRAL STARTERS.

C. UNLESS OTHERWISE NOTED OR SPECIFIED IN INDIVIDUAL SECTIONS, ALL 3-PHASE MOTORS SHALL BE STANDARD NEMA CONTINUOUS DUTY "B" TYPE, WITH CLASS B INSULATION, OPEN DRIP-PROOF FRAME FOR INDUOR SERVICE, TFC FOR OUTDOOR SERVICE, AND A SERVICE FACTOR OF 1.15. ALL MOTORS 5 HP AND LARGER SHALL BE U.S. MOTORS HI-EFFICIENCY MODEL OR RELIANCE XE HI-EFFICIENCY MODEL.  
D. ALL POWER WIRING AND FINAL CONNECTIONS TO EQUIPMENT SHALL BE PROVIDED UNDER DIVISION 26.  
E. CONTROL COMPONENTS, ALL INTERLOCKS (CONTROL VALVES, LEAK SENSORS, ETC.) AND CONTROL WIRING (120 VOLTS, SINGLE PHASE OR LESS) SHALL BE PROVIDED UNDER DIVISION 22 AS REQUIRED TO ACHIEVE THE SPECIFIED CONTROL SEQUENCES.  
F. ALL CONTROL WIRING OVER 30 VOLTS SHALL BE INSTALLED BY A LICENSED ELECTRICIAN WORKING UNDER THIS DIVISION 22.

1.08 SLEEVES, SEALS, AND ESCUTCHEONS

A. SLEEVES SHALL BE PROVIDED THROUGH ALL PIPE PENETRATIONS OF CONCRETE OR MASONRY WALLS, ELEVATED FLOORS, AND ROOFS, EXCEPT THOSE INCLUDING PIPING PENETRATIONS FOR FIXTURES, VENTS, ETC.  
B. SLEEVES SHALL BE FABRICATED FROM SCHEDULE 40 STEEL PIPE THROUGH 10" AND STANDARD WALL STEEL PIPE FOR SLEEVE SIZES 12" AND LARGER. ALL SLEEVES PENETRATING EXTERIOR WALLS, UNDERGROUND WALLS, PIT OR VAULT WALLS SHALL BE PROVIDED WITH A 3" X 3/8" THICK WATERSTOP RING WELDED COMPLETELY TO THE MIDPOINT OF THE SLEEVE.  
C. ALL SLEEVES PENETRATING EXTERIOR WALLS, UNDERGROUND WALLS, PIT OR VAULT WALLS, AND ELEVATED FLOORS SHALL BE PACKED AND SEALED WATERTIGHT.  
D. SLEEVES THROUGH ROOFS SHALL EXTEND ABOVE THE ROOF SURFACE AND BE FLASHED WATERTIGHT.  
E. SLEEVES THROUGH WALLS SHALL BE CUT AND FINISHED FLUSH WITH EACH SURFACE OF THE WALL IN WHICH THEY ARE INSTALLED.  
F. SLEEVES THROUGH ELEVATED FLOORS SHALL EXTEND AT LEAST 4" ABOVE THE FINISHED FLOOR AND BE SEALED TO THE UNDERSIDE OF THE SLEEVE AND SLAB.  
G. SLEEVES SHALL BE SIZED TO PROVIDE A MINIMUM OF 1/2" CLEARANCE BETWEEN THE INSIDE SURFACE OF THE SLEEVE AND THE OUTSIDE FINISHED SURFACE OF THE PIPE PLUS ANY INSULATION SPECIFIED.  
H. FIRE-STOPS SHALL BE PROVIDED AS SPECIFIED HEREIN. ALL ANNULAR SPACES BETWEEN PIPING AND SLEEVES THAT DO NOT REQUIRE FIRE-STOPS SHALL BE PACKED WITH MINERAL WOOL AND CALKED.  
I. FIRE-STOPS ARE REQUIRED FOR PACKING AT ELEVATED FLOOR PENETRATIONS SHALL BE LEVEL WITH OR ABOVE THE ELEVATION OF THE TOP OF THE SLEEVE TO PREVENT ANY WATER PONDING ON TOP OF THE SLEEVE.  
J. PROVIDES ROUND, CHROME-PLATED ESCUTCHEONS ON ALL EXPOSED PIPING PENETRATIONS PASSING THROUGH WALLS, FLOORS, PARTITIONS AND CEILING.  
K. ALL PENETRATIONS THROUGH RATED SLABS, WALLS, ETC. SHALL BE UNDER UL-LISTED SYSTEMS. PROVIDE RATED BOX-OUT, FIRE CALKING, ETC. AS NEEDED TO ENSURE FIRE RATING IS MAINTAINED IN COMPLIANCE WITH UL-LISTED SYSTEMS.

1.09 FIRE STOPS

A. WHERE PIPING, CONDUIT, ETC. PASS THROUGH FIRE PARTITIONS, FIRE WALLS, AND FLOORS, A FIRESTOP SHALL BE PROVIDED THAT ENSURE AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE, AND GASES. FIRESTOP MATERIAL SHALL BE PACKED TIGHT AND COMPLETELY FILL GAPS BETWEEN THE DUCTWORK, PIPING, CONDUITS, ETC. AND THE PERIMETER OF THE PENETRATION.  
B. ALL PENETRATIONS SHALL BE IN ACCORDANCE WITH UL 1479 OR ASTM E 814 LISTED SYSTEMS, AND PRODUCTS USED SHALL BE SPECIFICALLY APPLICABLE FOR THE APPROPRIATE INSTALLATION CONDITIONS. ASSEMBLIES SHALL PROVIDE A MINIMUM RATING EQUAL TO THE CONSTRUCTION PENETRATED. PRODUCTS SHALL BE BY HLT, 3M, OR PROSET.  
C. INSTALLATION SHALL BE BY A QUALIFIED INSTALLER. THE INSTALLER SHALL BE CERTIFIED OR LICENSED, OR OTHERWISE QUALIFIED BY THE FIRES TOPPING MANUFACTURER AS HAVING THE NECESSARY TRAINING TO INSTALL THE MANUFACTURER-SPECIFIC PRODUCT. A MANUFACTURER OR VENDORS WILLINGNESS TO SEND A SAMPLE FIRE STOPPING PRODUCT TO THE CONTRACTOR OR INSTALLER DOES NOT IN ITSELF CONFER QUALIFICATION.  
D. INSTALLER SHALL HAVE AT LEAST ONE OF THE FOLLOWING QUALIFICATIONS:  
1. FA 4981 APPROVED CONTRACTOR  
2. UL APPROVED CONTRACTOR  
3. HLT, 3M, OR PROSET ACCREDITED FIRE STOP SPECIALTY CONTRACTOR  
E. THE INSTALLING FIRM SHALL HAVE NO LESS THAN 3 YEARS OF EXPERIENCE WITH FIRESTOP INSTALLATION.  
F. A MANUFACTURER'S DIRECT REPRESENTATIVE (NOT DISTRIBUTOR OR AGENT) SHALL BE ON SITE DURING THE INITIAL INSTALLATION OF FIRESTOP SYSTEMS TO TRAIN APPROPRIATE CONTRACTOR PERSONNEL IN PROPER SELECTION AND INSTALLATION PROCEDURES.  
G. THE FIRESTOP CONTRACTOR OR INSTALLER SHALL SUPPLY AS-BUILT DOCUMENTATION OF EACH INDIVIDUAL PENETRATION LOCATION ON THE PROJECT. DOCUMENTATION SHALL INCLUDE A SEQUENTIAL LOCATION NUMBER, DETAILED DESCRIPTION OF THE PENETRATION LOCATION, SIZE, AND TYPE, TESTED SYSTEM NUMBER, TYPE OF ASSEMBLY PENETRATED, AND RATING TO BE ACHIEVED. AS-BUILT DOCUMENTATION SHALL BE INCLUDED WITH THE CLOSE-OUT MATERIALS.  
H. IDENTIFY THROUGH-PENETRATION FIRESTOP SYSTEMS WITH PRESSURE-SENSITIVE, SELF-ADHESIVE, PREPRINTED VINYL LABELS. ATTACH LABELS PERMANENTLY ON BOTH SIDES OF THE PENETRATED CONSTRUCTION IN A VISIBLE LOCATION. THE LABEL SHALL INCLUDE THE FOLLOWING:  
1. THE WORDS "WARNING -- THROUGH PENETRATION FIRESTOP SYSTEM--DO NOT DISTURB"  
2. THROUGH PENETRATION FIRESTOP SYSTEM DESIGNATION AND MANUFACTURER  
3. DATE OF INSTALLATION

1.10 CORE DRILLING

A. CUTTING OF HOLES THROUGH CONCRETE AND MASONRY SHALL BE BY DIAMOND CORE OR CONCRETE SAW. PNEUMATIC HAMMER, IMPACT ELECTRIC AND HAND OR MANUAL HAMMER TYPE DRILLS WILL NOT BE AIVED, EXCEPT AS PERMITTED BY THE ARCHITECT WHERE REQUIRED BY LIMITED WORKING SPACE. LOCATE HOLES SUCH THAT THEY WILL NOT AFFECT STRUCTURAL SECTIONS SUCH AS RISERS OR BEAMS. HOLES SHALL BE LAID OUT WELL IN ADVANCE OF THE INSTALLATION. THESE LOCATE LOCATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO DRILLING.

1.11 IDENTIFICATION OF PIPING

A. ALL ABOVEGROUND PLUMBING SYSTEMS PIPING AND VALVES SIZED 3/4" AND LARGER WHICH ARE INSTALLED INACCESSIBLE LOCATIONS (INCLUDING PIPING ABOVE REMOVABLE CEILING AND BEHIND ACCESS PANELS) SHALL BE IDENTIFIED IN STRICT CONFORMANCE WITH THE "SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS" (ANSI A13.1-2015)  
B. PIPING LABELS IN EXPOSED AREAS SHALL BE ORIENTED AND LOCATED IN COORDINATION WITH THE ARCHITECT.  
C. SYSTEM AMES SHALL, AT MINIMUM, UNIQUELY IDENTIFY THE SYSTEM AND PERFORMANCE CATEGORY I.E 140% HOT WATER SUPPLY, HIGH PRESSURE COLD WATER, ETC.  
D. SPECIALIZED PIPING (GREASE WASTE, ACID WASTE, FUEL PIPING, ETC.) INSTALLED UNDERGROUND SHALL BE LABELED. THE LABEL SHALL BE CORROSION-RESISTANT OR SHALL BE PERMANENTLY MARKED.  
E. EACH IDENTIFICATION MARKER SHALL INCLUDE THE FOLLOWING:  
-PROPER COLOR-CODE BACKGROUND  
-PROPER COLOR OR LEGEND IN RELATION TO BACKGROUND COLOR  
-PROPER LEGEND LETTER SIZE  
-PROPER MARKER LENGTH  
-DIRECTION OF THE FLOW ARROW SHALL BE INCLUDED ON EACH MARKER  
F. LOCATIONS FOR PIPE MARKERS SHALL BE AS FOLLOWS:  
- WATER, REFRIGERANT AND GAS PIPE LABELS, INDICATING THE SERVICE AND DIRECTION OF FLOW, SHALL BE APPLIED AT APPROXIMATELY 20-FEET INTERVALS AS WELL NEAR EQUIPMENT AND MAJOR BRANCH CONNECTIONS. THE COLORS OF BANDS SHALL CONFORM TO ASME A13.1 STANDARDS.  
- ADJACENT TO EACH VALVE AND FITTING  
- AT EACH BRANCH AND RISER TAKE OFF  
- AT EACH PIPE PASSAGE THROUGH WALLS, FLOORS AND CEILING  
- UNDERGROUND REQUIRED TO BE LABELED SHALL BE LABELED EVERY 10 FEET OR MORE OFTEN AS REQUIRED BY THE AHJ  
G. IDENTIFICATION MARKERS MAY BE STENCILED OR SHALL BE SET MARK PIPE MARKERS, AS MANUFACTURED BY SETON NAME PLATE CORPORATION.  
H. ALL VALVES SHALL BE IDENTIFIED WITH THE APPROPRIATE SERVICE DESIGNATION AND VIVE NUMBER BRASS VALVE TAGS. EACH VALVE TAG SHALL BE 19 GAUGE BRASS WITH 1/4" BLOCK-FILED LETTERS OVER 1/2" BLACK-FILLED NUMBERS. TAGS SHALL BE FASTENED TO VALVES WITH BRASS 1" HOOKS OR BRASS JACK CHAIN, BRASS TAGS AND FASTENERS SHALL BE AS MANUFACTURED BY SETON NAME PLATE CORPORATION.  
PROVIDE CHARTS OF ALL VALVES. VALVE CHARTS SHALL INCLUDE THE FOLLOWING ITEMS:  
VALVE IDENTIFICATION NUMBER  
LOCATION  
PURPOSE / MATERIAL

2.0 PRODUCTS

2.01 810 BASIS AND SUBSTITUTION PROCEDURES

A. MANUFACTURER NAMES, SERIES, AND MODEL NUMBERS, AS NOTED OR SPECIFIED, ARE FOR THE PURPOSE OF DESCRIBING TYPE, CAPACITY, AND QUALITY OF EQUIPMENT, MATERIALS, AND PRODUCTS TO BE USED. UNLESS "OR EQUAL" IS SPECIFICALLY STATED, BIDS SHALL BE BASED ONLY ON THE SPECIFIED "BASIS OF DESIGN" MANUFACTURER. THE LISTING OF A PARTICULAR MANUFACTURER AS AN "EQUAL" OR "ACCEPTABLE SUBSTITUTE" MANUFACTURER SHALL NOT BE MISCONSTRUED AS APPROVING, NOR ALLOWING THE SUBSTITUTION OF, THAT MANUFACTURER'S STANDARD PRODUCT IN PLACE OF THE BASIS OF DESIGN. NO CONSIDERATION WILL BE GIVEN TO A PRODUCT THAT WOULD REQUIRE DIMENSIONAL, SPATIAL, OR AESTHETIC CHANGES TO THE PROJECT. "ACCEPTABLE SUBSTITUTE" AND "EQUAL" MANUFACTURERS SHALL ONLY BID THOSE PRODUCTS THAT EXACTLY MATCH THE SIZE AND OTHER CHARACTERISTICS OF THE SPECIFIED BASIS OF DESIGN. ANY CHANGES TO OTHER DISCIPLINES AND TRADES OF WORK REQUIRED BY AN "OR EQUAL" OR "SUBSTITUTE" PRODUCT SHALL BE FULLY CONSIDERED AND PRICED ACCORDING BEFORE BIDDING OR PRICING. THE DECISION AS TO WHETHER OR NOT A PROPOSED SUBSTITUTE OR "EQUAL" PRODUCT IS EQUAL TO THAT SPECIFIED SHALL REST SOLELY WITH THE ARCHITECT.  
B. REQUESTS TO PROVIDE "EQUAL" PRODUCTS IN LIEU OF THOSE SPECIFIED SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING AT LEAST TEN (10) DAYS PRIOR TO FINAL PRICING AND EXECUTION OF THE CONTRACT. NO CONSIDERATION WILL BE GIVEN TO SUBSTITUTE PRODUCTS AFTER FINAL PRICING AND EXECUTION OF THE CONTRACT.  
C. ANY "OR EQUAL" PRODUCT OR PROPOSED PRODUCT SUBSTITUTION WHICH WILL CAUSE A CHANGE IN THE APPEARANCE, DIMENSIONS, OR DESIGN OF ANY PART OF THE BUILDING, STRUCTURE, ELECTRICAL SYSTEM, OR ANY OTHER ENGINEERED SYSTEM SHALL BE ACCOMPANIED BY A SCALED DRAWING AND WRITTEN DESCRIPTION OF THE REQUIRED CHANGE(S) FOR APPROVAL BY THE ARCHITECT. IF DEEMED NECESSARY BY THE ARCHITECT, DESIGN CHANGES SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN THIS STATE. THIS SHALL BE PERFORMED UNDER THE CONTRACTOR SELECTING THE SUBSTITUTIONS SCOPE.  
D. ANY AND ALL CHANGES DUE TO THE SUBSTITUTION OF BASIS OF DESIGN EQUIPMENT INCLUDING ELECTRICAL, MECHANICAL, PHYSICAL, SIZE, ACCESS, PIPING CONNECTIONS, AND CONTROLS, ETC. SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR SELECTING THE SUBSTITUTION.

2.02 MINIMUM STANDARDS

A. EVERY PIECE OF ENERGY-CONSUMING EQUIPMENT, ALL FIRE SUPPRESSION PRODUCTS, AND LIFE SAFETY EQUIPMENT SHALL COMPLY WITH THE FOLLOWING STANDARDS AS APPLICABLE, ESPECIALLY REGARDING PREVAILING CODES:  
1. FACTORY MUTUAL LABORATORIES (FM)  
2. INDUSTRIAL RISK INSURERS (IRI)  
3. UNDERWRITERS LABORATORIES, INC. (UL)  
4. ADC: AIR DIFFUSION COUNCIL  
5. AGA: AMERICAN GAS ASSOCIATION  
6. AMCA: AIR MOVING AND CONDITIONING ASSOCIATION, INC.  
7. ANSI: AMERICAN NATIONAL STANDARDS INSTITUTE  
8. API: AMERICAN PETROLEUM INSTITUTE  
9. AHRI: AIR CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE  
10. ASHRAE: AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS  
11. ASME: AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
12. ASTM: AMERICAN SOCIETY OF TESTING AND MATERIALS  
13. AWWA: AMERICAN WATER WORKS ASSOCIATION  
14. IBR: INSTITUTE OF BOILER AND RADIATOR MANUFACTURERS  
15. MSS: MANUFACTURERS STANDARDIZATION SOCIETY  
16. NBBV: NATIONAL BOARD OF BOARD AND PRESSURE VESSEL INSPECTORS  
17. NEMA: NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
18. OSHA: OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION  
19. PDI: PLUMBING DRAINAGE INSTITUTE  
20. PP: PLASTIC PIPE INSTITUTE  
21. CISPI: CAST IRON SOIL PIPING INSTITUTE

2.03 PIPE HANGERS AND SUPPORTS

A. PIPE HANGERS, HANGER RODS, TRAPEZE TYPE HANGERS, UPPER ATTACHMENTS AND OTHER SUPPORTS SHALL BE SELECTED BASED ON PIPE SIZE (PLUS INSULATION OF PIPES SPECIFIED TO BE INSULATED) AND THE WEIGHT OF THE MEDIUM BEING TRANSPORTED OR THE MEDIUM USED FOR TESTING, WHICHEVER IS GREATER. PROVIDE ALL HANGERS AND RODS, TURNBUCKLES, ANCHORS, CHANNELS, AND OTHER STRUCTURAL SUPPORTS TO SUPPORT THE PIPING SYSTEMS. RODS FOR PIPE HANGERS SHALL BE FULL SIZE OF THE HANGER MANUFACTURER'S CATALOG LISTED ROD SIZE FOR EACH TYPE HANGER SPECIFIED. HANGERS AND SUPPORTS SHALL BE MICHIGAN, ITT GRINNELL OR BLUE.  
B. ALL MATERIAL UTILIZED FOR THE HANGING AND SUPPORT OF THE PIPING SYSTEMS SHALL BE MANUFACTURED PRODUCTS WHICH ARE SPECIFICALLY INTENDED FOR THE PURPOSE OF HANGING PIPING SYSTEMS. THE USE OF WIRE, STEEL STRAPS, PLASTIC TIES, ETC. IS STRICTLY PROHIBITED.  
C. PIPE HANGERS SELECTED FOR SUPPORTING HORIZONTAL INSULATED PIPING SHALL BE SIZED TO FIT AROUND THE OUTSIDE OF THE PIPE INSULATION. INSULATED PIPING SHALL BE SUPPORTED ON GALVANIZED SHIELDS.  
1. SHIELDS SHALL BE AS FOLLOWS:  
A. PIPES 2" AND SMALLER: 18 GAUGE X 12" LONG  
B. PIPES 2 1/2" AND LARGER: 16 GAUGE X 18" LONG  
2. SHIELDS SHALL BE 180 DEGREES AROUND THE LOWER HALF OF THE PIPE AT ALL PIPE HANGERS, EXCEPT THOSE TRAPEZE HANGERS, PIPING AND FLOOR SUPPORTED HORIZONTAL PIPES. SHIELDS SHALL BE PROVIDED AROUND THE ENTIRE PIPE.  
A. PIPE HANGERS TOUCHING COPPER PIPING SHALL BE COPPER PLATED OR THE PIPING SHALL BE DIELECTRICALLY ISOLATED FROM ANY STEEL HANGERS OR CLAMPS THAT ARE USED. NOTE THE REQUIREMENT FOR DOMESTIC WATER PIPING REQUIRES THE HANGERS TO BE INSTALLED OVER THE INSULATION.  
B. STEEL RODS, FRAMING, AND CLAMPS SHALL BE PLATED OR PRIMED TO PREVENT RUST FORMATION.

3.0 EXECUTION

3.01 GENERAL

A. ALL PIPING, VALVES, AND FITTINGS SHALL BE PRODUCTS OF A DOMESTIC MANUFACTURER AND MADE IN THE USA.  
B. FLEXIBLE PIPING CONNECTIONS SHALL BE PROVIDED AND INSTALLED AT ALL Suction AND DISCHARGE CONNECTIONS OF PACKAGED BOOSTER PUMPS AND AT ALL PUMP 2.0 HP AND ABOVE. FLEXIBLE PIPING CONNECTIONS SHALL BE SUITABLE FOR 150 PSI WORKING PRESSURE OR THE SYSTEM PRESSURE AT THE INSTALLATION LOCATION, WHICHEVER IS GREATER, AND BE SUITABLE FOR THE TEMPERATURE OF THE SYSTEM. FLEXIBLE CONNECTIONS SHALL BE STAINLESS STEEL FLEXIBLE HOSE WITH A LENGTH NOT LESS THAN THEIR PIPE DIAMETER. PROVIDE AND INSTALL RESTRAINING RODS IF RECOMMENDED BY THE MANUFACTURER FOR THE INSTALLATION LOCATION AND APPLICATION.  
C. PROVIDE AND INSTALL SHUT-OFF VALVES AT ANY AND ALL EQUIPMENT INCLUDING WATER HEATERS, DOMESTIC BOOSTER PUMPS, RE-CIRCULATION PUMPS, STORAGE AND PRESSURE TANKS, ETC. AND AT ANY LOCATIONS REQUIRED BY CODE, SUCH AS BRANCH LINES FROM RISERS SERVING MORE THAN ONE FIXTURE. SHUT-OFFS SHALL BE IN ADDITION TO THE SPECIFICALLY SHOWN OR NOTED IN THE CONTRACT DOCUMENTS.

3.02 SUBMITTALS

A. BEFORE PREPARING SUBMITTALS, STUDY ALL CONTRACT DRAWINGS AND SPECIFICATIONS IN DETAIL, OBTAIN MANUFACTURER'S RECOMMENDED INSTRUCTIONS, AND HAVE SUBMITTALS PREPARED BASED ON SPECIFIC EQUIPMENT AND MATERIAL PROPOSED FOR INSTALLATION. AN OFFICER OF THE CONTRACTING FIRM SHALL SIGN ALL SHOP DRAWINGS (CERTIFYING CONFORMANCE WITH PLANS AND SPECIFICATIONS) BEFORE SUBMITTING TO THE ARCHITECT OR RELEASING TO THE FIELD.  
B. THE SUBMITTAL PROCESS SHALL NOT BE UTILIZED AS AN AVENUE TO SUBSTITUTE PRODUCTS AFTER THE EXECUTION OF THE CONTRACT. SHOULD AN UNEQUAL PRODUCT BE SUBMITTED, IT WILL BE REJECTED. IF A SECOND ATTEMPT AT SUBSTITUTION IS MADE DURING THE RE-SUBMITTAL OF THE SAME PRODUCT, THEN NO MORE REVIEWS OF THAT PRODUCT WILL BE PERFORMED WITHOUT DIRECT COMPENSATION TO THE ENGINEER BEING PAID FOR THE ADDITIONAL SERVICES REQUIRED FOR THE THIRD REVIEW AND ANY FURTHER REVIEWS.  
C. ALL SUBMITTALS SHALL BE SUBMITTED AND RETURNED ELECTRONICALLY.  
D. SUBMITTALS WILL NOT BE ACCEPTED FOR REVIEW UNLESS THEY:  
1. COMPLY WITH THE REQUIREMENTS OF DIVISION 1.  
2. INCLUDE COMPLETE INFORMATION PERTAINING TO ALL APPURTENANCES AND ACCESSORIES.  
3. ARE SUBMITTED AS COMPLETE PACKAGES WHICH PERTAIN TO ALL RELATED ITEMS IN DIVISION 22. SEPARATE PACKAGES SHALL BE SUBMITTED AS FOLLOWS:  
a. ALL PLUMBING EQUIPMENT, PIPING, SPECIALTIES, AND COMPONENTS  
b. ALL PLUMBING FIXTURES  
4. ARE PROPERLY MARKED WITH EQUIPMENT, SERVICE OR FUNCTION IDENTIFICATION AS RELATED TO THE PROJECT AND ARE MARKED WITH PERTINENT SPECIFICATION PARAGRAPH NUMBER.  
E. SUBMIT CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS, FIELD INSTALLATION DRAWINGS, AND CERTIFICATIONS AS REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OF EQUIPMENT. THE SUBMITTAL DATA SHALL PROVIDE AMPLIE, UNQUESTIONABLE COMPLIANCE WITH THE CONTRACT DOCUMENTS.  
F. REVIEW OF SUBMITTALS SHALL NOT BE CONSTRUED AS AUTHORIZING ANY DEVIATIONS FROM THE PLANS AND SPECIFICATIONS UNLESS SUCH DEVIATIONS ARE CLEARLY IDENTIFIED AND SEPARATELY SUBMITTED IN THE FORM OF A LETTER THAT IS ENCLOSED WITH THE SUBMITTALS.

3.03 EXCAVATION, TRENCHING, AND BACKFILLING

A. PERFORM ALL EXCAVATION, TRENCHING AND BACKFILLING FOR UNDERGROUND WORK UNDER THIS DIVISION 22 DURING EXCAVATION. THE EXCAVATED MATERIAL SHALL BE PILED BACK FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING, SLIDES OR COVERINS. DO NOT EXCEED THE ANGLE OF REPOSE UNLESS WRITTEN APPROVAL IS OBTAINED IN ADVANCE FROM THE ARCHITECT FOR SHORING, BRACING OR OTHER ALTERNATE EXCAVATION METHODS. ALL EXCAVATED MATERIAL NOT USED FOR BACKFILLING SHALL BE REMOVED FROM THE BUILDING AND DISPOSED OF AS INDICATED OR DIRECTED BY THE ARCHITECT. TAKE MEASURES TO PREVENT SURF WATER FROM FLOWING INTO TRENCHES AND OTHER EXCAVATIONS AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING. ALL EXCAVATION SHALL BE MADE BY OPEN CUT. TUNNELING SHALL NOT BE ALLOWED.  
B. THE BOTTOM OF ALL TRENCHES SHALL BE EVENLY GRADED TO PROVIDE FIRM SUPPORT AND AN EVEN BEARING SURFACE. PIPE SHALL BE LAID ON FIRM SOIL, LAID IN STRAIGHT LINES, AND ON UNIFORM GRADES. PROVIDE BELL HOLES SO THAT THE BARREL OF THE PIPE RESTS EVENLY ON THE BOTTOM OF THE TRENCH ALONG THE ENTIRE LENGTH OF THE PIPE.  
C. PIPE SHALL BE INSPECTED AND TESTED PRIOR TO BACKFILLING. TRENCH SHALL BE HAND FILLED TO A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE WITH SUITABLE EARTH (FREE OF ROCKS, TRASH, LARGE CLODS AND ORGANIC MATERIAL) AND COMPACTED TO A MINIMUM 95% PROCTOR. AFTER THE FIRST LAYER IS COMPLETED, SUBSEQUENT LAYERS SHALL BE FILLED AND COMPACTED THE SAME AS THE FIRST LAYER. SETTLING THE BACKFILL WITH WATER SHALL NOT BE PERMITTED.

3.04 INSTALLATION REQUIREMENTS

A. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE RECOMMENDATIONS OF THE EQUIPMENT MANUFACTURER, AS INDICATED ON THE DRAWINGS, AND AS SPECIFIED.  
B. PROVIDE INSTALLATION MANUALS FOR EACH PIECE OF EQUIPMENT. SUBMIT IN SEPARATELY BOUND VOLUMES AFTER REVIEW OF SUBMITTALS.  
C. PROVIDE SUPPLEMENTARY STEEL FRAMING AND WELDED STEEL EQUIPMENT SUPPORT STANDS AS REQUIRED FOR PROPER HANGING AND SUPPORT OF THE PLUMBING SYSTEMS, STEEL ANGLES, CHANNELS AND TUBING UTILIZED FOR SUCH FRAMING SHALL BE SELECTED FOR A MAXIMUM DEFLECTION  
D. ALL ROOF CURBS SHALL BE A MINIMUM OF 12" HIGH AND SELECTED FOR THE VARIOUS ROOF PITCHES. CURBS INSTALLED ON ROOFS HAVING PITCHES OF NOT MORE THAN 1/4" PER FOOT MAY BE STANDARD CURBS SHIMMED LEVEL WITH STEEL CHANNELS OR ZS TO PROVIDE SUITABLE SUPPORT AND FLASHING SURFACES.  
E. THE EXTERIOR SURFACES OF PLUMBING EQUIPMENT, PIPING, CONDUIT, ETC., SHALL BE CLEANED AND FREE OF ALL DIRT, GREASE, OIL, PAINT SPLATTER, AND OTHER CONSTRUCTION DEBRIS.  
F. BEARINGS THAT REQUIRE LUBRICATION SHALL BE LUBRICATED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.  
G. ALL CONTROL EQUIPMENT, VALVES, EQUIPMENT SETTINGS, PRESSURE TANKS, ETC. SHALL BE ADJUSTED TO THE SETTINGS EQUIPMENT FOR THE PERFORMANCE SPECIFIED.  
D. DO ALL MATERIALS, EQUIPMENT, ETC. SUBJECT TO WEATHER, CORROSION, DUST, DEBRIS, WATER ETC. TO BE INSTALLED OR UTILIZED FOR THE PROJECT SHALL BE FULLY PROTECTED. THIS IS INCLUSIVE OF PIPING AND DUCT OPENINGS AND INTERNAL NON VENTILATION INTAKES AND DISCHARGES. THIS DEVIATION SCOPE INCLUDES PROTECTION AND REMEDIATION OF ANY AND ALL DIVISION MATERIALS, ETC. INCLUDING CLEANING, VACUUMING, DUSTING, ETC. REQUIRED FOR A CLEAN SYSTEM AND OPERATION. INSULATION AND EQUIPMENT WITH ELECTRICAL CONNECTIONS SUBJECT TO WATER SHALL BE REPLACED IN OTHER INTERFERE, COORDINATE WITH ALL OTHER TRADES AND SCHEDULES.

3.05 CLEANING, LUBRICATION AND ADJUSTMENT

A. ALL UNPAID AND UNINSULATED STEEL SURFACES EXPOSED TO SIGHT INSIDE THE BUILDING, SUCH AS PIPING, EQUIPMENT HANGERS AND SUPPORTS, WHICH ARE NOT PROVIDED WITH FACTORY PRIME COAT OR GALVANIZING, SHALL BE CLEANED AND POINTED WITH ONE COAT OF RUST INHIBITING PRIMER. IN ADDITION, ALL SURFACES IN FINISHED SPACES SHALL ALSO BE PAINTED WITH TWO COATS OF FINISH PAINT IN A COLOR SELECTED BY THE ARCHITECT.  
B. STEEL ITEMS EXPOSED OUTSIDE THE BUILDING, SUCH AS EQUIPMENT SUPPORTS, UNINSULATED PIPING AND HANGERS WHICH ARE NOT FACTORY POINTED OR GALVANIZED SHALL BE CLEANED AND PAINTED WITH ONE COAT OF RUST INHIBITING PRIMER AND TWO COATS OF ASPHALTIC BASE ALUMINUM PAINT. INSULATED STEEL PIPES OUTSIDE THE BUILDING SHALL BE CLEANED AND PAINTED WITH ONE COAT OF RUST INHIBITING PRIMER BEFORE INSTALLING INSULATION.  
C. FACTORY PAINTED EQUIPMENT THAT HAS BEEN SCRATCHED OR MARRED SHALL BE REPAINTED TO MATCH THE ORIGINAL FACTORY COLOR.

3.07 PIPING LEAK TESTING

A. SANITARY, WASTE, STORM, AND VENT PIPING SHALL BE TESTED WITH WATER BEFORE INSTALLING FIXTURES. WATER TEST SHALL BE APPLIED TO THE SYSTEM EITHER IN ITS ENTIRETY OR TO THE INDIVIDUAL SECTIONS. EACH OPENING EXCEPT THE HIGHEST OPENING OF THE SECTION UNDER TEST SHALL BE PLUGGED. THE SECTION SHALL BE FILLED WITH WATER AND TESTED WITH A HEAD OF WATER OF AT LEAST TEN (10) FEET ABOVE THE HIGHEST POINT IN THE SYSTEM. THE WATER SHALL BE KEPT IN THE PORTION UNDER TEST, FOR AT LEAST THIRTY (30) MINUTES; NO DROP IN THE WATER LEVEL WILL BE ACCEPTABLE.  
B. TEST ALL PIPING, EXCEPT DRAINAGE CONNECTIONS, INCLUDING VALVES, FITTINGS, AND JOINTS, HYDROSTATICALLY TESTED AT A PRESSURE EQUAL TO AT LEAST 1.5 TIMES THE SYSTEM OPERATING PRESSURE. FOR A MINIMUM (4) HOURS. BLANK OFF OR REMOVE ANY ELEMENTS OR EQUIPMENT, WHICH MAY BE DAMAGED BY THE PRESSURE. OPEN BUT DO NOT BACK SEAT VALVES. INSPECT ALL JOINTS AND CONNECTIONS. CONFIRM THAT THERE IS NO VISIBLE LEAKAGE AND NEGIGIBLE DROP IN PRESSURE. CONTRACTOR TO USE NIST-CERTIFIED GAUGES.  
C. ALL COMPRESSED AIR PIPING SHALL BE TESTED PNEUMATICALLY AND PROVED TIGHT AT A PRESSURE OF NOT LESS THAN 100 PSI FOR A PERIOD OF NOT LESS THAN TWO (2) HOURS. NO LOGS IN PRESSURE WILL BE PERMITTED.  
D. ALL LEAKS SHALL BE REPAIRED BY TIGHTENING, REMARKING JOINTS, OR REPLACING PIPE AND FITTINGS. CAULKING OF JOINTS SHALL NOT BE PERMITTED.  
E. SEE SPECIFICATION SECTION 23 11 23 FOR TESTING REQUIREMENTS OF NATURAL GAS AND LIQUID PROPANE GAS PIPING. SYSTEM SHALL BE PORT OF DIVISION 22 SCOPE UNLESS OTHERWISE ARRANGED WITHIN THE CONTRACT. COORDINATE WITH DIVISION 23.

3.08 RECORD (AS-BUILT) DRAWINGS

A. AT THE COMPLETION OF THE PROJECT, PROVIDE A SET OF REPRODUCIBLE PRINTS TO THE ARCHITECT WHICH REFLECTS ALL CHANGES, DEVIATIONS AND REVISIONS MADE TO THE ORIGINAL DESIGN DOCUMENTS. LOCATIONS OF ALL UNDERGROUND PIPING AND UTILITIES SHALL BE CLEARLY SHOWN AND DIMENSIONED FROM PERMANENT REFERENCE POINTS SUCH AS BUILDING COLUMN LINES. RECORD DRAWINGS SHALL BE PRODUCED IN ELECTRONIC FORMAT COMPATIBLE WITH AUTOCAD. FURNISH ELECTRONIC COPIES OF ALL DRAWINGS IN DWG. FORMAT, AND TWO (2) BAND COPIES OF ALL DRAWING SHEETS. AS-BUILTS FOR ELECTRONIC INCORPORATION BY THE DESIGN TEAM, AS APPLICABLE SHALL BE REDLINE MARK-UPS OF THE CONSTRUCTION DOCUMENTS.

3.09 OPERATING AND MAINTENANCE MANUALS AND INSTRUCTIONS

A. COMPLETE OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE OWNER. FOUR COPIES SHALL BE PROVIDED. EACH COPY SHALL BE BOUND IN A SEPARATE 3-RING LOOSE LEAF NOTEBOOK. OPERATING INSTRUCTIONS SHALL BE PROVIDED FOR EACH PLUMBING SYSTEM, AND SHALL EACH INCLUDE A BRIEF SYSTEM DESCRIPTION, A SIMPLE SCHEMATIC AND A SEQUENCE OF OPERATION. OPERATING AND MAINTENANCE INSTRUCTIONS SHALL BE PROVIDED FOR EACH PIECE OF EQUIPMENT. A CONTROL SYSTEM WIRING DIAGRAM SHALL BE INCLUDED IN EACH OPERATING AND MAINTENANCE MANUAL.  
B. PRIOR TO FINAL ACCEPTANCE OR BENEFICIAL OCCUPANCY, PROVIDE THE SERVICES OF A COMPETENT TECHNICIAN FOR NOT LESS THAN ONE (1) DAY TO INSTRUCT THE OWNER IN THE OPERATION OF THE PLUMBING SYSTEMS.  
3.10 MINIMUM HANGER SPACING

PIPING MATERIAL	MAX. HORIZ. SPACING	MAX. VERT. SPACING
CAST IRON PIPE	5'	15'
COPPER PIPE	12'	10'
COPPER TUBING ≤ 1 1/4" DIA	6'	10'
COPPER TUBING ≥ 1 1/2" DIA	10'	10'
CPVC PIPE ≤ 1" DIA	3'	10'
CPVC PIPE ≥ 1 1/4" DIA	4'	10'
PVC PIPE	4'	10'
PEX PIPE	32'	10'

MIDSTORY GUIDE REQUIRED FOR PIPING 2" DIAMETER AND SMALLER.

C. RISER CLAMPS SHALL BE PROVIDED AT EACH FLOOR PENETRATION. FOR PRESSURIZED PIPING SYSTEMS, PROVIDE VIBRATION ISOLATION AT ALL RISER CLAMPS WITH TWO (2) PAD-TYPE MOUNTINGS CONSIST OF A RUBBER RIBBED OR WATERFEL ELASTOMER PADS BONDED BETWEEN MINIMUM 16-GAUGE GALVANIZED STEEL SEPARATOR PLATES. PADS SHALL BE SIZED FOR A DEFLECTION OF 0.12" TO 0.16". PADS SHALL BE MINIMUM 3"X3" SQUARE.

3.11 WARRANTY

D. ALL WORK PROVIDED UNDER THIS DIVISION 22 SHALL BE SUBJECT TO A MINIMUM ONE YEAR WARRANTY. THE WARRANTY SHALL INCLUDE PROMPT REPAIR OR REPLACEMENT OF EQUIPMENT OR SYSTEM FAILURES AND SHALL INCLUDE ALL PARTS AND LABOR. IN ADDITION, ALL COMPRESSORS SHALL CARRY AN ADDITIONAL FOUR YEAR PARTS-ONLY WARRANTY. EXTENDED WARRANTIES SHALL BE PROVIDED ON ALL OTHER EQUIPMENT SO SPECIFIED IN OTHER SECTIONS.

3.12 SHOP DRAWINGS

A. SHOP DRAWINGS PER THE SUBMITTAL REQUIREMENTS SHALL BE SUBMIT TO THE DESIGN TEAM WITH ADEQUATE TIME FOR MULTIPLE ROUNDS OF REVIEW. SHOP DRAWINGS SHALL SHOW "AS-BUILT" CONDITIONS INCLUDING ELEVATIONS, OFFSETS, TRANSITIONS, AND ACCESSORIES. SHOP DRAWINGS SHALL INDICATE ALL CODE AND MANUFACTURER'S RECOMMENDED CLEARANCES, ACCESS, AND COORDINATE THE CLEARANCE AND ACCESS REQUIREMENTS WITH ALL OTHER TRADES.  
B. SHOP DRAWINGS THAT USE KEYNOTES DIRECT FROM THE DESIGN DOCUMENTS SHALL NOT BE ACCEPTABLE AS THEY DO NOT DEMONSTRATE COORDINATION WITH AM OTHER TRADES, NECESSARY TRANSITIONS, ETC.  
C. SHOP DRAWINGS SHALL BE PROVIDED AS COMPLETE PACKAGES IN PARALLEL WITH ALL TRADES TO DOCUMENT COORDINATION. FLOOR-BY-FLOOR OR OTHERWISE PIECEMEAL SHOP DRAWINGS ARE GENERALLY NOT ACCEPTABLE.

3.13 OWNER TRAINING

A. OWNER TRAINING SHALL BE PROVIDED FOR ALL SYSTEMS AND EQUIPMENT AND SHALL INCLUDE THE FOLLOWING:  
1. 8-HOURS OF TRAINING FOR EACH TYPE OF EQUIPMENT.  
2. 16-HOURS FOR OVERALL SYSTEM OPERATIONAL TRAINING.  
B. A TRAINING SUMMARY AND SCHEDULE SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL WITHIN NINETY (90) DAYS OF THE DATE OF SUBSTANTIAL COMPLETION.  
C. TRAINING TIMING WILL VARY AND SHALL BE ASSUMED TO INCLUDE MULTIPLE SESSIONS AS REQUIRED BY THE OWNER.

3.14 BID REQUIREMENTS

A. THE CONTRACTOR SHALL INCLUDE ALL SYSTEMS, EQUIPMENT AND ACCESSORIES SHOWN ON THE PLANS AND SPECIFICATIONS.  
B. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONTRACT DOCUMENTS TO ALL SUBCONTRACTORS. ALL SYSTEMS, EQUIPMENT AND ACCESSORIES SHALL BE INCLUDED IN THE BID, WHETHER SHOWN ON THE SUBCONTRACTOR APPLICABLE PLANS OR

SECTION 22 07 00 PLUMBING INSULATION	SECTION 22 10 00 PLUMBING PIPING	J. BALANCING VALVES	SECTION 22 30 00 PLUMBING EQUIPMENT	SECTION 22000 PLUMBING
<p>1.0 GENERAL</p> <p>1.01 DESCRIPTION</p> <p>A. ALL WORK SPECIFIED IN THIS SECTION IS GOVERNED BY THE COMMON WORK RESULTS FOR PLUMBING SECTION 22 05 00.</p> <p>B. THIS SECTION 22 07 00 AND THE ACCOMPANYING DRAWINGS COVER THE PROVISIONS OF ALL OTHER EQUIPMENT, APPLIANCES AND MATERIALS AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE INSULATION OF THE PLUMBING SYSTEMS AS SPECIFIED HEREIN AND AS SHOWN. THESE SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> <li>SANITARY WASTE AND VENT SYSTEMS</li> <li>DOMESTIC WATER SYSTEMS</li> </ol> <p>1.02 INTENT</p> <p>A. IT IS THE INTENT OF THIS SECTION OF THE SPECIFICATIONS TO PROVIDE COMPLETE AND OPERABLE PLUMBING SYSTEMS COMPLETE WITH INSULATION, WHICH ARE FREE OF UNREASONABLE NOISE, VIBRATION, AND SWEATING, AND FABRICATED SO AS TO FIT THE SPACE ALLOTTED.</p> <p>B. THE WORD "PIPING" IS DEFINED TO MEAN ALL PIPING, FITTINGS, JOINTS, HANGERS, COATINGS, VALVES, COCKS, INSULATION AND ACCESSORIES NECESSARY FOR THE PLUMBING SYSTEMS DESCRIBED, SHOWN AND SPECIFIED.</p> <p>1.03 ACCEPTABLE MANUFACTURERS</p> <p>A. INSULATION PRODUCTS SHALL BE AS MANUFACTURED BY OWENS CORNING, KNAUF, MANVILLE, CERTAIN TEE, DOW, ARMACELL, OR ARMSTRONG.</p> <p>2.0 PRODUCTS</p> <p>2.01 PLUMBING INSULATION</p> <p>A. ALL PIPE INSULATION PRODUCTS SHALL HAVE A PERMANENT COMPOSITE INSULATION, JOCKEY AND ADHESIVE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM-94, NFPA 255 AND UL 723 NOT EXCEEDING FLAME SPREAD 25 OR SMOKE DEVELOPED 50.</p> <p>B. BLANKET-TYPE INSULATION ON STORM DRAINS SHALL HAVE AN OVERAGE THERMAL CONDUCTIVITY (K-VALUE) NOT TO EXCEED 0.27 BTU PER INCH-SOFT AT A MEAN TEMPERATURE OF 75 DEG F. INSULATION SHALL HAVE A MINIMUM DENSITY OF 1 LBS/CU FT, AND SHALL BE 2" THICK.</p> <p>C. PREFORMED INSULATION FOR ALL DOMESTIC HOT WATER PIPING SHALL BE A MINIMUM 1-1/2" THICK FOR PIPING LESS THAN OR EQUAL TO 1-1/2" DIAMETER, 2" THICK FOR PIPING ABOVE 1-1/2" IN DIAMETER, PREFORMED FIBERGLASS PIPE INSULATION WITH WHITE ALL-SERVICE JACKET. ALL LONGITUDINAL JOINTS SHALL BE LAPPED, SELF-STICKING TYPE WITH ALL BUTT JOINTS, TEARS, ETC. SEALED WITH A MATCHING WHITE VAPOR BARRIER TAPE. ELBOWS SHALL BE MITERED OR MAY BE ZESTON COVERS FILLED WITH EQUIVALENT FIBERGLASS INSULATION, THE MAXIMUM CONDUCTIVITY (K-VALUE) OF THE INSULATION SHALL BE 0.23 BTU PER INCH-SOFT AT 75 DEG F.</p> <p>D. PREFORMED INSULATION FOR ALL DOMESTIC COLD WATER PIPING, EXCEPT TRAP PRIMER PIPING UNDERGROUND, SHALL BE MINIMUM 1" THICK, PREFORMED FIBERGLASS PIPE INSULATION WITH WHITE ALL-SERVICE JACKET. ALL LONGITUDINAL JOINTS SHALL BE LAPPED, SELF-STICKING TYPE WITH OF BUTT JOINTS, TEARS, ETC. SEALED WITH A MATCHING WHITE VAPOR BARRIER TAPE. ELBOWS SHALL BE MITERED OR MAY BE ZESTON COVERS FILLED WITH EQUIVALENT FIBERGLASS INSULATION, THE MAXIMUM CONDUCTIVITY (K-VALUE) OF THE INSULATION SHALL BE 0.23 BTU PER INCH-SOFT AT 75F.</p> <p>E. INSULATION SHALL BE CONTINUOUS OVER ALL VALVE BODIES, FITTINGS, AND WALL AND FLOOR PENETRATIONS. DO NOT INSULATE UNIONS ON HOT WATER PIPING, NOR INSTRUMENTS, GOGGES, VALVE HAND WHEELS, ETC. ON ANY PIPER.</p> <p>F. ALL PIPING INSULATION COVERING WATER-CARRYING PIPING THAT IS EXPOSED TO THE WEATHER AND SUBJECT TO BURSTING FROM FREEZING TEMPERATURES SHALL HAVE OVERSIZED INSULATION TO ACCOMMODATE HEATING CABLE SEE SPECIFICATION 23 05 33.</p> <p>G. PIPING INSTALLED OUTSIDE THE BUILDING AND EXPOSED TO WEATHER SHALL HAVE POLYISOCYANURATE INSULATION IN ACCORDANCE WITH SPECIFICATION 23 07 19. PROVIDE A CONTINUOUS WATERTIGHT ALUMINUM JACKET AND FITTING COVERS FOR ALL POLYISOCYANURATE INSULATION PIPING EXPOSED TO THE WEATHER.</p> <p>H. CLOSED-CELL INSULATION SHALL BE PROVIDED OVER ALL PING CALLED TO HAVE INSULATION THAT IS INSTALLED BELOW GROUND. CLOSED-CELL PIPING INSULATION SHALL MATCH THE THICKNESS FOR ABOVE-GROUND PING, 25/50 ARMAFLEX OR RUBATEX. ALL GLUES AND COATINGS SHALL BE PRODUCTS OF THE SAME MANUFACTURER AS THE INSULATION. THE INSULATION SHALL BE INSTALLED BY THE SLIP-ON METHOD; SLITTING OF THE INSULATION IS PROHIBITED AND SHALL BE CAUSE FOR REJECTION.</p>	<p>1.0 GENERAL</p> <p>1.01 DESCRIPTION</p> <p>A. ALL WORK SPECIFIED IN THIS SECTION IS GOVERNED BY THE COMMON WORK RESULTS FOR PLUMBING SECTION 22 05 00.</p> <p>B. THIS SECTION 22 10 00 AND THE ACCOMPANYING DRAWINGS COVER THE PROVISIONS OF ALL LABOR, EQUIPMENT, APPLIANCES, AND MATERIALS AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE CONSTRUCTION OF THE PLUMBING SYSTEMS AS SPECIFIED HEREIN AND AS SHOWN. THESE SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:</p> <ul style="list-style-type: none"> <li>SANITARY, WASTE, AND VENT SYSTEMS</li> <li>DOMESTIC WATER SYSTEMS</li> </ul> <p>C. PROVIDE ALL FINAL PLUMBING CONNECTIONS TO ALL EQUIPMENT FURNISHED BY THE OWNER.</p> <p>D. PROVIDE ISOLATION VALVE AND REDUCED PRESSURE BACKFLOW PREVENTER OR VACUUM BREAKER AT THE SERVICE ENTRANCE AND AT THOSE CONNECTIONS (ESPECIALLY TO KITCHEN EQUIPMENT) REQUIRED BY LOCAL PLUMBING CODE.</p> <p>E. NOTE: SEE SPECIFICATION SECTION 23 11 23 FOR NATURAL GAS PIPING. NATURAL GAS PIPING SHALL BE PART OF THIS DIVISION'S SCOPE UNLESS OTHERWISE COORDINATED. COORDINATE WITH ALL TRADES.</p> <p>1.02 INTENT</p> <p>A. IT IS THE INTENT OF THIS SECTION OF THE SPECIFICATIONS TO PROVIDE COMPLETE AND OPERABLE PLUMBING SYSTEMS AS SHOWN AND SPECIFIED WHICH ARE FREE OF LEAKS, PROPERLY VENTED, FREE OF UNREASONABLE NOISE, VIBRATION, AND SWEATING, AND FABRICATED SO AS TO FIT THE SPACE ALLOTTED AND TO EXHIBIT A MINIMUM RESISTANCE TO FLUID FLOW.</p> <p>B. THE WORD "PIPING" IS DEFINED TO MEAN ALL PIPING, FITTINGS, JOINTS, HANGERS, COATINGS, VALVES, COCKS, INSULATION AND ACCESSORIES NECESSARY FOR THE PLUMBING SYSTEMS DESCRIBED, SHOWN AND SPECIFIED.</p> <p>1.03 GENERAL REQUIREMENTS</p> <p>A. PROVIDE ALL REDUCING FITTINGS, FLANGES, COUPLINGS, AND UNIONS OF THE SIZE AND TYPE OF MATERIAL TO MATCH THE PIPING CONNECTIONS AT EACH FIXTURE, PIECE OF EQUIPMENT, VALVE, AND ACCESSORY.</p> <p>B. UNION JOINTS, COUPLINGS, OR FLANGES SHALL BE PROVIDED IN EACH PIPE LINES CONNECTED TO EACH PIECE OF EQUIPMENT, FIXTURE, AND ELSEWHERE AS INDICATED AND SPECIFIED. UNIONS SHALL MATCH THE PIPING SYSTEM IN WHICH THEY ARE INSTALLED.</p> <p>C. UNIONS OR FLANGES SHALL BE PROVIDED BETWEEN ALL COPPER-TO-STEEL CONNECTIONS. THESE UNIONS SHALL BE DIELECTRIC, INSULATING TYPE.</p> <p>D. ALL CHANGES IN DIRECTION AND BRANCHES SHALL BE MADE WITH MANUFACTURED FITTINGS.</p> <p>E. THE USE OF OFFSET-TYPE REDUCERS IS STRICTLY PROHIBITED IN ANY PIPING SYSTEM.</p> <p>F. IN ALL WATER PIPING SYSTEMS, CHANGES IN HORIZONTAL PIPE LINE SIZES SHALL BE MADE WITH ECCENTRIC REDUCERS INSTALLED FLAT ON TOP FOR PROPER AIR VENTING, REDUCING TEES, REDUCING ELBOWS AND CONCENTRIC REDUCERS SHALL ONLY BE ALLOWED IN WATER PIPING SYSTEMS FOR CHANGING PIPE SIZES IN VERTICAL RISERS AND TOP MAKING CONNECTIONS TO EQUIPMENT AND ACCESSORIES FROM VERTICAL RISERS.</p> <p>G. ALL PIPE JOINTS SHALL BE CUT SQUARE AND ALL BURRS SHALL BE REMOVED.</p> <p>H. OPEN ENDS OF PIPELINES NOT CURRENTLY BEING HANDLED SHALL BE PLUGGED DURING INSTALLATION TO KEEP DIRT, WATER, AND FOREIGN MATERIAL OUT OF THE SYSTEM.</p> <p>I. SANITARY WASTE AND STORM DRAINAGE PIPING SHALL SLOPE DOWN IN THE DIRECTION OF FLOW AS SHOWN ON THE DRAWINGS OR AS PRESCRIBED BY CODE, OUT NOT LESS THAN 1 PERCENT.</p> <p>J. ALL VENTS THROUGH THE ROOF (VTR) SHALL BE OFFSET JUST BELOW THE ROOF SUCH THAT THEIR TERMINATION POINTS ARE AT LEAST 18 FT FROM ANY OUTSIDE AIR INTAKE OF ANY HVAC UNIT. SPECIAL ATTENTION IS CALLED TO PACKAGED ROOF TOP AND DEDICATED MAKE-P AIR UNITS.</p> <p>K. TRAP PRIMERS SHALL BE PROVIDED AT ALL FLOOR DRAINS, FLOOR SINKS, TRENCH DRAINS, AND HUB DRAINS EXCEPT TRAP PRIMERS MAY BE OMITTED WHERE DRAIN ROUTES TO THE STORM SYSTEM. ROUTE WATER PIPING FROM THE NEAREST COLD WATER LINE AS ALLOWED BY CODE.</p> <p>L. ALL PIPING, VALVES, AND FITTINGS SHALL BE PROVIDED BY A DOMESTIC MANUFACTURER AND MANUFACTURED IN THE USA.</p> <p>2.0 PRODUCTS</p> <p>2.01 SANITARY WASTE AND VENT SYSTEMS</p> <p>A. ALL UNDERGROUND SANITARY WASTE AND VENT PIPING SHALL BE PVC, DWV SOLID WALL SCHEDULE 40 WITH SOCKET-TYPE (OPTIONAL PIPE MATERIAL SHALL BE CAST IRON / AS SPECIFIED BY LOCAL AUTHORITY), SOLVENT WELDED JOINTS IN SIZES UP TO 12", 14" AND LARGER PIPING SHALL BE PVC, DWV SOLID WALL SCHEDULE 80 WITH SOCKET-TYPE, SOLVENT WELDED JOINTS. ALL PVC PIPING SHALL BE INSTALLED IN ACCORDANCE TO ASTM.</p> <p>B. ALL ABOVEGROUND SANITARY, WASTE, AND VENT PIPING SHALL BE HUBLESS CAST IRON SOIL PIPE, (OPTIONAL PIPE MATERIAL SHALL BE PVC / AS SPECIFIED BY LOCAL AUTHORITY), ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BEAR THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND SHALL BE LISTED BY NSF INTERNATIONAL. PROVIDE PRIOR APPROVAL BY THE ARCHITECT/ENGINEER. ALL HUBLESS CAST IRON PIPE SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301.</p> <ol style="list-style-type: none"> <li>SANITARY, WASTE, AND VENT PIPING LESS THAN OR EQUAL TO 2 1/2" MAY BE COPPER DWV WITH BRAZED JOINTS. PIPING SHALL MEET ASTM B 75, B 88, B 251, AND B 306.</li> <li>DRAIN PIPING FROM EQUIPMENT WITH HIGH-TEMPERATURE DISCHARGE, SUCH AS KITCHEN WARE WASHERS, POT SINKS, ETC. SHALL BE TYPE L HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SOLDERED JOINTS.</li> <li>SANITARY AND WASTE PIPING IN PRESSURIZED PIPING SYSTEMS, SUCH AS FOR ELEVATOR SUMP PUMPS OR SANITARY SUMP PUMPS, SHALL BE COPPER DWV WITH WROUGHT COPPER FITTINGS. ALL JOINTS SHALL BE BRAZED.</li> <li>JOINTS ON HUBLESS CAST IRON SOIL PIPE SHALL BE MADE WITH NEOPRENE COUPLINGS AND STAINLESS STEEL CLAMPS. GASKETS SHALL CONFORM TO ASTM C 564. COUPLINGS AND GASKETS SHALL BE PRODUCED BY THE SAME MANUFACTURER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INCLUDING BAND TIGHTENING SEQUENCE AND TORQUE. ALL COUPLINGS SHALL BE MANUFACTURED TO THE CISPI 310 STANDARD. ASTM C 1277, ASTM C 150, FM STANDARD 1600 CLASS 1 AND CERTIFIED BY NSF INTERNATIONAL. COUPLING SHALL BE AS FOLLOWS: <ol style="list-style-type: none"> <li>1" TO 3" - TWO (2) STAINLESS STEEL BANDS</li> <li>4" TO 8" - FOUR (4) STAINLESS STEEL BANDS</li> <li>10" TO 15" - HEAVY DUTY COUPLING WITH SIX (6) STAINLESS STEEL BANDS. HEAVY-DUTY COUPLINGS SHALL CONFORM TO ASTM C 1540.</li> </ol> </li> <li>ALL OFFSETS ON 8" PIPE AND LARGER SHALL HAVE METAL RESTRAINING STROPS BY HOLDRITE OR APPROVED EQUAL.</li> <li>CLEANOUTS SHALL BE PROVIDED AT THE LOCATIONS INDICATED AND, AS A MINIMUM, WHERE REQUIRED BY CODE. FLOOR CLEANOUTS SHALL BE A MINIMUM OF 4" AND SHALL BE COMPLETE WITH A FLUSH PLUG AND REMOVABLE SCREWERED BRONZE FLOOR PLATE. PROVIDE CARPET BUTTONS IN CARPETED AREAS. WALL CLEANOUTS SHALL BE THREADED CLEANOUT TEES AND PLUGS WITH POLISHED STAINLESS STEEL COVER PLATE WITH CENTER SET SCREW.</li> <li>FLOOR DRAINS IN TOILETS AND FINISHED AREAS SHALL BE JR SMITH 2000 SERIES WITH 6" TYPE B SQUARE ADJUSTABLE STRAINERS FINISHED IN SATIN NICKEL, BRONZE, OR EQUAL. PRODUCTS BY JOSAM OR ZURN PROVIDE VANDOLPROOF SECURED TOPS.</li> <li>FLOOR DRAINS IN MECHANICAL ROOMS AND UNFINISHED CONCRETE FLOORS SHALL BE JR SMITH 2101 SERIES WITH ROUND 11 3/4" CAST IRON GRATE, SEDIMENT BUCKET AND DEEP-SEAL P-TROP; OR EQUAL PRODUCTS BY JOSAM OR ZURN. PROVIDE VANDAL-PROOF SECURED TOPS.</li> </ol> <p>H. HUB DRAINS (HD) SHALL BE MADE WITH A REDUCER FITTING WITH OPENING AT LEAST ONE NOMINAL SIZE LARGER THAN THE CONNECTED PIPING AS SCHEDULED. HD SHALL BE SIZED TO RECEIVE ALL DISCHARGES WITHOUT SPLASHING.</p> <p>2.02 DOMESTIC WATER PIPING</p> <p>A. UNDERGROUND DOMESTIC WATER SERVICE ENTRANCE PIPING 3" AND SMALLER IN SIZE SHALL BE TYPE K HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS (OPTIONAL PIPE MATERIAL SHALL BE DUCTILE IRON / AS SPECIFIED BY LOCAL AUTHORITY). ALL JOINTS SHALL BE BRAZED.</p> <p>B. UNDERGROUND DOMESTIC WATER SERVICE ENTRANCE PIPING ABOVE 3" IN SIZE SHALL BE CLASS 150 DUCTILE IRON PIPE WITH MECHANICAL JOINTS.</p> <p>C. ALL UNDERGROUND COPPER BRANCH LINES (1/2" AND 3/4" ONLY) SHALL BE CONTINUOUS LENGTHS OF SOFT TYPE K COPPER TUBING WITH NO JOINTS ALLOWED UNDERGROUND.</p> <p>D. ABOVEGROUND DOMESTIC WATER SYSTEM PIPING 3" IN SIZE AND SMALLER SHALL BE TYPE L HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SOLDERED POINTS. (OPTIONAL PIPE MATERIAL SHALL BE CPVC / PEX)</p> <p>E. ABOVEGROUND DOMESTIC WATER PIPING 4" AND LARGER SHALL BE TYPE L HARD-DRAWN COPPER TUBING WITH ROLLED GROOVED JOINTS AND FITTINGS. INSTALLATION-READY COPPER FITTINGS SHALL MEET THE SAME GASKET MATERIAL SPECIFICATIONS AS COUPLINGS. FITTINGS SHALL BE AS FOLLOWS, OR EQUAL, AND SHALL BE PROVIDED BY THE MANUFACTURER WITH THE GASKET INCLUDED IN THE COUPLER ASSEMBLY.</p> <ol style="list-style-type: none"> <li>COUPLING, RIGID, VICTALIC STYLE 607 (8" AND SMALLER)</li> <li>GASKETS, GRADE EHP EPDM (8" AND SMALLER)</li> </ol> <p>F. ALL VALVES IN POTABLE WATER SYSTEMS SHALL BE "LEAD-FREE" TYPE.</p> <p>G. ALL VALVES 3/4" AND SMALLER SHALL BE "FULL-PORT" TYPE, AND GREATER THAN 3/4" MAY BE "REDUCED-PORT" TYPE.</p> <p>H. GATE VALVES (WATER ENTRANCES ONLY) SHALL BE CONSTRUCTED WITH A GRAY IRON, NON-RISING STEM, OUTSIDE SCREW AND YOKE (OS&amp;Y), FULL PORT, STEM TO BE ADJUSTABLE GRAPHITE PACKING, ANSI 372 LEAD FREE, BRONZE MOUNTED SEAT RINGS, SOLID WEDGE, BOCK SEAT PROTECTION, WITH MALLEABLE IRON HAND WHEELS. VALVE SHALL MEET MSS-SP70, APOLLO VALVES 611F OF APPROVED EQUALS BY HAMMONDMILWAUKEE, NIBCO, OR STOCKHAM.</p> <p>I. BALL VALVES: <ol style="list-style-type: none"> <li>VALVES 2 INCH AND SMALLER SHALL BE TWO-PIECE BRONZE BODY, FULL PORT WITH SOLID, SMOOTH BORE CHROME PLATED BRASS BALL, MEETING MSS-SP10 AND RATED FOR NO LESS THAN 300 PSI. SEATS SHALL BE REINFORCED TFE WITH TEFON PACKING RING AND THREADED ADJUSTABLE PACKING NUT. VALVES ON INSULATED LINES WILL BE PROVIDED WITH STEM EXTENSIONS TO PROVIDE CLEARANCE FOR TWO INCHES OF PIPE INSULATION. VALVES TO BE APOLLO VALVES 77C, HAMMONDMILWAUKEE UP8301, OR WATTS B-6000.</li> <li>VALVES LARGER THAN 2 INCH AND UP TO 4 INCHES SHALL BE TWO-PIECE BRONZE BODY, STANDARD PORT WITH SOLID, SMOOTH BORE CHROME PLATED BRASS BALL, MEETING MSS-SP10, AND RATED FOR NO LESS THAN 300 PSI. SEATS SHALL BE REINFORCED TFE (OR TFM FOR 4") WITH TEFON PACKING RING AND THREADED ADJUSTABLE PACKING NUT. VALVES ON INSULATED LINES WILL BE PROVIDED WITH STEM EXTENSIONS TO PROVIDE CLEARANCE FOR TWO INCHES OF PIPE INSULATION. VALVES TO BE APOLLO VALVES 70-100, HAMMONDMILWAUKEE UP&amp;S01, OR WATTS B-6000.</li> </ol> </p>	<p>1. VALVES SHALL BE NSF/ANSI 61/372 CERTIFIED AND SUITABLE FOR POTABLE WATER APPLICATIONS. VALVE SHALL BE SUITABLE FOR THE GREATER OF 125 PSIG PRESSURE AND 40F TO 200F TEMPERATURE OR THE SYSTEMS OPERATING CONDITIONS. VALVE SHALL PROVIDE POSITIVE SHUT-OFF AND BE RATED FOR 300 PSIG. EACH BALANCING VALVE SHALL BE EQUIPPED WITH TWO GOUGE TAPS WITH CHECK VALVES AND DRIP CAPS. PROVIDE PREFORMED INSULATION AT ENCASE INSULATED PIPING.</p> <p>2. VALVES UP TO 3" SHALL HAVE LEAD-FREE BRASS BODY, FULL-PORT BALL CONSTRUCTED OF 304 STAINLESS STEEL, AND SHALL HAVE CALIBRATED NAMEPLATE WITH MEMORY STOP. BALANCING VALVES SHALL BE BELL AND GOSSETT CIRCUIT-SETTER FLUG OR EQUAL BY NEXUS; FLOW DESIGN, OR WATTS. AFTER THE TEST AND BALANCE IS COMPLETE, PROVIDE TO THE OWNER WITH A DIFFERENTIAL PRESSURE GAUGE TO MATCH THE BALANCING VALVES. AUTO FLOW VALVES ARE ACCEPTABLE AS A SUBSTITUTION PROVIDED THE FLOW CARTRIDGE IS REPLACEABLE AND THE FLOW RATE IS DEARLY AND PERMANENTLY LABELED.</p> <p>K. CHECK VALVES:</p> <ol style="list-style-type: none"> <li>VALVES IN WATER SYSTEMS SHALL BE NSF/ANSI 61/372 CERTIFIED AND SUITABLE FOR POTABLE WATER APPLICATIONS. VALVE SHALL BE SWING-TYPE, BRASS BODY, BRONZE SEAT, APOLLO VALVES 161S-LF UP TO 200 PSI CWP, OR EQUAL BY MILWAUKEE UP968 OR HAMMOND.</li> <li>IN GROOVED PIPING SYSTEMS, CHECK VALVES SHALL BE STAINLESS STEEL BODY, DISC SHAFT AND SPRING, GRADE P FLUORO ELASTOMER SEAT, 300 PSI CWP, VICTALIC 816 OR EQUAL.</li> <li>VALVES IN WASTE SYSTEMS BELOW GROUND SHALL MATCH THE MATERIAL OF THE PIPING. VALVES SHALL BE CAST IRON WITH GASKETED BOLTED COVER OR PVC, ANSI 14 WITH INNER RISER ASSEMBLY. VALVES SHALL HAVE HINGED FLAPPERS.</li> <li>VALVES IN WASTE SYSTEMS ABOVE GROUND, SUCH AS ELEVATOR SUMP PUMP DISCHARGES, SHALL BE NON-SLAM TYPE WITH IRON BODY, GLOBE-TYPE SILENT CHECKS WITH BRONZE TRIM, STAINLESS STEEL SPRING AND FLANGED END CONNECTIONS. FLOW AREA THROUGH THE VALVE SHALL EXCEED THE CROSS-SECTIONAL AREA OF THE PIPE IN WHICH THE VALVE IS INSTALLED BY NOT LESS THAN 10% VALVES SHALL BE APOLLO VALVES 910F UP TO 200 PSI OR 2" AND UNDER, 169T UP TO 600 PSI OR EQUAL BY MUELLER CO., APCO, METRAFLEX AND OTHER LIKE STYLE SILENT CHECK VALVE, HAMMOND IR 9384, OR MILWAUKEE 1800. IN GROOVED PIPING SYSTEMS, VALVES SHALL BE VICTALIC 716, 779, OR W715 AS APPROPRIATE.</li> <li>ALL CHECK VALVES ON PUMP DISCHARGES SHALL BE NON-SLAM TYPE.</li> <li>ALL CHECK VALVES SHALL BE INSTALLED IN AN ORIENTATION ALLOWED BY THE MANUFACTURER'S RECOMMENDATIONS.</li> <li>ALL CHECK VALVES INSTALLED IN INSULATED PIPING SYSTEMS SHALL HAVE THE GLOBE VALVE LOCATION EXPLICITLY LABELED ON THE OUTSIDE OF THE INSULATION.</li> </ol> <p>L. WATER CONNECTIONS TO APPLIANCES SHALL BE MADE WITH FLEXIBLE COPPER TUBING OR COMMERCIAL GRADE DOUBLE-REINFORCED STAINLESS STEEL BRAIDED HOSE, NO LESS THAN 3/8" IN SIZE, OR THE CONNECTIONS SIZE OF THE APPLIANCE, WHICHEVER IS GREATER.</p> <p>M. POINT USE MIXING VALVES SHALL BE LEONARD 170-LF OR AN APPROVED EQUAL WITH LEAD-FREE CONSTRUCTION, VANDAL RESISTANT ADJUSTMENT COP, AND INTEGRAL INLET CHECK VALVES. MIXING VALVE SHALL BE ASSE 1070 RATED, THE MIXING VALVE SHALL BE SIZED BY THE MANUFACTURER FOR THE FIXTURE(S) SERVED. MIXING VALVE SHALL HAVE FOR MORE THAN 0.25 GPM MINIMUM FLOW RATE REQUIRED.</p> <p>N. ALL WATER HAMMER ARRESTERS (WHA) SHALL BE PDI CERTIFIED, SIZE A, B, C, D, E OR F, AS INDICATED FOR THE FIXTURE UNITS SERVED, JOSAM, JR SMITH, WATTS, OR ZURN. WHA'S THAT ARE NOT PDI-CERTIFIED ARE DISALLOWED. WHA'S IN POTABLE WATER APPLICATIONS SHALL BE LEAD-FREE.</p> <p>O. THE HOSE BIBBS (HB) SHALL BE COMPLETE WITH VACUUM BREAKER AND VANDAL RESISTANT HANDLE, WATTS, APOLLO VALVES, JR SMITH, OR ZURN.</p> <p>P. SOLDERED JOINTS SHALL BE MADE WITH TIN-ANTIMONY/SILVER SOLDER. SOLDER CONTAINING LEAD SHALL NOT BE PERMITTED.</p> <p>Q. SADDLE VALVES, AND "T" FITTINGS THAT RELY ON PUNCTURING THE PIPING MAIN ARE DISALLOWED.</p> <p>R. THERMOMETERS AND PRESSURE GAUGES SHALL BE PRODUCTS OF TERREX, WESLER, OR WEISS. SELECT ALL DEVICES TO OPERATE WITHIN 20% OF THE MIDPOINT OF THEIR SCALING UNDER NORMAL OPERATING CONDITIONS. GAUGES PROVIDED ON PUMPS SHALL BE COMPOUND TYPE.</p> <p>S. PRESSURE AND TEMPERATURE (P&amp;T) TEST PLUGS SHALL BE CONSTRUCTED OF BRASS WITH TWO (2) SELF-CLOSING NORDL CORES AND BE COMPLETE WITH COP AND GASKET. PLUGS SHALL BE MANUFACTURED BY PETERSON, OR LANGCASTER. PROVIDE A COMPLETE TEST KIT TO THE OWNER AT THE TIME OF THE INSPECTION. TEST KIT SHALL BE COMPLETE WITH A PRESSURE GAUGE, THERMOMETER, PROBES, AND CARRYING CASE.</p> <p>3.0 EXECUTION -</p> <p>3.01 ARRANGEMENT</p> <p>A. FOLLOW THE GENERAL PIPING LAYOUT, ARRANGEMENT, SCHEMATICS AND DETAILS. PROVIDE ALL OFFSETS, VENTS, DRAINS AND CONNECTIONS NECESSARY TO ACCOMPLISH THE INSTALLATION. FABRICATE PIPING ACCURATELY TO MEASUREMENTS ESTABLISHED AT THE PROJECT SITE TO AVOID INTERFERENCE WITH DUCTWORK, OTHER PIPING, EQUIPMENT, OPENINGS, ELECTRICAL CONDUITS AND LIGHT FIXTURES. MAKE SUITABLE PROVISIONS FOR EXPANSION AND CONTRACTION WITH EXPANSION LOOPS AND OFFSETS.</p> <p>B. WATER HAMMER ARRESTERS SHALL BE INSTALLED AT THE TOP OF EACH RISER AND ON EACH FIXTURE BRANCH IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE STANDARD MP201. WHA'S SHALL ALSO BE INSTALLED AT ALL WATER MAINS AND CONNECTIONS WITH QUICK-CLOSING VALVES, SUCH AS CLOTHES WASHERS, KITCHEN WARE WASHERS, ICE MAKERS, ETC.</p> <p>C. CLEANOUTS SHALL BE PROVIDED AT THE BASE OF ALL SANITARY AND STORM RISERS AND AS REQUIRED BY CODE.</p> <p>D. FITTINGS, UNIONS, JOINTS, COUPLINGS (INCLUDING NO-HUB COUPLINGS), ETC. SHALL NOT BE WITHIN SLABS.</p> <p>E. ALL POTABLE DOMESTIC WATER CONNECTIONS TO EQUIPMENT SHALL BE PROVIDED WITH BACKFLOW PREVENTION AS REQUIRED BY THE SPECIFICATION SECTION AND CODE.</p> <p>F. PRESSURE GAUGES AND THERMOMETERS CALLED TO BE PERMANENTLY INSTALLED SHALL BE EASILY VISIBLE FROM A STANDING POSITION ON THE GROUND.</p> <p>3.02 UNDERGROUND WATER PIPING</p> <p>A. ALL DOMESTIC WATER PIPING SHALL HAVE A MINIMUM COVER OF 3'-0", OF BELOW THE FROST LINE, WHICHEVER IS DEEPER, EXCEPT PIPING AT LEAST 20" FROM THE EXTERIOR WALL MAY BE INSTALLED 3' OR MORE BELOW THE BOTTOM OF THE SLAB.</p> <p>B. FOR WATER PIPING 2" AND ABOVE, PROVIDE CONCRETE THRUST BLOCKS AT ALL CHANGES OF DIRECTION AND SECURE ALL MECHANICAL JOINTS WITH RESTRAINING RODS.</p> <p>C. ALL COPPER WATER LINES, OR OTHER MATERIAL SUBJECT TO CORROSION, SHALL BE PROTECTED FROM CORROSION WITH A CONTINUOUS PLASTIC SHEATHING OR COATING AND WRAPPING. THIS SHEATHING OR COATING AND WRAPPING SHALL BE EXTENDED 6" TO 12" ABOVE THE FINISHED FLOOR. THE PROTECTION SHALL BE INSTALLED ON THE OUTSIDE OF ANY INSULATION REQUIRED.</p> <p>3.03 PIPING INSTALLATION ABOVE CEILING</p> <p>A. ALL DOMESTIC HOT AND COLD WATER PIPING INSTALLED ABOVE THE INSULATED CEILING SHALL BE INSTALLED JUST ABOVE (WITHIN 2") OF THE TOP OF THE FINISHED CEILING WITH THE BUILDING INSULATION OVER THE PIPING TO AVOID FREEZE-UP.</p> <p>3.04 DISINFECTON</p> <p>A. ALL DOMESTIC WATER PIPING INSTALLED UNDER THIS DIVISION SHALL BE DISINFECTED WITH CHLORINE BEFORE IT IS PLACED INTO OPERATION. THE CHLORINATING MATERIAL SHALL BE LIQUID CHLORINE CONFORMING TO FEDERAL SPECIFICATION 88-C-120 AND SHALL BE INTRODUCED TO THE SYSTEM BY EXPERIENCED OPERATORS ONLY. THE CHLORINE SOLUTION APPLIED TO THE PIPING SECTIONS OR SYSTEM SHALL CONTAIN AT LEAST FIFTY PARTS PER MILLION OF AVAILABLE CHLORINE AND SHALL REMAIN IN THE SECTIONS OR SYSTEM FOR A PERIOD OF NOT LESS THAN SIXTEEN (16) HOURS. DURING THE DISINFECTON PERIOD, ALL VALVES SHALL BE OPENED AND CLOSED AT LEAST FOUR TIMES, AFTER THE DISINFECTON PERIOD, THE CHLORINATED WATER SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAR WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN TWO-TENTHS PARTS PER MILLION (0.2 PPM). SUBMIT CERTIFICATION TO THE ARCHITECT THAT THE SYSTEM WAS DISINFECTED.</p>	<p>1.0 GENERAL</p> <p>1.01 DESCRIPTION</p> <p>A. ALL WORK SPECIFIED IN THIS SECTION IS GOVERNED BY THE COMMON WORK RESULTS FOR PLUMBING SECTION 22 05 00.</p> <p>B. THIS SECTION 22 30 00 AND THE ACCOMPANYING DRAWINGS COVER THE PROVISIONS OF ALL LABOR, EQUIPMENT, APPLIANCES, AND MATERIALS AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE CONSTRUCTION OF THE WATER HEATER SYSTEMS AS SPECIFIED HEREIN AND AS SHOWN. THESE SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> <li>WATER HEATERS</li> <li>HOT WATER CIRCULATOR</li> </ol> <p>1.02 GENERAL REQUIREMENTS</p> <p>A. ALL PLUMBING EQUIPMENT INSTALLED IN LOCATIONS WITH A WATER HARDNESS OF 25 GRAINS PER GALLON OR MORE, SHALL BE RESISTANT TO CORROSION. WHERE COPPER MATERIALS ARE IN THE WATER STREAM, IT SHALL BE COPRO-NICKEL OF NOT MORE THAN 90% COPPER.</p> <p>B. ALL WATER HEATERS SHALL BE NSF/ANSI 61 CERTIFIED TEOD FREE FOR POTABLE WATER SERVICE.</p> <p>C. ALL WATER HEATERS SHALL HAVE ASME-RATED TEMPERATURE AND PRESSURE RELIEF VALVE(S). VALVE(S) SHALL BE PROVIDED BY THE MANUFACTURER AND SIZED FOR THE DISCHARGE LOCATION NOTED IN THE PLANS.</p> <p>D. ALL WATER HEATERS AND TANKS SHALL BE CLASS-LINED, 1600F FIRED, WITH A WORKING PRESSURE OF 150 PSI, A TEST PRESSURE OF 300 PSI, OR THE SYSTEM PRESSURE AT THE INSTALLATION LOCATION, WHICHEVER IS GREATER, AND SHALL HAVE MAGNESIUM ANODES FOR ELECTROLYTIC PROTECTION. SEPARATE STORAGE TANKS MAY ALSO BE CEMENT-LINED. TANKS SHALL BE ASTU STAMPED.</p> <p>E. ALL WATER HEATERS SHALL MEET OR EXCEED THE ENERGY EFFICIENCY REQUIREMENTS OF THE LATEST VERSION OF ASHRAE 90.1.</p> <p>F. ALL WATER HEATERS AND PUMPS SHALL BE UL APPROVED AND LABELED, AND BE AGA-CERTIFIED WHERE APPLICABLE.</p> <p>G. ALL WATER HEATERS AND PUMPS SHALL BE NEMA-RATED APPROPRIATE FOR THE INSTALLATION LOCATION IN WHICH THEY ARE INSTALLED.</p> <p>H. WATER HEATER CONTROLS SHALL INCLUDE AN OPERATING THERMOSTAT AND MANUAL RESET HIGH LIMIT CONTROL FOR EACH HEATING ELEMENT OR BURNER. THE SAFETY HIGH LIMIT CONTROL SHALL PREVENT OVERHEATING IN THE EVENT OF A THERMOSTAT FAILURE.</p> <p>I. ALL CONTROLS SHALL BE FACTORY-WIRED AND REQUIRE NO EXTERNAL POWER SOURCE.</p> <p>J. WATER HEATERS AND TANKS SHALL HAVE DRAINS WITH EXTERNAL ACCESS AND HOSE END CONNECTION.</p> <p>K. ALL WATER HEATER CONDENSATE LINES SHALL BE PROTECTED FROM FREEZING OR SHALL BE HEAT TRACED IN ACCORDANCE WITH SPECIFICATION 23 05 93.</p> <p>L. THE WATER HEATER SHALL BE CERTIFIED BY AN INDEPENDENT LABORATORY FOR OXIDES OF NITROGEN (NOX) OF LESS THAN 10 PPM CORRECTED TO 3% O2 OR BETTER OS REQUIRED BY THE AHI.</p> <p>M. WHERE CLASSIFIED AS A BOILER BY THE DEPARTMENT OF LABOR, AH, OR APPLICABLE CODES, THE SYSTEM SHALL ADDITIONALLY MEET ALL REQUIREMENTS, AN EMERGENCY POWER OFF (EPO) SWITCH SHALL BE PROVIDED AT LOCATIONS REQUIRED BY THE AHI. THE EPO(S) SHALL BE ACCESSIBLE, CLEARLY LABELED, AND SHALL SHUT OFF ALL POWER TO THE BOILERS AND CAUSE THE EQUIPMENT TO BE DEENERGIZED. EPO(S) SHALL BE COORDINATED WITH CONTROLS AND DIVISION 26 AND SHALL BE INSTALLED AND WIRED UNDER THIS SCOPE.</p> <p>2.0 PRODUCTS</p> <p>2.01 WATER HEATER - "COMMERCIAL ELECTRIC" -</p> <p>A. TANKS SHALL 20 GALLON STORAGE CAPACITY AND SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH GLASS LINING PERMANENTLY BONDED TO TANK INTERIOR SURFACE.</p> <p>B. PROVIDE A 2-INCH DEEP, 24-GAUGE MINIMUM THICKNESS GALVANIZED SHEET METAL DRIP PAN UNDER WATER HEATER AND AT ALL LOCATIONS W/ LEAK DETECTION. DRIP PANS SHALL COMPLY WITH NSCP 2021, SECTION 15.8.</p> <p>C. THE WATER HEATER SHALL BE AS SCHEDULED. ACCEPTABLE SUBSTITUTE MANUFACTURERS ARE AO SMITH, LOCHNVAR, STATE, RHEEM, AND BRODFORD WHITE, SUBJECT TO SUBSTITUTION REQUIREMENTS. WATER HEATERS SHALL BE COMMERCIAL-GRADE.</p> <p>D. THE IMMERSION HEATING ELEMENTS SHALL BE LOW WATT DENSITY WITH A PLATED INCOLLOY SHEATH MATERIAL FOR LONG LIFE. THE HEATING ELEMENTS SHALL MOUNT IN INDIVIDUAL SCREWS IN TANK FLANGES.</p> <p>E. ALL FIELD ELECTRICAL WIRING CONNECTIONS TO THE WATER HEATER SHALL BE MADE TO A MAIN TERMINAL BLOCK. ALL INTERNAL WIRING SHALL BE MADE TO SOLDERLESS TERMINAL LUG WIRING CONNECTIONS. WIRING TO BE COLOR-CODED FOR EASE OF SERVICING. THE WATER HEATER SHALL BE FACTORY ASSEMBLED, WIRED, AND TESTED.</p> <p>F. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.</p> <p>2.02 HOT WATER CIRCULATOR</p> <p>A. HOT WATER CIRCULATOR SHALL BE AS SCHEDULED. ACCEPTABLE SUBSTITUTE MANUFACTURERS ARE B&amp;G, GOULDS, AND GRUNDOS, SUBJECT TO SUBSTITUTION REQUIREMENTS.</p> <p>B. HOT WATER CIRCULATORS USED IN POTABLE WATER SYSTEMS SHALL BE LEAD-FREE.</p> <p>3.0 EXECUTION</p> <p>3.01 INSTALLATION</p> <p>A. THE WATER HEATERS AND ACCESSORIES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE CONTRACT DOCUMENTS.</p> <p>B. ALL TEMPERATURE AND PRESSURE RELIEF VALVES SHALL BE PIPED FULL SIZE TO ON INDIRECT WASTE SUCH AS THE NEAREST FLOOR DRAIN, SERVICE SINK, SINK TAILPIECE, ETC. PIPING SHALL BE IN ACCORDANCE WITH SPECIFICATION 22 10 00 FOR DWV SERVICES. SIZE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.</p> <p>C. ALL WATER HEATERS SHALL HAVE INTERNAL HEAT TRAPS OR SHALL HAVE HEAT TRAPS INSTALLED IN THE COLD WATER AND HOT WATER PIPING. INSTANTANEOUS WATER HEATERS SHALL BE PROVIDED WITH HEAT TRAPS UNLESS MANUFACTURER DOCUMENTATION SPECIFICALLY ALLOWS EXCLUSION.</p> <p>D. WATER HEATERS SHALL BE COMPLETELY ENCASED IN HIGH-DENSITY INSULATION OF SUFFICIENT VALUE TO MEET THE ENERGY EFFICIENCY STANDARDS OF THE LATEST VERSION OF ASHRAE 90.1, OR SHALL BE FACTORY INSULATED WITH NON-CFC POLYURETHANE CLOSED-CELL FOAM INSULATION. PROVIDE REMOVABLE INSULATION PANELS TO MAINTAIN ACCESS TO ALL REQUIRED COMPONENTS.</p> <p>E. ALL WATER HEATERS OR BOILERS SUBJECT TO CONDENSING UNDER NORMAL STEADY-STATE OPERATING CONDITIONS SHALL BE PROVIDED AND INSTALLED WITH ACCESSORY CONDENSATE NEUTRALIZATION KITS.</p> <p>3.02 WARRANTY</p> <p>A. PROVIDE 5-YEAR LIMITED WARRANTY ON ALL TANKS AND HEAT EXCHANGERS, AND 1-YEAR LIMITED WARRANTY ON PARTS UNLESS OTHERWISE NOTED.</p> <p>END OF SECTION</p>	<p>1.01 SCOPE OF WORK</p> <p>A. THE WORK REQUIRED UNDER THIS DIVISION SHALL CONSIST OF ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, POWER, TRANSPORTATION, HOISTING IMPLEMENTS, SERVICES, ETC. OF EVERY DESCRIPTION NECESSARY FOR THE ENTIRE COMPLETION OF THE PLUMBING WORK OF THE CONTRACT. ALL AS SPECIFIED HEREIN, SHOWN ON THE DRAWINGS OR REASONABLY IMPLIED BY EITHER, COMPLETE IN EVERY RESPECT UNLESS SPECIFICALLY EXPECTED HEREIN.</p> <p>1.02 EXCAVATION AND BACKFILLING</p> <p>A. PLUMBING CONTRACTOR SHALL DO ALL EXCAVATING AND BACKFILLING NECESSARY TO INSTALL HIS WORK. HE SHALL DIG ALL TRENCHES TO EXACT GRADE AND DEPTH WITH ONLY SUFFICIENT DIRT REMOVED TO PROVIDE WORKING SPACE. ANY TRENCHES DUG BELOW REQUIRED DEPTH SHALL BE FILLED TO PROPER DEPTH WITH SAND. TRENCHES SHALL NOT BE MORE THAN 18" WIDER THAN EXTERNAL DIAMETER OF PIPE, AND SIDES SHALL BE PRACTICALLY PERPENDICULAR. SHORING OR SHOT PILING SHALL BE USED IF NECESSARY TO PREVENT CAVING OF TRENCH SIDES.</p> <p>1.03 INSPECTION AND TESTS</p> <p>A. ALL TESTS SHALL COMPLY WITH THESE SPECIFICATIONS AND FURTHER WITH THE REQUIREMENTS OF THE GOVERNING AUTHORITY OR SERVING UTILITY AS THE CASE MAY BE. ARCHITECT AND PLUMBING INSPECTOR SHALL BE NOTIFIED IN ADVANCE OF ALL TESTS AND SHALL BE PRESENT AT SUCH TESTS AND SHALL NOT BACKFILL OR COVER UP ANY WORK UNTIL INSPECTED AND APPROVED. FURNISH FINAL INSPECTION CERTIFICATE BEFORE FINAL PAYMENT.</p> <p>1.04 PIPING MATERIALS</p> <p>A. MATERIALS SHALL BE ALL NEW AND ADAPTED TO USE INTENDED, BE FREE FROM DEFECTS, CLEAN, AND PROTECTED FROM WEATHERING OR DAMAGE AS INSTALLED, AND, UNLESS SPECIFICALLY OTHERWISE NOTED, SHALL BE SPECIFIED FOR EACH ITEM.</p> <p>B. SOIL, STORM, WASTE, VENT AND DRAIN PIPING (INSTALLED ABOVE GROUND); SHALL BE NO-HUB CAST IRON PIPE AND FITTINGS MADE IN ACCORDANCE WITH CAST IRON SOIL PIPE INSTITUTE STANDARD 301-72, WITH NEOPRENE GASKET AND STAINLESS STEEL CLAMP AND AS MANUFACTURED BY GLAMORGAN, TYLER, OR BUFFALO. SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PER ASTM D2458 ASTM F488 IS ACCEPTABLE IF AREAS NOT USED AS A RETURN AIR PLENUM. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION. CONTRACTOR TO USE CAST IRON IN ALL OPEN PLENUM AREAS (IF APPLICABLE).</p> <p>C. WATER PIPING: ALL HOT WATER PIPING AND COLD WATER PIPING, INCLUDING HOT WATER RETURN PIPING ABOVE GROUND, SHALL BY TYPE "L" COPPER PIPE WITH WROUGHT COPPER SWEAT SOLDER TYPE FITTINGS. CROSS-LINKED POLYETHYLENE (PEX) IS ACCEPTABLE FOR WATER LINES 3/4" AND SMALLER. PEX PIPING TO BE COLOR CODED AND APPROVED FOR DOMESTIC WATER DISTRIBUTION PER ASTM F877.</p> <p>D. GAS PIPING: SCHEDULE 40 BLACK STEEL PIPE AND FITTINGS.</p> <p>E. FLOOR DRAINS, JOSAM 3000-A, WITH 6" ROUND STRAINER AND NICKLE BRONZE TOP.</p> <p>F. BUILDING CLEANOUTS, "JOSAM" 586000 SERIES WALL MOUNTED CLEANOUT WITH STAINLESS STEEL WALL ACCESS COVER AND SCREW.</p> <p>1.05 INSULATION</p> <p>A. PROVIDE 1" FIBERGLASS INSULATION ON ALL WATER PIPING. EXCEPTION: WATER LINES LOCATED WITHIN WALL CAVITIES ARE TO NOT BE INSULATED.</p> <p>1.06 VALVES</p> <p>A. FURNISH AND INSTALL NIBCO, CRANE, FAIRBANKS, POWELL, MILWAUKEE, OR LUNDENHEIMER (VALVES SHOWN ON DRAWINGS AND VALVES REQUIRED FOR PROPER OPERATION OF VARIOUS PARTS OF WORK, VALVES HERENAFTER SCHEDULED ARE TAKEN FROM NIBCO OR DEZURIK DRAIN VALVES WITH HOSE CONNECTION ENDS AND PROTECTIVE CAPS AND SHALL BE INSTALLED AT LOW POINTS ON ALL LINES CARRYING LIQUIDS.</p> <p>1.07 SANITARY DRAINAGE SYSTEMS</p> <p>A. ARRANGE AND PROVIDE FOR CONNECTION TO SANITARY SEWER FACILITIES AS SHOWN ON DRAWINGS. ALL SOIL, WASTE, VENT, SEWER AND DRAINAGE PIPING SHALL BE INSTALLED SO AS TO BE CONCEALED IN ALL OCCUPIED SPACES, EXCEPT AS OTHERWISE SPECIFICALLY NOTED ON THE DRAWINGS AND EXCEPT AS SHOWN IN THE EQUIPMENT ROOMS. ALL OFFSETS AROUND BEAMS, COLUMNS, ETC. SHALL BE MADE AS CLOSE AS POSSIBLE, USING SPECIAL FITTINGS IF NECESSARY.</p> <p>1.08 WATER SUPPLY SYSTEM</p> <p>A. PROVIDE PRECISION PLUMBING PRODUCTS, INC. SYSTEM-READY WATER HAMMER ARRESTORS ON ALL COLD AND HOT WATER LINES AT EACH GROUP OF FIXTURES. AT ISOLATED INDIVIDUAL FIXTURES, AND BEFORE ALL QUICK-CLOSING VALVES. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED DATA. MANUFACTURED WATER HAMMER ARRESTORS OF OTHER MAKES WILL BE CONSIDERED.</p> <p>1.09 PLUMBING FIXTURES</p> <p>A. EXCEPT AS SPECIFICALLY OTHERWISE NOTED OR SHOWN, THE PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL PLUMBING FIXTURES SHOWN ON THE DRAWINGS COMPLETE AND READY FOR USE.</p> <p>B. ALL FIXTURE SUPPORTS TO BE OF TYPE AND TO PERMIT ADJUSTMENT TO FIT VARIATIONS IN CONSTRUCTION. ALL GROUNDS OR SPECIAL SUPPORTS NECESSARY FOR SETTING FIXTURES SHALL BE FURNISHED AND INSTALLED BEFORE PLASTERING OR OTHER FINISHED CONSTRUCTION WORK IS BEGUN. ALL FIXTURES SHALL BE HUNG AT HEIGHT DIRECTED BY ARCHITECT. ACCESSORIES IN GENERAL ARE LISTED FOR EACH FIXTURE. PLUMBING CONTRACTOR SHALL, HOWEVER, SUPPLY ALL STOPS, TRAPS, ESUTOCHONES, CONNECTIONS, ETC. AS NECESSARY TO COMPLETE INSTALLATION OF EACH FIXTURE, WHETHER OR NOT SUCH ITEMS ARE LISTED.</p>
<p>3.0 EXECUTION</p> <p>3.01 ARRANGEMENT</p> <p>A. FOLLOW THE GENERAL PIPING LAYOUT, ARRANGEMENT, SCHEMATICS AND DETAILS. PROVIDE ALL OFFSETS, VENTS, DRAINS, AND CONNECTIONS NECESSARY TO ACCOMPLISH THE INSTALLATION. FABRICATE PIPING ACCURATELY TO MEASUREMENTS ESTABLISHED AT THE PROJECT SITE TO AVOID INTERFERENCE WITH DUCTWORK, OTHER PIPING, EQUIPMENT, OPENINGS, ELECTRICAL CONDUITS AND LIGHT FIXTURES. MAKE SUITABLE PROVISION FOR EXPANSION AND CONTRACTION WITH EXPANSION LOOPS AND OFFSETS.</p> <p>3.02 INSULATION INSTALLATION</p> <p>A. PROVIDE BLANKET INSULATION OVER ALL HORIZONTAL ROOF DRAIN PIPING WHICH IS WITHIN THE BUILDING INCLUDING THE VERTICAL RISERS TO THE ROOF DRAINS AND THE UNDERBODY OF THE ROOF DRAINS.</p> <ol style="list-style-type: none"> <li>BLANKET INSULATION SHALL BE WRAPPED AROUND THE PIPING AND UNDERBODIES OF ROOF DRAINS. ENDS OF INSULATION SHALL OVERLAP AT LEAST 2" AND THE BOTTOM OF INSULATION SHALL OVERLAP PIPE INSULATION AT PIPE CONNECTION TO ROOF DRAIN AT LEAST 3". ADHERE INSULATION TO ROOF DRAIN UNDERBODIES WITH 100% COVERAGE OF FIRE RETARDANT ADHESIVE AND TAPE ALL JOINTS WITH 3" WIDE FOL REINFORCED KRAFT TAPE.</li> </ol> <p>B. PROVIDE INSULATION OVER ALL ABOVE GROUND HOT AND COLD WATER PIPING, EXCEPT THAT NO INSULATION IS REQUIRED ON COLD WATER LINES INSTALLED INSIDE INTERIOR PLUMBING CHASES (THOSE CHASES WITH NO EXTERIOR WALL). IN ADDITION, NO INSULATION IS REQUIRED FOR COLD WATER PIPING OUTSIDE THE BUILDING VAPOR BARRIER, AND DESIGNED TO BE DRAINED DOWN FOR FREEZE-PROTECTION. SUCH AS PARKING DECK HOSE BIBS FOR WASH DOWN. ALL JOINTS AND TEARS SHALL BE SEALED WITH MATCHING WHITE VAPOR BARRIER TAPE.</p> <p>C. SEE SPECIFICATION 23 07 19 FOR HVAC PIPING INSULATION REQUIREMENTS.</p> <p>END OF SECTION</p>	<p>2.02 DOMESTIC WATER PIPING</p> <p>A. UNDERGROUND DOMESTIC WATER SERVICE ENTRANCE PIPING 3" AND SMALLER IN SIZE SHALL BE TYPE K HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS (OPTIONAL PIPE MATERIAL SHALL BE DUCTILE IRON / AS SPECIFIED BY LOCAL AUTHORITY). ALL JOINTS SHALL BE BRAZED.</p> <p>B. UNDERGROUND DOMESTIC WATER SERVICE ENTRANCE PIPING ABOVE 3" IN SIZE SHALL BE CLASS 150 DUCTILE IRON PIPE WITH MECHANICAL JOINTS.</p> <p>C. ALL UNDERGROUND COPPER BRANCH LINES (1/2" AND 3/4" ONLY) SHALL BE CONTINUOUS LENGTHS OF SOFT TYPE K COPPER TUBING WITH NO JOINTS ALLOWED UNDERGROUND.</p> <p>D. ABOVEGROUND DOMESTIC WATER SYSTEM PIPING 3" IN SIZE AND SMALLER SHALL BE TYPE L HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SOLDERED POINTS. (OPTIONAL PIPE MATERIAL SHALL BE CPVC / PEX)</p> <p>E. ABOVEGROUND DOMESTIC WATER PIPING 4" AND LARGER SHALL BE TYPE L HARD-DRAWN COPPER TUBING WITH ROLLED GROOVED JOINTS AND FITTINGS. INSTALLATION-READY COPPER FITTINGS SHALL MEET THE SAME GASKET MATERIAL SPECIFICATIONS AS COUPLINGS. FITTINGS SHALL BE AS FOLLOWS, OR EQUAL, AND SHALL BE PROVIDED BY THE MANUFACTURER WITH THE GASKET INCLUDED IN THE COUPLER ASSEMBLY.</p> <ol style="list-style-type: none"> <li>COUPLING, RIGID, VICTALIC STYLE 607 (8" AND SMALLER)</li> <li>GASKETS, GRADE EHP EPDM (8" AND SMALLER)</li> </ol> <p>F. ALL VALVES IN POTABLE WATER SYSTEMS SHALL BE "LEAD-FREE" TYPE.</p> <p>G. ALL VALVES 3/4" AND SMALLER SHALL BE "FULL-PORT" TYPE, AND GREATER THAN 3/4" MAY BE "REDUCED-PORT" TYPE.</p> <p>H. GATE VALVES (WATER ENTRANCES ONLY) SHALL BE CONSTRUCTED WITH A GRAY IRON, NON-RISING STEM, OUTSIDE SCREW AND YOKE (OS&amp;Y), FULL PORT, STEM TO BE ADJUSTABLE GRAPHITE PACKING, ANSI 372 LEAD FREE, BRONZE MOUNTED SEAT RINGS, SOLID WEDGE, BOCK SEAT PROTECTION, WITH MALLEABLE IRON HAND WHEELS. VALVE SHALL MEET MSS-SP70, APOLLO VALVES 611F OF APPROVED EQUALS BY HAMMONDMILWAUKEE, NIBCO, OR STOCKHAM.</p> <p>I. BALL VALVES: <ol style="list-style-type: none"> <li>VALVES 2 INCH AND SMALLER SHALL BE TWO-PIECE BRONZE BODY, FULL PORT WITH SOLID, SMOOTH BORE CHROME PLATED BRASS BALL, MEETING MSS-SP10 AND RATED FOR NO LESS THAN 300 PSI. SEATS SHALL BE REINFORCED TFE WITH TEFON PACKING RING AND THREADED ADJUSTABLE</li></ol></p>			

PLUMBING SYMBOLS LIST			
PLUMBING LEGENDS		PLUMBING ABBREVIATIONS	
	SANITARY SEWER	CW	COLD WATER
	VENT PIPING	HW	HOT WATER
	EXISTING COLD WATER	HWR	HOT WATER RETURN
	COLD WATER	W	WASTE SANITARY
	HOT WATER	VTR	VENT THRU ROOF
	RECIRCULATING HOT WATER	V	VENT
	GAS PIPING	AFF/AFG	ABOVE FINISHED FLOOR/GRADE
	SECONDARY BFP	AHJ	AUTHORITY HAVING JURISDICTION
	BALANCING VALVE	BFP	BACKFLOW PREVENTER
	PIPE UP OR DOWN	ETR	EXISTING TO REMAIN
	PIPE UP	CO	CLEANOUT
	UNION	GC	GENERAL CONTRACTOR
	ISOLATION VALVE	IW	INDIRECT WASTE
	FLOOR CLEANOUT	PC	PLUMBING CONTRACTOR
	BACKFLOW PREVENTER	WCO	WALL CLEANOUT
	POINT OFF CONNECTION	WH	WATER HEATER
	RE-CIRCULATION PUMP	ET	EXPANSION TANK
	HUB / FLOOR DRAIN	RCP	RECIRCULATION PUMP
	CONDENSATE DRAIN	FD	FLOOR DRAIN
	GAS SHUT-OFF VALVE	HD	HUB DRAIN
	WATER HAMMER ARRESTOR	TYP	TYPICAL
	FRANCHISE	CD	CONDENSATE DRAIN
	EQUIPMENT VENDOR	VLL	VERIFY WITH LANDLORD
	CONTRACTORS CHOICE	SPS	SEE PLUMBING SCHEDULE
	OWNERS CHOICE	WHA	WATER HAMMER ARRESTOR
	OWNERS CHOICE	VIF	VERIFY IN FIELD

PLUMBING DRAWING LIST	
P-0.1	PLUMBING SPECIFICATIONS SHEET (01 OF 02)
P-0.2	PLUMBING SPECIFICATIONS SHEET (02 OF 02)
P-0.3	PLUMBING SYMBOLS, ABBREVIATIONS, NOTES AND SCHEDULE
P-1.0	PLUMBING SANITARY, VENT FLOOR PLAN AND RISER DIAGRAM
P-2.0	PLUMBING WATER SUPPLY, GAS FLOOR PLAN AND RISER DIAGRAM
P-3.0	PLUMBING DETAILS SHEET

PLUMBING FIXTURE SCHEDULE									
TAG	FIXTURE	QUANTITY	SAN / WASTE	VENT	COLD WATER	HOT WATER	WASTE FU	WATER FU	FLOW RATE
P-1	WATER CLOSET	1	4"	2"	1/2"	--	4	2.5	1.0 GPF
BASIS OF DESIGN A. FIXTURES P-1 SHALL BE COMFORT HEIGHT, FLOOR MOUNTED WC, FLOOR OUTLET STYLE, KOHLER #K-4304-0 ELONGATED TOILET, WHITE FINISH. SEAL COVER SHALL BE KOHLER #K-4650-0 LUSTRA TYPE OPEN-FRONT WITH LID. SEAT SHAPE IS ELONGATED TYPE. FLUSH TANK SHALL BE KOHLER #K-4484-0, 1.0 GPF, HIGHLINE CLASSIC COMFORT HEIGHT.									
P-2	LAVATORY	1	2"	1-1/2"	1/2"	1/2"	1	1	0.5 GPM
BASIS OF DESIGN A. FIXTURES P-2 SHALL BE ADA COMPLIANT SOHO WALL MOUNT BATHROOM SINK, VITREOUS CHINA, LAVATORY COMPLETE WITH FRONT OVERFLOW AND 1-1/4" DRAIN. FITTINGS SHALL INCLUDE KOHLER #K-2084-N-0 (1-HOLE FAUCET), FITTING SHALL NEED AERATOR, CHROME-PLATED TAILPIECES, STRAINERS, P-TRAP, SUPPLY STOPS, ANCHORING CLIPS AND ALL OTHER TRIM. WALL SUPPLY STOPS, DRAINS AND TAILPIECES SHALL BE OFFSET WHEELCHAIR-TYPE. PROVIDE ADA SINK PROTECTOR & DRAIN. FAUCET SHALL BE TOUCHLESS SINGLE HOLE FAUCET KOHLER #K-104537-SANA, 0.5 GPM, METAL CONSTRUCTION SPOUT, CAST BRASS VALVE INCLUDES SPOUT ASSEMBLY, GRID DRAIN, CONTROL BOX ASSEMBLY, SUPPLY HOSE, MIXER AND STANDARD MOUNTING HARDWARE. PROVIDE APPROVED ASSE 1070 THERMOSTATIC MIXING VALVE SET TO 110 °F AT LAVATORY.									
P-3	MOP SINK / SERVICE SINK	1	3"	2"	3/4"	3/4"	3.0	3.0	1.0 GPM
BASIS OF DESIGN A. FIXTURES P-3 SHALL BE DURASTONE SINGLE COMPARTMENT SINK, MOP SINK MUSTEE MAKE 63M MODEL 24" X 24" X 10" MOP SINK. DRAIN SHALL BE INTEGRATED MOLDED, REMOVABLE STAINLESS STEEL STRAINER INCLUDED. SERVICE SINK FAUCET SHALL BE 63 600A CHROME PLATED WITH VACUUM BREAKER, INTEGRAL STOPS, ADJUSTABLE WALL BRACE, PAIL HOOK AND 3/4" HOSE THREAD ON SPOUT (MOP HANGER 65.600, FINAL SELECTION AS PER ARCHITECT). EYE WASH (EW-1) SHALL BE SPEAKMAN MAKE AND SEF-9000-TW MODEL (FINAL SELECTION AS PER ARCHITECT). EYEWASH FAUCET WITH EYEWASH/DRENCH HOSE AND TMV, YELLOW PLASTIC SPRAY HEADS, 5 FT. HOSE WITH HOOK, ASSE 1071 APPROVED STW-370 THERMOSTATIC MIXING VALVE SET TO 85°F FOR EYE WASH.									
P-4	SINK (TREATMENT ROOM)	8	2"	1-1/2"	1/2"	1/2"	1	1	1.0 GPM
BASIS OF DESIGN A. FIXTURES P-4 SHALL BE 3C STORE FIXTURES UNDERMOUNT SINK AND FAUCET, FURNISHED WITH TREATMENT WITH TREATMENT ROOM MILLWORK (FIXTURE SELECTION AS PER ARCHITECT / OWNER). PROVIDE ASSE 1070 TMV SET TO 100°F CONNECTIONS: 1-1/2" SAN, 1-1/2", 1/2" CW & 1/2" HW.									
P-5	SINK (BREAK-ROOM)	1	2"	1-1/2"	1/2"	1/2"	1	1	1.0 GPM
BASIS OF DESIGN A. FIXTURES P-4 SHALL BE ADA COMPLIANT STACCATO 20" TOP MOUNT SINGLE BOWL BAR SINK, KOHLER #K-3363-3. SINK MATERIAL WILL BE PREMIUM 18-GAUGE STAINLESS STEEL. FITTING SHALL NEED SINK DRAIN, AERATOR, CHROME-PLATED TAILPIECES, STRAINERS, P-TRAP, SUPPLY STOPS, ANCHORING CLIPS AND ALL OTHER TRIM. WALL SUPPLY STOPS, DRAINS AND TAILPIECES SHALL BE OFFSET WHEELCHAIR-TYPE. PROVIDE ADA SINK PROTECTOR & DRAIN. FAUCET SHALL BE TRITON BOWE WIDESPREAD BATHROOM SINK FAUCET K-800770-SAKA, 1.0 GPM. BRASS CONSTRUCTION AND VALVE BODIES. FINISH WILL BE POLISHED CHROME.									
P-6	WATER DISPENSER (NEAR RESTROOM)	2	2"	1-1/2"	1/2"	--	0.5	0.5	1.0 GPM
BASIS OF DESIGN A. FIXTURE P-5 SHALL BE GLOBAL INDUSTRY MAKE AND W9761218 MODEL WALL MOUNTED BOTTLE FILLING STATION, TOUCHLESS, SENSOR ACTIVATION WITH AUTO 20 SECOND TOUCHLESS, 1.0 GPM, LED FILTER LEVEL INDICATOR DISPLAY AND STAINLESS STEEL PAN WITH INTEGRAL DRAIN.									
P-7	WATER DISPENSER (NEAR DRINK STATION)	1	2"	1-1/2"	1/2"	--	0.5	0.5	0.5 GPM
BASIS OF DESIGN FIXTURE P-6 SHALL BE ELKAY MAKE, LBWD00/LBWD06 MODEL, 42H20 PREMIUM BUILT-IN FILTERED WATER DISPENSER, CHILLING CAPACITY OF 1.5 GPH.									
FD	FLOOR DRAIN	3	3"	2"	1/2" TP	-	5	-	SIQUX CHIEF "832 PNR" ADJUSTABLE FLOOR DRAIN, PVC BODY, ROUND NICKEL-BRONZE STRAINER, PROVIDE TRAP PRIMER CONNECTION
WD	WASHER DRYER	1	2"	1-1/2"	3/4"	3/4"	3	4	WASHER BOX, GUY GRAY "8200" BOX WITH CENTER SAN & TOP MOUNTED WATER STAINLESS STEEL. COORDINATE WITH WASHER TO CONFIRM COMPATIBILITY CONNECTION: 2" SAN, 1-1/2" VENT, 1/2" CW & 1/2" HW.
NOTES: 1. PROVIDE WITH 1/2" TRAP PRIMER TO FLOOR DRAIN (TP), WATTS TP300 OR EQUIVALENT. 2. CONTRACTOR TO CROSS REFERENCE ALL LISTED PLUMBING FIXTURES WITH OWNER PROVIDED DIP (DESIGN INTENT PACKAGES) TO ENSURE ALL PLUMBING RELATED ITEMS ARE COORDINATED PROPERLY. 3. ALL PLUMBING FIXTURE MAKE, MODEL, COLOR AND INSTALLATION HEIGHT SHALL BE COORDINATE WITH ARCHITECT.									

GENERAL NOTES									
1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FITTINGS AS REQUIRED BY ALL APPLICABLE CODES AND GOVERNING AUTHORITIES.									
2. CONTRACTOR SHALL VERIFY AND CORRECT AS REQUIRED TO MEET ALL CODES AND REGULATIONS ANY POSSIBLE DISCREPANCIES BETWEEN TYPE AND SIZE OF CONNECTION SPECIFIED IN PLUMBING FIXTURE SCHEDULE AND FIXTURES ACTUALLY INSTALLED ON THE SITE.									
3. ALL SANITARY PIPE SLOPE SHALL BE NOT LESS THAN 1/4" PER FOOT FOR PIPE DIAMETER 1-1/2" TO 2" AND NOT LESS THAN 1/8" PER FOOT FOR PIPE DIAMETER 3" TO 6".									
4. VENT PIPING SHOWN ON FLOOR PLANS IS ONLY INDICATIVE EXCEPT FOR VTR LOCATIONS.									
5. VALVES AND FITTINGS SHALL BE OF SAME SIZE OF LINE ON WHICH THEY ARE LOCATED, UNLESS OTHERWISE INDICATED ON DRAWINGS.									
6. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES.									
7. CONTRACTOR SHALL FIELD VERIFY ALL GIVEN MEASUREMENTS PRIOR TO LAYING AND CONNECTING ALL SANITARY AND WASTE PIPING AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.									
8. AIR CHAMBERS SHALL NOT BE CONSIDERED AN EQUAL TO WATER ARRESTORS AS SPECIFIED.									
9. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING AND WEATHERPROOFING INTEGRITY OF ALL PIPING AND PENETRATIONS.									
10. ALL WATER SUPPLY AND SANITARY LINES SHALL BE RUN AS CLOSE TO PLANS AS POSSIBLE WITH NO CHANGES IN SIZING.									
11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY SUPPORTING DEVICES FOR ALL FIXTURES INCLUDED IN CONTRACT OR HEREIN SPECIFIED OR OTHERWISE.									
12. CHANGES IN THE DIRECTION OF SANITARY PIPING SHALL NOT BE MADE WITH FITTINGS WHICH WILL CAUSE EXCESSIVE REDUCTION IN THE VELOCITY OF FLOW OR CREATE ANY OTHER ADVERSE EFFECT UNLESS PHYSICALLY IMPOSSIBLE (E. USE OF SANITARY TEE IN A HORIZONTAL CONNECTION, USE OF A DOUBLE SANITARY TEE IN A VERTICAL STACK, IN GENERAL, USE OF SHORT-RADIUS FITTINGS FOR BRANCH TO HOUSE DRAIN OR STACK CONNECTION).									
13. ALL DRAINAGE PIPING SHALL BE MARKED WITH THE SEAL OF APPROVAL OF THE NATIONAL SANITATION FOUNDATION.									
14. PROVIDE ACCESS PANELS TO ALL VALVES WITHIN CHASES OR ABOVE NONACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.									
15. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF PLUMBING FIXTURE MOUNTING HEIGHTS, AND DIMENSIONS.									
16. ALL VENTS THROUGH ROOF SHALL BE MIN. 10'-0" FROM ANY AIR INTAKES.									
17. CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.									
18. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS (INCLUDING PIPE ROUTING AND EQUIPMENT LOCATIONS) TO ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE INSTALLATION OR PURCHASING OF ANY PIPING AND/OR EQUIPMENT.									
19. CLEANOUTS SHALL BE PROVIDED AT THE LOCATIONS INDICATED AND A MINIMUM WHERE REQUIRED BY CODE. FLOOR CLEANOUTS SHALL BE A MINIMUM OF 4" AND SHALL BE COMPLETE WITH A FLUSH PLUG AND REMOVABLE SCRATED BRONZE FLOOR PLATE, PROVIDE CARPET BUTTONS IN CARPETED AREAS.									
20. PROVIDE BACKFLOW PROTECTION DEVICES REQUIRED BY AGENCIES HAVING JURISDICTION. BACKFLOW DEVICES REQUIRING TESTING SHALL BE INSTALLED NO HIGHER THAN 5'-0" A.F.F.									
21. COORDINATE INSTALLATION OF PLUMBING WORK WITH OTHER TRADES SO AS TO AVOID UNNECESSARY DELAY OR INTERFERENCES REVIEW ARCHITECTURAL AND EQUIPMENT SHEETS.									
22. ALL PROPOSED POKE-THRU AND TRENCHING LOCATIONS TO BE REVIEWED AND APPROVED BY LANDLORD'S STRUCTURAL ENGINEER BEFORE CUTTING OR DRILLING IS PERMITTED.									
23. PROVIDE QUARTER-TURN ISOLATION VALVES FOR ALL PLUMBING EQUIPMENTS.									
24. ANY ROOF PENETRATION FOR PLUMBING MUST BE MADE AND SEALED BY LANDLORD'S PREFERRED ROOFING CONTRACTOR.									

EXPANSION TANK SCHEDULE										
TAG	QUANTITY	LOCATION	SERVICE	TYPE	CONNECTION SIZE	MAX WORKING PRESSURE (PSI)	WEIGHT (LBS)	TANK VOLUME (GAL)	MAKE	REMARKS
ET-1	1	HOT WATER HEATER	HOT WATER	DIAPHRAGM	1"	150	20.5	14.0	BACKSTOP 12-A103	DIMENSIONS- 19.8"(H)x15.50"(DIA.)

MASTER THERMOSTATIC MIXING VALVE SCHEDULE								
TAG	QUANTITY	LOCATION	SERVICE	CAPACITY (GPM)	PRESSURE DROP (PSI)	MINIMUM FLOW (GPM)	MAKE	REMARKS
TMV-1	1	WATER HEATER HW LINE	HOT WATER	15	5	0.1	ACORN MV17-2	-BRASS VALVE BODY -ASSE CERTIFIED

BACKFLOW PREVENTER DEVICE SCHEDULE								
TAG	QUANTITY	LOCATION	SERVICE	SIZE	SERIES	APPROVAL	MAKE	REMARKS
BFP	1	EMPLOYEE BREAK ROOM / LAUNDRY	DOMESTIC WATER CONNECTION	1-1/2"	LF009	ASSE 1013, AWWA C511	WATTS	-REDUCED PRESSURE BACKFLOW PREVENTER -LEAD FREE CAST COPPER SILICON ALLOY BODY

ELECTRIC TYPE HOT WATER HEATER WITH STORAGE										
TAG	TOTAL NO. OF HEATERS	TEMP. SET POINT DEG. F.	TANK CAPACITY (GALLONS)	POWER INPUT	ELECTRICAL DATA V/PH/Hz	RECOVERY CAP. (GPM/GPH) @ RISE	STORAGE WATER TEMP.	TYPE	MANUFACTURER & MODEL NO.	REMARKS
WH-1	1	140	30	4.5KW	208V/30/60Hz	21 GPH @ 90°F	140°F	ELECTRIC STORAGE TANK TYPE WATER HEATER (SHELF MOUNTED)	(BRADFORD WHITE) MODEL #LE130L3-3	-DIMENSIONS 20"D X 32.75"H -SHELF MOUNTED ELECTRIC WATER HEATER PROVIDE DRIP PAN -PROVIDE EXPANSION TANK (ET-1), HOT WATER & RE-CIRCULATION PUMP (RCP-1). -MAINTAIN CLEARANCE AS PER MANUFACTURER RECOMMENDATION -CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE -PROVIDE A 2-INCH DEEP, 24-GAUGE MINIMUM THICKNESS GALVANIZED SHEET METAL DRIP PAN UNDER WATER HEATER AND AT ALL LOCATIONS W/ LEAK DETECTION. DRIP PANS SHALL COMPLY WITH NSPC 2021, SECTION 10.15.9.

RE-CIRCULATION PUMP SCHEDULE																	
TAG	QUANTITY	SERVICE	LOCATION	PERFORMANCE DATA/PUMP			PUMP CONSTRUCTION DATA				MOTOR DATA/PUMP			REMARKS			
				GPM	TDH (FT)	WATER TEMP. (°F)	PUMP TYPE	IMPELLER MATERIAL	MHP PER PUMP	STARTER TYPE	V/PH/Hz	RPM	F.L.A.		SERVICE FACTOR	WEIGHT (LBS)	MFGR MODEL
RCP-1	1	HWR CIRC. SYSTEM	EMPLOYEE BREAK ROOM / LAUNDRY	2	10	110	INLINE	NORYL	125 WATTS	AQUA STAT	115/1/60	2800	1.10	1.0	10	BELL & GOSSETT NBF-25	INLINE ON HW RETURN LINE AT WATER HEATER WITH NEMA 1 RATED MOTOR

CONSULTANT (ENGINEER)  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH-914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 260269890. EXPIRATION DATE: 04/30/2026

CONTRACTOR'S NOTES:  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

DATE	REVISION
07/14/2025	IFC SET
05/29/2025	REVISION 1
05/16/2025	CLIENT COMMENTS

PROJECT INFORMATION:	
PROJECT NUMBER:	12115-24
DRAWN BY:	NYE
REVIEWED BY:	NYE
TOTAL SQ. FT.:	3,519
DATE:	04/25/25

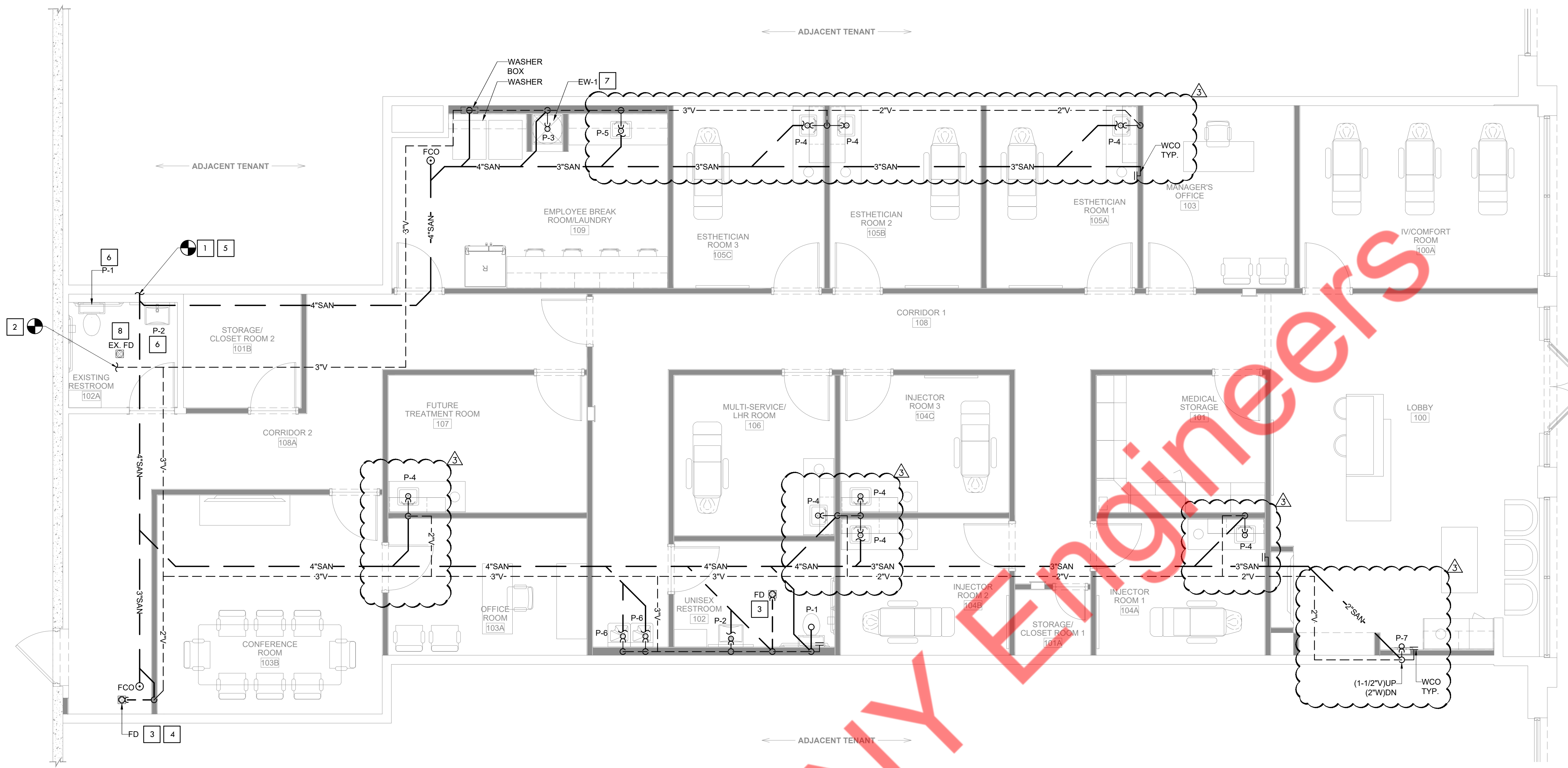
DRAWING TITLE:  
**PLUMBING SYMBOLS, ABBREVIATIONS, NOTES & SCHEDULE**

DRAWING NUMBER:  
**P-0.3**

LOCATION: N. BRUNSWICK, NJ

PROJECT: VIO MED SPA

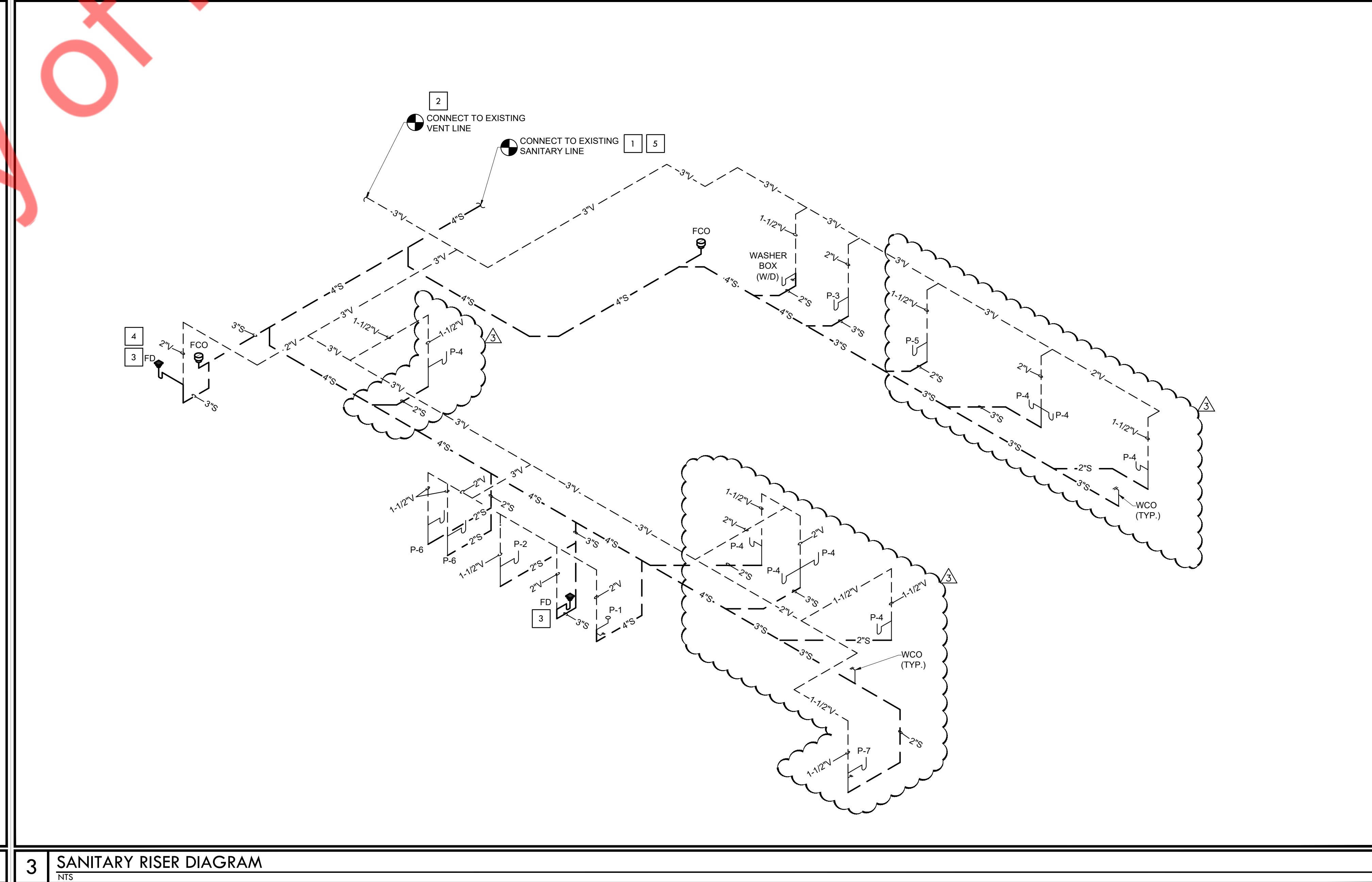
PLOT SCALE: 1:1



**1 PLUMBING SANITARY AND VENT FLOOR PLAN**  
SCALE: 1/4"=1'-0"

- GENERAL NOTES:**
- PLUMBING CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS IN FIELD TO GREATEST EXTENT POSSIBLE PRIOR TO BIDDING. CONTRACTOR IS TO DETERMINE ALL TIE-IN LOCATIONS AND EXISTING CONDITIONS AS REQUIRED TO DETERMINE FULL SCOPE OF WORK. BID IS TO INCLUDE ALL WORK NECESSARY FOR COMPLETION OF PROJECT AND LACK OF KNOWLEDGE OF EXISTING CONDITIONS WILL NOT BE CONSIDERED ACCEPTABLE FOR ADDITIONAL SCOPES OF WORK BEYOND CONTRACTED BID.
  - ROUTING OF EXISTING SANITARY, WATER & GAS LINES IS UNKNOWN. CONTRACTOR IS TO VERIFY ROUTING OF LINES DURING DEMOLITION AND ADJUST SCOPE OF WORK (DEMOLITION AND NEW INSTALLATION) AS DICTATED BY EXISTING CONDITIONS. CONTRACTOR TO ADJUST ROUTING OF NEW SANITARY LINES BASED UPON EXISTING CONDITIONS AS REQUIRED TO MINIMIZE SAW CUTTING OF EXISTING FLOOR AND MEET ELEVATIONS/SLOPE REQUIREMENTS.
  - PLUMBING CONTRACTOR TO INSTALL AN ASSE 1070 COMPLIANT MANUAL MIXING VALVE IN THE WATER LINES BELOW ALL PUBLIC LAVATORIES AND SINKS WITH A MAXIMUM DISCHARGE TEMPERATURE OF 110° F.
  - SEE ARCHITECTURAL DETAILS FOR EXACT LOCATIONS AND DIMENSIONS OF EQUIPMENT, FIXTURES, OPENINGS AND OUTLETS. COMMUNICATE WITH ARCHITECT ANY DISCREPANCIES.
  - COORDINATE WATER AND SANITARY SERVICES WITH THE LOCAL UTILITY COMPANIES.
  - PLUMBING CONTRACTOR SHALL FIELD VERIFY ALL INVERTS/HEIGHTS PRIOR TO START OF WORK.
  - ALL NON-VENTED FLOOR DRAINS TO BE WITHIN 10'-0" OF MAIN VENTED WASTE LINE.
  - ALL SANITARY WASTE AND VENT PIPE SHALL BE PVC SCHEDULE 40 ASTM D2665-82 ABOVE GRADE AND SCH. 40 ASTM D-1785-83 BELOW GRADE.
  - PLUMBING SHOWN IS DIAGRAMMATIC IN NATURE AND MAY BE ROUTED DIFFERENTLY BY THE PLUMBING CONTRACTOR DUE TO EXISTING FIELD CONDITIONS PROVIDING LOCATIONS OF ALL FIXTURES REMAIN AND ALLOWED WORK COMPLIES WITH THE NEW JERSEY UCC PLUMBING SUBCODE 2021 (NSPC 2021).
  - ALL WASTE PIPE TO HAVE MINIMUM SLOPE OF 1.00% (1/8" LINEAL FOOT).
  - PLUMBING CONTRACTOR IS TO MODIFY ROUTING AND TIE-IN LOCATIONS OF NEW SANITARY LINE AS REQUIRED BY SITE UTILITIES.
  - ALL HOT WATER DOMESTIC WATER LINES SHALL BE INSULATED. INSULATION TO BE FURNISHED AND INSTALLED BY THE P.C.
  - CONTRACTOR TO PROVIDE ALL OPENINGS IN STRUCTURE AS REQUIRED FOR NEW WORK INCLUDING FLASHING AND REPAIRS FOR ROOF OPENINGS AND CAULKING AND SEALING FOR WALL OPENINGS. LEAVE ALL OPENINGS IN A WEATHER-PROOF CONDITION.
  - COORDINATE ALL WORK WITH OTHER TRADES.
  - COORDINATE ALL INSTALLATIONS OF MATERIAL AND EQUIPMENT WHICH IS EXPOSED TO VIEW INSIDE AND OUTSIDE OF STRUCTURE WITH OWNER AND ARCHITECT BEFORE PURCHASE. ALL MUST BE REVIEWED AND APPROVED BEFORE HAND.
  - ALL ROOF PENETRATIONS ARE TO BE SLEEVED, FLASHED & SEALED PER ROOFING MANUFACTURER REQUIREMENTS.
  - EXHAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKE, AND 5'-0" FROM ANY DEMISING WALL VERTICAL PLANE.
  - ALL FLOOR DRAINS ARE REQUIRED TO HAVE TRAP PRIMERS.
  - ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
  - IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
  - REFER TO RISER DIAGRAM FOR ALL WAST, VENT & WATER SUPPLY SIZES.
  - VERIFY WITH THE LOCAL BUILDING AUTHORITY THAT CONDENSATE DRAINAGE CAN BE ROUTED TO THE MOP SINK.
  - NO 90° HORIZONTAL TURNS SHALL BE USED IN THE SANITARY PIPING SYSTEM. ALL HORIZONTAL TURNS SHALL BE MADE WITH 45° ELBOWS WITH PIPE IN BETWEEN THE TWO ELBOWS.
  - THE SANITARY LINE FOR INDIVIDUAL SINKS SHALL BE 2 INCHES.

- SANITARY AND VENT KEYED NOTES:**
- EXTEND AND CONNECT NEW 4" SANITARY PIPING TO THE EXISTING SANITARY LINE IN THE SPACE. CONTRACTOR SHALL VERIFY THE EXISTING SANITARY LINE LOCATION, SIZE, INVERT, DIRECTION OF FLOW & TIE-IN CONNECTION PRIOR TO BID. PROVIDE A CLEANOUT AT THE POINT OF THE EXISTING CONNECTION.
  - CONNECT NEW 3" VENT LINE TO EXISTING VENT LINE IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING VENT STUB-OUT LOCATION AND SIZE.
  - PROVIDE THE TRAP PRIMER FOR ALL THE FLOOR DRAINS.
  - ROUTE INDIRECT WASTE FROM BFP TO ADJACENT FLOOR DRAIN (FD) WITH APPROVED AIR GAP.
  - CONTRACTOR TO COORDINATE WITH THE LANDLORD / BASE BUILDING ENGINEER PRIOR TO THE NEW CONNECTION TO THE EXISTING BASE BUILDING SYSTEM.
  - EXISTING WATER CLOSET AND LAVATORY TO BE REPLACED WITH NEW PLUMBING FIXTURE IN THE EXISTING LOCATIONS WITH THE EXISTING SANITARY AND VENT LINES WITH ASSOCIATED ACCESSORIES AND FITTINGS TO REMAIN. CONTRACTOR TO VERIFY IN FIELD CONDITION OF EXISTING SANITARY AND VENT PIPING AND REPLACE IF PIPES ARE NOT IN GOOD CONDITION. REROUTE PIPING IF REQUIRED.
  - DRAIN EYE WASH STATION TO MOP SINK WITH AN APPROVED AIR GAP. ROUTE DRAIN LINE AGAINST WALL AS TIGHT AS POSSIBLE.
  - EXISTING FLOOR DRAIN TO BE REMAIN AT THE EXISTING LOCATIONS WITH THE EXISTING SANITARY AND VENT LINES WITH ASSOCIATED ACCESSORIES AND FITTINGS TO REMAIN. CONTRACTOR TO VERIFY IN FIELD, CONDITION OF EXISTING PIPING AND REPLACE IF PIPES ARE NOT IN GOOD CONDITION. REROUTE PIPING IF REQUIRED.



**2 PLUMBING GENERAL NOTES & KEYED NOTES**

**3 SANITARY RISER DIAGRAM**

**CONSULTANT (ENGINEER)**  
**NY ENGINEERS**  
NEARBY ENGINEERS  
382 NE 191ST STREET SUITE  
49674, MIAMI, FL 33179  
PH-914.257.3455  
WWW.NY-ENGINEERS.COM

**PROFESSIONAL SEAL:**  
.....  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 262696910. EXPIRATION DATE: 04/30/2026

**CONTRACTOR'S NOTES:**  
WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

**DATE**    **ISSUE**  
02/21/25    90% PERMIT SET  
04/25/25    100% PERMIT SET

07/14/2025 IFC SET  
05/29/2025 REVISION 1  
05/16/2025 CLIENT COMMENTS

**PROJECT INFORMATION:**  
PROJECT NUMBER: 12115-24  
DRAWN BY: NYE  
REVIEWED BY: NYE  
TOTAL SQ. FT.: 3,519  
DATE: 04/25/25

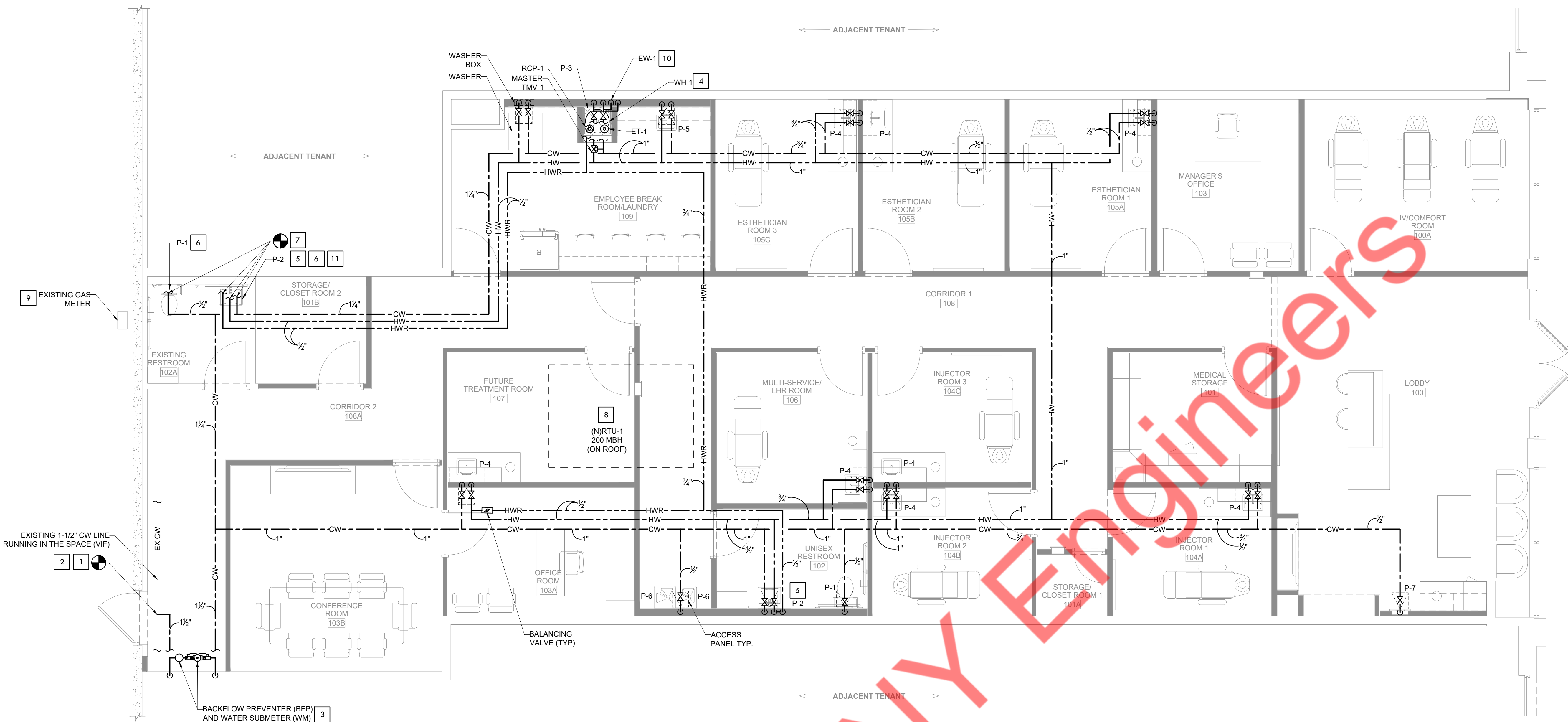
**DRAWING TITLE:**  
**PLUMBING SANITARY, VENT FLOOR PLAN & RISER DIAGRAM**

**DRAWING NUMBER:**  
**P-1.0**

LOCATION: N. BRUNSWICK, NJ

PROJECT: VIO MED SPA

PLOT SCALE: 1:1

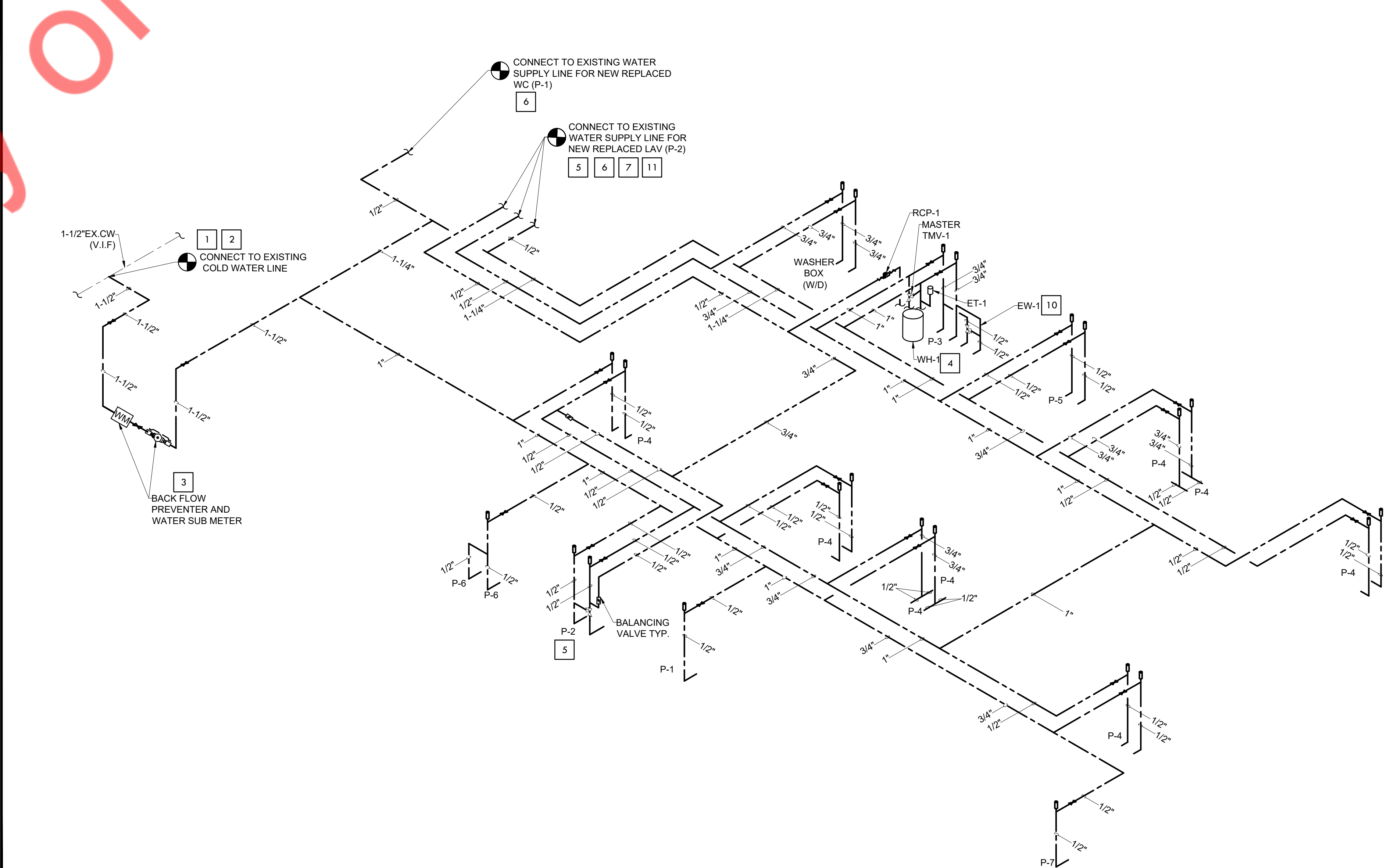


**GAS SYSTEM NOTE:**  
 EXISTING RTU TO BE REPLACED WITH NEW RTU IN THE EXISTING LOCATION. EXISTING GAS PIPING AND ASSOCIATED ACCESSORIES ARE EXISTING TO REMAIN. CONTRACTOR TO VERIFY IN FIELD CONDITION OF EXISTING PIPING & ACCESSORIES, REPLACE IF NOT IN GOOD CONDITION.

**1 PLUMBING WATER SUPPLY & GAS PLAN FLOOR PLAN**  
 SCALE: 1/4"=1'-0"

- GENERAL NOTES:**
- PLUMBING CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS IN FIELD TO GREATEST EXTENT POSSIBLE PRIOR TO BIDDING. CONTRACTOR IS TO DETERMINE ALL TIE-IN LOCATIONS AND EXISTING CONDITIONS AS REQUIRED TO DETERMINE FULL SCOPE OF WORK. BID IS TO INCLUDE ALL WORK NECESSARY FOR COMPLETION OF PROJECT AND LACK OF KNOWLEDGE OF EXISTING CONDITIONS WILL NOT BE CONSIDERED ACCEPTABLE FOR ADDITIONAL SCOPE(S) OF WORK BEYOND CONTRACTED BID.
  - ROUTING OF EXISTING SANITARY, WATER & GAS LINES IS UNKNOWN. CONTRACTOR IS TO VERIFY ROUTING OF LINES DURING DEMOLITION AND ADJUST SCOPE OF WORK (DEMOLITION AND NEW INSTALLATION) AS DICTATED BY EXISTING CONDITIONS. CONTRACTOR TO ADJUST ROUTING OF NEW SANITARY LINES BASED UPON EXISTING CONDITIONS AS REQUIRED TO MINIMIZE SAW CUTTING OF EXISTING FLOOR AND MEET ELEVATIONS/SLOPE REQUIREMENTS.
  - PLUMBING CONTRACTOR TO INSTALL AN ASSE 1070 COMPLIANT MANUAL MIXING VALVE IN THE WATER LINES BELOW ALL PUBLIC LAVATORIES AND SINKS WITH A MAXIMUM DISCHARGE TEMPERATURE OF 110° F.
  - SEE ARCHITECTURAL DETAILS FOR EXACT LOCATIONS AND DIMENSIONS OF EQUIPMENT, FIXTURES, OPENINGS AND OUTLETS. COMMUNICATE WITH ARCHITECT ANY DISCREPANCIES.
  - COORDINATE WATER AND SANITARY SERVICES WITH THE LOCAL UTILITY COMPANIES.
  - PLUMBING CONTRACTOR SHALL FIELD VERIFY ALL INVERTS/HEIGHTS PRIOR TO START OF WORK.
  - ALL NON-VENTED FLOOR DRAINS TO BE WITHIN 10'-0" OF MAIN VENTED WASTE LINE.
  - ALL SANITARY WASTE AND VENT PIPE SHALL BE PVC SCHEDULE 40 ASTM D2665-82 ABOVE GRADE AND SCH. 40 ASTM D-1785-83 BELOW GRADE.
  - PLUMBING SHOWN IS DIAGRAMMATIC IN NATURE AND MAY BE ROUTED DIFFERENTLY BY THE PLUMBING CONTRACTOR DUE TO EXISTING FIELD CONDITIONS PROVIDING LOCATIONS OF ALL FIXTURES REMAIN AND ALLOWED WORK COMPLIES WITH THE NEW JERSEY UCC PLUMBING SUBCODE 2021 (NSPC 2021).
  - ALL WASTE PIPE TO HAVE MINIMUM SLOPE OF 1.00% (1/8" LINEAL FOOT).
  - PLUMBING CONTRACTOR IS TO MODIFY ROUTING AND TIE-IN LOCATIONS OF NEW SANITARY LINE AS REQUIRED BY SITE UTILITIES.
  - ALL HOT WATER DOMESTIC WATER LINES SHALL BE INSULATED. INSULATION TO BE FURNISHED AND INSTALLED BY THE P.C.
  - CONTRACTOR TO PROVIDE ALL OPENINGS IN STRUCTURE AS REQUIRED FOR NEW WORK INCLUDING FLASHING AND REPAIRS FOR ROOF OPENINGS AND CAULKING AND SEALING FOR WALL OPENINGS. LEAVE ALL OPENINGS IN A WEATHER-PROOF CONDITION.
  - COORDINATE ALL WORK WITH OTHER TRADES.
  - COORDINATE ALL INSTALLATIONS OF MATERIAL AND EQUIPMENT WHICH IS EXPOSED TO VIEW INSIDE AND OUTSIDE OF STRUCTURE WITH OWNER AND ARCHITECT BEFORE PURCHASE. ALL MUST BE REVIEWED AND APPROVED BEFORE HAND.
  - ALL ROOF PENETRATIONS ARE TO BE SLEEVED, FLASHED & SEALED PER ROOFING MANUFACTURER REQUIREMENTS.
  - EXHAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKE, AND 5'-0" FROM ANY DEMISING WALL VERTICAL PLANE.
  - ALL FLOOR DRAINS ARE REQUIRED TO HAVE TRAP PRIMERS.
  - ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
  - IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
  - REFER TO RISER DIAGRAM FOR ALL WASTE, VENT & WATER SUPPLY SIZES.
  - VERIFY WITH THE LOCAL BUILDING AUTHORITY THAT CONDENSATE DRAINAGE CAN BE ROUTED TO THE MOP SINK.
  - NO 90° HORIZONTAL TURNS SHALL BE USED IN THE SANITARY PIPING SYSTEM. ALL HORIZONTAL TURNS SHALL BE MADE WITH 45° ELBOWS WITH PIPE IN BETWEEN THE TWO ELBOWS.
  - PROVIDE 12" X 12" ACCESS PANEL FOR VALVES.

- WATER SUPPLY KEYED NOTES #**
- CONNECT NEW 1-1/2" CW LINE TO EXISTING 1-1/2" COLD WATER LINE IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING COLD WATER LINE LOCATION AND SIZE. GO TO COORDINATE WITH THE LANDLORD / BASE BUILDING ENGINEER PRIOR TO THE NEW CONNECTION TO THE EXISTING BASE BUILDING SYSTEM.
  - NO TAP OFF TO BE TAKEN BEFORE BFP.
  - PROVIDE NEW WATER SUB-METER AND BFP (WATTS LF009 OR EQUIVALENT) AS SHOWN ON THE PLAN. INSTALLED WATER SUB-METER AND BFP AS PER LOCAL AHJ. BASE BID ACCORDINGLY.
  - PROVIDE STORAGE TYPE ELECTRIC WATER HEATER (WH-1) WITH THERMAL EXPANSION TANK (ET-1) AND RE-CIRCULATION PUMP (RCP-1) HOT WATER RETURN PIPING, ASSOCIATED ACCESSORIES AND FITTINGS.
  - PROVIDE APPROVED ASSE 1070 THERMOSTATIC MIXING VALVE SET TO 110 °F AT LAVATORY.
  - EXISTING WATER CLOSET AND LAVATORY TO BE REPLACED WITH NEW FIXTURES IN THE EXISTING LOCATIONS WITH THE EXISTING WATER LINES WITH ASSOCIATED ACCESSORIES AND FITTINGS TO REMAIN. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND UPGRADE/REPLACE IF REQUIRED. CW/HW/HWR LINE EXTEND AND CONNECT TO THE NEAREST WATER SUPPLY LINE.
  - EXTEND AND CONNECT NEW CW/HW/HWR LINE TO THE EXISTING WATER SUPPLY LINE. CONTRACTOR TO FIELD VERIFY THE SIZE, LOCATION AND CONDITION OF EXISTING PIPING AND UPGRADE/REPLACE IF REQUIRED.
  - EXISTING RTU TO BE REPLACED WITH NEW RTU IN THE EXISTING LOCATION. CONTRACTOR TO CONNECT THE NEW RTU WITH THE EXISTING GAS PIPING AND ASSOCIATED ACCESSORIES AVAILABLE IN THE SPACE. VERIFY IN FIELD EXACT LOCATION OF EXISTING PIPING & CHECK SAME TO BE IN WORKING CONDITION, OTHERWISE PROVIDE NEW GAS PIPING. PROVIDE PRESSURE REGULATOR BEFORE THE EQUIPMENT IF REQUIRED.
  - EXISTING GAS METER TO REMAIN WITH EXISTING GAS PIPING CONNECTIONS, ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING & CHECK SAME TO BE IN WORKING CONDITION, OTHERWISE PROVIDE NEW GAS PIPING.
  - PROVIDE ASSE 1071 APPROVED THERMOSTATIC MIXING VALVE TO EYE WASH STATION. SET TEMPERATURE AT 85°F.
  - PROVIDE NEW BALANCING VALVE ON HOT WATER RETURN LINE FOR THE EXISTING LAVATORY, IF DOES NOT EXIST.



**2 PLUMBING GENERAL NOTES & KEYED NOTES**  
 NTS

**3 WATER SUPPLY RISER DIAGRAM**  
 NTS

**CONSULTANT (ENGINEER)**  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH-914.257.3455  
 WWW.NY-ENGINEERS.COM

**PROFESSIONAL SEAL:**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 262696910. EXPIRATION DATE: 04/30/2026

**CONTRACTOR'S NOTES:**  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

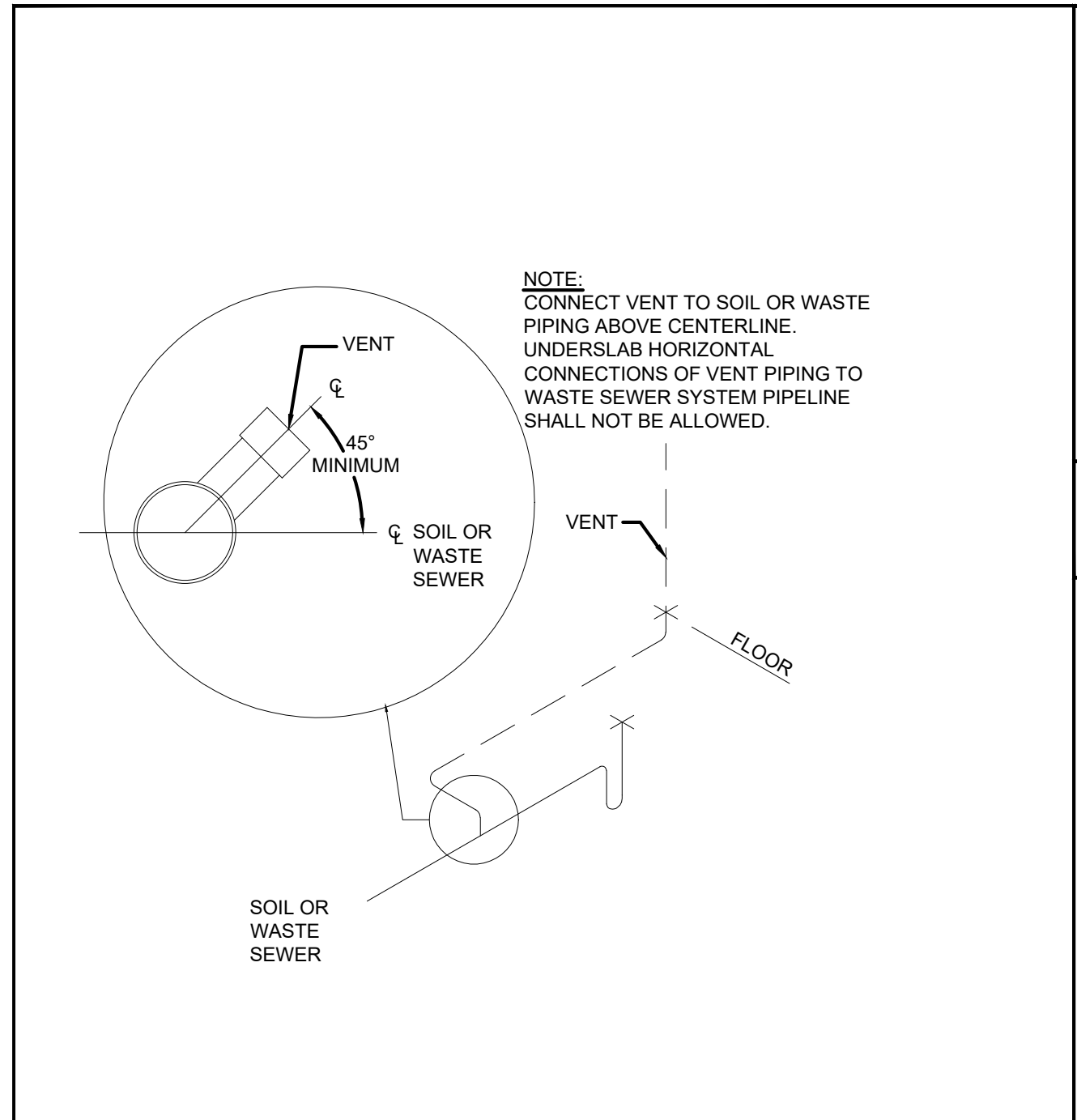
DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

07/14/2025 IFC SET  
 05/29/2025 REVISION 1  
 05/16/2025 CLIENT COMMENTS

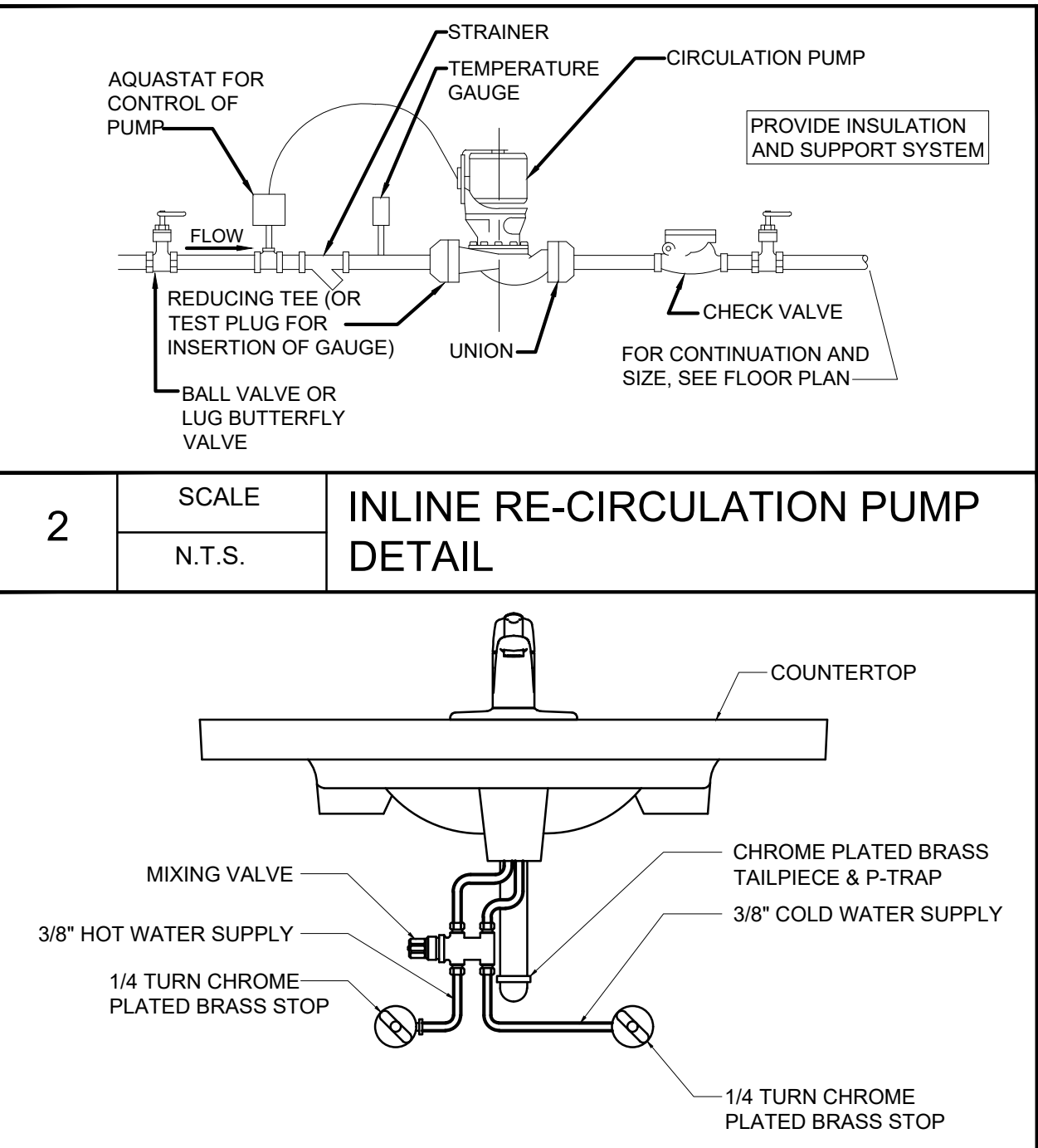
DATE	REVISION

**PROJECT INFORMATION:**  
 PROJECT NUMBER: 12115-24  
 DRAWN BY: NYE  
 REVIEWED BY: NYE  
 TOTAL SQ. FT.: 3,519  
 DATE: 04/25/25

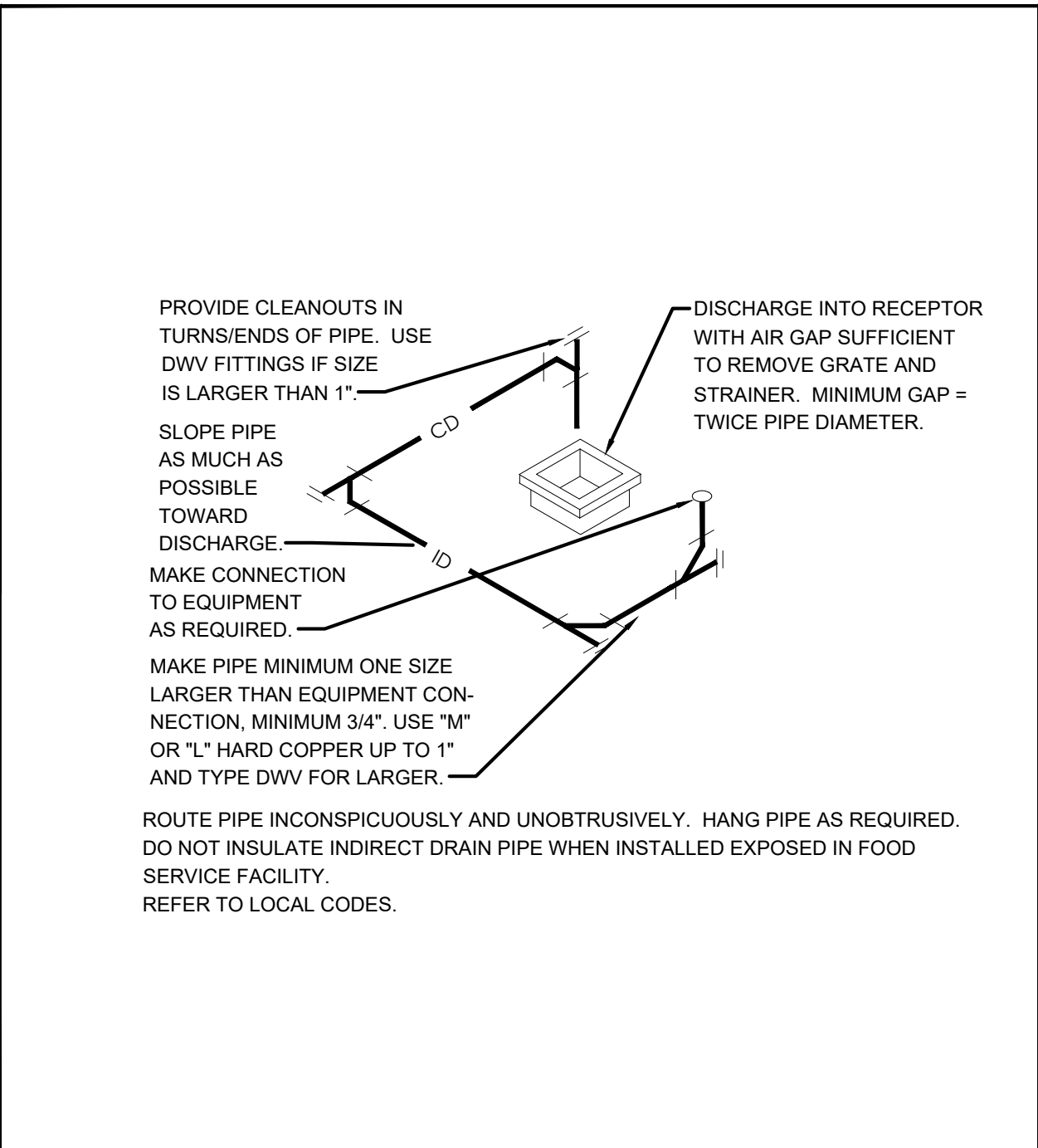
**DRAWING TITLE:**  
 PLUMBING WATER SUPPLY, GAS FLOOR PLAN & RISER DIAGRAM  
**DRAWING NUMBER:**  
 P-2.0



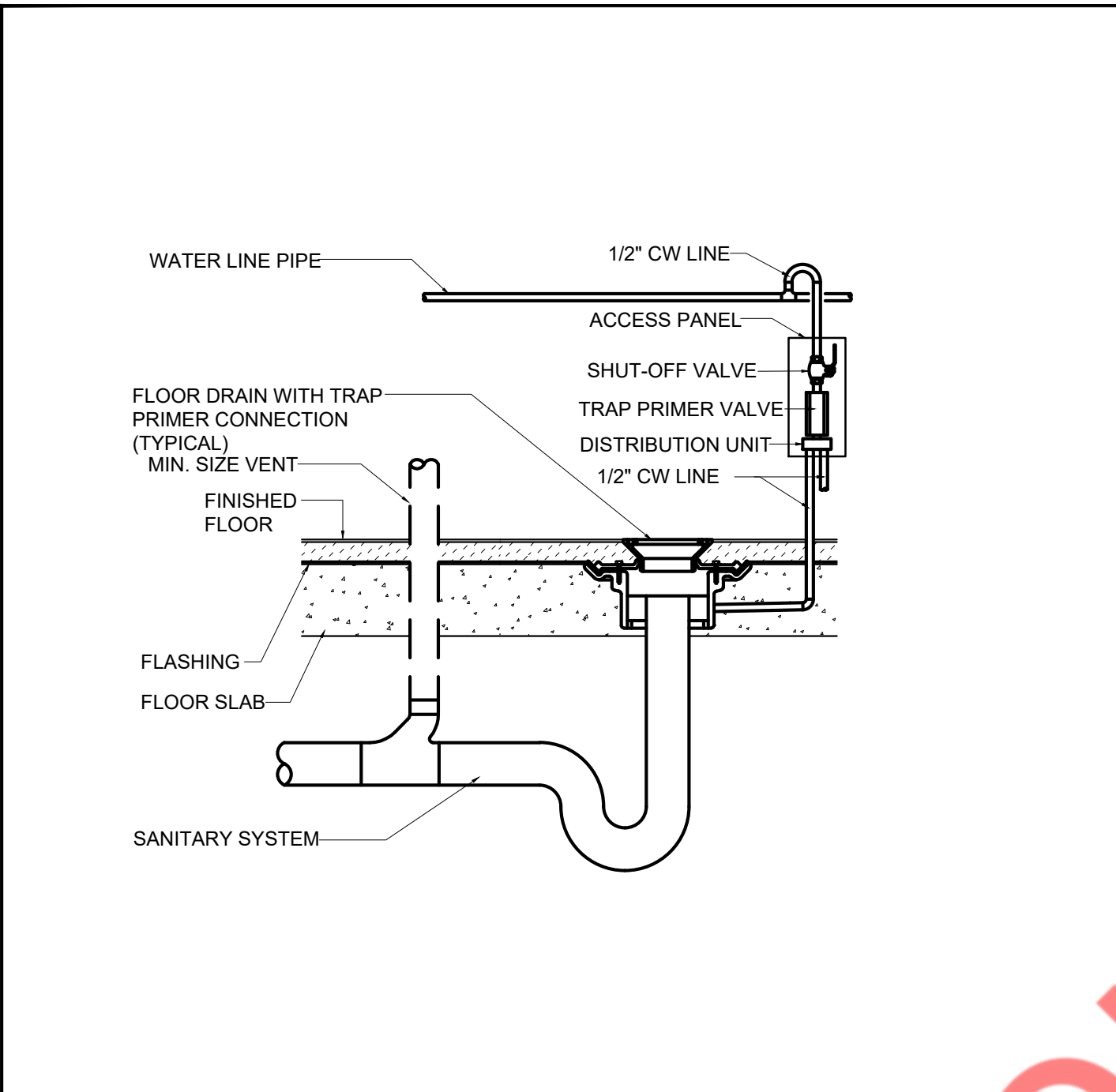
1 SCALE N.T.S. VENT PIPING INSTALLATION



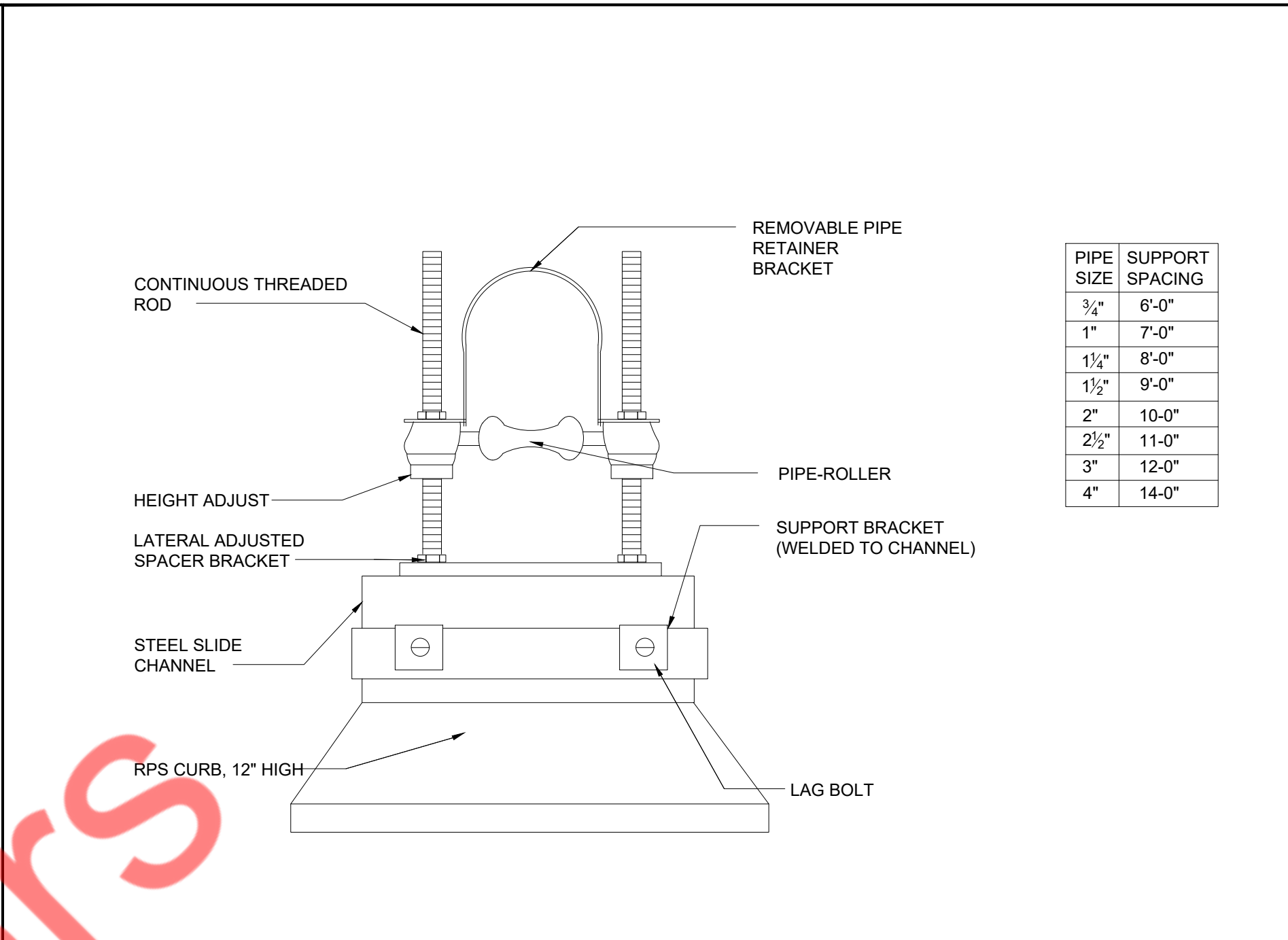
2 SCALE N.T.S. INLINE RE-CIRCULATION PUMP DETAIL



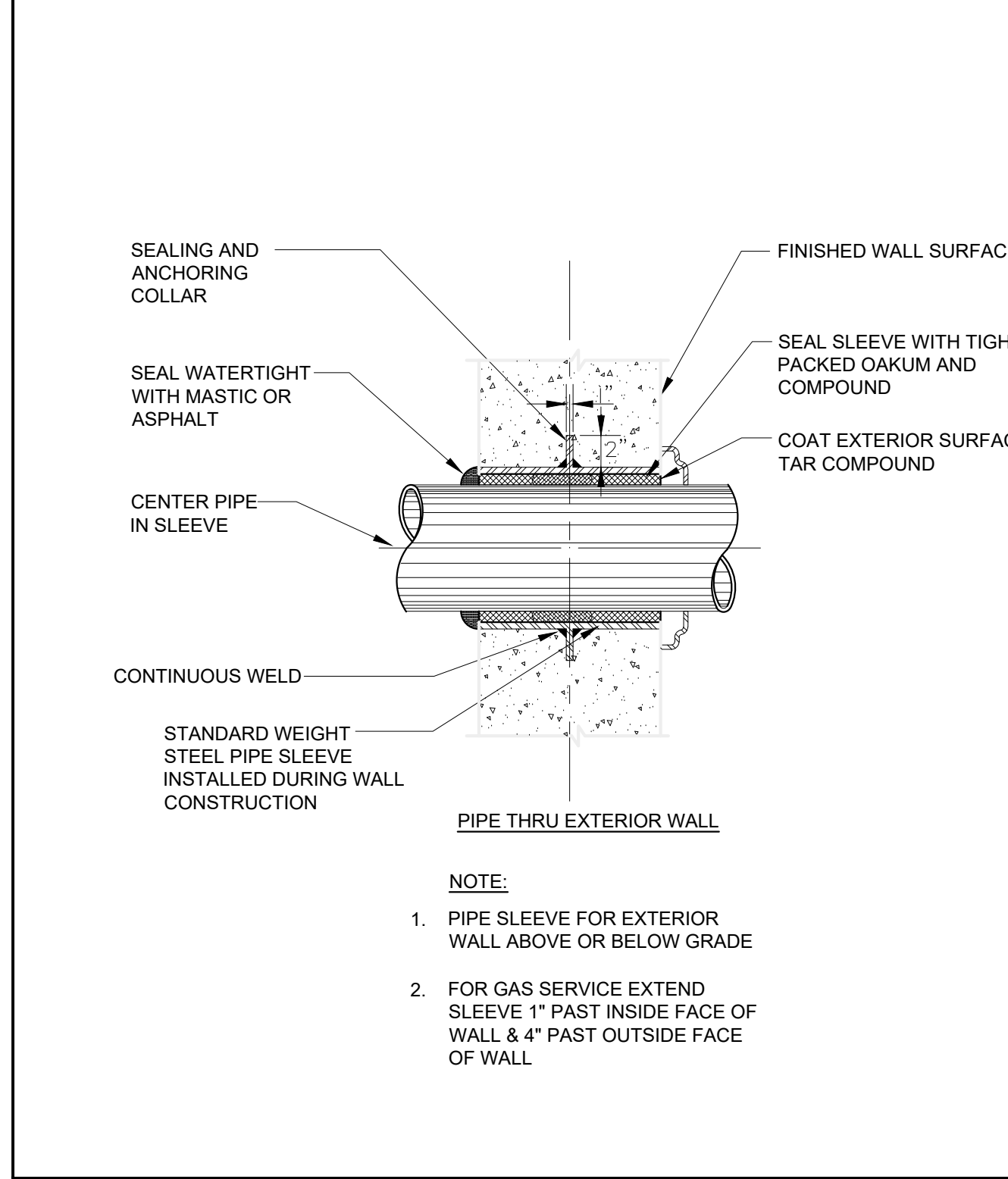
4 SCALE N.T.S. INDIRECT CONDENSATE DRAIN DETAILS



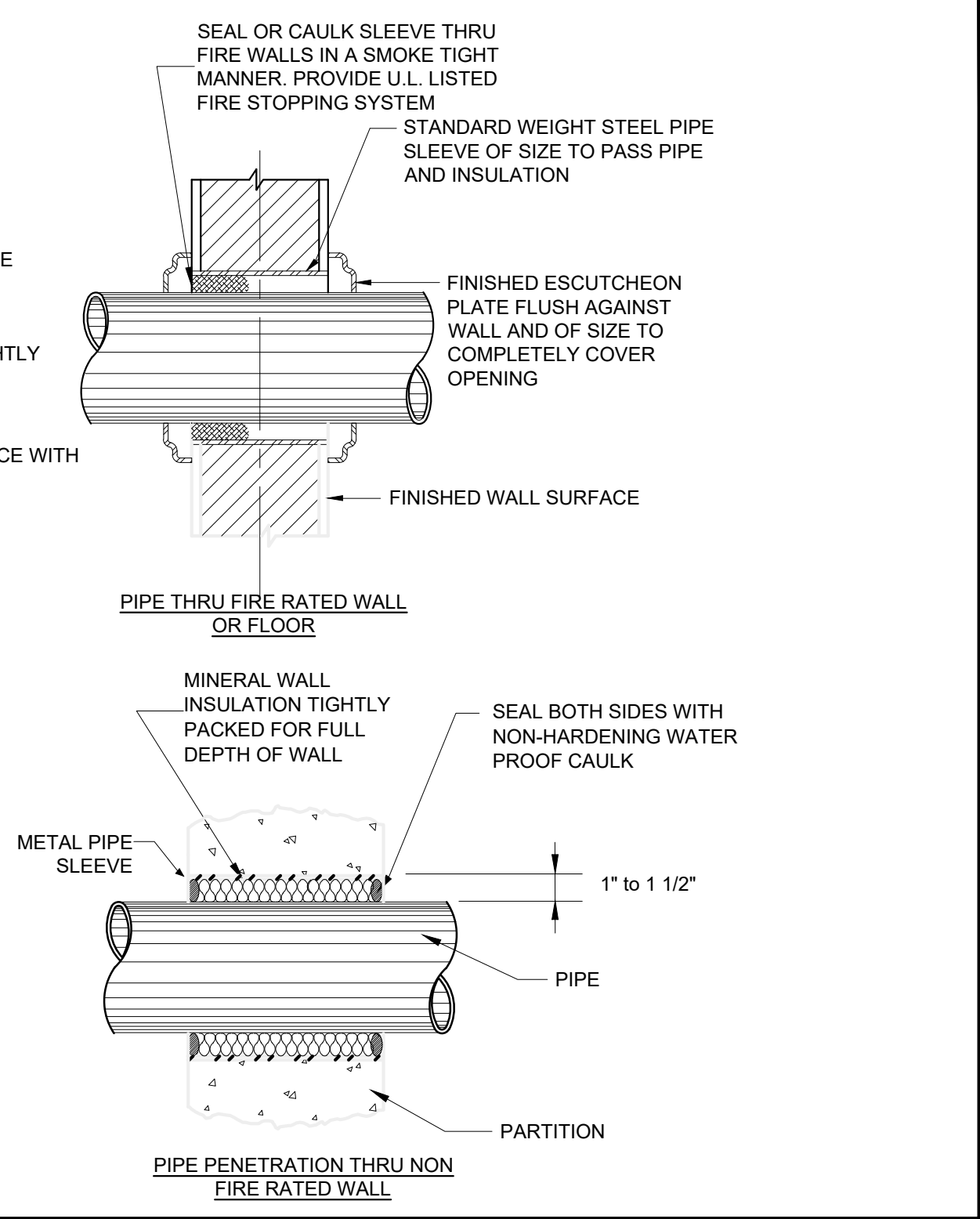
5 SCALE N.T.S. FLOOR DRAIN WITH TRAP PRIMER



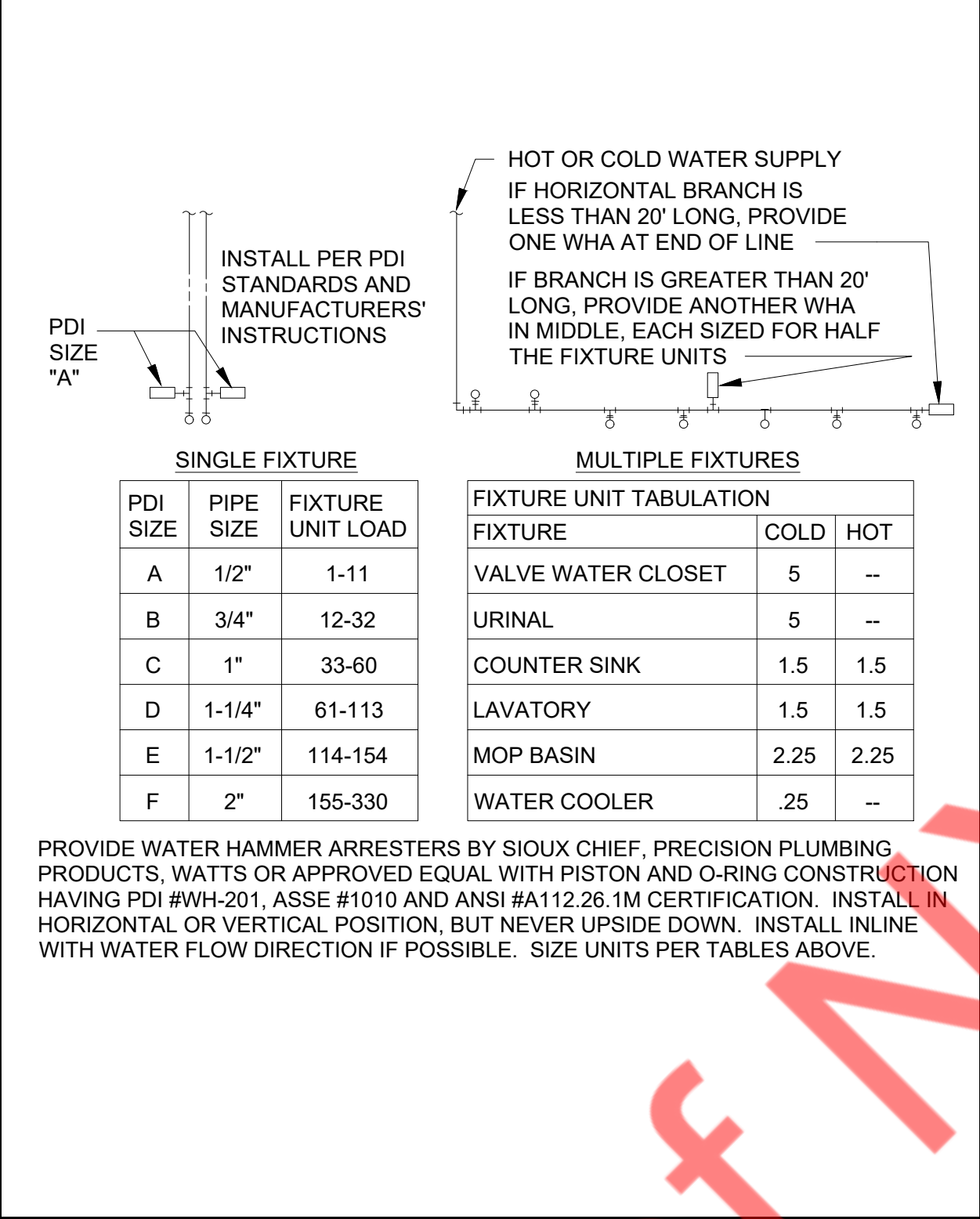
6 SCALE N.T.S. ROOF PIPE SUPPORT DETAIL



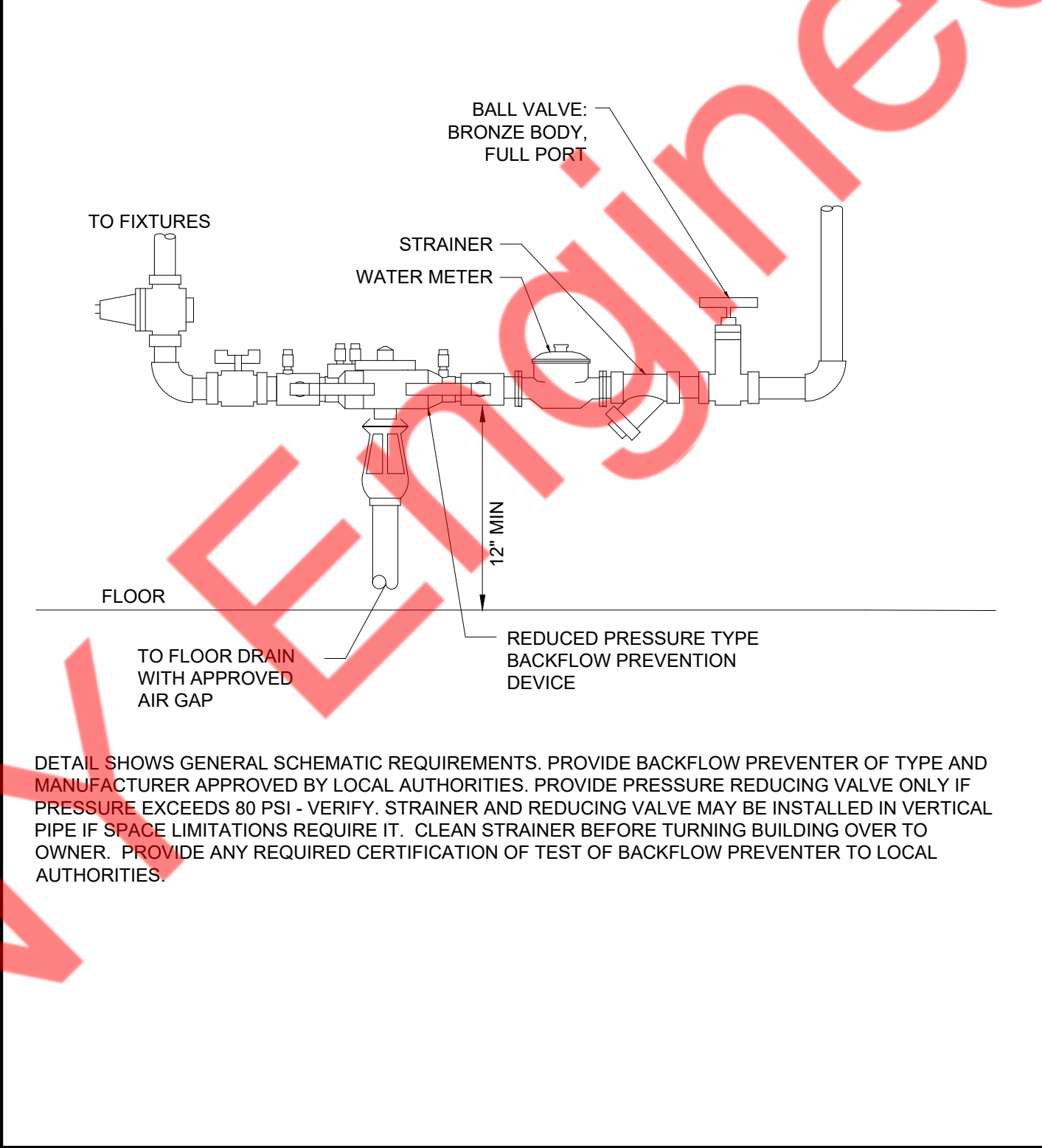
7 SCALE N.T.S. PIPE SLEEVE THROUGH WALL SECTION



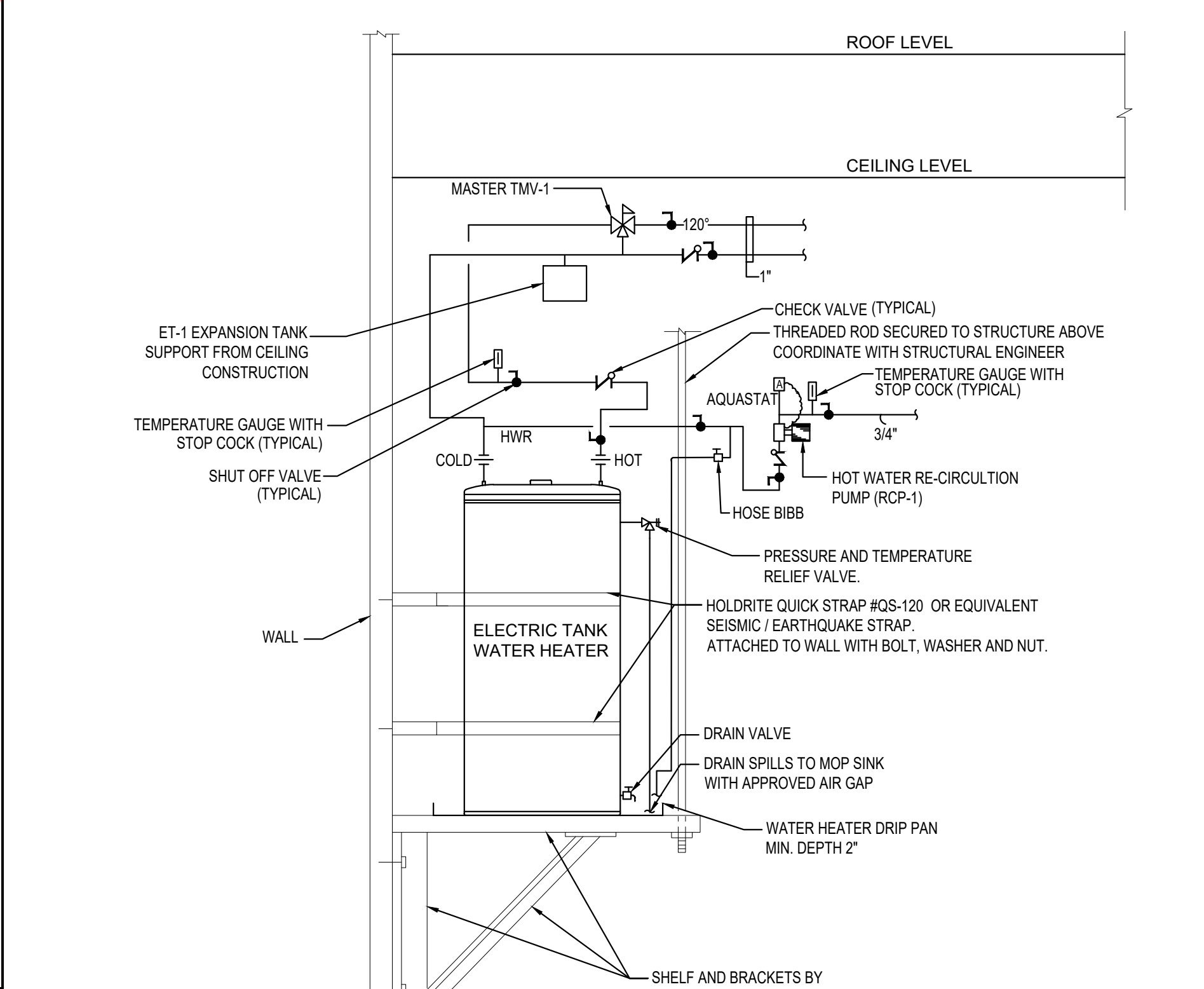
8 SCALE N.T.S. WATER HAMMER ARRESTOR



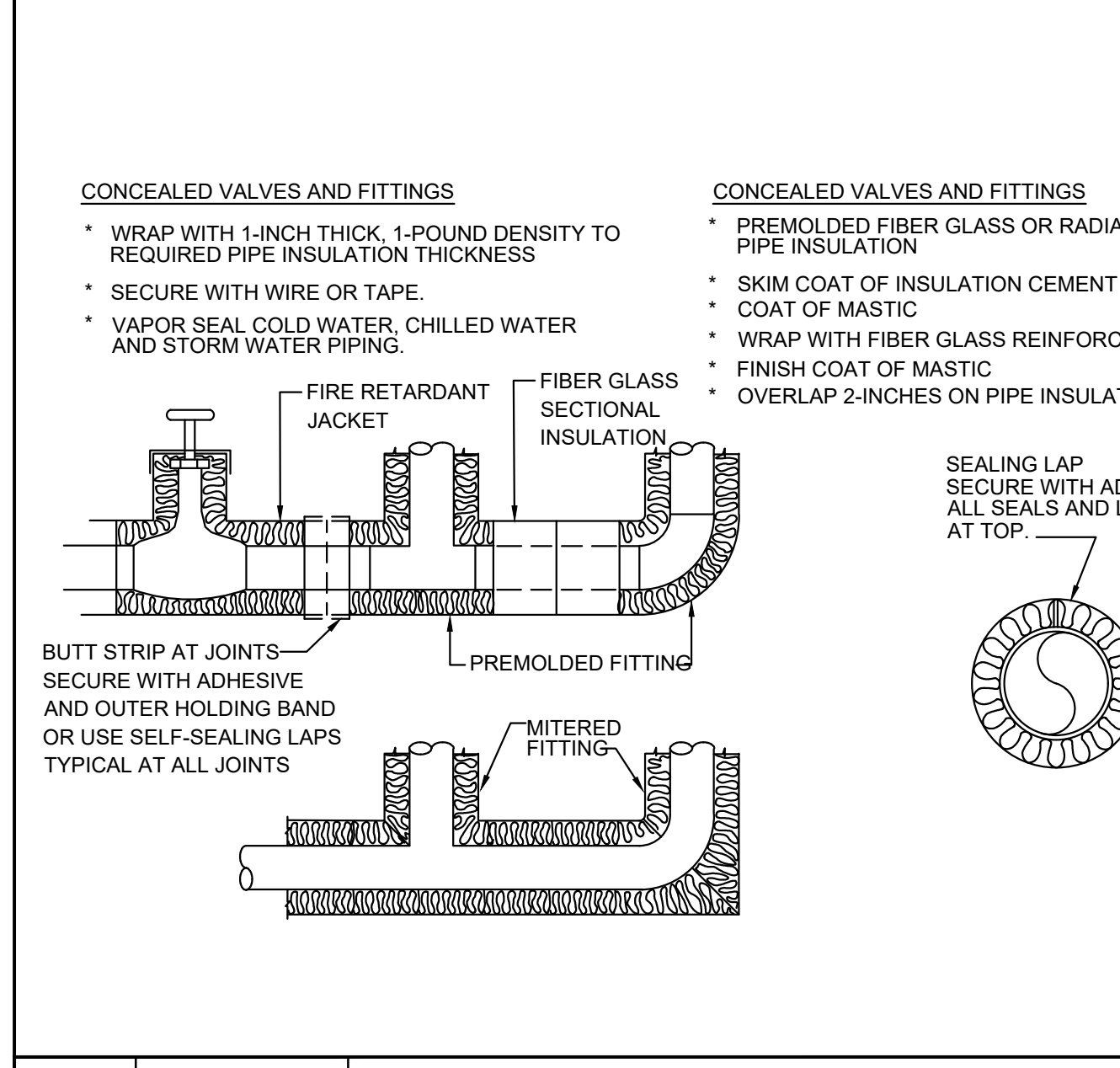
9 SCALE N.T.S. TYPICAL BACKFLOW PREVENTER DETAIL



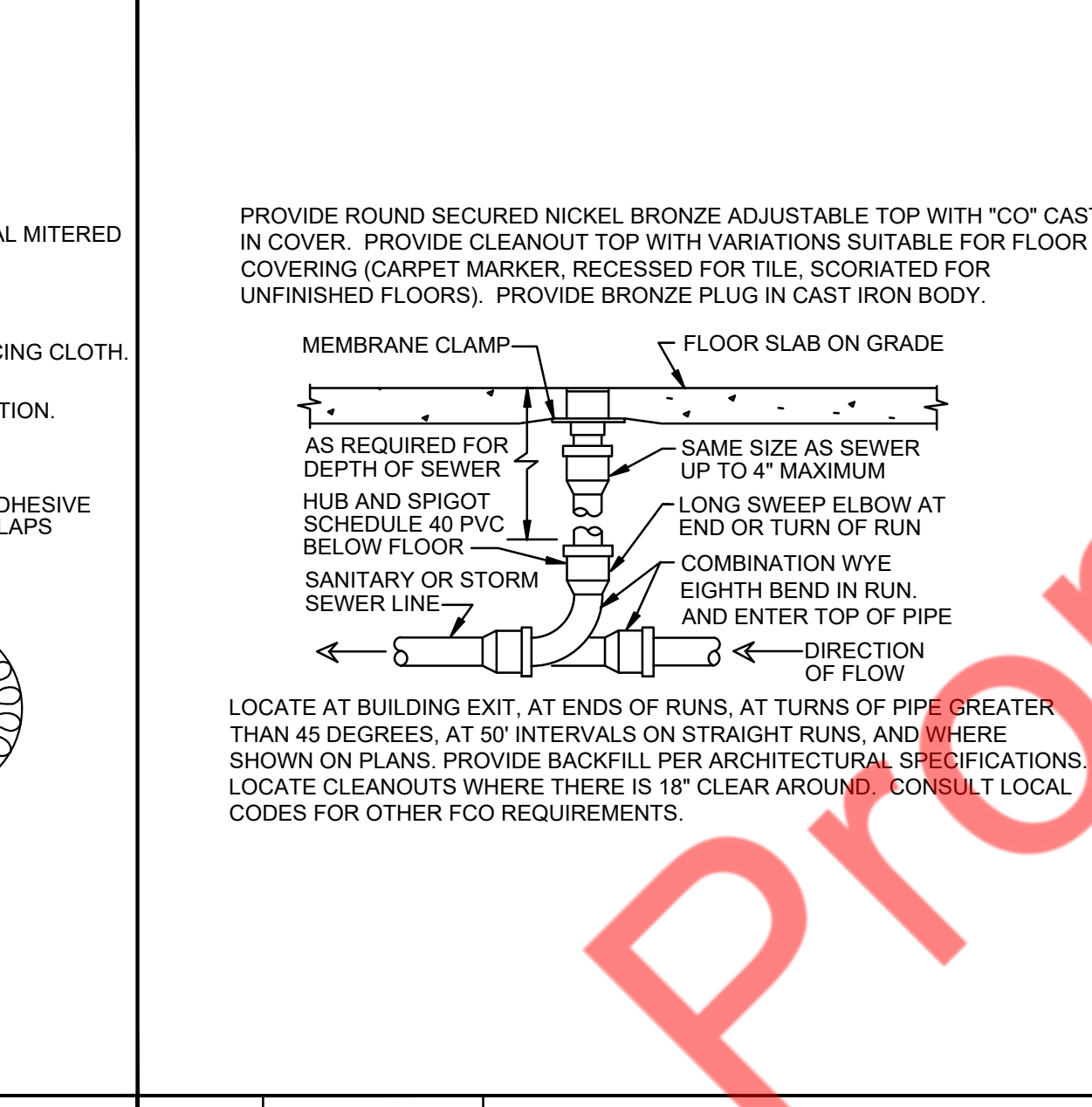
10 SCALE N.T.S. PIPE INSULATION DETAIL



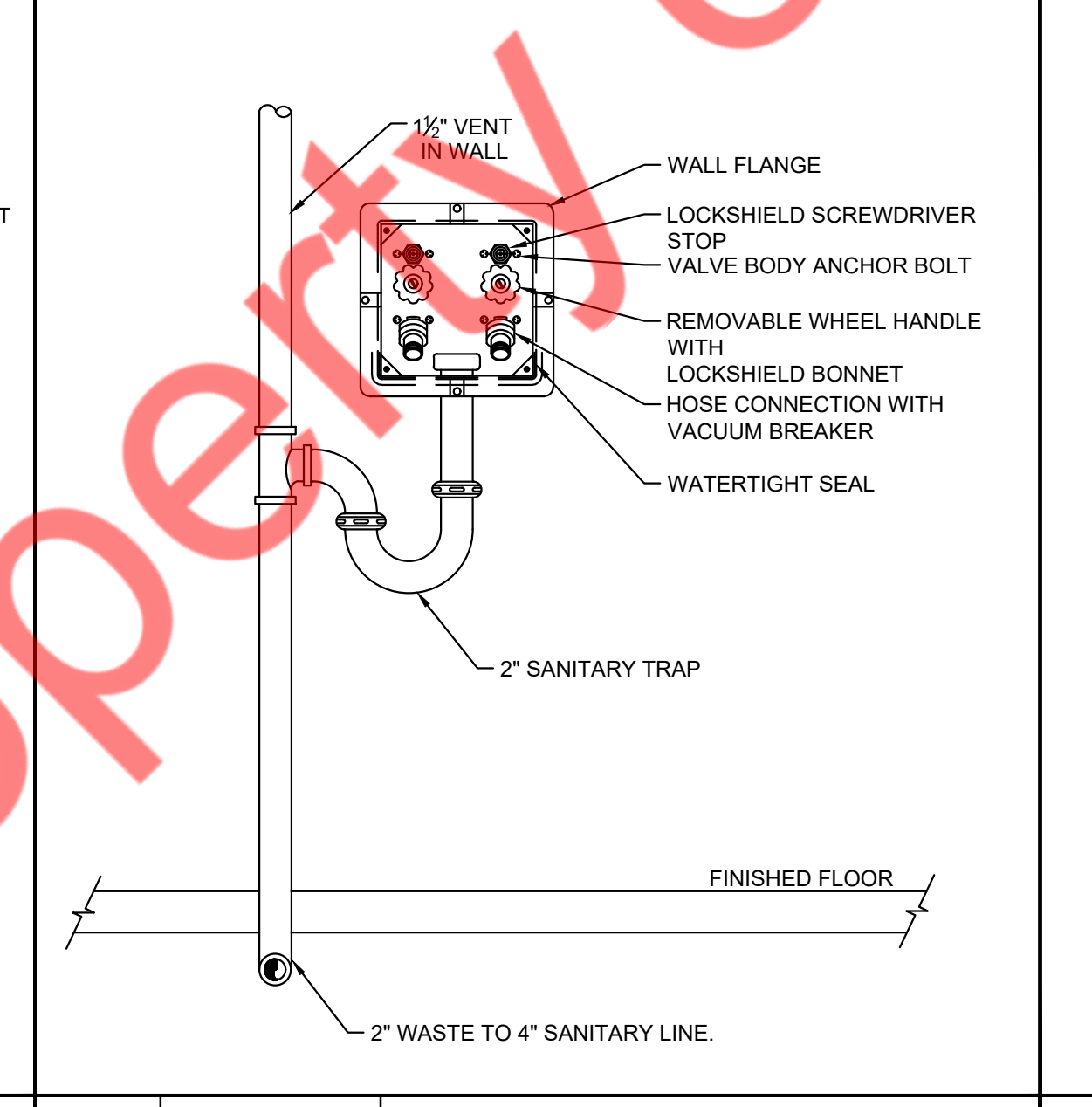
14 SCALE N.T.S. ELECTRIC WATER HEATER DETAILS



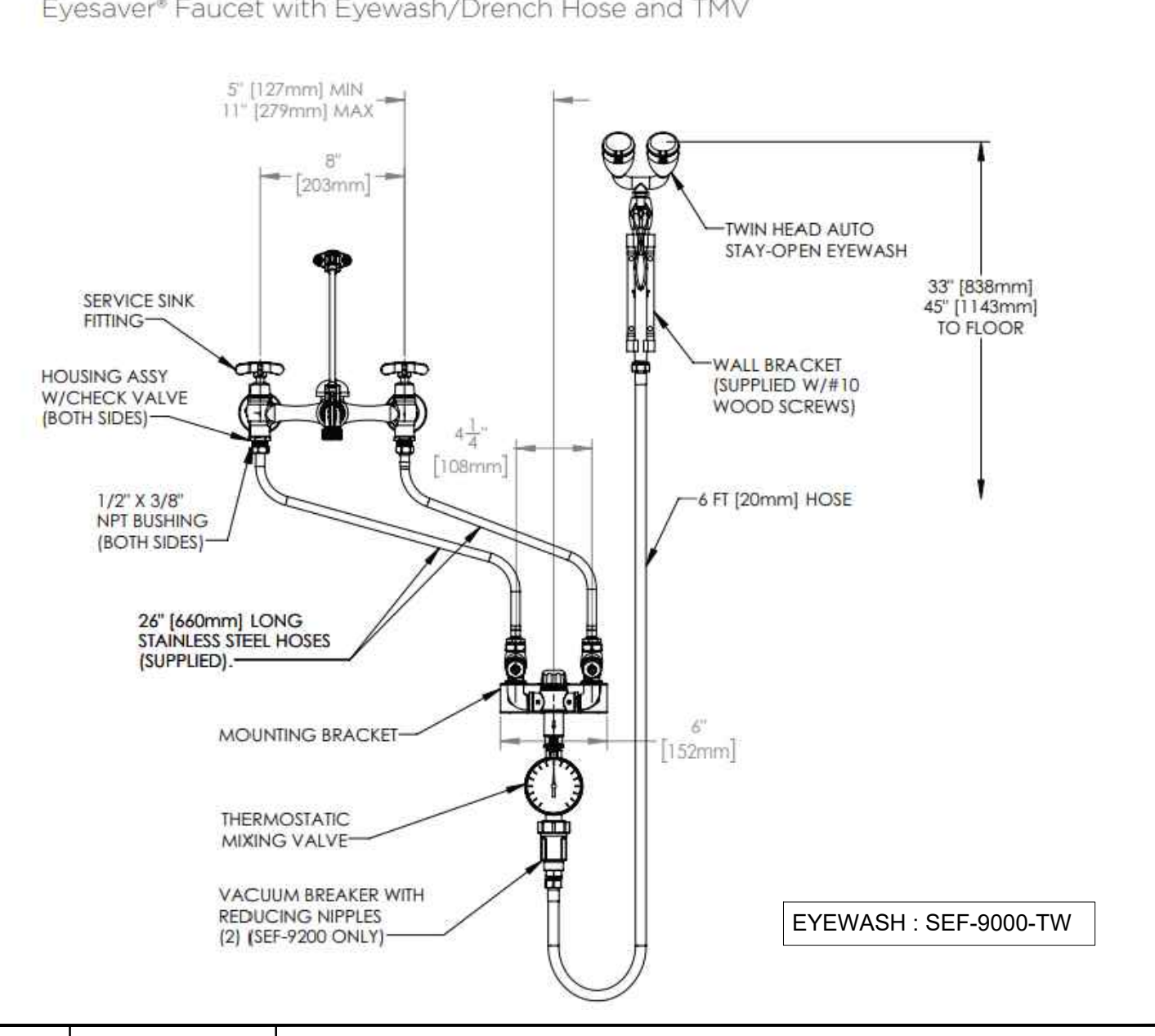
11 SCALE N.T.S. FLOOR CLEAN OUT DETAIL



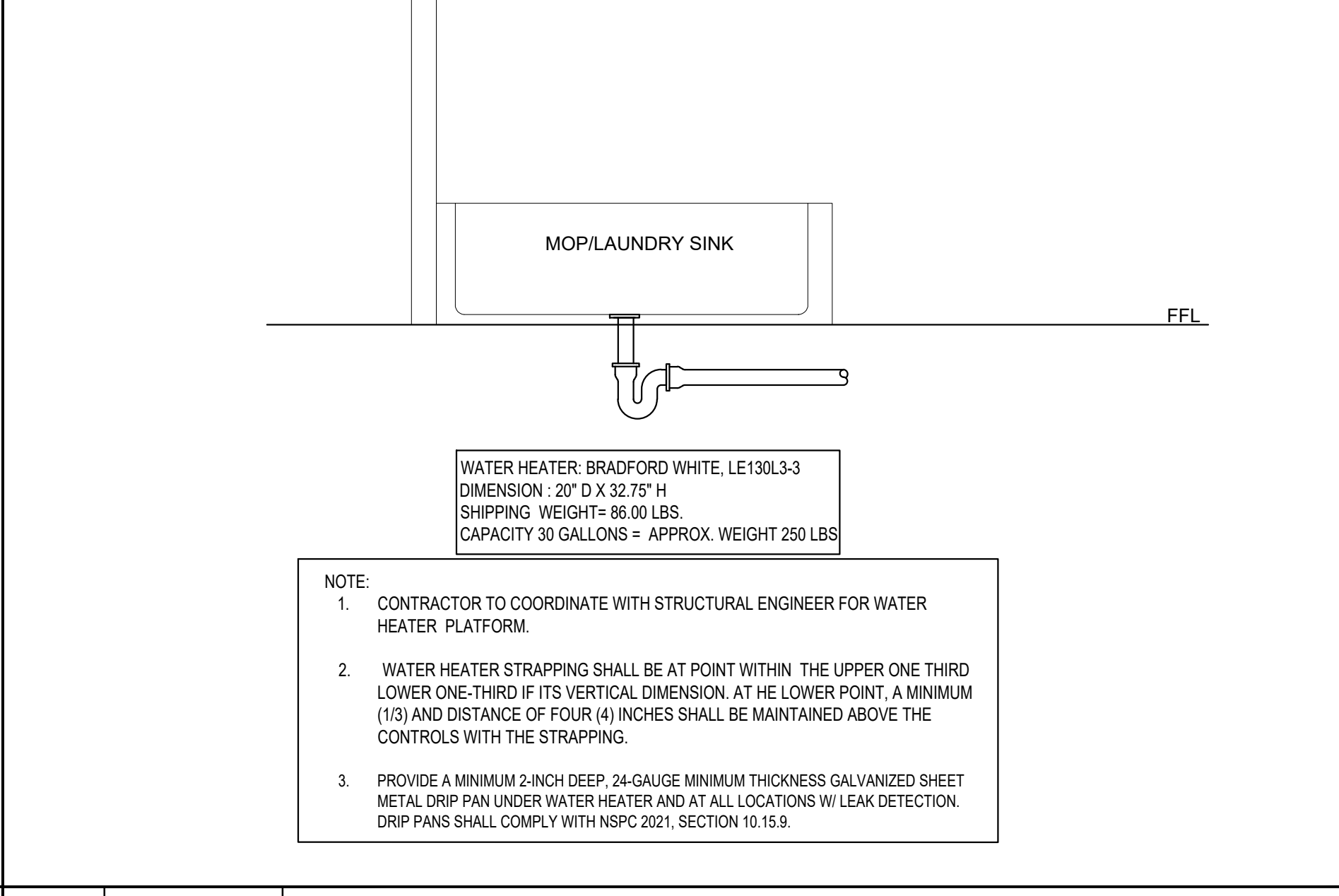
12 SCALE N.T.S. TYPICAL WASHER BOX DETAIL



13 SCALE N.T.S. EYEWASH STATION CONNECTION DETAIL



15 SCALE N.T.S. WALL CLEAN OUT DETAIL



16 SCALE N.T.S. GAS CONNECTION AT RTU DETAIL

CONSULTANT (ENGINEER)  
**NY ENGINEERS**  
 NEARBY ENGINEERS  
 382 NE 191ST STREET SUITE  
 49674, MIAMI, FL 33179  
 PH-914.257.3455  
 WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY. LICENSE NO. 262696910. EXPIRATION DATE: 04/30/2026

CONTRACTOR'S NOTES:  
 WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS WILL NOT BE APPROVED FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

DATE	ISSUE
02/21/25	90% PERMIT SET
04/25/25	100% PERMIT SET

07/14/2025 IFC SET  
 05/29/2025 REVISION 1  
 05/16/2025 CLIENT COMMENTS

PROJECT INFORMATION:
PROJECT NUMBER: 12115-24
DRAWN BY: NYE
REVIEWED BY: NYE
TOTAL SQ. FT.: 3,519
DATE: 04/25/25

DRAWING TITLE:  
**PLUMBING DETAILS SHEET**

DRAWING NUMBER:  
**P-3.0**

PROJECT: VIO MED SPA LOCATION: N. BRUNSWICK, NJ PLT SCALE: 1:1