

# MECHANICAL GENERAL NOTES

## A. GENERAL CONDITIONS

- DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS (IF PROVIDED AS PART OF THE CONTRACT) ARE A PART OF THIS CONTRACT.
- THE TERM "CONTRACTOR" SHALL MEAN THE "MECHANICAL CONTRACTOR HIRED TO COMPLETE THE WORK OUTLINED IN THESE PLANS AND SPECIFICATIONS", UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR FOR THIS WORK IS REQUIRED TO REVIEW ALL DRAWINGS FOR ALL OTHER TRADES.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THEIR SUBCONTRACTORS WITH A FULL SET OF DOCUMENTS INCLUDING SPECIFICATIONS AND MUST COORDINATE ITS WORK AND INSPECTIONS AND THE WORK AND INSPECTION OF THEIR SUBCONTRACTORS WITH ALL OTHER TRADES ON SITE TO CONFORM WITH THE GENERAL CONTRACTOR'S TIME SCHEDULE.

BY SUBMITTING A QUOTATION OR PROPOSAL, THE MECHANICAL CONTRACTOR EXPRESSLY STATES AND WARRANTS THAT ALL DRAWINGS AND SPECIFICATIONS HAVE BEEN THOROUGHLY REVIEWED, AND THAT THIS CONTRACTOR HAS BECOME FAMILIARIZED WITH JOB SITE CONDITIONS AND IS TOTALLY QUALIFIED TO PERFORM ALL OF THE WORK REQUIRED.

BEFORE SUBMITTING A FINAL PROPOSAL, THE CONTRACTOR SHALL EXAMINE THE SITE OF THE PROPOSED WORK TO DETERMINE THE EXISTING CONDITIONS THAT MAY AFFECT THE PROPOSAL. IF DISCREPANCIES ARE NOTED BETWEEN THE DOCUMENTS AND THE EXISTING CONDITIONS THE ARCHITECT SHALL BE NOTIFIED AND THE CONTRACTOR SHALL RECEIVE CLARIFICATION BEFORE SUBMITTING A BID. THE SUBMISSION OF A PROPOSAL SHALL INDICATE THAT ALL CHARGES AND COSTS MADE NECESSARY BY EXISTING CONDITIONS ARE INCLUDED AND THAT THE COMPLETE SYSTEM AS DESCRIBED HEREIN WILL BE FURNISHED AT THE PROPOSED COST.

THE HVAC SUBCONTRACTOR IS REQUIRED TO VISIT THE SITE DURING BIDDING AND VERIFY LOCATIONS OF ALL DUCTWORK AS INDICATED BY THE DRAWINGS AND MUST COORDINATE ITS WORK AND INTERSECTIONS WITH OTHER EQUIPMENTWORK (PLUMBING, SPRINKLER, ELECTRICAL, ETC.) TO BE INSTALLED AND/OR EXISTING TO REMAIN AND TO VERIFY HEIGHTS TO BE INSTALLED TO MAINTAIN DESIGNED CEILING HEIGHTS AND HEAD ROOM. ANY DISCREPANCIES BETWEEN THE DESIGNED AND ACTUAL ARE TO BE TOLD TO THE GENERAL CONTRACTOR AND BE INDICATED ON THE BID FORM.

WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURNISHED AND REVIEWED BY CONTRACTOR WITH THE EXCEPTION WHERE ITEMS ARE PROVIDED BY TENANT" SHALL BE INTERPRETED AS MEANING "FURNISHED BY TENANT (INSTALLED BY CONTRACTOR), EXCEPT WHERE NOTED OTHERWISE.

## B. GENERAL REQUIREMENTS

1. THE MECHANICAL SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT/AGENCY TO DISCUSS CODE ISSUES/ISSUES/INCREASES REGARDING THEIR SERVICES AND THE QUOTE ATTACHED TO THE GENERAL CONTRACTOR FOR THIS PROJECT. THIS CONTRACTOR SHOULD BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES/WORK WILL BE PERFORMED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS/SPECIFICATIONS.

2. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, AS CALLED FOR IN THE SPECIFICATIONS (IF SUPPLIED) AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING PROVIDED BY THE LANDLORD SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH LANDLORD AS REQUIRED. FIELD VERIFY THE EXACT TYPE, SIZE, LOCATION, REQUIREMENTS, ETC. OF EXISTING EQUIPMENT, MATERIALS AND DUCTS SERVING THE TENANT SPACE PRIOR TO SUBMISSION OF BID.

3. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS BUT WHICH IS NECESSARY TO COMPLETE THE WORK OR WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF THE CONTRACT.

4. WHERE THE DRAWINGS AND / OR SPECIFICATIONS CALL FOR ITEMS THAT EXCEED CODES OR THE LANDLORD'S TENANT CRITERIA THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING THE COMPLETE SYSTEM AS DESIGNED AND DESCRIBED ON THE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

5. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH DETAILED REQUIREMENTS OF LEASE EXTRACTS FROM THE LANDLORD AND TENANT.

6. COORDINATE LOCATIONS OF ALL AIR OUTLETS WITH ALL WALLS, LIGHTS, SPRINKLER HEADS, CEILING TILES AND DECORATIVE ITEMS PRIOR TO INSTALLATION.

7. ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATION, SERVICE, MAINTENANCE AND REPAIR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUFFICIENT ACCESS TO ALL EQUIPMENT FOR SERVICE.

8. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING, OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THE CONTRACT. CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER AND THE LANDLORD OR LANDLORD'S REPRESENTATIVE. PATCHING SHALL MATCH FINISH OF SURROUNDING AREA.

## C. CODES

1. ALL WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER USING GOOD CONSTRUCTION PRACTICES. ALL WORK SHALL CONFORM TO THE LATEST ADOPED EDITION OF THE LANDLORD'S CRITERIA, THE STATE, COUNTY AND LOCAL CODES AND ORDINANCES; THE LATEST EDITIONS OF ASHRAE STANDARDS; THE LIFE SAFETY CODE; THE APPLICABLE BUILDING CODE; UNDERWRITERS LABORATORIES; THE NATIONAL ELECTRICAL CODE; NFPA 70, 90A, AND 96; AND ALL OTHER APPLICABLE CODES AND REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY APPLICABLE CODES THAT BE INCLUDED IN THE BID. AFTER THE CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE TENANT TO THE CONTRACTOR.

2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS AND FEES REQUIRED OR RELATED TO THIS WORK.

3. FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

## D. DRAWINGS

1. DRAWINGS (PLANS AND SPECIFICATIONS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE MECHANICAL CONTRACTOR MUST OBTAIN APPROVED CONSTRUCTION DRAWINGS FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.

2. THE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK, FOR MAKING ALL SUCH MODIFICATIONS AND CHANGES, INCLUDING THOSE INVOLVING OTHER TRADES WITH THE COST THEREOF INCLUDED IN THE BID. IN SUCH CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL OF THE CHANGES FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.

## E. EXISTING LEASE SPACE CONDITIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING MECHANICAL WORK IN THE SPACE NOT SHOWN TO BE REUSED IN THE NEW TENANT SPACE.

2. THE CONTRACTOR SHALL INCLUDE, AND WILL BE HELD RESPONSIBLE FOR, THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, DUCTWORK, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. CONTRACTOR MUST VERIFY WITH THE LANDLORD ALL PREVIOUSLY ABANDONED EQUIPMENT, PIPING, DUCTWORK AND EQUIPMENT NOTED TO BE REMOVED. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED UNLESS NOTED FOR REUSE OR RECONFIGURATION ON PLANS. ROOF PATCHING SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE BY A ROOFING CONTRACTOR APPROVED BY THE LANDLORD. ALL EXISTING ITEMS TO BE REMOVED FROM THE SPACE OR ON THE ROOF ABOVE THIS SPACE NOT APPLICABLE TO THE NEW WORK OR PART OF THE LANDLORD'S OR ANOTHER TENANT'S ACTIVE SYSTEM MUST BE REMOVED AND ROOF / WALLS / FLOORS MUST BE PATCHED / REPAIRED TO MATCH THE EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE OR OTHERWISE UNREMOVABLE ARE TO BE CUT OFF AND TO BE SEALED BELOW WITH FLOOR OR WALL LEVEL, WHEN THEY ARE NOT REUSED IN THIS PROJECT.

3. IF REQUIRED BY THE LANDLORD OR CODES, ABANDONED PIPING AND / OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN, CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.

4. ACTIVE LANDLORD OR OTHER TENANT SERVICES ENCOUNTERED IN WORK SHALL BE PROTECTED AND SUPPORTED. IF EXISTING SERVICES NOT ANTICIPATED REQUIRE RELOCATION, CONTACT THE TENANT'S CONSTRUCTION MANAGER IMMEDIATELY. ALL COSTS FOR REPAIR OF DAMAGES TO ACTIVE LANDLORD OR OTHER TENANT SERVICES DURING CONSTRUCTION SHALL BE PAID FOR BY THE CONTRACTOR CAUSING THE DAMAGE.

5. TIENS AND MODIFICATIONS TO EXISTING LANDLORD SERVICES MUST BE DONE WITH MINIMUM INTERRUPTION OF LANDLORD OPERATION AND DURING HOURS SPECIFIED BY THE LANDLORD. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING EXACT WORKING HOURS OF THIS WORK WITH THE LANDLORD PRIOR TO SUBMITTING THEIR BID. THE CONTRACTOR SHALL INCLUDE IN THEIR BID ALL PREMIUM TIME REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SUCH WORK MUST BE COORDINATED WITH THE LANDLORD.

6. EQUIPMENT AND MATERIALS IN TRANSIT SHALL UTILIZE FREIGHT ELEVATOR OR STAIRS. SAID EQUIPMENT OR MATERIALS SHALL BE DISASSEMBLED AS REQUIRED TO MEET THE RESTRICTIONS IMPOSED BY THE BUILDING OR ITS COMPONENT CONSTRAINTS AND THEN REASSEMBLED IN THE NEW WORK AREA.

7. ALL WORK SHALL BE DONE WITH A MINIMUM OF NOISE AND DISTURBANCE TO BUSINESS ROUTINE. ALL WORK SCHEDULE SHALL BE COORDINATED WITH, AND APPROVED BY, THE TENANT'S CONSTRUCTION MANAGER.

8. SINCE THESE ARE SECURE FLOORS ALL DELIVERIES, WORKERS, WORK OPERATORS, ETC., REQUIRED BY THE CONTRACTOR FOR WORK PERFORMED IN ANY AREA OR SITE BUILDING SHALL BE IN STRICT CONFORMANCE TO THE RULES AND REGULATIONS OF THE OWNER.

9. CONTRACTOR SHALL PROTECT THEIR WORK AND EQUIPMENT FROM DAMAGE, VANDALS, ETC. ANY ITEM THAT IS DAMAGED, VANDALIZED OR STOLEN PRIOR TO ACCEPTANCE OF BUILDING BY OWNER AND ARCHITECT SHALL BE REPLACED BY RESPECTIVE CONTRACTOR AT NO CHARGE TO TENANT.

10. IT IS SPECIFICALLY THE INTENTION OF THIS SPECIFICATION TO HOLD THE CONTRACTOR RESPONSIBLE FOR ALL DAMAGE DONE TO ANY EXISTING FACILITIES, EQUIPMENT, PAINTING, OR ARCHITECTURAL AND STRUCTURAL FEATURES OF THE BUILDING, BY EITHER THEIR OWN WORKMEN OR BY ANY OF THEIR SUBCONTRACTORS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY THEIR OWN WORKMEN OR SUBCONTRACTORS AND THE OWNER AT THEIR DISCRETION, MAY WITHHOLD PAYMENTS EQUAL TO THE REASONABLE COST OF THE REPAIRS.

11. THIS CONTRACTOR OR THEIR WORKMEN SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING BUILDING AS A SHOP WITHOUT THE APPROVAL OF THE OWNER AND ARCHITECT.

12. WHERE THE WORK MAKES TEMPORARY SHUTDOWN OF SERVICES UNAVOIDABLE, THEY SHALL BE MADE AT NIGHT OR AT SUCH TIMES AS WILL CAUSE THE LEAST INTERFERENCE WITH THE ESTABLISHED OPERATING ROUTINE.

13. THIS CONTRACTOR SHALL ARRANGE THE WORK SO AS TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTION TO THE EXISTING WORK. THIS CONTRACTOR SHALL GIVE AMPLE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUT DOWN.

14. ALL MOTORS, FANS, CONTROLS, FIXTURES, HVAC UNIT, DUCTWORK AND OTHER EQUIPMENT FOR USE IN UNFINISHED AREAS SHALL BE PROTECTED BY TARPULIN OR BY BOXING AS SOON AS DELIVERED TO THE SITE AND SHALL BE KEPT CLEAN AND DRY. THE MOTORS, UNITS, FIXTURES, FANS, DUCTWORK AND MOVING PARTS SHALL BE KEPT COVERED SO AS TO ELIMINATE DIRT, DUST AND OTHER MATERIALS ENTERING THE PARTS' FACTORY MAINTENANCE. CONSTRUCTION WORK ON THE BUILDING SHOULD IT BE FOUND THAT ANY PARTS ARE DAMAGED DUE TO CARELESSNESS ON THE PART OF THE CONTRACTOR NOT PROVIDING PROPER PROTECTION. SUCH PARTS OR PARTS SHALL BE REPAIR COATED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE. ALL OPENINGS IN DUCTS, PIPING, CONDUITS, ETC., SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT ALL TIMES.

15. THE CONTRACTOR, IN REGARDS TO ANY SAWCUTTING, COREDRILLING OR ANY PENETRATING OF A CONCRETE SLAB, FLOOR AND/OR ROOF, IS REQUIRED TO SURVEY DURING BIDDING TO DETERMINE ANY ISSUES, INCLUDING BUT NOT LIMITED TO, NECESSITY OF KARVING, OR ANY OTHER WHERE SUCH MATERIAL BEING PENETRATED IS NOT PROJECTED AND/OR ROUTED INTO A SPACE(S) THAT CREATES A NEW OBSTACLE TO THE NEED FOR WEATHERPROOFING, WATERPROOFING OR OTHER CONDITION AND TO NOTIFY THE OWNER (IF A PROBLEM) MAY EXIST AND TO INCLUDE COSTS TO SOLVE THE ISSUE UNCOVERED. IN ADDITION TO, NOTIFYING THE ARCHITECT OF RECORD REGARDING SUCH ISSUES.

## G. DISCREPANCIES IN DOCUMENTS

1. DRAWINGS (PLANS, SPECIFICATIONS AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWING, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE GENERAL CONTRACTOR IN WRITING, PRIOR TO SUBMITTAL OF BID. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ADVISE THE TENANT'S CONSTRUCTION MANAGER IN WRITING OF VARIATIONS TO THE CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, TENANT'S CONSTRUCTION MANAGER INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

## H. TRADE NAMES AND MANUFACTURERS

1. WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM STANDARD FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUIVALENT OR BETTER IN ALL RESPECTS TO THAT SPECIFIED WILL BE SUBJECT TO THE TENANT'S CONSTRUCTION MANAGER IN WRITING OF VARIATIONS PRIOR TO ACCEPTANCE. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

## I. SHOP DRAWINGS

1. SUBMIT THREE COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT SHOWN AS ROUND ABOVE A CEILING SHALL BE LONGITUDINAL SEAM DUCT AND SPIRAL, WHERE EXPOSED, OR AS SHOWN ON THE DRAWINGS.

2. ALL DUCTWORK SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SMACHA LOW VELOCITY AND HIGH DUCT CONSTRUCTION STANDARDS MANUAL. LATEST EDITION AND ASHRAE USINS PRIME SHEETS OF GALVANIZED STEEL, CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, THE ROD APPLICATIONS AND JOINT TYPES AND INTERVALS. ALL SQUARE ELBOWS SHALL BE PROVIDED WITH DOUBLE WELDED JOINTS ON MAXIMUM 3 CENTERS. PROVIDE SEAL CLASS "C" ON ALL TRANSVERSE JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE RIGID AND LEAK FREE ASSEMBLIES.

3. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ANY DUCTWORK INSTALLED IS TO BE COMPLETELY SEALED UP ON ANY OPENINGS, EITHER AT THE BEGINNING OR END OF A DUCT RUN OR AT A BRANCH. COLLAR OFFENSIVE OR REGISTER TO AVOID DIRT OR OTHER CONTAMINANTS FROM ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTENANCE MANUALS LEFT ON SITE AT JOB COMPLETION.

4. BY SUBMITTING SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND SIMILAR SUBMITTALS, THE CONTRACTOR REPRESENTS TO THE CLIENT AND ARCHITECT THAT THE CONTRACTOR HAS (1) REVIEWED AND APPROVED THE DRAWINGS AND SUBMITTALS ON ANY AND ALL EQUIPMENT, DUCT, DAMPERS, MEASUREMENTS AND FIELD CONSTRUCTION CRITERIA RELATED THERETO, OR WILL DO SO AND (2) CHECKED AND COORDINATED THE INFORMATION CONTAINED WITHIN SUCH SUBMITTALS WITH THE REQUIREMENTS OF THE WORK AND THE CONTENTS OF THE CONTRACT DOCUMENTS.

5. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

6. THE WORK SHALL BE IN ACCORDANCE WITH APPROVED SUBMITTALS EXCEPT THAT THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY ANY APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS. THE CONTRACTOR SHALL BE SPECIFICALLY INFORMED THE CLIENT IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND

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9. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

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11. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

12. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

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16. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

17. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

18. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

19. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

20. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

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22. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

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24. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

25. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL, AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

FLANGE TYPE FRAMES MANUFACTURED FROM 16 GAUGE STEEL, PROVIDED WITH ANCHORS. ACCESS DOORS SHALL BE SUITABLE FOR INSTALLATION IN WALL OR CEILING MATERIALS SHOWN IN ROOM FINISH SCHEDULES. PROVIDE ACCESS DOORS FOR ALL CONCEALED VENTS, DAMPERS, FIRE DAMPERS, EXPANSION JOINTS, PULL BOXES, SMOKE ABSORBERS, DRAINS, MOTORS, FANS, PUMPS AND ANY OTHER ITEM REQUIRING SERVICE. DOORS IN PLASTER OR CONCRETE SURFACES SHALL BE UNDERLINED WITH REINFORCING BARS OR PLASTER FACINGS. DOORS IN CARPETED OR TILED AREAS SHALL BE RECESSED WITH THE FACING. NO ACCESS DOORS ARE REQUIRED IN 2' X 2' AND 2' X 4' LAY-IN ACOUSTIC TILE CEILING. PROVIDE COLORED PINS TO DENOTE ACCESS TIES. FURNISH MATERIALS ENTERING THE PARTS' FACTORY MAINTENANCE. CONSTRUCTION WORK ON THE BUILDING SHOULD IT BE FOUND THAT ANY PARTS ARE DAMAGED DUE TO CARELESSNESS ON THE PART OF THE CONTRACTOR NOT PROVIDING PROPER PROTECTION. SUCH PARTS OR PARTS SHALL BE REPAIR COATED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE. ALL OPENINGS IN DUCTS, PIPING, CONDUITS, ETC., SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT ALL TIMES.

## J. ELECTRIC MOTORS

1. FURNISH, INSTALL AND ALIGN ALL MOTORS REQUIRED FOR THIS EQUIPMENT, UNLESS THEY ARE FACTORY INSTALLED ON THE UNIT. ALL STARTERS AND ASSOCIATED WIRING AND SAFETY SWITCHES FOR SUCH MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL MEET ALL REQUIREMENTS AS DEFINED IN THE ELECTRICAL SPECIFICATIONS.

2. DESIGN, CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NEMA, ANSI, IEEE STANDARDS FOR ELECTRICAL EQUIPMENT. ALL MOTORS SHALL BE SUITABLE FOR OPERATION ON VOLTAGE VARIATION OF PLUS OR MINUS 10 PERCENT, 40 DEGREES C AMBIENT TEMPERATURE AND HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.

## K. LOW VOLTAGE (24 VOLT) WIRING

1. THE CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR THEIR EQUIPMENT. THIS WORK INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.

2. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

## L. SPECIFIC NOTES

### A. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED

1. NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. DEVIATIONS FROM DESIGN MUST BE APPROVED BY TENANT'S CONSTRUCTION MANAGER PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT SHOWN AS ROUND ABOVE A CEILING SHALL BE LONGITUDINAL SEAM DUCT AND SPIRAL, WHERE EXPOSED, OR AS SHOWN ON THE DRAWINGS.

2. ALL DUCTWORK SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SMACHA LOW VELOCITY AND HIGH DUCT CONSTRUCTION STANDARDS MANUAL. LATEST EDITION AND ASHRAE USINS PRIME SHEETS OF GALVANIZED STEEL, CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, THE ROD APPLICATIONS AND JOINT TYPES AND INTERVALS. ALL SQUARE ELBOWS SHALL BE PROVIDED WITH DOUBLE WELDED JOINTS ON MAXIMUM 3 CENTERS. PROVIDE SEAL CLASS "C" ON ALL TRANSVERSE JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE RIGID AND LEAK FREE ASSEMBLIES.

3. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ANY DUCTWORK INSTALLED IS TO BE COMPLETELY SEALED UP ON ANY OPENINGS, EITHER AT THE BEGINNING OR END OF A DUCT RUN OR AT A BRANCH. COLLAR OFFENSIVE OR REGISTER TO AVOID DIRT OR OTHER CONTAMINANTS FROM ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTENANCE MANUALS LEFT ON SITE AT JOB COMPLETION.

4. EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO 2-INCH WAVE GAUGE PRESSURE CLASSIFICATION (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE). PRESSURE TESTS DUCTS FOR LEAKAGE. REPAIR LEAKING JOINTS AND APPLY SEALANT TO ALL LEAKS. REPAIR AND REWORK AS NECESSARY. THE CONTRACTOR TO PROVIDE FIRE OR LESS AS STIPULATED BY PRESSURE CLASS RATINGS IN SMACHA STANDARDS.

5. AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8 INCH WIDE BY 3/16 INCH DEEP ON 12 INCH CENTERS TO PREVENT VIBRATIONS.

6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACHA STANDARDS. NO WOOD SHALL BE USED TO SUPPORT OR BRACE DUCTS. PROVIDE SWAY AND SERVIC BRACING AS REQUIRED BY STATE AND LOCAL CODES OR BY LANDLORD.

7. WHERE DUCTS PASS THROUGH ROOFS, FLOORS AND FIRE RATED PARTITIONS, PROVIDE AS MINIMUM 1-1/2 INCH BY 1-1/2 INCH BY 1/8 INCH STEEL ANGLE FRAMES AT EACH SIDE OF OPENING. THE ANNUAL SPACE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CAULKED WITH SILICONE SEALANT OR FIREPROOFING AS REQUIRED BY THE ASSEMBLY FIRE RATING. CONTRACTOR TO PROVIDE FIRE OR COMBINATION FIRE / SMOKE DAMPERS AT EACH PENETRATION WHERE REQUIRED BY CODE.

8. ALL TRANSVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR-TIGHT WITH DAP CMC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.

9. SOFT ELASTOMER BUTYL GASKETS WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.

10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

11. PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, FIRE / SMOKE DAMPERS, CONTROLS AND OTHER ITEMS IN DUCTWORK THAT REQUIRE SERVICE OR INSPECTION. IF THE ACCESS PANEL LOCATION IS EXPOSED TO THE SALES AREA, IT MUST BE APPROVED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO INSTALLATION. LAY-IN SUPPLY AND RETURN AIR DIFFUSERS, GRILLS AND REGISTER SHALL BE FASTENED TO THE CEILING WITH THE FOLLOWING: (1) 2" APART.

12. ALL BRANCHES AND TAKEOFFS SHALL BE EQUIPPED WITH MANUAL VOLUME CONTROLLING DEVICES HAVING AN INDICATING AND LOCKING DEVICE.

13. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.

## B. FLEXIBLE CONNECTIONS

1. FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND DUCTS OR CASINGS. ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.

2. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FIBERPOOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.

3. FLEXIBLE CONNECTIONS ARE TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.

4. FINAL CONNECTIONS TO EXHAUST FANS) SHALL BE WITH A HEAVY, ALKALINE ACID RESISTANT FIRE RETARDANT FIBERGLASS NEOPRENE CONNECTOR. A MINIMUM OF 3/8 INCHES IN LENGTH, THE CONNECTOR SHALL BE FASTENED TO EQUIPMENT WITH TWO (2) 1/4" DIA. FLEXIBLE REMOVABLE BRASS STRAPS OR ALTERNATE APPROVED METHOD.

## C. THERMOSTATS

1. MOUNT THERMOSTATS 4'-0" (ADA COMPLIANT), THERMOSTAT SENSORS 5'-0" ABOVE FINISHED FLOORS, OR AS SHOWN ON THE PLANS, AND SET DATE, TIME, TEMPERATURE, ETC. TURN OVER OPERATING INSTRUCTIONS TO TENANT REPRESENTATIVE.

## D. FIRE DAMPERS, SMOKE DAMPERS

1. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL FIRE DAMPERS AS REQUIRED BY LANDLORD AND / OR TENANT CRITERIA AND / OR CODES HAVING JURISDICTION. ALL FIRE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF THE BOARD OF FIRE UNDERWRITERS, THE LOCAL FIRE MARSHAL AND SHALL BE LABELED AND APPROVED BY UNDERWRITERS LABORATORIES.

2. FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIR STREAM AND A 165- DEGREE F° FUSIBLE LINK.

3. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS.

4. PROVIDE DUCT ACCESS DOORS IN AN ACCESSIBLE LOCATION FOR ALL FIRE DAMPERS. DOOR IS TO BE 24 INCH GALVANIZED DOOR WITH QUICK OPENING LATCH AND PIANO HINGE.

5. WHERE REQUIRED BY LOCAL CODES, LANDLORD AND IF INDICATED ON DRAWINGS, DOOR IS LESS THAN 24 INCHES SHALL BE PROVIDED WITH A LOCKING MECHANISM AND INTERLOCK WITH FIRE ALARM SYSTEM.

## E. FLEXIBLE AIR DUCT

1. FLEXIBLE DUCT FOR CONNECTIONS SHALL BE A FACTORY FABRICATED ASSEMBLY CONSISTING OF AN INNER SLEEVE INSULATION AND AN OUTER MOISTURE BARRIER. THE INNER SLEEVE SHALL BE CONSTRUCTED OF A CONTINUOUS VINYL COATED SPRING STEEL WIRE-HELIX FUSED TO A CONTINUOUS LAYER OF FIBERGLASS IMPREGATED AND COATED VINYL. A 1-1/4" THICK LAYER OF INSULATING BLANKET OF FIBERGLASS WOOL SHALL ENCASE THE INNER SLEEVE AND BE SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BLUE-COLORED METALLIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES UNDER THEIR UL-181 STANDARDS AS A CLASS 1 DUCT. ALL FLEXIBLE DUCT SHALL COMPLY WITH NFPA STANDARD 808. THE FLEXIBLE DUCT SHALL BE THERMAL EX MKC OR APPROVED EQUIVALENT. FLEXIBLE DUCT SHALL ROUTE FROM SHEET METAL DUCTWORK TO CEILING DIFFUSERS ONLY. THERE SHALL BE NO EXPOSED FLEXIBLE DUCT.

2. FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APPROVAL FROM THE ARCHITECT.

3. FLEXIBLE DUCT SHALL NOT EXTEND OVER 5 FEET IN LENGTH AT ANY ONE LOCATION.

## F. SUPPLY AND RETURN AIR TAKEOFF FITTINGS

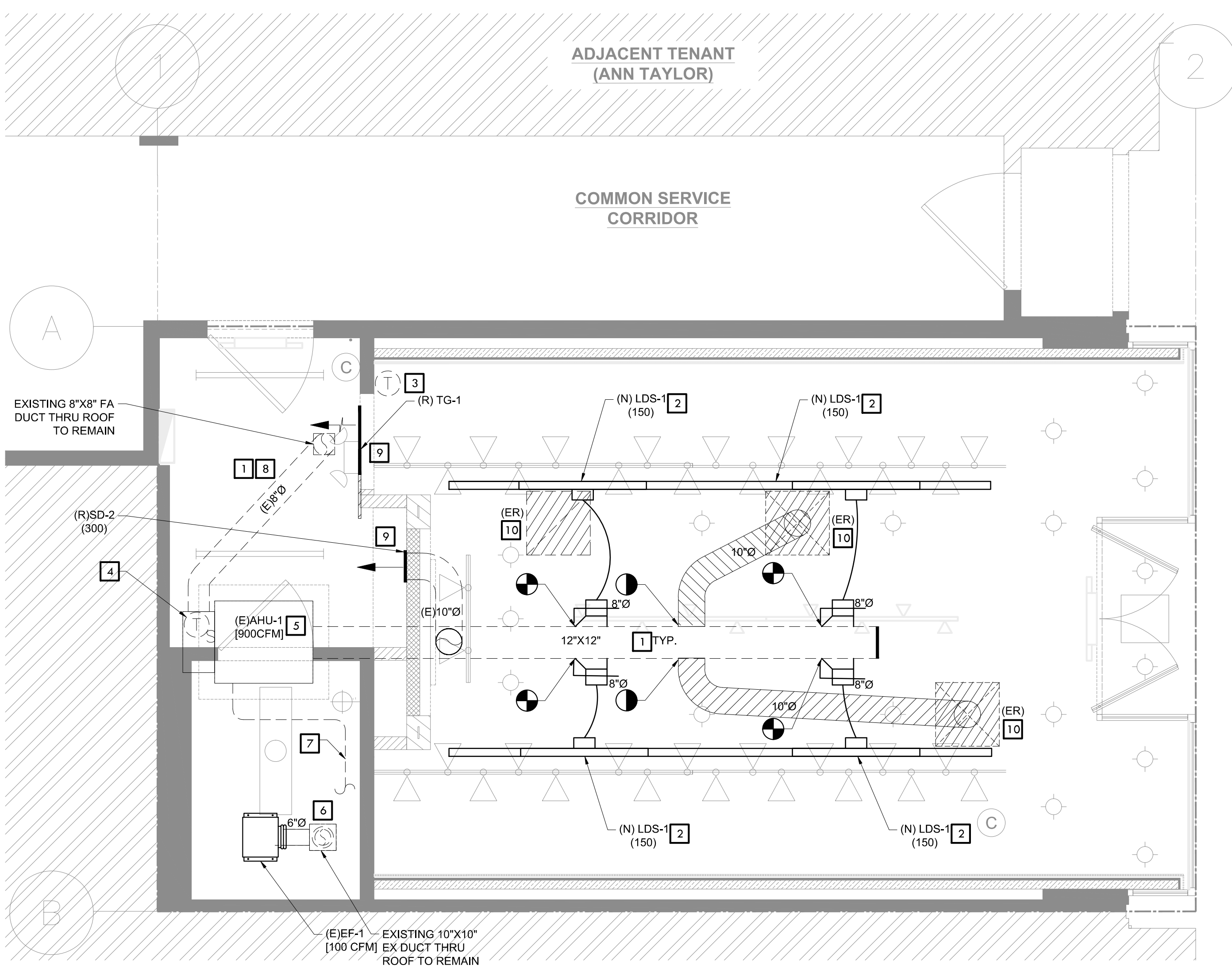
1. RECTANGULAR DUCT  
A. PROVIDE 45-DEGREE RECTANGULAR TAKEOFFS FROM MAIN DUCTWORK TO RECTANGULAR BRANCHES.  
2. SPIRAL DUCT  
A. PROVIDE SADDLE OR DIRECT CONNECTION OF A BRANCH DUCT INTO A LARGER DUCT. THE DIAMETER OF THE BRANCH SHALL NOT EXCEED TWO THIRDS OF THE DIAMETER OF THE MAIN. PROTRUSIONS INTO THE MAIN ARE NOT ALLOWED.

## G. DAMPERS

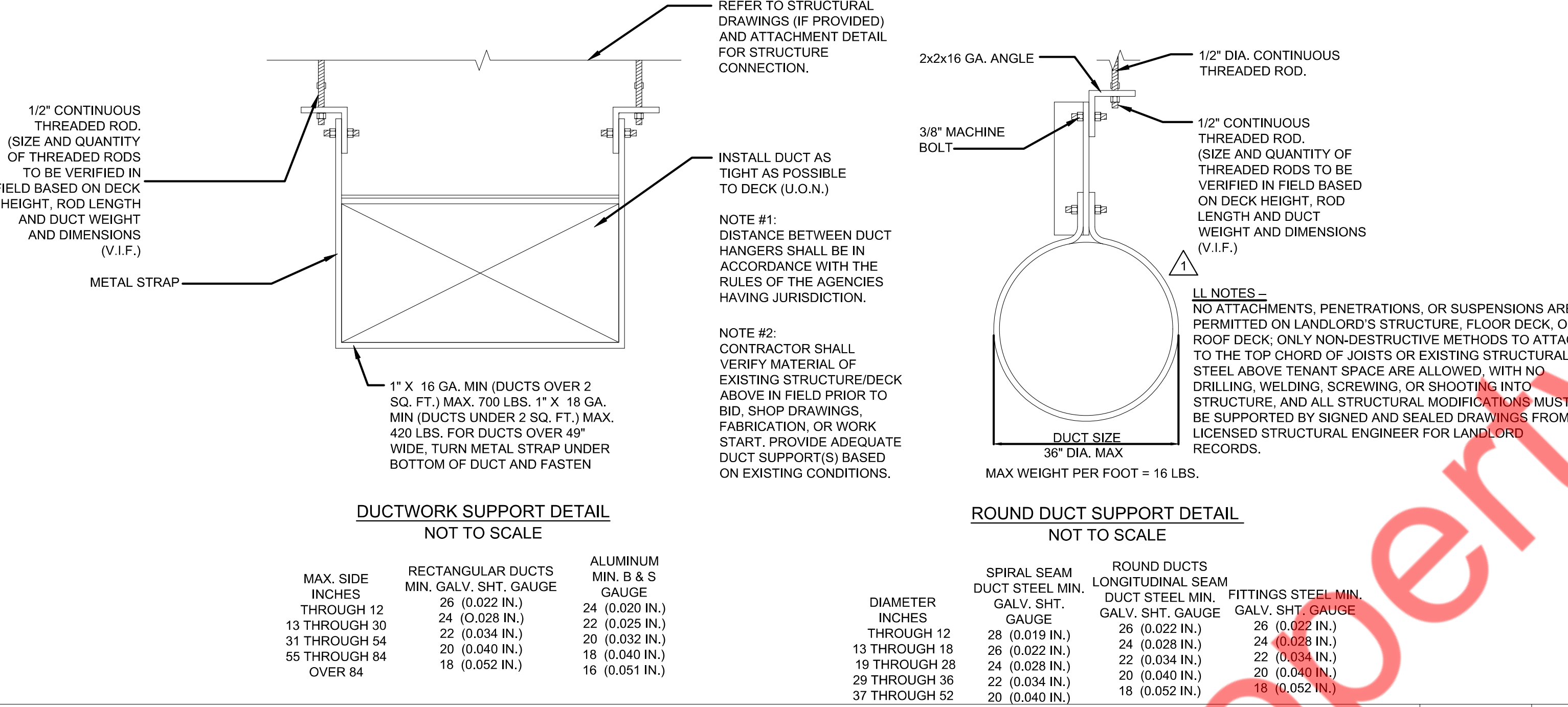
NOTE:  
CONTRACTOR IS TO VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO BIDDING WORK. ANY CONDITIONS THAT AFFECT THE INSTALLATION OF THIS PROJECT MUST IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE TENANT'S PROJECT MANAGER OR BE INCORPORATED IN THE BID. DUCTWORK SHALL NOT BE FABRICATED OR ANY EQUIPMENT ORDERED PRIOR TO APPROVAL BY THE TENANT'S PROJECT MANAGER.

- KEY NOTES**
- COORDINATE EXISTING DUCTWORK IN FIELD. PROVIDE NECESSARY DUCT OFFSETS AND TRANSITION AS NEEDED. PROVIDE VOLUME DAMPER IF NOT AVAILABLE IN EXISTING CONDITION. VERIFY IN FIELD PRIOR TO BID. CONNECT NEW LINEAR SUPPLY DIFFUSERS TO EXISTING DUCTWORK/SYSTEM.
  - PROVIDE 4 FT LINEAR SLOT DIFFUSER WITH MANUFACTURER-SUPPLIED PLENUM BOX (TYP); USE REMAINING SPACE AS RETURN AIR SLOT.
  - EXISTING THERMOSTAT TO BE RE-USED/RELOCATED. CONTRACTOR TO VERIFY IN FIELD. REPLACE IN KINDS IF DAMAGED.
  - EXISTING TEMPERATURE SENSORS TO BE RE-USED & RELOCATED. CONTRACTOR TO VERIFY IN FIELD. REPLACE IN KINDS IF DAMAGED. COORDINATE WITH EXISTING UNIT MANUFACTURER FOR COMPATIBLE CONTROLS AS REQUIRED.
  - EXISTING (E)AHU-1 TO REMAIN AND TO BE RE-USED, ALONG WITH ALL ASSOCIATED SUPPORTS, PIPING, DUCTWORK, VALVES, CONTROLS & ACCESSORIES. CLEAN AND REFURBISH TO "LIKE-NEW" CONDITION. REPAIR/REPLACE ANY ACCESSORIES AS REQUIRED TO PROVIDE A FULLY FUNCTIONING UNIT. CONTRACTOR SHALL VERIFY THAT UNIT IS OPERATING AT 100% OF ITS RATED CAPACITY. VERIFY IN FIELD PRIOR TO BID. BALANCE (E)AHU-1 OUTSIDE AIRFLOW IN ACCORDANCE WITH THE AIR BALANCE TABLE. NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO BID AND COMMENCEMENT OF WORK.
  - EXISTING TOILET EXHAUST FAN AND DUCTWORK TO REMAIN. CLEAN AND REFURBISH FAN TO LIKE NEW CONDITION. FULLY CLEAN DUCTWORK INSIDE AND OUT AND PROTECT FROM DAMAGE.
  - EXISTING 3/4" CONDENSATE DRAIN TO REMAIN. CONTRACTOR TO FIELD VERIFY EXACT ROUTE.
  - EXISTING OUTDOOR AIR DUCTWORK CONNECTED TO THE LANDLORD MAIN OUTDOOR DUCT TO REMAIN. CONTRACTOR SHALL CLEAN AND REFURBISH TO "LIKE-NEW" CONDITION. VERIFY EXACT LOCATION, ROUTE AND SIZE IN FIELD. PATCH AND SEAL DUCTWORK AIRTIGHT. INSPECT, PATCH, REPAIR, AND/OR REPLACE INSULATION AS REQUIRED. COORDINATE IN FIELD PRIOR TO BID. PROVIDE VOLUME CONTROL DAMPER IN ABSENCE OF EXISTING ONE.
  - RELOCATE EXISTING SUPPLY WALL GRILLE, DUCT & RETURN WALL GRILLE, AS SHOWN IN PLAN. VERIFY SIZE AND LOCATION ON FIELD. CLEAN AND REFURBISH TO "LIKE-NEW" CONDITION. IF FOUND ANY DAMAGE, REPLACE WITH THE SAME KIND. CONTRACTOR SHALL BALANCE CFM OF ALL EXISTING SUPPLY DIFFUSERS/GRILLES AS SHOWN ON PLAN.
  - CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING DIFFUSER AND DUCTWORK AS PER FLOOR PLAN. PROVIDE BLANK-OFF AT MAIN DUCT.

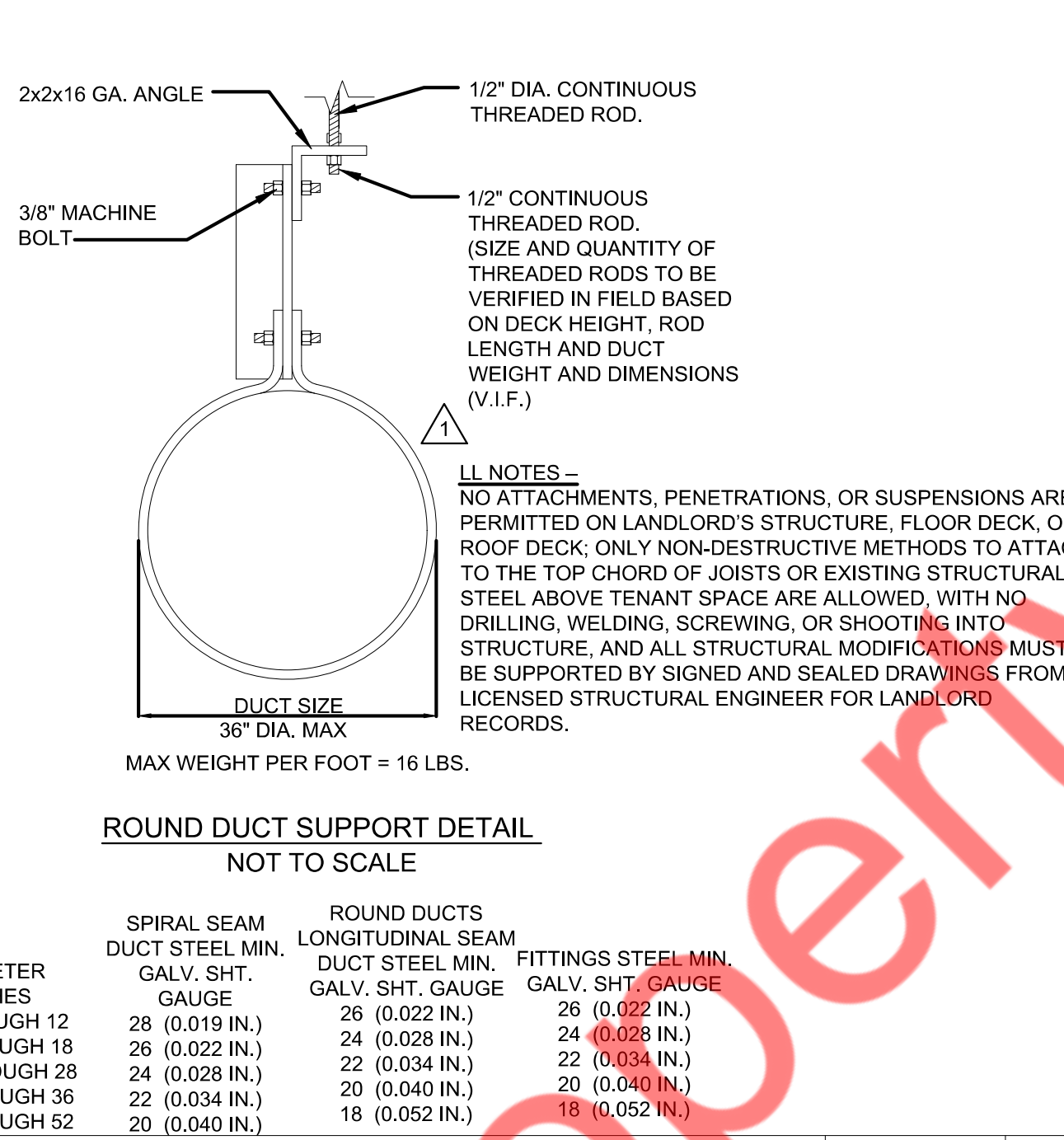
- GENERAL NOTES**
- ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
  - COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
  - ALL ITEMS TO BE RE-USED OR RELOCATED SHALL BE CLEANED, REPAIRED, AND RESTORED TO LIKE NEW CONDITION PRIOR TO RE-USE.
  - TAKE NECESSARY PRECAUTIONS TO PREVENT DUST AND DIRT MIGRATING TO OCCUPIED AREAS OF THE BUILDING. THIS INCLUDES BLANKING OFF ANY RETURN AIR GRILLES/DUCTS IN THE WORK AREA. PROVIDE TEMPORARY EXHAUST FANS, DUCTED DIRECTLY TO OUTDOORS, TO MAINTAIN NEGATIVE PRESSURE WITHIN THE WORK AREA.
  - KEEP ALL ADJOINING AREAS ADJACENT TO THE WORK AREAS CLEAN AND FREE OF DEBRIS.
  - ALL DEMOLISHED MATERIALS SHALL BE REMOVED AND DISPOSED OF OFF SITE.
  - REPAIR/REPLACE EXISTING EQUIPMENT MATERIALS NOT SCHEDULED OR NOTED TO BE DEMOLISHED BUT BECOME DAMAGED DURING THE PROGRESS OF THE WORK. MAKE ANY AND ALL SUCH REPAIRS, REPLACEMENTS, MODIFICATIONS TO RESTORE THE DAMAGED ITEMS TO THEIR ORIGINAL CONDITIONS AT THE TIME OF DAMAGE, TO THE SATISFACTION OF AND AT NO ADDITIONAL COST TO THE OWNER.
  - CONTRACTOR SHALL BALANCE EACH AIR TERMINAL AS SHOWN IN FLOOR PLAN.
  - CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR DUCTWORK ROUTING, OFFSET AND RUN PIPING, DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
  - EXISTING CONDITIONS AND LOCATIONS OF EQUIPMENT AND DUCT WORK SHALL BE FIELD VERIFIED PRIOR TO COMMENCING WORK.
  - REPAIR OR REPLACE EXISTING DAMAGED INSULATION FOR DUCTWORK. PROVIDE SAME R-VALUE AS EXISTING INSULATION.
  - COORDINATE CUTTING, PATCHING OF EXISTING WALLS, CEILINGS, AND FLOORS AFFECTED BY MECHANICAL DEMOLITION WITH G.C.
  - THE THERMOSTATIC CONTROLS FOR HVAC SYSTEMS SHALL BE CAPABLE OF BEING SET LOCALLY OR REMOTELY BY TO CONTROL COMFORT HEATING DOWN TO 55°F OR LOWER AND COOLING UP TO 85°F OR HIGHER. THE THERMOSTATIC CONTROLS SHALL BE CAPABLE OF PROVIDING A DEAD BAND RANGE OF AT LEAST 1°F WITHIN WHICH HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.
  - SUPPLY-AIR DUCTS CONVEYING HEATED OR COOLED AIR SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-6 (R-8 IN UNCONDITIONED SPACE), UNLESS DUCTS ARE IN CONDITIONED SPACE.



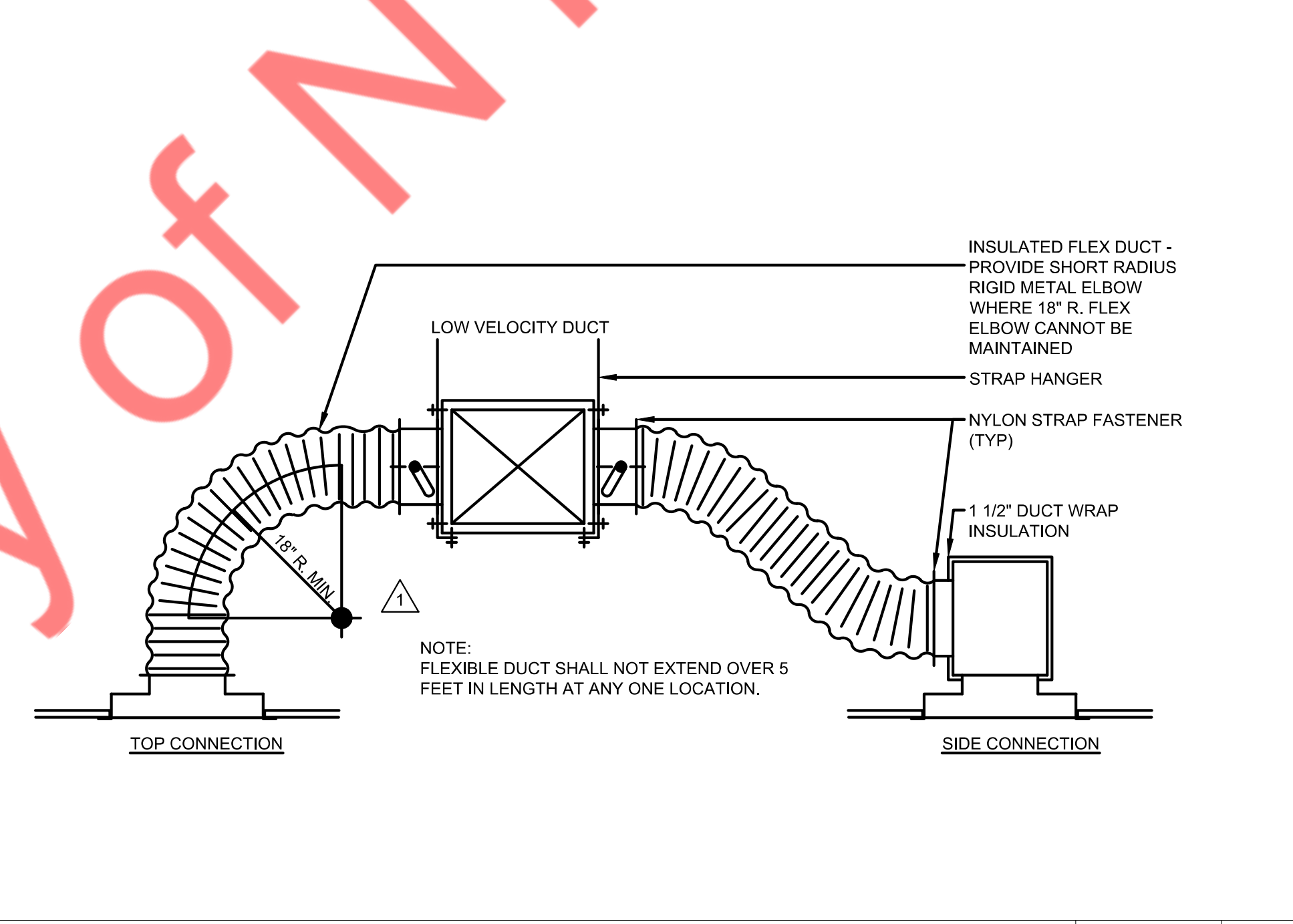
1 MECHANICAL FLOOR PLAN  
3/8" = 1'-0"



DUCTWORK SUPPORT DETAIL  
SCALE N.T.S. 1



ROUND DUCT SUPPORT DETAIL  
SCALE N.T.S. 1



LINEAR DIFFUSER CONNECTIONS  
SCALE N.T.S. 3

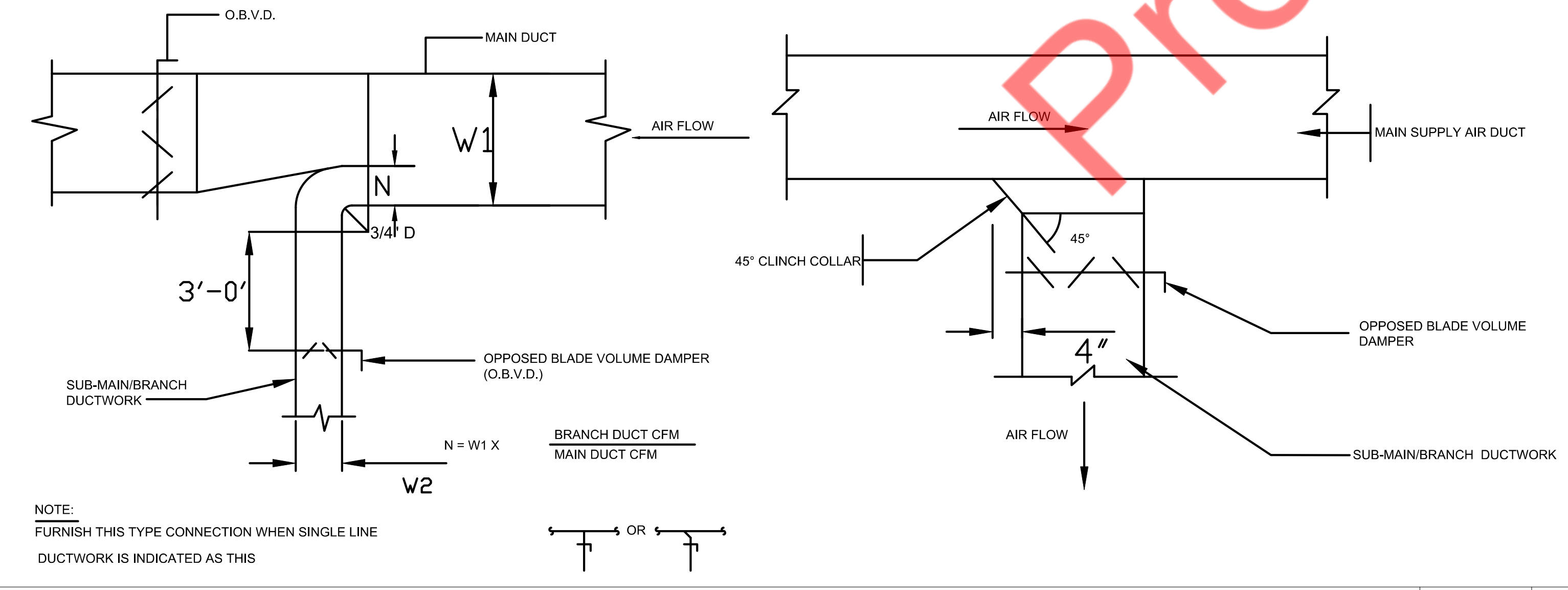
**BUILDING AIR BALANCE**

UNIT TAG	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
(E)AHU-1	900	125	775	-
(E)EF-1	-	-	-	100 CFM
TOTAL:	900 CFM	125 CFM	775 CFM	100 CFM
BUILDING PRESSURE:			25 CFM	POSITIVE

**AIR TERMINAL DEVICE SCHEDULE**

TAG	MANUFACTURER	MODEL	TYPE	CFM RANGE	NECK SIZE	NOMINAL FACE SIZE
LDS-1	TITUS	FL10	T LINEAR DIFFUSER SL	25-45 CFM/FT	-	AS PER CFM

NOTES:  
 1) ALL DIFFUSERS : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS TO  
 2) REFER ARCHITECTURAL DRAWINGS FOR CEILING TYPE.  
 3) COORDINATE COLOR/FINISH WITH ARCHITECT.  
 4) NOISE CRITERIA: <30 dBA  
 5) PROVIDE VOLUME CONTROL DAMPER AS ACCESSARY FOR ALL AIR TERMINAL FOR AIR BALANCING.



SUPPLY AIR DUCTWORK SUB-MAIN BRANCH DUCT CONNECTION  
SCALE N.T.S. 2

**VENTILATION CALCULATION AS PER NORTH CAROLINA MECHANICAL CODE 2024**

SR NO	ROOM NAME	AREA (FT <sup>2</sup> )	HEIGHT (FT)	NUMBER OF PEOPLE/1000sq.ft AS PER 2021 IMC	NUMBER OF PEOPLE 2021 IMC	FINAL PEOPLE NO.	CFM AS PER 2021 IMC		CALCULATED VENT CFM	PROVIDED OUTSIDE AIR	TOILET EXHAUST CFM
							CFM/PERSON	CFM/SQ.FT.			
1	SALES	415	11.85	15	7	7	7.5	0.12	102	105	-
2	BOH	66	17.85	5	1	1	5	0.06	9	20	-
3	RESTROOM	40	7.5	0	0	0	0	0	0	-	100
GRAND TOTAL		521				8			111	125	100

**AIR HANDLER UNIT SCHEDULE**

TAG	MFG/MODEL	LOCATION	SERVING AREA	ESP	SA CFM	OA CFM	COOLING MBH	HEATER KW	VOLT/PH/HZ	MCA	MOP	UNIT WEIGHT
(E)AHU-1	MCQUAY-LAW 002(V.I.F)	S.A.E	SEE PLAN	S.A.E	900 CFM	125 CFM	28(V.I.F)	5(V.I.F)	208/3/60	26.7(V.I.F)	30(V.I.F)	S.A.E

NOTES FOR EXISTING UNIT:  
 1. S.A.E. - SAME AS EXISTING. V.I.F. - VERIFY IN FIELD.  
 2. EXISTING AHU WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE RE-USED.  
 3. CONTRACTOR TO CONFIRM IF EXISTING AHU IS WORKING AT ITS 100% RATED CAPACITY.  
 4. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF AHU ON SITE.  
 5. CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTION WIRE SIZES, BREAKER, DISCONNECT ETC. ON FIELD.  
 6. REPLACE FILTERS, AS/IF REQUIRED.  
 7. CONTRACTOR TO REBALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING AHU TO MATCH VALUES MENTIONED IN THE AIR BALANCING TABLE  
 8. VERIFY WITH LANDLORD FOR CHILLED WATER REBALANCING IF REQUIRED.

2 MECHANICAL DETAILS AND SCHEDULE  
N.T.S.

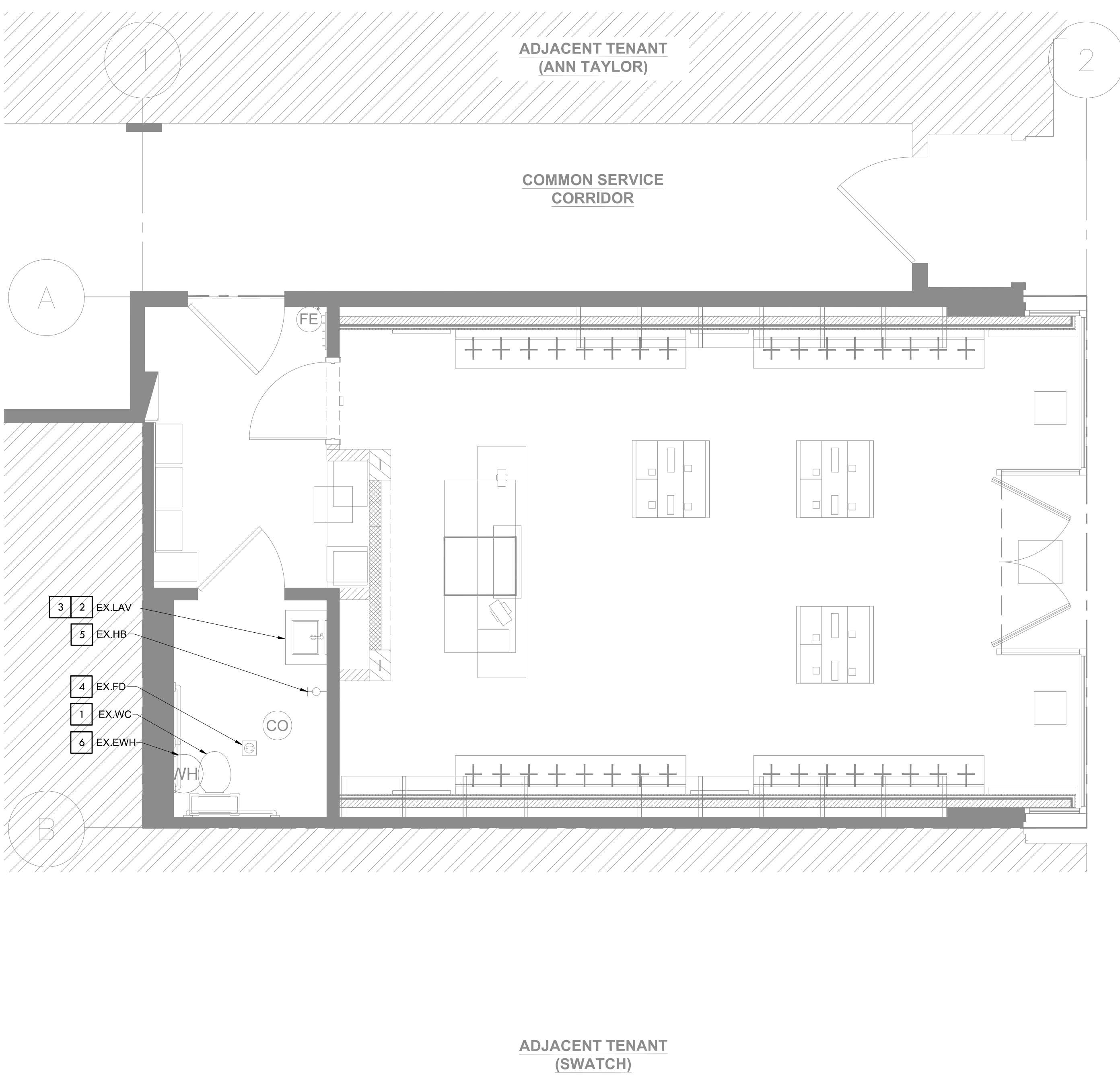
4 PLUMBING GENERAL NOTES

- IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE A COMPLETE INSTALLATION FOR FINISHED WORK, TESTED AND READY FOR OPERATION. THE WORK THROUGHOUT SHALL BE EXECUTED IN THE BEST AND MOST THOROUGH MANNER UNDER THE DIRECTION OF AND TO THE SATISFACTION OF THE OWNER.
  - ALL MATERIALS REQUIRED FOR THIS WORK SHALL BE NEW, UNUSED, BEST OF ITS RESPECTIVE KINDS, AND FREE FROM DEFECTS AND OF FIRST CLASS QUALITY. BASIS OF QUALITY SHALL BE LATEST STANDARDS OF ASTM, ANSI FEDERAL SPECIFICATIONS OR OTHER ACCEPTABLE STANDARDS.
  - THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR WORK UNTIL 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 PLUMBING CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED AND MATERIALS INSTALLED TO BE FREE FROM INHERENT DEFECTS AND SHALL KEEP IN REPAIR AND REPLACE ANY DEFECTIVE MATERIALS OF WORKMANSHIP, FREE OF COST TO THE TENANT (OWNER) FOR A PERIOD OF ONE (1) YEAR AFTER THE OPENING FOR BUSINESS.
  - ALL WORK SHALL BE DONE ACCORDING TO THE REQUIREMENTS OF ALL APPLICABLE CODES AND LEASE CRITERIA (IF APPLICABLE) AND SHALL RECEIVE THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION. PREPARE ALL REQUIRED DOCUMENTS, DRAWINGS AND PERFORM ALL REQUIRED TESTS AND PAY ALL REQUIRED CHARGES TO OBTAIN THESE APPROVALS.
  - CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE FOR THE WORK BEFORE HAVING SUBMITTED A PROPOSAL. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CONDITIONS FOUND DURING THE COURSE OF THE CONTRACT.
  - THIS CONTRACTOR MUST PROVIDE LANDLORD'S CONSTRUCTION REPRESENTATIVE WITH COPIES OF REQUIRED INSURANCE AND COPIES TO BE FURNISHED TO THE OWNER BEFORE COMMENCING WORK.
  - SUBMIT THREE (3) SETS OF SHOP DRAWINGS IDENTIFIED WITH PROJECT NAME OF THE FOLLOWING: (1) ELECTRIC HOT WATER HEATER OR INSINKERATOR (2) PLUMBING FIXTURES AND TRIM. CONTRACTOR SHALL SUBMIT SHOP DRAWING OF PIPING LAYOUT TO THE OWNER FOR THEIR FILE.
  - THE PLUMBING SUBCONTRACTOR IS A SUBCONTRACTOR OF THE TENANT'S GENERAL CONTRACTOR.
  - NOTCHING AND BORING OF STRUCTURAL STEEL MEMBERS IS NOT PERMITTED. WHEN HANGING FROM STRUCTURAL STEEL ONLY HANG FROM TOP FLANGE OF BEAMS AND TOP CHORDS ONLY AT PANEL POINTS OF JOISTS / TRUSSES.
- WORK RESPONSIBILITY
    - FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND CONTRACTORS FOR A COMPLETE SAFE INSTALLATION OF PLUMBING WORK IN FULL CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED, INCLUDING IN GENERAL THE FOLLOWING:
      - SANITARY DRAINAGE CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT REQUIRING SAME WITH FINAL CONNECTIONS TO EXISTING PREINSTALLED OUTLETS PROVIDED BY PRIOR TENANT OR LANDLORD. PLUMBER SHALL VERIFY EXACT LOCATION OF WASTE PIPE OUTLET BEFORE SUBMITTING BID AND NOTIFY THE ARCHITECT OF ANY LOCATION DISCREPANCIES. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONCRETE SAWCUTTING REQUIRED TO MAKE THE FINAL CONNECTION TO THE EXISTING WASTE PIPING OR CAPPED OUTLETS, SAWCUTTING, EXCAVATING, BACKFILLING AND NEW CONCRETE MUST MEET WITH THE LANDLORD'S APPROVAL.
        - SNAG SANITARY FOR A DISTANCE OF 100 FEET AND REPORT ANY BLOCKAGE.
        - TEST WATER PRESSURE TO INSURE MINIMUM OF 50 PSI.
      - COMPLETE VENT SYSTEM. ALL FIXTURES INDIVIDUALLY VENTED WITH FINAL CONNECTION THROUGH ROOF OR TO EXISTING LANDLORD SUPPLIED COMMON VENT. ROOF PENETRATION AND FLASHING TO BE PERFORMED BY LANDLORD'S ROOFER (IF APPLICABLE). COST OF ROOF PENETRATION AND FLASHING TO BE PART OF THIS CONTRACT, UNLESS NOTED OTHERWISE IN BID PROPOSAL (IF APPLICABLE).
      - DOMESTIC WATER SUPPLY SYSTEM INCLUDING CONNECTION TO EXISTING CAPPED OUTLET AND FINAL CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT REQUIRING SAME. VERIFY EXACT LOCATION AND SIZE BEFORE SUBMITTING BID.
      - INSULATION OF ALL HOT AND COLD WATER PIPING, INCLUDING UNDER LAVATORY A.D.A. PIPE WRAPPINGS.
      - FURNISH AND INSTALL WATER METER (IF APPLICABLE) ACCESSIBLE TO UTILITY COMPANY OR LANDLORD'S REPRESENTATIVE FOR MONITORING WATER. BUT METER SHOULD IN NO WAY BE IN THE PATH OF THE A.D.A./C.A.B.O./ANSI, 5"Ø CIRCULAR PATTERN.
      - COSTS FOR WORKING BELOW TENANT'S SLAB IN ANOTHER TENANT'S SPACE.
      - INSTALLATION OF FLOOR DRAIN, BACKFLOW PREVENTER (IF REQ. BY CODE) PER LANDLORD REQUIREMENT AND CLEANOUT PER LOCAL CODE. COORDINATE ALL LOCATIONS WITH OPERATIONS MANAGER.
    - GENERAL ITEMS
      - SLEEVES: PROVIDE #2 GAGE GALVANIZED IRON PIPE SLEEVES FOR PIPING THROUGH WALLS AND FLOOR. PACK WITH NON-ASBESTOS ROPE AND FILL WITH EXPANDED NON-SHRINKING CEMENT.

FIELD VERIFY ALL CONDITIONS DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES. THE PLANS AND SPECIFICATIONS NOT WITHSTANDING, THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.



1 PLUMBING FLOOR PLAN  
3/8" = 1'-0"

2 PLUMBING KEY NOTES

- EXISTING WATER CLOSET TO BE REMAIN IN THE EXISTING LOCATION WITH THE EXISTING SANITARY, VENT AND COLD WATER 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.
- THE EXISTING LAVATORY SHALL REMAIN IN ITS CURRENT LOCATION WITH THE EXISTING SANITARY, VENT, COLD WATER AND HOT WATER LINES WITH ASSOCIATED ACCESSORIES AND FITTINGS REMAIN. CONTRACTOR SHALL VERIFY THE CONDITION OF ALL EXISTING PIPING IN THE FIELD AND REPLACE ANY COMPONENTS THAT ARE NOT IN GOOD CONDITION. THE CONTRACTOR SHALL ALSO VERIFY THE EXISTING WATER PRESSURE FOR LAVATORY MODIFY THE PIPE SIZE AS REQUIRED TO MEET THE NECESSARY PRESSURE REQUIREMENTS.
- PROVIDE THERMOSTATIC MIXING VALVE (TMV) SET AT 110°F FOR LAVATORY IF IT DOES NOT EXIST.
- EXISTING FLOOR DRAIN TO BE REMAIN IN THE EXISTING LOCATIONS WITH THE EXISTING SANITARY AND VENT 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.
- EXISTING HOSE BIB TO BE REMAIN IN THE EXISTING LOCATIONS WITH THE EXISTING WATER 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.
- THE EXISTING WATER HEATER SHALL REMAIN IN ITS CURRENT LOCATION ALONG WITH ALL ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR SHALL VERIFY THE CONDITION OF THE UNIT AND ITS COMPONENTS, AND REPLACE ANY ITEMS THAT ARE NOT IN GOOD CONDITION.

3 PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER
(EX.WC)	EXISTING WATER CLOSET	EXISTING TO REMAIN.
(EX.LAV)	EXISTING LAVATORY	EXISTING TO REMAIN.
(EX.EWH)	ELECTRIC WATER HEATER	EXISTING TO REMAIN.
(EX.HB)	HOSE BIB	EXISTING TO REMAIN.
(EX.FD)	FLOOR DRAIN	EXISTING TO REMAIN.
TMV	UNDER SINK WATT SERIES LFUSJ-BM2	WATT

5 LANDLORD PLUMBING NOTES

- ANY CHANGES AND/OR UPGRADES TO TENANT'S EXISTING PLUMBING SYSTEMS SHALL COMPLY WITH ALL CODES AND MALL CRITERIA. EXISTING SYSTEMS SHALL POSSESS THE CAPACITY TO HANDLE ANY AND ALL CHANGES IN LOAD.
- ALL WATER LINES SHALL BE COPPER - PVC IS NOT PERMITTED. THERE SHALL BE NO PIPING JOINTS OR FITTINGS INSTALLED IN WATER PIPING BELOW THE FLOOR SLAB.
- ALL DRAIN, WASTE AND VENT FITTINGS ABOVE GRADE MUST BE CAST IRON PIPE.
- PLUMBING IS NOT PERMITTED IN ANY DEMISING PARTITIONS. FURR OUT THE WALL AS NECESSARY.
- 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.
- ALL FLOOR PENETRATIONS MUST BE CORE BORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND A MINIMUM OF 4" AFF.
- IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
- TENANT IS REQUIRED TO INSTALL A WATERPROOF MEMBRANE IN ALL WET AREAS OF THE SPACE. TENANT SHALL USE A 30 MIL POLYETHYLENE CLEAVAGE MEMBRANE (EQUAL TO NOBLESEAL TS) INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND ANSI A108. MEMBRANE MUST BE EXTENDED UP THE WALL A MINIMUM OF 6" OR EQUAL TO THE HEIGHT OF THE FLOOR BASE.
- SLAB REQUIREMENTS:
  - SLAB ON GRADE: TENANT'S GENERAL CONTRACTOR SHALL ADVISE THE OPERATIONS TEAM PRIOR TO ANY SLAB MODIFICATION OR REMOVAL. IF ANY ELEVATED SLAB IS TO BE MODIFIED IN ANYWAY (DRILLED, CORED, OR PENETRATED), TENANT SHALL PROVIDE STAMPED AND CERTIFIED DRAWINGS BY A LICENSED STRUCTURAL ENGINEER CERTIFIED IN THE LOCAL JURISDICTION. ALL PENETRATIONS SHALL BE CORE BORED ONLY. SAW CUTTING, JACK HAMMERING, AND CHIPPING IS STRICTLY PROHIBITED. ALL PENETRATIONS SHALL BE SLEEVED, SEALED, FIRE STOPPED, AND WATERPROOFED. THE EDGE OF THE SLAB SHALL BE LABELED WITH THE REQUIRED NFPA RATING. TENANT GC SHALL VERIFY THAT WORK SHALL NOT CONFLICT WITH ANY EXISTING STRUCTURAL, UTILITY, OR OTHER UNDER-SLAB CONDITION. (NON-DESTRUCTIVE VERIFICATION MAYBE REQUIRED.) ANY DAMAGES OR DOWNTIME CAUSED BY TENANT'S WORK SHALL BE REPAIRED AND REIMBURSED AT TENANT'S EXPENSE.
  - ELEVATED SLABS: TENANT'S GENERAL CONTRACTOR SHALL ADVISE THE OPERATIONS TEAM PRIOR TO ANY SLAB MODIFICATION OR REMOVAL. IF ANY ELEVATED SLAB IS TO BE MODIFIED IN ANYWAY (DRILLED, CORED, OR PENETRATED), TENANT SHALL PROVIDE STAMPED AND CERTIFIED DRAWINGS BY A LICENSED STRUCTURAL ENGINEER CERTIFIED IN THE LOCAL JURISDICTION. ALL PENETRATIONS SHALL BE CORE BORED ONLY. SAW CUTTING, JACK HAMMERING, AND CHIPPING IS STRICTLY PROHIBITED. ALL PENETRATIONS SHALL BE SLEEVED, SEALED, FIRE STOPPED, AND WATERPROOFED. THE EDGE OF THE SLAB SHALL BE LABELED WITH THE REQUIRED NFPA RATING. TENANT GC SHALL VERIFY THAT WORK SHALL NOT CONFLICT WITH ANY EXISTING STRUCTURAL, UTILITY, OR OTHER UNDER-SLAB CONDITION. (NON-DESTRUCTIVE VERIFICATION MAYBE REQUIRED.) ANY DAMAGES OR DOWNTIME CAUSED BY TENANT'S WORK SHALL BE REPAIRED AND REIMBURSED AT TENANT'S EXPENSE.
- LANDLORD STRONGLY PREFERS USE OF ENERGY STAR PRODUCTS AND/OR EQUIPMENT WHENEVER POSSIBLE DURING TENANT BUILD OUT, WHICH SHALL RECEIVE PRIOR LANDLORD REVIEW AND APPROVAL.

6 LANDLORD FIRE PROTECTION NOTES

- SIMON REQUIRES ALL TENANTS TO USE ONE OF LANDLORD'S PRE-QUALIFIED SPRINKLER CONTRACTORS FOR TENANT'S SPRINKLER WORK. TENANT MAY COMPETITIVELY BID TO ONLY THOSE SPRINKLER CONTRACTORS PRE-QUALIFIED BY LANDLORD. CONTACT THE MALL MANAGER OR OPERATIONS DIRECTOR FOR A LIST OF PRE-QUALIFIED SPRINKLER CONTRACTORS.
- THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL DRAWINGS, DOCUMENTATION AND FLOW CALCULATIONS TO THE LOCAL AUTHORITY HAVING JURISDICTION IN ORDER TO OBTAIN ALL PROPER PERMITS.
- IF LOCAL FIRE DEPARTMENT AND/OR AHJ DETERMINES ADDITIONAL SPRINKLER HEADS AND FIRE ALARM DEVICES WILL BE REQUIRED BASED ON TENANT IMPROVEMENTS, IT IS THE TENANT'S RESPONSIBILITY TO HIRE THE LANDLORD REQUIRED FIRE ALARM & FIRE SPRINKLER CONTRACTOR FOR THIS WORK. TENANT IS RESPONSIBLE FOR ANY CODE REQUIRED CHANGES OR UPGRADES TO EXISTING CONDITIONS. EXISTING BUILDING MONITORING SYSTEM FULL STATIONS AND HORNS/STROBES MUST BE KEPT CLEAR OF ALL OBSTRUCTIONS. TENANT OR ITS GENERAL CONTRACTOR MUST VERIFY EXISTING LOCATIONS, AND MAKE ANY APPLICABLE CHANGES PER THE LOCAL JURISDICTION.
- SPRINKLER SYSTEM SHALL BE FULLY CHARGED AND OPERATIONAL WHENEVER CONTRACTOR IS NOT ON SITE.
- FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING ALL PROGRAMMING OF ADDRESSABLE DEVICES, SYSTEMS, ETC. OF THE NEWLY INSTALLED FIRE ALARM DEVICES TO SATISFY THE REQUIREMENTS OF THE LOCAL AHJ.
- FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL DRAWINGS, DOCUMENTATION, BATTERY CALCULATIONS, ETC. TO THE LOCAL AHJ TO OBTAIN ALL NECESSARY PERMITS.
- PLAN SUBMISSIONS FOR SIMON TENANT IMPROVEMENT PROJECTS MUST BE EMAILED TO GLOBAL RISK CONSULTANTS (GRC) AT SIMONPROJECTS@TUVSUD.COM. THE EMAIL WILL NEED TO INCLUDE THE FOLLOWING INFORMATION IN THE EMAIL SUBJECT LINE:
  - SOUTH PARK MALL: SIMON TPR - GRC FILE #: 1935-0242 - SOUTH PARK MALL, CHARLOTTE, NC
- IF YOU HAVE QUESTIONS REGARDING THE GRC REVIEW, PLEASE CONTACT:
  - NORA LONDON, DISTRICT MANAGER - FIRE PRACTICE SENIOR CONSULTANT/ACCOUNT ENGINEER/FIRE PROTECTION ENGINEERING OFFICE: 312-223-1523 DIRECT: 330-194672 EMAIL ADDRESS: NORA.LONDON@TUVSUD.COM
- TENANT DISPLAY FIXTURES IN THE RETAIL SPACE AND RACK / SHELVING / STORAGE UNITS IN THE STOCKROOM SHALL BE DESIGNED TO PROVIDE ADEQUATE CLEARANCE FOR THE AUTOMATIC (FIRE) SPRINKLER SYSTEM. NO DISPLAYS OR STORAGE SHOULD EXCEED 12FT AND CEILINGS MUST BE INSTALLED TO PROVIDE A MINIMUM OF 18" OF CLEARANCE BETWEEN THE TOP OF THE STORAGE SYSTEM AND SPRINKLER DEFLECTORS.
- TENANT DISPLAYS OR STORAGE HIGHER THAN 12'-0" ARE CLASSIFIED AS "HIGH PILED STORAGE", WHICH REQUIRES HIGH HAZARDOUS AUTOMATIC (FIRE) SPRINKLER PROTECTION DESIGNED PER FM GLOBAL LOSS PREVENTION DATA SHEET AND NFPA REQUIREMENTS FOR THE STORAGE OF "GROUP A PLASTIC" COMMODITIES. HIGH PILED STORAGE ALSO REQUIRES A MINIMUM OF 36" OF CLEARANCE BETWEEN THE TOP OF STORAGE AND SPRINKLER DEFLECTORS.
- TENANT SHALL NOT DRILL, WELD, SCREW, SHOOT, AND / OR PENETRATE LANDLORD'S BUILDING STRUCTURE, FLOOR DECK, AND / OR ROOF DECK. TENANT MAY NON-DESTRUCTIVELY ATTACH OR SUSPEND FROM, UTILIZING ALTERNATIVE METHODS OF ATTACHMENT, THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS WITHIN THE PREMISES WITH AN EVALUATION COMPLETED BY THE TENANT'S STRUCTURAL ENGINEER OF THE EXISTING STRUCTURE AND DETERMINATION THAT IT IS SUFFICIENT FOR THE ADDITIONAL LOAD IN ACCORDANCE WITH THE BUILDING CODE THAT HAS BEEN ADOPTED BY THE AUTHORITIES HAVING JURISDICTION (AHJ). REFER TO STRUCTURAL MODIFICATION REQUIREMENTS.
- ALL LANDLORD EQUIPMENT, COMPONENT, AND / OR SERVICES FEEDING OTHER TENANT(S) THAT ARE EXISTING IN THE SPACE SHALL REMAIN VISIBLE AND ACCESSIBLE TO THE LANDLORD. TENANT SHALL INSTALL ACCESS PANELS AS REQUIRED TO MAINTAIN ACCESS AND SHALL BE LABELED TO PROPERLY IDENTIFY SYSTEMS. TENANT SHALL COORDINATE LOCATION WITH MALL OPERATIONS TEAM.

DRAWING TITLE:

PLUMBING PLANS AND NOTES

DRAWING NUMBER:

P1.0

# ELECTRICAL GENERAL NOTES

## A. SCOPE OF WORK

- FURNISH ALL LABOR AND MATERIAL TO COMPLETE ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS
- THE LISTING OF ARTICLE OR MATERIAL, OPERATION OR METHOD, REQUIRES THAT THE CONTRACTOR SHALL PROVIDE AND INSTALL, UNLESS NOTED TO BE SUPPLIED BY OTHERS, EACH ITEM LISTED OF QUALITY OR SUBJECT TO QUALIFICATION NOTED. EACH OPERATION SHALL BE PERFORMED ACCORDING TO STANDARD PRACTICES, MANUFACTURER'S INSTRUCTIONS AND CONDITIONS STATED, PROVIDING, THEREFORE, ALL NECESSARY LABOR, EQUIPMENT AND INCIDENTALS.
- THE ELECTRICAL CONTRACTOR SHALL SCHEDULE HIS WORK TO CONFORM TO THE PROGRESS OF THE OTHER TRADES AND CONTRACTORS EMPLOYED ON THIS PROJECT. THE PRINCIPAL ITEMS OF WORK INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
  - PROVIDE ELECTRICAL SERVICE INCLUDING CONDUITS, CABLES, TERMINATIONS, METERING EQUIPMENT, ETC. IN ACCORDANCE WITH UTILITY REQUIREMENTS AND DRAWINGS
  - PROVIDE LIGHTING FIXTURE AS SHOWN ON DRAWINGS. THIS SHALL INCLUDE ALL ASSOCIATED LAMPS, BOXES, SWITCHES, CONTRACTORS, AND BRANCH CIRCUIT WIRING AND MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
  - PROVIDE DEVICES (RECEPTACLES, SWITCHES, ETC.) AS SHOWN ON DRAWINGS. THIS SHALL INCLUDE ALL ASSOCIATED BRANCH CIRCUIT WIRING AND MATERIAL REQUIRED FOR A COMPLETE INSTALLATION.
  - POWER FEEDERS TO HVAC EQUIPMENT INCLUDING RTUs, EXHAUST FANS, INCLUDING DISCONNECT SWITCHES, CONTROL DEVICES, STARTERS FOR MOTORS NOT PROVIDED BY OTHERS. CONSULT HVAC CONTRACTOR FOR PHASE AND VOLTAGE OF EQUIPMENT AND ACTUAL NAMEPLATE RATINGS FOR FEEDER MINIMUM CONDUCTOR AMPACITIES (MCA) AND MAXIMUM OVERCURRENT PROTECTION DEVICES (MOPD) INFORMATION PRIOR TO INSTALLATION AND PRIOR TO PURCHASING ELECTRICAL EQUIPMENT.
  - PROVIDE POWER DISTRIBUTION EQUIPMENT (PANELBOARDS, DISCONNECT SWITCHES, CONTRACTORS, MOTOR STARTERS, ENCLOSED CIRCUIT BREAKERS, ETC.) AS SHOWN ON DRAWINGS OR AS REQUIRED FOR THIS PROJECT. THIS SHALL INCLUDE ALL WIRING AND ASSOCIATED MATERIAL REQUIRED FOR A COMPLETE INSTALLATION.
  - PROVIDE FIRE ALARM SYSTEM ONLY IF REQUIRED BY FIRE MARSHALL OR LOCAL CODES. (E.C. MUST VERIFY REQUIREMENTS PRIOR TO BIDDING)
  - PROVIDE TESTING OF ALL ELECTRICAL EQUIPMENT.
  - PROVIDE TIMERS, PHOTOCELLS, AND CONTRACTORS FOR CONTROL OF EXTERIOR LIGHTING AND HVAC EQUIPMENT.
  - PROVIDE BACKBOXES, PULLSTATIONS, AND CONDUIT TO ABOVE ACCESSIBLE CEILING FOR ALL VOICE AND COMMUNICATIONS OUTLETS.
  - PROVIDE CONDUIT, JUNCTION BOXES, 115 VOLT FEEDERS, BACKBOXES, ETC. AS REQUIRED FOR SECURITY SYSTEM CAMERAS, ELECTRICAL DOOR STRIKES, ALARMS, REQUEST TO EXIT, MOTION SENSORS, CARD READERS, KEYPADS AND MAIN SECURITY PANEL AS PER DRAWINGS OR AS DIRECTED BY OWNER OR ARCHITECT. VERIFY EXTENT OF WORK PRIOR TO SUBMITTING BIDS.
  - PROVIDE EMERGENCY LIGHTING, BATTERY UNITS, REMOTE HEADS, EXIT LIGHTS AND ALL ASSOCIATED WIRING, CONDUIT, JUNCTION BOXES, CONNECTIONS, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.

## B. INSTALLATION

- THIS CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE PRESENT CONDITIONS AND VERIFY EXACT LOCATION OF EQUIPMENT AND LOCAL REGULATIONS PRIOR TO SUBMITTING BID.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF EXISTING WALLS CEILINGS AND FLOOR SLABS NECESSARY FOR THE COMPLETION OF HIS WORK.
- UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK AND MATERIAL SHOWN SHALL BE PERFORMED, FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- THE COMPLETE INSTALLATION SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND CITY CODES, RULES, REGULATIONS AND ORDINANCE. ALSO MAKE APPLICATION FOR AN ND PAY ALL FEES IN CONNECTION WITH ANY PERMITS, TESTS AND INSPECTIONS THAT MAY BE REQUIRED.
- GUARANTEE ALL WORKMANSHIP, MATERIAL AND PERFORMANCE FOR PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.
- THE EXACT MOUNTING LOCATIONS OF APPARATUS, DEVICES, EQUIPMENT AND CONDUITS SHALL BE ASCERTAINED FROM OWNER OR THEIR REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY. SHOULD THE CONTRACTOR FAIL TO ASCERTAIN SUCH LOCATIONS, THE WORK SHALL BE CHANGED AT HIS OWN EXPENSE WHEN SO ORDERED BY OWNER. THE OWNER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF CABLE, CONDUIT AND EQUIPMENT INSTALLED BY THIS CONTRACTOR UP TO THE TIME OF INSTALLATION, WITHOUT ADDITIONAL COST.
- ALL CONDUCTORS SHALL BE COPPER, THIN INSULATION UNLESS OTHERWISE NOTED. ALL WIRING SHALL BE IN EMT OR MC CABLE RUN CONCEALED IN FINISHED AREAS AND NOT SUBJECT TO PHYSICAL DAMAGE. RUN EMT IN UNFINISHED CEILING AREAS.
- RUN ALL CONDUIT CONCEALED IN BLOCK WALLS AND RECESS ALL DEVICES IN BIRCH WALLS TO THE EXTENT POSSIBLE AND/OR PRACTICAL.

## C. DRAWINGS AND SPECIFICATIONS

- ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND PIPING. DIMENSIONS GIVEN ON THE PLANS SHALL BE VERIFIED IN THE FIELD. DRAWINGS MAY NOT BE SCALED TO OBTAIN EXACT DIMENSIONS.
- THE EXACT LOCATIONS OF APPARATUS, FIXTURES, EQUIPMENT AND CONDUITS SHALL BE ASCERTAINED FROM THE OWNER OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY. SHOULD THE CONTRACTOR FAIL TO ASCERTAIN SUCH LOCATIONS, THE WORK SHALL BE CHANGED AT HIS OWN EXPENSE WHEN SO ORDERED BY THE OWNER.
- THIS CONTRACTOR SHALL FURNISH SUCH LABOR AND MATERIALS AS HEREIN-AFTER SPECIFIED AND AS REQUIRED TO COMPLETE ALL ELECTRICAL CONNECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT AND OWNER'S EQUIPMENT AS SHOWN AND/OR SPECIFIED.

## D. VISITING TO THE SITE

- THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK, AND THE SUBMISSION OF HIS PROPOSAL SHALL BE CONSIDERED AS INDICATING SUCH KNOWLEDGE, NO ADDITIONAL PAYMENT WILL BE MADE ON CLAIMS THAT ARISE FROM LACK OF SUCH KNOWLEDGE OF EXISTING CONDITIONS.

## E. MATERIALS AND WORKMANSHIP

- ALL WORK SHALL BE INSTALLED IN PRACTICAL AND WORKMANLIKE MANNER BY COMPETENT WORKMEN, SKILLED IN THEIR BRANCH OF THE TRADE.
- UNLESS SPECIFICALLY SPECIFIED OR INDICATED ON THE DRAWINGS TO THE CONTRARY, ALL MATERIALS SHALL BE NEW AND FREE FROM DEFECTS, AND SHALL BE THE BEST OF THEIR SEVERAL KINDS.
- ALL MATERIALS SHALL MEET OR EXCEED STANDARDS SPECIFIED BY UL, NEMA, ANSI AND IEEE WHEREVER SUCH STANDARDS HAVE BEEN ESTABLISHED.
- THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND EXCESS MATERIALS ASSOCIATED WITH HIS WORK AND LEAVE THE WORK AREA CLEAN AT THE END OF EACH WORK DAY.
- ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BEAR THE UNDERWRITER'S LABORATORIES LABEL.

## F. DEFINITIONS

- "INSTALL" SHALL MEAN TO PLACE, FIX IN POSITION, SECURE, ANCHOR, ETC., INCLUDING NECESSARY APPURTENANCES AND LABOR SO THAT THE EQUIPMENT OR INSTALLATION WILL FUNCTION AS SPECIFIED AND INTENDED.
- "FURNISH" SHALL MEAN TO PURCHASE AND SUPPLY EQUIPMENT OR COMPONENTS.
- "PROVIDE" SHALL MEAN TO "FURNISH AND INSTALL".
- "OR APPROVED EQUIVALENT" AND "OR EQUIVALENT" SHALL MEAN EQUIVALENT IN TYPE, DESIGN, QUALITY, ETC. AS DETERMINED BY THE OWNER AND APPROVED BY THE ENGINEER.

## G. CODES, PERMITS, AND INSPECTIONS

- INSTALL ALL WORK IN FULL ACCORDANCE WITH CODES, RULES, AND REGULATIONS OF MUNICIPAL, CITY, COUNTY, STATE AND PUBLIC UTILITY AND ALL OTHER AUTHORITIES HAVING JURISDICTION OVER THE PREMISES. THIS SHALL INCLUDE ALL DEPARTMENT OF INDUSTRIAL RELATIONS, OSHA AND THE REQUIREMENTS OF THE NORTH CAROLINA ELECTRICAL CODES AS INTERPRETED BY THE LOCAL INSPECTION DIVISION. ALL THESE CODES, RULES AND REGULATIONS ARE HEREBY INCORPORATED INTO THIS SPECIFICATION.
- COMPLY WITH SPECIFICATION REQUIREMENTS WHICH ARE IN EXCESS OF CODE REQUIREMENTS AND NOT IN CONFLICT WITH SAME.
- THE CONTRACTOR SHALL SECURE ALL PERMITS AND CERTIFICATED OR INSPECTION INCIDENTAL TO HIS WORK, REQUIRED BY THE FOREGOING AUTHORITIES. ALL SUCH CERTIFICATES SHALL BE DELIVERED TO THE OWNER IN DUPLICATE, BEFORE FINAL PAYMENT ON CONTRACT WILL BE ALLOWED. THE CONTRACTOR SHALL PAY ALL FEES, CHARGES AND OTHER EXPENSES IN CONNECTION THEREWITH.

## H. LABELING AND NAMEPLATES

- PERMANENTLY LABEL PANELBOARDS, TIME SWITCHES, CONTRACTORS AND SAFETY SWITCHES INDICATING EQUIPMENT OR PANELS AND AREAS WHICH THEY SERVE. LABEL ALL PULL AND JUNCTION BOXES SERVING MECHANICAL EQUIPMENT.
- LIGHTING AND APPLIANCE PANELS SHALL BE LABELED AS SHOWN ON DRAWINGS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION FOR PULL OR JUNCTION BOXES FURNISHED BY HIM.
- IDENTIFY AS TO USE ON FACE OF EQUIPMENT BY MEANS OF LAMINATED BLACK AND WHITE PHENOLIC LABEL WITH 1/2" LETTERS ENGRAVED THROUGH BLACK TO WHITE.

## I. TESTS AND VOLTAGE RECORD

- ELECTRICAL CONTRACTOR SHALL TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS. WHEN THE INSULATION RESISTANCE TEST SHALL INDICATE THE POSSIBILITY OF FAULTY INSULATION, THE CONTRACTOR SHALL LOCATED THE POINTS OF SUCH FAULT INSULATION AND HE SHALL RULL OUT THE CONDUCTOR AT FAULT, REPAIR SAME WITH NEW, AND DEMONSTRATE, BY FURTHER TEST THE ELIMINATION OF SUCH FAULT.
- RECORD FEEDER LOAD CURRENTS AND LINE VOLTAGES MEASURED AT EACH PANELBOARD. ADJUST SINGLE PHASE LOAD CONNECTIONS TO BALANCE FEEDER LOADS WITH 10% PROVIDE THE OWNER WITH A COMPLETE COPY OF ALL LOAD AND VOLTAGE RECORDS.

## J. BRANCH CIRCUIT WIRING

- PROVIDE A SYSTEM OF PANELS, CONDUITS, FITTINGS, BOXES, SUPPORTS AND ALL OTHER MISCELLANEOUS MATERIALS REQUIRED FOR EQUIPMENT INDICATED ON PLANS, COMPLETE AND READY FOR OPERATION BY THE OWNER.
- HOME RUNS FROM 30A OUTLETS 125 FT. OR OVER AT 277 VOLTS, OR 60 FT. OR OVER AT 120 VOLTS SHALL BE #10.0 WIRE.
- ALL FIXTURE AND BRANCH CIRCUIT WIRING CONNECTIONS OR SPICES SHALL BE MADE IN JUNCTION AND OUTLET BOXES WITH UL LISTED PRESSURE TYPE CONNECTORS AND LISTED FOR 600 VOLTS (1,000 VOLTS WHEN ENCLOSED IN FIXTURE). IDEAL INDUSTRIES WING NUTS AND/OR WIRE NUTS OR APPROVED EQUIVALENT MAY BE USED FOR JOINTS IN WIRE OF #8 GAUGE OR LESS.

## K. CONDUCTORS

- SIZES OF CONDUCTORS FOR FEEDERS ARE GIVEN ON THE DRAWINGS, AND NO WIRE SMALLER THAN #12 GAUGE SHALL BE USED FOR BRANCH LIGHTING OR POWER CIRCUITS. ALL WIRING SHALL HAVE THE UL LABEL, AND BE OF 98% CONDUCTIVITY COPPER, ALUMINUM, WIRE OR ALUMINUM CABLE IS NOT ACCEPTABLE UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
- THE GAUGE OF ALL WIRE SHALL BE IN ACCORDANCE WITH B & S STANDARD.
- ALL WIRE AND CABLE FOR BRANCH LIGHTING OR SMALL POWER CIRCUITS SHALL HAVE THE UL LABEL AND BE OF 98% CONDUCTIVITY COPPER.
- WIRE AND CABLE ABOVE #8 GAUGE SHALL BE STRANDED TYPE "THHN" INSULATED 600 VOLTS.

## L. CONDUIT AND CABLES

- ALL CONDUIT SHALL BE RIGID, THREADED, METAL CONDUIT OR ELECTRICAL METALLIC TUBING (EMT) UNLESS OTHERWISE SPECIFICALLY STATED HEREIN.
- CONDUIT AND EMT SHALL BE DELIVERED TO THE BUILDING IN 10 FOOT LENGTHS AND EACH LENGTH SHALL HAVE THE APPROVED UNDERWRITER'S LABORATORIES LABEL.
- CONDUIT SHALL BE RUN CONCEALED IN ALL FINISHED AREAS OF THE BUILDING AND MAY BE RUN EXPOSED IN UNFINISHED AREAS AT CEILING OF JOIST LEVEL. RUN CONCEALED IN BLOCK WALLS THE EXTENT THAT IS PRACTICAL.
- EMT CONNECTORS AND COUPLERS SHALL BE RAIN TIGHT COMPRESSION TYPE (OR SET-SCREW WHERE ACCEPTABLE TO OWNER AND LOCAL CODES) MADE OF STEEL AS MANUFACTURED BY THOMAS & BETTS, STEEL CITY OF APPLIFORN. BENDS AND OFFSETS SHALL BE MADE WITH A HICKEY OR POWER BENDER WITHOUT KINKING OR DESTROYING THE SMOOTH BORE OF THE CONDUIT. PARALLELED CONDUITS SHALL RUN STRAIGHT AND TRUE WITH OFFSETS LINEAR AND SYMMETRICAL. CONDUIT TERMINALS AT BOXES AND CABINETS SHALL BE RIGIDLY SECURED WITH LOCKNUTS AND BUSHINGS AS REQUIRED BY THE NORTH CAROLINA ELECTRICAL CODE. INSULATED BUSHINGS SHALL BE USED ON ALL CONDUIT 1-1/4" TRADE SIZE AND LARGER.
- CONDUIT SHALL BE SECURELY FASTENED IN PLACE AT NO MORE THAN 10 FT. CENTERS, AND HANGER, SUPPORTS, OR FASTENINGS SHALL BE PROVIDED AT EACH CONDUIT ELBOW AND AT THE END OF EACH STRAIGHT RUN TERMINATING AT A BOX OR CABINET. CONDUIT SHALL NOT BE SUPPORTED FROM THE CEILING OR CEILING SUSPENSION WIRES.
- HORIZONTAL AND VERTICAL CONDUIT RUNS SHALL BE SUPPORTED BY ONE-HOLE METALLIC STRAPS, OR THEIR APPROVED METAL DEVICE WITH SUITABLE BOLTS, OR BEAM CLAMPS FOR MOUNTING TO BUILDING STRUCTURE OR SPECIAL BRACKETS. CONDUIT SHALL BE SUPPORTED FROM STRUCTURAL STEEL OR JOIST AND INDEPENDENT OF OTHER PIPING. DO NOT SUPPORT CONDUIT FROM METAL ROOF DECK, OR ANY OTHER SUPPORT DEVICE OF ANOTHER TRADE.
- NON-METALLIC SHEATHED CABLE (ROMEX) OF AC CABLE SHALL NOT BE USED. TYPE MC CABLE MAY BE USED ONLY WHEN CONCEALED IN FINISHED WALLS OR ABOVE CEILING AND WHEN NOT SUBJECT TO PHYSICAL DAMAGE UNLESS ITS USE IS NOT APPROVED ABBEY OWNER OR LOCAL CODES.
- ONLY SHORT RUNS OF FLEXIBLE METAL CONDUIT NOT OVER 30" IN LENGTH SHALL BE USED FOR TERMINAL CONNECTIONS TO MOTORS AND OTHER VIBRATING EQUIPMENT, AND ALSO FOR ELECTRICAL EQUIPMENT WHERE IT IS NOT PRACTICAL TO MAKE FINAL CONNECTION WITH RIGID CONDUIT. FLEXIBLE CONDUIT EXPOSED TO WEATHER SHALL BE "SEALTITE" OR EQUIVALENT.
- CONDUIT SHALL CONFORM TO ALL THE REQUIREMENTS OF THE NORTH CAROLINA ELECTRICAL CODE AND LOCAL CODES.

## M. GROUNDING

- THIS CONTRACTOR SHALL PROVIDE, INSTALL AND CONNECT A COMPLETE SYSTEM OF GROUNDING FOR ALL EQUIPMENT AND STRUCTURES A GOOD MECHANICAL AND ELECTRICAL CONNECTION SHALL BE MADE WITH APPROVED GROUNDING CONNECTORS.
- ELECTRICAL SYSTEM AND EQUIPMENT GROUNDS SHALL COMPLY WITH ALL LOCAL, STATE AND NORTH CAROLINA CODES AND REGULATIONS.
- PANELS, CONDUIT SYSTEMS MOTOR FRAMES, LIGHTING FIXTURES AND OTHER EQUIPMENT THAT ARE PART OF OF THIS INSTALLATION SHALL BE SECURELY GROUNDED BOTH MECHANICALLY AND ELECTRICALLY IN ACCORDANCE WITH ALL CODES.
- MAIN GROUNDING SYSTEM (WHEN APPLICABLE) SHALL BE SIZED TO CONFORM WITH TABLE 250-64 OF NORTH CAROLINA ELECTRIC CODE. PROVIDE CONDUIT TO PROTECT GROUND WIRE FROM DAMAGE TO ANY AREA 6 FEET ABOVE FLOOR.

## N. LIGHTING/APPLIANCE PANELBOARDS AND DISTRIBUTION PANELS

- DISTRIBUTION PANELS SHALL BE SQUARE "D" CO., TYPE "IUM" OR APPROVED EQUIVALENT G.E., SIEMENS, OR CUTLER HAMMER.
- 480/277V PANELS SHALL BE SQUARE "D" CO. TYPE "NFI" OR APPROVED EQUIVALENT BY G.E., SIEMENS, OR CUTLER HAMMER. BREAKERS SHALL BE BOLTED TO BUS TYPE QUICK-MAKE, BREAK-BREAKERS, AND CAPABLE OF INTERCHANGING ONE, TWO OR THREE POLE UNITS. MULTIPLE UNITS SHALL BE COMMON TRIP. PROVIDE SPARE BREAKERS IN EACH PANEL AS SHOWN. ALL BUSHING SHALL BE 98% CONDUCTIVITY COPPER, ALUMINUM BUS, ALUMINUM CONDUCTORS OR ALUMINUM LUGS ARE NOT ACCEPTABLE.
- 208/120V PANELS SHALL BE SQUARE "D" CO. TYPE "NQOD" OR APPROVED EQUIVALENT BY G.E., SIEMENS, OR CUTLER HAMMER WITH TYPE "QOB" BOLT-ON BRANCH BREAKERS ONLY.
- SHORT CIRCUIT RATINGS OF NEW PANELS SHALL BE AS NOTED ON DRAWINGS, OR AS OTHERWISE DIRECTED BY LOCAL UTILITY COMPANY. UL TESTED AND CERTIFIED SERIES RATINGS ARE ACCEPTABLE WITH WRITTEN DOCUMENTATION SHOWING SERIES RATINGS BUT ONLY IF ACCEPTABLE TO OWNER OR LOCAL CODES.

## O. GENERAL FOR ALL PANELS

- METAL FRAMED CARDHOOLDERS WITH TYPEWRITTEN CIRCUIT DIRECTORY MUST BE PROVIDED FOR EACH PANEL. DIRECTORY SHALL BE CLEAR AND DESIGNATION SHALL MATCH IDENTIFICATION ON EQUIPMENT. PANELBOARD (POWER PANELS AND LIGHTING PANELS) SHALL BE WITH IDENTIFICATION LABELED ON SWITCH AND/OR PANEL DOOR. PROVIDE ENGRAVED LAMINATED PHENOLIC NAMEPLATE WITH 1/2" LETTERS.
- ALL PANELS SAFETY SWITCHES, STARTERS AND IN GENERAL, ALL EQUIPMENT REQUIRING LUGS SHALL BE EQUIPPED WITH SOLDERLESS TYPE UL APPROVED LUGS.
- PROVIDE ALL NECESSARY UNISTRUT, CHANNEL, BACKING AND SUPPORTS TO MOUNT PANELBOARDS SECURELY IN PLACE.
- SCREW FASTENED HANDLE LOCK-ON DEVICES ARE REQUIRED ON CIRCUIT BREAKERS PROTECTING SERVICES TO THE FOLLOWING EQUIPMENT:
  - EMERGENCY, EXIT, SECURITY AND NIGHT LIGHTS.
  - HEATING AND COOLING CONTROL CIRCUITS.
  - ALL TIME SWITCHES.

## P. TOGGLE SWITCHES AND RECEPTACLES

- SINGLE POLE 1221 AND THREE(3) WAY #1223- SWITCHES SHALL BE RATED 20 AMPERE, 277/120 VOLTS, COLOR TO BE BID AS WHITE (FINAL SELECTION BY ARCHITECT) HUBBELL OR EQUIVALENT. SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR TO CENTERLINE.
- DUPLEX RECEPTACLES SHALL BE AS SPECIFIED ON DRAWINGS.

## Q. DISCONNECT SWITCHES

- AN APPROVED HORSEPOWER RATED, HEAVY DUTY, DISCONNECT SWITCH SHALL BE PROVIDED WITHIN SIGHT OF EACH MOTOR AND EACH HEATING UNIT. PROVIDE FUSED SWITCHES WHERE BRANCH CIRCUIT FUSES ARE NOT SIZED FOR OVERLOAD PROTECTION.
- SWITCHES ON THE ROOF SHALL BE WEATHERPROOF MOUNTED ON UNISTRUT.
- SWITCHES SHALL BE LABELED ON THEIR COVER IDENTIFYING THE EQUIPMENT TO BE PROTECTED.

## R. MOTORS AND WIRING

- FURNISH AND INSTALL DISCONNECT SWITCHES (EXCEPT WHERE SPECIFICALLY SPECIFIED BY OTHERS) AND RUN POWER CIRCUITS FROM THE POWER PANEL THROUGH DISCONNECT SWITCHES & CONTROL DEVICES TO MOTOR TERMINALS.
  - THE ABOVE ELECTRICAL EQUIPMENT SHALL BE MOUNTED SECURELY TO WALL OR FRAMES AND THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL NECESSARY BRACKETS, STRUCTURAL PIECES, EXPANSION BOLTS AND OTHER ACCESSORIES REQUIRED.
  - WOODEN PLUGS SHALL NOT BE PERMITTED FOR ANCHORING.
  - ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER LUBRICATION OF ALL MOTORS.
- REFER ALSO TO MECHANICAL SPECIFICATIONS FOR WORK BY MECHANICAL CONTRACTOR WHICH MAY RESULT IN ADDITIONAL WORK FOR THIS ELECTRICAL CONTRACTOR.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING AN CONNECTIONS TO ALL HVAC EQUIPMENT.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS TO ALL HVAC EQUIPMENT NOT PROVIDED BY OTHERS.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONTROL EQUIPMENT (STARTERS, CONTRACTORS ETC.) NOT SUPPLIED BY HVAC CONTRACTOR BUT REQUIRED FOR THE INTENDED OPERATION OF HVAC EQUIPMENT.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT NOT SUPPLIED BY OTHERS.
- REFER TO MECHANICAL SPECIFICATION AND DRAWINGS FOR ADDITIONAL ELECTRICAL WORK AND COORDINATION.

## S. FUSES

- REPLACE ALL FUSES BLOWN DURING CONSTRUCTION AND TESTING AN PROVIDE A COMPLETE ST OF FUSES IN ALL FUSE HOLDERS, DUAL ELEMENT, TIME DELAY TYPE OWNER WITH ONE SET OF SPARE FUSES FOR EACH FUSED SWITCH.
- FUSES SHALL BE CURRENT LIMITING, DUAL ELEMENT TIME DELAY TYPE OWNER WITH ONE SET OF SPARE FUSES FOR EACH FUSED SWITCH.

## T. GUARANTEE

- IN ADDITION TO WARRANTIES OF EQUIPMENT BY MANUFACTURER OF SAME, THIS CONTRACTOR SHALL ALSO GUARANTEE EQUIPMENT PROVIDED BY HIM AND SHALL BEHOLD FOR A PERIOD OF ONE (1) YEAR TO MAKE GOOD ANY DEFECTS IN MATERIALS AND WORKMANSHIP OCCURRING DURING THIS PERIOD, AT HIS SOLE EXPENSE. THE ONE (1) YEAR PERIOD SHALL START FROM DATE OF FINAL ACCEPTANCE BY OWNER.

## U. FIELD DRAWING

- KEEP ONE (1) SET OF WORKING DRAWINGS AND SHIP DRAWINGS AT THE JOB SITE FOR SOLE PURPOSE OF RECORDING ALL CHANGES MADE DURING CONSTRUCTION. AFTER COMPLETION OF THE WORK AND BEFORE REQUESTING FINAL PAYMENT, THE ABOVE MENTIONED DRAWINGS SHALL BE DELIVERED TO THE OWNER.

## V. SUBSTITUTION

- WHENEVER ALTERNATE MATERIALS ARE SPECIFIED, IT IS WITH THE UNDERSTANDING THAT ANY OF THE MATERIALS IS ACCEPTABLE TO THE OWNER. MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED ARE NOT TO BE ASSUMED TO BE SATISFACTORY SUBSTITUTES WITHOUT PRIOR APPROVAL OF THE OWNER.

## W. SHOP DRAWINGS

- ONLY MANDATORY SHOP DRAWINGS AS LIMITED OUTLINE HEREIN SHALL BE SUBMITTED.
- NO WORK SHALL BE INSTALLED UNTIL THE MANDATORY SHOP DRAWINGS HAVE BEEN APPROVED BY THE ARCHITECT/ENGINEER. THE ARCHITECT/ENGINEER SHALL REVIEW SUBJECT SHOP DRAWINGS BEFORE A COPY IS SUBMITTED TO THE OWNER FOR RECORD PURPOSES.
- ONLY MATERIAL AND EQUIPMENT MANUFACTURERS OF PRODUCTS OR SYSTEMS LISTED BELOW SHALL FURNISH MANDATORY SHOP DRAWINGS FOR APPROVAL BY THE ARCHITECT/ENGINEER PRIOR TO CONTRACTORS PURCHASING EQUIPMENT. SHOP DRAWINGS ARE TO CONTAIN THE FOLLOWING:
  - MANUFACTURER'S NAME, MATERIAL DESCRIPTION, SIZES AND DIMENSIONS AND OTHER PERTINENT INFORMATION TO CONFORM AS MINIMUM STANDARD FOR EQUIPMENT LISTED IN THE SCHEDULES ON THE DRAWINGS AND OR IN THE SPECIFICATIONS.
- SUBMIT A COPY OF SEVEN (7) COPIES OF ALL REQUIRED ELECTRICAL SHOP DRAWINGS.
- THE FOLLOWING SHOP DRAWING SUBMITTALS ARE A MANDATORY REQUIREMENT OF THE OWNER, IF THE FOLLOWING EQUIPMENT IS TO BE INSTALLED:
  - STEP DOWN TRANSFORMERS (480-120/208V) WHEN APPLICABLE
  - WIRING DEVICES INCLUDING WEATHERPROOF RECEPTACLES
  - LIGHTING FIXTURES & EMERGENCY LIGHTING FIXTURES
  - DISCONNECT SWITCHES
  - POWER/LIGHTING PANELS
  - MOTOR STARTERS
  - FIRE ALARM DEVICES

## X. ALARM AND DETECTION SYSTEMS (BY VENDOR)

- PROVIDE NECESSARY CONDUIT AND POWER FOR ALARM AND DETECTION SYSTEMS. THIS SHALL INCLUDE THE FOLLOWING:
  - DEDICATED 20 AMP / 120 VOLT CIRCUIT (5).
  - 3/4" CONDUIT (EMPTY) TO EACH TO DOOR CONTACT, SOUND DETECTION SILENT DURESS ALARM, FILM CAMERA, SUSPICION BUTTON, ETC. (REFER TO ARCHITECTURAL DOOR SCHEDULE)
  - COORDINATE ALL LOCATIONS OF ALARM AND DETECTION SYSTEM WITH OWNER. THESE ITEMS ARE NOT SHOWN ON ELECTRICAL DRAWINGS.

## Y. COMMUNICATION SYSTEMS

- WORK INCLUDES: EMPTY CONDUIT WITH NYLON PULLWIRES AND BOXES FOR UTILITY TELEPHONE WIRING.
- WORK BY COMMUNICATIONS CONTRACTOR:
  - ALL WIRING FOR TELEPHONE INSTRUMENTS
  - ALL TELEPHONE INSTRUMENTS

LENGTH	HOME RUN WIRE SIZE	CIRCUIT WIRE SIZE
1 TO 25'	12	12
66 TO 104'	10	12
105 TO 156'	8	12
157 TO 263'	6	12
264 TO 419'	4	12

## ELECTRICAL DRAWING LIST

E1.0	ELECTRICAL GENERAL NOTES
E2.0	ELECTRICAL LIGHTING PLAN
E3.0	ELECTRICAL POWER PLAN
E4.0	LOW VOLTAGE PLAN
E4.0	ELECTRICAL PANELBOARD AND RISER DIAGRAM

## APPLICABLE CODES

1	2024 NORTH CAROLINA BUILDING CODE
2	2024 NORTH CAROLINA PLUMBING CODE
3	2024 NORTH CAROLINA MECHANICAL CODE
4	2023 NORTH CAROLINA ELECTRICAL CODE
5	2024 NORTH CAROLINA ENERGY CONSERVATION CODE

## ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	HOME RUN
	DUPLEX RECEPTACLE @ 18" A.F.F. U.N.O. MOUNTED AT CODE HEIGHT.
	GROUND FAULT PROTECTED DUPLEX RECEPTACLE.
	QUAD RECEPTACLE @ 18" A.F.F. U.N.O. MOUNTED AT CODE HEIGHT.
	USB DUPLEX COMBINATION RECEPTACLE.
	SHOW WINDOW OUTLET
	SINGLE OUTLET/SPECIAL RECEPTACLE
	FLOOR QUAD
	TELEPHONE RECEPTACLE AT +18"A.F.F., U.N.O.
	FLOOR TELEPHONE RECEPTACLE.
	DATA RECEPTACLE AT +18"A.F.F., U.N.O.
	TELEPHONE / DATA COMBINATION RECEPTACLE AT +18"A.F.F., U.N.O.
	FLOOR TELEPHONE / DATA COMBINATION RECEPT.
	THERMOSTAT
	POWER POLE.
	LIGHT SWITCH.
	WALL MOUNTED OCCUPANCY SENSOR AT +46" A.F.F.
	CEILING MOUNTED OCCUPANCY SENSOR.
	JUNCTION BOX.
	DISCONNECT SWITCH.
	ELECTRICAL PANEL.
	FLOOR DUPLEX RECEPTACLE
	DUCT SMOKE DETECTOR
	WALL MOUNTED SMOKE DETECTOR TEST STATION
	MOTORIZED SWITCH
	DUCT SMOKE DETECTOR
	WALL MOUNTED SMOKE DETECTOR TEST STATION
	SECURITY CAMERA
	SPEAKER

NOTE: NOT ALL SYMBOLS MAY APPEAR ON DRAWINGS.

## ELECTRICAL LANDLORD NOTES:

- TENANT IS REQUIRED TO MAKE A FIELD SURVEY OF THE EXISTING ELECTRICAL SERVICE TO ENSURE THAT THE TOTAL CONNECTED LOAD DOES NOT EXCEED THE ELECTRICAL SERVICE AND ANY MODIFICATIONS OR UPGRADES NEEDED ARE SUBJECT TO LANDLORD'S PRIOR APPROVAL AND WILL BE COMPLETED BY TENANT/ TENANT'S GC, AT TENANT'S SOLE EXPENSE.
- EMT (ELECTRIC METALLIC TUBING) SHALL BE USED IN ALL DEMISING WALLS, HOME RUNS, BETWEEN DEVICES AND PULL BOXES. MC CABLE MAY BE USED IN OTHER APPLICATION AS ALLOWED BY THE AUTHORITY HAVING JURISDICTION (AHJ). ALL EXPOSED CONDUIT, RIGID OR MC CABLE, SHALL BE INSTALLED IN TIGHT STRAIGHT LINES, PARALLEL OR IN RIGHT ANGLES TO THE BUILDING STRUCTURE. DO NOT LOOP EXCESS MC CABLE IN CEILING SPACE OR WALL CAVITY.
- ALL FEEDERS SHALL BE COPPER. TYPE AC AND NM (ROMEX) CABLES ARE NOT ACCEPTABLE.
- ALL PANELS SHALL BE UL LABELED WITH BOLT ON TYPE CIRCUIT BREAKERS. PANELS SHALL NOT BE RECESSED IN DEMISING AND SHALL BE MOUNTED ON PLYWOOD RACKER PANELS UNLESS RECESSED INTO A FURRED OUT OR INTERIOR WALL.
- PANEL PHASE LOADS TO BE BALANCED WITHIN 10%.
- ONLY 30 KVA AND SMALLER TRANSFORMERS MAY BE SUSPENDED FROM BUILDING STRUCTURE. ALL OTHER TRANSFORMERS MUST BE SUPPORTED. STRUCTURE SUPPORT DOCUMENTATION SHALL BE REQUIRED TO MEET AUTHORITIES HAVING JURISDICTION (AHJ).
- NOTHING IS PERMITTED TO BE ATTACHED TO, SUSPENDED FROM, OR PENETRATE ELECTRICAL STRUCTURE, FLOOR DECK, OR ROOF DECK, YOU MAY ATTACH, NON-DESTRUCTIVELY, TO OR SUSPEND FROM THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS ABOVE THE TENANT SPACE, WHEN ATTACHING TO LANDLORD'S STRUCTURE, DO NOT DRILL, WELD, SCREW, OR SHOOT INTO STRUCTURE. ALTERNATIVE METHODS OF ATTACHMENT ONLY, NOTHING TO DAMAGE LANDLORD'S BASE BUILDING STRUCTURE. TENANT SHALL PROVIDE SIGNED AND SEALED STRUCTURAL DRAWINGS, BY A STRUCTURAL ENGINEER WITH LEGALLY ACTIVE REGISTRATION AS INDICATED BY ALL JURISDICTION REQUIREMENTS, FOR ALL STRUCTURAL MODIFICATIONS FOR LANDLORD RECORDS.
- 7 DAY, 24 HOUR TIME CLOCK IS REQUIRED TO CONTROL STOREFRONT ENTRY LIGHTS, SHOW WINDOW LIGHTS, SHOW WINDOW RECEPTACLES AND STOREFRONT SIGNAGE. ILLUMINATED STOREFRONT SIGNS MUST REMAIN LIT DURING ALL MALL BUSINESS HOURS.
- ALL EQUIPMENT, DEVICES AND FIXTURES SHALL BE GROUNDED IN COMPLIANCE WITH NEC AND UL REQUIREMENTS.
- SLAB REQUIREMENTS:**
  - SLAB ON GRADE: TENANT'S GENERAL CONTRACTOR SHALL ADVISE THE OPERATION TEAM PRIOR TO ANY SLAB MODIFICATIONS OR REMOVAL. IF ANY ELEVATED SLAB IS TO BE MODIFIED IN ANYWAY (DRILLED, CORED, OR PENETRATED), TENANT SHALL PROVIDE STAMPED AND CERTIFIED DRAWINGS BY A LICENSED STRUCTURAL ENGINEER CERTIFIED IN THE LOCAL JURISDICTION. ALL PENETRATIONS SHALL BE CORE BORED ONLY. SAW CUTTING, JACK HAMMERING, AND TRENCHING IS STRICTLY PROHIBITED. ALL PENETRATIONS SHALL BE SLEEVED, SEALED, FIRE STOPPED, AND WATERPROOFED. THE PENETRATION SLEEVE SHALL EXTEND A MINIMUM OF 4" ON EITHER SIDE OF THE SLAB AND BE LABELED WITH THE REQUIRED NFPA RATING. TENANT GC SHALL VERIFY THAT WORK SHALL NOT CONFLICT WITH ANY EXISTING STRUCTURAL UTILITY, OR OTHER UNDER-SLAB CONDITION. (NON-DESTRUCTIVE VERIFICATION MAY BE REQUIRED.) ANY DAMAGE OR DOWNTIME CAUSED BY TENANT'S WORK SHALL BE REPAIRED AND REIMBURSED AT TENANT'S EXPENSE.
  - ELEVATED SLABS: TENANT'S GENERAL CONTRACTOR SHALL ADVISE THE OPERATIONS TEAM PRIOR TO ANY SLAB MODIFICATION OR REMOVAL. IF ANY ELEVATED SLAB IS TO BE MODIFIED IN ANYWAY (DRILLED, CORED, OR PENETRATED), TENANT SHALL PROVIDE STAMPED AND CERTIFIED DRAWINGS BY A LICENSED STRUCTURAL ENGINEER CERTIFIED IN THE LOCAL JURISDICTION. ALL PENETRATIONS SHALL BE CORE BORED ONLY. SAW CUTTING, JACK HAMMERING, AND TRENCHING IS STRICTLY PROHIBITED. ALL PENETRATIONS SHALL BE SLEEVED, SEALED, FIRE STOPPED, AND WATERPROOFED. THE PENETRATION SLEEVE SHALL EXTEND A MINIMUM OF 4" ON EITHER SIDE OF THE SLAB AND BE LABELED WITH THE REQUIRED NFPA RATING. TENANT GC SHALL VERIFY THAT WORK SHALL NOT CONFLICT WITH ANY EXISTING STRUCTURAL UTILITY, OR OTHER UNDER-SLAB CONDITION. (NON-DESTRUCTIVE VERIFICATION MAY BE REQUIRED.) ANY DAMAGE OR DOWNTIME CAUSED BY TENANT'S WORK SHALL BE REPAIRED AND REIMBURSED AT TENANT'S EXPENSE.
- LANDLORD STRONGLY PREFERS USE OF ENERGY STAR PRODUCTS AND/OR EQUIPMENT WHENEVER POSSIBLE DURING TENANT BUILD OUT, WHICH CAN REDUCE ENERGY CONSUMPTION.

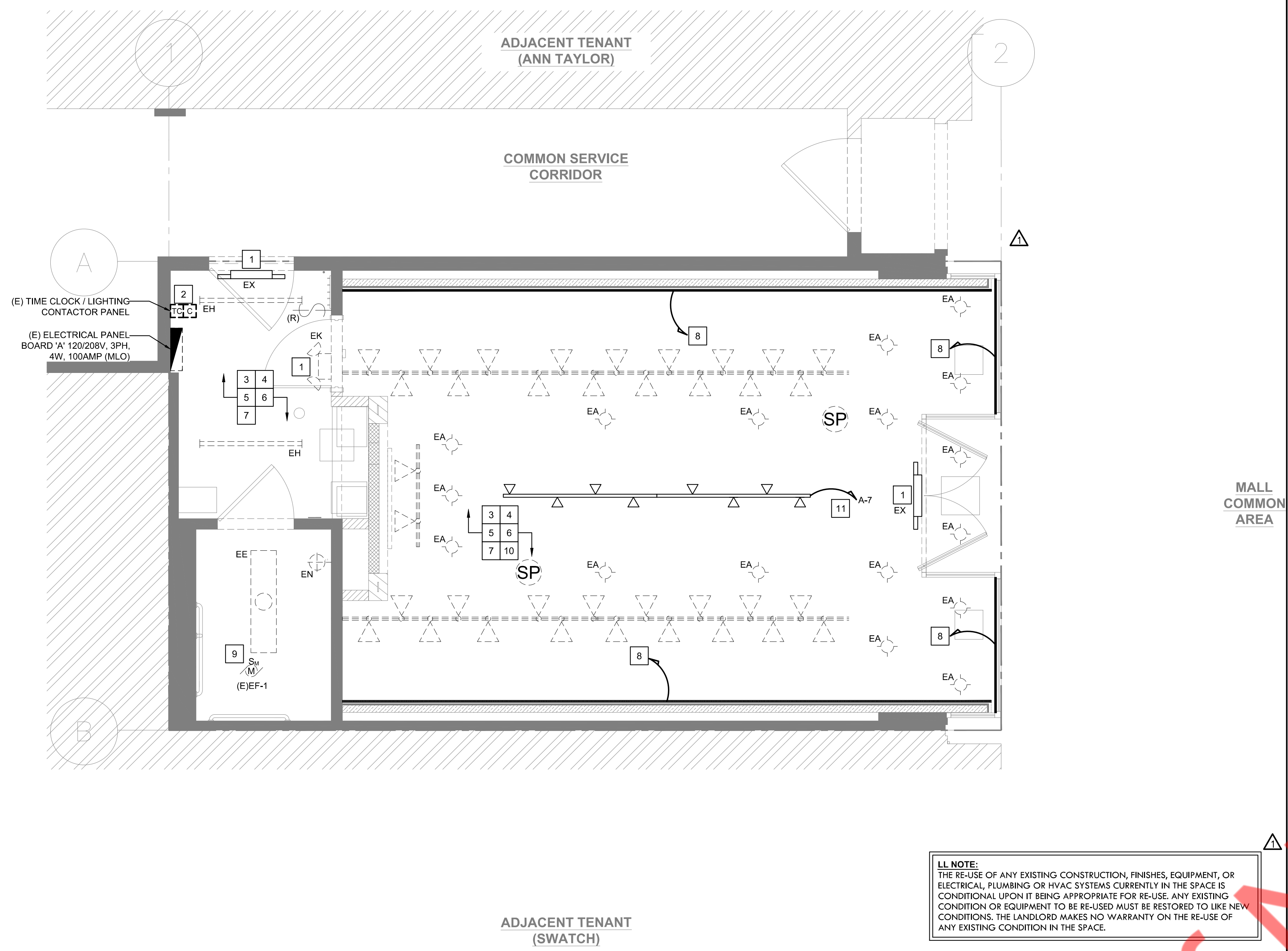
# QUAY

DRAWING TITLE:

ELECTRICAL  
GENERAL NOTES

DRAWING NUMBER:

# E1.0



**LL NOTE:**  
 THE RE-USE OF ANY EXISTING CONSTRUCTION, FINISHES, EQUIPMENT, OR ELECTRICAL, PLUMBING OR HVAC SYSTEMS CURRENTLY IN THE SPACE IS CONDITIONAL UPON IT BEING APPROPRIATE FOR RE-USE. ANY EXISTING CONDITION OR EQUIPMENT TO BE RE-USED MUST BE RESTORED TO LIKE NEW CONDITIONS. THE LANDLORD MAKES NO WARRANTY ON THE RE-USE OF ANY EXISTING CONDITION IN THE SPACE.

1 ELECTRICAL LIGHTING PLAN  
 3/8" = 1'-0"

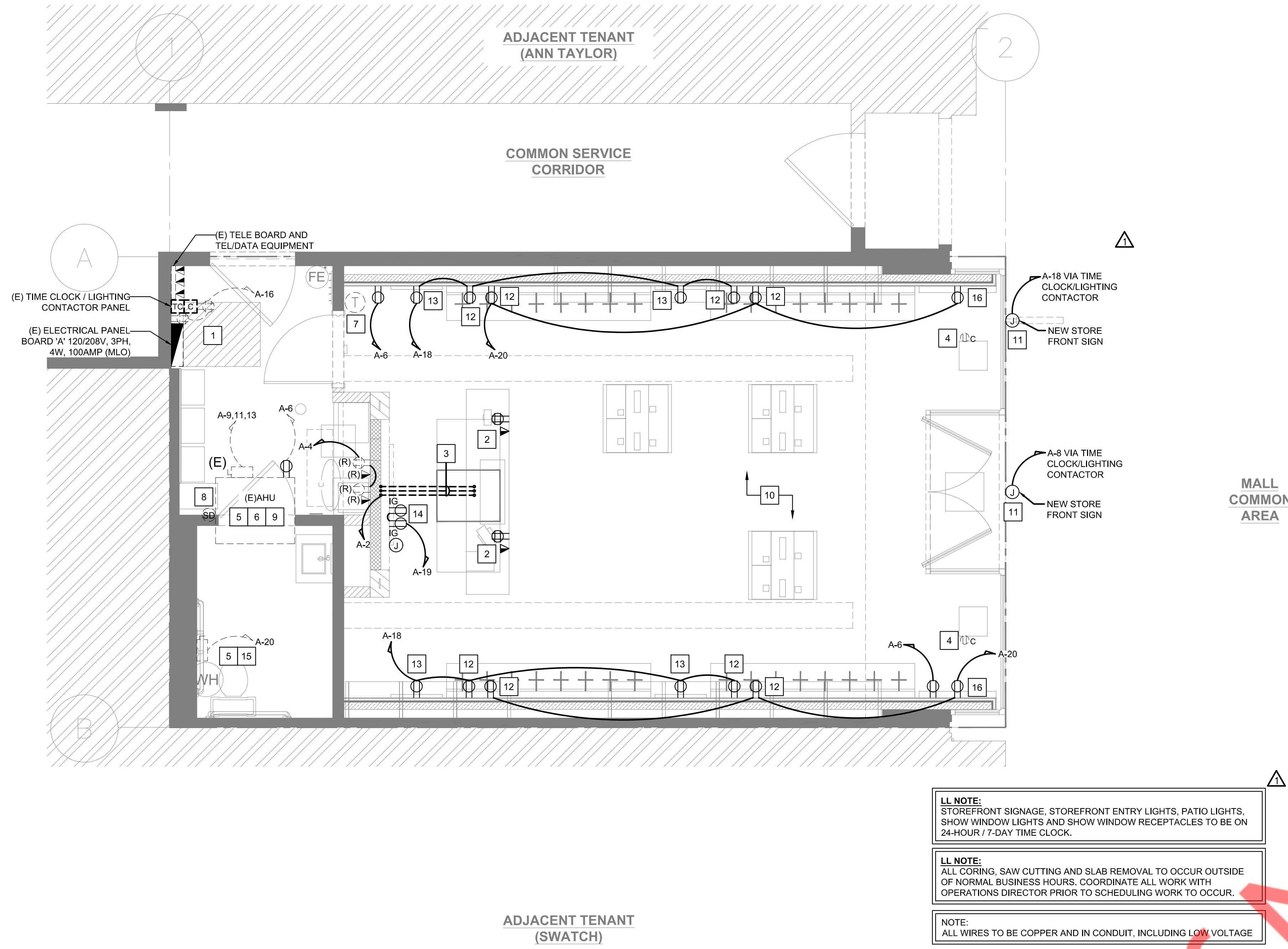
LIGHT FIXTURE SCHEDULE											
TYPE	SYMBOL	COUNT	MANUFACTURER	MODEL	DESCRIPTION	COLOR	LAMP	LAMP WATT.	FIXTURE WATT.	VOLTAGE	MOUNTING
A1		51	TBD	TBD	LINEAR LED LIGHT	-	LED	2W/FT	2W/FT	120V	-
H1		10	TBD	TBD	LINEAR LED LIGHT	-	LED	2.5W/FT	2.5W/FT	120V	-
LT1		7 HEADS, 12 TRACK LENGTH	ATTAIN LED	AT-HP-22-10-95-24-WH-J	LED TRACK HEAD LIGHT	-	LED	22W	22W	120V	-
EX		AS PER CODE	TBD	TBD	EXIT SIGN	-	LED	3W	3W	120V	-
EA		17	EXISTING	EXISTING	EXISTING DOWNLIGHT	EXISTING	LED	EXIST.	EXIST.	120V	EXIST.
EE		1	EXISTING	EXISTING	EXISTING FLUORESCENT LIGHT	EXISTING	LED	EXIST.	EXIST.	120V	EXIST.
EG		36	EXISTING	EXISTING	EXISTING TRACK LIGHT	EXISTING	LED	EXIST.	EXIST.	120V	EXIST.
EH		2	EXISTING	EXISTING	EXISTING STRIP LIGHT	EXISTING	LED	EXIST.	EXIST.	120V	EXIST.
EN		1	EXISTING	EXISTING	EXISTING VANITY LIGHT	EXISTING	LED	EXIST.	EXIST.	120V	EXIST.
EK		AS PER CODE	EXISTING	EXISTING	EXISTING EMERGENCY LIGHT	EXISTING	LED	EXIST.	EXIST.	120V	EXIST.

**GENERAL NOTES**

- ALL ELECTRICAL WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR LOCAL CODE AND/OR OTHER AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL VISIT THE PROJECT SITE, REVIEW EXISTING CONDITIONS AGAINST THE PLANS, AND FAMILIARIZE HIMSELF WITH THE WORK PRIOR TO BIDDING AND START OF WORK.
- SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION AND QUANTITY OF LIGHTING FIXTURES.
- EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED AND CIRCUITED PER LATEST NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES. ALL EMERGENCY AND EXIT FIXTURES SHALL HAVE A MINIMUM 90-MINUTE BATTERY BACK-UP.
- ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED FOR A FULLY COMPLETE AND OPERABLE SYSTEM.
- ALL EQUIPMENT SHALL HAVE UL OR CSA LABELS.
- G.C. IS RESPONSIBLE FOR ALL FINAL CONNECTIONS, TERMINATIONS, AND COORDINATION IN ALL MILLWORK FIXTURES.
- ELECTRICAL CONTRACTOR'S BID SHALL INCLUDE INSTALLATION OF ALL LIGHT FIXTURES AND ASSOCIATED LAMPS. SOME FIXTURES REQUIRE ASSEMBLY. E.C. IS RESPONSIBLE TO ENSURE THE ADJUSTABILITY OF ALL DIRECTIONAL FIXTURES AFTER INSTALLATION AND SHALL AM FIXTURES PER DIRECTION FROM OWNER. IF THE CEILING SYSTEMS ARE FIRE RATED, E.C. SHALL CLOSELY COORDINATE RECESSED FIXTURE REQUIREMENT WITH OWNER AND SUPPLIER TO MAINTAIN THE FIRE RATING OF THE CEILING.
- G.C. SHALL PROVIDE TIME CLOCK PROGRAMMING TRAINING SESSION FOR THE STORE MANAGER AND AT LEAST ONE OTHER EMPLOYEE PRIOR TO PROJECT CLOSEOUT.
- THE ELECTRICAL LIGHTING INSTALLATIONS SHALL CONFORM TO ALL STATE AND LOCAL SEISMIC AND CODE REQUIREMENTS REGARDING LIGHT FIXTURE SUPPORT: ALL ELECTRICAL METALLIC TUBING (EMT), RIGID NON-METALLIC CONDUITS, "SEAL TIGHT" TYPE CONDUITS AND ALL OTHER CONDUITS THAT DO NOT CONTAIN A CODE SIZED GROUND WIRE SHALL HAVE A CODE SIZED BOND WIRE INSTALLED WITH THE CIRCUIT CONDUCTORS.

**KEY NOTES**

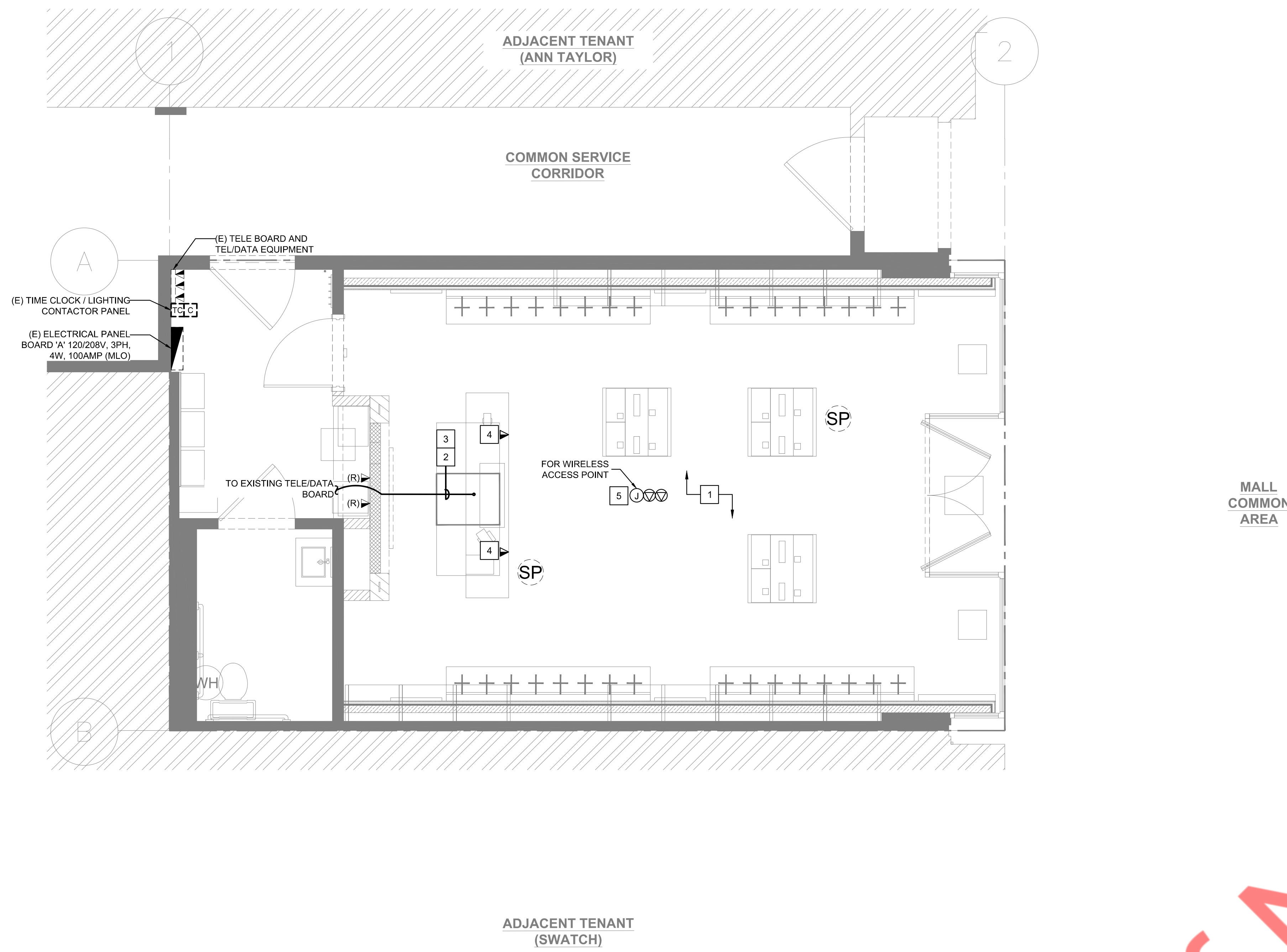
- ALL NEW/EXISTING/RELOCATED EXIT SIGNS & EMERGENCY LIGHTS TO BE CONNECTED TO LOCAL LIGHTING CIRCUIT AHEAD OF SWITCHING.
- EXISTING TIME CLOCK FOR CONTROL OF LIGHTING LOADS, E.C. TO VERIFY THE OPERABLE CONDITION OF EXISTING TIME CLOCK PRIOR TO BID. REUSE IF POSSIBLE. OTHERWISE PROVIDE NEW CLOCK AS SHOWN ON SHEET E4.0 - TIME CLOCK AND LIGHTING CONTACTOR DETAILS.
- NEW/EXISTING/RELOCATED SPEAKERS AND CAMERAS. COORDINATE LOW VOLTAGE REQUIREMENTS WITH LOW VOLTAGE PLAN ON SHEET E3.1.
- EXISTING LIGHTING AND ITS CONTROLS SHALL REMAIN. E.C. SHALL VERIFY THE EXACT LOCATION AND OPERABLE CONDITION OF EXISTING LIGHTING AND ITS CONTROLS IN FIELD. PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- E.C. SHALL VERIFY THAT THE EXISTING CONTROLS COMPLY WITH THE LATEST IECC AND LOCAL CODES. MODIFY AS NECESSARY TO ENSURE COMPLIANCE. BASE BID ACCORDINGLY.
- E.C. SHALL VERIFY EXISTING EMERGENCY LIGHT, THEIR LOCATION AND OPERABLE CONDITION OF LIGHT AND BATTERY IN FIELD. PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- E.C. SHALL VERIFY MINIMUM FOOT-CANDLE REQUIREMENT FOR EMERGENCY LIGHTING AS PER CODES. PROVIDE NEW EMERGENCY LIGHT IF REQUIRED. BASE BID ACCORDINGLY.
- NEW LIGHT FIXTURE "A1" AND "H1" TO CONNECT TO NEAREST EXISTING CIRCUIT WITH THE SAME CONTROLS AS EXISTING. E.C. SHALL VERIFY CONNECTION REQUIREMENT WITH MANUFACTURER AND PROVIDE NECESSARY CONNECTION AND ACCESSORY FOR OPERATION.
- EXISTING EXHAUST FAN AND ELECTRICAL CONNECTION SHALL REMAIN WITH ITS EXISTING CIRCUIT AND CONTROLS. PROVIDE NEW ELECTRICAL CONNECTION IF EXISTING IS INOPERABLE. E.C. SHALL VERIFY WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION AND ELECTRICAL REQUIREMENT IN FIELD. BASE BID ACCORDINGLY.
- NEW LIGHTING ADDED IN THIS AREA ACCOUNTS FOR LESS THAN 10% OF THE EXISTING LIGHTING. SUCH ALTERATIONS DO NOT INCREASE THE INSTALLED WATTAGE, IN ACCORDANCE WITH IECC SECTION C503.5.
- NEW TRACK LIGHT LT1 TO CONNECT TO EXISTING TRACK LIGHT CIRCUIT WITH SAME CONTROLS AS EXISTING. E.C. SHALL VERIFY CONNECTION REQUIREMENT WITH MANUFACTURER AND PROVIDE NECESSARY CONNECTION AND ACCESSORY FOR OPERATION.



1 ELECTRICAL POWER PLAN  
3/8" = 1'-0"

Property of JY Engineers

GENERAL NOTES	KEY NOTES
1. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT.	1. EXISTING ELECTRICAL PANELS SHALL REMAIN. E.C. SHALL VERIFY EXACT LOCATION, RATING, OPERABLE CONDITION IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY. E.C. SHALL MAINTAIN CLEARANCE FOR ELECTRICAL PANEL PER NATIONAL ELECTRICAL CODE 110.26. REFER SHEET EA.0 ELECTRICAL RISER DIAGRAM FOR MORE INFORMATION.
2. FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. INSTALL AUDIO / VISUAL ALARM, P.A. SPEAKER, SMOKE CONTROL WIRING TO RTU PLUS ROOM SMOKE DETECTOR. EMPLOY LANDLORD'S APPROVED CONTRACTOR FOR ALL CONNECTIONS TO THE MALL MASTER ALARM SYSTEM.	2. PROVIDE SURFACE MOUNTED QUAD RECEPTACLES AND DATA OUTLETS FOR POS AND LAPAD ON CASHWRAP. E.C. SHALL COORDINATE WITH SHOW DRAWING AND/OR MILLWORK PROVIDER FOR FINAL LOCATION AND ITS ROUTING OF WIRE. BASE BID ACCORDINGLY.
3. ALL DUPLEX RECEPTACLES, LIGHT SWITCHES AND COVER-PLATES SHALL MATCH ADJACENT FINISHES. SEE ARCHITECTURAL FINISH SCHEDULE.	3. APPROXIMATE LOCATION OF CONDUIT UNDER SLAB USE FOR CASH WRAP. CONTRACTOR SHALL PROVIDE CONDUITS FOR NEW CASH WRAP. PROVIDE NEW (3) EMT CONDUITS: (1) 3/4" CONDUIT FOR POWER, (1) 1" CONDUIT FOR PHONE/DATA, AND (1) 3/4" FOR SPARE. PROVIDE CAPS AT ENDS OF EACH CONDUIT. TRENCH FLOOR AND ROUTE TO NEAREST WALL AND UP TO CEILING TO TELEPHONE/DATA BOARD AND EXISTING PANEL LOCATION. VERIFY TRENCHING REQUIREMENTS WITH LANDLORD'S REPRESENTATIVE PRIOR TO START OF WORK.
4. CONDUIT TO BE GROUPED IN PARALLEL RUNS SUPPORTED BY UNISTRUT HANGERS W/ 90 DEGREE BRANCH RUNS TO FIXTURES. ELECTRICAL CONTRACTOR TO COORDINATE WITH HVAC CONTRACTOR FOR LOCATION AND CLEARANCES FOR EQUIPMENT.	4. EXISTING CEILING MOUNTED SHOW WINDOW POWER OUTLET TO REMAIN WITH EXISTING CIRCUITRY. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING SHOW WINDOW RECEPTACLE IN FIELD. PROVIDE NEW IF FOUND INOPERABLE.
5. PROVIDE 120V, 20A DEDICATED CIRCUIT, IF REQUIRED, FOR FIRE ALARM. COORDINATE WITH LANDLORD'S REPRESENTATIVE.	5. E.C. SHALL COORDINATE WITH MECHANICAL/PLUMBING CONTRACTOR FOR EXACT LOCATION AND ELECTRICAL REQUIREMENTS OF MECHANICAL/PLUMBING EQUIPMENT IN FIELD AND PROVIDE THE ELECTRICAL CONNECTION ACCORDINGLY.
6. CIRCUITING MAY BE ADJUSTED IN THE FIELD AS CONDITIONS REQUIRE. PROVIDE A TYPE-WRITTEN PANEL SCHEDULE IN ALL PANELS.	6. EXISTING CEILING MOUNTED UNIT WITH EXISTING DISCONNECT SWITCH AND ASSOCIATED CIRCUITS TO REMAIN. UTILIZE EXISTING DISCONNECT IF IT'S IN OPERABLE CONDITION. PROVIDE NEW IF INOPERABLE.
7. CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. MAINTAIN EXISTING CIRCUIT OF EXISTING EQUIPMENT, DEVICES, FIXTURES, ETC. TO REMAIN.	7. CONTRACTOR TO PROVIDE 3/4" EMPTY EMT CONDUIT WITH PULL STRING FROM THERMOSTAT AND SENSOR (WHERE REQUIRED) TO MECHANICAL UNIT. VERIFY LOCATION IN THE FIELD.
CONTRACTOR TO ENSURE THAT ALL EXISTING OUTLET/RECEPTACLE TO REMAIN/RE-USE ARE IN GOOD WORKING CONDITION. REPLACE COVER PLATES WITH NEW TO MATCH NEW OUTLETS.	8. CONTRACTOR SHALL ENSURE DUCT MOUNTED SMOKE DETECTOR IS PROPERLY WIRED TO EXISTING PANEL. NEW WALL MOUNTED SMOKE DETECTOR TEST STATION SHALL BE WIRED TO EXISTING PANEL AS NEEDED. COORDINATE WITH MECHANICAL CONTRACTOR IN FIELD AND VERIFY EXACT CONDITIONS IN FIELD PRIOR TO BID.
ALL MECHANICAL/HVAC EQUIPMENT TO REMAIN. UTILIZED EXISTING CIRCUIT. VERIFY IN FIELD. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.	9. CONTRACTOR TO VERIFY IN FIELD ANY RECEPTACLE IS PRESENT WITHIN 25FT OF AHU. IF YES, EXISTING RECEPTACLES TO REMAIN. WIRE TO NEW AVAILABLE CIRCUIT IF NEEDED. VERIFY EXACT LOCATION. ELSE PROVIDE NEW WEATHER PROOF, GFI, 120V, 20A RECEPTACLE WITHIN 25FT OF THE RTU AS SHOWN.
ALL RECEPTACLES WITHOUT TAG (S) ARE NEW TO BE PROVIDED AND INSTALLED BY CONTRACTOR.	10. CONTRACTOR TO PROVIDE NEW COVERS FOR EXISTING & RELOCATED WALL/FLOOR RECEPTACLES. FINAL COVER FINISH SHALL BE AS PER ARCHITECT.
	11. NEW STOREFRONT/STORE SIGN. CONTRACTOR TO COORDINATE LOCATION IN FIELD. E.C. TO COORDINATE WITH SIGN VENDOR FOR REQUIREMENTS PRIOR TO INSTALLATION.
	12. NEW RECEPTACLES FOR STANDARD OPTICAL WALL. E.C. SHALL COORDINATE RECEPTACLE HEIGHT, LOCATION, QUANTITY AND POWER REQUIREMENT WITH SHOP DRAWING AND MILLWORK INSTALLER. BASE BID ACCORDINGLY.
	13. NEW RECEPTACLE FOR MIRROR WALL. E.C. SHALL COORDINATE RECEPTACLE FINAL LOCATION AND POWER REQUIREMENT WITH SHOP DRAWING AND MILLWORK INSTALLER. BASE BID ACCORDINGLY.
	14. NEW RECEPTACLE AND JUNCTION BOX FOR VIDEO PANEL. E.C. SHALL COORDINATE RECEPTACLE AND JUNCTION BOX FINAL LOCATION AND POWER REQUIREMENT WITH SHOP DRAWING AND MILLWORK INSTALLER. BASE BID ACCORDINGLY.
	15. EXISTING WATER HEATER AND EXISTING DISCONNECT SHALL REMAIN WITH ITS EXISTING ELECTRICAL CONNECTION. PROVIDE NEW IF EXISTING IS INOPERABLE. BASE BID ACCORDINGLY.
	16. NEW RECEPTACLE FOR LIGHT BOX. E.C. SHALL COORDINATE RECEPTACLE FINAL LOCATION AND POWER REQUIREMENT WITH SHOP DRAWING AND MILLWORK INSTALLER. BASE BID ACCORDINGLY.



Property of NY Engineers

1 LOW VOLTAGE PLAN  
3/8" = 1'-0"

GENERAL NOTES	KEY NOTES
<p>A. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT.</p> <p>B. FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR.</p> <p>C. CONDUIT TO BE GROUPED IN PARALLEL RUNS SUPPORTED BY UNISTRUT HANGERS W/ 90 DEGREE BRANCH RUNS TO FIXTURES. ELECTRICAL CONTRACTOR TO COORDINATE WITH HVAC CONTRACTOR FOR LOCATION AND CLEARANCES FOR EQUIPMENT.</p> <p>D. PROVIDE 120V, 20A DEDICATED CIRCUIT, IF REQUIRED, FOR FIRE ALARM. COORDINATE WITH LANDLORDS REPRESENTATIVE.</p> <p>E. CIRCUITING MAY BE ADJUSTED IN THE FIELD AS CONDITIONS REQUIRE. PROVIDE A TYPE-WRITTEN PANEL SCHEDULE IN ALL PANELS.</p> <p>F. CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. MAINTAIN EXISTING CIRCUIT OF EXISTING EQUIPMENT, DEVICES, FIXTURES, ETC. TO REMAIN.</p> <p>G. I.T./SPEAKER CABLE SPECIFICATIONS:</p> <ul style="list-style-type: none"> <li>WHEN THE SALES AREA HAS OPEN CEILING, SUBSTITUTE LANMARK 350 STATION CABLE WHITE (PART# 10032070 PLENUM RATED,) FOR THE LANMARK 350 STATION CABLE BLUE AND BLACK.</li> <li>PROVIDE JUNCTION BOXES FOR NOTES 2,3 AND 4. QUANTITY AND LOCATION TO BE DETERMINED BY PROJECT MANAGERS FOR NOTES 2,3 AND 4.</li> </ul> <p>H. IF A LOW VOLTAGE PERMIT IS REQUIRED TO RUN THE CABLES THEN IT IS THE ELECTRICIAN'S RESPONSIBILITY TO OBTAIN THIS PERMIT AS WELL AS RESEARCH WHETHER IT IS NEEDED PRIOR TO THE START OF THE PROJECT.</p>	<p>1 EXISTING LOW VOLTAGE EQUIPMENTS AND ITS CONNECTION SHALL REMAIN. E.C. SHALL VERIFY THE OPERABLE CONDITION OF EXISTING SECURITY CAMERA, SPEAKER, WIRELESS ACCESS POINT &amp; ITS CONNECTION IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.</p> <p>2 PROVIDE 6 LINES OF LANMARK 350 STATION CABLE BLUE (PART# 10032063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE CASHWRAP LOCATION, LEAVING A SERVICE LOOP OF 12 FT FOR EACH LINE (FOR CASHWRAP DATA). (SEE GENERAL NOTES FOR OPEN CEILING IN SALES AREA).</p> <p>3 PROVIDE 2 LINES OF LANMARK 350 STATION CABLE BLACK (PART# 10067869 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE CASHWRAP LOCATION, LEAVING A SERVICE LOOP OF 12 FT FOR EACH LINE (FOR CASHWRAP PHONE). (SEE GENERAL NOTES).</p> <p>4 PROVIDE 3 LINES OF LANMARK 350 STATION CABLE BLUE (PART# 10032063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO ABOVE CASHWRAP, LEAVING A SERVICE LOOP OF 12FT. (SEE GENERAL NOTES).</p> <p>5 E.C. SHALL VERIFY FOR ANY EXISTING WIRELESS ACCESS POINT. IF NOT PROVIDE NEW JUNCTION BOX AND DATA OUTLETS FOR WAP. COORDINATE EXACT LOCATION WITH ARCHITECT &amp; COORDINATE WITH VENDOR FOR REQUIREMENTS PRIOR TO INSTALLATION. BASE BID ACCORDINGLY.</p>

**ELECTRICAL PANEL SCHEDULE AND LOAD SUMMARY**

**ELECTRICAL PANEL SCHEDULE**

PANELBOARD NEMA TYPE ENCLOSURE	A		120 / 208 V		3		4	
	EXISTING	NEW	WIRE	PHASE	WIRE	PHASE	WIRE	PHASE
1	(E)		12	20	884	A	360	20
3	(E)		12	20	128	B	540	20
5	(E)		12	20	96	C	960	20
7	(N)		12	20	680	A	1,200	20
9					2,567	B	532	20
11	(E)		3	12	20	2,567	C	120
13					2,567	A	290	20
15	(E)		12	20	1,500	B	720	20
17	(N)		12	20	1,200	C	1,100	20
19	(N)		12	20	500	A	1,500	20

**ALL PHASES TO BE BALANCED TO WITHIN 7% WATTS**  
 A= 7,901 WATTS  
 B= 5,987 WATTS  
 C= 5,923 WATTS

**TOTAL CONNECTED LOAD** 19,811 WATTS 56 AMPS  
**TOTAL DEMAND LOAD** 21,804 WATTS 61 AMPS

**ELECTRICAL LOAD SUMMARY**

DESCRIPTION	NEC CONNECTED KW	VOLT	PHASE	NEC DEMAND FACTOR	NEC DEMAND KW
LIGHTING - 120V	5.6	120	1	1.25	7.0
RECEPTACLES	2.6	120	1	>10KW=10(0.5*(KW-10))	2.6
STOREFRONT SIGN	1.2	120	1	1.25	1.5
AHU	7.7	208	3	1.00	7.7
HOT WATER HEATER	1.5	120	1	1.00	1.5
<b>TOTALS</b>	<b>19.8</b>				<b>21.8</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**      **MINIMUM FEEDER AMPERAGE**  
**SYSTEM VOLTAGE x 1.732**

21.8 x 1000 = 21,804      60.5 AMP  
 208 x 1.732 = 360

**CODE NOTE PER NEC 408.4: EVERY CIRCUIT AND CIRCUIT MODIFICATION SHALL BE LEGIBLY IDENTIFIED AS ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE. THE IDENTIFICATION SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS. CIRCUIT DIRECTORY SHALL BE LOCATED ON THE FACE OR INSIDE THE PANEL DOOR IN THE CASE OF THE PANELBOARD.**

CONTRACTOR TO VERIFY ANY EXISTING CIRCUITS TO REMAIN, MAINTAIN AS REQUIRED. CONTRACTOR TO MAKE UNUSED BRANCH CIRCUIT BREAKER SPARE AND AVAILABLE FOR NEW CIRCUIT.

ALL ELECTRICAL WORK SHALL BE DESIGNED PER 2023 NATIONAL ELECTRICAL CODE.

ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.

THE MAXIMUM COMBINED VOLTAGE DROP ON BOTH INSTALLED FEEDER CONDUCTORS AND BRANCH CIRCUIT CONDUCTORS TO THE FARTHEST CONNECTED LOAD OR OUTLET SHALL NOT EXCEED 5 PERCENT.

ALL ELECTRICAL LOADS TO BE BALANCED WITHIN 10% OF EACH PHASE.

LABEL ELECTRICAL METER, DISCONNECT AND CT WITH TENANT NAME & SPACE NUMBER.

**EXISTING PANELBOARD KEYED NOTE:**

- NEW BREAKERS MAY BE REQUIRED FOR USE IN THE EXISTING PANELBOARD TO MATCH RATINGS INDICATED IN THE PANEL SCHEDULE. PRIOR TO BIDDING, THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL EXISTING-TO-REMAIN PANELBOARD MANUFACTURER AND MODEL NUMBER TO ENSURE THAT REPLACEMENT BREAKERS ARE AVAILABLE. WHERE BREAKER AVAILABILITY ISSUES ARISE, NOTIFY THE PROJECT MANAGER IMMEDIATELY PRIOR TO SUBMITTING BID PRICING.
- DESIGNATED CIRCUIT NUMBER SHOWN ON THE PANEL SCHEDULE FOR A CERTAIN LOAD, MAY BE DIFFERENT THAN THE ACTUAL CIRCUIT NUMBER IN THE EXISTING PANELBOARD. ALL EXISTING-TO-REMAIN ELECTRICAL LOADS SHALL REMAIN CONNECTED TO THE SAME BREAKER AND CIRCUIT DESIGNATION. AVAILABLE SPARES AND SPACES SHALL BE UTILIZED TO FEED THE NEW LOADS.

**PANEL SCHEDULE GENERAL NOTES:**

- ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY, E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES ON FIELD AND INFORM ENGINEER FOR DISCREPANCIES.
- ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- ALL EXISTING TO REMAIN ELECTRICAL DEVICES/EQUIPMENTS SHALL BE CONNECTED TO RESPECTIVE NEW/EXISTING PANELS. E.C. TO VERIFY EXACT DETAILS & CIRCUIT NUMBER ON FIELD.
- ELECTRICAL CONTRACTOR TO COORDINATE WITH THE MANUFACTURER OF EQUIPMENT FOR THE WIRE SIZE & RATING OF MOCBP BEFORE THE COMMENCEMENT OF WORK.
- ELECTRICAL CONTRACTOR TO COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENT OF PLUMBING/MECHANICAL EQUIPMENTS WITH RESPECTIVE SYSTEM CONTRACTOR/OWNER/ARCHITECT.
- E.C. SHALL VERIFY THE EXACT CIRCUIT, CIRCUIT NUMBER IN FIELD & ADJUST / MODIFY CIRCUITING AS REQUIRED.

**ELECTRICAL RISER DIAGRAM**

**RISER DIAGRAM NOTES:**

- HYDRAULIC CIRCUIT BREAKERS TO BE "HACK" TYPE WHICH ARE REQUIRED BY EQUIPMENT NAMEPLATE PER N.E.C.
- BALANCE ALL PANELS AND ELECTRICAL EQUIPMENT UNDER LOAD CONDITIONS, TO ±1% BETWEEN PHASES A/B/C, C/A REGARDLESS OF CIRCUITING INDICATED. PROVIDE BALANCE SHEET TO CONSTRUCTION MANAGER AT PUNCHLIST.
- 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 BACKERBOARDS.
- 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 ARTICLE 110.24.
- 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.
- E.C. SHALL MAINTAIN MAXIMUM VOLTAGE DROP FOR FEEDER AND BRANCH CIRCUIT CONDUCTORS COMBINED, SHALL NOT BE EXCEED A 5% VOLTAGE DROP.

**RISER DIAGRAM KEYED NOTE:**

- EXISTING 100AMP, 120/208V, 3-PHASE ELECTRICAL SERVICE FROM UTILITY FOR THE PROJECT SPACE SHALL REMAIN. E.C. SHALL VERIFY THE EXACT LOCATION, RATING, OPERABLE CONDITION AND FEEDER SIZE IN FIELD. REPLACE WITH NEW BY COORDINATING WITH LANDLORD / UTILITY IF IN-OPERABLE. INFORM ENGINEER IN CASE OF DISCREPANCY. BASE BID ACCORDINGLY.
- EXISTING 100AMP, 120/208V, 3-PHASE ELECTRICAL METER FOR THE PROJECT SPACE SHALL REMAIN. E.C. SHALL VERIFY THE EXACT LOCATION, RATING AND OPERABLE CONDITION IN FIELD. REPLACE WITH NEW BY COORDINATING WITH LANDLORD / UTILITY IF IN-OPERABLE. INFORM ENGINEER IN CASE OF DISCREPANCY. BASE BID ACCORDINGLY.
- NEW 100AMP, 120/208V, 3-PHASE ELECTRICAL DISCONNECT SWITCH FOR THE PROJECT SPACE BY LANDLORD. E.C. SHALL VERIFY THE EXACT LOCATION IN FIELD.
- EXISTING 100AMP, 120/208V, 3-PHASE, 4-WIRE, 20-POLE ELECTRICAL PANEL "A" (M.L.O.) FOR THE PROJECT SPACE SHALL REMAIN. E.C. SHALL VERIFY THE EXACT LOCATION, RATING AND OPERABLE CONDITION IN FIELD. REPLACE WITH NEW BY COORDINATING WITH OWNER / ARCHITECT IF IN-OPERABLE. INFORM ENGINEER IN CASE OF DISCREPANCY. BASE BID ACCORDINGLY.

ELECTRICAL WORK BEING SHOWN IN SCHEMATIC IS EXISTING UNLESS OTHERWISE NOTED.

CONTRACTOR TO VERIFY EXISTING CONDUIT DURING BIDDING STAGE AND REPORT TO TENANT ARCHITECT ANY DISCREPANCIES THAT IS DIFFERENT THAN SHOWN ON PLANS.

CONTRACTOR TO PROVIDE NEW NAME PLATE ON ELECTRICAL METER FOR IDENTIFICATION.

SPlicing NOT PERMITTED IN FEEDER WIRE ORIGINATING IN LL METER ROOM. RE-PULL WIRE IF EXISTING WIRE IS NOT LONG ENOUGH.

CONTRACTOR TO VERIFY IN FIELD THE EXACT USE OF THE EXISTING LIGHTING CONTRACTORS PRIOR TO BID, REUSE IF POSSIBLE, PROVIDE NEW IF REQUIRED. SEE CONTRACTORS DETAIL ON SHEET E4.0.

ELECTRICAL WORK AT MAIN ELECTRICAL METER PANELS REQUIRES AN ELECTRICAL SHUT DOWN, NOTIFY TENANT COORDINATOR MINIMUM 4 DAYS IN ADVANCE. MANAGEMENT MUST GIVE AFFECTED TENANTS ON SAME PANEL NOTICE.

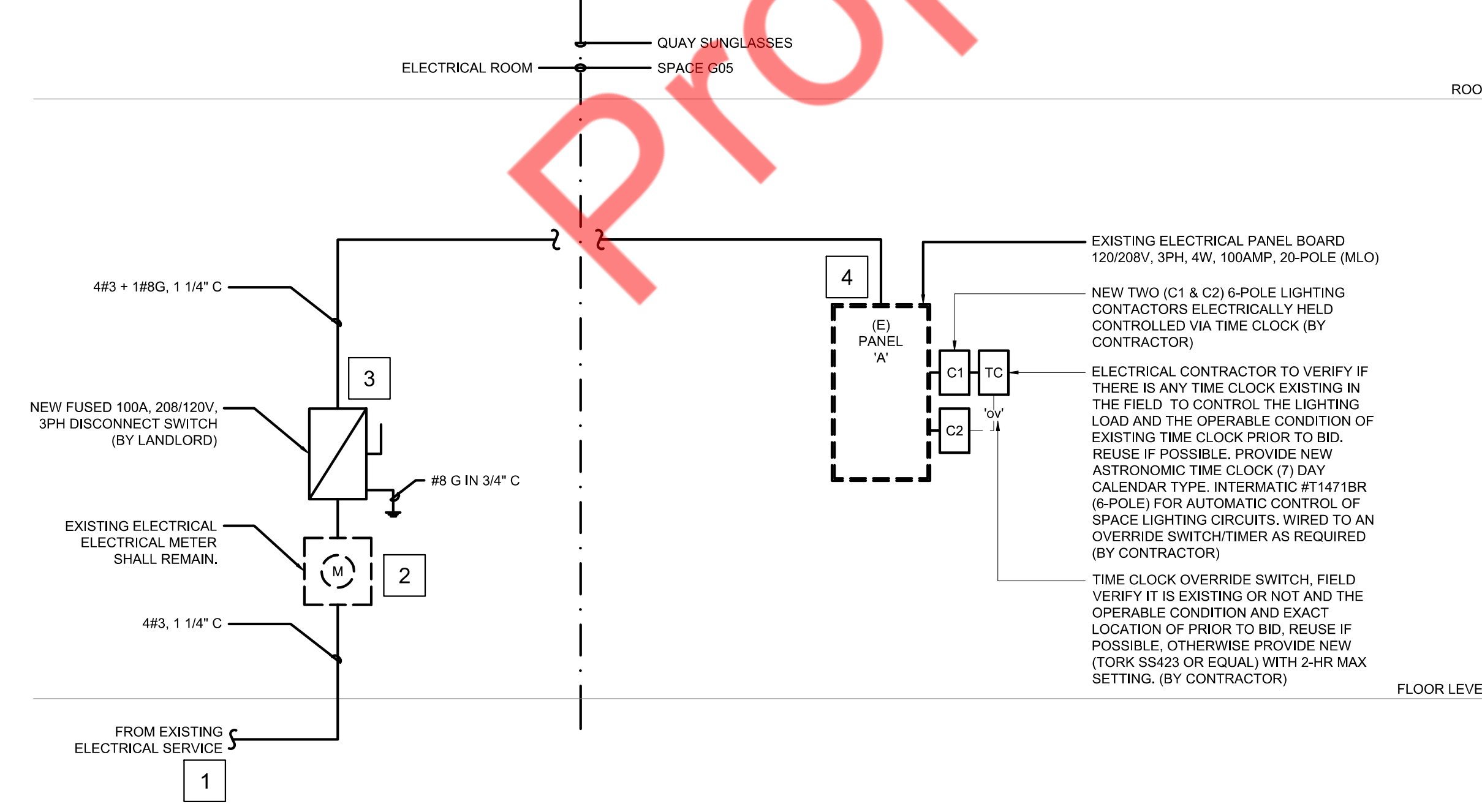
**VERIFY THE FOLLOWING PRIOR TO BID/PRICING:**

- EXISTING CONDUIT AND FEEDERS SIZE BETWEEN TENANT SPACE AND LANDLORD SWITCHBOARD.
- EXISTING MAIN SERVICE DISCONNECT RATING.
- EXISTING METER.

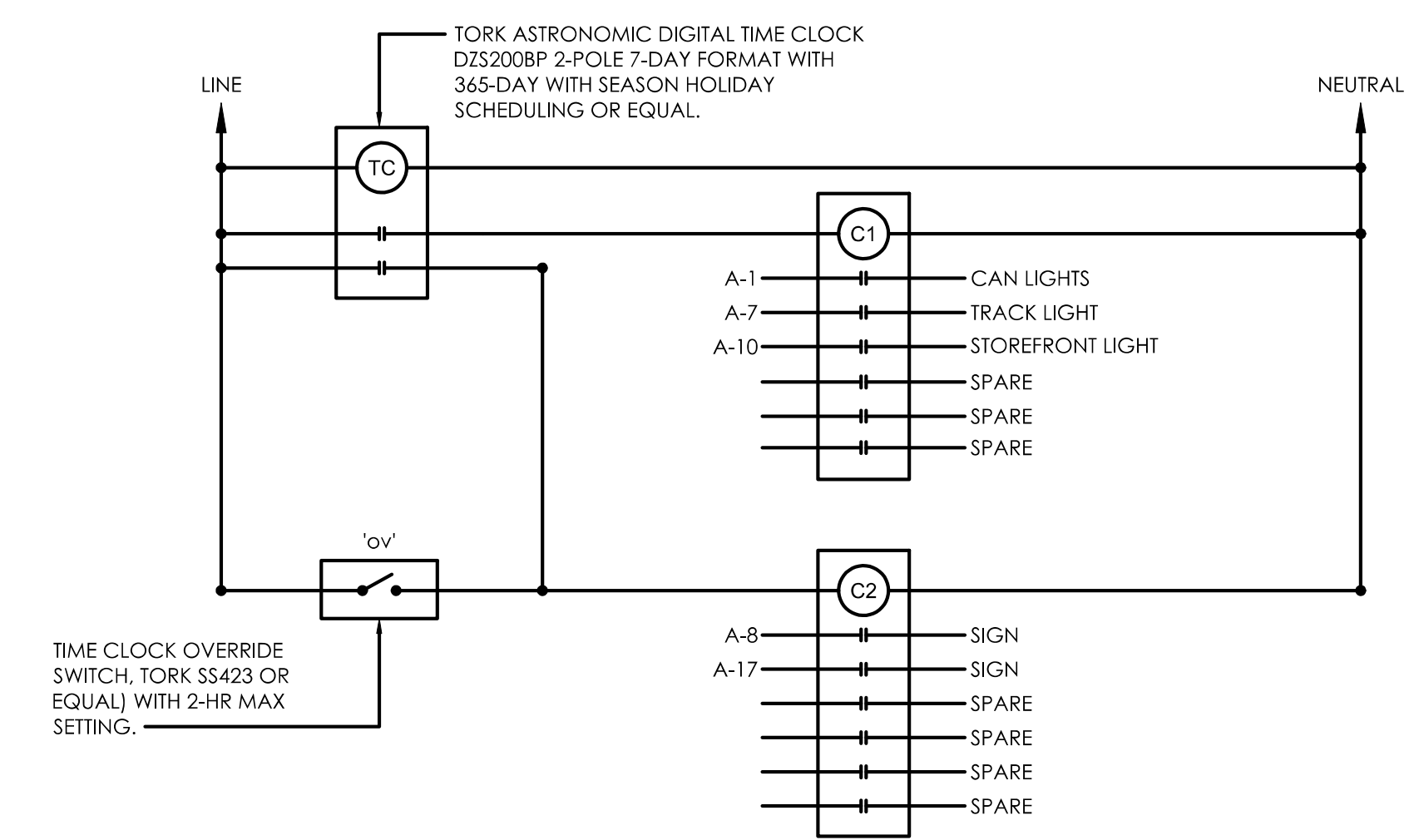
IF THE EXISTING SERVICE DISCONNECT AND FEEDERS ARE RATED FOR LESS THAN THE RATING SHOWN ON THIS RISER, NOTIFY THE PROJECT MANAGER AND ENGINEER IMMEDIATELY PRIOR TO SUBMITTING BID PRICING PACKAGE SO DRAWINGS CAN BE REVISED AND UPDATED ACCORDINGLY.

**LEGEND:**  
 - - - - - NEW  
 \_\_\_\_\_ EXISTING

**LL NOTE:**  
 THE RE-USE OF ANY EXISTING CONSTRUCTION, FINISHES, EQUIPMENT, OR ELECTRICAL PLUMBING OR HVAC SYSTEMS CURRENTLY IN THE SPACE IS CONDITIONAL UPON IT BEING APPROPRIATE FOR RE-USE. ANY EXISTING CONDITION OR EQUIPMENT TO BE RE-USED MUST BE RESTORED TO LIKE NEW CONDITIONS. THE LANDLORD MAKES NO WARRANTY ON THE RE-USE OF ANY EXISTING CONDITION IN THE SPACE.



**TIME CLOCK AND LIGHTING CONTACTOR DETAILS**



**NOTE:** THIS IS AN EXISTING TIMECLOCK SHOWN FOR REFERENCE ONLY. E.C. SHALL VERIFY THE EXISTING TIMECLOCK AND CONTACTOR PANEL FOR SPARE CAPACITY. IF INSUFFICIENT, E.C. SHALL PROVIDE A NEW CONTACTOR AND CONNECT IT TO THE TIMECLOCK TO ACCOMMODATE THE NEW LOADS. BASE BID ACCORDINGLY.

**TIME CLOCK SCHEDULE:**  
 CONTRACTOR TO SET TIME CLOCK SETTINGS AND VERIFY WITH OWNER:  
 1. LIGHTING SHALL BE "ON" DAILY FROM 8:00AM TO 11:00PM.  
 2. DURING SET "OFF" TIME LIGHTING TO BE CONTROLLED BY A 2-HR MANUAL OVERRIDE SWITCH.

DRAWING TITLE:

**ELECTRICAL PANELBOARD AND RISER DIAGRAM**

DRAWING NUMBER:

**E4.0**