

DIVISION 15000 - MECHANICAL  
SECTION 15001 - BASIC MECHANICAL REQUIREMENTS  
A. GENERAL CONDITIONS

- THE DRAWINGS AND GENERAL CONDITIONS, INCLUDING SUPPLEMENTARY GENERAL CONDITIONS SHALL APPLY TO ALL WORK IN DIVISION 15000.
- THE CONTRACTOR FOR THIS DIVISION SHALL REVIEW THE DRAWINGS AND ACCOMPANYING SPECIFICATIONS, EXAMINE THE SITE, CHECK AS TO THE MEANS OF MAKING CONNECTIONS TO SERVICES, AND SHALL BECOME FAMILIAR WITH ALL THE EXISTING CONDITIONS AND LIMITATIONS BEFORE SUBMITTING A PROPOSAL. ANY APPARENT VARIANCES OF THE PLAN OR SPECIFICATION FROM THE EXISTING CONDITIONS AT THE SITE SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER DURING THE BID PERIOD SO THAT CLARIFICATION CAN BE MADE BY ADDENDUM. ITEMS KNOWN TO BE INCONSISTENT WITH THE BID DOCUMENTS INTENT MUST BE LISTED AND QUALIFIED ON THE CONTRACTORS BID FORM. NO EXTRAS WILL BE ALLOWED BECAUSE OF THE CONTRACTORS MISUNDERSTANDING AS TO THE AMOUNT OF WORK INVOLVED OR HIS LACK OF KNOWLEDGE OF ANY SITE CONDITIONS WHICH MAY AFFECT HIS WORK.
- COORDINATION OF SCHEDULING FOR COMPLETION AND ALL INSPECTIONS OF THEIR WORK AND WORK OF SUBCONTRACTORS IS THE RESPONSIBILITY OF THIS CONTRACTOR.
- BEFORE SUBMITTING A PROPOSAL ON THE WORK CONTEMPLATED ON THESE DRAWINGS AND ACCOMPANYING SPECIFICATIONS, EACH BIDDER SHALL EXAMINE THE SITE, CHECK AS TO THE MEANS OF MAKING CONNECTIONS TO SERVICES, AND SHALL BECOME FAMILIAR WITH ALL THE EXISTING CONDITIONS AND LIMITATIONS, MECHANICAL EQUIPMENT AND SYSTEMS SHOWN AS EXISTING ON THE PLANS HAVE BEEN BASED ON EXISTING DRAWINGS. NO EXTRAS WILL BE ALLOWED BECAUSE OF THE CONTRACTOR'S MISUNDERSTANDING AS TO THE AMOUNT OF WORK INVOLVED OR HIS LACK OF KNOWLEDGE OF ANY SITE CONDITIONS WHICH MAY AFFECT HIS WORK. ANY APPARENT VARIANCE OF THE PLAN OR SPECIFICATION FROM EXISTING CONDITIONS AT THE SITE SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER DURING THE BID PERIOD SO CLARIFICATION CAN BE MADE BY ADDENDUM.
- INFORMATION FOR ITEMS WHICH MAY AFFECT THE BID ARE LISTED ON THE RESPONSIBILITY SCHEDULE WHICH IS ON THE PLANS.

SECTION 15002 - GENERAL REQUIREMENTS

- WORK TO BE ACCOMPLISHED ON THESE DRAWINGS AND SPECIFICATIONS INCLUDES FURNISHING ALL LABOR, MATERIAL, EQUIPMENT AND SERVICES FOR THE COMPLETION OF ALL MECHANICAL WORK. ALL MECHANICAL WORK UNLESS NOTED TO BE SPECIFICALLY BY THE LANDLORD IS THE RESPONSIBILITY OF THIS CONTRACTOR.
- THIS CONTRACTOR AND THEIR SUB CONTRACTORS SHALL WORK CLOSELY WITH THE TENANT PROJECT MANAGER FOR COORDINATION OF TRADES AND COMPLETION OF THE PROJECT.
- PLANS AND SPECIFICATIONS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN EITHER ONE SHALL BE AS BINDING AS IF CALLED FOR IN BOTH. ANY ITEM OR LABOR THAT IS NECESSARY TO COMPLETE THE WORK AND IS TYPICALLY INCLUDED IN SIMILAR WORK SCOPE SHALL BE FURNISHED AND INSTALLED AS PART OF THE CONTRACT WHETHER OR NOT IT IS SHOWN ON THE PLANS OR IN THE SPECIFICATIONS.
- WHEN THE INCLUDED DRAWINGS AND/OR SPECIFICATIONS CALL OF ITEMS WHICH EXCEED THE LANDLORDS TENANT CRITERIA OR EXCEED CODE, IT'S THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE MORE STRINGENT REQUIREMENTS NOTED ON THE PLANS AND/OR SPECIFICATIONS. IF THE PLANS AND SPECIFICATIONS HAVE DISCREPANCIES BETWEEN THEM, THE CONTRACTOR SHALL ASSUME IN THEIR BID THAT THE MORE STRINGENT ITEM IS REQUIRED AT NO ADDITIONAL COST.
- ALL PIPING, DUCTWORK AND EQUIPMENT SHALL BE FURNISHED AND INSTALLED TO PRESENT A NEAT AND CLEAN APPEARANCE USING GOOD CONSTRUCTION PRACTICES. EQUIPMENT SHALL BE INSTALLED FOR PROPER ACCESS TO OPERATE, SERVICE AND MAINTAIN THE EQUIPMENT WITHOUT HAVING TO MOVE OTHER EQUIPMENT FOR ACCESS. ANY MECHANICAL EQUIPMENT (OR EXISTING EQUIPMENT TO REMAIN) THAT REQUIRES ACCESS PANELS SHALL HAVE THOSE PANELS FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- UNLESS SPECIFICALLY NOTED ON THE PLANS/SPECIFICATIONS ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND BEST QUALITY TO CONFORM TO THE REQUIREMENTS OF THE LANDLORDS TENANT CRITERIA, LOCAL AND STATE CODES GOVERNING THE WORK INVOLVED AND BE MADE BY NATIONALLY RECOGNIZED MANUFACTURERS WITH UL LISTINGS AND LABELS.

SECTION 15003 - CODES

- ALL WORK SHALL BE INSTALLED IN CONFORMITY OF THE LANDLORDS TENANT CRITERIA, AND APPLICABLE LOCAL CODES AND ORDINANCES AND STATE STATUTES. ALL REQUIREMENTS OF THE CURRENT PLUMBING CODES, HEATING AND VENTILATION CODES, HEALTH AND SAFETY CODES, NFPA CODES AND ENERGY CODES MUST BE MET. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INQUIRE INTO AND COMPLY WITH ALL LOCAL ORDINANCES AND INCLUDE ANY ADDITIONAL ITEMS NOT NOTED IN THE PLANS/SPECIFICATIONS IN THEIR BID. ANY CHANGES TO THE MECHANICAL SYSTEM AS REQUIRED BY LOCAL, STATE OR TENANT CRITERIA THAT ARE NOT QUALIFIED ON THE CONTRACTORS BID FORM ARE ASSUMED TO BE INCLUDED IN THE ORIGINAL BID AND ADDITIONAL COSTS WILL NOT BE DUE TO COMPLETE THOSE ITEMS AFTER THE CONTRACT IS ISSUED.

SECTION 15004 - LICENSES, PERMITS, INSPECTIONS & FEES

- THIS CONTRACTOR IS RESPONSIBLE FOR ALL FEES, CHARGES AND OBLIGATIONS FOR OBTAINING PERMITS AND INSPECTIONS FOR PLUMBING, HEATING AND VENTILATION AND FIRE EXTINGUISHING WORK.
- ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTIONS SHALL BE TURNED OVER TO THE TENANT'S PROJECT MANAGER AT THE COMPLETION OF THE PROJECT.

SECTION 15005 - TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS

- IN ANY CASE WHERE A SPECIFIC NAME OF EQUIPMENT OR MATERIAL IS MENTIONED ON THE DRAWINGS OR SPECIFICATIONS THE EXACT EQUIPMENT SHALL BE USED FOR THE BASE BID. EQUIPMENT OF EQUAL GRADE AND QUALITY WILL BE SUBJECT TO THE APPROVAL BY THE TENANT'S PROJECT MANAGER AND THE ENGINEER IN WRITING THRU THE SHOP DRAWING SUBMITTAL PROCESS. ANY CHANGES TO THE SPECIFIED EQUIPMENT AT THE CONTRACTORS EXPENSE.
- MECHANICAL CONTRACTOR SHALL SUBMIT COPIES OF SHOP DRAWINGS TO THE TENANT'S PROJECT MANAGER FOR APPROVAL. IF APPROVED, COPIES WILL BE STAMPED "NO CHANGES" OR "APPROVED AS NOTED" AND WILL BE FURNISHED TO THE CONTRACTOR. IF NOTATIONS AND MARKS INDICATE THAT CORRECTED INFORMATION IS REQUIRED, THEN CORRECTED INFORMATION SHALL BE SUBMITTED.

SECTION 15006 - GUARANTEE

- CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR AND DEFECTS WHICH DEVELOP IN ANY PART OF THE SYSTEMS CAUSED BY FAULTY WORKMANSHIP, MATERIAL OR EQUIPMENT, AND AGREES TO REPLACE ANY SUCH FAULTY WORKMANSHIP, MATERIAL OR EQUIPMENT DURING A PERIOD OF 12 MONTHS FROM THE DATE OF FINAL ACCEPTANCE WITHOUT ANY COST TO THE OWNER. ANY EXTENDED WARRANTIES (LONGER THAN 12 MONTHS) FOR EQUIPMENT WILL BE NOTED ON THE SCHEDULES, PLANS OR SPECIFICATIONS.

- EACH PIECE OF EQUIPMENT FURNISHED BY THE CONTRACTOR SHALL HAVE A 12 MONTH WARRANTY FOR MATERIAL AND LABOR AT STARTS UPON THE DATE OF FINAL ACCEPTANCE AS DESIGNATED BY THE TENANT'S PROJECT MANAGER. ALL COSTS FOR THE WARRANTY (MATERIAL AND LABOR) SHALL BE INCLUDED IN THE ORIGINAL BID.

SECTION 15007 - RECORD DRAWINGS

- THIS CONTRACTOR SHALL MAINTAIN AT THE JOB SITE A SET OF DRAWINGS TO BE USED SPECIFICALLY FOR RECORDING CHANGES FROM THE CONTRACT DOCUMENTS. THE INFORMATION SUCH AS VALVES, DUCT AND PIPE DEVIATIONS SHOULD BE DIMENSIONED FROM EASILY RECOGNIZABLE REFERENCE POINTS INDICATING BOTH HORIZONTAL AND VERTICAL DISTANCES.
- THE CONTRACTOR SHALL SUBMIT A FINAL SIGNED SET OF AS-BUILT DRAWINGS TO THE TENANT'S PROJECT MANAGER AT THE COMPLETION OF THE PROJECT.
- THE CONTRACTOR SHALL SUBMIT TO THE TENANT'S PROJECT MANAGER AT THE END OF THE PROJECT (2) COMPLETE HARD BOUND SET OF CATALOG DATA, MANUFACTURERS LITERATURE, DETAIL MANUALS COVERING THE OPERATION AND MAINTENANCE OF ALL EQUIPMENT SPECIFIED.

SECTION 15008 - DISCREPANCIES IN DOCUMENTS

- THE DRAWINGS OF PIPING AND DUCTWORK SYSTEMS SHALL BE INSTALLED SUBSTANTIALLY AS SHOWN ON THE PLANS. THE EXACT POSITION OF EACH AND EVERY PIPE, DUCT, OFFSET AND TRANSITION CANNOT BE GIVEN BY SCALING THE DRAWINGS BUT SHALL IN EVERY CASE BE PLACED SO AS TO AVOID INTERFERENCE WITH OTHER WORK. ALL NECESSARY CHANGES IN THE LOCATION OF PIPE OR DUCTWORK FOR ITS PROPER INSTALLATION AND TO AVOID CONFLICT WITH OTHER TRADES SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL CHARGE.

SECTION 15009 DEMOLITION

- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY THE GENERAL CONTRACTOR. COORDINATE WITH THE GENERAL CONTRACTOR ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.
- EACH CONTRACTOR SHALL VERIFY SCOPE OF WORK WITH THE GENERAL CONTRACTOR FOR THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT BEING REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE.
- CONTRACTOR SHALL VERIFY WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE.
- EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT.
- IF REQUIRED BY LANDLORD OR CODES, ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION WITH THE GENERAL CONTRACTOR AND TENANT PRIOR TO BID AND INCLUDE IN BID PROPOSAL AS DIRECTED BY THE GENERAL CONTRACTOR AND TENANT.

SECTION 15010 - CUTTING AND PATCHING

- THIS CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF HIS EQUIPMENT IN THE BUILDING WALLS, PARTITIONS, FLOORS, CEILINGS, ETC., UNLESS OTHERWISE NOTED. ALL CUTTING AND PATCHING SHALL BE SUBJECT TO THE DIRECTION OF LANDLORD, ARCHITECT OR ENGINEER.
- THIS CONTRACTOR SHALL NOT ENDANGER THE STABILITY OF THE STRUCTURE BY CUTTING, DIGGING OR OTHERWISE ALTERING THE STRUCTURE AND SHALL NOT AT ANY TIME CUT OFF THE WORK OF ANY OTHER CONTRACTOR.
- PATCHING OF WALLS, FLOORS AND ROOFS SHALL BE OF THE SAME MATERIAL AND WORKMANSHIP OF THE SURROUNDING MATERIAL WITH FINISHED SURFACE APPEARING THE SAME AS THE SURROUNDING AREA. ALL PATCHING SHALL BE PERFORMED BY WORKMEN TRAINED IN THAT PARTICULAR TRADE.
- DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR IN A SUITABLE MANNER ACCEPTABLE TO THE LANDLORD AND TENANT'S PROJECT MANAGERS.

SECTION 15011 - SLEEVES

- THIS CONTRACTOR SHALL INSTALL SLEEVES IN CONNECTION WITH ALL PIPES PASSING THROUGH ALL WALLS, PARTITIONS AND FLOORS. SLEEVES SHALL EXTEND THROUGH FULL THICKNESS OF WALLS AND FLOORS AND SHALL BE FLUSH WITH THE FINISHED SURFACES. SLEEVES IN SLABS SHALL BE CUT 1/2" ABOVE THE FLOOR SURFACE. ALL SLEEVES SHALL BE 22 GAUGE GALVANIZED STEEL MINIMUM FINISHED WITH SMOOTH EDGE. ALL SLEEVES SHALL BE PROPERLY SUPPORTED.
- CEILING FLOORS AND WALLS MUST BE COORDINATED WITH THE LANDLORD AND THE TENANT'S PROJECT MANAGER.
- THIS CONTRACTOR SHALL FURNISH AND INSTALL FIRE STOPPING AT ALL PENETRATIONS THRU RATED FLOORS TO MAINTAIN THE FIRE RATING. 3M FIRE BARRIER SYSTEMS, FLAME SAFE FIRE RETARDANT SYSTEMS, DOW CORNING, SPECTRAL OR EQUAL. THE CONTRACTOR MUST PRESENT UL LISTING DATA SHEETS TO THE TENANT'S PROJECT MANAGER AND LANDLORD TO SHOW THAT THE PENETRATIONS MAINTAIN THE FIRE RATING.

SECTION 15012 - HANGERS

- FURNISH AND INSTALL BRACKETS, BRACES OR REINFORCING ANGLES AS REQUIRED FOR ALL PARTITIONS NOT SUFFICIENT IN THEMSELVES TO SUPPORT PLUMBING FIXTURES OR OTHER EQUIPMENT.
- PIPING SHALL BE SUSPENDED FROM CONSTRUCTION ABOVE WITH ANGLE IRON, CLAMPS, UNISTRUT, OR HANGER RODS. NO PIPING SHALL BE HUNG FROM OTHER PIPING EXISTING OR NEW. CONTRACTOR SHALL COORDINATE WITH LANDLORD CRITERIA AND ALL CODES.
- ALL PIPES WHICH ARE SPECIFIED TO BE INSULATED SHALL HAVE PREFABRICATED INSULATED METAL SADDLES SIZED FOR THE INSULATION THICKNESS AND CONTINUOUS INSULATION THROUGH THE HANGER. ALL DISSIMILAR METALS MUST BE SEPARATED WITH DIELECTRIC MATERIAL.

DIVISION 15500 - HEATING, VENTILATING, AIR CONDITIONING

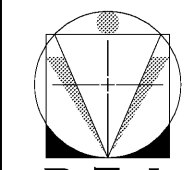
SECTION 15501 - SUMMARY OF WORK

- FRANE, YORK, AND LENNOX ARE EQUAL HVAC EQUIPMENT MANUFACTURERS SELECTED AND APPROVED BY TENANT. SEE EQUIPMENT SCHEDULE ON SHEET M300 AND SHEET M200 FOR DETAILS. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTALLATION INSTRUCTIONS. CONTRACTOR IS RESPONSIBLE FOR ACHIEVING OWNERS CONSTRUCTION PUNCH DATE WITH ANY UNITS SPECIFIED OR SUBSTITUTED AS OR EQUAL. IT IS RECOMMENDED THAT SALT WATER CORROSION PROTECTION SHOULD BE INSTALLED ON ALL UNITS LOCATED WITHIN 5 MILES OF THE OCEAN. GO TO VERIFY WITH THE DESIGN TEAM IF THE SALT WATER PROTECTION IS REQUIRED. THIS CONTRACTOR SHALL FURNISH, INSTALL, TEST, AND BALANCE ALL NECESSARY EQUIPMENT FOR A COMPLETE WORKING SYSTEM. SEE PLAN FOR DUCTWORK AND SCHEDULE.
- CONTROLS
  - TENANT ENERGY MANAGEMENT SYSTEM WITH CONTROL FOR UP TO 2-STAGES OF HEATING AND 2-STAGES OF COOLING. VERIFY COMPATIBILITY WITH LANDLORDS REQUIREMENTS PRIOR TO INSTALLATION. CONNECT TO TENANT ENERGY MANAGEMENT SYSTEM AS REQUIRED. UTILIZE TENANT CERTIFIED CONTROLS CONTRACTOR.
  - VERIFY COMPLETE OPERATION OF ALL MODES: HEAT, COOL, ECONOMIZER, OCCUPIED, UNOCCUPIED, ETC. CONTRACTOR SHALL PROVIDE FULLY FUNCTIONAL SYSTEM AS APPROVED BY TENANT. ASSIST IN ANY NECESSARY TRAINING AND/OR PROGRAMMING PER TENANT'S REQUIREMENTS.
  - COORDINATE CONTROL REQUIREMENTS AND SETTINGS WITH TENANT AND LANDLORD REQUIREMENTS PRIOR TO BID. IF REQUIRED PROVIDE ALL EQUIPMENT WITH THE INTO LANDLORD SYSTEMS.
  - REFER TO PLAN DETAILS AND NOTES FOR ADDITIONAL REQUIREMENTS.

SECTION 15502 - MATERIALS

- SEE PLANS FOR SCHEDULES OF EQUIPMENT. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER INSTALLATION INSTRUCTIONS.
  - THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY PARTS AND LABOR INCLUDING BUT NOT LIMITED TO FANS, BELTS, PULLEYS, BEARINGS, DAMPERS, COILS AND MOTORS AS REQUIRED TO OBTAIN A FULL OPERATIONAL UNIT THAT MEETS OR EXCEEDS THE DESIGN QUANTITIES SET FORTH IN THESE DOCUMENTS INCLUDING BUT NOT LIMITED TO CAPACITY, FLOW AND EXTERNAL STATIC PRESSURE.
  - ROOF CURBS: ALL ROOFTOP EQUIPMENT TO BE INSTALLED. CONTRACTOR SHALL USE 6 INCH BLACK STEEL ON LETTERS UNLESS OTHERWISE NOTED. OTHERS SHALL BE GALVANIZED STEEL. NEW EQUIPMENT: LAB ROOFTOP EQUIPMENT SHALL BE DESIGNATED, STORE NAME AND SPACE NUMBER (RTU #); NORTHERN TOOL + EQUIPMENT; SPACE #XXX AS REQUIRED BY LANDLORD. EXISTING EQUIPMENT: LAB ROOFTOP EQUIPMENT WITH EQUIPMENT DESIGNATION. REPLACE EXISTING STORE NAME AND SPACE NUMBER AS NECESSARY - (RTU-1; NORTHERN TOOL + EQUIPMENT; SPACE #XXX) AS REQUIRED BY LANDLORD.
  - HANG DUCTWORK FROM STRUCTURE ACCORDING TO SMAGNA STANDARDS. CONTRACTOR SHALL BE REQUIRED TO INSTALL SEISMIC BRACING AS REQUIRED BY LANDLORD CRITERIA AND/OR LOCAL CODES.
  - ALL SUPPLY RETURN, EXHAUST AND RELIEF DUCTWORK SHALL BE GALVANIZED STEEL SHALL BE MANUFACTURED (GAUGES, REINFORCEMENT AND CONNECTIONS) AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMAGNA "HVAC DUCT CONSTRUCTION STANDARDS".
  - ALL FLEX DUCT SHALL HAVE A MINIMUM THROAT RADIUS OF ONE HALF THE DUCT DIAMETER OR SHALL BE PROVIDED WITH TURNING VANES.
  - HANG DUCTWORK FROM STRUCTURE ACCORDING TO SMAGNA STANDARDS. CONTRACTOR SHALL BE REQUIRED TO INSTALL SEISMIC BRACING AS REQUIRED BY LANDLORD CRITERIA AND/OR LOCAL CODES.
  - ALL DUCT JOINTS AND LONGITUDINAL SEAMS SHALL BE SEALED WITH A WATER BASED DUCT SEALER, DURO DYNE "DUROSEAL" OR APPROVED EQUAL.
  - PROVIDE FLEXIBLE DUCT CONNECTIONS CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC AT EQUIPMENT INLET AND OUTLET TO ISOLATE VIBRATION.
  - THE FINAL 4' OF DUCTWORK TO THE AIR DEVICE MAY BE FLEXIBLE CLASS 1 DUCT WITH R-5 INSULATION AND FOIL VAPOR BARRIER. DUCTWORK MUST MEET LOCAL REQUIREMENTS AND LANDLORDS CRITERIA.
  - ALL FLEX DUCT MUST BE INSTALLED PER THE ADC (AIR DIFFUSION COUNCIL) INSTALLATION STANDARDS (MOST CURRENT EDITION), INCLUDING A BEND RADIUS OF ONE DUCT DIAMETER OR GREATER, PROPERLY SEALED AND SECURED WITH 2 INCH BEADED COLLARS, PROPERLY SUPPORTED AND FULLY EXTENDED DUCT. FAN CALCULATIONS FOR THIS PROJECT WERE SIZED FOR 4 FOOT MAXIMUM FLEX DUCT INSTALLED PER THE ADC INSTALLATION STANDARDS. FLEX DUCT SHOWN ON PLANS IS FOR SCHEMATIC PURPOSES ONLY AND SHALL IN NO INSTANCE EXCEED 4 FOOT.
  - THE FIRST 15 FT OF DUCTWORK FROM THE ROOFTOP UNIT SHALL BE INTERNALLY LINED WITH 1 IN FIBROUS GLASS DUCT LINER WITH ANTI-MICROBIAL COATING FOR CONDENSATE AND NOISE.
  - ALL SUPPLY TAKE-OFFS SHALL HAVE AIR SCOOP AND MANUAL VOLUME DAMPER WITH QUADRANT HANDLE FOR BALANCING. WHERE DUCTWORK IS LOCATED ABOVE A GYPSONUM BOARD CEILING, A CABLE CONTROLLED DAMPER OPERATOR SHALL BE FURNISHED, YOUNG REGULATOR COMPANY OR EQUAL.
- TESTING, ADJUSTING, AND BALANCING
  - THE ADJUSTING AND BALANCING OF THE AIR FLOW THROUGHOUT THE FACILITY SHALL BE PERFORMED BY AN NEBB OR AABC CERTIFIED AIR BALANCER AS HIRED BY THE MECHANICAL CONTRACTOR. EXHAUST SYSTEM WITHIN THE PRODUCT PREP ROOM TO BE INCLUDED IN THE TEST AND BALANCE REPORT. THE BALANCING SHALL TAKE PLACE AFTER THE FINAL PUNCH LIST. THE BALANCING CONTRACTOR SHALL VERIFY THAT ITEMS ON THE PUNCH LIST EFFECTING THE AIR BALANCE REPORT ARE COMPLETED PRIOR TO STARTING THE AIR BALANCE. THE MECHANICAL CONTRACTOR SHALL PROVIDE ASSISTANCE TO THE TESTING AND BALANCING CONTRACTOR BY MAKING ADJUSTMENTS TO THE SYSTEM AND SYSTEM COMPONENTS REQUIRED FOR ACHIEVING DESIGN PERFORMANCE.
  - CONTRACTOR SHALL SUBMIT COPIES OF BALANCE/TEST REPORT TO TENANT FOR REVIEW PRIOR TO COMPLETION OF PROJECT. IF A CERTIFIED TEST AND BALANCE REPORT IS REQUIRED BY LANDLORD, CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS WITH LANDLORD AND LOCAL AUTHORITY HAVING JURISDICTION, CONTRACT DIRECTLY WITH AN APPROVED TESTING AND BALANCING AGENCY, AND PROVIDE COMPLETE REPORT TO OWNER AND LANDLORD.
  - THE BALANCE REPORT SHALL BE ON THE AABC NATIONAL STANDARD REPORT FORMS OR THE NEBB CERTIFIED REPORT FORMS AS PUBLISHED IN THEIR MOST CURRENT EDITIONS AND SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:
    - CERTIFICATION NUMBER OF THE AIR BALANCER.
    - CALIBRATION DATES AND INFORMATION ON THE EQUIPMENT USED FOR BALANCING.
    - ITEM BEING TESTED WITH MAKE, MODEL AND SERIAL NUMBERS
    - AIR CFM AT INLET AND OUTLET OF SUPPLY UNIT (PRELIMINARY READING, FIRST ADJUSTMENT, SECOND ADJUSTMENT)
    - AIR CFM AT DISTRIBUTION POINT (PRELIMINARY READING, FIRST ADJUSTMENT, SECOND ADJUSTMENT). EACH GRILLE, REGISTER, DIFFUSER SHALL BE LABELED ON A MASTER PLAN THAT SHOULD BE INCLUDED IN THE FINAL REPORT.
    - MOTOR AMP READINGS AFTER EACH ADJUSTMENT.
    - MOTOR AND FAN RPM READINGS AFTER EACH ADJUSTMENT.
    - STATIC PRESSURE AT UNIT INCLUDING, INLET, OUTLET AND TOTAL.
    - OUTSIDE AIR CFM.
    - SUBMIT (4) COPIES OF THE AIR BALANCE REPORT TO THE TENANT'S PROJECT MANAGER.

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No.	Description	Date
▲	ISSUED FOR BID AND PERMIT	03/29/19
▲	ISSUED FOR BID	05/30/19
▲	RE-ISSUED FOR BID AND PERMIT	10/16/20

**Salem Gate**  
Market

**NORTHERN  
TOOL +  
EQUIPMENT**



**ANCHOR 2B**  
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HVAC SPECIFICATIONS

Date	Drawn	Sheet No.
03/29/19	SL	M-400
Project No.	Rev's	
18.112	KSM	

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