

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.

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 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 APPLICABLE LOCAL CODES AND ORDINANCES AND STATE STATUTES. ALL REQUIREMENTS OF THE CURRENT PLUMBING CODES, MECHANICAL 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 OF EXACT EQUIPMENT SHALL BE USED FOR THE BASE BID. EQUIPMENT OF EQUAL GRADE AND QUALITY WILL BE SUBJECT TO PRIOR APPROVAL BY THE TENANT'S PROJECT MANAGER AND THE ENGINEER IN WRITING THRU THE SHOP DRAWING SUBMITTAL PROCESS. ANY EQUIPMENT INSTALLED WITHOUT WRITTEN APPROVAL WILL BE CHANGED OUT TO THE SPECIFIED EQUIPMENT AT THE CONTRACTORS EXPENSE.
- MECHANICAL CONTRACTOR SHALL SUBMIT 3 COPIES OF SHOP DRAWINGS TO THE PROJECT MANAGER FOR APPROVAL. IF APPROVED, COPIES WILL BE STAMPED "REVIEWED" OR "REVIEWED WITH COMMENTS" AND WILL BE RETURNED TO THE CONTRACTOR. IF NOTATIONS AND MARKS INDICATE THAT REVISED INFORMATION IS REQUIRED, THEN CORRECTED INFORMATION SHALL BE SUBMITTED.

SECTION 15006 – GUARANTEE

- THIS CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR AND DEFECTS WHICH MAY DEVELOP IN ANY PART OF THE SYSTEMS, SYSTEMS, FAULTY WORKMANSHIP, MATERIAL OR EQUIPMENT, AND AGREES TO PLACE ANY SUCH FAULTY WORKMANSHIP, MATERIAL OR EQUIPMENT UNDER A PERIOD OF 12 MONTHS FROM THE DATE OF FINAL ACCEPTANCE WITHIN THE COST TO THE OWNER. ANY EXTENDED WARRANTY (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 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, ALL EQUIPMENT TO BE REMOVED MUST BE REMOVED WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEIOUS 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.
- 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 OR ALTER WORK OF ANY OTHER CONTRACTOR.
- PATCHING OF WALLS, FLOORS AND ROOF SHALL BE OF SAME MATERIAL AND WORKMANSHIP OF THE SURROUNDING MATERIAL WITH FINISHED SURFACE APPEARING THE SAME AS THE SURROUNDING AREAS. ALL PATCHING SHALL BE PERFORMED BY WORKMEN SKILLED 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 CUT FLUSH WITH THE FINISHED SURFACES. SLEEVES IN SLABS SHALL BE CUT 2" ABOVE THE FLOOR SURFACE.
- ALL SLEEVES SHALL BE 22 GAUGE GALVANIZED STEEL MINIMUM FINISHED WITH A SMOOTH EDGE AND PROPERLY SUPPORTED, OR PVC.
- CORE DRILLING FLOORS AND WALLS MUST BE COORDINATED WITH THE PROJECT MANAGER.
- THIS CONTRACTOR SHALL FURNISH AND INSTALL FIRE STOPPING AT ALL PENETRATIONS THRU RATED FLOORS TO MAINTAIN THE 3M FIRE BARRIER SYSTEMS, FLAME SAFE FIRE RESISTANT SYSTEMS, DOW CORNING, SPICESEAL OR EQUAL. THE CONTRACTOR MUST PRESENT UL LISTING DATA SHEETS TO THE TENANT'S PROJECT MANAGER AND LANDLORD TO SHOW THAT THE PENETRATIONS MEET THE RATING.

SECTION 15012 HANGERS

- FURNISH AND INSTALL BRACKETS, BRACES OR REINFORCING ANGLES AS REQUIRED FOR ALL PENETRATIONS NOT PROVIDED IN THEMSELVES TO SUPPORT PULLING FIXTURES ON OTHER EQUIPMENT.
- PIPING SHALL BE SUSPENDED FROM CONSTRUCTION ABOVE WITH ANGLE IRON, CHAINS, UNISTRUT, 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 15300 – FIRE PROTECTION (IF APPLICABLE)

SECTION 15301 – SUMMARY OF WORK

- THE CONTRACTOR IS REQUIRED TO FURNISH AND INSTALL ALL NECESSARY MATERIAL, EQUIPMENT AND LABOR FOR A WET SPRINKLER SYSTEM TO MEET THE LANDLORDS TENANT CRITERIA AND LOCAL CODES. THE CONTRACTOR SHALL BE REQUIRED TO HAVE DESIGN DRAWINGS COMPLETED BY A CERTIFIED FIRE SPRINKLER DESIGNER AND COPIES OF THE HYDRAULIC CALCULATIONS AND PLANS ALONG WITH SHOP DRAWINGS OF THE HEADS, SHALL BE SUBMITTED TO THE STATE FIRE MARSHALS OFFICE OR LOCAL AUTHORITY HAVING JURISDICTION FOR PLAN REVIEW AND APPROVAL. ON OR BEFORE THE TIME THE PLANS AND CALCULATIONS ARE SUBMITTED TO THE STATE FOR APPROVAL, THEY SHOULD BE SUBMITTED TO THE TENANT'S PROJECT MANAGER AND ENGINEER FOR REVIEW.
- THE EXISTING WET SPRINKLER SYSTEM SHALL BE REVISED MEET NFPA-13, LOCAL AUTHORITY AND LANDLORDS TENANT CRITERIA.
- CONTRACTOR IS RESPONSIBLE FOR ALL FEES RELATED PERMITS AND TESTS AND INSPECTIONS.

SECTION 15302 – MATERIALS

- A. SPRINKLER HEADS:
- ALL SPRINKLER HEADS SHALL BE NEW U.L., F.M. LISTED AND APPROVED AUTOMATIC SPRAY TYPE AS MANUFACTURED BY GRINNELL, RELIABLE, STAR, OR WIKING.
  - ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE RATED FOR 165T UNLESS INDICATED OTHERWISE ON DRAWINGS OR REQUIRED BY LOCAL CODES.
  - VERIFY HEAD TYPES AND COLORS WITH TENANT AND SUBMIT WITH SPRINKLER DRAWINGS FOR PERMIT.
  - LOCATIONS OF ALL HEADS SHOULD BE APPROVED BY TENANT AND THE LOCAL FIRE PROTECTION OFFICIAL BEFORE INSTALLATION.
    - ACT LAY-IN CEILING – SEMI-RECESSED WITH WHITE ESCUTCHEONS AND WHITE HEADS.
    - GYP BOARD HARD LID CEILING – FULLY RECESSED CONCEALED HEADS PAINT COVERPLATES TO MATCH ADJACENT GYP BOARD.
    - OPEN CEILING – ROUGH BRONZE UPRIGHT HEAD.
- B. PIPING:
- SCHEDULE 40, BLACK STEEL PIPE, ASTM A-53 FOR FERROUS PIPING, WELDED AND SEAMLESS, ANSI B-36-10-70 FOR WROUGHT STEEL PIPE.
  - CAST IRON OR MALLEABLE IRON SCREWED FITTINGS FOR PIPES 2 INCHES AND SMALLER. SCREWED OR CAST IRON FLANGED JOINTS FOR PIPES LARGER THAN 2 INCHES.
  - GALVANIZED OR BLACK MALLEABLE IRON WITH BRASS SEAT SCREWED UNIONS FOR PIPES 2 INCHES AND SMALLER.
  - VICTAULIC TYPE COUPLINGS ARE ACCEPTABLE, WHERE APPROVED BY CODE AND THE LANDLORD.
  - HANGERS SHALL COMPLY WITH LANDLORD AND CODE REQUIREMENTS.
  - SPRINKLER SPACING SHALL NOT EXCEED 130 SQ. FT. IN "SALES" AREAS AND 100 SQ. FT. IN "STOCK" AREAS. COMPLY WITH LANDLORD'S DESIGN CRITERIA. PIPE SIZING SHALL BE BASED ON NFPA ORDINARY HAZARD.
  - ALL SPRINKLER LINES SHALL BE INSTALLED CONCEALED, AVOIDING INTERFERENCE WITH OTHER TRADES.
  - PROVIDE AND INSTALL A VALVED TEST CONNECTION IN AN ACCESSIBLE LOCATION FOR THE SPRINKLER SYSTEM AS REQUIRED BY THE LOCAL FIRE INSPECTOR.
  - THIS CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE CAUSED BY LEAKS IN ANY OF THE EQUIPMENT INSTALLED BY THEM. ALL REPAIRS OR REPLACEMENT OF DAMAGES SHALL BE AT THIS CONTRACTOR'S EXPENSE.
  - PROPERLY COMPLETED AND SIGNED "SPRINKLER CONTRACTOR'S MATERIAL AND TEST CERTIFICATES" SHALL BE FURNISHED TO THE OWNER, AND AUTHORITIES HAVING JURISDICTION.

DIVISION 15500 – HEATING, VENTILATING, AIR CONDITIONING

SECTION 15501 – SUMMARY OF WORK

- THIS CONTRACTOR SHALL FURNISH, INSTALL, TEST AND BALANCE ALL NECESSARY EQUIPMENT FOR A COMPLETE WORKING SYSTEM. SEE PLAN FOR DUCTWORK AND SCHEDULES.
- CONTROLS
  - COMMERCIAL THERMOSTAT WITH CONTROL FOR UP TO 2-STAGES OF HEATING AND 2-STAGES OF COOLING WITH FULL ECONOMIZER AND DEHUMIDIFICATION CONTROL SEQUENCES. PROVIDE REMOTE SENSORS AS INDICATED ON PLANS. VERIFY COMPATIBILITY WITH LANDLORDS REQUIREMENTS PRIOR TO INSTALLATION.
  - VERIFY COMPLETE OPERATION OF ALL MODES: HEAT, COOL, ECONOMIZER, OCCUP UNOCCUPIED, DEHUMIDIFICATION, ETC. CONTRACTOR SHALL PROVIDE FULLY FUNCTIONAL SYSTEM AS APPROVED BY TENANT AND PER CODE REQUIREMENTS. ASSIST IN ANY NECESSARY TRAINING AND/OR PROGRAMMING PER TENANT'S REQUIREMENTS.
  - COORDINATE CONTROL REQUIREMENTS AND SETTINGS WITH LANDLORD REQUIREMENTS PRIOR TO BID. IF REQUIRED PROVIDE ALL ELEMENTS TO THE LANDLORD SYSTEMS.

SECTION 15502 – MATERIALS

- SEE PLANS FOR SCHEDULES AND DETAILS OF EQUIPMENT. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE ALL REQUIREMENTS WITH THE LANDLORD.
  - THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY PARTS AND LABOR INCLUDING BUT NOT LIMITED TO BELTS, PULLEYS, BEARINGS, DAMPERS, COILS AND MOTORS AS REQUIRED TO RUN A FULL OPERATIONAL UNIT THAT MEETS OR EXCEEDS THE DESIGN QUANTITY SET FORTH IN THESE DOCUMENTS INCLUDING BUT NOT LIMITED TO CAPACITY, CFM AND EXTERNAL STATIC PRESSURE. DUCTWORK – FIBERGLASS DUCT BOARD IS NOT APPROVED.
  - ALL SUPPLY RETURN, EXHAUST AND RELIEF DUCTWORK SHALL BE GALVANIZED STEEL SHALL BE MANUFACTURED (GAUGES, REINFORCEMENT AND CONNECTIONS), INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS"
  - ALL ELBOWS SHALL HAVE A MINIMUM THROAT RADIUS OF ONE HALF THE DUCT WIDTH OR SHALL BE PROVIDED WITH TURNING VANES.
  - HANG DUCTWORK FROM STRUCTURE ACCORDING TO SMACNA STANDARDS. CONTRACTOR SHALL BE REQUIRED TO INSTALL SEISMIC BRACING AS REQUIRED BY LOCAL AND STATE CODES.
  - ALL DUCT JOINTS AND LONGITUDINAL SEAMS SHALL BE SEALED WITH A WATER BASED DUCT SEALER, DURO DYNE "DUROSEAL" OR APPROVED EQUAL.
  - ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE WRAPPED (NO INTERNAL LINER ALLOWED) WITH R-6 INSULATION WRAP WITH FOIL VAPOR BARRIER. ALL JOINTS SHALL BE TAPE AND INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION REQUIREMENTS IN ORDER TO MAINTAIN THE R-VALUE RATING. DUCTWORK LOCATED IN UNTEMPERED SPACES REQUIRE R-8 INSULATION.
  - 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-6 INSULATION AND FOIL VAPOR BARRIER. DUCTWORK MUST MEET LOCAL REQUIREMENTS AND LANDLORDS CRITERIA.
  - ALL SUPPLY TAKE-OFFS SHALL HAVE SPIN-IN COLLAR AND MANUAL VOLUME DAMPER WITH QUADRANT LOCKING HANDLE FOR BALANCING. WHERE DUCTWORK IS LOCATED ABOVE A GYPSUM BOARD CEILING, A CABLE CONTROLLED DAMPER OPERATOR SHALL BE FURNISHED, QUANT REGULATOR COMPANY OR EQUAL.

C. 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. 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. THE BALANCING REPORT SHALL INCLUDE AT MINIMUM THE FOLLOWING:
  - 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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PROTOTYPE TEMPLATE:

**"NORTHLAKE"**  
v.2019.1.08  
MODIFIED EXTERIOR

PROJECT INFORMATION:

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CHECKED BY: MI

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MECHANICAL SPECIFICATIONS

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