

DIVISION 23 - MECHANICAL SPECIFICATIONS

230500 COMMON WORK RESULTS FOR HVAC

- A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEM... B. WITHOUT RESTRICTING THE GENERALITY OF THE FIRST STATEMENT... C. ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED... D. ALL FINISH PAINTING SHALL BE PERFORMED BY GENERAL CONTRACTOR... E. ALL WORK SHALL CONFORM TO CODES, RULES, AND REGULATIONS... F. ALL PERMITS REQUIRED BY LAWS, ORDINANCES AND BUILDING CODES... G. THIS CONTRACTOR SHALL OBTAIN ALL INSPECTIONS... H. PIPING AND EQUIPMENT LAYOUT IS SCHEMATIC... I. MATERIALS AND EQUIPMENT INSTALLED IN THE WORK... J. CATALOG DATA FOR EQUIPMENT... K. WHEN SUBMITTED FOR REVIEW, SHOP DRAWINGS... L. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES... M. PROVIDE INSTRUCTION TO OWNER'S OPERATING PERSONNEL... N. COMPILER WRITTEN MANUAL OF OPERATING INSTRUCTIONS... O. SUBMIT A COMPLETED COPY TITLED "HVAC OPERATING INSTRUCTION MANUAL"... P. WITHIN 90 DAYS AFTER DATE OF SYSTEM ACCEPTANCE... Q. THIS CONTRACTOR IS TO BECOME INFORMED OF THE EXACT DIMENSIONS OF FINISHED WORK... R. IN THE ERECTION OF DUCTWORK, SPECIAL CARE SHALL BE USED... S. ALL DUCTWORK SHALL BE PLACED SO AS TO AVOID INTERFERENCES... T. ALL DUCTWORK SHALL BE PROVIDED WITH SUFFICIENT DISTANCE FROM WALLS, PIPES, AND OTHER OBSTACLES...

230593 TESTING, ADJUSTING, & BALANCING HVAC

- A. THE CONTRACTOR SHALL COMPLETE INSTALLATION OF HOOD SYSTEM, ROOFTOP EQUIPMENT, AND CONTROL SYSTEM... B. CONTRACTOR SHALL COMPLETE ALL CALIBRATIONS AND TESTS OUTLINED IN WENDY'S TEST PROTOCOLS AND DOCUMENT RESULTS ON DESIGNATED FORMS... C. ALL CONTRACTORS WORKING ON PROJECT ARE REQUIRED TO HAVE COMPLETED THE WENDY'S RESTAURANT VENTILATION COURSE... D. PROCEDURES/CHECKLISTS: CHECKLIST PROCEDURE TROUBLESHOOTING BREAKER PANELS WESCO RQC-2017-013 RQC-2017-014 RQC-2017-015 CPI RQC-2017-043 RQC-2017-044 RQC-2017-045 ROOFTOP UNITS Aeon RQC-2018-073 NA NA Carrier RQC-2017-033 NA NA Trane RQC-2017-022 NA NA HOOD SYSTEM Hallton RQC-2017-050 RQC-2017-051 NA Captive Aire RQC-2017-060 RQC-2017-061 NA E. QUALIFICATIONS: 1. BALANCER SHALL BE A MEMBER IN GOOD STANDING AND CERTIFIED WITH THE ASSOCIATED AIR

- BALANCE COUNCIL (AABC), OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). CONTRACTOR, DESIGN PROFESSIONAL, EQUIPMENT MANUFACTURER OR SUPPLIER OF HVAC RELATED EQUIPMENT... 2. ALL INSTRUMENTS USED FOR TAB SHALL BE ACCURATELY CALIBRATED WITHIN TWELVE (12) MONTHS OF BALANCING AND MAINTAINED IN GOOD WORKING ORDER... 3. UNLESS OTHERWISE NOTED RESTAURATEUR SHALL PROCURE THE SERVICES OF AND CONTRACT DIRECTLY WITH AN INDEPENDENT TAB CONTRACTOR (BALANCER) MEETING THE QUALIFICATIONS OF THIS SECTION... 4. IF CONTRACTOR IS REQUIRED TO PROCURE TAB SERVICES DIRECTLY... 5. CONTRACTORS SHALL COOPERATE AND ASSIST BALANCER AS REQUIRED... F. CONTRACTOR SHALL COMPLETE THE FOLLOWING PRIOR TO TAB... G. DESIGN BALANCE DEVIATION TOLERANCES: 1. KITCHEN HOODS ARE UL LISTED AND SHALL BE BALANCED FROM 100% TO 105% OF DESIGN AIRFLOW... 2. TOTAL OF ALL AIR DISTRIBUTION DEVICES ON SAME ROOFTOP UNIT DUCT SYSTEM SHALL BE BALANCED TO 100% TO 105% OF DESIGN... 3. ROOFTOP UNITS SHALL PROVIDE OUTDOOR AIR CFM BETWEEN 100% TO 105% OF DESIGN... 4. ECONOMIZERS SHALL PROVIDE REQUIRED OUTDOOR AIR WHEN CLOSED FOR BUSINESS... 5. OVERALL SYSTEM SHALL BE BALANCED TO POSITIVE CFM AS SHOWN ON THE VENTILATION SCHEDULE WITH ALL FANS IN OPERATION... 6. CONTACT RTU MANUFACTURER TO RESOLVE AIRFLOW DELIVERY IF ROOFTOP UNIT AIRFLOWS ARE BELOW DESIGN...

- 5. ADDITIONAL RESPONSIBILITIES INCLUDE: PROVIDE REQUIRED SHOP DRAWINGS AND EQUIPMENT DATA INCLUDING ANY APPROVALS OF DESIGN MODIFICATIONS... 6. DURING TAB PERIOD, OPERATE ALL HVAC EQUIPMENT AS NECESSARY TO PERMIT SYSTEMS TO BE TESTED AND BALANCED AS FULLY OPERATING FUNCTIONAL SYSTEMS... 7. REPLACE BELTS AND DRIVES AS REQUIRED FOR PROPER BALANCING - DRIVES SHALL BE ADJUSTED AND ALIGNED BY CONTRACTOR TO PREVENT ABNORMAL BELT WEAR AND VIBRATION... N. SYSTEM READY NOTICE - ALLOW ADEQUATE TIME TO PERFORM TESTING AND BALANCING WORK... O. BALANCER RESPONSIBILITIES: 1. RECORD DATA REQUIRED BY AABC OR NEBB FORMS... 2. PROVIDE TABLE IN THE REPORT THAT ITEMIZES ALL SUPPLY AND EXHAUST AIR CFM... 3. BALANCER SHALL COMPLETE A WENDY'S TEST & BALANCE CONFIRMATION FORM WHILE PERFORMING SYSTEM TESTING...

230700 HVAC INSULATION

- A. DUCT INSULATION AND APPURTENANCES SHALL HAVE FLAME SPREAD RATING NOT EXCEEDING TWENTY-FIVE (25) AND SMOKE DEVELOPED RATING NOT EXCEEDING FIFTY (50). B. ALL CONCEALED SUPPLY DUCTWORK SHALL HAVE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER... C. INSULATION SHALL NOT BE APPLIED UNTIL CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO ENSURE AGAINST PHYSICAL OR MOISTURE DAMAGE TO INSULATION... D. HANGER RODS SHALL BE PERPENDICULAR TO DUCTWORK BEFORE INSULATION IS INSTALLED... E. INSTALL ALL INSULATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS... F. INSULATION SHALL BE APPLIED OVER FLANGES, JOINTS AND SEAMS IN PIPING AND DUCTWORK... G. ALL JOINTS AND SEAMS IN INSULATION SHALL BE PROPERLY SEALED TO MAINTAIN VAPOR BARRIER... H. INSULATION SHALL BE OWENS-CORNING, EQUAL PRODUCT BY ARMSTRONG, CERTAINTEED, SCHULLER OR KNAUF MAY BE PROVIDED AT CONTRACTOR'S OPTION.

230800 COMMISSIONING OF HVAC

- A. THIS CONTRACTOR SHALL COORDINATE COMMISSIONING OF HVAC SYSTEMS AND SHALL ASSIST OWNERS TEST AND BALANCE CONTRACTOR TO COMPLETION... C. CONTRACTOR SHALL PROVIDE DOCUMENTATION OF ALL TESTING AND COMMISSIONING TO BE INCLUDED IN OPERATING INSTRUCTIONS MANUAL... 1. CONSTRUCTION AND SYSTEM CHECKLISTS. 2. CERTIFICATE OF READINESS. 3. INTERIM AND FINAL TEST AND INSPECTION REPORTS AND CERTIFICATES. 4. APPROVED SUBMITTALS. 5. CERTIFICATE OF COMPLETION. 6. AS-BUILT DOCUMENTATION.

231333 METAL DUCTS

- A. THIS SECTION INCLUDES SPECIFICATIONS FOR ALL DUCTWORK EXCEPT "GREASE DUCT" (EXHAUST DUCT CONNECTED TO TYPE 1 HOODS WHERE GREASE LADEN VAPORS MAY BE PRESENT)... B. THIS CONTRACTOR SHALL PROVIDE COMPLETE DUCT SYSTEM CONSISTING OF DUCTWORK, PLENUMS, FITTINGS AND CONNECTORS OF SIZE AND LOCATION AS INDICATED ON DRAWINGS... C. ALL PORTIONS OF DUCT SYSTEM SHALL BE DESIGNED, FABRICATED AND INSTALLED PER THE FOLLOWING REQUIREMENTS: 1. LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE". 2. RIGID GALVANIZED SHEET METAL OF THICKNESS AND WITH STIFFENERS AS INDICATED IN SMACNA PER 2" WATER COLUMN CHART. 3. AIR VELOCITIES NO MORE THAN 2000 FPM AND STATIC PRESSURE IN DUCT OF 2" OR LESS. 4. SEALING PER SMACNA "CLASS B" OR AS REQUIRED TO MEET AIR BALANCE. 5. CROSS-BREAKING, STIFFENING, BRACES, TOES, ANGLES AND OTHER BRACING AND SUPPORT REQUIRED TO MAINTAIN DUCT CONFORMITY TRUE TO SHAPE... D. FLEXIBLE CONNECTIONS SHALL BE INSTALLED AT ROOFTOP UNIT SUPPLY AND RETURN AIR CONNECTIONS... E. PROVIDE VOLUME CONTROLLER AND EXTRACTOR AT ALL BRANCH TAKEOFFS IN SUPPLY AND RETURN AND AT OTHER LOCATIONS IN SUPPLY AND RETURN MAIN DUCTS AS REQUIRED TO PROPERLY BALANCE SYSTEMS... F. PROVIDE TURNING VANES IN ALL ELBOWS OF RECTANGULAR DUCTS. THE BLADES SHALL BE HOLLOW-FORMED DOUBLE THICKNESS VANES.

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- G. PROVIDE SUPPLY, RETURN, AND EXHAUST REGISTERS, GRILLES AND DIFFUSERS AS INDICATED ON DRAWINGS AND/OR SCHEDULES... H. PROVIDE FLEXIBLE SUPPLY AIR DUCTWORK WITH 1" THICK FIBERGLASS BLANKET INSULATION WITH METALIZED FILM VAPOR BARRIER OUTER JACKET IN LENGTHS THAT DO NOT EXCEED FIVE FEET...

233300 DAMPERS

- A. THIS CONTRACTOR SHALL PROVIDE RECTANGULAR AND ROUND GALVANIZED STEEL MANUAL AND/OR MOTORIZED VOLUME CONTROL DAMPERS THAT SHALL BE: 1. NO MORE THAN 6" IN ONE DIMENSION (LARGER DAMPERS SHALL BE OPPOSED-BLADE WITH EACH BLADE BEING NO MORE THAN 6"). 2. MINIMUM OF 16 GAUGE AND AT LEAST 2 GAUGES HEAVIER THAN DUCT INSTALLED IN... B. PROVIDE ACCESS AND PROPER CLEARANCES AS REQUIRED TO OPERATE DAMPERS... C. CHECK DAMPERS FOR PROPER OPERATION BEFORE AND AFTER INSTALLATION... D. INSTALL BALANCE DAMPERS WHERE INDICATED ON DRAWINGS AND ELSEWHERE AS NECESSARY TO OBTAIN PROPER SYSTEM BALANCE... 233713 AIR DISTRIBUTION DEVICES: A. ALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE PROVIDED BY CONTRACTOR... B. COORDINATE AIR DISTRIBUTION DEVICE LOCATIONS WITH ALL AFFECTED CONTRACTORS BEFORE INSTALLING DUCTWORK... C. SUSPEND CEILING AIR DEVICES FROM STRUCTURE ON WIRE HANGERS OR FROM RIGID DUCTWORK... D. SECURELY FASTEN SIDE WALL AIR DEVICES TO RIGID DUCTWORK OR STRUCTURE.

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