

HVAC GENERAL NOTES

- 1. COMPLY WITH ALL APPLICABLE INTERNATIONAL BUILDING CODES FOR ALL WORK UNDER THIS CONTRACT.
2. MAXIMUM, MINIMUM CFM AND REHEATING FOR VAV BOXES ARE AS INDICATED ON THE VAV UNIT SCHEDULE. IF NOT INDICATED, SET THE MINIMUM CFM TO 50% OF THE MAXIMUM CFM.
3. PRESSURE DEPENDENT VAV BOXES SHALL NOT BE USED.
4. ALL VAV BOXES SHALL BE PROVIDED WITH A MINIMUM OF TWO (2) DUCT DIAMETERS OF STRAIGHT DUCT RUN AT THE INLET. INLET DUCT SHALL BE EQUAL TO THE BOX INLET SIZE.
5. FABRICATE ALL DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS. ALL DUCTWORK SHALL BE A MINIMUM OF 26 GAUGE.
6. PROVIDE ACCESS DOORS IN DUCTWORK TO SERVICE FIRE DAMPERS & DEVICES WITHIN DUCTS.
7. PROVIDE ACCESS DOORS IN INACCESSIBLE CEILING TO ACCESS MEP DEVICES ABOVE CEILING NOT OTHERWISE ACCESSIBLE.
8. INSTALL FLEXIBLE DUCTS IN ACCORDANCE WITH SMACNA STANDARDS AND PROJECT SPECIFICATIONS.
9. MAXIMUM ALLOWED FLEXIBLE DUCT LENGTH SHALL BE FIVE (5) FEET.
10. PROVIDE MANUAL VOLUME DAMPERS AT EACH DUCT BRANCH LEADING TO AN OUTLET/INLET OPENING. INSTALL DAMPERS AS FAR AS POSSIBLE AWAY FROM THE DIFFUSER.
11. REFER TO AIR DEVICE SCHEDULE FOR INLET DUCT SIZES UNLESS OTHERWISE INDICATED.
12. VERIFY REFLECTED CEILING PLANS IN THE FIELD FOR EXACT LAYOUT LOCATION OF ALL CEILING GRILLES & DIFFUSERS. COORDINATE WITH ALL OTHER TRADES FOR THEIR LAYOUTS.
13. COORDINATE FINAL EQUIPMENT/FURNITURE LOCATIONS WITH THE GENERAL CONTRACTOR. THE LOCATION AS INDICATED ON THE DRAWING IS APPROXIMATE. INSTALL ALL MECHANICAL EQUIPMENT SUCH THAT MANUFACTURER'S MAINTENANCE AREA IS CLEAR.
14. COORDINATE ALL MECHANICAL, PLUMBING AND ELECTRICAL WORK & EQUIPMENT WITH STRUCTURAL MEMBERS, ELECTRICAL WORK, FIXTURES AND ALL OTHER TRADES.
15. RUN ALL PIPING CONCEALED ABOVE CEILING EXCEPT WHERE INDICATED.
16. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS & DRAIN VALVES WITH GAPPED HOSE CONNECTIONS AT ALL LOW POINTS OF PIPING SYSTEMS.
17. FIRES TO PMSK BS TOP AND SLEEVE ALL PENETRATIONS THROUGH FIRESMOKE RATED ASSEMBLIES. REFER TO LIFE SAFETY PLANS FOR RATED ASSEMBLIES AND LOCATIONS.
18. REGARDLESS OF HOW PIPING IS PRESENTED ON THE DRAWINGS, PROVIDE ECCENTRIC (FLAT ON TOP) REDUCERS IN HYDROVIC PIPING.
19. COORDINATE FINAL THERMOSTAT LOCATIONS WITH INTERIOR FINISH AND FURNITURE EQUIPMENT DRAWINGS PRIOR TO INSTALLATION. MOUNT SENSORS 48" AFF TO THE TOP OF THE DEVICE. TYPICAL FOR ALL SENSORS. CONTRACTOR SHALL SCHEDULE WALKTHROUGH WITH OWNER ARCHITECT AND ENGINEER FOR FINAL DEVICE LOCATION DETERMINATION.
20. CONTRACTOR SHALL PROVIDE INDOOR AIR POLLUTION PREVENTION MEASURES DURING ALL DEMOLITION AND CONSTRUCTION ACTIVITIES BY CREATING, MAINTAINING AND MONITORING A NEGATIVE PRESSURE DIFFERENTIAL OF 0.25-INCH WATER GAUGE IN THE CONSTRUCTION WORK AREA RELATIVE TO THE WORK ZONE. PORTABLE AIR SCOURERS ARE TO BE USED FOR 300,000 CFM WITH PARTICULATE PRE-FILTERS AND A TRUE HEPA FILTER CERTIFIED TO A MINIMUM FILTRATION EFFICIENCY OF 99.97% AT 0.3 MICRONS IN ACCORDANCE WITH ISO 14644-1. REQUIREMENTS SHALL BE USED, AND THE VOLUME DAMPERS IN THE SUPPLY AIR DEVICES SERVING THE CONSTRUCTION ZONE SHALL BE TEMPORARILY CLOSED UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ARCHITECT WITH PROPOSED LOCATION(S) OF HEPA FILTERED AIR FILTRATION EQUIPMENT AND ALL NEGATIVE PRESSURE METHODS. METHODS UTILIZED SHALL BE IN ACCORDANCE WITH THE FACILITIES GUIDELINES INSTITUTE (FGI) GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS AND OUTPATIENT FACILITIES SECTION 12-1.3.3 AND THE OWNER'S REQUIREMENTS. ALL AIR SHALL BE EXHAUSTED TO THE EXTERIOR A MINIMUM OF 25 FEET FROM ANY AIR INTAKE. THE PRESSURE DIFFERENTIAL SHALL BE CONTINUOUSLY MONITORED ACROSS THE BARRIERS BETWEEN THE CONSTRUCTION AREA AND ADJACENT AREAS, AND DAILY AIRBORNE PARTICULATE SAMPLING AND TESTING OF AIR QUALITY SHALL BE CONDUCTED IN AREAS ADJACENT TO THE CONSTRUCTION WORK TO EVALUATE AND VERIFY BARRIER INTEGRITY.
21. REFER TO ARCHITECTURAL DRAWINGS FOR PHASING PLAN. ALL WORK SHALL BE PERFORMED IN A SEQUENCE AND DURING HOURS TO MINIMIZE DISRUPTION TO THE BUILDING WHICH WILL REMAIN OCCUPIED DURING CONSTRUCTION.

HVAC GENERAL DEMOLITION NOTES

- 1. NOTIFY THE OWNER IN WRITING, AT LEAST SEVEN (7) DAYS IN ADVANCE OF ALL REQUIRED SHUTDOWNS OF WATER, FIRE, SEWER, GAS, ELECTRICAL SERVICE, OR OTHER UTILITIES. UPON WRITTEN RECEIPT OF APPROVAL FROM OWNER, SHUTDOWN SHALL BE PERFORMED BETWEEN THE HOURS OF SIX (6) P.M. AND SIX (6) A.M. OR AS DIRECTED OTHERWISE BY THE OWNER AND SHALL BE ACCOMPLISHED AT NO ADDITIONAL CONTRACTOR COST. AT THE END OF EACH SHUTDOWN ALL SERVICES SHALL BE RESTORED SO THAT NORMAL USE OF THE UTILITIES CAN CONTINUE.
2. WHEN WORKING IN AND AROUND THE EXISTING BUILDING, EXTREME CARE SHALL BE EXERCISED WITH REGARD TO PROTECTION OF THE EXISTING STRUCTURE AND MECHANICAL AND ELECTRICAL SERVICES WHICH WILL REMAIN, REPAIR, REPLACE, OR RESTORE TO THE SATISFACTION OF THE ENGINEER ALL EXISTING WORK DAMAGED IN THE PERFORMANCE OF DEMOLITION AND NEW WORK.
3. ALL EXISTING PIPING, EQUIPMENT, DUCTWORK, AND MATERIALS NOT REQUIRED FOR REUSE OR RE-INSTALLATION (SHOWN OR OTHERWISE) SHALL BE REMOVED. ALL EXISTING MATERIALS AND EQUIPMENT WHICH ARE REMOVED AND ARE DESIRED BY THE OWNER, OR ARE INDICATED TO REMAIN THE PROPERTY OF THE OWNER, SHALL BE DELIVERED TO HIM ON THE PREMISES BY THE CONTRACTOR, WHERE DIRECTED BY THE ENGINEER. ALL OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY THE CONTRACTOR FROM THE PREMISES.
4. EXISTING CONDITIONS, I.E., PRESENCE AND LOCATION OF DUCTWORK, PIPING, EQUIPMENT AND MATERIALS, INDICATED ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL DUCTWORK, PIPING, EQUIPMENT AND MATERIALS IN THE FIELD PRIOR TO STARTING ALL WORK.
5. EXISTING DUCT, PIPE, AND EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. CONTRACTOR SHALL VERIFY ALL SIZES IN THE FIELD IF THEY EFFECT HIS WORK.
6. EXISTING PIPING NO LONGER REQUIRED TO REMAIN IN SERVICE (SHOWN OR OTHERWISE) SHALL BE DISCONNECTED AND REMOVED BACK TO SERVICE MAINS UNLESS OTHERWISE INDICATED OR NOTED ON THE PLANS. REMOVE EXISTING PIPE HANGERS, SUPPORTS, VALVES, ETC. EXISTING PIPING INDICATED OR REQUIRED TO REMAIN IN SERVICE OR IN PLACE SHALL BE GAPPED, PLUGGED, OR OTHERWISE SEALED. NO EXISTING PIPING SHALL BE LEFT OPEN END.
7. EXISTING DUCTWORK INDICATED TO BE DISCONNECTED AND REMOVED SHALL INCLUDE ALL RELATED AIR DRESSER, HANGERS, SUPPORTS, ETC., UNLESS OTHERWISE INDICATED OR NOTED ON THE PLANS. EXISTING DUCTWORK WHERE INDICATED TO BE GAPPED OR REQUIRED TO REMAIN IN SERVICE SHALL BE GAPPED WITH 19 GAUGE SHEET METAL, SECURE CAP WITH SHEET METAL SCREWS AND SEAL PERIMETER OF OPENING WITH GUM RESIN PUTTY SEALER. EXISTING DUCTWORK SHALL BE LEFT OPEN FOR EXTENDING PERIOD OF TIME. CAP EXISTING DUCTWORK IMMEDIATELY AS REQUIRED OR DIRECTED BY THE ENGINEER. CONTRACTOR SHALL RETURN ALL AIR DEVICES TO OWNER.
8. EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT, PIPING, DUCTWORK, AND MATERIALS AFFECTED BY DEMOLITION OR NEW WORK INSTALLATION AND REQUIRED TO REMAIN IN SERVICE SHALL BE RE-INSTALLED, RE-EQUIPPED AS REQUIRED IN ACCORDANCE WITH NEW WORK SPECIFICATION. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER AND AT NO ADDITIONAL CONTRACTOR COST.
9. PATCH ALL DISTURBED SURFACES, INCLUDING WALLS, CEILING, AND FLOOR WITH FINISH TO MATCH EXISTING ADJACENT SURFACES TO THICKNESS. FINISH TO BE DETERMINED BY THE ENGINEER. PATCHING SHALL BE PERFORMED TO THE SATISFACTION OF THE OWNER/ENGINEER AND AT NO ADDITIONAL CONTRACTOR COST.
10. IN GENERAL ALL PIPING, EQUIPMENT, DUCTWORK, AND MATERIALS SHALL BE LEFT IN PLACE TO REMAIN. ALL PIPING, CONDUITS, EQUIPMENT, DUCTWORK AND MATERIALS SHOWN TO BE REMOVED OR DASHED OUT SHALL BE DEMOLISHED.
11. ALL WORK SHALL BE PERFORMED IN A SEQUENCE AND DURING HOURS TO MINIMIZE DISRUPTION TO THE BUILDING WHICH WILL REMAIN OCCUPIED DURING CONSTRUCTION.
12. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SOUTH CAROLINA CODES, CITY OF CHARLESTON, AND THE LOCAL FIRE DEPARTMENT REQUIREMENTS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL OTHER TRADES/SUBCONTRACTORS INCLUDING BUT NOT LIMITED TO AUTOMATIC FIRE ALARMS, HEATING, VENTILATION, AND AIR CONDITIONING, ELECTRICAL, AND GENERAL TRADES.
14. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL STAIRWELLS AND EGRESS CORRIDORS DURING CONSTRUCTION.
15. CONCRETE CORING OR CUTTING MAY BE REQUIRED IN ORDER TO RUN ELECTRICAL, PLUMBING, CABLING OR OTHER SERVICES TO A WORKING AREA. IT IS IMPERATIVE WHEN CONSIDERING EITHER CORING, CUTTING OR CHIPPING THAT REBAR, PLUMBING, ELECTRICAL SERVICES, ETC WITHIN THE CONCRETE SLAB, WALL OR FLOOR BE LOCATED PRIOR TO DISTURBING THE INTEGRITY OF THE EXISTING CONCRETE. OBTAIN STRUCTURAL DRAWINGS OF THE AREA IN QUESTION AND, USING THE BUILDING RECORDS, DETERMINE AND MARK THE EXACT LOCATIONS REQUIRED FOR NEW SERVICES. DETERMINE THE EXISTING LOCATION OF THE CORE OR CUT BY LOCATING THE PRECISE POSITIONING OF ANY REBAR USING X-RAYS OR FERRO SCAN.
16. ALL PENETRATIONS MUST BE SEALED WITH FIRE STOP MATERIAL AFTER SERVICES ARE RUN THROUGH. ALL PENETRATIONS THROUGH EXTERIOR WALLS ABOVE AND BELOW GRADE OR SLAB ON GRADE MUST BE WATERPROOFED.
17. FINAL CEILING HEIGHTS TO BE DETERMINED WITH ENGINEER IN FIELD AFTER DEMOLITION OF EXISTING CEILING. NO FABRICATION OF DUCTWORK, HVAC PIPING OR PLUMBING PIPING SHALL BEGIN UNTIL AFTER THE CONTRACTOR HAS COMPLETED COORDINATION DRAWINGS AND COORDINATED THE CEILING HEIGHTS WITH THE ENGINEER.
18. ATO CONTRACTOR SHALL DESIGNATE AND NUMBER ALL EQUIPMENT IN ACCORDANCE WITH MUSC STANDARDS. NO DUPLICATE DESIGNATION NUMBERS SHALL BE PROVIDED. ALL NUMBERS SHALL BE THE NEXT SEQUENTIAL NUMBER FOR THAT SPECIFIC PIECE OF EQUIPMENT.
19. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CLOSING ANY CEILING FOR A COMPLETE CHECKOUT OF THE HVAC SYSTEM. THE SYSTEM MUST BE COMPLETE AND OPERATIONAL INCLUDING CONTROLS, REGISTERS, INSULATION, AND BALANCING WITH REPORT. THE SYSTEM SHALL BE RUN THROUGH ITS COMPLETE HEATING AND COOLING CYCLES. THE CONTRACTOR AND ALL APPROVED SUBCONTRACTORS SHALL BE PRESENT AT THE ENGINEER'S CHECKOUT. THE TESTING AND BALANCE REPORT SHALL CERTIFY THAT THESE CONDITIONS ARE MET.
20. MUSC WILL NOT TOLERATE ANY LOST TIME TO RESEARCH, TEACHING OR HEALTH-CARE AND THEIR ASSOCIATED SPACES DUE TO DEFECTIVE OR IMPROPERLY INSTALLED MECHANICAL EQUIPMENT. THEREFORE IF ANY SYSTEMS ARE FOUND TO HAVE DEFECTIVE INSTALLATION OR MATERIALS AT BENEFICIAL OCCUPANCY, MUSC HAS THE RIGHT TO IMMEDIATELY HAVE CORRECTIVE WORK PERFORMED BY OTHERS AND BACK CHARGE THESE COSTS TO THE CONTRACTOR.
21. THE CONTRACTOR SHALL BE RESPONSIBLE TO ASSURE THAT ALL WORK BY THE SUBCONTRACTORS IS INSTALLED AND COMPLETED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND THAT ALL MEP WORK IS 100% COMPLETE AT THE TIME OF SUBSTANTIAL COMPLETION.

MECHANICAL SYMBOLS

Table with columns for SYMBOL, DESCRIPTION, and DESIGNATION. Includes sections for EQUIPMENT DESIGNATIONS, RIGGING SYMBOLS, REFERENCE SYMBOLS, FIRE RATED WALL LINETYPES, DUCTWORK SYMBOLS, and LINE SYMBOLS.

MECHANICAL ABBREVIATIONS

Table with columns for SYMBOL, DESCRIPTION, and UNIT. Includes a note: 'NOTE: THIS IS A STANDARD ABBREVIATION LIST. SOME ABBREVIATIONS MAY NOT APPEAR ON THE ACCOMPANYING DRAWINGS.'



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Table with columns for SYMBOL, DESCRIPTION, and UNIT. Includes abbreviations like NITROGEN, NOT APPLICABLE, NOISE CRITERIA, NATIONAL FIRE PROTECTION ASSOCIATION, NATURAL GAS, NORMALLY OPEN, NITROUS OXIDE, NUMBER, NOMINAL, OFFSET POSITIVE DUCTION HEAD, NON-POTABLE WATER, OXYGEN, OUTSIDE AIR, OUTSIDE DRAIN, OPEN ENDED DUCT, OVERFLOW, OUTSIDE STEM AND YOKE, PROCESS AND INSTRUMENTATION DIAGRAM, PLANT AIR, PUMPED CONDENSATE, PRIMARY CHILLED WATER RETURN, PRIMARY CHILLED WATER SUPPLY, PUMP CONTROL PANEL, PUMPED CONDENSATE RECIRCULATION, PROCESS COOLING WATER RETURN, PROCESS COOLING WATER SUPPLY, PRESSURE DROP, PUMP DISCHARGE, PILOT GAS, PROCESS GLYCOL WATER RETURN, PROCESS GLYCOL WATER SUPPLY, PHASE, PHR, PRIMARY HEATING RETURN, PRIMARY HEATING SUPPLY, POST INDICATING VALVE, POUNDS PER HOUR, PRESSURE REDUCING VALVE, PRESSURE REGULATING VALVE, POUNDS PER SQUARE INCH, POUNDS PER SQUARE INCH GAUGE, POTABLE WATER, RELOCATE, RELOCATED, RETURN AIR, RELIEF AIR, RETURN AIR FAN, REFRIGERANT DISCHARGE, REFRIGERANT, REFRIGERANT VALVE, REHEAT WATER RETURN, REHEAT WATER SUPPLY, REHEATING AND REHEATING, REFRIGERANT LIQUID, REVERSE OSMOSIS WATER RETURN, REVERSE OSMOSIS WATER SUPPLY, REVOLUTIONS PER MINUTE, REFRIGERANT SUCTION, RELIEF VENT, REFRIGERANT VENT, REMOVE EXISTING, SA, SUPPLY AIR, SHOCK ARRESTOR, SANITARY, SOIL WASTE, SECONDARY CHILLED WATER RETURN, SECONDARY CHILLED WATER SUPPLY, STORM DRAIN, SMOKE DETECTOR, SQUARE FOOT, SECONDARY HEATING WATER RETURN, SECONDARY HEATING WATER SUPPLY, SOUND LINGING, STATIC PRESSURE, SPRINKLER LINE, SQUARE FOOT, STAINLESS STEEL, SODIUM SULFITE, STORM DRAIN, SOFT WATER, TAMPER SWITCH, TOTAL STATIC PRESSURE, THEATED WATER, TEMPERED WATER RETURN, TEMPERED WATER SUPPLY, TEMPERED WATER SUPPLY, TYPICAL, TEMPERATURE DIFFERENCE, UNDERCUT DOOR, UNDERWRITERS LABORATORIES, VACUUM VOLTS, VOLUME DAMPER, VENTILATION, VARIABLE FREQUENCY DRIVE, VACUUM PUMP DISCHARGE, VARIABLE SPEED DRIVE, VENT THROUGH ROOF, WATTS, WIDE WET BULB, WATER COLUMN, WATER GAUGE, WALL HYDRANT, WELDED WIRE FABRIC, WELDED WIRE MESH.

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MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS

Table with columns for SHEET NAME, PROJECT NUMBER (17016), DRAWN BY (TSN), CHECKED BY (CRB), DATE (05/09/2018), SCALE (As Indicated), and SHEET NUMBER (M001).

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