

Drawing: K:\UNC\W1417-Dobo Hall Suite 120\Oct09\2015-26-26 Rec Draw-16 Revisions: Mech\WMS\1417 K.dwg Plot Time: 6/26/2015 11:52 AM

Mechanical Specifications:

PART 1 – GENERAL

- 1.1 SCOPE OF WORK: THESE DRAWINGS AND SPECIFICATIONS DESCRIBE THE SCOPE OF WORK REQUIRED FOR PROJECT MECHANICAL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL REQUIRED FOR COMPLETE, FULLY FUNCTIONING MECHANICAL SYSTEMS COMPLYING WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
- 1.2 CONTRACTOR: THE WORD "CONTRACTOR" AS USED HEREIN SHALL MEAN THE HVAC INSTALLER UNLESS OTHERWISE QUALIFIED.
- 1.3 DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND MAY NOT COMPLETELY DESCRIBE EVERY DETAIL OF THE INSTALLATION. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR FURNISHING COMPLETE SYSTEMS INCLUDING ALL REQUIRED EQUIPMENT AND ACCESSORIES TO OBTAIN FULLY FUNCTIONING HVAC SYSTEMS.
- 1.4 CODE COMPLIANCE: COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND CODES, INsofar AS THEY APPLY:
- A. NORTH CAROLINA STATE BUILDING CODE, LATEST EDITION AND REVISIONS
- B. LOCAL JURISDICTION REQUIREMENTS: INCLUDE ALL WORK TO COMPLY WITH CODES WHETHER INDICATED ON DRAWINGS OR NOT. NOTIFY ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND CODES PRIOR TO BEGINNING WORK.
- 1.5 PERMITS AND INSPECTIONS: OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND PAY FOR SAME. FURNISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.
- 1.6 MANUFACTURER'S RECOMMENDATIONS: INSTALL ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 1.7 WORKMANSHIP: UTILIZE SKILLED MECHANICS TO OBTAIN A HIGH QUALITY PROFESSIONAL FINISH INSTALLATION WHEN COMPLETED. WORK OF UNACCEPTABLE QUALITY SHALL BE REMOVED AND REWORKED AT NO ADDITIONAL COST. ENGINEER SHALL BE THE JUDGE OF WORKMANSHIP AND THEIR OPINION WILL BE FINAL. IN ADDITION, ANY EXISTING CONSTRUCTION DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO ADDITIONAL COST.
- 1.8 SUPERVISION: PROVIDE SKILLED SUPERINTENDENTS TO SUPERVISE THE WORK FROM THE BEGINNING TO COMPLETION AND FINAL INSPECTION.
- 1.9 PROGRESS OF WORK: PERFORM WORK IN ACCORDANCE WITH SCHEDULE AND REQUIREMENTS OF THE OWNER. UNDER NO CIRCUMSTANCES SHALL THIS CONTRACTOR DELAY THE OVERALL PROJECT SCHEDULE.
- 1.10 COORDINATION: COORDINATE MECHANICAL WORK WITH THE WORK OF OTHER TRADES. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE UNLESS SPECIFICALLY DIMENSIONED. LAYOUT MECHANICAL WORK SO AS NOT TO INTERFERE WITH THE WORK OF OTHER TRADES. VERIFY ACTUAL BUILDING STRUCTURE PRIOR TO DUCT FABRICATION AND ADJUST ARRANGEMENT AS REQUIRED. INCLUDE ALL OFFSETS IN DUCTS, FITTINGS, PIPING, ETC. AS REQUIRED TO PROPERLY INSTALL EQUIPMENT.
- 1.11 EQUIPMENT LOCATIONS: DETERMINE EXACT EQUIPMENT AND MATERIALS LOCATIONS TO PROVIDE BEST ARRANGEMENT AND TO FACILITATE PROPER MAINTENANCE AND SERVICING OF EQUIPMENT.
- 1.12 LISTING AND LABELING: ALL EQUIPMENT SHALL BE LABELED OR LISTED BY UL OR OTHER APPROVED TESTING AGENCY WHERE REQUIRED.
- 1.13 STORAGE SPACE: CONSULT WITH THE OWNER REGARDING JOB SITE STORAGE FOR MECHANICAL MATERIALS TO BE INSTALLED UNDER THIS PROJECT. STORAGE SPACE MUST BE SECURED AND CONTRACTOR'S REPRESENTATIVE MUST BE ON JOB BEFORE ANY MATERIAL MAY BE RECEIVED.
- 1.14 CLEANUP: REMOVE ALL DEBRIS GENERATED IN THE ACCOMPLISHMENT OF WORK UNDER THIS PROJECT. CLEAN, REPLACE OR REPAIR ALL SURFACES SOILED OR DAMAGED DURING THE COURSE OF THE WORK. REMOVE DEBRIS DAILY SO TO MAINTAIN SAFE WORKING CONDITIONS. THE CONTRACTOR SHALL COLLECT ALL REFRIGERANT FROM DEMOLISHED EQUIPMENT AND RETURN TO THE UNIVERSITY.
- 1.15 ELECTRICAL WORK
- A. PERFORM ELECTRICAL WORK FOR MECHANICAL EQUIPMENT IN COMPLIANCE WITH PROJECT ELECTRICAL REQUIREMENTS. ELECTRICAL WORK FOR MECHANICAL EQUIPMENT NOT SPECIFICALLY INDICATED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN THE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AS PART OF HIS WORK.

- B. ELECTRICAL DRAWINGS ARE BASED ON ELECTRICAL CHARACTERISTICS INDICATED IN DRAWING MECHANICAL EQUIPMENT SCHEDULES. ANY EQUIPMENT FURNISHED BY THE MECHANICAL CONTRACTOR WHICH DOES NOT MATCH THE ELECTRICAL CHARACTERISTICS INDICATED IN THE DRAWING SCHEDULES SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR. ANY ADDITIONAL COSTS FOR ELECTRICAL INSTALLATION REQUIRED FOR EQUIPMENT NOT MATCHING THE DRAWING SCHEDULES SHALL BE BORNE BY THE MECHANICAL CONTRACTOR.
- C. LOW VOLTAGE CONTROL WIRING FOR MECHANICAL SYSTEMS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
- 1.16 SUBMITTALS: SUBMIT FOUR (4) COPIES OF DESCRIPTIVE DATA FOR MECHANICAL EQUIPMENT AND MATERIALS INCLUDING GRILLES AND DAMPERS FOR APPROVAL BY THE ENGINEER. CLEARLY IDENTIFY ALL ITEMS.
- 1.17 OPERATING AND MAINTENANCE MANUALS: SUBMIT TWO COPIES OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT, INCLUDING NECESSARY CUT SHEETS, CHARTS, WRITTEN INSTRUCTIONS, WIRING DIAGRAMS, FINAL AS-BUILT DRAWINGS WITH BALANCED AIRFLOWS INDICATED, ETC. BIND IN SUITABLE HARD BACK RING BINDERS, PROPERLY INDEXED, AND DELIVER TO THE OWNER PRIOR TO BUILDING OCCUPANCY. IN ADDITION, AFFIX A FOLDER WITH TYPICAL "OWNER'S INSTRUCTIONS" AND "MAINTENANCE INFORMATION" INSIDE THE MECHANICAL EQUIPMENT AS APPLICABLE. THE FOLDER SHALL ALSO INCLUDE A COMPLETE STARTUP LOG FOR THE EQUIPMENT.
- 1.18 RECORD DRAWINGS: MAINTAIN ONE SET OF "RED-LINED" RECORD DRAWINGS ON SITE AT ALL TIMES AND PROVIDE DRAWINGS TO ENGINEER PRIOR TO FINAL INSPECTION.
- 1.19 WARRANTY: WARRANTY THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. REPAIR AND/OR REPLACE ANY PARTS OF ANY SYSTEM THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE WARRANTY PERIOD. PROVIDE 5 YEAR WARRANTY FOR ALL AIR CONDITIONING COMPRESSORS. FURNISH WARRANTY CERTIFICATES FOR ALL MECHANICAL EQUIPMENT. WARRANTY TO COMMENCE UPON DATE OF ACCEPTANCE OF WORK BY OWNER.

1.20 EXISTING BUILDINGS AND CONSTRUCTION

- A. WORK UNDER THIS CONTRACT IS TO BE PERFORMED IN AN EXISTING BUILDING. BUILDING LAYOUT INDICATED IS DEVELOPED FROM EXISTING RECORD DOCUMENTS AND LIMITED FIELD VERIFICATION FOR THE PURPOSES OF DESCRIBING THE WORK. VERIFY ALL EXISTING CONDITIONS AND ADJUST WORK AS REQUIRED TO SUIT ACTUAL FIELD CONDITIONS.
- B. PERFORM ALL WORK IN ACCORDANCE WITH SAFETY REGULATIONS.
- C. DO NOT CUT ANY STRUCTURAL MEMBERS WITHOUT EXPRESS WRITTEN INSTRUCTIONS FROM ENGINEER. PROVIDE CUTTING AND PATCHING FOR EXISTING FINISHES AS REQUIRED.
- D. COORDINATE INSTALLATION OF NEW MECHANICAL SYSTEMS WITH EXISTING BUILDING SYSTEMS. ADJUST ARRANGEMENTS AS REQUIRED TO ACCOMMODATE INTERFERENCES.

PART 2 – MATERIALS

2.1 EQUIPMENT

- A. MODELS AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS INDICATED ARE INTENDED TO ESTABLISH THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE EQUIPMENT WILL BE CONSIDERED FOR APPROVAL BY THE ARCHITECT/ENGINEER
- B. INCLUDE ALL ACCESSORIES INDICATED OR AS RECOMMENDED BY THE MANUFACTURER FOR PROPER OPERATION.

2.2 DUCTWORK

- A. DUCT CONSTRUCTION: GALVANIZED STEEL CONSTRUCTED, BRACED, SUPPORTED AND INSTALLED ACCORDING TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1" PRESSURE CLASS, SEAL CLASS A. SEAL USING APPROVED TYPE DUCT SEALING MASTIC OR TAPE DIPPED IN OR BRUSHED WITH ADHESIVE ("HARDCAST" DT-TAPE W/FTA-20 ADHESIVE OR "UNITED MCGILL" MTD TAPE W/MTD-20 ADHESIVE). "DUCT TAPE" IS UNACCEPTABLE FOR DUCT SEALING. "DUCT-MATE" OR EQUAL TRANSVERSE JOINT CONNECTION METHODS WILL BE ACCEPTABLE ONLY IF A LETTER FROM THE MANUFACTURER IS PRESENTED TO THE ENGINEER STATING THAT THE CONTRACTOR'S

INSTALLATION METHODS ARE APPROVED BY THE MANUFACTURER AND THAT ALL MANUFACTURER'S RECOMMENDATIONS WILL BE FOLLOWED. THERE WILL BE NO EXCEPTIONS TO THIS STIPULATION.

- B. DUCT SIZES INDICATED ARE INSIDE FREE AREA DIMENSIONS. DUCT DIMENSIONS SHALL BE ADJUSTED TO SUIT FIELD CONDITIONS USING EQUIVALENT SIZE PER ASHRAE STANDARD. RECTANGULAR OR ROUND DUCTWORK MAY BE USED AT CONTRACTOR OPTION PROVIDED EQUIVALENT SIZE PER ASHRAE STANDARD IS USED.
- C. BRANCH DUCTS: PROVIDE MANUFACTURED TAKE-OFF FITTINGS (SPIN-IN FITTINGS) WITH EXTRACTOR AND VOLUME DAMPER WITH LOCKING QUADRANT OPERATOR AND INSULATION GUARD, GENERAL ENVIRONMENT CORPORATION OR EQUAL, FOR ALL BRANCH RUNOUTS TO SUPPLY REGISTERS AND DIFFUSERS. UNLESS OTHERWISE NOTED, MATCH SUPPLY BRANCH DUCT SIZE TO DIFFUSER SIZE.
- D. ELBOWS: ALL SQUARE BENDS OR ELBOW FITTINGS SHALL BE FITTED WITH APPROVED TYPE DOUBLE THICKNESS TURNING VANES.
- E. FLEXIBLE DUCT: FACTORY INSULATED, R-6, MINIMUM, UL 181 CLASS 1. MAXIMUM FLEX DUCT RUNOUT LENGTH NOT TO EXCEED 8' UNLESS OTHERWISE NOTED. INSTALL AND SUPPORT FLEXIBLE DUCTS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- F. FLEXIBLE CONNECTIONS: PROVIDE FLEXIBLE CONNECTOR, VENTFABRICS OR EQUAL, AT ALL MECHANICAL EQUIPMENT CONNECTIONS TO DUCT SYSTEM.
- G. FIRE DAMPERS: PROVIDE SUITABLY LISTED FIRE DAMPERS IN DUCTS PENETRATING FIRE RATED CONSTRUCTION WHERE REQUIRED BY CODE. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED CONSTRUCTION.
- H. PROVIDE REMOVABLE ACCESS PANELS IN CEILINGS AND ACCESS DOORS (WITH AIR TIGHT GASKETS) IN DUCTWORK AS REQUIRED FOR ACCESS TO DAMPERS OR OTHER DUCT MOUNTED EQUIPMENT.
- I. PLENUMS: USE CODE APPROVED MATERIALS AND METHODS FOR ALL MECHANICAL WORK INSTALLED IN PLENUMS.
- 2.3 AIR DISTRIBUTION
- A. DIFFUSERS AND REGISTERS: MODELS AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS INDICATED ARE INTENDED TO ESTABLISH THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE EQUIPMENT WILL BE CONSIDERED FOR APPROVAL BY THE ENGINEER. INCLUDE FINISH AND ACCESSORIES AS INDICATED.
- B. LOUVERS: MODELS AS SCHEDULED ON THE DRAWINGS OR EQUAL.
- 2.4 PIPING
- A. HYDRONIC PIPING: SCHEDULE 40, CARBON STEEL, ASTM A53, GR.B ERW OR SEAMLESS. FITTINGS TO BE 300# MALLEABLE IRON.
- 2.5 INSULATION
- A. DUCT INSULATION: R-6 MINIMUM, 2" FIBERGLASS BLANKET INSULATION, ASTM C553, TYPE II, 0.75 PCF CLASS F-1, ASTM 84E FLAME SPREAD/SMOKE DEVELOPED RATING LESS THAN 25/50. PROVIDE WITH FACTORY APPLIED ALL-PURPOSE, LAMINATED GLASS-FIBER-REINFORCED, FLAME-RETARDANT KRAFT PAPER AND ALUMINUM FOIL JACKET. INSTALL ON ALL CONCEALED HVAC SUPPLY, RETURN, MAKE-UP AIR DUCTS AND PLENUMS.
- B. HYDRONIC PIPING INSULATION: PREFORMED FIBERGLASS WITH FACTORY INSTALLED VAPOR SEAL JACKET.
- 2.6 CONTROLS
- A. TEMPERATURE CONTROLS: AUTOMATIC CHANGEOVER PROGRAMMABLE SETBACK HEAT/COOL THERMOSTATS.
- 2.7 SUPPORTS
- A. HANGERS, SUPPORTS, AND ANCHORS: SUPPORT AND FASTEN ALL DUCTWORK, PIPING,

EQUIPMENT, ETC., SECURELY IN PLACE USING APPROVED STEEL HANGERS AND FASTENERS. CHAIN, STRAP, PERFORATED STRAP, WIRE HANGERS, OR WOOD PLUGS ARE PROHIBITED.

- B. INCLUDE STEEL SUPPORTS, ANCHORS, FRAMES, BRACING, PLATES, BOLTS, NUTS, WASHERS, ETC. INCIDENTAL TO INSTALLATION OF WORK.
- C. PROVIDE AUXILIARY STRUCTURAL MEMBERS WHERE REQUIRED BETWEEN MEMBERS OF THE STRUCTURE.

PART 3 – EXECUTION

- 3.1 PREPARATION: REVIEW CONSTRUCTION DOCUMENTS AND VERIFY ARRANGEMENT WITH FIELD CONDITIONS. COORDINATE PROPOSED MECHANICAL EQUIPMENT AND SYSTEMS WITH ASSOCIATED WORK OF OTHER TRADES.
- 3.2 INSTALLATION: INSTALL ALL MECHANICAL WORK IN ACCORDANCE WITH CODE, MANUFACTURER'S RECOMMENDATIONS AND GOOD INDUSTRY PRACTICE. ARRANGE WORK TO ALLOW EASY ACCESS TO EQUIPMENT FOR SERVICE AND MAINTENANCE.
- 3.3 DUCTWORK: LAYOUT DUCTWORK TO AVOID INTERFERENCES AND MAXIMIZE USABLE SPACE IN THE BUILDING.
- 3.4 PIPING: ROUTE PIPING NEATLY, PARALLEL TO BUILDING WALLS. WHERE REQUIRED, SLOPE PIPING FOR PROPER DRAINAGE.
- 3.5 DUCT INSULATION: INSTALL BLANKET INSULATION TIGHT AND SMOOTH. OVERLAP JOINTS 3 INCHES. SEAL JOINTS, BREAKS, AND PUNCTURES WITH VAPOR BARRIER COMPOUND.
- 3.6 PIPING INSULATION: INSTALL INSULATION NEATLY. APPLY ADHESIVE TO BOTH FACES OF JOINT TO OBTAIN FULLY ADHERED. VAPOR TIGHT INSTALLATION. FINISH ALL INSULATION EXPOSED TO WEATHER WITH MANUFACTURE APPROVED WEATHERPROOF COATING.
- 3.7 CONTROLS: INSTALL AND WIRE ALL CONTROLS COMPLETE TO OBTAIN INTENDED SEQUENCE OF OPERATION.
- 3.8 HANGERS AND SUPPORTS: HANG AND SUPPORT EQUIPMENT, DUCTS AND PIPING IN A SUBSTANTIAL MANNER FROM THE BUILDING STRUCTURE. SPACE HANGERS IN ACCORDANCE WITH CODE AND SO AS TO AVOID EXCESS DEFLECTION OR SAG. PROVIDE SEISMIC DESIGN HANGERS WHERE REQUIRED. NO PORTION OF THE STRUCTURE SHALL BE OVER STRESSED BY THE HANGING OPERATION OR BY THE FINAL SUPPORTS. ATTACHMENTS DEEMED INADEQUATE BY THE ENGINEER SHALL BE REWORKED AS DIRECTED. PROVIDE VIBRATION ISOLATION FOR MOVING MACHINERY.
- 3.9 LABELS: LABEL ALL EQUIPMENT AND DEVICES WITH BAKELITE ENGRAVED PLATES SCREWED IN PLACE. "TAPEWRITER" AND ADHESIVE LABELS ARE UNACCEPTABLE.
- 3.10 START-UP: VERIFY INSTALLATION IS COMPLETE AND READY FOR START-UP. START-UP ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING FACTORY CERTIFIED MECHANICS. AFTER START-UP, VERIFY AND DOCUMENT THAT EQUIPMENT IS OPERATING PROPERLY WITHIN MANUFACTURER'S SPECIFIED TOLERANCES.
- 3.11 TESTING AND BALANCING: BALANCE AIR FLOWS TO OBTAIN AIR QUANTITIES SHOWN ON DRAWINGS. ADJUST DAMPERS FOR ALL AIR OUTLETS AND RECORD VELOMETER READINGS WHICH CORRESPOND TO DESIGN FLOW RATES AT EACH OUTLET. RECORD DESIGN AND FINAL READINGS ON APPROVED FORMS. SUBMIT TWO COPIES FOR REVIEW AND APPROVAL BY ENGINEER. UPON COMPLETION OF ALL BALANCING AND TESTING, SCHEDULE A TIME FOR ENGINEER TO PERFORM RANDOM CHECKING OF TYPICAL OUTLETS. CONTRACTOR SHALL PROVIDE TECHNICIANS AND MEASURING DEVICES FOR THIS TESTING.
- 3.12 COMMISSIONING: DEMONSTRATE AND DOCUMENT OPERATION OF ALL MECHANICAL SYSTEMS INSTALLED UNDER THIS CONTRACT IN THE PRESENCE OF THE ENGINEER. INCLUDE ALL TESTS, TRIAL OPERATIONS, ETC. AS REQUIRED TO PROVE THAT ALL SYSTEMS ARE IN COMPLETE SERVICEABLE CONDITION AND WILL FUNCTION AS INTENDED. ALL COSTS OF COMMISSIONING SHALL BE BORNE BY THIS CONTRACTOR.
- 3.13 TRAINING: TRAIN OWNER PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF MECHANICAL SYSTEMS. PROVIDE WRITTEN DOCUMENTATION INCLUDING NAMES OF OWNER PERSONNEL ATTENDING TRAINING.
- 3.14 CLEAN-UP: CLEAN ALL EQUIPMENT AND DEVICES AND INSTALL NEW FILTERS IN EQUIPMENT IMMEDIATELY PRIOR TO OWNER ACCEPTANCE AND OCCUPANCY.

Mechanical Demolition Notes:

- 1.1 THE MECHANICAL CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS FOR DEMOLITION REQUIREMENTS AND LAYOUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER. REMOVE ALL EQUIPMENT, DUCTWORK, SUPPORTS, CONTROLS, ACCESSORIES, ETC., AND MECHANICAL ITEMS MADE OBSOLETE BY THESE ALTERATIONS AS SHOWN IN THE MECHANICAL DRAWINGS. ALL ITEMS TO BE REMOVED OR MODIFIED MAY NOT BE SHOWN. HOWEVER, THIS CONTRACTOR SHALL REMOVE ANY MECHANICAL WORK AS REQUIRED BY THE CONSTRUCTION OR AS DIRECTED BY THE OWNER OR THE ENGINEER. SURVEY THE AFFECTED AREAS BEFORE SUBMITTING A BID.
- 1.2 SCHEDULING OF DEMOLITION – COORDINATE SCHEDULING OF MECHANICAL DEMOLITION WORK WITH THE OWNER AND GENERAL CONTRACTOR SO AS TO MINIMIZE DISRUPTION OF THE OWNER'S USE OF THE FACILITIES AND MAINTAIN THE CONSTRUCTION SEQUENCE OF THE GENERAL CONTRACTOR. SEE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS CONCERNING PHASING AND SEQUENCE OF WORK.
- 1.3 EXISTING MECHANICAL SYSTEMS – VERIFY CONDITION OF EXISTING MECHANICAL SYSTEMS TO BE REUSED SO THAT COMPLETE, FULLY OPERATIONAL AND RELIABLE SYSTEMS ARE OBTAINED AT THE COMPLETION OF THE WORK. NOTIFY ARCHITECT/ENGINEER OF ANY SYSTEMS FOUND TO BE OF QUESTIONABLE CONDITION.
- 1.4 ALL EXISTING MECHANICAL EQUIPMENT AND DEVICES SHALL REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED.
- 1.5 DEMOLISHED MATERIALS – UNLESS SPECIFICALLY REQUESTED BY THE OWNER, ALL DEMOLISHED MECHANICAL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.
- 1.6 CUTTING AND PATCHING – PERFORM CUTTING AND PATCHING FOR MECHANICAL WORK SO AS TO MINIMIZE DAMAGE TO CEILINGS, FLOORS AND WALLS. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL SPECIFICATIONS SPECTIONS FOR SPECIFIC RESPONSIBILITIES REGARDING CUTTING AND PATCHING.
- 1.7 THESE DRAWINGS ARE COMPILED BY THE ARCHITECT/ENGINEER FROM THE OWNER'S AS-BUILT RECORD DRAWINGS AND LIMITED FIELD VERIFICATION OF EXISTING CONDITIONS FOR THE PURPOSE OF INDICATING THE WORK REQUIRED AND ARE BELIEVED TO BE CORRECT. NOTWITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL DUCTWORK, EQUIPMENT LOCATIONS, DIMENSIONS AND ALL FIELD CONDITIONS AFFECTING HIS WORK.
- 1.8 WHERE MECHANICAL SYSTEMS PASS THROUGH THE DEMOLITION AREAS TO SERVE OTHER PORTIONS OF THE PREMISES, THEY SHALL REMAIN OR BE SUITABLY RELOCATED AND THE SYSTEM RESTORED TO NORMAL OPERATION. ADVISE THE ARCHITECT/ENGINEER IMMEDIATELY IF SUCH CONDITIONS ARE UNCOVERED BEFORE PROCEEDING WITH ADDITIONAL WORK.
- 1.9 PROTECT ALL EXISTING LIFE SAFETY SYSTEMS, FIRE ALARM AND PUBLIC ADDRESS SYSTEMS AND MAINTAIN THEM IN OPERATION THROUGHOUT THE PROGRESS OF THE WORK. NOTIFY THE OWNER AND ARCHITECT/ENGINEER IN WRITING OF SHUTDOWNS ARE REQUIRED PRIOR TO ANY OUTAGE OF SERVICE. WHERE THE DURATION OF A PROPOSED OUTAGE CANNOT BE TOLERATED BY THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED MAINTAINING SERVICE.
- 1.10 SURVEY THE EFFECTED AREAS BEFORE SUBMITTING A BID AS ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DEPICED ON THE DRAWINGS AND SOME UNUSUAL CONDITIONS EXIST.

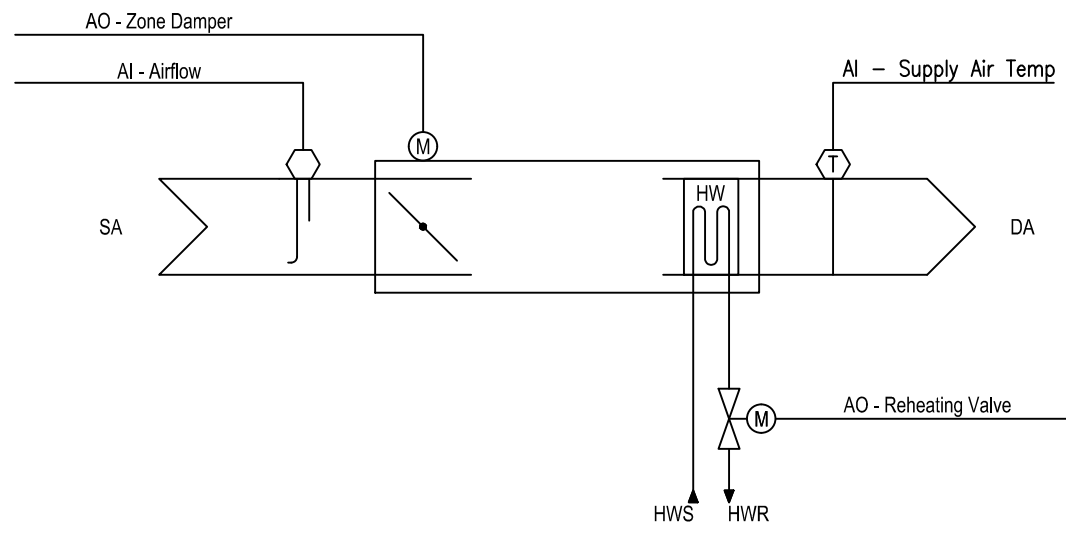
Single Duct VAV Terminal Box Schedule

DRAWING MARK	LOCATION	DESIGN BASIS MFR	MODEL	ALTERNATE APPROVED MFRS	TYPE	PRIMARY AIRFLOW		INLET DIA		HEATING COIL		LAT		FLOW		NOISE CRITERIA		NOTES
						MAX (CFM)	MIN (CFM)	(IN)	(IN H2O)	CAP (MBH)	EAT (°F)	(°F)	(°F)	(GPM)	(FT H2O)	(NC)	(NC)	
VAV1	SEE PLANS	TRANE	VCWF08	ENVIROTECH, TITUS	HW REHEAT	450	225	8	.75	12.40	52.00	102.90	0.75	1.29	69	53.0		
VAV2	SEE PLANS	TRANE	VCWF08	ENVIROTECH, TITUS	HW REHEAT	405	200	8	.75	11.81	52.00	106.40	0.75	1.29	69	52.0		

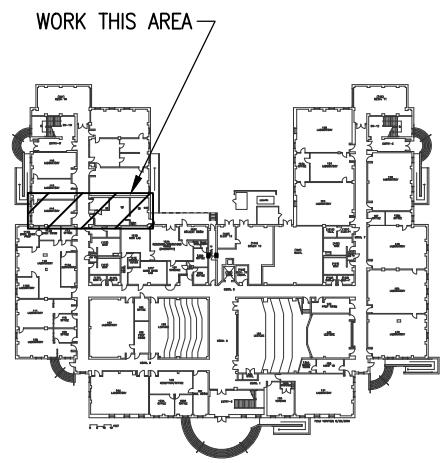
NOTES: SUPPLY EACH UNIT WITH A 120/24V FACTORY INSTALLED TRANSFORMER.

Typical VAV Sequence of Operations

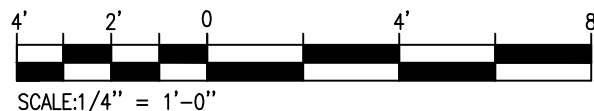
- A. As space temperature increases as sensed by room thermostat the VAV damper shall modulate open as required to maintain space temperature set point (adj.). As space temperature decreases VAV damper shall modulate closed as required to maintain space temperature set point (adj.). If the VAV damper is at its minimum position, the heating hot water control valve shall modulate open to maintain space temperature set point. (adj.).
- B. All VAV terminal boxes shall have the following programming set point: Max/Min unoccupied heating, Max/Min standby cooling and Max/Min standby heating.
- C. When space temperature falls below space set point as sensed by the room thermostat the heating hot water control valve shall modulate open to maintain space temperature set point (adj.).



3 - VAV Terminal Unit Schematic
Not to Scale



Key Plan
Not To Scale



THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY: JOHN H. McNALLY PE, NC 8737 ON 09/30/14 THIS MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.

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Mechanical
General and Demolition Notes, Schedules and Schematic

Job No.: 14147
Drawn: RWC
Designed: RWC
Checked: JHM

Drawing No:

M0.1

Revision:
0

Revision	Description	Date
0	ISSUED FOR REVIEW	09/30/14

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