

**MECHANICAL SPECIFICATIONS (CONTINUED)**

**PIPING AND FITTINGS**

PROVIDE DIELECTRIC FITTINGS TO CONNECT DIFFERENT PIPING MATERIALS.

EQUIPMENT AND CONDENSATE DRAINS SHALL BE TYPE M HARD DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS. COPPER TUBING SHALL BE SOLDERED WITH 95-5 TIN-ANTIMONY SOLDER OR BRAZED WITH SILVER BASED FILLER MATERIAL DRAINS SHALL BE ROUTED SO AS NOT TO CREATE A TRIPPING HAZARD.

REFRIGERANT LIQUID AND SUCTION PIPING SHALL BE TYPE L HARD DRAWN COPPER TUBING, OTHERWISE KNOWN AS "ACR" TUBING, WITH WROUGHT COPPER FITTINGS USING BRAZED SOLDER. TUBING AND FITTING SURFACES SHALL BE WELL CLEANED BEFORE SWEATING. CARE SHALL BE TAKEN TO PREVENT ANNEALING WHEN MAKING CONNECTIONS.

VALVES SHALL HAVE NAME OF MANUFACTURER AND GUARANTEED WORKING PRESSURE CAST OR STAMPED ON BODIES. VALVES OF SIMILAR TYPE SHALL BE BY A SINGLE MANUFACTURER. VALVES SHALL BE AS MANUFACTURED BY APOLLO, CRANE, NIBCO, STOCKHAM OR MILWAUKEE.

SHUT-OFF VALVES 2" AND SMALLER SHALL BE FULL PORT BALL-TYPE.

SLOPE CONDENSATE DRAIN PIPING AT 1% AND PROVIDE MINIMUM 3" DEEP TRAP.

PROVIDE REFRIGERANT PIPING BETWEEN OUTDOOR CONDENSING UNIT AND INDOOR FAN COIL UNIT. PROVIDE REQUIRED REFRIGERATION ACCESSORIES BY ALCO, SPARTAN, OR EQUAL. ACCESSORIES SHALL INCLUDE EXPANSION VALVES, FILTER-DRIERS, MOISTURE INDICATING SIGHT GLASSES, AND SHUT-OFF VALVES.

PIPE HANGERS FOR INSULATED PIPE SIZES 1/2" TO 1 1/2" SHALL BE ADJUSTABLE STEEL BAND TYPE. PIPE HANGERS FOR INSULATED PIPE SIZES 2" AND OVER SHALL BE ADJUSTABLE, STEEL CLEVIS TYPE. SHIELDS SHALL BE USED WHERE HANGER SUPPORTS INSULATED PIPE. SHIELDS SHALL BE MINIMUM 18 GAGE GALVANIZED STEEL OVER INSULATION 180 DEGREES AND A MINIMUM OF 12 INCHES LONG. SHIELD THICKNESS AND LENGTH SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. PIPE HANGERS FOR BARE PIPE SHALL BE ADJUSTABLE, MALLEABLE STEEL, SPLIT RING TYPE. BARE COPPER PIPE SHALL BE PROTECTED FROM CORROSION BY TRISOLATOR OR SIMILAR PRODUCT. HANGERS SHALL BE LOCATED 12" MAXIMUM FROM ANY CHANGE IN DIRECTION AND SPACED AS FOLLOWS FOR STRAIGHT RUNS.

PIPE SIZE	MAXIMUM HANGER SPACING	MINIMUM HANGER ROD DIAMETER
1/2" TO 1-1/4"	6'	3/8"
1-1/2" TO 2"	8'	3/8"
2-1/2" TO 3"	10'	1/2"

THROTTLING VALVES AND SHUTOFF VALVES SHALL BE BALL VALVES.

**PIPE INSULATION**

REFRIGERANT SUCTION LINES, REFRIGERANT HOT GAS BYPASS LINES, AND OUTDOOR REFRIGERANT LIQUID LINES SHALL BE INSULATED WITH RIGID CLOSED CELL FOAM INSULATION WITH A MINIMUM R-VALUE OF 6.0. REFRIGERANT PIPE INSULATION THICKNESS FOR PIPES 1 1/2" OR SMALLER SHALL BE A MINIMUM OF 1". 2" OR LARGER SHALL BE INSULATED WITH A MINIMUM OF 1 1/2" INSULATION.

OUTDOOR INSULATION THICKNESS SHALL BE DOUBLE INDOOR THICKNESS WITH A MAXIMUM THICKNESS OF 3". EXTERIOR APPLICATION SHALL HAVE 0.16 THICK ALUMINUM JACKETS.

CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH 1" THICK RIGID CLOSED CELL FOAM INSULATION WITH A MINIMUM R-VALUE OF 6.0.

INSULATED PIPING EXPOSED TO VIEW (THROUGHOUT THE FACILITY) SHALL BE COVERED AND FINISHED WITH PVC JACKET EQUAL TO MANVILLE PVC/ PERMA-WELD PIPE JACKETING SYSTEM USING 30 MIL THICK JACKET. FITTINGS, FLANGES, VALVES AND ACCESSORIES SHALL BE JACKETED. INSTALL PER MANUFACTURER'S INSTRUCTIONS WITH SEAM ON TOP OF PIPE SO AS NOT TO BE VISIBLE FROM OCCUPIED SPACE.

**PRODUCTS**

**VARIABLE AIR VOLUME BOXES:** UNIT SHALL BE 22 GAUGE GALVANIZED STEEL WITH 1/2", 1.75 LBS/CU FT DENSITY GLASS FIBER MATTE FACED INTERIOR LINER AND ARI 880 CERTIFIED. UNIT SHALL HAVE PRESSURE INDEPENDENT DIRECT DIGITAL CONTROLLERS AND MULTI-POINT FLOW SENSORS. SOUND DATA SHALL BE IN ACCORDANCE WITH NOISE CRITERIA DATA SHOWN ON SCHEDULES AND CERTIFIED IN ACCORDANCE WITH ADC STANDARD 1062. PROVIDE INTERNAL REHEAT COIL AS SIZED ON DRAWINGS IF SCHEDULED, SPACE TEMPERATURE SENSOR, CONTROL WIRING AND TRANSFORMER. THE ELECTRIC REHEAT COIL SHALL BE FACTORY INSTALLED WITH AIRFLOW SWITCH, THERMAL PRIMARY CUTOFF, MANUAL RESET, DISCONNECT SWITCH, AND MAGNETIC CONTACTOR.

**AIR DEVICES:** AIR DEVICES SHALL BE AS SCHEDULED. EXPOSED SCREWS SHALL BE THE FINISHING TYPE AND PAINTED TO MATCH THE AIR DEVICE. SQUARE TO ROUND ADAPTORS SHALL BE PROVIDED WHERE REQUIRED. AIR DEVICES SHALL BE FINISHED WITH WHITE BAKED ENAMEL UNLESS NOTED OTHERWISE, SECURED TO T-BAR CEILING WHERE APPLICABLE.

**SPLIT SYSTEM AIR CONDITIONING UNITS:** FURNISH AND INSTALL AIR-TO-AIR ELECTRIC CONDENSING UNIT (OUTDOOR UNIT) WITH CAPACITIES AS SCHEDULED. UNITS SHALL BE DESIGNED AND TESTED FOR USE WITH REFRIGERANT R-410 AND BE EQUIPPED WITH REFRIGERANT LINE FITTINGS WHICH PERMIT MECHANICAL OR SWEAT CONNECTION. COIL SHALL BE CONSTRUCTED WITH ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBING. OUTDOOR UNIT SHALL CONTAIN A DC INVERTER DRIVEN SCROLL COMPRESSOR WITH CRANKCASE HEATER. OUTDOOR FAN SHALL BE DIRECT DRIVEN PROPPELLER TYPE. INDOOR UNIT SHALL HAVE VERTICAL OR HORIZONTAL FLOW AS SCHEDULED, AND SHALL CONTAIN REFRIGERANT METERING DEVICE AND INDOOR FAN RELAY. FANS SHALL BE DIRECT DRIVEN PROPPELLER TYPE. CONTROLS AND PROTECTIVE DEVICES SHALL INCLUDE A HIGH PRESSURE SAFETY SWITCH, LOSS-OF-CHARGE PRESSURESTAT, CRANKCASE HEATER, SUCTION LINE ACCUMULATOR AND PRESSURE RELIEF DEVICE. THE OUTDOOR UNIT SHALL PROVIDE SHORT CYCLE PROTECTION OR SAFETY LOCKOUT COMPRESSOR PROTECTION.

**AUTOMATIC TEMPERATURE CONTROLS**

THE TEMPERATURE CONTROL SYSTEM IS SPECIFIED BY PERFORMANCE. THE BID DOCUMENTS DO NOT SHOW OR SPECIFY ALL COMPONENTS REQUIRED TO PROVIDE THE SPECIFIED PERFORMANCE. SPACE SENSORS SHOWN ON THE DRAWINGS ARE FOR LOCATION ONLY; THE SCOPE OF WORK FOR TEMPERATURE CONTROL IS ESTABLISHED BY THE PERFORMANCE SPECIFICATIONS. THE PERFORMANCE SPECIFICATIONS ESTABLISH THE CONTROL SEQUENCES FOR WHICH THE CONTRACTOR'S LICENSED ENGINEER WILL PREPARE THE DESIGN FOR THE SPECIFIED CONTROL SYSTEM AND WILL PREPARE DETAILED SHOP DRAWINGS FOR THAT DESIGN.

THE MECHANICAL CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROL, WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO: SPACE SENSORS, CONTROL WIRING, TRANSFORMERS, AND REQUIRED RELAYS TO INTERFACE WITH EXISTING BUILDING ENERGY MANAGEMENT SYSTEM.

AUTOMATIC TEMPERATURE CONTROLS SHALL BE ELECTRONIC/ELECTRIC AND SHALL BE DESIGNED, FURNISHED AND INSTALLED BY A QUALIFIED TEMPERATURE CONTROL FIRM. NEW DDC CONTROLLERS SHALL BE FULLY COMPATIBLE WITH EXISTING BUILDING ENERGY MANAGEMENT CONTROL SYSTEM. NEW CONTROLLER BUSS SHALL SEAMLESSLY CONNECT TO EXISTING TO ALLOW FULL CONTROL AND MONITORING OF NEW EQUIPMENT FROM EXISTING HEAD END WORK STATION. EXISTING HEAD END WORKSTATION SHALL BE PROGRAMMED TO ALLOW INTERFACE WITH NEW EQUIPMENT. NEW PROGRAMMING SHALL MATCH EXISTING ALGORITHMS, SEQUENCES OF OPERATION AND GRAPHICS.

INDIVIDUAL CONTROL COMPONENTS MAY NOT BE SHOWN ON CONTRACT DOCUMENTS, BUT ATC CONTRACTOR SHALL SUPPLY COMPONENTS AND CONTROL WIRING NECESSARY FOR A COMPLETE OPERABLE SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR SYSTEM COMPONENTS, WHETHER HE SUBCONTRACTS ELECTRICAL AND OTHER WORK OR NOT.

PROVIDE NECESSARY COMPONENTS AND WIRING FOR INTERLOCK AND INTERFACE WITH THE EXISTING DDC/BUILDING AUTOMATION SYSTEM. COMPONENTS SHALL BE COMPATIBLE WITH EXISTING OUTPUT DEVICES. PROVIDE HAND HELD OPERATOR'S TERMINALS FOR LOCAL OUTPUT OF SENSORS WHEN NO OUTPUT DEVICES EXIST.

MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL, IN ACCORDANCE WITH NEC AND THE ELECTRICAL SPECIFICATIONS FOR THIS PROJECT, CONDUIT, WIRE, JUNCTION BOXES, SPACE SENSOR BACK BOXES, CIRCUIT BREAKERS, AND CONTROL TRANSFORMERS REQUIRED FOR A FULLY OPERATIONAL ATC SYSTEM.

PROVIDE TO OWNER FULL OPERATING AND MAINTENANCE INSTRUCTIONS FOR NEW AND ALTERATION OF DDC SYSTEMS.

SUBMIT SHOP DRAWINGS FOR TEMPERATURE CONTROL WIRING, LOCATION OF DEVICES AND INSTALLATION DATA FOR REVIEW PRIOR TO INSTALLATION.

**USE OF ACCEPTABLE MANUFACTURERS**

FOLLOWING IS A LIST OF MANUFACTURERS WHOSE EQUIPMENT IS ACCEPTABLE AS TO MANUFACTURE, SUBJECT TO CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS. CAREFUL CHECKING MUST BE MADE TO VERIFY THAT EQUIPMENT WILL MEET CAPACITIES, REQUIREMENTS, SPACE AND WEIGHT ALLOCATIONS.

- VAV TERMINALS: TRANE, ENVIROTEC, TITUS, NAILOR, PRICE, MATCH EXISTING
- TEMPERATURE CONTROLS: HONEYWELL, JOHNSON, BARBER-COLMAN, MATCH EXISTING
- AIR DEVICES: TITUS, KRUEGER, METALAIRE, CARNES, PRICE
- INSULATION: CERTAINTED, OWENS-CORNING, SCHULLER, KNAUF
- VIBRATION ISOLATION: MASON INDUSTRIES, VIBREX, KARFUND, VIBRATION MOUNTINGS, INC., AMBER-BOOTH
- DUCT TURNS: TUTTLE & BAILEY, DURO DYNE, BARBER-COLMAN
- FIRE AND FIRE/SMOKE DAMPERS: RUSKIN, GREENHECK
- SPLIT SYSTEMS: MITSUBISHI, CARRIER, FUJITSU

**PART 3 - EXECUTION**

**GENERAL**

ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT SHALL BE VERIFIED WITH ELECTRICAL DRAWINGS PRIOR TO ORDER RELEASE. ADDITIONAL ELECTRICAL WORK RESULTING FROM EQUIPMENT SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

COORDINATE ROUTING OF DUCTWORK AND PIPING TO MAINTAIN CLEARANCES ABOVE ELECTRICAL PANELS AND EQUIPMENT PER NEC REQUIREMENTS.

MAINTAIN OCCUPANCY AND FIRE WALL SEPARATION INTEGRITY AS REQUIRED. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF OCCUPANCY/FIREWALL SEPARATIONS AND SPECIFIC DETAILS FOR CONSTRUCTION. PROVIDE NECESSARY FIRE AND FIRE/SMOKE DAMPERS, ACCESS DOORS, CAULKING, ETC. FOR APPROVED INSTALLATION.

PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE OR DUCT SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTION OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURER'S INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE AS SPECIFIED BY ARCHITECT OR EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE.

PENETRATIONS THROUGH STRUCTURE, STUDS, OR FIRE-RATED WALLS SHALL BE MADE OVERSIZED TO PREVENT CONTACT.

UNDER NO CIRCUMSTANCE IS THE FIRE PROOFING OF THE BUILDING STRUCTURE (WHERE APPLICABLE) TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, PIPING, ETC. CLAMPING DEVICES SHALL NOT BE USED WHERE THE STRUCTURE IS FIRE PROOFED. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED TO THE SATISFACTION OF THE BUILDING OWNER.

UPON COMPLETION OF THE INSTALLATION OF THE REFRIGERANT PIPING, EVACUATE THE PIPING SYSTEM TO 26MM MERCURY AND HOLD FOR 12 HOURS. THE SYSTEM SHALL THEN BE FULLY CHARGED WITH REFRIGERANT AND MADE OPERATIONAL.

STRUCTURAL STEEL SUPPORTS, HANGER BRACKETS, ETC., REQUIRED FOR SUPPORT SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. THE WELDS AND EDGES OF BRACKETS SHALL BE FILED OR GROUND SMOOTH FOR PAINTING. HANGERS SHALL BE STEEL ANGLE IRON, STEEL CHANNEL, OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. SUPPORTS, HANGERS, BRACKETS, ETC., SHALL BE AS APPROVED BY THE ENGINEER. NO PERFORATED STRAP, CHAIN LINK, OR WIRE MAY BE USED. HANGERS SHALL BE GALVANIZED OR PAINTED WITH TWO COATS OF RUSTOLEUM PAINT BEFORE THEIR INSTALLATION.

WHERE PIPES OR CONDUITS PASS THROUGH WALLS, FLOORS, OR CEILINGS IN FINISHED AREAS, THEY SHALL BE FURNISHED WITH ESCUTCHEON PLATES (COLOR PER ARCHITECT).

PIPE PENETRATIONS THROUGH SOUND RATED GYPSUM BOARD PARTITIONS SHALL BE SEALED WITH ACOUSTICAL CAULK OR A RESISTANT ESCUTCHEON.

WATER PROOFING AND FLASHING OF PIPE PENETRATIONS THROUGH EXTERIOR WALL AND ROOF SHALL BE BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE LOCATIONS AND METHODS WITH GENERAL CONTRACTOR. ANY NEW OR REUSED ROOF PENETRATIONS SHALL BE WATERPROOFED BY A LICENSED AND CERTIFIED ROOF CONTRACTOR WHO IS APPROVED BY THE EXISTING ROOF WARRANTOR. UPON COMPLETION OF WORK, ROOF CONTRACTOR SHALL PROVIDE A REPORT TO THE OWNER INDICATING THAT THE WORK IS APPROVED BY THE ROOF WARRANTOR.

MECHANICAL EQUIPMENT SHALL BE SECURED AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE SECTIONS OF THE FLORIDA BUILDING CODE AND FLORIDA MECHANICAL CODE.

CONTRACTOR SHALL PROVIDE HANGERS AND SUPPORTS FOR EQUIPMENT SUPPLIED OR INSTALLED UNDER THEIR WORK.

PIPING AND DUCT CONNECTIONS TO FAN COILS, HEAT PUMPS, ETC, SHALL BE MADE WITH FLEXIBLE CONNECTIONS. FLEXIBLE PIPE CONNECTIONS MAY BE OMITTED IF ROTATING/VIBRATING EQUIPMENT IS INTERNALLY ISOLATED.

DRAIN PIPING FROM EQUIPMENT SHALL BE ROUTED SO AS NOT TO CREATE A TRIPPING HAZARD. COORDINATE ACTUAL DRAIN CONNECTIONS WITH PLUMBING SECTION. COORDINATE FLOOR SINK LOCATIONS ACCORDINGLY.

MECHANICAL EQUIPMENT SHALL BE IDENTIFIED WITH BAKELITE NAMEPLATES. COLOR CODING OF NAMEPLATES AND IDENTIFICATION INFORMATION SHALL BE COORDINATED WITH THE OWNER.

PIPING SHALL BE IDENTIFIED WITH PLASTIC PIPE MARKERS IN CLEAR VIEW AND ALIGNED WITH AXIS OF PIPING. MARKERS SHALL BE PREPRINTED WITH PRESSURE SENSITIVE PERMANENT ADHESIVE AND COLOR CODED IN COMPLIANCE WITH ANSI A13.1. SERVICE AND FLOW DIRECTION SHALL BE INDICATED. DISTANCE BETWEEN IDENTIFICATION LOCATIONS SHALL NOT EXCEED 25 FEET. IDENTIFICATION SHALL BE LOCATED AT EACH EQUIPMENT CONNECTION AND ON BOTH SIDES OF AN OBSTRUCTION.

CEILING DIFFUSERS SHALL BE 36" MINIMUM FROM CEILING MOUNTED SMOKE DETECTORS. COORDINATE WITH ELECTRICAL AND FIRE ALARM CONTRACTORS.

SECURE DIFFUSERS AND GRILLES TO T-BAR CEILINGS, WHERE APPLICABLE. SUBMIT SHOP DRAWING FOR APPROVAL PRIOR TO BEGINNING WORK.

PROVIDE 18" x 18" MINIMUM ACCESS DOOR IN INACCESSIBLE CEILINGS AND WALLS FOR EQUIPMENT REQUIRING ACCESS OR ADJUSTMENT. COORDINATE LOCATIONS AND SUBMIT TO ARCHITECT FOR APPROVAL PRIOR TO BEGINNING WORK.

INSTALL THERMOSTATS AND SENSORS AT MOUNTING HEIGHTS 48" ABOVE FINISHED FLOOR IN ACCORDANCE WITH "ADA" REQUIREMENTS. COORDINATE EXACT LOCATIONS IF FIELD WITH THE CONTRACTOR AND ARCHITECT.

DUCT EXTERNAL INSULATION IS NOT REQUIRED WHERE DUCT HAS ACOUSTICAL DUCT LINER. PROVIDE 12" OVERLAP OF EXTERNAL INSULATION AND INTERIOR LINER AT TRANSITION OF INSULATION TYPE.

PROVIDE DUCT AND AIR TRANSITIONS TO EQUIPMENT AND EXISTING SYSTEMS AS REQUIRED.

AT THE CONCLUSION OF THE PROJECT THE CONTRACTOR SHALL CLEAN INTERIOR OF DUCTWORK, CLEAN EXTERIOR SURFACE OF EQUIPMENT AND REMOVE CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM THE WORK AREA.

**TEST AND BALANCE**

AN INDEPENDENT TEST AND BALANCE FIRM WHICH IS AABC OR NEBB CERTIFIED SHALL BE RETAINED FOR CHECK/TEST-START-UP AND TESTING AND BALANCING OF AIR SYSTEMS. THE TEST REPORT SHALL BE IN A FORMAT APPROVED BY AABC FOR SYSTEMS OF THIS TYPE AND COMPLEXITY. QUALIFICATIONS OF INDEPENDENT TEST AND BALANCE FIRM SHALL BE SUBMITTED FOR REVIEW.

DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION AND OBTAINING APPROVAL.

LEAKS, DAMAGE AND DEFECTS DISCOVERED OR RESULTING FROM STARTUP, TESTING, AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TEST SHALL BE CONTINUED UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENT OR REPAIR.

SUBMIT FIVE (5) COPIES OF TESTING AND BALANCING REPORTS TO ARCHITECT FOR APPROVAL. THE TEST AND BALANCE (TAB) REPORT SHALL INCLUDE BUT NOT BE LIMITED TO THE DESIGN VALUES AND ACTUAL VALUES AFTER ADJUSTMENTS TO THE FOLLOWING: AIR QUANTITIES, MOTOR ELECTRICAL DATA, MOTOR RPM, FAN RPM AND STATIC PRESSURES, ETC.

THE FOLLOWING DATA SHALL BE INCLUDED IN THE TESTING AND BALANCING REPORT FOR EACH SYSTEM AND SHALL BE SUBMITTED ON THE SMACNA FORMS INDICATED:

1. LIST TEST AND AIR BALANCE INSTRUMENTS, THE APPLICATION, THE DATE OF USE AND THE INSTRUMENT CALIBRATION TEST DATE, AND SUBMIT REPORT ON SMACNA FORM TAB 18-82.
2. TEST AND RECORD CFM QUANTITIES AND SUBMIT REPORT ON SMACNA FORM TAB 9-82 FOR AIR OUTLETS/INLETS, ON SMACNA FORM TAB 12-82 FOR HVAC UNITS, AND ON SMACNA FORM TAB 2-82 FOR FANS.
3. TEST AND RECORD ENTERING AIR TEMPERATURES (DB HEATING AND COOLING) AND SUBMIT REPORT ON SMACNA FORM TAB 12-82.
4. TEST AND RECORD ENTERING AIR TEMPERATURES (WB COOLING) AND SUBMIT REPORT ON SMACNA FORM TAB 12-82.
5. TEST AND RECORD LEAVING AIR TEMPERATURES (DB HEATING AND COOLING) AND SUBMIT REPORT ON SMACNA FORM TAB 12-82.
6. TEST AND RECORD LEAVING AIR TEMPERATURES (WB COOLING) AND SUBMIT REPORT ON SMACNA FORM TAB 12-82.
7. TEST AND RECORD SYSTEM SUCTION PRESSURE, HEAD PRESSURE, COMPRESSOR AMPS, AND AMBIENT TEMPERATURE DURING COOLING OPERATION, AND SUBMIT REPORT ON SMACNA FORM TAB 12-82.

TEST AND ADJUST AIR DEVICES TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN REQUIREMENTS.

NO.	DESCRIPTION	DATE	BY	FOR

DRAWING ISSUE LOG

**CARPENTER SELLERS DEL CANTO ARCHITECTS**

1919 S. JONES, SUITE C - LAS VEGAS, NV 89146  
(702) 251-8886 - FAX (702) 251-5876

**MECHANICAL SPECIFICATIONS**  
A COMMERCIAL TENANT IMPROVEMENT FOR  
**UNIVERSITY OF PHOENIX - WEST PALM BEACH, FL (REMODEL)**  
7111 FARWAY DRIVE  
PALM BEACH GARDENS, FL 33418

NO.	DESCRIPTION	DATE	BY	FOR

REVISIONS:

DATE:	08-08-2011
JOB NO:	U11-029
FILE NAME:	110413_M0-2.DWG
DO NOT SCALE DRAWINGS	

SHEET NO.  
**M0.2**

**iba**  
consulting engineers  
JBA Las Vegas  
5155 W Patrick Ln  
Las Vegas, NV 89118  
p 702.362.9200

P:\11\_0413\Drawings\BAM\110413\_M0-2.dwg, 8/10/2011 8:25:17 AM, rmmw