REFRIGERATION PIPING:

ALL WORK DESCRIBED IN THIS SECTION SHALL BE PERFORMED ONLY BY SKILLED REFRIGERATION MECHANICS.

REFRIGERATION PIPING SHALL BE FIELD FABRICATED.

WORKMANSHIP ON THESE SYSTEMS MUST BE GOOD, AND CLEANLINESS OF THE PIPING SYSTEMS IS MANDATORY. WORK THAT DOES NOT MEET THESE CRITERIA SHALL BE REMOVED AND REPLACED AT NO COST TO THE OWNER. THE ENGINEER SHALL DETERMINE WHETHER THE WORK MEETS THESE CRITERIA.

PIPING SHALL BE ASTM B280 MUELLER STREAMLINE ACR OR READING HARD DRAWN FACTORY SEALED NITROGEN CHARGED SPECIAL REFRIGERATION DUTY COPPER TUBING. FITTINGS SHALL BE MUELLER OR NIBCO WROUGHT COPPER LONG RADIUS REFRIGERATION TYPE.

REFRIGERANT PIPING BELOW GRADE SHALL BE ROUTED IN MINIMUM 4" DIAMETER PVC PIPE SLEEVES TO EACH CONDENSING UNIT. ALL UNDERGROUND REFRIGERANT PIPING SHALL BE CONTINUOUS SOFT-DRAWN TUBING WITH NO UNDERGROUND JOINTS ALLOWED. REFRIGERANT PIPE SIZES SHALL BE SIZED PER A/C EQUIPMENT MANUFACTURER'S RECOMMENDATION BASED ON LENGTH OF RUN BETWEEN CONDENSING UNITS AND AHU'S.

SOLDER SHALL BE 4% SILVER/96% TIN WITH MELTING POINT OF 430oF WITH TENSILE STRENGTH OF 14,000 PSI AND SHEAR STRENGTH OF 10,600 PSI, BRIGHT SILVER NON-OXIDIZING COLOR. 95-5 SOLDER WILL NOT BE PERMITTED. DO NOT BRAZE. J.W. HARRIS "STAY-BRITE" AND ENGELHARD "BRAZE-IT 430" ARE ACCEPTABLE.

FILL PIPING WITH OIL PUMPED DRY NITROGEN DURING ALL SOLDERING OPERATIONS.

BUILD UP 20 PSIG IN SYSTEM WITH R-410A AND THEN INCREASE PRESSURE TO 150 PSIG IN SYSTEM WITH R-410A AND THEN INCREASE PRESSURE TO 150 PSIG IN SUCTION PIPING WITH 350 PSIG IN HIGH SIDE PIPING WITH DRY NITROGEN. TAP ALL FITTINGS WITH RUBBER MALLET. LEAK TEST WITH HALIDE TORCH. REPAIR ANY LEAKS DISCOVERED BY COMPLETELY REMAKING THE LEAKING JOINTS. REPEAT PROCEDURE UNTIL SYSTEM IS PROVEN TIGHT FOR A 24 HOUR PERIOD.

BLEED OFF PRESSURE AND EVACUATE SYSTEM TO .1" HG ABSOLUTE, MEASURING SAME WITH ZIMMERLI VACUUM GAUGE OR MANOMETER. BREAK VACUUM BY INJECTING R-410A INTO SYSTEM AT FARTHEST POINT IN PIPING FROM COMPRESSOR. RE-EVACUATE TO .1" HG ABSOLUTE. SYSTEM MUST HOLD THIS VACUUM FOR 15 MINUTES. REPAIR LEAKS AS REQUIRED UNTIL IT DOES. CHARGE SYSTEM WITH PROPER QUANTITY OF REFRIGERANT.

COVER ALL SUCTION PIPING (INDOORS AND OUTDOORS), FITTINGS, VALVES, ETC., CONTINUOUS THROUGH SLEEVES, HANGERS, ETC., WITH .75" AP/ARMAFLEX. INSTALLATION SHALL BE CONDENSATION-FREE, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. PAINT ALL INSULATION EXPOSED TO OUTDOORS WITH UV PROTECTIVE PAINT PER MANUFACTURER'S RECOMMENDATIONS.

PIPE HANGERS, WHERE NEEDED, SHALL BE GRINNELL #260 CLEVIS TYPE, 5'-0" ON CENTER, SECURELY ATTACHED TO BUILDING CONSTRUCTION.

PIPE SUPPORT:

ATTACH LINES SECURELY ALONG PAD/FLOOR/EQUIPMENT/STRUCTURE TO PREVENT MOVEMENT. SUPPORT IN A MANNER THAT LINES THAT DO NOT HANG FROM EVAPORATOR CONNECTIONS OR BLOCK ACCESS TO FILTERS, CONTROLS, ETC.

TRAP OIL IN SUCTION LINE AT EVAPORATOR COIL. NO OTHER COIL TRAPS PERMITTED. PROVIDE SUCTION RISERS, CHECK VALVES, SOLENOID VALVES, OR OTHER DEVICES REQUIRED IN PIPING SYSTEM BY MANUFACTURERS INSTALLATION INSTRUCTIONS.

FURNISH ALL LABOR AND MATERIALS TO REPLACE REFRIGERANT LOST DURING THE ONE YEAR WARRANTY PERIOD.

TERMINAL UNITS

VARIABLE VOLUME BOX:

TERMINAL UNITS SHALL BE OF SIZES AND TYPES SHOWN ON DRAWINGS. UNITS SHALL HAVE FACTORY CATALOG PERFORMANCE RATINGS THAT CONFORM TO CFM, STATIC PRESSURE AND NOISE CRITERIA DESIGNED.

CASING SHALL BE CONSTRUCTED OF ZINC-COATED STEEL NOT LIGHTER THAN NO. 22 M.S. GAUGE, OR ALUMINUM NOT LIGHTER THAN 0.04" THICK.

INSIDE SURFACES SHALL HAVE LINING MATERIAL SUITABLE TO PROVIDE REQUIRED ACOUSTIC PERFORMANCE, THERMAL INSULATION, AND PREVENT SWEATING. LINING THICKNESS SHALL BE NOT LESS THAN ONE INCH.

CASING SHALL HAVE REMOVABLE PANELS LARGE ENOUGH TO PROVIDE ACCESS TO ALL MOVING PARTS FOR INSPECTION, ADJUSTMENT, AND MAINTENANCE WITHOUT DISCONNECTING DUCTS.

TOTAL LEAKAGE FROM CASINGS SHALL NOT EXCEED 3% OF THE SPECIFIED CAPACITY WHEN SUBJECTED TO A PRESSURE OF 1/2" W.G. IN LOW PRESSURE SECTION WITH ALL OUTLETS AND INLETS SEALED OFF. LEAKAGE RATE OF CLOSED DAMPERS SHALL NOT EXCEED 1% OF SPECIFIED CAPACITY WHEN CLOSE-OFF PRESSURE DIFFERENTIAL IS 6" W.G.

CONTROLS

FACTORY MOUNTED CONTROL SHALL BE PROVIDED TO ACCOMPLISH THE SEQUENCE OF OPERATION. ALL INTERIOR CONTROLS SHALL BE FACTORY FURNISHED AND INSTALLED.

ELECTRICAL

PROVIDE ALL 24 VOLT WIRING BETWEEN CONTROL DEVICES AS NECESSARY TO MAKE COMPLETE AND OPERATIONAL SYSTEM. PROVIDE 110/24 VAC TRANSFORMERS AS REQUIRED. COORDINATE WITH DIVISION 16 FOR 120V POWER ROUGH-IN, CONTROL POWER AND WIRING. 24 VOLT WIRING SHALL BE PLENUM RATED CABLE.

SEQUENCE OF OPERATION

THE SYSTEM SHALL CONTROL THE OPERATION OF THE CONNECTED EQUIPMENT.

THE SYSTEM SHALL CONTROL SPACE TEMPERATURE SET POINTS BY OPENING/CLOSING DUCT DAMPERS, CYCLING COMPRESSORS ON-OFF AND STEPPING THE ELECTRIC HEAT ON-OFF AS REQUIRED.

THE SYSTEM WILL INCORPORATE SPACE THERMOSTATS/SENSORS WITH ADJUSTABLE SET POINTS AND MANUAL OVERRIDE TO TURN THE SYSTEM "ON" FOR A PREDETERMINED PERIOD.

OCCUPIED MODE:

- OUTSIDE AIR DAMPERS "OPEN"
- FAN "ON"
- ZONE DAMPERS OPEN/CLOSE TO MAINTAIN SPACE TEMPERATURE
- COMPRESSORS START-STOP AND ELECTRIC HEAT STEPS ON-OFF TO MAINTAIN SPACE TEMPERATURE.
- INTERLOCKED EXHAUST FANS CYCLE "ON"
- BYPASS DAMPERS OPEN-CLOSE TO MAINTAIN VELOCITY OVER THE COIL.

UNOCCUPIED MODE:

- OUTSIDE AIR DAMPERS "CLOSE"
- FAN "OFF"
- ZONE DAMPERS "STOP"
- COMPRESSORS AND ELECTRIC HEAT "OFF"
- INTERLOCKED EXHAUST FANS "OFF"
- ADJUSTABLE UNOCCUPIED MODE SETBACK TEMPERATURE: OA DAMPER CLOSED, UNIT CYCLES AND DAMPERS OPERATE TO MAINTAIN SETTINGS

OVERRIDE MODE:

- OUTSIDE AIR DAMPERS "OPEN"
- FAN "ON"
- ZONE DAMPERS OPEN-CLOSE TO MAINTAIN SPACE TEMPERATURE COMPRESSORS START-STOP AND ELECTRIC HEAT STEPS ON-OFF TO MAINTAIN SPACE TEMPERATURE
- INTERLOCKED EXHAUST FANS CYCLE "ON"
- BYPASS DAMPERS OPEN-CLOSE TO MAINTAIN VELOCITY OVER THE COILS.

SYSTEM SETUP

CONTRACTOR SHALL HAVE THE CONTROL SYSTEM FACTORY REPRESENTATIVE AND THE TEST AND BALANCE CONTRACTOR PRESENT FOR STARTUP OF SYSTEM. PROVIDE DOCUMENT ON FACTORY REPRESENTATIVE'S LETTERHEAD INDICATING THAT SYSTEM HAS BEEN PROPERLY CALIBRATED, TESTED AND SET UP. PROVIDE A MINIMUM OF FOUR (4) HOURS TRAINING FOR THE OWNER'S REPRESENTATIVE.

AIR DISTRIBUTION EQUIPMENT

FURNISH SUPPLY AIR GRILLES AND RETURN AIR REGISTERS AS SCHEDULED ON THE DESIGN DRAWINGS. METAL-AIRE MAY BE SUBSTITUTED AS AN EQUAL.

GRILLES, REGISTERS, AND CEILING DIFFUSERS SHALL BE FURNISHED AS SCHEDULED ON THE DESIGN DRAWINGS AND SHALL BE ALL STEEL CONSTRUCTION. AIR DISTRIBUTION SHALL NOT EXCEED NC-30 NOISE CRITERIA AS DEFINED IN THE LATEST ASHRAE GUIDE.

DUCTWORK

MATERIALS: GALVANIZED STEEL (G-90) OF GAUGES CONFORMING TO LATEST EDITION OF SMACNA STANDARDS BASED ON THE FOLLOWING PRESSURE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

1. SUPPLY AIR: 2" W.G. POSITIVE PRESSURE
2. RETURN AIR: 1" W.G. NEGATIVE PRESSURE
3. OUTSIDE AIR: 2" W.G. POSITIVE/NEGATIVE PRESSURE
4. EXHAUST AIR: 1" W.G. POSITIVE/NEGATIVE PRESSURE
5. GREASE EXHAUST: 3" W.G. NEGATIVE PRESSURE
6. VAV SUPPLY AIR (FROM FAN TO VAV BOX) 3" W.G. POSITIVE PRESSURE

ALL DIMENSIONS ARE INSIDE NET FREE AREA.

ADJUSTABLE SPLITTERS AND DAMPERS SHALL BE INSTALLED IN EVERY SPLIT AND BRANCH DUCT AND SHALL BE PROVIDED WITH LOCKING QUADRANTS ON EXPOSED OR IN ACCESSIBLE AREAS OF THE DUCT FOR EASE OF OPERATION.

ELBOWS OR CHANGES IN DUCT DIRECTION GREATER THAN 45 DEGREES SHALL BE FITTED WITH AIR TURNS CONSISTING OF CURVED AIRFOIL BLADES OR VANES WHICH WILL PERMIT THE AIR TO MAKE ABRUPT TURNS WITHOUT APPRECIABLE TURBULENCE.

FLEXIBLE DUCTWORK SHALL BE ACOUSTICAL LOW PRESSURE TYPE WITH INTERIOR LINER, METAL HELIX, FIBERGLASS INSULATION WITH AN R-VALUE OF 6.0 OR GREATER, AND COPOLYMER SEAMLESS OUTSIDE SLEEVE. THE ENTIRE FLEXIBLE DUCT ASSEMBLY SHALL BE LISTED IN ACCORDANCE WITH UL-181 CLASS 1 AIR DUCT MATERIAL. THE MAXIMUM LENGTH OF ANY FLEX DUCT SHALL BE 8 FEET. FLEXIBLE DUCTWORK SHALL MEET THE FLORIDA MODEL ENERGY EFFICIENCY CODE. ALL JOINTS AT CONNECTIONS TO DIFFUSERS AND DUCTWORK SHALL BE SEALED WITH GLASS FABRIC AND MASTIC.

PROVIDE REMOTE CABLE DAMPER OPERATORS FOR DAMPERS INSTALLED IN HARD CEILINGS WHEN ACCESS TO DAMPERS IS NOT AVAILABLE. THE CABLE OPERATORS SHALL INCLUDE CABLE AND WIRE, SOCKET WRENCH OPERATOR WITH MOUNTING BRACKETS AND CABLE CLAMP AND ALL NECESSARY MOUNTING HARDWARE TO ATTACH TO DAMPER SHAFTS AND DUCTWORK. THE OPERATOR SHALL BE INSTALL IN AN ACCESSIBLE LOCATION OR PROVIDED WITH AN ACCESS PANEL. THE REMOTE CABLE DAMPER OPERATORS SHALL BE AS MANUFACTURED BY YOUNG REGULATOR COMPANY OR EQUAL FROM VENTLOCK.

KITCHEN EXHAUST DUCT:

FABRICATE IN ACCORDANCE WITH SMACNA STANDARDS AND NFPA 96. CONSTRUCT OF 16 GAUGE GALVANIZED STEEL OR 18 GAUGE STAINLESS STEEL, USING CONTINUOUS EXTERNAL WELDED JOINTS. SUPPORTS SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL WHERE CONCEALED, AND OF 18 GAUGE MINIMUM STAINLESS STEEL WHERE EXPOSED. SLOPE DUCT TOWARD HOOD MINIMUM OF 1/4" PER FOOT OF RUN. PROVIDE ACCESS DOORS WHERE REQUIRED BY CODES FOR CLEANING AND INSPECTION OF DUCT.

KITCHEN EXHAUST HOOD:

THE HOOD SHALL BE UL CLASSIFIED, FABRICATED IN COMPLIANCE WITH NFPA 96. THE OUTER SHELL AND INNER LINER, WHERE EXPOSED, SHALL BE OF 18 GAUGE STAINLESS STEEL, TYPE 304 WITH #4 FINISH. THE CANOPY SHALL HAVE AN INTEGRAL EXHAUST AND SUPPLY DUCT COLLAR. ALL JOINTS AND SEAMS SHALL HAVE FULL LIQUID TIGHT EXTERNAL WELDS, GROUND SMOOTH AND HIGHLY POLISHED. THE INSIDE TOP SURFACE SHALL HAVE A COLLECTING DEVICE SUCH THAT GREASE CANNOT ACCUMULATE IN THE SUPPLY AIR PLENUM. THE CANOPY SHALL HAVE INTERNAL SUPPORTS TO PREVENT VIBRATIONS AND FATIGUE OF THE INNERLINER AND OUTER SHELL. HOOD SHALL BE APPROVED BY THE NATIONAL SANITATION FOUNDATION. HOOD SHALL HAVE A MINIMUM OF 24" HIGH AND OVERHANG THE EQUIPMENT A MINIMUM OF 6" ON ALL OPEN SIDES.

PROVIDE FILTER HOUSING OF THE SAME MATERIAL AS THE CANOPY LINER, COMPLETE WITH UL LISTED STAINLESS STEEL GREASE EXTRACTORS THE FULL LENGTH OF THE CANOPY. THE FILTER HOUSING SHALL TERMINATE AT THE BOTTOM WITH A PITCHED DRIP TRAY THE FULL LENGTH OF THE CANOPY AND BE EQUIPPED WITH A GREASE CUP.

THE HOOD SUPPLY AIR PLENUM SHALL BE COMPLETELY LINED WITH 1/2" THICK INSULATION WITH METAL LINER TO HELP PREVENT CONDENSATION.

THE SUPPLY AIR RISER ON TOP OF THE HOOD SHALL BE COMPRISED OF A COMBINATION FIRE DAMPER AND VOLUME DAMPER. THE VOLUME DAMPER SHALL BE ADJUSTABLE BY MEANS OF A 90 DEGREE SWIVEL HANDLE AND LOCKNUT.

PROVIDE STAINLESS STEEL SKIRT AROUND PERIMETER OF HOOD OF WIDTH NECESSARY TO SEAL EXPOSED AREA BETWEEN TOP OF HOOD AND FINISHED CEILING.

PROVIDE UL APPROVED, VAPORPROOF INCANDESCENT HOOD LIGHTING WITH GLASS GLOBES AND WIRE GUARDS PREWIRED TO THE CONTROL STATION ON THE FACE OF THE HOOD.

PROVIDE A COMPLETE PRE-WIRED MOTOR CONTROL PACKAGE WITH LIGHT SWITCHES, MOTOR RATED FAN SWITCHES, MAGNETIC MOTOR STARTERS WITH ADJUSTABLE OVERLOADS AND ALL NECESSARY INTERNAL FACTORY WIRING SO THAT FINAL FIELD WIRING CONNECTIONS NEED ONLY INVOLVE BRINGING THE SPECIFIED INPUT POWER AND FAN LEADS TO A COMMON TERMINAL BOX.

KITCHEN HOOD FIRE SUPPRESSION SYSTEM:

PROVIDE KITCHEN HOOD WITH A COMPLETE CHEMICAL EXTINGUISHING SYSTEM. ALL COMPONENTS SHALL BE UL LISTED AND ALL MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF UL.

RELEASE ASSEMBLY SHALL BE ENCLOSED IN A PANEL WHICH IS PROPERLY LABELED. PANEL SHALL INCLUDE A RELEASE PIN OR BUTTON, AN ACTIVATOR ASSEMBLY, AND A REGULATOR OR FORGED BRASS VALVE. THE RELEASE MECHANISM SHALL HAVE THE FOLLOWING ACTUATION CAPABILITIES: AUTOMATIC ACTUATION BY A FUSIBLE LINK DETECTION SYSTEM; REMOTE MANUAL ACTUATION BY A MECHANICAL PULL STATION; LOCAL MANUAL ACTUATION BY A PUSH BUTTON LOCATED IN THE RELEASE MECHANISM ENCLOSURE

SYSTEM SHALL INCLUDE A MECHANICAL SOLENOID SHUT-OFF VALVE FOR GAS OR A PRESSURE ACTUATED SWITCH WHICH WILL CONTROL A UL LISTED MAGNETIC CONTACTOR FOR ELECTRICAL POWER SHUT DOWN. GAS VALVE SHALL HAVE EXTERNAL VISUAL INDICATION OF THE CLOSED OR OPEN POSITION (MANUAL RESET TYPE).

A REMOTE MANUAL PULL STATION SHALL BE PROVIDED IN THE PATH OF EXIT OR EGRESS AND SHALL BE CLEARLY IDENTIFIED. A SWITCH OR SET OF CONTACTS SHALL BE PROVIDED TO NOTIFY FIRE ALARM CONTROL PANEL. IF BUILDING DOES NOT HAVE A FIRE ALARM, A BELL SHALL BE INSTALLED TO NOTIFY OCCUPANTS IN CASE OF A DISCHARGE.

FIRE SAFETY CONTROLS:

AS A MINIMUM REQUIREMENT, INSTALL DUCT SMOKE DETECTOR FURNISHED AND WIRED BY DIVISION 16 IN SUPPLY AIR DUCTS OF UNITS EXCEEDING 2000CFM AND IN THE SUPPLY AND RETURN AIR DUCTS OF UNITS EXCEEDING 15000CFM. DETECTOR TO SHUT UNIT OFF WHEN ACTIVATED.

PROVIDE FIRE STAT IN RETURN AIR OF UNIT. FIRE STAT TO SHUT UNIT OFF WHEN ACTIVATED. UNIT INTERLOCKED WITH FIRE ALARM SYSTEM TO SHUT UNIT OFF IF ACTIVATED.

VIBRATION ISOLATION:

ALL BLOWER UNITS AND VIBRATING TYPE EQUIPMENT SHALL BE PROPERLY FITTED WITH MASON INDUSTRIES VIBRATION ISOLATION EQUIPMENT SIZED IN ACCORDANCE WITH EQUIPMENT WEIGHT AND DUTY.

PROVIDE FLEXIBLE CONNECTORS AT ALL SUPPLY AND RETURN CONNECTIONS TO AIR HANDLING EQUIPMENT CONSISTING OF HEAVY CANVAS OR NEOPRENE FABRIC WITH AIR-TIGHT SEAMS AND CONNECTIONS TO THE EQUIPMENT.

AIR FILTERS:

FILTERS SHALL BE 2" FIBERGLASS MEDIA 30% THROW-AWAY TYPE IN A RIGID FRAME WITH A SUPPORTING MAZE ACROSS BOTH ENTERING AND LEAVING SURFACES. SUPPLY ONE COMPLETE SET OF EXTRA FILTERS AFTER OWNER'S FINAL ACCEPTANCE. FARR 30/30 OR EQUAL.

FIRE DAMPERS:

FIRE DAMPERS SHALL BE TYPE B CURTAIN TYPE, SUITABLE FOR EITHER VERTICAL OR HORIZONTAL INSTALLATION, WITH 20 GAUGE STEEL CHANNEL FRAMES, 24 GAUGE STEEL BLADES, AND 18 GAUGE STEEL ENCLOSURE WITH DUCT COLLARS. ALL PARTS GALVANIZED MILL FINISH.

FIRE DAMPERS SHALL BE EQUAL TO RUSKIN TYPE IBD2 FOR WALLS UP TO 2 HOURS. INSTALL IN ACCORDANCE WITH NFPA-90A, TESTED IN ACCORDANCE WITH UL SAFETY STANDARD 555, 1½ HOUR AND 4 HOUR PROTECTION, 165°F FUSIBLE LINK. FURNISH FIRE DAMPERS AND ACCESS DOORS THERETO IN ALL DUCTS PENETRATING ANY RATED CONSTRUCTION AND WHERE INDICATED ON DRAWINGS. USE FOLDING BLADE TYPE C IN HIGH VELOCITY ROUND DUCTS. USE FOLDING BLADE TYPE FOR SQUARE AND RECTANGULAR DUCTS, AS DETAILED. FIRE DAMPERS SHALL BEAR THE ONE-HOUR UNDERWRITER'S LABORATORY UL SAFETY STANDARD 555, 1½ HOUR PROTECTION, 165°F FUSIBLE LINK.

ACCESS DOORS

FURNISH IN DUCTWORK AS INDICATED AND WHEREVER NECESSARY FOR PROPER ACCESS TO ALL INSTRUMENTS, CONTROLS, FIRE DAMPERS, MOTORIZED DAMPERS AND EQUIPMENT AND FOR CONVENIENT INSPECTION, MAINTENANCE AND REPLACEMENT OF SAME. SIZE SHALL BE AMPLE FOR USAGE. OPENINGS SHALL BE REINFORCED ON ALL SIDES WITH MATERIAL OR DUCTWORK IN WHICH DOORS ARE INSTALLED.

HARDWARE – USE VENT-LOK HARDWARE THROUGHOUT. ALL DOORS TO BE HINGED WITH BRASS PIN HINGES AND WITH QUICK OPENING LATCHES AS FOLLOWS:

1. REACH-IN DOORS TO 18 IN. HIGH.
2. TWO (2) #150 HINGES W/ONE #90 LATCH.

HIGH VELOCITY FIRE DAMPER DOORS – DOORS SHALL OPEN TO INSIDE OF DUCT; BE HELD IN PLACE BY PRESSURE-SENSITIVE LATCHES FOR MANUAL OR VACUUM RELEASE; FURNISHED WITH CHAIN RETAINER AND HANDLE; SUCH AS UNITED TYPE AR-2. DOORS SHALL BE INSTALLED DOWNSTREAM OF DAMPERS WHEREVER POSSIBLE.

INSULATION:

SHALL BE AS MANUFACTURED BY CERTAINTEED, OWENS-CORNING, MANVILLE, PITTSBURGH CORNING, ARMSTRONG, OR APPROVED EQUAL. INSULATION SUNDRIES AND ADHESIVES SHALL BE AS MANUFACTURED BY BENJAMIN FOSTER, CHILDERS, VIMASCO, OR APPROVED EQUAL. ALL INSULATION SHALL BE SUITABLE FOR INSTALLATION IN A RETURN AIR PLENUM.

INSULATE ALL SHEETMETAL DUCTWORK EXCEPT EXHAUST DUCTWORK EXTERNALLY WITH MANVILLE R SERIES MICROLITE TYPE 75 OR 100 INSULATION OR APPROVED EQUAL. INSULATION TO HAVE TYPE II FSK FACING AND UL FIRE HAZARD CLASSIFICATION OF: FLAME SPREAD 25, SMOKE DEVELOPED 50, FUEL CONTRIBUTED 50. INSTALL INSULATION PER SMACNA, FLORIDA MODEL ENERGY EFFICIENCY CODE AND MANUFACTURER'S RECOMMENDATIONS. ALL INSULATION JOINTS SHALL BE SEALED WITH GLASS FABRIC AND MASTIC.

MINIMUM INSULATION THICKNESSES ARE AS FOLLOWS:

- SUPPLY AND RETURN AIR IN UNCONDITIONED SPACE: 2" (R-6 MIN.)
- SUPPLY AND RETURN AIR IN CONDITIONED INTERIOR SPACE: 1.5" (R-4.2 MIN.)
- OUTSIDE AIR: 2" (R-6 MIN.)
- SUPPLY AIR IN CEILING RETURN AIR PLENUM: 1.5" (R-4.2 MIN.)
- RETURN AIR IN CEILING RETURN AIR PLENUM: NOT REQUIRED
- DUCTWORK OUTSIDE OF BUILDING: 3" (R-8 MIN.)

CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ADEQUATE AND PROPER INSULATION AND MOISTURE-SEAL IN A MANNER THAT WILL PERMANENTLY PREVENT THE ACCUMULATION OF ANY OBJECTIONABLE MOISTURE ON THE EXTERIOR OF AIR CONDITIONING UNITS, REFRIGERANT PIPING, CONDENSATE DRAIN PIPING, AIR DUCTS OR OTHER PARTS OF THE SYSTEM. CONTRACTOR SHALL CORRECT THE CAUSE OF ANY CONDENSATION AND FULLY REPAIR, WITHOUT COST TO THE OWNER, ANY DAMAGES TO BUILDING SURFACES, FURNISHINGS OR EQUIPMENT CAUSED BY CONDENSATION FROM THIS SYSTEM, FOR THE FULL PERIOD OF THE GUARANTEE.

40% PROGRESS SET 2/4/2014

PENINSULA ENGINEERING INC.
CONSULTING ENGINEERS
ESTABLISHED IN 1977
2016 ALDEN ROAD, ORLANDO, FLORIDA, 32803 - 407.246.1688 - CA 3089

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2014

JOB#: 13459

REVISIONS	BY

ANTHONY L. LEPORE, ARCHITECT
1401 EDGEWATER DRIVE
ORLANDO, FLORIDA 32804
LICENSE NUMBER AR0004692
TELEPHONE (407) 425-4820

H.J. HIGH CONSTRUCTION CO.
1015 W. AMELIA STREET
ORLANDO, FLORIDA 32805
TELEPHONE (407) 422-8171
FAX (407) 841-4820

ADDITIONS + MODIFICATIONS
ENZIAN THEATER
MAITLAND, FLORIDA

DRAWN	M.J.P.
CHECKED	J.H.M.
DATE	
SCALE	
JOB NO.	
SHEET	M0.2
OF	SHEETS