MECHANICAL SPECIFICATIONS

GENERAL

THE GENERAL MECHANICAL SPECIFICATIONS APPLY TO THE WORK SPECIFIED IN THIS SECTION.

SCOPE OF WORK

FURNISH AND INSTALL COMPLETE AIR CONDITIONING SYSTEMS AS INDICATED ON THE DESIGN DRAWINGS AND AS OUTLINED WITHIN THESE SPECIFICATIONS. WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FABRICATION AND/OR INSTALLATION OF THE SCHEDULED AIR CONDITIONING UNITS, EXHAUST FANS, AIR DISTRIBUTION AND DUCTWORK.

CLEANING, TESTING AND ADJUSTING:
THE MECHANICAL CONTRACTOR, AT HIS EXPENSE, SHALL CLEAN, REPAIR, ADJUST, CHECK, BALANCE, AND PLACE IN SERVICE THE VARIOUS SYSTEMS HEREIN SPECIFIED WITH THEIR RESPECTIVE EQUIPMENT, ACCESSORIES AND PIPING. HE SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND TOOLS REQUIRED TO PERFORM TESTS REQUIRED BY THESE SPECIFICATIONS AND BY THE GOVERNING AUTHORITIES.

NO WORK SHALL BE COVERED OR CONCEALED UNTIL PROPERLY INSPECTED AND TESTED.

TESTING:
ADJUST THE AIR CONDITIONING SYSTEMS, VENTILATING SYSTEMS, FANS, ETC., TO DELIVER NOT LESS THAN THE REQUIRED AIR QUANTITY WITH QUANTITIES IN EXCESS TO BE SUBJECT TO THE APPROVAL OF THE ENGINEER IF FOUND TO NOT HAVE OBJECTIONABLE EFFECTS SUCH AS NOISE, DRAFTS, OR MOTOR OVERLOAD.

THIS CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A TEST AND BALANCE REPORT TO THE OWNER AT TIME OF SUBSTANTIAL COMPLETION INSPECTION.

THE TEST AND BALANCE REPORT SHALL BE TYPEWRITTEN AND CONTAIN THE FOLLOWING DATA:

1. DATE, TIME, WEATHER, WHEN TEST TAKEN.
2. AIR CAPACITIES AT EACH UNIT INCLUDING OUTSIDE AIR. (ENTERING AND LEAVING DB/WB)
3. STATIC PRESSURE THROUGH UNITS AND UNIT COMPONENTS.
4. MOTOR OPERATING VOLTAGE AND AMPERAGE.
5. DRIVE TYPES, SIZES AND SPEED RANGE.
6. IDENTIFICATION OF ALL AIR TERMINAL DEVICES WITH DESIGN CFM AND ACTUAL CFM.

ADDITIONALLY, SYSTEMS DRAWING CLEARLY MARKED TO IDENTIFY LOCATION OF EQUIPMENT AND AIR DEVICES TESTED SHALL BE PROVIDED ALONG WITH THE WRITTEN TEST AND BALANCE REPORT.

MAINTENANCE MANUALS

PROVIDE COMPLETE MAINTENANCE MANUALS (3 REQUIRED) ON ALL NEW EQUIPMENT. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA INTO INDIVIDUAL, HEAVY-DUTY, 2-INCH, 3-RING VINYL COVERED BINDERS WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION. THE INFORMATION WILL BE TURNED OVER TO THE OWNER AT TIME OF SUBSTANTIAL COMPLETION:

- OPERATING AND MAINTENANCE INSTRUCTIONS
- SPARE PARTS LIST
- COPIES OF WARRANTIES
- WIRING DIAGRAMS
- INSPECTION REPORTS AND APPROVALS
- SHOP DRAWINGS AND PRODUCT DATA

TRAINING SERVICES

THOROUGHLY INSTRUCT THE OWNER'S REPRESENTATIVE IN THE OPERATION OF ALL EQUIPMENT FURNISHED AND LOCATION OF ALL VALVES AND CONTROL DEVICES.

TRAIN BUILDING OWNER'S PERSONNEL DURING NORMAL WORKING HOURS ON STARTUP AND SHUTDOWN PROCEDURES, TROUBLESHOOTING PROCEDURES, SERVICING AND PREVENTATIVE MAINTENANCE SCHEDULE AND PROCEDURES. REVIEW WITH THE OWNER'S PERSONNEL, THE DATA CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS. SCHEDULE TRAINING WITH OWNER, PROVIDE AT LEAST 7-DAYS PRIOR NOTICE TO ARCHITECT/ENGINEER.

HANGERS AND SUPPORTS

PROVIDE ALL NECESSARY HANGER RODS, CLAMPS AND ATTACHMENTS TO PROPERLY INSTALL AND SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM THE BUILDING STRUCTURE.

PROVIDE ANY ANGLE IRON OR UNISTRUT AND SUSPENSION RODS REQUIRED TO INSTALL EQUIPMENT, PIPING AND DUCTWORK.

ALL SUPPORTS EXPOSED TO OUTDOORS SHALL BE CLEANED, PRIMED AND PAINTED TO PREVENT RUSTING. FINISH COLOR AS SELECTED BY OWNER.

THE USE OF BALING WIRE OR PERFORATED METAL STRAPPING IS NOT ACCEPTABLE FOR SUPPORTS.

WARRANTY/GUARANTEE:

THE CONTRACTOR SHALL WARRANTY/GUARANTEE AND MAINTAIN THE STABILITY OF WORK AND MATERIALS AND KEEP SAME IN PERFECT REPAIR AND CONDITION OF THE PERIOD OF ONE (1) YEAR.

DEFECTS OF ANY KIND DUE TO FAULTY WORK OR MATERIALS APPEARING DURING THE ABOVE MENTIONED PERIOD MUST BE IMMEDIATELY MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE TO THE ENTIRE SATISFACTION OF THE OWNER AND ARCHITECT AND ENGINEER. SUCH RECONSTRUCTION AND REPAIRS SHALL INCLUDE ALL DAMAGE TO THE FINISH OR FURNISHING OF THE BUILDING RESULTING FROM THE ORIGINAL DEFECT OR REPAIRS THERETO.

EQUIPMENT:

1.1 QUALITY ASSURANCE

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
B. UNITS SHALL BE DESIGNED TO OPERATE WITH HCFC-FREE REFRIGERANTS.

1.2 WARRANTY

A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPLACE COMPONENTS LISTED BELOW THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.

1. WARRANTY PERIOD FOR COMPRESSORS: MANUFACTURER'S STANDARD, BUT NOT LESS THAN FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
2. WARRANTY PERIOD FOR HEAT EXCHANGERS: MANUFACTURER'S STANDARD, BUT NOT LESS THAN FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

1.3 MANUFACTURERS

A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. AAON
2. TRANE
3. CARRIER
4. YORK

2.1 CABINET

A. CONSTRUCTION: SINGLE WALL.
B. EXTERIOR CASING: GALVANIZED STEEL WITH BAKED-ENAMEL PAINT FINISH WITH LIFTING LUGS AND KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS.

2.2 INTERIOR CASING – GALVANIZED STEEL

A. BASE RAILS: GALVANIZED-STEEL RAILS FOR MOUNTING ON ROOF CURB.
B. SERVICE DOORS: HINGED ACCESS DOORS WITH NEOPRENE GASKETS.
C. INTERNAL INSULATION: FIBROUS-GLASS DUCT LINING COMPLYING WITH ASTM C 1071, TYPE II.

1. THICKNESS: 1 INCH (25 MM).
2. INSULATION ADHESIVE: COMPLY WITH ASTM C 916, TYPE I.
3. MECHANICAL FASTENERS: GALVANIZED STEEL, SUITABLE FOR ADHESIVE ATTACHMENT, MECHANICAL ATTACHMENT, OR WELDING ATTACHMENT TO CASING WITHOUT DAMAGING LINER AND WITHOUT CAUSING AIR LEAKAGE WHEN APPLIED AS RECOMMENDED BY MANUFACTURER.

D. CONDENSATE DRAIN PANS: FORMED SECTIONS OF STAINLESS-STEEL SHEET DESIGNED FOR SELF-DRAINAGE. FABRICATE PANS WITH SLOPES TO PRECLUDE BUILDUP OF MICROBIAL SLIME. PROVIDE FLOAT SWITCH.
E. ROOF CURB: FULL-PERIMETER CURB OF SHEET METAL, MINIMUM 14 INCHES HIGH, WITH WOOD NAILER, NEOPRENE SEALING STRIP, AND WELDED Z-BAR FLASHING.

2.3 SUPPLY-AIR FAN

A. FAN: FORWARD-CURVED CENTRIFUGAL; STATICALLY AND DYNAMICALLY BALANCED, GALVANIZED STEEL, MOUNTED ON SOLID-STEEL SHAFT WITH SELF-ALIGNING, PERMANENTLY LUBRICATED BALL BEARINGS.
B. MOTOR: TOTALLY ENCLOSED-SPEED MOTOR.
C. DRIVE: V-BELT DRIVE WITH MATCHING FAN PULLEY AND ADJUSTABLE MOTOR SHEAVES AND BELT ASSEMBLY WITH MINIMUM 1.4 SERVICE FACTOR.
D. MOUNTING: FAN WHEEL, MOTOR, AND DRIVES SHALL BE MOUNTED IN FAN CASING WITH SPRING ISOLATORS.

2.4 REFRIGERATION SYSTEM

A. FABRICATE AND LABEL REFRIGERATION SYSTEM TO COMPLY WITH ASHRAE 15, "SAFETY CODE FOR MECHANICAL REFRIGERATION."
B. COMPRESSORS: RECIPROCATING OR SCROLL COMPRESSORS WITH INTEGRAL VIBRATION ISOLATORS, INTERNAL OVERCURRENT AND OVERTEMPERATURE PROTECTION, INTERNAL PRESSURE RELIEF.
C. EER AND COP: 13 EER AND 11.8 COP VALUES AS DEFINED BY ASHRAE/IESNA 90.1, "ENERGY EFFICIENT DESIGN OF NEW BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS."
D. REFRIGERANT: R-410A ON ALL NEW SYSTEMS.
E. REFRIGERATION SYSTEM SPECIALTIES: EXPANSION VALVE WITH REPLACEABLE THERMOSTATIC ELEMENT

1. REFRIGERANT DRYER.
2. HIGH-PRESSURE SWITCH.
3. LOW-PRESSURE SWITCH.
4. THERMOSTAT FOR COIL FREEZE-UP PROTECTION DURING LOW AMBIENT TEMPERATURE OPERATION OR LOSS OF AIR.
5. BRASS SERVICE VALVES INSTALLED IN DISCHARGE AND LIQUID LINES.
6. OPERATING CHARGE OF REFRIGERANT.

2.5 CAPACITY CONTROL

A. HOT-GAS BYPASS REFRIGERANT CONTROL FOR CAPACITY CONTROL WITH CONTINUOUS DEHUMIDIFICATION ON A SINGLE COMPRESSOR.

2.6 REFRIGERANT COILS

A. EVAPORATOR AND CONDENSER COILS SHALL BE DESIGNED, TESTED, FABRICATED, AND RATED ACCORDING TO ARI 410 AND ASHRAE 33. COILS SHALL BE LEAK TESTED UNDER WATER WITH AIR AT 315 PSIG (2170 KPA).

1. CAPACITY REDUCTION: CIRCUIT COILS FOR FACE CONTROL.
2. TUBES: COPPER.
3. FINS: ALUMINUM
4. FIN AND TUBE JOINT: MECHANICAL BOND.
5. SUCTION AND DISTRIBUTOR: SEAMLESS COPPER TUBE WITH BRAZED JOINTS.
6. COATING: PHENOLIC EPOXY CORROSION-PROTECTION COATING ON BOTH COILS.
7. SOURCE QUALITY CONTROL: TEST TO 450 PSIG (3105 KPA), AND TO 300 PSIG (2070 KPA) UNDERWATER.

B. CONDENSER FAN: PROPELLER TYPE, DIRECTLY DRIVEN BY MOTOR.
C. SAFETY CONTROLS:

1. COMPRESSOR MOTOR AND OUTSIDE-COIL FAN MOTOR LOW AMBIENT LOCKOUT.
2. OVERCURRENT PROTECTION FOR COMPRESSOR MOTOR AND OUTSIDE-COIL FAN MOTORS.

2.7 FILTERS

A. COMPLY WITH NFPA 90A.
B. DISPOSABLE PLEASTED FILTERS: 2-INCH- (50-MM-) THICK, FACTORY-FABRICATED, FLAT-PANEL-TYPE, DISPOSABLE AIR FILTERS WITH HOLDING FRAMES.
C. FILTER MEDIA TO BE INTERLACED GLASS FIBERS SPRAYED WITH NONFLAMMABLE ADHESIVE.
D. FILTER FRAMES TO BE GALVANIZED STEEL.

2.8 CONTROLS

A. FACTORY-WIRE CONNECTION FOR CONTROLS' POWER SUPPLY.
B. CONTROL DEVICES, INCLUDING SENSORS, TRANSMITTERS, RELAYS, SWITCHES, THERMOSTATS, HUMIDISTATS, DETECTORS, OPERATORS, ACTUATORS, AND VALVES, SHALL BE MANUFACTURER'S STANDARD ITEMS TO ACCOMPLISH INDICATED CONTROL FUNCTIONS.
C. UNIT CONTROLS: SOLID-STATE CONTROL BOARD AND COMPONENTS WITH FIELD-ADJUSTABLE CONTROL PARAMETERS.
D. SUPPLY-FAN CONTROL: UNITS SHALL BE ELECTRICALLY INTERLOCKED WITH CORRESPONDING EXHAUST FANS, TO OPERATE CONTINUOUSLY WHEN EXHAUST FANS ARE RUNNING. TIME CLOCK SHALL SWITCH OPERATION FROM OCCUPIED TO UNOCCUPIED. NIGHT SETBACK THERMOSTAT SHALL CYCLE FAN DURING UNOCCUPIED PERIODS TO MAINTAIN SPACE TEMPERATURE.

1. TIMER: SEVEN-DAY ELECTRONIC CLOCK.

E. ELECTRICALLY INTERLOCK KITCHEN HOOD FIRE-EXTINGUISHING SYSTEM TO DE-ENERGIZE REPLACEMENT-AIR UNIT WHEN FIRE-EXTINGUISHING SYSTEM DISCHARGES.
F. MINIMUM REFRIGERATION SYSTEM CONTROLS SHALL CONSIST OF A WALL-MOUNTING, RELATIVE-HUMIDITY AND TEMPURATURE SENSOR THAT ENERGIZES DEHUMIDIFIER OPERATION WHEN RELATIVE HUMIDITY IS MORE THAN 60 PERCENT.

PIPING:

CONDENSATE DRAINS:

CONDENSATE PIPE TO BE TYPE L OR PVC. ROUTE TO DRYWELL OR AS INDICATED ON PLANS. COORDINATE WITH PLUMBER TO PROVIDE HUB DRAIN(S) IN MECHANICAL ROOM AND DRYWELL(S). HVAC CONTRACTOR TO PROVIDE P-TRAP AT UNIT SIZED FOR 2" GREATER THAN UNIT STATIC PRESSURE. PROVIDE CLEANOUT AT UNIT FOR SUSPENDED HORIZONTAL AIR HANDLERS. INSULATE CONDENSATE PIPE WITH 1/2" ARMAFLEX (OR EQUAL) INSULATION RATED FOR PLENUM APPLICATION. CONDENSATE DRAIN LINE SHALL BE NOT LESS THAN THE EQUIPMENT DRAIN LINE SIZE AND IN NO CASE LESS THAN 3/4" PIPE SIZE.

REFRIGERANT PIPING:

COVER ALL EXPOSED LIQUID LINES AND ALL SUCTION PIPING (INDOORS AND OUTDOORS), FITTINGS, VALVES, ETC., CONTINUOUS THROUGH SLEEVES, HANGERS, ETC., WITH 1/2" FR/ARMAFLEX. INSTALLATION SHALL BE CONDENSATION FREE AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

REFRIGERANT PIPING BELOW GRADE SHALL BE ROUTED THROUGH MINIMUM 4" DIAMETER PVC PIPE SLEEVES TO EACH CONDENSING UNIT. ALL UNDERGROUND REFRIGERANT PIPING SHALL BE CONTINUOUS 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 UNITS.

PIPING ROUTED ALONG BUILDING EXTERIOR WALL SHALL BE PROTECTED BY SHEET METAL HOUSING SECURELY ATTACHED TO WALL AT 8'-0" INTERVALS AND PAINTED TO MATCH BUILDING EXTERIOR.

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 MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PIPE HANGERS AND SUPPORTS:
PIPE HANGERS, WHERE NEEDED, SHALL BE GRINNEL #260 CLEVIS TYPE, 5'-0" ON CENTER, SECURELY ATTACHED TO BUILDING CONSTRUCTION. SPACE AT MIN. 5'-0" INTERVALS.

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

SUPPORT AT MIN. 8'-0" INTERVALS FOR VERTICAL PIPES, 5'-0" FOR SUSPENDED HORIZONTAL PIPING.

EXHAUST FANS:

FURNISH EXHAUST FANS WITH PERFORMANCE AND CAPACITIES AS LISTED ON THE DESIGN DRAWINGS.

SUSPENDED FANS SHALL BE SUPPORTED FROM A TRAPEZE TYPE HANGER WITH SPRING MOUNTED VIBRATION ISOLATORS.

ALL EXHAUST FANS SHALL COME WITH INTEGRAL BACKDRAFT DAMPER.

COORDINATE WITH ARCHITECT TO LOCATE EXHAUST FANS, EXHAUST GRILLES, WALL OR ROOF CAPS A MINIMUM DISTANCE OF 10'-0" FROM ANY OPERABLE WINDOW, DOOR OR FRESH AIR INTAKE.

AIR DISTRIBUTION EQUIPMENT:

FURNISH SUPPLY AIR GRILLES AND RETURN AIR REGISTERS WITH OPPOSED BLADE BALANCING DAMPERS AS SCHEDULED ON THE DESIGN DRAWINGS.

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

DUCTWORK:

1. ALL DUCTWORK DIMENSIONS ARE INSIDE NET FREE AREA.
2. SEAL ALL JOINTS WITH GLASS-FAB AND MASTIC.
3. ALL DUCTWORK SHOWN PER PLAN IS TO BE SHEET METAL. FIBERGLASS DUCT BOARD IS NOT TO BE INSTALLED UNLESS SPECIFICALLY AUTHORIZED BY THE BUILDING LANDLORD, PROJECT OWNER/AGENT AND MECHANICAL ENGINEER OF RECORD.
4. ALL EXHAUST AND OUTSIDE AIR DUCTWORK IS TO BE SHEET METAL – NO EXCEPTIONS. ADJUSTABLE SPLITTERS AND DAMPERS SHALL BE SUPPLIED AND 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. ACCESS PANELS OR YOUNG REGULATORS SHALL BE PROVIDED WHERE DAMPERS ARE INSTALLED ABOVE HARD CEILINGS OR IN SOFFITS EVEN IF NOT STATED ON PLANS.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.
5. 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. LONG RADIUS TURNS ARE AN ACCEPTABLE SUBSTITUTE IF SPACE PERMITS.

– SHEET METAL DUCTWORK: SHALL BE CONSTRUCTED PER THE APPROPRIATE SMACNA DESIGN STANDARDS, MEETING THE MINIMUM GAUGE SHEET METAL THICKNESS SPECIFIED. INSULATE INTERNALLY OR EXTERNALLY WITH FIBERGLASS INSULATION TO ACHIEVE A MINIMUM R-VALUE OF 7.0 UNLESS INSTALLED IN A MECHANICALLY COOLED SPACE OR BETWEEN COOLED FLOORS IN A CAVITY WHOSE EXTERIOR WALLS ARE INSULATED, IN WHICH CASE THE R-VALUE MAY BE 4.2.

– FIBERGLASS DUCTWORK: SHALL BE CONSTRUCTED OF FIBERGLASS FIBERBOARD DUCTWORK TO BE A MINIMUM OF 1" THICK. FIBERGLASS DUCTWORK SHALL BE LINED WITH ANTI MICROBIAL INSULATION EQUAL TO JOHNS-MANVILLE SUPERDUCT. INSULATE FIBERGLASS SUPPLY AND RETURN DUCTS TO A MINIMUM R-VALUE OF 7.0 UNLESS INSTALLED IN A MECHANICALLY COOLED SPACE OR BETWEEN COOLED FLOORS IN A CAVITY WHOSE EXTERIOR WALLS ARE INSULATED, IN WHICH CASE THE R-VALUE MAY BE 4.2.

– FLEXIBLE DUCTWORK SHALL BE SPIRAL FORMED OUT OF 3003 BRIGHT REFLECTIVE FINISHED ALUMINUM ALLOY, MECHANICALLY LOCKED AND HAVE A MINIMUM R-VALUE OF 6.0. IT SHALL BE UL LISTED UNDER CLASS 1 AIR DUCTS AND CLASS 1 CONNECTORS, MEET ALL REQUIREMENTS OF UL 181 AND COMPLY WITH NFPA 90A AND NFPA 90B.

– ROUND SPIRAL DUCTWORK: SHALL BE CONSTRUCTED PER THE APPROPRIATE SMACNA DESIGN STANDARDS, MEETING THE MINIMUM GAUGE SHEET METAL THICKNESS SPECIFIED AND SHALL BE A MINIMUM 1" DOUBLE WALL INTERNALLY INSULATED. NON INSULATED SPIRAL DUCTWORK WILL NOT BE ACCEPTED AS A SUBSTITUTION.

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 AIRTIGHT SEAMS AND CONNECTIONS TO THE EQUIPMENT.

AIR FILTERS:

FILTERS SHALL BE 1" FIBERGLASS MEDIA THROW AWAY TYPE IN A RIGID FRAME WITH A SUPPORTING MAZE ACROSS BOTH ENTERING AND LEAVING SURFACES. SUPPLY ONE COMPLETE SET OF FILTERS AFTER OWNER'S FINAL ACCEPTANCE. FARR 30/30 OR EQUAL.

HEAT PUMP UNIT INSTALLATION:

PROVIDE CONCRETE PADS FOR GRADE MOUNTED CONDENSING UNITS. PADS SHALL BE A MINIMUM OF 4" THICK, 3,000 PSI CONCRETE, AND SHALL BE 4" LARGER ON EACH SIDE THAN THE FOOTPRINT OF THE CONDENSING UNIT. VERIFY UNIT DIMENSIONS WITH APPROVED SHOP DRAWINGS PRIOR TO FABRICATION OF PADS.

SUSPENDED UNITS SHALL BE SUPPORTED IN APPROVED MANNER AND IN ACCORDANCE WITH AIR HANDLING UNIT SUPPORT DETAIL. PROVIDE AUXILIARY OVERFLOW DRAIN PAN WITH FLOAT SWITCH WHERE REQUIRED.

ALL AIR HANDLING UNITS AND CONDENSING UNITS SHALL BE INSTALLED WITH MANUFACTURER REQUIRED MINIMUM MAINTENANCE CLEARANCES. PROVIDE MAN SIZED ACCESS PANEL WHERE REQUIRED.

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 1BD2 FOR WALLS UP TO 2 HOUR.

INSTALL IN ACCORDANCE WITH NFPA-90A, TESTED IN ACCORDANCE WITH UL SAFETY STANDARD 555, 1-1/2 HOUR AND 4 HOUR PROTECTION, AND 165'F FUSIBLE LINK.

NOTE:

ALL OF THE SPECIFICATIONS LISTED ON THIS SHEET MAY NOT BE USED FOR THIS PROJECT.

ADAM J BARNEY
LICENSE
No. 69124
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Adam Barney
Jan 17 2018 3:08 PM
CoSign

PERMIT REVIEW STAMP

ISSUE HISTORY

No.	Date	Description
1	1/18/2018	ISSUE FOR PERMIT

REVISION HISTORY

No.	Date	Description

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SUMMER BAY APTS. II

LAKE COUNTY, FL

Drawn:	MJR/KCM
Checked:	BLS/AJB
Approval:	BLS/AJB
Date:	11/10/2017
Project #:	5389

SPECIFICATIONS - MECHANICAL

M8.01

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