

BUILDING OUTLINE MECHANICAL/PLUMBING SPECIFICATIONS

- ELECTRICAL COORDINATION; CONFIRM VOLTAGE, PHASE, AND AMPACITY WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT. ALL 24 VOLT CONTROLS INCLUDING INTERLOCK WIRING FOR MECHANICAL EQUIPMENT BY DIVISION 15 CONTRACTOR. PROVIDE MAGNETIC STARTERS FOR ALL 3-PHASE MOTORS WITH PROTECTION ON ALL THREE LEADS. CONTROL AND HEATING/COOLING EQUIPMENT TO AUTOMATICALLY RESTART AFTER POWER FAILURE. ALL WIRE TO BE INSTALLED IN CONDUIT PER NEC LATEST EDITION.
- EXTRA COSTS OR CHANGES ALLOWED ONLY IF APPROVED IN WRITING TO THE ENGINEER WITH DOLLAR AMOUNT PRIOR TO ORDERING.
- LOCAL AND STATE CODES AND ORDINANCES SHALL BE FOLLOWED.
- LATEST VERSION OF THE ENERGY CODE SHALL BE FOLLOWED, ALL EQUIPMENT, INSULATION, AND CONTROLS SHALL CONFORM.
- SUBSTITUTIONS WILL BE PROCESSED AND MUST BE SUBMITTED WITH SUBSTITUTED CUT SHEETS.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.
- THERMOSTATS TO BE PROVIDED WITH 7 DIFFERENT DAILY PROGRAMMABLE SCHEDULE, CAPABLE OF BEING PROGRAMMED ON A 7-DAY CYCLE WITH A SEPARATE WEEK-END SETTING, NIGHT SETBACK, TEMPERATURE HOLD SETTINGS, CAPABLE OF 2-HOUR OCCUPANT OVERRIDE, 10-HOUR BACKUP, AND 5 DEGREE F DEADBAND. THERMOSTATIC SET BACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 85F.
- DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT TO BE SCALED FOR ROUGH-IN MEASUREMENTS OR USED AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR MUST BE MADE FROM FIELD MEASUREMENTS, CONTRACTOR SHALL TAKE THE NECESSARY MEASUREMENTS AND PREPARE THE REQUIRED DRAWINGS.
- COORDINATE WITH ALL OTHER TRADES FOR INSTALLATION WITH IN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXISTING PREPARE COORDINATION DRAWINGS SHOWING ALL TRADE CONFLICTS AND SUBMIT TO THE ARCHITECT FOR APPROVAL AND DIRECTION PRIOR TO ROUGH-IN OR INSTALLATION. RELOCATION OF INLETS, OUTLETS, AND/OR APPARATUS MADE PRIOR TO ROUGH-IN OR REQUIRED BY FIELD CONDITIONS FOR COORDINATION SHALL BE DONE AT NOT ADDITIONAL COST TO THE OWNER OR HIS AGENTS.
- THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, VALVE, FITTING, ETC. FIELD VERIFY ALL MEASUREMENTS PRIOR TO ORDERING ANY EQUIPMENT, DUCTWORK, PIPING, ETC.
- ALL BIDS SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE PURCHASE AND DELIVERY OF NEW EQUIPMENT TO THE JOB SITE IN TIME TO MEET ALL DEADLINES. REPORT, PRIOR TO BID, ANY DELIVERY PROBLEMS WHICH MIGHT PREVENT TIMELY COMPLETION OF THIS PROJECT.
- CONTRACTOR SHALL BE HELD RESPONSIBLE FOR OBTAINING BUILDING DEPARTMENT PERMIT FOR HIS PORTION OF WORK PRIOR TO THE START OF CONSTRUCTION.
- SUBMIT CUTS AND BROCHURES ON ANY EQUIPMENT FURNISHED UNDER THIS CONTRACT FOR ENGINEER'S REVIEW. PROVIDE TO THE ENGINEER (4) HARD COPIES OF THE MECHANICAL SUBMITTALS FOR REVIEW, PRIOR TO ORDERING ANY EQUIPMENT. (EMAIL AND FACSIMILES OF SUBMITTALS WILL NOT BE ACCEPTED.)
- CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES AND STRUCTURE AND SHALL SUBMIT 1/4" SCALE COORDINATION/SHOP DRAWINGS SHOWING ALL DUCTWORK, PIPING, PLUMBING, ETC.
- FIELD ROUTE ALL DUCTWORK AND PIPING, AS REQUIRED, TO AVOID CONFLICTS WITH EXISTING STRUCTURE, DUCTWORK, PIPING, ELECTRICAL CONDUITS, LIGHTS, ETC. RELOCATE ANY ITEMS AS REQUIRED TO ACCOMMODATE INSTALLATION OF NEW DUCTWORK, PIPING AND EQUIPMENT WHILE MAINTAINING ORIGINAL INTEGRITY OF ALL SYSTEMS. RUN ALL DUCTWORK AND PIPING AS HIGH AS POSSIBLE AND SUSPEND FROM STRUCTURE ABOVE.
- ALL CURBS, SUPPORTS, AND ANCHORS SHALL BE PROVIDED FOR MECHANICAL WORK. NO CHAIN, TAPE, OR WIRE IS ALLOWED.
- ANY CONFLICTS DISCOVERED AFTER WORK HAS STARTED, NOT PREVIOUSLY BEING APPARENT AND NECESSITATING REVISIONS TO CONTRACT DOCUMENTS, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR REVIEW AND APPROVAL OF ALTERNATIVE METHODS OF INSTALLATION.
- CONTRACTOR SHALL REVIEW ELECTRICAL POWER REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT PRIOR TO ORDERING. SUBMIT ONE COPY OF EQUIPMENT SUBMITTALS TO ELECTRICAL CONTRACTOR FOR COORDINATION.
- MECHANICAL CONTRACTOR SHALL FURNISH STARTERS FOR ALL THREE-PHASE MECHANICAL EQUIPMENT (EXCEPT FOR STARTERS THAT ARE SHOWN TO BE PROVIDED IN MOTOR CONTROL CENTERS). STARTERS SHALL HAVE THREE-LEG CLASS 10 TRIP-FREE OVERLOAD PROTECTION, WITH MANUAL RESET, AND SHALL BE NEMA RATED. STARTERS SHALL BE INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR EXCEPT WHERE SUPPLIED INTEGRAL WITH MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL PROVIDE SAFETY DISCONNECT SWITCHES FOR ALL MECHANICAL EQUIPMENT WHERE NOT SPECIFICALLY INDICATED ON PLANS TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
- MECHANICAL CONTRACTOR SHALL EMPLOY THE SERVICES OF A QUALIFIED TEMPERATURE CONTROLS CONTRACTOR FOR INSTALLATION OF ALL CONTROLS WORK. SUBMIT CONTRACTOR'S QUALIFICATIONS TO ENGINEER FOR REVIEW.
- TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE ALL WIRING ASSOCIATED WITH THE AUTOMATIC TEMPERATURE CONTROL SYSTEM, INCLUDING 120V FOR CONTROL PANELS, CONTROL VALVES, AND CONTROL DAMPERS. ELECTRICAL WIRING SHOWN ON ELECTRICAL DRAWINGS SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. SUBMIT CONTROL DIAGRAMS TO ENGINEER FOR REVIEW.
- ALL NEW MATERIALS INSTALLED IN CEILING RETURN AIR PLENUM SHALL BE U.L. 181 CLASS 1 RATED, WITH A MAXIMUM FLAME SPREAD INDEX OF 25 AND A MAXIMUM SMOKE-DEVELOPED INDEX OF 50. REMOVE AND REPLACE, AS NECESSARY, ALL MATERIALS NOT IN COMPLIANCE WITH CURRENT CODE.
- ALL MOTORIZED EQUIPMENT SHALL BE PROVIDED WITH SUITABLE VIBRATION ISOLATION. FLEXIBLE CONNECTORS SHALL BE PROVIDED AT ALL DUCTWORK AND PIPING CONNECTIONS TO SUCH MOTORIZED EQUIPMENT.
- ALL FIRE DAMPERS, BALANCING DAMPERS, VALVES, EQUIPMENT, FILTERS AND CONTROLS SHALL BE ACCESSIBLE. MECHANICAL CONTRACTOR SHALL PROVIDE ACCESS PANELS AS REQUIRED TO FACILITATE MAINTENANCE, REPAIR AND ADJUSTMENT OF ANY CONCEALED EQUIPMENT, DAMPERS, VALVES, CONTROLS, ETC. COORDINATE LOCATIONS OF REQUIRED ACCESS PANELS WITH ARCHITECT.
- ALL HVAC UNITS AND OTHER MECHANICAL EQUIPMENT SHALL BE FIELD LABELED WITH UNIT NUMBER AND AREA SERVED. IN ADDITION, ALL PIPING, VALVES AND CONTROL DEVICES SHALL BE IDENTIFIED WITH LABELS. ALL EQUIPMENT SHALL BE IDENTIFIED WITH LETTERS MINIMUM 2" HIGH, AND ADDITIONALLY, ALL PIPING SHALL BE IDENTIFIED WITH 6" LONG FLOW ARROWS. PIPE IDENTIFICATION MARKERS SHALL BE SPACED AT A MAXIMUM OF 20 FEET ON CENTERS ALONG EACH PIPING RUN. IDENTIFICATIONS SHALL MATCH THOSE ON THE EQUIPMENT SCHEDULES.
- CHECK, VERIFY AND MAKE OPERABLE ALL NEW EQUIPMENT TO COMPLY WITH MANUFACTURER'S SPECIFICATIONS.
- CHECK, VERIFY AND MAKE OPERABLE ALL CONTROL WORK AND TUBING OR WIRING FOR ALL SYSTEMS ASSOCIATED WITH THE PROJECT AREA.
- MECHANICAL CONTRACTOR SHALL CONTACT THE ENGINEER 48 HOURS PRIOR TO SUBSTANTIAL COMPLETION OF CONSTRUCTION OR INSTALLATION OF CEILING TILE, TO SCHEDULE A FINAL PUNCH LIST WALK-THROUGH.
- SUBMIT OPERATING AND MAINTENANCE BROCHURES FOR ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.
- SUBMIT COMPLETE AS-BUILT DRAWINGS FOR EACH FLOOR AREA ON REPRODUCIBLE MEDIA OR ELECTRONIC FILES IN AUTOCAD VERSION 2007 OR LATER.
- ALL DUCTWORK SHALL BE MINIMUM 26 GAUGE SHEET METAL UNLESS OTHERWISE INDICATED. REFER TO SMACNA GUIDE FOR REQUIRED GAUGES AND REINFORCEMENT REQUIREMENTS.
- ALL ELBOWS OF RECTANGULAR DUCTWORK EXCEEDING 45 DEGREES SHALL HAVE DOUBLE THICKNESS TURNING VANES OR SHALL BE LONG RADIUS TYPE. ALL ELBOWS OF ROUND DUCTWORK SHALL BE LONG RADIUS TYPE.
- PROVIDE ALL TRANSITIONS REQUIRED FOR INSTALLING DUCTWORK PER DRAWINGS AND AS REQUIRED TO AVOID OBSTRUCTIONS. ALL TRANSITIONS SHALL MAINTAIN MINIMUM OF EQUIVALENT FREE AREA OF DUCTWORK TO WHICH THEY ARE ATTACHED.
- PROVIDE SPIN-IN FITTINGS WITH BUTTERFLY DAMPERS FOR ALL NEW AND EXISTING ROUND SUPPLY RUN-OUT DUCTS TO DIFFUSERS AND ALL ROUND RETURN/EXHAUST RUN-OUT DUCTS TO RETURN/EXHAUST GRILLES. ANY DIFFUSERS OR GRILLES INSTALLED WHERE SAID BUTTERFLY DAMPERS WOULD BE INACCESSIBLE SHALL BE PROVIDED WITH INTEGRAL BALANCING DAMPERS.
- ALL DUCTWORK (HIGH PRESSURE AND LOW PRESSURE), SHALL BE SEALED AIR TIGHT. SEAL ALL DUCTWORK, JOINTS AND SEAMS WITH MASTIC NON-HARDENING DUCT SEALER. COORDINATE THIS WORK WITH THE BUILDING OPERATING PERSONNEL SO THAT THE MAIN HIGH AND MEDIUM PRESSURE DUCTWORK CAN BE SHUT OFF TO ALLOW MANUFACTURER'S REQUIRED CURE TIME FOR THE DUCT SEALER.
- ALL SUPPLY AIR DUCTWORK SHALL BE INSULATED. ALL SUPPLY AND OUTSIDE AIR INTAKE DUCTWORK SHALL BE VAPOR TIGHT. NEW RECTANGULAR DUCTWORK SHALL BE GALVANIZED SHEET METAL, INTERNALLY LINED WITH 1" THICK, 2.0 LB/CU FT DENSITY DUCT LINER EQUAL TO MANVILLE "LINACOUSTIC." ALL NEW ROUND DUCTWORK AND ALL EXISTING UNINSULATED ROUND AND RECTANGULAR DUCTWORK SHALL BE WRAPPED WITH 1-1/2" THICK, 1.0 LB/CU FT DENSITY DUCT WRAP EQUAL TO MANVILLE "MICROULTE." ALL WRAP INSULATION SEAMS AND JOINTS SHALL BE SEALED VAPOR-TIGHT WITH FOL-SCRM-KRAFT TAPE. ALL SUPPLY AIR AND OUTSIDE AIR DUCTWORK LOCATED WITHIN BUILDING SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION. ALL SUPPLY AIR AND RETURN AIR DUCTWORK LOCATED OUTSIDE THE BUILDING ENVELOPE SHALL BE INSULATED WITH A MINIMUM OF R-8 INSULATION AND COVERED WITH 22 GAUGE ALUMINUM JACKET SORENEED IN PLACE WITH ALL JOINTS CAULKED WATER TIGHT. EXCEPTION: ALL EXPOSED ROUND DUCTWORK (WITHIN CONDITIONED SPACE) SHALL BE UNINSULATED METAL SPIRAL TYPE.
- ALL DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS IN INCHES.
- USE OF FLEXIBLE INSULATED DUCTWORK SHALL NOT EXCEED 6'-0" IN LENGTH FOR CONNECTING ANY INDIVIDUAL SUPPLY DIFFUSER OR RETURN GRILLE (6" W.G. RATED POSITIVE STATIC PRESSURE AND 0.5" W.G. RATED NEGATIVE STATIC PRESSURE. SUPPORT FLEXIBLE DUCTWORK AT NO GREATER THAN 3 FEET ON CENTERS WITH 1" WIDE 2- GAUGE GALVANIZED STEEL LOOPS. CONNECTIONS TO EXHAUST GRILLES SHALL BE MADE WITH RIGID DUCTWORK ONLY.
- ALL NEW LOW PRESSURE/LOW VELOCITY (2" W.G. S.P. OR LESS) FLEXIBLE DUCTWORK SHALL BE EQUAL TO FLEXMASTER TYPE 5M WITH 1-1/2" THICK INSULATION AND ALUMINIZED INNER AND OUTER JACKET.
- FINAL CONNECTION OF FLEXIBLE DUCTWORK TO RIGID RUN-OUT DUCTS AND TO CEILING DIFFUSERS SHALL BE MADE WITH 0.5" WIDE, POSITIVE-LOCKING STEEL STRAPS AND ADHESIVE. (APPLIES TO NEW FLEXIBLE DUCTWORK AND EXISTING FLEXIBLE DUCTWORK WHICH REMAINS.)
- ALL 24" x 24" CEILING SUPPLY AIR DIFFUSERS SHALL BE ADJUSTED OR PROVIDED FOR 4-WAY THROW. EXCEPT AS NOTED OTHERWISE INDICATED BY DIRECTIONAL ARROWS ON DRAWINGS.
- PROVIDE AND INSTALL U.L. LISTED TYPE "B" FIRE DAMPERS AT ALL PENETRATIONS IN NEW AND EXISTING FIRE RATED WALLS AS REQUIRED. FIELD VERIFY ALL EXISTING DUCTWORK TO VERIFY FIRE DAMPER LOCATION REQUIREMENTS. PROVIDE COMBINATION FIRE/SMOKE DAMPERS AS SHOWN ON DRAWINGS, CLASS II FOR VELOCITIES UP TO 1,500 FPM, CLASS I FOR VELOCITIES ABOVE 1,500 FPM. FIRE/SMOKE DAMPERS SHALL BE DYNAMIC RATED. PROVIDE INSTALLATION INSTRUCTIONS FOR FIRE/SMOKE DAMPERS TO FIELD INSPECTOR AT TIME OF INSPECTION.
- FIRE CAULK FIRE RATED WALLS, CEILINGS, AND FLOOR PENETRATION OPENINGS WITH HILTI (OR EQUAL) FIRE RATED CAULKING.
- MECHANICAL CONTRACTOR SHALL INSTALL DUCT SMOKE DETECTOR IN MAIN AIR DUCT OF ALL MECHANICAL AIR-MOVING SYSTEMS WHERE REQUIRED BY CODE OR LOCAL AUTHORITIES. DETECTORS SHALL BE FURNISHED AND CONNECTED TO THE FIRE ALARM SYSTEM (WHERE APPLICABLE) AND HARDWIRED TO THE FAN UNIT FOR AUTOMATIC SHUTDOWN BY ELECTRICAL/FIRE ALARM CONTRACTOR.
- TYPE B DOUBLE-WALL FLUE VENTS U.L. LISTED SHALL BE PROVIDED FOR ALL GAS-FIRED EQUIPMENT WITH ATMOSPHERIC BURNERS. DOUBLE-WALL PRESSURIZED SYSTEMS SHALL BE PROVIDED FOR FORCED-DRAFT TYPE BURNERS.
- EXHAUST FANS; FURNISH AND INSTALL UNITS COMPLETE WITH ALL SWITCHING AND SAFETY CONTROLS NECESSARY FOR A COMPLETE OPERATIONAL SYSTEM, INSTALL BACKDRAFT DAMPER IF NOT INTEGRAL TO THE EXHAUST FAN.
- PROVIDE OPERATING MANUALS TO THE OWNER AND ENGINEER FOR ALL SYSTEMS AND EQUIPMENT INCLUDING MANUFACTURER'S MAINTENANCE MANUALS, INCLUDE LUBRICATION, FILTER TYPES, AND SIZES, STARTING AND STOPPING PROCEDURES. LIST CONTRACTORS CONTACT INFORMATION (PHONE NUMBER AND EMAIL).
- PROVIDE ALL MECHANICAL SYSTEM CONTROLS, CONTROLLERS, CONTROL TRANSFORMERS, DISCONNECTS, STARTERS, CONTROL WIRING, ASSOCIATED CONTROL POWER WIRING, AND ALL WORK NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM.
- SLEEVES AND COLLARS SHALL BE PROVIDED FOR ALL DUCTWORK AND PIPES THROUGH WALLS, FLOORS, AND CEILINGS. PROVIDE CHROME PLATED ESCUTCHEONS FOR EXPOSED PIPING PENETRATIONS THROUGH CEILINGS, FLOORS, AND WALLS IN FINISHED AREAS. ALL WATER, SOIL, WASTE, AND VENT AND TRIM INCLUDING FITTINGS TO BE CHROME PLATED WHERE EXPOSED.
- GUARANTEE ALL LABOR AND NEW EQUIPMENT FOR ONE YEAR FROM THE DATE OF ACCEPTANCE BY OWNER.
- ALL WORK SHALL BE PERFORMED BY PROPERLY LICENSED MECHANICS OR UNDER THEIR DIRECT SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF UL AND SHALL BEAR THE UL LABEL AS EVIDENCE THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT. ALL WORK SHALL MEET THE REQUIREMENTS OF LOCAL CODES.
- CUT AND PATCH TO MATCH ADJACENT AREAS. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED.
- ALL WORK IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED AS EXPOSED ON PLANS. PRIOR TO THE INSTALLATION OF ANY EXPOSED WORK THE CONTRACTOR SHALL VERIFY AND OBTAIN ARCHITECTURAL APPROVAL OF THE EXACT LOCATION AND INTENT.
- RIT'S FROM CONTRACTORS SHALL INCLUDE AT LEAST ONE PROPOSED SOLUTION WHICH COMPLIES WITH THE INTENT OF CONTRACT DOCUMENTS.

TEST AND BALANCE REQUIREMENTS

- ALL SYSTEMS SHALL BE TESTED AND BALANCED BY AN INDEPENDENT, APPROVED, TEST AND BALANCE COMPANY. COMPLY WITH BASE BUILDING SPECIFICATIONS. SUBMIT TWO (2) COMPLETE REPORTS FOR REVIEW BY ENGINEER.
- VERIFY AND SUBMIT VERIFICATION FOR EACH ZONE FULL COOLING, MINIMUM COOLING AND FULL HEATING CAPACITY AS REQUIRED. SUBMIT AIR QUANTITIES AT MINIMUM DESIGN STATIC PRESSURES AND ENTERING AND LEAVING TEMPERATURES FOR COOLING AND HEATING MODES. MAXIMUM DESIGN COOLING CFM IS WHAT IS SHOWN ON DRAWINGS AT ALTITUDE CONDITIONS.
- ALL SUPPLY AIR DIFFUSERS AND EXHAUST REGISTERS SHALL BE BALANCED TO CFM SHOWN ON PLANS.
- MINIMUM OUTSIDE AIR CFM FOR ROOFTOP HVAC UNITS AND OTHER AIR HANDLING UNITS SHALL BE SET AS SCHEDULED.
- TEST AND RECORD PRIMARY AIR DRY BULB AND WET BULB TEMPERATURES AND AMBIENT AIR DRY BULB AND WET BULB TEMPERATURES AT THE TIME TESTING IS BEING PERFORMED.
- TEST AND BALANCE REPORTS SHALL BE TYPEWRITTEN OR COMPUTER PRINTER GENERATED.

MECHANICAL EQUIPMENT SCHEDULE

RTU-1 5-TON	ROOF TOP UNIT	CARRIER MODEL #48TCFA06B1-5, 2000 CFM, 208/230V, 3ø, 28.5 MCA, 40.0 MOCPP, 59,000 BTU COOLING, 150,000 BTUH HEATING INPUT, 117,000 BTUH OUTPUT, 80% EFF., 13.0 SEER, 10.75 EER, PURON REFRIGERANT, ECONOMIZER, 14" ROOF CURB, HAIL GUARD, 772 LBS.
RTU-2 5-TON	ROOF TOP UNIT	CARRIER MODEL #48TCFA06B1-5, 2000 CFM, 208/230V, 3ø, 28.5 MCA, 40.0 MOCPP, 59,000 BTU COOLING, 150,000 BTUH HEATING INPUT, 117,000 BTUH OUTPUT, 80% EFF., 13.0 SEER, 10.75 EER, PURON REFRIGERANT, ECONOMIZER, 14" ROOF CURB, HAIL GUARD, 772 LBS.
RTU-3 6-TON	ROOF TOP UNIT	CARRIER MODEL #48TCFA07B1-5, 2400 CFM, 208/230V, 3ø, 32.8 MCA, 50.0 MOCPP, 70,000 BTU COOLING, 150,000 BTUH HEATING INPUT, 120,000 BTUH OUTPUT, 80% EFF., 11.00 EER, 11.2 IEER, PURON REFRIGERANT, ECONOMIZER, 14" ROOF CURB, HAIL GUARD, 855 LBS.
RTU-4 7.5-TON	ROOF TOP UNIT	CARRIER MODEL #48TCFA08B1-5, 3000 CFM, 208/230V, 3ø, 49.3 MCA, 60.0 MOCPP, 88,000 BTU COOLING, 224,000 BTUH HEATING INPUT, 184,000 BTUH OUTPUT, 82% EFF., 11.00 EER, 11.2 IEER, PURON REFRIGERANT, ECONOMIZER, 14" ROOF CURB, HAIL GUARD, 983 LBS.
EF-1	EXHAUST FAN	GREENHECK MODEL #SP-A125, 89 CFM @ 0.25 S.P., 120V, 1ø, 49 WATTS, 0.58 AMPS, 17 LBS. TO BE CONTROLLED BY LIGHT SWITCH.
CD-1	CEILING DIFFUSER	METALAIRE MODEL #5700-6D, T-BAR LAY-IN, 4-WAY THROW DIFFUSER, WITH OBD, WHITE, SIZE AS NOTED ON DIFFUSER SCHEDULE.
RAG	DUCTED RETURN AIR GRILLE	METALAIRE T-BAR LAY-IN DUCTED RETURN AIR GRILLE, MODEL #7000R-6, STEEL, NECK SIZE AS NOTED ON PLANS.
SR-1	SUPPLY REGISTER	TITUS MODEL #S300FL STEEL, DOUBLE DEFLECTION, WHITE FINISH, SIZE AS SHOWN ON PLANS (OR EQUAL).

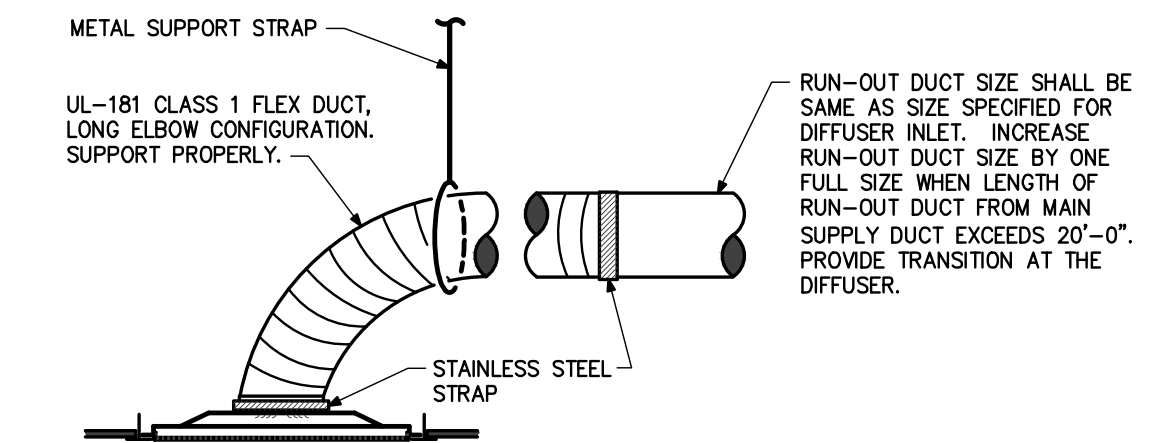
H.V.A.C. LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY DUCT UP		SIDE CONNECTION OF ROUND DUCT
	SUPPLY DUCT DOWN		TOP (OR BOTTOM) CONN OF ROUND DUCT
	RETURN OR EXHAUST DUCT UP		VOLUME DAMPER
	RETURN OR EXHAUST DUCT DOWN		SIDE CONNECTION OF RECTANGULAR DUCT
	ROUND DUCT SECTION UP		GALV STEEL DUCT
	ROUND DUCT SECTION DOWN		GALV STEEL DUCT ALT
	TRUNK DUCT ELBOW (TURNING VANES REQ'D)		INSUL FLEX ROUND DUCT
	CEILING SUPPLY REGISTER	(N)	NEW DEVICE
	BOOT FOR REGISTER	(E)	EXISTING DEVICE
	CEILING SUPPLY DIFFUSER	(R)	RELOCATED DEVICE
	CEILING RETURN AIR GRILLE	BDD	BACK DRAFT DAMPER
	THERMOSTAT.	UC 3/4"	DOOR UNDERCUT
	WORK POINT (POINT OF CONNECTION)		

DIFFUSER NECK SIZE SCHEDULE

CFM RANGE	DIFFUSER NECK SIZE
0 - 125	6"ø
126 - 225	8"ø
226 - 350	10"ø
351 - 500	12"ø

- PROVIDE RIGID RUN-OUT DUCT AND FLEXIBLE DUCT CONNECTION OF SAME SIZE AS DIFFUSER NECK DIAMETER.
- INCREASE RUN-OUT DUCT SIZE BY ONE FULL SIZE WHEN LENGTH OF RUN-OUT DUCT FROM MAIN SUPPLY DUCT EXCEEDS 20'-0". PROVIDE TRANSITION AT THE DIFFUSER.



LAY-IN DIFFUSER DETAIL

SCALE: NONE

DRAWN BY: JAF/AJF

CHECKED BY: GAC/RE

REVISIONS:

No.	Description	Date
△	-	-
△	-	-
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ISSUE RECORD:

No.	Description	Date
1	ISSUED FOR PERMIT/CONST.	11-21-11

SHEET CONTENTS:

SCHEDULES
AND DETAILS

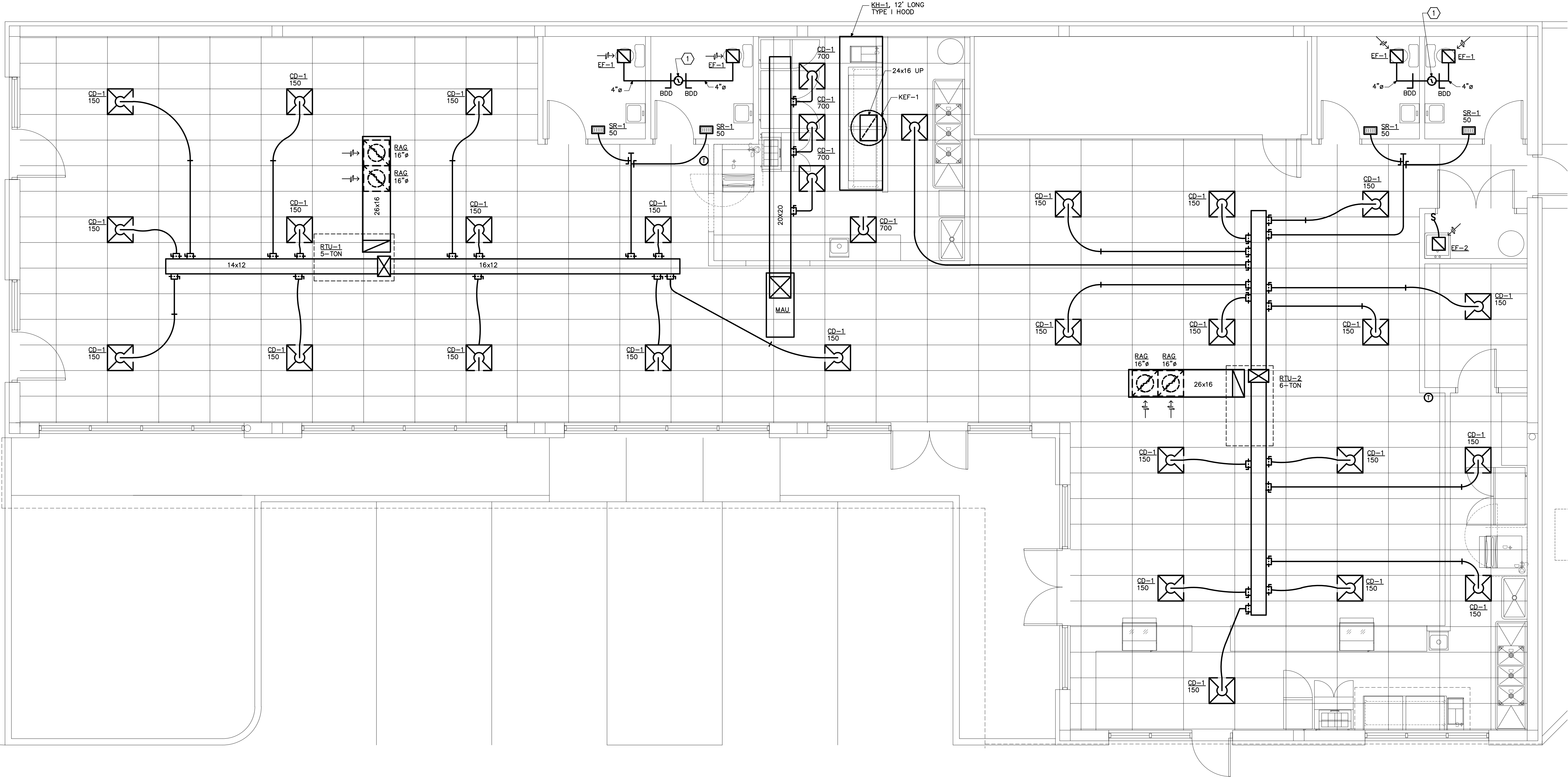
PROJECT NO.: -

DATE: 07-05-10

DRAWING NO.:

M-0

**ALMA INTERNATIONAL MARKET
MARMEL CORPORATION**
444 S. BROADWAY
ENGLEWOOD, COLORADO



MECHANICAL DETAIL NOTES:

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MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

DRAWN BY: JAF/AJF
CHECKED BY: GAC/RE

REVISIONS:

No.	Description	Date

ISSUE RECORD:

No.	Description	Date
1	ISSUED FOR PERMIT/CONST.	11-21-11

SHEET CONTENTS:
MECHANICAL PLAN
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PROJECT NO.: -
DATE: 07-05-10

DRAWING NO.:
M-1