

MECHANICAL, ELECTRICAL, AND PLUMBING SPECIFICATIONS

GENERAL

CODES: ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL CODES AND REGULATIONS, AND IS SUBJECT TO INSPECTION.

MATERIALS AND EQUIPMENT SUBSTITUTIONS: THE BID PRICE SHALL BE BASED ON DRAWINGS.

CUTTING AND PATCHING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CHANNELING, CHASING OR DRILLING AT FLOORS AS NECESSARY FOR PROPER INSTALLATION OF SUPPORT DUCTS, PIPING, OR OTHER MECHANICAL OR PLUMBING EQUIPMENT. WORK SHOULD BE COORDINATED WITH ARCHITECT. ANY DAMAGE TO BUILDING, PIPING, EQUIPMENT, PLASTER, WOODWORK OR METAL WORK SHALL BE REPLACED BY SKILLED MECHANICS OF TRADES INVOLVED AT NO EXTRA COST TO THE OWNER.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY FEES AND COSTS INCURRED DURING CONSTRUCTION. COORDINATE WITH OWNER AND UTILITY COMPANIES.

CONTRACTOR SHALL CHECK EXISTING CONDITIONS FOR COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.

PLUMBING SYSTEM

THE WORK INCLUDES INSTALLATION OF THE PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT FURNISHED BY OTHERS. HOOK-UPS, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE PART OF THIS SECTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

PIPING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATING BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES FURNISHED BY OTHERS: PROVIDE WATER SUPPLIES AND WASTE TRAPS AT ALL HAND SINKS, PITCHER FILL SINKS AND THE THREE COMPARTMENT UTILITY SINK INCLUDED ARE STOP VALVES, ESCUTCHEON, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SEWER AND WASTE PIPING: SANITARY DRAINAGE PIPING SHALL BE SCHEDULE 40 1/2" PVC PIPE, FITTINGS AND CONNECTIONS. ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED 1/4" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

VENTS: PROVIDE A COMPLETE VENT RISER SYSTEM OF SCHEDULE 40 1/2" PVC THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING: TYPE M COPPER TUBING UP TO 1" ID, TYPE DWV TUBING AND FITTINGS FOR 1-1/4" AND LARGER SIZES.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBTURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED IN THE TENANT SPACE. HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. TYPE M COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SWEAT CONNECTIONS. PROVIDE MIN. 16" HIGH FULL AIR CHAMBER AT EACH FIXTURE STOP. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS). USE TIN-ANTIMONY SOLDER, 95/5 FOR ALL SWEAT FITTINGS OF COPPER PIPING. CROSS-LINKED POLYETHYLENE (PEX) PLASTIC TUBING MAY BE SUBSTITUTED FOR COPPER PIPING PER OWNER AND AHJ'S APPROVAL.

PIPE INSULATION: INSULATE ALL HOT AND COLD WATER PIPING. PROVIDE 1/2" PREFORMED FIBERGLASS, ASHVB, FLAME SPREAD 25, SMOKE DEVELOPED 50, ASTM C-547, OR PROVIDE WHERE PERMITTED BY LOCAL CODES, 1/2" SELF-ADHESIVE UNCELLULAR FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS - EQUAL TO SELF-ADHESIVE ARISTOWOOL DOW WITH 4" FACETAL OF 0.27 AT 75 DEGREES MEAN TEMPERATURE. INSULATE ANY EXPOSED CONDENSATE PIPING WITH WASTE TEMPERATURES BELOW 60 DEGREES F.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE TO ENKINS #902-T BALL VALVE, CHROME-FINISHED BRONZE, TEFLON SEAT AND PACKING 400 LB. W.O.G.E., SOLDER END.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETC. ARE CONCEALED WITHIN WALLS, WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILING. ACCESS PANELS ARE NOT REQUIRED.

SUPPLIES AND TRAPS: PROVIDE WATER SEALED TRAPS FOR SUPPLIES INSTALLED AS CLOSE AS POSSIBLE TO ALL PLUMBING FIXTURES, DRAINS AND FOOD SERVICE EQUIPMENT ITEMS. PLUMBING WATER TRAPS SHALL BE HAVING A WASTE CONNECTION, WATER SEALING WATER SERVICE, AND TRAPS AND SUPPLIES COUSED ABOVE INCLUDING CABINET INTERIORS) SHALL BE CHROME PLATED BRASS, WITH CHROME PLATED ESCUTCHEON PLATES PROVIDE TYPE DWV PLASTIC WASTE TRAPS AND FITTINGS FOR THE TRAP. TRAPS SHALL BE CLEANED. REMOVE ALL MARKINGS FROM ALL PIPING WHEN WALLS ARE DOWN. USE WHITE BLENDER AND JOINT GLUE COMPATIBLE WITH DUCT WRAP.

INSTALLATION: THOROUGHLY CHECK ALL ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS EXCLUDE DUCTS UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS ARE MADE. ALL WORK SHALL BE PROCESSED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET TRAPS AND FITTINGS IN PROPER ALIGNMENT AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN TRAPS AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT SEALANT.

REPAIR EXISTING PLUMBING COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER REQUIRED PRESSURE/DURATION AS REQUIRED BY LOCAL CODE. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

THE WORK INCLUDES INSTALLATION OF THE HVAC SYSTEM AND PROVIDING NEW RTUs, CURBS, DUCTWORK, DIFFUSERS AND GRILLES, INSULATION, CONTROLS, AND EQUIPMENT NECESSARY FOR A COMPLETE FUNCTIONING SYSTEM. HVAC SYSTEM INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

- HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) RTU UNITS.
- SUPPLY AND RETURN DUCTWORK SYSTEM WITH GRILLES, DIFFUSERS, FILTERS, AND DAMPERS
- LOW VOLTAGE WIRING
- TEMPERATURE CONTROL SYSTEM INCLUDING LOW VOLTAGE WIRING AND CONDUIT.
- DUCT SMOKE DETECTORS.
- DUCT, PIPING, AND EQUIPMENT INSULATION, WHERE INDICATED HEREIN.
- WEATHERPROOF ROOF PENETRATIONS.
- MISC. STRUCTURAL SUPPORT STEEL.

EQUIPMENT INDICATED ON THE DRAWINGS OR AS REQUIRED FOR A COMPLETE INSTALLATION, SUCH AS ROOFTOP UNITS, DUCTWORK, EXHAUST FANS, SUPPLY AND RETURN DIFFUSERS, ETC., SHALL BE PROVIDED WITHIN THE SCOPE OF WORK OF THIS SECTION. REFER TO DRAWINGS OF KITCHEN HOODS, HOOD EXHAUST AND FOR EXTENT OF OWNER AND TENANT FURNISHED ITEMS.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS AS REQUIRED. PROVIDE ALL DUCTWORK, CONNECTIONS, ACCESSORIES OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE SYSTEM FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED. THE WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES OR ORDINANCES AND SUBJECT TO INSPECTION.

COORDINATE WITH THE WORK OF OTHER SECTIONS. EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

EXTRA STOCK - PROVIDE TWO SETS OF REPLACEMENT FILTERS PER EACH INSTALLED FOR ALL THE ROOFTOP UNITS, AND OTHER EQUIPMENT AND DEVICES, AND PROVIDE AN ITEMIZED LIST OF THE NUMBER, TYPE REQUIRED, AND WHERE USED. OBTAIN RECEIPT FROM OWNER THAT THESE ITEMS HAVE BEEN DELIVERED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE.

CONTROLS: PROVIDE EACH UNIT WITH REMOTE 2-STAGE HEATING/2-STAGE COOLING T-STAT WITH AUTOMATIC CHANGEOVER, SYSTEM "HEAT/COOL/AUTO/OFF" SETTING AND FAN SWITCH ON/AUTO SETTINGS. UNIT SHALL BE COMPLETE FOR SINGLE POINT CONNECTION INCLUDING DISCONNECT (PER N.E.C.). COORDINATE WITH SUPPLIER FOR ANY FIELD WIRING REQUIREMENTS INCLUDING THERMOSTAT. PROVIDE START-UP AND TRAINING TO OWNER.

FAILURE TO MENTION ANY SPECIFIC ITEM OR DEVICE DOES NOT RELIEVE THIS CONTRACTOR OF THE RESPONSIBILITY FOR INSTALLING SUCH DEVICE OR ITEM IN ORDER TO COMPLY WITH THE INTENT OF THE DRAWINGS AND SPECIFICATION.

DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON DRAWINGS ARE SHEET METAL DIMENSIONS ON UNLINED DUCTS.

SHEET METAL DUCTWORK: SHEET METAL SHALL BE FABRICATED AND INSTALLED TO ASHRAE AND SMACNA STANDARDS FOR 1" WATER GAUGE PRESSURE CLASS SHEET METAL SHALL BE GALVANIZED SHEET STEEL OF LOCK FORMING QUALITY ASTM A525. ALL DUCTWORK VISIBLE TO THE PUBLIC SHALL BE AIRTIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIRTIGHT. PROVIDE TURNING VANES AT ALL ELBOWS OR OFFSETS EXCEEDING 45 DEGREES.

NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE CONSTRUCTION MANAGER. SIGNIFICANT DEVIATIONS FROM DESIGN MUST BE APPROVED BY THE CONSTRUCTION'S MANAGER PRIOR TO FABRICATION OR INSTALLATION.

TRAPEZOID DUCT HANGERS: MINIMUM 2" X 2" X 1/2 GAUGE CHANNELS WITH 1" X 1/8 GAUGE STRAPS TO STRUCTURAL SUPPORT ABOVE.

CONTRACTOR SHALL PROVIDE REQUIRED STRUCTURAL SUPPORT FOR ANY NEW ROOF MOUNTED OR SUSPENDED HEATING, VENTILATING, OR AIR CONDITIONING EQUIPMENT AS REQUIRED. THE CONTRACTOR SHALL COORDINATE SIZES AND PLACEMENT OF UNITS WITH THE MECHANICAL SUBCONTRACTOR AND THE LANDLORD.

THE MECHANICAL SUBCONTRACTOR SHALL INSTALL ROOFTOP UNITS AND ALL EQUIPMENT (SEE HVAC LEGEND) THE CONTRACTOR SHALL INSURE UNITS LEVEL TO INSURE PROPER CONDENSATE DRAINING. SHALL SHIM CURBS AND PROVIDE PROPER STRUCTURAL SUPPORTS AS REQUIRED. THE MECHANICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE LANDLORD'S ROOFING CONTRACTOR REGARDING UNITS IN ORDER TO MAINTAIN THE ROOF WARRANTY IF ANY.

THE MECHANICAL SUBCONTRACTOR SHALL INSULATE ALL SUPPLY AND RETURN AIR LINES ON THE UNIT IN 5/8"

THE MECHANICAL SUBCONTRACTOR SHALL INSTALL TENANT FURNISHED WALK-IN REFRIGERATION PANELS AND REFRIGERATION EQUIPMENT.

CONTRACTOR SHALL RETAIN A LOCAL STRUCTURAL ENGINEER TO VERIFY THE ALIGNMENT OF ROOF TOP EQUIPMENT AND IDENTIFY ADDITIONAL SUPPORT WHICH MAY BE REQUIRED. THIS WORK SHALL COMMENCE PRIOR TO FABRICATION OF DUCTWORK. CONTRACTOR SHALL INCLUDE ALL COSTS IN BID FOR ENGINEER AS WELL AS ADDITIONAL SUPPORT AND ALL RELATED WORK.

INSULATE ALL RIGID DUCT WORK AND GRILLE BACKS WITH RS INSULATION WRAP. HIRE CRANE SERVICE THAT WILL APPROPRIATELY AND SAFELY ACCOMMODATE ROOFTOP UNITS ONTO ROOF.

PLACE FILTERS IN UNITS AND CEILING RETURN AIR REGISTERS UPON INITIAL START-UP. AFTER CONSTRUCTION PHASE 8 AT TIME CERTIFICATE OF OCCUPANCY REMOVE FILTERS IN UNITS. REPLACE FILTERS IN RETURN AIR GRILLES.

HVAC SYSTEM

MECHANICAL CONTRACTOR SHALL CONFORM TO ALL CONSTRAINTS EXISTING ON SITE PRIOR TO FABRICATION OF ANY DUCT WORK. IF CONDITIONS EXIST THAT PROHIBIT DESIGNED LAYOUT FROM WORKING, THEN NOTIFY ARCHITECT FOR PROPER COURSE OF ACTION IMMEDIATELY. CONTRACTOR SHALL ENSURE 10'-0" CLEARANCE IS MAINTAINED ON ALL INTAKE AND EXHAUST SYSTEMS.

MECHANICAL CONTRACTOR MUST FIELD COORDINATE ALL DUCTWORK CLEARANCES WITH WOOD JOIST AND STEEL TRUSS STRUCTURE IN FIELD BEFORE FABRICATION OF ANY DUCTWORK.

DUCT WRAP/ASJ INSULATION (ON ALL SUPPLY AND MAKE-UP AIR DUCTWORK) PROVIDE 2" THICK FIBERGLASS ASJ DUCT WRAP WITH VAPOR SEAL ON ALL SUPPLY AIR AND MAKE-UP AIR DUCTWORK ABOVE THE CEILING. CONFORM TO FEDERAL SPEC. HH-1-5588

(AM)MIN. 3) TYPE 75, FORM B, TYPE 1, CLASS B-2

DUCT LINER: DUCT LINER SHALL COMPLY WITH ASTM C3071. LINER SHALL BE LONG TEXTILE-TYPE FIBER TYPE AND 3 LB. PER CUBIC FOOT DENSITY. LINER SHALL HAVE A COATING ON THE AIR STREAM SIDE CONFORMING TO THE REQUIREMENTS OF NFPA 90A. PROVIDE 1/2" THICK LINER WITH A "K" FACTOR OF 0.24 AT 75 DEGREES F. LINER MUST MEET (ZERO) FUNGUS GROWTH PER ASTM C665 AND/OR ASTM G21. LINER SURFACE SHALL BE CLEANABLE PER NAIMA DUCT CLEANING GUIDELINES.

RIGID ROUND GALVANIZED DUCT SHALL BE SPIRAL OR SNAP LOCK GALVANIZED SHEETMETAL COMPLYING WITH SMACNA. (SNAP LOCK IS NOT ALLOWED IN THE DINING AREA.)

FLEX DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181) WITH 1" THICK 1 1/2" FIBERGLASS INSULATION AND REINFORCED OUTER PROTECTIVE COVER OR VAPOR BARRIER. FLEX DUCT SHALL MEET NFPA 90A WITH FLAME SPREAD UNDER 25, SMOKE DEVELOPED UNDER 50, AND SHALL BE RATED FOR 2" W.G. PRESSURE AND 0 TO 250 DEGREE FAHRENHEIT. PROVIDE METAL ADJUSTABLE CLAMPING DEVICES, SCREW OPERATED. USE TWIST-LOCK CONICAL TAP COLLARS AT CONNECTIONS INTO SHEET METAL DUCTWORK. DO NOT EXCEED FIVE (5) FEET IN LENGTH FOR ANY FLEX DUCT. REFER TO DETAILS FOR ADDITIONAL REQUIREMENTS.

ROUND BALANCING DAMPERS: FABRICATED OF SAME MATERIAL AS DUCT. TWO METAL GAUGES HEAVIER THAN DUCT. MOUNT ON 3/8" SQUARE ROD WITH SAW SLOT POSITION INDICATOR. PIVOT BEARING, LOCKING POSITION REGULATOR, YOUNG REGULATOR CO., SERIES 443. REGULATOR SHALL BE POSITIONED WITH SHEETMETAL BRACKET BEYOND DUCT CONVERTING.

CEILING DIFFUSERS/RETURNS: PROVIDE SUPPLY DIFFUSERS AND DAMPERS IN SIZES, CAPACITIES, MATERIALS, AND PATTERN INDICATED ON THE DRAWINGS.

PROVIDE WHERE APPLICABLE, DUCT MOUNTED SUPPLY AND/OR RETURN AIR PHOTOELECTRIC TYPE UL LISTED SMOKE DETECTORS. DETECTORS SHALL HAVE TWO FORM C CONTRACTS. CONTACT ONE FOR POWER, CONTACT TWO FOR FIRE ALARM. DETECTORS SHALL BE LISTED FOR THE AIR VELOCITIES ENCOUNTERED.

ROOF PENETRATIONS SHALL COMPLY WITH SMACNA "NRC" STANDARDS.

TEST AND ADJUST EACH PIECE OF EQUIPMENT AND EACH SYSTEM AS REQUIRED TO ASSURE PROPER BALANCE AND OPERATION. TEST SHALL BE PER NEBB OR AAFC AND ASHRAE STANDARD. ELIMINATE LEAKS AND VIBRATION, AND ASSURE PROPER OPERATION OF ALL UNITS. MAINTAIN CONTINUITY OF TEMPERATURE, OPERATE MECHANICAL SYSTEM, AND SUBMIT COMPLETED REPORT TO CONSTRUCTION MANAGER. PROVIDE REQUEST FOR INFORMATION. BALANCING CONTRACTOR MAY BE INDEPENDENT, CREW, TEST AND BALANCE CONTRACTOR. PROVIDE NAME OF BALANCING CONTRACTOR WITH AIR BALANCE ENGINEER AND PROPER LOG SIGNATURE. ALL SYSTEMS SHALL BE BALANCED WITHIN 5 PER CENT OF AIR VOLUMES INDICATED. ANY DISCREPANCIES SHALL BE REPORTED TO HVAC INSTALLER FOR DUCT CORRECTION, PRIOR TO FINAL REPORT. AFTER FINAL DUCT ADJUSTMENT HAVE BEEN MADE, FINAL BALANCING SHALL BE PERFORMED AND THE RESULTS REPORTED IN A CERTIFIED BALANCE REPORT. FINAL BALANCED POSITIONS SHALL BE MARKED ON THE DAMPER WITH A PERMANENT MARKER. NOTE ALL AIR QUANTITIES OUTSIDE OF TOLERANCE IN REPORT.

ELECTRICAL SYSTEM

THE WORK INCLUDES PROVIDING NEW MATERIALS, FIXTURES DEVICES AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING ELECTRICAL SYSTEM. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES OR ORDINANCES AND SUBJECT TO INSPECTION.

COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL INSTALLATIONS IN EFFECT, AND WITH THE MOST RECENT EDITION OF THE NATIONAL ELECTRICAL CODE, ADA, APPLICABLE SECTIONS OF OTHER NFPA, OSHA, LIFE SAFETY CODES AND RECOMMENDATIONS, AND THE INTERIM AMENDMENTS IN EFFECT AT THE TIME OF THE PROPOSAL. ALL MATERIALS USED SHALL BE NEW AND SHALL CONFORM TO THE STANDARDS ESTABLISHED BY THE UNDERWRITERS LABORATORIES INCORPORATED.

TEMPORARY SERVICES: ARRANGE FOR SOURCES OF TEMPORARY CONSTRUCTION SERVICES. SUCH SERVICES SHALL BE NOMINALLY 120/208 VOLT, SINGLE-PHASE, THREE-WIRE FROM WHICH A COMPLETE SYSTEM OF TEMPORARY POWER AND LIGHTING CAN BE PROVIDED FOR ALL CONSTRUCTION NEEDS.

ELECTRICAL DESIGN FOR THIS INSTALLATION IS BASED ON FIELD INSPECTIONS FOR THE EXISTING BUILDING. ELECTRICAL CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BIDDING. ALLOWANCES ARE TO BE INCLUDED FOR UNFORSEEN EXISTING CONDITIONS THAT MAY EFFECT THE CONTRACTOR'S SCOPE OF WORK. MINOR DEVIATIONS REQUIRED FOR ACCOMPLISHING THE INTENT OF THIS DESIGN IS TO BE INCLUDED IN THIS ALLOWANCE.

ELECTRICAL CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES. ANY ITEM DAMAGED BY THIS CONTRACTOR IS TO BE REPAIRED IMMEDIATELY AND AT NO COST TO THE OWNER.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRC" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. CONSTRUCTION OF ALL ROOF PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOFING WARRANTY.

ELECTRICAL CONTRACTOR TO FIELD VERIFY ALL EXISTING EQUIPMENT AS SHOWN ON DESIGN DRAWINGS AND ARE IN GOOD WORKING CONDITION PRIOR TO RE-USING. IF EXISTING CONDITIONS ARE NOT AS SHOWN OR ARE NOT IN GOOD WORKING CONDITION, CONTRACTOR SHALL PROVIDE EQUIPMENT, CONDUIT, AND/OR WIRE AS INDICATED TO PROVIDE A "LIKE-NEW" AND CODE COMPLIANT INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR RELOCATING ANY EXISTING ITEMS BEING REUSED. ANY EXISTING EQUIPMENT, CONDUIT OR WIRE NOT BEING REUSED SHALL BE REMOVED BY THIS CONTRACTOR.

ELECTRICAL DESIGN HAS BEEN BASED ON THE INSTALLATION OF 75 DEGREES C CONDUCTORS CONNECTED TO TERMINAL LUGS AND EQUIPMENT, U.L. LISTED FOR A MINIMUM 75 DEGREES C, CONDUCTORS TERMINATED ON EQUIPMENT OR DEVICES WITH A LOWER RATING (80 DEGREES C) OR NO RATING SHOWN, SHALL HAVE CONDUCTOR SIZE INCREASED TO CONFORM TO NEC TABLE 310-16 AND U.L. NO. 489 REQUIREMENTS.

DISCONNECT SWITCHES SHALL BE HEAVY-DUTY, QUICK-MAKE QUICK-BREAK TYPE, NEMA 1 ENCLOSURES FOR INDOOR LOCATIONS (NEMA 3R FOR OUTDOOR LOCATIONS), SWITCHES SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, OR SIEMENS (I.T.E.), PROVIDE FUSES AS MANUFACTURED BY BUSSMAN, GOLD-SHAMWUT, OR LITTLE-FUSE. ALL CONDUCTOR TERMINALS TO BE U.L. LISTED FOR A MINIMUM OF 75 DEGREES C. SWITCHES USED AS SERVICE ENTRANCE EQUIPMENT TO BE U.L. LISTED AS "SEE" RATED EQUIPMENT.

PANELBOARDS SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, SIEMENS OR EATON CORP. MEETING U.L. STANDARDS 50 AND 67, WITH U.L. LABEL PANELS USED AS SERVICE.

BREAKERS: THERMAL MAGNETIC TYPE, QUICK-MAKE, QUICK-BREAK BOLT-IN TYPE OF SINGLE UNIT CONSTRUCTION. TWO AND THREE BREAKERS SHALL BE SINGLE UNIT COMMON TRIP TYPE. BREAKERS USED AS SWITCHES FOR 120V LIGHTING SWITCHES SHALL BE APPROVED FOR THAT USE AND MARKED AS SUCH. ALL BREAKERS FOR HVAC AND REFRIGERATIONS EQUIPMENT SHALL BE "MCCR" RATED BREAKERS.

CABINETS SHALL BE ONE PIECE CODE GALVANIZED STEEL WITH MOUNTING STUDS, WIRING GUTTERS AND RIGID CORDS AND KNOCK-OUT TYPE PORTS. CABINETS, PANELBOARDS AND ELECTRICAL CONDUCTORS, MAINTAIN CONTINUITY OF EQUIPMENT THROUGHOUT THE SYSTEM. GROUND CLAMPS SHALL BE APPROVED TYPE, SPECIFICALLY DESIGNED FOR GROUNDING. WHERE GROUNDING CONDUCTORS IS ENCLOSED IN CONDUIT, GROUND CLAMP SHALL BE OF A TYPE WHICH GOUNDS BOTH CONDUCTOR AND CONDUIT. ALL CIRCUITS IN FLEXIBLE METAL OR PLASTIC CONDUIT SHALL INCLUDE A GROUND WIRE SIZED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

CONDUIT SHALL BE SIZED TO COMPLY WITH NEC FOR NUMBER AND SIZE OF CONDUCTORS INSTALLED. ALL CONDUIT SHALL BE GRADE. PROVIDE SCHEDULE 40 PVC PLASTIC OR RIGID STEEL CONDUIT BELOW GRADE, MINIMUM 3/4". PROVIDE ELECTRICAL METAL TUBING (EMT) MEETING FS W-C68, OR FLEXIBLE CONDUIT (IN LENGTHS 6' OR LESS) FOR INTERIOR LOCATIONS. EMT CONNECTORS AND COUPLING SHALL BE SET SCREW TYPE. CLAMP CONDUIT TO BOXES WITH BUSHING INSIDE AND LOCKWUT OUTSIDE. "MC" CABLE ACCEPTABLE FOR CONCEALED INSTALLATIONS.

ALL CONDUIT AND RACEWAY SYSTEMS TO BE INSTALLED WITH SEPARATE GROUND CONDUCTOR. CONDUIT SYSTEM IS NOT TO BE USED AS THE SOLE GROUNDING MEANS.

ALL PANELBOARDS, DISCONNECT SWITCHES, CONTACTORS, AND TRANSFORMERS SHALL BE PROVIDED WITH LUGS LABELED AND RATED FOR A MINIMUM 75 DEGREES C. SWITCHBOARDS, PANELBOARDS, DISCONNECT SWITCHES, CONTACTORS, AND TRANSFORMERS ARE TO BE "LISTED" AND "IDENTIFIED" AS RATED FOR A MINIMUM OF 75 DEGREES C CONDUCTOR TERMINATION.

CONDUCTORS: INSULATED SOFT ANNEALED 98 PER CENT PURE COPPER WITH COLOR CODING, 3 AND 5 GAUGE, #10 AND SMALLER TO BE SOUND, #8 AND LARGER TO BE STRANDED. MINIMUM #12 UNLESS OTHERWISE INDICATED. ALUMINUM CONDUCTOR WILL NOT BE ALLOWED. THHN MAY NOT BE USED UNDERGROUND, AT SERVICE ENTRANCE, OUTSIDE, OR IN WET LOCATIONS. ALL INSULATION TO BE RATED FOR 600 V AND TYPES AS FOLLOWS:

#10 AND SMALLER: THWN OR THHN
#8 TO #4: THWN OR THHN
SERVICE ENTRANCE: USE-RHW
OVER #4/0 WET OR HOT SERVICE: XHHW
WIRE THRU FLUORESCENT FIXTURES OR WITHIN 3' OF HEATING EQUIPMENT: THHN

DEVICES SHALL BE MANUFACTURED BY LEVITON "INDUSTRIAL SPECIFICATION GRADE" OR EQUAL. ALL DEVICES AND COVER PLATES SHALL BE WHITE, STANDARD DUPLEX RECEPTABLES SHALL BE GROUNDING TYPE, 20A, NEMA WD-2 STANDARD 5-20R, 5 SIDE WIRED. LEVITON #5342. LIGHT SWITCHES ARE GROUPED, PROVIDE GANE-PLATE.

LIGHT FIXTURES AND LAMPS ARE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR ACCORDING TO I.B.C. STANDARDS.

THE ELECTRICAL CONTRACTOR SHALL REVIEW MATERIALS AT THE TIME OF DELIVERY AND IMMEDIATELY REPORT ANY DAMAGE OR MISSING PIECES.

EMERGENCY LIGHTING SHALL HAVE A MINIMUM OF 90 MIN BATTERY BACK-UP, OR AS REQUIRED BY LOCAL CODE AUTHORITY.

LAYOUT BRANCH CIRCUIT WIRING AND ARRANGEMENT OF HOME RUNS FOR MAXIMUM ECONOMY AND EFFICIENCY. INCREASE WIRE SIZE IF VOLTAGE DROP EXCEEDS 3 PER CENT OR 100 FEET OF LENGTH.

CONCEAL WIRING SYSTEM ABOVE SUSPENDED CEILING OR IN WALL OR FLOOR CONSTRUCTION WHERE POSSIBLE. INSTALL CONDUITS PARALLEL TO BUILDING LINES, AND TO CLEAR ALL OPENING, DEPRESSIONS, PIPES, DUCTS, STRUCTURE, ETC.

INSTALL CONDUIT CONTINUOUS BETWEEN BOXES AND CABINETS WITH NO MORE THAN FOUR (4) 90 DEGREE BENDS. SECURELY FASTEN IN PLACE WITH STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. DO NOT SUPPORT CONDUIT FROM SUSPENDED CEILING GRID. SUSPENSION WIRES, REAM CONDUITS BEFORE INSTALLATION. THOROUGHLY CLEAN BEFORE INSTALLATION. OPENINGS SHALL BE PUGHED OR COVERED TO KEEP CONDUIT CLEAN. SWITCHES ON SWITCHES AND OUTLET SHALL NOT BE USED TO FEED INTO THE NEXT SWITCH OR OUTLET.

ADJUST AND TESTING: ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED AND TESTED FOR PROPER OPERATION. COMPLETED WIRING SHALL BE FREE FROM SHORT CIRCUITS AND OVERHEATING.

TOUCH-UP OR PATCH DAMAGED SURFACES OF FIXTURES AND EQUIPMENT, EXCEPT TO VIEW.

PHONE CABLE SHALL BE PROVIDED AND INSTALLED BY OTHERS. LABELED TO BE PROVIDED. ELECTRICAL CONTRACTOR TO PROVIDE NEW PLYWOOD BACKBOARD FOR NEW TELEPHONE TERMINAL BOARDS. COORDINATE EXACT REQUIREMENTS WITH LOCAL TELEPHONE UTILITY REPRESENTATIVE AND OWNER.

REFER TO ARCHITECTURAL, REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHTING FIXTURES AND OTHER CEILING MOUNTED EQUIPMENT.

FOR EQUIPMENT FURNISHED BY OWNER OR OTHER CONTRACTORS: ELECTRICAL CONTRACTOR TO VERIFY DIACLOAD, TYPE OF CONNECTION AND MOUNTING HEIGHT FOR EACH BOX OR EQUIPMENT ITEM TO BE INSTALLED. ALL HARD-WIRED CONNECTIONS TO EQUIPMENT TO BE MADE WITH FLEXIBLE LIQUID-TITE METAL CONDUIT WITH GREEN GROUND CONDUCTOR INSTALLED INSIDE RACEWAY. GROUND CONDUCTOR TO BE BONDED AT BOTH ENDS.

CONTRACTORS SHALL BE SQUARE D, CLASS 8903, AS SHOWN ON THE PLANS, ELECTRICALLY HELD, DESIGNED FOR TWO-WIRE CONTROL CIRCUIT, FULLY RATED FOR ALL CLASSES OF INDUCTIVE AND NON-INDUCTIVE LOADS, AND RATED FOR CONTINUOUS CAPACITY AND POWER CIRCUIT VOLTAGE NOT LESS THAN INDICATED ON DRAWINGS. PROVIDE WITH NUMBER OF POLES INDICATED OR SPECIFIED. CONTRACTORS SHALL BE FURNISHED WITH NEMA 1, SURFACE MOUNTED ENCLOSURES UNLESS CALLED FOR OTHERWISE ON DRAWINGS. EACH CONTRACTOR SHALL BE PROVIDED WITH ENGRAVED LAMINATED PLASTIC NAMEPLATE WITH BLACK BACKGROUND AND 1/4" WHITE LETTERS TO DESIGNATE USE OF CONTRACTOR.

FIRE ALARM SYSTEM SPECIFICATIONS (WHEN APPLICABLE)

FIRE ALARM CONTRACTOR SHALL PROVIDE FIRE ALARM SYSTEM WITHIN THE TENANT SPACE TO MEET LATEST CODES. CONTRACTOR SHALL PROVIDE HORN/STROBES, PULL STATION, SMOKE DETECTORS ETC. AS REQUIRED. COORDINATE INSTALLATION WITH LANDLORD'S FIRE ALARM SYSTEM MAINTENANCE CONTRACTOR FOR EQUIPMENT INTERFACE.

FIRE SPRINKLER SYSTEM SPECIFICATIONS

THE "SHELL" BUILDING HAS AN EXISTING FIRE SPRINKLER SYSTEM. THE FIRE SPRINKLER CONTRACTOR SHALL MAKE MODIFICATIONS TO THE EXISTING SYSTEM FOR THE NEW TENANT FINISHOUT SPACE AS SHOWN ON THIS DRAWING. CONTRACTOR SHALL COORDINATE FIRE SPRINKLER PIPING AND HEADS WITH LAY-IN CEILING, LIGHTS, HVAC DUCTY/DIFFUSERS, AND DUCTS ETC. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND CONSTRUCTION PHASING REQUIREMENTS FOR THE INSTALLATION. SPRINKLER SYSTEM SHALL BE INSTALLED BY AN CONTRACTOR WHO SHALL SUBMIT SHOP DRAWINGS AND HYDRAULIC CALCULATIONS WHEN REQUIRED, FOR LOCAL JURISDICTION APPROVAL. FIRE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE LATEST WATER FLOW DATA.

SPRINKLER SYSTEM SHALL BE IN FULL COMPLIANCE WITH APPLICABLE CODES INCLUDING BUT NOT LIMITED TO:
A. N.F.P.A. 13 & 14
B. LOCAL BUILDING CODE
ABOVE GRADE PIPING 2" AND LARGER SHALL BE SCH. 10 ABOVE GRADE PIPING 2" AND SMALLER SHALL BE SCH. 10 WITH SCREWED FITTINGS
ALL PIPING SHALL BE HYDRAULICALLY SIZED PER N.F.P.A. 13
ALL PIPING TO BE FLUSHED IN ACCORDANCE WITH N.F.P.A. 13
ALL PIPING SHALL BE HYDROSTATICALLY TESTED AT 200 P.S.I. FOR A MIN (2) HOURS
MAXIMUM HEAD SPACING TO BE 130
SPRINKLER HEADS SHALL BE U.L./FM, APPROVED CHROME PLATED BRASS PENDANT TYPE WITH CHROME ESCUTCHEON AS MANUF. BY GRINNELL OR APPROVED EQUAL.
HANGER TYPE AND SPACING SHALL BE IN ACCORDANCE WITH N.F.P.A. 13
PROVIDE FIRE SPRINKLER COVERAGE IN THE COOLER.

INTERPLANS

ARCHITECTURE
INTERIOR DESIGN
PROJECT MANAGEMENT

604 CORTLAND STREET
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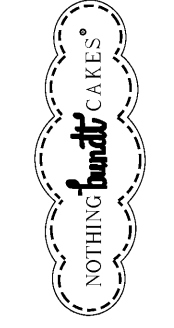
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04.11.18 PERMIT SUBMIT
04.04.18 OWNER REVIEW

NO. DATE REMARKS
REVISIONS



CREEKSIDE PLAZA
4110 N. MT. JULIET RD.
MT. JULIET, FL 32722

PROJECT NO: 2018.0044
DATE: 04.11.18

MEP-2
MEP SPECIFICATIONS

CHECKED: MFG DRAWN: SB/AW

Original Plans

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