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JOSHUA N. HOVER

SECTION 15: HVAC SPECIFICATIONS

EACH CONTRACTOR SHALL BE RESPONSIBLE TO BECOME THOROUGHLY FAMILIAR WITH ALL THE CONTENTS OF DIVISION ONE AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS AS TO THE REQUIREMENTS WHICH AFFECT THIS DIVISION OR SECTION, DIVISION ONE AND THE GENERAL AND COMPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS SHALL BE A PART OF THIS SECTION.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY CALLED FOR IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS REQUIRED TO COMPLETE THE WORK, AND WHICH IS INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF CONTRACT.

WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OF THE LANDLORD'S REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE SYSTEM AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR, IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE SYSTEMS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS AND AS REQUIRED BY JOB CONDITIONS.

DEFINITIONS: FURNISH MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION AND SIMILAR OPERATIONS. INSTALL IS USED TO DESCRIBE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

FURNISHED BY OWNER OR FURNISHED BY OTHERS MEANS THE ITEM WILL BE FURNISHED BY THE OWNER OR OTHERS. IT IS TO BE INSTALLED AND CONNECTED UNDER THE REQUIREMENTS OF THIS DIVISION, COMPLETE AND READY FOR OPERATION, INCLUDING ITEMS INCIDENTAL TO THE WORK, INCLUDING SERVICES NECESSARY FOR PROPER INSTALLATION AND OPERATION. THE INSTALLATION SHALL BE INCLUDED UNDER THE GUARANTEE REQUIRED BY THIS DIVISION.

ENGINEER IS THE ENGINEER OF RECORD AND THE DESIGN PROFESSIONAL FOR THE WORK UNDER THIS DIVISION, AND IS A CONSULTANT TO, AND AN AUTHORIZED REPRESENTATIVE OF, THE ARCHITECT, AS DEFINED IN THE GENERAL AND/OR SUPPLEMENTARY CONDITIONS. WHEN USED IN THIS DIVISION, IT MEANS INCREASED INVOLVEMENT BY, AND OBLIGATIONS TO, THE ENGINEER, IN ADDITION TO INVOLVEMENT BY, AND OBLIGATIONS TO, THE ARCHITECT.

AHJ MEANS THE LOCAL CODE AND/OR INSPECTION AGENCY (AUTHORITY) HAVING JURISDICTION OVER THE WORK. APPROVED EQUAL EQUIVALENT OR EQUAL ARE USED SYNONYMOUSLY AND SHALL MEAN "ACCEPTED BY OR ACCEPTABLE TO THE ENGINEER AS EQUIVALENT TO THE ITEM OR MANUFACTURER SPECIFIED". THE TERM "APPROVED" SHALL MEAN LABELED, LISTED, OR BOTH, BY A NATIONALLY RECOGNIZED TESTING LABORATORY (E.G. UL, ETL, CSA), AND ACCEPTABLE TO THE AHJ OVER THIS PROJECT.

THE CONTRACTOR SHALL PERSONALLY INSPECT THE SITE OF THE PROPOSED WORK AND BECOME FULLY INFORMED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. FAILURE TO DO SO SHALL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

ALL MATERIAL AND APPARATUS SHALL BE NEW AND IN FIRST CLASS CONDITION. ALL WORKMANSHIP SHALL BE OF THE FINEST POSSIBLE AS EXPERIENCED MECHANICS. ALL INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES AND LAWS. ANY ABNORMAL CONDITIONS, SUCH AS EQUIPMENT, PIPING, DUCTS, AIR DEVICES, AND SOLEAKS, OR ROTATING COMPONENTS WILL NOT BE ACCEPTABLE. ALL MATERIALS, EQUIPMENT AND EQUIPMENT SHALL BE OF COMMERCIAL SPECIFICATION GRADE, QUALITY, LIGHT DUTY AND RESIDENTIAL TYPE EQUIPMENT SHALL NOT BE USED.

ALL WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES SO THAT THE INSTALLATION OF THE COMPONENTS OF EACH SYSTEM OCCURS AT THE PROPER TIME, FITS THE AVAILABLE SPACE, AND ALLOWS FOR ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. ANY COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER. CONTRACTORS SHALL PROVIDE MATERIALS WITH TRIM WHICH PROPERLY FITS THE TYPE OF FINISHING, WALLS AND FLOOR FINISH INSTALLED. MODEL NUMBERS AND SPECIFICATIONS ON DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.

INSURE INTO AND CARRY WITH LANDLORD'S CRITERIA, LOCALLY ADOPTED CODE, UBC, IBC, BUREAU OF FIRE UNDERWRITERS' ASSOCIATION (BFA), OR ALL OTHER APPLICABLE CODES, REGULATIONS AND ORDINANCES. OBTAIN AND PAY FOR ALL PERMITS. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY VIOLATION OF THE LAW. CONTRACTOR SHALL MAINTAIN ALL NECESSARY SIGNAL LIGHTS AND GUARDS FOR THE SAFETY OF THE PUBLIC.

FOR APPROVAL TWO SETS OF MANUFACTURER'S SHOP DRAWINGS OF ALL ITEMS OF EQUIPMENT AND ALL ITEMS REQUIRING COORDINATION BETWEEN CONTRACTORS TO THE OWNER'S CONSTRUCTION MANAGER. BEFORE SUBMITTING SHOP DRAWINGS AND MATERIAL LISTS, THE CONTRACTOR SHALL VERIFY THAT ALL EQUIPMENT SUBMITTED IS MUTUALLY COMPATIBLE AND SUITABLE FOR THE INTENDED USE, AND SHALL FIT THE AVAILABLE SPACE AND ALLOW AMPLE ROOM FOR MAINTENANCE. THE CHECKING AND SUBSEQUENT APPROVAL OF SUCH SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES; OR OMISSIONS OF COMPONENTS OR FITTINGS; OR FOR COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS. PROVIDE ANY NEEDED WIRING DIAGRAMS.

GUARANTEE AGAINST DEFECTIVE WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL PAYMENT. GUARANTEE SHALL INCLUDE MATERIAL TO BE REPLACED AND ALL LABOR REQUIRED.

THE CONTRACTOR SHALL DO ALL CUTTING OF WALLS, FLOORS, CEILING, AND SHALL OBTAIN PERMISSION FROM THE LANDLORD BEFORE DOING ANY CUTTING. STRUCTURAL MEMBERS SHALL NOT BE DISTURBED WITHOUT THE PRIOR APPROVAL FROM THE ARCHITECT. ALL HOLES SHALL BE CUT AS SMALL AS POSSIBLE. GENERAL CONTRACTOR SHALL PATCH WALLS, FLOORS, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. ALL PATCHING SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION, AND ANY AREAS DISTURBED BY WORK PERFORMED UNDER THIS CONTRACT SHALL BE NEATLY REPAIRED AND REFINISHED TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT AND LANDLORD.

COORDINATE WITH OTHER CONTRACTORS, WITHOUT DELAY, ALL ROUGHING-IN WITH GENERAL CONSTRUCTION. ALL PIPING, CONDUIT, ROUGH-IN SHALL BE CONCEALED EXCEPT IN UNFINISHED AREAS AND WHERE OTHERWISE SHOWN.

ALL MATERIAL EXPOSED IN A CEILING RETURN PLENUM AND OTHER MATERIAL IN THE AIR STREAM WHICH IS FURNISHED TO PERFORM WORK REQUIRED UNDER THIS SECTION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS. MATERIAL SHALL BE CLASSIFIED BY UL 723 AS MEETING THE ABOVE REQUIREMENTS AND LABELED AS SUCH.

DUCT LINER: (FOR ACOUSTICAL PURPOSES ONLY ON RECTANGULAR RETURN DUCTWORK): PROVIDE MINIMUM 1" THICK, 3 PCF DENSITY, LONG TEXTILE FIBER TYPE DUCT LINER, WITH COATING ON THE AIR STREAM SIDE, CONFORMING TO NFPA 90A. DUCT LINER SHALL BE SECURED TO DUCT WITH BOTH ADHESIVE AND MECHANICAL FASTENERS. ADHESIVE SHALL BE LEED COMPLIANT LOW VOC AS RECOMMENDED BY DUCT LINER MANUFACTURER, AND SHALL COMPLY WITH ASTM G-918 DUCT LINER FASTENERS SHALL COMPLY WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION. THERMAL CONDUCTIVITY SHALL BE EQUAL TO OR LESS THAN 0.24 AT 75°F.

SHEET METAL DUCT: SHALL BE SHOP FABRICATED, GALVANIZED STEEL, SIZED AND ROUTED AS SHOWN ON DRAWINGS. ALL DUCTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CURRENT SMACNA STANDARDS. DUCTWORK SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS; METAL SIZE MUST BE INCREASED TO ALLOW FOR LINER THICKNESS. NO ITEMS OTHER THAN THOSE REQUIRED FOR THE DUCT INSTALLATION, SHALL BE SUPPORTED FROM THE DUCTWORK INCLUDING BUT NOT LIMITED TO CEILING GRID, CONDUITS, PIPES AND EQUIPMENT.

DUCT SEALANT: PROVIDE WATER BASED SYNTHETIC LATEX EMULSION PERMANENTLY FLEXIBLE HIGH VELOCITY DUCT SEALANT, DUCTMAE INDUSTRIES, INC. PRO SEAL OR EQUAL. SEALANT TO BE LOW VOC LEED COMPLIANT CAPABLE OF 15% MOISTURE AND 90% APPROVED. UL 181B-M LISTED AND UL 723 CLASSIFIED. INSTALL PER MANUFACTURER INSTRUCTIONS. SEALANT SHALL BE APPROVED FOR PLENUM INSTALLATIONS AND MEET FLAME SPREAD AND SMOKE DEVELOPED RATINGS FOR PLENUM APPLICATIONS.

ALL DUCTS WITH OFFSETS OF 45 DEGREES OR MORE SHALL HAVE AIRFOIL TYPE TURNING VANES OF SAME GAUGE AS DUCTWORK AND SHALL BE RIGIDLY FASTENED WITH GUIDE STRIPS. VANES IN DUCTWORK OVER 30" LONG SHALL BE INSTALLED IN MULTIPLE SECTIONS WITH VANES NOT OVER 30" LONG AND SHALL BE RIGIDLY FASTENED.

ALL DUCT CONNECTIONS TO EQUIPMENT SHALL BE WITH NEOPRENE COATED GLASS CLOTH CANVAS CONNECTIONS, DURO-DYNE, ELGEN, VENTIFABRIC OR EQUAL.

PROVIDE BALANCING DAMPERS WHERE SHOWN ON DRAWINGS AND WHEREVER NECESSARY FOR COMPLETE CONTROL OF AIR FLOW. WHERE ACCESS TO DAMPERS THROUGH A HARD CEILING IS REQUIRED, COORDINATE ACCESS DOOR LOCATION WITH ARCHITECT, OR AT CONTRACTOR'S OPTION, A YOUNG'S REGULATOR CONCEALED VOLUME DAMPER WITH EXTENSION ROD AND CEILING OPERATOR MAY BE USED. COORDINATE CEILING OPERATOR LOCATION WITH ARCHITECT. SPLITTER DAMPERS SHALL BE CONTROLLED BY LOCKING QUADRANTS. PROVIDE YOUNG'S REGULATOR OR VENTLOK END BEARINGS FOR THE DAMPER ROD. VOLUME DAMPERS SHALL BE OPPOSED BLADE, INTERLOCKING TYPE, FACTORY MADE BY RUSKIN, APC, AIR BALANCE, OR APPROVED EQUAL. OUTSIDE AIR DAMPERS SHALL BE RUSKIN MODEL CD-50, GREENHECK, AIR BALANCE, OR APPROVED EQUAL. PROVIDE FLEXMASTER MODEL STD OR EQUAL 45 DEGREE RECTANGULAR/ROUND SIDE TAKEOFF FITTING WITH MODEL SL80 DOUBLE BEARING DAMPER WITH INSULATION BUILD OUT FOR ALL ROUND DUCTWORK BRANCH TAKEOFFS TO INDIVIDUAL AIR DEVICES.

ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RW-1, DUCTWORK PASSING THROUGH A FIRE RATED CORRIDOR WITHOUT OPENINGS INTO THAT CORRIDOR SHALL BE A MINIMUM OF 26 GAUGE.

LOW PRESSURE (DUCT PRESSURE CLASS UP TO AND INCLUDING 2" W.G.) FITTINGS 24" IN DIAMETER AND LESS SHALL BE PREFABRICATED, SPOT WELDED AND INTERNALLY SEALED. FITTINGS LARGER THAN 24" IN DIAMETER SHALL BE CONTINUOUSLY WELDED. FITTING GAUGE SHALL BE 22 GAUGE FOR 36" FITTINGS AND UNDER, 20 GAUGE FOR ALL LARGER SIZES. ALL 90 DEGREE TEE'S SHALL BE CONICAL TYPE. SEAL LONGITUDINAL AND TRANSVERSE DUCTWORK JOINTS AIRTIGHT WITH HEAVY LIQUID SEALANT APPLIED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

AIR DEVICES: PROVIDE ALL AIR DEVICES AS SCHEDULED ON DRAWINGS, MANUFACTURED BY TITUS. PROVIDE ALL DEVICES WITH A SOFT PLASTIC GASKET TO MAKE AN AIRTIGHT SEAL AGAINST THE MOUNTING SURFACE. CONTRACTOR SHALL COORDINATE FINAL LOCATION, FRAME MOUNTING TYPE OF ALL AIR DEVICES WITH ARCHITECTURE, REFLECTED FINISHING PLANS.

COMBINATION FIRE/SMOKE DAMPERS: PROVIDE WHERE SHOWN ON DRAWINGS AND AS REQUIRED BY CODE ENFORCING AGENCY. PROVIDE A NARRATIVE OF HOW RATINGS AS REQUIRED TO MAINTAIN THE FIRE RATING NOTED ON ARCHITECTURAL DRAWINGS. DAMPERS SHALL MEET CLASS 555 CLASSIFICATION FOR FIRE RATING AND UL CLASSIFICATION FOR SMOKE CLASSIFICATION. SMOKE DAMPER: DAMPER SHALL BE LABELED ACCORDING TO THE CLASSIFICATIONS. FIRE DAMPER SHALL BE LABELED WITH A 168°F FLOW TEMPERATURE WITH A CLEAR INDEX AND A CLEARLY IDENTIFIED OPERATOR INSTALLED BY THE MANUFACTURER AT TIME OF DAMPER CREATION. DAMPER SHALL BE MANUFACTURED BY RUSKIN, GREENHECK, GREENHECK, SESCO, UNITED AIR OR APPROVED EQUAL. ALL DAMPERS SHALL BE IN DUCT FOR INSPECTION AND SERVICE TO DAMPER AND FUSE LINK. ALL ACTUATORS SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL JURISDICTION AND SHALL OPERATE WITHIN 15 SECONDS OR LESS AND CLOSE IN 15 SECONDS OR LESS AFTER ALARM OR SMOKE DETECTION HAS OCCURRED.

REFRIGERANT PIPING AND INSULATION: ALL REFRIGERANT PIPING SHALL BE TYPE K HARD DRAWN COPPER, CLEANED AND SEALED AT THE FACTORY, AND SHALL BE SPECIFICALLY DESIGNED FOR REFRIGERANT. ALL FITTINGS SHALL BE HARD DRAWN AND SHALL HAVE MINIMUM RADIUS TURNS. ALL JOINTS SHALL BE BONDLED WITH SILFOF (15% SILVER, 5% PHOSPHORUS, 80% COPPER, 15% DEGREES FAHRENHEIT FLOW TEMPERATURE). ALL JOINTS SHALL BE TESTED WITH A 10" STREAM OF DRY NITROGEN PASSING THROUGH THE PIPING.

ALL SUCTION PIPING SHALL BE INSULATED WITH 3/4" FOAMED PLASTIC INSULATION. ALL REFRIGERANT PIPING INSULATION SHALL HAVE A FLAME SPREAD OF 25 OR LESS, AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84. INSULATION THAT IS EXPOSED TO THE ELEMENTS SHALL BE COATED WITH A PROTECTIVE SEALER. CARE SHALL BE EXERCISED TO KEEP NOISE AND VIBRATION TO A MINIMUM. ALL PIPING SHALL BE SUPPORTED AND SECURED TO UNISTRUT TYPE SUPPORTS SO THAT NO VIBRATION PASSES TO THE BUILDING STRUCTURE. ALL PIPE HANGERS SHALL BE MOUNTED AROUND THE OUTSIDE OF THE INSULATION WITH SADDLES TO PREVENT HANGERS FROM RUPTURING THE INSULATION. UNDER NO CIRCUMSTANCES SHALL THE INSULATION BE CUT OR BROKEN BY THE HANGERS. ALL REFRIGERANT LINES SHALL BE RUN SO THAT THEY ARE PARALLEL AND PERPENDICULAR TO WALL AND FLOOR LINES SUCH THAT THEY APPEAR STRAIGHT AND IN GOOD ORDER. ALL HORIZONTAL SUCTION LINES SHALL BE PITCHED DOWN SLIGHTLY (1" IN 20') TOWARDS THE COMPRESSOR. PROVIDE OIL TRAPS AT THE BASE OF ALL VERTICAL SUCTION RISERS OVER 6 FEET HIGH. LIQUID LINE SIGHT GLASSES SHALL BE INSTALLED IN LIQUID LINES NEAREST THE CONDENSING UNITS. EXPANSION VALVES ARE FACTORY MOUNTED WITH THE SENSING BULBS SHIPPED LOOSE. THE EXPANSION VALVE BULBS SHALL BE FIELD MOUNTED AFTER ALL REFRIGERANT PIPING IS COMPLETE (DAMAGE MAY OCCUR IF BULBS COME IN CONTACT WITH HEAT).

SYSTEM EVACUATION AND CHARGING: REFRIGERANT LINES SHALL BE BLOWN OUT WITH DRY NITROGEN AT A SUITABLE PRESSURE BEFORE MAKING FINAL CONNECTION AT THE CONDENSING UNIT OR COIL TO ENSURE AGAINST ANY DIRT, SCALE, OR OTHER FOREIGN MATERIAL BEING IN THE LINES. A VACUUM SHALL BE DRAWN TO 28" OF MERCURY. THIS VACUUM SHALL BE BROKEN BY CHARGING DRY REFRIGERANT GAS INTO THE SYSTEM, RAISING THE PRESSURE TO 0 PSIG. THE LATTER TWO STEPS SHALL BE REPEATED FOR A TRIPLE EVACUATION BEFORE THE FINAL EVACUATION IS STARTED. FINAL EVACUATION SHALL BE MADE BY REDUCING THE SYSTEM ABSOLUTE PRESSURE TO A MAXIMUM OF 0.5 MILLIMETERS (500 MICRONS) AND ALLOWING THE PUMP TO RUN AT THIS PRESSURE FOR A MINIMUM OF TWO HOURS.

THE CONTRACTOR SHALL SUPPLY AND INSTALL THE PROPER AMOUNT OF REFRIGERANT CHARGE PER THE MANUFACTURER'S RECOMMENDATIONS. THE AMOUNT OF REFRIGERANT BY WEIGHT CHARGED INTO THE SYSTEM FOR EACH CIRCUIT SHALL BE RECORDED TO THE NEAREST 1/4 POUND ON TAGS AND ATTACHED TO THE LIQUID LINE NEAR THE CONDENSING UNIT. ALL REFRIGERANT SHALL BE SUPPLIED BY THE HVAC CONTRACTOR.

CONDENSING UNIT: UNIT SHALL BE CARRIER MODEL "38A0U" AS SCHEDULED ON THE DRAWINGS. UNIT SHALL CONSIST OF A REFRIGERATING AIR-CONDITIONING COMPRESSOR ASSEMBLY, AN AIR-COOLED COIL, PROPELLER-TYPE CONDENSER FAN, AND A CONTROL BOX. UNIT SHALL BE RATED IN ACCORDANCE WITH ASTM STANDARD 212/240-89 AND 270-84 AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH UL 1995 STANDARD AND LABELED AS SUCH. CONDENSER COILS SHALL BE LEAK TESTED AT 200 PSIG AND PRESSURE TESTED AT 428 PSIG. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDZERIZED AND COATED WITH A PREFABRICATED BAKED ENAMEL FINISH. COMPRESSOR SHALL BE MOUNTED ON VIBRATION ISOLATORS AND INCLUDE OVERLOAD PROTECTION. CONDENSER FAN SHALL BE DIRECT DRIVE, PROPELLER-TYPE, STATICALLY AND DYNAMICALLY BALANCED, FAN AND MOTOR SHAFT SHALL BE CORROSION RESISTANT. PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 30°F. PROVIDE CONDENSER COIL GUARD.

IN-LINE FANS SHALL BE COOK "GC-" SERIES, AS SCHEDULED ON THE DRAWINGS WITH ISOLATED BLOWER UNIT AND BACKDRAFT DAMPER.

FINAL HVAC TESTING AND ADJUSTMENTS: SHALL BE PERFORMED BY A CONTRACTOR CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR ASSOCIATED AIR BALANCE COUNCIL (AABC). TESTS SHALL NOT BE PERFORMED BY INSTALLING COMPANY. TEST AND BALANCE CONTRACTOR SHALL PERFORM TEST READINGS ON ALL FANS, UNITS, COILS, ETC. AND ADJUST EQUIPMENT TO DELIVER SPECIFIED AMOUNTS OF AIR. A CERTIFIED AIR BALANCE REPORT SHALL BE SUBMITTED ON CERTIFIED NEBB OR AABC FORM. REPORTS SUBMITTED ON NON CERTIFIED OR CUSTOMER REPORTS WILL NOT BE ACCEPTED. THE REPORT SHALL INCLUDE AT A MINIMUM ALL AIR SUPPLY, RETURN AND EXHAUST QUANTITIES; FAN AND UNIT TESTED READINGS; ENTERING EQUIPMENT AND LEAVING EQUIPMENT AIR TEMPERATURES; THE REPORT SHALL INCLUDE ALL NAMEPLATE DATA OF INSTALLED EQUIPMENT. THE AIR BALANCE CONTRACTOR SHOULD EXPEND TIME AND EFFORT AND PERFORM AIR BALANCE REQUIREMENTS FOR ALL OUT OF DESIGN AND NON FUNCTIONAL SEASONAL SYSTEMS. SIX COPIES OF THE FINAL COMPILATION OF DATA SHALL BE SUBMITTED TO THE ARCHITECT FOR EVALUATION AND APPROVAL BEFORE FINAL INSPECTION OF THE PROJECT. REPORT SHALL BE BOUND AND INCLUDE THE STORE NAME, MALL NAME, SPACE NUMBER, AND CITY WHERE TESTING AND BALANCING HAS BEEN PERFORMED. TESTING AND BALANCING SHALL BE PERFORMED WITH A SURE ACCURATE AIR VELOCITY METER. AIR FLOWS SHALL BE BALANCED TO WITHIN PLUS/MINUS 5% OF DESIGN REQUIREMENTS. THE AIR BALANCE REPORT SHOULD INCLUDE DATA AND COURSE OF ACTION REQUIRED IF SYSTEM CAN NOT BE BALANCED WITHIN 10% OF DESIGN REQUIREMENTS. THE OWNER MUST RECEIVE THE AIR BALANCE REPORT NO LATER THAN 15 DAYS FROM THE STORE TURNOVER DATE. ALL BEARINGS SHALL BE LINED UP. BEARINGS THAT HAVE DIRT OR FOREIGN MATERIAL IN THEM SHALL BE REPLACED WITH NEW BEARINGS WITHOUT ADDITIONAL COST TO THE OWNER. ALL THERMOSTATS AND CONTROL DEVICES SHALL BE ADJUSTED TO OPERATE AS INTENDED, COORDINATE WITH THE OWNER'S PROJECT MANAGER, ADJUST BURNERS, PUMPS, FANS, ETC. FOR PROPER AND EFFICIENT OPERATION. HAVE CERTIFY TO THE OWNER'S PROJECT ARCHITECT THAT ALL ADJUSTMENTS HAVE BEEN MADE AND THAT SYSTEM IS OPERATING SATISFACTORILY. ADJUST ALL AIR DEVICES TO SUPPLY THE AMOUNT OF AIR SHOWN ON THE DRAWINGS. FURTHER ADJUSTMENTS SHALL BE MADE TO OBTAIN UNIFORM TEMPERATURE IN ALL SPACES. CALIBRATE, SET, AND ADJUST ALL AUTOMATIC TEMPERATURE

CONTROLS. CHECK PROPER SEQUENCING OF ALL INTERLOCK SYSTEMS, AND OPERATION OF ALL SAFETY CONTROLS. ALL ADJUSTMENTS SHALL BE BY GENERAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER

TEMPERATURE CONTROLS: MANUFACTURERS AND MODEL NUMBERS ARE LISTED FOR REFERENCE AS TO QUALITY AND FEATURES REQUIRED FOR THE CONTROL DEVICES. PROVIDE CONTROL DEVICES BY BARBER-COLMAN, HONEYWELL, JOHNSON CONTROLS, TRANE OR WHITE RODGERS WITH QUALITY AND FEATURES AS INDICATED.

SEVEN DAY PROGRAMMABLE, OCCUPIED/UNOCCUPIED THERMOSTATS FOR ON/OFF OR MULTIPLE STAGES OF HEATING AND COOLING SYSTEMS SHALL BE HONEYWELL SERIES PRESTIGE IQ MODEL KIT YTH98421 OR EQUAL WITH INTEGRAL SUBBASE. ORDER THERMOSTAT WITH MULTI-STAGE CAPABILITY AS REQUIRED TO MATCH SCHEDULED UNIT COOLING/HEATING STAGES.

EXISTING DUCT TYPE SMOKE DETECTORS WITH UL LISTING (OR HEAT DETECTORS, IF PERMITTED BY CODE) FOR UNIT TO SHUT DOWN SUPPLY FAN UPON ACTIVATION.

SEQUENCE OF OPERATION: OPERATE FAN COIL UNIT (FAN) CONTINUOUSLY AND OPEN OUTDOOR AIR DAMPER TO MAINTAIN MINIMUM VENTILATION. CYCLE STAGE(S) OF DX COOLING AND ELECTRIC HEATING MAINTAIN ROOM THERMOSTAT SET POINT (75 DEGREE FAHRENHEIT COOLING, 72 DEGREES FAHRENHEIT HEATING). DUCT MOUNTED SMOKE DETECTORS SHALL SHUTDOWN UNIT UPON ALARM. DURING UNOCCUPIED HOURS, CYCLE THE FAN COIL UNIT SUPPLY AIR FLOW TO COOLING OR HEATING SYSTEM TO MAINTAIN UNOCCUPIED SETBACK TEMPERATURE SET POINTS. DOOR AIR DAMPER SHALL BE CLOSED DURING UNOCCUPIED HOURS. PROVIDE FREEZESTAT IN THE SUPPLY AIR DUCT TO SHUT DOWN THE SUPPLY FAN AND CLOSE THE OUTDOOR AIR DAMPER IF TEMPERATURE IN THE SUPPLY DUCT DROPS BELOW 32 DEGREES FAHRENHEIT.

RESTROOM VENTILATION CONTROL: RESTROOM FAN SHALL BE INTERLOCKED WITH RESTROOM LIGHT SWITCH AND BE ENERGIZED WHEN LIGHT SWITCH IS "OFF".

OPERATIONS AND MAINTENANCE MANUALS (O&M): AT COMPLETION OF PROJECT PROVIDE A MINIMUM OF TWO O&M MANUALS IN THREE RINGED BINDERS TO THE OWNER/TEENANT. MANUALS SHALL HAVE TABS LABELED WITH SYSTEM IDENTIFICATION AND BE SEPARATED WITH A CLEAR INDEX AT THE FRONT. PROVIDE A WARRANTY LETTER AT THE FRONT OF THE MANUAL STATING DATES OF WARRANTY (START DATE AND END DATE) AND CONTACT WITH EACH SYSTEM IS INTENDED TO OPERATE INCLUDING RECOMMENDED SERVICE POINTS. MANUALS SHALL INCLUDE SUBMITTALS OF ALL EQUIPMENT, SIZE AND OPTIONS SELECTED. PROVIDE ALL BALANCING REPORTS, PROVIDE MANUFACTURER LITERATURE FOR OPERATIONS AND MAINTENANCE FOR ALL THE EQUIPMENT ON THE PROJECT. ALL PERIODIC AND ROUTINE MAINTENANCE SHALL BE CLEARLY IDENTIFIED. PROVIDE A CONTROLS SECTION LISTING SYSTEM OPERATING AND CONTROL INSTRUCTIONS, MAINTENANCE, CALIBRATION, WIRING DIAGRAMS SCHEMATICS AND CONTROL SEQUENCE DESCRIPTIONS.

robert g. lyon + associates, inc.
1500 Schiller Park, IL 60176
P: 847.671.7452
F: 847.671.4000
www.rgla.com

RGLA
rgla solutions, inc.
1500 Schiller Park, IL 60176
P: 847.671.7452
F: 847.671.4000
www.rgla.com

Table with 2 columns: REVISIONS, DATE. Includes entries for ISSUED FOR BIDDING, LANDLORD AND PERMIT, and ISSUED FOR PERMIT.

THE ABOVE DRAWINGS AND SPECIFICATIONS AND ISUAL DESIGN AND ARRANGEMENTS REPRESENTED THEREIN ARE AND SHALL REMAIN THE PROPERTY OF THIS OFFICE AND NO PART THEREOF SHALL BE COPIED, DISCLOSED, OR OTHERS OR USED IN THE CONNECTION WITH ANY WORK OR PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY HAVE BEEN PREPARED AND DEVELOPED WITHOUT THE WRITTEN CONSENT OF THIS OFFICE. VISUAL CONTACT WITH THESE DRAWINGS OR SPECIFICATIONS SHALL CONSTITUTE A BREACH OF CONTRACT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTION AND THE ARCHITECT BEFORE PROCEEDING WITH FABRICATION.

VANS
"OFF THE WALL" SINCE 1966
VANS #522
AVENTURA MALL
19501 BISCAYNE BLVD
SPACE #031
AVENTURA, FL 33180

Table with 2 columns: DRAWN BY, CHECKED BY, HEI, JOB NUMBER, SHEET NAME, M-2.1. Includes project details for VANS #522.

HENDERSON ENGINEERS
8345 LENEVA DRIVE, SUITE 300
LENEVA, KS 66211
TEL (913) 742-5000 FAX (913) 742-5001
WWW.HENDERSONENGINEERS.COM
1750003858
FL CERTIFICATE OF AUTHORIZATION # EB 7006
EXPIRES 02/28/19