15623 TWO PIPE ROOM FAN-COIL UNIT:

PART 1 GENERAL

1.01 SECTION INCLUDES
A. TWO PIPE ROOM FAN-COIL UNIT

1.02 RELATED SECTIONS
15890 DUCTWORK

1.03 REFERENCES
A. UL LISTED UNDER UNDERWRITERS LABORATORIES STANDARD FOR SAFETY UL1995 FOR FAN COIL UNITS.

1.04 DELIVERY, STORAGE AND HANDLING
A. DELIVER PRODUCTS TO SITE, STORE AND PROTECT FROM THE WEATHER AND CONSTRUCTION DEBRIS. UNITS MUST BE INDIVIDUALLY PACKAGED. UNITS MUST BE TAGGED WITH SITE LOCATION, MODEL NUMBER AND CONFIGURATION.

1.05 ENVIROMENTAL REQUIREMENTS
A. PROTECT UNITS FROM CONSTRUCTION DEBRIS BY COVERING ALL OPENINGS PRIOR TO START-UP OF THE EQUIPMENT. UNITS MUST NOT BE USED FOR HEATING, COOLING, OR VENTILATION PRIOR TO THE START-UP OF EQUIPMENT FOR PERMANENT USE. USE OF THE EQUIPMENT FOR THE TEMPORARY HEATING, COOLING OR VENTILATION IS PROHIBITED.

PART 2 PRODUCTS

2.01 TYPE
A. THE FAN-COIL UNIT SHALL BE OF THE FACTORY ASSEMBLED, INTEGRAL FAN TYPE WITH FIXED HYDRONIC COOLING/HEATING COIL, INTEGRAL SUPPLY, RETURN AND DRAIN RISERS AND ALL ACCESSORIES

2.02 CAPACITY
A. SHALL BE AS INDICATED ON THE DRAWINGS OR SPECIFICATIONS.

2.03 CABINETS
A. THE ONE-PIECE UNIT CABINET SHALL BE FABRICATED OF REINFORCED 22 GAUGE CONTINUOUS G60 GALVANIZED STEEL. ALL INTERNAL ASSEMBLIES SHALL BE WELDED AND TREATED TO PREVENT CORROSION.

B. THE CABINET SHALL BE INSULATED WITH 1/2-INCH THICK 2-POUND DENSITY THERMAL AND ACOUSTICAL FIBERGLASS INSULATION HAVING AN INTEGRAL WATER REPELLENT, FUNGI AND BACTERIA RESISTANT BARRIER CONFORMING TO NFPA90A.

C. THE CABINETS SHALL BE DESIGNED FOR DIRECT ATTACHMENT OF GYPSUM WALLBOARD.

2.04 COIL
A. THE COIL SHALL INCORPORATE A MANUAL AIR VENT AND BE CONSTRUCTED OF SEAMLESS COPPER TUBING MECHANICALLY EXPANDED INTO ALUMINUM PLATE. COIL ASSEMBLY SHALL BE TESTED AT THE FACTORY AT NOT LESS THAN 320 PSIG.

2.05 RISERS
A. THE UNIT SHALL INCORPORATE A FACTORY ASSEMBLED TYPE 'M' COPPER SUPPLY, RETURN AND DRAIN RISERS OF SUITABLE LENGTH TO REACH TO CEILING WITHOUT ADDITIONAL CONTRACTOR FURNISHED MATERIAL. THE SUPPLY AND RETURN RISERS SHALL BE INSULATED THE LENGTH OF THE CABINET WITH ½" THICK ARMAFLEX OR EQUAL CLOSED CELL INSULATION. THE DRAIN RISER SHALL BE FACTORY INSULATED WITH 3/8" THICK ARMAFLEX THE LENGTH OF THE CABINET.

2.06 DRAIN PAN
A. (STANDARD) THE DRAIN PAN SHALL COLLECT AND DRAIN CONDENSATE THAT MAY FORM FROM ANY COMPONENT INTERNAL TO THE FAN COIL UNIT AND SHALL BE FABRICATED OF NOT LESS THAN 18 GAUGE CONTINUOUS G90 GALVANIZED STEEL. THE COPPER CONDENSATE DRAIN SHALL BE ROLLED AND SOLDERED INTO THE PAN PRIOR TO COATING OF THE PAN WITH RUSTPROOF AND WATERPROOF FIRE RATED MASTIC.

2.07 FANS
A. THE FAN SHALL BE SLOW SPEED FORWARD CURVED CENTRIFUGAL TYPE, AND SHALL BE ACCESSIBLE FOR REMOVAL AND MAINTENANCE THROUGH THE RETURN AIR OPENING.

2.08 MOTORS
A. MOTOR SHALL BE OF THE PERMANENT SPLIT CAPACITOR (PSC) TYPE, SUITABLE FOR THE CURRENT CHARACTERISTICS SHOWN ON THE DRAWINGS, AND SHALL HAVE BUILT-IN THERMAL OVERLOAD PROTECTION. MOTORS SHALL BE TWO-SPEED TYPE WITH 1050 RPM MAXIMUM.

2.09 SUPPLY GRILLES
A. THE SUPPLY GRILLES SHALL BE OF THE DOUBLE DEFLECTION TYPE FABRICATED OF FACTORY WHITE PAINTED EXTRUDED ALUMINUM. COORDINATE FINISH WITH ARCHITECT PRIOR TO ORDER. ALL SUPPLY OPENINGS SHALL BE PAINTED BLACK WITH A DAMPER ASSEMBLY AND SIGHT BAFFLE PROVIDED WHEN ONE UNIT IS SERVING TWO SEPARATE ROOMS.

B. INSULATED SIGHT BAFFLE - SOUND INSULATION SHALL BE FURNISHED ON THE SIGHT BAFFLE TO LIMIT THE TRANSMISSION OF SOUND BETWEEN TWO ROOMS UTILIZING THE SAME UNIT.

2.10 RETURN AIR PANEL
A. THE RETURN AIR OPENING SHALL BE COVERED WITH A FACTORY WHITE PAINTED EXTRUDED ALUMINUM HINGED RETURN AIR GRILLE THAT IS ATTACHED DIRECTLY TO THE UNIT WITH TWO SCREWS AND INCORPORATES QUICK REMOVAL FASTENERS FOR EASY FILTER MAINTENANCE.

2.11 OUTDOOR AIR
A. NO OUTDOOR AIR CONNECTION REQUIRED

2.12 POWER SUPPLY
A. THE UNIT MANUFACTURER SHALL FURNISH A 115/1/60 SINGLE SOURCE SINGLE POINT POWER CONNECTION FOR THE FAN. POWER CONNECTIONS ARE MADE TO THE UNIT JUNCTION BOX THROUGH A 7/8" KNOCKOUT LOCATED ON BOTH THE LEFT AND RIGHT SIDES OF THE UNIT.

2.13 DISCONNECT
A. (OPTION 1) EACH UNIT SHALL INCLUDE A NON-FUSED DISCONNECT SWITCH, FACTORY MOUNTED AND WIRED.

(OPTION 2) EACH UNIT SHALL INCLUDE A FUSED DISCONNECT SWITCH, FACTORY MOUNTED AND WIRED.

2.14 CONTROLS
A. THE UNIT MANUFACTURER SHALL FURNISH A 115/1/60 WALL THERMOSTAT FOR FIELD MOUNTING ON THE FRONT OF THE UNIT AFTER THE WALL IS FINISHED. THE THERMOSTAT SHALL PLUG INTO THE UNIT THROUGH A POLARIZED MALE-FEMALE PLUG. THE THERMOSTAT SHALL BE OF THE AUTOMATIC CHANGEOVER TYPE, AND SHALL INCORPORATE A HI-LO FAN SPEED SWITCH.

B. THE HYDRONIC CONTROL VALVE SHALL BE AN ELECTRIC TWO-WAY, TWO-POSITION TYPE WITH A 25-PSI MINIMUM SHUT-OFF DIFFERENTIAL AND UTILIZE FULLY REMOVABLE POWER ASSEMBLIES. FURNISH TWO BALL-TYPE SHUT OFF VALVES IN EACH UNIT. THE MANUFACTURER SHALL INSTALL CONTROL AND SHUTOFF VALVE PIPING PACKAGES. THE FAN SHALL RUN CONTINUOUSLY WHEN THE SPEED SWITCH IS IN THE HI OR LOW POSITION.

C. OTHERS SHALL INSTALL THERMOSTAT BY PLUGGING INTO THE CONTROL WIRING WITH A POLARIZED MALE-FEMALE PLUG AFTER THE WALLS ARE FINISHED WHEN UNIT MOUNTED OR ATTACHING TO COLOR CODED PIGTAILS WHEN REMOTE MOUNTED.

PART 3 EXECUTION

3.01 INSTALLATION
A. FURNISH AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN, TWO PIPE ROOM FAN COIL UNIT AND WITH CAPACITY AND ELECTRICAL CHARACTERISTICS AS SCHEDULED. UNITS SHALL BE ROOM FAN COIL AS MANUFACTURED BY THE WHALEN COMPANY OF EASTON, MD OR EQUAL APPROVED BY THE ENGINEER OF THE RECORD AND THE OWNER..

B. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL UNITS PLUMB AND LEVEL, AND MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES FOR THE UNIT AND ACCESSORIES.

END OF SECTION 15623

SECTION 15660 - AIR DISTRIBUTION DEVICES

PART 1 - REGISTERS, GRILLES, DIFFUSERS AND LOUVERS

1.01 FURNISH AND INSTALL WHERE SHOWN ON DRAWINGS ALL REGISTERS, GRILLES, DIFFUSERS AND LOUVERS IN ACCORDANCE WITH THE TABULATION IN THE SCHEDULE ON DRAWINGS.

1.02 PROVIDE ACCESSORIES AND MODIFICATIONS AS INDICATED IN SCHEDULE NOTES.

1.03 MANUFACTURER LISTED IN SCHEDULE IS FOR DESIGN SELECTION ONLY. REGISTERS, GRILLES AND DIFFUSERS AS MANUFACTURED BY PRICE, KRUEGER, TITUS, CARNES, METALAIRE OR APPROVED EQUAL WILL BE ACCEPTED.

END OF SECTION 15660

SECTION 15870 - POWER VENTILATORS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. CEILING EXHAUST FANS.

1.02 RELATED WORK

A. SECTION 15890 - DUCTWORK.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. GREENHECK, LOREN COOK, PENN, BROAN, NUTONE OR APPROVED EQUAL.

2.02 CEILING EXHAUST FANS

A. CENTRIFUGAL FAN UNIT: DIRECT DRIVE, WITH GALVANIZED STEEL HOUSING LINED WITH 1/2 INCH ACOUSTIC INSULATION, RESILIENT MOUNTED MOTOR.

B. DISCONNECT SWITCH: FACTORY WIRED, NON-FUSIBLE, IN HOUSING FOR THERMAL OVERLOAD PROTECTED MOTOR.

C. GRILLE: MOLDED WHITE PLASTIC, STEEL OR ALUMINUM WITH BAKED WHITE ENAMEL FINISH. PROVIDE WITH INTEGRAL RADIATION DAMPER WHERE INSTALLED IN RATED CEILING ASSEMBLY.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

END OF SECTION 15870

SECTION 15890 - DUCTWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. LOW PRESSURE DUCTS (INCLUDING EXHAUST AIR, OUTSIDE AIR, & SUPPLY AIR)

B. INSULATION.

1.02 DEFINITIONS

A. DUCT SIZES: INSIDE CLEAR DIMENSIONS. FOR LINED DUCTS, MAINTAIN SIZES INSIDE LINING.

PART 2 - PRODUCTS

2.01 MATERIALS

A. GENERAL: NON-COMBUSTIBLE OR CONFORMING TO REQUIREMENTS FOR CLASS 1 AIR DUCT MATERIALS, OR UL 181.

B. ALL DUCT MATERIAL AND COVERING SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.

C. STEEL DUCTS: ASTM A525 OR ASTM A 527 GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING ZINC COATING OF 1.25 OZ. PER SQ. FT. FOR EACH SIDE IN CONFORMANCE WITH ASTM A90.

D. SPIRAL DUCT: GALVANIZED STEEL, DOUBLE WALL, INSULATED SPIRAL DUCT CONSTRUCTION. PROVIDE WITH GASKET SEALING AND FLANGE CONNECTION AND BARREL TYPE CLAMPS.

E. FASTENERS: RIVETS, BOLTS OR SHEET METAL SCREWS.

F. SEALANT: NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH MATING MATERIALS; LIQUID USED ALONG OR WITH TAPE, OR HEAVY MASTIC.

PART 3 - INSTALLATION

3.01 LOW PRESSURE DUCTWORK

A. FABRICATE AND SUPPORT IN COMPLETE ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS AND ASHRAE HANDBOOKS, LATEST EDITIONS, EXCEPT AS INDICATED. PROVIDE DUCT MATERIAL, GAGES, REINFORCING, AND SEALING FOR OPERATING PRESSURES INDICATED.

B. SIZE ROUND DUCTS INSTALLED IN PLACE OR RECTANGULAR DUCTS IN ACCORDANCE WITH ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY WRITTEN PERMISSION.

C. CONSTRUCT T'S, BENDS AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES.

D. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE. DIVERGENCE UPSTREAM OF EQUIPMENT SHALL NOT EXCEED 30 DEGREES; CONVERGENCE DOWNSTREAM SHALL NOT EXCEED 30 DEGREES.

E. PROVIDE EASEMENT WHERE LOW PRESSURE DUCTWORK CONFLICTS WITH PIPING AND STRUCTURE. WHERE EASEMENTS EXCEED 10 PERCENT DUCT AREA, SPLIT INTO TWO DUCTS CONTAINING ORIGINAL DUCT AREA.

F. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCHES AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW.

PART 4 - INSULATION

4.01 INTERNAL

A. GLASS FIBER; ANSI/ASTM C553, 1.5 LB./CU. FT. MINIMUM DENSITY. RUBBER IMPREGNATED AIR SIDE FOR MAXIMUM 4000 FPM AIR VELOCITY. MINIMUM R - VALUE OF 6.0, UNLESS DUCT IS INSTALLED IN MECHANICALLY COOLED SPACE OR BETWEEN FLOORS, IN WHICH CASE THE R - VALUE MAY BE 4.5. R - VALUES ARE TO BE DETERMINED AT 75 DEGREES F.

4.02 EXTERNAL

A. R-6 REFLEXTIX WRAP INSULATION OR EQUAL.

B. INSULATION MATERIAL AND JACKETS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.

C. ADHESIVES: WATERPROOF FIRE-RETARDANT TYPE.

D. LAGGING ADHESIVE: FIRE RESISTIVE TO ASTM E84, NFPA 255, UL 723.

E. IMPALE ANCHORS: GALVANIZED STEEL, 12 GAGE, SPOT WELDED OR SELF-ADHESIVE PAD. NO ANCHORS SHALL PENETRATE DUCT WALLS.

F. JOINT TAPE: PER INSULATION MANUFACTURER RECOMMENDATION.

G. TIE WIRE: ANNEALED STEEL, 16 GAGE.

4.03 INSTALLATION - INSULATION

A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. EXTERIOR INSULATION APPLICATION:

C. SECURE INSULATION WITH VAPOR BARRIER WITH WIRES AND SEAL JACKET JOINTS WITH VAPOR BARRIER ADHESIVE OR TAPE TO MATCH JACKET.

D. SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE.

E. INTERNAL APPLICATION:

ADHERE INSULATION WITH ADHESIVE FOR 100 PERCENT COVERAGE. SECURE INSULATION WITH MECHANICAL FASTENERS ON 15 INCH CENTERS MAXIMUM ON TOP AND SIDE OF DUCTWORK WITH DIMENSION EXCEEDING 20 INCHES. SEAL AND SMOOTH JOINTS. DO NOT USE NAIL-TYPE FASTENERS. SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE.

F. DUCTWORK DIMENSIONS INDICATED ARE NET INSIDE DIMENSIONS REQUIRED FOR AIR FLOW. INCREASE DUCTWORK TO ALLOW FOR INSULATION THICKNESS.

4.04 INSULATION SCHEDULE

A. CONCEALED SUPPLY AND RETURN DUCTS SHALL BE BE EXTERNALLY INSULATED.

B. EXPOSED SPIRAL SUPPLY DUCTWORK SHALL BE PRE FABRICATED DOUBLE WALL INTERNALLY INSULATED CONSTRUCTION.

PART 5 - HANGERS

5.01 ALL DUCT HANGERS IN DIRECT CONTACT WIT GALVANIZED DUCT SHALL BE GALVANIZED STEEL.

5.02 DUCT HANGERS MAY BE DIRECTLY ATTACHED TO DUCTS. DUCTS SHALL BE HUNG BY ANGLES OR STRAPS AS LISTED IN THE FOLLOWING SCHEDULE. RODS, STRAPS OR ANGLES MAY BE USED IN TRAPEZE HANGERS. HANGERS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE, EXCEPT THAT THERE SHALL BE NOT LESS THAN ONE SET OF HANGERS FOR EACH SECTION OF DUCTWORK. WHERE ELBOWS OR TEES ARE INSTALLED FOR CHANGES IN DIRECTION, HANGERS SHALL BE PROVIDED. NO DUCTWORK SHALL REST ON THE BUILDING STRUCTURAL SYSTEM.

CROSS-SECTIONAL AREA	HANGER STRAP	HANGER ANGLE
0-1.5 SQ. FT.	1" X 1/8"	1" X 1" X 1/8"
1.6-3.0 SQ. FT.	1" X 1/8"	1" X 1" X 1/8"
3.1-6.0 SQ. FT.	3/16" X 1-1/2"	1" X 1" X 1/8"

HANGER ROD DIAMETER	HANGER SET SPACE MAXIMUM
3/8"	6'-0"
1/2"	8'-0"

5.03 WHERE TRAPEZE HANGERS ARE USED, THE BOTTOM OF THE DUCT SHALL BE SUPPORTED TO ANGLE SIZED AS FOLLOWS (FOR ROUND DUCTS, THE ANGLE SHALL CONFORM TO THE BOTTOM 120 DEGREES OF THE DUCT):

DIAMETER OF DUCT	WIDTH OF DUCT	BOTTOM ANGLE SIZES
0" - 34"	0" - 30"	1" X 1" X 1/8"

5.04 ALL HANGERS SHALL BE SUFFICIENTLY CROSS-BRACED TO ELIMINATE, IN THE OPINION OF THE ARCHITECT, EXCESSIVE SWAY. WHEREVER DUCTWORK CONTAINS FILTER SECTIONS, COILS, FANS OR OTHER HEAVY EQUIPMENT (EXCLUDING REGISTERS, GRILLES, DIFFUSERS, SPLITTER DAMPERS, ETC.) SUCH EQUIPMENT SHALL BE HUNG INDEPENDENTLY OF THE DUCTWORK, WITH RODS OR ANGLES OF SIZES ADEQUATE TO SUPPORT THE LOAD.

PART 6 - PERMITTED DUCT MATERIAL USAGE

USAGE	MATERIAL
CONCEALED SUPPLY & RETURN	EXTERNALLY INSULATED GALV. STEEL
EXPOSED SUPPLY	SPIRAL, DOUBLE WALL INSULATED GALV. STEEL
TOILET EXHAUST	GALVANIZED STEEL, 26 GAUGE MINIMUM, NO INSULATION.
DRYER VENT	GALVANIZED STEEL, 26 GAUGE MINIMUM, NO INSULATION.
OUTSIDE AIR	GALVANIZED STEEL, 26 GAUGE MINIMUM, NO INSULATION.

END OF SECTION 15890

SECTION 15895 - DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. VOLUME CONTROL DAMPERS.

B. BACKDRAFT DAMPERS.

C. AIR TURNING DEVICES.

D. FLEXIBLE DUCT CONNECTIONS.

PART 2 - PRODUCTS

2.01 VOLUME CONTROL DAMPERS

A. FABRICATE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, AND AS INDICATED. AIR BALANCE, BARBER-COLMAN, CARNES, NATIONAL CONTROLLED AIR, RUSKIN, CESCO OR APPROVED EQUAL.

B. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12 INCH.

C. FABRICATE MULTI-BLADE DAMPER OF OPPOSED BLADE PATTERN WITH MAXIMUM BLADE SIZES 12 X 72 INCH. ASSEMBLE CENTER AND EDGE CRIMPED BLADES IN PRIME COATED OR GALVANIZED CHANNEL FRAME WITH SUITABLE HARDWARE.

D. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS. ON MULTIPLE BLADE DAMPERS, PROVIDE OIL-IMPREGNATED NYLON OR SINTERED BRONZE BEARINGS.

E. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS. WHERE ROD LENGTHS EXCEED 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.

2.02 BACKDRAFT DAMPERS:

A. DAMPERS SHALL BE AIR BALANCE VENT COCK, ANEMOSTAT, RUSKIN, CESCO OR APPROVED EQUAL.

B. GRAVITY BACKDRAFT DAMPERS, SIZE 18 X 18 INCHES OR SMALLER, FURNISHED WITH AIR MOVING EQUIPMENT, MAY BE AIR MOVING EQUIPMENT MANUFACTURER'S STANDARD CONSTRUCTION.

C. FABRICATE MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS OF 16 GAGE GALVANIZED STEEL, WITH CENTER PIVOTED BLADES OF MAXIMUM 6 INCH WIDTH, WITH FELT OR FLEXIBLE VINYL SEALED EDGES, LINKED TOGETHER IN RATTLE-FREE MANNER WITH 90 DEGREE STOP, STEEL BALL BEARINGS, AND PLATED STEEL PIVOT PIN; ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.

2.03 AIR TURNING DEVICES:

A. AIR TURNING VANES SHALL BE BARBER COLMAN, TUTTLE AND BAILEY, ANEMOSTAT, METALAIRE OR APPROVED EQUAL.

B. MULTI-BLADE DEVICE WITH BLADES ALIGNED IN SHORT DIMENSION; STEEL OR ALUMINUM CONSTRUCTION; WITH INDIVIDUALLY ADJUSTABLE BLADES, MOUNTING STRAPS. PROVIDE IN ALL SQUARE TURNS.

2.04 FLEXIBLE DUCT CONNECTIONS:

A. SHALL BE VENT FABRIC 6" VENTGLAS, ANEMOSTAT, BARBER COLMAN OR APPROVED EQUAL.

B. FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS 1ST EDITION 1985.

C. UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90A, MINIMUM DENSITY 20 OZ. PER SQUARE YARD, APPROXIMATELY 6 INCHES WIDE, CRIMPED INTO METAL EDGING STRIP.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. PROVIDE BALANCING DAMPERS AT POINTS ON LOW PRESSURE SUPPLY, RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING.

C. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT. NOT REQUIRED IF FIBROUS GLASS DUCT IS USED.

END OF SECTION 15895

15010 MECHANICAL REQUIREMENTS:

DO ALL WORK IN COMPLIANCE WITH ALL APPLICABLE CODES, LAWS AND ORDINANCES, THE STANDARD BUILDING CODE AND THE REGULATIONS OF THE LOCAL UTILITY COMPANIES. OBTAIN AND PAY FOR ANY AND ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES OF INSPECTIONS.

COOPERATE WITH OTHER TRADES AND CONTRACTORS AT JOB. PERFORM WORK IN SUCH MANNER AND AT SUCH TIMES AS NOT TO DELAY WORK OF OTHER TRADES.

OBTAIN MANUFACTURER'S DATA ON ALL EQUIPMENT, THE DIMENSIONS OF WHICH MAY AFFECT INSTALLATION. USE THIS DATA TO COORDINATE PROPER SERVICE CHARACTERISTICS, ENTRY LOCATIONS, ETC., AND TO INSURE MINIMUM CLEARANCES ARE MAINTAINED.

WORKMAN SHALL BE EXPERIENCED IN THEIR RESPECTIVE TRADE. WORKMANSHIP OF INSTALLED WORK SHALL BE FIRST CLASS AND WILL BE SO JUDGED. SUBSTANDARD WORK SHALL BE REMOVED AND REPLACED AT CONTRACTOR'S EXPENSE.

CONTRACTOR SHALL AND DOES HEREBY WARRANT ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THIS SECTION TO BE FREE FROM DEFECTS AND TO FUNCTION OR OPERATE SATISFACTORILY FOR ONE YEAR AFTER FINAL ACCEPTANCE OF THE WORK, AND THAT ANY ITEMS NOT MEETING THIS REQUIREMENT WILL BE MADE GOOD BY HIM WITHOUT ANY COST TO THE OWNER.

PROVIDE ONLY NEW, STANDARD FIRST-GRADE MATERIALS THROUGHOUT, CONFORMING TO STANDARDS ESTABLISHED BY UNDERWRITER LABORATORIES INC., ANS SO MARKED AND LABELED, TOGETHER WITH MANUFACTURER'S BRAND OR TRADEMARK. ALL LIKE ITEMS SHALL BE OF ONE MANUFACTURER.

ALL WORK SHALL BE EXECUTED IN A MANNER THAT SHALL PRESENT A NEAT APPEARANCE UPON COMPLETION. CARE SHALL BE EXERCISED THAT ALL ITEMS ARE PLUMB, STRAIGHT AND LEVEL.

UPON COMPLETION OF WORK, ALL SYSTEMS SHALL BE TESTED, AND SHALL BE SHOWN TO BE IN PERFECT WORKING CONDITION IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS.

ANY WALLS, CEILINGS, EQUIPMENT, ETC., DAMAGED BY THE CONTRACTOR IN CONSTRUCTION OF THIS PROJECT SHALL BE REPAIRED, RESTORED AND/OR REPLACED BY THE CONTRACTOR TO ITS ORIGINAL CONDITION, OR TO PERFORM ITS INTENDED FUNCTION, AT NO ADDITIONAL COST TO OWNER.

15990 TEST AND BALANCE:

CONTRACTOR SHALL BE CERTIFIED BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR BY ASSOCIATED AIR BALANCE COUNCIL (AABC).

TEST AND BALANCE ALL AIR SYSTEMS IN ACCORDANCE WITH AABC AND/OR NEBB REQUIREMENTS. ALL EQUIPMENT USED FOR TESTING SHALL BE IN PROPER WORKING ORDER.

THE CONTRACTOR SHALL REGULATE AND ADJUST ALL SPLITTERS, DEFLECTORS AND DAMPERS SO THAT THE INLET OR OUTLET SHALL DELIVER OR REMOVE THE REQUIRED NUMBER OF CUBIC FEET OF AIR PER MINUTE (CFM) AT THE RESPECTIVE OPENINGS.

ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE CONSTRUCTION SUPERINTENDENT, OR HIS REPRESENTATIVE.

THE CONTRACTOR SHALL FURNISH ALL INSTRUMENTS, TESTING EQUIPMENT AND PERSONNEL THAT MAY BE REQUIRED FOR THE TESTS.

The Phoenix Apartments
Interior Alterations

5802 Annapolis Road
Bladensburg, Maryland 20710

NOVITSKE ARCHITECTS

201 North Fairfax Street , Suite 33
Alexandria VA 22314
703 535 7899 , 703 535 8840 fax

OCI ASSOCIATES, INC.
CONSULTING ENGINEERS
Orlando - FL/Pensa - West Palm Beach - FL/Miami - Tampa
Washington D.C.
7700 Leesburg Pike, Suite# 201
Falls Church, VA 22043
Phone: (703) 448-0213 Fax: (703) 448-0215
www.ociassociates.com
CERTIFICATE OF AUTHORIZATION #0261

I certify that these documents were prepared by or approved by me and that I am a duly licensed professional engineer under the laws of the State of Maryland, license number 18505 expiration date 6/30/15.

key plan

graphic scales

project: 21413
phase: PERMIT SET
date: 16 February 2015
revisions:

SPECIFICATIONS - H.V.A.C.

M-001

PRINT DATE:6/24/2014 5:12 PM SAVE DATE:2/16/2015 10:59 AM FILE LOCATION:K:\2014 PROJECTS\14203 - THE PHOENIX\DWGS\14203M-001.DWG