

MECHANICAL SPECIFICATION

SECTION 23 05 00

COMMON REQUIREMENTS FOR MECHANICAL WORK:

1.0 GENERAL

1.01 SCOPE OF DIVISION: WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR A COMPLETE AND PROPERLY FUNCTIONING MECHANICAL INSTALLATION IN ACCORDANCE WITH REQUIREMENTS OF THE FLORIDA BUILDING CODE 2017 - BUILDING AND MECHANICAL CODE AND NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).

1.02 DRAWINGS: ARCHITECTURAL AND STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER MECHANICAL DRAWINGS WITH REFERENCE TO THE BUILDING CONSTRUCTION. MECHANICAL DRAWINGS ARE DIAGRAMATIC AND INDICATE THE GENERAL ARRANGEMENT AND EXTENT OF WORK. EXACT LOCATIONS AND ARRANGEMENTS OF MATERIALS AND EQUIPMENT SHALL BE DETERMINED, WITH THE APPROVAL OF THE ENGINEER, AS WORK PROGRESSES TO CONFORM IN THE BEST POSSIBLE MANNER WITH THE SURROUNDINGS AND WITH THE ADJOINING WORK OF OTHER TRADES.

1.03 COORDINATION OF WORK: COORDINATE ALL WORK, PRIOR TO INSTALLATION, WITH WORK OF OTHER TRADES AND WITH ARCHITECTURAL AND STRUCTURAL FEATURES TO PRECLUDE INTERFERENCE'S BETWEEN THE WORK OF DIFFERENT TRADES AND TO INSURE NECESSARY CLEARANCES AT CROSSOVERS AND EQUIPMENT.

1.04 SHOP DRAWINGS: SUBMIT TO ENGINEER FOR APPROVAL, BEFORE COMMENCING WORK, SHOP DRAWINGS FOR ALL MECHANICAL MATERIALS AND EQUIPMENT TO BE PROVIDED.

A. PRESENT DATA IN DETAIL EQUAL TO OR GREATER THAN THAT GIVEN IN ITEM SPECIFICATIONS AND INCLUDE ALL WEIGHTS, DEFLECTIONS, SPEEDS, VELOCITIES, PRESSURE DROPS, OPERATING TEMPERATURES, OPERATING CURVES, TEMPERATURE RANGES, SOUND RATINGS, DIMENSIONS, SIZES, MANUFACTURERS' NAMES, MODEL NUMBERS, TYPES OF MATERIAL USED, OPERATING PRESSURES, FULL LOAD AMPERAGES, STARTING AMPERAGES, FOULING FACTORS, CAPACITIES, SETPOINTS, CHEMICAL COMPOSITIONS, CERTIFICATIONS AND ENDORSEMENTS, OPERATING VOLTAGES, THICKNESSES, GAUGES AND ALL OTHER RELATED.

1.05 RECORD DRAWINGS:

A. MAINTAIN ONE EXTRA SET OF BLACK LINE, WHITE PRINT DRAWINGS FOR USE AS RECORD DRAWINGS. RECORDS SHALL BE KEPT DAILY, USING COLORED PENCIL, AS THE WORK IS COMPLETED, RELEVANT INFORMATION SHALL BE TRANSFERRED TO A REPRODUCIBLE SET, AND COPIES MADE SHALL BE GIVEN TO THE ENGINEER.

1.06 FEES AND PERMIT:

A. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION

2.0 PRODUCTS

2.01 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT.

B. EQUIPMENT AND MATERIALS SHALL BE PRODUCTS WHICH WILL MEET WITH THE ACCEPTANCE OF THE AGENCY INSPECTING THE WORK. WHEN ACCEPTANCE IS CONTINGENT UPON HAVING THE PRODUCTS EXAMINED, TESTED, AND CERTIFIED BY UNDERWRITERS OR OTHER RECOGNIZED TESTING LABORATORY, THE PRODUCT SHALL BE SO EXAMINED, TESTED, AND CERTIFIED.

2.02 MOTORS: UNLESS SPECIFICALLY SPECIFIED OTHERWISE IN THE SECTION COVERING THE DRIVEN EQUIPMENT (OR THE EQUIPMENT DRIVES), MOTORS SHALL COMPLY WITH THE FOLLOWING:

A. THREE PHASE: NEMA DESIGN B, THREE-PHASE, SQUIRREL CAGE INDUCTION TYPE DESIGNED FOR 1800 RPM SYNCHRONOUS SPEED FOR OPERATION IN 40 DEGREE C AMBIENT AT 1.15 SERVICE FACTOR AT CONSTANT SPEED ON THE SCHEDULED VOLTAGE. MOTORS SHALL BE INSULATED WITH CLASS B INSULATION MATERIAL AND SHALL BE CAST IRON, DRIP PROOF, HORIZONTAL FOOT MOUNTED TYPE WITH BALL BEARINGS. TWO SPEED MOTORS SHALL BE PROVIDED AS SCHEDULED AND SHALL BE TWO WINDING TYPE.

B. SCHEDULED HORSEPOWER: THE HORSEPOWER SCHEDULED OR SPECIFIED ARE THOSE NOMINAL SIZES ESTIMATED TO BE REQUIRED BY THE EQUIPMENT WHEN OPERATING AT SPECIFIED DUTIES AND EFFICIENCIES. IF THE ACTUAL HORSEPOWER FOR THE EQUIPMENT FURNISHED DIFFERS FROM THAT SPECIFIED OR SHOWN ON THE DRAWINGS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT PROPER SIZE FEEDERS, BREAKERS, STARTERS, ETC. ARE PROVIDED AT NO CHANGE IN CONTRACT PRICE.

SECTION 23 05 03

PIPES AND TUBES FOR HVAC PIPING AND EQUIPMENT:

1.0 GENERAL

1.01 SCOPE: PROVIDE CONDENSATE DRAIN PIPING FROM COOLING COIL DRAIN PANS.

2.0 PRODUCTS

2.01 PIPE: PVC, SCHEDULE 40; ASTM D2665.

2.02 FITTINGS: SOLVENT WELD SOCKET TYPE PVC, STANDARD WEIGHT; ASTM 2466.

2.03 SOLDER: AS RECOMMENDED BY PIPE MANUFACTURER.

3.0 EXECUTION

3.01 GENERAL: PIPING SHALL BE SLOPED UNIFORMLY TOWARD DRAIN, AND PROVIDED WITH TRAP SEAL HAVING A DEPTH, IN INCHES, EQUIVALENT TO THE TOTAL STATIC PRESSURE OF THE RESPECTIVE FAN SYSTEM. TRAPS SHALL BE ASSEMBLED USING ELBOWS AND TEES WITH THREADED PLUGS TO PERMIT CLEANING OF TRAP AND DRAIN LINE. PIPING SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER AND SHALL BE NOT SMALLER THAN FULL SIZE OF THE EQUIPMENT DRAIN CONNECTION OR THREE-QUARTERS INCH (3/4") WHICHEVER IS LARGER.

SECTION 23 05 53

INSTRUCTIONS AND MAINTENANCE MANUALS:

1.0 GENERAL:

1.01 PROVIDE COMPLETE WRITTEN AND VERBAL OPERATING AND MAINTENANCE INSTRUCTION TO THE OWNER FOR ALL MECHANICAL SYSTEMS.

2.0 DOCUMENTATION:

2.01 PROVIDE TWO (2) INSTRUCTIONS AND MAINTENANCE MANUALS, EACH COMPLETE AS FOLLOWS:

A. HARDBACK THREE RING LOOSE-LEAF BINDERS.

B. TITLE SHEET WITH JOB NAME, CONTRACTOR'S, SUBCONTRACTOR'S, CONTROL SUBCONTRACTOR'S, AND RELATED CONTRACTOR'S OR MATERIAL SUPPLIERS NAMES, ADDRESSES AND PHONE NUMBERS.

C. INDEX OF CONTENTS.

D. A SIGNED COPY OF ACKNOWLEDGMENT OF INSTRUCTIONS TO THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. TWO ADDITIONAL COPIES OF THE SIGNED ACKNOWLEDGEMENT SHALL BE SENT DIRECTLY TO THE ENGINEER AS SOON AS POSSIBLE AFTER RECEIPT.

E. TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING THE FOLLOWING FOR EACH PIECE OF EQUIPMENT AND SYSTEMS:

- 1. HOW TO START AND STOP EACH PIECE OF EQUIPMENT.
2. HOW TO SET EQUIPMENT AND SYSTEMS FOR NORMAL OPERATION.
3. NORMAL RESTARTING PROCEDURES BEFORE CONTACTING THE SERVICE CONTRACTOR.
4. COMPLETE DESCRIPTION OF FUNCTIONS AND OPERATIONS OF EACH PIECE OF EQUIPMENT INCLUDING DESCRIPTION OF HOW EQUIPMENT OPERATES IN CONJUNCTION WITH AUTOMATIC CONTROL SYSTEMS.
5. INSTRUCTIONS FOR CLEANING, OILING, GREASING, FUELING AND SIMILAR TASKS.

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING

1.0 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

- 1. TESTING ADJUSTING, AND BALANCING OF AIR SYSTEMS.
2. TESTING ADJUSTING, AND BALANCING OF HYDRONIC SYSTEMS.
3. MEASUREMENT OF FINAL OPERATING CONDITION OF HVAC SYSTEMS.

1.2 REFERENCES

A. ASSOCIATED AIR BALANCE COUNCIL:

1. AABC MN-1 - NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS.

B. AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS:

1. ASHRAE 111 - PRACTICES FOR MEASUREMENT, TESTING, ADJUSTING AND BALANCING OF BUILDING HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION SYSTEMS.

C. NATURAL ENVIRONMENTAL BALANCING BUREAU:

1. NEBB - PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS.

1.3 CLOSEOUT SUBMITTALS

A. PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF BALANCING VALVES AND ROUGH SETTING.

B. OPERATION AND MAINTENANCE DATA: FURNISH FINAL COPY OF TESTING, ADJUSTING, AND BALANCING REPORT INCLUSION IN OPERATING AND MAINTENANCE MANUALS.

1.4 QUALITY ASSURANCE

A. PERFORM WORK IN ACCORDANCE WITH AABC MN-1 NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE.

B. GUARANTEE: THE TEST AND BALANCE AGENCY SHALL INCLUDE A WARRANTY PERIOD OF NINETY (90) DAYS AFTER COMPLETION AND ACCEPTABLE OF TEST AND BALANCE WORK. DURING THE WARRANTY PERIOD, THE ARCHITECT MAY REQUEST A RE-CHECK OR RE-SETTING OF ANY OUTLET AND SUPPLY FAN. THE TEST AND BALANCE AGENCY SHALL PROVIDE TECHNICIANS, INSTRUMENTS, AND TOOLS TO ASSIST THE ARCHITECT IN CONDUCTING ANY TEST THAT HE MAY REQUIRE DURING THIS TIME. THE FOREGOING SHALL BE IN ADDITION TO THE A.A.M.C. NATIONAL PROJECT CERTIFICATION PERFORMANCE GUARANTY WHICH SHALL BE FORWARDED WITH SHOP DRAWING DATA SPECIFIED HEREIN BEFORE.

1.5 QUALIFICATIONS

A. AGENCY: COMPANY SPECIALIZING IN TESTING, ADJUSTING, AND BALANCING OF SYSTEMS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE AND CERTIFIED BY AABC OR NEBB.

B. PERFORM WORK UNDER SUPERVISION OF AABC CERTIFIED TEST AND BALANCE ENGINEER.

A. ACCEPTABLE AGENCIES: TEST PHOENIX AGENCY, SOUTHERN INDEPENDENT TESTING AGENCY OR OTHER AGENCY APPROVED BY ENGINEER.

2.0 PRODUCTS

A. NATIONAL STANDARDS: TESTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH A.A.B.C. NATIONAL STANDARDS.

3.0 EXECUTION

3.1 SCHEDULES

A. EQUIPMENT REQUIRING TESTING, ADJUSTING, AND BALANCING:

- 1. AIR COILS.
2. AIR HANDLING UNITS.
3. AIR TERMINAL UNITS.
4. FANS.
5. AIR INLETS AND OUTLETS.

B. REPORT FORMS

- 1. TITLE PAGE
A. NAME OF TESTING, ADJUSTING, AND BALANCING AGENCY
B. ADDRESS OF TESTING, ADJUSTING, AND BALANCING AGENCY
C. TELEPHONE AND FACSIMILE NUMBER OF TESTING, ADJUSTING, AND BALANCING AGENCY
D. PROJECT NAME
E. PROJECT LOCATION
F. PROJECT ARCHITECT
G. PROJECT ENGINEER
H. PROJECT CONTRACTOR
I. REPORT DATE

SUMMARY COMMENTS:

- A. DESIGN VERSUS FINAL PERFORMANCE
B. NOTABLE CHARACTERISTICS OF SYSTEM
C. DESCRIPTION OF SYSTEMS OPERATION SEQUENCE
D. NOMENCLATURE USED THROUGHOUT REPORT
E. TEST CONDITIONS

3. INSTRUMENT LIST:

- A. INSTRUMENT
B. MANUFACTURER
C. MODEL NUMBER
D. SERIAL NUMBER
E. RANGE
F. CALIBRATION DATE

4. ELECTRIC MOTORS:

- A. MANUFACTURER
B. MODEL/FRAME
C. HP/BHP AND KW
D. PHASE, VOLTAGE, AMPERAGE; NAMEPLATE, ACTUAL, NO LOAD
E. RPM
F. SERVICE FACTOR
G. STARTER SIZE, RATING, HEATER ELEMENTS
H. SHEAVE MAKE/SIZE/BORE

- 5. V-BELT DRIVE:
A. IDENTIFICATION/LOCATION
B. REQUIRED DRIVEN RPM
C. DRIVEN SHEAVE, DIAMETER AND RPM
D. BELT, SIZE AND QUANTITY
E. MOTOR SHEAVE DIAMETER AND RPM
F. CENTER TO CENTER DISTANCE, MAXIMUM, MINIMUM, AND ACTUAL

6. COOLING COIL DATA:

- A. IDENTIFICATION/NUMBER
B. LOCATION
C. SERVICE
D. MANUFACTURER
E. AIR FLOW, DESIGN AND ACTUAL
F. ENTERING AIR DB TEMPERATURE, DESIGN AND ACTUAL
G. ENTERING AIR WB TEMPERATURE, DESIGN AND ACTUAL
H. LEAVING AIR DB TEMPERATURE, DESIGN AND ACTUAL
I. LEAVING AIR WB TEMPERATURE, DESIGN AND ACTUAL
J. WATER FLOW, DESIGN AND ACTUAL
K. WATER PRESSURE DROP, DESIGN AND ACTUAL
L. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL
M. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL
N. AIR PRESSURE DROP, DESIGN AND ACTUAL

7. AIR MOVING EQUIPMENT:

- A. LOCATION
B. MANUFACTURER
C. MODEL NUMBER
D. SERIAL NUMBER
E. ARRANGEMENT/CLASS/DISCHARGE
F. AIR FLOW, SPECIFIED AND ACTUAL
G. RETURN AIR FLOW, SPECIFIED AND ACTUAL
H. OUTSIDE AIR FLOW, SPECIFIED AND ACTUAL
I. TOTAL STATIC PRESSURE (TOTAL EXTERNAL), SPECIFIED AND ACTUAL
J. INLET PRESSURE
K. DISCHARGE PRESSURE
L. SHEAVE MAKE/SIZE/BORE
M. NUMBER OF BELTS/MAKE/SIZE
N. FAN RPM

8. AIR DISTRIBUTION TEST SHEET:

- A. AIR TERMINAL NUMBER
B. ROOM NUMBER/LOCATION
C. TERMINAL TYPE
D. TERMINAL SIZE
E. AREA FACTOR
F. DESIGN VELOCITY
G. DESIGN AIR FLOW
H. TEST (FINAL) VELOCITY
I. TEST (FINAL) AIR FLOW
J. PERCENT OF DESIGN AIR FLOW

SECTION 23 07 00

INSULATION: THERMAL

1.0 GENERAL

1.01 SCOPE: PROVIDE PLANT, LABOR, AND MATERIAL TO INSULATE EQUIPMENT, PIPING AND MISCELLANEOUS ITEMS AND THE PIPING AND DUCT SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.

1.02 NFPA 90A: ALL MATERIALS AND ADHESIVES USED IN OR ON DUCTWORK SHALL CONFORM TO THE REQUIREMENTS OF NFPA 90A AS TO FLAME SPREAD AND SMOKE DEVELOPED RATINGS.

2.0 PRODUCTS

2.01 INSULATION MATERIALS, GENERAL: INSULATION MATERIALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, THE FOLLOWING:

2.01 DUCTWORK INSULATION MATERIALS:

A. FIBERGLASS BLANKET INSULATION: FIBERGLASS DUCT INSULATION, ONE AND ONE-HALF (1-1/2) INCH THICK, ONE (1) POUND PER CUBIC FOOT DENSITY WITH REINFORCED FOIL SCRIM KRAFT VAPOR BARRIER, MINIMUM THERMAL RESISTANCE OF 6.0.

B. FIBERGLASS RIGID BOARD INSULATION: FIBERGLASS DUCT BOARD, STIFFNESS OF 800 EI, HEAVY DUTY FOIL FACING ON EXPOSED SURFACE CONSISTING OF FOIL, FIBERGLASS SCRIM REINFORCEMENT AND TWO LAYERS OF KRAFT PAPER IN A OIL-KRAFT-SCRIM-KRAFT PATTERN, WITH A THERMAL RESISTANCE OF 6.0.

2.02 PIPE INSULATION MATERIALS:

A. CELLULAR GLASS: ASTM C552; K FACTOR OF 0.29 AT 75 DEGREES F (KSI VALUE OF 0.047 AT 24 DEGREES C); 8.0 LB/CU FT (128 KG/CU M) DENSITY.

B. CELLULAR FOAM: ASTM C634; FLEXIBLE, CELLULAR ELASTOMERIC, MOLDED.

- 1. K (KSI) VALUE: 0.27 AT 150 DEGREES F.
2. MAXIMUM SERVICE TEMPERATURE: 220 DEGREES F.
3. CONNECTION: WATERPROOF VAPOR RETARDER ADHESIVE.

C. GLASS FIBER: ASTM C547; MINERAL FIBER PIPE INSULATION.

- 1. K (KSI) VALUE: 0.27 AT 150 DEGREES F.
2. MAXIMUM SERVICE TEMPERATURE: 220 DEGREES F.
3. CONNECTION: WATERPROOF VAPOR RETARDER ADHESIVE.

D. JACKETS:

- 1. PVC PLASTIC PIPE JACKET:
2. PRODUCT DESCRIPTION: ASTM D1784, ONE PIECE MOLDED TYPE FITTING COVERS AND SHEET MATERIAL, OFF-WHITE COLOR.
3. THICKNESS: 10 MIL.
4. CONNECTIONS: TACKS.

2.03 ADHESIVES, MASTICS, SEALANTS: ADHESIVES, MASTICS, SEALANTS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING:

A. GLASS FIBER INSULATION (FABRIC AND MASTIC):

1. ADHESIVE: FOSTER 85-20.

2. MASTIC: FOSTER 35-00.

3.0 EXECUTION

3.01 DUCTWORK:

A. INTERIOR CONCEALED: DUCTWORK SHALL BE INSULATED EXTERNALLY WITH FIBERGLASS BLANKET WRAP. OVERLAP INTERNAL INSULATION A MINIMUM OF ONE FOOT BEYOND ANY SUCH INTERNAL INSULATION, AND VAPOR SEAL RAW END AS SPECIFIED HEREIN FOR JOINTS. ADHERE DUCT INSULATION USING ADHESIVE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE DUCT WIDTH EXCEEDS TWENTY-FOUR INCHES (24"), THE INSULATION SHALL BE ADDITIONALLY SECURED TO THE BOTTOM OF THE DUCT USING MECHANICAL FASTENERS SPACED ONE FOOT (1') ON CENTER. INSULATION SHALL BE APPLIED WITH EDGES TIGHTLY BUTTED, AND ALL JOINTS AND BREAKS IN THE VAPOR BARRIER SEALED USING GLASS FABRIC AND MASTIC APPLIED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.

B. INTERIOR EXPOSED: DUCTWORK SHALL BE INSULATED EXTERNALLY WITH FIBERGLASS DUCTBOARD INSULATION. INSULATION SHALL BE APPLIED WITH EDGES TIGHTLY BUTTED, AND ALL JOINTS AND BREAKS IN THE VAPOR BARRIER SEALED USING GLASS FABRIC AND MASTIC APPLIED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3.02 PIPING:

A. CHILLED WATER PIPING: INSULATE WITH CELLULAR GLASS INSULATION, INSULATION THICKNESS SHALL BE 2 INCHES. PROVIDE PVC JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. PROVIDE WITH VAPOR BARRIER.

B. HOT WATER PIPING: INSULATE WITH PREFORMED FIBERGLASS PIPE INSULATION, INSULATION THICKNESS SHALL BE 2 INCHES. PROVIDE PVC JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. PROVIDE WITH VAPOR BARRIER.

C. CONDENSATE DRAIN PIPING: INSULATE WITH CELLULAR FOAM ELASTOMERIC PIPE INSULATION, SECURED WITH ADHESIVE. INSULATION THICKNESS SHALL BE THREE QUARTER INCH (3/4").

SECTION 23 30 00

HVAC AIR DISTRIBUTION:

1.0 GENERAL

1.01 SCOPE: PROVIDE ALL AIR DISTRIBUTION DEVICES AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN FOR A COMPLETE AND OPERABLE SYSTEM.

1.02 RELATION TO OTHER WORK: COORDINATE WITH WORK OF THE CEILING, DRAINAGE, AND VENTILATING TRADES AS REQUIRED TO INSURE AN ORDERLY PROGRESSION OF WORK AND A FIRST CLASS FINISHED SYSTEM WITH RESPECT TO PLACEMENT, ALIGNMENT, FINISH, GENERAL FIT, AND ABSENCE OF CONFLICT WITH LIGHTING SYSTEMS AND FIRE PROTECTION SYSTEMS.

1.03 DESIGN CONDITIONS:

A. ACOUSTICAL: NOISE PRODUCED AT EACH DIFFUSER, REGISTER, GRILLE, OR OTHER AIR DISTRIBUTION DEVICE SHALL NOT EXCEED A NOISE CRITERIA LEVEL OF 25 N.

B. PRESSURE DROP ACROSS ANY AIR DISTRIBUTION DEVICE SHALL NOT EXCEED 0.10 IN W.G. STATIC.

C. GUARANTEE: AIR DISTRIBUTION EQUIPMENT SHALL BE GUARANTEED BY THE MANUFACTURER TO OPERATE WITHOUT EXCESSIVE NOISE AND WITH VELOCITIES IN THE FIVE FOOT OCCUPANCY ZONE, WHEN HANDLING AIR WITH TEMPERATURE DIFFERENTIALS AS HIGH AS 25 DEGREE F NOT TO EXCEED 30 FPM AT 2 DEGREE DIFFERENCE, 50 FPM AT 1-1/2 DEGREE DIFFERENCE, OR 75 FPM AT A 1 DEGREE DIFFERENCE WHEN OPERATING WITH AN AVERAGE 75 DEGREE ROOM TEMPERATURE MEASURED NO CLOSER THAN 6 INCHES FROM A WALL SURFACE.

1.04 MANUFACTURER: TITLE, PRICE, SERIAL AIRE, OR OTHER APPROVED PRIOR TO BID. MANUFACTURERS STYLE AND SERIES NUMBER INDICATED ARE EXAMPLES OF PRODUCTS TO BE PROVIDED.

1.05 APPEARANCE: EACH AIR DISTRIBUTION DEVICE WHICH HAS A PORTION THEREOF (FRAME, CORE, ETC.) EXPOSED TO VIEW IN THE FINISHED AREA SHALL HAVE A FACTORY APPLIED FINISH WHICH MATCHES AND IS COMPATIBLE WITH THE COLOR OF THE SURROUNDING SURFACE ON WHICH THE DEVICE IS INSTALLED. COLORS MUST BE APPROVED BY ARCHITECT PRIOR TO DEVICE FABRICATION.

2.0 PRODUCTS

2.01 CEILING & WALL MOUNTED CONDITIONED AIR SUPPLY DIFFUSERS, RETURN AIR AND EXHAUST AIR REGISTERS.

A. DESIGNATED ON DRAWINGS BY THE MANNER OF INDICATED SYSTEM FUNCTION FOR THE DEVICE.

B. SPONGE RUBBER GASKETS.

C. ALUMINUM OR STEEL, AS SPECIFIED.

D. COMPANION ADJUSTABLE VOLUME DAMPERS.

E. PROVIDED WITH INSULATED BACKS.

3.0 EXECUTION

3.01 GENERAL:

A. INSTALL NEATLY WHERE INDICATED IN ACCORD WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORD WITH SMACNA RECOMMENDATIONS AND AS OTHERWISE INDICATED.

B. PROPERLY TEST, BALANCE AND ADJUST TO PRODUCE QUIET, DRAFTLESS OPERATING TO BEST DEGREE POSSIBLE.

3.02 SQUARE AIR DEVICES: WHERE DIFFUSERS ARE IN LAY-IN TYPE, THEY SHALL BE SUPPORTED BY THE INVERTED T-BAR SUSPENSION SYSTEM, BUT ALL DUCTS CONNECTED THERETO SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING AS SPECIFIED UNDER SECTION ENTITLED "DUCTWORK". SURFACE MOUNTED DIFFUSERS SHALL BE SUPPORTED BY THE DUCT RUNOUTS OR DROPS WHERE SHEET METAL DUCTS ARE INDICATED AND BY SEPARATE HANGERS WHERE FLEX RUNOUTS ARE INDICATED. ALL RECTANGULAR CEILING DIFFUSERS SHALL BE INSTALLED WITH THEIR LINES PARALLEL AND PERPENDICULAR TO THE BUILDING LINE AND PROPERLY ALIGNED WITH CEILING.

SECTION 23 31 00

HVAC DUCTS AND CASINGS:

1.0 GENERAL

1.01 SCOPE: PROVIDE COMPLETE DUCT SYSTEMS AS INDICATED. SYSTEMS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING: OUTSIDE AIR, EXHAUST AIR, AND AIR CONDITIONING SUPPLY AND RETURN AIR DUCT SYSTEMS AS SHOWN ON DRAWINGS. DRAWING SCALES PROHIBIT THE INDICATION OF ALL OFFSETS, FITTINGS, AND LIKE ITEMS; HOWEVER, THESE ITEMS SHALL BE INSTALLED AS REQUIRED FOR THE ACTUAL PROJECT CONDITIONS AT NO CHANGE IN CONTRACT PRICE.

A. ITEMS INCLUDED: THIS SECTION GENERALLY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING MAJOR ITEMS:

1. SHEET METAL DUCTWORK.

2. DUCT SYSTEM ACCESSORIES.

A. FLEXIBLE DUCT CONNECTIONS.

B. TURNING VANES.

C. MANUAL VOLUME DAMPERS.

D. ACCESS DOORS.

1.02 SHOP DRAWINGS: REFER TO SECTION ENTITLED "COMMON REQUIREMENTS FOR MECHANICAL WORK" INCLUDE COMPLETE DATA FOR: FLEXIBLE DUCT, FLEXIBLE CONNECTORS, TURNING VANES, MANUAL VOLUME DAMPERS; ACCESS DOORS; FLEXIBLE CONNECTORS; MANUAL VOLUME DAMPERS AND ADHESIVES.

1.03 DEFINITIONS:

A. "SMACNA" MEANS "SHEET METAL AND AIR CONDITIONING"

This item has been electronically signed and sealed by Joseph H. Griner, III using a Digital Signature and data. Printed copies of this document are not considered original and the signature must be verified on any electronic copies.

THESE DOCUMENTS, DESIGNS, NOTES, DETAILS AND SPECIFICATIONS AND CONCEPTS ARE THE SOLE PROPERTY OF FRAZE DESIGN, INC. AND SHALL NOT BE REPRODUCED, RE-USED OR COPIED FOR OTHER PROJECTS, IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF FRANK FRAZE, ARCHITECT, AIA.

ALL RIGHTS ARE RESERVED BY THE ARCHITECT IN ACCORDANCE WITH US COPYRIGHT AND PATENT LAWS. UNAUTHORIZED REPRODUCTION WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

THE DRAWINGS & DESIGN ARE VALID FOR 12 MONTHS FROM DATE OF BEING SEALED.

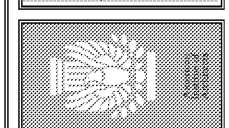
TO THE BEST OF THE ARCHITECT OR ENGINEER'S KNOWLEDGE AND BELIEF, THESE PLANS AND SPECIFICATIONS COMPLY WITH THE 6TH EDITION 2011 FLORIDA BUILDING CODE IN ADDITION TO ANY OTHER APPLICABLE BUILDING CODES AND MINIMUM FIRE SAFETY STANDARDS.

ALL DIMENSIONS AND JOB CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR. ANY AND ALL DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

GRINER ENGINEERING, INC. 3125 Fifth Ave N., Suite 300 St. Petersburg, Florida 33713 Phone: (727)-822-2335 Fax: (727)-821-3361 Certificate of Authorization #3173

Table with columns: Date, Drawn, Designed, EOR, Job no. Values: 12-06-2019, JL, JL, JHG, 19113

Table with columns: ISSUE, DATE, BY: REVIEW, PERMIT



Construction Documents for: TIRE CHOICE - GOLDENROD 7412 HOFFNER AVE ORLANDO, FLORIDA

Joseph H. Griner III, P.E. FL. 39491

FRAZE design commercial residential architecture 1750 CENTRAL AVENUE ST. PETERSBURG, FLORIDA 33712 PHONE: 727/526-3606 FAX: 727/526-3606

SHEET TITLE SPECIFICATIONS SHEET NUMBER M-5