

SECTION 15300 - FIRE PROTECTION

PART 1 - GENERAL

1.1 - SUMMARY

- A. THE CONTRACTOR MUST USE A LANDLORD APPROVED FIRE PROTECTION CONTRACTOR TO PERFORM ALL FIRE PROTECTION WORK. ALL COSTS MUST BE INCLUDED IN THE CONTRACTOR'S BID. FIRE PROTECTION CONTRACTOR MUST COMPLY WITH ALL SECTIONS OF THIS SPECIFICATION AND INCLUDE SAME IN BID.
- B. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR, REASONABLY IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE SPRINKLER SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - 1) INSTALLATION OF NEW WET SPRINKLER SYSTEM AS REQUIRED TO PROVIDE COVERAGE IN ACCORDANCE WITH EXISTING CONDITIONS, AND ALL REQUIRED CODES AND CRITERIA.
 - 2) TAPS, RISERS, LATERALS, BRANCHES, VALVES, ALARMS, SPRINKLER HEADS AND ALL COMPONENTS REQUIRED FOR A COMPLETE SYSTEM.
 - 3) DESIGN DRAWINGS, HYDRAULIC CALCULATIONS, SUBMITTALS AND APPROVALS.
 - 4) PERMITS, FEES, AND CHARGES.
 - 5) TESTS AND TEST CERTIFICATES.
- C. BEFORE STARTING WORK, THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE FIRE PROTECTION SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFLICTS. CONTRACTOR SHALL USE APPROVED INDUSTRY FIRE SPRINKLER STANDARDS FOR REUSING EXISTING FIRE SPRINKLER BRANCHES AND SUBMIT CALCULATIONS TO THE G.C.'S CONSTRUCTION MANAGER UPON REQUEST OR REWORK SYSTEM TO THE G.C. CONSTRUCTION MANAGER'S SATISFACTION.
- D. RELOCATION OF EXISTING MAINS, LATERALS, BRANCHES AND RISERS TO FACILITATE STORE DESIGN CRITERIA MUST BE INCLUDED IN BID PROPOSAL. CONFIRM REQUIREMENTS WITH THE G.C. PRIOR TO BID.

1.2 - RELEVANT CODES AND CRITERIA

- A. REFER TO SPECIFICATION SECTION 15000.
- B. NFPA-13.
- C. INSURANCE CARRIERS FOR THE MALL AND THE OWNER.

1.3 - SUBMITTALS

- A. SHOP DRAWINGS
 - 1) THIS FIRE PROTECTION CONTRACTOR SHALL PREPARE DETAILED SHOP DRAWINGS AND CALCULATIONS FOR THEIR WORK. SUBMIT SIX (6) COPIES TO THE G.C. FOR ARCHITECTURAL APPROVAL OF HEAD LOCATIONS AND TYPES.
 - 2) THIS FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR SUBMITTING COORDINATED DRAWINGS, HYDRAULIC CALCULATIONS, HEAD TYPES AND COLORS TO ALL AUTHORITIES HAVING JURISDICTION FOR APPROVAL. NO WORK SHALL BEGIN UNTIL ALL APPROVALS HAVE BEEN RECEIVED.
 - 3) A COPY OF THE LETTER OF APPROVAL FROM THE LANDLORD'S INSURANCE RATING BUREAU SHALL BE FORWARDED TO THE LANDLORD'S AGENT AND TO THE G.C.'S CONSTRUCTION MANAGER.

1.4 - PROJECT SITE/CONDITIONS

- A. A FIRE PROTECTION SYSTEM TAP IS NORMALLY FURNISHED BY THE LANDLORD. VERIFY IN FIELD PRIOR TO BID. SPRINKLER SPACING SHALL NOT EXCEED 130 SQ. FT. IN "SALES" AREAS AND 100 SQ. FT. IN "STOCK" AREAS. PIPE SIZING SHALL BE BASED ON NFPA ORDINARY HAZARD.

PART 2 - PRODUCTS

2.1 - MANUFACTURERS

A. SPRINKLER HEADS

- 1) FUSIBLE LINK TYPE AND STYLE AS INDICATED OR REQUIRED BY THE APPLICATION. UNLESS OTHERWISE INDICATED, PROVIDE HEADS WITH NOMINAL 1/2 INCH DISCHARGE ORIFICE FOR "ORDINARY" TEMPERATURE RANG.
- 2) CONCEALED AUTOMATIC SPRINKLER HEAD (ALL BRANDS)
 - a. RELIABLE AUTOMATIC SPRINKLER COMPANY INC., MODEL#G-1, BRONZE HEAD WITH WHITE COVER OR EQUAL
- 3) SEMI-RECESSED AUTOMATIC HEAD (BANANA REPUBLIC CLASSIC ONLY)
 - a. VIKING, MODEL A1Y-06662B
 - b. ESCUTCHEON: VIKING, MODEL E-2
- 4) RECESSED AUTOMATIC SPRINKLER HEAD
 - a. RELIABLE AUTOMATIC SPRINKLER COMPANY INC., MODEL# G WITH BRIGHT CHROME FINISH HEAD AND WHITE ESCUTCHEON OR EQUAL
- 5) UPRIGHT AUTOMATIC SPRINKLER HEAD
 - a. RELIABLE AUTOMATIC SPRINKLER COMPANY INC., MODEL# G WITH NATURAL BRONZE FINISH HEAD OR EQUAL
- 6) SPRINKLER HEADS BY GLOBE, STAR, GRINNELL, VIKING OR CENTRAL SHALL BE CONSIDERED EQUAL.
- 7) SPRINKLER HEADS LOCATED IN CEILINGS OR WALLS BELOW 8" ABOVE THE FINISHED FLOOR AND ABOVE STORAGE DECKS SHALL BE CONCEALED.

2.3 - EQUIPMENT

A. PIPING

- 1) PIPING SHALL BE BLACK STEEL, PER NFPA 13 REQUIREMENTS. WELDABLE, THIN WALL PIPING WILL NOT BE ALLOWED. DUCT SHALL BE USED FOR UNDERGROUND ONLY.
- 2) FITTINGS SHALL BE 125 PSI SCREWED CAST IRON OR MALLEABLE IRON FOR ALL THREADED PIPING.
- 3) FITTINGS SHALL BE VICTAULIC FIRELOK® OR FMVIL GRUVALOK FIRE PROTECTION PRODUCTS FOR ALL GROUNDED OR MAIN END PIPE COUPLINGS SHALL CONSIST OF TWO DUCTILE IRON HOUSINGS CONFORMING TO ASTM A536, A PRESSURE RESPONSIVE ELASTOMER GASKET, AND ZINC ELECTROLYTICALLY GALVANIZED CARBON STEEL BOLTS AND NUTS. RIGID TYPE, OR FLEXIBLE TYPE WHEN NECESSARY.
 - a. RIGID TYPE: HOUSINGS SHALL BE CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS TO PROVIDE SYSTEM RIGIDITY AND SUPPORT AND HANGING IN ACCORDANCE WITH NFPA 13. TONGUE AND RECESS RIGID TYPE COUPLINGS SHALL ONLY BE SUBMITTED IF THE CONTRACTOR USES A TORQUE WRENCH FOR INSTALLATION. REQUIRED TORQUE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL REMOVE AND REPLACE ANY IMPROPERLY INSTALLED JOINTS. 1 1/4" AND LARGER: STANDARD RIGID JOINT EQUAL TO

VICTAULIC FIRELOK® STYLE 005 OR STYLE 07 ZERO-FLEX®, OR EQUAL.

- b. FLEXIBLE TYPE: USE IN SEISMIC AREAS WHERE REQUIRED BY NFPA 13, VICTAULIC STYLE 75 OR 77, OR EQUAL.
- 4) ALARM VALVES OR DRY PIPE VALVES SHALL BE INSTALLED IN SYSTEM RISERS PER LOCAL WATER PURVEYOR REQUIREMENTS.
 - a. ALARM CHECK VALVE: BLACK ENAMEL COATED DUCTILE IRON BODY, ALUMINUM BRONZE CLAPPER, STAINLESS STEEL SPRING AND SHAFT, BRASS SEAT, EPDM SEAL, AND NITRILE SEAT O-RINGS WITH GROOVED END CONNECTIONS AND WATERFLOW DETECTORS. VALVE INTERNAL PARTS SHALL BE REPLACEABLE WITHOUT REMOVING THE VALVE FROM THE INSTALLED POSITION. VICTAULIC FIRELOK® SERIES 751.
 - b. DRY PIPE VALVE: LOW DIFFERENTIAL, LATCHED CLAPPER DESIGN, BLACK ENAMEL COATED DUCTILE IRON BODY, ALUMINUM BRONZE CLAPPER, STAINLESS STEEL SPRING AND SHAFT, BRASS SEAT, EPDM DIAPHRAGM AND SEAL, WITH NITRILE SEAT O-RINGS. VALVE INTERNAL PARTS SHALL BE REPLACEABLE WITHOUT REMOVING THE VALVE FROM THE INSTALLED POSITION AND BE EXTERNALLY RESETTABLE. VALVE SHALL BE FIRE-TRIMMED WITH SHUT-OFF VALVE, 3-WAY BALL VALVE, AND ACTUATOR. REQUIRED AIR PRESSURE IS 13 PSI WITH A MAXIMUM WATER PRESSURE RATING OF 300 PSI. VALVE SHALL HAVE GROOVED ENDS FOR VERTICAL INSTALLATION ONLY.
- 5) BUTTERFLY CONTROL VALVES WITH SUPERVISORY TAMPER DEVICES SHALL BE INSTALLED FOR SYSTEM CONTROL.
- 6) ALL MATERIALS AND EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF UNDERWRITER LABORATORIES (UL) OR FACTORY MUTUAL GLOBAL (FMG), AND SHALL BE SO STAMPED.
- 7) PRESSURE SWITCHES (WATER FLOW DEVICE) SHALL BE INSTALLED IN EACH SYSTEM RISER (DRY PIPE SYSTEMS).
- 8) FLOW SWITCHES (WATER FLOW DEVICE) SHALL BE INSTALLED IN EACH SYSTEM RISER (WET PIPE SYSTEMS).
- 9) ALARM BELL SHALL BE 10-INCH OUTDOOR ELECTRIC BELL. FURNISH FOR INSTALLATION BY THE ELECTRICAL CONTRACTOR.
- 10) SWAY BRACING, BOTH LATERAL AND LONGITUDINAL, SHALL BE REQUIRED AND SHALL BE INSTALLED PER APPLICABLE NFPA STANDARDS.
- 11) FIRE DEPARTMENT CONNECTION SHALL BE PROVIDED FOR EACH SYSTEM RISER OR MANIFOLD ASSEMBLY. INSTALL A 90 DEGREE ELBOW WITH DRAIN CONNECTION AT EACH FIRE DEPARTMENT CONNECTION TO ALLOW FOR SYSTEM DRAINAGE TO PREVENT FREEZING.
- 12) PROVIDE 6 EXTRA SPRINKLER HEADS MOUNTED TOGETHER IN A SUITABLE CABINET. INCLUDE SPARES OF ALL TYPES OF SPRINKLERS INSTALLED IN THE BUILDING.
- 13) HANGERS, DRAINS, AND INSPECTORS TEST CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS.
- 14) TEST AND DRAIN VALVE: GLOBE DESIGN VALVE PROVIDING TEST PORT WITH 1/2" INTEGRAL ORIFICE AND DRAIN PORT IN ONE UNIT. BRONZE BODY WITH BRONZE AND COPPER ALLOY INTERNALS, POLYCARBONATE SIGHT GLASSES, NITRILE O-RINGS AND EPDM VALVE SEATS.
- 15) BACK FLOW PREVENTION AS REQUIRED BY THE STATE AND LOCAL FIRE MARSHALL.
- 16) POST INDICATOR VALVES AS REQUIRED BY THE STATE AND LOCAL FIRE MARSHALL.

PART 3 - EXECUTION

3.1 - PREPARATION

- A. FURNISH AND INSTALL A VALVED TEST CONNECTION IN AN ACCESSIBLE LOCATION FOR THE SPRINKLER SYSTEM AS REQUIRED BY THE LANDLORD, LOCAL INSPECTOR, OR INSURANCE CARRIER. COORDINATE LOCATION WITH THE G.C.'S CONSTRUCTION MANAGER AND LOCAL FIRE PROTECTION OFFICIAL PRIOR TO ROUGH-IN.

3.2 - INSTALLATION

- A. WHERE POSSIBLE, REWORK THE EXISTING SPRINKLER SYSTEM TO MEET THE NEW REQUIREMENTS OF THIS DESIGN. RELOCATE ALL MAINS AND BRANCHES INTERFERING WITH CEILING HEIGHTS, LIGHT FIXTURE PLACEMENT, DUCTWORK, EQUIPMENT, AND MAJOR COMPONENTS INCLUSIVE OF ADJACENT TENANTS AND MALL COMMON AREAS. REMOVE ALL UNUSED PIPING.
- B. ALL SPRINKLER LINES SHALL BE INSTALLED AS HIGH AS POSSIBLE, AVOIDING INTERFERENCE WITH LIGHT FIXTURES, DUCTS, PIPES, STORAGE DECK, ETC. FIRE PROTECTION CONTRACTOR SHALL PREPARE COORDINATED SHOP DRAWINGS INDICATING THE LOCATIONS OF ALL SPRINKLER HEADS, SPRINKLER LINES, LIGHT FIXTURES, DUCTWORK, DIFFUSERS, GRILLES, AND REGISTERS PRIOR TO INSTALLATION.
- C. FURNISH AND INSTALL 10 LB. TYPE "ABC" FIRE EXTINGUISHERS, WITH CABINETS IF REQUIRED, AND AT LEAST A "2A10BC" RATING. LOCATIONS SHALL BE ESTABLISHED IN THE FIELD BY THE G.C.'S CONSTRUCTION MANAGER AND THE LOCAL FIRE PROTECTION OFFICIAL. MAXIMUM TRAVEL DISTANCE BETWEEN EXTINGUISHERS SHALL BE 75 FEET OR LESS AS REQUIRED BY LOCAL CODES.
- 3.3 - FIELD QUALITY CONTROL
 - A. WHEN COMPLETED, THE ENTIRE FIRE PROTECTION PIPING SYSTEM SHALL BE HYDROSTATICALLY TESTED AS REQUIRED BY THE CODES AND REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION. SYSTEM SHALL SHOW NO SIGNS OF LEAKAGE OR OTHER DEFECTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF THE OTHER CONTRACTORS OR TO THE BUILDING TO ITS CONTENTS, PEOPLE, ETC., CAUSED BY LEAKS IN ANY OF THE EQUIPMENT INSTALLED BY HIM. ALL REPAIRS OR REPLACEMENT OF DAMAGES SHALL BE AT THE CONTRACTOR'S EXPENSE.
 - B. PROPERLY COMPLETED AND SIGNED SPRINKLER CONTRACTOR'S MATERIAL AND TEST CERTIFICATES SHALL BE FURNISHED TO THE LANDLORD, AUTHORITIES HAVING JURISDICTION, AND THE G.C.'S CONSTRUCTION MANAGER.

END OF SECTION 15300

SECTION 15500 - HEATING, VENTILATION, AND AIR CONDITIONING

PART 1 - GENERAL

1.1 - SUMMARY

- A. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR, REASONABLY IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - 1) HVAC UNITS, EQUIPMENT, AND APPURTENANCES, AS APPLICABLE.
 - 2) DUCTWORK, FITTINGS, DAMPERS, AND INSULATION.
 - 3) CURBS, ROOFING, AND STEEL FRAMING FOR SUPPORT, AS APPLICABLE.
 - 4) CONDENSATE PIPING SYSTEMS, AS APPLICABLE.
 - 5) TEMPERATURE/LIGHTING CONTROLS.
- B. PRIMARY HEATING AND AIR CONDITIONING UNITS SHALL BE FURNISHED BY THE OWNER AS SCHEDULED UNLESS NOTED OTHERWISE. REFER TO PLANS AND SCHEDULES FOR REQUIREMENTS.
- C. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES, AND ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

1.2 - RELEVANT CODES AND CRITERIA

- A. WORK SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS:
 - 1) STANDARDS REFERENCED IN SPECIFICATION SECTION 15000.
 - 2) SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" OR THE MOST STRINGENT APPLICABLE CODE ENFORCED.

1.3 - SUBMITTALS

- A. SHOP DRAWINGS
 - 1) NO DUCTWORK SHALL BE FABRICATED PRIOR TO JOB SITE VISIT AND APPROVAL BY THE G.C. SIGNIFICANT DEVIATIONS IN ROUTING OR SIZING OF THE DUCTWORK AND/OR PIPING SYSTEMS MUST BE CLOUDED AND NOTED ON THE SHOP DRAWINGS. THESE SIGNIFICANT DEVIATIONS MUST BE APPROVED BY THE OWNER'S ENGINEER PRIOR TO FABRICATION AND INSTALLATION.
 - 2) SUBMIT MANUFACTURERS DUCT SYSTEM CATALOG DATA FOR REVIEW AND APPROVAL. SUBMITTAL SHALL INCLUDE DUCT, FITTING, AND GASKET SEALING CATALOG INFORMATION.
- B. SUBSTITUTIONS
 - 1) ALTERNATE CONDENSATE PIPING MATERIALS ARE ACCEPTABLE AS A SUBSTITUTION WHEN THEIR USE IS PERMITTED BY THE LANDLORD, LOCAL CODES AND BUILDING DEPARTMENT OFFICIALS AND DOES NOT AFFECT OTHER CODES.
 - 2) ALL SUBSTITUTIONS MUST BE NOTED AND APPROVED IN BID.

1.4 - PROJECT SITE/CONDITIONS

- A. BEFORE STARTING WORK THE CONTRACTOR SHALL VISIT THE JOBSITE AND EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE HVAC SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFLICTS.
- B. CONTRACTOR SHALL PREPARE AND SUBMIT A COMPLETE REFRIGERATION PIPING SCHEMATIC TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING INSTALLATION.
- C. PRIOR TO CONNECTION TO THE LANDLORD'S SYSTEM, CONTRACTOR SHALL OBTAIN WRITTEN CONFIRMATION FROM THE LANDLORD'S FIELD REPRESENTATIVE, THAT ALL TESTING, FLUSHING, AND PROPER FILLING OF THE TENANT'S SYSTEM HAS BEEN COMPLETED IN ACCORDANCE TO THE LANDLORD'S REQUIREMENTS AND THAT THE TENANT'S SYSTEM IS READY TO BE CONNECTED TO THE LANDLORD'S SYSTEM.
- 1.5 - WARRANTY
 - A. ALL HVAC EQUIPMENT SHALL INCLUDE A FIVE (5) YEAR COMPRESSOR AND TEN (10) YEAR HEAT EXCHANGER WARRANTY.

PART 2 - PRODUCTS

2.1 - EQUIPMENT

- A. ROUND AND FLAT OVAL DUCTWORK
 - 1) MATERIAL: ALL DUCT AND FITTINGS SHALL BE G-90 GALVANIZED STEEL FOR OUTDOOR INSTALLATIONS OR G-60 GALVANIZED STEEL FOR INDOOR INSTALLATIONS IN ACCORDANCE WITH ASTM A-924.
 - 2) CONSTRUCTION: ALL DUCT AND FITTINGS SHALL BE CONSTRUCTED PER SMACNA'S DUCT CONSTRUCTION STANDARDS +2 IN W.G.
 - 3) FITTINGS:
 - a. ALL FITTINGS SHALL BE CONTINUOUSLY STITCH WELDED OR SHALL BE STANDING SEAM GORELOCK CONSTRUCTION AND INTERNALLY SEALED.
 - b. THE RADIUS OF ALL 90° AND 45° ELBOWS SHALL BE 1.5 TIMES THE ELBOW DIAMETER. THE RADIUS OF ALL 15°, 30° AND 60° ELBOWS SHALL BE 1.0 TIMES THE ELBOW DIAMETER.
 - c. ALL FITTINGS THAT ARE OF EITHER SPOT WELDED OR BUTTON PUNCHED WELDED OR BUTTON PUNCHED CONSTRUCTION SHALL BE INTERNALLY SEALED.
 - d. WHEN CONTRACT DOCUMENTS REQUIRE DIVIDED FLOW FITTINGS ONLY FULL BODY FITTINGS WILL BE ACCEPTED.
 - e. ALL BRANCH CONNECTIONS SHALL BE MADE AS A SEPARATE FITTING.
 - f. FIELD INSTALLATION OF TAPS INTO SPIRAL DUCT SHALL NOT BE ALLOWED.
 - g. VOLUME DAMPERS SHALL BE SIZED TO SLIP INTO SPIRAL DUCT. DAMPER SHALL HAVE THE FOLLOWING FEATURES:
 - i. LOCKING QUADRANT WITH BLADE POSITION INDICATOR
 - ii. INTEGRAL BLADE ASSEMBLY
- B. RECTANGULAR DUCTWORK
 - 5) EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO THE FOLLOWING PRESSURE CLASSIFICATIONS:
 - a. SUPPLY DUCTS: 2 INCHES W.G. POSITIVE
 - b. RETURN AND EXHAUST DUCTS: 2 INCHES W.G. NEGATIVE
 - 2) EXCEPT WHERE OTHERWISE INDICATED, USE DUCT SEALANTS OF THE FOLLOWING PRESSURE CLASSIFICATIONS:
 - a. SUPPLY DUCTS: CLASS B, 3 INCHES W.G. POSITIVE

- b. RETURN AND EXHAUST DUCTS: CLASS C, 2 INCHES W.G. NEGATIVE
- 3) IN ACCORDANCE WITH THE ABOVE LISTED CONSTRUCTION AND SEALANT PRESSURE CLASSIFICATIONS, MAXIMUM DUCT AIR LEAKAGE WILL NOT EXCEED 5% AS REQUIRED FOR FINAL AIR BALANCE APPROVAL.
- 4) AS A MINIMUM, CROSS BREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8" WIDE X 3/16" DEEP ON 12" CENTERS TO PREVENT VIBRATIONS, REGARDLESS OF DUCT GAUGE.
- 5) INSTALL FACTORY MANUFACTURED DOUBLE THICKNESS TURNING VANES IN ALL 90 DEGREE ELBOWS OVER 36 INCHES IN LENGTH. INSTALL FACTORY MANUFACTURED SINGLE THICKNESS TURNING VANES IN ALL OTHER ELBOWS.
- 6) RECTANGULAR DUCTWORK 12 INCHES AND SMALLER SHALL USE DUCTMATE SLIP & DRIVE CONNECTIONS.
- 7) RECTANGULAR DUCTWORK 14 INCHES AND LARGER SHALL USE DUCTMATE 25/75 CONNECTION SYSTEM WITH DUCTMATE 440 GASKET TAPE.
- 8) DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
- 9) PROVIDE ACCESS TO ALL MOTORIZED ZONE DAMPERS, FIRE DAMPERS, CONTROLS AND OTHER ITEMS IN DUCTWORK THAT REQUIRE SERVICE ACCESS. IF THE ACCESS PANEL LOCATION IS EXPOSED TO THE SALES AREA IT MUST BE APPROVED BY THE G.C.'S CONSTRUCTION MANAGER PRIOR TO INSTALLATION. ACCESS PANELS SUPPLY AND RETURN AIR DIFFUSERS WITH PLASTER FRAMES MAY BE USED FOR ACCESS LOCATIONS WHEN WITHIN 2'-0" OF DEVICE.
- 10) ALL DUCTWORK SHALL BE INSTALLED WITH THE CORRECT DIMENSIONS AS NOTED ON DRAWINGS. WHERE DUCTWORK SIZE IS LARGER THAN CONNECTED DEVICE (I.E. DIFFUSER, REGISTER, DUCT MOUNTED EQUIPMENT, ETC.) SMOKE DUCT TRANSITIONS ARE TO TAKE PLACE FIRST PRIOR TO DEVICE CONNECTION. REFER TO DETAILS.

- C. SUPPORT SYSTEMS
 - 1) INSTALL ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED SMACNA STANDARDS. SUPPORT HORIZONTAL DUCTS WITHIN 2 FEET OF EACH ELBOW AND WITHIN 10 FEET OF EACH BRANCH INTERSECTION USING DOUBLE STRAP HANGERS ON BOTH SIDES OF DUCT. SUPPORT VERTICAL DUCTS AT A MAXIMUM INTERVAL OF 16 FEET AND AT EACH END AND WOOD SHALL BE USED TO SUPPORT OR BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY STATE AND LOCAL CODES OR BY LANDLORD.

- D. FLEXIBLE CONNECTIONS
 - 1) FLEXIBLE COLLARS SHALL BE FURNISHED AND INSTALLED AT ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, AIR HANDLERS, ROOFTOP UNITS, ETC.) AND DUCTS OR CASINGS. ALSO, FURNISH AND INSTALL FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.
 - 2) FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.
 - a. OUTDOOR APPLICATIONS: DURODYNE DUROLON OR APPROVED EQUAL.
 - b. INDOOR APPLICATIONS: DURODYNE EXCELON OR APPROVED EQUAL.

- E. VIBRATION ISOLATION DEVICES
 - 1) VIBRATION ISOLATION DEVICES SHALL BE FURNISHED AND INSTALLED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, AIR HANDLERS, ETC.) AND STRUCTURE.
 - 2) VIBRATING EQUIPMENT HUNG FROM STRUCTURE SHALL BE ISOLATED WITH RUBBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES.
 - 3) EXAMINE DEAD LOAD AND OPERATING LOAD CONDITION WHEN SELECTING DEVICES. ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.
 - 4) CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND AT THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.
 - 5) CONSULT MANUFACTURER FOR APPLICATION DATA.
 - 6) VIBRATION ISOLATION SHALL COMPLY WITH LOCAL CODES AND SEISMIC REQUIREMENTS AS APPLICABLE.
- F. FLEXIBLE DUCT
 - 1) FLEXIBLE DUCT SHALL BE INSULATED CLASS 1 AND RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.
 - 2) FLEXIBLE DUCT SHALL BE THERMAFLEX M-KC OR APPROVED EQUAL.
 - 3) FLEXIBLE DUCT MAY ONLY BE USED IN LOCATIONS WITH ACCESSIBLE CEILINGS.
 - 4) FLEXIBLE DUCT SHALL NOT EXCEED OVER 5'-0" IN LENGTH AT ANY ONE LOCATION.

- G. VOLUME DAMPERS
 - 1) FURNISH AND INSTALL MANUAL LOCKING QUADRANT VOLUME CONTROL DAMPERS WITH HANDLE OPERATORS AS SHOWN ON PLANS TO FACILITATE AIR BALANCING.
 - 2) RECTANGULAR VOLUME DAMPERS SHALL BE RUSKIN MD-25 OR APPROVED EQUAL.
 - 3) ROUND VOLUME DAMPERS SHALL BE RUSKIN MDRS-25 OR APPROVED EQUAL.
- H. FIRE DAMPERS
 - 1) RECTANGULAR FIRE DAMPERS SHALL BE RUSKIN DFD60.
 - 2) ROUND FIRE DAMPERS SHALL BE RUSKIN FDR25.
 - 3) PROVIDE FIRE DAMPERS WITH ACCESS DOORS.
- I. COMBINATION FIRE AND SMOKE DAMPERS
 - 1) RECTANGULAR COMBINATION FIRE AND SMOKE DAMPERS SHALL BE RUSKIN FSD60.
 - 2) ROUND COMBINATION FIRE AND SMOKE DAMPERS SHALL BE RUSKIN FSDR25.
 - 3) PROVIDE COMBINATION FIRE AND SMOKE DAMPERS WITH ACCESS DOORS.

REMODEL STORE



CAPITAL DEVELOPMENT
STORE DEVELOPMENT
FOLSOM STREET
SAN FRANCISCO, CA 94105

REPS I.D.: 00000131847
STORE NUMBER: 5724
STORE LOCATION: BUCKHEAD STATION
1 BUCKHEAD LOOP NE
ATLANTA, GA 30326

DESIGN TYPE: P3
GENERATION: 180Q12
PROTOTYPE DATE: 08/31/17
OPENING: 2018



PROFESSIONAL STAMP:

- 1) VIBRATION ISOLATION DEVICES SHALL BE FURNISHED AND INSTALLED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, AIR HANDLERS, ETC.) AND STRUCTURE.
- 2) VIBRATING EQUIPMENT HUNG FROM STRUCTURE SHALL BE ISOLATED WITH RUBBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES.
- 3) EXAMINE DEAD LOAD AND OPERATING LOAD CONDITION WHEN SELECTING DEVICES. ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.
- 4) CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND AT THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.
- 5) CONSULT MANUFACTURER FOR APPLICATION DATA.
- 6) VIBRATION ISOLATION SHALL COMPLY WITH LOCAL CODES AND SEISMIC REQUIREMENTS AS APPLICABLE.

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