

GENERAL SPECIFICATIONS

1. THE BIDDERS SHALL EXAMINE THE SITE AND THE EXISTING CONDITIONS AFFECTING THE PROJECT. EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS TO ENSURE THAT THE WORK CAN BE CARRIED OUT WITHOUT SIGNIFICANT CHANGES TO THE INTENT OF THE DOCUMENTS. NO FUTURE ALLOWANCE WILL BE MADE FOR CHANGES UNLESS THE ENGINEER HAS BEEN NOTIFIED IN WRITING OF ANY DISCREPANCIES OR INTERFERENCES, PRIOR TO THE CLOSE OF TENDERS. NO ALLOWANCE WILL BE MADE FOR ITEMS THAT SHOULD HAVE BEEN NOTED DURING A PRE-TENDER SITE INSPECTION.
2. THE LOCATION, ROUTING AND ELEVATIONS OF ALL NEW AND EXISTING SERVICES AND UTILITIES AS SHOWN ON THE DRAWINGS ARE TO BE CONSIDERED AS APPROXIMATIONS ONLY. VERIFY THE EXACT LOCATIONS, ROUTINGS AND ELEVATIONS OF ALL SERVICES PRIOR TO COMMENCING WORK, AND ASSUME RESPONSIBILITY FOR LAYING OUT ALL WORK. THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR ANY DAMAGE TO EXISTING SERVICES AND UTILITIES.
3. ALL ASPECTS OF THE INSTALLATION MUST COMPLY WITH THE MOST STRINGENT OF THE APPLICABLE BUILDING CODES, LOCAL REGULATIONS, AND BY-LAWS. BEFORE PROCEEDING WITH THE WORK, OBTAIN APPROVED DRAWINGS AND SPECIFICATIONS FROM THE AUTHORITIES HAVING JURISDICTION.
4. PROVIDE ALL NECESSARY NOTICES, OBTAIN ALL REQUIRED PERMITS, PAY ALL FEES REQUIRED BY LAW, AND ARRANGE FOR ALL INSPECTIONS RELATED TO THE PERFORMANCE OF THE SPECIFIED WORK.
5. PROVIDE ALL MATERIALS, LABOUR AND EQUIPMENT REQUIRED TO COMPLETE THE WORK AS SHOWN AND AS SPECIFIED, SO AS TO LEAVE THE OWNER WITH A COMPLETE AND FUNCTIONING SYSTEM.
- 5.1. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND C.S.A. APPROVED, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 5.2. ALL SIMILAR EQUIPMENT AND OR MATERIALS SHALL BE BY THE SAME MANUFACTURER.
6. REQUEST FOR APPROVAL OF SUBSTITUTE MATERIAL AND/OR EQUIPMENT FOR THAT SPECIFIED, SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR WITH A STAMPED SELF-ADDRESSED ENVELOPE OR RETURN FAX NUMBER AT LEAST FIVE WORKING DAYS PRIOR TO TENDER CLOSING. REQUESTS SHALL INCLUDE ALL PERFORMANCE SPECIFICATIONS, PHYSICAL DATA AND OTHER PERTINENT INFORMATION REQUIRED FOR THE CONTRACT ADMINISTRATOR TO MAKE A COMPLETE COMPARISON.
7. PROVIDE SHOP DRAWINGS IN ELECTRONIC FORMAT FOR REVIEW BY THE CONTRACT ADMINISTRATOR. THE SHOP DRAWINGS MUST BE ASSEMBLED INTO COMPLETE BROCHURES.
- 7.1. THE REVIEW OF THE SHOP DRAWINGS IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THE REVIEW SHALL NOT MEAN APPROVAL OF THE DETAILED DESIGN INHERENT IN THE EQUIPMENT. THE RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR. THE REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR CONFIRMING AND CORRELATING THE DIMENSIONS ON THE JOBSITE, AND FOR INFORMATION THAT PERTAINS TO THE FABRICATION PROCESS, CONSTRUCTION TECHNIQUES, AND INSTALLATION DETAILS, AND FOR COORDINATING ALL WORK OF THE RELATED SUB-TRADES.
8. ALL CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. EXISTING EXPOSED SURFACES SHALL BE RETURNED TO AN "AS-FOUND" CONDITION ACCEPTABLE TO THE OWNER.
9. EACH CONTRACTOR SHALL COORDINATE THE WORK WITH OTHER CONTRACTORS IN ORDER TO AVOID CONFLICTS.
10. NEATLY STORE ALL MATERIALS, AND CLEAN UP REFUSE ON A REGULAR BASIS. PROTECT AND MAINTAIN ALL WORK UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
11. THE INSTALLATION SHALL BE COMPLETELY TESTED, DEMONSTRATING THAT THE EQUIPMENT AND SYSTEMS INSTALLED ARE PERFORMING IN THE MANNER INTENDED.
12. AT THE COMPLETION OF THE INSTALLATION, PROVIDE TWO MARKED-UP COPIES OF THE TENDER DRAWINGS FOR RECORD PURPOSES. PROVIDE THREE SETS OF OPERATION AND MAINTENANCE MANUALS. PAY ALL COSTS ASSOCIATED WITH THE PRODUCTION OF THE "RECORD" DRAWINGS AND THE MANUALS. SUBMIT THE DOCUMENTS TO THE ENGINEER FOR REVIEW, AND MAKE ANY REQUESTED CHANGES BEFORE DELIVERING THEM TO THE OWNER.
13. REVIEW THE OPERATION AND MAINTENANCE OF THE SYSTEMS WITH THE OWNER'S MAINTENANCE PERSONNEL AND PROVIDE WRITTEN AND/OR VERBAL INSTRUCTIONS AS REQUIRED.
14. FURNISH CERTIFICATES CONFIRMING THAT THE WORK HAS BEEN INSTALLED TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.
- 14.1. NO CERTIFICATE ISSUED, PAYMENT MADE, OR PARTIAL OR ENTIRE USE OF THE SYSTEMS BY THE CITY SHALL BE CONSTRUED AS ACCEPTANCE OF DEFECTIVE WORK OR MATERIALS.
15. THE CONTRACTOR SHALL PROVIDE A ONE YEAR LABOUR AND MATERIAL WARRANTY ON ALL NEW EQUIPMENT AND COMPONENTS, COMMENCING UPON THE DATE OF ACCEPTANCE BY THE CITY.
- 15.1. REPLACE AT NO CHARGE TO THE CITY, ALL ITEMS WHICH FAIL OR PROVE DEFECTIVE WITHIN A PERIOD OF ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE BY THE CITY, PROVIDED THAT THE FAILURE IS NOT DUE TO IMPROPER USAGE BY THE OWNER. MAKE GOOD ALL DAMAGES INCURRED AS A RESULT OF THE FAILURE AND OF THE REPAIRS.
16. PROVIDE TEMPORARY HEATING AND COOLING AS REQUIRED. DO NOT USE NEW EQUIPMENT FOR THIS PURPOSE WITHOUT THE EXPRESS CONSENT OF THE CONTRACT ADMINISTRATOR.
17. SCAN EXISTING WALLS, FLOORS, AND CEILINGS FOR STRUCTURE AND EXISTING SERVICES PRIOR TO MAKING PENETRATIONS.
18. SCHEDULING OF ALL WORK SHALL BE ARRANGED WITH THE CITY. COORDINATE THE SHUT-DOWN OF EXISTING UTILITIES AND SERVICES AS REQUIRED FOR CONNECTIONS OF NEW WORK. WORK WITHIN THE BUILDING MAY HAVE TO BE PERFORMED DURING NON-REGULAR HOURS, AND MUST CONFORM TO THE WORK RULES OF THE BUILDING, AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
19. THE DRAWINGS FOR THE MECHANICAL WORK ARE PERFORMANCE DRAWINGS, DIAGRAMMATIC AND APPROXIMATELY TO SCALE, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATIONS OF APPARATUS, FIXTURES AND PIPE/DUCT RUNS. THESE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL AND STRUCTURAL DETAILS.
20. EVEN THOUGH SOME PIPING AND/OR DUCTWORK IS NOT COMPLETELY SHOWN SCHEMATICALLY, AND ALL DETAILS ARE NOT SHOWN OR SPECIFIED, IT IS EXPECTED THAT THE CONTRACTORS BE FAMILIAR ENOUGH WITH THEIR FIELDS OF WORK TO COMPLETE THE PROJECT TO THE STANDARDS GENERALLY ADHERED TO BY THE LOCAL INDUSTRY, INCLUDING GOOD WORKMANSHIP AND COMMON SENSE. THE ENGINEER RESERVES THE RIGHT TO FURNISH ANY ADDITIONAL DETAIL DRAWINGS, WHICH IN THE JUDGEMENT OF THE ENGINEER, MAY BE NECESSARY TO CLARIFY THE WORK, AND SUCH DRAWINGS SHALL FORM PART OF THIS CONTRACT. THE WORK FOR SUCH CLARIFICATIONS SHALL BE AT NO COST TO THE OWNER.

MECHANICAL SPECIFICATIONS

1. PROVIDE ONE SET OF SPECIAL TOOLS REQUIRED TO SERVICE EQUIPMENT, AS RECOMMENDED BY THE MANUFACTURERS/SUPPLIERS.
2. PROVIDE DI-ELECTRIC COUPLINGS WHEREVER PIPES OF DISSIMILAR METALS ARE JOINED.
3. HOISTING AND PLACING OF MECHANICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE SUB-CONTRACTOR PROVIDING THE EQUIPMENT.
4. PIPE HANGERS SHALL BE GRINNELL FIGURE 65 FOR STEEL PIPE AND FIGURE CP85 FOR COPPER PIPE, WITH FIGURE 140 THREADED ROD. THREADED ROD SHALL BE ATTACHED TO FIGURE 117 EXPANSION CASE SET IN HOLES DRILLED IN CONCRETE, OR ATTACHED TO FIGURE 225 OR FIGURE 227 CLAMP ATTACHED TO ROOF/FLOOR JOISTS. FOR INSULATED PIPING, PROVIDE FIGURE 167 PROTECTION SADDLES, SIZE HANGERS AND SADDLES TO SUIT INDIVIDUAL PIPE SIZES, INCLUDING INSULATION WHERE APPLICABLE.
5. USE THE FOLLOWING SCHEDULE FOR MINIMUM HANGING STANDARDS FOR HORIZONTAL PIPING:

STEEL PIPE		
SIZE	ROD DIAMETER	MAXIMUM SPACING
1-1/4" (32mm) AND SMALLER	3/8" (10mm)	3'-0" (900mm)
1-1/2" (38mm) AND 2" (50mm)	3/8" (10mm)	10'-0" (3000mm)
2-1/2" (65mm) AND 3" (75mm)	1/2" (12mm)	12'-0" (3600mm)
4" (100 mm) AND 5" (125mm)	5/8" (16mm)	12'-0" (3600mm)
6" (150 mm)	3/8" (10mm)	12'-0" (3600mm)

COPPER PIPE		
SIZE	ROD DIAMETER	MAXIMUM SPACING
1" (25mm) AND SMALLER	3/8" (10mm)	6'-0" (1800mm)
1-1/4" (32mm) AND 2" (50mm)	3/8" (10mm)	10'-0" (3000mm)
6. PIPE HANGERS MAY BE PERFORATED GALVANIZED STEEL STRAP HANGERS FOR 2" (50mm) AND SMALLER PIPING IN CONCEALED SPACES.		
7. PROVIDE ACCESS DOORS AS REQUIRED TO INSTALL, MAINTAIN AND ADJUST EQUIPMENT AND CONTROLS, ACCESS DOORS IN CEILINGS AND WALLS SHALL HAVE PIANO HINGES AND SCREWDRIVER CAM LOCKS.		
8. PROVIDE FIRESTOPPING AND/OR INTUMESCENT DONUTS, AS REQUIRED, WHERE PIPING PASSES THROUGH FIRE SEPARATIONS.		

INSULATION

1. PROVIDE 1/2" (12mm) THICK, FOIL-FACED RIGID PRE-FORMED FIBREGLASS EXTERNAL THERMAL PIPE INSULATION ON ALL NEW DOMESTIC COLD WATER PIPES.
2. PROVIDE 1/2" (12mm) THICK, RIGID, PRE-FORMED FIBREGLASS EXTERNAL THERMAL PIPE INSULATION ON ALL NEW DOMESTIC HOT WATER PIPES.
3. PROVIDE 1" (25mm) THICK, FOIL-FACED RIGID PRE-FORMED FIBREGLASS EXTERNAL PIPE INSULATION ON ALL NEW PLUMBING VENTS FOR 10" (300mm) ON WARM SIDE OF A PENETRATION THROUGH A WALL OR CEILING/ROOF TO A COLD SPACE, AND FOR FULL LENGTH IN COLD ATTIC SPACES.
4. PROVIDE 2" (50mm) THICK, FOIL-FACED RIGID (FIBREGLASS OR FIBREBOARD) OR FLEXIBLE FIBREGLASS EXTERNAL THERMAL INSULATION ON ALL NEW EXHAUST OR RELIEF DUCTWORK FOR 10'-0" (3.0M) ON THE WARM SIDE OF A PENETRATION THROUGH A WALL/FLOOR/CEILING/ROOF TO A COLD SPACE, WHERE A BACKDRAFT DAMPER IS PROVIDED AT THE PENETRATION TO THE COLD SPACE. WHERE THE BACKDRAFT DAMPER IS PROVIDED IN THE DUCTWORK, INSULATION SHALL EXTEND FROM THE PENETRATION TO 10'-0" (3.0M) UPSTREAM OF THE BACK DRAFT DAMPER.
5. WHERE 1" ACOUSTIC INSULATION IS PROVIDED, 1" OF THERMAL INSULATION MAY BE DELETED.
6. ALL VALVES AND UNIONS SHALL BE COMPLETELY INSULATED, EXCEPT VALVES AND UNIONS MAY BE LEFT UNCOVERED ON HOT PIPING IN CONCEALED SPACES.
7. PROVIDE PVC FITTING COVERS WHERE CANVAS JACKET IS APPLIED.
8. COVER BUTT JOINTS WITH A STRIP OF THE SAME MATERIAL AS THE JACKET.
9. FLEXIBLE INSULATION SHALL BE INSTALLED IN A MANNER THAT DOES NOT REDUCE ITS THICKNESS.

PLUMBING

1. DOMESTIC WATER PIPING ABOVE GROUND SHALL BE TYPE 'L' HARD COPPER, WITH SOLDERED COPPER JOINTS AND FITTINGS. USE LEAD-FREE SOLDER.
2. DOMESTIC WATER PIPING BELOW GROUND SHALL BE TYPE 'L' SOFT COPPER, WITH NO JOINTS.
3. DRAIN AND VENT PIPING ABOVE GROUND SHALL BE AS ALLOWED BY CODE, INCLUDING DWV COPPER, CAST IRON, AND PVC/ABS PLASTIC. JOINTS SHALL BE SOLDERED FOR COPPER, SOLVENT WELDED FOR PLASTIC, AND MECHANICAL JOINT FOR CAST IRON.
4. DRAIN AND VENT PIPING BELOW GROUND SHALL BE AS ALLOWED BY CODE, INCLUDING CAST IRON, AND PVC/ABS PLASTIC. JOINTS SHALL BE SOLVENT WELDED FOR PLASTIC, AND MECHANICAL JOINT FOR CAST IRON.
5. NATURAL GAS PIPING SHALL BE SCHEDULE 40 STEEL, WITH SCREWED OR WELDED JOINTS AND FITTINGS AS PER CODE.
6. DOMESTIC WATER VALVES SHALL BE BALL OR BUTTERFLY TYPE.
7. NATURAL GAS VALVES SHALL BE APPROVED PLUG TYPE.
8. PROVIDE CHROME PLATED ESCUTCHEONS WHERE VISIBLE PIPING PASSES THROUGH WALLS AND PARTITIONS.
9. PROVIDE UNIONS WHERE PIPING CONNECTS TO EQUIPMENT. UNIONS SHALL BE LOCATED SO THAT THE PIPING DOES NOT HAVE TO BE ADJUSTED IN ORDER TO REMOVE THE EQUIPMENT.
10. DURING CONSTRUCTION, OPEN ENDED PIPING SHALL BE TEMPORARILY CAPPED TO PREVENT THE ENTRY OF DIRT AND DEBRIS. ON COMPLETION, PIPING SYSTEMS SHALL BE FLUSHED TO REMOVE ANY FOREIGN MATERIAL.
11. SLOPE ALL DRAIN LINES AT A MINIMUM OF 1/8" PER FOOT (1%) UNLESS A GREATER SLOPE IS REQUIRED BY CODE, OR A LESSER SLOPE IS NOTED ON THE DRAWINGS.
12. INSTALL ALL PLUMBING FIXTURES AS PER MANUFACTURER'S INSTRUCTIONS. WALL MOUNTED FIXTURES SHALL BE INSTALLED WITH MANUFACTURED STRUCTURAL STEEL WALL CARRIER.
13. PROVIDE INSULATED PIPING BELOW BARRIER FREE LAVATORIES OR MATCHING LAVATORY COVER.

FIRE DAMPERS

1. LISTED AND BEAR LABEL OF ULC, ASSEMBLIES FIRE TESTED AND RATED IN ACCORDANCE WITH CANULC_S112, MEET REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
2. CLASSIFIED FOR DYNAMIC CLOSURE AGAINST MAXIMUM DESIGN AIRFLOW, AT 2000 PA MINIMUM STATIC PRESSURE DIFFERENTIAL (ACROSS CLOSED DAMPER), FOR INSTALLED CONFIGURATIONS AND LOCATIONS ON SYSTEMS WHERE FAN DOES NOT SHUT DOWN ON FIRE ALARM.
3. FACTORY FABRICATED FOR FIRE RESISTANCE RATING REQUIREMENT AND INSTALLATION ORIENTATION TO MAINTAIN INTEGRITY OF FIRE WALL AND/OR FIRE SEPARATION.
4. CURTAIN-TYPE DESIGN: STEEL FRAME WITH REINFORCED CORNERS, STEEL INTERLOCKING BLADES, SHEET STEEL MOUNTING SLEEVE (FACTORY OR FIELD INSTALLED), TRANSITIONS TO SUIT CONNECTING DUCTWORK. GALVANIZED STEEL CONSTRUCTION WHERE CONNECTING DUCTWORK IS GALVANIZED, STAINLESS STEEL CONSTRUCTION WHERE CONNECTING DUCTWORK IS STAINLESS STEEL, PROVIDE SEALED HIGH PRESSURE CONSTRUCTION WHERE DUCT PRESSURE CLASS EXCEEDS 500 PA OR CLASS B OR C DUCT SEAL IS SPECIFIED.
5. CLOSURE TYPE: FUSIBLE LINK ACTUATED, WEIGHTED TO CLOSE AND LOCK IN CLOSED POSITION WHEN RELEASED OR HAVING STAINLESS STEEL NEGATOR TYPE SPRING CLOSING OPERATOR FOR DAMPER IN HORIZONTAL POSITION WITH VERTICAL AIR FLOW. GENERALLY FUSIBLE LINKS TO BE RATED AT 74EC FOR EXHAUST AND RECIRCULATION APPLICATIONS, AND 100EC ON SUPPLY AIR APPLICATIONS. REVISE, WITH ENGINEER'S APPROVAL, AS REQUIRED TO MEET THE NEEDS OF SPECIAL LOCATIONS. FUSIBLE LINKS SHALL BE READILY REMOVABLE BY HAND TO FACILITATE TESTING.
6. FACTORY TESTED FOR PROPER OPERATION.

VENTILATION

1. ALL DUCTWORK AND RELATED ACCESSORIES SHALL BE INSTALLED AS PER THE LATEST SMACNA STANDARDS.
2. DUCTWORK SHALL BE GALVANIZED SHEET METAL UNLESS NOTED OTHERWISE, AND SHALL BE OF THE FOLLOWING GAUGES:
- RECTANGULAR
DUCTS UP TO 12" (300 MM) ON LONGEST DIMENSION = 26 GA.
DUCTS 13" TO 28" (325 TO 700 MM) ON LONGEST DIMENSION = 24 GA.
DUCTS 29" TO 48" (725 TO 1200 MM) ON LONGEST DIMENSION = 22 GA.
DUCTS 49" TO 96" (1225 TO 2400 MM) ON LONGEST DIMENSION = 20 GA.
- ROUND (EXPOSED SHALL BE SPIRAL, CONCEALED SHALL BE SNAP-LOCK OR SPIRAL)
DUCTS 8" (200 MM) AND SMALLER = 26 GA.
DUCTS 9" TO 22" (225 TO 550 MM) = 24 GA.
DUCTS 24" TO 36" (600 TO 900 MM) = 22 GA.
3. BALANCING DAMPERS SHALL BE PROVIDED FOR EACH SUPPLY AIR OUTLET AND RETURN/EXHAUST AIR INLET REGARDLESS OF WHETHER SHOWN ON DRAWINGS OR NOT. DAMPERS MOUNTED AT GRILLES SHALL BE MULTI-BLADE TYPE. BUTTERFLY DAMPERS IN DUCTWORK SHALL BE CONSTRUCTED OF SHEET METAL, TWO GAUGES HEAVIER THAN THE DUCTWORK. DUCT DAMPERS SHALL HAVE LOCKING QUADRANTS AND POSITION INDICATORS.
4. COORDINATE UNDER CUT DOORS FOR TRANSFER AIR IN WASHROOMS
5. ALL DUCTWORK SHALL BE SEALED WITH DUCT SEALANT.
6. PROVIDE 4" (100mm) WIDE FLEXIBLE FABRIC DUCT CONNECTIONS AT INLETS AND OUTLETS OF FANS.
7. WHERE SHOWN OR NOTED ON THE DRAWINGS, PROVIDE 1" THICK, FLEXIBLE RESIN IMPREGNATED FIBREGLASS INTERNAL ACOUSTIC INSULATION WITH BLACK PLASTIC-COATED MATTE FINISH.
- 7.1. ACOUSTIC INSULATION SHALL BE INSTALLED USING PINS WELDED TO THE DUCTWORK, AND ADHESIVE. PROVIDE BLACK MASTIC TO SEAL ALL JOINTS.
8. FIRE DAMPERS SHALL BE INSTALLED AT ALL LOCATIONS WHERE DUCTWORK PASSES THROUGH A RATED SEPARATION, WHETHER SHOWN ON THE DRAWINGS OR NOT. CONFIRM ALL SEPARATION LOCATIONS WITH THE ARCHITECTURAL DRAWINGS.
9. PROVIDE DUCT ACCESS DOORS AT ALL LOCATIONS REQUIRED FOR INSTALLATION, MAINTENANCE OR ADJUSTMENT OF EQUIPMENT OR CONTROLS. ACCESS DOORS SHALL HAVE GASKETS, PIANO HINGES AND THUMB LATCHES. DOORS SHALL BE INSTALLED TO ALLOW FOR INSTALLATION OF INTERNAL OR EXTERNAL INSTALLATION AS REQUIRED.
10. FLEXIBLE DUCTWORK TO DIFFUSERS: COMPLIANT WITH UL STANDARD 181 AS CLASS 1 FLEXIBLE AIR DUCT AND COMPLYING WITH NFPA 90A AND 90B STANDARDS. DUCT SHALL BE FACTORY MADE AND COMPOSED OF A CPE LINER DUCT BOONDED TO A COATED SPRING STEEL WIRE HELIX AND SUPPORTING A FIBER GLASS INSULATED BLANKET. LOW PERMEABILITY OUTER VAPOUR BARRIER OF FIBREGLASS REINFORCED FILM LAMINATE SHALL COMPLETE THE COMPOSITE, STANDARD OF ACCEPTANCE = THERMAFLEX M-KE
11. SUPPORT HORIZONTAL DUCTWORK AT MAXIMUM 8'-0" (2400mm) ON CENTRE.
- 11.1. FOR ROUND DUCTWORK UP TO 36" (900mm) DIAMETER, SUPPORT DUCT USING PERFORATED GALVANIZED STEEL STRAP, SUSPENDED USING THREADED RODS ATTACHED TO THE STRUCTURE. USE 3/8" (10mm) RODS FOR DUCTS 12" (300mm) DIAMETER AND LESS. USE 1/2" (12mm) RODS FOR DUCTS 14" TO 22" (350mm TO 550mm) DIAMETER. USE 5/8" (16mm) RODS FOR DUCTS OVER 24" (600mm) DIAMETER.
- 11.2. FOR ROUND DUCTWORK OVER 36" (900mm) DIAMETER, SUPPORT DUCT USING 1" x 1" x 1/8" (25mm x 25mm x 3mm) GALVANIZED ANGLE IRON TRAPEZE, SUSPENDED BY 5/8" (16mm) DIAMETER THREADED RODS ATTACHED TO THE STRUCTURE.
- 11.3. FOR RECTANGULAR DUCTWORK 18" (450mm) WIDE OR LESS, SUPPORT DUCT WITH PERFORATED GALVANIZED STEEL STRAP, SUSPENDED USING 1/2" (12mm) THREADED RODS ATTACHED TO THE STRUCTURE.
- 11.4. FOR RECTANGULAR DUCTWORK OVER 18" (450mm) WIDE, SUPPORT DUCT WITH 1" x 1" x 1/8" (25mm x 25mm x 3mm) GALVANIZED ANGLE IRON TRAPEZE, SUSPENDED BY 5/8" (16mm) DIAMETER THREADED RODS ATTACHED TO THE STRUCTURE.
- 11.5. IN CONCEALED SPACES FOR ROUND AND RECTANGULAR DUCTWORK 12" (300mm) WIDE OR LESS, PERFORATED GALVANIZED STEEL STRAP MAY BE USED IN LIEU OF THREADED ROD SUSPENSION.

TESTING AND BALANCING

1. BALANCE EACH FAN AND EACH AIR OUTLET AND INLET TO THE AIR QUANTITY NOTED.
2. TEST EACH FIRE DAMPER TO ENSURE PROPER ACCESS AND PERFORMANCE. TAG EACH FIRE DAMPER WITH THE DATE OF TESTING.
3. PROVIDE A WRITTEN REPORT TO THE ENGINEER REGARDING THE TESTING AND BALANCING. MAKE ANY REQUESTED CHANGES TO THE REPORT BEFORE DELIVERING THREE FINAL COPIES TO THE OWNER.
4. TESTING AND BALANCING COMPANY SHALL BE A MEMBER IN GOOD STANDING WITH A.A.B.C., OR SHALL PROVE EQUIVALENCY TO THE ENGINEER.

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APEGM

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