

MECHANICAL GENERAL REQUIREMENTS SECTION 15010

1. GENERAL

MAKE SITE VISIT(S) AS NECESSARY BEFORE BID SUBMISSION TO ESTABLISH AND VERIFY ALL EXISTING CONDITIONS...

THE DRAWINGS SHOW THE GENERAL INTENT OF THE WORK, NOT THE DETAILS OF INSTALLATION...

DESCRIPTION PROVIDE WORK IN ACCORDANCE WITH FULL INTENT AND MEANING OF DRAWINGS AND SPECIFICATIONS...

REGULATORY REQUIREMENTS CONFORM TO GOVERNING MUNICIPAL AND PROVINCIAL CODES, RULES AND REGULATIONS AND/OR AUTHORITIES HAVING JURISDICTION...

PERMITS AND FEES OBTAIN ALL PERMITS REQUIRED FOR INSTALLATION OF MECHANICAL TRADES WORK, ARRANGE FOR INSPECTIONS TESTS THEREWITH AND PAY ALL COSTS FOR PERMITS, INSPECTIONS, AND ASSOCIATED FEES...

TAXES ENSURE THAT PROVINCIAL TAXES ARE INCLUDED WHERE REQUIRED.

WARRANTY PROVIDE A WRITTEN WARRANTY FOR ALL MATERIALS, EQUIPMENT AND LABOUR FOR A ONE-YEAR PERIOD TO BEGIN AT THE TIME WHEN THE WORK IS DESIGNATED ACCEPTABLE BY THE CONTRACT ADMINISTRATOR.

CERTIFICATION PROVIDE MANUFACTURER'S WRITTEN CERTIFICATION OF THE INSTALLATION AND OPERATION OF ALL SYSTEMS AND MAJOR EQUIPMENT.

EXISTING SERVICE DO NOT SHUT DOWN OR MAKE CONNECTIONS TO ANY EXISTING SERVICE WITHOUT WRITTEN PERMISSION OF THE CONTRACT ADMINISTRATOR.

PROTECTION PROTECT ALL WORK AND MATERIALS, BEFORE AND AFTER ERECTION, FROM WEATHER AND OTHER HAZARDS, AND KEEP IN A CLEAN AND ORDERLY MANNER.

ADJUSTMENT AND OPERATION OF SYSTEMS WHEN WORK IS COMPLETE, ADJUST ALL EQUIPMENT ITEMS, OF VARIOUS SYSTEMS, FOR PROPER OPERATION WITHIN THE FRAMEWORK OF DESIGN INTENT, AND OPERATING CHARACTERISTICS AS PUBLISHED BY EQUIPMENT MANUFACTURER.

EQUIPMENT BASES AND PADS: VERIFY SIZE OF BASES INDICATED ON DRAWINGS WITH ACTUAL REQUIREMENTS. CONSTRUCT BASES AND PADS AT LEAST 150 MM (6") HIGH...

MISCELLANEOUS STEEL SUPPLY AND INSTALL MISCELLANEOUS STRUCTURAL SUPPORTS, PLATFORMS, AND BRACES, AS REQUIRED TO HANG OR SUPPORT ALL EQUIPMENT, PIPING, DUCTWORK AND SIMILAR ITEMS.

EQUIPMENT INSTALLATION INSTALL AND START UP ALL ITEMS OF EQUIPMENT, DEVICES AND SYSTEMS IN ACCORDANCE WITH MOST RECENT MANUFACTURER'S PUBLISHED GUIDELINES AND RECOMMENDATIONS.

CUTTING AND PATCHING WHERE PIPES AND DUCTS ARE SHOWN PASSING THROUGH EXISTING WALLS, FLOORS, AND ROOF, CUT AND PATCH THE NECESSARY OPENINGS...

2. SUBMITTALS

SHOP DRAWINGS SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT SUPPLIED BY MECHANICAL DIVISION. SUBMIT ELECTRONIC COPIES OF SUCH DRAWINGS TO CONTRACT ADMINISTRATOR FOR REVIEW...

OPERATION AND MAINTENANCE INSTRUCTION MANUALS PROVIDE PDF COPIES OF COMPLETE OPERATION AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT.

RECORD DRAWINGS MAINTAIN AN ACCURATE DIMENSIONAL RECORD OF DEVIATIONS AND CHANGES FROM CONTRACT DRAWINGS. TRANSFER AS-BUILT MARK-UPS TO AUTOCAD/REVIT AND SUBMIT AUTOCAD AND PDF FILES TO THE CONTRACT ADMINISTRATOR WITH THE O&M MANUALS AT COMPLETION OF PROJECT.

EQUIPMENT NAMEPLATES PROVIDE LAMINATED WHITE PHENOLIC PLASTIC NAMEPLATES WITH 10MM HIGH BLACK LETTERS FOR EQUIPMENT INSTALLED UNDER THIS DIVISION...

FIRESTOPPING AND SMOKE SEAL PROVIDE A ULC LISTED FIRESTOP SYSTEM TO SEAL AROUND ALL MECHANICAL SERVICES WHICH PENETRATE PART OF A

BUILDING ASSEMBLY REQUIRED TO HAVE A FIRE RESISTANCE RATING. FOR HORIZONTAL RUNS OF BLACK OR GALVANIZED STEEL PIPE, OTHER THAN FOR PLUMBING SERVICE...

ACCESS DOORS PROVIDE ACCESS DOOR OF AT LEAST 200MMx200MM (8"x8") IN SIZE AS REQUIRED IN WALLS AND CEILINGS TO ENSURE THAT ACCESS IS PROVIDED FOR ALL EQUIPMENT...

EXPANSION AND CONTRACTION INSULATE ALL PIPING SO AS TO BE FREE FROM STRAIN AND DISTORTION DUE TO EXPANSION AND CONTRACTION AS GOVERNED BY REQUIREMENTS OF ANSI B31.1...

UNIONS AND FLANGES: PROVIDE UNIONS OR FLANGES IN FOLLOWING LOCATIONS: FOR IN-PIPE PASSES AROUND EQUIPMENT, UNIONS OR DEVICES IN PIPING SYSTEMS...

PIPING CONNECTIONS TO MAINS: MAKE BRANCH CONNECTIONS OF STEAM, GAS, AND COMPRESSED AIR LINES, TO RESPECTIVE HORIZONTAL PIPING OF LARGER DIAMETER...

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OBFC PART 7 (PLUMBING). FOR HORIZONTAL RUNS OF BLACK OR GALVANIZED STEEL PIPE, OTHER THAN FOR PLUMBING SERVICE, DO NOT EXCEED MAXIMUM DISTANCES BETWEEN SUPPORTS AND WITH MINIMUM DIAMETER RODS AS FOLLOWS:

FOR HORIZONTAL RUNS OF COPPER TUBING FOR SERVICES OTHER THAN PLUMBING, DO NOT EXCEED 1.8 M (6 FT.) BETWEEN HANGERS.

VERTICAL PIPING SUPPORTS: SUPPORT VERTICAL PLUMBING AND DRAINAGE PIPING AS REQUIRED BY OBC PART 7 (PLUMBING), UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED HEREIN.

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STANDARD GAUGES: CAST ALUMINUM CASE, AND BLACK FINISH, PHOSPHOR BRONZE BUSHED ROTARY TYPE MOVEMENT, BRONZE BOURDON TUBE, 114 MM (4-1/2") DIAL WITH COMBINED PSI AND KILOPASCAL SCALE.

AIR VENTS PROVIDE AUTOMATIC AIR VENTS, COMPLETE WITH DRIP TRAYS, AT HIGH POINTS OF WATER PIPING SYSTEMS AND ALSO IN ANY OTHER LOCATION NOTED ON DRAWINGS.

AIR SEPARATORS FURNISH AIR SEPARATORS IN WATER AND GLYCOL/WATER PIPING SYSTEMS OF SIZE AND CAPACITY INDICATED ON DRAWINGS.

CHEMICAL POT (BYPASS) FEEDER CARBON STEEL WITH 19MM NPT CONNECTIONS POLYETHYLENE FUNNEL MESH STRAINER, PROVIDE COMPLETE WITH WALL BRACKET.

SIDE STREAM FILTER PROVIDE COMPLETE WITH FILTER, SIGHT FLOW INDICATOR, BALL VALVE AND NIPPLES. 19MM NPT CONNECTIONS.

EXPANSION TANK PRE-CHARGED VERTICAL STEEL EXPANSION TANK WITH INTEGRAL HEAVY DUTY BUTYL RUBBER DIAPHRAGM.

DRAIN VALVES PROVIDE 13 MM (1/2") BRASS SEDIMENT FAUCETS WITH HOSE THREAD OUTLETS AT LOW POINTS OF WATER AND COMPRESSED AIR PIPING SYSTEMS.

BALANCING VALVES FOR SIZES 50 MM (2") AND UNDER, USE VALVE WITH ADJUSTABLE HIDDEN MEMORY FOR TAMPER PROOF BALANCING, CAST COPPER ALLOY BODY COMPLETE EPOXY RESIN COATING...

FLEXIBLE PIPING CONNECTIONS FURNISH FLEXIBLE METAL HOSES ON PIPING CONNECTIONS TO HEATING AND COOLING COILS, ON SUCTION AND DISCHARGE CONNECTIONS TO PUMPS, AND IN PIPING SYSTEMS WHERE INDICATED ON DRAWINGS.

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QUALIFICATIONS MINIMUM OF 5 YEARS EXPERIENCE INSTALLING SIMILAR SYSTEMS INVOLVING COMPUTER BASED CONTROL SYSTEMS AND BE LICENSED REPRESENTATIVE OF THE MANUFACTURING OPERATING DIVISION OF CONTROLS MANUFACTURER.

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PROVIDE SUCTION GUIDE, POT TYPE ELBOW STRAINER SIZED TO MATCH PUMP INLET FLANGE. USE CAST IRON BODY, STEEL GUIDE VANES, STRAINER OF 3 MM (1/8") STAINLESS STEEL MESH, PLUS A FINE MESH GRASS STARTUP STRAINER.

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ADDRESS FOLLOWING OPERATOR FUNCTIONS: SENSOR/ACTUATOR OPERATION. SYSTEM ARCHITECTURE AND BASIC THEORY OF OPERATION. OPERATOR LEVEL (PASSWORD LEVEL 1) INTERFACE TO SYSTEM FOR PASSWORD ACCESS, ALARM HANDLING, POINT ADDRESSING, MANUAL COMMANDS AND DISPLAY OF STATISTICAL DATA.

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SEMI-FINISHED HEX HEAD MACHINE BOLTS AND HEX NUTS CONFORMING TO ASTM A 307-97 CLASS A.

2. NATURAL GAS PIPING

PIPING 50mm (2") AND SMALLER ABOVE FLOOR PIPING (EXPOSED) SCHEDULE 40 ERW OR CW BLACK CARBON STEEL PIPE CONFORMING TO ASTM A 53/A53M-99B GRADE B, WITH THREADED ENDS. FITTINGS: CLASS 150 BLACK MALLEABLE IRON SCREWED FITTINGS CONFORMING TO ASTM A 197/A197M-98 AND ASME B16.3-1998.

FLANGE BOLTS HEX HEAD MACHINE BOLTS WITH HEXAGON NUTS, BOTH OF SEMI-FINISHED CARBON STEEL CONFORMING TO ASTM A 307-97 CLASS A.

GASKETS GARLOCK NO. 3000 WITH NITRILE BINDER FLAT RING TYPE OF 1.6 MM (1/16") THICKNESS, OR EQUIVALENT ASBESTOS-FREE MATERIAL MANUFACTURED BY ANCHOR.

GENERAL MATERIAL TYPE AND/OR TEMPERATURE RATING SHALL BE IDENTIFIED IN THE PIPE PRINT LINE AS WELL AS ON THE MANDATORY ORANGE AND BLACK WARNING LABEL APPLIED TO EACH FITTING, WARNING LABELS SHALL BE INCLUDED ON PIPE AND FITTINGS, AS REQUIRED BY ULC S636 AND CLEARLY DISTINGUISH A CERTIFIED GAS VENTING SYSTEM FROM EVERY DAY, NON-CERTIFIED PLUMBING PIPE. DO NOT MIX PIPE, FITTINGS, SOLVENTS, OR JOINING METHODS FROM DIFFERENT BH VENT MANUFACTURERS; EXCHANGING COMPONENTS FROM VARIOUS MANUFACTURERS VIOLATES THE CONDITIONS OF CERTIFICATION IN THE ULC S636 STANDARD AND VOIDS THE PRODUCT WARRANTY.

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PVC SYSTEM S636 PVC VENT PIPING AND FITTINGS, AS MANUFACTURED BY IPEX, SHALL CARRY A ULC S636 CLASS IA CERTIFICATION AND ARE CERTIFIED FOR USE UP TO AND INCLUDING 65°C (149°F). PROPER SYSTEM 636 PVC CEMENT AND PRIMER IS TO BE USED FOR INSTALLATION.

CPVC SYSTEM S636 CPVC VENT PIPING AND FITTINGS, AS MANUFACTURED BY IPEX, SHALL CARRY A ULC S636 CLASS IB CERTIFICATION AND ARE CERTIFIED FOR USE UP TO AND INCLUDING 90°C (194°F). PROPER SYSTEM 636 CPVC CEMENT AND PRIMER IS TO BE USED FOR INSTALLATION.

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