

PART 1 - GENERAL

1.1 GENERAL

- .1 This section deals with topics common to all mechanical sections.

1.2 "AS SPECIFIED"

- .1 The expression "as specified" means that the component or structure described has been assembled and described in the specifications, on the plans or in the tables.

1.3 POWER CONSUMPTION

- .1 The Owner may reject the proposed equipment based on performance criteria or power demand or consumption criteria.

1.4 EQUIPMENT INSTALLATION

- .1 Union fittings and flanges must be supplied and installed in a way that facilitates maintenance and dismantling.
- .2 The required space for installation of heat insulation, maintenance, dismantling and removal of equipment and components must be planned in accordance with manufacturer's recommendations or instructions.
- .3 Purging of devices must be performed using conduits connected to ground drains.
- .4 Equipment, pipes, conduits, rectangular cleanouts and other similar items must be installed parallel or perpendicular to the building structure.
- .5 Exposed works must be clean and have an esthetic appearance to the satisfaction of the Engineer and the Owner.
- .6 In no case may equipment come into direct contact with architectural or structural components. No piping may come into contact with another pipe or with ventilation conduits. Clearance of a minimum of 25 mm (1 inch) must be provided (insulation installed).
- .7 Equipment must be installed maintaining the clear height on each floor and minimum clear height dictated by code.
- .8 Check the aprons of connection points prior to starting drainage work. Notify the Engineer of any incompatibility between plans and prevailing site conditions. Coordinate

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the work with the Contractor in charge of outside works or the Municipality, as the case may be.

- .9 All equipment and parts must be installed in accordance with trade practice as per ASHRAE, SMACNA, ASPE, etc.
- .10 Comply with the latest manufacturer's instructions regarding materials and equipment to be used, methods of installation and start-up.

1.5 ANCHOR BOLTS AND TEMPLATES

- .1 Supply the necessary anchor bolts and templates, which must be installed as per terms dictated by other divisions.

1.6 TESTING

- .1 The Owner must be able to use the facilities and devices for testing purposes before they have been accepted. Supply the necessary labour, equipment and instruments for testing.
- .2 Equipment parts and systems that are to be tested must be identified in the applicable sections of these specifications.
- .3 Obtain permission in writing from the Owner to start up and test permanent facilities and devices prior to acceptance.

1.7 SEALING OF OPENINGS

- .1 Using the appropriate materials, prevent dust, dirt and other foreign materials from entering the openings of the facilities and devices.
- .2 To prevent contamination of the systems during the work, temporarily seal openings of ventilation and plumbing conduits for the systems that supply the adjacent premises for which new fittings are planned. Seal openings of new ventilation conduits as they are installed to avoid any contamination during the work.
- .3 If these provisions are not complied with, the Contractor must clean the systems to the satisfaction of the Engineer.

1.8 INSTALLATION AND ELECTRICAL EQUIPMENT

- .1 The electrical work must be performed in accordance with the instructions of Division 26 and the following clauses:

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- .1 All devices forming a whole that are the standard product of one manufacturer must be supplied with all power supply components and electrical controls included in the technical description of the devices.
- .2 The devices must be complete with motors, main switch, starters and all controls, prewired to identified terminals. The internal wiring of control panels must also be numbered for each connection (equipment or terminals). The Contractor is responsible for ensuring availability of wiring plans and diagrams from the manufacturer prior to making a purchase order.
- .3 All devices described above must be factory assembled. All required power cables and control wiring between motors, components, controls or other fittings, as well as the main control panel, must be factory installed.
- .4 Division 26 is responsible for the power supply for the units from the distribution panels to terminals clearly identified in the device control panel.
- .5 Except as otherwise indicated on the Division 26 plans, connection of electrical control accessories and interlocking needed for remote equipment, which are not part of the device, must be performed by the Instrumentation/Control Section. All wiring and conduits must meet the requirements described in Division 26.
- .6 When these connections are indicated on the electrical plans, the work will be performed by Division 26.
- .7 For all devices equipped with a motor supplied by the Mechanical discipline, but with a standard description that does not include a control panel, Division 26 must supply the motor control panels or cells.

1.9 PROTECTIVE SCREENS

- .1 Equip all exposed drives with protective screens.
- .2 All screens must have the following features:
 - .1 Expanded metal lattice welded to a steel frame;
 - .2 Top and bottom made of sheet metal at least 1.2 mm (0.047 in.) thick;
 - .3 38-mm (1½-in.) diameter holes in the line of both shafts for insertion of a tachometer;
 - .4 Removable for maintenance.
- .3 Provide means for lubricating the drives and using test instruments without having to remove the protective screens.

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- .4 Install belt protectors in such a way that the motors can be removed to regulate belt tension.
- .5 Protectors for flexible couplings:
 - .1 U-shape, galvanized mild steel at least 1.6 mm (0.063 in.) thick;
 - .2 Solidly fastened in place;
 - .3 Removable for maintenance.
- .6 Protectors for ventilator intake and recirculation outlets:
 - .1 Steel wire or galvanized expanded metal screens, with 19-mm (¾ in.) links;
 - .2 Screens covering an open area corresponding to at least 80% of the intake and recirculation outlet area;
 - .3 Solidly fastened in place;
 - .4 Removable for maintenance.

1.10 FEED-THROUGHS

- .1 Wherever sheaths, pipes or conduits pass through a slab, wall or partition, a minimum clearance of 25 mm (1 in.) must be allowed around them and between them and the partition or slab. The clearance must be increased to 50 mm (2 in.) for fire protection piping of NPS 4 or greater.
- .2 Feed-through sleeves:
 - .1 Install sleeves in places where pipes pass through masonry or concrete or structures rated for fire resistance.
 - .2 Use steel schedule 40 pipes for the sleeves, with centre-fixed continuous weld collar or shrinkable sleeves. For plastic piping, shrinkable sleeves must be used.
 - .3 Install sleeves with a minimum 50 mm (2 in.) rated width greater than the rated diameter of the pipes, once insulated. The sleeves must have a minimum 100 mm (4 in.) higher rated width for fire protection piping of NPS 4 or greater. The sleeve diameter must be sufficient to allow installation of piping and heat insulation.
 - .4 Install sleeves in such a way that they are flush with the surface of walls or poured concrete floors on grade. They must be 50 mm (2 in.) higher than the finish of mechanical room floors and 25 mm (1 in.) higher than all other floors.

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- .5 Make sure there is no contact between copper tubes or pipes and ferrous metal sleeves.
- .3 When ducting passes through foundation walls or below-ground floors, caulk the space around the ducting with a fire-resistant, non-hardening sealant in accordance with standard CGSB-19-GP-9Ma.
- .4 The Contractor must pay the cost of drilling holes, finishing and making repairs made necessary by its work.
- .5 Any drilling of holes in the structure is subject to the written approval of the structural engineer.
- .6 If the work requires drilling of holes in existing or planned waterproof membranes, the holes must be drilled in accordance with the instructions of the Architect and the Engineer in charge of the membranes.

1.11 ESCUTCHEONS

- .1 Install escutcheons wherever pipes pass through walls, partitions, floors and finished ceilings.
- .2 Use chrome- or nickel-plated brass or type 302 stainless steel one-piece escutcheons, equipped with safety screws.
- .3 The outside diameter of the escutcheons must be greater than that of the opening or sleeve they are intended to hide.
- .4 The inside diameter of the escutcheons must fit perfectly with the outside diameter of the ducting.
- .5 Where a sleeve juts out of a finished floor, the escutcheon must hide the sleeve extension.

1.12 TESTS

- .1 Perform tests in the presence of the Engineer or Owner.
- .2 Do not heat insulate or hide structures until they have been tested and approved by the Engineer.
- .3 Pipes:
 - .1 Test the fire protection systems in accordance with the requirements of the competent authorities and in accordance with NFPA 13 and NFPA 14.
- .4 Equipment must be tested in accordance with the instructions for the relevant sections.

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- .5 Prior to testing, insulate any equipment part or other material not designed to resist test pressures or methods used.
- .6 All test results must be submitted to the Engineer on the appropriate forms.

1.13 ARCHITECTURAL ACCESS DOORS

- .1 Supply access doors that make it possible to access hidden mechanical equipment in order to operate, verify and perform maintenance on it.
- .2 Where access doors are installed in flame-resistant dividers or ceilings, they must have fire resistance equal to the partitions in question and must be a ULC-approved and marked type.
 - .1 Acceptable products: CAN-AQUA, CA-FR series; ACUDOR, FW-5050 series.
- .3 Flush-mounted doors measuring 600 mm x 600 mm (24 in. x 24 in.) in the case of manholes, and 300 mm x 300 mm (12 in. x 12 in.) in the case of hand holes, unless otherwise indicated, and opening to 180°, round edged, with hinges, turn-screw locks and anchor fittings.
- .4 Materials:
 - .1 In the case of particular surfaces such as ceramic or marble tiles, use stainless steel doors with a brushed or polished satin finish, in accordance with Owner's instructions.
 - .2 In the case of wet plaster or terrazzo walls or ceilings, access doors must be made of primer-coated steel, perforated with a plaster base, for painted surfaces. For terrazzo surfaces, use a stainless steel cap:
 - .1 Acceptable products: CAN-AQUA, CA-UA and CA-UASS series.
- .5 Installation:
 - .1 Position openings to allow access to hidden components.
 - .2 Position openings to allow easy access to manholes or hand holes, as the case may be.

1.14 DIELECTRIC FITTINGS

- .1 General:
 - .1 Dielectric fittings compatible with the type of system and with the same operating pressure as other pipe fittings in the system.

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- .2 Use to join pipes made of different metals and prevent galvanic effect.
- .2 For pipes with a rated diameter equal to or less than NPS 2, the fittings must be union joints.
- .3 For pipes with a rated diameter equal to or greater than NPS 2½, the fittings must be flange joints.

1.15 CLEANING AND FINAL REGULATION

- .1 Clean the equipment and mechanical devices.
- .2 Clean the inside and outside of all components and devices. Where needed and in accordance with the Engineer's instructions, vacuum inside air ducts and air conditioning units.
- .3 Adjust each equipment part to ensure it operates properly. Calibration of air systems is not included in this project.

END OF SECTION

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