

## **PART 1 GENERAL**

### **1.1 GENERALITIES**

- .1 This section covers all sections of divisions 22 and 23, and actually represents only a complement to the division 01.

### **1.2 SCOPE OF COMPLEMENTARY GENERAL TERMS**

- .1 These general terms are complementary to those of the Owner.
- .2 In the event of contradiction or overlapping, general conditions of the Owner shall prevail.

### **1.3 SUMMARY OF MECHANICAL WORK**

- .1 Description of Work
  - .1 In the description of work, the word *System* in plumbing means, without limitation, all piping, valves, supports, bases, as well as all appliances, equipment, and accessories required for a complete and fully functional pipe work system. Similarly, the word *System* in ventilation means, without limitation, all air ducts, fans, terminal boxes, control and balancing dampers, supports, as well as all appliances, equipment, and accessories required for a complete and fully functional duct work system.
  - .2 All materials shown on the drawings or mentioned in this specification will be provided, installed, and connected by the Contractor. Therefore, if nothing is mentioned concerning the supply, installation, and connection of one or more materials, this implies that it is or they are the responsibility of the Contractor. Special cases where the supply and/or the installation and/or the connection will be the responsibility of another contractor will be mentioned specifically.
  - .3 Splitting the description of work in various trades is presented here for information purposes only and is merely intended to facilitate reading. It is the duty of the Contractor to assign each task.
- .2 Generalities
  - .1 Provide “as-built” drawings of all specialties.
  - .2 Provide maintenance and operation manuals of all specialties.
  - .3 Provide start-up and commissioning reports of all system and equipment of all specialties.
  - .4 Provide shop drawings with components of all specialties.
- .3 Insulation
  - .1 Insulate hot and cold water plumbing systems.
  - .2 Insulate the ventilation ducts and systems.
  - .3 Provide and install the insulation lining and protection.
  - .4 Correct the existing insulation damaged by the work.

- .4 Plumbing
  - .1 Make all connections required on the existing piping system.
  - .2 Provide and install the hot and cold water plumbing system.
  - .3 Provide and install sanitary drainage and vents systems.
  - .4 Provide and install the plumbing appliances and equipment.
  - .5 Provide and install drainage piping required to connect the evacuation equipment to indirect references.
  - .6 Clean the pipe work system after the installation.
  - .7 Provide and install anti-seismic protection systems and supports.
  - .8 Provide and install wall access hatches where required.
- .5 Ventilation
  - .1 Make all connections required on the existing system.
  - .2 Provide and install ventilation duct system.
  - .3 Provide and install ventilation appliances and equipment.
  - .4 Provide and install anti-seismic protection systems and supports.
  - .5 Provide and install access doors in the walls, ceilings, and girdles, near the accessories such as fire damper, damper, coils, control element, and other equipment.
  - .6 Perform leak testing on the duct work system.
- .6 Training
  - .1 Provide training for the following systems and equipment:
    - 1. Plumbing system.
    - 2. Ventilation system.
- .7 Testing, adjusting, and balancing
  - .1 Perform testing, starting, adjustment, and balancing of all ventilation and plumbing systems.
  - .2 Provide reports.
- .8 Identification
  - .1 Identify all systems.

#### **1.4 DEFINITION OF WORK**

- .1 With exception of those described in “Work excluded”, the work shall consist of the supply of all materials, instruments, equipment, licenses (except for construction permits), tools, temporary facilities, workforce, surveillance, overhead costs, and everything that is required in order to achieve a functional system according to the construction drawings and other information issued related to construction and requirements of these contract documents.

- .2 The work described in this section does not necessarily represent the entirety of the work to be executed. The drawing, specifications, and the contractual documentation together define the full scope of work. It is thus necessary to provide all workforces, materials specified, and hardware required by all documents.
- .3 The work must be completed, functional, and safe, including all minor work required for their completion, even if these minor work is not indicated on the plan and/or specifications.

## **1.5 CODES AND STANDARDS**

- .1 Unless otherwise stated, execute the work in accordance with the National Building Code of Canada 2010 and any other relevant federal, provincial, or municipal code in its current edition.
- .2 The work must comply with the requirements of standards, codes, or other documents referenced, or exceed them.
- .3 The work must comply with the standards of public utility companies.
- .4 Applicable codes and standards are part of the contract documents.

## **1.6 DOCUMENT REVIEW AND MINOR WORK**

- .1 Generalities
  - .1 In submitting his/her price, the Contractor implicitly states that he/she reviewed all contract documents and has obtained all the required information and clarification.
- .2 Minor work
  - .1 The Contractor will be obliged to make all common minor works that are necessary for the completion of the work required by the bid documents.
  - .2 The specification does not specify nor indicate all the work and equipment. However, it is understood that the Contractor commits to provide and lay all materials and equipment necessary and indispensable so that the work is complete and complies with all requirements of business as well as matches the true intent of plans and specifications.

## **1.7 LOCATION OF EQUIPMENT, DUCTS, AND PIPING**

- .1 Plans and specifications are an integral part of this contract. The listed dimensions have priority over the dimensions measured at the plan scale. The plans indicate the approximate location of the equipment but the Contractor shall verify that the required space is available before proceeding to installations. No dimension for positioning the equipment will need to be taken at the plan scale on the plans. No supplement will be granted for the displacement of equipment, which may be necessary during the execution of the work.
- .2 All equipment, materials, girdles, etc., that are part of the arrangement shown on the plan, can be moved within 3 m without additional charge, provided that the work has not been done yet.

- .3 Before submitting the bid, the Contractor shall notify the Engineer of omissions or errors that he/she could see in plans and specifications, since no supplement can be required in this respect.

## **1.8 PLANS AND SPECIFICATIONS**

- .1 Plans and specifications are an integral part of the contract and complement each other. The work that appears on one but not on the other document, must be executed and considered complementary, as if it was mentioned in both documents. Any work or materials not indicated or not specified implicitly but necessary to install a complete, functional, and safe system, must be provided in the bid as well as installed.

## **1.9 INTERPRETATION OF PLANS AND SPECIFICATIONS**

- .1 In case of ambiguity or contradiction between the plans and specifications, the Engineer reserves the right to interpret them. The Contractor shall, before submitting the bid, ask the Engineer all the required information and clarification.

## **1.10 MATERIALS, WORKFORCE, AND TOOLS**

- .1 All materials shown on the drawings or mentioned in this specification will be PROVIDED, INSTALLED, AND CONNECTED by the Contractor. Therefore, if nothing is mentioned about the SUPPLY, INSTALLATION, and CONNECTION of the material(s), this implies that it (they) represent(s) the responsibility of the Contractor. Special cases where the SUPPLY and/or INSTALLATION and/or CONNECTION will be the responsibility of another contractor will be mentioned specifically.

## **1.11 FIRE-RESISTANT MATERIAL**

- .1 The supply and installation of a fire-resistant material into the annular space between the pipes, the ducts, the insulation, and the adjacent fire separation.
- .2 Unheated pipes without insulation that are not subject to a particular displacement do not require special treatment.
- .3 Heated pipes without insulation which are subject to a certain displacement must be covered with a smooth non-combustible material for certain displacement of a pipe without risk of damaging the fire-resistant material.
- .4 The insulation and vapor barrier of pipes and air ducts must not be interrupted or damaged at the points of fire separation crossing.
  - .1 Acceptable products:
    - .1 Combustible piping (plastic): “Hilti” intumescent fire-resistant collar No. CP-642 and 643.
    - .2 Non-combustible piping (metal): “Hilti” intumescent fire-resistant insulation No. FS-ONE.
    - .3 Ventilation duct sealant: “Hilti” fire-resistant elastomer caulking No. FS-601.
- .5 Provide the products and installation instructions in shop drawings (manufacturer’s ULC system).

## **1.12 ESCUTCHEONS**

- .1 Install escutcheons where the pipe passes through finished walls, partitions, floors, and ceilings.
- .2 Use chrome- or nickel-plated or 302 grade stainless steel brass escutcheons of full-tang type and equipped with locking screws.

## **1.13 ACCESS DOORS**

- .1 Provide access doors allowing access to the mechanical material, piping, and concealed ducts to make them operate as well as to check and maintain them.
- .2 Outcrop mounted doors, measuring 600 x 600 mm in the case of a manhole and 300 x 300 mm in the case of a hand hole, unless otherwise indicated, that opens 180°, with rounded corners, provided with concealed hinges, locks opening by screwdriver and anchorage fittings.
- .3 Material and location shall be coordinated with the architect.

## **1.14 DIELECTRIC CONNECTORS**

- .1 Generalities
  - .1 Compatible with the network type and capable to withstand the nominal pressure of the latter.
  - .2 To be used to join pipes made of different metals.
- .2 For piping of nominal diameter equal to or less than DN 2: dielectric union fittings.
- .3 For piping of diameter equal to or more than DN 2½: dielectric flanges.

## **1.15 SHOP DRAWINGS AND TECHNICAL DATASHEETS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures, and as below.
- .2 Submit a copy of the shop drawings and technical datasheets of the equipment in electronic format (originals in .pdf format).
- .3 The shop drawings and technical datasheets must show the following:
  - .1 The exact reference of the product in the specification or if specified on the plan, indicate the reference plan number.
  - .2 Mounting details.
  - .3 Clearances necessary to allow operation and maintenance of the equipment, for example the space necessary for maneuvering of the access doors.
- .4 Submit the following documents with the shop drawings and technical datasheets:
  - .1 Detailed drawings of supports and anchorage bolts.
  - .2 Data specifying the acoustic power of systems and equipment, if any.
  - .3 Performance curves indicating the operating points.
  - .4 A document issued by the manufacturer certifying that the products in question are current models.
  - .5 A certificate of compliance with relevant codes.

- .5 The comments that the Engineer will be able to indicate on the shop drawings are general and merely serve to indicate to the Contractor that the material or the general arrangement comply with the overall quality and appearance desired. They do not in any way free the Contractor from his/her obligation to provide a product in accordance with the established norms, plans and specifications, as well as the regulations and standards in effect at the time of installation. The comments may relate to the dimensions and interferences with other project work. However, the responsibility of dimensions and interferences remains entirely that of the Contractor.
- .6 The Contractor is responsible for the quantities, the accuracy of dimensions confirmed on site, for providing information concerning the shaping methods or the construction and installation techniques, as well as for the coordination of the work executed by all trades.
- .7 The Contractor is responsible for making sure that, before ordering equipment and even despite the acceptance of shop drawings by the Engineer or the Owner, the equipment can be installed in accordance with the required installation standards and, in the event, considering the existing conditions of the site.
- .8 Each Contractor must assume any displacement required at the site to plan and coordinate the work before ordering equipment in order to ensure the compliance and feasibility of the desired installation. Each Contractor is responsible for having read drawings from all disciplines and having assimilated the information related to their work.

**END OF SECTION**