



Travaux publics et
Services gouvernementaux
Canada

Public Works and
Government Services
Canada

Direction générale des
biens immobiliers

Real Property branch

Région du Québec

Quebec region

Canada

IMMIGRATION HOLDING CENTER, LAVAL

STANTEC CONSULTING LTD.

PWGSC Project No. R.082963.001

ADDENDUM No. M-05 Mechanical

NOT TO BE USED FOR
CONSTRUCTION

March 15, 2019





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Prepared by:



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Mechanical

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**Public Works and
Government Services Canada**

Immigration Holding Centre (IHC) Laval

PWGSC Project R.082963.001

**Addendum No. M-05
Mechanical**

This addendum completes, modifies or eliminates certain elements of the tender documents, which the addendum refers to. It is an integral part of the tender documents.

1. SPECIFICATIONS

The following sections are modified (see pages issued):

- Section 22 33 16: pages 3 to 5 issued.
- Section 23 82 23: page 4 issued.
- Section 23 82 36: pages 3 to 5 issued.

2. DRAWINGS

2.1 MECHANICAL

The following drawings are modified with the current addendum (**no drawings are published**):

- M401
- M402
- M403
- M406

2.1.1 Drawings Nos. M401, M402, and M406

- In note 1, the mentions « fournie et installée par d'autre » and « supplied by others » are removed.

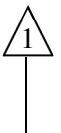
2.1.2 Drawing No. M406

- On all schedules "TABLEAU DES BOÎTES DE FIN DE COURSE / TERMINAL UNIT SCHEDULE", the note "C/A SILENCIEUX (VOIR DEVIS POUR SPÉCIFICATION) / INCLUDING SILENCER (SEE SPECIFICATION FOR DETAILS)" is removed.
- On schedule "TABLEAU DES VENTILLO-CONVECTEURS/ FANCOIL SCHEDULE", number VC-01 is replaced by UV-MD. The note 1) "FOURNI AVEC VARIATEUR DE VITESSE INTÉGRÉ / SUPPLIED WITH VARIABLE FREQUENCY DRIVE" is added to the schedule and applies to UV-MD.

Part 2 Products

2.1 FIRE DAMPERS

- .1 Fire Dampers: Must bear label of ULC, meet requirements of Fire Commissioner of Canada (FCC) and NFPA 90A, and provincial fire authority. Fire damper assemblies fire tested in accordance with CAN/ULC-S112.
- .2 Mild steel, factory fabricated for fire rating requirement to maintain integrity of fire wall and/or fire separation.
 - .1 Fire dampers: 1½ hour fire rated, unless otherwise indicated.
 - .2 Fire dampers: Automatic operating type and have dynamic rating suitable for maximum air velocity and pressure differential to which it will be subjected.
- .3 Top Hinged: Multi-blade hinged, guillotine type; sized to maintain full duct cross section.
- .4 Fusible link actuated, weighted to close and lock in closed position when released or having negator-spring-closing operator for multi-leaf type or roll door type in horizontal position with vertical air flow.
- .5 Fire dampers must be as per definitions in SMACNA (Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems), with pressure sealing comply with the duct's seal class.
 - .1 For wall air transfer: Type "A";
 - .2 For rectangular ducts: Type "B";
 - .3 For circular ducts: Type "C";
 - .4 For oval ducts: Type "C".
- .6 Fire dampers factory installed in a sleeve; minimal sleeve thickness to comply with SMACNA and UL Standard 555.
- .7 Equip fire dampers with galvanized steel sleeve or frame installed disruption ductwork or impair damper operation.
- .8 Equip sleeves or frames with perimeter mounting angles attached on both sides of wall or floor opening. Construct ductwork in fire-rated floor-ceiling or roof-ceiling assembly systems with air ducts that pierce ceiling to comply with ULC.
- .9 Design and construct dampers to not reduce duct or air transfer opening cross-sectional area.
- .10 Retaining angle iron frames: On full perimeter of fire damper, on both sides of the fire separation being pierced.
 - .1 Folded galvanized-steel angle iron frame: 40 mm x 40 mm x 2.8 mm for the sleeves where the largest dimension is shorter than 1,200 mm.
 - .2 Folded galvanized-steel angle iron frame: 40 mm x 40 mm x 3 mm for the sleeves where the largest dimension equal or larger than 1,200 mm.
- ~~.11 Protection Time: According to the municipal Quebec construction code, but no less than 1.5 hrs.~~



- .12 Acceptable Products: Controlled Air Manufacturing Ltd.; Nailor; Penn Ventilator Canada Ltd.; Ruskin (Kerr-Hant); AMI.

2.2 COMBINATION FIRE AND SMOKE DAMPERS

- .1 Damper: Similar to smoke dampers specified above.
- .2 Combined Actuator: Electrical control system actuated from smoke sensor or smoke detection system and from fusible link.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply to the requirements, recommendations and written specifications, including all available technical bulletin and the manipulation, storage and installation instructions, as well as the indications on the specification sheets.

3.2 INSTALLATION

- .1 Install in accordance with ANSI/NFPA 90A, in accordance with conditions of ULC listing and in accordance to SMACNA's "Basic Fire Damper Installation Details"
- .2 Maintain integrity of firebreak separation.
- .3 Install fire dampers in the air conduits each time they cross a building's fire partition, such as:
 - .1 Floors separating two floors;
 - .2 Walls in technical shafts;
 - .3 Technical room walls;
 - .4 The false ceilings that are fire-rated;
 - .5 As per indications on drawings;
 - .6 Building's fire rated assemblies in the architectural drawings;
 - ~~.7 The locations requested by the Quebec Building Code or the municipality;~~
 - .8 All location where required, but not enumerated in the present list.
- .4 After completion and prior to concealment obtain approvals of complete installation from authority having jurisdiction.
- .5 Install access door adjacent to each damper.
- .6 Coordinate installation of fire stopping with those pertaining to smoke and fire protection contractor.
- .7 Ensure access doors/panels, fusible links, damper operators are easily observed and accessible.
- .8 Install break-away joints of approved design on each side of firebreak separation.



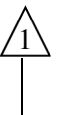
- .9 Mounting: Following the favored SMACNA (Fire, Smoke and Radiation Damper, Installation Guide for HVAC Systems) Guide: "Section Basic Fire Damper Installation Details".
 - .1 Mounting in a partition: "Case 2: Vertical Fire Damper Installation".
 - .2 Mounting in flooring: "Case 3: Horizontal Fire Damper Installation".
 - .3 Mounting in a wall assembly air transfer: "Case 7: Vertical Fire Damper Installation".
 - .4 Mounting assemblies other than those indicated in articles 9.1, 9.2, and 9.3 are not accepted.

3.3 CLEANING

- .1 Progress Cleaning: Clean in accordance with Section 01 74 00 - Cleaning.
- .2 Final Cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment.

END OF SECTION

- .3 Central unit casing: The rigid wall and roof frame of the unit must consist of 16-gauge pre-painted galvanized steel corner posts and 16-gauge G90 shaped galvanized steel intermediate frame posts (1 in. x 2 in. (25 mm x 50 mm)), providing a stable construction to remove any panel without affecting the central structural integrity of the frame. Units that are not built-to-build are not acceptable. Exterior box panels must be joined to the steel frame studs (25 mm x 50 mm (1 in. x 2 in.)) sealed with corrosion-resistant fasteners. The design of the air center cabinet must be of the type without a through metal element. The housing must have thermal insulation as required, so that when fully assembled there is no continuous, uninterrupted metal-to-metal conduction path between the inner and outer surfaces. Provide enough support to limit the box deflection criterion to L/200 from the narrowest panel dimension. If the panels can not meet this arrow criterion, additional internal reinforcement is required. The units must be designed for indoor installation. The internal bulkhead of multiple air tunnel units must be insulated and constructed in the same manner and to the same thickness as the outer shell of the housing. All panel joints must be caulked and sealed to render the unit airtight. Leakage rates must be less than 1% at design static pressure or 9 in. WC, whichever is greater.
- .4 The panels of the plant must consist of 16-gauge galvanized steel external cladding and 20-gauge galvanized steel liners.
- .5 The wall and roof panels of the unit must be insulated with uncompressed R8.6 50 mm (2 in.) thick mineral wool insulation at a rate of 2.5 pcf. Insulation must meet UL 181 erosion requirements for airflow and have a fire hazard classification rating of 25/50 (in accordance with ASTM-84, UL 723, and CAN ULC S102-M88). All edges of the insulation mats must be encapsulated inside the panels. The insulation of all perforated sections must have a black acrylic coating.
- .6 Access doors: Full access door(s) with a window for periodic maintenance and inspection must be provided for all components requiring service, with a minimum of one door for each of these sections: Before filters, before cooling coil, before the motors, and after the motors. Removable panels are not acceptable. The doors must be of solid construction, double wall insulated. The insulation must be of the same type as the panels of the plant. Both internal and external coatings must be made of the same material as the outer coatings of the powerhouse box. The door hinge assembly must be made of stamped zinc, with stainless steel shaft and be fully adjustable. The hinges must allow 180° opening of the doors without any shearing effect at the hinge side of the peripheral seal. The door frame must be made of extruded aluminum and include a built-in thermal barrier and packing around its entire periphery. The door trim seal system must have a double seal consisting of a neoprene-type compressible foam sealant on the outer door panel and a motor-grade neoprene bulb type seal fixed on the inner part of the frame, for doors opening outwards, and of corrugated type foam, for doors opening towards the inside. Each door must have at least two heavy-duty cast nylon handles, rated UV resistant. Door handles must be functional on both the inside and the outside of the unit. On all doors providing access to moving parts that may cause injury, a tool-operated safety latch of ETL and UL 1995, and OSHA approved type must be provided.



- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location, off ground, indoors, and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect finned tube radiation heaters from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 CAPACITY

- .1 Capacity: As per indications.

2.2 HOT WATER CONVECTORS / PLINTHES CHAUFFANTES (CC-01)

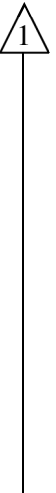
- .1 Heating Elements: Copper pipes, without longitudinal joint, nominal diameter NPS ½, mechanically chucked in aluminum fins. The exchange block is monolithic with a molded bronze feed with NPS ½ connections, supply, and return are on the same side. The entire exchange block will be coated with a polyester lacquer RAL 7024 with a gloss of 70%.
- .2 Substrate: 1-mm thick galvanized steel, to support the front panel and the cradle of the heating elements and placed at a maximum of 1,050 mm oc.
- .3 Casing: 1.25-mm thick galvanized electrolytic steel, factory coated with epoxy polyester paint, color by Departmental Representative, UV, and scratch-resistant.
- .4 3-mm top aluminum grid factory coated with epoxy polyester paint, color by Departmental Representative, UV, and scratch-resistant.
- .5 Unit tested for low temperature heating water at the operating conditions indicated on the drawings.
- .6 Dimensions: As indicated.
- .7 Acceptable products: Runtal, Jaga.

2.3 CONVECTORS / FORCED AIR CONVECTOR (C-XX)

- .1 The outer cabinet is constructed from heavy-duty corrosion-resistant 16 Ga steel. The removable front panel provides uninhibited access to the internal structure for servicing the motor, fans, controls, and coil. Cabinets are available in a left or right-hand configurations. Cabinets have a standard or custom baked enamel finish, color by Departmental Representative.
- .2 Heating coils are manufactured from 13 mm (1/2") outside diameter seamless copper tubes which are expanded within corrugated aluminum fins. This forced expansion within a restrictive frame creates a durable mechanical bond between the fins and tube. This bond means there is no movement of the fin on the tube and no rattling noises as air is forced through the coil. The coils are designed for working pressures up to 1,035 kPa (150 psi).



- .3 Twin centrifugal double-inlet double-width fans are mounted onto double-shafted motors for quiet operation and optimum airflow distribution across the coil and through the unit. The 566 l/s (1,200 cfm) and 708 l/s (1,500 cfm) units employ a pair of twin fan & motor assemblies. All fan wheels and fan housings are corrosion-resistant.
- .4 Permanent split capacitor type motors with self-aligning sleeve bearings for durable motor life, low operating cost, and reduced noise levels. A motor controller provides infinitely adjustable blower speed.
- .5 All units are supplied with wire-framed polyester media filters as standard. These filters are designed for quick and cost effective replacement within all units.
- .6 Unit tested for low-temperature heating water at the operating conditions indicated on the drawings.
- .7 Dimensions: As indicated.



Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for finned tube radiation convector heater installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Install in accordance with manufacturer's instructions.
- .2 Install in accordance with piping layout and approved shop drawings.
- .3 Provide for pipe movement during normal operation.
- .4 Maintain enough clearance to permit performance of service maintenance.
- .5 Check final location with Departmental Representative if different from that indicated prior to installation. Should deviations beyond allowable clearances arise, request, and follow Departmental Representative's directive.
- .6 Valves:
 - .1 Install valves with stems upright or horizontal, unless approved otherwise.
 - .2 Install isolating valves on inlet and lock shield globe balancing valves on outlet of each unit.

- .7 Venting:
 - .1 Install screwdriver vent on cabinet convector, terminating flush with surface of cabinet.
 - .2 Install automatic air vent on continuous finned tube radiation.
- .8 Clean finned tubes and comb straight.
- .9 Install flexible expansion compensators as indicated.

3.3 CLEANING

- .1 Progress Cleaning: Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment, in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: In accordance with Section 01 74 19 - Waste Management and Disposal.

END OF SECTION