

**PUBLIC SERVICES AND
PROCUREMENT CANADA**

**St-Hyacinthe RDC
(Research and Development Center)**

**3600 Casavant Boulevard West,
St. Hyacinthe, Quebec, J2S 8E3**

**Replacement of HVAC Controls of Buildings
Nos. 001 and 002**

PSPC No.: R.107062.001

**ADDENDUM NO. 1
Mechanical/Electrical**

Prepared for:

PSPC

Prepared by:

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Mohamed Balarh, Eng., MBA | Electrical**

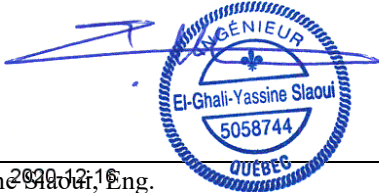
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END OF SECTION

PUBLIC SERVICES AND PROCUREMENT CANADA

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Replacement of HVAC Controls of Buildings Nos. 001 and 002

PSPC No.: R.107062.001

ADDENDUM No. 1

Mechanical/Electrical

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

1. CLARIFICATIONS

1.1 MECHANICAL

- .1 **Question:** On pages 1156 to 1185 of the Specifications, concerning the DSC-17 Controller, there is reference to the VA-1 - Control Laboratory System. This system is not represented in the tender drawings. Only a system VA-1 of the mechanical room F-301 is shown on drawing M39/46. And this system does not correspond to the DSC17 VA-1 system.
Stantec Answer: The VA-1 system shown no longer exists, nor does CPN-17.
- .2 **Question:** Is it possible to have the point list of the DX-2-85 and DX-290 controllers in the P-2K control box?
Stantec Answer: See Appendix 1 - List displayed on the DX-2-85 and DX-90 controller box.

2. SPECIFICATIONS

The following Sections from the specifications are issued with the current addendum.

<u>Sections</u>	<u>Pages issued</u>
01 11 00	1 and 3
01 73 00	2
25 05 01	6 to 10
25 90 01	57, 58, 59, 64 and 65
Appendix 1	1 (New Appendix Added)

2.1 MECHANICAL

2.1.1 Appendix 1

- Appendix 1 - List displayed on the DX-2-85 and DX-90 controllers is added to the specifications.

ADDENDUM No. 1

3. DRAWINGS

3.1 MECHANICAL

The following sketch CM01 is issued with the current addendum:

Drawing modified

Sketch

M42, rev. 01

CM01

3.2 ELECTRICAL

The following drawings are amended and issued with this addendum:

Drawings

E11, rev. 01 (drawing issued)

E12, rev. 01 (drawing issued)

3.2.1 Drawings No. E11 and No. E12, rev. 01

- Adding identifications to drawings.



Part 1 General**1.1 CONTEXT OF INTERVENTIONS**

- .1 Interventions will take place in an operational context of the facilities. Constraints linked to a level of security and confidentiality in an industrial and scientific research environment must be considered by the Contractor. The Contract Documents shall take this into account.
- .2 The Contractor and his subcontractors shall meet security requirements. The level of personnel security control required is: Reliability Status. The Contractor shall provide planning, in advance, for his interventions carried out during the day, during working hours or in the evening, to the establishment's services ~~since it may be necessary to be accompanied by a member of staff or a escort of the Canadian Corps of Commissionaires.~~

**1.2 WORK COVERED BY CONTRACTUAL DOCUMENTS**

- .1 Work covered by this Contract include the required demolition work as well as the replacement of HVAC controls for buildings Nos. 001 and 002, in accordance with the Contract Documents.
- .2 The Contractor shall supply, install, transport, connect, test, and commission the following equipment, materials, and accessories, without being limited to:
 - .1 Control work described in the drawings and specifications;
 - .2 Three-phase 120/208 V and 347/600 V power supply and distribution network;
 - .3 Electrical grounding;
 - .4 Power supply and connection of all mechanical loads;
 - .5 All safety switches and variable speed drives;
 - .6 Fire alarm system devices: Supply and install equipment, conduits, wiring, and perform tests;
 - .7 Supply and installation of all identification labels to identify all system components supplied by the Contractor, and as indicated in the drawings and specifications;
 - .8 Supply and installation of electrical conduits and conductors for installation;
 - .9 All supports and all structural steel elements required to support conduits, cables, devices, and equipment;
 - .10 Commissioning of systems;
 - .11 All specified tests;
 - .12 Any other intervention indicated in the drawings and specifications.
- .3 The Contractor shall work closely with other disciplines to determine the exact characteristics of the systems and provide all appropriate facilities, equipment, and connections to make them operational, all in accordance with laws and regulations.

1.6 USE OF PREMISES BY THE CONTRACTOR


- .1 The use of the premises is restricted to the areas necessary for the execution of the work to allow the partial occupation of the existing buildings on the site by the Departmental Representative, including deliveries and waste disposal.
- .2 Coordinate the use of the premises according to the directives of the Departmental Representative.
- .3 Find additional work or storage areas required to perform work under this Contract and pay the cost.
- .4 The Contractor must provide and install, at his own expense, a construction trailer and chemical toilets for all of his employees. The trailer is to be installed close to building 2. The Contractor must coordinate the location of these equipment and have it approved by the Departmental Representative. In addition, the Contractor must provide, at his own expense, all hygiene devices and products to ensure hygiene measures against COVID-19 in accordance with the instructions of the Quebec Public Health. The use of the various rooms of the building (toilets, cafeteria, etc.), by the Contractor and his subcontractors, is strictly prohibited, unless written permission by the Departmental Representative. 
- .5 Remove or modify existing work to avoid damaging the parts that shall remain in place.
- .6 Repair or replace, as directed by the Departmental Representative, for the purposes of connection to the existing structure or to an adjacent structure, or for the purposes of harmonization with them, the parts of the existing structure which have been modified during construction work.
- .7 Once the work is completed, the existing work shall be in a state equivalent or superior to the state it presented before the start of the work.
- .8 The Contractor will store materials in outdoor containers. The Contractor shall supply and install, at his own expense, the outer containers. The Contractor shall coordinate the space required on site for containers as well as lifting equipment and have them approved by the Departmental Representative. The Contractor will transport equipment, tools, and materials to the work areas. Before leaving the premises, the night shift will be responsible for putting away all equipment, materials, and tools used. They will also have to clean the places where work has been carried out and will have the task of securing the places for the return of the occupants at the beginning of the day in complete safety. 

1.7 OCCUPANCY OF THE PREMISES BY THE DEPARTMENTAL REPRESENTATIVE

- .1 The Departmental Representative will occupy the premises for the duration of the construction work and will continue his normal activities during this period. Except for mechanical rooms, work shall therefore be carried out evening and night in accordance with the instructions in the Contract Documents.
- .2 Collaborate with the Departmental Representative in establishing the work schedule, to reduce conflicts and facilitate the latter's use of the premises.

- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .12 Conceal pipes, ducts, and wiring in floor, wall, and ceiling construction of finished areas, except where indicated otherwise.

1.5 WORK IN OCCUPIED OFFICES

1. The replacement of the controls and heating valves (plumbing) in the occupied premises involves the removal of personal belongings and furniture. This portion of the work will have to be carefully planned with the users.
2. This work will be done gradually and during unoccupied periods, at night, and on weekends.
3. Personal belongings, computer equipment, and specialized equipment will be removed from the room by the occupants. The Contractor will provide wheeled boxes and trolleys to facilitate the movement of equipment. 
4. Equipment that does not interfere with the work will be left on site and must be protected by the Contractor.
5. The Contractor will be responsible for moving furniture, offices and libraries and replacing them when the work is completed.
6. In laboratories (block F), the Contractor will not move any equipment other than offices and libraries without on-site staff approval.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

3. Drawings of the different disciplines are complementary. All control equipment shown in one of the different drawings, unless clearly provided by others, shall be provided by the Contractor of this Division.
4. The Contractor is responsible for selecting and supplying control equipment (including sensors, actuators, transformers, and relays) with the right features for the application.
5. For third-party equipment to be integrated, such as variable frequency drives, chillers, boilers, one-piece HVAC units, power generators, and humidifiers, the Contractor is responsible for coordinating with the supplier/installer the integration of these equipment and providing all that is required for this at his own expense.
6. Quantities of equipment to be supplied shall be according to the Contractual Documents and their location shall be coordinated at the site with the other disciplines.
7. For equipment to be supplied by the Contractor, the Contractor is responsible for coordinating and ensuring that their installation complies with the manufacturer's recommendations.
8. The Contractor shall take the exact measurements at the site and validate the locations before the equipment is manufactured and ordered. He shall validate all dimensions and locations of the equipment before work begins.
9. All software licenses shall be in the Client's name. Licenses shall be permanent for life and no fees shall be charged to the Client to keep them in effect. Updates should be optional at the customer's discretion. The licenses provided shall also allow access to the controllers' programming code.
10. The Contractor shall provide in his mandate the coordination with the Client of the standard of the latter, as soon as the Contract is awarded, in order to respect it in its work. Standard and customer requirements, including programming standards and operating sequences, are an integral part of the Contractor's mandate.
11. The system shall be fully accessible remotely via a WEB page (remote control).
12. The Contractor shall establish a secure and functional temporary network for the remote control of its controllers throughout the project until final acceptance. All costs related to this network shall be at the expense of the Contractor. Access must be provided to the Departmental Representative.



1.8 SUBMITTAL PROCEDURES

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

- .2 Submit for review:
 - .1 List of equipment and system manufacturers within 15 days after award of Contract.
 - .2 List of recycled field instruments, which list is an integral part of the tender documents.
 - .3 The technical sheets of all the equipment used.
 - .4 Control schemes including, among other things, hardware lists, operating sequences, point lists, controllers and equipment connections, and panel assembly;
 - .5 Each controller's reserve capacity, by numbers and point types;
 - .6 The location of controllers and auxiliary control cabinets.
 - .7 For control valves, submit a selection table indicating: Identification, flow, size, "Cv" flow coefficient, calculated pressure loss, and maximum "Close-Off" differential close-off pressure of control valves (required and selected).
- .3 Documents to be submitted shall include, among other things, the following information:
 1. Dimensions and weight;
 2. Diagrams of wiring and connections;
 3. Full technical description of the product, including a full list of options provided. If a part of the product does not meet the specifications, you shall state it clearly in the submitted listings, otherwise the Contractor is obliged to provide and reinstall, at his own expense, all components that meet the specifications.
- .4 The Contractor shall allow time in his submission to properly verify the compliance of the products, to the specifications of the quote, before submitting their technical sheets to the Departmental Representative. If the Contractor does not explicitly declare, in a red boxed letter, any deviation from Contractual Documents, such as non-compliance with any of the requested specifications, this fact shall be considered as a certificate on the part of the contractor of the full compliance of the products submitted to all the specifications of the Contractual Documents. If a discrepancy in the Contractual Documents of one of the submitted products is discovered (even after the acceptance of the Departmental Representative and the installation at the site), the contractor is contractually obliged, to assume all the costs required for the replacement of the product and to comply with the Contractual Documents.
- .5 Quality Control:
 - .1 Use equipment and material from manufacturer's regular production, CSA certified, manufactured to Standards quoted and responding to any specified requirements.
 - .2 Where CSA certified equipment is not available, submit such equipment to inspection authorities for approval before delivery to site.
 - .3 Submit proof of compliance to specified Standards with shop drawings and product data, in accordance with Section 25 05 02 - EMCS: Submittals and

Review Process. Label or an approval document of the certification organization shall constitute an acceptable proof of conformity.

- .4 In lieu of such evidence, submit certificate from testing organization approved by the Departmental Representative, certifying that item was tested in accordance with their Standards/Code.
- .5 For materials whose compliance with organizational Standards/Codes/ Specifications is not regulated by organization using its own listing or label as proof of compliance, provide certificate stating that material complies with applicable referenced Standard or Specification.
- .6 Permits and fees: In accordance with general conditions of Contract.
- .7 Submit to Departmental Representative an acceptance certificate issued by the competent authority.
- .8 Existing devices intended for re-use: Submit test report.

1.9 QUALITY ASSURANCE

- .1 Have local office within 100 km of project, staffed by trained personnel capable of providing EMCS training, as well as routine maintenance and emergency service on system.
- .2 Provide record of previous successful installations of computer-based systems.
- .3 Have access to local supplies of essential parts and provide 7-year guarantee of availability of spare parts after obsolescence.
- .4 Ensure that competent staff provide direct and continuous monitoring of work and attend site meetings.

1.10 EXISTING CONTROL/REGULATION DEVICES

- .1 Unless clearly specified in the contract documents, the entire control facility (including wiring, electrical conduits and all control equipment shall be completely replaced with new ones.
- .2 Existing devices to be reused shall be inspected within 30 days of Contract award, but before the installation of new devices.
 - .1 Provide, within 40 days of Contract award, a test report listing each reused device and indicating if it meets requirements or if it needs to be repaired. In the latter case, the Departmental Representative will take care of it.
 - .2 If the Contractor fails to provide test report, it is assumed that the Contractor accepts the existing devices.

- .3 Defective Devices:
 - .1 Provide, with the test report, specifications or functional requirements which is backing up results.
 - .2 Departmental Representative will request repair or replacement of defective existing devices but deemed necessary for the EMCS.
- .4 Before starting work, submit in writing an authorization request to unplug the control devices and put the material out of service.
- .5 The Contractor's responsibility concerning control devices that shall be integrated to the EMCS, starts after receiving the written authorization from the Departmental Representative.
 - .1 The Contractor is responsible for the components and devices repaired under the responsibility of the Departmental Representative.
 - .2 The Contractor is responsible for extra repair costs due to negligence or abusive material usage.
 - .3 The Contractor's responsibility concerning existing control devices ends upon receipt of the complete EMCS system, to the satisfaction of the Departmental Representative.
- .6 Collect existing control devices that will not be reused or unnecessary. Store them in an approved storage area, in order to dispose of them following instructions. At the Client's request, the Contractor shall dispose of the equipment not required.

Part 2 Products

2.1 EQUIPMENT

- .1 Control Network Protocol and Data Communication Protocol: To ASHRAE STD 135.
- .2 Indicate on list of equipment to be used in the present work, which list is an integral part of the bid documents, manufacturer's name, model number, and details of manufacturing materials for each device, and submit it for approval.

2.2 ADAPTORS

- .1 Provide adaptors between metric and imperial components.

Part 3 Execution

3.1 MANUFACTURER'S RECOMMENDATIONS

- .1 Installation: To manufacturer's recommendations.

3.2 PAINTING

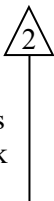
- .1 Perform painting in accordance with following requirements:
 - .1 Clean and retouch surfaces that were scratched so that they present an identical finish as the original;
 - .2 Where retouches are not sufficient, a complete reconditioning (primer coat and finishing coat) of the damaged surfaces is required;
 - .3 Clean and use a primer coating on visible elements, such as supports, equipment frames, and any other support devices;
 - .4 Paint all unfinished equipment installed inside.

END OF SECTION

2.66 EXCHANGER P43-25 STEAM/WATER

- .1 System Description:
 - .1 Steam/water heat exchanger. Using steam from the boilers, it produces hot water at 40°C for zone 3.
- .2 When stopped:
 - .1 The pumps P33-22 and P33-23 are stopped.
 - .2 The valves are in their normal position.
- .3 When in operation:
 - .1 The pumps P43-22 and P43-23 operate in redundancy. On proof of operation of one of the two pumps, the valves can modulate.
 - .2 On the evidence of water flow via the flow switch, the steam valve is modulated to keep the exchangers supply temperature at its setpoint (40°C).
 - .3 The valves R-25.4 and R-25.2 are modulated, in sequence, to maintain the temperature downstream of valve R-25.2 at its setpoint (40°C).
 - .4 The bypass valve R-25.3 is modulated to maintain differential pressure at its constant setpoint between supply and return.

2.67 COOLING TOWERS P-43-01 AND P-43-02 (POWERPLANT)

- .1 System Description:
 - .1 The tank for the two towers is installed inside the powerplant. The water towers keep the water in the cooled tank at its setpoint for use in the building.
- .2 When stopped:
 - .1 The P-33-15 and P-33-16 cooling water pumps are shut down.
 - .2 The pumps of the P-37-05 and P-37-06 towers are stopped.
 - .3 The valves R-43-1.1 and R-43-2.1 are open.
 - .4 The booster water valve opens and closes to keep the water level in the inner tank at its setpoint (using the water level transmitter, determine the water level when both towers are stopped, the water level with a single tower running and the water level with the both towers running).
 - .5 Fans of the P-43-01 and P-43-02 water towers are stopped.
 - .6 The P-37-07 water treatment and filtration system is shutdown.
- .3 When in operation:
 - .1 The system starts manually via an order at the operator station.
 - .2 The P-43-7 and P-43-8 pumps always operate, as in the existing system, for compressor cooling. 
 - .3 The P-33-15 and P-33-16 pumps operate alternately. The priority pump starts when it is necessary to cool the compressor network, either when the network temperature is too high or when the P43-22 and P43-23 pumps are stopped.

- .4 The P-37-07 water treatment and filtration system is operational.
- .5 The water temperature sensor on the hot side of the inner basin controls in sequence the operation of the two water towers in order to maintain its setpoint (25°C).
- .6 The P-37-05 (P-37-06) pump with the lowest number of operating hours starts.
- .7 The valve R-43-1.1 (R-43-2. 1) closes.
- .8 The fan of tower P-43-01 (P-43-02) starts at low speed when the water temperature of the indoor tank exceeds the starting setpoint (24°C, adjustable) for more than 1 minute.
- .9 The P-43-01 (P-43-02) tower fan modulates to maintain the water temperature of the indoor tank at its setpoint (25°C).
- .10 The second P-37-06 pump (P-36-05) and the second P - 43-02 (P-43-01) pump start when the fan speed of the first tower in operation is greater than 90% for more than 5 minutes.
- .11 The valve R-43-2. 1 (R-43-1. 1) closes.
- .12 The speed of the P-43-01 and P-43-02 fans is modulated in unison to maintain the temperature of the inner basin at the setpoint (25°C).
- .13 When the fan speed of the water towers becomes 20% or less for more than 5 minutes, the water tower fan with the highest number of hours stops, as does the associated pump.
- .14 When the tank temperature drops below the stop setpoint (23°C, adjustable) for more than 2 minutes, the remaining water tower fan and the associated pump stop.
- .15 When $T_{ext} < 14^{\circ}\text{C}$ and the coolers are stopped:
 - .1 The four isolation valves of both coolers open at all 24-hour (adjustable) periods.
 - .2 The P-33-03 pump (P-33-04 and P-33-05) with the lowest number of operating hours starts for a ten-minute period (adjustable).
 - .3 The P-33-03 pump (P-33-04 and P-33-05) shuts down and the isolation valves close.
- .4 Operation at night and on non-working days:
 - .1 Same as when in normal operation.
- .5 Security:
 - .1 A vibration switch stops the water tower and associated pump on excessive vibration of the water tower. If the system stops by the vibration switch, it must be manually reset at the switch and via the operator station.
 - .2 On a low-level alarm in the inner tank, the systems (water towers, pumps, water treatment system) stop and must be manually reset via the operator station.
- .6 Power outage:
 - .1 Emergency-powered equipment starts and is operational. The state of the transfer switch (normal-emergency power supply) connected to the building management system allows the automatic restart of equipment after an electrical failure.

- .7 Alarms:
 - .1 Unintended state of a pump.
 - .2 Excessive vibration of a water tower.
 - .3 High/Low water level in the basin. The corresponding light on the Volcano status panel will be on during an alarm.
 - .4 Speed variator fault.
 - .5 High/Low temperature of the basin.
 - .6 Alarm of the water filtration system.

2.68 CHILLERS P37-1 AND P37-2 (POWERPLANT)

- .1 System Description:
 - .1 Two coolers from the company Trane installed in the power plant. They reject their heat into the reservoir of the water towers P-43-1 and P-43-2 and produce chilled water for the building (Blocks A, B, C, D and E).
- .2 When stopped:
 - .1 The P-33-06, P-33-07 and P-33-08 chilled water pumps are shut down.
 - .2 The water pumps in the P-33-03, P-33-04 and P-33-05 towers are shut down.
 - .3 The four isolation valves on both chillers are closed.
 - .4 The P-37-01 and P-37-02 chillers are stopped.
- .3 When in operation:
 - .1 The first chiller is permitted to run manually via an order at the operator station.
 - .2 When the outside temperature is above the setpoint (PC_EXT - 15°C), the cooler with the lowest number of hours of operation, or the priority assigned by the operator, starts.
 - .3 The two isolation valves of the first chiller open.
 - .4 The P-33-06 (P-33-07, P-33-08) chilled water pump with the lowest number of operating hours, or the priority assigned by the operator, starts.
 - .5 The P-33-03 cooling water pump (P-33-04, P-33-05) with the lowest number of operating hours, or according to the operator's priority, starts.
 - .6 When proof of operation of the chilled water and cooling pumps is established, the start sequence of the controls built into them is performed and when the protections are satisfied, the P-37-01 chiller (P-37 02) starts.
 - .7 The second chiller is permitted to run manually via an order at the operator station.
 - .8 When the outside temperature is above the #2 setpoint (PC_EXT-2 - 25°C) for more than 10 minutes, a second P-33-06 chilled water pump (P-33-07, P-33-08) with the lowest number of hours of operation, or depending on the operator's priority, starts.

- .2 Room controls as well as the majority of damper and valve operators are pneumatic. Remove all equipment and all control piping that is no longer used. Note that pneumatic controls related to boilers and coolers in the power plant must remain in operation.
- .3 Dismantle the day-night pressure stations (2) localized in the technical room of Block A and keep only what is necessary to power the controls kept at the thermal power plant.
- .4 For all systems, remove pneumatic controls, electronic temperature, humidity, pressure or other sensors, control panels and other accessories. Remove all pneumatic piping and electrical wiring.
- .5 Some main systems must be installed in parallel, and the control system in place must be retained until the new system is functional, in order to minimize system downtime. See below the list of systems.
- .6 For systems which have been recently installed (2018), the conduits, cabling, and enclosures could be retained, provided that the Contractor complies with the project requirements including, particularly, constraints related to system downtime.



3.2 SYSTEMS TO BE INSTALLED IN PARALLEL

- .1 Blocks A, B, C, D:
 - .1 V43-1;
 - .2 V43-2;
 - .3 V43-3;
 - .4 V43-4;
 - .5 V43-5;
 - .6 V43-6;
 - .7 V43-8;
 - .8 V43-9;
 - .9 V43-10;
 - .10 V43-11;
 - .11 V43-12;
 - .12 V43-13;
 - .13 V43-16.
- .2 Block F:
 - .1 UV-1 (general ventilation).



3.3 SYSTEMS, INSTALLED IN 2018, WHOSE CONDUITS, CABLING, AND ENCLOSURES COULD BE RETAINED

- .1 Block D:
 - .1 V43-7;
 - .2 V43-14;
 - .3 V43-15;
 - .4 VE44-3E-1 and VE44-3E-2 (Strobic fans of block D).

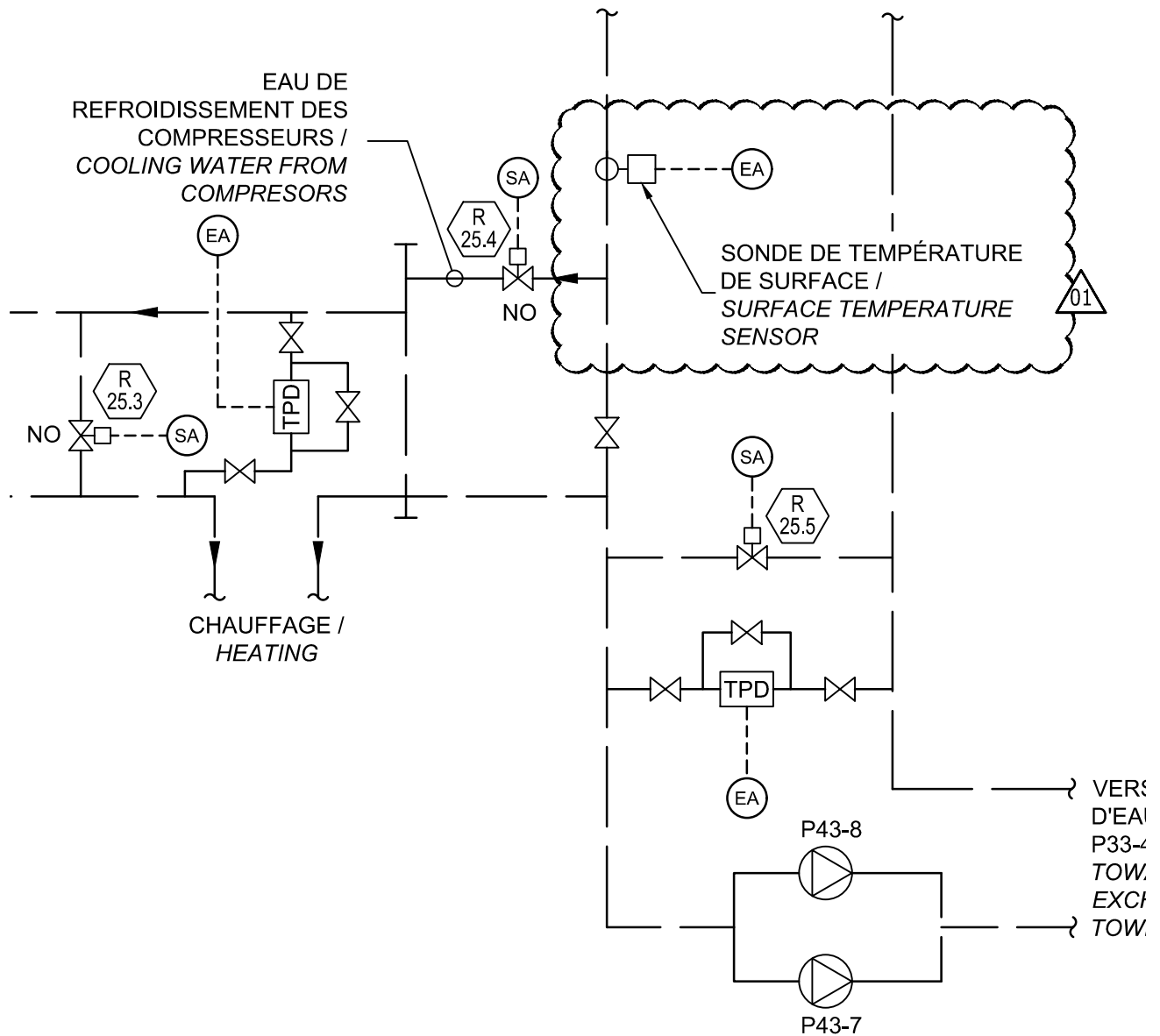
3.4 HOOD CONTROLLERS

- .1 Phoenix hood controllers are stored in the C and D blocks. No wiring changes are required. The integration controller is existing and needs to be reconnected to the new control system.
- .2 Phoenix hood controllers from VH-1 to VH-4 hoods are replaced in Block F. They currently have pneumatic operators. Plan to install and connect the integration controller.

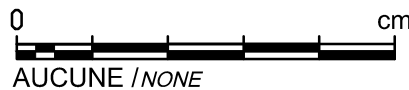
3.5 DUCTS AND WALLS REPAIR

- .1 Block holes left open on ventilation ducts by the sensors removed when the new sensors are not installed in existing openings. Re-insulate with canvas and glue, when applicable.
- .2 Repair openings left free in the walls by the removal of the room thermostats. Paint as existing or install a stainless-steel finishing plate to close the opening.

END OF SECTION



ÉCHANGEUR DE CHALEUR (VAPEUR - EAU) P43-25 («A»)
HEAT EXCHANGER (STEAM - WATER) P43-25 ("A")



2020-12-17

<p>Travaux publics et Services gouvernementaux Canada</p> <p>Direction générale des biens immobiliers Région du Québec</p>	<p>Public Works and Government Services Canada</p> <p>Real Property branch Quebec region</p>	<p>Projet / Project</p> <p>RÉGULATION AUTOMATIQUE CRD / AUTOMATIC REGULATION RDC</p>		<p>Dessin / Drawing</p> <p>SCHÉMAS DE CONTRÔLE CENTRALE THERMIQUE / CONTROL SCHEMATICS THERMAL POWER PLANT</p>	
		<p>Conçu par / Designed by</p> <p>Yassine Slaoui, ing.</p>	<p>Date</p> <p>16.12.2020</p>	<p>Révision / Revision</p> <p>R01</p>	<p>Description</p> <p>ADDENDA 01</p>
		<p>Dessiné par / Drawn by</p> <p>Roxanne Trépanier</p>	<p>Date</p> <p>16.12.2020</p>	<p>No de projet Consultant / Consultant's project no</p> <p>157102757</p>	<p>No de projet Client / Client's Project no</p>
<p>Client / Client</p> <p>CRD ST-HYACINTHE / ST-HYACINTHE RDC</p>		<p>Approuvé par / Approved by</p> <p>Alain Higgins, ing.</p>	<p>Date</p> <p>16.12.2020</p>	<p>No de plan ou de dessin / Plan or drawing no</p> <p>R_107062_001-M42-SR-SCH</p>	
<p>Adresse / Address</p> <p>3600 Blvd Casavant O, Saint-Hyacinthe, Québec J2S 8E3</p>		<p>Gestionnaire de projet TPSGC / PWGSC Project Manager</p>		<p>No de projet TPSGC / PWGSC Project no</p> <p>R_107062_001</p>	<p>No de feuille / Sheet no</p> <p>CM01/XXX</p>

AutoCAD

APPENDIX 1

DX-2-85

Touches		Touches	
Sondes		États	
X1	Temp. eau de la tour	D1	Alarme Vibration OFF=OK
X2	Niveau bassin de la tour d'eau	D2	État Variateur
X3	Ampérage P37-05	D3	Faute Variateur
X4	Ampérage P37-06	D4	Alarme Vibreur
X5	Ampérage P33-15	D5	État Variateur
X6	Ampérage P33-16	D6	Faute Variateur
X7	Temp. sortie eau refroidie	D7	(**) Alarme Bas Niveau Bassin
X8	Temp. entrée eau refroidie	D8	(*) Alarme Haut Niveau Bassin
		D+XT	
	Point de consigne	D11	État Filtre
K1	Temp. eau de la tour	D12	Faute Filtre OFF=OK
K2	Temp. Départ Pompe	D13	État Interrupteur de transfert
K3	Temp. Arrêt Pompe		
K4	Minimum Drive		Commande
K5	Soupape eau d'appoint OFF	Y1	Vitesse Variateur 01 <i>URG.</i>
K6	Soupape eau d'appoint ON	Y2	Vitesse Variateur 02
K7	Départ 2 ^e Tour	Y3	P37 05 <i>TOUR 01 URG.</i>
K8	Arrêt 2 ^e Tour	Y4	P37 06 <i>TOUR 02</i>
		Y5	P43 01
		Y6	P43 02
		Y7	P33 15
		Y8	P33 16
		Y+xt	
(**)	Alarme Bas Niveau = ____ et moins	Y15	Commande Filtre
(*)	Alarme Haut Niveau = 90.5 et plus	Y16	Soupape d'eau d'appoint

DX-90

Touches		Touches	
X1	Ampérage P-33-3	D1	État filtre à sable
X2	Ampérage P-33-4	D2	Faute Filtre
X3	Ampérage P-33-5	D3	État Interrupteur transfert (hydro)
X4	Ampérage P-33-6		
X5	Ampérage P-33-7	Y3	Commande Refr.1
X6	Ampérage P-33-8	Y4	Commande Refr.2
X7	Ampérage Refr. 1	Y5	Commande Vanne Refr.1
X8	Ampérage Refr. 2	Y6	Commande Vanne Refr.2
			Y+ XT et Y
K1	Nombre de Refr.	Y11	Commande Pompe P-33-3
K2	Nombre de pompe eau tour	Y12	Commande Pompe P-33-4
K3	Nombre de pompe eau Refr.	Y13	Commande Pompe P-33-5
		Y14	Commande Pompe P-33-6
		Y15	Commande Pompe P-33-7
		Y16	Commande Pompe P-33-8