

**GENERAL**

The following changes in the Tender Documents are effective IMMEDIATELY. This addendum will form part of the Contract Documents

**SPECIFICATIONS**

**1. Architectural**

a. Section 08 71 00 – Door Hardware

i. Replace Item 3.5 - Schedule with the following schedule.

**Set: 1.0 – Door D2630**

6 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
4 Surface Bolt	585-12	US26D	RO
2 Door Stop	441H	US26D	RO

**Set: 2.0 – Door D2640A**

4 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	CL3557 NZD	626	RU
1 Surface Closer	DC3200	689	RU
1 Kick Plate	K1050 10"	US32D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

Notes: Lock to be keyed to existing master key system. Confirm with owner prior to ordering locks.

**Set: 3.0 – Door D2650**

8 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
2 Concealed Vertical Rod Lock	MP9800 NN49 NE10 H0900	626	RU
2 Surface Closer	DC3210 A4	689	RU
2 Kick Plate	K1050 10"	US32D	RO
1 Gasketing	S88BL		PE
2 Door Bottom	4131CRL		PE
1 Astragal	351C/CP		PE

Notes: Lock to be keyed to existing master key system. Confirm with owner prior to ordering locks.

**Set: 4.0 – Doors D2651 and D2672**

8 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Flush Bolt	555	US26D	RO
1 Flush Bolt	555-36	US26D	RO
1 Storeroom Lock	CL3557 NZD	626	RU
1 Surface Overhead Stop	10-X36	630	RF
1 Surface Closer	DC3210 A4	689	RU
1 Gasketing	S88BL		PE
2 Door Bottom	4131CRL		PE
1 Welded Astragal by Door Supplier			

Notes: Overhead stop for use on inactive leaf. Lock to be keyed to existing master key system. Confirm with owner prior to ordering locks.

**2. Mechanical**

- a. Refer to Division 25
  - i. Section 25 90 01 was missing from division 25. Refer to attached documents for updated section.

**QUESTIONS**

1. *The section 25 90 01 – EMCS Sequences of operation appears to be missing from the files on the website. Can you please forward those to me?*

**Answer:** Section issued with this addendum.

2. *Also in 25 05 54 section 2.6 it states to color code EMCS conduit. Will all the conduit need to be colored orange or just box covers and conduit fittings?*

**Answer:** Conduit shall be coloured just at the box and fittings.

**CLARIFICATION**

1. All controls wiring and conduit to be provided by controls contractor.

**END OF ADDENDUM 6**

## **Part 1 General**

### **1.1 References**

- .1 Public Works and Government Services Canada (PWGSC) / Real Property Branch / Architectural and Engineering Services.**
  - .1 MD13800, Energy Management and Control Systems (EMCS) Design Manual. English: <ftp://ftp.pwgsc.gc.ca/rps/docentre/mechanical/me214-e.pdf>**

### **1.2 General Description**

- .1 The National Hydrology Research Centre (NHRC), in Saskatoon, SK, is a combination of office spaces and laboratories for research. Built in 1986, the building still operates with several original equipment and all heating equipment is close to the end of service life. Therefore, this project aims to update the hydronic heating systems, providing new hot water boilers, and substituting the steam boiler for gas to steam humidifiers. Other ancillary systems are also subject of renovation, including the domestic hot water system, and circulation and recirculation pumps. The existing building automation system is the Johnson Controls Metasys system.**

### **1.3 Sequencing**

- .1 Present sequencing of operations for systems, in accordance with MD13800 - Energy Management and Control Systems (EMCS) Design Manual.**
- .2 Confirm setpoints with existing BAS.**
  - .1 Heating Plant**
    - .1 The Hot Water Circulation Pump System shall start whenever the outdoor air temperature is below setpoint (Adj.). If the Lead Pump fails, the Lag Pump shall be started as backup.**
    - .2 The Radiation Circulation system shall start whenever the Outdoor Air Temperature is less than the Radiation Pump Enable Setpoint (Adj.). If the Lead Pump fails, the Lag Pump shall be started as backup.**
    - .3 Pumps start-up at 50% of speed and then gradually increase to desired set point. VFDs with by-pass modulate pump speed to maintain set-point**
    - .4 The Lead Pump Switchover shall occur weekly.**
    - .5 Differential pressure switches across the pumps provide flow indication. Once flow is established, lead boiler is started. Lag boiler is started once hot water supply temperature and hot water return reaches adjustable setpoint. The third boiler is disabled. Boilers shall be staged in sequence to maintain hot water supply temperature at setpoint which shall be reset according to the adjustable reset schedule. Motorized Isolation**

- Valves connected to boiler control, as opposed to the existing BAS system, manage equipment staging and isolation.**
- .6 Monitor the individual stage run times and rearrange the sequence for equal runtimes. An adjustable inter-stage delay shall be incorporated to minimize unnecessary cycling of the boilers.**
  - .7 A three-way mixing valve is modulated to maintain the radiation supply water temperature, mixing hot water from the boilers with low temperature water return to the desired set-point.**
  - .8 An Alarm message shall be generated if the boilers are operational and the Hot Water Supply Temperature is 10 °C less than the Hot Water Setpoint for more than 10 minutes.**
  - .9 AHUs in Free Cooling Mode**
    - .1 When the system is in Free Cooling Mode and the Outdoor Air Temperature is greater than 12 °C (Adj.), all heating pumps shall be shut off and the Boiler Pump outdoor air enable setpoint shall be overridden to 12 °C and the Boiler Common Supply Temperature Low Alarm be overridden to 15 °C.**
    - .2 When the system is not in Free Cooling Mode, the Boiler Pump enable Setpoint shall be set to 18 °C (Adj.). The Boiler Common Supply Temperature Low Alarm shall be 30 °C**
  - .2 Humidifiers:**
    - .1 The equipment operates when humidification is required, as per signal from humidistat in return duct. An air proving switch in the supply duct senses the airflow for humidifier operation. Also, a high limit humidistat senses high humidity (85% RH) for humidity control.**

**Part 2 Products**

**2.1 Not Used**

**.1 Not Used.**

**Part 3 Execution**

**3.1 Not Used**

**.1 Not Used.**

**END OF SECTION**