

EQPT DETAIL – 12 (Cooler & Freezer Requirements)

1. Introduction

Correctional Services Canada has a requirement to supply and deliver new walk-in coolers and freezers at 2 Institutions located in the Prairie Region. Specifically required are:

1.1 Bowden Institution (BI) located in Alberta:

- 1.1.1 One **outdoor** walk-in cooler/freezer combination with flooring and remote roof-mounted refrigeration rack system. **Drawings #: Bowden I Equipment List # ?**
- 1.1.2 Four indoor walk-in floorless coolers with remote roof-mounted refrigeration rack systems. **Drawing #: Bowden I. Equipment List # ?**
- 1.1.3 One indoor walk-in cooler/freezer combination with a floor in the freezer and remote roof-mounted refrigeration rack systems. **Drawing #: Bowden I. Equipment List # ?**
- 1.1.4 One outdoor walk-in freezer – 1 (chilled food handling) with a floor and remote roof-mounted refrigeration rack systems. **Drawing #: Bowden I. Equipment List # ?**

2. Background

All purchases are in support of construction of the kitchen located at Bowden Institutions.

3. Applicable Documents

3.1 The areas of these solutions, walk-ins depictions and sketches are shown in drawing #

3.2 The Contractor shall supply to the Technical Authority, all specifications, including product technical bulletins, handling, storage and installation instructions and datasheets.

3.3 The Contractor shall provide detailed drawings of the boxes and mechanical, to the TA, after award. The drawings will be used by the certified installer. The Technical Authority, in consultation with the Contractor, shall set a deadline for submission of all drawings.

4. Warranty Requirements

4.1 The Contractor shall provide all applicable warranty services as detailed in 4.2 and within Section 2010A 09 of the General Terms & Conditions 2010A (2013-03-21).

4.2 The Contractor must:

- provide a factory warranty guaranteeing the equipment is free of defects in design, material, workmanship and operation
- Ensure the warranty documentation, including the factory warranty time period for new equipment shall begin when installation and testing are complete and the Technical Authority has completed inspection and acceptance.

- Provide the following minimum factory warranties:
 - Fifteen (15) year factory warranty on panels including the wall, ceiling, floor and doors
 - Five (5) year repair or replacement factory warranty on compressor
 - Two (2) year factory warranty services for parts and labor on all hardware, accessories and electrical components
- During the warranty period the Contractor will provide repair services within 24 hrs of receiving a service call.

6. Performance

6.1 Walk-ins Specification, Minimum Requirements

The walk-in coolers and freezers shall have the MINIMUM acceptable requirements:

6.1.1 Dimensions, Sizes and Electrical Requirements:

Bowden Institution Food Service Building – Outside Combination Walk-in Cooler/Freezer: will be located outside the kitchen, on the loading dock.

	Maximum Dimensions				
Description	Length	Width	Height	Minimum Door Size	Holding Temp
Combination Walk-in Cooler/Freezer - Overall	32.80' (10000 cm)	13.12' (4000 cm)	11'7" (356.6 cm)		
Cooler section with floor	16.76' (5110 cm)	13.12' (4000 cm)	11'7" (356.6 cm)	Manual single sliding door: 5'x7'60"x84"(914mm x 1981 mm)	35°F (2°C)

Freezer section with floor and ramp	15.70' (4788 cm)	13.12' (4000 cm)	11'7" (356.6 cm)	Manual single sliding door: 5' x 7'60" x 84" (914mm x 2134mm)	10°F (-23°C)
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Maximum Power Requirements					
Cooler section with floor	3 phase	18.8 amps	208 volts	3HP	(2) unit cooler, 1.8 amps each
Freezer section with floor and ramp	3 phase	32.6 amps	208 volts	4HP	Fan 208 volts, 1 phase, 1.8 amps Defrost 230 volts, 3 phase

Bowden Institution Food Services Building

#	Walk-in Type	Walk-in Size Feet/Inch	Door Type & Qty	Door Size Feet/Inch	Holding Temp
1	Outdoor Freezer	Overall size: 43.65'x19.02x8'7"	2 manual single sliding door	5' x 7" (60" x 84")	Chilled food holding: 30 °F - 32 °F (-1°C - 0°C)
2	Indoor Cooler floorless- Raw Food	12.72'x13.96'x8'2 ⁵ / ₈ "	1 manual single sliding door 1 left-hand swing door	Sliding door: 5' x7'(60" x 84") Swing door: 36"x78"	35°F (2°C)
3	Indoor Cooler floorless- Raw Food	12.72'x13.96'x8'2 ⁵ / ₈ "	1 manual single sliding door 1 left-hand swing door	Sliding door: 5' x7'(60" x 84") Swing door: 36"x78"	35°F (2°C)

4	Indoor Cooler floorless- Prep. Food	12.72'x13.96'x8'2 ⁵ / ₈ "	2 manual single sliding door	Sliding door: 5' x7'(60" x 84")	35°F (2°C)
5	Indoor Cooler floorless- Prep. Food	11.90'x13.96'x8'2 ⁵ / ₈ "	1 manual single sliding door	Sliding door: 5' x7'(60" x 84")	35°F (2°C)

Bowden Institution Food Services Building

#		Maximum power requirements			
1	Outdoor Freezer with floor,	3 ph	27 a	208 v	Unit cooler: 208 v, 3 ph; Heater; 13 a, 1 ph; Fan: 1.8 a, 1ph
2	Indoor Cooler floorless	3 ph	7.5 a	208 v	Evaporator: 115 v, 1 ph, 2.7 a
3	Indoor Cooler floorless	3 ph	7.5 a	208 v	Evaporator: 115 v, 1 ph, 2.7 a
4	Indoor Cooler floorless	3 ph	7.5 a	208 v	Evaporator: 115 v, 1 ph, 2.7 a
5	Indoor Cooler floorless	3 ph	9.1 a	208 v	Evaporator: 115 v, 1 ph, 2.7 a

6.1.2 Overall Design – All Units

- Prefabricated modular design and construction
- NSF, UL, C-UL, CSA, ULC panel HACCP compliant
- Designed in the year 2011 or later

- Ensure maximum storage space is provided.
- Constructed with modular panels possessing cam-lock closers, for secure and tight fit between joints. All panels shall be interchangeable and have a non-silicone rubber gasket seal to ensure air tight and waterproof seals at the joints without the use of applied silicone.
- Ensure panels are a minimum 4" (102mm) thick material core, made from CFC free and HCFC free material and permanently affixed to the interior and exterior metal panels
- Have a minimum R-value of R27 for the cooler and R-32 for the freezer and retaining 75% of its R-value after 5 years
- Have exterior and interior metal finishes at a minimum 26 gauge, corrosion, dent and scratch resistant coated steel
- Be provided with a heated pressure-vacuum relief vent to relieve internal pressure or vacuum.
- Possess light(s) suitable for walk-ins and appropriate to area to be illuminated.

6.1.3 Floors & Ramps

- Each walk-in freezer and combination (freezer compartment only) must have a floor with the following features:
 - o Will withstand a minimum weight of 5,000 pounds per square foot of evenly distributed load.
 - o Made of materials that are resistant to mould and water to ensure a strong structure that will not rot or rust.
 - o finished with a metal plate, foamed in place, to disperse weight load evenly over the floor with an aggressive surface to reduce slips such as, 1/8 inch diamond tread aluminum.
- The walk-in freezers shall have an interior, heated ramp in freezer compartment. The ramp will have non-skid strips applied to top at a sufficient length and angle for easy loading of pallets using hand pallet jack.

Bowden Indoor - Ramp:

Interior heated ramp with Non-Skid Strips applied to top and of a sufficient length and angle to facilitate loading of goods with dollies and trolleys.

- *Outdoor walk-in*

The freezer compartment shall have an interior, heated ramp. The ramp will have Non-Skid Strips applied to top at a sufficient length and angle for easy loading of goods with dollies and trolleys.

6.1.4 Doors, Handles and Locks

Doors (applicable to all units)

- The complete door section shall be both UL and CSA/ETL listed and so labeled, and all doors to be field adjustable.
- Minimum 36" high, exterior 1/8" aluminum diamond tread, door and frame mounted kick plates to prevent damage.
- Vision Windows that are a minimum 14" x 14" tempered triple-pane, and moisture proof clear glass viewing area. For clean and dry visibility, the walk-in cooler shall have heated frames around the glass and the walk-in freezer shall have heated frames and heated glass.

Walk-in freezers and dual mode units shall have heated frames around the glass as well as heated glass in the doors to provide clear, moisture free viewing.

- Automatic closing devices to ensure they cannot be left open, accidentally. Hydraulic door closers are not acceptable.

Bowden Outdoor - Sliding Door:

- Sliding doors shall be horizontal and manually operated door with guide system, heavy duty track assembly and hardware, lock & inside release.
- Construction and finish shall be the same as panels.
- Complete seal between door, threshold, and door jamb.
- Threshold (sill) plate shall be made of materials that will withstand heavy traffic.
- Door jamb shall be rigid frame designed for easy cleaning and maintenance.
- Built-in thermostatically controlled heater cables inside perimeter of door and beneath sill plate and jambs of door opening. Heater wire shall be provided in an electrically safe housing and be easily replaceable without the need for clips or special tools. All conduits for the inner-wiring of the door panel shall be totally concealed in the panel.
- Door section is to be provided with a combination light switch and thermometer (reading the interior temperature in Centigrade).

Bowden Indoor Units:

Swing hinge door:

- To be in-fitting, self-closing, and flush-mounted with magnetic gaskets to ensure a complete seal between door, threshold and door jam.
- Construction and finish to be the same as panels
- Bottom of door shall seal with an adjustable double sweep gasket
- Door gasket to be water, fat and oil resistant and be replaceable
- Threshold (sill) plate shall be made of materials to withstand heavy traffic
- Door jamb shall be rigid frame designed for easy cleaning and maintenance
- Chrome finished hinges, spring loaded with non reversible screws for correctional application, self-closing type, with stainless steel pin and nylon cam-type bearing

- Built-in thermostatically controlled heater cables inside perimeter of door and beneath sill plate and jambs of door opening. Heater wire shall be provided in an electrically safe housing and be easily replaceable without the need for clips or special tools. All conduits for the inner-wiring of the door panel shall be totally concealed in the panel
- Door section is to be provided with a combination light switch and thermometer (reading the interior temperature in Centigrade)

Bowden Indoor Units:

Sliding Door: To be horizontal and manually operated door with guide system, heavy duty track assembly and hardware, lock & inside release, vapor proof light with a combination light switch and thermometer (reading the interior temperature in Centigrade)

Bowden: Service Door: 36"x 36" (914mm x 914mm) solid service door

Door handle and lock (applicable to all units):

- A combination door handle and locking device shall be provided with features of no exterior hardware that can be removed from the outside of the door.
- The lock shall be field selectable to allow for keyless entry or automatically lock each time the door is closed.
- The locks are to be designed so that they may be re-keyed in the field using a **BEST Lock** key way.
- The lock shall have an interior assembly as to allow safe egress at any time.

6.1.5 BI Outdoor Unit Roof :

- The roof shall be suitable for outdoor walk-ins which typically required the structure and roof to withstand strong winds, at certain snow loads, and leak proof.
- A membrane roof shall be supplied to provide a water resistant covering of the ceiling panels.
- Membrane material shall be provided in one complete roll designed for the size of the walk-in. No welding of seams shall be required for installation.
- Ultra-Span ceiling panel reinforcement with ceiling load capacity minimum 45 lbs per square foot.

6.2 Item 2: Refrigeration Systems, Minimum Requirements

Each refrigeration system shall have the MINIMUM acceptable requirements:

6.2.1 Overall Design

General Description:

- Unit shall be Remote Outdoor Roof-mounted Multi-Circuited Refrigeration Parallel configuration Rack System, air cooled, completed with electrical and refrigeration connections including necessary components factory-installed on both evaporator and condensing unit assemblies, prewired, ready for site connections.
- The complete system shall include refrigerant receiver tank, receiver valve, suction service valve, liquid line filter/drier sight glass, compressor contactor, defrost timer and other equipment required to achieve the specified performance.
- All compressors to be arranged in a parallel configuration using a protocol control system to ensure redundancy and load matching with multiplex compressors for the chilled food storage coolers/freezers.
- UL or UL-C listed
- be designed in the year 2011 or later
- be designed for ease of service. All components shall be conveniently arranged on a heavy duty rack, accessible for adjustments and repairs. It shall also allow for an easy individual change-out without the loss of the entire refrigeration package.

Housing:

Refrigeration system shall be housed in a weather protected and ambient controlled enclosure with proper ventilation.

- be a self-contained, ambient controlled enclosure with a galvanized steel (or equivalent) housing. The enclosure shall be able to endure extreme summer and winter temperatures and allow easy access for maintenance purposes.

Refrigerant: Utilize environmentally friendly (CFC free) refrigerant for environmental protection and unregulated distribution. (Refrigerant shall utilize environmentally friendly non-flammable type material such as R-404a or other acceptable substitute).

Rack Overall Size:

Rack must be sized to accommodate all condensing units with matching evaporator coils. Either single or double tier arrangements will be acceptable.

Remote Outdoor Refrigeration System Bowden

Capacity:

This system shall allow the remote operation of refrigeration units in 7 walk-ins to a single system, and shall reduce the inside heat, air conditioning load and noise levels.

- 1 Outdoor Cooler/Freezer Combination Two Compartments (Equipment List # ?):
 - Cooler section: High temperature, 35°F (2°C), scroll type compressors min. 3 HP max 18.8 amps.
 - Freezer section: Low temperature, -10°F (-23°C), hermetic type compressor, min. 4HP max. 32.6 amps.
- 1 Walk-in Dairy Cooler (Equipment List # 6): High temperature, 35°F (2°C), scroll type compressor, min. 0.75 HP, max. 6.8 amps.
- 1 Walk-in Cooler Combination Two Compartment (Equipment List # 8):
 - Small Cooler section: High temperature, 35°F - 39°F (2°C - 4°C), hermetic type compressor, min. 5 HP, max. 27 amps.

- Large Cooler section: High temperature, 30°F - 32°F (-1°C - 0°C), hermetic type compressor, min. 2.25 HP, max. 13.7 amps.
- 3 Walk-in Coolers (Equipment List # 13, 14, 15): High temperature, 35°F (2°C), scroll type compressors min. 2 HP, max. 7.5 amps.
- 1 Walk-in Cooler (Equipment List # 16): High temperature, 35°F (2°C), scroll type compressors min. 2.5 HP, max. 9.1 amps.

Remote Outdoor Refrigeration System

Drawing#:

Equipment List

Capacity:

This system shall allow the remote operation of refrigeration units in 1 Walk-in Cooler and 1 Walk-in Cooler/Freezer Combination 3 Compartment to a single system:

- Walk-in Cooler (Equipment List # 3): High temperature, 35°F (2°C), hermetic type compressor, minimum 3 HP.
- (1) Walk-in Cooler/Freezer Combination 3 Compartment (Equipment List # 14):
 - Small Cooler section: High temperature, 35°F (2°C), hermetic type compressor, minimum 1.5 HP.
 - Large Cooler section: High temperature, 30°F - 32°F (-1°C - 0°C), hermetic type compressor, minimum 3 HP.
 - Freezer section: Low temperature, -23°C (-10°F), scroll type compressor, minimum 2 HP.

7. Evaporator Cooling Coils

- All walk-in coolers and freezers must be supplied with evaporator/cooling coils that have an integrated defrost management system. The evaporator/cooling coils with the integrated defrost management system will eliminate the need of defrost timers and other components of a traditional defrost process and must be a minimum 115V and a maximum 208v 1ph
- All evaporator coils must be of adequate quantity and size to meet the performance specification of each of the units and dual units identified in section 2.
- All evaporator coils must be have optimal location, for performance achievement, and must be indicated on supplied drawings to give direction to the installers of the setup and configuration of the system.

8 Installation Consultation Services

The units will be erected and installed by **(to be filled in by PWGSC at contract award)**. Installation Consultation Services will be required for up to 6 hrs per site to answer any specialized technical questions or review submitted technical drawings for interpretation.
