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**Part 1            General**

**1.1                REFERENCES**

- .1        Canadian Sheet Steel Building Institute (CSSBI)
  - .1        CSSBI 30M-95, Standard for Steel Building Systems.
- .2        Manitoba Building Code (MBC)
- .3        National Building Code of Canada (NBC)
- .4        Electrical devices to be ULC approved and installed in accordance with Canadian Electrical Code and codes of authorities having local jurisdiction.
- .5        National Fire Code of Canada (NFC) and codes of authorities having local jurisdiction.
- .6        National Energy Code for Building (NECB)

**1.2                SYSTEM DESCRIPTION**

- .1        Provide building structures and enclosures to physical dimensions shown on drawings, completely pre-fabricated and assembled for installation on a concrete base.
- .2        The pre-fabricated structure is to be complete with all systems including interior finishes, counters, doors and hardware, heating and cooling, electrical panel board, and lighting.

**1.3                DESIGN REQUIREMENTS**

- .1        Provide insulated assemblies with minimum R values in accordance with the National Energy Code for Buildings (NECB) 2011 for the environmental conditions of the site.
- .2        Design building to allow for thermal movement of component materials caused by ambient temperature fluctuations without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
- .3        Ensure total absence of condensation on interior surfaces under the following minimum condition: Interior: 20°C 30% RH, still air. Exterior: -35°C 30 km/h wind.
- .4        Building shall be watertight.
- .5        Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall in accordance with NRC "Rain Screen Principles".
- .6        Provide continuous interior vapour barrier.
- .7        Design members to withstand, within acceptable deflection limitations:
  - .1        Snow load of  $S_s = 0.7\text{kPa}$   $S_r = 0.4\text{kPa}$ , 1.0 kPa (minimum) plus loads for drifting.
  - .2        Lateral load of  $q_{30} = 0.43\text{ kPa}$ ,  $q_{10} = 0.36\text{ kPa}$ .
- .8        Design building enclosure elements to accommodate, by expansion joints, movement in wall and structural movements without permanent distortion, damage to in fills, racking of joints, breakage of seals, water penetration or glass breakage.

- .9 Building will be supported on concrete slab on grade. Provide corrosion resistant anchor bolts and layout for incorporation in concrete work.
- .10 All fasteners to be concealed or vandal proof.
- .11 Exposed fasteners to be corrosion resistant, galvanized or stainless steel.
- .12 Allow for ceiling, piping, conduit and other interior dead loads imposed on this structure.
- .13 Building interior environment shall be heated and cooled to maintain interior temperature of 20°C minimum to 25°C maximum with relative humidity of 25% to 50%. Ambient design conditions to comply with National Building Code of Canada for Winnipeg, Manitoba winter dry bulb and summer wet bulb temperatures.
- .14 Provide wall or roof-mounted air conditioner with digital electronic remote control.
- .15 Provide baseboard heaters with remote thermostat to maintain uniform temperature.
- .16 Building lighting shall maintain measured lighting level of 500 lx at 1500 mm above finished floor, after building finishes and painting complete using recessed fluorescent fixtures, T5 tubes, electronic ballasts with K-12 acrylic lens in hinged frame.
- .17 Fixed windows to consist of sealed, double glazed, tinted units in anodized clear aluminum frames, incorporating thermal breaks.
- .18 Sliding windows to incorporate weather seals, nylon guides for easy operation, locking and hardware.
- .19 Glazing to provide solar control of heat gain using tinted double glazed, low e coated sealed units with non-conductive spacer and argon filled cavity.
  1. Visible light transmittance min. 37%
  2. Solar heat gain coefficient max. 0.40
  3. Shading coefficient max 0.47
  4. U Value max 0.35
  5. Tint colour grey or bronze ( provide actual samples prior to ordering)
- .20 Outer glazing panels to be tempered.
- .21 Provide swing door assemblies complete with vandal proof ball bearing stainless steel hinges, lever handle in brushed chrome finish, with keyed lock, fully weatherstripped with flexible, replaceable seals.
- .22 Building to be constructed of frameless structural tubing. Interior and exterior wall panels to be galvanized and pre-finished 16 gauge steel, with white gloss finish.
- .23 Provide metal roof sloped to scupper drain with perimeter fascia panels in contrasting pre-finished metal, grey colour.
- .24 Integrate square, 16 ga. rain water leader from roof scupper to splash pad at grade.
- .25 Floor structure to be insulated and finished with steel plate.
- .26 Interior floor to be finished with 2 mm thick seamless rubber composite flooring adhered to sub-base. Provide rubber base at perimeter.

- .26 Provide 5 kVA 600V to 120/240 V transformer, 60 amp, 102/240 VAC, 12 circuit panel board complete with all breakers required plus two spare 15 amp, 1 pole.
- .27 Provide and coordinate exact location and rough-in requirements for electrical power feed through base slab.
- .28 Provide concealed conduits with fish wires for communication and data wiring.
- .29 Provide counter of two layers 19mm medium density fibreboard covered on all exposed surfaces with plastic laminate.
- .30 Provide rough-in requirements for 6 strand fibre optic cable. Provide space to mount fiber termination cabinet and Ethernet switch supplied by others. Provide two Cat 5E RJ45 connectors above counter space, cable to copper termination board.

#### **1.4 PERFORMANCE REQUIREMENTS**

- .1 Maximum deflection for roof under full specified live load: 1/360 of clear span.
- .2 Maximum deflection for exterior cladding under full specified exterior wind induced loads: 1/180 of clear span.
- .3 Maintain following tolerances for building structure and enclosure elements.
  - .1 Maximum variation from plane or location shown on shop drawings: 1 mm/1 m of length and up to 1 mm/5 m maximum.
  - .2 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm.

#### **1.5 SHOP DRAWINGS AND SAMPLES**

- .1 Submit shop drawings in accordance with General Contract Requirements.
- .2 Indicate plans and grid lines, structural members and connection details, bearing and anchorage details roof cladding, wall cladding, framed openings, accessories, schedule of materials and finishes, camber and loadings, fasteners and welds.
- .3 Indicate detailed description of mechanical, electrical and other systems in work.
- .4 Describe requirements of other systems of components related to this work but provided by others. Obtain necessary information required to detail this work including methods of integration and securing.
- .5 Submit erection drawings for approval, before construction.
- .6 Indicate erection dimensions and methods.
- .7 Submit samples of glazing, providing options for colours.
- .8 Submit sample of prefinished exterior fascia, wall finish, and interior finishes, including flooring.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Building materials: non-combustible construction.

- .2 Fire resistive building elements: in accordance with the National Building Code for intended use and occupancy.

## **2.2 FABRICATION**

- .1 Maintain air and vapour and thermal barrier throughout building enclosure elements.
- .2 Locate vapour barrier on warm side of thermal insulation.
- .3 Enclosure assemblies shall be complete including exterior skin, glass units, access units' doors, etc., inner air/vapour seal membrane, thermal insulation; interior finishes.
- .4 Accurately fit and rigidly frame together joints, corners and mitres. Match components carefully to produce continuity of line and design. Make joints and connections toward exterior weathertight. Materials in contact shall have hairline joints. Coordinate location of visible joints.
- .5 Lifting hooks and other means of shipping are to be removed from installed product.

## **Part 3 Execution**

### **3.1 ERECTION**

- .1 Erect building structure and enclosure elements.
- .2 Seal base at perimeter of building for weatherproof enclosure.

### **3.2 CLEANING**

- .1 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable by sealant manufacturer.
- .2 Clean surfaces.

### **3.3 PROTECTION**

- .1 Provide protection to finished surfaces with stripable coatings, stripable wrappers, plywood or sheet materials as required before acceptance of work.

**END OF SECTION**

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**Part 1            General**

**1.1                REFERENCES**

- .1        Manitoba Building Code (MBC)
- .2        National Building Code of Canada (NBC)
- .3        Electrical devices to be ULC approved and installed in accordance with Canadian Electrical Code and codes of authorities having local jurisdiction.
- .4        All calibrations shall be performed by a source recognized by Measurement Canada, and completed to the reference standards defined in, and required by, the Weights and Measures Act.

**1.2                SYSTEM DESCRIPTION**

- .1        Supply and install two (2) low profile steel platform pit less vehicle scales including associated electronic instrumentation.
- .2        Supply and install weighing system for the scales including indicator, cables and options, scale instruments and remote display in or on the scale house or in area specified by the Contract Administrator.
- .3        Weigh scale foundation design certified by a Contract Administrator registered in the Province of Manitoba.

**1.3                DESIGN REQUIREMENTS**

- .1        All scales will have a clear and unobstructed weighing surface of not less than 12.19 metres (40 feet) long by 3.05 metres (10 feet) wide.
- .2        All scales will have a gross scale weighing capacity of 70 tonnes or more.
- .3        All scales will be calibrated to 70 tonnes in 10-kilogram increments in accordance with WEAA Certification.
- .4        All scales and any outside equipment supplied as part of this tender must be capable of operating at temperatures that range between -40 degrees Celsius and +40 degrees Celsius.
- .5        All scales must be approved for use in trade in Canada and meet the requirements set forth by the Federal Weights and Measures Act and regulations and specifications under this Act. The Contractor is responsible for obtaining the Weights & Measures (W&M) approval.
- .6        All scales and equipment will have radio frequency protection for RFI, EMI and EDS.

**1.4                WEIGH SCALE FOUNDATION**

- .1 Supply and install the weigh scale foundation as per the weigh scale foundation design submitted to the Contract Administrator.
- .2 Submit the weigh scale foundation specifications in accordance with E4 – Shop Drawings.
- .3 Design of weigh scale foundations must meet the following minimum requirements:
  - .1 Foundations to be designed and certified by a Contract Administrator registered in the Province of Manitoba;
  - .2 Foundations to be designed to eliminate settlement and heave of scale;
  - .3 Foundations to be constructed and installed in accordance with Specification E16 Cast-In-Place Concrete Pile Foundations

## **1.5 LIGHTNING AND SURGE PROTECTION**

- .1 Weigh Scale is to include a lightning and surge protection system to protect all components of the weigh scale including, but not limited to, the load cell, scale instrument, printer, signal lights and display board.

## **1.6 SHOP DRAWINGS AND SAMPLES**

- .1 Submit shop drawings in accordance with Specification E3 – Shop Drawings.
- .2 All bidders must submit a detailed description of their proposed design and installation of the Scales. This information shall include but not be limited to any drawings and/or specifications with respect to the scale, foundation, remote displays, guide rails and ramps.
- .3 Indicate detailed description of mechanical, electrical and other systems in work.
- .4 Describe requirements of other systems of components related to this work but provided by others. Obtain necessary information required to detail this work including methods of integration and securing.
- .5 Submit scale foundation drawings for approval, before construction.
- .6 Submit sample of prefinished exterior fascia, tire guide finish, and bar arm gates, including deck surfacing.

## **Part 2 Products**

### **2.1 WEIGHBRIDGE**

- .1 All scales weighbridge will be steel and capable of weighing vehicles that have a dual tandem axle rating of 35,000 kilograms.
- .2 The deck plate will be checker plate and thickness of the deck plate will be outlined in the Weigh Scale Supply Information submission (See D16).

- .3 The weighbridge must accept wheel loading no matter where the vehicle is placed on the scale.
- .4 The weighbridge will be designed to allow access to the junction boxes, load cell cables, base plates and all foundation anchor bolts from the top of the scale foundation.
- .5 The weighbridge will be shot blasted to a minimum SSPC-A-SP6 specification prior to shop painting.
- .6 All exterior surfaces of the scale will have a three part paint finish providing a minimum total dry film thickness of 6 mils. that is both chemically and UV resistant. The paint system shall consist of: Prime Coat – M33/34 polyamide epoxy primer with 51% solids and is applied at dry film thickness (DFT) of 2 mils, Second Coat – M36/37 polyamide epoxy gloss coating with 54% solids and a DFT of 2 mils, Top Coat – M74/75 aliphatic acrylic urethane gloss coat with 51% solids and a DFT of 2 mils or equivalent.
- .7 There will be no field welding permitted for the installation of the scale.
- .8 The construction of the scale's weighbridge (including the type and size of the steel used), how the load cells are to be accessed and the advantages of the weighbridge are to be detailed in the Weigh Scale Supply Information submission (See D16).
- .9 The weighbridge will be equipped with tire guides that are at least 200 mm high.
- .10 Acceptable Product: BridgeMont Steel Deck BMS-HD 4010 Standard Duty or equivalent.

## **2.2 LOAD CELLS, CABLES, AND JUNCTION BOXES**

- .1 The load cells may be analog/digital or hydraulic.
- .2 The load cells will be classified to NEMA IV or better.
- .3 The type of load cells, advantages if propriety, and load cell material used in construction are to be detailed in the Weigh Scale Load Cell Information submission (See D17).
- .4 All electrical junction boxes will be classified to NEMA IV or better.
- .5 The junction boxes, load cell mounting hardware, cover bolts and fasteners will be constructed of stainless steel.
- .6 Load cells to be isolated and protected from harsh environments under the scale deck with the use of an Easi-post or equivalent suspension system.
- .7 The weigh scale shall include removal section covers above each weight sensor location to allow convenient top access for periodic maintenance, and service.

## **2.3 DIGITAL INDICATORS**

- .1 All scales will be equipped with a digital weight indicator appropriate for use on a vehicle scale.
- .2 The digital indicators will be capable of performing calibration, span, zero and shift adjustment through software calculations that require no in scale adjustment.

- .3 The digital weight indicators will be UL/CSA listed.
- .4 The digital weight indicators must be compatible with WasteWorks Software.
- .5 The WasteWorks Software and scale components must be compatible and able to do as a minimum the following:
  - .1 record information on each load including date, time in, time out, gross weight, net weight, vehicle ID, ticket number, tipping fee rate, method of payment, company, material type, source of waste, route number;
  - .2 capable of using tare weights to calculate net weight for a load;
  - .3 able to calculate appropriate tipping fee charges and print tickets compatible with City weigh scale tickets;
  - .4 track number of vehicles on site at any time;
  - .5 prepare summary reports on information recorded for the individual loads;
  - .6 able to export information to WasteWorks Software, or other operating systems as required.

## **2.4 REMOTE DISPLAY BOARD**

- .1 All scales will include a remote display board.
- .2 The remote display board allocated for the inbound scale shall be visible to the vehicle located on the inbound scale. The remote display board for the outbound scale shall be visible to the vehicle located on the outbound scale. The remote display board for the inbound and outbound scale shall be mounted in an area visually accessible to the driver on entering the scale. The digits are to be a minimum of 5 cm high.
- .3 All weigh scale hardware and software to be compatible with WasteWorks Software.

## **Part 3 Execution**

### **3.1 FOUNDATIONS**

- .1 Install weigh scale foundations as per the submitted design.

### **3.2 CONNECTIONS**

- .1 Complete all electrical and mechanical connections to ensure complete operation of the weigh scale.

### **3.3 CLEANING**

- .1 Clean all surfaces upon completion of weigh scale installation.

### **3.4 PROTECTION**

- .1 Provide protection to finished surfaces as required before acceptance of work.

### **3.5 SERVICING REQUIREMENTS**

- .1 The Contractor will provide a regular maintenance and calibration program for the weigh scales for a period of five (5) years.
- .2 The Contractor will detail the proposed maintenance and calibration program on the Weigh Scale Maintenance and Calibration submission (see D19), including frequency of inspections, testing, calibration, cleaning and lubrication.
- .3 The proposed maintenance and calibration program will include inspection and calibration of the weigh scales at least every six (6) months.
- .4 The Contractor will be required to provide the City of Winnipeg's Water and Waste Department with inspection reports for each visit, including emergency call, which will indicate the extent of the work done, the time spent on each visit and a description of the parts supplied, if any.
- .5 The Contractor is responsible for having Weights and Measures Canada approve the scale for legal for tender purposes and for all charges related to this matter including the cost of the initial inspection.

### **3.6 WARRANTY REQUIREMENTS**

- .1 All scales and equipment will have a five (5) year all-inclusive warranty. The Contractor will promptly correct any defects appearing within the warranty period.
- .2 All scale assembly including all load cells, scale instrumentation, printer, junction boxes, cables, display board and accessories will be warranted from failures due to a defect in manufacturing, workmanship, installation, lightning or surge voltages during the warranty period.
- .3 The Contractor will bear all charges and expenses associated with repairing any defect covered under the warranty including but not limited to replacement parts, equipment, on-site labour, travel time to and from the site and any associated freight or handling expenses incurred.
- .4 The scale foundation (for each scale) will have a five (5) year warranty. Any heaving or settlement caused by the improper design of the foundation will result in replacement of the foundation by the Contractor.
- .5 A copy of the manufactures warranty will be included with the bid submission.

### **3.7 VERIFICATION**

- .1 Perform verification inspections and test in the presence of Contract Administrator.
  - .1 Provide all necessary tools, ladders and equipment.
  - .2 Ensure appropriate subcontractors and manufacturer's representatives are present for verification.

- .2 Visual verification: Objective is to assess quality of installation and assembly and overall appearance to ensure compliance with Contract Documents. Visual inspection to include:
  - .1 Sturdiness of equipment fastening.
  - .2 Non-existence of installation related damages.
  - .3 Compliance of device locations with reviewed shop drawings.
  - .4 Compatibility of equipment installation with physical environment.
  - .5 Inclusion of all accessories.
  - .6 Device and cabling identification.
- .3 Technical verification: Purpose to ensure that all systems and devices are properly installed and free of defects and damage. Technical verification includes:
  - .1 Measurements of tension and power.
  - .2 Connecting joints and equipment fastening.
  - .3 Compliance with manufacturer's specification, product literature and installation instructions.
- .4 Operational verification: Purpose to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:
  - .1 Operation of weigh scale.
  - .2 Operation of weigh scale and remote display board in relation with programmable schedule and or/specific functions.

**END OF SECTION**