

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 Common Work Results – Electrical

1.2 REFERENCES

- .1 Unless stated otherwise, the design, materials, manufacture, installation, connections, inspection and testing of all equipment and work involved must satisfy the requirements of current applicable codes, standards and regulations established by the organizations indicated in the sections of this chapter.

- .2 General standards

CSA:	Canadian Standards Association
CAN/ULC:	Underwriters Laboratories of Canada
EEMAC:	Electrical and Electronic Manufacturers Association of Canada
IES:	Illuminating Engineering Society of North America
NFPA:	National Fire Protection Association
NEMA:	National Electrical Manufacturers Association
ANSI:	American National Standards Institute
IEEE:	Institute of Electrical and Electronic Engineers
ASTM:	American Society for Testing and Materials
IPCEA:	Insulated Power Cable Engineers Association

- .3 Specific standards

CSA-C22.2 no. 0-10	General requirements - Canadian electrical code, part II (R2015):
CSA-C22.2 no. 29-15:	Panelboards and Enclosed Panelboards
CSA-C22.2 no. 45-M1981	Rigid Metal Conduit
(R2008):	
CSA-C22.2 no. 56-13:	Flexible metal conduit and liquid-tight flexible metal conduit
CSA-C22.2 no. 83-M1985	Electrical Metallic Tubing
(R2013):	
CSA-C22.10-10:	Québec construction code, Chapter V - Electricity Canadian electrical code, part I (21 st edition) with Québec amendments
CSA-Z299.3-85 (R2006):	Quality assurance program for the design, construction, inspection and testing
CSA/CAN-B72-FM87	Installation Code for Lightning Protection Systems
(R2013):	
CAN/CSA-O15-15:	Wood Utility Poles and Reinforcing Stubs
UL325 (2010) Standards:	Door, Drapery, Gate, Louver, and Window Operators and Systems

1.3 CONTRACTOR'S RESPONSIBILITY

- .1 The contractor is responsible for the supply, manufacture, assembly, installation and operation of the equipment, components and systems described in these specifications and in the drawings.
- .2 The contractor is also responsible for the removal of an existing rising arm gate and modification of the remaining gate.

1.4 SHOP DRAWINGS AND PRODUCT DATA

- .1 Once they are accepted by the Departmental Representative, the contractor shall submit all drawings and technical datasheets for all the equipment and devices identified in the drawings or in these technical specifications.

1.5 SITE VISIT

- .1 The bidder shall conduct a site reconnaissance prior to submitting a bid in order to familiarize itself with the work location and anything that might affect the work.
- .2 No extra costs incurred due to lack of familiarity with the site will be accepted.

1.6 TRAINING

- .1 The contractor shall conduct two 4-hour training sessions in French at the client's premises. The contractor shall also prepare a training manual in French and have it approved by the client before starting the training sessions.
- .2 This training must cover the entire access control system, including gate maintenance and operation.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- .1 The scope of the work required of the contractor includes, but is not limited to, the design, supply, manufacture, plant testing, transportation, assembly, on-site testing, and guarantee of the equipment and electrical components described in these special technical specifications.
- .2 All equipment, components and systems supplied by the contractor must be new, energy-efficient and of premium quality. The contractor shall standardize the equipment supplied in order to minimize the number of replacement parts required for its maintenance.

2.2 INCLUDED WORK

- .1 Without limitation, the scope of the work can be summarized as follows:
 - .1 Preparation of complete shop drawings;
 - .2 Manufacture and installation of 2 motorized rising arm gates spanning a 7m opening;
 - .3 Supply and installation of a two-level pedestal made of galvanized steel;
 - .4 Supply and installation of 2 vehicle detection loop systems;
 - .5 Coordination with the other contractors involved in the installation of the gates and control systems (electrician, civil, general, etc.);
 - .6 Supply and installation of the PIN system with ticket printer;
 - .7 Supply and installation of precast Concrete base of for rising arm gates and pedestal;
 - .8 Supply, installation and programming of a remote control system enabling the gates to be opened remotely.

2.3 EXCLUDED WORK

- .1 Cable conduits, wiring and electrical trenches;
- .2 Paving.

2.4 RISING ARM GATE

- .1 Weatherproof 3mm thick aluminum operator housing. Top cover painted black;
- .2 Security locks on top cover and cabinet door, supplied with two (2) keys;
- .3 Heated (150 Watts) and thermostat controlled housing;
- .4 Heavy duty mechanism;
- .5 Reduction ratio: 40:1;
- .6 Motor: 1/3 HP;
- .7 ± 8 seconds opening time;
- .8 ± 8 seconds closing time;
- .9 Friction disc torque limiter for mechanism protection against frequent reversal during gate operations;
- .10 Switch cutting power supply to circuit during manual gate operation;

- .11 Open and close limit switches equipped with fast acting contacts. Activated by adjustable cams on a worm gear, mounted on ball bearings;
- .12 Command functions provided by 14 inputs/outputs OMRON CPM1L programmable logic controller;
- .13 Power supply: 120V, single phase.
- .14 The entire system must be ETL listed and compliant with the UL 325 standard.
- .15 Two vehicle detection loops are required to control vehicle passage.
- .16 Rectangular 25mm x 76mm aluminum folding arm;
- .17 Crank allowing manual gate operation in case of power outage without affecting limit switch adjustments;
- .18 External close limit switch for direct connection to security station;
- .19 Emergency waterproof mushroom-type stop button installed on the outside of the housing (secured side), cutting off power supply to control circuit;
- .20 Waterproof Open/Close key switch installed on the outside of the housing (non-secured side) enabling personnel to operate the gate without removing the access doors to gate operator.

2.5 VEHICLE DETECTION LOOP

- .1 Loops must be factory pre-made. They must be 12mm diameter rigid PVC conduit loops. The connecting joint must be T-shaped, completing the loop's geometric shape. Wiring will be as follows: twisted 7-strand #4 caliber, RW90 type, made of copper and isolated for 1000V potential. A connector cable approximately 10 m in length, twisted at least 15 turns per metre, will be required to complete the installation. Malleable urethane filler (Syntcapteur 9002 or similar) for insulation of detection loop PVC conduit.

2.6 PIN SYSTEM

- .1 Supply and install a complete PIN system with ticket printer, including the following:
 - .1 Control unit;
 - .2 Software;
 - .3 Ticket printer;
 - .4 PIN button;
 - .5 Keypad #1 for pedestal of the elevated exit gate;
 - .6 Keypad #2 for pedestal of the low exit gate;
 - .7 Power cabling;
 - .8 Installation and activation.

2.7 PRECAST CONCRETE BASE

- .1 Rising arm gate operator base
 - .1 Concrete base 1,118mm x 813mm x 406mm;
 - .2 30MPa concrete, 13mm stone, 5 to 7% air;
 - .3 Two ø90mm bollard SCH.40;
 - .4 Integrated ø16mm to ø41mm PVC conduits.
- .2 Pedestal base
 - .1 Concrete base 762mm x 813mm x 406mm;
 - .2 30MPa concrete, 13mm stone, 5 to 7% air;
 - .3 Two ø90mm bollard SCH.40;
 - .4 Integrated ø27mm PVC conduits.

2.8 REMOTES

- .1 Each gate must be controlled by remote controls operating on the 433 MHz frequency. The remote-control devices must be supplied by the contractor.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.
- .2 Install of parking control system to equipment manufacturer's instructions.
- .3 Test and adjust complete system for proper function and leave in perfect working order.
- .4 Cut grooves in road surface and install vehicle detection loops and lead-in-wires, to approved shop drawings.
- .5 Do not fill grooves until installation is approved by Departmental Representative, and tested for proper detection performance.
- .6 Supply of 115 VAC electrical power to terminal box in each parking equipment unit in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .7 Supply and install other electrical wiring, conduit junction boxes, transformers, circuit breakers and auxiliary components required for complete installation.
 - .1 Conform to CSA and local requirements.

3.2 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.3 CLOSEOUT ACTIVITIES

- .1 Demonstration and Training: Conduct comprehensive demonstration for accommodation maintenance staff on operation and care of parking control system.

END OF SECTION