

PART 1 - GENERAL

1.1 SCOPE OF WORK

The work described herein includes for all labour and material, including all overtime required to meet the Project Schedule, to provide a non-proprietary elevator monitoring system to monitor and control the new/modernized elevators. Work shall include but not be limited to.

- .1 Controller interface with all necessary input/output devices to connect elevator. Also provide all hoist-way and controller wiring to accommodate monitoring of top of car inspection controls, pit stop switch, and man in machine room activation switch.
- .2 Provide schematic wiring diagram layout to interconnect all elements of system.
- .3 Provide a master monitoring display within the elevator controller or alternatively at a PC mounted adjacent to the elevator controller. All PCs and monitors to be provided with suitable protection to the environment.
- .4 Provide addressable device so that the master station can be monitored remotely by Internet Protocol. This function will allow monitoring and report functions but not control functions. Carry allowance of \$ 3,000 to supply Ultra book computer fully loaded with required software to connect to elevator monitoring screen over any internet connection, either by web site or through software resident on the remote computer. Ultra book computer type, model, make, and associated software to be pre-approved by the PWGSC Lift Engineering Technical Representative prior to purchasing.
- .5 Provide antivirus tool, ensure usage of approved firewall, and ensure restriction of transferring any data from this PC to any

PWGSC network device.

- .6 Provide paging function using e-mails sent by system to programmable e-mail addresses for various events.
- .7 Ensure internet upgrade software downloads does not shut down systems.
- .8 All interconnecting wiring and in conduit between elevator controllers in accordance with monitoring system manufacturer's requirements.
- .9 All network engineering including system final site testing and system final commissioning and client training by monitoring system's technical personnel.
- .10 Initial job survey at the job site, not remotely of two days and additional on-site training of PWGSC staff of an additional three days by monitoring system's manufacturer's technical personnel.
- .11 Include two (2) year full maintenance and repair (Parts and Labour) warranty with maximum response time of 48 hrs call back to the site if necessary to perform repairs of

1.2 RELATED WORK TO BE PERFORMED BY CONTRACTOR

- .1 Provide all inter-connecting wiring in conduit raceway system.
- .2 Provide data jacks with all inter-connecting wiring to and from internet supplier connecting point. Make all arrangement and pay all services fees with internet Supply Company. Supply all wiring cables from internet up to and including in the machine rooms as required.

1.3 CONTROLLER

- .1 Provide a monitoring system interface per

PROVISIONS

controller or elevator group to provide the required input/output devices.

.2 The elevator controller interface shall utilize serial link communications to indicate the following as a minimum:

- .1 Operation normal
- .2 Fire Service Main
- .3 Fire Service Alternate
- .4 Fire Service Phase 2
- .5 Main Power Lost
- .6 Running on Emergency Power
- .7 Fault - shut down
- .8 Top of car inspection controls
- .9 Pit Stop Switch
- .10 Man in machine room activating switch inside controller.
- .11 Independent service
- .12 Governor activation
- .13 Up direction indication
- .14 Down direction indication
- .15 One contact for each position in the hoist way (PI)
- .16 Front Door Open
- .17 Front Door Closed

- .18 Rear Door Open (where available)
- .19 Rear Door Closed (where available)
- .20 One contact for each car call (On when registered)
- .21 One contact for each hall call (On when registered) (note, most floors will have both UP and Down call capability)

.3 The Contractor shall be responsible for coordinating the installation of the monitoring system as well as coordinating the interfacing and connection requirements to ensure a workable system.

1.4 MONITORING SYSTEM  
GENERAL REQUIREMENTS

- .1 The monitoring system shall be an interactive Microsoft Windows based software system that runs on an IBM compatible Personal Computer (PC). Software includes a "un-install" utility and is certified 100% Windows compatible. Software installation includes:
- .2 Provide all documentation, manuals, system set-up and start-up. Include training as specified.
- .3 While connected to the elevator system, the Elevator Management Control System downloads and collects available data, which is organized in a database. This software provides easy-to-use pull-down menus, using the Microsoft Windows based operating system, allowing the user to monitor and review the elevator performance database in different

formats.

- .4 Provide all software licenses to a minimum of 10 years.
- .5 Provide Remote Equipment Management Assembly LN-Q1620 metal enclosure from Integrated Display Systems Incorporated to include small form industrial computer programmed with the necessary VTMS software, as determined by the VTMS manufacturer and PWGSC Departmental Representative. The following items shall also be incorporated within the LN-Q1620 enclosure;
- .6 Any converters, internet connection device or electrical interface devices required for supplying internet and serial data connections.
- .7 Any required power supplies & connectors for the computer and interface devices
- .8 A flat panel LED monitor & keyboard with integrated mouse.
- .9 An un-interruptible Power Supply (UPS) & power conditioner of suitable size.
- .10 All the VTMS related equipment shall be located in a suitable wall-mounted NEMA steel enclosure designed for the purpose. Room shall be allowed in the VTMS enclosure to accommodate the DSL or Cable modem provided by the owner for internet access.
- .11 An operational VTMS is an integral part of this project. The installation shall not be considered complete until the VTMS cabinet is mounted, tested, commissioned, and the elevator equipment is satisfactorily communicating with the owner's remote VTMS installation(s).
- .12 Communication between the elevator and the VTMS equipment shall occur via serial data communication. This serial data connection

shall consist of some suitable physical media (Ethernet, RS485 Twisted Pair, etc.), communicating Status, Fault, and other data tables, as specified by the owner and agreed to by the elevator equipment and VTMS manufacturers.

- .13 Enclosure kit shall be wall mounted in an approved location as determined by PWGSC Departmental Representative.

1.5 MONITORING AND  
DIAGNOSTIC CONTROL  
SYSTEM

- .1 Modify elevator control systems system for monitoring, diagnostics and control. Equip controllers with necessary interface software logic program to monitor elevator functions and record events to storage.
- .2 Use menu driven system with password protection. Connect all wiring to terminal blocks mounted on the panel
- .3 The system will be capable of displaying reports by keyboard entries including all statistics of the preceding one-hundred eighty (180) days, as a minimum. All car and hall register times and all fault reports are to be displayed. Provide a means, and any software required, to copy this data to an output file.
- .4 Supply and run all necessary interconnecting wiring between elevator controllers. Tape and legibly identify all wires and terminal boxes.

1.6 EVENT DISPLAY AND  
RECORDING

- .1 Provide computers, loaded with licensed software, with the following capabilities.
- .2 Real-time display screens.
- .3 Online Help to provide a complete content-sensitive help program shall be provided to give the users hints and explanations of the

current task.

- .4 Summary to give a brief description of the system, including the job number, job name, number of cars, number of landings, number of openings per landing for each car, car labels, and landing labels.
- .5 Individual Flags - This screen shall display a list of the selected elevator's internally generated computer flags for diagnostics.
- .6 Graphic Hoistway Display - The Central Monitoring System shall display the elevator system hoistway. That is, users shall be able to view a graphical representation of the elevator hoistway. Including : Simulated Hoistway and Car Configuration
  - a. Individual Elevator Position
  - b. Individual Elevator Car Calls
  - c. Individual Elevator Direction
  - d. Individual Elevator Door Position
  - e. Individual Elevator Status of Operation (Emergency
  - f. Recall, Emergency Power, Independent Service etc.)
  - g. Individual Elevator Communication Status
  - h. Registered Up and Down Hall Calls
  - i. Controller Real-Time Clock Date and Time
- .7 Emergency Notification - in case of unit shutdown, the system shall have the ability to page designated personnel to notify them of an emergency event.
- .8 Reporting ability including malfunction

events, Average Wait Time for elevators and total availability time for all units.

- .9 The system shall provide a multiple level of password protection for the usage of the system.
- .10 Monitor system parameters including calls per floor, calls per elevator, average waiting time and % calls answered in 30, 60, 90 and 120 seconds. Allow for graphical analysis of any parameter for any chosen time interval from the previous 180 day period.

1.7 ACCESS CONTROL

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1.8 ARRANGEMENT OF EQUIPMENT

- .1 Arrange equipment in machine room for clear passage to machine room door.
- .2 Do not locate monitoring PC's near hoist motors, transformers or any sources of high EMF.

1.9 REMOTE ACCESS

- .1 All required functions of the controller/machine room mounted system will be available remotely by internet protocol with appropriate password and login.
- .2 Include \$3,000.00 budget for Ultra book (tablet/laptop combination) device to be chosen by PWGSC Departmental Representative or full credit note is device is not required.

1.10 FACTORY REPRESENTATION

- .1 Provide the services of an on site specialised technical factory representative to perform the initial project survey including a minimum of eight (16) hours **on site**.
- .2 Provide the services of a specialised technical factory representative trained in presentation skills to perform training for PWGSC. Include a minimum of sixteen (16) hours on site.

- .3 Provide when requested by the Departmental Representative a hard copy of a condensed version of the elevator monitoring operational features.
  
- .4 The Elevator Contractor is to provide all information to the Departmental Representative that is required for the safe and efficient maintenance of the elevator equipment, including any solid state equipment or devices supplied under these specifications. The supplier is not to refuse any information, or the supply of parts, at fair market value, that is required by the Owner's Maintenance Contractor.

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