Part 1 General

1.1 RELATED WORK SPECIFIED ELSEWHERE

.1 Section 01 00 00 General Requirements

.2 Section 26 05 00 Electrical General Requirements

.3 Section 26 05 21 Wires and Cable

.4 Section 26 05 32 Outlet Boxes, Conduit Boxes and Fittings

.5 Section 26 05 34 Conduits, Conduit Fastenings and Conduit Fittings

1.2 REFERENCES

.1 CAN/ULC-S524 Installation of Fire Alarm Systems

.2 ULC-S525 Audible Signal Appliances, Fire Alarm

.3 CAN/ULC-S526 Visual Signal Appliances for Fire Alarm Systems

.4 CAN/ULC-S527 Control Units, Fire Alarm

.5 ULC-S528 Manually Actuated Signalling Boxes, Fire Alarm

.6 CAN/ULC-S529 Smoke Detectors, Fire Alarm

.7 ULC-S530 Heat Actuated Fire Detectors, Fire Alarm

.8 CAN/ULC-S531 Smoke Alarms

.9 CAN/ULC-S536 Inspection and Testing of Fire Alarm Systems

.10 CAN/ULC-S537 Verification of Fire Alarm Systems

.11 DFC No. 310(M) Computer Systems

.12 Manitoba Building Code

1.3 DESCRIPTION OF SYSTEM

.1 New fire alarm devices shall match existing Edwards Quick Start equipment. The installation shall be in conformance with CAN/ULC-S524, standard for installation of fire alarm systems. Div. 28 to wire to existing fire alarm system. Provide a complete verification report for zones affected in conformance with CAN/ULC-S537. Provide any additional modules, programmable relays and miscellaneous etc., that maybe required for a full functional fire alarm system.

1.4 REQUIREMENTS OF REGULATORY AGENCIES

.1 The equipment and installation shall comply with the current ULC and Building Code requirements.

.2 Manitoba Building Code.

.3 Local and Municipal By-Laws.

.4 Authorities having jurisdiction.

1.5 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 26 05 00 for the new devices including:
  .1 All devices.

.2 This information is to be revised to "as-built" after construction is completed. Insert as part of the Operating and Maintenance Manuals.

1.6 OPERATION AND MAINTENANCE DATA

.1 Provide operation and maintenance data for Fire Alarm System for incorporation into manual specified in Section 26 05 00 - Operation and Maintenance Manual and in Section 26 05 00.

.2 Include:
  .1 Operation and maintenance instructions for complete fire alarm system to permit effective operation and maintenance.
  .2 Technical data - illustrated parts lists with parts catalogue numbers.
  .3 Copy of as-built shop drawings.

1.7 WARRANTY

.1 Warranty all new Equipment, Sensors, materials, peripherals, installation, workmanship, etc. for one (1) year from the date of final acceptance of the system.

1.8 SERVICE

.1 The supplier of the system must employ factory trained technicians and maintain a service organization within driving distance of the job site.

1.9 MATERIALS

.1 To match existing.

  .1 Approved manufacturers:
    .1 To match existing.

Part 2 Products

2.1 MATERIALS

.1 Equipment and devices: ULC listed and labelled and supplied by single manufacturer.

.2 Power supply: to CAN/ULC-S524.

.3 Audible signal devices: to ULC-S525.

.4 Control unit: to CAN/ULC-S527.

.5 Manual fire alarm stations: to ULC-S528.

.6 Thermal detectors: to ULC-S530.

.7 Smoke detectors: to CAN/ULC-S529.

.8 Smoke alarms: to CAN/ULC-S531.

.9 Visual alarms: to CAN/ULC-S526.

2.2 ALARM SIGNALLING

.1 To match existing.

2.3 SIGNALLING AND EMERGENCY PAGING INTEGRATION

.1 To match existing.

2.4 DETECTORS

.1 To match existing.

2.5 HEAT DETECTORS

.1 To match existing.

2.6 IONIZATION SMOKE DETECTORS

.1 To match existing.

2.7 PHOTOELECTRIC DETECTOR

.1 To match existing.

2.8 DETECTOR BASES

.1 To match existing.

2.9 MODULES

.1 Single Input Module
- .1 To match existing.

.2 Dual Input Module
- .1 To match existing.

.3 Single Input Signal Module
- .1 To match existing.

.4 Control Relay Module
- .1 To match existing.

.5 Universal Class A/B Module
- .1 To match existing.

2.10 FIRE ALARM STATIONS

.1 To match existing.

2.11 SIGNAL PAGING DEVICES

.1 To match existing.

2.12 REMOTE ANNUNCIATOR

.1 There are three existing fire alarm remote annunciators. The City of Winnipeg has three new replacement annunciators in stock. Division 28 shall take possession of these annunciators from the City and install them at the three existing annunciator locations.

At each location supply and install a custom stainless steel faceplate. There is one exterior annunciator at the James Avenue entrance. James Avenue annunciator shall be made weather proof/ water tight. Division 28 shall warranty these replacement annunciator panels for one year from date of substantial competition.

2.13 AS-BUILT RISER DIAGRAM

.1 Remote alarm system riser diagram: Refer to Section 26 05 00 - Electrical General Requirements.

Part 3 Execution

3.1 INSTALLATION

.1 Install systems in accordance with CAN/ULC-S524, DFC-410(M), manufacturer's requirements, authorities having jurisdiction, etc.

.2 Install annunciators, etc. and connect to AC power supply.

.3 Locate and install manual alarm stations and connect to alarm circuit wiring.

.4 Locate and install detectors and connect to alarm circuit wiring. Do not mount detectors within 1 m of air outlets. Maintain at least 600 mm radius clear space on ceiling, below and around detectors. Locate duct type detectors in straight portions of ducts (co-ordinate with Division 15).

.5 Connect alarm circuits to main control panel or DGP's.

.6 Connect signalling circuits to main control panel.

.7 Provide end-of-line devices where required.

.8 Install the three remote annunciator panels and connect to annunciator circuit wiring.

.9 Locate and install door releasing devices.

.10 Locate and install relay units to control fan shut down, etc.

.11 Locate and install intelligent modules as required.

.12 Fire Suppression System: wire alarm switches, supervisory switches, solenoids, etc. and connect to control panel.

.13 Connect sprinkler switches.

.14 Install/program the smoke exhaust fan control in each of the three annunciators.

.15 Transfer all zones from the conventional Edwards panel to the adjacent Edwards “Quick Start” panel, modify panels as required.

3.2 VERIFICATION, DATA AND TESTING

.1 System Verification

.1 Upon completion of all wiring and installation of all new equipment, devices, etc., do complete verification of the fire alarm system. Verification shall be in accordance with current edition of Standard CAN/ULC-S537 "The Verification of Fire Alarm Systems" and following requirements. Even if permitted by Code and recognized standards and regulations, grade of work shall in no case be lower than specified in the project specifications. Verify all new initiating and signal/

solenoid zones and circuits, etc. Verify that every component installed, is working and functions as intended.

.2 Manufacturer with assistance of electrical contractor shall do a complete verification of system to ULC S-537 to ensure:

.1 That system is installed as per plans and specifications and is operative and acceptable to all authorities having jurisdiction.

.2 That system is installed as per recommendations of manufacturer.

.3 That system is electrically supervised, including all zone lamps. To accomplish this, manufacturer with assistance of electrical contractor shall:

.1 remove each and every device from its applicable circuit by disconnecting circuit wiring

.2 verify presence of the applicable trouble signal and indications at control panel and remote annunciators.

.4 That all devices are operative. Check each switch, device, etc. for proper operation.

.5 That all system functions are operating as intended, including:

.1 all main control circuits,

.2 all remote annunciator circuits,

.3 all manual and automatic initiating devices,

.4 all audible and visual alarm signals,

.5 all ancillary controls, including fan shutdown, door release, etc.

.6 All existing systems functions (such as alarm signals, ancillary controls, etc.) that are not modified, but are required to operate from any new zones added, shall be verified for correct operation.

.7 When fire alarm system is verified, Contractor shall measure and record all loop or circuit resistance values at the fire alarm panel when end-of-line resistor is shorted. Contractor shall highlight all values which exceed the manufacturer's recommendations and report them to the Contract Administrator for action to correct this deficiency.

.3 Any necessary changes required to conform to the above shall be completed by the electrical contractor with technical assistance provided by the system manufacturer.

.4 During the period of this inspection, the electrical contractor shall assist the manufacturer with the services of electricians.

.5 To assist the electrical contractor in preparing his bid, the manufacturer shall indicate in his tender the number of hours required to complete this inspection.

.6 Upon completion of the above inspection, including any changes required, the manufacturer shall submit the following documentation to the Contract Administrator.

.1 Certification of Verification

.2 A complete report of all equipment verified, including:

.1 sprinkler system switches

.2 automatic detectors

.3 alarm signals

.4 annunciators

.5 door hold open devices

.6 fan shutdown

.7 the number and type of devices connected to each circuit

.7 For each piece of equipment verified, the following information shall be included in the report:
- .1 Catalogue number and type of device
- .2 Location of device
- .3 Zoning or circuit devices including ancillary devices
- .4 Supervision test results
- .5 Operation of device
- .6 Inspection date
- .7 Serial number of every smoke detector
- .8 Sensitivity reading of every smoke detector, including duct detectors
- .9 Record the time delay of all sprinkler flow switches
- .10 Zone circuit loop resistance
- .11 Fire alarm system supplier shall verify that alarm descriptions match and are consistent at each of following reporting locations:
  - .1 Fire alarm control panel
  - .2 Fire alarm remote annunciators

.8 Report shall also indicate operation of ancillary functions such as remote alarm indicators, door release, fan shutdown, etc. which are required to be activated. Operation shall be verified by actual observation of the entire function (e.g. bells ringing, checking to ensure proper fans shut down, etc.). Observing a change of state in the fire alarm control panel (e.g. observing relay function) is not considered complete verification of the entire function. Verification shall include actual field checking of proper operation of ancillary devices and equipment. Complete fire alarm system verification report shall be submitted to Contract Administrator, Contract Administrator and authorities having jurisdiction minimum of one week before City of Winnipeg Acceptance Inspections.

.9 All costs necessary for this verification shall be included in electrical trade's tender price.

.10 Upon completion of this inspection, manufacturer shall demonstrate the operation of system to Contract Administrators.

.11 Verify identification of all terminals (markers, directories and diagrams) in interconnecting wires and cables, certifying their correctness. Upon completion of verification, submit all documentation to Contract Administrator, including mylar sepia of as-built system riser block diagram and all tub or cabinet directories. Indicate on all documentation submitted that in fact it has been verified.

.12 Any errors in verification report shall be just cause for complete reverification of all verification work performed by Contractor, at discretion of Contract Administrator. Contractor shall be responsible for all costs associated with system reverification.

.13 Verify number of detectors on each zone and include verification report quantity of detectors on each zone.

.14 Sprinkler Flow Switches: Check and calibrate time delay of all sprinkler flow switches such that time delay is between 25 and 30 seconds. Record 'final setting' time delay of every flow switch in verification report.

.2 Fire Alarm System Equipment Data

.1 Supply complete manufacturer's data, information and instructions to aid the Contract Administrator to troubleshoot, repair, maintain and service the equipment and system. Include all of the following in each of the Maintenance/Operating Manuals:
- .1 engineering specifications data

.2 user manual complete with explanation of equipment capabilities
.3 specific sequence of operation and events
.4 control schematics
.5 schematics of electronic operation
.6 theory of electronic modules
.7 electrical values of all electronic components
.8 assembly drawings and parts list, stating part number and manufacturer
.9 as-built system wiring diagrams showing location of all panels
.10 test procedure for systems, panels and individual modules
.11 colour code of wire
.12 block diagram of each panel identifying all zone locations and wire numbers
.13 mylar drawings and prints of verified system "as-builts". All mylar drawings to be 'DILAR FILM', blackline (dry erasable), reverse reading (reverse print).
.14 Mylar drawings and prints of all new and altered fire alarm control panels showing the detailed point to point panel wiring, detailing all functions, wire numbers and colour coding.
.15 Floor plan drawings (as-builts)indicating:
    .1 Locations of all fire alarm devices, panels, etc.
    .2 Location of all magnetic holders and ancillary devices connected to fire alarm control panel.
    .3 All conduit runs, junction boxes.
    .4 Quantity of wires in each conduit run.
    .5 Zone wiring identification at each junction box and fire alarm device.

END OF SECTION