PART 1 GENERAL

RELATED SECTIONS

.1 Section 26 05 00 - Common Work Results.

1.2 REFERENCES

.1 NBC-1995, National Building Code of Canada.

.2 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S524-1991, Installation of Fire Alarm Systems.
.2 ULC-S525-1978, Audible Signal Appliances.
.3 CAN/ULC-S526-1987(R1995), Visual Signal Appliances, Fire Alarm.
.4 CAN/ULC-S527-1987(R1995) Control Units.
.5 CAN/ULC-S528-1991, Manual Pull Stations.
.6 CAN/ULC-S529-1987(R1995) Smoke Detectors.
.7 CAN/ULC-S530-1991 Heat Actuated Fire Detectors.
.8 CAN/ULC-S536-1997, Inspection and Testing of Fire Alarm Systems.
.9 CAN/ULC-S537-1997, Verification of Fire Alarm Systems.

1.3 DESCRIPTION OF SYSTEM

.1 System includes:

.1 Control panel to carry out fire alarm and protection functions including receiving alarm signals, initiating general alarm, supervising system continuously, actuating zone annunciators, and initiating trouble signals.
.2 Trouble signal devices.
.3 Power supply facilities.
.4 Manual alarm stations.
.5 Automatic alarm initiating devices.
.6 Audible signal devices.
.7 End-of-line devices.
.8 Annunciators.
.9 Visual alarm signal devices.
.10 Ancilliary devices.

1.4 REQUIREMENTS OF REGULATORY AGENCIES

.1 System:

.1 To TB OSH Chapter 3-04.
.2 Subject to Fire Commissioner of Canada (FC) approval.
.3 Subject to FC inspection for final acceptance.

1.5 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Include:

.1 Layout of equipment.

.2 Zoning.

1.6 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for Fire Alarm System for incorporation into manual specified in Section 01 78 10 - Closeout Submittals.

.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 approved shop drawings.

.4 List of recommended spare parts for system.

1.7 MAINTENANCE

.1 Provide one year's free maintenance during warranty period. Inspection tests to conform to CAN/ULC-S536. Submit inspection report to Contract Administrator.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Place materials defined as hazardous or toxic waste in designated containers.

.2 Ensure emptied containers are sealed and stored safely for disposal away from children.

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 Visual signal devices: to CAN/ULC-S526.

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

.6 Manual pull stations: to CAN/ULC-S528.

.7 Thermal detectors: to CAN/ULC-S530.

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

2.2 SYSTEM OPERATION

.1 Single stage operation. Operation of any alarm initiating device to:

.1 Cause audible signal devices to sound throughout building.

.2 Transmit signal to fire department via monitoring station.

.3 Cause zone of alarm device to be indicated on control panel and remote annunciator.

.4 Cause equipment below hood suppression to shut down.

2.3 CONTROL PANEL

.1 The control panel shall be Notifier BE-500 series c/w number of zones for each building as shown on the drawings. Panel to have individual bypass switch per zone.

.2 Class B as indicated.

.3 Single stage operation.

.4 Zoned.

.5 Non-coded.

.6 Enclosure: CSA Enclosure 1, c/w lockable concealed hinged door, full viewing window, flush lock and 2 keys.

.7 Supervised, modular design with plug-in modules:

.1 Alarm receiver with trouble and alarm indications, provision for remote supervised annunciation, for class B initiating circuit, as indicated.

.2 Spare zones: compatible with smoke detectors and open circuit devices.

.3 Space for future modules.

.4 Latching type supervisory receiver circuits. Discrete indication for both off-normal and trouble.

.8 Components:

.1 Coded alarm receiver panel with trouble and alarm indications for class B initiating circuit as indicated.

.2 Single stage alarm pulse rate panels:

.1 Single stroke control type for output to signal control panel continuously.

.3 Common control and power units:

.1 Control panel containing following indications and controls:

.1 "Power on" LED (green) to monitor primary source of power to system.

.2 "Power trouble" indication.

.3 "Ground trouble" indication.

.4 "Remote annunciator trouble" indication.

.5 "System trouble" indication.

.6 "System trouble" buzzer and silence switch c/w trouble resound feature.

.7 System reset switch.

.8 "LED test" switch if applicable.

.9 "Alarm silence" switch to silence signals manually. If new alarm occurs after signals have been silenced, signals to resound.

.10 "Signals silenced" indication.

.11 A low battery voltage detector.

.12 Audible and visual indication in event of standby power failure.

.2 Master power supply panel to provide 24Vdc to system from 120Vac, 60Hz input.

.4 Auxiliary relays: plug-in type, dust cover, supervised against unauthorized removal by common trouble circuit and c/w individual bypass switch.

.1 Contacts: 2.0A, 120Vac, for functions such as release of door holders or initiation of fan shut down.

.2 Contact terminal size: capable of accepting 22-12AWG wire.

2.4 POWER SUPPLY

.1 120V, ac, 60Hz input, 24Vdc output from rectifier to operate alarm and signal circuits, with standby power of gell cell batteries minimum expected life of 4 years, sized in accordance with NBC.

2.5 MANUAL ALARM STATIONS

.1 Manual alarm stations: pull lever, wall mounted semi-flush type, non-coded single pole normally open contact for single stage bilingual signage.

.2 Pull stations shall be Notifier NFM-950B.

2.6 AUTOMATIC ALARM INITIATING DEVICES

.1 Heat detectors, fixed temperature, non-restorable, rated 88□C.

.2 Thermal fire detectors, combination fixed temperature and rate of rise, non-restorable fixed temperature element, self-restoring rate of rise, fixed temperature 88□C, rate of rise 8.3□C per minute.

.3 Rate of rise heat detectors shall be Notifier HD-601-C. Fixed temperature heat detectors shall be Notifier HD-604-C.

.4 Smoke detector: ionization type.

.1 Wire-in base assembly with integral red alarm LED.

.5 Smoke detectors shall be Notifier 1400-A.

2.7 AUDIBLE SIGNAL DEVICES

.1 Horn/Strobe: 95db, 24Vdc.

.2 Combination horn/strobe shall be Notifier MASS12/24ADA.

2.8 END-OF-LINE DEVICES

.1 End-of-line devices to control supervisory current in alarm circuits and signalling circuits, sized to ensure correct supervisory current for each circuit. Open, short or ground fault in any circuit will alter supervisory current in that circuit, producing audible and visible alarm at main control panel and remotely as indicated.

2.9 REMOTE ANNUNCIATOR PANELS

.1 LED type with designation cards to indicate zone.

.2 LEDs to annunciate alarm and trouble.

.3 Supervised, including trouble signal for open circuit.

.4 LED test button.

.5 Remote annunciator shall be Notifier AFM series (sized to suit number of zones per building) flush mounting c/w supervised LED indicators, common trouble signal and indicator, silence and reset switches, power on indicator and indicator test switches.

2.10 VISUAL ALARM SIGNAL DEVICES

.1 Strobe type: flashing, 24Vdc.

.2 Designed for surface mounting on walls as indicated.

2.11 ANCILLARY DEVICES

.1 Remote relay unit to initiate fan shutdown.

2.12 APPROVED ALTERNATES

.1 Pre-approved alternate manufacturers for fire alarm equipment are Chubb Edwards, Simplex and Mircom.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Wiring shall be run in conduit and shall be colour coded and identified at each connection point. Flexible armoured cable or conduit maybe used for drops to devices on suspended ceiling or in framewalls.

.2 Wiring sizes shall be in accordance with manufacturer's recommendations.

.3 Install systems in accordance with CAN/ULC-S524 and TB OSH Chapter 3-04.

.4 Install main control panel and connect to ac power supply, dc standby power.

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

.6 Locate and install detectors and connect to alarm circuit wiring. Do not mount detectors within 3 ft. (1 m) of air outlets. Maintain at least 24" (600 mm) radius clear space on ceiling, below and around detectors.

.7 Connect alarm circuits to main control panel.

.8 Locate and install horns and visual signal devices and connect to signalling circuits.

.9 Connect signalling circuits to main control panel.

.10 Install end-of-line devices at end of alarm and signalling circuits.

.11 Install remote annunciator panels and connect to annunciator circuit wiring.

.12 Connect fire suppression systems to control panel.

3.2 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results and CAN/ULC-S537.

.2 Fire alarm system:

.1 Test each device and alarm circuit to ensure manual stations, thermal and smoke detectors, sprinkler system, fire suppression system, transmit alarm to control panel and actuate general alarm.

.2 Check annunciator panels to ensure zones are shown correctly.

.3 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of system.

.4 Class B circuits.

.1 Test each conductor on all circuits for capability of providing alarm signal on line side of single open-circuit fault condition imposed at electrically most remote device on circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.

.2 Test each conductor on all circuits for capability of providing alarm signal during ground-fault condition imposed at electrically most remote device on circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.

.3 On completion of the systems and when all of the conditions have been complied with; system component is to be tested under the supervision of an Electrical Engineer certified to practice in Manitoba. The Contractor shall involve the Manufacturer's Representative or their certified testing agent. On completion of inspection, the Contractor shall issue to the Contract Administrator:

.1 A copy of the inspecting technician's report showing location of each device and certifying the test results of each device.

.2 A Certificate of Verification confirming that the inspection has been completed and showing the conditions upon which such inspection and Certification have been rendered. The Certificate of Verification shall include statements to certify:

- That the type of equipment installed is that designated by the Contract Administrators specifications.

- That the wiring connections to all equipment components show that the installer undertook to have observed ULC and CSA requirements.

- That the manufacturers' equipment has been installed in accordance with their recommendations, and that all signaling devices of whatever manufacture have been operated or tested to verify their operation.

- That the supervisory wiring of those items of equipment connected to a supervised circuit is operating and that the governmental regulations, if any, concerning such supervisory wiring, have been met to the satisfaction of inspecting officials.

.3 Proof of liability insurance for the Inspection.

4. All costs involved in this inspection from the manufacturer and the Electrical Subcontractor shall be included with the Electrical Subcontractor's total Bid price.

3.3 TRAINING

.1 Arrange and pay for on-site lectures and demonstrations by fire alarm equipment manufacturer to train operational personnel in use and maintenance of fire alarm system.

END OF SECTION