Part 1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 23 05 01 – Common Work Results for Mechanical.

.2 Section 26 05 00 – Common Work Results for Electrical.

1.2 SUMMARY

.1 Section Includes:

.1 Materials and installation for fire alarm systems.

.2 Trouble signal devices.

.3 Power supply facilities.

.4 Automatic alarm initiating devices.

.5 Supervisory Valves and Flow Switches monitoring Fire Pump

1.3 REFERENCES

.1 Underwriter's Laboratories of Canada (ULC)

.1 CAN/ULC-S524-19, Standard for the Installation of Fire Alarm Systems.

.2 CAN/ULC-S537-19 – Standard for the Verification of Fire Alarm Systems.

.2 National Fire Protection Agency

.1 NFPA 72- 2019, National Fire Alarm and Signaling Code.

.2 NFPA 20-2019 – Standard for the Installation of Stationary Pumps for Fire Protection

1.4 SHOP DRAWINGS

.1 Submit shop drawings and product data in accordance with Section 26 05 00 – Common Work Results for Electrical.

1.5 DESIGNATED CONTRACTOR

.1 Retain the services of Chubb Edwards or its authorized representative to complete the work of all fire alarm system sections.

Part 2 PRODUCTS

2.1 MATERIALS

.1 There is an existing Chubb Edwards EST3 fire alarm system presently installed in the building. All materials must be selected to ensure compatibility with the existing Fire Alarm System.

2.2 SUSTAINABLE REQUIREMENTS

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

2.3 WIRING

.1 Wire for low voltage DC circuits:

.1 No. 14 AWG minimum solid copper conductor

.2 Insulation 90 degrees C minimum with nylon jacket.

.3 Colour code wiring.

2.4 DUCT SMOKE DETECTORS

.1 Provide detectors installed in ducts of photoelectric type and listed by ULC duct installation.

.2 Provide integral control and power modules required for operation with main control panel.

.3 Ensure detectors and associated modules are compatible with main control panel and suitable for use in supervised circuit.

.4 Detector circuits: 4-wire type where detector operating power is transmitted over conductors separate from initiating circuit. Malfunction of electrical circuits to detector or its control or power modules to cause operation of system trouble signals.

.5 Provide a separate, fused power circuit for each smoke detection initiating circuit.

.6 Failure of power circuit: indicated as a trouble condition on corresponding initiating circuit.

.7 Provide duct detectors in accordance with NFPA 90A.

.8 Provide duct detectors with approved duct housing, mounted exterior to duct, with perforated sampling tubes extending across width of duct.

.9 Activation of duct detectors to cause shutdown of associated air handling unit, annunciation at control panel and sounding of building evacuation alarms.

.10 Provide detectors with visible indicator lamp that flashes when detector is in normal standby mode and glows continuously when detector is activated.

.11 Provide remote indicator lamp for each detector.

.12 Permanently label remote indicator with description and name of associated air handling unit(s).

.13 Provide each detector with remote test switch. Mount switch not more than 1.8 m above finished floor.

.14 Permanently label test switch with description and name of associated air handling unit(s).

.15 Specifications

.1 -15°C to 70°C operating range with 0.5 m/s to 20 m/s air velocity

.2 Operating humidity: 10 - 93% relative humidity non-condensing

.3 0.67 to 2.46% obscuration/ft

.4 24V DC, 24V AC, 120V AC

.5 Standby current: 77.9 mA @ 24V DC

.6 Alarm current: 124.3 mA @ 24V DC

Part 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 INSTALLATION

.1 Install systems in accordance with CAN/ULC-S524.

.2 All new locations for devices shall be coordinated by contractor between mechanical trades to ensure that they are installed in a location which will permit access to the devices for inspection and testing.

.3 Provide new duct smoke detectors in ductwork indicated.

.1 Provide connection to fire alarm panel with addressable module.

.2 Provide connection between duct smoke detector and fire alarm shut down contact on VFD of AHUs.

.4 Connect signaling circuits to main fire alarm control panel.

.5 Install end-of-line devices.

3.3 FIELD QUALITY CONTROL

.1 Site Tests:

.1 Perform tests in accordance with CAN/ULC-S537.

.2 Fire alarm system:

.1 Simulate grounds and breaks on alarm and signaling circuits to ensure proper operation of system.

.2 Class B circuits.

.1 Test each conductor on 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 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.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

.2 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 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.4 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.

3.5 CLEANING

.1 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END