1.1 **GENERAL**

1.2 **Related Technical Requirements**

.1 *Section 27 10 00 Structured Cabling*

.2 *Section 25 05 00 BAS*

1.3 **Coordination Requirements**

.1 SFU Facilities Services

.2 SFU IT Services

2.1 **MATERIALS AND DESIGN REQUIREMENTS**

2.2 **General Requirements**

.1 The fire alarm system shall be a complete electrically supervised, single stage, non-coded addressable system. *The system shall incorporate only addressable notification appliances in addition to speakers if required.*

The system shall be either Honeywell or Simplex. Equivalent vendors will be evaluated by SFU Facilities. *Approval of equivalent equipment will be provided in writing by SFU Facilities.*

.2 All fire alarm systems must be designed by a Professional Engineer currently registered in BC.

.3 All fire alarm systems shall comply with the following standards:

.1 CAN/ULC-S524.

.2 BC Fire Code.

.3 Canadian Electrical Code as amended for British Columbia.

.4 BAS system interaction is limited. Fire alarms will shut down equipment through hardwire connections. The BAS will automatically start equipment once fire alarm is cleared – all buildings monitor status of fire alarm signal sent to BAS.

.1 Review *Section 25 05 00 BAS* for details on BAS reset point.

.5 Each ancillary function of the fire alarm system should have its own independent bypass switch, (i.e. fans, door holders, security locks, bells, elevator homing, BMS, monitoring, etc.). Each switch is to be clearly labeled with LED annunciation of its normal and active positions.

.6 Commissioning/Verification

.1 At the completion of verification of the fire alarm system and before fire alarm monitoring is connected, SFU Facilities shall be provided with:

.1 A colour photocopy of the current red line electrical drawings.

.2 A complete copy of the Verification Report.

.3 A complete list in excel format of all field devices installed.

.4 A detailed fire alarm matrix describing device inputs and outputs. Included are all smoke control sequences, FEO Service matrix and other ancillary operations.

.5 A copy of the currently installed fire alarm panel program
2. Verification of design and commissioning will involve integrated testing as per CAN/ULC-S1001.

.7 All smoke control shall be controlled by hard wired interlocks with the fire alarm panel whenever possible. BMS control of smoke control system components shall not be allowed.

.8 Avoid nodes and networked panels in buildings where possible. One panel is preferred.

.9 All batteries for a fire alarm system shall be located in one, easily serviced location.

.10 Ancillary functions requiring 120VAC shall be fed from separate circuits, independent of the A.C circuit that feeds the fire alarm panel.

2.3 Main Control Panel

.1 The main control panel shall be modular type, complete with all necessary plug-in modules or plug-in cards, and shall contain zone indication and all manually operated functions in the front cover behind a lockable door with viewing window. The panel shall contain enough bypass switches with a least 3 spares to provide each special system and/or ancillary system with bypass capability.

.2 The location of fire alarm control panel shall be in the Main Electrical Room.

.3 The 120VAC circuit supplying the Main Fire Alarm Control Panel shall have a surge protection device installed in or connected to a 4" square electrical box within 1m of FACP or as per manufacturer specifications. Preferred device is a Ditek DTK-120HW or equivalent.

2.4 Pre-Action Control Panel for Sprinkler System

.1 Pre-action control panel for sprinkler system, if required, shall be capable of disabling notification circuits, solenoid circuits and alarm monitoring for testing purposes.

.2 A drawing showing all connected initiation detectors and zone shall be provided to SFU Facilities.

.3 A complete sequence of operation shall be provided to SFU Facilities.

2.5 Central Fire Alarm Monitoring

.1 All fire systems linked by fiber backbone to be monitored on a centralized network at the approved fire monitoring station staffed by SFU Security at the Discovery 1 building dispatch centre.

.2 This system monitors all SFU fire alarm and the dispatch will contact the Burnaby Fire Department for response.

.3 Fire systems are installed by contractor but the fiber connection from the building panel to the SFU network is the responsibility of SFU. The wireway route carrying the fiber is specified by SFU to the electrical contractor for installation.

2.6 Gongs

.1 Gongs shall be installed as per CAN/ULC S524.
2.7 Alarm Annunciator

.1 The location of the annunciator shall be acceptable with the Fire Chief and Building Operations Electrical Engineer.

.2 The fire alarm annunciator shall be located on the inside of the building envelope to protect against rain and weather damage.

.3 The fire alarm annunciator shall be mounted on an insulated wall or on standoffs to avoid cold condensation issues.

.4 The annunciator shall be manufactured by a company usually engaged for such equipment.

.5 The fire alarm annunciator shall have a keyed enable switch to avoid tampering by the public when in alarm acknowledge, supervisory acknowledge and trouble acknowledge functions.

2.8 Other Requirements

.1 No combined type detectors will be acceptable.

.2 Each valve, switch, contact, etc. shall be monitored by an individual module.

.3 All remote monitor, isolator and relay modules shall be mounted in a dedicated electrical box external to the cabinet of the equipment they monitor or control with manufacturer supplied mounting brackets and covers.

.4 Door hold open devices shall be monuments rather than integrated door closure and hold open devices.

.5 Where an Emergency Generator is supplied the Fire Alarm Control Panel and all remote Fire Alarm equipment shall be supplied with power from the Life Safety Distribution.

.6 Where an Emergency Generator is supplied the Fire Alarm System shall monitor the Generator and Transfer Switch for any and all abnormal conditions.

.7 The Fire Alarm System shall monitor for: Generator Trouble (any condition that would not allow the generator to operate or transfer power) and Generator Run. Both signals are required to be Supervisory Alarms.

.8 Beam type detectors shall be Fire Ray 5000 Approval of equivalent equipment will be provided in writing by Building Operations Electrical Technical Specialist.

.9 Aspiration type detection shall be VLP-012 VESDA LaserPLUS or equivalent. The end sampling point of each pipe run shall terminate 1m to 2m above finished floor in a readily accessible area to allow for system testing and maintenance. Approval of equivalent equipment will be provided in writing by Building Operations Electrical Technical Specialist.

.10 For VSD equipment, connections including fire and DDC interlocks will run directly to VSD and no through the starter.

2.9 Panel Manufacturer’s Responsibility and Inspection Requirements

.1 Notwithstanding the Contractor's obligations, the entire fire alarm system shall be the responsibility of the panel manufacturer. Prior to acceptance of the system by the Consultant, the manufacturer shall check the entire system and certify the operation of all
.2 The manufacturer shall make an inspection of the new fire alarm equipment installed under this contract, including those components necessary to the direct operation of the system such as manual stations, fire detectors and controls. The inspection shall comprise of an examination and subsequent verification of all equipment in accordance with the standard for testing fire alarm systems ULC-CAN4-S537. All equipment of the fire alarm system shall be listed for use with the panel manufacturer.

.1 In case of partial occupancy of a building; a partial verification of the fire alarm system may be performed. This shall not waive the requirement of a complete verification as part of the substantial completion process for the entire building when complete.