

Part 1 General

1.1 SECTION INCLUDES

- .1 Control panel.
- .2 Detection Accessories.
- .3 Communications.
- .4 Environmental monitoring.

1.2 REFERENCE DOCUMENTS

- .1 National Fire Protection Association (NFPA):
 - .1 NFPA 70, National Electric Code.
 - .2 NFPA 101, Life Safety Code.
- .2 Electronic Industries Association (EIA):

1.3 REFERENCE STANDARDS

- .1 Underwriters Laboratories of Canada (ULC):
 - .1 CAN/ULC-S302, Installation and Classification of Burglar Alarm Systems for Financial and Commercial Premises, Safes and Vaults.
 - .2 CAN/ULC-S303, Local Burglar Alarm Units and Systems.
 - .3 CAN/ULC-S304, Intrusion Detection.
 - .4 CAN/ULC-S306, Intrusion Detection Units.
 - .5 ULC-S318, Power Supplies for Burglar Alarm Systems.
 - .6 ORD-C634, Connectors and Switches for Use with Burglar Alarm Systems.
- .2 Underwriters' Laboratories (UL):
 - .1 UL 603, Standard for Power Supplies For Use With Burglar-Alarm Systems.
 - .2 UL 639, the Standard for Intrusion-Detection Units.

1.4 DEFINITIONS

- .1 PIR: Passive Infrared Detectors.

1.5 DESIGN PERFORMANCE REQUIREMENTS

- .1 Design intrusion detection system using ULC/UL Listed products.
- .2 Design intrusion detection system using, company specializing in intrusion detection systems.
- .3 Design intrusion detection system as a certified alarm system.
- .4 Design system as alarm monitoring system expandable, and easily modified for inputs, outputs and remote control stations.

- .1 Design components in accordance with CAN/ULC-S306 and be capable of:
 - .1 Annunciating undesirable, abnormal or dangerous condition.
 - .2 Prioritizing alarms by alarm type; i.e., panic/duress, intrusion and tamper.
 - .3 Determining zone where alarm occurred.
 - .4 Annunciating power failure and power restoration.
 - .5 Annunciating low battery condition.
 - .6 Operate continuously for minimum period of four hours in the event of a power failure.
- .5 Equip control panels with continuous tamper detection on door and wall:
 - .1 Tamper detection to trigger alarm.
- .6 Design system with:
 - .1 Alarm masking.
 - .2 Remote maintenance or diagnostics with password activation and callback modem.
 - .3 Unique identifier for each authorized person.
 - .4 Arming and disarming capabilities: manual and automatic by time of day, day of week, or by operator command.
 - .5 Support both manual and automatic responses to alarms entering system.
 - .6 Zone or alarm location annunciated at monitoring station.
- .7 Communications link: security level of I as described in CAN/ULC-S304.
- .8 Signal link: Security level of I as described in CAN/ULC-S304.
- .9 Alarm condition: Design system to provide maximum time for an alarm to be communicated of 60 seconds from alarm initiation to annunciation at remote monitoring location.
- .10 Junction boxes: tamper proof with continuous tamper-detection capability.
- .11 Design system power supplies rated to provide cumulative load of all systems components plus safety factor of 50% or greater.

1.6 SUBMITTALS

- .1 Product Data: Submit manufacturer's printed product literature, specifications and datasheet in accordance with E3 – Shop Drawings.
 - .1 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with E3 – Shop Drawings.
 - .2 Submit manufacture's literature for each control panel and detection accessory device.
 - .3 Submit:
 - .1 Functional description of equipment.
 - .2 Technical data for all devices.
 - .3 Device location plans and cable lists.

- .4 Devices mounting location detail drawings.
- .5 Typical devices connection detail drawings
- .4 Submit shop drawings to indicate project layout, mounting heights and locations, wiring diagrams, detection device coverage patterns, contact operating gaps.
- .5 Submit zone layout drawing indicating number and location of zones and areas covered.
- .2 Maintenance Data: Submit maintenance data:
 - .1 Include:
 - .1 System configuration and equipment physical layout.
 - .2 Functional description of equipment.
 - .3 Instructions of operation of equipment.
 - .4 Illustrations and diagrams to supplement procedures.
 - .5 Operation instructions provided by manufacturer.
 - .6 Cleaning instructions.

Part 2 PRODUCTS

2.1 MATERIALS

- .1 Control Panel: ULC approved, expandable [and designed for multiplexed expansion]:
 - .1 Zones (protection inputs):16 to 128
 - .2 Fixed Zones: 8.
 - .3 Expandable: 16-128 zones.
 - .4 Number of user codes required: 10.
 - .5 Number of Areas/Partitions required: 10.
 - .6 Keypads: LCD (liquid crystal display).
 - .7 Alarm: Monitored.
 - .8 System: Wired.
 - .9 Number of programmable outputs required: 5.
 - .10 System supervision: telephone line, battery, and AC power.
 - .11 Siren output.
 - .12 Number of devices per zone: as required.
 - .13 DCS Maxsys, PC 4020 Main Control Module c/w cabinet, power supply, dual line dialer.
 - .14 Keypad: DCSPK550.
 - .15 Component housing: DSC PC4001.
- .2 Detection Accessories: and
 - .1 Passive Infrared Detectors (PIR's) and Microwave:
 - .1 Bosch Security, OD850
 - .2 Glassbreak Detector: Bosch Security, DS1101i.

- .3 Door Contacts:
 - .1 GE MagneticContact, 2700 series (2707A)
- .4 Notification Devices:
 - .1 Exterior siren and strobe: SSX-52.
 - .2 Strobe Light: SM4212HB.
- .3 Communications: telephone.
- .4 Connectors and switches: to ORD-C634.
- .5 Power supplies: to ULC-S318 or UL 603.
- .6 Zone Expander: DSC5108.
- .7 Media convertors from copper to fiber for zone expander from HHW building to Kiosk building.
- .8 GSM Wireless Alarm Communicator.

Part 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and datasheet.

3.2 INSTALLATION

- .1 Install panels, intrusion detection system and components in accordance with manufacturer's written installation instructions to locations, heights and surfaces shown on reviewed shop drawings.
- .2 Install panels, intrusion detection system and components secure to walls, ceilings or other substrates.
- .3 Install required boxes in inconspicuous accessible locations.
- .4 Conceal conduit and wiring.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Services:
 - .1 Have manufacturer of products, supplied under this Section, review Work involved in the handling, installation/application, protection and cleaning, of its product[s] and submit written reports, in acceptable format, to verify compliance of Work with Contract.
 - .2 Manufacturer's Field Services: 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, at stages listed:

- .1 After delivery and storage of products, and when preparatory Work, or other Work, on which the Work of this Section depends, is complete but before installation begins.
- .2 Twice during progress of Work at 25% and 60% complete.
- .3 Upon completion of the Work, after cleaning is carried out.
- .4 Obtain reports, within three days of review, and submit, immediately, to Contract Administrator.

3.4 VERIFICATION

- .1 Perform verification inspections and test in the presence of Contract Administrator.
 - .1 Provide all necessary tools, ladders and equipment.
 - .2 Ensure appropriate subcontractors and manufacturer's representatives and security specialists are present for verification.
- .2 Visual verification: Objective is to assess quality of installation and assembly and overall appearance to ensure compliance with Contract Documents. Visual inspection to include:
 - .1 Sturdiness of equipment fastening.
 - .2 Non-existence of installation related damages.
 - .3 Compliance of device locations with reviewed shop drawings.
 - .4 Compatibility of equipment installation with physical environment.
 - .5 Inclusion of all accessories.
 - .6 Device and cabling identification.
 - .7 Application and location of ULC approval decals.
- .3 Technical verification: Purpose to ensure that all systems and devices are properly install and free of defects and damage. Technical verification includes:
 - .1 Measurements of coverage patterns
 - .2 Connecting joints and equipment fastening.
 - .3 Compliance with manufacturer's specification, product literature and installation instructions.
- .4 Operational verification: Purpose to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:
 - .1 Operation of each device individually and within its environment.
 - .2 Operation of each device in relation with programmable schedule and or/specific functions.

3.5 CLEANING AND ADJUSTING

- .1 Remove protective coverings from control panels, detection accessories and components.
- .2 Adjust all components for correct function.
- .3 Clean housings and system components, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Video cameras.
- .2 Video handling.
- .3 Recording devices.
- .4 Transmission methods.

1.2 REFERENCE DOCUMENTS

- .1 National Fire Protection Association (NFPA):
 - .1 NFPA 70, National Electric Code.
 - .2 NFPA 101, Life Safety Code.
- .2 Electronic Industries Association (EIA):
 - .1 REC 12749, Power Supplies.
 - .2 RS 16051, Sound Systems.

1.3 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA International):
 - .1 CSA C22.2No.206, Lighting Poles.
- .2 Canadian Standards Association (CSA International):
 - .1 CSA C22.1-12, Canadian Electrical Code, Part 1 (22nd edition) Safety Standard for Electrical Installations.
 - .2 CAN/CSA-C22.3 No.1-10, Overhead Systems.
- .3 National Fire Protection Association (NFPA):
 - .1 NFPA 70, National Electric Code.
- .4 Underwriters' Laboratories (UL):
 - .1 UL 294, Standard for Safety for Access Control System Units.
 - .2 UL 1076, Standard for Safety for Proprietary Burglar Alarm Units and Systems.
- .5 Underwriters Laboratories of Canada (ULC):
 - .1 ULC-S317-96, Installation and Classification of Closed Circuit Video Equipment (CCVC) Systems for Institutional and Commercial Security Systems.

1.4 DEFINITIONS

- .1 CCTV: Closed Circuit Television.
- .2 CCVC: Closed Circuit Video.

.3 CCD: Charge Coupled Device.

.4 FOV: Field of View.

1.5 DESIGN PERFORMANCE REQUIREMENTS

.1 Support: Camera functions such as pan/tilt and zoom fully supported by CCTV system:

.1 Provide operator with ability to control all camera functions.

.2 Alarm point monitoring: System capable, upon alarm recognition, of switching CCTV cameras associated with alarm point.

.3 Switching:

.1 Provision to switch any camera in system to any monitor in system manually or automatically.

.2 Provision to switch system video recorders to selective monitor outputs in system.

.4 Control: Provision for any camera equipped with pan, tilt, and/or motorized zoom lens:

.1 Manually control pan, tilt and lens functions.

.2 Set pan and tilt home position.

.3 Set and clear movement limits of pan and tilt mechanism.

.4 Adjust motorized zoom lens.

.5 Enter and edit CCTV programs and save them for future use.

.6 Set dwell time for viewing of any camera picture.

.7 Define sequence for viewing cameras on each monitor.

.8 Bypass cameras in system during sequencing to monitor.

.9 Provide ability to display stored 'video image' of cardholder, and switch real-time camera to card reader location for specific card usage.

.10 Overall control of CCTV provided through software control, which provides complete integration of security components.

.11 Environment: Design video components and systems to operate with all specified requirements under following ambient temperatures:

.1 Indoor installations:

.1 Temperature: 0° C to 30° C.

.2 Humidity: 10 to 90%.

.2 Outdoor installations:

.1 Temperature: -40° C to 55° C.

.2 Humidity: 10 to 100%.

1.6 SUBMITTALS

- .1 Product Data: Submit manufacturer's printed product literature, specifications and datasheet in accordance with E3 – Shop Drawings.
- .2 Shop Drawings: Submit in accordance with E3 – Shop Drawings.
 - .1 Submit shop drawings to indicate project layout, camera locations, point-to-point diagrams, cable schematics, risers, mounting details and identification labeling scheme including:
 - .1 Functional description of equipment.
 - .2 Technical data sheets of all devices.
 - .3 Device location plans and cable lists.
 - .4 Video camera surveillance chart.
 - .5 Video interconnection detail drawings.
- .3 Quality Assurance Submittals: Submit the following in accordance with E3 – Shop Drawings.
 - .1 Test Reports: Submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
 - .2 Certificates: Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .1 Submit UL Product safety Certificates.
 - .2 Submit verification Certificate that service company is "UL List alarm service company".
 - .3 Submit verification Certificate that monitoring facility is "UL Listed central station".
 - .4 Submit verification Certificate that video surveillance system is "Certified alarm system".
 - .3 Instructions: Submit manufacturer's installation instructions.
 - .4 Manufacturer's Field Services: Submit copies of manufacturer's field reports.
- .4 Maintenance Data: Submit maintenance data for incorporation into manual specified in E4 – Building and Occupancy Permits to include following:
 - .1 System configuration and equipment physical layout.
 - .2 Functional description of equipment.
 - .3 Instructions on operation, adjustment and cleaning.
 - .4 Illustrations and diagrams to supplement procedures.
 - .5 Manufacturer's operation instructions.

1.7 WARRANTY

- .1 For the materials and labour the 12 month warranty period prescribed in D31 – Warranty is extended to 60 months.
- .2 Extended warranty period must include warranty against lightning, weather, physical damage meeting specified performance requirements, for specified time period.
- .3 Manufacturer's Warranty: Submit, for Contract Administrator's acceptance, manufacturer's standard warranty document executed by authorized company official.

Part 2 PRODUCTS

2.1 MATERIALS

- .1 Video Camera Characteristics:
 - .1 White Colour with Polycarbonate transparent cover.
 - .2 Sensitivity: Lighting requirements. Measured in 22 LUX for useable video image.
 - .3 Camera hardware:
 - .1 Samsung SNZ6320
 - .2 Samsung SNV6084
 - .3 Samsung SNV8080
 - .4 Samsung SNV5084R
 - .5 Samsung SNV6084R
 - .4 Environment:
 - .1 Samsung SNZ6320: Outdoor
 - .2 Samsung SNV6084: Indoor
 - .3 Samsung SNV8080: Outdoor
 - .4 Samsung SNV5084R: Indoor
 - .5 Samsung SNV6084R: Indoor
 - .5 Mounting: Visible:
 - .1 Provide all mounting hardware required, including housing, brackets, etc.
 - .6 Addition features: Backlight compensation.
 - .7 Operational voltage:
 - .1 Power over Ethernet IEEE 802.3af/802.3at
 - .8 Operation temperature: -10° C to 50° C.
- .2 Network Video Recorder Hardware:
 - .1 One 669257-B21 HP DL380e Gen8 Base System-includes: 4 port 1GB Ethernet-12 Drives

- .2 One 6611 28-L21 HP DL380e Gen8 E5-2420 1.9GHz/6-core processor
- .3 One 6611 28-B21 HP DL380e Gen8 E5-2420 1.9GHz/6-core processor
- .4 Four 647893-B21 HP 4GB IRx4 PC3L-10600R-9 Kit
- .5 Two 652615-B21 HP 450GB 6G SAS 15K 3.5in hard drive
- .6 Eight 652757-B21 HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Hard Drive
- .7 One 661404-B21 HP DL380eGen8 CPU1 Riser Kit
- .8 One 672250-B21 HP DL380e Gen8 Smart Array Cable Kit
- .9 One 631670-B21 HP Smart Array P420/1GB FBWC Controller
- .10 One 720864-B21 HP 2U LFF BB Gen8 Rail Kit
- .11 One 652232-B21 HP 12.7mm Slim SATA DVD-ROM JackBlack Optical Drive
- .12 Two 512327-B21 HP 750W CS Gold Ht PIg Pwr Supply Kit (RPS)
- .13 One 667855-B21 HP DL380eGen8 HP Fan Kit
- .14 One U6E21 E HP Care Pack- 3 years - on-site, 9x5, NBD for ProLiant DL380e GenB
- .15 One P73-06285 Microsoft Windows Server 2012 R2 Standard License - 2 processors -MOLP
- .16 One 228-09884 OM picerons Boufts SinQ L Server Standard License 2 processors MOLP: Open Business
- .3 Network Video Recorder Software:
 - .1 Supply and install Genetec Version 4.8 software.
 - .2 Archiving support for 50 cameras.
 - .3 One Gateway-5 client/.user connections.
 - .4 One Virtual Matrix:
 - .1 Camera sequences
 - .2 One keyboard connection
 - .3 Alarm management module
 - .4 Database reporting
 - .5 Edge recording and trickling support
 - .6 All languages support
 - .5 Licences for 14 camera connections.
 - .6 Three year SMA for GBASE Software and 14 camera connections.
- .4 Fibre Optic Convertor:
 - .1 Field Mounted: Comnet CNFE1004APOEM.
 - .2 Server Rack: Comnet CNFE1004MIB

- .5 Camera Junction Box UPS: FlexNet MPS 48-7.
- .6 Lighting Arrestor: Ditek Surge Protector Module PoE DTK-MRJPOE.
- .7 Camera Housings:
 - .1 Indoor: Ceilingcorner mount.
 - .2 Domes: Indoor and Outdoor.
 - .3 Outdoor: Equipped with heater as specified on drawings.
 - .4 Covert
- .8 Transmission Methods: Ethernet.

2.2 CAMERA SCHEDULE

- .1 The cameras supplied shall match the following schedule:
 - .1 V1-01 Samsung SNZ6320
 - .2 V1-02 Samsung SNV6084
 - .3 V1-03 Samsung SNV6084
 - .4 V1-04 Samsung SNV8080
 - .5 V1-05 Samsung SNV8080
 - .6 V1-06 Samsung SNV6084
 - .7 V1-07 Samsung SNV5084R
 - .8 V1-08 Samsung SNV8080
 - .9 V1-09 Samsung SNV8080
 - .10 V1-10 Samsung SNV8080
 - .11 V1-11 Samsung SNV6084
 - .12 V1-12 Samsung SNV6084
 - .13 V1-13 Junction box and conduit only

2.3 JUNCTION BOX

- .1 Metal, sized to handle all system conduit interconnections with appropriate expansion.
- .2 Nema 4, Hammond EJ12126.

2.4 NETWORK SWITCH

- .1 8 port ComNet POE Switch: CWGE2FE8NSPOE.
- .2 12 port Cisco Switch: WS-C3750X 12S-S.

2.5 RACK

- .1 19" free standing full height rack suitable for house network patch panels, fibre optic termination pane, Network Video Controller, and City supplied network equipment.

2.6 CAMERA STEEL POLES

- .1 Steel poles: to CSA C22.2No.206 designed for underground wiring and:
 - .1 Mounting on concrete anchor base.
 - .2 Style: monotube, minimum 3.0 mm thick, tapered round, square or octagonal.
 - .3 Straight for one or two camera mounting bracket.
 - .4 Access handhole 600 mm above pole base for wiring connections, with welded-on reinforcing frame and bolted-on cover.
 - .5 Size: 6 m
 - .6 Anchor bolts: minimum four steel with shims, nuts and covers.
 - .7 Finish: galvanized steel.
 - .8 Grounding lug.
- .2 Steel poles: designed for maximum deflection of less than 6.35 mm with a 100kmph wind.
- .3 Mounting brackets steel.

2.7 UPS

- .1 As specified in Division 26.

Part 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and datasheet.

3.2 INSTALLATION

- .1 Install video surveillance equipment and components in accordance with ULC-S317.
- .2 Install cable, boxes, mounting hardware, brackets, video cameras and system components in accordance with manufacturer's written installation instructions.
- .3 Install components secure, properly aligned and in locations shown on reviewed shop drawings.
- .4 Connect cameras to cabling in accordance with installation instructions.
- .5 Install ULC labels where required.
- .6 Provide all necessary configuration and programming for a complete and operational video surveillance system.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Services:

- .1 Have manufacturer of products, supplied under this Section, review Work involved in the handling, installation/application, protection and cleaning, of its products and submit written reports, in acceptable format, to verify compliance of Work with Contract.
- .2 Manufacturer's Field Services: 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, at stages listed:
 - .1 After delivery and storage of products, and when preparatory Work, or other Work, on which the Work of this Section depends, is complete but before installation begins.
 - .2 Twice during progress of Work at 25% and 60% complete.
 - .3 Upon completion of the Work, after cleaning is carried out.
- .4 Obtain reports, within three days of review, and submit, immediately, to Contract Administrator.

3.4 VERIFICATION

- .1 Perform verification inspections and test in the presence of Contract Administrator.
 - .1 Provide all necessary tools, ladders and equipment.
 - .2 Ensure appropriate subcontractors and manufacturer's representatives and security specialists are present for verification.
- .2 Visual verification: Objective is to assess quality of installation and assembly and overall appearance to ensure compliance with Contract Documents. Visual inspection to include:
 - .1 Sturdiness of equipment fastening.
 - .2 Non-existence of installation related damages.
 - .3 Compliance of device locations with reviewed shop drawings.
 - .4 Compatibility of equipment installation with physical environment.
 - .5 Inclusion of all accessories.
 - .6 Device and cabling identification.
 - .7 Application and location of ULC approval decals.
- .3 Technical verification: Purpose to ensure that all systems and devices are properly installed and free of defects and damage. Technical verification includes:
 - .1 Measurements of tension and power.
 - .2 Connecting joints and equipment fastening.
 - .3 Measurements of signals (dB, lux, baud rate, etc.).
 - .4 Compliance with manufacturer's specification, product literature and installation instructions.

- .4 Operational verification: Purpose to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:
 - .1 Operation of each device individually and within its environment.
 - .2 Operation of each device in relation with programmable schedule and or/specific functions.
 - .3 Operation control of camera lens, pan, tilt and zoom.
 - .4 Switching of camera to any monitor.
 - .5 Switching of system video recorder to selective monitor.
 - .6 Set dwell times.
 - .7 Demonstrate:
 - .1 Sequence viewing of cameras on each monitor.
 - .2 Bypass capability.
 - .3 Display of stored image to cardholder.

3.5 CLEANING AND ADJUSTING

- .1 Remove protective coverings from cameras and components.
- .2 Adjust cameras for correct function and field of view.
- .3 Clean camera housing, system components and lens, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.

END OF SECTION