

Part 1 General

1.1 REFERENCES

- .1 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S304, latest revision, Signal Receiving Centre and Premise Burglar Alarm Control Units.
 - .2 CAN/ULC-S306, latest revision, Intrusion Detection Units.
 - .3 ULC-S318, latest revision, Standard for Power Supplies for Burglar Alarm Systems.
 - .4 ULC-C634, latest revision, Guide for the Investigation of Connectors and Switches for Use with Burglar Alarm Systems.
- .3 Underwriters' Laboratories (UL)
 - .1 UL 603, latest revision, Power Supplies for Use with Burglar-Alarm Systems.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 26 00 10 – Electrical Installations General Requirements.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for control panels, detection accessory devices and door access accessory and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 26 00 10 – Electrical Installations General Requirements.
 - .3 Submit:
 - .1 Functional description of equipment.
 - .2 Technical data for devices.
 - .3 Device location plans and cable lists.
 - .4 Devices mounting location detail drawings.
 - .5 Typical devices connection detail drawings.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of New Brunswick, Canada.
 - .2 Shop drawings to indicate project layout, mounting heights and locations, wiring diagrams, detection device coverage patterns and contact operating gaps.
 - .3 Submit zone layout drawing indicating number and location of zones and areas covered.

- .4 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 ULC/UL List alarm service company.
 - .3 Submit verification Certificate that intrusion alarm system is Certified Alarm System.
- .5 Test and Evaluation Reports:
 - .1 Submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
- .6 Manufacturer's Instructions: submit manufacturer's installation instructions.
- .7 Manufacturer's Field Reports: submit manufacturer's written reports within [3] days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.3 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: submit maintenance data for incorporation into manual specified in Section 26 00 10 – Electrical Installations General Requirements.
 - .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.
 - .7 Systems verification report

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 26 00 10 – Electrical Installations General Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect intrusion detection from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Develop Construction Waste Management Plan and/or Waste Reduction Workplan related to Work of this Section and in accordance with Section 26 00 10 – Electrical Installations General Requirements.

- .5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan and/or Waste Reduction Workplan in accordance with Section 26 00 10 – Electrical Installations General Requirements.

1.5 WARRANTY

- .1 For materials the 12 month warranty period prescribed in subsection GC 32.1 of General Conditions is extended to 60 months.
- .2 Project Warranty: refer to CCDC for project warranty provisions.
- .3 Extended warranty period must include warranty against defects meeting specified performance requirements, for specified time period.
- .4 Manufacturer's Warranty: submit, for Consultant's acceptance, manufacturer's standard warranty document executed by authorized company official.
 - .1 Include manufacturer/dealer recommendations, information and support services for 1 years.

Part 2 Products

2.1 MATERIALS

- .1 Design Criteria:
 - .1 Design intrusion detection system using only ULC/UL listed products.
 - .2 Design intrusion detection system using ULC/UL listed alarm service company, company specializing in intrusion detection systems.
 - .3 Design intrusion detection system as a ULC/UL certified alarm system.
 - .4 Design system as a modular access control, 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 4 hours in the event of a power failure.
 - .7 Operates the access of building doors through the use of card readers as indicated on drawing.
 - .5 Equip control panels with continuous tamper detection on door and wall.
 - .1 Tamper detection to trigger trouble light.
 - .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 Each alarm capable of initiating different functions of camera, homing, and activation of remote devices, audio switching, door control and card or pin validation.
- .7 Zone or alarm location annunciated at monitoring station.
- .7 Communications link: security level of III to CAN/ULC-S304.
- .8 Signal link: security level of II to CAN/ULC-S304.
- .9 Alarm condition: design system to provide maximum time for an alarm to be communicated of 90 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.
- .2 Control Panel: ULC approved, expandable and designed for multiplexed expansion.
 - .1 Zones (protection inputs): as required.
 - .2 Zones expandable
 - .3 Number of user codes required: standard.
 - .4 Number of areas/partitions required: standard.
 - .5 Keypads: LCD (liquid crystal display).
 - .6 Alarm: monitored.
 - .7 System: wired.
 - .8 Integrated with sub systems: Fire alarm.
 - .9 Number of programmable outputs required: standard.
 - .10 System supervision: telephone line, battery, AC power.
 - .11 Siren output.
 - .12 Number of devices per zone: 1 device per zone.
- .3 Detection Accessories:
 - .1 Passive Infrared Detectors (PIR's): ULC approved, digital.
 - .1 Coverage pattern: standard.
 - .2 Temperature requirement: standard.
 - .3 Tamper switch.
 - .4 Mounting: wall and ceiling.
 - .2 Dual passive infrared and microwave: ULC approved, complete with tamperproof switch, and be designed to meet temperature and mounting requirements of project.
 - .1 Coverage pattern: standard.
 - .3 Contacts : ULC approved.

- .1 Mounting: surface.
 - .2 Mounting locations: refer to drawings.
 - .3 Operating gap: standard.
 - .4 Security level: high security.
 - .5 Type: magnetic.
- .1 Communications: telephone line dialer.
 - .2 Connectors and switches: to ULC-C634.
 - .3 Power supplies: to ULC-S318.
 - .4 Acceptable product:
 - .1 DSC Neo power series or approved equivalent.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for intrusion detection installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Consultant.
 - .2 Inform Consultant of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

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 All wiring shall be installed in conduit as per Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings. Conceal conduit and wiring.

3.3 SITE TEST AND INSPECTION

- .1 Perform verification inspections and test in the presence of Consultant.
 - .1 Provide 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.

3.4 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product.
 - .2 Submit 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 Ensure manufacturer's representative is present before and during critical periods of installation and testing.

3.5 ADJUSTING

- .1 Adjust all components for correct function.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 26 00 10 – Electrical Installations General Requirements.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 26 00 10 – Electrical Installations General Requirements.
 - .1 Remove protective coverings from accessories and components.
 - .2 Clean housings and system components, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 26 00 10 – Electrical Installations General Requirements.

- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by intrusion detection installation.

3.8 TRAINING

- .1 Provide four (4) hours of on-site lectures and demonstration by security equipment manufacturers to train operational personnel in use of maintenance of the Security systems. Training shall be Bilingual

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Underwriters Laboratories of Canada (ULC)
 - .1 ULC-S317, latest revision, Installation and Classification of Closed Circuit Video Equipment (CCVC) Systems for Institutional and Commercial Security Systems.

1.2 SYSTEM DESCRIPTION

- .1 Provide a complete, closed-circuit colour television system, (CCTV), including controller, IP cameras, monitor, two (2) weeks storage capacity at 15-30 fps recording. Provide wiring and accessories as per manufacturer's recommendations.
- .2 Provide services of manufacturer's technician to connect, calibrate, and adjust system and to provide two (2) training sessions of four-hour duration for operating and maintenance personnel designated by Owner. Provide memory stick with maintenance training and set-up. First session is to take place prior to occupancy. Allow for call back for remaining training sessions anytime within the first three (3) months.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 26 00 10 – Electrical Installations General Requirements.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for video surveillance equipment and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit:
 - .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 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of NB, Canada.
 - .2 Submit shop drawings to indicate project layout, camera locations, point-to-point diagrams, cable schematics, risers, mounting details and identification labeling scheme.
 - .3 Submit zone layout drawings indicating number and location of zones and areas covered.
- .4 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".
- .5 Test and Evaluation Reports:
 - .1 Submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
- .6 Manufacturer's Instructions: submit manufacturer's installation instructions.
- .7 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.4 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: submit maintenance data for incorporation into manual specified in Section 26 00 10 – Electrical Installations General Requirements. Include following:
 - .1 System configuration and equipment physical layout.
 - .2 Functional description of equipment.
 - .3 Manufacturer's Instructions for operation, adjustment and cleaning.
 - .4 Illustrations and diagrams to supplement procedures.
 - .5 System verification report

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 26 00 10 – Electrical Installations General Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect video surveillance materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Develop Construction Waste Management Plan and/or Waste Reduction Workplan related to Work of this Section and in accordance with Section 26 00 10 – Electrical Installations General Requirements.
- .5 Packaging Waste Management: remove for reuse and/or return of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan and/or Waste Reduction Workplan in accordance with Section 26 00 10 – Electrical Installations General Requirements.

1.6 WARRANTY

- .1 For video surveillance materials the 12 month warranty period prescribed in the General Conditions is extended to 60 months.
- .2 The System Installer shall provide a warranty on the system, which shall include all necessary labor and equipment to maintain the system in full operation for a period of one year from the date of acceptance.
- .3 Manufacturer shall provide, free of charge, product firmware/software upgrades for a period of five (1) years, beginning on the turnover of equipment to the owner. Installation of system upgrade software shall be by the System Supplier and shall be per the labor warranty specified here-in.
- .4 On-site service shall be provided at no cost to the purchaser during the guarantee period, unless damage or failure is caused by misuse, abuse, neglect or accident.
- .5 The service shall be provided in both languages (English or French) as requested by owner.

Part 2 Products

2.1 DESIGN CRITERIA

- .1 Camera system must be POE based
- .2 Support: camera functions such as pan/tilt and zoom fully supported by Closed Circuit Television (CCTV) system.
 - .1 Provide operator with ability to control all camera functions.
- .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,:
 - .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.
- .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 specified requirements under following ambient temperatures:
 - .1 Indoor installations:
 - .1 Temperature: 0 degrees C to 30 degrees C.
 - .2 Humidity: 10 to 90%.
 - .2 Outdoor installations:
 - .1 Temperature: -40 degrees C to 60 degrees C.
 - .2 Humidity: 10 to 100%.

2.2 CHARACTERISTICS

- .1 Video Camera:
 - .1 Image quality:
 - .1 Outside: 1080p resolution, four (4) megapixels minimum.
 - .2 Environment: outdoor IP66 enclosure rating equipped with heater/blower (if required to meet temperature spec)
 - .3 ONVIF compatible.
 - .4 Lens functions: varifocal lenses.
 - .5 Additional features: backlight compensation.
 - .6 Operational voltage: standard POE.
 - .7 Vandal resistant.
 - .8 Mounting arms to be included.
 - .9 Acceptable Manufacturer:
 - .1 Such as Hikvision DS Series or equivalent
- .2 Monitor:
 - .1 Colour LCD Monitor.
 - .2 Power Requirements: 120V, 60Hz, 100W (max operating)
 - .3 21" flat screen LCD monitor c/w front panel controls, video and audio input and output and digital comb filter.
 - .4 Display 1, 4, 9 or 16 cameras simultaneously.
 - .5 On screen pan/tilt/zoom control.
 - .6 Rack mountable
 - .7 Resolution: 1920 x 1080 (FULL HD)
 - .8 Acceptable Manufacturer:
 - .1 Dell or equivalent.
- .3 Recorder:
 - .1 Motion detection.
 - .2 Image compression : H.264.
 - .3 Eight (8) camera channels.
 - .4 Recording mode: 15-30 fps motion detection (based on camera location and manufacturer's recommendations)
 - .5 On screen pan/tilt/zoom control.

- .6 Playback search: multiple enhanced search capabilities.
- .7 Back-up: DVD \pm RW, network, USB 2.0, 3.0, eSATA.
- .8 Rack mountable.
- .9 Storage capacity based on cameras selected for recording 2 weeks of footage; RAID 5 storage.
- .10 Must not have proprietary software.
- .11 One (1) year warranty.
- .12 Provided c/w quantity of camera licenses required for project and 20% spare.
- .13 Server based and must support web access and mobile access.
- .14 Acceptable Manufacturer:
 - .1 Such as Hikvision #DS-7608NI-I2/8P or equivalent

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheet.
- .2 Install video surveillance equipment and components in accordance with ULC-S317.
- .3 Install cable, boxes, mounting hardware, brackets, video cameras and system components in accordance with manufacturer's written installation instructions.
- .4 Run all cable in concealed conduit where exposed, j-hooks where concealed. The cable length should not exceed 90 meters. Fibers shall be used if length is greater 90m.
- .5 Install components secure, properly aligned and in locations shown on reviewed shop drawings.
- .6 Make all network connections and configurations.
- .7 Make all adjustments to installed equipment including orientation and aiming.
- .8 Connect cameras to cabling in accordance with installation instructions.
- .9 Supply and install all necessary mounting hardware for system.
- .10 Final programming and/or identification shall location name as assigned by the users. Do not use room numbers or names from contract drawings unless advised otherwise.
- .11 Install ULC labels where required.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product.

- .2 Submit 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 Obtain reports, within three (3) days of review, and submit, immediately, to Consultant/Owner.

3.4 SYSTEM STARTUP

- .1 Perform verification inspections and test in the presence of Consultant.
 - .1 Provide all necessary tools, ladders and equipment.
 - .2 Ensure appropriate subcontractors, and manufacturer's 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 Test complete system including, control, signal strength, picture quality, and camera coverage
 - .5 Compliance with manufacturer's specification, product literature and installation instructions.
- .4 Commissioning: purpose to ensure that devices and systems' performance meet or exceed established functional requirements. Commissioning 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.

3.5 ADJUSTING

- .1 Remove protective coverings from cameras and components.
- .2 Adjust cameras for correct function.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 26 00 10 – Electrical Installations General Requirements.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 26 00 10 – Electrical Installations General Requirements.
 - .1 Remove protective coverings from accessories and components.
 - .2 Clean housings and system components, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 26 00 10 – Electrical Installations General Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by video surveillance installation.

3.8 TRAINING

- .1 Provide four (4) hours of training to ensure that operating personnel are capable of proper operation of the systems. All training shall be Bilingual (French and English).
- .2 All cost associated with final commissioning system shall be included in the contractor's tender price

END OF SECTION