

## PART 1 - GENERAL

### 1.1 REFERENCES

- .1 Underwriters Laboratories of Canada (ULC)
  - .1 ULC-S317-[1996], Installation and Classification of Closed Circuit Video Equipment (CCVC) Systems for Institutional and Commercial Security Systems.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .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 Newfoundland and Labrador, Canada.
  - .2 Submit shop drawings to indicate project layout, camera locations, point-to-point diagrams, cable schematics, risers and mounting details.
  - .3 Submit zone layout drawings indicating number and location of zones and areas covered.
- .4 Samples:
  - .1 Submit for review and acceptance of each unit.
  - .2 Samples will be returned for inclusion into work.
  - .3 Submit [1] sample of each camera selected complete with housing, brackets and mounting hardware.
  - .4 Camera will be returned for incorporation into work as appropriate.
- .5 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".
- .6 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.
- .7 Manufacturer's Instructions: submit manufacturer's installation instructions.
- .8 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 01 78 00 - Closeout Submittals]. 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.

### 1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product 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.

### 1.5 WARRANTY

- .1 For all materials the 12 month warranty period prescribed in subsection GC 32.1 of General Conditions is extended to 60 months.
- .2 Manufacturer's Warranty: submit, for Departmental Representative's acceptance, manufacturer's standard warranty document executed by authorized company official.

## PART 2 - PRODUCTS

### 2.1 DESIGN CRITERIA

- .1 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.
- .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 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 Colour.
  - .2 Sensitivity: lighting requirements, [infrared capability]. Measured in 50 LUX for useable video image.
  - .3 Resolution: lines of horizontal resolution:
    - .1 Colour: standard 320-350 high resolution 450.
  - .4 Environment: indoor and outdoor.
  - .5 Mounting: visible.
  - .6 Lens functions: electronic iris.
  - .7 Additional features: backlight compensation.
  - .8 Operational voltage: standard 24 AC or 12 DC.
- .2 Lenses:
  - .1 Variable Focus Lens: 3.5 mm to 8 mm on same lens.
  - .2 Auto iris lens with video DC driver.
- .3 Video Handling:
  - .1 Sequential Switcher: supporting 16 cameras, rack mounted.
  - .2 Performance attributes:
    - .1 Sequential switcher: 480 mm rack mounted, with each video input selectable, from front panel, for continuous viewing, sequencing or for removal from the sequencing cycle.
    - .2 Sequential switching: silent in operation and occur during picture vertical interval.
    - .3 Switcher: automatically and sequentially switch video inputs to one monitor output (output #1).
    - .4 Sequential switcher's second video output (output #2) to automatically display alarmed camera input or manually selected camera input. This unit can be consolidated with the Digital Control System.
    - .5 Switcher position number: to coincide with camera display number.
  - .3 Technical Characteristics:

- .1 Impedance: 75 Ohms UNBAL.
- .2 Input: 1.0 V pp +/- 0.1 V pp (one for each signal, plus spares).
- .3 Output: two, 1.0 V pp.
- .4 Frequency response: zero to 6.0 MHz + 0.5 dB.
- .5 Sequencing speed: variable, 1.0 to 45 seconds.
- .4 Quad Splitter: 2 page format.
  - .1 Performance attributes: capable of processing 4 individual video inputs into one composite video signal consisting of original 4 signals displayed in four quadrants of output composite signal. Unit to contain front panel controls which, when selected, will produce full screen display of selected input signal or freeze selected quadrant.
  - .2 Technical characteristics:
    - .1 Video inputs: 1.0 V pp +/- 0.3 V.
    - .2 Video outputs: 1.0 V pp +/- 0.5 V.
    - .3 H resolution: 300 Lines, B/W.
- .5 Multiplexer: support groups of 16 cameras; Simplex models.
  - .1 Features:
    - .1 Permit multi-screen display of live camera images as they are being recorded.
    - .2 Video loss detection.
    - .3 Video motion detection.
    - .4 Security lock.
    - .5 Call monitor output.
    - .6 Multi display formats i.e.: 4x4, 3x3, 2x2 etc.
  - .2 Multi-screen display: permit screen to split to show 1, 4, 7, 10, 13 or 16 images at same time.
  - .3 Live-on-playback and play-back-live: permit live camera images while monitoring so that [VCR] image can be shown on screen at same time.
    - .1 Permit live camera image to be shown during VCR playback.
  - .4 Auto sequential switching: permit switching between cameras one field at a time to allow smooth flowing of multi-screen displays.
  - .5 Electronic image functions: permit capability to zoom or freeze images from live and recorded sources.
  - .6 Camera title indicator: permit [8] character title to be accorded to each channel.
  - .7 Alarm function: include [16] alarm inputs and [2] alarm outputs for each camera.
  - .8 I.D./time-date generator: include as built-in calendar function with capability to display time and date on monitor or not, and in recording or playback mode.
  - .9 On-screen setup menus: include on-screen menus and [accessible] [front panel] push buttons permitting quick and easy setup and operation.
  - .10 Alarm log function: [100] events.
  - .11 Provide S-video input/output terminal.
- .4 Recording: 360 hour Time Lapse Digital Recording.
  - .1 Features:
    - .1 Fast forward/rewind time: 100 seconds.
    - .2 Recording speeds; 9.
    - .3 Playback control: jog and shuttle.
    - .4 Alarm recording:
      - .1 Alarm recording: provide system with capability to switch to alarm recording when an externally connected alarm sensor is triggered and begin to record situation that triggered alarm.
      - .2 Alarm display: equip unit to flash AL on screen during alarm recording and display number of alarms.

- .3 Alarm scan: provide scan feature to search whole file for alarm recordings and play the first 15 seconds of each alarm.
    - .5 I.D./time and date generator: provide built-in microprocessor equipped with calendar capable of setting internal timer, display current time and manage other clock-related functions on monitor and on digital display.
  - .5 Time recording: provide unit with capability to preset time recording on daily or weekly basis and special holidays. Settings to be performed and confirmed on monitor.
- 2.3 CAMERA HOUSING
  - .1 Indoor: ceiling mount.
  - .2 Domes: indoor and outdoor.
  - .3 Outdoor: equipped with heater/blower.
  - .4 Covert.
  - .5 Transmission Methods: power over Ethernet (PoE).
- 2.4 CAMERA POWER SUPPLY
  - .1 Power supply: custom designed for all outdoor cameras requiring power, locate inside equipment cabinet; fused (each input and output); cameras and to provide future expansion of 25%. Permanently mount power supply.
- 2.5 JUNCTION BOX
  - .1 Metal, sized to handle all system conduit interconnections with appropriate expansion.

### PART 3 - EXECUTION

- 3.1 EXAMINATION
  - .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for video surveillance installation in accordance with manufacturer's written instructions.
    - .1 Visually inspect substrate in presence of Departmental Representative.
    - .2 Inform Departmental Representative 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 Departmental Representative.
- 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 Install components secure, properly aligned and in locations shown on reviewed shop drawings.
- .5 Connect cameras to cabling in accordance with installation instructions.
- .6 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 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 Work, after cleaning is carried out.

### 3.4 SYSTEM STARTUP

- .1 Perform verification inspections and test in the presence of Departmental Representative.
  - .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 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 01 74 11 - Cleaning.
  - .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 01 74 11 - Cleaning.
  - .1 Clean camera housing, system components and lens, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.

### 3.7 PROTECTION

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

END OF SECTION