



DIVISION 28 APPENDIX – CARD ACCESS / VIDEO SURVEILLANCE

1.0 WESTERN MICHIGAN UNIVERSITY GENERAL INFORMATION

This section covers the addition of a building or area to the University's Card Access Security and/or Video Surveillance System.

1.1 Scope of Work

- 1.1.1 The Contractor shall provide all necessary design, materials (including conduit, boxes and wire) and labor as necessary to provide a complete working system connected to the Western Michigan University's Department of Public Safety (WMU DPS) card access and video systems. Programming will be provided by WMU DPS.
- 1.1.2 The Contractor shall perform all work described in this document along with any work not expressly mentioned in the specifications, but obviously necessary, for the proper execution of the same. It is not the intent to delineate or describe every detail and feature of work. No additions to the contract sum will be approved for any material, equipment, and/or labor to perform work hereunder unless it can clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper prosecution of the work.
- 1.1.3 All equipment shall comply with all applicable federal and state building, electrical and safety codes. All materials used shall be new and of the best grade for their respective purpose. All components and materials used shall be UL listed for their intended use.
- 1.1.4 No departure from the contract drawings or specifications will be permitted without written approval from WMU DPS. If the contractor considers any changes to the contract drawings or specifications to be necessary they shall advise WMU DPS in writing. Corrections necessary to conform to the installation to the approved design drawings shall be implemented at the contractor's expense.

2.0 PRODUCTS

2.1 Western Michigan University Accepted Card Access Equipment

- A. All equipment will be 12vdc no exceptions will be made otherwise. All devices will be mounted using University approved guidelines. Drawings will be provided upon request.
 - 1. Intelligent Controller shall be Open Options (OO) SSP-LX or SSP-EP for hardwired systems. For wireless readers we require OO SSP-EP controller. If there are wired and wireless readers in the same building each system is to have their own SSP controller. Do not co-mingle.



WMU Design Guidelines

2. Door controllers are OO RSC-2's only, RSC-1's are not to be used. The RSC-DT Command Keypad may be used with permission from Western Michigan Universities Department of Public Safety. (WMU DPS).
3. Input and output boards shall be OO ISC-16 and OSC-16 boards respectively.
4. OO E3 series enclosures shall be used for card access controller and sub controller boards. LifeSafety Power E8M may also be used. Enclosures must be without prewired terminal strips and power supplies. See note #15 on this page.
5. Card readers will be either aptiQ Model MTMSK15 Multi Technology magnetic swipe reader or HID Multi Technology reader with keypad. Any change must be approved by WMU DPS in writing. Readers must be able to read track 2 on a magnetic strip to be compatible with the Universities magnetic swipe access cards. Proximity readers are to be compatible with Open Options and WMU proximity cards.
6. Door monitor switches shall be flush mounted Sentrol #1076 or approved equal. Color will be determined by the door color.
7. Motion detector request-to-exits (REX) will be Bosch DS150i (white), or DS1511 (black). Color will be determined by the door color. Device is 12vdc. TP160 and TP161 trim plates may be used where needed.
8. Request-to-exit push buttons shall be Securitron PB2 series with green lighted button and red indicator lamp.
9. Area intrusion motion detectors shall be Honeywell DT7435C Dual Technology Sensor. Device must be 12vdc.
10. Wireless reader manufacturer and model will be determined by WMU DPS.
11. Door sounders are from Newark.com model MCM 82-951, LK-97 12vdc.
12. LED's are Locknetics 800L2 with red and green LED's on a single gang plate. Devices are 12vdc.
13. Electric door strikes will be Folger Adams 300 series, RCI 0162, or Von Duprin 6000 series. Any other substitutions shall be submitted to WMU DPS for approval. All strikes must be matched to their appropriate door hardware. Any exterior doors requiring strikes must use Folger Adams 310-4S, with the door hardware using a square bolt. All strikes must be 12vdc.
14. End of line resistor packs are GRI Model #6644. 1K ohm safe, 2K ohm alarm.
15. System power supply shall be Altronix AL1012ULX. 12vdc only.
16. Battery cans are to be Alarmsaf BC05 with shelf.
17. 12vdc power distribution board will be Altronix PD8 with replaceable inline fuses. Altronix ACM8 may be used in special circumstances. Thermal fuses are not acceptable.
18. Removable mullions with have a removable power transfer connector from the top of the frame to the hollow removable mullion. Contact WMU DPS for approval and part number.
19. Transfer hinges shall be Command Access Technologies Model ETH2W4545-652/26D-5SW
CH-BB79, 2 wire. Finish is to match door hardware.
20. The card access system is to have battery backup in case of power failure. Backup must supply power for full system operation for up to eight hours. 4 hour backup is sufficient if system is connected to a backup generator.



B. Prohibited Items

1. Magnetic Locks.
2. Electronic latch retraction. Includes but is not limited to electrified crash bars and door rods.
3. Electrified mortise or cylindrical lock hardware.
4. Door cords used for passing power to locking device.
5. Any non 12vdc equipment.
6. Any usage of above items without written approval of WMU DPS will result in WMU DPS not signing off on job completion. The labor and cost of replacing non approved equipment to meet WMU DPS specs will solely be the contractor's responsibility.

2.2 Western Michigan University Accepted Surveillance Camera Equipment

1. Cameras shall be IP based mega pixel cameras manufactured by Axis or Samsung only. Camera locations, models and functions will need to be reviewed by and approved by WMU DPS on a camera by camera basis before cameras are ordered. All cameras must be fully integrated and supported by Exacq VMS. All cameras will be supplied by Power over Ethernet (PoE).
2. When switches are not supplied by WMU OIT, use GW Security Inc. PoE switches. Models will be GWSW0402M 4 Port, GWSW0802M 8 Port, or GWSW1602G 16 Port switches.
3. Network Video Recorders (NVR) will be designed and built to exact specifications supplied by WMU DPS. The NVR will change on a job by job basis based on camera quantities and manufacture. Exact part numbers and quantities will be supplied to the contractor, NO CHANGES WILL BE ACCEPTED.
4. The camera system (NVR and PoE switch) will be connected to an Uninterruptable Power Supply (UPS). The UPS is to supply power to the system for 2 hours upon building power failure. The UPS will be rack mounted with the camera system.

3.0 WESTERN MICHIGAN UNIVERSITY ACCEPTED WIRE

3.1 Card Access

1. Wire for all field devices except locking hardware shall be 18 AWG stranded copper cable. Wire for door strikes shall be 16 AWG stranded copper cable.
2. All wire is to be run in enclosed spaces to the maximum extent allowable so cable is not visible.
3. Where wire is exposed it shall be ran through a metallic conduit sized to accept the required quantity of wires without exceeding 70% fill. Plastic conduit and surface mounted wire mold are not acceptable on new installations. Using university approved wire trays is acceptable.
4. Flexible metallic conduit is acceptable in situations which warrant its use. Use must be cleared with WMU DPS.
5. All cable will be plenum rated.



WMU Design Guidelines

6. All cable will be home run from field devices to panel locations with a 3 foot service loop on both ends. Splices are not acceptable. Wires will be clearly labeled on both ends with approved nomenclature.
7. Cables penetrating floors and firewalls must be routed through a metallic sleeve and properly fire stopped to meet national and local fire codes. All walls and floors shall maintain their existing fire rating.
8. All wiring shall be installed in accordance with the National Electric Code (NEC) and the National Fire Protection Agency (NFPA).
9. Specific wiring requirements are as follows:
 - a. Card Reader- 18 AWG / 6 Conductor shielded with drain wire.
 - i. Honeywell Genesis Series Part # 3216 or equivalent.
 - b. Request-to-exit motion / Door Contact- 18 AWG / 4 Conductor.
 - i. Honeywell Genesis Series Part# 3115 or equivalent.
 - c. Sounder- 18 AWG / 4 Conductor.
 - i. Honeywell Genesis Series Part# 3115 or equivalent.
 - d. Electric Strike- 16 AWG / 2 Conductor.
 - i. Honeywell Genesis Series Part# 3121 or equivalent.
 - ii. Wire size is to follow NEC guidelines in regards to length and voltage drop. 12vdc minimum at strike under load. 16 AWG minimum wire size to device.
 - e. Data wire between boards and panels- 22 AWG / 2 Pair, individually shielded with drain.
 - i. Honeywell Genesis series Part#3204, or equivalent.
 - ii. The cables 2 pairs will be shielded separately with each having its own ground wire.
 - iii. Data wire will be run between card access panels and between rooms housing access panels.
10. See wiring diagram for accepted device wiring.
11. Panel wiring diagrams and system layout drawings will be supplied by WMU DPS. Any changes must be approved in writing.

3.2 Camera Surveillance

1. Camera wire will be home run from camera locations back to NVR without any splices.
2. Camera cable runs exceeding the 300' distance limits of CAT6 shall have an extender installed in a readily accessible location.
3. See wire running guidelines above (3.1.2 through 3.1.8).
4. Specific wire requirements are as follows:
 - a. Camera- 24 AWG / 4 Pair CAT6, unshielded twisted pairs.
 - i. Honeywell Genesis Series Part# 63601102 or equivalent.
 - ii. All CAT6 camera wire will be yellow in color.
 - b. Outdoor cameras that are not attached to the building proper will use outdoor rated CAT6 twisted pair cable ran to water proof boxes.
 - c. Honeywell Genesis 63611102 or equivalent to be used in Plenum rated environments.
5. Wire for exterior cameras will not be exposed to environment, any and all connections will be made in water tight boxes with approved covers.



WMU Design Guidelines

6. Liquid-tite conduit and connectors shall be used between connection boxes and cameras. The conduit will have a drip loop to route water away from boxes and cameras.
7. Aiming and focusing of cameras will be done by contractor with final approval by WMU DPS.
8. All mounting hardware and housings must be designed and manufactured by the same company as the cameras. (Samsung cameras are to be in Samsung housings.)
9. All cameras must be on the WMU DPS approved list.
10. Camera type and quantities are to be approved prior to contractors ordering. All cameras must be compatible with universities current video management software.

4.0 SECURITY CONTACTOR / WMU RESPONSIBILITIES

4.1 The Security Contractor shall provide:

1. Card Readers
2. Door Contacts
3. Request to Exit
4. Sounder - sounders are from MCM.com model 82-951, LK-97 12vdc
5. Power supply (10amp Altronix)
6. Open Options (Mercury) Control boards
7. PD8 (power distribution boards) the type with replaceable fuses
8. Cameras (also mounts if needed)
9. Camera Licenses
10. Contractor will focus and adjust all cameras and will need WMU Security approval
11. All testing of the devices done with WMU Security.
12. A sign off for the installation will be required and the Security Contractor, the GM Contractor and WMU Security will all sign off for approval of everything.

4.2 WMU Security shall provide:

1. All cores for the locks (not the cylinders)
2. NVR (network video recorder)
3. WMU will program the security system, contractor is to wire up all devices the way WMU Security wants them wires and will wire the panels the way WMU Security requires.

END OF APPENDIX