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 be shown to be beyond the scope and intent of the drawings and specifications and 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 purposes. 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, then they shall advise WMU DPS directly 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, SSP-EP, or SSP-D2 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 shall have their own SSP controller. Do not co-mingle.

2. Door controllers shall be OO RSC-2's only (RSC-1's are not to be used). The RSC-DT Command Keypad may be used with permission from 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. Other enclosures may be used with permission from WMU DPS. Enclosures must be without prewired terminal strips and power supplies. See #15 below.
5. Card readers must be Wavelynx ET10-7WS, ET20-7WS or ET25-7WS. 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 and frame color. Marray, Inc. patented Hidden Door Position Switch (HDPS) may be used in hinges with approval from WMU DPS.
7. Motion detector request-to-exits (REX) will be Bosch DS150i (white), or DS151i (black). Color will be determined by the door and frame color. Bosch 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. Alternates must be approved by WMU DPS in writing.
9. Area intrusion motion detectors shall be Honeywell DT-7435C Dual Technology Sensor (12vdc).
10. Wireless reader manufacturer and model will be determined by WMU DPS.
11. Door sounders are Newark.com model MCM 82-951, LK-97 12vdc.
12. LEDs are Locknetics/Schlage 800L2 with red and green LED's on a single gang plate (12vdc).
13. Electric door strikes will be Folger Adams 310-4S or Von Duprin 6000 series. For interior, low-traffic doors Von Duprin 6211 or HES 1600 may be used. Interior doors with narrow frames may use Von Duprin 4211 or HES 4500C electric strikes. Any other substitutions shall be submitted to WMU DPS for approval. All strikes must be matched to their appropriate door hardware. 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 with approval from WMU DPS. Thermal fuses are not acceptable.
18. Removable mullions with electrified hardware must be keyed to WMU key/core standards and have connectors with a disconnect option. For this use Von Duprin KR4854 keyed, electrified removable mullions with quick disconnects. Contact WMU DPS for approval of any alternates.
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 shall 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 the 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 from WMU DPS will result in WMU DPS not signing off on job completion. The labor and cost of replacing non approved equipment will solely be the contractor's responsibility.

2.2 Western Michigan University Accepted Surveillance Camera Equipment

1. Cameras shall be IP-based cameras manufactured by Hanwha Vision only. The current camera model list can be supplied by the WMU DPS Security Division. All Camera locations and functions will need to be reviewed by and approved by WMU DPS before being ordered. All cameras must be fully integrated and supported by Wisenet WAVE VMS. All cameras will be supplied by Power over Ethernet (PoE). Other power options must be approved by WMU DPS.
2. When switches are not supplied by WMU OIT, use GW Security Inc. PoE switches (Models GWSW0402M 4 Port, GWSW0802M 8 Port, or GWSW1602G 16 Port switches). Equivalent models may be used with approval from WMU DPS.
3. Network Video Recorders (NVRs) will be supplied by WMU DPS. Storage upgrades and/or NVRs will change on a job-by-job basis, based on quantity and video recording quality of cameras. WMU DPS will supply quantity and part numbers to contractors to verify the 31-day minimum recording requirement per camera is met.
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.
5. Wisenet WAVE camera licenses and appropriate data storage shall be included.

3.0 WESTERN MICHIGAN UNIVERSITY ACCEPTED WIRE

3.1 Card Access

1. The 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 cables will be run in enclosed spaces to the maximum extent allowable to not be visible.
3. Where cable is exposed, it shall be run 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.

6. All cables will be run without interruption or splicing from field devices to panel locations with a 3-foot service loop on both ends. Splices are not acceptable. Cables 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 regard 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 cables will be run without interruption or splicing from camera locations back to NVR (or WMU OIT switch or jack) except for WMU DPS approved extender devices.
2. Camera cable runs exceeding the 300’ distance limits of CAT6 shall have an extender installed in a readily accessible and documented location. Gamechanger or other cables approved by WMU DPS may be allowed to exceed 300’ per manufacturer specifications.
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 the environment, any and all connections will be made in watertight boxes with approved covers.
6. Liquid tight 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 and approved by WMU DPS.
8. All mounting hardware and housings will be designed and manufactured by Hanwha Vision when possible. Exceptions must be approved by WMU DPS.
9. All cameras must be on the WMU DPS approved list or listed by Hanwha Vision as the specific replacement for a discontinued or unavailable camera model (with equal or better specifications) from the approved list.
10. Camera type and quantities are to be approved by WMU DPS prior to ordering.

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. Hanwha Cameras (also mounts approved by the manufacturer, if needed)
9. Wisenet WAVE 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), unless approved by WMU DPS
3. WMU will program the security system, contractor is to wire up all devices and panels the way WMU Security requires.

END OF APPENDIX