SECTION 28 10 00
ACCESS CONTROL

SPEC WRITER NOTE:
1. Use this section only for NCA projects. Delete text between // _____ // not applicable to project. Edit remaining text to suit project.
2. Contact Department of Veterans Affairs' (VA) AHJ, Spectrum Management and COMSEC Service (SMCS), Special Communications Team (SMCS 07A2), Telephone (202-461-5311/5301), for technical assistance.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

SPEC WRITER NOTE: Insert cemetery name and contract identification number.

1. New state-of-the-art fully functioning physical access and control system (PACS) installed in VA's National Cemetery (NCA) // _____ // to regulate access to restricted buildings, // building areas, // and // fenced areas //. // Contract // Project // Number: // _____ //.

SPEC WRITER NOTE: Consider specifying door position sensors in Section 08 71 00, DOOR HARDWARE to permit concealed mortise installation.

2. Door position sensors reporting to intrusion detection system, only // when PACS is not managed by host facility //.

1.2 RELATED REQUIREMENTS

SPEC WRITER NOTE: Update and retain references only when specified elsewhere in this section.

A. Firestopping: Section 07 84 00, FIRESTOPPING.

B. Penetration Sealants: Section 07 92 00, JOINT SEALANTS.

C. Door Position Sensor Preparation: Section 08 11 13, HOLLOW METAL DOORS AND FRAMES and Section 08 14 00, INTERIOR WOOD DOORS.

D. Electric Locks and Strikes: Section 08 71 00, DOOR HARDWARE.

E. Electrical Power Wiring: Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.
F. Electrical Power Conductors: Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW).
G. Electrical Power System Grounding: Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.
H. Electrical Power System: Section 26 05 33, RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS and Section 26 27 26, WIRING DEVICES.
I. Lightning Protection: Section 26 41 00, FACILITY LIGHTNING PROTECTION.
J. Perimeter Lighting: Section 26 56 00, EXTERIOR LIGHTING.
K. Communications General Requirements: Section 27 05 00, COMMON WORK RESULTS FOR COMMUNICATIONS.
L. Communications System: Section 27 05 26, GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS, Section 27 05 33, CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS, and Section 27 10 00, STRUCTURED CABLING.
M. // Weapons Storage Surveillance: Section 28 20 00, VIDEO SURVEILLANCE. //
N. // Alarm Systems: Section 28 31 00, INTRUSION DETECTION. //

1.3 APPLICABLE PUBLICATIONS

A. Comply with references to extent specified in this section.
B. American National Standards Institute/Security Industry Association (ANSI/SIA):
   1. AC-01-1996.10 - Access Control Standard Protocol for the 26-bit Wiegand TM Reader Interface.
   2. AC-03-2000.06 - Access Control Guideline Dye Sublimation Printing Practices for PVC Access Control Cards.
C. Federal Information Processing Standards (FIPS):
   1. FIPS 201-2 - Personal Identity Verification (PIV) of Federal Employees and Contractors.
D. Government Accountability Office (GAO):
   1. 03-8-02 - Security Responsibilities for Federally Owned and Leased Facilities.
E. Government Services Administration (GSA):
   1. APL - PACS Approved Products List.
F. International Organization for Standardization/Independent Electrical Contractors (ISO/IEC):
   1. 7810-03 - Identification Cards - Physical Characteristics.

2. 7811 - Identification cards - Integrated circuit cards - Part 3: Cards with contacts - Electrical interface and transmission protocols.
3. 7816 - Identification cards - Integrated circuit cards, most current date for each part.
4. 14443 - RFID cards; Contactless Proximity Cards Operating at 13.56 MHz in up to 5 Inches Distance, most current date for each part.
5. 15693 - RFID cards; Contactless Vicinity Cards Operating at 13.56 MHz in up to 50 Inches Distance, most current date for each part.

G. National Electrical Manufactures Association (NEMA):
1. 250-14 - Enclosures for Electrical Equipment (1000 Volts Maximum).

H. National Fire Protection Association (NFPA):
1. 70-14 - National Electrical Code.

I. National Institute of Standards and Technology (NIST):
1. IR 6887 V2.1 - Government Smart Card Interoperability Specification.
2. Special Pub 800-96 - PIV Card Reader Interoperability Guidelines.

J. Master Painters Institute (MPI):
1. No. 18 - Primer, Zinc Rich, Organic.

K. Telecommunications Industry Association(TIA):
1. 232-F - Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange.
2. 485-A - Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems.

L. UL LLC (UL):
1. Listed - Online Certifications Directory.
2. 294-13 - Access Control System Units.
3. 827-14 - Central Station Alarm Services.
4. 1076-95 - Proprietary Burglar Alarm Units and Systems.
5. 1981-14 - Central Station Automation System.

M. United States Access Board (USAB):
1. ABA - Architectural Barriers Act Accessibility Standards.

N. United States Department of Homeland Security (HLS):
1. HSPD 12-04 - Policy for a Common Identification Standard for Federal Employees and Contractors.

O. United States Department of Veterans Affairs (VA):
1. VA Construction and Facilities Management (CFM):
a. DG OIT - Office of Information & Technology, 2011.

b. DM Electrical - Electrical Design Manual, 2015.

c. DM Telecom - Telecommunications & Special Telecommunications Systems Design Manual, 2016.

d. PSDM - Physical Security Design Manual for VA Life-Safety Protected Facilities.

2. VA Office of Security and Law Enforcement (SLA):

a. Directive 0730-12 - Security and Law Enforcement.

b. VA Office of Information and Technology (OI&T):

1) Handbook 6100-10 - Telecommunications: Cyber and Information Security Office of Cyber and Information Security.

2) Handbook 6330-93 - Directives Management Procedures.

3) Handbook 6500-15 - Risk Management Framework for VA Information Systems - Tier 3: VA Information Security Program.

1.4 PREINSTALLATION MEETINGS

A. Conduct preinstallation meeting // at project site // minimum 30 days before beginning Work of this section.

SPEC WRITER NOTE: Edit participant list to ensure entities influencing outcome attend.

1. Required Participants:

a. Contracting Officer's Representative.

b. VA AHJ SMCS 07A2, for special communications systems.

c. // Architect/Engineer. //

d. // Inspection and Testing Agency. //

e. Contractor.

f. Installer.

g. // Field representative. //

h. Other installers responsible for adjacent and intersecting work, including electrical installer.

SPEC WRITER NOTE: Edit meeting agenda to incorporate project specific topics.

2. Meeting Agenda: Distribute agenda to participants minimum 3 days before meeting.

a. Installation schedule.

b. Installation sequence.

c. Preparatory work.

d. Protection before, during, and after installation.

e. Installation.

f. Terminations.

g. Transitions and connections to other work.

h. Inspecting and testing.

i. Other items affecting successful completion.

3. Document and distribute meeting minutes to participants to record decisions affecting installation.

1.5 SUBMITTALS

A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

SPEC WRITER NOTE: Refer to PG-18-3 Topic 2 and PG-18-15 for NCA contract drawing requirements.

1. Submittal Drawings and As-Built Drawings: Four sets paper format Architectural F size. Two sets electronic format.

SPEC WRITER NOTE: Contracting Officer's Representative will provide submittals to SMCS 07A2 for review.

B. Submittal Drawings:

1. Show size, configuration, and fabrication and installation details.

2. Cover Sheet:

a. Identify each drawing included in submittal.

b. Show facility name, building name, floor, and sheet number.

c. Include security abbreviations and symbols lists.

d. Reference general notes included in submittal.

e. Specification and scope of work pages for individual security systems.

f. Include detailed device identification table.

3. Floor Plans and Site Plans:

a. Show drawing scale in metric and English units.

b. Show each device identification and location.

c. Show control and power wiring.

d. Show pull box and conduit locations, sizes, and fill capacities.

e. Include general and drawing specific notes.

4. Riser Diagram:

a. Include sequence of operation.
b. Show relationship of integrated components on one diagram.
c. Show number, size, identification, and maximum lengths of interconnecting wires.
d. Include wiring schedule showing conductor type, wiring drawing symbol, manufacturer’s name, and part number.

5. System Drawing for Each Security System:
a. Show equipment, including panels and devices, and system layout.
b. Show point-to-point wiring.
c. Identify wire types.
d. Show device locations on floor plans.
e. Include general and drawing specific notes.

6. System Equipment Schedule: Show the following:
a. Device ID.
b. Device Location.
c. Mounting type.
d. Power supply or circuit breaker and power panel number.
e. Door number, door type, locking mechanism and control device.

7. Detail and Elevation Drawings: Show installation details.

C. System Operational Description: Submit detailed description of system operation, performance, and interface with other entities, equipment, and systems.

D. Manufacturer's Literature and Data:
1. Description of each product.
2. Installation instructions.

SPEC WRITER NOTE: Ensure system description in Part 2 indicates components to be included in equipment lists.

E. Equipment Lists: As bill of materials.
1. Show quantities for each specified product.
2. Identify products included on GSA Approved Products List and approval status.

F. Submit manufacture’s certification of UL LLC (UL) listing as specified.

G. Qualifications: Substantiate qualifications comply with specifications.
1. PACS integrator // with project experience list //.
2. Responsible design professional approved by AHJ SMCS 07A2.
3. Installer // with project experience list //.

4. Factory authorized representative.
5. Field representative // with project experience list //.

H. Delegated Design Drawings and Calculations: Each signed, dated, and sealed by BICSI RCDD certified responsible design professional.
1. Identify deviations from details shown on drawings.

I. Field conditions report indicating differing conditions.

J. Field survey report identifying equipment by manufacturer and model number wherever possible indicating:
1. Non-functioning equipment, proposed replacement equipment, and replacement cost.
2. Existing equipment reuse, removal, and replacement schedule.
3. Existing equipment connection and disconnecting schedule, including times for system interruption.

K. Acceptance Test Plan: Submit minimum 30 days before testing.
1. Include individual component and subsystem acceptance testing procedures.
2. Include integrated system test ensuring proper operation.

L. Field Representative:
1. Observation reports and supplemental instructions issued.
2. Installation certification.

SPEC WRITER NOTE: Contracting Officer's Representative will provide reports to TSS-197 through VA Project Manager.

M. Field Quality Control Reports: Four copies. Submit minimum 15 working days before scheduled acceptance test.
1. System pretest recorded measurements.
2. Certifications system is acceptance test ready.

SPEC WRITER NOTE: Contracting Officer's Representative will provide O&M data to SMCS 07A2 for review.

N. Operation and Maintenance Data: Four sets. Submit minimum 15 working days before scheduled performance tests.
1. Start-up, maintenance, troubleshooting, emergency, and shut-down instructions for each operational product.
2. Demonstration and training video recordings.

SPEC WRITER NOTE: Contracting Officer's Representative will provide one electronic set to SMCS 07A2 for review.

O. As-Built Drawings: Submit minimum 15 working days before scheduled performance tests.
   1. Wiring diagrams showing labels, inputs, outputs, and room locations.
   2. Electronic Format: Match NCA specified AutoCAD version.

1.6 QUALITY ASSURANCE

A. PACS Integrator: System designer and installer.
   1. Regularly integrates PACS and specified products.
   2. Employs licensed design professional with current BICSI RCDD certification responsible for PACS design.
   3. Integrated PACS and specified products with satisfactory service on five similar installations for minimum five years.
      a. // Project Experience List: Provide contact names and addresses for completed projects. //

B. Installer Qualifications: // BICSI RCDD certified and licensed security contractor. // Manufacturer authorized representative. //
   1. Regularly installs specified products.
   2. Installed specified products with satisfactory service on five similar installations for minimum five years.
      a. // Project Experience List: Provide contact names and addresses for completed projects. //

C. Factory Authorized Representative: As directed by Contracting Officer's Representative.

D. Field Representative: BICSI certified Registered Communications Distribution Designer (RCDD) experienced with specified components and system.
   1. // Project Experience List: Provide contact names and addresses for completed projects. //

E. Installer Qualifications: // Product manufacturer. // Manufacturer authorized representative. //
   1. Regularly installs specified products.
   2. Installed specified products with satisfactory service on five similar installations for minimum five years.
      a. // Project Experience List: Provide contact names and addresses for completed projects. //

1.7 FIELD CONDITIONS

A. Existing Conditions: Review drawings and specifications with existing site conditions.

1. Report discrepancies affecting system design and installation and propose solution.
2. Request Contracting Officer's Representative's approval for proposed solution.

1.8 WARRANTY

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. PACS Integration:

1. Designed by approved BICSI RCDD.
2. Installed and tested by contractor with manufacturer guidance.
3. Acceptance tested and commissioned by AHJ SMCS 07A2.

B. PACS: Standalone, local access controls connected to remote VA Medical Center central station providing system software and access privileges database management // intrusion detection // and // video surveillance // functions.

SPEC WRITER NOTE: Ensure internet connection is shown in main computer room (MCR) for system interface and control.

1. Protocol: Internet, addressable, and programmable.

SPEC WRITER NOTE: Confirm and specify available computer interface.

2. Interface: Computer, via VA FTS and Telco Tie Lines // or current federal communications media //.

C. System Components Including but not limited to:

1. Interface cabinet for hard wired existing system extension.
2. Head end cabinet for standalone system.

3. Control and communications panels.

SPEC WRITER NOTE: Retain option only when connecting access control system to VA Medical Center central station.

4. Electronic security management system // fully compatible with existing Host VAMC Security Management System //.
5. Card readers at restricted access entry points.

SPEC WRITER NOTE: Usually delete credential cards. Host VAMC provides cards for NCA.

6. Credential cards.

SPEC WRITER NOTE: Usually delete badging station. Host VAMC provides cards for NCA.

7. Picture ID and badging station.
8. Door position indicators.
9. Portal control devices.
10. Entry Control Device.
11. Electronic door hardware.
12. Power supplies.
13. Power and control wiring, raceways, and grounding.

SPEC WRITER NOTE: Retain access control locations only when control devices are not shown on drawings.

D. Access Control Locations:
   1. Administration Building:
      a. Employee entrances.
      b. Secure records storage.
      c. Telephone, MCR, and telecom rooms.
      d. Electrical rooms.
   2. Maintenance Building:
      a. Main building entry.
   3. Honor Guard Building:
      a. Building entry.

SPEC WRITER NOTE: Video surveillance is required for weapons storage. Coordinate

with Section 28 20 00, VIDEO SURVEILLANCE.

b. Weapons storage room.

4. Other Facilities:

a. Water storage // and water well // areas.

SPEC WRITER NOTE: List other site specific facilities requiring access control.

b. // _____. //

SPEC WRITER NOTE: Coordinate intrusion detection and video surveillance requirements incorporated into PACS.

E. Integrate // intrusion detection // and // video surveillance // into PACS. See // Section 28 31 00, INTRUSION DETECTION // and // Section 28 20 00, VIDEO SURVEILLANCE //.

1. Camera Security Monitoring System:

a. Provide 24 hour perimeter and building entry points and emergency exits using fixed color cameras.

b. Provide 24-hour camera monitoring, controlling, and recording capability.

c. Automatically display camera viewing access point in alarm state.

d. Additional System Requirements: See Section 28 20 00, VIDEO SURVEILLANCE.

2. Intrusion Detection System (IDS):

a. Monitor door position sensors.

b. Provide 24-hour IDS monitoring and controlling capability.

c. Activate audible alarm when IDS device signals alarm.

d. Additional System Requirements: See Section 28 31 00, INTRUSION DETECTION.

3. Integrate security subsystems via computer programming or direct hardwiring.

4. Comply with manufacturer requirements for correct system operations. Ensure system integration computers meet or exceed system software minimum system requirements.

SPEC WRITER NOTE: Coordinate device locations and mounting heights with USAB ABA.

F. Locate PACS components according to accessibility standards.
   1. Ease of Use: Design, install and program PACS for ease of operation, programming, servicing, maintaining, testing, and upgrading.

2.2 SYSTEM PERFORMANCE

A. Delegated Design: Prepare submittal documents including design calculations and drawings signed and sealed by registered design professional, licensed in state where work is located.
B. Design PACS and system components complying with specified performance:
   1. Standard Compliance: UL 294.
   2. Personal Identity Verification: FIPS 201, HLS HSPD 12, NIST IR 6887, and NIST Special Pub 800 compliant.
   3. Duty Rating: Continuous service.
   4. Totally functional, without degradation, to host or secondary control/management systems.

SPEC WRITER NOTE: Retain required electrical location ratings. Edit when all interior locations are dry.

   5. Environment Rating: NFPA 70.
      a. Exterior Locations: Wet.
      b. // Maintenance Building Interior Locations: Damp. //
      c. // Other // Interior Locations: Dry.

SPEC WRITER NOTE: Retain hazardous locations for areas with combustible dust.

      d. Hazardous Locations: NFPA 70; Class II, Division 1, Group F rated.
   6. Electrical Power: 120 Volts AC, 60 Hz.
   7. Control Power: 12 Volts AC and 12 Volts DC.
   8. Backup Power: 96 hour duration, on primary power loss.

2.3 PRODUCTS - GENERAL

A. Products: GSA APL approved.
B. Provide // identical // control and communications panels from same manufacturer ensuring compatibility.

2.4 // INTERFACE, // HEAD END, // CONTROL, AND COMMUNICATIONS PANELS

A. Panels: Expandable, network capable, expandable, providing entire facility access control through primary // interface // head end // panel.

1. Indoor Locations: NEMA 250; // Type 1 // Type 2 // Type 3 //.
2. Outdoor Locations: NEMA 250; // Type 3 // Type 4 // Type 4X //.
3. Mounting: // Wall // Floor //.

SPEC WRITER NOTE: Retain front and rear access door for floor mounted panels only.

4. Access Doors: Locking, // front only // front and rear //; operable without disturbing and damaging internal wiring.
5. Ventilation: Electric fan, non-disposable air filter and enclosure openings required to dissipate heat from panel modules.
6. Signal Wiring Strips:
   a. Input Strip: Top row, receiving output signal from connected devices.
   b. Output Strip: Bottom row transmitting input signal to connected devices.
7. Power outlet strip.
8. Bulkhead connector panel.
9. Computer Access: Password protected.
10. Database: Single, integrated, relational type.

SPEC WRITER NOTE: Retain operating systems compatible with VA Medical Center central station.

11. Operating System:
    a. Microsoft Windows // XP // 2000 // 7 // 8 // 10 //.
    b. Linux embedded OS, browser based thin-client.
12. Programming Source Code: Single, unified 32-bit program interfacing with panel modules.

SPEC WRITER NOTE: Retain only control modules integrated into PACS. General control and access control are always required. Coordinate with specified SMS functions.

13. Panel Modules: Programmable; general control, access control, // alarm monitoring, // credential management, // digital video, // visitor management, // intrusion detection, // asset management // and // _____ //.

B. Client Applications: Web enabled using panel database.

1. Operating System Support:

SPEC WRITER NOTE: Retain latest operating system or system compatible with existing equipment. Microsoft supports operating systems for 10 years from release date. Systems before 7 are no longer supported.

a. Microsoft: Windows // NT // 95 // 98 // XP // 2000 // 7 // 8 // 10 //.

b. Macintosh.

c. UNIX.

d. Linux.

e. Solaris.

2.5 PANEL MODULES

A. General Control Module:

1. Process access control and alarm monitoring operations.

a. Access Request Response Time: Maximum 0.5 seconds when connected to 64 card readers.

2. Store access levels, hardware configuration, and alarm outputs. Transmit alarm condition to remote client workstation // designated by Contracting Officer's Representative //.

3. Functional and Operational Requirements:

a. Communications: Electronically supervised, minimum 115,200 bps. Support direct-connect and remote dial-up.

1) Downstream Multi-Drop: TIA 485; card readers and control panel.

2) Downstream Serial: TIA 232.

3) Upstream: TIA 485; full duplex, system head-end UL 1076 Grade AA communication channel.

4) Electronically Supervised Communications with system software.

b. Memory: Minimum eight MB.

1) Cardholders: Store minimum 5,000.

2) Events: Store minimum 10,000.

c. Local Area Network (LAN): RJ45 (10/100baseT) Ethernet Interface Token Ring, four MB connectivity.

d. Support multiple PIV card technologies.

SPEC WRITER NOTE: Confirm and specify card technologies compatible with host VA Medical Center.

1) Support minimum eight card formats and facility codes.

2) Integrate with card readers.

e. Issue Code Support for both Magnetic and Wiegand Card Formats.

f. Individual Shunt Times.

g. PIN Codes: Maximum nine-digit.

h. LED Status Indicators: Show component and communication status.

B. Access Control Module:

1. Control Capacity: Minimum 16 openings.

2. Input and Output: Programmable relays.

3. Input Relays: UL 294 and UL 1076; analog, monitoring and reporting alarm conditions, power faults, and tampers.

a. Normal Operation: Monitor control relays for alarm condition.

b. Alarm Operation: Activate programmed alarm outputs.

c. Functional and Operational Requirements:

1) Scan zone alarm contact status minimum 120 times per second.

2) Processor: Low power complementary-symmetry/metal-oxide semiconductor (CMOS) type.

3) Filtered data for noise rejection to prevent false alarms.

4) Alarm Inputs: Unsupervised.

5) Supervised Inputs: Minimum 16.

6) Tamper and Power Status: Two dedicated inputs.

4. Output Relays: Control output device in response to:

a. Input alarms.

b. Commands from system operator.

c. Time zone control automatic operation.

d. Functional and Operational Requirements:

1) Individual Relay Pulsing: Programmable, predetermined duration.
2) System Operator Command Responses: Pulse, on, off, and normal state reset.
3) Output Rating: 5 Amps, 30 Volts DC.

2.6 ELECTRONIC SECURITY MANAGEMENT SYSTEM (SMS)

A. System Configuration Functions: Any combination of the following:

SPEC WRITER NOTE: Retain functions required for project. Coordinate specified control modules supporting required functions.

1. Personnel enrollment and badging.
2. Alarm monitoring.
3. Administrative.
4. Asset management.
5. Digital video management.
6. Intrusion detection.
7. Visitor enrollment.
8. Remote access level management.
9. Integrated client workstations.

B. Expandability: Support unlimited number of individual module or integrated client workstations.

C. Network Connectivity: Connect access control devices and Intelligent System Controllers (ISC) to each networked Windows 2003/2000/2007/XP based access control system workstation.

D. Reporting Capability: Compose, file, maintain, update, and print reports.
1. Individual Reports: Report employee’s name, office location, phone number or direct extension, and normal hours of operation, and detail listing of employee’s daily access controlled events.
2. System Reports: Report information on daily, weekly, and monthly basis including events, alarms, and other activity associated with system users.
3. Report Format: Tabular, chronologic by date and time.

E. Network Protocol and Topology Capability:
1. Transmission Control Protocol (TCP)/IP.
2. Novell Netware (IPX/SPX).
3. Banyan VINES.

4. IBM LAN Server (NetBEUI).
5. Microsoft LAN Manager (NetBEUI).
6. Network File System (NFS) Networks.
7. Remote Access Service (RAS) via ISDN, x.25, and standard phone lines.

F. Subsystem Control: Provide full interface and control of following subsystems:
1. Public key infrastructure.
2. Card management.
3. Identity and access management.
4. Personal identity verification.

G. System Features and Compatibilities:

SPEC WRITER NOTE: Confirm internet connection required location. MCR is typical.

1. Local and remote operation via LAN, WAN, internet, or intranet only at MCR.
2. Event and alarm monitoring.
3. Database partitioning.
4. Ability to fully integrate with security subsystems.
5. Enhanced monitoring station with split screen views.
6. Alternate and extended shunt by door.
7. Escort management.
8. Enhanced IT-based password protection.
9. N-man rule and occupancy restrictions.
10. Open journal data format for enhanced reporting.
11. Automated personnel import.
12. ODBC support.
13. Windows 2000 Professional, Windows Server 2003, Windows XP Professionals for Servers.
14. Field-level audit trail.
15. Cardholder access events.

SPEC WRITER NOTE: Confirm network server and client workstation locations are shown on drawings.

H. Provide network server and client workstations as approved by OI&T during project design.

NETWORK SERVER	
Processor	1.8 gHz, Intel Pentium/Dual Processor
Free HD space	300 gB
Memory	4.0 gB
Network card	10/100 base-T
CD/ROM drive	20X
Monitor/video adaptor	27’ SVGA/HDTV (1024 X 768)
Operating system	Windows 2000/2003/2007 Professional, Windows Server 2003/Windows XP Professional as approved by host VAMC OI&T
Ports	2 Serial; 1 Parallel, 4 USB
Back-up	Tape/CD-RW
Modem	56.7 kBps (must be specifically approved by Host VAMC’s OI&T)
CLIENT WORKSTATION	
Processor	1.5 gHz Intel Pentium/dual core
Free HD Space	200 gB
Memory	2.0 gB
CD-ROM Drive	20X
Network/Video adapter	22” HDTV/SVGA (1024 X 768)
Operating System	Windows 2000/3000/7000 Professional/XP Professional (host VAMC OI&T)

I. Un-Interruptible Power Supplies (UPS):

SPEC WRITER NOTE: Contact SMCS 07A2 for technical information including required capacity regarding UPS. Retain one of two methods of specifying capacity.

1. COTS full electrical/electronic supervision notification network capable; rack mounting.
2. Capacity: Minimum 1 hour for routine outages and 2 hours for emergency systems under full load.
3. Capacity: // _____ // kVA.

2.7 PIV CARDS

A. PIV Cards: Provided by // host station Security Service // Contractor as a part of contract, with instructions from host station Security Service //.

2.8 CARD READERS - GENERAL

A. Card Readers: FIPS 201 and ISO/IEC 14443, A or B compliant; programmable, addressable, and wired.
   1. Control locking door hardware. See Section 087100, DOOR HARDWARE.
   2. Report to control panel for recording door access:
      a. Time and date.
      b. Individual identification.
      c. Door location.
   3. Connected by home run to main panel.
   4. Card Reader Type: // Card only // card and PIN //.
   5. Output: Wiegand, RS-232, TIA 485 or TCP/IP.

B. Housing: Aluminum bezel with wide card entry lead-in.

C. Electronics: Read head and sender encoding control signals.

D. Status Lights: LED indicating card reader status and access status.

E. Off-Line Operation: Programmable; locked, unlocked, or facility code operation when main control panel communication is lost.

F. Access Status Audible Indicator:
   1. Access Granted: Two tones or beeps.
   2. Access Denied: Thee tones or beeps.

G. Inputs: Minimum two, programmable.

H. Outputs: Minimum two, programmable.

I. Keypads: // Integral with card reader // Standalone // alphanumeric arranged in ASCII code ordinal sequence with tactile and audible feedback when buttons are pressed.
   1. Display: LED; access status and user prompts.
      a. Status Indication:
         1) Power on and off.
         2) Access granted.
         3) Access denied.
      b. Limit keypad display viewing angles, measured normal to keypad surface centerlines.
         1) Horizontal Limit: Maximum 5 degrees.
         2) Vertical Limit: Maximum 15 degrees.
   2. Output: Signal control panel.
      a. Response Time: Maximum 800 milliseconds after last keypad entry.
   3. Power Consumption: Maximum 150 Watts.
   4. // Wall // and // Pedestal // Mounting: // Surface, // semi-recessed, // and // recessed //. // See drawings. //

a. Exterior Locations: Weatherproof.

5. Duress Signal: Report emergency when special code is entered.

SPEC WRITER NOTE: Retain smart card readers for FIPS 201 compliance and VA preferred technology.

2.9 SMART CARD READERS

A. Smart Card Readers: FIPS 201, contactless type, reading ISO/IEC 7816, ISO/IEC 14443, and ISO/IEC 15693 compliant cards.

1. Card Proximity Range: Minimum 25 to 50 mm (1 to 2 inches).

2. Card Types: DESfire and iCLASS.

B. Functional and Operational Requirements:

1. "Flash" download capability to accommodate card format changes.

2. Read and transmit card data to control panel.

3. Data Output Formats: Field configurable with command card.

a. FIPS 201 Low: Outputs FASC-N in assorted Wiegand formats from 40 to 200 bits.

b. FIPS 201 Medium: Outputs combination FASC-N and HMAC in assorted Wiegand formats from 32 to 232 bits.

SPEC WRITER NOTE: Retain magnetic stripe card readers when required by existing VA Medical Center central station for FIPS 201 compliance transition. Smart card reader is preferred.

2.10 MAGNETIC STRIPE CARD READER

A. Magnetic Stripe Card Readers: Swipe or insertion type; read credential cards using single layer 4000 units of magnetic field strength per magnetic tape material.

B. Functional and Operational Requirements:

C. Card Speed: 125 to 760 mm/s (5 to 30 inches/s).

D. Data Rate: 1.0 ms per bit.

E. Connections: Plug-in with 200 mm (8 inches) pigtail cable.

F. Output format: 26 - 34 bit.

G. Power: Manufacturer's standard.

H. Lifetime: 100,000 hours continuous mean time between failures (MTBF).

I. False Reject Rate: Maximum 5 percent.

J. False Accept Rate: Maximum 2 x 10^-6 percent.

K. Static Discharge: Minimum 20,000 Volts.

L. LED: Required.

M. Card Format: EMPI 26 or 34 Bit ANSI/ABA all Bits.

N. Output Format: Clock and data, maximum 37 characters/10 digit ANSI/ABA 26 or 34 bit.

SPEC WRITER NOTE: Retain magnetic stripe card readers when required by existing VA Medical Center central station for FIPS 201 compliance transition. Smart card reader is preferred.

2.11 PROXIMITY (PROX) CARD READER

A. Proximity Card Reader: Active/passive proximity detection, contactless type.

1. Active Detection: Receive and decode unique identification transmitted from credential card.
2. Passive Detection: Read card resonant frequencies for unique identification.

B. Card Reading Range:

1. Parking Lots and Parking Garages: 50 to 400 mm (2 to 16 inches).
2. Other Locations: 50 to 150 mm (2 to 6 inches).

2.12 PORTAL CONTROL DEVICES

A. Assist System by:

1. Monitoring door status.
2. Allowing exit via push button, request to exit, or panic/crash bar.
3. Providing system override via keypad or key bypass.
4. Assisting door operations using automatic openers and closures.
5. Providing secondary means of access to space via keypad.
6. Monitoring via main control panel.
7. Providing secondary means of access control within secure area.

SPEC WRITER NOTE: Retain pushbutton switches for second means of releasing magnetic locks.

B. Push-Button Switches: Momentary contact; back lighted push buttons, and stainless steel switch enclosures.

1. Contacts: Double-break silver contacts making 720 VA at 60 Amperes and breaking 720 VA at 10 Amperes.
2. Guard Control: Provide interface board including buttons to remotely release access controlled doors. Label buttons identifying controlled doors.

C. Key Bypass: Provide cylinders for locks and exit devices. See Section 087100, DOOR HARDWARE.

2.13 DOOR STATUS INDICATORS

A. Door Position Sensors: Surface or flush mounted, wide-gap type. Monitor and report OPEN and CLOSED door status.
   1. Access Control Switches: Double pole, double throw switches; reporting independently to access control system and intrusion detection system.
   2. Gap Operating Range: 0 to 50 mm (0 to 2 inches).

B. Request-to-Exit Devices (RX):
   1. RX Device: Infrared sensor and push button to de-energize each electromagnetically locked door allowing free exit.
   2. Infrared Sensors:
   3. Alarm output: 2ea. - form “C” Relay contacts.
   4. Indicators: 1ea. - Activation LED.
   5. Power Requirements: // 12 or 24 Volt AC // 12 or 24 Volt DC; 26 mA at 12 Volt DC //.

2.14 ENTRY CONTROL DEVICES

SPEC WRITER NOTE: Retain only devices specified in Section 087100, DOOR HARDWARE.

A. Electric Strikes: See Section 087100, DOOR HARDWARE.

B. Turnstiles // contact SMCS 07A2 for technical information if required //.

2.15 POWER SUPPLIES

A. UL Listed; capable of powering two entry control devices, continuously, without failure.
   1. Input Power: 110 Volt AC, 60 Hz, 2.0 Amperes.
   2. Output Power: // 12 Volt DC nominal (13.8 Volt DC) // and // 24 Volt DC nominal (27.6 Volt DC) //; filtered and regulated.
   3. Battery: Minimum 14 Ampere-hour at full load, rechargeable.
   4. Output Current: Maximum // 10.0 Amperes at 13.8 Volt DC // and // 5.0 Amperes at 27.6 Volt DC //.
   5. Primary Fuse: 6.3 Ampere, non-removable.
   6. Battery Fuse: 12 Ampere, 3ASG.
   7. Battery Charging Circuit: Manufacturer's standard.

2.16 LABELS

A. Labeling Abbreviations: Use accepted industry standards consistent with submittal drawings and recorded in as-built drawings.

B. Wire Labels: Permanent, with contrasting identification alpha or numeric, identifying each cable according to system submittal drawings.

C. Equipment and AC Power Labels: Permanent with contrasting plastic laminate or Bakelite material.

2.17 WIRING

A. Grounding and Bonding Materials: See Section 27 05 26, GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS.

B. Raceways: See Section 27 05 33, CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS.

C. Wires: See Section 27 10 00, STRUCTURED CABLING.

2.18 INSTALLATION KIT

A. Include, at minimum, connectors and terminals, labeling systems, audio spade lugs, barrier strips, punch blocks, wire wrap terminals, heat shrink tubing, cable ties, solder, hangers, clamps, bolts, conduit, cable duct, cable tray, and other items required for neat and secure installation.

1. Terminate wires in spade lug and barrier strip, wire wrap terminal or punch block.
2. Unfinished and unlabeled wire connections are not allowed.
3. Deliver unused and partially opened installation kit boxes, coaxial, fiber-optic, and twisted pair cable reels, conduit, cable tray, cable duct bundles, wire rolls, and physical installation hardware to Contracting Officer's Representative.

B. System Grounding Kit: Include cable and installation hardware required to connect head end equipment, power supplies, and following components to earth ground via internal building wiring, according to NFPA 70.

1. Coaxial cable shields.
2. Control cable shields.
3. Data cable shields.
4. Equipment racks.
5. Equipment cabinets.
6. Conduits.
7. Cable duct blocks.
8. Cable trays.

9. Power panels.
10. Connector panels.

C. Coaxial Cable Kit: Include coaxial connectors, cable tying straps, heat shrink tabbing, hangers, clamps, and other items required for neat and secure installation.

D. Wire and Cable Kit: Include connectors and terminals, audio spade lugs, barrier straps, punch blocks, wire wrap strips, heat shrink tubing, tie wraps, solder, hangers, clamps, labels and other items required for neat and secure installation.

E. Conduit, Cable Duct, and Cable Tray Kit: Include conduit, duct, trays, junction boxes, backboxes, cover plates, feed through nipples, hangers, clamps, and other hardware required for neat and secure conduit, cable duct, and cable tray installation according to NFPA 70.

F. Equipment Interface Kit: Include equipment, cable, mounting hardware, and materials to interface systems with subsystems according to manufacturer's instructions.

G. Labeling Kit: Include labels, tools, stencils, and materials to label each subsystem according to manufacturer's instructions and as-built drawings.

H. Documentation Kit: Include items, computer discs, as-built drawings, equipment, operation and maintenance manuals, and manufacturer's publications to fully document installed system.

2.19 ACCESSORIES

A. Sealant: See Section 079200, JOINT SEALANTS.

B. Provide connectors, terminators, and other accessories required for operable system.

C. Galvanizing Repair Paint: MPI No. 18.

PART 3 - EXECUTION

3.1 PREPARATION

A. Field survey, test and inspect existing door equipment and signal lines intended to be incorporated into the SYSTEM.

1. Door equipment and wiring usable without modification may be reused with Contracting Officer's Representative's approval.

B. Obtain Contracting Officer's Representative's approval minimum 3 days before interrupting existing system service.

C. Protect existing construction and completed work from damage.

1. Repair damage caused by construction operations.

D. Remove existing door equipment and wiring to permit new installation.
   1. Retain existing serviceable door equipment indicated for reuse.
   2. Dispose of // other // removed materials.

3.2 INSTALLATION - GENERAL

A. Install products according to UL 294, manufacturer's instructions // and approved submittal drawings //.
   1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.

3.3 INSTALLATION - EQUIPMENT

SPEC. WRITER NOTE: Edit paragraph and sub-paragraphs to apply only to the equipment and devices that are being installed.

A. Configure components with service points to pinpoint system trouble in less than 15 minutes.
B. Ensure components are fully compatible as a system and can be integrated with associated and remote security subsystems, whether system is stand-alone, hardwired, or networked to meet requirements of AHJ SMCS 07A2.
C. Install system components including Government furnished equipment, and appurtenances according to manufacturer's instructions. Provide necessary connectors, terminators, interconnections, services, and adjustments required for operable system.
D. Connect existing door equipment, wiring, and devices shown on drawings.
E. Raceway Penetrations:
   1. Enter control panels through panel bottom.
   2. Seal penetrations located outdoors. Seal penetrations through building exterior enclosure.
   3. Firestop penetrations through fire rated assemblies. See Section 07 84 00, FIRESTOPPING.
   4. Terminate conduit riser in hot-dip galvanized metal cable terminator. Fill terminator with sealant recommended by cable manufacturer.
F. Control Panels:
   1. Install control panels plumb and level, securely attached to // wall // floor //.

a. Mount panels allowing servicing and testing access.

2. Connect wiring to control modules.

3. Program control modules to provide specified functions.

G. SMS:

1. Coordinate with VA agency’s IT personnel to place computer on local area network or intranet with security system protection levels ensuring only authorized VA personnel have access to system.

2. Program and set-up SMS ensuring full operation.

H. Card Readers:

1. Install card readers. Connect wiring.

2. Program card reader.

I. Door Status Indicators:

1. Install door position switches. Connect wiring.

2. Install RX devices. Locate RX switches away from glazed openings; maximum 1800 mm (6 feet) from door.

J. Install entry control devices. See Section 087100, DOOR HARDWARE. Connect wiring.

K. Video Surveillance System Integration: Program SMS to automatically display designated video surveillance camera when an access control system device signals alarm state.

L. Touch up damaged factory finishes.

1. Repair galvanized surfaces with galvanized repair paint.

3.4 INSTALLATION - WIRING

A. Wiring: See Section 28 05 13, CONDUCTORS AND CABLES FOR ELECTRONIC SAFETY AND SECURITY.

B. Grounding and Bonding: See Section 28 05 26, GROUNDING AND BONDING FOR ELECTRONIC SAFETY AND SECURITY.

C. Raceway Installation: See Section 28 05 33, RACEWAYS AND BOXES FOR ELECTRONIC SAFETY AND SECURITY.

3.5 LABELING

A. Cable and Wires: Install labels on cables at each termination, pull box, and break in conductor run.

1. Labels: Permanent, with contrasting identification alpha or numeric, identifying each cable according to system submittal drawings.

B. Equipment: Label equipment, and equipment inputs and outputs.

1. Permanently affix labels to equipment face with metal screws, permanent mounting devices, or cement.

2. Label equipment corresponding to control source. Label remote control equipment corresponding to controlled equipment.

C. AC Power: Label power panel circuit breaker identifying connected access control panel.

1. Permanently affix labels to equipment face with metal screws, permanent mounting devices or cement.

D. Conduit: Label access control system conduit with permanent marking devices or spray painted stenciling, maximum 3000 mm (10 feet) spacing.

3.6 SYSTEM START-UP

A. Before powering system, verify installation is complete, including:

1. Equipment is set up according to Manufacturer's instructions.
2. Visual inspection ensuring installed equipment is not defective and wiring connections are tight.
3. System wiring continuity and resistance.
4. Grounding and transient protection systems are installed and connected.
5. Power supplies are correct voltage and frequency.

B. Completing system startup does not relieve Contractor of responsibility for incorrect installation, defective equipment items, and Contractor caused resulting collateral damage.

3.7 FIELD QUALITY CONTROL

SPEC WRITER NOTE: Section 01 45 29, TESTING LABORATORY SERVICES includes VA provided testing for large projects and contractor provided testing for small projects. Coordinate testing responsibility.

A. Field Tests: Performed by testing laboratory specified in Section 01 45 29, TESTING LABORATORY SERVICES.

B. Field Representative Services:

1. Observe preparation and initial construction.
2. Provide technical assistance and recommendations.
3. The Contractor shall also be available on an as needed basis to provide assistance with follow-up phases of quality control.
4. Observe system start-up, testing, and certification.
5. Certify system is fully operational according to contract requirements.

C. Upon 30 - 50 Percent System Completion:

1. Certify completed work before continuing installation.
2. Verify components are UL Listed and labeled, and installation is NFPA 70 and NFPA 101 compliant.

SPEC WRITER NOTE: Contracting Officer's Representative will maintain record until project completion. TSS-197 will maintain record for comparison to acceptance test results.

3. Mechanical Inspection: Performed by factory authorized representative verifying proper installation; witnessed and recorded by Contracting Officer's Representative.
4. Perform full acceptance test.

D. Upon 65 - 80 Percent System Completion: Repeat inspections and tests as required by Contracting Officer's Representative.

E. System Protection during Testing: See Section 27 05 00 - COMMON WORK RESULTS FOR COMMUNICATIONS.

F. Acceptance Testing:
   1. Verify system components are authorizing proper credentials at access controlled doors and system alarms are functioning.
      a. Perform visual check and record presence of required access controlled opening components and devices.
      b. Test each opening while in locked status by physically pushing and pulling on door, in and out, and up and down.
      c. Validate door remains in locked position with no visible gaps forming between door and frame at any point along the opening edges.
      d. Door position sensor shall not alarm.
   2. Test each opening and system response for following conditions:
      a. Authorized credential presented.
      b. Unauthorized credential presented.
      c. Wrong pin entered.
      d. Door held open.
      e. Door forced.
   3. Validate tamper switch operation for following devices:
      a. Door position switch. Signal alarm when door strike edge moves maximum 25 mm (1 inch) from closed and latched position.
      b. Control panels.
      c. Card readers.

4. Observe and verify SMS system operation including:
   a. System transaction records.
   b. System alarm and tamper reports.
   c. Graphical map accuracy.
   d. Alarm generation to alarm reporting latency period.
   e. Alarm text indication accuracy.

G. Test Conclusion: See FAR clause 52.246 21, "Warranty of Construction."

H. Post System Testing - Cleaning: See Section 27 05 00 - COMMON WORK RESULTS FOR COMMUNICATIONS.

3.8 TRAINING

A. The Contractor will provide training. The training method shall agree with the precepts of an accepted training methodology such as the Systems Approach to Training that is used by the DoD. No Ad Hoc training will be considered acceptable. Student(s) will be provided printed training materials as well as a CD/DVD copy of the classes. The training must provide the student(s) the ability to: set up the system, maintain the system, trouble shoot problems, recognize system/component failures as well as any nuanced customization of the system for the specific location.

B. Training on each installed system [IE components] will minimally include:

1. Physical Access Control (PACS)
   a. Management of Access Levels
   b. Management of Card Holder Records
   c. Management of Time zone/Reader Modes
   d. Rebooting the system(s)
   e. Basic understanding of software “patch” changes that may impact VA specific Information Technology protocols. (Example would be patching that may clash with Windows environs or virus protection software)

SPEC WRITER NOTE: Provide Visitor Management System training if installed.

2. Visitor Management
   a. Management of Visitor Management tools
3. Overall system(s) maintenance.
   a. Those steps necessary for the basic understanding of: lifecycle maintenance of system to include factors such as: yearly support

agreements, impact of power surges/loss as well as those endemic pieces of knowledge that include preventive maintenance considerations and or tasks.

C. The contractor will provide instruction giving the students sufficient training to be able to effectively operate the system and recognize problems as they arise. All training must include guided practical application exercises to ensure student(s) understanding. Certification of the training/curriculum/rosters will be provided to the COR/CO upon training task completion.

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