



Department of Veteran's Affairs
VA Medical Center
1898 Fort Road
Sheridan, WY 82801

Panic Alarm System Upgrade

Invitation No.

Project No. 666-15-101

For Construction

Date: May 29, 2015

Prepared by:



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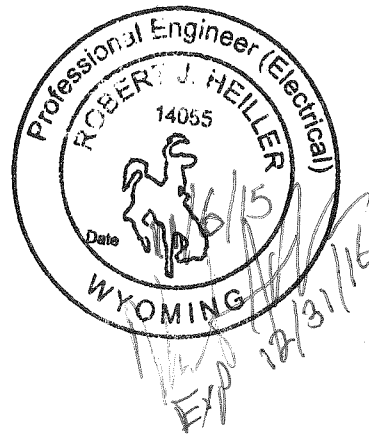
DEPARTMENT OF VETERANS AFFAIRS
VA MEDICAL CENTER
1898 Fort Road, Sheridan WY 82801

SHERIDAN VAMC
PANIC ALARM SYSTEMS UPGRADE
VA PROJECT #666-15-101
SPECIFICATIONS

May 29, 2015

ELECTRICAL ENGINEER

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**DEPARTMENT OF VETERANS AFFAIRS
VHA MASTER SPECIFICATIONS**

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SECTION 00 01 15
LIST OF DRAWING SHEETS

The drawings listed below accompanying this specification form a part of the contract.

SECURITY DEMOLITION DRAWINGS

<u>Drawing No.</u>	<u>Title</u>
TY000	Title, index and Symbol Sheet
TY001	Security Site Plan
TY100	Demolition Plan - Building #3 - Basement Floor Plan
TY101	Demolition Plan - Building #3 - First Floor Plan
TY102	Demolition Plan - Building #3 - Second Floor Plan
TY103	Demolition Plan - Building #4 - Basement Floor Plan
TY104	Demolition Plan - Building #4 - First Floor Plan
TY105	Demolition Plan - Building #4 - Second Floor Plan
TY106	Demolition Plan - Building #6 - Basement Floor Plan
TY107	Demolition Plan - Building #6 - First Floor Plan
TY108	Demolition Plan - Building #6 - Second Floor Plan
TY109	Demolition Plan - Building #7 - Basement Floor Plan
TY110	Demolition Plan - Building #7 - First Floor Plan
TY111	Demolition Plan - Building #7 - Second Floor Plan
TY112	Demolition Plan - Building #8 - Basement Floor Plan
TY113	Demolition Plan - Building #8 - First Floor Plan
TY114	Demolition Plan - Building #8 - Second Floor Plan
TY115	Demolition Plan - Building #9 - Basement Floor Plan
TY116	Demolition Plan - Building #9 - First Floor Plan
TY117	Demolition Plan - Building #9 - Second Floor Plan
TY118	Demolition Plan - Building #64 - Basement Floor Plan
TY119	Demolition Plan - Building #64 - First Floor Plan
TY120	Demolition Plan - Building #64 - Second Floor Plan
TY121	Demolition Plan - Building #64 - Third Floor Plan
TY122	Demolition Plan - Building #71 - First Floor Plan - Area A
TY123	Demolition Plan - Building #71 - First Floor Plan - Area B
TY124	Demolition Plan - Building #71 - First Floor Plan - Area C
TY125	Demolition Plan - Building #71 - Second Floor Plan - Area A
TY126	Demolition Plan - Building #71 - Second Floor Plan - Area B

TY127	Demolition Plan - Building #71 - Second Floor Plan - Area C
TY128	Demolition Plan - Building #71 - Third Floor Plan - Area A
TY129	Demolition Plan - Building #71 - Third Floor Plan - Area B
TY130	Demolition Plan - Building #71 - Third Floor Plan - Area C
TY131	Demolition Plan - Building #86 - First Floor Plan - Area A
TY132	Demolition Plan - Building #86 - First Floor Plan - Area B
TY133	Demolition Plan - Building #86 - Second Floor Plan - Area A
TY134	Demolition Plan - Building #86 - Second Floor Plan - Area B
TY135	Demolition Plan - Building #86 - Third Floor Plan - Area A
TY136	Demolition Plan - Building #86 - Third Floor Plan - Area B

SECURITY DRAWINGS

<u>Drawing No.</u>	<u>Title</u>
TY200	Demolition Plan - Building #3 - Basement Floor Plan
TY201	Demolition Plan - Building #3 - First Floor Plan
TY202	Demolition Plan - Building #3 - Second Floor Plan
TY203	Demolition Plan - Building #4 - Basement Floor Plan
TY204	Demolition Plan - Building #4 - First Floor Plan
TY205	Demolition Plan - Building #4 - Second Floor Plan
TY206	Demolition Plan - Building #6 - Basement Floor Plan
TY207	Demolition Plan - Building #6 - First Floor Plan
TY208	Demolition Plan - Building #6 - Second Floor Plan
TY209	Demolition Plan - Building #7 - Basement Floor Plan
TY210	Demolition Plan - Building #7 - First Floor Plan
TY211	Demolition Plan - Building #7 - Second Floor Plan
TY212	Demolition Plan - Building #8 - Basement Floor Plan
TY213	Demolition Plan - Building #8 - First Floor Plan
TY214	Demolition Plan - Building #8 - Second Floor Plan
TY215	Demolition Plan - Building #9 - Basement Floor Plan
TY216	Demolition Plan - Building #9 - First Floor Plan
TY217	Demolition Plan - Building #9 - Second Floor Plan
TY218	Demolition Plan - Building #64 - Basement Floor Plan
TY219	Demolition Plan - Building #64 - First Floor Plan
TY220	Demolition Plan - Building #64 - Second Floor Plan
TY221	Demolition Plan - Building #64 - Third Floor Plan
TY222	Demolition Plan - Building #71 - First Floor Plan - Area A

TY223	Demolition Plan - Building #71 - First Floor Plan - Area B
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SECTION 01 00 00
GENERAL REQUIREMENTS

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- 1.8 Use of roadways
- 1.9 Availability and use of utility services

**SECTION 01 00 00
GENERAL REQUIREMENTS**

1.1 GENERAL INTENTION

- A. Contractor shall furnish labor and materials and perform work for as required by drawings and specifications for removal and installation of the new panic alarm system.
- B. Visits to the site by Bidders may be made only by appointment with the Medical Center Engineering Officer.
- C. Offices of Burns & McDonnell, as Engineers, will render certain technical services during construction. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by Contracting Officer or his duly authorized representative.
- D. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- E. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.
- F. Training:
 - 1. All employees of general contractor or subcontractors shall have the OSHA certified Construction Safety course and /or other relevant competency training, as determined by VA CP with input from the ICRA team. See section 01 30 00.24 for requirements.
 - 2. Submit training records of all such employees for approval before the start of work.

1.2 STATEMENT OF BID ITEMS

- A. **ITEM 1, BASE BID:** Sheridan VAMC Panic Alarm Services Work includes computer based panic alarm system.
 - 1. Building 03, building 04, building 06, building 07, building 08, building 09, building 64, building 71 and building 86.
 - 2. The contractor shall install panic alarm application and keyboard labels on the quantity of computers noted on the schedule on drawing sheet TY600.

3. After application and keyboard label installation test operation of computer based panic alarm and log results of testing.
4. Provide instruction sheet detailing proper use of computer based panic alarm and provide one sheet at each computer.
5. See additional requirements in the drawings and specifications.

B. ITEM 2, ALTERNATE #1: Sheridan VAMC Panic Alarm Services Work includes computer based panic alarm system.

1. Building 01, building 02, building 05, building 31, building 32, building 35, building 37, building 42, building 55, building 61, building 87 and building 90.
2. The contractor shall install panic alarm application and keyboard labels on the quantity of computers noted on the schedule on drawing sheet TY600.
3. After application and keyboard label installation test operation of computer based panic alarm and log results of testing.
4. Provide instruction sheet detailing proper use of computer based panic alarm and provide one sheet at each computer.
5. See additional requirements in the drawings and specifications.

C. ITEM 3, ALTERNATE #2: Sheridan VAMC Panic Alarm Services Work includes computer based panic alarm system.

1. Off site buildings: Gillette, Casper and CBOC, and the following:

Afton VA Outreach Clinic
125 South Washington
Afton, WY 83110

Casper VA Outpatient Clinic
4140 South Poplar Street
Casper, WY 82601

Evanston Primary Care Telehealth Outreach Clinic (PCTOC)
1565 S. Hwy 150 #E
Evanston, WY 82930

Gillette VA Outpatient Clinic
604 Express Drive
Gillette, WY 82718

Powell VA Outpatient Clinic
777 Avenue H.
Powell, WY 82435

Riverton VA Outpatient Clinic
2300 Rose Lane
Riverton, WY 82501

Rock Springs VA Outpatient Clinic

1401 Gateway Blvd
Rock Springs, WY 82901

Worland Primary Care Telehealth Outreach Clinic (PCTOC)

510 South 15th Street, Suite D
Worland, WY 82401

2. The contractor shall install panic alarm application and keyboard labels on the quantity of computers noted on the schedule on drawing sheet TY600.
3. After application and keyboard label installation test operation of computer based panic alarm and log results of testing.
4. Provide instruction sheet detailing proper use of computer based panic alarm and provide one sheet at each computer.
5. See additional requirements in the drawings and specifications.

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, PDF specifications and drawings will be furnished.
- B. Sets of drawings and specifications may be made by the Contractor, at Contractor's expense, from reproducible PDF furnished by Issuing Office.

1.4 OPERATIONS AND STORAGE AREAS

- A. To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:
- B. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others.
- C. Workmen are subject to rules of Medical Center applicable to their conduct.
- D. Working space and space available for storing materials shall be coordinated with the COTR.
- E. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles.

1.5 PROTECTION OF EXISTING ELEMENTS

- A. The Contractor shall preserve and protect all structures, interior finishes, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site.
- B. The Contractor shall protect from damage all existing improvements. The Contractor shall repair any damage to those facilities resulting from failure to comply with the requirements of this contract or failure to

exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

1.6 RESTORATION

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COTR before it is disturbed. Materials and workmanship used in restoring work shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.
- B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed as a result of performing required new work, shall be patched and/or repaired and left in as good condition as existed before commencing work.

1.7 AS-BUILT DRAWINGS

- A. The contractor shall maintain two full size sets of as-built drawings which will be kept current during construction of the project, to include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the COTR's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the COTR within 15 calendar days after the acceptance of the project by the COTR.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

1.8 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on Medical Center property.

1.9 AVAILABILITY AND USE OF UTILITY SERVICES

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets.

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SECTION 01 30 00.24
OTHER ADMINISTRATIVE AND SPECIAL REQUIREMENTS

PART 1 - GENERAL

Attachments: At the end of this section:

- A. Construction Safety Policy
- B. Hazardous Materials
- C. Recycling Materials
- D. Infection Prevention Measures
- E. Environmental Protection

1.1 CONTRACTOR'S EMPLOYEE IDENTIFICATION

- A. The Contractor shall be responsible for furnishing to each employee/
subcontractor engaged in the work to display PIV ID identification.
Identification must be worn at all times. No exceptions.
 - 1. Contractor shall contact the Contracting PIV Sponsor. A complete review
of the requirements will be discussed.
 - a. Each person will be required to present one form of I.D. in order to
start the PIV ID badge process.
 - 2. Contact Badging office.
 - a. First appointment: picture taken.
 - b. Second appointment: pick up badges.
 - 3. General information:
 - a. PIV ID badges are required. No exception will be allowed.
 - b. No walk-ins will be accepted. Appointments must be made.
 - c. Please be on time for appointments.
 - d. Badging office is located in the basement of building 4.

1.2 DAILY WORK SCHEDULES AND WEEKLY COORDINATION MEETINGS:

- A. In order to closely coordinate work under this contract, the Contractor
shall prepare a written agenda/meeting minutes and attend a weekly
coordination meeting with the COTR and Using Service at which time the
Contractor shall submit for coordination and approval, his proposed daily
work schedule for the next two week period. The Contractor shall provide a
copy of modifications (MODs), Requests for Information (RFIs) and any other
information that is needed in the minutes of the meeting. Required
temporary utility interruptions, time and duration of interruptions, and
protection of adjoining areas shall be included with the Contractor's
proposed 2-week work schedule. At this meeting, the Contractor shall also
submit his schedule of proposed dates and times of all preparatory

inspections to be performed during the next 2 weeks. The items of work listed on the proposed 2-week schedule are to be keyed to the NAS by activity number and description for each activity anticipated to be performed during the next 2-week period. Coordination action by the COTR relative to these schedules will be accomplished during these weekly meetings. Daily reports shall be completed and given to the COTR or Representative within 24 hours of work.

1.3 LABOR CONDITIONS APPLICABLE TO TEMPORARY FACILITIES:

- A. It is the position of the Department of Defense that the Davis-Bacon Act, 40 U.S.C. 276a is applicable to temporary facilities such as job headquarters, tool yards, batch plants, borrow pits, sandpits, rock quarries, and similar operations, provided they are dedicated exclusively, or nearly so, to performance of the contract or project, and provided they are adjacent or virtually adjacent to the site of the work and are established after receipt of the proposal or bid.

1.4 DRAWING SCALES:

- A. All scales shown are based on a standard drawing size of 24" x 36". If any other size drawings are furnished or plotted, the Contractor shall adjust the scales accordingly. The Contractor shall also advise his sub-contractors of the above.

1.5 FEDERAL HOLIDAYS:

- A. The following Federal legal holidays are observed by this installation:

New Year's Day	1 January
Martin Luther King's Birthday	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	4 July
Labor Day	First Monday in September
Columbus Day	Second Monday in October
Veterans Day	11 November
Thanksgiving Day	Fourth Thursday in November
Christmas Day	25 December

If a wage determination applies the number of holidays specified on it, it has priority over this clause.

1.6 MEDICAL CENTER HOURS:

- A. Medical Center operation hours are 7:30 a.m. to 4:00 p.m. daily (Monday through Friday), excluding federal holidays. Access to the Medical Center during other times must be requested in writing from the COTR. Contractor may work on Federal holidays, weekends, and outside of normal operation hours with advance permission.

1.7 SPECIAL SHERIDAN, WYOMING VETERANS AFFAIRS MEDICAL CENTER REQUIREMENTS

A. Construction security requirements

1. Security Plan:

- a. All employees of General Contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- b. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project. Plan needs to include measures to prevent patients from acquiring access to Contractor's tools and material.
- c. The General Contractor is responsible for assuring that all subcontractors working on the project and their employees also comply with these regulations.

2. Security Procedures:

- a. General Contractor's employees shall not enter the project site without appropriate ID badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.
- b. No photography of VA premises is allowed without written permission of the COTR.
- c. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the COTR.

B. Document Control:

1. Before starting any work, the General Contractor / Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of "sensitive information".

2. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This information shall be shared only with those with a specific need to accomplish the project.
 3. Certain documents, sketches, videos or photographs and drawings may be marked "Law Enforcement Sensitive" or "Sensitive Unclassified". Secure such information in separate containers and limit the access to only those who will need it for the project. Return the information to the COTR upon request.
 4. These security documents shall not be removed or transmitted from the project site without the written approval of COTR.
 5. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a matter acceptable to the VA.
 6. Notify COTR and Site Security Officer immediately when there is a loss or compromise of "sensitive information".
 7. All electronic information shall be stored in a specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
 - a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
 - b. "Sensitive information" including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.
- C. Motor Vehicle Restrictions:
1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.

1.8 FIRE SAFETY REQUIREMENTS:

- A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.
1. American Society for Testing and Materials (ASTM):
E84-2008 Surface Burning Characteristics of Building Materials
 2. National Fire Protection Association (NFPA):
10-2006 Standard for Portable Fire Extinguishers
30-3007 Flammable and Combustible Liquids Code
51B-2003 Standard for Fire Prevention During Welding, Cutting and Other Hot Work

70-2007 National Electrical Code

241-2004 Standard for Safeguarding Construction, Alteration, and
Demolition Operations

3. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to COTR and Facility Safety Manager for review for compliance with contract requirements. Prior to any worker for the Contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the general contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, etc. Documentation shall be provided to the COTR that individuals have undergone Contractor's safety briefing.
4. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
5. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241.
6. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with COTR and Facility Safety Manager.
7. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to COTR and Facility Safety Manager.
8. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
9. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems.
10. Smoking: Smoking is prohibited except in designated smoking areas.

1.9 INFECTION PREVENTION MEASURES:

- A. See Attachment D at the end of this section.

1.10 FINAL CLEANUP:

- A. Upon completion of project, or as work progresses, remove all construction debris. Wipe-down of all surfaces in the construction area.

1.11 DOCUMENT EXISTING:

- A. Survey: Before any work is started, the Contractor shall make a thorough survey of the existing conditions with the COTR and furnish a report, signed by both.
 - 1. Re-Survey: Thirty days before expected partial or final inspection date, the Contractor and COTR together shall make a thorough re-survey of the areas. Re-survey report shall also list any damage caused by Contractor.

1.12 HISTORIC PRESERVATION:

- A. Where the Contractor or any of the Contractor's employees, prior to, or during the construction work, are advised of or discover any possible archeological, historical and/or cultural resources, the Contractor shall immediately notify the COTR verbally, and then with a written follow up.

1.13 CONFLICTS

- A. In the event of a conflict among the drawings and specifications, the more stringent or restrictive code, manual etc, shall take precedence and shall be followed. Contractor shall advise the COTR of any and all conflicts. Resolution options shall be developed and shall consider all technical aspects including but not limited to, VA compliance with VA requirements/ standards; efficiency, safety, cost in time and potential impact to the faculty operations. The contractor shall make a proposal with a minimum of three (3) recommended resolution to rectify the conflict as outlined below.
 - 1. Resolutions shall avoid contract constructive changes to the project.
 - 2. In the interest of product efficiency, where possible, all small daily, routine or typical problems and or conflicts shall first be resolved at the lowest level (A/E) prior to engaging the COTR.
 - 3. Larger problems, conflicts, deficiencies, etc (issues in which financial adjustments are likely required) with design, construction, administration, etc. shall be concisely defined and presented to the VA COTR.
 - 4. The CO and COTR shall provide final direction.
 - 5. All requirements from the CO and COTR shall be complied with.

1.14 TOOLS

- A. Tools are required to be in direct supervision at all times.

PART 2 - PRODUCTS (NOT USED)
PART 3 - EXECUTION (NOT USED)

ATTACHMENT A (to section 01 30 00.24)
CONSTRUCTION SAFETY POLICY

Medical Center Memorandum
No. 140-02

VA Medical Center
Sheridan, WY
June 6, 2012

1. **SUMMARY:** MCM 140-02 dated April 7, 2009, is rescinded. This update reflects minor changes in policy.
2. **PURPOSE:** To establish policy and procedures to ensure that construction projects will be planned, coordinated and regularly inspected to ensure compliance with applicable fire, infection control, environmental, security, safety and occupational health regulations and policies.
3. **POLICY:**
 - a. In order to protect patients, staff, visitors and contractors from safety and health hazards associated with construction activities, this policy is established for the VA Medical Center and Community Based Outpatient Clinics where construction is undertaken. This policy requires that strategies be established to control the hazards inherent in conducting construction or maintenance operations in areas that are occupied by patients, visitors or healthcare staff. These strategies include the assignment of appropriate responsibility at all levels of the organization, establishing and maintaining the necessary expertise to manage an effective construction health and safety program, applying technical guidance and best practices to assist in managing the program, and providing a construction safety multi-disciplinary team to oversee and enforce the application of this policy.
 - b. Construction activities shall be defined to include delegated minor or non- recurring maintenance projects performed by contractors or purchase and hire personnel, as well as station-level projects performed by contractors, purchase and hire personnel or station maintenance personnel. Construction shall also include non- delegated projects including majors. Sheridan VAMC shall coordinate those construction impacts with the project's Resident Engineer through a Sheridan VA single point of contact. This definition also applies to enhanced-use and lease projects related to structures for which Sheridan VAMC maintains management responsibility or authority.

- c. The intention of this construction safety program is to reduce the potential for injury and illness to VA patients, employees and visitors that might result from unsafe construction activities; to increase the level of construction safety expertise of VA employees; to decrease the potential for serious Occupational Safety and Health Administration (OSHA) violations; to provide a guideline for addressing safety-related construction issues; and to reduce the potential for property and liability exposures due to construction-related activities.
- d. Proper application of this program will reduce the potential for liability, which could result from construction accidents, life safety deficiencies or infection control failures.

4. **RESPONSIBILITY:**

a. Medical Center Director:

- (1) Establish and monitor an effective facility construction safety program.
- (2) Establish a multidisciplinary team (Construction Safety Committee) with representatives from the following program areas:
 - a) Infection Control
 - b) Patient Safety
 - c) Occupational Safety and Health
 - d) Police
 - e) Engineering
 - f) Local Union Safety Representatives
 - g) Green Environmental Management Systems (GEMS)
- (3) Ensure appropriate staff receives training in construction safety.
- (4) Ensure Competent Persons (CPs) are designated who have the necessary training, experience and authority to carry out their responsibilities with respect to safety and health during construction activities.

Note: OSHA Title 29 Code of Federal regulations (CFR) 1926.32(f) states "competent person means one who is capable of identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, and who

has the authorization to take prompt corrective measures to eliminate them." Qualified VA staff must be appointed to serve as CP for construction work performed by VA employees. The name and qualifications of the CP must be identified in writing and noted in the minutes of the facility safety committee (or equivalent body) responsible for the safety management functions as defined under The Joint Commission Environment of Care Standards.

- (5) Ensure the Construction Safety Committee functions to:
 - a) Protect patients, visitors, and employees from traumatic injury, as well as occupational and facility-associated infections.
 - b) Oversee compliance with OSHA and State construction safety regulations.
 - c) Oversee compliance with Environmental Protection Agency (EPA) and state environmental regulations.
 - d) Respond to, investigate and report violations of these policies to upper management.
- (6) Develop and implement a written facility policy addressing the responsibilities of the Construction Safety Committee.
- (7) Ensure that VA staff receives training as follows:
 - a) Appointed CPs, Contracting Officer's Representatives (CORs) and facility Safety Program Managers complete OSHA's 30-hour construction safety course.
 - b) Engineering supervisors and foremen who oversee construction work complete OSHA's 10-hour or 30-hour construction safety course.
 - c) All members of the Construction Safety Committee have the 10-hour OSHA construction safety training.
- (8) Ensure that construction contracts awarded after July 31, 2005, specify that on-site general and sub-contractor's construction workers have completed the OSHA 10-hour construction worker course, the 30-hour construction safety course, or other relevant competency training, as determined by the VA CP with input from the Construction Safety Committee. The determination for training is based on the project hazards and complexity,

State and Federal regulations and VA requirements.

- b. Associate Director: Has delegated responsibility from the Medical Center Director, as appropriate, for oversight of these policies.
- c. Chief, Facilities Management Service:
 - (1) Has delegated responsibility from the Associate Director, as appropriate, for oversight of these policies.
 - (2) Ensures policies are addressed by all sections of engineering having oversight of construction.
- d. Supervisory Engineer:
 - (1) Works through safety and health staff, CORs, maintenance staff, contractors and the Construction Safety Committee to plan, coordinate and monitor the construction safety program for all projects at the facility.
 - (2) Participates in OSHA's 30-hour construction safety training and refresher courses.
 - (3) Participates in periodic inspections of construction sites to ensure compliance with safety elements of the construction contract and performance of the program.
 - (4) Serves on the facility Construction Safety Committee/subcommittee to ensure contract requirements meet the committee's approval.
 - (5) Supports the CPs, Safety Officer, Infection Control Practitioner, Contracting Officer and engineering staff in implementing the construction safety program.
 - (6) Works with contracting staff to ensure competent staff are assigned as CORs to oversee work.
- e. Maintenance Supervisor:
 - (1) Participates in OSHA's 30-hour construction safety training and refresher courses.
 - (2) Participates in periodic inspections of in-house construction sites to ensure compliance with safety elements of the construction contract and performance of the program.
 - (3) Ensures in-house workforces have necessary training and competency for tasks being performed.

- f. Biomedical Technicians: Ensures all construction accomplished in support of major equipment installations (as a part of the equipment purchase) are in compliance with this policy and these procedures.
- g. Contracting Officer:
 - (1) Participation in OSHA's 30-hour construction safety training and refresher courses.
 - (2) Ensures safety elements of this policy are included in each construction contract.
 - (3) Evaluates past safety records of prospective contractors and considers this information in the contract award process.
 - (4) Supports the CP, Safety Officer, Resident Engineer, and appropriate staff in implementing the construction safety program.
 - (5) Works with the Projects Engineer to assign competent CORs as necessary.
- h. Contracting Officer's Representative (COTR):
 - (1) Participates in OSHA's 30-hour construction safety training program and refresher courses.
 - (2) Is trained and designated as a CP for the purposes of this policy.
 - (3) As the team member most familiar with the technical aspects of his/her designated project, inspects his/her projects on a daily basis to identify and document deficiencies in the work including safety and infection control, and acts to correct deficiencies on the spot whenever possible.
 - (4) Reports all deficiencies to the multi-disciplinary team whether corrected or not.
 - (5) Consults with other members of the team, as appropriate, to assure that all deficiencies are handled properly.
 - (6) Consults with members of the team during design or planning to establish the risks to be addressed and the degree of protection appropriate to the situation.
 - (7) Monitors compliance with relevant safety and health requirements by the contractor in the field.

i. VA Competent Person:

- (1) Reviews project design submissions to assure project compliance with these policies.
- (2) Monitors and inspects construction and renovation work sites weekly to assure compliance with these policies.
- (3) Maintains competence in the general inspection of work sites during construction, renovation and maintenance, which fall under the purview of this policy.
- (4) Maintains higher level of competency when serving as CP for VA staff performing activities requiring CPs, such as fall protection, scaffolds and trenching. *Note: The VA CP does not take the place of the contractor's competent person nor acts on their behalf. The VA CP determines if the contractor is meeting VA standards and contractual requirements for safety and OSHA compliance. When these standards and contract requirements are not being met, the VA Contracting Officer's Technical Representative (COTR) and/or CP must take immediate action to prevent injury, non-compliance, and/or property damage.*
- (5) Participates in OSHA's 30-hour construction safety training and refresher courses.
- (6) Ensures that the specific safety requirements for construction operations are implemented and continuously observed during the course of all projects subject to this policy.
- (7) Participates in the facility multidisciplinary team established for construction safety.
- (8) Conducts periodic inspections of construction sites to ensure compliance with safety elements of the construction contract using the attached Job Safety Check Sheet.
- (9) Approves corrective actions.
- (10) Stops unsafe work or activities not complying with the contract or OSHA, and notifies the Contracting Officer immediately.
- (11) Communicates mainly with the contractor's CP on questions of safety.

j. Safety Manager:

- (1) Participates in OSHA's 30-hour construction safety training and refresher courses.
- (2) Ensures that VHA policy for the construction safety program is implemented within the Medical Center.
- (3) Chairs the Construction Safety Committee.
- (4) Ensures necessary and relevant Interim Life Safety Measures ISLM'S are established and implemented. Conducts required additional training for compliance with identified ILSMs.
- (5) Renders technical advice and assistance as required in connection with life safety and fire protection issues during construction and project design and development.
- (6) Oversees compliance with OSHA and other relevant construction safety regulations.
- (7) Ensures VAMC staff are trained as required by this memorandum.
- (8) Ensures the construction safety program includes appropriate periodic construction site hazard surveillance.
- (9) Stops unsafe work or activities not complying with the contract or OSHA policy, and notifies the Contracting Officer/COTR immediately.

k. Infection Control Nurse:

- (1) Advises and/or provides recommendations on exposure mitigation and the prevention of facility associated infections in patients, staff, and visitors.
- (2) Coordinates with the manager of each construction project (in-house and contract) to conduct an Infection Control Risk Assessment (ICRA) during the planning and/or design stage of the work. ICRAs must be documented in writing and focus on eliminating, or minimizing, the risk of infection during construction and renovation activities.
- (3) Monitors infection control during construction activities as indicated in ICRA for that project.

l. GEMS Coordinator:

- (1) Provides guidance on environmental issues during design stage.
- (2) Monitors contractor conformance to contract specifications, including environmental compliance and pollution prevention.

m. Construction Safety Committee (Multi-Disciplinary Team):

- (1) Meets monthly when construction projects are on-going and files reports to the facility Environment of Care Committee.
- (2) Determines the scope and depth of safety, infection control, environmental and security procedures appropriate for all construction work.
- (3) Develops threshold criteria for each level of intervention. For example, after review, some projects may require only VA CP surveillance to ensure employee safety and OSHA compliance, while other projects will require all disciplines to be involved.
- (4) Ensures submittals for contract construction or renovation work include the names, qualifications, and training dates for the contractors' CPs designated to administer the site-specific safety program, as well as the CPs for other activities as required by OSHA regulation (such as scaffolds, cranes, excavations, etc.).
- (5) Conducts Infection Control Risk Assessments (ICRA) using the attached ICRA Matrix. Using current AIA Guidelines, the staff must conduct and document ICRA for all construction projects during the design or planning stage of the work. ICRAs must be documented in writing and focus on eliminating or minimizing the risk of infection during construction and renovation activities. The complexity of the ICRA report is determined by the complexity of the threats posed by the construction project. Assigned VA staff, including resident engineers or project managers for major construction, must maintain compliance during the construction phase of the work.
- (6) Identifies Interim Life Safety Measures (ILSMs). Facility safety and engineering staff must ensure that ILSMs are implemented on all construction work in accordance with The Joint Commission Environment of Care Standards. ILSMs are required when construction activities pose significant temporary Life Safety Code deficiencies or hazards. Each medical facility must have a local policy addressing ILSMs in accordance with Joint Commission requirements. Implementing ILSMs is the responsibility of the local medical facility and

construction contractors in accordance with VA Master Specification 01010, General Requirements.

- (7) Participates in all phases of construction work from planning through completion. This includes review and approval the construction plans, contract specifications, and contract submittals related to construction safety and health and any other documents that may assist in the implementation of an effective construction safety program. The Construction Safety Committee must be involved early in the process and continue oversight on a regular basis to avoid costly and disruptive delays.
- (8) Ensures the construction safety program includes periodic construction site hazard surveillance activities with appropriate membership, scope, and frequency for each project as determined by the CP, the ILSMs and ICRA reports. Hazard surveillance activities must be documented as to date, time, membership of the inspection team, deficiencies, type of corrective action, and time and date of correction. Ensures corrective actions are tracked to completion.
- (9) Implements procedures to ensure general contractors exercise their responsibility for ensuring subcontractors comply with this safety and health policy, and all other related contract requirements.
- (10) Ensures all contractors entering VA property comply with the security management program. As a minimum, contractors must notify and obtain permission of the VA Police, be identified by project and employer, and be restricted from unauthorized access.
- (11) Requires the contractors' CPs to implement and maintain effective safety programs that identify and control hazards that may cause injury or illness to VA patients, staff, visitors, and contractor employees.
- (12) Evaluates the effectiveness of the construction safety program in an annual report to the facility safety committee.

n. Police Service:

- (1) Ensures all contractors entering VAMC property comply with the security management program.

- (2) Conducts periodic surveillance of site security and the integrity of barriers for trenches and other hazards.

5. **REFERENCES:**

- a. VHA Emerging Pathogens Guidebook, 1998, Center for Engineering and Occupational Safety and Health available electronically at:
<http://vaww.ceosh.med.va.gov/>
- b. National Fire Protection Association (NFPA) Standards. *Note: Current NFPA Standards are available at facility and/or VISN Safety and Engineering and/or Facilities Management Offices.*
- c. APIC Infection Control Tool Kit Series: Construction and Renovation, available from the Association of Professional Infection Control Practitioners and Epidemiologists (APIC).
- d. Guidelines for Design and Construction of Hospital and Health Care Facilities, American Institute of Architects, Washington DC 2001.
- e. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health, Bureau of Environmental and Occupational Disease Epidemiology, at
<http://www.lchd.org/environhealth/aq/pdfs/NYC%20DOH%20Guidelines.pdf>
- f. Infection Control During Construction. A Guide to Prevention and Joint Commission Compliance, Wayne Hansen, Editor, Opus Communications, 2002.
- g. OSHA Regulations for Construction Safety, 29 CFR 1926, available at: <http://www.osha.gov/>
- h. Comprehensive Accreditation Manual, The Joint Commission
- i. VHA Directives 7700 and 7701, Occupational Safety and Health.
- j. VHA Handbook 7701.1, Occupational Safety and Health Program Procedures.
- k. Construction Safety Council, at: <http://www.buildsafe.org/>
- l. VHA Directive 2004-012, Safety and Health During Construction Activities.

6. **RESPONSIBLE OFFICIAL:** Occupational Safety and Health Manager
Debra L. Hirschman
Medical Center
Director

This is to certify that this MCM has had its 1st Annual Review by the Responsible Official.

Responsible Official

Date

This is to certify that this MCM has had its 2nd Annual Review by the Responsible Official.

Responsible Official

Date

Attachment B (to section 01 30 00.24)

HAZARDOUS MATERIALS

- A. The contractor should not expect to find asbestos and lead paint.
- B. If Hazardous Materials and Hazardous Waste is found: The Contractor shall contact the COTR immediately.
- C. Copies of the following listed CFR titles may be obtained from the Government Printing Office:
 - 40 CFR 261 Identification and Listing of Hazardous Waste
 - 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
 - 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste
 - 40 CFR 761 PCB Manufacturing, Processing, Distribution in Commerce, and use Prohibitions
 - 49 CFR 172 Hazardous Material tables and Hazardous Material Communications Regulations
 - 49 CFR 173 Shippers - General Requirements for Shipments and Packaging
 - 49 CFR 173 Subpart A General
 - 49 CFR 173 Subpart B Preparation of Hazardous Material for Transportation
 - 49 CFR 173 Subpart J Other Regulated Material; Definitions and Preparation
 - TSCA Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7

Attachment C (to section 01 30 00.24)
RECYCLING MATERIAL

- A. Recycle all locally recyclable materials. At the start of project provide a written demolition debris management plan to COTR.
1. Contractor shall provide storage receptacles on site, or store offsite.

Attachment D (to section 01 30 00.24)
INFECTION PREVENTION MEASURES

- A. Implement the requirements of VAMC's Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.
- B. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by ICRA Group. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to the COTR for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
 - 1. All personnel involved in the demolition and construction activity shall be educated and trained in infection prevention measures established by the medical center.
- C. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:
 - 1. In case of any problem, the medical center, along with assistance from the contractor, shall conduct an environmental assessment to find and eliminate the source.
- D. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.
 - 1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by Resident Engineer. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.

2. Do not perform dust producing tasks within occupied areas without the approval of the COTR. For construction in any areas that will remain jointly occupied by the medical Center and Contractor's workers, the Contractor shall:
 - a. Provide dust proof temporary wall barriers to separate the construction work from the operational areas. 'Zip wall' type of wall will be acceptable. Coordinate location requirement with the COTR.
 - b. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600mm x 900mm (24" x 36") shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.
 - c. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently.
 - d. Remove debris as they are created. The contractor shall not haul debris through patient-care areas without prior approval of the COTR and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.
 - e. Using a HEPA vacuum, clean inside the barrier and vacuum ceiling tile prior to replacement. Any access panels opened for investigation beyond sealed areas shall be sealed immediately when unattended.
 - f. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.
 - g. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

h. Attachment E (to section 01 30 00.24)

ENVIRONMENTAL PROTECTION-1

- A. This section specifies the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.
- B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
1. Adversely affect human health or welfare,
 2. Unfavorably alter ecological balances of importance to human life,
 3. Effect other species of importance to humankind, or;
 4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.
- C. Definitions of Pollutants:
1. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
 2. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
 3. Sediment: Soil and other debris that has been eroded and transported by runoff water.
 4. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
 5. Surface Discharge: The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "water of the United States" and would require a permit to discharge water from the governing agency.
 6. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.

7. Sanitary Wastes:

- a. Sewage: Domestic sanitary sewage and human and animal waste.
- b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

EP-2. QUALITY CONTROL

- A. Establish and maintain quality control for the environmental protection of all items set forth herein.
- B. Record on daily reports any problems in complying with laws, regulations, and ordinances. Note any corrective action taken.

EP-3. REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. U.S. National Archives and Records Administration (NARA):
33 CFR 328 Definitions

EP-4. SUBMITTALS

- A. In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
 - 1. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the COTR to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the Resident Engineer for approval, a written Environmental Protection Plan including, but not limited to, the following:
 - a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.
 - b. A list of Federal, State, and local laws, pollution control, noise control that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
 - c. Procedures to provide the environmental protection that comply with the applicable laws and regulations. Describe the procedures to correct pollution of the environment due to accident, natural

causes, or failure to follow the procedures as described in the Environmental Protection Plan.

- B. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures.

EP-5. PROTECTION OF ENVIRONMENTAL RESOURCES

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract.
1. Protection of Landscape: Protect trees, shrubs, vines, grasses, land forms, and other landscape features.
 2. Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment. Place solid wastes (in containers that are emptied on a regular schedule. Transport all solid waste off Government property and dispose of waste in compliance with Federal, State, and local requirements.
 3. Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.
 4. Handle discarded materials other than those included in the solid waste category as directed by the COTR.
- B. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the COTR. Maintain noise-produced work at or below the decibel levels and within the time periods specified.
1. Perform construction activities involving repetitive, high-level impact noise only between 8:00 a.m. and 4:00 pm unless otherwise permitted by the Resident Engineer. Repetitive impact noise on the property shall not exceed the following dB limitations:

Time Duration of Impact Noise	Sound Level in dB
More than 12 minutes in any hour	70
Less than 30 seconds of any hour	85
Less than three minutes of any hour	80
Less than 12 minutes of any hour	75

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SECTION 01 33 23
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- 1-1. Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1-2. For the purposes of this contract, samples, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1-3. Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Submit one submittal (all required information) for each specification section. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:
 - A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;
 - B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
 - C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- 1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract - required items. Delays attributable to untimely and rejected submittals will not serve as a basis for extending contract time for completion.
- 1-5. Submittals will be reviewed for compliance with contract requirements by Engineer, and action thereon will be taken by Resident Engineer on behalf of the Contracting Officer.
- 1-6. Upon receipt of submittals, Engineer will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file

and identification number to expedite replies relative to previously approved or disapproved submittals.

- 1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.
- 1-8. Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Engineer. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Engineer assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1-9. Submittals must be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
 - A. Submit samples required in quadruplicate. Submit other samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified.
 - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall contain the list of items, name of Medical Center, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for approval.

1. A copy of letter must be enclosed with items, and any items received without identification letter will be considered "unclaimed goods" and held for a limited time only.
 2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Medical Center, name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
 3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
- C. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.
- D. Approved samples will be kept on file by the Resident Engineer at the site until completion of contract, at which time such samples will be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.
- E. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.
1. For each drawing required, submit one legible photographic paper or vellum reproducible.
 2. Reproducible shall be full size.
 3. Each drawing shall have marked thereon, proper descriptive title, including /Medical Center location, project number, manufacturer's

number, reference to contract drawing number, detail Section Number, and Specification Section Number.

4. A space 120 mm by 125 mm (4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
 5. Submit drawings, ROLLED WITHIN A MAILING TUBE, fully protected for shipment.
 6. One reproducible print of approved or disapproved shop drawings will be forwarded to Contractor.
 7. When work is directly related and involves more than one trade, shop drawings shall be submitted to Engineer under one cover.
- 1-10. Samples, shop drawings, certificates and manufacturers' literature and data, shall be submitted for approval to:

Burns & McDonnell
8201 Norman Center
Suite 300
Bloomington, MN 55437

- 1-11. At the time of transmittal to the Engineer, the Contractor shall also send a copy of the complete submittal and samples directly to the Resident Engineer.

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the requirements for the management of non-hazardous building construction and demolition waste.
- B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, recycled or reused.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:
 - 1. Waste Management Plan development and implementation.
 - 2. Techniques to minimize waste generation.
 - 3. Sorting and separating of waste materials.
 - 4. Salvage of existing materials and items for reuse or resale.
 - 5. Recycling of materials that cannot be reused or sold.

1.2 RELATED WORK

- A. Section 01 00 00, GENERAL REQUIREMENTS.

1.3 QUALITY ASSURANCE

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:
 - 1. Excess or unusable construction materials.
 - 2. Packaging used for construction products.
 - 3. Poor planning and/or layout.
 - 4. Construction error.
 - 5. Over ordering.
 - 6. Weather damage.
 - 7. Contamination.
 - 8. Mishandling.
 - 9. Breakage.
- B. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site

assessment to estimate the types of materials that will be generated by demolition and construction.

- C. Contractor shall develop and implement procedures to recycle construction and demolition waste to the maximum available.
- D. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.
- E. Contractor shall provide all demolition, removal and legal disposal of materials. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations.
- F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.
- G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.
- H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

1.4 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:
- B. Prepare and submit to the Resident Engineer a written demolition debris management plan. The plan shall include, but not be limited to, the following information:
 - 1. Procedures to be used for debris management.
 - 2. Techniques to be used to minimize waste generation.
 - 3. Analysis of the estimated job site waste to be generated:
 - a. List of each material and quantity to be salvaged, reused, recycled.
 - b. List of each material and quantity proposed to be taken to a landfill.
 - 4. Detailed description of the Means/Methods to be used for material handling.

- a. On site: Material separation, storage, protection where applicable.
 - b. Off site: Transportation means and destination. Include list of materials.
 - c. The names and locations of trash disposal landfill facilities or sites.
 - d. Documentation that the facilities or sites are approved to receive the materials.
- C. Designated Manager responsible for instructing personnel, supervising, documenting and administer over meetings relevant to the Waste Management Plan.
- D. Monthly summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal through recycling.

1.5 RECORDS

- A. Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. List of each material and quantity to be salvaged, recycled, reused.
- B. List of each material and quantity proposed to be taken to a landfill.
- C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

PART 3 - EXECUTION

3.1 COLLECTION

- A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.
- B. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

3.2 DISPOSAL

- A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.

- B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

3.3 REPORT

- A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.
- B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed, transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.
- C. Quantify all materials disposed of during the period with the receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, and invoices. Include the net total costs for each disposal.

- - - E N D - - -

SECTION 28 16 00
INTRUSION DETECTION SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide and install complete Intrusion Detection Systems, hereinafter referred to as IDS, for the zones indicated on the drawings and as specified in this section.
- B. This Section includes the following:
 - 1. Intrusion detection with hard-wired, modular, microprocessor-based controls, intrusion sensors and detection devices, and communication links to perform monitoring, alarm, and control functions.

1.2 RELATED WORK

- A. Section 01 00 00 - GENERAL REQUIREMENTS. For General Requirements.
- B. Section 28 26 00 - ELECTRONIC PERSONAL PROTECTION SYSTEM (EPPS). Requirements for emergency and interior communications.

1.3 QUALITY ASSURANCE

- A. The Contractor shall be responsible for providing, installing, and the operation of the IDS as shown. The Contractor shall also provide certification as required.
- B. The security system shall be installed and tested to ensure all components are fully compatible as a system and can be integrated with all associated security subsystems, whether the security system is stand-alone or a part of a complete Information Technology (IT) computer network.
- C. The Contractor or security sub-contractor shall be a licensed security Contractor as required within the state or jurisdiction where the installation work is being conducted.

1.4 DEFINITIONS

- A. Controller: An intelligent peripheral control unit that uses a computer for controlling its operation. Where this term is presented with an initial capital letter, this definition applies.
- B. I/O: Input/Output.

- C. Intrusion Zone: A space or area for which an intrusion must be detected and uniquely identified, the sensor or group of sensors assigned to perform the detection, and any interface equipment between sensors and communication link to central-station control unit.
- D. LED: Light-emitting diode.
- E. NEC: National Electric Code
- F. NEMA: National Electrical Manufacturers Association
- G. NFPA: National Fire Protection Association
- H. NRTL: Nationally Recognized Testing Laboratory.
- I. SMS: Security Management System - A SMS is software that incorporates multiple security subsystems (e.g., physical access control, intrusion detection, closed circuit television, intercom) into a single platform and graphical user interface.
- J. PIR: Passive infrared.
- K. RF: Radio frequency.
- L. Standard Intruder: A person who weighs 45 kg (100 lb.) or less and whose height is 1525 mm (60 in) or less; dressed in a long-sleeved shirt, slacks, and shoes.
- M. Standard-Intruder Movement: Any movement, such as walking, running, crawling, rolling, or jumping, of a "standard intruder" in a protected zone.
- N. TCP/IP: Transport control protocol/Internet protocol incorporated into Microsoft Windows.
- O. UPS: Uninterruptible Power Supply
- P. UTP: Unshielded Twisted Pair

1.5 SUBMITTALS

- A. Submit below items in conjunction with Master Specification Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Provide certificates of compliance with Section 1.3, Quality Assurance.
- C. Provide a shop drawing and as-built design package in both electronic format and on paper, minimum size 22 x 34 inches; drawing submittals shall be per the established project schedule.
- D. Shop drawing and as-built packages shall include, but not be limited to:
 - 1. Index Sheet that shall:

- a. Define each page of the design package to include facility name, building name, floor, and sheet number.
 - b. Provide a list of all security abbreviations and symbols.
 - c. Reference all general notes that are utilized within the design package.
 - d. Specification and scope of work pages for all security systems that are applicable to the design package that will:
 - 1) Outline all general and job specific work required within the design package.
 - 2) Provide a device identification table outlining device Identification (ID) and use for all security systems equipment utilized in the design package.
2. Drawing sheets that will be plotted on the individual floor plans or site plans shall:
- a. Include a title block as defined above.
 - b. Define the drawings scale in both standard and metric measurements.
 - c. Provide device identification and location.
 - d. Address all signal and power conduit runs and sizes that are associated with the design of the electronic security system and other security elements (e.g., barriers, etc.).
 - e. Identify all pull box and conduit locations, sizes, and fill capacities.
 - f. Address all general and drawing specific notes for a particular drawing sheet.
3. A riser drawing for each applicable security subsystem shall:
- a. Indicate the sequence of operation.
 - b. Relationship of integrated components on one diagram.
 - c. Include the number, size, identification, and maximum lengths of interconnecting wires.
 - d. Wire/cable types shall be defined by a wire and cable schedule. The schedule shall utilize a lettering system that will correspond to the wire/cable it represents (example: A = 18 AWG/1 Pair Twisted, Unshielded). This schedule shall also provide the manufacturer's name and part number for the wire/cable being installed.
4. A system drawing for each applicable security system shall:

- a. Identify how all equipment within the system, from main panel to device, shall be laid out and connected.
 - b. Provide full detail of all system components wiring from point-to-point.
 - c. Identify wire types utilized for connection, interconnection with associate security subsystems.
 - d. Show device locations that correspond to the floor plans.
 - e. All general and drawing specific notes shall be included with the system drawings.
5. A schedule for all of the applicable security subsystems shall be included. All schedules shall provide the following information:
- a. Device ID.
 - b. Device Location (e.g. site, building, floor, room number, location, and description).
 - c. Mounting type (e.g. flush, wall, surface, etc.).
 - d. Power supply or circuit breaker and power panel number.
 - e. In addition, for the IDS, provide the sensor ID, sensor type and housing model number.
6. Detail and elevation drawings for all devices that define how they were installed and mounted.
- E. Provide manufacturer security system product cut-sheets. Submit for approval at least 30 days prior to commencement of formal testing, a Security System Operational Test Plan. Include procedures for operational testing of each component and security subsystem, to include performance of an integrated system test.
- F. Submit manufacture's certification of Underwriters Laboratories, Inc. (UL) listing as specified. Provide all maintenance and operating manuals per the VA General Requirements, Section 01 00 00, GENERAL REQUIREMENTS.

1.6 APPLICABLE PUBLICATIONS

- A. The publications listed below (including amendments, addenda, revisions, supplement, and errata) form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American National Standards Institute (ANSI)/Security Industry Association (SIA):

- PIR-01-00.....Passive Infrared Motion Detector Standard -
Features for Enhancing False Alarm Immunity
- CP-01-00.....Control Panel Standard-Features for False Alarm
Reduction
- C. Department of Justice American Disability Act (ADA)
28 CFR Part 36.....2010 ADA Standards for Accessible Design
- D. Federal Communications Commission (FCC):
(47 CFR 15) Part 15.....Limitations on the Use of Wireless
Equipment/Systems
- E. National Electrical Manufacturers Association (NEMA):
250-08.....Enclosures for Electrical Equipment (1000 Volts
Maximum)
- F. National Fire Protection Association (NFPA):
70-11.....National Electrical Code
731-08.....Standards for the Installation of Electric
Premises Security Systems
- G. Underwriters Laboratories, Inc. (UL):
464-09.....Audible Signal Appliances
609-96.....Local Burglar Alarm Units and Systems
634-07.....Standards for Connectors with Burglar-Alarm
Systems
639-07.....Standards for Intrusion Detection Units
1037-09.....Standard for Anti-theft Alarms and Devices
1635-10.....Digital Alarm Communicator System Units
- H. Uniform Federal Accessibility Standards (UFAS), 19841.

1.7 COORDINATION

- A. Coordinate arrangement, mounting, and support of intrusion detection system equipment:
1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 3. To allow right of way for piping and conduit installed at required slope.

4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- C. Coordinate location of access panels and doors for electronic safety and security items that are behind finished surfaces or otherwise concealed.

1.8 EQUIPMENT AND MATERIALS

A. General

1. All equipment associated within the IDS shall be rated for continuous operation. Environmental conditions (i.e. temperature, humidity, wind, and seismic activity) shall be taken under consideration at each facility and site location prior to installation of the equipment.
2. All equipment shall operate on a 120 volts alternating current (VAC); 60 Hz AC power system unless documented otherwise in subsequent sections listed within this specification.
3. The system shall be designed, installed, and programmed in a manner that will allow for ease of operation, programming, servicing, maintenance, testing, and upgrading of the system.
4. All equipment and materials for the system will be compatible to ensure functional operation in accordance with requirements.

1.9 WARRANTY OF CONSTRUCTION.

- A. Warrant IDS work subject to the Article "Warranty of Construction" of FAR 52.246-21.
- B. Demonstration and training shall be performed prior to system acceptance.

PART 2 - PRODUCTS

2.1 FUNCTIONAL DESCRIPTION OF SYSTEM

- A. Supervision: System components shall be continuously monitored for normal, alarm, supervisory, and trouble conditions. Indicate deviations from normal conditions at any location in system. Indication includes identification of device or circuit in which deviation has occurred and whether deviation is an alarm or malfunction.
 - 1. Alarm Signal: Display at central-station control unit and actuate audible and visual alarm devices.
 - 2. Trouble Condition Signal: Distinct from other signals, indicating that system is not fully functional. Trouble signal shall indicate system problems such as battery failure, open or shorted transmission line conductors, or controller failure.
 - 3. Supervisory Condition Signal: Distinct from other signals, indicating an abnormal condition as specified for the particular device or controller.
- B. System Control: Central-station control unit shall directly monitor intrusion detection units and connecting wiring.
- C. System shall automatically reboot program without error or loss of status or alarm data after any system disturbance.
- D. Operator Commands:
 - 1. Help with System Operation: Display all commands available to operator. Help command, followed by a specific command, shall produce a short explanation of the purpose, use, and system reaction to that command.
 - 2. Acknowledge Alarm: To indicate that alarm message has been observed by operator.
 - 3. Place Protected Zone in Access: Disable all intrusion-alarm circuits of a specific protected zone. Tamper circuits may not be disabled by operator.
 - 4. Place Protected Zone in Secure: Activate all intrusion-alarm circuits of a protected zone.
 - 5. Protected Zone Test: Initiate operational test of a specific protected zone.
 - 6. System Test: Initiate system-wide operational test.

7. Print Reports.

- E. Timed Control at Central-Station Control Unit: Allow automatically timed "secure" and "access" functions of selected protected zones.
- F. Response Time: 2 seconds between actuation of any alarm and its indication at central-station control unit.
- G. Circuit Supervision: Supervise all signal and data transmission lines, links with other systems, and sensors from central-station control unit. Indicate circuit and detection device faults with both protected zone and trouble signals, sound a distinctive audible tone, and illuminate an LED. Maximum permissible elapsed time between occurrence of a trouble condition and indication at central-station control unit is 20 seconds. Initiate an alarm in response to opening, closing, shorting, or grounding of a signal or data transmission line.
- H. Manual Secure-Access Control: Coded entries at manual stations shall change status of associated protected zone between secure and access conditions.

2.2 SYSTEM COMPONENT REQUIREMENTS

- A. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor entry connection to components.
- B. Interference Protection: Components shall be unaffected by radiated RFI and electrical induction of 15 V/m over a frequency range of 10 to 10,000 MHz and conducted interference signals up to 0.25-V RMS injected into power supply lines at 10 to 10,000 MHz.
- C. Tamper Protection: Tamper switches on detection devices, controllers, annunciators, pull boxes, junction boxes, cabinets, and other system components shall initiate a tamper-alarm signal when unit is opened or partially disassembled and when entering conductors are cut or disconnected. Central-station control-unit alarm display shall identify tamper alarms and indicate locations.
- E. Self-Testing Devices: Automatically test themselves periodically, but not less than once per hour, to verify normal device functioning and alarm initiation capability. Devices transmit test failure to central-station control unit.

- F. Anti-masking Devices: Automatically check operation continuously or at intervals of a minute or less, and use signal-processing logic to detect blocking, masking, jamming, tampering, or other operational dysfunction. Devices transmit detection of operational dysfunction to central-station control unit as an alarm signal.
- G. Addressable Devices: Transmitter and receivers shall communicate unique device identification and status reports to central-station control unit.

2.3 ENCLOSURES

- A. Interior Sensors: Enclosures that protect against dust, falling dirt, and dripping noncorrosive liquids.
- B. Interior Electronics: NEMA 250, Type 12.

2.5 EQUIPMENT ITEMS

- A. General:
 - 1. All requirements listed below are the minimum specifications that need to be met in order to comply with the IDS.
 - 2. All IDS sensors shall conform to UL 639, Intrusion Detection Standard.
 - 3. IDS Components: The IDS shall consist of, but not be limited to, the following components:
 - a. Keypad / Control Panel
 - b. Interior Detection Devices (Sensors)
 - c. Power Supply
 - d. Enclosures

2.6 KEYPAD / CONTROL PANEL

- A. The Control panel shall be the main point of programming, monitoring, accessing, securing, and troubleshooting the IDS. Refer to American National Standards Institute (ANSI) CP-01 Control Panel Standard-Features for False Alarm Reduction.
- B. The Control Panel shall provide a means of reporting alarms to an Physical Access Control System and Database Management via a computer interface or direct connection to an alarm control monitoring panel.
- C. The Control panel shall utilize a Multifunctional Keypad, Input and Output Modules for expansion of alarm zones, interfacing with

additional security subsystems, programming, monitoring and controlling the IDS.

- D. The Control panel shall meet or exceed the following minimum functional requirements for programming outputs, system response, and user interface:

1. Programming Outputs:

- a. 2 Amps alarm power at 12 VDC
- b. 1.4 Amps auxiliary power at 12 VDC
- c. Four alarm output patterns
- d. Programmable bell test
- e. Programmable bell shut-off timer

2. System Response:

- a. Selectable point response time
- b. Cross point capability
- c. Alarm verification
- d. Watch mode
- e. Scheduled events arm, disarm, bypass and un-bypass points, control relays, and control authority levels

3. User Interface:

- a. Supervises up to eight command points (e.g. Up to 16 unsupervised keypads can be used)
- b. Provides custom keypad text
- c. Addresses full-function command menu including custom functions
- d. Allows user authority by defined area and 16-character name
- e. Provides for 14 custom authority control levels allowing user's authority to change, add, delete pass codes, disarm, bypass points, and start system tests.

4. A multifunctional keypad shall be utilized as a user interface for arming, disarming, monitoring, troubleshooting, and programming the alarm control panel.

- F. Keypads shall have the following features:

- 1. Multiple function keypads suitable for remote mounting, no greater than 1333 m (4000 ft), shall be provided from the control panel and have a light emitting diode (LED) readout of alarm and trouble conditions by zone.
- 2. An alphanumeric English language display, with keypad programmability, and EE-PROM memory, shall also be provided.

3. Trouble alarm indicators shall be distinguishable from intrusion alarms.
4. A minimum of two (2) zones selectable as entry and exit with programmable time delay.
5. Complete system test activated capability at the keypad.
6. Capability for opening and closing reports to a remote monitoring location.
7. Adjustable entry and exit delay times.
8. Capability for a minimum of two (2) multiple function keypads.
9. Capability to shunt or bypass selected interior zones while arming perimeter protection and remaining interior zones.
10. Capability for a minimum of seven assignable pass-codes that are keypad programmable from a suppressed master code.
11. The control panel shall have a communications port that will allow for communications with a computer for programming, monitoring, and troubleshooting purposes. The communications port will be, at a minimum, and RJ-11 or better.
12. The control panel will have a systems success probability of 95% or better, and shall include the following success considerations:
 - a. False Alarm: Shall not exceed one (1) false alarm per 30 days per sensor zone.
 - b. Nuisance Alarm: Shall not exceed a rate of one (1) alarm per seven (7) days per zone within the first 60 days after installation and acceptance. Sensor adjustments will be made and then shall not exceed one (1) alarm per 30 days.
13. The Control Panel will be able to detect either a line fault or power loss for all supervised data cables.
 - a. Line Fault Detection: Communication links of the IDS shall have an active mode for line fault detection. Fault isolation at the systems level shall have the same geographic resolutions as provided for intrusion detection. The line fault alarm shall be clearly distinguishable from other alarms.
 - b. Power Loss Detection: Provide the capability to detect when critical components experience temporary or permanent loss of power and annunciate to clearly identify the component experiencing power loss.

2.7 INTERIOR DETECTION DEVICES (SENSORS)

- A. The IDS shall consist of interior detection devices that are capable of:
1. Locating intrusions at individually protected asset areas or at an individual portal;
 2. Locating intrusions within a specific area of coverage;
 3. Locating failures or tampering of individual sensors or components.
- B. Provide and adjust for devices so that coverage is maximized in the space or area it is installed in. For large rooms where multiple devices are required, ensure device coverage is overlapping.
- C. Detection sensitivity shall be set up to ensure maximum coverage of the secure area is obtained while at the same time limiting excessive false alarms due to the environment and impact of small animals. All detection devices shall be anti-masking with exception of video motion detection.
- D. Dual sensor technology shall be used when possible. Sensor technology shall not be of the same type that is easily defeated by a single method. This will reduce the amount of false alarms.
- E. Interior Environmental Conditions: Systems shall be able to operate in environmentally protected interior areas and shall meet operational performance requirements for the following ambient conditions:
1. If components are installed in unheated areas they shall be able to operate in temperatures as low as -17 C (0 F);
 2. Interior Sensor Environmental Characteristics:

Temperatures	0 to 50 C (32F to 120 F)
Pressure	Sea Level to 4573m (15,000 ft.) above sea level
Humidity	5% - 95%
Fungus	Components of non-fungus nutrient materials
Acoustical Noise	Suitable for high noise environments above 100db

- F. Passive Infrared Motion Sensors (PIR)
1. These sensors shall detect an intruder presence by monitoring the level of infrared energy emitted by objects within a protected zone

and meet ANSI PIR-01 Passive Infrared Motion Detector Standards Features for Enhancing False Alarm Immunity. An alarm shall be initiated when motion and temperature changes within set patterns are detected as follows.

2. The detector shall provide multiple detection zones distributed at a variety of angles and distance.
3. Sensors shall be passive in nature; no transmitted energy shall be required for detection.
4. Sensors shall be sensitive to infrared energy emitted at wavelengths corresponding to human body and other objects at ambient temperatures.
5. Sensors shall not alarm in response to general area thermal variations and shall be immune to radio frequency interference.
6. Sensors shall not be susceptible to changes in temperature due to an air conditioner being turned on or off.
7. Sensors shall be housed in a tamper-alarmed enclosure.
8. Sensor detectors shall include motion analyzer processing, adjustable lens, and walk test LED's visible from any angle.
9. Sensors shall provide some means of indicating an alarm condition during installation and calibration. A means of disabling the indication shall be provided within the sensor enclosure.
10. Sensor detectors shall include a motion monitoring verification circuit that will signal trouble or alarm if the detector fails to detect motion for an extended period.
11. PIR Technical Characteristics:

Power	Six (6) - 12 VDC 25 mA continuous current draw 38 mA peaks
Alarm Velocity	1500 mm (Five (5) ft.) at a velocity of 30 mm (0.1 ft.) per second, and one (1) step per second, assuming 150 mm (6 in.) per step. Also, faster than 30 mm (1 foot) per second, up to 3000 mm (10 feet) per second
Maximum detection range	10.6 m (35 ft.)
Frequency range- non activation or setup	26 to 950 MHz using a 50 watt transmitter located 1 ft. from the

use	unit or attached wiring
Infrared detection	1 1/2°C (3°F) different from the background temperature
Detection Pattern	180 degrees for volumetric units, non PIR 360
PIR 360°Detection Pattern	Programmable 60 detection zones including one directly below
Mounting	Ceiling and walls
Ceiling heights	2.4 m (Eight (8) ft.) - 5.4 m (18 ft)
Sensitivity adjustments	Three (3) levels

2.8 POWER SUPPLY

- A. A power supply shall only be utilized if the control panel is unable to support the load requirements of the IDS system.
- B. All power supplies shall be UL rated and able to adequately power two entry control devices on a continuous base without failure.
- C. Power supplies shall meet the following minimum technical characteristics:

INPUT POWER	110 VAC 60 HZ 2 amp
OUTPUT VOLTAGE	12 VDC Nominal (13.8 VDC) 24 VDC Nominal (27.6 VDC) Filtered and Regulated
BATTERY	Dependant on Output Voltage shall provide up to [insert number]Ah, rechargeable
OUTPUT CURRENT	4 amp max. @ 13.8 VDC 3 amp max. @ 27.6 VDC
BATTERY FUSE SIZE	3.5 A @ 250 VAC
CHARGING CIRCUIT	Built-in standard

2.9 AUDIBLE AND VISUAL ALARM DEVICES

- A. Strobe: Xenon light complying with UL 1638, with a clear polycarbonate lens.
 - 1. Light Output: 115 cd, minimum.
 - 2. Flash Rate: 60 per minute.

2.10 SECURITY FASTENERS

- A. Security fasteners shall be operable only by tools produced for use on specific type of fastener by fastener manufacturer or other licensed fabricator. Drive system type, head style, material, and protective coating as required for assembly, installation, and strength.
- B. Drive System Types: Pinned Torx or pinned hex (Allen).
- C. Socket Flat Countersunk Head Fasteners:
 - 1. Heat-treated alloy steel, ASTM F 835 (ASTM F 835M).
 - 2. Stainless steel, ASTM F 879 (ASTM F 879M), Group 1 CW.
- D. Socket Button Head Fasteners:
 - 1. Heat-treated alloy steel, ASTM F 835 (ASTM F 835M).
 - 2. Stainless steel, ASTM F 879 (ASTM F 879M), Group 1 CW.
- E. Socket Head Cap Fasteners:
 - 1. Heat-treated alloy steel, ASTM A 574 (ASTM A 574M).
 - 2. Stainless steel, ASTM F 837 (ASTM F 837M), Group 1 CW.
- F. Protective Coatings for Heat-Treated Alloy Steel:
 - 1. Zinc chromate, ASTM F 1135, Grade 3 or 4; for exterior applications and interior applications where indicated.
 - 2. Zinc phosphate with oil, ASTM F 1137, Grade I, or black oxide.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. IDS installation shall be in accordance with Underwriters Laboratories (UL) 639 Standards for Intrusion Detection Units and UL 634 Standards for Connectors with Burglar Alarm Systems, and appropriate manufacture's installation manuals for each type of IDS.
- B. Components shall be configured with appropriate "service points" to pinpoint system trouble in less than 30 minutes.
- C. The Contractor shall install all system components including VA furnished equipment, and appurtenances in accordance with the manufacturer's instructions and shall furnish all necessary connectors, terminators, interconnections, services, and adjustments required for a complete and operable system.
- D. The IDS will be designed, engineered, installed, and tested to ensure all components are fully compatible as a system and can be integrated

with all associated security subsystems, whether the system is a stand alone or designed as a computer network.

- E. The IDS shall be able to be integrated with other security subsystems. Integration with these security subsystems shall be achieved by computer programming and the direct hardwiring of the systems. Determination for methodology shall be outlined when the system(s) is/are being designed and engineered. For installation purposes, the IDS shall utilize an output module for integration with other security subsystems. The Contractor will ensure all connections are per the OEM and that any and all software upgrades required to integrate the systems are installed prior to system start-up.
- F. For programming purposes, the Contractor shall refer to the manufacturer's requirements and Contracting Officer instructions for correct system operations. This includes ensuring computers being utilized for system integration meet or exceeds the minimum system requirements outlined in the IDS software packages.
- G. Lightning and power surges to the central alarm reporting and display unit shall be protected at both ends against excessive voltages. This requirement shall apply for circuits that are routed both in underground conduits and overhead runs.
- H. At a minimum, the Contractor shall install primary detection devices, such as three electrode gas-type surge arresters, and secondary protectors to reduce dangerous voltages to levels that will cause no damage. Fuses shall not be permitted as protection devices.
- I. The Contractor shall provide fail-safe gas tube type surge arresters on exposed IDS data circuits. In addition, transient protection shall protect against spikes up to 1000 volts peak voltage with a one-microsecond rise time and 100-microsecond decay time, without causing false alarms. The protective device shall be automatic and self-restoring. Also, circuits shall be designed or selected assuming a maximum of 25 ohms to ground.
- J. Product Delivery, Storage and Handling:
1. Delivery: Deliver materials to the job site in OEM's original unopened containers, clearly labeled with the OEM's name, equipment model and serial identification numbers, and UL logo. The Contracting Officer may inventory the IDS equipment at the time of delivery and reject items that do not conform to this requirement.

2. Storage and Handling: Store and protect equipment in a manner that will preclude damage as directed by the Contracting Officer.

K. Cleaning and Adjustments:

1. Cleaning: Subsequent to installation, clean each system component of dust, dirt, grease, or oil incurred during installation in accordance to manufacture instructions.
2. Prepare for system activation by following manufacturer's recommended procedures for adjustment, alignment, or synchronization. Prepare each component in accordance with appropriate provisions of the component's installation, operations, and maintenance instructions.

L. Tamper Switches

1. Install tamper switches to initiate an alarm signal when a panel, box, or component housing door or cover is moved as little as 6.35 mm (1/4 inch) from the normally closed position unless otherwise specified.
2. Locate tamper switches within enclosures, cabinets, housings, boxes, raceways, and fittings to prevent direct line of sight to any internal components and to prevent tampering with switch or circuitry.
3. Conceal tamper switch mounting hardware so that the location of the switch within the enclosure cannot be determined from the exterior.

3.2 WIRING INSTALLATION

- A. Wiring Method: Install wiring in raceways except in accessible indoor ceiling spaces and in interior hollow gypsum board partitions where cable may be used. Conceal raceways and wiring except in unfinished spaces and as indicated. Minimum conduit size shall be 3/4 inch (20 mm). Control and data transmission wiring shall not share conduit with other building wiring systems.
- B. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points. Use lacing bars and distribution spools. Separate power-limited and non-power-limited conductors as recommended in writing by manufacturer. Install conductors parallel with or at right angles to sides and back of enclosure. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with intrusion system to terminal blocks. Mark each terminal according to

system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

C. Wires and Cables:

1. Conductors: Size as recommended in writing by system manufacturer, unless otherwise indicated.
2. Control and Signal Transmission Conductors: Install unshielded, twisted-pair cable, unless otherwise indicated or if manufacturer recommends shielded cable.

D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

E. Install power supplies and other auxiliary components for detection devices at controllers, unless otherwise indicated or required by manufacturer. Do not install such items near devices they serve.

F. Identify components with engraved, laminated-plastic or metal nameplate for central-station control unit and each terminal cabinet, mounted with corrosion-resistant screws.

3.3 GROUNDING

A. Ground system components and conductor and cable shields to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

B. Signal Ground Terminal: Locate at main equipment rack or cabinet. Isolate from power system and equipment grounding. Provide [5] <Insert selected maximum value>-ohm ground. Measure, record, and report ground resistance.

C. Install grounding electrodes of type, size, location, and quantity indicated.

3.4 STARTUP AND TESTING

A. Coordinate the startup and contractor testing schedules with the Resident Engineer and Owners' Engineer. Provide a minimum of 7 days prior notice.

3.5 TESTS AND TRAINING

A. All testing and training shall be compliant with the VA General Requirements, Section 01 00 00, GENERAL REQUIREMENTS.

- B. Provide services of manufacturer's technical representative for [8]
hours to instruct VA personnel in operation and maintenance of units.

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SECTION 28 26 00
ELECTRONIC PERSONAL PROTECTION SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide and install a complete wireless Duress-Panic Alarm System with associated low-voltage power wiring, wireless components, and system equipment and software, hereafter referred to as the EPPS System.

1.2 RELATED WORK

- A. Section 01 00 00 - GENERAL REQUIREMENTS. For General Requirements.
- B. Section 28 16 00 - INTRUSION DETECTION SYSTEM. Requirements for integration with intrusion detection system.

1.3 QUALITY ASSURANCE

- A. The Contractor shall be responsible for providing, installing, and the operation of the EPPS System as shown. The Contractor shall also provide certification as required.
- B. The system shall be installed and tested to ensure all components are fully compatible as a system and can be integrated with all associated security subsystems, whether the security system is stand-alone or a part of a complete Information Technology (IT) computer network.
- C. The Contractor or security sub-contractor shall be a licensed security Contractor as required within the state or jurisdiction of where the installation work is being conducted.
- D. Manufacturers Qualifications: The manufacturer shall regularly and presently produce, as one of the manufacturer's principal products, the equipment and material specified for this project, and shall have manufactured the item for at least three years.
- E. Product Qualification:
 - 1. Manufacturer's product shall have been in satisfactory operation, on three installations of similar size and type as this project, for approximately three years.
 - 2. The Government reserves the right to require the Contractor to submit a list of installations where the products have been in operation before approval.
- F. Contractor Qualification:

1. The Contractor or security sub-contractor shall be a licensed security Contractor with a minimum of five (5) years of experience installing and servicing systems of similar scope and complexity. The Contractor shall provide copies of system manufacturer certification for all technicians. The Contractor shall only utilize factory-trained technicians to install, program, and service the EPPS. The Contractor shall have a local service facility. The facility shall be located within 90 miles of the project site. The local facility shall include sufficient spare parts inventory to support the service requirements associated with this contract. The facility shall also include appropriate diagnostic equipment to perform diagnostic procedures.
2. Service Qualifications: There shall be a permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within eight hours of receipt of notification that service is needed. Submit name and address of service organizations.

1.4 SUBMITALS

- A. Submit below items in accordance with Sections 01 33 23, SHOP DRAWING, PRODUCT DATA, AND SAMPLES.
- B. Provide certificates of compliance with Section 1.3, Quality Assurance.
- C. Provide a pre-installation and as-built design package in both electronic format and on paper, minimum size 22 x 34 inches; drawing submittals shall be per the established project schedule.
- D. Shop drawings and as-built packages shall include, but not be limited to:
 1. Index Sheet that shall:
 - a. Define each page of the design package to include facility name, building name, floor, and sheet number.
 - b. Provide a list of all security abbreviations and symbols.
 - c. Reference all general notes that are utilized within the design package.
 2. Drawing sheets that will be plotted on the individual floor plans or site plans shall:
 - a. Include a title block as defined above.

- b. Define the drawings scale in both standard and metric measurements.
 - c. Provide device identification and location.
 - d. Address all signal and power conduit runs and sizes that are associated with the design of the electronic security system and other security elements (e.g., barriers, etc.).
 - e. Identify all pull box and conduit locations, sizes, and fill capacities.
 - f. Address all general and drawing specific notes for a particular drawing sheet.
3. A riser drawing for each applicable security subsystem shall:
- a. Indicate the sequence of operation.
 - b. Relationship of integrated components on one diagram.
 - c. Include the number, size, identification, and maximum lengths of interconnecting wires.
 - d. Wire/cable types shall be defined by a wire and cable schedule. The schedule shall utilize a lettering system that will correspond to the wire/cable it represents (example: A = 18 AWG/1 Pair Twisted, Unshielded). This schedule shall also provide the manufacturer's name and part number for the wire/cable being installed.
4. A system drawing for each applicable security system shall:
- a. Identify how all equipment within the system, from main panel to device, shall be laid out and connected.
 - b. Provide full detail of all system components wiring from point-to-point.
 - c. Identify wire types utilized for connection, interconnection with associate security subsystems.
 - d. Show device locations that correspond to the floor plans.
 - e. All general and drawing specific notes shall be included with the system drawings.
5. A schedule for all of the applicable security subsystems shall be included. All schedules shall provide the following information:
- a. Device ID.
 - b. Device Location (e.g. site, building, floor, room number, location, and description).
 - c. Mounting type (e.g. flush, wall, surface, etc.).

- d. Power supply or circuit breaker and power panel number.
- 6. Detail and elevation drawings for all devices that define how they were installed and mounted.
- E. Provide manufacturer security system product cut-sheets. Submit for approval at least 30 days prior to commencement of formal testing, a Security System Operational Test Plan. Include procedures for operational testing of each component and security subsystem, to include performance of an integrated system test.
- G. Submit manufacture's certification of Underwriters Laboratories, Inc. (UL) listing as specified. Provide all maintenance and operating manuals per the VA General Requirements, Section 01 00 00, GENERAL REQUIREMENTS.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below (including amendments, addenda, revisions, supplement, and errata) form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American National Standards Institute (ANSI):
ANSI S3.2-09.....Method for measuring the Intelligibility of
Speech over Communications Systems
- C. Department of Justice American Disability Act (ADA)
28 CFR Part 36.....2010 ADA Standards for Accessible Design
- D. Federal Communications Commission (FCC):
(47 CFR 15) Part 15.....Limitations on the Use of Wireless
Equipment/Systems
- E. National Fire Protection Association (NFPA):
70-11.....National Electrical Code
- F. National Electrical Manufacturers Association (NEMA)
250-08.....Enclosures for Electrical Equipment (1000 Volts
Maximum)
- G. Underwriters Laboratories, Inc. (UL):
305-08.....Standard for Panic Hardware
444-08.....Safety Communications Cables
636-01.....Standard for Holdup Alarm Units and Systems
- H. Uniform Federal Accessibility Standards (UFAS), 1984

1.6 COORDINATION

- A. Coordinate arrangement, mounting, and support of electronic safety and security equipment:
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices.

1.7 MAINTENANCE & SERVICE

- A. General Requirements
 - 1. The Contractor shall provide all services required and equipment necessary to maintain the entire integrated electronic security system in an operational state as specified for a period of one (1) year after formal written acceptance of the system. The Contractor shall provide all necessary material required for performing scheduled adjustments or other non-scheduled work. Impacts on facility operations shall be minimized when performing scheduled adjustments or other non-scheduled work. See also General Project Requirements.
- B. Description of Work
 - 1. The adjustment and repair of the security system includes all software updates, panel firmware, and signal transmission equipment.
- C. Personnel
 - 1. Service personnel shall be certified in the maintenance and repair of the selected type of equipment and qualified to accomplish all work promptly and satisfactorily. The COTR shall be advised in writing of the name of the designated service representative, and of any change in personnel. The COTR shall be provided copies of system manufacturer certification for the designated service representative.
- D. Schedule of Work

1. The work shall be performed during regular working ours, Monday through Friday, excluding federal holidays. These inspections shall include:
 - a. The Contractor shall perform two (2) minor inspections at six (6) month intervals or more if required by the manufacturer, and two (2) major inspections offset equally between the minor inspections to effect quarterly inspection of alternating magnitude.
 - 1) Minor Inspections shall include visual checks and operational tests of all head-end monitoring equipment and controls.
 - 2) Major Inspections shall include all work described for Minor Inspections and the following: clean all system equipment; perform diagnostics on all equipment; operational tests of the server, peripheral equipment, run all system software diagnostics and correct all problems; and resolve any previous outstanding problems.

E. Emergency Service

1. The owner shall initiate service calls whenever the system is not functioning properly. The Contractor shall provide the Owner with an emergency service center telephone number. The emergency service center shall be staffed 24 hours a day 365 days a year. The Owner shall have sole authority for determining catastrophic and non-catastrophic system failures within parameters stated in General Project Requirements.
 - a. For catastrophic system failures, the Contractor shall provide same day four (4) hour service response with a defect correction time not to exceed eight (8) hours from [notification] [arrival on site]. Catastrophic system failures are defined as any system failure that the Owner determines will place the facility(s) at increased risk.
 - b. For non-catastrophic failures, the Contractor within eight (8) hours with a defect correction time not to exceed 24 hours from notification.

F. Operation

1. Performance of scheduled adjustments and repair shall verify operation of the system as demonstrated by the applicable portions of the performance verification test.

G. Records & Logs

1. The Contractor shall maintain records and logs of each task and organize cumulative records for each component and for the complete system chronologically. A continuous log shall be submitted for all devices. The log shall contain all initial settings, calibration, repair, and programming data. Complete logs shall be maintained and available for inspection on site, demonstrating planned and systematic adjustments and repairs have been accomplished for the system.

H. Work Request

1. The Contractor shall separately record each service call request, as received. The record shall include the serial number identifying the component involved, its location, date and time the call was received, specific nature of trouble, names of service personnel assigned to the task, instructions describing the action taken, the amount and nature of the materials used, and the date and time of commencement and completion. The Contractor shall deliver a record of the work performed within five (5) working days after the work was completed.

I. System Modifications

1. The Contractor shall make any recommendations for system modification in writing to the COTR. No system modifications, including operating parameters and control settings, shall be made without prior written approval from the COTR. Any modifications made to the system shall be incorporated into the operation and maintenance manuals and other documentation affected.

J. Software

1. The Contractor shall provide all software updates when approved by the Owner from the manufacturer during the installation and 12-month warranty period and verify operation of the system. These updates shall be accomplished in a timely manner, fully coordinated with the system operators, and incorporated into the operations and maintenance manuals and software documentation. There shall be at least one (1) scheduled update near the end of the first year's warranty period, at which time the Contractor shall install and validate the latest released version of the Manufacturer's software. All software changes shall be recorded in a log. An electronic copy

of the software update shall be maintained within the log. At a minimum, the contractor shall provide a description of the modification, when the modification occurred, and name and contact information of the individual performing the modification. The log shall be maintained in a white 3 ring binder and the cover marked "PANIC SYSTEM SOFTWARE CHANGE LOG".

1.8 WARRANTY OF CONSTRUCTION.

- A. Warrant EPPS System work subject to the Article "Warranty of Construction" of FAR clause 52.246-21.
- B. Demonstration and training shall be performed prior to system acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirement, provide systems from the following manufacturers:
 - 1. Lynx by Micro Technology Services, Inc.
 - 2. Prior Approved Equal

2.2 EQUIPMENT AND MATERIALS

- A. General:
 - 1. All equipment shall be rated for continuous operation. Environmental conditions (i.e. temperature, humidity, wind, and seismic activity) shall be taken under consideration at each facility and site location prior to installation of the equipment.
 - 2. All line voltage equipment shall operate on a 120 volts alternating current (VAC); 60 Hz Alternating Current (AC) power system unless documented otherwise in subsequent sections listed within this spec.
 - 3. The EPPS systems shall be designed, installed, and programmed in a manner that will allow for ease of operation, programming, servicing, maintenance, testing, and upgrading of the system.
 - 4. The Contractor shall provide the Contracting Officer with written verification, that the type of wire/cable being provided is recommended and approved by the OEM. Cabling shall meet the interconnecting wiring requirements of NFPA 70, National Electrical

- Code. The Contractor is responsible for providing the correct protection cable duct and/or conduit and wiring.
5. When interfacing with other communications or security subsystems the Contractor shall utilize interfacing methods that are approved by the Contracting Officer. At a minimum, an acceptable interfacing method requires not only a physical and mechanical connection; but also a matching of signal, voltage, and processing levels with regard to signal quality and impedance. The interface point must adhere to all standards described herein.
 6. Systems shall be scalable and allow expansion as required.
 7. Wireless systems shall use radio frequency waves to link distributed transmitters and receivers. Specific characteristics of particular facility will determine best application. Contractor is responsible for determining best system using prediction program to determine where readable signals can be obtained and identify "dead spots".
 9. All hardwired alarms, switches, and junction boxes shall be protected from tampering and include line supervision.

2.3 EQUIPMENT ITEMS

- A. All systems shall be designed to provide continuous electrical supervision of the complete and entire system including wired electrical connections as well as wireless devices for battery failure.
- B. Wireless Fixed Duress-Panic Alarms:
 1. The indoor wall mounted wireless button shall be 5" high, 4.5" wide, and 3.3" deep, constructed of rugged ABS plastic, white in color with red pushbutton. Housing shall include text above the button, "DURESS". Button instantly sends a wireless alert to the Panic System when activated. Button is battery powered and shall have a monthly test feature built in. Button shall be LYNX-WLT-IDPNC-1 or prior approved equal. Provide button with integral cover in hospital and mental health areas or where indicated on the drawings. Button with cover shall be LYNX-WLT-IDPNC-2.
- C. Personal mobile Duress-Panic Alarm:
 1. The personal mobile type Panic Alarm unit shall include a single button enclosure with belt clip to allow for personal mobile buttons that wirelessly communicate with the same Panic Alarm receiver system as the fixed buttons and provide location information to

security personnel via the system annunciation locations. Buttons shall have a monthly test feature built in. Mobile personal button shall be LYNX-WLT-PANIC-A or prior approved equal.

D. PC-Keyboard Based Panic Alarm:

1. Panic System shall include client software that shall be installed on any Owner provided PC or MAC workstation to implement software based panic buttons. Software shall include software desktop icons for interfacing with the system. The system shall include keyboard panic buttons that can operate when the workstation user is logged on or logged off. Keyboard panic buttons shall include a monthly test feature. PC-Keyboard Based Panic Alarm shall be LynxKeyPro or prior approved equal.
2. Contractor shall install keyboard labels on two keys of each workstation keyboard indicated. The Owner shall select the specific two-button keys that shall be programmed into the system. Keyboard panic buttons shall communicate with the system Server and shall require a software license per workstation.
3. Contractor shall install CPU labels on each CPU that receives Panic Alarm keyboard labels.
4. System shall also be capable of sending out messages to computer workstations, email, groups of cellular phones, numeric pagers, and text-based pagers when security or safety issues occur with one activation of the software function.

E. USB Panic Buttons

1. USB Panic Buttons shall use the same software interface as the keyboard panic buttons but shall be a desk mounted locking button connected to the local PC USB jack. This button shall be used where indicated when the PC keyboard is not a convenient method for pressing a panic alarm. USB Panic buttons shall be LYNX-USB-L.

F. Wireless Locating System Receivers

1. The wireless panic alarm locating system shall use ceiling or wall mounted receivers able to triangulate the location of the wireless button using the repeater network data and sends the location information with the alarm to the Panic Alarm server via the local area network (LAN). Provide LYNX-WLS-3 or prior approved equal.

2.4 PANIC ALARM SERVER AND SOFTWARE

A. Server

1. The system Server shall be a Dell PowerEdge R420 hardware platform, 1 rack-unit high rack mount enclosure pre-configured with Panic Alarm software. Server shall include a dual-quad core processor and 8 GB of RAM. Storage shall be RAID 5 SAS array of hot-swappable hard disk drives. Each of the (3) hard drives shall include 72 GB of storage. Server shall include dual redundant power supplies. Server shall include Windows 7 Server operating system and include a 3-year warranty. Server shall be LYNX-G-DR-1 or prior approved equal configured for 5,000 client seats.

B. Software

1. Server software shall be LynxGuide Pro Series software or prior approved equal configured for 5,000 seats. Software shall include SNPP text messaging server for mobile pagers and SMTP email server for batch email message processing.

C. Radio System Interface

1. Radio interface shall allow the Panic System software to annunciate alarm building and room number location information over the Owners' existing radio system. Interface shall be LYNX-CTNL-1.

D. SMS Text Messaging system

1. Test messaging system allows the Panic System to send large scale SMS message to cellular phones. 12-month subscription is required. Provide LYNX-SMS10K or prior approved equal. Include first year subscription costs.

E. Paging System Interface

1. Paging system interface provides a line-level output to allow server to stream wave files or text-to-speech alarm location information over the Owners' existing paging system. System shall be configured for a zone per building. Provide LYNX-PA-3 or prior approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. System installation shall be installed in accordance with NFPA 731 Standards for the Installation of Electric Premises Security Systems and appropriate installation manual for each type of subsystem designed, engineered, and installed.
- B. The location and type of duress button to be installed will be as shown on the drawings.
- C. Wall mounted stations shall be mounted to meet UFAS/ADA requirements and use tamper proof bolts and screws. Testing will be finished before installation of fasteners.
- D. Cleaning: Subsequent to installation, clean each system component of dust, dirt, grease, or oil incurred during installation in accordance to manufacture instructions.
- E. Adjustment/Alignment/Synchronization: Contractor shall prepare for system activation by following manufacturer's recommended procedures for adjustment, alignment, or programming. Prepare each component in accordance with appropriate provisions of the component's installation, operations, and maintenance instructions.

3.2 WIRELINE DATA TRANSMISSION

- A. Installation: The Contractor shall install all system components including Owner furnished equipment, and appurtenances in accordance with the manufacturer's instructions, ANSI C2 and as shown, and shall furnish all necessary connectors, terminators, interconnections, services, and adjustments required for a complete and operable data transmission system.
- B. Identification and Labeling: The Contractor shall supply permanent identification labels for each cable at each end that will appear on the as-built drawings. The labeling format shall be identified and a complete record shall be provided to the Owner with the final documentation. Each cable shall be identified by type or signal being carried and termination points. The labels shall be printed on letter size label sheets that are self-laminated vinyl that can be printed from a computer data base or spread sheet. The labels shall be E-Z code WES12112 or equivalent.

- C. The Contractor shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all testing.
- D. Contractor's Field Test: The Contractor shall verify the complete operation of the data transmission system during the Contractor's Field Testing.
- E. Identification and Labeling: The Contractor shall supply identification tags or labels for each cable. Cable shall be labeled at both end points and at intermediate hand holes, manholes, and junction boxes. The labeling format shall be identified and a complete record shall be provided to the Owner with the final documentation. Each cable shall be identified with type of signal being carried and termination points.

3.3 WIRING

- A. Wiring Method: Install cables in raceways except in accessible indoor ceiling spaces, in attics, in hollow gypsum-board partitions, in unfinished spaces, and as otherwise indicated. Conceal raceways and wiring except in unfinished spaces. When raceway is not used provide cable supports rated for the type of cabling used and support from building structure.
- B. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.
- D. Splices, Taps, and Terminations: For power and control wiring, use numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation and supervise pretesting, testing, and adjusting of equipment.

- B. Inspection: Verify that units and controls are properly installed, connected, and labeled, and that interconnecting wires and terminals are identified.
- C. Test Schedule: Schedule tests after pretesting has been successfully completed and system has been in normal functional operation for at least 3 days. Provide a minimum of 5 days' notice of test schedule.
- D. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes.
- E. Remove and replace malfunctioning items and retest as specified above.
- F. Record test results for each piece of equipment.
- G. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

3.5 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions and to optimize performance of the installed equipment. Tasks shall include, but are not limited to, the following:
 - 1. Check cable connections.
 - 2. Check proper operation of all wireless devices and PC-based devices.
 - 3. Provide a written report of adjustments and recommendations.

3.6 CLEANING

- A. Clean installed items using methods and materials recommended in writing by manufacturer.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain electronic personal protection system (EPSS) equipment.
 - 1. Train Owner's maintenance personnel on procedures and schedules for troubleshooting, servicing, and maintaining equipment.
 - 2. Demonstrate methods of determining optimum alignment and adjustment of components and settings for system controls.

3. Review equipment list and data in maintenance manuals.
4. Conduct a minimum of [16] hours' of staff training, and [8] hours of System Administrator training. Coordinate training session location and required personnel with COTR.

3.8 TESTS AND TRAINING

- A. All testing and training shall be compliant with the VA General Requirements, Section 01 00 00, GENERAL REQUIREMENTS.

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